In 1952 Sir Daniele Messa established Mesdan company in Salò - a manufacturing workshop specialized in the production of textile hand knotters. In the 1960’s the company became a qualified mechanical industry under the creative impulse of Sir Daniele Messa’s son, Mr Pietro. During those years MESDAN was also very busy in developing reliable mechanical knotters suitable to meet the needs of the new automatic winding machines. In the 1970’s MESDAN became a consolidated industrial reality of international prestige, and - in 1975 - its corporate structure was changed into a S.p.A. (joint-stock company) corporate form. Meanwhile MESDAN became the leading supplier of knotters to manufacturers of automatic winding machines all over the world. The 1980’s are characterized by the ‘knot free’ yarn joining technology (the so called “splicing” technology), and Mr Renato Zanca (successor to Mr Pietro Messa as Managing Director) led the company to the realisation of an innovative range of splicing devices, soon becoming internationally recognisable thanks to the “JOINTAIR®” and “AQUASPLICER®” trademarks. Mr Zanca also decided to diversify the company activity by entering the business of textile laboratory equipment, to meet the growing demand for Testing and Quality control. In the 1990’s MESDAN became established in the field of Laboratory equipment, and made commercial alliances with the most important companies in this sector. After the acquisition of “Osvaldo Fessia’s Omac snc” company - specialized in the production of Lab equipment for the control of yarns and fabrics - MESDAN opened its new division known as MESDAN LAB, and started the production and marketing of a wide range of testing equipment. In 2012 the division expanded further, following the acquisition of the controlling stake in Gavazzi S.r.l., an Italian manufacturer of top quality laboratory dyeing & finishing machines. In 2012 MESDAN celebrated its 60th anniversary, acquired the major stake of “Gavazzi S.r.l.” - a leading company in dyeing & finishing quality control - and launched the new MESDAN DYELAB line. In 2013 MESDAN joined the “Savio” group of companies.

Mesdan Italy has reached a leading position in the field of yarn joining technology in over sixty years of research & development. Nowadays the 100% “knotless” plied yarn concept leads inevitably to Mesdan splicers, which are considered as a point of reference, thanks to their vanguard technology, workmanship quality, performance reliability and consistency. At present the company consists of two different business units: “Mesdan Yarn Joining Solutions”, and “MESDAN LAB” laboratory equipment line.

“Mesdan Yarn Joining Solutions” line includes the complete range of Mesdan splicers - characterized by their registered trademarks: JOINTAIR®, AQUASPLICER®, HOT JOINTAIR®, and MOISTAIR® - which are designed in the automatic version (for automatic winders) and in the semi-automatic version for trackmounted installations (for textile machines, where automatic splicing is not possible).

“MESDAN LAB” laboratory equipment line includes a wide range of instruments, suitable for testing fibers, yarns, fabrics and garments, in both traditional and technical textiles. With over two decades track in the field of testing, “MESDAN LAB” can be considered today one of the leading international manufacturers of laboratory instruments.
“MESDAN LAB” is a division of Mesdan S.p.A. renowned designer of yarn joining solutions.

Mesdan entered the textile laboratory business in the early nineties, to meet the growing demand in the market for quality control assurance with the acquisition of “OMAC snc”, a company located in Biella (Northern Italy) specialised in the production of testing equipment. Since then MESDAN has designed a complete range of equipment for the analysis of textile materials (fibres, yarns, traditional and technical fabrics), nonwoven, leather, etc., in compliance with International Standards.

“MESDAN LAB” instruments stand out for their industrial design and sound quality that guarantee accurate performances in the long run. The “MESDAN LAB” line is produced with particular attention to the environment, in conformity with the safety standards integrating operator-friendly solutions.

In 2004 Mesdan obtained from Det Norske Veritas (DNV) the certification about Quality and Environmental Management System in conformity to UNI EN ISO 9001 and UNI EN ISO 14001, with validity for design, manufacture and calibration of textile laboratory instruments.

Following the acquisition of “Gavazzi”, a new range of laboratory dyeing equipment called MESDAN DYELAB SYSTEMS was launched. This range is distinguished for its outstanding workmanship, top quality components/materials, unique technological solutions and excellent results in terms of dyeing accuracy and repeatability.

In 2019 Mesdan Lab Service was accredited to “ISO 17025 calibration laboratory” by “Accredia - ILAC”.

OPTIMISE YOUR QUALITY, FROM FIBRES TO FABRICS
This catalogue is composed of 4 thematic sections illustrating the “MESDAN LAB” testing equipment range according to the material to be tested. More detailed information is available in dedicated brochures, which can be downloaded from our website, or obtained from our sales department.

Pictures and information about the instruments are merely indicative. Mesdan S.p.A. reserves the right to modify these specifications at any time, without notice.

**A-Z**

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Leading supplier of quality control laboratory equipment for physical testing, colour fastness, dyeing and finishing

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Pressley  Fibre strength  231A

An equipment to determine the resistance of cotton fibres. It is fitted with clamps with 0" and 1/8" distance. The use of Pressley requires a torsion balance with resolution 0.01 mg (code 165.720).

Accessories: calibration cottons (code 199.22).

Reference standards:
ISO 3060, ASTM D1445, BS 5116, ASTM D2524

Weight: 3.2 kg
Dimensions: (L) 330 x (W) 100 x (H) 125 mm

Double Comb Sorter  Fibre length  230A

For the production of staple diagrams for short spun fibres up to 100 mm (4") length.

Determination of fibre length or staple diagram is a decisive factor in defining the spinning quality of raw material and for the setting of spinning machinery.

Reference standards:
ISO 920, ASTM D1440, ASTM D1575, IWTO 1-66

Weight: 15 kg
Dimensions: (L) 250 x (W) 150 x (H) 140 mm

Electronic Torsion Balance  165.720

High Quality Electronic Torsion Balance.

Suitable for very small quantity of fibres, bundles, pieces of yarns from fabrics and garments.

For the use of Pressley (Code 231A), Double Comb Sorter (Code 230A), and Fiber Tenso-Lab (Code 331A), this type of balance is needed.

Digital reading.

Weighing capacity: 60 g
Accuracy: 0,00001 g

Power supply: 100 up to 230 Vac, 50/60 Hz, single-phase
Weight: 7.8 kg
Dimensions: (L) 376 x (W) 214 x (H) 316 mm
**Fiber Tenso-Lab**  
Single fibre electronic strength tester suitable for natural and synthetic fibres.
Complete with load cell of 500 cN, 0,5 class accuracy.
Traction speed range from 0,001 to 1000 mm/min.
300 mm stroke.
A "Kit Cotton Fibre Bundle", special 0" and 1/8" clamps for testing cotton fibres, Pressley method, 100 N load cell are available on demand.
RS232 port and software are included (PC is available as optional).
Power supply: 115 V or 230 V, 50/60 Hz, single-phase
Weight: 46 kg
Dimensions: (L) 590 x (W) 450 x (H) 770 mm

**Micronaire**  
Cotton fineness
Device for the control of the cotton fibre fineness.
Measurement from 2.5 to 7 micronaire index.
Calibration chart prepared using USDA cotton references.
Test with 2.5 grams sample.
Complete with electric vacuum-pump generating the air flow.
Non hygroscopic plug for checking instrument.
The use of MICRONAIRE requires an electronic scale with 0.01 g accuracy (Code 165.708).
Reference standards: ISO 2403, ASTM D1448, BS 3181-1
Power supply: 230 Vac, 50 Hz, or 115 Vac, 60 Hz (to be specified at order)
Weight: 26 kg
Dimensions: (L) 240 x (W) 330 x (H) 580 mm

**Air Flow**  
Wool fineness
Device for the control of the wool fibre fineness.
Measurement from 16 to 36 microns.
Test with 2.5 grams sample.
Complete with electric vacuum-pump generating the air flow.
Non hygroscopic plug for checking instrument and correction of reading.
The use of AIR FLOW requires an electronic scale with 0.01 g accuracy (Code 165.708).
Reference standards: ISO 1136, IWTO 6, IWTO 28, ASTM D1282
Power supply: 230 Vac, 50 Hz, or 115 Vac, 60 Hz (to be specified at order)
Weight: 29,5 kg
Dimensions: (L) 240 x (W) 330 x (H) 580 mm
Calibration Cottons

Suitable for the calibration of cotton examination instruments, in accordance with USDA standards.

For calibration of fiber fineness:
- American Upland Micronaire 5.5  
  Code 199.2
- American Upland Micronaire 4.5  
  Code 199.4
- American Upland Micronaire 3.5  
  Code 199.6
- American Upland Micronaire 4  
  Code 199.8
- American Upland Micronaire 2.6  
  Code 199.14
- American Upland Micronaire 5.0  
  Code 199.18

For calibration of Micronaire, resistance, elongation and length:
- C39 American Upland: Micronaire 3.39, 25.1 g/tex, 7.1% elongation, 1.12 inch S.L. at 2.5%, 0.53 inch S.L. at 50%  
  Code 199.22

For calibration of resistance and elongation:
- L2 American Upland: 18.0 g/tex, 5.6% elongation  
  Code 199.28
- M1 American Upland: 30.8 g/tex, 6.4% elongation  
  Code 199.26

Binocular Microscope 1000X

Binocular model, suitable for fibre analysis. The combination of eyepieces and lenses enables a magnification range from 40X to 1000X. Equipped with micrometric stage carrier for object prospecting.

Power supply: 100 up to 240 Vac, 50/60 Hz, single-phase
Weight: 4 kg
Dimensions: (L) 120 x (W) 200 x (H) 350 mm

Microtome

Hand operated model to produce fibre samples of predetermined length for microscopic analysis.
Reference standards: ISO 137, UNI 5423-64
Weight: 0.16 kg
Dimensions: (L) 120 x (W) 50 x (H) 10 mm

Fibre Microscope Kit

Complete kit of all accessories needed for the analysis of fibres length and section. It includes:
- 100 glasses and 200 glass covers
- one oil package
- tool kit (tweezers, scissors etc.)
- needles
- tool for preparation of sections of fibres and yarns
- tool for fabric observation
High performance computerised system conceived for the analysis of fibres and yarns.
Equipment suitable to: perform in a fast and easy way the fineness analysis of single fibres; identify the different fibres contained in a blend and analyse the composition percentage; check the purchased material and identify the type of fibre; analyse the yarn structure and detect possible defects; measure the count of circular section yarns and filaments in Dtex or den; check and measure the quality and shape of Lycra or synthetic multifilament single threads; analyse the compactness of non-woven fabrics; analysis of yarn and fibre sections; measure section surfaces and perimeters; analyse mechanical parts (i.e. needle points, spinnerets, etc); process, store and print the produced measurements and the minimum, medium and maximum values, CV% and distribution graphs.

The system is composed of:

**LEICA Biological Microscope**: magnification range on screen from 195X to 2830X, with slide movement device with micrometric regulation, polarising light, for fibres and yarns analysis, etc.

**PC complete with, LCD monitor** and photographic quality printer.

**Professional digital colour camera, 1/2.33”, CMOS, 16.0 Mpixel, USB 3.0**, to acquire images from microscope.

**Software** for the image acquisition, the production of measurements and comments on the stored images and measurements directly on the live images, the statistic analysis of the acquired measurements.

**Fibre Microscope Kit** (Code 250,325) for the microscopic analysis (fibres, yarns, and fabrics). Instructions for sample’s preparation.

Reference Standards: ISO 137, UNI EN 12751, UNI 5423, UNI ISO 1130, ASTM D629, ASTM D2130, ASTM D276, AATCC 20, IWTO 8, IWS TM24, NIKE (section H, fiber content testing requirements)

Power supply: 100 up to 240 Vac, 50/60 Hz
Weight: 50 kg
Dimensions: (L) 1600 x (W) 700 x (H) 700 mm

Optional:

**63X LENS enabling 2830X magnification on screen.**

**C-STEP CONNECTOR WITH 0.5X LENS** allows to halve the magnification on screen and double the sample field of vision.

Set of 50 slides.
Set of 200 slide covers.
Immersion oil bottle.
Pack of paper for printer.
Set of cartridges for printer.

**Example of micronaire analysis of a blend made of 3 different fibres**
Automatic instrument suitable to measure the length of any type of fibre (animal, vegetal or synthetic). Specifically conceived for testing cashmere fibres or similar. Measuring range: up to 80 mm.

**Graphic data from each individual test:**
- Fibrogram
- Staple diagram
- Histogram

**Statistics:**
- Mean
- Minimum (Min.)
- Maximum (Max.)
- Range (R)
- Standard deviation (s)
- 95% confidence limits (Q965%)

**Testing results:**
- Mean length (ML)
- Upper half mean length (UHR)
- Span length at 2,5% (SL 2,5%)
- Span length at 50% (SL 50%)
- Span length at 66% (SL 66%)
- Uniformity ratio (UR%)
- Uniformity index (UI%)
- Short fiber content (SFC%)

Classifiber is PC dependent. PC and dedicated software are supplied with the instrument. Complete of flat carding for sample preparation and accessories kit. Fibre length readable in mm and inches. Excellent correlation with manual testing but faster (average of 3 tests): only 20 seconds.


Power supply: 115 Vac or 230 Vac, 50 Hz or 60 Hz, single-phase
Weight: 50 kg
Dimensions: (L) 1600 x (P) 750 x (H) 720 mm
Suitable for cotton, synthetic and blended slivers as well as raw cotton material.

By means of an optoelectronic system, NATI II measures Neps and Trash in different size classes:

- ≥0.50 mm; ≥0.70 mm; ≥1 mm for Neps
- ≥0.25 mm; ≥0.50 mm for Trash.

Equipped with internal memory, USB port (for data saving), and user-friendly digital touch screen display. Test results are available in .xls format, and can be printed by the mini thermal printer, Code 3280A.136 (available as optional).

Specifically designed to be fast, reliable and easily transportable to the production floor for continuous testing and assessment of Neps and Trash at different process stages. NATI II is the only instrument presently available on the market measuring and classifying automatically Neps and Trash content in samples of large size up to 6 m of sliver (30 g approximately, depending on sliver count).

NATI II is the only Neps tester for which no manual preparation of the sample is required, thus ensuring total reliability of results (it is known that the ability of the operator can lead to 25%-50% variation in the results).

Transportable and fast in testing large size samples (it takes less than 2 minutes to test 2 g of sliver), NATI II makes daily control of carding department feasible, thus enabling a better quality of carding operation and a better planning of card maintenance.

User-friendly, NATI II does not require any skill for operation and preliminary operation before testing.

Raw cotton testing: the use of the optional “Raw Cotton Selector” (Code 3282) enables you to prepare 2/2.5 g samples in short time and without the influence of operator’s ability on results.

NATI II fits an enlarged fibre waste which box, especially conceived for testing large size samples, is recommended specifically for combed cotton and synthetic slivers due to the small content of Neps/g.

NATI II is endowed with a brushless motor (of easy maintenance) granting unchanged performance even after several thousand hours of test.

Optional:

- Opening roller B174N for Cotton Code 3280.168
- Opening roller S43N for Polyester Code 3280.169
- Mini thermal printer Code 3280A.136
- Raw Cotton Selector Code 3282
- Trolley Code 3280.900
- Electronic high precision sartorius balance Code 165.704

Power supply: 115 Vac or 230 Vac, 50 Hz or 60 Hz
Weight: 40 kg
Dimensions: (L) 400 x (W) 379 x (H) 700 mm
Fully automatic high volume testing equipment designed to detect, measure, classify and grade cotton stickiness (honeydew/sugar content).

Unique equipment providing **cotton stickiness risk probability** on the basis of its grade, enabling spinners to anticipate proper actions (how to process & blend different cotton bales).

It ensures fast testing and very repeatable and consistent results.

It is a precious tool for spinning mills, cotton traders, textile institutes, R&D labs and other cotton grading, arbitration and classification institutions.

Cotton STICKINESS phenomenon (also called “sugar” - honeydew) is analysed by means of a thermomechanical method, able to detect stickiness deposits of different origin in the fibre web, and to classify them in 5 classes by size, from 1 (small) to 5 (large).

Stickiness - affecting the spinning process - is graded by the specific software, giving more importance to larger than to smaller deposits.
CONTEST-S makes the difference in the working principle, since it provides a counting per gram of the sticky points and their sizes by simulating the carding process like in a real spinning process.

Measuring principles and testing method:
Thermodetection of sticky deposits in the fibre web.
3.5 g / 10 m sample pressed through two 37°C heated drums revolving in opposite directions.
The sticky deposits adhere on the drums’ surface, and are optically examined by means of a laser beam.
Sticky points are analysed (amount and size) by the software. Subsequently sticky points are eliminated by means of two rotative brushes and a blade-mechanism, to ensure automatic cleaning of the drums’ surface, in order to avoid double counting and contamination of subsequent measurements.
Detection sensor of fibrous material at the end of the test allows to monitor and warn about improper cleaning of the drum surface.
The heating of the drums is achieved by a special (patented) friction system of two moveable and adjustable brushes, which permit to rapidly reach the correct starting temperature, and maintain it stable during the test, thus ensuring measurement reliability and accuracy.

Reference Standards:
**Stickiness**: UNI EN 14278-3 (Method using an automatic thermodetection rotating drum device).

<table>
<thead>
<tr>
<th>STICKINESS GRADE</th>
<th>SPINNING RISK PROBABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-50</td>
<td>No Risk</td>
</tr>
<tr>
<td>51-100</td>
<td>Low</td>
</tr>
<tr>
<td>101-160</td>
<td>Medium</td>
</tr>
<tr>
<td>161-250</td>
<td>High</td>
</tr>
<tr>
<td>251-500</td>
<td>Very High</td>
</tr>
<tr>
<td>&gt;501</td>
<td>Extremely High</td>
</tr>
</tbody>
</table>

**EXAMPLE 1**

<table>
<thead>
<tr>
<th>COTTON</th>
<th>STICKINESS CLASS SIZE</th>
<th>STICKINESS COUNT/GR</th>
<th>STICKINESS GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample A</td>
<td>1  2  3  4  5</td>
<td>18  12  6  4  2</td>
<td>42  86</td>
</tr>
<tr>
<td>Sample B</td>
<td>2  4  6  12  18</td>
<td>2  4  6  12  18</td>
<td>42  166</td>
</tr>
</tbody>
</table>

The sticky deposits are counted, classified and graded by the Stickiness Tester software as follows:

- **Sticky points classes**: all deposits are divided in 5 classes by size, from 1 (small) to 5 (large).
- **Sticky points/g**: the total amount of sticky points, in total and per class, is then converted into unit / g.
- **Sticky grade**: stickiness is graded by the software giving more importance to larger than smaller deposits. Sticky grade is an important real value, which enables to immediately identify cotton stickiness, for an easier bales management.
- **Sticky points average size**.

**Technical features**:
- **Stickiness**: total count / g
- **Stickiness average size**: mm
- **Stickiness classes**: 5 classes (from 1 to 5)
- **Stickiness grade**: based on stickiness counting and classification
- **Testing speed**: about 30 seconds / sample

Power supply: 230 Vac, 50/60 Hz, single-phase, 2 kW
Weight: 340 kg
Dimensions: (L) 1510 x (W) 960 x (H) 1410 mm
Top Tester  Neps-impurities counting  328A

For quick and accurate counting of impurities and nepS in wool, cotton and synthetic fibre tops.
Adjustable distance between rollers ranging from 42 to 260 mm.
Adjustable speed from 5 to 12 m per minute.
Predetermined drawing standard value: 6.35 (other values are available on request).
Impurities are counted and classified through a series of 6 electronic counters.

Magnifying lens, fitted with light, included  Code  328.2

Optional:
Printer for print-out of defects in tops  Code  3280A.136

Power supply: 115 Vac or 230 Vac, 50 Hz or 60 Hz, single-phase
Weight: 120 kg
Dimensions (L) 700 x (W) 800 x (H) 1400 mm

Trash Analyser  281C

To determine the percentage content of trash, lint, non-fibre material in raw cotton samples of about 100 g. Also used to determine non-fibre content of synthetic fibres and to open and clean fibres for further testing. The analyser uses the carding principle of separation of lint and non lint content by means of air.

Power supply: 400 Vac, 50 Hz, three-phase + ground
Weight: 190 kg
Dimensions: (L) 640 x (W) 950 x (H) 1300 mm

Raw Cotton Selector  3282

Small laboratory carding machine to prepare a cleaned and homogenous sample of raw cotton, to be used with NATI II for testing of nepS content.
Raw Cotton Selector is ideal for the preparation of samples to be tested on a sticky cotton thermodetector (Honey Dew analysis). Generally speaking Raw Cotton Selector is ideal for preparation of clean fibre samples to be tested.

Power supply: 115 Vac or 230 Vac, 50/60 Hz, 30 VA
Weight: 25 kg
Dimensions: (L) 625 x (W) 420 x (H) 250 mm
Electronic Slivers & Rovings Reel

Available with drum circumference of either 1 yard (Code 254B) or 1 metre (Code 254A). Adjustable drum speed from 0 to 100 m/min., with ±1 cm accuracy. Designed to prevent any possible drawing of the fibre sample. Equipped with digital counter and cutter for accurate cutting of the sliver sample.

Power supply: 115 Vac or 230 Vac, 50/60 Hz single-phase
Weight: 52 kg
Dimensions: (L) 450 x (W) 300 x (H) 500 mm

Manual Slivers & Rovings Reel

Hand-driven reel for slivers and rovings. Available with either 1 metre (Code 159A) or 1 yard (Code 159B) drum circumference. Fitted with digital counter and cutter for accurate cutting of the sliver sample.

Weight: 17 kg
Dimensions: (L) 330 x (W) 270 x (H) 600 mm

Oil Extractor

Electronic instrument with digital reading of set temperature for quick determination (in about 15 minutes) of oil/grease/lubricant percentage content in fibres and yarns. The use of an analytic balance with accuracy 0.0001 g is essential with this instrument (Code 165.702).

Accessories:
Set of 50 aluminium plates (Code 273B.2).

Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase
Weight: 8 kg
Dimensions: (L) 250 x (W) 150 x (H) 430 mm
Climatest \textit{Lab conditioning chamber} 1722

Laboratory instrument for the conditioning of all textiles, such as raw fibres, yarns on spools and hanks, fabrics and garments in general, at constant temperature and humidity, according to ISO standards.

Climatest is supplied complete with two shelves.

Equipped with inner glass door for inspection.

Adjustable temperature ranging from $+5^\circ\text{C}$ to $+80^\circ\text{C}$, accuracy $\pm 0.5^\circ\text{C}$ at $37^\circ\text{C}$.

Relative humidity ranging from 20\% R.H. to 90\% R.H., accuracy $\pm 3\%$. Digital reading of temperature and humidity.

Automatic water inlet into the reservoir.

Reference standards: UNI EN ISO 139, ASTM D1776, UNI EN 12280-3

Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase

Weight: 130 kg

Inner dimensions: (L) 593 x (W) 522 x (H) 633 mm

External dimensions: (L) 960 x (W) 760 x (H) 1390 mm

Melting Point Apparatus 339C

To determine the melting point of fibres and synthetic yarns and classify them.

Measuring range: from $+30^\circ\text{C}$ to $+300^\circ\text{C}$, accuracy $\pm 0.1^\circ\text{C}$.

Complete with magnifying lens to check the melting point, and 100 slides.

Reference standards: ASTM D789, ASTM D2117, FIAT 50568

Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase

Weight: 6 kg

Dimensions: (L) 280 x (W) 190 x (H) 220 mm
YARNS

p 20  Electronic Wrap Reel for Yarns
p 20  Hand Driven Wrap Reel
p 21  Stationary Adjustable Yarn Tensioners  Code 161M.330
p 21  Fixed Tensiometer  Code 161M.334
p 21  Mobile Vertical Creel  Code 3102
p 22  Count Analyser II / Count tester  Code 1666
p 22  Count Lab Software / for count test  Code 165.630
p 23  Air-Texturlab / Yarn air texture  Code 320C
p 23  Water-Texturlab / Yarn water texture  Code 320D
p 23  Yarn Data Logger (YDL)  Code 3115
p 24  Twistmatic II / Full Automatic twist tester  Code 2532
p 24  Auto Cop Changer (ACC)  Code 299A
p 25  Hand-operated Twist Tester  Code 2531D
p 25  Twist Lab / Semi-automatic twist tester  Code 2531C
p 26  Attrifil III / Yarn friction  Code 233C
p 27  Autodyn II Plus / Automatic strength tester  Code 2514A
p 28  Tenso-Lab 4 / Tensile strength tester  Code 2512E
p 29  Splice Scanner III  Code 2553
p 30  MT Evenness Tester  Code 2341
p 31  Planofil / Yarn conical table  Code 2520
p 31  Optional KIT “TWO”  Code 2520.600
p 31  ASTM yarn standards
p 32  “Standard” Yarn Sample Winder  Code 171A
p 32  “Special” Yarn Sample Winder  Code 171B
p 33  Scirocco / Automatic regain oven  Code 172B
p 34  Aqua-Lab / Moisture regain  Code 2450
p 35  Libeccio / Semi-automatic regain oven  Code 245B
p 35  Humy Tester III  Code 185C
p 35  Hardness Tester
p 36  Video Analyser / Fibre-yarn-fabric analysis  Code 250D
p 38  Dye Scanner / Yarn-knit (Dye) uniformity  Code 2940A-B
p 39  Laboratory Carding Machine  Code 337A
p 39  Coiler  Code 337A.6
p 39  Stiro Roving Lab / Miniature draw frame  Code 3371
p 40  Ring Lab / Mini ring spinning  Code 3108A
p 40  Wind Lab  Code 3374
p 40  Mini Assembly Lab / Mini assembly winder  Code 3372A
p 41  Twister Lab / Two for one lab twister  Code 3373
p 41  Lab Knitter / Yarn-knit (Dye) uniformity  Code 294E
p 42  Polar Evo Wind-Lab  Code 3374D
Electronic Wrap Reel for Yarns

To prepare yarn skeins of a preset length, that will then undergo testing for the determination of the related count. Equipped with electronic pre-selector for the automatic stop at the preset length. Supplied complete with a 7-position support creel (spool and small bobbin holder). Adjustable double-bar yarn tensioner. Plexiglass cover available on demand.

Reference standards: UNI EN ISO 2060, ASTM D1907, ASTM D2260

The electronic wrap reel is available in the following models:

- 1 m reel circumference - 7 positions: Code 161M
- 1 m reel circumference - 10 positions: Code 161X
- 1 yd reel circumference - 7 positions: Code 161Y
- 1.5 yd reel circumference - 7 positions: Code 161W

Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase
Weight: 40 kg
Dimensions: (L) 900 x (W) 600 x (H) 600 mm

Hand Driven Wrap Reel

Available reel circumferences:

- 1 meter: Code 160M
- 1 yard: Code 160Y

Equipped with digital counter for yarn length reading. Supplied with support creel and double-bar yarn tensioner.

Reference standards: UNI EN ISO 2060, ASTM D1907, ASTM D2260

Weight: 35 kg
Dimensions: (L) 900 x (W) 600 x (H) 600 mm
Optional for Wrap Reels

Stationary Adjustable Yarn Tensioners 161M.330

Suitable in case of very coarse yarns for which a very high pretension is required (for example carpet yarns), or in case of preparation of texturized synthetic fibres skeins for crimp value testing.

This optional should be fitted on the reel feeding creel in place of the standard double-bar tensioner, or on the yarn guide support.

Fixed Tensiometer 161M.334

Conceived for synthetic yarns, which require an accurate and continuous control of pre-set pretension during wrapping.

Available reading ranges (to be specified at order):

3-12 cN
5-20 cN
5-30 cN
10-50 cN
10-100 cN

Mobile Vertical Creel 3102

Suitable for feeding different instruments, such as wrap reel, automatic strength tester, automatic twist tester, Attrifil, evenness tester, etc., where it is necessary to simultaneously use large-sized bobbins.

Weight: 22 kg
Dimensions: (L) 600 x (W) 600 x (H) 2000 mm
Count Analyser II 1666

To determine the count of slivers, rovings, yarns and fabric weight per m². Outputs: single result, minimum, maximum and average, CV%, range%, sigma, I.C. (95%), results out of tolerance.

Standard measurement scales are available: Nec/m, Nec/yd, Nm, Den, Tex, dTex, grain/yd, g/m². Sample length from 1 cm (1 inch) up to 999 m (yard).

According to the weight of the sample to be tested, the following balances are available:

Sartorius balance - 820 g capacity - 0,01g accuracy - pan size Ø 150 mm (suitable for yarns), Code 165.708

Sartorius balance - 320 g capacity - 0,001g accuracy - pan size Ø 115 mm (ideal for synthetic filaments and fine yarns count testing), Code 165.704

Other models available on request.

Reference standards: ISO 3374, UNI EN 29073, UNI 8014-2-3-4, ISO 2060, UNI 5114, BS 2471, ISO 3801, ASTM D1907/D3776, UNI EN ISO 2060, UNI EN 12127

Power supply: 115 up to 230 Vac, 50/60 Hz, single-phase
Weight: 4.3 kg
Dimensions: (L) 700 x (W) 400 x (H) 200 mm

Count Lab Software 165.630

Suitable to determine the count of sliver, roving, yarn and fabric weight per m². Standard measurement scales are available: Nec/m, Nec/yd, Nm, Den, Tex, dTex, Grains/YD, g/m².

Outputs: single result, minumum, maximum and average, CV%, range %, I.C. (95%), out of tolerance results.

Test results are exported to Excel for automatic calculation of statistics (average, minimum, maximum count, C.V.%, sigma, range %, IC%, upper and lower IC% limits).

Output report can be printed and saved. PC minimum features required: Windows Xp, Excel (2000 or Xp) program, one serial and one USB port.

Optional: Sartorius electronic balance with different capacity and accuracy depending on the textile to be tested. Count Lab Software can be connected to Sartorius balances only. PC available on request.

Reference standards: ISO 3374, UNI EN 2973-1, UNI 8014-2-3-4, UNI EN ISO 2060, UNI 5114, BS 2471, ISO 3801, ASTM D1907, D3776, D2646, ISO 2060, UNI EN 12127, ISO 9073-1
Air-Texturlab  Yarn air texture  320C

To determine the percentage of crimp in all types of textured synthetic yarns.

Air-Texturlab requires the use of an electronic wrap reel of 1 m circumference (Code 161M), a forced ventilation oven with internal capacity 250 litres (Code 251P) - supplied complete with skein support. The most suitable pretension weights (optional) can be selected from the ones listed in the table below, according to the nominal count.

Reference standards: DIN 53840-1 (up to 500 dtex), DIN 53840-2 (over 500 dtex), UNI EN 14621, ASTM D4031, ASTM D2259

Weight: 10 kg
Dimensions: (L) 500 x (W) 20 x (H) 800 mm

Water-Texturlab  Yarn water texture  320D

To determine the percentage of crimp in all types of textured synthetic yarns; particularly suitable for nylon textured yarns for stockings. Equipped with a Plexiglas cylinder to be filled with water and a skein holder millimetre bar with 1 mm accuracy.

Water-Texturlab requires the use of an electronic wrap reel of 1 m circumference (Code 161M) and a set of pretension weights (optional) to be selected according to the nominal count.

Reference standards: BS 6663

Weight: 8 kg
Dimensions: (L) 120 x (W) 120 x (H) 800 mm

Optional pretension weights for Air and Water Texturlab 320C 320D

<table>
<thead>
<tr>
<th>g</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
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Weights with simple hook

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</table>

Yarn Data Logger (YDL)  3115

Quality Control Software specifically developed to collect the data of all laboratory yarn testing instruments.
Fully automatic computer-based twist tester, for the control of the loading phase, the twist testing, the change of the yarn length of the bobbin under test, the processing of a complete series of statistical data and for the printing of the related reports.

The instrument, unique for its high quality, can automatically perform serial twist tests on a single package (max. 999 tests) or, if connected to the Auto Cop Changer (ACC) device, Code 299A, it can automatically perform multiple tests on several packages (up to 24).

Suitable for all types of spun (ring and open-end) yarns and synthetic filament yarns, both “S” and “Z” twist.

Technical features:
Automatic testing either on one package, or on 24 packages, by means of the Auto Cop Changer (ACC), which guarantees high accuracy and repeatability of results, also eliminating the human error.

Three preselectable test methods:
a) Traditional method: untwisting and retwisting, for single yarns.
b) “Schutz” method: untwisting, retwisting and double counter-check, automatically performed on O.E. spun and worsted wool yarns.
c) Direct method: untwisting, for plied spun yarns, threads and multi-filament yarns.

Twist testing on certain yarn lengths at preset intervals.
Statistical results: average value, minimum value, maximum value, C.V.% range, standard deviation and alpha coefficient.
Twist results available either in rotations per metre (RPM) or rotations per inch.
Fixed distance between clamps: 50 cm.
PC connection through RS232C serial output.
PC and Printer are available on request.
Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase
Air supply: 6 bar
Weight: 25 kg
Dimensions: (L) 1060 x (W) 330 x (H) 330 mm

Auto Cop Changer (ACC) 299A

“Auto Cop Changer” (ACC), up to 24 positions, can be connected to Twistmatic II, Attrifil III, Autodyn and Dye Scanner for multiple tests on a lot of packages (up to 24) without operator’s attendance.
Very easy to use and suitable for a wide range of yarns.
Available also a 36-position model Code 299B
Along with the ACC, a creel is required Code 3102
Power supply: 12 V, DC
Air supply: 6 bar
Weight: 17 kg
Dimensions: (L) 570 x (W) 250 x (H) 230 mm
Hand-operated Twist Tester

Manual twist tester for twist measurement on single and plied yarns ("S"/"Z"). Two test methods are available:

Traditional "untwisting and retwisting" method, for single spun yarns.

Direct "untwist" method, for plied yarns, threads and multi-filament yarns.

Adjustable test length (distance between clamps) from 1 to 50 cm (0.39-19.6 inches). Built-in digital tachometer (battery supplied) and optical sensor with led showing correct zero starting and ending position (±1 turn accuracy). Supplied pretension system with pulleys with 9-weight kit, up to 70 cN, adjustable clamp speed, up to 2000 rpm.

Accessories included: magnifying lens, fixed calliper, pretension weights, bobbin holder.

Optional: additional pretension weights (1 N, 1.5 N and 2 N), Code 2531C.104.


Power supply: 1.5 V battery x 6
Weight: 9 kg
Dimensions: (L) 1000 x (W) 340 x (H) 220 mm

Twist Lab Semi-automatic twist tester

Electronic Twist Tester to determine twist of single, twisted ("S"/"Z") and Open End yarns.

Three methods available to be selected by the operator:

a) Traditional method: untwisting and retwisting, for single yarns.

b) "Schutz" method: untwisting, retwisting and double counter-check, for OE yarns, worsted and slippery yarns.

c) Direct method: untwisting, for plied spun yarns, threads and multi-filament yarns.

Adjustable test length (distance between clamps) from 1 to 50 cm (0.39-19.6 inches).

Built-in digital tachometer and optical sensor with led showing correct zero starting and ending position (±1 turn of accuracy). Very accurate elongation index with built-in mechanical clamp.

Pretension system with pulleys with 9-weight kit, up to 70 cN. Adjustable clamp speed, up to 2000 rpm.

Endowed with two serial ports, for connection to PC (software included) and to printer (optional).

Accessories included: magnifying lens, fixed calliper, pretension weights, bobbin holder, software and cable.

Optional: printer, additional pretension weights (1 N, 1.5 N and 2 N), Code 2531C.104.


Power supply: 115 Vac or 230 Vac, 50/60 Hz
Weight: 11.5 kg
Dimensions: (L) 1060 x (W) 300 x (H) 220 mm
Computerised instrument for automatic measurement of the friction coefficient of yarns. Recommended for wax selection and control of waxing process (wax distribution on the yarn and wax duration).

It enables automatic execution of multiple tests on a single package of yarn without operator attendance. Continuous control of test parameters affecting the friction coefficient, such as input pretension (value and tolerance) and yarn speed, which can be adjusted by the operator up to 50 cN and from 50 to 300 m/min.

Very accurate reading of the input and output tension by means of two electronic tensionmeter heads. Pre-selection of the yarn length to be measured. Pre-selection of the yarn length between two consecutive measurements as an alternative to random testing.

Software (Windows compatible) for data saving and elaboration. Print-out listing test results, statistics, graphical representation of single test coefficient of friction and average value.

Optional:
Pc, printer

Attrifil III (Code 233C) can be connected with the Auto Cop Changer (Code 299A) to automatically perform tests on 24 different bobbins.

Along with the Auto Cop Changer (ACC, Code 299A), a creel is required (Code 3102).

Reference standards: ASTM D3108

Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase
Air supply: 6 bar
Weight: 30 kg
Dimensions: (L) 470 x (W) 330 x (H) 310 mm
Autodyn II Plus  Automatic strength tester

Modular strength tester automatically performing tensile tests and hysteresis cycles on yarns; it semi-automatically executes traction, compression, tearing tests on fabrics, covering adhesion tests, tensile test on yarn and hanks (LEA test).

The exclusive Auto Cop Changer system (ACC, Code 299A) enables to test automatically up to 24 different yarns according to the parameters set in the PC by the operator.

Automatic single column strength tester, with adjustable speed up to 5000 mm/min, and with movement resulting from a ball bearing screw; it is controlled by a software, which runs all the functioning phases.

Thanks to the specific modular software, Autodyn II Plus allows to perform tests in compliance with the main international standards, or according to parameters set by the operator, which can be saved for future needs.

Autodyn II Plus can fit different load cells - easy to change - with maximum capacity of 1000 N, and a huge range of pneumatic and mechanical clamps.

Modular design specifically conceived for textile industries requiring both automatic and semi-automatic testing of yarns, hanks, fabrics, covering cloths and seams.

Available also an automatic version with one position, Code 2514 (see “Fabrics” section for more details).

Optional: PC, printer, LCD monitor
interchangeable load cells of 20 N Code 2514A,276
interchangeable load cells of 100 N Code 2514A,993
interchangeable load cells of 1000 N Code 2514A,282
Mini autoclamps for low tenacity yarns Code 2514A,918
Maxi autoclamps for high tenacity yarns (also sewing threads) Code 2514A,930
LEA clamps for hanks (manual mode) Code 2514A,990
Scott 100 clamps for yarns and industrial small ropes (mechanical) Code 2514A,995
Mobile vertical creel Code 3102

Other clamps for yarns and fabrics are available on request.

Reference standards: ISO, DIN, ASTM, BS, UNI, M&S

Power supply: 115 Vac or 230 Vac, 50/60 Hz
Air supply: 6 bar
Weight: 118 kg
Autodyn dimensions: (L) 600 x (W) 660 x (H) 1630 mm

Maximum strength

<table>
<thead>
<tr>
<th>Strength (g)</th>
<th>Sample / Bobbin</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
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<tr>
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<tr>
<td>400</td>
<td></td>
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<tr>
<td>500</td>
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Maximum elongation

<table>
<thead>
<tr>
<th>Elongation (%)</th>
<th>Sample / Bobbin</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>2</td>
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<td>8</td>
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<td>10</td>
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</tbody>
</table>
Tenso-Lab 4 is the latest generation of the well-known Tenso-Lab semi-automatic tensile tester. The new model is distinguished by:

New hardware:
- High sensibility and robustness (can be used to test both fibres and high tenacity fabrics), direct-drive ball bearing screw, low speed operation available, extended capacity to 5000N, …

New components:
- Improved load cells performances (higher accuracy level and new capacity load cell added), quick load cell & clamps/jaws exchange, …

New open software:
- More intuitive and easy to operate, SQL database and standard Ethernet machine connection to data export, no restriction on testing routines (can be created by the enduser, no special skills needed)

Features:
- Built according to the CRE (Constant Rate of Extension) testing principle
- Belt free, direct-drive ball bearing screw
- Automatic pretension and automatic load cell and clamp recognition
- Top quality load cells (manufactured by HBM – Germany), accuracy class ± 0.02%
- High resolution sensor integrated into the motor ensures accurate clamp position (less than 0.02 mm)
- Possibility to perform tests at extremely low speed
- Automatic reset of force values when load cell/clamps are changed
- High resolution of acquired data
- High return speed (1800 mm/min)
- Quick load cell exchange (only 10 sec. compared to 2 min. of other models)

Advanced alarm system prevents accidents; safety clamp movement system

The Software is modern, flexible and easy to use, it includes a series of standard testing routines. New testing routines can be created by the enduser, no special skills needed


ISO 17025 Calibration Certificate (Accredia - ILAC) available on demand.

Available a variety of interchangeable mechanical and pneumatic clamps for yarns, such as:

- Mechanical clamps for standard yarns Code 2510.994
- Scott 100 clamps for yarns and industrial small ropes (mechanical) Code 2510.995
- With pneumatic clamps for slippery, delicate or high elasticity yarns for pneumatic clamps, the foot switch is required Code 2510.300
- Silent Compressor (available on request) Code 3390
- LEA clamps for hanks (manual mode) Code 2510.990

Other clamps for yarns and fabrics are available on request.

Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase

Weight: 75 kg

Dimensions: (L) 480 x (W) 370 x (H) 1415 mm
Splice Scanner III

Portable electronic strength tester built in accordance with ISO, UNI, ASTM, DIN standards. Endowed with printer and USB port. Conceived to measure strength and elongation of yarns and splices. Compact and light, specifically designed for testing in the production area near the machines (winding, spinning and O.E. frames, for example). Test results can be printed and downloaded by means of a USB memory stick and used for further needs.

Measuring range: force from 0 to 60 N (0-6 kg); elongation from 0.5% to 45% (0-110 mm).

Electro-magnetic clamps with automatic closure are supplied with the instrument.

Clamps distance: 250 mm.

Testing speed: adjustable up to 1000 mm/min.

Pretension: automatically adjustable according to the pre-set value.

Output: force and elongation results, statistics (min., average, max. force of elongation, CV%), tenacity.

The “Splicer” mode is ideal for splicers’ control on automatic winders, measuring force and elongation of spliced yarns (up to 64 drums/splicers), processing of statistics for each splicer and for the complete winder: indication of out of tolerance joints for each drum/splicer.

Reference standards: UNI EN ISO 2062, ASTM D2256

Power supply: 115 Vac or 230 Vac, 50/60 Hz

Weight: 10 kg

Dimensions: (L) 450 x (W) 330 x (H) 140 mm

Optional:
- Battery kit with built-in feeder 115 Vac
  - Code 2553.3244
- Battery kit with built-in feeder 230 Vac
  - Code 2553.3240
- Manual clamps for slippery yarns
  - Code 2550.120
- Movable Trolley
  - Code 2550.150
For the evenness control of slivers, rovings and yarns made of both natural and synthetic/manmade fibres. Thanks to the use of capacitive sensors, the instrument can measure, analyse, calculate and display (with related printout) the following data:
- Mass variation diagram
- 160 channels spectrograph to analyse the wavelength spectrogram
- CV% and U% of mass variations
- AVE% (relative yarn count)
- I.P.I. with an indication of thin places, thick places and nep
- D.R.% (deviation rate %)
- C.V.% (L) referred to 4 lengths
- Diagram of mass variation both in “inert” and “1/2 inert” way

The instrument is composed of:
- Measuring frame
- Personal computer with monitor and printer
- Windows OS software
- Technical features:
  - Count range: from 35 g/m (sliver) to Ne 150 max (yarn) - beyond this range, it is recommended to evaluate from time to time.
  - Sample speed: from 8 to 400 m/min.
- 160 channels spectrograph

**Optional:**
- 24-position Auto Cop Changer (ACC)  
  Code 299A
- H-Sensor, hairiness sensor to evaluate the yarn hairiness  
  Code 2342
- Yarn creel up to 24 spindles  
  Code 3102
- UPS for power stability  
  Code 2341.900

Power supply: 115 up to 230 Vac, 50/60 Hz, single-phase
Air supply: 6 bar
Weight: 51 kg
Dimensions: (L) 490 x (W) 320 x (H) 730 mm
Planofil **Yarn conical table 2520**

Electrical instrument to assess yarn regularity. Endowed with electronic speed adjustment. Equipped with 2 black anodised aluminium trapezoidal tables (dimensions: 255 x 600 x 155 mm).

For very coarse and bulky woollen and blended yarns, a particular model is available, PLANOFIL PLUS (Code 2520.290), equipped with a set of special pulleys for a wider separation of coils.

Two Black tables are supplied with Planofil.

**Optional:**
- Black table  **Code 2520.580**
- White table  **Code 2520.590**

Reference standards: ASTM D2255 (for regular cotton yarns)

Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase

Weight: 24 kg

Dimensions: (L) 910 x (W) 330 x (H) 530 mm

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**Optional KIT “TWO” 2520.600**

Thanks to the optional Kit “Two” - to be combined with Planofil (Code 2520) - it is possible to wind at the same time on the same table two yarns with the same count, enabling a quicker preparation of the table (50% time saving) and a better and immediate visual comparison between the two wound yarns.

**Optional:**

With Kit “Two” it is necessary to use particular trapezoidal tables:
- Black table  **Code 2520.610***
- White table  **Code 2520.620**

* Two black tables are supplied with Kit “Two”

Reference standards: ASTM D2255 (for regular cotton yarns)

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**ASTM yarn standards**

Available in the following count ranges:

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<th>Ne</th>
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<tbody>
<tr>
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<td>2520.631</td>
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<td>24-36</td>
<td>2520.632</td>
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<tr>
<td>36-50</td>
<td>2520.633</td>
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<tr>
<td>50-75</td>
<td>2520.634</td>
</tr>
<tr>
<td>75-135</td>
<td>2520.635</td>
</tr>
</tbody>
</table>

Reference standards: ASTM D2255

Dimensions: (L) 635 x (W) 100 x (H) 380 mm
“Standard” Yarn Sample Winder 171A

Suitable for any type of card (320 mm max. length, 95 mm width) and yarn count.

Automatic forward winding movement, and manual reverse winding movement.

Up to 12 different yarn colours can be wound simultaneously.

Width of winding can be predetermined.

Equipped with adjustable yarn pre-tensioner.

Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase

Weight: 46 kg

Dimensions: (L) 700 x (W) 500 x (H) 450 mm

“Special” Yarn Sample Winder 171B

Special high accuracy model with micrometric winding feed.

Particularly suitable for high production of coloured sample cards, especially medium-fine yarns, such as sewing threads.

Fully automatic forward and reverse winding movement, preselectable through the built-in PLC programmer.

Adjustable spacing, automatic stop.

Maximum winding speed: 1000 turns/min.

Up to 12 different colours can be wound simultaneously. Suitable for any card type (320 mm max. length, 95 mm max. width).

Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase

Weight: 75 kg

Dimensions: (L) 800 x (W) 450 x (H) 560 mm
Automatic moisture regain oven designed to measure moisture content and regain percentage in textile materials, according to ISO, ATSM, IWTO, UNI, UNI EN ISO Standards. PC operated.

Quick sample drying (in about 10 min.) by suction cycle. Adjustable drying temperature ranging up to +140°C.

Testing procedure details: the cabinet automatically continues weighing until the sample attains a stable dry mass. The computer evaluates the difference among consecutive weighings and stops when the difference between 2 consecutive weighings is lower than 0,05%.

It is possible to determine the duration of the first drying cycle as well as the duration of the further 9 cycles. The basket tare is recorded according to the basket code. Ambient humidity and temperature values can be entered in order to obtain automatically the correction of the dry mass (for this purpose, the table of correction coefficient is available in the software).

Equipped with PC, electronic balance (2200 g capacity/0,01 g accuracy), colour printer, and LCD monitor.

Printed report of test parameters and final results, such as:

- sample code
- basket code
- date of basket gauging
- weight of wet sample
- weight of dry sample
- dry percentage

Reference standards:
ISO 6741-1, 2, 3, 4, UNI 1335, UNI 9213-1, 2, 3, 4, 5, 6, ASTM D1576, ASTM D2495, IWTO 33-98, IWTO 34-98, UNI EN ISO 2060

Power supply: 230 Vac, or 400 Vac, three-phase, 50/60 Hz, 10kW
Weight: 209 kg
Dimensions: (L) 1000 x (W) 700 x (H) 1230 mm

Example of printout of Scirocco oven:
final results of a sample in stock to be shipped and invoiced at the official humidity regain rate.
Moisture content in fibres and yarns is of paramount importance in both textile trade and final product quality evaluation. Moisture variation can lead to serious quality issues such as “barré” defects, dimensional stability problems, etc.

AQUA-LAB is an innovative instrument for fast and accurate measurement of the moisture regain and moisture content in textile materials. Its measurement speed allows HIGH VOLUME CONTROL OF MOISTURE throughout every stage of the textile chain increasing consequently the productivity and the efficiency of the process, as well as the final product quality.

The measurement principle of Aqua-Lab is based on an innovative low power resonance technology. AQUA-LAB calibration algorithm associates the mass-independent microwave moisture values measured by AQUA-LAB with the moisture regain values measured by the drying oven (the only reference instrument for measuring the moisture content of textile fibers). Aqua-Lab absolute value correlation with the regain oven (drying system) makes Aqua-Lab indispensable for commercial transactions, pricing management and QC monitoring.

Specific preset calibrations are available for different textile materials, easily selectable by the operator from the starting menu. The complete AQUA-LAB, Code 2450, is equipped with two sensors: one for fibres (loose fibres, tops, slivers, etc), one for yarn packages (cones, roving cops, etc). However, the system can be supplied equipped with one sensor only:

for fibres, Code 2450A
for yarn packages, Code 2450B

Ideal for Ginners, Top Makers, Spinning Mills, Wool Combers, Yarn Buyers, Dyeing Mills, Textile Laboratories.

Main features:
- Fast, real-time measurement.
- High repeatability and reproducibility of results.
- Perfect correlation with oven-drying.
- Suitable for any textile fibre such, for example, cotton, linen, wool, cashmere, viscose, silk, acrylic, synthetics as well as blends.
- No sample weighing or preliminary preparation of the sample is required.
- Non-destructive method, no waste of material.
- Simple test execution, which can be performed by unskilled personnel as well.
- Results are not influenced by the weight of the sample, by its dimensions, its density and environmental conditions (temperature and humidity).
- Very low power consumption.
- Easy maintenance: no consumables, no wear.
- Ethernet available (connection to central data collection system).
- Power supply: 115 up to 230 Vac, 50/60 Hz, single-phase
- Dimensions and weight:
  - Main Unit: (L) 200 x (W) 110 x (H) 150 mm, 2.5 kg
  - Yarn package Sensor: (L) 250 x (W) 170 x (H) 85 mm, 2.5 kg
  - Fibre Sensor: (L) 325 x (W) 375 x (H) 430 mm, 17 kg

**AQUA-LAB recognition**

At the 32nd International Bremen Cotton Conference, the ITMF International Committee on Cotton Testing Methods (ICCTM) gave full recognition to AQUA-LAB
**Libeccio Semi-automatic regain oven 245B**

Semi-automatic moisture regain oven to measure moisture content and regain percentage in textile materials according to ISO, ASTM, IWTO and UNI Standards. Quick Sample drying (in about 10 min.) by suction cycle. Adjustable drying temperature ranging up to +140°C. Complete with electronic balance (2.200 g capacity/0.01 g accuracy). Automatic movement of the weighing basket by means of “up and down” button. High precision electronic thermo-regulator.

Reference standards: ISO 6741-1, 2, 3, UNI 1335, UNI 9213-1, 2, 3, 4, 5, 6, ASTM D1576, ASTM D2495, IWTO 33-98, IWTO 34-85, UNI EN ISO 2060, ISO 2060, ISO 6348

Power supply: 230 Vac or 400 Vac, three-phase, 50/60 Hz, 8 kW

Weight: 150 kg

Dimensions: (L) 980 x (W) 700 x (H) 1350 mm

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**Humy Tester III 185C**

Digital electronic portable instrument for the instantaneous measurement of the humidity percentage contained in textiles. Reading on LCD display with 17 pre-set reading scales for the most common fibres and blends (other reading scales are available). It can be fitted with interchangeable electrodes suitable for cones, hanks, cotton bales or wool and fabrics. Measuring accuracy: ±1%.

Optional (not supplied with the instruments):
- electrode for cotton or wool bales (2 pins - 30 cm length)  
  Code: 185.412
- electrode for hanks (2 pins - 10 cm length)  
  Code: 185.414
- electrode with roller for fabrics  
  Code: 185.416
- electrode for bobbins and cones (8 pins - 6 cm length)  
  Code: 185.418
- probes for calibration (2 pcs)  
  Code: 185.422
- electrode for man-made yarns  
  Code: 185.424
- probe for ambient temperature / humidity  
  Code: 185.428

Reference standards: DCS 194 (Decathlon)

Power supply: 9 V battery

Weight: 0.4 kg

Dimensions: (L) 100 x (W) 40 x (H) 220 mm

---

**Hardness Tester**

For checking packages and cops hardness.

Measuring scale 0-100° Shore.

Equipped with pressure control device.

Available in the following models:

- HP 2.5 for synthetic filaments  
  Code: 255A
- HP 5 for cotton and wool yarns  
  Code: 255B

To check beam hardness, the following flat base models are available:

- HP 2.5 F for synthetic filament  
  Code: 255E
- HP 5 F for cotton/wool yarns  
  Code: 255D

To check rubber, the following model is available:

- HP SA, scale: 0-100° Shore A  
  Code: 255F

Weight: 0.30 kg
Video Analyser  Fibre-yarn-fabric analysis

High performance computerised system conceived for the analysis of fibres, yarns, fabrics, knits, non-wovens, spinnerets etc. Equipment suitable to perform in a fast and easy way the fineness analysis of single fibres, identify the different type of fibres contained in a blend and analyse the composition percentage. Ideal to check the features of purchased material, analyse yarn structure and detect possible defects. Suitable to measure the count (dtex/ den) of yarns and round section filaments; to analyse quality of Lycra filaments into the yarn, the compactness of non-woven fabrics, yarn and fibre sections; to measure section surfaces and perimeters; to analyse mechanical parts (i.e. needle points, spinnerets, etc); to process, store and print the produced measurements and the minimum, medium and maximum values, CV% and distribution graphs.

The system is composed of:

**LEICA Biological Microscope:** magnification on screen from 195X to 2830X with slide movement device with micrometric regulation, polarising light, for fibres and yarns analysis, etc.

**LEICA Stereo Microscope** with magnification on screen from 16X to 189X, with illuminated base, for the analysis of fabrics, yarns and mechanical parts like travellers, needles and spinnerets.

**Led Ring Light Illuminator.**

**PC** complete with LCD monitor and photographic quality printer.

**Professional digital colour camera, 1/2.33”, CMOS, 16.0 Mpixel, USB 3.0.** to acquire images from microscope.

**Software** for the image acquisition, the production of measurements and comments on the stored images and measurement directly on the live images, the statistic analysis of the acquired measurements.

**Fibre Microscope Kit (Code 250.325)** for the microscopic analysis (fibres, yarns and fabrics); instructions for sample’s preparation.

**Optional:**

- Optical fibre illumination device, (for both biological and stereo microscope), for a perfect illumination of a sample from different adjustable angles.
  
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
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<td>Optical fibre illumination device</td>
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</table>

- 63X LENS (for biological microscope): it enables a 2830X on screen magnification.

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<th>Description</th>
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<tbody>
<tr>
<td>250.336</td>
<td>63X LENS for biological microscope</td>
</tr>
</tbody>
</table>

- C-STEP CONNECTOR WITH 0.5X LENS (for biological Microscope). The installation of this connector allows to halve the magnification on screen and double the sample field of vision.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>250.338</td>
<td>C-STEP CONNECTOR WITH 0.5X LENS for biological Microscope</td>
</tr>
</tbody>
</table>

- TRINOCULAR KIT (for Stereo Microscope) to display the sample image either on the PC monitor or in the oculars.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>250.340</td>
<td>TRINOCULAR KIT for Stereo Microscope</td>
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- Set of 50 slides.

<table>
<thead>
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<th>Description</th>
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<tbody>
<tr>
<td>191.50</td>
<td>Set of 50 slides</td>
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</table>

- Set of 200 slide covers.

<table>
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<tbody>
<tr>
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- Bottle of oil immersion.

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<thead>
<tr>
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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>191.54</td>
<td>Bottle of oil immersion</td>
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</table>

- Pack of paper for printer.

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<tr>
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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>250.18</td>
<td>Pack of paper for printer</td>
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</tbody>
</table>

- Set of cartridges for printer.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>250.322</td>
<td>Set of cartridges for printer</td>
</tr>
</tbody>
</table>

Reference standards: ISO 137, UNI EN 12751, UNI 5423, UNI ISO 1130, ASTM D629, ASTM D2130, ASTM D276, AATCC 20, IWTO 8, IWS TM24, NIKE (section H, fiber content testing requirements)

Power supply: 100 up to 240 Vac, 50/60 Hz

Weight: 53 kg

Dimensions: (L) 1080 x (W) 700 x (H) 700 mm
Examples of the most typical applications of Video Analyser:

- Fibre identification of fineness
- Length view of cotton fibre and wool fibre
- Viscose fibre (section view)

- Glass fibre
- Section of round hollow fibres
- Yarn crimp evaluation
- Perimeter & area

- Lycra core protrusion
- Analysis of Lycra filaments
- Non-woven regularity

- Fabric density assessment
- Contamination analysis

- Parts inspection - comparison
- Section of indigo yarn
Laboratory knitting machine for the automatic production of tubular knitted fabrics for checking dyeing uniformity and dye affinity, for assessment among different yarn bobbins. Suitable for synthetic, natural and artificial yarns.

Equipped with Auto Cop Changer (ACC) with 24 or 36 bobbins, electronic yarn feeder, electronic pretension device, automatic bobbin change marking device, 36-yarn conveyor.

**Main technical features:**
- Ergonomic panel with electronic counter, speed potentiometer and led indicators of machine functions.
- Rotation speed of cylinder adjustable from 0 to 450 rpm by means of an electronic potentiometer.
- High productivity: 1000-1200 samples (2,5 cm length) in about 10 hours.
- Electronic counter to set sample length and number of samples.
- Automatic oiling device for the cylinder.
- Endowed with fabric fineness adjustment mechanism.
- Interchangeable Cylinder ø 3, 3/4” diameter suitable for a wide range of yarns.
- Electronic automatic yarn pre-tensioner (0,1 cN accuracy) enabling constant and precise tension during operation.
- Electronic device marking the knitted fabric when bobbin is changed.
- Equipped with Auto Cop Changer (ACC) with built-in mechanical knoter.
- Yarn feeder enabling change of cop while machine is running a test.
- Yarn alignment device.

Two models available:
- 24-bobbin Auto Cop Changer (ACC);  
  Code **2940B**
- 36-bobbin ACC 36 yarns rack conveyor to the ACC (to speed-up creel change operation)  
  Code **2940A**

Power supply: 400 V, 50 Hz, three-phase + N, 1,9 kW
Air supply: 6 bar
Weight: 200 kg
Dimensions: (L) 1500 x (W) 4000 x (H) 1750 mm

In order to check and reveal dyeing uniformity, the tubular knitted fabrics produced by the DYE SCANNER have consequently to be dyed. GIOTTO HT 9000 is the ideal equipment for this purpose. In fact, it can dye up to about 300 g of tubular knitted fabric samples, and - thanks to its exclusive and innovative built-in automatic dosing system - GIOTTO HT 9000 can wash, dye, rinse, and - if necessary - soap the samples.

High-pressure bath at a temperature of +135°C, therefore ideal for dyeing of polyester fabric samples. Equipped with automatic dosing system, this instrument is also suitable for dyeing with reactive dyestuffs.

* Cylinder capacity should be confirmed by yarn testing, as cylinder selection is affected by yarn count, composition and friction.
* Cylinders with different capacity are available on request.
Mini Spinning

A real spinning mill in miniature, to produce small lots of short and long staple yarn.

Ideal for:
- textile institutes and research centres
- spinning mills of blends
- spinning mills of woollen yarn

Laboratory Carding Machine 337A

Miniature carding machine designed to produce a homogenous sample of fibres of different colour and/or nature. It can process both short and long fibres. The machine can deliver either web, or sliver, by means of the Coiler, Code 337A.6, available as optional. Self-cleaning system, to avoid dirtying of the sample. Delivery speed: 10-15 m/min. Safety devices: emergency stop, switch on moving panels, Plexiglas protective cover. Average production: 4 kg/hour Working width: 500 mm (19.69") Web max. width: 480 mm (18.90")

Power supply: 230 Vac, or 400 Vac, three-phase, 50/60 Hz Weight: 640 kg Dimensions: (L) 1910 x (W) 850 x (H) 1440 mm

Coiler 337A.6

Web Condenser, specifically designed for the Laboratory Carding Machine, Code 337A, to transform the carded web into sliver, and collect it into a proper can for further processing.

Stiro Roving Lab 3371

Miniature draw frame to double and draw in form of an even homogenous sliver the web coming from the Laboratory Carding Machine. Suitable for short and long fibres. Stiro Roving Lab is complete with a device to transform the sliver into a roving and wind it on a spool. Adjustable draw from 2x up to 6x. Adjustable distance between drawing rollers. Adjustable drawing speed and pressure.

Optional: Flyer Twisting Unit (Code 3371.2)

Power supply: 230 Vac, 50/60Hz Weight: 180 kg Dimensions: (L) 1600 x (W) 680 x (H) 1280 mm
Ring Lab  Mini ring spinning  3108A

Mini spinning frame with 6 spindles designed for spinning trials of cotton, woollen, synthetic and blended yarns. Special model suitable to process slivers or rovings produced by Stiro Roving Lab. Endowed with 5 rollers, to draw the sliver up to 400X. Spinning capacity: from Ne 8 up to Ne 80. Electronic setting of delivery speed, twist, draw and twist direction.

Technical details:
- variable speed drive: from 3500 to 25000 rpm
- Ring diameter: 45 mm; tube length: 240 mm
- Spindle speed: up to 18000 rpm
- Special creel for sliver supply included.

Optional kit for core-yarn available on request.
- Digital control panel to show in real time: rpm – tpm – break draft - total draft - delivery speed in m/min - etc.

Power supply: 115 Vac or 230 Vac, 50 Hz or 60 Hz
- Weight: 335 kg
- Dimensions: (L) 1000 x (W) 700 x (H) 2100 mm

Wind Lab  3374

Manual winder with two heads. Adjustable winding speed: from 300 up to 1000 m/min. Winding traverse: 6” (152 mm); conicity: 5° 57’.

Power supply: 230 Vac, 50/60 Hz
- Weight: 71 kg
- Dimensions: (L) 700 x (W) 500 x (H) 1250 mm

Mini Assembly Lab  Mini assembly winder  3372A

Single head assembly winder to produce cylindrical cones to be twisted. Endowed with electronic panel to set parameters, such as length meter and automatic stop. Winding speed: from 200 up to 1200 m/min.

Power supply: 230 Vac, 50/60 Hz
- Weight: 100 kg
- Dimensions: (L) 900 x (W) 900 x (H) 1300 mm
**Twister Lab**  Two for one lab twister  

Single head two-for-one twisting machine to produce cones of plied yarns in the laboratory. 
Spindle type 202B with adjustable speed from 5000 up to 13000 rpm. 
Twisting collecting from 8 to 100 m/min. 
6” winding traverse and 4° 20’ conicity. 
Power supply: 230 Vac, 50/60 Hz 
Air supply: 6 bar hose Ø 6 mm 
Weight: 130 kg 
Dimensions: (L) 470 x (W) 650 x (H) 1450 mm

**Lab Knitter**  Yarn-knit (Dye) uniformity  

High precision single cylinder laboratory knitting machine for the production of tubular knitted fabric for checking dyeing uniformity and evaluate dye affinity. 
Interchangeable cylinder, 3,3/4” diameter, suitable for a wide range of yarns (to be selected from the available ones listed in the attached chart). 
Endowed with fabric fineness regulation mechanism. 
Automatic oiling device. 
Ergonomic control panel complete with: 
electronic yarn length meter; 
variable speed regulation by means of a potentiometer; 
Led indicators monitoring machine’s functions. 

**Optional:**
electronic tensioner  Code 294E.1100 
foot switch  Code 294E.80 

Power supply: 400 Vac, 50/60 Hz, three-phase + N, 1.1 kW, or 230 Vac, 50/60 Hz, single-phase, or 230 Vac, 50/60 Hz, three-phase 
Weight: 130 kg 
Dimensions: (L) 450 x (W) 850 x (H) 1750 mm 

List of available cylinders

<table>
<thead>
<tr>
<th>Code</th>
<th>nr of needles for filaments</th>
<th>Needle gauge</th>
<th>Indicative count range for filaments</th>
<th>Indicative count range for spun yarn*</th>
</tr>
</thead>
<tbody>
<tr>
<td>294E 1320</td>
<td>320</td>
<td>75</td>
<td>Dtex 10-100</td>
<td>Ne 80-120</td>
</tr>
<tr>
<td>294E 1260</td>
<td>260</td>
<td>70</td>
<td>Dtex 30-150</td>
<td>Ne 60-80</td>
</tr>
<tr>
<td>294E 1240</td>
<td>240</td>
<td>48</td>
<td>Dtex 70-300</td>
<td>Ne 40-60</td>
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<tr>
<td>294E 1220</td>
<td>220</td>
<td>48</td>
<td>Dtex 100-400</td>
<td>Ne 20-40</td>
</tr>
<tr>
<td>294E 1140</td>
<td>140</td>
<td>36</td>
<td>Dtex 200-1000</td>
<td>Ne 12-20</td>
</tr>
<tr>
<td>294E 1112</td>
<td>112</td>
<td>24</td>
<td>Dtex 400-2000</td>
<td>Ne 8-12</td>
</tr>
</tbody>
</table>

* Cylinder capacity should be confirmed by yarn testing, as cylinder selection is affected by yarn count, composition and friction. 
** Cylinders with different capacity are available on request.
Polar Evo Wind-Lab

Fully automatic SAVIO POLAR EVO single-head winder equipped with:
touch screen control panel with PC
a wide choice of different interchangeable MESDAN yarn splicers
LOEPFE electronic yarn clearer
automatic carousel feeding magazine
waxing device, tension control, yarn length measuring device ...
Ideal for:
didactic purposes in textile schools, universities, etc.
waste yarn recovery, especially in weaving (yarn leftovers during warping)
as a complementary machine to the “Mini Spinning” line
R&D labs (for research on winding, yarn clearing, waxing, splicing, etc.)

All parameters of the winding process are computer controlled:
yarn quality
package quality
production quality
alarm monitoring system

All moving parts are driven by individual independent driving motors
(upper package and lower bobbin suction, splicer, yarn tensioner).

Power supply: to be defined at order
Installed power: 4 kW - Electrical consumption: 2kW
Compressed air consumption: 8 normal litres
Weight: 340 kg
Dimensions: (L) 1000 x (P) 1100 x (H) 1900 mm

Mini Spinning Layout

A Single yarn production
B Assembly and twisting
C Knitted tubular fabric production

RECOMMENDED CONFIGURATIONS

Basic (for spinning mills):
Single yarns assessment: 1+2+3+4
Plied yarns assessment: 1+2+3+6+7+4

Top (for research centres and institutes):
With manual winder: 1+2+3+5+6+7+4A
With automatic winder: 1+2+3+5A+6+7+4A
## FABRICS

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| p 45 | Tenso-Lab 5000 / Tensile strength tester | Code | 2515 |
| p 46 | Autodyn II / Automatic tensile strength tester | Code | 2514 |
| p 47 | Available clamps for Tenso-Lab and Autodyn | Code |  |
| p 49 | Crease Recovery Tester | Code | 3109 |
| p 49 | Wrinkle Recovery Tester | Code | 3110 |
| p 49 | Crimp Tester | Code | 320A |
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| p 58 | Crock Meter / Rubbing fastness | Code | 2540 |
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| p 59 | “Hoffman” Press | Code | 3370B |
| p 60 | Scorch Fastness / Sublimation tester | Code | 312A |
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| p 60 | Incubator | Code | 251L |
| p 61 | Sun Lab / Light fastness | Code | 325A |
| p 61 | Xenon Lab / Light fastness | Code | 325E |
| p 62 | Wascator | Code | 310B |
| p 62 | Tumble Dryer | Code | 3111 |
| p 62 | Dry Cleaning Machine | Code | 310F |
| p 63 | Top Loading Home WASher | Code | 310H |
| p 63 | Front-loading Home Tumble Dryer | Code | 3111B |
| p 63 | Autowash II / Wash-Dry colour fastness | Code | 311L |
| p 64 | Grey Scales | Code | 325,2 |
| p 64 | Blue Scale | Code | 325,2 |
| p 64 | Standard Adjacent Fabrics | Code |  |
| p 64 | Multifibre DW 010 | Code | 257,424 |
| p 64 | Multifibre TV | Code | 257,426 |
| p 65 | AATCC/ISO Crease Appearance Replicas | Code | 310,94 |
| p 65 | AATCC/ISO Seam Smoothness Appearance Replicas | Code | 310,96 |
| p 65 | AATCC/ISO Smoothness Appearance Replicas | Code | 310,74 |
| p 65 | Soap Powder | Code | 310,10 |
| p 65 | ECE/IEC Reference Detergent | Code | 3122 |
| p 66 | Vapour Permeability Tester | Code | 3395 |
| p 66 | Water Vapour Test | Code | 3395 |
| p 66 | Static Lab | Code | 291B |
| p 67 | Glove Cut Tester | Code | 3394A |
| p 67 | Linear Cut Resistance Tester | Code | 3394B |
| p 67 | Impact Abrasion Lab | Code | 2563 |
| p 68 | ISO Flammability Lab | Code | 3392E |
| p 69 | 45° Flammability Tester | Code | 3392C |
| p 69 | Horizontal Flammability Tester | Code | 3392D |
| p 69 | Vertical Flammability Tester | Code | 3392G |
| p 70 | Sweating Guarded Hot Plate | Code | 3123 |
| p 71 | Integrated Sweating Guarded Hot Plate System | Code | 3123B |
| p 72 | ANDI Thermal Manikin | Code |  |
| p 72 | Automotive Thermal Comfort | Code |  |
| p 72 | Drying Rate Tester DRT201 | Code |  |
Tenso-Lab 4 is the latest generation of the well-known Tenso-Lab semi-automatic tensile tester. The new model is distinguished by:

New hardware:
- high sensibility and robustness (can be used to test both fibres and high tenacity fabrics), direct-drive ball bearing screw, low speed operation available, extended capacity to 5000N, …

New components:
- improved load cells performances (higher accuracy level and new capacity load cell added), quick load cell & clamps/jaws exchange, …

New open software:
- more intuitive and easy to operate, SQL database and standard Ethernet machine connection to data export, no restriction on testing routines (can be created by the end user, no special skills needed)

Features:
- Built according to the CRE (Constant Rate of Extension) testing principle
- Belt free, direct-drive ball bearing screw
- Automatic pretension and automatic load cell and clamp recognition
- Top quality load cells (manufactured by HBM – Germany), accuracy class ± 0,02%
- High resolution sensor integrated into the motor ensures accurate clamp position (less than 0,02 mm)
- Possibility to perform tests at extremely low speed
- Automatic reset of force values when load cell/clamps are changed
- High resolution of acquired data
- High return speed (1800 mm/min)
- Quick load cell exchange (only 10 sec. compared to 2 min. of other models)
- Advanced alarm system prevents accidents; safety clamp movement system
- The Software is modern, flexible and easy to use, it includes a series of standard testing routines. New testing routines can be created by the end user, no special skills needed
- Officially approved by Marks & Spencer.

A variety of interchangeable mechanical and pneumatic clamps for yarns and fabrics is available.

Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase
Weight: 75 kg
Dimensions: (L) 480 x (W) 370 x (H) 1415 mm

### Available Load Cells:

<table>
<thead>
<tr>
<th>Load cell</th>
<th>Load Accuracy [cN]</th>
<th>Resolution [cN]</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 N</td>
<td>0.4</td>
<td>0.0002</td>
</tr>
<tr>
<td>100 N</td>
<td>2</td>
<td>0.001</td>
</tr>
<tr>
<td>500 N</td>
<td>10</td>
<td>0.005</td>
</tr>
<tr>
<td>1000 N</td>
<td>20</td>
<td>0.01</td>
</tr>
<tr>
<td>5000 N</td>
<td>100</td>
<td>0.05</td>
</tr>
</tbody>
</table>
Two-column universal electronic strength tester (CRE) developed to meet the high quality testing requirements of universities, research institutes and leading companies. With a maximum capacity of 5000 kg (50 kN), it is suitable to test also technical textiles, geo-textiles, non-woven and industrial textiles in general. Twin ball screws ensure the smooth movement of the crossbar, sliding between two reinforced guide columns that prevent any deformation of the framework. Available a 1000 kg (10 kN) version, Code 2516.

Available load cells:
- maximum capacity 2 daN (kg) Code 2515.276
- maximum capacity 10 daN (kg) Code 2515.280
- maximum capacity 100 daN (kg) Code 2515.282
- maximum capacity 500 daN (kg) Code 2515.283
- maximum capacity 1000 daN (kg) Code 2515.284
- maximum capacity 5000 daN (kg) Code 2515.288

Precision of load cells: 0.05%

Several types of clamps, both mechanical and pneumatic, are available according to the type of standards. Pc available on request.


Officially approved by Marks & Spencer.
ISO 17025 Calibration Certificate (Accredia - ILAC) available on demand.

Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase, 300 W
Weight: 322 kg
Dimensions: (L) 900 x (W) 600 x (H) 1900 mm
Modular strength tester designed to execute automatically tensile tests and hysteresis cycles on yarns; it semi-automatically executes traction, compression, tearing test on fabrics, covering adhesion tests, tensile test on yarns and hanks (lea test).

Automatic single column strength tester with movement resulting from a ball bearing screw; it is controlled by a software which runs all the functioning phases. Thanks to the specific modular software, Autodyn II allows performing tests in compliance with the main international standards or according to parameters set by the operator which can be saved for future need.

Autodyn II can fit different load cells easy to be changed with maximum capacity of 1000N, and a wide range of pneumatic and mechanical clamps.

Working speed: from 10 to 5000 mm/min.

Modular design specifically conceived for textile industries requiring both automatic and semi-automatic testing of yarns, hanks, fabrics, covering cloths and seams.

Available also in the 24-position automatic version - code 2514A

Optional:

PC, printer
interchangeable load cells of 20 N, 100 N, 1000 N
wide range of mechanical and pneumatic grips for yarns, hanks, and fabrics

Reference standards: ISO, DIN, ASTM, BS, UNI, M&S standards
Power supply: 115 Vac or 230 Vac, 50/60 Hz, 300 W
Air supply: 6 bar
Weight: 85 kg
Dimensions: (L) 610 x (W) 610 x (H) 1340 mm
Available clamps for Tenso-Lab and Autodyne (continued on next page)

Pneumatic clamps for delicate yarns such as POY, Lycra, cotton and worsted yarns (20N max capacity), Code 2510.978

Clamps for yarns (high tenacity) with conical introducer, Code 2510.980

Mini clamps for yarns up to 20N (for Autodyne only), Code 2513.918. Maxi clamps for yarns up to 50N (for Autodyne only), Code 2513.930

Clamps for standard yarns and sewing threads (50N maximum capacity), Code 2510.982

Pneumatic clamps for standard yarns and sewing threads (50N maximum capacity), Code 2510.982

Mechanical clamps for normal yarns (30N capacity), Code 2510.994

Mechanical clamps for high tenacity yarns:
- Scott type 100 – Code 2510.995
- Scott type 300 – Code 2510.996

LEA clamps for hanks, Code 2510.990

Self-tightening high tenacity clamps for ribbons 100mm wide, Code 2510.920 (for Tenso-Lab 1000-5000 only)

Self-tightening high tenacity clamps for ropes (for Tenso-Lab 1000-5000 only), Code 2515.988

Mechanical clamps for high tenacity yarns:
- Scott type 100 – Code 2510.995
- Scott type 300 – Code 2510.996

LEA clamps for hanks, Code 2510.990

Self-tightening high tenacity clamps for ropes (for Tenso-Lab 1000-5000 only), Code 2515.988
Available clamps for Tenso-Lab and Autodyne

Pneumatic maxi clamps with rubber jaws, 100mm wide, Code 2510,130 for high tenacity and heavy fabrics (for Tenso-Lab 1000-5000 only). Pneumatic standard clamps with rubber jaws, 100mm wide, Code 2510,844 for light fabrics.

Mechanical clamps with rubber jaws, 100mm wide, Code 2510,846

Mechanical clamps for non-woven, 200 mm wide, with rubber jaws Code 2510,142. Also available for geotextiles.

Example of interchangeable jaws for 100mm body clamps

- rubber covered jaws 100mm
- “grab”/rubber jaws 25x25mm
- contact line jaws 100mm
- knurled jaws 100mm

Special testing kit, to ensure that zips are appropriately applied. Code 194E,28

Tool for perforation test of non-wovens in compliance with UNI and ISO Standards (for Tenso-Lab1000-5000 only) CBR Type, Code 2510,690

Tool for perforation test of non-wovens, Persoz type, Code 2510,800

Perforation testing kit according to En 388 standard, Code 2510,681
Crease Recovery Tester 3109

To determine recovery characteristics of fabrics undergoing a preset pressure for a specific period of time.

Reference standards: ISO 2313, AATCC 66, UNI EN 22313, M&S P22

Weight: 8 kg
Dimensions: (L) 250 x (W) 200 x (H) 350 mm

Wrinkle Recovery Tester 3110

To determine fabrics resistance to wrinkling.
Equipped with one standard comparative reference photographs, one 0.5 kg weight, one 1 kg weight, one 2 kg weight, and two fixing clamps with support.

Reference standards: AATCC 128, ISO 9867.

Weight: 9.5 kg
Dimensions: (L) 150 x (W) 150 x (H) 330 mm

Crimp Tester 320A

To determine crimp on yarns, caused by weaving and knitting processes.
The device is used also to measure with absolute accuracy the length of a yarn section, in order to determine, after weighing, the yarn count.

Reference standards: ISO 7211-3, IWSTM 31, UNI 9276, BS 2863, BS 2865, BS 2866

Weight: 2 kg
Dimensions: (L) 1500 x (W) 80 x (H) 40 mm
Instrument for the control of abrasion and pilling on almost any kind of woven and knitted fabrics, non-wovens, socks, gloves, natural and artificial leather, both dry and wet samples.

**Model with 9 positions** with LCD touch screen display, equipped with single and total rotation counter.

3 types of test can be performed: abrasion, pilling, and straight-line motion.

Also a **6-position model**, Code 2568A, is available on request.

**Compulsory Accessories** (at least 1 is needed):

Set of 9 sample holders, 38 mm Ø, for **ABRASION test** (according to UNI EN ISO 12947-1), and **PILLING test** (according to ASTM D4970)

Set of 9 sample holders, 90 mm Ø, for **PILLING test** (according to UNI EN ISO 12945-2)

**Optional:**

- Abradant Fabric (1.6x1m)
- Backing Foam (pack of 25 pcs)
- Backing Felt disc, 140 mm Ø (set of 24 pcs)
- Woven Felt disc for Pilling test, 90 mm Ø (set of 24 pcs)
- Set of photographs (ASTM) SM50 for pilling test on woven fabrics (3x4 pcs)
- Set of photographs (ASTM) SM54 for pilling test on knitted fabrics (3x4 pcs)
- Set of photographs (EMPA 991) for PILLING test of woven fabrics
- Set of photographs (EMPA 992) for PILLING test of knitted fabrics
- Sample cutter 38 mm Ø for ABRASION & PILLING test
- Sample cutter 90 mm Ø for PILLING test
- Sample cutter 140 mm Ø for PILLING test

**Power supply:** 115 Vac or 230 Vac, 50/60 Hz, single-phase

**Weight:** 100 kg - **Dimensions:** (L) 800 x (W) 750 x (H) 410 mm

**Reference standards:**


- PILLING, 38 mm Ø: IWS TM 196, ASTM D4970, M&S P140, M&S P17.

**Officially approved by Marks & Spencer** for the following tests:

- M&S P17 Pilling method P1
- M&S P18C Enhanced Pilling
- M&S P19 Martindale Abrasion Resistance of Apparel Fabrics
- M&S P19A Martindale Abrasion Resistance of Handbags and Belt Fabrics
- M&S P19B Martindale Abrasion Resistance of Upholstery
- M&S P19C Martindale Abrasion Resistance for Shirtings
- M&S P140 Martindale Assessment of surface disturbance on fabrics containing micro fibres.

Set of 9 sample holders, 38 mm Ø, for ABRASION test (according to UNI EN ISO 12947-1), and PILLING test (according to ASTM D4970)

Set of 9 sample holders, 90 mm Ø for PILLING test (according to UNI EN ISO 12945-2)
Pneumatic bursting tester to determine the bursting resistance of woven and knitted fabrics, non-wovens and cardboard. The instrument measures the required pressure necessary to burst a tested specimen as well as the specimen extension prior to bursting.

Such test can be carried out in two different ways: following a specific testing standard already present in the software; free adjustment of testing parameters.

Besides, Burstmatic can measure the hysteresis (fatigue cycling tests) as well, the specimen behaviour when subject to cycling extensions and relaxations. All settings are freely programmable. Next to this, on a colour wide touch-screen, all the testing parameters, statistic results, graphics showing the dynamic behaviour of the tested fabric either during bursting or cycling tests, can be displayed.

All testing parameters, results and graphics can be stored into the Burstmatic database. The sample distension height is measured by means of laser technology.

Equipped with:
- pressure rate auto-check system (no need for calibration foils)
- extension height verification system (the use of Johansson gauge blocks is suggested)
- a dedicated air inlet for pressure gauge connection (when calibration is needed).

Possible Tests:
- Bursting tests using customised settings (freely programmable)
- Cyclical tests using customised settings

Officially approved by Marks & Spencer (M&S).

<table>
<thead>
<tr>
<th>Available test areas:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Area cm²</td>
<td>Diameter mm</td>
</tr>
<tr>
<td>7.3</td>
<td>30.5</td>
</tr>
<tr>
<td>7.8</td>
<td>31.5</td>
</tr>
<tr>
<td>10</td>
<td>35.7</td>
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<tr>
<td>50</td>
<td>79.8</td>
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<tr>
<td>100</td>
<td>112.8</td>
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Measurement range:

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<tr>
<th>Distension cm</th>
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<th>Max</th>
<th>Resolution</th>
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<td>0.01</td>
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<tr>
<td>Pressure bar</td>
<td>10</td>
<td>1000</td>
<td>145</td>
</tr>
<tr>
<td>kPa</td>
<td>0.004</td>
<td>2.756</td>
<td>0.004</td>
</tr>
<tr>
<td>psi</td>
<td>0.1</td>
<td>0.02</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Power Supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase
Net Weight: 65 kg
Dimensions: (L) 370 x (W) 460 x (H) 530 mm
Spray Rating Tester 333A
To determine the surface wetting resistance of fabrics. As optional, standard reference photographs are available (Code 333.2).
Reference standards: ISO 4920, AATCC 22, UNI EN 24920, BS 4323, BS 3424 part 26, M&S P23
Weight: 5 kg
Dimensions: (L) 280 x (W) 280 x (H) 500 mm

ICI Pilling & Snagging Tester 4 positions 279G
Instrument particularly suitable for testing pilling on knitted fabrics. Model equipped with four boxes. Complete with revolution counter. Speed setting: 30/60 rpm.
Upon request, 2-position model (Code 279H) can be supplied.
Optional:
special set of nails, to perform snagging test (Code 279.16) drum for pilling and snagging test, according to M&S P18 (Code 279.28).
Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase
Weight: 69 kg
Dimensions: (L) 980 x (W) 660 x (H) 800 mm

Digital electric-hydraulic Bursting Tester 338D
To determine fabrics resistance to bursting. Pressurising device with precision volumetric pump. Safety valve for pressure control. Control lever for test execution, emptying operation and automatic zero setting at release. Control device run by an electric engine at variable speed, with automatic stopwatch to check test duration. Glycol fluid. Measuring range: from 0 to 50 bar (0 to 5000 kPa). Subdivision: 0.01 bar. Supplied with: 12 membranes of pure para rubber, 12 O-rings, 1 bottle of liquid, 1 wrench for ring dismantling.
Power supply: 230 Vac, 50 Hz, single-phase
Weight: 30 kg
Dimensions: (L) 500 x (W) 400 x (H) 400 mm
Elmendorf 275A

Instrument to test tearing resistance of cloths, artificial leather, paper. Interchangeable pendulums having the following capacities can be supplied:

- pendulum: 1.600 g  Code 275A.126
- pendulum: 3.200 g  Code 275A.128
- pendulum: 6.400 g  Code 275A.130


Weight: kg 6 (pendulum excluded)
Dimensions: (L) 380 x (W) 180 x (H) 380 mm

Pneumatic Fabric Stiffness Tester 3396

For the quick and accurate measurement of fabric stiffness. A plunger of 25.4 mm (1 inch) diameter pushes the fabric through a 38 mm (1.5 inch) diameter hole and the maximum force is recorded.

Selectable measurement units are: 50 kgf, 500N, 100lb.

Reference standards: ASTM D4032

Power supply: 100 up to 230 Vac, 50/60 Hz, + battery
Weight: 18 kg
Dimensions: (L) 500 x (W) 500 x (H) 600 mm

Thickness-Lab Thickness tester 1880

Laboratory thickness tester, with digital reading, suitable for woven and knitted fabrics, non-wovens, geotextiles and leather. Reading capacity from 0 to 10 mm, with 0.01 mm accuracy. RS232 port available.

Available models:
- in compliance with UNI EN ISO 5084 standard (textiles) 20 cm² - 0.1 and 1 kPa Code 1880
- in compliance with UNI EN ISO 9863-1 standard (geotextiles) 25 cm² - 2 kPa Code 1880B
- in compliance with UNI EN ISO 9073-2 standard (non-woven) 25 cm² - 0.5 kPa and 1 kPa or 10 cm² - 5 kPa Code 1880C

Other models for leather, rubber, paper, etc., are also available. Pressure weights and additional plates for each model are available as optional. A version with a measuring range from 0 to 25 mm can also be supplied.

Optional: software for data acquisition and storage Code 1880.2

Power supply: Battery, 3 V, Mod. CR2032, 190 mAh
Weight: 23 kg
Dimensions: (L) 250 x (W) 310 x (H) 300 mm
Water Proof

3241C

Instrument for the analysis of the water permeability of textile materials. It enables to determine the hydrostatic pressure needed for water passage through samples. It also measures the resistance of the samples to water passage at a constant hydrostatic pressure. The tested sample has a surface of 100 cm² and it is fixed with a special air tight system.

Adjustable pressure: 0-9999 mm/H₂O.

“Plus” model (Code 3241D) with adjustable pressure up to 20,000 mm/H₂O is also available.

Supplied complete with “touch screen” for setting and reading of the analysis results.

Software available on request.

Reference standards: EN ISO 20811, DIN 53886, AFNOR G-07057, ISO 811, BS 2823, BS EN 3424 part 26, AATCC 127, UNI 5123, ISO 1420-A

Power supply: 230 Vac, 50/60 Hz, single-phase

Weight: 50 kg

Dimensions: (L) 540 x (W) 540 x (H) 1700 mm

Air Tronic Plus

3240C-E-F

AIR TRONIC PLUS is a fast and silent electronic instrument to determine the air permeability (meant as speed of the air flow vertically passing through the sample under preset and known testing conditions) of woven, knitted and non-woven fabrics, industrial fabrics for technical use, artificial leather, felt, velvet and paper.

It can calculate also the average pore size of woven fabrics, a unique feature important for the filtration industry, their evaluation and classification.

The air permeability value is expressed in mm/sec. and, thanks to the different testing template areas supplied with the instrument, the air permeability range is extremely wide and goes from a minimum of 1.4 mm/sec up to a maximum of 8056 mm/sec*.

The air permeability range of model 3240C (special high capacity model available on demand), goes from a minimum of 180 mm/sec up to a maximum of 55555 mm/sec.

The air permeability value can be also expressed in m/sec. and l/minutes.

AIR TRONIC PLUS is equipped with wheels, as well as a user-friendly touch screen display, a built-in suction unit with cooling system (granting a noise level reduction of about 20-30 dB, in comparison with the “standard models”), and a digital Flux Meter (to perform fast tests).

Optional: Control Lab, Data Management Software, PLC Software Option for average pore size calculation, built-in micro printer, Automatic Pressure Drop Regulator, Seal Fixing Rings, Template Area Adapter.


Power supply: 230 Vac, 50/60Hz single-phase

Weight: 76 kg (model 3240E) - 100 kg (model 3240F)

Dimensions: (L) 620 x (P) 620 x (H) 1170 mm

<table>
<thead>
<tr>
<th>Code</th>
<th>Depressur [10 Pa = 1 mm H₂O]</th>
<th>Air flow</th>
<th>Flux meter</th>
<th>Standard Test Area</th>
<th>Optional Test Area</th>
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</thead>
<tbody>
<tr>
<td>3240E</td>
<td>0-2500</td>
<td>0-250</td>
<td>50-5800</td>
<td>Digital (1 unit)</td>
<td>2-5-10-20-50-100</td>
</tr>
<tr>
<td>3240C</td>
<td>0-2500</td>
<td>0-250</td>
<td>6500-100000</td>
<td>Analogic (1 unit)</td>
<td>5-20-25-50-100</td>
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<tr>
<td>3240F*</td>
<td>0-2500</td>
<td>0-250</td>
<td>50-5800</td>
<td>Digital (2 units)</td>
<td>2-5-10-20-50-100</td>
</tr>
</tbody>
</table>

* Special model, which conforms to ASTM D3574 as well (in addition to all other Standards of models 3240E and 3240C).

Remarks: bench models are also available on demand (Code 3240A and Code 3240B).
The only ELMENDORF on the market able to automatically perform the following operations:

- sample pre-cut
- release of the laceration pendulum
- reading of the laceration value
- blocking of the pendulum
- reset of the pendulum into the starting position

Suitable for all kinds of clothes, technical and protective fabrics, as well as for paper, cardboard, natural and artificial leather. Model with a high laceration capacity, ranging from 1600 to 30,000 g. Pendulum complete with additional check weights, supplied as standard with the instrument.

Instrument equipped with alphanumeric keyboard and digital reader for the measurement of the laceration values that can be printed or transferred to a PC through a RS 232 serial port. Instrument fully protected and complying with the strictest EU safety norms.

Reference standards:

- **Plastic** - according to: UNI EN ISO 6383-2-method 360A
- **Paper** - according to: TAPPI T414, UNI EN ISO 1974

Officially approved by Marks & Spencer.

Power supply: 115 up to 230 Vac, 50/60 Hz, single-phase
Net weight: 66 kg
Dimensions: (L) 510 x (W) 700 x (H) 630 mm
High performance computerised system conceived for the analysis of fabrics, non-wovens, etc. Ideal to analyse yarn structures, detect defects, reduce warp and weft density of fabrics to a cm or an inch, and to analyse mechanical parts. It enables to process, store and print the produced measurements, the related statistics (min., average, max. values, CV%) and the distribution graphs.

The system is composed of:

**Stereo Microscope** with magnification on screen from 16X to 189X, with illuminated base, for the analysis of fabrics, yarns and mechanical parts like rings, needles and spinnerets.

**Led Ring Light Illuminator**

**PC** complete with LCD monitor and photographic quality printer.

**Professional digital colour camera, 1/2.33”, CMOS, 16.0 Mpixel, USB 3.0**, to acquire images from microscope.

**Software** for the image acquisition (on which measurements and comments can be produced), the measurement on the “live” images directly, and the statistic analysis of the acquired measurements.

**Fibre Microscope Kit** for the microscopic analysis; instructions for sample’s preparation.

**Optional:**

**OPTICAL FIBRE ILLUMINATION DEVICE** (for a perfect illumination of a sample from different adjustable angles).

**C-STEP CONNECTOR WITH 0.5X LENS**
The installation of this connector allows to halve the magnification on screen and double the sample field of vision.

**TRINOCULAR KIT**
To display the sample image either on the PC monitor, or in the oculars.

Reference standards:

ISO 137, UNI EN 12751, UNI 5423, UNI ISO 1130, ASTM D629, ASTM D2130, ASTM D276, AATCC 20, IWTO 8, IWS TM24, NIKE (section H, fiber content testing requirements)

Power supply: 100 up to 230 Vac, 50/60 Hz

Weight: 50 kg

Dimensions: (L) 1600 x (W) 700 x (H) 700 mm
Portable Microscope 2604
Pocket-size microscope with 40X magnification and grazing light.

Pick Counters

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2601</td>
<td>Pick counter 10x10 mm and 12X</td>
<td>Code 191,66  A pair of oculars 20X and additional lens 2X, to reach a maximum of 180 enlargements</td>
</tr>
<tr>
<td>2605</td>
<td>Pick counter 25x25 mm and 7X</td>
<td>Code 191,62  Additional lens 0.5X, to reach the standard magnification</td>
</tr>
</tbody>
</table>

Microscope for fabrics 191G
Stereoscopic microscope with trinocular head frame, particularly indicated for fabric and yarn analysis. Standard magnification from 7X to 45X. Incident and transmitted illumination.

Optional:
- A pair of oculars 20X and additional lens 2X, to reach a maximum of 180 enlargements
- Additional lens 0.5X, to reach the standard magnification
- Adaptor for Reflex type camera (T2 ring not supplied)

Power supply: 230 Vac, 50/60 Hz, single-phase
Weight: 7 kg
Dimensions: (L) 200 x (W) 250 x (H) 400 mm

Circular Sample Cutter 175B
Cutting area: 100 cm².
Cutting depth: 5 mm. Model with 4 blades.
Equipped with one cork support plate and four spare blades.
Reference standards: ISO 3801, UNI EN 12127, ASTM D2646, ASTM D3776, BS 2471, BS 3424, M&S P65, M&S P65A, NEXT 20
Weight: 2 kg
Dimensions: (L) 170 x (W) 170 x (H) 150 mm

Electronic balance per m² 165,664
Digital reading electronic balance particularly suitable to check the weight per m² of fabrics and paper, by means of pre-cut round cloth samples with a surface of 100 cm².
The reading capacity of the balance, by using 100 cm² round cloth samples, allows the measurement of a maximum weight of the fabric up to 30000 g/m², with an accuracy of 1 g/m².
Weighing capacity: 300 g and 0.01 g accuracy.
Pan size ø 120 mm.
Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase
Weight: 1.9 kg
Dimensions: (L) 200 x (W) 200 x (H) 60 mm
**Crock Meter** Rubbing fastness

Instrument to determine colour fastness to rubbing, fitted with a digital reading counter. The instrument is supplied complete with a rubbing dowel with 1,6 cm diameter, a dowel with 1,9x2,54 cm dimensions, (each dowel is equipped with a proper weight, in order to reach 9 N), and one set of crocking clothes.

**Optional:**
- 1 set of no. 500 pieces of cotton crocking cloth
- Grey scale A03
- Reference standards: UNI EN ISO 105 X12, AATCC 165, M&S C8, NEXT 6
- Weight: 8 kg
- Dimensions: (L) 670 x (W) 220 x (H) 210 mm

**Electric Crock Meter** Rubbing fastness

Electric model to determine colour fastness to rubbing, fitted with a digital counter. The Crock Meter is supplied complete with a rubbing dowel with 1,6 cm diameter, a dowel with 1,9x2,54 cm dimensions, one pre-installed weight (to reach 9 N), and one set of crocking clothes.

**Optional:**
- no. 500 pieces of cotton crocking cloth
- Grey scale
- Reference standards: UNI EN ISO 105 X12, AATCC 8, AATCC 165, M&S C8, NEXT 6
- Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase
- Weight: 18 kg
- Dimensions: (L) 610 x (W) 220 x (H) 300 mm

**Forced Ventilation Conditioning Oven**

High-tech oven suitable for crimp checking in yarns and for checking the dimensional stability of fabrics in hot air. Suitable for the hot cleaning of mechanical spinnerets, for drying and heating of any type of textiles. Supplied complete with temperature digital regulator and two grid-type shelves made of stainless steel.

Forced ventilation of the heating air.

Operating temperature range: from room temperature to +280°C.

Accuracy: ± 1°C.

Available models:
- Inside dimensions (L) 408 x (W) 372 x (H) 422mm. Capacity: 60 litres. Weight: 40 kg
  Code: 251G
- Inside dimensions (L) 498 x (W) 477 x (H) 512mm. Capacity: 120 litres. Weight: 50 kg
  Code: 251H
- Inside dimensions (L) 593 x (W) 522 x (H) 797mm. Capacity: 250 litres. Weight: 90 kg
  Code: 251P

Power supply: 230 Vac or 400 Vac, 50/60 Hz
**Sample Press Lab**

Hydraulic punch cutting machine with high cutting capacity. Ideal to cut textile, leather, rubber and soft plastic specimens, to be used for different types of testing (such as strength, weight per square metre, flexion, bursting tests, etc.).

- Cutting capacity: 16,000 kg
- Maximum cutting surface: 400x800 mm
- Maximum cutting stroke: 80 mm
- Cutting device can be activated by means of a safety button.

Reference standards:
- ASTM, ISO, DIN, AFNOR and UNI standards only.

- Power supply: 400 V, three-phase, 50/60 Hz
- Weight: 870 kg
- Dimensions: (L) 980 x (W) 900 x (H) 1410 mm

**Optional:**
- Punching knives
  - Circular, rectangular and square, with straight and jagged blade - different dimensions on demand.
  - Punch thickness: 30 mm
  - Cutting stroke: about 5 mm

---

**“Hoffman” Press**

Vaporising ironing machine to check the dimensional stability of orthogonal and knitted fabrics during ironing tests.

Hoffman Press is equipped with a PLC device which controls the automatic pressing, sample vaporising and suction cycles. The test is set through a control panel, where some preset programs are available. The operator can anyway create and save new programs.

- Suction is performed by the lower board. Suction depression complies with international standards and can be certified by third parties.
- Ironing board dimensions: 600 x 800 mm

**Optional:**
- Electric boiler for vapour production, **code 3370A**

Reference standards:
- DIN 53894-2, NF G07 212, ASTM D2724, IWS TM 290, JIS L1096 method H2, H3, H4, JIS L1909

Available also model **Code 3370A**, which conforms to all the same standards, except for DIN and NF standards.

- Power supply: 400 Vac, 50 Hz, three-phase + N
- Weight: 310 kg
- Dimensions: (L) 1400 x (W) 1000 x (H) 1600 mm
**Scorch Fastness Sublimation tester 312A**

To determine colour fastness to hot pressing and dry heat and to perform sublimation tests.

- Heating plates dimensions: 125x125 mm (5”x5”).
- Temperature range: from +125°C to +230°C.
- Pressure: 4 kPa

Reference standards: ISO 105 X11, AATCC 117, 133, BS 1006

Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase

Weight: 15 kg

Dimensions: (L) 260 (W) 460 (H) 240 mm

Available also **Code 312B**: 5 plates, dimensions: 102x29 mm, (4”x1.13”).

**Perspirometer 257A**

Instruments to check:

- colour fastness to perspiration, in compliance with the following standards: UNI EN ISO 105- E04; BS 1006; BS EN 20105; AATCC 15; IWS TM 175

- Colour fastness to swimming pool and sea water, in compliance with the following standards UNI EN ISO 105 E01; BS 1006; BS EN 20105; AATCC 106; AATCC 107; IWS TM 6.

- Colour yellowing to phenol, in compliance with ISO and AATCC standards.

The system is composed of:

**Code 257A** - Perspirometer; standard weight of 5 kg, optional; set of plexiglas 21 plates (100x40 mm each), complete with one metallic container

**Code 251L** - Incubator cabinet with measuring, temperature range: from +5°C above room temperature to +80°C; accuracy: ±0.5°C at 37°C

Optional:

- Multifibre fabrics DW 010 (ISO 105 e BS 1006) **Code 257.424**
- Grey scale A03 (ISO 105 e BS 1006) to assess colour staining **Code 267A**
- Grey scale A02 (ISO 105 e BS 1006) to assess colour fastness **Code 267C**
- Kit of chemicals to reproduce acid and alkaline perspiration (in compliance with ISO, BSi, IWS, IWS TM) **Code 257.8**
- Weight: 4.54 kg for AATCC standard **Code 257.4**
- Set of glass: 10 plates (100x40x3 mm each) **Code 257.18**
- Colour yellowing to phenol Kit for ISO (105x18 mm) **Code 257.10**
- Weight: 5 kg for ISO standard **Code 257.20**

Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase

Weight: 45 kg

Inner dimensions: (L) 300 x (W) 240 x (H) 300 mm

Outside dimensions: (L) 550 x (W) x 350 x (H) 420 mm
Sun Lab  
Light fastness  

**325A**

Equipment for the analysis of the colour fastness to the light of a 1500W Xenon lamp.

The following parameters are monitored, controlled and stabilized:
- temperature measured on the specimen with the B.S.T. method;
- lamp irradiance.

Possibility of specimen irradiance (one filter is included at customer’s choice); other filters are supplied as optional:
- UV 310 filter + IR (exposure behind the window)  **Code 325.34**
- UV 280 filter + IR (outdoors exposure)  **Code 325.38**
- UV 280 filter (outdoors exposure)  **Code 325.42**
- UV 310 filter (exposure behind the window)  **Code 325.46**

Timer included.

**Optional:** see optional accessories available for Xenon Lab

**Code 325E.**

Reference standards: ISO 105, BS 1006

Power supply: 230 Vac, 50/60 Hz, single-phase

Weight: 29 kg

Dimensions: (L) 750 x (W) 390 x (H) 400 mm

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Xenon Lab  
Light fastness  

**325E**

Equipment for the analysis of the colour fastness to the light of a 1500W Xenon lamp in a chamber with preset humidity, controlled by ultrasonic device.

The following parameters are monitored, controlled, and stabilized:
- temperature;
- humidity;
- lamp irradiance.

Filter UV 310 nm for the simulation of indoors conditions.

Possibility of specimen irradiance: see Sun Lab (**code 325A**) description, for filter specifications.

**Optional:**

- Set of Blue standard scale for light fastness (50 units)  **Code 325.2**
- Humidity test control fabric (Htc)  **Code 325.30**
- Grey scale type A02  **Code 267C**
- Set of 3 sample holders 100 (x3)  **Code 193A.100**

Reference standards: ISO 105 B02 (except A.1.4); BS 1006

Power supply: 230 V, 50/60 Hz

Weight: 60 kg

Dimensions: (L) 750 x (W) 390 x (H) 1000 mm

Specimen tray dimensions: 280 x 200 mm
Wascator

High precision washing machine officially acknowledged as a standard reference for washing tests on fabrics. Wascator is also suitable for checking effects of washing detergents and chemical products. Equipped with microprocessor for setting several programs of different functioning cycles.

Optional:
- Polyester makeweight
- Stability template and percentage ruler for checking the dimensional stability
- Memory card UNI EN ISO 6330
- ECE / IEC detergents available on demand
- Power supply: 230 Vac or 400 Vac, 50 or 60 Hz, three-phase
- Weight: 195 kg
- Dimensions: (L) 720 x (W) 690 x (H) 1315 mm

Tumble Dryer

Recommended model to dry samples washed with Wascator, Code 310B.
- Capacity: 5 kg - Timer: 99.99 min.
- Equipped with electronic processor for accurate temperature control within ±1°C.
- Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase
- Weight: 35 kg
- Dimensions: (L) 600 x (W) 600 x (H) 850 mm

Dry Cleaning Machine

Dry cleaning machine internationally acknowledged as a standard reference to check the dimensional stability of fabrics to dry washing. Equipped with an electronic device for the control of the different washing programs. Complete with drying system.

Reference standards: EN ISO 3175, AATCC 158
- Power supply: 400 Vac, 50/60 Hz, three-phase
- Net weight: 1200 kg
- Dimensions: (L) 1460 x (W) 2100 x (H) 2000 mm
Top Loading Home Washer 310H

Washing machine with loading system from the top, to simulate domestic washing cycles. Equipment selected and certified by AATCC.

Reference standards: AATCC 88B, AATCC 88C, AATCC 124, AATCC 130, AATCC 135, AATCC 142, AATCC 143, AATCC 150, AATCC 159, AATCC 179

Power supply: 115 Vac, 60 Hz or 230 Vac, 50 Hz
Weight: 58 kg
Dimensions: (L) 699 x (W) 686 x (H) 1006 mm

Front-loading Home Tumble Dryer 3111B

Tumble dryer machine with loading system from the front, to dry samples after their washing with the Top Loading Home Washer (code 310H).

Equipment selected and certified by AATCC, to perform domestic drying cycles.

Reference standards: AATCC 88B, AATCC 88C, AATCC 124, AATCC 130, AATCC 135, AATCC 142, AATCC 143, AATCC 150, AATCC 159, AATCC 179

Power supply: 115 Vac, 60 Hz or 230 Vac, 50 Hz
Weight: 55 kg
Dimensions: (L) 737 x (W) 717 x (H) 1090 mm

Autowash II Wash-Dry colour fastness 311L

Instrument to determine the colour fastness to dry-cleaning or washing. Fitted with a computerised electronic temperature controller, accuracy ±1°C. It can be used also for atmospheric dyeing up to +98°C.
Structure wholly made of very strong stainless steel.
Dual speed selection: 40 rpm (as requested by the standards for colour fastness) and 22 rpm (for dyeing tests).
Model designed to contain up to 8 interchangeable beakers of 550 cc or 1200 cc for colour fastness testing, according to the specific standard (European or American) in use.
Also suitable for soaping.

Available on demand a 16-position model, code 311M.

Optional:
- Stainless steel beakers 550 cc for colour fastness Code 311L18
- Stainless steel beakers 1200 cc for colour fastness Code 311L20
- Base for instrument placement Code 311L22


Power supply: 400 Vac, 50/60 Hz, three-phase + N
Weight: 135 kg
Dimensions: (L) 1025 x (W) 757 x (H) 1127 mm
Grey Scales

For checking colour staining and fastness, according to ISO 105 (BS 1006).

Available in two models:
- Grey scale A02 for colour change tests, Code 267C
- Grey scale A03 for colour staining tests, Code 267A

AATCC grey scales for colour staining test and for colour fastness tests are also available:
- AATCC scale for colour change tests, Code 267D
- AATCC scale for colour staining tests, Code 267E

Blue Scale

Set of 50 cards in pure wool, each with 8 stuck blue scale gradations.
To test colour fastness of cloths exposed to light, in accordance with ISO Standard 105 (BS 1006), ATCC

Standard Adjacent Fabrics

Suitable for colour staining tests according to ISO 105 standards (BS 1006).

Available in the following versions:
- F01 Wool (10x4 cm - 50 pcs.) Code 323.8
- F02 cotton (limbric) - (10x4 cm - 50 pcs.) Code 323.6
- F02 Viscose (1 m) Code 323.10
- F03 Polyamide (Nylon 6.6, 1 m) Code 323.12
- F04 Polyester (1 m) Code 323.14
- F05 Acrylic (1 m) Code 323.16
- F09 Cotton rubbing cloth (Lawn) - (500 pcs.) Code 198.422
- D01 Cotton for dry cleaning (Drill) - (1 m) Code 323.4

Multifibre DW 010

Standard fabrics for colour staining tests, according to ISO 105 (BS 1006) norms, F10. The fabrics are made of fibres: secondary cellulose, acetate, cotton, polyamide, polyester, acrylic and wool. Supplied in packages of 10 m length each.

Multifibre TV

Same as DW010 Code 257.424, but for washing tests at high temperature.
AATCC/ISO Crease Appearance Replicas 310.94
Set of 5 standard references to visually evaluate the crease in the fabrics after washing.
Reference standards: UNI EN ISO 15487, ISO 7769, AATCC 88C, AATCC 143, M&S P134

AATCC/ISO Seam Smoothness Appearance Replicas 310.96
Set of standard reference for the smoothness appearance of seams in fabrics after cleansing.
Reference standards: UNI EN ISO 15487, ISO 7770, AATCC 143

AATCC/ISO Smoothness Appearance Replicas 310.74
Set of 6 standard references for the visual assessment of the fabric smoothness after washing.
Reference standards: AATCC 124, AATCC 143, M&S P91, M&S P134, ISO 7768

Soap Powder 310.10
To perform tests of colour fastness to washing, as per the ISO 105 (BS 1006), CO1-C05 standards.

ECE/IEC Reference Detergent
Detergent with or without bleaching agents, to be used for the colour fastness tests to washing, following the ISO standards.

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE without phosphate (A) 2 kg</td>
<td>310.32</td>
</tr>
<tr>
<td>ECE with phosphate (B) 2 kg</td>
<td>310.4</td>
</tr>
<tr>
<td>IEC without phosphate (A) 2 kg</td>
<td>310.16</td>
</tr>
<tr>
<td>IEC with phosphate (B) 2 kg</td>
<td>310.40</td>
</tr>
</tbody>
</table>
Vapour Permeability Tester  3122
To check the resistance of textiles to water vapour penetration.
The system is composed of:
no. 3 pots complete with covers and gaskets
no. 1 laboratory glass dryer, diameter 300 mm
no. 1 25 ml pipette
no. 1 kg silica gel
Electronic balance not included
Reference standards: UNI 4818 - 26
Weight: 20 kg
Dimensions: (L) 400 (W) 400 (H) 400 mm

Water Vapour Tester  3395
Instrument to analyse the water vapour permeability of leather, industrial fabrics and all permeable materials. Sample rotation speed: 75 ±5 rpm. Ventilation system: with 3 blades rotating at 1400 ±100 rpm.
The equipment is composed of:
set of rotating beaker holder for 6 positions, with rapid release system
6 glass beakers
protection system for the operator
Power supply: 230 Vac, 50/60 Hz
Weight: 25 kg
Dimensions: (L) 550 x (W) 650 x (H) 500 mm

Static Lab  2918
Equipment suitable for checking the static electricity properties of clothes, protective fabrics, shoe fabrics and leather materials.
It is composed of:
electronic control panel for the digital reading of the static electricity values (Ohm)
connecting cables
measuring heads for the static electricity reading as regards both the “surface” and “vertical” methods
Reference standards: UNI EN 1149-1, UNI EN 1149-2, AATCC 76
Note: before the static electricity measurement, sample has to be conditioned at +23°C ±1° and R.H. 25% ± 5%, with Climatest (Code 1722).
Power supply: 230 Vac, 50/60 Hz, single-phase
Weight: 5 kg
Dimensions: (L) 500 x (W) 300 x (H) 300 mm
**Glove Cut Tester 3394A**

Equipment for checking the resistance of protective cloths to cutting. Suitable to perform tests on protective gloves against accidents, according to the EN 388 standard.

Accessories supplied with the equipment:
- 1 pack of aluminium paper with 0.01 mm thickness
- 1 pack of paper (filter) 65 g/m²
- 1 pack of reference fabric
- 2 sample holders
- 10 blades

Reference standards: UNI EN 388 6.2.2 (2017), UNI EN 13594

Power supply: 230 Vac, 50/60 Hz
Weight: 25 kg
Dimensions: (L) 500 x (W) 300 x (H) 420 mm

**Linear Cut Resistance Tester 3394B**

Instrument suitable to measure the resistance to cutting on protective clothing. Designed to perform tests also on protective gloves, according to the international Standards. Equipped with moveable 9-position sample holder, suitable to perform multiple tests - on the same specimen - with different applicable forces, in order to collect data to define the resistance to cutting by sharp objects.

The instrument is supplied with:
- 1 set of combinable weights to reach forces up to 61 N
- 20 Standard blades
- 1 Standard calibration neoprene sheet
- 1 Bi-adhesive tape, 1 roll
- 1 Aluminium foil, 1 roll

Reference standards: UNI EN ISO 13997, UNI EN 388 6.3 (2017), ASTM F2992/F2992M

Power supply: 230 Vac, 50 Hz.
Weight: 39 kg
Dimensions: (L) 800 x (W) 390 x (H) 400 mm

**Impact Abrasion Lab 2563**

Laboratory instrument suitable to:

Determine quality of protective suits like motor rider suits (both one-piece and detached), gloves etc. Made to protect motorbikers from injuries caused by impact against the road surface.

Determine the resistance to abrasion of wrist, knee, elbow and hand protections.

Supplied complete with timer (in seconds), meter counter for abrasion, device to apply a pressure of 49N onto specimens, waste suction device, and safety device for the operator.

Reference standards: UNI EN 13595-2, UNI EN 13594, UNI EN 14120, UNI EN 388 6.6 (2017)

Power supply: 400 Vac, 50/60 Hz, three-phase + N
Compressed air supply: 5 bar
Net weight: 250 kg
Dimensions: (L) 1500 x (W) 500 x (H) 1500 mm
Instrument to determine the flammability resistance of textiles and the flame propagation rate onto vertically oriented textile materials.

Suitable to test:
- protective fabrics;
- technical fabrics in general;
- clothes and furnishing fabrics.

The instrument can be also used with toys, as well as with both natural and artificial leather.

ISO Flammability Lab is fully automatic, since it is equipped with a PLC that controls and records the movement of the burner, the distance of the same from the samples, and the flame propagation time from one set distance to the other one. The PLC is equipped with 1 RS232 serial port for connection with Personal Computer, and for printing of test results.

Optional:
- Computer - Software - Printer

Radiator (Code 3392E.40) to analyse the flammability resistance of textile materials exposed to the heat of a radiator (as required by the EN 13772).

Reference standards:

Power supply: 115 Vac or 230 Vac, 50/60 Hz
Net weight: 50 kg
Dimensions: (L) 650 x (W) 750 x (H) 1200 mm
45° Flammability Tester 3392C

Laboratory instrument to determine the flammability resistance of fabrics exposed to a flame with an angle of 45°. Automatic model with timer (in seconds) that automatically stops the flame application at the end of the pre-set time, and consequently measures the flame propagation time to reach the target zone. Made of stainless steel. Transparent panel made of fire-resistant glass.


Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase
Net weight: 20 kg
Dimensions: (L) 400 x (W) 350 x (H) 500 mm

Horizontal Flammability Tester 3392D

Automatic instrument to determine the flammability resistance of all kinds of materials used both in the automotive and aircraft industries. Equipped with a timer (in seconds) to control the ignition time.


Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase
Net weight: 12 kg
Dimensions: (L) 450 x (W) 200 x (H) 450 mm

Vertical Flammability Tester 3392G

Automatic instrument to determine the flammability resistance to a vertical flame of apparel fabrics, protective fabrics, curtains and children’s sleepwear. Equipped with a timer (in seconds) to control the ignition time.


Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase
Net weight: 38 kg
Dimensions: (L) 330 x (W) 340 x (H) 850 mm
Highly accurate instrument to determine the physiological “comfort” of fabrics. Testing is performed by means of a transparent hot plate, called “skin model”, that simulates the process of heat and humidity transfer occurring in proximity of the human skin. It provides the following data:

- Thermal resistance (RCT) with scale from 0.002 to 2.0 m² K/W
- Resistance to steam (RET) with scale from 5 to 1000 m² Pa/W
- Index of permeability to steam (IMT)
- Permeability to steam (Wd)
- Max flux 1100 W/m²

The instrument is supplied complete with:
- Hot plate for fabric specimens up to 8” x 8”
- Electronic interface with heating and conditioning sensors
- Heating device of the “skin model” plate
- Air control device
- Sensors for the measuring of air speed, temperature and relative humidity.
- Personal computer complete with operating software

To carry out testing, the use of Climatest (Code 1722S) is necessary.

Reference standards:

Power supply: 115 Vac or 230 Vac, 50/60 Hz
Weight: 52 kg
Dimensions: (L) 660 x (W) 610 x (H) 610 mm
The Sweating Guarded Hot Plate, or “Skin Model”, is used to produce accurate, repeatable measurements of thermal resistance (Rct) and vapour permeability (Ret) for textiles as per UNI EN ISO 11092, ASTM F1868 and ASTM D1518 (Option II).

The iSGHP-8.2 and iSGHP-10.5 systems include Hot Plate with integral sweating surface, computer controlled variable airflow rates, gravity fed fluid supply system, and ambient temperature and humidity probes.

The system’s integrated chamber features an insulated stainless steel interior and a compact, space-efficient design.

Its ergonomic layout yields a comfortable working height of approximately 42” (107cm) above the floor, and other thoughtful touches include a high intensity LED cabinet light, a removable top shelf for the preconditioning of fabric samples, and a large insulated door with viewing window.

For sweating tests the SGHP Hot Plate utilizes the chamber’s water source, and a unique porous wicking assembly on both Hot Plate and guard ring ensures a uniform wetted surface.

Adjustable (motorized) plate height easily accommodates a variety of sample thicknesses, and our ThermDAC control and data logging software makes testing very simple.

Reference standards:

Power supply: 220/240 Vac, 50/60 Hz, single-phase
Weight: 448 kg
Dimensions: (L) 910 x (W) 990 x (H) 1780 mm

<table>
<thead>
<tr>
<th>Rct (m² K/W)</th>
<th>Ret (m² Pa/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ΔT=15°C</td>
<td>ΔRH=60%</td>
</tr>
<tr>
<td>environment: 20°C/65% RH</td>
<td>environment: 35°C/40% RH</td>
</tr>
<tr>
<td>plate: 35°C</td>
<td>plate: 35°C/100% RH</td>
</tr>
</tbody>
</table>
Advanced Thermal Measurement Technology

**ANDI Thermal Manikin**

Sweating thermal manikin for advanced thermal comfort research, with exclusive features: Dynamic Heatflux Sensing and Active-Cooling; ANDI can measure both positive and negative heatflux (heat loss and heat gain) and respond to changing environmental conditions with unprecedented speed and accuracy.

Standard sweating model with 35 independent thermal zones.

Testing temperature range: -40°C to +50°C.

Precision carbon-epoxy shell with embedded sensor and resistance wire heating elements.

ANDI system includes manikin, control electronics, laptop PC, and ThermDAC control software.

Options:
- ManikinPC physiological control software
- Active Cooling technology, with external chiller
- Dynamic Heatflux Sensing (DHS)
- Sweating system with fluid distribution system, reservoir, and wicking fabric skin layer
- Walking motion stand
- External breathing system

**Automotive Thermal Comfort**

**STAN Seat Test Manikin**

“Back and buttocks” (8 thermal zones), developed to evaluate the thermal comfort and moisture management properties of automobile seating.

**HVAC Automotive Manikin**

Complete turn-key system for measuring the effect of vehicle heating and air conditioning designs on passenger comfort.

**Drying Rate Tester DRT201**

To determine the drying rate of a fabric based on the evaporative rate that occurs when a predetermined amount of water is absorbed into a fabric that is positioned upon a heated plate set to human skin temperature, and then dried with constant controlled airflow (in compliance with **AATCC 201**).

Available also “**Drying Rate Tester DRT200**” (Air Flow Meter), in compliance with **AATCC 200**.
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<td>Electronic Tachometer</td>
<td>1810G</td>
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<tr>
<td>74</td>
<td>Electronic Tachometer</td>
<td>1810E</td>
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<td>74</td>
<td>Electronic Tachometer</td>
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<td>Thermo-anemometer</td>
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<td>Electronic Psychrometer</td>
<td>288C</td>
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<td>Sling Psychrometer</td>
<td>196B</td>
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<td>78</td>
<td>“Assmann” Psychrometer</td>
<td>196C</td>
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<td>79</td>
<td>Writing Thermo-hygrometer</td>
<td>180B</td>
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<tr>
<td>80</td>
<td>&quot;Sartorius&quot; precision Balance</td>
<td>165.704</td>
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<td>&quot;Sartorius&quot; multi-purpose Balance</td>
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<td>Thermo Balance</td>
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<td>81</td>
<td>Digital Force Tester</td>
<td>194D</td>
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<td>Refractometer</td>
<td>266A</td>
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<td>81</td>
<td>Yarn Meter</td>
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<tr>
<td>81</td>
<td>Yarn Meter</td>
<td>298D</td>
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<tr>
<td>82</td>
<td>Portable pH-meter</td>
<td>322C</td>
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<tr>
<td>82</td>
<td>Bench pH-Meter</td>
<td>322L</td>
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<td>82</td>
<td>Viscosimeter</td>
<td>3220</td>
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<td>UV Lamp</td>
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<td>83</td>
<td>Portable Thickness Gauges</td>
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<tr>
<td>83</td>
<td>Ultrasonic Cleaning Baths</td>
<td></td>
</tr>
<tr>
<td>83</td>
<td>Melt-Flow Index</td>
<td>339B</td>
</tr>
</tbody>
</table>
**Electronic Tachometer 1810C**

Digital contact reading from 0.1 to 25000 rpm and from 0.02 to 3810 m/min.
Available measuring scales for values reading: revolutions per minute, revolutions per hour, yard/min., yard/hour, m/hour, feet and inches per min. and per hour.
Selectable length: cm, m, inches, feet and yards.
Storage capacity of the last 10 measurements including minimum and maximum values.

Power supply: 1,5 V battery x 2

---

**Electronic Tachometer 1810G**

Contact reading.
Measuring range: from 1 to 25000 rpm and from 0.1 to 3810 m/min with ±1 rpm accuracy (from 1 to 599 rpm), and ±0.01% of reading (from 600 to 25000 rpm).
Complete with accessories (equipped with a set of rubber ferrules).

Power supply: 1,5 V battery x 3

---

**Electronic Tachometer 1810E**

Optical model for contact and non-contact measurements.
Measuring range from 6 to 99999 rpm with ±1 revolution accuracy (non-contact) and from 1 to 25000 rpm (contact).
Measuring distance: 2 m max.
Equipped with built-in memory system for the storage of the last 10 measurements, minimum and maximum values included.

Power supply: 1,5 V battery x 2

---

**Electronic Tachometer 1810H**

Optical model for contact and non-contact measurements.
Measuring range from 6 to 99,999 rpm with ±1 rpm accuracy (from 6 to 599 rpm), and ±0,01% of reading (from 600 to 99999 rpm).
Measuring distance: 2 m max.
Also a model for non-contact measurements only is available (code 1810L).

Power supply: 1,5 V battery x 3
## Tensiometer Zivy

Available in the following scales:

<table>
<thead>
<tr>
<th>Scale</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEN 5K 1 - 5 g (cN)</td>
<td>182A</td>
</tr>
<tr>
<td>TEN 12K 2 - 12 g (cN)</td>
<td>182B</td>
</tr>
<tr>
<td>TEN 30K 5 - 30 g (cN)</td>
<td>182C</td>
</tr>
<tr>
<td>TEN 70K 10 - 70 g (cN)</td>
<td>182D</td>
</tr>
<tr>
<td>TEN 120K 20 - 120 g (cN)</td>
<td>182E</td>
</tr>
<tr>
<td>TEN 170K 50 - 170 g (cN)</td>
<td>182F</td>
</tr>
</tbody>
</table>

Digital reading. Recommended for knitting, hosiery, warping and assembling machines.

## Electronic Tensiometer ZEF/ZED

Digital reading. Recommended for knitting, hosiery, warping and assembling machines.

Available reading scales:

- from 0,5 to 100 cN with 0,1 cN accuracy
- from 1 to 500 cN with 1 cN accuracy

<table>
<thead>
<tr>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1836</td>
</tr>
<tr>
<td>1837</td>
</tr>
</tbody>
</table>

## Warp Tensiometer DXK

To determine correct tension on warps both statically and dynamically.

- 10 mm measuring roller, to simultaneously measure 5 or 10 yarns.

Available in 3 versions:

<table>
<thead>
<tr>
<th>Version</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>DXK-300 with reading scale from 20 to 300 cN</td>
<td>2876</td>
</tr>
<tr>
<td>DXK-1000 with reading scale from 100 to 1000 cN</td>
<td>2877</td>
</tr>
<tr>
<td>DXK-2000 with reading scale from 200 to 2000 cN</td>
<td>2878</td>
</tr>
</tbody>
</table>

For dynamic analysis, the Tensiometer DXK complete with the optional “Air Damping” tension absorber is recommended

<table>
<thead>
<tr>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>286.126</td>
</tr>
</tbody>
</table>
Electronic Tensiometer DTS

Digital reading. Particularly suitable for winding, twisting, warping machines. Distance between the two outer rollers: 66 mm. Reading of the real working tension and of tension peaks. Equipped with rollers suitable for yarn speed up to 2000 m/min. As optional, special rollers are available for yarn speeds up to 5000 m/min.

Available reading scales:
- from 0.2 to 200 cN
- from 0.5 to 500 cN
- from 10 to 1000 cN
- from 20 to 2000 cN

Other “DTX” models, equipped with software and USB cable, are available on demand.

Electronic Tensiometer ETB

Digital reading. Recommended for texturizing machines, automatic winders, warping machines and any textile machine where the lack of space makes the measuring difficult. Distance between the two rollers: 24 mm.

Available models:
- tension range from 0.3 to 100.0 cN with steel guide rollers suitable for yarn speed up to 2000 m/min. Resolution: 0.1 cN. Code: 1830F
- tension range from 2.0 to 200.0 cN with steel guide rollers suitable for yarn speed up to 2000 m/min. Resolution: 0.1 cN. Code: 1830G
- tension range from 2.0 to 500.0 cN with steel guide rollers suitable for yarn speed up to 2000 m/min. Resolution: 0.1 cN. Code: 1830H

Other models are also available on demand:
- ETPB models, with ceramic heads, suitable for yarn speed up to 6000 m/min.
- ETX & ETPX models, equipped with specific software and USB cable.

Mechanical Tensiometer DX2

Particularly suitable for winders, twisters and warping machines.

The following reading scales are available:
- from 10 to 50 cN
- from 20 to 200 cN
- from 20 to 400 cN
- from 50 to 1000 cN
- from 200 to 2000 cN
- from 400 to 5000 cN

Mechanical Tensiometer ZF2/ZD2

Particularly suitable for knitting and hosiery machines.

The following reading scales are available:
- from 1 to 5 cN
- from 1 to 12 cN
- from 3 to 30 cN
- from 5 to 50 cN
- from 10 to 100 cN
- from 20 to 200 cN
Stroboscope

Particularly suitable for the control of ring spinning frames, twisting, knitting and hosiery machines.

- Analog reading, scale from 200 to 18000 rpm
  - Power supply: 115 Vac or 230 Vac, 50/60 Hz
  - Code: 186A

- Digital reading, scale from 30 to 30000 rpm
  - Power supply: 115 Vac or 230 Vac, 50/60 Hz
  - Code: 186M

- Digital reading, scale from 30 to 30000 rpm
  - Power supply: rechargeable battery
  - Code: 186L

- Analog reading, scale from 200 to 18000 rpm
  - Power supply: rechargeable battery
  - Code: 186D

Strobo Lab

Particularly suitable for the control of ring spinning frames, twisting, knitting and hosiery machines.

- Digital reading stroboscope with built-in rechargeable battery.
  - Complete with a special high luminosity lamp, for easier reading, even in case of high frequencies.
  - Measuring range: from 300 to 25000 rpm.
  - Accuracy: ±1 rpm.
  - Power supply: 100 up to 230 Vac, 50/60 Hz, single-phase
  - Code: 186H

Battery Powered Digital Stroboscope

- Special model with high luminosity lamp.
- Particularly suitable for the control of ring spinning frames, twisting, knitting and hosiery machines.
- Reading range: from 40 to 35000 rpm with ±1 rpm accuracy.
- Complete with built-in rechargeable battery.
- Power supply: 115 Vac or 230 Vac, 50/60 Hz, + battery
  - Code: 186F

Phonometer

- Digital instrument of class 2.
- Measuring range: from 30 to 130 dB.
- Features: instantaneous measuring, max hold and battery level.
- Power supply: 1,5 V battery x 3
  - Code: 243B
Thermo-anemometer

Digital reading. Particularly suitable for the measurement of temperature and air speed of the air conditioning and fan-ventilation systems in textile factories.
Recommended for spinning facilities, both natural and man-made fibres.
Measuring range: air speed from 0.01 to 30 m/sec (±3% of reading or ±0.015 m/s whichever is aerated); air temperature from -17.8°C to +93.3°C (±0.3°C).
Equipped with telescopic probe
Power supply: 1,5 V battery x 4

Electronic Psychrometer

For the direct reading of the environmental temperature and humidity. Measuring range: from -20°C to +80°C, and from 5% to 98% R.H. (±1.5% R.H. accuracy in range from 10% to 90%).
Digital reading.
Different probes available. Standard probe code 288C.10 (to be added).
As optional the following calibration solutions are available:
33.0% Rh solution Code 288C.4
75.4% Rh solution Code 288C.6
Power supply: 9 V battery

Sling Psychrometer

Portable model for reading of environmental humidity percentage and temperature.
Reading scale: from 0 to 100% R.H., and from 0°C to +45°C.
Measuring principle by means of a dry bulb thermometer and a wet bulb thermometer.

“Assmann” Psychrometer

Portable model with dry or wet bulb to determine the environmental humidity and temperature.
Endowed with two mercury thermometers with measuring range from 0°C to +50°C (±0.2°C accuracy).
Complete with electric fan.
Power supply: 1.5 V battery
Writing Thermo-hygrograph 180B
For the graphic reading of the environmental temperature and humidity.
Measuring range from: 0°C to +40°C (±1.5% accuracy) and from 0 to 100% R.H. (accuracy ±3% from 0 to 40% R.H.; ±5% from 40 to 100% R.H.). Complete with 52 weekly diagrams. The measuring principle is achieved by means of a bundle of hair.
Power supply: 1.5 V battery

Digital Thermometer 244B
Measuring range: -200°C to +1370°C
Resolution: +0.1°C up to +600°C
Instrument accuracy: ±0.5°C from 0 to +200°C, ±2°C from +200°C to the end scale and from -0.1°C to -200°C.
Optional probes suggested:
- contact probe KTP 745 Code 244B.2
- immersion probe, KTP 741 Code 244B.4
Other types of probes are available on request.
Power supply: 1.5 V battery x 3

Optical Pyrometer 296D
Electronic infrared thermometer for temperature measurement at distance.
Particularly suitable for ring spinning frames, twisting, texturizing and dyeing machines.
Measuring scale: from -50°C to +1000°C, with ±2% reading accuracy.
Adjustable emission with maximum peak function and acoustic alarm.
Power supply: 1.5 V battery x 2

Orbital Shaker 3125A
Orbital shaker suitable for extraction of aqueous pH from textile materials.
Equipped with a tray with 4 adjustable separators coated with rubber, and timer.
Tray dimensions: 550 x 450 mm.
Adjustable electronic speed control from 50 to 230 rpm.
Power supply: 230 Vac, 50 Hz, single-phase
Weight: 20 kg
Dimensions: (L) 600 x (W) 550 x (H) 230 mm
"Sartorius" analytic Balance 165.702
120 g weighing capacity and 0,0001 g accuracy.
Digital reading. RS232 interface port.
Pan size: ø 90 mm.
Power supply: 100 up to 230 Vac, 50/60 Hz, single-phase
Weight: 4.8 kg
Dimensions: (L) 230 x (W) 303 x (H) 330 mm

"Sartorius" precision Balance 165.704
320 g weighing capacity and 0,001 g accuracy.
Digital reading. RS232 interface port.
Pan size: ø 115 mm.
Power supply: 100 up to 230 Vac, 50/60 Hz, single-phase
Weight: 3.6 kg
Dimensions: (L) 230 x (W) 303 x (H) 136 mm

"Sartorius" multi-purpose Balance 165.708
820 g weighing capacity and 0,01 g accuracy.
Digital reading. RS232 interface port.
Pan size: ø 150 mm.
Power supply: 100 up to 230 Vac, 50/60 Hz, single-phase
Weight: 2.6 kg
Dimensions: (L) 230 x (W) 303 x (H) 87 mm
Other models available with higher capacity and with larger pan (180 x 180 mm).

Thermo Balance 165.502
150 g weighing capacity and 0,001 g accuracy. RS232 interface port. Infrared heating system, with range from +40°C to +220°C. Main available information: dry material weight %, lost weight of the material (mg), humidity %.
Power supply: 100 up to 230 Vac, 50/60 Hz, single-phase
Weight: 5.5 kg
Dimensions: (L) 213 x (W) 320 x (H) 181 mm
Other models are available on request.
Digital Force Tester 194D
To check the traction and compression strength; provided with USB / RS 232 port.
Available measuring units: N, kgf, lbf.
Measuring range: from 0 to 50 N (0.01N accuracy).
Different models are available on demand.
Recommended for the control of the drawing rollers in the spinning frames.
Complete with built-in rechargeable battery.
Power supply: 115 up to 230 Vac, 50/60 Hz, rechargeable battery
Weight: 0.4 kg
Dimensions: (L) 215 x (W) 65 x (H) 51 mm

Refractometer 266A
Portable model, suitable for the determination of the percentage of dry material in a solution, such as sizing.
Measuring range: 0 - 32%.

Yarn Meter 298E
Equipment to measure yarn tension, length and speed at the machine.
Maximum yarn speed: 1000 m/min.
Length measuring unit: metre or inch (±1 cm or ±1 inch accuracy).
Tension measuring range: 0-50 cN.
Power supply: rechargeable battery

Yarn Meter 298D
Reading of two different values:
yarn speed: from 0,1 to 1999 m/min.
quantity of absorbed yarn during a pre-set time: from 0.02 to 99999 m.
Digital reading.
Power supply: 9 V battery x 2
Weight: 0.22 kg
Portable pH-meter 322C

- Measuring scale: from 0.00 to 14.00 pH.
- Probes on request.
- Accuracy: 0.01 pH.
- Application range: from -50°C to +400°C.
- Power supply: 1.5 V battery x 3

Bench pH-Meter 322L

- Digital bench instrument, suitable for pH measurement in laboratory. Equipped with user interface and wide colour display (for real-time graph display). Very high accuracy and wide measuring range (from -2 to 20 pH).
- Bench pH-Meter is supplied with pH electrode, temperature probe, electrode holder, buffer solutions, cleaning solution, pipette, and 12 VDC adapter. Glass beakers (100 ml and 250 ml capacity) are available as optional.
- Temperature Range: from -20.0 to 120.0°C / from -4.0 to 248.0°F / from 253.15 to 393.15 K.
- Temperature Resolution: 0.1°C / 0.1°F / 0.1 K.
- USB / RS232 communication ports for PC connection.
- For fabric pH evaluation, a specific “Aqueous Extract pH Kit” is available.
- Power supply: 120-230 Vac, 50-60 Hz
- Weight: 1,2 kg
- Dimensions: (L) 160 x (W) 231 x (H) 94 mm

Viscosimeter 3220

- Rotational viscosimeter for quick measurement of viscosity in compliance with ISO 2555 and with ASTM standards.
- 54 Rotational speeds (between 0.01 rpm and 200 rpm).
- Accuracy: ±1%.
- Viscosity range:
  - (R-Version): 100 mPas - 40.000.000 mPas Code 3220A
  - (L-Version): 15 mPas - 6.000.000 mPas Code 3220
- Power supply: 115 up to 230 Vac, 50/60 Hz

UV Lamp 189A

- “Triwood” portable model with 6 lamps of 6 W each.
- Suitable for the visual assessment of fibre impurities in yarn lots (for example: cotton with polyester).
- Power supply: 230 Vac, 50/60 Hz, single-phase
Portable Thickness Gauges

The following models are available:

- Measuring depth: 200 mm. Thickness reading range: 30 mm
  Accuracy: 0,1 mm  Code 188F
- Measuring depth: 200 mm. Thickness reading range: 10 mm
  Accuracy: 0,01 mm  Code 188R
- Measuring depth: 30 mm. Thickness reading range: 1 mm
  Accuracy: 0,001 mm  Code 188G
- Measuring depth: 200 mm. Thickness reading range: 30 mm
  Accuracy: 0,01 mm  Code 188Z

Other models are available on request.

Ultrasonic Cleaning Baths

Ultrasonic bath for a quick and perfect cleaning of glassware, spinnerets and texturing disks eliminating the toughest impurities hidden in holes and hollows.

The following models are available:

- 45 litres-22 kg - (L) 500 x (W) 300 x (H) 520 mm  Code 3101C
- 28 litres-13.4 kg - (L) 505 x (W) 300 x (H) 200 mm  Code 3101B
- 3 litres-3.2 kg - (L) 240 x (W) 137 x (H) 100 mm  Code 3101A

Complete with heating system from +30°C to +85°C

Optional: lid, internal basket and detergent to clean the internal basket.

Power supply: 115 Vac or 230 Vac, 50/60 Hz, single-phase

Melt-Flow Index 339B

Automatic model to determine the fluidity index of thermoplastic materials exposed to heat.

The instrument carries out a volumetric procedure (MVI) and, by means of an optical system, determines the volume of the material extruded during a pre-set period of time. Equipped with a microprocessor that acquires, elaborates and displays both the single values and the average values (max. 12 values), and RS232 port for PC connection.

Temperature range: from +50°C to +400°C with ±0,1°C accuracy.

Reference standards:

Power supply: 230 Vac, 50/60 Hz, single-phase

Dimensions: (L) 420 x (W) 330 x (H) 530 mm

Weight: 30 kg
Certificates and Calibrations

In 2004 MESDAN S.p.A. obtained from Det Norske Veritas (DNV) the certification about Quality and Environmental Management System, in conformity with UNI EN ISO 9001 and UNI EN ISO 14001, with validity for design, manufacture and calibration of textile laboratory instruments.

Since then, MESDAN S.p.A. has successfully undergone through the periodical audits of the Certifying Body and complete re-assessment of certification of its Quality Systems.

MESDAN S.p.A. closely supports its international clientele in more than 70 countries by means of a capillary network of sales and service stations, which can provide qualified technical assistance.

Mesdan affiliations
CERTIFICATO DI ACCREDITAMENTO
Accreditation Certificate

279T REV. 00

DIPARTIMENTO LABORATORI DI TARATURA

MESDAN LAB SERVICE
Sede Principale/Headquarter
Via Beretta, 20 25086 PUEGNAGO DEL GARDA (BS) - Italia

È CONFORME AI REQUISITI DELLA NORMA
UNI CEI EN ISO/IEC 17025:2005 - Requisiti generali per la competenza dei laboratori di prova e taratura

MEETS THE REQUIREMENTS OF THE STANDARD
EN ISO/IEC 17025:2005 - General requirements for the competence of testing and calibration laboratories

QUALE
Laboratorio di taratura (LAT)

AS
Calibration laboratory (LAT)

Data di 1° emissione
1° issue date
07-03-2019

Data di Modifica
Modification date

Data di Scadenza
Expiry date
06-03-2023

Ing. Rossella Mugno
Il Direttore di Dipartimento
The Department Director

Ing. Filippo Trinilli
Il Direttore Generale
The General Director

Ing. Giuseppe Rossi
Il Presidente
The President

L'accreditamento attesta che il Laboratorio ha la competenza per operare quale Centro di taratura ACCREDIA per le grandezze, i campi e le incertezze di misura riportati nella tabella allegata al presente certificato di accreditamento. Il presente certificato non è da ritenersi valido se non accompagnato dalla tabella allegata e può essere sospeso o revocato in qualsiasi momento nel caso di inadempienza da parte di ACCREDIA. La validità dell'accreditamento può essere verificata sul sito WEB (www.accredia.it) e richiesta direttamente al Dipartimento di competenza. Questo Laboratorio è accreditato in accordo alla norma internazionale UNI CEI EN ISO/IEC 17025:2005. L'accreditamento dimostra che il laboratorio possiede competenza tecnica per lo scopo definito e che opera secondo un sistema di gestione (si veda il comprensivo complesso ISO-IEC-17025 dell'Aprile 2017).

Accreditation attests that the Laboratory has the competence to operate as a Calibration Centre of ACCREDIA, for the physical quantities, the range and uncertainty of measurement reported in the table attached to the present accreditation certificate. The present certificate is valid only if associated to the annexed schedule, and can be suspended or withdrawn at any time in the event of non fulfilment as ascertained by ACCREDIA. The in force status of the accreditation may be checked on the WEB site (www.accredia.it) or on direct request to relevant Department. This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer joint ISO-IEC-17025 Communication dated April 2017).
In addition to laboratory equipment, Mesdan is famous for its wide range of Yarn Joining solutions, such as:

- **Hand Knotters**
- **Hand-operated yarn splicers**
- **Automatic yarn splicers**