



TORONTECH

TEXTILE MOISTURE REGAIN TESTER



Textile Moisture Regain Tester - ToronMA™ R Series

ToronMA™ R Series textile moisture regain tester uses a dedicated moisture regain program for wool, yarn, cotton, cashmere, silk, chemical fiber, feathers, foam, and non-woven fabric samples. Moisture regain, the ratio of absorbed water to dry fiber weight, is the textile industry standard for QC, trade specification, and fiber grading. The R105 model offers 5mg precision and 0.10% regain readability; the R100 offers 1mg and 0.01%. Both models measure moisture regain across an unlimited upper range, accommodating highly absorbent fibers where regain exceeds 100%.

The R Series uses a stainless steel mesh cover and stainless steel plate instead of a solid sample pan, allowing fluffy and fibrous textile samples to sit loosely on the mesh without compression. A highlight halogen lamp heats the sample through the mesh, with the $\phi 120\text{mm}$ diameter accommodating greater sample volume than standard moisture analyzer pans. The 40–199°C range with 1°C step control suits textile fiber drying without heat damage. An HD LCD displays moisture regain percentage and stores historical test settings for repeat analysis.

The R Series uses the same 365 × 235 × 185 mm, 7 kg aluminum shell housing as the halogen analyzer family, with a multi-layer stainless steel heating chamber and 400W halogen element operating on 220V or 110V. Up to 15 test parameter groups store for different sample types, with RS232 connectivity for printing or PC data export. External calibration with a user-supplied weight maintains traceability at operator-defined intervals. An optional aluminum carry box supports field testing and transport between textile testing stations.

APPLICATIONS

Textile Moisture Regain Tester - ToronMA™ R Series Applications

The ToronMA™ R Series serves textile manufacturing, fiber trading, textile conditioning, and quality-control environments where moisture regain is the required measurement basis.

- **Wool and Cashmere Fiber:** moisture regain measurement for raw and processed wool, cashmere, and fine fiber lots sold on a dry weight basis, supporting trade weight adjustment and quality verification
- **Cotton and Natural Fiber QC:** moisture regain testing of raw cotton, cotton yarn, and woven fabric samples for quality grading, weight standardization, and textile trade specification compliance
- **Silk and Chemical Fiber Silk:** moisture regain determination for mulberry silk, chemical fiber silk, and blended silk fabrics where regain affects both trade weight and finished fabric texture
- **Non-Woven Fabric and Technical Textiles:** moisture regain testing of non-woven substrates, felt, and technical textile materials used in filtration, insulation, and protective applications
- **Feathers, Down, and Filling Materials:** moisture regain measurement for down and feather filling materials where moisture content affects thermal performance specifications and shipment weight
- **Foam and Cushioning Materials:** moisture measurement for foam pads and bulky cushioning samples where the $\phi 120\text{mm}$ mesh platform accommodates irregular shapes that solid pans cannot
- **Yarn and Thread Quality Control:** moisture regain measurement along the fiber production chain for yarns, threads, and fiber intermediates to verify compliance with spinning and weaving specifications
- **Textile Conditioning Laboratories:** moisture regain determination after conditioning textiles to standard atmospheric conditions, supporting fiber testing institutes, textile laboratories, and trade dispute analysis



Standards

The ToronMA™ R Series is designed for moisture regain determination in textile manufacturing, fiber trading, and quality-control environments where calibration traceability and documented accuracy are required. Textile laboratories and production sites operating under specific ISO, ASTM, or national regulatory requirements for moisture regain testing should consult the Torontech team to confirm applicability.

FEATURES

Textile Moisture Regain Tester - ToronMA™ R Series Key Features

The ToronMA™ R Series delivers halogen-lamp moisture regain measurement with a mesh sample platform and dedicated regain program for textiles, fibers, and fluffy materials.

- **Dedicated Moisture Regain Program:** specialized calculation converts the drying loss measurement to moisture regain percentage using the dried fiber weight as the denominator, matching the textile industry's standard measurement basis for trade and quality control
- **Unlimited Moisture Regain Range (0.00% to $+\infty$):** no fixed upper limit on the measurement range, accommodating highly absorbent fibers such as wool and cashmere where regain can exceed 100% of dry fiber weight
- **Stainless Steel Mesh Cover (ø120mm):** large-format mesh platform allows fluffy, fibrous, and loose textile samples to be placed without compression, preserving natural fiber structure during measurement
- **Stainless Steel Plate:** support surface beneath the mesh maintains sample position and contributes to uniform heat reflection during the halogen lamp drying cycle
- **Highlight Halogen Lamp:** high-brightness halogen lamp heats through the mesh from above, reaching the target temperature across the large ø120mm sample surface for uniform fiber drying
- **Large ø120mm Platform:** the larger diameter accommodates greater sample volume than standard moisture analyzer pans (ø90mm–ø100mm), supporting more representative sampling of fibrous and fluffy materials

- **HD LCD Display:** presents moisture regain percentage, time, and temperature parameters clearly throughout and after each drying cycle
- **Multi-Layer Stainless Steel Heating Chamber:** durable chamber withstands repeated thermal cycling and resists contamination from fiber particles and dust generated during textile sample testing
- **40-199°C Temperature Range at 1°C Steps:** precise temperature control supports the drying conditions required by different fiber types and moisture regain test protocols
- **15-Group Historical Test Settings Storage:** stores test parameters for up to 15 material types, allowing recall of temperature, time, and program settings without re-entry for each material
- **RS232 Interface:** connects to printers for result output and to PCs for data logging, supporting quality record documentation in textile QC and fiber testing workflows
- **External Calibration:** calibrates with a user-supplied reference weight at operator-defined intervals to maintain weighing accuracy and traceability across test sessions
- **Time Setting (1-99 min, 10s Step):** configurable test duration in 10-second increments for material-specific moisture regain drying protocols
- **Aluminum Shell:** rigid outer housing provides structural stability for continuous use in textile QC laboratories and production floor environments
- **Optional Aluminum Carry Box:** protective transport case for field testing at textile mills, warehouses, and fiber conditioning stations
- **Optional Printer:** external RS232 printer for hard-copy moisture regain result records

THEORY & METHOD

Theory and Method

Moisture regain is the ratio of absorbed water to a fiber sample's dry weight, expressed as a percentage. Unlike moisture content (which uses wet weight as the denominator), moisture regain can exceed 100% for highly absorbent fibers, which is

why the R Series accepts an unlimited measurement range. Textile trade, fiber grading, and QC protocols use moisture regain as the reference because it provides a consistent comparison basis across different fiber types. The dedicated regain program calculates this value automatically throughout the drying cycle.

The stainless steel mesh allows fluffy textile samples to sit loosely for halogen lamp heating from above, without compression that would distort fiber structure. Mass is weighed continuously during heating, and the dedicated regain program computes moisture regain from initial and final dry weights. The regain formula uses dried fiber weight as the denominator, so results can exceed 100% for highly absorbent fibers. This value displays as a regain percentage on the HD LCD.

TECHNICAL SPECIFICATIONS

Textile Moisture Regain Tester - ToronMA™ R Series Technical Specifications



ToronMA™ R Series Models

Parameter	ToronMA™ R105	ToronMA™ R100
Capacity	110 g	110 g
Readability	5 mg (0.005g)	1 mg (0.001g)
Moisture Regain Range	0.00%–+∞	0.00%–+∞
Moisture Regain Readability	0.10%	0.01%

Common Specifications

Parameter	Specification
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Pan Size	φ120 mm (stainless steel mesh cover + plate)
Heat Source	Halogen lamp
Temperature Sensor	High-precision thermal resistance
Temperature Range	40°C–199°C, 1°C Step
Display	HD LCD
Calibration Mode	External
Time Setting	1–99 min, 10s Step
Working Temperature	15–30°C
Interface	RS232
Data Storage	15 groups
Heater Power	220V ±15%, 50Hz / 110V ±15%, 60Hz; 400W
Balance Power	Input: 220V 50Hz / 110V 60Hz; Output: 9V
Product Dimensions (W × D × H)	365 × 235 × 185 mm
Packing Dimensions	485 × 340 × 350 mm
Gross Weight	7 kg

Optional Accessories

Accessory	Description
Aluminum Carry Box	Protective transport case for field and mobile testing
Printer	External RS232 printer for hard-copy moisture regain results



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