

# UNIVERSAL TESTING MACHINE – FAQs

Model: TM-EML Series A – Single-Column  
Benchtop Universal Testing Machine (50 N –  
5 kN)

## Table of Contents

INSTALLATION REQUIREMENTS.....	2
GRIPS, FIXTURES AND SOFTWARE TURNKEY PACKAGE .....	3
CALIBRATION AND MAINTENANCE .....	5
TRAINING AND TECHNICAL SUPPORT .....	6



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## INSTALLATION REQUIREMENTS

### 1) What are the power requirements for the TM-EML Series A Universal Testing Machine?

The TM-EML Series A operates on a single-phase AC 220 V  $\pm 10\%$ , 50/60 Hz power supply with a total power consumption of approximately 600 W. This configuration allows simple installation in standard laboratory environments without the need for industrial 3-phase power. The system can be connected directly to a standard laboratory outlet and includes full electrical protection against over-voltage, current surges, and overload.

### 2) What are the installation requirements for the TM-EML Series A Universal Testing Machine?

#### 1. Unpacking and Acceptance Check:

Upon delivery, carefully remove all packaging materials and verify that the equipment and accessories are complete and undamaged. The TM-EML Series A is a compact benchtop system that does not require special floor reinforcement or anchoring.

Place the unit on a stable, vibration-free laboratory bench or table that supports its total weight (approximately 238 lbs / 108 kg). The installation area should allow sufficient rear and side access for maintenance and cable routing.

#### Note:

- Handle the frame carefully, as it includes a precision aluminum-alloy structure that should not be used to support external weight.
- Always lift the machine using appropriate grip points or mechanical assistance to prevent misalignment or damage.

#### 2. Main Unit Installation:

Position the machine vertically on the bench, ensuring it is level and stable. There are no foundation or bolting requirements. Maintain adequate clearance around the column and crosshead for smooth travel and safe specimen handling.

#### 3. Accessories for Installation:

Standard accessories include a tensile grip set, compression plates, and optional bending fixtures, depending on the intended test applications. Accessories should be installed according to the test configuration using the plug-and-play mounting interfaces provided.

#### 4. Grip Installation:

For tensile testing, attach the appropriate grips to the load cell and base adapter. Select grip types that correspond to your specimen material and geometry (manual, pneumatic, or wedge-type options available).

*No large-space or floor-mounting setup is necessary for this benchtop model.*



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## GRIPS, FIXTURES AND SOFTWARE TURNKEY PACKAGE

### 1) What additional grips and fixtures are compatible with the TM-EML Series A Universal Testing Machine?

The TM-EML Series A is designed for high adaptability and precision across various testing applications. Whether you are performing tensile, compression, flexural, or peel tests, you can easily interchange grips and fixtures to meet ASTM, ISO, DIN, and other international standards.

A wide range of manual, pneumatic, and specialized low-force grips is available for testing thin films, plastics, rubbers, composites, foams, adhesives, and more. Additional fixtures can be acquired later as your testing needs evolve, extending the versatility and long-term value of your system.

You can explore our full catalog of grips and fixtures directly on our website.

### 2) Can we integrate our existing fixtures into the TM-EML Series A system?

Yes. The TM-EML Series A supports fixture compatibility and modular integration. If you already have grips, jigs, or fixtures, our team can provide the appropriate adapter interfaces to connect them to your TM-EML system. Simply inform your TensileMill CNC consultant at the time of purchase, and the system will be configured to match your requirements.

### 3) What type of software is used on the TM-EML Series A system?

The TM-EML Series A operates on GenTest™ Software, a next-generation platform designed for efficiency and user convenience.

Key features include:

- Full control of force, speed, displacement, and strain parameters
- Real-time graphing and data visualization
- Automatic report generation and result calculation
- Preloaded ASTM, ISO, and GB/T method templates
- Multi-language support and user-level access control
- Automatic calibration and diagnostic alerts

Watch the GenTest™ Software in action:



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#### 4) What software readings can I expect from the TM-EML Series A system?

The GenTest™ Software provides real-time, high-accuracy data for the following test parameters:

1. Force (N, kN, or lbf) – Real-time load applied during the test.
2. Displacement (mm or in) – Crosshead movement measurement.
3. Stress (MPa or psi) – Calculated from force and specimen cross-section.
4. Strain (%) – Derived from elongation relative to gauge length.
5. Extension (mm or in) – Direct specimen elongation data.
6. Test Speed – Crosshead speed control and display.
7. Time – Total test duration tracking.
8. Load vs. Displacement / Stress vs. Strain Curves – Real-time plotting.
9. Yield Point and Break Detection – Automatic identification.
10. Peak Load and Modulus – Calculated automatically after test completion.

Exportable outputs:

- Complete data tables and graphs
- Auto-generated test certificates
- CSV, Excel, and PDF data export
- User-defined test standards (ASTM, ISO, GB/T, etc.)

#### 5) What types of extensometers are compatible with the TM-EML Series A?

The system supports a broad range of extensometers, including clip-on, laser, and non-contact video types. These extensometers measure elongation and strain with exceptional precision across both low and medium-force testing applications. The plug-and-test interface allows quick connection without manual calibration or setup.

#### 6) What types of customizations are possible with the TM-EML Series A Universal Testing Machine?

Customization options include:

- Specific testing dimensions and crosshead travel limits
- Custom grips and fixtures for specialized materials
- Temperature or humidity-controlled chambers
- Integrated pneumatic control modules
- Software automation and data synchronization modules



## CALIBRATION AND MAINTENANCE

### 1) Is the TM-EML Series A delivered pre-calibrated and accompanied by the requisite certification?

Yes. Each TM-EML Series A machine is factory-calibrated prior to shipment and includes a traceable calibration certificate in accordance with ASTM E4, ISO 7500-1 (Class 0.5), and GB/T 16825.1 standards. The included certificate verifies that the system meets international accuracy and repeatability requirements for force and displacement measurements.

### 2) What is the recommended process for annual calibration of the TM-EML Series A system?

It is recommended to perform a full calibration once every 12 months or after any major mechanical or electronic service. Calibration should be conducted by an ISO 17025-accredited laboratory using certified reference standards.

TensileMill CNC provides access to a global network of [authorized calibration partners](#) to simplify this process and maintain compliance. [Contact our team](#) to schedule calibration or verify local partner availability.

### 3) What care and maintenance are suggested for the TM-EML Series A Universal Testing Machine?

#### Routine Maintenance Guidelines:

- **Clean and inspect** the load frame regularly to prevent dust buildup around the lead screw and guide columns.
- **Avoid moisture exposure**—although the system has partial protection, store it in a dry, temperature-controlled lab to prevent corrosion or condensation on electronic components.
- **Power cycling:** If unused for long periods, power on the system weekly to move the crosshead and maintain lubrication across the drive mechanism.
- **Shutdown sequence:** When turning off the system, follow this order for proper protection—main unit → software → computer → computer power. Wait at least 30 seconds before restarting to allow full system reset.
- **Check alignment** occasionally to ensure consistent coaxial positioning of the load cell and fixtures.

If the machine exhibits instability, abnormal readings, or unusual noises during operation, please contact us directly for diagnostic support, maintenance, or repair assistance. You can [reach our technical service team](#) online or by phone at (888) 332-3582 ext. 3 for immediate assistance.



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## TRAINING AND TECHNICAL SUPPORT

### 1) What training is offered with the TM-EML Series A Universal Testing System?

- **Remote Training (Included):** Comprehensive virtual sessions are provided, including customized videos, step-by-step visual guides, and live demonstrations performed directly on your system. These sessions are tailored to your specific testing needs and operator experience level.
- **On-Site Training (Optional):** Certified TensileMill CNC engineers can visit your facility to conduct in-person installation and operator training. On-site programs are available upon request and are delivered by ISO 17025-certified professionals to ensure your system is operated to full standard compliance.

### 2) What types of technical support services are offered with the TM-EML Series A system?

At TensileMill CNC, we are dedicated to providing fast and reliable support throughout your system's lifetime. Most technical issues are resolved within a few hours, and we aim to have your machine fully operational within 24–48 hours.

Our remote diagnostics and real-time software support tools allow for rapid troubleshooting, while complex mechanical or electrical issues are prioritized for on-site service within the same timeframe.

To further reduce downtime, we maintain an extensive inventory of spare parts, enabling prompt dispatch—often with overnight delivery—to ensure uninterrupted testing performance.

Additional advantages provided by TensileMill CNC:

- **User-Friendly Design:** The GenTest™ software and intuitive control interface allow operators of any experience level to achieve consistent, accurate results.
- **Personalized Training:** Continuous access to remote and on-site training resources ensures smooth system integration and confidence in daily operation.
- **Ongoing Support:** Assistance does not end after installation. You'll receive continuous access to expert guidance for test optimization, troubleshooting, and best practices.

For immediate support, please contact us at <https://www.nextgentest.com/technical-support-inquiry/> or by phone at (888) 332-3582 ext. 3.



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