UNIVERSAL TESTING MACHINE – FAQs

Model: TM-EML Series C – Dual-Column Benchtop and Floor-Standing Universal Testing System (5 kN – 50 kN)

Table of Contents

INSTALLATION REQUIREMENTS

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

The TM-EML Series C operates on a single-phase AC 220 V ±10 %, 50/60 Hz power supply with a total power consumption of approximately 1.5 kW.

This configuration is suitable for standard laboratory and industrial environments without the need for a 3-phase connection.

The system includes built-in surge, overload, and voltage-fluctuation protection to maintain stable performance and protect internal components.

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

1. Unpacking and Acceptance Check:

Carefully remove all packaging materials and verify that the main unit, controller, load cell, and accessories are present and undamaged.

The TM-EML Series C features a dual-column design available in both benchtop and floor-standing configurations.

Depending on the selected model, the total weight ranges from approximately 370 kg (816 lbs) to 420 kg (926 lbs).

Inspect all mechanical and electrical components to ensure proper condition before installation.

Note:

- Lift the machine using proper mechanical assistance or lifting straps—do not apply external force to the columns.
- Avoid impact or excessive vibration during unpacking and positioning.
- Do not place any objects on the aluminum-alloy column structure.

2. Main Unit Installation:

For benchtop units, place the system on a stable, vibration-free laboratory bench or table capable of supporting at least 450 kg.

For floor-standing versions, install the frame vertically on a solid, level surface. Ensure the system is properly leveled and that at least 0.8 m (2.5 ft) of clearance is maintained around the unit for safe access and specimen handling.

Anchoring is not required under normal conditions.

3. Power and Cabling:

Connect the main power cable to a dedicated single-phase supply that meets the voltage and current requirements of your model.

Keep power and signal cables routed neatly behind the frame to prevent interference with moving components.

The power circuit should include standard over-current and short-circuit protection.

4. Accessories for Installation:

Standard accessories include tensile grips, compression platens, and optional bending fixtures depending on your testing needs.

All accessories attach using plug-and-play mounting interfaces for quick and secure changeovers.

5. Grip Installation:

Mount the selected grips or fixtures to the load cell and base adapters.

Choose grip types appropriate to the specimen geometry and test type—manual or pneumatic options are supported.

Verify that the upper and lower grips are aligned coaxially before loading any specimens.

The TM-EML Series C requires no special foundation beyond a stable laboratory surface, making it ideal for both QC and research environments.

GRIPS, FIXTURES AND SOFTWARE TURNKEY PACKAGE

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

The TM-EML Series C is engineered for versatile and precise testing across a wide range of materials and applications. It supports tensile, compression, flexural, peel, shear, and cyclic testing in full compliance with ASTM, ISO, DIN, GB/T, and EN standards.

Available options include manual and pneumatic grips, compression platens, bending fixtures, puncture and shear assemblies, and specialized accessories for metals, polymers, composites, rubbers, foams, and flexible materials.

As testing needs evolve, additional fixtures can be easily integrated at any time, expanding the functionality and long-term value of your system.

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

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

Yes. The TM-EML Series C supports modular fixture compatibility for both low- and mid-capacity testing. If you already own grips, jigs, or fixtures from other systems, our engineering team can provide adapter interfaces for seamless integration with your TM-EML frame.

Simply inform your TensileMill CNC representative at the time of order, and your system will be configured to match your existing setup.

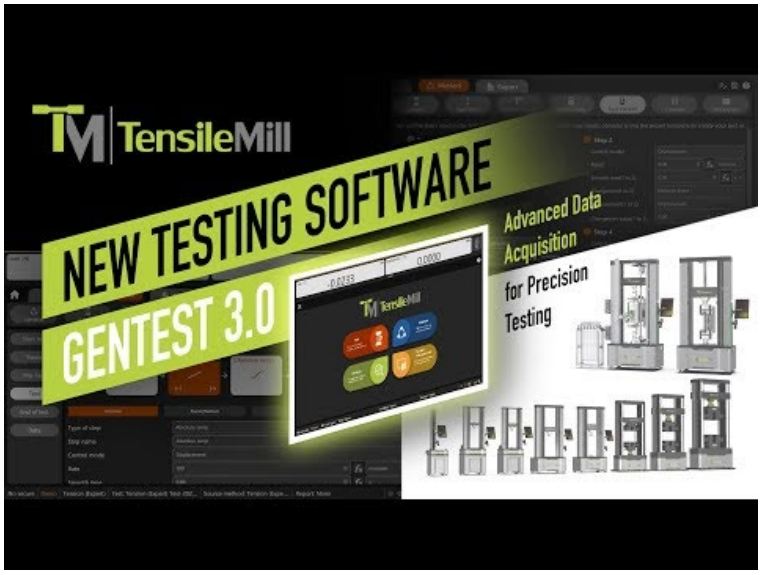
3) What type of software is used on the TM-EML Series C system?

The TM-EML Series C operates on GenTest™ Software — an advanced, user-oriented testing platform developed for precision control, efficient operation, and detailed data analysis.

Key features include:

- Full control of force, displacement, strain, and crosshead speed parameters
- Real-time graphing and multi-channel data acquisition at 1200 Hz
- Automatic calculation of modulus, yield, ultimate strength, and elongation
- Preloaded ASTM, ISO, GB/T, and EN method templates
- Multi-language interface with user-level access management
- Integrated calibration and diagnostic notifications
- Optional cyclic and waveform-based testing modes for advanced applications

Watch the GenTest™ Software in action:



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

The GenTest™ Software provides synchronized, high-accuracy measurements and real-time visualization for:

1. Force (N, kN, or lbf) – Real-time applied load
2. Displacement (mm or in) – Crosshead movement tracking
3. Stress (MPa or psi) – Calculated from specimen cross-sectional area
4. Strain (%) – Based on elongation relative to gauge length
5. Extension (mm or in) – Direct specimen elongation measurement
6. Crosshead Speed (mm/min) – Real-time motion rate control
7. Time (s) – Total test duration tracking
8. Load–Displacement / Stress–Strain Curves – Real-time plotting
9. Yield, Break, and Peak Load Detection – Automatic identification
10. Modulus and Elongation at Break – Automatically calculated post-test

Export options:

- Complete data tables and plotted graphs
- Auto-generated test certificates and analysis reports
- CSV, Excel, and PDF export formats
- Custom test templates and user-defined method libraries

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

The TM-EML Series C supports clip-on, laser, and non-contact video extensometers, as well as specialized high-elongation or temperature-rated models. All extensometers connect via TEDS plug-and-play interfaces, enabling automatic recognition and calibration without manual setup.

6) What types of customizations are available for the TM-EML Series C Universal Testing Machine?

Available customization options include:

- Single-space, dual-space, or extended-travel frame configurations
- Specialized grips and fixtures for unique sample geometries
- Temperature and humidity-controlled environmental chambers
- Integrated pneumatic grip pressure control systems
- Software automation and remote data synchronization modules
- Advanced cyclic and waveform control packages for research and fatigue testing

CALIBRATION AND MAINTENANCE

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

Yes. Each TM-EML Series C 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 C 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 C 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.

TRAINING AND TECHNICAL SUPPORT

1) What training is offered with the TM-EML Series C 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 C 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.