

UNIVERSAL TESTING MACHINE – FAQs

Model: TM-EML Series D – Dual Column
Floor Standing Universal Testing System (50
kN – 1000 kN)

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INSTALLATION REQUIREMENTS

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

The TM-EML Series D operates on a 3-phase AC 220 V $\pm 10\%$, 50/60 Hz power supply. Power consumption varies by model capacity:

- 50–100 kN models – approximately 2 kW
- 200–300 kN models – approximately 7 kW
- 500–600 kN models – approximately 11 kW
- 1000 kN model – approximately 11 kW or higher, depending on configuration

A dedicated 3-phase circuit with proper grounding and overload protection is required. The system includes integrated safeguards against voltage fluctuations, current surges, and overload conditions to maintain stable operation.

2) What are the installation requirements for the TM-EML Series D 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 complete and undamaged. The TM-EML Series D is a dual-column, floor-standing system that must be handled with proper lifting equipment due to its weight range of approximately 1000 – 6180 kg (2205 – 13,621 lbs), depending on the model.

Position the machine near its final installation location before uncrating. Inspect all mechanical and electrical components to confirm they are secure and free of shipping damage.

Note:

- Always lift the frame using approved lifting points or mechanical assistance such as a forklift or crane.
- Do not apply external loads or lean heavy objects on the aluminum-alloy column structure.
- Avoid any impact or vibration that may cause misalignment of the load frame.

2. Main Unit Installation:

Install the frame vertically on a solid, level industrial floor capable of supporting the full machine weight. Ensure that the system is properly leveled using adjustable feet or shims as required. Maintain at least 1 m (3 ft) of clearance around the machine for safe access, maintenance, and specimen handling.



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The TM-EML Series D does not require foundation anchoring under normal laboratory conditions. However, for high-capacity systems (≥ 500 kN) or vibration-sensitive environments, optional floor bolts may be used for additional stability.

3. Power and Cabling:

Connect the main power cable to a dedicated 3-phase supply that meets the voltage and current specifications of your model. Route all cables neatly behind the unit to avoid contact with moving components. Ensure the power circuit is protected by suitable fuses or breakers.

4. Accessories for Installation:

Standard accessories include tensile grips, compression platens, and optional bending fixtures depending on your testing configuration. All accessories use heavy-duty plug-and-play interfaces that allow secure, precise installation and easy changeovers.

5. Grip Installation:

Attach the selected grips or fixtures to the load cell and base adapters. Choose grip types according to the specimen geometry and test requirements—manual, pneumatic, or wedge-type options are available. Verify tight, coaxial alignment between upper and lower grips before applying any load.

The TM-EML Series D requires no special foundation beyond a level industrial floor, making it suitable for both production and laboratory testing environments.



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GRIPS, FIXTURES AND SOFTWARE TURNKEY PACKAGE

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

The TM-EML Series D is designed for high-capacity, precision testing across a wide range of materials and test types. It supports tensile, compression, flexural, shear, peel, and high-load cyclic testing in accordance with ASTM, ISO, DIN, GB/T, and EN standards.

Available configurations include manual, hydraulic, and pneumatic grips, along with heavy-duty compression platens, three- and four-point bending fixtures, shear and puncture assemblies, and specialized accessories for metals, composites, polymers, and high-temperature testing.

As testing requirements expand, additional fixtures can be integrated at any time, extending the versatility and long-term value of your system.

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

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

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

Simply inform your TensileMill CNC representative at the time of order, and the machine will be configured to accommodate your existing fixtures.

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

The TM-EML Series D operates on the advanced GenTest™ Software, a high-performance control and data analysis platform designed for laboratory and industrial use.

Key features include:

- Full control of force, displacement, strain, and crosshead speed parameters
- Real-time graphing with multi-channel data acquisition at 1200 Hz
- Automatic computation of modulus, yield strength, ultimate load, and break points
- Preloaded ASTM, ISO, GB/T, and EN templates for tensile, compression, and flexural tests
- Multi-language interface with tiered user access control
- Integrated safety, calibration, and diagnostic alerts
- Support for waveform testing modes (sine, trapezoidal) for fatigue and cyclic testing



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Watch the GenTest™ Software in action:



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

The GenTest™ Software provides synchronized, high-resolution readings 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) – Specimen elongation data
6. Crosshead Speed (mm/min) – Movement rate control and monitoring
7. Time (s) – Total test duration
8. Load-Displacement / Stress-Strain Curves – Continuous plotting in real time
9. Yield, Break, and Peak Load Detection – Automatic recognition and annotation
10. Modulus and Elongation at Break – Auto-calculated post-test

Export options:



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

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

The TM-EML Series D supports clip-on, laser, video, and non-contact extensometers, including high-elongation and high-temperature models. These extensometers interface directly with the control system through TEDS plug-and-play connections, allowing automatic recognition and calibration without manual setup.



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

Available customization options include:

- Dual-space or extended-travel frame configurations
- Specialized grips and fixtures for large or irregular specimens
- Environmental and high-temperature chambers
- Hydraulic or pneumatic grip pressure control units
- Automated test sequencing and remote data integration modules
- Custom software workflows for cyclic, fatigue, and waveform-based tests



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CALIBRATION AND MAINTENANCE

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

Yes. Each TM-EML Series D 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 D 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 D 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 D 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 D 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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