

634.12 Axial Extensometers



FEATURES

Exceptionally Accurate

- ▶ Meets or exceeds ASTM E83 Class B1 and ISO 9513 Class 0.5 standards.

Highly Reliable

- ▶ Can leave on through specimen failure without damaging the unit—not true of many competitive models.
- ▶ Extensometer cable is strain-relieved and potted directly to the sensing unit to minimize solder connections and assure maximum signal integrity.
- ▶ Symmetrical knife-edge design minimizes susceptibility to chipping and wear.
- ▶ One-year warranty.

Easy To Use

- ▶ A single set of MTS patented* Quick Attach springs quickly mounts the unit to both flat and round specimens.

Versatile

- ▶ Suitable for both static and dynamic applications.

Thermally Stable

- ▶ Standard units feature temperature compensation for minimal span shift.

Low Activation Force

- ▶ As low as 35 grams for minimum specimen contact force without slippage.

MTS 634.12 Axial Extensometers are ideal for measuring strain in tension or fatigue testing applications. U.S. Customary units have a gage length of 1.0 inch and a travel of either 0 to +0.50 inch or -0.10 to +0.50 inch (for through-zero testing). SI Metric units have a gage length of 25 mm and a travel of 0 to +12.5 mm or -2.5 to +12.5 mm. The strain range is either 0 to +50% or -10% to +50%.

Like all MTS extensometers, these feature our unique cross-flexure design which assures true center-point bending. The result is low hysteresis and low activation forces for exceptionally accurate strain readings; high natural frequencies to facilitate fatigue testing; and extended travel capability for measuring post-yield behavior up to fracture.

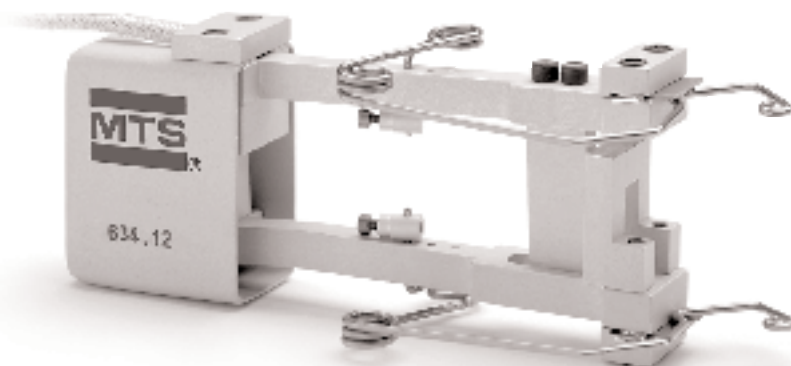
Mechanical stops on these extensometers make it possible to leave them attached through specimen failure without damaging the unit. They also feature a zero-set pin or zero stop for accurate and consistent

determination of the initial gage length. Through-zero models use the zero set pin. Others feature the zero stop, which resets the gage length when you press the extensometer arms together.

Model 634.12 extensometers come standard with hardened, replaceable knife edges for flat and round specimens. Optional knife edge sets are available for use with a variety of specimen geometries and materials. These units also come standard with patented* MTS Quick-Attach springs which make attachment to flat or round specimens fast and easy. Manual attachment devices are also included.

Each extensometer is packed in a rugged storage case which contains the instrument, attached cable with connector, spare parts, springs, attachment devices and tools. Instruction manuals are included with specifications and information on maintenance and operation.

*U.S. Patent 4,507,871



SPECIFICATIONS

Accuracy

- ▶ Meets or exceeds ASTM E83 Class B1 and ISO 9513 Class 0.5 standards.

Nonlinearity

- ▶ Typical: 0.18% of range
- ▶ Maximum: 0.25% of range

Hysteresis¹

- ▶ Typical: 0.07%
- ▶ Maximum: 0.1%

Maximum Operating Frequency

- ▶ 50 Hz (at small displacements with sinusoidal waveform)

Quick Attach Specimen Size Limits

- ▶ Diameter: 0.10 to 0.56 in (2.5 to 14 mm)
- ▶ Flat width: 0.4 to 1.0 in (10.5 to 26 mm)
- ▶ Thickness: 0.01 to 0.5 in (0.3 to 12.5 mm)

Bridge Resistance

- ▶ 350 Ω

Unit Weight²

- ▶ 37 grams.

Shipping Weight

- ▶ 1.3 lb (0.6 kg)

Immersibility

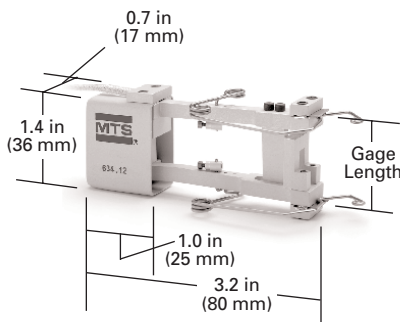
- ▶ May be immersed in most non-conducting fluids for specimen heating and cooling, including water-free alcohol, acetone and silicone. Models with -21 and -51 suffixes may also be immersed in cryogenic fluids, such as liquid nitrogen and helium.

Connectors

- ▶ Extensometer connector: Bendix PT01A-10-6P; mating connector: Bendix PT06A-10-6S. All zero-balancing circuitry is situated in the connector to reduce unit weight and raise natural frequency.

Calibration

- ▶ Each extensometer ordered may be calibrated by MTS using our automated calibration system at our factory or on-site by MTS Field Service. In addition, the extensometer and associated conditioning electronics may be returned to MTS for repair and recalibration.



OPTIONS

Longer Interface Cables

- ▶ 60, 80 or 100 inches.
- ▶ 1.5, 2.0 or 2.5 meters.

Cable Insulation

- ▶ For electrical isolation.

Radiation Protection

- ▶ Radiation-resistant coating.
- ▶ Cable insulation.

Vacuum Protection (to 10⁻⁶ Torr)

- ▶ Corrosion-resistant fasteners.
- ▶ Vacuum-rated epoxies.

ACCESSORIES

Adapter Cables

- ▶ For use with non-MTS test system controllers.

Gage Length Extenders

- ▶ For extending gage length up to 8.00 in (200 mm).

Mating Connector

- ▶ Bendix PT06A-10-6S, for building your own interface cable. Available with or without extension cable.

Replacement Knife Edges

- ▶ Straight for round specimens.
- ▶ Three-point for flat.

STANDARD MODELS*

Model	Gage Length	Maximum Travel	Maximum Strain ³	Temperature Range	Activation Force (Max)
634.12E-24	1.000±0.002 in	-0.10 to 0.50 in	-10 to 50%	-120° to +250°F ⁴	35 g
634.12E-54	1.000±0.002 in	0 to 0.50 in	0 to 50%	-120° to +250°F ⁴	35 g
634.12F-24	25.00±0.05 mm	-2.5 to 12.5 mm	-10 to 50%	-85° to +120°C ⁴	35 g
634.12F-54	25.00±0.05 mm	0 to 12.5 mm	0 to 50%	-85° to +120°C ⁴	35 g

EXTENDED TEMPERATURE RANGE MODELS*

Model	Gage Length	Maximum Travel	Maximum Strain ³	Temperature Range	Activation Force (Max)
634.12E-21	1.000±0.002 in	-0.10 to 0.50 in	-10 to 50%	-452° to +150°F ⁴	35 g
634.12E-25	1.000±0.002 in	-0.10 to 0.50 in	-10 to 50%	-150° to +350°F	50 g
634.12E-51	1.000±0.002 in	0 to 0.50 in	0 to 50%	-452° to +150°F ⁴	35 g
634.12E-55	1.000±0.002 in	0 to 0.50 in	0 to 50%	-150° to +350°F	50 g
634.12F-21	25.00±0.05 mm	-2.5 to 12.5 mm	-10 to 50%	-269° to +65°C ⁴	35 g
634.12F-25	25.00±0.05 mm	-2.5 to 12.5 mm	-10 to 50%	-100° to +175°C	50 g
634.12F-51	25.00±0.05 mm	0 to 12.5 mm	0 to 50%	-269° to +65°C ⁴	35 g
634.12F-55	25.00±0.05 mm	0 to 12.5 mm	0 to 50%	-100° to +175°C	50g

Notes:

¹ Hysteresis is measured over the ± maximum travel range and is specified as a percent of this full range.

² Unit weight includes extensometer and Quick-Attach springs, does not include cable and connector.

³ Strain is the deflection per unit of gage length (inches/inch or millimeters/millimeter).

⁴ May be used 50°F (25°C) higher for short durations (less than 24 hours).

* Standard models are inventoried for quick delivery. Extended temperature models may require additional delivery time.