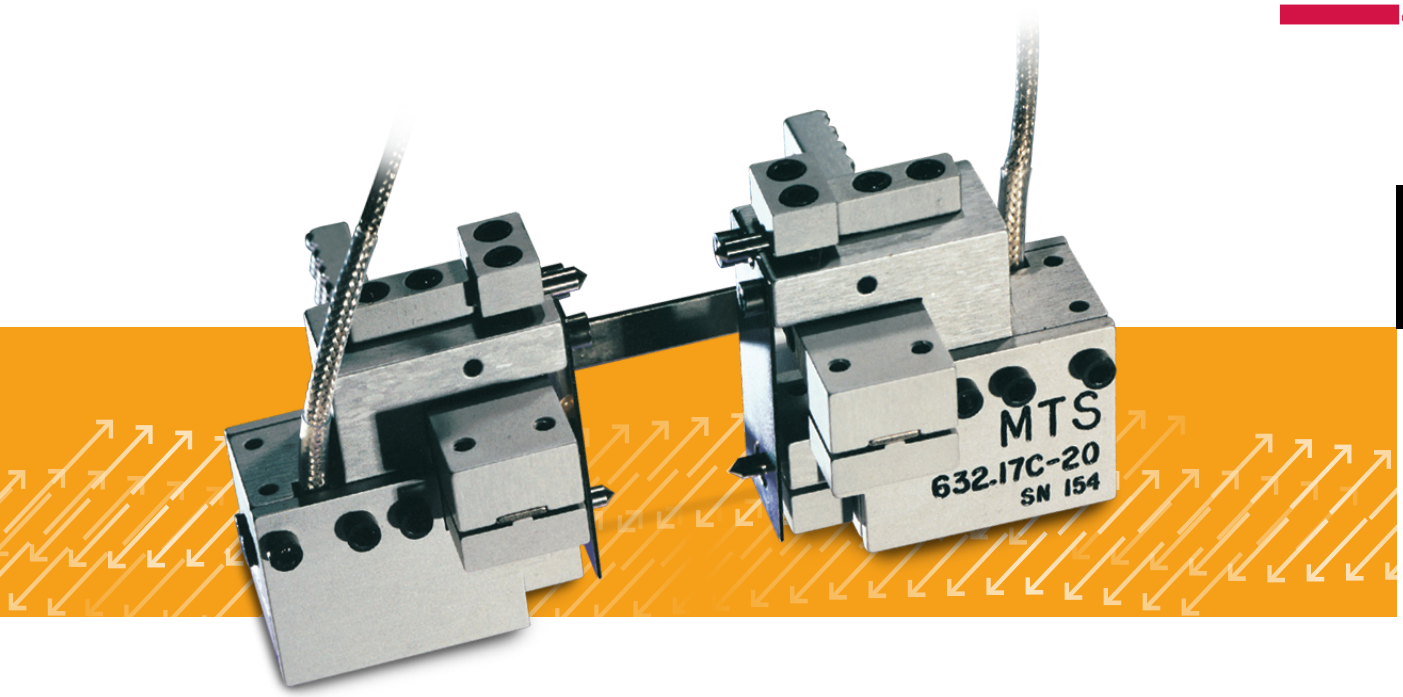


632.17 Averaging Axial Extensometer

May be immersed in most electrically non-conducting fluids used for heating and cooling

Features

ACCURATE MEASUREMENT OF NON-HOMOGENOUS STRAIN

- Provides two separate measurements of axial deflection on opposite sides of the specimen
- Can be configured to provide averaged strain reading or two separate readings

SECURELY ATTACHES TO WIDE RANGE OF SPECIMENS

- Patented support system accommodates changes in specimen shape during testing
- Adjusts to wide range of specimen diameters and widths

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
- Immersible in most non-conducting fluids
- One-year warranty

The MTS 632.17 Averaging Axial Extensometer simultaneously measures the axial deflection on opposite sides of a specimen, then averages the two readings to provide an average strain output. It is used primarily to perform tests on composites, metals or other materials likely to produce non-homogenous strains.

U.S. Customary units are available in gage lengths of 1.0 and 0.5 inch with a travel of -0.020 to +0.050 inch. SI Metric units are available in gage lengths of 25 and 10 mm with a travel of –0.50 to +1.20 mm. Stable output is provided at temperatures from -100° to +150°C (-150° to +300°F). These units can be immersed in most electrically non-conducting fluids used for heating and cooling.

A patented* support system securely attaches the extensometer to the specimen. It provides the necessary degrees of freedom to allow the unit to conform to changes in specimen shape without slippage or distortion of the output.

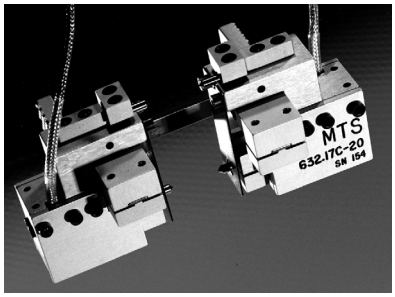
A curved forcing flexure, connected to the two sensor units, holds the extensometer firmly in place, even under acceleration loads. The sensing units can be slid along this forcing flexure to accommodate specimens of different dimensions.

In its standard configuration (Option 001) the output cables from the extensometer's two sensing units are joined at the connector to provide an averaged output. In the alternate configuration (Option 002) each sensor has its own connector.

Like all MTS extensometers, the 632.17 features 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.

Model 632.17 extensometers come standard with eight, hardened-steel, conical-point contacts (four installed and four spare) and six hardened-steel, vee-chisel contacts. Also included are two curved forcing flexures—one for specimens up to 25 mm (1.0 in) in diameter or thickness. The other for specimens up to 50 mm (2.0 in). Each extensometer is packed in a rugged storage case which contains the instrument, tools and instruction manuals.

**U.S. Patent 4,527,335*



Options

Sensors Output (choose one)

» *Option 001:* Averaged through single connector

» *Option 002:* Separate connectors for each sensor

Longer Interface Cables

» 1.5, 2.0 or 2.5 meters

» 60, 80 or 100 inches

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

Additional Contact Points

» Hardened steel or carbide

Replacement Flexures

» 66 mm (2.6 in) for specimens up to 25 mm (1.0 in) in diameter or thickness

» 94 mm (3.7 in) for specimens up to 50 mm (2.0 in)

Mating Connector

» With or without extension cable

605.30 Compression Fixture

» For direct strain measurement of advanced composites in accordance with ASTM D695

Specifications

Accuracy

» Meets or exceeds ASTM E83 Class B1 and ISO 9513 Class 0.5 standards

Nonlinearity

» Typical: 0.10% of range

» Maximum: 0.15% of range

Hysteresis[1]

» Typical: 0.05%

» Maximum: 0.10%

Temperature Range[2]

» –100° to +150°C (150° to +300°F)

Contact Force

» 700 g per contact with sensor units -parallel

Shipping Weight

» 0.8 kg (1.8 lb)

Connector Cable Length

» 55 cm (22 in)

Immersibility

» May be immersed in most non-conducting fluids for specimen heating and cooling, including water-free alcohol, acetone and silicone.

Connectors

» Extensometer: 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.

Conditioning Electronics

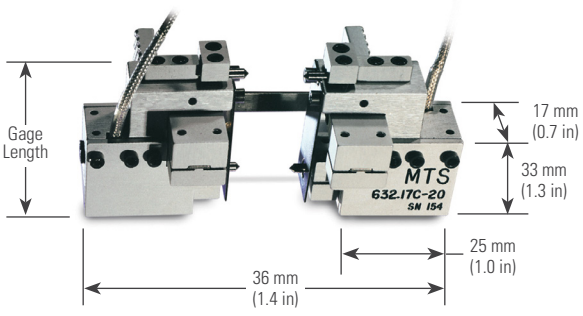
» This extensometer is used with MTS conditioning electronics or other conditioning electronics capable of providing an excitation of 8 volts (not to exceed 12 v). Output is approximately 3.4 mv per volt of excitation. Bridge resistance is 500 Ω for Option 001 (averaged output) and 1000 Ω for Option 002 (individual output).

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.

Model	Gage Length	Maximum Travel	Maximum Range[3]	Maximum Operating Frequency[4]	Unit Height	Unit Weight[5]
632.17E-20	1.000±0.002 in	–0.020 to +0.050 in	–2 to +5%	50 Hz	1.54 in	127g
632.17E-30	0.500±0.002 in	–0.020 to +0.050 in	–4 to +10%	30 Hz	1.54 in	120 g
632.17F-20	25.00±0.05 mm	–0.50 to +1.20 mm	–2 to +4.8%	50 Hz	28.5 mm	127 g
632.17F-40	10.00±0.05 mm	–0.50 to +1.20 mm	–5 to +12%	30 Hz	25.9 mm	120 g

[1] Hysteresis is measured over the ± maximum travel range and is specified as a percent of this full range.
[2] May be used 25°C (50°F) higher for short durations (less than 24 hours).
[3] Strain is the deflection per unit of gage length (inches/inch or millimeters/millimeter).
[4] Operation at maximum frequency is possible only at small displacements. There may also be certain discrete frequencies below 50 Hz where operation is not possible.
[5] Unit weight does not include cable or connector.



Specimen Dimensions Accomodated

Contact Type	Flat Specimen		Round Specimen Diameter
	Width	Thickness	
Conical Point	0.50 to 51 mm (0.02 to 2.00 in)	32 mm (1.26 in) Maximum	3.0 to 32 mm (0.12 to 1.26 in)
Vee Chisel	5.0 to 51 mm (0.02 to 2.00 in)	0.50 to 51 mm (0.02 to 0.06 in)	NA

Note: Specimen width-to-thickness ratio must be at least 6-to-1 with Vee Chisel contacts to maintain mounting stability.

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