

This model is available in gauge lengths from 50 mm (2 inches) and larger, with measuring ranges up to 100 mm (4 inches). The unique design separates into two halves and the extensometer may be left on through specimen failure. These extensometers are widely used where long samples and large measuring ranges are required. They are ideal for testing steel re-bar, weld joints, and wire materials.



Model 3543 with 12 inch gauge length



Model 3543 with 100 mm gauge length



Model 3543-0400-200T-ST with 4 inch gauge length and +2 inch measuring range



Special Model 3543 with ability to work on test samples that twist up to 15° during the test

With many years of proven reliability, Model 3543 extensometers are designed to be left on through failure with specimens such as rebar that would damage standard axial extensometers. Epsilon designed the Model 3543 to survive specimen failure by separating into two halves, thus preventing any damage to its strain gage module. During operation, the upper half of the extensometer pulls out of the main body and tapered measuring beams activate strain gaged flexures within the unit. This unique design allows long measuring ranges yet retains compatibility with electronics for strain gaged transducers.

These models offer high accuracy and are lightweight but rugged, with low operating force. They are tension only units.

The units have hardened tool steel knife edges. Standard quick attach wire forms provided with the extensometer work on round specimens up to 25 mm (1 inch) diameter and flat specimens up to 12 x 31 mm (0.5 x 1.25 inch). Optional wire forms are available for use on larger samples. See Model 3542L for long gauge lengths with smaller measuring ranges and also Epsilon ONE® optical non-contact extensometers.

Model 3543 extensometers are strain gaged devices, making them compatible with any electronics designed for strain gaged transducers. Most often they are connected to a test machine controller with electronics for a strain channel, and Epsilon will equip the extensometer with a compatible connector that is wired to plug directly into the controller. For systems lacking the required electronics, Epsilon can provide a variety of signal conditioning solutions that enable connecting to data acquisition systems or other equipment.

See the electronics section of this catalog for available signal conditioners and strain meters.

See the Model 3543 extensometer video

## Features

- **Specifically designed to be left on through specimen failure.** The unit is designed so that the two halves of the extensometer come apart to prevent damage at specimen failure.
- Full bridge, 350 ohm strain gaged design for compatibility with nearly any test system.
- All standard units meet ASTM Class B-2 requirements for accuracy. Suitable for measuring 0.2% offset yield stress, plastic deformation and elongation at failure. For measuring modulus and yield strain, Model 3542, 3542L or Epsilon ONE® is required.
- Rugged design for reliable testing.
- Standard quick attach kit for quick mounting to specimens.
- Hardened tool steel knife edges are easily replaced. A spare set comes with every extensometer.
- High temperature option extends operation to +150 °C (300 °F).
- Replaceable arms and spacers for ease of repair. The optional gauge length spacers allow the gauge length of the extensometer to be easily increased for different testing requirements.
- Includes the Epsilon Shunt Calibration System for on-site electrical calibration.
- Includes high quality foam lined case.

## SPECIFICATIONS

<i>Excitation:</i>	5 to 10 VDC recommended, 12 VDC or VAC max.
<i>Output:</i>	2 to 4 mV/V nominal, depending on model
<i>Accuracy:</i>	Standard configurations meet ASTM Class B-2 requirements for accuracy. Suitable for measuring 0.2% offset yield stress, plastic deformation and elongation at failure. For measuring modulus and yield strain, Model 3542, 3542L or Epsilon ONE® is required.
<i>Linearity:</i>	≤0.2% of full scale measuring range
<i>Temperature Range:</i>	Standard (-ST) is 1 °C to +100 °C (33 °F to 210 °F)
<i>Cable:</i>	Ultra-flexible cable 2.5 m, (8 ft) standard
<i>Standard Quick Attach Kit:</i>	Fits round samples up to 25 mm diameter (1.0 inch) and flats to 12 mm thick by 31 mm wide (0.5 inch by 1.25 inch)
<i>Operating Force:</i>	125 g typical

## OPTIONS

- Quick attach kit wire forms for large specimens
- Spacers to change gauge lengths
- Connectors to interface to nearly any brand of test equipment
- A twist option is available for use in applications where the testing machine's grips / actuator are free to rotate and specimen twisting greater than 3° is expected. The 3543TW option can accommodate up to 15° of twist.
- Model 3543GT is an option for geotextile testing. The extensometer is manufactured with special clamps for testing fabric and mesh specimens up to 200 mm wide.
- Specialty knife edges (see page 104)



## ORDERING INFORMATION

Model 3543 Available Versions: ANY combination of gauge length, measuring range and temperature range listed below is available, except as noted. Intermediate and longer gauge lengths are easily attained by adding gauge length spacers.

Gauge Length	
METRIC	
-050M	50.0 mm
-100M	100.0 mm
-150M	150.0 mm
-200M	200.0 mm
-250M	250.0 mm
-500M	500.0 mm
-600M	600.0 mm
U.S.A.	
-0200	2.000"
-0400	4.000"
-0600	6.000"
-0800	8.000"
-1000	10.000"
-2000	20.000"
-2400	24.000"

Measuring Range	
METRIC	
-025M	+25 mm
-050M	+50 mm
-100M <sup>1</sup>	+100 mm
U.S.A.	
-100T	+1.00"
-200T	+2.00"
-400T <sup>1</sup>	+4.00"

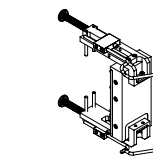
Model Number 3543- \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Temperature Range	
-ST	1 °C to 100 °C (33 °F to 210 °F)
-HT1	1 °C to 150 °C (33 °F to 300 °F)

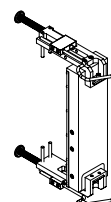
<sup>1</sup> Not available in 50 mm or 2 inch gauge length models.

Example: 3543-200M-100M-ST: 200 mm gauge length, +100 mm measuring range, standard temperature range (1 °C to 100 °C)

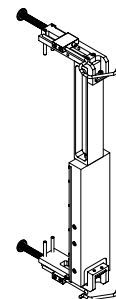
See more extensometry at [www.epsilontech.com](http://www.epsilontech.com)  
Contact us for your special testing requirements.



50 mm or 2" gauge length



100 mm or 4" gauge length



200 mm or 8" gauge length

MODEL 3543 EXAMPLES