

**Designed for concrete and rock compression testing or for**

**compression tests on other large samples. This model may be used**

**simultaneously with the Model 3542RA axial extensometers.**



*Model 3544 in a horizontal body style*

Circumferential extensometers measure the change in circumference as the sample is compressed. This is considered by many researchers to be a more accurate way to determine diametral strain, since the measurement is taken over the entire material inside the circumference.

A high precision, custom roller chain with special rollers mounts the extensometer to the specimen. As the specimen diameter enlarges during the test, the chain causes the extensometer to expand. The unit is self-supported on the sample with integral springs. Links are easily added or removed to adjust for different size specimens. A mechanical adjustment allows the output to be set to zero. A breakaway device protects the extensometer in the event of specimen rupture. Often rock specimens are tested in tri-axial pressure cells. Versions of the Model 3544 are available to fit inside the vessel and operate in oil environments at up to 1360 bar at 200 °C (20,000 psi at 400 °F).

The Model 3544 is the best choice for large diametral strains in large compression samples. Epsilon's diametral rock and concrete extensometer, the Model 3975, is recommended for small strain measurements such as Poisson's ratio.

The Model 3544 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. The signal conditioning electronics for the extensometer is typically included with the test machine controller or may often be added. In this case the extensometer is shipped with the proper connector and wiring to plug directly into the electronics. For systems lacking the required electronics, Epsilon can provide a variety of solutions, allowing the extensometer output to be connected to data acquisition boards, chart recorders or other equipment.

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



*Model 3544-0400 with 1.25 inch to 4 inch diameter range*

## Features

- Full bridge, 350 ohm strain gaged design for compatibility with nearly any test system.
- Adapts to a wide range of specimen sizes by adding or removing chain links.
- Rugged, dual flexure design for strength and improved performance.
- Includes high quality foam lined case.
- Self-supporting on the specimen.
- May be used simultaneously with Model 3542RA axial extensometers.
- Versions available for use in tri-axial confining pressure cells, at high pressures and temperatures.

## SPECIFICATIONS

**Excitation:** 5 to 10 VDC recommended, 12 VDC or VAC max.  
**Output:** 2 to 4 mV/V nominal, depending on model  
**Linearity:**  $\leq 0.25\%$  of full scale measuring range  
**Temperature Range:** Standard (-ST) is  $-40^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $210^{\circ}\text{F}$ )  
**Cable:** Integral, ultra-flexible cable, 2.5 m (8 ft) standard

## OPTIONS

Horizontal, vertical or user convertible orientations  
 Connectors to interface to nearly any brand of test equipment  
 Shunt calibration module (see page 120)



**Model 3544**

Used with Model 3542RA dual averaging extensometer.

## ORDERING INFORMATION

Model 3544 Available Versions: Any combination of diameter range, measuring range and temperature range is available, except as noted. Other configurations may be available with special order; please contact Epsilon to discuss your requirements.

Diameter Range	
U.S.A.	
<b>-0400</b>	2.00" to 4.00"
<b>-0600</b>	2.00" to 6.00"
<b>-0800</b>	2.00" to 8.00"
METRIC	
<b>-100M</b>	50 mm to 100 mm
<b>-150M</b>	50 mm to 150 mm
<b>-200M</b>	50 mm to 200 mm

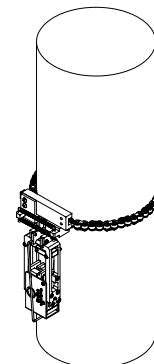
Circumferential Measuring Range	
U.S.A.	
<b>-080T</b>	+0.080"
<b>-125T</b>	+0.125"
<b>-250T</b>	+0.250"
<b>-500T</b>	+0.500"
METRIC	
<b>-020M</b>	+2.0 mm
<b>-030M</b>	+3.0 mm
<b>-060M</b>	+6.0 mm
<b>-120M</b>	+12.0 mm

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Temperature Range	
<b>-LT</b>	$-265^{\circ}\text{C}$ to $100^{\circ}\text{C}$ ( $-450^{\circ}\text{F}$ to $210^{\circ}\text{F}$ )
<b>-ST</b>	$-40^{\circ}\text{C}$ to $100^{\circ}\text{C}$ ( $-40^{\circ}\text{F}$ to $210^{\circ}\text{F}$ )
<b>-HT1</b>	$-40^{\circ}\text{C}$ to $150^{\circ}\text{C}$ ( $-40^{\circ}\text{F}$ to $300^{\circ}\text{F}$ )
<b>-HT2</b>	$-40^{\circ}\text{C}$ to $200^{\circ}\text{C}$ ( $-40^{\circ}\text{F}$ to $400^{\circ}\text{F}$ )
<b>-LHT</b>	$-265^{\circ}\text{C}$ to $200^{\circ}\text{C}$ ( $-450^{\circ}\text{F}$ to $400^{\circ}\text{F}$ )

Example: 3544-200M-120M-ST: 50 mm to 200 mm diameter range, +12 mm measuring range, standard temperature option ( $-40^{\circ}\text{C}$  to  $100^{\circ}\text{C}$ )

Visit our website at [www.epsilontech.com](http://www.epsilontech.com)  
 Contact us for your special testing requirements.



MODEL 3544 EXAMPLE