### **High Temperature Diametral Extensometer** Series 3580

# w+b

For transverse or diametral strain measurements at temperatures to 1000 °C (1832 °F). These extensometers may be used with furnaces having a side entry slot for an extensometer or with induction heating systems. They utilize a proprietary, rugged dual flexure design.

This model is for diametral strain measurement with furnace and induction heating systems. Quartz rods and liquid cooling allow the unit to be used for high temperature testing of metals, ceramics and composites.



With induction heating, this model often can be used without liquid cooling.

When used in furnaces, the extensometer is often mounted directly to the furnace side cut-out. Optional load frame mounting brackets are available for supporting the extensometer in cases where furnace mounting is not possible. These optional mounts are used with induction heating or furnace systems.

The Model 3580 extensometers are accurate strain gaged devices.



### **EXTENSOMETERS**

## *w*+*b* Materials Testing

#### Features

- May be left on through specimen failure.
- Full bridge, 350 ohm strain gaged design for compatibility with nearly any test system.
- All standard units have linearity readings of 0.15% or better.
- Suitable for measuring Poisson's ratio per ASTM E132 with most materials and specimens.
- High purity alumina ceramic rods (1200 °C) or alpha grade silicon carbide rods (1600 °C) are available.
- Versions available for use in vacuum environments (consult factory).
- Rugged, dual flexure design for strength and improved performance. Much stronger than single flexure designs, this also allows cyclic testing at higher frequencies.
- Each unit comes with a spare set of quartz rods, universal liquid-cooled mounting bracket and a foam lined storage case.



#### **Specification**:

Excitation: Output: Linearity: Temperature Range: Cable: Coolant Interface: Specimen Size: Contact Force: 5 to 10 VDC recommended, 12 VDC or VAC max. 2 to 4 mV/V nominal, depending on model  $\leq 0.15\%$  of full scale measuring range, depending on model Standard is -40 °C to +1000 °C (-40 °F to 1832 °F) Integral, ultra-flexible cable, 2.5 m (8 ft) standard Two barbed hose fittings for 1/8" (3.2 mm) ID coolant hoses Works with sample diameters from 4.5 to 16 mm (0.18 to 0.63 inch) Adjustable, 100 to 300 g typical

#### Note

We are offering our furnaces with suitable side cuts for the 3580 extensometer also in combination with high temperature axial extensometer.



- Constant-temperature recirculating chiller
- High temperature (-HT suffix) option for use up to 1600°C
- Load frame mounting brackets



### **Operation**:

- 1. With the zero-pin installed, loosen the mounting screws of the moveable quartz rod and adjust the rod length to fit the specimen size. Then tighten the screws.
- 2. Pull out the zero pin.
- 3. Gently push the moveable arm forward, guide the end of the angled quartz rod end behind the specimen while aligning the slots in the mounting flexure with the thumb screws in the mounting block and gently slide the extensioneter down to contact the thumb screws.
- 4. Tighten the thumb screws and release the moveable arm so that it contacts the specimen. Re-adjust the extensometer if the contact rods are not perpendicular with the specimen.
- 5. Adjust the contact force by loosening the adjustment screw and sliding the backward as required

#### **Technical Data**

Model 3580 Available Versions: ANY combination of measuring range and temperature range listed below is available. *Quartz rod lengths are made to fit furnaces as required. Please provide furnace and specimen dimensions at the time of order. Other configurations may be available with special order; please contact Epsilon to discuss your requirements.* 

#### Model Number 3580 - \_\_\_\_

Measuring Range:	
-050M	±0.50 mm
-075M	±0.75 mm
-150M	±1.50 mm
-200M	±2.00 mm
-500M	±5.00 mm

<sup>1</sup> Total measuring range in either tension or compression. Specify direction of extensometer measuring range when ordering.

<sup>2</sup> Special order only.

Example: 3580-075M:  $\pm 0.75$  mm measuring range, temperature range of -40 °C to +1000 °C

