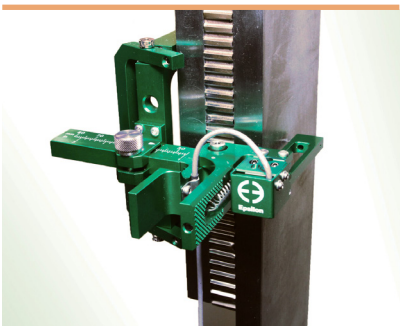
For measuring shear properties of sandwich cores and rigid cellular plastics. The simple clip-on design attaches in seconds and provides repeatable test results.



Model 3421 shear testing extensometer

Model 3421 extensometers measure shear strain of foam and honeycomb sandwich cores, as well as rigid cellular plastics. These extensometers can be used to measure shear modulus, 2% offset shear strength, and stress-strain curves prior to specimen failure. The extensometer may be used to measure strain through specimen failure with specimen fixturing to limit out-of-plane expansion. The Model 3421 may also be used for sandwich core shear fatigue testing.

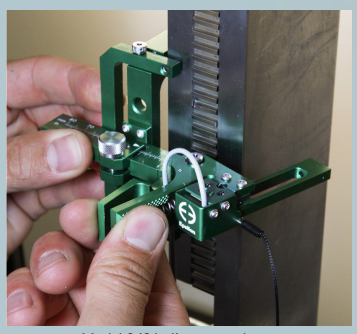
The Model 3421 is applicable for testing to the following standards:

- **ASTM C273** Shear Properties of Sandwich Core Materials
- **ASTM C394** Shear Fatigue of Sandwich Core Materials
- **ISO 1922** Rigid cellular plastics -- Determination of shear strength
- **DIN 53294** Testing of sandwiches; shear test
- **EN 12090** Determination of Shear Behavior of Thermal Insulation Products (single specimen test only)

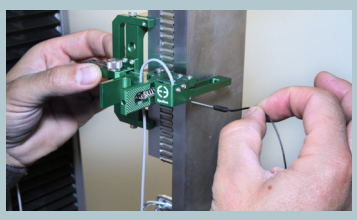
The extensometer mounts to the test specimen's loading plates. It attaches to the specimen in seconds and can be used with tension or compression test fixture loading. The extensometer is adjustable to work with a range of specimen thicknesses and widths, and includes a built-in scale for setting it to the specimen width.

To use the extensometer, the test operator clips it onto the specimen by squeezing two pads, placing the extensometer against the side of the specimen, and releasing the pads. The extensometer is self-supporting and no further adjustments are necessary. It is removed before failure by unclipping.

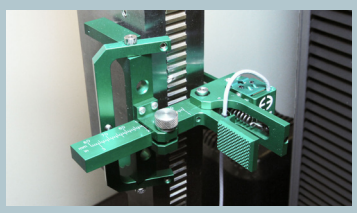
Model 3421 extensometers are strain gaged devices, making them compatible with any electronics designed for strain gaged transducers. Most often they are connected to a test machine controller and Epsilon will equip the extensometer with a compatible connector wired to plug directly into the controller. For systems lacking the required electronics, Epsilon can provide a variety of solutions for signal conditioning and connection to data acquisition systems, chart recorders, or other equipment.



Model 3421 clip-on attachment



Model 3421 zero pin removal



Model 3421 ready for testing

See the Model 3421 extensometer video

Features

- Replaces homemade extension gages and LVDTs with a reliable, repeatable solution.
- Simple clip-on design attaches in seconds.
- May be left on through specimen failure when fixturing is used to constrain thickness expansion of the specimen.
- Meets ASTM C273 requirements for extensometers.
- Includes the Epsilon Shunt Calibration System for on-site electrical calibration.
- Extensometer measuring arm has mechanical overtravel stops for durability.
- Replaceable components for ease of repair.
- Full bridge, 350 ohm strain gaged design for compatibility with nearly any test system.
- Includes high quality foam lined case.

Specifications

Excitation:	5 to 10 VDC recommended, 12 VDC or VAC max.
Output:	2 to 4 mV/V
Accuracy:	±5.0 mm/±0.200" measuring ranges: ≤0.003 mm for displacement values <0.3 mm ≤1.0% of reading for displacement values ≥0.3 mm ±2.5 mm/±0.100" measuring ranges: ≤0.0015 mm for displacement values <0.3 mm ≤0.5% of reading for displacement values ≥0.3 mm
Temperature Range:	Standard (-ST) is -40 °C to +100 °C (-40 °F to 210 °F) Optional (-LHT) is -270 °C to +200 °C (-454°F to 400 °F)
Cable:	Integral, ultra-flexible cable, 2.5 m (8 ft) standard
Specimen Size:	Thickness (including core and both loading plates): 20-75 mm (0.8–3.0 inches); width: 40 mm (1.5 inch) minimum, 50-150 mm (2-6 inches) typical

Options

Connectors to interface to nearly any brand of test equipment

CE CERTIFIED

Ordering Information

Other configurations may be available with special order; please contact Epsilon to discuss your requirements.

Measuring Range

METRIC	
-025M	±2.5 mm
-050M	±5.0 mm
U.S.A.	
-010T	±0.100"
-020T	±0.200"

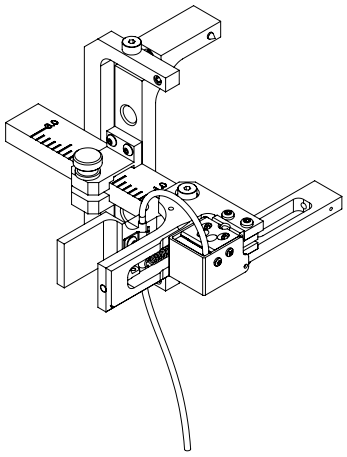
Model Number 3421-__ __ __ __ - __ __

Temperature Range

-LT	-270 ˚C to 100 ˚C (-454 ˚F to 210 ˚F)
-ST	-40 ˚C to 100 ˚C (-40 ˚F to 210 ˚F)
-HT1	-40 ˚C to 150 ˚C (-40 ˚F to 300 ˚F)
-HT2	-40 ˚C to 200 ˚C (-40 ˚F to 400˚˚F)
-LHT	-270 ˚C to 200 ˚C (-454 ˚F to 400 ˚F)

Example: 3421-050M-ST: ±5.0 mm measuring range, standard temperature range (-40 °C to 100 °C)

Visit our website at www.epsilontech.com
Contact us for your special testing requirements.



MODEL 3421 EXAMPLE