

Vector Extensometer



Versatile non-contact extensometer range for uniaxial and biaxial testing.

Automatic, pre-calibrated, intelligent and self-contained.

Cost-effective solution to replace clip-on extensometers in QA/QC and R&D.

Accurate and comprehensive to efficiently deliver reliable real-time strain.

Product Overview

Vector	Form	Operating Distance	Gauge Lengths	Minimum Specimen Width
U200		250 - 350 mm	Axial: 25 - 180 mm	$W \geq 5$ mm, or $\varnothing \geq 6$ mm
U70		280 - 320 mm	Axial: 10 - 50 mm	$W \geq 2$ mm, or $\varnothing \geq 2.5$ mm
B80		285 - 315 mm	Axial: 7.5 - 70 mm Transverse: 6.0 - 25 mm	Axial: $W \geq 1.5$ mm, or $\varnothing \geq 2$ mm Transverse: $W \geq 10$ mm, or $\varnothing \geq 12.5$ mm

For all the aspects above, all Vectors:

- Meet or exceed ISO 9513 Class **0.5** and ASTM E83 Class **B-1**, and
- Operate reliably when **testing at temperature**, ranging from -100 °C to +370 °C, and
- Are compliant to ISO 6892 and ASTM E8 **strain-rate control** for quasi-static testing, and
- Seamlessly output real-time **strain or extension data** via serial D-Sub or ±10V BNC.

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The Smarter Alternative to Clip-On Extensometers

Suitable for all applications where traditional clip-on extensometers are used, Vector offers key advantages that enhance testing accuracy, efficiency and value.

Consistent and Reliable Data

- Fully compliant with ISO and ASTM standards.
- Non-contact measurement eliminates the risk of test interference.
- No operator handling – removes human error.
- No knife edges – nothing to wear out or slip.

Lower Cost of Ownership

- One Vector can measure multiple gauge lengths, reducing the need for multiple devices.
- Significantly lower calibration and maintenance costs over time.
- Non-contact design reduces the risk of device damage.

Higher Testing Efficiency

- Versatile: Compatible with a wide variety of specimen types.
- Fast setup: Ready for testing in just 40 seconds.
- Quick acquisition: Acquires the next specimen in just 2 seconds.
- Enables uninterrupted testing to failure.

Representative maximum strain range and extension for selected gauge lengths

U200

Gauge Length	25 mm	50 mm	80 mm	100 mm	180 mm
Strain Range	467%	200%	100%	67%	7%
Extension Range	117 mm	100 mm	80 mm	67 mm	13 mm

U70

Gauge Length	10 mm	12.5 mm	25 mm	50 mm
Strain Range	400%	307%	120%	27%
Extension Range	40 mm	38 mm	30 mm	13 mm

B80

Gauge Length	8.5 mm	12.5mm	16 mm	25 mm	50 mm
Strain Range	561%	360%	267%	147%	40%
Extension Range	48 mm	45 mm	43 mm	37 mm	20 mm

Vector U200



Uniaxial testing for the common gauge lengths and strain ranges. Perfect for QA/QC testing of metals and composites - tensile, compression, bending, and others.



Operating Distance	250 - 350 mm
Gauge Lengths	Axial: 25 to 180 mm (1 to 7")
Minimum Specimen Width	$W \geq 5$ mm, or $\varnothing \geq 6$ mm
Minimal Specimen Parallel Section	32 mm

Complete specification printed below

Application Examples

1. High Volume QC/QA Sheet Steel Testing

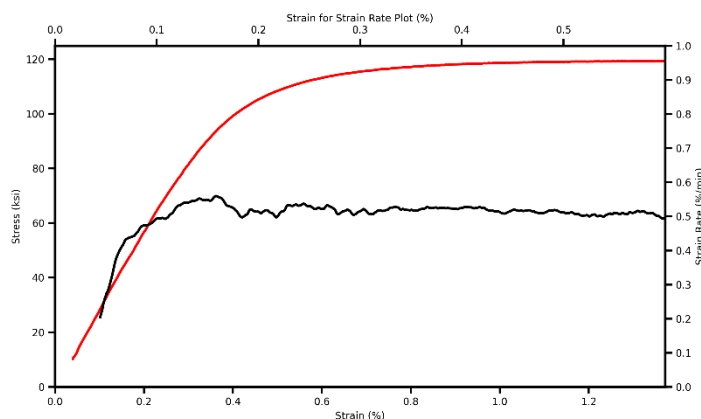
Configuration:

- Tensile testing
- ASTM E8 and ISO 6892
- Strain-rate controlled to 0.005 in/in/min
- 2" Gauge Length
- 0.8" Width, 0.02" Thickness
- Simple ring markings

Benefits:

- Efficient batch testing - automatically measures from markings.
- Highly repeatable and reproducible test data.
- No gauge length error.
- Test to failure without pausing.
- No need to touch the instrument.

For more technical information, scan each QR code to view the case study.



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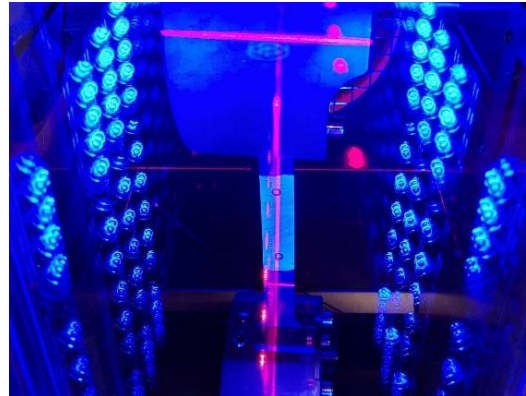
2. R&D Elevated Temperature Testing

Configuration:

- Tensile testing
- ASTM E8 and ISO 6892
- 370°C chamber temperature
- 150mm chamber window width (minimum ~125mm)
- Strain-rate controlled to 0.005 mm/mm/min
- 100 mm Gauge Length
- 20mm Width, 0.5mm Thickness
- High-temperature ring markings

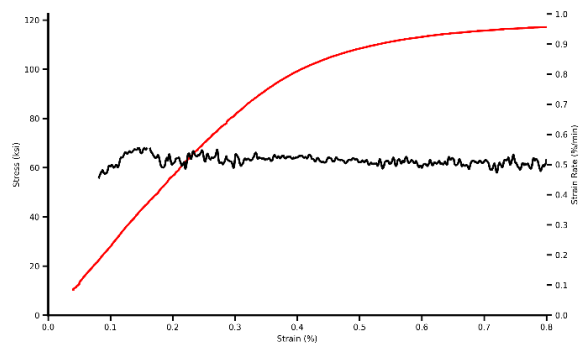


[View case study.](#)



Benefits:

- Even for R&D, Vector is efficient, repeatable, reproducible, simple to use.
- Accommodates for a range of chamber sizes and specimen sizes automatically.
- Excellent results can also be achieved at temperatures higher than rated, provided guidance is followed.



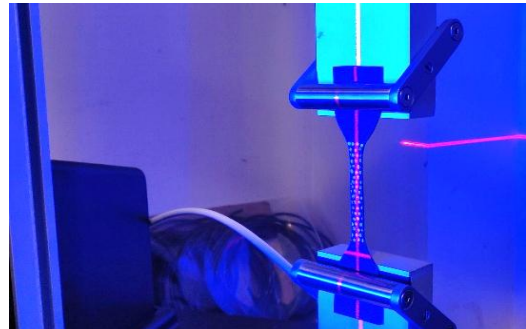
3. Third-Party Testing of Elastomer Dogbone

Configuration:

- Tensile testing
- ASTM D412 / ISO 37
- Position-rate controlled to 500 mm/min
- 25 mm Gauge Length
- 6mm Width, 1mm Thickness
- Speckle markings

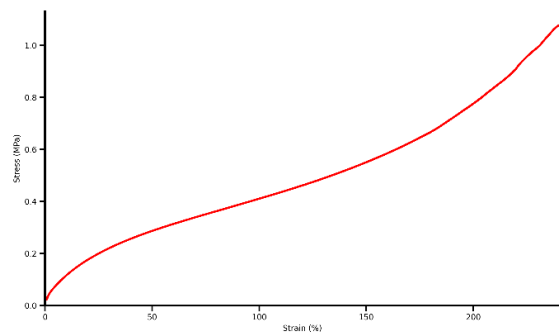


[View case study.](#)



Benefits:

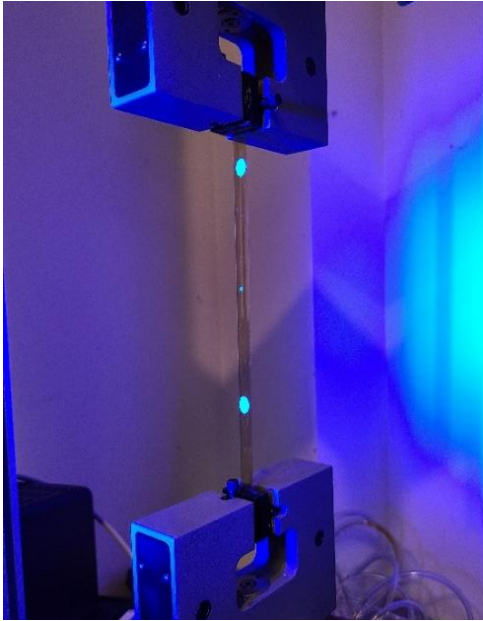
- Just as above – efficient, repeatable, reproducible, simple to use.
- Real-time non-contact measurement to high strains
- No risk of damaging sensitive instruments.
- Simple to verify to ISO 9513 / ASTM E83 in situ with typical equipment
- Supports wide range of Gauge Lengths automatically.



4. Film and Tape

Configuration:

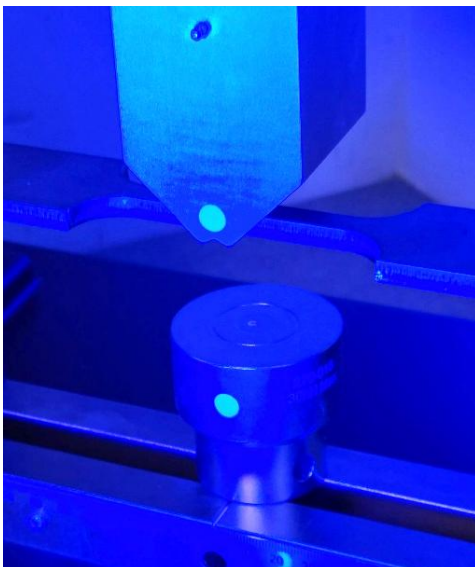
- Tensile testing
- 10mm Width, 0.1mm Thickness
- Simple dot markings
- Measurement unaffected by non-contact instrument



5. 3- and 4-Point Bending

Configuration:

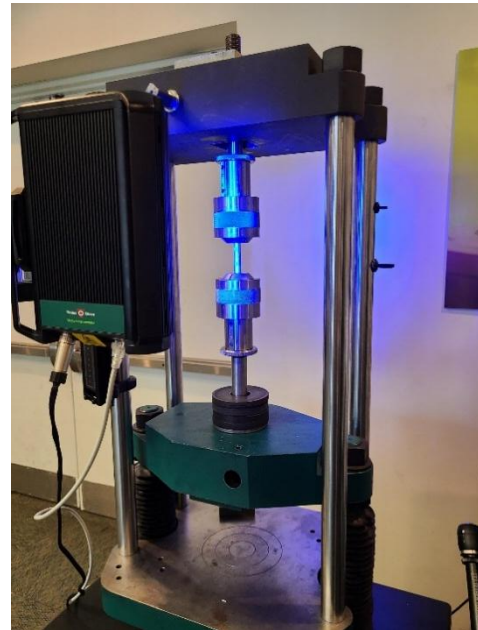
- Simple dot markings on the fixture
- Replicates a deflectometer or LVDT.



6. Round Steel Specimens

Configuration:

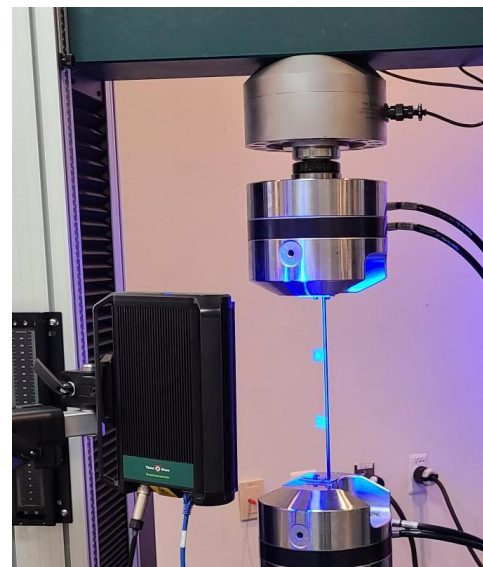
- Tensile or compression testing
- 0.5" diameter.
- Hydraulic frame
- Speckle markings
- No need to change clip-on arms.



7. Cable and Wire

Configuration:

- Ring markings on flags
- 3mm diameter
- For specimens below the minimum width criteria.



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Vector U200 Specifications

Extensometer measurement applications	Uniaxial; Tensile, Compressive or Flexural					
Measurement modes	Strain (%) or displacement (mm/inches)					
Field of view	200H x 100D x 40W mm cuboid					
Resolution	<0.5 µm					
Extensometer accuracy class	Meets or exceeds ISO 9513 Class 0.5 and ASTM E83 Class B-1 capable					
Gauge lengths supported	25 to 180 mm					
Representative maximum strain range and extension for selected gauge lengths	GL	25 mm	50 mm	80 mm	100 mm	180 mm
	Strain Range	467%	200%	100%	67%	7%
	Extension Range	117 mm	100 mm	80 mm	67 mm	13 mm
Real-time strain data rate	150Hz					
Minimal specimen width	5 mm flat, 6 mm diameter round					
Minimal recommended specimen parallel section	32 mm					
Maximum tracking speed	2500 mm/min					
Strain control	Compliant to ISO 6892 and ASTM E8					
Operating distance	250 to 350 mm					
Strain output interface*	Analogue: ±10V BNC Digital: RS232 serial 15 pin D-sub					
Supported mark types**	Rings, filled circles and speckles automatically detected					
Recommended specimen temperature range***	-100 to +370°C					
Dimensions	252H x 73D x 201W mm					
Weight (Vector module only)	3.1 kg					

* Digital output with select UTMs only, via specific adapter cable.

**Always use marking kit provided.

*** For optimal performance at non-ambient temperatures, please consult the provided guidance. This guidance often enables accurate results at temperatures far exceeding 370°C.

Vector U70



Uniaxial testing for the common small gauge lengths and strain ranges. Perfect for QA/QC testing of metals, composites and polymers - tensile, compression, bending, and others.



Operating Distance	280 - 320 mm
Gauge Lengths	Axial: 10 to 50 mm (0.4 to 2")
Minimum Specimen Width	$W \geq 2$ mm, or $\varnothing \geq 2.5$ mm
Minimal Specimen Parallel Section	14 mm

Complete specification printed below

Application Examples

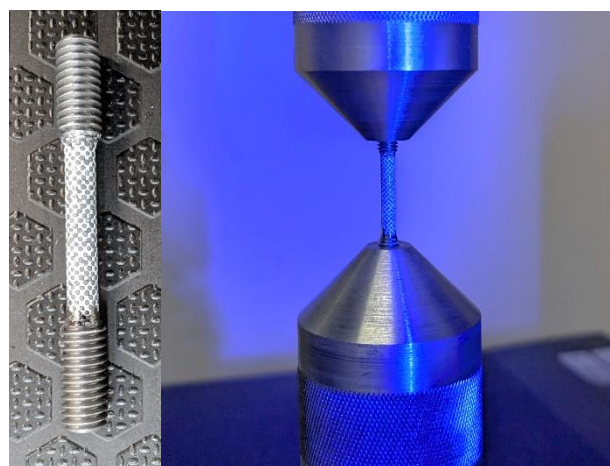
1. Third party testing of threaded round steel

Configuration:

- Tensile testing
- ASTM E8 and ISO 6892
- Strain-rate controlled to 0.005 mm/mm/min
- 10mm Gauge Length
- 4mm diameter
- Speckle markings

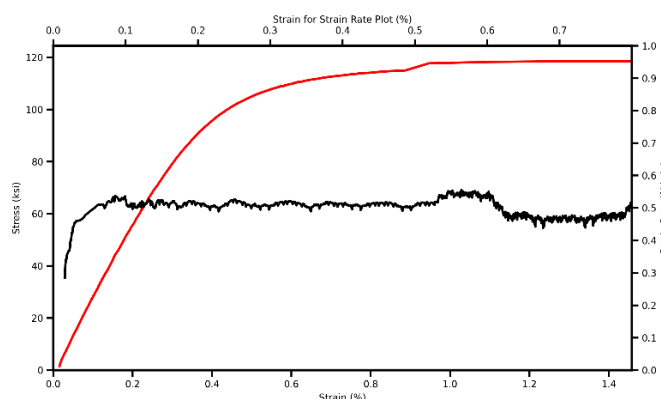


[View case study.](#)



Benefits:

- Efficient batch testing - automatically measures from markings.
- Highly repeatable and reproducible test data.
- No gauge length error.
- Test to failure without pausing.
- No need to touch the instrument
- Easily change gauge length



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2. QA testing of flat steel plate

Configuration:

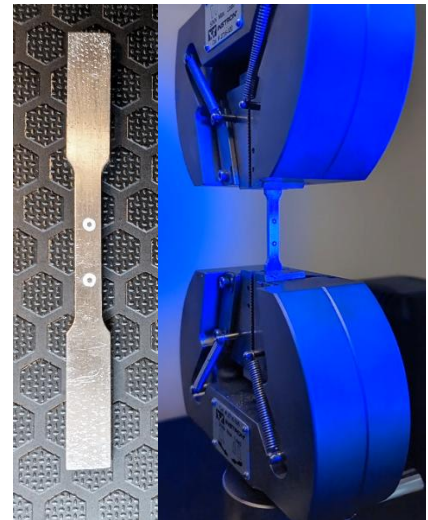
- Tensile testing to ASTM E8 / ISO 6892
- Position rate controlled
- 0.5" Gauge Length
- 0.25" Width, 0.125" Thickness
- Simple ring markings



View case study.

Benefits:

- Just as above, efficient and versatile for smaller specimens.
- Removes the need for a delicate clip-on extensometer.
- 3D extensometry even when using large fixtures and grips.



3. Composite Compression

Configuration:

- Simple speckle marking
- Fixture with port hole
- 15mm width, 1.6mm thickness.

Benefits:

Without bonded strain gauges, testing is efficient, repeatable, and free from premature failures.



4. Wire and Cable Testing

Configuration:

- Simple speckle marking
- 3mm diameter

Benefits:

- Efficient, repeatable and without slipping from knife edges.
- Delicate materials are unaffected by the extensometer.
- Test uninterrupted through to failure.



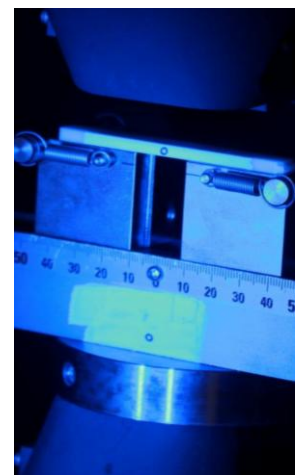
5. 3- and 4-Point Bending

Configuration:

- Simple dot markings on the fixture and specimen
- 4mm thickness

Benefits:

- Quick, accurate and repeatable testing.
- No need to precisely position deflection probe.
- Handles large range of deflections.



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Vector U70 Specifications

Extensometer measurement applications	Uniaxial; Tensile, Compressive or Flexural				
Measurement modes	Strain (%) or displacement (mm/inches)				
Field of view	70H x 40D x 25W mm cuboid				
Resolution	<0.5 µm				
Extensometer accuracy class	Meets or exceeds ISO 9513 Class 0.5 and ASTM E83 Class B-1 capable				
Gauge lengths supported	10 to 50 mm				
Representative maximum strain range and extension for selected gauge lengths	GL	10 mm	12.5 mm	25 mm	50 mm
	Strain Range	400%	307%	120%	27%
	Extension Range	40 mm	38 mm	30 mm	13 mm
Real-time strain data rate	150Hz				
Minimal specimen width	2 mm flat, 2.5 mm diameter round				
Minimal recommended specimen parallel section	14 mm				
Maximum tracking speed	2500 mm/min				
Strain control	Compliant to ISO 6892 and ASTM E8				
Operating distance	280 to 320 mm				
Strain output interface*	Analogue: ±10V BNC Digital: RS232 serial 15 pin D-sub				
Supported mark types**	Rings, filled circles and speckles automatically detected				
Recommended specimen temperature range***	-100 to +370°C				
Dimensions	252H x 73D x 201W mm				
Weight (Vector module only)	3.1 kg				

* Digital output with select UTMs only, via specific adapter cable.

**Always use marking kit provided.

*** For optimal performance at non-ambient temperatures, please consult the provided guidance. This guidance often enables accurate results at temperatures far exceeding 370°C.

Vector B80



Biaxial and Uniaxial testing for the common small gauge lengths and strain ranges. Perfect for QA/QC applications and more advanced testing of metals, composites and polymers - tensile, compression, bending, Poisson's, R- and N-value, as well as others.



Operating Distance	285 - 315 mm
Gauge Lengths	Axial; 7.5 to 70 mm (0.3 to 2.75") Transverse; 6.0 to 25 mm (0.24 to 1.0")
Minimum Specimen Width	Axial; $W \geq 1.5$ mm, or $\varnothing \geq 2$ mm Transverse; $W \geq 10$ mm, or $\varnothing \geq 12.5$ mm
Minimal Specimen Parallel Section	10 mm
Complete specification printed below	

Application Examples

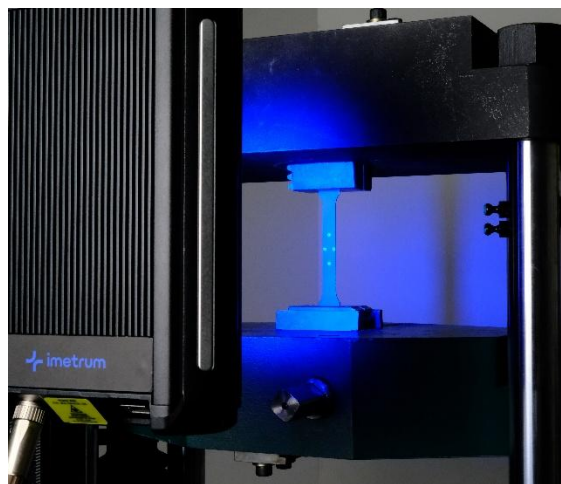
1. Sheet Steel Plastic Strain Ratio Testing

Configuration:

- Tensile R & N-value testing
- ASTM E517 / ISO 10113
- Strain-rate controlled to 0.005 in/in/min
- 2" and 0.4" Gauge Lengths
- 0.5" Width, 0.06" Thickness
- Simple biaxial ring markings

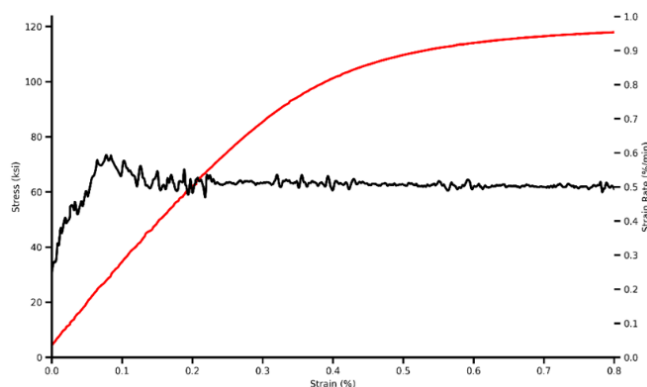


[View case study.](#)



Benefits:

- Efficient batch testing - automatically measures both axes from markings.
- Highly repeatable and reproducible test data.
- No gauge length error
- No awkward measurement of the specimen edge.
- Test to failure without pausing.
- No need to touch the instrument.
- Easily change either gauge lengths.



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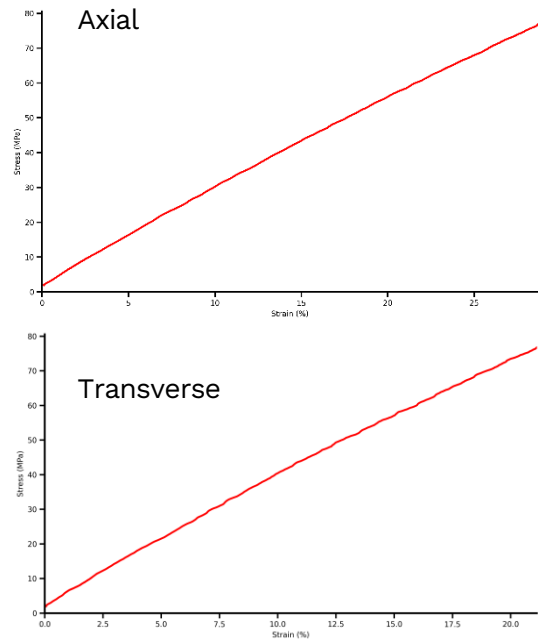
2. Biaxial Composite Coupon

Configuration:

- Tensile Poisson's testing
- ASTM D3039 / ISO 527
- Position rate controlled
- 50mm and 17mm Gauge Lengths
- 20mm Width, 1.8mm Thickness
- Simple biaxial ring markings

Benefits:

- Just as above – efficient, repeatable, reproducible, simple to use.
- Test straight through to failure - No risk of damaging sensitive instruments.
- Accuracy and Resolution to ISO 9513 Class 0.5 at low strains for all Gauge Lengths



3. Elevated Temperature Testing

Configuration:

- High temperature marking kit
- Biaxial measurement
- 1" and 0.4" Gauge Lengths
- 0.5" Width, 0.06" Thickness

Benefits:

- As above, efficient, repeatable, versatile, and convenient.



View case study.

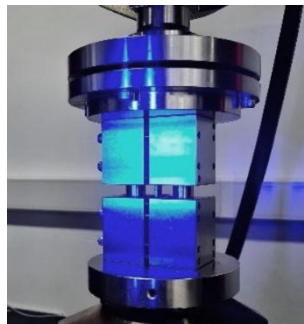
4. Composite Axial Compression Testing

Configuration:

- Marking the side of specimen in fixture
- 20mm Width, 2mm Thickness
- 10mm Gauge Length
- Vector positioned side-on to jig.

Benefits:

- Efficient: without bonded strain gauges
- High precision for small strains.



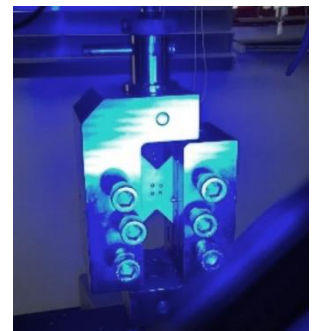
5. Composite Shear Testing

Configuration:

- Vector mounted at 45° on frame.
- 10mm Gauge Lengths
- Simple biaxial markings

Benefits:

- Quick to mark.
- No premature failure of bonded gauges.



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Vector B80 Specifications

Extensometer measurement applications	Uniaxial; Tensile, Compressive or Flexural Biaxial; Axial with central Transverse					
Measurement modes	Strain (%) or displacement (mm/inches)					
Field of view	80H x 30D x 30W mm cuboid					
Resolution	<0.5 µm					
Extensometer accuracy class	Meets or exceeds ISO 9513 Class 0.5 and ASTM E83 Class B-1 capable.					
Gauge lengths supported*	Axial; 7.5 to 70 mm (0.3 to 2.75") Transverse; 6.0 to 25 mm (0.24 to 1.0")					
Representative maximum strain range and extension for selected gauge lengths	GL	8.5 mm	12.5 mm	16 mm	25 mm	50 mm
	Strain Range	561%	360%	267%	147%	40%
	Extension Range	48 mm	45 mm	43 mm	37 mm	20 mm
Real-time strain data rate	150Hz					
Minimal specimen width	Axial; 1.5 mm flat, 2 mm diameter round Transverse; 10 mm flat, 12.5 mm round					
Minimal recommended specimen parallel section	10 mm					
Maximum tracking speed	2500 mm/min					
Strain control	Compliant to ISO 6892 and ASTM E8					
Operating distance	285 to 315 mm					
Strain output interface**	Analogue: ±10V BNC Digital: RS232 serial 15 pin D-sub					
Supported mark types***	Rings, filled circles and speckles automatically detected					
Recommended specimen temperature range****	-100 to +370°C					
Dimensions	252H x 73D x 201W mm					
Weight (Vector module only)	3.1 kg					

*Minimum transverse gauge length for speckles is 7.5 mm

**Digital output with select UTM's only, via specific adapter cable.

***Always use marking kit provided.

****For optimal performance at non-ambient temperatures, please consult the provided guidance. This guidance often enables accurate results at temperatures far exceeding 370°C.

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