INSTRON®

The difference is measurable®

Automatic Contacting Extensometer | AutoX750

The need for increased specimen throughput has created a demand for faster, more reliable and more accurate materials testing routines. The AutoX750 Automatic Contacting Extensometer fulfills this demand and enhances the productivity of testing laboratories by allowing them to take advantage of automatic gauge length positioning and attachment to the test specimen. By removing these manual, tedious, and time consuming steps, lab operators can enjoy a simplified testing routine while improving throughput. Reducing the inconsistencies in how a traditional clip-on extensometer is attached greatly improves the repeatability and reproducibility of critical test results.

The AutoX750 is used to determine a variety of calculations including modulus, offset yield, plastic elongation to failure (non-proportional), and r and n values for sheet metals. Its high accuracy and travel make it an ideal extensometer for a variety of materials including metals, plastics, and composites at both ambient and non-ambient temperatures*. It is compatible with 3300, 5500, and 5900 electromechanical dual column systems, as well as LX, DX, HDX, and KPX static hydraulic testing systems (Bluehill® 3 required).

It can also be used with either fully-automated or manual testing systems. When not in use, the mounting allows operators to quickly position the extensometer out of the test area providing a safe storage environment for the device. Removing the AutoX from the test area allows operators to easily switch out grips and fixtures without the additional step of uninstalling the device.

Features and Benefits

- Automatic gauge length positioning
- Different knife edge options and the ability to adjust the clamping force to accommodate various materials
- Very high resolution and accuracy
- High travel
- Fully integrated with Instron® software
- Closed-loop strain control that complies with ISO 6892-1 Method A and ASTM E8 Method B, among other standards
- Meets the requirements of ISO 9513, ASTM E83, and ISO 527-1 (2011)
- Rugged construction allows arms to remain attached to the specimen through failure for most materials

Principle of Operation

The AutoX750 is automatically controlled through a USB interface and Instron 3300, 5500, and 5900 Series machines with Bluehill® Software. The software provides an easy-to-use setup dialog that facilitates opening and closing the arms, setting the reference arm position, and setting the gauge length.

The measuring arms are motor driven and will automatically move to ensure that the vertical position and gauge length are always correct. Prior to the start of a test, the motor will automatically disengage from the measuring arms, allowing the arms to freely travel with the specimen. Additionally, the measuring arms are counterbalanced and operate on a nearly frictionless linear guidance system, making them virtually weightless and removing any influence on the material's properties.

Application Range

- Metals tensile testing
- Composite tensile testing
- Plastics tensile and flexure testing
- Elastomer tensile testing
- Specimen shapes: strip, round, hexagonal, and flat

* Please contact Instron for more information

Note: For large specimens, hydraulic grips that positively hold specimen halves after break are required.

Automatic Contacting Transverse Extensometer

AutoXBiax

The AutoXBiax – built with the same high accuracy optical measurement system as the AutoX750 - is an automated, high precision measurement device that measures both axial and transverse strain simultaneously. The AutoXBiax is specifically designed to measure the plastic strain ratio (r-value) for steel and exceeds current standards, including ISO 10113, ASTM E517, and JIS Z 2254.

Features and Benefits

Less Setup, More Testing

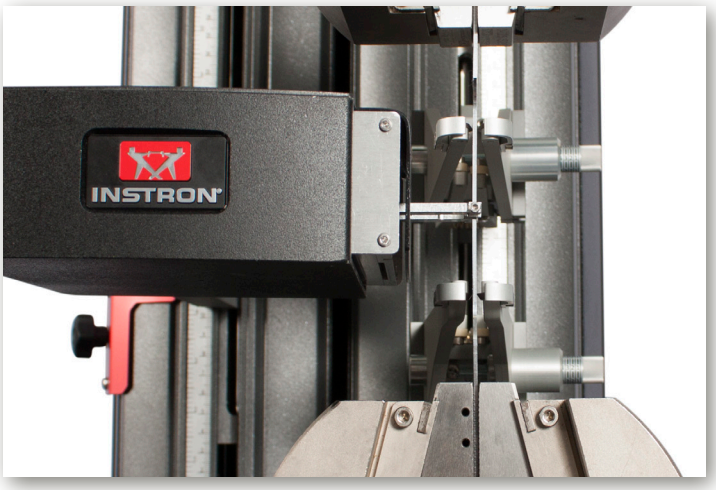
- Automatic arm-opening eliminates the need to pause your test for transverse extensometer removal
- No adjustments required when testing a range of specimens

Reduced Variability Over Manual Devices

- Repeatable automatic attachment eliminates operator influences, removing a source of inconsistency
- Automatic centering improves repeatability by positioning in the center of your gauge length

Maximize Testing Time, Minimize Downtime

- Intuitive design allows for protection from shock loads by detecting peak stress and automatically removing the arms before failure
- Uses an optical measurement system that is more robust than linear displacement or strain gauge transducer
- Designed to be used in industrial environments with measuring elements that are separated from dirt, debris and scale
- Utilizes the tried and tested counterbalance technology for virtually frictionless movement over full vertical travel



AutoXBiax with Metal Sheet Specimen

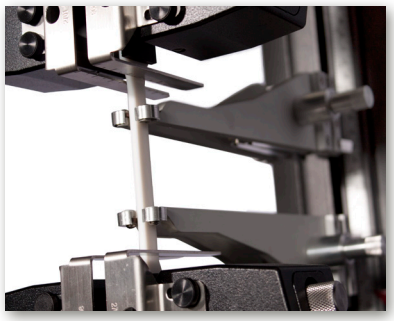
AutoXBiax Automatically Centers in Gauge Length

Specifications

		Axial	Transverse[1]
Vertical Travel[2]	mm	750	500
	in	29.52	19.68
Axial Gauge Length[3]	mm	10 - 750	—
	in	0.40 - 29.52	—
Transverse Gauge Width	mm	—	10 - 40
	in	—	0.30 - 1.57
Resolution	µm	0.1	0.1
Accuracy[4]	µm	± 1	± 1
Clamping Force[5]	N	0 - 2.5	1.5
	lbf	0 - 0.562	0.337
Drag Force	N	< 0.1	< 0.12
	lbf	< 0.022	< 0.026
Weight[6]	kg	32	45
	lbs	70	100

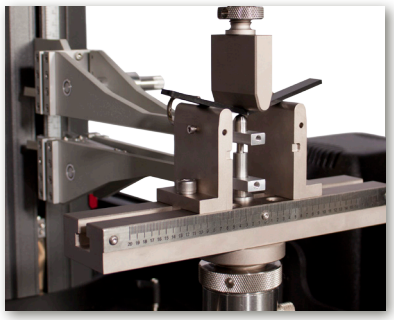
Maximum Specimen Dimensions

Thickness[7]	mm	100	10
	in	4	0.4
Width[8]	mm	400	40
	in	15.75	1.57
Diameter	mm	100	40
	in	4	1.57

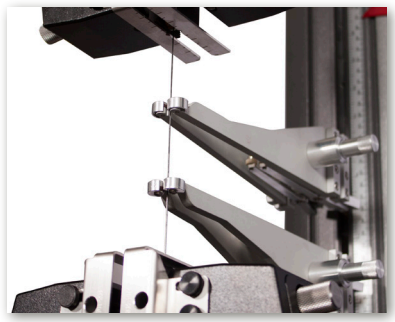


Plastic Tensile Test with AutoX750 on an Electromechanical Frame

Rebar Test with AutoX750 on a 1500KPX Hydraulic Frame



Using the AutoX750 to Measure Flexural Strain



Carbon Fiber Tow in Pneumatic Side-Action Grips with AutoX750

Common Specifications

Measurement Principle	Opto-incremental
EN 10002 Class	0.5
ISO 9513 Class	0.5
ASTM E83 Class	Axial: B-1 Transverse: B-2

Mounting Hardware

Electromechanical[9]	Roller Mounting Available on Dual-Column Tabletop and Floor Models
Hydraulic	Swing-Away Mounting Available on DX, HDX, LX, and KPX Models

Notes:

1. Available on AutoXBiax on 5900 only
2. Travel = maximum knife edge separation - Axial gauge length
3. Minimum GL is 20 mm (.80 inches) when transverse strain measured
4. Or 0.5% of reading (whichever is greater)
5. Clamping force is dependent upon specimen thickness
6. Approximately for AutoX750 and AutoXBiax respectively
7. Whichever is greater thickness based on maximum width of 30 mm
8. Whichever is greater width based on maximum thickness of 30 mm
9. The distance between the center of the load string and the back of the mounting is approximately 500 mm (approximately 750 mm fully pushed back) on electromechanical frames.

www.instron.com/accessories

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