

Tinius Olsen

Model 100S Extensometer

The Tinius Olsen model 100S is designed as a dual purpose extensometer to measure E modulus and offset yield stress (proof stress) on relatively high modulus materials while also providing the ability to measure high elongations up to break.

A typical application is the testing of polycarbonate, where a high resolution system is required to measure the E modulus (Youngs modulus) and a secondary system is required to measure elongation to the point of break, which typically could be as high as 200% strain. Other materials the 100S extensometer is ideally suited for include polyurethane, polyethylene (PET), glass reinforced plastics (GRP), and aluminum alloys.

The unique design ensures an extremely low tracking force for testing sensitive materials and a construction that is sufficiently robust to withstand the release force when the specimen breaks. An important feature is the ease with which the extensometer clamps can be attached to the specimen, resulting in very rapid testing throughput.



Fig. 1. Model 100S long travel extensometer.

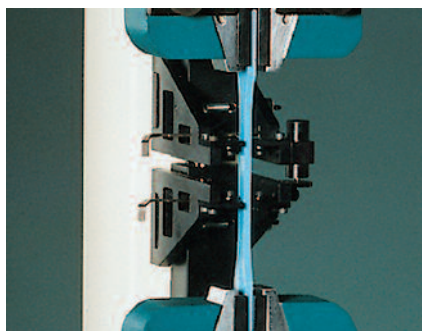


Fig. 2. Close up of extensometer clamps, showing the precision LVDT transducer.

MODEL		100S
RANGE OF SCAN	in	LVDT transducer 10% on 1 in 10% on 25 mm gauge length, 5% on 50 mm gauge
	mm	
	in	Optical Digital Encoder 28.35 (extended options available) length (extended options available)
	mm	
ACCURACY		LVDT transducer 1%, EN10002-4 Class 1
		Optical Digital Encoder 1% on 25 mm gauge length, BS5214 grade C&D
RESOLUTION	in	LVDT transducer 0.00002 0.0005
	mm	
	in	Optical Digital Encoder Maximum Travel 22 580 Maximum Measurement 30 780 (extended options available)
	mm	
SPECIMEN THICKNESS	in	0 to 0.4
	mm	0 to 10
TRACKING FORCE	lbf	0.02
	g	10
DIMENSIONS H x W x D	in	40 x 3.75 x 7.9
	mm	1015 x 95 x 200
WEIGHT	lb	16.5
	kg	7.5

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Extension is measured by attaching two counterbalanced extensometer clamps to the specimen at a pre-selected gauge length. When tensile forces are applied to the specimen by the testing machine, the slightest change in gauge length is measured by a precise LVDT transducer. If the range of this LVDT transducer is

exceeded, measurement of elongation and strain transfers to an optical encoder. Signals from the LVDT and optical encoder are fed into the signal conditioner interface for processing.

The 100S extensometer can be fitted to all twin screw materials testing machines and must be used under software control.



Fig. 3. Model 100S long travel extensometer.



Fig. 4. Model H10kS testing machine with 100S long travel extensometer.

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