

## 5500 Series

Advanced materials testing systems



# Superior Frame Design



**A** Pre-loaded ball screws and heavy duty bearings assure long life with zero backlash as well as linear low force and through zero performance. The result is accurate and repeatable measurements that truly represent the specimen characteristics rather than load frame deficiencies.

**B** Robust guidance columns increase lateral stiffness and ensure linear crosshead travel. This results in accurate crosshead alignment thus reducing variability in measurement data and producing better overall accuracy.

Optional second test space allows mounting load cell in stationary position. This eliminates transient load output sometimes seen on low force load cells during initial crosshead acceleration.

**D** Easy-to-clean aluminium column covers with chamfered corners to facilitate access to the test area. Patented T-slots are built in for simple, convenient attachment and positioning of testing accessories.

**E** Drop-through load cell mounting on most models for rapid changes, a larger vertical test space and better load string alignment.

**F** High torque DC servo-motor with digital closed-loop position controller for more accurate crosshead speed control, rapid acceleration and full speed performance over a wider load range.

**G** Superior no-clutch design for better reliability, less maintenance and improved load/ speed performance

**H** Easy to service. All serviceable areas can be reached without tilting, lifting or moving the frame. All cable connections are accessible even when the frame is backed up against a wall.

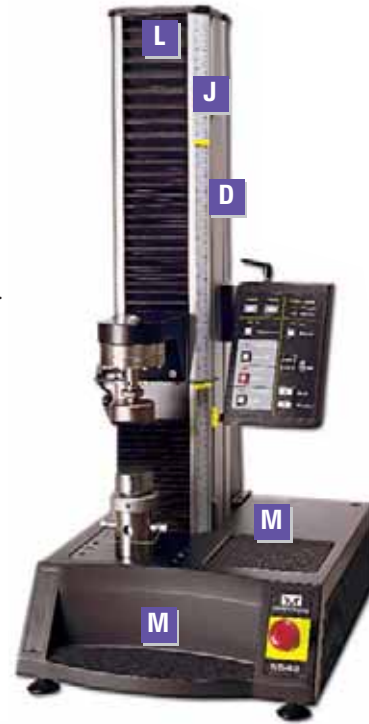
**I** Optional floor stand with storage drawer.

**J** Dual action over-travel limits on all frames provide the highest level of safety and meet all international standards.

**K** Ergonomically positioned electronic connectors for safe and faster set-up.

**L** Fully-protected lead screw covers provide longer life and greater operator protection.

**M** Storage areas for specimens, pins, clips and other small items.



# Specifications

		Single Column Table Top Models			Twin Column Table Top Models					Floor Standing Models			
		5542	5543	5544	5564	5565	5566	5567	5569	5581	5582	5584	5585H
<b>Load Capacity</b>	kN	0.5	1	2	2	5	10	30	50	50	100	150	250
	kgf	50	100	200	200	500	1000	3000	5000	5000	10000	15000	25000
	lbf	112.5	225	450	450	1125	2250	6750	11250	11250	22500	33750	56200
<b>Maximum Speed</b>	mm/ min	1000	1000	1000	2500	1000	500	500	500	1000	500	750	500
	in/ min	40	40	40	100	40	20	20	20	40	20	30	20
<b>Minimum Speed</b>	mm/ min	0.05	0.05	0.05	0.005	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	in/ min	0.002	0.002	0.002	0.0002	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004
<b>Maximum Force at Full Speed</b>	kN	0.5	1	2	1	5	10	30	25*	35	75	110	100
	lb	112.5	225	450	225	1125	2250	6750	5620	7870	16860	24730	22500
<b>Maximum Speed at Full Load</b>	mm/ min	1000	1000	1000	1000	1000	500	500	250**	500	250	375	200
	in/ min	40	40	40	40	40	20	20	10	20	10	15	8
<b>Return Speed</b>	mm/ min	1500	1500	1500	2500	1200	600	600	500	1000	600	800	500
	in/ min	60	60	60	100	48	24	24	20	40	24	32	20
<b>Position Control Resolution</b>	μm	0.156	0.156	0.208	0.236	0.118	0.057	0.054	0.063	0.100	0.060	0.075	0.060
	μin	6.1	6.1	8.2	9.3	4.6	2.2	2.1	2.5	3.9	2.4	2.9	2.4
<b>Total Crosshead Travel</b>	mm	500	917	917	1135	1135	1135	1135	1135	1235	1235	1180	1180
	in	19.7	36.1	36.1	44.6	44.6	44.6	44.6	44.6	48.6	48.6	46.5	46.5
<b>Total Vertical Test Space (note 5)</b>	mm	659	1076	1076	1249	1249	1249	1205	1205	1309	1309	1256	1256
	in	25.9	42.4	42.4	49.2	49.2	49.2	47.4	47.4	51.5	51.5	49.4	49.4
<b>Depth Daylight</b>	mm	100	100	100	NA	NA	NA	NA	NA	NA	NA	NA	NA
	in	3.9	3.9	3.9									
<b>Space Between Columns</b>	mm	NA	NA	NA	420	420	420	420	420	575	575	575	575
	in				16.5	16.5	16.5	16.5	16.5	22.6	22.6	22.6	22.6
<b>Height (note 7)</b>	mm	875	1275	1275	1597	1597	1597	1597	1597	2092	2092	2092	2092
	in	34.4	50.2	50.2	62.9	62.9	62.9	62.9	62.9	82.4	82.4	82.4	82.4
<b>Width</b>	mm	375	375	375	909	909	909	909	909	1300	1300	1300	1300
	in	14.75	14.75	14.75	35.8	35.8	35.8	35.8	35.8	51.2	51.2	51.2	51.2
<b>Depth</b>	mm	500	500	500	700	700	700	700	700	756	756	756	756
	in	19.7	19.7	19.7	27.5	27.5	27.5	27.5	27.5	29.8	29.8	29.8	29.8
<b>Weight</b>	kg	32	37	37	136	136	136	182	240	862	862	952	952
	lb	70	80	80	300	300	300	400	530	1900	1900	2100	2100
<b>Maximum Power Requirement</b>	VA	225	225	400	300	300	300	600	700	1400	1400	2800	2850 VA

Note: Common specifications are on the back page.



# MACCHINE TIPO SUN

## Caratteristiche tecniche

	SUN/500 SUN/1000 SUN/2500	SUN/5	SUN/10-P	SUN/25	SUN/50-/60	NOTE
Capacità nominale	5 - 10 - 25 kN	50 kN	100 kN	250 kN	500 kN / 600 kN	
Velocità lavoro	0.05÷500 mm/min	0.05÷500 mm/min	0.05÷200 mm/min	0.05÷200 mm/min	0.05÷100 mm/min	
Velocità a vuoto	500 mm/min	500 mm/min	400 mm/min	500 mm/min	300 mm/min	
Luce tra afferraggi	1000 mm	1000 mm	1000 mm	1000 mm	1690 mm	
Corsa totale	1000 mm	1000 mm	1000 mm	1000 mm	1270 mm	
Risoluzione di spostamento	0,001 mm	0,001 mm	0,001 mm	0,001 mm	0.001 mm	
Accuratezza di posizione	0,02 mm	0,02 mm	0,02 mm	0,02 mm	0.02 mm	
Luce disponibile tra afferraggi a cuneo	600 mm	480 mm	570 mm	645 mm	820 mm	
Passaggio fra i montanti	350 mm	410 mm	410 mm	550 mm	640 mm	
Accuratezza	Standard Classe 1 Norma UNI EN 10002/2 (±1% del carico indicato fino all'1% del f.s.).					Estens. allo 0,2% f.s. e Classe 0.5 opz.
Unità misura della forza	Newton - daN - kgf - lbs					
Tensione alimentazione	220 Vac monf.	220 Vac monof.	220 Vac monof.	220 Vac monf.	220 Vac monof.	Altre tensioni opzionali
Potenza installata	0,45 kW	0,65 kW	1 kW	2,1 kW	2,7 kW	
Pressione aria compressa	5÷8 bar	5÷8 bar	5÷8 bar	5÷8 bar	5÷8 bar	richiesta solo c/teste pneum. o con estensim. MICRON -PLAST
Consumo aria aspirata:						
istantaneo	8 m <sup>3</sup> /h	8 m <sup>3</sup> /h	8 m <sup>3</sup> /h	8 m <sup>3</sup> /h	8 m <sup>3</sup> /h	
medio	0,1 m <sup>3</sup> /h	0,1 m <sup>3</sup> /h	0,1 m <sup>3</sup> /h	0,1 m <sup>3</sup> /h	0,1 m <sup>3</sup> /h	
Polmone aria occorrente	10 l	10 l	10 l	10 l	10 l	
Peso macchina senza accessori	160 kg	250 kg	350 kg	730 kg	2100 kg	
Peso teste trazione a cuneo	5,5 kg	20 kg	35 kg	35 kg	70 kg	
Rumorosità	< 72 dB(A)	< 72 dB(A)	< 72 dB(A)	< 72 dB(A)	< 72 dB(A)	
Temperatura operativa	+5°C : +40°C	+5°C : +40°C	+5°C : +40°C	+5°C : +40°C	+5°C : +40°C	
Umidità senza condensazione	20%÷80%	20%÷80%	20%÷80%	20%÷80%	20%÷80%	
Illuminazione locale	300 lux	300 lux	300 lux	300 lux	300 lux	

# STRAIN GAUGE EXTENSOMETERS

Catalog Number 2630-100

The 2630-100 series of extensometers offers speed of attachment and ease-of-use. The light-weight, rugged cross-brace design eliminates errors caused by physical distortion, while built-in protection ensures that damage is not caused by over-extension.

The low operating-force arms of the extensometer reduce the possibility of knife-edge slippage when testing hard or smooth surfaced materials. The extensometers can be installed or set in place accurately and consistently, with the gauge length locking device automatically releasing itself after attachment, ensuring speed and reliability of operation. This unique, patented cone-latch mechanism also overcomes the problems associated with having to remove pins or clips prior to starting a test, or tests being conducted with the extensometer accidentally locked at gauge length. There is also the ability to measure both positive and negative strain allowing compressive or flexural test measurements.

## Principle of Operation

The 2630-100 series extensometer includes different gauge length and strain range options to suit a wide range of specimen characteristics. All 2630-100 series extensometers can comply with both the ASTM E 83 and ISO 9513 standards, and gauge lengths are available in metric or U.S. customary units. Test certificates are supplied, showing the individual performance of each unit.

## Features and Benefits

- Rugged cross-brace design with low operating force arms
- Unique, patented cone-latch system
- Precise, fixed gauge length with automatic calibration facility
- Interchangeable rapid attachment spring clips
- Centering guides for accurate alignment on small diameter specimens
- Ideal for temperature cabinet use, between -100 °C and +200 °C
- Compressive and through-zero strain measurement capability
- Suitable for closed-loop strain control for monotonic and low-rate cyclic testing
- Rugged construction allows for extensometer to be left on through failure for most materials

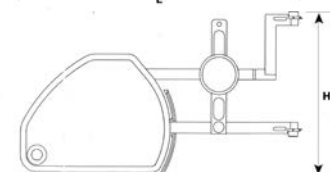
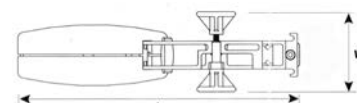


## Application Range

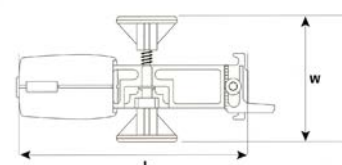
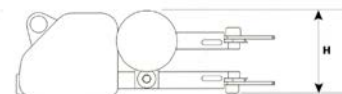
- Metals testing 'n-value'
- Flex or compression testing
- Rigid plastics testing
- Immersable testing
- Composites

## Specifications for 2630-100

Repeatability	%	Better than 0.1 FRO (Full Range Output)
Hysteresis	%	Better than 0.3 FRO
Balance	%	Better than $\pm 2.5$ FRO
Excitation	V	1 V to 5 V RMS
	kHz	DC to 5 kHz
Sensitivity	mV/V	2.5 ( $\pm 20\%$ )
Electrical Calibration Accuracy	%	$\pm 0.06$ FRO
Bridge Resistance; (Nominal)	ohms	350
Gauge Length Accuracy	%	$\pm 0.5$ at gauge length
Temperature Range	$^{\circ}\text{C}$	-100 to +200
Temperature Effect on Zero	%	$\pm 0.01$ FRO
Typical Temperature Effect	$^{\circ}\text{C}$	-0.006% FRO/ celsius (+20 to +100) -0.008% FRO/ celsius
- On Sensitivity	$^{\circ}\text{C}$	(+100 to +50) -0.01% FRO/ celsius (+150 to +200)
- On Immersibility	-	Non-conductive/ non-corrosive fluids i.e. acetone, mineral and silicone oils, alcohol, etc.
Over Travel	-	Mechanical limit stops
Gauge Length Settings	-	Cone latch with automatic release



Short gauge length



Long gauge length

## Specifications

Catalog Number	Gauge Length	Travel	Length (L)	Width (W)	Height (H)	Operating Force	Weight	Strain Range Classification*			
								ISO 9513 0.5	ISO 9513 1.0	ASTM E 83 B-2	ASTM E 83 C
Metric	mm	mm	mm	mm	mm	g	g	%	%	%	%
2630-120	8	-4 to +4	67	39	25	20	27	0 to +50	-30 to +50	0 to +50	-30 to +50
2630-101	10	-1 to +1	67	39	25	160	27	-10 to +10	-	-10 to +10	-
2630-102	10	-5 to +5	67	39	25	20	27	0 to +50	-	0 to +50	-
2630-105	25	-5.5 to +2.5	100	39	52	55	56	-10 to +10	-	-10 to +10	-
2630-106	25	-2.3 to +12.5	115	39	58	75	58	0 to +50	-	0 to +50	-
2630-107	25	-2.5 to +25	132	39	69	45	60	0 to +70	0 to +100	0 to +70	0 to +100
2630-111	50	-5 to +5	100	39	72	45	60	-10 to +10	-	-10 to +10	-
2630-112	50	-2.5 to +25	132	39	72	45	60	0 to +35	0 to +50	0 to +35	0 to +50
2630-113	50	-5 to +50	181	39	72	37	66	0 to +70	0 to +100	0 to +70	0 to +100
2630-123	75	-0.75 to +7.5	116	39	101	60	60	0 to +10	-	0 to 10	-
2630-117	80	-0.8 to +8	116	39	101	60	60	0 to +10	-	0 to +10	-
2630-118	80	-4 to +40	181	39	101	45	66	0 to +35	0 to +50	0 to +35	0 to +50
2630-119	100	-5 to +50	181	39	121	37	66	0 to +35	0 to +50	0 to +35	0 to +50
US Customary	in	in	in	in	in	g	g	%	%	%	%
2630-121	0.3	-15 to +0.15	2.64	1.5	1.0	20	27	-10 to +50	-50 to +50	-10 to +50	-50 to +50
2630-103	0.5	-0.05 to +0.05	2.64	1.5	1.0	170	27	-10 to +10	-	-10 to +10	-
2630-104	0.5	-0.25 to +0.25	2.64	1.5	1.0	20	27	0 to +50	-30 to +50	0 to +50	-30 to +50
2630-108	1.0	-0.1 to +0.1	4.0	1.5	2.0	55	56	-10 to +10	-	-10 to +10	-
2630-109	1.0	-0.1 to +0.5	4.5	1.5	2.3	75	58	0 to +50	-	0 to +50	-
2630-110	1.0	-0.1 to +1.0	5.2	1.5	2.7	45	60	0 to +70	0 to +100	0 to +70	0 to +100
2630-114	2.0	-0.2 to +0.2	4.0	1.5	2.8	45	60	-10 to +10	-	-10 to +10	-
2630-115	2.0	-0.1 to +1.0	5.2	1.5	2.8	45	60	0 to +35	0 to +50	0 to +35	0 to +50
2630-116	2.0	-0.2 to +2.0	7.1	1.5	2.8	37	66	0 to +70	0 to +100	0 to +70	0 to +100

Notes: \*When calibrated using the appropriate calibration apparatus these extensometers are guaranteed to meet the stated classification. Outside of these stated ranges the extensometers in compressive mode are generally perform to ISO 1.0 or ASTM C classification.

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# W-E404 Series Transverse Extensometers

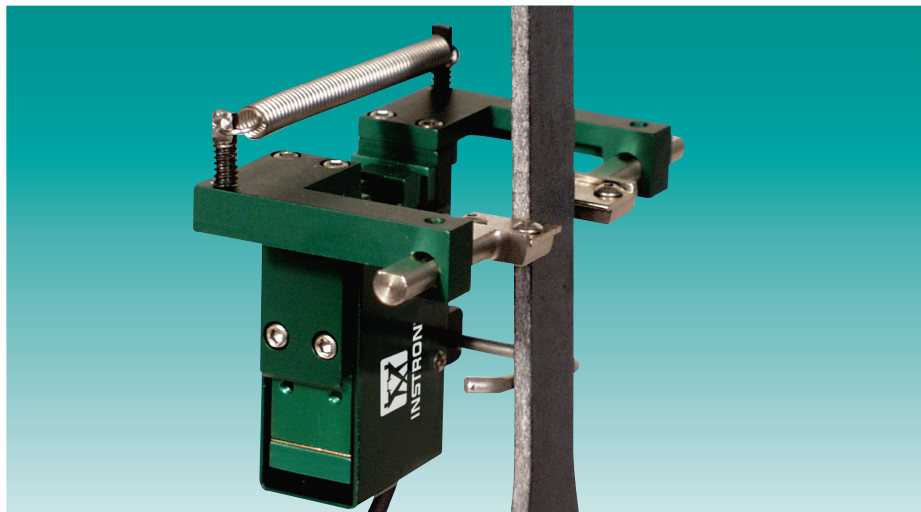
## Catalog Numbers W-E404-A, W-E404-C, W-E404-E, W-E404-F

### Features

- Rugged dual-flexure design for strength and improved performance
- Meets or exceeds ASTM E 83 class B-1 and ISO 9513 class 0.5
- Positive and negative displacements
- Easily replaced knife edges
- Easy to mount, with integral springs to keep the extensometer on the sample
- Suitable for round or flat specimens
- Rugged construction for operation through specimen failure

### Description

W-E404 Series Transverse Extensometers are designed for measuring transverse displacements. They are self-supporting on the test specimen and will work on any width or diameter specimen from 0 to 25 mm (1 in). They are commonly used for the measurement of Poisson's ratio and transverse strain on anisotropic materials such as composites. They are frequently used simultaneously with axial extensometers. These units easily clip on to the specimen and are held in place with an integral spring. The rounded contact edges help maintain the position on the specimen.



▲ W-E404 Series Transverse Extensometer

### Principle of Operation

The specimen displacement is measured at a single point using a high-accuracy, dual flexure strain-gauge sensor designed for strength and improved performance. The design makes these units very durable and they may be left on the specimen through specimen failure.

The extensometers are easy to mount and feature integral springs that hold the unit on the test specimen. An adjustable specimen contact bar below the knife edges provides good mechanical stability for the extensometer body.

### Application Range

- Static and dynamic tests use up to 5 Hz
- Suitable for tension, compression and cyclic tests on a wide range of materials including metals, composites and plastics



# W-E404 Series Transverse Extensometers

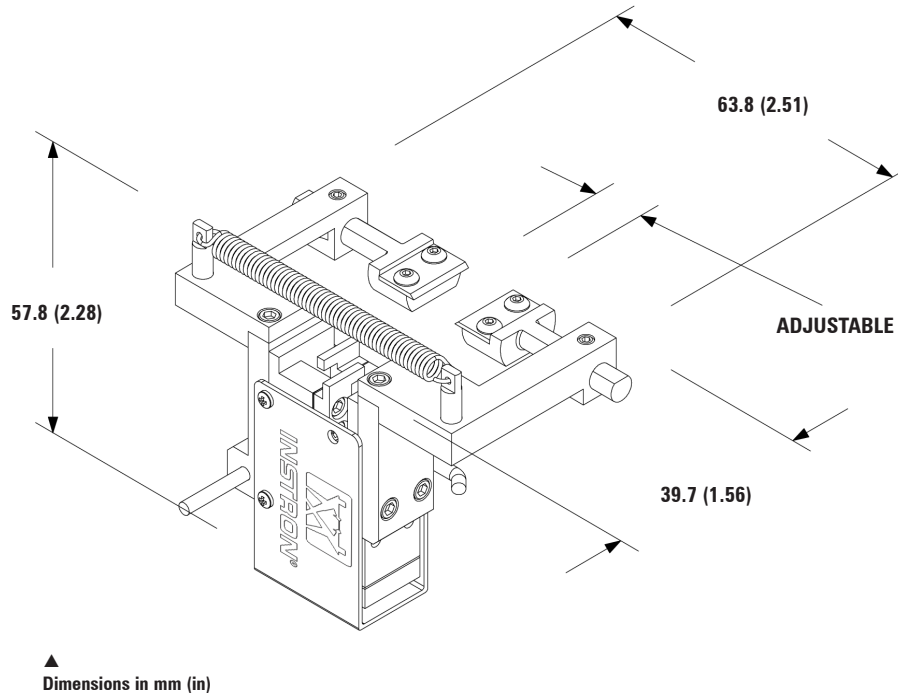
Catalog Numbers W-E404-A, W-E404-C, W-E404-E, W-E404-F

## Specifications

Catalog Number	W-E404-A	W-E404-C	W-E404-E	W-E404-F
Measurement Range	±0.02 in	±0.1 in	±0.5 mm	±2.5 mm

## General Specifications

Temperature Range	- 40° C to +100° C (-40° F to +212° F)
Specimen Size	Up to 25 mm (1 in) width or diameter
Cable Length	2.5 m (8 ft)



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