

# MODEL 1ST ELECTROMECHANICAL TESTING MACHINE



The model 1ST is designed for tension, compression, flexure and shear strength testing on materials and assemblies. The robust design that incorporates quality materials and components ensures that our reputation for superior system performance, ease of use, and longevity is maintained. A variety of loadcells are available at differing capacities that give precise applied load measurements from the smallest test specimen to ones that go to full machine capacity. Test machines become complete, powerful test systems with the addition of grips to hold the specimen, strain measurement instrumentation and Tinius Olsen's Horizon Data Analysis software.

## FEATURES AND BENEFITS

- Suitable for tension, compression, flexure, shear and other tests to a maximum force of 1kN / 200 lbf
- Single column design allows compact, economical and easy testing
- Different system interface options are available, from a familiar tethered handheld interface, a wireless Bluetooth interface panel running an Android application, or virtual machine controller application running on a pc. All interfaces work with Horizon Data Analysis software.
- Meets or exceeds the requirements of national and international standard for materials testing systems.
- 4 full-length T slots built into machine column to allow accessories to be securely mounted to the test frame.
- Built-in pneumatic distribution ports that provide local air supply to pneumatic grips.

## OPTIONS AND ACCESSORIES

- Test frame can be extended by up to 254mm / 10 inches to increase test area size. <sup>1</sup>
- Grips and fixtures can be easily mounted securely with a simple locking pin, which also allows simple and rapid changes.
- Full range of precision extensometers and deflectometers are available using video, laser, encoder, strain gauge and/or LVDT technologies
- Tinius Olsen's Horizon software can be connected to the tester by the operator.

- <sup>1</sup>Supplied at the time of order

Wireless handheld interface which is connected to the machine by a Bluetooth link. This interface features an Android based operating platform and can be used to control the machine by itself or in conjunction with Tinius Olsen's Horizon software.



Familiar handheld interface which is tethered to the machine. With its larger, tactile, sealed keypad, this interface is ideal for operators whose use gloves to load and unload specimens and prefer a push button keypad. It requires virtual machine control software running on a connected pc to operate the basic machine functions and report basic numerical test data.



# SPECIFICATIONS



## Model 1ST Specifications

### FRAME SPECIFICATIONS

Tension Compression load capability	Yes	
Frame capacity	kN	1
	kg	100
	lbf	200
Proof tested	100%	
Floor or table mounting	Table mounting	
Test zones	1	
Number of columns	1	
Column material	Aluminium Extrusion	
Column finish	Anodized	
Column colour	Natural	
Base material	Mild Steel	
Base finish	Pre primed, top coat powder coat paint	
Base colour	TO Cool Grey Web # E6 30 27	
Crosshead material	Mild Steel solid	
Croshead finish	Pre primed, top powder coat paint	
Crosshead colour	TO Green Web # 00 4C 45	
Base cover	ABS recyclable	
Base cover colour	Cal Black Web # 11 18 20	
Distance between columns	mm	N/A
	in	N/A
Max cross head travel	mm	755
	in	30
Optional crosshead travel	mm	254
	in	10
Stiffness	kN/mm	7
	kN/in	39
	klbf/in	39
Height	mm	1168
	in	46
Width	mm	511
	in	20
Depth	mm	467
	in	18
Weight	kg	46
	lb	101
Force protection system	Yes digital	
Displacement protection system	Yes mechanical & user programmable	
Accessory fitting interface type	Female diameter	
Ball screw type	High precision low backlash	
Ball screw cover/protection	Yes	
Crosshead drive system	DC servo motor	
Feet material	non-adjustable impact resistant plastic	
Pneumatic air distribution	4mm OD hose with pushfit coupling, rated to 100 psi max.	
Reference rule for xhead position	Yes mm & Inches	
T slots in columns for accessories	4 * M6/M8	
Noise at full crosshead speed 2m radius	18db	

**NOTE** - Software required for materials tests

## Model 1ST Specifications

### CONTROLLER SPECIFICATIONS

Max data processing rate	168 MHz
Data acquisition rate at PC	1000 Hz
Number of instrument device connections - external	4
Number of instrument device connections - internal	3
Bluetooth enabled	v4.0 with A2DP, LE, EDR
External PC connection	USB
User interface connectivity	TO HMC, Proterm, Horizon

### FORCE MEASUREMENT

Force measuring device - type	Strain gauge based load cell
Load cells available	5N, 10N, 25N 50N, 100N, 250N, 500N, 1kN
Resolution	1 part in 8388608
Accuracy	+/-0.2% of applied force across load cell force range
Range	0.2% to 100%
Calibration standard	+/- 0.5% to ISO 7500-1 ASTM E4
Internal sampling rate	1000Hz

### EXTENSION MEASUREMENT

Resolution	0.1um
Accuracy	+/-10um
Range	+/- 217m
Calibration standard	ISO 9513, ASTM E83
Internal sampling rate	2.73kHz

### POSITION CONTROL

Test Speed	mm/min	0.001 to 1000
	in/min	0.00004 to 40
Resolution	um	0.1
	in	0.000004
Accuracy	+/- 0.005%	
Return speed post test	mm/min	0.001 to 1500
	in/min	0.00004 to 60
Crosshead positioning speed	mm/min	0.001 to 1000
	in/min	0.00004 to 40
Return to zero function	Yes	

### POWER REQUIREMENTS

Supply voltage options	110/240V
Frequency	50/60Hz
Power	0.53kW +/- 10%

### ATMOSPHERIC REQUIREMENTS

Operating temperature	10 to 40 °C
Operating humidity	10% to 90% non condensing
Storage temperature	10 to 69 °C
Storage humidity	10% to 90% non condensing