MODEL 50ST
ELECTROMECHANICAL
MATERIALS TESTING MACHINE

The model 50ST 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 50kN / 11,000 lbf
• 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.
• 8 full-length T slots built into machine column to allow accessories to 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 400mm / 16 inches to increase test area size. 1
• 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
• Furnaces and environmental chambers can be installed for tests at high or low temperatures.
• Safety enclosures with interlocks can be installed to protect operators from violent specimen breaks.
• Tinius Olsen’s Horizon software can be connected to the tester by the operator.

1Supplied at the time of order

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 can be used to operate the basic machine functions and will report basic numerical test data or can be linked with Horizon software.

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.
### SPECIFICATIONS

#### 50ST Specifications

**Frame**
- Tension Compression load capability: Yes
- Frame capacity:
  - kN: 50
  - kg: 5,000
  - lbf: 11,000
- Proof tested: 25% over frame capacity
- Floor or table mounting: Table mounting
- Test zones: 1
- Number of columns: 2
- Column material: Aluminium Extrusion
- Column finish: Anodized
- 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
- Crosshead finish: Pre primed, top coat 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: 410
- in: 16

**Max cross head travel**
- mm: 1065
- in: 42

**Optional crosshead travel**
- mm: 400
- in: 16

**Stiffness**
- kN/mm: 100
- klbf/in: 557

**Height**
- mm: 1655
- in: 65

**Width**
- mm: 729
- in: 29

**Depth**
- mm: 506
- in: 20

**Weight**
- kg: 163
- lb: 359

**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**: Impact resistant plastic

**Feet adjustment & levelling**: No

**Reference rule to support cross head positioning**: Yes mm & inches

**T slots in columns for accessory mounting**: 8 * M6/M8

**Noise at full crosshead speed 2m radius**: 31dB

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#### S0T Specifications

**Controller**
- 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**
- Force measuring device type: Strain gauge based load cell
- Load cells available: 25N 50N, 100N, 250N, 500N, 1kN, 2.5kN, 5kN, 10kN, 25kN, 50kN
- Resolution: 1 part in 8,388,608
- Accuracy: +/-0.1% 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: 2.7kHz

**Position control**
- Test Speed:
  - mm/min: 0.001 to 500 to 20kN
  - mm/min: 0.001 to 250 to 50kN
  - in/min: 0.00004 - 20 to 4,000lbf
  - in/min: 0.00004 - 10 to 11,000lbf
- Resolution:
  - um: 0.1
  - um: 0.000004
- Accuracy:
  - +/- 0.005%
  - +/- 0.005%
- Return speed post test:
  - mm/min: 0.001 to 500
  - in/min: 0.00004 to 20
- Resolution:
  - um: 0.1
  - um: 0.000004
- Accuracy:
  - +/- 0.005%
  - +/- 0.005%
- Return to zero function: Yes

**Power requirement**
- Supply voltage options: 110/240V
- Frequency: 50/60Hz
- Power: 530W +/- 10%

**Atmosphere**
- 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

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Software required for materials tests