Bulletin
160

Tinius Olsen

Floor Standing High Force

Electromechanical Materials Testing Machines

U Series Materials Testing Machines

These Tinius Olsen dual column materials testing machines are floor mounted and have frame capacities of 100 kN, 150 kN, 200 kN, and 300 kN (20,000 lbf, 30,000 lbf, 45,000 lbf, and 60,000 lbf respectively).

These machines are designed to test a vast range of materials, including, but not limited to: rigid and reinforced plastics, composites, geotextiles, sheet metal, welded specimens, adhesives, and medical products and components, in tension, compression, flexure, shear, tear, and peel.

They give you the ultimate in durability, speed, accuracy, and convenience and feature high precision, interchangeable strain gage load cells for capturing applied load data. This design allows you to change machine capacity from as little as 0.1 kgf (1 N) to the maximum frame capacity in a very simple and rapid process.

The construction of the machine frame, pre-loaded leadscrews, and drive system make them unique. Even at full capacity, these frames have excellent rigidity with negligible frame deflection.

This design allows for a single test zone for both tension and compression tests. Users can load heavy specimens with minimal effort. This feature is further enhanced by a programmable switch mechanism that allows the operator to quickly set upper and lower crosshead limits at any point within the frame's clearance.

The machines can be operated at speeds ranging from a minimum of 0.01 mm/min (0.04 thousandths of an inch per minute) to a maximum of 500 mm/min (20 inches per minute), which accommodates a wide range of materials and specimens.

Frame flexibility is further extended by a wide array of accessories. These accessories include various LVDT extensometers, compressometers, and deflectometers, strain gage extensometers, hot and cold temperature test chambers for sample conditioning and testing, high temperature furnaces (with high temperature capable extensometers), as well as grips, holders, jigs, and platens for holding the test specimens.

Features of machines:

- PC control via high speed RS232 using ASCII mode and super high speed binary mode
- Force accuracy of ± 0.5% of applied load across the load cell display range
- Displacement resolution of 0.001 mm (binary mode)
- Speed resolution of 0.001 mm/min
- Built-in intelligent active force and displacement alarm system
- 32 bit precision motor controller
- 150% mechanical overload
- 20% digital load tare while maintaining full load cell capacity
- Automatic motor drive alarms that monitor over/under voltage, current, and temperature.

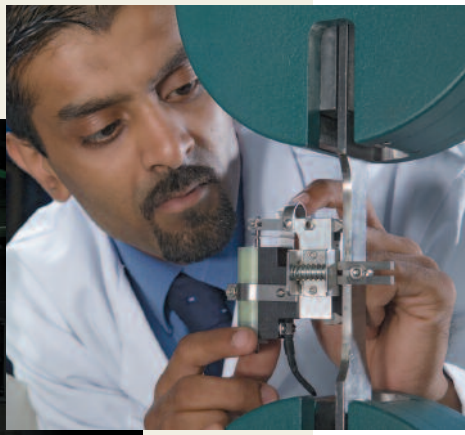
Technical Specifications

MODEL		H100kU	H150kU	H200kU	H300kU
FORCE CAPACITY	kN lbf	100 22500	150 33750	200 45000	300 67500
MINIMUM TEST SPEED	mm/min in/min	0.01 0.0004	0.01 0.0004		0.01 0.0004
MAXIMUM TEST SPEED	mm/min in/min	500 20	500 20		500 20
FORCE CAPACITY AT MAXIMUM TEST SPEED	kN lbf	100 22500	150 33700	200 45000	300 67500
MAXIMUM TEST SPEED AT RATED FORCE CAPACITY	mm/min in/min	500 20	500 20		500 20
CROSSHEAD RETURN SPEED (SEE NOTES BELOW)	mm/min in/min	700 27	750 30		750 30
VERTICAL TEST SPACE CROSSHEAD TRAVEL	mm in	1200 47	1200 47		1150 45
HORIZONTAL TEST SPACE BETWEEN COLUMNS	mm in	650 25.6	650 25.6		650 25.6
POSITION RESOLUTION	mm in	0.001 0.00004	0.001 0.00004		0.001 0.00004
POSITION ACCURACY	mm in	0.01 0.0004	0.01 0.0004		0.01 0.0004
SPEED ACCURACY	% of full speed	±0.5	±0.5		±0.5
DIMENSIONS H x W x D	mm in	2440 x 1133 x 685 96 x 44.6 x 27	2440 x 1133 x 685 96 x 44.6 x 27		2440 x 1133 x 685 96 x 44.6 x 27
WEIGHT	kg lb	750 1655	970 2140		1050 2315
NOMINAL SUPPLY VOLTAGE (SEE NOTES BELOW)	VAC	230 VAC 1 Phase	415 VAC 3 Phase	415 VAC 3 Phase	415 VAC 3 Phase
POWER RATING	Continuous Peak	2kW N/A	10.5kW 21kW	14kW 28kW	19kW 38kW

Specifications:

Load measurement accuracy: ± 0.5% of applied load from 0.2% to 100% capacity
Position measurement accuracy: ± 0.01% of reading or 0.01 mm, whichever is greater
Operating temperature range: 0 to 38° C (32 to 100 °F)
Storage temperature range: -10 to 45° C (14 to 115 °F)
Humidity range: 10% to 90% non-condensing, wet bulb method

Notes: 1. 3 phase Y (star) balanced phase power must be free of spikes and surges exceeding 10% of the nominal voltage. Alternative power options are available; please consult with your Tinius Olsen technical contact. **2.** Load weighing system meets or exceeds the requirements of the following standards: ASTM E4, EN 10002-2, BS 1610, DIN 51221, ISO 7500-1. Tinius Olsen recommends that systems are verified at installation in accordance with ASTM E4 and ISO 7500-1. **3.** Strain measurement system meets or exceeds the requirements of the following standards: ASTM E83, EN 10002-4, BS 3846 and ISO 9513. **4.** These models conform to all relevant European CE Health and Safety Directives EN 50081-1, 580081-1, 73/23/EEC, EN 61010-1 **5.** Specifications are subject to change without notice.



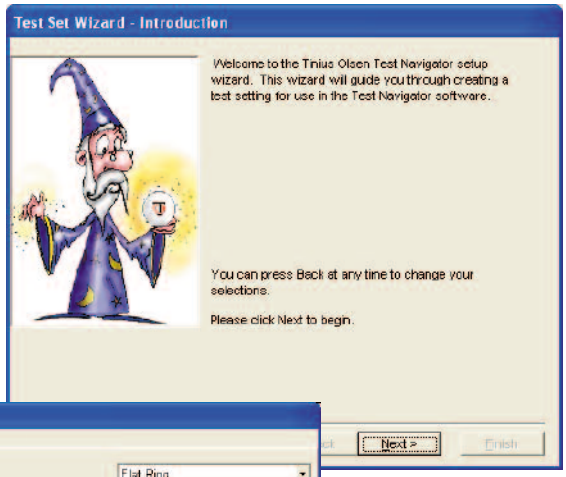
Software

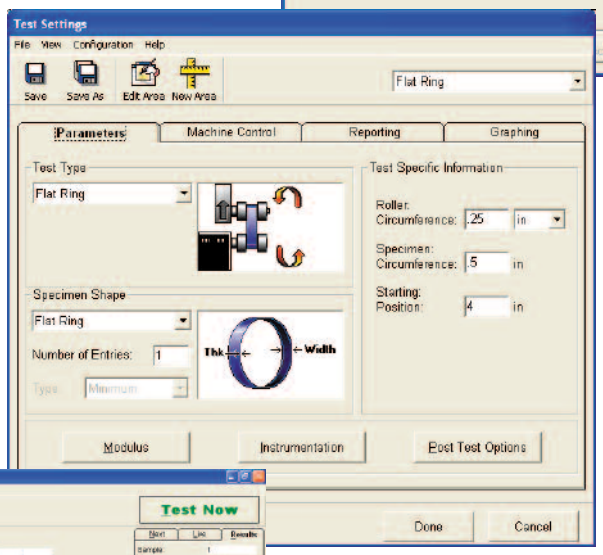
Building on our long history of providing solutions to an enormous variety of testing problems, Tinius Olsen offers a comprehensive range of software products, each designed to make testing simple, precise and efficient, no matter whether the material is metal, paper, composite, polymer, rubber, textile, or micro components. Tinius Olsen software goes far beyond basic module changes for unique applications; instead, specific and focused application software products have been developed in close cooperation with our customers around the world.

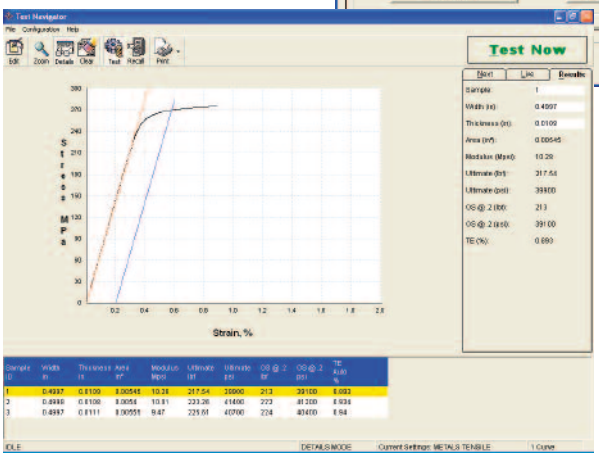
There are several valuable features that are common to all, perhaps the most important is the ability to further customize the testing parameters that are used to collect and document testing data, as well as control the testing machine. Specifically, our range of application software is for data acquisition, data analysis, and also closed loop control of Tinius Olsen testing machines that have a compatible servo system or four-quadrant drive.

All versions of our focused application software are rich with standard features that improve productivity and enable you to build, access, and use a powerful materials testing database:

- Use of modern databases.
- Generation of user customized reports.
- Standard SPC programs for X-bar, R, and frequency distributions/histograms.
- Ability to recall, replot, and rescale curves.
- Recall of data that spans different test modules.
- User-configurable machine parameter and control settings.







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