

MHT Series

Horizontal Tensile
Testing Machines

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Basic 25kN capacity horizontal tensile testing machine, shown with optional extensometer



150kN capacity horizontal tensile testing machine shown with optional extensometer and PC



For maximum tensile testing throughput and capability, Tinius Olsen offers a range of horizontal tensile testing machines in capacities of 5kN (1000lbf), 25kN (5000lbf), 150kN (30,000lbf) and 300kN (60,000lbf).

These horizontal testing machines offer unique benefits over vertically oriented testers by allowing a range of accessories to be mounted next to the machine to turn it into a fully automatic testing station.

They are designed primarily for production departments and are typically in constant use; however, the grips can be modified to accommodate different shaped samples and alternate grips can be provided for customers when test requirements change.

The horizontal extensometer that is typically used with the machine has a unique design that incorporates pneumatic controls that automatically lower the arms prior to the test and raise the arms at the end of the test. Air bearings on the extensometer provide accurate strain measurement through fracture.

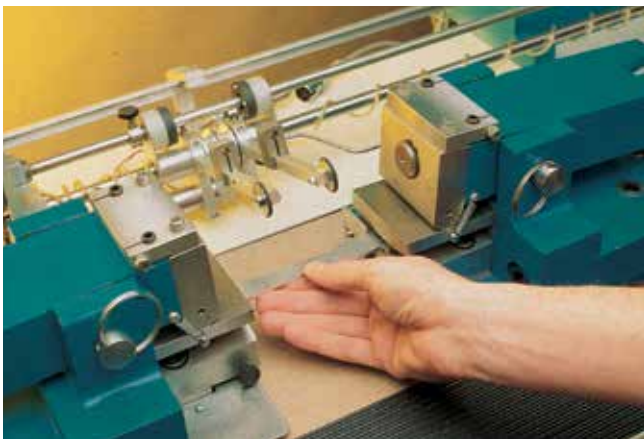
The operation of the basic machine is sophisticated, providing accurate and repeatable specimen placement against mechanical stops, automatic clamping,

extensometer lowering (if supplied), testing, extensometer removal, and grip return to the starting position, all with a single mouse click.

This advanced operation can be further developed when the PC-based machine control software provided with the machine is upgraded to include data acquisition and data analysis.

Further automation can then be achieved by the addition of a robot and sample racks. In this configuration, the robot will pick a sample from a sample rack and insert it into the machine grips. It will then wait for the end of test so that the broken sample pieces can be removed from the grips and placed in a suitable disposal bin.

If a sample measuring station and barcode reader are included with the system, the whole testing process is automated with the only operator requirement being the loading of the samples in the sample rack. The test data that is generated can be included into corporate manufacturing and resource planning software ensuring that quality control data is an integral part of operations.



Close up of unique extensometer that can stay on to sample fracture. The sample is loaded against the mechanical stops and the test started — the rest is automatic



Detail showing the pick-and-place robot, sample racks, laser barcode reader, sample dimension measuring station, broken sample bin and another test station. This second test station could be flexure, hardness or another kind of physical test



SPECIFICATIONS

Model		MHT-1,000	MHT-5,000	MHT-30,000	MHT-60,000
Capacity	lbf	1,000	5,000	30,000	60,000
	kN	5	25	150	300
	kg	500	2,500	15,000	30,000
Maximum crosshead travel	in	17	17	20	20
	mm	430	430	500	500
Grip actuation		Pneumatic	Pneumatic	Hydraulic	Hydraulic
Testing speed range	in/min	0.002-20	0.002-20	0.002-10	0.002-10
	mm/min	0.05-500	0.05-500	0.05-250	0.05-250
Dimensions HxWxD	in	14 x 48 x 28	41 x 61 x 29	50 x 70 x 20	48 x 77 x 21
	mm	356 x 1219 x 711	1041 x 1549 x 737	1257 x 1770 x 514	1229 x 1965 x 533
Weight	lb	2000	2000	2700	2700
	kg	910	910	1225	1225
Console dimensions	in	N/A	N/A	40 x 48 x 31	40 x 48 x 31
	mm	N/A	N/A	1016 x 1219 x 787	1016 x 1219 x 787
Console weight	lb	N/A	N/A	880	880
	kg	N/A	N/A	400	400

- **Load measurement accuracy** +/-0.5% of applied load from 0.2% to full capacity
- **Position measurement accuracy** 0.1% of reading
- **Speed accuracy** 0.1% of set speed
- **Operating temperature range** 32-100°F (0-38°C)
- **Storage temperature range** 14-115°F (-10-45°C)
- **Humidity range** 10-90% non-condensing, web bulb method
- **Power** Standard optional voltages 110/240VAC, 50-60Hz, one-phase for small machines, three-phase for high capacity machines; power must be free of spikes and surges exceeding 10% of the nominal voltage
- **Clean Air** Dry air filtered to 50 microns at up to 85psi (5.9 bar) minimum

Notes:

1. 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 75001.
2. Alternate, lower capacity load measurement cells can be supplied for these frame capacities.
3. Strain measurement system meets or exceeds the requirements of the following standards: ASTM E83, EN 10002-4, BS 3846 or ISO 9513.
4. Specifications are subject to change without notice

HORIZON SOFTWARE

Tinius Olsen's Horizon software goes beyond data collection and presentation to help automate operations, from R&D to the charting and analysis of QC testing. Among the many features offered are: test routine library; simultaneous multiple machine control; test, output, method, and result editors; and multilayered security. The software is designed for data acquisition, data analysis and closed loop control of nearly all Tinius Olsen testing machines.

Horizon software also includes:

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



Key features

- Rapid, easy specimen loading.
- Automatic specimen gripping.
- Automatic extensometer placement and removal.
- Auto-ranging for both load and strain.
- Accurate strain measurement through failure.
- Grips return to start position automatically.
- Higher throughput of test samples.

Optional features

- Robotic loading and removal of samples
- Sample dimension and barcode reading
- Instrumentation and determination of R value



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