Bulletin
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Tinius Olsen

Low Cost Benchtop Materials Testing Machines

W Series

Using a combination of quality engineering and advanced technology, Tinius Olsen has produced an inexpensive series of machines that are accurate and simple to use. These machines are designed to test a wide range of materials, including, but not limited to: plastics, films, paper, packaging materials, non-woven fabrics, filter material, felt, leather, adhesives, foils, food, toys, and medical products and components, in tension, compression, flexure, shear and peel.

All W series machines feature an easy-to-read backlit liquid crystal display that can show test data obtained in real time. This control display unit features dedicated keys for moving the crosshead up, down, stop, performing the test, as well as keys for load and extension tare and crosshead return. The control panel features a simple menu driven set up that allows the input of basic test conditions.

The W series has a huge assortment of different grips and fixtures available allowing you to select one that is ideal for your application. This system would not be complete without a data reporting function, so W Series machines have the ability to store up to five different test set-ups, as well as to print a test report with up to five overlaid test result curves and a table of results with basic statistical analysis.

Additionally, W Series machines come with a serial port that allows easy output of a graph (with X and Y data points), results, and specimen/product data in a standard ASCII delimited format — perfect for capture and easy export into spreadsheet or database software packages.

The W series of testers are designed for users all over the world. An optional language ROM can be installed and all data on the backlit LCD display will be shown in the selected language. Language options include: English, French, Portuguese, German, Italian, Spanish and Polish.

The power, flexibility and robust design of these low cost testing machines make them an ideal choice for educational purposes.

Fig 1: Model H5kW shown with low cost wedge grips

Fig 2: Model H20kW

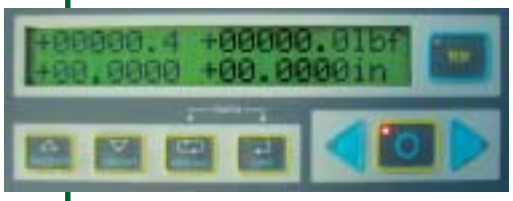

Fig 3. Close-up of the control and display panel

Fig 4: Removing gear cover panel to switch the machine from high gear to low gear (and vice versa)

Fig 5: Model H20kW being used to determine the strength of plastic strapping

Technical Specifications

MODEL		H5kW	H10kW	H20kW
CAPACITY	lbf kN kg	1000 5 500	2000 10 1000	4000 20 2000
CLEARANCE BETWEEN COLUMNS	in mm	6.8 175	6.8 175	6.8 175
FORCE MEASUREMENT		Fixed Z beam load cell with operating range from 5% to 100% capacity	Fixed Z beam load cell with operating range from 5% to 100% capacity	Fixed Z beam load cell with operating range from 5% to 100% capacity
MAXIMUM CROSSHEAD TRAVEL (excluding grips)		Measurement direct from ballscrew - fully auto scaling of single measurement range	Measurement direct from ballscrew - fully auto scaling of single measurement range	Measurement direct from ballscrew - fully auto scaling of single measurement range
	in mm	27.5 700	27.5 700	27.5 700
TESTING SPEED RANGE	in/min	0.06 to 2 (High Reduction Mode) or 0.6 to 20 (Low Reduction Mode)	0.06 to 2 (High Reduction Mode) or 0.6 to 20 (Low Reduction Mode)	0.06 to 2 (High Reduction Mode) or 0.6 to 20 (Low Reduction Mode)
	mm/min	1.5 to 50 (High Reduction Mode) or 15 to 500 (Low Reduction Mode)	1.5 to 50 (High Reduction Mode) or 15 to 500 (Low Reduction Mode)	1.5 to 50 (High Reduction Mode) or 15 to 500 (Low Reduction Mode)
JOG SPEED	in/min	0.06 to 2 (High Reduction Mode) or 0.6 to 20 (Low Reduction Mode)	0.06 to 2 (High Reduction Mode) or 0.6 to 20 (Low Reduction Mode)	0.06 to 2 (High Reduction Mode) or 0.6 to 20 (Low Reduction Mode)
	mm/min	1.5 to 50 (High Reduction Mode) or 15 to 500 (Low Reduction Mode)	1.5 to 50 (High Reduction Mode) or 15 to 500 (Low Reduction Mode)	1.5 to 50 (High Reduction Mode) or 15 to 500 (Low Reduction Mode)
DIMENSIONS L x H x D	in mm	43 x 8 x 14.5 1100 x 210 x 370	43 x 8 x 14.5 1100 x 210 x 370	43 x 8 x 14.5 1100 x 210 x 370
WEIGHT	lb kg	88 40	88 40	88 40

Key Features

- Comprehensive test report with user defined title, parameters, and results with high resolution (600 dpi) graph at the press of a button.
- 20 character, 2 row supertwist display.
- Force accuracy of 1.0% of applied load from 5% to 100% capacity.
- Programmable test speeds.
- Built-in intelligent active force and displacement alarm system.
- 20 bit precision motor controller.
- Displacement resolution of 10 microns.
- User defined specimen break detect.
- Battery backed memory for easy test and data recall of up to five different test methods and results.
- 20% digital load tare while maintaining full load cell capacity.
- Automatic motor drive alarms that monitor over/under voltage, current, and temperature.

Specifications:

Load measurement accuracy: +/- 1. 0% of applied load from 5% to 100% capacity

Position measurement accuracy: +/- 0. 01% of reading or 0. 001 mm, whichever is greater

Speed accuracy: +/- 1. 0% of full speed

Operating temperature range: 32 to 100°F (0 to 38°C)

Storage temperature range: 14 to 115 °F (-10 to 45°C)

Humidity range: 10% to 90% non-condensing, web bulb method

Power: standard optional voltages 220/240 VAC, 50-60 Hz, 2000 W; power must be free of spikes and surges exceeding 10% of the nominal voltage

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.** Strain measurement system meets or exceeds the requirements of the following standards: ASTM E83, EN 10002-4, BS 3846, and ISO 9513. **3.** These models conform to all relevant European CE Health and Safety Directives EN 50081-1, 580081-1, 73/23/EEC, EN 61010-1 **4.** Specifications are subject to change without notice

Fig 6. Model H5kW being used to test crimp connectors

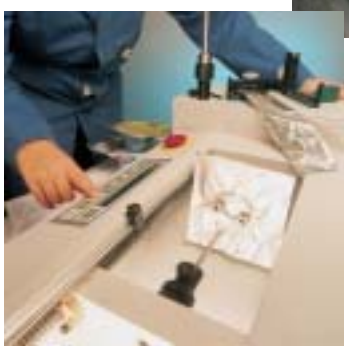

Fig 7. Model H5kW being used to determine the puncture resistance of a packaging foil

Fig 8. Model H20kW being used to find the tensile strength of steel strips

Accessories

Fig 9. Model HT19 Split collet chucks

Tinius Olsen has a wide variety of grips to hold samples and specimens. Each uses a different, unique form of actuation to operate with the ultimate goal of holding the sample, keeping slippage to the absolute minimum, and preventing any damage to the sample that could adversely affect the measurable physical properties or even induce a premature failure of the sample.

Grips are available for different test types including tension, compression, flexure, tear, peel, burst, or puncture type tests.

In addition to grips, extensometers can be attached to samples so that engineering strain can be measured.

Fig 10. Model HT52
Eccentric knurled roller grips

Fig 11. Model HT55
Lightweight vise grips

Fig 12. Model HT34
Disc type grips

Fig 13. Model HT54
Miniature vise grips

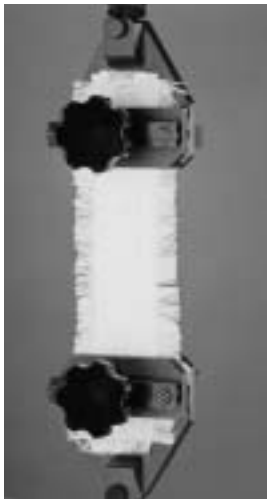

Fig 14. Model HT40
Vise grips

Fig 15. Model HT33 Single bollard grips

Fig 16. Model HW20
Wedge acting grips

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