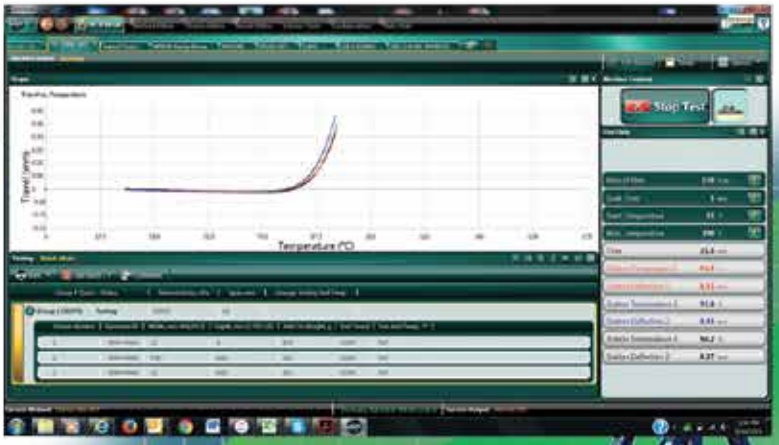
HDTM SERIES
DEFLECTION TEMPERATURE UNDER LOAD AND VICAT TESTING MACHINES



Tinius Olsen

THE FIRST NAME
IN MATERIALS TESTING

THE HDTM SERIES

The Models 603 HDTM and 303 HDTM are the latest generation of Tinius Olsen's digitally controlled Automatic Deflection Temperature/Vicat test equipment, with an automated testing sequence that proceeds according to user defined control and configuration parameters.

The basic model 603 HDTM includes a six station bath, two test stations, and a handheld terminal. Up to four more stations can be added and each test frame can be configured with optional accessories for either Vicat or deflection temperature testing, including both 100 mm edgewise and 64 mm flatwise deflection temperature, as well as the four inch span test. Additionally, the 603 HDTM is ready to be linked to Tinius Olsen's HDV software so that the PC can configure the controller, collect the test data, generate a test report, and save the results.

The 303 HDTM shares these same features of the 603 HDTM, however it has a maximum of three stations.

On both machines, all test stations are pneumatically raised from the bath at the touch of a button on the handheld terminal, allowing easy placement of the test specimens. Once the specimens are loaded into the respective test positions, all the stations are lowered collectively into the oil bath by pneumatic pistons and the test can start.

The start can be initiated by either the handheld terminal or directly from a PC running Tinius Olsen's HDV software. Once started, the test is completely automatic and is performed according to the user defined program. Upon test completion, power to the heater is removed and the cooling cycle is initiated.

Test parameters are entered through the numeric keypad on the handheld terminal. Entries for each station include test type, deflection/penetration, span, specimen dimensions, and stress or force. Starting temperature, soak time, maximum temperature and rate of temperature rise are also entered for control of the bath unit. These configurations are stored and may be used for future tests.

The 603 HDTM has a built-in heat exchanger so that once the test is complete a rapid cooldown is automatically initiated. Using regular mains water, the temperature of the silicon oil can be reduced from a maximum of 300°C to 20° above the water inlet temperature in approximately 20 minutes. The 303 HDTM has an optional cooling system.

Once the cooling cycle is complete, all the test stations can be collectively raised allowing easy removal of the tested samples. In the event that a specimen is dislodged from the station during the course of the test, it will be safely caught in the specimen basket, keeping the heat transfer medium as clean as possible.

The handheld terminal also shows a continuous display of temperature and deflection/penetration for each station throughout the test.

Fig 3. Close-up of test station, which is configured for a heat deflection test.

Fig 2. Model 303 HDTM shown with optional third test station, for deflection temperature and / or Vicat testing. Model here shown with three stations, gantry lowered, and optional cooling connections.

Fig 1. Model 603 HDTM shown with two test stations, one for deflection temperature and one for Vicat testing. The stations are raised for easy and rapid specimen insertion prior to a test and for specimen removal at the end of the test.

MACHINE SPECIFICATIONS

MODEL		603	303
MAXIMUM NUMBER OF STATIONS		6	3
TEMPERATURE RANGE	°C	23° to 300°	
TEMPERATURE RAMP	°C	50° or 120° per hour	
TEMPERATURE DISPLAY RESOLUTION	°C	0.1	
TEMPERATURE SENSOR		Platinum RTD located adjacent to the load application point at each station	
DEFLECTION / PENETRATION MEASUREMENT		LVDT	
DEFLECTION / PENETRATION DISPLAY RESOLUTION	mm	0.001	
COOLDOWN RATE		Max. of 20° above cooling water temp. in 20 minutes.	Max. of 20° above cooling water temp. in 30 minutes.
TEMPERATURE SAFETY LIMIT		Independent dual systems using thermostatic switch in bath and keypad selectable software limiting	
DIMENSIONS (wxdxh)	mm	1067 x 762 x 572	813 x 635 x 585
	in	42 x 30 x 22.5	32 x 25 x 23
WEIGHT	kg	132	87
	lb	290	190
REQUIRED UTILITIES	Heat Transfer Medium	18 liters (4.8 US gallons) min	11 liters (2.9 US gallons)
	Water	Water supply for cooldown	
	Clean Air	Dry air filtered to 50 microns at 40psi (2.7 bar) min	
	Power	220 +/- 10%, 50/60 Hz, 1 phase, 4.5 kW	

NOTES:

1. Environmental Temperature Range: 60 to 100°F (15 to 38°C)
2. Storage Temperature Range: 14 to 115°F (-10 to 45°C)
3. Humidity Range: 10% to 90% non-condensing, wet bulb method
4. Power: standard optional voltages 220/240 VAC, 50 – 60 Hz; power must be free of spikes and surges exceeding 10% of the nominal voltage
5. All models conform to all relevant European CE Health and Safety Directives.

Specifications subject to change without notice.

Features And Benefits

- Conforms to ISO 75, ISO 306, ASTM D648, and ASTM D1525
- Fully automatic control of entire test cycle
- Bath has port with an exhaust fan to remove interior oil fumes
- Air bearing-guided loading rods for virtually friction-free load application
- Electronic transducers integrated into the loading rod assemblies for 0.001 mm (0.0001 in) resolution of deflection or penetration
- Loading nose and rod assemblies provide 76 grams nominal load for ISO 75 'flatwise' deflection temperature tests on 4 mm x 10 mm specimens at 0.45 Mpa stress
- Built-in heat exchanger for rapid system cooldown
- Pneumatic station lift for easy specimen insertion and removal
- Automatic correction for thermal expansion of test frames
- Built-in specimen basket to catch any dislodged specimens
- Accessories available include additional test stations, deflection temperature loading noses, Vicat loading noses and needles, weights, 64 mm span supports for 'flatwise' deflection temperature testing (the stations are predrilled to accept these supports)

Fig 5. Both the Model 603 HDTM and 303 HDTM can be controlled by a PC.

SOFTWARE

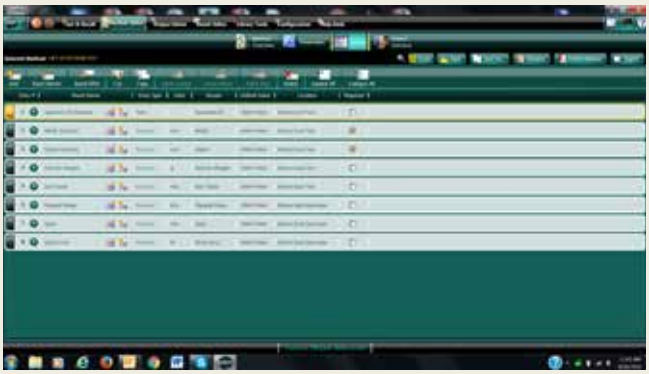
Tinius Olsen has built upon its long history of providing solutions to an enormous variety of testing problems to develop Horizon, a comprehensive software program that makes testing simple, precise, and efficient. Whether the test sample is metal, paper, composite, polymer, rubber, textile, or a micro component, Tinius Olsen's Horizon software goes far beyond data collection and presentation. It will help you automate your operations, from R&D to the charting and analysis of QC testing.

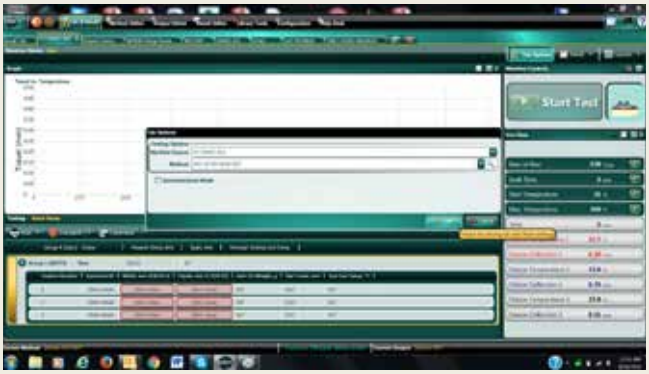
Our Horizon software sets new standards of data analysis by adding a host of report writing and data manipulation capabilities that will make easy work of your materials testing programs. As with most features of Horizon, flexibility is key; reports can be customised by operators in any way they wish, as can all user screens allowing operators to focus on features that are most important to them.

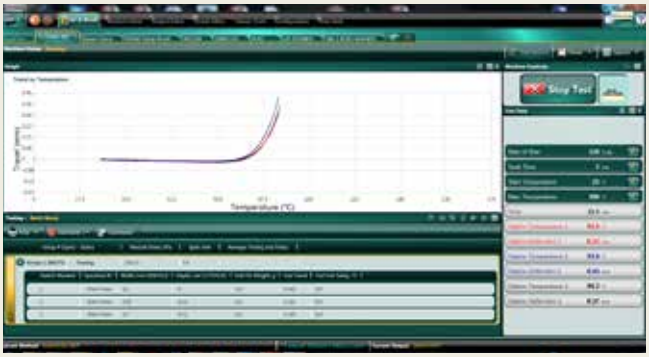
In addition to powerful reports, Horizon Materials Testing software is networkable and scalable so operators and managers can operate equipment and review test results from multiple sources and locations. Horizon provides a library of standard, specific, and application-focused test routines that have been developed in close cooperation with customers around the world and to the standards they are using.

Among the many valuable features offered by Horizon are: a test routine library; simultaneous multiple machine control; test, output, method, and result editors; and multilayered security. This software is designed for data acquisition, data analysis, and closed loop control of nearly all Tinius Olsen testing machines.

Horizon is rich with capabilities that improve productivity and enable you to build, access, and use a modern, powerful materials testing database. It employs the latest Windows environments, running on touchscreen enabled monitors, to create an intuitive user experience. Built-in tutorials, on-line help, and help desk access provide additional user support.







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