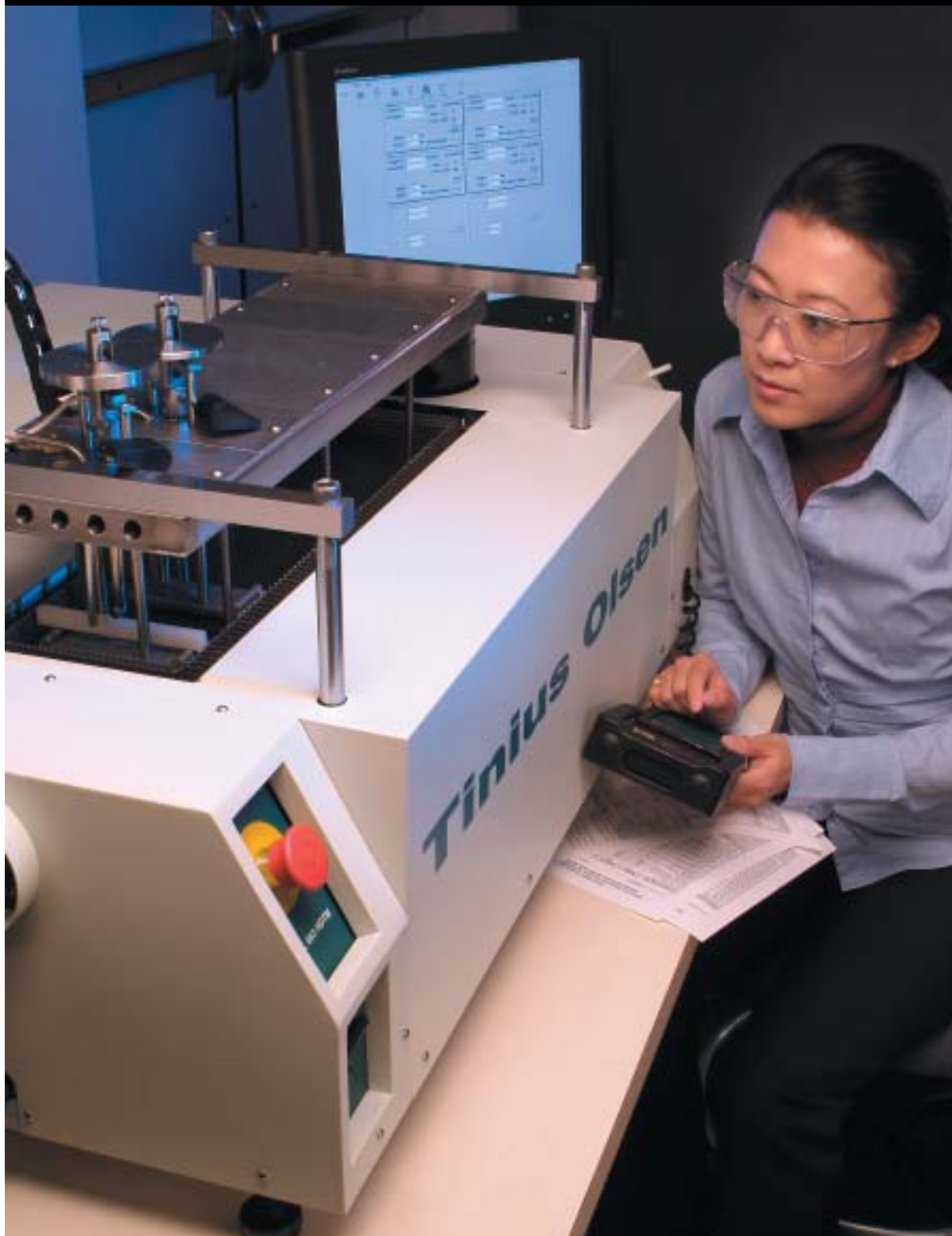




Deflection Temperature and Vicat Tester Model 603 HDTM



Model 603 HDTM



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.

The Model 603 HDTM is the latest generation of Tinius Olsen's digitally controlled Automatic Deflection Temperature/Vicat test equipment, capable of testing up to six different specimens simultaneously, 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 edge-wise 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.

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 six 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, the 603 HDTM automatically cools the bath to the starting temperature in preparation for subsequent tests.

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



Fig 2. Close-up of test station, which is configured for a heat deflection test.

approximately 20 minutes.

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 oil bath as clean as possible.

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

Key Features

- 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)

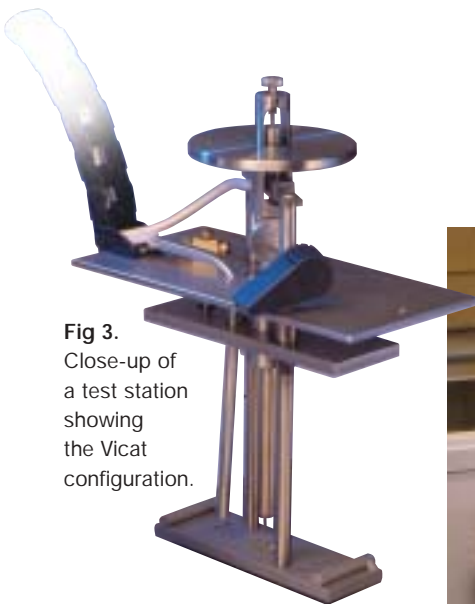


Fig 3.
Close-up of a test station showing the Vicat configuration.

Technical Specifications

MODEL		603 HDTM
TEMPERATURE RANGE	°C	23° to 300°
TEMPERATURE RAMP	°C	50° per hour or 2° per minute
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		Maximum of 20° above cooling water temperature in 20 minutes
TEMPERATURE SAFETY LIMIT		Independent dual systems using thermostatic switch in bath and keypad selectable software limiting
DIMENSIONS W x D x H	mm in	965 x 695 x 560 38 x 27.5 x 22
WEIGHT (NET)	kg lb	115 250
REQUIRED UTILITIES	Heat Transfer Medium	14 liters (3.7 US gallons) min
	Water	Water supply for cooldown
	Clean Air	Dry air filtered to 50 microns at 40 psi (2.7 bar) min.
	Power	220 ±10% V, 50/60 Hz, 1 phase, 4.5 kW

Operating Environment:

Environmental Temperature Range: 60 to 100°F (15 to 38°C)

Storage Temperature Range: 14 to 115°F (-10 to 45°C)

Humidity Range: 10% to 90% non-condensing, wet bulb method

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

Notes: All models conform to all relevant European CE Health and Safety Directives. Specifications subject to change without notice.

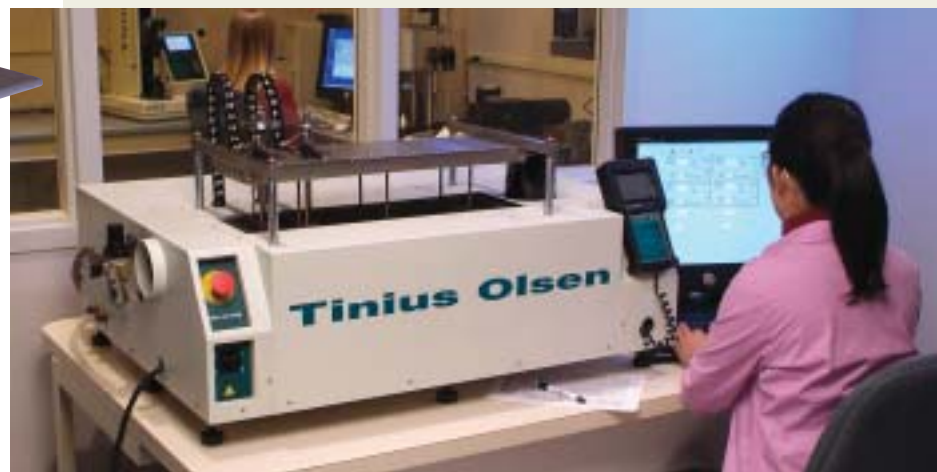
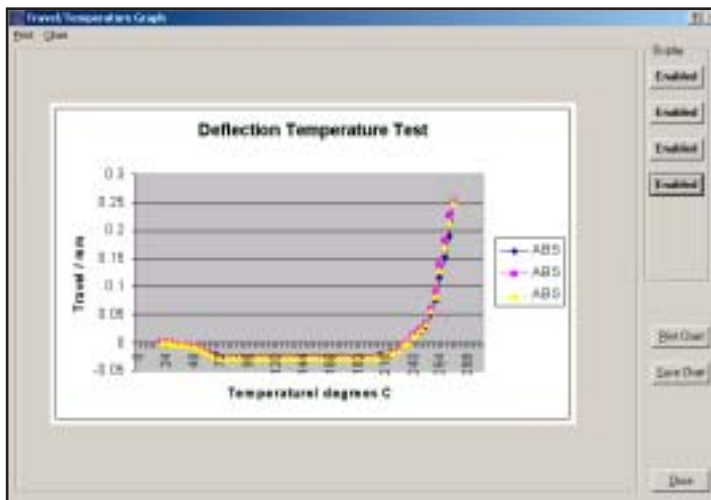


Fig 4. Model 603 HDTM can be controlled by a PC.

HDV Software

- For easy testing control and data storage using a PC.
- User selected reporting and exporting formats including report generation in HTML format.
- Built-in SPC programs for X bar, R, and frequency distribution charts and histograms.
- Produces temperature vs penetration (or deflection) for individual stations in real time.
- Test mode allows configuring, running, and saving of tests and results.
- Recall mode permits viewing of previously saved results and performs database maintenance.
- Demo mode simplifies operator training.
- Two levels of password protection.



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