



The first name in materials testing

Model HDVT3

HDT/Vicat/DTUL



HDT - Heat Deflection (or, distortion) Temperature

DTUL - Deflection Temperature Under Load

Vicat Softening Temperature



HEAT DISTORTION

A specimen is placed in a frame. The frame consists of a base, which has two anvils on which the specimen is positioned. A rod is lowered on to the specimen. A mass is applied to the rod in order to apply a specified load (bending stress) to the specimen.

The entire frame is submerged in a bath containing a heat transfer medium. The temperature of the heat transfer medium is raised by a specified rate (usually 2°C/minute) until the specimen deflects (bends) a specified amount.

Heat distortion Standards : ASTM D648, ISO 75

VICAT SOFTENING TEMPERATURE

The temperature at which a specimen is penetrated a depth of 1.0 mm by a needle of defined area (1 mm²) under a concentrated center load condition.

Vicat softening Standards : ASTM D1525, ISO 306

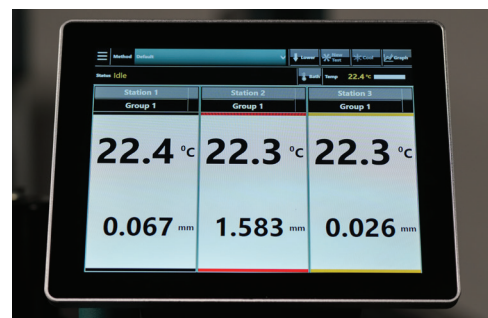
FEATURES AND BENEFITS

- 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 0.001mm (0.0001in) resolution of deflection or penetration.
- Loading nose and rod assemblies provide 76 gms nominal load for ISO 75 'flatwise' deflection temperature tests on 4 x 10mm specimens at 0.45Mpa stress.
- 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, 64mm span supports for 'flatwise' deflection temperature testing (stations are predrilled to accept the supports).



USER INTERFACE

This unit features a color touch-screen LCD display. Operators can configure the options available for the machine and program user settings (language, units, alarms, etc). Individual test protocols can be set and stored for rapid recall when needed. and can be used to control the machine by itself or in conjunction with Tinius Olsen's Horizon software



Specifications



Frame specifications		
Item #	Please contact sales	
Test stations	2-3	
Table mounting	Yes	
Lifting/lowering Specimen	Pneumatic	
Deflection/penetration measurement	LVDT	
Deflection/penetration display resolution	mm	0.001
	in	0.0004
Cooldown rate [Max. of 20° C above cooling water temp. in]	20 min.	
Temperature safety limit	Independent dual systems using thermostatic switch in bath & keypad selectable software limiting	
Factory Calibration	NIST	
Auto cooling at end-point	Yes	
Base material	Mild Steel	
Base finish	Pre-primed, top powder coat paint	
Base color	TO Cool Grey Web # E6 30 27	
Base cover	ABS recyclable	
Base cover color	Cal Black Web # 11 18 20	
Feet material	Aluminium	
Feet finish	Pre-primed, top powder coat paint	
Feet color	TO Green Web # 00 4C 45	
Height	mm	585
	in	23
Width	mm	813
	in	32
Depth	mm	635
	in	25
Weight	kg	87
	lb	190
Emergency Stop	Yes	
Overtemperature safety switch	Yes	
Bath Stirrer	Motor	
Cooling Pump	Yes	
Heat Exchanger	Yes	
Exhaust Fan	Yes	
Feet material	Non-adjustable impact resistance plastic	
Pneumatic air distribution	4mm OD hose with pushfit coupling, rated to 100psi maximum	
Air supply	65psi	
REQUIRED UTILITIES		
Heat transfer medium	11 liters	
	2.9 gal	
Water	Water supply for cooldown	
Clean air	Dry air filtered to 50 microns at 40psi (2.7 bar)	
Drain	Yes	
Electric power	Yes	
Exhaust vent	Yes	

Frame specifications		
STANDARDS		
ASTM	D648, D1525	
ISO	75, 306	
CONTROLLER SPECIFICATIONS		
Data acquisition rate at PC	1000Hz	
External PC connection	RJ-45	
User interface connectivity	Mounted touchscreen, Horizon	
TEMPERATURE		
Range	23-300°C	
Ramp	50°C or 120°C per hour	
Resolution	0.1	
Sensors	Platinum RTD located at each station	
TEST STATION		
Deflection measurement	LVDT	
Resolution	mm	0.001
	in	0.0004
Edgewise DTUL anvil span (Std)	100 mm	
Vicat specimen support pan span	100 mm	
Flatwise DTUL anvil (optional)	64 mm (pre-drilled in frames)	
Rod mount	DTUL foot or Vicat needle	
Specimen insertion/removal	Lever operated	
Station movement (up/down)	Pneumatic lift	
TEST BATH		
Construction	Stainless steel	
Exhaust fan	Built-in	
Sensors	Platinum RTD located at each station	
Thermal distribution	Circulating system for even distribution	
Cooling system	Built in multi-wrap cooling coil for rapid cooling of heat transfer medium	
Overheating protection	Secondary safety switch	
Broken/slipped specimen collector	Yes, Built-in, catch-all basket	
DISPLAY FEATURES		
Numeric keypad	test/specimen information entry	
Units	SI, metric or english	
Zeroing before test	Automatic	
Deflection/penetration display	Real time	
Test result includes	Average, standard deviation	
Alarm	Yes	
POWER REQUIREMENTS		
Supply voltage options	220/240V	
Frequency	50/60Hz	
Power	4.5kW +/- 10%	
ATMOSPHERIC REQUIREMENTS		
Operating temperature	15-38°C (60-100°F)	
Operating humidity	10-90% non-condensing wet bulb method	
Storage temperature	-10-45°C (14-115°F)	
Storage humidity	10-90% non-condensing wet bulb method	

Tinius Olsen



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