

## HV 500

### Oil- Free HDT & Vicat Tester

Instron® CEAST HV500 is the latest instrument design to perform HDT and VICAT tests at high temperatures, up to 500 °C, making this instrument ideal for research and quality control applications as it is ensuring the capability to test the new generations of techno-polymers, characterized by their excellent properties at high temperature.

### PRINCIPLE OF OPERATION

The effect of temperature on the mechanical properties of plastic materials has a fundamental role in the design of components, especially in the selection of materials. Unlike metals and ceramics, plastics are extremely sensitive to the slightest changes in temperature. The selection of plastics for applications under different temperatures is a complex task. The material must be able to support a stress under operating conditions without losing its strength and without critical distortion. The effect of temperature on geometrical stability and mechanical properties in general can be studied following different procedures and methods like at constant temperature or with a temperature ramp. From very simple units for QC labs to more advanced and automated systems, the HV Series is designed to measure the heat deflection temperature (HDT) and the Vicat softening temperature (VST) according to the related ISO and ASTM international standards. Part of this testing application systems is the innovative CEAST HV500 tester using the Aluminum Oxide micrometer-sized powder heating system.



### FEATURES AND BENEFITS

- Performs HDT and Vicat tests at temperatures up to 500 °C on three independent test stations.
- Eliminates all of the environmental concerns associated with silicone oil usage, such as oil vapour emissions from the bath and the oil recycling problems.
- Innovative heating system using the Aluminum Oxide micrometer-sized powder fluidized by means of compressed air.
- A very advanced air-system controller system allows an automatic regulation of the air flow as a function of the bath temperature in order to obtain optimum temperature uniformity.
- All three stations are automatically raised and lowered by a pneumatic system at the beginning and end of test. An independent pneumatic system applies the selected weights on the specimens and then removes them at test end.
- The instrument can be managed either through the alphanumeric keyboard or a separate PC and controlled by means of a dedicated software.
- Maximum temperature control via firmware and separate dedicated safety thermostat. The new safety system does not permit the opening of the new Plexiglas cover until the bath temperature has reached the threshold temperature. A safety pressure switch is able to switch-off the heating resi.

## SPECIFICATIONS

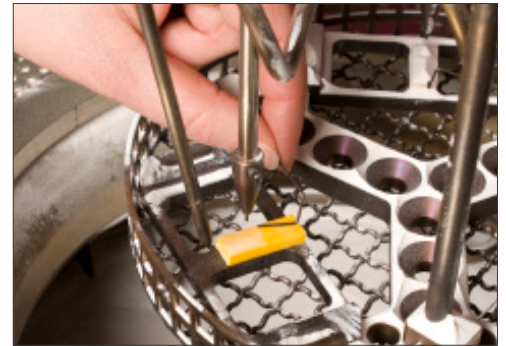
Total Width		Total Depth		Total Height		Weight		Power Requirement		Power	Compressed Air	
mm	in	mm	in	mm	in	kg	lb	V	Hz	W	bar	psi
1037	40.8	860	33.8	1260	49.6	200	441	230 single phase	50 / 60	4500	5	72.519

## COMMON SPECIFICATIONS

- Three Stations
- Temperature Range: 20 to 500 °C (68 to 932 °F)
- Temperature homogeneity of the bath  $\pm 2^{\circ}\text{C}$  at 500 °C
- Thermal Stability at a constant Temperature  $\pm 1^{\circ}\text{C}$  at 300 °C
- Temperature Resolution: 0.1 °C
- Temperature Measurement: by means of thermo-resistance
- Type PT100 (One for each station plus one for the thermal regulation of the bath)
- Deflection/Penetration Measurement by means of LVDT with  $\pm 0.001$  mm resolution for each station
- Automatic compensation of the thermal expansion of the system for each Test Station
- Test management and bath temperature managed with PID heating control by built-in microprocessor. Electronic control with alphanumeric polyfunctional keyboard
- Automatic Deflection/Penetration transducer zeroing at the beginning of the test
- Heat transfer medium: fluidized bed with Aluminium Oxide powder
- Automatic Cooling System at test end through compressed air down to 300 °C and then with water to 20 °C
- 60 minute cooling time from 300 to 50 °C
- Parallel Data Acquisition port for direct test report print-outs and a serial port for PC connection

## STANDARDS

HDT test	Vicat test
ASTM D648	ASTM D1525
ISO 75	ISO 306
DIN 53461	DIN 53460
BSI 2782	BSI 2782
Met 121 C	Met 120 C
NT T 51-005	NT T 51-021



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