

ADVANCED HDT/VICAT SOFTENING POINT APPARATUS 2 & 4 STATION

Designed and built to cover multiple international testing standards, the Ray-Ran **Advanced HDT/Vicat Apparatus** utilises microprocessor technology to accurately determine the deflection and

softening point characteristics of all thermo plastic test specimens.

The HDT/Vicat apparatus allows for multiple simultaneous testing of samples depending on the amount of test stations available, either 2 or 4. The simple manually operated raise and lower function of the test stations ensure easy access to the test sample supports for sample loading and retrieval before and after each test. Each test station is fitted with a PT100 platinum resistance thermometer which accurately records the temperature next to the sample under test to 0.1°C and an electronic displacement transducer which measures the sample displacement to 0.01mm as standard or to 0.001mm as an option. The on board microprocessor ensures test result accuracy and repeatability and the built in liquid crystal display (LCD) provides simple on screen instructions reducing user error. Test parameters are easily selected using the onboard membrane keypad. A simple data selection process and yes/no prompts make the operating procedure very simple to undertake. The microprocessor's temperature control function ensures the ramping rates of either 50°C/h or 120°C/h are kept within the specified test standard requirements as well as performing non standard ramp rates to customers own specific needs. Test

temperatures of 300°C are easily achieved and to ensure optimum safety at higher temperatures, the Nitrogen Blanket option is recommended.

THE METHODS OF TESTING AVAILABLE ON THE APPARATUS ARE

HDT - Heat deflection / distortion test

A standard sized test specimen is subjected to a bending stress, whilst the temperature is raised at a uniform rate. The temperature at which the specified deflection occurs is measured and recorded. Testing is carried out in accordance with the ISO 75 (parts 1, 2 and 3) and ASTM D648 Test Standards.

For this test, a required fibre stress of 0.45, 1.8, or 8.00 MPa is easily selected. Custom fibre stresses can also be managed by the microprocessor if required. The unique binary weight system is used to apply the required fibre stress to the test sample and is automatically calculated by the microprocessor based on the sample size and span supports. Temperature ramp rates, sample size, span and deflection values are also easily entered into the testing parameters of each station. The HDT span supports of 100mm or 64mm are easily adjusted on each tool station to suite your testing method of **Flat wise** or **Edgewise** sample testing. Each machine is supplied with HDT test nibs with 3mm radius which are easily attached to the load displacement rods for testing in accordance with relevant international test standards.



ADVANCED HDT/VICAT SOFTENING POINT APPARATUS (RR/HDV2 – RR/HDV4)

TECHNICAL SPECIFICATION

- HDT/Vicat testing enabled
- Manual Raise/Lower of test stations
- Advanced microprocessor control
- 2 or 4 sample test stations
- Digital temperature control
- Temperature range to 300°C
- Oil bath stirrer
- Solenoid operated cooling system
- Integrated safety thermostat
- HDT Heads (1 per station)
- Vicat Nibs (1 per station)
- Standard Fibre Stress 0.45, 1.8 or 8.00 MPa
- Used defined fibre stress for HDT testing available
- Standard Vicat penetration of 0.1mm or 1.00mm
- User defined penetration depth
- for Vicat testing available
- Temp resolution +/- 0.1°C
- Temperature ramp rates of 50° or 120° C/hr
- User defined ramp rates available
- HDT span supports 64mm or 100mm
- Resolution +/- 0.01mm
- Bath capacity 8 litres
- RS 232 connection/RS232 Cable
- Windows File Capture Software
- Fully traceable certificate of calibration
- Product user manual
- CE declaration certificate
- 1 year return to base warranty
- 110v – 240v 16amp
- Conforms to ISO 75-1, 75-2, 75-3, 306 and ASTM D648, D1525, D5944, D5945

OPTIONAL ANCILLARIES

- Displacement Transducer 0.001mm
- Binary HDT Test Weights (1 set required per station)
- 1.00Kg Vicat Test Weight (1 required per station)
- 5.00Kg Vicat Test Weight (1 required per station)
- Light Weight Load rods to test to .45 MPa
- Heat Transfer Medium 5ltrs
- Nitrogen Blanket
- Air to Nitrogen Extractor
- Thermal Printer
- Thermal Printer Paper
- Water Chiller Unit

WEIGHTS & DIMENSIONS: HDT/VICAT SOFTENING POINT APPARATUS

	HDV2	HDV4
Net Weight (kg)	25	40
Width (cm)	36	46
Depth (cm)	53	53
Height (cm)	50	50

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Vicat (VST) - Softening point test

A specified needle (indenter) penetrates a specified distance into a sample with a specified load, whilst the temperature is raised at a uniform rate. The temperature at which the sample was penetrated is recorded as the Vicat Softening Temperature (VST). Testing is carried out in accordance with the ISO 306 and ASTM D1525 Test Standards.

For this test, penetration loads are easily selected via the microprocessor for use with the single loading weights of 10 N and 50N. The supplied cylindrical indenter test nib with 1mm² surface area is attached to the load displacement

SAMPLE & COMPONENT TESTING

rod for sample testing in accordance with relevant testing standard.

The apparatus is supplied as standard with an integrated solenoid operated cooling system which is automatically activated after each test. It can be connected to either a standard water supply or to the optional chiller unit for improved heat reduction. The integrated cooling coil ensures rapid heat loss back to start temperature conditions within a short time period increasing production.

The self calibration feature of the apparatus ensures that the test results remain accurate. Unique calibration plugs are supplied with each machine which simply plug into the PRT socket for you to carry out the calibration procedure.

Test results are downloaded to the supplied file capture software via the RS232 serial connector and are displayed in tabular format. Results can also be saved as .CSV files which can be opened with Microsoft Excel for data manipulation and report presentation. If required, the optional thermal printer can be supplied and fitted to the apparatus for direct results printout.

Built with operator simplicity in mind, its ease of operation and high accuracy makes the Ray-Ran Advanced HDT/Vicat Apparatus ideal for product development and quality control within production, research and development labs and teaching institutions and should more than meet all of your testing requirements.

