

Product Information

HDT/Vicat Standard

CTA: 46266 46249



HDT/Vicat 3-300 standard with 3 measuring stations

Applications

Determination of heat deflection temperature (HDT)

- as per ISO 75, Parts 1 to 3, and ASTM D648, Methods A and B, on thermoplastics, hard rubber and fiber-reinforced and filled thermosets.

Determination of Vicat softening temperature (VST)

- of thermoplastics as per ISO 306 and ASTM D1525 .

Determination of creep behavior

- under flexural load

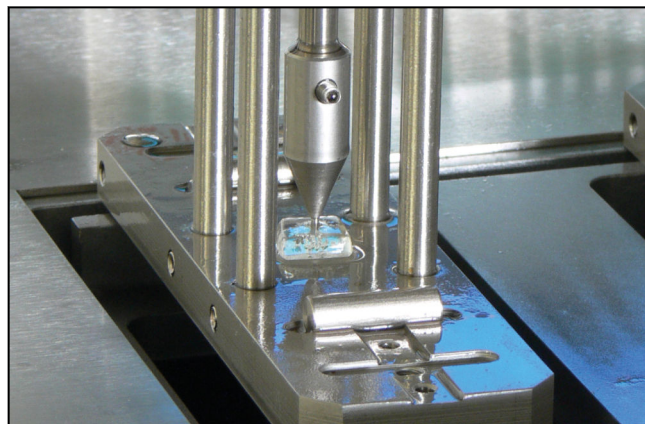
Function description

HDT/Vicat Standard instruments are designed for use in goods inwards checks and production monitoring, as well as for educational and training purposes. The instruments are available in various versions, with up to 6 measuring stations according to requirements. Test-sequence parameterization and display of measured values are conveniently handled via Zwick Roell testing software.

Test sequence

As soon as the heat-transfer fluid has reached the starting temperature, the specimens are inserted into the measuring stations and lowered manually into the oil bath. In the next step the test weight specified in the standards is applied manually and the menu-driven test-sequence is started on the PC.

On completion of pre-heating under the influence of force, the displacement signals are zeroed (program-



Vicat flat-ended needle

controlled) and the heating of the heat-transfer fluid at the pre-set rate is started. As soon as the required deflection, outer-fiber strain or penetration is attained, the heating is switched off and the test is ended.

Re-cooling of the heat-transfer fluid is started manually or by the PC via a solenoid valve. Specimens can afterwards be removed.

Functions, elements and interfaces

- built-in microprocessor-controlled electronics for temperature control and measured-value acquisition
- measured values clearly displayed
- safety thermostat
- electronic level-monitoring
- test control and data acquisition via PC with Zwick Roell Prüfsoftware (2 RS232 interfaces required in PC; 1x for temperature channel, 1x for displacement channel)
- integrated compensation for heat expansion of measuring stations with PC operation
- manual lowering of measuring stations
- manual application of test weights.

Re-cooling the heat-transfer liquid

Instrument cooling is via a cooling coil located in the oil-bath. Coolant (water) can be pumped in via a connection located on the left-hand side of the instrument.

Water-cooling is switched on manually, but not before 130°C at the earliest. For faster re-cooling a connection for an external re-cooling unit is available.

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Technical data

| Description | Value | |
|--|---|-----|
| General technical data for HDT/Vicat Standard instruments | | |
| Display accuracy at 250 °C | ±0.5 | °C |
| Spatial temperature gradient | ±0.1 | °C |
| Temperature measurement resolution | 0.1 | °C |
| Temperature sensor | Oil-bath temperature is measured by 1 temperature sensor. | |
| Heating rate | 50, 120 or freely adjustable | K/h |
| Displacement measurement with digital measuring transducers: | | |
| resolution | 0.001 | mm |
| display accuracy | ±0.01 | mm |
| Connection: | | |
| mains voltage | 230/240 | V |
| mains frequency | 50/60 | Hz |
| power rating | 3460 | W |
| water supply, max. | 10 | bar |
| PC interfaces required | <ul style="list-style-type: none"> • 1x for temperature channel (RS) • 1x for displacement channel (RS) | |
| Specimen data | | |
| VST specimen dimensions, max. | 10 x 6.5 x 10 | mm |
| HDT specimen dimensions, max. | 13 x 15 x 130 | mm |
| HDT spans | 64, 100 and 101.6 | mm |

HDT/Vicat with temperature range up to 300°C

| Item no. | 326030 ¹⁾²⁾ | 326032 ¹⁾²⁾ | 326036 ¹⁾²⁾ | |
|---------------------------------------|----------------------------------|------------------------|------------------------|----|
| Type | HDT/Vicat 3-300 S | HDT/Vicat 4-300 S | HDT/Vicat 6-300 S | |
| No. of measuring stations | 3 | 4 ³⁾ | 6 | |
| Temperature range | +20 to +300 | +20 to +300 | +20 to +300 | °C |
| Re-cooling | PC-controlled via solenoid valve | | | |
| Oil capacity, approx. | 19.9 | 36 | 36 | l |
| Height x width x depth | 500 x 440 x 600 | 500 x 710 x 600 | 500 x 710 x 600 | mm |
| Weight (without accessories), approx. | 30 | 35 | 35 | kg |

1) Water supply required

2) Instruments are supplied without heat transfer liquid as standard. The required amount can be ordered from accessories.

3) Can be increased to 6 measuring stations via retrofit

Accessories required

Vicat flat-ended needle

| Description | Item number |
|---|---------------|
| Vicat flat-ended needle (1x required per measuring station) | 326070 |

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Weight set for Vicat

| Description | Item number |
|---|---------------|
| Vicat weight set: 10N and 50N as per ISO 306 and ASTM D1525 (1x required per measuring station) | 326072 |

Die for HDT

| Description | Item number |
|---|---------------|
| HDT die (1x required per measuring station) | 326078 |

Calibration and centering tool for HDT

| Description | Item number |
|---|---------------|
| HDT calibration and centering tool for alignment of the HDT die (1x required) | 326076 |

Weight set for HDT (1x required per measuring station)

| Description | Item number |
|--|----------------|
| HDT weight set, ISO 75-2 flatwise For specimen size 4 x 10 mm (thickness x width \pm 0.05 mm) and 80 mm length (\pm 2 mm), for flexural stresses of 1.8, 0.45 or 8 MPa. Adherence to specimen dimensions within \pm 0.05 mm is required. | 326080 |
| HDT weight set, ISO 75-2 edgewise For specimen size 10 x 4 mm (thickness x width \pm 0.05 mm) and 120 mm length (\pm 10 mm), for flexural stresses of 1.8, 0.45 or 8 MPa. Adherence to specimen dimensions within \pm 0.05 mm is required. | 326082 |
| HDT weight set as per ASM D648 Methods A and B For specimen size 3.175 x 12.7 mm (thickness x width), for flexural stresses of 1.82 / 0.455 MPa | 1015941 |
| HDT weight set as per ASM D648 Methods A and B For specimen size 6.35 x 12.7 mm (thickness x width), for flexural stresses of 1.82 / 0.455 MPa | 085403 |

Calibration set for HDT/Vicat

| Description | Item number |
|---|---------------|
| Calibration set for measurement transducer. For Vicat and HDT tests (1x required) | 326090 |

Universal set of weights for HDT/Vicat

| Description | Item number |
|---|---------------|
| Universal set of weights for Vicat/HDT test standards (1x required per measuring station) As alternative to the weight sets listed above. All loads from 1 to 5500g can be formed in 1g steps. The weights are stackable; the set comprises 21 individual weights: 10 x 1 g, 2 x each of 10 g, 100 g and 1000 g and 1 x each of 20 g, 50 g, 200 g, 500 g and 2500 g. | 326088 |

Heat-transfer fluid for HDT/Vicat (1x required)

| Description | Item number |
|--|---------------|
| Heat-transfer fluid, 10 liters ¹⁾ | 326092 |
| Heat-transfer fluid, 5 liters ¹⁾ | 326094 |

¹⁾ The instruments are supplied as standard without heat-transfer fluid. The appropriate quantity of fluid can be ordered from the accessory list. Please see the information for the basic instruments (oil capacity) for the required amount of heat-transfer fluid.

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Optional accessories

External re-cooling for HDT/Vicat Standard and Allround A1

| Description | Item number |
|--|---------------|
| Optional re-cooling unit: external re-cooling for oil baths, manually switched Re-cooling time from 300°C to 30°C approx. 20 minutes, rating 500 W (at 12 °C coolant temperature) ¹⁾ | 326189 |

1) A water supply is required

Specimen cutters for Vicat

| Description | Item number |
|---|---------------|
| Vicat specimen cutters for dimensioning Vicat specimens, with stop for specimen length of 10 mm | 750485 |