

## Product Information

### HDT/Vicat Allround with integrated cooling unit

CTA: 46194 46208



HDT/Vicat 6-300 Allround with motorized test weight application

#### Applications

Determination of heat deflection temperature (HDT)

- as per ISO 75, Parts 1 to 3, and ASTM D648, Method 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

Zwick's HDT/Vicat Allround instruments are designed to enable convenient testing in research and development, 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 testing stations according to requirements. Test-sequence parameterization and display of measured values are conveniently handled via Zwick Roell testing software.

#### Automatic test sequence

As soon as the heat-transfer fluid has reached the starting temperature, the specimens are inserted into the measuring stations and lowered (motor-driven) into the oil bath. In the next step the test weight specified in the standards is applied to type A1 instrument manually and to type A3 by motor drive and the test sequence is started by the PC software.

On completion of pre-heating under the influence of force, the displacement signals are zeroed (program-controlled) and the heating of the heat-transfer liquid at the previously 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 automatically via a solenoid valve. The specimens can afterwards be removed.

#### Functions, elements and interfaces

- Built-in programmable logic controller (PLC) for temperature control and measured-value acquisition
- Re-cooling controlled by solenoid valve
- Motorized lowering of measuring stations
- Safety thermostat
- Electronic level-monitoring
- Test control and data acquisition via PC with Zwick Roell testing software (RS232 interface in PC required)
- Integrated compensation for heat expansion
- Motorized application of test weights (type A3 instrument)
- Integrated re-cooling (type A3 instrument)

#### Re-cooling the heat transfer fluid for A3

HDT/Vicat A3 are equipped with an integral re-cooling unit giving short re-cooling times. A separate pump feeds the oil to the re-cooling unit. As it passes through, its temperature is reduced by the coolant.

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### HDT/Vicat Allround with integrated cooling unit

#### Technical data

Description	Value	
<b>General technical data for HDT/Vicat Allround instruments</b>		
Display accuracy at 250 °C	±0.5	°C
Spatial temperature gradient	±0.2	°C
Temperature measurement resolution	0.1	°C
Temperature sensor	Oil-bath temperature is measured by 1 temperature sensor. In addition 1 sensor is located adjacent to the specimen at each measuring station	
Heating rate	50, 120 or freely adjustable	K/h
Displacement measurement with inductive LVDT measuring transducers		
displacement measurement range	15	mm
display accuracy	±0.01	mm
Connections:		
mains voltage	230	V
mains frequency	50/60	Hz
power rating	3000	W
water supply, max.	10	bar
PC interfaces required	RS232 interface	
<b>Specimen data</b>		
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 Allround with integral re-cooling unit and motorized test-weight application

Item no.	326042 <sup>1)2)</sup>	326046 <sup>1)2)</sup>	325985 <sup>1)2)</sup>	
Type	HDT/Vicat 3-300 A3	HDT/Vicat 4-300 A3	HDT/Vicat 6-300 A3	
No. of measuring stations	3	4 <sup>3)</sup>	6	
Temperature range	+20 to +300	+20 to +300	+20 to +300	°C
Application of test weights	motorized	motorized	motorized	
Oil capacity, approx.	12.5	18.6	18.6	l
Height x width x depth	900 x 1080 x 750	900 x 1330 x 750	900 x 1330 x 750	mm
Weight (without accessories), approx.	140	160	160	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)	<b>326070</b>

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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)	<b>326074</b>

#### Die for HDT

Description	Item number
HDT die (1x required per measuring station)	<b>326078</b>

#### Calibration and centering tool for HDT

Description	Item number
HDT calibration and centering tool for alignment of the HDT die (1x required)	<b>326076</b>

#### 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.	<b>326084</b>
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.	<b>326086</b>
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	<b>1015942</b>
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	<b>085404</b>

#### Calibration set for HDT/Vicat

Description	Item number
Calibration set for measurement transducer. For Vicat and HDT tests (1x required)	<b>326090</b>

#### 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.	<b>326088</b>

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

Description	Item number
Heat-transfer fluid, 10 liters <sup>1)</sup>	<b>326092</b>
Heat-transfer fluid, 5 liters <sup>1)</sup>	<b>326094</b>

<sup>1)</sup> 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****Specimen cutters for Vicat**

Description	Item number
Vicat specimen cutters for dimensioning Vicat specimens, with stop for specimen length of 10 mm	<b>750485</b>