

Product Information

Amsler HDT/Vicat Allround 6-300 – Ergonomic Design Meets Smart Engineering

CTA: 243776 254587



Amsler HDT/Vicat Allround 6-300 with six measuring stations

The new Amsler HDT/Vicat Allround 6-300 fits seamlessly in ZwickRoell's pursuit of excellence. ZwickRoell designed the Amsler HDT Vicat in close consultation with experienced field operators. Using insights gleaned from this feedback, our goal was to deliver a testing solution carefully aligned to the foremost daily challenges testing operations today. Based on this research, the latest version of the instrument offers powerful capabilities that help reduce risks to quality testing outcomes, keep operators safe, and streamline the user experience wherever possible.

Applications

The Amsler HDT/Vicat Allround instrument is designed for convenient testing in research and development, goods inwards checks and production monitoring. Depending on the requirement, the instrument can be equipped with two, four or six measuring stations.

Determination of heat deflection temperature (HDT)

- To ISO 75 Parts 1 to 3, and ASTM D648 on thermoplastics, hard rubber, as well as fiber-reinforced plastics and filled thermosetting plastics.



Test station with high precision Digital Displacement Measurement

Determination of Vicat softening temperature (VST)

- To ISO 306 and ASTM D1525 on thermoplastics.
- To ISO 2507 on pipes and fittings of thermoplastic

Determination of creep behavior

- Under flexural load

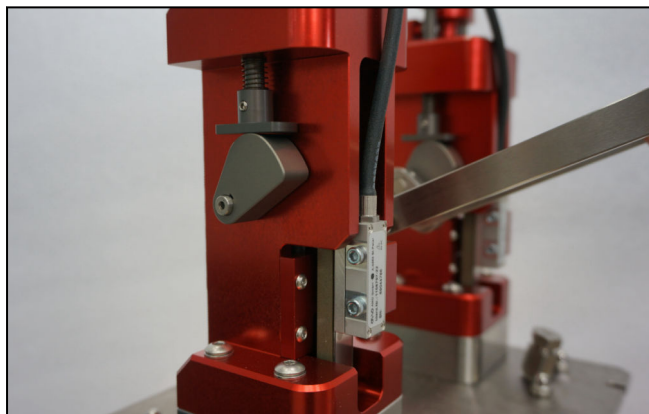
Accurate, Repeatable Test Results

- Integrated Test Execution Guidance helps the operator follow by-the-book test execution.
- High Precision Displacement Measurement offers an accuracy of +/- 0.002 mm to provide a high level of precision over the entire measurement range. Digital output does not drift over time.
- Advanced Oil Bath Temperature Control with an advanced temperature control algorithm models the physical properties of the oil bath and guarantees linearity well within specified tolerances. The Zwick-Roell variable-speed controlled circulator guarantees uniform oil temperature across all 6 stations.

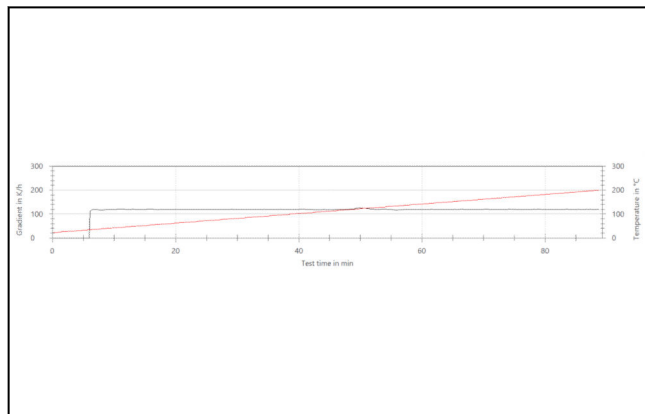
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Digital encoder



Ramp rate

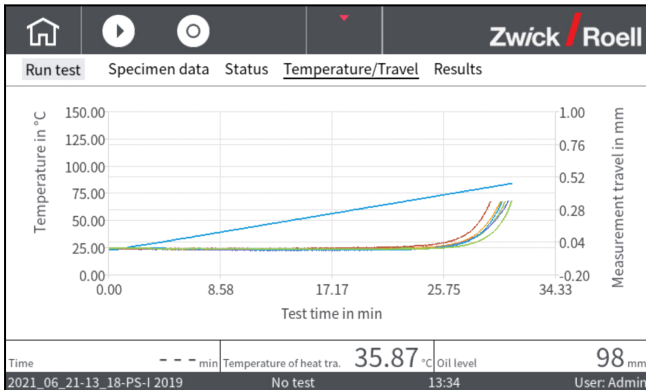
User centered design

- Convenient specimen loading allows the operator to keep both hands free to comfortably handle the specimen.
 - Application of weights is quick and easy. A few clicks and the software displays the weight selection to make arrangement easier. Weights are easily stackable and enable the user to handle them reliably and with confidence. For HDT tests, ZwickRoell offers weight sets that allow adjustments in 1 g increments, exceeding the requirements of the most demanding standards. For operator convenience and easy handling, the individual weight for VST is limited to 2.039 kg. Specialized standard weights for ISO 75-2 allow installation of only one weight, instead of combining a set of weights. Set-up time is significantly reduced.
 - A unique design for the HDT support (one support to cater to three different test dimensions— 64, 100 and 101.6 mm) keeps the support itself in the instrument and ready to use at all times.
 - Fully automated test sequences intuitively guide the operator to reduce the risk of human error. All test standards are included and pre-configured. Standard operating procedures are guaranteed.
 - Test set-up is quick and easy via touchscreen in the standalone mode. Users can monitor live curves and export data easily.
- The large viewing window and red/green indicator lights help ensure visual comfort for operators.
 - The individual configuration of the single measuring stations allows HDT and Vicat tests to be carried out simultaneously and independently of each other.
 - Effortless oil bath control
 - Automatic oil condition monitoring controls the oil level and degradation.
 - Accessing the oil bath is quick and easy. Within seconds, dropped specimens are removed, without removing the stations.
 - ZwickRoell offers special cages, which prevent the specimen from falling into the oil bath.
 - Easy oil change—The intelligent oil bath design guarantees easy and complete drainage of the oil so that there is no contamination from residue when refilling. Overfill protection avoids contamination of both the instrument and the environment.
 - The instrument incorporates a powerful cooling system that rapidly reduces the oil bath temperature and allows the user to begin the next test with minimal wait time and reduced water consumption cost. This requires a direct connection to a water line or to a closed-loop heat exchanger.
 - The shielding gas system includes a flow control valve and a nozzle. It is used to form a nitrogen layer above the oil surface and prevent a chemical reaction of the oil with the air.

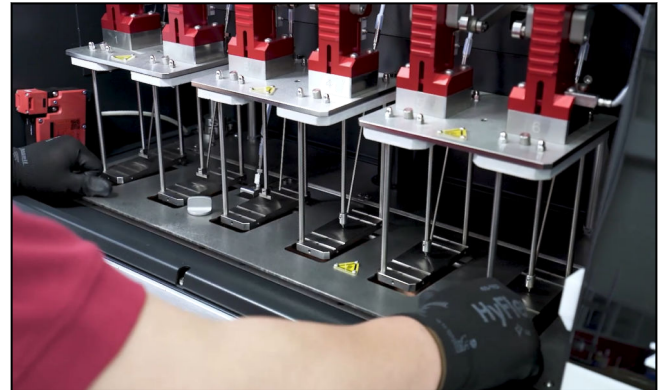
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Live curves in stand-alone mode



Quick access to oil bath

Safety-First Design with Zero Compromises

The Amsler HDT/Vicat was designed from the ground up with the safety of the operator in mind. Without adequate precautions, oil temperatures of up to 300 °C pose real risks of severe injury to the operator and/or damage to the instrument. The safety features below represent a zero-compromise approach to keeping operators safe while protecting this equipment investment.

- The fully enclosed Amsler HDT/Vicat Allround 6-300 prevents the operator from getting in contact with moving parts and hot surfaces.
- A hardwired safety lock prevents operators from opening the door when the oil temperature is above 45 °C.
- A redundant system, with 2 overheat protectors for the silicon oil and the heater element, provides maximum safety for the instrument. Both the oil and heater element are controlled independently.

- Separate ventilation systems for the control cabinet, electric cabinet and heating area assure reliable operating conditions.
- The pressure relief valve is integrated with the cooling water system to provide maximum safety in case of a blockage in the output of the cooling water system. This fully prevents high steam pressure build-up in the cooling pipes.
- The Amsler HDT/Vicat complies with the CE standards, as well as with the more stringent UL standards. All safety aspects were extensively tested and verified by TÜV SÜD, an independent and one of Germany's most renowned certification organizations.

Serviceability

- The ZwickRoell design provides for easy access to all components of the instrument, reducing downtime for maintenance and service inspection.
- ZwickRoell guarantees spare parts availability for ten years.

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Touch screen operation



Indicating lights

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Technical data

General technical data for HDT/Vicat Allround 6-300

Measuring stations, default	2	
Measuring stations, possible	6	
Controllable temperature range	+20 ... +300	°C
Temperature sensor	Pt 100	
1 x per station and 1 x per bath		
Heat transfer fluid holding capacity, min.	18	l
Temperature measurement		
Display accuracy at 300 °C	± 0.5	°C
Spatial temperature gradient	± 0.1	°C
Temperature measurement resolution	0.01	°C
Heating rate	50, 120	K/h
Displacement measurement		
Measurement range	1 ... 16	mm
Displacement measurement resolution	0.001	mm
Measurement accuracy of the sensor	± 0.002	mm
Measuring system	Linear displacement transducer (digital)	
Dimensions		
Height, door closed	878	mm
Height, door open	1430	mm
Width	1280	mm
Depth	700	mm
Weight, with two measuring stations, without weights, without heat transfer fluid, approx.	196	kg
Required PC interface	Ethernet	

Amsler HDT/Vicat Allround 6-300

Type	Amsler HDT/Vicat Allround 6-300	Amsler HDT/Vicat Allround 6-300	
Item No.	1117747 ¹⁾²⁾	1117748 ¹⁾²⁾	
Power input specifications			
Power supply	230	120	V, 1Ph/N/PE
Permissible voltage fluctuation	± 10	± 10	%
Current consumption, max.	16	30	A
Power consumption (full load), approx.	3.8	3.8	kVA
Power frequency	50/60	50/60	Hz

1) Water supply required

2) The instruments are supplied without heat transfer fluid as standard. Order the corresponding amount from the accessories.

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Description	Value	
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

Accessories required

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

Description	ArticleNumber
Heat transfer fluid for tests up to 200 °C, 100 cSt viscosity, 20 liters ¹⁾	1088107
Heat transfer fluid for tests up to 300 °C, 100 cSt viscosity, 20 liters ¹⁾²⁾	1088108

- 1) The instruments are supplied without heat transfer fluid as standard. Order the corresponding amount. Please see the information for the basic instruments (oil capacity) for the required amount of heat transfer fluid.
- 2) In tests above 200 °C, a chemical reaction between the heat transfer fluid and the air can cause the heat transfer fluid to become unusable. It is therefore recommended to suppress this reaction to a large extent by using nitrogen shielding gas.

Optional accessories

Measuring stations

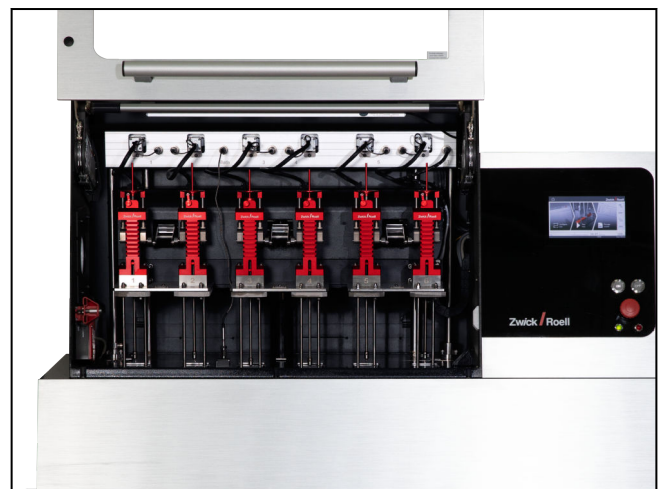
As standard, the basic instrument is equipped with two measuring stations. Six measuring stations are possible. Accordingly, two or four additional measuring stations can be selected.

Description	ArticleNumber
Two measuring stations including digital displacement transducers, temperature sensors and rods including weight support	1088099
Four measuring stations including digital displacement transducers, temperature sensors and rods including weight support	1088101

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HDT/Vicat with two measuring stations



HDT/Vicat with option of four additional measuring stations

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Measuring station barrier

Description	ArticleNumber
The measuring station barrier prevents specimens from floating into the oil and soft specimens from dissolving in the oil (1 x per measuring station)	1117582

CTA: 291545



Measuring station barrier

Test area lighting

Description	ArticleNumber
LED light strip for illumination of the test area	1117752

Set of gauges for checking the displacement transducer

Description	ArticleNumber
Set of gauges for checking the displacement transducer from 3.0 / 4.0 / 4.5 / 5.0 mm	1102091

CTA: 267177



Set of gauges for checking the displacement transducer

Accessories for HDT tests

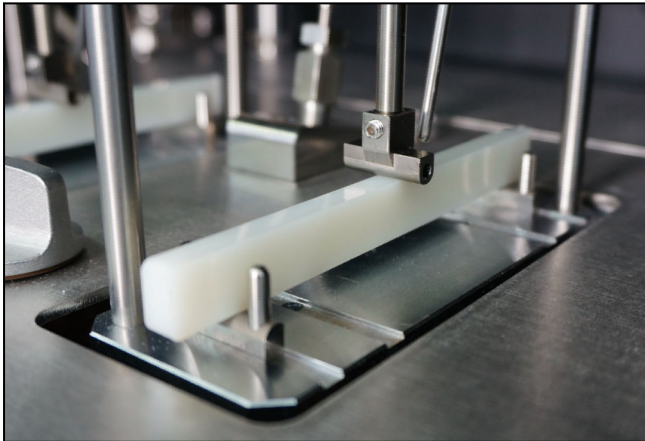
HDT upper anvil

Description	ArticleNumber
HDT upper anvil to ISO 75 Part 1-3 and ASTM D648, incl. declaration of conformity (1 x required per measuring station)	1088104

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CTA: 264563



HDT test method

Centering tool for HDT

Description	ArticleNumber
HDT centering tool for alignment of the HDT upper anvil (1x required)	1088105

CTA: 237149



HDT centering tool

Weight sets for HDT tests

Description	ArticleNumber
Universal weight set for HDT tests (1 x required per measuring station) All loads from 1 ... 2047 g can be adjusted in 1 g increments.	1088106
Weight set for HDT tests to ISO 75-2 (1 x required per measuring station) Tailored to fit ISO 75-2 A, B and C specimens, for stresses of 1.80 MPa, 0.45 MPa, 8.00 MPa, and specimen dimensions 10 x 4 x 80 mm (W x H x L)	1095311

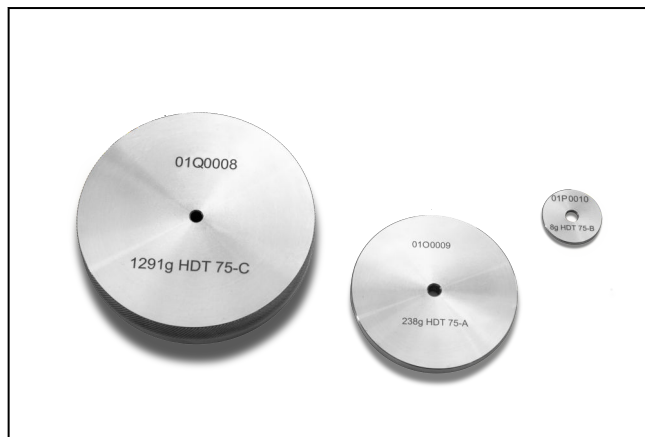
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CTA: 254595 267182



Universal weight set for HDT tests



Weight set for HDT tests to ISO 75-2

Certificate for the dimensions of the HDT upper anvil

Description	ArticleNumber
Numbering of the HDT upper anvil and individual calibration certificate (1 x required per upper anvil)	1095318

Calibration certificate

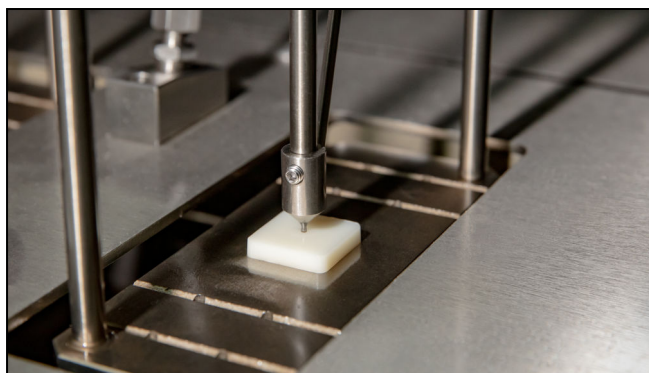
Description	ArticleNumber
Calibration certificate for the universal HDT testing weight set, numbering of all individual weights and individual calibration certificate (1 x required per weight set)	1095312
Calibration certificate for the HDT testing weight set to ISO 75-2, numbering of all individual weights and individual calibration certificate (1 x required per weight set)	1095315

Accessories for Vicat tests

Vicat needle

Description	ArticleNumber
Vicat needle to ISO 306 and ASTM D1525, incl. declaration of conformity (1 x required per measuring station)	1088102

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Vicat test method

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Vicat weight set

Description	ArticleNumber
Vicat weight set 10 N and 50 N to ISO 306 and ASTM D1525 (1 x required per measuring station)	1088103

CTA: 237148 254599



Vicat weight set



Vicat needle

Calibration certificate

Description	ArticleNumber
Calibration certificate for the Vicat weight set, numbering of all individual weights and individual calibration certificate (1 x required per weight set)	1095316

Certificate for the dimensions of the Vicat needle

Description	ArticleNumber
Numbering of the Vicat needle and individual calibration certificate (1 x required per needle)	1095317