

T-UD3

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HARDNESS

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MODE

BACK

### HARDNESS Testing

### ULTRASONIC Testing

### COATING Testing

CONSTRUCTION Materials Testing

> MAGNETIC Testing





NOVOTEST is leading company of the manufacture devices and systems for non-destructive testing in Ukraine.

APPAPER AND STATE



# ULTRASÓNIC

Today we are producing instruments for measuring a wide range of parameters and quality testing of the majority of products: hardness testers, coating testing gauges, ultrasonic flaw detectors, ultrasonic thickness gauges, magnetometers, instruments for testing the quality of construction materials, devices for environmental control and many others.

Our company has a powerful development center, each year we are introducing new devices. Also, due to our highly specialized staff, we can solve non-standard tasks, going to the solution with a nontrivial way of thinking.

### Hardness Testing

T-UD:

HARDNESS TES

#### Combined Hardness Tester NOVOTEST T-UD3

Unique device – the world's first hardness tester with photo-fixing of measurements which allows to bind the values of hardness to tested objects with indication of a specific place on the product!

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Hardness tester works as with the UCI so with the dynamic (Leeb) probes. User can get the advantages of the two methods of measurement – these are the maximum possibilities, which can be obtained from a portable device.

The device comes preconfigured for measuring the hardness of a wide range of materials – steel, alloyed steels, stainless steels, non-ferrous metals (aluminum, bronze, brass, copper), iron.



Sealed housing with rubber protecting shockproof linings makes the device perfectly suitable for work in the workshop and field conditions with high humidity, dust, etc. The hardness tester has a frost-resistant display that allows user to use the device at any time of the year in any climatic zone of the Earth.

The built-in camera allows making photographs of the testing object with subsequent imposition of the measured values of hardness on it in a real time. It implements the most reliable and clear method of logging of measurements.

Several modes of displaying information are implemented in the hardness tester, these modes substantially increase the usability of the device and designed for maximum reliable measurement of hardness:





The device comes with special

software to work on the PC with

the archive of measurements.



Graph – the mode of building the graph; Histogram – the mode of building the histogram; Statistic – the mode of statistics; Smart – the mode of filtering incorrect measurements;

Signal - the mode of displaying the signal (only for Leeb probe).



Combined Hardness Tester NOVOTEST T-UD3 can be equipped with a wireless printer for express-printing of the measurement protocol.

Hardness testers NOVOTEST are supplied in shockproof protective cases.



### Hardness Testing

#### UCI Hardness Tester NOVOTEST T-U3

Ultrasonic contact-impedance (UCI) probe is used for measurement of hardness of small products, objects with a thin wall, complex shapes with thickness from 3 mm and weight over 0,1 kg, for measuring the hardness of hardened layers' surface.



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UCI Hardness Tester NOVOTEST T-U3 uses ultrasonic contactimpedance method of measuring hardness standardized according to **ASTM A1038**.

The method allows making measurements very fast and easy: install the probe, load the spring for indentation the indenter with necessary force, read the hardness value on the device's display.

The using of diamond indenter allows setting the probe precisely in any tiny point. The depth of the imprint left by Hardness tester T-U3 is many times smaller than imprint left by standard Rockwell hardness tester, which makes this method of measuring the least destructive.

These advantages make Hardness tester T-U3 perfectly suitable for solving the following tasks: hardness measurements of products with complicated shape, fine-grained materials, heat-treated materials, thin layers and coatings, parts with surface hardening, thin-walled pipes, the small details, etc.

There are UCI probes with different loads: 10N, 50N, 98N for hardness testing of different surface finish products.



#### Leeb Hardness Tester NOVOTEST T-D3

Dynamic Leeb probe is used for measuring the hardness of non-ferrous metals, cast iron, materials with coarse-grained structure, solid products.

> Hardness tester NOVOTEST T-D3 uses dynamic method of hardness measurement – Leeb method, standardized according to **ASTM A596**.

> The method allows fast measurement of hardness: it is necessary to set the probe on the surface of the testing object, press the start button, read the hardness value of the device's display.

The method allows measurement of hardness of coarse materials (stainless steel, cast iron, etc.), products with ill-prepared surface, massive products – this method is perfectly complements the ultrasonic method for measuring hardness.

Hardness tester NOVOTEST T-D3 makes automatic calculation of hardness for a wide range of materials - steel, stainless steels, cast iron, bronze, aluminum, which allows calling this hardness tester one of the most universal, which does not require additional settings for the working with device.



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### Hardness Testing

#### **Combined Hardness Tester NOVOTEST T-UD2**

Combined hardness tester of metals NOVOTEST T-UD2 is a multipurpose device of rapid non-destructive testing.

Hardness tester NOVOTEST T-UD2 is ideal for solving the following tasks:

- Testing of hardness of ferrous and non-ferrous metals;

- Testing of hardness of cast iron and various alloys;
- Determining the tensile strength of carbon steel products from pearlite class.

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	Average	61,7
	Standard deviation	2.25
	Mean square deviation	0.6
	Variation coefficient	0.0%
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In the second series of hardness testers is possible to save results of the testing to the device's archive, and then transmit the results of hardness measurements to the PC. Also in this modification of hardness testers several modes of display are implemented, that essentially increases the usability of the device and designed for maximum reliable measurement of hardness:

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Statistic – the mode of statistics



**Smart** – the mode of filtering incorrect measurements

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**Signal** – the mode of displaying the signal (only for Leeb probe)

#### Shore Durometer NOVOTEST TS-A (analog) and Shore Durometer NOVOTEST TS-C (digital)

Shore Durometer is one of the classic devices for measuring the hardness of different materials in the workshop and laboratory.

Shore Durometer NOVOTEST standardized according to **ISO-7619** and **ISO-868**, **DIN53505**, **ASTM D2240** and **JIS K7215**.

Typical testing objects of Shore Durometer are: soft plastic, printed circuit boards, glass, elastomers, fibers, soft rubber, leather, resin, wax, butyl, silicone, vinyl.





UCI Hardness Tester NOVOTEST T-U2

BEST

FUNCTIONALITY

# UCI Probe Test Stand NOVOTEST

It is the accessory unit for portable hardness testers, which is specially designed for UCI probe U1 of hardness testers NOVOTEST T-U2, T-U3, T-UD2, T-UD3.

UCI Probe Test Stand NOVOTEST is used for fixation of small, thin products during tests. It makes testing more accurate and more convenient for users.

Ultrasonic contact-impedance (UCI) probe is used for measuring the hardness of small products, objects with a thin wall, complex form, to measure the hardness of surface hardened layers.

Hardness tester NOVOTEST T-U2 uses ultrasonic contact-impedance method of measuring hardness standardized according to **ASTM A1038**.



#### **Hardess Test Blocks**

Hardness test blocks Rockwell (HRC), Brinell (HB), Vickers (HV) and Leeb (HLD) are designed for checking measurement accuracy and calibration of bench or portable hardness testers of metals.

#### Leeb Hardness Tester NOVOTEST T-D2

Dynamic Leeb probe is used for measuring the hardness of non-ferrous metals, cast iron, materials with coarse-grained structure, solid products.

Hardness tester NOVOTEST T-D2 uses dynamic method of hardness measurement – Leeb method, standardized according to **ASTM A596**.







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### Ultrasonic Testing



#### Ultrasonic Flaw Detector NOVOTEST UD2301

Ultrasonic Flaw Detector NOVOTEST UD2301 is designed for non-destructive testing of quality of metals, plastics, glass, composite materials, weld inspection and measuring the thickness of various products and constructions.



Flaw detector enables to detect defects such as discontinuities and heterogeneity of materials in semi-finished products, finished products and welded joints, measure the depth and the coordinates of defects depth, measure the thickness of the products, measure the velocity of propagation and attenuation of ultrasonic fluctuations in the material.

Ultrasonic Flaw Detector NOVOTEST UD2301 allows not only to carry out the testing for presence of internal defects, but also to measure the thickness of products with high accuracy.



#### **Ultrasonic Flaw Detector NOVOTEST UD2301-mini**

In contrast to standard type UD2301, Ultrasonic Flaw Detector NOVOTEST UD2301-mini is made in miniature housing, optimal in size for performing testing in tight spaces and in limited space. At the same time flaw detector equipped with a clear color display with high resolution 480x320 pixels, which significantly improves the usability of the device.



The flaw detector display can operate in any orientation – all 4 options, display rotation by 90 degrees allows user to configure the device at the left-handed and right-handed, the display can be used in portrait and landscape orientation.



Real-time B-scan mode



Distance-Amplitude Curves (DAC)



Various color themes

Distance-Gain-Size (DGS)

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Ultrasonic Flaw Detector NOVOTEST UD2301-mini with color display and minimum dimensions are the best choice for expert ultrasonic testing. Powerful, lightweight and portable flaw detector in ergonomic shockproof housing with protective rubber treads – contemporary industrial design of flaw detector for general purpose. Device has such functions as: AFS, TVG, DAC, DGS, A-scan, B-scan, etc.

The flaw detector allows user to solve a wide range of tasks – from thickness measurements of thin products, to large-sized casting flaw detection.



### Ultrasonic Testing

**Reference blocks** 

We produce standard reference blocks (V1, V2, etc.) according to ISO, DIN and other standards, which are used for calibration ultrasonic flaw detectors and UT-probes. Samples are made from low carbon fine-grained steel with a small damping coefficient.

#### **Calibration Blocks**

Calibration blocks are used to configure the sensitivity and duration of scan of ultrasonic flaw detectors during testing of various products (mainly flat sheets and pipes).

Custom made calibration blocks with notches (corner reflectors) are made of the same materials (steel, stainless steel, aluminum and others) as the tested objects, wherein the geometry (thickness and surface radius of standard sample) has the same characteristics as tested item.





Portable Ultrasonic Thickness Gauge NOVOTEST UT-1 is designed for rapid non-destructive testing of thickness of objects and constructions made of different materials.

- It is used for testing the thickness of:
- objects of various alloys and metals;
- objects of non-metallic materials composite, glass, plastic;
- hull parts, sheets, vessel walls;
- transportation and bridge design, including corrosion defects (scale, rust).



#### Standard samples of thickness

Thickness gauges can be equipped with various ultrasonic testing transducers and standard samples.

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### Coating Testing

#### Bitumen And Mastic Insulation Adhesion Tester NOVOTEST CM-4219

Adhesion tester CM-4219 is a device for measuring the adhesion value of bitumen pipe insulation and other insulating coatings which are based on bitumen.

#### **Tensile Adhesion Tester NOVOTEST AC-4624**

Mechanical pull-off type adhesion tester is designed for measure the adhesion value of paints and other coatings on base and between layers or cohesive materials according to **EN13144** and **ISO 4624**, **ISO 16276-1**.

#### Peel Adhesion Tester NOVOTEST AP-4219

Adhesion tester AP-4219 is designed to measure the adhesive strength value of the coatings on different structures, as well as to determine the adhesion value of polymeric insulating tapes which are generally used for pipes insulation.

#### **Cross Cut Adhesion Tester NOVOTEST AN-2409**

Adhesion Multiblade Knife NOVOTEST AN-2409 is designed for adhesion testing by method cuts (parallel or lattice) with thickness range of paint coatings up to 200 µs, according to ISO 16276-2, ISO 2409, DIN 53151, ASTM B 335, ASTM D 3002, BS 3900-E6, BS EN ISO 2409, NF T 30-038, ASTM B 3359. Device can be used on flat and curved surfaces.



#### Viscosity Flow Cup NOVOTEST VZ

Viscosity cups – testing devices that intended for measurement of rheological characteristics of liquid substances.

Viscosity cups are manufactured in two models: submersible and with a tripod.

In laboratory conditions is preferable to use the unit with adjustable tripod. Submersible type in most cases is used in

a workshop or production.

There are several standards for viscosity cups funnels: DIN 4 (**DIN 53211-87**) and UNE **ISO DIN 2431**.

For American products there are the appropriate standards: funnel FORD (**ASTM D 120087**) and ZHAN (**ASTM D4212-93**).



#### Viscosity Dip Mug NOVOTEST VMS



Viscosity Dip Mug is used to determine the convectional viscosity of the dispersion polyvinylacetate homopolymer coarse dispersion.

#### Density Cup NOVOTEST PYCNOMETER P-2811

Density tester NOVOTEST P-2811 is designed according to **ISO 2811-1**.

The density is calculated as weight divided into volume of tested liquid.



**Viscosity** 

**Flow Cup** 

VZ-P

**NOVOTEST** 



# Coating Testing



Coating thickness gauge NOVOTEST TP-1M is designed for testing:

- the thickness of thick-layering protective coatings on the various alloys and metals;
- the thickness of paint and other dielectric radio-absorbing, mastic, teflon, plastic, anode-oxide, galvanic coatings on steels;
- the thickness of the galvanic and paint coatings on non-ferrous metals;
- the thickness of bitumen coatings;
- measurement of dew point, temperature and humidity;
- measurement of the depth of grooves and roughness on the surface of the object.

Thickness gauge can be equipped with various different probes and standard samples of thickness.

#### Coating Thickness Knife Tester NOVOTEST TPN-2808



Paint inspection gauge TPN-2808 is designed according to **ISO 2808**, **ASTM B 4138**, **DIN EN 1071-2** to measure the thickness of both single and multiple layer coatings on any grounds, both metallic and non-metallic.



#### Analog Surface Profile Gauge NOVOTEST LIMIT

Mechanical depth gauge is designed according to ASTM D 4417-B, SANS 5772, US Navy NSI 009-32, US Navy PPI 63101-000 for (depending on configuration): measures the peak-to-valley height of a blast cleaned surface; measurement the depth of focal corrosion; measures depth of narrow holes and grooves.





### Coating Testing

#### Pinhole Detector NOVOTEST ED-3D

The electrolytic flaw detector (detector of porosity) NOVOTEST ED-3D is designed for rapid non-destructive testing of continuity of coating thickness up to 500 µm in accordance with standard **ASTM G62-A**.

Pinhole detector is intended for testing of porosity, not dyed places, and other violations of the continuity of protective dielectric coatings on the metal objects.

#### **Pulse Holiday Detector NOVOTEST SPARK-1**

Pulse Holiday Detector NOVOTEST SPARK-1 is designed according to **ASTM G62-07**, **ISO 2746:1998 & AS3894.1-2002, ANSI/AWWAC214-07**, **ANSI/AWWA C213-07**, **ASTM D4787-08**, **NACE RP0274-2004**, **NACE RP0490-2007**, **NACE SP0188-2006** for testing the continuity of insulation coatings (polymer, epoxy, bitumen, etc.) of pipelines (oil, gas, etc.) and other products.

<u>ASD</u>

The operation principle of device is based on the fixation the breakdown of locations between the first electrode which is connected to the high-voltage source and the second electrode, which is connected to the pipe (or other testing objects).



The device operates with replaceable electrodes which have different shapes, materials, and can be used for solving different tasks.

#### Film Applicator NOVOTEST AU-823

Film applicator AU-823 is designed for applying layers of paint and other materials with required thickness of the plate during the complex tests according to **ASTM D 823-E**.

#### **Dew Point Meter NOVOTEST KTR-1**

Dew Point Meter NOVOTEST KTR-1 is designed for rapid testing of air temperature and humidity, dew point calculation and surface temperature measurement by contact method.

Dew point meter measures: relative humidity, air temperature (-20 to +125°C), the surface temperature (-20 to +125°C).

And calculates: dew point, the difference between the dew point and the temperature of the surface.



### Coating Testing

#### Pencil Hardness Tester NOVOTEST PH-3363



The instrument is designed to determine the hardness of coatings by pencil leads according to: ASTM D 3363, ECCA T4, EN 13523-4, ISO 15184:2012, JIS K 5600-5-4.

#### **Buchholz Coating Hardness Tester NOVOTEST BH-2815**

Buchholz hardness tester is used for hardness measurements of coating's using the indentation method (bevelled disc of stainless steel block with constant test load).



Buchholz Coating Hardness Tester NOVOTEST BH-2815 is standardized according to: **ISO 2815**, **BS 3900-E9**, **DIN 53153**, **NF T30-052**.

#### Scratch Hardness Coating Tester NOVOTEST SH-1518

ISO

Scratch Hardness Coating Tester NOVOTEST SH-1518 (ball type) is used for hardness testing of coatings (paint, mastic, plastic and others) through determining the hardness resistance to indentation of the ball tip with 1 mm diameter. Scratch Hardness Coating Tester NOVOTEST SH-1518 is designed according to **ISO 6441**. Also it used for analysis the resistance of the coating for scratching (**ISO 1518**).

#### Scratch Adhesion Tester NOVOTEST C1-5178

Device is used for determining the adhesion and resistance to damage by scratching method. The device complies with the requirements **ISO 12137-1**, **ASTM D 5178**, **ASTM D 2197**.





### Coating Testing

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DIN

#### Bending Coating Tester NOVOTEST BEND-H1519

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The device measures the elasticity and strength of the coatings during bending around a set of cylindrical rods, with diameters of rods from 1 mm to 20 mm.

NOVOTEST BEND-H1519 complies with **ISO 1519-73, ASTM D 522, ISO 6860** which applies to paints and varnishes and describe the method for determining the elasticity of the film during bending.



#### **Bending Coating Tester NOVOTEST BEND-M1519**

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The device allows to measure the elasticity and strength of coatings through bending the metal plate with tested coating around a set of cylindrical and conical rods with diameters from 2 mm to 32 mm.

The device complies with **ISO 1519-73**, **DIN 53 152** and applies to paints and specifies a method for determining the elasticity of the film during bending.

Erichsen Cuppinng Tester NOVOTEST SE-1520

Erichsen Cuppinng Tester is designed for testing of elasticity and strength of coatings with cup-shaped curve, according to **ISO 1520, ISO 20482:2013**.



The Ericksen's device is used for determining the strength of the coating at the indentation of spherical tip punch with diameter of 20 mm in the coating of the sample, the position of which is fixed on a matrix with internal diameter of 27 mm.

#### Impact Tester NOVOTEST STRIKE-U6272

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NOVOTEST STRIKE-U6272 is designed for determining the strength of the film during the impact.





The device is used for testing of metals, plastics, parquet, wood, ceramics, glass, concrete and screed.

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### Construction Materials Testing

Strength Meter NOVOTEST IPSM-U Ultrasonic Tester of Building Materials (Concrete) Strength IPSM-U is designed for rapid non-destructive testing of strength of concrete, composite bricks and other building materials.

Ultrasonic device allows measurement strength with surface sounding and through sounding methods by measuring the rate and time ultrasonic wave propagation in tested objects. NOVOTEST IPSM devices have built-in memory and the ability to synchronize with PC.

Materia 120mm

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#### Strength Meter NOVOTEST IPSM-U+T

In addition to the functions of the basic modifications Ultrasonic Tester of Building Materials (Concrete) Strength + depth of cracks measuring NOVOTEST IPSM-U+T is designed for detecting voids, cracks and defects that have arisen during manufacture and operation and measuring the depth of cracks in different objects.

#### Strength Meter NOVOTEST IPSM-U+T+D

Ultrasonic Tester of Building Materials (Concrete) Strength + depth of cracks measuring + Flaw Detector device at the highest modification combines the characteristics of the lower modifications and also has: mode of the signal visualization (A-scan), the ability of testing concrete (and other) constructions for internal defects and discontinuities, also increases the accuracy of measuring time intervals by manual choice of the moment activation of measurer.

#### **Concrete Rebound Schmidt Hammer NOVOTEST SH**

Concrete rebound Schmidt hammer is designed for strength testing of concrete and other building materials through impacting method, which is correspond with ASTM C 805; ASTM D 5873; DIN 1048; ENV 206; EN 12 504-2; ISO / DIS 8045.

Concrete Cover Meter NOVOTEST Rebar Detector The device is designed for rapid non-destructive testing of reinforced concrete products and structures.

NOVOTEST Rebar Detector operates on technology of magnetic fields and is used for technological testing at buildings and factories, as well as the planned examination of various structures and buildings.

Concrete Cover Meter NOVOTEST Rebar Detector works in a mode of constant scanning of the test surface.

For convenient work with the device, it has a function of sound search. Increasing the frequency of the audio signal indicates the oncoming of the probe to the reinforcing element that allows user to work without continuous watching to the display.

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NOVOTEST

### Magnetics Testing



Steel Structure Analyzer (structurescope) is designed for non-destructive quality testing of chemicalthermal, thermal and thermo-mechanical treatments.

Steel Structure Analyzer allows to determine the mechanical properties and hardness of metals and to test the ferromagnetic products if there are any correlations between tested parameters.

In addition, the device is used for testing the surface layers of ferromagnetic materials and the metal for presorting steel grades.

**Magnetic Test Blocks** 

Magnetic Test Blocks are used to check the sensitivity of magnetic particle and penetrant inspection materials.

Samples are available with different size of cracks, surface and subsurface defects and longitudinal and transverse indications. Magnetic Flaw Detector (Permanent Magnetic Yoke) NOVOTEST MPD-DC

Magnetic flaw detector is based on the method of non-destructive testing used for detecting violations of the magnetic surface of metal structures and structures of ferromagnetic materials.

In the case of the ban regulations of the equipment with power supply, or difficulties with its supply, Magnetic Flaw Detector NOVOTEST MPD-DC is the only one instrument for the required testing.





#### Gaussmeter (magnetometer) NOVOTEST MF-1

Gaussmeter NOVOTEST MF-1 is a versatile and highly accurate diagnostic device that operates on the principle of non-destructive testing.

Magnetometer MF-1 is used for: determination of compliance of equipment to required specifications and the possibility of further testing, testing of the level of induction fields of tested object and components or devices during the diagnostic work with the method of magnetic particle, testing of level of remanence, level of industrial noise, level of magnetic fields.



Distribution network

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