



NOVOTEST

Combined Hardness Tester NOVOTEST T-UD3

Available with
Bluetooth



Datasheet

2022

1. Introduction

Combined Hardness Tester NOVOTEST T-UD3 combines two methods of measuring hardness by an indirect method: Ultrasonic Contact Impedance (ASTM A1038) and Leeb (ASTM A956). This makes the device the most versatile portable device in the world.

The ability to connect both probes combines the advantages of both methods and providing users the opportunity to use the one that is most suitable for solving a specific task. The Combined Hardness Tester NOVOTEST T-UD3 allows user to measure the hardness of any metals, parts of any shape and thickness, measure the hardness of the surface hardened layers and evaluate the tensile strength.

1.1 Innovation! Optionally, the device can be equipped with a Bluetooth module!

Do hardness measurements, calibrate the device, set up a convenient display of values, save the results of hardness measurements, synchronize the archive with your other devices and a PC, transfer measurement results to your colleagues – all this is available with your smartphone thanks to the special NOVOTEST app for Android.

Hardness testers have never had such opportunities! Using a Bluetooth connection, your smartphone connects to the hardness tester and you have a completely new device – a new generation hardness tester! The intuitive interface, ample opportunities for documenting results, Internet access, touch screen, camera, microphone and GPS receiver of a smartphone turn your hardness tester into something completely unique and previously inaccessible.

1.2 With NOVOTEST App you are able:

- setting and calibration of the hardness tester;
- display of measurement results in real-time in numerical form with the construction of a graph, histogram or statistics;
- take a picture of the test object with the putting of hardness marks; creation of a video of the controlled product;
- recording audio notes for the tested object;
- automatic saving of measurement geolocation on Google maps;
- displaying a Google map with markers of places of measurements made on it and the ability to view these measurements;
- displaying the calendar of measurements (presentation of the archive in the form of measurements grouped by date);
- formation of the final comprehensive report on the measurement;
- sending a finished report to e-mail, messenger (or in any convenient way) directly from the application;
- flexible structure of the archive of measurements – completely similar to the usual explorer, with the ability to create folders and files with any names;
- synchronization with PC and other smartphones;
- cloud service for storing the archive of measurements;
- automatic and manual synchronization of cloud measurement archives between devices;
- launching the Google navigation mode, building a route and accompanying to the point at which the measurements were made
- the ability to store archives of other devices with Bluetooth in one application.

1.3 The main advantages of the Combined Hardness Tester NOVOTEST T-UD3:

- ABILITY OF CONNECTING BOTH METHODS PROBES WITHOUT TURNING OFF THE DEVICE

The user can measure the hardness of completely different metal products of different shapes, structures, materials and the degree of surface preparation with same unit, just replacing probe.



- COMPLEX SHAPE PRODUCTS MEASURING

Also, with the help of the ultrasonic probe, the user will be able to solve the tasks of measuring the hardness of grooves, surfaces of small radius, inaccessible places and products of complex shape.



- SMALL PARTS MEASURING

Using the UCI, the operator can measure small products, we recommend parts weighing from 100 gr and a thickness from 1 mm, and when using the UCI Probe Test Stand NOVOTEST, even thinner.



- SMALL IMPRINT OF UCI TYPE PROBE

Due to the fact that the UCI probe has a penetration depth of only a few microns, it becomes possible to work with products with high print requirements (the maximum non-destructive method is required), as well as measure the hardness of hardened layers, such as nitriding and cementation.

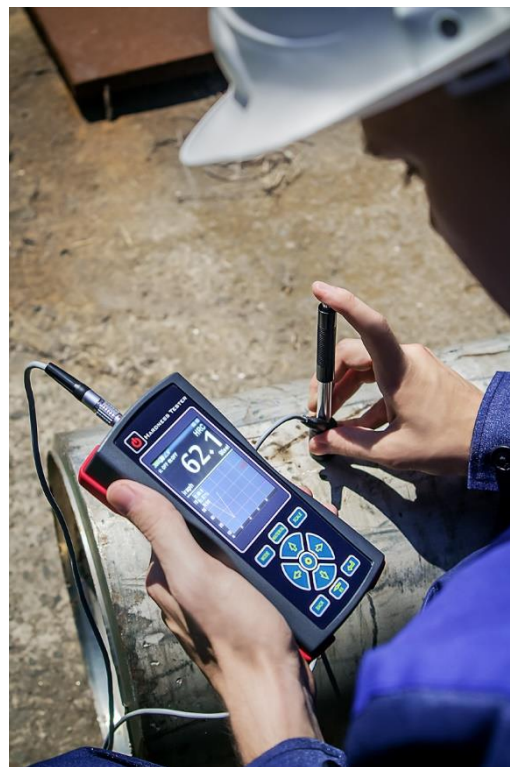
- **MEASURING PARTS WITH BAD SURFACE**

Using a dynamic probe (Leeb probe), the user can test the hardness of massive products with poorly prepared surfaces. The method also allows to measure products with a coarse-grained structure without a significant dispersion of measurements.



- **BUILT-IN CAMERA**

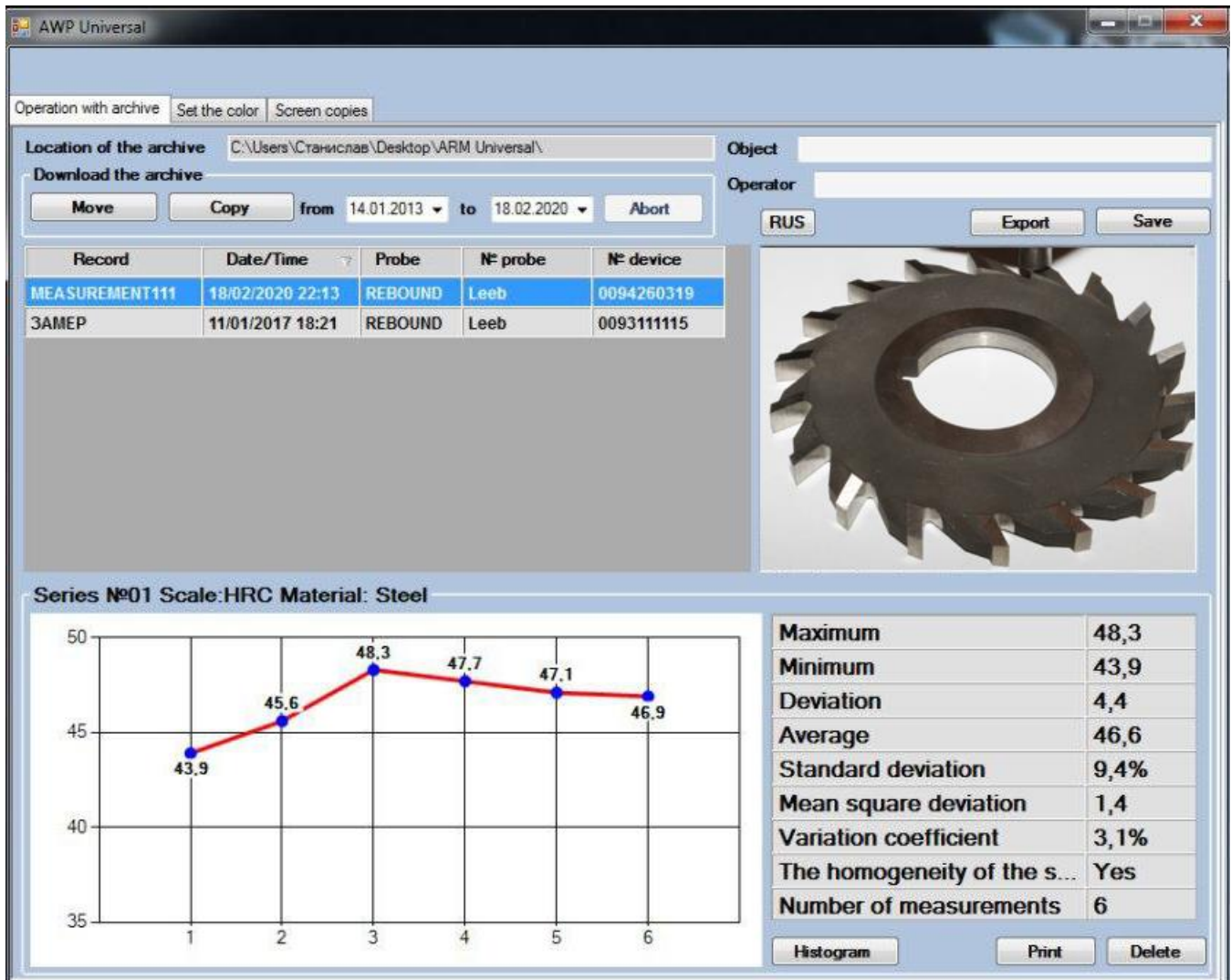
The device has a built-in camera, which allows the user to store a measurement archive of images of the tested objects with binding of hardness to a specific place on the product.



- **CALIBRATED FOR DIFFERENT MATERIALS AND SCALES**

Thanks to the presence of built-in calibrations of the Leeb probe for various materials and scales, the device becomes a universal tool for measuring hardness for most common metals.

Combined Hardness Tester NOVOTEST T-UD3 can be used with special soft for operate with saved archive of measurements. Or each saved recording cab be printed through wireless printer that can be additionally completed with the device.



2. Specifications

2.1 Advantages

- Small indenter imprint (suits for mirror surfaces of shafts necks, blades, gear teeth, etc.)
- Measuring surface hardened layers hardness
- Wide range of hardness testing
- Various measurement modes
- 88 combinations of materials and hardness scales (calibrations)
- Calibration of any scale in any range
- Convenience and ease of measurement
- Optimized number of buttons
- Large full-color graphic display with bright backlight
- Built-in photo camera for thorough reports

- Automatic probe types recognition
- Connected probe types indication
- The calibrations are stored in UCI probe memory
- Extended operating temperature range (frost, down to – 40°C)
- Internal memory and communication with a PC
- New intuitive menu with tips on the buttons
- Optional wireless mini printer
- Waterproofed housing
- Rubber bumper protected housing
- Internal clock
- Hardness value measuring for any mass products with more than 1 mm thickness (small parts, thin-walled structures, pipes, tanks, steel sheets, articles of complex shape, hardness testing of metal coatings, etc.)
- Different operating modes:
 - Graph – the graph building mode
 - Histogram – the histogram building mode
 - Statistics – provides statistics for the current set of measurements
 - Smart – filters the incorrect measurements
 - Signal – displays the probe signal (only for the Leeb probe)

2.2 Specifications

UCI probe types	•1kgf (10N) 2.2 lbf •5kgf (50N) 11lbf •10kgf (98N) 22lbf
Leeb probe types	•D •DC •DL •C •D+15 •E •G
Measuring range	•HRC:20~70 •HB:90~650 •HV:230~940 •Tensile strength, MPa: 370~1740 •User calibrations for any range (for example: HV100-1600)
Measuring accuracy	•HRC: 2HRC •HB: 10HB •HV: 15HV
Standards	•ASTM A1038 •ASTM A956 •ASTM A370 •ISO 16859 •ASTM E140 •ISO 18265 •DIN 50159 •GB/T 34205

Indenter	UCI probe – Diamond indenter Leeb probe – Hardened ball
Measuring direction	Any direction 360°
Data storage	Limited only by the memory card up to 32Gb
Communication	Upload data to PC and export as a spreadsheet (USB cable and software included)
Hardness scales	•UCI probe – HRC, HB, HV, MPa •Leeb probe – HRC, HRB, HB, HV, HL, MPa •Additional custom scales for calibration
Materials	•Ultrasonic (UCI) probe – pre-calibrated for steel •Dynamic (Leeb) pre-calibrated for steel, alloy steel, cast iron, stainless steel, aluminum, bronze, brass, copper •Additional custom materials for calibration
Data display	•Load applied/contact (UCI) •Angle (Leeb) •Single test result •Max, Min, Average of tests •Number of tests, •Deviation •Var. coeff. •Histogram, Signal and Smart Modes (Filter of incorrect measurements).
Language	•English •German •French •Polish •Russian *additional languages available by request
Indication	Color LCD display (320×240)
Operating environment	•Temperature:-20°C~40°C •Humidity: 30%~80%R.H.
Power supply	DC 4,5V (3 pcs batteries AA)
Instrument dimensions	160x75x30mm
Net weight	Approx. 0.3kg (without probe)
Gross weight (package)	2kg
Package dimensions, cm	33*27*10
Battery life	Approx. 10 hours.
Warranty	3 (1+2) years
Package gross weight, kg	1.8-2kg

2.3 Available options

- Additional UCI and Leeb probes (different types)
- Different colors of rubber bumper protected case
- Wireless printer
- Batteries
- Chargers

98N(10 kgf)

Special type of probe with increased load. To carry out the measurement, it is necessary to apply a load of 10 kgf (set automatically by the probe). Low surface cleanliness requirements.

- Heat-treated and cemented parts with poorly prepared surface.
- Measurement on blades, on the inner surface of pipes, holes with high roughness.

50 N(5 kgf)

The main type of probe for solving most hardness measurement tasks. To carry out the measurement, it is necessary to apply a load of 5 kgf (set automatically by the probe). Medium surface cleanliness requirements.

- Heat-treated and cemented parts, such as shafts, turbines, gears, teeth, welds, heat affected zones.
- Measurement in grooves, on teeth, in grooves, on radius surfaces.
- Measurement on the blades, on the inner surface of the pipes, holes.

10 N(1 kgf)

Probe with reduced load – designed to measure the hardness of products with increased requirements for the size of the print (polished, polished surfaces), to measure the hardness of thin surface hardened layers. For the measurement, a load of 1 kgf must be applied. More demanding on surface cleanliness, compared with U1 (50N).

- Nitrided and cemented surface layers of molds, dies, dies, thin-walled parts.
- Bearings, tooth flanks, saws.
- Hardness measurement of thin hardening coatings.
- Measurement on products after thorough machining.

2.4 Standard package

- Hardness tester
- UCI probe (10N, 50N or 98N for choice)
- Leeb probe (D type)
- 3pcs AA batteries
- Charger
- USB cable
- Operating manual
- Software for PC
- Case
- T-UD3 hardness tester set

