NOVOTEST

Leeb Hardness Tester
NOVOTEST T-D3

Available with Bluetooth

Datasheet

2022

1. Introduction

The most popular method in the world for testing the hardness of metals using a portable hardness tester is the Leeb method (ASTM A956). The so-called dynamic method for determining hardness is widespread due to its ease of use. The user does not need to have special skills and or knowledge in the field of hardness measurement, to carry out the measurement, it is necessary to charge up the impact body of the device's probe, install the probe on the tested surface, press the release button of the probe and the hardness value will be displayed on the device screen.

This method is recommended for large products, weighing from 5 kg and a thickness of 10 mm and more, however, observing certain requirements for fixing the product, it is possible to measure also small parts.

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

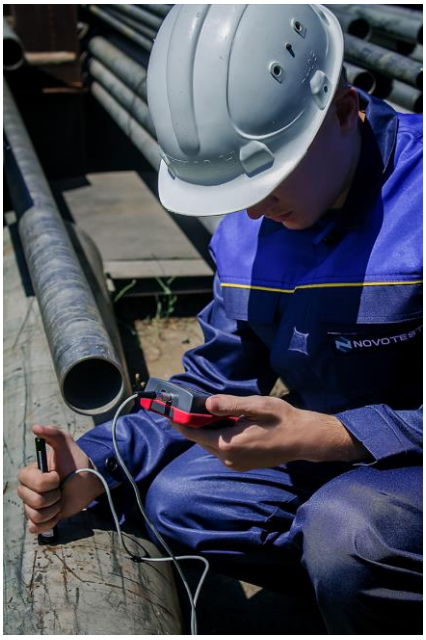
Do hardness measurements, calibrate the device, set up a convenient display of values, save the results of hardness measurements, synchronize the archive with your other devices and a PC, transfer measurement results to your colleagues – all this is available with your smartphone thanks to the special 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 Leeb Hardness Tester NOVOTEST T-D3:



- ***SCALES AND MATERIALS***

The device comes with preliminary calibrations for various scales and materials, which makes the device universal.

SCALES: HRC, HRB, HB, HV, HL, MPa.

MATERIALS: steel, alloy steel, cast iron, stainless steel, aluminum, bronze, brass, copper.

It also can be calibrated for any scale and materials (USER scale).

- ***LOW REQUIREMENT FOR SURFACE QUALITY AND STRUCTURE OF MATERIALS***

The Leeb Hardness Tester NOVOTEST T-D3 can be used for products with a poorly prepared surface (roughness 3.2 Ra and more), as well as for materials with a coarse-grained structure, such as cast iron and others.

- ***VARIOUS PROBES TYPES***

The Leeb Hardness Tester NOVOTEST T-D3 can be used with various types of probes depending on the task and scope.

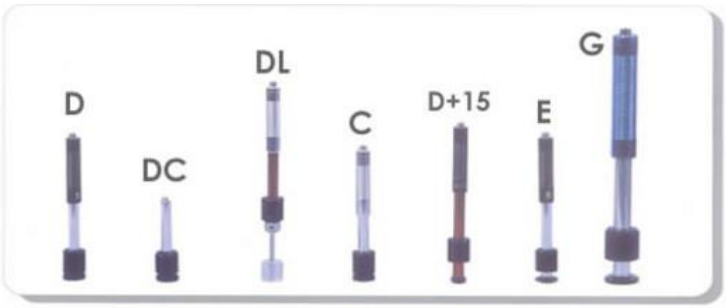


TABLE X1.1 Specifications of Standard Single Coil Leeb Hardness Testing Devices

Property	Symbol	Unit	*D/DC*	*E*	*D+15*	*DL*	*C*	*G*
Impact velocity[A]	v_A	m/s	2.05 ± 1%	2.05 ± 1%	2.05 ± 1%	2.05 ± 1%	1.39 ± 2%	2.98 ± 1%
Impact body, mass	M	G	5.45 ± 0,05	5.45 ± 0,05	7.80 ± 0,05	7.23 ± 0,05	3.00 ± 0,05	20.00 ± 0,05
material: St 18/8, nonmagnetic								
Free flight length	H	mm	8 ± 1	8 ± 1	8 ± 1	8 ± 1	8 ± 1	15 ± 1
Tube material: aluminium, nonmagnetic								
Eddy current slit			yes	no	yes	yes	yes	no
Indenter, radius	R	mm	1.5	1.5	1.5	1.5	1.5	2.5
material			TC[B]	PKD[C]	TC	TC	TC	TC
hardness	h	HV	1600 (typ)	5000 (typ)	1600 (typ)	1600 (typ)	1600 (typ)	1600 (typ)
Induction signal, peak position	t1	ms	0.55 ± 0,15	0.55 ± 0,15	0.55 ± 0,15	0.55 ± 0,15	0.62 ± 0,20	0.55 ± 0,15
half width	Δt	ms	2.5 ± 30%	2.5 ± 30%	2.5 ± 30%	2.5 ± 30%	4.0 ± 30%	2.0 ± 30%

[A] Impact direction: vertical down.
[B] TC = tungsten carbite.
[C] PCD = polycrystaline diamond.

2. Specifications

2.1 Advantages

- Large full color graphic display with bright backlighting
- Various measurement modes: statistic, graph, histogram, smart, signal
- Calibration of any scale in any range
- Convenience and ease of measurement
- Optimized number of buttons
- 88 combinations of materials and hardness scales (calibrations)
- Photofixation of tested objects
- Extended temperature range (frost, down to – 40°C)
- Internal memory and communication with PC
- New, intuitive menu with tips on the buttons
- Optional wireless mini printer
- Water resistant case
- Rubber protected bumper

2.2 Specifications

Leeb probe types	•D •DC •DL •C •D+15 •E •G
Measuring range for steel	•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 A 956 •ASTM E 140 •ASTM A 370 •ISO 16859 •DIN 50156 •GB/T 17394 •JB/T 9378 •ISO 18265
Indenter	Hardened ball (Leeb)
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 scale	•Leeb probe – HRC, HRB, HB, HV, HL, MPa •Additional custom scales for calibration
Materials	•Dynamic (Leeb) pre-calibrated for steel, alloy steel, cast iron, stainless steel, aluminum, bronze, brass, copper •Additional custom materials for calibration
Data display	•Angle (Leeb) •Single test result •Max, Min, Average of tests •Number of tests •Deviation •Var. coeff. •Histogram •Signal and Smart Mode (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)
Battery life	Approx. 10 hours.

2.3 Available options

- Additional probes of various types of Leeb probes (D, DC, DL, C, D+15, E, G). Also, after the purchase if will be needed, user can order the additional ultrasonic (UCI) probe U1 with activation code and will get combined hardness tester with two probes (Leeb+UCI)
- Different colors of rubber bumper protected case
- Wireless printer
- Batteries
- Chargers
- Hardness tests blocks
- Portable grinding machine
- Case for hardness tester
- Set of support rings for D, DC type Leeb probes
- Impact bodies for Leeb probes

2.4 Standard package

- Hardness tester
- Leeb probe (D type)
- 3 pcs AA batteries
- Charger
- USB cable
- Operating manual
- Software for PC
- Case