NOVOTEST T-UD3

Combined Hardness Tester

Product Overview

The device operates both UCI (Ultrasonic Contact Impedance) and the Leeb (dynamic) probes. Getting benefit from two types of measurements is the ultimate advantage that a portable device can provide.

UCI method for the hardness testing

The UCI hardness measuring method complies to ASTM A1038.

The ultrasonic contact impedance (UCI) probe is purposed to be used for hardness measuring in the case of the testing area minimal thickness (from 1 mm), objects of complex surface shape, and for measuring surface hardened layers hardness.

This method is very fast and easy: place the probe on the tested object surface, press the probe with the required effort to the surface and save the hardness value, shown on the display of the device. Small size diamond indenter allows measuring hardness value of all items, which are thicker than 1 mm. The UCI method of hardness testing is the least destructive because the hardness tester NOVOTEST T-UD3 with UCI probe leaves much smaller prints (imprints) than the majority of bench hardness tester would. That's why a portable hardness tester with UCI probe is the best choice.

Leeb method for the hardness testing

The Leeb hardness measuring method complies to ASTM A956.

The Leeb probe (D type) is used for hardness measuring of massive objects (more than 5 kg, and more than 10 mm) and made of steels non-ferrous metals, cast irons, coarse-grained materials, e.t.c. Also, Leeb method perfectly complements with UCI hardness measuring method when UCI method is not applied.

This method is very fast and easy: place the probe on tested object vertically to the object surface, push the probe to charge the spring, press the button on the top of the probe to make measurement and save the hardness value, shown on the display. For the Leeb measuring method, NOVOTEST-UD3 automatically calculates hardness for a wide range of materials, like steel, stainless steel, cast iron, bronze, aluminum.

The combined hardness tester is the most universal, needs no recalibration, and is fully operational "out of the box".

When the measurements are made, the operator can take a photo of the sample with the built-in photo camera and place the results exactly where the measurements occurred (up to 5 results per picture).

The saved measurements results and pictures may be transferred to a PC using the "AWP" software, which supplied along with the hardness tester.

The hardness tester allows measuring the hardness at extremely low temperatures.

In reality, tests have been carried out at – 25˚C. There was no problem to operate the device at all. Measurement accuracy did not exceed the accuracy standards. The Keyboard and display gave no troubles at all, and we found no difference using the device in the warm and cold environment!

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)

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:±1.5%HRC or 2HRC
	HB:±3%HB or 10HB
	HV:±3%HV or 15HV
Standards	ASTM A1038
	ASTM A956
	ASTM E140
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
	Leeb probe – HRC, HRB, HB, HV, HL, MPa
	Additional custom scales for calibration

Specifications :	
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).
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
Battery life	Approx. 10 hours.