Combined Hardness Tester

The advantages of Hardness Tester Type-I -

- Hardness measurement of any mass products with a thickness of 1 mm – inaccessible to the dynamic (Leeb) hardness testers (small parts, thin-walled structures, pipes, tanks, steel sheets, articles of complex shape, hardness control of metal coatings, etc.)
- Small imprint after measuring (mirror surfaces of shafts necks, blades, gear teeth, etc.)
- Measuring the hardness of the surface hardened layer
- Wide range of hardness
- Only basic function, nothing extra
- Possibility to use in field conditions with high humidity and dust
- Convenience and ease of measurement
- Optimized number of buttons
- Contrast display with bright back-lighting
- Automatic recognition of probe
- Indication of the type of connected probe
- Calibrations stored in memory of probe
- Very easy in operation and calibration
- Internal memory and communication with PC
- New, intuitive menu with tips on the buttons
- Extended temperature range (frost, down to - 40°C)
- Water resistant case
- Rubber bumper protected case

The device works with both ultrasonic contact impedance (UCI) and dynamic (Leeb) probes. User get the benefits of two methods of measurement – it is the maximum that can be obtained from a portable hardness tester.

Dynamic (Leeb) probe is used for measuring the hardness of non-ferrous metals, cast iron, coarse-grained materials, massive products etc.

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

Can be equipped with three types of UCI probes:

Load	Advantage or benefit	Typical applications
98N (22.0 lbf)	Leaves relatively large dent. Suitable for low finished surfaces. Surface finish equivalent to 30 grind or better.	Small forged products, cast materials, heat-treated materials, etc. Turbine blades, inside tubes with ø> 90mm.
50N (11.2 lbf)	Considered to be the Universal type for most general applications. 50N of downward hand pressure is required to activate the probe. Surface finish equivalent to 80 grind or better.	Induction or carburized machined parts, e.g.. camshafts, turbines, weld inspection, HAZ. Measurement in grooves, gear tooth flanks and roots Turbine blades, inside tubes with ø> 90mm.
10N (2.2 lbf)	Load is easy to apply; provides control to test on a sharp radius. Only 10N of downward hand pressure is required to activate the probe. Surface finish equivalent to 150 grind or better.	Ion-nitrided stamping dies and molds, forms, presses, thin-walled parts Bearings, tooth flanks Turbine blades, inside tubes with ø> 90 mm.

Portable hardness tester has modes of measurement:

Sealed housing with rubber protective strips - Hardness testers is ideal for use in workshop and field conditions with high humidity, dust, etc. Hardness tester has frost-resistant display that allows user to use the device at any season and in any climatic zone of the Earth.

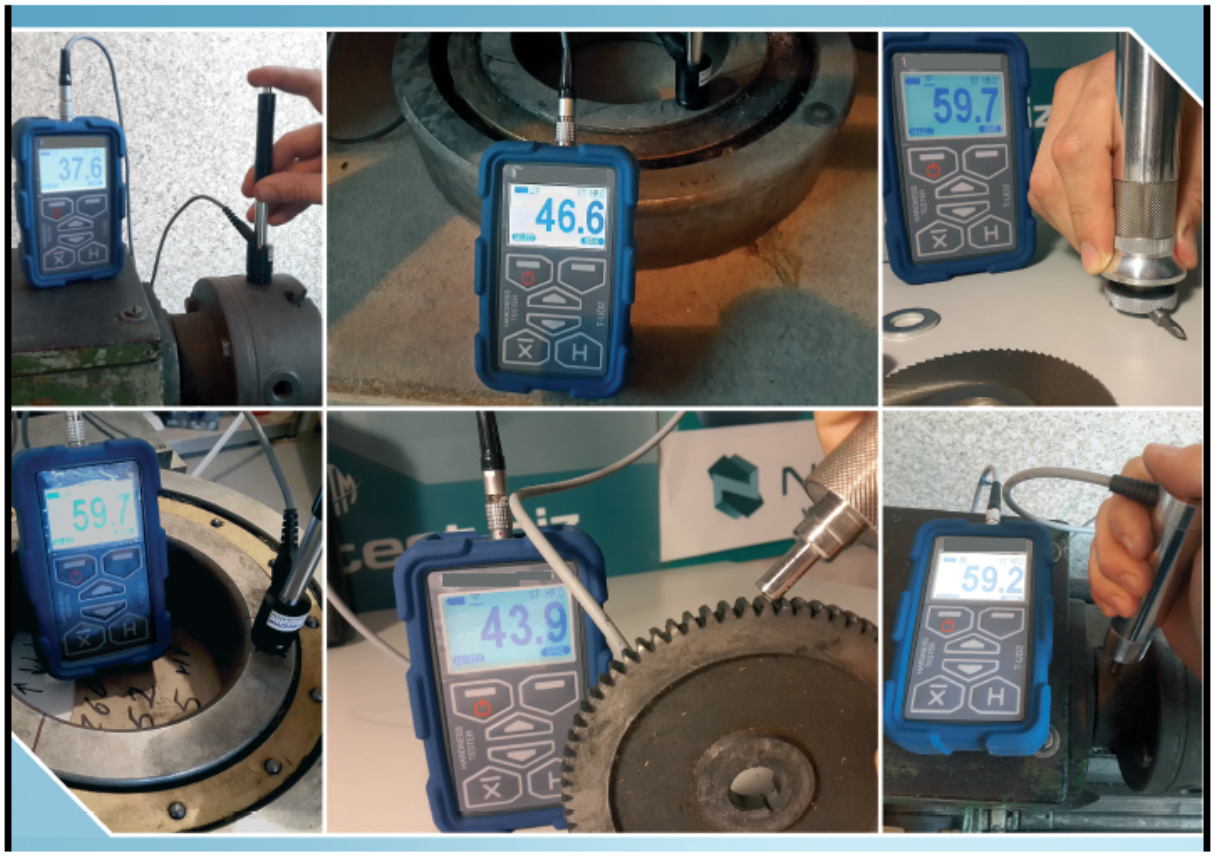
Combined Hardness Tester specifications:

UCI probe types	-	1kgf (10N) 2.2 lbf, 5kgf (50N) 11lbf, 10kgf (98N)
Leeb probe types	-	D, DC, DL, C, D+15, E, G
Indenter	-	Diamond Indenter (UCI), Hardened ball (Leeb)
Measuring direction	-	Any direction 360°
Data storage	-	Limited only by the memory card
Measurement hardness range:		
Rockwell, HRC	-	20 - 70
Brinell, HB	-	90 - 450
Vickers, HV	-	230 - 940

temporary resistance (tensile strength), MPa	-	370 – 1740
Measuring accuracy	-	HV+ / - 3%; HRC+ / - 1,5%; HB+ / - 3%;
Hardness scale	-	HRC, HB, HV, MPa
Operating temperature range, °C	-	-20 to +50
Power supply	-	2 AA batteries
Instrument dimensions	-	120x60x25 mm
Weight of electronic unit with batteries	-	0.2 kg (without probes)
Battery life	-	Not less 20 hours.

Materials - UCI probe - pre-calibrated for steel.- Leeb probe - pre-calibrated for steel, alloy steel, cast iron, stainless steel, aluminum, bronze, brass, copper. - Additional custom materials for calibration.

Standard set of Hardness Tester –
Electronic unit, UCI probe, Leeb probe, 2 batteries AA, Charger, USB cable, Operating manual, Software for PC, Case.

Available options for ordering of Hardness Tester –
UCI probe, Leeb probe, Batteries, Charger, USB-cable, Set of measures of hardness, Case.

Application of Hardness Tester –