



## Ultrasonic Contact Impedance Hardness Tester – UH200

**Standards:**  
[JB/T 9377-2010](#)

[ASTM A1038-05,](#)

[DIN 50159-1,](#)



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### Description

The UH200 non-destructive ultrasonic hardness tester, relying on the principle of ultrasonic vibration sensor rod, can easily and swiftly detect the material hardness of several metals without any damage.

This method produces no indentation and it has both high precision and speed. It makes use of a single chip technology and advanced sensing system which makes it better than the usual ultrasonic hardness testers in both function and structure. UH200 support value conversion among HV, HB, HRC, and others and the average of the multi-point measurement can be derived. Accurate display and printing of the results is also possible. It is popularly used in testing hardness of metal foil, finished workpiece, metal thin layer (electroplating layer, carburizing layer, nitriding layer, etc.), the special shape parts are easy to dismantle but the hard parts are difficult to move. It is a good equipment for testing precision to save cost and improve production pass rate. Read more about the potential application for the UH200 in our newest [Mega Blog](#).



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## Working Principle



The ultrasonic hardness tester has a hand-held host and probe connected with the cable. The probe contains a vibration bar to connect the Vickers pressure head. The vibrating bar produces ultrasonic vibration, after the boot, the frequency of the vibration is fixed to the sensor on the vibrating bar to sense, the probe head lower end is pressed into the material surface tightly, the micro-vibration rod to the shock to the material Microcrystal, to enable the grain vibrate at different frequencies, it will result in resonance once there is a synchronization of the two vibration frequency, this makes it possible for the sensor to detect the resonance frequency before and after. The value of the material hardness can be calculated based on the number of frequency change and the elastic modulus of the material.



## Features



The Ultrasonic Contact Impedance (UCI) tester is used for measuring the hardness value of small items, objects with a thin wall, complex forms, and to measure the hardness of surface hardened layers.

The built-in camera allows user to picture of testing object and mark tested area with corresponding hardness value.

UCI Hardness Tester has the sealed housing with rubber protective strips. It is ideal for use in workshop, and in-field conditions with high humidity, dust, etc. The hardness tester has frost-resistant display, which allows user to use the device at any season and in any virtually any climate zone. The device has PC software with a comfortable and intuitive interface.

- Highest Accuracy -  $\pm 3\%$  HV,  $\pm 1.5\%$  HR,  $\pm 3\%$  HB
- Microscopic Indentation - Indentation can be observed by high-power microscope only
- Quick Measurement - Result in 2 seconds
- Large LCD Display - Direct display of measurement results, time count, maximum, minimal, average and deviation.
- User-Friendly Interface - The system is easy to learn and operate even after short training



- 2-Year Extended Warranty for the Main Unit (Excludes Probe)
- Large Storage Capacity - Saves up to 2000 groups of measurement data
- Simple Calibration - Saves up to 20 groups calibration data for invoking and improve calibration efficiency.
- Hardness measurement of any mass products with a thickness of over 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.)
- Measuring the hardness of the surface hardened layer
- Small imprint after measuring (mirror surfaces of shafts necks, blades, gear teeth, etc.)



- Wide range of hardness testing
- Various measurement modes
- Calibration of any scale in any range
- Convenience and ease for measurement
- Optimized number of buttons
- Large full color graphic display with bright back-lighting
- Calibrations stored in memory of probe



- Internal memory and communication with PC
- New, intuitive menu with tips on the buttons
- Optional wireless mini printer
- Water resistant case
- Rubber protected bumper
- Graph - the mode of building of graph
- Histogram - the mode of building of histogram
- Statistics - the mode of statistic
- Smart - the mode of filtering of incorrect measurements

## 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 testing areas with minimal thickness (starting from 1 mm). It is specifically designed for objects of complex surface shape, and for measuring surface hardened layers hardnesses.

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



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display of the device. Small size diamond indenter allows measuring hardness value of all items thicker than 1 mm. The UCI method of hardness testing is the least destructive because the hardness tester 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. The unit comes with CE certificate of conformity for Portable UCI Hardness Tester.

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## Technical Specification

Product Name UH200 – Ultrasonic Hardness Tester

Model	UH200
Loading Force	5kgf manual probe (optional 1/2/10kgf manual probe) (optional motorized probe: 0.3/0.5/0.8/1kgf)
Measuring Range	<b>Main Line:</b> HB: 85-650; HV 10-2980 HV; HRC 20-70; HRB: 41-100; HRA: 61-85.6 HS: 34.2-97.3; Mpa: 255-2180N/mm <b>Economical Line:</b> HRC(10-80) HB (200-550) HV (200-999)
Hardness Scale	HV, HB, HRC, etc.
Measuring Accuracy	HV: ±3%HV; HRC: ±1.5HRC; HB: ±3%HB
Indenter	136° Vickers Diamond Indenter
Measuring Direction	Support 360°
Hardness Indication	LCD display
Data display	Loading force, Testing-times, Testing result, Average, Maximum, Minimum, Deviation and Conversion scale.
Data Storage	Saves 2000 groups of measuring data and 20groups of calibration data
Operating Environment	Temperature: -10°C~50°C; Humidity: 30%~80%R.H
Operating Voltage	DC 6V
Dimensions	Machine: 160x80x31mm; Packing: 35x35x15cm
Net Weight	Approximate 500g (Without probe)



<b>Model</b>	<b>UH200</b>
<b>Gross weight</b>	5kg (After packing with standard accessories)

## Standard Package

Product Name	QTY
Main Instrument	1
5kgf Manual Probe	1
USB Cable	1
Probe Cable	1
Probe Silicone Cap	1
Instrument Manual	1
Accessories Box	1
Certificate	1

## Instrument Maintenance

Be cautious when using it to avoid any damage

In a strong magnetic field the accuracy of the precision sensor measurement will be reduced. While in use or after use, it is very essential to keep the instrument away from strong magnetic materials or fields.

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