

MIDLAND METROLOGY LTD

# iBRRV-187.5/250

Digital Universal Hardness Tester



Video



# Product Features and Application

## Product Features

- Adopt 8-inch touch screen, rich display content, easy operation.
- Ready to use after power on, no need to install weights.
- Electronic loading, closed-loop force control, high precision, to ensure the stability and repeatability of test results.
- Three methods of Brinell, Rockwell and Vickers hardness test.
- Automatic hardness conversion.
- Equipped with high-precision optical system, can clearly present the indentation to ensure the accuracy of measurement.
- With large storage space, it can store a large amount of measurement data, and can be easily retrieved and printed. Users can view historical test data at any time, conduct data analysis and comparison, and provide strong support for quality control and research work.

## Product Application

- Material research:  
Used to evaluate the hardness characteristics of materials and provide data support for material selection, design and development.
- Production quality control:  
During the manufacturing process, it is used to detect whether the hardness of the product meets the standard and ensure product quality.
- Failure analysis:  
When equipment or parts fail, by analyzing the change in its hardness, the cause and mechanism of failure can be inferred.

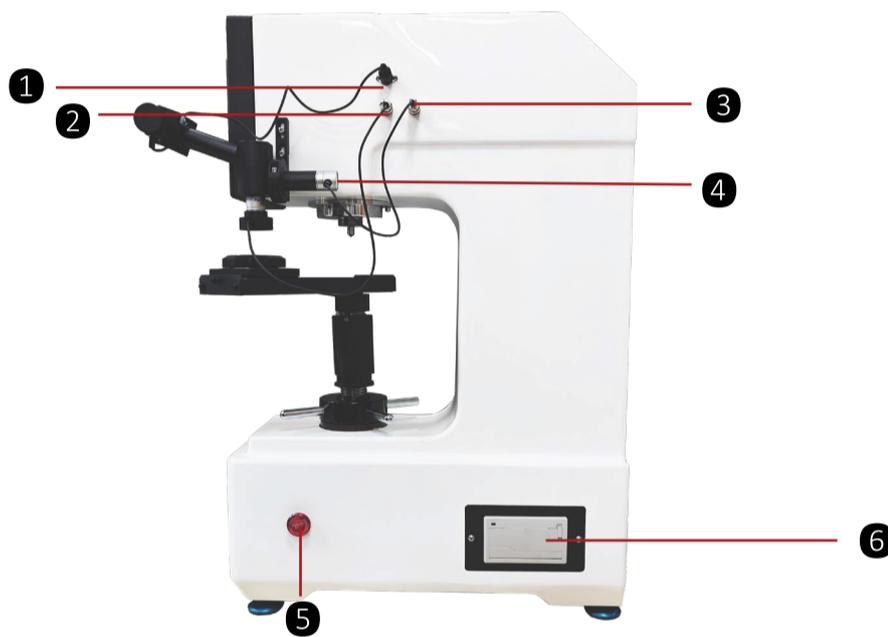


# Instrument Appearance



## Machine on the Front

1. Touch screen    2. Micrometer    3. Mirror frame    4. Objective lens    5. External lighting  
6. Indenter    7. Sliding table    8. Screw    9. Handwheel



## The Right Side of Machine

1. Micrometer interface    2. External lighting interface    3. Internal lighting interface  
4. Internal lighting    5. Emergency stop button    6. Printer



## Machine on the Back

1. Switch    2. Power cord interface    3. RS232 computer interface    4. USB interface

# Instrument Appearance



## Eyepiece

1. Left drum    2. Eyepiece    3. Encoder button    4. Right drum

The micrometer is part of the hardness tester's optical system. Its function is to observe the actual indentation and measure the diagonal length.

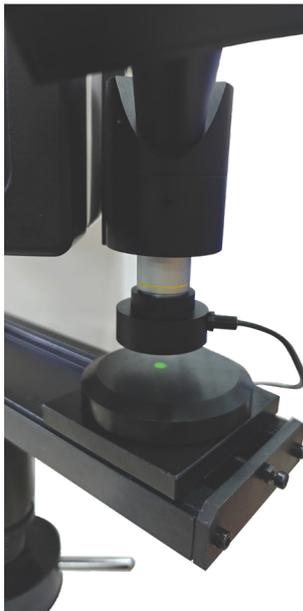
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# Product Details



## Sensor Loading

The test force loading and unloading mechanism is driven by a stepper motor, cooperates with the load cell and microprocessor control system, and uses a special algorithm to precisely control the operation of the stepper motor, which significantly improves the test force control accuracy and is greatly improved compared to previous models.



## Objective System

With two optical lighting modes, internal and external, it can automatically select the appropriate lighting mode according to the size of the indentation, making the indentation clearer and helping to improve the accuracy of the measurement. When measuring samples of different hardness and size, you can get the best observation effect.

# Product Details



## Printer

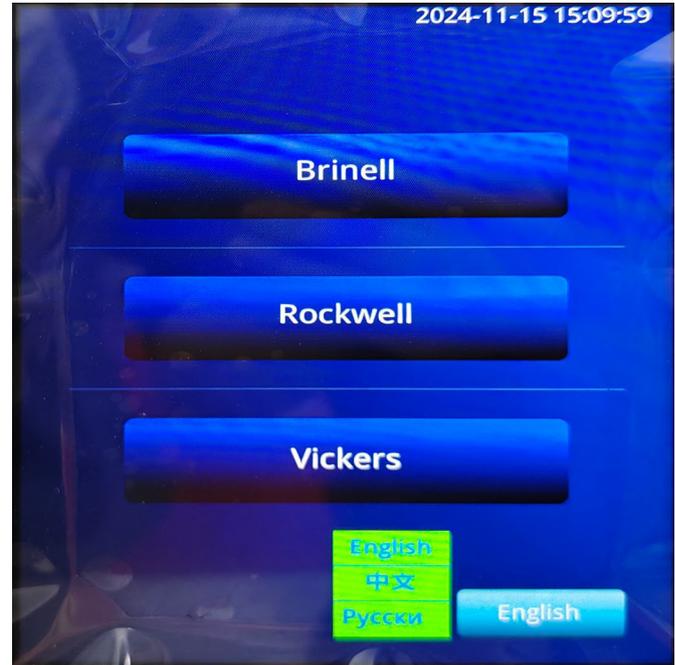
This device has a built-in thermal printer, so users can print out the required data at any time, which is convenient and fast.



## Emergency Stop Button

There is an emergency stop button on the right side of the device. In case of emergency, you can press it to stop the device quickly, thus avoiding accidents or reducing the degree of harm caused by accidents. To restart the device, you must release the emergency stop button, that is, rotate it clockwise about 45° and then release it. The pressed part will pop up and the device can restart.

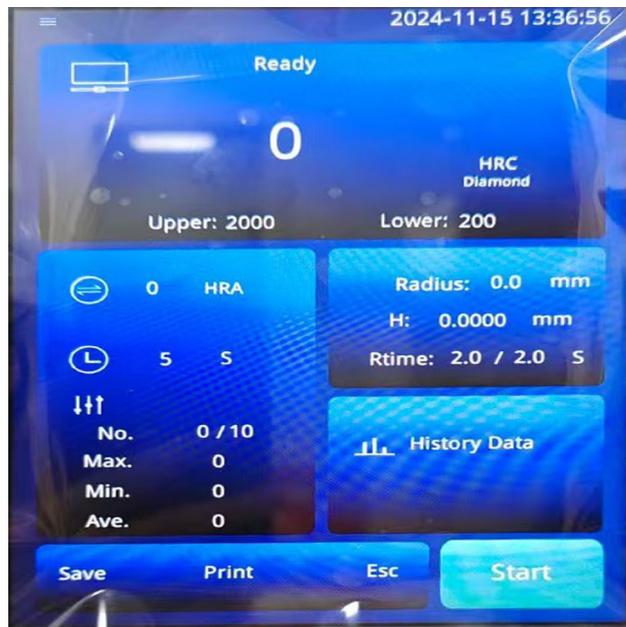
# Screen Interface



## Select Test Method/ Language

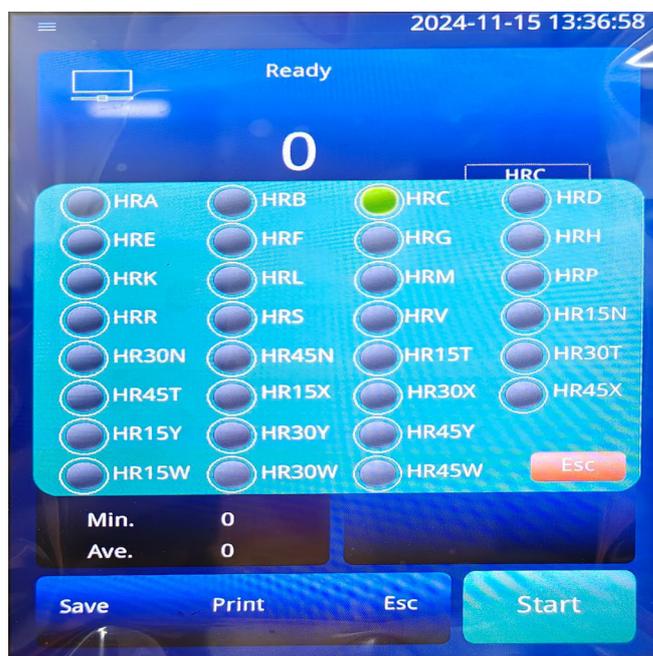
After powering on, the user can enter this interface and select the required method from three hardness test methods (Brinell measurement, Rockwell measurement, Vickers measurement). At the same time, this interface can also select the display screen language. This device supports Chinese, English and Russian.

# Rockwell Measurement



## Rockwell Interface

Click "Rockwell Measurement" to enter this interface, where you can select the Rockwell measurement scale, adjust the test parameters, start the experiment, and save, view, and print the experimental data.

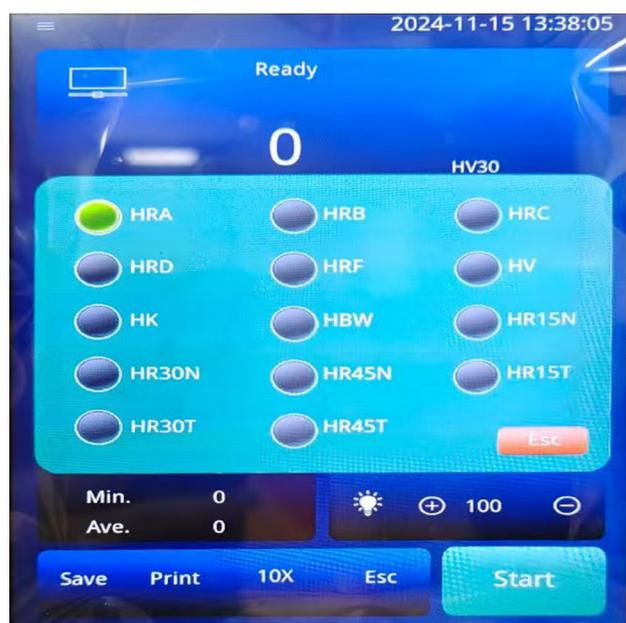


## Rockwell Scale Selection

Before starting the test, you must first select a suitable hardness scale. Click the "HRC" position to pop up the test scale selection dialog box. The user can select the required scale from the list.

### Rockwell Scales:

HRA, HRB, HRC, HRD, HRF, HRE, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HR15X, HR30X, HR45X, HR15Y, HR30Y, HR45Y, HR15W, HR30W, HR45W



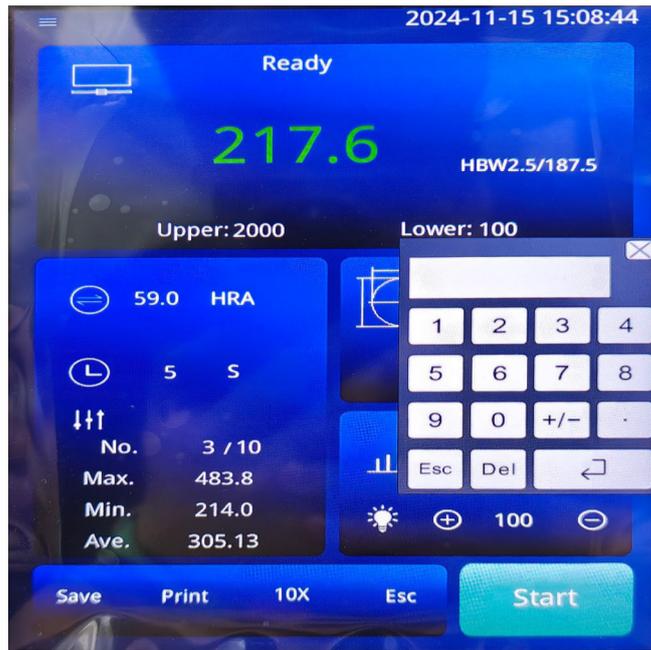
## Conversion Scale

Click  to pop up the hardness conversion window. Users can select the hardness value to be converted from the list. The hardness conversion of the three hardness test methods is the same.

### Hardness Conversion Scales:

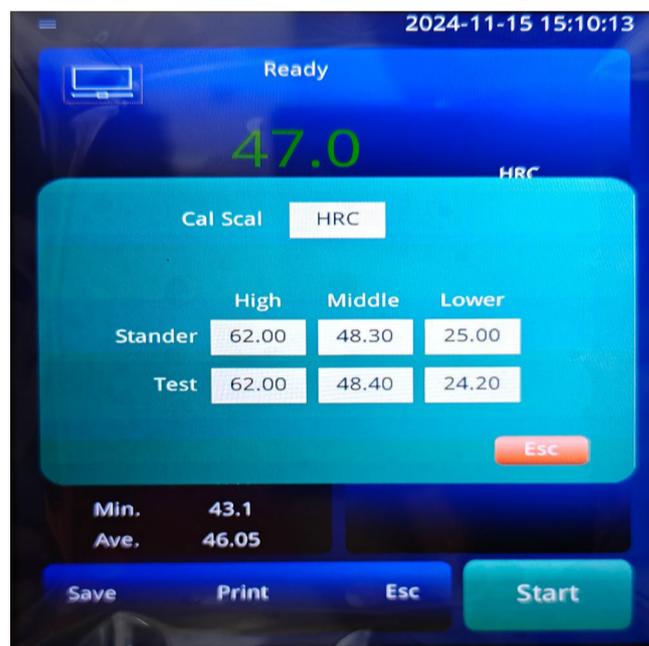
HRA, HRB, HRC, HRD, HRF, HV, HK, HBW, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T

# Software Function



## Curve Radius

When the sample to be tested is cylindrical or other curved, you need to enter the curve radius of the sample before testing.



## Calibration

Click the upper left corner of the interface to enter the calibration window. If the hardness value tested deviates from the hardness value of the standard block by no more than 3 degrees, you can calibrate it through hardness calibration.



## View Results

Click the historical data button to pop up the window, where you can flip pages, search historical records, delete and print test data.

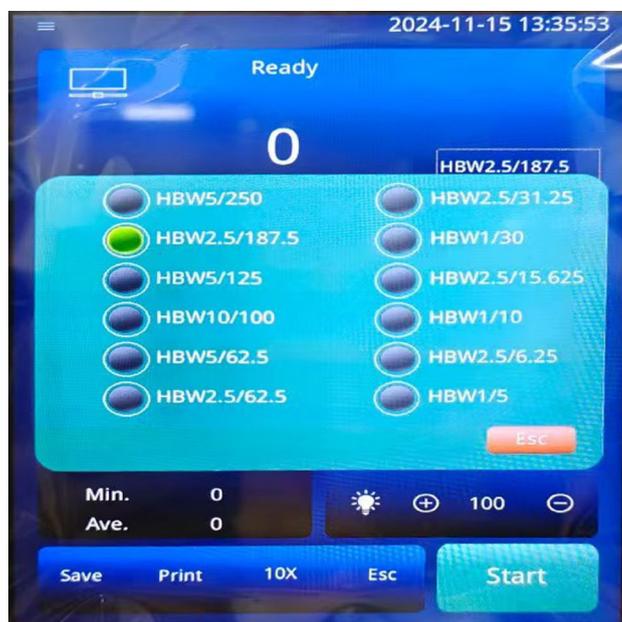
# Brinell Measurement



## Brinell Interface

Click "Brinell measurement" to enter this interface. Compared with Rockwell measurement interface, this interface has more objective lens magnification selection and light adjustment at the bottom. You can choose 2.5X; 5X; 10X three different magnification objective lenses by clicking. The magnification selection must be consistent with the lens magnification installed on the actual device. Otherwise, the measurement result will be wrong.

Click the plus and minus buttons on the left and right sides to control the brightness of the light.



## Brinell Scale Selection

Similarly, select a hardness scale before starting the test.

### Brinell Scale

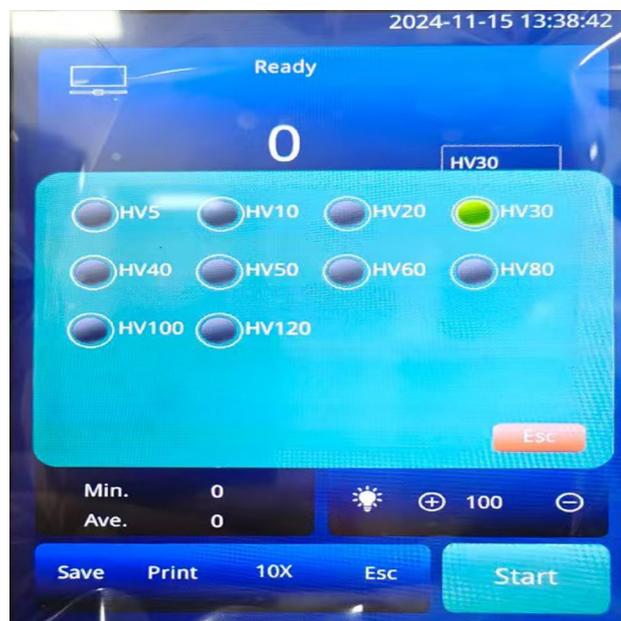
HBW1/5; HBW1/10; HBW1/30;  
HBW2.5/15.625; HBW2.5/31.25; HBW2.5/62.5;  
HBW5/62.5; HBW5/125; HBW5/250  
HBW10/100; HBW2.5/187.5

# Vickers Measurement



## Vickers Main Interface

Click "Vickers measurement" to enter this interface. The interface layout and operation are the same as Brinell. The following is a brief introduction to the selection of Vickers scale.



## Vickers Scale Selection

Choose a suitable scale before testing.

### Vickers Scales:

HV5;HV10;HV20;HV30;  
HV40;HV50;HV60;HV80;  
HV100;HV120

# Technical Specification

<b>Product Name</b>	Digital Universal Hardness Tester	
<b>Model</b>	iBRRV-187.5	iBRRV-250
<b>Initial Test Force</b>	Rockwell: 10kgf(98.07N)	
<b>Total Test Force</b>	Rockwell: 588.4, 980.7, 1471N (60, 100, 150Kgf)	Rockwell: 588.4, 980.7, 1471N (60, 100, 150Kgf)
	Brinell: 49, 98, 153.2, 306.5, 612.9, 1226, 1839, 2452N (5, 10, 15.625, 30, 31.25, 62.5, 125, 187.5Kgf)	Brinell: 49, 98, 153.2, 306.5, 612.9, 1226, 1839, 2452N (5, 10, 15.625, 30, 31.25, 62.5, 125, 187.5, 250Kgf)
	Vickers: 49.03, 98.07, 196.1, 294.2, 490.3, 980.7N (5, 10, 20, 30, 50, 100, 120Kgf)	Vickers: 49.03, 98.07, 196.1, 294.2, 490.3, 980.7N (5, 10, 20, 30, 50, 100, 120Kgf)
<b>Force Error</b>	<0.5%	
<b>Hardness Scale</b>	Rockwell: HRA, HRB, HRC, HRD, HRF, HRE, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV	Rockwell: HRA, HRB, HRC, HRD, HRF, HRE, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV
	Brinell: HBW1/5 HBW1/10 HBW1/30 HBW2.5/15.625 HBW2.5/31.25 HBW2.5/62.5 HBW2.5/6.25 HBW2.5/187.5 HBW5/62.5 HBW5/125 HB-W10/100	Brinell: HBW1/5 HBW1/10 HBW1/30 HBW2.5/15.625 HBW2.5/31.25 HBW2.5/62.5 HBW2.5/6.25 HBW2.5/187.5 HBW5/62.5 HBW5/125 HB-W5/250 HBW10/100
	Vickers: HV5, HV10, HV20, HV30, HV40, HV50, HV60, HV80, HV100, HV120	Vickers: HV5, HV10, HV20, HV30, HV40, HV50, HV60, HV80, HV100, HV120
	Knoop: HK3, HK5, HK10, HK20, HK30, HK40, HK50, HK60, HK80, HK100, HK120	Knoop: HK3, HK5, HK10, HK20, HK30, HK40, HK50, HK60, HK80, HK100, HK120
	HRA, HRB, HRC, HRD, HRF, HV, HK, HBW, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T	HRA, HRB, HRC, HRD, HRF, HV, HK, HBW, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T
<b>Hardness Range</b>	Rockwell: 20-88HRA, 20-100HRB, 20-70HRC	
<b>Hardness Resolution</b>	Brinell: 5-650HBW Vickers: 8-2900HV	
<b>Indication Accuracy</b>	0.1HBW, 0.1HR,0.1HV	
<b>Repeatability</b>	Brinell: ±2.5HB, Rockwell:±0.1HR, Vickers:±2 HV	
<b>Magnification</b>	Brinell:≤3.0HB, Rockwell: 0.5HR, Vickers: ≤2.5HV	
	Eyepiece: 15X,	
	Objective:2.5X(for Brinell), 5X(for Brinell and Vickers)10X(for Vickers)	
	Total Magnification:	
	Brinell:37.5X, 75X Vickers: 75X,150X	
<b>Dwelling Time</b>	0~90s Adjustable	
<b>Test Throat</b>	160mm	
<b>Test Height</b>	Rockwell 180mm; Brinell, Vickers165mm	
<b>Data Output</b>	LCD display, U disk, Built-in mini printer	
<b>Executive Standards</b>	ISO 6508, ASTM E-18, JIS Z2245, GB/T 230.2	
	ISO 6506, ASTM E10-12, JIS Z2243, GB/T 231.2	
	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2	
<b>Power</b>	AC110V/220V+5%, 50-60Hz	
<b>Machine Dimension</b>	550×230×750mm	
<b>Net Weight</b>	80kg	
<b>Gross Weight</b>	130kg	

# Standard Delivery

Name	Qty	Picture
Machine Mainframe	1 set	
Digital Micrometer Eyepiece	1 pc	
Microscope Stand (including internal lighting)	1 pc	
External Lighting	1 pc	
2.5X, 5X, 10X Objectives	1 pc ea.	
Large Test Anvil, Medium Test Anvil, V-shape Test Anvil	3 pcs	
Slide Test Anvil	1 set	
Diamond Rockwell Indenter	1 pc	
Diamond Vickers Indenter	1 pc	
φ1.5875mm Carbide Ball Indenter	1 pc	

# Standard Delivery

Name	Qty	Picture
φ2.5mm, φ5mm Carbide Ball Indenter	2 pcs	
φ1.5875mm Carbide Ball Indenter	5 pcs	
Standard Rockwell Hardness Block	5 pcs	
Standard Vickers Hardness Block (HV30)	1pc	
Standard Brinell Hardness Block (HBW/2.5/187.5)	1 pc	
Gradienter	1 pc	
Level Adjustment Screw	4 pcs	
Hexagon Wrench 1.5MM	1 pc	
Power Cord	1 pc	
Fuse 2A	2 pcs	
Screwdriver	1 pc	
Anti-dust Cover	1 pc	
Instruction Manual, Product Certificate, Warranty Card	1 copy ea.	