

MIDLAND METROLOGY LTD

# uBRV-187.5/250

Digital Universal Hardness Tester



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# Product Feature&Application

## Product Features

Equipped Brinell, Rockwell, Vickers test methods for more variable hardness scales.

Closed-loop control system with high precision load cell, no need to install weights.

- 8" Touch screen, easy to operate.

Eyepiece with digital encoder, measuring D1, D2 value, LCD directly display D1, D2 value and hardness value.

- Directly select the hardness scale, test force automatically changes in test parameters.

- Auto test force correction, auto test force compensation, greatly improving test force accuracy.

Can be calibrated according to standard hardness block or length scale.

The test force can be automatically corrected by standard dynamometer.

The hardness values of brinell, rockwell and vickers can be converted.

- Automatic hardness conversion according to standard GB/ASTM.

Password protection for setting parameters, more samples and test information.

U-disk of measurement data is saved in EXCEL format for easy editing and processing.



**uBRV-187.5**



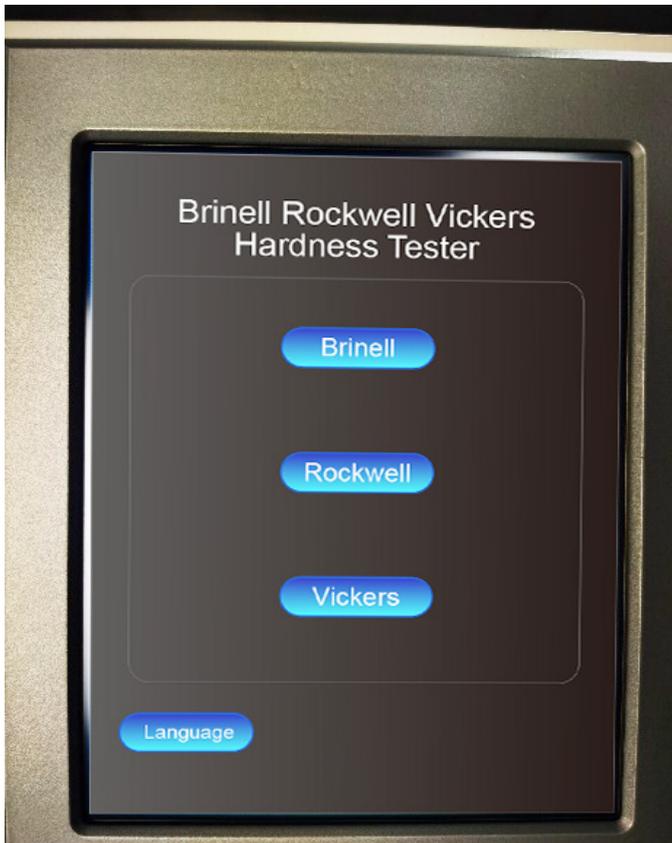
**uBRV-250**

## Product Application

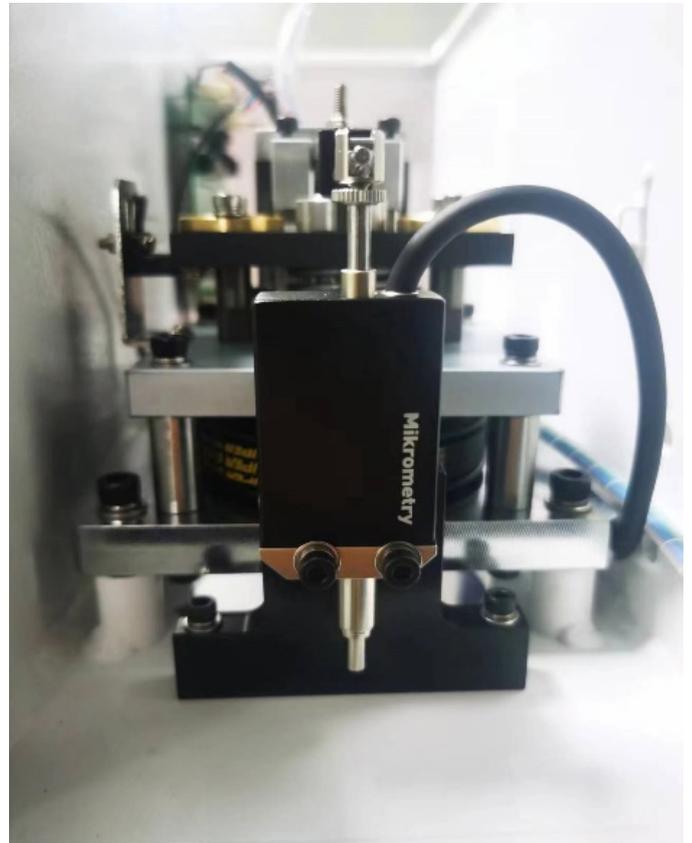
Suitable for hardened and surface hardened steel, hard alloy steel, casting parts, non-ferrous metals, various kinds of hardening and tempering steel and tempered steel, carburized steel sheet, soft metals, surface heat treating and chemical treating materials etc.

# User Friendly

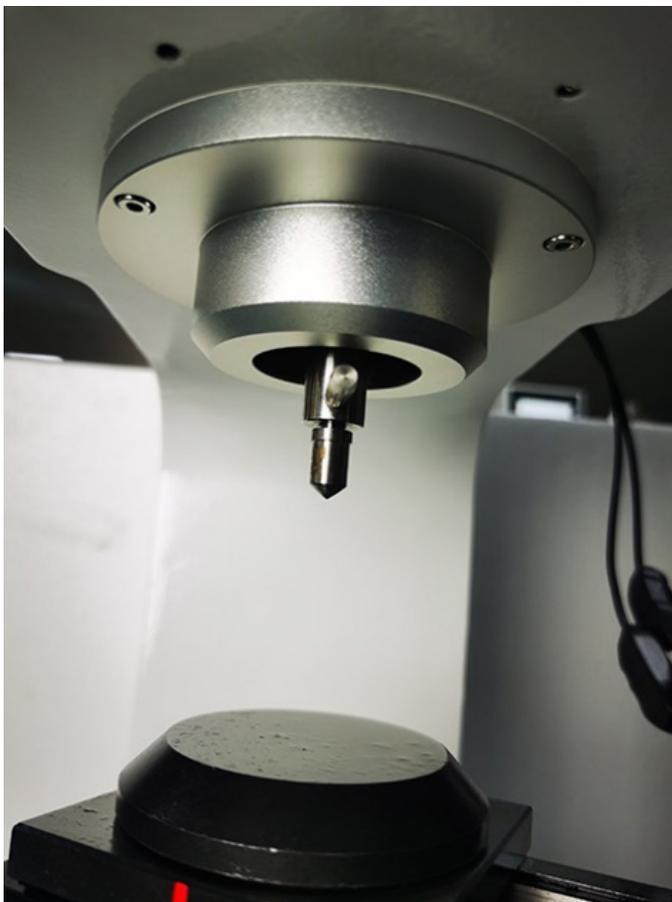
Equipped Brinell, Rockwell, Vickers test methods for more variable hardness scales. Closed-loop control system with high precision load cell, no need to install weights.



Variable Hardness Scales



Displacement Sensor



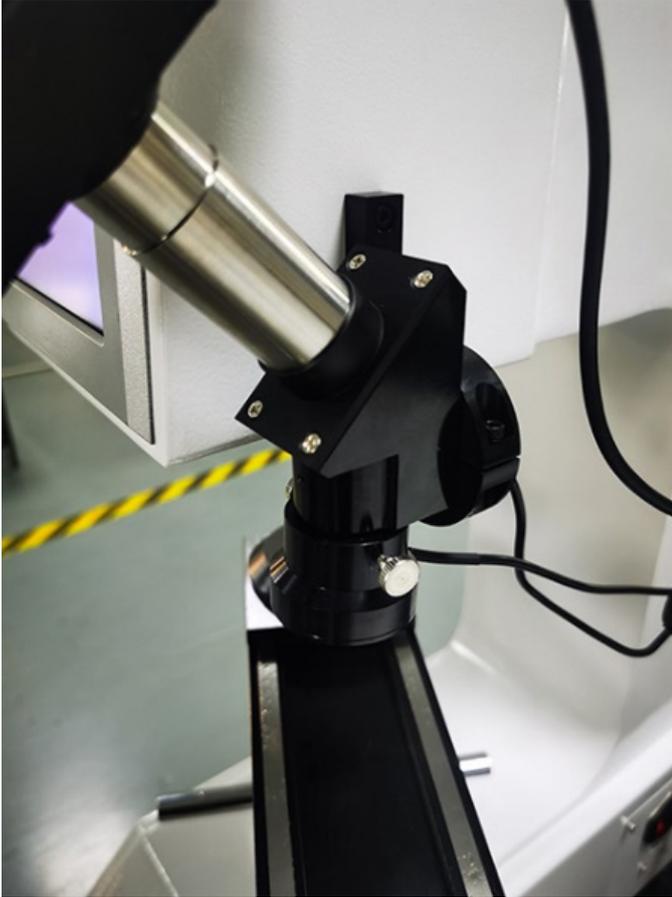
Indenter Structure



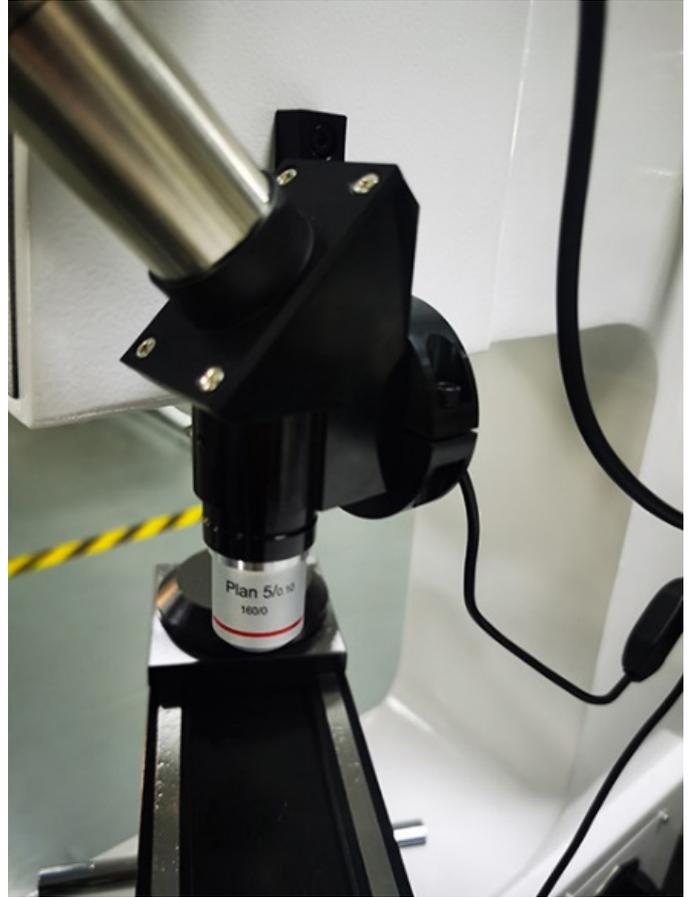
Load Cell above Indenter

# Eyepiece & Objective

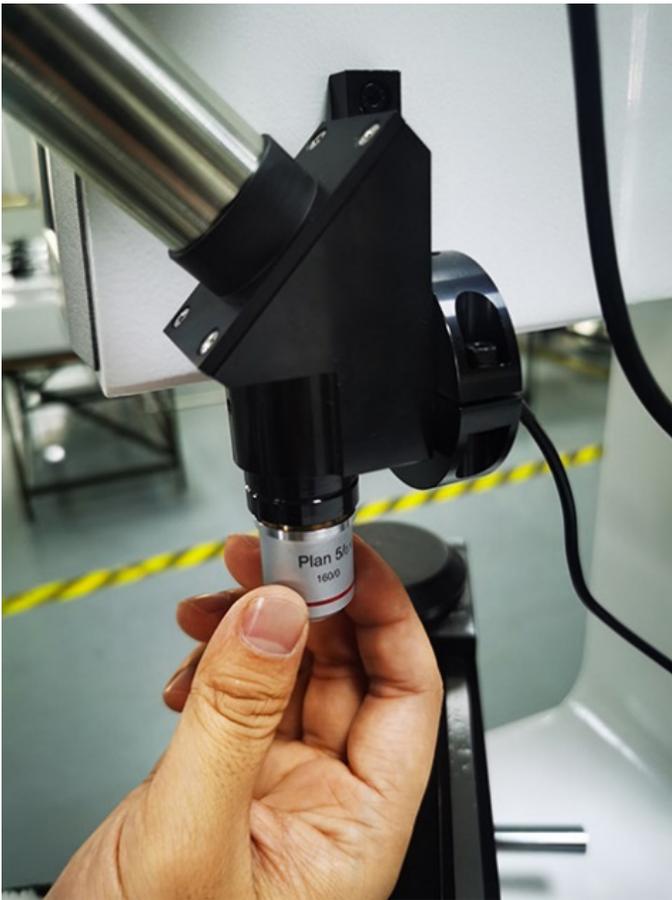
Objective: 2.5X (for Brinell), 5X (for Vickers) (10X, 20X for optional), eyepiece: 15X. Eyepiece with digital encoder, measuring D1, D2 value, LCD directly display D1, D2 value and hardness value.



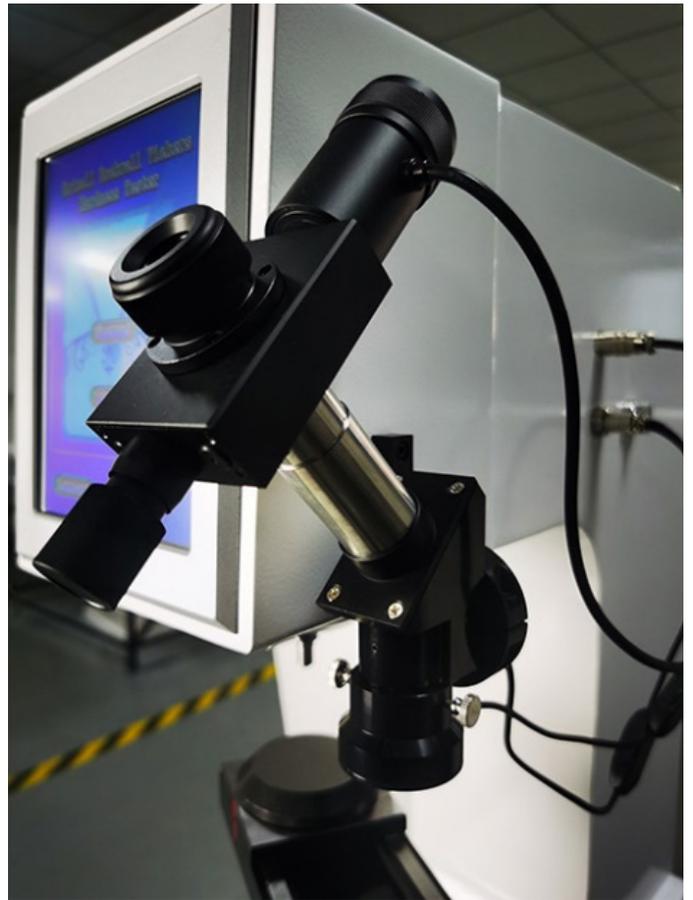
Objective Structure



Objective Structure



Objective Structure



Objective Structure

# Eyepiece & Objective



Objective above Test Table



Eyepiece Structure



Objective Structure



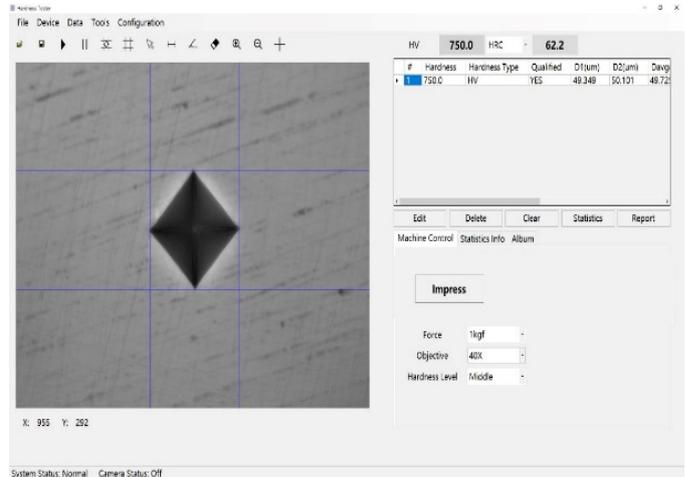
Objective Lens

# Data Output

U-disk of measurement data is saved in EXCEL format for easy editing and processing, LCD display or optional hardness measurement software.

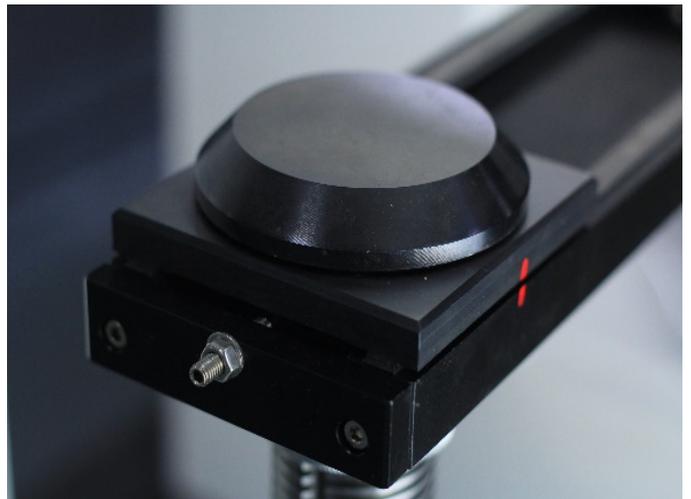
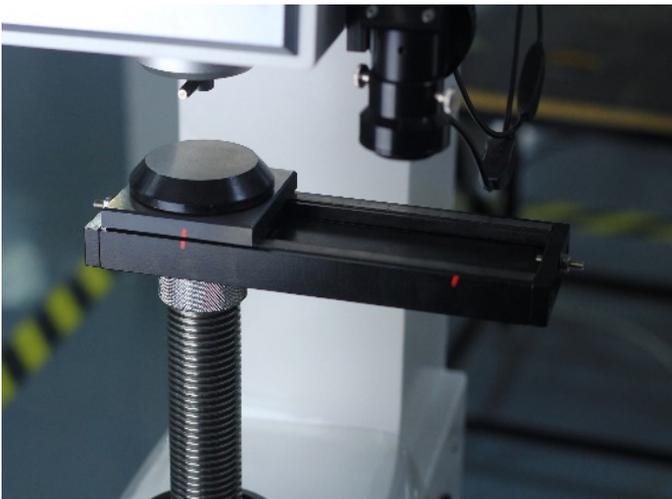
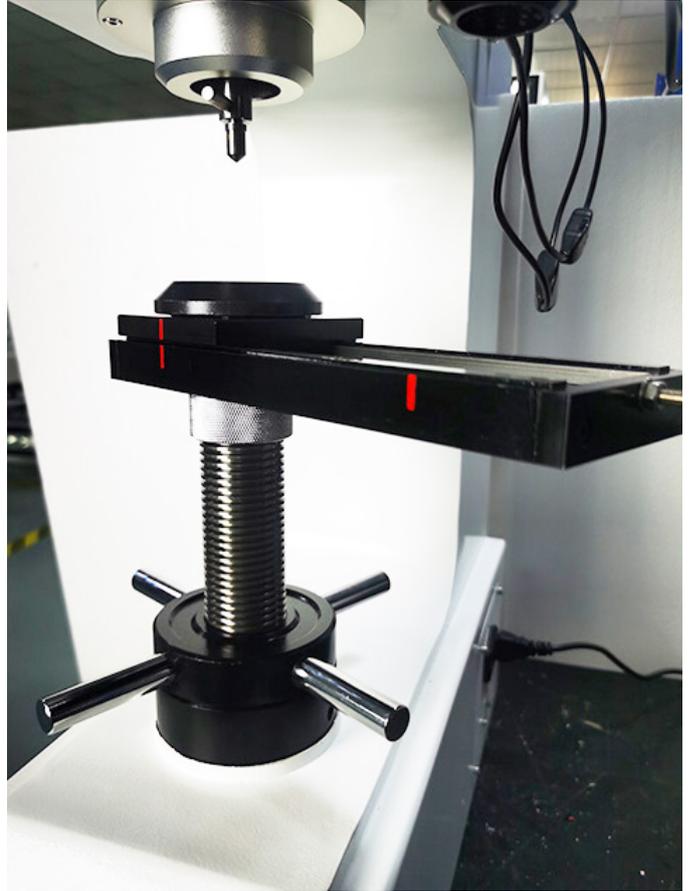


U-disk Interface



Measurement Software(Optional)

# More Detailed Photos



# Operation Interface

It can be calibrated according to the standard hardness block or length scale to make hardness value more accurately. RS-232 interface connected to computer for data output, testing result can be saved in USB (optional) in EXCEL format. built-in mini-printer to print testing data.

Operator

Sample

Range  To

Load(kg)

Dwell Time(S)

**Start**

D1  D2

HBW

Conversion

**Reset** **Return** **Calibrate**

Brinell Main Interface

Measurement Scale for the Brinell

**1/5** **2.5/6.25** **1/10**

**2.5/15.625** **1/30** **2.5/31.25**

**2.5/62.5** **10/100** **5/125**

**2.5/187.5**

**Return**

Brinell Scale uBRV-187.5

Measurement Scale for the Brinell

**1/5** **2.5/6.25** **1/10**

**2.5/15.625** **1/30** **2.5/31.25**

**2.5/62.5** **10/100** **5/125**

**2.5/187.5** **2/250** **10/250**

**Return**

Brinell Scale uBRV-250

Operator

Sample

Curvature

Range  To

Hardness Type

Conversion Type  Value

Dwell Time(S)

Hardness Value  **Calibration**

**Start** **Data**

Rockwell Main Interface

Measurement Scale for the Rockwell

**HRA** **HRB** **HRC** **HRD**

**HRE** **HRF** **HRG** **HRH**

**HRK** **HRL** **HRM** **HRP**

**HRR** **HRS** **HRV**

**Return**

Rockwell Scale uBRV-187.5

Measurement Scale

**Calibration** **HRB/100/1.588** **HRC/150/D** **HRD/100/D**

**HRE/100/3.175** **HRF/60/1.588** **HRG/150/1.588** **HRH/60/3.175**

**HRK/150/3.175** **HRL/60/6.35** **HRM/100/6.35** **HRP/150/6.35**

**HRR/60/12.7** **HRS/100/12.7** **HRV/150/12.7**

**HR15N/D** **HR30N/D** **HR45N/D**

**HR15T/1.588** **HR30T/1.588** **HR45T/1.588**

**HR15W/3.175** **HR30W/3.175** **HR45W/3.175**

**HR15X/6.35** **HR30X/6.35** **HR45X/6.35**

**HR15Y/12.7** **HR30Y/12.7** **HR45Y/12.7**

Please choose the right indenter for the scale you choosed.  
Explanation

**HRA/60/D** **HR15N/D** **Return**

Scale/Force/Indenter    Scale/Force/Indenter

Rockwell Scale uBRV-187.5

# Operation Interface

Operator

Sample

Range  To

Load(kg)

Dwell Time(S)

D1  D2

HBW

Conversion

Vickers main interface

Measurement Scale for the Vickers

Vickers scale

## Calibration

Magnification:

Loda(kg) :

Pulses : X  Y

Hardness Value

Brinell,Vickers Calibration

## Calibration

Scale:

Standard Hardness Value : Measured:

Low

Medium

High

Rockwell Calibration

# Ordering Information



**uBRV-187.5 Digital Universal Hardness Tester**  
(Brinell , Rockwell, Macro Vickers)

**uBRV-250 Digital Universal Hardness Tester**  
(Brinell , Rockwell, Superficial Rockwell, Macro Vickers)

# Optional Measurement Software

The 1.3-megapixel camera has clear images, and the indentation measurement is auto-matic/manual.

- Calibration using micrometer or hardness block calibration, automatic calibration.
- Computer automatic measurement image analysis, hardness software accurate correction and gradient diagonalization.

Hardness is converted to other hardness according to national standard and ASTM; Hard-ness statistics and hardness exceeding alarm.

- Automatically generate test report, all test data saved forever, easy to historical inquiry.

The screenshot shows the 'Hardness Tester' software interface. At the top, there are three tabs: 'TestParameters', 'HardnessTesterSetting', and 'GenericSetting'. The main area contains several control panels:

- HardnessType:** A dropdown menu set to 'HRC/150'.
- LoadTime:** A numeric input field set to '5'.
- Indent:** A button.
- Hardness:** A dropdown menu set to 'HRC'.
- ConvertType:** A dropdown menu set to 'HV'.
- ConvertValue:** A dropdown menu set to 'HRC'.
- QualifiedRange:** Two numeric input fields set to '1' and '130', separated by a hyphen.
- Qualified:** A dropdown menu set to 'No'.

Below these settings is a data table with the following columns: 'No.', 'MeasureTime', 'Hardness', 'HardnessType', and 'De'. The table is currently empty. To the right of the table are five buttons: 'Delete', 'Clear', 'Statistics', 'Report', and 'DataQuery'.

Rockwell Measurement Software Interface

# Optional Measurement Software

Hardness Tester

File Device Data Tools Configuration

HV **750.0** HRC **62.2**

#	Hardness	Hardness Type	Qualified	D1(um)	D2(um)	Davg
1	750.0	HV	YES	49.349	50.101	49.72

Edit Delete Clear Statistics Report

Machine Control Statistics Info Album

**Impress**

Force

Objective

Hardness Level

X: 955 Y: 292

System Status: Normal Camera Status: Off

## Vickers Measurement Software Interface

Hardness Tester

File Device Data Tools Configuration

HBW **214.7** HV **214.7**

#	Hardness	Hardness Type	Qualified	D1(um)	D2(um)	Davg
1	215.0	HBW	NO	4,146.188	4,101.181	4,123

Edit Delete Clear Statistics Report

Machine Control Statistics Info Album

**Impress**

Force

Objective

Hardness Level

Load Time(s)

X: 823 Y: 22

System Status: Failed To Load Hardness Tester

## Brinell Measurement Software Interface

# Technical Specification

Model	uBRV-187.5	uBRV-250
	Rockwell:60kgf,100kgf,150kgf	Rockwell:60kgf,100kgf,150kgf; Superficial Rockwell: 15 kgf, 30 kgf, 45 kgf,
Test force	Brinell:5kgf, 6.25kgf, 10kgf, 15.625kgf, 30kgf, 31.25kgf, 62.5kgf, 100kgf, 125kgf, 187.5kgf	Brinell:5kgf, 6.25kgf, 10kgf, 15.625kgf, 30kgf, 31.25kgf, 62.5kgf, 100kgf, 125kgf, 187.5kgf,250kgf
	Vickers:5kgf, 10kgf, 20kgf, 30kgf, 40kgf(392N), 50kgf, 60kgf, 80kgf, 100kgf, 120kgf	Vickers:5kgf, 10kgf, 20kgf, 30kgf, 40kgf(392N), 50kgf, 60kgf, 80kgf, 100kgf, 120kgf
Force Error	< 0.5%	< 0.5%
Brinell Scale	HBW1/5, HBW2.5/62.5, HBW1/10, HBW2.5/15.625, HBW1/30, HBW2.5/31.25, HBW2.5/62.5, HBW10/100, HBW5/125, HBW2.5/187.5	HBW1/5, HBW2.5/6.25, HBW1/10, HBW2.5/15.625, HBW1/30, HBW2.5/31.25, HBW2.5/62.5, HBW10/100, HBW5/125, HBW2.5/187.5 HBW5/250, HBW10/250
Rockwell Scale	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV	
Superficial Rockwell Scale (uBRV-250)	15N, 15T, 15W, 15X, 15Y, 30N, 30T, 30W, 30X, 30Y, 45N, 45T, 45W, 45X, 45Y	
Vickers Scale	HV5, HV10, HV20, HV30, HV40, HV50, HV60, HV80, HV100, HV120	
Hardness Resolution	0.1HBW, 0.1HR,0.1HV	0.1HBW, 0.1HR,0.1HV
Indication Accuracy	Brinell: ±2.5HB, Rockwell:±0.1HR, Vickers:±2 HV	
Repeatability	Brinell:°3.0HB, Rockwell: 0.5HR, Vickers: °2.5HV	
Magnification	Eyepiece: 15X, Objective:2.5X(for Brinell), 5X(for Vickers)(10X, 20X for optional) Total Magnification: 37.5X, 75X Brinell: 37.5X, Vickers: 75X	
Minimum Measuring Unit	0.1µm	0.1µm
Dwelling Time	0-60s	0-60s
Hardness Range	Brinell: 8 ~ 650HBW Rockwell: 20 ~ 100HR Vickers: 8 ~ 2900HV	
Data Output	LCD display, U disk	
Test Height	Rockwell: 220mm, Brinell /ickers: 150mm	
Test Throat	200mm	
Executive Standards	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	
Dimensions	Machine Size: 560*350*800mm, Packing Size: 730x450x910mm	
Weight	N/W: 70kg, G/W: 99kg	
Power	AC220V+5%, 50-60Hz	

# Packing List

Item	Quantity	Item	Quantity
Lighting (Internal Lighting, External Lighting)	Each 1 pc	Hardness Test bloc k(HRC High, HRC Low, HRB, HBW2.5/187.5, HV30)	Each 1 pc
Rockwell Diamond Indenter	1 pc	Brinell Carbide Ball Indenter(2.5, 5mm)	Each 1 pc
Vickers Diamond Indenter	1 pc	Rockwell Carbide Ball Indentor 1.5875mm	1pc
Eyepiece 15X	1 pc	Objective (2.5X, 5X)	Each 1 pc
Sliding Test Table	1pc	Large, Medium, V-shape Test Anvil	Each 1 pc
U-disk, Touch Pen	Each 1pc	Fuse 2A	2pcs
Level	1pc	Adjusting Level Screw	4pcs
Power Cable	1pc	Dust-proof Cover	1pc
Certificate, Warranty Card	1copy	Instruction Manual	1copy



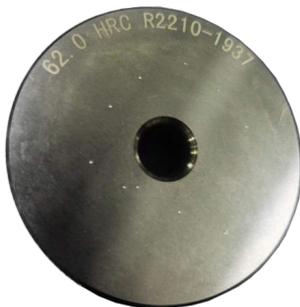
Rockwell Diamond Indenter



Vickers Diamond Indenter



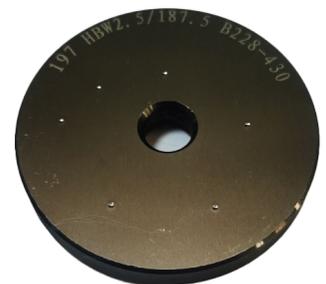
HRB Rockwell Block



HRC High Rockwell Block



HRC Low Rockwell Block



HBW Brinell Block



Brinell Ball Indentor



Large Test Anvil



Medium Test Anvil



V-shape Test Anvil