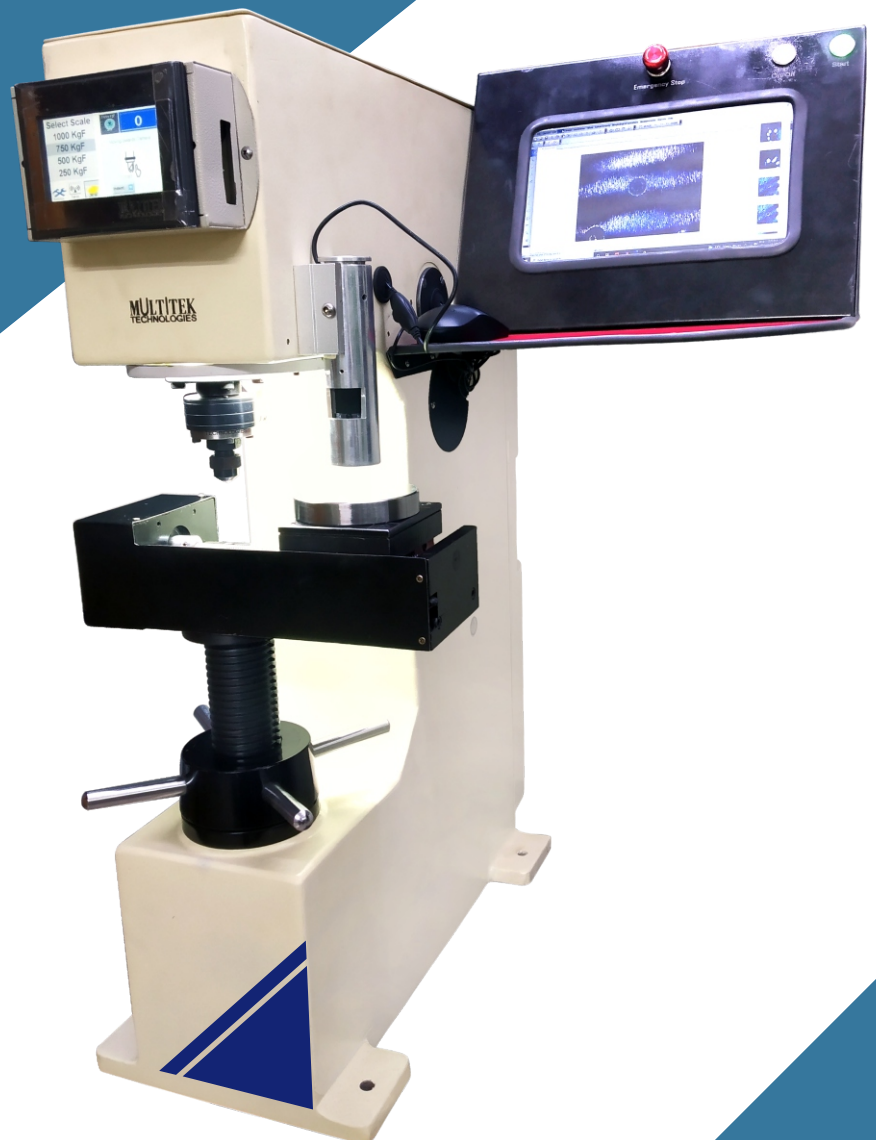


# Brinell *Hardness Tester*

LCB-1000

QUALITY FUNCTIONALITY  
AND DESIGN FOR  
PERFECT HARDNESS  
TESTING



## COMPLETE BRINELL HARDNESS TESTING

Highly accurate in determining Brinell Hardness values of materials which are used to evaluate its resistance to deformation, scratching, indentation, or penetration

## FEATURES

### Main Tester

#### 1) Innovative closed-loop load cell technology

- Eliminates the need for handling heavy weights or high-maintenance hydraulic load systems
- Absence of mechanical weights eliminates friction and makes the tester less sensitive to misalignments caused by vibrations
- Highly accurate measurements within 0.5% for all test loads
- Approximately 50% less weight than the traditional dead type tester.

#### 2) Can be supplied with a built-in digital microscope, tablet PC with integrated automatic image analysis software, and/or automated test cycle.

#### 3) The built-in Touch Screen will guide the operator through the selection process of proper Brinell scale for different materials and will inform the operator of what indenter needs to be utilised for the selected Brinell scale.

#### 4) Selectable dwell time can be set via the Touch Screen Display.

#### 5) Automatic test cycle

- Load application, dwelling, and unloading is performed automatically.
- Improves the accuracy and reproducibility of test results by reducing human operator interaction.
- The optional stepper motor can be supplied to automate the lifting and positioning of the test anvil prior to load application.

#### 5) The fully automatic image analysis software can be installed on most modern desktop or laptop PCs and offers the following features:

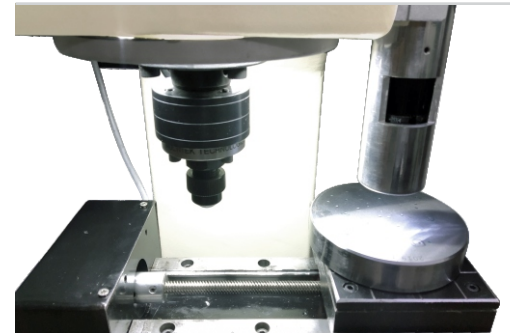
- USB camera capture the indentation image, and powerful image analysis software measures the size of the indentation and automatically calculates the Brinell hardness value based on the applied load.



- USB connection to PC and supports Windows.
- A large number of results can be stored including the image from each test.
- Data can be exported to MS Excel or other software.
- Can perform measurements for all test loads between 62.5 kgf and 3000 kgf, for indenters 2.5 mm, 5mm, and 10mm, and for Brinell hardness values between 3.18 HBW and 658 HBW.

## APPLICATIONS

- ❖ Suitable for Brinell hardness in production, shop floor, and lab environments
- ❖ Ideal for low to medium testing volumes



## ADVANTAGES

- ❖ Greatly simplifies the indentation and measurement process, allowing for more accurate results more quickly than traditional testers.
- ❖ Can eliminate the need for separate microscope and PC.
- ❖ Market leading price-performance ratio.

## THEORY AND METHOD

### As explained in ASTM E10-18:

“The Brinell hardness test provides useful indentation information about metallic materials. This information may correlate to tensile strength, wear resistance, ductility, or other physical characteristics of metallic materials, and may be useful in quality control and selection of materials.

$$\text{BHN} = \frac{2P}{\pi D \left( D - \sqrt{D^2 - d^2} \right)}$$

Brinell hardness tests are considered satisfactory for acceptance testing of commercial shipments.

An indenter of known diameter is pressed into a material with a known force load, typically measured in kilogram-force (kgf). The diameter of the indentation after the load is measured, *and these values are input into the following formula:*

Where

**BHN** = Brinell Hardness No.

**P** = Force load in kgf

**D** = Diameter of ball indenter (in mm)

**d** = Diameter of indentation (in mm)

## TECHNICAL SPECIFICATIONS

Highly accurate in determining Brinell hardness values of materials which are used to evaluate its resistance to deformation, scratching, indentation, or penetration

<b>Available Test Loads</b>	kgf	62.5, 100, 125, 187.5, 250, 500, 750, 1000, 1500, 3000		
	N	612.9, 980, 1226, 1839, 2452, 4900, 7355, 9800, 14700, 29400		
<b>Load Dwell Duration</b>	2 s – 99 s, can be set by Touch screen and stored			
<b>Tungsten Carbide Indenter</b>	Ø10 mm included standard, Ø5 mm and Ø2.5 mm sizes ordered separately			
<b>Standard Reference Blocks</b>	125-350 HBW 10/3000, others available by request			
<b>Measuring Range</b>	3.18 HBW – 658 HBW			
<b>Indentation Measurement Accuracy (QualiScope option)</b>	± 0.5%			
<b>Accuracy of Brinell Hardness Value</b>	Hardness Range	Error (%)	Repeatability (%)	
	HBW ≤ 125	± 2.5	≤ 3.0	
	125 < HBW ≤ 225	± 2.0	≤ 2.5	
	HBW > 225	± 1.5	≤ 2.0	
<b>Maximum Sample Height</b>	220 mm			
<b>Maximum Sample Depth</b>	240 mm			
<b>Power Supply</b>	220 VAC, 50Hz, 4 A			