

# MHB-3000

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Core technology with independent intellectual property rights, certificate of CE, GOST and etc.. ●

## Electronic Brinell Hardness Tester



### Overview

Mitech MHB-3000 Electronic Brinell Hardness Tester, based on the mechanical principle of hard alloy indenter pressing into the sample surface to produce indentation, realizing the material hardness measurement by measuring the diameter of the indentation, it is novel and high reliable with accurately measurement. LED eight digital tubes and luminescent secondary tube display, simple operation, it can visually display the test results to meet the hardness testing requirement for the quality control and qualified assessment of the workpiece sample. It is widely used in metal processing and manufacturing, various metal material's failure analysis and other fields like colleges and research institutions. It is the new type Brinell hardness testing instrument for testing the hardness of the materials like cast iron, steel, soft alloy and so on.

## Technical Parameters

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The power series

Testing Force Application Mode

Indenter objective lens conversion mode

Measuring range

display usage

Microocular magnification

Test force holding time

Minimum division

Max sample height

Max distance from head to body

Voltage

Size

Total Weight

### Technical Indicators

612.5N(62.5kgf) ; 980N(100kgf) ; 1225N(125kgf) ; 1837.5N(187.5kgf) ;  
2450N(250kgf) ; 4900N(500kgf) ; 7350N(750kgf) ; 9800N(1000kgf) ;  
14700N(1500kgf) ; 29400N(3000kgf) ;

Automatic (loading, holding, unloading)

manual operation

8 – 650 HBW

LED eight digital tube display

20 times

5~60s

0.005 mm

220mm

270mm

AC 220V/50Hz

753×550×236 mm

123 kg

## Indication accuracy

Standard Block	Indicating Error%(H)	Repeatability Error
≤125	±3	0.03 $\bar{d}$
125<HBW≤225	±2.5	0.025 $\bar{d}$
> 225	±2	0.02 $\bar{d}$

H:Hardness of standard block  $\bar{d}$ : Indentation diameter(average)

## Applied condition

- Cast iron, steel, non-ferrous metals, soft alloy of metal material (please see table below);
- Hard plastic, bakelite and some nonmetallic material.

materials	Brinell hardness	$0.102F/D^2$
Steel and cast iron	< 140	10
	≥ 140	30
Copper and copper alloys	< 35	5
	35~130	10
	> 130	30
Light metals and their alloys	< 35	2.5
	35~80	5 , 10
	> 80	10

F : Test force(k)    D : Head diameter(mm)

## Application field

- Metal processing industry quality control links
- The failure test of metal material
- Universities teaching and demonstration test
- The material hardness test of scientific research institutions

## Working conditions

- Working Temperature : 18°C ~ 28°C ;
- Relative Humidity : ≤65% ;
- Clean environment, no vibration ;
- No corrosive media around.

## Features

- Suitable for measuring the surface is more rough cast iron, steel and other non-homogeneous specimen Brinell hardness;
- Using electronic automatic loading system, remove the load weight;
- With ten test force, a wider range of tests, higher precision;
- The control part is the closed-loop control system, which can dynamically reflect real load changes.
- Modeling novel, strong structure, high reliability and operability, intuitive, high test efficiency;
- Equipped with excellent performance of the carbide indenter, high hardness, wear resistance, good toughness, while high temperature, corrosion resistance, to ensure that the instrument measured standard, stable and reliable;
- Host stability is good, the workpiece surface quality and man-made factors on the hardness of the test results less impact;
- Panel with two-color LED display, red for small gear, green for large-scale force;
- Compliance with ISO 6506, ASTM E10-12, ASTM E-384, GB / T231.2, JIS Z2243 and other relevant domestic and foreign standards.

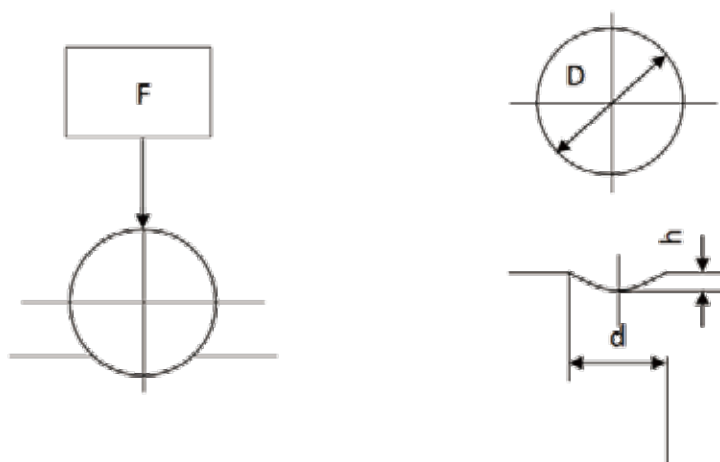
## Working Principle

Hardness is not a simple physical quantity, but a reflection of the material elasticity, plasticity, strength and toughness. and hardness test is the most simple mechanical testing method to determine the metal material performance. Also one of the important means to judge the products quality.

Brinell hardness test: Test force(F) is on the steel ball with certain diameter(D), pressed on sample surface. After a period of time, cancel the force. The indentation diameter is get by measuring with micrometer ocular, thus to calculate the average pressure(N/mm<sup>2</sup>). Then we can get the Brinell hardness of the sample as below:

$$HB = 0.102 \times \frac{2F}{\pi D (D - \sqrt{D^2 - d^2})}$$

Tips : F : Test force on steel ball, unit:N ; D : Diameter of steel ball, unit:mm ; d : Indentation diameter, unit:mm  
0.102 : Rule coefficient



## Configuration

	No.	Item	QTY	Remarks
	1	Main body	1	
	2	20×Lens	1	
	3	φ2.5mm ball	1	
	4	φ5mm ball	1	
	5	φ10mm ball	1	
	6	Small testing table	1	Diameter 80mm
	7	Large testing table	1	Diameter 200mm
Standard Configuration	8	V-shape testing table	1	For cylindrical sample
	9	Standard Hardness Block HBW/3000/10(150-250)	1	
	10	Standard Hardness Block HBW/1000/10(75 ~ 125)	1	
	11	Standard Hardness Block HBW/187.5/2.5(150-250)	1	
	12	Fuse wire(2A)	3	
	13	Power Cable	1	
	14	RS232 Cable	1	
	15	Plastic dust cover	1	
	16	Attached files	1	
	17	Instrument case	1	



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