MHBS-3000-XYZ

- Professional manufacturer, best quality with competitive price
- Recommended by the world UT NDT inspection association for training and examination
- Core technology with independent intellectual property rights, certificate of CE, GOST and etc..

Automatic Brinell Hardness Tester

Overview

Mitech MHBS-3000-XYZ Automatic 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, The use of photoelectric sensor system to high magnification optical measurement, equipped with automatic turret device, high sensitivity touch screen operation interface, can achieve automatic loading and unloading of electronic, automatic indentation marks, microscopic auto focus measurement indentation diameter, GB / ASTM hardness automatic conversion, automatic test report and other functions, easy to operate, high detection efficiency. It can 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's to improve the work efficiency, product qualification rate, saving production costs necessary professional precision testing equipment.

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Technical Parameters

Technical Parameters	Technical Indicators
The power series	612.5N(62.5kgf) ; 980N(100kgf) ; 1225N(125kgf) ; 1837.5N(187.5kgf) ; 2450N(250kgf) ; 4900N(500kgf) ; 7350N(750kgf) ; 9800N(1000kgf) ; 14700N(1500kgf) ; 29400N(3000kgf) ;
Test force accuracy	0.1% higher than the average Brinell hardness of 1% (1000Kgf above)
Measuring range	8 – 650 HBW
Conversion scale	GB / automatic
Brinell scale	HBW2.5/62.5、HBW2.5/187.5、HBW5/125、HBW5/250、HBW5/750、HBW10/100、HBW10/1500、HBW10/3000、HBW10/250、HBW10/500、 HBW10/1000
Testing Force Application Mode	Automatic (loading, holding, unloading)
Indenter objective lens conversion mode	Automatic
Indentation measurement	Automatic
Image focus	Automatic or manual
Turret	Automatic or manual
Camera (pixel)	1.3 million / 3 million
Indentation measurement	Automatic or manual
Hardness value display	Automatic
display usage	LCD touch screen
Test force holding time	5~60s
Minimum division	0.001 mm
Applicable material maximum height	400mm
Max distance from head to body	250mm
Test report	Automatic
Voltage	AC 220V/50Hz
Size	760*320*1050mm
Total Weight	200kg

Indicating 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)

Working condition

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

Application

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

Features

- Widely used in metal processing and manufacturing, various metal material's failure analysis and other fields like colleges and research institutionsand other fields;
- High degree of automation, accurate measurement, suitable for large demand or high precision measurement of high-end users;
- Equipped with portable high-definition USB camera, ergonomic design, feel comfortable, delicate and durable;
- Easy to operate, can automatically identify the edge of indentation, automatic removal of burrs to achieve accurate indentation measurement, synchronous display;
- With threshold overrun automatic alarm function, apply to the bulk of finished products or semi-finished pieces of paper-by-piece detection;
- Image and the corresponding measurement data files can be set to automatically store, open, store, print, modify, call and other operations, generate measurement reports;
- Real-time statistical measurement data, display the maximum, minimum, average, deviation, CP, CPK and so on;
- The automatic turret mechanism can realize the automatic switching function between the objective lens and the indenter and improve the detection efficiency;
- Using touch screen display interface, display operation integration, simple and intuitive, the technical requirements of the operator is not high;
- 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;
- Equipped with high-speed thermal printer, you can quickly print out the test data;
- According to ASTM_E140, DIN 50150, GBT_1172 and other different standards for hardness conversion;
- Diameter measurement accuracy of up to 0.001mm, meet ASTM E 10, GBT 231, ISO-6506 and other standards.

Applied condition

- Cast iron, steel, nonferrous metals, soft alloys and other metal materials;
- Hard plastic, bakelite and some other non-metallic materials;

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)

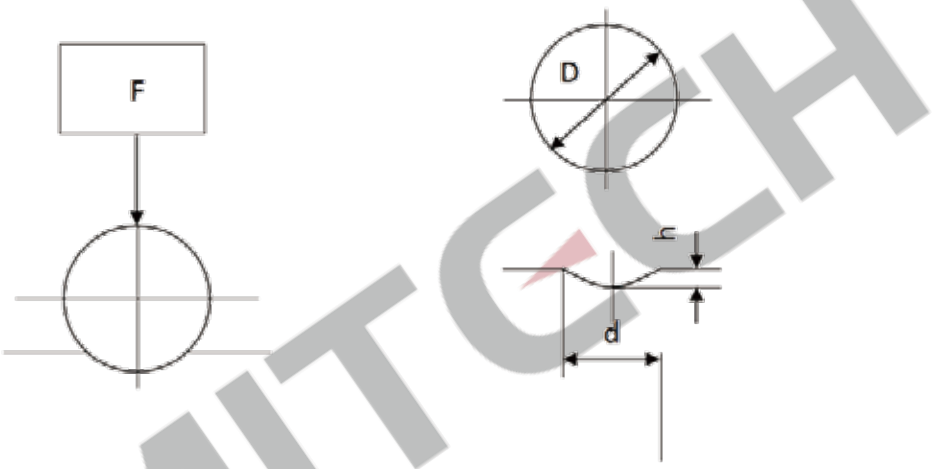
Working Principle

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^2). Then we can get the Brinell hardness of the sample as below

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

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.	Configuration	QTY.	备注
Standard Config	1	Main unit	1	
	2	Automatic Brinell Hardness Measure System	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
	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	Industrial digital camera	1	
	13	Automatic measurement and image processing system	1	
	14	Fuse wire(2A)	3	
	15	Power line	1	
	16	Plastic dust cover	1	
	17	Attached files	1	
	18	Instrument case	1	