ISHB-D200/D300

AUTOMATIC DIGITAL BRINELL HARDNESS TESTER OPERATION MANUAL

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EN -- Please scan the QR code or visit the website for operation manual.
IT --- Scansiona il codice QR oppure visita il sito web per il manuale d'uso.
CZ -- Pro návod prosím naskenujte QR kód nebo navštivte webovou stránku.
ES -- Por favor, escanee el código QR o visite la página web para ver el manual de instrucciones.
FR -- Veuillez scanner le QR Code ou visiter notre site web pour accéder aux manuels d'utilisation.
DE -- Bitte scannen Sie den QR-Code oder besuchen Sie die Website für die Bedienungsanleitung.
PT -- Para aceder ao manual de instruções, por favor, faça a leitura do código QR ou visite o nosso site.

MN-ISHB-D200/D300-E
V1

Attention

1. Please don't rotate lift handwheel during dwelling.
2. The power socket for this apparatus shall be of a one-way 3-pins type, the earth terminal shall meet the specified requirements of grounding protection.
3. Please fix the lever and stage as factory default before moving the machine, also recover the package and protection when transport the machine.
4. The dwell time of the test force: 10 to 15 seconds for ferrous metals, 30 seconds for nonferrous metals, and 60 seconds for hardness values less than 35HBW.
5. The surface of the test piece shall be smooth, free of dirt, scale, pits and significant processing marks.
6. The hardness value be measured on the specimen, and the distance between two adjacent indentation centers was not less than 3 times of the indentation diameter. The distance from the center of indentation to the edge of the specimen was not less than 2.5 times of the indentation diameter. Do not follow this to test, indentation will appear asymmetry, hardness could not get the correct test data.
7. The minimum thickness of the specimen shall be more than10 times the depth of the indentation. There can't be visual deformation traces on the back of specimen after testing.

Description

1. **Brief introduction:**

This Model Digital Brinell Hardness Tester is a new and high-tech product combining the optical, mechanical and electronic techniques.

The instrument is adopted such technology as computer making programs with software and photoelectric sensor, etc. Inputting by keys, the tester has such functions as select the test method and hardness exchange scales, storage, etc. And all test data such as the test method, the test force value, the test indentation length, the hardness value, the dwell time of test force, test force and hardness measuring range, test numbers can be showed on its large LCD screen, besides it can be inputted year, month and date by keys, test the result, handle data and the test results can be automatically stored in a fixed format to the U disk attached to facilitate the connection and computer to deal with.

The Brinell hardness test is suitable for to test hardness value of the cast iron, steel, non-ferrous metal and soft alloy materials, besides, it is also fit for testing hardness value for some non-metal materials such as hard plastic and Bakelite, etc. therefore the instrument is widely used in the factory, workshop, laboratories, universities and the scientific research institutes.

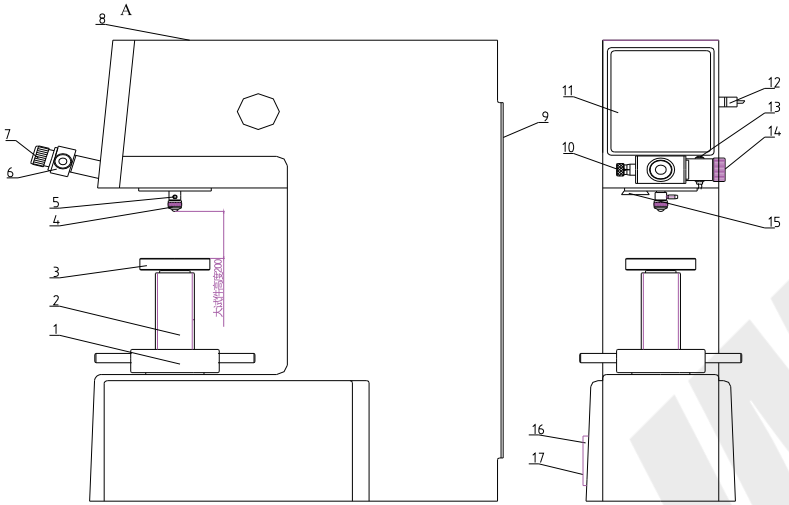
2. **Main technical specifications:**

Measuring range: 8 ~ 650HBW
Reading method: digital
Test forcr: 62.5, 100, 125, 187.5, 250, 500,
750, 1000, 1500, 3000kgf
Max. workpiece height: 200mm
Max. workpiece depth: 155mm
Load control: automatic (load/dwell/unload)
Load dwell time: 5 ~ 60s
Measuring microscope：20X, the resolution is 0. 625μm
Power supply: 220V/110V, 50/60Hz
Dimension: 550×210×750mm
Weight: 110kg

3 Accuracy and repeatablility:

Standard value	Accuracy	Repeatability
≤125HBW	±3%H	3%d
125<HBW≤250	±2.5%H	2.5%d
>250HBW	±2%H	2%d
H—Standard value of test block	d—diameter of indentation	

4 Structure:

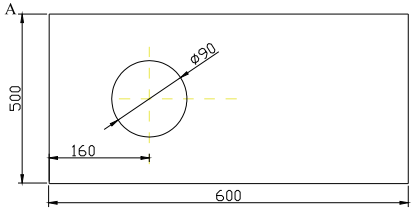


1. Lift handwheel 2. Thread rod 3. Stage 4. Thread rod 5. Locking screw 6. Eyepiece (Measuring microscope) 7. Eye-mask 8. Top cover 9. Back cover 10. Scale moving handwheel 11.Touch screen 12.round socket 13. Measuring button 14.Fine adjustment 15.Objective 16. Power switch 17. U disk socket

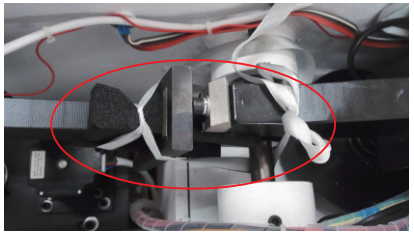
Unpacking and installation

1. Open the wooden box, take out the protection bubbles and accessary box.
   Open the hardness packaging bag, take out dust cover and operation manual etc.
   Remove two M10 screws on the base board as picture 1, to move the hardness tester.
   The hardness tester should be put on a stable stage after unpacking, and take the base when moving. And the levelness of the stage should be no more than 1mm/m.
   Note: Please wear gloves to prevent injury during process.
2. Use 8mm allen wrench to remove two bolts on the button of wooden box.

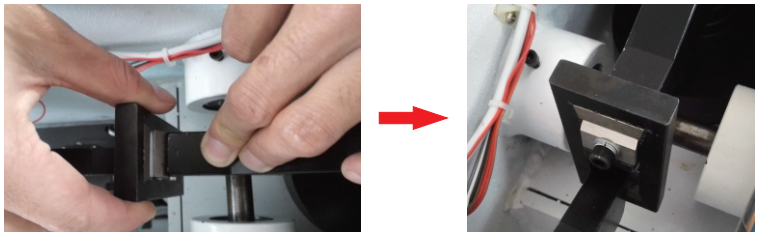
3. A hole shall be drilled at an appropriate location on the stage to enable the thread rod to go down and get the maximum measuring height.

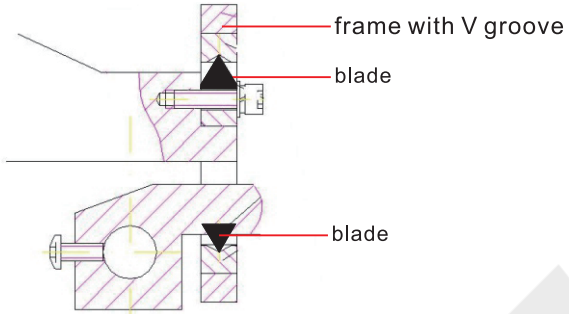


3. Open the top cover and remove the fixing material as following.



4 Press the front lever and make fit blades into the V groove of the frame. Please note the blades should be properly fitted both up and down.

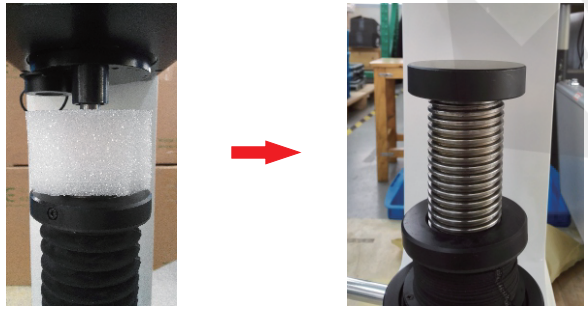




5 Re-mount the top cover.

6 Turn down the stage and remove the protection foam, also the move down the cover of the thread rod and then put on the stage.

Note: **The thread rod should be oiled for rust protection.**



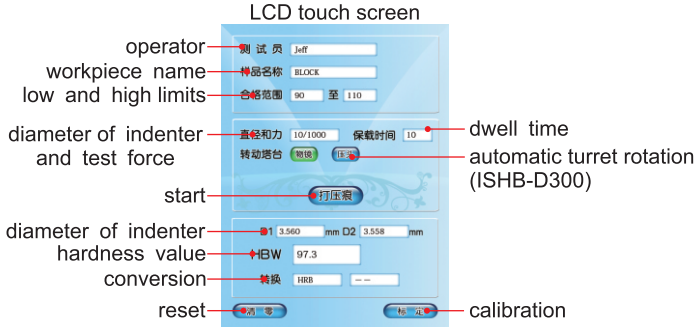
7 Insert the eyepiece into the sleeve and connect the cable to the port on the side of machine.

Note: The eyepiece should be completely inserted in to the sleeve, otherwise, the measurement will be not accurate.

8 Insert the U disk, connect the power cable, turn on the machine.

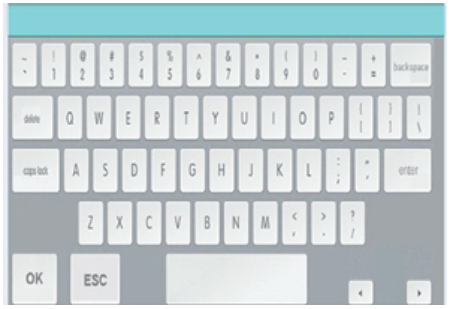
Operation

1 Touch screen:



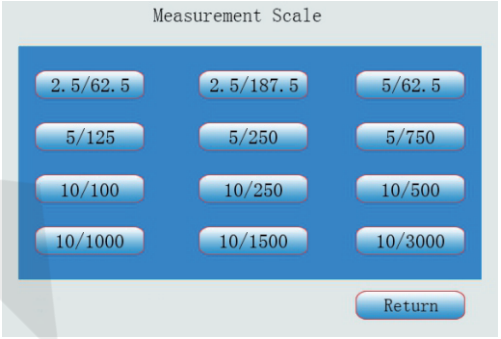
1. Information input

1.1 Input Operator and Sample
Click the textbox to the right of “Operator”and “Sample”Then turns out a keyboard in the screen. Input the name of Operator and Sample and click “ OK”. If don't want to change the name that already exists on the screen, click “ESC”.

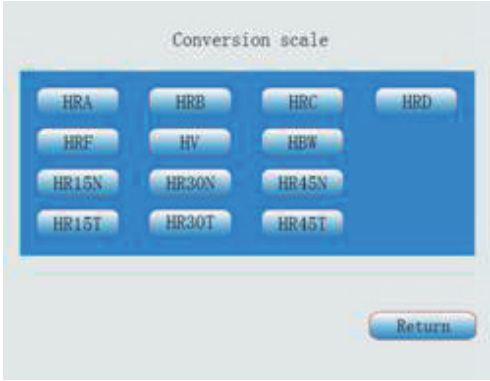


1.2 Input Tolerance and Dwell time
Click the textbox to the right of “Tolerance” and” Dwell time” .Then input the number . And click “OK”. If want tocancel, click “ESC”.

2. Choose hardness scale
Click on the right side of force type and choose the force.



3. Conversion
Click “Conversion” and choose the scale. If there is no need to modify, click “Return”.



❷ Usage of the hardness tester:

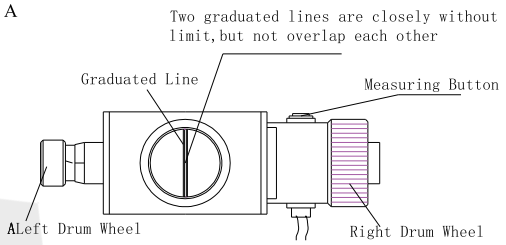
1. Before turning on the hardness tester, make sure that the back of the hardness tester is inserted in the U disk, If there is no U disk, hardness measurement can not save the measurement data very well. After connecting to power, the program will first initialize the U disk. After 3 seconds appears the main interface, The instrument is set up at the factory to reset, please refer to the panel operation.

2. If you test the Brinell hardness of 1000kgf force, install the 10mm ball indenter according to the display or instruction manual, Push the indenter into the spindle hole, close the bearing surface, and press the notch flat face against the ram, Slightly tighten the thumbscrew.
the standard test pieces or test pieces on the test table, should be slowly and slightly rise the test table, until the specimen surface from the indenter about 0.5mm distance, press the "indentation" key, the indenter automatically fall, At this point loading, unloading test force (motor start), test force loading, unloading finished, the objective lens to the front position, the screen back to the main interface.

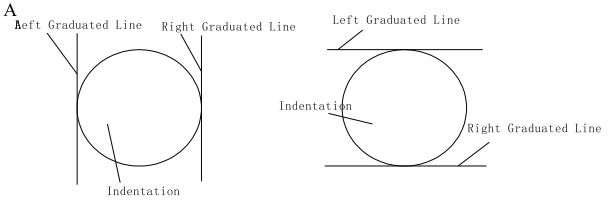
Note: when the motor is working, it must not be moved to the test piece, must before moving please wait for the end of the loading and unloading , otherwise it will damage the instrument.

3. indentation can be seen in the micrometer eyepiece field of view, then you can measure the indentation diagonal's length in the micrometer eyepiece. If the indentation is not clear, you can slowly turn the rotary wheel , move up and down the test sets till the image of the Indentation is the clearest. If two graduated lines seem vague in the Eyepiece, adjust the Eye Guard till the graduated lines are the clearest, this is according to personal vision.

4. Rotate the Right Drum Wheel to move the graduated line of eyepiece, enable two graduated lines to be close. When inner side of two graduated lines are closely without limit (the inner side of graduated lines reach critical state with no space between them to allow the light penetrate, but two graduated lines are prohibited to overlap each other), press “Reset”, at this time, the d1: 0000 value on the main screen is zero, at the zero position for technique term. Now the length of diagonal line of indentation can be measured in the Eyepiece.



5. Rotate the Right Drum Wheel to let graduated lines separate each other, turn the Left Drum Wheel and the inside of the left line tangent to the left edge of the alignment of the indentation diameter; then turn right to right medial groove drum, tangent alignment on the right edge of the indentation diameter. After the press button measurement on eyepiece, measuring the diameter of the length of D1; 90 degrees rotation eyepiece, the indentation diameter length of D2 measured by the above method press measurement button, then the screen display the measurement of hardness and the hardness of the conversion value, if that measure error can be repeated again in the above order.



6. In the current several times after the test, the test results are stored in the disk of U instrument.

7. Hardness correction
hit a little indentation on the standard hardness block, and then click on the "calibration" interface. Fill in the hardness value of the standard hardness block in the "hardness value" box, measure the indentation, press the eyepiece button, and then press "Save calibration", the hardness value has been calibrated.

Maintenance

1. It is necessary to read carefully the usage instruction manual before the operation of the present instrument, in order to know the operational procedures and the precautions so as to avoid the damages to the instrument caused by the incorrect operation.
2. The power source of present instrument should be equipped with a voltage-regulator and a reliable grounded device. It is prohibited to dismount and alternate without permission all the electric component parts, the switches and the sockets as well as their fixed positions; otherwise the instrument will be error and caused unsafe accidents.
3. When turn the turret, the position must be accurate and correct.
4. During the loading and unloading of test force, the instrument will produce a slight sound, it means that the instrument is regulating the structure automatically, and it is working in order.
5. If the instrument is at malfunction during loading of test force, please shut down the instrument immediately, and turn back down the test table, then switch on the instrument, the instrument will regulate automatically.
6. It is necessary to oil and lubricate periodically the moving surface on such parts as the thread rod, etc.
7. The instrument should be disconnected with the power source after it has finished the measurement completely.
8. The instrument should be kept clean. It should be covered with Anti-Dust Bag after test. The Standard Test Blocks and Ball Indenters should be coated rust protecting oil to avoid rusting.