Leeb Hardness Tester

Code: 86252DL

User Manual V1.11

Please read this manual carefully before using and reserve it for reference.

I. Product Introduction

The Leeb hardness tester detects hardness based on the Leeb hardness measurement principle and can measure the hardness of a variety of metal materials. The tester adopts advanced dual coil technology for good repeatability and measurement accuracy. The probe has a built-in direction sensor, which automatically compensates for the measurement error in different impact directions. The instrument has a variety of hardness scales, which can be converted between Leeb (HL), Vickers (HV), Brinell (HB), Shore (HS), Rockwell (HRA), Rockwell (HRB) and Rockwell (HRC). The instrument employs an impact device DL featuring a thin and long body suitable for hardness measurements in long, narrow grooves, on tooth surfaces, or on the bottom of bores..

Standards for the product:

- *GB/T 17394.1-2025 Metallic materials-Leeb hardness test-Part 1: Test method*
- *GB/T 17394.2-2022 Metallic materials-Leeb hardness test-Part 2: Verification and calibration of hardness tester*
- *GB/T 17394.3-2022 Metallic materials-Leeb hardness test-Part 3: Calibration of reference blocks*
- *GB/T 17394.1-2025 Metallic materials-Leeb hardness test-Part 1: Test method (including conversion tables)*

II. Parameters

Probe	Impact device DL
Hardness Scales	HL, HV, HB, HS, HRA, HRB, HRC
Measurement Range	HLDL(170-960), HV(194-976), HB(140-651), HRC(19.8-68.5), HS(26.4-99.5), HRB(59.6-99.6), HRA(60-85.5)
Resolution	1HL
Accuracy	±12 HL, ±6 HL (typical)
Repeatability	6HL (factory standard)
Display	128 * 64 dot matrix OLED
Power Supply	Rechargeable lithium battery 3.7V@250mAh, full charge for over 5000 continuous measurements
Charging Port	USB(Type-C)
Size	203*34*24 mm

Weight	78g
Operating Temperature Range	0℃~50℃, 0~85%RH(no condensation)
Storage Temperature Range	-10℃~60℃, 0~85%RH(no condensation)
Supply Voltage	DC5V
Operating Current	10mA
Operating Power Consumption	50mW

III. Features

1. The tester uses advanced dual coil technology for good repeatability and measurement accuracy.
2. Direction sensor inside the probe can automatically compensates for the measurement error of different impact directions.
3. Integrated handheld design, compact and portable
4. Impact device DL is suitable for hardness measurements in long, narrow grooves, on tooth surfaces, or on the bottom of bores.
5. Providing a variety of hardness scales to switch, no more tedious checking manually
6. Users can calibrate the standard parts to eliminate the error.
7. Low power consumption, and it can work continuously for more than 5000 times.

IV. Operation

1. Power on/off

Power on

Short press Enter button, the version and the serial number of the tester are displayed on the screen after powering on, and then the instrument will enter the measurement interface and the measured values before powering off are displayed.

Power off

Long press the Enter button to shut down the tester or the instrument will automatically shut down when the time without any operation is longer than 3 minutes.

2. Measurement

Loading

Push down the loading sleeve of the probe to lock the impact body.

Positioning

Press the probe firmly against the surface of the object to be measured and keep it still.

Measurement

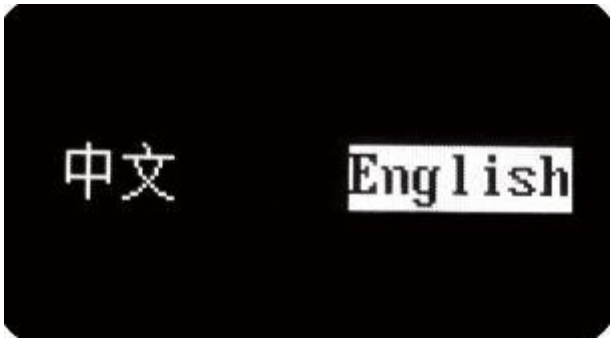
Press the release button on the top of the probe to measure the hardness of the object.

3. Setup and Calibration

Press and hold the Enter button for 3 seconds in the off state or press the Enter button briefly in the measurement state to enter the Main Menu of the instrument with five sub-options, press the ▼ briefly to select [Language, Material, Hardness, Unit, Calibration, Exit], short press the Enter button to confirm the selection.



- **Language**: Short press Enter button to enter the language option and press ▼ button to select the right language, then press Enter button to confirm your selection.



- **Material**: Short press the Enter button to enter the material selection interface, short press ▼ button to select the corresponding material, then press the Enter button to confirm the option



- **Hardness Unit**: Press the Enter button briefly to enter the hardness unit selection interface, press the ▼ to select the hardness unit, press the Enter button briefly to confirm.



- **Calibration**: Short press the Enter button to enter the calibration interface, the screen prompts [Please measure the standard hardness block] and flashes, then you can measure the standard hardness block (single or multiple times). After measurement, the cursor moves to the actual value area, then press Enter or ▼ button to adjust the actual value to the standard value of the hardness block. Long press the ▼ button to save the value, and the instrument indicates “Calibration succeed”, then exit to main menu interface. In addition, after entering the calibration interface, you can exit directly to the main menu interface by pressing the Enter button when there is no standard hardness block to be measured, and the screen will show “Calibration Failed!”.



- **Exit:** Short press Enter button briefly to exit the main interface and enter the measurement interface.

4. View measurement records

In the measurement mode, press ▼ button briefly to view the historical data in the browse interface. The instrument stores 9 sets of data totally, and the oldest recorded value is automatically deleted when there are more than 9 sets of data. Record 1 is the earliest test data, and so on backward. Recorded data will not lost when the instrument is turned off.

In the history view mode or measurement mode, press ▼ button briefly and the screen will show a data deletion prompt, press Enter button to select [Yes] to delete all recorded data and press the Enter button to delete all record data.

V. Attentions

1. The surface of the test object shall not be too rough， and it needs to be flat, smooth, free of oil and grease, transmitting a metallic luster.
2. The minimum mass of the test object is 5Kg, and the minimum thickness is 25mm. For objects whose weight and thickness do not meet the requirements, the test must be coupled with solid bracing.
3. The maintenance of the impact device. After using the device about 1000-2000 times, the user needs to use a nylon brush to clean the instrument's conduit and impact body. When cleaning, the user needs to unscrew the support rod of the catheter first, then remove the impact body, insert the nylon brush into the catheter in a counterclockwise direction, then pull out the bottom and repeat five times, and finally put the impact body and support rod.
4. After use, the impact body should be loosened.
5. The use of various lubricants is strictly prohibited in the impact device.
6. When measuring, the distance between any two indentations should not be less than 3mm, and the distance between the center of the indentation and the edge of the object to be measured should not be less than 5mm.

7. When the device displays “Low Battery”, batteries should be replaced.

8. The battery needs to be charged regularly to prevent damage from excessive discharge especially there is no operation of the instrument over 6 months.

VI. Packing list

No.	Product Name	Quantity	Unit
1	Leeb Hardness Tester	1	Set
2	Locating Sleeve	1	pcs
3	USB data cable	1	pcs
4	Nylon Brush	1	pcs
5	User Manual	1	pcs
6	Calibration Report	1	pcs

VII. Service

1. The gauge has one-year warranty. If the gauge works abnormally, please send the whole gauge to our company for maintenance.
2. Provide users with spare parts and lifelong maintenance services.
3. Provide the users with the gauge calibration service.
4. Free technical support for the long term.