

HLN-11A Portable Leeb Hardness Tester



1.Application:

HLN-11A multifunctional Leeb hardness tester is used to test the Leeb hardness of ferrous metal and nonferrous metal materials.

2.Features:

- 2.1. Automatic digital display, without human reading errors;
- 2.2. The measured Leeb hardness value can be converted into Brinell, Rockwell, Vickers and Shore hardness;
- 2.3. The attached printer can print the testing value immediately;
- 2.4. Strong adaptability to working environment, widely used in the quality monitoring and control in production field;
- 2.5. Small volume, portable and easy-to-use;
- 2.6. The testing accuracy meets the standards of GB/T17394 and JB/T9378.

3.Main Technical Parameters

Model	HLN-11A
Power supply	DC 6.0V
Work temperature	1-40℃
Dimension	268 x 86 x 47mm

Weight	About 0.67kg
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4. Main Accessories

Accessories	Quantity
Small positioning cap	1
Binder	1
Leeb hardness standard block	1
Charger	1

5. Specific Types:

Model/Specifications	D	DC	D+15	G
Range of measuring	330-890HL		346-890HL	300-650HLG
Impact energy	11Nmm			90Nmm
Dimensions	Φ20x150mm	Φ20x85mm	Φ20x165mm	Φ20x250mm
Test direction	Any direction			
Weight	75g	50g	80g	250g
Weight of specimen	5.5g			20g
Diameter of Tungsten carbide ball	3mm			
Application	Basic type, used to test the hardness of most parts.	Used to test the hardness of inner bores and small parts.	Used to test the hardness of tooth surfaces, cylinder inside surfaces and concave surfaces.	Used to test the hardness of steels, cast steels, gray cast iron, nodular cast iron, nonferrous metal and other materials.

HLN160 Portable Leeb Hardness Tester



1.Application:

- 1.1.Hardness measurement of products for mass producing.
- 1.2.Site hardness test for machinery after installation or permanent assembly parts.
- 1.3.Hardness measurement of heavy parts.
- 1.4.Hardness measurement of the mould cavity.
- 1.5.Hardness measurement of small space machinery.
- 1.6.Failure analysis of equipment.
- 1.7.Distinguishing metal materials in stock. 1.8.Hardness controlling test for the heat treatment of anneal,temper,quench,etc.

2.Main Function:

- 2.1.Self-testing,instauration function, insure system to work normally.
- 2.2.Auto power-off in 5 minutes;
- 2.3.Adopt two kinds of operation methods:the direct method, the menu method, operate convenience.
- 2.4.Large screen (dot matrix LCD), humanized interface, the contents is abundant, the writing and sketch beauty,clear, be free from the influence of the motion of the electric voltage.
- 2.5.All interfaces have an operation to hint, complete various operation easily.
- 2.6.The lord manifestation interface can show date,time,canned data,battery information, overrun tip,impact device ,direction,material and hint operation etc.

- 2.7.Large capacity memory could store 250 groups (at most 6500 single time measured value) of data, each group include: most 26 single time measured value,average value,measure time and data, the impact direction,number of times,material and hardness scale etc., over a long period of time can browse,edit,print.
- 2.8.With 7 kinds of different impact devices, identify the type of impact device automatically.
- 2.9.Have software and hardware calibration function, insured test result stability and credibility.
- 2.10.Convert the HRC,HRB,HRA,HB,HV,HS and the δb according to the type of impact device,direction,materials automatically.
- 2.11.Has the warning alarm function, special warning in the display screen
- 2.12.Intelligence electric voltage management system inside, make supply voltage reliability.
- 2.13.On the lord manifestation interface show battery power instructions, charging designation, charging completion .
- 2.14.During the test,the illumination can be turned on or shut off at any needed time.
- 2.15.Print out test results as require ,the greater errors can be canceled.

3. Technical parameters:

Model	HLN-160
Measuring range	150-960HLD
Measuring direction	360°
Hardness Scale	HL,HB,HRB,HRC,HRA,HV,HS
Display	dot matrix LCD
Data memory	500 groups max.(relative to impact times 1-26)
Printing paper	width is (57.5±0.5)mm, diameter is 30mm
working voltage	4.7-6.0V
Software calibration	±15HLD
Hardware calibration	±30HLD
Continuous working period	about 40 hours
Communication interface	RS232
Outline dimensions	240mm×86mm×47mm
Weight	675 g

HLN200 Portable Leeb Hardness Tester



1. Main Application:

Die cavity of molds

Bearings and other parts

Failure analysis of pressure vessel, steam generator and other equipment

Heavy work piece

The installed machinery and permanently assembled parts

Testing surface of a small hollow space

Material identification in the warehouse of metallic materials

Rapid testing in large range and multi-measuring areas for large-scale work piece

2. Features:

2.1. Palm size for narrow space.

2.2. Test at any angle, even upside down.

2.3. Direct display of hardness scales HRB, HRC, HV, HB, HS, HL.

2.4. Large memory could store 250 groups including single measured value, impact direction, material and hardness scale etc.

2.5. User recalibration function allowed.

2.6. Can communicate with PC computer for statistics and printing by the optional cable

2.7. Manual or automatic shut down.

2.8. Low battery indication.

3. Technical Parameters:



Model	HLN200
Testing range	150-960)HLD,(17-68.5)HRC,(19-651)HB,(80-976)HV, (30-100)HS,(59-85)HRA,(13-100)HRB
Testing degree	360°C
Testing material	10 kinds
Data store	250 group (impact tiem 1~26)
Software calibration range	±15HLD
Hardware calibration range	±30HLD
Working voltage	3.3V
Continuous working time	40h
Interface standards	RS232
Size	(160×80×42)mm
Weight	0.3 kg

HST150 Portable Leeb Hardness Tester



1. Technical Specification:

- 1.1. Hardness scales: HL, HRC, HRB, HV, HB, HS
- 1.2. Upper / lower limits setting: (170~960) HLD
- 1.3. Screen display: 128*64 dot matrix LCD, backlight and adjustable contrast
- 1.4. Measuring direction: 360° (Test at any angle even upside down)
- 1.5. Data memory: 100 group of readings
- 1.6. Measurable material: Steel and cast steel, alloy tool steel, stainless steel, gray cast iron, nodular cast iron, aluminum casting alloy, copper zinc alloy (brass), copper tin alloy (bronze), fine copper.
- 1.7. Power: AAA alkaline battery
- 1.8. Dimensions: 155mm x 68mm x 27mm
- 1.9. Weight: 0.22Kg (Main Host & D type impact device)

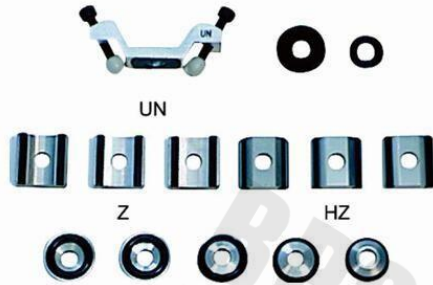
Measuring Range Table 1

—	System Hardness	Impact device					
		D/DC	D+15	C	G	E	DL
Steel and cast steel 钢和铸钢	HRC	17.9 ~ 68.5	19.3 ~ 67.9	20.0 ~ 69.5		22.4 ~ 70.7	20.6 ~ 68.2
	HRB	59.6 ~ 99.6	—	—	47.7 ~ 99.9	—	37.0 ~ 99.9
	HRA	59.1 ~ 85.8	—	—	—	61.7 ~ 88.0	—
	HB	127 ~ 651	80 ~ 638	80 ~ 683	90 ~ 646	83 ~ 663	81 ~ 646
	HV	83 ~ 976	80 ~ 937	80 ~ 996	—	84 ~ 1042	80 ~ 950
	HS	32.2 ~ 99.5	33.3 ~ 99.3	31.8 ~ 102.1	—	35.8 ~ 102.6	30.6 ~ 96.8
Wrought Steel 锻钢	HS	32.2 ~ 99.5	—	—	—	—	—
CWT、ST 合金工具钢	HRC	20.4 ~ 67.1	19.8 ~ 68.2	20.7 ~ 68.2	—	22.6 ~ 70.2	—
	HV	80 ~ 898	80 ~ 935	100 ~ 941	—	82 ~ 1009	—
Stainless steel 不锈钢	HRB	46.5 ~ 101.7	—	—	—	—	—
	HB	85 ~ 655	—	—	—	—	—
	HV	85 ~ 802	—	—	—	—	—
GC. IRON 灰铸铁	HRC	—	—	—	—	—	—
	HB	93 ~ 334	—	—	92 ~ 326	—	—
	HV	—	—	—	—	—	—
NC. IRON 球墨铸铁	HRC	—	—	—	—	—	—
	HB	131 ~ 387	—	—	127 ~ 364	—	—
C. ALUM 铸铝合金	HV	—	—	—	—	—	—
	HB	19 ~ 164	—	23 ~ 210	32 ~ 168	—	—
BRASS 铜锌合金	HRB	23.8 ~ 84.6	—	22.7 ~ 85.0	23.8 ~ 85.5	—	—
	HB	—	—	—	—	—	—
BRONZE 铜锡(铅)合金	HRB	—	—	—	—	—	—
	HB	60 ~ 290	—	—	—	—	—
COPPER 纯铜	HB	45 ~ 315	—	—	—	—	—

Indication error and indication repeatability Table 2

Num.	Impact device type	Standard sclerometer-hardness	Indication error	Indication repeatability
1	D	760 ± 30HLD	± 6 HLD	6 HLD
		530 ± 40HLD	± 10 HLD	10 HLD
2	DC	760 ± 30HLDC	± 6 HLDC	6 HLD
		530 ± 40HLDC	± 10 HLDC	10 HLD
3	DL	878 ± 30HLDL	± 12 HLDL	12 HLDL
		736 ± 40HLDL		
4	D+15	766 ± 30HLD+15	± 12 HLD+15	12 HLD+15
		544 ± 40HLD+15		
5	G	590 ± 40HLG 500 ± 40HLG	± 12 HLG	12 HLG
6	E	725 ± 30HLE	± 12 HLE	12 HLE
		508 ± 40HLE		
7	C	822 ± 30HLC	± 12 HLC	12 HLC
		590 ± 40HLC		

Special support rings Table 4



Num.	Symbol	Model	Sketch	Remarks
1	03-03.7	Z10-15		External cylindrical surface R10~R15
2	03-03.8	Z14.5-30		External cylindrical surface R14.5~R30
3	03-03.9	Z25-50		External cylindrical surface R25~R50
4	03-03.10	HZ11-13		Cylinder inner surface R11~R13
5	03-03.11	HZ12.5-17		Cylinder inner surface R12.5~R17
6	03-03.12	HZ16.5-30		Cylinder inner surface R16.5~R30
7	03-03.13	K10-15		Spherical exterior surface SR10~SR15
8	03-03.14	K14.5-30		Spherical exterior surface SR14.5~SR30
9	03-03.15	HK11-13		Inner spherical SR11~SR13
10	03-03.16	HK12.5-17		Inner spherical SR12.5~SR17
11	03-03.17	HK16.5-30		Inner spherical SR16.5~SR30
12	03-03.18	UN		Outside cylindrical surface Adjustable radius R10~∞

Impact device technology parameter list



Impact device type		D/DC/DL	D+15	C	G	E
Impact energy		11mJ	11mJ	2.7mJ	90mJ	11mJ
Impact body weight		5.5g/5.5g/7.2g	7.8g	3.0g	20g	5.5g
Ball hardness		1600HV	1600HV	1600HV	1600HV	5000HV
Ball diameter		3mm	3mm	3mm	5mm	3mm
Ball material		Tungsten carbide	Tungsten carbide	Tungsten carbide	Tungsten carbide	Diamond
Impact device diameter		20/20/6mm	20mm	20mm	30mm	20mm
Impact device length		147/86/202mm	162mm	141mm	255mm	155mm
Impact device weight		75/50/60g	80g	75g	250g	80g
Impact of maximum hardness		940/940/950HV	940HV	1000HV	650HV	1200HV
Surface roughness of specimen		1.6μm	1.6μm	0.4μm	6.3μm	1.6μm
Minimum weight of specimen						
Direct measurement		>5kg	>5kg	>1.5kg	>15kg	>5kg
Need stable support		2-5kg	2-5kg	0.5-1.5kg	5-15kg	2-5kg
Need compact coupling		0.05-2kg	0.05-2kg	0.02-0.5kg	0.5-5kg	0.05-2kg
Minimum thickness of specimen						
Compact coupling		5mm	5mm	1mm	10mm	5mm
Minimum thickness of hardened layer		0.8mm	0.8mm	0.2mm	1.2mm	0.8mm
Ball indentation size						
Hardness	Indentation diameter	0.54mm	0.54mm	0.38mm	1.03mm	0.54mm
300HV	Indentation depth	24μm	24μm	12μm	53μm	24μm
Hardness	Indentation diameter	0.54mm	0.54mm	0.32mm	0.09mm	0.54mm
600HV	Indentation depth	17μm	17μm	8μm	41μm	17μm
Hardness	Indentation diameter	0.35mm	0.35mm	0.35mm	-	0.35mm
800HV	Indentation depth	10μm	10μm	7μm	-	10μm
Scope impact devices		D-type measuring accessories; DC measuring bore or small spaces inside the surface	DL measuring groove of thin narrow; D+15 measuring grooves or indentations in the surface	C measuring small or thin specimens and surface hardened layer	G-type measuring large or bulky specimens and surface roughness of casting and forging	E-type specimens measuring very high hardness specimens

HST320 Portable Leeb Hardness Tester



1. Technical Specification:

- 1.1. Suitable for multiple impact devices and 6 types of hardness scales are available for various applications.
- 1.2. Embedded thermal printers, instant test report printing.
- 1.3. Large and clear digital display.
- 1.4. Rechargeable Li-ion battery.
- 1.5. Supporting Bluetooth transmission and wireless printing.
- 1.6. Optional PC software with perfect data base function.
- 1.7. Supporting data query, system characteristics displaying and bar graph displaying.

2. Main Functional Parameters:

- 2.1. Choose Testing Materials、Hardness Scales、Measuring Direction and times of Tests By Button.
- 2.2. Direct Display of Hardness Scales including HRB, HRC, HV, HB, HS, HL Show the Result of Each Test Repeatedly, Automatically or Manually Remove the Wrong Test Results.
- 2.3. Directly Output the Average Single Test Result or All the Results In One Time.
- 2.4. Automatic detection of the Battery Voltage, Low Voltage Warning for Battery protection, With Battery Indicator Icon in Test Status.

2.5. Instant Reporting.

2.6. Plenty of status bar display, displaying Bluetooth, buzzer, error information, time, battery quantity and so on.

3. Technical Specification:

3.1	Hardness Scales	HL, HRC, HRB, HV, HB, HS
3.2	Accuracy	+/- 0.5%
3.3	Repeatability Accuracy	HLD: ± 4 , HRC: ± 1 , HB: ± 4
3.4	Standard Impact Device	Impact Device Of Type D
3.5	Upper / Lower Limits Setting	(170~960) HLD
3.6	Optional Impact Device	D/ C /DC / D+15 / DL/ G
3.7	PC Interface	USB2.0
3.8	Screen Display	128*64 Dot Matrix LCD, Backlight And Adjustable Contrast
3.9	Measuring Direction	360° (Test At Any Angle Even Upside Down)
3.10	Data Memory	100 Group Of Readings
3.11	Max. Hardness Of The Measured Work	940HV (For D,DC,DL,D+15,C Impact Device)
3.12	Radius Of Curvature Of The Measured Work	Rmin=50mm(If Using Alien Supporting Ring, Rmin.=10mm)
3.13	Recognition Function	Recognize The Type Of The Impact Device By Itself
3.14	Type Of The Printer	Embedded Thermal Printers
3.15	Measurable Material	Steel And Cast Steel, Alloy Tool Steel, Stainless Steel, Gray Cast Iron, Nodular Cast Iron, Aluminum Casting Alloy, Copper Zinc Alloy(Brass), Copper Tin Alloy (Bronze), Fine Copper.
3.16	Detecting Voltage Automatically	Alarm Automatically When Working Voltage Is Less Than Rated Voltage.
3.17	Power	Rechargeable Lithium Ion Battery Of 2*3.7V, 1300mAh



3.18	Dimensions	198mm * 82mm * 30mm
3.19	Size	0.32 KG
3.20	Wireless Transmission	Supporting Bluetooth Transmission And Wireless

		Printing
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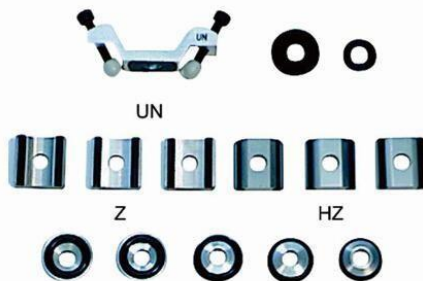
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	HB	131 ~ 387	—	—	127 ~ 364	—	—
C. ALUM 铸铝合金	HV	—	—	—	—	—	—
	HB	19 ~ 164	—	23 ~ 210	32 ~ 168	—	—
BRASS 铜锌合金	HRB	23.8 ~ 84.6	—	22.7 ~ 85.0	23.8 ~ 85.5	—	—
	HB	—	—	—	—	—	—
BRONZE 铜锡(铅)合金	HRB	—	—	—	—	—	—
	HB	60 ~ 290	—	—	—	—	—
COPPER 纯铜	HB	45 ~ 315	—	—	—	—	—

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5	03-03.11	HZ12.5-17		Cylinder inner surface R12.5~R17
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Minimum thickness of specimen						
Compact coupling		5mm	5mm	1mm	10mm	5mm
Minimum thickness of hardened layer		0.8mm	0.8mm	0.2mm	1.2mm	0.8mm
Ball indentation size						
Hardness	Indentation diameter	0.54mm	0.54mm	0.38mm	1.03mm	0.54mm
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