



**AHT190 Leeb hardness tester**



**[Features]:**

- Advanced Leeb Hardness Model
- On-Board memory holds 48-350 groups of data
- Upper and lower limit and sound alarm
- Test at any angle, even upside down
- Six Impact Devices are available for special application
- Large LCD with backlight, showing all functions and parameters
- Press HELP key can obtain operating tips in any displaying interface
- Direct display of hardness scales HRB, HRC, HV, HB, HS, HL
- Automatic identification of Impact devices
- Software to connect with PC
- For all metallic materials
- Wide measuring range
- Battery low indication and sound alarm

**[Technical Specification]:**

Hardness scale	HL, HRC, HRB, HRA, HV, HB, HS
Memory	48-350 group (Impact times:32-1)
Measuring range	( 170~960 ) HLD
Tensile strength U.T.S. range	374~2652 MPa
Accuracy	±6HLD (760±30HLD) error of displayed value
	6HLD (760±30HLD) repeatability of displayed value
Max. Workpiece Hardness	996HV(For Impact Devices D/DC/DL/D+15/C) 646HB(For Impact Device G)
Min. Radius of Workpiece (convex/concave)	Rmin = 50mm (with special support ring Rmin= 10mm )
Min. Workpiece weight	2~ 5kg on stable support
	0.05~ 2kg with compact coupling
Min. Workpiece thickness	5mm (Impact Devices D/DC/DL/D+15)
	1mm (Impact Device C)
	10mm (Impact Device G)
Min. thickness of hardened layers	0.8mm
Power	Rechargeable Li Battery , 4.2V, Li ( 1200mAh )
Continuous Working time	About 100h, (without backlight)
Charging time	2~3.5 hours
Operating temperature	0~ 40°C
Humidity	±90%



## Beijing Cap High Technology Co.,ltd.

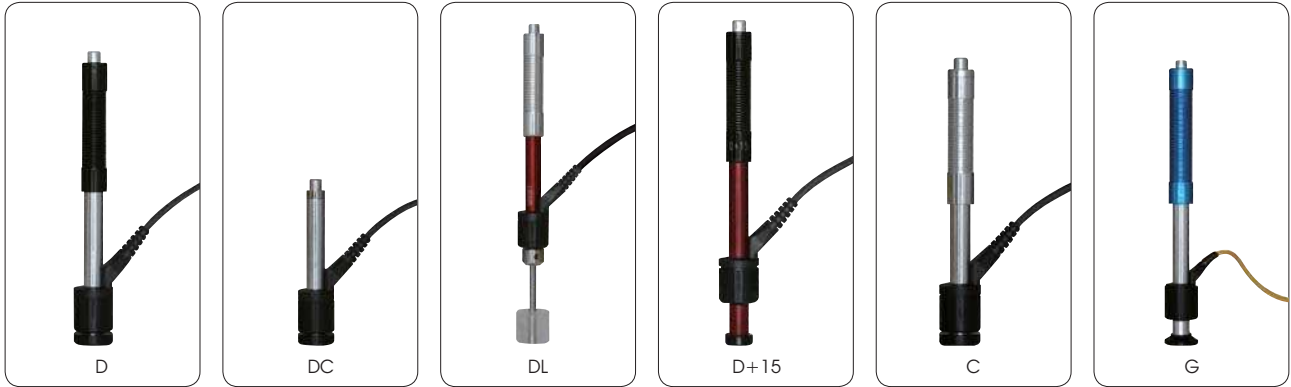
[www.capitalinstrument.com](http://www.capitalinstrument.com)

Overall dimensions	179×77×35mm
Weight	175g

**[Standard delivery]:** Main unit, Impact Device type D, Test block HLD, Charger, Brush,  
Connecting cable, Company certificate, Instruction manual, Dataview Software

**[Optional accessories]:** Printer, Optional impact devices, Optional support rings, Other test blocks

# Optional Impact Devices



**D** for general purpose detector  
**C** For surface hardened components, coatings, thin walled or impact sensitive components

**DC** for internal walls of pipes with diameter that cannot be tested with the D type  
**D+15** for bearings and gears

**DL** for small areas such as the bottom of small gears and weld corners  
**G** For solid components, such as heavy castings and forgings

## Technical Specification

Impact Devices		D / DC / DL	D+15	C	G
Impacting energy (Nmm)		11	11	3	90
Mass of impact body (g)		5.5/5.5/7.3	7.8	3.0	20
Test tip	Hardness (HV)	1600	1600	1600	1600
	Diameter (mm)	3	3	3	5
	Material	Tungsten carbide	Tungsten carbide	Tungsten carbide	Tungsten carbide
Impact body	Diameter (mm)	20	20	20	30
	Length (mm)	147/147/86	162	141	254
	Weight (gr)	75/75/50	80	75	250
Max. Hardness of work piece		940HV	940HV	1000HV	650HB
Preparation of surface	Roughness class ISO (ISO)	N7	N7	N5	N9
	Max. roughness depth Rt (µm)	10	10	2.5	30
	Average roughness Ra (µm)	2	2	0.4	7
Min. weight of sample	Of compact shape (kg)	5	5	1.5	15
	On solid support (kg)	2	2	0.5	5
	Coupled on plate (kg)	0.1	0.1	0.02	0.5
Min. thickness of sample	coupled (mm)	3	3	1	10
	Min. thickness of hardened layers (mm)	0.8	0.8	0.2	-

## Indentation of Test tip

With 300HV	Diameter (mm)	0.54	0.54	0.38	1.03
	Depth (µm)	24	24	12	53
With 600HV	Diameter (mm)	0.45	0.45	0.32	0.90
	Depth (µm)	17	17	8	41
With 800HV	Diameter (mm)	0.35	0.35	0.30	-
	Depth (µm)	10	10	7	-

# Portable Hardness Tester



**Table 1: measuring range**

Material	Hardness scale	Impace device					
		D/DC	D+15	C	G	E	DL
Steel and cast steel	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
Steel	HB	143~650					
CWT, ST	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	HRB	46.5~101.7					
	HB	85~655					
	HV	85~802					
GC, IRON	HRC						
	HB	93~334			92~326		
	HV						
NC, IRON	HRC						
	HB	131~387			127~364		
	HV						
C, ALUM	HB	19~164		23~210	32~168		
	HRB	23.8~84.6		22.7~85.0	23.8~85.5		
BRASS	HB	40~173					
	HRB	13.5~95.3					
BRONZE	HB	60~290					
COPPER	HB	45~315					

**Table 2: Tolerance and repeatability**

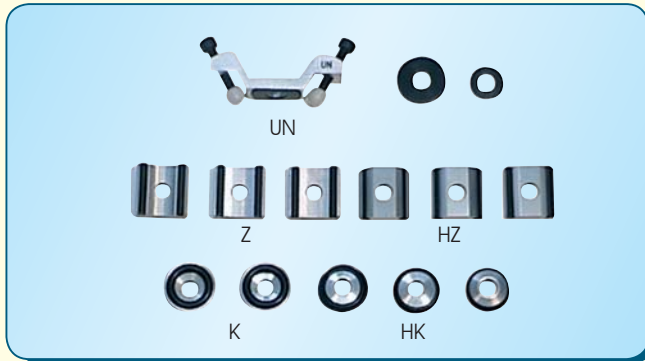
No.	Impact device	Standard test block values	Tolerance	Repeatability
1	D	760 ± 30HLD 530 ± 40HLD	± 6HLD ± 10HLD	6HLD 10HLD
2	DC	760 ± 30HLDC 530 ± 40HLDC	± 6HLDC ± 10HLDC	6HLDC 10HLDC
3	DL	878 ± 30HLDL 736 ± 40HLDL	± 12HLDL	12HLDL
4	D+15	766 ± 30HLD+15 544 ± 40HLD+15	± 12HLD+15	12HLD+15
5	G	590 ± 40HLG 500 ± 40HLG	± 12HLG	12HLG
6	C	822 ± 30HLC 590 ± 40HLC	± 12HLC	12HLC

# Portable Hardness Tester



## Optional Support Rings

Function: they are used for tested surface whose curvature radius is less than 30mm (D, DC, D+15, C impact devices) or less than 50mm (G impact device) .



Support Rings



No.	Type	Sketch of non-conventional supporting ring	Remarks
1	Z10-15		For testing cylindrical outside surface R10 ~ R15
2	Z14.5-30		For testing cylindrical outside surface R14.5 ~ R30
3	Z25-50		For testing cylindrical outside surface R25 ~ R50
4	HZ11-13		For testing cylindrical inside surface R11 ~ R13
5	HZ12.5-17		For testing cylindrical inside surface R12.5 ~ R17
6	HZ16.5-30		For testing cylindrical inside surface R16.5 ~ R30
7	K10-15		For testing spherical outside surface SR10 ~ SR15
8	K14.5-30		For testing spherical outside surface SR14.5 ~ SR30
9	HK11-13		For testing spherical inside surface SR11 ~ SR13
10	HK12.5-17		For testing spherical inside surface SR12.5 ~ SR17
11	HK16.5-30		For testing spherical inside surface SR16.5 ~ SR30
12	UN		For testing cylindrical outside surface, radius adjustable R10 ~