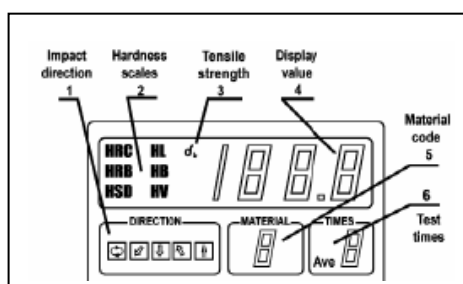


# Hardness Tester HLN-11A



- Wide measuring range, for all metallic materials
- Direct display of hardness scales HRB, HRC, HV, HB, HS, HL
- Conversion to tensile strength (U.T.S.)
- Test at any angle, even upside down
- Removable printer included
- Six Impact Devices are available for special applications
- Large LCD display showing all functions and parameters
- Battery low indication
- New function of software calibration
- Power charging indication on the keyboard LED
- Fault distinguish in details (E1-E5)



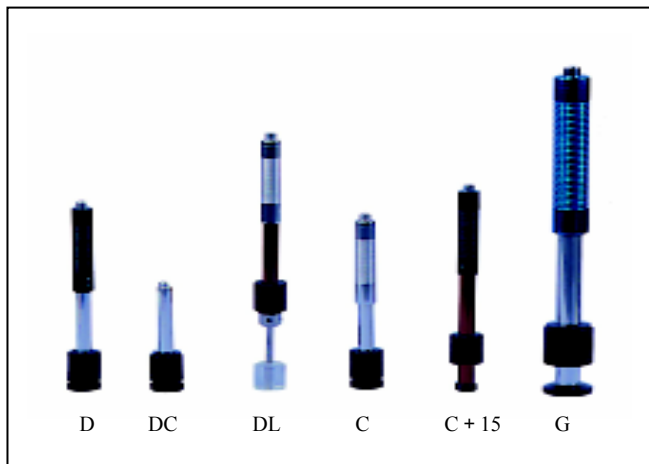
## Technical specifications

Hardness scale	HL, HRC, HRB, HV, HB, HS
Measuring range	See next page
Tensile strength U.T.S range	374~1999 MPa
Accuracy	±6HLD (760±30HLD) error of displayed value
	6HLD (760±30HLD) repeatability of displayed value
Standard impact Device	D
Optional Impact Devices	DC/D+15/G/C/DL
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 support ring Rmin=10mm)
Min. workpiece weight	2~5kg on stable support
	0.05~2kg with compact coupling
Min. Workpiece thickness	5mm (Impact Device D/DC/DL/D+15)
	1mm (Impact Device C)
	10mm (Impact Device G)
Min. Thickness of hardened layers	0.8mm
Power	Rechargeable batteries NiMH 5×1.2V 600mAh
Charging time	3 hours
Continuous working time	About 50h (without printing and backlight)
Operating temperature	0~40
Relative humidity	±90%
Overall dimensions	268×86×50mm
Weight	615g (including impact device and printer)

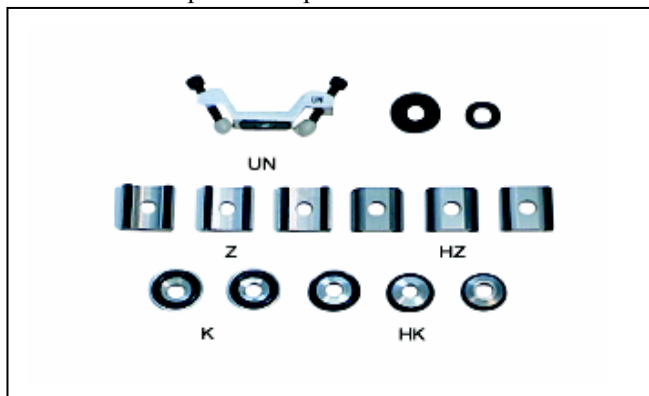
# Hardness Tester HLN-11A

## Measuring range

Material	Hardness Scale	D/DC LD: 170-900	D+15 LD+15: 330-900	C LC: 350-960	DL LDL: 560-950	G LG: 200-750
Steel& cast steel	HRC	20.4-68.4	19.3-67.9	20-69.5	20.6-68.2	
	HRB	38.4-99.8			37-99.9	47.7-99.9
	HB	81-654	80-638	80-683	81-646	90-646
	HV HS	81-955	80-937	80-996	80-950	
		32.5-99.5	33.3-99.3	31.8-102.1	30.6-96.8	
CWT/ST	HRC	20.4-67.1	19.8-68.2	20.7-68.2		
	HV	80-898	80-935	100-941		
C.Alum	HB	19-164		23-210		32-168
	HRB	23.8-84.6		22.7-85		23.8-85.5
NC.Iron	HB	131-387				127-364
GC.Iron	HB	93-334				92-326
Brass	HB	40-173				
	HRB	13.5-95.3				
Bronze	HB	60-290				
Copper	HB	45-315				



Optional Impact Devices



Optional support rings



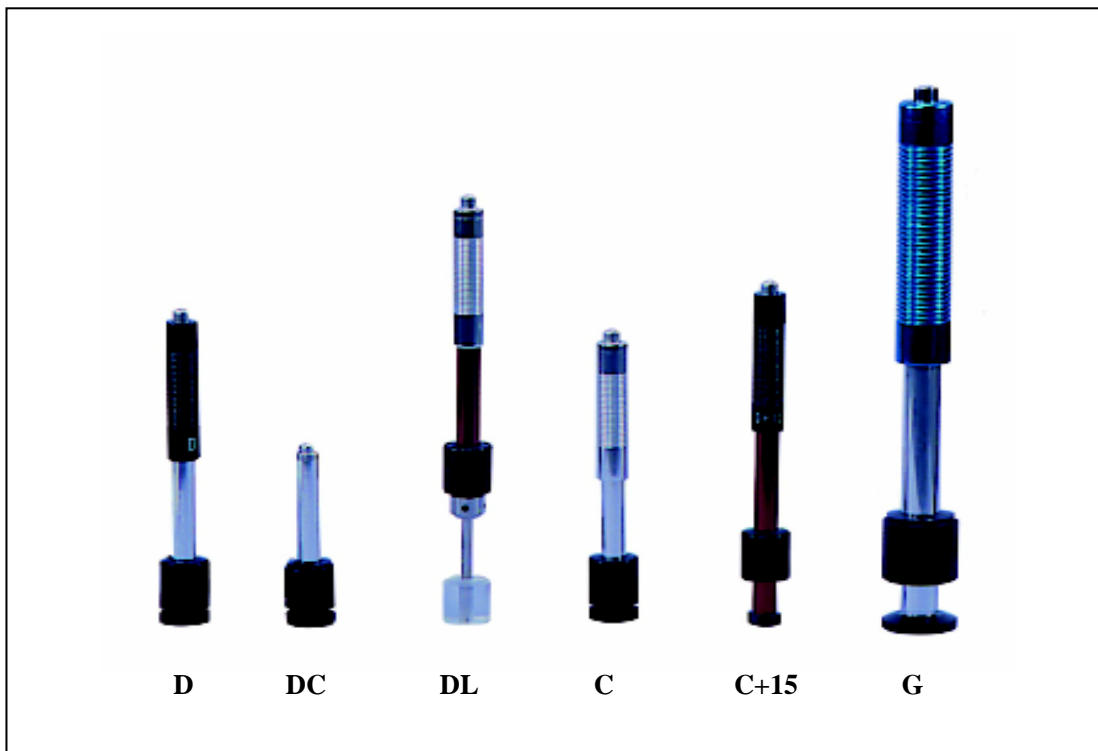
### Standard delivery

- Main unit with removable printer 1
- Impact Device type D 1
- Test block with HLD value 1
- Charger 1
- Cleaning brush 1
- Table support for main unit 1
- TIME certificate 1
- Instruction manual 1
- Warranty card 1
- Carrying case 1

### Optional accessories

- Printing paper
- Special Impact Devices
- Support rings

# Optional Impact Devices

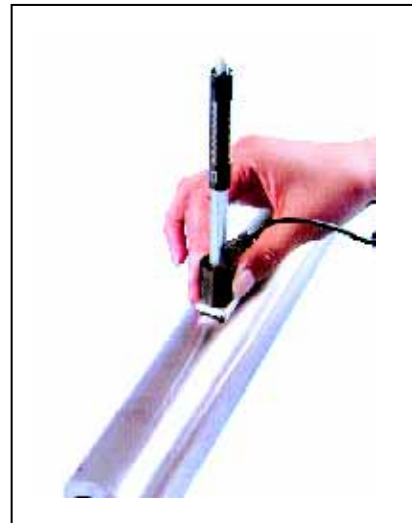
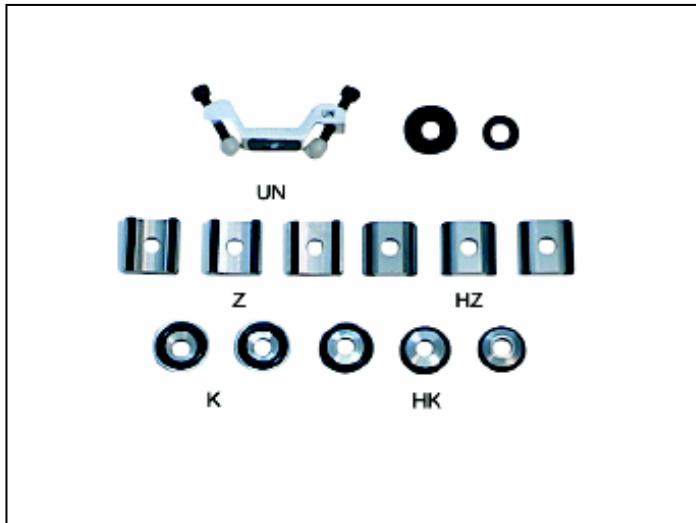


Optional Impact Devices

## Technical specifications

Application range of Impact Devices		D type for general pieces DC type for hole or cylinder DL type for long and narrow channel or hole	D+15 type for measuring in grooves or recessed surfaces	C type for measuring light and small piece and surface hardened layer	G type for measuring heavy and rough cast and forged pieces
Impact Device		D/DC/DL	D+15	C	G
Impacting energy		11mj	11mJ	2.7mJ	90mJ
Mass of impact body		5.5g/5.5g/7.3g	7.8g	3.0g	20g
Hardness of spherical test tip		1600HV	1600HV	1600HV	1600HV
Diameter of spherical test tip		3mm	3mm	3mm	5mm
Material of spherical test tip		Tungsten carbide	Tungsten carbide	Tungsten carbide	Tungsten carbide
Diameter of Impact Device		20mm	20mm	20mm	30mm
Length of Impact Device		147/86/75mm	162mm	141mm	254mm
Weight of Impact Device		50g	80g	75g	250g
Max. hardness of workpiece		940/940/950HV	940HV	1000HV	650HB
Average surface roughness of the test piece		Ra: 1.6 μm	Ra: 1.6μm	Ra: 0.4μm	Ra: 6.3μm
Min. weight of test piece	Direct measuring	5kg	5kg	1.5kg	15kg
	On stable support	2kg	2kg	0.5kg	5kg
	With compact coupling	0.05kg	0.1kg	0.02kg	0.5kg
Min. thickness of test piece	Compact coupling	5mm	5mm	1mm	10mm
	Min. case hardened depth	0.8mm	0.8mm	0.2mm	1.2mm
Size of indentation of spherical test tip					
Hardness 300HV	Indentation diameter	0.54mm	0.54mm	0.38mm	1.03mm
	Indentation depth	24μm	24μm	12μm	53μm
Hardness 600HV	Indentation diameter	0.54mm	0.54mm	0.32mm	0.90mm
	Indentation depth	17μm	17μm	8μm	41μm
Hardness 800HV	Indentation diameter	0.35mm	0.35mm	0.35mm	
	Indentation depth	10μm	10μm	7μm	

# Optional Support Rings



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 ~ ∞