

# DATA SHEET HARDNESS TESTER HL200



- Compact metal case, suitable for use under poor working conditions. Test at any angle, even upside down.
- Wide measuring range. It can measure the hardness of all metallic materials. Direct display of hardness scales HRB, HRC, HV, HB, HS, HL
- Large screen(128 × 64 dot matrix LCD), showing all functions and parameters. With EL background light.
- Large capacity memory could store 500 groups information.
- Datapro Software to connect with PC via USB port.
- Software calibration function.
- Outline :132\*76.2mm      Weight: 345g

## Configuration:

	No.	Item	Quantity	Remarks
Standard Configuration	1	Main body	1	
	2	D type impact device	1	With cable
	3	Standard test block	1	
	4	Cleaning brush (I)	1	
	5	Small support ring	1	
	6	Alkaline battery	4	AA size
	7	Manual	1	
	8	Instrument case	1	
	9	DataPro software for HL200	1	
	10	Communication cable	1	
	11	Tool for battery cover	1	
	12	Belt	1	
Optional Configuration	11	Cleaning brush (II)	1	For use with other type of impact device
	12	Other type of impact devices	7	Refer to pictures blew
	13	Tool for impact ball	1	
	14	Min-printer	1	
	15	Other type of support rings	1	Refer to pictures blew
	16	Other type of impact ball / body	1	

## Technical Specifications:

- Error and repeatability of displayed value

No.	Type of impact device	Hardness value of hardness block	Error of displayed value	Repeatability
1	D	760±30HLD 530±40HLD	±6 HLD ±10 HLD	6 HLD 10 HLD
2	D	50±5 HLC 30±6 HLC	±1 HRC ±2 HRC	1 HRC 2 HRC
3	D	700±30HB 500±40HB	±5 HB ±8 HB	5 HB 8 HB

- Measuring range:  
(170-960)HLD,(17-68.5)HRC,(19-651)HB,(80-976)HV,(30-100)HS,(59-85)HRA,(13-100)HRB
- Measuring direction: 360° (↓↖↗↘↙→←↑)
- Hardness Scale: HL、HB、HRB、HRC、HRA、HV、HS
- Display: dot matrix LCD, 128×64 dots
- Data memory: max. 500 groups (relative to impact times 32~1)
- Working voltage: 3V (2 AA size alkaline battery)
- Continuous working period: about 50 hours (With backlight off)
- Communication interface: USB1.1

## 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

## Testing range:



Other type of impact devices

Material	Method	Impact device					
		D/DC	D+15	C	G	E	DL
Steel and cast steel	HRC	20~ 68.5	19.3~ 67.9	20.0~69.5		22.4~ 70.7	20.6~ 68.2
	HRB	38.4~ 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
Cold work tool steel	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					
Grey cast iron	HRC						
	HB	93~334			92~326		
	HV						
Nodular cast iron	HRC						
	HB	131~ 387			127~364		
	HV						
Cast aluminium alloys	HB	19~164		23~210	32~168		
	HRB	23.8~ 84.6		22.7~85.0	23.8~ 85.5		
BRASS(copper-zinc alloys)	HB	40~173					
	HRB	13.5~ 95.3					
BRONZE(copper-aluminium/tin alloys)	HB	60~290					
Wrought copper alloys	HB	45~315					
Available type of impact device		<b>DC:</b> Test hole or hollow cylindrical	<b>D+15:</b> Test groove or reentrant surface	<b>C:</b> Test small, light, thin parts and surface of hardened layer	<b>G:</b> Test large, thick, heavy and rough surface steel	<b>E:</b> Test super high hardness material	<b>DL:</b> Test slender narrow groove or hole

## Testing conditions:

Type of impact device	DC(D)/DL	D+15	C	G	E	
Impacting energy Mass of impact body	11mJ 5.5g/7.2g	11mJ 7.8g	2.7mJ 3.0g	90mJ 20.0g	11mJ 5.5g	
Test tip hardness: Dia. Test tip: Material of test tip:	1600HV 3mm Tungsten carbide	1600HV 3mm Tungsten carbide	1600HV 3mm Tungsten carbide	1600HV 5mm Tungsten carbide	5000HV 3mm synthetic diamond	
Impact device diameter: Impact device length: Impact device weight:	20mm 86(147)/ 75mm 50g	20mm 162mm 80g	20mm 141mm 75g	30mm 254mm 250g	20mm 155mm 80g	
Max. hardness of sample	940HV	940HV	1000HV	650HB	1200HV	
Mean roughness value of sample surface Ra:	1.6 $\mu$ m	1.6 $\mu$ m	0.4 $\mu$ m	6.3 $\mu$ m	1.6 $\mu$ m	
Min. weight of sample: Measure directly Need support firmly Need coupling tightly	>5kg 2~5kg 0.05~2kg	>5kg 2~5kg 0.05~2kg	>1.5kg 0.5~1.5kg 0.02~0.5kg	>15kg 5~15kg 0.5~5kg	>5kg 2~5kg 0.05~2kg	
Min. thickness of sample Coupling tightly Min. layer thickness for surface hardening	5mm $\geq$ 0.8mm	5mm $\geq$ 0.8mm	1mm $\geq$ 0.2mm	10mm $\geq$ 1.2mm	5mm $\geq$ 0.8mm	
Size of tip indentation						
Hardness 300HV	Indentation diameter Depth of indentation	0.54mm 24 $\mu$ m	0.54mm 24 $\mu$ m	0.38mm 12 $\mu$ m	1.03mm 53 $\mu$ m	0.54mm 24 $\mu$ m
Hardness 600HV	Indentation diameter Depth of indentation	0.54mm 17 $\mu$ m	0.54mm 17 $\mu$ m	0.32mm 8 $\mu$ m	0.90mm 41 $\mu$ m	0.54mm 17 $\mu$ m
Hardness 800HV	Indentation diameter Depth of indentation	0.35mm 10 $\mu$ m	0.35mm 10 $\mu$ m	0.35mm 7 $\mu$ m	-- --	0.35mm 10 $\mu$ m

## Support rings for Shaped Materials:



Other type of 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~∞

