

Hardness tester HL200

HL-200

Portable Hardness Tester



- 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 \pm 30HLD 530 \pm 40HLD | \pm 6 HLD \pm 10 HLD | 6 HLD 10 HLD |
| 2 | D | 50 \pm 5 HLC 30 \pm 6 HLC | \pm 1 HRC \pm 2 HRC | 1 HRC 2 HRC |
| 3 | D | 700 \pm 30HB 500 \pm 40HB | \pm 5 HB \pm 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° (\downarrow \nwarrow \nearrow \searrow \swarrow \rightarrow \leftarrow \uparrow)
- Hardness Scale: HL、HB、HRB、HRC、HRA、HV、HS
- Display: dot matrix LCD, 128 \times 64 dots
- Data memory: max. 500 groups (relative to impact times 32 \sim 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 | | | | | |

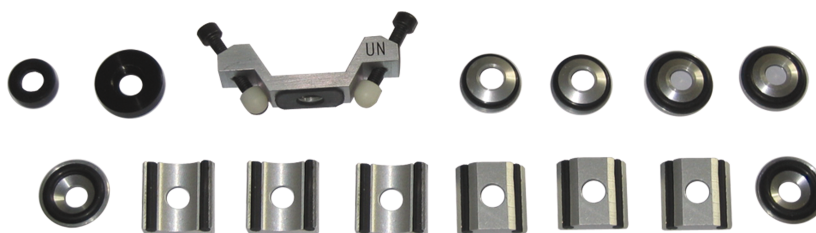
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|---------------------------------|--|--|---|---|--|---|---|
| Available type of impact device | | DC: Test hole or hollow cylindrical | D+15: Test groove or reentrant surface | C: Test small, light, thin parts and surface of hardened layer | G: Test large, thick, heavy and rough surface steel | E: Test super high hardness material | DL: Test slender narrow groove or hole |
|---------------------------------|--|--|---|---|--|---|---|

Testing conditions:

| | | | | | | |
|--|--|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|
| Type of impact device | | DC(D)/DL | D+15 | C | G | E |
| Impacting energy | | 11mJ | 11mJ | 2.7mJ | 90mJ | 11mJ |
| Mass of impact body | | 5.5g/7.2g | 7.8g | 3.0g | 20.0g | 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 μ m | 1.6 μ m | 0.4 μ m | 6.3 μ m | 1.6 μ 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 ≥0.8mm | 5mm ≥0.8mm | 1mm ≥0.2mm | 10mm ≥1.2mm | 5mm ≥0.8mm |
| Size of tip indentation | | | | | | |
| Hardness 300HV | Indentation diameter Depth of indentation | 0.54mm 24 μ m | 0.54mm 24 μ m | 0.38mm 12 μ m | 1.03mm 53 μ m | 0.54mm 24 μ m |
| Hardness 600HV | Indentation diameter | 0.54mm | 0.54mm | 0.32mm | 0.90mm | 0.54mm |

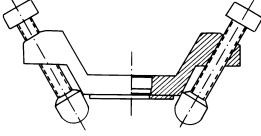
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|----------------|----------------------|------------|------------|-----------|------------|------------|
| | Depth of indentation | 17 μ m | 17 μ m | 8 μ m | 41 μ m | 17 μ m |
| Hardness 800HV | Indentation diameter | 0.35mm | 0.35mm | 0.35mm | -- | 0.35mm |
| | Depth of indentation | 10 μ m | 10 μ m | 7 μ m | -- | 10 μ 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~∞ |