



**BANBROS ENGINEERING PVT. LTD.**

The Precision Measurement People

# LOAD CELL VICKERS HARDNESS TESTER

- *VALUE*
- *VERSATILITY*
- *PERFORMANCE*



**BHV-10T/10ZT**



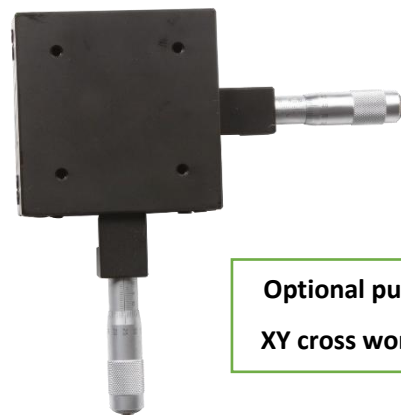
- Close loop high precision load cell structure.
- Dual optical systems design (eyepiece + camera path), both paths can work at same time, no need switch knob.
- Touch screen digital display, menu structure, easy operate.
- Automatic turret, automatic loading, dwell, unloading.
- With emergency stop button, operation more safe.
- Large range test force: 0.3 to 10kgf.

**APPLICATION:**

- Widely used to test the hardness of all kinds of metal materials (steel, nonferrous metals, tinsel, cemented carbide, sheet metal, etc.)
- Surface layer / coating (Carburization, nitriding, decarburization layer, surface hardening layer, galvanized coating, etc.)
- Glass, chip, ceramic, plastic and rubber, etc.

**FEATURES:**

- Closed loop design with high accuracy load cell, no need to install dead weights, let installation more easy and loading - dwell - unloading automatically and easy operation.
- Modular design, simple maintenance.
- With hardness conversion function, from HV hardness value can covert to HR, HB, HK, etc.
- With HV/HK test function.
- Built-in printer for optional purchase.
- Can work with camera and Vickers indentation measuring software.
- According to different visual habits of the operators, the strength of the light source can be adjusted. To avoid the visual fatigue for long time operation.
- Industrial digital LCD screen can direct display hardness value, conversion hardness, testing method, testing force, dwell time, test number and testing process.
- One-time casting iron molding shell ensure structure more stable; Adopted car painting technology, pure white color looking more decent; High scratch resistance capability, used for years still brightness like new.



**Optional purchase:  
XY cross work table**

**TECHNICAL SPECIFICATION:**

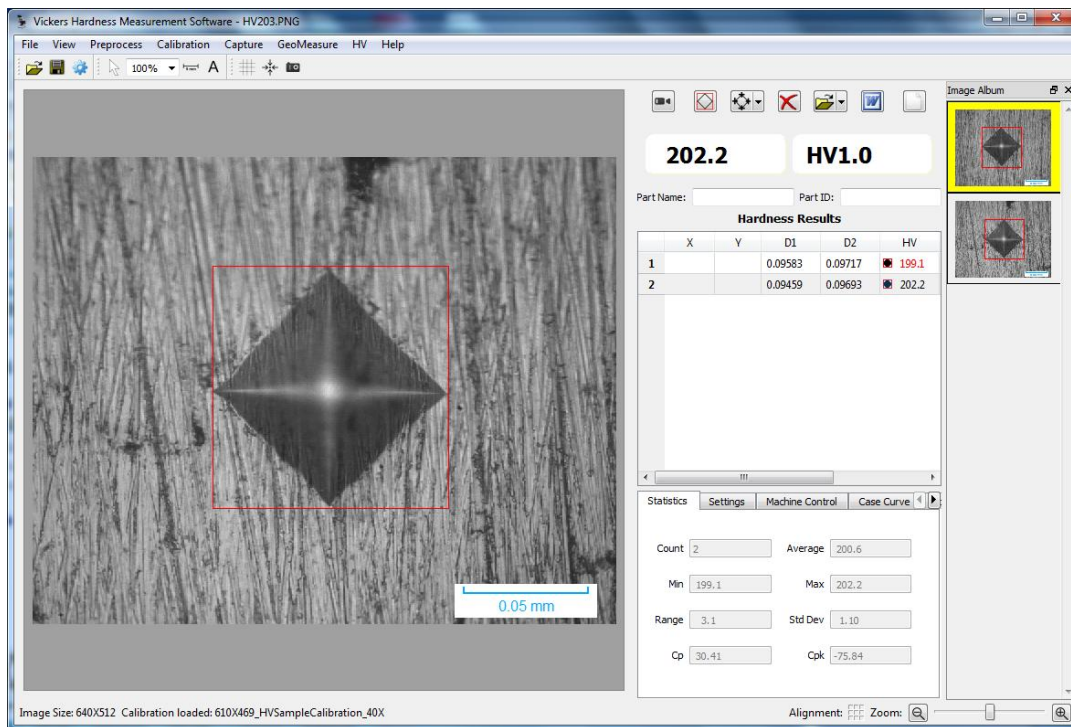
| Model No.                         | BHV-10T                                                                                                                                                        | BHV-10ZT                     |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| Turret                            | Manual                                                                                                                                                         | Automatic (motorized switch) |
| Force Loading                     | Automatic loading - dwell - unloading                                                                                                                          |                              |
| Testing Force                     | 0.3Kgf(2.94N), 0.5Kgf(4.90N), 1.0Kgf(9.8N), 2.0Kgf(19.6N), 2.5Kgf(24.5N), 3.0Kgf(29.4N), 5.0Kgf(49.0N), 10.0Kgf(98.0N); Optional: 0.1Kgf(0.98N), 0.2Kgf(1.96N) |                              |
| Hardness Scale                    | HV0.3, HV0.5, HV1, HV2, HV2.5, HV3, HV5, HV10                                                                                                                  |                              |
| Conversion Scales                 | HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HV, HK, HBW, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T                                                             |                              |
| Eyepiece Resolution               | 0.5um                                                                                                                                                          |                              |
| Hardness Range                    | 5-4000HV                                                                                                                                                       |                              |
| Eyepiece                          | 10X digital eyepiece                                                                                                                                           |                              |
| Objective                         | 10X, 20X                                                                                                                                                       |                              |
| Magnification                     | 100X (Observe), 200X (Measurement)                                                                                                                             |                              |
| XY Work Table (Optional Purchase) | Dim.:100x100 mm, Max. travel range: 25x25mm, Moving resolution ratio: 0.01mm                                                                                   |                              |
| Dwell Time                        | 1-99S (1 second per step)                                                                                                                                      |                              |
| Data Output                       | LCD screen display, built-in printer                                                                                                                           |                              |
| Test Space                        | 175mm x 125mm (Height x Depth)                                                                                                                                 |                              |
| Power Supply                      | AC220V, 50Hz                                                                                                                                                   |                              |
| Standard                          | ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2                                                                                                                     |                              |
| Overall Dimension                 | 320*580*620mm                                                                                                                                                  |                              |
| Net Weight                        | 71kg                                                                                                                                                           |                              |
| Packing Size                      | 680*470*750mm                                                                                                                                                  |                              |
| Gross Weight                      | 91kg                                                                                                                                                           |                              |

**STANDARD ACCESSORIES:**

| Item Name              | Q'ty | Item Name              | Q'ty |
|------------------------|------|------------------------|------|
| Large Round Test Table | 1pc  | Medium Size Test Table | 1pc  |
| 10X Analog Eyepiece    | 1pc  | V-Shape Test Table     | 1pc  |
| Vickers Hardness Block | 2pcs | Accessory Case         | 1pc  |
| 10X Objective Lens     | 1pc  | Spare Fuses (2A)       | 2pcs |
| 20X Objective Lens     | 1pc  | Production Certificate | 1pc  |
| Regulating Screw       | 4pcs | Warranty Card          | 1pc  |
| Dust Cover             | 1pc  | Manual Book            | 1pc  |



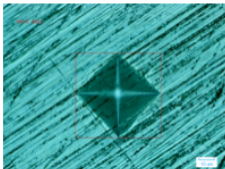
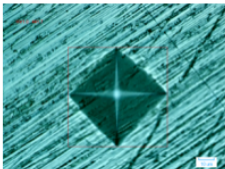
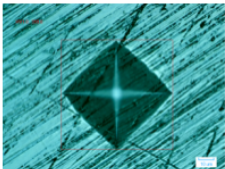
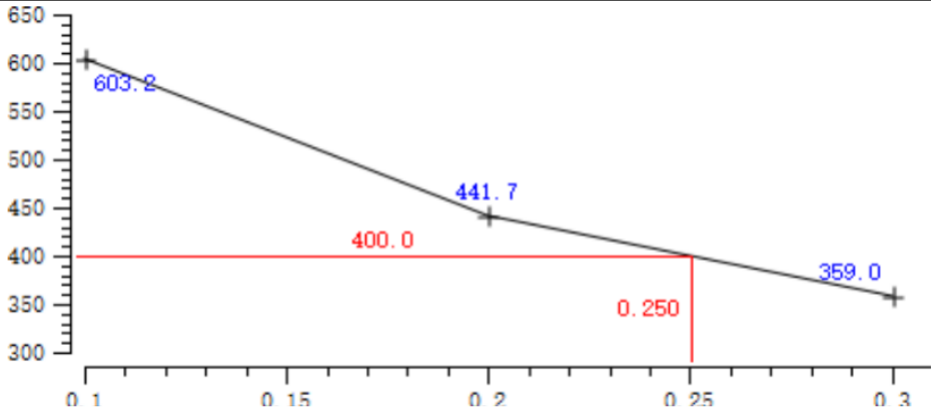
## BHVS-A Micro / Vickers Hardness Measurement Software (optional)



### MAIN FUNCTIONS:

- 1. Auto hardness measurement:** With a click of a button, the software automatically measures the diagonals of the indentation, calculates the hardness value and the statistics.
- 2. Hardness curve:** With the depths of test points by user input, the software automatically plots the hardness curve(s), user may save and load the depths in a depth template file for later testing for convenience.
- 3. Conversion, compensation, and validation:** Converts HV to other hardness scales, validates the test results with sample dimensions, compensates the test results with respect to sample cylindrical/spherical diameters.
- 4. Statistics:** Automatically updates the statistical values such as average, min and max, standard deviation, Cp and Cpk.
- 5. Fracture toughness testing:** K<sub>c</sub> (kic) value can be measured as a standard function.
- 6. Auto-alarm:** Automatically marks the out of spec measurements.
- 7. Test report:** Automatically generates WORD or EXCEL report with customizable template.
- 8. Data archiving:** Measurement data and images can be saved in one file for later retrieval.
- 9. Knoop Scale:** Can be configured for Knoop Scale measurement.
- 10. Other functions:** Includes the basic functions of imaging system such as image capture, camera calibration, image processing, geometric measurement, document labelling, album management, and printing with specified magnifications.

**Hardness report format as below****Micro/Vickers Hardness (HV) Test Results**

| Submitter              |                                                                                                                                                                                                                                                           |            |        | Date Submitted |         |                |       |       |    |    |    |       |         |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------|----------------|---------|----------------|-------|-------|----|----|----|-------|---------|
| Part Name              |                                                                                                                                                                                                                                                           |            |        | Part #         |         |                |       |       |    |    |    |       |         |
| # of Samples           |                                                                                                                                                                                                                                                           |            |        | Sample Descri. |         |                |       |       |    |    |    |       |         |
| Qual. UL               |                                                                                                                                                                                                                                                           | 400.0      |        | Qual. LL       |         | 450.0          |       |       |    |    |    |       |         |
| Sample Cyl./Sph. Diam. |                                                                                                                                                                                                                                                           | 0.00 mm    |        | Test Load      |         | 1000g          |       |       |    |    |    |       |         |
| <b>Test Results</b>    |                                                                                                                                                                                                                                                           |            |        |                |         |                |       |       |    |    |    |       |         |
| #                      | X                                                                                                                                                                                                                                                         | Y          | D1     | D2             | Hard.   | Conver.        | #     | X     | Y  | D1 | D2 | Hard. | Conver. |
|                        | mm                                                                                                                                                                                                                                                        | mm         | μm     | μm             | HV      |                |       | mm    | mm | μm | μm | HV    |         |
| 1                      | 0.100                                                                                                                                                                                                                                                     |            | 55.901 | 54.994         | 603.2   |                |       |       |    |    |    |       |         |
| 2                      | 0.200                                                                                                                                                                                                                                                     |            | 64.976 | 64.613         | 441.7   |                |       |       |    |    |    |       |         |
| 3                      | 0.300                                                                                                                                                                                                                                                     |            | 72.780 | 70.965         | 359.0   |                |       |       |    |    |    |       |         |
| Case Hardness(HV)      |                                                                                                                                                                                                                                                           |            |        | 400            |         | Case Depth(mm) |       | 0.250 |    |    |    |       |         |
| Indent Images          |    |            |        |                |         |                |       |       |    |    |    |       |         |
|                        |                                                                                                                                                                       |            |        |                |         |                |       |       |    |    |    |       |         |
|                        | <b>Statistics</b>                                                                                                                                                                                                                                         |            |        |                |         |                |       |       |    |    |    |       |         |
|                        | Maximum                                                                                                                                                                                                                                                   |            | 603.2  |                | Minimum |                | 359.0 |       |    |    |    |       |         |
| Average                |                                                                                                                                                                                                                                                           | 468.0      |        | Std. Dev.      |         | 124.2          |       |       |    |    |    |       |         |
| Cp                     |                                                                                                                                                                                                                                                           | 0.27       |        | Cpk            |         | 0.05           |       |       |    |    |    |       |         |
| Operator               |                                                                                                                                                                                                                                                           | Test Date  |        | Auditor        |         | Audit date     |       |       |    |    |    |       |         |
|                        |                                                                                                                                                                                                                                                           | 09-06-2022 |        |                |         |                |       |       |    |    |    |       |         |

\* Due to continuous product development, Image & specification can be upgrade.