



VERTEX

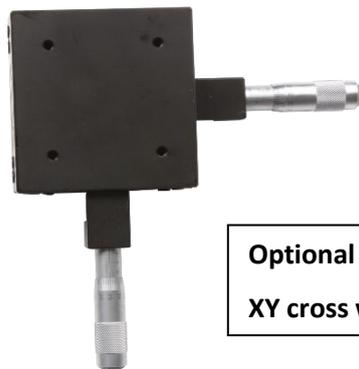
LOAD CELL BASED DIGITAL MICRO & MACRO VICKERS HARDNESS TESTER (MHVD - 30AT)



- 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
- LCD screen, menu structure, easy operate
- Quality automatic **judgment function**
- **Automatic** turret, automatic loading, dwell, unloading
- With emergency stop button, operation more safe
- Automatic turret, digital eyepiece with encoder
- Large range test force: 0.3 to 30kgf

MAIN FEATURES:

1. Closed loop design with high accuracy load cell, no need to install dead weights, let installation more easy and loading - dwell - unloading automatically, easy operation
2. With load automatic correct function, greatly improved test accuracy and let calibration more easy
3. Modular design, simple maintenance
4. With hardness conversion function, from HV hardness value can covert to HR, HB, HK, etc.
5. With HV/HK test function
6. Built-in printer for optional purchase
7. Can work with camera and Vickers indentation measuring software
8. 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.
9. Industrial digital touch screen can direct display hardness value, conversion hardness, testing method, testing force, dwell time, test number and testing process.
10. 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

APPLICATION:

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

SPECIFICATION:

Model	MHVD-30AT
Turret	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), 20Kgf(196.0N), 30Kgf(294.0N)
Hardness Scale	HV0.3, HV0.5, HV1, HV2, HV2.5, HV3, HV5, HV10, HV20, HV30
Conversion Scales	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HV, HK, HBW, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T
Hardness range	5-4000HV
Eyepiece	10X digital eyepiece with built-in encoder, automatic calculate data
Objective	10X, 20X
Magnification	100X (observe), 200X (measurement); Measuring range:400um
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	Large 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	Quantit	Item	Quantity
Large round test table	1	Medium size test table	1
10X digital eyepiece	1	V-shape test table	1
Vickers hardness block	2	Accessory case	1
10X objective lens	1	Spare Fuses (2A)	2
20X objective lens	1	Production certificate	1
Regulating Screw	4	Warranty card	1
Dust cover	1	Manual book	1

HVS-A Micro / Vickers Hardness Measurement Software (optional)

The screenshot displays the Vickers Hardness Measurement Software interface. The main window shows a micrograph of a diamond-shaped indentation on a metal surface, with a red square highlighting the indentation. A scale bar in the bottom right corner indicates 0.05 mm. The software displays a hardness value of 202.2 HV1.0. Below the micrograph, there is a table of hardness results and statistical data.

Hardness Results					
	X	Y	D1	D2	HV
1			0.09583	0.09717	199.1
2			0.09459	0.09693	202.2

Statistics: Settings Machine Control Case Curve

Count	2	Average	200.6
Min	199.1	Max	202.2
Range	3.1	Std Dev	1.10
Cp	30.41	Cpk	-75.84

Image Size: 640X512 Calibration loaded: 610X469_HVSampleCalibration_40X Alignment: Zoom:

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,** Kc(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 labeling, 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									
Test Results															
#	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					
Incident Images															
Statistics															
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													

