



Product Overview

The Advanced Touch Screen Digital Micro Vickers Hardness Tester is a high-precision hardness testing system designed for accurate micro hardness measurement and analysis. Featuring an advanced optical and transmission system, dual optical paths, automatic loading control, and an 8-inch touchscreen interface, the system delivers stable, repeatable, and highly efficient hardness testing performance for laboratories, quality control departments, and metallurgical applications.

The modular architecture allows convenient upgrades and system refresh through SD card updates, making the equipment future-ready and easy to maintain.

Key Features

High Precision Mechanical Structure

- Optical cross rail guidance system ensures superior guiding accuracy.
- Rack and pinion secondary transmission provides smooth and fast force transfer.
- High transmission ratio worm gear rod system enables stable continuous lifting and significantly improves repeatability and measurement accuracy.
- Flexible foldable hand wheel design improves transportation safety and durability.

Advanced Optical System

- Dual optical path design allows simultaneous operation of eyepiece and CCD camera without switching optical paths.
- Extended optical system lifespan with simplified operation.
- High-clarity indentation imaging achieved through continuously improved optical design.
- Built-in camera support available.

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.



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Intelligent Touchscreen Operation

- 8-inch LCD touchscreen with user-friendly menu structure.
- Digital eyepiece with built-in encoder enables direct display of indentation diagonal lengths (D1, D2) and hardness values.
- Reduces human reading errors and enhances testing accuracy.
- Easy calibration interface with guided menu operation.

Comprehensive Hardness Testing

- Supports both Vickers (HV) and Knoop (HK) hardness testing.
- Hardness conversion capability for:
 - HRA
 - HRB
 - HRC
 - HRD
 - HRF
 - HR15N
 - HR30N
 - HR45N
 - HR15T
 - HR30T
 - HR45T
 - HBW
 - HK

Reliable Illumination System

- LED cold light source supports continuous 24-hour operation.
- No heat generation ensures stable testing conditions.
- Brightness adjustable for operator comfort.
- Light source lifespan up to 100,000 hours.

Modular Upgrade Design

- Firmware and system upgrades performed easily via SD card.
- Simplified maintenance and software refresh capability.

Applications

The system is suitable for hardness testing and metallographic analysis of:

- Steel materials

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- Non-ferrous metals
- Thin foils and sheets
- Cemented carbide
- Metallographic structures
- Carburized layers
- Nitrided layers
- Decarburization layers
- Surface hardening layers
- Galvanized coatings
- Surface coatings
- Glass materials
- Semiconductor chips
- Ceramic materials

Technical Specifications

Parameter	Specification
Turret Type	Automatic Turret
Objective Lenses	10X (Observation), 40X (Measurement)
Eyepiece	10X Digital Eyepiece with Built-in Encoder
Total Magnification	100X / 400X
Test Forces	10gf, 25gf, 50gf, 100gf, 200gf, 300gf, 500gf, 1000gf
Hardness Scales	HV0.01 to HV1
Conversion Scales	HRA, HRB, HRC, HRD, HRF, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HV, HK, HBW
Loading Speed	≤ 50 μm/sec
Indenter	Rectangular Pyramid Diamond Indenter (136° ±0.5°)
Minimum Measuring Unit	0.01 μm
Hardness Range	8 HV – 2900 HV
Display	8-inch LCD Touchscreen
Loading Method	Automatic Loading, Dwell & Unloading
Dwell Time	1 – 99 seconds
Objective & Indenter Coincidence Accuracy	< 1 μm
X-Y Testing Table Size	100 × 100 mm
X-Y Travel Range	25 × 25 mm
Movement Resolution	0.01 mm
Maximum Test Height	100 mm

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Parameter	Specification
Throat Depth	130 mm
Light Source	Adjustable LED Cold Light
Machine Dimensions	540 × 260 × 650 mm
Net Weight	50 kg
Packing Dimensions	710 × 420 × 627 mm
Gross Weight	68 kg
Power Supply	220V ±5%, 50/60Hz (110V Optional)
Standards	GB/T4340, ASTM E384 & E92, EN-ISO6507, JIS B-7734

System Highlights

Dual Optical Path Technology

The independent dual optical path system allows simultaneous operation of:

- Eyepiece observation
- CCD camera imaging

This eliminates the need for optical path switching, improves workflow efficiency, and extends optical component life.

Encoder-Based Digital Measurement

The integrated digital eyepiece encoder allows:

- One-touch diagonal measurement
- Direct hardness value display
- Reduced operator error
- Faster testing process

Precision Test Force System

Equipped with precision weight structure supporting:

- 10gf
- 25gf
- 50gf
- 100gf
- 200gf
- 300gf
- 500gf
- 1000gf

Optional extension available up to 2kgf.

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Standard Accessories

Item	Quantity
Weight Shaft	1
Test Weights	6
X-Y Cross Clamping Testing Table	1
Gradient Level Bubble	1
Level Adjustment Screws	4
Objective Lens 10X	1
Objective Lens 40X	1
Micro Vickers Hardness Blocks	2
Eyepiece 10X	1
Dust Cover	1
Screwdrivers	2
Power Cable	1
Fuse (2A)	2
User Manual	1
Product Certificate	1

Optional Software Package 1 – Data Transfer & Reporting Software

Features

- Parameter setting interface
- Automatic test report generation
- Word-format reporting with hardness curves
- Data storage and transfer functionality

Report Functions

- Hardness statistics
- Average value calculation
- Force and dwell time recording
- Test curve generation

Optional Software Package 2 – Professional HV/HK Measurement Software

Main Functions

Automatic Hardness Measurement

- Automatic indentation detection

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- Automatic diagonal calculation
- Automatic hardness value computation
- Manual measurement support

Hardness Curve Generation

- Automatic plotting of hardness curves
- Depth template saving and loading

Hardness Conversion

Supports conversion between:

- HV
- HRA
- HRB
- HRC
- HBW
- HK

Data Management

- Data saving and retrieval
- Edit and delete functions
- Statistical analysis
- Report generation

Statistical Functions

Automatically calculates:

- Average value
- Minimum value
- Maximum value
- Standard deviation

Report Generation

- Automatic Word report generation
- Customizable report templates

Image Processing Functions

- Image capture
- Camera calibration

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- Image processing
- Indentation analysis

Machine Control Integration

Software can:

- Control motorized turret
- Adjust illumination brightness
- Perform image measurement and analysis
- Generate Word-format reports

Advantages

- High precision and repeatability
- Simultaneous optical observation and imaging
- Easy touchscreen operation
- Reduced operator error
- Long-life LED illumination
- Modular upgrade capability
- Advanced image analysis support
- Wide hardness scale compatibility
- Suitable for research and industrial quality control

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