Mikrosize®

MVicky-1000PC

Touch Screen Micro Vickers Hardness Tester

Video

Contact us

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Features and Applications

The digital micro Vickers hardness tester is a high-tech product integrating optics, mechanics, and electronics. It features a high-definition touch screen for display and operation. With its novel, aesthetically pleasing design, it offers excellent intuitiveness, operability, and reliability. The machine employs an automatic switching device between the indenter and objective lens for automatic positioning, making it an ideal product for testing micro Vickers hardness.

Product Features

- High-definition touch screen display and operation.
- Automatic switching device and positioning between indenter and objective lens.
- The instrument adopts precise mechanical design, is controlled by cpu for the testing process electrically, and utilizes a high-definition optical measurement system optically, enhancing the testing accuracy of the hardness tester.
- Micro vickers and knoop hardness options available.
- Selection of all microhardness scales.
- Conversion between various hardness scales.
- Pre-setting of test force dwell time.
- Adjustment of measurement light source intensity.
- After measuring the indentation diagonal length and pressing the input button, the hardness value is displayed on the screen, along with prompts for the number of hardness tests performed, etc.
- Built-in printer for printing hardness test results.

Product Applications

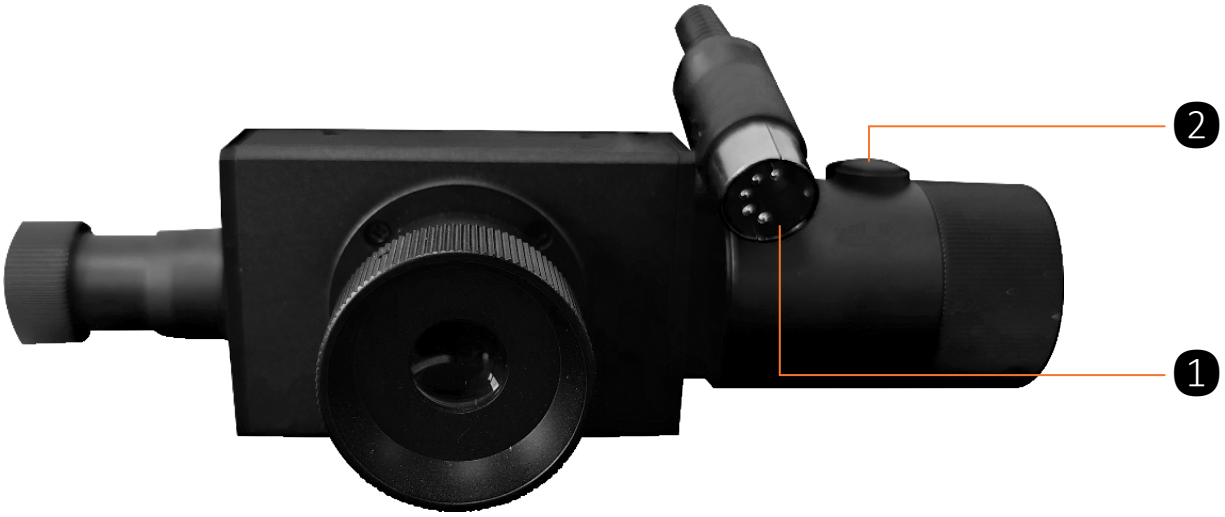
- Hardness testing of various metal materials such as steel, aluminum alloys, copper alloys, etc.
  Enables users to understand the hardness properties of materials, thereby assessing their machinability and service performance.
  Applicable for hardness testing of non-metallic materials such as ceramics, glass, rubber, etc.

Product Details

Structure

1. Halogen Light Source **2. Eyepiece Interface** **3. Eyepiece** **4. Automatic Turret**
5. Indenter **6. X-Y Test Stage** **7. X-Axis Handwheel** **8. Elevating Lead Screw**
9. Touch Screen

Product Details



1. Eyepiece Interface 2. Input Button

- After measuring the indentation diagonal length, press the input button to record the data. Both horizontal and vertical directions need to be recorded once.

- Adjust the movement of the test stage in the X-axis direction via the X-axis handwheel. The elevating lead screw adopts a worm gear structure for more stable lifting.

Product Details

Structure

1. Load Change Handwheel
2. Emergency Stop Switch
3. Handwheel

Product Details

- Adjust the height of the lead screw via the handwheel.
- Adjust the test force magnitude via the load change handwheel.
- Emergency stop switch

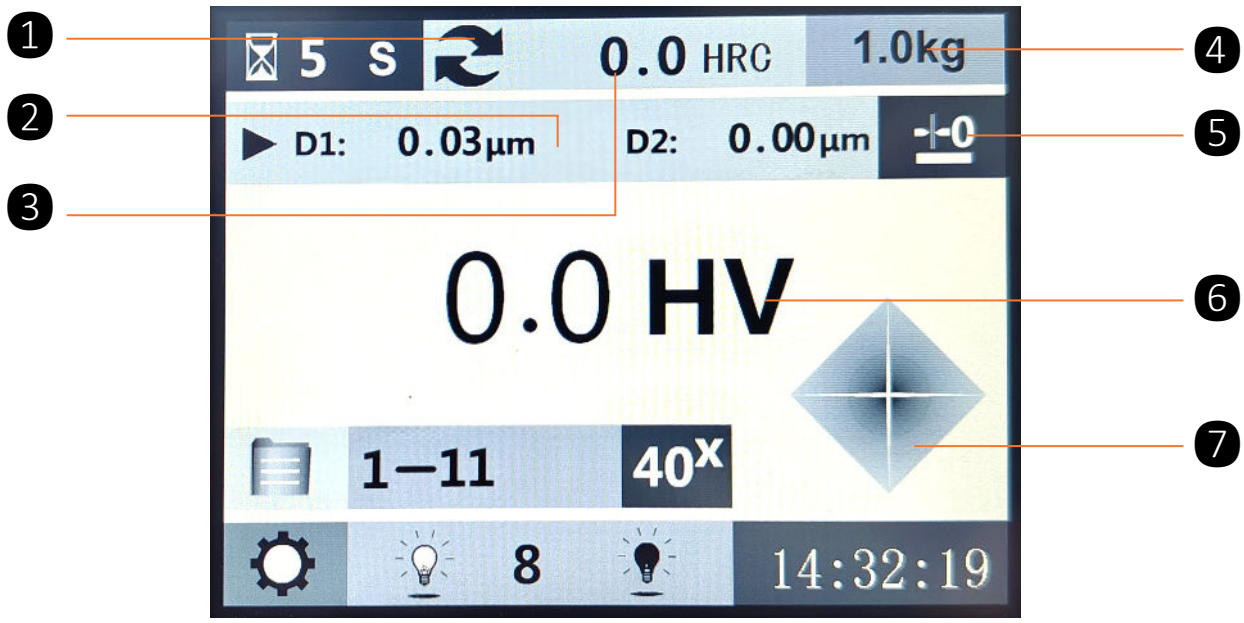
- Printer: Printed data includes maximum value, minimum value, average value, and time.

Product Details

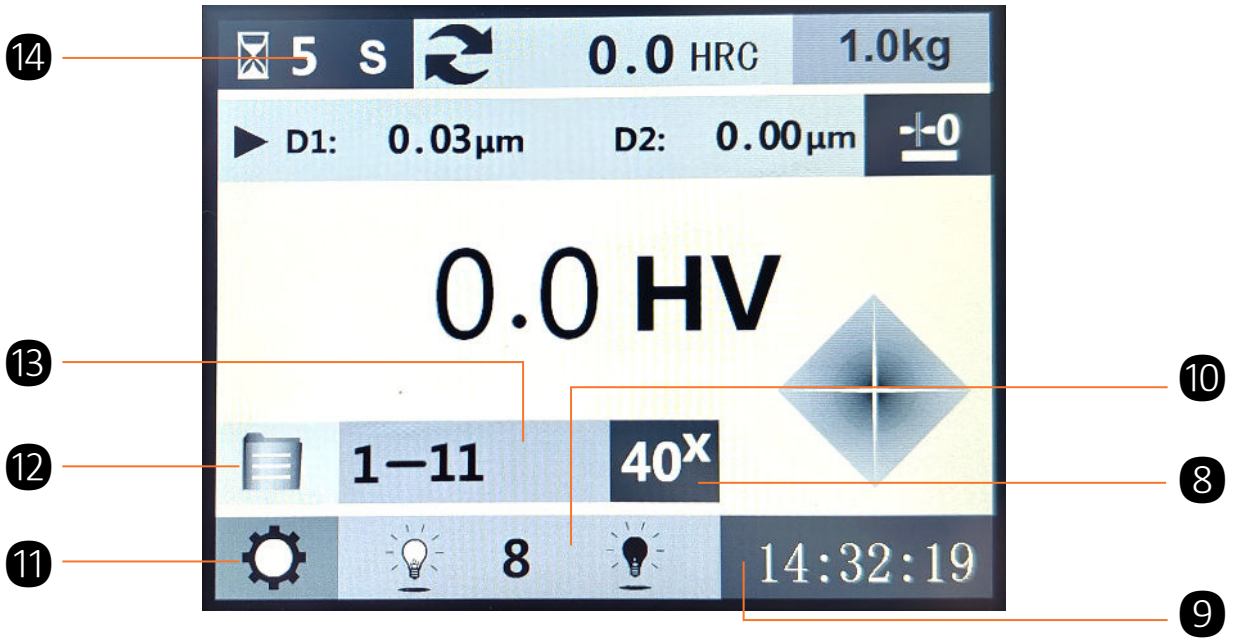
Structure

1.Power: AC220V/50~60Hz **2. External DB9 Interface** **3. Power Switch**

Operation Interface



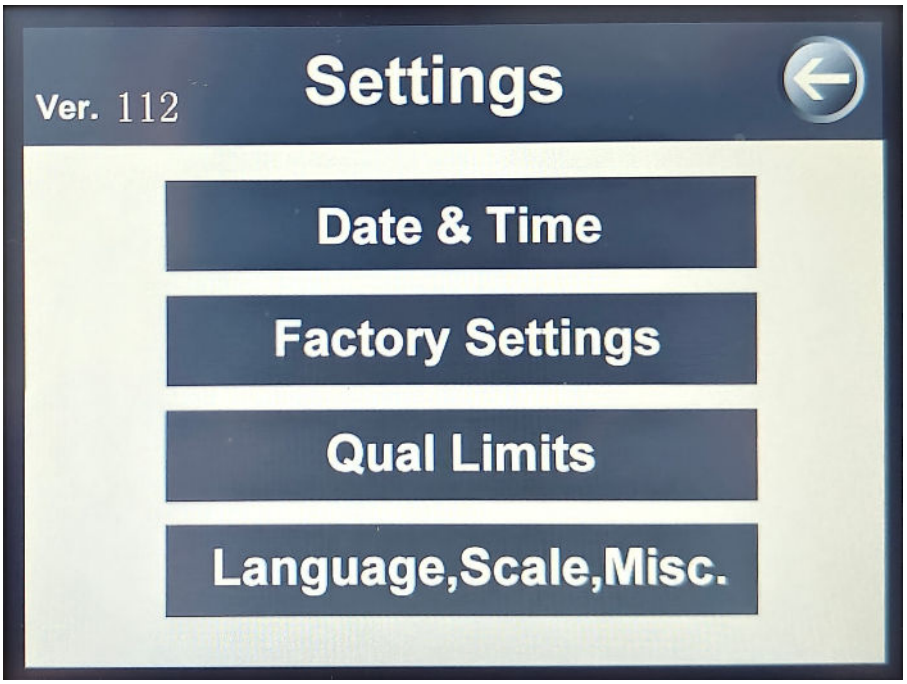
1. Hardness Conversion
2. Measure Diameter
3. Hardness Conversion Value
4. Current Load
5. Eyepiece Zeroing
6. Hardness Value
7. Start



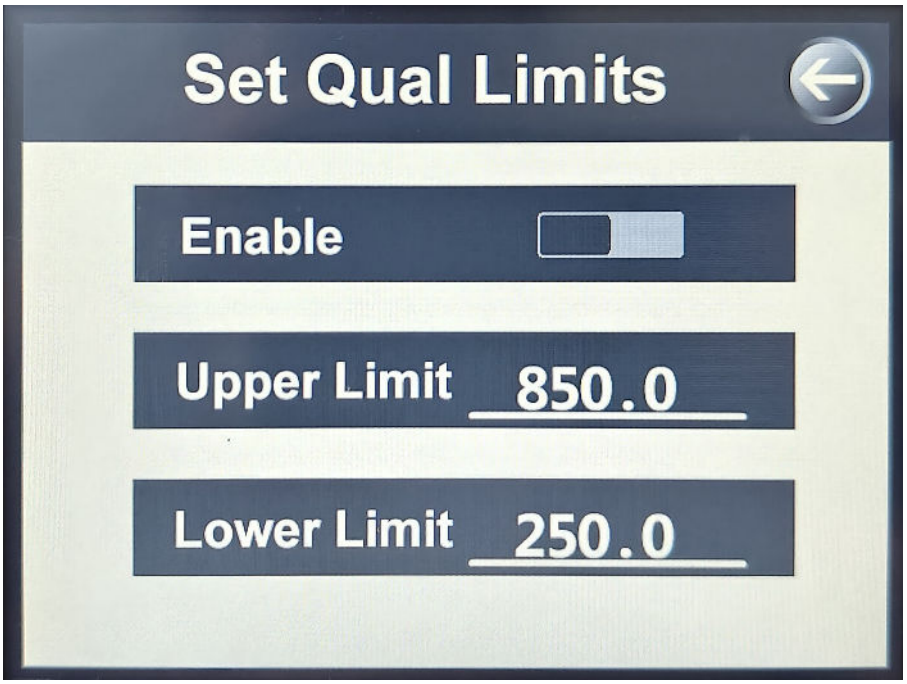
8. Turret Conversion
9. Time Display
10. Brightness Adjustment
11.Settings
12. Folder
13.Number Of Measurements
14. Dwell Time

- Hardness conversion can be switched to Knoop hardness
- Load force dwell time 0~60s (in 5s increments).
- Zeroing operation is required before measurement to ensure accuracy of results.
- Turret selection: 10x objective, 40x objective, and indenter.

Operation Interface

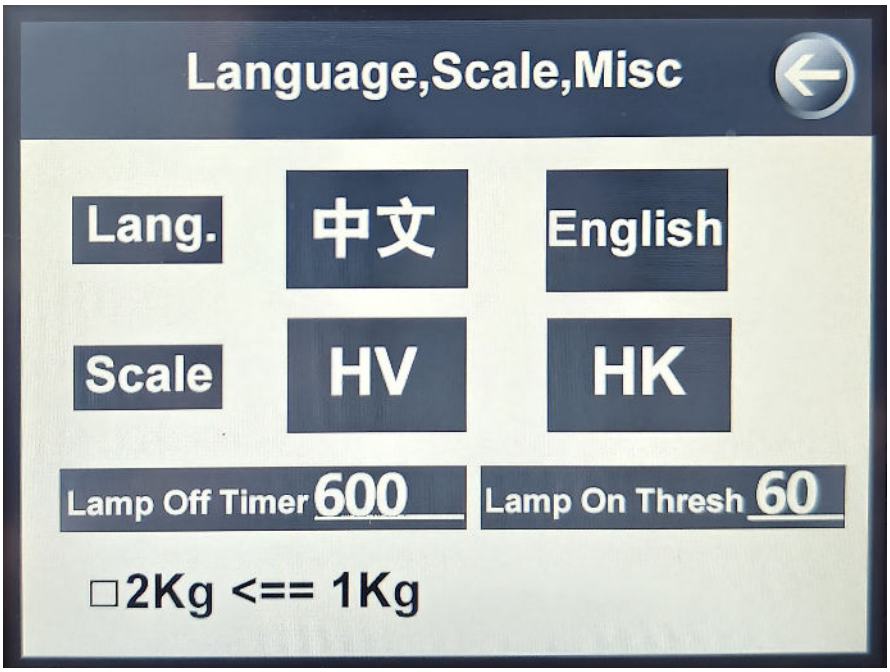


- Set time and date.
- Set language, scale, and other settings.

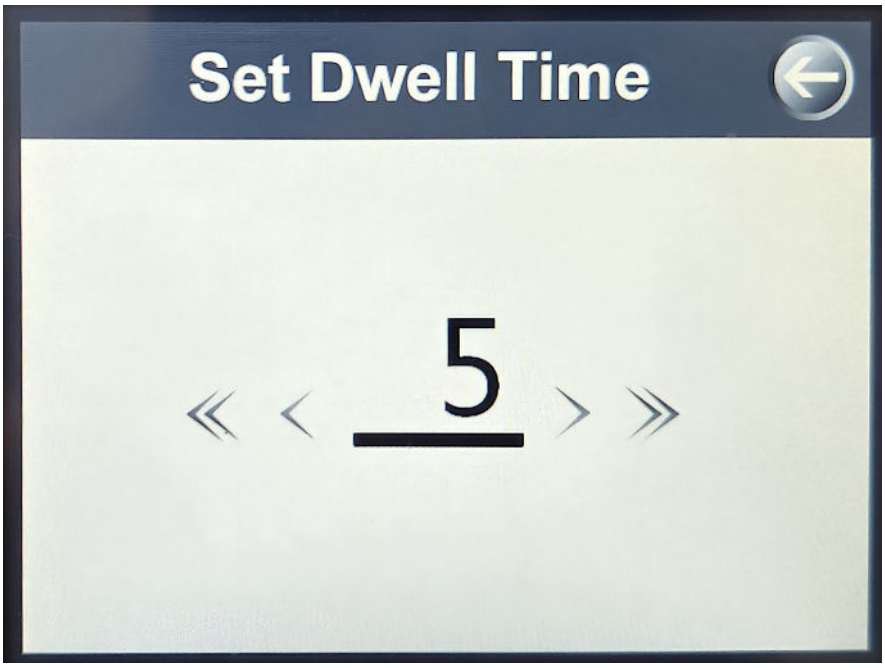


- Set upper and lower limits

Operation Interface



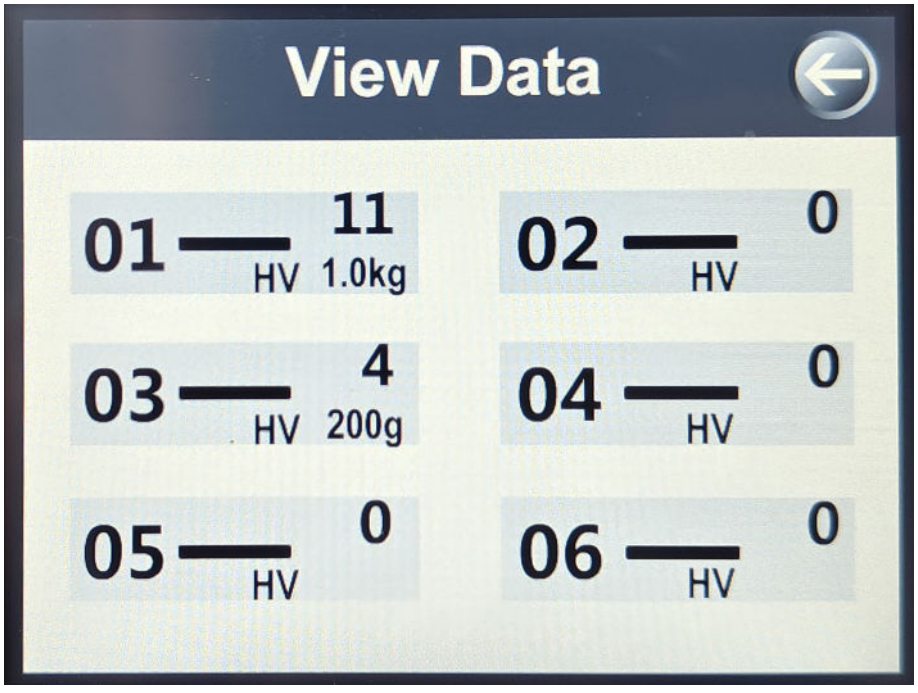
- Select the display language, Chinese and English are optional, and other languages can be customized 2 types of rulers to choose from, HV, HK.
- Set the time to turn off the light source and the light source brightness threshold.



- Set the dwell time, with 5 seconds as a unit, ranging from 0 to 60 seconds, and the default is 5 seconds.

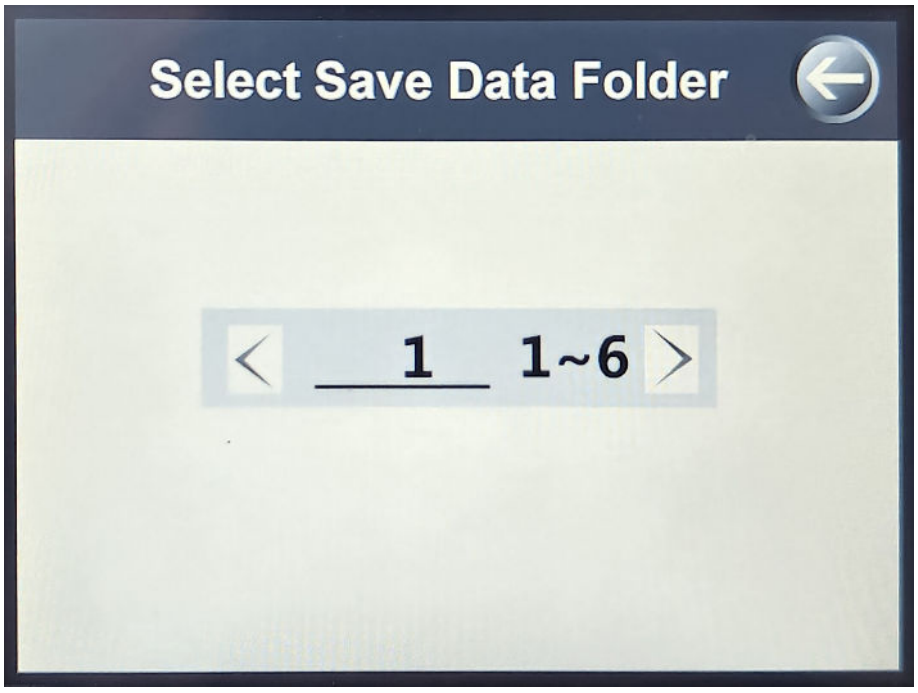
Operation Interface

- Data management: view, set, and clear data.

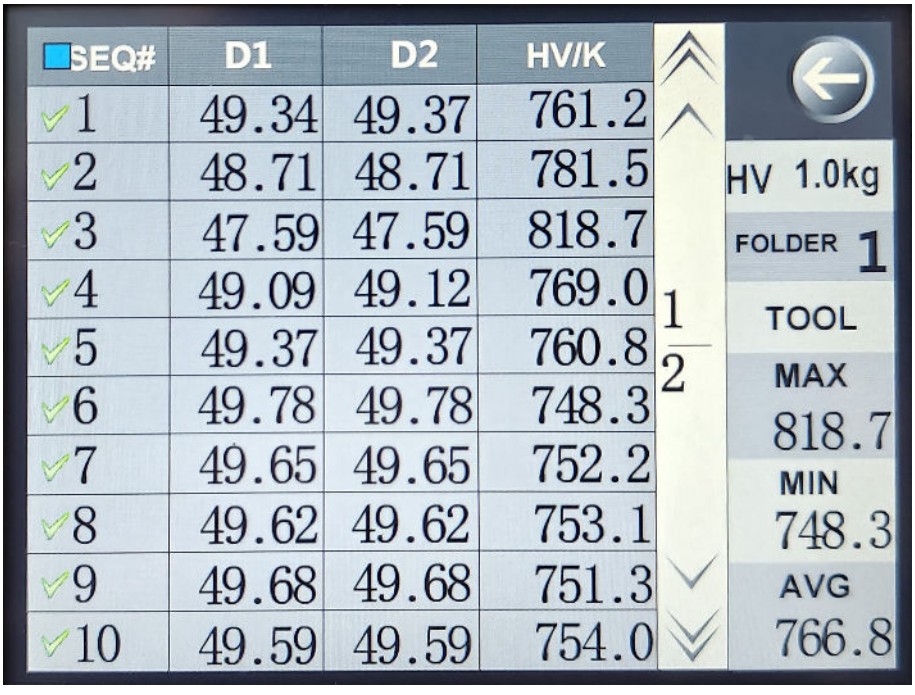


- Select different folders to view data in the corresponding folder.

Operation Interface

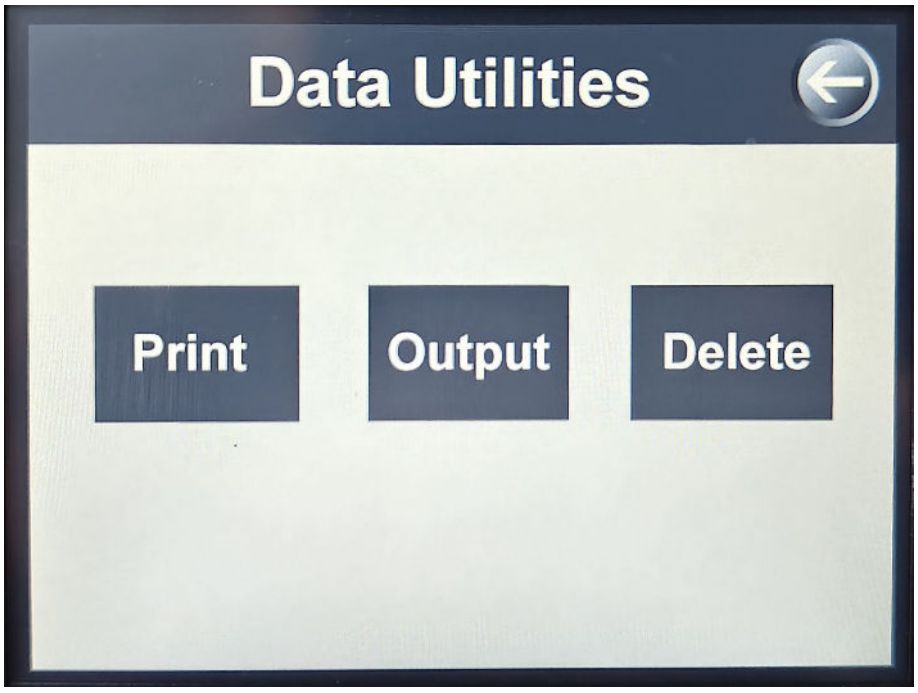


- Select Folder to Save Data.

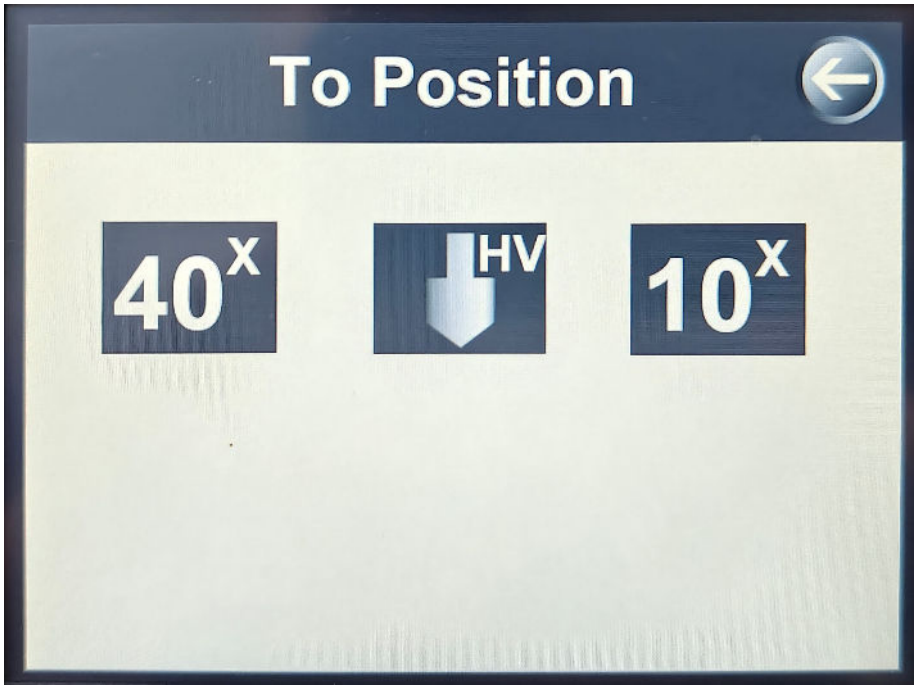


- View recorded test data.

Operation Interface



- Process test data, including Print, Output, and Delete.



- Selectable sequentially: 40x objective, indenter, 10x objective.

Measurement Software

Detail Display

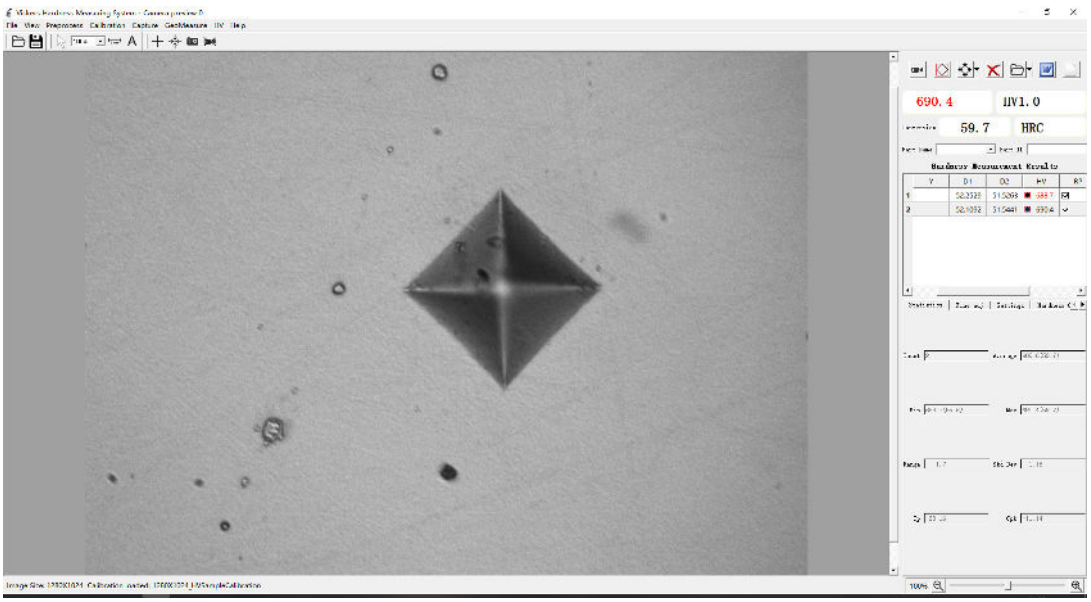
Adapter File

Industrial Camera

- The adapter is used to connect the camera and the hardness tester, ensuring stable and reliable signal transmission between them. The adapter used in this device has good compatibility, sufficient stability and durability to ensure that the camera can work normally and capture clear images. Its user-friendly design facilitates users to install and remove the camera, as well as adjust the position and angle of the camera.
- Equipped with a 1.3-megapixel high-definition industrial camera, it is sturdy and durable in quality, with flexible parameter setting options such as exposure time, gain, white balance, etc. Users can finely adjust the camera according to actual application needs to obtain the best imaging effect.

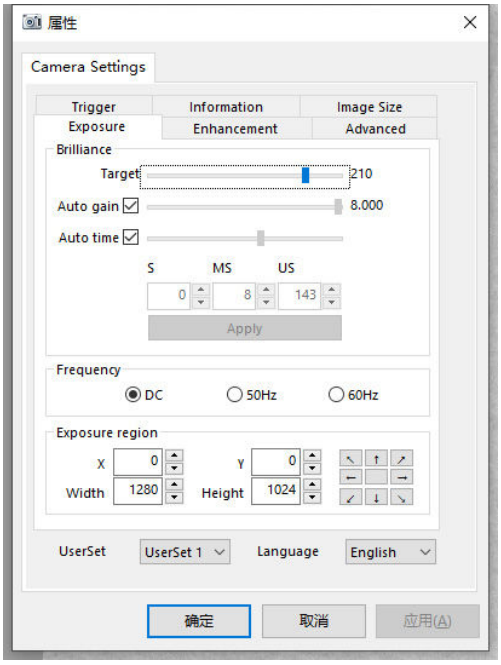
Measurement Software

Software Interface



Main Interface

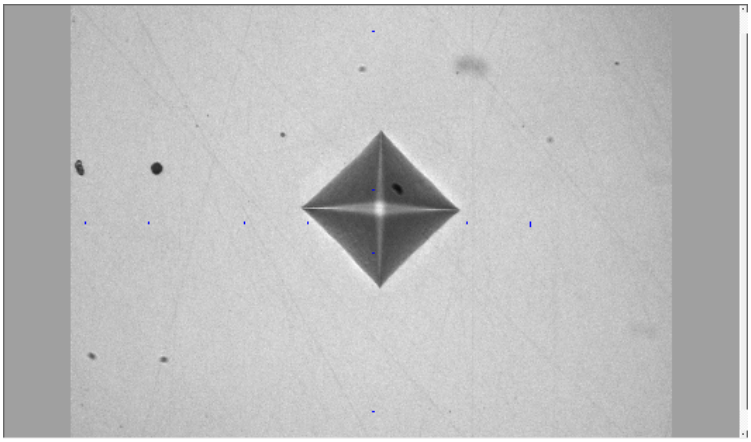
- This software is applicable to almost all hardness testers with camera ports. The system mainly provides the following hardness measurement functions:
- Automatic measurement
- Data statistics
- Data saving and retrieval
- Report output



- When the indentation image is not clear and bright enough, users can adjust parameters such as image brightness, exposure time, and gain in this interface to improve the quality of the indentation image on the screen.

Measurement Software

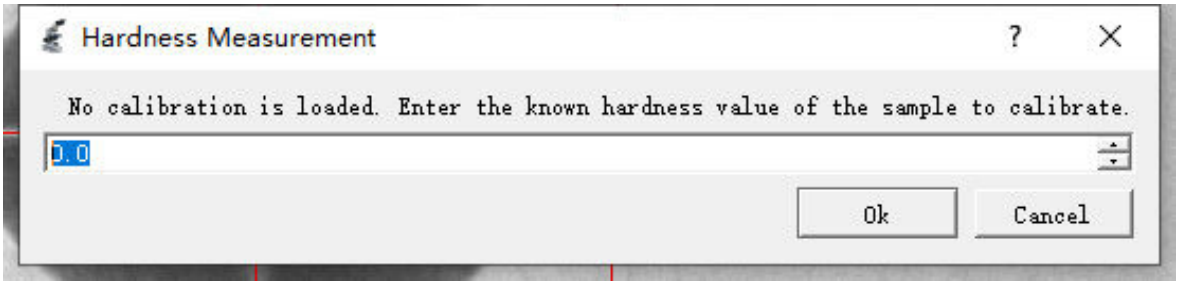
Grid Display



Crosshair Scale

- Sometimes, it is necessary to display a grid on the image as a reference.
- There is a button to show/hide the grid above the toolbar. The center of the grid can be changed freely by the user, which is convenient for users who need it.

Hardness Measurement



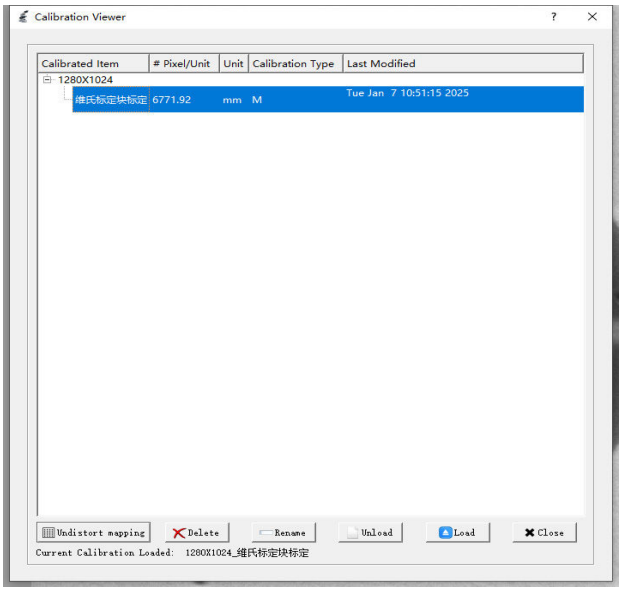
Calibration

- When using it for the first time to measure hardness, users need to perform calibration by themselves using a hardness calibration block, and the system will automatically save this calibration.
- If automatic measurement calibration is used, the system will automatically find and measure the indentation.
- If manual measurement calibration is used, after the mouse shape becomes a red cross, click the 4 fixed points of the indentation (the order is not limited).
- After measurement, the system will mark the indentation with a rectangle. If the rectangle mark is not accurately aligned with the indentation, the user can click with the mouse to make the mark accurately align with the indentation.
- Finally, enter the indentation hardness value, the calibration is completed, and the system will automatically save and load the calibration just performed.

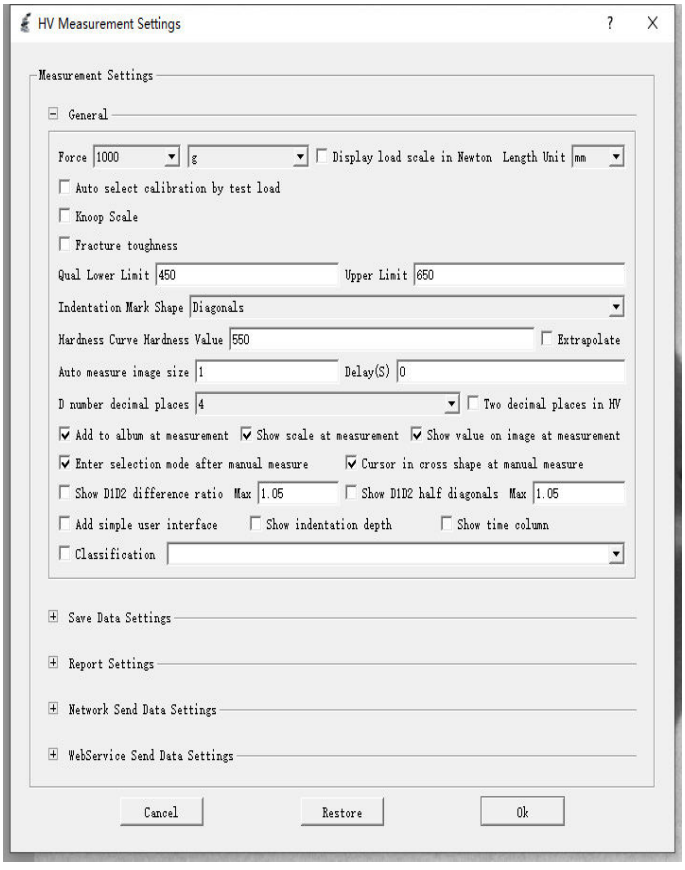
Measurement Software

Calibration Viewer

- In this interface, users can manage the saved calibrations, including renaming, un-loading/loading calibrations.



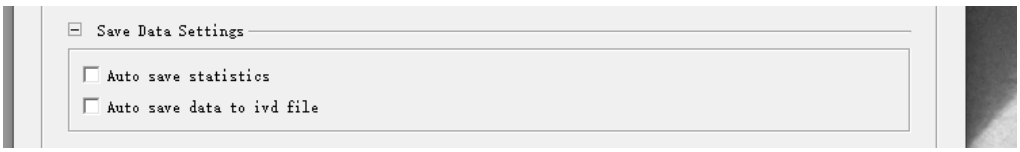
Measurement Settings



- Select the test force corresponding to the hardness tester, which is selected manually.
  Select the test force unit, with g and kg available.
  Auto-select calibration according to test force: after checking, users can first select the test force, and then perform corresponding calibration.
  Select Knoop hardness: after checking, the measurement scale of this program will be changed to Knoop hardness.
  Set alarm upper and lower limits, and measurement results beyond the range will be displayed in red font.
  Indentation mark shape: rectangle, arbitrary quadrilateral, or diagonal can be selected to indicate the indentation measurement result. Rectangle is commonly used.

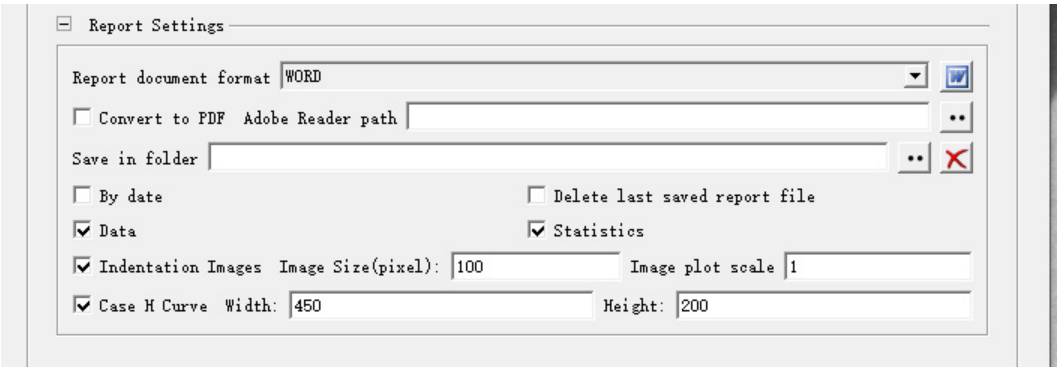
Measurement Software

Save Data Settings



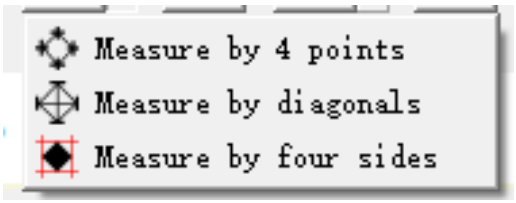
- Auto-save statistics: after checking, the measurement statistics will be automatically saved in the set folder.
  Auto-save data: after checking, the measurement data, including indentation images, etc., will be automatically saved in the set folder.

Report Settings



- There are 2 report document formats available, WORD or EXCEL can be selected.

Common Buttons

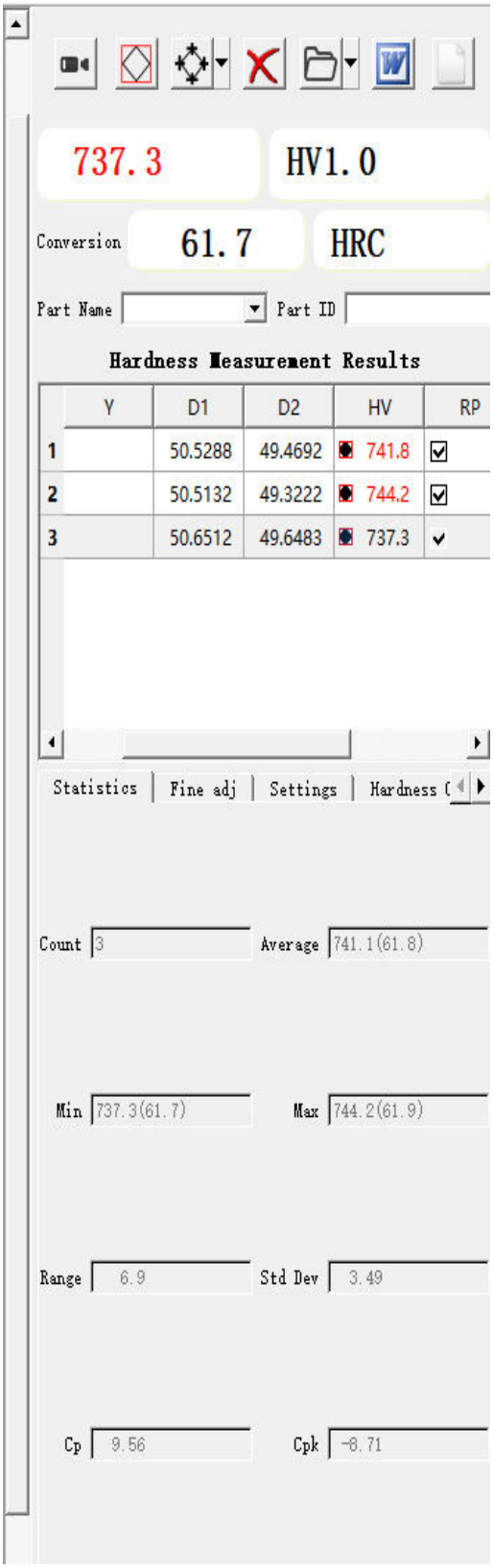


Manual Calibration

- From left to right:
- Camera mode: after clicking, the real-time camera image will appear on the screen.
- Automatic measurement: after obtaining a clear indentation, click to allow the system to automatically find the indentation and calculate the hardness value, while updating the statistical data and indentation album.
- Manual measurement: the system provides 3 manual measurement methods: 4-point measurement; diagonal measurement; two-point and four-line clamping measurement.
- Delete button: select the data and click this button to delete it.
- Data saving: click to save the test data.
- Report generation: click to generate a report, and the format can be modified in the report settings.

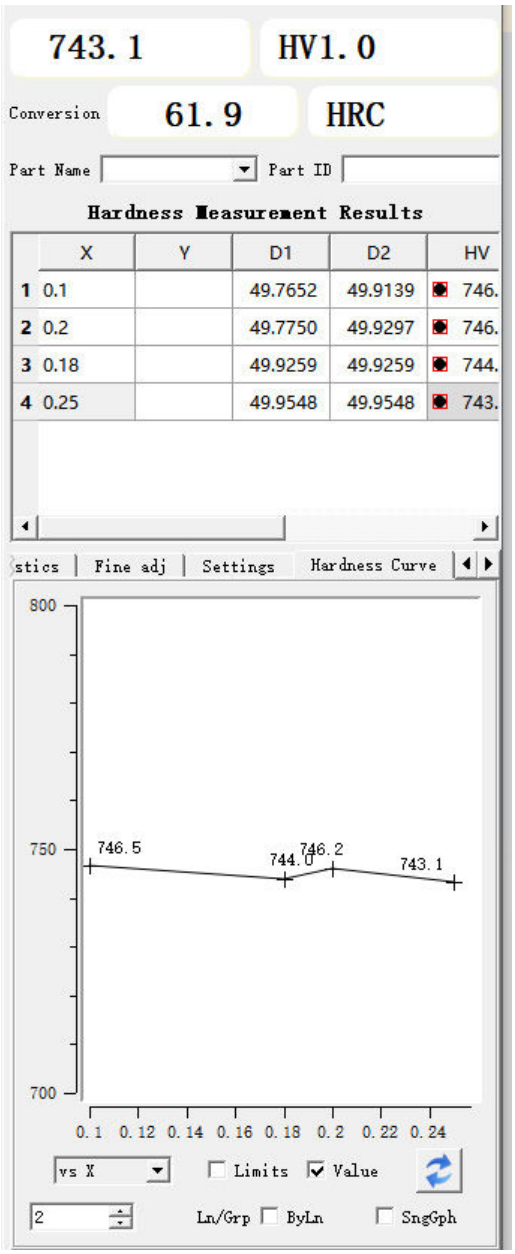
Measurement Software

Result Statistics



- After each measurement, the test results will be automatically counted and updated in the statistical column below. The data with unselected RP will not be included in the statistics and report.

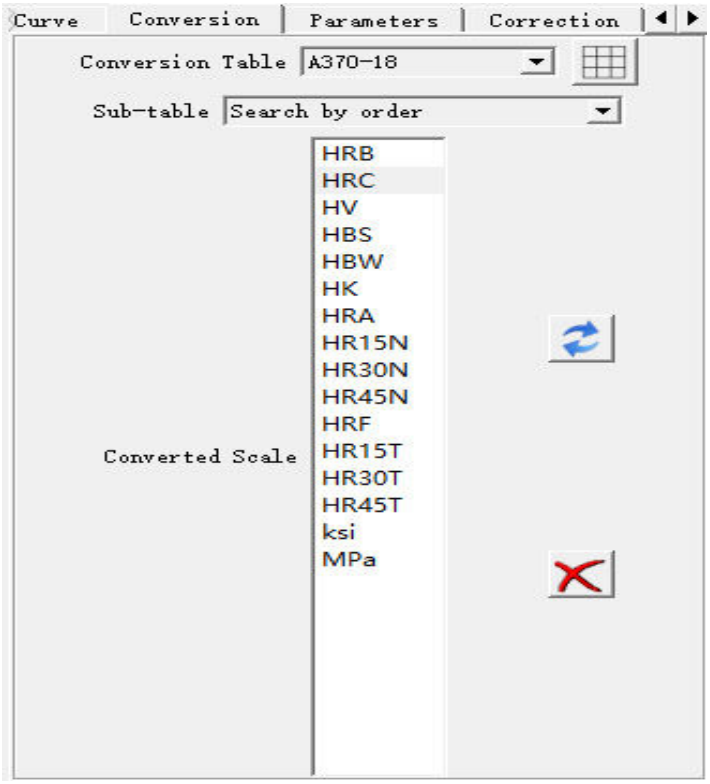
Hardening Curve



- If it is necessary to calculate the depth of the hardened layer, first manually input the sample depth of the test point into column X, then select "vsX" below, and the system will automatically generate multiple hardening curves.

Measurement Software

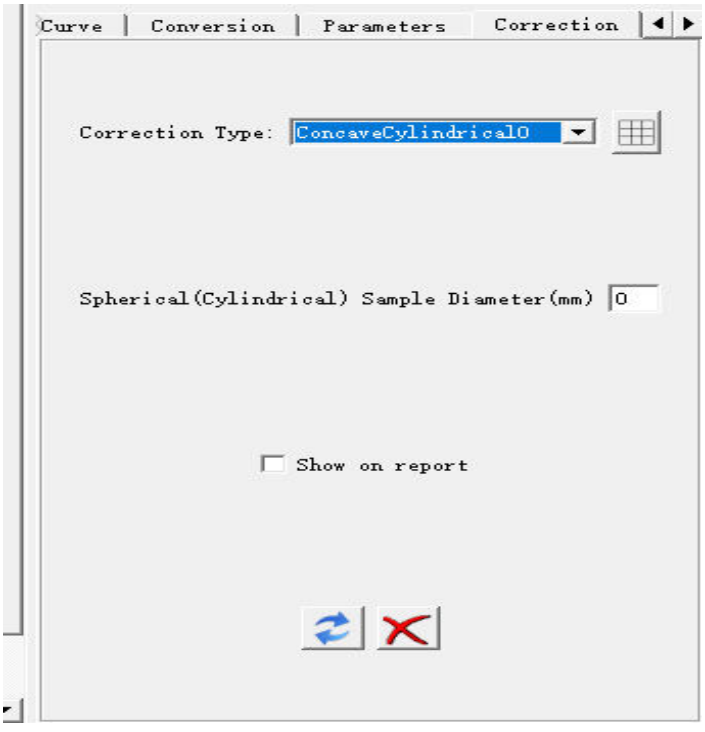
Hardness Conversion



- When it is necessary to convert the measured HV hardness scale to other hardness scales, users can select the hardness scale to be converted in this interface.

Correction

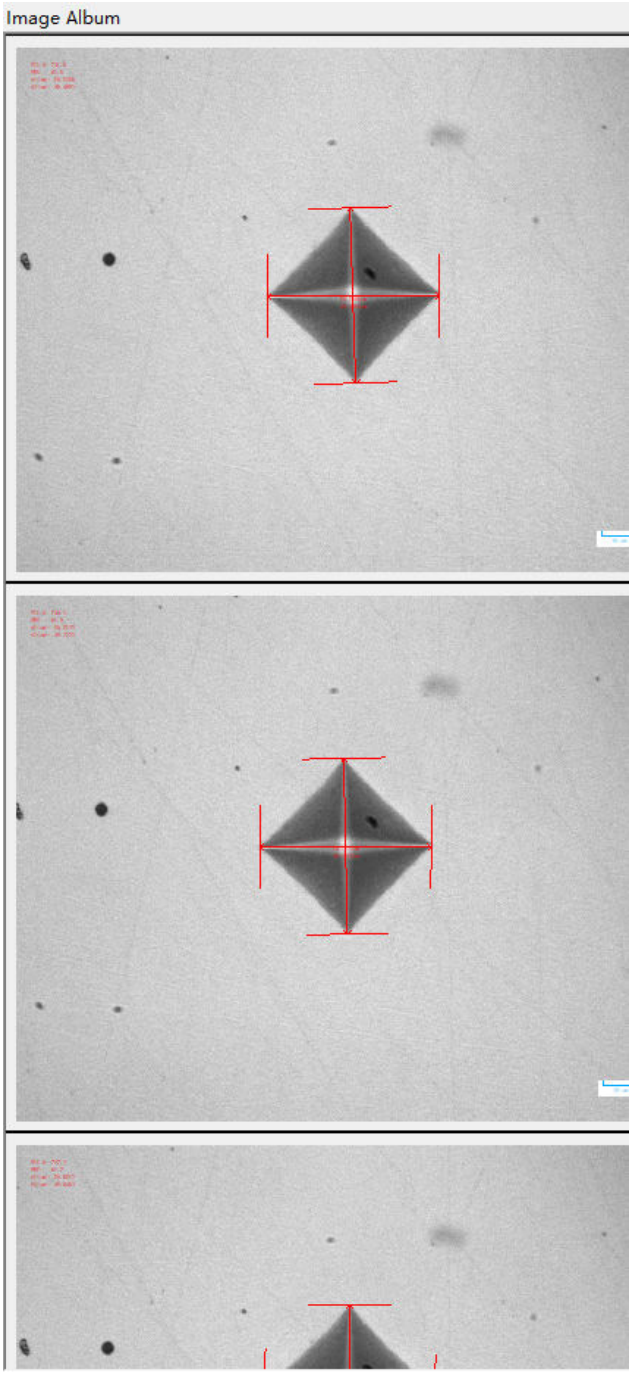
- For non-planar sample surfaces, the software will calculate the hardness correction value according to the correction table and the sample ball (cylinder) diameter entered in the settings. First, enter the sample ball (cylinder) diameter (mm), then select the sample surface type, and the hardness measurement result table will add a correction column.
- If "Show in Report" is checked, the hardness value displayed in the result table and report will be the corrected value instead of the original value.



Surface Correction

Measurement Software

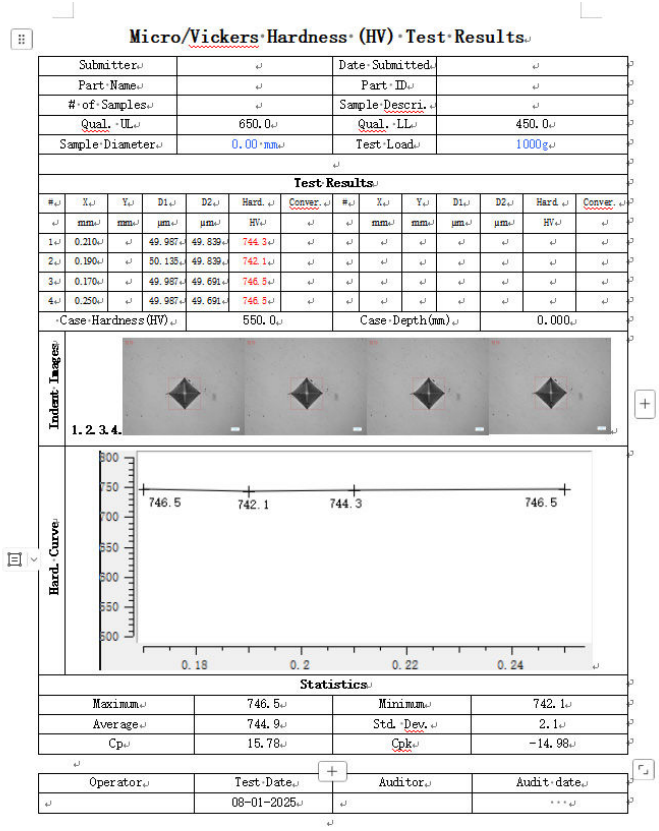
Album



- The indentation images after measurement will be saved in the album. Clicking on the indentation image will display the corresponding hardness value and other information. The window position of the album can be adjusted freely by the user, and it is on the far right of the screen by default.

Measurement Software

Test Results


Micro/Vickers Hardness (HV) Test Results

Submitter		Date Submitted	
Part Name		Part ID	
# of Samples		Sample Descri.	
Qual. UL	650.0	Qual. LL	450.0
Sample Diameter	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	0.210		49.987	49.839	744.3								
2	0.190		50.135	49.839	742.1								
3	0.170		49.987	49.691	746.5								
4	0.250		49.987	49.691	746.5								
Case Hardness (HV)		550.0		Case Depth (mm)		0.000							

Indent Images

1. 2. 3. 4.

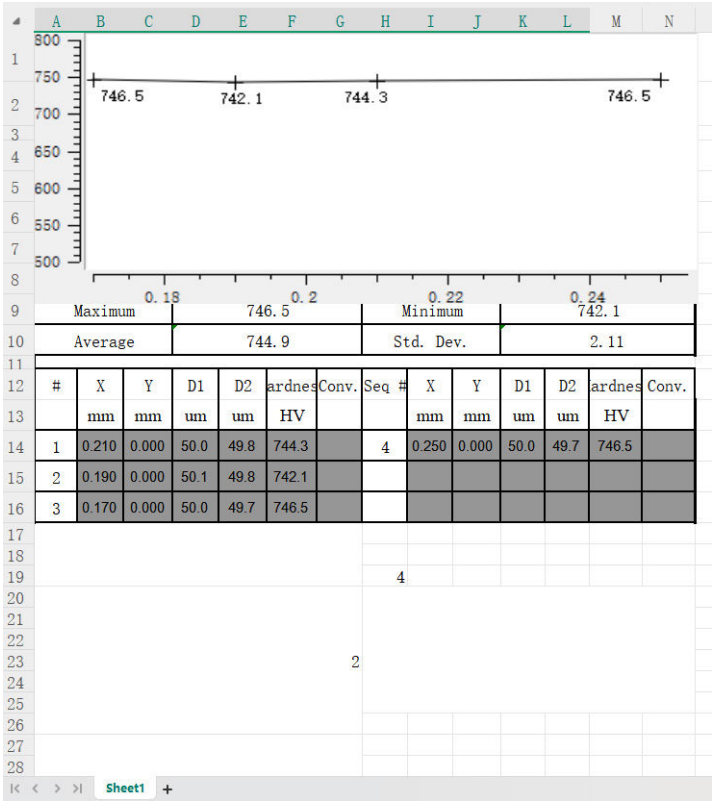
Hard. Curve

Statistics

Maximum	746.5	Minimum	742.1
Average	744.9	Std. Dev.	2.1
Cp	15.78	Cpk	-14.98

Operator	Test Date	Auditor	Audit date
	08-01-2025		

Word Format



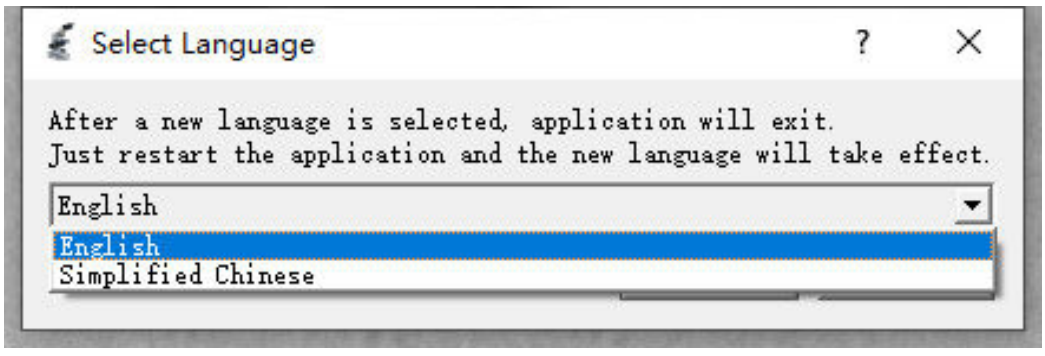
#	X mm	Y mm	D1 um	D2 um	ardnes HV	Conv.	Seq #	X mm	Y mm	D1 um	D2 um	ardnes HV	Conv.
1	0.210	0.000	50.0	49.8	744.3		4	0.250	0.000	50.0	49.7	746.5	
2	0.190	0.000	50.1	49.8	742.1								
3	0.170	0.000	50.0	49.7	746.5								

Sheet1

Excel Format

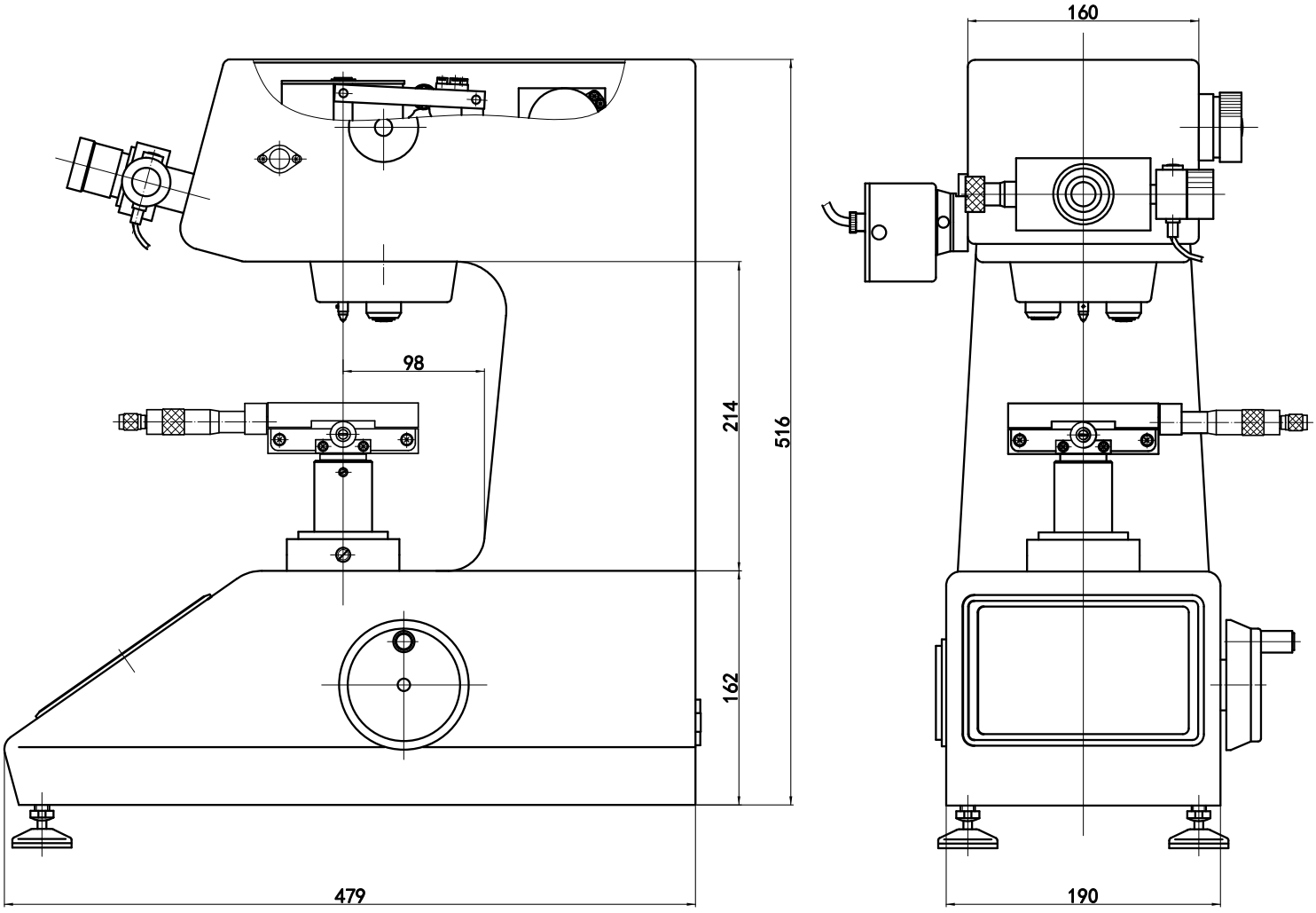
- According to the user's settings, the system will automatically generate a report in Word or Excel format. The report content includes test parameters, and can be set to include measurement data, indentation images, hardening curves, etc.

Select Language



- This software currently supports two languages: English and Simplified Chinese, and supports customization of other languages.

Product Dimensions

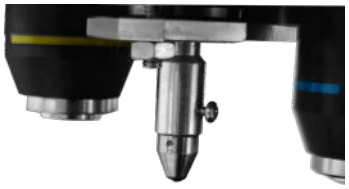
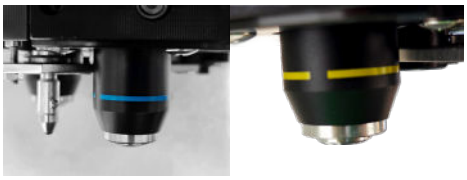
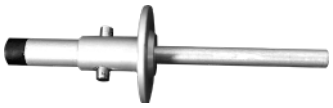


Mikrosize®

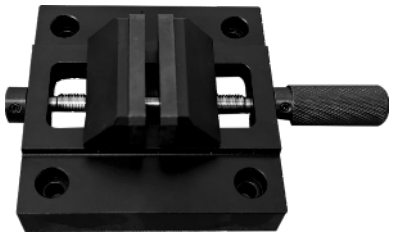
Technical Specification

Name	Touch Screen Micro Vickers Hardness Tester
Model	MVicky-1000PC
Test Force	0.098N、0.245N、0.49N、0.9807N、1.961N、2.942N、4.903N、9.807N
	10gf、25gf、50gf、100gf、200gf、300gf、500gf、1kgf
Indenter	Diamond Indenter
Test Force Application Method	Automatic application and removal of test force
Indenter And Objective Lens	Automatic switching
Test Force Dwell Time	0~60s (in 5s increments)
Eyepiece	10X
Objective Lens	10X 40X
Total Magnification	100X 400X
Resolution	0.06μm
X-Y Test Stage	Size:100x100 mm
	Travel:25x25mm
	Resolution:0.01mm
Maximum Sample Height	90mm
Indenter Center To Outer Wall	100mm
Working Conditions	Within room temperature range (23±5)°C
	Placed horizontally on a stable base
	In a vibration-free environment, free from corrosive media
	Indoor relative humidity not exceeding 65%
Power Supply	AC220 V/50~60 Hz
Net Weight	31KG
Dimensions (L X W X H)	480x325x545mm

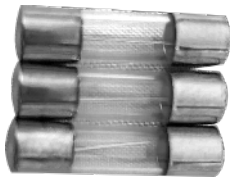
Standard Delivery

Name	Specification	Qty	Photo
Machine Mainframe		1	
Micro Indenter		1	
Objective Lens	10X、40X	each1	
Measuring Eyepiece	10X	1	
Weights		6	
Weight Shaft		1	
X-Y Test Stage		1	

Standard Delivery

Name	Specification	Qty	Photo
Flat Clamping Stage		1	
Thin Specimen Clamping Stage		1	
Fine Wire Clamping Stage		1	
Leveling Screws		4	
Spirit Level		1	
Halogen Lamp	12V、15~20W	1	

Standard Delivery

Name	Specification	Qty	Photo
Measuring Eyepiece	1A/250V 5X20mm	3	
Power Cord		1	
Screwdriver		1	
Hex Key		2	
Dust Cover		1	
Microhardness Blocks	HV0.2、HV1	each1	
Hardness Tester User Manual		1	
Certificate Qualification		1	
Product Qualification Certificate		1	
Accessories Box		1	

Optional Delivery

Optional Accessories	Knoop indenter
	CCD image processing system
	Vickers measurement software
	Low-value HV1 Vickers standard hardness block (around 200)
	Medium-value HV1 Vickers standard hardness block (around 500)
	High-value HV1 Vickers standard hardness block (around 700) (Standard hardness blocks for other Vickers scales are optional)

Mikrosize Precision Instrument Co.,Ltd

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