Mikrosize®

MVision-1/10/30/50

Intelligent Semi-Auto Vickers Hardness Tester

Video

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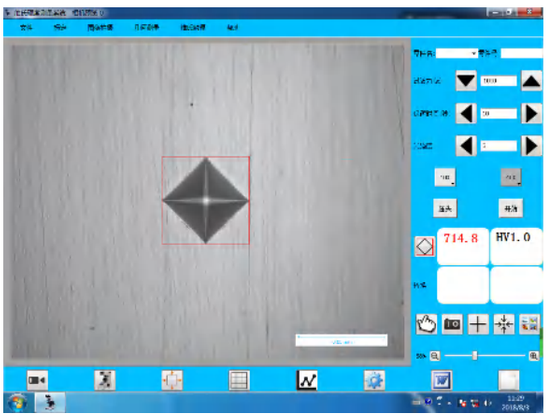
Product Feature&Application

Product Features

- New generation of Micro/Macro Vickers hardness tester.
- Integrated design of hardness tester and panel computer, all the testing parameters can be selected on the panel computer.
- Touch screen makes operation quickly and conveniently and displays clearly and intuitively.
- With CCD image acquisition system, it can show dynamic indentation image, lock the image and automatically get vickers hardness value with high precision.
- The hardness tester with complete functions reaches the advanced level.
- With Windows operating system, it has all functions of computer and can be connected to the output devices such as external screen and printer.
- Automatic recognition and shifting between the objective and the indenter; Macro Vickers machine with 3 objectives.
- The lifting screw adopts worm and gear structure with smooth transmission.
- With digital X-Y test anvil, it makes positioning and measurement more precise.
- Auto test force loading, dwell and unloading.
- With function of hardness scale conversion.
- Automatically save the measuring data, generate the hardness-depth curve and save as WORD or EXCEL document.

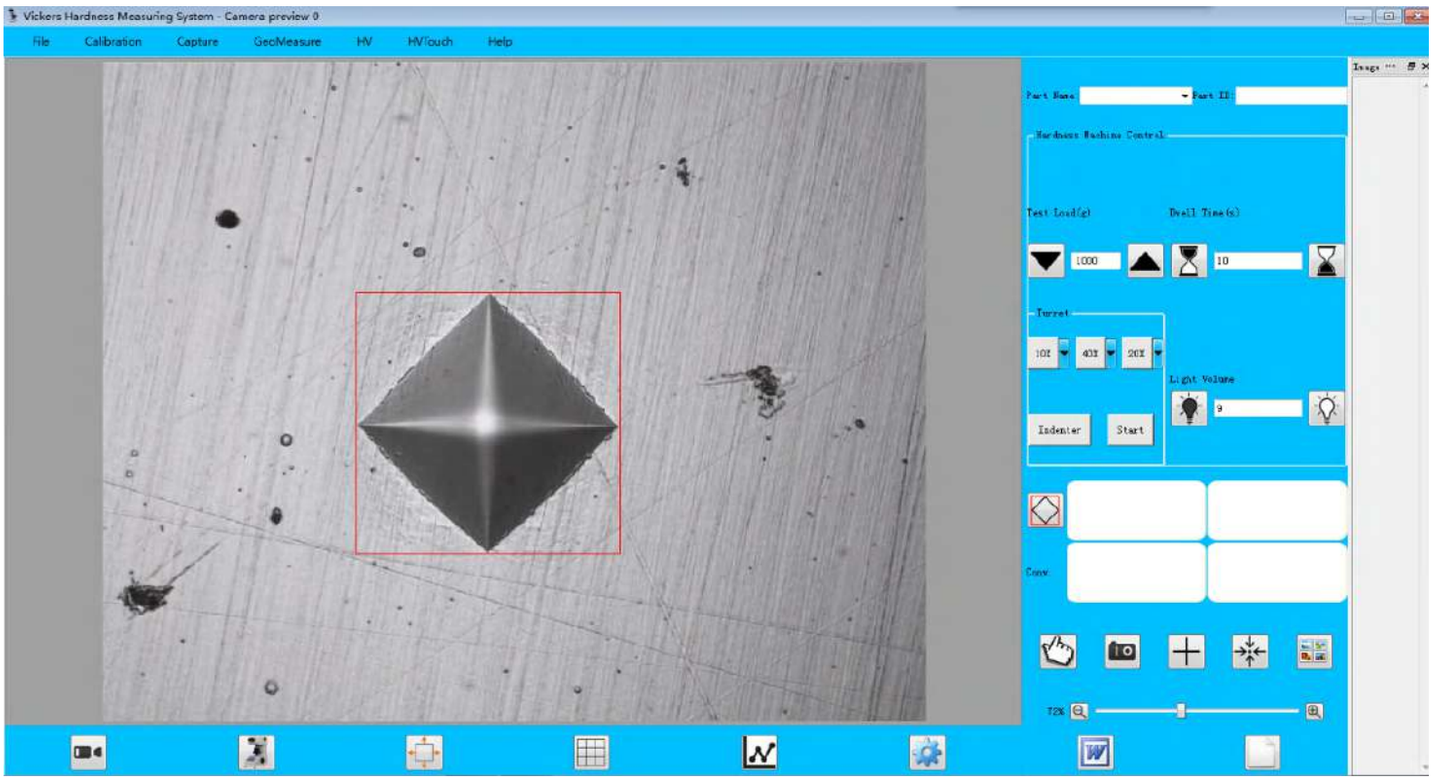


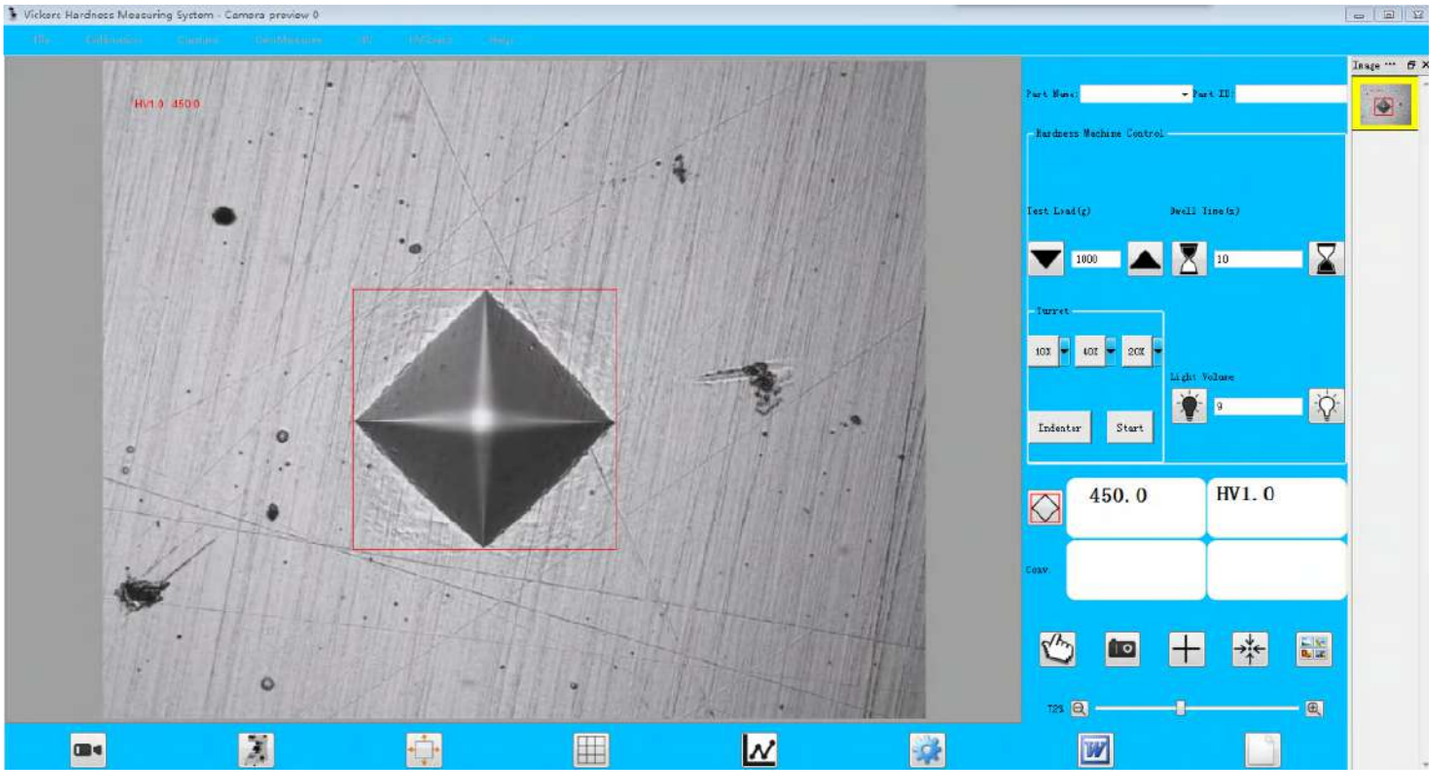
Product Application

Suitable for ferrous metal, non-ferrous metals, IC thin sections, coatings, ply-metals; glass, ceramics, agate, precious stones, thin plastic sections etc.; hardness testing such as that on the depth and the trapezium of the carbonized layers and quench hardened layers.

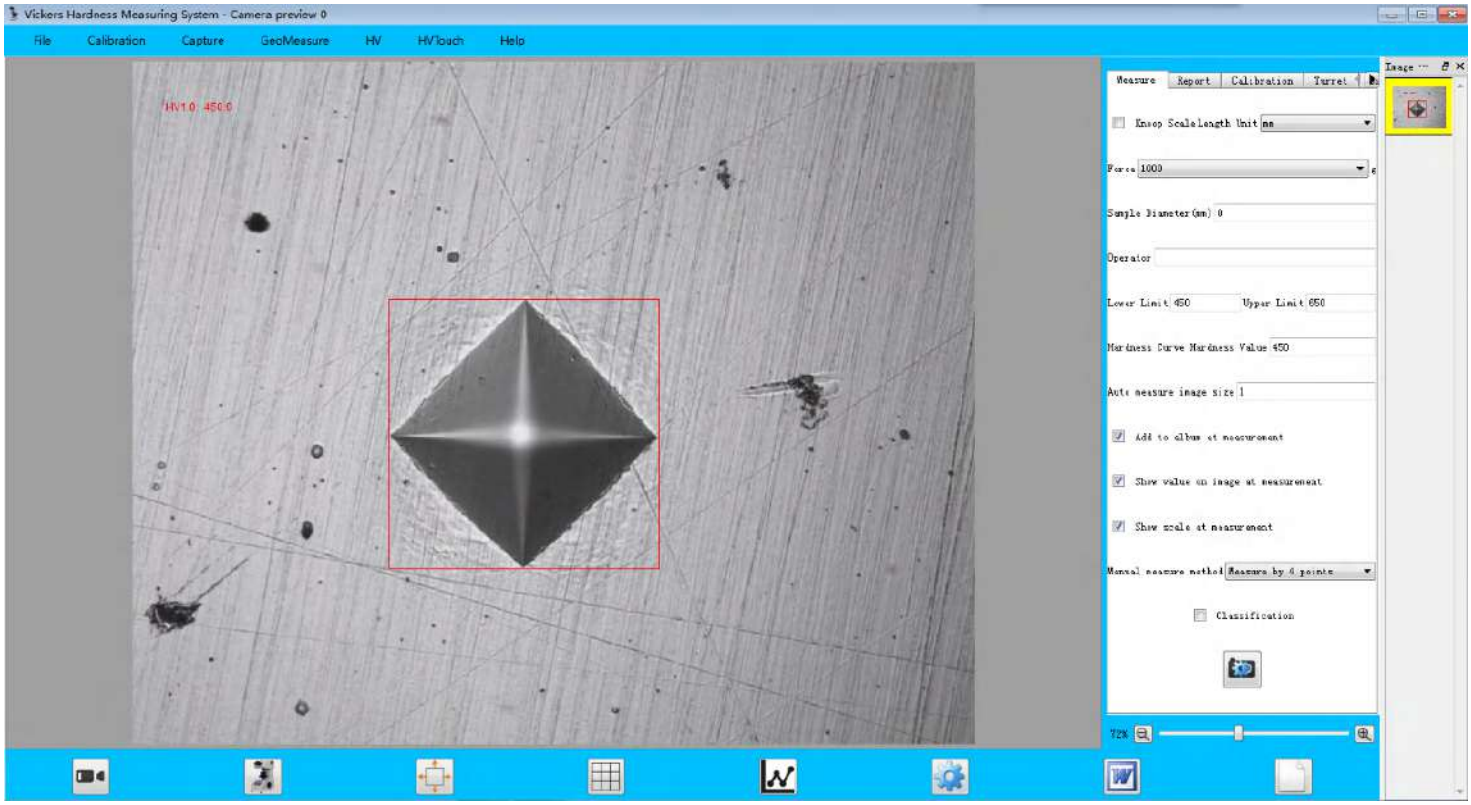
Touch Screen Interface

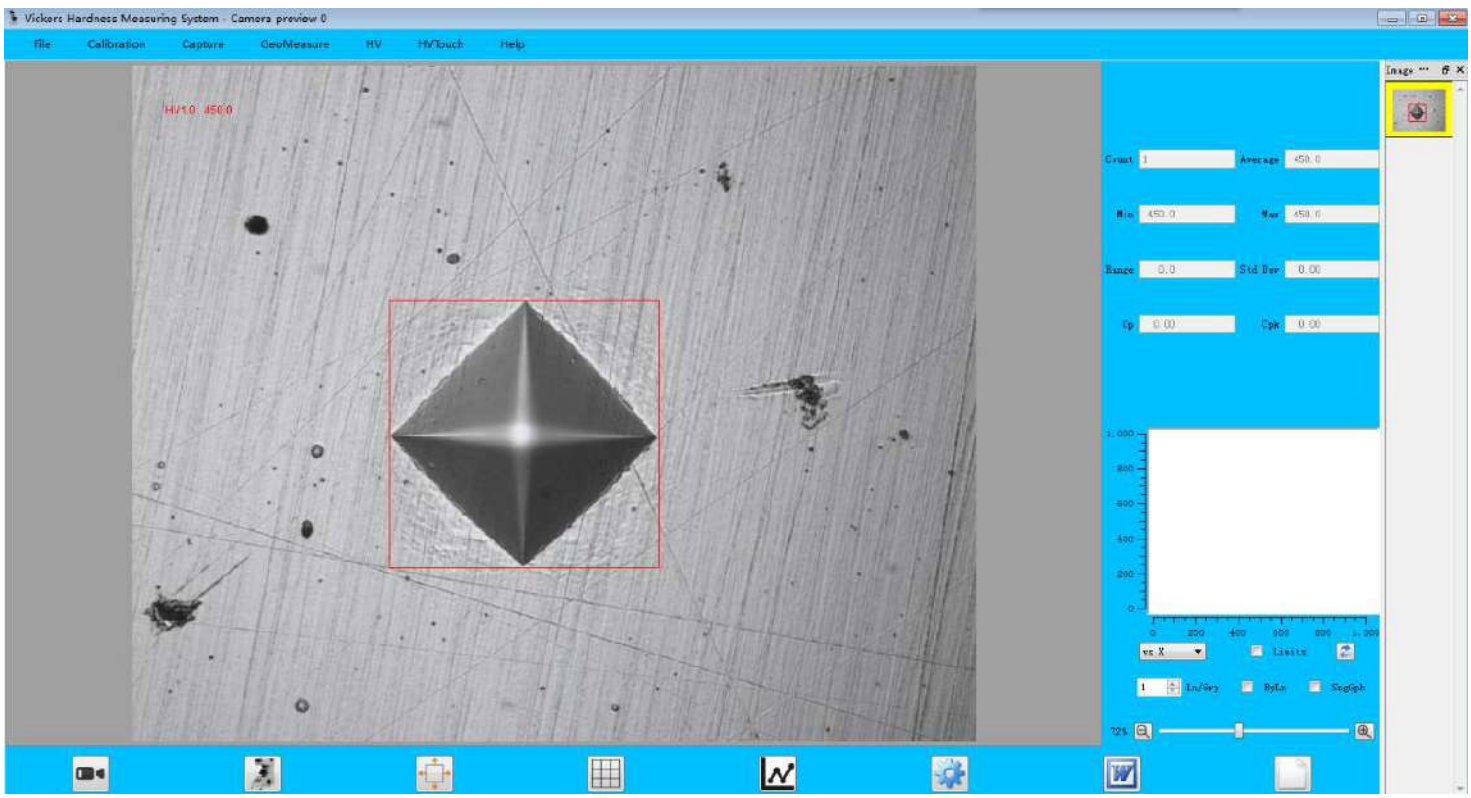
New generation hardness tester combining hardness testing machine with computer,all the testing parameters can be selected on the panel computer by just simple touch. Vickers software systeminstalled in computer .With Windows operating system, it has all functions of computer and can be connected to the output devices such as external screen and printer Automatically save the measuring data, generate the hardness-depth curve and save as WORD or EXCEL document.



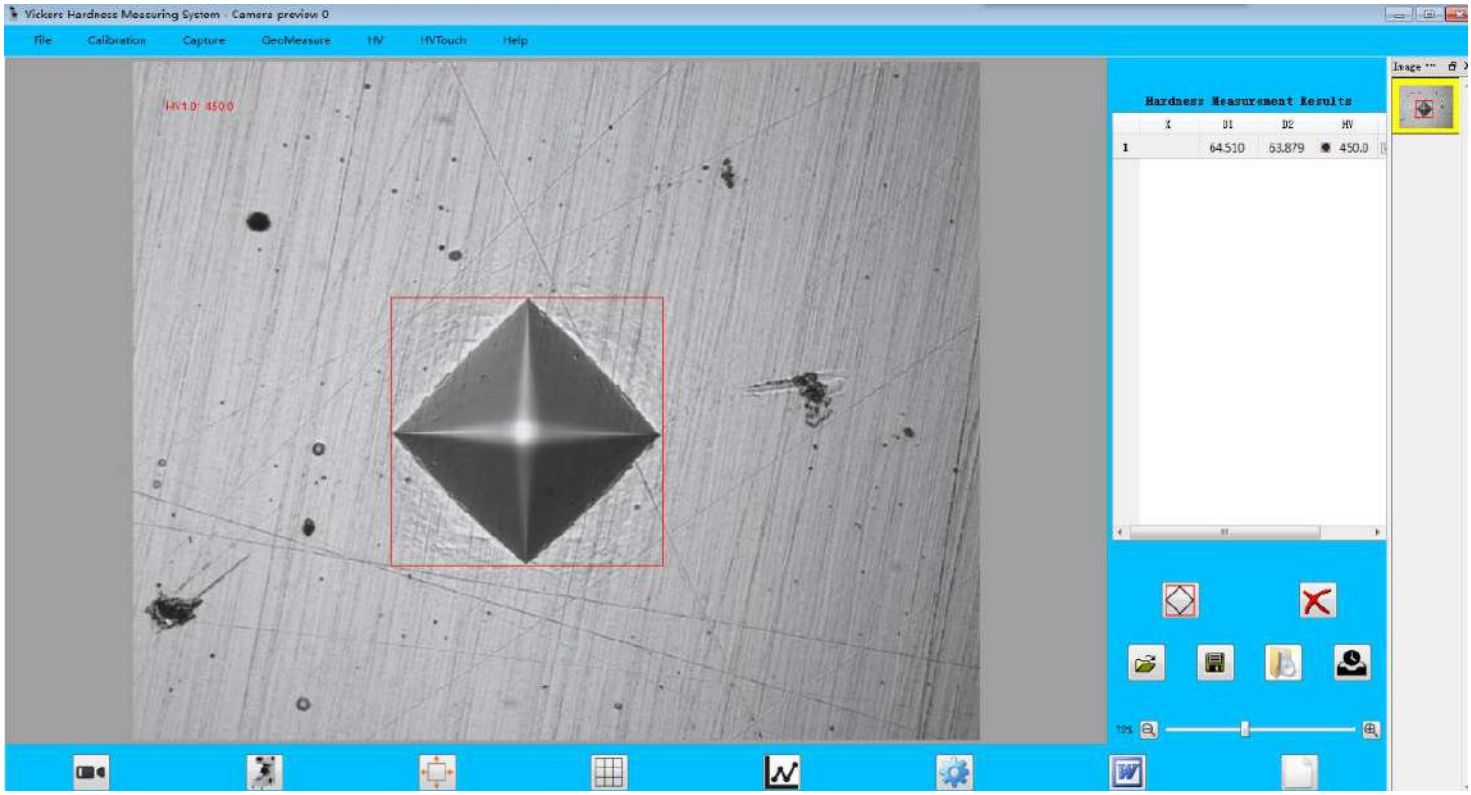


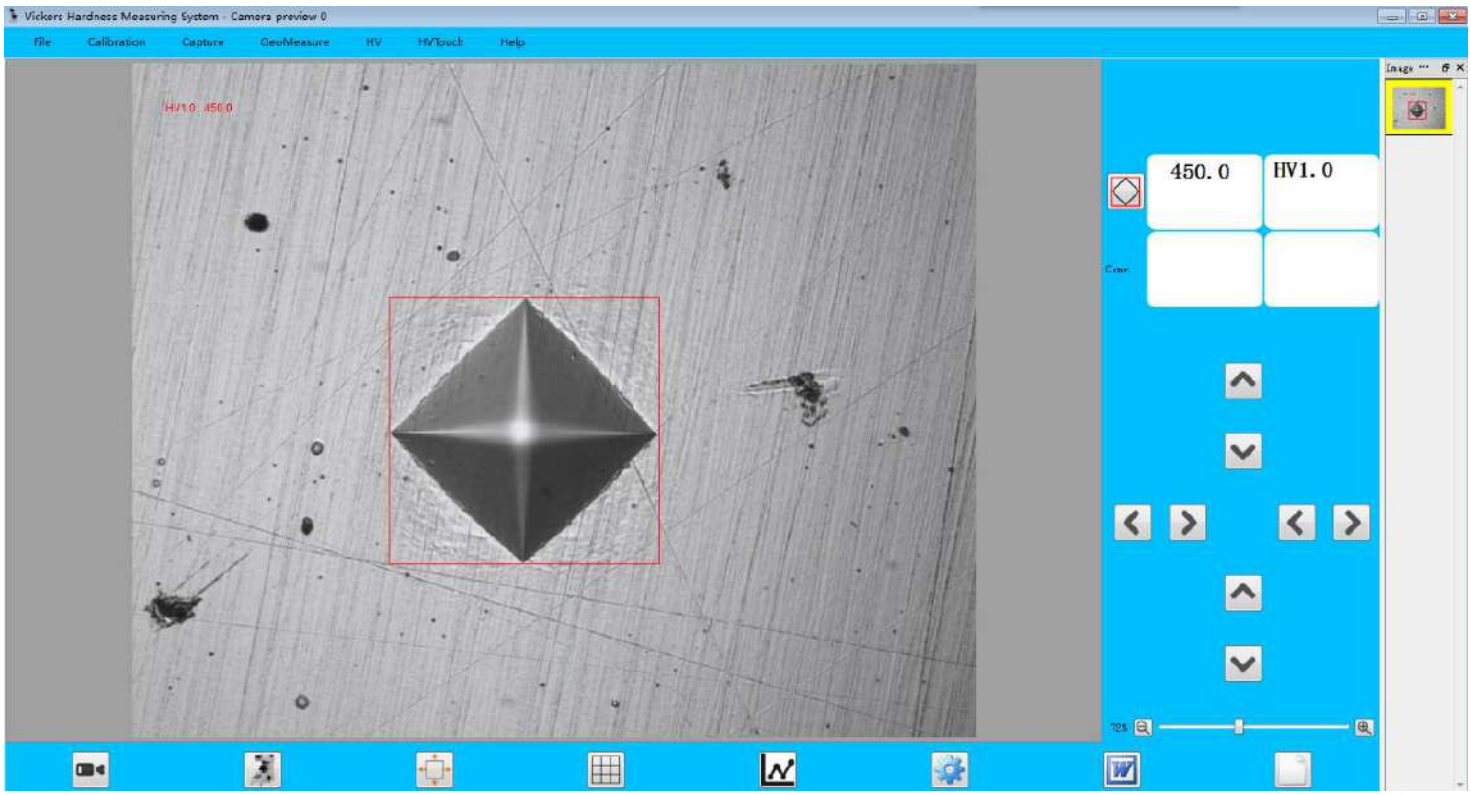
Touch Screen Interface





Touch Screen Interface



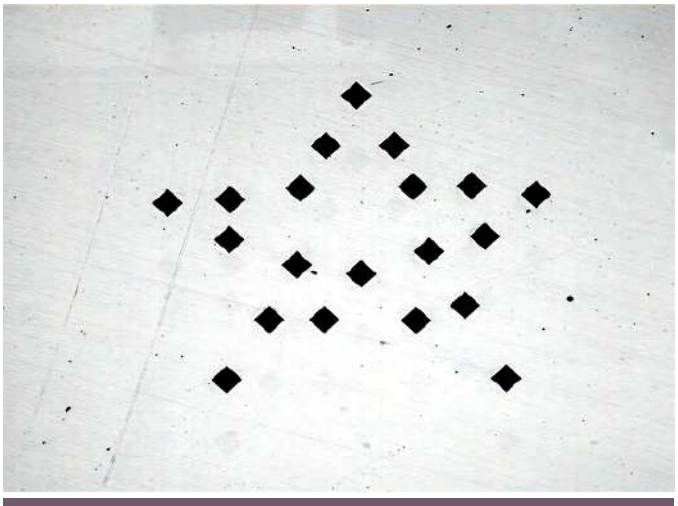


Mikrosize®

User Friendly

With high precision force sensor for close loop loading system, indention track for user to test , with precise Worm and Gear Structure wifor smooth transmission. Built-in CCD Image Capture System.

High Precision Force Sensor



Auto Measuring Software (Indention Track)

Worm and Gear Structure

Built-in CCD Image Capture System

User Friendly

Objectives with different magnification for both observation and measuring. With USB/V-GA/Network Interface for users' choices , Digital X-Y test Anvil makes positioning and measurement more precise; Auto X-Y Test Anvil is optional.

Objective/Indentor

USB/VGA/Network Interface

Digital X-Y Test Anvil

Auto X-Y Test Anvil (Optional)

Ordering Information

MVision-1 Intelligent Semi-auto Micro Vickers Hardness Tester

MVision-10 Intelligent Semi-auto Macro Vickers Hardness Tester
MVision-30 Intelligent Semi-auto Macro Vickers Hardness Tester
MVision-50 Intelligent Semi-auto Macro Vickers Hardness Tester

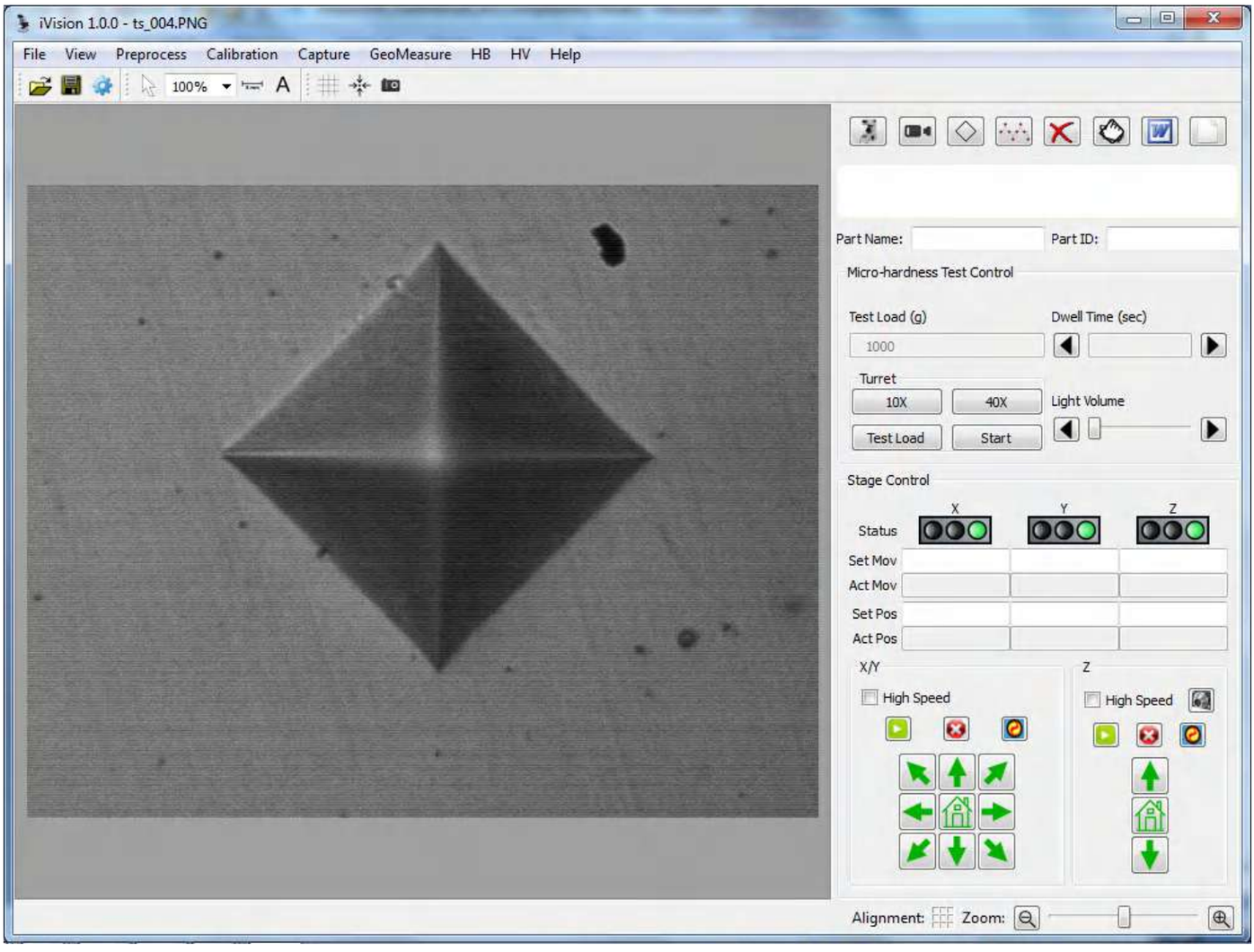
Mikrosize®

Technical Specification

Product Name	Intelligent Semi-Auto Vickers Hardness Tester			
Model	MVision-1	MVision-10	MVision-30	MVision-50
Test Force	10gf, 25gf, 50gf, 100gf, 200gf, 300gf, 500gf, 1000gf	0.2kgf, 0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf	0.3kgf, 0.5kgf, 1kgf, 2kgf,2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf	0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf, 50kgf
Test Range	1HV~2967HV			
Test Mode	HV/HK			
Loading Method	Automatic (Loading/Dwell/Unloading)			
Turret	Automatic Shifting			
Micro Computer	CPU: Intel I5，Memory: 4G，SSD: 240G			
CCD Pixel	1.30 Million			
Conversion Scale	HV, HK, HRA, HRBW, HRC, HRD, HREW, HRFW, HRGW, HRKW, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, HS, HBW			
Hardness Reading	Automatic Display on Touch Screen			
Data Output	WORD or EXCEL Report with Curve Chart			
Objective	10×, 40×	10×, 20×, 40×	10×, 20×, 40×	10×, 20×, 40×
Effective Field of View	10x: 680μm, 40×: 170μm	10×: 680μm, 20×: 340μm, 40×: 170μm	10×： 680μm, 20×: 340μm, 40×: 170μm	10×: 680μm, 20×: 340μm，40×: 170μm
Min. Measuring Unit	10×: 0.1μm, 40×: 0.025μm	10×: 0.1μm, 20×: 0.05μm, 40×: 0.025μm	10×: 0.1μm, 20×: 0.05μm 40×: 0.025μm	10×: 0.1μm, 20×: 0.05μm, 40×: 0.025μm
Dwell Time	0~60s			
Illumination	Halogen Lamp			
Digital X-Y Test Anvil	Size: 120×120mm, Travel: 25×25mm, Resolution: 0.001mm			
Test Height	170mm			
Test Throat	130mm			
Power Supply	AC220V，50Hz			
Executive Standard	ISO 6507, ASTM E384, JIS Z2244, GB/T 4340.2			
Machine Dimension	560×335×675mm			
Net Weight	Net Weight: 48kg			

Vickers Hardness Testing Software System

• **Image/Video capturing:** Capture and save images/videos on DirectShow.
• **Automatic measurement:** With a simple touch, system automatically measures the indentation.
• **Image processing:** System provides a rich set of image processing tools for advanced applications, which include adjusting Brightness, Contrast, Gamma, and Histogram Level, and the Sharpen, Smooth, Invert, and Convert to Grey functions. On grey scale images, system provides various advanced tools in filtering and finding edges, as well as some standard tools in morphological operations such as open, close, dilation, erosion, and flood fill, to name a few.
• **Hardness conversion, correction, and validation:** The measured HV value can be converted to other hardness scales such as HB,HR etc . HV can be corrected for non-planar surfaces. System calculates the minimum sample thickness, minimum test point to sample edge distance etc for validation.
• **Statistics:** Statistical values such as average, standard deviation, Cp, Cpk etc are automatically generated, and off the limit values are marked.
• **Data saving and retrieval:** System can save and retrieve the hardness measurement data and images in data files.
• **Calibration management:** System allows save/manage multiple calibrations, load a calibration, rename a calibration, or unload the current calibration.



Vickers Hardness Testing Software System

• **Automatic Sample Boundary Scan:** Automatically scans along the sample boundary to obtain the sample overview image which is necessary in many test cases to set up test load paths.

• **Large field of view scan:** Automatically scans across the whole area with specified XY size, creates the overall image by image stitching, which again is to be used in setting up test load paths.

• **Total Automation:** With simple touch , system starts automatic test and measurement process in indentation, auto-focusing(with Z motor only), measuring, and hardness curve plotting.

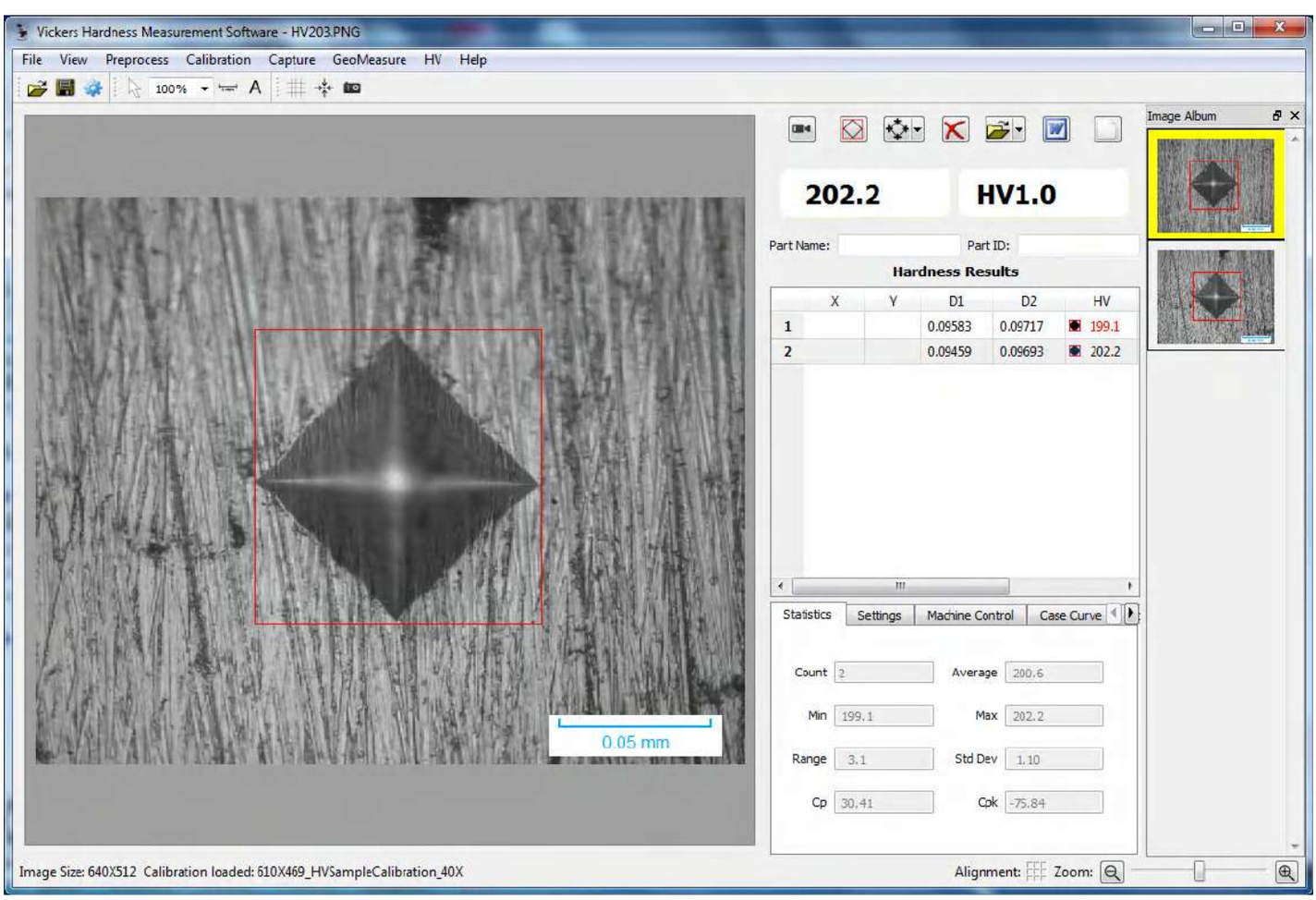
• **Conversion, compensation, and validation:** Converts HV to other hardness scales, simultaneously； Validates the test results with sample dimensions; Compensates the test results with respect to sample cylindrical/spherical diameters.

• **Data archiving**: Measurement data and images can be saved in one file for later processing.

• **Data output by network:** Sends data to TCP/IP server in network to enterprise database.

• **Remote control by network:** Built-in TCP/IP Server to accept commands to set parameters, start test, and to fetch measurement data and images.

• **Knoop Scale, Fracture Toughness:** Can be configured for Knoop Scale measurement. Also for Fracture Toughness measurement by indentation.



Vickers Hardness Testing Software System

• **Other functionalities:** Image/Video capture/save; Geometric measurements. Document entries, etc.

• **Reporting:** With a simple touch, the system automatically generates a WORD or EXCEL document, or directly in its PDF format, with a standard or user provided template, to reports the measurement data, statistical information, the measurement image, and the hardness Case curve. User may enter own additional information for reporting.

• **Hardness curve,Statistics,Auto-alarm:** Automatically detects and plots multiple hardness curves and calculates the hardness case depths. Automatically updates the statistics such as average, min and max, standard deviation, Cp, and Cpk. Automatically marks data that are out of specification limits. May load the depth template file for convenience.

Micro/Vickers Hardness (HV) Test Results

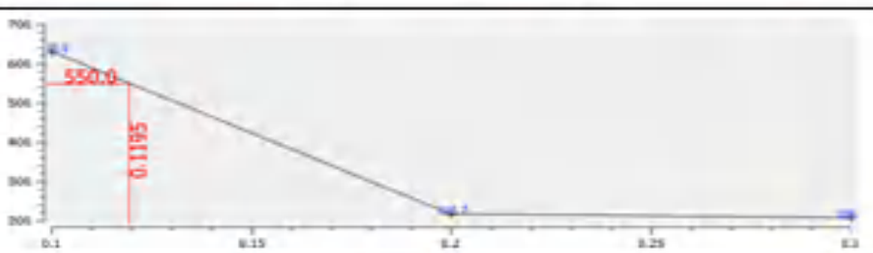
Submitter		Date Submitted	
Part Name	Gear	Part #	0002
# of Samples		Sample Descri.	
Qual. UL	650	Qual. LL	450
Machine ID		Meas. Standard	GB/T231.1-2002
Sample Cpl /Cpk Diam. (mm)	0	Force (g)	1000

Test Results

#	Depth	Y	D1	D2	Hard.	Conver.	#	Depth	Y	D1	D2	Hard.	Conver.
	μm	μm	μm	μm	HV			μm	μm	μm	μm	HV	
1	100		53.95	54.48	630.9								
2	200		93.4	92.06	215.7								
3	300		94.48	95.009 99	206.6								
Case Hardness(HV)				550			Case Depth(μm)				119.5		

Indent Images

Hard. Curve



Statistics

Maximum	630.9	Minimum	206.6
Average	351.1	Std. Dev.	114.26
Cp	0.29	Cpk	-0.29

Operator		Test Date	Auditor		Audit date
		2011.12.25			

Packing List

Name	Qty	Name	Qty
Instrument Main Body	1 set	10× Eyepiece	1 pc
10x,40x Objective (Micro Vickers)	Each 1 pc	Diamond Vickers Indenter	1 pc
10x,20x,40x Objective (Macro Vickers)	Each 1 pc	Hardness Block 400~500 HV5 (Macro Vickers)	1 pc
Digital X-Y Test Anvil	1 pc	Flat Clamp	1 pc
Thin Specimen Clamp	1 pc	Filament Clamp	1 pc
Hardness Block 400~500 HV0.2 (Micro Vickers)	1 pc	Hardness Block 700~800 HV1	1 pc

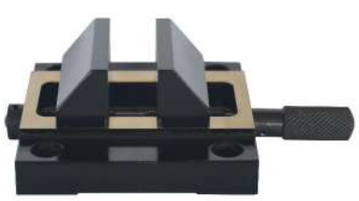
Name	Qty	Name	Qty
Weights (Micro Vickers)	6 pcs	Weight Axis	1 pc
Horizontal Adjusting Screw Feet	4 pcs	Level	1 pc
Fuse 1A	2 pcs	Halogen Lamp 12V、15~20W	1 pc
Power Cable	1 pc	Screw Driver	2 pc
Anti-dust Cover	1 pc	U-flash disk	1 pc
Mouse	1 pc	Usage Instruction Manual	1 copy

Digital X-Y Test Anvil

Filament Clamp

HV0.2 Hardness Block

Diamond Vickers Indenter



Flat Clamp

Thin Specimen Clamp