Fully automatic micro Vickers hardness tester AHVST-1000ZXY

The fully automatic micro hardness tester is mainly used for measuring small and thin test pieces and brittle hardware. It can be widely used in various metals (ferrous metals, non-ferrous metals, castings, alloy materials) by selecting various accessories or upgrading various structures. Etc.), metal structure, metal surface processing layer, electroplated layer, hardened layer (oxidation, various infiltration layers, coating), heat-treated test piece, carbonized test piece, quenched test piece, minute part of phase inclusion, glass, agate Testing of brittle and hard non-metallic materials such as artificial gemstones and ceramics. It is especially suitable for measuring the hardness gradient profile of workpieces in large quantities and the hardness test of specified parts.

The automatic stage controlled by the built-in stepping motor has a variety of control modes through mouse click control, high positioning accuracy, good repeatability, fast moving speed and high work efficiency;

Hardness tester technical parameters

Parameters name	Parameters data
Micro hardness scale	HV0.01,HV0.025,HV0.05,HV0.1,HV0.2,HV0.3,HV0.5,HV1
monitor	7 寸 LCD monitor
Test force（gf）	10，25，50，100，200，300，500，1000
Load control	Automatic (load/hold/unload）
Test force retention time(s)	5～60
Test foce selection	External force selection knob, the test force is automatically displayed on the 7-inch LCD touch display
Objective magnification	10×，40×
Optical channel	Double optical channel (eyepiece and CCD camera channel)
Optical system (dual optical channel, no need to switch）	1. Automatic digital encoder; 2, the total magnification (μm): 100 × (observation), 400 × (measurement); 3. Measurement range (μm): 200; 4, resolution (μm): 0.01
Hardness measurement range	(5-3000)HV
Data output (optional)）	Built-in printer, test data can also be saved to USB flash drive for storage analysis
Maximum height of the test piece(mm)	90
Maximum width of test piece(mm)	120 indenter center line to machine wall distance)
voltage	AC220V/50HZ
Weight(kg)	40

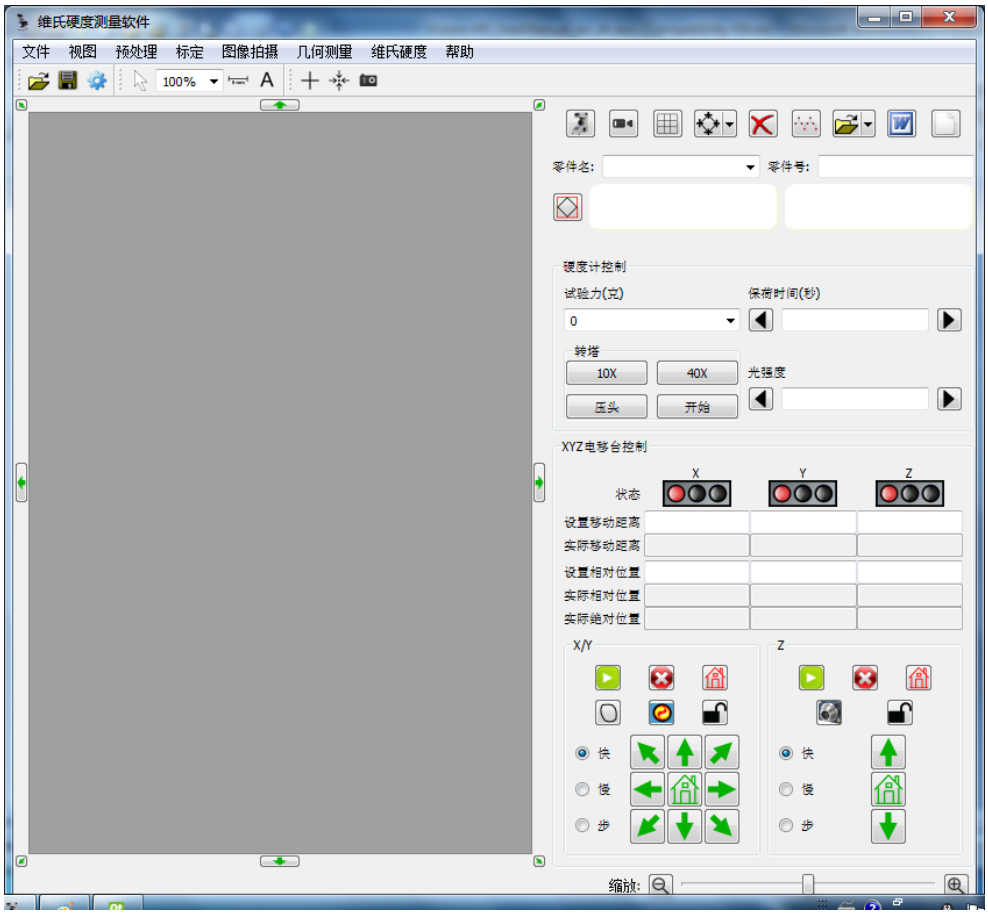
Parameters software:

1、instruction

Fully automatic micro Vickers hardness tester integrates various latest professional technologies such as optical imaging, mechanical displacement, electronic control, digital imaging, image analysis, computer processing, etc., and realizes Vickers hardness tester and automatic stage through computer mainframe. Control, and digitally image the hardness indentation on the computer screen, and then accurately measure the microhardness of the metal and some non-metallic materials and various layers and coatings, the depth of the hardened layer, and the film layer by means of automatic reading and manual reading. Thickness, two-point spacing, etc. It is also possible to take a picture of the metal surface and print it at a fixed rate. This system breaks through the traditional hardness test method and realizes the automatic, high-precision and high-repetition hardness test, which is an important equipment for material analysis.

2、composition

The computer host controls the operation of the hardness tester through the RS232 serial port and receives the corresponding information of the hardness tester; the host computer controls the platform control box through the RS232 serial port, and controls the automatic stage to move and receive corresponding information through the platform control box; Vickers hardness The opticalVickers hardness value is measured by automatic and manual signal of the pressed indentation is imaged on a computer display by a digital camera, and the Vickers hardness value is measured by automatic and manual reading.



3、The main function:

materials	instructions
Pressure control	When the hardness tester is switched, the system senses the change in the test force and displays it in the system in real time.
Turret control	Software controlled hardness tester to switch between objective lens and indenter without manual control of hardness tester
Load control	The software controls the hardness tester for loading without the need for manual control of the hardness tester.
Measurement control	Software control hardness tester turret, load and directly read Vickers hardness values
Z axis control	Software controlled hardness tester Z axis rise and fall
Auto focus control	The software controls the Z-axis autofocus of the hardness tester to find the sharpest point on the surface of the product.
Light source brightness control	Set the brightness of the light source
graphic gathering	Display hardness images in real time, store and print images, and print multiple times.
Manual / automatic measurement	Manual: Pull diagonal measurement, two-point card line measurement, four-point measurement, automatic: automatically find the four vertices of the indentation, the speed is fast, the data is accurate. Even hit the test, that is, hit the test, specify the coordinates to suppress.
Hardness conversion	Automatically perform various hardness value conversions such as Brinell-Louis-Vickers-Knoop in accordance with national standards, real-time display, and can convert various international standards.
Graphic report	Automatically record measurement data, automatically generate hardness-depth curves, save or print hardness-depth curves and all indentation measurements; save or print indentation images and current indentation hardness values; The inspection report can be customized according to user requirements; through the data processing software, the depth value of the hardened layer formed after continuous measurement of the sample can be displayed in tabular form; various measurement data can be output, D1, D2, hardness value table, hardened layer depth, Maximum, average, minimum, display and output each indentation picture. Hardness value, hardness table, hardened layer depth map and image insertion data can be flexibly edited in WORD or EXCEL to print test reports containing mathematical statistics and hardened layer depth curves and save WORD format or EXCEL, and also print the observed samples. The topography is saved and directly reflects the microstructure of the indentation and background.
Knoop measurement	Replaceable Knoop indenter for automatic measurement of Knoop hardness

<table>
<tr><td>Automatic Z axis</td><td>Auto focus step (m): Move the step when the Z axis is automatically adjusted, the default is 1.25m.
Z-axis button step (m): Keyboard or interface direction button button Z moving distance, default 1.25m
Z-axis rise and fall: low speed (mm/s): default 0.0625mm/s. high speed (mm/s): default 1.0mm/s. adjustable speed。</td></tr>
<tr><td>Automatic loading platform</td><td>You can automatically select points at any point in the interface by clicking the mouse. You can set the starting position of the line and the random moving position. You can control the speed of the automatic XY stage in any direction by using the mouse to control the movement of the XY stage. It can be automatically reset and the coordinates can be cleared at will;
The software system programmable control of the automatic stage movement, the system provides 14 modes:
1) Along the line； 2) Angle along the line； 3) Free click；
4) Lateral along the line； 5) Longitudinal； 6) Multiple lines along the curve；
7) Along the curve matrix； 8)Arc； 9) Tooth heart；
10）Paragraph parallel； 11）Automatically angled along the edge；12）Automatic edge matrix；
13）Center of mind； 14）Parallel along the curve
<table>
<tr><td>motor</td><td>Stepper motor</td></tr>
<tr><td>Maximum moving distance</td><td>50mm</td></tr>
<tr><td>Minimum moving distance</td><td>1μm</td></tr>
<tr><td>Moving speed</td><td>Adjustable</td></tr>
<tr><td>Displacement repeat accuracy</td><td>1um</td></tr>
<tr><td>Sample stage size</td><td>100mmX100mm</td></tr>
</table></td></tr>
<tr><td>Image acquisition /recognition</td><td>High-quality, high-resolution 3 megapixel camera, high-speed acquisition: 1280X1024 resolution: 25 frames / sec, large-size original image acquisition; image and measurement results for storage format, image storage format BMP, JPG and other common file formats</td></tr>
<tr><td>Automatic measurement time</td><td>About 0.3S/1 indentation</td></tr>
<tr><td>Measurement repeatability</td><td>±1.0% （700HV/500gf，When the indentation is clear）</td></tr>
<tr><td>Minimum unit of measure</td><td>0.01μm</td></tr>
</table>

The standard configuration

<table>
<tr><td>Micro hardness tester</td><td colspan="6">10g-1kg test force;
The test force convertible unit is: (Kgf, N);
The optical system designed by senior optical engineers not only has clear images, but also can be used as a simple microscope. The brightness is adjustable, the vision is comfortable, and it is not easy to fatigue when working for a long time;
The 7-inch LCD touch can visually display the hardness value, conversion hardness, test method, test force, load-keeping time, number of measurements, and the test process is straightforward;
The system comes with a calibration function that can manually adjust the input error calibration instrument;
The upper and lower limit measurement ranges can be set and displayed on the main measurement interface;
Loading method: fully automatic;
Lens and indenter conversion: fully automatic;
The coincidence accuracy of the objective lens and the indenter center is less than 1 um;
The cast aluminum shell is formed once, the structure is stable and not deformed, the pure white car paint has high grade and strong scratch resistance;
The results are simultaneously converted to Rockwell, Vickers, Brinell;</td></tr>
<tr><td>The standard configuration：</td><td>Microscopic Vickers indenter</td><td>1</td><td>10X objective</td><td>1</td><td>40X objective</td><td>1</td></tr>
<tr><td></td><td>Weight</td><td>6</td><td>Weight rod</td><td>1</td><td>10× micrometer eyepiece</td><td>1</td></tr>
<tr><td></td><td>Micro Vickers hardness block</td><td>2</td><td>Electric cross workbench</td><td>1</td><td>Sheet holding table</td><td>1</td></tr>
<tr><td></td><td>Flat mouth clamping table</td><td>1</td><td>Filament clamping table</td><td>1</td><td>Level</td><td>1</td></tr>
<tr><td></td><td>Leveling screw</td><td>4</td><td>Screwdriver</td><td>2</td><td>External power cord</td><td>1</td></tr>
<tr><td></td><td>Dust cover</td><td>1</td><td>Installation and operation manual</td><td>1</td><td>Optical adapter</td><td>1</td></tr>
<tr><td></td><td>USB Dongle</td><td>1</td><td>camera</td><td>1</td><td>Software disc</td><td>1</td></tr>
<tr><td></td><td>Control dedicated cable</td><td>1</td><td>RS232Communication line</td><td>1</td><td>Electric platform controller</td><td>1</td></tr>
<tr><td>Software setting：</td><td colspan="6"></td></tr>
<tr><td>XY sample movement control</td><td colspan="6">Provide XY electric moving sample stage: can be controlled by software or manually; XY can move at the same time; XY can be fine-tuned with the keyboard direction keys precisely;</td></tr>
<tr><td>XYZ remote sensing</td><td colspan="6">Control XY Electric Moving Sample Stage</td></tr>
</table>

Load mode and path settings	Provide a variety of loading modes including along the line, along the edge angle, along the edge of the curve, etc.; loading point coordinates can be arbitrarily set
Automatic edge scan	Automatically scan along the edge of the sample and automatically find inflection points such as crest roots, etc.
Auto load, focus, measurement	The system presses the set loading mode, auto focus, auto load, automatic measurement, and automatically draws the hardening curve; one button to complete
Hardness value conversion, correction, valid verification	The system can simultaneously convert the measured micro Vickers hardness value to other hardness scales such as HB, HR, etc.; the spherical cylindrical sample measurement value can be corrected; the sample measurement value can be effectively verified
Data statistics	Automatic calculation of the average value, variance, Cp, Cpk and other statistical values of measured hardness
Data storage	Measurement data and images can be saved in a document for later recall
testing report	Automatically generate WORD or EXCEL document reports; user-customizable report formats; standard formats include each individual hardness measurement, statistical value, indentation image, and hardening curve
Knoop hardness	Can be set to measure Knoop hardness
Fracture toughness	Can be set to measure indentation fracture toughness
Otherfunctions	Includes all the functions of a microscopic image processing and measurement system, including image capture, calibration, image processing, geometry measurement, document annotation, photo album management, and fixed-line printing.
computer	Lenovo business computer