Mikrosize®

uVicky-AI

Intelligent Automatic Micro-Vickers Hardness Tester

Video

Contact us

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Product Features and Application

Product Features

● Built-in light source, camera, focus, and switching force mechanism.
● Hardness value automatically measured, no manual positioning required, and precise automatic measurement. The new algorithm can detect indentations on surfaces that are not smooth or have scratches.
● Multi-station precision, automatic turret.
● HV/HK pressure heads, multiple objective lens configurations.
● Ultra-high precision X/Y stage, repeat positioning accuracy: 1 micron, maximum travel range up to 200mm.
● Z-axis automatic control, with optical cross guide rail lifting mechanism. Z-axis movement step size: 0.04 micron.

Product Application

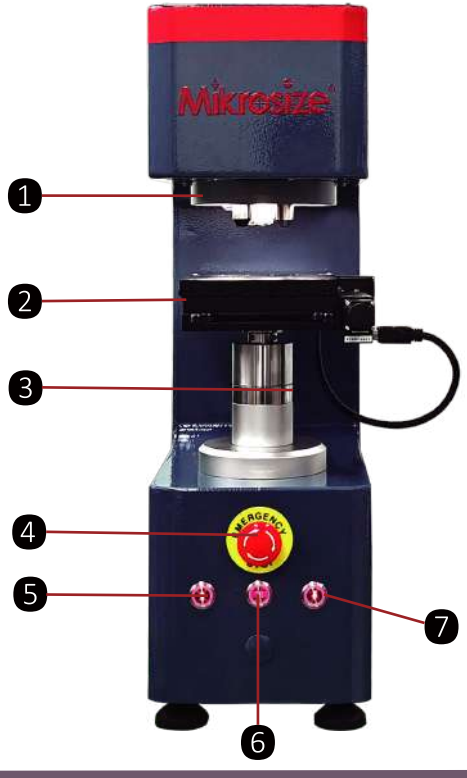
●Metal Materials Processing and Manufacturing Industry
Used for testing the hardness of metal components to ensure they meet production standards and design requirements. It also measures the hardness of welded areas on metal materials to evaluate their quality and determine if the welding quality is satisfactory, ensuring the reliability of the welded structures.

●Mechanical Manufacturing Field
This hardness tester can be used to measure the hardness of various mechanical components, such as gears, shafts, molds, etc., ensuring the wear resistance, strength, and service life of the parts.

●Automobile Manufacturing and Component Production Industry
Evaluates the surface hardening treatment effects of automobile components, such as carburizing, nitriding, quenching, etc., measuring the depth and hardness of the hardened layer to ensure good wear resistance and fatigue resistance of the component surfaces.

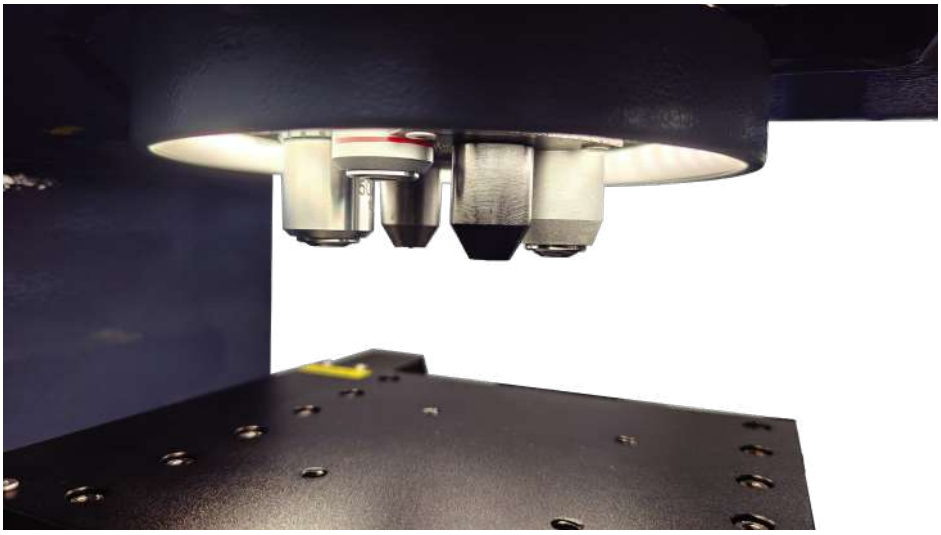
●Aerospace Field
Used to measure the hardness of aerospace engine blades, spacecraft components, etc., ensuring they meet the requirements for high strength, lightweight, and high reliability.

Appearance and Function



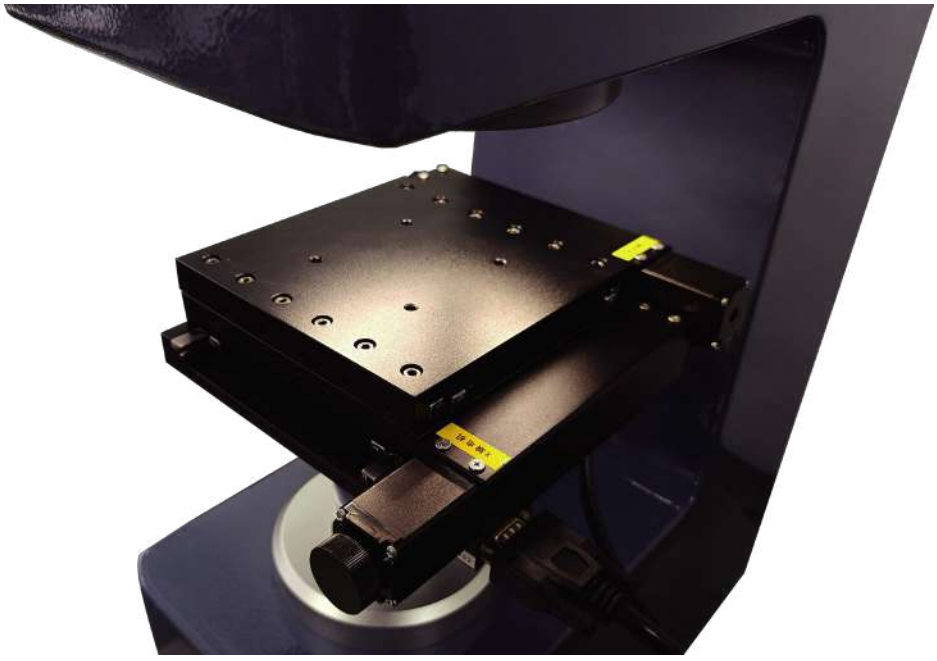
1.Automatic turret **2.X-Y axis stage** **3.Lifting ro**
4.Emergency stop button **5.Rise button** **6.Start button** **7.Down button**

Appearance and Function



Indenters and Objectives

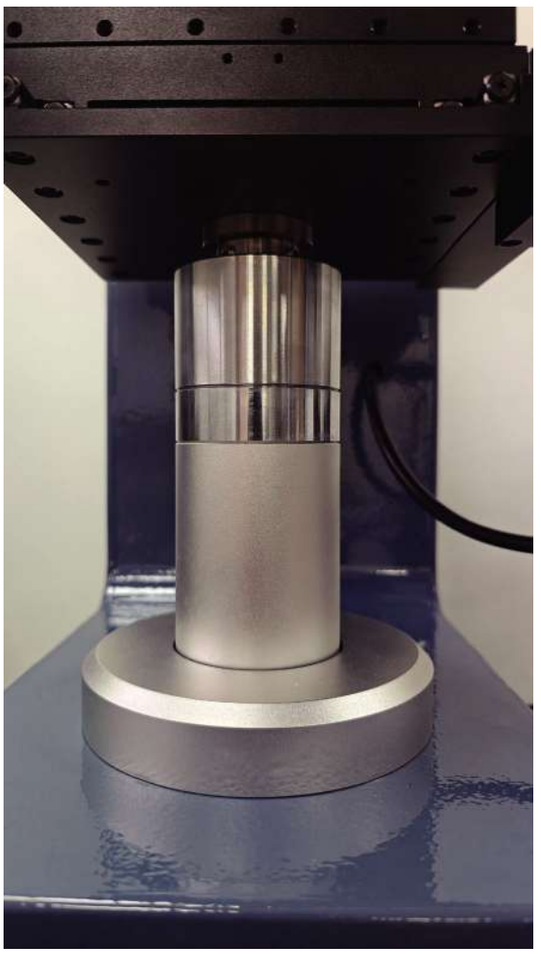
The turret is equipped with 2 indenters (one for micro Vickers and one for Knoop), and 3 objectives (one each of 5X, 20X, and 50X).



Testing Anvil

The stage is electromechanically controlled, with selectable speed control. There is an RS232 interface on the side of the stage, which allows for software control when connected. For manual control, the "Motor Unlock" button must first be clicked on the software interface.

Appearance and Function



Lifting Rod

The lifting rod is also electromechanically controlled, with smooth and stable movement. There are two control methods for movement: it can be controlled through computer software, with selectable speed; or it can be manually controlled using the buttons below, with a fixed speed.

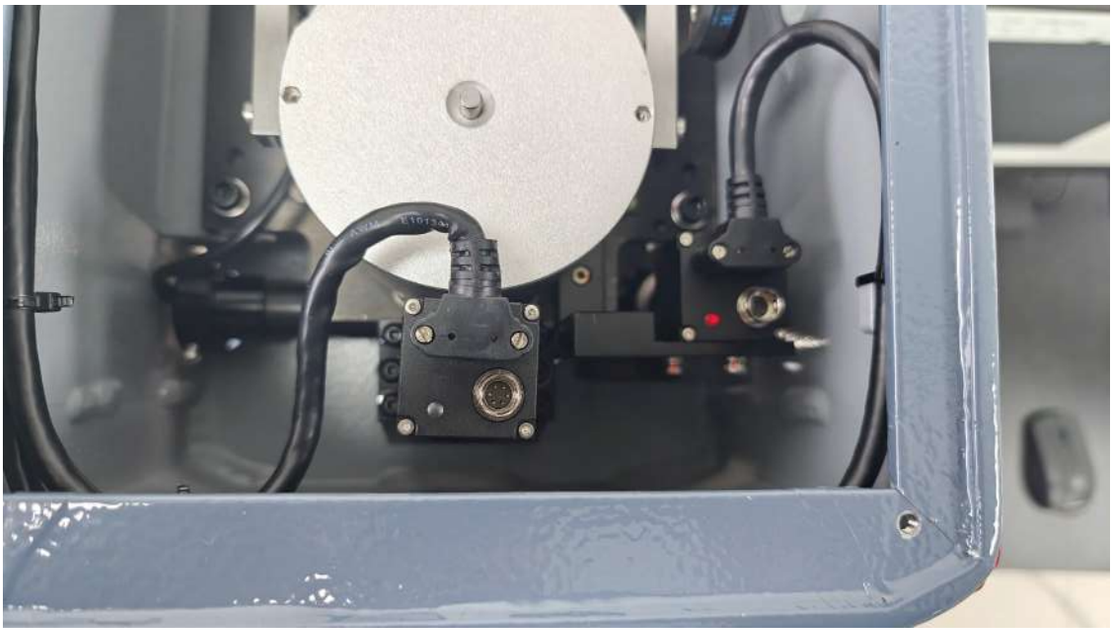
Buttons

The Rise button and Down button are used to control the lifting rod's upward and downward movement. The START button is used to initiate the indentation testing.

Appearance and Function

Connectors on the Back

1.USB Interface: Used to connect the hardness tester to the computer 2.Power Output Interface
3.Power Cable Interface 4.Fuse



Camera

In addition to the camera used for observing the indentations, this machine is also equipped with an additional panoramic camera. Without the need for image stitching, it can generate a panoramic image of the sample. In panoramic mode, the user can directly click on the area of the sample they wish to observe, and the stage will automatically adjust its position to align that area with the camera. The user can then observe the selected area directly on the screen.

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Technical Specification

Loads and Applications	
Load Range (main loads)	10 gf - 1 Kgf (10 gf - 2 Kgf)
Auto Switch of Loads	Yes
Vickers Capability	Yes
Knoop Capability	Yes
Brinell Capability(Optional)	N/A
Samples and Turrets	
XY-stage	Automatic
XY-stage Size (mm)	150x150
XY-stage Stroke Max Distance: 200 x200mm	50x50
XY-Stage Repeatability(μm)	1
Max Test Height (mm)	160
Test Throat (mm)	170
Motorized Z-axis	Yes
Z-axis Step Length（μm）	0.08
Motorized Turret	Yes
Turret Positions	3(6)
Weight（kg）	42
Size, L*W*H(mm)(Not include PC)	450*205*650
Optics and Camera	
Objective Lens	5X, 20X, 50X
Camera Resolution	5MP （12 MP Optional）
Panorama Camera	Optional
Size of Panoramic Sample(mm)	30*30
Panorama Camera Resolution	12 MP
Auto Illumination Adjustment	Yes
Stage Illumination	Optional
Lase Guider	Optional
Software	
Multiple User Login Methods	Yes
User Classification and Management	Yes
Indentation Measurement Automatically	Yes
Edge Detection	Optional
Mapping Module	Optional
CHD Measurement	Optional
NHD	Optional
SHD	Optional
FHD	Optional
Welding Module	Optional
Automatically Calculate Hardness Value Uncertainty	Optional
Automatically Generate CNAS Review Documents	Optional
Remote Diagnostics and Upgrades	Optional
Kc Fracture Measurement	Yes
Report Editor	Yes
Data Export	Yes
Operating System	Win 10 or above
Wi-Fi	Yes
Blue Tooth	Yes

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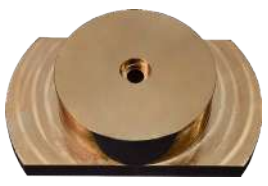
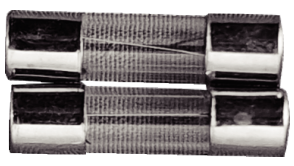
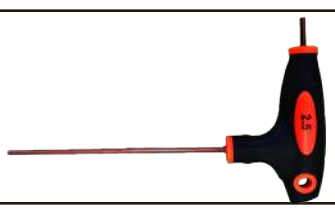
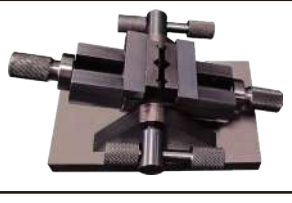
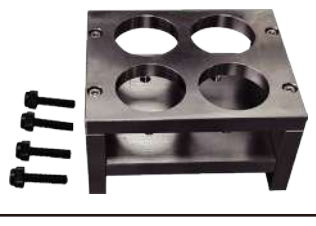
Technical Specification

LOADS AND APPLICATIONS			
Model	uVicky-1AI	uVicky-10AI	uVicky-50AI
Load range (main loads)	10 gf - 1 kgf	0.3-10 kgf	0.5-50 kgf
Auto change load	Yes	Yes	Yes
Vickers capability	Yes	Yes	Yes
Knoop capability	Yes	-	-
Brinell capability(Optional)	-	Yes	Yes
STAGES AND TURRETS			
XY-stage	Automatic	Automatic	Automatic
XY-stage Size (mm)	150x150	150x150	150x150
XY-stage travel Max size: 200 x200mm	50x50	50x50	50x50
XY-Stage repeatability (um)	1	1	1
Test height (mm)	160	160	160
Test throat (mm)	170	170	170
Motorized Z-axis	Yes	Yes	Yes
Z-axis step length（um）	0.08	0.08	0.08
Motorized turret	Yes	Yes	Yes
Turret positions	3 (6)	3 (6)	3 (6)
Weight(kg)	45	45	45
Size, L*W*H(mm) (not include PC)	450 * 205 * 650		
CAMERAS AND OPTICS			
Objective Lens	10X,40X (2.5X, 5X, 20X, 50X)	10X, 20X (2.5X, 5X, 40X, 50X)	10X, 20X (2.5X, 5X, 40X, 50X)
Evaluation camera resolution	12 MP	12 MP	12 MP
Panorama camera	Optional	Optional	Optional
Overview cam sample max. size(mm)	40 * 30	40 * 30	40 * 30
Panorama camera resolution	12 MP	12 MP	12 MP
Auto illumination	Yes	Yes	Yes
Stage illumination	Optional	Optional	Optional
Laser guider	Optional	Optional	Optional
SOFTWARE			
Automatic measurement of hardness values	Yes	Yes	Yes
CHD measurement	Yes	Yes	Yes
Edge detection	Optional	Optional	Optional
Mapping module	Optional	Optional	Optional
Welding module	Optional	Optional	Optional
Kc fracture measurement	Yes	Yes	Yes
Report editor	Yes	Yes	Yes
Data export	Yes	Yes	Yes
OS operating system	Win 10	Win 10	Win 10
WiFi	Yes	Yes	Yes
Blue tooth	Optional	Optional	Optional

Standard Delivery

Name	Specification	Qty	
Machine Mainframe	uVision-V	1 set	
Computer		1 set	
2KG Weights		1 pc	
Weights and Weight Shafts			
Auto XY Stage		1 pc	
Adjusting Screw		4 pcs	
Vickers Hardness Blocks		3 pcs	
Spare Fuse (2A)		2 pcs	
Gradienter		1 pc	
Anti-dust Cover		1 pc	
Powder Cord		1 pc	
Hex Wrench	2.5mm	1 pc	
USB Cable		1 pc	
Flat-jaw Clamping Stage		1 pc	
Thin Sheet Clamping Stage		1 pc	
Fine Wire Clamping Stage		1 pc	
Universal Tilting Clamping		1 pc	
4-position Sample Holder		1 pc	
Product Certificate		1 copy	
Warranty Card		1 copy	
Instruction Manual		1 copy	

Optional Delivery

Vickers Hardness Block	HV0.05/0.1/0.3/0.5
Knoop Hardness Block	HK0.05/0.1/02/0.3/0.5
Mounting Sample Clamp	MSC
Vickers Sample Flattener	VCF
Setting Table	VR-T