

MHV-Z Series

Professional manufacturer, best quality with competitive price ●

Recommended by the world UT NDT inspection association for training and examination ●

Core technology with independent intellectual property rights, certificate of CE, GOST and etc.. ●

Digital Automatic Turret Vickers Hardness Tester



Overview

Mitech MHV-Z series automatic turret vickers hardness tester, based on the principle that positive quadrangular pyramid diamond indenter presses the surface of the sample to produce indentation. By measuring the diagonal length of the indentation to achieve the measurement of the hardness of the material can be for small specimens, thin specimens, surface coating, heat treatment of the workpiece surface Vickers hardness test. With stable performance, strong structure, high reliability, simple operation, adopt high magnification optical measurement system, adjust the cold light source, photoelectric sensing technology and computer-aided means it has a powerful function. It is widely used in the fields of metal processing, electronics industry, mold parts, watch manufacturing, engineering quality inspection and so on. It is an ideal hardness tester for material research and testing.

MHV-Z Serious Technical Parameters Comparison Table

Model	MHV-5Z	MHV-10Z	MHV-30Z	MHV-50Z
Measurement range	40HV _{0.3} ~2500HV ₅	8HV _{0.3} ~2500HV ₁₀	10HV ₂ ~2500HV ₃₀	40HV~2500HV
Test force	2.94N、4.9N、 9.8N、19.6N、 29.4N、49N	2.94N、4.9N、 9.8N、29.4N、 49N、98N	9.8N、29.4N、 49.0N、98.0N、 196N、294 N	9.8N、49N、 98N、196N、 294N、490N
Loading and unloading mode	Automatic operation	Automatic operation	Automatic operation	Automatic operation
Minimum detection unit	0.1μm	0.1μm	0.1μm	0.1μm
Maximum height of applicable materials	160mm	160mm	160mm	160mm
Hardness symbol	HV _{0.3} 、HV _{0.5} 、 HV ₁ 、HV ₂ 、 HV ₃ 、HV ₅	HV _{0.3} 、HV _{0.5} 、 HV ₁ 、HV ₃ 、 HV ₅ 、HV ₁₀	HV ₁ 、HV ₃ 、 HV ₅ 、HV ₁₀ 、 HV ₂₀ 、HV ₃₀	HV ₁ 、HV ₅ 、 HV ₁₀ 、HV ₂₀ 、 HV ₃₀ 、HV ₅₀
The conversion mode of the head and the objective lens	Automatic operation	Automatic operation	Automatic operation	Automatic operation
Magnification of measuring microscope	200x(testing) 100x(observing)	200x(testing) 100x(observing)	200x(testing) 100x(observing)	200x(testing) 100x(observing)
Test to secure the load time	0~60s	0~60s	0~60s	0~60s
Maximum distance from the center of the head to the machine wall	135mm	135mm	135mm	135mm
Display attributes	LCD display	LCD display	LCD display	LCD display
Power supply	AC220V/50Hz	AC220V/50Hz	AC220V/50Hz	AC220V/50Hz
Dimension of Exterior	540*220*650mm	540*220*650mm	540*220*650mm	540*220*650mm
Machine weight	40kg	40kg	40kg	40kg

Features

- Widely used in micro-specimen, thin specimen, surface coating, heat treatment of workpiece surface samples and etc. Vickers hardness test to meet different demands of scientific research institutions, precision machining and quality inspection departments and other materials research;
- Adopt automatic turret device, can be self-conversion indenter and microscopic eyepiece, high efficiency;
- Adopt electronic automatic loading system to control the main test force, eliminating the need to load the weight, the operation more convenient;
- Equipped with a variety of small load Vickers hardness scale spare;
- Innovative, rugged construction, high reliability, easy to operation, intuitive reading, high efficiency;
- Adopt large-screen LCD liquid crystal display, easy to operate, visually display the test results;
- Light mechanical and electrical integration of high-tech products, high efficiency;
- Adopt high magnification optical sensing system and high precision photoelectric sensing technology, the test point positioning is accurate, the test result is more accurate;
- Adopt diamond indenter, durable and accurate;
- Adjustable cold light source measurement system that can control the light strength through the software;
- Optional photographic device, can be achieved on the measured indentation and material microstructure to shoot for later analysis;
- With ISO 6507, ASTM E92, JIS Z2244, GB/T4340.2 and other relevant domestic and foreign standards.

Scope of Application

- Small, thin specimen.
- Surface coating.
- Surface heat treatment workpieces.
- Glass, ceramics, agate, artificial gemstones and other more brittle, hard non-metallic materials.

Applications

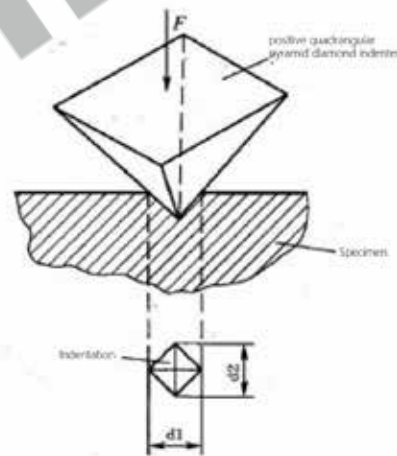
- Metal processing manufacturing quality control links
- University education teaching demonstration experiment
- Failure analysis test of metal material
- Testing of material hardness of scientific research institutions
- Quality inspection departments quality testing links

Working Conditions

- Operation Temperature : 18 ~ 28°C;
- Relative Humidity : ≤65%;
- In an environment free from vibration, no corrosive medium;
- Installed on a flat basis.

Working Principle

Micro-Vickers (or Knoop) hardness test principle is that put the provisions of the positive pyramid diamond indenter into the sample surface (with fixed experimental force) and maintain a certain length (holding), and then unloading. Finally, there is a positive quadrangular pyramid or kenup indentation with a square surface on the surface of the specimen. Then we can attain the area of indentation via measuring the length of the diagonal by a micrometer eyepiece. Then the corresponding Vickers (or Knoop) hardness values are obtained.



Usually Vickers hardness values can be converted according to the following formula

$$HV = \text{constant} \times \text{test force} / \text{indentation surface area} \approx 0.1891 F / d^2$$

Note: HV, Vickers hardness symbols

F, test force d, the arithmetic mean of of the two diagonal d1, d2

Serious Products Comparison Table

Model	MHV serious	MHV -Z serious	MHVS serious	MHVS-Z serious
Measurement method	electric	electric	electric	electric
Working principle	indentation	indentation	indentation	indentation
Objective lens and indenterconversion method	manual	automatic	manual	automatic
Measuring range	8HV~2500HV	8HV~2500HV	8HV~2500HV	8HV~2500HV
Display	LCD	LCD	Large screen LCD digital display	Large screen LCD digital display
Calibration	Detection of standard blocks	Detection of standard blocks	Detection of standard blocks	Detection of standard blocks
Maximum height of specimen	160mm	160mm	160mm	160mm
Indication error	±3.0%	±3.0%	±3.0%	±3.0%

Configurations

	NO.	Name	QTY.	Remarks
	1	Main unit	1	include a micro-Vickers indenter, a 10×, a 20×
	2	Power cable	1	
	3	Weights	3	
	4	Big platform	1	
	5	Middle platform	1	
	6	V type platform	1	
Standard Config	7	Horizontal adjustment screw	4	
	8	Microscope	1	10×
	9	Vickers hardness block	2	
	10	Spare fuse	2	
	11	Spare bulbs	2	6V/2A
	12	Plastic dust cover	1	
	13	Attached files	1	
	14	Host accessories box	2	
Optional Config	1	DM-2003video measurement device	1	
	2	Computer automatic measuring device	1	