

MHV-1

Micro Hardness Tester

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.. ●



Overview

Mitech MHV-1 micro 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.

Technical Parameters

Technical specifications	Technical Parameters
Measuring range	5HV~2500HV
Test force	10gf (0.098N)、25gf (0.245N)、50gf (0.49N)、100gf (0.98N)、200gf (1.96N)、300gf (2.94N)、500gf (4.9N)、1kgf (9.8N)
Testing Force Application Mode	Automatic (loading, holding, unloading)
Indenter objective lens conversion mode	Manual
Magnification of measure microscope	100X(observing), 400X(measuring)
Test force holding time	5~60s
Maximum height of specimen	65mm
Maximum width of specimen	85mm
Minimum index of the micrometer drum	0.5 μ m
Display attributes	LED Display
Power supply	AC220V \pm 5%, 50~60Hz
Dimension	405*290*480mm
Main unit weight	25kg

Features

- Widely used in the fields of metal processing, electronics industry, mold parts, watch manufacturing, engineering quality inspection;
- Innovative, rugged construction, high reliability, easy to operation, intuitive reading, high efficiency;
- Adopt large-screen LED liquid crystal display, easy to operate, visually display the test results;
- 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 GBT4340.1, GBT4340.2, ASTM_E92 and other relevant domestic and foreign standards.

Scope of application

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

Applications

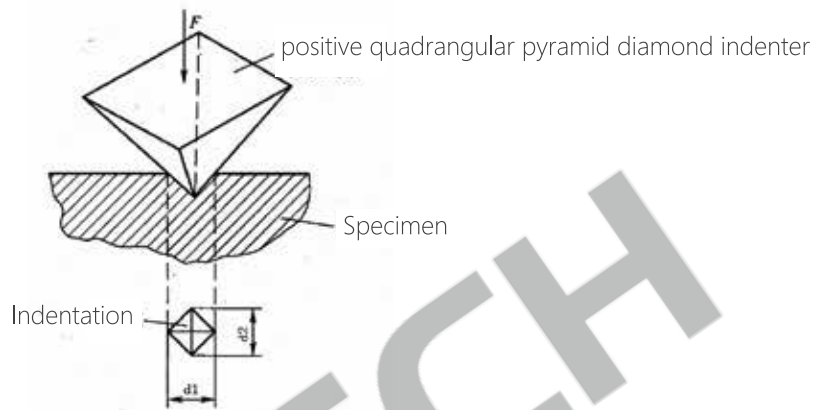
- Metal processing manufacturing quality control links
- University education teaching demonstration experiment
- Failure analysis test of metal material
- Testing of material hardness of scientific research institutions
- Quality inspection departments quality testing links

Working Conditions

- Operation Temperature : 18 ~ 28 $^{\circ}$ C ;
- Relative Humidity : \leq 65% ;
- In an environment free from vibration, no corrosive medium in surrounding.
- 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.



Working Principle Figure

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 d_1, d_2

Configurations

	NO.	Name	QTY.	Remarks
Standard Configuration	1	Main unit	1	include a micro-Vickers indenter, a 10x, a 40x
	2	Weight axis	1	
	3	Weights	6	
	4	Cross test stand	1	
	5	Sheet holder	1	
	6	Level holder	1	
	7	Filament holder	1	
	8	Screwdriver	2	
	9	Horizontal adjustment screw	4	
	10	Microscope	1	10x
	11	Micro Vickers hardness block	2	HV1 high hardness block HV0.2 median hardness block
	12	Gradienter	1	
	13	Spare fuse (1A)	2	
	14	Power cable	1	
	15	Spare bulbs	2	6V / 2A

	16	Plastic dust cover	1	
	17	Attached files	1	
	18	Host accessory box	1	
Optional Configuration	1	HV-CCD measurement system	1	
	2	HV-LED video measurement system	1	
	3	Pressure Head	1	Mainly used for measuring hardness of high hardness material
	4	Micrometer Eyepiece	1	16x



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