

## HV-10 / HV-10Z Vickers Hardness Tester

### Main Function:

HV-10 / HV-10Z Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electric features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. It can show the test force, dwell time, test numbers on the screen, only need to input the diagonal of the indentation when operation, it can automatically get the hardness value and shows on the screen. It can be equipped with CCD image automatic measuring system.

### Application range:

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.

### Technical Specification:

Model		HV-10	HV-10Z
Test Force	kgf	0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf	
	N	2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N	
Test Range		1HV~2967HV	
Loading Method		Automatic (Loading/Dwell/Unloading)	
Shifting between Objective and Indenter		Manual Shifting	Automatic Shifting
Objective		10 <sup>×</sup> (Observe), 20 <sup>×</sup> (Measure)	
Eyepiece		10 <sup>×</sup> Reading Microscope	
Total Magnification		100 <sup>×</sup> , 200 <sup>×</sup>	
Resolution		0.5μm	
Dwell Time		0~60s	
Light Source		Halogen Lamp	
X-Y Test Table		Size: 100×100mm; Travel: 25×25mm; Resolution: 0.01mm	
Max. Height of Specimen		170mm	
Throat		130mm	
Power Supply		AC220V, 50Hz	
Execute Standard		ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2	
Dimension		530×280×630mm, Packing Dimension: 620×450×740mm	
Weight		Net Weight: 35kg, Gross Weight: 47kg	

**Packing List:**

<b>Name</b>	<b>Qty</b>	<b>Name</b>	<b>Qty</b>
Instrument Main Body	1 set	10 <sup>×</sup> Reading Microscope	1 pc
Diamond Vickers Indenter	1 pc	10 <sup>×</sup> 、20 <sup>×</sup> Objective	each 1 pc
Cross Test Table	1 pc	Power Cable	1 pc
Horizontal Regulating Screw	4 pcs	Level	1 pc
Fuse 1A	2 pcs	Halogen Lamp 12V、15~20W	1 pc
Inner Hexagon Spanner 2.5mm	1 pc	Screw Driver	1 pc
Hardness Block 700~800 HV1	1 pc	Hardness Block 700~800 HV10	1 pc
Anti-dust Cover	1 pc	Usage Instruction Manual	1 copy



## HV-30 / HV-30Z Vickers Hardness Tester

### Main Function:

HV-30 / HV-30Z Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electric features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. It can show the test force, dwell time, test numbers on the screen, only need to input the diagonal of the indentation when operation, it can automatically get the hardness value and shows on the screen. It can be equipped with CCD image automatic measuring system.

### Application range:

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.

### Technical Specification:

Model		HV-30	HV-30Z
Test Force	kgf	0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf	
	N	4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N, 196N, 294N	
Test Range		1HV~2967HV	
Loading Method		Automatic (Loading/Dwell/Unloading)	
Shifting between Objective and Indenter		Manual Shifting	Automatic Shifting
Objective		10 <sup>×</sup> (Measure) , 20 <sup>×</sup> (Observe)	
Eyepiece		10 <sup>×</sup> Reading Microscope	
Total Magnification		100 <sup>×</sup> , 200 <sup>×</sup>	
Resolution		1μm	
Dwell Time		0~60s	
Light Source		Halogen Lamp	
Max. Height of Specimen		170mm	
Throat		130mm	
Power Supply		AC220V, 50Hz	
Execute Standard		ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2	
Dimension		530×280×630mm, Packing Dimension: 620×450×740mm	
Weight		Net Weight: 35kg, Gross Weight: 47kg	

**Packing List:**

<b>Name</b>	<b>Qty</b>	<b>Name</b>	<b>Qty</b>
Instrument Main Body	1 set	10 <sup>×</sup> Reading Microscope	1 pc
Diamond Vickers Indenter	1 pc	10 <sup>×</sup> , 20 <sup>×</sup> Objective	each 1 pc
Big Plane Test Table	1 pc	V-shaped Test Table	1 pc
Power Cable	1 pc	Level	1 pc
Horizontal Regulating Screw	4 pcs	Halogen Lamp 12V、15~20W	1 pc
Fuse 1A	2 pcs	Screw Driver	1 pc
Inner Hexagon Spanner 2.5mm	1 pc	Hardness Block 400~500 HV5	1 pc
Hardness Block 700~800 HV30	1 pc	Anti-dust Cover	1 pc
Usage Instruction Manual	1 copy		



## HV-5 / HV-5Z Vickers Hardness Tester

### Main Function:

HV-5 / HV-5Z Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electric features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. It can show the test force, dwell time, test numbers on the screen, only need to input the diagonal of the indentation when operation, it can automatically get the hardness value and shows on the screen. It can be equipped with CCD image automatic measuring system.

### Application range:

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.

### Technical Specification:

Model		HV-5	HV-5Z
Test Force	kgf	0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf	
	N	2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N	
Test Range		1HV~2967HV	
Loading Method		Automatic (Loading/Dwell/Unloading)	
Shifting between Objective and Indenter		Manual Shifting	Automatic Shifting
Objective		20 <sup>×</sup> (Observe), 40 <sup>×</sup> (Measure)	
Eyepiece		10 <sup>×</sup> Reading Microscope	
Total Magnification		200 <sup>×</sup> , 400 <sup>×</sup>	
Resolution		0.25μm	
Dwell Time		0~60s	
Light Source		Halogen Lamp	
X-Y Test Table		Size: 100×100mm; Travel: 25×25mm; Resolution: 0.01mm	
Max. Height of Specimen		170mm	
Throat		130mm	
Power Supply		AC220V, 50Hz	
Execute Standard		ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2	
Dimension		530×280×630mm, Packing Dimension: 620×450×740mm	

Weight	Net Weight: 35kg, Gross Weight: 47kg
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**Packing List:**

Name	Qty	Name	Qty
Instrument Main Body	1 set	10 <sup>×</sup> Reading Microscope	1 pc
Diamond Vickers Indenter	1 pc	20 <sup>×</sup> 、40 <sup>×</sup> Objective	each 1 pc
Cross Test Table	1 pc	Power Cable	1 pc
Horizontal Regulating Screw	4 pcs	Level	1 pc
Fuse 1A	2 pcs	Halogen Lamp 12V、15~20W	1 pc
Inner Hexagon Spanner 2.5mm	1 pc	Screw Driver	1 pc
Hardness Block 700~800 HV1	1 pc	Hardness Block 400~500 HV5	1 pc
Anti-dust Cover	1 pc	Usage Instruction Manual	1 copy



## HV-50 / HV-50Z Vickers Hardness Tester

### Main Function:

HV-50 / HV-50Z Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electric features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. It can show the test force, dwell time, test numbers on the screen, only need to input the diagonal of the indentation when operation, it can automatically get the hardness value and shows on the screen. It can be equipped with CCD image automatic measuring system.

### Application range:

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.

### Technical Specification:

Model		HV-50	HV-50Z
Test Force	kgf	1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf, 50kgf	
	N	9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N, 196N, 294N, 490N	
Test Range		1HV~2967HV	
Loading Method		Automatic (Loading/Dwell/Unloading)	
Shifting between Objective and Indenter		Manual Shifting	Automatic Shifting
Objective		10 <sup>×</sup> (Measure) , 20 <sup>×</sup> (Observe)	
Eyepiece		10 <sup>×</sup> Reading Microscope	
Total Magnification		100 <sup>×</sup> , 200 <sup>×</sup>	
Resolution		1μm	
Dwell Time		0~60s	
Light Source		Halogen Lamp	
Max. Height of Specimen		170mm	
Throat		130mm	
Power Supply		AC220V, 50Hz	
Execute Standard		ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2	
Dimension		530×280×630mm, Packing Dimension: 620×450×740mm	
Weight		Net Weight: 35kg, Gross Weight: 47kg	

**Packing List:**

<b>Name</b>	<b>Qty</b>	<b>Name</b>	<b>Qty</b>
Instrument Main Body	1 set	10 <sup>×</sup> Reading Microscope	1 pc
Diamond Vickers Indenter	1 pc	10 <sup>×</sup> , 20 <sup>×</sup> Objective	each 1 pc
Big Plane Test Table	1 pc	V-shaped Test Table	1 pc
Power Cable	1 pc	Level	1 pc
Horizontal Regulating Screw	4 pcs	Halogen Lamp 12V、15~20W	1 pc
Fuse 1A	2 pcs	Screw Driver	1 pc
Inner Hexagon Spanner 2.5mm	1 pc	Hardness Block 400~500 HV5	1 pc
Hardness Block 700~800 HV30	1 pc	Anti-dust Cover	1 pc
Usage Instruction Manual	1 copy		



# HVS-10 / HVS-10P / HVS-10Z

## Digital Vickers Hardness Tester

### Main Function:

HVS-10/HVS-10P/HVS-10Z Digital Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electric features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. With digital measuring eyepiece, no need for checking the table or inputting the diagonal of the indentation, it can directly show the test force, indentation length, dwell time, test numbers, conversion scale, date and time. As long as press the eyepiece button after measuring the indentation length, it can automatically get the hardness value and show on the screen. P Type: built-in printer, Z Type: automatic shifting of turret + built-in printer. It can be equipped with LCD video measuring device and CCD image automatic measuring system.

### Application range:

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.

### Technical Specification:

Model		HVS-10	HVS-10P	HVS-10Z
Test Force	kgf	0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf		
	N	2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N		
Test Range		1HV~2967HV		
Loading Method		Automatic (Loading/Dwell/Unloading)		
Shifting between Objective and Indenter		Manual Shifting	Manual Shifting	Automatic Shifting
Data Output		None	Built-in Printer, RS232 Interface	
Objective		10 <sup>x</sup> , 40 <sup>x</sup>		
Eyepiece		10 <sup>x</sup>		
Total Magnification		100 <sup>x</sup> , 400 <sup>x</sup>		
Resolution		0.25μm , 0.0625μm		
Dwell Time		0~60s		
Light Source		Halogen Lamp		
X-Y Test Table		Size: 100×100mm; Travel: 25×25mm; Resolution: 0.01mm		
Max. Height of		170mm		

Specimen	
Throat	130mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2
Dimension	530×280×630mm, Packing Dimension:620×450×740mm
Weight	Net Weight: 35kg, Gross Weight: 47kg

**Packing List:**

Name	Qty	Name	Qty
Instrument Main Body	1 set	10 <sup>×</sup> Digital Measuring Eyepiece	1 pc
Diamond Vickers Indenter	1 pc	10 <sup>×</sup> 、40 <sup>×</sup> Objective	each 1 pc
Cross Test Table	1 pc	Power Cable	1 pc
Horizontal Regulating Screw	4 pcs	Level	1 pc
Fuse 1A	2 pcs	Halogen Lamp 12V、15~20W	1 pc
Inner Hexagon Spanner 2.5mm	1 pc	Screw Driver	1 pc
Hardness Block 700~800 HV1	1 pc	Hardness Block 700~800 HV10	1 pc
Anti-dust Cover	1 pc	Usage Instruction Manual	1 copy



# HVS-30 / HVS-30P / HVS-30Z

## Digital Vickers Hardness Tester

### Main Function:

HVS-30/HVS-30P/HVS-30Z Digital Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electric features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. With digital measuring eyepiece, no need for checking the table or inputting the diagonal of the indentation, it can directly show the test force, indentation length, dwell time, test numbers, conversion scale, date and time. As long as press the eyepiece button after measuring the indentation length, it can automatically get the hardness value and show on the screen. P Type: built-in printer, Z Type: automatic shifting of turret + built-in printer. It can be equipped with LCD video measuring device and CCD image automatic measuring system.

### Application range:

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.

### Technical Specification:

Model		HVS-30	HVS-30P	HVS-30Z
Test Force	kgf	0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf		
	N	4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N, 196N, 294N		
Test Range		1HV~2967HV		
Loading Method		Automatic (Loading/Dwell/Unloading)		
Shifting between Objective and Indenter		Manual Shifting	Manual Shifting	Automatic Shifting
Data Output		None	Built-in Printer, RS232 Interface	
Objective		10 <sup>x</sup> , 20 <sup>x</sup>		
Eyepiece		10 <sup>x</sup>		
Total Magnification		100 <sup>x</sup> , 200 <sup>x</sup>		
Resolution		0.25μm , 0.125μm		
Dwell Time		0~60s		
Light Source		Halogen Lamp		
Max. Height of Specimen		170mm		

Throat	130mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2
Dimension	530×280×630mm, Packing Dimension:620×450×740mm
Weight	Net Weight: 35kg, Gross Weight: 47kg

**Packing List:**

Name	Qty	Name	Qty
Instrument Main Body	1 set	10 <sup>×</sup> Digital Measuring Eyepiece	1 pc
Diamond Vickers Indenter	1 pc	10 <sup>×</sup> , 20 <sup>×</sup> Objective	each 1 pc
Big Plane Test Table	1 pc	V-shaped Test Table	1 pc
Power Cable	1 pc	Level	1 pc
Horizontal Regulating Screw	4 pcs	Halogen Lamp12V、15~20W	1 pc
Fuse1A	2 pcs	Screw Driver	1 pc
Inner Hexagon Spanner 2.5mm	1 pc	Hardness Block 400~500 HV5	1 pc
Hardness Block 700~800 HV30	1 pc	Anti-dust Cover	1 pc
Usage Instruction Manual	1 copy		



## **HVS-5 / HVS-5P / HVS-5Z Digital Vickers Hardness Tester**

### **Main Function:**

HVS-5/HVS-5P/HVS-5Z Digital Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electric features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. With digital measuring eyepiece, no need for checking the table or inputting the diagonal of the indentation, it can directly show the test force, indentation length, dwell time, test numbers, conversion scale, date and time. As long as press the eyepiece button after measuring the indentation length, it can automatically get the hardness value and shows on the screen. P Type: built-in printer, Z Type: automatic shifting of turret + built-in printer. It can be equipped with LCD video measuring device and CCD image automatic measuring system.

### **Application range:**

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.

### **Technical Specification:**

Model		HVS-5	HVS-5P	HVS-5Z
Test Force	kgf	0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf		
	N	2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N		
Test Range		1HV~2967HV		
Loading Method		Automatic (Loading/Dwell/Unloading)		
Shifting between Objective and Indenter		Manual Shifting	Manual Shifting	Automatic Shifting
Data Output		None	Built-in Printer, RS232 Interface	
Objective		20 <sup>x</sup> , 40 <sup>x</sup>		
Eyepiece		10 <sup>x</sup>		
Total Magnification		200 <sup>x</sup> , 400 <sup>x</sup>		
Resolution		0.125μm , 0.0625μm		
Dwell Time		0~60s		
Light Source		Halogen Lamp		
X-Y Test Table		Size: 100×100mm; Travel: 25×25mm; Resolution: 0.01mm		
Max. Height of Specimen		170mm		

Throat	130mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2
Dimension	530×280×630mm, Packing Dimension:620×450×740mm
Weight	Net Weight: 35kg, Gross Weight: 47kg

**Packing List:**

Name	Qty	Name	Qty
Instrument Main Body	1 set	10 <sup>×</sup> Digital Measuring Eyepiece	1 pc
Diamond Vickers Indenter	1 pc	20 <sup>×</sup> 、40 <sup>×</sup> Objective	each 1 pc
Cross Test Table	1 pc	Power Cable	1 pc
Horizontal Regulating Screw	4 pcs	Level	1 pc
Fuse 1A	2 pcs	Halogen Lamp 12V、15~20W	1 pc
Inner Hexagon Spanner 2.5mm	1 pc	Screw Driver	1 pc
Hardness Block 700~800 HV1	1 pc	Hardness Block 400~500 HV5	1 pc
Anti-dust Cover	1 pc	Usage Instruction Manual	1 copy



# HVS-50 / HVS-50P / HVS-50Z

## Digital Vickers Hardness Tester

### Main Function:

HVS-50/HVS-50P/HVS-50Z Digital Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electric features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. With digital measuring eyepiece, no need for checking the table or inputting the diagonal of the indentation, it can directly show the test force, indentation length, dwell time, test numbers, conversion scale, date and time. As long as press the eyepiece button after measuring the indentation length, it can automatically get the hardness value and show on the screen. P Type: built-in printer, Z Type: automatic shifting of turret + built-in printer. It can be equipped with LCD video measuring device and CCD image automatic measuring system.

### Application range:

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.

### Technical Specification:

Model		HVS-50	HVS-50P	HVS-50Z
Test Force	kgf	1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf, 50kgf		
	N	9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N, 196N, 294N, 490N		
Test Range		1HV~2967HV		
Loading Method		Automatic (Loading/Dwell/Unloading)		
Shifting between Objective and Indenter		Manual Shifting	Manual Shifting	Automatic Shifting
Data Output		None	Built-in Printer, RS232 Interface	
Objective		10 <sup>x</sup> , 20 <sup>x</sup>		
Eyepiece		10 <sup>x</sup>		
Total Magnification		100 <sup>x</sup> , 200 <sup>x</sup>		
Resolution		0.25μm , 0.125μm		
Dwell Time		0~60s		
Light Source		Halogen Lamp		
Max. Height of Specimen		170mm		

Throat	130mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2
Dimension	530×280×630mm, Packing Dimension:620×450×740mm
Weight	Net Weight: 35kg, Gross Weight: 47kg

**Packing List:**

Name	Qty	Name	Qty
Instrument Main Body	1 set	10 <sup>×</sup> Digital Measuring Eyepiece	1 pc
Diamond Vickers Indenter	1 pc	10 <sup>×</sup> , 20 <sup>×</sup> Objective	each 1 pc
Big Plane Test Table	1 pc	V-shaped Test Table	1 pc
Power Cable	1 pc	Level	1 pc
Horizontal Regulating Screw	4 pcs	Halogen Lamp12V、15~20W	1 pc
Fuse1A	2 pcs	Screw Driver	1 pc
Inner Hexagon Spanner 2.5mm	1 pc	Hardness Block 400~500 HV5	1 pc
Hardness Block 700~800 HV30	1 pc	Anti-dust Cover	1 pc
Usage Instruction Manual	1 copy		



## **MHV-10 / MHV-10Z Digital Vickers Hardness Tester**

### **Main Function:**

MHV-10 / MHV-10Z Digital Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electric features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. With digital measuring eyepiece, no need for checking the table or inputting the diagonal of the indentation, it can directly show the test force, indentation length, dwell time, test numbers, conversion scale, date and time. As long as press the eyepiece button after measuring the indentation length, it can automatically get the hardness value and show on the screen. Test results can be saved for checking or be printed out by the built-in printer, and with RS232 interface for connecting to the computer. It can be equipped with LCD video measuring device and CCD image automatic measuring system.

### **Application range:**

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.

### **Technical Specification:**

Model		MHV-10	MHV-10Z
Test Force	kgf	0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf	
	N	2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N	
Test Range		1HV~2967HV	
Loading Method		Automatic (Loading/Dwell/Unloading)	
Shifting between Objective and Indenter		Manual Shifting	Automatic Shifting
Data Output		Built-in Printer, RS232 Interface	
Conversion Scale		HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HB	
Objective		10 <sup>x</sup> , 40 <sup>x</sup>	
Eyepiece		10 <sup>x</sup>	
Total Magnification		100 <sup>x</sup> , 400 <sup>x</sup>	
Resolution		0.25μm , 0.0625μm	
Dwell Time		0~60s	
Light Source		Halogen Lamp	
X-Y Test Table		Size: 100×100mm; Travel: 25×25mm; Resolution: 0.01mm	

Max. Height of Specimen	170mm
Throat	130mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2
Dimension	530×280×630mm, Packing Dimension: 620×450×740mm
Weight	Net Weight: 35kg, Gross Weight: 47kg

**Packing List:**

Name	Qty	Name	Qty
Instrument Main Body	1 set	10 <sup>x</sup> Digital Measuring Eyepiece	1 pc
Diamond Vickers Indenter	1 pc	10 <sup>x</sup> , 40 <sup>x</sup> Objective	each 1 pc
Cross Test Table	1 pc	Power Cable	1 pc
Horizontal Regulating Screw	4 pcs	Level	1 pc
Fuse1A	2 pcs	Halogen Lamp12V、15~20W	1 pc
Inner Hexagon Spanner 2.5mm	1 pc	Screw Driver	1 pc
Hardness Block 700~800 HV1	1 pc	Hardness Block 700~800 HV10	1 pc
Anti-dust Cover	1 pc	Usage Instruction Manual	1 copy



## MHV-30 / MHV-30Z Digital Vickers Hardness Tester

### Main Function:

MHV-30 / MHV-30Z Digital Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electric features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. With digital measuring eyepiece, no need for checking the table or inputting the diagonal of the indentation, it can directly show the test force, indentation length, dwell time, test numbers, conversion scale, date and time. As long as press the eyepiece button after measuring the indentation length, it can automatically get the hardness value and show on the screen. Test results can be saved for checking or be printed out by the built-in printer, and with RS232 interface for connecting to the computer. It can be equipped with LCD video measuring device and CCD image automatic measuring system.

### Application range:

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.

### Technical Specification:

Model		MHV-30	MHV-30Z
Test Force	kgf	0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf	
	N	4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N, 196N, 294N	
Test Range		1HV~2967HV	
Loading Method		Automatic (Loading/Dwell/Unloading)	
Shifting between Objective and Indenter		Manual Shifting	Automatic Shifting
Data Output		Built-in Printer, RS232 Interface	
Conversion Scale		HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HB	
Objective		10 <sup>x</sup> , 20 <sup>x</sup>	
Eyepiece		10 <sup>x</sup>	
Total Magnification		100 <sup>x</sup> , 200 <sup>x</sup>	
Resolution		0.25μm , 0.125μm	
Dwell Time		0~60s	
Light Source		Halogen Lamp	

Max. Height of Specimen	170mm
Throat	130mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2
Dimension	530×280×630mm, Packing Dimension: 620×450×740mm
Weight	Net Weight: 35kg, Gross Weight: 47kg

**Packing List:**

Name	Qty	Name	Qty
Instrument Main Body	1 set	10 <sup>x</sup> Digital Measuring Eyepiece	1 pc
Diamond Vickers Indenter	1 pc	10 <sup>x</sup> , 20 <sup>x</sup> Objective	each 1 pc
Big Plane Test Table	1 pc	V-shaped Test Table	1 pc
Power Cable	1 pc	Level	1 pc
Horizontal Regulating Screw	4 pcs	Halogen Lamp12V、15~20W	1 pc
Fuse1A	2 pcs	Screw Driver	1 pc
Inner Hexagon Spanner 2.5mm	1 pc	Hardness Block 400~500 HV5	1 pc
Hardness Block 700~800 HV30	1 pc	Anti-dust Cover	1 pc
Usage Instruction Manual	1 copy		



## MHV-5 / MHV-5Z Digital Vickers Hardness Tester

### Main Function:

MHV-5 / MHV-5Z Digital Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electric features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. With digital measuring eyepiece, no need for checking the table or inputting the diagonal of the indentation, it can directly show the test force, indentation length, dwell time, test numbers, conversion scale, date and time. As long as press the eyepiece button after measuring the indentation length, it can automatically get the hardness value and shows on the screen. Test results can be saved for checking or be printed out by the built-in printer, and with RS232 interface for connecting to the computer. It can be equipped with LCD video measuring device and CCD image automatic measuring system.

### Application range:

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.

### Technical Specification:

Model		MHV-5	MHV-5Z
Test Force	kgf	0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf	
	N	2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N	
Test Range		1HV~2967HV	
Loading Method		Automatic (Loading/Dwell/Unloading)	
Shifting between Objective and Indenter		Manual Shifting	Automatic Shifting
Data Output		Built-in Printer, RS232 Interface	
Conversion Scale		HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HB	
Objective		20 <sup>x</sup> , 40 <sup>x</sup>	
Eyepiece		10 <sup>x</sup>	
Total Magnification		200 <sup>x</sup> , 400 <sup>x</sup>	
Resolution		0.125μm , 0.0625μm	
Dwell Time		0~60s	
Light Source		Halogen Lamp	
X-Y Test Table		Size: 100×100mm; Travel: 25×25mm; Resolution: 0.01mm	
Max. Height of		170mm	

Specimen	
Throat	130mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2
Dimension	530×280×630mm, Packing Dimension: 620×450×740mm
Weight	Net Weight: 35kg, Gross Weight: 47kg

**Packing List:**

Name	Qty	Name	Qty
Instrument Main Body	1 set	10×Digital Measuring Eyepiece	1 pc
Diamond Vickers Indenter	1 pc	20×、40× Objective	each 1 pc
Cross Test Table	1 pc	Power Cable	1 pc
Horizontal Regulating Screw	4 pcs	Level	1 pc
Fuse 1A	2 pcs	Halogen Lamp 12V、15~20W	1 pc
Inner Hexagon Spanner 2.5mm	1 pc	Screw Driver	1 pc
Hardness Block 700~800 HV1	1 pc	Hardness Block 400~500 HV5	1 pc
Anti-dust Cover	1 pc	Usage Instruction Manual	1 copy



## **MHV-50 / MHV-50Z Digital Vickers Hardness Tester**

### **Main Function:**

MHV-50 / MHV-50Z Digital Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electric features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. With digital measuring eyepiece, no need for checking the table or inputting the diagonal of the indentation, it can directly show the test force, indentation length, dwell time, test numbers, conversion scale, date and time. As long as press the eyepiece button after measuring the indentation length, it can automatically get the hardness value and show on the screen. Test results can be saved for checking or be printed out by the built-in printer, and with RS232 interface for connecting to the computer. It can be equipped with LCD video measuring device and CCD image automatic measuring system.

### **Application range:**

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.

### **Technical Specification:**

Model		MHV-50	MHV-50Z
Test Force	kgf	1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf, 50kgf	
	N	9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N, 196N, 294N, 490N	
Test Range		1HV~2967HV	
Loading Method		Automatic (Loading/Dwell/Unloading)	
Shifting between Objective and Indenter		Manual Shifting	Automatic Shifting
Data Output		Built-in Printer, RS232 Interface	
Conversion Scale		HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HB	
Objective		10 <sup>x</sup> , 20 <sup>x</sup>	
Eyepiece		10 <sup>x</sup>	
Total Magnification		100 <sup>x</sup> , 200 <sup>x</sup>	
Resolution		0.25μm , 0.125μm	
Dwell Time		0~60s	
Light Source		Halogen Lamp	

Max. Height of Specimen	170mm
Throat	130mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2
Dimension	530×280×630mm, Packing Dimension: 620×450×740mm
Weight	Net Weight: 35kg, Gross Weight: 47kg

**Packing List:**

Name	Qty	Name	Qty
Instrument Main Body	1 set	10×Digital Measuring Eyepiece	1 pc
Diamond Vickers Indenter	1 pc	10×, 20×Objective	each 1 pc
Big Plane Test Table	1 pc	V-shaped Test Table	1 pc
Power Cable	1 pc	Level	1 pc
Horizontal Regulating Screw	4 pcs	Halogen Lamp12V、15~20W	1 pc
Fuse1A	2 pcs	Screw Driver	1 pc
Inner Hexagon Spanner 2.5mm	1 pc	Hardness Block 400~500 HV5	1 pc
Hardness Block 700~800 HV30	1 pc	Anti-dust Cover	1 pc
Usage Instruction Manual	1 copy		



## **MHV-5Z/10Z/30Z/50Z /V2.0**

### **Automatic Vickers Hardness Tester**

MHV-5Z/10Z/30Z/50Z/V2.0 Automatic Vickers Hardness Tester is integrated with several new technologies such as optical imaging, mechanical displacement, electronic control, digital imaging, image analysis, computer processing and so on. It controls the Vickers hardness tester and automatic test table by the computer, and displays the indentation image on the computer screen. By means of automatic reading and manual reading, it accurately measures the HV hardness, hardening depth, film thickness, distance between two points of metals and some non-metallic materials and various films. It also can shoot metal surface morphology and taking fixed rate printing etc. This system breaks through the traditional test method, realize the hardness test of semi automatic, high precision, high repeatability, and it is the important equipment for materials analysis.

#### **Machine Parameters:**

Model		MHV-5Z/V2.0	MHV-10Z/V2.0	MHV-30Z/V2.0	MHV-50Z/V2.0
Test Force	gf	0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf	0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf	0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf	1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf, 50kgf
	N	2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N	2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N	4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N, 196N, 294N	9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N, 196N, 294N, 490N
Test Range		1HV~2967HV			
Test Mode		HV/HK			
Loading Method		Automatic (Loading/Dwell/Unloading)			
Shifting between Objective and Indenter		Automatic Shifting			
Conversion Scale		HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HB			
Data Output		Built-in Printer			

	WORD or EXCEL Report with Curve Chart			
Hardness Reading	Indentation Displaying and Automatic Measuring on PC			
Objective	20 <sup>x</sup> , 40 <sup>x</sup>	10 <sup>x</sup> , 40 <sup>x</sup>	10 <sup>x</sup> , 20 <sup>x</sup>	10 <sup>x</sup> , 20 <sup>x</sup>
Eyepiece	10 <sup>x</sup>			
Total Magnification	200 <sup>x</sup> , 400 <sup>x</sup>	100 <sup>x</sup> , 400 <sup>x</sup>	100 <sup>x</sup> , 200 <sup>x</sup>	100 <sup>x</sup> , 200 <sup>x</sup>
Resolution	0.125μm , 0.0625μm	0.25μm , 0.0625μm	0.25μm , 0.125μm	0.25μm , 0.125μm
Dwell Time	0~60s			
Light Source	Halogen Lamp			
Motorized X-Y Test Table	Size: 100×100mm; Travel: 50×50mm; Resolution: 0.002mm			
Max. Height of Specimen	170mm			
Throat	130mm			
Power Supply	AC220V, 50Hz			
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2			
Dimension	530×280×630mm, Packing Dimension: 620×450×740mm			
Weight	Net Weight: 35kg, Gross Weight: 47kg			

### Software Function:

System linkage: Through the communication interface it realizes the linkage between the system and the hardness tester.

Pressure linkage: When converting test force, the system perceives the test force change and displays in real time.

Turret linkage: The software controls the shifting between the objective and the indenter without manual control.

Loading linkage: The software controls the loading without manual control.

Measuring linkage: The software controls the turret, loading and directly reading the Vickers hardness value.

Light source linkage: Manual focus.

Image acquisition: Real time display of hardness image, store and print image.

Automatic measurement: Automatically find the four vertices of indentation with fast speed and accurate data, there are many professional algorithms to be suitable for different indentation. It continuously and immediately measures at specified coordinates once loading.

Automatic point search: The system automatically finds the best vertices near the four vertices of the indentation, greatly reduce the human error.

Diagonal measurement: Click the top left and lower right corner of the indentation, you can read the hardness value.

Four point measurement: Click the four point of the indentation and you can read the hardness value.

Hardness conversion: According to the national standard, automatically convert the hardness value between Brinell, Rockwell, Vickers, Knoop, real-time display.

Graphic report: Automatic record of measurement data, automatic generation of hardness-depth curves, saving or printing the hardness-depth curves and all indentation measurements. Save or print the indentation image and the current indentation hardness value. All the reports are saved in WORD file.

Results statistics: Output the multiple measured results of indentations by EXCEL and automatically count the measurement number, maximum value, minimum value, average value, variance, etc. of hardness.

Linkage control: Through the communication interface the system perceps the test force changes, controls the turret, loads and directly reads.

Automatic displacement: Equipped with high precision X-Y automatic test table.

Automatic identification: Leading indentation automatic identification technology, read D1 / D2 and HV value in 0.3 seconds.

Stable performance: The indentation of non mirror polishing, uneven light, not in the center can be read automatically.

Powerful functions: Such as manual reading, automatic reading, hardness conversion, depth-hardness curve, indentation image, picture and text report.

Easy to use: Through the hardness block calibration, in line with the users' habits. It can be normal used with half day training.

Automatic reading: Original algorithm of automatic reading to automatic read a variety of indentation with fast speed and high accuracy.

Good repeatability: It is automatic reading with high repeatability and can satisfy the requirement of professional users.

Automatic scanning: Can automatically scan the sample edge and shape.

### **Parameters:**

1. Computer: Lenovo computer (2G memory, 500G hard disk, 19 inch LCD screen)
2. Ink jet printer
3. Operating system: WIN XP、WIN7
4. Digital imaging system

High resolution: 130 million pixel (1280×1024)

High speed acquisition: 1280×1024 resolution: 25 FPS

High definition: Black and white images and clarity is better.

Target surface size: 1/2 inch

5. X-Y automatic test table

Table size: 100×100×50 mm

Maximum travel: 50×50 mm

Minimum step: Less than 2 $\mu$ m

Movement speed: Adjustable

Control mode: Manual control, electric control, computer control

#### 6. X-Y test table - computer control mode

Location movement: The test table directly moves to the software settings;

Point movement: Select any point of the sample, moved to the below of the indenter;

Directional movement: Click the eight directions to make the test table move and the moving step can be set up;

Arbitrary movement: Click any directions to make the test table move and make it easy for users to browse the specimen surface;

Variable speed movement: There are two speeds (fast and slow) when moving the test table and the speed is optional and adjustable;

Other function: Original position arbitrary setting, automatic reset, mechanical limit, and other professional features to meet various requirements.

#### 7. Measuring method

Automatic mode——Automatic test table moving (X and Y direction) + automatic reading

Manual mode 1——Automatic loading + manual eyepiece scribed line measurement

Manual mode 2——Manual test table moving + manual focus + Automatic / manual measurement

#### 8. Automatic / manual reading

Automatic reading time: Single indentation reading time is about 300 milliseconds;

Automatic measurement precision: 0.1 $\mu$ m;

Automatic measurement repeatability:  $\pm 0.8\%$

Manual reading: Manual pick, automatic search points, 4 points measurement, 2 diagonal measurement

#### 9. Results save / output

Save / output measurement data and experimental parameters, including D1, D2, HV, X, Y etc.;

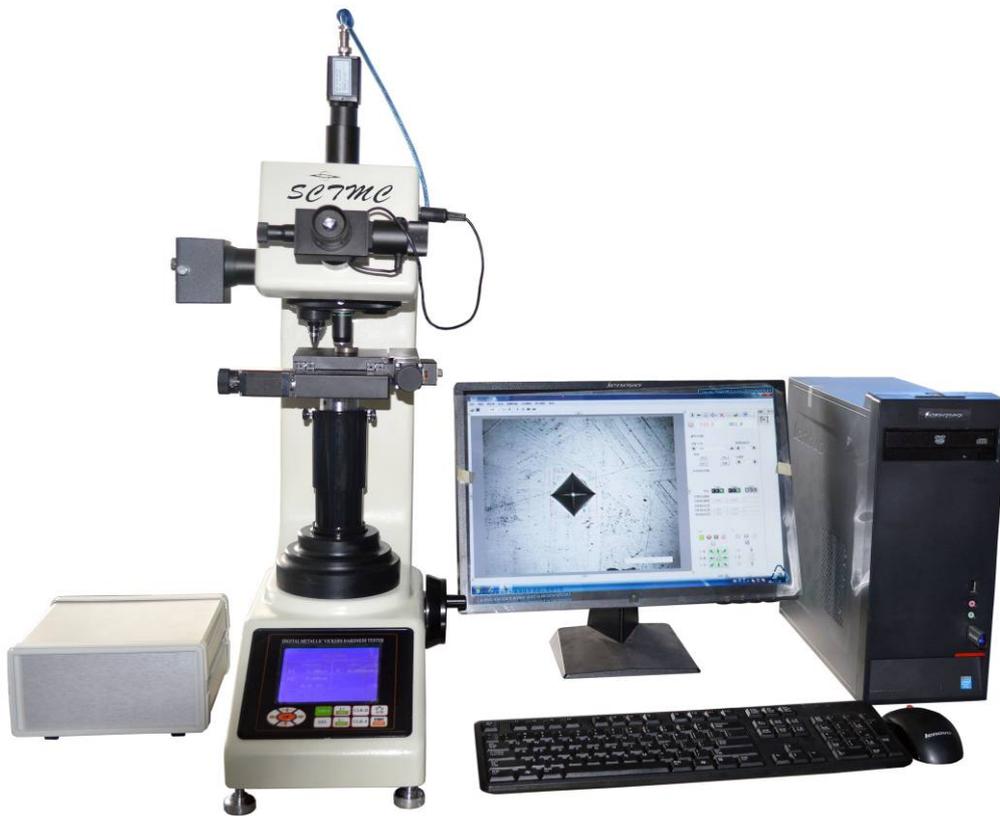
Save / output effective hardening layer depth curve report;

Save / output image.

#### Standard Configuration:

Name	Qty	Name	Qty
Instrument Main Body	1 set	10 $\times$ Digital Measuring Eyepiece	1 pc
Diamond Vickers Indenter	1 pc	Objective	2 pcs
Motorized Cross Test Table	1 pc	Power Cable	1 pc
Horizontal Regulating Screw	4 pcs	Level	1 pc
Fuse 1A	2 pcs	Halogen Lamp 12V、15~20W	1 pc

Inner Hexagon Spanner 2.5mm	1 pc	Screw Driver	1 pc
Hardness Block	2 pc	Anti-dust Cover	1 pc
Usage Instruction Manual	1 copy		
Computer (Lenovo, Hard disk: 500G, Memory: 2G, 19 inch LCD screen)	1 set	Ink Jet Printer	1 set
CCD Camera	1 set	1.5× Adapter	1 pc
USB Softdog	1 pc	Control Cables	1 pc
RS232 Cable	1 pc	Motorized Test Table Control Box	1 pc
Measuring Software	1 pc		



## **MHV-5Z/10Z/30Z/50Z /V3.0**

### **Automatic Vickers Hardness Tester**

MHV-5Z/10Z/30Z/50Z/V3.0 Automatic Vickers Hardness Tester is integrated with several new technologies such as optical imaging, mechanical displacement, electronic control, digital imaging, image analysis, computer processing and so on. It controls the Vickers hardness tester and automatic test table by the computer, and displays the indentation image on the computer screen. By means of automatic reading and manual reading, it accurately measures the HV hardness, hardening depth, film thickness, distance between two points of metals and some non-metallic materials and various films. It also can shoot metal surface morphology and taking fixed rate printing etc. This system breaks through the traditional test method, realize the hardness test of fully automatic, high precision, high repeatability, and it is the important equipment for materials analysis.

#### **Machine Parameters:**

Model		MHV-5Z/V3.0	MHV-10Z/V3.0	MHV-30Z/V3.0	MHV-50Z/V3.0
Test Force	gf	0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf	0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf	0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf	1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf, 50kgf
	N	2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N	2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N	4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N, 196N, 294N	9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N, 196N, 294N, 490N
Test Range		1HV~2967HV			
Test Mode		HV/HK			
Loading Method		Automatic (Loading/Dwell/Unloading)			
Shifting between Objective and Indenter		Automatic Shifting			
Conversion Scale		HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HB			
Data Output		Built-in Printer			

	WORD or EXCEL Report with Curve Chart			
Hardness Reading	Indentation Displaying and Automatic Measuring on PC			
Objective	20 <sup>x</sup> , 40 <sup>x</sup>	10 <sup>x</sup> , 40 <sup>x</sup>	10 <sup>x</sup> , 20 <sup>x</sup>	10 <sup>x</sup> , 20 <sup>x</sup>
Eyepiece	10 <sup>x</sup>			
Total Magnification	200 <sup>x</sup> , 400 <sup>x</sup>	100 <sup>x</sup> , 400 <sup>x</sup>	100 <sup>x</sup> , 200 <sup>x</sup>	100 <sup>x</sup> , 200 <sup>x</sup>
Resolution	0.125μm , 0.0625μm	0.25μm , 0.0625μm	0.25μm , 0.125μm	0.25μm , 0.125μm
Dwell Time	0~60s			
Light Source	Halogen Lamp			
Motorized X-Y Test Table	Size: 100×100mm; Travel: 50×50mm; Resolution: 0.002mm			
Max. Height of Specimen	170mm			
Throat	130mm			
Power Supply	AC220V, 50Hz			
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2			
Dimension	530×280×630mm, Packing Dimension: 620×450×740mm			
Weight	Net Weight: 35kg, Gross Weight: 47kg			

### Software Function:

System linkage: Through the communication interface it realizes the linkage between the system and the hardness tester.

Pressure linkage: When converting test force, the system perceives the test force change and displays in real time.

Turret linkage: The software controls the shifting between the objective and the indenter without manual control.

Loading linkage: The software controls the loading without manual control.

Measuring linkage: The software controls the turret, loading and directly reading the Vickers hardness value.

Light source linkage: Automatic focus.

Image acquisition: Real time display of hardness image, store and print image.

Automatic measurement: Automatically find the four vertices of indentation with fast speed and accurate data, there are many professional algorithms to be suitable for different indentation. It continuously and immediately measures at specified coordinates once loading.

Automatic point search: The system automatically finds the best vertices near the four vertices of the indentation, greatly reduce the human error.

Diagonal measurement: Click the top left and lower right corner of the indentation, you can read the hardness value.

Four point measurement: Click the four point of the indentation and you can read the hardness value.

Hardness conversion: According to the national standard, automatically convert the hardness value between Brinell, Rockwell, Vickers, Knoop, real-time display.

Graphic report: Automatic record of measurement data, automatic generation of hardness-depth curves, saving or printing the hardness-depth curves and all indentation measurements. Save or print the indentation image and the current indentation hardness value. All the reports are saved in WORD file.

Results statistics: Output the multiple measured results of indentations by EXCEL and automatically count the measurement number, maximum value, minimum value, average value, variance, etc. of hardness.

Linkage control: Through the communication interface the system perceps the test force changes, controls the turret, loads and directly reads.

Automatic displacement: Equipped with high precision X-Y automatic test table.

Automatic identification: Leading indentation automatic identification technology, read D1 / D2 and HV value in 0.3 seconds.

Stable performance: The indentation of non mirror polishing, uneven light, not in the center can be read automatically.

Powerful functions: Such as manual reading, automatic reading, hardness conversion, depth-hardness curve, indentation image, picture and text report.

Easy to use: Through the hardness block calibration, in line with the users' habits. It can be normal used with half day training.

Automatic reading: Original algorithm of automatic reading to automatic read a variety of indentation with fast speed and high accuracy.

Good repeatability: It is automatic reading with high repeatability and can satisfy the requirement of professional users.

Automatic scanning: Can automatically scan the sample edge and shape.

### **Parameters:**

1. Computer: Lenovo computer (2G memory, 500G hard disk, 19 inch LCD screen)
2. Ink jet printer
3. Operating system: WIN XP、WIN7
4. Digital imaging system

High resolution: 130 million pixel (1280×1024)

High speed acquisition: 1280×1024 resolution: 25 FPS

High definition: Black and white images and clarity is better.

Target surface size: 1/2 inch

5. X-Y automatic test table

Table size: 100×100×50 mm

Maximum travel: 50×50 mm

Minimum step: Less than 2 $\mu$ m

Movement speed: Adjustable

Control mode: Manual control, electric control, computer control

#### 6. X-Y test table - computer control mode

Location movement: The test table directly moves to the software settings;

Point movement: Select any point of the sample, moved to the below of the indenter;

Directional movement: Click the eight directions to make the test table move and the moving step can be set up;

Arbitrary movement: Click any directions to make the test table move and make it easy for users to browse the specimen surface;

Variable speed movement: There are two speeds (fast and slow) when moving the test table and the speed is optional and adjustable;

Other function: Original position arbitrary setting, automatic reset, mechanical limit, and other professional features to meet various requirements.

#### 7. Measuring method

Automatic mode——Automatic test table moving (X, Y, Z direction) + automatic reading

Manual mode 1——Automatic loading + manual eyepiece scribed line measurement

Manual mode 2——Manual test table moving + manual focus + Automatic / manual measurement

#### 8. Automatic / manual reading

Automatic reading time: Single indentation reading time is about 300 milliseconds;

Automatic measurement precision: 0.1 $\mu$ m;

Automatic measurement repeatability:  $\pm$ 0.8%

Manual reading: Manual pick, automatic search points, 4 points measurement, 2 diagonal measurement

#### 9. Results save / output

Save / output measurement data and experimental parameters, including D1, D2, HV, X, Y etc.;

Save / output effective hardening layer depth curve report;

Save / output image.

#### Standard Configuration:

Name	Qty	Name	Qty
Instrument Main Body	1 set	10 $\times$ Digital Measuring Eyepiece	1 pc
Diamond Vickers Indenter	1 pc	Objective	2 pcs
Motorized Cross Test Table	1 pc	Power Cable	1 pc
Horizontal Regulating Screw	4 pcs	Level	1 pc
Fuse 1A	2 pcs	Halogen Lamp 12V、15~20W	1 pc

Inner Hexagon Spanner 2.5mm	1 pc	Screw Driver	1 pc
Hardness Block	2 pc	Anti-dust Cover	1 pc
Usage Instruction Manual	1 copy		
Computer (Lenovo, Hard disk: 500G, Memory: 2G, 19 inch LCD screen)	1 set	Ink Jet Printer	1 set
CCD Camera	1 set	1.5× Adapter	1 pc
USB Softdog	1 pc	Control Cables	1 pc
RS232 Cable	1 pc	Motorized Test Table Control Box	1 pc
Measuring Software	1 pc		



# **XHVT-5Z/10Z/30Z/50Z /V3.0 Intelligent Fully Automatic Vickers Hardness Tester**

## **Main Function:**

This instrument is a new generation of automatic Vickers hardness tester. It adopts the integrated design of hardness tester and panel computer; With Windows 7 operating system, it has all functions of computer. With CCD image acquisition system, it can show the indentation image directly on the touch screen and automatically get the Vickers hardness value. It takes over the old method of measuring the diagonal length by eyepiece, avoids the stimulation and visual fatigue of the light source of the eyepiece, and protects the eyesight of the operator. It is a major innovation of Vickers hardness tester.

- All the testing parameters can be selected on the side panel computer. With touching screen, it operates quickly and conveniently and displays clearly and intuitively.
- With CCD image acquisition system, it shows the image clearly and gets the hardness value just by touching the screen.
- Automatic recognition and shifting between the objective and the indenter, automatically get the Vickers hardness value.
- With the function of hardness scale conversion.
- The system has two languages: English and Chinese.
- With USB, VGA and LAN interfaces, the hardness measurement can be print out by USB interface.
- It can automatically save the measuring data, generate the hardness-depth curve and save as WORD or EXCEL document.
- With motorized X-Y test table, automatic focusing and automatic measuring, it realizes the fully automation of Vickers hardness testing.

## **Application range:**

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.

## **Technical Specification:**

Model	XHVT-5Z / 10Z / 30Z / 50Z / V3.0
Test Force	Kgf, N

XHVT-5Z / V3.0	0.2kgf, 0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf 1.96N, 2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N
XHVT-10Z / V3.0	0.2kgf, 0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf 1.96N, 2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N
XHVT-30Z / V3.0	0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf 2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N, 196N, 294N
XHVT-50Z / V3.0	0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf, 50kgf 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N, 196N, 294N, 490N
Test Range	1HV~2967HV
Loading Method	Automatic (Loading/Dwell/Unloading)
Shifting between Objective and Indenter	Automatic Shifting
Computer	CPU: Intel I3, Memory: 2G, SSD: 32G
CCD Pixel	1.30 Million
Conversion Scale	HV, HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HBW
Hardness Reading	Indentation Displaying and Automatic Measuring on Touch Screen
Data Output	WORD or EXCEL Report with Curve Chart
Objective	10 <sup>x</sup> , 20 <sup>x</sup> , 40 <sup>x</sup>
Total Magnification	100 <sup>x</sup> , 200 <sup>x</sup> , 400 <sup>x</sup>
Resolution	0.06μm, 0.03μm, 0.015μm
Dwell Time	0~60s
Light Source	Halogen Lamp
Motorized X-Y Test Table	Size: 110×110mm; Travel: 50×50mm; Resolution: 0.002mm
Max. Height of Specimen	185mm
Throat	130mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2
Dimension	560×335×675mm, Packing Dimension: 650×380×960mm
Weight	Net Weight: 52kg, Gross Weight: 67kg

**Packing List:**

Name	Qty	Name	Qty
Instrument Main Body	1 set	Diamond Vickers Indenter	1 pc
10 <sup>x</sup> , 20 <sup>x</sup> , 40 <sup>x</sup> Objective	each 1 pc	Motorized Cross Test Table	1 pc

Power Cable	1 pc	Horizontal Regulating Screw	4 pcs
Level	1 pc	Fuse 1A	2 pcs
Halogen Lamp 12V、15~20W	1 pc	Screw Driver	1 pc
Inner Hexagon Spanner 2.5mm	1 pc	Hardness Block 700~800 HV1	1 pc
Hardness Block 400~500 HV5	1 pc	Anti-dust Cover	1 pc
Usage Instruction Manual	1 copy		



# **XHVT-5Z/10Z/30Z/50Z Intelligent Digital Vickers Hardness Tester**

## **Main Function:**

This instrument is a new generation of Vickers hardness tester. It adopts the integrated design of hardness tester and panel computer, all the testing parameters can be selected on the panel computer. With touch screen, it operates 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 the Vickers hardness value with high precision and stability, and avoid the human errors. The hardness tester with complete functions reaches the advanced level.

- It adopts the integrated design of hardness tester and panel computer, with Windows 7 operating system, it has all functions of computer and can be connected to the output devices such as external screen and printer;
- With three objectives for measurement, automatic recognition and shifting between the objective and the indenter;
- The lifting screw adopts worm and gear structure with smooth transmission;
- Test force loading, dwell and unloading is automatically finished;
- With CCD image acquisition system, it shows the image clearly and gets the hardness value automatically;
- With the function of hardness scale conversion;
- It can automatically save the measuring data, generate the hardness-depth curve and save as WORD or EXCEL document;
- With digital X-Y test table, it makes measurement more precise; it realizes the fully automation of Vickers hardness testing with optional motorized X-Y test table.

## **Application range:**

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.

## **Technical Specification:**

Model	XHVT-5Z / 10Z / 30Z / 50Z
Test Force	Kgf, N
XHVT-5Z	0.2kgf, 0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf

	1.96N, 2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N
XHVT-10Z	0.2kgf, 0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf 1.96N, 2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N
XHVT-30Z	0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf 2.94N, 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N, 196N, 294N
XHVT-50Z	0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf, 50kgf 4.90N, 9.80N, 19.6N, 24.5N, 29.4N, 49N, 98N, 196N, 294N, 490N
Test Range	1HV~2967HV
Loading Method	Automatic (Loading/Dwell/Unloading)
Shifting between Objective and Indenter	Automatic Shifting
Computer	CPU: Intel I3, Memory: 2G, SSD: 32G
CCD Pixel	1.30 Million
Conversion Scale	HV, HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HBW
Hardness Reading	Indentation Displaying and Automatic Measuring on Touch Screen
Data Output	WORD or EXCEL Report with Curve Chart
Objective	10 <sup>x</sup> , 20 <sup>x</sup> , 40 <sup>x</sup>
Total Magnification	100 <sup>x</sup> , 200 <sup>x</sup> , 400 <sup>x</sup>
Resolution	0.25μm, 0.125μm, 0.0625μm
Dwell Time	0~60s
Light Source	Halogen Lamp
Motorized X-Y Test Table	Size: 100×100mm; Travel: 25×25mm; Resolution: 0.01mm
Max. Height of Specimen	185mm
Throat	130mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2
Dimension	560×335×675mm, Packing Dimension: 650×380×960mm
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Power Cable	1 pc	Horizontal Regulating Screw	4 pcs

Level	1 pc	Fuse 1A	2 pcs
Halogen Lamp 12V、15~20W	1 pc	Screw Driver	1 pc
Inner Hexagon Spanner 2.5mm	1 pc	Hardness Block 700~800 HV1	1 pc
Hardness Block 400~500 HV5	1 pc	Anti-dust Cover	1 pc
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