HV-100 Series

SERIES 810 – Vickers Hardness Testing Machines

- Vickers hardness testers have a wide application in testing metals, especially small heat-treated parts, and are also suitable for making special-purpose tests such as carburized case hardness, maximum hardness of spot welds, high-temperature hardness, and fracture toughness of ceramic materials.
- Objective lenses specifically developed for hardness testing are supplied. A clear and natural view of an indentation is achieved by changing the light source of the illumination from halogen to LED.
- A new 2X lens for wide-angle observation has been added to the range. Now, magnifications of 10X, 20X, 50X and 100X for observation and gauging; and 5X and 2X for observation are available. Also, the working distance is doubled (5.9 to 11.8mm) for the 10X objective lens (in-house comparison) to minimize the risk of collision between the workpiece and the lens during operations.
- In addition to Vickers hardness testing, fracture toughness tests (IF Method: JIS R 1607) and other tests can be performed with optional accessories such as a Knoop indenter and additional indenters and a weight for Micro Brinell testing.
- Four systems are available: Basic model A; model B equipped with automatic indentation reading function; model C equipped with automatic indentation reading function and automatic XY stage; model D equipped with automatic indentation reading function, automatic XY stage, and auto-focus stage.

Technical Data

Test force range:	8 steps
Load dwell time:	5 - 999 s
Max. specimen height	
System A:	210 mm (using flat anvil)
System B:	181 mm (stage size: 50 x 50 mm)
System C:	172 mm
System D:	132 mm
Max. specimen depth:	170 mm (from the centre of indenter)
Optical path:	3-port objectives switching system of infinity-corrected optical system
Resolution:	0.1 µm when using objectives less than 50X (0.01 µm when using objective lens more than 50X)
Data output:	Serial interface (RS-232), Digimatic interface, USB 2.0
Functions:	Calculation of Vickers/Knoop*2/ Brinell*3 hardness and ceramic fracture toughness based on IF method (JIS R1697), 3 display format (standard, list, simple), GO/±NG judgement, test condition guide, curve and user correction, hardness corresponding value, statistics calculation

*2 For Knoop hardness testing the Knoop indenter (optional) is required.
*3 For Brinell hardness testing a Brinell indenter (optional) and additional weight are required.

MeasurLink® ENABLED
Data Management Software by Mitutoyo

System A


System B


System C

Optional Accessories

Code No.	Description	
810-037	Round table (ø180 mm)	
810-038	Round table (ø250 mm)	
810-040	V-anvil (ø40 mm, 120° groove 30 mm wide, ø15 - ø60 mm)	
810-041	V-anvil ((ø40 mm, 120° groove 30 mm wide, ø3 - ø9 mm)	
810-420	Manual XY stage (25 x 25 mm)	
810-423	Manual XY stage (50 x 50 mm)	
11AAC129	Measuring eyepiece (System B, C and D)	
11AAC697	Brinell weight (0.5 kg)	
11AAC698	Brinell weight (1.25 kg)	
11AAC699	Brinell weight (5.625 kg)	
11AAC700	Brinell weight (12.5 kg)	
11AAC702	Stand for testing machine	
11AAC712	Objective lens 2X	
11AAC713	Objective lens 5X	
11AAC714	Objective lens 20X	
11AAC715	Objective lens 50X	
11AAC716	Objective lens 100X	
11AAC719	Vibration isolator	

For Hardness Test Blocks refer to page M-10 for details.
For Indenters refer to page M-10 for details.

Systems

System A (HM-110A / HM-120A):
All-in-one model with simple colour touch-panel operation.

System B (HM-110B / HM-120B):
A system equipped with automatic reading function with AVPAK software.

System C (HM-110C / HM-120C):
In addition to the functions of System B, System C is equipped with an electric stage.

System D (HM-110D / HM-120D):
In addition to the functions of System B and System C, System D is equipped with the auto focus function.

Specifications

Model	HV-110		HV-120	
System	A	B / C / D	A	B / C / D
Code No.	810-440E	810-443E	810-445E	810-448E
Indentation measurement	Measuring eyepiece	Automatic (AVPAK-20)	Measuring eyepiece	Automatic (AVPAK-20)
Main unit operation	Touch panel	PC	Touch panel	PC
Fixed test force	1, 2, 3, 5, 10, 20, 30, 50 kgf		0.3, 0.5, 1, 2.5, 5, 10, 20, 30 kgf	
Test force control	Lever method and automatic control (load, dwell, unload)			
Turret drive	Motor-driven and manual			
Control unit type	Touch screen	—	Touch screen	—
Objectives	A maximum of three can be installed in turret. (A 10X objective is provided as standard.)			
Dimensions (W x D x H)*1	307 x 696 x 786 mm	307 x 627 x 875 mm	307 x 696 x 786 mm	307 x 627 x 875 mm
Mass (main unit)	Approx. 60 kg	Approx. 58 kg	Approx. 60 kg	Approx. 58 kg
Power supply	240VAC ±10%, 50/60Hz			

*1 Excluding protrusions and stage.

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