

HM-210/HM-220

SERIES 200 – Micro-Vickers Hardness Testing Machines

- The latest electromagnetic force motor used in the loading mechanism enables the test force to be freely selected (see test force specifications) over the wide range of 0.05 gf to 2 kgf. It is also possible to freely set the time for loading and load dwell time. Now your desire for absolute control over the indentation size in Vickers hardness testing can be satisfied. The HM-200 series always offers the test force most appropriate for the specimen material and shape.
- The objectives used enable a very comfortable working distance between the objective and the specimen surface. This greatly reduces the possibility of collision between the specimen and the objective during focusing operations. (For example, for 50X objectives: 1.1 mm for conventional models; 2.5 mm for HM-200 series models.)
- Newly designed 'MH Plan' objectives are optimized for measuring indentation images. The lineup includes 6 types of long working distance objectives: 10X, 20X, 50X and 100X for measuring indentation images, and 2X and 5X for enabling wide-range measurement around indentations. LEDs, which have a longer life, produce less heat and are lower powered (so are more energy efficient than incandescent bulbs) are employed for the illumination system.



HM-210A



Power turret with 2 indenter mounts and 4 objective mounts (manual operation possible)



Touch-screen type control panel

Technical Data

Test force range	
HM-210A:	9 steps + arbitrary test force
HM-220A:	19 steps + arbitrary test force
Load dwell time:	0 - 999s
Manual XY stage unit	
Stage size:	100 x 100 mm or 130 x 130 mm
Travel range:	25 x 25 mm or 50 x 50 mm with Digimatic micrometer heads
Resolution:	0.001 mm
Max. specimen height:	133 mm (stage size: 25 x 25 mm)
Max. specimen height:	121 mm (stage size: 50 x 50 mm)
Max. specimen depth:	160 mm (from the centre of indenter)
Optical path:	4-port objectives switching system of infinity-correction optical system
Resolution:	0.01 μm (when using objectives of X40 or more)
Data output:	Serial interface (RS-232), Digimatic interface, USB 2.0
Power supply:	39VA 100-125/220-240V AC, 50/60Hz
Dimensions (WxDxH):	315 x 671 x 595 mm
Mass:	43 kg

Optional Accessories (Factory-Installed)

810-354E:	Video camera (8.4 inch LCD) £3020.00
11AAC104:	Objective lens 2X £1030.00
11AAC105:	Objective lens 5X £640.00
11AAC106:	Objective lens 10X £680.00
11AAC107:	Objective lens 20X £850.00
11AAC108:	Objective lens 100X £1140.00
11AAC129:	Measuring microscope (Digital ocular) £2360.00
11AAC109:	Indenter shaft (HM-210 Series) £2720.00
11AAC110:	Indenter shaft (HM-220 Series) £4310.00

SPECIFICATIONS

Model	HM-210A	HM-210B	HM-220A	HM-220B
Code No.	810-400E	810-403E	810-405E	810-408E
Measuring indentations	Measuring microscope	Automatic (AVPAK-20)	Measuring microscope	Automatic (AVPAK-20)
Main unit operation	Touch panel	PC	Touch panel	PC
Fixed test force	10, 20, 30, 50, 100, 200, 300, 500, 1000 gf		0.05, 0.1, 0.2, 0.3, 0.5, 1, 2, 3, 5, 10, 20, 30, 50, 100, 200, 300, 500, 1000, 2000 gf	
Arbitrary test force*	Test force of HV0.1 (100 gf) or below can be set in increments of HV0.001 (1 gf)		Only the test force HV0.00005 (0.05 gf) is available below HV0.0001 (0.1 gf)	
			Test force of HV0.0001 (0.1 gf) or more and below HV0.001 (1gf) can be set in increments of HV0.0001 (0.1 gf)	
	Test force of HV0.1 (100gf) or more can be set in increments of HV0.01 (10gf)		Test force of HV0.001 (1 gf) or more and below HV0.1 (100 gf) can be set in increments of HV0.001 (1 gf)	
			Test force of HV0.1 (100 gf) or more can be set in increments of HV0.01 (10 gf)	
Test force control	Force generation by electromagnetic and automatic control (load, dwell, unload)			
Control unit	Touch screen type (except for models 810-403/8)			
Indenters	A maximum of two can be installed. (One indenter shaft with diamond indenter is provided as factory-installed in the main unit).			
Objectives	A maximum of four can be installed (50X standard lens is factory-installed in one position out of the four).			
Price	£POA	£POA	£POA	£POA

* One setting can be saved. (default setting: HV0.025 (25 gf))



Image of an indentation (50X)



Note stray light reduction around the indentation