

MODEL FH-14

Micro/Macro Vickers & low force brinell hardness tester



The FH-14 series, Micro Vickers, Vickers, Knoop and Micro Brinell hardness testing machines are a new generation of instruments, improving conventional hardness testing methods and focused on eliminating user influence on the test results. The unique force actuator system utilizes an electronically controlled closed loop system and advanced force sensor technology, With force feedback to achieve absolute accuracy, reliability and repeatability, on each of the forces used for a test. Besides this advanced electromechanical force application system, the FH-14 offers superior quality mechanical and optical components, used to complete the instrument.

BUILT-IN CAMERA (OPTIONAL)

Camera for On SCREEN measurements, in combinations with the HORIZON software system. The camera is protected against dirt and accidental damage or misalignment, by accommodating it inside the head cover.



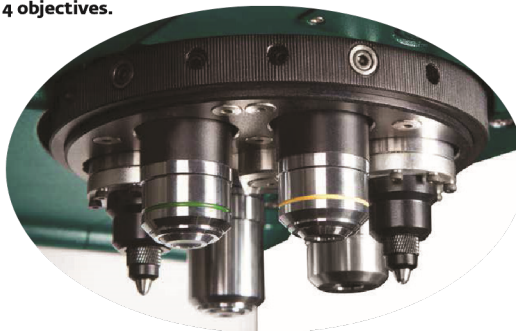
ANALOGUE OR DIGITAL EYEPIECE (OPTIONAL)

The FH-14 can be equipped with a digital eyepiece which can be replaced easily by an analogue eyepiece for educational purposes both can also be combined.

Features and benefits

- The innovative software functions of Remote pendant
- A rock solid frame structure
- Digital/optical image evaluation combined with intuitive operator software
- Micro system controller
- Electronically controlled loads
- Upto 170mm specimen height accomodation
- Collision Protection System (CPS)

Motorized turret which can be outfitted with upto 2 indenters and 4 objectives.



REMOTE PENDANT
Large 7,5" full colour HD
Touch screen

4 ADVANCED LEVELS OF AUTOMATION

Software Option 1

- High Resolution camera
- Industrial Touch screen
- Mouse & Keyboard
- System Controller
- Automatic indent measurement system

Software Option 2

- Standard
- +
 - Digital micrometer X-axis that transfers the position of the stage to HORIZON

Software Option 3

- Standard
- +
 - Two digital micrometers X and Y-axis that transfers the position of the stage to HORIZON

Software Option 4

- Standard
- +
 - Advanced software module for CHD, SHD, NHD, Pattern testing & automatic edge detection
 - High speed CNC motorized X-Y stage, 120x100mm displacement, 0.002mm repeatability, can carry 400kgf load.

Specifications

FH-14 SPECIFICATIONS

Hardness scale	(Micro-) Vickers, Knoop and Brinell
Load application	Multi Load cell, force feedback, closed loop system
Load range	Model specific
Specimen height accommodation	Up to 170mm
Motorized turret	Six positions: Fitted with up to two indenters, four objectives
Optical system	Optional
Objectives	Optional objectives
Electronic system	High performance embedded electronics system running smart touch firmware
Test loads (depending on model)	1gf, 2gf, 3gf, 4gf, 5gf, 6gf, 7gf, 8gf, 9gf, 10gf, 15gf, 20gf, 25gf, 50gf, 100gf, 200gf, 300gf, 400gf, 1kgf, 2kgf, 2.5kgf, 3kgf, 4kgf, 5kgf, 6.25kgf, 10kgf, 15.625kgf, 20kgf, 25kgf, 30kgf, 31.25kgf
Vickers test range	HV0.001, HV0.002, HV0.003, HV0.004, HV0.005, HV0.006, HV0.007, HV0.008, HV0.009, HV0.010, HV0.015, HV0.020, HV0.025, HV0.050, HV0.1, HV0.2, HV0.3, HV0.5, HV1, HV2, HV2.5, HV3, HV4, HV5, HV10, HV20, HV25, HV30
Brinell test range	HB1/1kgf, HB1/1.25kgf, HB1/2.5kgf, HB1/5kgf, HB1/10kgf, HB1/30kgf, HB2.5/6.25kgf, HB2.5/7.8125kgf, HB2.5/15.625kgf, HB2.5/31.25kgf; HB5/25kgf, HB5/31.25kgf
Knoop test range	HK0.001, HK0.003, HK0.005, HK0.01, HK0.015, HK0.02, HK0.025, HK0.05, HK0.1, HK0.2, HK0.3, HK0.5, HK1, HK2, HK5
KiC Fracture	KC/1, KC/3, KC/5, KC/10, KC/15, KC/20, KC/25, KC/50, KC/100, KC/200, KC/300, KC/400
Indenters	1 factory certified micro vickers indenter included
Test cycles	Motorized, automatic procedure
Standards	Complies to or exceeds, ISO, ASTM, JIS (Nadcap) standards
Test force tolerance	<0.5% for all forces
Display resolution	0.1 HV, HK, 0.5 HB
Hardness conversion	Rockwell, Rockwell Superficial, Vickers, Brinell, Knoop, Leeb & Tensile (ISO 18625/ASTM E140)
Statistics	Total test, max, min, average, range, standard deviation, all in real time after each test
Data storage capacity	Integrated memory system
Connectivity	USB ports, Converter to RS232, 1 x for optional integrated CCD camera
Dwell time setting	Default 10 seconds, user defined 1 to 99 seconds (1 sec increments)
Printer	(optional)
Manual stage dimensions	Stage 100 x 100mm Travel 25 x 25mm Reading 0.01mm
Motorized stage dimension	See optional CNC X-Y stage dimensions in this catalogue
Operating temperature	10-35°C, non-condensing
Humidity	10-90% non-condensing
Machine dimensions	525 x 323 x 773mm
Machine weight	75kg
Power consumption	75W
Power supply	100VAC to 240VAC, 50/60Hz, single phase

Note - Specifications subject to change without notice

MODEL DETAILS

- **FH-14-1** 10gf-2kgf Vickers, Knoop
- **FH-14-2** 1gf-2kgf Vickers, Knoop & Brinell
- **FH-14-3** 10gf-10kgf Vickers, Knoop & Brinell
- **FH-14-4** 1gf-10kgf Vickers, Knoop & Brinell
- **FH-14-5** 10gf-31.25kgf Vickers, Knoop & Brinell
- **FH-14-6** 1gf-31.25kgf Vickers, Knoop & Brinell

STANDARD ACCESSORIES

- Load cell, closed loop force control
- Smart touch work flow control
- Auto brightness and contrast
- Auto sharpness and focus
- Anti-collision system for objectives and indenters
- Calibrated step less Indent ZOOM system
- Autosave, program setup, data storage
- One indenter position, two objective positions
- Quality optical system
- Integrated Camera mount
- High power LED vertical illuminator with filter position
- 7.5" portrait mode, HD industrial touch screen
- Connectivity: USB ports, RS232, 1 Camera USB port
- One indenter position/actuator installed
- One objective 10x, One objective 50x
- Manual X-Y stage 100 x 100mm, travel 25 x 25mm
- Four vibration dampers
- Installation, Operator manual, power cable, spare fuse, certificate of Calibration

OPTIONAL ACCESSORIES

- Automatic indent measurement
- One factory certified Micro Vickers indenter
- Certified Indenters (ASTM, DIN, ISO)
- Certified reference blocks (ASTM, DIN, ISO)
- Motorized CNC precision, ultra-fast positioning X-Y stage
- Objective 5X, 10X, 20X, 50X, 60X
- V-anvil for 1-6mm & 4-20mm
- Precision vice 50, 75, 100mm
- 1 sample holder 30, 40, 50 mm; 6 sample holder 30,40,50mm
- 15" Industrial LCD touch screen

Super fast, high accurate motorized CNC X-Y stages:

Part No.	Surface Area	Travel limits
FH-049-0000	250 x 205mm	120 x 100mm
FH-049-0001	300 x 225mm	170 x 120mm

