

# Tinius Olsen

## Universal Hardness Tester FH-11 Series



### KEY FEATURES

- Rockwell, Superficial Rockwell, Vickers, Knoop, Brinell, Ball indentation, HVT and HBT scales
- Superior range of test loads/force application ranging from 500 gf (1.1 lbf) to 3000 kgf (6614 lbf) (over 3 models)
- Fixed workpiece position (no spindle)
- Descending test head with automatic workpiece detection
- Free definable, manual or motorized 6-position turret for objectives and indentors at choice
- High definition optical system for images of 0.7x to 1000x magnification
- HORIZON hardness testing firmware and database file system
- Large, adjustable 15" (381 mm) industrial touch screen
- Automatic or manual focus, manual, or fully automatic indent measurement, standard
- Built-in hard disk offers nearly endless file storing, standard
- LAN, WLAN, USB-2, RS-232, Printer and DVI connectivity, standard
- On board built-in driver for (optional) motorized X-Y stage, standard
- Free definable test patterns case depth, traverse, free style, etc., optional
- Machine covers made of shock, damage and fire proof recyclable materials
- Large range of optional accessories
- Large testpiece accommodation H=300 mm (11.8"), D=220 mm (8.7"), can be upgraded to a taller frame of for instance H=450 mm (17.7"), D=220 mm (8.7"), or 300 mm (11.8").

**Fig. 1.** FH-11 Series with 6 position motorized turret

## Technical Specifications

<b>SCALES/TEST LOADS/FORCE</b>	1 kgf/9.8 N/2.2 lbf – 250 kgf/2.45 kN/551 lbf, 3 kgf/29 N/6.6 lbf – 750 kgf/7.35 kN/1654 lbf, 10 kgf/98 N/22 lbf – 3000 kgf/29 kN/6614 lbf
ROCKWELL, A, B, C, D, E, F, G, H, K, L, M, P, R, V	All scales, depending on model
SUPERFICIAL ROCKWELL, N, T, X, Y	All scales, depending on model
MACRO ROCKWELL HRM	Yes
VICKERS HV	1 kgf/9.8 N to 120 kgf/1176 N (2.2 lbf to 265 lbf) Depending on model
KNOOP	All scales - depending on model
HVT	50 kgf/490 N, 100 kgf/980.7 N (110 lbf, 220 lbf)
BRINELL	1 kgf/9.8 N/2.2 lbf – 3000 kgf/29 kN/6614 lbf (depending on model)
HBT	5/250 (depending on model)
<b>FORCE APPLICATION SYSTEM</b>	
Linear force actuator	Standard
Load cell, closed loop, force feed back system	Standard
Motorized heavy duty TURRET with 6 positions	Standard
Indenter positions	3
Objective positions	3
LED optical indent workpiece illumination	Standard
<b>OPTICAL MEASURING SYSTEM</b>	
5 megapixel high definition optical system	Standard
Auto focus	Standard
Manual focus	Standard
Fully automatic indent measuring	Standard
Manual on screen indent measuring	Standard
Magnification ratio	0.7x to 1000x
Dual view working area overview camera	Optional
External Electronic Brinell microscope and objectives	No
<b>DEPTH MEASUREMENT SYSTEM</b>	
Heidenhain™ high resolution optical systems	Standard
<b>HARDWARE &amp; USER INTERFACE</b>	
Adjustable 15" full color industrial touch screen	Standard
MS Windows 7 Ultimate license	Standard
HORIZON FH-11 hardness testing firmware	Standard
Automatic image and file storage	Standard
Stores and handles 3000 files and images	Standard
Stores and handles 9000 files and images	Optional
Forms FH-11 set of customized certificates	Optional
Universal motorized X-Y stage controls	Standard
<b>CONNECTIVITY</b>	
External digital (DVI) TFT screen output	Standard
External keyboard and mouse connections	Standard
LAN (local area network connection)	Standard
WLAN (Wireless network connection)	Standard
Bi-directional RS-232	Standard
Printer / USB-2 output	Standard
Built-in motorized X-Y stage driver	Standard
Hardness resolution	0.01 Rockwell, 0.1 Vickers, 1 Brinell
Objectives	3 installed for 0.7x to 1000x
Workpiece accommodation	Vertical capacity 300 mm (optional 500 mm)
Horizontal capacity	220 mm/8.7" (from center-line)
Force tolerance Max.	< 1%
Force control	1-99 sec
Light source	White power LED (Opt. green/blue/red)
Power supply	100 to 220V AC, 50/60 Hz, single phase
Weight	242 kg (534 lbs)

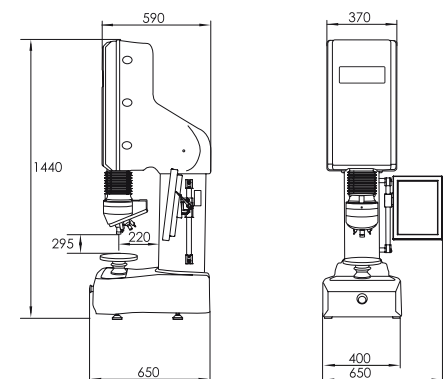
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## STANDARD ACCESSORIES

- Flat anvil ø80 mm (3.15")
- V-anvil ø80 mm (3.15")
- Testing table ø200 mm (7.87")
- Certificate
- Installation and user manual

## OPTIONAL ACCESSORIES

- Certified indentors
- Certified hardness test blocks
- Large testing table 350 mm x 250 mm/138" x 98" with T-grooves
- Extra large testing table 450 mm x 350 mm with grooves and support
- Long bar supports, to ease testing long bars
- Motorized X-Y stages, motorized rotary or tilting tables (250kg maximum capacity)
- Built-in 5 axis support driver
- Certified reference blocks (DKD, UKAS, ASTM)



**Fig. 2. FH-11.** All measurements are in mm



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