

Universal Hardness Tester EW-9000 Series



EW-9000 Series

1kgf to 3000kgf, 6 Position Motorised Turret



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The EW-9000 Series represents the latest top of the range development in universal hardness testing. Modern design, innovated technology, multi purpose hardness testing instrument, based on the application of mechatronic components and high resolution video machine vision systems. A superior level of precision combined with high definition imaging creates an almost unlimited field of applications.

The EW-9000 Series represents universal hardness testing in the most versatile meaning. Aircraft engine parts, automobile parts, production lines, general quality assurance and laboratory use are all fields covered by the EW-9000 Series.

Manual operation or full scale automation to the highest possible level are both standard on the EW-9000.

The EW-9000, Load Cell, Closed loop, Force feedback system is suitable for the following:

Optical Hardness Testing Methods:

- Vickers (HV), EN ISO 6507, ASTM E 92
- Knoop (HK) ISO 4545, 4546
- Brinell (HB) EN ISO 6506, ASTM E 10

Depth Measuring Hardness Testing Methods:

- Rockwell (HR) EN ISO 6508, ASTM E 18
- Vickers depth measurement HVT VDI/VDE 2616-1
- Brinell depth measurement HBT VDI/VDE 2616-1
- Ball indentation hardness (H) (ISO 2039-1) (plastics)

Features

- Rockwell, Superficial Rockwell, Vickers, Knoop, Brinell, Ball indentation, HVT and HBT scales
- Superior range of test loads/force application ranging from 1kgf to 3000kgf (over 3 models)
- Fixed work piece position (no spindle)
- Descending test head with automatic work piece detection
- Free definable, manual or motorised 6 position turret for objectives and indenters of choice
- High definition optical system for images of 0.7x to 1000x magnification
- PC based hardness testing firmware and database file system as standard
- Large, adjustable 15" industrial touch screen (or mouse with normal 22" LCD 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) motorised 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 test piece accommodation H=300mm, D=220mm
- 3 years free firmware upgrade, standard
- Designed and manufactured in The Netherlands, 1 year limited guarantee

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6 Position Turret

A special feature of the EW-9000 is the motorised turret which comes as standard on each system. The turret can hold 3 different indenters and 3 objectives up to 40x magnification, or 6 different indenters on a PURE ROCKWELL model.

Combine the turret with an optional X-Y stage, a rotary table or inclination table and create the worlds most comprehensive 4 or 5 axis hardness testing system.

Workpiece position is fixed. No hand wheels, no difficult supporting and no spindle to carry heavy parts. No wear and tear caused by heavy work pieces. No work load and no additional drive systems required.



Protection, Safety, Online Systems

EW-9000 intelligent sensor systems will register any irregular or unusual forces being applied to the turret, and will stop the test head from descending. In this way the system cannot cause injuries. No significant force is applied when any of the objectives are in viewing position.

The EW-9000 test head with force actuator, with or without turret, can be used in on-line structures or integrated in to production lines requiring automatic testing procedures. The newly developed optical system allows stunning, high definition indent magnification (0.7x to 1000x). Refined algorithms guarantee accurate automatic measurement.



EW-9000 Firmware

EW-9000 Firmware is the advanced user operating system of the EW-9000 Series. The software incorporates, manual and automatic measurement for all scales, image editing, file storing, image storing, report printing, turret operation, manual or automatic focussing and many other advanced functions.

The firmware converts to 3 different hardness (and tensile) scales simultaneously. The conversions can be set to material and standard (ISO/ASTM).

The system also controls an (optional) X-Y stage, rotary or inclining table that can be plugged into the standard built-in driver of the tester. No additional charges, no external devices.

In combination with an X-Y stage the tester offers the option of running case depth hardness programs, pre defined testing patterns and/or other specific or special tasks defined by the user.

All data can be copied or exported in to MS applications like Word, Excel, or a report generator that emails test results directly to your workstation, or server. All data can be accessed over the LAN or WLAN connections.



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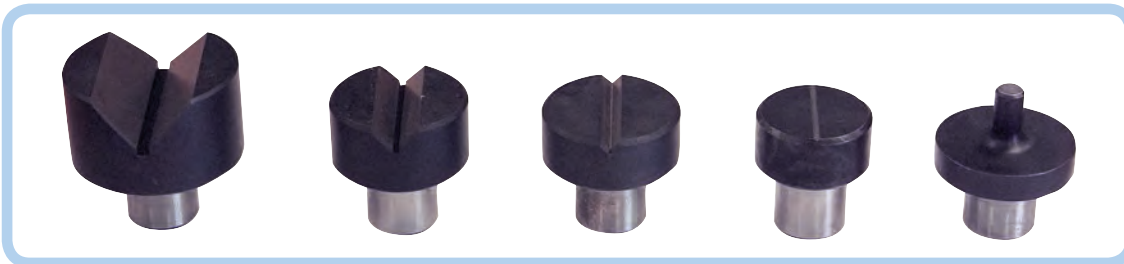
Anvils, Test Tables, Special Indenters

Each EW-9000 is supplied with a standard set of test anvils and work tables.
Each set includes 1 V-groove anvil, 1 flat anvil 80mm, 1 large round testing table ø200mm.

Additionally, you can opt for a large range of specific anvils such as a spot anvil, set of V-groove anvils, tungsten alloy or diamond surface anvils.

The tester can be equipped with a furnace or cooling unit to test work pieces under high or low temperature. Robot work piece loading and unloading can be supported by the built-in industrial computer.

To support large work pieces or cylinder blocks you can opt for the (350mm x 250mm) large working stage that incorporates T-grooves for solid work piece fixing.



X-Y Stages, Rotary Tables, Inclination Devices

Being Universal means being ready for any task. The EW-9000 can be equipped with a variety of X-Y stages suitable for different applications. Different test forces require different specifications of the X-Y stages. Size, test load and positioning accuracy can be offered according to your particular requirement.

CNC rotary tables and inclining testing tables are available depending on the complexity of your work pieces.



Universal Hardness Tester EW-9000 Series

TECHNICAL SPECIFICATION

	EW-9001 Universal	EW-9002 Universal
Scales / Test Loads/Force	1kgf to 250kgf	3kgf to 750kgf
Rockwell, A, B, C, D, E, F, G, H, K, L, M, P, R, V	All scales	All scales
Superficial Rockwell, N, T, X, Y	All scales	All scales
Macro Rockwell HRM	Yes	Yes
Vickers HV	1kgf to 120kgf	3kgf to 120kgf
Knoop	All scales	All scales
HVT	50, 100kgf	50, 100kgf
Brinell	1kgf to 250kgf	3kgf to 750kgf
HBT	5/250	5/250
H (ball indentation)	Up to 250kgf	Up to 750kgf
Force Application System		
Linear force actuator	Standard	Standard
Load cell, closed loop, force feed back system	Standard	Standard
Motorised heavy duty TURRET with 6 positions	Standard	Standard
Indenter positions	3	3
Objective positions	3	3
LED optical indent illumination	Standard	Standard
LED ring light indent illumination	Optional	Optional
Optical Measuring System		
5 mega pixels optical ZOOM system	Standard	Standard
Auto focus	Standard	Standard
Manual focus	Standard	Standard
Fully automatic indent measuring	Standard	Standard
Manual on screen indent measuring	Standard	Standard
Zoom and magnification ratio	0.7x to 1000x	0.7x to 1000x
Dual view working area overview camera	Optional	Optional
External Electronic Brinell microscope and objectives	No	No
Depth Measurement System		
Heidenhain™ high resolution scale & reading head	Standard	Standard
Hardware & User Interface		
Built-in industrial Pentium PC and harddrive	Standard	Standard
Adjustable 15" full color industrial touch screen	Standard	Standard
MS Windows 7 Ultimate license	Standard	Standard
EW-9000 hardness testing firmware	Standard	Standard
Automatic image and file storage	Standard	Standard
Stores and handles 3000 files & images	Standard	Standard
Stores and handles 9000 files & images	Optional	Standard
Forms 9000 set of customised certificates	Optional	Standard
Universal motorised X-Y stage controls	Standard	Standard
Connectivity		
External digital (DVI) TFT screen output	Standard	Standard
External keyboard & mouse connections	Standard	Standard
LAN (local area network connection)	Standard	Standard
WLAN (Wireless network connection)	Standard	Standard
Bi-directional RS-232	Standard	Standard
Printer / USB-2 output	Standard	Standard
Built-in motorized X-Y stage driver	Standard	Standard

Work piece accommodation height: 300mm

Work piece accommodation horizontal: 220mm from center

Machine dimensions: 1400mm x 420mm x 640mm (HxWxD)

Machine weight: 242kg

Tester colour (standard): Black / Metallic silver

Light source: White power LED (Opt. green/blue/red)

Power: 220V / 50Hz, others on request

Objectives: 3 installed for 0.7x to 1000x

Force tolerance: Max. < 1%

Force control: 1-99 sec.

Hardness resolution: 0.01 Rockwell, 0.1 Vickers, 1 Brinell



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TECHNICAL SPECIFICATION

EW-9003 Universal 10kgf to 3000kgf	EW-9004 Pure Rockwell 3kgf to 150kgf	EW-9005 Pure Vickers 1kgf to 120kgf	EW-9006 Pure Brinell 10kgf to 3000kgf
All scales	All scales	No	No
No	All scales	No	No
Yes	Yes	No	No
10kgf to 120kgf	No	500kgf to 120kgf	No
No	No	All scales	No
50, 100kgf	No	No	No
10kgf to 3000kgf	No	No	10kgf to 3000kgf
5/250	No	No	No
Up to 3000kgf	No	No	Up to 3000kgf
Standard	Standard	Standard	Standard
Standard	Standard	Standard	Standard
Standard	Standard	Standard	No
3	3 (or 6, option)	3	None
3	None	3	None
Standard	None	Standard	None
Optional	None	Optional	None
Standard	None	Standard	None
Standard	No	Standard	No
Standard	No	Standard	No
Standard	No	Standard	No
Standard	No	Standard	No
0.7x to 1000x	No	0.7x to 1000x	No
Optional	No	Optional	No
No	No	No	Standard
Standard	Standard	No	No
Standard	Standard	Standard	No
Standard	Standard	Standard	No
Standard	Standard	Standard	No
Standard	No	Standard	No
Standard	Standard	Standard	No
Standard	Standard	Standard	No
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Standard	Standard	Standard	No
Standard	Standard	Standard	Standard
Standard	Standard	Standard	Standard
Standard	Standard	Standard	No

Standard Delivery

- Flat anvil ø80mm, V-anvil ø80mm, ø200mm testing table
- Installation & user manual

Optional Accessories

- Large testing table 350mm x 250mm with T-grooves
- Extra large testing table 450mm x 350mm with grooves and support
- Long bar supports, to ease testing long bars
- Motorised X-Y stages, motorised rotary or tilting tables
- Built-in 5 axis support driver
- Certified indenters and reference blocks (DKD, UKAS, ASTM)