AFFRI®

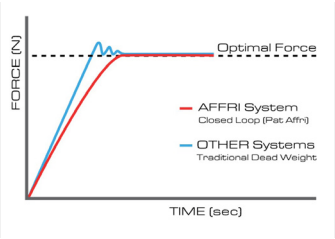
Rockwell, Superficial Rockwell and Brinell HBTW
ASTM E18 / ASTM E10 / ISO 6508 /ISO 6506

AFFRI®

250 DRM

- Universal and automatic Rockwell, Superficial Rockwell, Brinell and Vickers measurements
- The speed of load and poreload is controlled automatically by the closed loop
- Direct digital Brinell readings HR-HBTW
- Dual load cells, no need to be levelled. It's not affected by vibration
- It measures even temperature
- Easy to use thanks to single lever
- Motorized load-unloading
- Loads and preloads set from the keyboard
- Possibility to have clamping hood - 400kg force
- Test force: kg 3-187,5 (N 2943-1839)

Load forces are applied directly on the measuring axis through load cells and electronically controlled in "Closed Loop" (Pat. AFFRI) with a frequency of 1 kHz (1000 input per second).
There are no ratio load forces nor lever, eliminating problems associated with dead weight systems on traditional testers.
This hardness tester is not affected by any structural deflection, misalignment or vibration and can also operate in an inclined position. It doesn't need to be leveled.



206 MX-MXS

- Automatic Rockwel, Brinell and Vickers measurements
- Automatic application of the load-unloading
- Direct digital Brinell readings HR-HBTW
- Dual load cells, no need to be levelled. It's not affected by vibration
- It measures even temperature
- Easy to use thanks to single lever
- Motorized load-unloading
- Possibility to have clamping hood
- Test force EX MX: kg 10-187,5 (N 98,1-1839)
  Test force EX MXS: kg 3-45 (N29,43-441,5)

Test loads can be selected with the rotary knob and the precision graded index.

The visible indenter allows to reach extreme points like Round samples, cutting tools edges, blades and small details.
Different anvils are provided to accommodate any type of sample.

Two machines for the same requests but with different characteristics:

The sturdy piece-holder column assures an exact measurement on any detail.
The internal part is both chromium-plated and grinded. It is able of bearing masses up to 2000 kg which allows for steady hardness measurements on bulky or irregular pieces. Vertical capacity of 215 mm / 8.5".

AFFRI®

206 EX2

- Rockwel, Superficial Rockwel plus Brinell and Vickers
- Direct digital Brinell readings HR-HBTW
- Dual load cells, no need to be levelled. It's not affected by vibration
- It measures even temperature
- Easy to use thanks to single lever
- Possibility to have clamping hood
- Test loads (3-187,5 kgf) and Manual loads selector (N 29,43-1839)

A single lever for load-unloading

Load forces are applied directly on the measuring axis through the incremental dynamometric load cell

The sturdy piece-holder column assures an exact measurement on any details. It is able of bearing masses up to 2000 kg which allows for steady hardness measurements on bulky or irregular pieces.

206 EX-EXS

- Rockwel, Brinell and Vickers measurements
- Direct digital Brinell readings HR-HBTW
- Dual load cells, no need to be levelled. It's not affected by vibration
- It measures even temperature
- Easy to use thanks to the single lever
- Possibility to have clamping hood
- Test force from 10 to 150 kgf (EX: N 98,1-1839 ; EXS: N 2943 - 4415)

The visible indenter allows to reach extreme points and small details.

It is possible to apply a C shape indenter (art. 604) to reach difficult points as inside of tubes and near to hollows.

206 RT-RTS

- Rockwel, Brinell and Vickers measurements
- Direct digital Brinell readings HR-HBTW
- Dual load cells, no need to be levelled. It's not affected by vibration
- Easy to use thanks to the single lever
- Possibility to have clamping hood
- Test force from 10 to 150 kgf (RT: N 98,1-1839 ; RTS: N 2943 - 4415)

The great visibility of Analog Display for height accuracy measurement. No electricity power need.

By applyng C shape indeter Art. 604, difficult points as insides of tubes and near to hollows can be reached.

- The test loads can be manually selected by a rotary knob and accuracy index.
- The operating principle is the classic Rockwell method with direct indentation depth reading.
- Brinell hardness is also obtained directly with application of a graduated dial.
- By the use of Rockwell scales the pointer dial shows with accuracy the measurement result.
- Preload takes place by the contact of the piece with the indenter.
- The scale zero-setting is obtained through the dial rotation.
- It can be used for any type of metallic material and plastics as well.
- The internal part is both chromium-plated and grinded.
- Every unit go through severe tests and calibration.
- We can supply different pieceholder anvils: from the large plane table to shaped anvils.

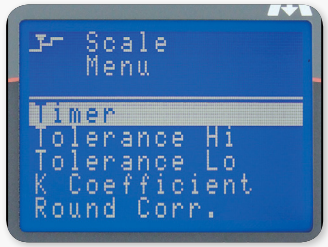
The sturdy piece-holder column assures an exact measurement on any detail. It's able to bearing masses up to 2000 kg.

AFFRI®

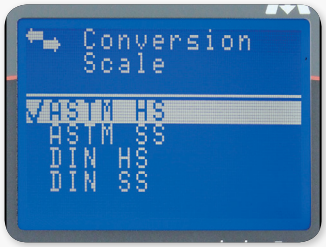
Many characteristics to offer you the right solution for your needs…

In any of our hardness testers you can find FAST and EASY MEASUREMENTS: to perform the test just act on the elevating screw and bring the specimen to make contact with the indenter. The hardness tester applies preload and load in automatic succession; within seconds the result appears.

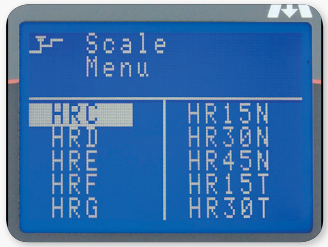
The AFFRI software controls the whole instrument during the entire cycle avoiding human errors. The tester can easily be used by operator of every level.



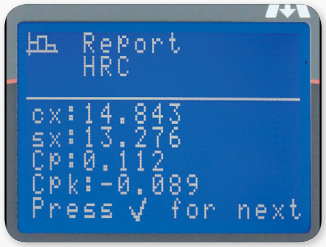
• Set of the hardness test methods



• Storable and printable statistics



• Measurement settings



• Intuitive keyboard with direct commands

• Results with average and conversion

• Touch key pad board IP 64 protection

THE SOFTWARE

Main control LCD panel in front of the measuring head for setup of test parameters, including powerful software and electronic:

- **Large LCD and lots of functions :** Simultaneous view of 2 scales, the one of the test and the one chosen from the list of conversion scales. Conversion values for all hardness scales HR, HB, HV, HSD, HK, HRN, HRT, N/mm.
- **Precise testing settings :** check load applied correctly. Select dwell time. Calibration for direct and indirect method conform to ASTM E18 ISO 6508.
- **Dynamic results :** simultaneous view of the range of results for statistic. Results average update at the last measure. Statistic CP CPX CX Histogram and number of test corresponding to tolerance values (Lo, Hi, Ok). Create 10 file record data each one 350 measures.
- **Unique perfomances :**

The unit measure of Temperature is in C° useful for certificate test conform to ASTM E 18 ISO 6508.
Depth of indentation in 0,01 micron.
Acoustic signal for dwell time and for preload.
Printer connection output RS 232C or converter to USB. Back light LCD display 128 x 64 pixel.
Touch key pad board IP 64 protection. Powered by rechargeable battery for 100% portability of the hardness tester (OPTION).

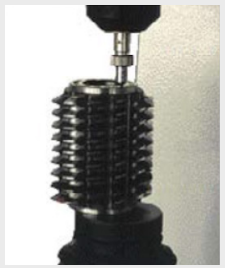
AFFRI®

ACCESSORIES

BRINELL AND VICKERS MEASUREMENTS (ISO 6506 - 6507 / ASTM E10 - E384)

- Rotating arm with self-alignment of the optic with the indentation axis. Automatic centering with no need to move the specimen. Interchangeable objectives: 1x 2x 3x 4x for 5x 10x 15x 20x and 15x eyepiece for manual measure. (Total magnification: 75x 150x 225x 300x). Camera USB 2.0 - 1.2 megapixel.
- Software for Vickers, Knoop and Brinell indentation reading: Automatic and manual measure, image zoom, focus signal, trace CHD case depth diagram, statistic, create test report, memory of image.
- Metallurgical analysis: Automatic spheroidal nodule analysis (ISO 945); Automatic phase percentage analysis; Polygon perimeter, insertion and area measure; Line to line angle; Circle diameter; Line to point; Point to point.

Data output via RS 232 C for connection to printer and computer for diagram plotting and statistics. Hyperterminal is needed. Available USB adapter.



The visible indenter allows to reach extreme points and small details. Different anvils are provided to accommodate any type of sample. It is possible to apply a C shape indenter (art. 604) to reach difficult points as inside of tubes and near to hollows.

ANVILS

From large plane tables to V shaped anvils. All AFFRI's accessories are customizable according to customers specifications.

MICROSCOPE

Available with 20x magnifying lens, provided with battery lighting. It allows to perform Brinell and Vickers exact indentation measurements.

CLAMPING HOOD

It assures a perfect locking of the specimen through the whole test cycle. No need of additional supports when testing long samples.

L.I.S.A.

Laser pointing system (Pat. AFFRI). Allows for a precise test position pointing before the contact between the indenter and the sample. Excellent solution for gear teeth and blade and cutting tools edges.

AFFRI®

	250 DRM - DRMC	
	206 EX - MX - RT	206 EXS - MXS - RTS
LOAD FORCE RANGE		
PRELOAD:	10 kg (98,1 N)	3 kg (29,4 N)
ROCKWELL:	60-100-150 kg	
SUPERFICIAL ROCKWELL:		15-30-45kg (147.1-294.2-441.3 N)
BRINELL:	62.5-125-187.5kg (612.9-1226-1839N)	15.6-25-30-31.2kg (153.2-245.2-294.2-306.5 N) plus 5-6,25-250 kg (4,9-19,6-2452
VICKERS/KNOOP:	10-60-100 kg (98.07-588-980,7 N)	3-15-30 kg (29,42-147,1-294,2 N)
FEASIBLE TESTS		
ROCKWELL:	HRA-HRB-HRC-HRD-HRE-HRF-HRG-HRH-HRK-HRL-HRM-HRP-HRS-HRV	
BRINELL HBTW:	HR15N-30N-45N-15T-30T-45T-15S-30S-45S-15W-30W-45W-15X-30X-HR45X-15Y-30Y-45Y	
SUPERFICIAL ROCKWELL:	Aluminum and its allowys:5/125(3)-2.5/62.5(2)-2.5/187.5(6) Carbon steel:2.5/187.5(5) Cast iron:2.5/187.5(1)	1/30-2.5/15.6-2.5/31.5
BRINELL HBW:	generate indentation:HB1/10 - HB2.5762.5 - HB5/125 - HB2.5/187.5	generate indentation HB1/30 - HB2.5/15.625 - HB2.5/31.25
	generate indentation HB1/10-hb1/30-HB2.5/15.625-HB2.5/31.25-HB2.5/62.5-HB2.5/187.5-HB5/125	
VICKERS/KNOOP:	generate indentation HV10-HV60-HV100	generate indentation HV3-HV15-HV30
TEMPERATURE:	measure range from -40.0 to +80.0°C	
READOUT DIVISION:	0,1 (0,5 RT - RTS)	
ACCURACY/CONFORM:	ASTM - E18 - E10 - E387 - ISO 6508 - 6507 - 6506	
POWER:	110 / 220 V (no power for RT-RTS)	
DEFT CAPACITY:	200 mm	
HIGH CAPACITY:	220 mm	

TECHNICAL DATA

STANDARDS:	EN-ISO 6506-2 / EN-ISO 6507-2 / EN-ISO 6508-2 / ASTM E10 / ASTM E18 / ASTM E103 / ASTM E384 / JIS
ACCURACY:	Better than 0.5 %
READOUT DIVISION:	0,1 HR / HBWT
TEMPERATURE RANGE:	From 10 °C to 35 °C
DATA OUTPUT:	RS232 C Standard / USB Optional
POWER SUPPLY:	110 or 220 V / 50÷60 Hz
SOFTWARE:	Affri - OMAG
PRINCIPLE OF OPERATION:	Load Cell and Closed Loop (Affri patent) for 250 DRM - Dynamometric load cell for 206 EX serie
HEIGHT CAPACITY:	215 mm / 8.5" (As option 300 mm / 12")
DEPTH CAPACITY:	190 mm / 7.5" (As option 220 mm / 8.5")
TOLERABLE WEIGHT:	Up to 2000 kg for 250 DRM/DRMC - up to 1000 kg for 206 EX serie
FIELDS OF USE:	For all metals: iron,steel,temperated steel, cast iron, brass, aluminium, copper and metal alloys. Heat treatment, hardening, nitriding, cementation and hardfacing. hard and soft plastics.
PACKING WEIGHT:	85 kg
PACKAGING MEASURES:	50 x 60 x 100 cm / 20 x 23 x 40

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