

250 DRM

Rockwell, Rockwell Superficiale e Brinell HBTW
ASTM E18 / ISO 6508
ASTM E10 / ISO 6506



250 DRM is a user friendly hardness tester for fast and easy measurements:

- Load forces are applied directly on the measuring axis through load cells.
- There are no ratio load forces nor lever, eliminating problems associated with dead weight systems on traditional testers.
- This hardness tester is very accurate, it 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.

250DRM:

Rockwell and Superficial Rockwell

250DRMC:

Rockwell, Superficial R. and Brinell HBTW



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AFFRI

250 DRM/DRMC

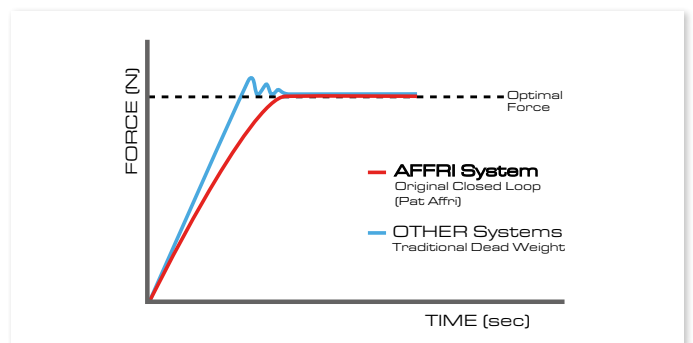


FAST AND EASY MEASUREMENTS:

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.

LOAD CELLS AND CLOSED LOOP TECHNOLOGY (Pat. AFFRI):

Load forces are applied directly on the measuring axis through load cells and are 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.



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.

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".



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.

DIGITAL DISPLAY AND 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 test settings:** Check load applied correctly. Select dwell time. Calibration for direct and indirect method conform to ASTM E 18 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 performances:** Temperature measure C° usefull 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. Powered by rechargeable battery for 100% portability of the hardness tester (OPTION).

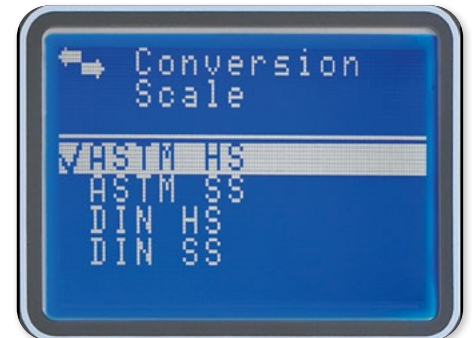
This hardness tester can easily be used by operators of every level. The AFFRI software controls the whole instrument during the entire cycle avoiding operator errors.



Set of the hardness test methods



Measurement settings



Conversion scales tables



Results with average and conversion



Storable and printable statistics



Intuitive keyboard with direct commands. Touch key pad board IP 64 protection.

250 DRM/DRMC

Standard accessories:

- HRC diamond indenter
- HRB ball indenter Ø 1/16"
- HRC and HRB test block
- Flat anvil 60 mm
- "V" anvil 60 mm
- Combined spot "V" + flat anvil
- Wooden accessories case
- Calibration certificate
- Hardness conversion table
- Dust cover

At request:

- Ball indenters Ø 1 - 2,5 - 5 mm and 1/2 - 1/4 - 1/8"
- Vickers diamond indenter 136°
- Rockwell and Superficial Rockwell test blocks
- Brinell test blocks
- Vickers test blocks
- Printer 20 column
- Statistic program
- Large flat anvil 150 mm Ø
- Bench table for hardness tester
- Special indenter art. 604 for tests insides of tubes

At request:

Microscope to perform Brinell and Vickers exact impression measurements.

At request:

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



At request: Automatic system for Brinell and Vickers in compliance with ISO 6506 6507 and ASTM E384 standards:

- Rotating optical arm with self-alignment of the optic with the indentation axis. Automatic centering with no need to move the specimen. Interchangeable objectives. (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; Manual grain particle size measure; Polygon perimeter and area measure; Line to line angle; Circle diameter; Line to point; Point to point; Polygon insertion.

FORCE RANGE

Preload:	29.42 - 98.07 N (3 - 10 kgf)
Rockwell:	588.4 - 980.7 - 1471 N (60 - 100 - 150 kgf)
Superficial Rockwell:	147.1 - 294.2 - 441.3 N (15 - 30 - 45 kgf)
Brinell: (Only mod. DRMC)	49.03 - 61.29 - 98.07 - 153.2 - 245.2 - 294.2 - 306.5 - 612.9 - 1226 - 1839 N (As option 2452 N) (5 - 6.25 - 10 - 15.6 - 25 - 30 - 31.2 - 62.5 - 125 - 187.5 kgf - As option 250 kgf)
Vickers/Knoop:	29.42 - 49.03 - 98.07 - 147.1 - 196 - 294.2 - 490.35 - 980.7 N (3 - 5 - 10 - 15 - 20 - 30 - 50 - 100 kgf)

FEASIBLE TESTS

Rockwell:	HRA - HRB - HRC - HRD - HRE - HRF - HRG - HRH - HRK - HRL - HRM - HRP - HRR - HRS - HRV
Superficial Rockwell:	HR15N - HR30N - HR45N - HR15T - HR30T - HR45T - HR15S - HR30S - HR45S - HR15W - HR30W - HR45W - HR15X - HR30X - HR45X - HR15Y - HR30Y - HR45Y
Brinell HBTW: (Only mod. DRMC)	1/30 - 2.5/15.6 - 2.5/31.5 - 5/125(3) (Aluminum and its alloys) - 2.5/62.5(2) (Aluminum and its alloys) - 2.5/187.5(6) (Aluminum and its alloys) - 2.5/187.5(5) (Carbon steel) - 2.5/187.5(1) (Cast iron)
Vickers/Knoop:	Generate Indentation
Temperature:	Measure range from - 40.0 to + 80.0 °C

OPTIONAL TESTS

Brinell HBW: (Only DRMC)	HB1/10 - HB1/30 - HB2.5/6.25 - HB2.5/15.625 - HB2.5/31.25 - HB2.5/62.5 - HB2.5/187.5 - HB5/25 - HB5/125 - HB5/250
Vickers/Knoop:	HV1 - HV3 - HV5 - HV10 - HV15 - HV20 - HV30 - HV60 - HV100

TECHNICAL DATA

Conformity Standards:	EN-ISO 6506-2 / EN-ISO 6507-2 / EN-ISO 6508-2 / ASTM E10 / ASTM E18 / ASTM E103 / ASTM E384 / JIS
Load accuracy:	Better than 0.1 %
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)
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
Fields Of Use:	For all metals: iron, steel, tempered steel, cast iron, brass, aluminum, 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