RSD MAG

MAGNETIC CLAMPING BASE

Real Rockwell and Brinel
ASTM E-18 and E-10
ISO 6508 nd ISO 6506

AFFRI®

RSDMAG

AUTOMATIC SYSTEM

The RSD hardness testers are extremely accurate systems for automatic preloading, loading and measurements.
RSD AFFRI® System hardness testers achieve the highest level of depth accuracy and measurement resolution available for Rockwell tests.
Thanks to the AFFRI® System, the real indentation measurement is guaranteed without any external interference in any condition.

ONE DRIVE MEASUREMENTS

Just pull the start lever and the head moves down performing the hardness test cycle in automatic succession without breaching a phase:

1. Automatic contact with the specimen
2. Automatic clamping and activation of the reference surface point
3. Automatic preloading and loading
4. Automatic measure
5. Automatic return stroke when releasing the lever

The entire test cycle is complete and the result appears on the display.
Fully automatic, the tester can easily be used by operators of every level.

The test cycle is quick! The time needed for one complete measurement is 15" including 10" of dwell time.
The pressure applied on the lever doesn't affect the result at all.

The activation of the test cycle is automatic, it starts when the head makes contact with the sample which is automatically recognized at any position within the 50mm / 2" of vertical stroke.

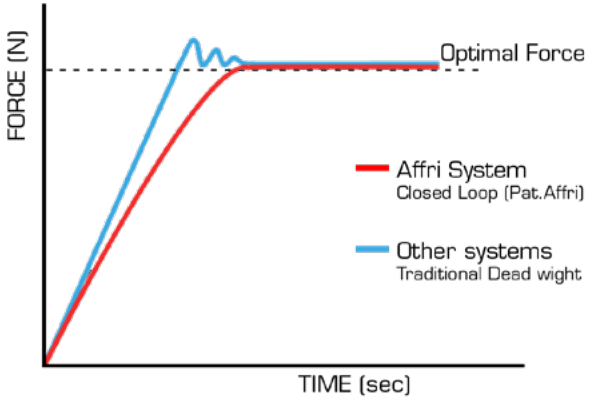
LOAD CELL TECHNOLOGY

The exclusive Affri latest generation of dynamometric load cells control load forces assuring perfect linearity in every range. Load forces are applied directly on the measuring axis. There are no ratio load forces nor levers, eliminating problems associated with traditional dead weight testers. The application by dynamometric load cell assures absolute accuracy in any test condition: results are not affected by any structural deflection, misalignment or vibration.
The system can also operate in an inclined position.

AUTOCOMPENSATION SYSTEM

The system automatically recognises the surface of the specimen. When testing unstable samples or deflective parts, the measuring head will follow the sample without losing contact. The measuring of the real indentation depth is mnot affected by ample settlements.

Test everywhere with no limits of positioning over the surface. Test over the center and along the sides. No need to move or prepare the sample. No errors caused by dust or oil.



MAGNETIC CLAMPING BASE

Thanks to its magnetic clamping base it is possible to perform hardness tests on very bulky samples directly in the production department. It is completely uninfluenced by direction so that it is operative up to 360° degrees of positioning, even upside down. Different bases are available to allow strong fixing on any surface including round and flat specimens.

HANDY AND SIMPLE

The AFFRI magnetic portable hardness tester solves all types of problems. It can be used as a conventional hardness tester or as a portable system for on-site testing when test pieces are too large or too heavy for a bench hardness tester.
The load cell inside has no impact force, while the AFFRI vertical movement permits a fully automatic test cycle in any direction, even upside down.
It is so easy to use that there is no need for any particular preparation by the operator:

1. Identify the test area and place the hardness tester on the test sample
2. Locking the magnetic lever the tester will strongly adhere to the test piece and remain clamped for the entire test cycle
3. Sliding 50mm the indenter makes contact with different surfaces or misaligned surfaces
4. Start the test and in 4 seconds the result will appear on the display

FROM PORTABLE TO BENCH TOP

To convert the RSD MAG from a portable to a regular bench top hardness tester, combine it with two different sizes of stand support, 670H or 460L. This system fully conforms to hardness testing standards and allows testing in laboratory on small pieces and prepared samples without the need to buy another hardness tester.

ADD BENCH TOP

With RSD MAG you will have two hardness testers in one. Combine a classic bench top to have the laboratory version of RSD MAG. Or bring it with you to have the portable version.

MAKE TESTS IN ANY MOMENTS

RSD MAG by AFFRI helps you to keep under control your production lines in just a second. Make hardness tests whenever you want and need to have the best accuracy in any conditions.

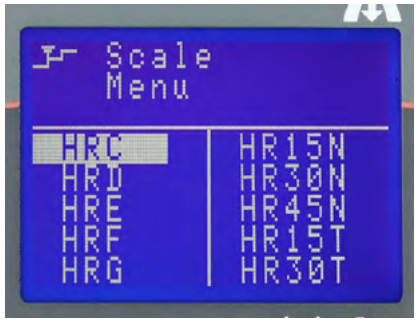
IMPACT RESISTANT

RSDMAG can be used in harsh environmental conditions or in dirty and dusty places. Measurements are not affected by humidity and the tester can be used on cloudy days and in light rain.

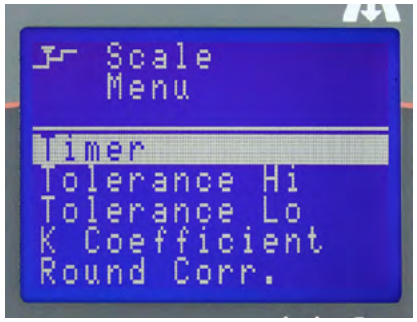
WATERPROOF TROLLEY

Chemical, moisture and dust resistant carrying case.
Resistant to the coldest temperatures (-33°C / 90°C).
O-Ring seal and self-lubricating free-running wheels.
Telescopic handle with secure locking system.
Three lifting handles and four locking clips.

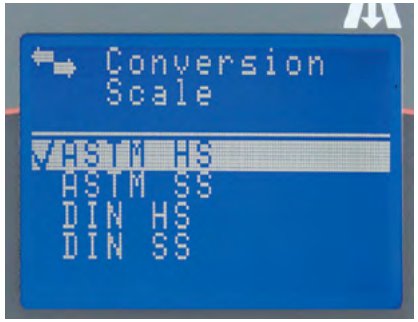
SOFTWARE RSD



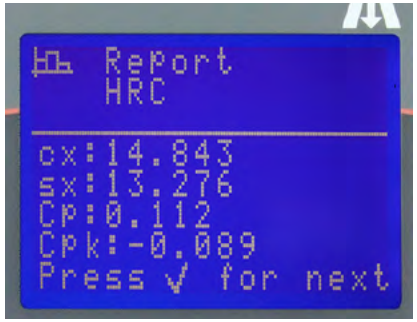
Set of the hardness test methods



Measurement settings



Conversion scales tables



Results with average and conversion

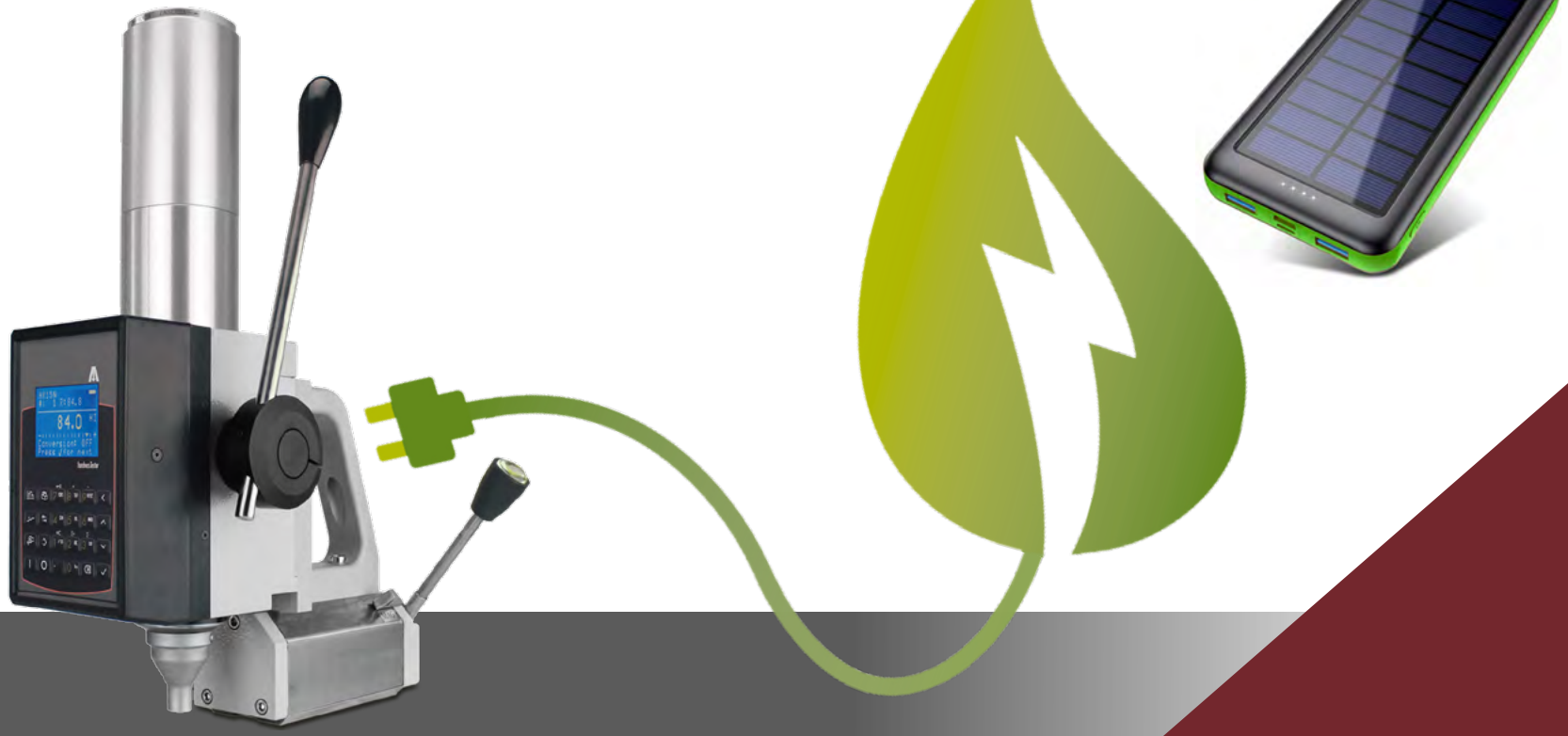
USER FRIENDLY

Main LCD control panel in front of the measuring head for setting up the test parameters, including powerful software and electronics:

- **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 is applied correctly. Select dwell time. Calibration by direct and indirect method conform to ASTM E 18 ISO 6508.
- **Dynamic results:** Simultaneous view of the range of results for statistics. Results average updated at the last measure.
  Statistic CP CPX CX Histogram and number of tests corresponding to tolerance values (Lo, Hi, Ok). Create 10 file record data with 350 measures each.
- **Unique performances:** Temperature measure in C° useful for certification tests according to ASTM E 18 ISO 6508. Depth of indentation in 0,01 microns. Acoustic signal for dwell time and for preload.
  Printer connection output RS 232C or USB. Back light LCD display 128 x 64 pixels. Keypad with IP 64 protection.
  Powered by rechargeable battery for 100% portability of the hardness

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

NEW!



SOLAR POWER BANK !

RSD MAG is the first rechargeable portable hardness tester with a power bank solar power. Carrying the power bank in your pocket will finally be possible recharge the durometer anywhere. Keep it in your pocket, it's as big as a smartphone. This is AFFRI®'s greatest innovation for Industry 4.0.
Recharging the durometer has never been so simple and innovative.
Use it without any electrical connection to respect the environment and without limits on use.

MILLING STATION FOR PREPARATION OF SAMPLE SURFACE

AFFRI® takes care of each of its instruments in detail in order to satisfy the possible needs of the customer. In the case of the RSD MAG durometer, AFFRI® has included a milling system for the preparation of the sample surface, so as to obtain a smooth surface ready for measurement even on rough surfaces.

FR.000.001
Milling station for preparation of sample surface before hardness test.

Milling tool:	carbide tungsten
Milling diameter:	16 mm
Depth adjustable:	from 0,1 to 10 mm
Weight:	15 kg
Power:	220V - 200 VA

THE MEASURING HEADS

RS-SD From 29.42 to 441.3 N (3 - 45 kgf)

LOAD RANGES

29.42	147.1	153.2	294.2	306.5	441.3	N
3	15	15.6	30	31.2	45	kgf

SUPER-ROCKWELL - DIN EN ISO 6508 / ASTM E-18

HR15 N/T/S/W/X/Y	HR30 N/T/S/W/X/Y	HR45 N/T/S/W/X/Y

BRINELL HBW / HBWT (On request) - DIN EN ISO 6506 / ASTM E-10 E-103

1/30	2.5/15.6	2.5/31.5

VICKERS (just build pressure) - DIN EN ISO 6507 / ASTM E-384

HV3	HV15	HV30

TEMPERATURE: Range from - 40.0 to + 80.0 °C

RSD From 98.07 to 1471 N (10 - 187.5 kgf)

LOAD RANGES

98.07	588.4	612.9	980.7	1226	1839	N
10	60	62.5	100	125	187.5	kgf

ROCKWELL - DIN EN ISO 6508 / ASTM E-18

HRA	HRB	HRC	HRD	HRF	HRG	HRL	HRM	HRR

BRINELL HBW / HBWT (On request) - DIN EN ISO 6506 / ASTM E-10 E-103

1/10	2.5/62.5	2.5/187.5	5/125

VICKERS (just build pressure) - DIN EN ISO 6507 / ASTM E-384

HV10	HV60	HV100

TEMPERATURE: Range from - 40.0 to + 80.0 °C

THE STAND SUPPORTS

206
Support
Capacity Height 215mm
Capacity depth 190 mm

330
Large support 390x330 mm
Capacity height 300 mm
Capacity depth 190 mm

903
Large support 390x330 mm
Capacity height 700 mm
Capacity depth 190 mm

331
Support for round components
Capacity height 700 mm
Capacity depth 190 mm

THE PORTABLE SUPPORTS - Combine the measuring head with the base that better fits the surface shape and geometry of your test sample.

SMX30 (Cod. 06001001)
300mm / 11.8" magnetic base for HR/HB measures up to 20mm / 0.8" sample thickness.

SMX50 (Cod. 06001002)
500mm / 19.7" magnetic base for HR/HB measures less than 20mm / 0.8" sample thickness.

SMX55 (Cod. 06001002-b)
Magnetic base with 10mm / 0.4" horizontal stroke sliding head for multi indentation.

SMX70 (Cod. 06001003)
Double magnetic clamping base for big or small diameters round shape samples.

SMX80 (Cod. 06001004)
Chain clamping base for non ferrous sample .

SMX100 (Cod. 06001005)
Steel plate for calibration.
Open capacity 30mm.

RSDMAG / 30-D2
(Cod. 06010130)
RSDMAG / 30-D4
(Cod. 06040130)
Weight: 16 kg

RSDMAG / 50-D2
(Cod. 06010150)
RSDMAG / 50-D4
(Cod. 06040150)
Weight: 24 kg

RSDMAG / 55-D2
(Cod. 06010155)
RSDMAG / 55-D4
(Cod. 06040155)
Weight: 28 kg

RSDMAG / 70-D2
(Cod. 06010113)
RSDMAG / 70-D4
(Cod. 06040113)
Weight: 20 kg

RSDMAG / 80-D2
(Cod. 06010180)
RSDMAG / 80-D4
(Cod. 06040180)
Weight: N.D.

RSDMAG / 90-D2
(Cod. 06010190)
RSDMAG / 90-D4
(Cod. 06040190)
Weight: N.D.

FORCE RANGE	RSDMAG D4	RSDMAG D2
Preload:	29.42 N (3 kgf)	98.07N (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:	153.2 - 294.2 - 306.5 N (15.625 - 30 - 31.25 kgf)	98.07 - 612.9 - 1226 - 1839 N - as option 2452 N (10 - 62.5 - 125 - 187.5 kgf - as option 250 kgf)
Vickers/Knoop:	29.42 - 147.1 - 294.2 N (3 - 15 - 30 kgf)	98.07 - 588.4 - 980.7 N (10 - 60 - 100 kgf)

FEASIBLE TESTS	RSDMAG D4	RSDMAG D2
Rockwell:	---	HRA - HRB - HRC - HRD - HRF - HRG - HRL - HRM - HRR
Superficial Rockwell:	HR15N - HR30N - HR45N - HR15T - HR30T - HR45T - HR15W - HR30W - HR45W - HR15X - HR30X - HR45X - HR15Y - HR30Y - HR45Y	---
Brinell HBWT:	1/30 - 2.5/15.6 - 2.5/31.5	5/125(3), 2.5/62.5(2) and 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 HV3 - HV15 - HV30	Generate indentation HV10 - HV60 - HV100
Temperature:	Measure test temperature range from - 40.0 to + 80.0 °C	Measure test temperature range from - 40.0 to + 80.0 °C

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 0.5 %
Readout Division:	0.1 HR / HBWT
Indenter Stroke:	50mm / 2"
Temperature Range:	From 10 °C to 35 °C
Power Supply:	Battery 6 V + Charger
Data Output:	RS 232 C (USB as option)
Software:	Affri - OMAG
Principle of Operation:	Dynamometric Load Cell
Fields Of Use:	Tests in laboratory or in loco on tubes, profiles, valves, bulky or small pieces. For all metals: iron, steel, tempered steel, cast iron, brass, aluminium, copper and metal alloys with a more than 0.6mm thickness. Heat treatment, hardening, nitriding, cementation and hardfacing with less than 0.6mm depth (RSD MAG D4).
Packing:	50 x 40 x 60 cm / 20 x 18 x 23" - 35kg

	670H (Stand support for RSDMAG)	460L (Stand support for RSDMAG)
Height Capacity:	390mm / 15"	180mm / 7"
Depth Capacity:	232mm / 9"	204mm / 8"

The manufacturer reserves the right to make changes aimed at improving the products without notice

Distribuited by:

ATI S.r.l.

Made by:

OMAG di AFFRI D. S.r.l.
Via M. Tagliaferro, 8, I-21056 INDUNO OLONA - CEE (VA) - ITALY
Tel. +39 0332 200546
info@omagaffri.com

Europe/Asia:

ATI S.r.l.
Via M. Tagliaferro, 8, I-21056 INDUNO OLONA - CEE - (VA) - ITALY
Tel. +39 0332 201533
info@affri.com - www.affri.com

America:

AFFRI® Inc.
850 Dillon Dr. Wood Dale, IL 60191
Tel. 224 374 0931 - 630 303 1588
sales@affriusa.com - www.affri.com