

SERIE 250 DRM 250 DRMC

Automatic Hardness Testers



250 DRM/DRMC

AFFRI INTRODUCES A SYSTEM OF AUTOMATIC HARDNESS TESTER FOR THE FUTURE

Since 1964 AFFRI has been producing hardness testers in which the forces are used to get test loads together with innovative devices which concur to make up the AFFRI SYSTEM. The power supply is indifferently mechanical, electromechanical, hydro-mechanical, pneumo-mechanical. Long-time ago AFFRI SYSTEM successfully overtook the philosophy of dead-weight concerning the traditional hardness testers.

AFFRI SYSTEM in its technological evolution is protected by the patents registered over the years. An increase in the operative performances has been obtained with the use of control load cell in closed-loop (Patent AFFRI N. 1175158). However this improvement appears moderate if we compare it with the high qualitative and operative level reached by AFFRI SYSTEM. A further improvement in performances was achieved when

AFFRI made really automatic the hardness tester working in Rockwell and Brinell tests: only one drive starts up and performs - without a break - the phases of positioning, approach and execution of the test. The fully automatic operation and the speed in the whole test cycle, obtained by AFFRI SYSTEM, remains unchanged even in the version with load cell due to the use of unprecedented technologies (patent pending).

ABSOLUTE MEASURE

- Unrivalled accuracy with no misalignment and/or anomalous shoves
- All operations are fully automatically started up through only one drive
- It meets all laboratory requirements
- Full operation even in presence of vibrations, sudden changes in temperature or dusty environment
- **Unparalleled accuracy, repeatability and reproducibility** in all test conditions (0,1 HRC) which can be checked in operation condition
- Survey of load and indenter penetration in axis, in order to obtain an absolute hardness measure
- Graphical lighted display with high contrast to obtain clear, rapid and accurate readings. Icons facilitate the operator in identifying software functions.
- Signal for test cycle end that facilitates the operator
- The operator can automatically select test load and measure scale only through a button
- Simultaneous conversion different scales (Rockwell, Brinell, Vickers and in N mm² resistance)

- **Automatic control and selection of pre-loads and loads** through a software in closed-ring and with load cell
- Effective statistics software incorporated with connection to printer or computer in order to supply: diagram, graph, tests list, average, standard deviation, cp, cpk.
- The instrument and its controls are ergonomically provided with security devices according to CE norms
- Software includes setting in three selection classes in order to simplify the insertion of the instrument in an automatic working line
- Programmable test load, division 0.1 second
- Automatic correction of measure on round surfaces and results memorisation
- **High resolution of measure 0.1 HRC or 0.01 HRC** on demand
- Fully conform to ASTM E 18, UNI EN 6508 norms
- **2 years full warranty** in order to assure high technological level it contains
- Wide range of accessories in order to hold piece of every shape

MOTORISED

- Automatic load application and selection
- Load cell in closed loop AFFRI patent
- Rapid functioning with indenter touch
- High precision and rapidity of measurement
- High division (0.1 micron mm)
- Large and graphical display, with different functions and light back

SIMPLE AND UNIVERSAL

- Every environmental condition is tolerated in presence of dust, vibration, changes in temperature
- Wide software functions, information guide and Windows icons
- Brinell, Vickers, Rockwell tests for every scale and immediate conversions
- Statistics and connection to printer with diagrams and graphs

VERY HIGH PERFORMANCES

- Unchanged operation even in extreme conditions: vibration on operative range, machine not levelled.

CERTIFICATION

- Endowed with all requirements of certificability according to **UNI EN ISO 10109 ASTM E 18** norms
- Supplied with certificates on primary SIT samples.



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



250 DRM/DRMC

Technical characteristics - 250 DRM/DRMC

Action	Just press one button and the Affri® system cycle starts: <ul style="list-style-type: none"> • The Indentation head approaches to the sample • Establishes a surface reference point • Performs the analysis • Releases the sample This cycle is fully automatic. It avoids any risk of human errors and improves accuracy
Accuracy	Better than 0.5 %
Temperature Range	From 10 °C to 35 °C
Data Output	RS 232 C (USB as option)
Power Supply	110 or 220 V / 50÷60 Hz
Principle of Operation	Load Cell
Preload	29.4 - 98.1 N (3 - 10 kgf)
Force Range	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. 250 DRMC) 49.03 - 61.29 - 98.07 - 153.2 - 245.2 - 294.2 - 306.5 - 612.9 - 1226 - 1839 N (on request 2452 N) (5 - 6.25 - 10 - 15.6 - 25 - 30 - 31.2 - 62.5 - 125 - 187.5 kgf - on request 250 kgf) Vickers 29.42 - 49.03 - 98.07 - 147.1 - 196 - 294.2 - 490.3 - 980.7 N (3 - 5 - 10 - 15 - 20 - 30 - 50 - 100 kgf)
Feasible Tests	Rockwell: HRC A - D - B - F - G - L - M - R Superficial Rockwell: HRN + HRT + HRW Brinell (Only mod. 250 DRMC): HB 30 - HB 10 - HB 5 - HB 2.5 MPa (F/D ²) Vickers (only indentation): HV3 - HV5 - HV10 - HV15 - HV20 - HV30 - HV50 - HV100
Standards	EN-ISO 6506-2 / EN-ISO 6507-2 / EN-ISO 6508-2 / EN-ISO 2039 / ASTM E-18 / ASTM E-103
Vertical Stroke	215 mm
Depth Capacity	190 mm
Tolerable Weight	900 kg
Fields Of Use	For all metals: iron, steel, tempered 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 Measurements	34 x 54 x 99 cm

AT REQUEST

- Brinell hard metal ball indenter Ø 1 - 2.5 - 5 mm
- Brinell hard metal ball indenter Ø 1/2"-1/4"-1/8" for plastics
- Brinell test block
- Vickers diamond 136° indenter
- Vickers test block
- Microscope with illumination
- 80 column printer with input RS 232 C
- Computer for data processing
- Customised programs for measurement results can be supplied
- Clamping of piece

STANDARD ACCESSORIES

- 1 HRC diamond indenter
- 1 HRB ball indenter Ø 1/16"
- 1 HRC-N test block
- 1 HRB-T test block
- 1 V flat anvil 60 mm diameter
- 1 flat anvil 60 mm diameter
- 1 double face spot anvil V and flat 25 mm diameter
- 1 Wooden case with tools
- 1 Test certificate and warranty
- 1 Tables for hardness conversion
- 1 Dust cover



AFFRI®

OMAG di AFFRI D. S.r.l.
Via M. Tagliaferro, 8
I-21056 INDUNO OLONA - CEE (VA) - ITALY
Tel. +39 0332 200546
Fax +39 0332 203704
info@omagaffri.com

Exclusive distributor:
AFFRI®
Via M. Tagliaferro, 8
I-21056 INDUNO OLONA - CEE - (VA) - ITALY
Tel. +39 0332 201533 +39 0332 206289
Fax +39 0332 203621
info@affri.com - www.affri.com

America:
AFFRI Inc.
111 S. Lombard Rd Unit #4
ADDISON, IL 60101 - USA
Tel. 224 374 0931 - 630 303 1588
sales@affriusa.com
www.affri.com