AFFRI® introduces a system of automatic hardness tester for the future

Since 1964 AFFRI has being 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.

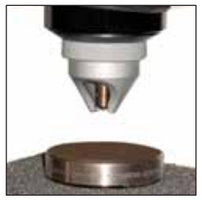
AFFRI SYSTEM in its technological evolution is protected by the patents registered over the years.

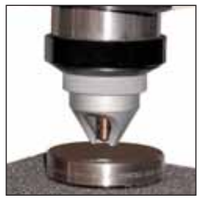
An increase in the operative performances has been obtained with the use of control load cell in closed-loop (Patent AFFRI N. 1175158).

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, Brinell and Vickers 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).





Automatic research of test piece

251 VRS

Digital optical reading

- Brinell - Rockwell measure.
- Very rapid and accurate in production environment with automatic Vickers - Brinell - Rockwell measure.
- 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 ISO 10109 norms.
- Reversibility from automatic to semi-automatic for single test.
- **2 years full warranty** in order to assure high technological level it contains.

Test loads from 9,81 to 1839N (1 Kg a 187, 5 Kgf)

Only one drive starts the automatism including the following operations:
- approach to the piece
- clamping of the piece
- activation of reference surface
- whole test cycle performance and piece releasing.
- **Unparalleled Accuracy, Repeatibility and Reproducibility** in all test conditions 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 facilitate the operator
- **Automatic control and selection of pre-loads and loads** through a software in closed-loop and with load cell (AFFRI® patent)
- The operator can automatically select test load and measure scale **only though a button**

- Simultaneous conversion different scales (Rockwell, Brinell, Vickers and in N mm²).
- **High precision and rapidity of measurement**
- The instrument and its controls are ergonomically provided with security devices according to CE norms
- Optical gauge high definition 0.1 Micron mm for very accurate Vickers and Brinell measurements.
- It meets all laboratory requirements.
- Full operation even in presence of vibrations, sudden changes in temperature or dusty environment.

Universal use
- It assembles different instruments in only one machine which is absolute in laboratory with optical Vickers

Analogic optical reading

Certificability by direct and indirect method

VRS SERIES

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

SIMPLE AND UNIVERSAL
- Easy and rapid Brinell, Vickers, Rcokwell measures through only one machine
- Every environmental condition is tolerated in presence of dust, vibration, changes in temperature
- Wide software functions, information guide and Windows icons
  Immediate conversions
- Statistics and connection to printer with diagrams and graphs

VERY HIGH PERFORMANCES
- Measures according to optic absolute method without any uncertainty
- Unaltered operation even in extreme conditions: irregular pieces, unfinished pieces, piece that are raised or misaligned, every kind of support (lifting screw, deformable materials, etc.) presence of impurity (dust, oil, etc.) between the piece to be tested and the support or between the support and the point of support

OPTIONAL ACCESSORIES
- Application of camera and computer for electronic analyses on prints and rapid Vickers and Brinell measurements.
- Table for displacements on X and Y axis for sewing tests
- Optional equipment: interlocks for rapid tests with selection for large series (bearings, shafts, forged pieces, semifinished pieces, finished odds and ends, etc.)

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

APPLICABLE ACCESSORIES

Rockwell
- Rockwell C-N indenter
- Rockwell B-T indenter
- Rockwell test blocks C-B-N-T

Vickers
- Vickers indenter
- Vickers test blocks
- Knoop indenter
- Knoop test blocks

Brinell
- Ball penetrator 1 - 2.5 - 5 - 10 mm
- Brinell test block

EN-ISO 2039
- Ball penetrator 5 mm for EN ISO 2039
- Large clamping base for EN ISO 2039
- Test block for EN ISO 2039 scale
- Flat anvil 60 mm
- "V" anvil 60 mm
- Flat and "V" double anvil
- Wooden case with accesories
- Hardness conversion table
- Dust cover
- X-Y table 100x100 mm with micrometers div 0.01 mm
- CCD camera screen computer
- Printer
- Table to bear hardness tester

CE

Technical characteristics

MODEL	251 VRSA VM	251 VRSD VM	251 VRSTV VM
Vickers loads Knoop	(0,3 0,5 1 2 2,5 3 5 10 15 20 30 50 Kgf) 2,94 4,9 9,81 19,6 24,5 29,43 49,05 98,1 147,15 196 294,3 490 N		

MODEL	251 VRSA	251 VRSD	251 VRSTV
Vickers Knoop loads	(1 2 2,5 3 5 10 15 20 30 60 100 120 Kgf) 9,81 19,6 24,5 29,43 49,05 98,1 147,15 196 294,3 588,6 981 1177 N		
Rockwell loads	(10 60 100 150 Kgf) 98,10 588,60 981 1471,50 N		
SuperRockwell loads	(3 15 30 45 Kgf) 29,43 147,15 294,30 441,45 N		
Brinell loads	(5 6,25 10 15,6 25 30 31,2 62,5 125 187,5 Kgf - at request extra 250 Kgf) 49,05 61,3 98,1 153,23 245 294,43 306,5 613 1226 1839 N (at request 2452)		
Optional test loads	49 132 358 961 N (for plastic, rubber as per EN-ISO 2039 std) (250 Kgf) 2452,5 N Brinell		
Conform standards	EN-ISO 6506 / 6507 / 6508 / ASTM-E18 - EN-ISO 2039		
Certificability of direct and indirect method	Yes		
Mode of operation	only one single start input without brake to activate automatically: research and contact on test sample plus entire test cycle phase,and autoclamping and insensible to deflactions during the test cycle		
Magnification	75x 150x 225x 300x 450x		
Resolution	0.1 micron mm		
Reading	Digital - Manual data enter	Digital - Automatic data enter	CCD computer + software
Working depth	190 mm		
Working height	200 mm		
Data output RS 232 C	Yes		
Power supply	220V 50÷60Hz - 200VA		
Net weight	75 Kg		
Packing weight	95 Kg		
Packing measures	50x50x100 cms		

Changement of data can be effected without notice

AFFRI

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UNIVERSAL HARDNESS TESTER