

**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 for plastic**

- 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 accessories
- Hardness conversion table
- Dust cover
- X-Y table 100x100 mm with micrometers div 0.01 mm
- CCD camera screen computer
- Printer
- Table to support hardness tester
- Digital micrometers for X-Y table
- Automatic measure Vickers / Brinell



**AFFRI**

**AFFRI**  
introduces a system  
of automatic  
hardness tester

**Technical data**

MODEL	270 VRSA VM	270 VRSD VM	270 VRSTV VM	270 VRSTV VM Auto
Vickers force	(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	270 VRSA	270 VRSD	270 VRSTV	270 VRSTV Auto
Vickers loads	(1 2 2,5 3 5 10 15 20 30 60 100 Kgf)	9,81 19,6 24,5 29,43 49,05 98,1 147,15 196 294,3 588,6 981 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			
Accuracy	Conformation standards EN-ISO 6506 / 6507 / 6508 / ASTM-E18 - EN-ISO 2039			
Mode of operation	only one single start input without brake to activate automatically: research and contact on test sample plus entire test cycle phase, autoclamping and insensible to deflections during the test cycle			
Magnification	75x 150x 225x 300x			
Reading resolution	0,1 HV - 0,1 HR - 0,1HB (0.01 HR unit, at request)			
Resolution	0.1 µm			
Reading	Digital	Digital	CCD camera + semi auto measure Vickers	CCD camera + auto measure Vickers
Working depth	190 mm			
Working table	270x330 mm			
Working height	200 mm			
Data output RS 232 C	Yes			
Power supply	220 V 50 60 Hz			
Net weight	95 Kg			
Packing weight	120 Kg			
Packing measures	50x50x100 cms			
CCD camera	High resolution (500x, 1000x, 2000x total)			
Monitor	17" high resolution			

Change of data can be effected without notice



**270 VRS**

**UNIVERSAL  
HARDNESS  
TESTER**



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06.01-270 VRS

# 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.

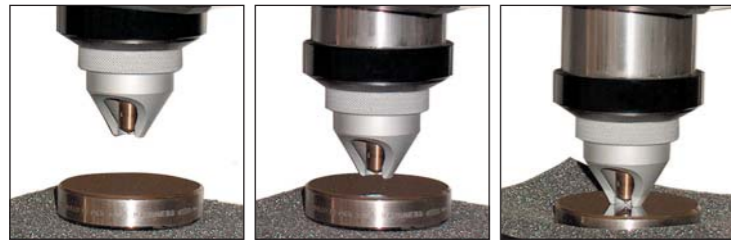
An increase in the operative performances has been obtained with the use of control load cell in closed-loop (Patent AFFRI N. 1175158).

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, 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 contact research of test piece and Automatic test cycle

## 270 VRS

### All operations are managed by a single drive including automatic research of test piece

- Pushing the Start button, 270 VRSTV head moves down to reach the test surface from distance multiples of 50 mm and automatically starts the hardness test cycle in automatic succession without breaching a phase:
- approach to the piece;
- clamping of the piece;
- activation of reference surface;
- entire test cycle performance and release of piece.

- Does not require elevating screws
- Meets all laboratory requirements
- Full operation even in presence of vibrations, sudden changes in temperature or dusty environments.
- Perfect and effective measurements even at the first test
- Insensitive to deflection
- Optical gauge high definition 0.1 Micron mm for very accurate Vickers and Brinell measurements
- Automatic compensation of deflection up to 50 mm
- It meets all laboratory requirements.

- Full operation even in presence of vibrations, sudden changes in temperature or dusty environments.

- **Unparalleled accuracy, R&R Repetability and Reproduction** in all test conditions (0.1 HV) which can be checked in operation condition

- Survey of load and indenter penetration in axis, in order to obtain an absolute hardness measurements.

- **Automatic control and selection of pre-loads and loads**

- through a software in closed-loop with load cell (AFFRI® Patent).
- The operator can automatically select test load and measure scale through only one button.
- Simultaneous conversion different scales (Rockwell, Brinell, Vickers and in N mm<sup>2</sup>)
- Automatic load application and selection
- Large working table 330x390 mm permits to support small and large parts till 2000 kg weight

### Three instruments in one

- It combines different instruments in only one machine which is a first in laboratories with optical Vickers - Brinell measurements.
- Very quick and accurate in production environment with automatic Vickers - Brinell - Rockwell measurements.
- Effective statistics software incorporated with connection to printer or computer in order to supply: diagrams, graph, tests lists, averages, standard deviations.
- The instrument and its controls are ergonomically provided with

- security devices according to CE norms.
- Software includes settings in three selection classes in order to simplify the insertion of the instrument in an automated working line.
- Programmable test load, division 0.1 second.
- Automatic correction of measurements on round surfaces and memorisation of results.
- **High resolution of measure 0.1 HRC** (or **0.01 HRC** on demand), **0.1 HV / 0.1 HB**

- Reversibility from automatic to semiautomatic for single test
- **Two years full warranty** in order to assure its high technological level



Analogic measure with digital Vickers read out using inside software to avoid use tables  
**270 VRSA**



Digital reading  
**270 VRSD**

**770 VRSD**  
Fully motorized up/down head  
from 0 to 700 mm



**270 VRSTV**  
Vickers auto reading  
CCD camera monitor computer



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

### VRS SERIES

#### MOTORISED

- Automatic load application and selection
- Load cell in closed loop AFFRI® patent
- Quick functioning with indenter touch
- High precision optic system and rapidity of measurement
- Large and graphical display, with different functions and illumination in the back

#### SIMPLE AND UNIVERSAL

- Easy and rapid Brinell, Vickers, Rockwell 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 PERFORMANCE

- Measures according to optic absolute method
- Unaltered operation even in extreme conditions: irregular, unfinished raised or misaligned pieces, every kind of support (lifting screw, deformable materials, etc.) presence of impurities (dust, oil, etc.) between the test piece and the support or between the support and the point of the support.

#### OPTIONAL ACCESSORIES

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

#### CERTIFICATION

- Supplied with certificates on SIT primary samples.