



# AFFRI

**AFFRI<sup>®</sup>**  
introduces a system  
of automatic hardness  
tester for the future

**331 RSD**



AUTOMATIC  
ROCKWELL  
BRINELL

# 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 and of the relative elevating screw of 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 start up and perform - 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 ROCKWELL - BRINELL



**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.

The result will appear on the display.

- **Great working speed:** the test cycle duration is conform to the norms and can be set by the operator. High accuracy of results, reproducibility and repeatability, the reference point working autonomy implies that all alterations (adjustments, deformations, impurities on test blocks and supports), present in the area above or below the reference point, have no influence on the test.

The mechanical and physic



characteristics of the supports have no influence on the result accuracy.

- **Absolute measure in every condition.**

Test by test, phase by phase, the loads production is **precise, repeatable and reproducible.**

The instrument meets all ASTM EN ISO requirements. Its use is advantageous in laboratories and in the working areas for total and continuous monitoring of production in its different phases, this leads to a great qualitative improvement.

For example area of production of bearing, car parts, aeronautic security material.

**Electronic management of test cycle**

- Measuring data setting



through keyboard

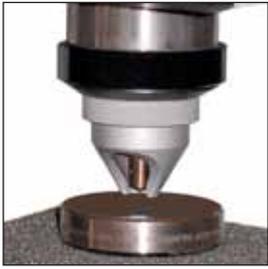
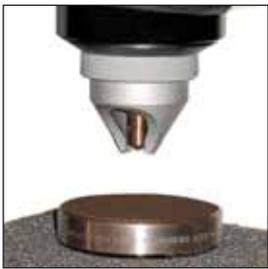
- Rockwell and Brinell scale selection with direct digital readout
- Possibility of immediate conversion of the result into other scales including resistance to traction R Kg, N:mm<sup>2</sup>
- Test time from 0,1 to 99,9 second
- Lower and higher tolerance limit for selection of pieces in series
- Automatic check of test cycle with auto-diagnosis and signals during the measuring phase
- Automatic advancing and return of the measuring heads
- Data transmission through RS 232 C for connection to printer and computer
- Possibility to obtain average and statistics of result with diagram

### 331 RS ANALOG

Full automatic test cycle single action clamp and test stroke, large easy to read analog display, automatic reset, load stop mechanism to ensure end test cycle.



Mod. 331 RS



Automatic research of test piece



Certificability by direct and indirect method



### RSD SERIES

#### **PERFECT AND EFFECTIVE MEASURE EVEN AT THE FIRST TEST**

#### **AUTOMATIC RESEARCH OF TEST PIECE**

- Acting the start lever, 331 RSD moves to reach the test surface and automatically starts the hardness test cycle in automatic succession without a brake.
- With the new AFFRI® system, you place the testing piece in the machine operating area; this area can be selected according to the piece size: its height can range from 50 mm minimum or multiple of 50, to 270 mm or higher on demand.

#### **PERFORMANCES AT THE HIGHEST TECHNOLOGICAL LEVEL**

- Great easiness of use: only one drive, only one impulse
- Accuracy: Repeatability and Reproducibility (0.1 HRC)
- Rapidity: no break or pause during the different phases of the test (unprecedented technologies)
- Absolute hardness measuring

#### **SEMPLICE E UNIVERSALE**

- Facile e rapida misura.
- Qualsiasi condizione ambientale è tollerata in presenza di polvere, vibrazioni, sbalzi di temperatura.
- Vastissime funzioni software, informazioni guida e icone Windows.
- Conversioni immediate.
- Statistica e connessione a stampante con diagrammi istogrammi.

#### **UNLIMITED CONDITION OF USE**

- Any ambient condition is bearable: presence of dust, vibrations, sudden changes of temperature
- Unaltered operation even in extreme conditions: irregular pieces, unfinished pieces, pieces that are raised or misaligned, every kind of support (lifting screw, deformable materials, etc.) presence of impurity (dust, oil, etc.) between the test piece and the support or between the support and the point of the support.

#### **CERTIFICATION**

- Endowed with all requirements of certification according to UNI EN ISO ASTM.



#### Standard accessories

- Flat anvil 60 mm
- "V" anvil 60 mm
- Flat and "V" double anvil
- Wooden case with accessories
- Hardness conversion table
- Dust cover
- Printer (only for 206 RSD/SD)
- Table to bear hardness tester

#### At request

##### Brinell

- Ball penetrator 1 - 2.5 - 5 mm
- Brinell test block for ball 1 - 2.5 - 5 mm

##### Vickers

- Vickers 136° indenter
- Vickers test blocks

#### Standard for 331 RSD/RS

- Rockwell C indenter
- Rockwell B indenter
- Rockwell test blocks C-B

#### Standard for 331 SD/S

- Rockwell N indenter
- Rockwell T indenter
- Rockwell test blocks N-T



#### Technical characteristics

MODEL	331 RSD	331 RS	331 SD	331 S
Preload	10 kgf (98,07) N		3 kgf (29,4) N	
Test loads	60-100-150 Rockwell (588-980-1471) N 62,5-125-187,5 Brinell (612-1225-1839) N		15-30-45 Rockwell (147-294-441) N 15,6-31,2 Brinell (153-306) N	
Working	automatic		automatic	
Acting	through lever with rack		through lever with rack	
Feasible tests	Rockwell HRC A D B F G L M R Brinell HB 30; HB 10; HB 5; R Kgmm <sup>2</sup>		Rockwell sup. HRN + HRT Brinell HB 30; HB 5; HB 2,5	
Read out	Digital Rockwell+Rockwell+R N N/mm <sup>2</sup>	Analog	digital Rockwell/Brinell	Analog
Reading resolution	0,1 HRC	0,5 HRC	0,1 HRN	0,5 HRN
Conform standard	EN-ISO 10109 / 6508 / 10003		EN-ISO 10109 / 10024	
Floating head	50 mm continuous		50 mm continuous	
Total height capacity totale	270 mm		270 mm	
Total depth capacity	200 mm		200 mm	
Max load of test piece	1000 kg		1000 kg	
Clamping pressure of piece	(from 196 to 4000) N		(from 196 to 4000) N	
Clamping of piece	included		included	
RS 232 C output	included	-	included	-
Piece selection transmission	included	-	included	-
Power supply	220V 50÷60Hz - 200VA	-	220V 50÷60Hz - 200VA	-
Field of application	For all metals: iron, steel, tempered steel, cast iron, bronze, aluminium, copper, metal alloys, hard and soft plastics with a higher thickness than 0,6 mm		Nitriding, cementation, hard facing with depth less to 0,6 mm	
Net weight	100 kg		100 kg	
Packing weight	110 kg		110 kg	
Packing measures	54x54x99 cm		54x54x99 cm	

Change of data can be effected without notice



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