AFFRI

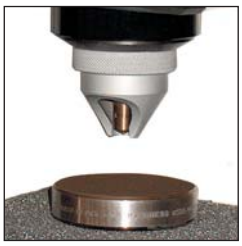
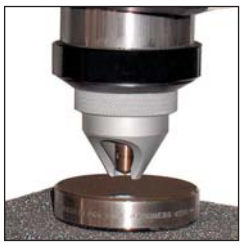
AFFRI
introduces a system
of automatic
hardness tester

3332 MRS
3332 MRS A

AUTOMATIC
ROCKWELL
BRINELL
MOTORIZED

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

- Since 1954 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 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 contact with test piece and Automatic test cycle

3332 SERIES




All operations are managed by a single drive including automatic contact with the test piece
Pushing the Start button, 3332 MRS 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 sur face;
  - entire test cycle performance and release of piece.
- **Unparalleled Accuracy, Repetibility and reproduction** in all test conditions which can be checked in operation conditions
- Survey of load and indenter penetration in axis, in order to obtain an absolute hardness measures
- **Automatic control and selection of pre-loads and loads** through a closed-loop with load cell (AFFRI® patent)
- The operator can automatically select test load and measurement scales **through only one button**
- Simultaneous conversion between differents scales (Rockwell, Brinell, Vickers and tensile N mm^2).
- The instrument and its controls are ergonomically provided with security devices according to CE norms
- Effective statistics software incorporated with connection to printer or computer in order to supply: diagrams, graphs, test lists, average, standard deviations.
- Software includes settings in three selection classes in order to simplify the insertion of the instrument in an automated working line
- Programmable test load, 0.1 second division
- Automatic correction on round surfaces and storing of results
- **High resolution of measurement 0.1 (or 0.01 HR unit upon request)**
- Reversibility from automatic to semiautomatic for single test
- **Two years full warranty** in order to assure high technological level it contains
- Wide range of accessories in order to hold pieces of every shape
- Accurate result indipendent of elasticity of test piece

3332 MRS A

- Adjustable height capacity from 0 to 500 mm
- All test cycle is acted by single start button

MRS SERIES

PERFECT AND EFFECTIVE MEASUREMENTS EVEN AT THE FIRST TEST

ALL OPERATIONS ARE MANAGED BY A SINGLE DRIVE INCLUDING AUTOMATIC CONTACT WITH TEST PIECE

- If you press button Start, 3332 MRS A moves to take contact with test surface and automatically starts the hardness test cycle in automatic succession without a brake.
- Does not require elevating screws
- Meets all laboratory requirements
- Full operation even in presence of vibrations, sudden changes in temperature or dusty environments

SIMPLE AND UNIVERSAL

- Easy and quick Rockwell, Superockwell, Brinell, Vickers measurements in only one machine
- Every environmental condition is tolerable: presence of dust, vibration, changes of temperature, deflection of sample
- With automatic stroke and extension of indenter, it is easy to operate test on internal surface
- Insensitive to deflections
- Automatic compensation of deflection up to 50 mm
- Large fixed base 330x390 mm for sturdy and stable support of test pieces. Small and large size components up to 2000 Kg weight can be tested
- Accessories can be applied on the table to facilitate the positioning of irregular test pieces
- Large Range of test loads from 9.81 to 1839N automatic selectable
- Long stroke from 0 to 500 mm (or higher upon request)

VERY HIGH PERFORMANCE

- Unaltered operation even in extreme conditions: irregular, unfinished, raised or misaligned pieces, all kinds of supports (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.

CERTIFICATION

- Supplied with certificates on SIT primary samples

Applicable accessories
- Wooden case with accesories
- Dust cover
- Power cord
- User's manual

On request
- Flat anvil 60 mm
- "V" anvil 60 mm
- Flat and "V" double anvil
- Hardness conversion table
- Table to support hardness tester
- Printer

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

Vickers
- Vickers 136° indenter
- Vickers test blocks
- Microscope 1216 for Vickers-Brinell measures

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

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

CE

Technical characteristics

MODEL	3332 MRS A	3332 MRS
Preload	(10 Kgf) 98,07 N - (3 Kgf) 29,4 N	
Vickers Knoop 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	
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 deflactions during the test cycle	
Accuracy	Conformation standards EN-ISO 6506 / 6507 / 6508 / ASTM-E18 - EN-ISO 2039	
Feasible tests	Superficial Rockwell HRN+HRT Brinell HB 30, HB 5, HB 2,5 EN-ISO 2039	
Digital reading	Rockwell - Brinell (Vickers conversion)	
Reading resolution	0,1 HR - 0,1HB (0.01 HR unit, at request)	
Conform standard	EN-ISO 6506 / 6507 / 6508 / ASTM-E18 - EN-ISO 2039	
Floating head	from 0 to 500 mm without brake	
Total height capacity	500 mm (more at request) fully motorized	400 mm by handwheel
Total depth capacity	200 mm	170 mm
Dimension of base	330x390 mm	
Max load of test piece	2000 kg	
Clamping of piece	included	
Data output	RS 232 C	
Pieces selection	Hard + Soft + Ok	
Power supply	220V 50÷60Hz - 200VA	
Field of application	For all metals: iron, steel, tempered steel, bronze, aluminium and nitriding, cementation, hard facing, plastics	
Net weight	120 kg	80 kg
Packing weight	160 kg	120 kg
Packing measures	70x72xH190	70x72xH100

Changement of data can be effected without notice

AFFRI®

Headquarter:

AFFRI®
Via M. Tagliaferro, 8
I-21056 INDUNO OLONA - CEE - VARESE - ITALIA
Tel. +39 0332 201533 +39 0332 206289 - Fax +39 0332 203621
E-Mail info@affri.com - www.affri.com

Nord Europe: Sales & Service

AFFRI BENELUX
613/B39 Leuvensesteenweg B-1930 ZAVENTEM
Tel. ++32 2 7576520 - Fax ++32 2 7599073
E-Mail affri@skynet.be - www.affri.com

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