



- **Unparalleled Accuracy, Repeatability and Reproducability** under all test conditions which can be verified under operational conditions R. & R. within 8%
- Measurement of load and indenter penetration on a common axis, giving an absolute hardness result
- Graphical illuminated display to obtain clear and accurate readings. Icons facilitate operator identification of software functions.
- Signal of test cycle end to aid the operator
- **Automatic control and selection of pre-loads and main loads** using closed-loop load control (AFFRI® patent)
- Single button operator selection of test load and measurement scale
- Simultaneous conversion between different scales (Rockwell, Brinell, Vickers and tensile stress N/mm²).

High precision rapid testing

- The instrument and its controls are ergonomically provided with security devices according to CE norms
 - Effective statistics software incorporated with printer or computer connection for: diagram, graph, test summary, average, standard deviation.
 - Software includes settings in three selectable classes to facilitate integration of the instrument into automatic lines
 - Programmable load dwell time 0.1 second increment
 - Automatic correction on round surfaces and storage of results
 - High resolution of measurement 0.1 (or 0.01 HR unit on request)
 - Reversion from automatic to semi-automatic mode for single tests
- Two years full warranty** as assurance of the high technical quality.
- Wide range of accessories in order to accommodate pieces of different shapes

VERY HIGH PERFORMANCE

- Unaltered operation even under extreme conditions eg 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 ⑤.

CERTIFICATION

- Supplied with certificates on SIT primary samples



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Technical characteristics

Preload	(10 Kg) 98.07 N - (3 Kg) 29.4 N
Rockwell loads	(10 60 100 150 Kg) 98.10 588.60 981 1471.50 N
SuperRockwell loads	(3 15 30 45 Kg) 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 Kg) - on request extra 250 Kg 49.05 61.3 98.1 153.23 245 294.43 306.5 613 1226 1839 N (on request 2452)
Vickers Knoop loads	(3 5 10 15 20 30 60 100 120 Kg) 29.43 49.05 98.1 147.15 196 294.3 588.6 981 1177 N
Optional test loads	49 132 358 961 N (for plastic, rubber as per EN-ISO 2039 std) (250 Kg) 2452.5 N Brinell
Shore	A - B - C - D
Accuracy	Conforms with standards EN-ISO 6506-2 / 6507-2 / 6508-2 / ASTM-E18 - EN-ISO 2039
Feasible tests	Rockwell HRC A D B F G L M R Brinell HB 30, HB 10, HB 5, HB 2.5: Break N/mm ²
Twin	Superficial Rockwell HRN+HRT Vickers (indentations only) EN-ISO 2039
Mode of operation	automatic with load cell and closed loop Affri patent
Action	A single initiation lowers the head to make contact and clamp the test surface from 0 to 400 mm in distance Action multiples of 50 mm and automatically starts the hardness cycle in automatic sequence comprising: auto contact; clamping of the piece; indentation of the surface; measurement and release of the test piece
Mobile Indenter	from 0 to 400 mm
Self clamping	100 N
Self aligning to test surface	from 0 to 400 mm
Automatic compensation of deflection piece from 0 to 400 mm	
Operation	it can work if not levelled, inclined or near to vibration area, without losing accuracy
Temperature range	+ 5° to + 50° C
Digital reading	Rockwell - Brinell (Vickers conversion) Resolution: 0.1 HR - 0.1HB (0.01 HR unit, on request)
Total height capacity	400 mm motorised (more upon request)
Total depth capacity	200 mm
Dimension of base	330x390 mm
Max load of test piece	2000 Kg
Power supply	220V 50±60Hz - 200VA
Fields of application:	for all metals: iron, steel, tempered steel, brass, aluminium and nitriding, cementation, hard facing, plastics
Net weight	120 Kg
Packing weight	160 Kg
Packing measurements	70x72xH190

Applicable accessories

Standard

- Wooden case with accessories
- Power cord

- Dust cover
- User manual

On request

- Flat anvil 60 mm
- Flat and "V" double anvil
- Table to support hardness tester

- "V" anvil 60 mm
- Hardness conversion table
- Printer

Rockwell

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

- Rockwell B-T indenter

Vickers

- Vickers 136° indenter
- Microscope 1216 for Vickers-Brinell measurements

- Vickers test blocks

Brinell

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

- Hardness conversion table

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

- Printer

Shore

- Digital Unit for Shore readout

- A078.A1.010 Probe SHORE A with tungsten carbide indenter
- A078.A1.020 Probe SHORE B with tungsten carbide indenter
- A078.A1.030 Probe SHORE C with tungsten carbide indenter
- A078.A1.040 Probe SHORE D with tungsten carbide indenter

**SINGLE INITIATION OF COMPLETE OPERATION INCLUDING
AUTO CONTACT WITH TEST PIECE. ⑥**

- Following initiation by the Start button, the 3302 MRS head moves down to reach the test surface in distance multiples of 50 mm as part of the continuous test sequence comprising:
 - approach to the piece;
 - clamping of the piece;
 - indentation;
 - complete measurement cycle 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 including the first test

SIMPLE AND UNIVERSAL

- Easy and quick Rockwell, SuperRockwell, Brinell, Vickers measurements in a single 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 surfaces. ②
- Insensitive to deflections ①
- 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 ⑦
- Accessories can be applied on the table to facilitate the positioning of irregular test pieces ③ ④ ⑤
- Large Range of test loads (from 9.81 to 1839N) automatically selectable
- Long stroke from 0 to 400 mm fully motorised (or higher upon request)



CE



⑥ AUTO CONTACT WITH TEST PIECE AND AUTOMATIC TEST CYCLE

