



*ATI R*  
*ATI RS*  
*ATI MRS*

Motorized and Automatic Hardness Tester  
for Rockwell and Superficial Rockwell Tests

**ATI**

# ATI MRS

Motorized hardness tester for Rockwell and Superficial Rockwell hardness tests



## AUTOMATIC ROCKWELL MEASUREMENTS

ATI MRS is the new generation of hardness testers by AFFRI TESTING INSTRUMENTS. ATI MRS is automatic Rockwell, Superficial and Brinell hardness measurements, designed to meet the most stringent standards ASTM E-18, ISO 6508, ISO 2039-2. Equipped with a new high-precision load cell and closed-loop electronic control with a 1 KHz scanning frequency, they guarantee high-performance accuracy and reliability in all measurement conditions. It is resistant to external vibrations, eliminating the need for leveling, and can be operated in production environments. Designed for immediate use, it is ready to operate with a simple plug-and-play configuration. Provided with direct ISO ILAC MRA certification from our ISO IEC 17025 accredited calibration laboratories. The test cycle is automatic; it is activated with a single command, simplifying the test process and improving efficiency. The intuitive operator interface is equipped with a multicolor touch screen. The software is compatible with Windows systems, making it easy to manage and analyze data. ATI RS offers a complete selection of Rockwell hardness scales, including HRA, HRD, HRC, HRF, HRB, HRG, HRH, HRE, HRK, HRL, HRM, HRP, HRR, HRS, HRV, HRN, HRT, HRX and HRS. And Brinell automatic HBWT from 62.5-187.5-250. In addition, it provides conversion capabilities to various hardness scales, such as HV, HK and multiple Rockwell scales (HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HBW), ensuring versatility in materials testing. Results are readily available for printing, allowing for efficient documentation and reporting of hardness test results. At ATI MRS we have studied ergonomics even in ease of installation, it does not require any through holes as in common durometers equipped with a height screw. ATI MRS is a broad-based instrument indispensable for quality control and materials characterization in various industrial applications.

## APPLICATIONS

The ATI MRS is designed to accurately measure the hardness of ferrous, non-ferrous and non-metallic materials. It is used for hardness testing of heat-treated materials, such as hardening, tempering, carburizing. Its versatility makes it suitable for a wide range of industrial applications, ensuring high reliability and accuracy. The ATI MRS hardness tester has a large working area, offering an advantage in handling more complex geometries compared to traditional hardness testers. Designed for high accuracy and ease of use, it is ideal for quality control in production environments, ensuring that materials meet the required hardness standards. With its robust design and comprehensive functionality, it is a key tool for industries focused on metalworking, manufacturing and materials testing, offering unmatched accuracy and versatility.

# ATI R - ATI RS

Automatic hardness tester for Rockwell and Superficial Rockwell hardness tests



## AUTOMATIC ROCKWELL MEASUREMENTS

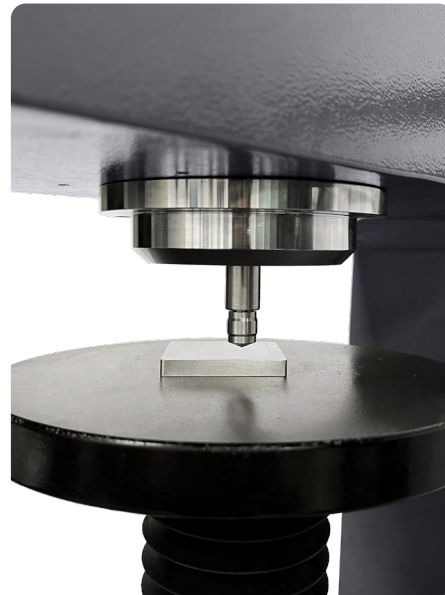
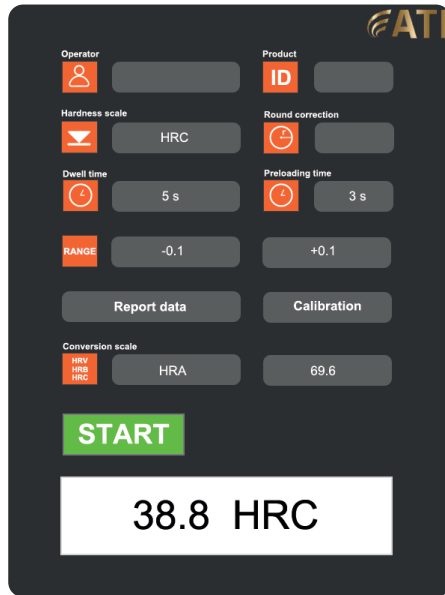
ATI RS is the latest generation of patented hardness testers from AFFRI TESTING INSTRUMENTS, designed for automatic Rockwell, Superficial Rockwell, and Brinell hardness testing. It is the ideal solution for quality control and material characterization in industrial environments, thanks to its high performance and versatility. The device meets the most stringent international standards, including ASTM E-18, ISO 6508, and ISO 2039-2. The testing cycle is fully automatic, simplifying the process for the user: simply place the sample in the test area using the manual lift screw and press the START button. Once the cycle is completed, the result is immediately displayed on the side screen. Additionally, the integrated software is designed for ease of use, allowing the selection of various Rockwell and Brinell hardness scales and conversion of results to other hardness scales, such as HV, HK, and various Rockwell scales (HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HBW). One of the standout features of the ATI RS is its high-precision load cell system, electronically controlled in a closed-loop circuit with a frequency of 1 kHz, ensuring highly reliable and accurate results under all measuring conditions. Hardness testing is unaffected by external vibrations, eliminating the need for leveling and ensuring high performance even in production environments. Furthermore, ATI RS is designed for easy installation, requiring no pass-through holes like traditional testers with lift screws, making installation simple and quick. The instrument is supplied with an ISO ILAC-MRA certification, issued by our ISO IEC 17025 accredited calibration laboratories, ensuring the highest quality and precision in measurements. In summary, ATI RS is a highly versatile and high-performance tool, essential for quality control and material characterization applications in various industrial sectors.

## APPLICATIONS

ATI RS is designed to accurately measure the hardness of both ferrous and non-ferrous metals, as well as non-metallic materials. It is particularly effective for testing hardness in heat-treated materials, including processes such as quenching, tempering, and carburizing. Its versatility makes it suitable for a wide range of industrial applications, ensuring high reliability and precision. The ATI RS hardness tester features a large working area, which offers a significant advantage when handling more complex geometries compared to traditional hardness testers. With its focus on precision and ease of use, the ATI RS is an ideal solution for quality control in production environments, ensuring materials meet the required hardness standards. Its robust design and comprehensive features make it a vital tool for industries focused on metalworking, manufacturing, and material testing, providing unmatched accuracy and versatility.

## PROGRAMMING INTERFACE

Our ATI MRS hardness testing system offers a comprehensive and intuitive interface, designed for accuracy and ease of use. The interface is composed of 4 key sections. These features allow you to manage and customize the testing experience based on your specific requirements.



The screenshot shows the 'DATA' screen. It features a dark background with white text. At the top, 'DATA' is displayed in large white letters. Below this is a table with 5 columns: 'N°', 'Hardness Scale', 'Hardness Value', 'Conversion Scale', and 'Conversion'. The table contains two rows of data: Row 1: '1', 'HRC', '38.3', 'HRA', '69.9'; Row 2: '2', 'HRC', '38.6', 'HRA', '69.7'. Below the table are four buttons: 'MAX', 'MIN', 'AVE', and 'VAR', each with a value of '0.0'. At the bottom, there are four buttons: 'Last page', 'Next page', 'Home', and 'Export'.

N°	Hardness Scale	Hardness Value	Conversion Scale	Conversion
1	HRC	38.3	HRA	69.9
2	HRC	38.6	HRA	69.7

### 1- CUSTOM TEST SETTINGS

The user can set standard measurement values with customized acceptance limits based on specific product requirements. This allows you to quickly determine whether a product passes or fails the control based on predefined thresholds. You can also set the operator name, product codes, dwell times in measurement phases, conversion of values to other scales, as well as correction values for measurements on cylindrical surfaces. In addition, statistics can be requested and data can be stored.

### 2- AUTOMATED MEASUREMENT CYCLE

To perform the hardness test, rotate the elevation screw until the indenter is approximately 1-2 mm from the surface to be measured and press the START button. The contact, preload, load and measurement cycle occurs automatically. During the process, the operator can monitor the diagram on the screen in real time, displaying the forces, time and penetration. At the end, the result is provided automatically, simplifying the hardness assessment.

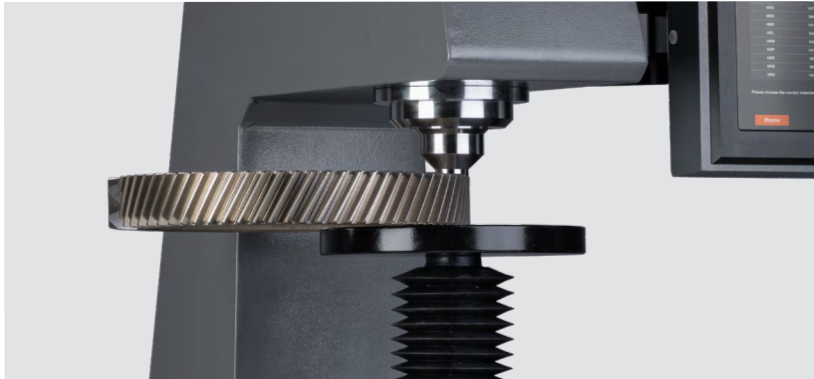
### 3- REAL TIME VIEW

The operator has full control of the process. The large, high-definition, multicolor graphic display shows the measurement phases in real time through a graph representing the preload cycle, the load and the dwell times. At the end of the test, the result appears, changing color based on the set acceptance thresholds: green, red, yellow. In this way, it is possible to verify whether the hardness measurement is within the established limits. A diagram representing the relationship between the applied forces and the penetration is also available.

### 4- DATA CONVERSION AND STATISTICS

In addition to the measurement result, you can consult the conversion values in the various selected scales, view statistics and manage the data. Before performing the tests, you can insert a flash memory into the USB port, which will record all the data collected during the measurements and sort them in XML format. The data can then be exported, saved on an external PC, sent to a printer or transmitted over the network.





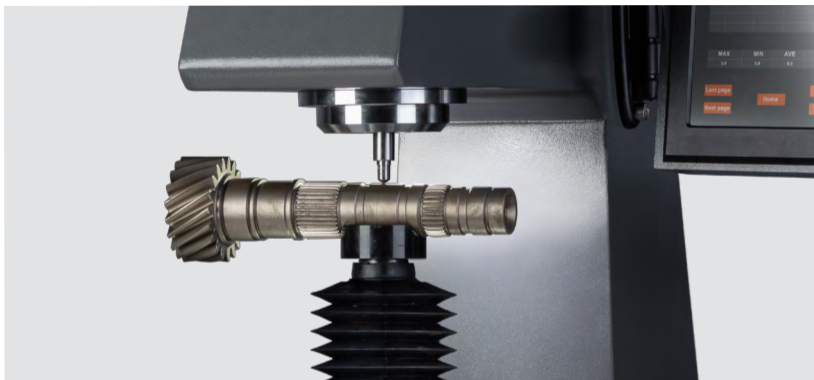
### CLAMPING HOOD

Thanks to the Clamping-hood, it is possible to perform measurements in complete safety, even on particularly unstable samples, ensuring optimal stability during the testing process. Furthermore, the hood allows precise visibility of the measurement point, ensuring that each operation is carried out correctly and without risks for the operator or the sample.



### TOUCH-SCREEN CONTROL PANEL

The control panel is positioned laterally and can be easily moved using an adjustable articulated arm support, which allows it to be moved backwards or forwards according to the specific movement needs during use of the instrument. This feature offers great versatility, allowing the operator to optimize the visibility of the screen and, at the same time, adapt the position of the panel to facilitate access and management of the parts. In addition, by moving the panel, it is possible to increase the work area to accommodate larger parts, improving the overall efficiency during operations.



### ERGONOMICS OF THE OPERATING AREA

ATI MRS is the result of a study aimed at improving the testing experience. We have designed a work area lighting that ensures excellent visibility of the most difficult measuring points, thus facilitating the operator and reducing the probability of measurement errors or breakage of the penetrators, helping to extend their life. The lighting is rechargeable directly on board the machine via a USB port. We have also designed an innovative work area, with a maximum test height of up to 270 mm and a depth of 205 mm.



### FUNCTIONAL BASE

The structure of the ATI MRS has been developed to maximize hardness testing: the buttons at the base make the measurement automatic and motorized. This simplifies the operator's work, increasing accuracy and reducing the risk of errors. Furthermore, no preparation of holes in the support table is necessary, since the lifting screw is entirely contained within the base, avoiding the need to drill holes in the support bench. Thus, the hardness tester can be freely positioned where most convenient, without compromising the stability of the system.

## TECHNICAL DATA

Model:	ATI MRS
Standards:	ASTM E18, ISO 6508 and ISO 2039-2
Hardness scale:	HRA, HRD, HRC, HRF, HRB, HRG, HRH, HRE, HRK, HRL, HRM, HRP, HRR, HRS, HRV, HRX, HRS, HBWT 2,5/62,5- HBWT 2,5/187,5- HBWT 5/250
Conversion scale:	HV, HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HBW
Initial load force:	3 Kg (29.42 N), 10 Kg (98.07 N)
Rockwell load force:	15 Kg (147.1 N), 30 Kg (294.2 N), 45 Kg (441.3 N), 60 Kg (588.4 N), 100 Kg (980.7 N), 150 Kg (1471 N)
Brinell load force:	62.5 Kg (613N), 187.5 Kg (1839.4 N), 250 Kg (2452 N) (at request)
Vickers load force:	3 Kg (29.41 N), 5 Kg (49.03 N), 10 Kg (98.07 N), 30 Kg (294.2 N), 60 Kg (588.4 N), 100 Kg (980 N) (at request)
Dwell time:	From 2 to 60 secondi
Height capacity:	270 mm
Depth capacity:	205 mm
Power supply:	110-220V / 50-60 Hz
Dimensionions:	475 x 200 x 700 mm
Weight:	70 Kg
Data output:	USB

## TECHNICAL DATA

Model:	ATI RS
Standards:	ASTM E18, ISO 6508 and ISO 2039-2
Hardness scale:	HRA, HRD, HRC, HRF, HRB, HRG, HRH, HRE, HRK, HRL, HRM, HRP, HRR, HRS, HRV, HRX, HRS, HBWT 2,5/62,5- HBWT 2,5/187,5- HBWT 5/250
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Data output:	USB

The manufacturer reserves the right to make changes aimed at improving the products without prior notice. Images for illustrative purposes only. Colors and product details may vary.



### ANVILS

- A014.0.001 - Flat anvil Ø 60 mm
- A014.0.002 - Flat anvil Ø 150 mm
- A014.0.003 - V anvil Ø 60 mm for Ø 8 to 220 mm
- A014.0.004 - Anvil Ø 25 mm flat + V for Ø from 5 to 30 mm
- A014.0.005 - Self-aligning reclining spherical anvil
- A014.0.006 - Diamond point anvil for thin slabs
- A014.0.011 - Spherical anvil Radius 10 mm
- A014.0.012 - Spherical anvil Radius 15 mm
- A014.0.013 - Spherical anvil Radius 40 mm



### INDENTERS

- 700.1.3.009 - Rockwell ball indenter W Ø 1/2"
- 700.1.3.007 - Rockwell ball indenter W Ø 1/4"
- 700.1.3.005 - Rockwell ball indenter W Ø 1/8"
- 700.1.5.018 - Rockwell ball indenter W Ø 1/16"
- 700.1.3.004 - Brinell ball indenter W Ø 2.5"
- 700.0.0.006 - Brinell ball indenter W Ø 5"
- 700.1.3.011 - Diamond Vickers Indenter 136°
- 700.1.3.014 - Diamond Rockwell Indenter 120° C-N

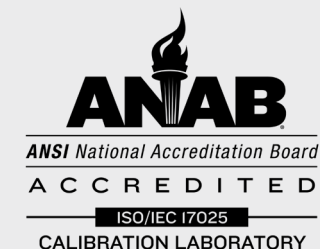


### AFFRI TESTING INSTRUMENTS Laboratory Accredited ISO/IEC 17025

AFFRI TESTING INSTRUMENTS Laboratory, accredited by ANAB ISO/IEC 17025 n. AC 3026.01, provides certified precision test blocks for calibrating hardness instruments, meeting ASTM and ISO standards. Our specimens cover all hardness scales (Rockwell, Brinell, Vickers, Knoop) with a wide range of values. With ILAC-MRA accreditation, each specimen ensures high accuracy and reliability.

### CLAMPING

ATI.022.0.000 Clamping piece



#### ASSISTANCE AND CALIBRATION SERVICE

ATI AFFRI TESTING INSTRUMENTS offers real-time technical support, with remote diagnosis for technical and software issues. We provide remote software updates to ensure our products are always up to date. We are accredited for calibration and certification service with ANAB ILAC-MRA / ISO-IEC 17025 certifications. Our scope of accreditation includes calibration of ATI and many other brands, for instruments such as Rockwell, Brinell, Vickers, Knoop, Shore hardness, tensile testing machines, compression testing machines, and much more. Contact us for a quote, regardless of the brand of equipment.

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