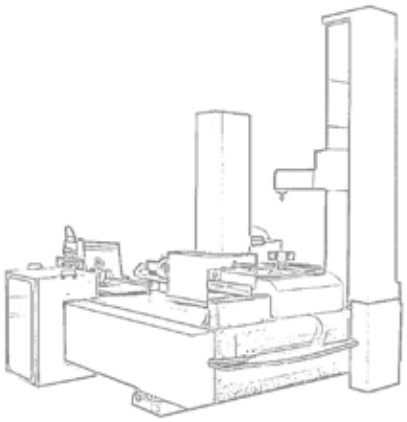
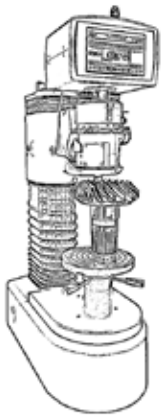
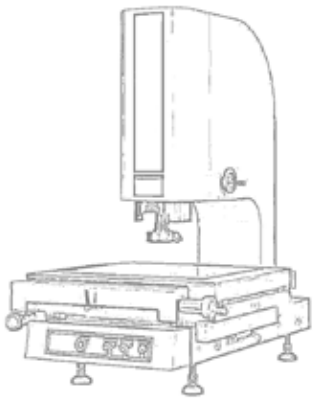
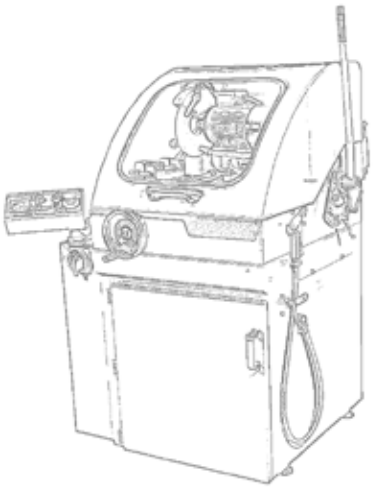
CRASE

HARDNESS AND MICRO-HARDNESS TESTERS









ISO 9001

www.crase.com

NR3D HARDNESS TESTER

Description:

The NR3-D hardness tester is an excellent choice for measuring hardness based on the Rockwell principle, with standardized preload and load. Available in both standard Rockwell and superficial versions, the NR3-D stands out for its versatility, allowing the testing of a wide range of materials, from the hardest metals to light alloys and even plastic. Its versatility is backed by a wide selection of loads and indenters, ensuring accuracy even for small and medium-sized items.
The NR3-D stands out for its consistent high quality, making it a reliable and affordable instrument for all hardness testing needs.

Features:

• Rockwell and Superficial Rockwell: Easy interchangeability between standard and superficial versions using the same stand.
• Measures in Brinell points too: Provides readings on standard HB 30 scales, HB 10, and HB 5 for light alloys and aluminum.
• High durability: The spring-loaded system makes the NR3-D ideal for challenging environments with extreme temperatures, dust, humidity, and vibrations.
• Robust and easy to use: Perfect for schools and laboratories, thanks to its sturdy structure and ease of use.
• Low investment: An affordable price that ensures a quick return on investment.

Advantages:

• Optimal for composite materials and spheres: The absence of the locking pin and presser allows for precise measurements even on small-sized parts.
• Brinell indenters available: Allows for accurate measurements using Brinell loads and indenters.
• Removable measuring head: Facilitates faster revisions and calibrations.

NR3D technical features

MODEL	MODEL DR	MODEL DSR
Loads	60 kgf - 62,5 kgf - 100 kgf - 125 kgf - 150 kgf - 187.5 kgf (588 N - 613 N - 981 N - 1226 N - 1471 N - 1839 N)	10 kgf - 15 kgf - 15.6 kgf - 30 kgf - 31.2 kgf - 45 kgf (98 N - 147 N - 153 N - 294 N - 306 N - 441 N)
Norms and certifications	ASTM E 18 EN ISO 6506	
Min. measurable diameter	4 mm	
Output interfaces	RS 232	
Reading	Digital on display	
Weight	58 kg	
Preload	10 kgf (98.1 N)	3 kgf (29.4 N)
Working principle	Rockwell	Superficial Rockwell
Standard scales	HRC, HRD, HRE, HRF, HRG, HRH, HRK, Brinell HB30	HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HR15W, HR30W, HR45W, HR15X
Load application method	Manual	
Load time	Operator choice	
Working area dimensions	3 x 3 mm	

AT130 HARDNESS TESTERS

Description:

The AT130 bench hardness tester, based on the Rockwell principle in compliance with DIN and ASTM standards, ensures precision by eliminating the influence of material deflections. Measurement is taken directly on the sample surface, optimizing preparation.
The world-famous AT130 hardness tester, sold globally since the 1970s, is also available in a semi-automatic version. It provides precision and speed in all conditions, delivering results in just 4 seconds. Designed by Cisam-Ernst, it is a reliable and accurate instrument, ensuring high durability even in the most challenging conditions.

Advantages:

- Precision and speed: Tests completed in just 2 seconds using the Rockwell principle.
- Spring load system: Reliable measurements, insensitive to deflections.
- International compliance: Complies with UNI, ISO, DIN, and ASTM standards.
- Optimized productivity: One lever movement equals one test.
- Robustness: Ideal for critical environments with dust and vibrations.

AT130 technical features

MODEL	MODEL R	MODEL SR
Loads	Rockwell 60kgf (N588.40) - 100kgf (N980.70) - 150kgf (N1471) - Brinell 62,5kgf (N612.90) - 125kgf (N1226) - 187.5kgf (N1839)	Rockwell 15 kgf (N 147) - 30 kgf (N 294) - 45 kgf (N 441) - Brinell 62.5 kgf (N 612.90)
Power supply	115VAC - 230VAC	
Norms and certifications	ASTM E-18, ISO 6508, ISO 6506 - ISO 6507	
Min. measurable diameter	6 mm Rockwell	4 mm Superficial Rockwell
Selectable functions	Scales, tolerances, calibration	
Output interfaces	RS232	
Reading	On display 7 segments	
Load application method	Semi-automatic	
Weight	AT130DNX: 95 kg - AT130DTX: 125 kg - AT130DCAR: 165 kg - AT130DMUR: 115 kg	
Preload	10 kgf (98.1 N)	3 kgf
Working principle	Rockwell	Superficial Rockwell
Standard scales	Rockwell: HRA, HRB, HRC, HRD, HRF, HRG Brinell: HB10, HB30, other scales on request	Rockwell: HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, other scales on request
Load time	Selectable	
Working area dimensions	STAND TX: Max. measurable height: 240mm (400mm w/o elevating screw) / depth: 225mm STAND NX: Max. measurable height: 210mm / depth: 240mm	
Overall dimensions	AT130DNX: 30x60x73 cm, AT130DTX: 30x60x95 cm, AT130DCAR: 95x33x133 cm, AT130DMUR: 30x70x110 cm	
Warranty	12 months	

AT250 HARDNESS TESTERS

Description:

In the realm of materials engineering, Rockwell hardness testers are essential instruments for measuring material hardness. AT250 D model embodies the evolution of this tradition, offering a cutting-edge solution that combines the precision and speed of traditional Rockwell hardness testers with electronic innovation for test data processing.
The AT250 D line of hardness testers represents the evolution of the well-known AT130 model, a device sold in thousands of units worldwide since the 1970s. It brought significant innovation to the industry due to its ability to quickly measure the hardness of large components with a system insensitive to indentation and bending.

Advantages:

• A 2-second test speed enhances quality control efficiency, enabling companies to handle a higher test volume without compromising accuracy.

• The spring-loaded system ensures highly reliable measurements that comply with international standards, preventing errors and ensuring product compliance with industry requirements.

• The tester's versatility and precision allow it to evaluate a wide range of materials, ensuring compliance with UNI, ISO, DIN, and ASTM standards.

• The device's durability and adaptability enable it to be used in various environments, ensuring process continuity even under challenging conditions.

• The availability of interfaces allows for easy integration of the hardness tester with digital systems, improving data management and information sharing within the company, offering a competitive advantage.

AT250 technical features

MODEL	MODEL DR	MODEL DSR
Loads	60 kgf - 62.5 kgf - 100 kgf - 125 kgf - 150 kgf - 187.5 kgf (588 N - 613 N - 981 N - 1226 N - 1471 N - 1839 N)	10 kgf - 15 kgf - 15.625 kgf - 30 kgf - 31.25 kgf - 45 kgf (98 N - 147 N - 153 N - 294 N - 306 N - 441 N)
Power supply	Autosetting 100VAC - 240VAC	
Norms and certifications	Rockwell - ASTM E-18 - ISO 6508	
Min. measurable diameter	4 mm (indenter 048 + group 022)	
Selectable functions	Scale selection, load time, minimum thickness, mm/inch, round correction, calibration, calibration language, date/time, tolerances, type of indenter, file, measurement archive, printouts, statistics, icons, conversions, sequence, password	
Output interfaces	USB Printer - USB export on USB drive OPTIONAL: RS232 - RS485 - Profibus - Ethernet MODBUS-TCP Bluetooth	
Reading	On colour touch-screen display 800x480 px	
Load application method	Manual	
Weight	AT250NX: 95 kg, AT250TX: 125 kg, AT250CAR: 165 kg, AT250MUR: 115 kg	
Preload	10 kgf (98.1 N)	3 kgf
Working principle	Rockwell	Superficial Rockwell
Standard scales	Rockwell: HRA, HRB, HRC, HRD, HRF, HRG Brinell: HB10, HB30, other scales on request	Rockwell: HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, other scales on request
Languages	Italian, English, German, other languages on request	
Working area dimensions	STAND TX: Max. measurable height: 240mm (400mm w/o elevating srew)/depth: 225mm STAND NX: Max. measurable height: 210mm/depth: 240mm	
Overall dimensions	AT250NX: 30x60x73 cm, AT250TX: 30x60x95 cm, AT250CAR: 95x33x133 cm, AT250MUR: 30x70x110 cm	
Memory	400 files with 2500 storable values for every file	

AT350 AUTOMATIC HARDNESS TESTERS

Description:

The AT350 hardness tester represents the cutting edge in hardness measurement based on the Rockwell principle. Automated and reliable, this instrument operates in accordance with EN, DIN, ISO, and ASTM standards, providing accurate results across a wide range of materials. Ideal for testing large parts and for Jominy testing, the AT350 simplifies processes with its motorized stand, adapting easily to different testing conditions.
Its ability to automatically apply preload during measurements reduces the required time and minimizes errors, allowing automatic batch control without the need for an operator. With Cisam-Ernst's patented spring load system, the AT350 ensures precision and reliability even in the harshest environments, withstanding extreme temperatures, dust, humidity, and vibrations. Thanks to Cisam-Ernst's commitment to precision and reliability, the AT350 is designed to withstand intensive use and the test of time, offering robust instruments that can maintain optimal performance over the long term.

Advantages:

• Rockwell principle – Rapidity of test.
• Automatic functioning – Insertion into production line.
• The spring loading system ensures tests insensitive to material deflection or bending during the test – Reliable and faster measurements.
• The spring load system ensures test speed 5 times higher than common systems with load cells – Rapid cost amortization.
• The spring loading system ensures precise and reliable testing in accordance with international standards – Compliance with international standards.
• Interconnection Industry 4.0 – Possibility to benefit from hyper-depreciation by law.

AT350 technical features

MODEL	MODEL DR	MODEL DSR
Loads	60 kgf - 62.5 kgf - 100 kgf - 125 kgf - 150 kgf - 187.5 kgf (588 N - 613 N - 981 N - 1226 N - 1471 N - 1839 N)	10 kgf - 15 kgf - 15.625 kgf - 30 kgf - 31.25 kgf - 45 kgf (98 N - 147 N - 153 N - 294 N - 306 N - 441 N)
Power supply	Selectable 115 VAC or 230 VAC	
Norms and certifications	ASTM E-18 ISO-EN 6508	
Min. measurable diameter	4 mm (indenter 048 + shroud 60° group 022)	
Selectable functions	Scale choice, load time, minimum thickness, mm/inch, calibration round correction, ùlanguage, date/time, tolerances, indenter, file, prints, statistics, icons, conversions, sequence, measure archive, password, start measure	
Output interfaces	USB Printer - USB export to USB drive OPTIONAL: RS232 - RS485 - Profibus - Ethernet Bluetooth	
Reading	On colour touchscreen display 800x480px, 150x90 mm	
Load application method	Automatic	
Weight	200 kg	
Preload	10 kgf (98.1 N)	3 kgf
Working principle	Rockwell	Superficial Rockwell
Standard scales	Rockwell: HRA, HRB, HRC, HRD, HRF, HRG Brinell: HB10, HB30, other scales on request	Rockwell: HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, other scales on request
Load time	Selectable form keyboard	
Languages	Italian, English, German, other languages on request	
Working area dimensions	255 mm (414 mm w/o elevating screw) / depth: 210 mm (on request increased columns: +300 mm or +500 mm for heights up to 920 mm)	
Overall dimensions	730x1080x850 mm	
Memory	400 files with 2500 results each	





TWIN X AUTOMATIC HARDNESS TESTERS

Description:

The TWIN-X is a fully automated Rockwell hardness tester, designed for seamless performance in Rockwell and Super Rockwell hardness testing. Capable of handling large workpieces up to 420 mm in height in its standard configuration, this advanced hardness tester is a game-changer for efficiency and productivity.
Equipped with an innovative spring system that surpasses traditional load cell systems, TWIN-X reduces each test cycle by up to 10 seconds. This translates to remarkable productivity gains, saving 12 minutes per hour, or nearly two hours every working day.
Designed to meet diverse hardness testing needs, TWIN-X boasts an impressive indenter stroke of up to 45 mm, enabling testing on varying thicknesses without any manual adjustments. Its clamping shield facilitates accurate testing of overhanging pieces without external support.
With a fully automated vertical-axis movement and load application system, TWIN-X streamlines the entire hardness testing process. Its built-in safety device retracts the indenter to protect against misaligned pieces or foreign objects.
Specially engineered for non-standard applications, TWIN-X offers high flexibility for custom configurations. The screw unit can be removed to accommodate larger parts like molds and castings, and a specialized version with a +500 mm stand is available for testing pieces up to 950 mm in height. Additionally, the detachable measuring head integrates seamlessly into production line control systems, enhancing versatility and efficiency.
Key benefits of TWIN-X include enhanced productivity, versatile application, and custom configurability for specialized tasks.

Advantages:

• Rockwell and Super-Rockwell – Test speed: cycle time faster than 1,5 seconds.
• Automatic functioning – Insertion in the production line.
• The spring loading system ensures insensitive tests to material failure, bending or deflection during the test – Reliable and faster measurements.
• The spring load system ensures test speed 5 times higher than systems with load cells – Fast amortisation of costs.
• The spring loading system ensures precise and reliable testing in accordance with international standards

Twin X technical features

Loads	Rockwell: 60 kgf - 100 kgf - 150 kgf (N 588 - 980 - 1471) Superficial Rockwell: 15 kgf - 30 kgf - 45 kgf (N 147 - 294 - 441) Brinell: 15.625 kgf - 31.25 kgf - 62.5 kgf - 125 kgf - 187.5 kgf (N 153.2-306.5-612.9-1226-1839)
Power supply	Single-phase, 230 VAC, 50/60 Hz, (115 VAC on request)
Norms and certifications	ASTM E-18 ISO-EN 6508
Output interfaces	USB for printer connection, USB for direct export to USB stick, Modbus-TCP, RS232, Profibus
Reading	Direct on touch-screen monitor
Languages	Italian, English, German, other languages on request
Load application method	Automatic by means of stepper motor (indenter stroke 45mm)
Weight	Gross: ca. 270 kg (hardness tester + bench) - Hardness tester: 160 kg
Preload	3 kgf (24.9 N) - 10 kgf (98 N)
Working principle	Rockwell and Super-Rockwell
Standard scales	Rockwell: HRA - HRB - HRC - HRD - HRF - HRG Super Rockwell: HR15N - HR30N - HR45N - HR15T - HR30T - HR45T Brinell: HB/30 - HB/10 - HB/5 - HB/2,5 - kgf/mm2 - N/mm2 - other scales on request
Load time	Selectable on touch-screen from 1sec to 45sec
Overall dimensions	90x70x115 cm
Configurable settings	400 storable files (for each file a product with the corresponding test parameters can be stored: code, customer name, hardness scale, tolerance values, etc.) Setting 5 tolerance ranges in series controls

MANUAL VICKERS HARDNESS TESTER THV-1MPE

Description:

• The hardness tester has a simple design: built-in light source and camera, branded computer, hardness tester's specific control and measurement software.
• Built-in 5 million HD CCD camera, the light path is short, the image is clearer.
• Built-in high brightness, long life LCD light source.
• Built-in hardness tester special control and measurement software: hardness tester's control, pressure mark, automatic turret, brightness adjustment, automatic hardness measurement.

• The screw adopts unique optical cross-guide guide to ensure guidance accuracy. When the sample is lifted, the indentation can be better focused and the image position remains unchanged.
• Calibration using micrometer or hardness block calibration, can be automatically calibrated, so that the hardness value more accurate in line with the requirements.
• Hardness value statistics and hardness exceed alarm.
• Hardness according to the national standard and ASTM conversion into other hardness.
• The test report can be customized by the user, and all test data, including the indentation image, will be saved forever for easy historical inquiry.

Standard supply:

• PC (software and instruction manual included)
• Built-in camera
• Weight shaft
• Weights - 6 pcs
• Micro-hardness blocks (1 pc high, 1 pc medium)
• X-Y test stand
• Nylon cardan foot - 4 pcs
• Spirit level
• Screwdriver - 2 pcs
• Dust cover
• Power cord
• Spare fuse (2A) - 2 pcs
• Product certificate and warranty card

Technical features

Model	THV-1MPE
Turret	Automatic
Test force	10 gf (0.098 N), 25 gf (0.245 N), 50 gf (0.49 N), 100 gf (0.98 N), 200 gf (1.96 N), 300 gf (2.94 N), 500 gf (4.9 N), 1 kgf (9.8 N)
Test force switching	Manual
Standards	GB/T4340.2, ASTM E92
Measurement resolution	0.01 µm
Conversion ruler	Lowe's, Brinell
Hardness test range	8 - 2900 HV
Method of test force application	Automatic (loading, retaining, unloading)
Test objectives	10X, 40X
Test force retention time	1 - 99 sec
Maximum allowable specimen height	160 mm
Distance from indenter to machine wall	170 mm
X-Y test bench	Size: 100x100 mm - Maximum movement: 25x25 mm
Computer	21.5" monitor - 8 GB RAM + 256 GB hard disk, WIN10 Operating System, WIFI
Camera	5 megapixel
Power supply	AC 220 V + 5%, 50-60 Hz, 600 W
Weight	About 50 kg
Size	540 x 260 x 650 mm

SEMI-AUTOMATIC VICKERS HARDNESS TESTER iHV-1/iHV-10/iHV-50

VICKERS TEST – KNOOP TEST

Description:

• Auto focus.
• 6-station precision turret.
• Z-axis automatic control and anti-collision protection.
• Modern minimalist style.
• Ultra high precision X Y workbench.
• Multiple language options.
• Workbench panoramic camera (optional): Equipped with a panoramic camera that does not require image stitching to generate sample panoramic images, with a built-in 12 million pixel high-definition industrial camera.
• Automatic measurement of hardness value: No need for manual positioning, the new algorithm for automatic and precise measurement can detect indentations on uneven or scratched surfaces.

Advantages:

• Independently developed software to achieve fast and accurate focusing on new algorithm and industry standards.
• HV – HK pressure head, multi objective configuration 10X, 40X (2.5X, 5X, 20X, 50X optional).
• Supporting high-speed automatic focusing with optical cross rail lifting mechanism and automatic collision prevention device.
• All built-in light sources, cameras, focusing and force changing devices.
• Workbench repeatability positioning accuracy: 1 micron stroke can reach a maximum of 200 mm.
• Multiple languages available in Chinese and English for selection and customization.
• Automatic switching of force values and brightness adjustment for each experiment. Automatic switching of force values for different materials, different surface conditions.

Technical features

Model	IHV-1AZ	IHV-10AZ	IHV-50AZ
Force range	10 gf - 1 Kgf	0,3 - 10 Kgf	0,5 - 50 Kgf
Automatic switching of force values	Yes		
Vickers measurement	Yes		
Knoop measurement	Yes		
Brinell measurement (optional)	Yes		
Automatic turret	Yes		
Number of turret workers	3(6)		
Objective lens	10X, 40X (2,5X, 5X, 20X, 50X)		
Panoramic camera	Optional		
Automatic brightness adjustment	Yes		
Laser crosshairs positioning	Optional		
Automatic measurement of hardness value	Yes		
Sample edge positioning	Optional		
Sample shape matching module	Optional		
Welding module	Optional		
Measurement of fracture toughness	Yes		
Report output	Yes		

AUTOMATIC VICKERS HARDNESS TESTER iHV-1/iHV-10/iHV-50

VICKERS TEST – KNOOP TEST

Description:

• Auto focus.
• 6-station precision turret.
• Z-axis automatic control and anti-collision protection.
• Workbench panoramic camera (optional).
• Automatic measurement of hardness value.
• The light source, camera, focusing, and power conversion devices are all built-in.
• Ultra high precision X/Y workbench: Workbench repeatability positioning accuracy: 1 micron, maximum travel up to 200 mm.
• Multiple language options: Multiple languages available for selection and customization.

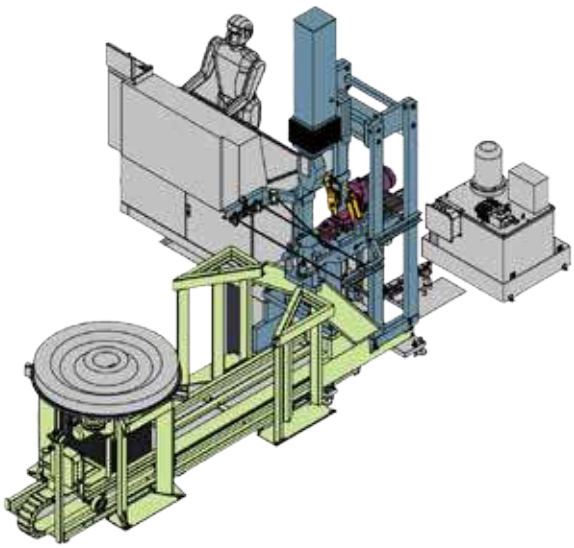
Advantages:

• Our self-developed software achieves fast and accurate focusing, with new focusing algorithms that refresh industry standards.
• HV – HK pressure head, multi objective configuration 10X, 40X (2.5X, 5X, 20X, 50X optional).
• High speed automatic focusing using optical cross rail lifting mechanism and automatic anti-collision device.
• Automatically switch between different experimental force values, adjust brightness and contrast based on different materials and surface conditions.
• Equipped with a panoramic camera that does not require image stitching to generate sample panoramic images. Built in 12 megapixel high-definition industrial camera.
• No need for manual positioning, the new algorithm for automatic precise measurement can detect indentation on surfaces that are not smooth or have scratches.

Technical features

Model	IHV-1AZXY	IHV-10AZXY	IHV-50AZXY
Force range	10 gf - 1 Kgf	0,3 - 10 Kgf	0,5 - 50 Kgf
Automatic switching of force values	Yes		
Vickers measurement	Yes		
Knoop measurement	Yes		
Brinell measurement (optional)	Yes		
Automatic turret	Yes		
Number of turret workers	3(6)		
Objective lens	10X, 40X (2,5X, 5X, 20X, 50X)		
Panoramic camera	Optional		
Automatic brightness adjustment	Yes		
Laser crosshairs positioning	Optional		
Automatic measurement of hardness value	Yes		
Sample edge positioning	Optional		
Sample shape matching module	Optional		
Welding module	Optional		
Measurement of fracture toughness	Yes		
Report output	Yes		

Bre-Aut SOR for the testing of finished train wheels



Requests:

Fully automatic Brinell hardness testing of finished train wheels with the following specifications:

• Surface preparation and measurement of finished trainwheels – need to measure wheels of different diameters (from 700 mm to 1300 mm).
• Speed up the entire testing process.
• Need to install into an existing production line consisting of machinery from other vendors.
• Need to comply with specific regulations that require two measurements at a distance of 25 mm from the first test if it is outside the range of hardness required.
• Need to mark non-conforming wheels.

Adopted solution:

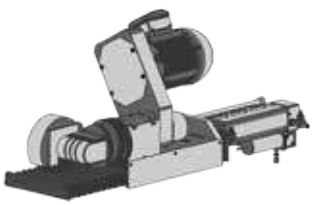
• Line equipped with lamellar wheel unit for surface preparation of finished wheels.
• Mounting of the entire hardness tester on a PLC-controlled motor-driven slide.
• Creation of a transfer system that allows two wheels to be transported simultaneously from the loading point and the measuring point under the hardness tester to the unloading point.
• Implementation of specific communication protocols for the exchange of signals and information with the PLC line controller.
• Optimisation of the transfer system controls to allow the wheel to be moved for additional measurement positions. If the first test falls within the specified range, the wheel is transferred to the unloading position and at the same time a new wheel is brought from the loading position to the surface preparation and measurement position to be measured. If the first test is outside the set range, it will be automatically moved by 25 mm and a second and third test will be carried out. If both these tests give a positive result, the wheel will result compliant.
• If any of the above conditions do not occur, the wheel will be considered non-compliant and consequently marked with the spray paint unit located at the discharge position.

Achieved results:

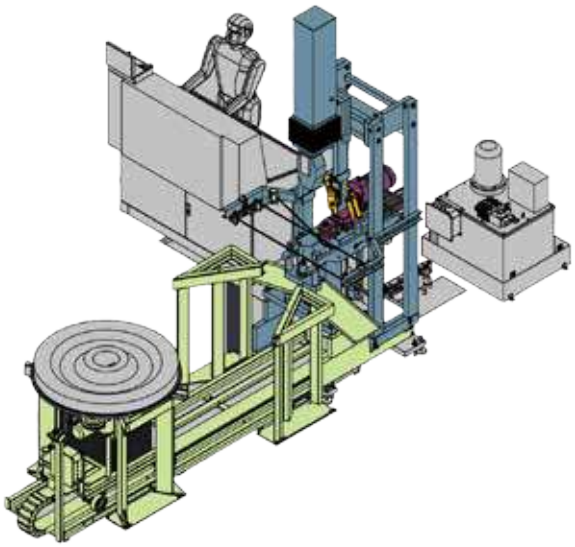
• Preparation of the finished surface limiting its alteration.
• The surface preparation and measurement unit automatically adapts to the wheel size.
• Integration of the automation of hardness measurement with the existing in-line system.
• 60 seconds for a hardness test including surface preparation.
• Automatic wheel movement for additional measurement positions.
• Automatic evaluation of the tests to be performed based on the tolerance parameters entered and automatic evaluation of the conformity or non-conformity of the measurement according to the standards.

Bre-Aut SOR technical features

Power supply	380 V 50 Hz
Loads	3000 kgf (29430 N)
Norms and certifications	ISO 6506/1 6506/2 6506/3 - ASTM E 10
Selectable functions	Load time, tolerances, stats, database of measurements and images with search on-board machine,languages
Output interfaces	Profibus, Ethernet
Reading	Automatic optical impression reading
Weight	9 t
Working principle	Brinell
Standard scales	HB 10/3000
Load time	Adjustable 1-30 sec
Overall dimensions	7000 x 8000 mm


Bre-Aut MAR for the testing of raw train wheels



Requests:

Automatic Brinell hardness testing of raw train wheels with the following specifications:

• Surface preparation at different depths and measurement of raw train wheels.
• Need to measure wheels of different diameters (from 700 mm to 1300 mm).
• Speed up the entire test process.
• Need to install into an existing production line consisting of machinery from other vendors.
• Need to comply with the specific regulations that impose two measurements at a distance of 25 mm from the first test if it is outside the required range of hardness

Adopted solution:

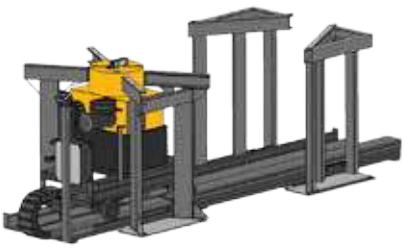
• System equipped with milling unit for surface preparation of raw wheels.
• Creation of a transfer system that allows the rotation and transport of a wheel from the loading/unloading point to the measuring point.
• Implementation of specific communication protocols for the exchange of signals and information with the PLC line controller.
• Optimisation of the transfer system controls to allow the wheel to be moved for additional measurement positions. If the first test falls within the specified range, the wheel is transferred to the unloading position and at the same time a new wheel is brought from the loading position to the surface preparation and measurement position to be measured. If the first test is outside the set range, it will be automatically rotated by 25 mm and a second and third test will be carried out. If both these tests give a positive result, the wheel is compliant.
• If any of the conditions of the above point does not occur the wheel will be considered non-compliant.

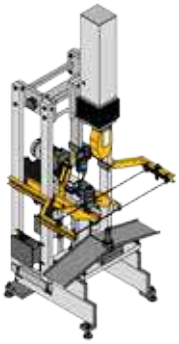
Achieved results:

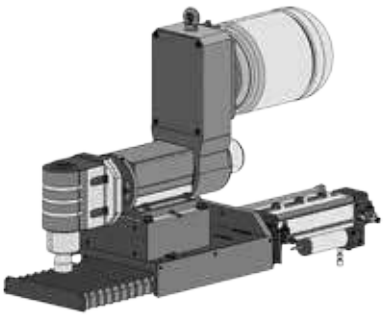
• Preparation of the rough surface by milling.
• The surface preparation and measuring unit automatically adapts to the wheel size.
• Integration of the automation of hardness measurement with the existing in-line system.
• 120 seconds for a hardness test including surface preparation.
• Automatic wheel rotation for additional measurement positions.
• Automatic evaluation of the tests to be performed based on the tolerance parameters entered and automatic evaluation of the conformity or non-conformity of the measurement according to the standards.

Bre-Aut MAR technical features

Power supply	380V 3ph - other power supplies on request
Loads	3000 kgf (29430 N)
Norms and certifications	IISO EN 10003 - ASTM E-10
Reading	Automatic impression reading, e-brio
Languages	Italian, English, German, other languages on request
Weight	ca. 5 t
Working principle	Brinell
Standard scales	HB30 / 3000kg
Load time	Selectable from 1 to 30 sec
Working area dimensions	5 x 3 m
Memory	Industrial PC







Bre-Aut MAR with fixed clamps

Requests:

Replacement of an existing machinery:

- Automatic machine to be placed in production environment.
- Request for fully automatic machine cycle.
- Robust and durable machinery.
- Security system during machine operation.
- Possibility of processing and exporting measurement data.

Adopted solution:

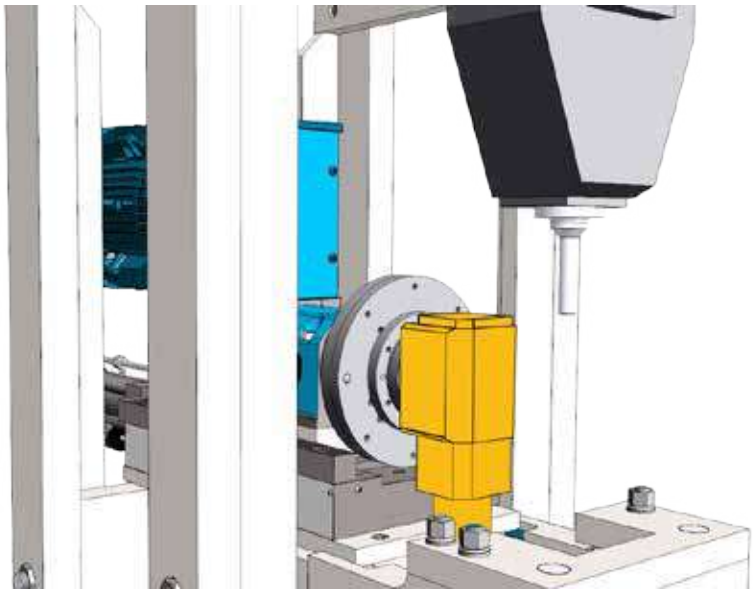
- The provided machinery has a hydraulic principle to withstand production environments.
- PLC (Programmable Logic Controller) with touchscreen monitor for configuration and management of machine movements (input, output and signals), also includes the management of the hydraulic power unit.
- Oversized machine components allow continuous use of the instrument.
- Touchscreen monitor featured with Modbus serial communication protocol.

Achieved results:

- Machinery resistant to industrial and production environments.
- Automatic measurement including surface preparation.
- Machinery usable 24 hours a day.
- Machine operating remotely and in total safety.
- Data consultation on board machine.

Bre-Aut MAR technical features

Power supply	Three-phase 480 V 60 Hz
Loads	750 / 3000 kgf (7360 / 29430 N)
Norms and certifications	ASTM E103
Selectable functions	Load time, tolerances, stats, languages
Reading	Automatic impression by depth probe
Weight	1.6 t
Working principle	Brinell
Standard scales	HB30
Load time	Adjustable from 1 to 30 sec
Overall dimensions	790 x 2930 mm



CHD – CASE HARDNESS DEPTH ANALYZERS

HTD1500 and HTD4000

Advanced Case Hardness Depth analyzers

HTD1500 and HTD4000 case hardness depth analyzers deliver quick, accurate, and non-destructive thickness verification up to 1.3 mm (HTD1500) and 2.7 mm (HTD4000)
The devices eliminate the cumbersome steps of traditional testing. Using continuous data collection, these analyzers deliver accurate results in under a minute. HTD1500 and HTD4000 redefine heat treatment depth measurement with their speed, precision and adaptability. These instruments represent a leap forward for industries requiring swift, accurate and integrated analysis of heat-treated layers.

Features:

• Non-destructive testing: Effortlessly measure the thickness of heat-treated layers without damaging the sample, preserving its integrity for further analysis or use.
• Ernst patented principle – Case hardness depth determination from 0.05 mm to 2.7 mm.
• Robust stand: Designed for high-capacity testing, the sturdy stand easily handles large dimension pieces, making it ideal for various industrial applications.
• Low maintenance: Built to thrive in challenging environments, the HTD1500 and HTD4000 require minimal maintenance, ensuring longevity and consistent performance.
• Durable carbide indenter: The carbide indenter performs 2,500 to 3,000 tests, depending on the material type and the applied load, providing long-lasting durability.

Advantages:

• Time savings: These systems streamline the testing process, drastically reducing analysis time compared to conventional methods.
• Incomparable precision: With continuous data recording, the HTD analyzers deliver reliable and accurate measurements for immediate process verification.
• High load testing: The HTD4000 handles up to 4000 kg of test force, offering a versatile solution for various sample sizes and materials.
• 1 test = 1 minute: Drastic reduction of the test times, increased productivity.
• One measurement: No need for cross-sectioning, polishing and mounting of the test piece.
• Seamless integration: Real-time data collection ensures thorough quality control, supporting immediate process optimization.

HTD1500 and HTD4000 technical features

MODEL	HTD1500	HTD4000
Loads	100 kgf - 1500 kgf (N 981 - N 14715)	200 kgf - 4000 kgf (N 1961 - N 39227)
Power supply	110-240 VAC 50/60 Hz	
Norms and certifications	ASTM E-18 indirect method on certified test block ISO 6508 indirect method on certified test block	
Min. measurable diameter	10 mm	
Selectable functions	Load selection, language, calibration, hardness measure, schematic curve, hardness curve, tolerances, sequence, file, scale, histogram	
Output interfaces	USB - Ethernet	
Reading	Direct reading of case depth on touch-screen display 8.4" Schematic curve with case depth value at the predetermined hardness Stats and overlay of curves	
Languages	Italian, English, German, other languages on request	
Load application method	Automatic with predetermined load value according to case depth	
Weight	ca. 440 kg	
Working principle	Evaluation of the load-penetration curve and tested algorythm	
Standard scales	Reference scale HV	
Load time	Test cycle depending on applied load	
Working area dimensions	Stand capacity 335 mm - H 315 mm	
Overall dimensions	720 (ca. 950 included PC) x 1200 x 880 mm	




HTD30

Case Depth measurement for hardened layers

HTD30, designed to deliver lightning-fast results in less than a minute, eliminates the need for time-consuming operations like sectioning, embedding, and polishing, preserving your workpiece's integrity.

HTD30 operates on a groundbreaking principle, patented by Ernst, which involves a single impression made while progressively applying load. This method ensures precise measurement without the interference of bending or subsidence, equivalent to conducting numerous impressions in a single point.

By continuously acquiring values during load application, HTD30 generates a load-hardness curve. Leveraging our proprietary algorithm, this curve provides invaluable insights, revealing the depth of the heat treatment and presenting a schematic of the hardened surface layer.

Features:

- Measurement range: Case depth determination from 0.02 mm to 0.2 mm.
- Rapid measurement: Obtain accurate results in less than a minute.
- Non-destructive: Safeguard the integrity of your workpiece.
- Precision: Eliminate influences from bending or subsidence.
- Proprietary algorithm: Transform data into actionable insights.
- Efficiency: Equivalent to numerous impressions in a single point.
- One measurement: No need for cross-sectioning, polishing and mounting of the test piece.

HTD30 technical features

Loads	1 kgf - 30 kgf
Power supply	100/250 VAC, 50/60 Hz
Norms and certifications	DIN 50158 ASTM E-18 indirect method on certified test block ISO 6508 indirect method on certified test block
Min. measurable diameter	4 mm
Selectable functions	Load selection, language, calibration hardness measure, schematic curve hardness curve, tolerances, sequence, file scale, histogram
Output interfaces	USB - Ethernet
Reading	Direct reading of case depth on touch-screen display 8” Schematic curve with case depth value at the predetermined hardness Stats and overlay of curves
Languages	Italian, English, German, other languages on request
Load application method	Automatic with selected load value according to case depth
Weight	ca. 32 kg
Working principle	Case depth through evaluation of the load-penetration curve and tested algorythm
Standard scales	mm/inch cut-off hardness in HV/HRC
Load time	Test cycle depending on maximum applied load
Overall dimensions	40 x 50 x 35 cm

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