A very simple calibration procedure allows maintaining extremely accurate results even when testing different materials, modifying the relation between test material and indentation diameter.

Automatic sequence is given through push button, foot switch or other external impulse.

Standard type test cycle starts as follows:
- The test head moves towards the test piece, driven by an hydraulic cylinder
- The indenter comes into contact with the test surface
- Preload is applied
- Then full load is applied for the time chosen by the operator
- The measuring head returns to preload position
- Readout of Brinell result on large graphic LCD display

The entire test sequence takes about 7 seconds (that means testing up to 500 pieces per hour).

The BRE-AUT hardness tester tests the hardness based on the difference of penetration depth between preload and load, using loads and indenters requested for Brinell Standard testing. The results, after having been processed by a microprocessor, are shown on the display in Brinell values.

**IMPORTANT**
On request the Brinell hardness can be measured by automatic Brinell scanning system.

The optical verification of the impression is always possible.

**NOTE**
With this system, testing time is reduced by 85% compared to the traditional Brinell method.

**IMPORTANT**
The BRE-AUT hardness tester has a unique automatic safety device, which in case of wrong positioning of the piece or contact with soft material (e.g. operator’s hand) retracts immediately the test head, avoiding wrong tests and accidents.
**BRE-AUT 100**

**Technical Characteristics:**
- Digital Brinell reading
- Measurable maximum height: 400mm
  depth: 200mm
- Test head stroke: 100mm
- Test loads
  - Regular type: 3.000kp (29.430N)
  - Multiple loads:
    - 500kp (4.905N), 700kp (7.357N),
      1.000kp (9.810N), 3.000kp (29.430N)
- Adjustable loading time
- Standard accessories:
  - 1 flat anvil Ø 120mm
  - 1 eyepiece 8x for verification of the impression’s diameter
  - 1 test block HB/30
    (95mm x 95mm x 16mm)
  - 1 set of wrenches

**BRE-AUT 300**

**Technical Characteristics:**
- Digital Brinell reading
- Measurable maximum height: 850mm
  depth: 250mm
- Test head stroke: 300mm
- Test loads
  - Regular type: 3.000kp (29.430N)
  - Multiple loads:
    - 500kp (4.905N), 700kp (7.357N),
      1.000kp (9.810N), 3.000kp (29.430N)
- Adjustable loading time
- Standard accessories:
  - 1 flat anvil Ø 120mm
  - 1 eyepiece 8x for verification of the impression’s diameter
  - 1 test block HB/30
This special execution BRE-AUT S.O.R. is particularly suitable for in line testing of pipes and cylindrical parts. The system is integrated with a built-in surface preparation equipment.

Thanks to the high productivity, BRE-AUT S.O.R. has been universally selected for the automatic testing of oil pipes.

Technical Characteristics:
- Digital Brinell reading
- Test loads
  - 750kp (7.357N) to 3.000kp (29.420N)
- Built-in milling machine for test surface preparation
- Testing time
  (surface preparation + hardness testing): approx. 25 seconds
- Adjustable milling depth

BRE-AUT S.O.R. SPECIAL EXECUTION
With motorized roller line for tool joints.
This BRE-AUT special execution is the proper instrument for testing pieces having large dimensions and difficult shapes (max. height 1600mm).

Thanks to the rotating arm, a radius of 180° can be covered, while the structure dimensions can be modified on request.

With the Brinell Optical Scanning System B.O.S.S., the indentation is read automatically improving the accuracy of the test.

The integrated milling device allows preparing the test area before testing.

BRE-AUT BRG is available also without surface preparation unit.

Technical Characteristics:
- Optical Brinell reading
- Test loads (on customers request) 500kp (4.903N) - 750kp (7357N) - 1000kp (9.810N) - 3000kp (29.420N)
- Test surface preparation by integrated milling unit
- Maximum milling Ø 40 mm
- Milling from 1mm to 4mm depth
- Adjustable milling speed according to the hardness of the test material.

view the movie on www.ernsata.com
This special execution BRE-AUT M.A.R. is particularly versatile, it allows testing rounds from Ø 10mm up to train wheels with Ø 1400mm and a weight of 1100kg. (see BRE-AUT M.A.R. special execution).

Thanks to the test method of BRE-AUT series, BRE-AUT M.A.R. ensures high productivity permitting also the optical reading of the indentation by the B.O.S.S. Brinell optical scanning system.

BRE-AUT M.A.R. is provided with an integrated milling or grinding device for the preparation of the test point.

**Technical Characteristics:**
- Digital Brinell reading
- Test loads: 750kp (7.357N) - 1000kp (9.806N)
- Test surface preparation by milling or grinding unit
- Testing time: approx. 40 seconds
- Input parameters can be entered for high/low tolerance sorting, data records, statistics, hardness number readout and additional customized features as needed
BRE-AUT M.A.R.

BRE-AUT M.A.R. SPECIAL EXECUTION
Automatic in line application for testing train wheels.

- Fully automated cycle with integrated milling/grinding device for preparation of the test area
- Automatic Brinell hardness control
- Automatic Brinell optical scanning system
- Testing time
  (surface preparation + hardness testing + optical scanning): less than 60 seconds
  (transfer of the wheel): 30 seconds

This special execution BRE-AUT M.A.R. TRAIN WHEELS is provided with a transfer system which allows charging a second wheel while the first one is measured.

view the movie on www.ernatsa.com
BRE-AUT T.D.M. SPECIAL EXECUTION
With motorized roller line and surface preparation by sanding.
For batch testing of bottles with Ø from 80mm to 350mm

Technical Characteristics:
- Digital Brinell reading
- Test loads:
  - 750kp (7.357N)
- Surface preparation by means of built-in sanding system
- Testing time:
  - (surface preparation + hardness testing + selection): approx. 40 seconds (1 test for each bottle)
- Preparation and testing can be carried out simultaneously on two bottles
- Adjustable sanding depth
- This hardness testing system can be integrated into a production line
- Surface preparation and hardness test are automatic
- A motorized roller way provides for the handling of the bottles
- Several hardness tests on the same bottle can be performed on request
**IMPORTANT**
Thanks to our special patented clamping device, testing is not affected by deflection of the test part, resulting in more accurate results.

**NOTE**
TWIN can test specimens of different shapes and dimensions. Overhanging pieces can be clamped without any extra support. Insensitive to any deflection of the test part. The electronics permits data collection of the test process. The elevating screw assembly can be removed for in line application and a completely automatic test process.

(Folder concerning TWIN contains additional information)

The automatic TWIN hardness tester works according to the Rockwell and Super Rockwell principle with loads from 15Kp to 187.5Kp (147.1N to 1.839N).

The testing cycle is completely automatic and starts when the indenter comes into contact with the component. It can be activated by the keyboard, footswitch or automatically via PC.

**Technical Characteristics:**
- Working principle: Rockwell and Super Rockwell
- The indenter comes into contact with the test surface
- Preload is applied
- Then full load is applied for the time chosen by the operator
- The hardness tester returns to preload position
- Readout of Rockwell or Brinell result on large graphic LCD display

**IMPORTANT:**
The TWIN hardness tester is equipped with an automatic safety device, which retracts the penetrator if a component is incorrectly positioned or in case of unintentional contact with the indenter.
TWIN T.D.M. DAL SPECIAL EXECUTION
With double motorized roller line and test surface preparation by lamellar grinding disc for inline testing of bottles with Ø from 80mm to 350mm

Technical Characteristics:
- Digital Brinell HB30 and Rockwell HRC reading (other scales on request)
- Test loads
  187,5kp (1840N) 150Kp (1471N)
- Surface preparation by means of built-in lamellar grinding disc
- Testing time
  (surface preparation + hardness testing + selection): approx. 40 seconds
  (2 tests at 180° for 1 bottle)
- Preparation and testing can be carried out simultaneously on two bottles
- Adjustable sanding depth
- This hardness testing system can be integrated into a production line
- Surface preparation and hardness tests are automatic
- A motorized roller way provides for the handling of the bottles
- Several hardness tests on the same bottle can be performed on request

Touchscreen operator panel and hardness testers displays
The touchscreen operator panel allows setting of the test parameters of both hardness testers. The test results are then shown on the hardness testers displays.
Grinding device
The lamellar grinding disc assures perfect adherence to the surface to be prepared.

Hardness testing
Hardness testing is performed by our automatic TWIN hardness tester.

Transfer/rotation unit
The transfer/rotation unit allows to carrying out preparation of the test area and testing on the opposite line in the selected points.
TWIN V.E.C.

Technical Characteristics:

- Pre-loads: 3KP-10KP (29.4N-98N)
- Test loads:
  - 15KP-30KP-45KP (147N-294N-441N) (Superficial Rockwell)
  - 15,6KP-31,2KP-62,5KP-125KP-187,5KP (153.2N-306.5N-612.9N-1,226N-1,839N) (Brinell)
  - 60KP-100KP-150KP (588N-980N-1,471N) (Standard Rockwell)
- Indenter's stroke: 45mm

On request a surface preparation system can be built-in.
The components, which may be of different shapes, first are positioned on special shaped plastic supports, then transported one by one under the hardness tester, clamped by a pneumatic system and then tested.

NOTE
The process used for hardness testing, being a variation of the Rockwell principle, allows testing even if there are small deflections or bendings. Surface preparation is required only where testing takes place.
Today the production process requires faster and more accurate quality control and documentation of the test process. The conventional Brinell or Rockwell hardness tests require much time and sometimes when test surface preparation is needed, result very expensive. It is very important to ensure maximum efficiency and minimum expense.

The use of an automatic hardness tester for Rockwell and Brinell testing with an integrated test surface preparation device, has the following advantages:

- Increased productivity
- Quality control of each piece
- Elimination of operator errors
- Documentation of the test process

This hardness testers have been studied and developed in order to:

- be incorporated into a production line (in this case no operator is needed)
- incorporate a surface preparation system by milling or sanding
- incorporate automatic piece sorting unit
- perform different types of control on the production line

**BRINELL HARDNESS TESTING**

BRE-AUT is the most qualified hardness tester for the automatic Brinell hardness testing.

**ROCKWELL HARDNESS TESTING**

TWIN is the most qualified Rockwell hardness tester for high-volume testing.
All significant parameters for an accurate hardness test, such as scale, tolerance and file description, can be set directly on the integrated touch screen panel, and then automatically sent to the two hardness test control displays. The touch screen panel also allows setting all the parameters concerning the length and diameter of the bottles, distance between the test points etc. This allows a fully automatic test cycle, remarkably increasing the production and preventing any operator error.

The hardness test results are directly shown on the double hardness testing control display, one for each hardness tester.

Our best attention has been given to the electronics as to satisfy the most sophisticated requirements and especially to guarantee continuous working without inconvenience; even in critical environments such as heat treatments, foundries and different production divisions.
ELECTRONICS
ernst automatic systems: focus on new releases

The measuring of the Brinell impression occurs by optical scanning with B.O.S.S. system on industrial PC.

It is possible to set on PC the parameters for the hardness measuring directly through the integrated keyboard or mouse.

Our new releases make use of Profibus communication system. On request it is possible to implement the software for exporting data to a main data processing system.

FOCUS ON
BRE AUT BRG - SPECIAL FOR BULKY PIECES

FOCUS ON
BRE AUT MAR - SPECIAL FOR TRAIN WHEELS