

BRINELL HARDNESS TESTERS WITH MILLING SURFACE PREPARATION

FOR FORGES AND HEAT TREATERS



STATIONARY BRINELL SYSTEMS WITH SURFACE PREPARATION BY MILLING

Unique multi-tool system equipped with milling body, Brinell indenter, objective with camera and a laser pointer. This is a technological innovation in support of quality control bringing the hardness measurement to the next level.



SAVE
TIME



INCREASE
ACCURACY



AUTOMATIZE
PROCESS



SAVE
LABOR

HOW DOES IT WORK?

Just **push the start button** and wait for the result:

1. Automatic research and contact with the sample
2. Automatic clamping
3. Auto-milling at programmed depth
4. Auto indenting and loading
5. Automatic reading with autofocus
6. Autoreturn and movement to the second sample



MILL



INDENT



READ



ADVANTAGES

SAVE TIME, MONEY AND INCREASE ACCURACY!

- 45 sec for one complete test including surface preparation
- Test 100% of production with maximum Brinell accuracy better than 0.5%
- No risk of human error, thanks to the optimal milled surface roughness and the automatic reading through camera
- Automatize the quality inspection process
- Move human resources to other jobs
- Always the same surface roughness, no risk of damaging or heating the testing surface
- Thanks to the time saving and less human resources involved in hardness measurements, the investment results in higher testing efficiency and precision. (will have fast return)

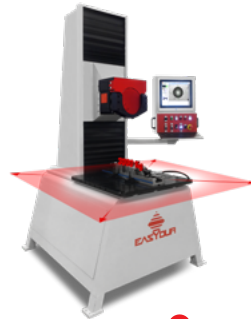
WHAT'S MORE?

- Clamping system with programmable pressing force
- Possibility to test 40mm from sample walls or small samples
- No vibrations during milling
- Dedicated stand support designed for Brinell tests at 3000kgf
- Possibility to program up to 2000 RPM
- Milling depth up to 5 mm
- Milling hardness up to 55HRC

MODELS SHOW US YOUR SAMPLE, WE SUGGEST YOU THE RIGHT STAND FRAME

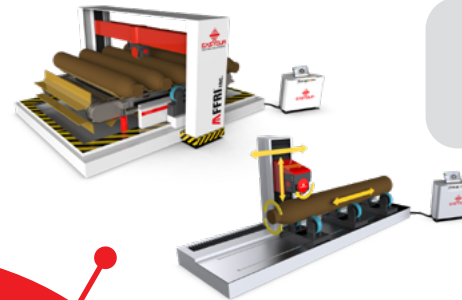
INTEGRAL REVOLOVER:

Hardness tester for small and medium sample



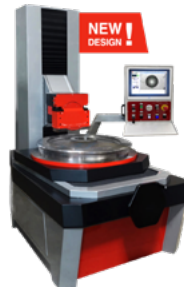
EASY BOTTLE:

Special application for gas bottles, cylinders and round bars



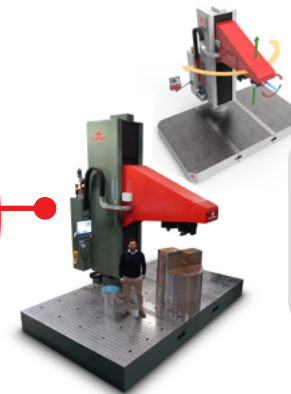
INTEGRAL ROTARY:

Hardness tester with motorized table 360° rotation and translation



EASY FLAG:

CNC radial hardness tester with rotating flag. 2000mm height capacity and 2000mm from column to the indenter



INTEGRAL RINGS:

Hardness tester with laying column for testing on top and side surface

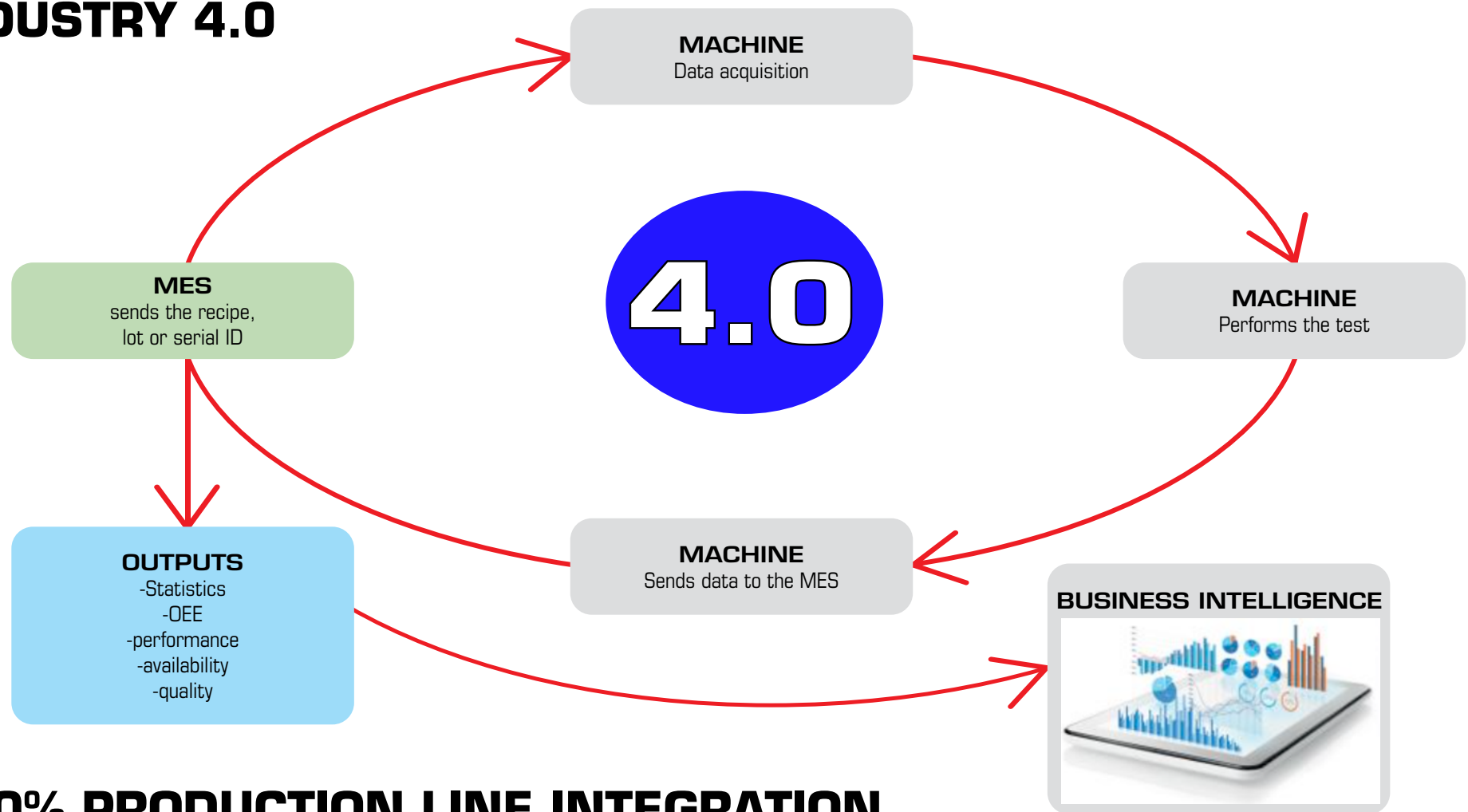


EASY PORTAL:

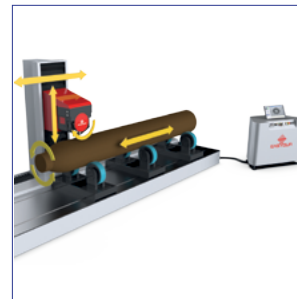
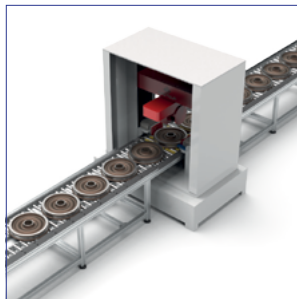
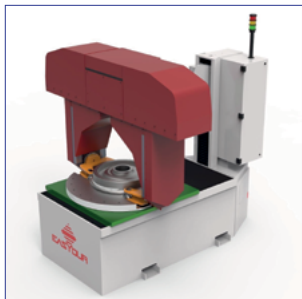
CNC portal bridge hardness tester for very long samples or many samples in row



INDUSTRY 4.0



100% PRODUCTION LINE INTEGRATION



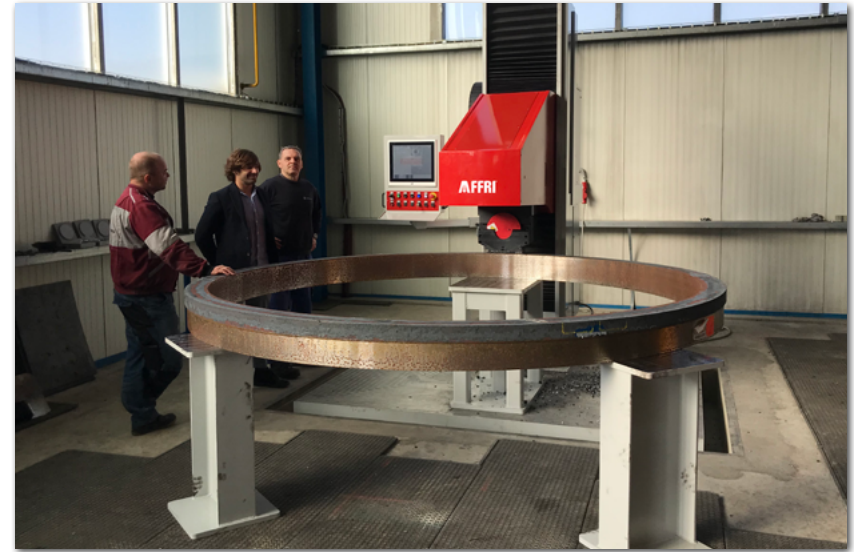
AUTO PROCESS OF TEST CYCLE

HARDNESS TEST ON RINGS

- 1** The hardness tester is in home position (90° right side from the center).
The red flag is completely turned sideways to free space for loading the sample.



- 2** After pressing the start button, the red flag rotates automatically over the sample (center position) and immediately moves downwards till the ring is clamped.



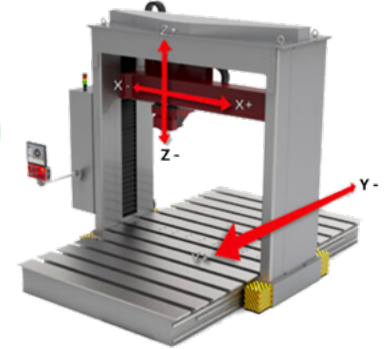
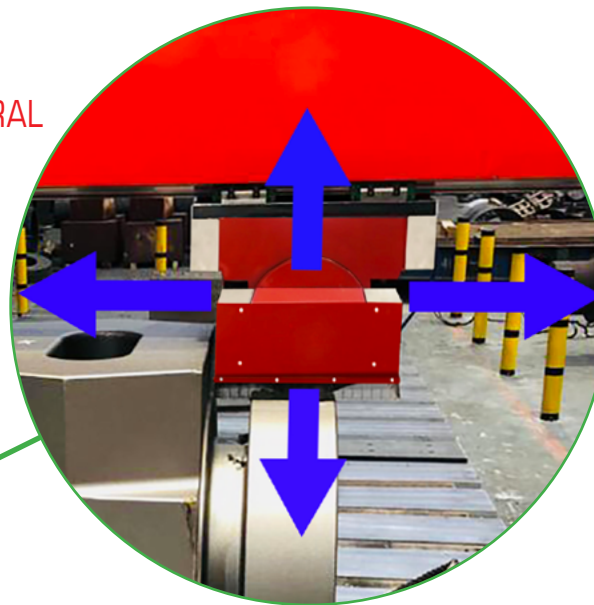
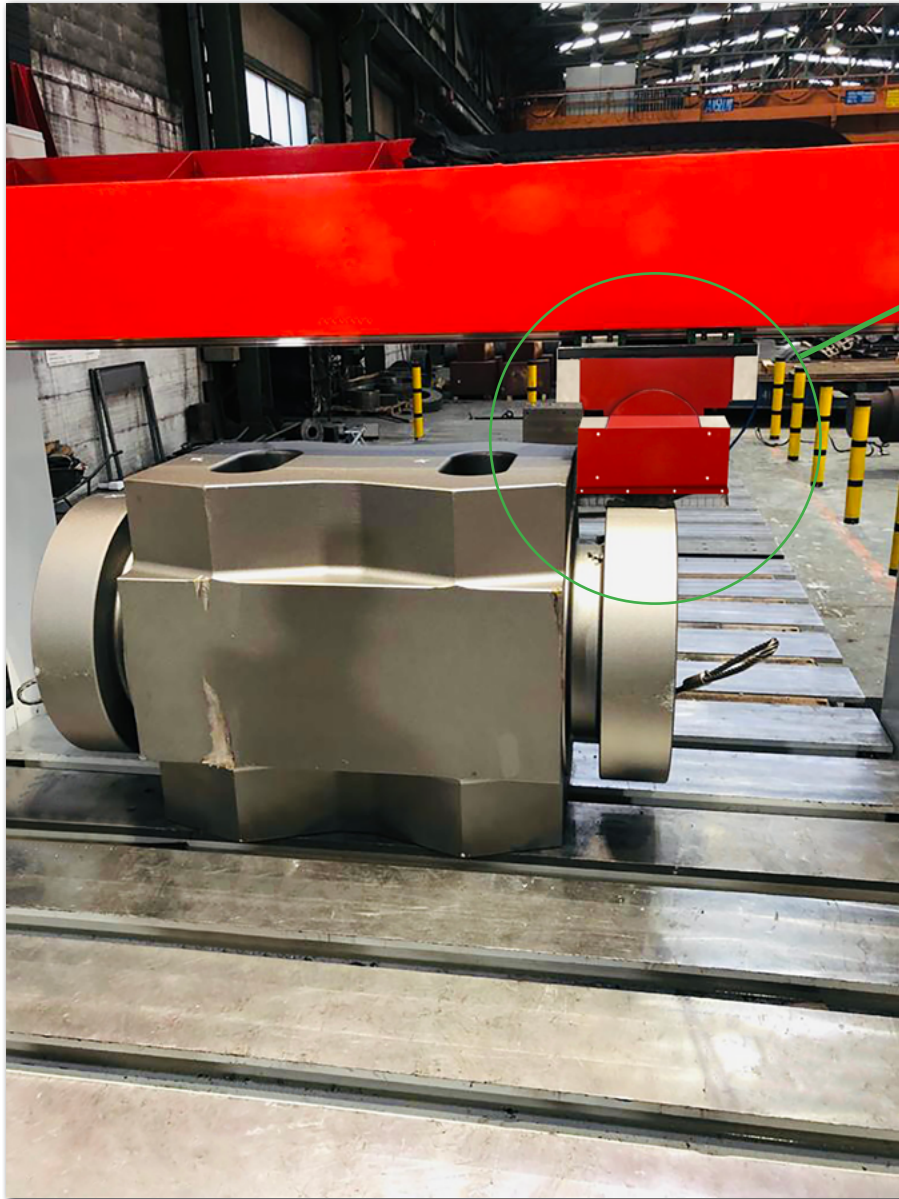
- 3** The hardness tester blocks the sample and performs two tests automatically along with milling sample preparation, indenting and reading (auto-illumination, auto-focus and auto-reading).



- 4** **1** When test cycle is finished, the hardness tester returns in home position, being ready for a new test.



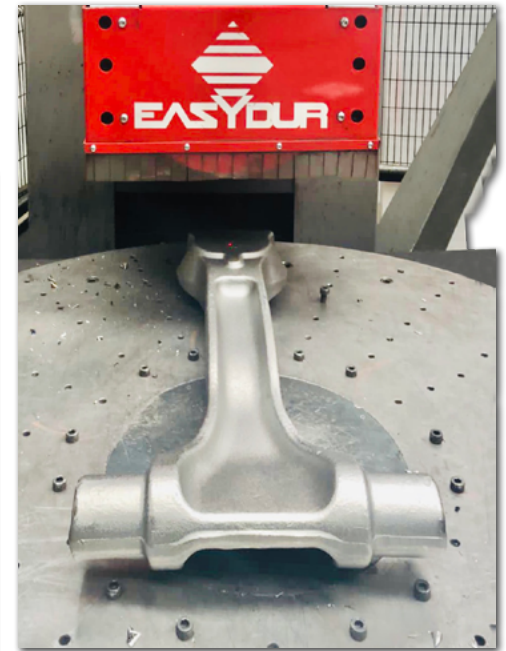
EXAMPLE OF APPLICATION GENERAL



Brinell test on any sample geometry. Our hardness tester can test 30mm from a wall.



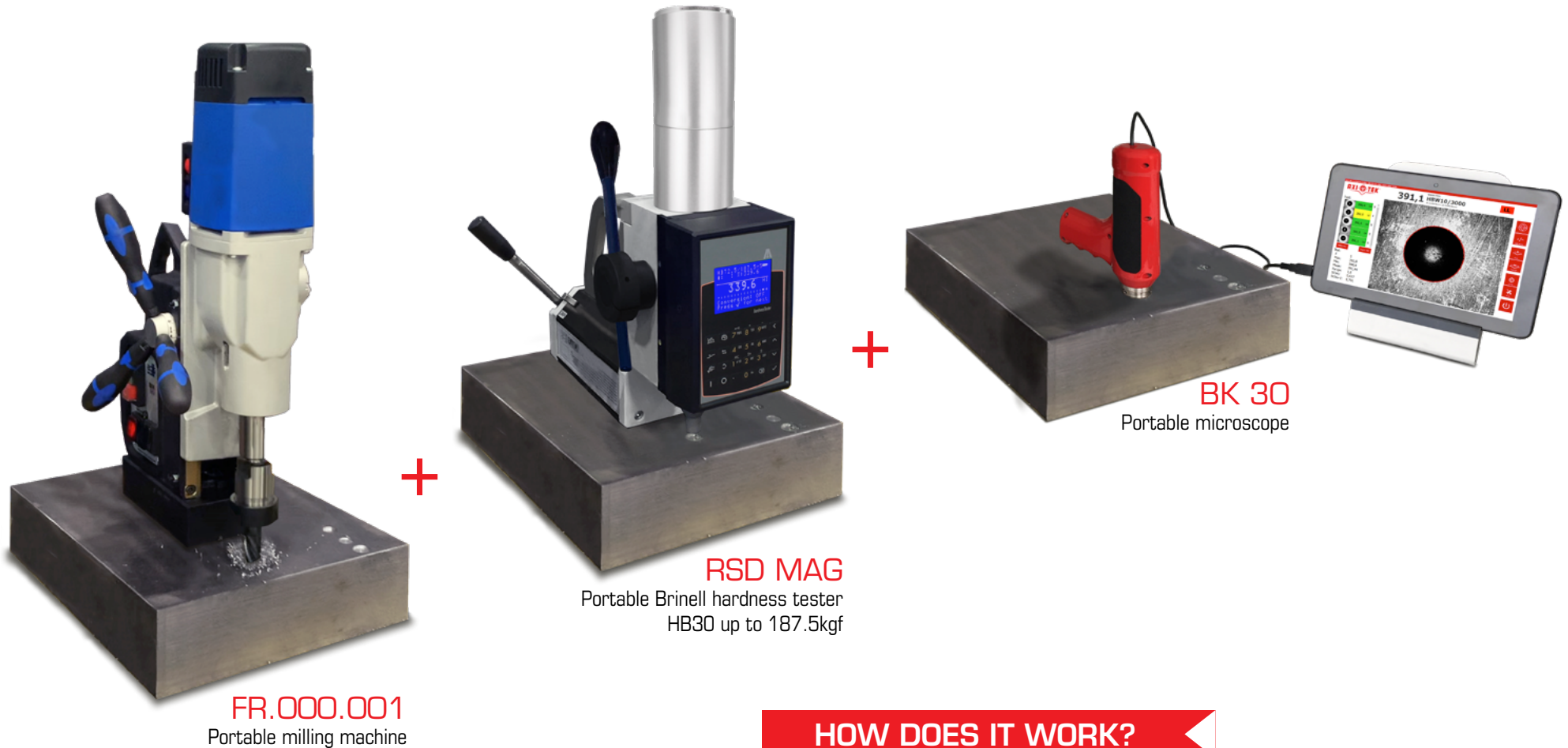
TEST 100% OF PRODUCTION



Test bulky forged samples,
together with smaller parts.



PORTABLE BRINELL HARDNESS TESTING SYSTEM CONFORM TO ASTM E10



HOW DOES IT WORK?

1. Clamp the milling machine on the sample by activating the magnetic base
2. Pull the lever and mill the surface till the desired depth is reached
3. Remove the milling machine and clamp the hardness tester
4. Pull the lever and read the HBWT result (ASTM E103)
- 4a. Read the indent using the electronic microscope and get the HBW result (ASTM E10)



ADVANTAGES

- Test everywhere in production, outdoor or in laboratory
- Real Brinell and Rockwell hardness test fully conform to ASTM standards
- Remove surface oxidation and scales obtaining a smooth surface $RA < 2$
- Constant surface roughness: no damages or heating caused by grind disk
- Test in any position, on walls or upside-down, accurate measurements always
- Very easy to use, no special training needed
- Perfect stability on any sample shape, from round to flat

TECHNICAL DATA

MILLING MACHINE FR.000.001

- Milling tool: carbide tungsten
- Milling diameter: 16 mm
- Depth adjustable: from 0,1 to 20 mm
- Speed adjustable at constant couple
- Weight: 15 kg
- Power: 220V 200VA

HARDNESS TESTER RSDMAG

- Testing loads from 10 to 187.5kgf
- Brinell (ASTM E10 / E103 / E110) and Rockwell (ASTM E18 / E110)
- Load cell Affri Patent system, accuracy better than 0.5%
- Automatic test, pull and read
- Readout: 0.1 HR / HBWT
- Resistant to massive use
- Weight: 16 – 20 kg
- Battery

ELECTRONIC MICROSCOPE BK30

- User friendly and compact
- Auto light adjustment, autofocus, automatic reading through camera
- Accuracy and repeatability of measurement $\pm 1\%$
- Export data and images as jpg, bmp, PDF, Excel, txt, csv
- Battery

GENERAL TECHNICAL DATA

The information and technical data present in this catalogue are subject to changes. AFFRI® has the right to modify the current data, at any time, in function of the evolution of raw material and new technology.

Load accuracy:	Better than 0.05 %
Principle of Operation:	Load Cell and Closed Loop (Affri patent)
Standards:	EN-ISO 6506 / ASTM E10 (Available also: EN-ISO 6507 / EN-ISO 6508 / ASTM-E384 / EN-ISO 4545 / ASTM-E92 / ASTM E08 / ASTM E103 / JIS)
Turret:	Automatic and motorized - 4 positions: Milling, indenter, objective, laser
Indenter:	Brinell ball 10mm, 5mm, 2,5mm, 1mm
Camera:	1.2 / 2 / 5 MP
Focus and Reading:	Automatic and manual
Lighting:	Energy Efficient Cool LED Light Source with coaxial system for high accuracy on soft and hard material
Network:	LAN connection for technical assistance and auto-diagnosis
Dwell Time:	From 5 to 99 seconds programmable
Temperature Range:	From 10 °C to 35 °C
Data Output:	USB / Ethernet
Power Supply:	110 or 220 V / 50÷60 Hz - Compressed Air 2-5 bar

INTEGRAL REVOLVER

Depth capacity:	Horizontal capacity from column to the indenter 450 mm (more on request)
Height capacity:	Vertical capacity from base to the indenter 900mm motorized (more on request)

INTEGRAL ROTARY

Depth capacity:	Horizontal capacity from column to the indenter 395 mm (more on request)
Height capacity:	Vertical capacity from base to the indenter 750mm motorized (more on request)

INTEGRAL RINGS

Depth capacity:	Horizontal capacity from column to the indenter 280 mm (more on request)
Height capacity:	Vertical capacity from base to the indenter 500mm motorized (more on request)

EASY FLAG

Depth capacity:	Horizontal capacity from column to the indenter 1000mm or 2000mm motorized
Height capacity:	Vertical capacity from base to the indenter 1500mm or 2500mm motorized
Flag rotation:	180° (-90° / +90°) motorized

EASY PORTAL

X capacity:	Motorized customizable
Y capacity:	Motorized customizable
Z capacity:	Motorized customizable

EASY BOTTLE

X capacity:	Motorized customizable
Y capacity:	Motorized customizable
Z capacity:	Motorized customizable



 **Made by**
EASYDUR SRL

Via Maja, 5 – 21051 Arcisate (VA) – Italia
Tel. +39 0332 203.626 - Fax +39 0332 206.710
sales@easydur.com - www.easydur.com

 **Europe/Asia:**
AFFRI®

Via M. Tagliaferro, 8, I-21056 INDUNO OLONA - CEE - (VA) - ITALY
Tel. +39 0332 201533 - Fax +39 0332 203621
info@affri.com - www.affri.com

 **America:**
AFFRI Inc.

850 Dillon Dr. Wood Dale, IL 60191
Tel. 224 374 0931 - 630 303 1588
sales@affriusa.com - www.affri.com