Portable Hardness Testers
FH-20 Series
**Brinell Scanning System View™ FH-20**

**KEY FEATURES**
Portable video scanning system to automatically measure and determine the Brinell hardness value.

Excellent solution for quick and easy measurement of Brinell hardness values made with ball diameters 1, 2, 2.5, 5 and 10 mm (.04, .08, .1, .2, and .4") and applied loads of 1 kgf to 3000 kgf (2.2 lbf to 6614 lbf).

- Including magnetic base for accurate and precise measuring
- Easy to use: Position the scanning system on the indentation made in a flat or curved surface, press the button to determine the relative hardness and diameter of the indentation
- Accuracy of the measured diameter is up to 0.001 mm
- Possibility to set tolerance value Yes/No (upper and lower limits)
- Possibility to show the last 5 hardness measurements taken
- Automatic storage of images and accompanying measurement data files
- Storage of operator id, date/hour, hardness parameters, measured hardness values, location of stored image

**OPTIONAL ACCESSORIES**
- Battery charger 12V, 7A
- Battery charger 12V, 1.2A
- Aluminum carrying case for FH-20 and battery

![Fig. 1. FH-20 Portable Brinell Indent Scanner](image1)

**Barcol Impessor FH-21**

**KEY FEATURES**
This portable indentation hardness tester is used to test the hardness of all kinds of aluminum, from very soft aluminum to very hard aluminum alloys.

- Single hand operation; no real operating experience required; can test any flat surface.
- Wide testing range equivalent to Brinell hardness 25-150HBW. Extended application. Model FH-21 is applied to test the hardness of aluminum, aluminum alloys, copper, copper alloys, fiber reinforced plastics and rigid plastics etc.
- High sensitivity. Featured with 100 segments scale, much more sensitive than Webster hardness testers applied in aluminum alloys industry.
- No need to move or support the workpiece. Used to test super large and thick workpieces and assembly parts.
- Easy conversion.
- The test results can be converted to HB, HR, HV and HW through a conversion table supplied with the instrument.

![Fig. 2. Barcol Impessor](image2)

**STANDARD ACCESSORIES**
- Video-optical head
- Software
- Power supply AC 100-240V 50/60 Hz, 1.0A
- Frame grabber
- Video cable (2.3 m/7.5’)
- RCA-RCA video cable (1.5 m/4.9’)
- 12V power cable (0.85 m/2.8’)
- Set of USB cable, CD with driver and dongle

**OPTIONAL ACCESSORIES**
- Spare indentors
- Hardness test plates

**Magnetic Rockwell FH-22**

**KEY FEATURES**
The FH-22 magnetic base hardness tester is designed according to the principle of Rockwell hardness testing.

- The test head can be fixed to the surface of iron and steel components by magnetic force.
- Support to the test piece is not required as the 350kg+ magnetic base will hold the unit firmly in position.
- The testing accuracy complies with ISO6508 or ASTM E18 and is comparable to a Rockwell bench hardness tester.
- Testing can be done regardless of the shape of the component as long as there is a flat surface for positioning of the magnetic base.
- Able to test large-size workpieces, which are assembled, unable to cut, or inconvenient to move, such as the large size molds, steel plate, steel tube, steel structure, boiler, pressure vessel, metallic pipe lines or the slide ways of machine tools.

![Fig 3. Magnetic Rockwell FH-22](image3)

**STANDARD ACCESSORIES**
- Instrument with magnetic base
- Rockwell diamond indentor
- Rockwell ball indentor
- Adjuster key
- Packed in solid aluminum-case
- Certificate
- Manual

**OPTIONAL ACCESSORIES**
- Rockwell indentors
- Rockwell balls
**Portable Hardness Tester FH-23**

**KEY FEATURES**
The FH-23 Series hand operated Hardness Testers are portable instruments that can perform on-site hardness testing on aluminum alloys, brass, copper, and soft steel. A quick and easy test, the hardness value can be read out directly on the indicator, with a simple clamp. The measuring procedure complies to the American Standard ASTM B647. Suitable for testing aluminum alloy profiles, tubings and sheet materials. Especially suitable for a fast, non destructive quality inspection on the production site.

The FH-23 Series hand operated Hardness Testers feature a fast and comprehensive testing method for testing thin, soft materials. There are several models available for different applications and with different measuring capacity. The FH-23 hardness values can be converted into the commonly used Vickers, Rockwell and Brinell hardness values. Each tester is packed in a strong industrial box including all standard delivery such as a set of tools, a hardness standard, and a spare indentor.

- One hand operation and portability
- Variety of anvils permits testing a great variety of shapes
- Simple user-friendly operation ensures accurate readings
- Test is made by simply applying pressure to the handles until “bottom” is felt
- Easy-to-read dial indicator with 20 graduations permits use of the tester as “Go” and “No Go” gauge
- Standard hardness gauge tests materials up to 13 mm (0.5”) in thickness

**STANDARD ACCESSORIES**
- Instrument
- Standard hardness plate
- Spare indentor
- Calibration wrench
- Small screwdriver
- Carrying case
- Certificate
- Installation and user manual

**OPTIONAL ACCESSORIES**
- Standard hardness plates

**Portable Hardness Tester FH-24**

**KEY FEATURES**
- Solid fine finished C-frame
- Easy to operate even under difficult and harsh conditions
- Tolerance of test force <0.5%
- Test force is controlled by a shear pin
- Two types of application: C clamp and hammer impact
- Suitable for assemblies inconvenient to be taken to the lab and that cannot be cut
- Accuracy is much higher than any other type hammer impact tester
- Used to test the hardness of forgings, castings, steels, nonferrous metal, and its alloy products, and to test the hardness of annealed, normalizing, and tempered mechanical parts

**STANDARD ACCESSORIES**
- Instrument
- Steel ball indentor
- Flat anvil
- V-anvil
- Brinell standard hardness test block
- Holding handle
- Pin removal tool
- Pack of shear pins (250 pieces)
- Impact cylinder
- Reading microscope 20x
- Rubber protective caps
- Carrying case

**OPTIONAL ACCESSORIES**
- Carbide ball indentor
- Brinell reference hardness blocks
- Shear pins (a pack of 250 pcs)
- Hemispherical spot anvil (used for testing tubing or curled specimens)
- Small flat anvil (used for testing small specimens)
- 40x reading microscope
- 3 lb hammer

**Portable Hardness Tester FH-25**

**KEY FEATURES**
- Permanence Impression can be checked and rechecked anytime
- Accuracy — Calibrated to 0.5 of 1% of load; Can be used for higher loads up to 3000 kg/6614 lbf; Breaks through surface heat treatment to get to the core of the material
- Versatility — Can be used in virtually any position; right-side up, upside down or sideways
- Durability — Some portable Brinell testers have been working over 60 years
- Standard test head
- Calibrated accurate to 1/2 of 1% load. Releases at 3000kg automatically. Capable of incremental loads.
- Standard test head with long ram — Same features as standard test head plus a long ram that puts impression head at end of 2” extension for easy access into recessed areas or over raised edges.
- Low pressure test head — Applied load and indicator dial are coordinated for softer metals. Can be calibrated to release at loads of 62-1/2 kg, 125 kg, 250 kg, 500 kg, or 1000 kg (137.8, 275.6, 551.2, 1102.3, or 2204.6 lbf).
- Low pressure test head with long ram — Same features as low pressure test head plus a long ram that puts impression head at end of 2” extension for easy access into recessed areas or over raised edges.
- Adapter to hold test head upright without base — For testing large flats, it enables test heads to be used under large drill presses, boring mills, arbor presses, and beams that are capable of withstanding 3000 kg (6614 lbs) load.

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- Small flat anvil (used for testing small specimens)
- 40x reading microscope
- 3 lb hammer
• 2.5 mm and 5 mm (0.1" and 0.2") ball adapter — Used on softer materials or where a smaller impression is desired.
• Chain adapter — Used for large cylinders it fits onto a standard test head and wraps around specimens that are too big for regular tester. High strength chrome/molybdenum steel arms hold the chain to the test head and allow it to stay rigid while the chain takes the full thrust of the load. Supplied with 4" chain.
• Base — 14" (356 mm) base with 14" (356 mm) test height opening and 4" (102 mm) throat is standard. Optional 6" (152 mm) throat with either 14" (356 mm) or 20" (508 mm) test height opening available, 20" (508 mm) base also available with 4" (102 mm) throat and 20" (508 mm) test height opening.
• Stage micrometer — Used to check calibration of Brinell Microscope by placing the microscope on the stage micrometer and aligning the grid on the stage micrometer with the grid on the microscope. If the grids doesn’t match perfectly, the microscope is out of calibration and should be recalibrated. Meets ASTM 50, and is traceable to NIST standards.
• Brinell microscope — Constructed from stainless steel, the rugged and optically reliable Brinell microscope is the most versatile on the market today. Featuring a 20x pre-focused lens, the microscope has a narrow nosepiece that easily fits into tight recesses, resulting in less grinding on castings, billets, and dies. For added stability when performing flat work, a slip-on base adapter is included. A side opening in the microscope allows plenty of natural light for viewing, and a cordless movable pen light can be used in dim conditions. Calibrated on equipment traceable to NIST standards, the Brinell microscope meets ASTM 5-10 specifications.

Fig. 6. Portable Brinell Hardness Tester FH-25

Ultrasonic Portable Hardness Tester FH-26

KEY FEATURES
The FH-26 is the next generation portable and laboratory use ultrasonic hardness tester. The instrument covers several new advanced features that can be selected from a menu operated full color display.

• Ultrasonic Contact Impedance test principle, fast, accurate, easy to use in confined spaces
• Full color display with easy to operate user interface
• Suitable for hardness tests on metals and ceramics

Fig. 6. Ultrasonic Hardness Tester

STANDARD ACCESSORIES
• Instrument
• Cable
• Power supply 100-240V /50-60Hz
• Carrying case
• Manual
• Certificate

OPTIONAL PROBES
• 10 N, 20 N, 30 N, 49 N, 98 N force

OPTIONAL ACCESSORIES
• High precision stand for probe
• Probe shoes for flat surfaces
• Probe shoes for convex surfaces 10 mm – 50 mm (0.4” – 1.9”)
• Probe shoes for convex surfaces 50 mm – 250 mm (1.9” – 9.8”)
• Probe SL type (slim nose)
• Windows software program for data transmission to PC (incl. USB cable)
• Plastic handle for probe
• Carrying bag for main unit and accessories
• Mobile printer

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