

# HANDHELD HARDNESS TESTERS

**HT-1000A**  
**HT-2000A**



**G & R TECHNOLOGY INC.**

## FEATURES

Highly accurate

Extremely small

Easy to use

Wide measuring range

Measures in any direction

Suitable for testing a variety of materials

Complies with ASTM A956-02

Directly measures in HL, HV, HB, HRB, HRC or HS hardness scales

Directly displays maximum reading, minimum reading, reading average, ultimate tensile strength (UTS), test material, test hardness scales, and test direction

Large memory can store up to 500 test results

IrDA transmitter can communicate with printer or PDA system

### Application

The HT-1000A and HT-2000A have many applications in the primary metals, metal fabrication, utilities, petroleum, chemical, automotive and aerospace industries. Their small size and easy to use, one-handed operation make them ideal for testing large and heavy forgings or castings, such as steel mill rolls and turbine housings. Also, due to their small size and portability, the testers can be used to test individual parts of a large assembly without taking the finished assembly apart. The testers can be used vertically or horizontally, and require only a small surface area to obtain a quick and accurate reading. These versatile testers can be easily used by anyone, anywhere, to obtain direct accurate hardness readings.



1. Select the material, hardness scale and direction.



2. Load



3. Place it on the material to be tested and push the button.

### Operation

Operation of the HT-1000A/HT-2000A is easy and test results can be obtained in just seconds. To obtain a reading, simply load the tester, position it on the material, and push the button. Setting up the instrument is also very simple. Four function keys are used to select up to 10 materials, 6 hardness scales and 5 testing directions. For users who require a print-out of their readings, the HT-2000A includes a wireless infrared printer. Using it is simple - just aim the tester's IrDA transmitter at the printer's receiving window to transmit test results. The HT-2000A can also transmit test results to Palm PDA systems.



## SPECIFICATION

### Testing Range:

200-900 HL (Leeb Value)

### Scales:

HL, HV, HB, HRB, HRC, HS

### UTS:

Kgf/cm<sup>2</sup>, Tons/in<sup>2</sup>, Lbs/in<sup>2</sup>(HT-2000A only)

### Accuracy:

+/- 4HL

### Testing Direction:

Any Direction

### Materials:

Low carbon steel, high alloy steel, stainless steel, bearing steel, gray iron, nodular iron, aluminum, brass, bronze, copper

### Operating Temperature:

Operating 14° F to 104° F (-10° C to +40° C)

Storage 4° F to 122° F (-20° C to +50° C)

### Batteries:

Tester: Two 3V Lithium CR-2330 Batteries

Printer: Rechargeable Li-Ion Battery

### Battery Life:

Tester Work Life: 80 hours continuous (5,000 test results)

Shelf Life: 2 Years

### Printer:

10,000 lines/one full charge

### Data Storage:

Automatically records up to 500 test results including readings, conversions, average values, hardness scale, material, direction, date, and time

### Time and Date:

Real time and date with a 10 year calendar

### Tester Dimensions:

6.5" (165 mm) x 1.1"(28mm) x 1.1"(28mm)

### Contact Dia.:

0.79"(20 mm) and 0.53" (13.5 mm)

### Weight:

4.2 oz (120 grams)

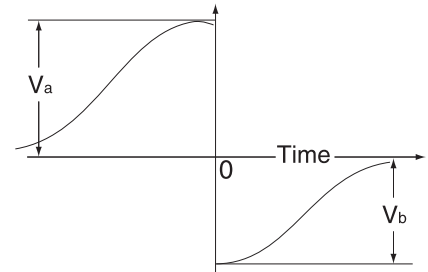
## Principle

The HT-1000A and HT-2000A hardness testers operate on the Leeb principle, a dynamic hardness test method based on velocity measurement. Each tester includes a guide tube and an impact body. The impact body contains a tungsten-carbide or diamond ball and a magnet. Measurements are performed using a spring to propel an impact body through a guide tube towards the test surface. When the ball is within 1 mm of the part's surface, the magnet induces a voltage into a coil surrounding the guide tube. After penetration, the impact body rebounds and the magnet returns through the coil, inducing a second voltage. Both voltages are proportional to the velocity of the impact body.

Leeb hardness value (HL) is determined using the following formula:

$$HL = (V_b/V_a) \times 1000$$

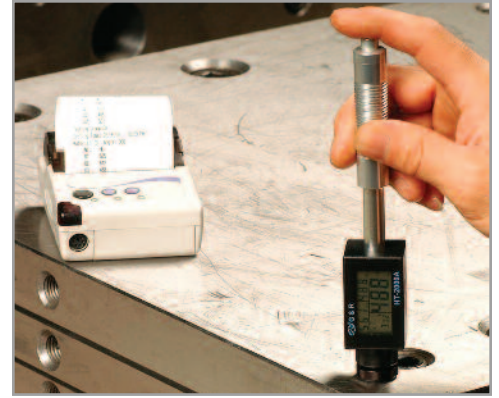
Where  $V_b$  is the rebound velocity of impact body and  $V_a$  is the impact velocity of impact body.



4. Read hardness.



5. Transmit Data. (HT-2000A only)



HT-1000A Package Includes:  
 HT-1000A Hardness Tester  
 Standard Test Block  
 Support Ring .79" (20 mm)  
 Support Ring .53" (13 mm)  
 Plastic Carrying Case  
 Tube Cleaning Brush  
 CR-2330 Lithium Batteries (2)  
 Operating Manual



HT-2000A Package Includes:  
 HT-2000A Hardness Tester  
 Standard Test Block  
 Micro Infrared Printer  
 Support Ring .79" (20 mm)  
 Support Ring .53" (13 mm)  
 Plastic Carrying Case  
 Tube Cleaning Brush  
 CR-2330 Lithium Batteries (2)  
 Operating Manual



Diamond Impact Body

**ACCESSORIES**



Long Test Tip Impact Body



Special Support Rings



**G & R TECHNOLOGY INC.**

2373 Teller Road Suite 102  
 Newbury Park, CA 91320  
 Tel: (805) 499-8015  
 Fax: (866) 565-2294  
 Web: [www.grhardnesstester.com](http://www.grhardnesstester.com)  
 e-mail: [sales@grhardnesstester.com](mailto:sales@grhardnesstester.com)