

Measuring and Converting Ranges Fig.1

| Material | HL | HRC | HRB | HB | | HS | HV |
|-------------------|---------|-----------|------------|------------------|------------------|-----------|--------|
| | | | | 30D ² | 10D ² | | |
| Steel & Cast St. | 300~900 | 20.0~68.0 | 38.4~99.5 | 80~647 | | 32.5~99.5 | 80~940 |
| C.W. Tool Steel | 300~840 | 20.4~67.1 | | | | | 80~898 |
| ST.STEEL | 300~800 | 19.6~62.4 | 46.5~101.7 | 85~655 | | | 80~802 |
| Gray Cast Iron | 360~650 | | | 93~334 | | | |
| Nodular Cast Iron | 400~660 | | | 131~387 | | | |
| Cast Aluminum | 174~560 | | | | 20~159 | | |
| Brass | 200~550 | | 13.5~95.3 | | 40~173 | | |
| Bronze | 300~700 | | | | 60~290 | | |
| Copper | 200~690 | | | | 45~315 | | |

Symbols of materials Fig.2

| Symbol | Illustrations |
|--------|--|
| 1 | Steel and cast steel |
| 2 | Cold work tool steel |
| 3 | Stainless steel and high temperature-resistant steel |
| 4 | Cast iron with lamellar graphite (grey cast iron GG) |
| 5 | Cast iron with spheroidal and nodular graphite (GGG) |
| 6 | Cast aluminum alloys |
| 7 | Copper - zinc alloys (brass) |
| 8 | Copper-alu /copper-tin alloys (bronze) |
| 9 | Copper |

Fig 3

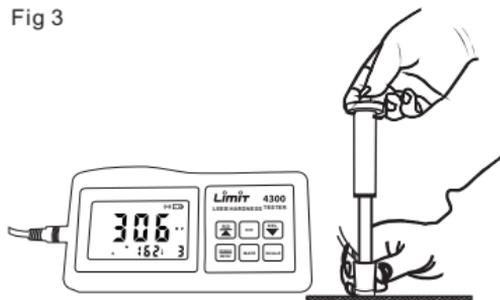


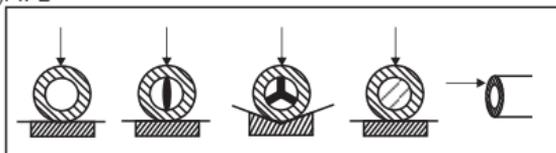
Fig 4

Press **DIR** key and release it

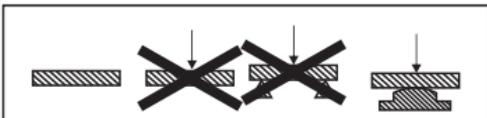


Fig 5

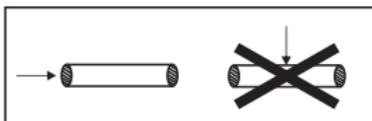
(1) PIPE



(2) PLATE



(3) ROD or LONG BAR



Note:

X This indicates an improper test.

Otherwise, test method is accurate.

| | |
|------------------|----|
| English..... | 2 |
| Svenska..... | 4 |
| Norsk..... | 6 |
| Dansk..... | 8 |
| Suomi..... | 10 |
| Deutsch..... | 12 |
| Netherlands..... | 15 |
| Français..... | 18 |
| Italiano..... | 20 |
| Español..... | 22 |
| Português..... | 25 |
| Ελληνικά..... | 27 |
| Polski..... | 30 |
| Eesti..... | 33 |
| Lietuviškai..... | 35 |
| Latviski..... | 37 |

Hardness Leeb Tester Limit 4300

Portable meter for leeb hardness testing of the most common metals as steel, stainless steel, cast iron, aluminum, brass, bronze and copper.

Measuring Rockwell B and C, Vickers and Brinell.

Easy set up and easy to use. Select stroke direction, material code and scale.

Hold the transducer firmly against the target object, releasing the spring mechanism and read the value. The principle is that a spring-loaded body bounces on the target object and a permanent magnet body generates a voltage in a coil which is proportional to the speed.

| | | |
|---------------|--------------|--------|
| Brinell | HB | 80-647 |
| Rockwell | HRB | 38-100 |
| Rockwell | HRC | 20-68 |
| Vickers | HV | 80-940 |
| Batteries | 4 pc 1.5VAAA | |
| Probediameter | mm | 20 |
| Memory | number | 250 |

Important before use. The instrument shall not be used against Tungsten or harder material which may damage the sensor. Measurement object may not be magnetically. The surface of object shall be smooth and have a surface roughness max 3 Rato avoid large variations. The radius of the object should be over 30 mm. It is important that the measurement object is stably fixed and if it is small objects that they are properly supported. See Figure 5. Measuring objects above 5 kg needs no extra support. Measuring object under 5 kg should be stable in contact with the underlying support surface and attached to a workbench or similar. Measuring objects up to 100 g or thickness less than 5 mm or hardening depth below 1 mm is not suitable in this method.

- RD** Read saved measurements. Scroll with the arrow keys.
- DIR** Select direction. Scroll to the desired direction. See Figure 4
- DEL** Press 3 seconds to delete the saved measurement.
- POWER / MENU** On and Off. Press 3 seconds to shutdown.
- MATE** Select Material code 1 to 10. Scroll to desired code. See Figure 2.
- SCALE** Select scale. Scroll to desired scale. See Figure 1.

Measurement. Select stroke direction, material code and scale. Press POWER / MENU key after each setting and before each measurement. Make sure the object is stably fixed. Tension the spring mechanism. Hold the transducer firmly against the object, the support ring shall be parallel to the surface. Release the shutter key. See Figure 3.

Note. Never release the probe without the probe is pressed against an object to avoid the support ring on the underside of the sensor comes loose. At least 3 mm distance between two measurement points and at least 5 mm from the edge of the object. When the instrument is not in use, the spring mechanism being off loaded.

Average. Press POWER / MENU key for 6 seconds. AVE is displayed. Select the number of measurements from 2 to 9 with the arrow keys. Press POWER / MENU again. E.g. select 3 measurements, the average value will be displayed after next 3 measurements.

Calibration. The instrument may need to be adjusted after a period of use. Press POWER / MENU for 9 seconds. CAL appears on the display. Measure against a test block of known hardness. Adjust the value with the arrow keys till the test block's value. Repeat the process until the value corresponding to the test block's value. Press POWER / MENU key to exit calibration.

Maintenance. After 1000 to 2000 measurements requires the mechanism to be cleaned. Unscrew the support ring. Clean pipe interior and the piston with attached nylon brush. The pipe must be dry and clean. Use absolutely not any oil, grease or other lubricant. If reading consistently higher than sample measurement to the test block is the piston worn or damaged and must be replaced. Replace the battery when the battery indicator shows low capacity.