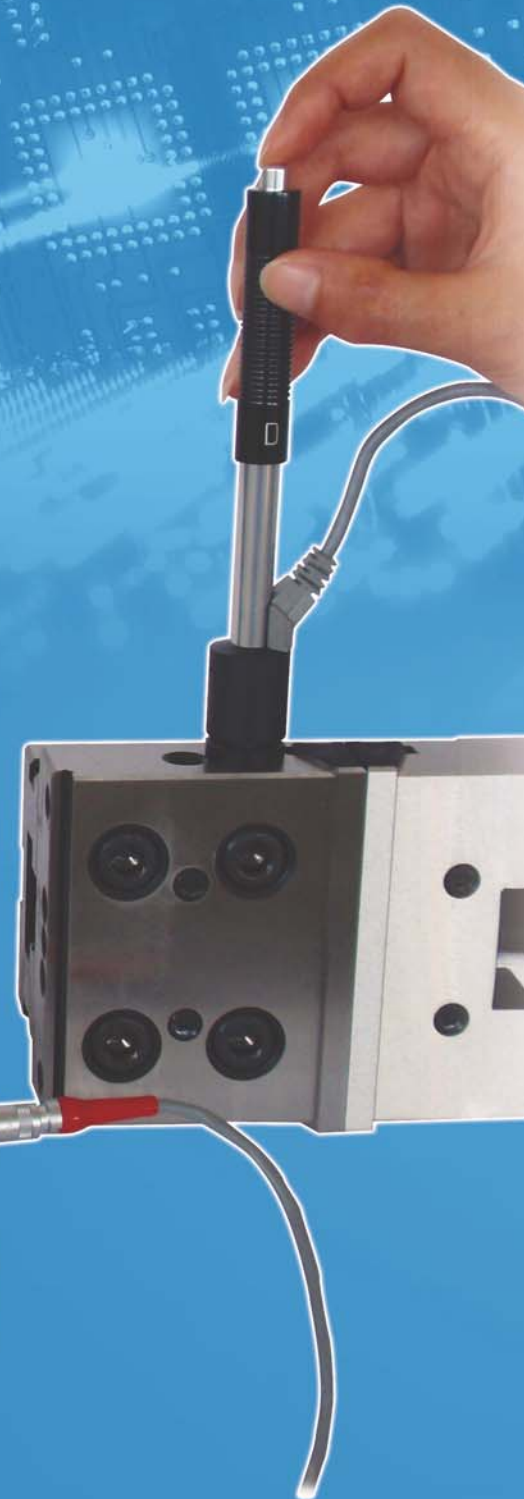


TECNIMETAL



PORTABLE UNIVERSAL HARDNESS TESTERS



● Universal

● Portable

● Dynamic

TH-110



The completely new -entry level- TH-110, part of the unbeatable series of TIME Leeb type dynamic hardness testers offers a very affordable but accurate hardness testing solution for on-site testing in workshops and in field operation. The unit assures accurate and reliable measurement.

All results and statistics can be directly printed on the compact -build on- fast thermal printer.

Any metallic products with a minimum solid mass of 2 kg can be tested according to the Leeb principle and directly converted to any common hardness scale. All test results appear immediately on the display, while you easily can toggle between scales and conversions.

To avoid constant change of batteries and pollution, the TH-110 is equipped with long life chargeable batteries that provide over 16 hours of continuous operation.

ULTRASONIC HARDNESS TESTER

TH-110

Dynamic portable hardness tester

- Test results appear directly on the large display
- According to ASTM and DIN standards
- Display scales HV, HB, HRC, HRB, HRA, HS and conversion to tensile strength
- Highly accurate readings $\pm 0.5\%$ at 800 HL
- Correction for impact direction 360 degrees
- Chargeable battery pack to ensure many hours of undisturbed testing and printing
- Direct keys for easy set up of testing parameters
- Thermal mini-printer installed on the main unit
- Ridged ABS anti-shock casing with sealed keypad

TH-110

DYNAMIC PORTABLE

Standard delivery

- Main unit with impact device type D
- Printer (on top)
- Test block with HLD-value
- Charger
- Cleaning brush
- Coupling paste
- Table support for main unit
- Certificate
- Manual
- Plastic carrying case

Optional accessories

- Special impact devices (see overview on next page)
- Test blocks UKAS certified in any hardness parameter
- Support rings for convex and concave surfaces

Technical specifications

| | |
|--|--|
| Hardness parameter | HL, HRC, HRB, HV, HB, HS |
| Measuring range / metallic materials | See table above |
| Tensile strength U.T.S. range (steel only) | σ_b from 374 to 2652 |
| Accuracy | Within $\pm 0.5\%$ at 800HL |
| Printer | Thermal printer showing all test results, settings and histogram |
| Statistics | Average value, min-max, upper-lower limits |
| Impact device | D (standard) |
| Optional impact devices | DC/D+15/DL/G/C/E (see next page) |
| Workpiece max. hardness value | 900HLD |
| Workpiece radius (convex/concave) | Rmin = 50mm (with support ring Rmin= 10mm) |
| Min. Workpiece weight | 2~5kg on stable support 0.05~2kg with compact coupling |
| Workpiece min. thickness coupled | 5mm (except with impact device G: 10mm, C: 1mm) |
| Workpiece min. case hardened depth | 0.8mm |
| Indentation depth | See next page: Impact devices data |
| Power | Rechargeable Li battery, 6V (1 pc) |
| Charger | 6V, 500mA (1.8VA) |
| Charging time | 2.5 - 4 hours |
| Operating temperature | 0 to 40°C |
| Overall dimensions | 230mm x 90mm x 47mm |
| Weight | 495 gr (including impact device and printer) |

IMPACT DEVICES FOR SPECIAL APPLICATIONS

Hardness testing devices for models TH-110/120/160

Impact body D



Impact body G



IMPACT DEVICE E

Special feature: Synthetic diamond test tip (approximately 5000 HV).
Application: For measurements in the extremely high hardness range (always in excess of 50 HRC/650 HV). Tool steels with high carbide content inclusions. For measurements up to 1200 HV.



IMPACT DEVICE G

Special feature: Enlarged test tip, increased impact energy (approximately 9 times that of type D) Low demands on measuring surface finish. For measurements in the Brinell range only (max. 650 HB).
Application: Solid components, e.g. heavy castings and forgings.

IMPACT DEVICE D

Special feature: Universal standard unit.
Application: For the majority of hardness testing assignments.

IMPACT DEVICE C

Special feature: Reduced impact energy (approximately 1/4 of type D).
Application: Surface hardened components, coatings, thin walled or impact sensitive components (small measuring indentation).

IMPACT DEVICE DC

Special feature: Extremely short impact device. Spring loaded with a special loading stick. Otherwise as for type D.
Application: Use in very confined spaces, e.g. in holes, cylinders or for internal measurements on assembled machines.

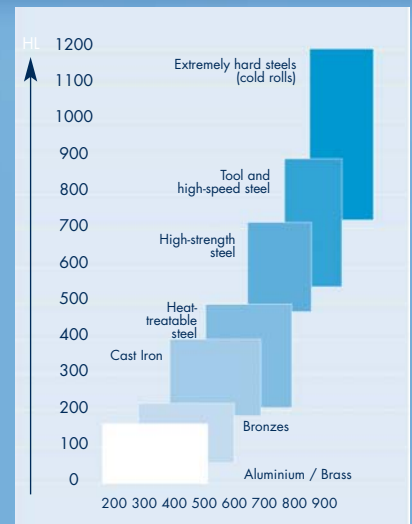
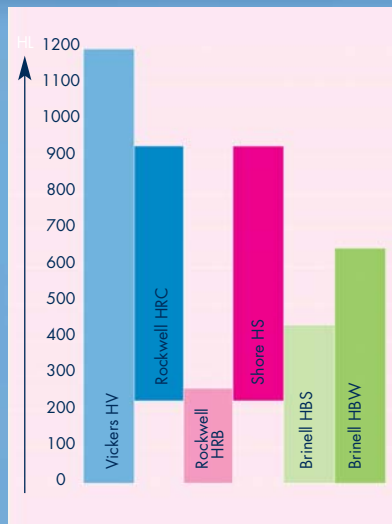
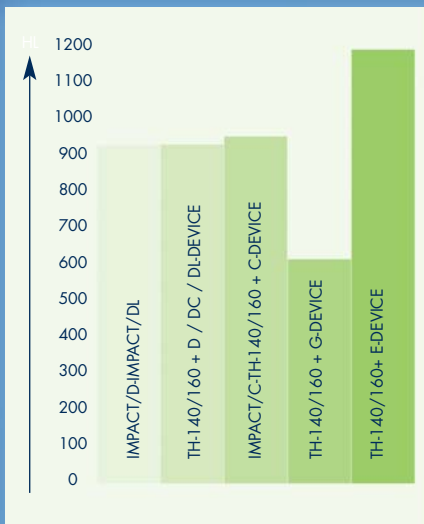
IMPACT DEVICE D+15

Special feature: Particularly slim front section and with measuring coil moved back.
Application: Hardness measurements in grooves and on recessed surfaces.

IMPACT DEVICE DL

Special feature: Needle front section diameter 4.2mm, length 50mm.
Application: Measurements in extremely confined spaces

Impact Device G



IMPACT DEVICES FOR SPECIAL APPLICATIONS

Hardness testing devices for models TH-110/120/160

Technical specifications

| Impact devices: | D/DC/DL | D+15 | C | G | E |
|-------------------------------------|-------------------|--------|------------------|--------|---------|
| Impact energy: | 11 Nmm | 11 Nmm | 3 Nmm | 90 Nmm | 11 Nmm |
| Mass of impact body: | 5.5 gr DL: 7.3 | 7.8 gr | 3.0 gr | 20 gr | 5.5gr |
| Test tip | | | | | |
| ■ Hardness | 1600HV | 1600HV | 1600HV | 1600HV | 5000HV |
| ■ Diameter | 3mm | 3mm | 3mm | 5mm | 3mm |
| ■ Material | | | Tungsten carbide | | Diamond |
| Impact body | | | | | |
| ■ Diameter | 20mm | 20mm | 20mm | 30mm | 20mm |
| ■ Length | 147/86mm | 162mm | 141mm | 254mm | 155mm |
| ■ Weight | 75/50gr | 80gr | 75g | 250g | 80g |
| Max. hardness of sample: | 940 HV | 940HV | 1000HV | 650HB | 1200HV |
| Preparation of surface | | | | | |
| ■ Roughness class ISO | N7 | N7 | N5 | N9 | N7 |
| ■ Max. roughness depth Rt | 10µm | 10µm | 2.5µm | 30µm | 10µm |
| ■ Average roughness Ra | 2µm | 2µm | 0.4µm | 7µm | 2µm |
| Min. weight of sample | | | | | |
| ■ Of compact shape | 5kg | 5kg | 1.5kg | 15kg | 5kg |
| ■ On solid support | 2kg | 2kg | 0.5kg | 5kg | 2kg |
| ■ Coupled on plate | 0.1kg | 0.1kg | 0.02kg | 0.5kg | 0.1kg |
| Min. thickness of sample | | | | | |
| ■ Coupled | 3mm | 3mm | 1mm | 10mm | 3mm |
| ■ Min. thickness of hardened layers | 0.8mm | 0.8mm | 0.2mm | - | 0.8mm |

Indentation of test tip

| Impact devices: | D/DC/DL | D+15 | C | G | E |
|-----------------|---------|--------|--------|--------|--------|
| With 300 HV | | | | | |
| ■ Diameter | 0.54mm | 0.54mm | 0.38mm | 1.03mm | 0.54mm |
| ■ Depth | 24µm | 24µm | 12µm | 53µm | 24µm |
| With 600 HV | | | | | |
| ■ Diameter | 0.45mm | 0.45mm | 0.32mm | 0.90mm | 0.45mm |
| ■ Depth | 17µm | 17µm | 8µm | 41µm | 17µm |
| With 800 HV | | | | | |
| ■ Diameter | 0.35mm | 0.35mm | 0.30mm | - | 0.35mm |
| ■ Depth | 10µm | 10µm | 7µm | - | 10µm |

TECNIMETAL

IGNACIO ELLACURÍA, 10-12
 TELS. 91 356 22 94 - FAX: 91 355 58 08
 28017 MADRID

E-mail: info@tecnimetalsa.com