

## Hardness testing



## Rocky TH110

### Portable hardness tester

- measures in most hardness scales: Rockwell C (HRC), Rockwell B (HRB), Vickers (HV), Brinell (HB), Shore (HS), Leeb (HL)
- conversion to tensile strength  $\sigma_b$
- tests at any angle, even up-side-down
- including integral printer

# Rocky TH110 – Hardness testing

## Application

The portable hardness tester Rocky TH110 is designed for the universal use in the laboratory or in workshops. Typical applications are for example heavy individual or machine parts, testing of parts in a production line, material identification or for hardly accessible parts or components. The gauge is easy to use and has a very low tolerance of ( $\pm 6$  HLD).

The measuring principle uses the difference between the impact and rebound speed of a small impact body. This impact body bounds on the surface of a metal piece by the force of a spring. A permanent embedded magnet in the impact body induces an electric voltage in the coil depending on the velocity of the magnet.

There are different impact devices available for different materials and geometries. Besides hardness testing the gauge can measure the tensile strength U.T.S.  $\sigma_b$ .

## Technical Data:

- Maximum hardness value: 940 HV-1000 HV
- Tolerance:  $\pm 6$  HLD
- Statistics: mean value
- Operating temperature: 0..40 °C
- Measuring range for the U.T.S.  $\sigma_b$ :  
374 ... 2.652 MPa (steel only)  
(1 MPa = 1 N/mm<sup>2</sup>)
- Dimension of the gauge including printer  
length x width x height = 235 mm x 90 mm x 47 mm
- Weight including impact and printer: 615 g
- Impact device D is the standard version to measure hardness of metals, e.g.: steel, casting steel, cold-work tool steel, stainless steel, cast iron (gray cast iron, nodular cast iron), aluminium cast alloy, brass, bronze, copper forging

## Preconditions to measure

- Minimum curvature radius convex/concave: R min = 50 mm (with support ring), R min = 10 mm
- Parts with a weight of 2 – 5 kg and very thin parts have to be placed on a solid base using the coupling liquid.

Technical data of impact devices	D/DC/DL	D+15	C	G
Application	D: universal DC: extremely short to use in holes, cylinders and very confined spaces DL: slender narrow groove or hole test	To measure in grooves and on recessed surfaces	With reduced impact energy (approx. 25 %) for light and small parts and surface of hardened layer	With increased impact energy (approx. 9 times) for e.g. heavy castings and forgings (only HB, max. 650 HB)
Impact energy Mass of impact body	11 mJ 5.5g/5.5 g/7.2g	11 mJ 7.8g	2,7 mJ 3.0g	90 mJ 20g
Spherical test tip Hardness Diameter Material	1600 HV 3 mm Tungsten carbide	1600 HV 3 mm Tungsten carbide	1600 HV 3 mm Tungsten carbide	1600 HV 5 mm Tungsten carbide
Impact device Diameter Length Weight	20 mm 147/86/202 mm 85/60/100 g	20 mm 162 mm 80 g	20 mm 141 mm 75 g	30 mm 254 mm 255 g
Max. hardness of sample	940/940/950 HV	940 HV	1000 HV	650 HB
Average surface roughness (Ra) of sample	1.6 µm	1.6 µm	0.4 µm	6.3 µm
Min. weight of sample Direct measuring On stable support with compact coupling ~ 2 kg	> 5 kg 2 kg ~ 5 kg 0.1 kg ~ 2 kg	> 5 kg 2 kg ~ 5 kg 0.1 kg ~ 2 kg	> 1,5 kg 0.5 kg ~ 1.5 kg 0.02 kg ~ 0.5 kg	> 15 kg 5 kg ~ 15 kg 0.5 kg ~ 5 kg
Min. thickness of sample with compact coupling min. thickness of hardened layer	5 mm 0.8 mm	5 mm 0.8 mm	1 mm 0.2 mm	10 mm 1.2 mm

## Delivery schedule

- Gauge including impact device D and printer
- Cleaning brush
- Measuring standard HLD
- Mains unit
- Plastic carrying case
- Coupling liquid
- Support ring
- Instruction manual

## Accessories

- UKAS certified test blocks with various hardness parameters
- Support rings for convex and concave surfaces



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