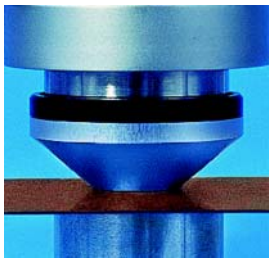
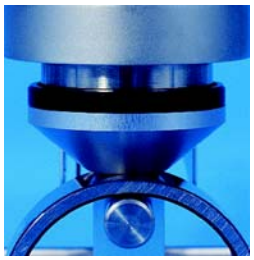
# EQUOTIP 2 Hardness measuring system

EQUOSTAT
MADE IN SWITZERLAND

***Static low-load measurement based on the Rockwell principle***


Measurement with test clamp …


… on small parts on various supports

Small parts, thin or coated metal sheets, pins, small tubes, etc

**Freehand measurements on large parts**

Large, flat surfaces

Cylindrical parts, pipes and rods

Special solutions

e.g. measurement on blades with chamfer

**Highlights:**

*Rapidity and good reproducibility through accurate distance measurement under defined forces and therefore*

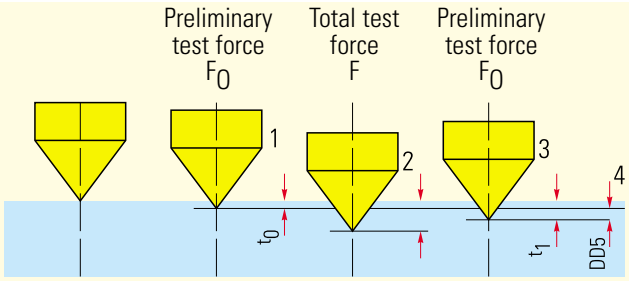
- *independence of material (no choice of material curves necessary)*
- *independence of body dimensions and geometry*
- *no coupling to underlay necessary as with e.g. UCI measurement (Ultrasonic Contact Impedance)*

*Very good selectivity through small penetration of a few µm and therefore particularly suitable for*

- *scratch-sensitive and polished surfaces*
- *thin-parts, profiles and pipes with a wall thickness ≤ 2mm*
- *hardness profile in heat-affected zone of welding seams*

proceq

## The EQUOSTAT measuring principle

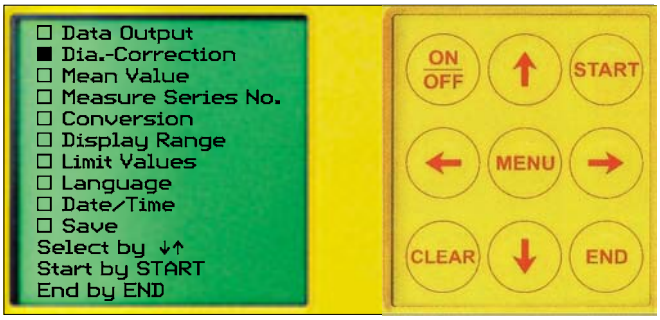



$$\text{Hardness value HRZ} = 200 - \frac{t_1 - t_0}{0.8} \qquad \text{resp.} = 200 - \frac{DD5}{0.8}$$

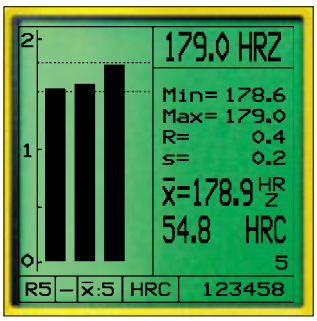
1 After applying the preliminary test force.
2 After applying the preliminary and supplementary test force.
3 After relieving the supplementary test force.
4 Depth - difference.

## Simple, convenient operating

*The EQUOTIP 2 indicating device itself identifies which sensor or which impact device is used. The appropriate measuring function is activated automatically. The user can set the indicating device to his requirements with just a few keys. The selected settings are saved until changed - also after switching off.*




*In the measuring mode the large LCD display informs of the current situation.*




*Shown in the information line:*
- *probe EQUOSTAT R5*
- *diameter – correction*

*At a glance:*
- *hardness value HRZ (measured value)*
- *lowest value (min.)*
- *highest value (max.)*
- *range (R)*
- *standard deviation (s)*
- *mean value $\bar{x}$ (HRZ)*
- *converted mean value (HRC)*
- *measurement No.*
- *consecutive measuring series No.*
- *mean value $\bar{x}$ automatically after 5 measurements*
- *conversion to HRC*

## Integrated conversions

*EQUOSTAT:* *HRZ - HV - HB - HRC - HRB - HR15N*

*EQUOTIP:* *or all EQUOTIP impact devices (see EQUOTIP prospectus or operating instructions). You can also enter user-specific conversions.*

## Technical Data

### Probe EQUOSTAT R5

| | | |
|---|---|---|
| *Measuring range:* | *Rockwell HRZ* | *equivalent hardness* |
| | *20 - 195* | *21 - 1003 HV* |
| | *20 - 185* | *20 - 691 HB* |
| | *100 - 160* | *27 - 107 HRB* |
| | *151 - 195* | *19 - 70 HRC* |
| | *140 - 195* | *58 - 94 HR15N* |
| *Measuring accuracy:* | *±1.5 HRZ corresponding to ±2.0 HRC throughout the entire measuring range* | |
| *Total testing force:* | *50 N* | |
| *Penetration depth:* | *soft materials approx. 80µm (0.003 in.)* | |
| | *hard materials approx. 15µm (0.0006 in.)* | |
| *Test tip:* | *diamond cone: point ∡ 80°* | |
| *Test object:* | *thickness: min. 0.2 mm (0.008 in.)* | |
| | *external dia.: min. 3 mm (0.12 in.) bolts* | |
| | *internal dia.: min. 116 mm (4.5 in.) tubes* | |
| | *surface finish: N6; RA=0.8µm (32 min.)* | |
| | *coating thickness: min. 0.1 mm (0.004 in.)* | |

### Indicating Device EQUOTIP 2

| | |
|---|---|
| *Connections:* | *probe EQUOSTAT R5*<br>*all EQUOTIP impact devices*<br>*RS 232 C interface*<br>*mains supply unit 9 V DC; 0.2 A* |
| *Supply:* | *6 Mignon cells (LR6), 1.5 V*<br>*for approx. 60 h.* |
| *Temperature range:* | *0 - 50 °C (32° F - 122° F)* |
| *Data memory:* | *non-volatile memory for approx. 6000 measurements, data output to an printer and PC (on line).*<br>*Transfer of the total data memory to a PC (e.g. into an EXCEL-table).* |
| *Date / time:* | *saved with the measurement series.* |

## Form supplied

### EQUOSTAT Hardness Tester

*Indicating device EQUOTIP 2*
*Probe EQUOSTAT R5 with measuring clamp (support Z0 fixed) and 1.5 m (59 in.) cable.*
*1 set of supports Z1/Z2/Z3/Z4*
*1 test plate R3*
*1 set servicing tools (2 no.)*
*Carrying case 450/385/110 mm (18/15/4.3 in.)*
*Total weight 4.3 kg (10 lbs)*


***Special accessories:***
*Support parts to your specification. EQUOLINK 2 software.*
*Transfer cable to PC.*
*Printer cable.*

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