Equotip®
Complete Portable Hardness Solution
Revolutionizing Hardness Testing
All started with the invention of Leeb

- Invention of the first rebound metal hardness tester by M. Brandestini (left) and D. Leeb (right)
- Success story across different industries
- Advantages are highly appreciated
- Portable Hardness Testing portfolio was continuously extended
- With over 40 years of experience and offering the most complete portable hardness testing portfolio we are very well positioned in the market
Hardness Testing

Incoming inspection

Metalworking industry

Process control

Heat-treatment and processing shops

On-site inspection

Inspection companies
**Spotlight:** Portable vs. Stationary

10 (Portable) resp. 5 (Stationary) hardness measurements on a steel bar

![Chart showing comparison between Portable and Stationary Vickers hardness measurement times](chart)

- **Equotip UCI**
  - Preparation: 13 min
  - Testing: 45 min

- **Stationary Vickers**
  - Preparation: 50 min
  - Testing: 50 min
  - Reporting: 50 min

**Minutes:**

0' | 10' | 20' | 30' | 40' | 50'
---|-----|-----|-----|-----|-----
PREP | | | | | |
## Detailed effort estimation

<table>
<thead>
<tr>
<th></th>
<th>Equotip UCI</th>
<th>Stationary Vickers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preparation</strong></td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>- Grinding</td>
<td></td>
<td>- Cut piece</td>
</tr>
<tr>
<td>- Cleaning</td>
<td></td>
<td>- Grinding</td>
</tr>
<tr>
<td>- Grind piece</td>
<td></td>
<td>- Cleaning</td>
</tr>
<tr>
<td>- Bring to Lab</td>
<td></td>
<td>- Bring to Lab</td>
</tr>
<tr>
<td><strong>Testing</strong></td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>- Perform 10 readings with UCI</td>
<td></td>
<td>- Make 5 indentations</td>
</tr>
<tr>
<td>- Evaluate diagonals</td>
<td></td>
<td>- Evaluate diagonals</td>
</tr>
<tr>
<td>- Calculate values</td>
<td></td>
<td>- Calculate values</td>
</tr>
<tr>
<td><strong>Reporting</strong></td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>- Connect USB stick</td>
<td></td>
<td>- Note down values</td>
</tr>
<tr>
<td>- Select series in explorer</td>
<td></td>
<td>- Create report</td>
</tr>
<tr>
<td>- Export PDF report</td>
<td></td>
<td>- Add additional information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Create PDF</td>
</tr>
</tbody>
</table>
## Portable Technologies

<table>
<thead>
<tr>
<th>Measure</th>
<th>Leeb</th>
<th>UCI</th>
<th>Rockwell</th>
</tr>
</thead>
<tbody>
<tr>
<td>HL (Leeb)</td>
<td>HV (Vickers)</td>
<td>HR (Rockwell)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Convert</th>
</tr>
</thead>
</table>

| Results | HR (Rockwell) | HB (Brinell) | HV (Vickers) | HS (Shore) |
The Methods

Leeb

Portable Rockwell

UCI
Applications

<table>
<thead>
<tr>
<th>Leeb</th>
<th>UCI</th>
<th>Rockwell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy parts</td>
<td>Welds / HAZ</td>
<td>Small parts</td>
</tr>
</tbody>
</table>

© Proceq 2020
More Applications

<table>
<thead>
<tr>
<th>Leeb</th>
<th>UCI</th>
<th>Rockwell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roll Testing and more</td>
<td>Confined Spaces</td>
<td>Thin Components</td>
</tr>
</tbody>
</table>
Industry Pain Points

- Incomplete offering
- Time consuming
- Poor consistency
Proceq’s Cure

- Complete offering
- Increased productivity
- Swiss quality

Equotip®
Since 1975
Equotip Solutions

- Equotip Piccolo / Bambino 2
- Equotip Live
- Equotip 540
- Equotip 550

Leeb Probes

UCI Probe

Rockwell Probe
Leeb: Ultra-versatility
Leeb: Ultra-versatility

<table>
<thead>
<tr>
<th></th>
<th>Cast and forgings</th>
<th>Smaller parts</th>
<th>Ultra durable</th>
<th>Very hard surfaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Leeb: Accessories

- 12 support rings
- on any shape
- for stable results
UCI: All-in-One Probe

Equotip UCI
ONE probe

Other UCI solutions
Many probes

Unique

HV1-10
All UCI applications

HV1
Turbines

HV5
Welds

HV10
Forgings

© Proceq 2020
UCI: Ideal for Oil & Gas

- Standard compliant
- Minimal surface preparation
- HAZ (weld) visualization
UCI: Smart foot

- Magnetic for maximum stability
- Flat surfaces
- Curved surfaces
The optionally available special foot increases the measurement repeatability. It can be used for flat or curved surfaces. For curved surfaces there are two different apertures, one for diameters from 5 to 25 mm and one for larger diameters from 20 to 70 mm.
Rockwell: Universal

Scratch-sensitive, polished, thin parts
Rockwell: The static tester

• Static means Material independent, no influence from elastic properties of material

• Method is very similar to stationary Rockwell

• Two differences to stationary Rockwell:
  • Reduced test load, as it has to be applied manually
  • Pointed angle, to reach meaningful indentation depths

• Can be verified on regular Rockwell test blocks
Rockwell: Accessories

- Clamp adapter
- 3 special feet
- for any geometry
Equotip Piccolo / Bambino 2
Integrated

✅ Leeb D + Leeb DL

✅ Compact

✅ Large display
Automation

- Patented trigger
- In-line testing
- Remote control and read-out
Simple but reliable

- Lowest priced Equotip device
- Same mechanical components, same accuracy
- Simple use, fully integrated
- Take out of your pocket and measure
- No start-up, instantly ready
Equotip Live
Wireless

- Leeb D + UCI
- Connected
- Intuitive
High Connectivity
live.proceq.com

- Seamless synchronization between different devices
- Real-time access to measurement data worldwide
- Secure online storage
- Powerful reporting features from all devices
One App for both products

- Equotip Live App works with Live Leeb D and Live UCI HV1-HV10 probes
- Available in Apple’s AppStore free of charge
- Requires iOS 8.0 or newer
- Works with iPhone, iPad or iPod Touch
Best-in-class Design

Ergonomic design
Multi-color status LEDs
Standard batteries

Leeb D
UCI HV1-10
Wireless Probes

Leeb D

One button operation
Replaceable Bluetooth-Module
USB connection for charging and updates

UCI HV1-10
Intuitive
Hassle-Free Reporting
Spotlight: Equotip facilitates digital factory

“Outdated” method
20 min

Digital method
2 min
Customizable Hardness Conversions

“Extremely easy to adapt for special materials (e.g. alloys)”

Dariusz Burnat, Product Manager Proceq
One-point Conversion Curve

- One-point conversion is supported
- Shift value has to be entered manually
- Target scale and limits can be adjusted
- Same method for Leeb D and UCI probe
- Simple method on only one screen
- New materials can be stored on device
- Curves will be accessible on live.proceq.com
- Currently no sharing available
Verification creates Peace of Mind

“The performance of the instrument should be verified prior to use on each day…”

ISO 16859-1 Metallic materials – Leeb hardness test
Traceability through Logbook

- Probe and user identification
- All measurements and changes tracked
- Geolocation
- Add comments, audio notes and pictures
Ultimate Portability

- Measurement values can be listened on headphones
- Tester can work only with impact device
- Increases productivity
- Reduces risk of accidents and damaged equipment
Web based Reporting Tool

http://live.proceq.com

Data Review

<table>
<thead>
<tr>
<th>Name</th>
<th>Created On</th>
<th>Mean</th>
<th>Material</th>
<th>Scale Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel Cylinder</td>
<td>04.09.2017 09:21</td>
<td>57.2</td>
<td>Steel and cast steel</td>
<td>HRC</td>
</tr>
<tr>
<td>Turbine Shaft</td>
<td>01.09.2017 15:47</td>
<td>57.0</td>
<td>Steel and cast steel</td>
<td>HRC</td>
</tr>
<tr>
<td>Engine Block</td>
<td>31.08.2017 09:01</td>
<td>--</td>
<td>Cast aluminium alloys</td>
<td>HB</td>
</tr>
<tr>
<td>Alublock 21</td>
<td>18.08.2017 16:41</td>
<td>--</td>
<td>Cast aluminium alloys</td>
<td>HV</td>
</tr>
</tbody>
</table>
Dashboard for a complete overview

Statistics
29.11.2016 - 14.09.2017

<table>
<thead>
<tr>
<th>Total impacts</th>
<th>Total series</th>
<th>Total excluded</th>
<th>Values out of limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1038</td>
<td>202</td>
<td>2.4%</td>
<td>12.2%</td>
</tr>
</tbody>
</table>

Number of Impacts

![Graph showing the number of impacts over time](image-url)
Versatile

- Leeb - UCI - Rockwell
- Touchscreen
- Rugged IP54
Built for harsh Environments

Scratch-resistant solid touchscreen with Gorilla® Glass technology

Shock-absorbing, dust and water proof (IP 54) rugged housing

Functional at a wide temperature range from -10 °C to +50 °C

Connectors and circuits are protected against dust and voltage spikes
Feature-Rich User Interface

Multi-touch features

Personalized Screens
Powerful Wizards

- Standard compliant verifications
- Create your conversion
- Combine two methods
- Create hardness maps
Measurement Wizard

Step-by-step guide
Direct Reporting on Device

- Export directly PDF reports or project files
- Simply connect your USB-stick
- PDF reports are fully customizable
- Add your company logo or picture
- Data export possibility via Equotip Link
Enhanced Reporting
Unmatched Consistency and Durability

Number of Impacts

Equotip Leeb D

Other manufacturers
Replace Discontinued Solutions – Rely on Equotip

Status Details

This notice is to inform you that the MIC10 UCI Hardness Tester and UCI probes will be transitioning to life cycle Phase 3 on October 31st 2017. This change means we will accept orders for new units through October 31st, 2017. After this time new unit sales will no longer be available.

Due to age of our hardness portfolio and resulting availability of components with changes in technology, it is necessary that we transition the MIC10 and UCI probes to Phase 3 of our Life Cycle program. As an overall strategy of investment in new phased array and conventional product upgrades, we will not be offering a replacement rebound unit.
Guardians of Leeb Standard

- Inventor of Leeb
- Conserved for over 35 years
- Supplier for National Metrology Institutes (NMI)
Global Standards Conformity
Global Proceq Service Network
Equotip®

Complete offering  Increased productivity  From the inventor

Equotip

Since 1975
Attractive offering

<table>
<thead>
<tr>
<th></th>
<th>Equotip</th>
<th>Equotip Live</th>
<th>Equotip 540</th>
<th>Equotip 550</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bambino 2</td>
<td>Piccolo 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probes</td>
<td>D+DL</td>
<td>D+DL</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Custom Conversions</td>
<td>simple shift</td>
<td>simple shift</td>
<td>simple shift</td>
<td>all</td>
</tr>
<tr>
<td>Export</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Live Webtool</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Equotip Live Offers

**One off purchase**

- **Leeb D**
  - CHF 3,877
  - Incl. 2 years Report, Export, Sharing, Live Webtool

- **UCI**
  - CHF 4,704
  - Incl. 2 years Report, Export, Sharing, Live Webtool

**Rental**

- **Leeb D**
  - CHF 1035 start-up fee
    - + CHF 619 / year
  - Full feature set

**CHF 619 / year**

- Option to extend
  - Report, Export, Sharing, Live Webtool
Equotip Live Offers

- **358 10 011** Equotip Live Leeb D
  - Hardware belongs to customer, device can be used forever, 2yrs Reporting Feature is included

- **358 10 021** Equotip Live UCI HV1-HV10
  - Hardware is Proceq’s property, device can only be used if annual fee was paid, Reporting Feature must be purchased separately

- **358 10 012** Equotip Live Rental Leeb D

- **358 99 003** Reporting Feature Equotip Live
  - For all articles above
Future-proof
Equotip®
Complete Portable Hardness Solution

Pricing is subject to change. Features are subject to change. Tablet or smartphone not included in offerings. Additional fee may apply. General terms and conditions of sale and rental apply, see: www.proceq.com/service

© Proceq 2020