AMH6

Automated Hardness Testing





LECO

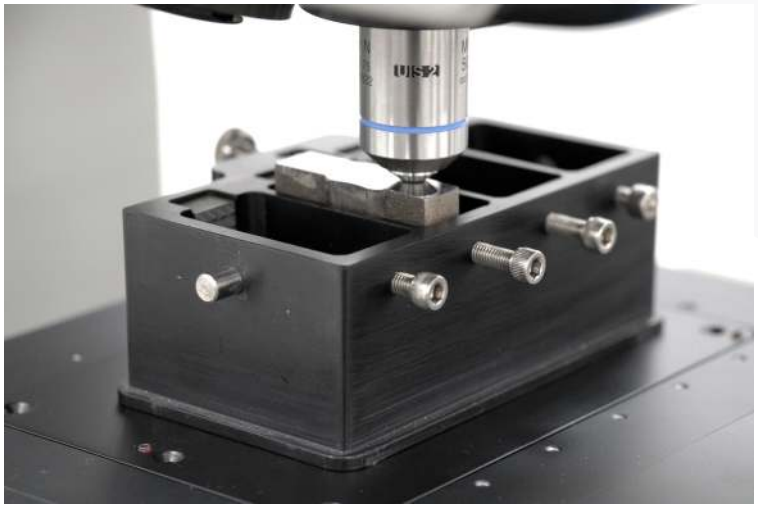
EMPOWERING RESULTS

AMH6 Benefits

Maximize Your Throughput Without Compromise

Stop letting testing bottlenecks slow you down. The AMH6 is engineered to significantly boost your lab's efficiency.

- **Test More, Faster:** Our innovative multi-sample holder accommodates up to 5 samples simultaneously.
- **Reduce Prep Time:** The ability to run unmounted samples (application dependent) saves valuable preparation steps.
- **Rapid, Accurate Readings:** Experience faster indentation reading cycles, accelerating your time to results.



Unmounted Sample Holder (optional)



Six-position, angled turret design

Achieve Results You Can Trust, Every Time

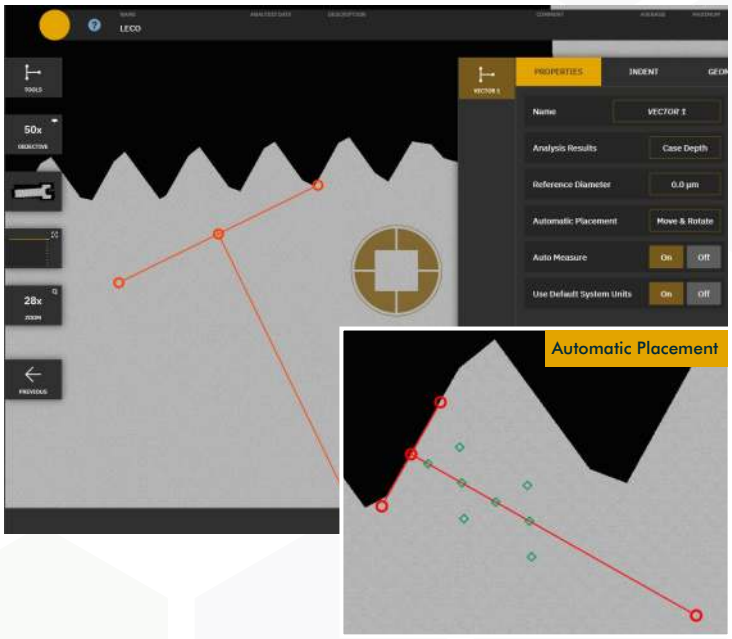
At LECO, we know that confidence in your data is non-negotiable. The AMH6 delivers the accuracy and repeatability you demand.

- **Consistent Indentations, Even on Uneven Samples:** Our unique self-leveling sample holder automatically adjusts, ensuring perfect perpendicularity for reliable indentations, minimizing a common source of error.
- **Clarity That Counts:** Advanced optics provide clear, crisp views for precise measurement.
- **Built for Durability:** Robust design ensures lasting performance in demanding lab environments.

Effortless Testing, From Setup to Analysis

Hardness testing shouldn't be complicated. The AMH6, powered by our reliable Cornerstone® software, makes advanced testing accessible to all users.

- **Intuitive Interface:** Navigate tests and analyze data easily with the user-friendly *Cornerstone* platform.
- **Ergonomic by Design:** Thoughtful instrument design, including software-based hot-keys, provides a more comfortable and efficient user experience.
- **Space-Saving Solution:** The integrated control box reduces the overall desktop footprint, freeing up valuable bench space.



Automatic placement and edge recognition capabilities



User-friendly operation

Helping You Stay Compliant

Meeting industry standards (ISO and ASTM) and managing data shouldn't be a burden. The AMH6 simplifies these critical tasks.

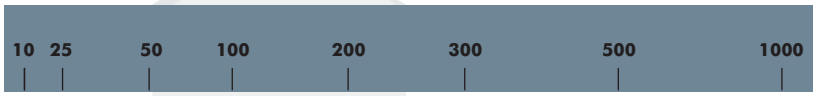
- **Comprehensive Reporting:** *Cornerstone* software offers customizable input and data recording fields along with powerful reporting tools to meet your specific documentation needs.
- **Audit Tracking Support:** Features designed to help you maintain record-keeping for standards and compliance—including CHD, NHD, SHD—vital for highly regulated industries like medical devices and aerospace, including 21 CFR Part 11.

Deadweight vs. Load Cell Force Application

Both deadweight and load cell force technologies are fully capable of producing reliable hardness results when properly configured. Selection depends on testing standards and laboratory workflow priorities.

Deadweight Force Application (HXD Series) Traditional, mechanically traceable force application for established hardness testing methods	**Load Cell Force Application (HXL Series)** Electronically controlled force application offering flexibility and advanced automation
Applies force using known physical masses under gravity	Applies force using electronically measured and controlled sensors
Inherently traceable force generation based on mass and gravity	Closed-loop force control enables precise electronic regulation
Mechanically simple design with minimal electronic components	Electromechanical system with sensors, electronics, and feedback control
Excellent long-term stability with minimal drift	Enables active force monitoring and adjustment
Favored by labs prioritizing simplicity and legacy continuity	Favored by labs prioritizing versatility and dynamic control
Predictable, repeatable force application at defined loads	Enables programmable force profiles and modern workflows

Load Range A: 10 gf to 1,000 gf ***(Deadweight and Load Cell Testers available)***



Load Range B: 50 gf to 10,000 gf ***(Load Cell Testers available)***



Load Range C: 1 gf to 2000 gf ***(Deadweight Testers available)***



Performing a Case Depth Analysis Using the AMH6 Automatic

The AMH6 Automatic Hardness Testing System combines the tasks of sample testing, measuring, converting, and documenting into one automated instrument operation. Just load the sample, select the indentation pattern(s), and initiate the test. This fully automated system makes the indentations, measures them, calculates their hardness, and then displays the results.

1 Place the sample on the stage (single sample, multiple samples, unmounted samples).



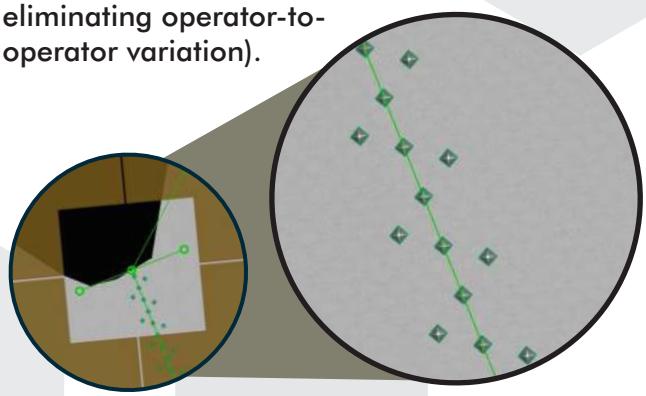
2 Trace the sample and select your indent preference—individual indent, manual vector, automatically snap vector to edge, or pattern.



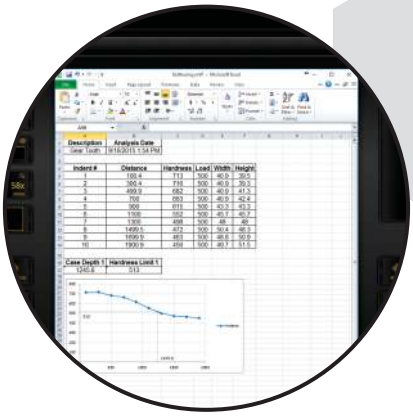
3 Initiate the testing sequence and walk away to complete other essential lab tasks.



4 Automated system makes indents and precisely measures each one (increasing efficiency and eliminating operator-to-operator variation).



5 Hardness values are calculated and displayed for review or export to report formats (Excel, etc).



Included Modules *(Activation Required)*

Fracture Toughness (FRT) Module

- Enables direct calculation of a material's fracture toughness from hardness test indents, revealing the material's resistance to cracking and brittleness
- No separate fracture test needed; the FRT option automatically measures crack lengths and computes fracture toughness (K_c conforms to JIS R1607/IF method) during the hardness test



Fracture Toughness (FRT) Module

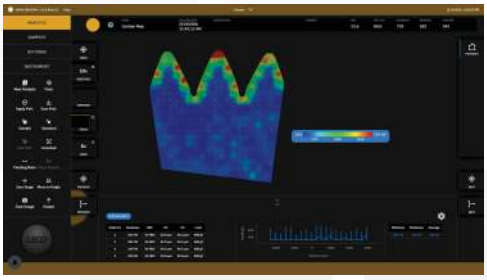
21 CFR Part 11 Compatible

- Dedicated user logins, audit trails, and database integrity tools are capabilities implemented within the *Cornerstone* software to enhance ease-of-use when addressing regulations including 21 CFR Part 11
- Automated features mean labs spend less time on paperwork and validation

Premium Analysis Modules

Advanced Analysis Module

- Enables region-based hardness analysis using custom polygon selection tools
- Supports color contour mapping to visualize hardness variations across a surface
- Allows export of enhanced visualizations for reporting
- Ideal for welds, surface treatments, and failure analysis



Optional Color Hardness Contour Map displays sample hardness and location with a color representation of hardness variances.

Automatic Indent Placement Module

- Evaluates the sample image at each planned indent location
- Automatically adjusts indent position to avoid unsuitable surface features
- Can skip indents when no acceptable location is found (user-selectable settings)
- Helps reduce unusable indents in automated test patterns

Automatic Case Depth Module

- Provides software-assisted case depth evaluation based on hardness data
- Supports routine analysis of case-hardened and surface-treated materials
- Reduces manual data handling during hardness profile evaluation

Optional software modules require activation within the AMH software environment and will require coordination with LECO Optical Service.

Options and Accessories



Multiple Sample Holders Available



Hardness Test Blocks



Vibration Isolation Platform



Objective Lenses

LECO Optical Service

Service/Repair
Complete repair and overhaul of your instrument by factory trained service specialists.

Equipment Calibrations
Contact your local office to discuss A2LA accredited calibration services (certificate #1845.01).

Technical Support
Contact LECO Service if you have any questions or problems, www.leco.com/contact



LECO Metallographic Solutions



Sectioning

Metallographic sectioning is the most critical part of sample preparation, to obtain a representative sample from the area of interest without introducing thermal or residual damage. LECO sectioning machines combine precision, versatility, and durability to help ensure confident, repeatable sample preparation.



Mounting

LECO offers an assortment of automatic, semi-automatic, and manual mounting press systems for either castable (cold) or compression (hot) mounting of quality metallographic or materials specimens.



Grinding/Polishing

Grinding and polishing are critical steps in metallographic sample preparation, producing a flat, deformation-free surface ready for microstructural or hardness evaluation. LECO systems support consistent, repeatable preparation from manual to fully automated workflows.



Microscopic Examination

Offering a range of microscopic solutions ideal for quality assurance, failure analysis, and material inspections across a wide variety of industries. A variety of camera and software packages for image acquisition, analysis, and database management.



Hardness Testing

Choose from manual and automatic model configurations for Microindentation (Vickers and/or Knoop), Macro-Vickers, Rockwell-Type, or Brinell hardness testing.

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