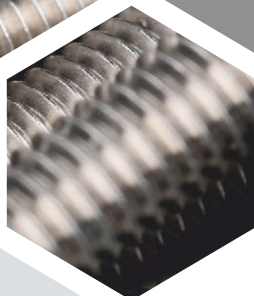


Hardness Testing Systems



LECO
EMPOWERING RESULTS

LECO Hardness Testing System

LECO offers a wide selection of hardness testing systems to match any application or budget. Choose from manual or automatic model configurations for Microindentation,

Macro Vickers, Multi Vickers or Rockwall-type testing. Whatever your needs, our sales engineers can help find the hardness testing system that is right for you.

Advanced Features Provide You with Greater Convenience and Efficiency

- LM248AT model features a unique dual indenter turret that provides Knoop and Vickers on a single tester
- Accurate and repeatable load cell Rockwall-type tester (LCR500)
- Select loads and create your own Rockwall-type test (LCR500)
- Our Optical Service Department is A2LA accredited and available to calibrate your Knoop, Vickers, or Rockwall-type testers

- Light-load Brinell tests available on LV810* and LCR500 models*
- Precision dual-leafspring indenter supports provide ruggedness while ensuring consistent indentation placement (LM- and LV Series)

**Brinell testing requires additional equipment.*



Rockwell-Type Testing

LCR /LR-Series

LR Series Rockwell-Type Testing Systems are built to handle your high-volume workloads without sacrificing accuracy or repeatability. Choose from a variety of models, including analog, digital, and twin testers.

Light-load Brinell and free loads available on the LCR500. Conforms to ASTM E18, ISO 6508-2, JIS B 7726, JIS K 7202, and JIS Z 2245.

Refer to the LR Series specification sheet for complete product information and available configurations (form no. 209-094-003).



LR110

- Available in Rockwell-type or Superficial models
- User-friendly digital display showing hardness result and converted value
- OK/NG indicators
- LED illumination of sample aids in indent placement
- Automatic start
- Enclosed dead weight system
- Standard RS232 output for data transfer comes standard
- Small footprint



LR310

- Standard with Rockwell-type and Superficial scales
- User-friendly digital display showing hardness result and converted value
- OK/NG indicators
- LED illumination of sample aids in indent placement
- Automatic start
- Enclosed dead weight system
- Standard RS232 output for data transfer comes standard
- Small footprint



LCR500

- Standard with Rockwell-type and Superficial scales
- Customisable Rockwell-type test using minor/major load combinations from 3 kgf to 200 kgf
- Advanced touch-screen display
- OK/NG indicators
- LED illumination of sample aids in indent placement
- Standard RS232 output for data transfer comes standard
- Closed loop, self-compensating load cell technology
- Small footprint
- Light-load Brinell testing*

*Carbide ball indenter and measuring device required.

Microindentation Testing

LM-Series

LECO's advanced Microindentation Testing Systems help you meet today's quality standards, as well as the challenges tomorrow's new materials present.

Conforms to ASTM E92, ASTM E384, ISO 6507-2, ISO 4545-2, JIS B 7725 and JIS B 7734.

LM110

- Economical solution for low volume applications
- High intensity LED illumination
- Analog measuring ocular
- Straightforward user interface
- Load ranges from 5 gf to 1000 gf
- Single indenter (Knoop or Vickers), with three objective positions; 10X and 50X are standard, with one position empty for expandability
- Automatic (AT) and manual turret models available



LM248

- High intensity LED illumination
- Load ranges from 1 gf to 2000 gf
- Automatic calculation of hardness result
- Automatic hardness conversion in compliance with ASTM E1 40 and SAE J417
- Dual indenters (Knoop and Vickers), with four objective positions; 10X and 50X are standard, with two positions empty for expandability
- Automatic (AT) and manual turret models available
- USB output for saving of data to an external drive
- Color touch-panel display
- Fracture Toughness Value (Kc) per method JIS R 1673 for evaluation of fine ceramics and other hard-faced materials



LM310

- Durable membrane user interface with digital display
- High intensity LED illumination
- Automatic calculation of hardness result
- Load ranges from 5 gf to 1000 gf
- Single indenter (Knoop or Vickers), with three objective positions; 10X and 50X are standard, with one position empty for expandability
- Automatic (AT) turret
- USB output for saving of data to an external drive



LM810

- High intensity LED illumination
- Load ranges from 1 gf to 2000 gf
- Automatic calculation of hardness result
- Automatic hardness conversion in compliance with ASTM E1 40 and SAE J417
- Single indenter (Knoop or Vickers), with three objective positions; 10X and 50X are standard, with one position empty for expandability
- Automatic (AT) and manual turret models available
- USB output for saving of data to an external drive
- Color Touch-panel display
- Fracture Toughness Value (Kc) per method JIS R 1673 for evaluation of fine ceramics and other hard-faced materials



Microindentation Product Highlights



Automatic Turret (AT) and manual turret, with up to 2 indenters and 4 objective positions.

All LM models can be upgraded for various levels of automation with optional accessories such as video measuring, automatic stages, and automatic test and measuring.

Refer to the LM110/310 Series specification sheet for complete product information and available configurations (form no. 209-094-001)

Refer to the LM248/810 Series specification sheet for complete product information and available configurations (form no. 209-094-009)



LM810 Series

1. Video Capabilities (all models) built-in video port/ video port adapter included
2. Simple and clearly labeled weight adjustment knob
3. Easy to use digital ocular (LM310, LM810, LM248) or analog ocular (LM 110) for quick and precise indentation measurement
4. Analog X/Y stage with 25 mm travel
5. Smooth and precise focus adjustment

Automated Hardness Testing

The AMH55 supports both microindentation and Macro Vickers hardness testing in fully automatic and semi-automatic configurations for greater precision, accuracy, and efficiency.

AMH55 Automatic Hardness Testing System

- Automated hardness testing for time-saving convenience
- Unique patented PANOPTIC method for vivid sample reconstruction
- Advanced analysis modules to meet any hardness testing requirement
- Measures impressions of various surface conditions, including scratched or unevenly illuminated samples

Refer to the AMH55 brochure for more information (form number 209-246)

For microindentation hardness testing, the LM Series performs indentations from 1 gf to 2000 gf with Vickers, Knoop, or dual indenters. The LV Series can perform Macro Vickers indentations from 1 kgf to 50 kgf, or from 0.3 kgf to 30 kgf.



Macro Vickers Testing

LV-Series

The Testing Systems offer you the advantage of testing materials that range from extremely soft to ultra hard. Models feature varying degrees of automation to suit the needs of any materials testing lab.

Conforms to ASTM E92, ASTM E384, ISO 6507-2, ISO 4545-2, and JIS B 7725.

Refer to the LV Series specification sheet for complete product information and available configurations (form no. 209-094-002)

LV110

- Economical solution for low volume applications
- High intensity LED illumination
- Analog measuring ocular
- Straightforward user interface
- Load ranges from 0.3 kgf to 50 kgf
- Single indenter (Vickers), with three objective positions; 10X standard on regular load models (1 kgf to 50 kgf), and 20X standard on light load models (0.3 kgf to 30 kgf), with two positions empty for expandability
- Automatic (AT) and manual turret models available



LV810

- Advanced color touch panel display
- High intensity LED illumination
- Load ranges from 0.3 kgf to 50 kgf
- Automatic calculation of hardness result
- Automatic hardness conversion in compliance with ASTM E140 and SAE J417
- Single indenter (Vickers), with three objective positions; 10X standard on regular load models (1 kgf to 50 kgf), and 20X standard on light load models (0.3 kgf to 30 kgf), with two positions empty for expandability
- Automatic (AT) and manual turret models available
- USB output for saving of data to an external drive
- Color touch-panel display
- Light-load Brinell testing*
- Fracture Toughness Value (K_{IC}) per method JIS R 1673 for evaluation of fine ceramics and other hard-faced materials

*Custom weight set and carbide ball indenter required.



1. Video Capabilities (all models) Built-in video port/ video port adapter included
2. Easy to use digital ocular (LV810) or analog ocular (LV110) for quick and precise indentation measurement
3. Standard flat and „V“ anvils for enhanced testing capabilities
4. Simple and clearly labeled weight adjustment knob
5. Smooth and precise focus adjustment

*U.S. Patents 6,996,264; 7,139,422. Other patents pending.

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