World’s best-in-class accuracy 2D measurement system
A sophisticated height gage offering exceptional accuracy of \((1.1 + 0.6L/600) \mu m\)∗

(∗ L = measured height in mm)

LH600E LINEAR HEIGHT
High Performance 2D Measurement System
World Leading Accuracy

High Performance 2D Measurement System

Height Series LH-600E/EG

● Achieved accuracy: $(1.1 + 0.6L/600) \mu m$
Best-in-class accuracy is achieved by using a high-accuracy scale unit and high-accuracy guiding mechanism manufactured in our dedicated scale plant.
Displacement accuracy when measuring a height of 600mm: 1.7 \mu m

● Easy operation with a single touch of a key
Each frequently used measurement type is initiated by one dedicated icon type command key.
Even a novice can immediately start measurement without instruction.

● Color TFT LCD
This improves legibility and operability.

● Unlimited USB memory
Compatible models support more than 2 GB of USB memory.

● High-accuracy air suspension assists measuring
The Linear Height can move without friction over a surface plate using an air bearing incorporated in the base powered by the small built-in compressor.
A semi-floating mode is also provided that allows measurement with the gage barely floating with no influence on the measuring accuracy.
This mode is effective in operations such as scanning measurements of a hole or shaft on a large workpiece and displacement measurements performed while moving the gage.
Additionally, the power grip model (518-352A-21 LH600EG) improves handling operability.

● Powerful measurement/calculation functions
(See page 4 for details.)
Numerous types of measurement such as displacement/straightness/squareness are possible in addition to basic measurement functions including height and circle measurement.
This gage is also equipped with the 2D measurement function, tolerance judgment function, and others.

● Standardization of measuring procedures
Teaching the gage a series of measuring operations for a workpiece is possible (Repeat function). This function is very effective when measuring large batches of workpieces. Upon execution of the Repeat function, the probe automatically moves to the next measurement position (height). If an operation procedure manual is available, measurement can be standardized.

● Supporting quality control with statistical processing functions
GO/NG judgment is performed in real time on measured data. Up to 60,000 pieces of data can be stored in the database which can be used to performed various statistical calculations such as average, standard deviation and process capability. Quality control is also supported by graphic display of histograms.

● Highly capable data processing unit
The high-performance CPU supports future software upgrading. Measurement results are output in CSV format, thus allowing users to reuse those results with their own software.

● Versatile external interfaces
A printer interface is provided which is installed in the main unit to connect a thermal printer or letter-size printer. The USB interface allows a USB memory to back up and restore part programs and measured data that are stored. Moreover, the RS-232C interface can output measurement results to an external device such as a PLC.

● Numerical optional probes
This gage is provided with various types of probes and interchangeable styli flexibly compatible with complicated workpiece profiles and various measurement features.
Mitutoyo's lineup of options offers various interchangeable styli for ø5 ball probes, depth probes, dial indicator holders, etc.
The optional probes extend their flexibility with an M2/M3 threaded shank that allows various CMM styli to be attached.
Numerous accessories compatible with many types of workpiece and measurement features provided in addition to standard ø5mm ball probes.

High-accuracy air bearing can be operated in semi-floating mode while making highly accurate measurements and fully floating mode for frictionless travel over a surface plate.

Reflective-type linear encoder & guide achieve world-class accuracy.

A complete cordless system with a built-in compressor and battery allowing frictionless movement on a surface plate.

Diverse Interfaces
- Printer
- USB
- RS-232C
- Digimatic input

[Rear Panel (Connectors)]
- Power switch
- Touch signal probe connector
- USB-FDD connector
- Letter-size printer connector
- USB memory connector
- Main unit connector
- RS-232C/thermal printer connector
- Digimatic input connector

5.7 Inch color TFT LCD display

Icon-type command keys provide simple one-touch operation to drive powerful functionality.

World Leading Accuracy High Performance 2D Measurement System
Height Series LH-600E/EG
Functions

The touch of a single key automatically runs the instrument until the last result is displayed. This eliminates the need to execute key operations at each step in the measurement process allowing you to concentrate 100% on workpiece inspection.

### Single-Touch Basic Functions

- **Measures the height of an upward-facing surface.**
- **Measures the diameter and center of a hole.**
- **Measures the width and center of an inner diameter.**
- **Measures the width and center position between two elements.**
- **Measures the height of a downward-facing surface.**
- **Measures the diameter and center of a shaft.**
- **Measures the width and center of an outer diameter.**
- **Sets the ABS origin (absolute reference origin) or INC origin (incremental origin defined by the user), switches between ABS/INC origins and sets the offset ABS origin.**
- **Measures the maximum height of a downward or upward-facing surface.**
- **Measures the minimum height of a downward or upward-facing surface.**
- **Measures the difference between maximum height and minimum height of an upward or downward facing surface.**
- **Performs calculation, including angle.**
- **Displays a comment when operations are paused, measures the position of a hole with a tapered probe, inputs measurement from a Digimatic measuring instrument and measures perpendicularity.**
- **Suspends or resumes system operation.**

### Other Functions

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2D measurement</td>
<td>2D origin setting, XY axis setting, Element recall, Polar coordinate recall, Coordinate distance calculation, 2D distance calculation, 2 elements intersection-angle calculation, 3 elements intersection-angle calculation, Pitch-circle calculation</td>
</tr>
<tr>
<td>Tolerance judgment function</td>
<td>Tolerance/hominal value setting, Tolerance judgment result output, Warning functions</td>
</tr>
<tr>
<td>User-support functions</td>
<td>Switching resolution, Power saving function, Switchable measurement speed, Semi-floating measurement</td>
</tr>
<tr>
<td>Part-program functions</td>
<td>Creating/editing/executing a part program</td>
</tr>
<tr>
<td>Statistical processing functions</td>
<td>Basic statistical processing, Histogram</td>
</tr>
<tr>
<td>Accuracy-compensation functions</td>
<td>Temperature compensation, Scale factor</td>
</tr>
</tbody>
</table>
Screen Display Examples

The measurement operation is supported with graphics on the large LCD.

Printer Output Examples

An optional thermal printer that attaches to the Linear Height main unit is available. Result data can also be output to a commercial letter-size printer.
Optional Accessories

- **Depth probe**
- **ø2mm taper probe**
- **Dial indicator (ø8mm stem) holder**
- **Probe extension holder (100mm/3.9")**
- **ø10mm cylindrical probe**
- **ø2mm ruby ball probe (coaxial type)**
- **ø3mm ball probe (coaxial type)**
- **ø4mm ball probe (coaxial type)**
- **ø5mm diameter compensation block**
- **ø10mm diameter compensation block** (for taper type contact point)
- **RS-232C cable 2m (80")**
- **Battery pack**

Optional probes enable many types of measurement:

- ø1mm ball probe (coaxial type)
- ø2mm ball probe (coaxial type)
- ø2mm ruby ball probe (coaxial type)
- ø3mm ball probe (coaxial type)
- ø4mm ball probe (coaxial type)
- ø5mm disk probe
- ø6mm disk probe
- ø10mm disk probe
- ø14mm disk probe
- ø20mm disk probe
- ø1mm ball offset probe
- ø2mm ball offset probe
- ø3mm ball offset probe
- ø4mm ball offset probe
- ø5mm ball offset probe
- ø6mm ball offset probe
- ø8mm ball offset probe
- ø20mm ball offset probe
- ø30mm ball offset probe
- ø40mm ball offset probe
- ø50mm ball offset probe
- ø60mm ball offset probe
- ø80mm ball offset probe
- ø100mm ball offset probe
- ø120mm ball offset probe

Optional accessories:

1. Cable for letter size printer (2m)
2. M2 CMM stylus adapter
3. M3 CMM stylus adapter

Measurement data are transmitted to external device (e.g. PLC)

1. Ball probes:
   - ø2mm 932377A, ø3mm 932378A, ø4mm 932379A, ø5mm 932380A, ø6mm 932381
   - ø20mm 932345, ø30mm 932346

2. Disc probes:
   - ø20mm 932345, ø30mm 932346

*1 CMM ball and disk hard probes are available.

Dimension L for contact point is the length from the side face to the center of the ball and is measured in mm. Balls without mention of material are carbide.

Model workpiece (12AAA479, acrylic) for practice is provided (see page 6).

A choice of peripherals expand functionality.
The Power Grip Type EG makes it easy to approach the workpiece.

### Frequently Used Measurements

- **Width measurement (Outside)**
- **Height measurement (upward)**
- **Height measurement (downward)**
- **Circle measurement (Hole)**

### Linear Height Styli Kit M3

**K650986**

<table>
<thead>
<tr>
<th>Contents</th>
<th>Description</th>
<th>ø S</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x Part No. K681867</td>
<td>Adapter block</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1x Part No. K653223</td>
<td>Pin wrench ø 1.2 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1x Part No. K651157</td>
<td>Extension steel M3</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>1x Part No. K651156</td>
<td>Extension steel M3</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>1x Part No. K651172</td>
<td>Disk stylus M3</td>
<td>12.7</td>
<td>33</td>
</tr>
<tr>
<td>1x Part No. K651151</td>
<td>Stylus steel-ruby M3</td>
<td>4</td>
<td>31</td>
</tr>
<tr>
<td>1x Part No. K651148</td>
<td>Stylus steel-ruby M3</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td>1x Part No. K651147</td>
<td>Stylus steel-ruby M3</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>1x Part No. K651146</td>
<td>Stylus steel-ruby M3</td>
<td>1</td>
<td>21</td>
</tr>
</tbody>
</table>
### Specifications

<table>
<thead>
<tr>
<th></th>
<th>LH600E</th>
<th>LH600EG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>LH600E</td>
<td>LH600EG</td>
</tr>
<tr>
<td><strong>Order No.</strong></td>
<td>518-351A-21</td>
<td>518-352A-21</td>
</tr>
<tr>
<td><strong>Measuring range (Stroke)</strong></td>
<td>0 - 977mm (600mm)</td>
<td>0 to 38” (24&quot;)</td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>0.0001/0.001/0.01mm (selectable)</td>
<td>0.0001/0.0001/0.001” (selectable)</td>
</tr>
<tr>
<td><strong>Indication accuracy</strong></td>
<td>(1.1 + 0.6/400μm, L = Measured length (mm))</td>
<td></td>
</tr>
<tr>
<td><strong>Repeatability</strong></td>
<td>Plane: 0.4μm (2σ), Hole: 0.9μm (2σ)</td>
<td></td>
</tr>
<tr>
<td><strong>Perpendicularity</strong></td>
<td>(forward and backward)*2</td>
<td>5μm (after compensation)</td>
</tr>
<tr>
<td><strong>Straightness</strong></td>
<td>(forward and backward)*2</td>
<td>4μm (mechanical accuracy)</td>
</tr>
<tr>
<td><strong>Guiding method</strong></td>
<td>Roller bearing</td>
<td></td>
</tr>
<tr>
<td><strong>Driving method</strong></td>
<td>Motor-driven (5, 10, 15, 20, 25, 30, 40mm/s: 7 steps)/Manual</td>
<td></td>
</tr>
<tr>
<td><strong>Scale unit</strong></td>
<td>Reflective-type linear encoder</td>
<td></td>
</tr>
<tr>
<td><strong>Measuring force</strong></td>
<td>1N (automatic constant-force function)</td>
<td></td>
</tr>
<tr>
<td><strong>Balancing method</strong></td>
<td>Counter weight balance</td>
<td></td>
</tr>
<tr>
<td><strong>Main unit moving mode</strong></td>
<td>Full-floating(measuring)/Semi-floating(measuring) at bearing</td>
<td></td>
</tr>
<tr>
<td><strong>Air source</strong></td>
<td>Built-in compressor</td>
<td></td>
</tr>
<tr>
<td><strong>Monitor</strong></td>
<td>5.7 inch COLOR TFT LCD (320 x 240 dots, with LED backlight)</td>
<td></td>
</tr>
<tr>
<td><strong>Max. number of programs</strong></td>
<td>50</td>
<td></td>
</tr>
<tr>
<td><strong>Max. number of measured data</strong></td>
<td>60,000 (Max. number of data is 30,000 / one program)</td>
<td></td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>AC adapter / Battery (N-HMH)</td>
<td></td>
</tr>
<tr>
<td><strong>Battery endurance</strong></td>
<td>Operating*3</td>
<td>Approx. 5 hours (compressor duty cycle 25% max.)</td>
</tr>
<tr>
<td><strong>Standby*3</strong></td>
<td>Approx. 10 hours</td>
<td></td>
</tr>
<tr>
<td><strong>Battery charging time</strong></td>
<td>Approx. 3 hours (usable during charge)</td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions (WxDxH)</strong></td>
<td>237x448x1013mm</td>
<td>247x448x1013mm</td>
</tr>
<tr>
<td><strong>Mass</strong></td>
<td>24kg</td>
<td>24.5kg</td>
</tr>
<tr>
<td><strong>Operating temperature range</strong></td>
<td>5 – 40°C / 20 – 80% RH (without condensation)</td>
<td></td>
</tr>
</tbody>
</table>

*1 Guaranteed when using the standard eccentric φ5 probe.
*2 Guaranteed when using the Lever Head (MLH-521), Mu-Checker (M-511). Perpendicularity for horizontal direction is not defined. If the workpiece is cylindrical, measurement error may be observed.
*3 Optional large-capacity battery pack (12AA4675) for longer battery-powered operation (8 hours when operated and 16 hours on standby).
*4 Mitutoyo does not guarantee the operation of all commercial USB memories except for the following. Mitutoyo recommends those USB memories made by SanDisk Corporation or IO DATA DEVICE, INC. and that meet the following requirements:
  - Those that are not compliant with USB3.0
  - Those that have no security function such as encryption and fingerprint authentication
  - Those that have no write-protect switch function
*5 It is recommended to use the Linear Height on a surface plate of high flatness accuracy.

### Dimensions

![Dimensions Diagram](image)

### Standard Accessories

- Ø5mm probe
- Battery pack
- AC adapter
- Ball-diameter compensation block
- Clear cover
- Power cable for AC adapter
- Auxillary weight (2pcs.)
- Hex wrench
- Carrying handle
- Manual set
- Cap
- Inspection certificate

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