Precision Sensor Applications
High-accuracy Length Measuring Systems

Ideal for Measuring the Outside Diameter of Steel Balls and Rollers for Anti-friction Bearings

Resolution

0.005 μm (5 nm)
0.01 μm (10 nm)
High-accuracy Length Measuring System

Features

• The wide 10mm measuring range is achieved with a high resolution and accuracy specification that eliminates the inconvenience of the need for frequent resetting to master gages, as required by conventional comparator-type gages, and so fewer of these gages are needed.
• Measurement data can be stored and controlled by PC software.
• The system can measure high-precision parts such as steel balls and rollers for anti-friction bearings by comparison with a master gage, also allowing use as the standard of calibration and evaluation of master gages.

LGH stand

971750
This LGH stand greatly helps the gage to achieve high accuracy.
Mass: 23 kg

Maximum measuring range
LGH-0510(C)-B-EH : 0-139 mm
LGH-1010(C)-B-EH : 0-137 mm
Measuring table: granite

Custom stand 1*

Useful for making a stand to mount a custom jig (to user-specified dimensions).
* Custom-made option

ø30mm mounting bush*
For mounting on a commercially-available stand.
(User-specified size acceptable)
* Custom-made option

Spindle lifting cable

971753
Mass: 50 kg
Allows the LGH spindle to be lifted and lowered without touching the measuring head.

External signal input connector*
Allows external signals to trigger data output and zero-set the counter in combination with the foot switch.
* Custom-made option
Application example
• Data output trigger
• Preset (zero-set)
• Peak hold clear

PC software: SENSORPAK

02NGB070
This is a software program that allows graphic meter indication and control chart display as well as record/storage of measurement data.

Custom stand 2*

Useful for making a stand incorporating a high-accuracy ceramic platen.
(Flatness: 0.3µm)
* Custom-made option

ø30mm mounting bush*

Gage mounting hole øTS67

External signal input connector*

Footswitch

Counter

Quality Assurance

Standard Accessories:
Inspection certificate

Option
Calibration certificate
Traceability system chart

Inspection of high-precision parts

* Needle contact-point mounting example

* To connect between a PC and the exclusive counter, a USB cable (A-B type) is required separately.
Specifications

<table>
<thead>
<tr>
<th>Resolution 0.01µm / Accuracy 0.2µm model</th>
<th>Resolution 0.005µm / Accuracy 0.1µm model</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Order No.</strong></td>
<td><strong>Model</strong></td>
</tr>
<tr>
<td>542-715 (Standard)</td>
<td>LGH-1010-B-EH</td>
</tr>
<tr>
<td>542-716 (Low measuring force)</td>
<td>LGH-1010C-B-EH</td>
</tr>
<tr>
<td>542-720 (Standard)</td>
<td>LGH-0510-B-EH</td>
</tr>
<tr>
<td>542-721 (Low measuring force)</td>
<td>LGH-0510C-B-EH</td>
</tr>
<tr>
<td><strong>Measuring range</strong></td>
<td>10mm</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.01µm (0.05µm, 0.1µm, 0.5µm, 1µm) can be selected from the counter/0.005µm (0.01µm, 0.05µm, 0.1µm) can be selected from the counter</td>
</tr>
<tr>
<td>Measuring accuracy (20°C) *1</td>
<td>0.2µm</td>
</tr>
<tr>
<td>Repeatability (20°C) **</td>
<td>0.1µm (2σ)</td>
</tr>
<tr>
<td>Retrace error (20°C) **</td>
<td>0.05µm</td>
</tr>
<tr>
<td>Measuring force</td>
<td></td>
</tr>
<tr>
<td>Contact point downwards</td>
<td>0.65N or less</td>
</tr>
<tr>
<td>Contact point horizontal</td>
<td>Approx. 0.12N</td>
</tr>
<tr>
<td>Contact point upwards</td>
<td>0.45N or less</td>
</tr>
<tr>
<td>Maximum operation speed</td>
<td>In normal measurement: 700mm/sec; for peak detection: 120mm/sec, In normal measurement: 250mm/sec</td>
</tr>
<tr>
<td>Contact point</td>
<td>Carbide-tipped, Sa2mm (M2.5 (P=0.45)×5mm), standard contact point: 901312 Carbide sphere SR5 (M2.5 (P=0.45)×5mm), standard contact point: 120058</td>
</tr>
<tr>
<td>Stem:</td>
<td>ø15mm</td>
</tr>
<tr>
<td>Functions</td>
<td>Zero-setting, presetting, direction changeover, tolerance, judgment (3 steps/5 steps)</td>
</tr>
<tr>
<td>Hold function</td>
<td>Yes</td>
</tr>
<tr>
<td>Power supply</td>
<td>No</td>
</tr>
<tr>
<td>Operating temperature/humidity</td>
<td>Supplied AC Adapter, or +12 to 24V DC, max 700mA</td>
</tr>
<tr>
<td>Storage temperature/humidity</td>
<td>−10°C-60°C (Reference temperature 20°C±30, 70%RH (no condensation)) −10°C-60°C (Reference temperature 20°C±30, 70%RH (no condensation))</td>
</tr>
<tr>
<td>Standard accessories</td>
<td>Wrench for contact point, rubber boot, stand, washer (for counter), AC Adapter, AC cord, DC plug, user’s manual, inspection certificate</td>
</tr>
</tbody>
</table>

*1 Applies when used with counter (excluding quantizing error).
*2 The storage temperature/humidity range after unpacking is the same as the operating temperature/humidity range.
Refer to the Linear Gage (Catalog No.E13013) for more details.

Dimensions

0.1µm and 1µm resolution indicator systems

0.1µm resolution, digital readout
Linear gage  LGF-0110L-B, EH-101P
0.1µm graduation, analog readout
Mu-checker  MCH-385, M-551
1µm resolution, digital readout
Digimatic indicator  ID-C112AXB

Refer to Chapter F: Digimatic Indicators; and Chapter G: Sensor Systems. of Mitutoyo’s general catalog for more details.
Whatever your challenges are, Mitutoyo supports you from start to finish.

Mitutoyo is not only a manufacturer of top quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed up by comprehensive services that ensure your staff can make the very best use of the investment.

Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver bespoke measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.

Find additional product literature and our product catalogue

http://www.mitutoyo.co.jp/global.html

Mitutoyo Corporation
20-1, Sakado 1-Chome, Takatsu-ku, Kawasaki-shi, Kanagawa 213-8533, Japan
T +81 (0) 44 813-8230
F +81 (0) 44 813-8231
http://www.mitutoyo.co.jp

Note: Product illustrations are without obligation. Product descriptions, in particular any and all technical specifications, are only binding when explicitly agreed upon.

MITUTOYO and MiCAT are either registered trademarks or trademarks of Mitutoyo Corp. in Japan and/or other countries/regions.

Other product, company and brand names mentioned herein are for identification purposes only and may be the trademarks of their respective holders.