

# LINEAR HEIGHT LH-600

PRE 1286(2)



1-D / 2-D height gage with the highest level of precision worldwide  $(1.1+0.6L/600) \mu\text{m}$

**Mitutoyo**

# Linear Height is a multi-functional height gage for easy and accurate 2-D measurement.

The high performance Linear Height gage ensures reliable and simple 2-D measurement.

The aim: Precision and ease of handling.

- Reliable length measurement deviation:  $(1.1+0.6L/600) \mu\text{m}$
- Repeat precision:  $0.4 \mu\text{m}$  ( $2\sigma$ )
- Large battery for longer cordless operation
- Ergonomically designed appliance with power grip operation



# LINEAR HEIGHT

## LH-600

### Measuring accuracy

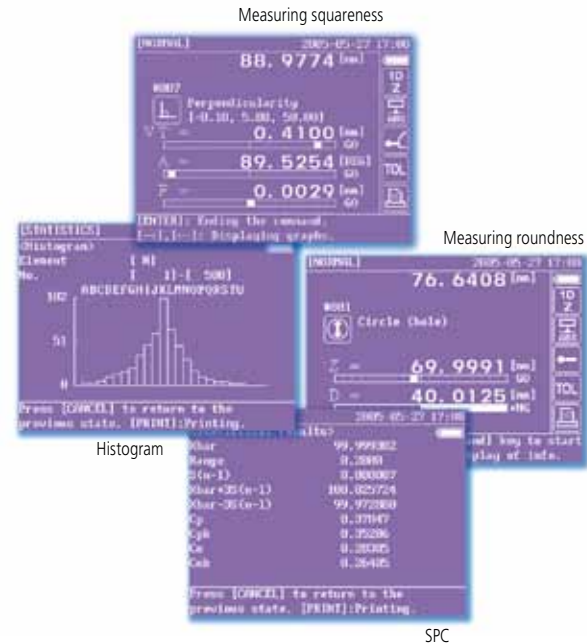
- Outstanding length measurement deviation of  $(1.1+0.6L/600) \mu\text{m}$  with  $0.1 \mu\text{m}/0.5 \mu\text{m}$  increments/repeat precision.
- Squareness (frontal) of  $5 \mu\text{m}$  and straightness of  $4 \mu\text{m}$ .
- The pneumatic system is mounted on floating/semi-floating bearings and enables the height of the air cushion to be set according to the mode of operation (move/measure), thus producing high test speeds without sacrificing accuracy.
- Independent adjustment of the moving/measuring speed for fast positioning (max. 40 mm/s) and highly accurate measurements.



Data processing unit

### Enhanced measurement flexibility

- Optionally available: large battery for longer cordless operation
- Extensive range of probes/probe tips for flexible measurement of virtually any work piece.
- Choice of display language: English, German, French, Spanish, Italian, Dutch, Portuguese, Swedish, Czech, Hungarian, Slovenian, Polish and Japanese for user-friendly operation.



### Ease-of-use in measurement

- One-key operation for semi-automatic measurements.
- Automatic moving module for repeat measurements. The probe automatically moves to the next measuring point.
- Data input via Digimatic hand-held measuring device.
- Basic statistics functions are already integrated into the device: the RS-232C data output also offers the option of external evaluation of the measurement data on a PC with SPC software.
- Immediate GO/NG assessment following each measurement.
- Ample storage capacity for 50 measurement programs and/or 60,000 measurements.
- Measured data or part programs can be stored on a USB stick or USB floppy drive.
- Off-line part programming for increased measurement efficiency.
- 24 kg smart body for high mobility.


















# Extremely comfortable to operate and easy to handle

Pressing just a single key automatically activates a complete measurement sequence right up to the display of the results. So there is no need to tediously press one key after the other while progressing through the individual measurement steps – allowing you to focus 100% on testing the work piece.



## The basic functions at the press of a key

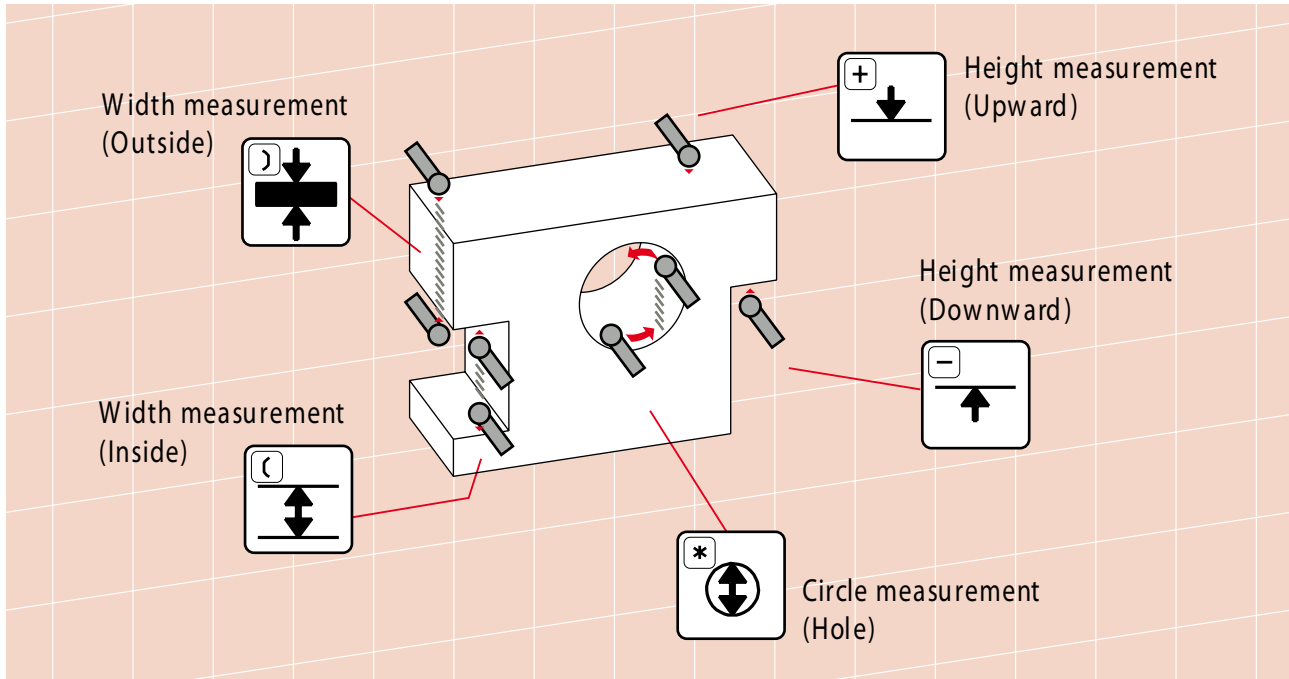
 Measures the height of an upward-facing surface.	 Measures the difference between maximum height and minimum height of the upward or downward-facing surface.
 Measures the height of a downward-facing surface.	 Measures the width and center position between two elements.
 Measures the diameter and center of a hole.	 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 diameter and center of a shaft.	 Sets the probe type, measures the probe diameter, inputs the probe diameter, saves the probe, loads the probe and shifts the probe position.
 Measures the width and center of an inner diameter.	 Performs calculation, including angle.
 Measures the width and center of an outer diameter.	 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.
 Measures the maximum height of a downward or upward-facing surface.	 Suspends or resumes system operation.
 Measures the minimum height of an upward or downward-facing surface.	

## Additional functions: 2-D measurement

- Setting the 2-D zero point
  - Setting the X, Y axis
  - Rotating the coordinate system
  - Moving the 2-D zero point
  - Storing coordinates
  - Reloading coordinates
  - Reloading an element
  - Reloading polar coordinates
  - Calculating coordinate spacing
  - Calculating 2-D spacing
  - Calculating the angle of intersection between 2 and 3 elements
  - Calculating partial circles
  - Assessing tolerances
  - Setting the tolerance/nominal value
  - Outputting the result of the tolerance assessment
  - Alarm functions
- Switching over the incremental value
  - Energy saving function
  - Switchable measuring speed
  - Semi-floating measurement
  - Part program functions
  - Creation/Editing/Execution of a part program
- ### Statistical processing functions
- Basic statistics functions
  - Histogram
- ### Functions for correcting measuring accuracy
- Temperature compensation (manual)
  - Scale factor
  - Setting the thermal expansion coefficient for the work piece

# LINEAR HEIGHT

## LH 600



### Example of a measurement data printout

A thermal printer is optionally available, and is connected to the main unit of the Linear Height. Printouts are also possible on an A4 page printer.



12AAA795	Thermal printer (100V)
12AAA796	Thermal printer (230V)
12AAA797	Thermal printer (120V)
12AAA802	Thermal printing paper (10 pcs.)
12AAA804	Cable for A4 printer* (2 m)
12AAA807	RS-232C cable (2 m/80")
12AAG920	RS-232C cable (3 m/118")
12AAF712	Battery pack
12AAG245	Large capacity battery pack
12AAF765	Large capacity battery set

\* Recommended A4 page printer: EPSON LQ-300 or LX-300

### Storage media for measurement data and part programs

#### USB-FDD unit



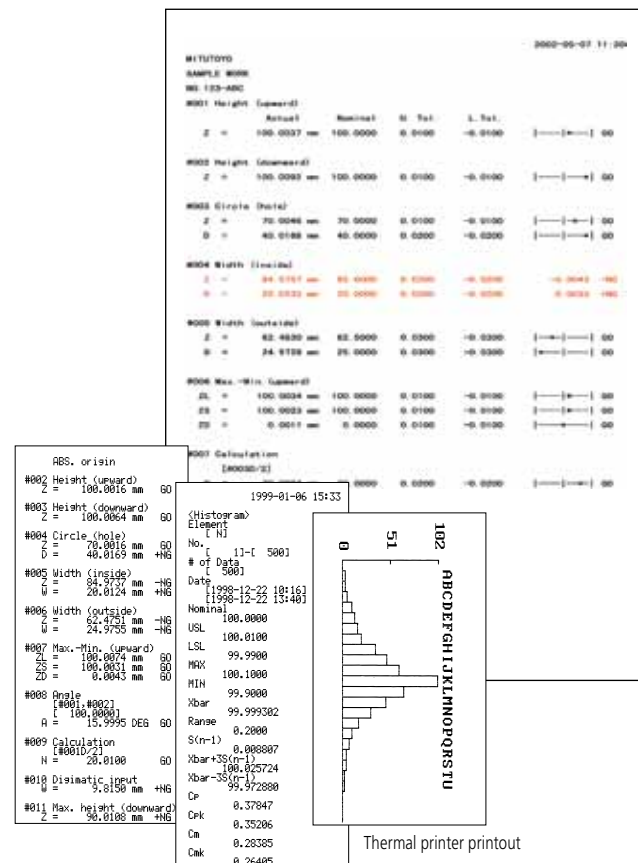
Order no. 12AAH035

#### USB stick



Order no. 12AAH034

A4 page printer



# Technical specifications

Order no.	518-341D-21 / 518-342D-21*	
Measuring range (moving distance)	0 - 972 mm (600 mm)	
Increments	0.0001 / 0.001 / 0.01/0.1 mm	
Accuracy at 20°C	Measuring accuracy *1	(1.1+0.6L/600) µm, L = measuring length (mm)
	Repeat precision (2σ) *1	Flat surface: 0.4 µm; bore: 0.9 µm
	Squareness	5 µm
	Straightness	4 µm
Drive method	Manual / servo (5 - 40 mm, in 7 steps)	
Measuring force	1N	
Equalization method	Counterweight	
Main unit drive bearing	Floating/semi-floating air bearing	
Compressed air supply	Built-in compressor	
LCD	Monochrome Graphic LCD (with LED backlight)	
Display languages	English, German, Japanese, French, Spanish, Dutch, Italian, Portuguese, Swedish, Czech, Hungarian, Slovenian, Polish	
On request	Traditional Chinese, Korean, Japanese	
Number of storable programs	max. 50	
Number of storable programs	max. 60,000	
Power supply	AC mains adapter/rechargeable battery (Ni-MH)	
Energy consumption	43 VA	
Battery operation (12AAF712)	Approx. 5 hours	
Weight	24 kg	
Standard accessories	ø 5 mm ball probe with mount (12AAF634), calibration block for probe diameters (12AAA715)	

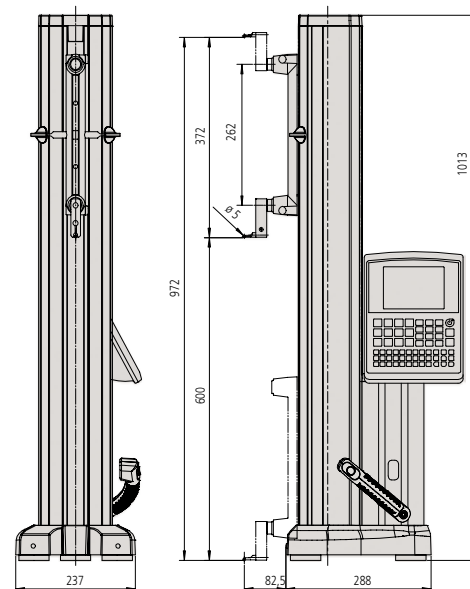
\* Model with power grip

\*1 This accuracy is guaranteed when the standard eccentric Ø 5 mm probe is used.

For longer battery operation  
Optionally available: large battery with cover (12AAF675)  
for longer battery operation (8 hours).

## Dimensions

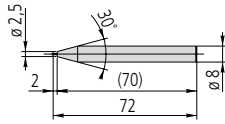
Unit: mm



# Optional probes and LH-600 calibration block

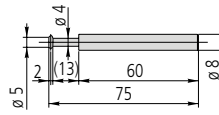
## 12AAF666

Ball probe  $\varnothing$  1 mm

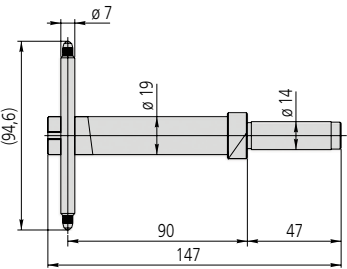


## 12AAF670

Disk probe  $\varnothing$  5 mm

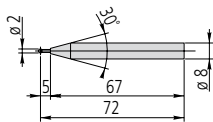


## 12AAC072 Depth measurement probe



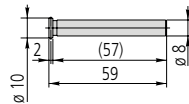
## 957261

Ball probe  $\varnothing$  2 mm



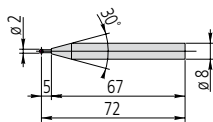
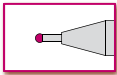
## 12AAF671

Disk probe  $\varnothing$  10 mm



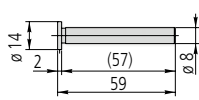
## 12AAF667

Ruby ball probe  
 $\varnothing$  2 mm

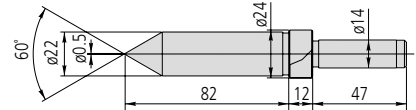


## 957264

Disk probe  $\varnothing$  14 mm

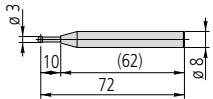


## 12AAC073 Tapered probe $\varnothing$ 20 mm



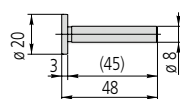
## 957262

Ball probe  $\varnothing$  3 mm



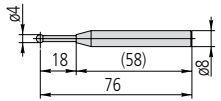
## 957265

Disk probe  $\varnothing$  20 mm



## 957263

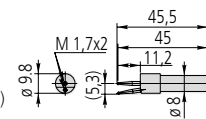
Ball probe  $\varnothing$  4 mm



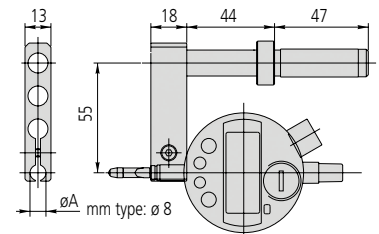
## 12AAF672

Ball offset probe\*  
 $\varnothing$  1 mm

\*Lever gage probe tip (103017)

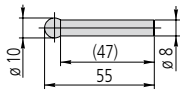


## 12AAA792 Gage holder ( $\varnothing$ 8 mm shaft)



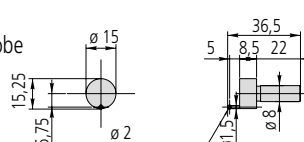
## 12AAB552

Ball probe, L=55  
 $\varnothing$  10 mm



## 12AAF673

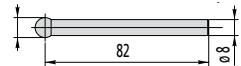
Ball offset probe  
 $\varnothing$  2 mm



## 12AAF668

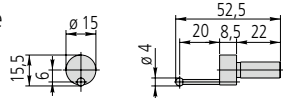
Ball probe, L=82  $\varnothing$  10 mm

10 ball-shaped and tungsten carbide-tipped contact point

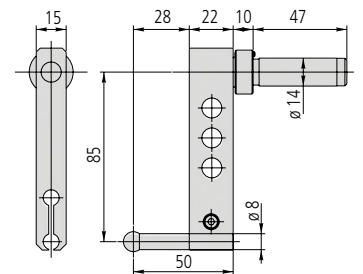


## 12AAA788

Ball offset probe  
 $\varnothing$  4 mm



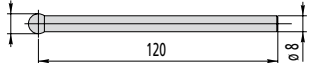
## 12AAA793 Probe extension holder (85 mm)



## 12AAF669

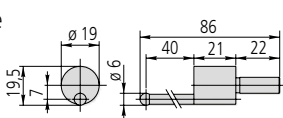
Ball probe, L=120  $\varnothing$  10 mm

10 ball-shaped and tungsten carbide-tipped contact point...



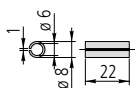
## 12AAA789

Ball offset probe  
 $\varnothing$  6 mm



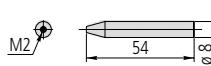
## 226116

Adapter for mounting probes  
with  $\varnothing$  6 mm shaft



## 226117

Adapter for CMM  
probe with M2 thread

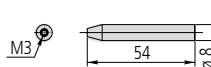


## 932361

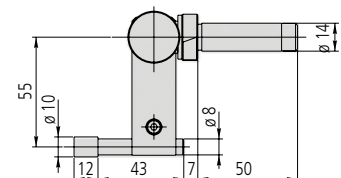
Holder for M $\mu$  checker

## 226118

Adapter for CMM  
probe with M3 thread



## 12AAB136 $\varnothing$ 10 mm cylindrical probe with mount



## 12AAA787

Calibration block for probe diameters  
(also suitable for tapered probes)

Coordinate Measuring Machines	=====
Vision Measuring Systems	=====
Form Measurement	=====
Optical Measuring	=====
Sensor Systems	=====
Test Equipment and Seismometers	=====
Digital Scale and DRO Systems	=====
Small Tool Instruments and Data Management	=====


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