

QM-HEIGHT

Bulletin No. 1892



High-Precision, Digital Height Gage with Powerful Features for Ease-of-Use and Enhanced Productivity.

Mitutoyo

Extreme accuracy, high-performance and ease of use

The QM-Height delivers outstanding accuracy for your critical measurement requirements. Real world, on the plate accuracy of ± 0.00023 " over the 24" range is just one of the advantages of the QM-Height.

Quick and easy, built-in functions measure max., min., TIR, flatness, ID, OD, heights, step and width. In addition the 9 point store and recall capability of the QM-Height lets an operator combine functions and quickly measure complex dimensions such as circle-circle pitch and circle-point measurements.

Function buttons, identified with descriptive icons, allow an operator to quickly select the needed measurement function. The large LCD also displays the icon of the measuring function currently in use.

*Scanning measurement stroke is approximately .04" (1mm) above and below from start point of measurement.

Featuring the newly developed Absolute-type linear encoder

Mitutoyo's newest innovation—the high-accuracy, high-resolution Absolute-type linear encoder—is provided on each model in the QM-Height Series for fast-and-easy position detection. Simply set the origin once* — you won't need to set again each time you power up.

* It may be necessary to set the origin again if environmental conditions change dramatically.

QM-Height measures inside/outside diameter, maximum/minimum and displacement using a standard probe.

In addition to height measurement, the QM-Height Series gives you inside/outside diameter, maximum/minimum and displacement measurement*. Mitutoyo's proprietary design and software are your assurance of reliability.

* Scanning measurement stroke is approximately .04" (1mm) above and below from the start point of measurement.

Optional Probes

A variety of optional probes are available to reduce measuring time and increase the functionality of the QM-Height.

Auxiliary grip

An auxiliary grip* is standard, ensuring smooth movement of the QM-Height across the surface measuring plate.

* Removable



The world's first backlit GO/ \pm NG judgment (red and green)

The gage activates the LCD's backlight according to the result of tolerance judgment.



GO:
Back-lighted
green



-NG/+NG:
Back-lighted
red

Easy reference icon keys

The QM-Height gives you greater convenience and ease of use, thanks to integrated sequential key operations. You'll have immediate access to frequent measurement tasks, including measurement of inside diameter, outside diameter and pitch.

Slider up/down measurement wheel

The convenient slider elevation wheel gives you a choice of coarse- or fine-feed.

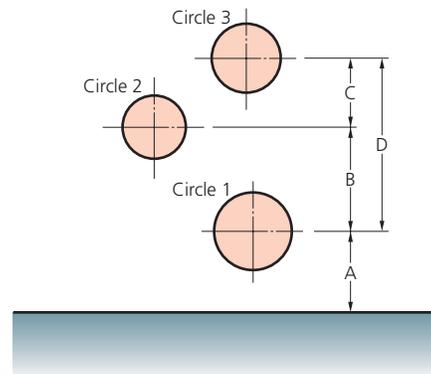
External output

SPC Digimatic and RS-232C outputs are provided standard with the QM-Height models.

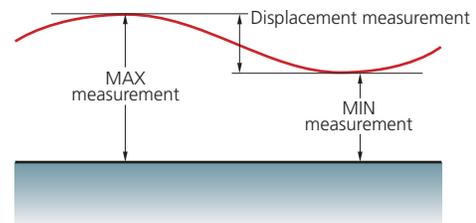
Measurement Example

Circle pitch measurement

The length A, B, C and D can be determined by measuring circles 1 to 3 once each, using the memory and calculation function. (A maximum of nine circle measurement data can be saved.)



Maximum/minimum and displacement measurement



Height measurement



Inside diameter measurement



Specifications

Order No.	518-221*4	518-223*4
Measuring range	0-14" / 0-350mm	0-24" / 0-600mm
Resolution (selectable)	.00005", .0001", .0002" / 0.001mm, 0.005mm	
Accuracy Indication accuracy*1 at 68°F Repeatability*1 (20°C) Perpendicularity*2	±(.00011+.0002L / 40)" ±(2.8+5L / 1000)µm 2σ≤1.8µm	
Guiding method	Roller bearing	
Drive method	Manual operation	
Scale unit	Electrostatic capacitance linear encoder	
Measuring force	163.2± 51g (1.6±0.5N)	
Monitor	LCD	
Power supply	AC adapter/Battery (AAx4)	
Battery life*3	Approx. 800hrs. (when backlight is not used)	
	Approx. 260hrs. (when backlight is used in the power saving mode, measuring 100 times per 8-hr. day)	
	Approx. 6hrs. (when backlight is used in the full-time power-on mode)	
Dimensions	30.39" x 10.75"	40.24" x 10.75"
Mass	48.5 lbs. (22kg)	59.5 lbs. (27kg)
Operating temperature range	50°F to 86°F (10 to 30°C)	
Operating humidity range	20 to 80% RH (must be free from condensation)	
Storage temperature range	14°F to 122°F (-10 to 50°C)	
Storage humidity range	5 to 90% RH (must be free from condensation)	

*1 The indication accuracy and repeatability represent the values obtained from the height measurement of a flat surface using the standard holder with ø5mm ball contact point. In the case of diameter, minimum (maximum) value, circle pitch or displacement measurement, measuring errors may be larger than the accuracy ratings listed in the table due to variations in measuring force of a scanning measurement, which differs from height measurement.

*2 This perpendicularity indicates the value obtained from the measurement of a flat surface placed parallel with the base reference surface using the Lever Head (MLH-321) and Mu-checker (M-411).

*3 Battery life depends on the operating method.

*4 Probe diameter calibration block is optional (12AAA715).

Standard accessories

- Standard holder with ø5mm ball contact point
- Auxiliary grip
- Alkaline batteries (AA) (4 pieces)

Optional Accessories

12AAA715 Probe diameter calibration block

Special Holder, Special Probe

12AAC072 Depth probe
12AAA792 Holder for Dial Gage
12AAA793 Long holder
05HZA173 Scriber

Interchangeable Contact Point

957261 ø2mm ball (coaxial type)
957262 ø3mm ball (coaxial type)
957263 ø4mm ball (coaxial type)
12AAB552 ø10mm ball (coaxial type)

957264 ø14mm disk
957265 ø20mm disk
12AAA788 ø4mm ball (eccentric type)
12AAA789 ø6mm ball (eccentric type)
226116 ø6mm collar (used to mount a contact point with ø6mm shank)

Data Processing Device and Connecting Cable

264-504-5A DP-1VR (100V)
936937 Digimatic cable 1m
965014 Digimatic cable 2m

AC Adapter

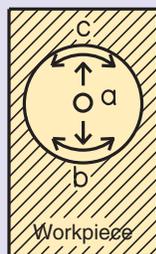
526688A 120V

Key Function



Circle (hole) measurement example:

- 1) Press 
- 2) Move the probe to the vicinity (a) of a circle center.
- 3) Bring the probe into contact in the vicinity of the lower peak. When the buzzer sounds, clamp the up/down wheel so as not to move.
- 4) While holding the wheel clamped, move the main unit or workpiece left and right to search for the minimum value.
- 5) When a count value remains unchanged, press 
- 6) Search for the maximum value in the vicinity of the upper peak in the same procedure in step 3) to 4).
- 7) Press  to display the measured value.



- 1  ON/OFF button
- 2  Measure the height, step or width
- 3  Measure the displacement / flatness / runout
- 4  Change to the another function
- 5  Switch the inch/mm type or change the memory number
- 6  Measures the minimum height of an upward or downward-facing surface
- 7  Measures the inside diameter
- 8  Holds a measured value, or outputs data
- 9  Switches the count direction, or moves the digit for which a preset value or a tolerance is set
- 10  Measures the maximum height of an downward or upward-facing surface
- 11  Measures the outside diameter
- 12  Calls a measured result
- 13  Switches the mode between the INC/ABS
- 14  Sets a preset value
- 15  Clears measured data in memory
- 16  Loads each scanning measurement value and various settings

Introduction for Linear Height



SPECIFICATIONS

Measuring range (stroke)	0 - 38" (24") 0 - 972mm (600mm)
Resolution (selectable)	.000001 / .00001 / .0001 / .001"
Accuracy at 20°C	0.0001 / 0.001 / 0.01/0.1mm (1.3+0.6L / 600) μm, L = Measuring length (mm)
Repeatability (2σ) ^{*1}	Plane: 0.5μm Bore: 1μm
Perpendicularity ^{*2}	6μm
Straightness ^{*2}	4μm
Drive method	Manual / Motor .20" - 1.57" (5 - 40mm) / 7 steps
Measuring force	1N
Balancing method	Counter balance
Main unit floating method	Full / semi-floating with air
Air source	Built-in air compressor
LCD	Graphic LCD (320x240 dot, with backlight)
Number of stored programs	50 (max.)
Number of stored data	60,000 (max.)
Power supply	AC adapter/Battery (Ni-MH)
Power consumption	43VA
Mass	52.8lb / 24kg

^{*1} This accuracy is guaranteed when using the standard eccentric ø5mm probe.

^{*2} This accuracy is guaranteed when using a lever head (MLH-321) and Mu-Checker (M-411)

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Precision is our Profession