

QM-HEIGHT

CATALOG No. E4249-518



Presenting the high-precision digital height gage with GO/ \pm NG judgment and a large, backlit LCD.

QM-Height is the ultimate in accuracy and perpendicularity!

Mitutoyo

Extreme accuracy, total performance and ease of use

The QM-Height delivers outstanding accuracy of $\pm(2.8+5L/1000)\mu\text{m}$ to satisfy your most critical measurement needs. It measures maximum/minimum and displacement form surface not just by height alone but by step, inside/outside width, inside/outside diameter, circle pitch and *scanning measurement. Additionally, all nine measurement data can be saved and recalled after measurement for safer, more thorough calculations.

*Scanning measurement stroke is approximately 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, that's all. You won't need to set it 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 mechanism and software are your assurance of reliable measurement!

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

A variety of probes (optional)

Various types of probes are provided, ensuring applicability to most any measurement.

Auxiliary grip

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

* Removable



The world's first GO/±NG judgment by backlight (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 wheel measurement

The handy measurement wheel gives you a choice of coarse- or fine-feed.

External output

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



Height measurement

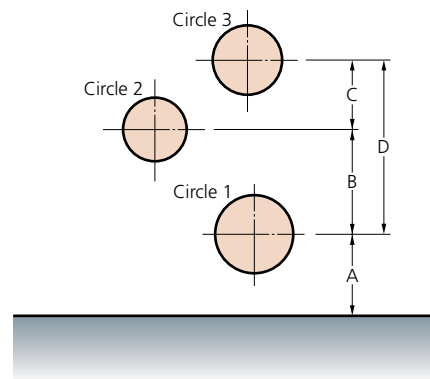


Inside diameter measurement

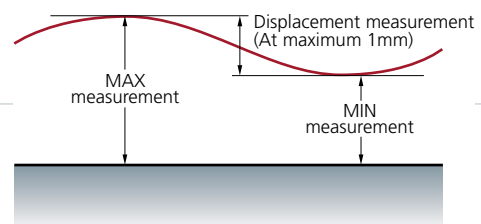
Measurement Example

Circle pitch measurement

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



Maximum/minimum and displacement measurement



Specifications

Order No.	518-224 518-220*4	518-226 518-222*4	518-225 518-221*4	518-227 518-223*4
Measuring range	0-350mm	0-600mm	0-14" / 0-350mm	0-24" / 0-600mm
Resolution (selectable)	0.001mm, 0.005mm		.00005", .0001", .0002" / 0.001mm, 0.005mm	
Accuracy	±(2.8+5L / 1000)µm			
Indication accuracy*1 at 20°C	2σ≤1.8µm			
Repeatability*1	8µm			
Perpendicularity*2	8µm	13µm	8µm	13µm
Guiding method	Roller bearing			
Drive method	Manual operation			
Scale unit	Electrostatic capacitance linear encoder			
Measuring force	1.6±0.5N			
Monitor	LCD			
Power supply	AC adapter/Battery (LR6x4)			
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	772 x 273	1022 x 273	30.39" x 10.75"	40.24" x 10.75"
Mass	22kg	27kg	22kg	27kg
Operating temperature range	10 to 30°C			
Operating humidity range	20 to 80% RH (Must be free from condensation)			
Storage temperature range	-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 ø5 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 at 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 Without probe diameter calibration block.

Standard accessories

- Probe diameter calibration block (optional for 518-220/221/222/223)
- Standard holder with ø5 ball contact point
- Auxiliary grip
- Alkaline batteries (LR6) (4 pieces)

Optional Accessories

Special Holder, Special Probe

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

Interchangeable Contact Point

957261	ø2 ball (coaxial type)
957262	ø3 ball (coaxial type)
957263	ø4 ball (coaxial type)
12AAB552	ø10 ball (coaxial type)
957264	ø14 disk
957265	ø20 disk
12AAA788	ø4 ball (eccentric type)

12AAA789	ø6 ball (eccentric type)
226116	ø6 collar (used to mount a contact point with ø6 shank)

Data Processing Device and Connecting Cable

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




AC Adapter

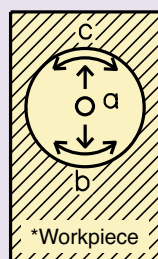
526688	100V
526688A	120V
526688D	220V
526688E	240/220V

















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 with 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
- 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

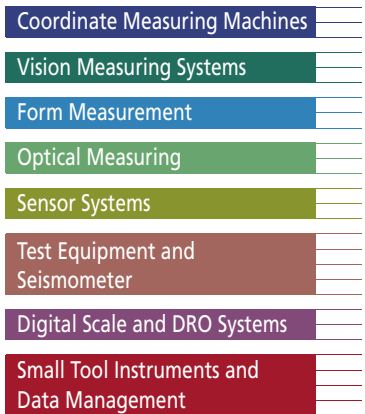


SPECIFICATIONS

Measuring range (stroke)	0 - 972mm (600mm) 0 - 38" (24")
Resolution (selectable)	0.0001 / 0.001 / 0.01/0.1mm .000001 / .00001 / .0001 / .001"
Accuracy at 20°C	(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 (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	24kg / 52.8lb

*1 This accuracy is guaranteed when using the standard eccentric ø5 probe.

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



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