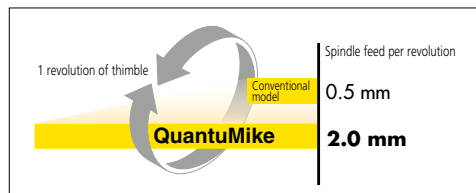


Micrometer

The origin of Mitutoyo's trustworthy brand of small tool instruments

QuantuMike SERIES 293 — IP65 Micrometer with 2 mm/rev Spindle Feed

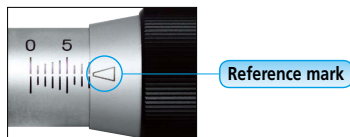
- Advanced pioneering technology has created the next generation of micrometer, the most revolutionary advance in micrometer technology since James Watt invented the instrument.
- Faster measurement is achieved by using a coarser thread which feeds the spindle by 2 mm per revolution of the thimble. This increase in thread lead has been made possible thanks to new high precision thread-cutting and testing techniques.



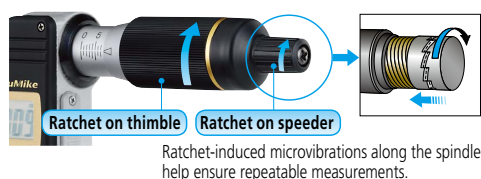
- QuantuMike is equipped with a function lock feature to prevent the origin point being moved by mistake during measurement.



- A graduated scale is provided on the sleeve for use with a reference mark on the thimble so that every millimeter displacement can be checked to provide extra confidence.



- The ratchet thimble mechanism helps ensure repeatable results by transmitting microvibrations along the spindle to the contact face to provide a constant measuring force and encourage good contact with the workpiece. The ratchet works from the thimble as well as the speeder so it is always easy to use – even when making measurements one-handed. The sound of the ratchet provides the user with a sense of confidence and the speeder enables the rapid spindle feed needed when measuring widely different dimensions.



- A statistical process control system and a measurement network system can be established to share information regarding quality with a model equipped with the data output function. (Refer to page A-3 for details.)
- There is a lineup of convenient Interface Input Tools which enable the conversion of measurement data to keyboard signals and directly input them to cells in off-the-shelf spreadsheet software such as Excel. (Refer to page A-13 for details.)
- Excellent resistance against oil, water and dust (IP65 protection level) enables this product to be used in machining situations that include splashing coolant fluid.
- Measuring faces: Carbide.

MeasurLink® ENABLED
Data Management Software by Mitutoyo



Products equipped with the measurement data output function can be connected to the measurement data network system MeasurLink (refer to page A-5 for details).

These marks indicate that a product has successfully passed IP65-level testing, which is carried out by the independent German certification organization TÜV Rheinland.

An inspection certificate is supplied as standard. Refer to page U-11 for details. (Maximum measuring range up to 50 mm)

- The name QuantuMike is from Quantum and Micrometer, reflecting our belief this tool represents a quantum leap in micrometer ergonomics.



IP Codes

Level 6: Dust -proof.

No ingress of dust allowed.

Level 5: Protected against water jets.

Water projected in jets against the enclosure from any direction shall have no harmful effects.

Technical Data

Dust/Water protection level: IP65 (IEC60529)*2

Measuring force: 7 to 12 N*3

Battery: **SR44** (1 pc.), **938882**, for initial operational checks (standard accessory)

Length standard: Electromagnetic rotary sensor

Battery life: Approx. 2.4 years under normal use

Standard accessories: Reference bar, 1 pc.

(except for 0-25 mm (0-1 in) models)

Spanner (**301336**), 1 pc.

*2 Rustproofing shall be applied after use.

*3 Measuring force when using the speeder ratchet (Apply a measuring force in the same condition as for measurement and then set the origin.)

Functions

Origin point setting (ABS length measurement system):

Pressing the ORIGIN button resets the ABS origin at the current spindle position. Origin values can be set depending on each size.

Zero setting (INC length measurement system):

A brief press on the ZERO/ABS button sets display to zero at the current spindle position and switches to the incremental (INC) measuring mode. A longer press resets to the ABS measuring mode.

Hold:

Pressing the HOLD button freezes the current value in the display. This function is useful for preserving a measurement in situations of poor visibility when the instrument must be moved away from the workpiece before the reading can be recorded.

Function lock:

This function allows the ORIGIN (origin point setting) function and the ZERO (zero setting) function to be locked to prevent these points being reset accidentally.

Auto power ON/OFF:

The reading on the LCD disappears after this instrument is idle for approx. 20 minutes, but the origin point is retained. Turning the spindle causes the reading on the LCD to reappear.

Data output*4:

Models equipped with this function have an output port for transferring measurement data to a Statistical Process Control (SPC) system.

Error alarm:

In case of an overflow on the LCD or a computing error, an error message appears on the LCD, and the measuring function stops. This prevents an instrument from giving an erroneous reading. Also, when the battery voltage drops to a certain level, the low-battery-voltage alarm annunciator appears well before the micrometer becomes unusable.

*4 Only for the models with SPC data output

Optional Accessories

(Only for models with data output function)

Connecting cables with output switch

1 m: **05CZA662**

2 m: **05CZA663**

USB Input Tool Direct

USB-ITN-B (2 m): **06AFM380B**

U-WAVE-T dedicated connection cable

160 mm: **02AZD790B**

For foot switch: **02AZE140B**

Wireless Data Output U-WAVE™

U-WAVE-TM 264-622 (IP67 type)

264-623 (Buzzer type)

Connecting unit for **U-WAVE-TM**

02AZF310 (IP67/buzzer type common specification)

Refer to page A-15 for details.



SPECIFICATIONS

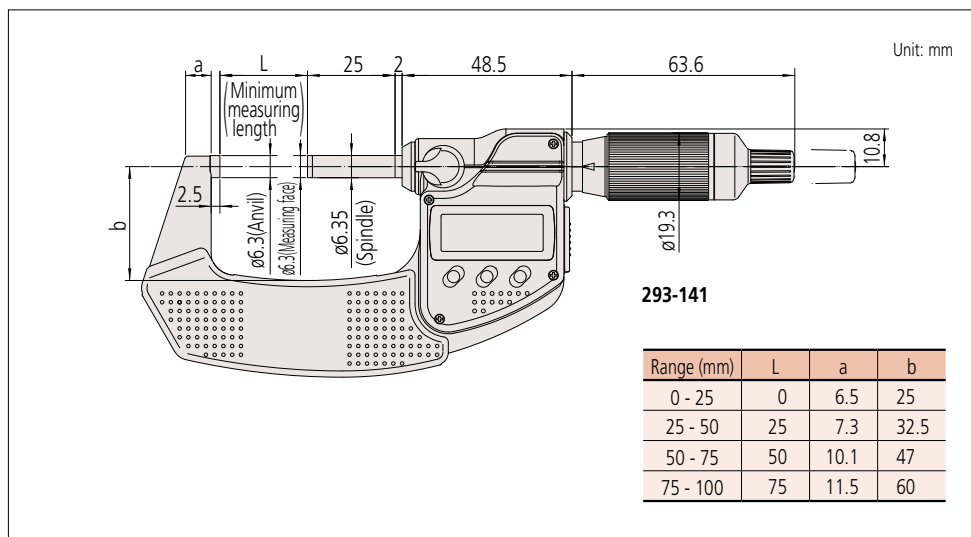
	Metric								
	Order No.	Range (mm)	Resolution (mm)	Accuracy*1 (μm)	Flatness (μm)	Parallelism (μm)	Mass (g)		
with SPC data output	293-140-30	0 - 25	0.001	±1	0.3	1	265		
	293-141-30	25 - 50					325		
	293-142-30	50 - 75		±2		2	465		
	293-143-30	75 - 100					620		
without SPC data output	293-145-30	0 - 25		±1		1		265	
	293-146-30	25 - 50						325	
	293-147-30	50 - 75				±2	2		465
	293-148-30	75 - 100							620

*1 Excluding quantizing error of ±1 count

Inch / Metric							
	Order No.	Range (in)	Resolution	Accuracy*1 (in)	Flatness (in)	Parallelism (in)	Mass (g)
with SPC data output	293-180-30	0 - 1	0.00005 in/ 0.001 mm	±0.00005	0.000012	0.00004	265
	293-181-30	1 - 2					325
	293-182-30	2 - 3		0.00008		465	
	293-183-30	3 - 4				620	
without SPC data output	293-185-30	0 - 1		±0.00005		0.00004	265
	293-186-30	1 - 2					325
	293-187-30	2 - 3		0.00008		465	
	293-188-30	3 - 4				620	

*1 Excluding quantizing error of ±1 count

DIMENSIONS



Measuring time on a 6-stepped workpiece with one hand

Thanks to the quick movement, positioning times are reduced by 60 %* and measuring times by 35 %* compared with a conventional micrometer.

* According to Mitutoyo's comparison test data for measuring time on typical workpieces.

