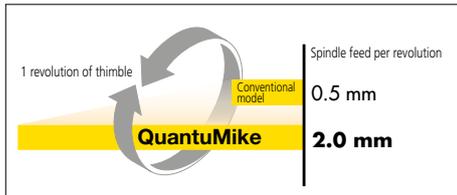


Micrometers

SERIES 293 – QuantuMike Fast Action Waterproof Digimatic Micrometer

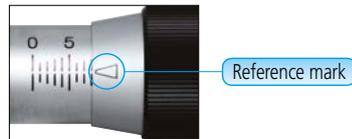
- Advanced pioneering technology has created the next generation of micrometer, the most revolutionary advance in micrometer technology since James Watt invented the instrument.
- Faster measurement is achieved by using a coarser thread which feeds the spindle by 2 mm per revolution of the thimble. This 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 millimetre displacement can be checked to provide extra confidence.



- Those models that provide data output allow easy incorporation of this instrument into a statistical process control or measurement system.
- There is a choice of convenient Interface Input Tools which enable the conversion of measurement data to keyboard signals for direct input to cells in off-the-shelf spreadsheet software such as Excel.
- 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



Specifications

Inch/Metric

Code No.	Range	Resolution	Accuracy*1	Flatness	Parallelism
With SPC data output					
293-180-30	0-1" (0-25.4 mm)	.00005" (0.001 mm)	±.00005" (±1 μm)	.000012" (0.3 μm)	.00004"
293-181-30	1-2" (25.4-50.8 mm)				(1 μm)
293-182-30	2-3" (50.8-76.2 mm)				.00008"
293-183-30	3-4" (76.2-101.6 mm)				(2 μm)
Without SPC data output					
293-185-30	0-1" (0-25.4 mm)	.00005" (0.001 mm)	±.00005" (±1 μm)	.000012" (0.3 μm)	.00004"
293-186-30	1-2" (25.4-50.8 mm)				(1 μm)
293-187-30	2-3" (50.8-76.2 mm)				.00008"
293-188-30	3-4" (76.2-101.6 mm)				(2 μm)

*1 Excluding quantizing error.

Technical Data

Dust/Water protection level:	IP65 (IEC60529)*2
Measuring force:	7 to 12 N
Length standard:	Electromagnetic rotary sensor
Battery life:	Approx. 1.2 years under normal use
Standard accessories:	Setting standard 1 pc (except for 0-1" models) Button type silver oxide battery (SR44, 938882), 1 pc Spanner (301336), 1 pc

*2 Anti-corrosion treatment is required after use.

Functions

Origin point setting (ABS measurement system):
Pressing the ORIGIN button resets the ABS origin at the current spindle position.

Zero setting (INC 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 to reappear.

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

Error alarm:
In the unlikely event of a display overflow or calculation error, an error message is displayed and measurement stops. Measurement cannot continue until the error is corrected. Also, if the battery voltage drops below a certain point, the battery indicator will turn on before measurement becomes impossible, warning the user that the battery needs to be replaced.



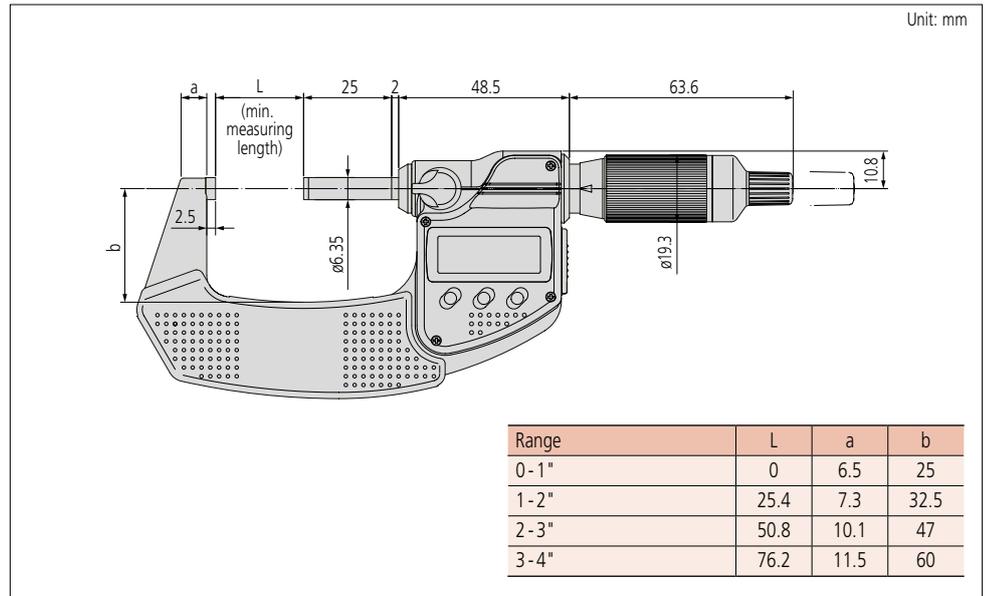
Optional Accessories*1

Code No.	Description
264-622	U-WAVE-TM transmitter
02AZF310	U-WAVE-TM connection unit
05CZA662	SPC data cable with pushbutton (1 m)
05CZA663	SPC data cable with pushbutton (2 m)
06AFM380B	USB input tool direct USB-ITN-B (2 m)

*1 Only for models with data output function.



Dimensions



Patented ratchet thimble mechanism*2

The patented ratchet thimble mechanism helps ensure repeatable results by transmitting micro-vibrations 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.

*2 Patent registered (Japan, USA, China, Germany, UK and France).



Ratchet-induced micro-vibrations along the spindle help ensure repeatable measurements.

Measuring time on a multi-stepped workpiece with one hand



Thanks to the quick movement, positioning times are reduced by around 75%*3 resulting in a reduction in measuring cycle times of about 60%*3 compared with a conventional micrometer.

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

