

# Coolant Proof Micrometer

## QuantuMike

Bulletin No. 1930



Rapid measurement is achieved thanks to 2 mm\* of spindle feed for every thimble revolution!

\* ● Patent registered (in USA)  
● Patent pending (in Japan, Europe, and China)

# Mitutoyo

Coolant proof micrometer

# QuantuMike

Debut of next-generation micrometer delivering thanks to integration of cutting-edge technology

Coolant proof micrometer

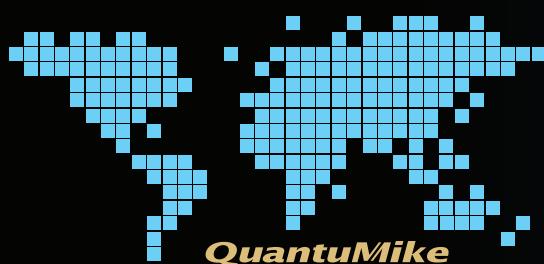
# QuantuMike

Mitutoyo is proud to have reached its leading position in the micrometer market through a spirit of innovation, imagination and creating added value. The QuantuMike brand of micrometer, inspired by this Mitutoyo Spirit, provides users with an excellent measuring experience with higher speed, quality and stability than ever before owing to the integration of sophisticated manufacturing and processing technologies.



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

The new global standard ..... QuantuMike



Evolution since the innovation by James Watt in 1772

History of micrometer advancement



1772

Micrometer invented by James Watt (UK)



1937

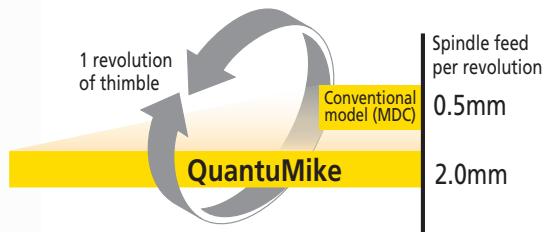
Mitutoyo success in manufacturing micrometers

# performance far beyond users' expectations

## Rapid measurement

Faster measurement is achieved by using a coarser thread which feeds the spindle by 2mm per revolution of the thimble instead of the standard 0.5mm. This increase in thread lead has been made possible thanks to new high precision thread-cutting and test techniques. Trials show that a reduction in positioning times of 60% and measuring times of 35%\* can be obtained, compared with a conventional micrometer.

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

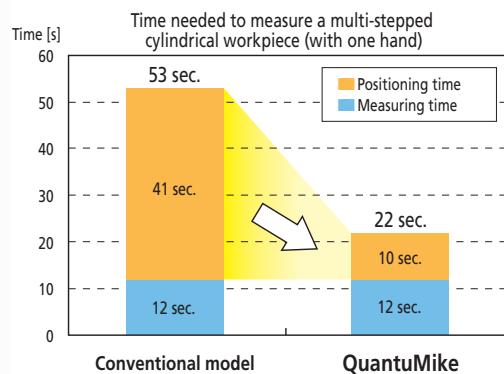


## Comparison of measuring time on a stepped workpiece

The time needed to measure 6 diameters on a workpiece, from the smallest to the largest with the micrometer held in one hand, was recorded for a conventional digital micrometer and for the QuantuMike



### ■ Significant reduction in positioning time



72



1971

Starting production of digital outside micrometers



1979

Starting production of Digimatic micrometers



2003

Development of coolant proof micrometers with IP65 protection



2007

**QuantuMike**

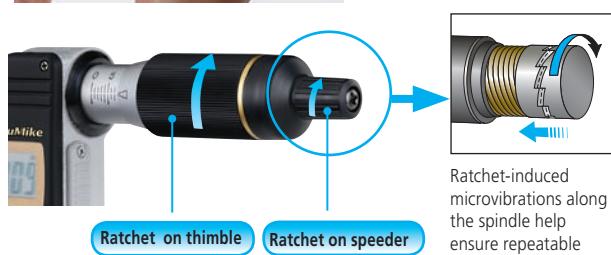
## Repeatable measurement\*

The patented 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.

- \* Patent registered (in USA)
- \* Patent pending (in Japan, Europe, and China)



Ratchet-induced microvibrations along the spindle help ensure repeatable measurements

## Function lock helps prevent error

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



## $\pm 1\mu\text{m}/\pm .00005"$ accuracy

Measurements are made to an accuracy\* of  $\pm 1\mu\text{m}/.00005"$  throughout the range.

\*Quantization error of  $\pm 1$  count excluded

## Graduated sleeve provides confidence check

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.



## Useful application of measured data

A statistical process control system and a measurement network system can be established to share quality information with a model equipped for data output.

## Dust/water resistance with IP65 protection level

Excellent resistance against oil, water and dust enables this product to be used in machining situations that include splashing coolant fluid.

Category	Level	Description
Protection against human contact and foreign bodies	6: Sealed against dust	Protection against ingress of dust, complete protection against contact
Protection against water	5: Protection against water	Water jets*1 directed at the enclosure from any direction must not have any harmful effects.

\*1: A jet nozzle with an inside diameter of 6.3 mm directs a volume flow of 12.5 liters per minute from a distance of approximately 3 meters onto the enclosure. The test time is 3 minutes or more.



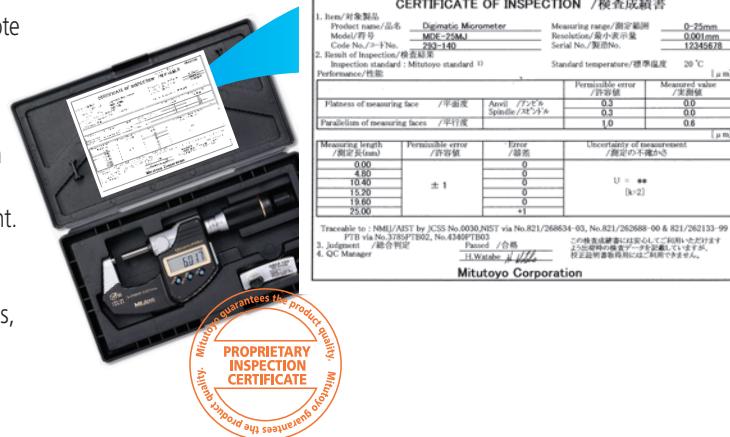
IP65

- Dust-tight and water jet protected IP65



## ■ Certificate of inspection attached

- A Certificate of Inspection is supplied with each instrument shipped that guarantees the quality of the product. Please note that this certificate cannot be used to obtain a Certificate of Calibration because the purchase date cannot be specified.
- Please let us know if a Certificate of Calibration is required when ordering a micrometer. This certificate is supplied, for a fee, and certifies the traceability of the purchased instrument and of the standard that was used to calibrate that instrument.
- Certificates of inspection and calibration are issued after processing each instrument by special measuring equipment, developed using Mitutoyo's advanced measuring technologies, which feature very small uncertainties of measurement.



## ■ Common specifications

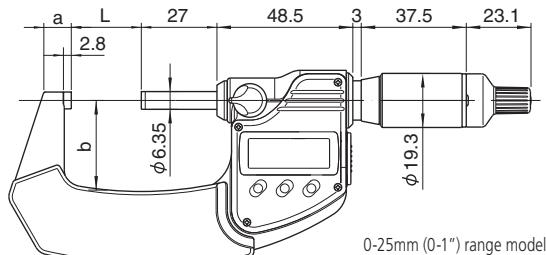
Functions	Origin point setting (ABS length measurement system) Zero setting (INC length measurement system) Hold Function lock Auto power ON/OFF Data output *1 Error alarm
Degree of protection	IP65 (IEC60529)*2
Measuring force	7.12N
Power supply	Button type silver oxide battery (SR44), 1 piece
Position detection system	Electromagnetic rotary sensor *3
Battery life	Approx. 3 years under normal conditions
Standard accessories	Reference bar, 1 piece (not for 0-25mm models) Button type silver oxide battery (SR44, No. 938882), 1 piece Spanner (No. 301336), 1 piece

\*1: Applicable only to 293-140/293-141/293-180/293-181

\*2: This product is not waterproof. Rustproofing shall be applied after use.

\*3: Patent registered (in USA), Patent pending (in Japan, Europe, and China)

## ■ Dimensions



Unit: mm

	L	a	b
0-25mm (0-1")	0	9	25
25-50mm (1-2")*	25 (25.4)*	9.8	32

## ■ Selective specifications

	Order No.	Measuring range	Resolution	Instrumental error*	Flatness of measuring faces	Parallelism of measuring faces	Weight
SPC data output	293-140	0-25mm					265g
	293-141	25-50mm					325g
Without SPC data output	293-145	0-25mm	0.001mm	±1µm			265g
	293-146	25-50mm					325g
SPC data output	293-180	0.1"/0-25mm			0.3µm or less	1µm or less	265g
	293-181	1-2"/25-50mm					325g
Without SPC data output	293-185	0-1"/0-25mm	.00005"/0.001mm	±.00005"/±1µm			265g
	293-186	1-2"/25-50mm					325g

\*Quantization error of ±1 count excluded

## ■ Optional accessories (Only for models with SPC data output function)

- Connection cable with output switch

No.05CZA662=1m

No.05CZA663=2m



- Input tool (signal conversion)

No. 264-005  
(Keyboard)



No. 264-012-10  
(USB)



No. 264-007  
(RS-232C)



- Digimatic mini processor, DP-1VR

No.264-504-5A

(Data processor for  
quality control)



MIG-4A



982-548-10A  
Front view

MIG-2B



982-547-10A  
Front view

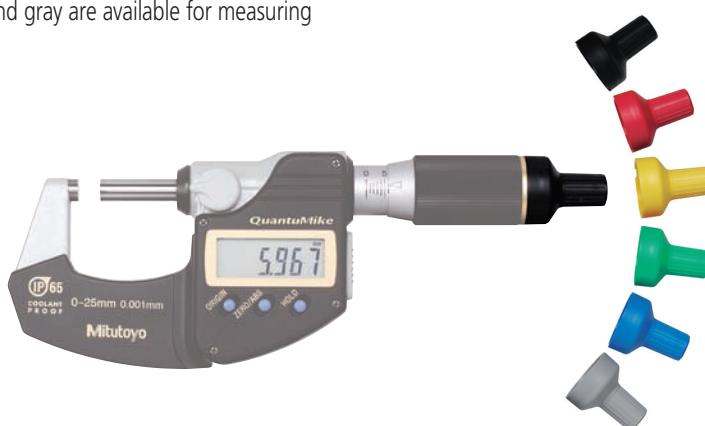
## ■ Optional accessories

- Color speeder sleeve

Color speeder sleeves in black, red, yellow, green, blue, and gray are available for measuring management.

Color	Product No.
Black	No.04GAA899*
Red	No.04GAA900
Yellow	No.04GAA901
Green	No.04GAA902
Blue	No.04GAA903
Gray	No.04AAB208

\* Standard



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

 Mitutoyo America Corporation

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