Coolant Proof Micrometer QuantuMike

Catalog No.E4318

Speedy 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 p thanks to integration of cutting-edge technology

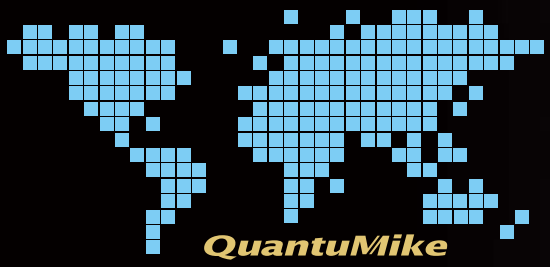
Coolant proof micrometer

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

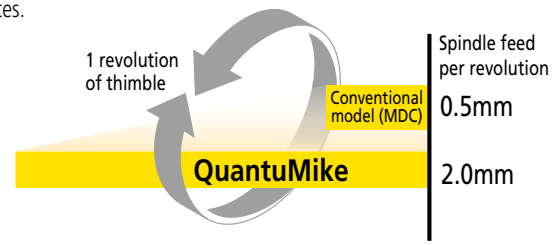
Success in manufacturing micrometers domestically

erformance far beyond users' expectations

Speedy 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.

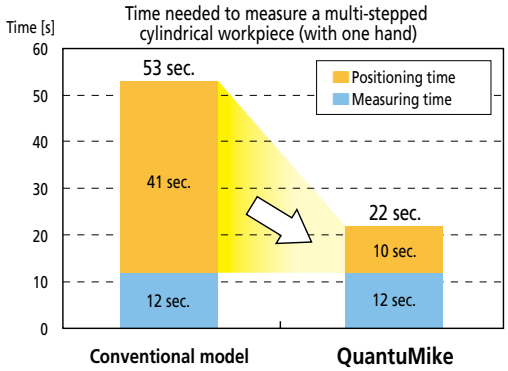
* According to Mitutoyo's comparison test data for measuring time on typical workpieces.



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



1971

Starting production of digit outside micrometers

1979

Starting production of Digimatic micrometers

2003

Development of coolant proof micrometers with degree of protection IP65

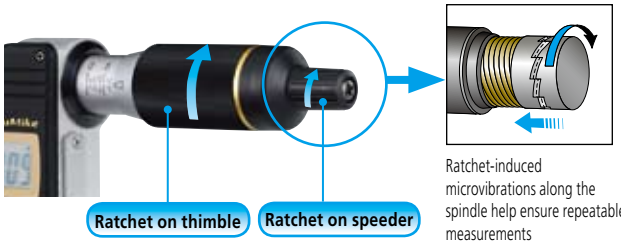
2007

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 Japan, USA, China, Germany, UK, and France)



Ratchet-induced microvibrations along the spindle help ensure repeatable measurements

Function lock helps prevent error

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

±1µm/±.00005" accuracy

Measurements are made to an accuracy* of ±1um/.00005" throughout the range.

*Quantization error of ±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 millimetre 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 information regarding quality with a model equipped with the data output function.

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.

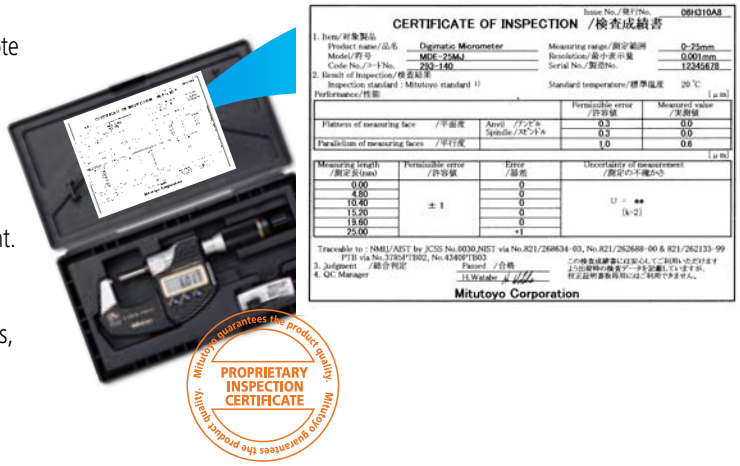
IP65

www.tuv.com TÜVRheinland ID:0000021656

• 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.



Data output function equipped
293-140 (mm)

Data output function equipped
293-141 (mm)

Data output function equipped
293-180 (inch/mm)

Data output function equipped
293-181 (inch/mm)

■ Common specifications

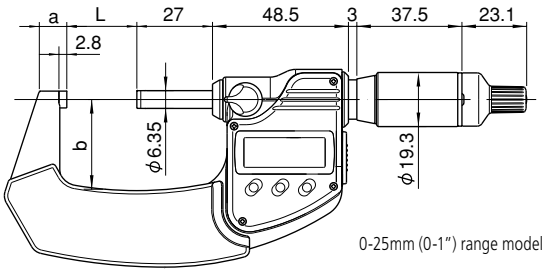
Functions	Origin point setting (ABS length measurement system) Zero setting (INC length measurement system) Hold Function lock Auto power ON/OFF Data output *1 Error alarm
Degree of protection	IP65 (IEC60529)*2
Measuring force	7-12N
Power supply	Button type silver oxide battery (SR44), 1 piece
Position 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 pending (in Japan, USA, Europe, and China)

■ Functions

Origin point setting (ABS length measurement system)	Pressing the ORIGIN button resets the ABS origin at the current spindle position.
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. A second press unfreezes the display ready for another measurement.
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	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.

■ Dimensions



0-25mm (0-1") range model

Unit: mm

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

■ Selective specifications

	Order No.	Measuring range	Resolution	Instrumental error*	Flatness of measuring faces	Parallelism of measuring faces	Weight
Data output function equipped	**293-140**	0-25mm	0.001mm	±1μm	0.3μm or less	1μm or less	265g
	293-141	25-50mm					325g
Data output function not equipped	**293-145**	0-25mm					265g
	293-146	25-50mm					325g
Data output function equipped	**293-180**	0-1"/0-25mm	.00005"/0.001mm	±.00005"/±1μm			265g
	293-181	1-2"/25-50mm					325g
Data output function not equipped	**293-185**	0-1"/0-25mm					265g
	293-186	1-2"/25-50mm					325g

*Quantization error of ±1 count excluded

■ **Optional accessory** (Only for models with data output function)

• **Connection cable with output switch**
No.05CZA662=1m
No.05CZA663=2m

• **Input tool, IT-12U**
(USB keyboard signal conversion type)
No.264-012

• **Digimatic mini processor, DP-1VR**
No.264-504
(Data processor for quality control)

• **Multiplexer, MUX-10F**
No.264-002
(Unit for combining many data streams)

■ Optional accessory

• **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 accessory

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