

2 mm feed per revolution
QuantuMike

SMALL TOOL INSTRUMENTS
AND DATA MANAGEMENT

COOLANT PROOF™ IP65

2 mm Feed...



....per revolution



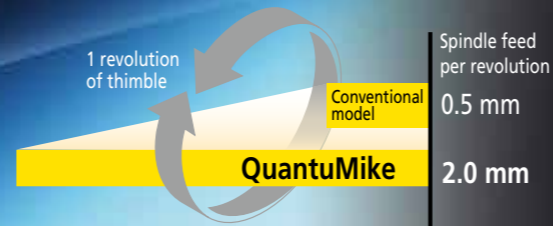
- Patent registered (in Japan, USA, China, Germany, UK, and France)
- Patent pending application in Japan, EU member nations, and China.

2 mm feed per revolution QuantuMike

Next-generation micrometer delivering performance far beyond users' expectations thanks to integration of cutting-edge technology

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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 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 conception History of micrometer advancement



1772
Micrometer invented by James Watt (UK)



1937
Success in manufacturing micrometers domestically



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
(Early model)

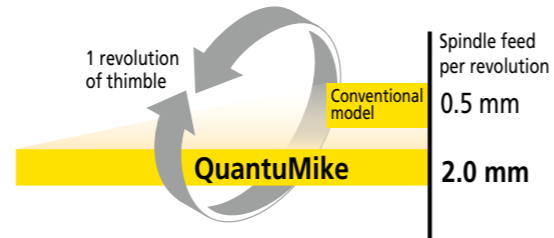
Speedy measurement is achieved thanks to 2 mm* of spindle feed for every thimble revolution!

(* Conventional model 0.5 mm)

Speedy measurement

Faster measurement is achieved by using a coarser thread which feeds the spindle by 2 mm per revolution of the thimble instead of the standard 0.5 mm. This increase of spindle feed 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.

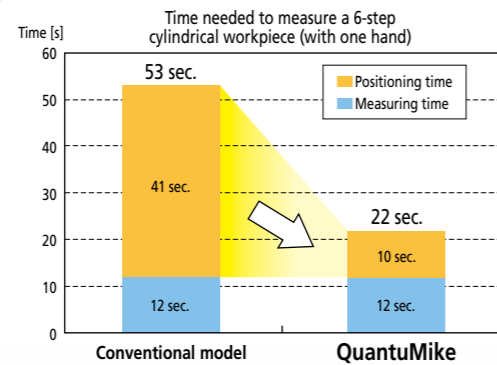
* According to Mitutoyo's comparison test data for measuring time on typical workpieces.



Comparison of time needed to measure a 6-step cylindrical workpiece

One-handed measurement times when a 6-step cylindrical workpiece is measured successively from the smallest diameter.

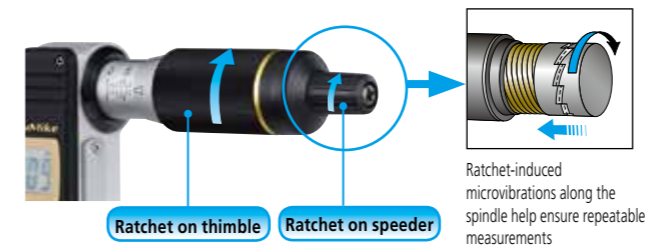
Significant reduction in positioning time



Ratchet thimble mechanism ensures stable measurement

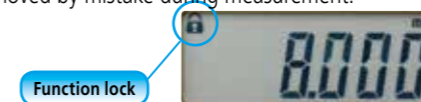
The patented ratchet thimble mechanism* helps ensure repeatable results by transmitting microvibrations along the spindle to the contact face to provide a constant measuring force and encourage good contact with the workpiece. The ratchet works from the thimble as well as the speeder so it is always 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)



Function lock helps prevent error

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



Maximum permissible error of $\pm 1 \mu\text{m} / \pm 0.00005$

(Except for 75-100 mm (3-4 in) type.)

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	Brief description
Protection against solid foreign objects	6: Dust-proof	No ingress of dust allowed.
Protection against water	5: Protected against water jets	Water protected in jets against the enclosure from any direction shall have no harmful effects.

Note: For details of the test conditions used in evaluating each degree of protection, please refer to the original standard.



Protection codes IP65 has successfully passed the IP test carried out by a Germany accreditation organization, TÜV Rheinland.



2 mm feed per revolution QuantuMike



Data output function equipped
293-140-30 (mm)



Data output function equipped
293-141-30 (mm)



Data output function equipped
293-142-30 (mm)



Data output function equipped
293-143-30 (mm)

Specifications

Metric	Order No.	Range (mm)	Resolution (mm)	Maximum permissible error J_{MPE} (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					465
	293-143-30	75 - 100					620
	293-145-30	0 - 25					265
Without SPC data output	293-146-30	25 - 50	± 1	1	325		
	293-147-30	50 - 75	± 2	2	465		
	293-148-30	75 - 100		620			
Inch/Metric	Order No.	Range (in)	Resolution	Maximum permissible error J_{MPE} (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					465
	293-183-30	3 - 4					620
	293-185-30	0 - 1					265
Without SPC data output	293-186-30	1 - 2	± 0.00005	1	325		
	293-187-30	2 - 3	± 0.0001	2	465		
	293-188-30	3 - 4		620			

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	7-12 N*3
Power supply	Button type silver oxide battery (SR44), 1 piece
Position detection system	Electromagnetic rotary sensor*4
Battery life	Approx. 2.4 years under normal conditions
Standard accessories	Reference bar, 1 piece (except for 0-25 mm (0-1 in) models) Button type silver oxide battery (SR44, 938882), 1 piece Spanner (301336), 1 piece

*1 Applicable only to 293-140-30/293-141-30/293-180-30/293-181-30/
293-142-30/293-143-30/293-182-30/293-183-30

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

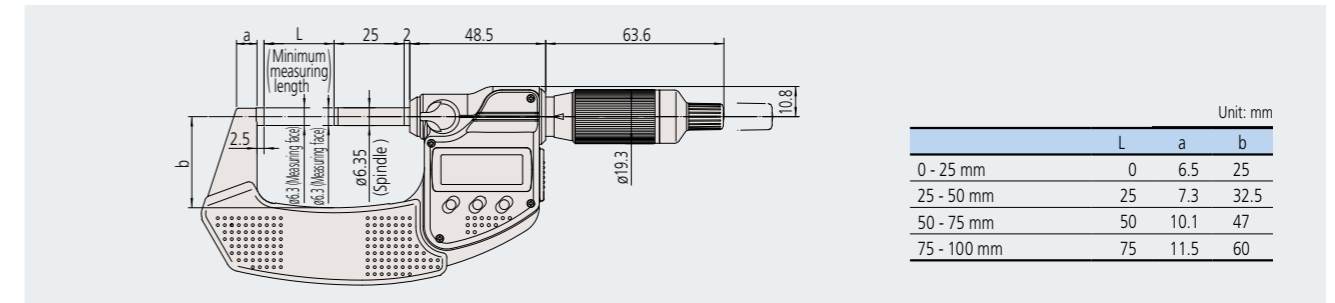
*3 Measuring force when using the speeder ratchet (Apply a measuring force in the same condition as for measurement and then set the origin.)

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

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) length measurement system. A longer press resets to the ABS length measurement system.
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



Certificate of inspection attached

Applicable only to 0-25 mm (0-1 in) type and 25-50 mm (1-2 in) type

- 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.



Color speeder sleeve



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

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

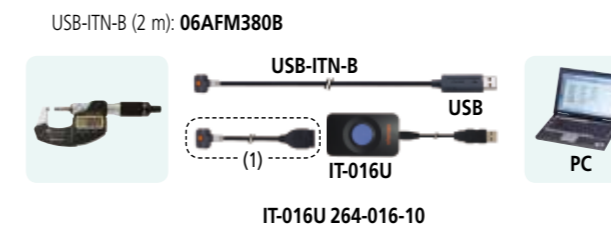
* Standard accessory

Measurement Data Recording Tools & Connecting cables (optional)

(Exclusively for models with measurement data output function: 293-140-30/293-141-30/293-142-30/293-143-30)

Dedicated interface (wired or wireless) makes it easy to import measurement data to a PC.

• **Wired Connection to PC ... USB Input Tool**
(Refer to Catalog E12007)



Connecting cables specific to models with measurement data output function

(1) 1 m: 05CZA624*
2 m: 05CZA625*

• **Wireless Connection to PC ... U-WAVE-fit**
U-WAVE-TM (IP67) 264-622
U-WAVE-TM (buzzer) 264-623
Connecting unit for U-WAVE-TM (IP67/buzzer type common specification) 02AZF310



• **PC, smartphone and tablet connections (wireless system)**
...Mitutoyo Bluetooth® U-WAVE
U-WAVE-TMB (IP67) 264-626
U-WAVE-TMB (buzzer) 264-627
Connecting unit for U-WAVE-TM (IP67/buzzer type common specification) 02AZF310



Note: U-WAVEPAK-BM (English specification only), the communication software for transferring measurement data to smartphones and tablets is available at app stores for free download, while U-WAVEPAK-BW, the computer communication software for transferring measurement data to computer software, is available for download from Mitutoyo's website.



Whatever your challenges are, Mitutoyo supports you from start to finish.

Mitutoyo is not only a manufacturer of top quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed up by comprehensive services that ensure your staff can make the very best use of the investment.

Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver bespoke measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.



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