

# QuantuMike

## SERIES 293 — IP65 Coolant Proof Micrometer with 2mm/rev Spindle Feed

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

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.



Metric	
Range	Order No.
0 - 25mm	293-140 / 293-145*
25 - 50mm	293-141 / 293-146*

\*without SPC data output



Inch/Metric	
Range	Order No.
0 - 1"	293-180 / 293-185*
1" - 2"	293-181 / 293-186*

\*without SPC data output



(Refer to the page 9 for details.)



(Refer to the page 9 for details.)



Certificate of inspection

### Technical Data

- Accuracy:  $\pm 1\mu\text{m}$  (excluding quantizing error)
- Resolution: 0.001mm, .00005"/0.001mm
- Flatness: 0.3 $\mu\text{m}$
- Parallelism: 1 $\mu\text{m}$
- Measuring faces: Carbide tipped
- Display: LCD
- Length standard: Electromagnetic rotary sensor
- \*Patent pending (in Japan, USA, Europe, and China)
- Battery: SR44 (1 pc.), 938882
- Battery life: Approx. 3 years under normal use
- Dust/Water protection level: IP65

### Function

- Origin-set, Preset (over 100mm models), Zero-setting, Automatic power ON/OFF, Data hold, Data output, inch/mm conversion (inch/mm models)
- Alarm: Low voltage, Counting value composition error





### Optional Accessory

- 05CZA662: SPC cable with data switch (1m)
- 05CZA663: SPC cable with data switch (2m)



SPC cable with data switch



Measurement data output function is available with a water-resistant connection cable.

### 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.



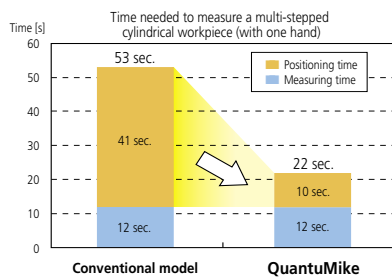
## FEATURES

### • 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.



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

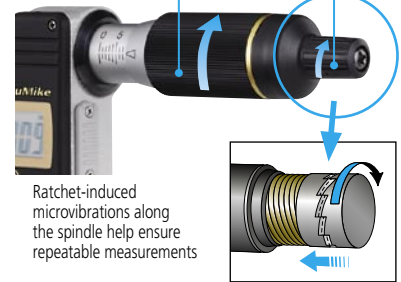
### • Repeatable measurement

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)



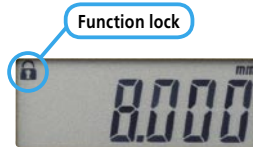
Ratchet on thimble Ratchet on speeder



Ratchet-induced microvibrations along the spindle help ensure repeatable measurements

### • Function lock

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



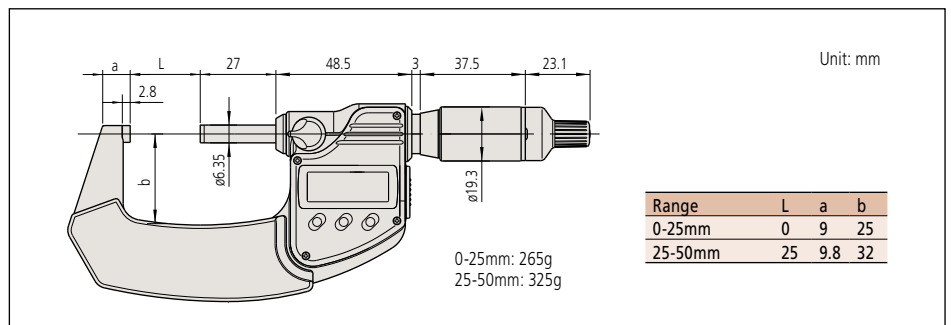
Function lock

### • 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.



## DIMENSION AND MASS



# Coolant Proof Micrometer

**SERIES 293 — with Dust/Water Protection Conforming to IP65 Level**

## FEATURES

- IP65 protection level, enabling use in environments exposed to cutting oil, etc\*.  
\*Anti-corrosion treatment is required after use.
- Measurement data output function is available with a water-resistant connection cable.
- Oil-resistance materials are used in all plastic components.
- $\pm 1\mu\text{m}$  instrumental error (75mm or less range models)
- Auto power ON/OFF function.
- Certificate of inspection\* is included. (50mm or less range models)  
\*It is not the type used to obtain calibration certificates.



Oil-resistance materials are used in all plastic components.



(Refer to the page 9 for details.)



(Refer to the page 9 for details.)



Certificate of inspection

## Technical Data

- Accuracy: Refer to the list of specifications. (excluding quantizing error)
- Resolution: 0.001mm, .00005"/0.001mm (up to 4") or .0001"/0.001mm (over 4")
- Flatness: 0.3 $\mu\text{m}$
- Parallelism: 1 $\mu\text{m}$  for models up to 50mm  
2 $\mu\text{m}$  for models up to 100mm  
3 $\mu\text{m}$  for models up to 175mm  
4 $\mu\text{m}$  for models up to 275mm  
5 $\mu\text{m}$  for models over 275mm
- Measuring faces: Carbide tipped
- Display: LCD
- Battery: SR44 (1 pc.), **938882**
- Battery life: Approx. 1.2 years under normal use (8 months: over 100mm models)
- Dust/Water protection level: IP65

## Function

- Origin-set, Preset (over 100mm models), Zero-setting, Automatic power ON/OFF, Data hold, Data output, inch/mm conversion (inch/mm models)
- Alarm: Low voltage, Counting value composition error

## Optional Accessory

- 05CZA662**: SPC cable with data switch (1m)  
**05CZA663**: SPC cable with data switch (2m)



SPC cable with data switch



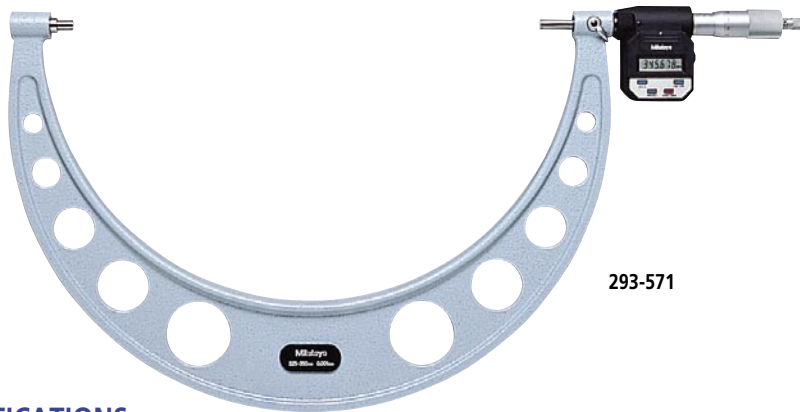
Measurement data output function is available with a water-resistant connection cable.



# Digimatic Micrometer

## SERIES 293

### FEATURES



293-571

### SPECIFICATIONS

Metric  With ratchet stop		
Range	Order No.	Accuracy
300 - 325mm	293-571	±6μm
325 - 350mm	293-572	±6μm
350 - 375mm	293-573	±6μm
375 - 400mm	293-574	±7μm
400 - 425mm	293-575	±7μm
425 - 450mm	293-576	±7μm
450 - 475mm	293-577	±8μm
475 - 500mm	293-578	±8μm

Inch/Metric  With ratchet stop		
Range	Order No.	Accuracy
12" - 13"	293-771	±.0003"
13" - 14"	293-772	±.0003"
14" - 15"	293-773	±.0003"
15" - 16"	293-774	±.00035"
16" - 17"	293-775	±.00035"
17" - 18"	293-776	±.00035"
18" - 19"	293-777	±.0004"
19" - 20"	293-778	±.0004"



### Technical Data

Accuracy: Refer to the list of specifications. (excluding quantizing error)  
 Resolution: 0.001mm or .0001"/0.001mm  
 Flatness: 0.6μm  
 Parallelism: 5μm for models up to 375mm  
 6μm for models up to 475mm  
 7μm for models over 500mm  
 Measuring faces: Carbide tipped  
 Display: LCD  
 Battery: SR44 (2 pcs.), **938882**  
 Battery life: Approx. 1.8 years under normal use  
 Dimensions: Refer to the page 27 for details.

### Function

Preset, Zero-setting, Power ON/OFF, Data hold, Data output, inch/mm conversion (inch/mm models)  
 Alarm: Low voltage, Counting value composition error

### Optional Accessory

**937387**: SPC cable (1m)  
**965013**: SPC cable (2m)



# Digimatic Micrometer

## SERIES 293

### FEATURES

- Simply measures 0 through 25mm with resolution to 0.001mm.
- Provided only with a origin-set key for easy origin setting.
- A ratchet stop or friction thimble for a constant measuring force.
- Measurement readout with large characters on the LCD screen.

### SPECIFICATIONS

Metric  With ratchet stop		
Range	Order No.	Accuracy
0 - 25mm	293-821	±2μm



293-821

Inch/Metric  With ratchet stop		
Range	Order No.	Accuracy
0 - 1"	293-831	±.0001"

Inch/Metric  With friction thimble		
Range	Order No.	Accuracy
0 - 1"	293-832	±.0001"

### Technical Data

Accuracy: Refer to the list of specifications. (excluding quantizing error)  
 Resolution: 0.001mm or .00005"/0.001mm  
 Flatness: 0.3μm  
 Parallelism: 2μm  
 Measuring faces: Carbide tipped  
 Display: LCD  
 Battery: SR44 (1 pc.), **938882**  
 Battery life: Approx. 1.2 years under normal use

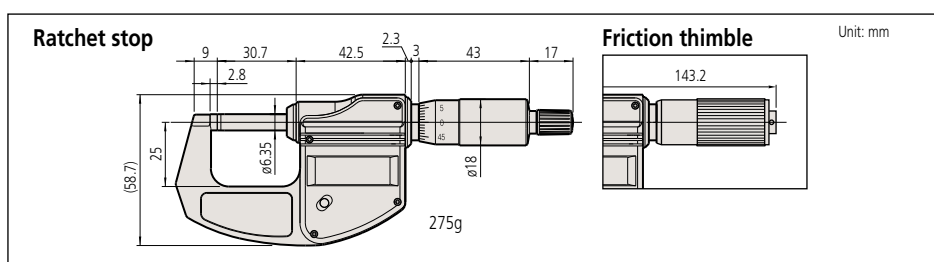
### Function

Origin-set, Automatic power on/off, inch/mm conversion (inch/mm models)  
 Alarm: Low voltage, Counting value composition error



(Refer to the page 9 for details.)

### DIMENSION AND MASS





(Refer to the page 9 for details.)

### Technical Data

Accuracy: Refer to the list of specifications.  
(excluding quantizing error)  
Resolution: 0.001mm or .00005"/0.001mm  
Flatness: 0.3μm  
Parallelism: 2μm  
Measuring faces: Carbide tipped  
Display: LCD  
Battery: SR44 (1 pc.), **938882**  
Battery life: Approx. 3 years under normal use  
(1 year for 15-30mm range model)

### Function

Origin-set, Power ON/OFF, Data hold, Data output, Preset (15-30mm range model), inch/mm conversion (inch/mm models)  
Alarm: Low voltage, Counting value composition error

### Optional Accessory

**937387**: SPC cable (1m)  
**965013**: SPC cable (2m)

# ABSOLUTE Digimatic Micrometers

## SERIES 227 — with Constant & Adjustable Fine-loading Device

### FEATURES

- Constant and low measuring force mechanism in the thimble.
- Adjustable measuring force\* accommodates various kind of work materials.  
\*0.5-2.5N or 2-10N
- The measurement-value hold function automatically retains the data at a specified measuring force, ensuring accuracy.
- Non-rotating spindle and the new ratchet friction thimble.
- Speedy spindle feed of 10mm/rev.
- With absolute linear scale.
- With SPC data output.
- With a standard bar to set the origin point (for models with 15 - 30mm range).



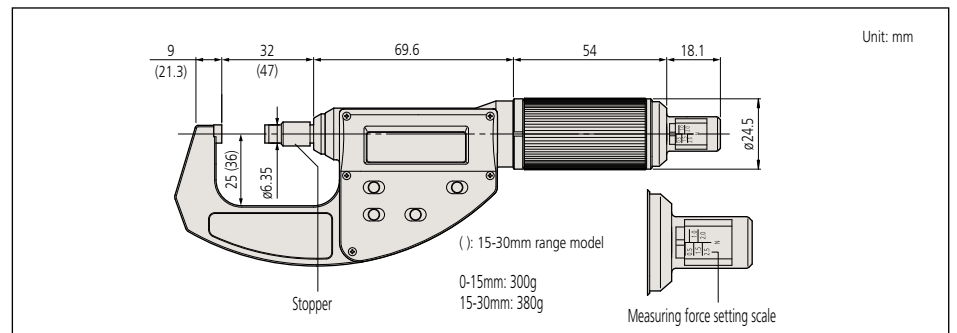
### SPECIFICATION

Metric			
Range	Order No.	Accuracy	Measuring force
0 - 15mm	<b>227-201</b>	±2μm	0.5N - 2.5N
	<b>227-202</b>	±2μm	2N - 10N
15 - 30mm	<b>227-203</b>	±2μm	0.5N - 2.5N
	<b>227-204</b>	±2μm	2N - 10N

Inch/Metric			
Range	Order No.	Accuracy	Measuring force
0 - .6"	<b>227-211</b>	±.0001"	0.5N - 2.5N
	<b>227-212</b>	±.0001"	2N - 10N
.6" - 1.2"	<b>227-213</b>	±.0001"	0.5N - 2.5N
	<b>227-214</b>	±.0001"	2N - 10N



### DIMENSION AND MASS



# Quickmike

## SERIES 293 — IP-54 ABSOLUTE Digimatic Micrometers

The Quickmike provides a speedy spindle feed of 10mm per thimble rotation as compared to the conventional micrometer with 0.5mm per rotation. Its wide 30mm measuring range allows various workpieces with different shapes to be measured quickly.

### FEATURES

- Non-rotating spindle and the new ratchet friction thimble.
- Speedy spindle feed of 10mm/rev.
- With absolute linear scale.
- IP54 dust/water protection (when not connected with data output cable).
- With SPC data output.
- With a standard bar to set the origin point (for models with a range over 30mm).



293-666



293-667



293-668



293-669

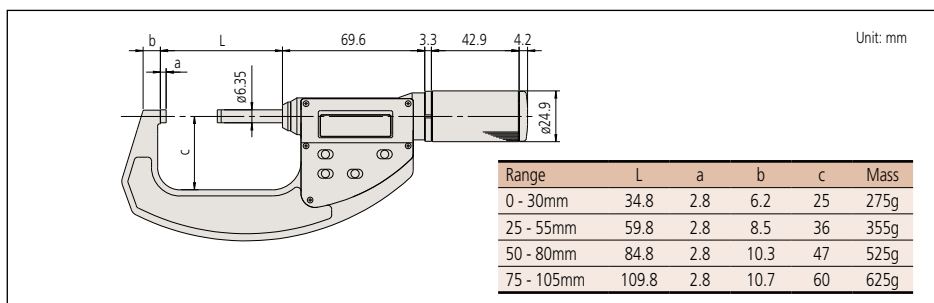
### SPECIFICATION

Metric		
Range	Order No.	Accuracy
0 - 30mm	293-666	±2µm
	293-661-10*	±2µm
25 - 55mm	293-667	±2µm
50 - 80mm	293-668	±3µm
75 - 105mm	293-669	±3µm

\*Without SPC data output

Inch/Metric		
Range	Order No.	Accuracy
0 - 1.2"	293-676	±.0001"
1" - 2.2"	293-677	±.0001"
2" - 3.2"	293-678	±.00015"
3" - 4.2"	293-679	±.00015"

### DIMENSION AND MASS



(Refer to the page 9 for details.)



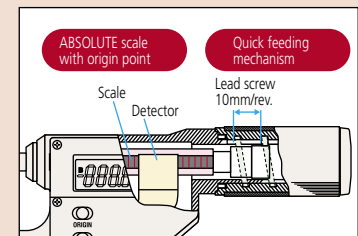
(Refer to the page 9 for details.)

### Technical Data

Accuracy: Refer to the list of specifications. (excluding quantizing error)  
 Resolution: 0.001mm or .00005"/0.001mm  
 Flatness: 0.3µm  
 Parallelism: 2µm for models up to 80mm  
 3µm for models up to 105mm  
 Measuring faces: Carbide tipped  
 Display: LCD  
 Battery: SR44 (1 pc.), 938882  
 Battery life: Approx. 3 years under normal use  
 (1 year for models over 30mm)  
 Dust/Water protection level: IP54

### Function

Origin-set, Zero-setting, Power ON/OFF, Data hold, Data output, inch/mm conversion (inch/mm models)  
 Alarm: Low voltage, Counting value composition error



### Optional Accessory

- 937387: SPC cable (1m)
- 965013: SPC cable (2m)