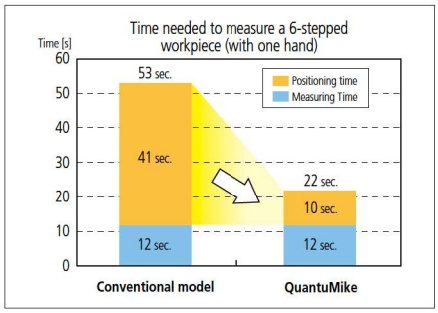
High-speed and High-accuracy Digimatic Micrometer QuantuMike
SERIES 293 — IP65 Micrometer with 2 mm/rev Spindle Feed

- Groundbreaking Digimatic micrometers featuring both quick operation and accuracy. The spindle can be moved quickly to reduce the time spent working. Useful in 100% inspections or when measuring a workpies with multiple features.
- The ratchet thimble mechanism promotes stable measurement with one hand and is suitable for sampling inspections on the processing site. The thimble and speeder both have a ratchet mechanism that taps toward the measurement axis and thus enables consistently repeatable measurements. The ratchet speeder helps with fast feeding.
- Compared with standard micrometers, this model can reduce the time spent working on the workpiece by approximately 76%* and total measurement time by approximately 58%*.

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



293-140-30

SPECIFICATIONS

Metric

Code No.	Range (mm)	Resolution (mm)	Measuring force*1 (N)	Maximum permissible error J_{MPE} (µm)	Flatness (µm)	Parallelism (µm)	Mass (g)
With SPC data output							
293-140-30	0 - 25	0.001	7 to 12	±1	0.3	1	265
293-141-30	25 - 50						325
293-142-30	50 - 75			±2		2	465
293-143-30	75 - 100						620
Without SPC data output							
293-145-30	0 - 25	0.001	7 to 12	±1	0.3	1	265
293-146-30	25 - 50						325
293-147-30	50 - 75			±2		2	465
293-148-30	75 - 100						620

Inch / Metric

Code No.	Range (in)	Resolution	Measuring force*1 (N)	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	7 to 12	±0.00005	0.000012	0.00004	265
293-181-30	1 - 2						325
293-182-30	2 - 3			±0.0001		0.00008	465
293-183-30	3 - 4						620
Without SPC data output							
293-185-30	0 - 1	0.00005 in/ 0.001 mm	7 to 12	±0.00005	0.000012	0.00004	265
293-186-30	1 - 2						325
293-187-30	2 - 3			±0.0001		0.00008	465
293-188-30	3 - 4						620

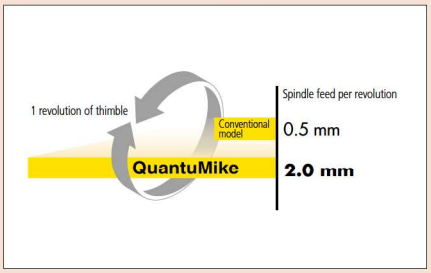
- Dust/Water protection level: IP65 (IEC60529)*2
- Power source: SR44 battery (1 pc.), **938882** included as standard (for operational checks)
- Battery life: Approx. 2.4 years under normal use
- Position detection method: Electromagnetic rotary sensor
- Standard accessories: Setting standard, 1 pc. (except for 0 to 25 mm (0 to 1 in) models), Spanner (**301336**), 1 pc.

*1 Measuring force when using the speeder ratchet (Apply a measuring force in the same condition as for measurement and then set the origin.)
*2 Rustproofing shall be applied after use.

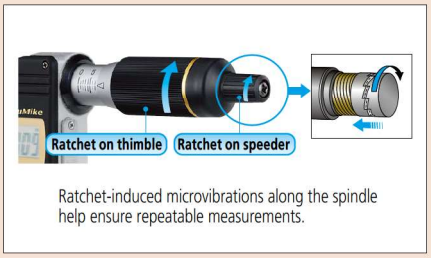
MeasurLink® ENABLED Data Management Software by Mitutoyo
U-WAVE fit
IP65
Dust- and Water-Protected
TÜVRheinland CERTIFIED www.tuv.com ID 1419032586
PROPRIETARY INSPECTION CERTIFICATE

Measurement example

High lead of 2.0 mm per pitch



Ratchet thimble mechanism



Ratchet-induced microvibrations along the spindle help ensure repeatable measurements.

Functions

Origin point setting (ABS length measurement system):
Pressing the ORIGIN button resets the ABS origin at the current spindle position. Origin values can be set depending on each size.

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:
The function that holds the display of value is useful when it is difficult to see the measured value at the measurement point. When the function is cancelled, the previous zero-set point or a measured value with reference to the origin is displayed.

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.

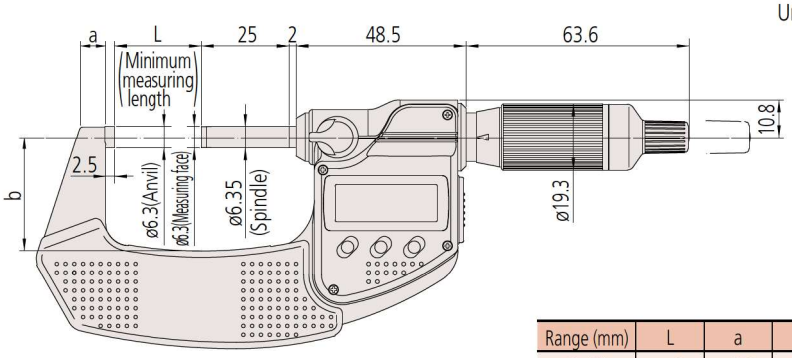
Error alarm:
In case of an overflow on the LCD or a computing error, an error message appears on the LCD, and the measuring function stops. This prevents an instrument from giving an erroneous reading. Also, when the battery voltage drops to a certain level, the low-battery-voltage alarm indicator appears well before the micrometer becomes unusable.
* Only for the models with SPC data output

Optional Accessories

Code No.	Type	Description
264-020	—	USB Input Tool Series USB Keyboard Signal Conversion Type **IT-020U**
05CZA662	B	Connection cable (1 m)
05CZA663	B	Connection cable (2 m)
06AFM380B	B	USB Input Tool Direct (2 m)
02AZD730G	IP67	**U-WAVE-T**
02AZD880G	Buzzer	**U-WAVE-T**
02AZE200	—	**U-WAVE-T** mounting bracket
02AZD790B	B	Connection cable for **U-WAVE-T** (160 mm)
02AZE140B	B	Connection cable for **U-WAVE-T** For foot switch
264-622	IP67	**U-WAVE-TM**
264-623	Buzzer	**U-WAVE-TM**
264-626	IP67	**U-WAVE-TMB**
264-627	Buzzer	**U-WAVE-TMB**
02AZF310	IP67	Connecting unit for **U-WAVE-TM/TMB**

DIMENSIONS

Unit: mm



Range (mm)	L	a	b
0 - 25	0	6.5	25
25 - 50	25	7.3	32.5
50 - 75	50	10.1	47
75 - 100	75	11.5	60

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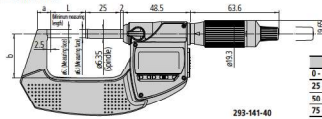
Dimensions

Unit: mm



293-141-40

Range	L	a	b
0 - 25 mm	0	9	25
25 - 50 mm	25	9.8	32.5
50 - 75 mm	50	17.6	47
75 - 100 mm	75	14	60

Standard accessories

- Reference bar (except for 0-25 mm (0-1 in) models)
- Storage case
- Spanner (30133G), 1 piece
- Battery, 1 piece
- User's manual
- Inspection Certificate*

*Inspection Certificate included as standard accessory for sizes 0 to 25 mm and 25 to 50 mm (This Inspection Certificate cannot be used to obtain a Certificate of Calibration.)

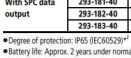
Specifications

Metric	Order No.	Range (mm)	Resolution (mm)	Measuring force*1 (N)	Maximum permissible error /MPE (µm)	Flatness (µm)	Parallelism (µm)	Mass (g)
With SPC data output	293-140-40	0 - 25	0.001	7 - 12	±1	0.3	1	265
	293-141-40	25 - 50						325
	293-142-40	50 - 75			±2		2	465
	293-143-40	75 - 100						620
Inch/Metric	Order No.	Range (in)	Resolution	Measuring force*1 (N)	Maximum permissible error /MPE (in)	Flatness (in)	Parallelism (in)	Mass (g)
With SPC data output	293-180-40	0 - 1	0.00005 in/ 0.001 mm	7 - 12	±0.00005	0.000012	0.00004	265
	293-181-40	1 - 2						325
	293-182-40	2 - 3			±0.0001		0.00008	465
	293-183-40	3 - 4						620

- Degree of protection: IP65 (IEC60529)*2
- Power supply: One CR2032 lithium metal battery included as standard accessory (for operation check)
- Battery life: Approx. 2 years under normal conditions
- Position detection system: Electromagnetic rotary sensor

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

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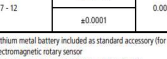
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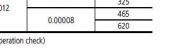
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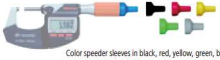
Functions

Origin point setting (ABS length measurement system)	The measurement origin can be preset to any value within the display range for convenience in measuring.
Zero setting (INC length measurement system)	The display can be zeroed at any position of the spindle, making comparison measurement easier. Returning to the absolute-measurement mode is easily accomplished.
Hold	The hold function freezes the current value on the display, making it useful for performing measurements in locations where the display is difficult to see. Also, when the hold function is released, the measurement value from the most recently set zero set position or origin point position is displayed.
Calibration schedule alert function	Supports proper management of the Digimatic gage.
Approach speed warning function	Reduces variation in measurement values and improves reliability of measurements.
Tolerance judgment function	You can judge pass/failure at a glance, which is effective even when handling numerous workpieces.
Calculation function (Ax + B)	Enables calculation and direct reading of correction values for a processing machine, thereby improving the efficiency of processing work.
Key operation lock feature	Locks the ORIGIN (origin point setting) and ZERO (zero setting) functions to prevent the origin point from being accidentally changed.
Auto power ON /OFF	The reading on the LCD disappears if the micrometer is left idle for approx. 20 minutes, but the origin point (preset value) for absolute length measurement is retained. Turning the spindle again will restore the reading on the LCD.
Key customization function	Helps to easily recall frequently used functions for improved work efficiency.
Measurement data output function (Digimatic S1)	Bidirectional communication allows setting changes and information management to be easily performed from a PC.
Error message	In the event of an overflow on the LCD or a computing error, an error message appears on the LCD, and the measuring function stops. This prevents continuation of measurement with an erroneous display. Also, when the battery voltage drops to a certain level the battery depletion indicator appears well before the micrometer becomes unusable.

Optional Accessories

Code No.	Description (Type)
264-020	USB Input Tool Series USB Keyboard Signal Conversion Type II-020U
06AGL111	Connection cable (1 m)
06AGL121	Connection cable (2 m)
06AGQ001A	USB Input Tool Direct (2 m)
264-622	U-WAVE-TM (IP67)
264-623	U-WAVE-TM (Buzzer)
264-626	U-WAVE-TMB (IP67)
264-627	U-WAVE-TMB (Buzzer)
02AZF960	Connecting unit for U-WAVE-TM/TMB (IP67)

Color speeder sleeve (optional)



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

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

- A Certificate of Inspection containing inspection data at the time of shipment is included.

Note: This shipping data cannot be used to obtain a Certificate of Calibration.

Regarding measuring instruments with Inspection Certificate

Mitutoyo guarantees product quality as a leading precision measuring instrument manufacturer and ships measuring instruments with an Inspection Certificate that includes inspection data so that customers can use them with confidence.