Micrometer

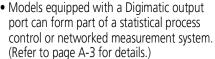
The origin of Mitutovo's trustworthy brand of small tool instruments

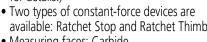
Coolant Proof Micrometers SERIES 293 — with Dust/Water Protection **Conforming to IP65 Level**



Data Management Software by Mitutoyo

- World's highest performing micrometer overall.
- Extended battery life of approximately 2.4
- Ergonomic anti-slip frame cover and front panel for more comfortable hand-held measurements.
- Ratchet thimble provides better operability for one-handed operation.
- Oil-resistant material used for all plastic parts.
- Models equipped with a Digimatic output port can form part of a statistical process (Refer to page A-3 for details.)
- Interface Input Tools are available that enable the conversion of measurement data to keyboard signals that are then directly input to cells in off-the-shelf spreadsheet software such as Excel. (Refer to page A-13 for details.)
- available: Ratchet Stop and Ratchet Thimble.
- Measuring faces: Carbide.













MeasurLink' ENABLED

Products equipped with the measurement data output function can be connected to the measurement data network system MeasurLink (refer to page A-5 for details).



These marks indicate that a product has successfully passed IP65-level testing, which is carried out by the independent German certification organization TÜV Rheinland.





An inspection certificate is supplied as standard Refer to page U-11 for details. (Maximum measuring range up to 50 mm)

IP Codes

Level 6: Dust-proof.

No ingress of dust allowed.

Level 5: Protected against water jets.

Water projected in jets against the enclosure from any direction shall have no harmful effects.

Technical Data

• Flatness: 0.3 µm/0.000012 in

Dust/water protection level: IP65 (IEC60529)*1

 Measuring force: 5 to 10 N (ratchet thimble type is 7 to 12 N.)*2 SR44 (1 pc.), 938882, Battery:

for initial operational checks

(standard accessory)

Battery life: Approx. 2.4 years under normal use
 Length standard: Electromagnetic rotary sensor

• Standard accessories: Reference bar, 1 pc.

(except for 0 to 25 mm (0 to 1 in) models) Spanner (301336), 1 pc.

*1 Rustproofing shall be applied after use. *2 Refer to page B-6 for details.

Optional Accessories

(Only for models with data output function)

Connecting cables with output switch

1 m: 05CZA662 2 m: 05CZA663

USB Input Tool Direct

USB-ITN-B (2 m): 06AFM380B

 U-WAVE-T dedicated connection cable 160 mm: 02AZD790B For foot switch: 02AZE140B Refer to page A-27 for details.



Wireless Data Output U-WAVE THE U-WAVE-TM 264-622 (IP67 type)

264-623 (Buzzer type)

 U-WAVE-TMB Transmitter Mitutoyo Bluetooth® U-WAVE

264-626 (IP type) **264-627** (Buzzer type) Refer to page A-16 for details

Connecting unit for U-WAVE-TM/TMB

02AZF310 (IP67/buzzer type common specification) Refer to pages A-16 and A-18 for details.



Functions

Origin point setting (ABS measurement system): Resets the ABS origin at the current spindle position to the minimum value of the measuring range and switches to ABS mode.

Zero-setting:

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.

Pressing the HOLD button freezes the current value in the display. This function is useful for preserving a measurement in situations of poor visibility where the instrument must be moved away from the workpiece before the reading can be recorded.

Data output*1:

Models equipped with this function have an output port for transferring measurement data to a Statistical Process Control (SPC) system.
*1 Only models with the data output function

Auto power ON/OFF:

The reading on the LCD disappears after this instrument is idle for about 20 minutes, but the reading and measurement mode are retained. Turning the spindle causes the reading to reappear.

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.

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.

SPECIFICATIONS

	Wette -							
	Order No	Range (mm)	Resolution (mm)	Maximum permissible error	Parallelism (µm)	Constant-force device	Mass (g)	
with SPC data output	293-230-30	0 - 25	0.001	±1	1	With ratchet stop	270	
	293-231-30	25 - 50		±1	ı		330	
	293-232-30	50 - 75		±2	2		470	
	293-233-30	75 - 100					625	
	293-250-30	100 - 125			3		600	
	293-251-30	125 - 150					740	
	293-252-30	150 - 175		±3			800	
	293-253-30	175 - 200			4		970	
	293-254-30	200 - 225					1100	
	293-255-30	225 - 250		±4			1270	
	293-256-30	250 - 275					1370	
	293-257-30	275 - 300			5		1590	
	293-234-30	0 - 25		±1	1	With ratchet thimble	280	
	293-235-30	25 - 50					340	
	293-236-30	50 - 75		±2	2		480	
	293-237-30	75 - 100					635	
	293-240-30	0 - 25	0.001	±1	1	With ratchet stop	270	
without SPC data output	293-241-30	25 - 50					330	
	293-242-30	50 - 75		±2	2		470	
	293-243-30	75 - 100			-		625	
	293-244-30	0 - 25		±1	1	With ratchet thimble	280	
	293-245-30	25 - 50					340	
	293-246-30	50 - 75		±2	2		480	
	293-247-30	75 - 100					635	

Note: All digits of models over 125 mm (5 in) measuring range are presettable.

Inch/	Metric

	incn/ivietric						
	Order No	Range (in)	Resolution	Maximum permissible error	Parallelism (in)	Constant-force device	Mass (g)
with SPC data output	293-330-30	0 - 1	0.00005 in /0.001 mm	±0.00005	0.00004	With ratchet stop	270
	293-331-30	1 - 2					330
	293-332-30	2 - 3		±0.0001	0.00008		470
	293-333-30	3 - 4					625
	293-350-30	4 - 5	0.0001 in /0.001 mm		0.00012		600
	293-351-30	5 - 6					740
	293-352-30	6 - 7		±0.00015			800
	293-353-30	7 - 8			0.00016		970
	293-354-30	8 - 9					1100
	293-355-30	9 - 10		±0.0002			1270
	293-356-30	10 - 11			0.0000		1370
	293-357-30	11 - 12			0.0002		1590
	293-334-30	0 - 1	0.00005 in /0.001 mm	±0.00005	0.00004	With ratchet thimble	280
	293-335-30					With friction thimble	275
	293-336-30	1 - 2					335
	293-340-30	0 - 1	0.00005 in /0.001 mm	±0.00005	0.00004	With ratchet stop With ratchet thimble	270
without SPC data output	293-341-30	1 - 2					330
	293-342-30	2 - 3		±0.0001			470
	293-343-30	3 - 4					625
	293-344-30	0 - 1		±0.00005 ±0.0001	0.00004		280
	293-345-30	1 - 2					340
	293-346-30	2 - 3					480 635
	293-347-30	3 - 4		.0.0000	0.00004	Mith frietion thinghle	
	293-348-30	0 - 1		±0.00005	0.00004	With friction thimble	275

Note: All digits of models over 125 mm (5 in) measuring range are presettable.

DIMENSIONS

