

Micrometer

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

Coolant Proof Micrometers

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

- World's highest performing micrometer overall.
- Extended battery life of approximately 2.4 years.
- 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 control or networked measurement system. (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-5 for details.)
- Two types of constant-force devices are available: Ratchet Stop and Ratchet Thimble.
- Measuring faces: Carbide



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



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An inspection certificate is supplied as standard.
Refer to page X for details.

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:	0.3µm/.000012"
Dust/water protection level:	IP65 (IEC60529) *2
Measuring force:	5 to 10N (ratchet thimble type is 7 to 12N).*3
Battery:	SR44 (1 pc), 93882, 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 0-25mm (0-1") models) Spanner (301336), 1 pc

*2 Rustproofing shall be applied after use.

*3 Refer to page B-6 for details.

Optional accessories

(Only for models with data output function)
Connecting cables with output switch

1m: 05CZA662

2m: 05CZA663

USB Input Tool Direct

USB-ITN-B (2m): 06ADV380B

Connecting cables for U-WAVE-T (160mm)

02AZD790B

For foot switch: 02AZE140B

Refer to page B-68 for details.



These are dedicated connecting cables for Coolant Proof micrometers.

SPECIFICATIONS

Metric

	Order No	Range	Resolution	Accuracy*	Parallelism	Constant-force device	Mass
with SPC data output	293-230-30	0 - 25mm	0.001mm	$\pm 1\mu\text{m}$	1 μm	With ratchet stop	270g
	293-231-30	25 - 50mm		$\pm 2\mu\text{m}$	2 μm		330g
	293-232-30	50 - 75mm		$\pm 2\mu\text{m}$	3 μm		470g
	293-233-30	75 - 100mm		$\pm 3\mu\text{m}$	4 μm		625g
	293-250-30	100 - 125mm		$\pm 4\mu\text{m}$	5 μm		600g
	293-251-30	125 - 150mm		$\pm 1\mu\text{m}$	1 μm		740g
	293-252-30	150 - 175mm		$\pm 2\mu\text{m}$	2 μm		800g
	293-253-30	175 - 200mm		$\pm 1\mu\text{m}$	1 μm		970g
	293-254-30	200 - 225mm		$\pm 2\mu\text{m}$	2 μm		1100g
	293-255-30	225 - 250mm		$\pm 1\mu\text{m}$	1 μm		1270g
without SPC data output	293-256-30	250 - 275mm	0.001mm	$\pm 4\mu\text{m}$	4 μm	With ratchet thimble	1370g
	293-257-30	275 - 300mm		$\pm 5\mu\text{m}$	5 μm		1590g
	293-234-30	0 - 25mm		$\pm 1\mu\text{m}$	1 μm		280g
	293-235-30	25 - 50mm		$\pm 2\mu\text{m}$	2 μm		340g
	293-236-30	50 - 75mm		$\pm 1\mu\text{m}$	1 μm		480g
	293-237-30	75 - 100mm		$\pm 2\mu\text{m}$	2 μm		635g
	293-240-30	0 - 25mm		$\pm 1\mu\text{m}$	1 μm		270g
	293-241-30	25 - 50mm		$\pm 2\mu\text{m}$	2 μm		330g
	293-242-30	50 - 75mm		$\pm 1\mu\text{m}$	1 μm		470g
	293-243-30	75 - 100mm		$\pm 2\mu\text{m}$	2 μm		625g

* Excluding quantizing error

• All-Digit preset type: models over 125mm (5") measuring range

Inch/Metric

	Order No	Range	Resolution	Accuracy*	Parallelism	Constant-force device	Mass
with SPC data output	293-330-30	0 - 1"	.00005" / 0.001mm	$\pm 0.00005"$.00004"	With ratchet stop	270g
	293-331-30	1" - 2"		$\pm 0.00008"$.00008"		330g
	293-332-30	2" - 3"		$\pm 0.001"$.00012"		470g
	293-333-30	3" - 4"		$\pm 0.0015"$.00016"		625g
	293-350-30	4" - 5"		$\pm 0.002"$.0002"		600g
	293-351-30	5" - 6"		$\pm 0.0025"$.00025"		740g
	293-352-30	6" - 7"		$\pm 0.003"$.0003"		800g
	293-353-30	7" - 8"		$\pm 0.0035"$.00035"		970g
	293-354-30	8" - 9"		$\pm 0.004"$.0004"		1100g
	293-355-30	9" - 10"		$\pm 0.0045"$.00045"		1270g
without SPC data output	293-356-30	10" - 11"	.00005" / 0.001mm	$\pm 0.005"$.0004"	With ratchet thimble	1370g
	293-357-30	11" - 12"		$\pm 0.0055"$.00045"		1590g
	293-334-30	0 - 1"		$\pm 0.0005"$.0004"		280g
	293-335-30	1" - 2"		$\pm 0.0008"$.00045"		275g
	293-336-30	2" - 3"		$\pm 0.0011"$.0005"		335g
	293-340-30	0 - 1"		$\pm 0.0005"$.0004"		270g
	293-341-30	1" - 2"		$\pm 0.0008"$.00045"		330g
	293-342-30	2" - 3"		$\pm 0.0011"$.0005"		470g
	293-343-30	3" - 4"		$\pm 0.0014"$.00055"		625g
	293-344-30	0 - 1"		$\pm 0.00055"$.0004"		280g

* Excluding quantizing error

• All-Digit preset type: models over 125mm (5") measuring range

DIMENSIONS

Unit: mm							
Range	Order No.	L	a	b	c		
0-25mm	293-230-30/293-240-30	0	6.5	25			
25-50mm	293-231-30/293-241-30	25	7.3	32.5			
50-75mm	293-232-30/293-242-30	50	10.1	47			
75-100mm	293-233-30/293-243-30	75	11.5	60			
0-25mm	293-234-30/293-244-30	0	6.5	25			
25-50mm	293-235-30/293-245-30	25	7.3	32.5			
100-125mm	293-250-30	100	16.7	76	5.3		
125-150mm	293-251-30	125	18.8	90	5.7		
150-175mm	293-252-30	150	19.1	103	6.1		
175-200mm	293-253-30	175	18.2	115	6.3		
200-225mm	293-254-30	200	16.8	126	6.7		
225-250mm	293-255-30	225	18	139	5.5		
250-275mm	293-256-30	250	18	152	6.5		
275-300mm	293-257-30	275	18	166			

Ratchet stop: Shows a side view with dimensions L=25, a=6.5, b=25, c=10.8, and a digital display. Measuring range: 100mm or less.

Ratchet thimble type: Shows a side view with dimensions L=63.6, a=6.5, b=69.3, and a digital display.

Friction thimble type: Shows a side view with dimensions L=51.2, a=6.5, b=10.8, and a digital display.

Ratchet stop type over 100mm: Shows a side view with dimensions L=66.5, a=6.5, b=62.9, and a digital display.