

# 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), <b>93882</b> , 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 ( <b>301336</b> ), 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	±1µm	1µm	With ratchet stop	270g
	293-231-30	25 - 50mm		±2µm	2µm		330g
	293-232-30	50 - 75mm		±3µm	3µm		470g
	293-233-30	75 - 100mm		±4µm	4µm		625g
	293-250-30	100 - 125mm		±5µm	5µm		600g
	293-251-30	125 - 150mm		±1µm	1µm		740g
	293-252-30	150 - 175mm		±2µm	2µm		800g
	293-253-30	175 - 200mm		±3µm	3µm		970g
	293-254-30	200 - 225mm		±4µm	4µm		1100g
	293-255-30	225 - 250mm		±5µm	5µm		1270g
	293-256-30	250 - 275mm		±1µm	1µm		1370g
	293-257-30	275 - 300mm		±2µm	2µm		1590g
without SPC data output	293-234-30	0 - 25mm	0.001mm	±1µm	1µm	With ratchet stop	280g
	293-235-30	25 - 50mm		±2µm	2µm		340g
	293-236-30	50 - 75mm		±1µm	1µm		480g
	293-237-30	75 - 100mm		±2µm	2µm		635g
	293-240-30	0 - 25mm		±1µm	1µm	With ratchet thimble	270g
	293-241-30	25 - 50mm		±2µm	2µm		330g
	293-242-30	50 - 75mm		±1µm	1µm		470g
	293-243-30	75 - 100mm		±2µm	2µm		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	±.00005"	.00004"	With ratchet stop	270g
	293-331-30	1" - 2"		.00008"	.00008"		330g
	293-332-30	2" - 3"		.0001"	.00012"		470g
	293-333-30	3" - 4"		.00015"	.00016"		625g
	293-350-30	4" - 5"		.0002"	.0002"		600g
	293-351-30	5" - 6"		.00025"	.00025"		740g
	293-352-30	6" - 7"		.0003"	.0003"		800g
	293-353-30	7" - 8"		.00035"	.00035"		970g
	293-354-30	8" - 9"		.0004"	.0004"		1100g
	293-355-30	9" - 10"		.00045"	.00045"		1270g
	293-356-30	10" - 11"		.0005"	.0005"		1370g
	293-357-30	11" - 12"		.00055"	.00055"		1590g
without SPC data output	293-334-30	0 - 1"	.00005" / 0.001mm	.00005"	.00004"	With ratchet thimble	280g
	293-335-30	1" - 2"		.00008"	.00008"	With friction thimble	275g
	293-336-30	2" - 3"		.0001"	.0001"	With friction thimble	335g
	293-340-30	0 - 1"		.00005"	.00004"	With ratchet stop	270g
	293-341-30	1" - 2"		.00008"	.00008"		330g
	293-342-30	2" - 3"		.0001"	.00012"		470g
	293-343-30	3" - 4"		.00015"	.00016"		625g
	293-344-30	0 - 1"		.0002"	.0002"	With ratchet thimble	280g
	293-345-30	1" - 2"		.00025"	.00025"	With ratchet thimble	340g
	293-346-30	2" - 3"		.0003"	.0003"	With ratchet thimble	480g
	293-347-30	3" - 4"		.00035"	.00035"	With friction thimble	635g
	293-348-30	0 - 1"		.0004"	.0004"	With friction thimble	275g

\* 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			