

# 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.
- Auto power ON/OFF function.
- Certificate of inspection\* is included. (2" /50mm or less range models)  
\*It is not the type used to obtain calibration certificates.
- With a standard bar except for 0-1"/0-25mm model.
- Supplied in fitted case. Plastic case up to 6"/150mm, Wooden box over 6"/150mm



293-340



293-352



Oil-resistance materials are used in all plastic components.



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



Certificate of inspection

## Technical Data

- Accuracy: Refer to the list of specifications.  
 Resolution: .00005"/0.001mm or 0.001mm (up to 4" models)  
 .0001" / 0.001mm (over 4" models)  
 Flatness: .000012"/0.3µm  
 Parallelism: .00004"/1µm for models up to 2"/50mm  
 .00008"/2µm for models up to 4"/100mm  
 .00012"/3µm for models up to 7"/175mm  
 .00016"/4µm for models up to 11"/275mm  
 .0002"/5µm for models over 12"/300mm  
 Measuring faces: Carbide tipped  
 Display: LCD  
 Battery: SR44 (1 pc.), **938882**  
 Battery life: Approx. 1.2 years under normal use  
 (8 months: over 4"/100mm models)  
 Dust/Water protection level: IP65

## Function

- Origin-set, Zero / ABS, Hold, Auto power on/off,  
 Data output (output models),  
 inch/mm conversion (on inch/metric models only)  
 Alarm: Low voltage, Counting value composition error

## Optional Accessories

- 05CZA662:** SPC cable with data switch (40"/1m)  
**05CZA663:** SPC cable with data switch (80"/2m)



SPC cable with data switch

## SPECIFICATIONS

### Metric With ratchet stop

Range	Resolution	Order No.	Accuracy
0 - 25mm	0.001mm	<b>293-230 / 293-240*</b>	±1μm
25 - 50mm	0.001mm	<b>293-231 / 293-241*</b>	±1μm
50 - 75mm	0.001mm	<b>293-232 / 293-242*</b>	±1μm
75 - 100mm	0.001mm	<b>293-233 / 293-243*</b>	±2μm
100 - 125mm	0.001mm	<b>293-250-10</b>	±2μm
125 - 150mm	0.001mm	<b>293-251-10</b>	±2μm
150 - 175mm	0.001mm	<b>293-252-10</b>	±3μm
175 - 200mm	0.001mm	<b>293-253-10</b>	±3μm
200 - 225mm	0.001mm	<b>293-254-10</b>	±3μm
225 - 250mm	0.001mm	<b>293-255-10</b>	±4μm
250 - 275mm	0.001mm	<b>293-256-10</b>	±4μm
275 - 300mm	0.001mm	<b>293-257-10</b>	±4μm

\*without SPC data output

### Metric With ratchet thimble

Range	Resolution	Order No.	Accuracy
0 - 25mm	0.001mm	<b>293-234 / 293-244*</b>	±1μm
25 - 50mm	0.001mm	<b>293-235 / 293-245*</b>	±1μm
50 - 75mm	0.001mm	<b>293-236 / 293-246*</b>	±1μm
75 - 100mm	0.001mm	<b>293-237 / 293-247*</b>	±2μm

\*without SPC data output

### Metric With friction thimble

Range	Resolution	Order No.	Accuracy
0 - 25mm	0.001mm	<b>293-238 / 293-248*</b>	±1μm

\*without SPC data output

### Metric Micrometer Set

Range	Order No.	Included in set
0-50mm (2pcs. Set)	<b>293-965</b>	293-230, 293-231, 1 standard bar, 1m SPC cable in the plastic case
0-100mm (4pcs. Set)	<b>293-964</b>	293-230, 293-231, 293-232, 293-234, 3 standard bar, 1m SPC cable in the wooden box

### Inch/Metric With ratchet stop

Range	Resolution	Order No.	Accuracy
0 - 1" / 0 - 25.4mm	.00005" / 0.001mm	<b>293-330 / 293-340*</b>	±.00005"
1" - 2" / 25.4 - 50.8mm	.00005" / 0.001mm	<b>293-331 / 293-341*</b>	±.00005"
2" - 3" / 50.8 - 76.2mm	.00005" / 0.001mm	<b>293-332 / 293-342*</b>	±.00005"
3" - 4" / 76.2 - 101.6mm	.00005" / 0.001mm	<b>293-333 / 293-343*</b>	±.0001"
4" - 5" / 101.6 - 127.0mm	.0001" / 0.001mm	<b>293-350-10</b>	±.0001"
5" - 6" / 127.0 - 152.4mm	.0001" / 0.001mm	<b>293-351-10</b>	±.0001"
6" - 7" / 152.4 - 177.8mm	.0001" / 0.001mm	<b>293-352-10</b>	±.00015"
7" - 8" / 177.8 - 203.2mm	.0001" / 0.001mm	<b>293-353-10</b>	±.00015"
8" - 9" / 203.2 - 228.6mm	.0001" / 0.001mm	<b>293-354-10</b>	±.00015"
9" - 10" / 228.6 - 254.0mm	.0001" / 0.001mm	<b>293-355-10</b>	±.0002"
10" - 11" / 254.0 - 279.4mm	.0001" / 0.001mm	<b>293-356-10</b>	±.0002"
11" - 12" / 279.4 - 304.8mm	.0001" / 0.001mm	<b>293-357-10</b>	±.0002"

\*without SPC data output

### Inch/Metric With ratchet thimble

Range	Resolution	Order No.	Accuracy
0 - 1" / 0 - 25.4mm	.00005" / 0.001mm	<b>293-334 / 293-344*</b>	±.00005"
0 - 1" / 0 - 25.4mm	.0001" / 0.001mm	<b>293-349*</b>	±.0001"
1" - 2" / 25.4 - 50.8mm	.00005" / 0.001mm	<b>293-345*</b>	±.00005"
2" - 3" / 50.8 - 76.2mm	.00005" / 0.001mm	<b>293-346*</b>	±.00005"
3" - 4" / 76.2 - 101.6mm	.00005" / 0.001mm	<b>293-347*</b>	±.0001"

\*without SPC data output

### Inch/Metric With friction thimble

Range	Resolution	Order No.	Accuracy
0 - 1" / 0 - 25.4mm	.00005" / 0.001mm	<b>293-335 / 293-348*</b>	±.00005"
1" - 2" / 25.4 - 50.8mm	.00005" / 0.001mm	<b>293-336</b>	±.00005"

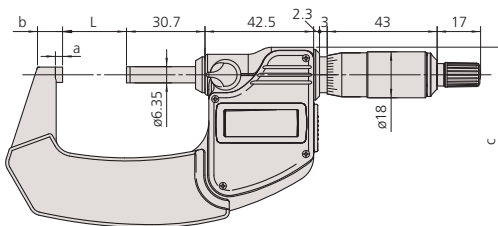
\*without SPC data output

### Inch/Metric Micrometer Set .00005" / 0.001mm graduation model

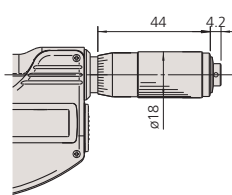
Range	Order No.	Included in set
0 - 3" / 0 - 76.2mm (3 pcs. set)	<b>293-960</b>	293-330, 293-331, 293-332, 2 standard bar in the plastic case
0 - 4" / 0 - 101.6mm (4 pcs. set)	<b>293-961</b>	293-330, 293-331, 293-332, 293-333 3 standard bar in the wooden box

## DIMENSIONS AND MASS

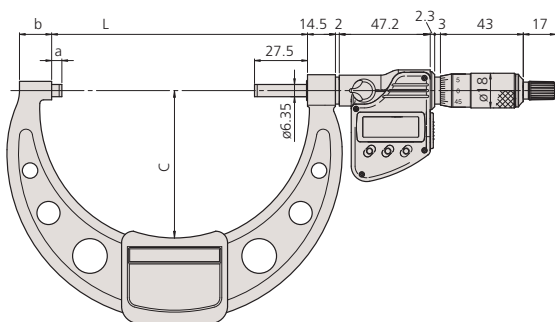
Ratchet stop type (up to 100mm/4")



Ratchet thimble type and friction thimble type



Unit: mm



Ratchet stop type (over 100mm/4" to 300mm/12")

Range (Metric / Inch)	L	a	b	c	Mass (g)
0 - 25mm / 0-1"	0	2.8	6.2	(59.8)	270
25 - 50mm / 1-2"	25	2.8	7	(70.3)	330
50 - 75mm / 2-3"	50	2.8	9.8	(91.9)	470
75 - 100mm / 3-4"	75	2.8	11.2	(112.9)	625
100 - 125mm / 4-5"	132.8	5.3	16.7	(76.5)	600
125 - 150mm / 5-6"	158.2	5.7	18.8	(91)	740
150 - 175mm / 6-7"	183.6	6.1	19.1	(103.1)	800
175 - 200mm / 7-8"	208.8	6.3	18.2	(115.3)	970
200 - 225mm / 8-9"	234.2	6.7	16.8	(126.8)	1100
225 - 250mm / 9-10"	258	5.5	18	(139.8)	1270
250 - 275mm / 10-11"	284	18	28	(152.3)	1340
275 - 300mm / 11-12"	309	18	28	(166)	1540