

# 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.
- A nonslip surface with raised dots is employed for the frame cover and surface panel to achieve stable handheld measurement.
- 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



293-330-30



293-352-10



Oil-resistance materials are used in all plastic components.



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



Employed nonslip surface with raised dots



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. 2.4 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)

**USB Input Tool Direct**

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



SPC cable with data switch

Connecting cable for U-Wave-T (160mm)

**02AZD790B**

Refer to page A-13.

## SPECIFICATIONS

### Metric With ratchet stop

Range	Resolution	Order No.	Accuracy
0 - 25mm	0.001mm	<b>293-230-30 / 293-240-30*</b>	±1μm
25 - 50mm	0.001mm	<b>293-231-30 / 293-241-30*</b>	±1μm
50 - 75mm	0.001mm	<b>293-232-30 / 293-242-30*</b>	±1μm
75 - 100mm	0.001mm	<b>293-233-30 / 293-243-30*</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>293-234-30 / 293-244-30*</b>	±1μm
25 - 50mm	0.001mm	<b>293-235-30 / 293-245-30*</b>	±1μm
50 - 75mm	0.001mm	<b>293-236-30 / 293-246-30*</b>	±1μm
75 - 100mm	0.001mm	<b>293-237-30 / 293-247-30*</b>	±2μm

\*without SPC data output

### Metric Micrometer Set

Range	Order No.	Included in set
0-50mm (2pcs. Set)	<b>293-966-30</b>	293-230-30, 293-231-30, 25mm CERA block, plastic case
0-75mm (3pcs. Set)	<b>293-962-30</b>	293-230-30, 293-231-30, 293-232-30, 2 standard bars, plastic case
0-100mm (4pcs. Set)	<b>293-963-30</b>	293-230-30, 293-231-30, 293-232-30, 293-233-30, 3 standard bars, wooden box

### Inch/Metric With ratchet stop

Range	Resolution	Order No.	Accuracy
0 - 1" / 0 - 25.4mm	.00005"/0.001mm	<b>293-330-30 / 293-340-30*</b>	±.00005"
1" - 2" / 25.4 - 50.8mm	.00005"/0.001mm	<b>293-331-30 / 293-341-30*</b>	±.00005"
2" - 3" / 50.8 - 76.2mm	.00005"/0.001mm	<b>293-332-30 / 293-342-30*</b>	±.00005"
3" - 4" / 76.2 - 101.6mm	.00005"/0.001mm	<b>293-333-30 / 293-343-30*</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>	±.00005"
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>293-334-30 / 293-344-30*</b>	±.00005"
0 - 1" / 0 - 25.4mm	.0001" / 0.001mm	<b>293-349-30*</b>	±.0001"
1" - 2" / 25.4 - 50.8mm	.00005" / 0.001mm	<b>293-345-30*</b>	±.00005"
2" - 3" / 50.8 - 76.2mm	.00005" / 0.001mm	<b>293-346-30*</b>	±.00005"
3" - 4" / 76.2 - 101.6mm	.00005" / 0.001mm	<b>293-347-30*</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>293-335-30 / 293-348-30*</b>	±.00005"
1" - 2" / 25.4 - 50.8mm	.00005" / 0.001mm	<b>293-336-30</b>	±.00005"

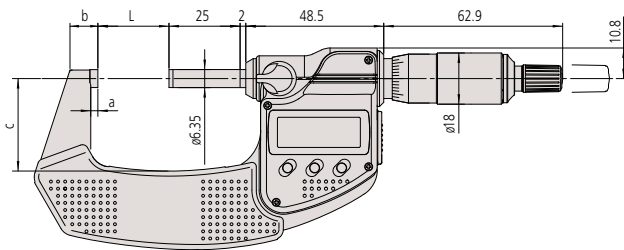
\*without SPC data output

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

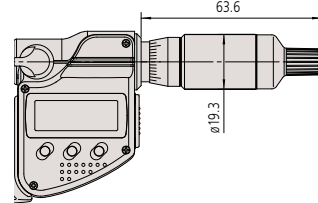
Range	Order No.	Included in set
0 - 3" / 0 - 76.2mm (3 pcs. set)	<b>293-960-30</b>	293-330-30, 293-331-30, 293-332-30, 2 standard bars, plastic case
0 - 4" / 0 - 101.6mm (4 pcs. set)	<b>293-961-30</b>	293-330-30, 293-331-30, 293-332-30, 293-333-30, 3 standard bars, wooden box

## DIMENSIONS AND MASS

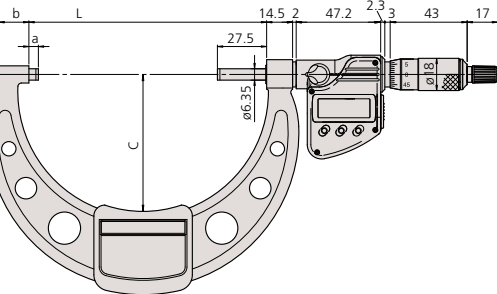
Ratchet stop type (up to 100mm/4")



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	2.5	9	(25)	270
25 - 50mm / 1-2"	25	2.5	9.8	(32.5)	330
50 - 75mm / 2-3"	50	2.5	12.6	(47)	470
75 - 100mm / 3-4"	75	2.5	14	(60)	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