

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



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: 0.001mm or .00005"/0.001mm (up to 4" models)
 .0001" / 0.001mm (over 4" models)
 Flatness: 0.3µm/.000012"
 Parallelism: 1µm/.00004" for models up to 50mm/2"
 2µm/.00008" for models up to 100mm/4"
 3µm/.00012" for models up to 175mm/7"
 4µm/.00016" for models up to 275mm/11"
 5µm/.0002" for models over 300mm/12"
 Measuring faces: Carbide tipped
 Display: LCD
 Battery: SR44 (1 pc.), **938882**
 Battery life: Approx. 1.2 years under normal use
 (8 months: over 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 (1m/40")
05CZA663: SPC cable with data switch (2m/80")



SPC cable with data switch

SPECIFICATIONS

Metric _____ With ratchet stop

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

*without SPC data output

Metric _____ With ratchet thimble

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

*without SPC data output

Metric _____ With friction thimble

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

*without SPC data output

Metric _____ Micrometer Set

Range	Order No.	Included in set
0-50mm (2pcs. Set)	293-965	293-230, 293-231, 1 standard bar, 1m SPC cable in the plastic case
0-100mm (4pcs. Set)	293-964	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	293-330 / 293-340*	±.00005"
1" - 2" / 25.4 - 50.8mm	.00005" / 0.001mm	293-331 / 293-341*	±.00005"
2" - 3" / 50.8 - 76.2mm	.00005" / 0.001mm	293-332 / 293-342*	±.00005"
3" - 4" / 76.2 - 101.6mm	.00005" / 0.001mm	293-333 / 293-343*	±.0001"
4" - 5" / 101.6 - 127.0mm	.0001" / 0.001mm	293-350-10	±.0001"
5" - 6" / 127.0 - 152.4mm	.0001" / 0.001mm	293-351-10	±.0001"
6" - 7" / 152.4 - 177.8mm	.0001" / 0.001mm	293-352-10	±.00015"
7" - 8" / 177.8 - 203.2mm	.0001" / 0.001mm	293-353-10	±.00015"
8" - 9" / 203.2 - 228.6mm	.0001" / 0.001mm	293-354-10	±.00015"
9" - 10" / 228.6 - 254.0mm	.0001" / 0.001mm	293-355-10	±.0002"
10" - 11" / 254.0 - 279.4mm	.0001" / 0.001mm	293-356-10	±.0002"
11" - 12" / 279.4 - 304.8mm	.0001" / 0.001mm	293-357-10	±.0002"

*without SPC data output

Inch/Metric _____ With ratchet thimble

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

*without SPC data output

Inch/Metric _____ With friction thimble

Range	Resolution	Order No.	Accuracy
0 - 1" / 0 - 25.4mm	.00005" / 0.001mm	293-335 / 293-348*	±.00005"
0 - 1" / 0 - 25.4mm	.0001" / 0.001mm	293-349	±.0001"
1" - 2" / 25.4 - 50.8mm	.00005" / 0.001mm	293-336	±.00005"

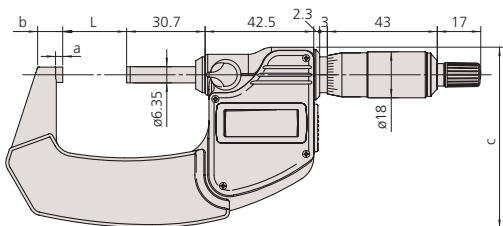
*without SPC data output

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

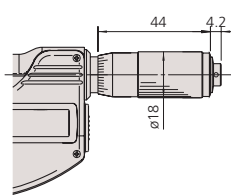
Range	Order No.	Included in set
0 - 3" / 0 - 76.2mm (3 pcs. set)	293-960	293-330, 293-331, 293-332, 2 standard bar in the plastic case
0 - 4" / 0 - 101.6mm (4 pcs. set)	293-961	293-330, 293-331, 293-332, 293-333 3 standard bar in the wooden box

DIMENSIONS AND MASS

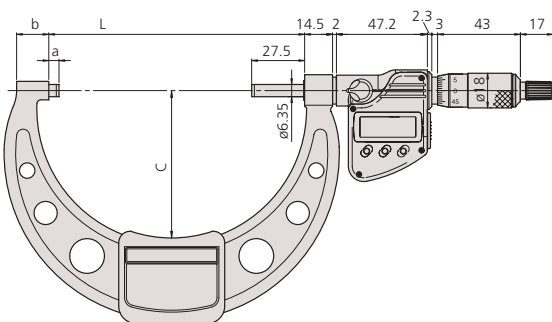
Ratchet stop type (up to 100mm/4")



Ratchet thimble type and friction thimble type



Unit: mm



Ratchet stop type (over 100mm/4")

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
300 - 325mm / 12-13"	353	18	28	(187)	2085
325 - 350mm / 13-14"	378	18	28	(199)	2255
350 - 375mm / 14-15"	403	18	28	(212)	2405
375 - 400mm / 15-16"	428	18	28	(224)	2555
400 - 425mm / 16-17"	453	18	28	(236)	2815
425 - 450mm / 17-18"	478	18	28	(248)	3065
450 - 475mm / 18-19"	503	18	28	(261)	3315
475 - 500mm / 19-20"	528	18	28	(273)	3550