Coolant Proof Micrometers
SERIES 293 — IP65 Digimatic Micrometer

- Accurate and highly environmentally resistant, assisting with many types of 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.



293-230-30

SPECIFICATIONS

Metric

Code No.	Range (mm)	Resolution (mm)	Measuring force*1 (N)	Maximum permissible error J_{MPE} (µm)	Parallelism (µm)	Flatness (µm)	Constant measuring force	Mass (g)
With SPC data output								
293-230-30	0 - 25	0.001	5 - 10	±1	1	0.3	With ratchet stop	270
293-231-30	25 - 50							330
293-232-30	50 - 75			±2	2			470
293-233-30	75 - 100							625
293-234-30	0 - 25		7 - 12	±1	1		With ratchet thimble	280
293-235-30	25 - 50							340
293-236-30	50 - 75			±2	2			480
293-237-30	75 - 100							635
Without SPC data output								
293-240-30	0 - 25	0.001	5 - 10	±1	1	0.3	With ratchet stop	270
293-241-30	25 - 50							330
293-242-30	50 - 75			±2	2			470
293-243-30	75 - 100							625
293-244-30	0 - 25		7 - 12	±1	1		With ratchet thimble	280
293-245-30	25 - 50							340
293-246-30	50 - 75			±2	2			480
293-247-30	75 - 100							635

Inch / Metric

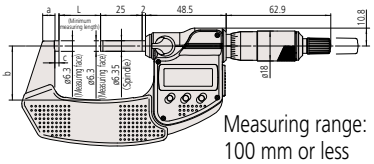
Code No.	Range (in)	Resolution	Measuring force*1 (N)	Maximum permissible error J_{MPE} (in)	Parallelism (in)	Flatness (in)	Constant measuring force	Mass (g)
With SPC data output								
293-330-30	0 - 1	0.00005 in /0.001 mm	5 - 10	±0.00005	0.00004	0.000012	With ratchet stop	270
293-331-30	1 - 2							330
293-332-30	2 - 3			±0.0001	0.00008			470
293-333-30	3 - 4							625
293-334-30	0 - 1		7 - 12	±0.00005	0.00004		With ratchet thimble	280
293-335-30			5 - 10				With friction thimble	275
293-336-30	1 - 2							335
Without SPC data output								
293-340-30	0 - 1	0.00005 in /0.001 mm	5 - 10	±0.00005	0.00004	0.000012	With ratchet stop	270
293-341-30	1 - 2							330
293-342-30	2 - 3			±0.0001	0.00008			470
293-343-30	3 - 4							625
293-344-30	0 - 1		7 - 12	±0.00005	0.00004		With ratchet thimble	280
293-345-30	1 - 2							340
293-346-30	2 - 3			±0.0001	0.00008			480
293-347-30	3 - 4							635
293-348-30	0 - 1		5 - 10	±0.00005	0.00004		With friction thimble	275
293-349-30		0.0001 in /0.001 mm	7 - 12	±0.0001			With ratchet thimble	280

- Dust/water protection level: IP65 (IEC60529)*2
- Power source: SR44 battery (1 pc.), **938882** included as standard (for operational checks)
- Battery life: Approx. 2.4 years under normal use
- Position detection method: Electromagnetic rotary sensor
- Standard accessories: Setting standard, 1 pc. (except for 0 to 25 mm (0 to 1 in) models), Spanner (**301336**), 1 pc.

*1 Measuring force when using the speeder ratchet (Apply a measuring force in the same condition as for measurement and then set the origin.)
*2 Rustproofing shall be applied after use.
Note: All digits of models over 125 mm (5 in) measuring range are presettable.

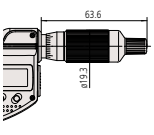
DIMENSIONS

Ratchet stop



Measuring range: 100 mm or less

Ratchet thimble type



Unit: mm

Range (mm)	Code No.	L	a	b	c
0 - 25	**293-230-30 / 293-240-30**	0	6.5	25	2.5
25 - 50	**293-231-30 / 293-241-30**	25	7.3	32.5	
50 - 75	**293-232-30 / 293-242-30**	50	10.1	47	
75 - 100	**293-233-30 / 293-243-30**	75	11.5	60	
0 - 25	**293-234-30 / 293-244-30**	0	6.5	25	
25 - 50	**293-235-30 / 293-245-30**	25	7.3	32.5	

MeasurLink® ENABLED
Data Management Software by Mitutoyo

U-WAVE fit

IP65

TÜVRheinland CERTIFIED Dust- and Water-Protected www.tuv.com ID 0000040191

PROPRIETARY INSPECTION CERTIFICATE

Functions

Origin point setting (ABS measurement system):
Resets the ABS origin at the current spindle position to the minimum value of the measuring range and switches to ABS mode.
Zero-setting:
A brief press on the ZERO/ABS button sets display to zero at the current spindle position and switches to the incremental (INC) measuring mode. A longer press resets to the ABS measuring mode.
Hold:
The function that holds the display of value is useful when it is difficult to see the measured value at the measurement point. When the function is cancelled, the previous zero-set point or a measured value with reference to the origin is displayed.
Data output*:
Models equipped with this function have an output port for transferring measurement data to a Statistical Process Control (SPC) system.
* Only models with the data output function
Auto power ON / OFF:
The reading on the LCD disappears after this instrument is idle for about 20 minutes, but the reading and measurement mode are retained. Turning the spindle causes the reading to reappear.
Error display:
In case of an overflow on the LCD or a computing error, an error message appears on the LCD, and the measuring function stops. This prevents an instrument from giving an erroneous reading. Also, when the battery voltage drops to a certain level, the low-battery-voltage alarm indicator appears well before the micrometer becomes unusable.
Function lock:
This function allows the ORIGIN (origin point setting) function and the ZERO (zero-setting) function to be locked to prevent these points being reset accidentally.

Optional Accessories

Refer to page 02-8.

Micrometer sets

293-962-30 (Metric)
- Range: 0 - 75 mm (3 pcs./set)
- Models included:
  293-230-30, **293-231-30**, **293-232-30**

293-963-30 (Metric)
- Range: 0 - 100 mm (4 pcs./set)
- Models included:
  293-230-30, **293-231-30**, **293-232-30**, **293-233-30**

293-966-30 (Metric)
- Range: 0 - 50 mm (2 pcs./set)
- Models included: **293-230-30**, **293-231-30**

293-960-30 (Inch/Metric)
- Range: 0 - 2 in (3 pcs./set)
- Models included:
  293-330-30, **293-331-30**, **293-332-30**

293-961-30 (Inch/Metric)
- Range: 0 - 3 in (4 pcs./set)
- Models included:
  293-330-30, **293-331-30**, **293-332-30**, **293-333-30**

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