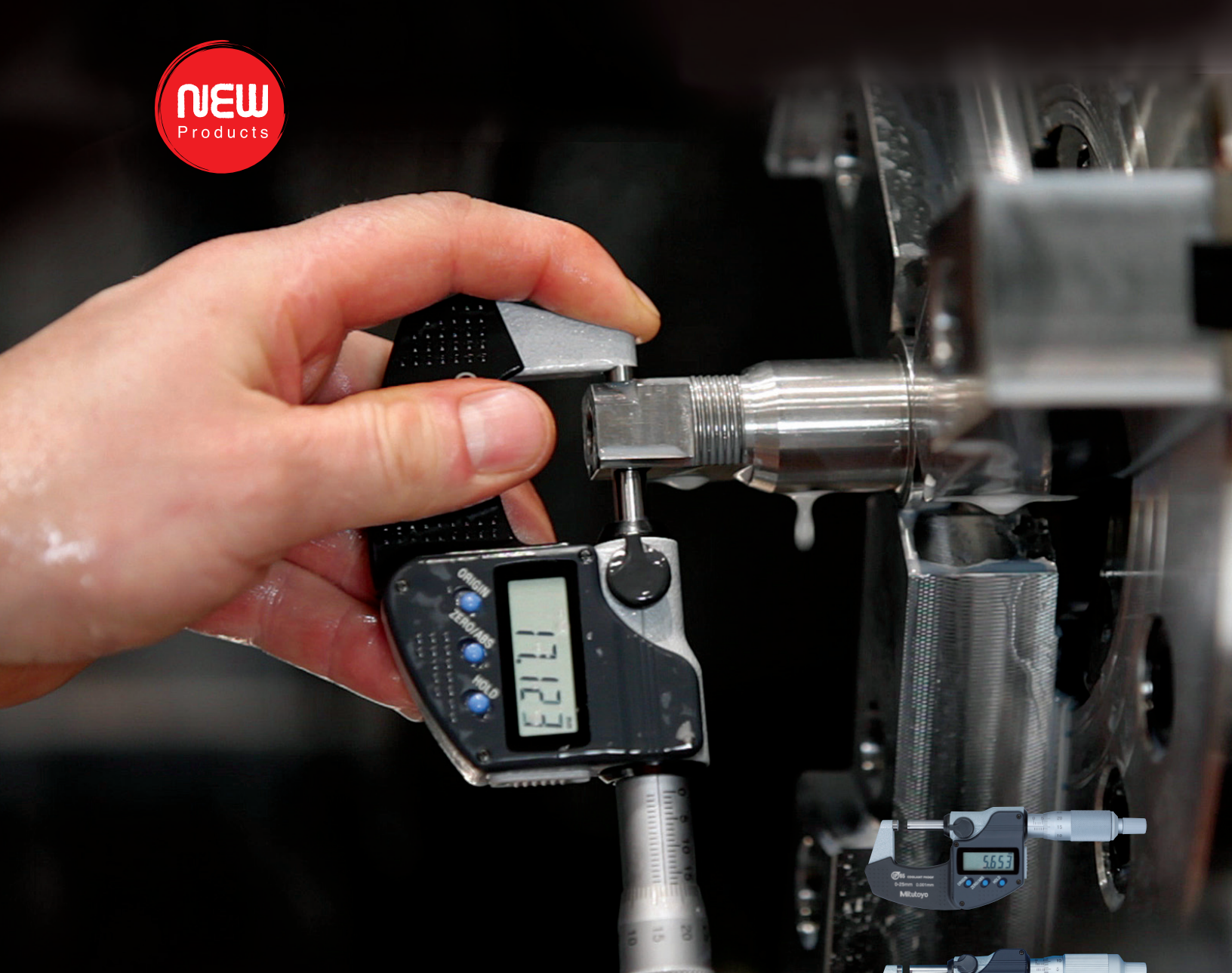


# Coolant Proof Micrometers MDC-MX Series

*Twice as Long Battery Life and Drastic Improvement in  
Measurement Efficiency*



Small Tool Instruments and Data Management



Bulletin No. 2145

## Mitutoyo



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# Coolant Proof Micrometers MDC-MX Series

*Twice as Long Battery Life as before and Drastic Improvement  
in Measurement Efficiency*



- Approximately 2.4-year span of battery life
- Newly-improved nonslip surface with raised dots
- Ratchet thimble type\*

\* Refer to the "SPECIFICATIONS" section on page 4.

- Oilproof material employed for plastic parts
- Compatibility with statistical process control and measurement systems

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## 1. Digital micrometer standard type



## 2. Ratchet Thimble type that has improved operability with one hand



## 3. Plain Function, Simple design



Coolant  
in Action

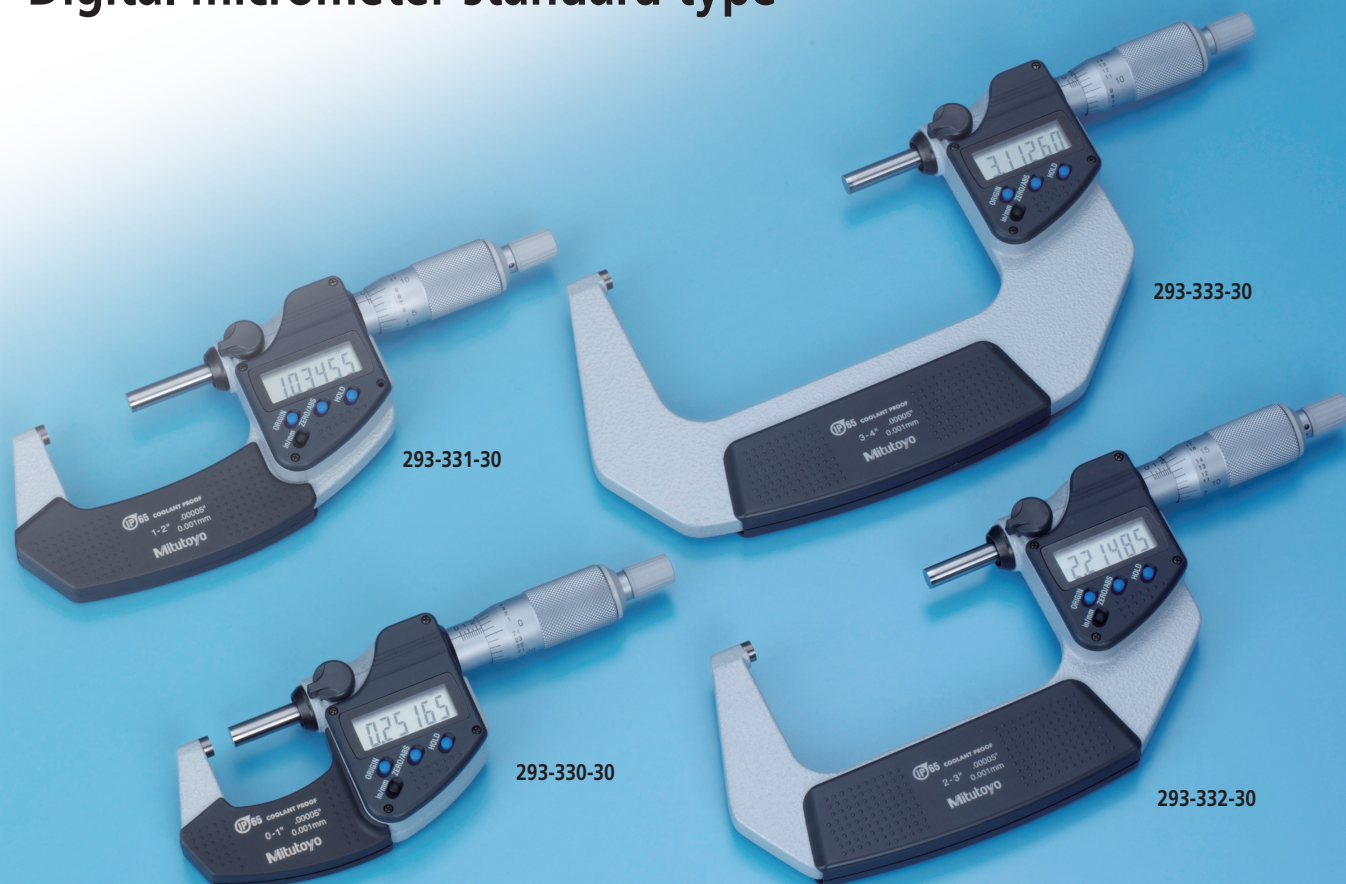


om/mdc

# Coolant Proof Micrometers



## Digital micrometer standard type



- Approximately 2.4-year span of battery life has been achieved, thus reducing the inconvenience of replacing the battery.
  - A nonslip surface with raised dots is employed for the frame cover and surface panel to achieve stable handheld measurement.
  - The ratchet thimble mechanism helps to ensure repeatable results by transmitting microvibrations along the spindle to the contact face to provide a constant measuring force and encourage good contact with the workpiece. The ratchet works from the thimble as well as the speeder so it is always easy to use – even when making measurements onehanded.
- The sound of the ratchet provides the user with a sense of confidence and the speeder enables the rapid spindle feed needed when measuring widely different dimensions.
- Oilproof materials are used in all plastic components.
  - Two types of constant-force devices are available: Ratchet Stop and Ratchet Thimble.



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# Ratchet Thimble type that has improved operability with one hand



## SPECIFICATIONS

Metric							
	Order No.	Range	Accuracy	Parallelism	Measuring force	constant-force device	Mass
With SPC data output	293-230-30	0 - 25mm	±1μm	1μm	5 - 10N	With ratchet stop	270g
	293-231-30	25 - 50mm		330g			
	293-232-30	50 - 75mm	±2μm	2μm	470g		
	293-233-30	75 - 100mm		625g			
	293-234-30	0 - 25mm	±1μm	1μm	7 - 12N*	With ratchet thimble	280g
	293-235-30	25 - 50mm		340g			
	293-236-30	50-75mm	±2μm	2μm	480g		
	293-237-30	75-100mm		635g			
Without SPC data output	293-240-30	0 - 25mm	±1μm	1μm	5 - 10N	With ratchet stop	270g
	293-241-30	25 - 50mm		330g			
	293-242-30	50 - 75mm	±2μm	2μm	470g		
	293-243-30	75 - 100mm		625g			
	293-244-30	0 - 25mm	±1μm	1μm	7 - 12N*	With ratchet thimble	280g
	293-245-30	25 - 50mm		340g			
	293-246-30	50-75mm	±2μm	2μm	480g		
	293-247-30	75-100mm		635g			

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

Inch/Metric	Order No.	Range	Accuracy	Parallelism	Measuring force	constant-force device	Mass
With SPC data output	293-330-30	0-1"	±.00005"	.00004"	5-10N	With ratchet stop	270g
	293-331-30	1-2"					330g
	293-332-30	2-3"	±.0001"	.00008"	7-12N*	With ratchet thimble	470g
	293-333-30	3-4"					625g
	293-334-30	0-1"	±.00005"	.00004"	5-10N	With friction thimble	280g
	293-335-30	0-1"					275g
Without SPC data output	293-336-30	1-2"	±.00005"	.00004"	5-10N	With ratchet stop	335g
	293-340-30	0-1"					270g
	293-341-30	1-2"	±.00005"	.00008"	7-12N*	With ratchet thimble	330g
	293-342-30	2-3"					470g
	293-343-30	3-4"	±.0001"	.00004"	5 - 10N	With friction thimble	625g
	293-344-30	0-1"					280g
	293-345-30	1-2"	±.00005"	.00008"	7 - 12N*	With ratchet thimble	340g
	293-346-30	2-3"					480g
	293-347-30	3-4"	±.0001"	.00004"	7 - 12N*	With ratchet thimble	635g
	293-348-30	0-1"					275g
	293-349-30		±.0001"			280g	

\* Measuring force in the case of using the Speeder ratchet  
Prior to measurement, apply a measuring force in the same condition to align the index line with the thimble zero line.

Micrometer Set .00005" / 0.001mm graduation model		
Inch/Metric		
Range	Order No.	Included in set
0 - 3" / 0 - 76.2mm (3 pcs. set)	293-960-30	293-330-30, 293-331-30, 293-332-30, 2 standard bars, plastic case
0 - 4" / 0 - 101.6mm (4 pcs. set)	293-961-30	293-330-30, 293-331-30, 293-332-30, 293-333-30, 3 standard bars, wooden box



An inspection certificate is supplied as standard.  
(50mm/2" or less range model)



These marks indicate that a product has successfully passed IP65-level testing, which is carried out by the independent German certification organization TUV Rheinland.

## 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

- **Resolution:** .00005" / 0.001mm
- **Quantizing error:** ±1 is not included.
- **Flatness:** .000012" / 0.3 μm
- **Dust/water protection level:** IP65 (IEC60529) \*2
- **Measuring system:** Electromagnetic induction type rotary sensor
- **Battery:** SR44 (1 pc), 938882, for initial operational checks (standard accessory)
- **Battery life:** Approx. 2.4 years under normal use
- **Standard accessories:** Reference bar, 1 pc (except for 0-25mm (0-1") models) Spanner (301336), 1 pc

\*2 Rustproofing shall be applied after use.

# Coolant Proof Micrometers



## 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 (INC measurement system)

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:

Pressing the HOLD button freezes the current value in the display. This function is useful for preserving a measurement in situations of poor visibility where the instrument must be moved away from the workpiece before the reading can be recorded.

### • Data output\*4:

Models equipped with this function have an output port for transferring measurement data to a Statistical Process Control (SPC) system. \*4: 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 alarm:

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 annunciator appears well before the micrometer becomes unusable.

### • Function lock\*5:

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. \*5: All-digit preset type only

## Optional accessories

(Only for models with data output function)

### Printer

Digimatic mini-processor **DP1-VR**

Connecting cables with output switch

**05CZA662** SPC cable w/data switch 40" (1m)

**05CZA663** SPC cable w/data switch 80" (2m)



### USB Input Tool Direct

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

### Wireless interface:

**02AZD730D** U-WAVE transmitter IP67 type

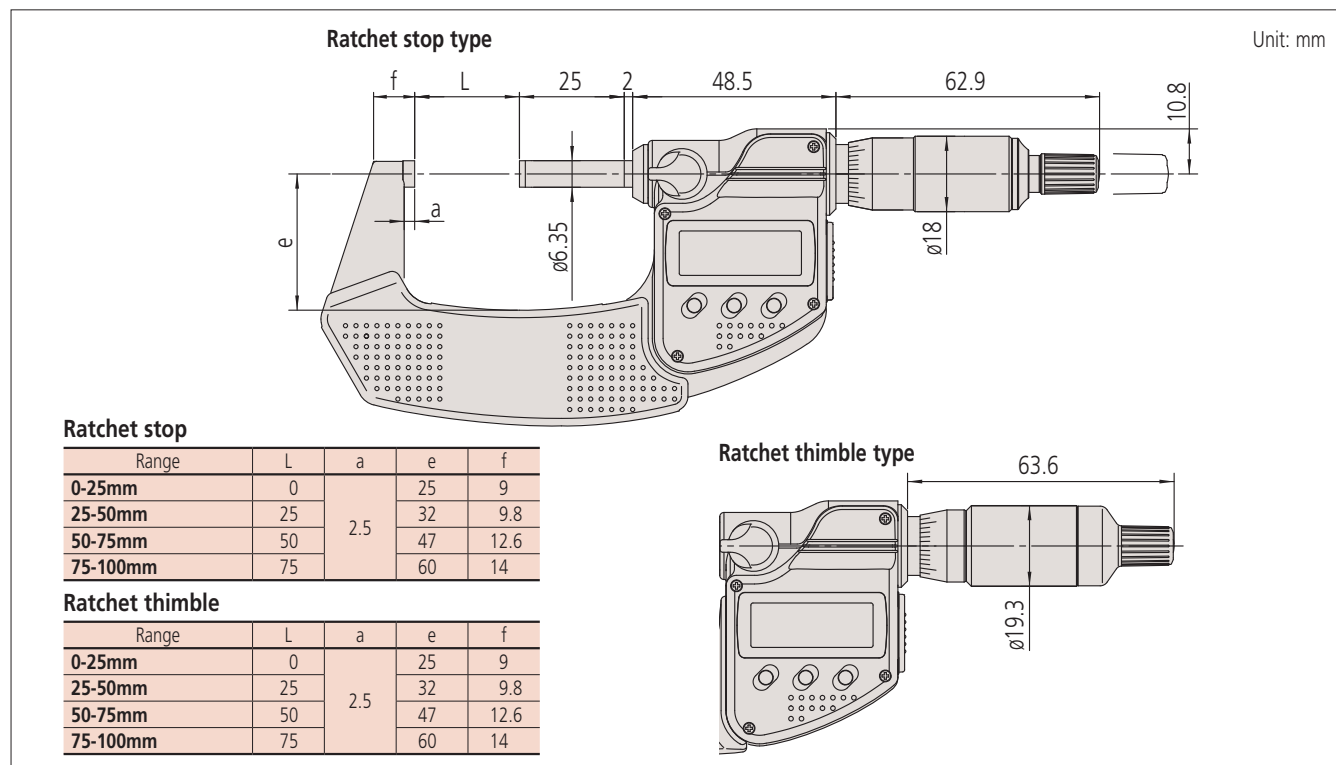
**02AZD880D** U-WAVE transmitter buzzer type

**02AZD810D** U-WAVE receiver

**02AZD790B** U-WAVE connecting cable

**02AZE140B** Connecting cable for footswitch

## DIMENSIONS



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# Digimatic outside micrometers



## Plain Function, Simple design

- Approximately 2.4-year span of battery life has been achieved, thus reducing the inconvenience of replacing the battery.
- Simple design, such as not incorporating data output, achieves low cost.
- Provided only with an origin-set button for easy origin setting.
- Two types of constant-force devices are available: Ratchet Stop and Friction Thimble.



## SPECIFICATIONS

Metric					
Order No.	Range	Resolution	Accuracy	constant-force device	Mass
293-821-30	0-25mm	0.001mm	$\pm 2\mu\text{m}$	With ratchet thimble	270g

Inch/Metric					
Order No.	Range	Resolution	Accuracy	constant-force device	Mass
293-831-30	0-1"	.00005"/0.001mm	$\pm .0001"$	With ratchet thimble	270g
293-832-30				With friction thimble	275g

## Technical Data

- **Measuring force:** 5 -10N
- **Quantizing error:**  $\pm 1$  is not included.
- **Measuring system:** Electromagnetic induction type rotary sensor
- **Battery:** SR44 (1 pc), 938882, for initial operational checks (standard accessory)
- **Battery life:** Approx. 2.4 years under normal use



293-832-30

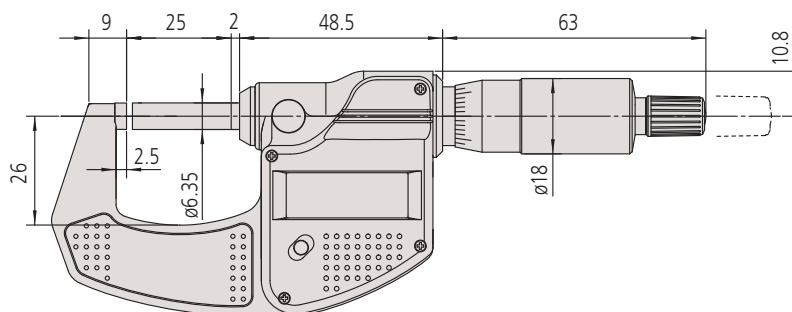


An inspection certificate is supplied as standard.

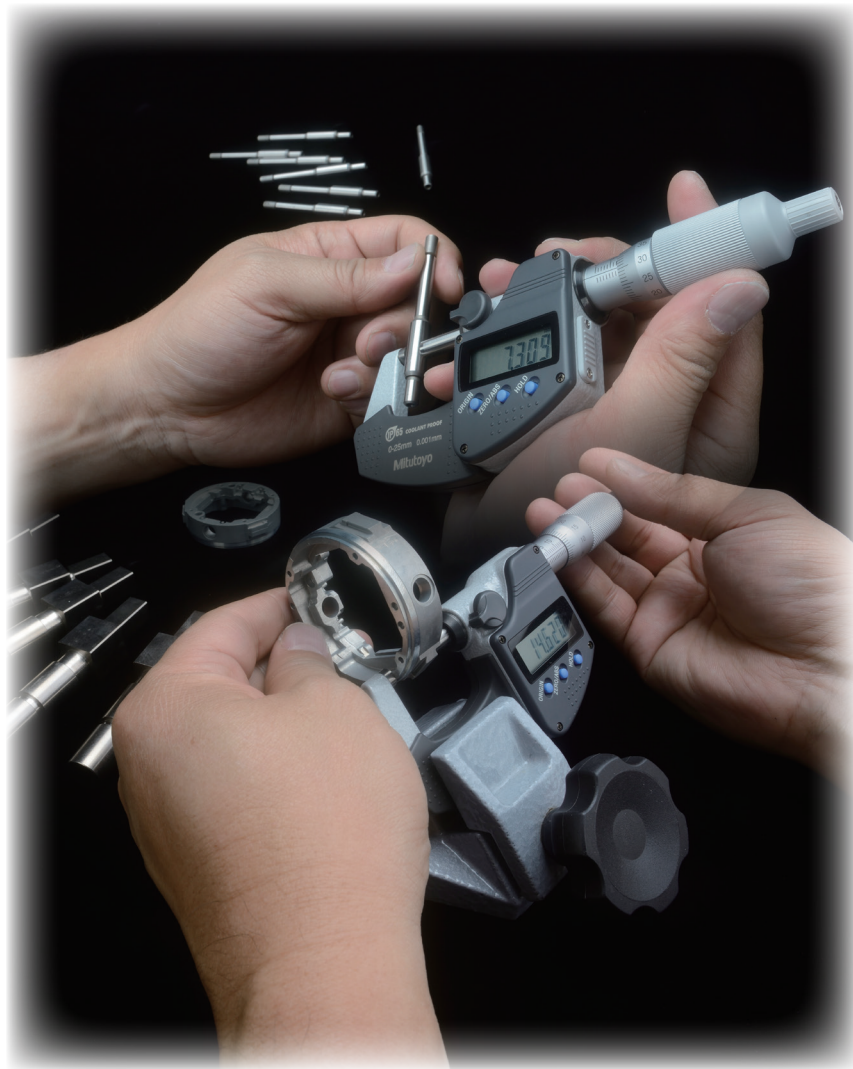
## DIMENSIONS

Unit: mm

### Ratchet stop type



# Coolant Proof Micrometers MDC-MX Series



Coordinate Measuring Machines	
Vision Measuring Systems	
Form Measurement	
Optical Measuring	
Sensor Systems	
Testing Equipment and Seismometer	
Digital Scale and DRO Systems	
Small Tool Instruments and Data Management	

Mitutoyo America Corporation

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