Coolant Proof Micrometer QuantuMike

Pioneering design, means taking the lead

2 mm Feed ....

.... per revolution

Rapid measurement is achieved thanks to 2 mm* of spindle feed for every thimble revolution!

* Patent registered (in USA)
  Patent pending (in Japan, Europe, and China)
Debut of next-generation micrometer delivering thanks to integration of cutting-edge technology

Mitutoyo is proud to have reached its leading position in the micrometer market through a spirit of innovation, imagination and creating added value. The QuantuMike brand of micrometer, inspired by this Mitutoyo Spirit, provides users with an excellent measuring experience with higher speed, quality and stability than ever before owing to the integration of sophisticated manufacturing and processing technologies.

The name QuantuMike is from Quantum and Micrometer, reflecting our belief this tool represents a quantum leap in micrometer ergonomics.

History of micrometer advancement

1772
- Micrometer invented by James Watt (UK)

1937
- Mitutoyo success in manufacturing micrometers
Rapid measurement

Faster measurement is achieved by using a coarser thread which feeds the spindle by 2mm per revolution of the thimble instead of the standard 0.5mm. This increase in thread lead has been made possible thanks to new high precision thread-cutting and test techniques. Trials show that a reduction in positioning times of 60% and measuring times of 35%* can be obtained, compared with a conventional micrometer.

* According to Mitutoyo’s comparison test data for measuring time on typical workpieces.

Comparison of measuring time on a stepped workpiece

The time needed to measure 6 diameters on a workpiece, from the smallest to the largest with the micrometer held in one hand, was recorded for a conventional digital micrometer and for the QuantuMike.
**Repeatable measurement***

The patented ratchet thimble mechanism* helps 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 one-handed. 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.

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**Function lock helps prevent error**

QuantuMike is equipped with a function lock feature to prevent the origin point being moved by mistake during measurement.

**±1μm/±.00005” accuracy**

Measurements are made to an accuracy* of ±1μm/.00005” throughout the range.

*Quantization error of ±1 count excluded

**Graduated sleeve provides confidence check**

A graduated scale is provided on the sleeve for use with a reference mark on the thimble so that every millimeter displacement can be checked to provide extra confidence.

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**Useful application of measured data**

A statistical process control system and a measurement network system can be established to share quality information with a model equipped for data output.

**Dust/water resistance with IP65 protection level**

Excellent resistance against oil, water and dust enables this product to be used in machining situations that include splashing coolant fluid.

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<table>
<thead>
<tr>
<th>Category</th>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection against human contact and foreign bodies</td>
<td>6: Sealed against dust</td>
<td>Protection against ingress of dust, complete protection against contact</td>
</tr>
<tr>
<td>Protection against water</td>
<td>5: Protection against water</td>
<td>Water jets* directed at the enclosure from any direction must not have any harmful effects.</td>
</tr>
</tbody>
</table>

*1: A jet nozzle with an inside diameter of 6.3 mm directs a volume flow of 12.5 liters per minute from a distance of approximately 3 meters onto the enclosure. The test time is 3 minutes or more.**
■ Certificate of inspection attached

- A Certificate of Inspection is supplied with each instrument shipped that guarantees the quality of the product. Please note that this certificate cannot be used to obtain a Certificate of Calibration because the purchase date cannot be specified.
- Please let us know if a Certificate of Calibration is required when ordering a micrometer. This certificate is supplied, for a fee, and certifies the traceability of the purchased instrument and of the standard that was used to calibrate that instrument.
- Certificates of inspection and calibration are issued after processing each instrument by special measuring equipment, developed using Mitutoyo’s advanced measuring technologies, which feature very small uncertainties of measurement.
## Functions

| Origin point setting (ABS length measurement system) | Pressing the ORIGIN button resets the ABS origin at the current spindle position. |
| Zero setting (INC length 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 when the instrument must be moved away from the workpiece before the reading can be recorded. A second press unfreezes the display ready for another measurement. |
| 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. |
| Auto power ON/OFF | The reading on the LCD disappears after this instrument is idle for approx. 20 minutes, but the origin point is retained. Turning the spindle causes the reading on the LCD to reappear. |
| Data output | Models equipped with this function have an output port for transferring measurement data to a Statistical Process Control (SPC) system. |
| 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. |

## Dimensions

![0-25mm (0-1") range model](image)

| Unit: mm |
|---|---|---|
| L | a | b |
| 0-25mm (0-1") | 0 | 9 | 25 |
| 25-50mm (1-2")* | 25 (25.4)* | 9.8 | 32 |

## Selective specifications

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Measuring range</th>
<th>Resolution</th>
<th>Instrumental error*</th>
<th>Flatness of measuring faces</th>
<th>Parallelism of measuring faces</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPC data output</td>
<td>293-140</td>
<td>0-25mm</td>
<td>0.001mm</td>
<td>±1μm</td>
<td>0.3μm or less</td>
<td>265g</td>
</tr>
<tr>
<td></td>
<td>293-141</td>
<td>25-50mm</td>
<td></td>
<td></td>
<td>1μm or less</td>
<td>265g</td>
</tr>
<tr>
<td>Without SPC data output</td>
<td>293-145</td>
<td>0-25mm</td>
<td></td>
<td></td>
<td></td>
<td>265g</td>
</tr>
<tr>
<td></td>
<td>293-146</td>
<td>25-50mm</td>
<td></td>
<td></td>
<td></td>
<td>265g</td>
</tr>
<tr>
<td>SPC data output</td>
<td>293-180</td>
<td>0-1&quot;/0-25mm</td>
<td>0.0005&quot;/0.001mm</td>
<td>±0.0005&quot;±1μm</td>
<td></td>
<td>265g</td>
</tr>
<tr>
<td></td>
<td>293-181</td>
<td>1-2&quot;/25-50mm</td>
<td></td>
<td></td>
<td></td>
<td>265g</td>
</tr>
<tr>
<td>Without SPC data output</td>
<td>293-185</td>
<td>0-1&quot;/0-25mm</td>
<td></td>
<td></td>
<td></td>
<td>265g</td>
</tr>
<tr>
<td></td>
<td>293-186</td>
<td>1-2&quot;/25-50mm</td>
<td></td>
<td></td>
<td></td>
<td>265g</td>
</tr>
</tbody>
</table>

*Quantization error of ±1 count excluded

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*: Patent registered (in USA), Patent pending (in Japan, Europe, and China)

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*1: Applicable only to 293-140/293-141/293-180/293-181

*2: This product is not waterproof. Rustproofing shall be applied after use.

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<table>
<thead>
<tr>
<th>L</th>
<th>a</th>
<th>b</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-25mm (0-1&quot;)</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>25-50mm (1-2&quot;)*</td>
<td>25 (25.4)*</td>
<td>9.8</td>
</tr>
</tbody>
</table>
■ Optional accessories (Only for models with SPC data output function)

- Connection cable with output switch
  No.05CZA662=1m
  No.05CZA663=2m

- Digimatic mini processor, DP-1VR
  No.264-504-5A
  (Data processor for quality control)

- Input tool (signal conversion)
  No. 264-005
  (Keyboard)
  No. 264-012-10
  (USB)
  No. 264-007
  (RS-232C)

■ Optional accessories

- Color speeder sleeve
  Color speeder sleeves in black, red, yellow, green, blue, and gray are available for measuring management.

<table>
<thead>
<tr>
<th>Color</th>
<th>Product No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>No.04GAA899*</td>
</tr>
<tr>
<td>Red</td>
<td>No.04GAA900</td>
</tr>
<tr>
<td>Yellow</td>
<td>No.04GAA901</td>
</tr>
<tr>
<td>Green</td>
<td>No.04GAA902</td>
</tr>
<tr>
<td>Blue</td>
<td>No.04GAA903</td>
</tr>
<tr>
<td>Gray</td>
<td>No.04AAB208</td>
</tr>
</tbody>
</table>

* Standard
Small Tool Instruments and Data Management

Digital Scale and DRO Systems

Test Equipment and Seismometers

Sensor Systems

Optical Measuring

Form Measurement

Coordinate Measuring Machines

Vision Measuring Systems

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