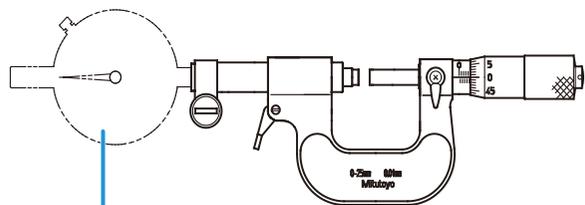


Outside Micrometer with Dial Indicator



Dial indicator (available as an option)

Safety Precautions

To ensure operator safety, use this product according to the directions, functions and specifications given in this User's Manual.

Use under other conditions may compromise safety.

CAUTION Shows risks that could result in minor or moderate injury.

This product has sharp parts such as the measuring surfaces. Handle them with sufficient care to avoid bodily injury.

NOTICE Shows risks that could result in property damage.

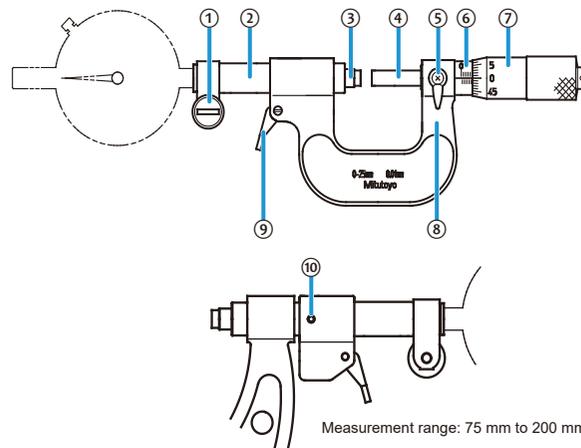
- Do not use this product for purposes other than measurement.
- Do not disassemble or modify. Doing so will void the warranty.
- Do not use or store the product in a place with sudden temperature changes. Adapt the product to ambient temperature before use.
- Do not store the product in a place with high humidity or a lot of dust.
- Do not use the product in a place where it may contact water, etc.
- Apply anti-rust treatment after use if the product is used in a place where it is directly exposed to splashes of coolant, etc. Rust may cause malfunction.
- Do not apply excessive force or subject to sudden impacts such as dropping.
- Remove dust, cutting chips, etc. and apply anti-rust oil after use.
- Remove any dirt on the product by wiping gently with a soft non-linty cloth. Do not use organic solvents such as cleaning agents or thinner.
- When mounting on a stand for use, fasten the thick part of the frame. Tightly fastening other locations may negatively affect parallelism or indication stability.
- If the dial indicator's indicated value exceeds the indication range, do not move the spindle any further forward. Otherwise, damage to the dial indicator may result.

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1. Names of Components

■ 107 Series
OMD



Measurement range: 75 mm to 200 mm

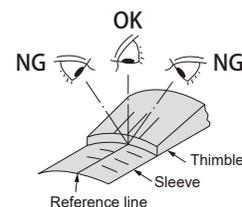
- | | |
|---------------------|--|
| ① Clamp screw | ⑦ Thimble |
| ② Indicator holder* | ⑧ Frame |
| ③ Anvil | ⑨ Lever |
| ④ Spindle | ⑩ Hex-socket set screw (for fixing the holder) |
| ⑤ Clamp | |
| ⑥ Sleeve | |

* Indicator holder mounting diameter: $\varnothing 8^{+0.015}_0$ mm (metric model) $\varnothing 9.53^{+0.015}_0$ mm (inch model)

2. Precautions for Use

■ Parallax

- Because of the structure of the product, the reference line surface on the sleeve and the graduation line surface on the thimble are not on the same plane, so the point where the two lines meet will deviate depending on the position of your eyes. When reading measured values, do so with reference to the figure at right, perpendicular from the point where the reference line on the sleeve is aligned with the graduation line on the thimble.
- If looking from a different direction as in the figure at right, there will be a parallax of roughly 2 μ m.



■ Precautions and Cleaning after Use

- After use, check each part for damage and clean the entire spindle and anvil with a soft, lint-free cloth.
- If oil, cutting fluid, or liquid itself has adhered to the product, or if the product is very dirty, clean it with a soft, lint-free cloth moistened with a volatile solvent (cleaning alcohol, etc.).
- After use, apply anti-rust treatment to the contact point, using Micrometer Oil (part No. 207000).
- If using in places exposed to water-based cutting fluid, always apply anti-rust treatment after cleaning.
- If Micrometer Oil is unavailable and the only option is a commercial product, we recommend low-viscosity anti-rust oil of ISO VG10 or so.

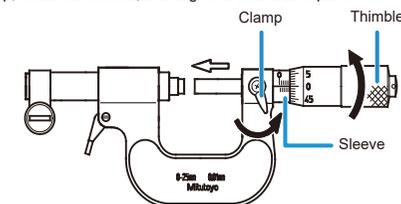
3. Dial Indicator Mounting

NOTICE Shows risks that could result in property damage.

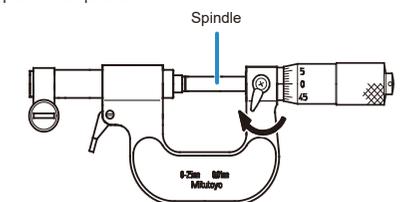
Be careful not to tighten the dial indicator stem part more than necessary. Otherwise, malfunctions may result.

The figure shows the dial indicator mounted.

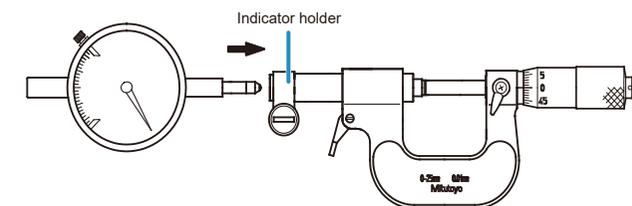
- 1 Loosen the clamp, rotate the thimble, and align the sleeve zero point.



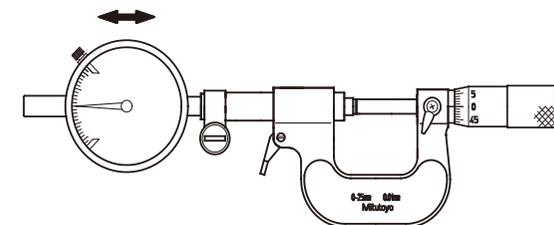
- 2 Tighten the clamp to fix the spindle.



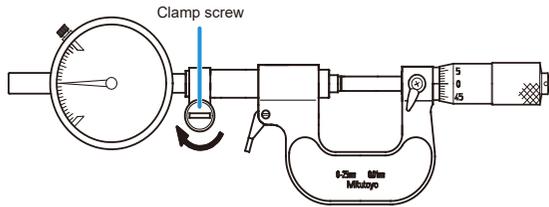
- 3 Insert the dial indicator stem part into the indicator holder.



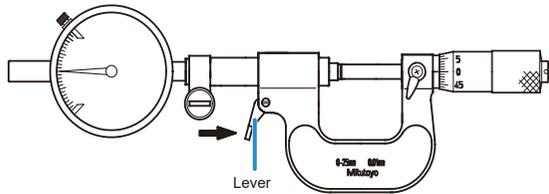
- 4 Adjust the insertion amount of the dial indicator so that its indicated value is around the midpoint of the measurement range.



- 5 Tighten the clamp screw at the adjusted position to fix the dial indicator.



- 6 Push the lever and confirm that the dial indicator operates normally.

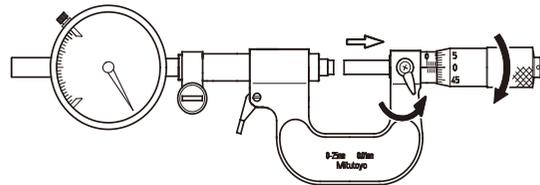


4. Reference Point Setting

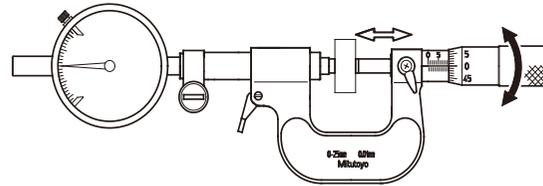
Important

- Be sure to follow the procedure below to confirm and adjust the reference point prior to measuring.
- When setting the reference point for this product, use a calibrated gage (a gauge block, a micrometer standard bar, or a master gage dedicated for the workpiece).
- Remove any dirt or oil from the measuring surfaces of the gage and product prior to setting the reference point.
- Use the same orientation and conditions when measuring and setting the reference point.
- For products with measurement range of 75 mm or more, do not rotate the hex-socket set screw (M3) used to fix the holder. Otherwise, malfunctions may result.

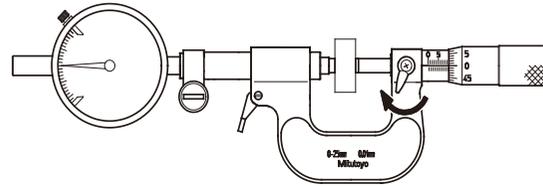
- 1 Remove any dirt or dust from the measuring surfaces of the gage and the product.
2 Loosen the clamp, rotate the thimble, and move the spindle back until the gage is caught.



- 3 Catch the gage between the spindle and the anvil.
4 Rotate the thimble and adjust the spindle position so that the pointer points to the zero on the dial.



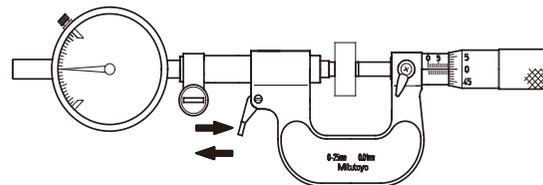
- 5 Tighten the clamp to fix the spindle.



- 6 Push and then slowly release the lever.
» The pointer points to the gage indicated value.

NOTICE Shows risks that could result in property damage.

When pushing the lever, hold the gage by hand to prevent it from falling. Otherwise, there is a risk of damage to the body and the gage.



- 7 If the pointer does not point to zero on the dial, make fine adjustments to the reference point with the dial indicator zero adjustment function.

Tips

For details on the dial indicator zero adjustment function, see the instruction manual for the dial indicator mounted on this product.

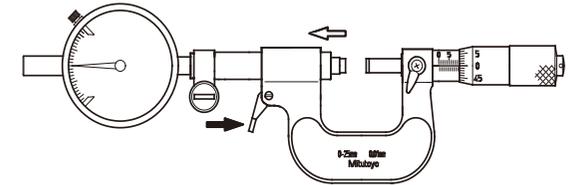
5. Measurement Method

Important

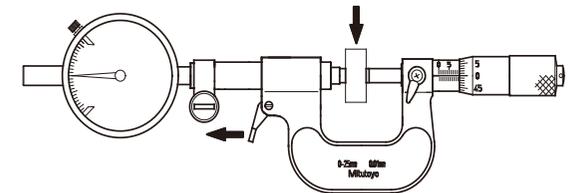
Be sure to perform reference point setting prior to measurement for accurate measurement.

Measure with the same orientation and conditions as when the reference point was set.

- 1 Push and hold the lever.
» The anvil moves backward.



- 2 Insert the workpiece between the measurement surfaces and slowly release the lever.
» The workpiece is stable and the pointer points to the measured value.



- 3 Read the measured value.

Tips

For details on reading measured values, see the instruction manual for the dial indicator mounted on this product.

6. Specifications

- Anvil operating range : 3 mm [0.11 in]
- Measuring force : 5 N to 10 N
- Operating temperature : 5 °C to 40 °C
- Storage temperature : -10 °C to 60 °C

7. Paid Maintenance

We recommend periodic inspections to check and maintain the product's accuracy. Also, if the following defects occur, please contact the agent where you purchased the product or a Mitutoyo sales office.

- Inconsistent measured values
- Burrs or nicks generated by an impact on the measurement surfaces may affect measurement repeatability.