

Micrometer Head



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.

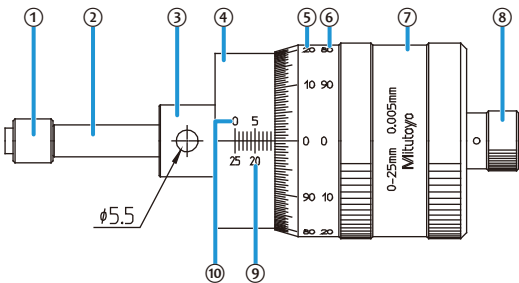
- Do not use this product for purposes other than measurement.
- Do not disassemble or modify. Doing so will void the warranty.
- Do not use or store the product in a place with sudden temperature changes. Adapt the product to ambient temperature before use.
- Do not store the product in a place with 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.

Contents

1. Names of Components	Page 1
2. Precautions for Use.....	Page 1
3. Thimble Graduation Adjustment.....	Page 1
4. Reference Line Adjustment.....	Page 1
5. How to Read Graduations.....	Page 2
6. Specifications.....	Page 2
7. Paid Maintenance	Page 2

1.Names of Components

■ 152 Series



- ① Non-rotating device

② Spindle

③ Stem*

④ Sleeve

⑤ Thimble graduation (black)

⑥ Thimble graduation (red)
- ⑦ Thimble

⑧ Speeder

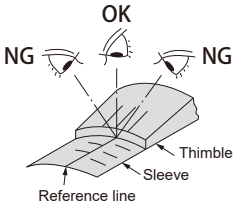
⑨ Sleeve graduation (red)

⑩ Sleeve graduation (black)
- *Stem diameter: $\phi 18 \begin{smallmatrix} 0 \\ -0.011 \end{smallmatrix}$ mm

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 μm.

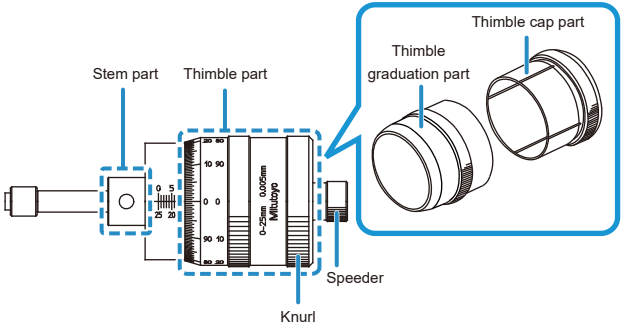


■ Precautions and Cleaning after Use

- After use, clean the entire contact point with a soft, lint-free cloth and check that none of the parts are damaged.
- 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.Thimble Graduation Adjustment

- Since the thimble part has a dual structure as shown in the figure, the graduation can be set at any position by fixing the thimble cap part by hand and rotating the thimble graduation part.
- The stem part has a $\phi 5.5$ mm hole, so the spindle can be clamped with a clamp screw. (The clamp screw is not included.)



Important

- When rotating the thimble graduation part, be sure to hold the thimble cap part by hand so as not to move. (If a spindle clamp mechanism is available, use it as well.)
- When rotating the thimble, the zero point may change if the thimble graduation part is held for rotation.
- Hold the speeder for rough adjustment and the thimble cap part knurl for fine adjustment.

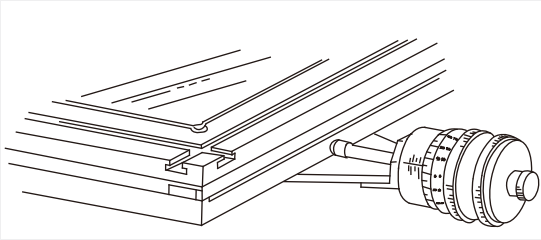
4.Reference Line Adjustment

Important

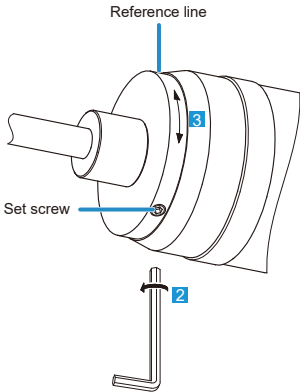
Be sure to perform reference line adjustment prior to measurement for accurate measurement.

Tips

When mounting the body, the sleeve reference line can be adjusted to the position most convenient for the measurer, as in the figure.



- 1 Mount the body on a stage, etc.
- 2 Loosen the set screw at the back of the sleeve reference line.
- 3 Move the sleeve to the desired position and adjust the reference line position.



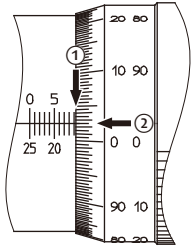
- 4 Firmly tighten the reference line set screw.
 - 5 Adjust the thimble graduation to the desired position in accordance with the adjusted reference line.
- For details of how to adjust the thimble graduation, see [3. Thimble Graduation Adjustment] (page 1).

5.How to Read Graduations

■ Forward Measurement

Read the forward direction graduations as below.
Read the upper graduations (black) on the sleeve and the left graduations (black) on the thimble.

① Sleeve reading	9.0 mm
② Thimble reading	0.025 mm
9.025 mm	



■ Reverse Measurement

Read the reverse direction graduations as below.
Read the lower graduations (red) on the sleeve and the right graduations (red) on the thimble.

① Sleeve reading	15.0 mm
② Thimble reading	0.975 mm
15.975 mm	

Read the thimble at the location where the sleeve reference line matches the graduation line on the thimble.

6.Specifications

Code No.	152-389 / 152-391	152-390 / 152-392
Model	MHG1-25Y2 / MHG1-1"Y2	MHG1-25X2 / MHG1-2"X2
Measurement range	0 to 25 mm / 0-1 in	
Graduation	0.005 mm / 0.0001 in	
Maximum permissible error J_{MPE}	$\pm 2 \mu\text{m}$ / ± 0.0001 in	
Graduation specifications	For vertical axis	For horizontal axis
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
Burr or nicks generated by an impact on the measurement surfaces may affect measurement repeatability.