ABS Digimatic Height Gage

(en)

HDS-AX

Safety Precautions

To ensure operator safety, use this product in conformance with the directions, functions and specifications given in this User's Manual.
Use under other conditions may compromise safety.

⚠WARNING Shows risks that could result in death or serious injury.

- Always keep batteries out of reach of infants, toddlers, and young children, and if swallowed, consult a physician immediately.
- Batteries should never be short-circuited, disassembled, heated, or exposed to fire.
- If battery liquid comes in contact with the eyes, flush eyes immediately with clean water and consult a physician. If battery liquid comes in contact with the skin or clothing, flush the exposed area thoroughly with clean water.

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

- Never attempt to charge the primary battery, or reverse the positive-negative terminals when mounting. Improper battery handling or mounting may cause the battery to explode, cause battery leakage and/or serious bodily injury or malfunctioning.
- The tip of the scriber on this product is sharp. Always handle it with care to avoid bodily injury.

NOTICE Shows risks that could result in property damage.

If the product is to be out of use for 3 months or more, remove the battery before storage. Liquid leakage from the battery may damage the product.

Tips

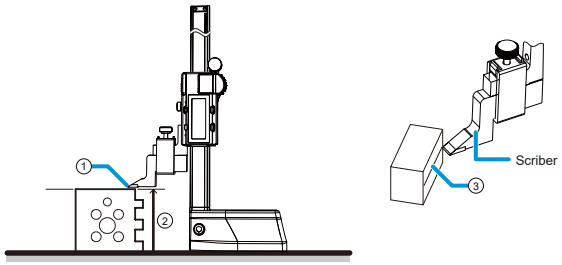
- Be sure to use an SR44 battery (silver oxide battery).
- Never disassemble this product, unless removing the battery cover to replace the battery. If the product is disassembled, the warranty will no longer apply.
- Be sure that you thoroughly understand the content in both "2. Installation Environment" and "3. Precautions for Use" before using this product.

Contents

1. Product Capabilities ..... Page 1
2. Installation Environment ..... Page 1
3. Precautions for Use ..... Page 1
4. Confirmation of Accessories ..... Page 1
5. Names and Functions of Components ..... Page 2
6. Preparations before Use ..... Page 2
7. Moving the Slider ..... Page 3
8. Using as a Scribing Tool ..... Page 3
9. Using as a Measuring Instrument ..... Page 3
10. Usage Scenarios ..... Page 4
11. Routine Maintenance ..... Page 4
12. Errors and Countermeasures ..... Page 4
13. Specifications ..... Page 4
14. Options (Sold Separately) ..... Page 4

1. Product Capabilities

This product can be used as a measuring instrument by moving the scriber to the point to be measured (①) and determining the travel distance (height).
It can also scribe precisely on surfaces of a workpiece (③) with the tip of a part called a scriber.



2. Installation Environment

Use this product only in the following environments.
- Areas with minimal dirt and dust
- Areas with minimal vibrations
- Areas with an ambient temperature between 0 °C and 40 °C
  (For precision measurements, the temperature should be consistently around 20 °C.)
- Areas with low humidity
- On a surface plate

Avoid using the product in the following environments.
- In locations where it may be directly exposed to cutting fluids, water, etc.
- In locations where it may be exposed directly to sunlight or hot or cold wind
- In locations near machines that generate electromagnetic noise, such as welders or electrical discharge machines

3. Precautions for Use

1) When using this product for the first time after purchase

Wipe the rust preventive oil from the product with a soft cloth soaked with cleaning oil, etc., and then install the supplied battery.

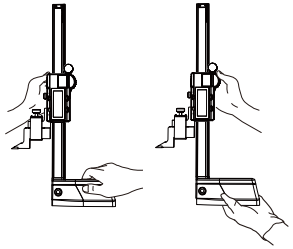
2) Cleaning before use

Clean the following parts, and then use the product only after confirming that it is free of dirt or burrs (projections caused by damage, etc.).
- Surface plate
- Beam, lower base surface, scriber mounting surface, and scriber measurement surface

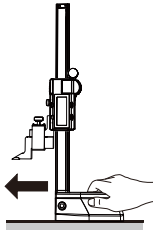
3) When carrying or moving

■ Correct holding

- First, lock the slider securely in place, and firmly grip the base while lightly supporting the rear surface of the slider.
  Alternatively, hold the bottom of the base while lightly supporting the rear surface of the slider.
  When holding the bottom of the base, wear a cotton glove or the like to prevent direct contact with your bare hand. Directly touching the bottom of the base with your bare hand may cause rusting.

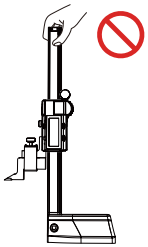


- When taking measurements on a surface plate by using this measuring instrument, or when moving this instrument, hold the base and slide it to move it.



■ Incorrect holding

Do not touch the top part of the beam, as doing so could affect accuracy.

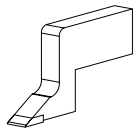


4) Other

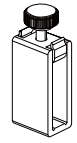
NOTICE Shows risks that could result in property damage.

- Never apply an external voltage to this product, such as entering numbers using an electric marking pen. This may cause failure.
- Do not subject the product to excessive force or impact through dropping or the like. This may cause failure, such as malfunctions.

4. Confirmation of Accessories



• Scriber



• Scriber clamp

• Battery (SR44)

• Quick Start Guide and warranty

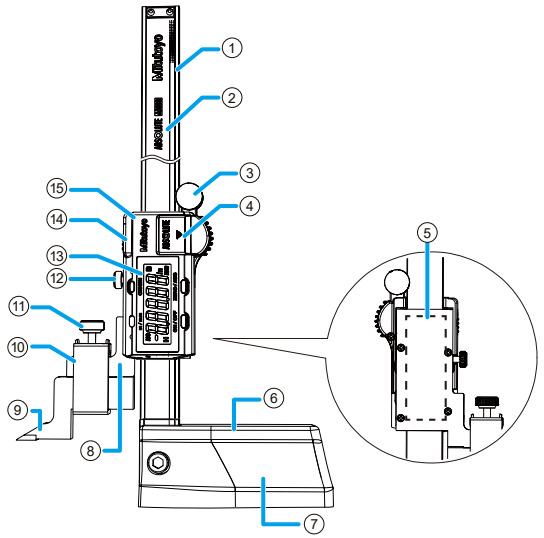
Mitutoyo

Mitutoyo Corporation 20-1, Sakado 1-Chome, Takatsu-ku, Kawasaki-shi, Kanagawa 213-8533, Japan

Date of publication: August 1, 2026
Printed in Japan

5. Names and Functions of Components

1) Main body



① Beam
Supports the slider.

② Main scale

③ Thumb roller
Used as the slider's fine feed.

④ Battery cover
Covers the battery insertion part.

⑤ Label
Indicates product information such as code No.

⑥ Base
Grip this part when measuring or moving the main body on a surface plate.

⑦ Grip
A concave area for gripping the base.

⑧ Jaw
Mounting part of scriber.

⑨ Scriber
This can be used as a tool for scribing lines. It is also used as a measuring point by placing the tip against the workpiece to take measurements.

⑩ Scriber clamp
Fixes the inserted scriber to the main body with the clamp screw.

⑪ Clamp screw for scriber
The screw which fixes the scriber.

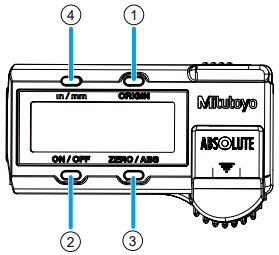
⑫ Clamp screw for slider
Locks/unlocks the slider movement.

⑬ LCD display
The display is used to show measured values and messages.

⑭ Data output connector
This connector is used to connect an optional external device (sold separately).

⑮ Slider
The moving part on the main body in which the LCD display is located.

2) Controls



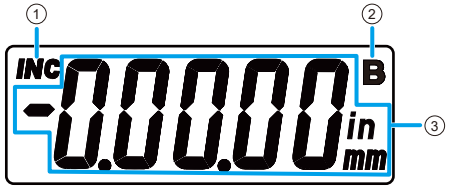
① [ORIGIN] switch
Press and hold this switch for at least 1 second to set the absolute measurement (ABS) reference.

② [ON/OFF] switch
Used to turn the power on/off.

③ [ZERO/ABS] switch
Used to switch between absolute measurement (ABS) and incremental measurement (INC).

④ [in/mm] switch (inch display models only)
Used to switch units (in/mm) by pressing for at least 1 second.

3) LCD display



① Lights up when the reference is switched to incremental measurement (INC).

② Lights up when the battery is depleted.

③ Displays the measured value and unit.

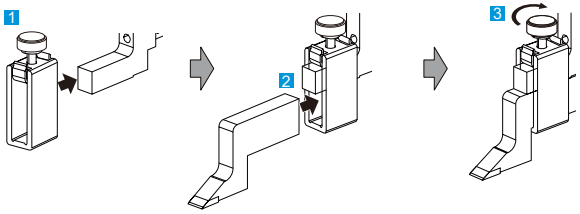
6. Preparations before Use

1) Mounting the scriber

1 Insert the scriber clamp all the way to the end of the jaw.

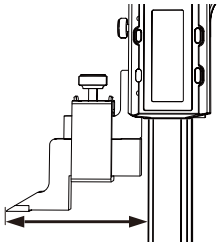
2 Insert the scriber into the scriber clamp.

3 Tighten the clamp screw.



Tips

Mount the scriber as close to the beam as possible, so that it protrudes no more than necessary. Too much protrusion will cause measurement errors (with error effect increased 1.5 times if the protrusion of the scriber tip from the beam changes from 100 mm to 150 mm). If the scriber must be used protruding longer, be careful to apply only the necessary measuring force.



2) Installing (replacing) the battery

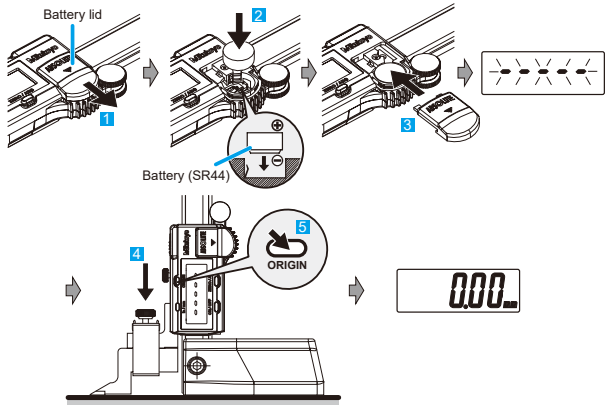
1 Slide the battery lid to the specified direction (▼) and remove it.

2 Install the battery (SR44) with its positive side facing upward.

3 Return the battery lid to the original position.
》"-----" blinks immediately.

4 Slowly bring the scriber into contact with the surface plate.

5 Press and hold the [ORIGIN] switch for 1 second or more.
》The value [0.00] lights up (the reference for ABS has been set).



NOTICE Shows risks that could result in property damage.

When inserting the battery, be careful not to deform the positive terminal.

Tips

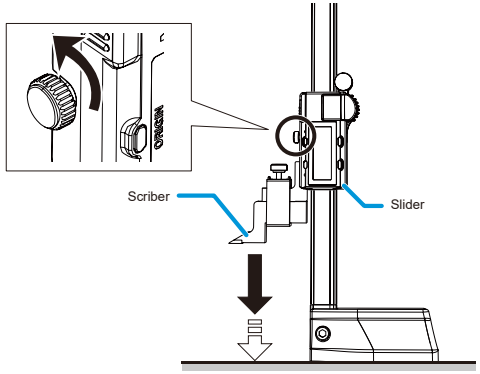
- Set the ABS reference after inserting the battery. If the reference is not set, [-----] blinks. When setting the reference, refer to 9. Using as a Measuring Instrument [1) Reference setting].
- When replacing the battery, wait at least 10 seconds before inserting the new battery.
- If the display or functionality is abnormal after replacing the battery, reinstall the battery.
- Press the [ON/OFF] switch to turn the power off. Be sure to turn off the power after use.

Mitutoyo

Mitutoyo Corporation 20-1, Sakado 1-Chome, Takatsu-ku, Kawasaki-shi, Kanagawa
213-8533, Japan

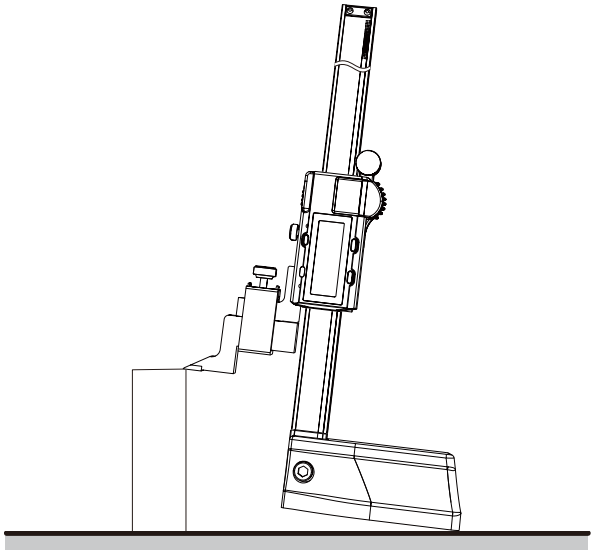
7. Moving the Slider

Loosen the clamp screw so that the slider can be moved.
When moving the slider up and down, hold the LCD display and move it while holding down the base surface with the palm of one hand.
Moving the slider will move the scriber up and down.
Move the slider slowly when bringing the scriber into contact with the surface plate or workpiece.



Tips

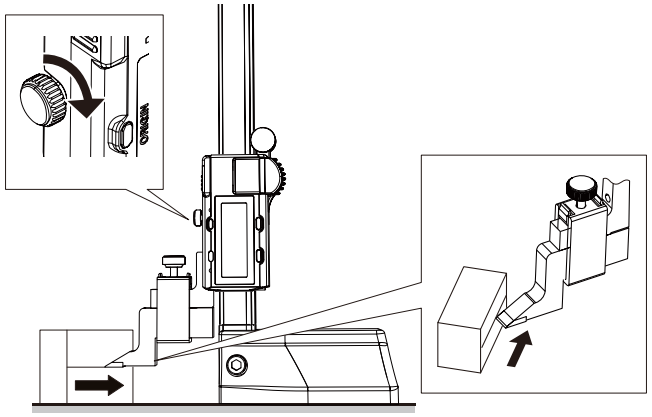
- The thumb roller is a roller mechanism that finely adjusts the slider, and does not serve as a ratchet stop.
  Measuring pressure is prone to increase when the thumb roller is used during measurement. To ensure adequate and consistent measuring force, be careful not to push down the workpiece by using the thumb roller.
- If the slider is moved further (measuring force is applied) after the scriber makes contact with the workpiece, the bottom of the base will lift from the surface plate, causing measurement errors. In order to obtain accurate measurements, bring the scriber into contact with the workpiece as slowly as possible and apply constant force lightly. Before measuring, confirm that the bottom of the base is free of dirt and burrs (burrs caused by damage, etc.).



- When bringing the scriber into contact with the workpiece, you can confirm the scriber contact state and the degree of contact between the base and the surface plate by sliding the base slightly over the surface plate once the slider has stopped moving.
- In order to make accurate measurements, bring the scriber into contact with the workpiece several times and confirm that the LCD shows a stable value when the scriber makes contact with the workpiece.

8. Using as a Scribing Tool

When scribing, make sure that the scriber moves in a consistent direction. At this time, make sure that the clamp screw is firmly tightened and that the slider is fixed.



Tips

When setting the reference, refer to [1) Reference setting].

9. Using as a Measuring Instrument

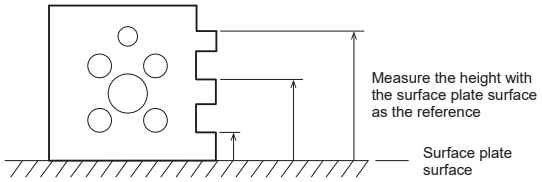
1) Reference setting

Set the reference when measuring height. The distance from the reference set will be displayed as a measured value of height. This product supports both absolute measurement (ABS) and incremental measurement (INC) reference setting. Before use, be sure to set the ABS reference, and to set the INC reference as needed.

■ Absolute measurement (ABS) reference (zero)

This is how to set the ABS reference. Normally, the workpiece height is measured with the surface plate surface as the reference. The set reference is fixed until the battery is discharged, so this is a convenient way to measure multiple measurement points with the surface plate surface as the reference.

Example: Setting surface plate surface as the reference with a value of 0 mm



As an example, this section describes how to set the surface plate surface as the reference.

Tips

The set reference is stored until the battery is replaced. If the battery is replaced, the reference will need to be set again.

1 Confirm that the power is on.

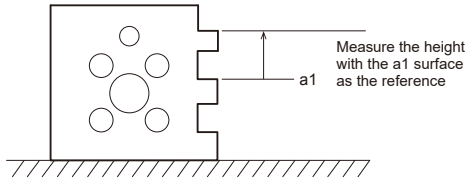
2 Slowly bring the scriber into contact with the surface plate.

3 Press and hold the [ORIGIN] switch for at least 1 second.
》[0.00] is displayed (the ABS reference has been set).

■ Incremental measurement (INC) reference (zero)

This method is used to set an arbitrary point on the workpiece as the reference. The specified point will be used as the reference for measurement (value of 0 mm). As the reference is reset each time the switch is pressed, this is a convenient way to measure multiple measurement points while resetting the reference.

Example: Setting surface a1 as the reference (value is always 0 mm)



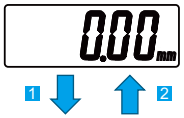
1 Confirm that the power is on.

2 Slowly bring the scriber into contact with an arbitrary point on the workpiece.

3 Briefly press the [ZERO/ABS] switch (for less than 1 second).
》[INC] lights up and [0.00] is displayed (the reference for INC has been set).

2) Switching measurement modes

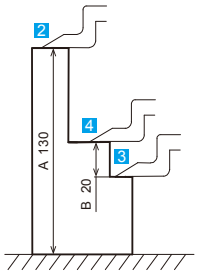
1 Briefly press the [ZERO/ABS] switch (for less than 1 second).
》[INC] lights up and the value [0.00] is set.



2 Press and hold the [ZERO/ABS] switch for at least 1 second.
》[INC] goes out, and the slider position compared to the reference set for ABS is displayed.

3) Measurement

Example: Measuring dimensions A and B of the workpiece shown in the right figure



1 Set the surface plate surface as the ABS reference.

Tips

Refer to [■ Absolute measurement (ABS) reference (zero)] for information on setting.

2 Slowly bring the scriber into contact with the upper surface A.
》Dimension A is measured.

3 Set the lower surface B as the INC reference.

Tips

Refer to [■ Incremental measurement (INC) reference (zero)] for information on setting.

4 Slowly bring the scriber into contact with the upper surface B.
》Dimension B is measured.

Mitutoyo

Mitutoyo Corporation 20-1, Sakado 1-Chome, Takatsu-ku, Kawasaki-shi, Kanagawa
213-8533, Japan

10. Usage According to Purpose

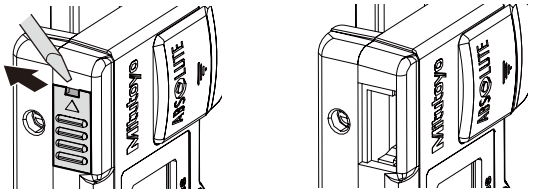
■ Outputting measurement results to an external device

Measured values can be output to an optional external device (sold separately) connected to the product.

1 Remove the connector cap using a tool such as a flathead screwdriver.

NOTICE Shows risks that could result in property damage.

When removing the connector cap, do not use a sharp object or pry it open forcefully. Doing so may damage the connector cap.



2 Connect the external device to the data output connector on the product.

3 Output data by operating the external device.

Refer to the User's Manual included with the external device for details.

11. Routine Maintenance

1) Cleaning

- After use, clean the entire product and check that none of the parts are damaged.
- Use a lint-free cloth or paper soaked in alcohol to wipe the main body (beam, base, scriber, etc.). Do not use thinner or other organic solvents.

2) Storage

- For storage, keep the scriber raised about 1 mm off the surface plate and leave the clamp screw untightened.
- Store the product so that the tip of the scriber does not protrude from the surface plate.
- Always turn the power off before storing the product.
- Do not store the product in a place with a high temperature or humidity, or a lot of dust or oil mist.
- If the product is to be out of use for three months or more, remove the battery.
- Apply anti-rust treatment after use. Rust may cause malfunction.
- We recommend periodically testing and calibrating the product for accuracy.
- If any abnormalities occur, contact the dealer where the product was purchased.

12. Errors and Countermeasures

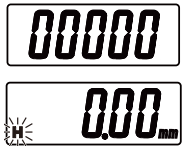
■ Minimum digit "E" display

This digit appears if the surface of the scale is dirty to an immeasurable degree. Clean the surface of the scale.
If "E" still appears even after the surface of the scale is cleaned, reinstall the battery.
Nevertheless, if it does not disappear, remove the battery, and then contact your dealer or sales office.

■ "B" display

"B" indicates the voltage drop of the battery.
Replace the battery immediately.
(For instructions on replacing the battery, see [Installing (replacing) the battery].)

■ If all five digits have the same number, or if "H" blinks



Remove the battery temporarily, and then reinstall it.

■ Other errors

If the error shown in the figure occurs, set the origin again.

13. Specifications

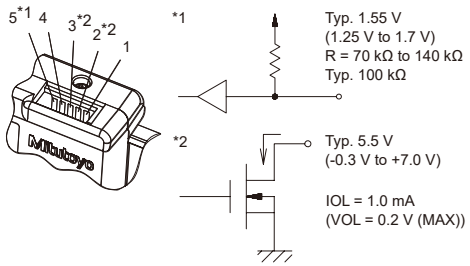
1) Product specifications

Model number	HDS-15AX	HDS-6"AX
Code No.	570-501	570-511
Maximum measurement length	150 mm	150 mm / 6"
Maximum permissible error (E_{MPE})	±0.03 mm	±0.03 mm / ±.0015"
Resolution	0.01 mm	0.01 mm / 0.0005"
Maximum response speed	Unlimited	
Power	SR44 (silver oxide battery) x 1 (Part No. 938882)	
Battery life	Approximately 5 years (under normal use)	
Operating temperature	0 °C to 40 °C	
Storage temperature	-10 °C to 60 °C	
Scriber	Part No. 900173	
Scriber clamp	Part No. 901338	

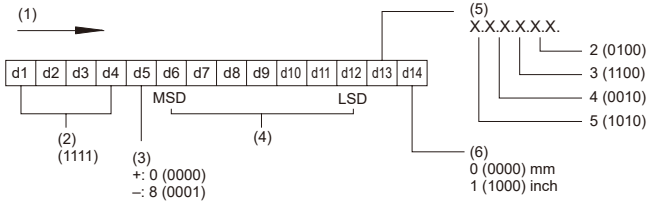
2) Output specifications

■ Connector pin alignment

Pin No.	I/O	Signal
1	-------	GND
2 (*2)	O	DATA
3 (*2)	O	CLOCK
4	-------	-------
5 (*1)	I	$\overline{\text{REQUEST}}$

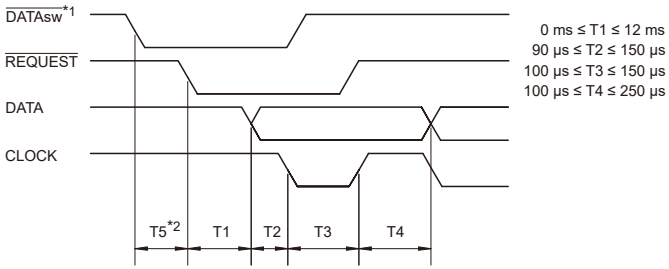


■ Data format



(1) Order of output, (2) All "F", (3) Sign, (4) Measurement value, (5) Decimal point, (6) Unit

■ Timing chart



*1: $\overline{\text{DATAsw}}$ is at the LOW level while the data output switch is pressed.

*2: $\overline{\text{DATAsw}}$ changes to the LOW level. T5 indicating the time to a $\overline{\text{REQUEST}}$ entry depends on performance of a data processor.

14. Options (Sold Separately)

- Digimatic connection cable (for IT-020U/IT-007R/DP-1VA LOGGER/MUX-10F/etc.)
  1 m: Part No. 959149
  2 m: Part No. 959150
- USB input tool direct
  USB-ITN-C (2 m): Part No. 06AFM380C
- U-WAVE-T dedicated connection cable
  Standard (160 mm): Part No. 02AZD790C
  For foot switch: Part No. 02AZE140C
- Holder arm: Part No. 953639 *1
- Clamp: Part No. 902053 *1

*1: When using this product with a test indicator attached, the increased weight compared to the standard included scriber may cause the LCD display to be lowered.
Make sure to tighten the clamp screw securely and fix the slider in place before use.

Mitutoyo

Mitutoyo Corporation 20-1, Sakado 1-Chome, Takatsu-ku, Kawasaki-shi, Kanagawa
213-8533, Japan