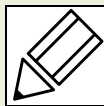


Quick Guide to Precision Measuring Instruments

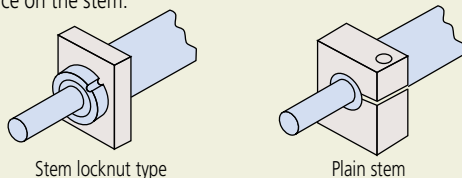


Linear Gauges

Head

■ Plain Stem and Stem with Clamp Nut

The stem used to mount a linear gauge head is classified as a "plain type" or "clamp nut type" as illustrated below. The clamp nut stem allows fast and secure clamping of the linear gauge head. The plain stem has the advantage of wider application and slight positional adjustment in the axial direction on final installation, although it does require a split-fixture clamping arrangement or adhesive fixing. However, take care so as not to exert excessive force on the stem.



■ Measuring Force

This is the force exerted on a workpiece during measurement by the contact point of a linear gauge head, at its stroke end, expressed in newtons.

■ Comparative Measurement

A measurement method where a workpiece dimension is found by measuring the difference in size between the workpiece and a master gauge representing the nominal workpiece dimension.

■ Ingress Protection Code

IP54 protection code

Type	Level	Description
Protects the human body and protects against foreign objects	5: Dust protected	Protection against harmful dust
Protects against exposure to water	4: Splash-proof type	Water splashing against the enclosure from any direction shall have no harmful effect.

IP66 protection code

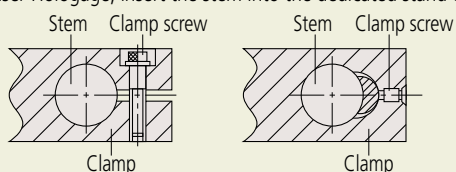
Type	Level	Description
Protection against contact with the human body and foreign objects	6: Dust tight	Protection from dust ingress Complete protection against contact
Protects against exposure to water	6: Water-resistant type	Water jets directed against the enclosure from any direction shall have no harmful effects.

■ Precautions in Mounting a Gauge Head

- Insert the stem of the gauge into the mounting clamp of a measuring unit or a stand and tighten the clamp screw.
- Notice that excessively tightening the stem can cause problems with spindle operation.
- Never use a mounting method in which the stem is clamped by direct contact with a screw.
- Never mount a linear gauge by any part other than the stem.
- Mount the gauge head so that it is in line with the intended direction of measurement. Mounting the head at an angle to this direction will cause an error in measurement.
- Exercise care so as not to exert a force on the gauge through the cable.

■ Precautions in Mounting a Laser Hologage

To fix the Laser Hologage, insert the stem into the dedicated stand or fixture.



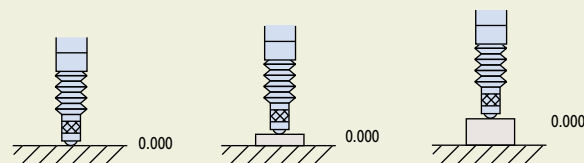
Recommended hole diameter on the fixing side: 15 mm +0.034/-0.014

- Machine the clamping hole so that its axis is parallel with the measuring direction. Mounting the gauge at an angle will cause a measuring error.
- When fixing the Laser Hologage, do not clamp the stem too tightly. Over-tightening the stem may impair the sliding ability of the spindle.
- If measurement is performed while moving the Laser Hologage, mount it so that the cable will not be strained and no undue force will be exerted on the gauge head.

Display Unit

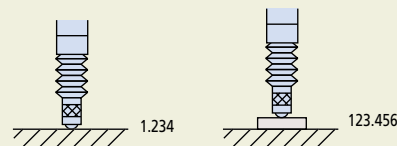
■ Zero-Setting

A display value can be set to 0 (zero) at any position of the spindle.



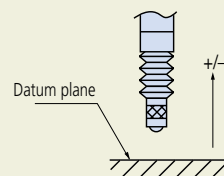
■ Presetting

Any numeric value can be set on the display unit for starting the count from this value.



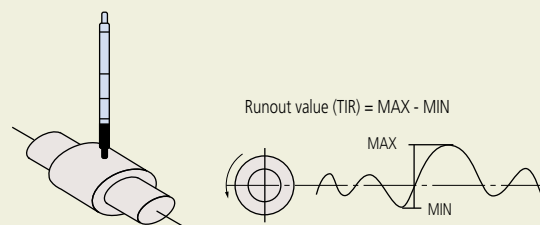
■ Direction Changeover

The measuring direction of the gauge spindle can be set to either plus (+) or minus (-) of count.



■ MAX, MIN, TIR Settings

The display unit can hold the maximum (MAX) and minimum (MIN) values, and MAX - MIN value during measurement.



■ Tolerance Setting

Tolerance limits can be set in various display units for automatically indicating if a measurement falls within those limits.

■ Open Collector Output

An external load, such as a relay or a logic circuit, can be driven from the collector output of an internal transistor which is itself controlled by a Tolerance Judgement result, etc.

■ Relay Output

Contact signal that outputs the open/closed status.

■ Digimatic Code

A communication protocol for connecting the output of measuring tools with various Mitutoyo data processing units. This allows output connection to a Digimatic Mini Processor DP-1VR for performing various statistical calculations and creating histograms, etc.

■ BCD Output

A system for outputting data in binary-coded decimal notation.

■ RS-232C Output

A serial communication interface in which data can be transmitted bi-directionally under the EIA Standards. For the transmission procedure, refer to the specifications of each measuring instrument.