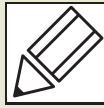


Quick Guide to Precision Measuring Instruments



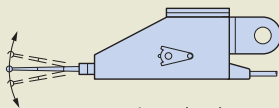
Electronic Micrometer

■ Probe

A sensor that converts movement of a contact point, on a stylus or plunger, into an electrical signal.

■ Lever probes

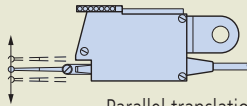
Lever probes are available in two types. The most common type uses a pivoted stylus so the contact point moves in a circular arc; this type is subject to cosine effect and, therefore, measurements may require linearity correction if the direction of measurement is much different to the direction of movement of the contact point. The less common type uses a parallel translation leaf-spring mechanism so contact point movement is linear; this type requires no correction.



Pivoted stylus type

MLH-521 (measuring direction can be switched with the up/down lever)

MLH-522 (measuring direction is not switchable)

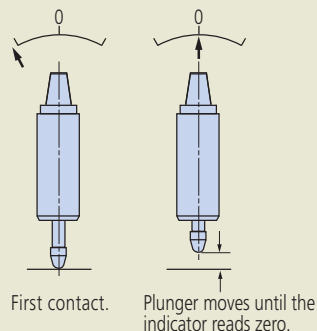


Parallel translation type

MLH-326 (measuring direction can be switched with the upper dial)

■ Pre-travel

The distance from first contact with a workpiece until the measurement indicator reads zero.



■ Measuring force

The force applied to the workpiece by the probe when the indicator registers zero. It is indicated in newtons (N).

■ 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-1VA LOGGER for performing various statistical calculations and creating histograms, etc.

■ Open collector output

A direct connection to the collector of a driving transistor.

■ Relay output

Contact signal that outputs an open/closed status.

■ Comparative measurement

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

This method is usually applied when the measurement to be made is greater than the measuring range of the instrument.

■ Linearity

The ratio of proportionality between measuring system output and measured distance.

If this is not constant within acceptable limits then correction is required.

■ 0 (zero) point

A reference point on the master gage in a comparative measurement.

■ Measurement range

The measurement range chosen determines the resolution available. A small range increases the resolution, and visa versa. Analog Mu-checkers provide multiple ranges because of the limited length of the scale, whereas digital versions only need to provide two.

■ Tolerance setting

Tolerance limits can be set on the electronic micrometer to provide an automatic judgment as to whether a measured value falls within the tolerance.