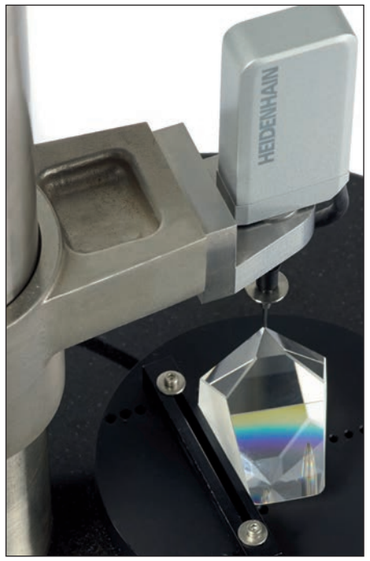
Areas of application
In quality assurance

Metrology and production control

Length gauges from HEIDENHAIN play a role in incoming goods inspection, fast dimension checking during production, statistical process control in production or quality assurance, or in any application where fast, reliable and accurate length measurement is required. Their large measuring lengths are a particular advantage: whether the part measures 5 mm or 95 mm, it is measured immediately with one and the same length gauge.

Whatever the application, HEIDENHAIN has the appropriate length gauge for the required accuracy. The **HEIDENHAIN-CERTO** length gauges offer a very high accuracy of ±0.1 µm/±0.05 µm*/±0.03 µm* for extremely precise measurement. Length gauges from the **HEIDENHAIN-METRO** program have accuracy grades as fine as ±0.2 µm, while the **HEIDENHAIN-SPECTO** length gauges, with ±1 µm accuracy, offer particularly compact dimensions.

* After linear length-error compensation in the evaluation electronics



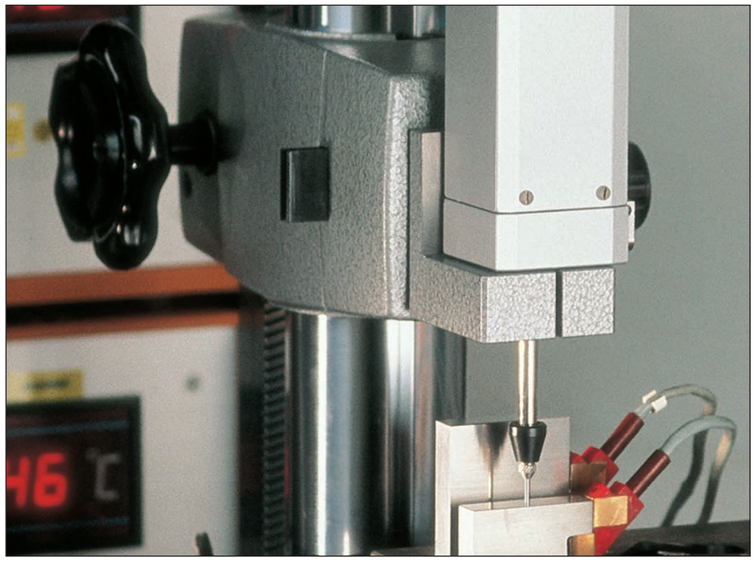
Workpiece inspection

Inspection of styli

Gauge block calibration and measuring device inspection

The regular inspection of measuring equipment called for by standards, and the inspection of gauge blocks in particular, necessitate a large number of reference standard blocks if the comparative measurement is performed using inductive gauges. The problem is the small measuring range of inductive gauges: they can measure length differences of only up to 10 µm. Length gauges, which offer large measuring ranges together with high accuracy, greatly simplify the calibration of measuring devices required to ensure traceability.

The length gauges of the **HEIDENHAIN-CERTO** product portfolio with measuring ranges of 25 mm with ±0.1 µm/±0.03 µm* accuracy and 60 mm with ±0.1 µm/±0.05 µm* accuracy are especially well suited for this task. They permit a significant reduction in the required number of reference standard blocks, and recalibrating becomes much simpler.


Calibration of gauge blocks

In production metrology

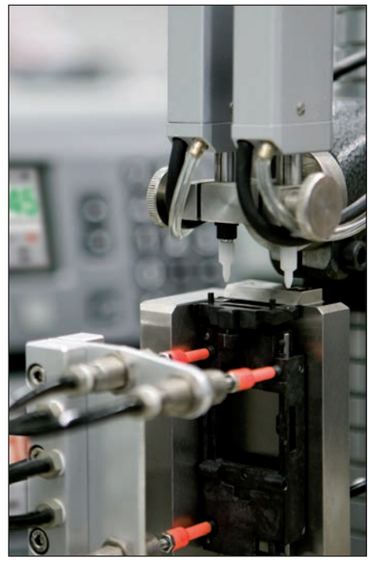
Multi-gauging fixtures

Multi-gauging fixtures require durable length gauges with small dimensions. They should also have relatively large measuring ranges of several millimeters with consistent linear accuracy in order to simplify the construction of inspection devices—for example by enabling the construction of one device for several masters. A large measuring length also provides benefits in master production, because simpler masters can be used.

Thanks to their small dimensions, the **HEIDENHAIN-ACANTO** absolute length gauges, like the **HEIDENHAIN-SPECTO** incremental length gauges, are specially designed for multi-gauging fixtures. They feature accuracy grades of down to ±1 µm over measuring ranges up to 30 mm. More stringent accuracy requirements of down to ±0.2 µm can be met with similarly compact **HEIDENHAIN-METRO** length gauges.

Unlike inductive gauges, HEIDENHAIN length gauges provide stable measurement over long periods—eliminating recalibration.

Testing station for flatness inspection

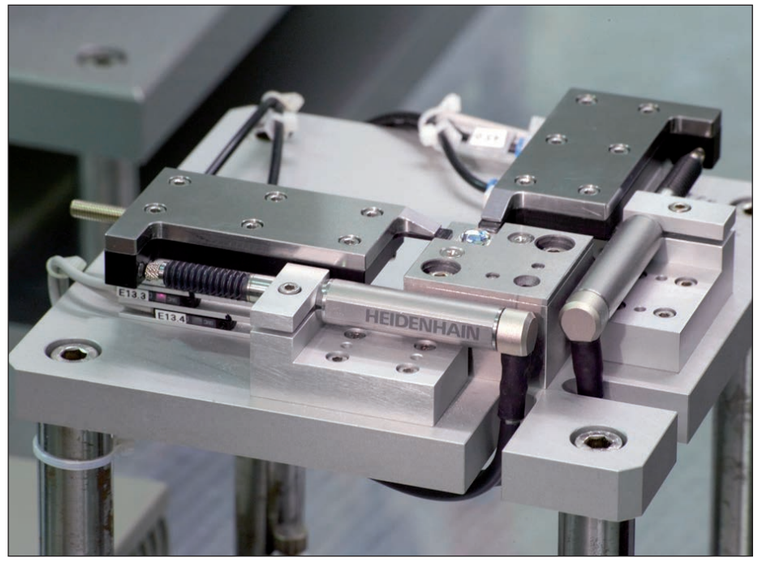

Tolerance gauging of semifinished products

Position measurement

Length gauges from HEIDENHAIN are also ideal for position measurement on precision linear slides and X-Y tables. Working with measuring microscopes, for example, becomes much easier thanks to the digital readout and the flexible datum setting.

Here, length gauges from the **HEIDENHAIN-METRO** and **HEIDENHAIN-SPECTO** program come into use with large measuring ranges of 30 mm, 60 mm or 100 mm at consistently high accuracy grades of ±0.5 µm or ±1 µm.

In this application as a linear measuring device, the length gauge's fast installation in accordance with the Abbe measuring principle by its clamping shank or plane mounting surface is of special benefit.



Position measurement on an X-Y table for lens mounting

Length gauges from HEIDENHAIN

Length gauges from HEIDENHAIN feature high accuracy over long measuring ranges. These sensors are used whenever lengths need to be measured with speed, reliability, and accuracy.

Long measuring ranges

HEIDENHAIN length gauges are available for measuring ranges of 12 mm, 25 mm, 30 mm, 60 mm, or 100 mm. This lets you measure a wide variety of parts with a single measuring setup without frequently changing cost-intensive gauge blocks or masters.

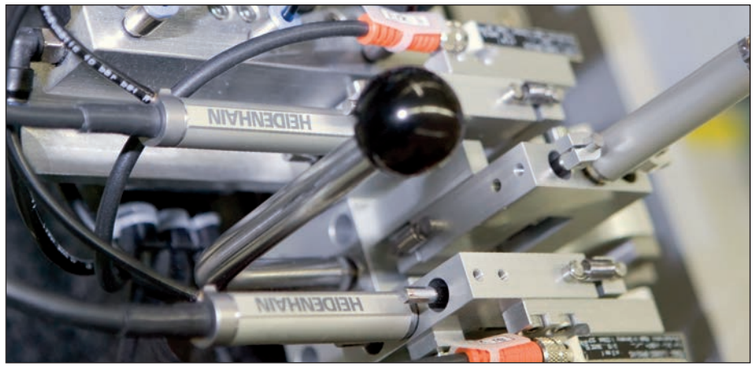
High accuracy

The high accuracy of HEIDENHAIN length gauges applies over the entire measuring range. Regardless of whether the part measures 10 mm or 100 mm, its actual dimensions are always measured with the same high quality. The high repeatability of HEIDENHAIN length gauges is beneficial during comparative measurements, such as in serial production.

The HEIDENHAIN-CERTO length gauges, in particular, exhibit high accuracy and offer nanometer-level resolution.

Robust design

HEIDENHAIN length gauges are built for an industrial environment. Their long-term consistent accuracy and high thermal stability make them ideal for use in production equipment and machines.

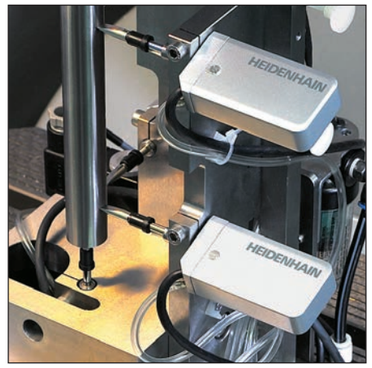


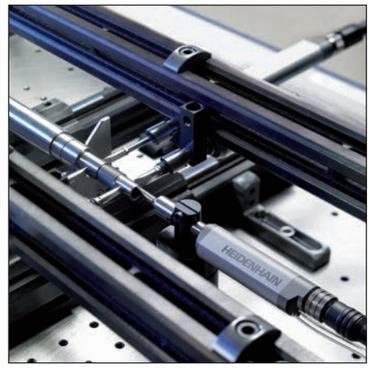
Wide range of applications

HEIDENHAIN length gauges are suited for many applications. Automatic inspection equipment, manual measuring stations or positioning equipment—wherever lengths, spacing, thickness, height, or linear motion are to be measured, HEIDENHAIN length gauges function quickly, reliably, and accurately.

Absolute position measurement

The HEIDENHAIN-ACANTO length gauges operate with absolute measurement over a range of 12 mm or 30 mm and with high repeatability. Their particular advantage is that the measured value is available immediately after switch-on.





Expertise

The high quality of HEIDENHAIN length gauges is no coincidence. HEIDENHAIN has been manufacturing high-accuracy scales for over 70 years, and for many years it has developed measuring and testing devices for length and angle measurement for national standards laboratories. This know-how makes HEIDENHAIN an extraordinarily qualified partner for metrology questions.

Worldwide presence

HEIDENHAIN is represented in all important industrial countries—in most of them with wholly owned subsidiaries. Sales engineers and service technicians support the user on-site with technical information and servicing in the local language.