

OPTICAL HEIGHT GAUGE OHM 150

Setup

An electronic autocollimator with attachment achromat is mounted on a high accurate motorized and software controlled z-axis. The travel of the measuring head is measured with a resolution of $1\mu\text{m}$. The measuring function is based on the fact, that the reticle of the autocollimator is reflected in itself, if it is focused on the specimen surface. A software with image processing system controls the measurements.

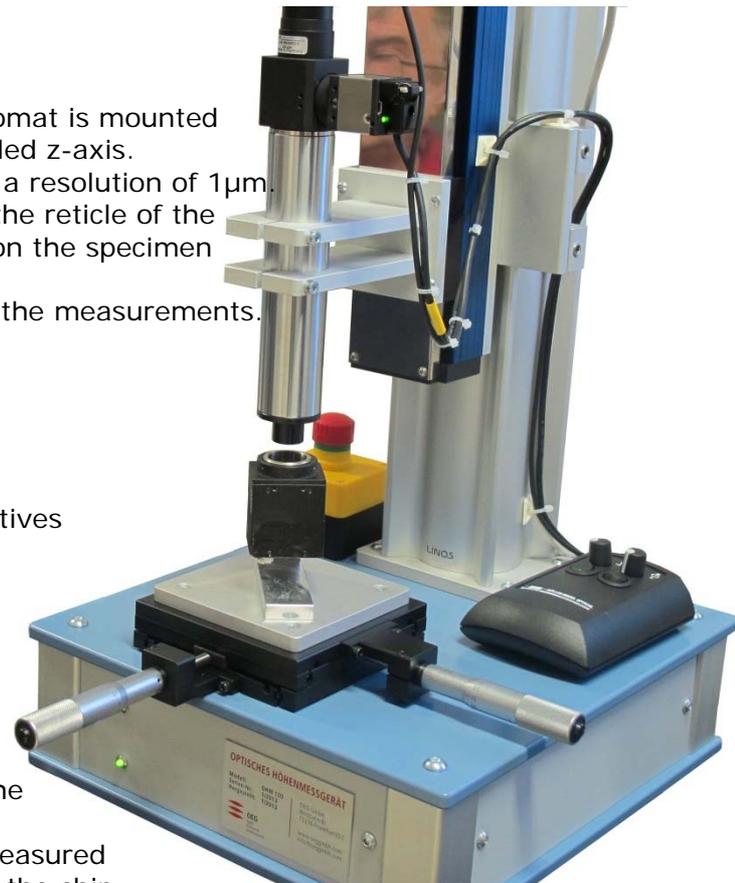
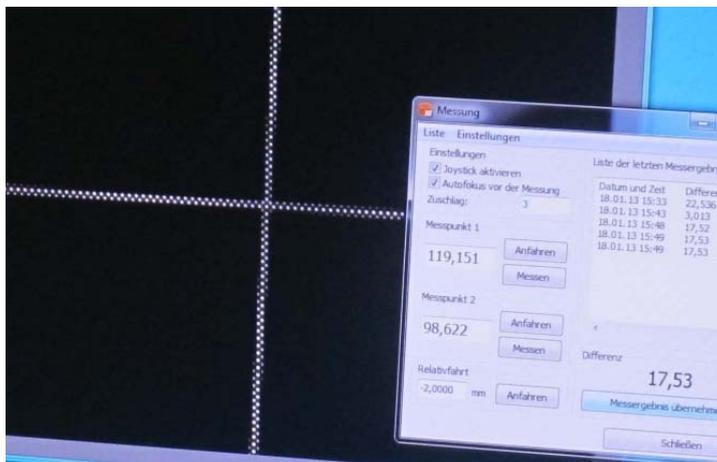
Fields of use

1. Camera chip adjustment
2. Flange focal length (FFL) measurement of objectives
3. Optical height gauge
4. Radius measurement of optical lenses

1. Camera chip adjustment



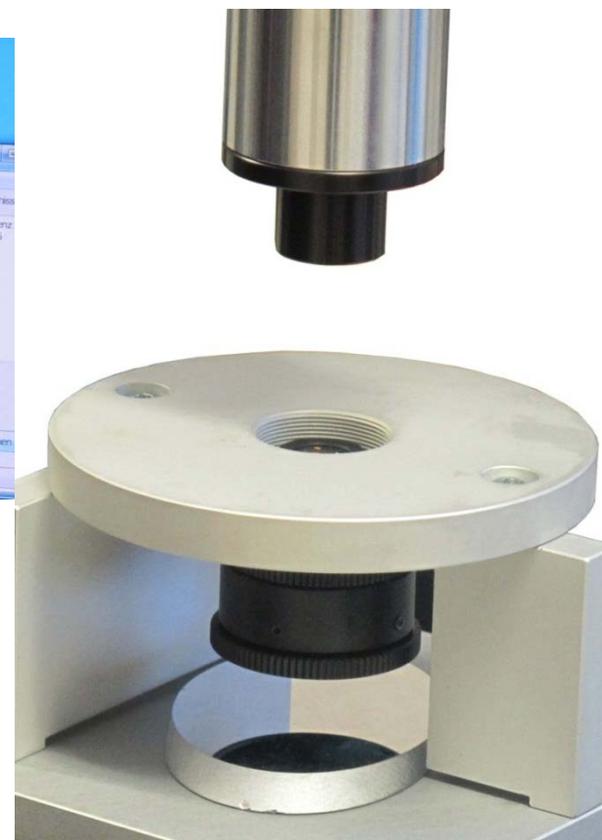
Using a gauge block, a reference to the flange of the camera housing is made. The reference value is stored. As second step the position of the chip can be directly measured in relation to the reference. The pixels of the chip can be seen clearly (see pic. below).



2. Flange focal length (FFL) measurement

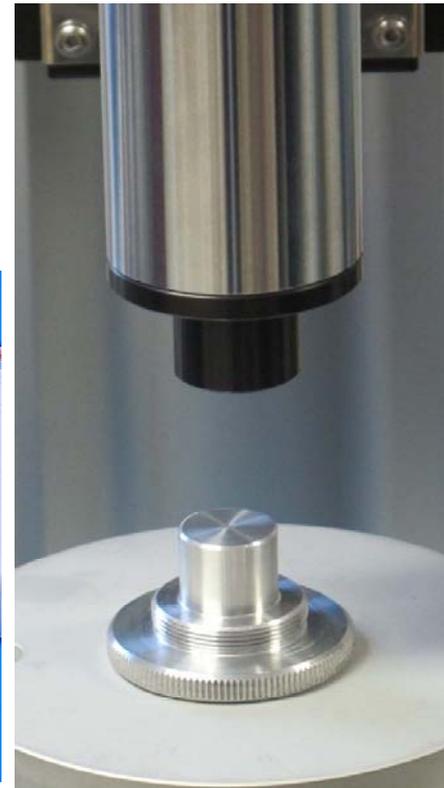
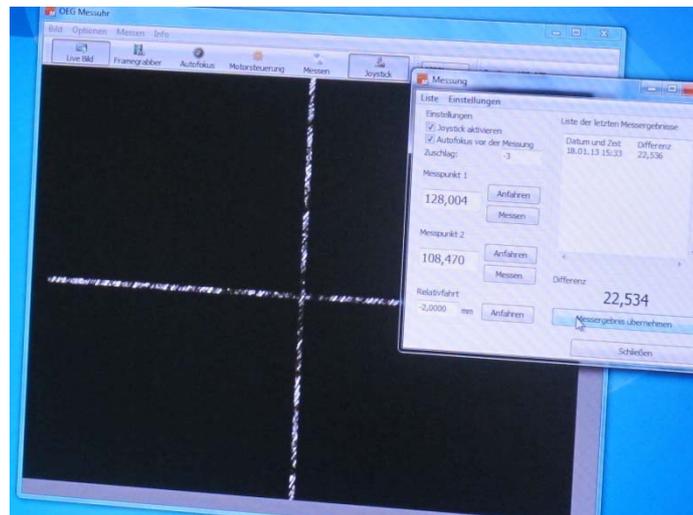
The FFL of objectives is measured in double pass of the light through the specimen against a reference mirror. The position of the image plane is measured, using a master objective. As second step the FFL can be measured directly in relation to the master lens.

Ideally the FFL of the specimen is adapted to the FFL of the master lens, using the OHM.



3. Optical height gauge

The OHM optical height gauge allows the optical, noncontact probing of sensitive surfaces. The surfaces don't have to be high reflective like mirrors. It works also for many mat surfaces. The measurement is performed relative to a reference plane, which has to be defined by the operator in an appropriate manner, for example a gauging block. After the reference measurement, heights can be measured relative to the reference plane.



4. Radius measurement for optical lenses

The optical sensor of the height gauge OHM is an electronic autocollimator with attachment achromat.

The reticle of the autocollimator is reflected from the vertex of the lens and from the center of curvature.

The height difference between both reflexes of the upper lens surface defines its radius of curvature. The measuring principle is a standard in optics industry.

The focal length of the attachment achromat must be adapted to the radius of curvature, which shall be measured.

Technical parameters

Length of z-axis:	150mm (any other length is possible)
Height measurement resolution:	1 μm
Height measurement accuracy:	5 μm (Sensor head),
Measuring accuracy:	5 μm ...20 μm (dependent on surface quality)
Radius measurement Accuracy:	5 μm ...20 μm (dependent of radius)