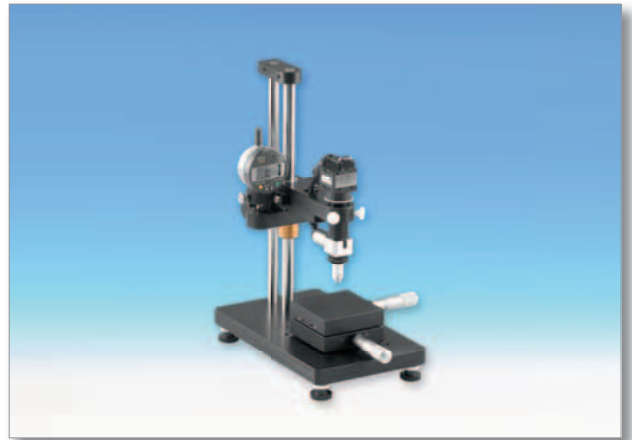


M

Stationary depth measurement

For depth measurements on small parts it is more practical to work with a stationary system. Since frequent change of the magnification factor is not required here, these systems are comprised of components from the CV module system. The first question arising is the accuracy to which the depths are to be measured. If the accuracy requirement is in the range of +/- 1 micron, it is essential to use an objective lens with a magnification factor of at least 20x, to ensure that the depth of field of the object does not falsify the reading. We prefer using M-Plan Apo lenses for demanding measurements. On the one hand these lenses have an extremely low depth of field, depending on the magnification factor, and, on the other



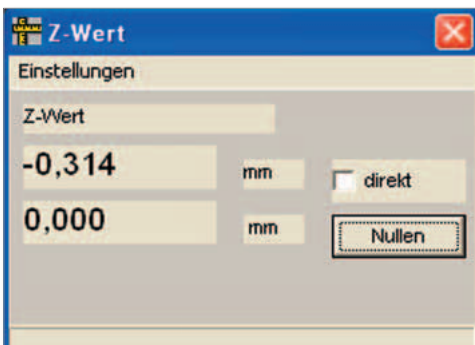
they have a significantly greater working distance than the standard 20x or 30x lenses. A tube with a length of 120 mm is used. The camera has a resolution of 1600 x 1200 pixels. The co-axial illumination, required here, is supplied with power from the USB camera.



The standard dial gauge is a Mitutoyo Absolute with 12 mm measuring path and a resolution of 0.001 mm. Incremental sensors with an accuracy of 0.75 microns over a measuring

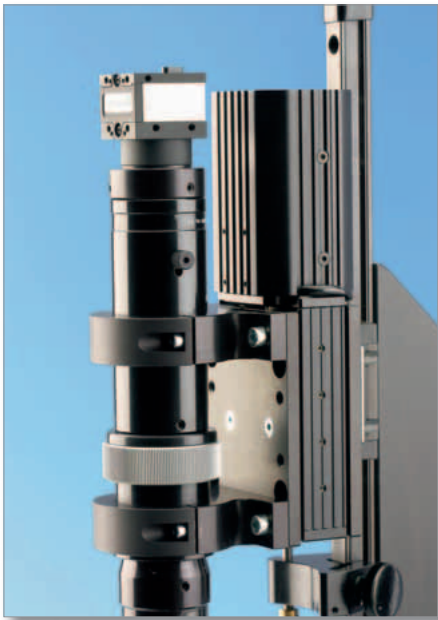


path of 25 mm are available as an alternative. As an option these dial gauges can be read out in the Metric MT using a data cable. This means that the instrument can be zeroed in a display window in the Metric MT measuring software instead of on the dial gauge itself. Here an Excel button transfers the results with a scaled image directly to an Excel sheet, which can be configured in the Master.xls



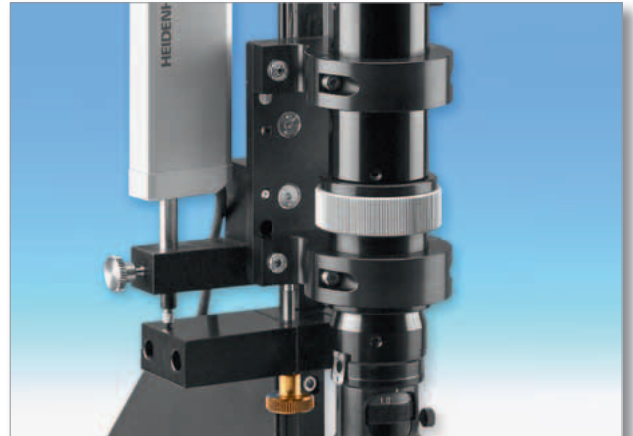
A spindle with micro-thread is located on the right side of the optical system for focusing. Normally the depth measurement is accomplished from bottom to top, to prevent an erroneous measurement resulting from the intrinsic weight of the extension arm with optical equipment.





Systems are available with motor-driven Z-axis for maximum requirements. With these systems it is not necessary to touch the microscope during measurement, because adjustment is accomplished with the MetricMT measuring software and the computer mouse. The smallest increment width is approx. 0.2 microns. Either motor-driven axes with dial gauges or incremental sensors are combined, or motor-driven axes are used with an integrated measuring system. However with the latter version an additional table or PCI

control is required.



Since at higher magnification the field of vision is practically never sufficient to see the top and bottom focal point in the image, a positioning table is required. Here again: Selection is not simple. Every thing is available starting with small cross tables with



dimensions of 25 x 25 mm with mechanical measuring



spindles to cross slide tables, rotation tables and even motor-drive cross tables. Naturally the tripods also vary depending on the configuration of the components. Here various types with different sizes and weights are available.

During the course of the years the variety of tripods, guides and special solutions has increased to the point that it is virtually impossible to describe all of these systems and list them on the website. Please ring us: We will be pleased to help your put your system together.

Or send us an inquiry with the following information:

- What degree of accuracy (+/-) do you require?
- What dimensions do your parts have?
- What is the weight of the parts?
- What materials or surface is used?
- Do you want to read the results off on the dial gauge only, or do you want to display the readings with the Metric MT software?
- Do you want to take measurements on the X and Y-axes in addition to the Z-axis and do you require other magnification factors with larger field of view?

