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The new Standard in Asphere and Blocking Technology

Centration Measurement Devices SCM and ACM

For quality assurance in production metrology optics

*Preliminary Data Sheet*

Benefits and advantages

- Safety in measurement technology
- Manageable tolerances
- Shorter measuring/ testing and throughput times
- Intuitive Touch-Software ELWISOFT
- Subpixel evaluation with ELWISOFT-Base
- High pecision and linearity with mapping
- Scalable system with additional accessoires
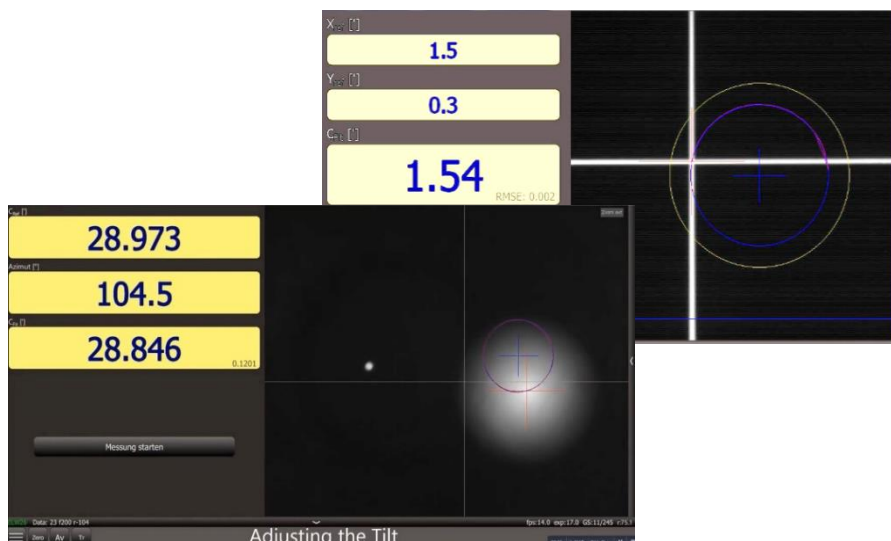
Centering software with AKF crosshair and/ or V-SPOT

Areas of Application

- Blocking of semi-finished products on mandrel
- Centering of opto-mechanical devices
- Cementing processes and lens assembly
- Adjustment of opto-mechanical components
- Radius measurement on small radii < 1000 mm
- Radius measurement on huge radii > 1 m
- Radii and wedge angle on cylindrical lenses
- Monitoring and documentation
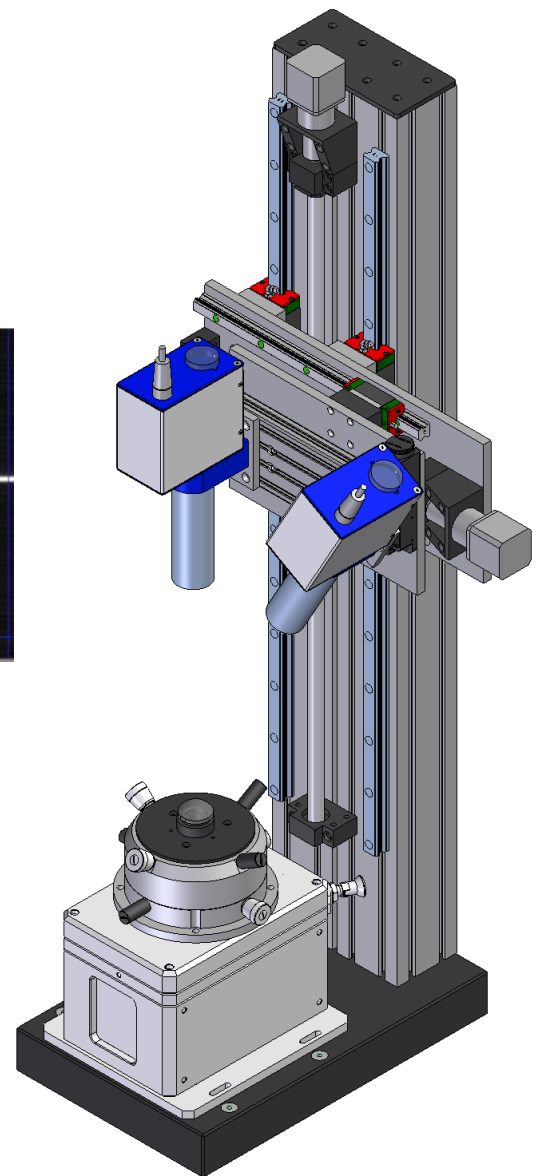
One measuring concept – two measuring devices – four measuring processes

The concept of the measuring device allows a simple configuration for spherical test pieces and a more complex one for aspherical test pieces.

The spherical centering measuring device SCM is designed primarily for spherical lens surfaces and consists of a motorized Z-axis with an ELWIMAT-AKF for automatic scanning and focusing of real and virtual confocal positions of different surfaces of a lens or a lens system. The ACM aspherical centering device has additional linear axis and additional rotary A-axis. It also carries an ELWIMAT-VFS, with which the aspherical parts of lenses are measured and evaluated.

| SCM and ACM Prozesses			
MS Multi Surface	**2SS** Two Step - Single	**2SD** Two Step - Double	**HRSS** High Resolution Surface Scan
• For spherical Lenses • n Surfaces / Lenses • Measuring optical Axis • Measuring mechan. Axis • Geometric Model for selecting a Reference	• One sides Asphere • Measuring optical Axis • Measuring mechan. Axis • Measuring Aspherical Axis • Geometric Model for selecting a Reference	• Double sides Asphere • Measuring both Sides without flipping • Measuring optical Axis • Measuring mechan. Axis • Geometric Model for selecting a Reference	• Detailed surface scan • Measuring Midspatial Frequency Errors MSFE • Spektral Analysis of MSFE • Determing of aspherical Axis

The slope error in the range of a few arcseconds can be measured directly with high resolution, as can the local and global centering error. The redundancy of meridional and sagittal measured values leads to a very high level of plausibility and measurement accuracy.

Software and measurement processes

The software currently contains up to 4 applications that can be configured at any time depending on the hardware.

The **'Multi Surface Module' MS** is the basic module for spherical lenses. It can be used for single lenses as well as for optical systems with up to 20 lenses and more. **'Two Step Single' 2SS** is used for one-sided aspheres, i.e. plan-asphere and sphere-asphere. With the **'Two Step Double' 2SD**, double-sided aspheres can be measured through one side to the back and evaluated for centering errors.

With the **High Resolution Surface Scan HRSS**, an aspherical surface can be scanned in high resolution and the surface can be reconstructed. Above all, the **MSFE error analysis** using Fourier components allows errors in the grinding process to be identified in a timely manner. It also reveals secondary defects in the asphere such as the "kink in the optics".
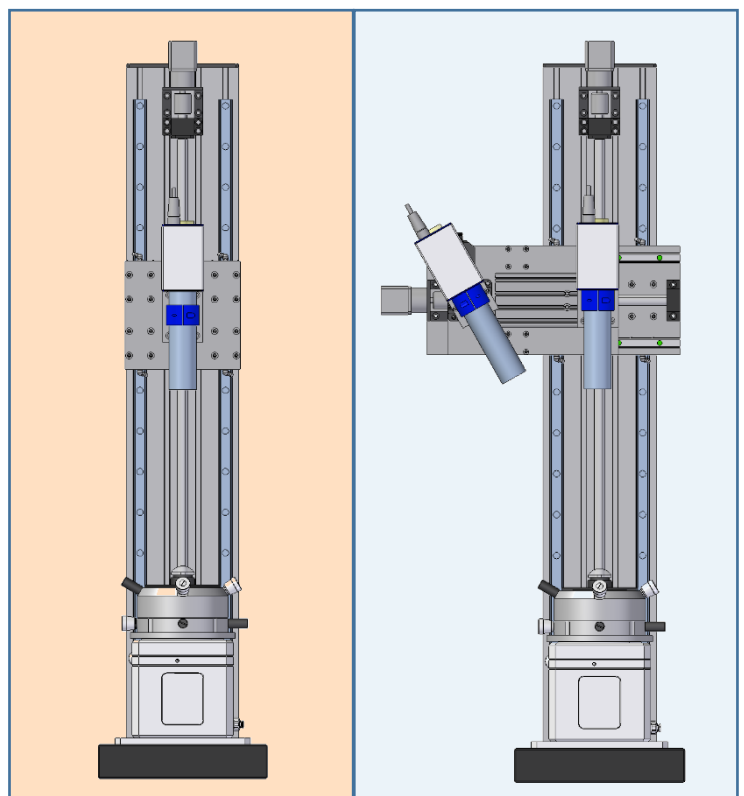
Left: SCM for spherical systems Right: ACM for Aspheres