



TRIOPTICS

See the Difference.

OptiCentric[®] Linear

Rotation-free Centration Measurement
Increases Speed and Flexibility



One-shot Centration Measurement

For a qualified optomechanical analysis of lens systems, centration measurements are the standard approach – especially when precision lenses with tight tolerances need to be checked for quality compliance.

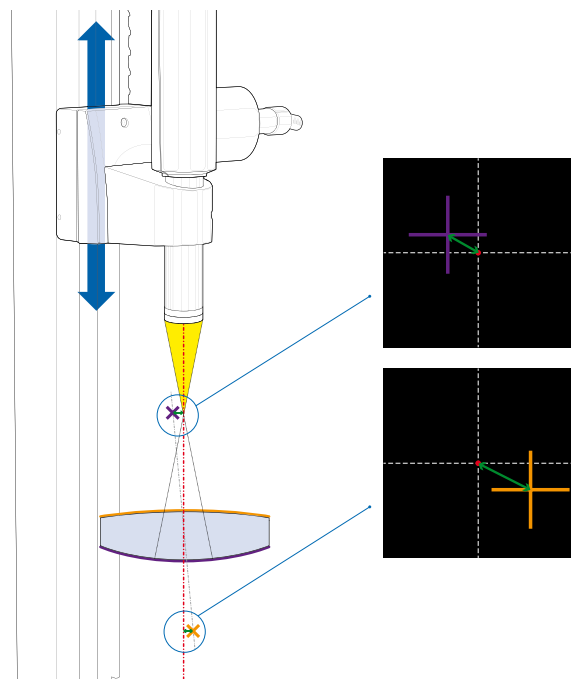
When a conventional centration measurement is conducted, the lens is rotated around a vertical axis. However, for some optics this method is not ideal or even not possible for one of two reasons:

- Having to rotate the lens is time-consuming. Applying this conventional method to serial production processes reduces throughput figures.
- Some lens systems are especially position-sensitive, e.g. if they are equipped with floating elements – and cannot be measured in vertical orientation or in motion.

To meet these requirements, TRIOPTICS developed the new measurement method OptiCentric® Linear, which can test lens centration without the need of rotation.

The Measurement Principle

The OptiCentric® Linear measurement principle is based on a measurement in reflection. This measurement method does not need a rotation of the system – which is conventionally made use of – as reference. Instead it uses the trajectory of the autocollimator's focus spot during its linear movement as reference axis. In order to reach an accuracy of $< 1 \mu\text{m}$, a calibration of the focus spot is performed to compensate for remaining non-linearities of the movement. No lens rotation takes place. The actual testing process measures the centers of curvature relative to the focus position of the collimator.



The center of curvature of each surface is analyzed in relation to the focal point of the autocollimator. Then, the measurement results are corrected with the available correction values that depend on the current position of the collimator's head lens. Once this has occurred, the centration error of the lens surface is calculated.

Rotation-free Centration Measurement Offers New Possibilities

As rotation of lenses is not necessary with the OptiCentric® Linear technology, a variety of new applications becomes possible. These are, for example:

- Measurements are more efficient, allowing for a complete and fast quality control – even for serial measurements and for production.
- All conventional requirements for the positioning of test samples can be rethought as a variation of the lens's orientation becomes possible. Position-sensitive lenses, for example, can be measured in a horizontal setup.



Centration testing with the OptiCentric® Linear technology is especially suited for position-sensitive objective lenses with e.g. integrated floating elements and can be performed in a horizontal setup.

New Measurement Principle Allows Rotation-free Centration Testing

Technical Data

	OptiCentric® Linear
Measuring accuracy	< 1 µm
Reference axis	Precise and error-compensated linear axis
Linear stage	Precise and error-compensated linear axis

TRIOPTICS worldwide



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