

OptiSurf® LTM

High-Precision Center Thickness Measurement
of Single Lenses and Doublets



Non-contact Lens Center Thickness Measurement in Production

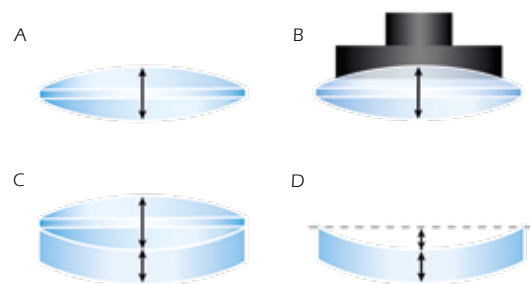
In optics production, the high quality of the single lens is the prerequisite for high-precision optical systems. Compliance with the tolerances for the center thickness is essential here. With the OptiSurf® LTM (Lens Thickness Measurement), TRIOPTICS offers a precise center thickness measurement system for single lenses and doublets made from VIS, UV and IR materials that seamlessly integrates into any production process.

The OptiSurf® LTM is based on low-coherence interferometry, which is already established in the OptiSurf® series for various applications. With this technology, a very high accuracy of $\pm 0.5 \mu\text{m}$ is achieved and a particularly large measuring range for glass thicknesses of up to 150 mm can be covered. The non-contact measurement system is gentle on sensitive surfaces and coatings. Furthermore, only one lens surface must be directly accessible, so that protective lacquers and centering arbors for holding the lenses in polishing machines do not have to be removed before performing the measurement.

The measurement options go far beyond just the center thickness measurement of a single lens.

The versatile OptiSurf® LTM can also be used flexibly for the measurement of the:

- Overall thickness of doublets
- Individual thickness of the lenses cemented in doublets
- Sag value of concave lens surfaces

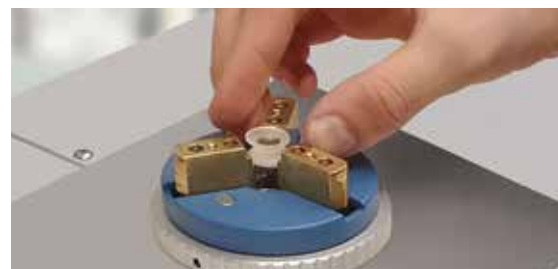


OptiSurf® LTM enables the measurement of single lenses without (A) and with (B) arbor, doublets (C) and sag value (D).

Self-centering mechanical clamping chucks are used to hold the lens, so that the sample does not have to be adjusted and the measuring process can be performed safely and quickly without requiring operator intervention. The two available clamping chucks can be easily adjusted to different lens diameters:

- Standard clamping chuck for lens diameters of 8 mm to 200 mm and optional up to 350 mm
- Optional micro clamping chuck for lens diameters of 1 mm to 30 mm

To optimize the system for the production environment, the OptiSurf® LTM is also equipped with an internal vibration damping for the entire device.



The micro clamping chuck for lens diameters of 1 mm to 30 mm can optionally be used as an alternative to the standard clamping chuck.

Software

The easy-to-use software of the OptiSurf® LTM is ideal for use in production. All measurement settings and samples can quickly be opened from the favorites list via the integrated touch screen or a barcode scanner. The alternative manual input of lens data is supported by the integrated extensive optical glass catalog that is further expandable by adding or importing individual melt data. The measurement results are clearly displayed and subjected to a pass/fail analysis.



In addition to showing the measurement, the clearly organized, easy-to-read software also displays the deviation of the measurement from the target value with a color-coded pass/fail analysis.

Key Features and Advantages of OptiSurf® LTM

- System for measuring the center thickness of single lenses and doublets as well as the sag value, optimized for use during production
- Material-friendly measurement due to the non-contact measuring technique based on low-coherence interferometry and the option to measure a lens on the centering arbor
- Automatic surface identification for quick and precise measurements with accuracy up to $\pm 0.5 \mu\text{m}$
- Self-centering mechanical clamping chuck ensures fast, operator-independent measurements without having to adjust the sample
- Easy connection of a barcode scanner or other auxiliaries via a USB interface
- The easy-to-use, clearly organized user interface supports the specific measurement process and presents the result in an easy-to-read display
- Direct quality assessment through a statistical evaluation of the measurement results and pass/fail analysis

Technical Data

	OptiSurf® LTM
Lens diameters	1 mm ... 350 mm
Glass thickness	0.2 mm ... 50 mm (optionally up to 150 mm)
Accuracy of center thickness measurement (geometrical thickness)	0.5 μm *
Selectivity	< 20 μm
Resolution	75 nm
Dimensions (H x W x D)	390 mm x 504 mm x 504 mm

*With 2 σ confidence interval when measuring reference sample

TRIOPTICS worldwide



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