

# LensMap

**FOGALE nanotech**

High precision metrology for optical lenses

Micro-lens dimensional Metrology

Non-contact optical metrology solution for multilens thickness and airgap measurement



## **Applications:**

Microlens assembly measurement ✓

## **Benefits:**

Thickness and gap after assembly in one shot ✓

High accuracy ✓

High throughput ✓

Best in class repeatability ✓

Fully automated solution ✓

# LensMap

IR multilens thickness and airgap measurement



Using the patented optical head, LensMap can address critical microlens process steps by selecting the corresponding recipe for each application and feedback into the production flow for increased yields

## PROCESS FLOW



**Measurement:** Patented ultra high precision center thickness and position measurement within microlens assembly.

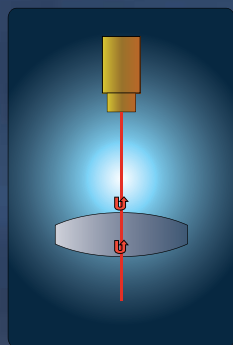
**Throughput:** The 300mm x,y stage, automatic pattern recognition for spot centering, and 50 Hz temporal mode interferometer allow the user to measure at high speed a large number of lenses by running only one recipe.

**Reliability and maintainability:** LensMap was designed to meet high reliability level. IR SLD has lifetime 100 times longer than classical sources.

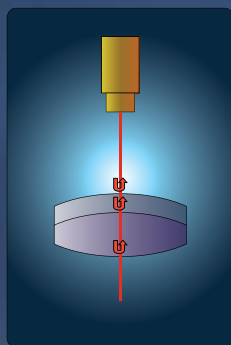
**Data management:** Capability to export data through customer network in manual or automatic mode.

**Metrology control:** In situ metrology process control with embedded reference standards and statistical process control software.

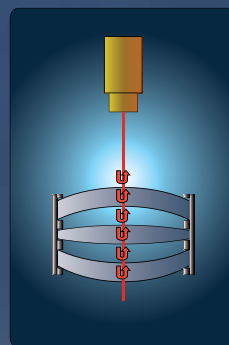
## Benefits



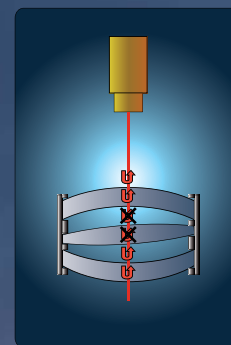
THICKNESS OF A SINGLE LENS



GLASS THICKNESSES OF A DOUBLET



AIR GAPS AND LENSES THICKNESSES INSIDE AN OBJECTIVE



IDENTIFICATION OF WRONG OR BADLY POSITIONED ELEMENTS IN AN OBJECTIVE

## Technical specifications

Maximum number of stacked lenses	10 lenses (expandable)
Number of microlenses per pass	unlimited
Thickness accuracy	0.07 $\mu\text{m}$
Thickness / Gap repeatability (3 sigma) *	< 0.2 $\mu\text{m}$
Thickness / Gap reproducibility (3 sigma) **	< 0.5 $\mu\text{m}$
Minimum airgap	30 $\mu\text{m}$
Scanning range	5 mm (optical path)
Spot size	< 80 $\mu\text{m}$
Measurement time	< 1 sec
Throughput (with spot centering)	4 sec per microlens assembly

\* Static repeatability, results obtained on microlens assembly units

\*\* Stage load / unload between measurements, results obtained on microlens assembly units

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