

Full, non-contact 3D characterisation of lens molds

LUPHOScan
Interalignment module

Improve the optical surface of
a lens mold and its position
relative to the mold rim and
mountings

Fast non-contact 3D
measurement of mold surface,
rim and mountings

Determine the tilt, decenter and
absolute position of the optical
surface

Improve the optical and
mechanical repeatability of
injection moldings

Ultra high precision and
reproducibility



LuphoScan is an interferometric, scanning metrology system based on MWLI[®] technology (multi-wavelength interferometry), designed to perform fast, ultra precision non-contact 3D form measurement.



Measurement process

The measurement procedure is straightforward and all the steps below are performed automatically in one cycle, without operator intervention.

User Interface

1. The operator enters the aspheric design parameters.
2. The operator defines appropriate (unlimited) regions as reference surfaces.

Measurement and analysis

1. The 3D form of the optical surface is measured.
2. The reference surfaces are measured.
3. The absolute position of the optical surface with respect to the reference surface(s) is found.

Measurement principle

The diagram below shows the various form and alignment measurement capabilities of the LupoScan system and Interalignment Module.

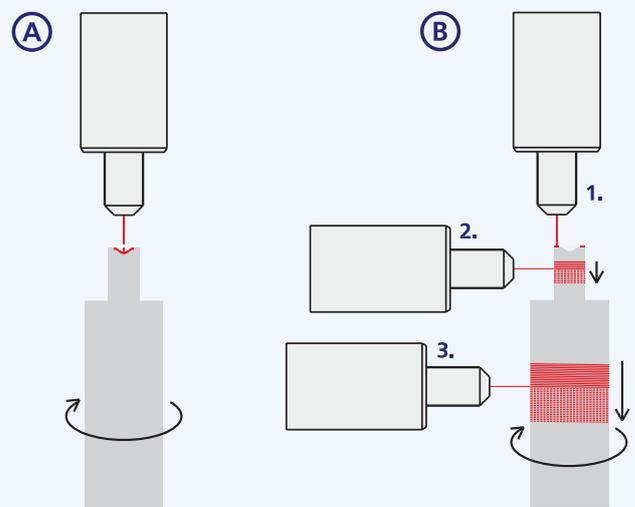
Diagram (A)

The metrology system performs a non-contact 3D measurement of the optical surface of the mold.

Diagram (B)

Shows some examples of various datums to which the mold's optical surface may be referred using the Interalignment Module.

(B) 1. The mold rim is measured and set as a datum. The tilt of the optical surface to the rim can then be determined, along with the height of the optical axis with respect to the rim.



(B) 2 & 3. The mounting of the mold is measured (individual roundness planes or 3D cylindrical sections) and set as datum. The decenter and tilt of the optical surface can then be determined.

Summary

This powerful analysis is based around the LupoScan platform and the absolute positional feedback capability of LupoSmart sensor technology. Additional hardware is not required.



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