



Grayscale lithography on
planar and nonplanar surfaces

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Cover: 5-axis direct-writing lithography tool.

Top: Close packed chirped microlens array for an irregular fly's eye condenser.

High precision microstructures on various substrates

With outstanding flexibility, direct writing grayscale lithography enables the generation of high precision microstructures for the implementation into optical systems. Thus, individual solutions for refractive and diffractive micro optical elements, even on non-standard or non-flat surfaces, can be realized in close collaboration with design and integration.

Technical data

- Lithography system specially designed for generation of micro optical elements
- High dynamic dosage control at 405 nm exposure wavelength
- Smallest feature sizes down to $\sim 1 \mu\text{m}$
- Maximum addressable writing area: $0.45 \times 0.45 \text{ m}^2$

Realization of micro optical elements

- Import or calculation, layout, and generation of exposure data
- Fabrication of a broad range of microstructures in photoresist:
 - Master for UV replication
 - Masks for RIE proportional transfer into

- diverse materials
- Masks for structuring functional layers

Applications

- Blazed gratings and CGHs
- Spherical or aspherical lenses and lens arrays, close-packed regular or chirped arrangement
- Beam shaping elements
- Diffractive optical elements for correction of spherical and chromatic aberrations
- Lithography (also multilayer) on almost every substrate geometry



White light interferometry of a diffractive correcting element.

Contact

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