

# E-Beam Lithography Mastering

## Optical Applications Mastering



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### PRODUCTS & APPLICATIONS

#### Application Domains

- ✓ High-resolution projection photolithography
- ✓ Spectroscopy and polarizing gratings
- ✓ Light concentration
- ✓ Computer generated holograms (CGH)
- ✓ Light diffusers & laser beam shaping

#### Type of Products

- ✓ Photolithography masks
- ✓ Templates for NIL (*nano-imprint lithography*)
- ✓ Embossing masters
- ✓ Unique glass plates or wafers

### CASE STUDY



#### Computer Generated Holograms (CGH)

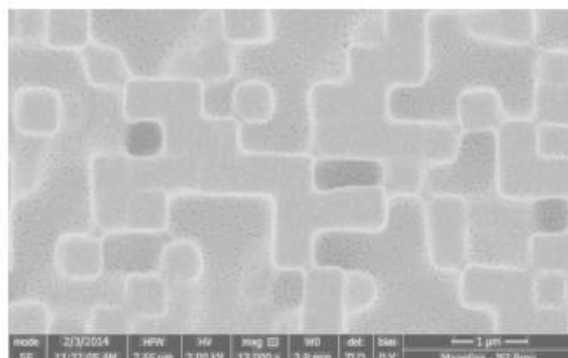
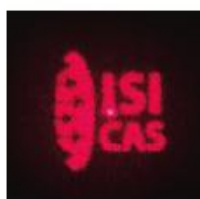
CGH structures:

- ✓ Reflective or transparent configuration
- ✓ Zero-order beam attenuation
- ✓ Negative diffraction order cancelation
- ✓ High-resolution images



CGH projection:

- ✓ Laser pointer beam shaping
- ✓ Projector of animated CGH sequences
- ✓ Multicolor projection & performance
- ✓ Beam splitting and shaping



Animated CGH projection  
on the building wall



Reflective ring of 64 CGH frames  
on Silicon wafer



Projector of animated CGH sequences

## MAIN FEATURES



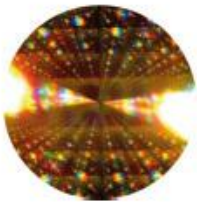
### Photo Lithography Masks

- ✓ Amplitude type mask
- ✓ Phase type mask
- ✓ Combination of both types



### Spectroscopy Gratings

- ✓ High spectral purity
- ✓ Large area
- ✓ Customized grating profile
- ✓ Special purpose gratings



### Zonal Lenses

- ✓ Light concentrators
- ✓ Segmented lenses
- ✓ Customized lenses



### Laser Beam Shaping

- ✓ Beam splitters
- ✓ Computer Generated Holograms
- ✓ Diffusers

## WHAT YOU WILL BENEFIT FROM

- ✓ More than 20 years of design and technology experience.
- ✓ Short development and production cycle
- ✓ From pure science through R&D, to final product.



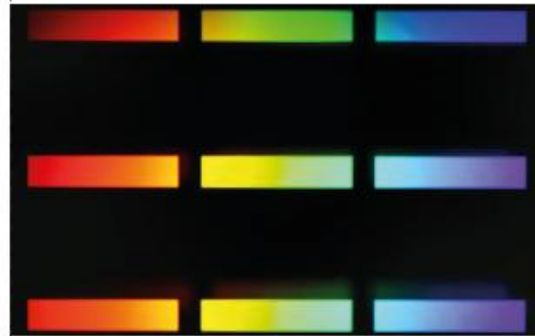
Origination system —  
e-beam pattern generator

### Technical Advantages

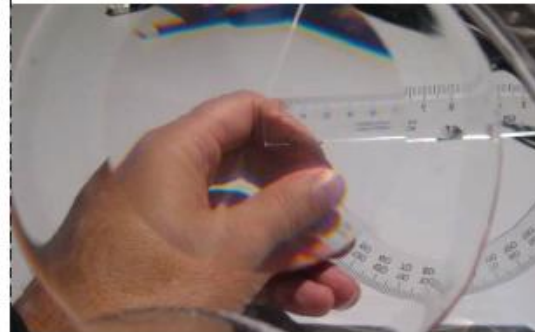
- ✓ Large mastering area (up to 150 mm × 150 mm).
- ✓ Special substrate shape and size available.
- ✓ High flexibility in design (combination of various features).
- ✓ Customer-related approach.



Special purpose photo mask — combination  
of amplitude and phase type



Diffraction template for UV exposure  
of Bragg grating into fiber cores



Transparent replica of zonal lens



Multicolor still image projection of  
transparent CGH's