R&D and Low Volume Manufacturing of Photonic Patterns

Field-test and proven tool for photonics fabrication

PhableR™

- Photolithography system for low volume and R&D.
- Non-contact: protects masks and substrates from damage and contamination
- Highly uniform and reproducible printing
- 1D and 2D periodic pattern printing
- Suitable for non-flat substrates
- Suitable for thin glass substrates
- High Resolution: <65nm or 125nm (minimum half pitch for UV and DUV versions)
- Overlay alignment capability
- Works with commercially available masks and photoresists
- Application support: Photoresists, Masks
- Low maintenance and production costs

Applications

ACADEMIC
Nano Optics
Nano Materials
Plasmonics
Research & Development

XR (AR/VR/MR)
Near-Eye Waveguides
Head-up Displays (HUD)

OPTOELECTRONICS
DFB/DBR Lasers
VCSEL Polarizer Gratings
PCSEL Photonic Crystals
Nanowire Devices

OPTICAL COMPONENTS
Telecom Gratings
Anti-Reflective Surfaces
Laser Diffraction Gratings
Spectrometer Gratings
Wire Grid (Polarizer)

BIO / MEDICAL
Bio Molecular Sensors
X-Ray Imaging

COLOR/VISUAL EFFECT
Structural Colors
Security Applications

Eulitha

LITHOGRAPHY FOR PHOTONICS

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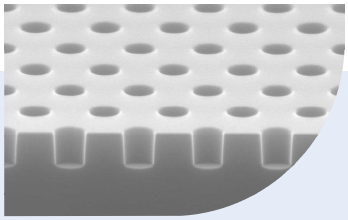
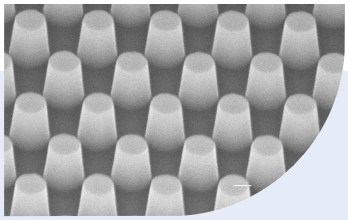
PhableR

The PhableR tool provides unprecedented ability to print high resolution periodic structures in a low-cost photolithography system. It is similar to a conventional mask-aligner where a photoresist coated wafer is put in proximity to a mask and exposed by a beam of UV light, but thanks to the breakthrough PHABLE exposure technology of Eulitha the resolution is no longer limited by undesired diffraction effects.
Structures such as sub-micron period linear gratings and 2D patterns such as hexagonal and square lattices are printed with high uniformity and fidelity.

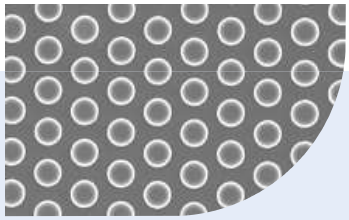
PATTERN EXAMPLES



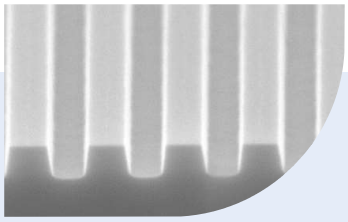
Hexagonal hole array
600nm pitch



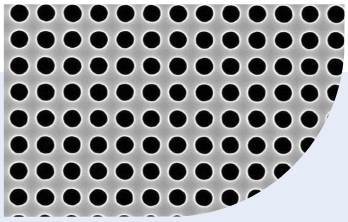
Hexagonal pillar array
600nm pitch



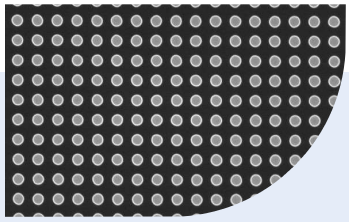
Hexagonal pillar array
3000nm pitch



Linear grating
300nm pitch



Square hole array
350nm pitch



Square pillar array
300nm pitch

SPECIFICATIONS	UV	DUV
Resolution (linear grating)	<125nm half-pitch	<65nm half-pitch
Wafer size	100mm, 150mm, larger size on request	
Mask format	5", 6"	
Illumination uniformity	<3%	
Resist thickness	>1 µm	>0.1µm
Operation	Manual load – automatic exposure	
Overlay alignment	<1µm frontside, manual	
Beam size	105mm, 155mm, 205mm	