

# Step-and-Repeat Lithography System for Industrial Production of Photonic Patterns



## PhableS™

- Step & Repeat photolithography system for high volume printing of periodic patterns
- Full area patterning of 200mm and 300mm wafers
- Non-contact: protects masks and substrates from damage and contamination
- Cassette-to-cassette automatic wafer processing
- Automatic handling of masks (industry standard 6-inch)
- Up to 140mm x 140mm adjustable exposure field
- Highly uniform and reproducible printing
- 1D and 2D periodic pattern printing
- Resolution: <65nm half pitch
- Automatic overlay alignment capability
- Suitable for non-flat substrates
- Suitable for thin glass substrates
- Mini environment for defect control
- Integrated Post Exposure Bake (PEB) module (optional)
- Low maintenance and operation costs
- Customizable platform

## Applications

### XR (AR/VR/MR)

Near-Eye Waveguides  
Head-Up Displays (HUD)

### BIO / MEDICAL

Bio Molecular Sensors  
X-Ray Imaging

### OPTOELECTRONICS

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

### COLOR/VISUAL EFFECTS

Structural Colors  
Security Applications

### OPTICAL COMPONENTS

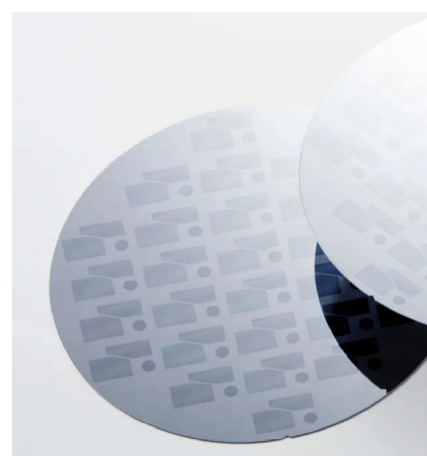
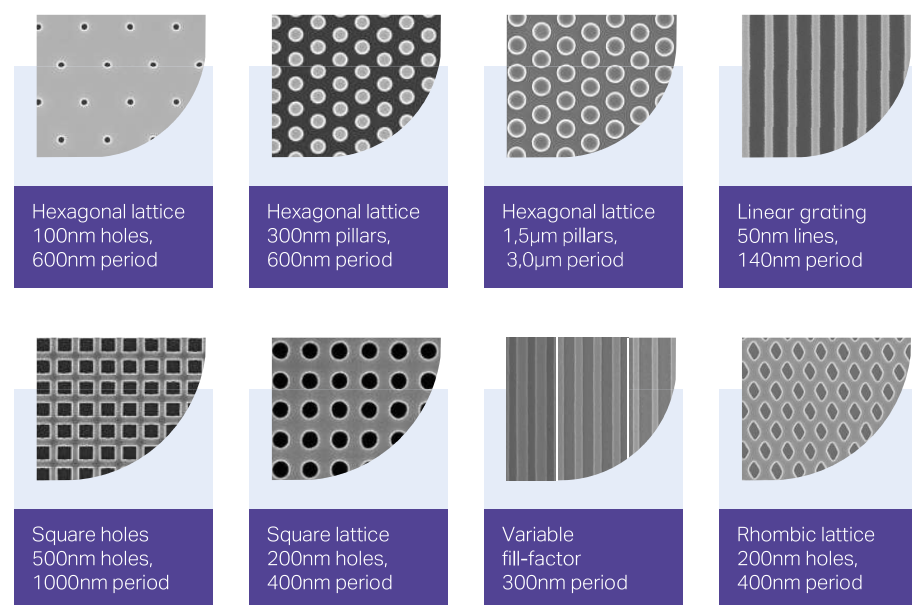
Telecom Gratings  
Anti-Reflective Surfaces  
Wire Grid (Polarizers)  
Laser Diffraction Gratings  
Spectrometer Gratings  
Sports Optics – Reticles

# Phables



PhableS is a step-and-repeat lithography tool. It provides the ability to print high resolution periodic structures on wafer sizes up to 300mm in a low cost photolithography system. In addition, the tool's variable field size feature enables selective printing on multiple device masks. With automatic wafer and mask handling in a particle controlled mini- environment, the tool is suitable for high volume industrial production. Eulitha's breakthrough Displacement Talbot Lithography (DTL) technology enables high resolution printing near the wavelength limit in a non-contact configuration. Structures such as sub-micron period linear gratings and 2D patterns such as hexagonal and square gratings are printed with high uniformity and fidelity. The technique shares the same material and process solutions with photolithography methods that have been successfully used for semiconductor lithography for many decades.

## PATTERN EXAMPLES



300mm Substrate

## SPECIFICATIONS

### UV

### DUV

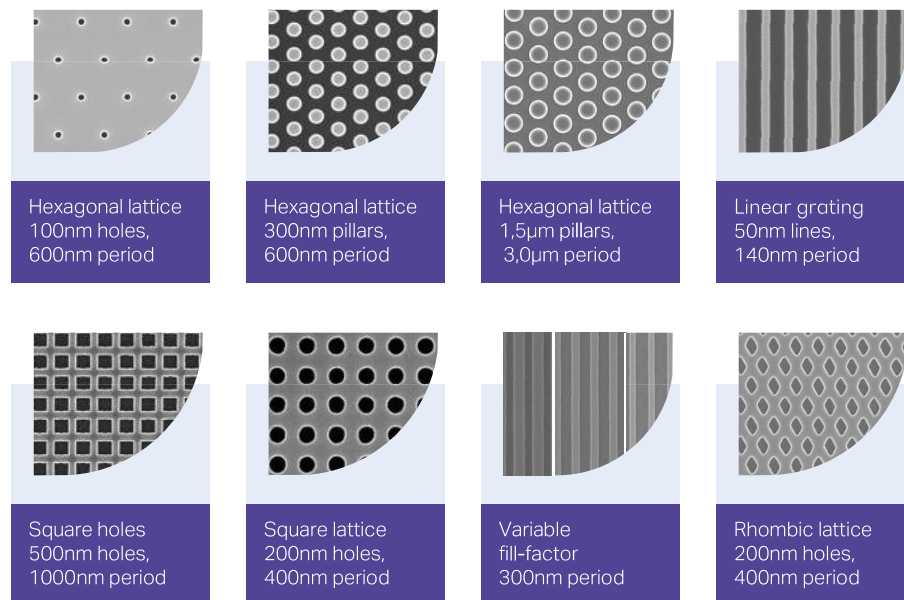
Resolution (linear grating)	<125nm half pitch	<65nm half pitch
Wafer size	300mm, large size on request	
Mask format	6"	
Illumination uniformity	<3%	
Operation	Automated wafer and mask handling	
Overlay alignment	<1µm frontside, <5µm backside	
Duty cycle control	Variable duty cycle (optional)	
Beam size	Blade-able exposure control	

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## PATTERN EXAMPLES



135mm x 135mm exposure field  
300mm Substrate

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