

Interference Lithography

Fact Sheet
Technology

Application:

- Large area gratings
- Periodic nanostructures
- Spatial coherent gratings and grid
- Porous surfaces
- Photonic crystals
- Optical components

Description:

Interference Lithography (IL) is an optical holographic lithography technology where an interference pattern of two ultra violet light beams is recorded in a high resolution photo sensitive material. The patterns are stitch free and spatially coherent over many square centimetres with features smaller than 100 nm. The IL process at AMO is designed for high contrast gratings recorded in standard DUV photo resist suitable for anisotropic pattern transfer. IL is the most suitable lithography for precision gratings.

Proposal:

AMO offers flexible exposure and development services for gratings in a cleanroom environment on two dedicated actively stabilized interferometers. Pattern transfer and further processing can be carried out according to customer requirements.

Specification:

Parameter	Fixed Angle IL	Variable Angle IL
Exposure Wavelength	266 nm	
Minimum Feature Size	50 nm	
Substrate Material	Silicon, Quartz	
Substrate Size	up to 6"	depending on pitch
Pitch	150 nm , 180 nm, further on request	150 nm - 1000 nm
Resist	Chemical amplified positive & negative DUV resist	
Tools	Two beam optical bench system (4 x 2.5 m ²), fringe locking system	One beam Lloyds Mirror system, free adjustable interference angle
Pattern Transfer Process	Silicon, Quartz	

Further substrates, processes and dimensions are available on request ■ Contact: Christian Moormann ■ moormann@amo.de



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