SOURCE - MASK OPTIMIZATION

IMPROVE MASK ALIGNER LITHOGRAPHY BEYOND THE LIMITS

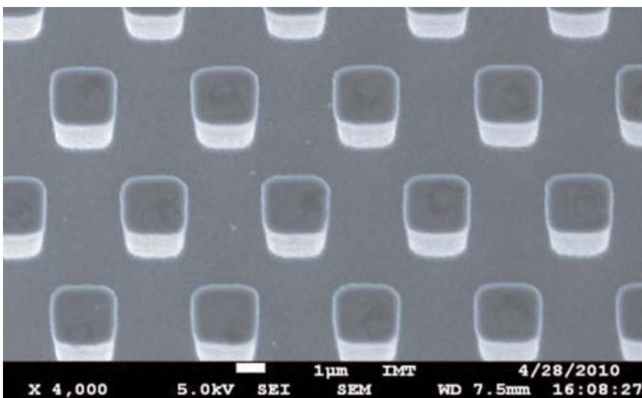
Your Needs	Source - Mask Optimization Solutions
Enhance the performance of your Mask Aligner	• Upgrade your existing SUSS mask aligner • Optimization of all processes
Improve light source	• Stabilization of your light source guarantees excellent light uniformity for full wafer area • Telecentric illumination improves CD uniformity
Optimize critical lithography settings	• Detailed analysis of critical lithography settings by our lithography expert team • Simulation by resist modelling and diffraction analysis • Increase depth of focus
Customized Source-Mask Optimization	• On-site consulting and training for optimization of critical lithography processes to the very limit • Significant reduction of diffraction/proximity effects in print pattern using Optical Proximity Correction (OPC) and customized Illumination Filter Plates developed by our Expert Team • Resolution enhancement

Source - Mask Optimization for SUSS Mask Aligners: Process Window Optimization and Yield Improvement

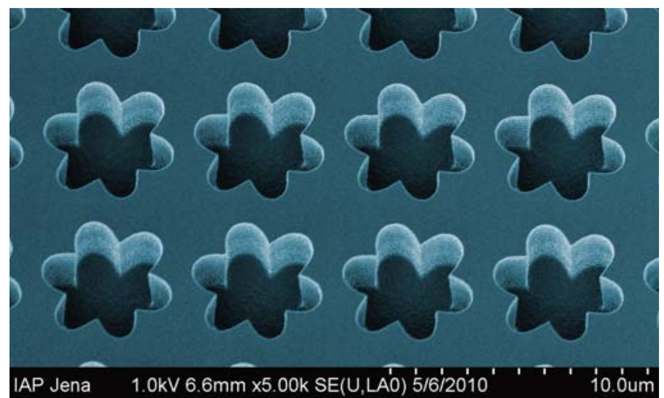
Source-Mask Optimization (SMO) is a photolithography enhancement technique commonly used in projection lithography to compensate for image errors due to diffraction and process effects. Primary goals are to improve CD control, increase resolution and depth of focus (DOF), improve manufacturability and enlarge the process window. SUSS MicroOptics has now invented Source-Mask Optimization for Mask Aligner Lithography.

Source-Mask Optimization for SUSS mask aligners allows to correct image and process errors in both contact and proximity lithography. Key enabling element is the MO Exposure Optics illumination system. The patented concept of two micro-optical integrators provides excellent uniformity of both light intensity and angular spectrum of the illumination light. Exchangeable Illumination Filter Plates (IFP) allow to precisely shape the illumination light. A quick and easy changeover between different illumination settings (including all previous SUSS illumination optics) enables highest process flexibility.

Customized Illumination (IFP-Design) in combination with Optical Proximity Correction (OPC) allows to precompensate print errors like corner rounding and line edge shortening.



Pattern: 5 µm pitch
Photoresist: 2 µm, RIE-transfer in Si
Proximity Gap : 102 µm

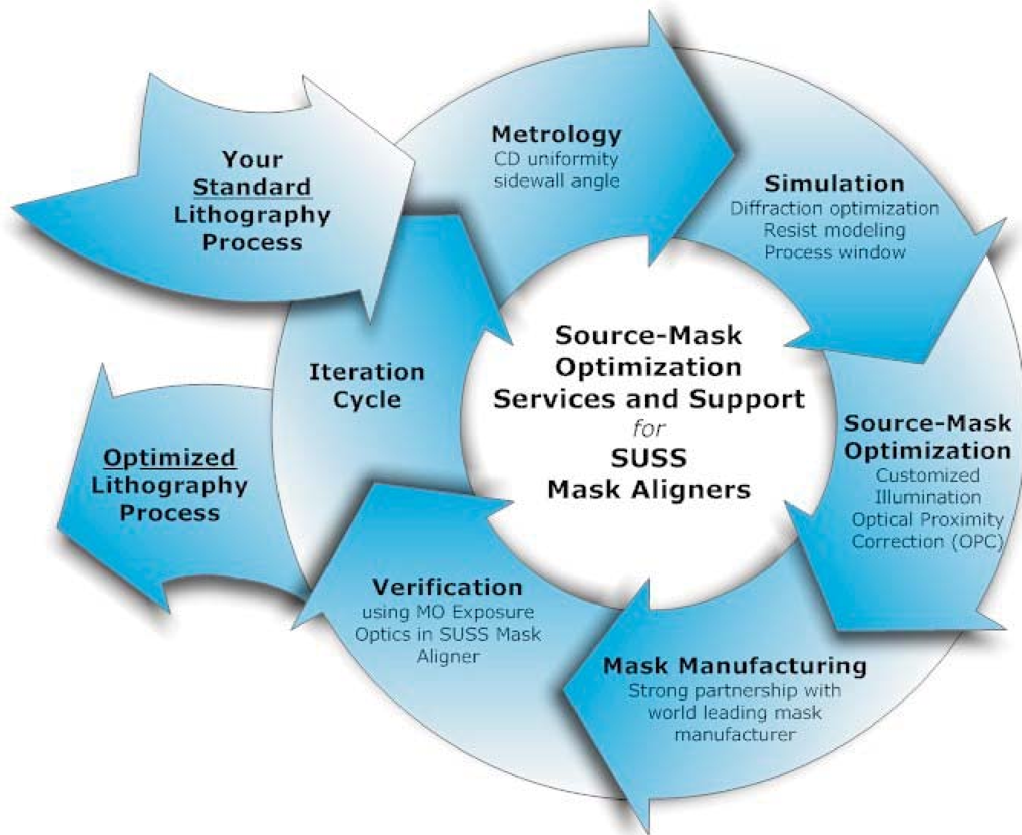


Pattern: 5 µm pitch
Photoresist: 0.65 µm, RIE-transfer in Si
Proximity Gap : 102 µm

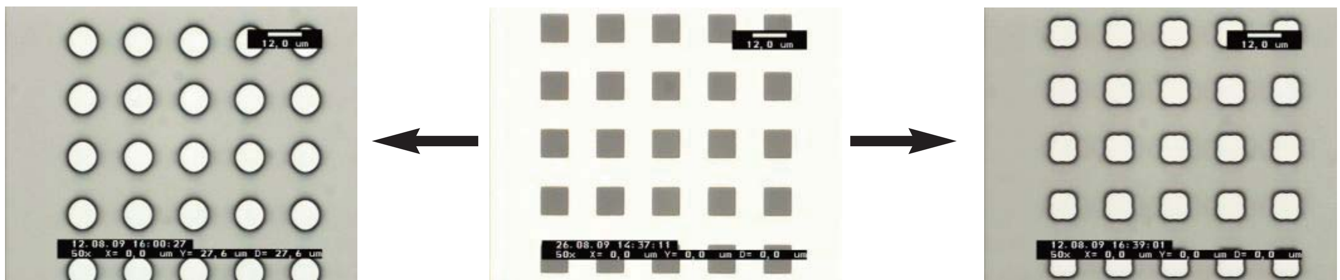
www.mask-aligner.info, www.suss.com

Source - Mask Optimization

Optimization of Critical Lithography Processes



Effect of optimized illumination filter plates



Conventional optics   Mask   Optimized IFP

Resist 1.3um, 100um exposure gap, 10um squares on mask

Strong R&D partnerships involving leading research institutes and a world-leading mask maker allow to develop mask aligner lithography beyond today's limits.

Contact us for further information!

Visit **www.suss.com/locations** for your nearest representative or call:

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