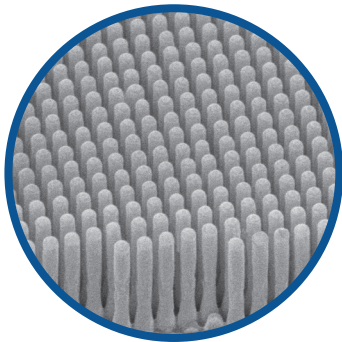
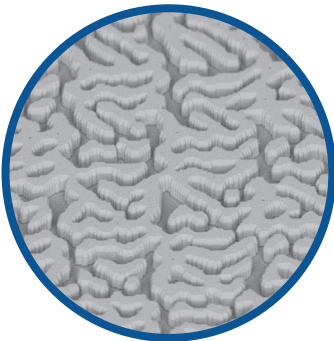


NanoImprint Lithography (NIL) Foundry

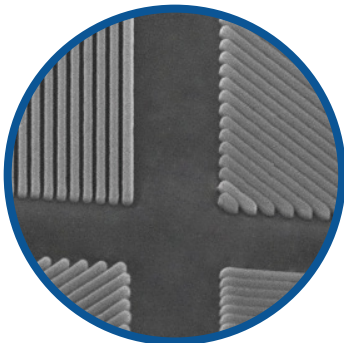
NIL Series Datasheet



Beam Shaping/Collimation
(Metalens)



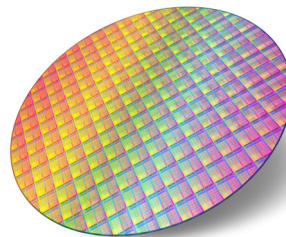
Beam Generators
(Dot Arrays, Structured Light)



Patterned NanoStructure Arrays
(Beamsplitters, Waveguides)

Contact Moxtek to discuss your unique designs and fabrication needs.

MOXTEK has been producing nanostructured optical components for over 20 years. We offer high volume wafer replication of various nanostructure devices. Our versatile capabilities are used to manufacture functional nanostructure devices including: metalens arrays, waveguides, patterned metasurfaces, Diffractive Optical Elements (DOEs), photonics crystals, and biosensor arrays. These devices are used for imaging, illumination, and display systems for a variety of applications including: automotive, medical/dental imaging, camera systems, and many others.



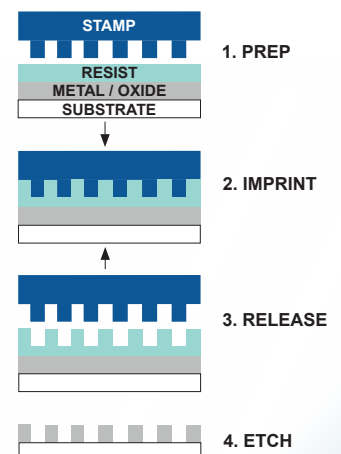
Ø200mm Wafers



Moxtek collaborates with customers to design, verify and create solutions for high volume manufacturing. We provide options for prompt design iterations and print optimization. Moxtek uses Statistical Process Control (SPC) monitoring of post-print Critical Dimension (CD) repeatability.

Our capabilities include:

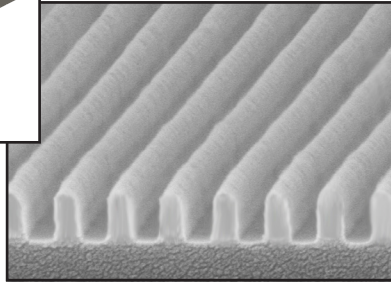
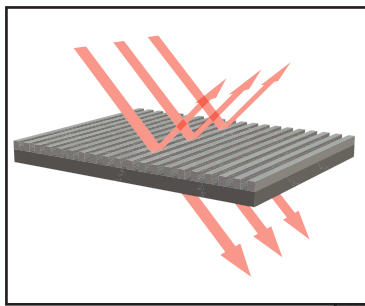
- High Volume Manufacturing
- NanoImprint Lithography (NIL)
- Metastructure Simulation and Design
- Design Master Shuttle
- Master creation, Stamp making
- Deposition (PECVD, Sputter, ALD)
- Etching (metals, oxides low to high refractive index)
- AFM and SEM
- Optical metrology and inspection
- Automated Visual Inspection



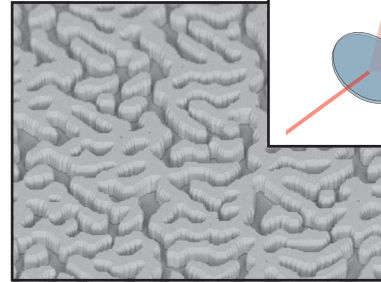
Moxtek offers prototyping samples on our recurring Design Master Shuttle. This NIL Design Master Shuttle includes space for multiple (different) design structures, which allows engineers to test several designs on a single shuttle iteration thereby reducing development time/cost. We can add your unique design on our next Design Master Shuttle for prototyping your latest lens or nanostructure optical device. These design shuttles are processed multiple times a year.

Moxtek has over 25,000 ft² of clean room space dedicated to high volume manufacturing. We offer state of the art manufacturing on Ø200mm wafers, with annual wafer volume capability of hundreds of thousands of wafers per year.

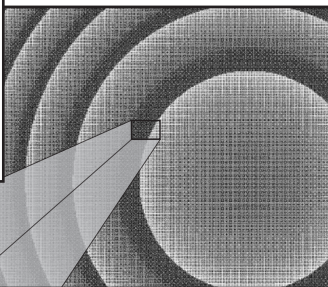
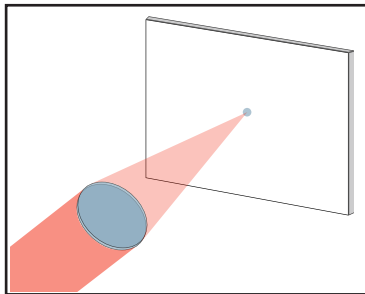
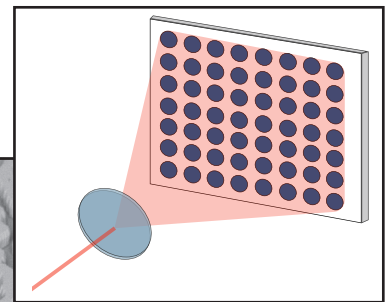




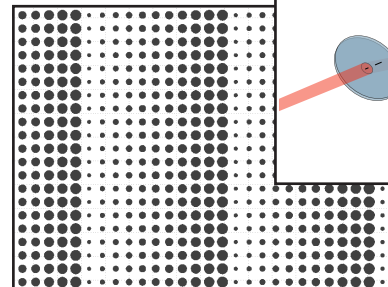
Patterned NanoStructure Arrays
(Beamsplitter, Waveguides)



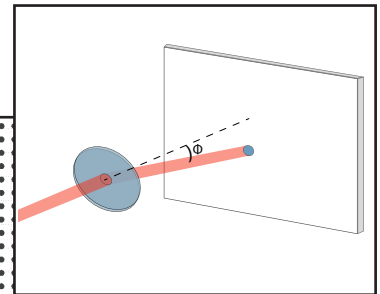
Beam Generators
(Dot Array, Structured Light)



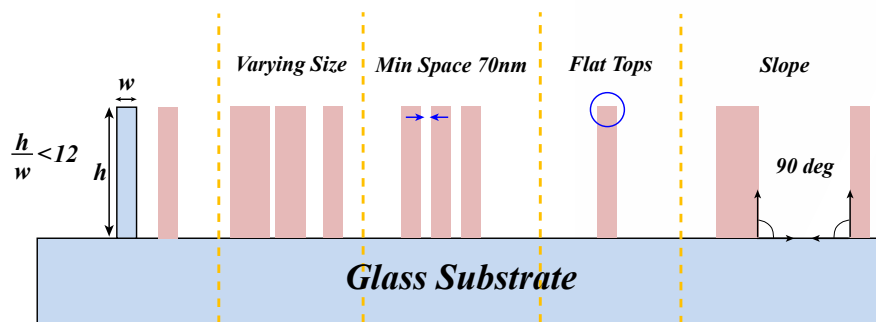
Beam Shaping/Collimation
(Metalens, Converging/Diverging)



Beam Diffraction/Steering
(Flat Blazed Gratings)



Parameters	Design Constraints
Minimum CD	70nm
Minimum Space Gap	70nm
Thickness	$\leq 1,000\text{nm}$
Meta Materials (preferred)	Nb_2O_5 , Al
Meta Materials (other)	Si, SiO_2 , Si_3N_4
Substrate Diameter	$\text{Ø}200\text{mm}$ diameter
Substrate Thicknesses	0.7mm to 1.6mm thick
Substrate Types	Display glass, Fused Silica, Silicon, Sapphire



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The above images show examples of nanostructures processed at Moxtek and applications. Contact Moxtek to learn more about design possibilities and options to test your design on the Design Master Shuttle.