

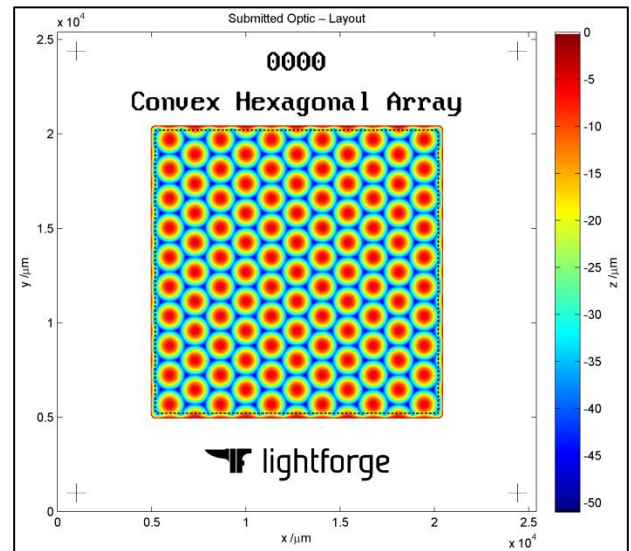
## Overview

LightForge™ is a low-cost rapid fabrication service giving optical designers the ability to create innovative new freeform surfaces, test new ideas and verify designs for production without incurring expensive upfront engineering charges and lengthy prototyping lead times.

Uploading a design to the LightForge™ web site could not be simpler. The optical surface must be specified on a 10um grid for x, y and z. After submitting the design, the LightForge™ web site runs a design rule check and if accepted, your optic will be ready in as little as 2 weeks.

LightForge™ can be used to create a wide range of refractive optical elements, from beam transformers and microlens arrays, to unique components such as diode laser smile correctors and wavefront compensator phaseplates, to completely custom surface shapes.

The LightForge™ fabrication service can be used for rapid prototyping as a precursor to volume production, or for one-off designs. The clear aperture can be used to test multiple variants of a single design or multiple separate designs



## Key Features

- ⦿ Rapid prototyping and fabrication service
- ⦿ Upload design via web portal
- ⦿ WYSIWYG
- ⦿ 2 week typical turnaround
- ⦿ Fixed menu pricing
- ⦿ Fixed design rules
- ⦿ AR coating and mounting option available
- ⦿ From Zemax to LightForge™ in one simple step

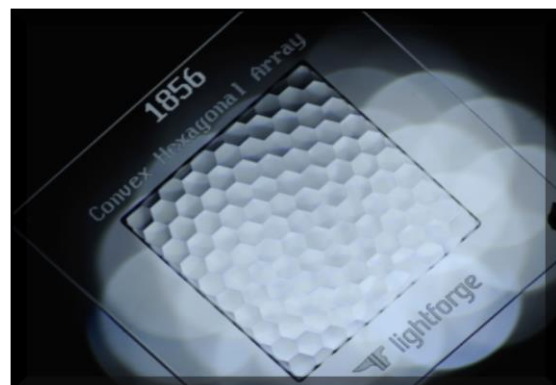
## Benefits

- ⦿ Industry's lowest cost and fastest freeform optical fabrication service
- ⦿ Provides a cost effective and superior performance alternative to standard products
- ⦿ Improves system performance beyond the capability of standard products
- ⦿ Addresses applications that are not supported well by standard products

## Target Applications

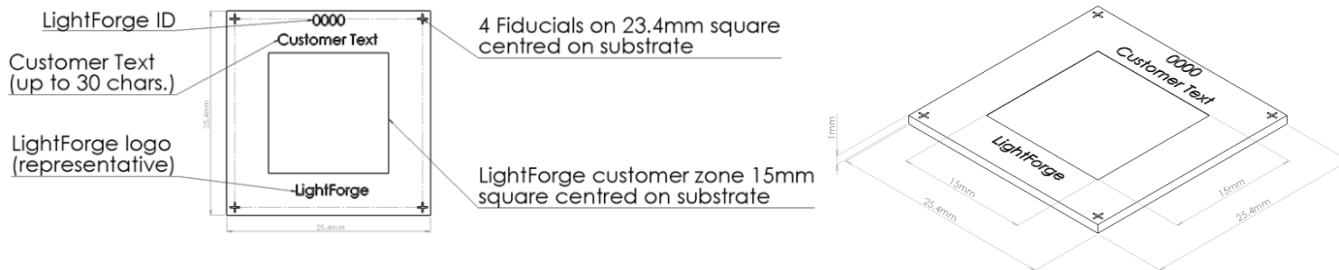
- ⦿ Diode laser systems
- ⦿ Fiber and solid state lasers
- ⦿ Directed energy
- ⦿ Laser wavefront correction
- ⦿ Homogenizers
- ⦿ Beam shapers
- ⦿ Lens Arrays
- ⦿ Imaging systems

## LightForge Substrate



# LightForge™ Design Rules

Material Properties	Nominal Specification	
Material	UV-fused silica	
Specific Type	Corning 7980, Spectrosil 2000 or similar	
Transmission	>96% transmission uncoated, >99% coated	
Refractive index	1.453 @ 808nm	
Mechanical Characteristics	Dimension and Tolerance	Units
Height (H)	25.4 ± 0.05	mm
Width (W)	25.4 ± 0.05	mm
Thickness (T)	1.0 ± 0.05	mm
Process Parameters	Range	Units
Sag	0-50	micron
Slope	0-45	degree
Feature Size	100-15000	micron
Optical Characteristics	Dimension	Units
Clear Aperture (x)	15.0	mm
Clear Aperture (y)	15.0	mm
Customisations Available	Notes	
AR Coating	0.25% reflectivity per surface @ 900-1100nm	
Customer Marking	0-30 characters, centered above optic	
Mounting Options	2" round interface plate, to fit standard 2" lens mount	



## About Us

PowerPhotonic is a global leader in precision laser machined micro-optics products. Our business was founded with the objective of providing unsurpassed excellence in all aspects of design and manufacture of micro-optics for optical and laser applications. Our world-class design skills are supported by an innovative and flexible manufacturing process that allows the company to design both a broad range of state-of-the-art standard micro-optics products and uniquely, to offer a low cost and rapid fabrication service for creating completely freeform optical surface

## For Sales and Technical Support

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