

LightForge Rapid Prototyping

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™ website could not be simpler. The optical surface must be specified on a 10µm grid for x, y and z. After uploading the design, the LightForge™ website 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.

The PowerPhotonic Effect:

65µm

Maximum Sagitta (Depth)

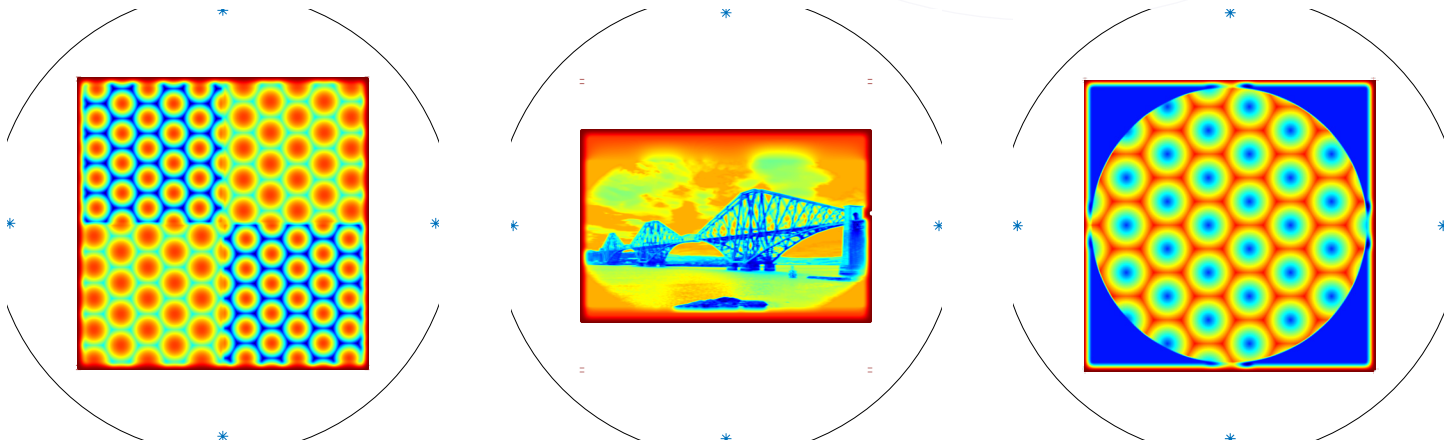
15mm

Square Clear Aperture

2 Weeks

Lead time

Design Examples:



Key Features:

- Short lead time prototyping
- Upload via web
- Fixed design rules
- Zemax to LightForge macro
- AR coatings available

Target Applications:

- Beam Shaping
- Imaging Systems
- Laser Material Processing
- Beam Homogenizing

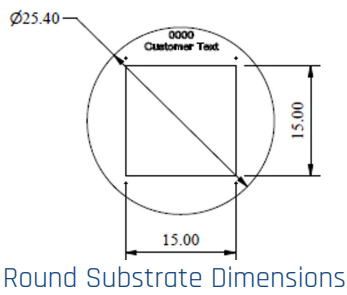
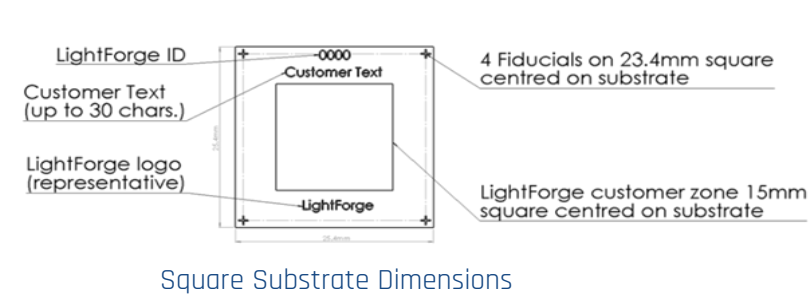


www.powerphotonic.com



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Material Properties	Nominal Specification	
Material	UV fused silica	
Specific Type	Corning 7980	
Transmission	≈ 92% uncoated, >99% coated	
Refractive Index	1.453 @ 808nm	
Mechanical Characteristics	Dimensions and Tolerance	Units
Length (L) or Diameter (D)	25.4 +0/-0.1	mm
Width (W)	25.4 +0/-0.1	mm
Thickness	1.0 +/- 0.05	mm
Optical Characteristics	Dimension	Units
Clear Aperture (X)	15.0	mm
Clear Aperture (Y)	15.0	mm
Process Parameters	Range	Units
Sag	0 - 65	μm
Slope (form error PV < 500nm)	0 - 8	degrees
Slope	0 - 45	degrees
Feature Size	200 - 15000	μm
Steps & Discontinuities	smoothed over 150μm	
Custom Options Available	Notes	
AR Coating	Choice of none; AR-GREEN 532 ± 30nm; AR-IR Broad 780-1020nm; AR-IR-V 1064 nm; AR-TELECOM 1260 - 1620nm;	
Customer Marking	0 - 30 characters, centered above clear aperture	
Mounting Options	2" round interface plate for square substrate	



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