



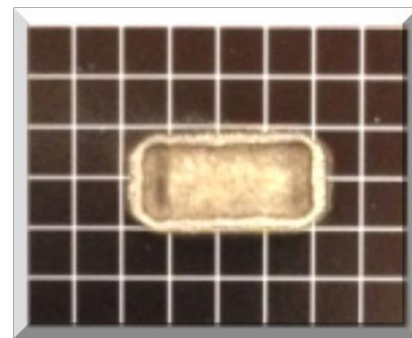
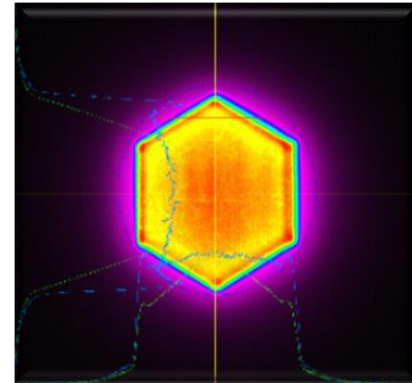
# Lens Array Homogenizer

## Overview

PowerPhotonic's lens array homogenizing beamshapers use a unique freeform direct-write process to fabricate customized lens array surfaces in fused silica.

These lens array homogenizers are carefully designed to produce flat-top spots at the focus of a lens; simultaneously maximizing performance and efficiency. The lens can be made concave to eliminate inter-system focal planes or even toroidal to produce rectangles while maximizing efficiency.

Lens array homogenizers can be used to create line, square, rectangular and hexagonal intensity distributions specific to an application, while remaining highly insensitive to beam alignment and input distribution. The lens arrays can either be used in a single array or dual "fly's eye" configuration to balance the performance and cost of any application.



## Key Features

- ⦿ All fused silica optics
- ⦿ Customizable spot size
- ⦿ Customizable spatial distributions
- ⦿ Variable edge steepness
- ⦿ Low divergences achievable
- ⦿ Suitable for multi-mode lasers ( $M^2 > 10$ )
- ⦿ Toroidal design available for rectangular spots
- ⦿ Concave design available for high power

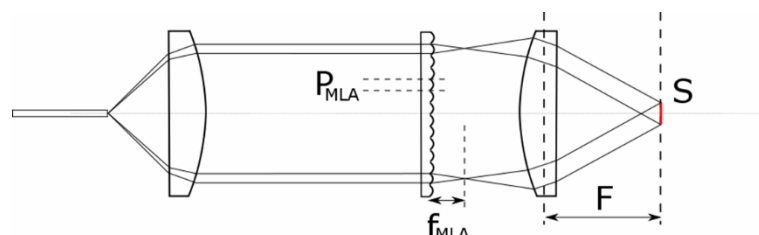
## Target Applications

- ⦿ Materials processing: high power
  - Laser welding, brazing and cladding
  - Laser peening and annealing
  - Laser cutting
  - Metal polishing
- ⦿ Pump beam homogenization

## Benefits

- ⦿ Highest system efficiency possible >98%
- ⦿ Dramatic increase in beam uniformity
- ⦿ High power handling, >20kW CW
- ⦿ High laser damage threshold, >100J/cm<sup>2</sup>
- ⦿ No focal plane shift
- ⦿ Good through-focus performance
- ⦿ Insensitive to input beam properties

## How they are Used



$$S \approx P_{MLA} \frac{F}{f_{MLA}}$$

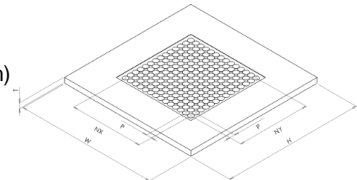
## Standard Product Selection – Lens Array Homogenizer

Part Number	LA Focal Length $f_{MLA}$	Pitch P (mm)	Shape*	Width W (mm)	Height H (mm)	Thickness T (mm)	#Lenses X NX	#Lenses Y NY
PP-LAHOM-SQ-F6-P03-V1	6.00	0.30	Square	25.4	25.4	1.00	50	50
PP-LAHOM-SQ-F5-P05-V1	5.00	0.50	Square	25.4	25.4	1.00	30	30
PP-LAHOM-SQ-F10-P1-V1	10.00	1.00	Square	25.4	25.4	1.00	15	15
PP-LAHOM-XX-FX-PXX-V1	Custom	Custom	Custom	Custom	Custom	Custom	Custom	Custom

\*Image shape can be specified as Square = SQ, Rectangular = RE, Hexagonal = HE  
For custom image shapes please contact PowerPhotonic

Optical coating on request at extra cost  
All custom parameters can be customer specified

W: Width (+/-0.10mm)  
H: Height (+/- 0.10mm)  
T: Thickness (+/- 0.02mm)



### Customization Program

Due to the unique nature of the PowerPhotonic manufacturing process, our standard products can be easily modified to meet specific requirements. Please contact PowerPhotonic for additional information.

### Options

- ① Clear aperture width and height
- ② Substrate width, height and thickness
- ③ Divergence angle

### About Us

PowerPhotonic is a global leader in precision 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 surfaces.

## お問い合わせ先

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