Flat Top Diffuser

Overview:

Improve the performance of multi-mode laser applications - use PowerPhotonic components to modify the multi-mode laser beam, creating a better match to the needs of the application.

Flat Top Diffusers from PowerPhotonic are thin glass windows that are an excellent solution to the following problems:

- Removing structure from a beam or light source
- Generating a Flat Top output from a Gaussian input
- Homogenizing a beam that has “hot spots”

If you want to change the geometry of the beam – from circular to square (for example), please refer to the PowerPhotonic Beam Shapers products on our website.

The PowerPhotonic effect:

>95%

Shaping Efficiency

>20kW

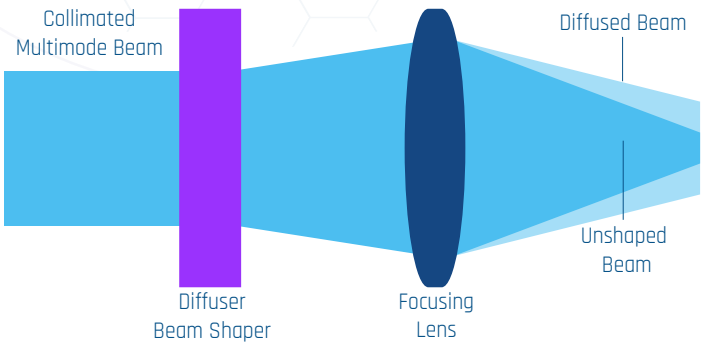
CW Power Handling

>100J

Pulsed Energy Handling

How it works:

Unique to PowerPhotonic, we create a diffuser surface from a multitude of randomised angled facets; so called Pseudo Random Intensity Mapping Elements (PRIME). The effect of the PRIME surface is to add a Flat Top statistical distribution of divergence angles to the input beam. The full width angle of this distribution is the nominal design divergence of the PRIME. Users may then use a lens (not supplied by PowerPhotonic) to focus the beam to a homogenised spot.



Key Features:

- Reduced Diffractional Effects
- Insensitive to Input Parameters
- Uniform Flat Top Profile
- High LIDT Performance

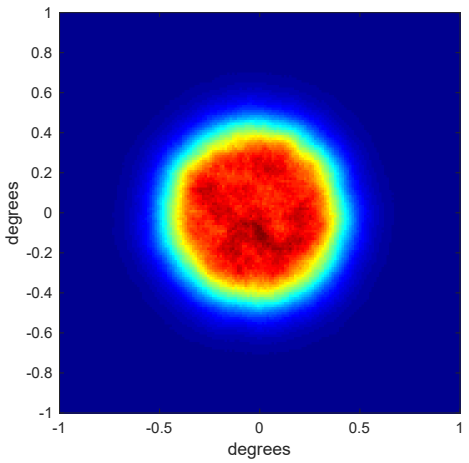
Target Applications:

- Laser Tattoo Removal
- Laser Skin Rejuvenation
- Laser Projection
- Source Homogenization

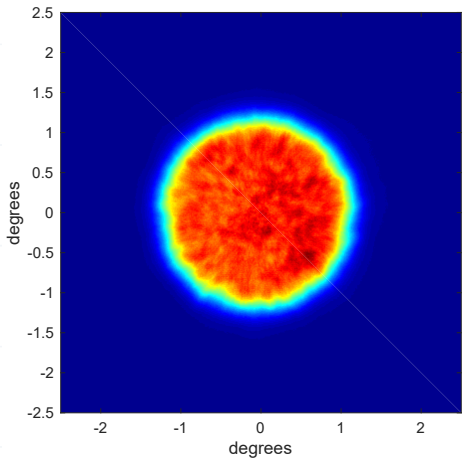
PowerPhotonic
Enhancing Beam Performance

Standard Product: Flat Top Diffuser

Part Number	Design Wavelength (nm)	Clear Aperture Diameter (mm)	Output Divergence, Full Angle, D4σ (deg)
PP-MM-W532-BS-C1-AR	532	15	1
PP-MM-W532-BS-C2-AR	532	15	2.5



PP-MM-W532-BS-C1-AR



PP-MM-W532-BS-C2-AR

General Specification:

Parameter	Value
Part Diameter (mm)	25.4±0.05
Part Thickness (mm)	1.01±0.05
Coating Wavelength Band (nm)	420-680
Coating Reflectance (%)	<0.4

Functional Performance:

Parameter	Value
Power in the Bucket (%)	>90
Flatness Factor, F_F	>0.7
Plateau Uniformity, U_p	<0.2

Custom Options:

Standard product designs can be readily modified for specific applications. Custom options include: different input beam diameter, different wavelength (in the window between 350nm and 2µm), larger flat top spot, different spot shape and profile, different part diameter and thickness.

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