

# Wide Angle Diffusers

## 125° Glass Diffuser



### Features and Advantages

High quality homogenizers for spanning a defined angle from collimated light. A top hat or  $\cos^{-2}$  profile with steep slopes and high homogeneity can be created along one dimension in angular space. Combining two diffusers creates a homogeneous rectangular distribution. Especially designed for high laser input powers, using low absorption glass or fused silica for optimized LIDT.

The new diffusers provide line or rectangular shape, steep slopes, high optical efficiency, wide angles, repeatability, no zero order, no hot spots, no degradation under UV.

### Product Specifications

Product Code		ZLA003131 <sup>(2)</sup>
Specification Data	Unit	
Design Angle (FWHM)	°	125
Design Angle (FW/e <sup>2</sup> )	°	125
Angular Output Profile <sup>(1)</sup>		Top Hat
Spatial Output Profile <sup>(1)</sup>		Gaussian-like
Material		S-TIH53
Length (L)	mm	5.0 ± 0.1
Width (W)	mm	5.0 ± 0.1
Thickness (T)	mm	0.5 ± 0.05
Clear Aperture (Al x Aw)	mm <sup>2</sup>	4.5 x 4.5
Refractive Index		1.81
Design Wavelength	nm	1064
AR Coating <sup>(3)</sup>	nm	Uncoated
Transmission <sup>(4)</sup>	%	82 <sup>(4)</sup>

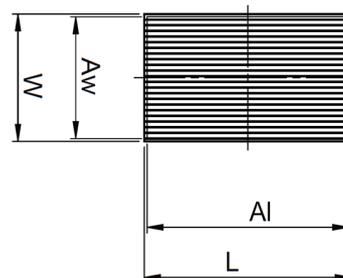
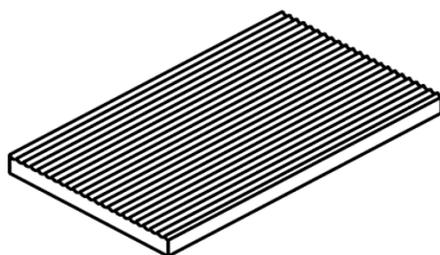
<sup>(1)</sup>  $M^2 > 10$  and minimum beam size  $> 2.5\text{mm FW}/e^2$  advised to ensure steep slopes and high homogeneity

<sup>(2)</sup> Optimization design based on DPSSL@1064nm

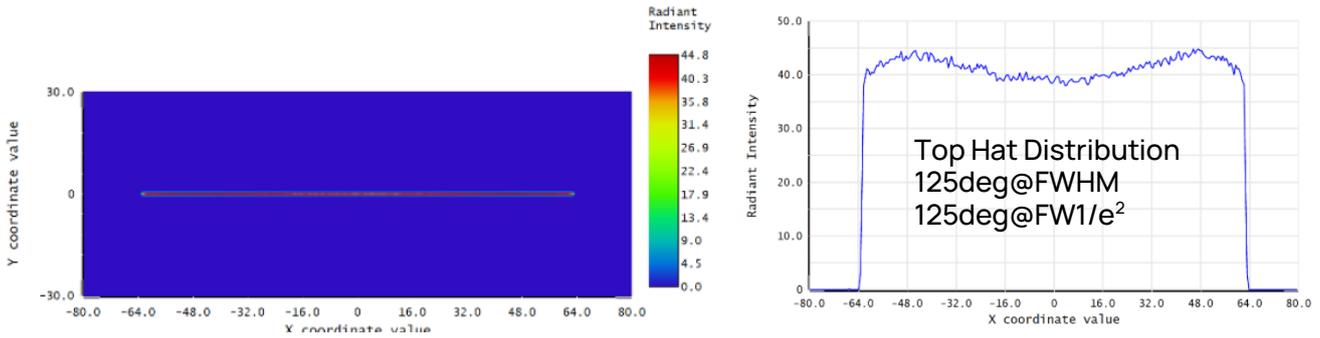
<sup>(3)</sup> Customization for coating design is available

<sup>(4)</sup> Transmission  $\geq 99\%$  after coating at design wavelength  $\pm 10\text{nm}$  and angle of incident  $0-30^\circ$

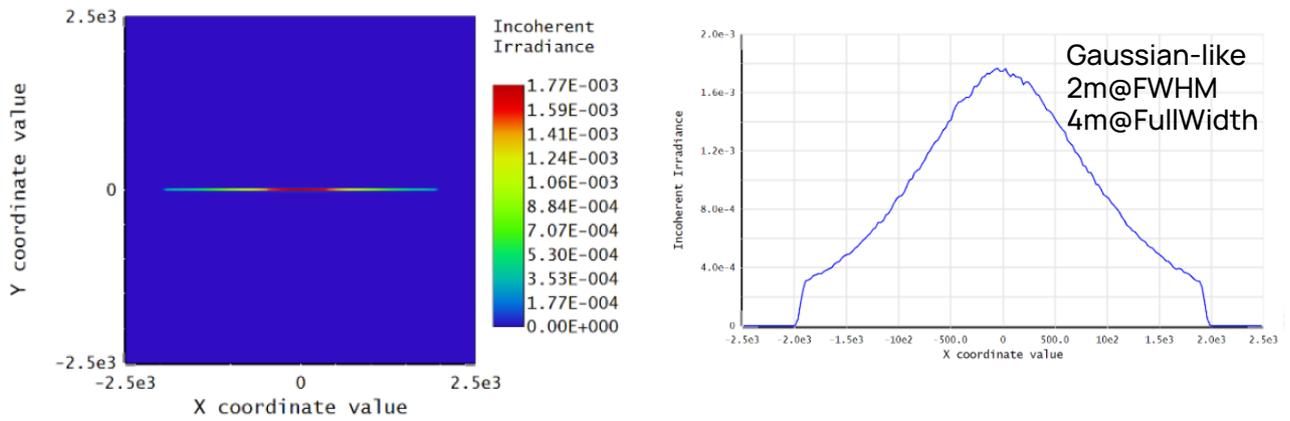
### Product Drawing (mm)



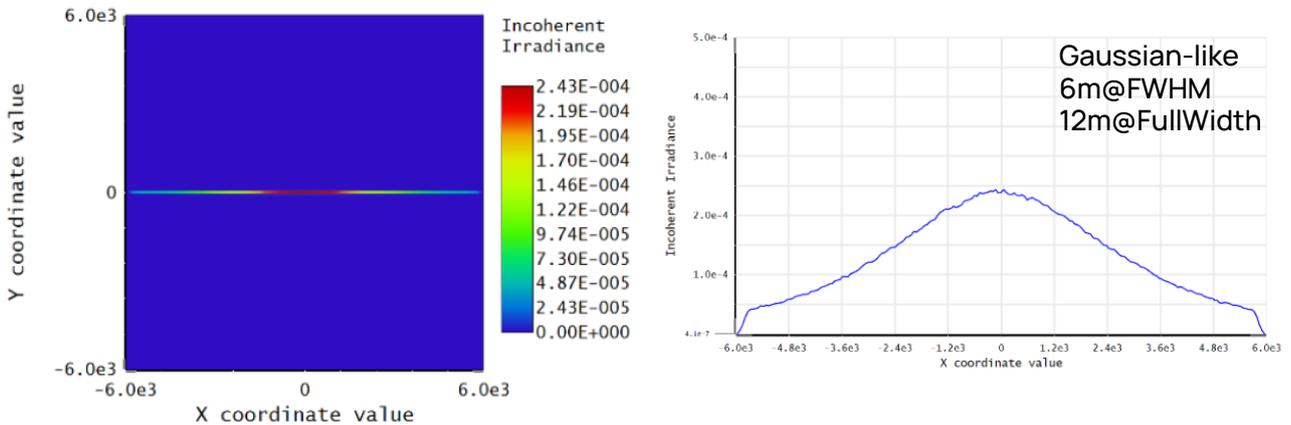
**Optical Simulation Results<sup>(6)</sup>**



Angular Distribution Pattern (Left) and Angular Output Profile (Right)



Spatial Distribution Pattern (Left) and Spatial Output Profile (Right), 1 meter away from Diffuser



Spatial Distribution Pattern (Left) and Spatial Output Profile (Right), 3 meters away from Diffuser

<sup>(6)</sup> Simulation based on DPSSL@1064nm, the original divergences of lasing diodes are FA@0.172deg and SA@1.335deg