

Wide Angle Diffusers



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	ZLA003014 ⁽¹⁾	ZLA003130	ZLA003345 ^(1,3)	ZLA003346 ^(1,3)	ZLA003131	ZLA003632	
Specification Data	Unit	Value					
Design Angle (FW/e ²)	°	20	25	45	60	125	160
Angular Output Profile ⁽²⁾		Top Hat	Top Hat	\cos^{-2}	\cos^{-2}	Top Hat	\cos^{-2}
Material		S-TiH53	Fused Silica	Fused Silica	Fused Silica	S-TiH53	High-Index IR
Length (L)	mm	4.5 ± 0.05	5 ± 0.1	2.9 ± 0.1	2.6 ± 0.1	5.0 ± 0.1	5.0 ± 0.1
Width (W)	mm	7.75 ± 0.05	5 ± 0.1	2.6 ± 0.1	2.9 ± 0.1	5.0 ± 0.1	5.0 ± 0.1
Thickness (T)	mm	0.5 ± 0.05	0.5 ± 0.05	0.5 ± 0.05	0.5 ± 0.05	0.5 ± 0.05	0.5 ± 0.05
Clear Aperture (Al x Aw)	mm ²	4.3 x 7.55	4.5 x 4.5	2.64 x 2.34	2.34 x 2.64	4.5 x 4.5	4.5 x 4.5
Refractive Index		1.81	1.45	1.45	1.45	1.81	1.91
Design Wavelength	nm	1064	1064	940	940	1064	940
AR Coating	nm	1054 - 1074	Uncoated	790 - 990	790 - 990	Uncoated	Uncoated
Transmission ⁽⁴⁾	%	99	90 ⁽⁵⁾	98	98	82 ⁽⁵⁾	70 ⁽⁵⁾

⁽¹⁾ Example for customization – design, dimensions and coating on request

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

⁽³⁾ Optimized for VCSEL source

⁽⁴⁾ Transmission at design wavelength and angle of incident 0-30°

⁽⁵⁾ Uncoated transmission. Can be increased by coating.

Product Drawing (mm)

