

Homogenizer

Pitch 0.5



Features and Advantages

Lens array with cross-oriented cylindrical lenses on both sides.
Top hat profiles with high homogeneity can be generated in both dimensions. ⁽¹⁾

Product Specifications

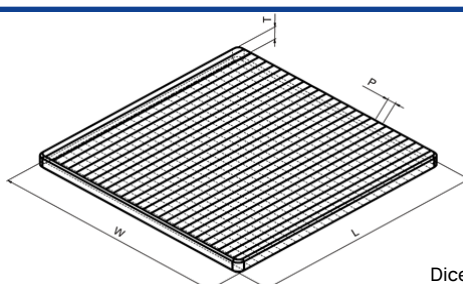
Specification Data	Unit	Value
Material		Fused Silica
Length (L)	mm	12.0 ± 0.1
Width (W)	mm	12.0 ± 0.1
Thickness (T)	mm	2.0 ± 0.1
Clear Aperture	mm ²	10.0 x 10.0
Refractive Index n @ 248 nm / @ 532 nm / @ 1064nm		1.509 / 1.461 / 1.449
Pitch (P)	mm	0.5
Transmission (without coating)	%	> 90
Protective Chamfer	mm x 45°	NA
Surface Imperfections (DIN ISO 10110-7)		5/ 2×0,1; L1×0,25; E1.0

Product Code	ZLA000481 ZLA000238 ⁽²⁾ ZLA000240 ⁽²⁾ ZLA000234 ⁽²⁾ ZLA000237 ⁽²⁾ ZLA000485 ⁽²⁾							
Specification Data	Unit	Value						
Radius	mm	2.15 ± 0.06	3.50 ± 0.11	5.50 ± 0.17	14.0 ± 0.42	21.0 ± 0.63	31.3 ± 0.94	
EFL	@ 248 nm	4.23 ± 0.13	6.88 ± 0.21	10.8 ± 0.32	27.5 ± 0.83	41.3 ± 1.2	61.6 ± 1.8	
	@ 532 nm	4.67 ± 0.14	7.60 ± 0.23	11.9 ± 0.36	30.4 ± 0.91	45.6 ± 1.4	67.9 ± 2.0	
	@ 1064nm	4.78 ± 0.14	7.78 ± 0.23	12.2 ± 0.37	31.1 ± 0.93	46.7 ± 1.4	69.6 ± 2.1	
Numerical Aperture	@ 248 nm	0.0591	0.0363	0.0231	0.0091	0.0061	0.0041	
[p / (2f)]	@ 532 nm	0.0535	0.0329	0.0210	0.0082	0.0055	0.0037	
	@ 1064nm	0.0523	0.0321	0.0204	0.0080	0.0054	0.0036	

⁽¹⁾ Suitable for multi-mode laser sources $M^2 > 20$ (approx.)

⁽²⁾ Example for customization – design and dimensions on request.

Product Drawing (mm)



Diced asymmetrically – symmetric dicing on request

Rev 05 | Updated June 8, 2022 | RoHS compliant 2011/65/EU and 2015/863/EU

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LIMO GmbH

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Homogenizer

Pitch 0.8



Features and Advantages

Lens array with cross-oriented cylindrical lenses on both sides.
Top hat profiles with high homogeneity can be generated in both dimensions. ⁽¹⁾

Product Specifications

Specification Data	Unit	Value
Material		Fused Silica
Length (L)	mm	20.0 ± 0.1
Width (W)	mm	20.0 ± 0.1
Thickness (T)	mm	2.0 ± 0.1
Clear Aperture	mm ²	18.0 x 18.0
Refractive Index n @ 248 nm / @ 532 nm / @ 1064nm		1.509 / 1.461 / 1.449
Pitch (P)	mm	0.8
Transmission (without coating)	%	> 90
Protective Chamfer	mm x 45°	NA
Surface Imperfections (DIN ISO 10110-7)		5/ 3×0,1; L1×0,25; E1

Product Code		ZLA000509 ⁽²⁾	ZLA000243 ⁽²⁾	ZLA000507	ZLA000486 ⁽²⁾
Specification Data	Unit	Value			
Radius	mm	4.35 ± 0.13	8.70 ± 0.26	11.1 ± 0.33	16.7 ± 0.50
EFL	@ 248 nm	8.55 ± 0.26	17.1 ± 0.51	21.8 ± 0.65	32.8 ± 0.98
	@ 532 nm	9.44 ± 0.28	18.9 ± 0.57	24.1 ± 0.72	36.3 ± 1.09
	@ 1064nm	9.67 ± 0.29	19.4 ± 0.58	24.7 ± 0.74	37.1 ± 1.11
Numerical Aperture [p / (2f)]	@ 248 nm	0.0468	0.0234	0.0183	0.0122
	@ 532 nm	0.0424	0.0212	0.0166	0.0110
	@ 1064nm	0.0414	0.0206	0.0162	0.0108

⁽¹⁾ Suitable for multi-mode laser sources M² > 20 (approx.)

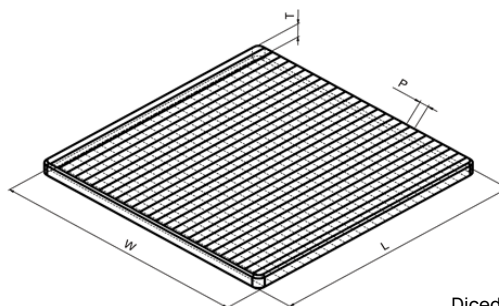
⁽²⁾ Example for customization — design and dimensions on request.

Product Specifications

Product Code			ZLA000488 ⁽²⁾	ZLA000229 ⁽²⁾	ZLA000230 ⁽²⁾	ZLA000511 ⁽²⁾
Specification Data		Unit	Value			
Radius		mm	24.4 ± 0.73	48.0 ± 1.4	78.0 ± 2.3	105.0 ± 3.2
EFL	@ 248 nm	mm	48.0 ± 1.4	94.4 ± 2.8	153.4 ± 4.6	206.5 ± 6.2
	@ 532 nm	mm	53.0 ± 1.6	104.2 ± 3.1	169.3 ± 5.1	227.9 ± 6.8
	@ 1064nm	mm	54.3 ± 1.6	106.8 ± 3.2	173.5 ± 5.2	233.5 ± 7.0
Numerical Aperture [p / (2f)]	@ 248 nm		0.0083	0.0042	0.0026	0.0019
	@ 532 nm		0.0075	0.0038	0.0024	0.0018
	@ 1064nm		0.0074	0.0037	0.0023	0.0017

⁽²⁾ Example for customization — design and dimensions on request.

Product Drawing (mm)



Diced asymmetrically — symmetric dicing on request

Homogenizer

Pitch 1.3



Features and Advantages

Lens array with cross-oriented cylindrical lenses on both sides.
 Top hat profiles with high homogeneity can be generated in both dimensions. ⁽¹⁾

Product Specifications

Specification Data	Unit	Value
Material		Fused Silica
Length (L)	mm	35.0 ± 0.1
Width (W)	mm	35.0 ± 0.1
Thickness (T)	mm	2.0 ± 0.1
Clear Aperture	mm ²	32.5 x 32.5
Refractive Index n @ 248 nm / @ 532 nm / @ 1064nm		1.509 / 1.461 / 1.449
Pitch (P)	mm	1.3
Transmission (without coating)	%	> 90
Protective Chamfer	mm x 45°	0.3 ± 0.2
Surface Imperfections (DIN ISO 10110-7)		5/ 10×0,1; L3×0,25; E1

Product Code		ZLA000218 ⁽²⁾	ZLA000800 ⁽²⁾	ZLA001687 ⁽²⁾	ZLA000794 ⁽²⁾
Specification Data	Unit	Value			
Radius	mm	2.99 ± 0.09	4.40 ± 0.13	6.50 ± 0.20	8.40 ± 0.25
EFL	@ 248 nm	5.88 ± 0.18	8.65 ± 0.26	12.8 ± 0.38	16.5 ± 0.50
	@ 532 nm	6.49 ± 0.19	9.55 ± 0.29	14.1 ± 0.42	18.2 ± 0.55
	@ 1064nm	6.65 ± 0.20	9.79 ± 0.29	14.5 ± 0.43	18.7 ± 0.56
Numerical Aperture [p / (2f)]	@ 248 nm	0.1105	0.0751	0.0508	0.0394
	@ 532 nm	0.1002	0.0681	0.0461	0.0357
	@ 1064nm	0.0977	0.0664	0.0448	0.0348

⁽¹⁾ Suitable for multi-mode laser sources M² > 20 (approx.)

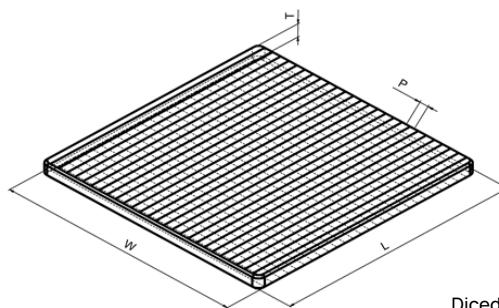
⁽²⁾ Example for customization — design and dimensions on request.

Product Specifications

Product Code			ZLA000781	ZLA000788 ⁽²⁾	ZLA000745 ⁽²⁾	ZLA000743 ⁽²⁾	ZLA000787 ⁽²⁾
Specification Data		Unit	Value				
Radius		mm	12.5 ± 0.38	17.0 ± 0.51	25.0 ± 0.75	50.0 ± 1.5	-50.0 ± 1.5
EFL	@ 248 nm	mm	24.6 ± 0.74	33.4 ± 1.0	49.2 ± 1.5	98.3 ± 2.9	-98.3 ± 2.9
	@ 532 nm	mm	27.1 ± 0.81	36.9 ± 1.1	54.3 ± 1.6	108.5 ± 3.3	-108.5 ± 3.3
	@ 1064nm	mm	27.8 ± 0.83	37.8 ± 1.1	55.6 ± 1.7	111.2 ± 3.3	-111.2 ± 3.3
Numerical Aperture [p / (2f)]	@ 248 nm		0.0264	0.0195	0.0132	0.0066	0.0066
	@ 532 nm		0.0240	0.0176	0.0120	0.0060	0.0060
	@ 1064nm		0.0234	0.0172	0.0117	0.0059	0.0059

⁽²⁾ Example for customization — design and dimensions on request.

Product Drawing (mm)



Diced asymmetrically — symmetric dicing on request

Cylindrical Lens Array

Pitch 0.5



Features and Advantages

Lens array with cylindrical lenses on one side.

Top hat profiles with high homogeneity can be generated in one dimension. ⁽¹⁾

* Product similar to image, see product drawing below.

Product Specifications

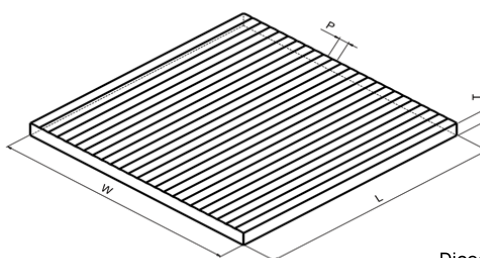
Specification Data	Unit	Value
Material		Fused Silica
Length (L)	mm	12.0 ± 0.1
Width (W)	mm	12.0 ± 0.1
Thickness (T)	mm	2.0 ± 0.1
Clear Aperture	mm ²	10.0 x 10.0
Refractive Index n @ 248 nm / @ 532 nm / @ 1064nm		1.509 / 1.461 / 1.449
Pitch (P)	mm	0.5
Transmission (without coating)	%	> 90
Protective Chamfer	mm x 45°	NA
Surface Imperfections (DIN ISO 10110-7)		5/ 2×0,1; L1×0,25; E1.0

Product Code		ZLA000233 ⁽²⁾	ZLA000479	ZLA000239	ZLA000601 ⁽²⁾	ZLA001110 ⁽²⁾	ZLA001111 ⁽²⁾
Specification Data	Unit	Value					
Radius	mm	2.15 ± 0.06	3.50 ± 0.11	5.50 ± 0.17	14.0 ± 0.42	21.0 ± 0.63	31.3 ± 0.94
EFL	@ 248 nm	4.23 ± 0.13	6.88 ± 0.21	10.8 ± 0.32	27.5 ± 0.83	41.3 ± 1.2	61.6 ± 1.8
	@ 532 nm	4.67 ± 0.14	7.60 ± 0.23	11.9 ± 0.36	30.4 ± 0.91	45.6 ± 1.4	67.9 ± 2.0
	@ 1064nm	4.78 ± 0.14	7.78 ± 0.23	12.2 ± 0.37	31.1 ± 0.93	46.7 ± 1.4	69.6 ± 2.1
Numerical Aperture	@ 248 nm	0.0591	0.0363	0.0231	0.0091	0.0061	0.0041
[p / (2f)]	@ 532 nm	0.0535	0.0329	0.0210	0.0082	0.0055	0.0037
	@ 1064nm	0.0523	0.0321	0.0204	0.0080	0.0054	0.0036

⁽¹⁾ Suitable for multi-mode laser sources $M^2 > 20$ (approx.)

⁽²⁾ Example for customization — design and dimensions on request.

Product Drawing (mm)



Diced asymmetrically — symmetric dicing on request

Rev 05 | Updated June 8, 2022 | RoHS compliant 2011/65/EU and 2015/863/EU

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Cylindrical Lens Array

Pitch 0.8



Features and Advantages

Lens array with cylindrical lenses on one side.

Top hat profiles with high homogeneity can be generated in one dimension. ⁽¹⁾

* Product similar to image, see product drawing below.

Product Specifications

Specification Data		Unit	Value			
Material			Fused Silica			
Length (L)		mm	20.0 ± 0.1			
Width (W)		mm	20.0 ± 0.1			
Thickness (T)		mm	2.0 ± 0.1			
Clear Aperture		mm ²	18.0 x 18.0			
Refractive Index n @ 248 nm / @ 532 nm / @ 1064nm			1.509 / 1.461 / 1.449			
Pitch (P)		mm	0.8			
Transmission (without coating)		%	> 90			
Protective Chamfer		mm x 45°	NA			
Surface Imperfections (DIN ISO 10110-7)			5/ 3×0,1; L1×0,25; E1			
Product Code			ZLA001106 ⁽²⁾	ZLA001105 ⁽²⁾	ZLA001104	ZLA001103 ⁽²⁾
Specification Data		Unit	Value			
Radius		mm	4.35 ± 0.13	8.70 ± 0.26	11.1 ± 0.33	16.7 ± 0.50
EFL	@ 248 nm	mm	8.55 ± 0.26	17.1 ± 0.51	21.8 ± 0.65	32.8 ± 0.98
	@ 532 nm	mm	9.44 ± 0.28	18.9 ± 0.57	24.1 ± 0.72	36.3 ± 1.09
	@ 1064nm	mm	9.67 ± 0.29	19.4 ± 0.58	24.7 ± 0.74	37.1 ± 1.11
Numerical Aperture [p / (2f)]	@ 248 nm		0.0468	0.0234	0.0183	0.0122
	@ 532 nm		0.0424	0.0212	0.0166	0.0110
	@ 1064nm		0.0414	0.0206	0.0162	0.0108

⁽¹⁾ Suitable for multi-mode laser sources M² > 20 (approx.)

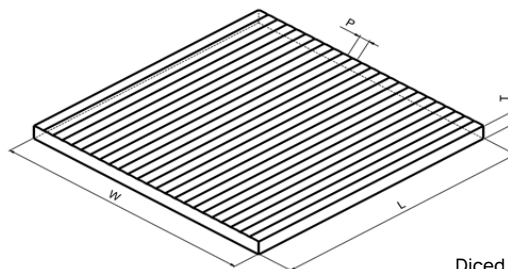
⁽²⁾ Example for customization – design and dimensions on request.

Product Specifications

Product Code			ZLA000487 ⁽²⁾	ZLA001108 ⁽²⁾	ZLA001109	ZLA001107 ⁽²⁾
Specification Data		Unit	Value			
Radius		mm	24.4 ± 0.73	48.0 ± 1.4	78.0 ± 2.3	105.0 ± 3.2
EFL	@ 248 nm	mm	48.0 ± 1.4	94.4 ± 2.8	153.4 ± 4.6	206.5 ± 6.2
	@ 532 nm	mm	53.0 ± 1.6	104.2 ± 3.1	169.3 ± 5.1	227.9 ± 6.8
	@ 1064nm	mm	54.3 ± 1.6	106.8 ± 3.2	173.5 ± 5.2	233.5 ± 7.0
Numerical Aperture [p / (2f)]	@ 248 nm		0.0083	0.0042	0.0026	0.0019
	@ 532 nm		0.0075	0.0038	0.0024	0.0018
	@ 1064nm		0.0074	0.0037	0.0023	0.0017

⁽²⁾ Example for customization — design and dimensions on request.

Product Drawing (mm)



Diced asymmetrically — symmetric dicing on request

Cylindrical Lens Array

Pitch 1.3



Features and Advantages

Lens array with cylindrical lenses on one side.

Top hat profiles with high homogeneity can be generated in one dimension. ⁽¹⁾

* Product similar to image, see product drawing below.

Product Specifications

Specification Data	Unit	Value
Material		Fused Silica
Length (L)	mm	35.0 ± 0.1
Width (W)	mm	35.0 ± 0.1
Thickness (T)	mm	2.0 ± 0.1
Clear Aperture	mm ²	32.5 x 32.5
Refractive Index n @ 248 nm / @ 532 nm / @ 1064nm		1.509 / 1.461 / 1.449
Pitch (P)	mm	1.3
Transmission (without coating)	%	> 90
Protective Chamfer	mm x 45°	0.3 ± 0.2
Surface Imperfections (DIN ISO 10110-7)		5/ 10×0,1; L3×0,25; E1

Product Code		ZLA001102 ⁽²⁾	ZLA000796 ⁽²⁾	ZLA000772	ZLA000791 ⁽²⁾
Specification Data	Unit	Value			
Radius	mm	2.99 ± 0.09	4.40 ± 0.13	6.50 ± 0.20	8.40 ± 0.25
EFL	@ 248 nm	5.88 ± 0.18	8.65 ± 0.26	12.8 ± 0.38	16.5 ± 0.50
	@ 532 nm	6.49 ± 0.19	9.55 ± 0.29	14.1 ± 0.42	18.2 ± 0.55
	@ 1064nm	6.65 ± 0.20	9.79 ± 0.29	14.5 ± 0.43	18.7 ± 0.56
Numerical Aperture [p / (2f)]	@ 248 nm	0.1105	0.0751	0.0508	0.0394
	@ 532 nm	0.1002	0.0681	0.0461	0.0357
	@ 1064nm	0.0977	0.0664	0.0448	0.0348

⁽¹⁾ Suitable for multi-mode laser sources M² > 20 (approx.)

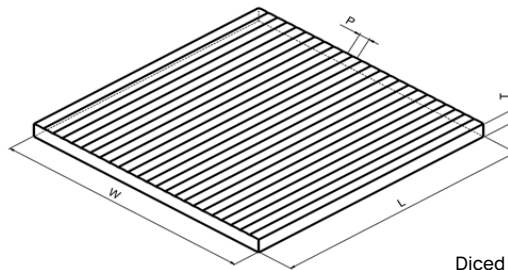
⁽²⁾ Example for customization — design and dimensions on request.

Product Specifications

Product Code			ZLA001688 ⁽²⁾	ZLA001689 ⁽²⁾	ZLA000744 ⁽²⁾	ZLA000742 ⁽²⁾	ZLA001101 ⁽²⁾
Specification Data		Unit	Value				
Radius		mm	12.5 ± 0.38	17.0 ± 0.51	25.0 ± 0.75	50.0 ± 1.5	-50.0 ± 1.5
EFL	@ 248 nm	mm	24.6 ± 0.74	33.4 ± 1.0	49.2 ± 1.5	98.3 ± 2.9	-98.3 ± 2.9
	@ 532 nm	mm	27.1 ± 0.81	36.9 ± 1.1	54.3 ± 1.6	108.5 ± 3.3	-108.5 ± 3.3
	@ 1064nm	mm	27.8 ± 0.83	37.8 ± 1.1	55.6 ± 1.7	111.2 ± 3.3	-111.2 ± 3.3
Numerical Aperture [p / (2f)]	@ 248 nm		0.0264	0.0195	0.0132	0.0066	0.0066
	@ 532 nm		0.0240	0.0176	0.0120	0.0060	0.0060
	@ 1064nm		0.0234	0.0172	0.0117	0.0059	0.0059

⁽²⁾ Example for customization — design and dimensions on request.

Product Drawing (mm)



Diced asymmetrically — symmetric dicing on request