

STANDARD RANGE

16 mm PMMA collimator – LLC22

June, 2021

LLC22: presentation

Given the current increasing demand on small optics, GAGGIONE is launching a new $\varnothing$ 16 mm collimator range.

5 references



LLC22N

Narrow beam



LLC22M

Medium beam



LLC22W

Wide beam



LLC22V

Very large beam



LLC22E

Elliptical beam

Visit our [website](#)

LLC22: LED specifications

LES size: 4mm² max.

Type of LED: High Power, Chip Scale Package.

Type of Led	LLC22N	LLC22M	LLC22W	LLC22V	LLC22E
RGBW	✗	✓	✓	✓	✓
Tunable White	✗	✓	✓	✓	✓
Single chip	✓	✓	✓	✓	✓
Multi chip	✗	✓	✓	✓	✓

LLC22: applications

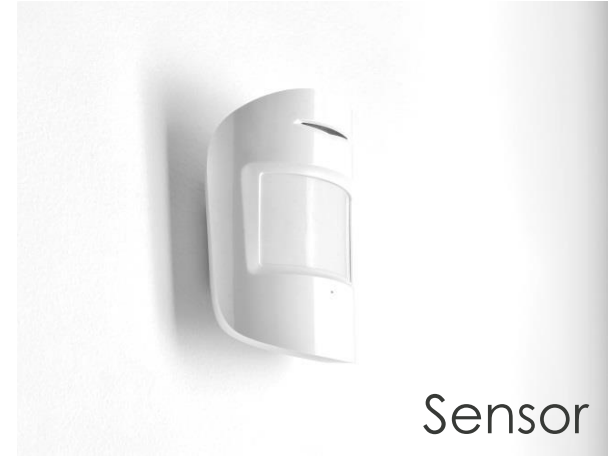
Architectural



Indoor



Sensor



Medical



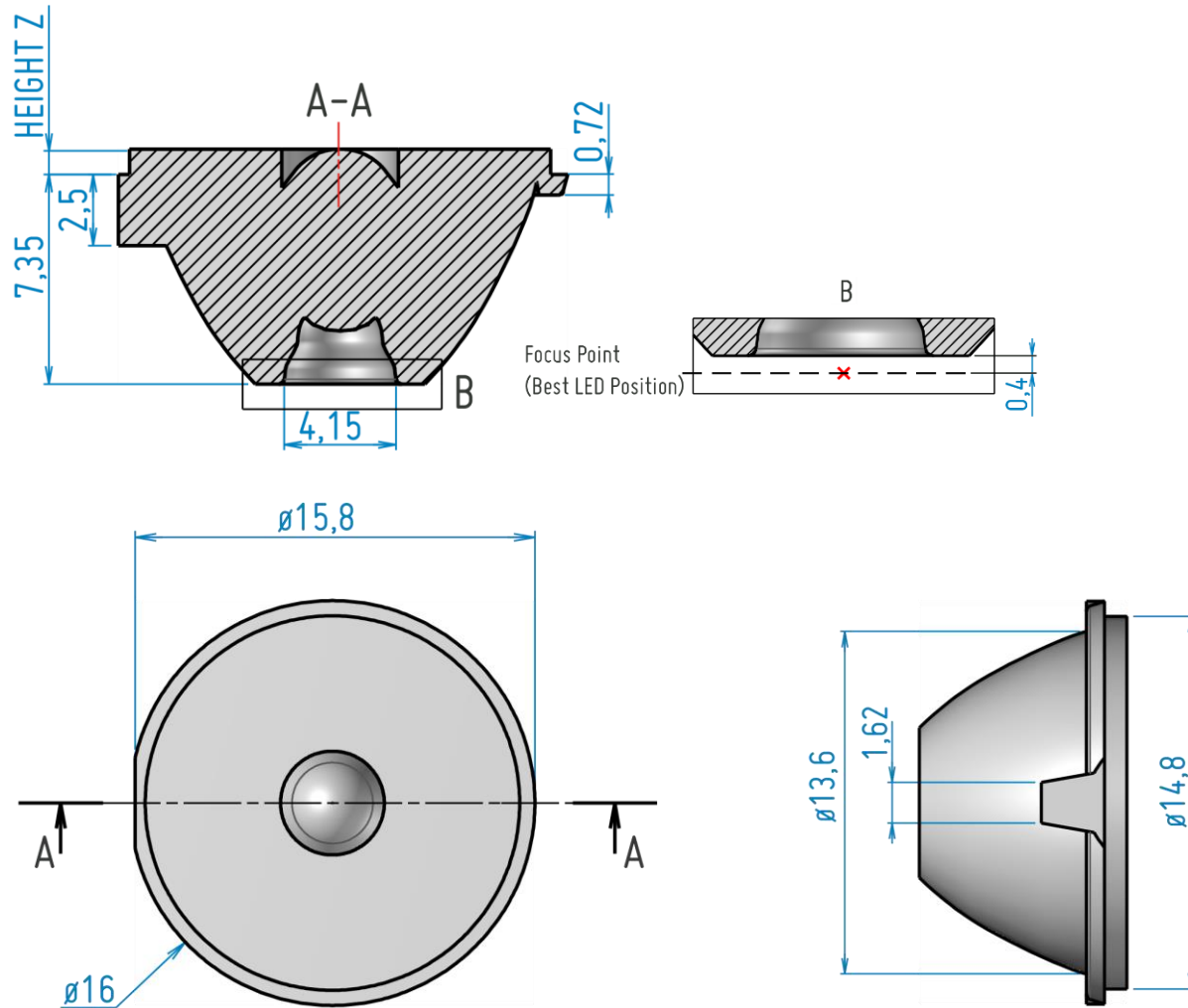
Safety



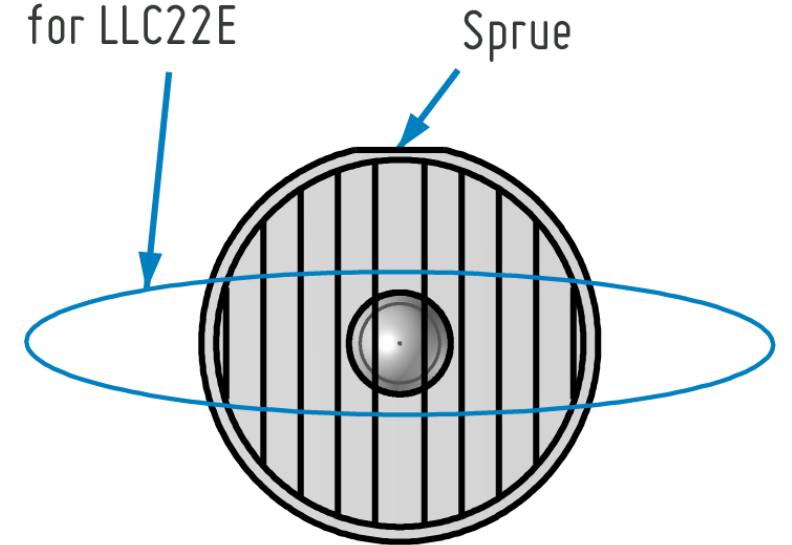
Entertainment



LLC22: 2D drawing



Beam orientation
for LLC22E



Without holder, all dimensions are in millimeters.

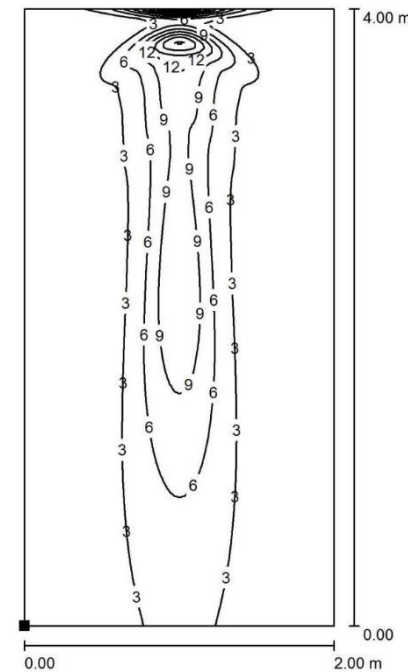
General tolerance $\pm 0,1$ mm (standard NF T 58-000 cat. 4, reduced class).

LLC22N: Narrow beam



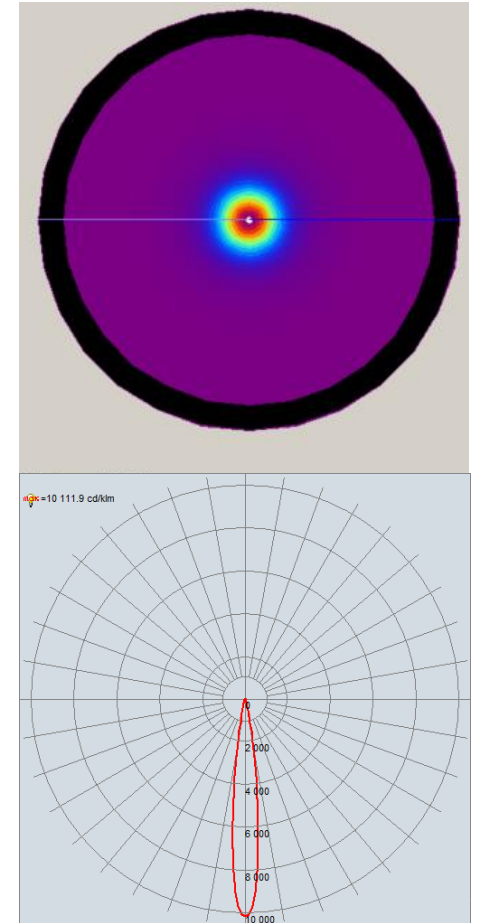
Compatibility matrix

	CREE	OSRAM	NICHIA	CREE
LLC22N	XQ-E HI	Oslon Compact CL	NCSWEE17AT	XD16
FWHM (°)	9.6	9.8	11.2	13.2
FWTM (°)	18.9	19.2	21.7	24.5
Efficacy (cd/lm)	18.7	19.1	14.9	10.1



Dialux simulation

Values in lux, scale 1 : 32
Distance from wall: 0,3 m



Intensity pattern

[Visit the product page](#) on our website

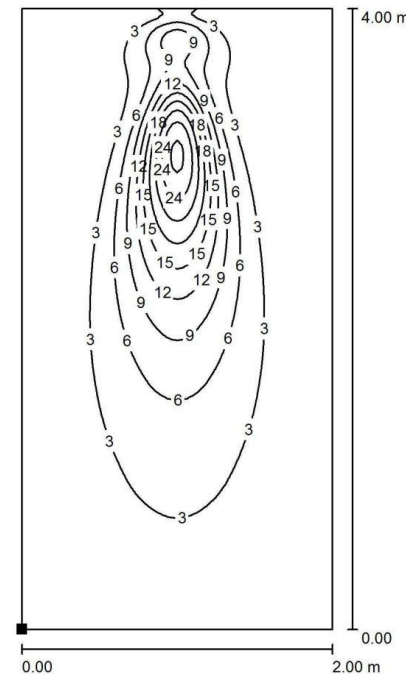
LED: CREE_XD16

LLC22M: Medium beam



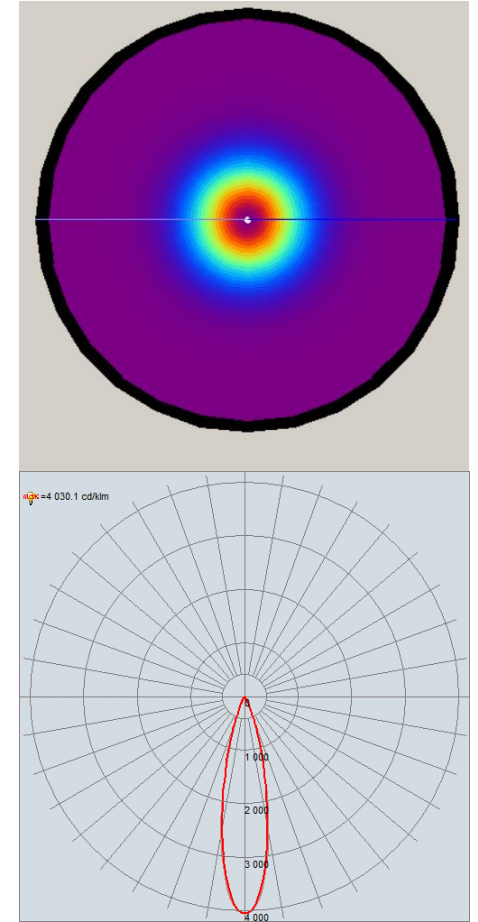
Compatibility matrix

	OSRAM	LUMILEDS	CREE	NICHIA
LLC22M	Ostar Stage RGBW	Luxeon Z TW cluster	XP-E2	NF2W757_MT
FWHM (°)	23.8	28.8	24.5	25.0
FWTM (°)	44.6	56.1	44.1	48.0
Efficacy (cd/lm)	4.0	2.3	3.9	3.3



Dialux simulation

Values in lux, scale 1 : 32
Distance from wall: 0,3 m



Intensity pattern

[Visit the product page](#) on our website

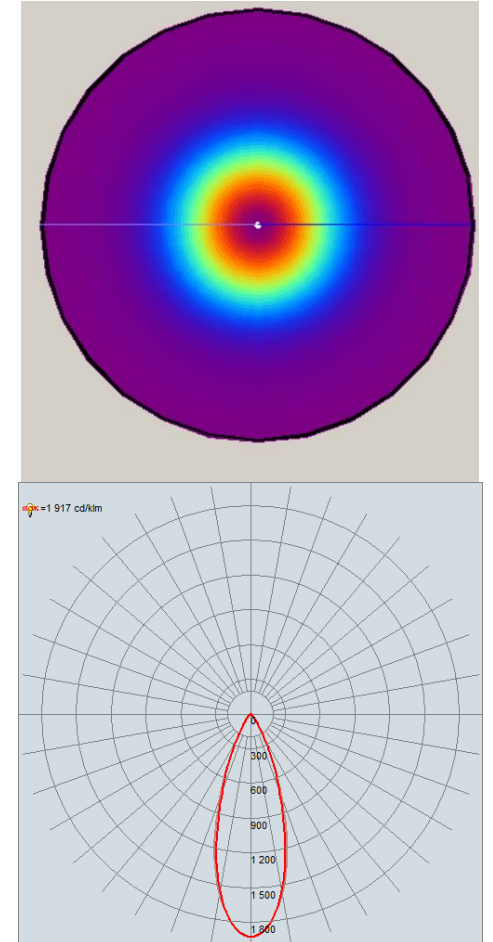
LED: OSTAR_STAGE_LE_RTUW_S2WN

LLC22W: Wide beam



Compatibility matrix

	OSRAM	LUMILEDS	CREE	NICHIA
LLC22W	Ostar Stage RGBW	Luxeon Z TW cluster	XP-E2	NF2W757_MT
FWHM (°)	35.1	34.2	34.4	34.1
FWTM (°)	62.1	66.0	60.4	62.8
Efficacy (cd/lm)	1.9	1.6	2.1	1.9



Intensity pattern

[Visit the product page](#) on our website

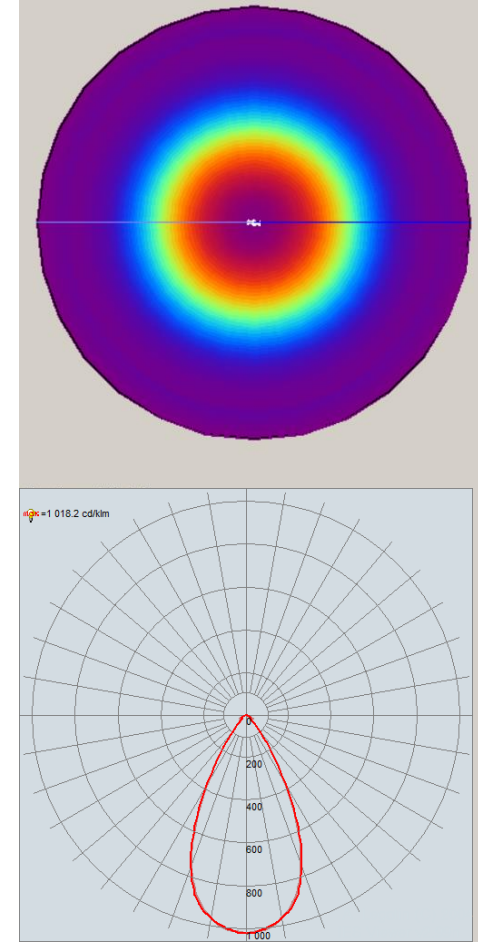
LED: OSTAR_STAGE_LE_RTDUW_S2WN

LLC22V: Very large beam



Compatibility matrix

	OSRAM	LUMILEDS	CREE	NICHIA
LLC22V	Ostar Stage RGBW	Luxeon Z TW cluster	XP-E2	NF2W757_MT
FWHM (°)	52.3	54.4	56.1	53.6
FWTM (°)	79.4	83.8	82.0	82.5
Efficacy (cd/lm)	1.0	0.8	0.9	0.9



Intensity pattern

Visit the [product page](#) on our website

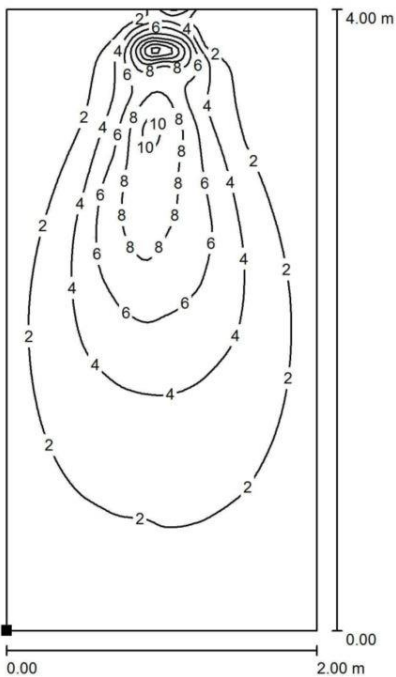
LED: OSTAR_STAGE_LE_RTDUW_S2WN

LLC22E: Elliptical beam



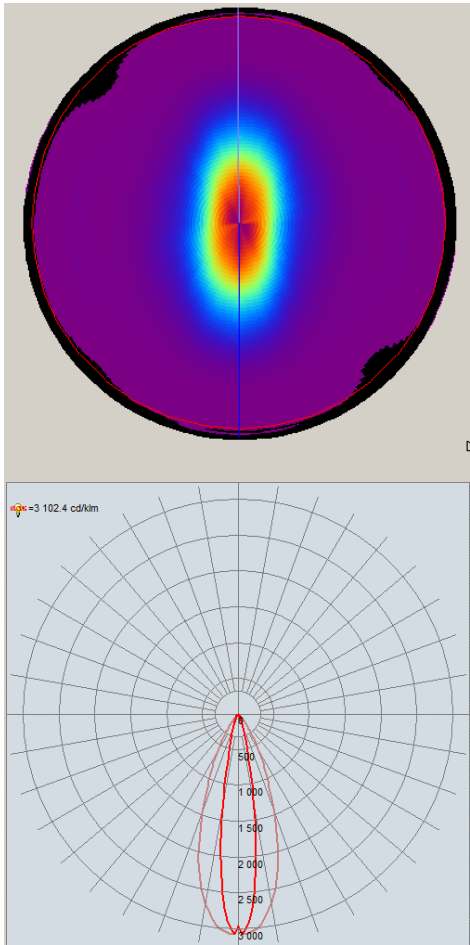
Compatibility matrix

	OSRAM	LUMILEDS	CREE	NICHIA
LLC22E	Ostar Stage RGBW	Luxeon Z TW cluster	XP-E2	NF2W757_MT
FWHM (°)	16.6 – 38.8	22.7 – 36.6	11.9 – 43.8	17.8 – 38.9
FWTM (°)	32.1 – 67.8	38.5 – 70.4	28.1 – 65.2	35.4 – 67.3
Efficacy (cd/lm)	3.3	2.6	4.0	3.2



Dialux simulation

Values in lux, scale 1 : 32
Distance from wall: 0,3 m



Intensity pattern

[Visit the product page](#) on our website

LED: OSTAR_STAGE_LE_RTDUW_S2WN

LLH01AAx



Clear holder



Black holder

Without adhesive: LLH01AAx00

LLH01AAx02

With adhesive: LLH01AAx001

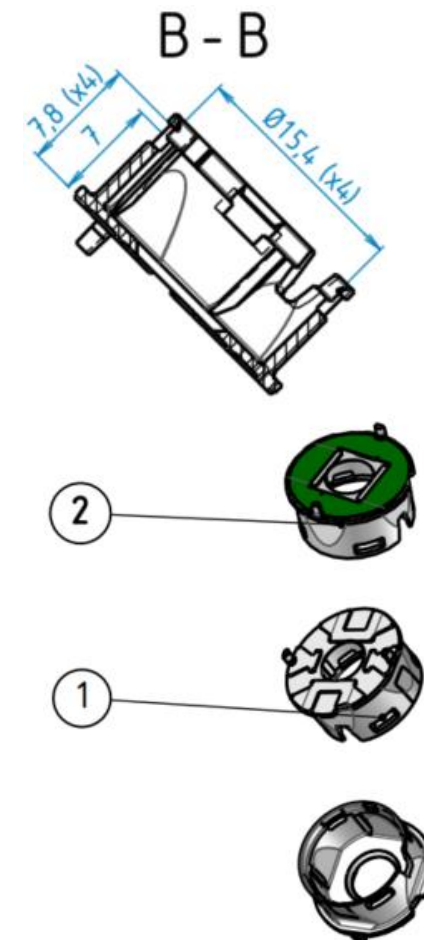
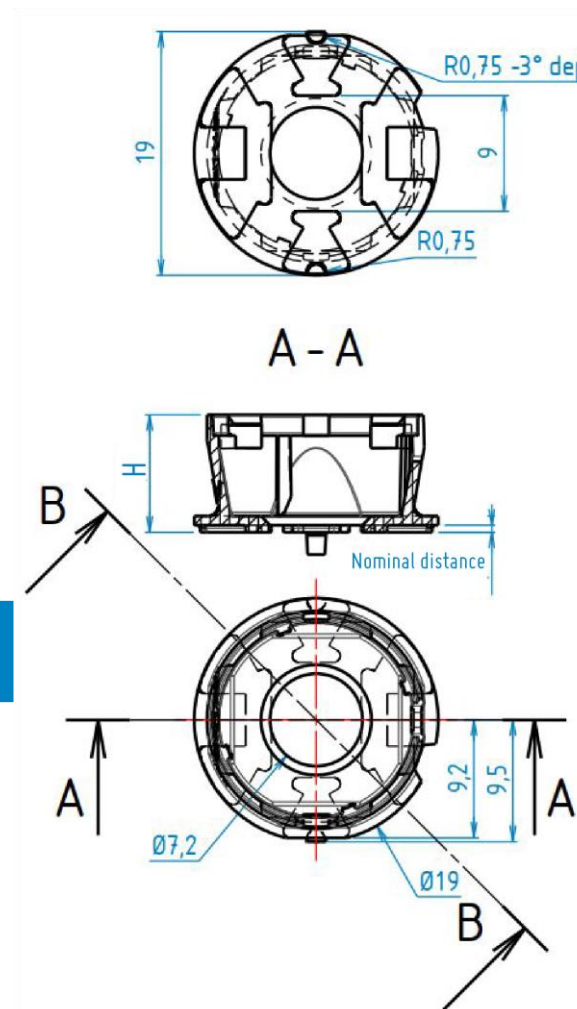
LLH01AAx021

Holder reference	Diameter (mm)	Nominal distance from PCB (mm)	Height (H)	Note
LLH01AAD0*	16	0.25	8.85	With pins
LLH01AAC0*	16	0.55	9.15	With pins
LLH01AAA0*	16	0.8	9.4	With pins
LLH01AAB0*	16	1.35	9.95	With pins

* : colors 0 (clear), 1 (white), 2 (black)

If you need another color of holder, please [contact us](#)

LLC22: compatible holders



All dimensions are in millimeters.

General tolerance ± 0.1 mm (standard NF T 58-000 cat. 4, reduced class).



Positioning holes need to be created into the PCB.

LLC22: Assembled set

LLH01AAx + LLC22x

Holder	Color	Adhesive	Narrow LLC22N	Medium LLC22M	Wide LLC22W	Very large LLC22V	Elliptical LLC22E
LLH01AAx00	Clear	✗	LLS22N01AAx00	LLS22M01AAx00	LLS22W01AAx00	LLS22V01AAx00	LLS22E01AAx00
LLH01AAx001		✓	LLS22N01AAx001	LLS22M01AAx001	LLS22W01AAx001	LLS22V01AAx001	LLS22E01AAx001
LLH01AAx02	Black	✗	LLS22N01AAx02	LLS22M01AAx02	LLS22W01AAx02	LLS22V01AAx02	LLS22E01AAx02
LLH01AAx021		✓	LLS22N01AAx021	LLS22M01AAx021	LLS22W01AAx021	LLS22V01AAx021	LLS22E01AAx021

LLH03XRR*



White holder



Black holder

Without adhesive: LLH03XRR01

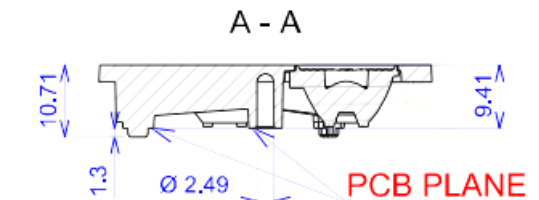
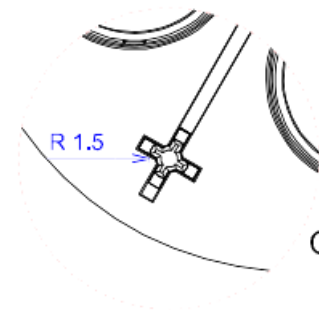
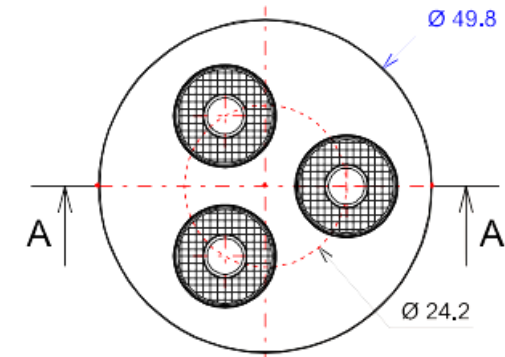
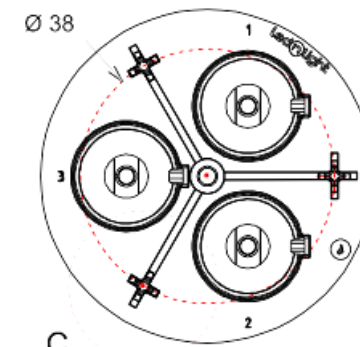
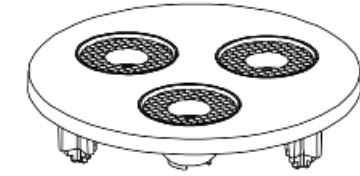
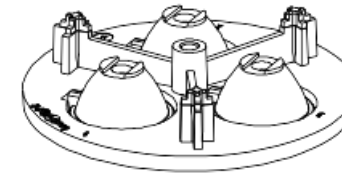
LLH03XRR02

Reference	Diameter (mm)	Nominal distance from PCB (mm)	Note
LLH03XRR0*	16	0.75	With pins

* : colors 0 (clear), 1 (white), 2 (black)

If you need another color of holder, please [contact us](#)

LLC22: compatible holders



All dimensions are in millimeters.

General tolerance +/- 0.1mm (standard NF T 58-000 cat. 4, reduced class).



Positioning holes need to be created into the PCB.

LLC22: Assembled set

LLH03XRR* + LLC22x

Holder	Color	Adhesive	Narrow LLC22N	Medium LLC22M	Wide LLC22W	Very large LLC22V	Elliptical LLC22E
LLH03XRR01	White	✗	LLS22N03XRR01	LLS22M03XRR01	LLS22W03XRR01	LLS22V03XRR01	LLS22E03XRR01
LLH03XRR02	Black	✗	LLS22N03XRR02	LLS22M03XRR02	LLS22W03XRR02	LLS22V03XRR02	LLS22E03XRR02

LLH04XRR*



White holder



Black holder

Without adhesive: LLH04XRR01

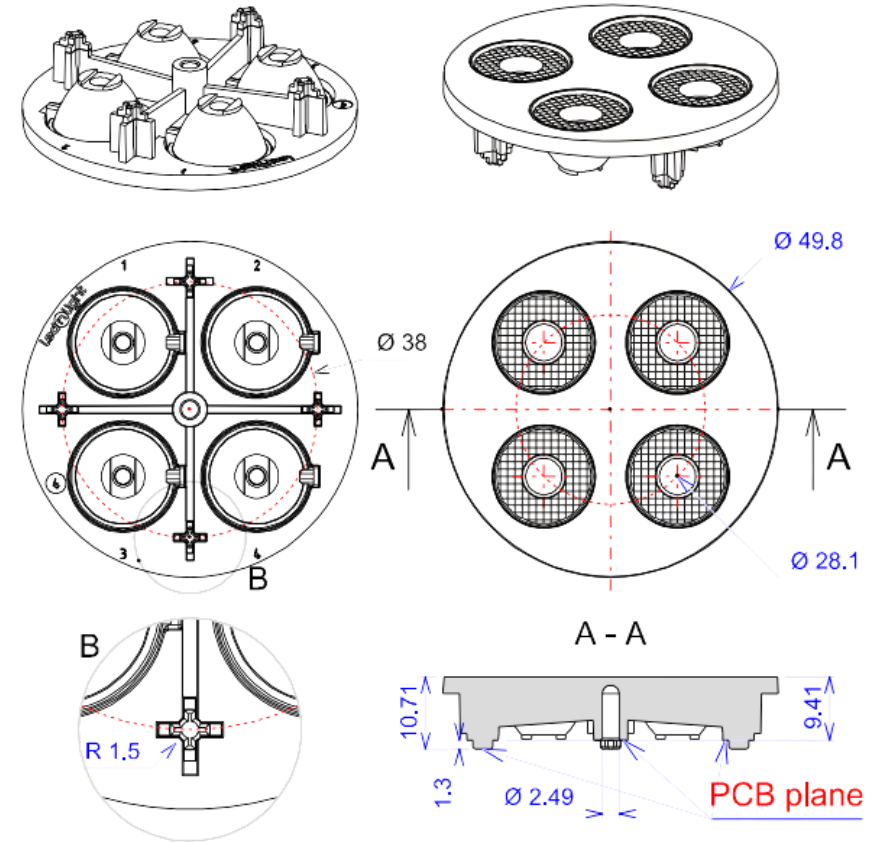
LLH04XRR02

Reference	Diameter (mm)	Nominal distance from PCB (mm)	Note
LLH04XRR0*	16	0.75	With pins

* : colors 0 (clear), 1 (white), 2 (black)

If you need another color of holder, please [contact us](#)

LLC22: compatible holders



All dimensions are in millimeters.

General tolerance ± 0.1 mm (standard NF T 58-000 cat. 4, reduced class).



Positioning holes need to be created into the PCB.

LLC22: Assembled set

LLH04XRR* + LLC22x

Holder	Color	Adhesive	Narrow LLC22N	Medium LLC22M	Wide LLC22W	Very large LLC22V	Elliptical LLC22E
LLH04XRR01	White	✗	LLS22N04XRR01	LLS22M04XRR01	LLS22W04XRR01	LLS22V04XRR01	LLS22E04XRR01
LLH04XRR02	Black	✗	LLS22N04XRR02	LLS22M04XRR02	LLS22W04XRR02	LLS22V04XRR02	LLS22E04XRR02

LLC22: Nominal distance

Nominal distance from PCB surface to best focus point of optic

Achieving an optimal focus position of the lens is the key factor for a successful LED/Collimator integration.

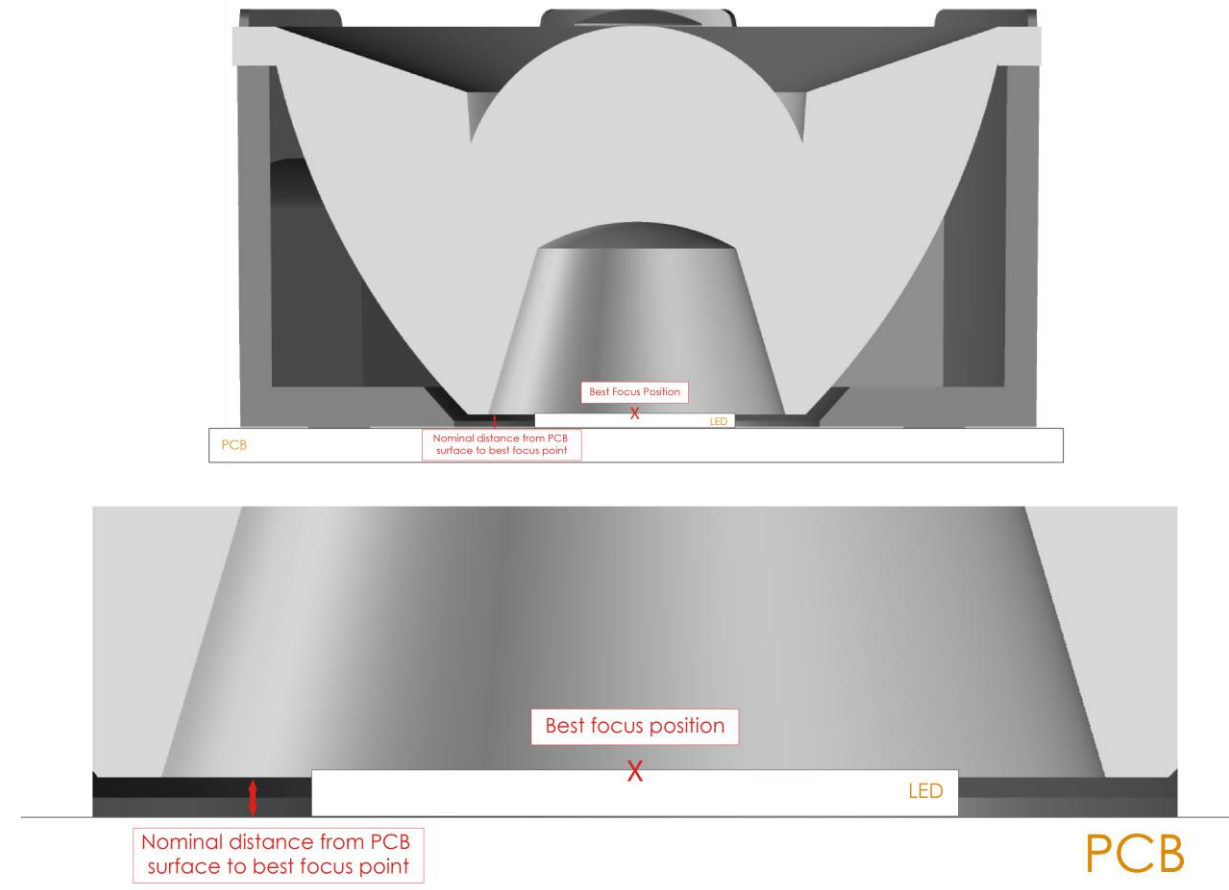
The best focus position will be achieved when matching the collimator's focus position with LED's Light Emission Surface position.

Different holder references will achieve specific PCB to Collimator's focus point distance in order to adapt to the considered LED.

Reference	Diameter (mm)	Nominal distance from PCB (mm)	Note
LLH01AAD0*	16	0.25	With pins
LLH01AAC0*	16	0.55	With pins
LLH01AAA0*	16	0.8	With pins
LLH03XRR0*	16	0.75	With pins
LLH04XRR0*	16	0.75	With pins
LLH01AAB0*	16	1.35	With pins

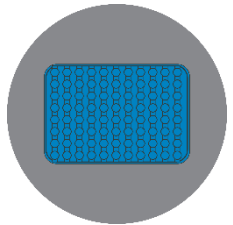
* : colors 0 (clear), 1 (white), 2 (black)

If you need another color of holder, please [contact us](#)



LLC22: Packaging

LLC22x



5 thermoformed trays with 100 parts each



500 parts
Box: B10 – 285x195x50 mm
Weight: 0.7 kg

LLH01AAx



1 plastic bag with 1 500 parts
Box: C10 - 285x195x150 mm
Weight: 1.2 kg

LLH03XRR*



1 plastic bag with 2 000 parts
Box: GALIA A9 - 589x385x287 mm
Weight: 10 kg

LLH04XRR*



1 plastic bag with 2 000 parts
Box: GALIA A9 - 589x385x287 mm
Weight: 9.6 kg

Code form standard range

LENS

OPTICAL

01: 16 mm
02: 16 mm
12: 16 mm
22: 16 mm RGBW
05: 32 mm
15: 32 mm
25: 32 mm RGBW
07: 35 mm
45: 45 mm UFO
49: 45 mm RGBW
59: 45 mm RGBW gen 2
56: 67mm in PMMA
66: 67 mm in silicone
76: 67mm in silicone
67: 67 mm UFO

PRODUCT

LLC: Collimator
LLH: Holder
LLL: Linear collimator
LLR: Reflector
LLS: Set
UFO: Ultra Flat Optic

BEAM ANGLE

U/R: Ultra Narrow
N: Narrow
M: Medium
W: Wide
X: Extra large
S: Super large
L: Large
V: Very large
E: Elliptical
Z: Zoom

MATERIAL

0 or nothing : PMMA
1: PC
2: PC anti-UV
7: Silicone

LLS01W01ABC001

ABC: Holder type according to LED package

COLORS & DECORS

0: Translucent
1: White
2: Black

ADHESIVE OPTION

1: Yes
Nothing: No

VERSION

TYPE

1: 16mm
2: 32mm
3: 3x16mm
4: 4x16mm
9: 45mm

HOLDER

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