

STANDARD RANGE

45 mm PMMA collimator — LLC59

October, 2021

LLC59: presentation

Given the current increasing demand on applications of color mixing or tunable white, GAGGIONE is launching its ø 45 mm collimator range without sprue as well as **new versions**.

9 references



LLC59R

Ultra narrow beam



LLC59U

Ultra narrow beam



LLC59RF



LLC59N

Narrow beam



LLC59NF



LLC59C

Color beam



LLC59M

Medium beam



LLC59W

Wide beam



LLC59E

Elliptical beam



LLC59: LED specifications

LES size: 8mm² max without dome / 4mm² max with dome

Type of LED: High Power, Cluster High Power, Mid Power, Cluster Chip Scale Package, Chip Scale Package.

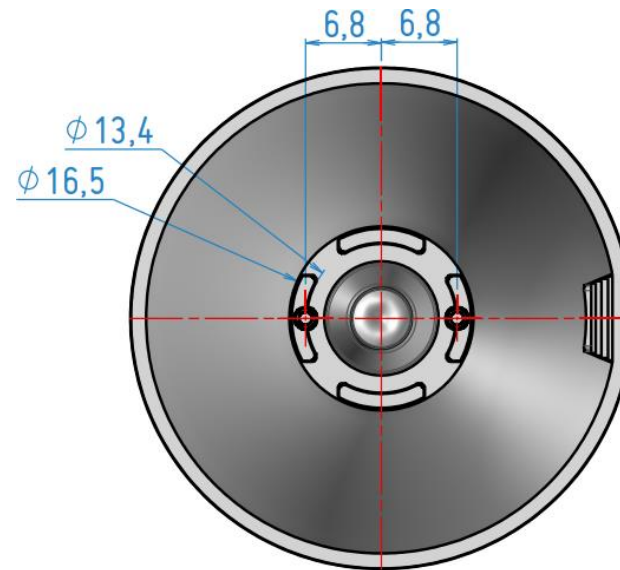
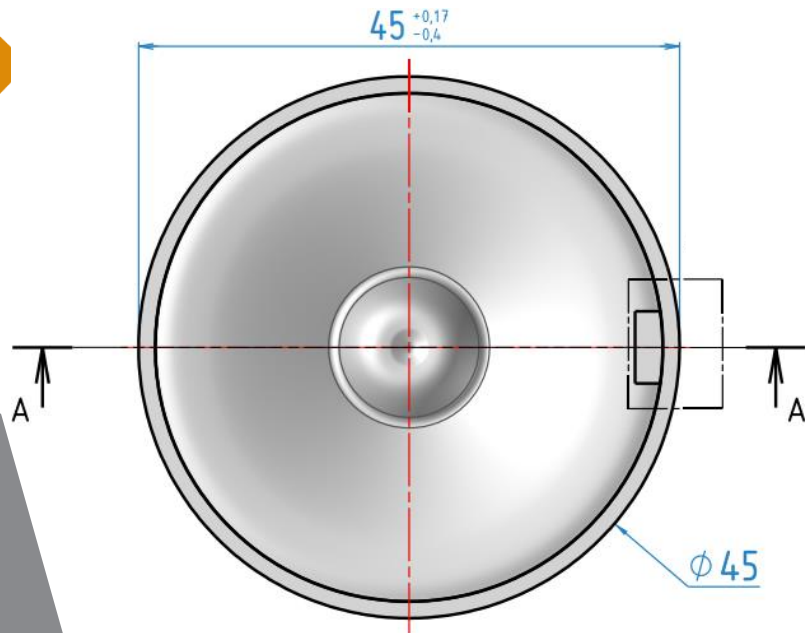
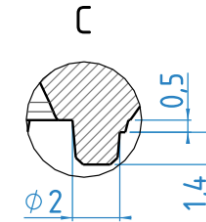
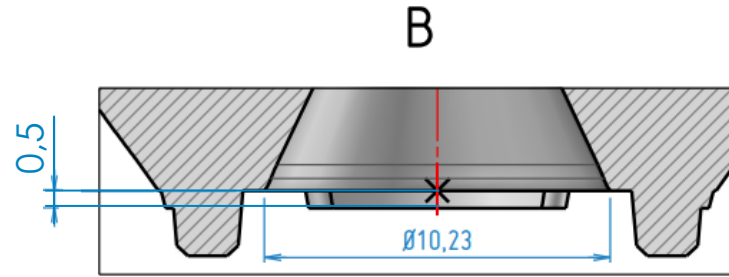
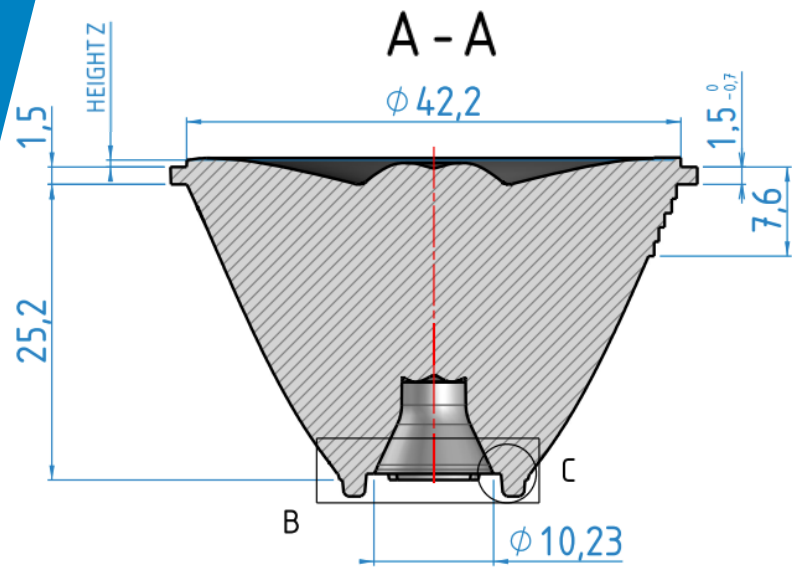
Type of Led	LLC59R	LLC59U	LLC59RF	LLC59N	LLC59NF	LLC59C	LLC59M	LLC59W	LLC59E
RGBW	✗	✗	✗	✓	✓	✓	✓	✓	✓
Tunable White	✗	✗	✗	✓	✓	✓	✓	✓	✓
Single chip	✓	✓	✓	✓	✓	✓	✓	✓	✓
Multi chip	✗	✓	✓	✓	✓	✓	✓	✓	✓

LLC59: applications



LLC59: 2D drawing

except LLC59E

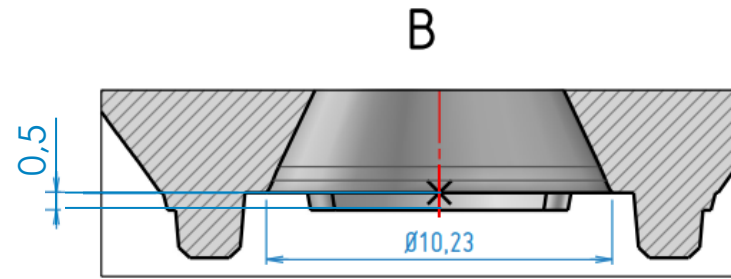
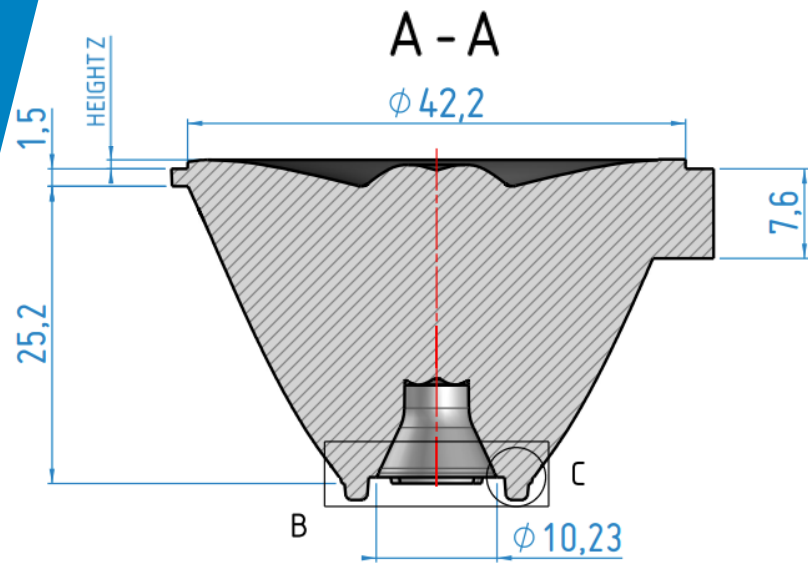


For missing elements, please refer to the 2D plan.

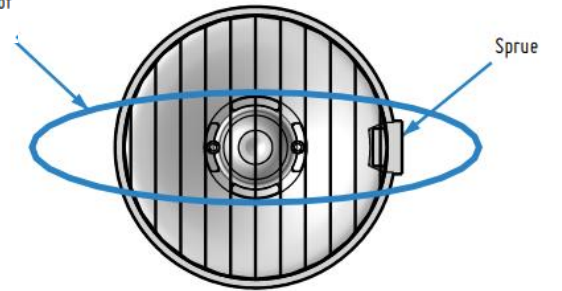
Without holder, all dimensions are in millimeters.

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

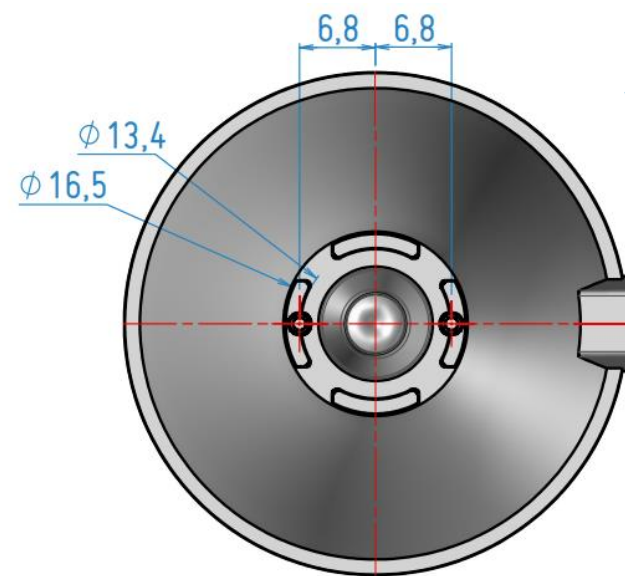
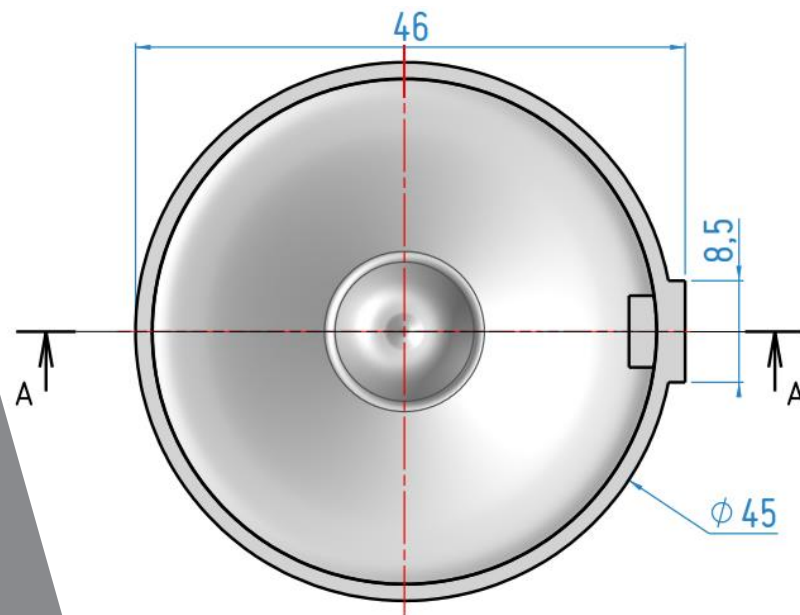
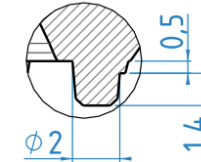
LLC59E: 2D drawing



Beam orientation of the LLC59E



C



For missing elements, please refer to the 2D plan.

Without holder, all dimensions are in millimeters.

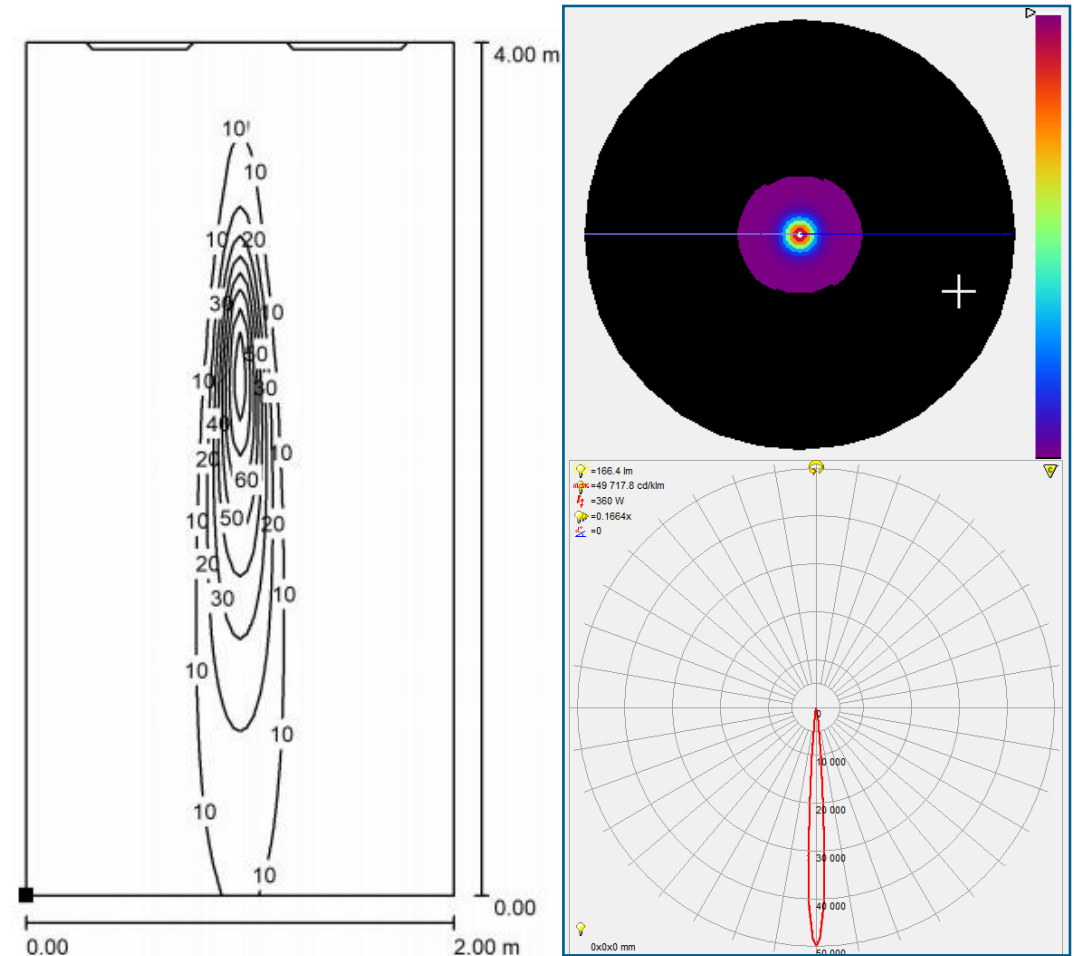
General tolerance $\pm 0.1\text{mm}$ (standard NF T 58-000 cat. 4, reduced class).

LLC59R: Ultra intensive narrow beam



Compatibility matrix

	OSRAM	LUMILEDS	CREE	NICHIA
LLC59R	OSLON COMPACT CL LUW CEUP	LUXEON Z ES	XHP35.2 HI	NV4WB35AM
FWHM (°)	1,8	3,4	7	7,6
FWTM (°)	3,8	7,6	12,2	14,8
Efficacy (cd/lm)	572,9	160,4	48,6	34,8



Dialux simulation

Values in lux, scale 1 : 32
Distance from wall: 0,15 m
100 lumens per LED

Intensity pattern

[Visit the product page](#)

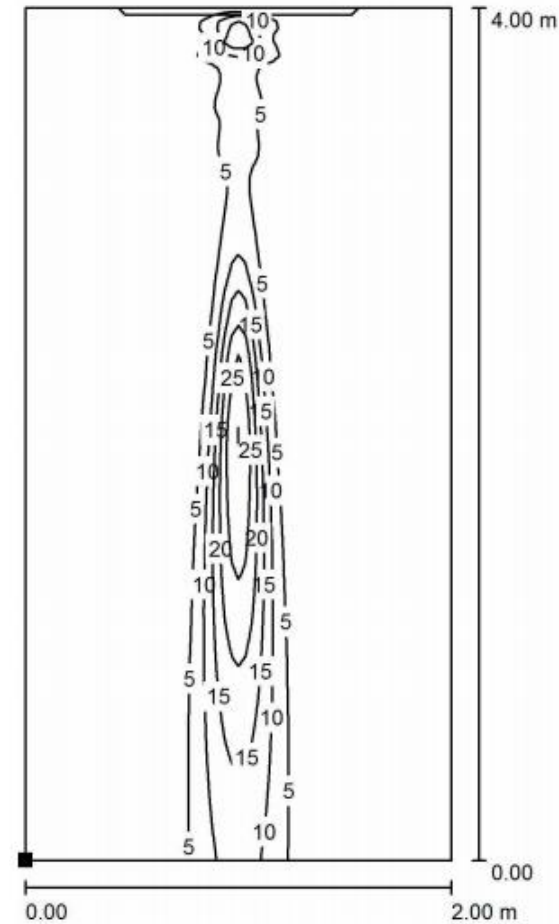
LED: XHP35.2HI

LLC59U: Ultra narrow beam



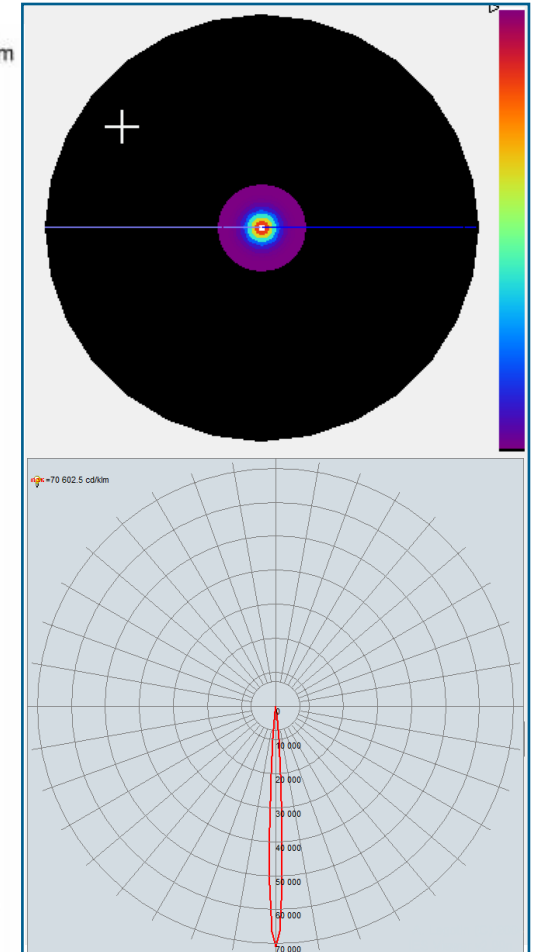
Compatibility matrix

	OSRAM	LUMILEDS	CREE	NICHIA
LLC59U	OSLON COMPACT CL LUW CEUP	LUXEON Z ES	XHP35.2 HI	NV4WB35AM
FWHM (°)	3,7	4,4	7,3	7,6
FWTM (°)	6,3	8,2	13,1	14,0
Efficacy (cd/lm)	181,6	112,2	43,7	37,1



Dialux simulation

Values in lux, scale 1 : 32
Distance from wall: 0,3 M
100 lumens per LED



Intensity pattern

LED: XHP35.2HI

[Visit the product page](#)

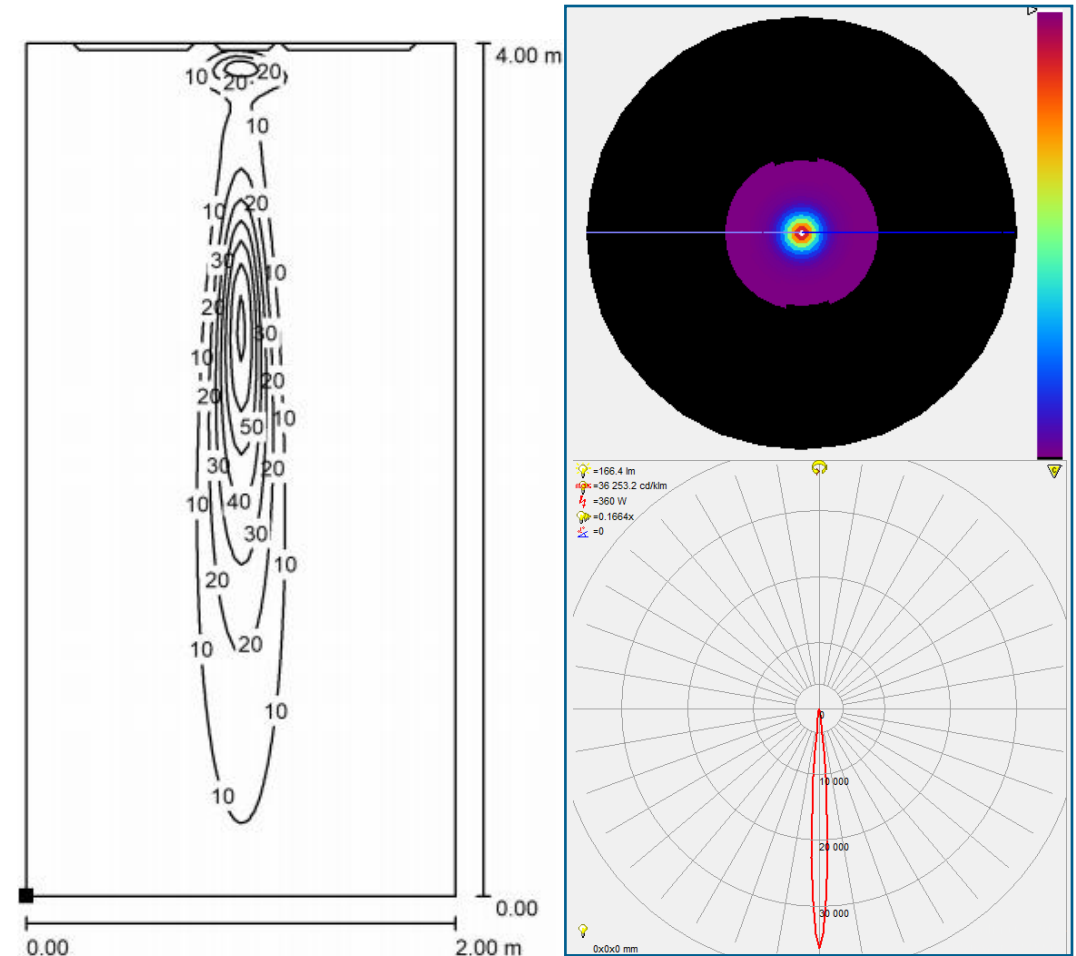
LLC59RF: Narrow beam



Compatibility matrix

LLC59RF

	OSRAM	LUMILEDS	CREE	NICHIA
	OSLON COMPACT CL LUW CEUP	LUXEON Z ES	XHP35.2 HI	NV4WB35AM
FWHM (°)	3,6	4,6	7,3	8,4
FWTM (°)	7,9	9,8	14,2	15,9
Efficacy (cd/lm)	120,1	79,2	35,5	28,1



Dialux simulation

Values in lux, scale 1 : 32
Distance from wall: 0,3 m
100 lumens per LED

Intensity pattern

LED: XHP35.2HI

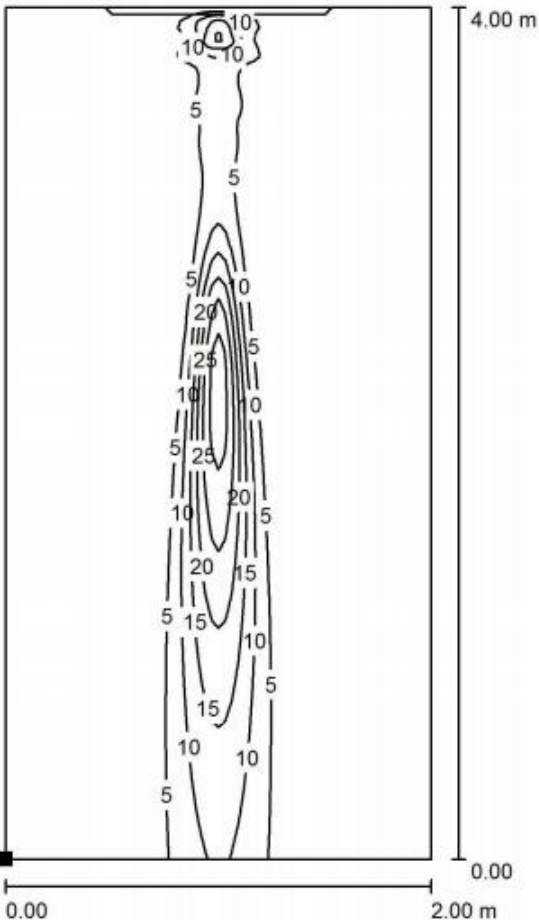
[Visit the product page](#)

LLC59N: Narrow beam



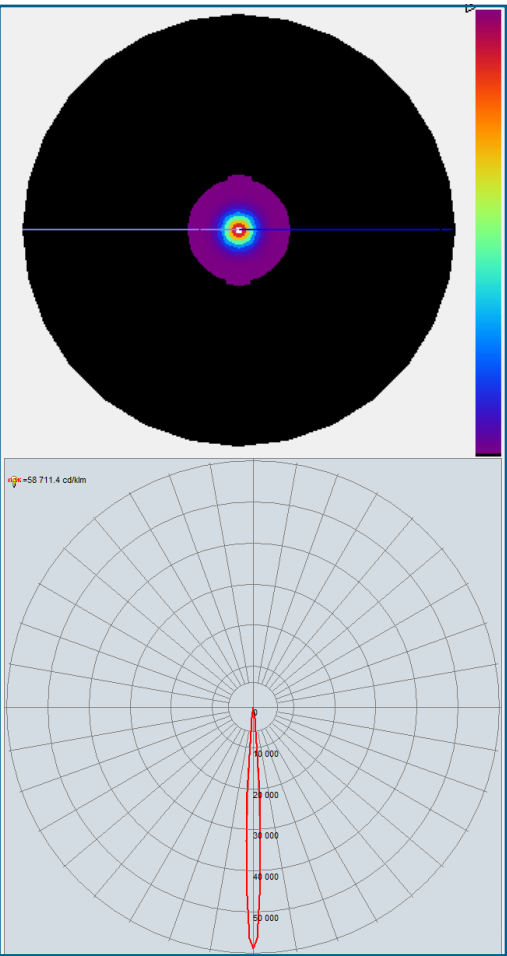
Compatibility matrix

	OSRAM	LUMILEDS	CREE	NICHIA
LLC59N	OSLON COMPACT CL LUW CEUP	LUXEON Z ES	XHP35.2 HI	NV4L144AR
FWHM (°)	4,4	5,4	7,6	7,6
FWTM (°)	8,3	10,1	14,1	15,1
Efficacy (cd/lm)	118,7	77,8	40,2	32,7



Dialux simulation

Values in lux, scale 1 : 32
Distance from wall: 0,3 M
100 lumens per LED



Intensity pattern

LED: XHP35.2HI

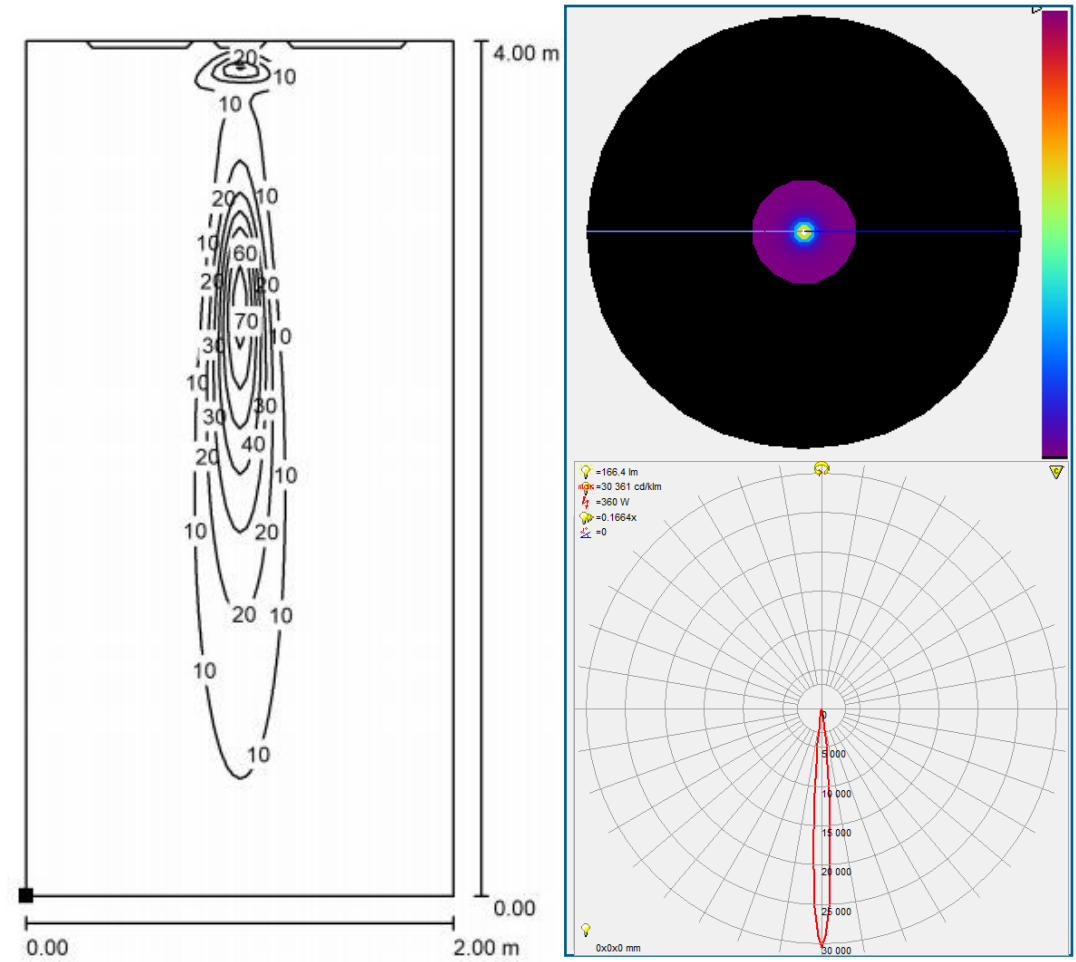
[Visit the product page](#)

LLC59NF: Narrow beam



Compatibility matrix

	OSRAM	LUMILEDS	CREE	NICHIA
LLC59NF	OSLON COMPACT CL LUW CEUP	LUXEON Z ES	XHP35.2 HI	NV4WB35AM
FWHM (°)	5,5	6,1	8,1	9,4
FTM (°)	10,8	12,1	15,7	18,0
Efficacy (cd/lm)	61,7	50,7	29,5	22,3



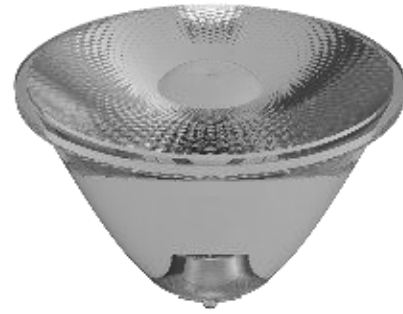
Dialux simulation

Intensity pattern

[Visit the product page](#)

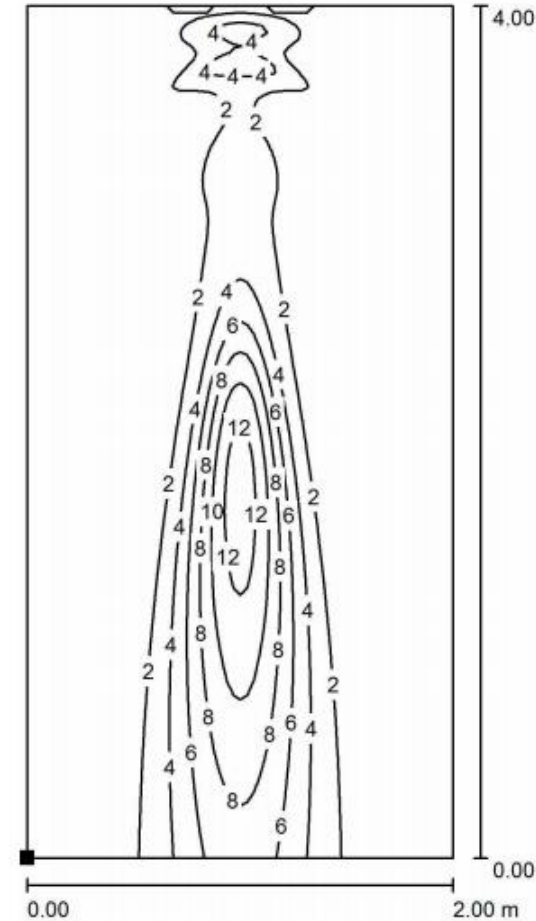
LED: XHP35.2HI

LLC59C: Color beam



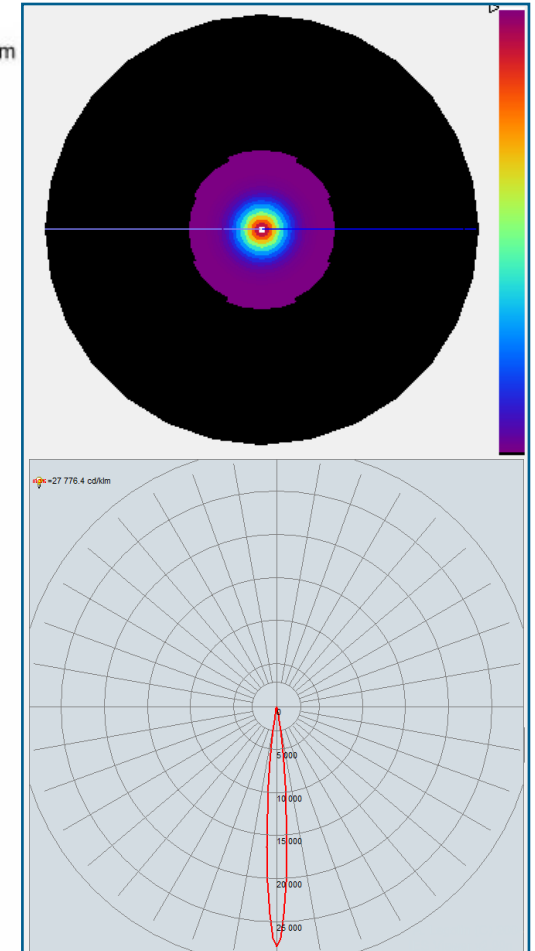
Compatibility matrix

	OSRAM	LUMILEDS	CREE	NICHIA
LLC59C	OSTAR STAGE LE RTDUW S2WN	LUXEON Z ES	XHP35.2 HI	NV4WB35AM
FWHM (°)	9,4	9,2	10,3	10,9
FWTM (°)	18,2	18,1	19,9	21,1
Efficacy (cd/lm)	27,0	25,6	21,1	17,0



Dialux simulation

Values in lux, scale 1 : 32
Distance from wall: 0,3 m
100 lumens per LED



Intensity pattern

LED: LERTDUW_S2WN

[Visit the product page](#)

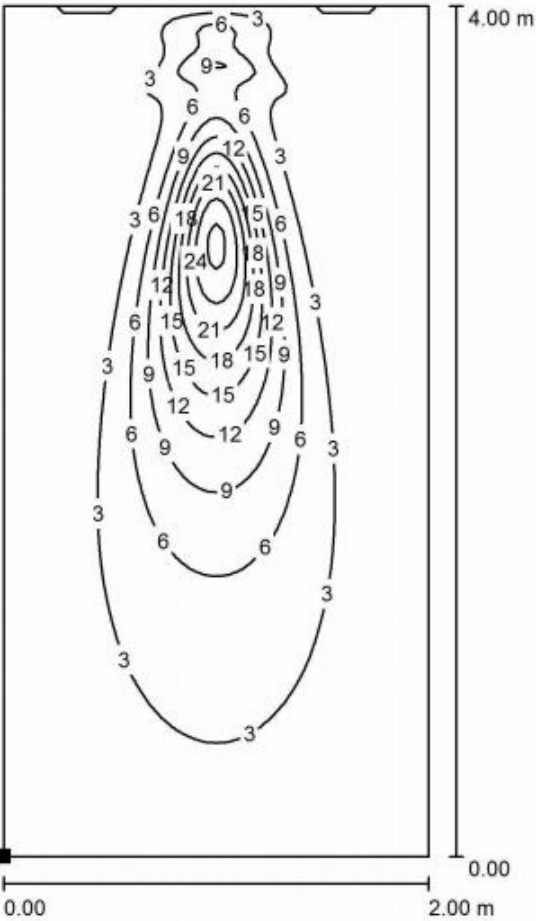
LLC59M: Medium beam



Compatibility matrix

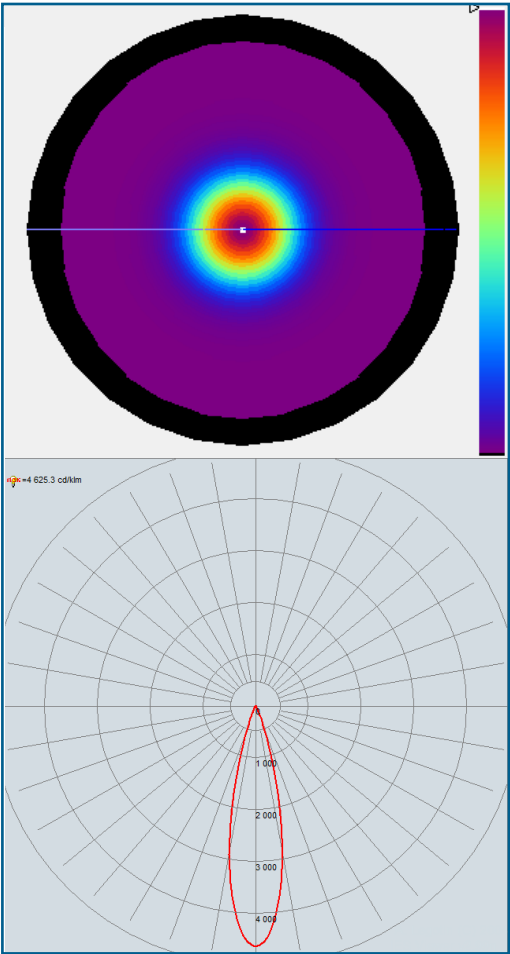
LLC59M

	OSRAM	LUMILEDS	CREE	NICHIA
	OSTAR STAGE LE RTDUW S2WN	LUXEON M	XHP35.2 HI	NF2W757G MT
FWHM (°)	24,0	24,2	25,2	23,8
FWTM (°)	40,2	44,1	42,7	40,8
Efficacy (cd/lm)	4,7	3,9	4,1	4,6



Dialux simulation

Values in lux, scale 1 : 32
Distance from wall: 0,3 m
100 lumens per LED



Intensity pattern

LED: LERTDUW_S2WN

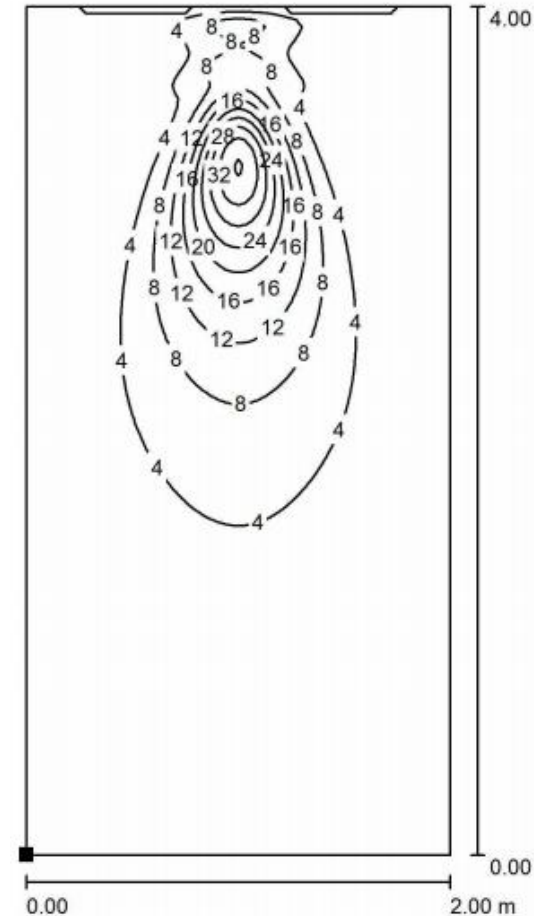
[Visit the product page](#)

LLC59W: Wide beam



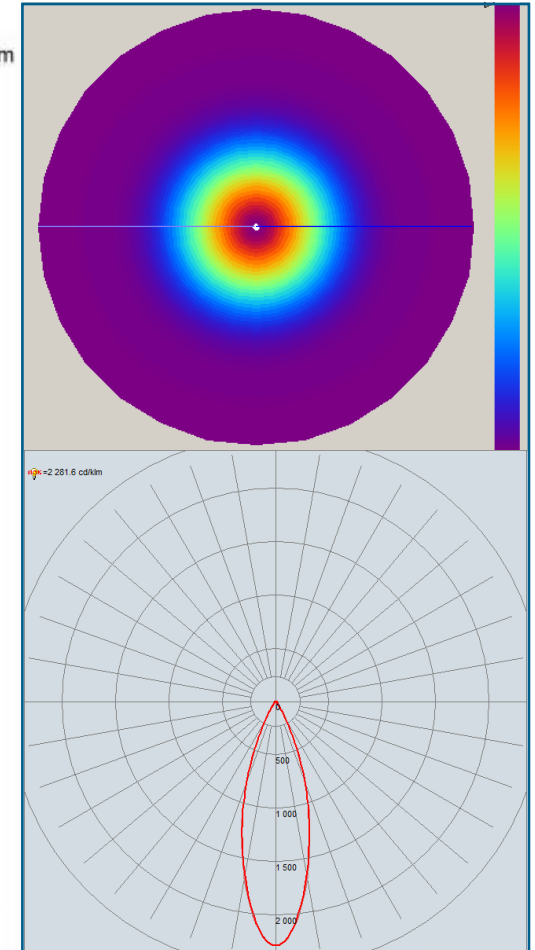
Compatibility matrix

	OSRAM	LUMILEDS	CREE	NICHIA
LLC59W	OSTAR STAGE LE RTDUW S2WN	LUXEON M	XHP35.2HI	NV4WB35AM
FWHM (°)	31,8	32,1	33,0	32,2
FWTM (°)	57,7	59,9	60,1	58,4
Efficacy (cd/lm)	2,3	2,0	2,1	2,2



Dialux simulation

Values in lux, scale 1 : 32
Distance from wall: 0,3 m
100 lumens per LED



Intensity pattern

LED: LERTDUW_S2WN

[Visit the product page](#)

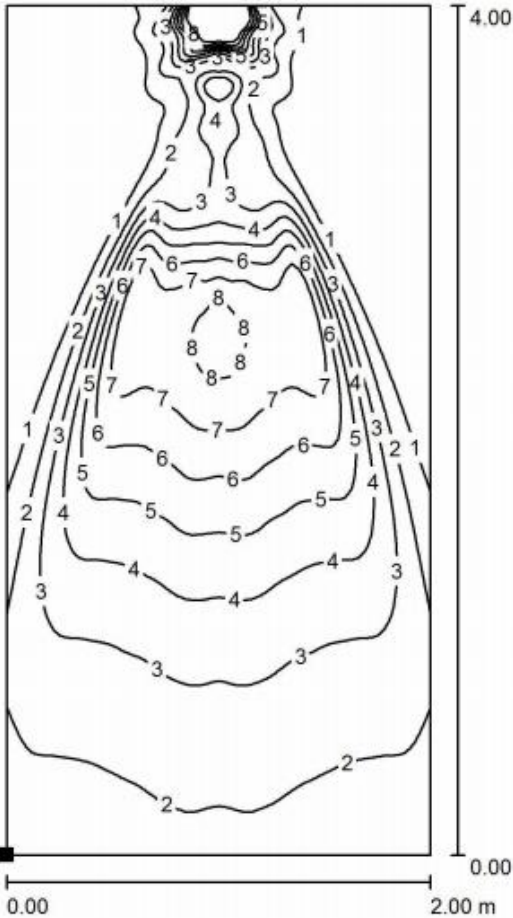
LLC59E: Elliptical beam



Compatibility matrix

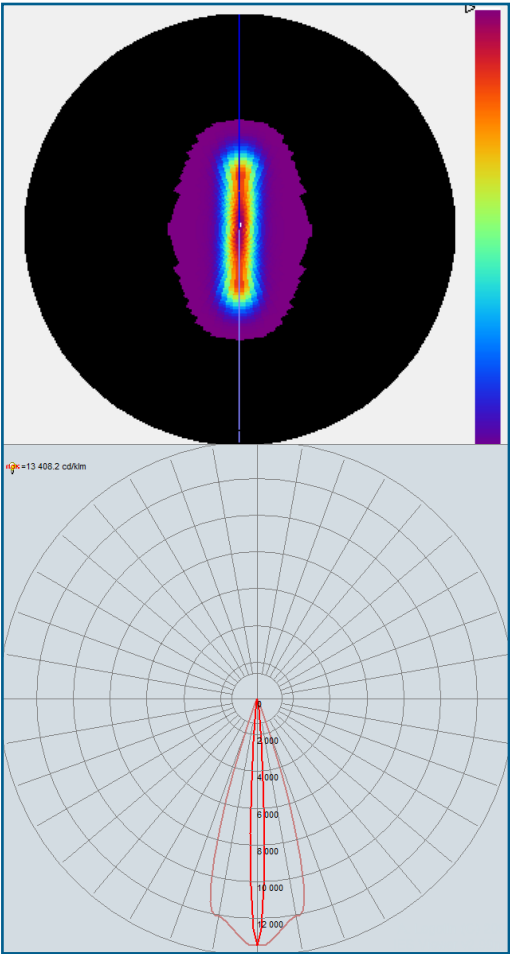
	OSRAM	LUMILEDS	CREE	NICHIA
LLC59E	OSTAR STAGE LE RTDUW S2WN	LUXEON Z ES	XHP35.2HI	NV4WB35AM
FWHM (°)	6,4 – 32,8	5,9 – 32,0	7,6 – 33,4	8,2 - 31,5
FWTM (°)	11,7 – 41,3	11,5 – 39,9	41 - 43,9	15,3 – 43,1
Efficacy (cd/lm)	13,4	13,2	10,6	9,1

This collimator still has a sprue.



Dialux simulation

Values in lux, scale 1 : 32
Distance from wall: 0,3 m
100 lumens per LED



Intensity pattern

LED: LERTDUW_S2WN

[Visit the product page](#)

LLC59: compatible holders

LLH59SPB0x



Clear holder



Black holder

Without adhesive: LLH59SPB00

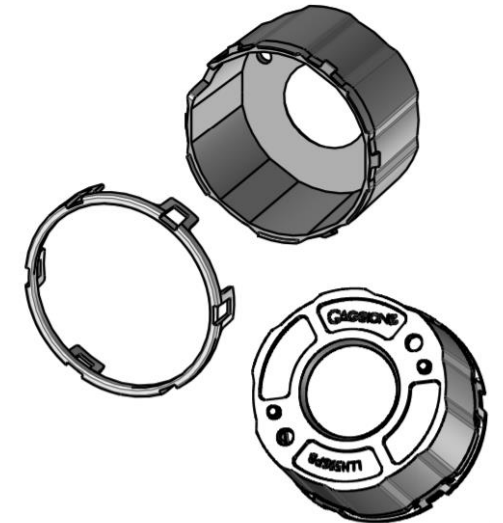
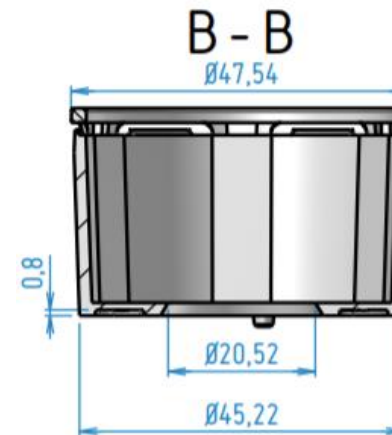
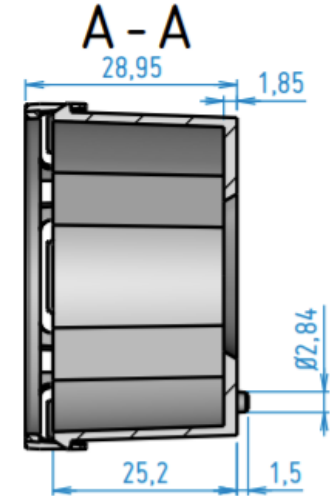
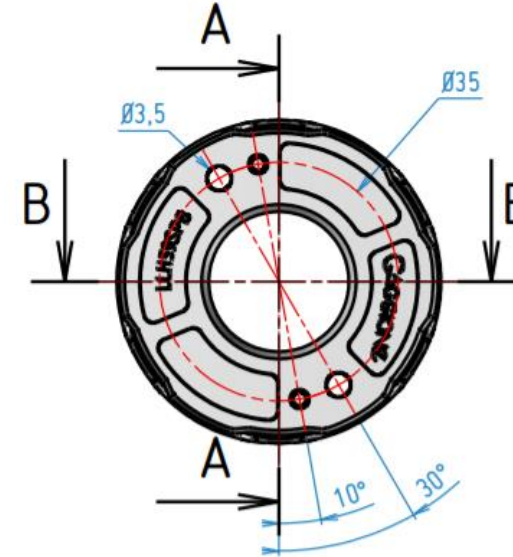
LLH59SPB02

With adhesive: LLH59SPB001

LLH59SPB021

Holder reference	Diameter (mm)	Nominal distance from PCB (mm)	Height (H)	Note
LLH59SPB0**	47,54	0,5	28,95	With pins
Adhesive : 1 (Yes), Nothing (No)				
Colors : 0 (clear), 2 (black)				

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



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.

LLC59: Assembled set

LLH59SPB* + LLC59x

Type of Led	Color	Adhesive	LLC59R	LLC59U	LLC59RF	LLC59N	LLC59NF
LLH59SPB001	Clear	✓	LLS59R59SPB001	LLS59U59SPB001	LLS59RF59SPB001	LLS59N59SPB001	LLS59NF59SPB001
LLH59SPB021	Black	✓	LLS59R59SPB021	LLS59U59SPB021	LLS59RF59SPB021	LLS59N59SPB021	LLS59NF59SPB021

Type of Led	Color	Adhesive	LLC59C	LLC59M	LLC59W	LLC59E
LLH59SPB001	Clear	✓	LLS59C59SPB001	LLS59M59SPB001	LLS59W59SPB001	LLS59E59SPB001
LLH59SPB021	Black	✓	LLS59C59SPB021	LLS59M59SPB021	LLS59W59SPB021	LLS59E59SPB021

LLC59: 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.

Holder reference	Diameter (mm)	Nominal distance from PCB (mm)	Height (H)	Note
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LLH59SPB0**

47,54

0,5

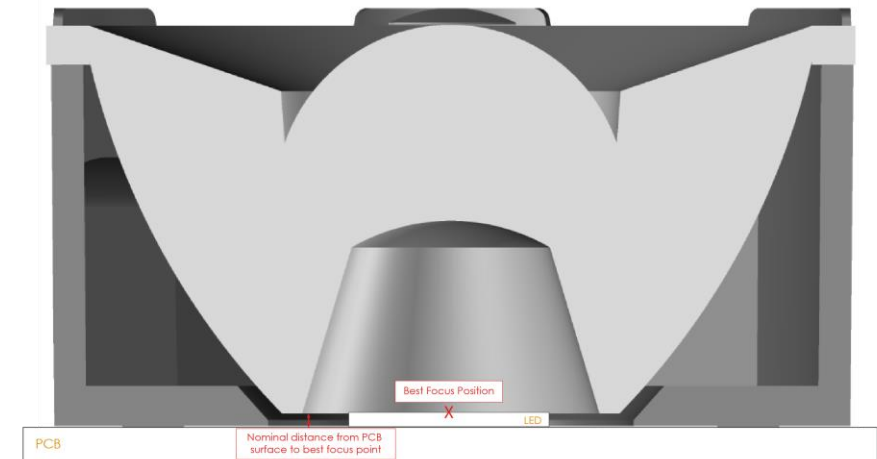
28,95

With pins

→ Adhesive : 1 (Yes), Nothing (No)

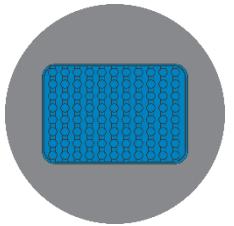
→ Colors : 0 (clear), 1 (white), 2 (black)

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



LLC59: Pac kaging

LLC59x

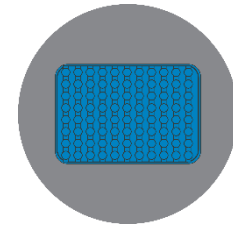


5 thermoformed trays
with 30 parts each



150 parts
Box: A13 - 387x283x170 mm
Weight: 4,36 kg

LLS59x



5 thermoformed trays
with 30 parts each



150 parts
Box: A13 - 387x283x170 mm
Weight: 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

Contact us

GAGGIONE SAS Headquarter

3, Rue de la Rolland
01460 Montréal la Cluse
France
+33 4 74 76 12 66

✉ contact@gaggione.com
☎ www.optic-gaggione.com

Sales Team in GAGGIONE

Sandrine Mancuso
France, UK, Italy, Spain

✉ s.mancuso@gaggione.com
☎ +33 787 87 84 72

Antoine Le Cordier
France, Scandinavia,
Eastern and Northern Europe

✉ a.lecordier@gaggione.com
☎ +33 607 37 20 28

Laurent Barel
Sales & Marketing Director

✉ l.barel@gaggione.com
☎ +33 612 04 41 30

International Sales Offices

GAGGIONE Americas
Michael Pietro
12833 Surrey Ct.
Palos Park, IL
60464

✉ m.pietro@gaggione.com
☎ +1 224 392 0087

GAGGIONE Asia
Zhen Xu
Unit 1808, No. 8, Kuaiji Road,
Jintiandi International building,
Huangpu District,
Shanghai, 200021, China

✉ z.xu@gaggione.com
☎ +86 136 5189 6981

GAGGIONE Canada
Stephane Saindon
744 36th Avenue
Montreal, Quebec
H8T3L2

✉ s.saindon@gaggione.com
☎ +1 514 928 2179

GAGGIONE DACH
Angelika Aigner
Kreuzstrasse 7
83355 Grabenstätt
Germany

✉ a.aigner@gaggione.com
☎ +49 8661 983 44 77