

GAGGIONE



# STANDARD RANGE

32 mm PMMA collimator – LLC25

June, 2021

GAGGIONE is launching a new 32 mm color mixing collimators.

In order to improve the mechanical integration of this range, we developed a **new version without sprue**, except for the **LLC25E which has a Poka Yoke system**.

# LLC25: presentation

7 references



LLC25N

Narrow version



LLC25C

Color version



LLC25G

Wall grazing version



LLC25M

Medium version



LLC25W

Wide version



LLC25V

Very large version



LLC25E

Elliptical version

Visit our [website](#)

This range is in PMMA. PC versions are also available, feel free to contact [our sales team](#) for more information.

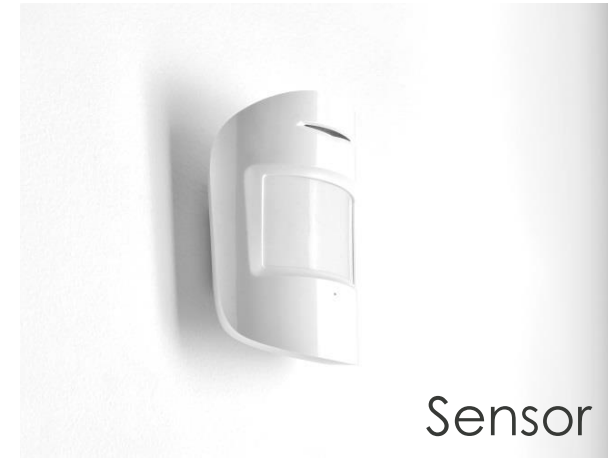
# LLC25: LED specifications

**LES size:** high power: max 16mm<sup>2</sup> - COB: Ø 6mm max

**Type of LED:** high power, mid power, chip scale package, COB, CSP Cluster and high power cluster

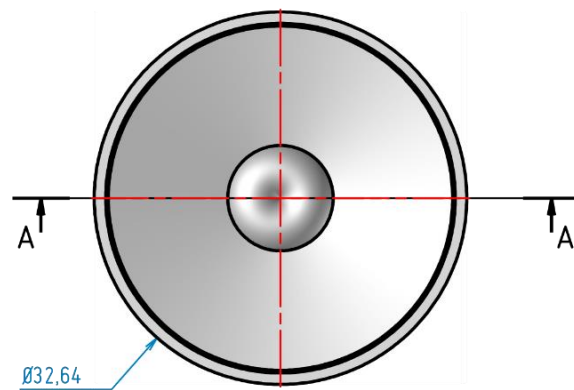
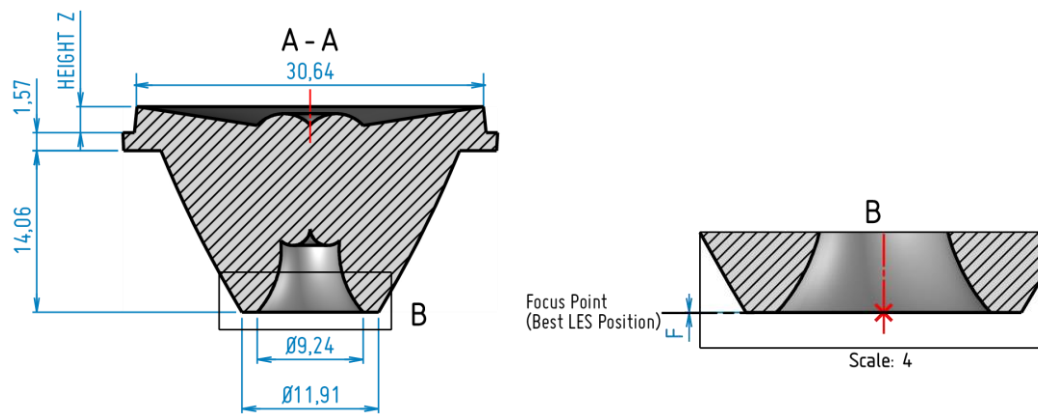
Type of Led	LLC25N	LLC25C	LLC25G	LLC25M	LLC25W	LLC25V	LLC25E
RGBW	✓	✓	✓	✓	✓	✓	✓
Tunable White	✓	✓	✓	✓	✓	✓	✓
Single chip	✓	✓	✓	✓	✓	✓	✓
Multi chip	✓	✓	✓	✓	✓	✓	✓
COB	✓	✓	✓	✓	✓	✓	✓

# LLC25: applications

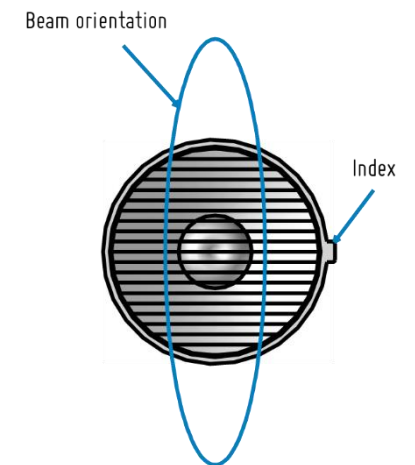
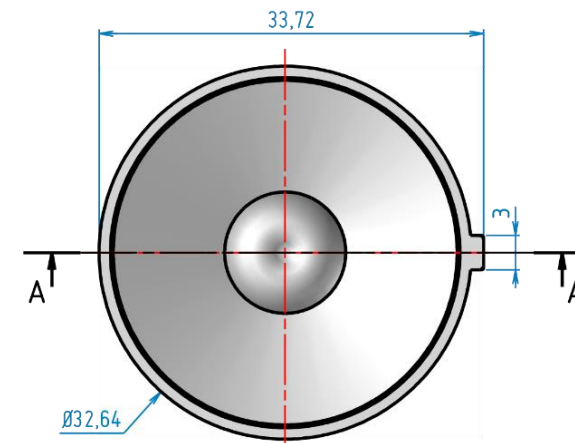
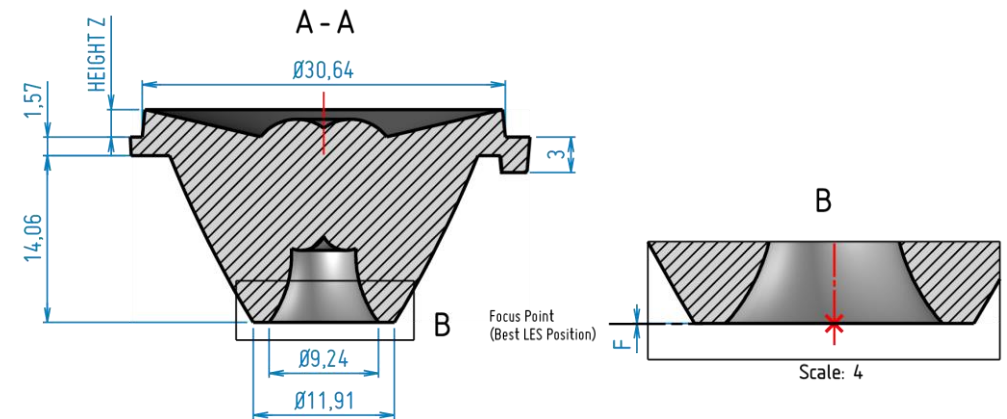


# LLC25: 2D drawing

## LLC25x



## LLC25E



Without holder, all dimensions are in millimeters.

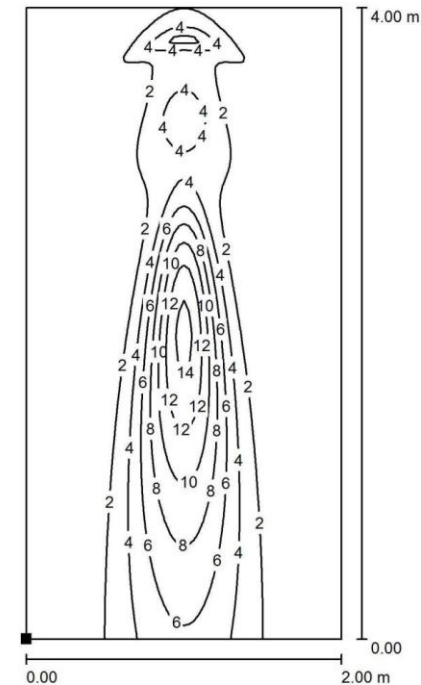
General tolerance +/- 0.1mm (standard NFT 58-000 cat. 4, reduced class).

# LLC25N: Narrow beam



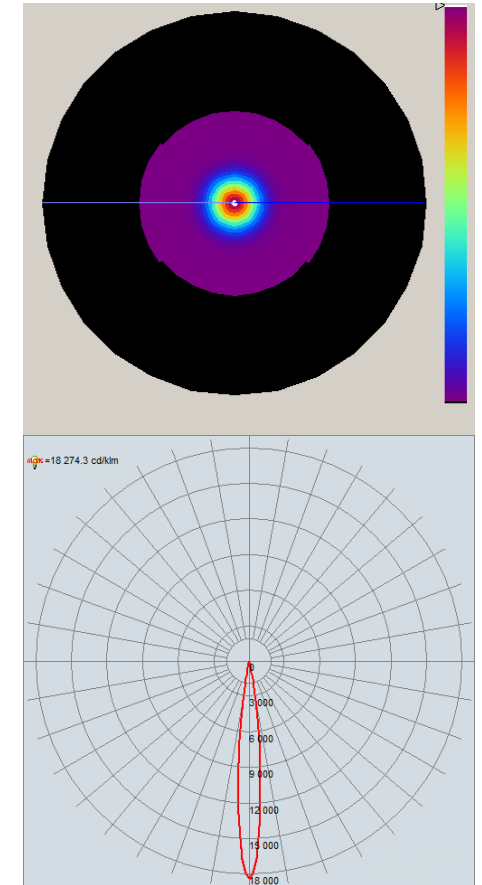
## Compatibility matrix

LLC25N	OSRAM	LUMILEDS	NICHIA	CREE
	Ostar Stage RGBW	Luxeon Z RGBW	NCSWE17AT	XHP35.2 HI
FWHM (°)	11.5	12.9	7.9	11.3
FWTM (°)	20.8	22.7	15.9	22.3
Efficacy (cd/lm)	18.3	15.5	33.6	16.5
CCI*	6.0	16.5	-	-
	CITIZEN	LUMINUS	BRIDGELUX	
	CLU7B2	CXM_4	VESTA 6 TW	
FWHM (°)	12.3	14.5	17.8	
FWTM (°)	24.7	29.0	37.0	
Efficacy (cd/lm)	13.8	9.6	5.7	



Dialux simulation

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



Intensity pattern

LED: OSTAR\_STAGE\_LE\_RTDUW\_S2WN

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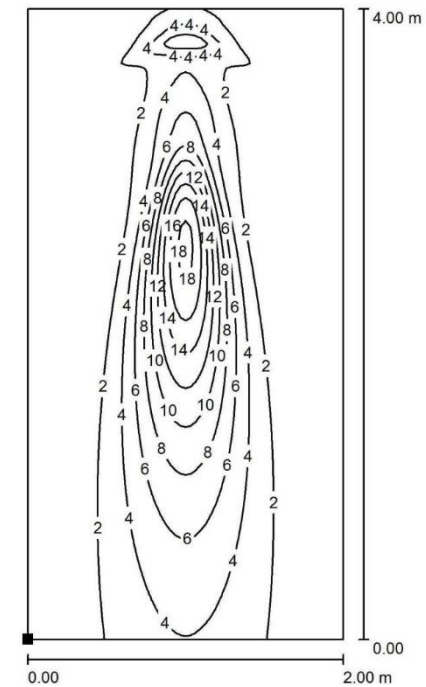
\*CCI: Color Consistency Index, [more information](#)

# LLC25C: Color beam



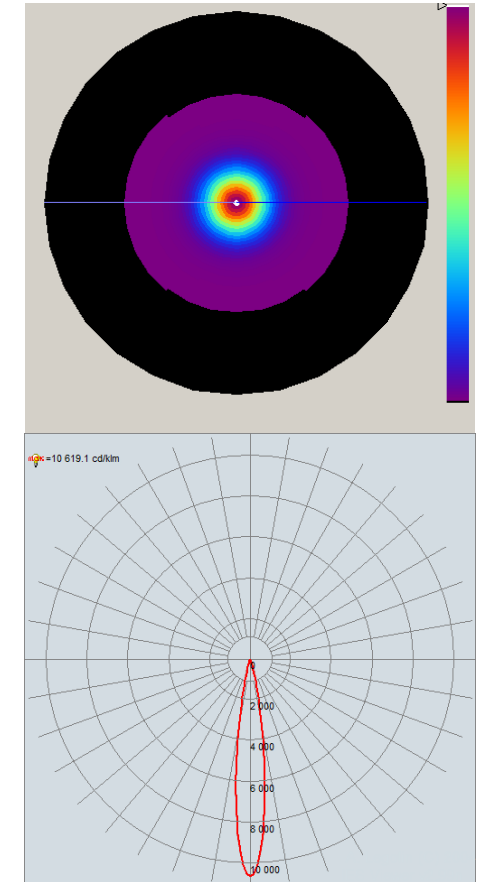
## Compatibility matrix

LLC25C	OSRAM	LUMILEDS	NICHIA	CREE
	Ostar Stage RGBW	Luxeon Z RGBW	NCSWE17AT	XHP35.2 HI
FWHM (°)	14.9	16.8	11.3	15.1
FWTM (°)	27.9	31.4	23.1	29.6
Efficacy (cd/lm)	10.6	8.1	16.6	9.1
CCI*	4.0	10.7	-	-
	CITIZEN	LUMINUS	BRIDGELUX	
	CLU7B2	CXM_4	VESTA 6 TW	
FWHM (°)	15.7	17.5	20.7	
FWTM (°)	30.8	34.4	41.4	
Efficacy (cd/lm)	8.7	6.8	4.8	



Dialux simulation

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



Intensity pattern

LED: OSTAR\_STAGE\_LE\_RTDUW\_S2WN

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

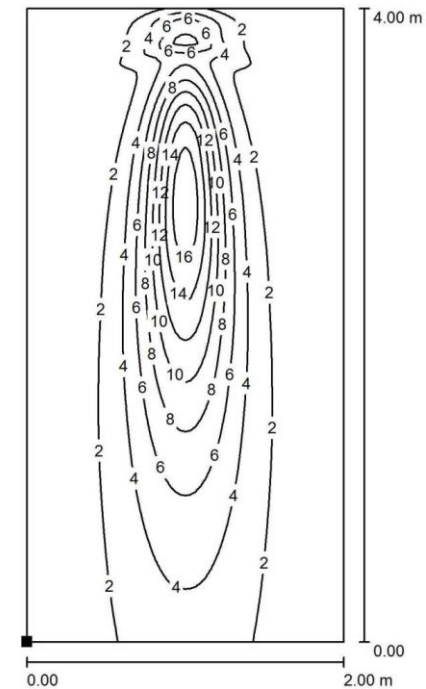
\*CCI: Color Consistency Index, [more information](#)

# LLC25G: Wall grazing beam



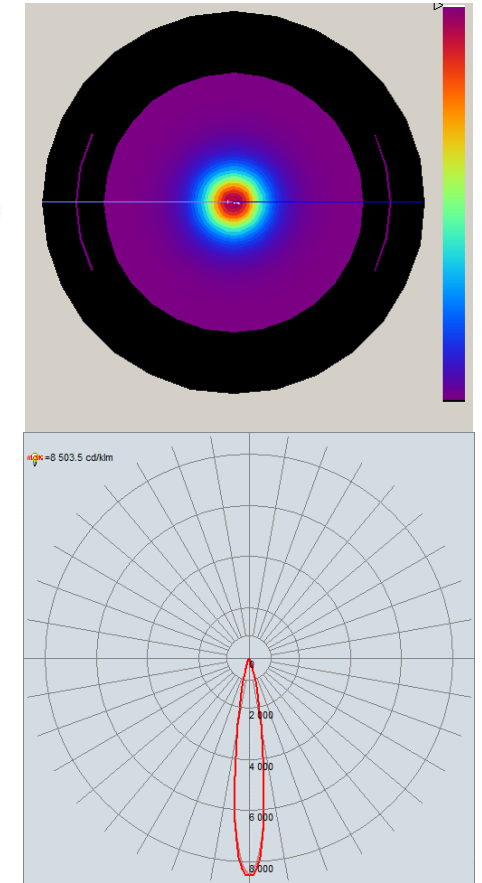
## Compatibility matrix

	OSRAM	LUMILEDS	NICHIA	CREE
LLC25G	Ostar Stage RGBW	Luxeon Z RGBW	NCSWE17AT	XHP35.2 HI
FWHM (°)	15.0	16.3	12.4	15.6
FWTM (°)	30.6	32.7	28.4	32.9
Efficacy (cd/lm)	8.5	7.1	10.4	7.3
CCI*	3.4	3.9	-	-
		CITIZEN	LUMINUS	BRIDGELUX
		CLU7B2	CXM_4	VESTA 6 TW
FWHM (°)		16.7	18.8	23.6
FWTM (°)		34.4	37.7	45.9
Efficacy (cd/lm)		6.7	5.4	3.7



Dialux simulation

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



Intensity pattern

LED: OSTAR\_STAGE\_LE\_RTDUW\_S2WN

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

\*CCI: Color Consistency Index, [more information](#)

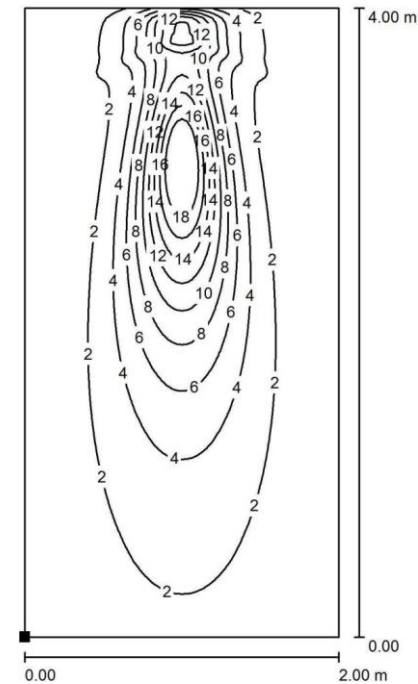


# LLC25M: Medium beam



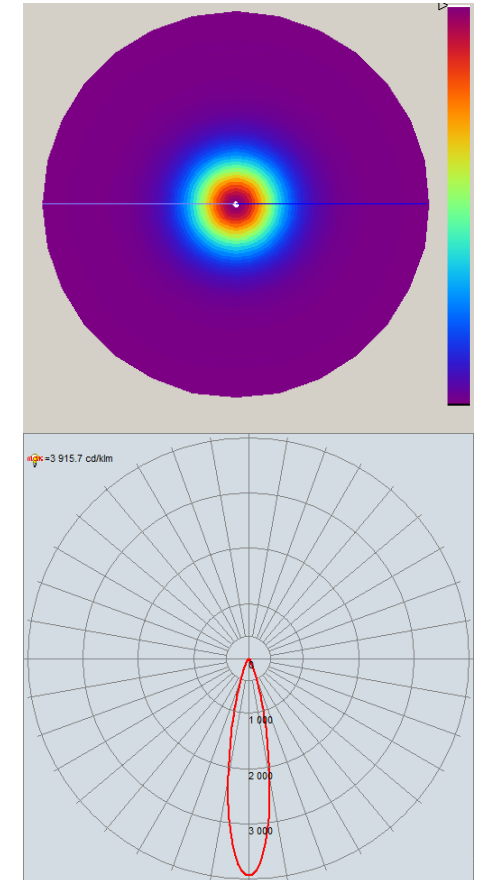
## Compatibility matrix

LLC25M	OSRAM	LUMILEDS	NICHIA	CREE
	Ostar Stage RGBW	Luxeon Z RGBW	NCSWE17AT	XHP35.2 HI
FWHM (°)	21.5	20.8	19.7	21.2
FWTM (°)	42.1	41.6	38.5	42.2
Efficacy (cd/lm)	3.9	4.0	4.8	4.0
CCI*	2.9	6.3	-	-
	CITIZEN	LUMINUS	BRIDGELUX	
	CLU7B2	CXM_4	VESTA 6 TW	
FWHM (°)	21.0	22.2	25.9	
FWTM (°)	42.2	44.4	52.5	
Efficacy (cd/lm)	3.9	3.4	2.6	



Dialux simulation

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



Intensity pattern

LED: OSTAR\_STAGE\_LE\_RTDUW\_S2WN

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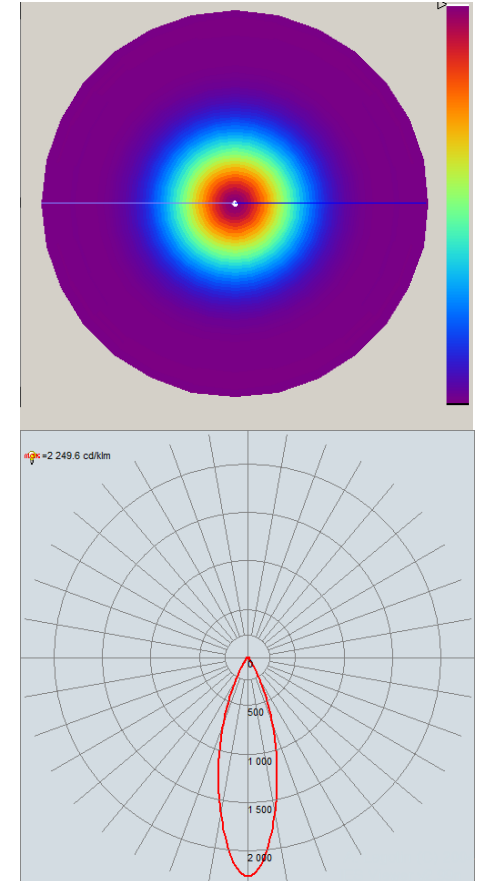
\*CCI: Color Consistency Index, [more information](#)

# LLC25W: Wide beam



## Compatibility matrix

LLC25W	OSRAM	LUMILEDS	NICHIA	CREE
	Ostar Stage RGBW	Luxeon Z RGBW	NCSWE17AT	XHP35.2 HI
FWHM (°)	30.7	32.3	31.5	31.6
FWTM (°)	58.5	60.3	57.9	60.0
Efficacy (cd/lm)	2.2	1.8	2.3	2.1
CCI*	3.2	6.3	-	-
	CITIZEN	LUMINUS	BRIDGELUX	
	CLU7B2	CXM_4	VESTA 6 TW	
FWHM (°)		33.6	32.2	33.4
FWTM (°)		62.1	61.1	67.5
Efficacy (cd/lm)		1.9	1.9	1.7



Intensity pattern

LED: OSTAR\_STAGE\_LE\_RTDUW\_S2WN

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

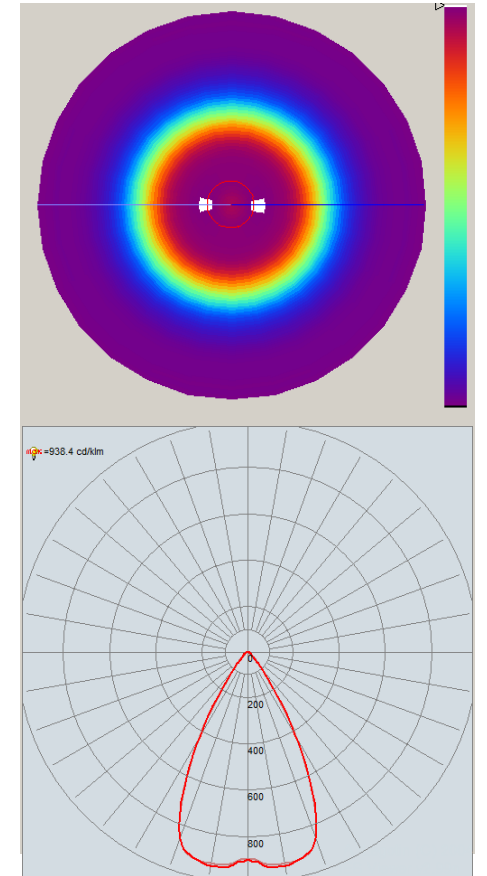
\*CCI: Color Consistency Index, [more information](#)

# LLC25V: Very large beam



## Compatibility matrix

LLC25V	OSRAM	LUMILEDS	NICHIA	CREE
	Ostar Stage RGBW	Luxeon Z RGBW	NCSWE17AT	XHP35.2 HI
FWHM (°)	57.5	55.0	55.2	56.9
FWTM (°)	79.6	78.0	78.0	81.7
Efficacy (cd/lm)	0.9	1.0	1.0	1.0
CCI*	6.8	7.0	-	-
	CITIZEN	LUMINUS	BRIDGELUX	
	CLU7B2	CXM_4	VESTA 6 TW	
FWHM (°)		52.8	52.5	53.3
FWTM (°)		76.2	76.8	82.3
Efficacy (cd/lm)		1.1	1.0	1.0



Intensity pattern

LED: OSTAR\_STAGE\_LE\_RTDUW\_S2WN

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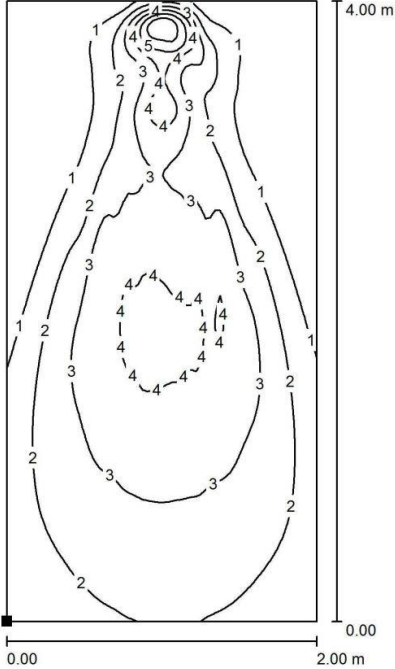
\*CCI: Color Consistency Index, [more information](#)

# LLC25E: Elliptical beam



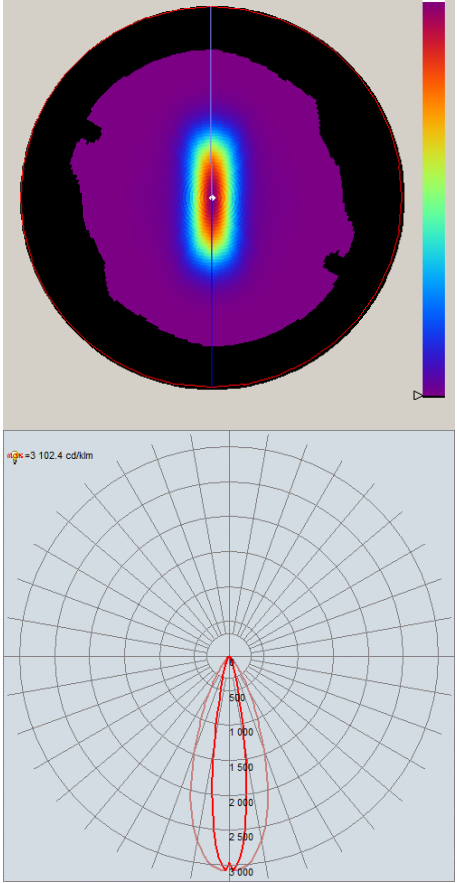
## Compatibility matrix

LLC25E	OSRAM	LUMILEDS	NICHIA	CREE
	Ostar Stage RGBW	Luxeon Z RGBW	NCSWE17AT	XHP35.2 HI
FWHM (°)	11.1 – 33.9	12.9 – 33.2	8.5 – 34.4	12.8 – 33.9
FWTM (°)	20.0 – 51.2	22.5 – 53.2	15.9 – 48.4	23.5 – 52.8
Efficacy (cd/lm)	6.6	5.5	8.4	5.6
CCI*	4.4	9.3	-	-
	CITIZEN	LUMINUS	BRIDGELUX	
	CLU7B2	CXM_4	VESTA 6 TW	
FWHM (°)	12.5 – 33.9	15.3 – 32.0	19.3 – 32.9	
FWTM (°)	23.9 – 54.0	29.6 – 54.5	32.9 – 60.1	
Efficacy (cd/lm)	5.4	4.4	3.1	



Dialux simulation

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



Intensity pattern

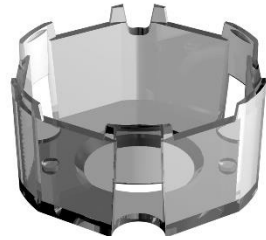
LED: OSTAR\_STAGE\_LE\_RTDUW\_S2WN

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

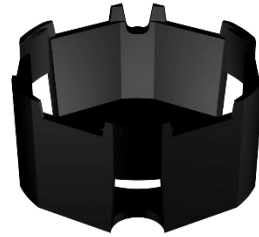
\*CCI: Color Consistency Index, [more information](#)

# LLC25: compatible holders

## LLH02XALO\*



Clear holder



Black holder

Without adhesive: LLH02XAL00

LLH02XAL02

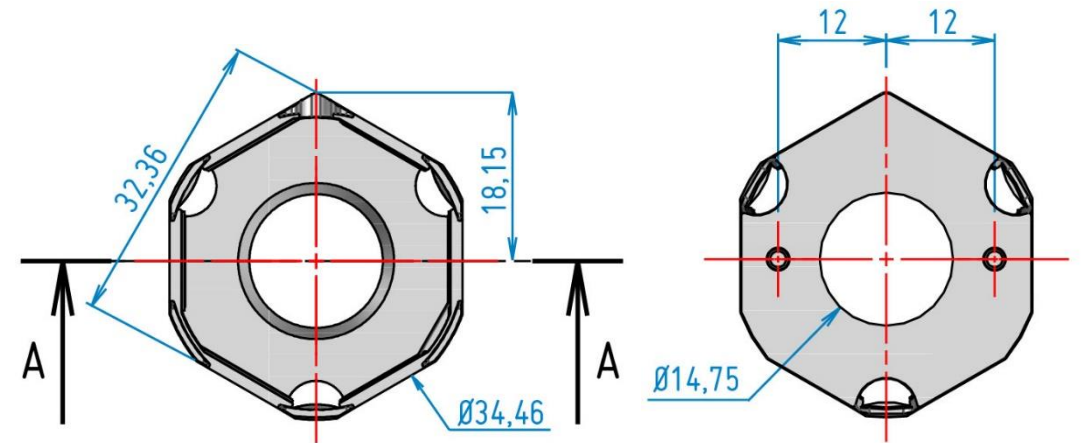
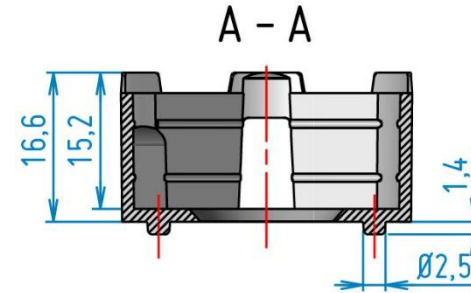
With adhesive: LLH02XAL001

LLH02XAL021

Reference	Diameter (mm)	Nominal distance from PCB (mm)	Note
LLH02XALO*	32	0.25	With pins

\* : 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.

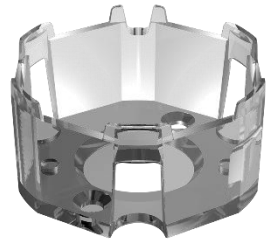
# LLC25: Assembled set

LLH02XALO\* + LLC25x

Holder	Color	Adhesive	Narrow LLC25N	Color LLC25C	Wall grazing LLC25G	Medium LLC25M	Wide LLC25W	Very large LLC25V	Elliptical LLC25E
LLH02XAL00	Clear	✗	LLS25N02XAL00	LLS25C02XAL00	LLS25G02XAL00	LLS25M02XAL00	LLS25W02XAL00	LLS25V02XAL00	LLS25E02XAL00
LLH02XAL001		✓	LLS25N02XAL001	LLS25C02XAL001	LLS25G02XAL001	LLS25M02XAL001	LLS25W02XAL001	LLS25V02XAL001	LLS25E02XAL001
LLH02XAL02	Black	✗	LLS25N02XAL02	LLS25C02XAL02	LLS25G02XAL02	LLS25M02XAL02	LLS25W02XAL02	LLS25V02XAL02	LLS25E02XAL02
LLH02XAL021		✓	LLS25N02XAL021	LLS25C02XAL021	LLS25G02XAL021	LLS25M02XAL021	LLS25W02XAL021	LLS25V02XAL021	LLS25E02XAL021

# LLC25: compatible holders

## LLH02HELO\*



Clear holder



Black holder

Without adhesive: LLH02HELO0

LLH02HELO2

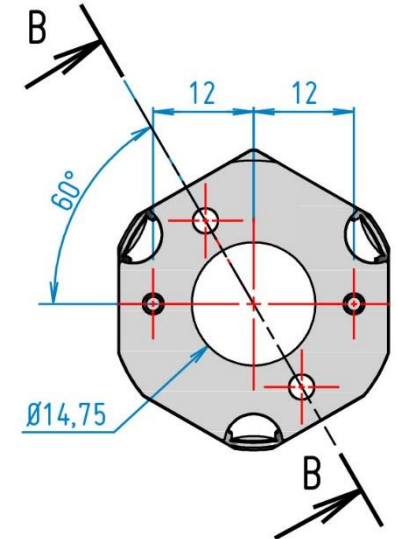
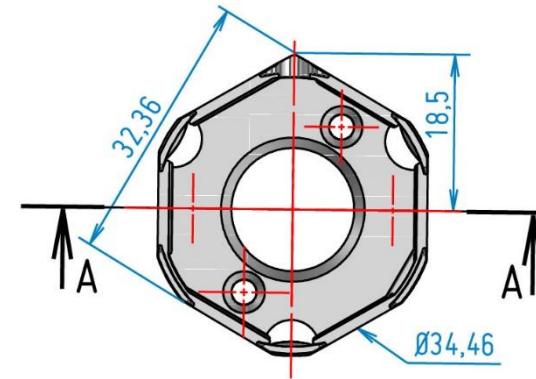
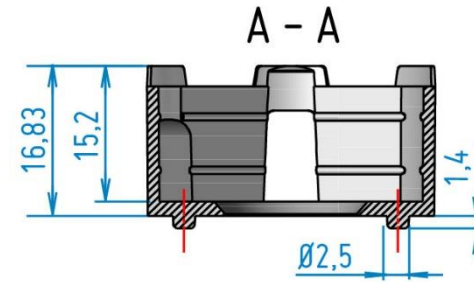
With adhesive: LLH02HELO01

LLH02HELO21

Reference	Diameter (mm)	Nominal distance from PCB (mm)	Note
LLH02HELO*	32	0.5	With pins, screws inside

\* : 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.

# LLC25: Assembled set

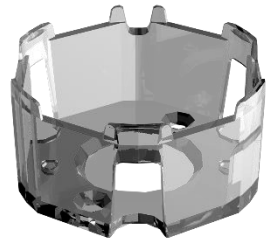
LLH02HELO\* + LLC25x

Holder	Color	Adhesive	Narrow LLC25N	Color LLC25C	Wall grazing LLC25G	Medium LLC25M	Wide LLC25W	Very large LLC25V	Elliptical LLC25E
LLH02HELO0	Clear	✗	LLS25N02HELO0	LLS25C02HELO0	LLS25G02HELO0	LLS25M02HELO0	LLS25W02HELO0	LLS25V02HELO0	LLS25E02HELO0
LLH02HELO01		✓	LLS25N02HELO01	LLS25C02HELO01	LLS25G02HELO01	LLS25M02HELO01	LLS25W02HELO01	LLS25V02HELO01	LLS25E02HELO01
LLH02HELO2	Black	✗	LLS25N02HELO2	LLS25C02HELO2	LLS25G02HELO2	LLS25M02HELO2	LLS25W02HELO2	LLS25V02HELO2	LLS25E02HELO2
LLH02HELO21		✓	LLS25N02HELO21	LLS25C02HELO21	LLS25G02HELO21	LLS25M02HELO21	LLS25W02HELO21	LLS25V02HELO21	LLS25E02HELO21



# LLC25: compatible holders

## LLH02RD10\*



Clear holder



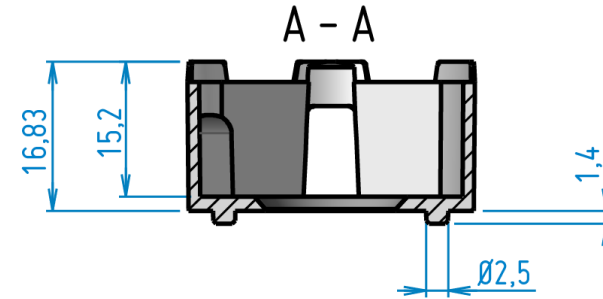
Black holder

Without adhesive: LLH02RD100

LLH02RD102

With adhesive: LLH02RD1001

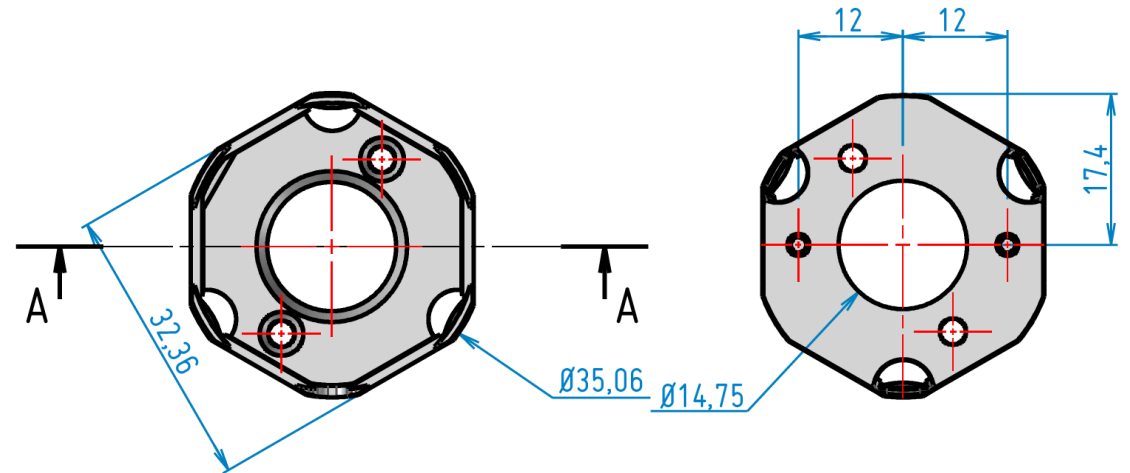
LLH02RD1021



Reference	Diameter (mm)	Nominal distance from PCB (mm)	Note
LLH02RD10*	32	0.5	With pins, screws inside, rounded

\* : 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.

# LLC25: Assembled set

LLH02RD10\* + LLC25x

Holder	Color	Adhesive	Narrow LLC25N	Color LLC25C	Wall grazing LLC25G	Medium LLC25M	Wide LLC25W	Very large LLC25V	Elliptical LLC25E
LLH02RD100	Clear	✗	LLS25N02RD100	LLS25C02RD100	LLS25G02RD100	LLS25M02RD100	LLS25W02RD100	LLS25V02RD100	LLS25E02RD100
LLH02RD1001		✓	LLS25N02RD1001	LLS25C02RD1001	LLS25G02RD1001	LLS25M02RD1001	LLS25W02RD1001	LLS25V02RD1001	LLS25E02RD1001
LLH02RD102	Black	✗	LLS25N02RD102	LLS25C02RD102	LLS25G02RD102	LLS25M02RD102	LLS25W02RD102	LLS25V02RD102	LLS25E02RD102
LLH02RD1021		✓	LLS25N02RD1021	LLS25C02RD1021	LLS25G02RD1021	LLS25M02RD1021	LLS25W02RD1021	LLS25V02RD1021	LLS25E02RD1021

# LLC25: compatible holders

## LLH02MTB0\*



Clear holder



Black holder

Without adhesive: LLH02MTB00

LLH02MTB02

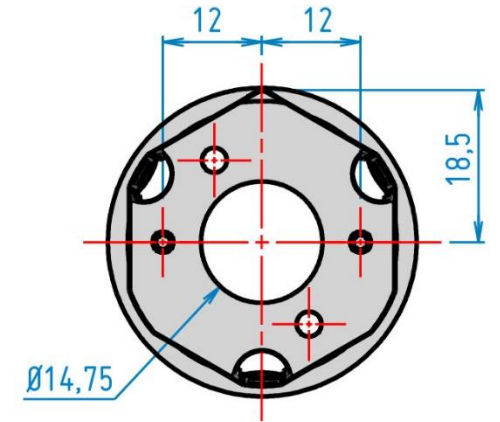
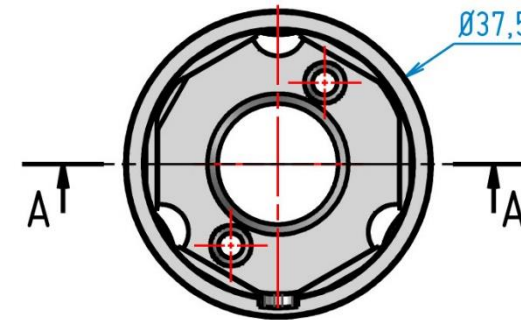
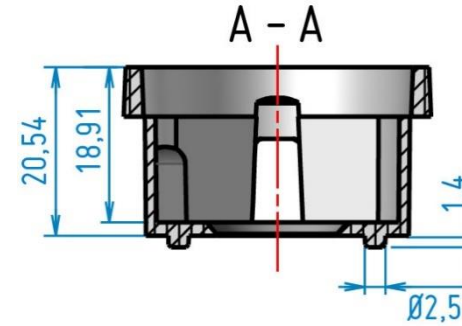
With adhesive: LLH02MTB001

LLH02MTB021

Reference	Diameter (mm)	Nominal distance from PCB (mm)	Note
LLH02MTB0*	32	0.5	With pins, screws inside, rounded snoot

\* : 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.

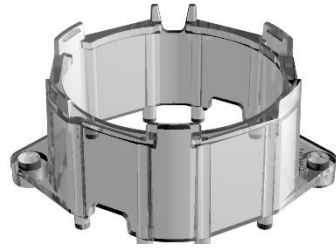
# LLC25: Assembled set

LLH02MTB0\* + LLC25x

Holder	Color	Adhesive	Narrow LLC25N	Color LLC25C	Wall grazing LLC25G	Medium LLC25M	Wide LLC25W	Very large LLC25V	Elliptical LLC25E
LLH02MTB00	Clear	✗	LLS25N02MTB00	LLS25C02MTB00	LLS25G02MTB00	LLS25M02MTB00	LLS25W02MTB00	LLS25V02MTB00	LLS25E02MTB00
LLH02MTB001		✓	LLS25N02MTB001	LLS25C02MTB001	LLS25G02MTB001	LLS25M02MTB001	LLS25W02MTB001	LLS25V02MTB001	LLS25E02MTB001
LLH02MTB02	Black	✗	LLS25N02MTB02	LLS25C02MTB02	LLS25G02MTB02	LLS25M02MTB02	LLS25W02MTB02	LLS25V02MTB02	LLS25E02MTB02
LLH02MTB021		✓	LLS25N02MTB021	LLS25C02MTB021	LLS25G02MTB021	LLS25M02MTB021	LLS25W02MTB021	LLS25V02MTB021	LLS25E02MTB021

# LLC25: compatible holders

## LLH02AAC0\*



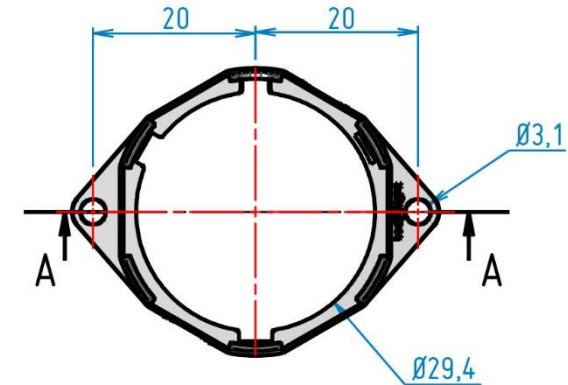
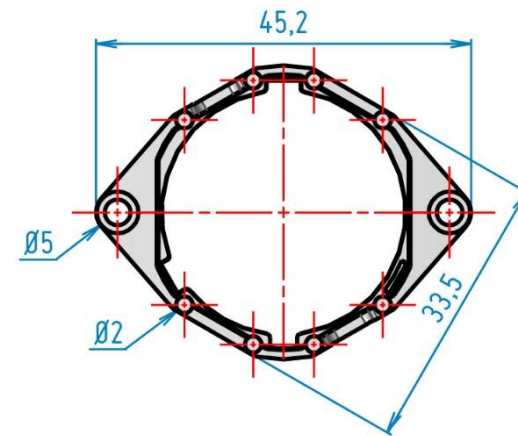
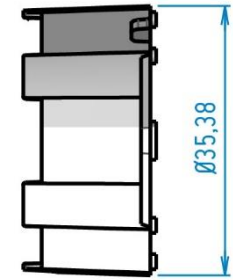
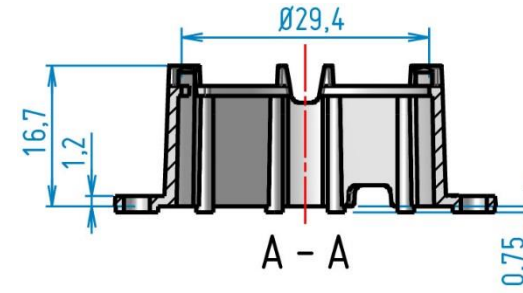
Clear holder

Without adhesive: LLH02AAC00

Reference	Diameter (mm)	Nominal distance from PCB (mm)	Note
LLH02AAC0*	32	0.99	Without pins, screws outside

\* : 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.

# LLC25: Assembled set

LLH02AAC0\* + LLC25x

Holder	Color	Adhesive	Narrow LLC25N	Color LLC25C	Wall grazing LLC25G	Medium LLC25M	Wide LLC25W	Very large LLC25V	Elliptical LLC25E
LLH02AAC00	Clear	✗	LLS25N02AAC00	LLS25C02AAC00	LLS25G02AAC00	LLS25M02AAC00	LLS25W02AAC00	LLS25V02AAC00	LLS25E02AAC00

# LLC25: 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.

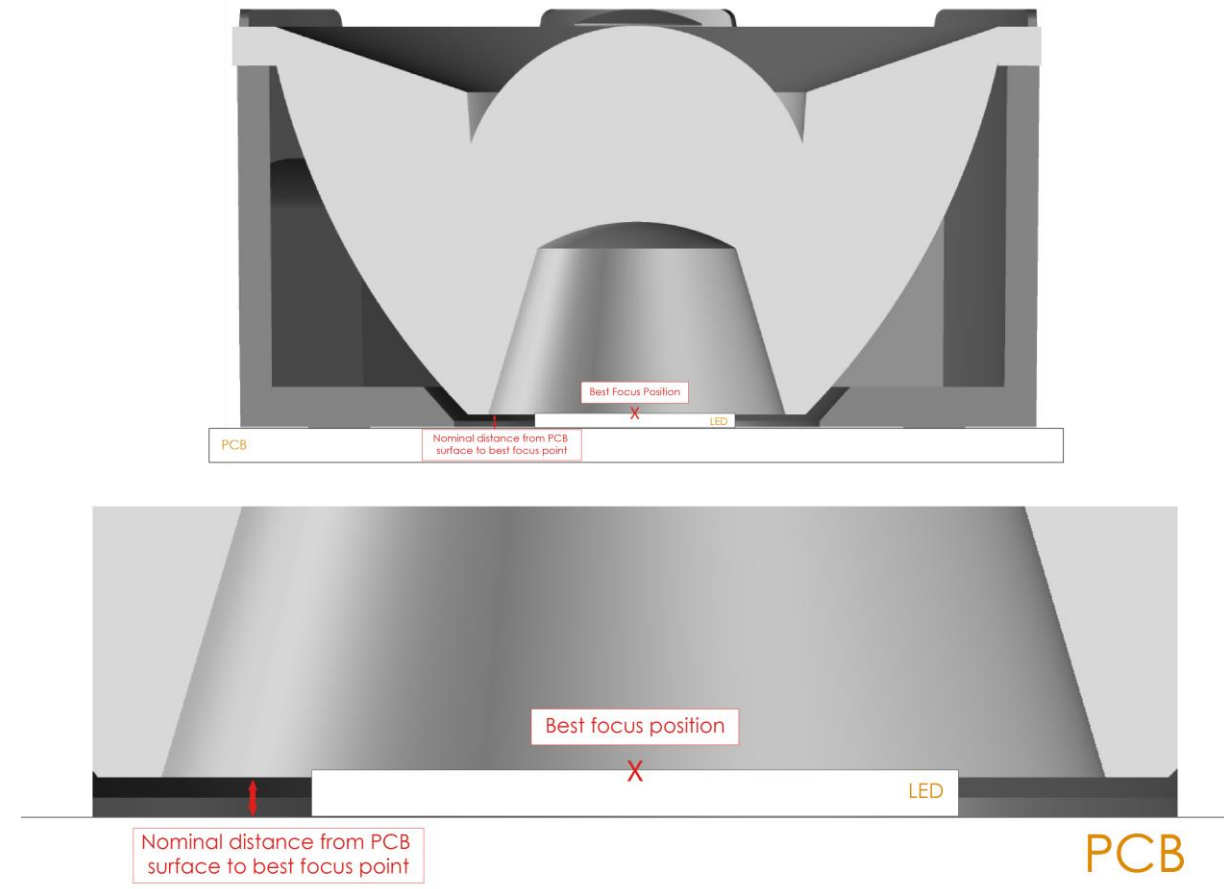
The best focus position will be achieved when matching the collimator's focus position with LED's Light Emission Surface position.

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
LLH02XALO*	32	0.25	With pins
LLH02HELO*	32	0.5	With pins, screws inside
LLH02RD10*	32	0.5	With pins, screws inside, rounded
LLH02MTB0*	32	0.5	With pins, screws inside, rounded snoot
LLH02AACO*	32	0.99	With pins

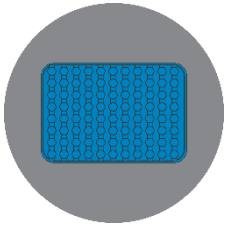
\* : colors 0 (clear), 2 (black)

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



# LLC25: Packaging

LLC25x



10 thermoformed trays with 50 parts each



500 parts  
Box: GALIA A13 – 387x283x170 mm  
Weight: 5.2 kg



# LLC25: Packaging

## LLH02AACO\*



1 plastic bag with 3 000 parts  
Box: GALIA A9 - 589x385x287 mm  
Weight: 9.2 kg

## LLH02MTBO\*



1 plastic bag with 3 000 parts  
Box: GALIA A9 - 589x385x287 mm  
Weight: 11.8 kg

## LLH02XALO\*



1 plastic bag with 3 000 parts  
Box: GALIA A9 - 589x385x287 mm  
Weight: 11.8 kg

## LLH02HELO\*



1 plastic bag with 3 000 parts  
Box: GALIA A9 - 589x385x287 mm  
Weight: 11.8 kg

## LLH02RD10\*



1 plastic bag with 3 000 parts  
Box: GALIA A9 - 589x385x287 mm  
Weight: 11.8 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

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