led[n]light
by GAGGIONE

16 mm : LLC01M LLC01W LLC01X LLC01S LLC01E
32 mm : LLC05M LLC05W
35 mm : LLC17N
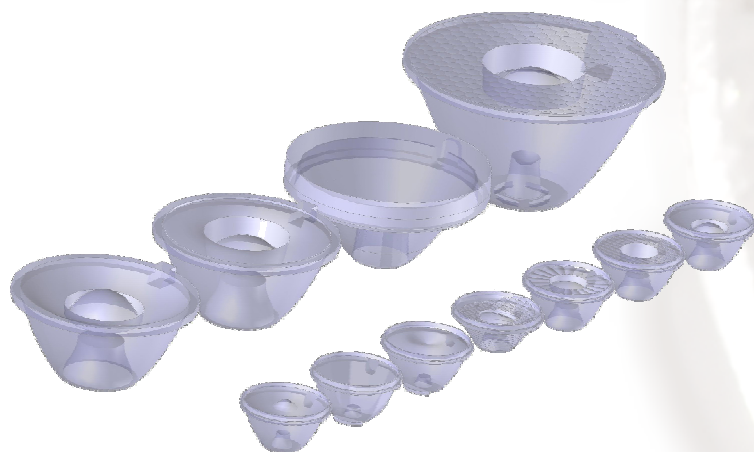**45 mm : LLC49N**

Secondary optics to be used with

CREE◆ XM-L EasyWhite

Datasheet

Lednlight, a high performance LED collimator series,
for all your high power LEDs lighting applications

Benefits of the Lednlight product range :

- Innovative and unique design, which allows you to use most existing LEDs references

- Homogeneous light distribution, resulting from software optimization and quality polymer

- Available with mechanical holders for ease of use and production

- Ready to use and easy integration into a cluster part

LednLight by GAGGIONE

16mm Lednlight used with CREE XM-L EasyWhite
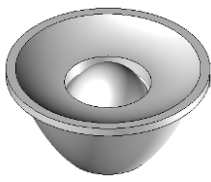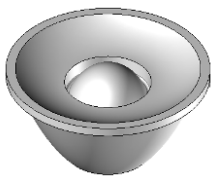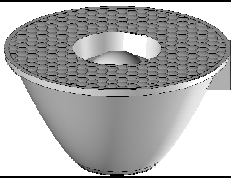
Optical Characteristics, Overview table

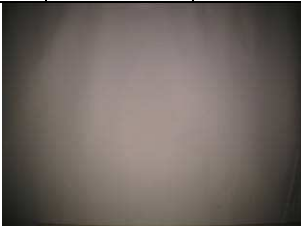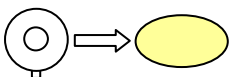| Collimator	LED	Half-angle At 50% (°)		half-angle at 10% (°)		Efficacity Cd/Lm	Holder & options
LLC01M	CREE XM-L EasyWhite	15.8		25.8		2.1	
							- Mono -Mono & adhesive -tri / quadri
LLC01W	CREE XM-L EasyWhite	15.3		29.6		1.9	
							- Mono -Mono & adhesive -tri / quadri
LLC01X	CREE XM-L EasyWhite	18.3		42.5		1.1	
							Mono -Mono & adhesive -tri / quadri
LLC01S	CREE XM-L EasyWhite	27.7		45.6		0.8	
							Mono -Mono & adhesive -tri / quadri
LLC01E	CREE XM-L EasyWhite	14.8v	17.7h	27.1v	33.0h	1.6	
							Mono -Mono & adhesive -tri / quadri

32 mm &35 mm Lednlight used with CREE XM-L EasyWhite

Optical Characteristics, Overview table

Collimator	LED	Half-angle At 50% (°)	half-angle at 10% (°)	Efficacity Cd/Lm	Holder & options
LLC05M	CREE XM-L EasyWhite	9.9	21.0	4.3	
					LLH02XAL00 adhesive Or LLH02AAC00 Using screw
LLC05W	CREE XM-L EasyWhite	13.9	25.7	2.7	
					LLH02XAL00 adhesive Or LLH02AAC00 Using screw
LLC17N	CREE XM-L EasyWhite	6.6	12.0	11.1	
					no
LLC49N	CREE XM-L EasyWhite	5.1	9.8	18.2	
					LLH09SPB00

LEDnlight by **GAGGIONE**

Optical characteristics and intensity distribution
Collimator LLC01M - CREE XM-L EasyWhite series

Measurements done with
Ledgon 100 photogoniometer

LLC01M
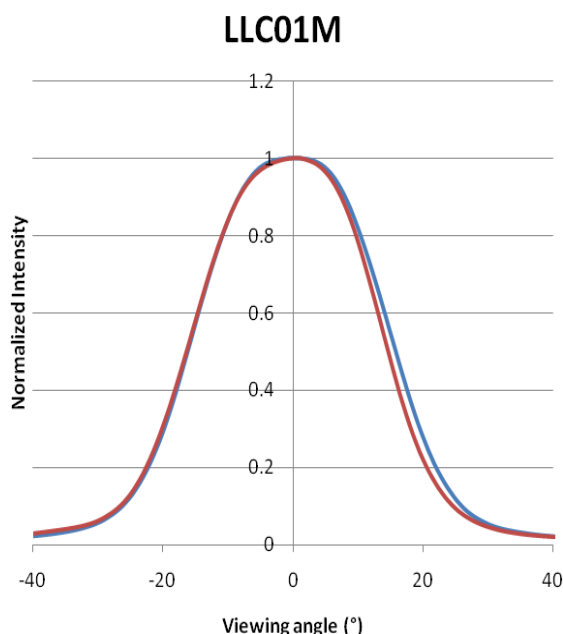
- CREE XM-L EasyWhite@ 350 mA
- Medium circular beam
- Efficiency in candelas per lumen : 2.1 cd/lm
- Half-angle at 50% from maximum 15.8°
- Half-angle at 10% from maximum 25.8°
- Available with dedicated holder *Ref LLH01AAA00 with dots or LLH01XRR00 for one optic LLH03XRR0x for three optics and LLH04XRR0x for four optics*

Optical characteristics and intensity distribution
Collimator LLC01W- CREE XM-L EasyWhite series

Measurements done with
Ledgon 100 photogoniometer

LLC01W

- CREE XM-L EasyWhite@ 350 mA
- Wide circular beam
- Efficiency in candelas per lumen : 1.9 cd/lm
- Half-angle at 50% from maximum 15.3°
- Half-angle at 10% from maximum 29.6°
- Available with dedicated holder *Ref LLH01AAA00 with dots or LLH01XRR00 for one optic LLH03XRR0x for three optics and LLH04XRR0x for four optics*

Optical characteristics and intensity distribution
Collimator LLC01X- CREE XM-L EasyWhite series

Measurements done with
Ledgon 100 photogoniometer

LLC01X

- CREE XM-L EasyWhite @ 350 mA
- eXtra Wide circular beam
- Efficiency in candelas per lumen : 1.1 cd/lm
- Half-angle at 50% from maximum 18.3°
- Half-angle at 10% from maximum 42.5°
- Available with dedicated holder
  Ref LLH01AAA00 with dots or
  LLH01XRR00 for one optic
  LLH03XRR0x for three optics and
  LLH04XRR0x for four optics

Optical characteristics and intensity distribution
Collimator LLC01S- CREE XM-L EasyWhite series
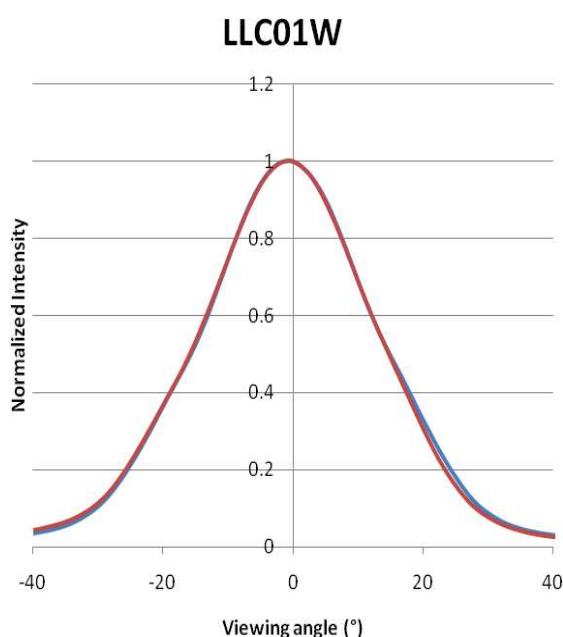
Measurements done with
Ledgon 100 photogoniometer

LLC01S

- CREE XM-L EasyWhite @ 350 mA
- Super wide circular beam
- Efficiency in candelas per lumen : 0.8 cd/lm
- Half-angle at 50% from maximum 27.7°
- Half-angle at 10% from maximum 45.6°
  Available with dedicated holder
  Ref LLH01AAA00 with dots or
  LLH01XRR00 for one optic
  LLH03XRR0x for three optics and
  LLH04XRR0x for four optics

Optical characteristics and intensity distribution
Collimator LLC01E- CREE XM-L EasyWhite series
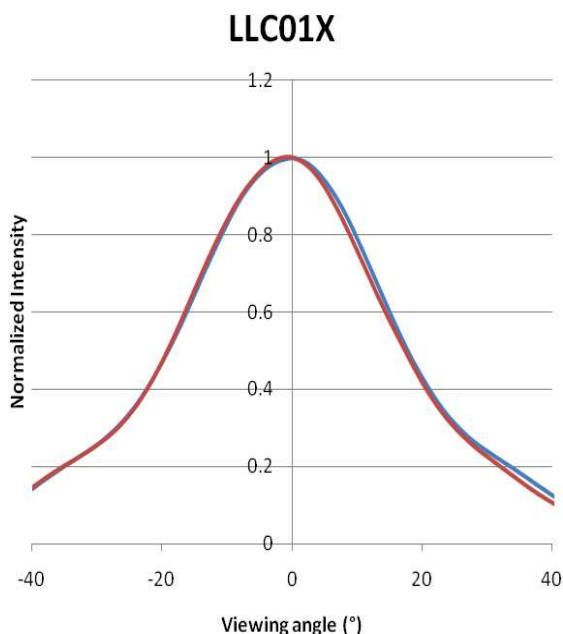*Measurements done with*
Ledgon 100 photogoniometer

LLC01E

Normalized Intensity vs Viewing angle (°)

- CREE XM-L EasyWhite@ 350 mA
- Elliptical beam
- Efficiency in candelas per lumen : 1.6cd/lm
- Half-angle at 50% from maximum 14.8°v / 17.7 °h
- Half-angle at 10% from maximum 27.1v / 33.0h
- Available with dedicated holder *Ref LLH01AAA00 with dots or LLH01XRR00 for one optic LLH03XRR0x for three optic and LLH04XRR0x for four optics*

LED'n'light by GAGGIONE

Optical characteristics and intensity distribution
Collimator LLC05M - CREE XM-L EasyWhite series

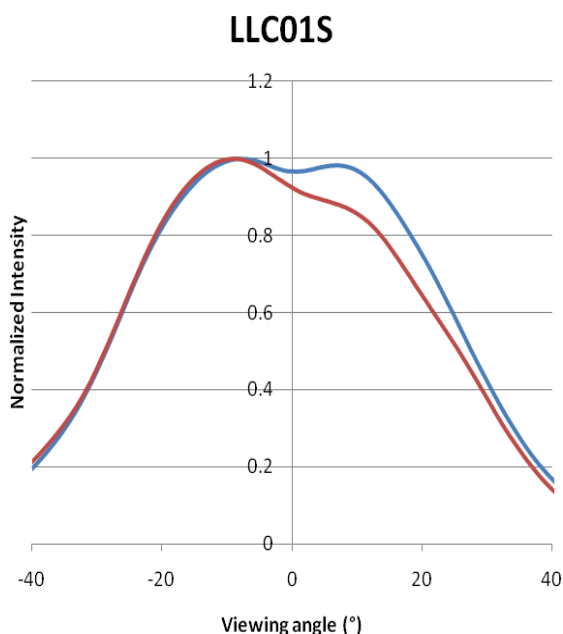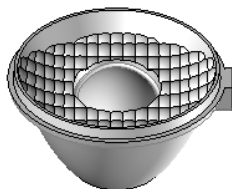*Measurements done with*
Ledgon 100 photogoniometer

LLC05M

- CREE XM-L EasyWhite @ 350 mA
- Medium circular beam
- Efficiency in candelas per lumen : 4.3 cd/lm
- Half-angle at 50% from maximum 9.9 °
- Half-angle at 10% from maximum 21.0 °
- Available with holder using M3 screw Ref LLH02AAC00 or adhesive LLH02XAL02

Optical characteristics and intensity distribution
Collimator LLC05W - CREE XM-L EasyWhite series
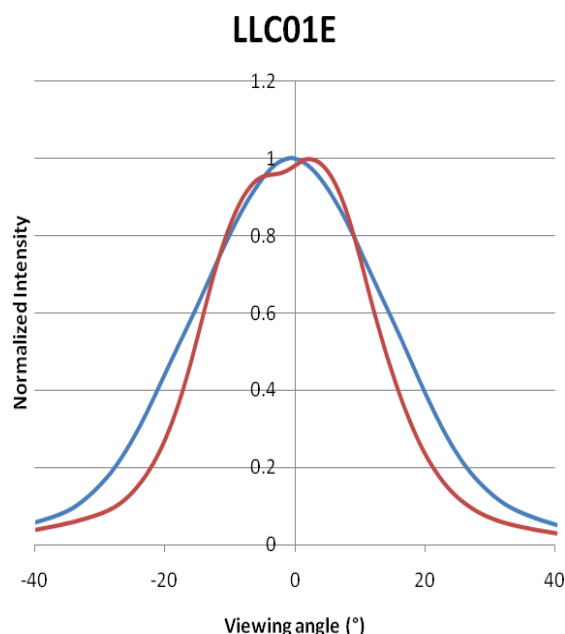
Measurements done with
Ledgon 100 photogoniometer

LLC05W

- CREE XM-L EasyWhite @ 350 mA
- Wide circular beam
- Efficiency in candelas per lumen : 2.7 cd/lm
- Half-angle at 50% from maximum 13.9 °
- Half-angle at 10% from maximum 25.7 °
- Available with holder using M3 screw Ref LLH02AAC00 or adhesive LLH02XAL02

LEDnlight by GAGGIONE

Optical characteristics and intensity distribution
Collimator LLC17N - CREE XM-L EasyWhite series
Measurements done with
Ledgon 100 photogoniometer

LLC17N

- CREE XM-L EasyWhite@ 350 mA Warm white
- Narrow circular beam
- Efficiency in candelas per lumen : 11.1 cd/lm
- Half-angle at 50% from maximum 6.6 °
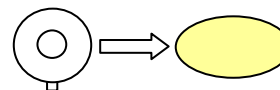- Half-angle at 10% from maximum 12.0 °
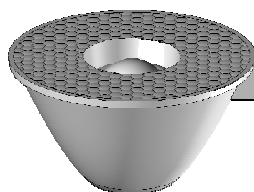
Optical characteristics and intensity distribution
Collimator LLC49N - CREE XM-L EasyWhite series
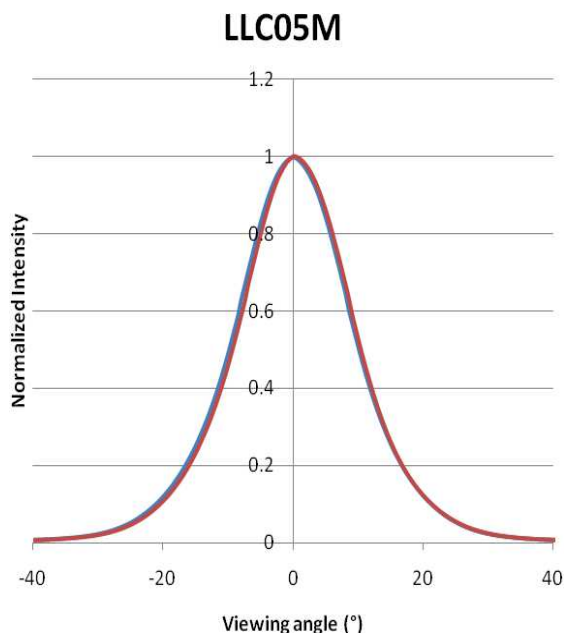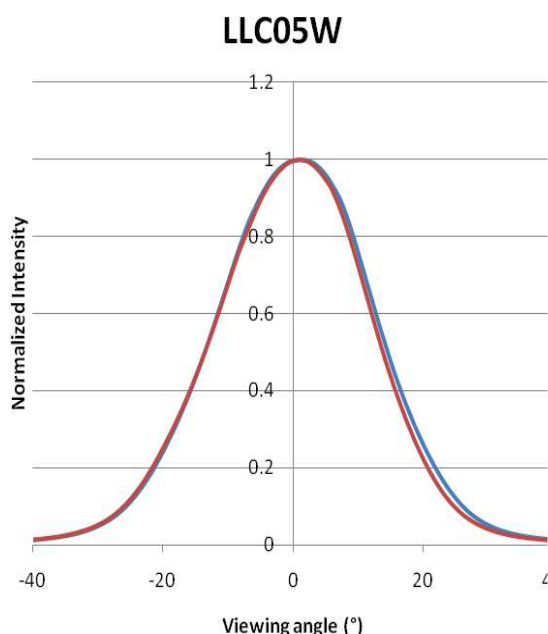### *Measurements done with*
Ledgon 100 photogoniometer
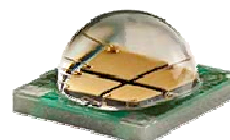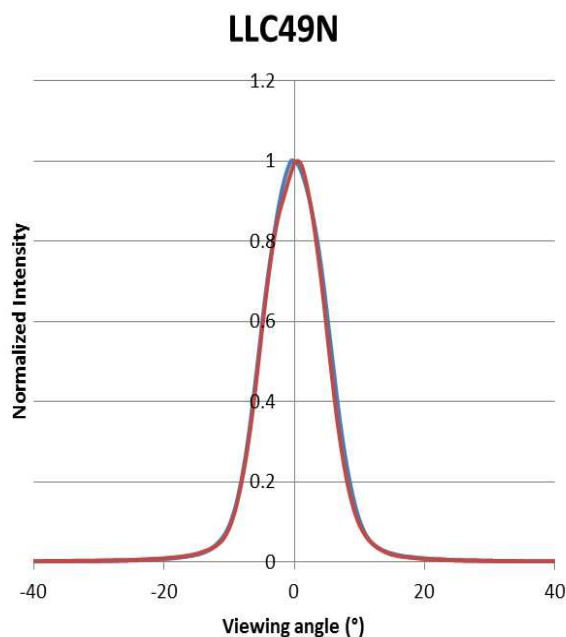
LLC49N
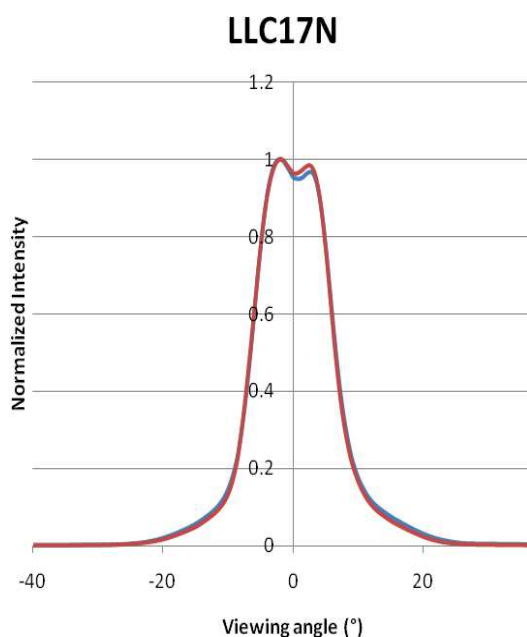

- CREE XM-L EasyWhite@ 350 mA Warm white
- Narrow circular beam
- Efficiency in candelas per lumen : 18.2 cd/lm
- Half-angle at 50% from maximum 5.1 °
- Half-angle at 10% from maximum 9.8°

GAGGIONE SAS – 3, Rue de la Rolland – 01460 Montréal la Cluse – France
Tel : +33 (0)4 74 76 12 66 – Fax : +33 (0)4 74 76 76 77 – E-mail : lednlight@gaggione.com – Web : www.lednlight.com

Mechanical characteristics LLC01N, LLC01M, LLC01W, LLC01X,LLC01S and LLC01E

Without holder, all dimensions are in millimetres
General tolerance +/-0.1 mm (standard NF T 58 -000 cat. 4, reduced class)

collimator focusing point
(chip best position)
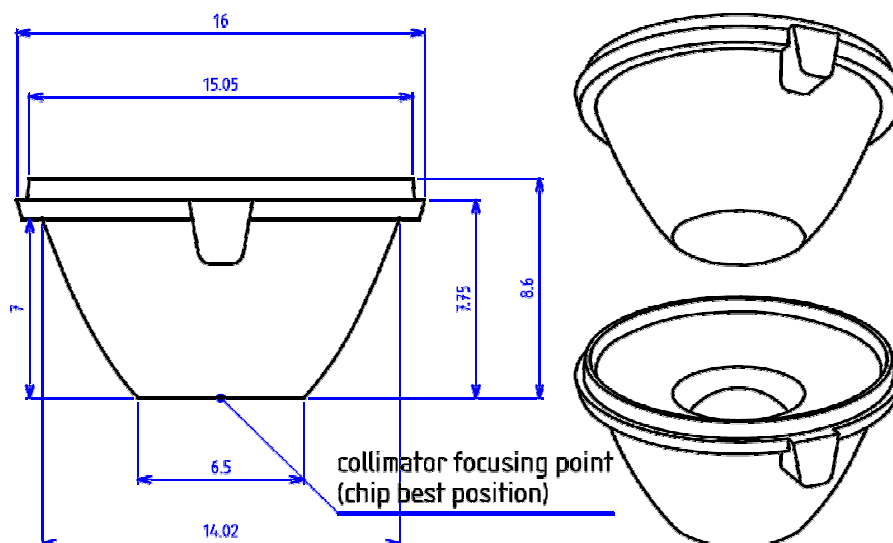
Mechanical characteristics 16mm holder LLH01AAA

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

R 0.75 -3°dep

R 0.75

Ø 15.4   X4

X4

B - B

A - A

2

1

Ech : 1/1

Version number

Cavity number

45°

45°

Ø 7.2

Ø 19
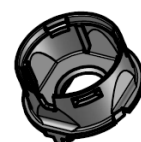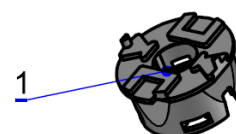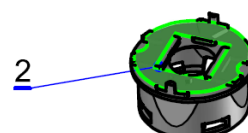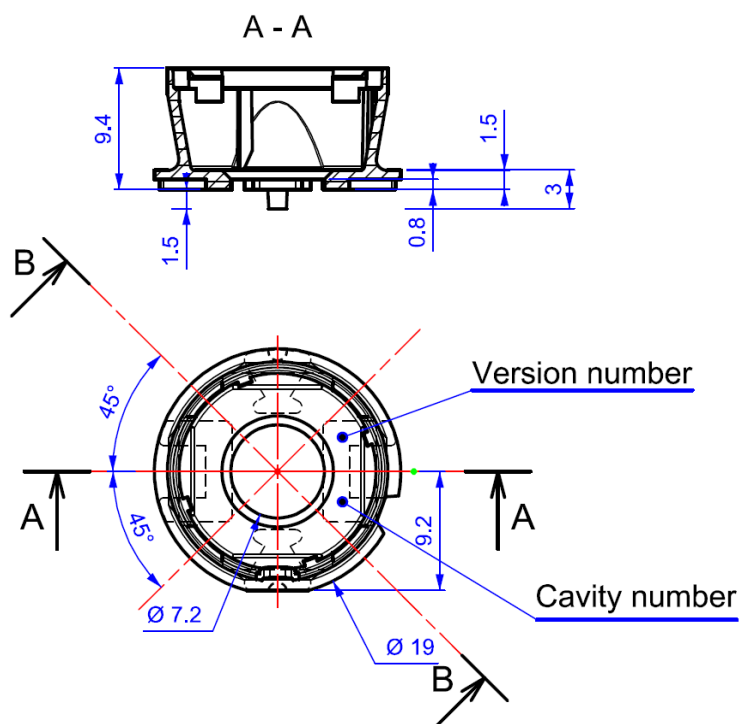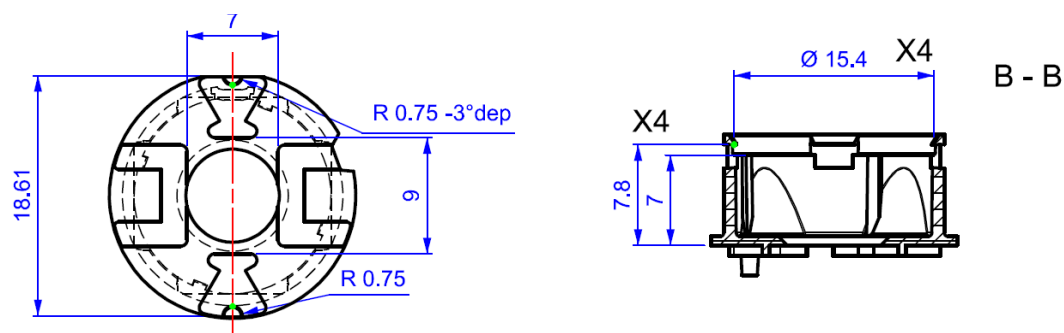
Mechanical characteristics Holder LLH01XRR
LLC03 with holder all dimensions are in millimeters
General tolerance +/-0.1 mm (standard NF T 58 -000 cat. 4, reduced class)

Ø 15.4 X 2

B - B

X 4

Version number

Ech : 1/1
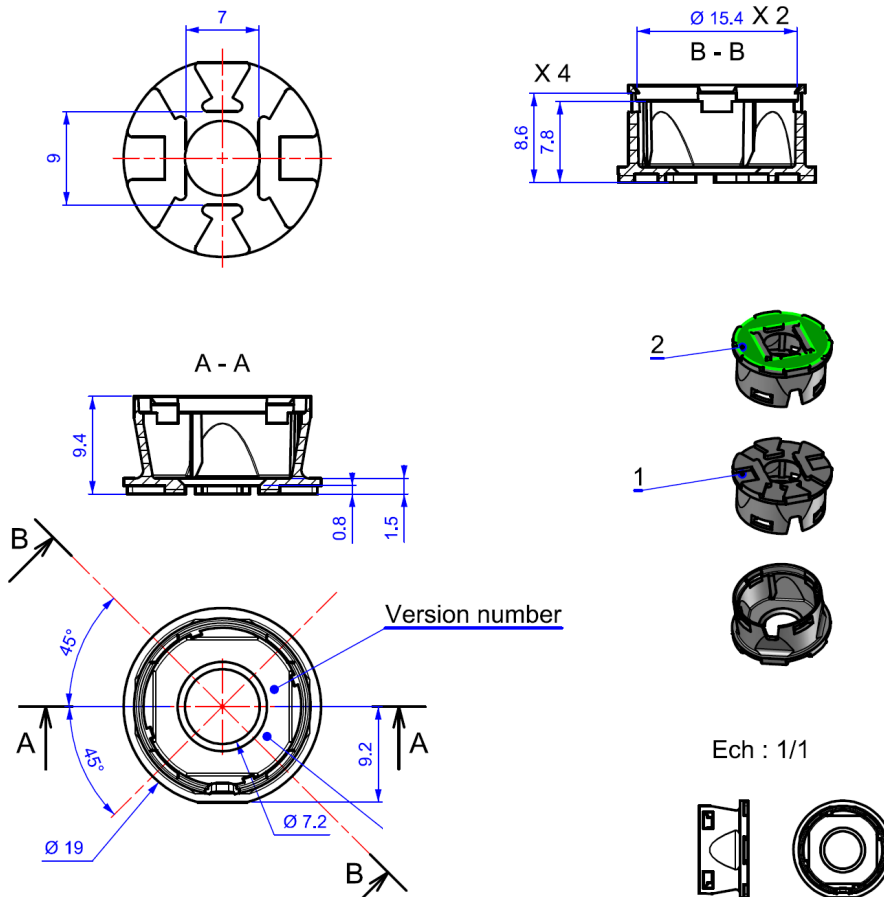
Mechanical characteristics holder TRI LLH03XRR

All dimensions are in millimeters
General tolerance +/-0.15 mm (standard NF T 58 -000 cat. 4, reduced class)

Ø 38

Ø 49.8

Ø 24.2
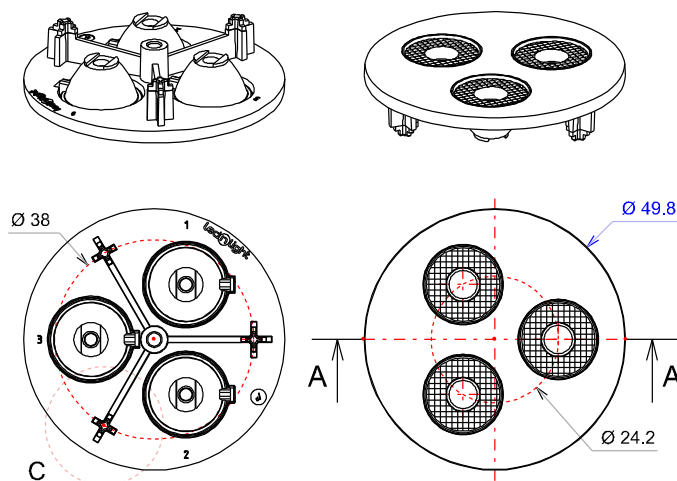
Mechanical characteristics holder QUADRI LLH04XRR
All dimensions are in millimeters
General tolerance +/-0.15 mm (standard NF T 58 -000 cat. 4, reduced class)

Ø 49.8

Ø 38

Ø 28.1

A - A

R 1.5

10.71

9.41

1.3

Ø 2.49

PCB plane
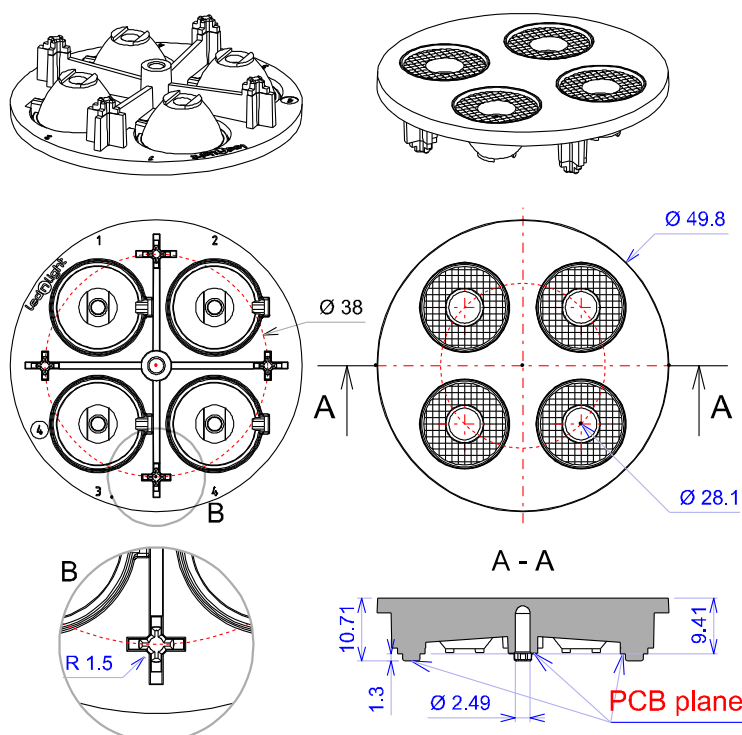
Mechanical characteristics LLC05N, LLC05M, LLC05W
Without holder, dimension is in millimeters
General tolerance +/-0.15 mm (standard NF T 58 -000 cat. 4, reduced class)

$33.5^{+0.3}_{0}$

A - A

1.57

3

15.63

12

Ø $32.64^{+0.04}_{-0.04}$

①

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Tel : +33 (0)4 74 76 12 66 – Fax : +33 (0)4 74 76 76 77 – E-mail : lednlight@gaggione.com – Web : www.lednlight.com
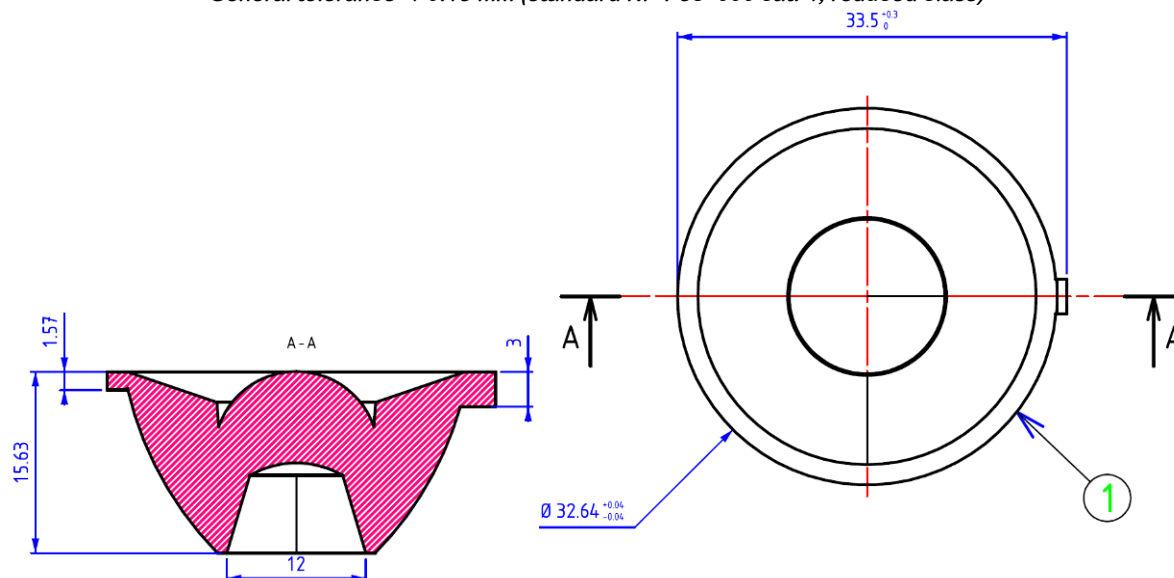
Mechanical characteristics LLH02AAC
32 mm holder, dimensions are in millimeters
General tolerance +/-0.15 mm (standard NF T 58 -000 cat. 4, reduced class)

Holes for M3 screw

45.07

33.5

35.69

33.42

A

A

A - A

40

Ø 3.1

Ø 5

Ø 2

17.45

0.75

Reference PCB PLANE
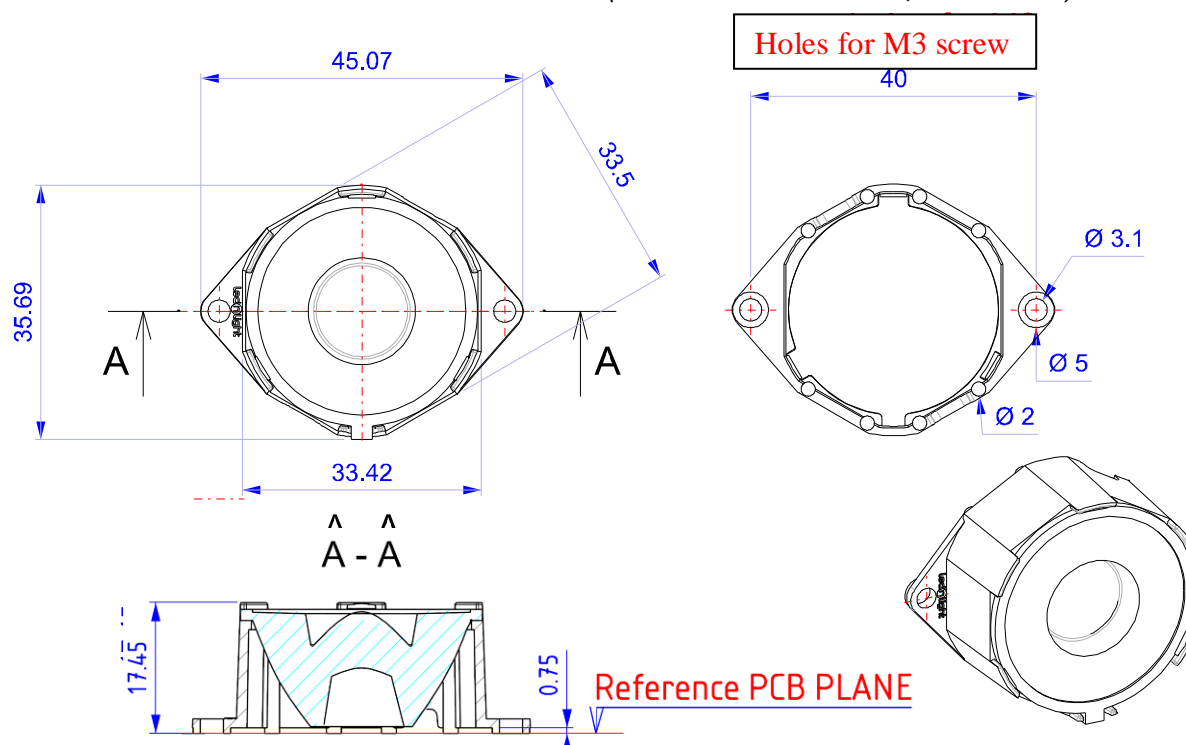
Mechanical characteristics LLH02XAL
dimension in millimetres General tolerance +/-0.15 mm (standard NF T 58 -000 cat. 4, reduced class)

24

32.4

35.8

18

16.6

2.5

1.4

⚠ **Positioning holes needs to be created in the pcb**

Mechanical characteristics LLC17N
without holder, dimensions are in millimeters
General tolerance +/-0.15 mm (standard NF T 58 -000 cat. 4, reduced class)

A - A

35.24
5
17.75
1
11.75
33.54
4
1

Ø 35.54
Ø 35.24
Ø 9.6
Ø 33.54
3.9

Best focusing point

Mechanical characteristics LLC49R
Without holder, all dimensions are in millimetres, General tolerance +/-0.15 mm
(standard NF T 58 -000 cat. 4, reduced class)

8
A
R 7.93
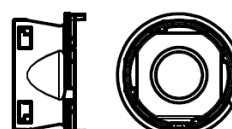R 6.58
6.8
6.8

Ø45

C - C
Height X

1.5
24.05
25.15
PCB PLANE
1.1
Ø 2
1.4

Part Number	Height
LLC49R	0 mm
LLC49Z2	2.1 mm
LLC49Z	2.1 mm
LLC49W	0.95 mm
LLC49M	0.8 mm
LLC49E	0 mm
LLC49N	0 mm
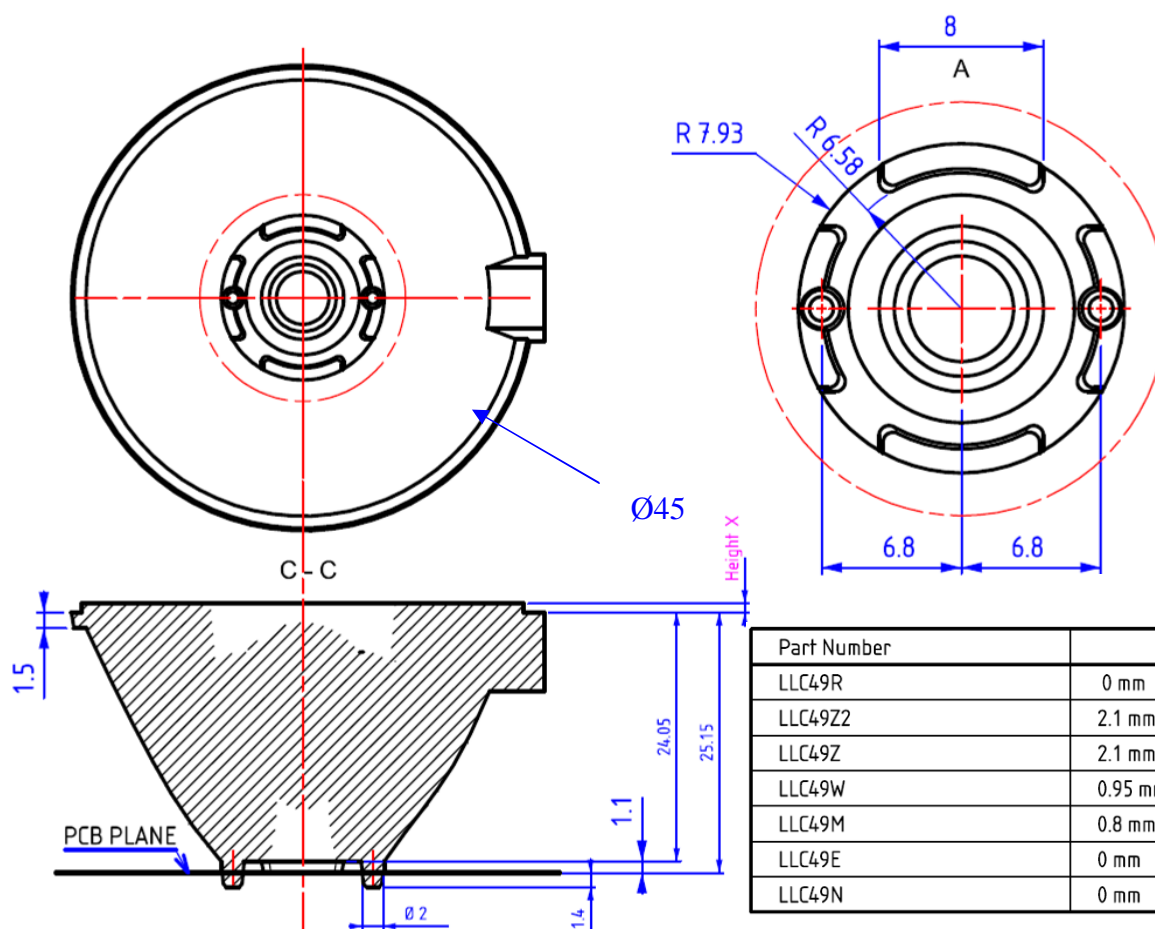
Nota: the LLC49R is drawn here.

GAGGIONE SAS –   3, Rue de la Rolland   –   01460 Montréal la Cluse – France
Tel : +33 (0)4 74 76 12 66 – Fax : +33 (0)4 74 76 76 77 – E-mail : lednlight@gaggione.com – Web : www.lednlight.com

Mechanical characteristics LLH09SPB00
holder, all dimensions are in millimetres, General tolerance +/-0.15 mm
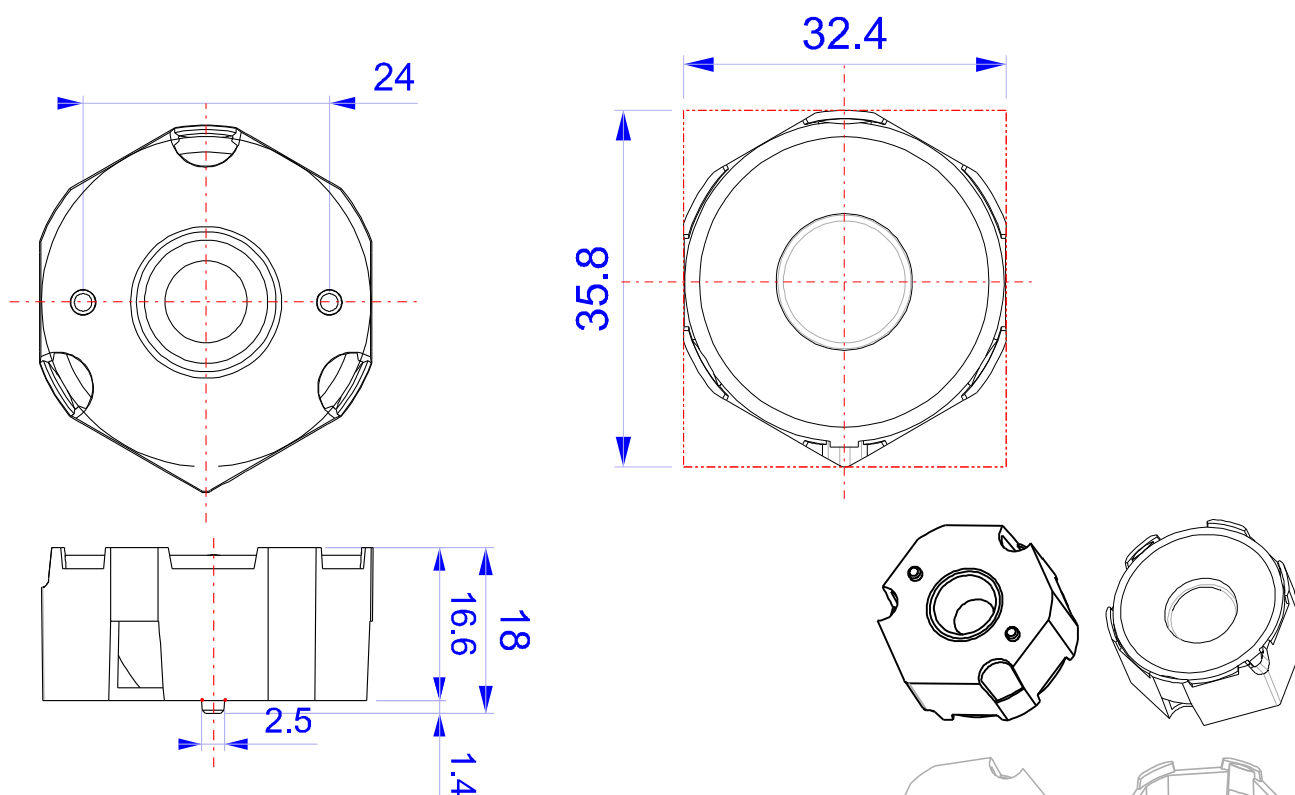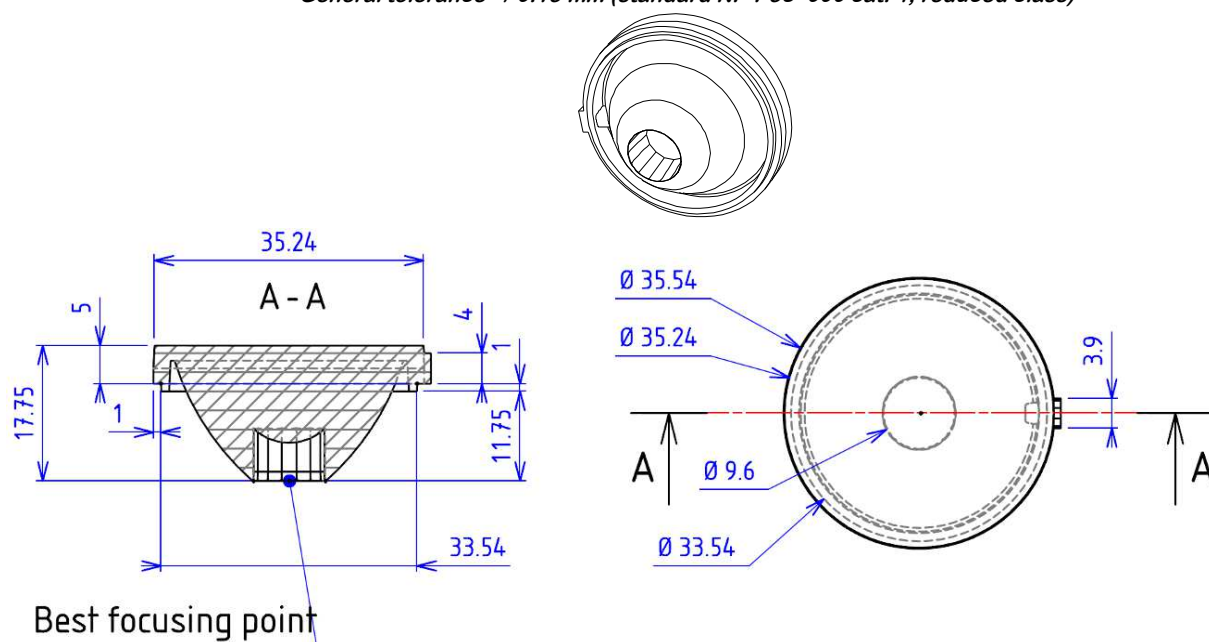### (standard NF T 58 -000 cat. 4, reduced class)
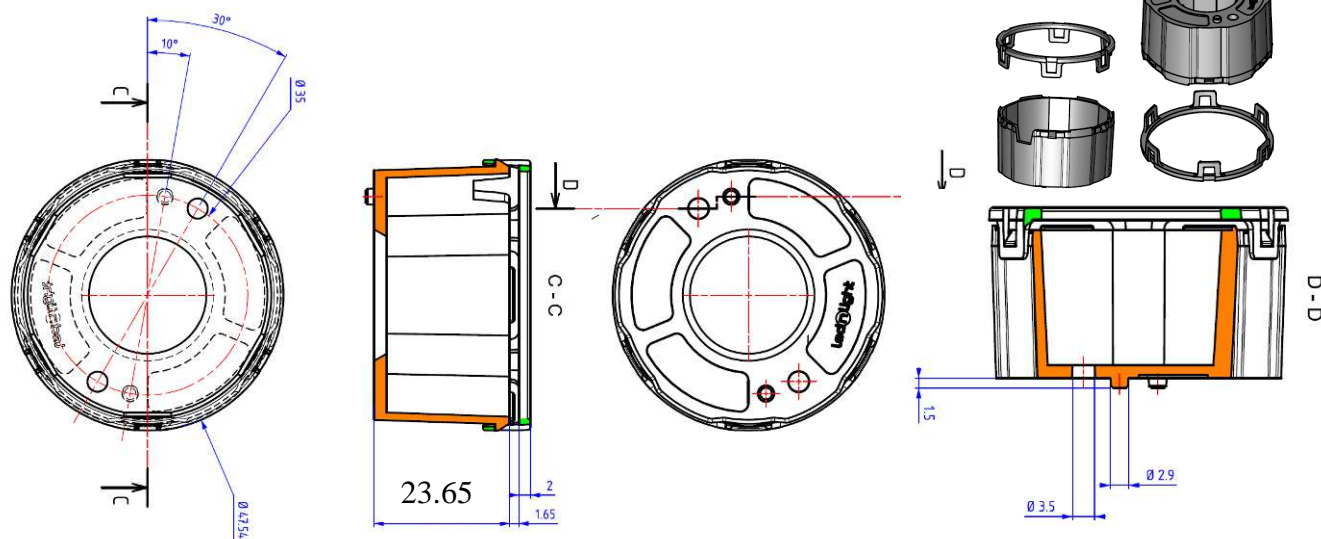
How to use the LLC49 collimator:

The holder is assembled on the PCB using screw or glue. The collimator has to be assembled inside the holder very precisely. The ring has to be snapped on the holder to lock the collimator into the holder.
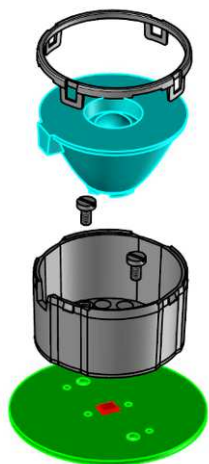
Code form of LednLight products

OPTICAL
 01=16mm standard
 02=16mm for compact leds
 03=16mm for metal led CREE
 04=16 RGB
 05=32mm
 07=35mm
 17=35mm zpower P7
 09=45mm RGB
 19=45mm RGBW CREE MCE

ABC = holder type according to led package

holder colours & decors
 00= translucent holder
 01 = white holder (not available in 16mm versions holders)
 02 = black holder (not available in 16mm versions)

product
C = collimator
H = Holder
S = set

LL=LednLight

LLS01W01ABC001

adhesive option
1=yes

beam angle
N= narrow
M = medium
W= wide
X = large
S = super large
E = elliptical

Lens material
0 or nothing =pmma collimator
1 = collimator made of PC

Holder type
01 = 16 mm
02 = 32 mm
03 = three 16mm optics
04 = four 16mm optics

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Ordering code for LednLight series to be used with CREE XM-L EasyWhite series

16mm for XM-L EasyWhite

Collimator / Holder	Ø 16mm – narrow	Ø 16mm – medium	Ø 16mm –large	Ø 16mm – extra-large	Ø 16mm – super -large	Ø 16mm – elliptic
No holder	LLC01N	LLC01M	LLC01W	LLC01X	LLC01S	LLC01E
LLH0*1AAA* Ø 16mm With dots	LLS01N01AAA00	LLS01M01AAA00	LLS01W01AAA00	LLS01X01AAA00	LLS01S01AAA00	LLS01E01AAA00
LLH0*1XRR* Ø 16mm	LLS01N01XRR00	LLS01M01XRR00	LLS01W01XRR00	LLS01N01XRR00	LLS01S01XRR00	LLS01E01XRR00
LLH0*1AAA* Ø 16mm +*adhesive*	LLS01N01AAA001	LLS01M01AAA001	LLS01W01AAA001	LLS01X01AAA001	LLS01S01AAA001	LLS01E01AAA001
LLH0*1XRR* Ø 16mm +*adhesive*	LLS01N01XRR001	LLS01M01XRR001	LLS01W01XRR001	LLS01X01XRR001	LLS01S01XRR001	LLS01E01XRR001

32 , 35 mm & 45mm for XM-L EasyWhite

Collimator / Holder	Ø 32mm – medium	Ø 32mm –large	Ø 35mm – narrow	Ø 45mm – narrow
No holder	LLC05M	LLC05W	LLC17N	LLC49N
32mm holder LLH0*2XAL* With dots	LLS05M02XAL00	LLS05W02XAL00	-	-
32mm holder LLH0*2AAC* Using screw	LLS05M02AAC00	LLS05W02AAC00	-	-
45mm holder LLH09*SPB* Using screw				LLC49N + LLH09SPB00

FAQ

Q – Of what material are Lednlight collimators made of ? Where are they manufactured ?
A – Lednlight collimators are made of a high purity grade PMMA, which guarantees a maximum luminous efficiency. Holders are made of PC. All our products are Made in France.

Q – What is Lednlight collimators luminous efficiency?
A – Luminous efficiency depends on the collimator itself and on the LED. It is between 85% and 93%.

Q – I would like to use a specific LED which is not mentioned in this datasheet. Is it possible?
A – LednLight collimators have a versatile design that can work with most LEDs references, allowing the user to choose the LED that best fits his needs. If your LED isn't mentioned in this datasheet, you can contact our engineering team which will give you more information.

Q – How can we position the LED compared to the collimator?
A – Mechanical drawings in pages 10~15 indicate the exact location of the focal point for each LednLight collimator. All you have to do is to put the LED chip at the focal point location.

Q – Can you provide CAD files of LednLight collimators?
A – The optical design is confidential; however CAD files of holder are available. You can upload them on our website. IES files and ray sets are also available on request.

Q – My project is very specific and custom. Lednlight collimator performances do not fit completely to my technical requirements.
A – Our engineers can design a custom version of the Lednlight collimators just for you, that will best fit your technical requirements, and at a very competitive price. Please do not hesitate to contact us to discuss your specifications.

Q – I would like to ask you a question which is not in the FAQ. How can I contact you?
A – Please visit our website : http://www.gaggione.com or contact us by phone :
+33 (0) 4 74 76 12 66 or by email : lednlight@gaggione.com