

## FC LENS

For CREE XLamp 7090 LEDs

- High efficiency
- 3 beams angles available
- Easy assembly
- Patent pending

The FC lens offers low-profile lenses especially designed for the XL 7090<sup>(1)</sup> LEDs from CREE.

A software-optimized aspheric profile enables the generation of 3 different beam output patterns: narrow, medium and wide

The high collection efficiency reaches 85% of the total flux emitted by the LEDs.

Lens holders are available in black, and provide the proper alignment between the LEDs and the lenses.

Holders can be simply placed on PCB or, for a better mechanical strength, the holder can be glued on the PCB

Typical applications are:

- Reading lamps
- Signs
- Architectural Lighting
- Street Lights



(1) For technical specification on LEDs please refer to the XLamp 7090 datasheet or visit [www.cree.com](http://www.cree.com)

(2) Typical beam divergence may change with different color LEDs.

*For ordering instructions, please contact*

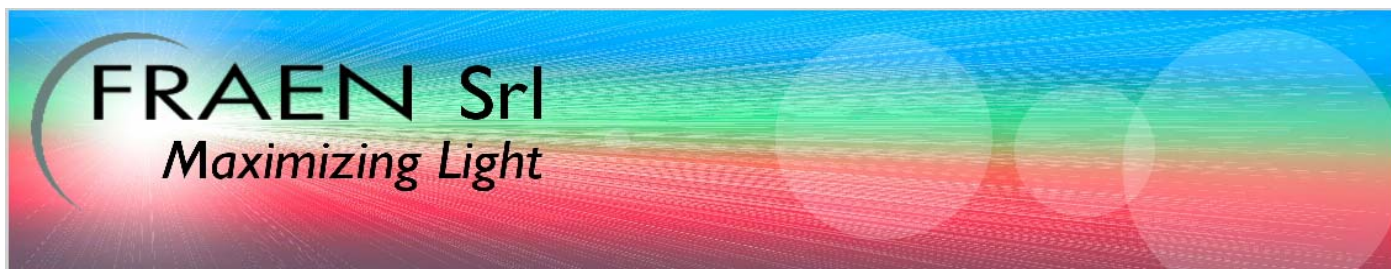
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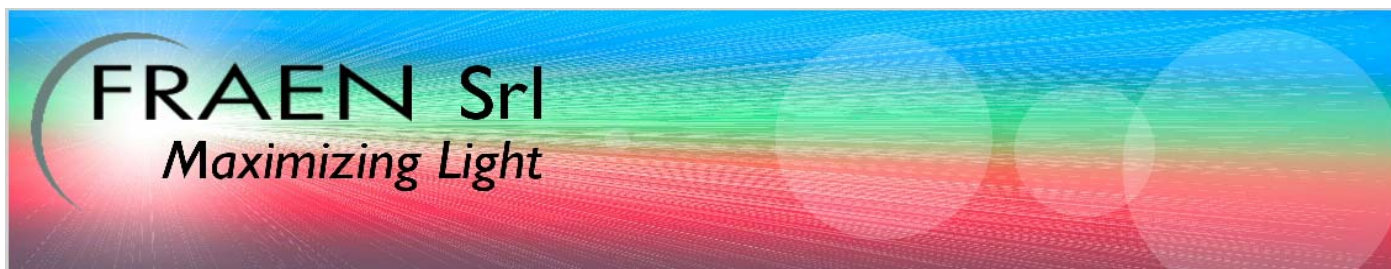


## General Characteristics

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Lens Material	Optical Grade PMMA
Holder Material	PC
Operating Temperature range	-40deg C / + 80 deg C
Storage Temperature range	-40deg C / + 80 deg C

Average transmittance in visible spectrum (400 – 700nm) >90%, as measured using 3mm thick Optical Grade PMMA.



## Optical Characteristics

		Typical beam total divergence (deg)			
Lens Part Number	Type of lens	White XLamp 7090 ○	Blue XLamp 7090 ●	Green XLamp 7090 ●	Red XLamp 7090 ●
FC-HNB1-XL79-x	Narrow beam	19	10	10	10
FC-HMB1-XL79-x	Medium beam	36	24	21	22
FC-HWB1-XL79-x	Wide beam	N.A.	32.5	32.5	31

The typical total divergence is the full angle measured where the luminous intensity is half of the peak value. The typical divergence may change with different color LEDs due to different chip size and chip position tolerance.

		Typical on axis efficiency (cd/lm)			
Lens Part Number	Type of lens	White XLamp 7090 ○	Blue XLamp 7090 ●	Green XLamp 7090 ●	Red XLamp 7090 ●
FC-HNB1-XL79-x	Narrow beam	N.A.	17.6	19.8	15.5
FC-HMB1-XL79-x	Medium beam	N.A.	3.3	3.9	2.9
FC-HWB1-XL79-x	Wide beam		1.9	2	1.5

To calculate the on axis intensity, multiply the on axis efficiency of the lens (cd/lm) by the total flux of the XLamp 7090 LEDs you use. For more detail on flux binning please check the datasheet of the XLamp 7090 LEDs by CREE.

## Mechanical Characteristics

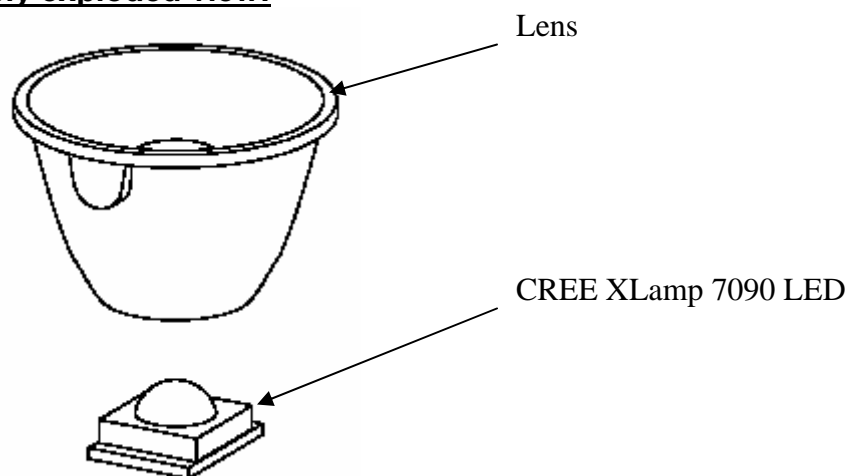
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The lens FC-HxB1-XL79 is available with holder or without holder.

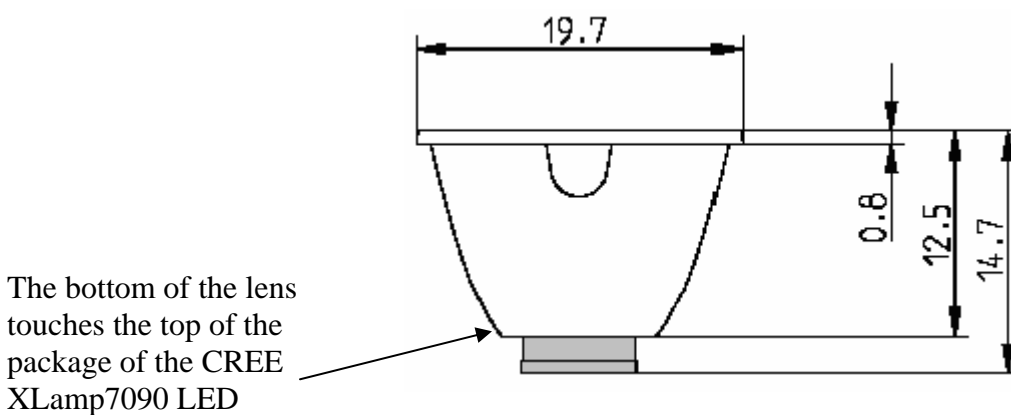
The holder gives the right alignment of the lens on the LED in the horizontal plane.

In the case in which the lens is purchased without holder another mechanical feature needs to align the lens on the XLamp 7090 LED.

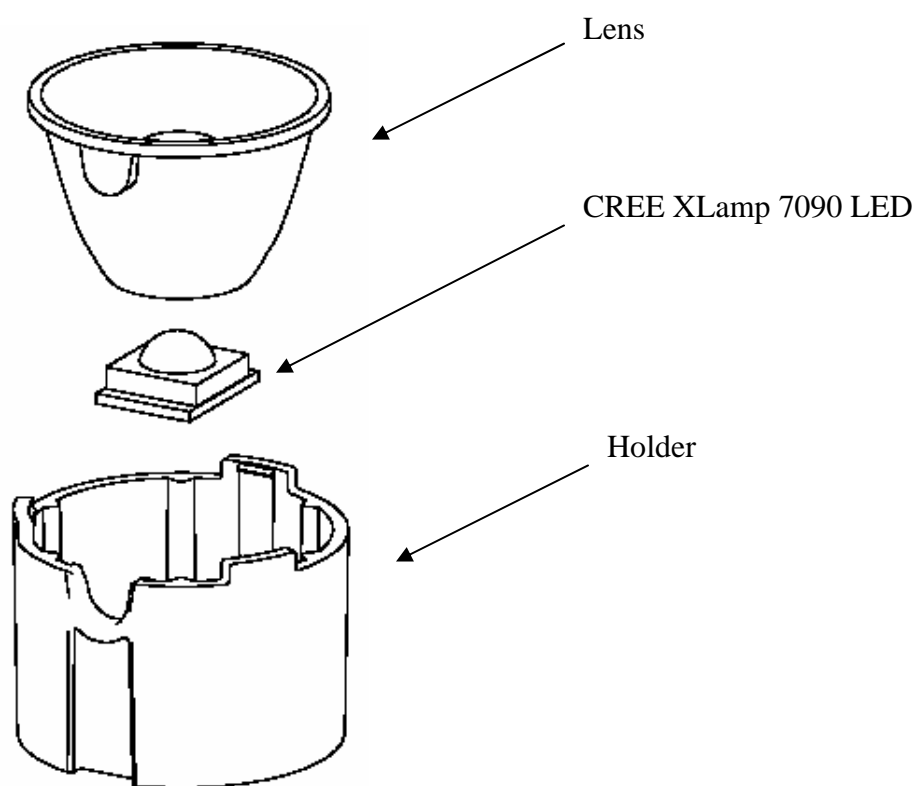
### Lens with LED assembly exploded view:



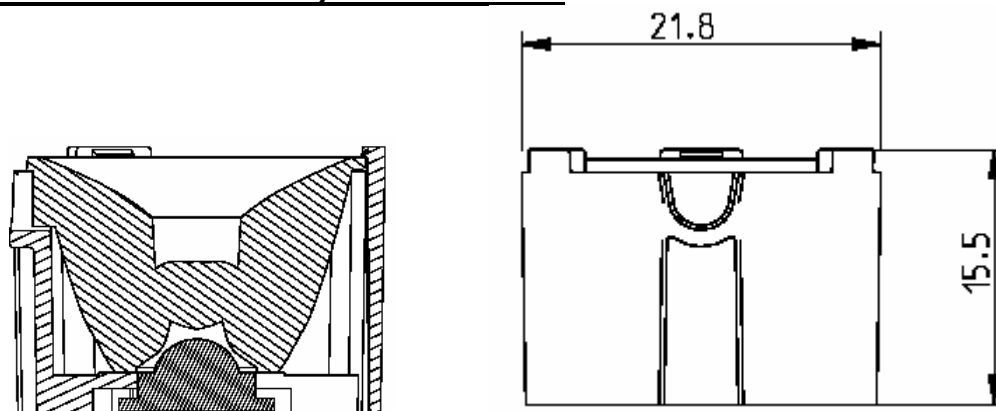
### Lens with LED assembly dimensions on PCB board:



**Lens + holder and LED assembly exploded view:**

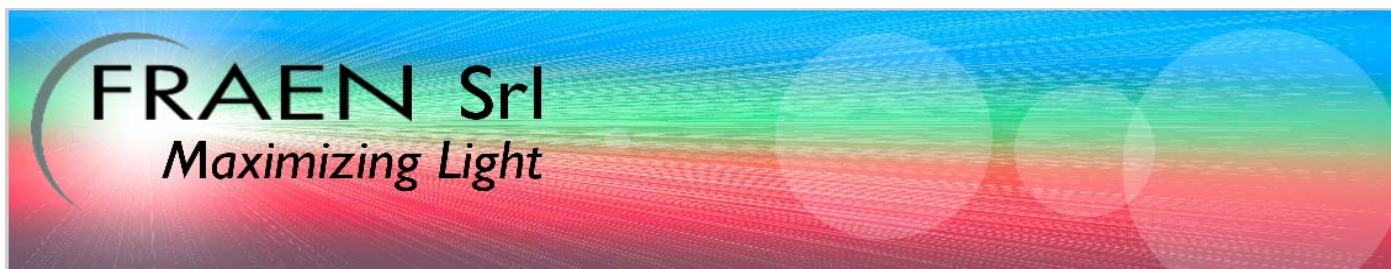


**Lens + Holder and LED assembly on PCB board:**



Tolerances:  $\pm 0.2\text{mm}$



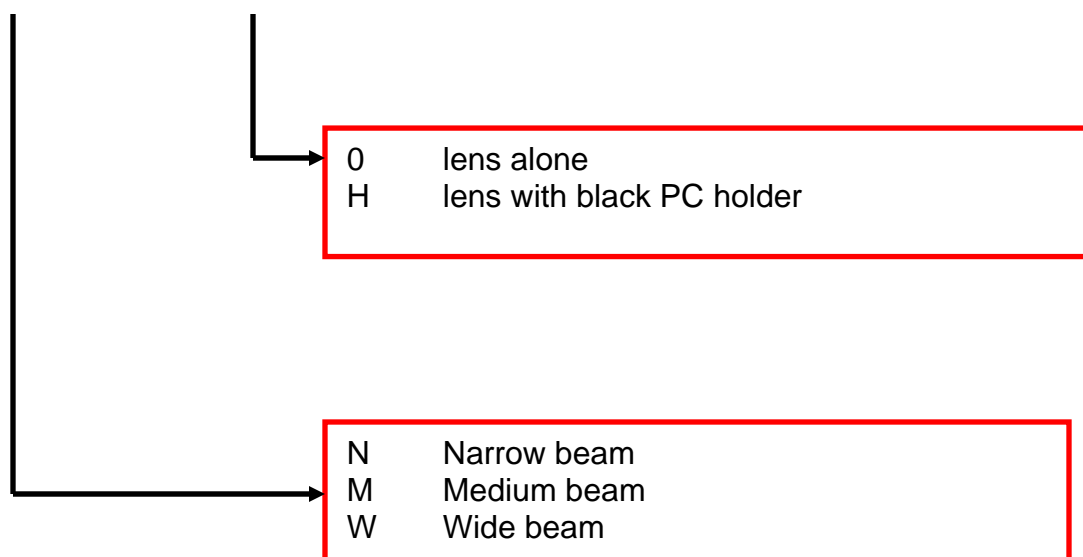


Please note that flow lines and weld lines on the external surfaces of the lenses are acceptable if the optical performance of the lens is within the specification described in the section "OPTICAL CHARACTERISTICS".

## Ordering part numbers

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FC-HxB1-XL79-z



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### Document Revision Record

Rev	Date	Author	Description
01	14 July 06	D. DeGaetano/C. Jones	Medium and Wide beam angle versions added.
00	11 Oct 05	D. DeGaetano	Initial Release