FRC-N1-XR79-0R Reflector for Cree XLamp™ XR-E LEDs

- **High efficiency**
- **Compact size**
- **Provides a focused spot *and* spilled/direct light**

The FRC-N1-XR79-0R reflector has been specifically designed for the Cree XLamp XR-E LEDs.

A software-optimized aspheric profile combined with precision facets provides a narrow focused beam with a homogeneous central spot as well as useful peripheral spilled light.

The high collection efficiency reaches 88% of the total flux emitted from the LED.

The reflector fits to the body of the XLamp with a snug press-fit.

Typical applications are:

- Flashlights
- General illumination
- Architectural Lighting
- Most application where a compact light source is required.

Cree® XLamp is a trademark of Cree, Inc. For technical information about these LEDs please refer to the CREE® XLAMP datasheet or visit Cree XLamp LED or Cree XR-E LED

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General Characteristics

Materials:	Black Polycarbonate with vacuum aluminum coating, protected by clear coat lacquer.
Operating Temperature range:	-40deg C / + 100 deg C
Storage Temperature range:	-40deg C / + 100 deg C

Please note that small defects in the reflective coating, and flow lines and weld lines on the surfaces of the reflectors are acceptable if the optical performance of the reflector is within the specification described in the section "OPTICAL CHARACTERISTS"

IMPORTANT NOTE – Reflector handling and cleaning*:*

- *Handling: Always handle the reflectors by the outside surfaces or flange. Never touch the inside surfaces of the reflector with fingers; finger oils and contamination will absorb or refract light.*
- *Cleaning: Clean reflectors only if necessary. Use only soap and water to clean the surfaces and reflectors. Never expose the reflectors to alcohol, as it will damage the plastic.*

Optical Characteristics:

Optical Performance **On-axis efficiency (candela/lumen) and beam angle (degrees)**			**Central Spot**		**Spilled Light**	
			On-axis intensity	**Beam angle**	**~ spill intensity**	**Beam angle**
Fraen Reflector Part Number	Reflector Name		Cd/lm	Degrees FWHM	Cd/lm	Degrees FWHM
FRC-N1-XR79-0R	Narrow beam		17	7	0.2	36

(1) The typical divergence varies with LED color due to different chip size and chip position tolerance. The typical total divergence is the full angle measured where the luminous intensity is half of the peak value.

(2) To calculate the on-axis intensity, multiply the on-axis efficiency of the reflector (cd/lm) by the total flux of the Cree LED used. See "Illumination Calculations" below. For more detail on flux binning please check the Cree LED datasheet at Cree XLamp LED
(3) Luminous intensity depends on the flux binning and tolerances of the LEDs. Please refer to the Cree XLamp datasheet for more details on flux binning and mechanical tolerances.
(4) Typical illuminance measured in lux per lumen (E) with typical Cree 7090 XR-E LED. To estimate the illuminance in lux, multiply the typical illuminance E by the flux in lumen of the LED used. See "Illumination Calculations" below.

Illumination Calculations

To calculate peak candela: Find the central spot "on-axis intensity" value in the table above. It is 17 candela/lumen". Multiply this value by the lumens output from your LED (refer to the XLamp LED datasheet (Cree XR-E LED datasheet or Cree XR LED datasheet) for nominal lumens values. OR for a more accurate calculation, refer to the intensity binning tables Cree XLamp binning .
Example – If the Fraen narrow beam reflector # FRC-N1-XR79-0R is use on a cool white Cree XR-E LED at 350 mA, the typical luminous flux of the LED is 80 lumens:
The calculation is: (17 candela/lumen) x (80 lumens) = 1360 candela peak on-axis.
The central spot beam angle specified in the table above is 7 degrees full beam-width measured at half-peak. This means at 3.5 degrees off-axis (half of 7 degrees), the intensity should be half of 1360 candela, or 680 candelas.
1 candela at 1-meter distance produces 1 Lux. This means the peak intensity at 1 meter will be 1360 lux. The intensity decreases as a function of the distance squared, so at 2 meters the peak intensity will be 1360 / (2^2) = 340 lux. At 3 meters distance, the peak intensity will be 1360 / (3^2) = 151 lux.

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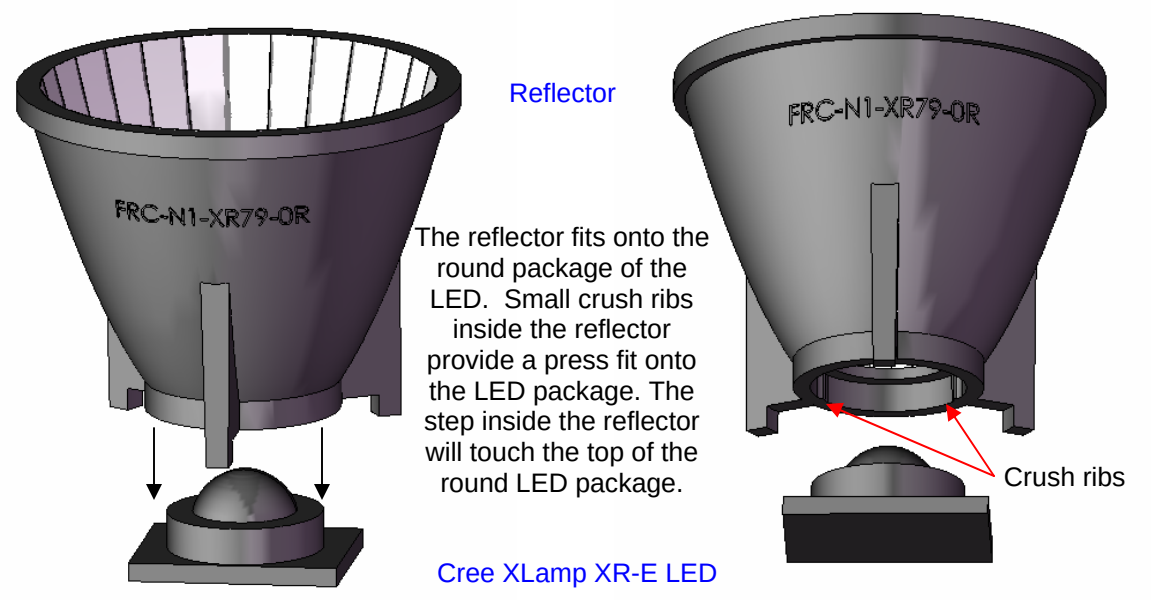
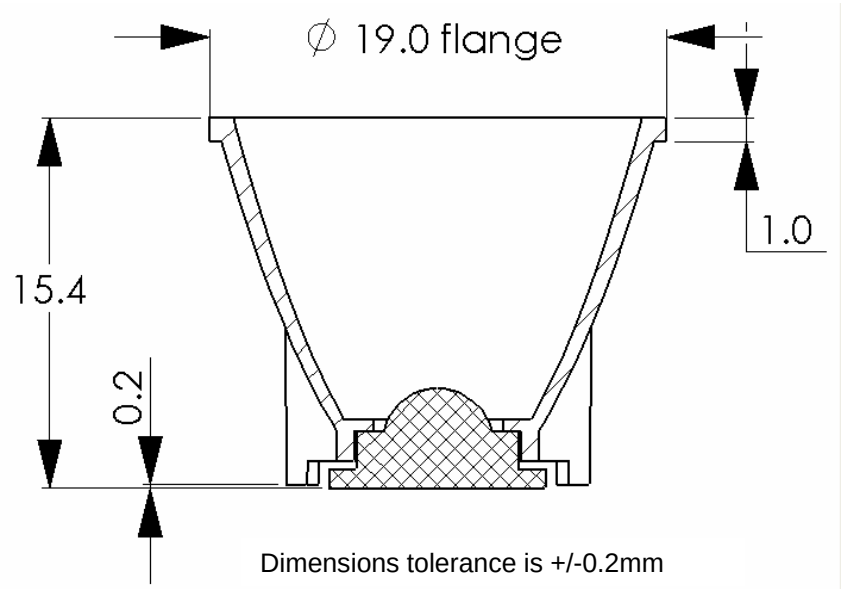
Mechanical Characteristics

View and dimensions of reflector on XLAMP LED:





Ordering part numbers

(Only 1 part number is currently available)

FRC-_1-XR79-0R

Beam angle (main spot):

N = Narrow beam

Document Revision Record

Rev	Date	Author	Description
00	30 July 2007	C. Jones	Initial Release.