

**New!**

## Lamina BL-2000 Wide Flood Optic

### Lamina LED Light Sources

As the market leader in the development and manufacture of super-bright LED arrays, Lamina brings solid state lighting to applications which until now were only possible with traditional lighting sources.

Lamina's LED arrays are manufactured by combining high brightness LEDs from industry-leading LED manufacturers with Lamina's proprietary packaging technology, multilayer Low Temperature Co-Fired Ceramic on Metal (LTCC-M). LTCC-M is a breakthrough in thermal performance for LED packaging technology, a key factor in determining LED life and reliability. Unmatched thermal performance coupled with package interconnectivity allows Lamina to densely cluster multiple LEDs to achieve exceptionally high luminous intensity in very small footprints. Lamina's LED light sources are available in white, RGB and monochrome, from 1W to 100W, and also in custom packages up to 1000W.

Lamina LED Light sources provide:

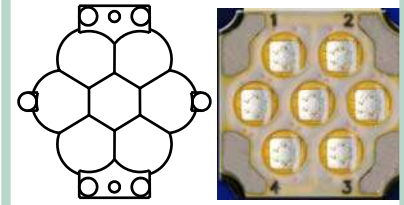
- HIGH LUMINOUS FLUX IN SMALL FOOTPRINT
- SUPERIOR THERMAL PERFORMANCE FOR IMPROVED RELIABILITY
- LONG LIFE AND HIGH LUMEN MAINTENANCE
- SUSTAINABLE DESIGN – ROHS COMPLIANT
- CUSTOM SIZES AND SHAPES AVAILABLE

### BL-2000 Wide Flood Optic: BL-OP20-070

Lamina now offers a low profile optic designed for the BL-2000 product family. This optic has been designed by OEC AG (Optical and Energy Concepts) to produce a homogeneous distribution of light over a 70° beam angle. High collection efficiency and low profile allow for design flexibility without sacrificing performance.

Lamina BL-2000 Optic advantages:

- WIDE FLOOD - 70° BEAM DISTRIBUTION
- LOW PROFILE MICRO LENS ARRAY
- HIGH EFFICIENCY – UP TO 89%
- DURABILITY
- EXCELLENT LONG-TERM STABILITY



### LAMINA LED LIGHT SOURCE TYPICAL APPLICATIONS

#### ARCHITECTURAL LIGHTING

- DECORATIVE AND ACCENT
- COVE AND UNDER-SHELF
- GARDEN AND PATHWAY
- STEP LIGHTS

#### ARCHITAINMENT

#### LCD BACKLIGHTING

#### SIGNAGE & CHANNEL LETTERS

#### SIGNALS

- AIRFIELD TAXIWAY
- TRAFFIC
- SECURITY
- BEACONS
- RAIL

#### MACHINE VISION

#### MEDICAL

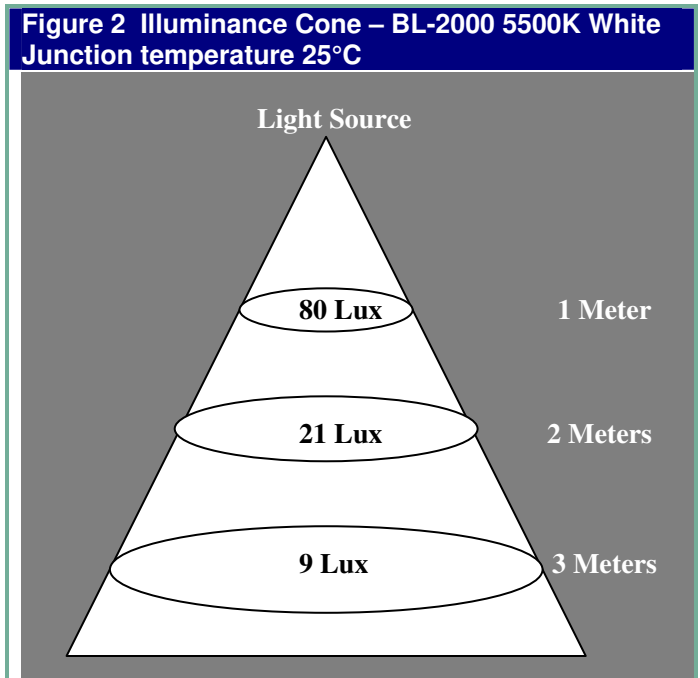
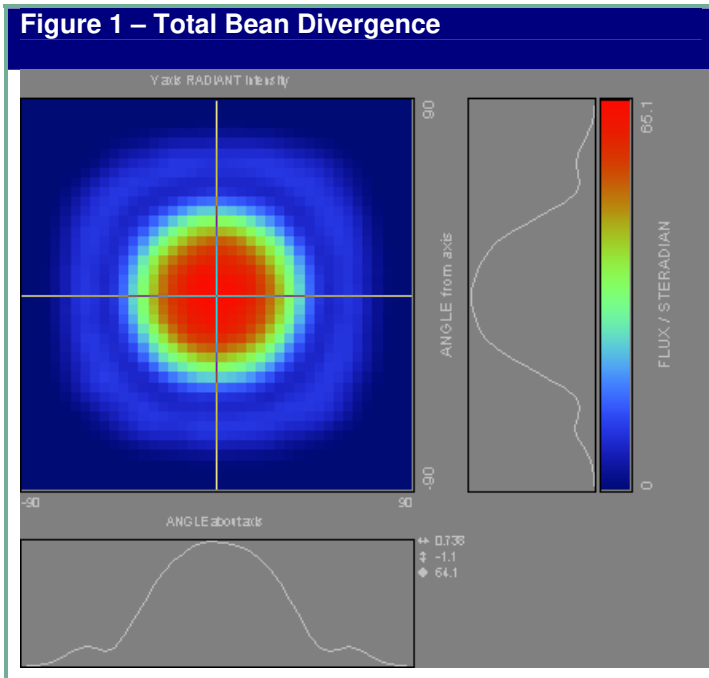
General Characteristics	
Lens Material	Optical Grade PMMI <sup>1</sup>
Operating Temperature range	-40° C / +80° C
Storage Temperature range	-40° C / +80° C

1. PMMI - PLEXIMID® - Polymethyl methacrylimide

## Optical Performance

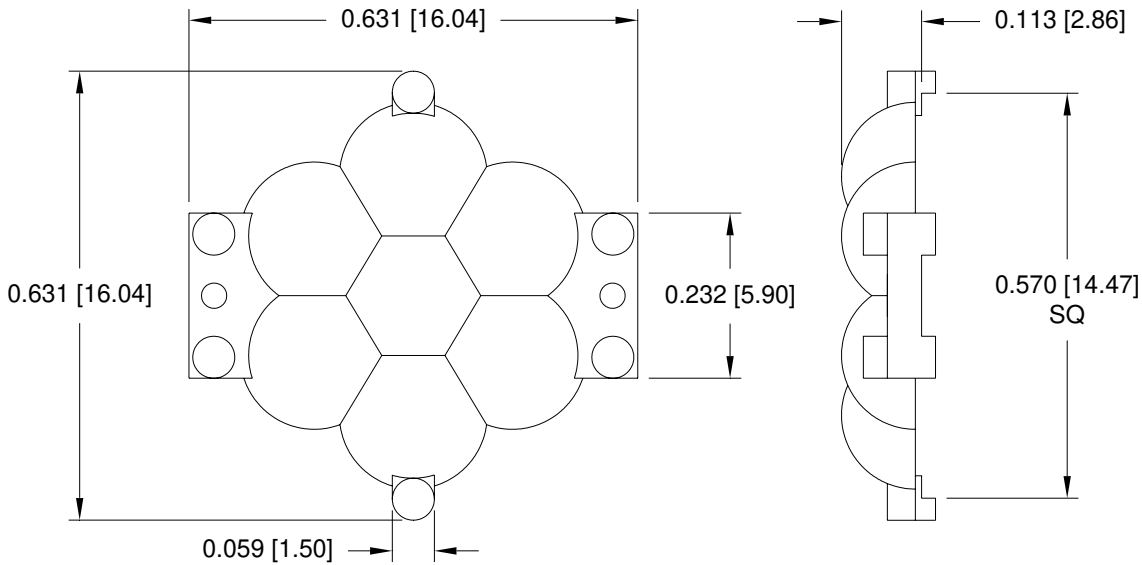
The BL-2000 optic is designed for a typical total beam divergence of 70°, as shown in Figure 1. Total beam divergence is the full angle measured where the luminous intensity is half of the peak value.

Figure 2 shows Illuminance for a BL-2000, 5500K white. These values have been calculated using the efficiency values of the optic and the formula  $E = I / d^2$ , where **E** is the irradiance in lux, **I** the intensity in cd, and **d** the distance between the lens output and the measured point. Illuminance output depends on the luminous flux of the light source. The luminous flux values for Lamina’s light sources are provided in the product data sheets.



**Dimensional Specifications**

**Figure 2 – Mechanical Dimensions**



All dimensions in inches [mm]

**Assembly**

Alignment of the lens with the light source is required for best optical performance. Alignment is achieved by centering the domes on the lens with the domes on the light source. The attachment tabs will help to position the optic. Note that the optic can be mounted in two orientations, 90° apart. However, only one of the positions will align with the light source domes.

Lamina's BL-2000 Optic is designed for attachment to the surface of the light engines using epoxy or silicone adhesive. Recommended epoxy is Loc-Tite OM-50/81501 two-part, room temperature curing epoxy, or an equivalent epoxy. Adhesive should be applied in or below the holes in the outer tabs of the optic. Care should be taken to prevent adhesive from coating the inner or outer surface of the lens and light source domes. In addition, to prevent damage to the LED light source, avoid contact or pressure on the light source domes. More information on attachment of the lens to the light source can be found in the optic attachment application note on Lamina's website.

Please visit Lamina's website, [www.LaminaCeramics.com](http://www.LaminaCeramics.com), for more information on Lamina's LED light sources and Lamina's worldwide distribution network.

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Specifications subject to change without notice.  
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*To see how you can realize all these design benefits, to request a sample, or to speak with an engineer about your design, contact Lamina at 800.808.5822 or 609.265.1401 or visit [www.LaminaCeramics.com](http://www.LaminaCeramics.com).*