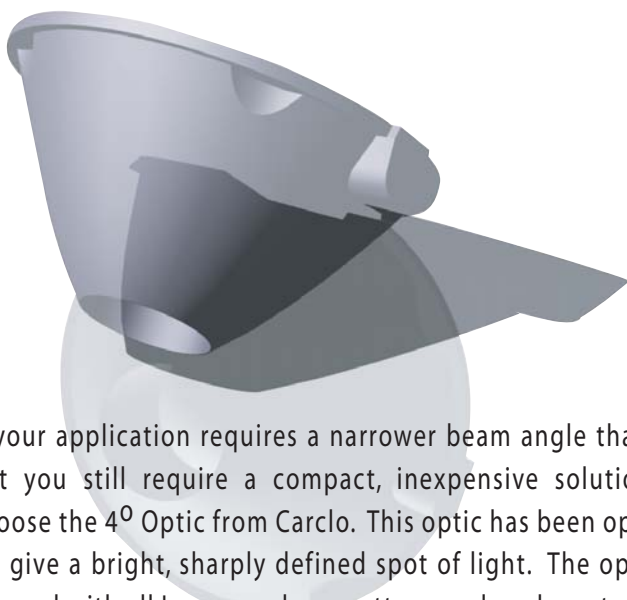


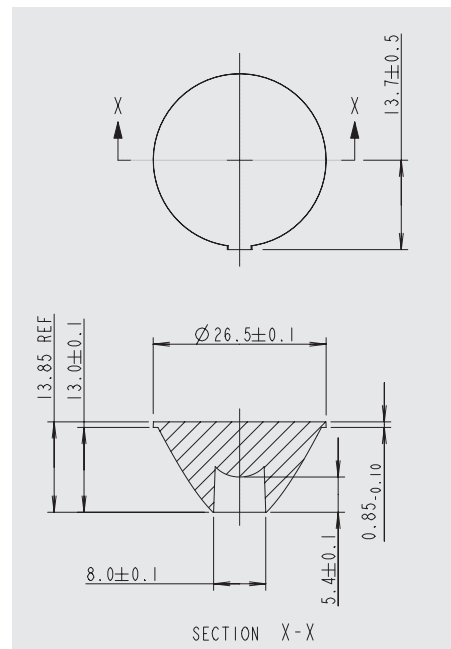
4° LED Optic



If your application requires a narrower beam angle than usual but you still require a compact, inexpensive solution then choose the 4° Optic from Carclo. This optic has been optimised to give a bright, sharply defined spot of light. The optics can be used with all Luxeon colour, wattage and package types.

Two versions are currently available, one that produces a circular 4° beam and the other that gives a 4° x 25° ellipsoidal beam. The optics are made from Lens Quality Polycarbonate; they exhibit high thermal stability and long term durability.

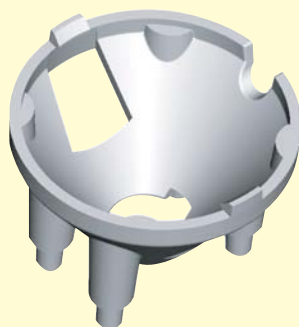
Lenses can be supplied separately or with holders. For the full range of holders refer to table below.



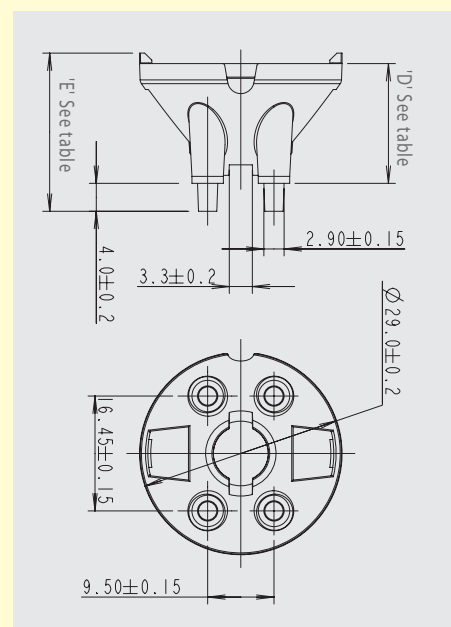
- Optimised for Luxeon LED's
- 4° Beam angle (HWHP)
- Available with holder
- Lens Quality Polycarbonate
- Thermally stable

4° Optic Holder

Designed for the 4° optic, the Holder fits neatly onto a Luxeon Star Board ensuring that the lens is centred and held at the optimum focal distance. Available in Black or White colours for 1, 3 or 5 Watt Luxeons.



Part No.	Description	Colour	Dim'n 'D'	Dim'n 'E'
10064.	For 1 Watt Luxeon	Black	17.15mm	22.7mm
10065	For 1 Watt Luxeon	White	17.15mm	22.7mm
10076	For 3 and 5 Watt Luxeon	Black	16.15mm	21.7mm
10077	For 3 and 5 Watt Luxeon	White	16.15mm	21.7mm

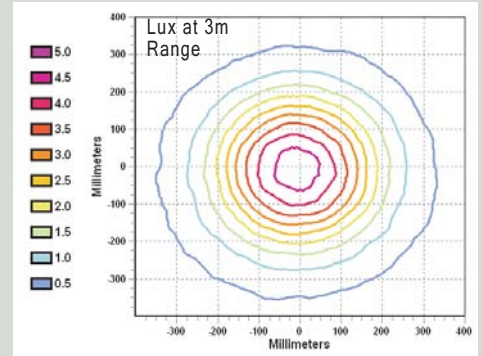
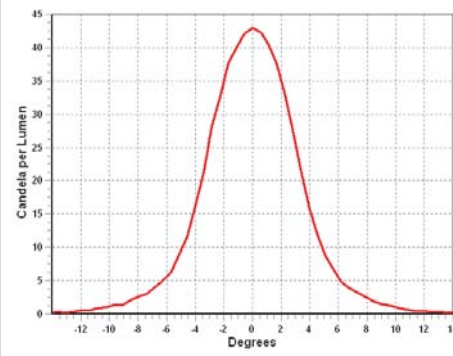


Optical Performance Tables

4° Circular Optic

Part No. 10048

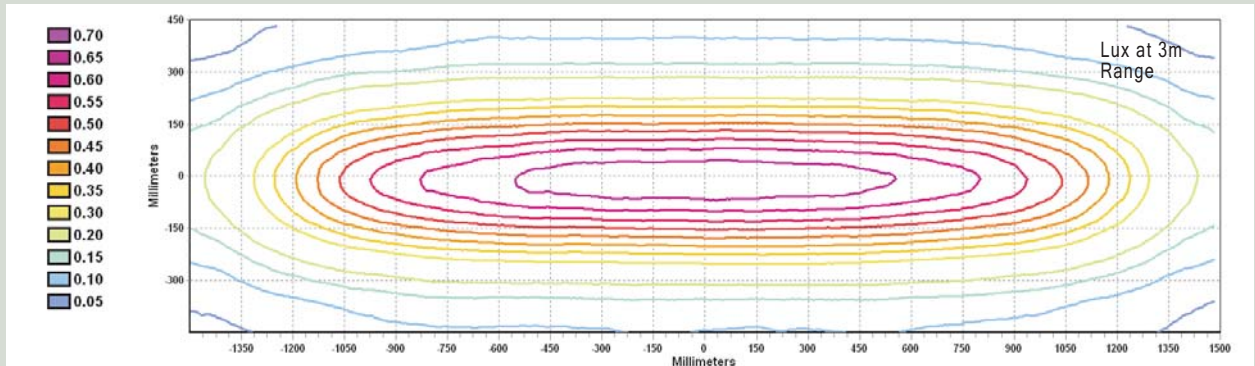
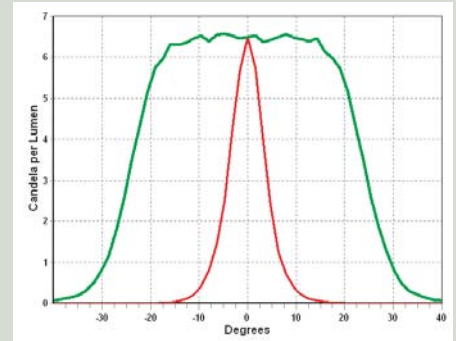
Typical half angle divergence
 $4^{\circ} \pm 1^{\circ}$ when used with 1W
 White Luxeon LED



4° x 25° Elliptical (Line) Beam Optic

Part No. 10049

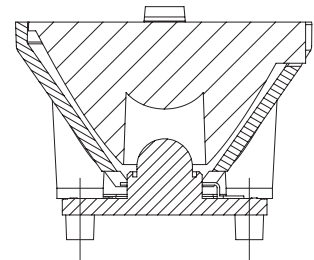
Typical half angle divergence $25^{\circ} \pm 3^{\circ}$ and $4^{\circ} \pm 1^{\circ}$ when used with 1W White



Notes: Measurements have been made with a 1W Luxeon Lambertian LED. The measured efficiency for all optics is approx 85%.

4° Assembly

4° LED Optic mounted in
 standard holder onto Luxeon
 1W star board



Section through 4° LED Optic, Optic Holder and
 Luxeon 1W star board