



Discover how we can improve your
instrumentation and supply chain
experience today!

KO | BRINGING QUALITY INTO FOCUS

www.knightoptical.com | Tel: +1 401 583 7846 | Fax: +1 401 583 7851
Knight Optical (USA) LLC | 1130 Ten Rod Road, Suite D102 | North Kingsdown RI 02852 USA
www.knightoptical.com | Tel: +44 (0) 1622 859444 | Fax +44 (0) 1622 859555
Knight Optical (UK) Ltd | Roebuck Business Park | Harrietsham | Kent ME17 1SB UK

Fresnel Lenses for concentrated photovoltaic applications

Knight Optical can offer you [Stock and Custom Fresnel Lenses](#), for **concentrated photovoltaic applications** in a range of materials such as [PMMA Acrylic](#) and [Borosilicate](#).

Concentrated photovoltaics (CPV) is an application which generates electricity from sunlight. The key difference between this technology and conventional photovoltaics (solar panels) is the inclusion of optical components. Utilising optical components which focuses the sunlight onto solar cells increases the efficiency of the electricity generation.

Knight Optical provides [fresnel lenses](#) which consist of a flat surface with interspace concentric steps whereby each step corresponds to the surface of a conventional lenses. PMMA Acrylic is a preferred material for CPV systems as it is very lightweight when used in a large size. Specialist grades of PMMA are also utilised which absorb the UV light and thus reduces the effects of solarisation i.e. the yellowing of the optical material due to exposure to UV. Fresnel lenses can be provided in focal lengths equivalent to a traditional lens, but with a fraction of the thickness and cost. Additionally, because the lens is so thin little light is lost by absorption.

Knight Optical can also provide provide Fresnel lenses in dome shapes and with a curvature i.e. meniscus shape. In fact lenses can be provided of a curved shape, which when assembled in a frame forms a larger lens which could not be produced as a monolithic component.

Knight Optical's stock range of fresnel lenses range from 5mm to 650mm aperture and contains both standard and precision ranges of fresnel lenses. The precision range has tighter tolerances with improved surface quality. These ranges are uncoated however antireflective coatings can be applied at short notice.

Typical specs:

Material:	PMMA Acrylic / Borosilicate
Center thickness:	+/- 0.2mm
Clear aperture:	Nominal
Focal length:	
Standard range	± 5%
Precision range	± 2% typically (± 5% manufacturing data)
Design condition:	Parallel light on grooved side

All our Fresnel Lenses are fully inspected on their quality in our ISO 9001 certified, state-of-the-art Metrology laboratory, using our Starrett AV300 video microscope for high accurate diameter testing. This allows us to work to the highest [QA standards](#) and meet the tolerance specifications on these **precision components**.

[Contact our technical sales team](#) to discover how Knight Optical's high quality Fresnel Lenses and superior service can improve your instrumentation and supply chain experience.

UK, Europe, Asia & RoW: E-Mail info@knightoptical.co.uk Tel +44 (0)1622 859444

USA & Canada: E-Mail usasales@knightoptical.com Tel +001 401-583-7846

- View our [QA and metrology information](#)
- Watch our [Corporate Video](#)

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