


# KHATOD



1 0 0 % M A D E I N I T A L Y

**DIGITAL EDITION / SUMMER 2021**



## ADVANCED TECHNOLOGY UNIQUE PROJECTS READY-TO-USE



**Khatod optics enable to realize your most demanding applications in LED Lighting.**

Pioneer of SILICONE LENSES, unique to OPTICAL SYSTEMS, forerunner of new-concept REFLECTORS, skilled developer of CUSTOM OPTICS. To its customers, Khatod makes available its newest industrial area – 30,000sqm of advanced technology - free of charge technical support, fast deliveries from HQ, corporate sales offices around the world and global distributors of the industry.

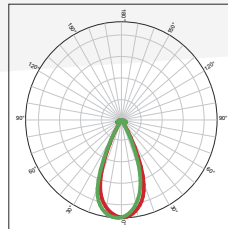
**Standard products:** over 7900 models from stock – optics, optical systems and reflectors – for most popular LEDs, for any kind of applications in LED Lighting. Made from top quality materials – optical grade PMMA for HT, PC HT, ULTRA-CLEAR SILICONE (LSR) – by using exclusive manufacturing processes and superior finishing.

**Custom Optics:** Khatod started as manufacturer of custom optics when LED Lighting was in its early days. Since then, our lenses have been developing alongside the newest LEDs. Who can offer better expertise than Khatod? The answer is easy: nobody. Unique on the international scene, Khatod develops the entire product process 100% in-house, Milano, Italy. No outsourcing. For your new projects, do not hesitate to contact Khatod. You will find not only a manufacturer of optics, but a real partner in your project.

**Since 1985, from Project to Object. 100% Made in Khatod, Italy.**

Watch our corporate video

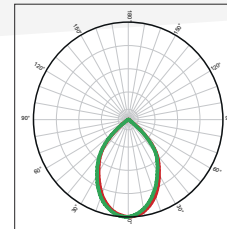




## PLL2080EW

Full angle at 50%  
from maximum: ~ 60°

Full angle at 10%  
from maximum: ~ 75°



## PLL2080UW

Full angle at 50%  
from maximum: ~ 90°

Full angle at 10%  
from maximum: ~ 110°

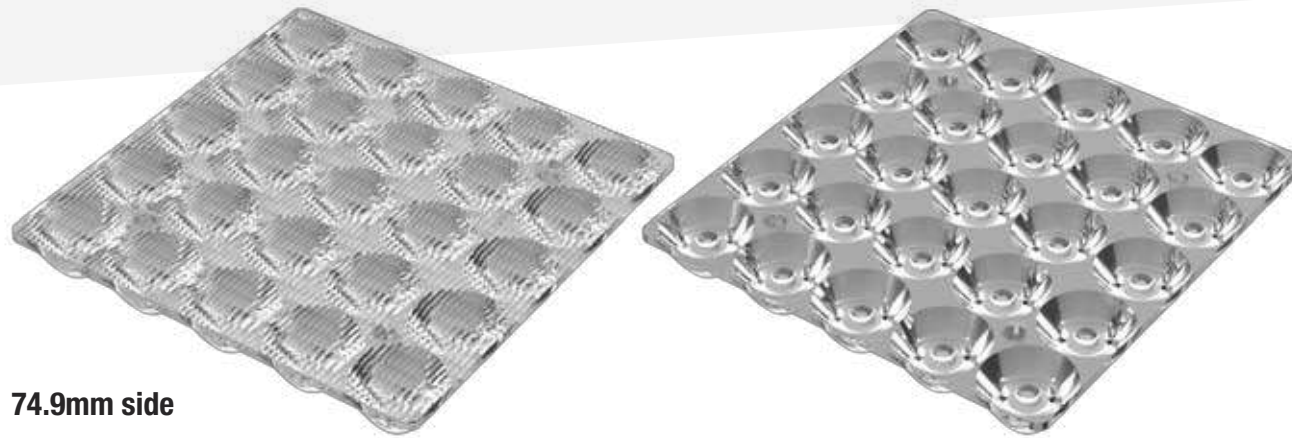


Single microlenses for most popular MID-POWER LEDs, Round shape - Ø 11.95mm - different beam angles. Mounted on reels and compatible with the most popular "Pick and Place" Machines for SMD Components. Made of **PMMA**. Lighting efficiency: **over 85%**.

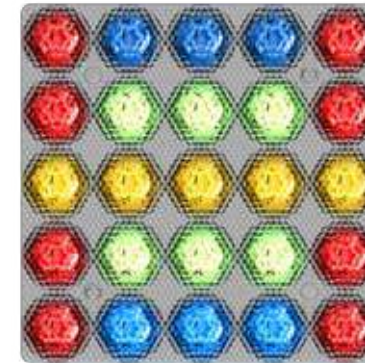
Beam angles: **60°, 90°**.

Click for  more infos





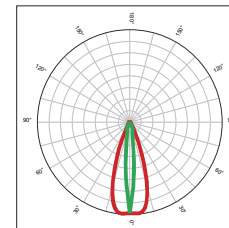
74.9mm side



MULTICOLOR



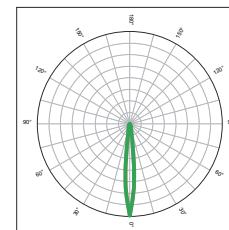
DYNAMIC WHITE



## PLL2251EL

Full angle at 50%  
from maximum:  
~ 14° x 38°

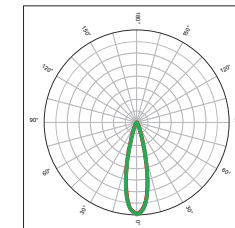
Full angle at 10%  
from maximum:  
~ 45° x 56°



## PLL2251NA

Full angle at 50%  
from maximum: ~ 11.4°

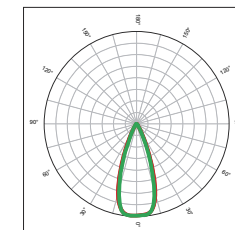
Full angle at 10%  
from maximum: ~ 22.8°



## PLL2251ME

Full angle at 50%  
from maximum: ~ 25.8°

Full angle at 10%  
from maximum: ~ 45.4°



## PLL2251WI

Full angle at 50%  
from maximum: ~ 39.2°

Full angle at 10%  
from maximum: ~ 60.7°

Modules for **indoor** applications square shaped – 74.9mm x 74.9mm – consisting of a **25 lens array**. Made of **PMMA**, the lenses work perfectly within -40° to +85°C temperature range. PLL2251 lenses are optimized for the most popular **3535** package LEDs with dome, can be used individually or configured in multiple parts so to create the perfect lighting fixture for your application, as linear lighting rows. The Lenses are easily assembled by glue or screw.

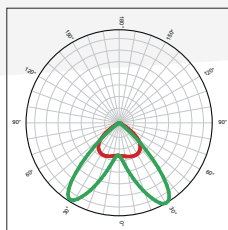
Beam angles: 11°, 25°, 40°, Elliptical.

Click for  more infos

# 11x3 STOCK & SHOP

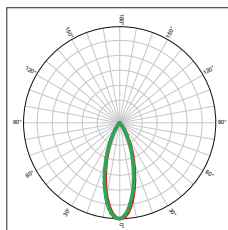
## LENS ARRAYS

MID-POWER  
LEDs



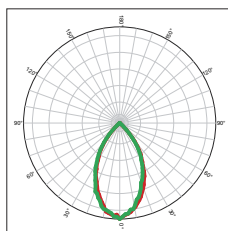
### PLL2059AXKH

Full angle at 50%  
from maximum: ~ 90°  
Full angle at 10%  
from maximum: ~ 105°



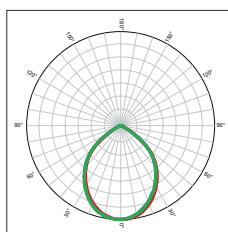
### PLL2059WIKH

Full angle at 50%  
from maximum: ~ 33°  
Full angle at 10%  
from maximum: ~ 64°



### PLL2059EWKH

Full angle at 50%  
from maximum: ~ 60°  
Full angle at 10%  
from maximum: ~ 90°



### PLL2059UWKH

Full angle at 50%  
from maximum: ~ 90°  
Full angle at 10%  
from maximum: ~ 120°



11x3 optics panels, made of PMMA, designed for most popular Mid-Power LEDs. Excellent optical solutions for lighting systems used in rooms with high ceilings and industrial frame. Designed to comply with **ZHAGA** mounting dimension specifications.

Beam angles: **Wide, Extra Wide, Ultra Wide, Double-Asymmetrical.**

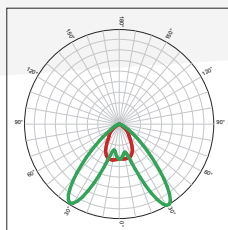
Click for  more infos



# 11x3 STOCK & SHOP - BOX-SHAPE

## LENS ARRAYS

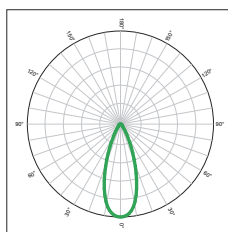
MID-POWER  
LEDs



### PLL2061AXKH

Full angle at 50%  
from maximum: ~ 90°

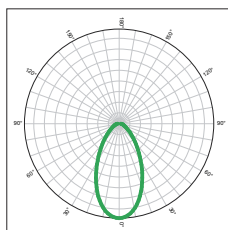
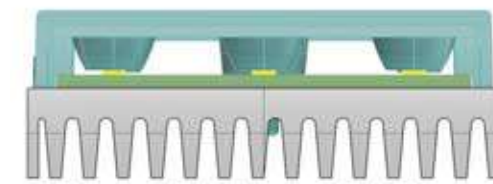
Full angle at 10%  
from maximum: ~ 105°



### PLL2061WIKH

Full angle at 50%  
from maximum: ~ 33°

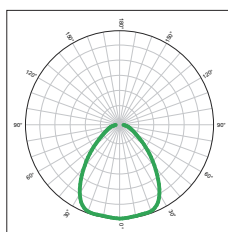
Full angle at 10%  
from maximum: ~ 64°



### PLL2061EWKH

Full angle at 50%  
from maximum: ~ 60°

Full angle at 10%  
from maximum: ~ 90°



### PLL2061UWKH

Full angle at 50%  
from maximum: ~ 90°

Full angle at 10%  
from maximum: ~ 120°



The module edge is as high as the height determined by the lenses forming the array - 7.17mm to 12.07mm - giving the module a box shape. This makes Stock & Shop even more compact, **robust** and efficient while enabling the housing to be extremely flat. Dimensions: **286.00mm x 60.00mm side**; 7.17 mm to 12.07mm height. Lighting efficiency: **over 85%**.

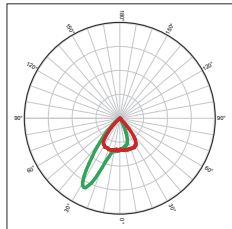
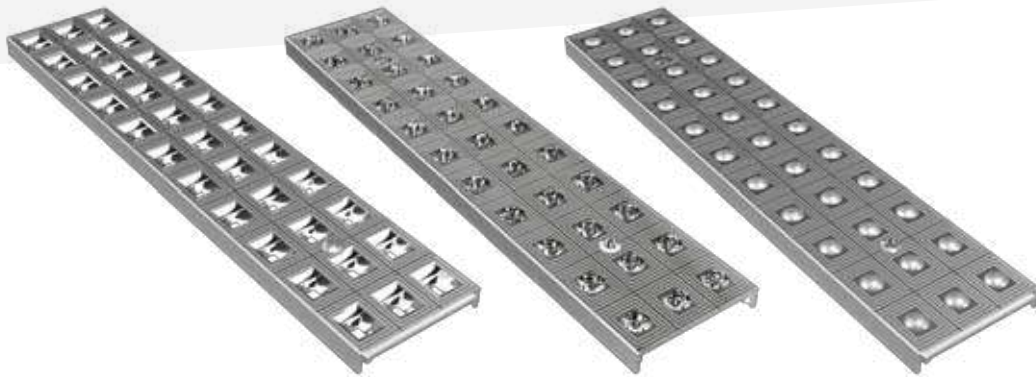
Beam angles: **Wide, Extra Wide, Ultra Wide, Double-Asymmetrical.**

Click for  more infos

# PIXEL 11x3

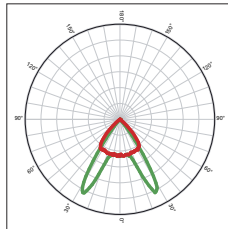
## REFLECTOR ARRAYS

MID-POWER  
LEDs



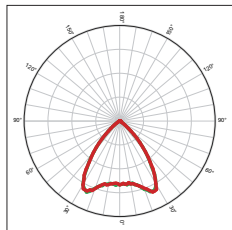
### KCLPL2161AS

Full angle C0-C180  
@ Max Candela: ~ 30°



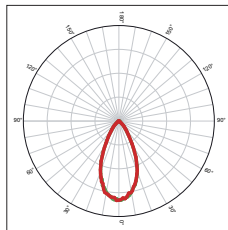
### KCLPL2161AX

Full angle C0-C180  
@ Max Candela: ~ 30°



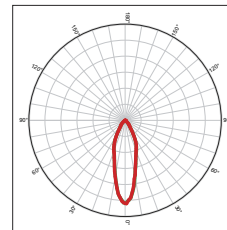
### KCLPL2161EW

Full angle at 50%  
from maximum: ~ 90°  
Full angle at 10%  
from maximum: ~ 110°



### KCLPL2161WI

Full angle at 50%  
from maximum: ~ 60°  
Full angle at 10%  
from maximum: ~ 90°



### KCLPL2161ME

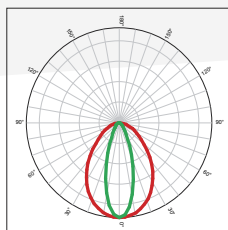
Full angle at 50%  
from maximum: ~ 30°  
Full angle at 10%  
from maximum: ~ 70°



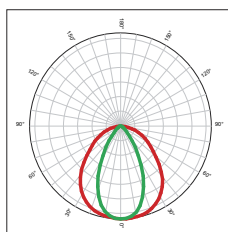
Reflector panels made of 33 cavities, box-shaped, designed for Mid Power LEDs and to comply with low **UGR**. Module dimensions: **285.60mm x 61mm side**, 10.25mm height only. Designed to comply with **ZHAGA** mounting dimension specifications.

Beam angles: **Wide, Extra Wide, Asymmetrical, Double-Asymmetrical.**

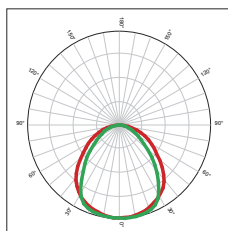
Click for  more infos



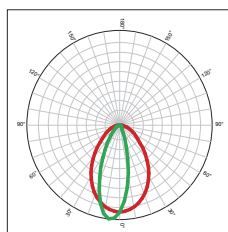
**PLL2026A**  
Full angle at 50%:  
30°



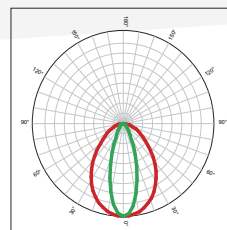
**PLL2026B**  
Full angle at 50%:  
60°



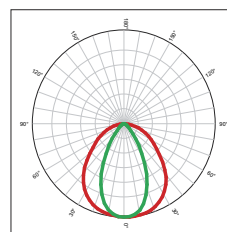
**PLL2026C**  
Full angle at 50%:  
90°



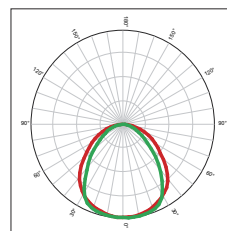
**PLL2026D**  
Full angle at 50%:  
asymmetric



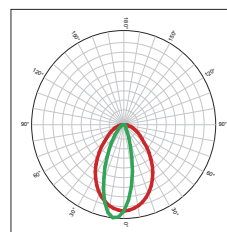
**PLL2026E**  
Full angle at 50%:  
30°  
for Fortimo LED



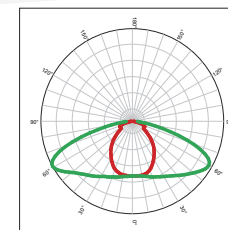
**PLL2026F**  
Full angle at 50%:  
60°  
for Fortimo LED



**PLL2026G**  
Full angle at 50%:  
90°  
for Fortimo LED



**PLL2026H**  
Full angle at 50%:  
asymmetric °  
for Fortimo LED



**PLL2026L**  
Full angle at 50%:  
145° x 90°



Engineered for mid-power LED strips. Made of optical grade **PMMA**; -40° ~ 90° temperature resistant. Fit for standard PCB, 20mm wide – and 4 optical versions for **Fortimo** LED Strip systems. **286mm long**, offer exclusive installation also **in continuous rows** made of limitless number of parts by simple fastening with screws.

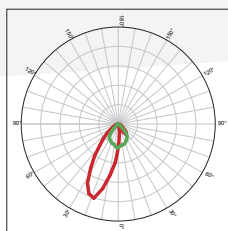
Beam angles: **30°, 60°, 90°, Asymmetrical.**



# LINEA 24x1

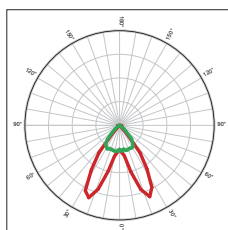
## LINEAR LENSES

MID-POWER  
LEDs



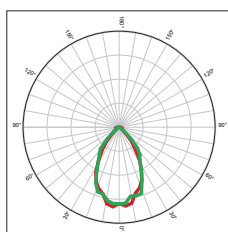
### PLL2174AS

Full angle at 50%  
from maximum: ~ 20°



### PLL2174AX

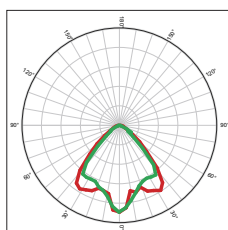
Full angle at 50%  
from maximum: ~ 25°



### PLL2174EW

Full angle at 50%  
from maximum: ~ 60°

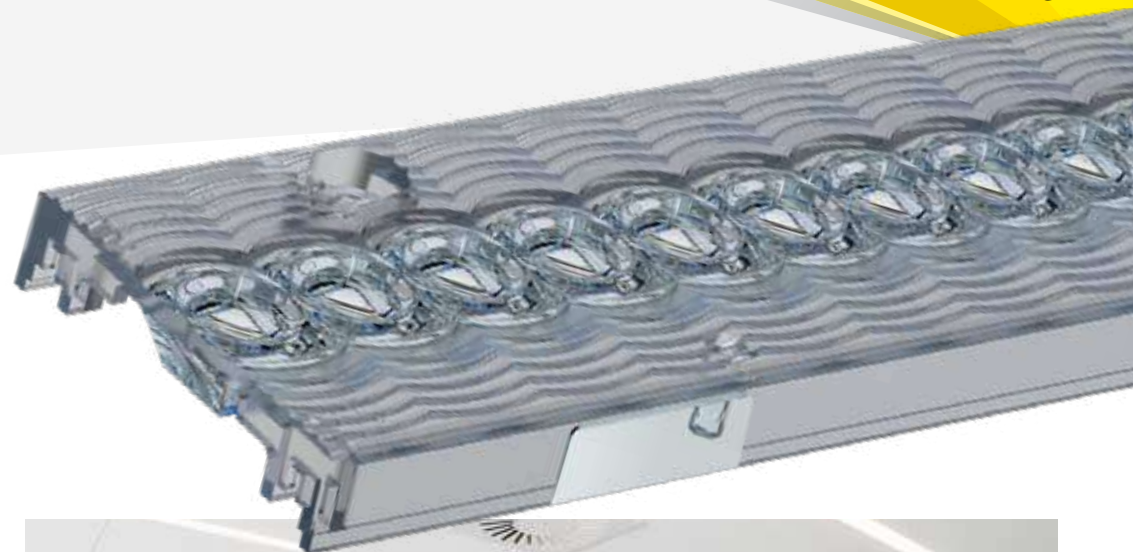
Full angle at 10%  
from maximum: ~ 90°



### PLL2174UW

Full angle at 50%  
from maximum: ~ 90°

Full angle at 10%  
from maximum: ~ 120°



PLL2174xx are 1-row TIR linear lens modules consisting of 24 TIR lenses – 24x1 – with 11.6 mm pitch, for PCBs with 40mm maximum width. Dimensions: **278.30mm x 43.00mm side**, 9.94mm height. Linear modules, engineered for stock&shop applications, PLL2174xx series is designed to comply with **UGR** low. **No yellowing for 10 years**, can be used alone or with a protection glass plate.

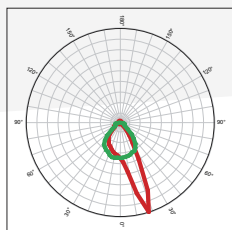
Beam angles: **60°, 90°, Asymmetrical, Double-Asymmetrical.**

Click for  more infos

# SUPERLINEA IP / SUPERLINEA SNAP-IN

## LINEAR LENSES

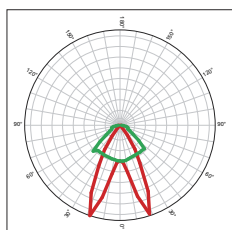
MID-POWER  
LEDs



### PLL2091AS

Full angle at 50%  
from maximum:  $\sim 30^\circ$

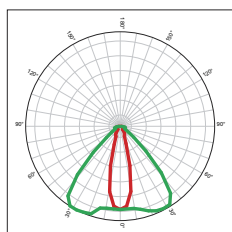
Full angle at 10%  
from maximum:  $\sim 90^\circ$



### PLL2091AX

Full angle at 50% from  
maximum:  $\sim -30/+30^\circ$

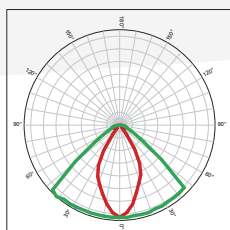
Full angle at 10%  
from maximum:  $\sim 90^\circ$



### PLL2091WI

Full angle at 50%  
from maximum:  $\sim 30^\circ$

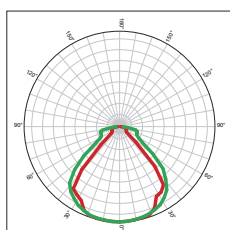
Full angle at 10%  
from maximum:  $\sim 90^\circ$



### PLL2091EW

Full angle at 50%  
from maximum:  $\sim 60^\circ$

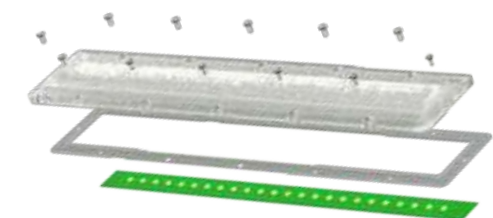
Full angle at 10%  
from maximum:  $\sim 100^\circ$



### PLL2091UW

Full angle at 50%  
from maximum:  $\sim 90^\circ$

Full angle at 10%  
from maximum:  $\sim 100^\circ$



**LINEAR LENSES 40mm x 284mm.** They ARE NOT extrusion process manufactured. Designed for MID-POWER LEDs assembled in linear arrays, they are optimized for the most popular **ZHAGA** mid-power 20 and 24 mm wide PCBs. Made of PMMA, achieve 89% lighting efficiency. The special Fresnel surface texture enables enhanced glare control, making SUPERLINEA LENSES excellent in any application requiring a substantial glare reduction. Extruded aluminum profiles and plastic plugs to close the end part of the assembled construction are available on request. SUPERLINEA SNAP-IN are provided with clips enabling either direct assembly onto the PCB or onto the profiles.

Beam angles:  $30^\circ$ ,  $60^\circ$ ,  $90^\circ$ ,  $20^\circ$  Asymmetrical,  $\pm 20^\circ$  Asymmetrical.

Click for  more infos



16 square module  
49.5mm side



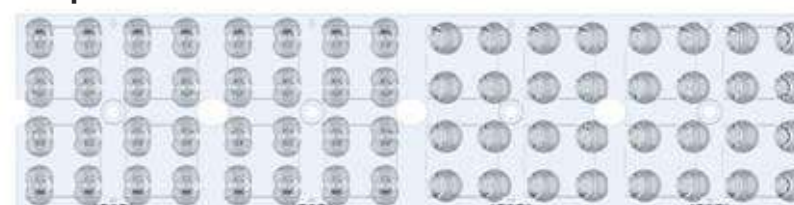
32 optics



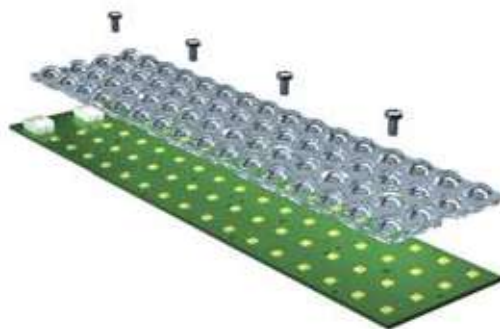
48 optics



64 optics



DOWNLOAD CATALOGUE



FLEX LENS – ready to use multi-lens array available in 4 different sizes: **16 optics** (49.5mm x 49.5mm), **32 optics** (49.5mm x 100.3mm), **48 optics** (49.5mm x 151.1mm) and **64 optics** (49.5mm x 201.9mm) all with 12.5mm pitch. This series covers, with a large variety of models, street lighting application as well as industrial lighting, sports lighting and in general any wide area lighting application.

Made of optical grade clear **PMMA** the Flex Lens family is UV protected and the average optical efficiency exceeds 90%. Layout compliant with **ZHAGA book 15** circuit boards.

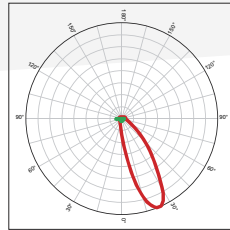
Click for  more infos



# WALL GRAZER

## ASYMMETRICAL LENSES

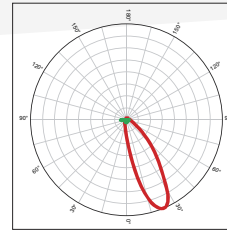
MID-POWER  
LEDs



### PLLSA2187RD

Full angle at 50%  
from maximum: ~ 48°

Full angle at 10%  
from maximum: ~ 146°



### PLLSA2187SQ

Full angle at 50%  
from maximum: ~ 48°

Full angle at 10%  
from maximum: ~ 146°



Suitable for most popular 2.0x2.0mm LEDs, Khatod Wall Grazer Lenses deliver smooth and uniform light flux. Optical characteristics, surface finish, size and available shapes make these lenses suitable for multiple applications: from wall fixtures or sconces to recessed lighting, as well as step lights or floor mounted as uplights. The **adhesive tape** allows easy fixing to the lighting fixture.

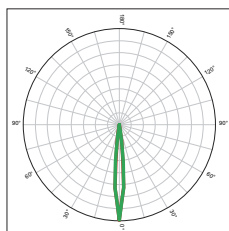
Beam angles: **48° Asymmetrical in round or square shape.**

Click for  more infos

KHATOD

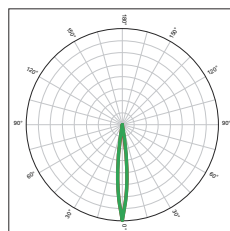


26mm Ø



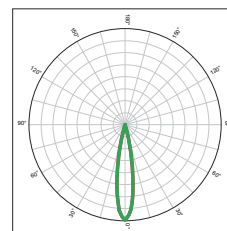
### PLL2261SAUN

Full angle at 50%  
from maximum: ~ 10°  
Full angle at 10%  
from maximum: ~ 19°



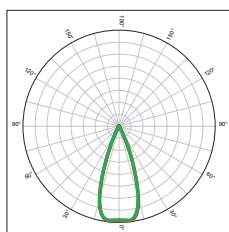
### PLL2261SANA

Full angle at 50%  
from maximum: ~ 12°  
Full angle at 10%  
from maximum: ~ 24°



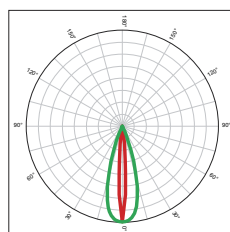
### PLL2261SAME

Full angle at 50%  
from maximum: ~ 19°  
Full angle at 10%  
from maximum: ~ 31°



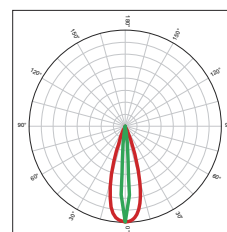
### PLL2261SAWI

Full angle at 50%  
from maximum: ~ 38°  
Full angle at 10%  
from maximum: ~ 55°



### PLL2261SAEL

Full angle at 50%  
from maximum:  
~ 11° x 32°  
Full angle at 10%  
from maximum:  
~ 21° x 48°



### PLL2261SAEL90

Full angle at 50%  
from maximum:  
~ 32° x 11°  
Full angle at 10%  
from maximum:  
~ 48° x 21°



Family of Single-Lenses made of **PMMA** for outdoor and indoor lighting applications. Diameters of **21.60 mm** and **26.00 mm**, optimized for the most popular **3535** package LEDs but can also be used with **5050** package LEDs. The Lenses are easily assembled by adhesive **tape fixing**.

Beam angles: **Ultra Narrow, Narrow, Medium, Wide** and two **Elliptical** versions.

Click for  more infos

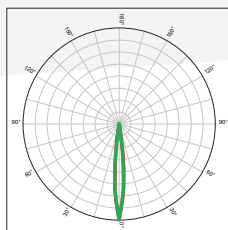
# SILVER JUNIOR

## SINGLE LENSES

HIGH-POWER  
LEDS



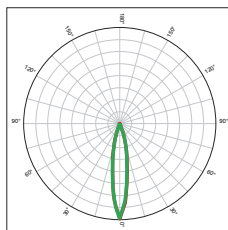
21.6mm Ø



### PLL2269SAUN

Full angle at 50%  
from maximum: ~ 10°

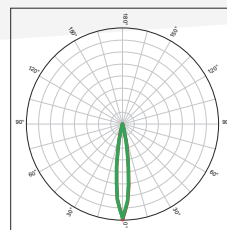
Full angle at 10%  
from maximum: ~ 17°



### PLL2269SAME

Full angle at 50%  
from maximum: ~ 25°

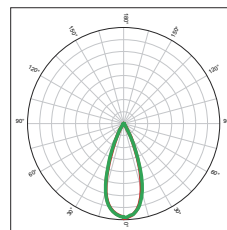
Full angle at 10%  
from maximum: ~ 40°



### PLL2269SANA

Full angle at 50%  
from maximum: ~ 16°

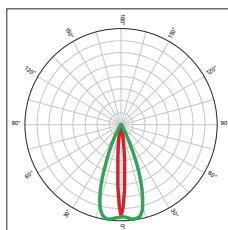
Full angle at 10%  
from maximum: ~ 27°



### PLL2269SAWI

Full angle at 50%  
from maximum: ~ 40°

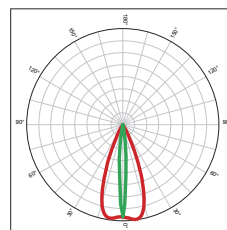
Full angle at 10%  
from maximum: ~ 60°



### PLL2269SAEL1

Full angle at 50%  
from maximum:  
~ 10° x 45°

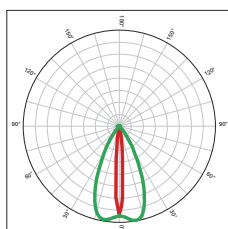
Full angle at 10%  
from maximum:  
~ 20° x 60°



### PLL2269SAEL190

Full angle at 50%  
from maximum:  
~ 45° x 10°

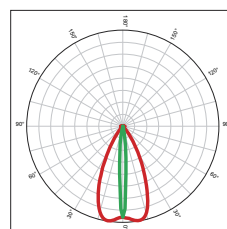
Full angle at 10%  
from maximum:  
~ 60° x 20°



### PLL2269SAEL2

Full angle at 50%  
from maximum:  
~ 10° x 55°

Full angle at 10%  
from maximum:  
~ 20° x 80°



### PLL2269SAEL290

Full angle at 50%  
from maximum:  
~ 55° x 10°

Full angle at 10%  
from maximum:  
~ 80° x 20°





DESIGNED TO COMPLY WITH



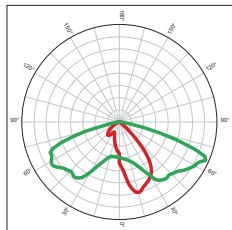
IP65



IK08



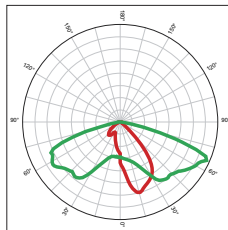
135x100mm side



## PLL2248AS

Full angle at 50%  
from maximum:  
~ 90° x 145°

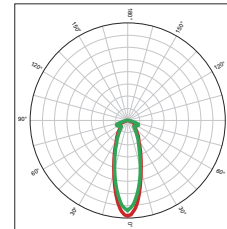
Full angle at 10%  
from maximum:  
~ 115° x 160°



## PLL2248AS180

Full angle at 50%  
from maximum:  
~ 90° x 145°

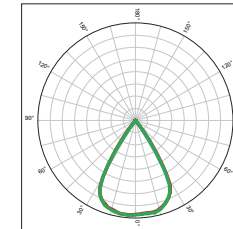
Full angle at 10%  
from maximum:  
~ 115° x 160°



## PLL2248WI

Full angle at 50%  
from maximum:  
~ 33°

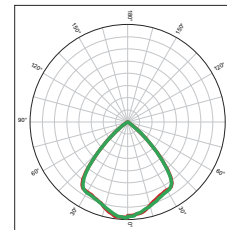
Full angle at 10%  
from maximum:  
~ 125°



## PLL2248EW

Full angle at 50%  
from maximum:  
~ 64°

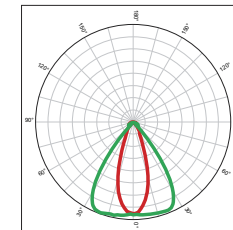
Full angle at 10%  
from maximum:  
~ 75°



## PLL2248UW

Full angle at 50%  
from maximum:  
~ 85°

Full angle at 10%  
from maximum:  
~ 105°



## PLL2248EL

Full angle at 50%  
from maximum:  
~ 35° x 75°

Full angle at 10%  
from maximum:  
~ 75° x 88°



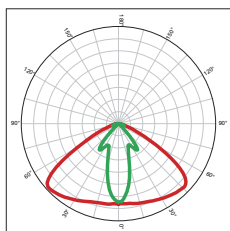
Multi-Lens Modules for **outdoor** applications, especially for lighting applications in high bay and streets, with 24 Lenses for **5050** package LEDs.  
Designed to comply with IP65 and IK08.

Beam angles: **Elliptical, Wide, Extra-Wide, Ultra-Wide, IESNA II Medium Cut-Off.**

Click for  more infos



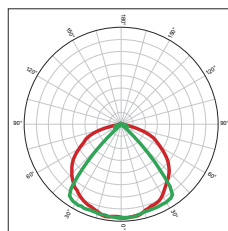
284mm Ø



**PLL2215EL**

Full angle at 50%  
from maximum:  
~ 33° x 120°

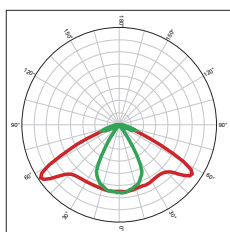
Full angle at 10%  
from maximum:  
~ 90° x 145°



**PLL2215UW**

Full angle at 50%  
from maximum:  
~ 85° x 120°

Full angle at 10%  
from maximum:  
~ 95° x 155°



**PLL2215EW**

Full angle at 50%  
from maximum:  
~ 60° x 130°

Full angle at 10%  
from maximum:  
~ 150° x 160°

**DESIGNED TO COMPLY WITH**



IP68



IK10



STRATOS are high-tech lenses designed for high bay applications, with a special focus on **warehouses**. The elliptical beam is the core project of Stratos family, unique on the market for this kind of applications. All beam versions do not perform a simple roto-symmetric distribution. In fact, Stratos lenses are unique solutions for all those lighting applications where a typical roto-symmetric distribution is not sufficient. Comparative tests we carried out with homologous models from the market, prove that Stratos lenses perform up to 37% more lux (average value) on the floor and up to 47% more uniformity in front of the shelves. Made of **PC**. Also, you can create different layouts with the same lens, based on the number and type of LEDs you will place along the 6 linear lenses forming the lens **6-row array**.

Beam angles: **60°, 90°, Elliptical**.

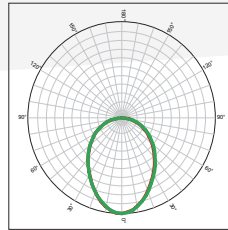
Click for  more infos



# NACTUS 6x2 SIL

SILICONE OPTICAL SYSTEMS

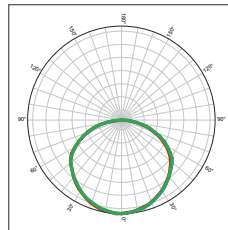
HIGH-POWER  
LEDs



## PLL120002SR IESNA Type V

Full angle at 50% from maximum:  $\sim 150^\circ$

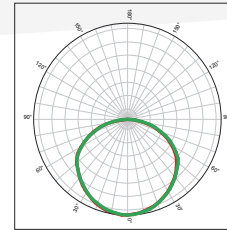
Full angle at 10% from maximum:  $\sim 165^\circ$



## PLL129003SR IESNA Type II

Full angle at 50% from maximum:  $\sim 80^\circ \times 150^\circ$

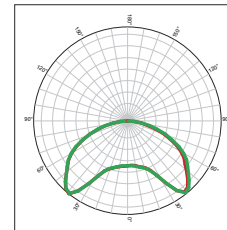
Full angle at 10% from maximum:  $\sim 130^\circ \times 160^\circ$



## PLL120003SR IESNA Type II

Full angle at 50% from maximum:  $\sim 80^\circ \times 150^\circ$

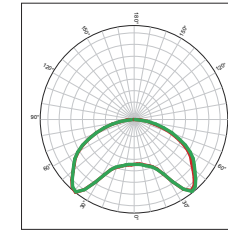
Full angle at 10% from maximum:  $\sim 130^\circ \times 160^\circ$



## PLL129004SR IESNA Type III

Full angle at 50% from maximum:  $\sim 130^\circ \times 150^\circ$

Full angle at 10% from maximum:  $\sim 145^\circ \times 160^\circ$



## PLL120004SR IESNA Type III ME3a

Full angle at 50% from maximum:  $\sim 130^\circ \times 150^\circ$

Full angle at 10% from maximum:  $\sim 145^\circ \times 160^\circ$



**SSL ENABLING  
TECHNOLOGIES**  
2019 WINNER



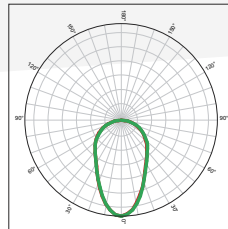
Comply with **IK10** ratings

NACTUS 6x2 modules, made of Ultra-Clear LSR (Liquid Silicone Rubber), 173 (l) x 71.4 (w) x 12 (h) mm, 12 optics, with 25.40mm lens pitch. Offer total compatibility and countless opportunities to customize your lighting fixtures. High optical efficiency; extreme temperature resistance,  $-40^\circ\text{C}$  to  $150^\circ\text{C}$ , with peaks up to  $200^\circ\text{C}$ . UV-resistant, non-yellowing. Designed to comply with **IK10** and **IP65** ratings.

Beam angles: **IESNA Type II, IESNA Type III - ME3A, IESNA Type V.**

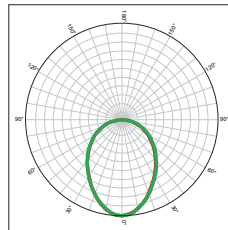
Click for  more infos





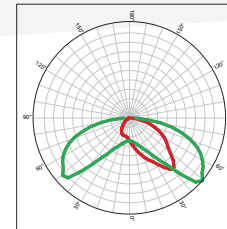
**PLL120001**  
**60° FWHM**

Full angle at 50%  
from maximum: ~ 60°  
Full angle at 10%  
from maximum: ~ 160°



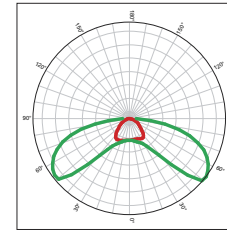
**PLL120002**  
**90° FWHM**

Full angle at 50%  
from maximum: ~ 85°  
Full angle at 10%  
from maximum: ~ 165°



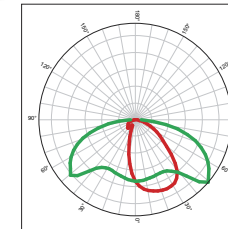
**PLL120005**  
**IESNA Type III**

Full angle at 50% from  
maximum: ~ 146° x 106°  
Full angle at 10% from  
maximum: ~ 157° x 152°



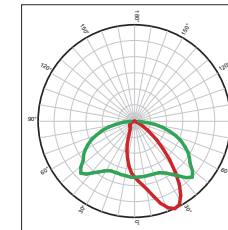
**PLL120403**  
**IESNA Type I**

Full angle at 50% from  
maximum: ~ 155° x 110°  
Full angle at 10% from  
maximum: ~ 170° x 150°



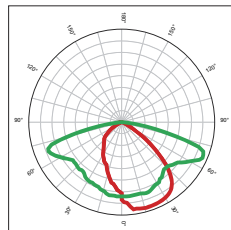
**PLL120424**  
**IESNA Type III**

Full angle at 50% from  
maximum: ~ 150° x 68°  
Full angle at 10% from  
maximum: ~ 165° x 130°



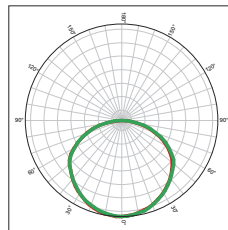
**PLL120425**  
**IESNA Type II**

Full angle at 50% from  
maximum: ~ 140° x 58°  
Full angle at 10% from  
maximum: ~ 150° x 105°



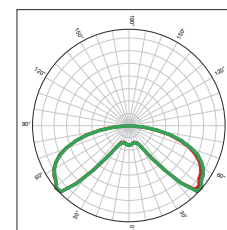
**NEW BEAM**  
**PLL121923**

Full angle at 50% from  
maximum: ~ 155° x 80°  
Full angle at 10% from  
maximum: ~ 160° x 120°



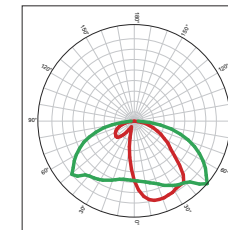
**PLL120003**  
**120° FWHM**

Full angle at 50%  
from maximum: ~ 130°  
Full angle at 10%  
from maximum: ~ 165°



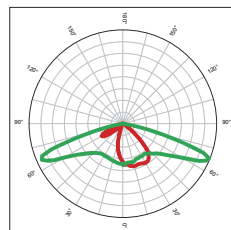
**PLL120404 - IESNA**  
**Type V - 120° FWHM**

Full angle at 50%  
from maximum: ~ 140°  
Full angle at 10%  
from maximum: ~ 155°



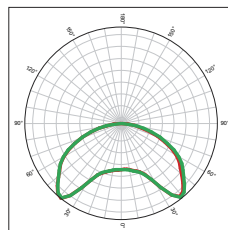
**PLL120426**  
**IESNA Type III**

Full angle at 50% from  
maximum: ~ 150° x 120°  
Full angle at 10% from  
maximum: ~ 165° x 145°



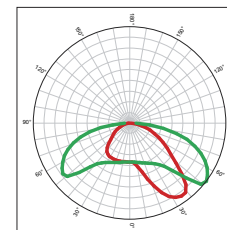
**NEW BEAM**  
**PLL12900428**

Full angle at 50% from  
maximum: ~ 80° x 145°  
Full angle at 10% from  
maximum: ~ 110° x 155°



**PLL120004**  
**130° FWHM Square**

Full angle at 50% from  
maximum: ~ 120° x 120°  
Full angle at 10% from  
maximum: ~ 165° x 165°



**PLL120406 - IESNA**  
**Type II - ME3A**

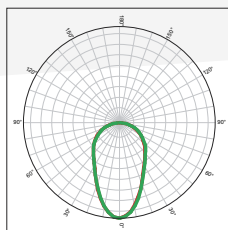
Full angle at 50% from  
maximum: ~ 160° x 115°  
Full angle at 10% from  
maximum: ~ 170° x 140°



NACTUS 6x2 modules - 173 (l) x 71.4 (w) x 12 (h) mm – with 25.40mm lens pitch. Offer total compatibility and countless opportunities to customize your lighting fixtures. Made of optical grade **PMMA**; on request, **PMMA-HT** (-30°C ~ 110°C). On request PC and PMMA-HT available with **certified LSR silicone gasket for IP65**. Meet EN13201, IESNA and EN 62471:2010 (photobiological safety of lamps and lamp systems) requirements.

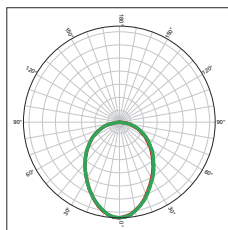
15 versions available.

Click for  more infos



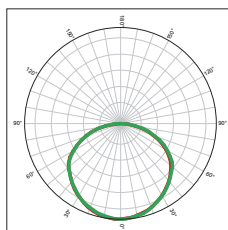
**PLL080001**  
**60° FWHM**

Full angle at 50% from maximum: ~ 60°  
Full angle at 10% from maximum: ~ 160°



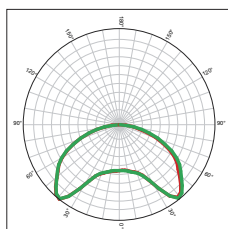
**PLL080002**  
**90° FWHM**

Full angle at 50% from maximum: ~ 85°  
Full angle at 10% from maximum: ~ 165°



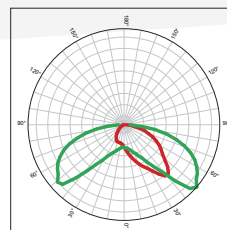
**PLL080003**  
**120° FWHM**

Full angle at 50% from maximum: ~ 130°  
Full angle at 10% from maximum: ~ 165°



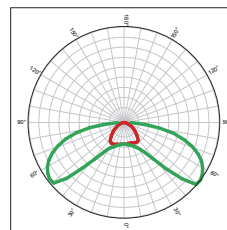
**PLL080004**  
**130° FWHM Square**

Full angle at 50% from maximum: ~ 120° x 120°  
Full angle at 10% from maximum: ~ 165° x 165°



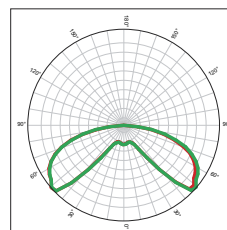
**PLL080005**  
**IESNA Type III**

Full angle at 50% from maximum: ~ 146° x 106°  
Full angle at 10% from maximum: ~ 157° x 152°



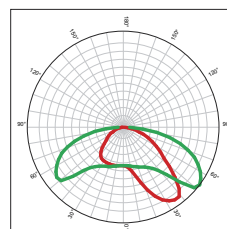
**PLL080403**  
**IESNA Type I**

Full angle at 50% from maximum: ~ 155° x 110°  
Full angle at 10% from maximum: ~ 170° x 150°



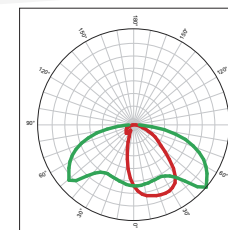
**PLL080404 - IESNA**  
**Type V - 120° FWHM**

Full angle at 50% from maximum: ~ 140°  
Full angle at 10% from maximum: ~ 155°



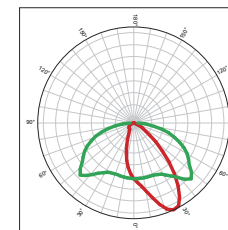
**PLL080406 - IESNA**  
**Type II - ME3A**

Full angle at 50% from maximum: ~ 160° x 115°  
Full angle at 10% from maximum: ~ 170° x 140°



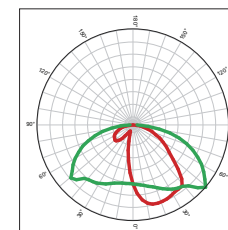
**PLL080424**  
**IESNA Type III**

Full angle at 50% from maximum: ~ 150° x 68°  
Full angle at 10% from maximum: ~ 165° x 130°



**PLL080425**  
**IESNA Type II**

Full angle at 50% from maximum: ~ 140° x 58°  
Full angle at 10% from maximum: ~ 150° x 105°



**PLL080426**  
**IESNA Type III**

Full angle at 50% from maximum: ~ 150° x 120°  
Full angle at 10% from maximum: ~ 165° x 145°



**EXCLUSIVE FROM KHATOD.** NACTUS 4x2 modules - 118.8 (l) x 71.4 (w) x 12 (h) mm – with 25.40 mm lens pitch. Khatod is first to deliver modules realized with a totally new configuration concept which offers the opportunity to customize your lighting fixtures according to the lighting pattern you have in mind. Made of optical grade **PMMA**; on request, **PMMA-HT** (-30°C ~ 110°C). For any application in street lighting, wide area lighting and general lighting. On request, available with **certified LSR silicone gasket for IP65**. Meet EN13201, IESNA and EN 62471:2010 (photobiological safety of lamps and lamp systems) requirements.

11 versions available.

Click for  more infos

# PIXEL 2x2

## COMFORT LIGHTING REFLECTOR SYSTEMS

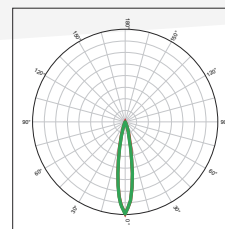
HIGH-POWER  
LEDs



50mm side



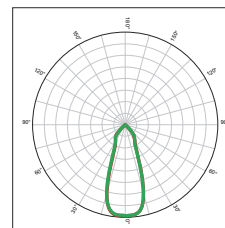
50mm side



### KCLP0402CRSM

Full angle at 50% from maximum:  $\sim 18^\circ$

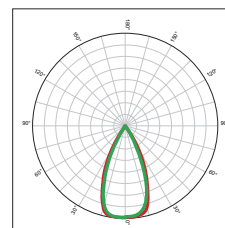
Full angle at 10% from maximum:  $\sim 385^\circ$



### KCLP0403CRSM

Full angle at 50% from maximum:  $\sim 40^\circ$

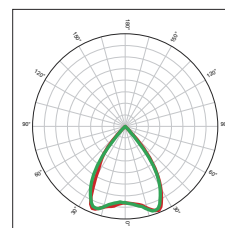
Full angle at 10% from maximum:  $\sim 88^\circ$



### KCLP0404CRSM

Full angle at 50% from maximum:  $\sim 48^\circ$

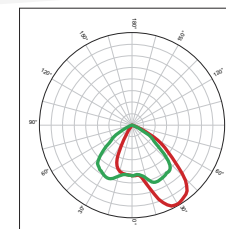
Full angle at 10% from maximum:  $\sim 65^\circ$



### KCLP0405CRSM

Full angle at 50% from maximum:  $\sim 71^\circ$

Full angle at 10% from maximum:  $\sim 87^\circ$



### KCLP0406CRSM

Full angle at 50% from maximum:  $\sim 85^\circ \times 105^\circ$

Full angle at 10% from maximum:  $\sim 110^\circ \times 130^\circ$



Square module – 50.00 mm side - consisting of 4 reflectors, with 25.40mm lens pitch. Made of optical **PC-HT**. **5 versions available**, for any application in street lighting, wide area lighting and general lighting. Designed to comply with low **UGR**.

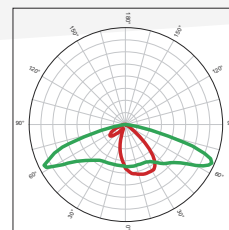
Beam angles: **Medium, Wide, Extra Wide, Ultra Wide, Asymmetrical**.

Click for  more infos





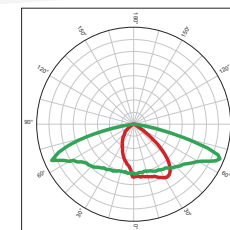
50mm side



## KNAC0601ASM

Full angle at 50%  
from maximum:  
~ 148° x 104°

Full angle at 10%  
from maximum:  
~ 156° x 127°



## KNAC0602ASM

Full angle at 50%  
from maximum:  
~ 144° x 62°

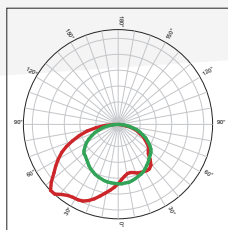
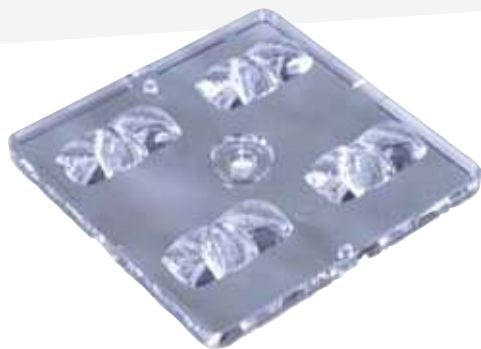
Full angle at 10%  
from maximum:  
~ 164° x 121°



Multi-Lens Modules for **outdoor applications** especially for **street lighting** applications, made of **PMMA** and **PC**. Square shape – 50mm x 50mm – consists of an array made of 6 lenses optimized for the most popular **5050** package LEDs without dome and totally compatible with 2x2 modules. The Lenses are easily assembled by screw fixing.

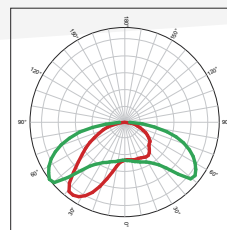
Beam angles: **IESNA Type II Medium Cut Off** and **Asymmetrical**.

Click for  more infos



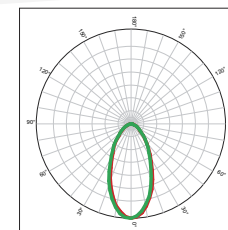
**KNAC0401ASM**  
**Asymmetric**

Full angle at 50% from maximum:  $\sim 135^\circ \times 100^\circ$   
Full angle at 10% from maximum:  $\sim 170^\circ \times 165^\circ$



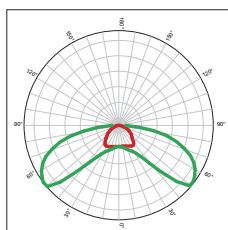
**KNAC0406ASM**  
**IESNA Type II**

Full angle at 50% from maximum:  $\sim 60^\circ \times 110^\circ$   
Full angle at 10% from maximum:  $\sim 170^\circ \times 155^\circ$



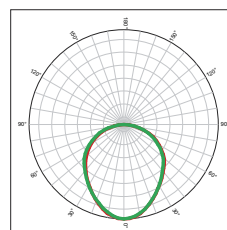
**KNAC0420ASM**  
**IESNA Type V**

Full angle at 50% from maximum:  $\sim 50^\circ$   
Full angle at 10% from maximum:  $\sim 115^\circ$



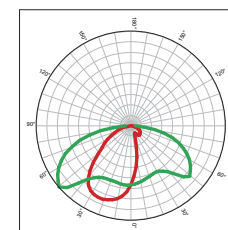
**KNAC0403ASM**  
**IESNA Type I**

Full angle at 50% from maximum:  $\sim 105^\circ \times 145^\circ$   
Full angle at 10% from maximum:  $\sim 160^\circ \times 155^\circ$



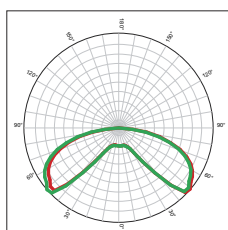
**KNAC0407ASM**  
**IESNA Type V**

Full angle at 50% from maximum:  $\sim 90^\circ$   
Full angle at 10% from maximum:  $\sim 160^\circ$



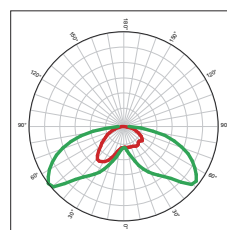
**KNAC0424ASM**  
**IESNA Type II/III**

Full angle at 50% from maximum:  $\sim 150^\circ \times 160^\circ$   
Full angle at 10% from maximum:  $\sim 160^\circ \times 110^\circ$



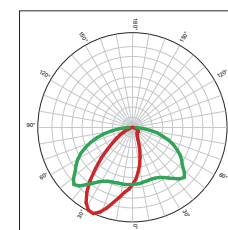
**KNAC0404ASM**  
**IESNA Type VS**

Full angle at 50% from maximum:  $\sim 130^\circ$   
Full angle at 10% from maximum:  $\sim 152^\circ$



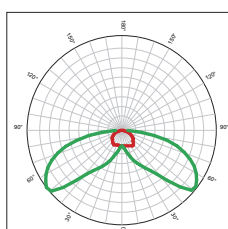
**KNAC0412ASM**  
**IESNA Type III**

Full angle at 50% from maximum:  $\sim 160^\circ \times 130^\circ$   
Full angle at 10% from maximum:  $\sim 175^\circ \times 180^\circ$



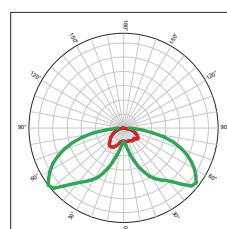
**KNAC0425ASM**  
**IESNA Type II**

Full angle at 50% from maximum:  $\sim 145^\circ \times 155^\circ$   
Full angle at 10% from maximum:  $\sim 150^\circ \times 120^\circ$



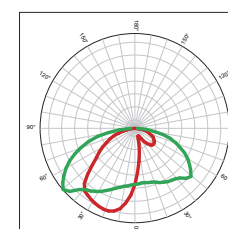
**KNAC0405ASM**  
**IESNA Type I**

Full angle at 50% from maximum:  $\sim 150^\circ \times 110^\circ$   
Full angle at 10% from maximum:  $\sim 185^\circ \times 170^\circ$



**KNAC0413ASM**  
**IESNA Type IV**

Full angle at 50% from maximum:  $\sim 160^\circ \times 120^\circ$   
Full angle at 10% from maximum:  $\sim 180^\circ \times 185^\circ$



**KNAC0426ASM**  
**IESNA Type III**

Full angle at 50% from maximum:  $\sim 150^\circ \times 110^\circ$   
Full angle at 10% from maximum:  $\sim 155^\circ \times 140^\circ$

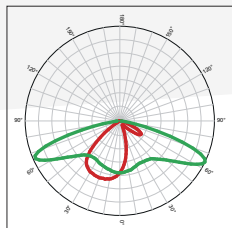
Square module – 50.00 mm side - consisting of 4 optics, with 25.40mm lens pitch. Made of optical grade **PMMA**; on request, **PMMA-HT** ( $-30^\circ\text{C} \sim 110^\circ\text{C}$ ). For any application in street lighting, wide area lighting and general lighting. Meet EN13201, IESNA and EN 62471:2010 (photobiological safety of lamps and lamp systems) requirements.

20 versions available.

# NACTUS SMALL 2x2

## OPTICAL SYSTEMS

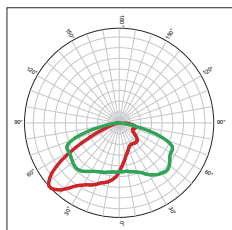
HIGH-POWER  
LEDs



**KNAC0428ASM**  
**IESNA Type II**

Full angle at 50% from maximum:  $\sim 80^\circ \times 145^\circ$

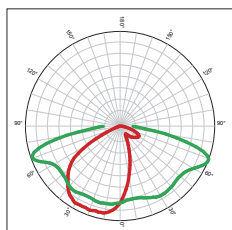
Full angle at 10% from maximum:  $\sim 110^\circ \times 145^\circ$



**KNAC0429ASM**  
**IESNA Type II/III**

Full angle at 50% from maximum:  $\sim 125^\circ \times 60^\circ$

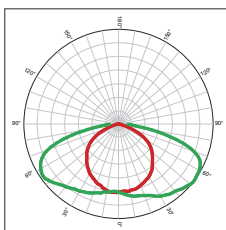
Full angle at 10% from maximum:  $\sim 150^\circ \times 125^\circ$



**KNAC0430ASM**  
**IESNA Type II/III**

Full angle at 50% from maximum:  $\sim 150^\circ \times 80^\circ$

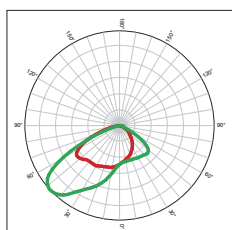
Full angle at 10% from maximum:  $\sim 155^\circ \times 125^\circ$



**KNAC0432ASM**  
**IESNA Type I**

Full angle at 50% from maximum:  $\sim 115^\circ \times 155^\circ$

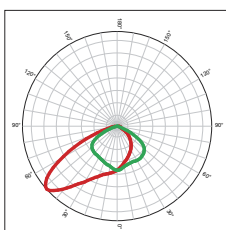
Full angle at 10% from maximum:  $\sim 140^\circ \times 160^\circ$



**KNAC0431ASM**  
**Crosswalks**

Full angle at 50% from maximum:  $\sim 100^\circ \times 110^\circ$

Full angle at 10% from maximum:  $\sim 135^\circ \times 130^\circ$



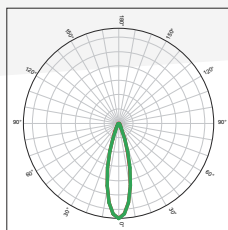
**KNAC0433ASM**  
**Tunnel Entrance**

Full angle at 50% from maximum:  $\sim 108^\circ \times 120^\circ$

Full angle at 10% from maximum:  $\sim 130^\circ \times 130^\circ$

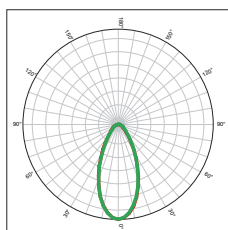






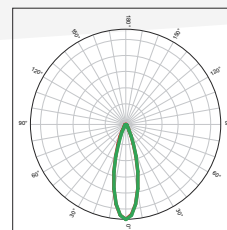
### PL1758NA NEMA 2/3

Full angle at 50%  
from maximum: ~ 14.5°  
Full angle at 10%  
from maximum: ~ 27°



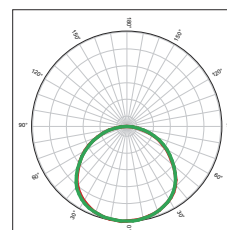
### PL1758EW NEMA 5

Full angle at 50%  
from maximum: ~ 45°  
Full angle at 10%  
from maximum: ~ 84°



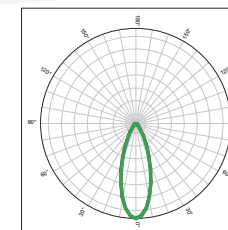
### PL1758ME NEMA 3

Full angle at 50%  
from maximum: ~ 18°  
Full angle at 10%  
from maximum: ~ 35°



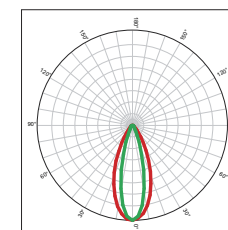
### PL1758CV NEMA 7

Full angle at 50%  
from maximum: ~ 111°  
Full angle at 10%  
from maximum: ~ 156°



### PL1758WI NEMA 24

Full angle at 50%  
from maximum: ~ 28°  
Full angle at 10%  
from maximum: ~ 55°



### PL1758EL 15°x40° FWHM

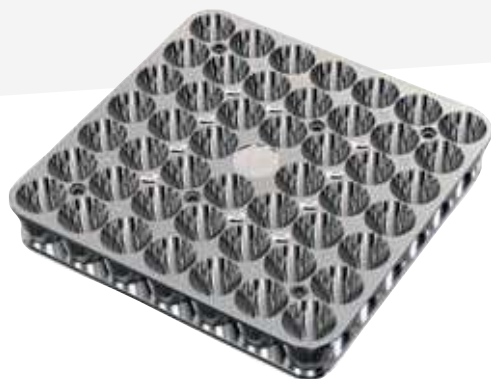
Full angle at 50% from  
maximum: ~ 15° x 40°  
Full angle at 10% from  
maximum: ~ 40° x 65°



Ready-to-use panels, 110 mm (w) x 120 (l) x 9,51 to 12 mm (h), made of optical grade **PMMA HT**. Outstanding light quality, anti-glare, meet NEMA 2 – 3 – 4 – 5 – 7 standards. Engineered for arena/stadium/event lighting, are also excellent for road and urban works. Designed to comply with **IK08** and **IP65**.

Beam angles: **Narrow, Medium, Wide, Extra Wide, Elliptical.**

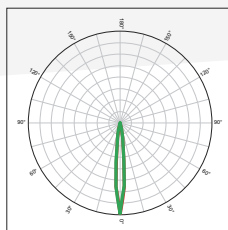
Click for more infos



PATENTED SYSTEM



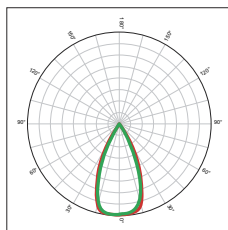
145mm side



**KCLP4801CRSM**

Full angle at 50%  
from maximum: ~ 8°

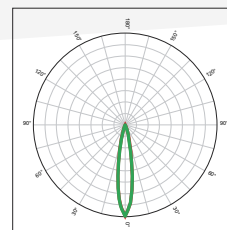
Full angle at 10%  
from maximum: ~ 20.4°



**KCLP4804CRSM**

Full angle at 50%  
from maximum: ~ 71°

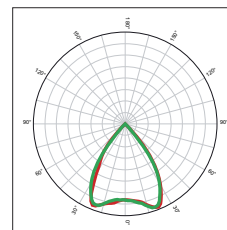
Full angle at 10%  
from maximum: ~ 87°



**KCLP4802CRSM**

Full angle at 50%  
from maximum: ~ 18°

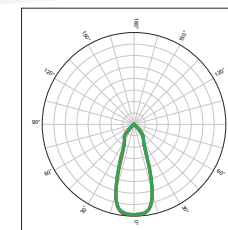
Full angle at 10%  
from maximum: ~ 38°



**KCLP4805CRSM**

Full angle at 50%  
from maximum: ~ 40°

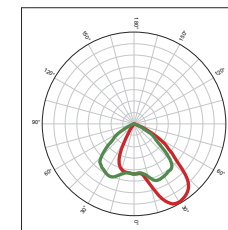
Full angle at 10%  
from maximum: ~ 88°



**KCLP4803CRSM**

Full angle at 50%  
from maximum: ~ 48°

Full angle at 10%  
from maximum: ~ 65°



**KCLP4806CRSM**

Full angle at 50%  
from maximum:  
~ 86° x 105°

Full angle at 10%  
from maximum:  
~ 110° x 130°



The ARENA reflective optical system, developed for new generation high-power LEDs, is suitable for lighting of wide areas, industrial spaces and above all sports facilities. Thanks to the high efficiency of the vacuum-coated reflectors and the availability of different beam angles, ARENA reflectors are the right solution for both indoor and outdoor installations.

Made of high-temperature resistant **polycarbonate**, the ARENA system is completed by a set of **UV-resistant** transparent polycarbonate covers supplied with gaskets, that make the product compliant with **IP65** and **IK10** protection standards.

Beam angles: **Narrow, Medium, Wide, Extra Wide, Ultra Wide, Asymmetrical.**

Click for  more infos



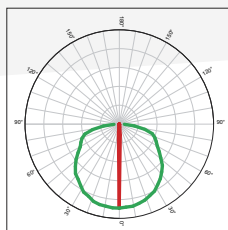
# SNAIL

SILICONE LENS FOR WHITE AND COLOR LEDS FOR WINDOWS AND DOORS ILLUMINATION

HIGH-POWER  
LEDS



45x72mm ONLY



## PLL2203

Full angle at 50%  
from maximum: ~ 48°

Full angle at 10%  
from maximum: ~ 146°



PLL2203SR Lens enables to illuminate windows and doors by emphasizing the frame structure thanks to its excellent blade-shaped beam. Optical design ensures high performance, while its compact size and snail shape make it unobtrusive and elegant. Perfect for **architectural lighting**, outdoor and indoor. Available with holder. When assembling the parts, the LEDs must be lined up in a single row under the lens. Mounted at the centre of the bottom or top or side edge of windows or doors, it creates a great graphic lighting effect and enables to customize the illumination of the applied environment. Made of **LSR silicone**, ensures great resistance to water and powder penetration, to impacts and extreme temperatures.

Click for  more infos



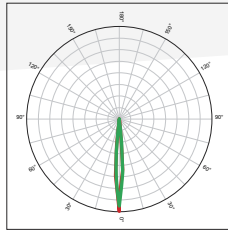
# MULTICOLOR

SILICONE LENSES FOR TUNABLE WHITE AND FULL COLOR APPLICATIONS

HIGH-POWER  
LEDs



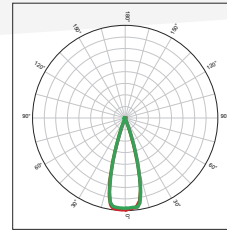
80mm Ø



## KEPLL2066NASR

Full angle at 50%  
from maximum: ~ 6.3°

Full angle at 10%  
from maximum: ~ 11.3°



## KEPLL2066WISR

Full angle at 50%  
from maximum: ~ 33°

Full angle at 10%  
from maximum: ~ 43°



**CUSTOMIZE YOUR COLORS!** The wide variety of LEDs currently available on the market enables to customize the LED clusters with multiple colors. PLL2066xxSR lens from Khatod allows to use clusters consisting of up to 9 LEDs with 2x2mm case. The customers are given the opportunity to choose the color that best meets their requirements and make the difference with the standard proposals. PLL2066xxSR lens is high performing and guarantees excellent light output even with clusters made from 4 or 6 LEDs.

Beam angles: **Narrow, Wide.**

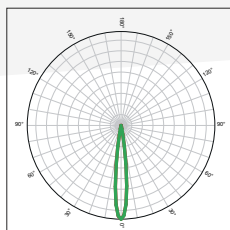
Click for  more infos

**KHATOD**

# PL1672 SERIES

THE "PUNCH BEAM LENSES"

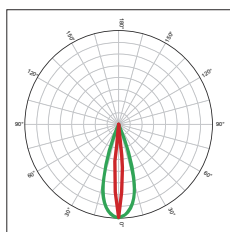
HIGH-POWER  
LEDs



## PL1672UN

Full angle at 50%  
from maximum: ~ 3°

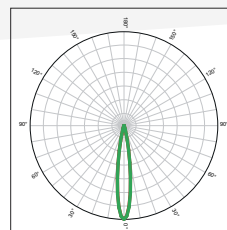
Full angle at 10%  
from maximum: ~ 8°



## PL1672EL

Full angle at 50%  
from maximum:  
~ 8° x 35°

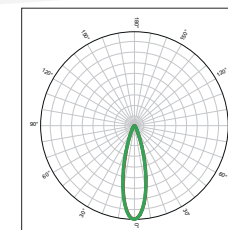
Full angle at 10%  
from maximum:  
~ 14° x 45°



## PL1672NA

Full angle at 50%  
from maximum: ~ 10°

Full angle at 10%  
from maximum: ~ 19°



## PL1672ME

Full angle at 50%  
from maximum: ~ 28°

Full angle at 10%  
from maximum: ~ 40°



## KE1672

Holder for PL1672 Series

Available on request  
with self-tape



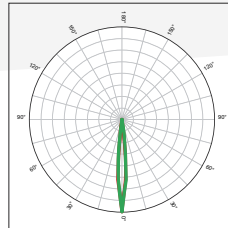
Single Lenses for Power LEDs, 35,00mm diameter - 20,71mm height - MR11 Standard. Material: PMMA.

Benefits: LED Chip Projection on target totally eliminated; Clean Spot, Efficiency > 89%; Optical Grade PMMA; 3 Pins provided for precise and robust mounting.

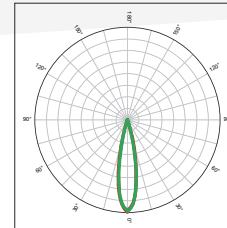
CBCP (Center Beam Candle Power) = 150 cd/Im. Smallest Shape Factor Lens (Diameter × FWHM / ChipSize).

Beam angles: **Ultra Narrow 3.5°, Narrow, Medium, Elliptical.**

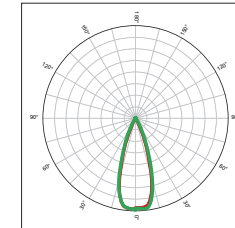
Click for  more infos



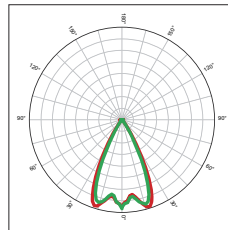
**PL135910**  
19,70 mm diameter  
9,96 mm height  
**Narrow Beam Lens**



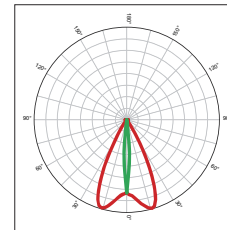
**PL135920**  
19,70 mm diameter  
10,25 mm height  
**Medium Beam Lens**



**PL135936**  
19,70 mm diameter  
10,42 mm height  
**Wide Beam Lens**



**PL135960**  
19,70 mm diameter  
10,60 mm height  
**Extra Wide Beam Lens**



**PL1359EL**  
19,70 mm diameter  
10,52 mm height  
**Elliptical Beam Lens**



Modular systems based on a variety of holders from **1 to 16** housings, available with round, square and linear shape able to accommodate reflectors and lenses of different beams. Allow diverse configurations and offer a "plug-and-play" functionality whereby MODULARIS is ready for use within **few seconds**. Any applications in general lighting.

Beam angles: **Narrow, Medium, Wide, Extra Wide, Elliptical.**

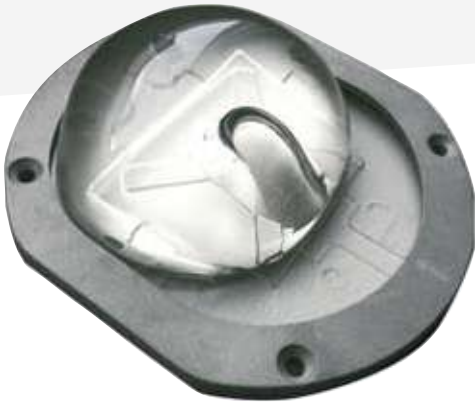
Click for  more infos



# SIO3

## SILICONE LENSES FOR COB LEDS

COB  
LEDS



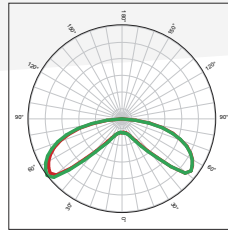
DESIGNED TO  
COMPLY WITH



IP68



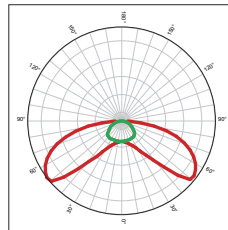
IK10



### PL1764SR

Full angle at 50% from maximum:  $\sim 155^\circ \times 155^\circ$

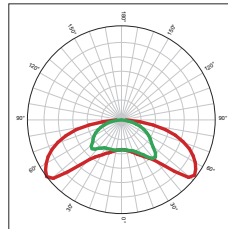
Full angle at 10% from maximum:  $\sim 165^\circ \times 165^\circ$



### PL1765SR

Full angle at 50% from maximum:  $\sim 150^\circ \times 135^\circ$

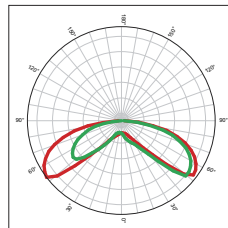
Full angle at 10% from maximum:  $\sim 145^\circ \times 160^\circ$



### PL1766SR

Full angle at 50% from maximum:  $\sim 145^\circ \times 155^\circ$

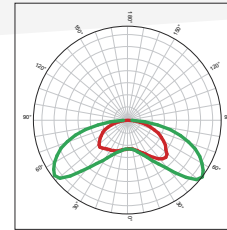
Full angle at 10% from maximum:  $\sim 170^\circ \times 165^\circ$



### PL1771SR

Full angle at 50% from maximum:  $\sim 150^\circ \times 155^\circ$

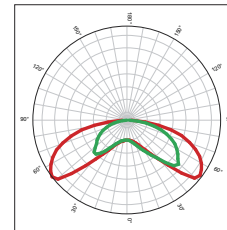
Full angle at 10% from maximum:  $\sim 165^\circ \times 165^\circ$



### PL1772SR-075

Full angle at 50% from maximum:  $\sim 140^\circ \times 155^\circ$

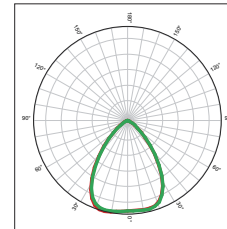
Full angle at 10% from maximum:  $\sim 150^\circ \times 165^\circ$



### PL1772SR

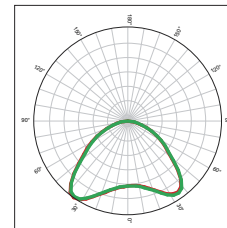
Full angle at 50% from maximum:  $\sim 140^\circ \times 155^\circ$

Full angle at 10% from maximum:  $\sim 150^\circ \times 165^\circ$



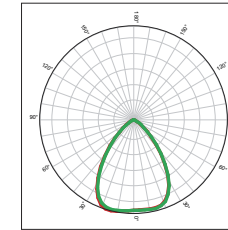
### PL1824SR

Beam angle:  $60^\circ$



### PL1825SR

Beam angle:  $90^\circ$



### PL1845SR

Beam angle:  $120^\circ$



**130mm diameter**, made of Ultra-Clear LSR (Liquid Silicone Rubber). Optimized for COB LEDs with LES 19mm to 30mm; high optical efficiency; extreme temperature resistant,  $-40^\circ\text{C}$  to  $150^\circ\text{C}$ , with peaks up to  $200^\circ\text{C}$ . UV-resistant, non-yellowing. Available with aluminum ring. **PATENT PENDING.**

9 versions available.

Click for  more infos

KHATOD

30

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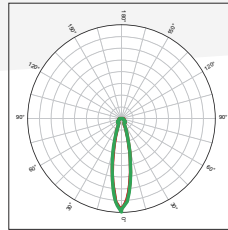
# SIO3 JR

SILICONE LENSES FOR COB LEDS

COB  
LEDS

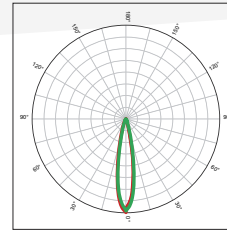


85.09mm Ø



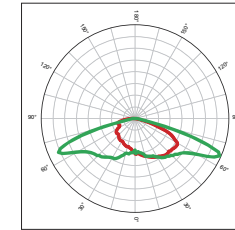
## NEW BEAM PLL2087NASR

Full angle at 50%  
from maximum: ~ 25°  
Full angle at 10%  
from maximum: ~ 45°



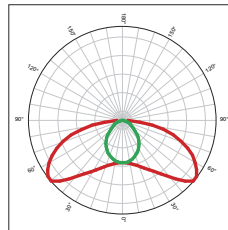
## NEW BEAM PLL2087UNSR

Full angle at 50%  
from maximum: ~ 15°  
Full angle at 10%  
from maximum: ~ 30°



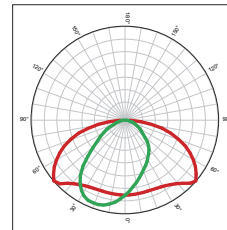
## NEW BEAM PLL2056SR00

Full angle at 50% from  
maximum: ~ 82° x 128°  
Full angle at 10% from  
maximum: ~ 147° x 152°



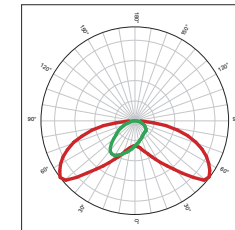
## PLL2056SR11

Full angle at 50% from  
maximum: ~ 110° x 160°  
Full angle at 10% from  
maximum: ~ 155° x 170°



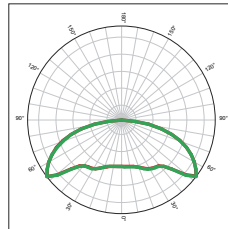
## PLL2056SR22

Full angle at 50% from  
maximum: ~ 110° x 160°  
Full angle at 10% from  
maximum: ~ 140° x 170°



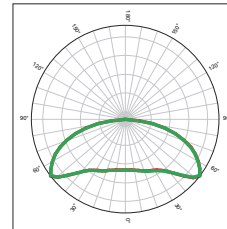
## PLL2056SR33

Full angle at 50% from  
maximum: ~ 75° x 160°  
Full angle at 10% from  
maximum: ~ 150° x 175°



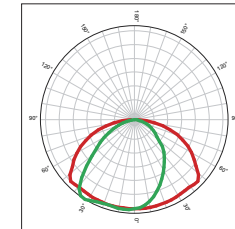
## PLL2056SR44

Full angle at 50% from  
maximum: ~ 150° x 160°  
Full angle at 10% from  
maximum: ~ 170° x 170°



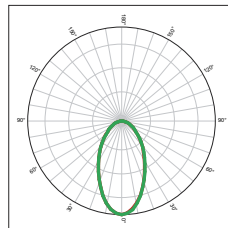
## PLL2056SR55

Full angle at 50% from  
maximum: ~ 125° x 165°  
Full angle at 10% from  
maximum: ~ 175° x 175°



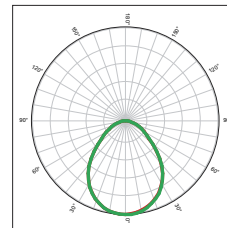
## PLL2056SR66

Full angle at 50% from  
maximum: ~ 70° x 135°  
Full angle at 10% from  
maximum: ~ 130° x 160°



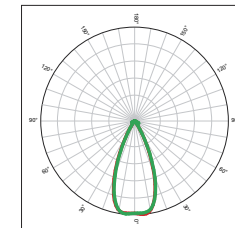
## PLL2056SR77

Full angle at 50%  
from maximum: ~ 60°  
Full angle at 10%  
from maximum: ~ 130°



## PLL2056SR88

Full angle at 50%  
from maximum: ~ 90°  
Full angle at 10%  
from maximum: ~ 130°



## PLL2056SR99

Full angle at 50%  
from maximum: ~ 45°  
Full angle at 10%  
from maximum: ~ 80°

**New diameter 90mm**, made of Ultra-Clear LSR (Liquid Silicone Rubber). Optimized for COB LEDs with LES 9 to 23mm. The rotosymmetric versions work well also with COB LES of 23mm. Boast the well-known performances of the silicone lenses from Khatod: excellent transparency, high optical efficiency, resistance and flexibility in a wide temperature range, UV-resistant, etc.

14 versions available.

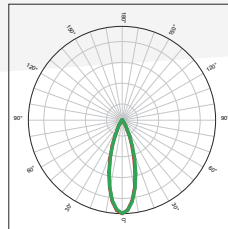
Click for  more infos

KHATOD



# SIR50

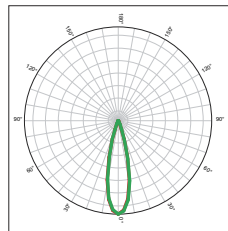
SILICONE INTERNAL REFLECTION FOR COB LEDs



**KEPLL1994NASR**  
**12° FWHM**

Full angle at 50%  
from maximum: ~ 12°

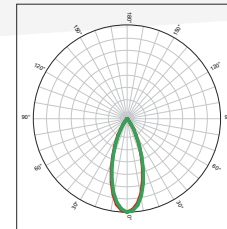
Full angle at 10%  
from maximum: ~ 24°



**KEPLL1994MESR**  
**28° FWHM**

Full angle at 50%  
from maximum: ~ 28°

Full angle at 10%  
from maximum: ~ 45°



**KEPLL1994WISR**  
**40° FWHM**

Full angle at 50%  
from maximum: ~ 408°

Full angle at 10%  
from maximum: ~ 55°



TIR LENSES, 50mm , made of Ultra-Clear LSR (Liquid Silicone Rubber), optimized for COB LEDs with **LES ranging 6-9 mm diameter**.  
Low absorption of light, high optical efficiency, 89% with picks of 91%; UV-resistant, non-yellowing. Equipped with holder.

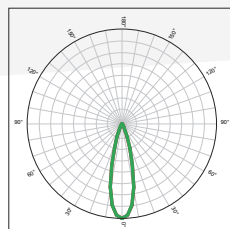
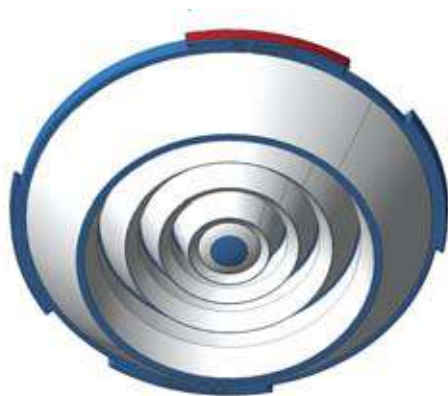
Beam angles: **Narrow, Medium, Wide.**

Click for  more infos



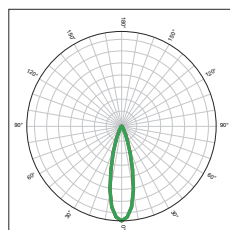


Low Profile



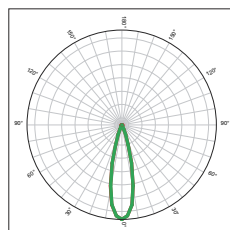
**PLL2008NA**  
**13° FWHM**

Full angle at 50%  
from maximum: ~ 60°  
Full angle at 10%  
from maximum: ~ 160°  
**50mm Ø**



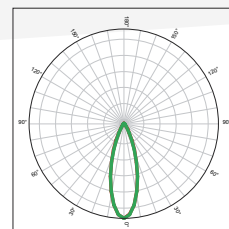
**PLL2009NA**  
**13° FWHM**

Full angle at 50%  
from maximum: ~ 60°  
Full angle at 10%  
from maximum: ~ 160°  
**70mm Ø**



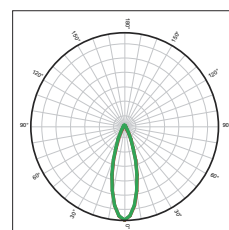
**PLL2010NA**  
**13° FWHM**

Full angle at 50%  
from maximum: ~ 13°  
**90mm Ø**



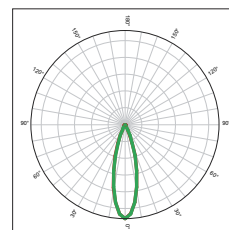
**PLL2008ME**  
**28° FWHM**

Full angle at 50%  
from maximum: ~ 60°  
Full angle at 10%  
from maximum: ~ 160°  
**50mm Ø**



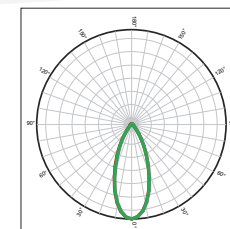
**PLL2009ME**  
**28° FWHM**

Full angle at 50%  
from maximum: ~ 60°  
Full angle at 10%  
from maximum: ~ 160°  
**70mm Ø**



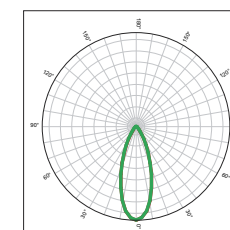
**PLL2010ME**  
**28° FWHM**

Full angle at 50%  
from maximum: ~ 60°  
Full angle at 10%  
from maximum: ~ 180°  
**90mm Ø**



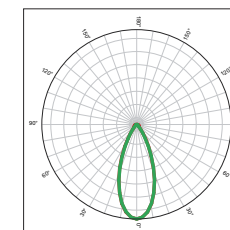
**PLL2008WI**  
**42° FWHM**

Full angle at 50%  
from maximum: ~ 60°  
Full angle at 10%  
from maximum: ~ 160°  
**50mm Ø**



**PLL2009WI**  
**42° FWHM**

Full angle at 50%  
from maximum: ~ 60°  
Full angle at 10%  
from maximum: ~ 160°  
**70mm Ø**



**PLL2010WI**  
**42° FWHM**

Full angle at 50%  
from maximum: ~ 60°  
Full angle at 10%  
from maximum: ~ 160°  
**90mm Ø**



Low profile lenses - **50mm-70mm-90mm** - made of **optical grade PMMA**, with a very thin lateral profile. Conceived for **COB LEDs with LES ranging 6-22mm**. Available with holder made of clear PC. Indoor applications: shop light, track light, downlights and recessed lights. Meet MR16, PAR30, AR111 requirements. **Now also available for short distance lamps.**

12 versions available.

Click for  more infos

# FRESNEL LENSES / AUTOFOCUS

FRESNEL LENSES FOR COB LEDS

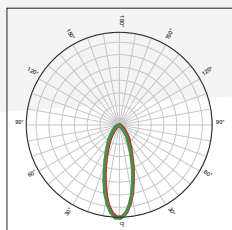
COB  
LEDs



**Fresnel:** Refractive optics; special design: two off axis Fresnel lenses fixed together in one piece, through an only molding process. Avoid to perceive the real image of the light source while allowing to just see a perfect round beam. Available in many models for use with one LED or multiple LEDs. Available in different diameters.

**Autofocus:** full range of Color Mixing Optics, equipped with moving lenslet array, 45mm, to be mounted on top of the lens. Allow ZOOM and AUTOFOCUS applications in a range of beam angles from  $11^\circ$  to  $45^\circ$ . Preserve a perfect color mixing and a high optical efficiency in the full range of the beam angles.

Click for  more infos

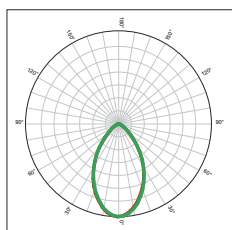


## KESQ1909CR

Full angle at 50%  
from maximum: ~ 24°

Full angle at 10%  
from maximum: ~ 71°

35mm Ø

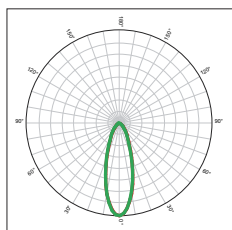


## KESQ1910CR

Full angle at 50%  
from maximum: ~ 55°

Full angle at 10%  
from maximum: ~ 99°

35mm Ø

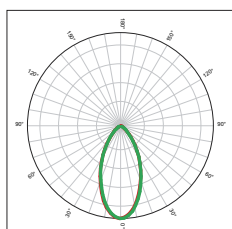


## KESQ1912CR

Full angle at 50%  
from maximum: ~ 30°

Full angle at 10%  
from maximum: ~ 75°

35mm Ø

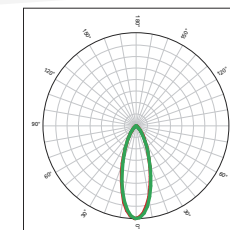


## KESQ1933CR

Full angle at 50%  
from maximum: ~ 42°

Full angle at 10%  
from maximum: ~ 90°

35mm Ø

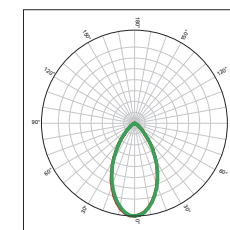


## KESQ1936CR

Full angle at 50%  
from maximum: ~ 30°

Full angle at 10%  
from maximum: ~ 75°

50mm Ø

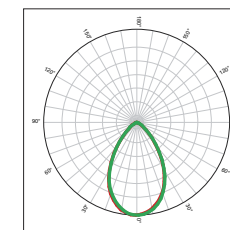


## KESQ1937CR

Full angle at 50%  
from maximum: ~ 52°

Full angle at 10%  
from maximum: ~ 92°

50mm Ø

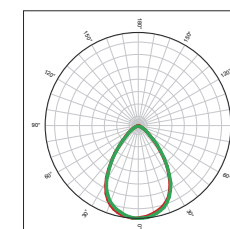


## KESQ1938CR

Full angle at 50%  
from maximum: ~ 68°

Full angle at 10%  
from maximum: ~ 100°

50mm Ø

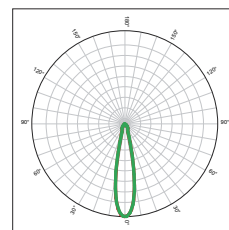


## KESQ1939CR

Full angle at 50%  
from maximum: ~ 75°

Full angle at 10%  
from maximum: ~ 100°

50mm Ø

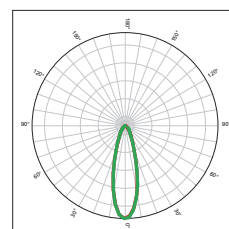


## KESQ1934CR

Full angle at 50%  
from maximum: ~ 12°

Full angle at 10%  
from maximum: ~ 21°

50mm Ø



## KESQ1935CR

Full angle at 50%  
from maximum: ~ 18°

Full angle at 10%  
from maximum: ~ 40°

50mm Ø



Single reflectors made of optical grade **PC** specific for high temperature resistance, up to 120°C. High-performing, multi-functional, easy to use. Available in three diameters: 32.39mm, 34.99mm, 49.91mm. Fastening with **adhesive tape**. Perform an excellent luminous flux and uniform light distribution.

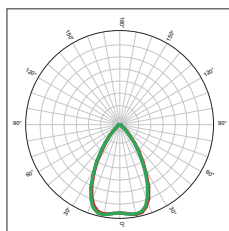
10 versions available.

Click for  more infos



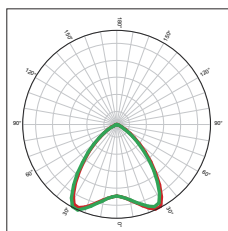


49,96mm side



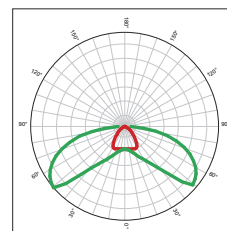
**PLAL0111**  
**60° FWHM**

Full angle at 50%  
from maximum: ~ 60°  
Full angle at 10%  
from maximum: ~ 75°



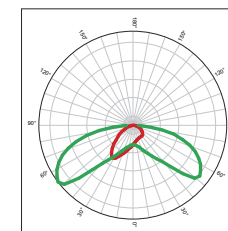
**PLAL0122**  
**90° FWHM**

Full angle at 50%  
from maximum: ~ 90°  
Full angle at 10%  
from maximum: ~ 95°



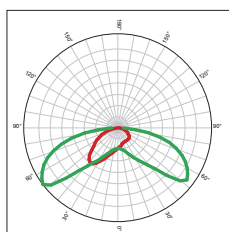
**PLAL0133**  
**IESNA Type I**

Full angle at 50% from  
maximum: ~ 150° x 90°  
Full angle at 10% from  
maximum: ~ 160° x 100°



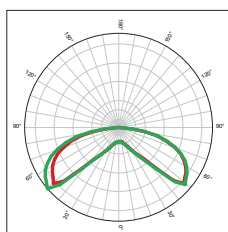
**PLAL0144**  
**IESNA Type II**

Full angle at 50% from  
maximum: ~ 160° x 120°  
Full angle at 10% from  
maximum: ~ 175° x 145°



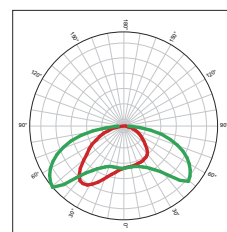
**PLAL0155**  
**IESNA Type III**

Full angle at 50% from  
maximum: ~ 160° x 130°  
Full angle at 10% from  
maximum: ~ 175° x 155°



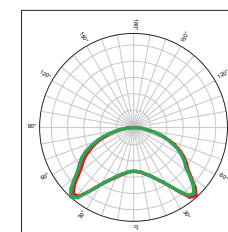
**PLAL0166**  
**IESNA Type V**

Full angle at 50%  
from maximum: ~ 145°  
Full angle at 10%  
from maximum: ~ 155°



**PLAL0177**  
**ME3A**

Full angle at 50% from  
maximum: ~ 155° x 120°  
Full angle at 10% from  
maximum: ~ 165° x 140°



**PLAL0188**  
**120° Square**

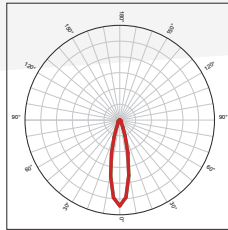
Full angle at 50%  
from maximum: ~ 120°  
Full angle at 10%  
from maximum: ~ 130°

Single lens modules - **49,96 mm side** – made of **PMMA-HT** resistant up to 125°C . New addition to the Gaia Optical Systems family. Created to meet the requirements of LED Lighting users for high efficient single lenses enabling great illuminance in small footprint applications. On request, available with gasket for **IP65**.

Beam angles: **60°, 90°, 120° Square, IESNA Type I, IESNA Type II, IESNA Type III, IESNA Type V, ME3A.**

# KESQ2145

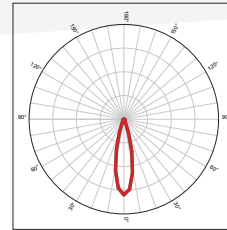
SILICONE SINGLE LENS FOR UV LEDS



## KESQ2145NASR

Full angle at 50%  
from maximum:  $\sim 7.4^\circ$

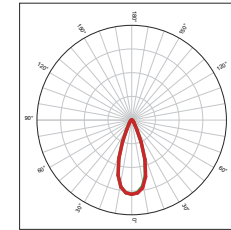
Full angle at 10%  
from maximum:  $\sim 15.2^\circ$



## KESQ2145MESR

Full angle at 50%  
from maximum:  $\sim 25.0^\circ$

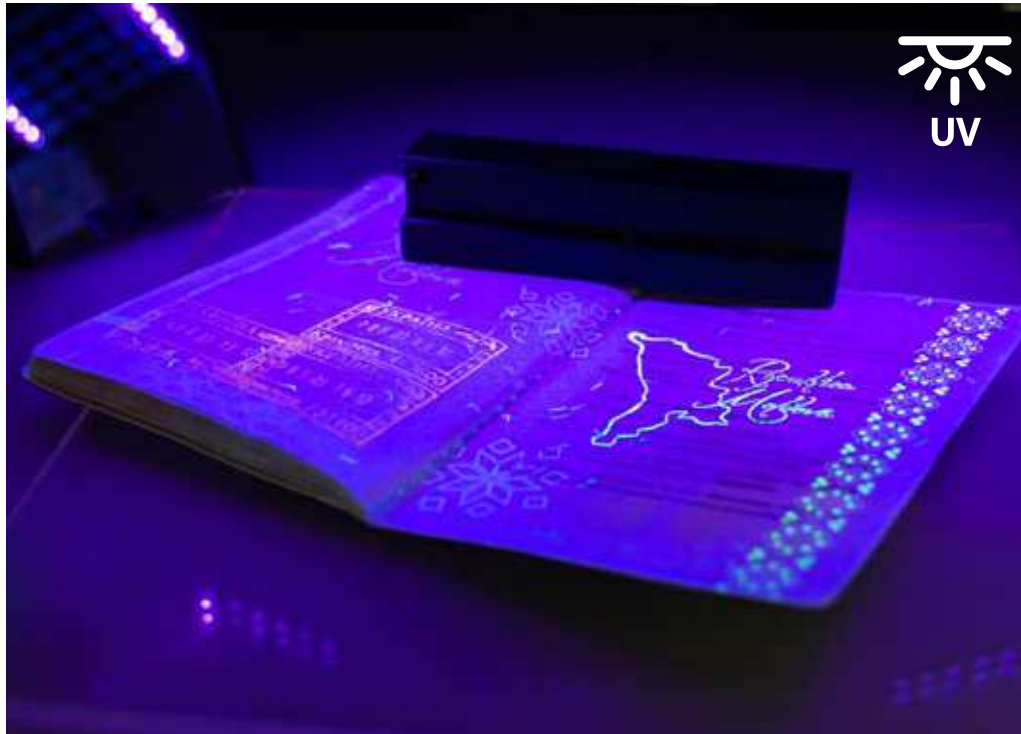
Full angle at 10%  
from maximum:  $\sim 35.6^\circ$



## KESQ2145WI

Full angle at 50%  
from maximum:  $\sim 41.1^\circ$

Full angle at 10%  
from maximum:  $\sim 53.2^\circ$



Silicone Single Lenses with Self-Adhesive Tape for UV LEDs with Black Holder.

Beam angles: **Narrow, Medium, Wide.**

# UV LENSES

OPTICS FOR UV LEDS

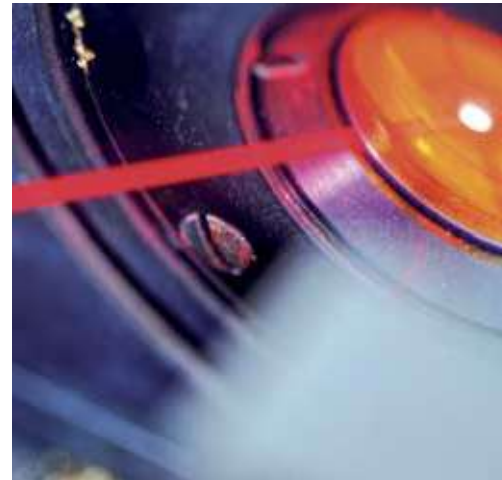
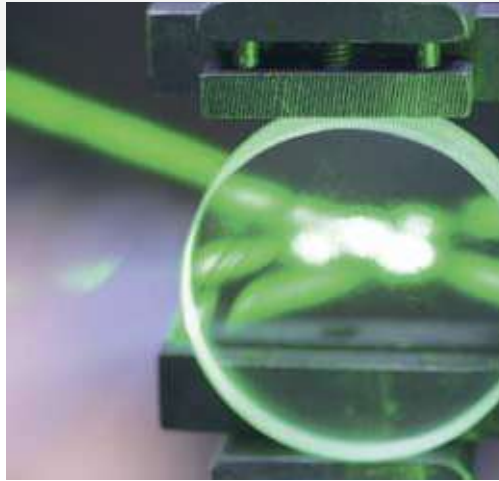
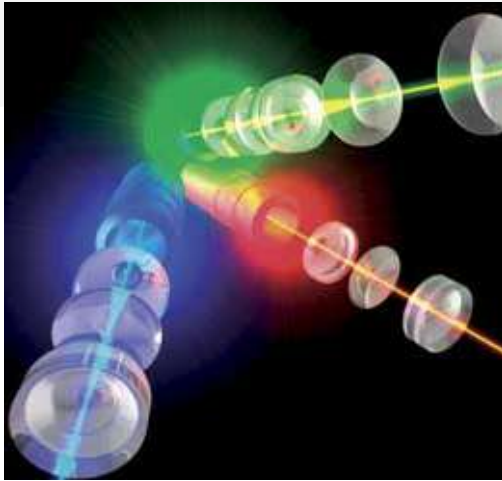
UV  
LEDS





# IMAGING AND SENSOR

OVER 7900 MODELS AVAILABLE



# KHATOD

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1 0 0 % M A D E I N I T A L Y

*We Manufacture Solutions*

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