

K40



1985-2025

**DIGITAL EDITION / SPRING 2025**



## 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.

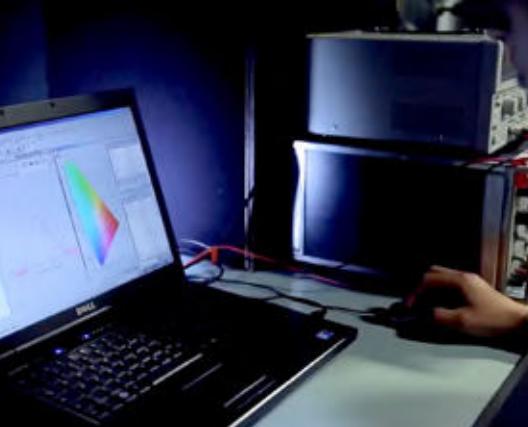
**Standard products:** over 7900 models from stock – optics, optical systems and reflectors – for most popular LEDs, for any kind of applications in LED Lighting. Made from top quality materials – optical grade PMMA for HT, PC HT, ULTRA-CLEAR SILICONE (LSR) – by using exclusive manufacturing processes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

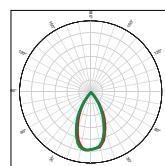
Watch our [corporate video](#) 





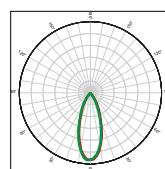
OPTICAL & MECHANICAL ENGINEERS  
TOOLING MANUFACTURING  
MASS PRODUCTION – STOCK





#### ANDRO/EW/TW

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



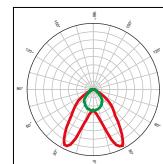
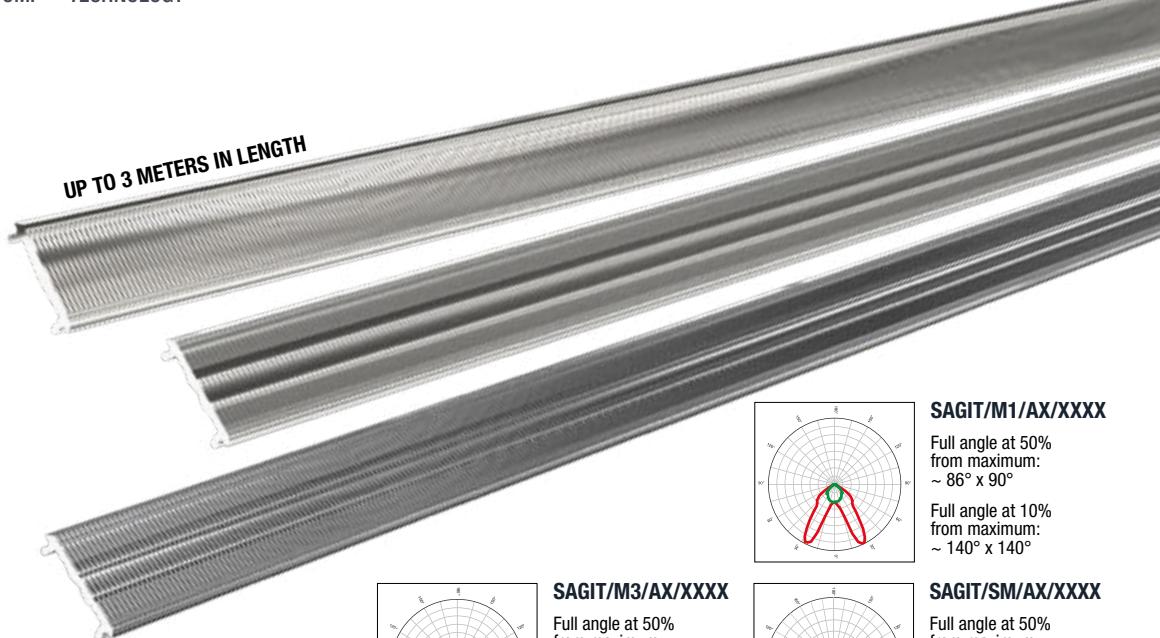
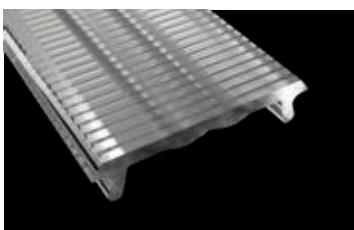
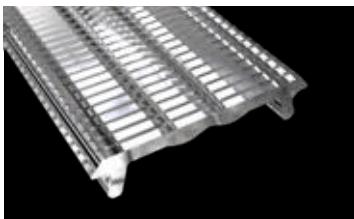
#### ANDRO/WI/TW

Full angle at 50% from maximum: ~ 40°  
Full angle at 10% from maximum: ~ 75°



ANDROMEDA is the new family of linear optics, made by Khatod: ideal for **tunable white, offices and architectural applications**. Available in 2 Beam Angle Types: **Wide & Extra Wide**. Andromeda Lenses include a shade made of PC-ABS and the PCB (only for testing purpose). Optimized for **Mid Power LEDs**, dimensions: **279.50mm x 21.00mm side x H 14.32mm**. Made of optical grade **PMMA**, these optics work perfectly within -40° to +90° temperature range.

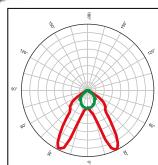
Beam angles: **Wide** and **Extra Wide**.



**SAGIT/M3/AX/XXXX**

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

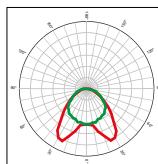
Full angle at 10%  
from maximum:  
~ 150° x 150°



**SAGIT/M1/AX/XXXX**

Full angle at 50%  
from maximum:  
~ 86° x 90°

Full angle at 10%  
from maximum:  
~ 140° x 140°



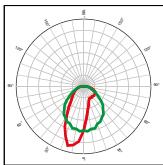
**SAGIT/SM/AX/XXXX**

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

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

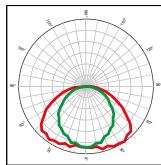
Linear Optics made with **OMP™ Technology (Optical Multilayer Performance)** for all indoor environments, especially designed for supermarkets, warehouses and offices. Engineered for mid-power LEDs. Optimized for the most popular 2835 and 3030 package LEDs, in 20mm and 24 mm modules. Made of optical grade **PMMA**. Available in **three standard lengths**: 1.220mm, 1.550mm and 3.050mm. **On request, custom lengths possible.**

Beam angles: **Double Asymmetric, Single Asymmetric, 140°, 120°, 110°, 70°, 90° Uniform, 60° Low Glare and 45°.**



**SAGIT/SL/AS/XXXX**

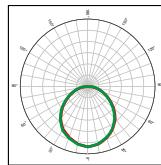
Peak at 15°  
Cut Off at 60°



**SAGIT/SL/GW/XXXX**

Full angle at 50%  
from maximum:  
~ 140° x 90°

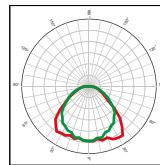
Full angle at 10%  
from maximum:  
~ 160° x 140°



**SAGIT/DIF/XXXX**

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

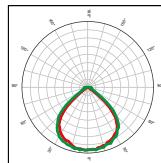
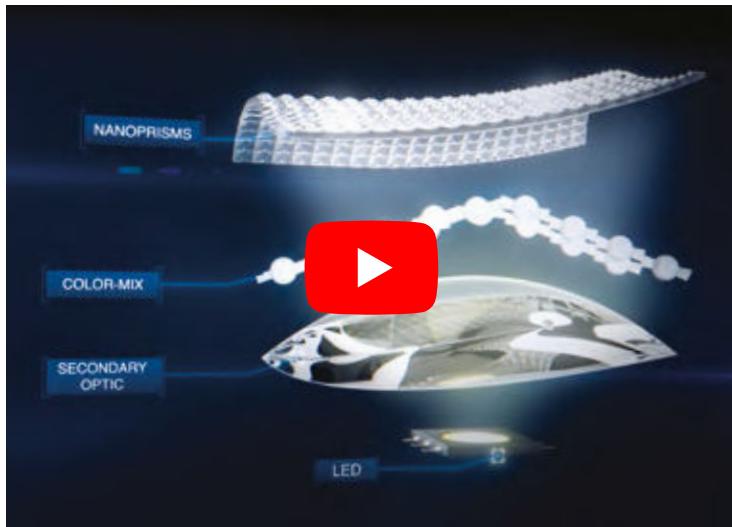
Full angle at 10%  
from maximum:  
~ 140° x 140°



**SAGIT/SL/MW/XXXX**

Full angle at 50%  
from maximum:  
~ 110° x 100°

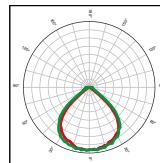
Full angle at 10%  
from maximum:  
~ 120° x 120°



**SAGIT/M1/UW/XXXX**

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

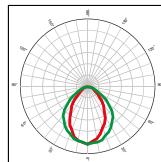
Full angle at 10%  
from maximum:  
~ 140° x 150°



**SAGIT/SM/UW/XXXX**

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

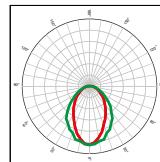
Full angle at 10%  
from maximum:  
~ 140° x 150



**SAGIT/M1/W7/XXXX**

Full angle at 50%  
from maximum:  
~ 70° x 100°

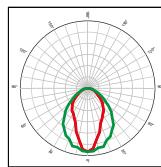
Full angle at 10%  
from maximum:  
~ 100° x 120°



**SAGIT/M3/EW/XXXX**

Full angle at 50%  
from maximum:  
~ 60° x 80°

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



**SAGIT/M1/WI/XXXX**

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

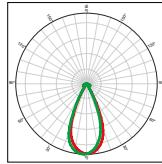
Full angle at 10%  
from maximum:  
~ 100° x 120°



Linear optical system for **MID-POWER LEDs**. Pitch: 24.58, dimensions: **295.05mm x 16.04mm side**.

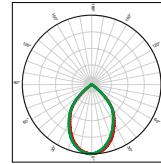
Arranged in modules of 3 optics each, adjustable in size thanks to thinner interruption points each module. Made of optical grade **PMMA**.

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



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°



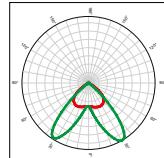
Single microlenses for most popular MID-POWER LEDs, Round shape - Ø 11.95mm - different beam angles. Mounted on reels and compatible with the most popular "Pick and Place" Machines for SMD Components. Made of **PMMA**. Lighting efficiency: **over 85%**.

Beam angles: **60°, 90°**.

# 11X3 STOCK & SHOP

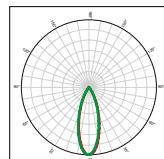
LENS ARRAYS

MID-POWER LEDs



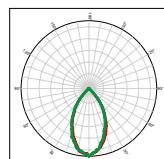
## PLL2059AXKH

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



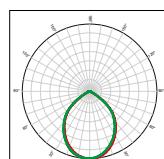
## PLL2059WIKH

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



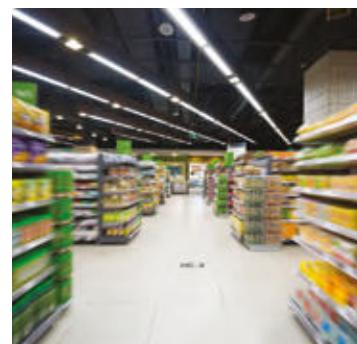
## PLL2059EWKH

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°



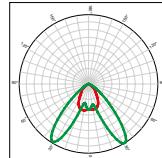
11x3 optics panels, made of PMMA, designed for most popular Mid-Power LEDs. Excellent optical solutions for lighting systems used in rooms with high ceilings and industrial frame. Designed to comply with **ZHAGA** mounting dimension specifications.

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

# 11X3 STOCK & SHOP - BOX-SHAPE

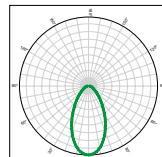
LENS ARRAYS

MID-POWER LEDs



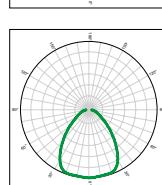
## PLL2061AXKH

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



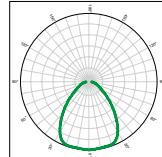
## PLL2061WIKH

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



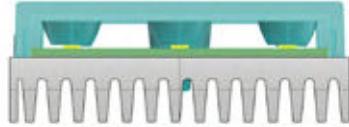
## PLL2061EWKH

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



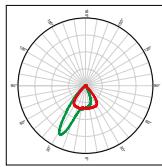
## PLL2061UWKH

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

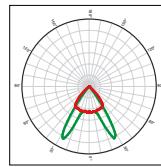


The module edge is as high as the height determined by the lenses forming the array - 7.17mm to 12.07mm - giving the module a box shape. This makes Stock & Shop even more compact, **robust** and efficient while enabling the housing to be extremely flat. Dimensions: **286.00mm x 60.00mm side**; 7.17 mm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

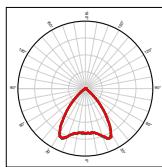
Beam angles: **Wide, Extra Wide, Ultra Wide, Double-Asymmetrical**.



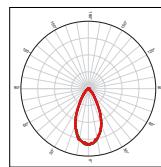
**KCLPL2161AS**  
Full angle C0-C180  
@ Max Candela: ~ 30°



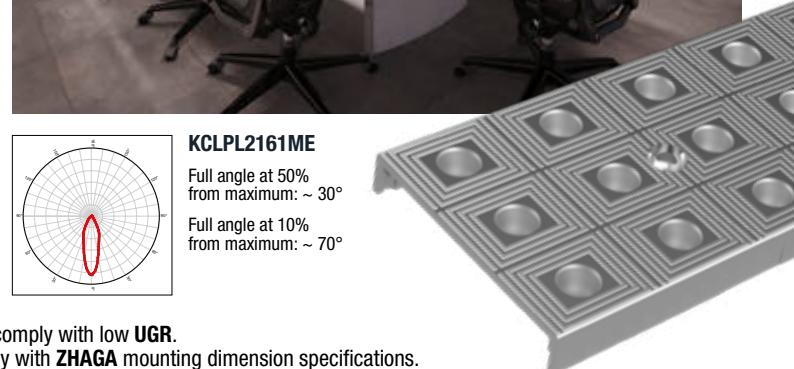
**KCLPL2161AX**  
Full angle C0-C180  
@ Max Candela: ~ 30°



**KCLPL2161EW**  
Full angle at 50%  
from maximum: ~ 90°  
Full angle at 10%  
from maximum: ~ 110°

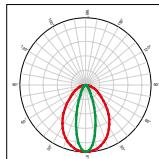


**KCLPL2161WI**  
Full angle at 50%  
from maximum: ~ 60°  
Full angle at 10%  
from maximum: ~ 90°



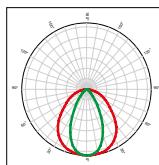
Reflector panels made of 33 cavities, box-shaped, designed for Mid Power LEDs and to comply with low **UGR**.  
Module dimensions: **285.60mm x 61mm side**, 10.25mm height only. Designed to comply with **ZHAGA** mounting dimension specifications.

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



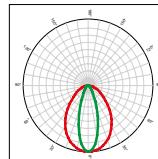
PLL2026A

Full angle at 50%:  
30°



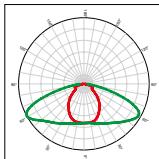
PLL2026B

Full angle at 50%:  
60°



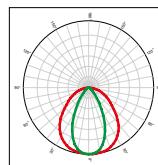
PLL2026E

Full angle at 50%:  
30°  
for Fortimo LED



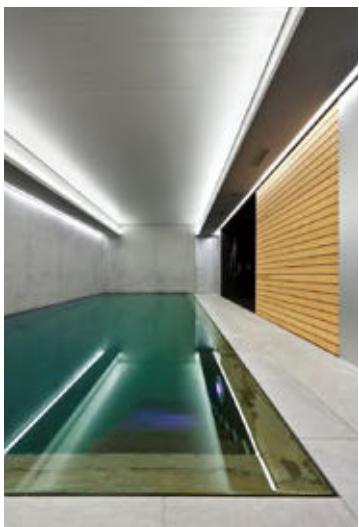
PLL2026L

Full angle at 50%:  
145° x 90°



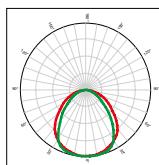
PLL2026F

Full angle at 50%:  
60°  
for Fortimo LED



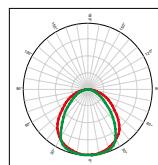
PLL2026C

Full angle at 50%:  
90°



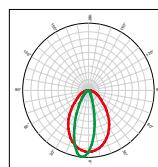
PLL2026D

Full angle at 50%:  
asymmetric



PLL2026G

Full angle at 50%:  
90°  
for Fortimo LED



PLL2026H

Full angle at 50%:  
asymmetric  
for Fortimo LED

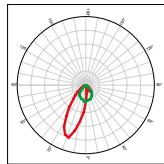
Engineered for mid-power LED strips. Made of optical grade **PMMA**; -40° ~ 90° temperature resistant. Fit for standard PCB, 20mm wide – and 4 optical versions for **Fortimo LED** Strip systems. **286mm long**, offer exclusive installation also **in continuous rows** made of limitless number of parts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

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

# LINEA 24X1

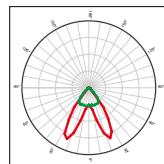
LINEAR LENSES

MID-POWER LEDs



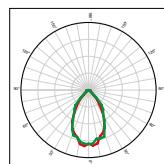
## PLL2174AS

Full angle at 50% from maximum:  $\sim 20^\circ$



## PLL2174AX

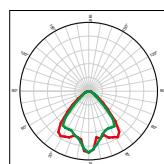
Full angle at 50% from maximum:  $\sim 25^\circ$



## PLL2174EW

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

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



## PLL2174UW

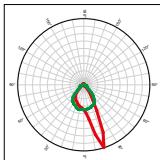
Full angle at 50% from maximum:  $\sim 90^\circ$

Full angle at 10% from maximum:  $\sim 120^\circ$



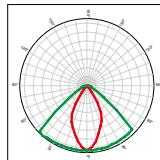
PLL2174xx are 1-row TIR linear lens modules consisting of 24 TIR lenses – 24x1 - with 11.6 mm pitch, for PCBs with 40mm maximum width. Dimensions: 278.30mm x 43.00mm side, 9.94mm height. Linear modules, engineered for stock&shop applications, PLL2174xx series is designed to comply with UGR low. **No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

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



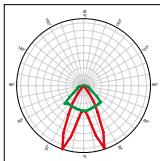
**PLL2091AS**

Full angle at 50% from maximum: ~ 30°  
Full angle at 10% from maximum: ~ 90°



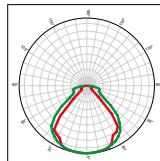
**PLL2091EW**

Full angle at 50% from maximum: ~ 60°  
Full angle at 10% from maximum: ~ 100°



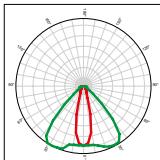
**PLL2091AX**

Full angle at 50% from maximum: ~ -30/+30°  
Full angle at 10% from maximum: ~ 90°



**PLL2091UW**

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



**PLL2091WI**

Full angle at 50% from maximum: ~ 30°  
Full angle at 10% from maximum: ~ 90°



**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°, 60°, 90°, 20° Asymmetrical, ± 20° Asymmetrical.**

# FLEX LENS

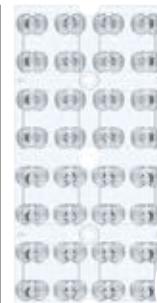
MODULABLE OPTICAL SYSTEM

MID-POWER LEDs



16 square module  
49.5mm side

32 optics



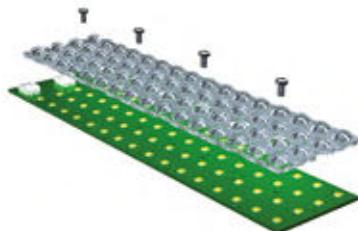
48 optics



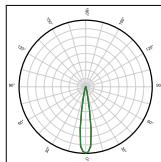
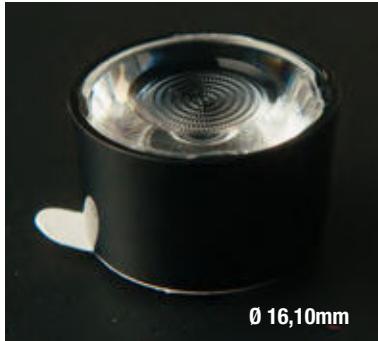
64 optics



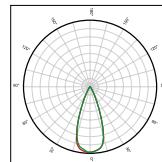
DOWNLOAD CATALOGUE



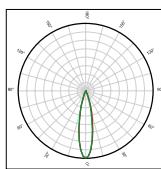
FLEX LENS – ready to use multi-lens array available in 4 different sizes: **16 optics** (49.5mm x 49.5mm), **32 optics** (49.5mm x 100.3mm), **48 optics** (49.5mm x 151.1mm) and **64 optics** (49.5mm x 201.9mm) all with 12.5mm pitch. This series covers, with a large variety of models, street lighting 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%. **IP Version on request.** Layout compliant with **ZHAGA book 15** circuit boards.



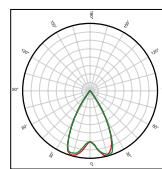
**JOY/NA01SA**  
Full angle at 50% from maximum: ~ 15°  
Full angle at 10% from maximum: ~ 30°



**JOY/WI01SA**  
Full angle at 50% from maximum: ~ 40°  
Full angle at 10% from maximum: ~ 60°



**JOY/ME01SA**  
Full angle at 50% from maximum: ~ 25°  
Full angle at 10% from maximum: ~ 45°



**JOY/EW01SA**  
Full angle at 50% from maximum: ~ 55°  
Full angle at 10% from maximum: ~ 75°

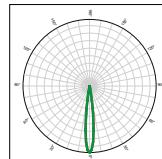
Family of **mini lenses** made of **PMMA** with a **diameter of 16.1 mm**, perfect for all types of micro-spotlights. Reflecting market trends, we have made these mini lenses which, despite their "micro" size, deliver exceptional performance comparable to that of a macro-lenses. These lenses are compatible with all **LED types up to 5050 package size**, making them a versatile solution for illuminating a wide variety of environments, from offices and shops to architectural spaces, wherever a "micro" optical solution is required. The lenses are easily assembled by adhesive **tape fixing**.

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

# PL1672 SERIES

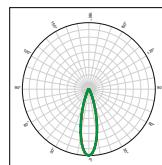
SINGLE LENSES

HIGH-POWER LEDs



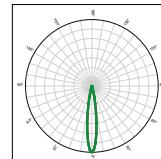
## PL1672UN

Full angle at 50% from maximum: ~ 3°  
Full angle at 10% from maximum: ~ 8°



## PL1672ME

Full angle at 50% from maximum: ~ 28°  
Full angle at 10% from maximum: ~ 40°



## PL1672NA

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



## KE1672

Holder for PL1672 Series  
Available on request with self-tape



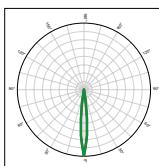
Single Lenses for Power LEDs, **35,00mm diameter - 20,71mm height - MR11 Standard**. Material: **PMMA**.

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/lm. Smallest Shape Factor Lens (Diameter × FWHM / ChipSize).

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



Ø 26mm



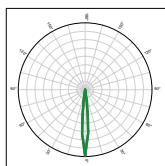
**PLL2261SAUN**

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



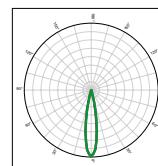
**PLL2261SAME**

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



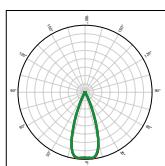
**PLL2261SANA**

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



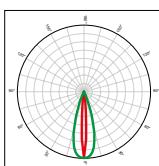
**PLL2261SAEL90**

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



**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°



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.**

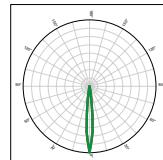
# SILVER JUNIOR

SINGLE LENSES

HIGH-POWER LEDs

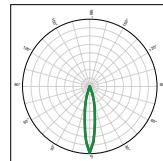


Ø 21.6mm



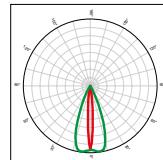
**PLL2269SAUN**

Full angle at 50%  
from maximum: ~ 10°  
Full angle at 10%  
from maximum: ~ 17°



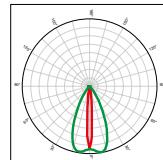
**PLL2269SAME**

Full angle at 50%  
from maximum: ~ 25°  
Full angle at 10%  
from maximum: ~ 40°



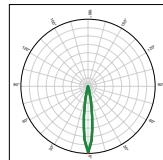
**PLL2269SAEL1**

Full angle at 50%  
from maximum:  
~ 10° x 45°  
Full angle at 10%  
from maximum:  
~ 20° x 60°



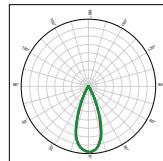
**PLL2269SAEL2**

Full angle at 50%  
from maximum:  
~ 10° x 55°  
Full angle at 10%  
from maximum:  
~ 20° x 80°



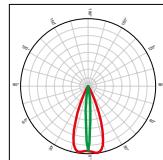
**PLL2269SANA**

Full angle at 50%  
from maximum: ~ 16°  
Full angle at 10%  
from maximum: ~ 27°



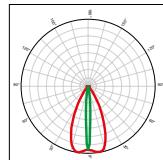
**PLL2269SAWI**

Full angle at 50%  
from maximum: ~ 40°  
Full angle at 10%  
from maximum: ~ 60°



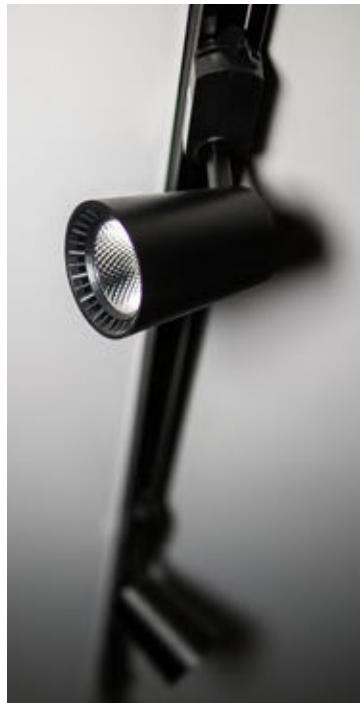
**PLL2269SAEL190**

Full angle at 50%  
from maximum:  
~ 45° x 10°  
Full angle at 10%  
from maximum:  
~ 60° x 20°



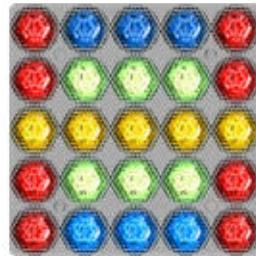
**PLL2269SAEL290**

Full angle at 50%  
from maximum:  
~ 55° x 10°  
Full angle at 10%  
from maximum:  
~ 80° x 20°





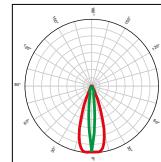
74.9mm side



MULTICOLOR



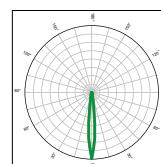
DYNAMIC WHITE



PLL2251EL

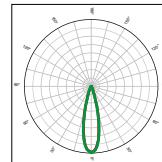
Full angle at 50%  
from maximum:  
~ 14° x 38°

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



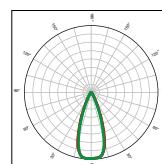
PLL2251NA

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

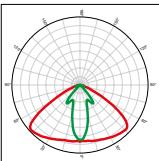
Full angle at 50%  
from maximum: ~ 39.2°  
Full angle at 10%  
from maximum: ~ 60.7°

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.**



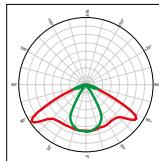
Ø 284mm



**PLL2215EL**

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

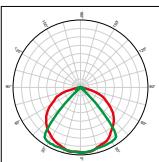
Full angle at 10% from maximum:  
~ 90° x 145°



**PLL2215EW**

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

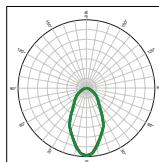
Full angle at 10% from maximum:  
~ 150° x 160°



**PLL2215UW**

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

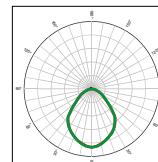
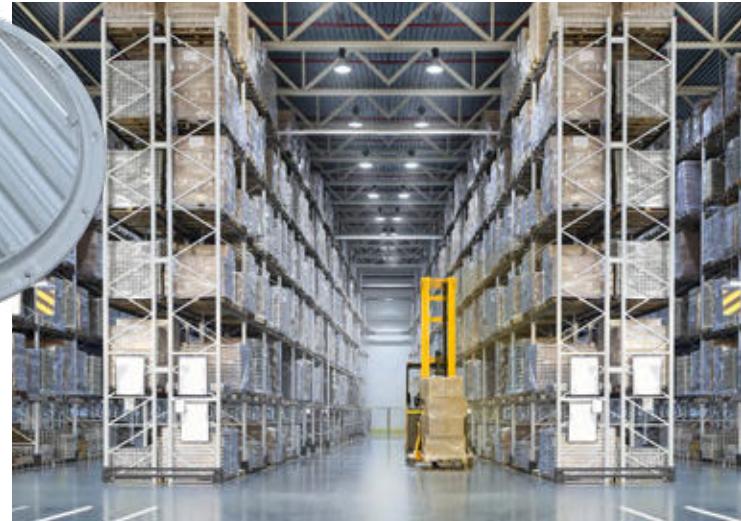
Full angle at 10% from maximum:  
~ 95° x 155°



**PLL2331EW**

Full angle at 50% from maximum: ~ 60°

Full angle at 10% from maximum: ~ 120°



**PLL2331UW**

Full angle at 50% from maximum: ~ 87°

Full angle at 10% from maximum: ~ 145°

**DESIGNED TO COMPLY WITH**

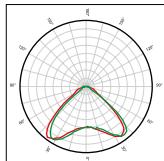


**IP68**



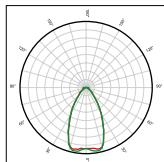
**IK10**

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**.



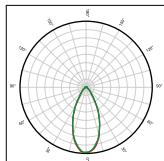
**VIA2X3/5050R100**  
**FWHM 100°**  
**Round Beam**

Full angle at 50% from maximum: ~ 100°  
Full angle at 10% from maximum: ~ 120°



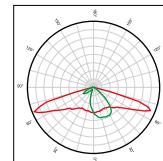
**VIA2X3/5050R60**  
**FWHM 60°**

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



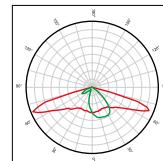
**VIA2X3/5050R50**  
**FWHM 50°**

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



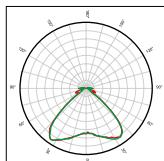
**VIA2X3/5050T2MC**  
**IESNA Type II**  
**Medium**

Full angle at 50% from maximum: ~ 150° x 70°  
Full angle at 10% from maximum: ~ 165° x 106°



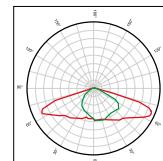
**VIA3X8/T2MC**  
**IESNA Type II**  
**Medium**

Full angle at 50% from maximum: ~ 150° x 70°  
Full angle at 10% from maximum: ~ 165° x 106°



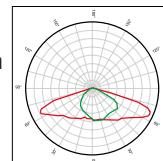
**VIA2X3/5050S100**  
**FWHM 100°**  
**Square Beam**

Full angle at 50% from maximum: ~ 100°  
Full angle at 10% from maximum: ~ 120°



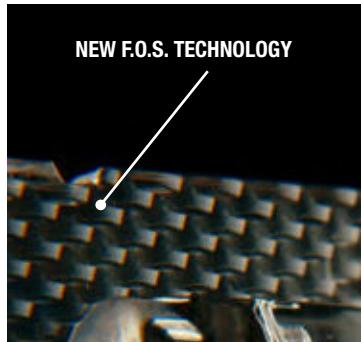
**COMING SOON**  
**VIA2X3/5050T3M**  
**IESNA Type III Medium**

Full angle at 50% from maximum: ~ 150° x 55°  
Full angle at 10% from maximum: ~ 170° x 95°



**COMING SOON**  
**VIA3X8/T3M**  
**IESNA Type III Medium**

Full angle at 50% from maximum: ~ 150° x 55°  
Full angle at 10% from maximum: ~ 170° x 95°



**VIA lenses** have been designed for street lighting applications. Thanks to the **FULL OPTICAL SURFACE TECHNOLOGY** (Measured efficiencies > 95%), Khatod is taking advantage of all light dispersed between lenses in a cluster, directing it towards the street. The pattern between each lens is carefully engineered to extract all light, which is usually lost.

## NACTUS 2x2

**4 Optics** - 25,40mm Lens pitch  
Dimensions: 50mm side



## NACTUS 6

**6 Optics**  
Dimensions: 50mm side



## NACTUS 6x2

**12 Optics** - 25,40mm Lens pitch  
Dimensions: 173mm x 71.4mm side



## NACTUS 6x2 SIL

**12 Optics**  
Dimensions: 168.78mm x 68.18mm side



## NACTUS 4x2

**8 Optics** - 25,40mm Lens pitch  
Dimensions: 118.80mm x 71.40mm side



## NACTUS SMILE

**12 Optics** - From 6mm to 8mm height  
Dimensions: 110mm diameter



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**First and unique optical system using different optics with different geometries**, combined and set together in the same system. Any shape, any lighting pattern, any configuration can be realized thanks to its specific optical design that makes NACTUS special and unique.



PATENTED SYSTEM



110x120mm



DOWNLOAD CATALOGUE

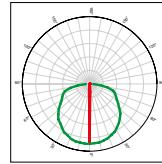


Design and production of optical systems for LEDs dedicated to sports facilities of any size and range (ideal for applications where **homogeneity**, **low-glare** and **efficiency** are required), available various light beams and made with the best raw materials.

# SNAIL

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

HIGH-POWER LEDs



## PLL2203SR

Full angle at 50% from maximum:  $\sim 4^\circ \times 120^\circ$

Full angle at 10% from maximum:  $\sim 13^\circ \times 150^\circ$



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.

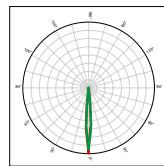
# MULTICOLOR

SILICONE LENSES FOR TUNABLE WHITE AND FULL COLOR APPLICATIONS

HIGH-POWER LEDs

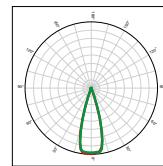


Ø 80mm



**KEPLL2066NASR**

Full angle at 50%  
from maximum: ~ 6.3°  
Full angle at 10%  
from maximum: ~ 11.3°



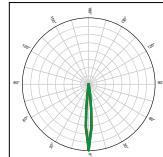
**KEPLL2066WISR**

Full angle at 50%  
from maximum: ~ 33°  
Full angle at 10%  
from maximum: ~ 43°

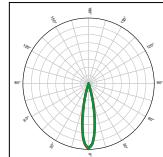


CUSTOMIZE YOUR COLORS! The wide variety of LEDs currently available on the market enables to customize the LED clusters with multiple colors. PLL2066xxSR lens from Khatod allows to use clusters consisting of up to 9 LEDs with **2x2mm case**. The customers are given the opportunity to choose the color 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.

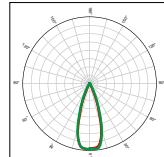
Beam angles: **Narrow, Wide**.



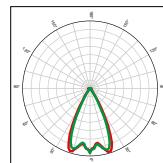
**PL135910**  
19,70 mm diameter  
9,96 mm height  
Narrow Beam Lens



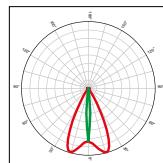
**PL135920**  
19,70 mm diameter  
10,25 mm height  
Medium Beam Lens



**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

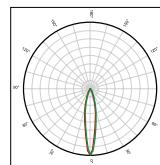


**PL1359EL**  
19,70 mm diameter  
10,52 mm height  
Elliptical Beam Lens



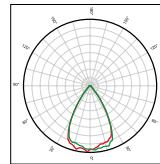
Modular systems based on a variety of holders from **1 to 16** housings, available with round, square and linear shape able to accommodate reflectors and lenses of different beams. Allow diverse configurations and offer a “plug-and-play” functionality whereby MODULARIS is ready for use within **few seconds**.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

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



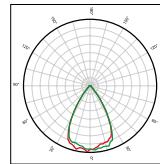
#### FLORA50/ME

Full angle at 50% from maximum: ~ 20°  
Full angle at 10% from maximum: ~ 50°



#### FLORA50/EW

Full angle at 50% from maximum: ~ 35°  
Full angle at 10% from maximum: ~ 60°



#### FLORA50/EW

Full angle at 50% from maximum: ~ 60°  
Full angle at 10% from maximum: ~ 80°



**FLORA** is the family of **single lenses** with a **diameter of 50mm**. These lenses are conceived for COB LEDs with **LES ranging from 9mm to 13.5mm in diameter**. They can be used with all kinds of COBs: white, Tunable White and Dim to Warm. Made of optical grade **PMMA**, these optics work perfectly within the temperature range of -40° Celsius to +90° Celsius. They are available in **three variants of holder** (made of polycarbonate): White, Black and Clear - **Twist and Lock assembly on Zhaga Book 10 Connectors**.

Beam angles: **Medium, Wide and Extra Wide**.

GRACE35

Ø 35mm  
Full Beam



GRACE35/SEMI

Ø 35mm  
Full Beam



GRACE35S/MARBLE

Ø 35mm  
Full Beam



GRACE35S/WOOD

Ø 35mm  
Full Beam



GRACE35/WOW

Ø 35mm  
Full Beam



GRACE is the revolutionary optical diffuser **Ø 35mm and 50mm** for COB LEDs.

Embrace the uniqueness of its exclusive design with **personalized finishing**, ensuring effortless assembly and **immediate usability**.

Made of **PC**, conform to **Zhaga Standards** and tailored for indoor spaces, their adaptability extends further with customizable shapes and finishes upon request.

**GRACE50**

Ø 50mm  
Full Beam



**GRACE50/STONE**

Ø 50mm  
Full Beam



**GRACE50/MARBLE**

Ø 50mm  
Full Beam



**GRACE50/WOOD**

Ø 50mm  
Full Beam

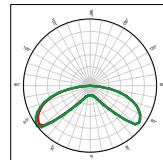


**GRACE50D**

Ø 50mm  
Full Beam



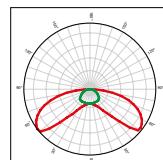
Other version available: **GRACE50/SEMI - 1/2 sphere**  
All items are available with personalized finishing.



**PL1764SR**

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

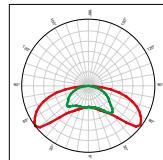
Full angle at 10% from maximum:  $\sim 165^\circ \times 165^\circ$



**PL1765SR**

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

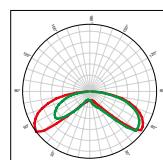
Full angle at 10% from maximum:  $\sim 145^\circ \times 160^\circ$



**PL1766SR**

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

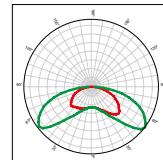
Full angle at 10% from maximum:  $\sim 170^\circ \times 165^\circ$



**PL1771SR**

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

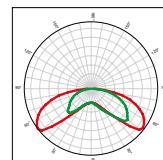
Full angle at 10% from maximum:  $\sim 165^\circ \times 165^\circ$



**PL1772SR-075**

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

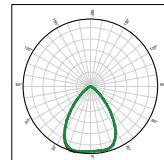
Full angle at 10% from maximum:  $\sim 150^\circ \times 165^\circ$



**PL1772SR**

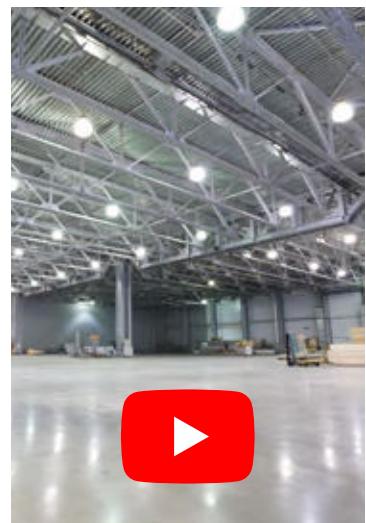
Full angle at 50% from maximum:  $\sim 140^\circ \times 155^\circ$

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



**PL1845SR**

Beam angle:  $120^\circ$



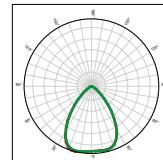
DESIGNED TO  
COMPLY WITH



IP68

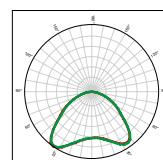


IK10



**PL1824SR**

Beam angle:  $60^\circ$



**PL1825SR**

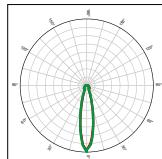
Beam angle:  $90^\circ$

**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.

**9 versions available.**

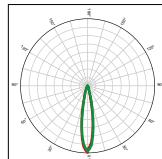


Ø 85.09mm



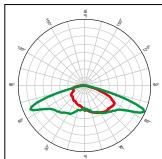
#### PLL2087NASR

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



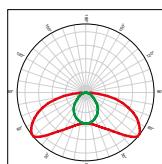
#### PLL2087UNSR

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



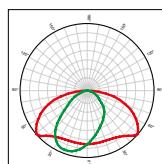
#### PLL2056SR00

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



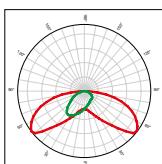
#### PLL2056SR11

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



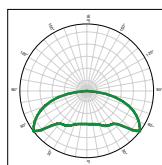
#### PLL2056SR22

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



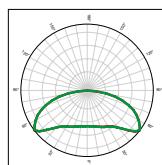
#### PLL2056SR33

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



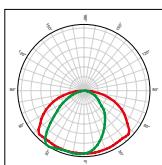
#### PLL2056SR44

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



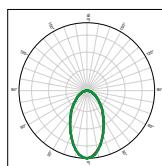
#### PLL2056SR55

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



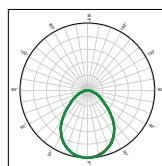
#### PLL2056SR66

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



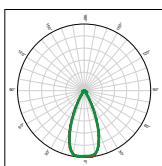
#### PLL2056SR77

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

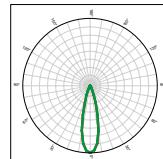
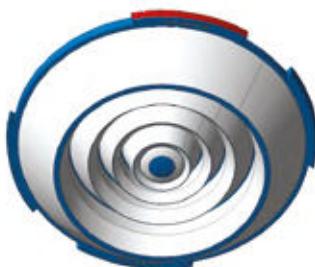
Full angle at 50% from maximum: ~ 45°  
Full angle at 10% from maximum: ~ 80°

**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.

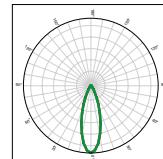
14 versions available.



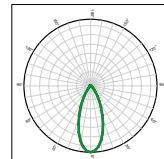
Low Profile


**PLL2008NA**  
**18° FWHM**

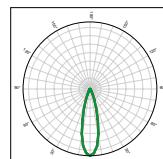
Full angle at 50%  
from maximum: ~ 18°  
90mm Ø


**PLL2008ME**  
**33° FWHM**

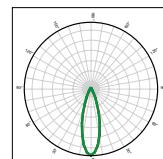
Full angle at 50%  
from maximum: ~ 33°  
90mm Ø


**PLL2008WI**  
**45° FWHM**

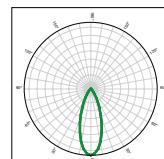
Full angle at 50%  
from maximum: ~ 45°  
90mm Ø


**PLL2009NA**  
**15° FWHM**

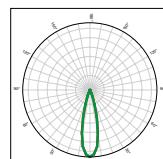
Full angle at 50%  
from maximum: ~ 15°  
70mm Ø


**PLL2009ME**  
**25° FWHM**

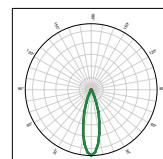
Full angle at 50%  
from maximum: ~ 25°  
70mm Ø


**PLL2009WI**  
**35° FWHM**

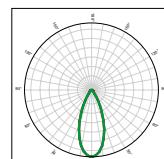
Full angle at 50%  
from maximum: ~ 35°  
70mm Ø


**PLL2010NA**  
**12° FWHM**

Full angle at 50%  
from maximum: ~ 12°  
50mm Ø


**PLL2010ME**  
**25° FWHM**

Full angle at 50%  
from maximum: ~ 25°  
50mm Ø

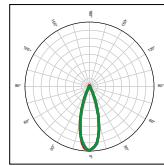

**PLL2010WI**  
**38° FWHM**

Full angle at 50%  
from maximum: ~ 42°  
50mm 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.**



## KRYSTAL/ME

Full angle at 50% from maximum: ~ 30°

Full angle at 10% from maximum: ~ 55°



TIR Optics for **COB LEDs** made of **PC** with **Ø 80mm**. These lenses are ideal for retail, shop, and architectural lighting. Provided with special adaptors, compliant to **Zhaga Book 3** and **Book 11 Twist & Lock** connectors.

Beam angles: **Medium**.

# FRESNEL LENSES / AUTOFOCUS

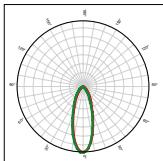
FRESNEL LENSES FOR COB LEDs

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,  $\varnothing 45\text{mm}$ , 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.

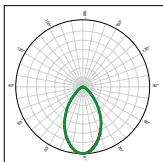


**KESQ1909CR**

Full angle at 50%  
from maximum: ~ 24°

Full angle at 10%  
from maximum: ~ 71°

35mm Ø

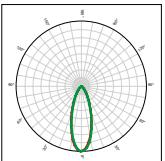


**KESQ1910CR**

Full angle at 50%  
from maximum: ~ 55°

Full angle at 10%  
from maximum: ~ 99°

35mm Ø

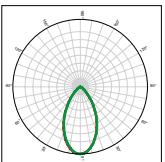


**KESQ1936CR**

Full angle at 50%  
from maximum: ~ 30°

Full angle at 10%  
from maximum: ~ 75°

50mm Ø

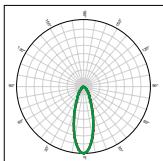


**KESQ1937CR**

Full angle at 50%  
from maximum: ~ 52°

Full angle at 10%  
from maximum: ~ 92°

50mm Ø

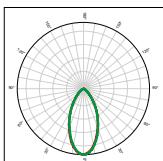


**KESQ1912CR**

Full angle at 50%  
from maximum: ~ 30°

Full angle at 10%  
from maximum: ~ 75°

35mm Ø

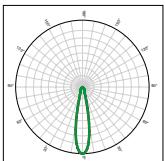


**KESQ1933CR**

Full angle at 50%  
from maximum: ~ 42°

Full angle at 10%  
from maximum: ~ 90°

35mm Ø

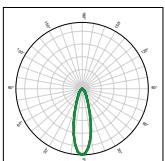


**KESQ1934CR**

Full angle at 50%  
from maximum: ~ 12°

Full angle at 10%  
from maximum: ~ 21°

50mm Ø

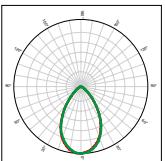


**KESQ1935CR**

Full angle at 50%  
from maximum: ~ 18°

Full angle at 10%  
from maximum: ~ 40°

50mm Ø

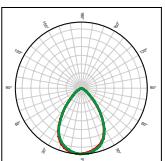


**KESQ1938CR**

Full angle at 50%  
from maximum: ~ 68°

Full angle at 10%  
from maximum: ~ 100°

50mm Ø



**KESQ1939CR**

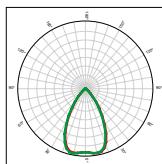
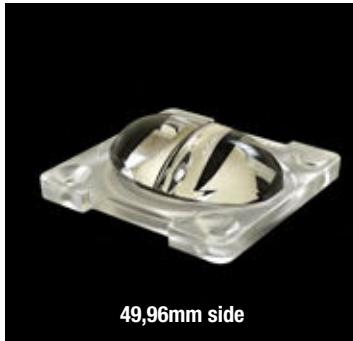
Full angle at 50%  
from maximum: ~ 75°

Full angle at 10%  
from maximum: ~ 100°

50mm Ø

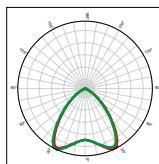
Single reflectors made of optical grade **PC** specific for high temperature resistance, up to 120°C. High-performing, multi-functional, easy to use. Available in three diameters: **32.39mm**, **34.99mm**, **49.91mm**. Fastening with **adhesive tape**. Perform an excellent luminous flux and uniform light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

**10 versions available.**



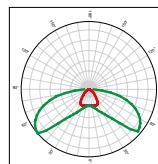
**PLAL011**  
60° FWHM

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



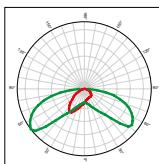
**PLAL012**  
90° FWHM

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



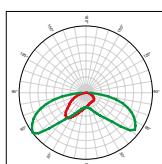
**PLAL013**  
IESNA Type I

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



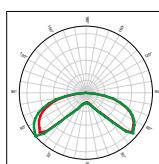
**PLAL014**  
IESNA Type II

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



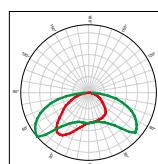
**PLAL015**  
IESNA Type III

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



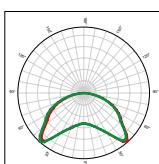
**PLAL016**  
IESNA Type V

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



**PLAL017**  
ME3A

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



**PLAL018**  
120° Square

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

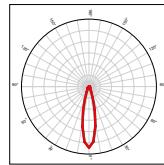
Beams referred to GAIA ONE. Single lens modules - **49,96 mm side** – made of **PMMA-HT** resistant up to 125°C . New addition to the Gaia Optical Systems family. Created to meet the requirements of LED Lighting users for high efficient single lenses enabling great illuminance in small footprint applications.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

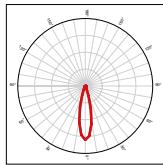
SILICONE SINGLE LENS FOR UV LEDs

UV LEDs



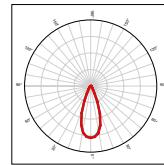
## KESQ2145NASR

Full angle at 50% from maximum: ~ 7.4°  
Full angle at 10% from maximum: ~ 15.2°



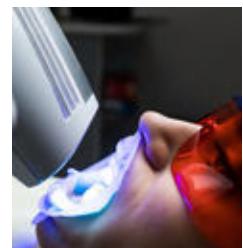
## KESQ2145MESR

Full angle at 50% from maximum: ~ 25.0°  
Full angle at 10% from maximum: ~ 35.6°



## KESQ2145WI

Full angle at 50% from maximum: ~ 41.1°  
Full angle at 10% from maximum: ~ 53.2°



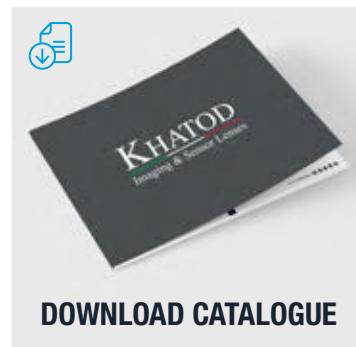
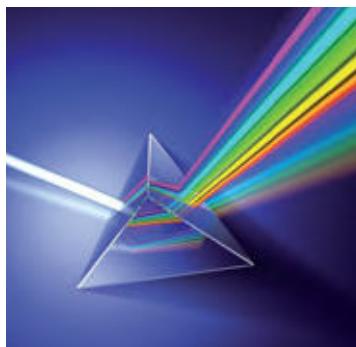
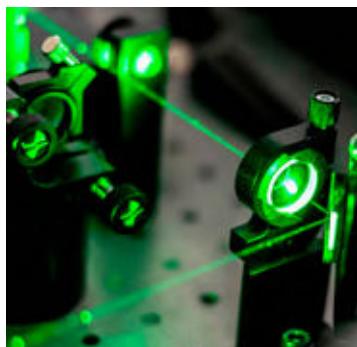
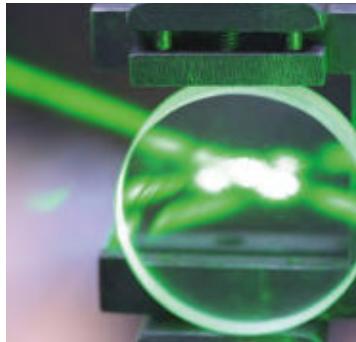
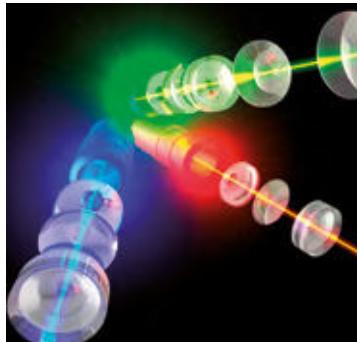
Silicone Single Lenses with Self-Adhesive Tape for UV LEDs with Black Holder.

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



# IMAGING AND SENSOR

OVER 7900 MODELS AVAILABLE



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