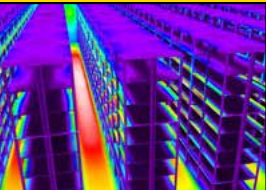


LEDiL

LEDiL OPTICS From Light to Lighting



Applications



Assembly



Cases



New Products

Contents

New Products

3

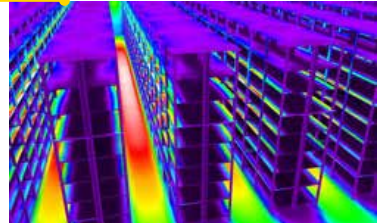
LEDiL's connectors	3	BROOKE-G2	15
ZORYA	4	SAGA-S	16
RONDA	6	STRADELLA	17
CARMEN	8	STRADA-2X2-T4-B	19
FLORENTINA-0-T45	9	STRADA-2X2-T1	20
FLORENTINA-4X1	10	STRADA-SQ-FS3	21
ROSE-MRK	11	STRADA-2X2S-T3	22
FLORENCE-1R-GC	12	STRADA-2X2MXS	23
FLORENCE-0	13	STELLA-DWC2	24
ANGELETTE	14		



Applications

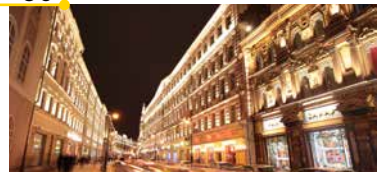
25

JENNY	25	FLORENTINA	31
STELLA	26	WINNIE	32
2X6 modules	27	SYSTEM REFLECTORS	33
IDA	28	VERONICA-SQ-MINI	34
OLIVIA	29	LUCIA	35
FLORENTINA-2X2	30		



Cases

36



General Information

39



FWHM angles, efficiencies and cd/lm values contained herein are typical values. Actual measured values depend of the specific LED/ optic combination. Go to www.ledil.com for LED specific values and optical datasheets.

New Products



LEDiL's new solderless connectors

YES! Finally connectors and optics from the same manufacturer



What makes you want it?

- Compatibility NOW and in the future with most of our lenses and reflectors
- Multiple dimensions and Zhaga mounting holes
- At VERY attractive price

Make your connections more versatile, robust and future proof

Technical details

- Robust design allows the product to be used in presence of vibrations and even in high temperature conditions
- LEDiL "snap in" feature simplifies the installation and makes alignment of the LED easy
- Zhaga 35mm and 45mm mounting holes available and the same "twist and lock" features as LEDiL other holder system
- Industrial standard integrated poke-in wire terminals and very low profile design

KONNTAKT (D=50mm)

- Metal holding clips that ensure excellent thermal control and pressure against bigger COBs
- Compatible with various lenses and reflectors from LEDiL (ANGELETTE, ANGELA, ANGELINA, RONDA)
- Shares the same mounting interface as Ideal, TYCO, Stucchi etc.



KONNTAKT (D=44mm)

- Innovative LEDiL Push-In accessories allows you to decide whether you want to solder the LEDs or not
- Push-In accessories are easily adaptable to most existing LEDiL holder systems
- Compatible with smaller size lenses and reflectors like LEDiL's BROOKE- and WINNIE-families
- Minimalistic design great flexibility



LEDiL recommends the use of M3 washers with all solderless connectors to improve reliability and LED lifetime.

The information contained herein is the property of LEDiL Oy, Satorankatu 10, FI-24240 SALO, Finland, and is subject to change without prior notice. Please visit www.ledil.com for additional information, such as the latest photometric files, 3D mechanical models, and application notes relating to handling, gluing and taping.

ZORYA

~360° silicone optic for retrofits

- Energy Star standards fullfilling omnidirectional lens
- Twist and lock holder system allows the lens to be used with solderless connectors
- Easy ingress protection due to silicone technology

FEATURES

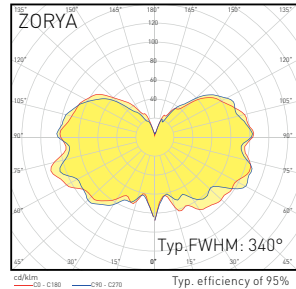
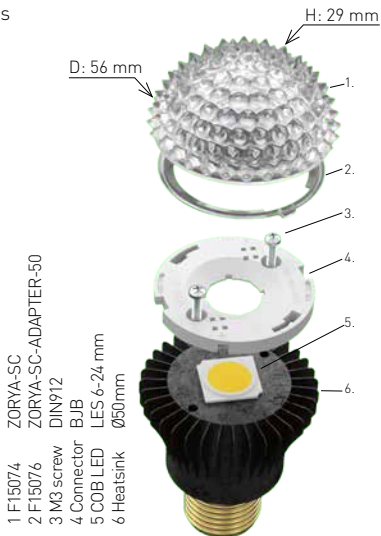
- Flexible design - lens can be scaled and holder modified
- High efficiency (95%) with excellent UV, heat, and impact resistance
- Can be used as it is, or with external protective cover
- RGB and tunable white support
- 2 different dimensions (50mm silicone, 22mm PC optic)

COMPATIBILITY

- LES sizes from 6 mm to 24 mm
- Stucchi, BJB and Tyco solderless connectors
- 40 and 50 mm LEDiL adapters

TYPICAL APPLICATIONS

- Retrofit
- Walkway lighting
- Industrial lighting
- Garden lights



Without optics

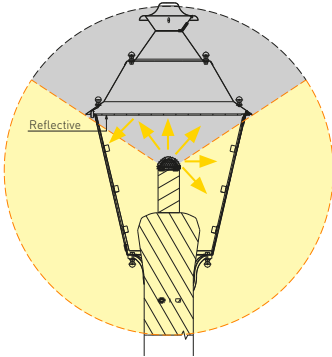


With ZORYA

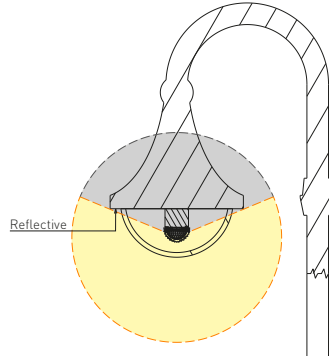


ZORYA assembly

Assembly example 1



Assembly example 2



DESIGN EXAMPLE



Long pole

- Luminous flux [Luminaire]: 3500 lm
- Distance between luminaires: ≈10,7 m
- E_{av} : 8.72 lx, E_{min} : 1.68 lx, $u0$: 0.193



Short pole

- Luminous flux [Luminaire]: 1850 lm
- Distance between luminaires: ≈5,3 m
- E_{av} : 8.2 lx, E_{min} : 1.53 lx, $u0$: 0.187

ZORYA table lamp

- Luminous flux (Luminaire): 1000 lm
- Workplane: E_{av} : 12 lx, $u0$: 0.050



RONDA

70mm, recessed wall washing
made easy

- Asymmetric and double asymmetric wall washing beams meeting even strictest vertical illuminance requirements
- No shadows, uniform light up to the ceiling level without any tilting of the fixture needed

FEATURES & BENEFITS

- Various light distributions available from asymmetric to symmetrical beams.
- Visually pleasing light distribution with smooth cut-off
- Wide customization possibilities (front panel, assembly depth, light pattern)
- Low profile design for shallow depth installations
- Typical installation ratio 1:3 with asymmetric beams
- Accessories available by request (black shade available for double asymmetric version)
- ZT45-version for corridors, aisles and vertical surface illumination

COMPATIBILITY

- LES sizes up to ~16 mm
- Two holder versions to support most common connectors

Holder A: LEDiL, TE, BENDER+WIRTH and other twist and lock socket types

Holder B: different connectors from BJB and Stucchi

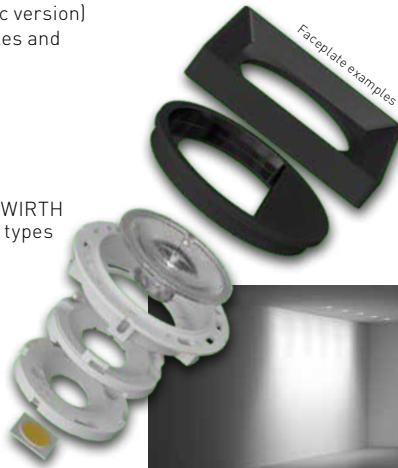
TYPICAL APPLICATIONS

- Office lighting
- Architectural lighting
- Downlights
- Museums
- Shops
- Hotels

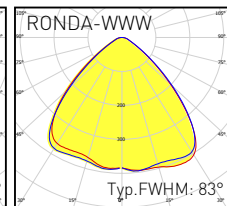
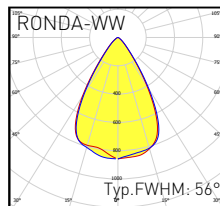
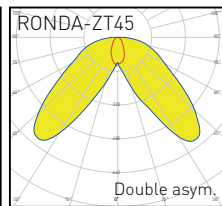
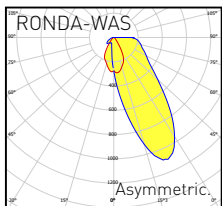


MOUNTING OPTIONS

- Screws
- Glue



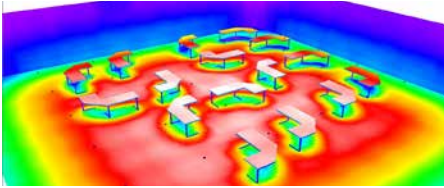
Design example



FWHM angles, efficiencies and cd/lm values contained herein are typical values. Actual measured values depend of the specific LED/optic combination. Go to www.ledil.com for LED specific values and optical datasheets.

DESIGN EXAMPLES

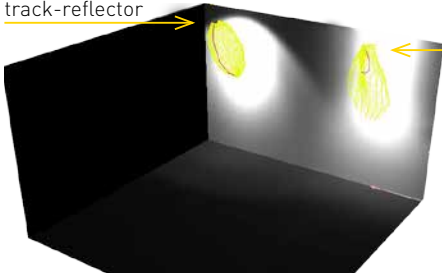
RONDA-WWW



- Calculation surface on desk area
- Mounting height 3.5m
- Distance between luminaries 2m
- Room size 20x20m
- Luminous Flux 2020 lm
- E_{av} 490 lx
- E_{min} 478 lx
- E_{max} 501 lx
- $u0$ 0,98

TILTED STANDARD TRACK REFLECTOR COMPARISON TO RONDA-WAS

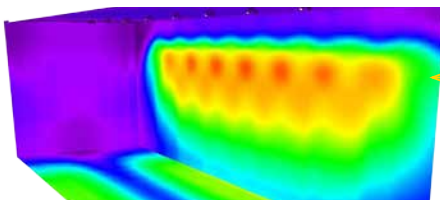
Tilted standard track-reflector



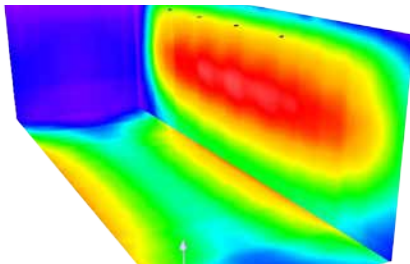
FCN15209_RONDA-WAS

- Smooth beam edge, no halos
- No dark area on roof top
- Competent cd/lm for deep vertical illuminance
- Designed for 1:3 assembly ratio

COMPARISON BETWEEN RONDA-ZT45 AND TILTED STANDARD REFLECTOR



Tilted standard track-reflector



FCN15357_RONDA-ZT45

- Uniform vertical and horizontal illumination
- Designed for 1:2 assembly ratio installations: Wall / shelf height - aisle width
- Typical distance between aisle units 1...1.5m
- Flush mount double asymmetric optic allows compact installation space
- No need for tilting fixture

CARMEN

70mm COB optic with 10° beam (no halo)

- Patent pending hybrid lens family with 10° ultra narrow beam
- Higher performance compared to similar metallized reflector designs in the market
- Dust- and TouchProof design

FEATURES & BENEFITS

- No halos or light spilling = higher intensity and less glare
- Comes with black reflector, especially optimised for low UGR applications
- Standard retail and track lighting beams available
- Various beam angles available including ultra narrow beam (~10°)

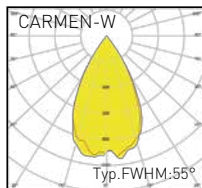
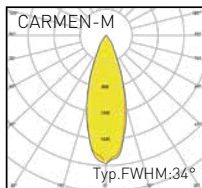
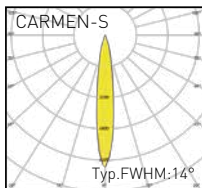
COMPATIBILITY

- LES sizes up to 14 mm
- LEDiL recommends spot version to be used with 6mm LES (=18000cd)
- Holder options for LEDiL, Ideal, BJB, Stucchi, Tyco etc. solderless connectors



TYPICAL APPLICATIONS

- Track lighting
- Retail and supermarkets
- Industrial lighting
- Outdoor architectural
- General indoor lighting



DESIGN EXAMPLE



FWHM angles, efficiencies and cd/lm values contained herein are typical values. Actual measured values depend of the specific LED/ optic combination. Go to www.ledil.com for LED specific values and optical datasheets.

FLORENTINA-O-T45

FLORENTINA-2X2 for double wall washing applications

FEATURES

- Dimensions 21,6 x 21,6 mm
- Height 10 mm
- Combination of F15063_FLORENTINA-ZT45 and F10675_ROSE-CMC-O optics with C14735_FLORENTINA-2X2-HLD
- Developed especially for 1:2 ratio double wall washing applications
- Excellent horizontal and vertical uniformity
- Precisely guided light to the targeted area
- Snapping installation with four clips

COMPATIBILITY

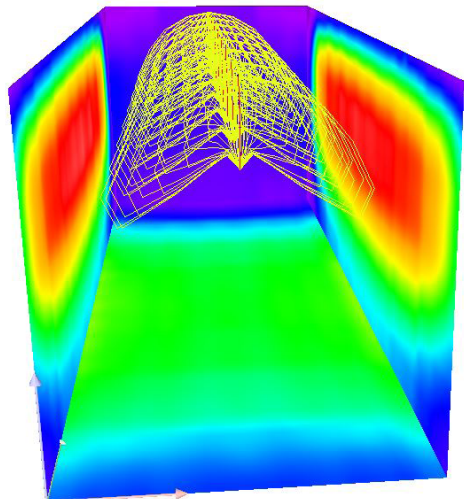
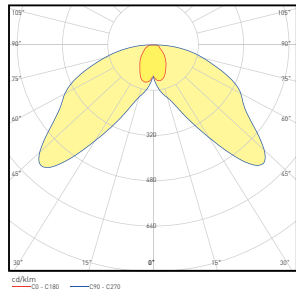
- Compatible with up to 5050 sized LED packages

TYPICAL APPLICATIONS

- Aisle double wall washer
- Retail shelf lighting
- Low bay warehouse corridor lighting
- Indoor architectural lighting

DESIGN EXAMPLE

- 3.2 x 3.2 m aisle
- 8 luminaires in the aisle centerline
- Distance between luminaires: 1.15 m
- 500 lm / LED
- E_{av} : 141 lx
- E_{max} : 235 lx



FLORENTINA-4X1

Indoor lighting in a stylish package

FEATURES

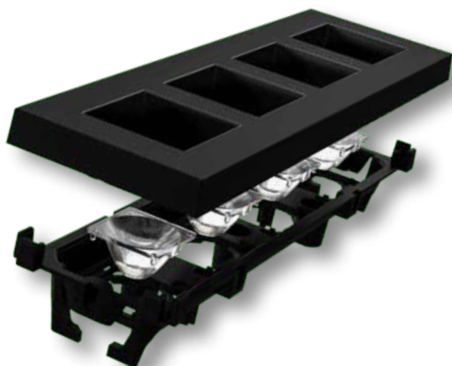
- Dimensions: 175,6 x 55,6 mm
- Height: 17,7 mm
- Allows several different mounting options and easily adjustable tilt angle
- Optional side attachment: the holder can also be attached with DIN 7985 M3 nuts
 1. One nut per side for rotation attachment
 2. Two per side for fixed beam direction
- Only two screws required to fasten both the shade and the PCB if desired
- Design allows very low UGR values
- Available with either black or metallized UV-shade and in other color variants by request

COMPATIBILITY

- Compatible with ROSE and LAURA lenses up to 5050 size LED packages
- Compatible with upcoming ROSE lenses supporting Super High-power LEDs

TYPICAL APPLICATIONS

- Office lighting
- Retail lighting
- Downlight applications
- Track lighting
- Indoor architectural lighting



FLORENTINA-4X1 Assemblies

Assembly code	Beam type	Typical FWHM	Typical efficiency	cd/lm
FC15349_FLORENTINA-4X1-SS	Smooth spot	TBA	TBA	TBA
FC15350_FLORENTINA-4X1-RS	Real spot	TBA	TBA	TBA
FC15351_FLORENTINA-4X1-D	Diffused spot	TBA	TBA	TBA
FC15352_FLORENTINA-4X1-M	Medium	TBA	TBA	TBA
FC15353_FLORENTINA-4X1-O	Oval	TBA	TBA	TBA

FWHM angles, efficiencies and cd/lm values contained herein are typical values. Actual measured values depend of the specific LED/optic combination. Go to www.ledil.com for LED specific values and optical datasheets.

ROSE-MRK

Quality lighting for bigger LEDs

FEATURES

- Height: 12,95 mm
- Dimensions: 21,6 x 21,6 mm
- Typical efficiency
ROSE-MRK-S: 80%
ROSE-MRK-M: 84%
ROSE-MRK-W: 84%
ROSE-MRK-BAT: 87%
- Typical FWHM
ROSE-MRK-S: 30°
ROSE-MRK-M: 43°
ROSE-MRK-W: 62°
ROSE-MRK-BAT: 80°
- Whole ROSE portfolio is scalable into numerous lighting fixtures and applications
- Easy and fast installation with preassembled holder and tape
- Lens made out of high impact resistance PC

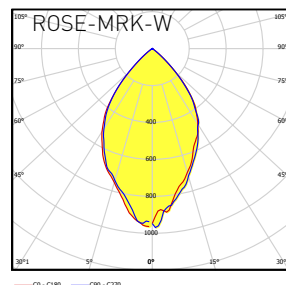
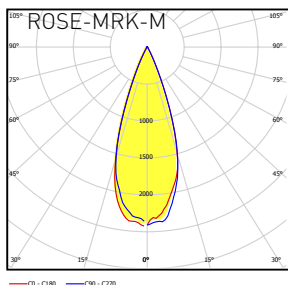
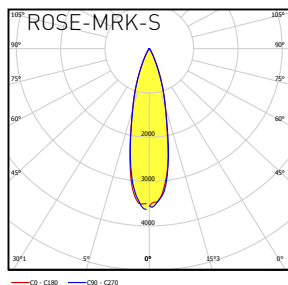
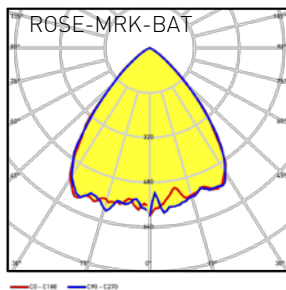


COMPATIBILITY

- Designed for super high power multi-crystal LEDs up to 7070 packages

TYPICAL APPLICATIONS

- Indoor lighting
- General lighting
- Spot lights
- Up- and downlights



FLORENCE-1R-GC

Quality indoor lighting for multiple applications

FEATURES

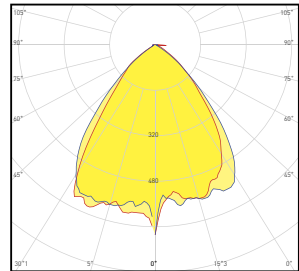
- Height: 8,3 mm
- Dimensions: 282.6 x 19 mm
- Typical efficiency: 92%
- Minimizes longitudinal glare for better UGR values
- Optimal LED count to achieve good light distribution/UGR ratio to the desired area
- Special optical solutions to remove unwanted color-over-angle artefacts
- Optional clips available for easier installation and and to form continuous rows

COMPATIBILITY

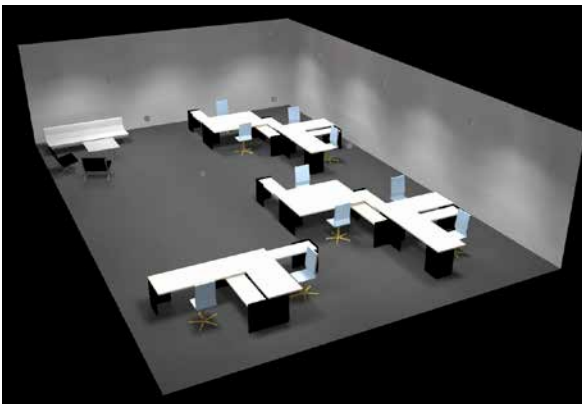
- Compatible with a range of mid-power LEDs up to 5630 package size

TYPICAL APPLICATIONS

- Office lighting
- Retail lighting
- Low bay
- Interior architectural lighting
- Super market aisle lighting
- Industrial and warehouse corridor lighting



DESIGN EXAMPLE



OFFICE LIGHTING WITH FLORENCE-1R-GC	
Room	15 x 10 m
Room height	3,5 m
Luminous flux per luminaire	4 500 lm
Luminaires installed	12 pcs
Average illumination on tables	~330 lx
Overall uniformity on tables	~0.85
Average room illumination	~300 lx

FLORENCE-O

Elliptical beam for high racking applications and corridors

FEATURES

- Dimensions: 61 x 286 mm
- Height: 8.45 mm
- Typical FWHM: 90+35°
- Typical efficiency: 90%
- Addition to FLORENCE-3R family with an oval shape light distribution
- Low glare and possibility to enhance with additional glare shield
- Good uniform light pattern
- Designed to replace fluorescent lights

COMPATIBILITY

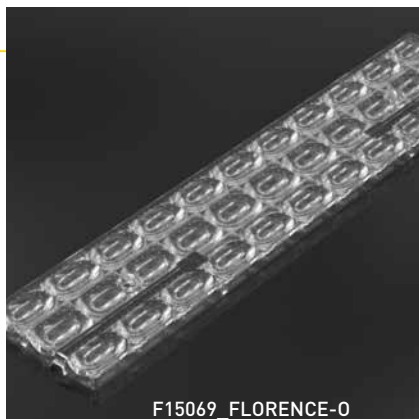
- Range of 3x11 mid-power LED modules

TYPICAL APPLICATIONS

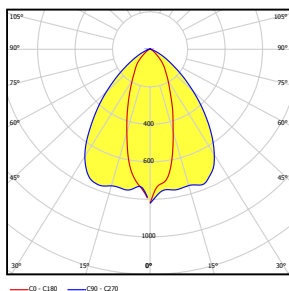
- Warehouse lighting
- Retail lighting
- Office lighting
- Low bay
- High bay

DESIGN EXAMPLE

- Luminaires are installed in the aisle centerline
- Fixture luminous flux 3300 lm
- Luminaire installation height 8 m
- Luminaire spacing 8.3 m
- Number of luminaires 6 pcs
- Shelf height 7 m
- Distance between shelves 2 m
- E_{av} 43lx
- E_{min} 39lx
- E_{max} 46lx
- u_0 0.919



F15069_FLORENCE-O



ANGELETTE

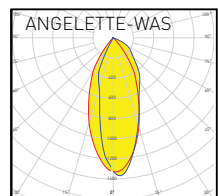
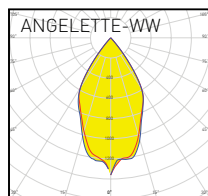
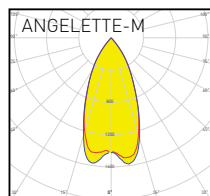
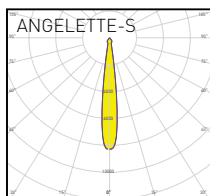
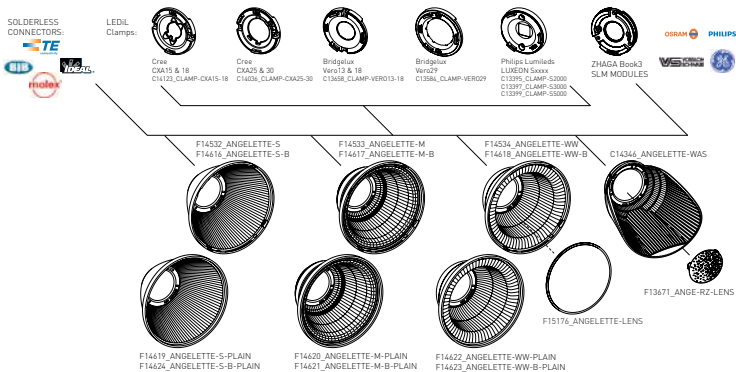
Highly pleasing and uniform indoor architectural lighting

- Part of LEDiL's System Reflector philosophy; future-proof and versatile solution sharing the same interface with LEDiL's ANGELA and ANGELINA reflector families
- Industry standard 110 mm diameter
- Typical FWHM's:
 - ANGELETTE-S $\approx 15^\circ$
 - ANGELETTE-M $\approx 50^\circ$
 - ANGELETTE-WW $\approx 70^\circ$
- ANGELETTE-WAS is a unique reflector designed for wall-washing with track mounted fixtures
- LEDiL clamps available for a variety of COB's from most suppliers, like Bridgelux, Citizen, Cree, Nichia and Osram
- Works with TE, Molex and Ideal solderless 50mm Zhaga book 3 compliant connectors
- Compatible with additional ANGE-RZ color-mixing sublens which provides better color quality especially in RGB applications
- Angelette-Plain versions come without additional optical attachment interface for cleaner appearance



TYPICAL APPLICATIONS

- Track lighting
- Office lighting
- Hospitality lighting
- Museum lighting



FWHM angles, efficiencies and cd/lm values contained herein are typical values. Actual measured values depend of the specific LED/ optic combination. Go to www.ledil.com for LED specific values and optical datasheets.

BROOKE-G2

Generation evolved

FEATURES

- Diameter: 45 mm
- Height: 19,7 mm
(21 mm with socket)
- Typical FWHM
BROOKE-G2-S: 18°
BROOKE-G2-M: 28°
BROOKE-G2-W: 47°
- Typical efficiency: 92%
- Socket based structure for easy upgrades and compatibility
- Very good heat durability
- Optional colour mixing sublens allows smoother light distribution with patented color mixing features

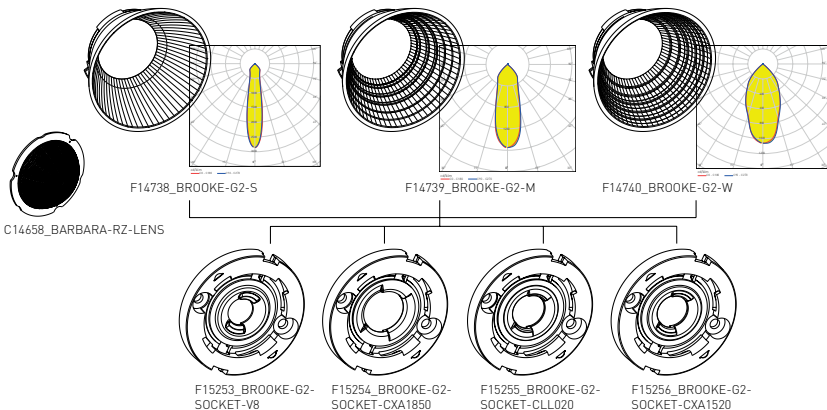
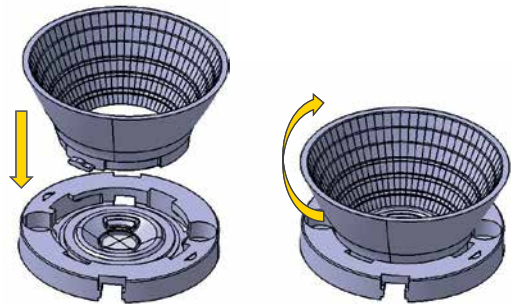


COMPATIBILITY

- Support for a range of LEDs up to 18 mm LES sizes

TYPICAL APPLICATIONS

- Directional indoor architectural luminaires
- Track lighting
- Recessed downlights
- Retail lighting



SAGA-S

Minuscule silicone lens for indoor lighting

FEATURES

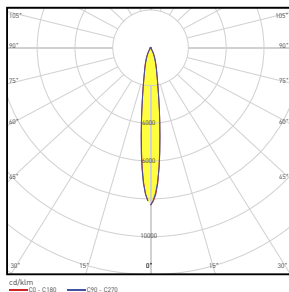
- Diameter 50 mm
- Height 13.7 mm
- Typical FWHM with 6-12 mm LES: 15-30°
- Typical efficiency: 94%
- Very good thermal, impact and UV resistance
- Innovative hybrid design with precision molded silicone
- Hyper reflective white frame to reduce glare
- Ingress protection up to IP67

COMPATIBILITY

- Connectors and COB's with LES size up to 18 mm in diameter from a range of manufacturers
- Zhaga compatible fastening

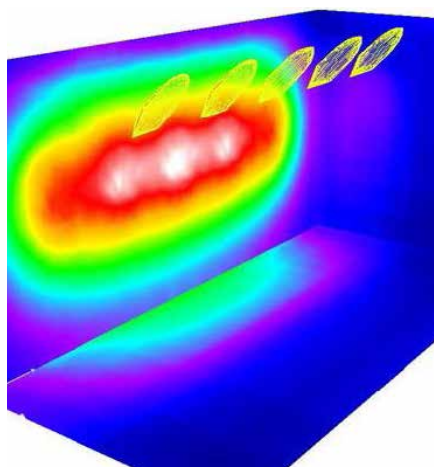
TYPICAL APPLICATIONS

- Low bay lighting
- Architectural lighting
- Industrial lighting
- Hospitality lighting
- Down lighting
- Track lighting



SAGA-S Track light

- 5 luminaires with Cree CXA1850 COB
- Luminous flux per luminaire 2990 lm
- Distance between luminaires 1.5 m
- Room size 5x10 m
- Mounting height 5 m
- Tilt 45 degrees
- Distance to wall 3 m
- Average illumination 205 lx
- Uniformity (u0) 0.156



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STRADELLA

Cost efficiency and performance combined

FEATURES

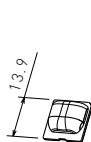
- The same dimensions and mounting hole as STRADA-2X2 family, but with 8 lenses in one
- Standard street lighting and high bay beams available
- Single lens available with the same beam angles

COMPATIBILITY

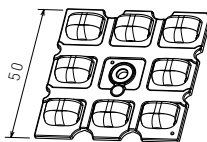
- STRADELLA-8UP: 3030 & 3535 size packages
- STRADELLA-9UP for CSP LEDs

TYPICAL APPLICATIONS

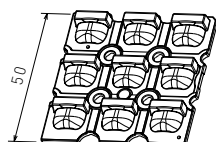
- Street lighting
- Outdoor area lighting
- High bay lighting
- Indoor lighting
- Industrial lighting
- Office lighting



Single lens
For high-power LEDs

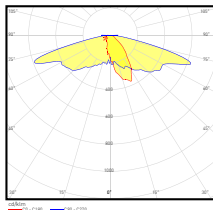


8-up module
For high-/mid-power LEDs

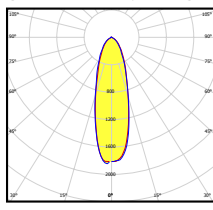


9-up module
For mid-power LEDs

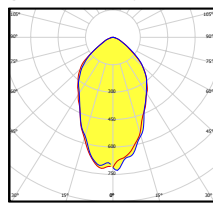
STRADELLA-T2



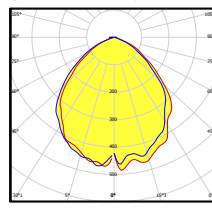
STRADELLA-8-HB-S



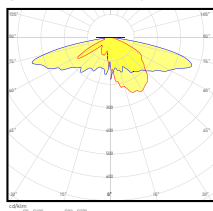
STRADELLA-8-HB-M



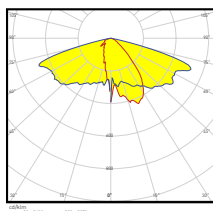
STRADELLA-8-HB-W



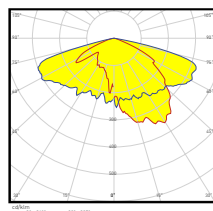
STRADELLA-T3



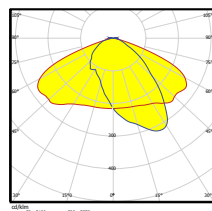
STRADELLA-8-T2



STRADELLA-8-T3

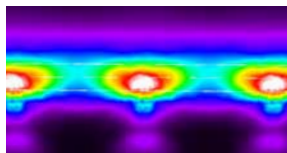


STRADELLA-9-AT

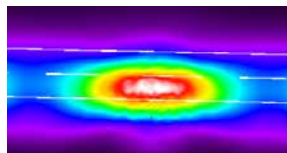


STRADELLA single lens

- Dimensions: 13,9 x 13,9 mm
- Typical efficiency
 - T2: 94%
 - T3: 94%
- Fastening with pins or glue



STRADELLA-T3



STRADELLA-T2

• Available products:

C14502_STRADELLA-T2
C14501_STRADELLA-T3

STRADELLA-8 lens module

- Dimensions: 50 x 50 mm
- Typical efficiency
 - T2: 94%
 - T3: 94%
- Typical FWHM
 - T2: Asymm.
 - T3: Asymm.
 - HB-S: ~30°
 - HB-M: ~60°
 - HB-W: ~90°

• Available products:

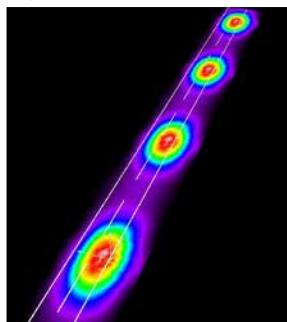
C15034_STRADELLA-8-T2
C15035_STRADELLA-8-T3
C15183_STRADELLA-8-HB-S
C15184_STRADELLA-8-HB-M
C15185_STRADELLA-8-HB-W

Typical application example of STRADELLA-8-T2

Road lighting with STRADELLA-8-T2

Luminous flux/luminaire: 2000lm
Flat cover
Arrangement: Single row
No tilting
Road width: 5 m
Pole distance: 28 m
Mounting height: 5.5 m
 E_{av} : 6.5 lx,
 E_{min} : 2.1 lx

Lighting class S4 is met



STRADELLA-9-AT lens module

- Dimensions: 50 x 50 mm
- Height: 6,3 mm
- Typical efficiency: 92%

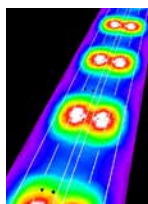
• Available products:

C15058_STRADELLA-9-AT

Application example with STRADELLA-9-AT at A-2 road

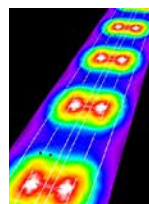
LED: Midpower 3030

Luminous flux/luminaire: 5000lm
Flat cover
Arrangement: Median double row
Tilt: 10°
Road width: 7m, four lanes
Pole distance: 25m
Mounting height: 7m
 E_{av} : 16.3lx,
 $u0$: 0.42



LED: FlipChip

Luminous flux/luminaire: 5000lm
Flat cover
Arrangement: Median double row
Tilt: 10°
Road width: 7m, four lanes
Pole distance: 25m
Mounting height: 7m
 E_{av} : 16.2lx,
 $u0$: 0.42



STRADA-2X2-T4-B

Wide, bright and leaving shadows behind

FEATURES

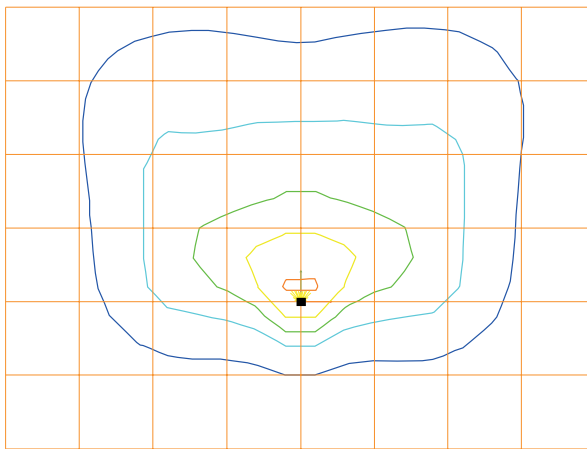
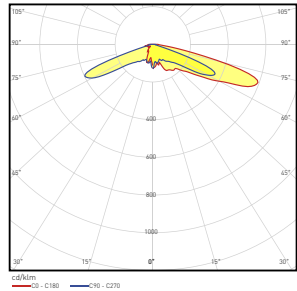
- Dimensions: 50 x 50 mm
- Height: 9,42 mm
- Typical efficiency: 94%
- Wide square-shaped beam pattern (IESNA Type IV Short) ideal for large outdoor area and wide road illumination with great uniformity
- Special care given to minimize light spilling to the house side
- LEDiL standard 50 x 50 mm module based footprint allows easy integration and future-proof solution to all STRADA-2X2 compatible luminaires

COMPATIBILITY

- Optimized for a range of 3535 high power and compatible up to 5050 LED packages

TYPICAL APPLICATIONS

- Street lighting
- Wide outdoor areas

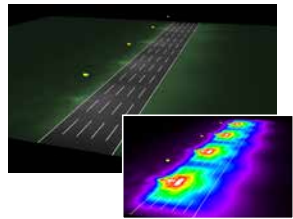


1 x mounting height

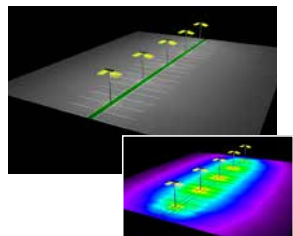
Illuminance levels:



Street lighting



Parking lot lighting



STRADA-2X2-T1

Wide and symmetrical rectangular beam for narrow roads

FEATURES

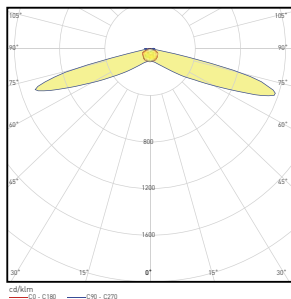
- Dimensions: 50 x 50 mm
- Height: 7,78 mm
- Typical efficiency: 94%
- LEDiL standard 50x50mm footprint
- IESNA Type I light distribution
- Controlled smooth rectangular beam with great cutoff properties

COMPATIBILITY

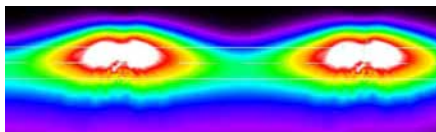
- Optimized for a range of 3535 size and compatible up to 5050 size LED packages.
For full listing check www.ledil.com/C15135

TYPICAL APPLICATIONS

- Street lighting
- Outdoor area lighting
- Catenary lighting
- Emergency escape route lighting



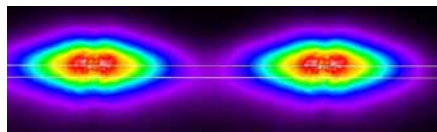
DESIGN EXAMPLE



Street lighting

Road width	7 m
Number of lanes	2
Tarmac	R3
Luminous flux (Luminaire)	14 723 lm
Arrangement	Single row, bottom
Pole distance	50 m
Mounting height	8 m
Overhang	1.2 m
Boom angle	30°

E_{av} :	14 lx
E_{min} :	5.79 lx
E_{max} :	25 lx
$u0$:	0.417



Pedestrian lighting

Road width	3 m
Number of lanes	1
Tarmac	R3
Luminous flux (Luminaire)	2208 lm
Arrangement	Single row, bottom
Pole distance	50 m
Mounting height	6 m
Boom angle	10°
Selected lighting class: S5	
✓ All requirements are met	

	E_{av} (lx)	E_{min} (lx)
Calculated values	3.02	0.72
Required values	≥3.00	≥0.60
Fulfilled / Not fulfilled	✓	✓

STRADA-SQ-FS3

For tunnels and sport fields

FEATURES

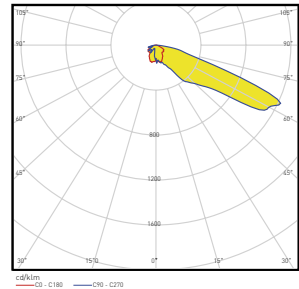
- Height: 16,2 mm
- Dimensions: 25 x 25 mm
- Throws light extremely far forward with the peak being in 65°
- Standard SQ-series footprint and positioning pins. (Please note that beam direction differs 90 degrees from default SQ beam direction)
- Designed especially for tunnel lighting
- Easy installation with pre-assembled adhesive tape

COMPATIBILITY

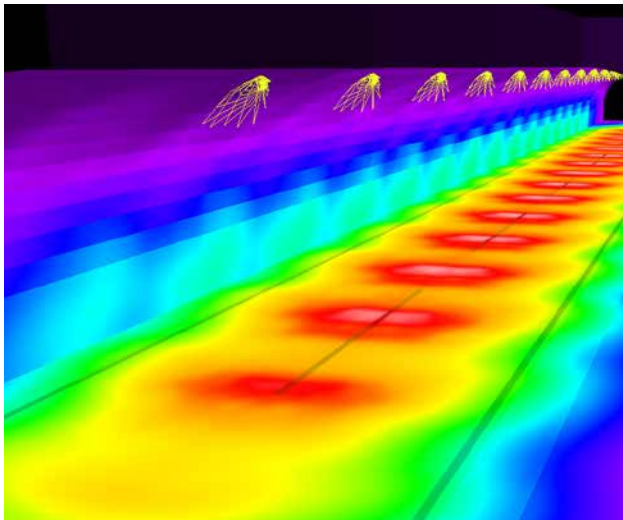
- Up to 7070 size LED packages

TYPICAL APPLICATIONS

- Tunnel lighting (counter beam)
- Sport fields



DESIGN EXAMPLE



STRADA-SQ-FS3 is designed for counter beam tunnel lighting applications, especially for threshold and transition zones. Strong forward peak intensity at 60-65deg elevation gives higher cd/m² for less lumens, while strong cutoff keeps the veiling luminance low enough to meet tunnel lighting requirements. Beam width is designed to give high uniformity on the road on single row installation when the road width is up to 2x the height of the installation. Illuminance levels on the wall are around 50% of the illuminance levels on the road.

STRADA-2X2S-T3

Silicone STRADA-2X2

FEATURES

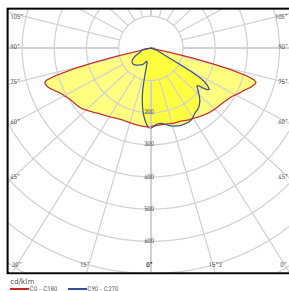
- LEDiL standard [50x50mm] STRADA-2X2 footprint in silicone
- Typical efficiency: 88%
- Silicone lens with PA66 holder for wider usage temperature range and IP ratings
- Sealing elements on sides and around the screw hole
- Fastening with one M3 screw (recommended to use washer)
- Smooth uniform rectangular beam with IESNA Type 3 light distribution
- Universal solution for general ME classes
- Installation up to 1:5 pole ratio

COMPATIBILITY

- Optimized for a range of 3535 high power and compatible up to 5050 LED packages

TYPICAL APPLICATIONS

- Street lighting
- Outdoor area lighting
- Pathway lighting

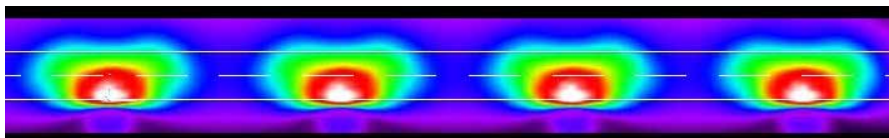


DESIGN EXAMPLE

- Road width 8 m
- Pole height 8 m
- Distance between luminaires 36 m
- Tarmac R3
- Selected lighting class ME4a

✓ All lighting performance requirements are met

	L_{av} [cd/m ²]	U0	U1	TI (%)	SR
Calculated values	1.10	0.46	0.74	14	0.53
Required values according to class	≥0.75	≥0.40	≥0.60	≤15	≥0.50
Fulfilled / Not fulfilled	✓	✓	✓	✓	✓



FWHM angles, efficiencies and cd/lm values contained herein are typical values. Actual measured values depend of the specific LED/ optic combination. Go to www.ledil.com for LED specific values and optical datasheets.

STRADA-2X2MXS

Silicone 2X2MX



FEATURES

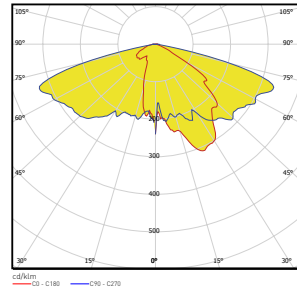
- Dimensions 90 x 90 mm
- Height 14 mm
- Typical efficiency 88%
- Silicone optics part of standardized 2X2MX footprint
- High UV, thermal and impact resistance
- Completely sealed structure with 8 screws to cover the PCB and requirements for IP67 rated products

COMPATIBILITY

- Compatible with up to 7070 size LED packages

TYPICAL APPLICATIONS

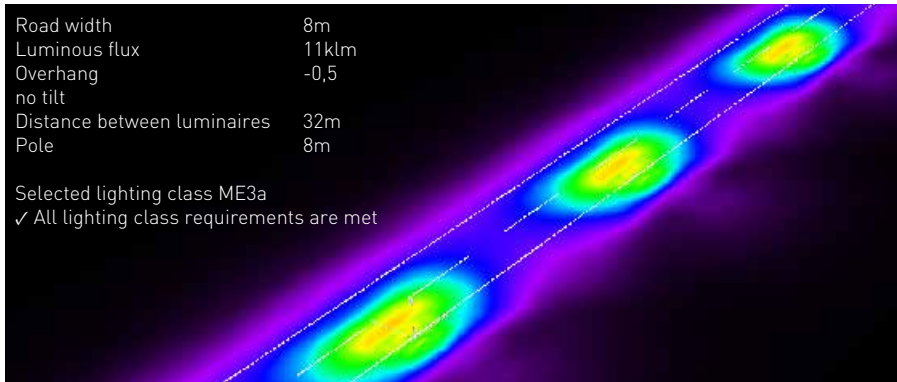
- Both indoor and outdoor applications
- Halls, arenas, roads, pathways etc.



DESIGN EXAMPLE

Road width 8m
 Luminous flux 11klm
 Overhang -0,5
 no tilt
 Distance between luminaires 32m
 Pole 8m

Selected lighting class ME3a
 ✓ All lighting class requirements are met



	L_{av} [cd/m ²]	U0	UI	TI (%)	SR
Calculated values	1.02	0.4	0.77	13	0.53
Required values according to class	≥1.00	≥0.40	≥0.70	≤15	≥0.50
Fulfilled / Not fulfilled	✓	✓	✓	✓	✓

STELLA-DWC2

Versatile road lighting solution for COBs

FEATURES

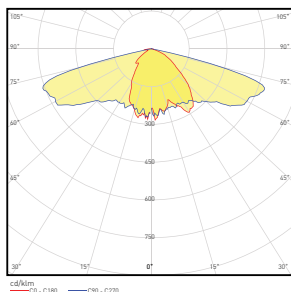
- Height: 19.3 mm, Diameter: 85 mm
- Typical efficiency: 92%
- IESNA Type III Medium beam pattern
- Self-sealing design simplifies luminaire design
- Very good thermal and UV resistance
- Very wide beam excellent for European ME3 and ME4 requirements with longer pole distances
- Type III Medium beam pattern fulfilling most of the RP8 requirements
- No house-side peaks
- Precise light control and good cut-off
- Molded from optical grade silicone
- UL 746 rated materials with RTI-value from -40 to +150°C, and -40 to +120°C on frame. Please note that the light absorption may increase the temperature of the frame. It is recommended to use white frame for installations with huge power output.

COMPATIBILITY

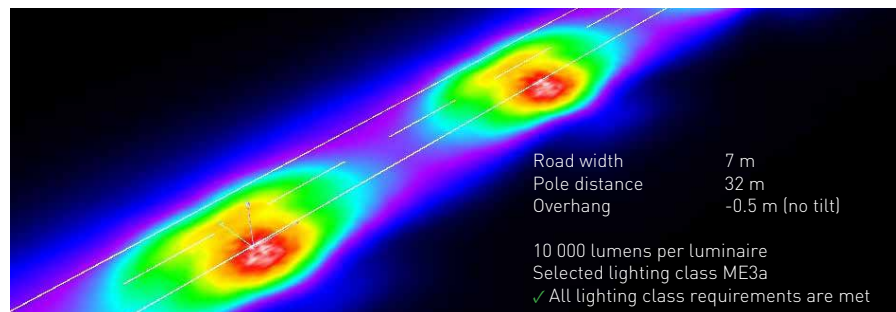
- Compatible with up to 19 mm LES size

TYPICAL APPLICATIONS

- Street lighting
- Bridge lighting



DESIGN EXAMPLE



	L_{90} (cd/m ²)	U0	U1	TI (%)	SR
Calculated values	0.82	0.49	0.63	14	0.65
Required values according to class	≥0.75	≥0.40	≥0.60	≤15	≥0.50
Fulfilled / Not fulfilled	✓	✓	✓	✓	✓

FWHM angles, efficiencies and cd/lm values contained herein are typical values. Actual measured values depend of the specific LED/ optic combination. Go to www.ledil.com for LED specific values and optical datasheets.

Applications

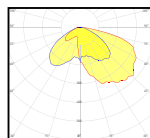


JENNY – Silicone lens family for high power multi-crystal and COB LEDs

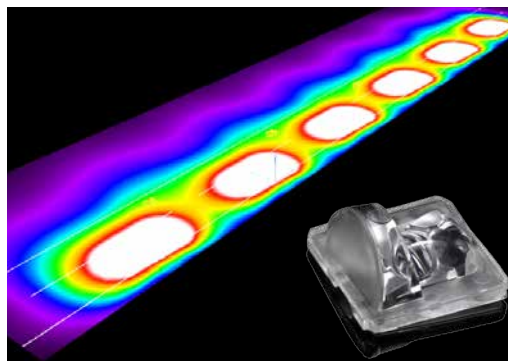
Visit
www.ledil.com/jennyfamily
 for full family listing

STREET LIGHTING WITH JENNY-T4

- Road width 12 m
- Pole height 8 m
- Pole distance 22 m
- Each lamp driven by 9500lm
- E_{av} : 19 lx, E_{max} : 35 lx
- $u0$: 0,555
- Selected lighting class ME4a

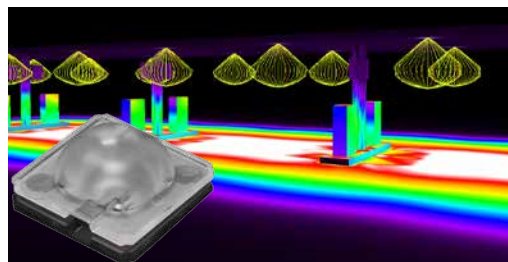
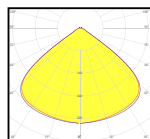


	L_{av} [cd/m ²]	$U0$	$U1$	TL (%)
Calculated values:	0.80	0.43	0.69	4
Required values:	≥0.75	≥0.40	≥0.60	≤15
Fulfilled/Not fulfilled	✓	✓	✓	✓



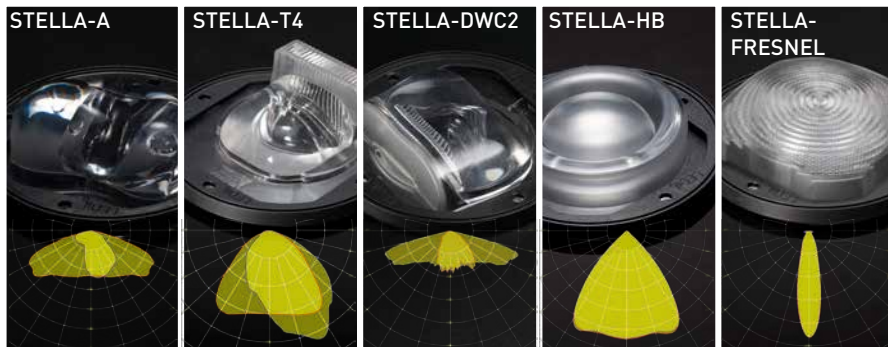
SERVICE STATION LIGHTING WITH F14325_JENNY-8X1-CY

- Luminance: Average 200 lx
Around the pumps 80-120 lx
- Distance of luminaires 5 m by 5 m
- Installation height 4 m
- 7200 lm / luminaire



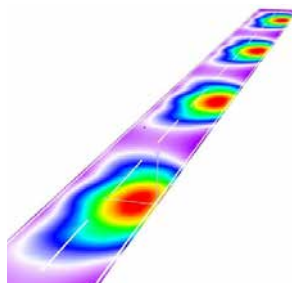
STELLA family – Silicone molded lenses

Visit
www.ledil.com/stellafamily
 for full family listing



Silicone street lighting optic STELLA-A

- Luminous flux (Luminaire): 5519 lm
- Luminous flux (Lamps): 6000 lm
- Arrangement: Single row, bottom
- Pole distance: 30 m
- Mounting height: 6 m
- Height: 6 m
- Overhang: 1 m
- Boom length: 1.5 m
- Maximum luminous intensities at 70°: 471 cd/klm
- at 80°: 175 cd/klm
- at 90°: 15 cd/klm



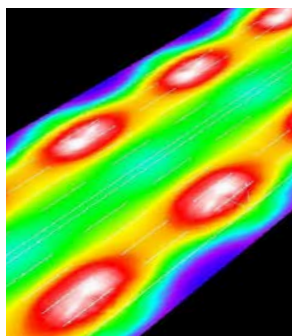
	L_{av} [cd/m ²]	L_{av}/L_{min}	L_{max}/L_{min}	$L_v \max/L_{av}$
Calculated values:	0.7	3.0	6.9	0.3
Required values according to class:	≥ 0.6	≤ 6.0	≤ 10.0	≤ 0.4
Fulfilled/Not fulfilled:	✓	✓	✓	✓

Street lighting example with STELLA-T4

- Pole distance: 24 m
 - LED: CXA2590
 - 11 000 lumens per luminaire (α_{max} 1,2 A currency)
 - Pole height: 12 m
 - 41 m wide freeway, 12 lanes
 - Two-sided lamp arrangement
- Selected Lighting Class: ME4a

✓All lighting performance requirements are met.

L_{av} [cd/m ²]	U0	UI	TI [%]	SR
0.77	0.58	0.85	2	0.67
≥0.75	≥0.40	≥0.60	≤15	≥0.50
✓	✓	✓	✓	✓



LEDiL's standard 2x6 modules

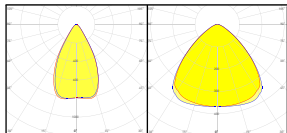
- Functionality with good efficiency

Visit www.ledil.com/ip-2x6 for full family listing

LEDiL's STRADA-IP and HB-IP optic module designs are based on the standard IP-2X6 footprint and can be adapted between street lighting and high bay applications by only changing the optics. IP-2X6 modules have an integrated silicone gasket and provide an ingress protection up to IP67.

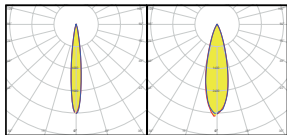
Modules share the same 1 inch array design compatible with rest of the STRADA-modules, which makes them more versatile to use.

High Bay



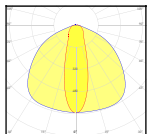
HB-IP-2X6-W
Typ. FWHM: 58°
Typ. eff.: 94%

**HB-IP-2X6-
WWW**
Typ. FWHM: 94°
Typ. eff.: 93%



HB-IP-2X6-RS
Typ. FWHM: 19°

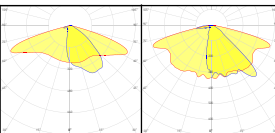
HB-IP-2X6-M
Typ. FWHM: 27°



HB-IP-2X6-O
Typ. FWHM:
32+115°
Typ. eff.: 91%

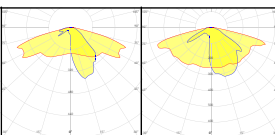
cd/klm
— C0 - C180 — C90 - C270

STRADA IP



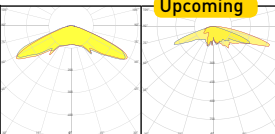
**STRADA-IP-
2X6-DWC**
Asymm.
Typ. eff.: 94%

**STRADA-IP-
2X6-ME**
Asymm.
Typ. eff.: 94%



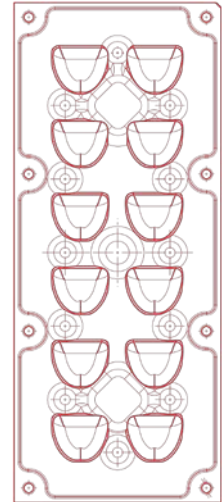
**STRADA-IP-
2X6-T2**
IESNA Type II
Typ. eff.: 94%

**STRADA-IP-
2X6-T3**
IESNA Type III
Typ. eff.: 94%

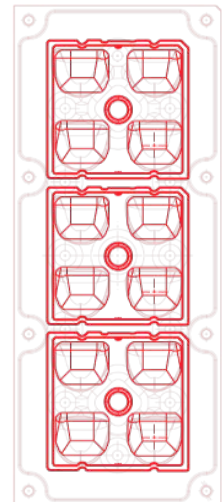


**STRADA-IP-
2X6-VSM**
IESNA Type V
Typ. eff.: 94%

**STRADA-IP-
2X6-T4-B**



STRADA-IP-2X6 module



STRADA-2X2 modules

Go to www.ledil.com for application notes, datasheets and more detailed information, for example the LEDs applicable to each lens.

IDA – 16-up module family for mid-power LEDs

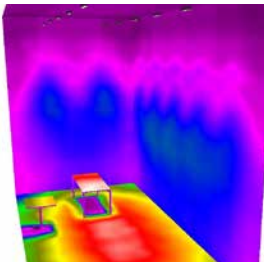
Visit
www.ledil.com/idafamily
for full family listing.

- 16-up lens array
- Dimensions: 50 x 50 mm, Height: 6.3 mm
- Medium, Wide flood and Oval light distributions
- Optional clip-on frame for 1.6 mm PCB.
- Modular system: optics held in place with installation frame
- Possibility to use without holder (glue needed)
- Optional frames with integrated shades (UGR) planned
- Two location pins for positioning
- Designed for mid-power, size 3030 LED packages
- 12.3mm spacing between the optics (spacing can be kept the same even with multiple units in a row)



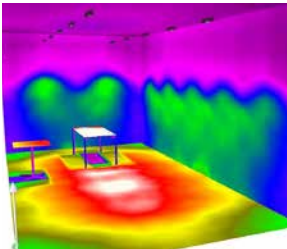
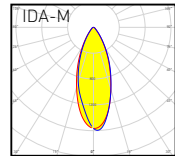
TYPICAL APPLICATIONS

- Office lighting
- Compact downlights
- Mid- and low-bays



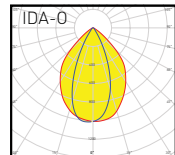
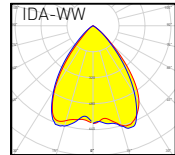
IDA16-M

- 4 x 8 m room, 5 m high
- Task area 500 lx
- 7 pcs IDA16-M optics per fixture
- 10 fixtures installed 1.5 m spacing
- 2114 lm each fixture
- E_{av} : 463 lx, E_{max} : 614 lx



IDA16-WW

- 4 x 8 m room, 3 m high
- Task area 500 lx
- 7 pcs IDA16-WW optics per fixture
- 10 fixtures installed 1.5 m spacing
- 2135 lm each fixture
- E_{av} : 522 lx, E_{max} : 705 lx



Code	Beam type	Typ. FWHM	Typ. Eff.
IDA16-M	Narrow	41°	91%
IDA16-WW	Very Wide Flood	75°	89%
IDA16-O	Oval	90° + 33°	92%

FWHM angles, efficiencies and cd/lm values contained herein are typical values. Actual measured values depend of the specific LED/ optic combination. Go to www.ledil.com for LED specific values and optical datasheets.

OLIVIA – Explore new lighting possibilities in retail and museums

Visit
www.ledil.com/olivia
for full family listing

- Optimized for decorative lighting for shops and museums
- Really flat lens achieved with unique folded TIR design
- Compatible with Zhaga book 3 compliant solderless connectors from a range of manufacturers
- Efficient dual-element design with low point glare
- Works with LES diameters size up to 19 mm

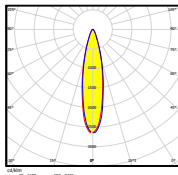
TYPICAL APPLICATIONS

- Track lighting and downlights for shops and museums



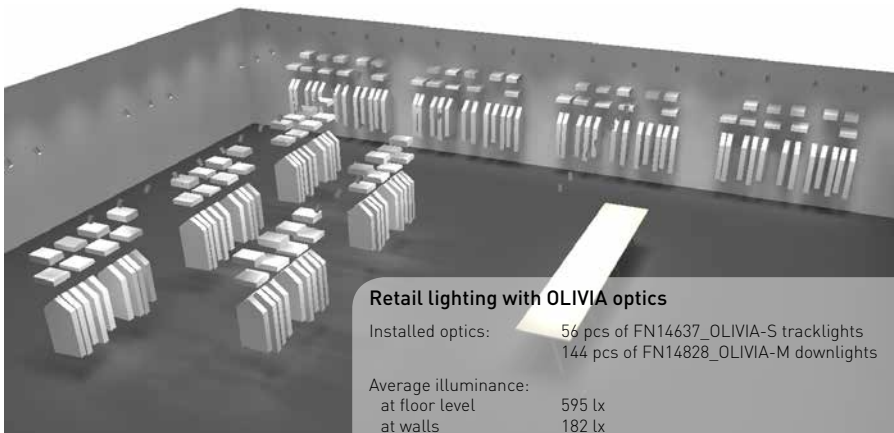
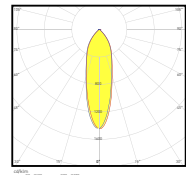
FN14637_OLIVIA-S

- Height: 22,6 mm (without connector)
- Diameter: 70 mm
- Beam type: Spot
- Typ. FWHM 15-20°
- Typ. efficiency 75%



FN14828_OLIVIA-M

- Height: 22,6 mm (without connector)
- Diameter: 70 mm
- Beam type: Medium
- Typ. FWHM 30°
- Typ. efficiency 81%



FLORENTINA-2X2 – Versatile module solution for comfortable lighting

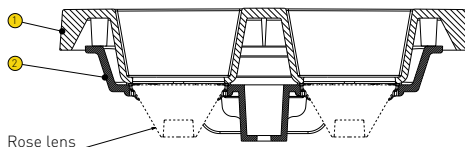
Visit
www.ledil.com/florentina-2x2
 for full family listing

- Dimensions: 95,57 x 95,57 mm
- Height: 32,42 mm
- Part of LEDiL's Dark Light portfolio - very low UGR can be achieved
- Allows several different mounting options, even with easily adjustable tilt angle
 - With Screws (M3) to "inside the luminaire/recess"
 - Possibility to install also with additional flange
- Designed to be used with a range of ROSE and LAURA lenses up to 5050 sized LED packages
- Available with either black or white shade

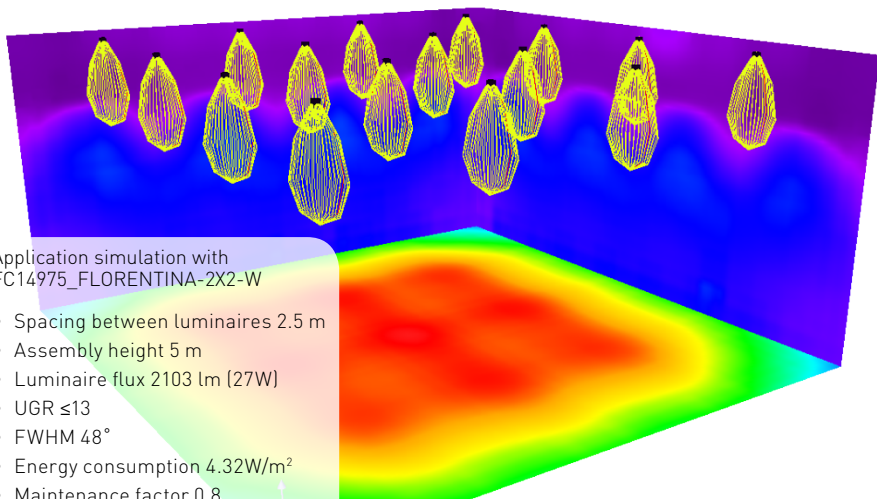


TYPICAL APPLICATIONS

- Office lighting
- Downlight applications
- Track lighting
- Indoor architectural lighting



- ① C14734_FLORENTINA-2X2-SHD (black shade)
C14960_FLORENTINA-2X2-SHD-WHT (white shade)
- ② C14735_FLORENTINA-2X2-HLD



Application simulation with
 FC14975_FLORENTINA-2X2-W

- Spacing between luminaires 2.5 m
- Assembly height 5 m
- Luminaire flux 2103 lm (27W)
- UGR ≤ 13
- FWHM 48°
- Energy consumption 4.32W/m²
- Maintenance factor 0.8

FWHM angles, efficiencies and cd/lm values contained herein are typical values. Actual measured values depend of the specific LED/optic combination. Go to www.ledil.com for LED specific values and optical datasheets.

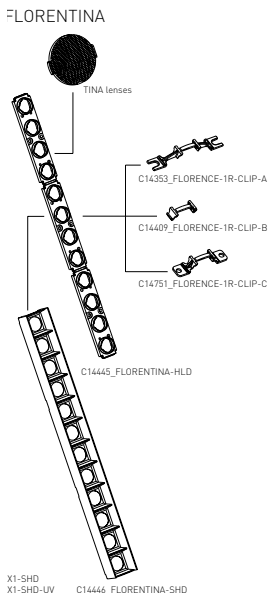
FLORENTINA – Release your creativity

Visit
www.ledil.com/florentina-family
 for full family listing

- Linear multiholder with glare protection for 12 pieces of TINA/TINA2 lenses.
- Dimensions
 FLORENTINA-HLD: 286 x 20 x 10 mm
 FLORENTINA-SHD: 287 x 28 x 23 mm
- 3 position pins
- Fastening by either glue, screws or with additional retaining clips C14353_FLORENCE-1R-CLIP-A or C14409_FLORENCE-1R-CLIP-B
- Can be installed into an aluminium profile
- For smaller LED's possibility to lower holder for 0.2 mm with PCB design

TYPICAL APPLICATIONS

- Office lighting
- Retail lighting
- Indoor architectural lighting



Ordering code	Typical FWHM	Typical efficiency	Typical cd/lm
CC14855_FLORENTINA-RS	11°	84%	16.74
CC14999_FLORENTINA-SS	21°	85%	5.88
CC15000_FLORENTINA-M	29°	81%	3.28
CC15001_FLORENTINA-O	35° +12°	83%	5.05
CC15002_FLORENTINA-D	13°	84%	9.62
FC15003_FLORENTINA-W	42°	84%	1.75
FC15004_FLORENTINA-WW	52°	78%	1.2

The information contained herein is the property of LEDiL Oy, Satorankatu 10, FI-24240 SALO, Finland, and is subject to change without prior notice. Please visit www.ledil.com for additional information, such as the latest photometric files, 3D mechanical models, and application notes relating to handling, gluing and taping.

WINNIE – Compact your MR16 designs

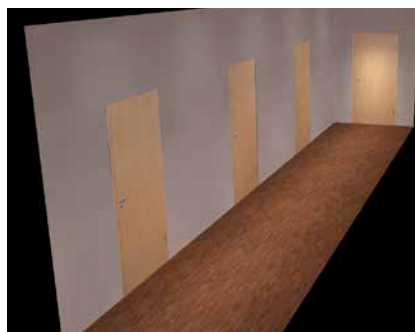
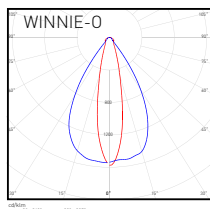
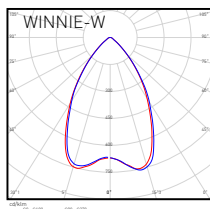
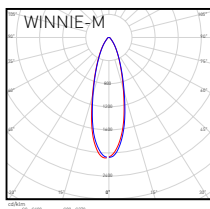
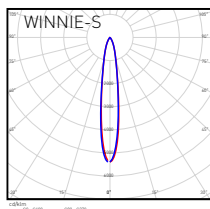
Visit
www.ledil.com/winniefamily
for full family listing

- | | FWHM | Efficiency |
|---------------------|-------------|-------------------|
| • Typical | | |
| • CN14236_WINNIE-S: | 22° | 87% |
| • CN14237_WINNIE-M: | 35° | 87% |
| • CN14238_WINNIE-W: | 50° | 88% |
| • CN14811_WINNIE-O: | 63°+23° | 89% |
- Compatible with COB's up to 21 mm LES size
 - Hyper-reflective white PC holder and optical grade PMMA for high efficiency
 - Unique flat folded TIR design
 - Zhaga Book 3 compatible fastening – pre-drilled heatsink available



TYPICAL APPLICATIONS

- Tracklights
- Downlights
- General interior architectural lighting



Corridor lighting with CN14811_WINNIE-O

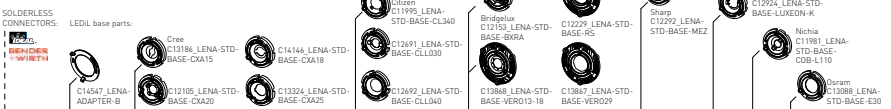
5 luminaires installed, 475 lm / luminaire
Luminaire spacing 2 meters
Luminaire installation height 2.8 meters
Corridor width 1.8 meters
Corridor length 10 meters

E_{av} 91 lx
 E_{min} 33 lx
 E_{max} 148 lx
 $u0$ 148

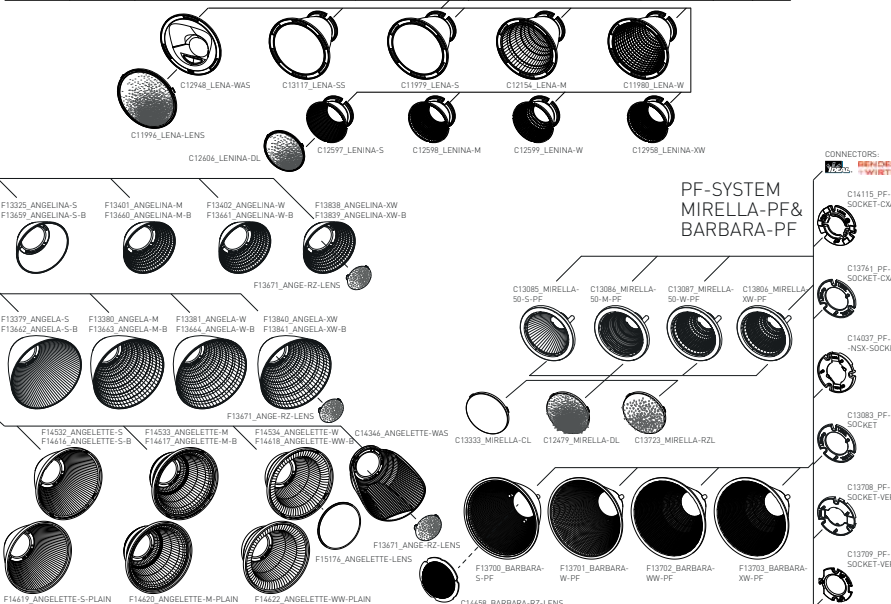
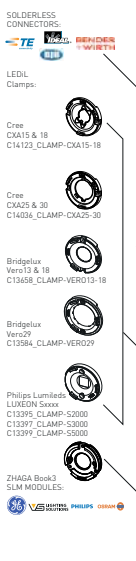
SYSTEM REFLECTORS – Versatile ecosystem for all lighting needs

LEDiL has a full ecosystem of System Reflectors available as standard parts. The ecosystem consists of three interfaces each with its own compatible families. All three ecosystems share LEDiL's philosophy of easy optical component interchangeability. Whether your choice is LENA/LENINA, MIRELLA-PF/BARBARA-PF or ANGELA/ANGELINA – we offer full luminaire configurability during the last stages of manufacturing. Each of these three systems offer optical interfaces for a range of COB's from most LED suppliers and have a full range of optics from narrow spot to wide flood. For flexible design options and a minimized time to market – design in System Reflectors.

LENA / LENINA



ANGELA / ANGELINA



The information contained herein is the property of LEDiL Oy, Salorankatu 10, FI-24240 SALO, Finland, and is subject to change without prior notice. Please visit www.ledil.com for additional information, such as the latest photometric files, 3D mechanical models, and application notes relating to handling, gluing and taping.

VERONICA-SQ-MINI optics – Simplifying your outdoor light boxes

Visit
www.ledil.com/veronica-family
for full family listing

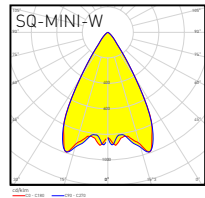
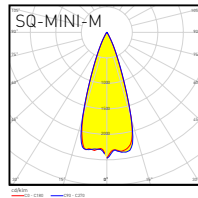
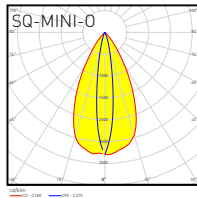
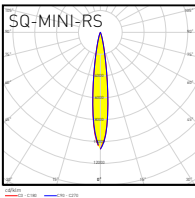
- Height: 8,86 mm
- Dimensions: 13,9 x 13,9 mm
- **Typical**

	FWHM	Efficiency
CA14601_VERONICA-SQ-MINI-RS:	15°	91%
CA14602_VERONICA-SQ-MINI-O:	15°+50°	84%
CA15230_VERONICA-SQ-MINI-M:	TBA	TBA
CA15231_VERONICA-SQ-MINI-W:	TBA	TBA
- Solid and sealed optic developed especially for harsh outdoor and indoor environments
- Square flange with tape for easy potting
- Small size with competent optical performance allows high lumen output from compact light fixture
- Compatible with a range of high power LED types up to 3535 size packages

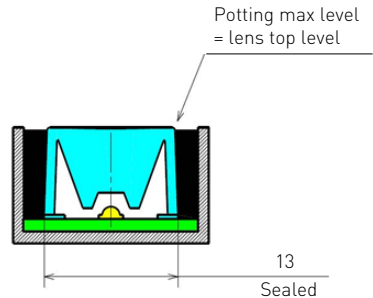
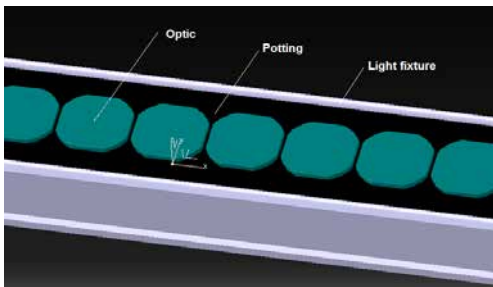


TYPICAL APPLICATIONS

- Outdoor architectural lighting
- Facade lighting
- Display and billboard lighting



POTTING



In Veronica series part structure allows easy potting without damaging inner optical and/or light source areas

FWHM angles, efficiencies and cd/lm values contained herein are typical values. Actual measured values depend of the specific LED/ optic combination. Go to www.ledil.com for LED specific values and optical datasheets.

LUCIA family – 10 degree beam with 5050 packages

Visit
www.ledil.com/lucia
for full family listing

- 4-up lens module with specially tilted lenses
- Precise "blade" type beam ideal for the illumination of large buildings, objects and pillars
- LUCIA can be also used in surgical- and sports lighting applications thanks to its very good cut off

FEATURES

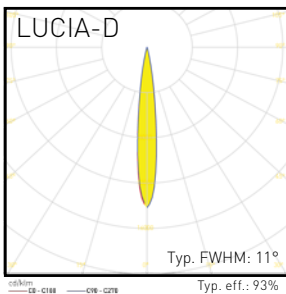
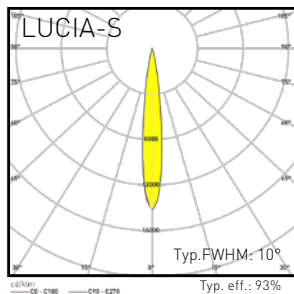
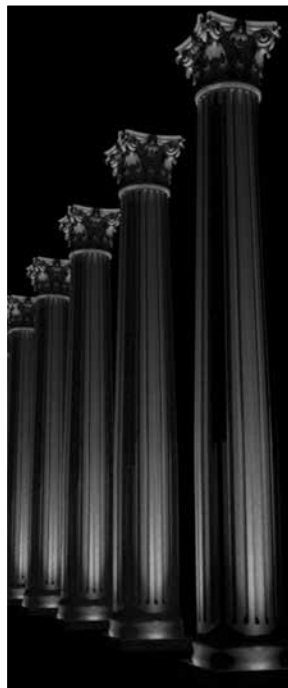
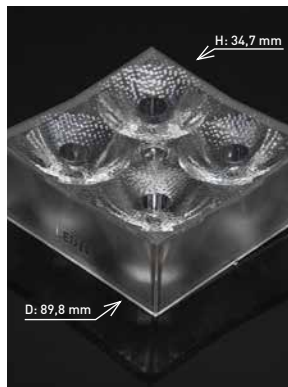
- Dimensions: 90x90 mm
- Glare-free and powerful light from very compact source
- Specifically optimised for visually demanding tasks
- Easy mounting with 1 screw

COMPATIBILITY

- Up to 7070 size LED packages

TYPICAL APPLICATIONS

- Outdoor up-/downlighting
- Architectural lighting
- Surgery light
- Flood light
- High-speed camera lighting



Cases

The Basilica of San Francesco in Assisi illuminated by LEDiL and ILM Lighting

LEDiL's WINNIE-0 – a dedicated lens for architectural lighting. First installation where this optic is seen in action is St Francis abbey in Assisi, Italy. Abbey is listed as UNESCO World Heritage Site and is world-famous for its rich Gothic architecture and multitude of frescos.

Medieval murals painted on the walls of St. Francis abbey create additional challenges into lighting - not only needs the lighting to provide adequate and purposeful illumination in the abbey but it also has to be safe for the historic paintings and delicate colours used in them. Not to mention detailed Gothic architecture with its multitude of archways and naves.

To meet these lighting design challenges, LEDiL designed oval lens for its WINNIE family of TIR optics. A 50 mm round TIR lens designed for medium sized COB arrays features 3-to-1 oval light distribution suitable for lighting of corridors and wall-washing. Highly efficient optical design of the lens helps to reduce energy consumption and heat generated by lighting. WINNIE-0 has very uniform light distribution for a beautiful and subtle lighting with a typical beam angle of 65 by 21 degrees (with Bridgelux V8, subject to COB used).

LEDiL optics used:

WINNIE-0 (www.ledil.com/winnie-0)
MIRELLA (www.ledil.com/mirellafamily)
CRYSTAL (www.ledil.com/crystal)



High Bay lighting

Industrial lighting with LEDiL's STELLA-HB optics.

Having modern and durable LED light in warehouses gives the benefit of energy efficiency, lower lighting costs, reduced cooling needs and safety in visibility.

LEDiL optics:

www.ledil.com/stellafamily

Rotasystems

www.rotasystem.com



Architectural lighting

Outdoor lighting in Russia. These wall-washing lights enhance the architectural beauty of the buildings they illuminate providing a stunning backdrop for passers by.

LEDiL optics:

www.ledil.com/florence-1r

iPro

www.illumpro.ru



Statue lighting

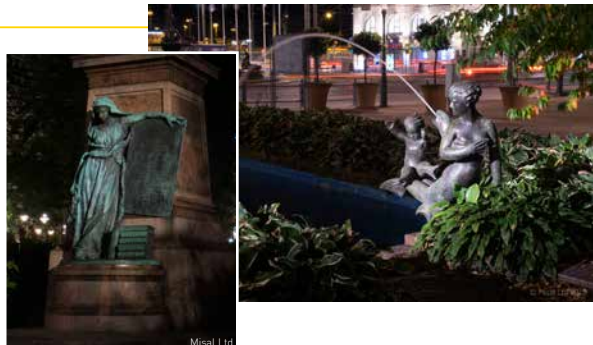
Illuminate the important things like statues and memorials in outdoors with clear spot LED lighting.

LEDiL optics:

FCA12077_IRIS

Misal Ltd.

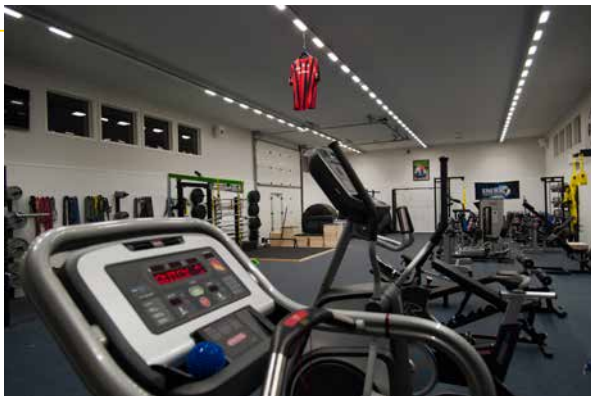
www.misal.fi



Gym lighting

Make your efforts of raising fitness a little more pleasant with good indoor lighting. FLORENCE-3R and -1R optics are especially designed to replace old fluorescent lights indoors.

Optics used:
www.ledil.com/florence



Indoor architectural

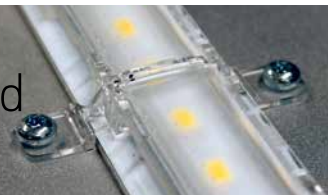
Uniform color wall washing along a dramatic, 50 meter wide wall was accomplished using a combination of LEDiL optics and LUXEON Z Colors LEDs in track fixtures.

Optics used:
www.ledil.com/angelette



FWHM angles, efficiencies and cd/lm values contained herein are typical values. Actual measured values depend of the specific LED/optic combination. Go to www.ledil.com for LED specific values and optical datasheets.

General Information and Assembly Instructions



For general information about assembling LEDiL products, please visit www.ledil.com/installation_guide



Scan the code and visit
LEDiL's Installation Guide

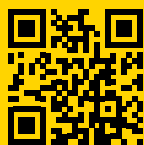
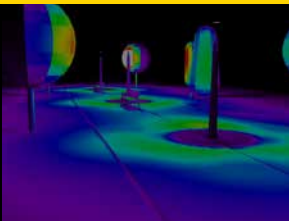
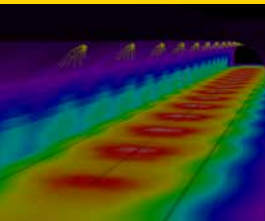


For more useful information, assembly instructions and application examples visit our YouTube channel.



Tech Support

LEDiL's technical support is available to everyone free of charge. Feel free to approach us with your questions and concerns. We can also help you by making the simulations needed for the applications
tech.support@ledil.com



www.ledil.com