



LIGHTING YOUR WAY

Car Park & Pathway Lighting

V2.0

eaglelightingaustralia



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OUR STORY

EAGLE LIGHTING AUSTRALIA (ELA) DESIGN AND MANUFACTURE A LARGE RANGE OF LUMINAIRES WITH MAXIMUM EFFICIENCY, THROUGH OUR STATE OF THE ART FACILITY BASED IN MELBOURNE. WE PRIDE OURSELVES ON PROVIDING INNOVATIVE AND AFFORDABLE LIGHTING SOLUTIONS TO CLIENTS THROUGHOUT AUSTRALASIA

ELA is dedicated to sharing our knowledge in outdoor lighting. We understand the lighting needs of our clients and the needs of patrons who use these common areas throughout Australia and New Zealand. Here at ELA, visual comfort means that light should be a positive experience – both for those seeing the light from a distance and those in the light. Using Fagerhult's specially developed AGC (Advanced Glare Control) lenses, we have succeeded in minimising glare and ensuring good uniformity, across the Vialume and Evolume families.

ELA can tailor a solution for your next project. Our range of post top luminaires can be easily customised in regards to luminous

flux, colour temperature and cables, along with additional factors that have a significant effect on the functionality of an installation. ELA's extensive knowledge of lighting means we can make project customisations suited to your needs – with delivery assurance of the highest degree.

ELA's outdoor lighting solutions include luminaires for facades, roofs, parking areas and public spaces. Our experience also extends to various solutions for city and park lighting including roads and bridges. Of ELA's various brands, Fagerhult, Designplan and Simes offer fittings and solutions for outdoor use.



AUSTRALIAN MADE FOR OUR CONDITIONS

Through the relationship between Fagerhult and Eagle Lighting Australia, there is a commitment to ongoing manufacturing investment at our Melbourne facility.

One of the strategies behind the heavy investment in our factory and operations in Melbourne is to marry our machines and capabilities to those of the other members within the global Fagerhult Group. The goal, being able to produce a global range locally. The investment in Eagle Lighting Australia is also an investment in the Australian economy.

At our facility, we now have a seamless and efficient production line from manufacturing, to assembly, to distribution.

The ability to manage the whole process allows for greater quality control, better customisation and faster production times, all of which provide improved customer satisfaction, backed by the assurance of local support.

In 2015, Eagle Lighting Australia officially opened our own state of the art Photometric Laboratory. The introduction of the Photometric Laboratory on a local level has further strengthened ELA's abilities within the luminaire design process. Utilising the laboratory, our team of engineers can conduct photometric

analysis on all types of luminaires ranging from small to large.

Our advanced equipment allows us to generate photometric reports, as well as create IES files. Additional components in the laboratory assist the engineering team in creating spectral analysis reports (LM79).

Furthermore, our thermal testing capabilities are in accordance with AS/NZS 60598.1 which enable us to accurately generate our lifetime data in accordance with IEC 62717 (LED modules for general lighting performance requirements) and IEC 62722-2-1 (particular requirements for LED luminaires).

The above could not be executed without our knowledgeable and experienced engineering team. Here at ELA we have six dedicated design engineers who between them share over 60 years of luminaire knowledge with the ELA family. Their superior skills in luminaire design, machine programming and accomplished capabilities for turning theoretical concepts into tangible luminaires, are key components in making ELA our clients lighting company of choice.



HOW TO USE THIS GUIDE

There are a number of different ways this guide can help you discover what Eagle Lighting Australia can provide in terms of a total indoor/outdoor car park and pathways solution. Below is a 'shortcut' table of each product that is found in this publication and the applications they are suitable for. This can help you filter through unnecessary products that would not suit your application. We have taken a look at a number of different application areas and provided numerous product solutions that meet not only lighting standards, but also different sized

budgets. We also take note of the different user experiences that will occur within the application area. A selection of datasheets have been accumulated that focus on the needs of Lighting Designers, Consulting Engineers, Landscape Architects and Councils. These datasheets will assist you with the more technical information of each fitting and other possible options. Team this with the knowledge and experience of an ELA representative and we are sure to provide you with a tailored and bespoke solution.

Product	Indoor Car Park	Stairwells & Ramps	Outdoor Car Park	Pathways
Densus LED	✓			
HercuLED	✓			
Vanguard LED	✓			
Basilica		✓		
Discovery Evo		✓		
QuadEvo		✓		
Evolume			✓	✓
Vialume			✓	✓
Park Post Top			✓	✓
Azur				✓
Conledo G2				✓
Lunova				✓
Mini Poster				✓
Outline Flood				✓
Poster				✓

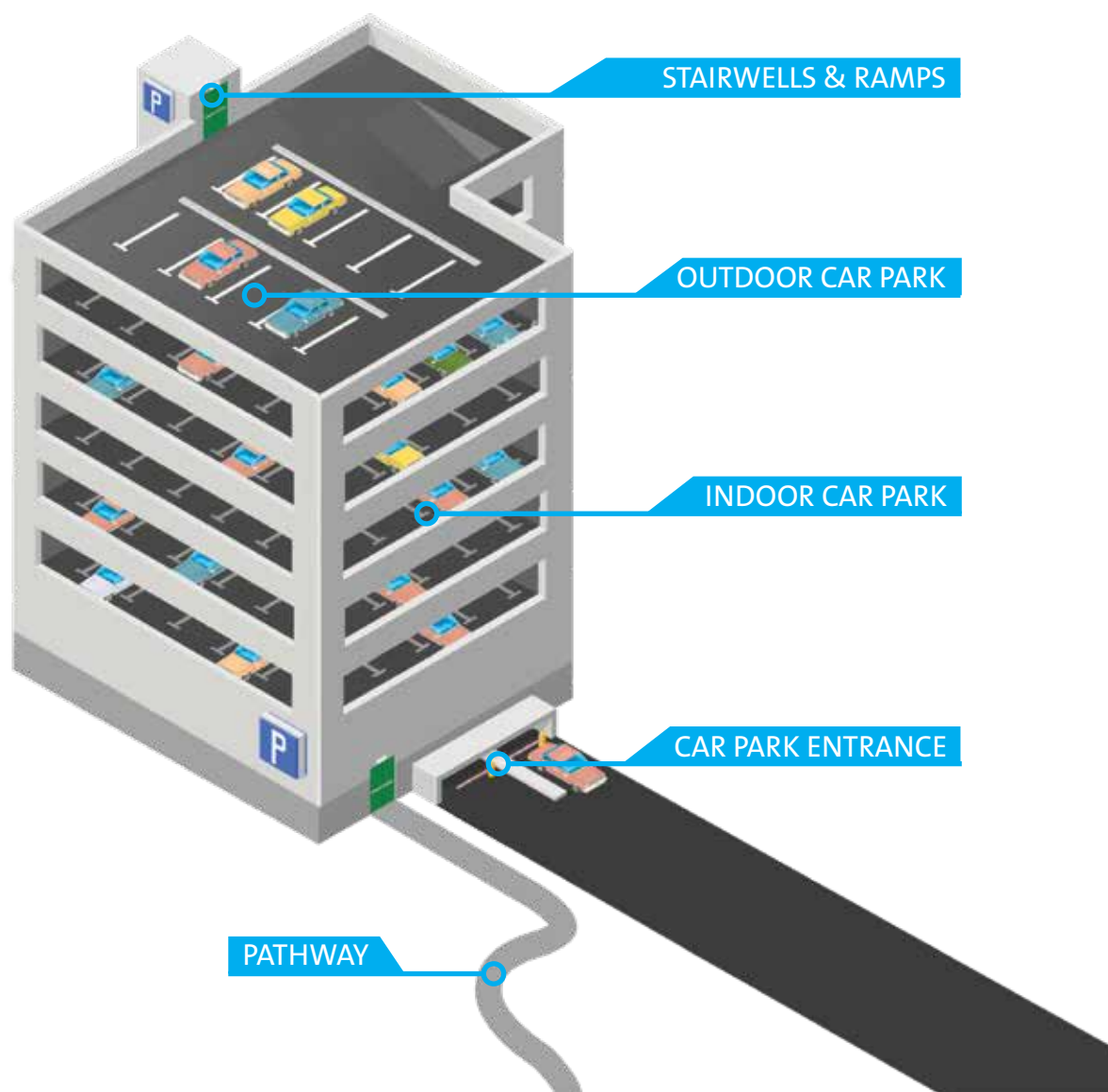
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SIMES
luce per l'architettura

FAGERHULT

designplan
LIGHTING

*We can offer a comprehensive
car park and pathway solution...*



Each product that displays this logo has been designed, tested and manufactured entirely in Australia, meeting all Australian standards and local lighting requirements.



YOUR GUIDE ON HOW TO LIGHT A CAR PARK OR PATHWAY

CAR PARK & AREA LIGHTING

The first question to be asked is why does the area need to be lit?

This may seem obvious, but the answer may well determine the solution. For example, security lighting for a storage yard may not require good colour rendering, whereas locations which are used by people during the evening and night time will appear more inviting if a 'white light' source is used. Conversely, much greater uniformity may be required for the storage area so that CCTV picks up activity in shadowed areas.

THE THEORY

The lighting standard to reference when considering lighting an outdoor car park or pathway is AS/NZS1158.3.1. This standard P-Category lighting draws upon studies and experiences which demonstrate the link between lighting design and community benefits. These provide fiscal returns (i.e. from the reduction in crime and increased use of space) which can be offset against the provision of lighting. The objectives at a glance are to provide the following:

ORIENTATION	To provide safe movement
SAFETY	To discourage crime
PRESTIGE	To contribute to an increased aesthetic appeal of an area

MESOPIC VISION



The relevance of mesopic vision to exterior lighting is that most street lighting is seen under these conditions. In a city centre, where the streets are brightly illuminated by shop fronts, advertising hoardings, video signs, vehicular traffic and the street lighting lanterns themselves, our vision may well be considered to be photopic or just slightly entering mesopic. Conversely, in lightly populated areas, where the street lighting is only giving mean values of illuminance, the effect is more significant.

The effect of this is that light sources with greater blue content may give better viewing ability than other sources with an equal (photopic) lumen output. This is especially true for objects seen in the periphery of the eye, where there is a high concentration of rods. Mesopic vision is also significant for the floodlighting of car parks and building facades, where only low levels of illuminance are required.

THE BASICS

1. Determine your criteria

Type of area	Selection criteria			
General description	Night time vehicle or pedestrian movements	Night time occupancy rates	Risk of crime	Applicable lighting category
Parking spaces, aisles and circulation roadways	High	> 75%	High	P11a
	Medium	25% - 75%	Medium	P11b
	Low	< 25%	Low	P11c
Disabled parking bays	N/A	N/A	N/A	P12

2. Select the category

Example 1:

- Low night time vehicle or pedestrian movement with a <25% night time occupancy rate, but we had a higher risk of crime, then you would choose the applicable lighting category P11a

Example 2:

- Medium night time vehicle or pedestrian movement with a 25%-75% night time occupancy rate and a low risk of crime, then you would choose the applicable lighting category P11b

3. Now take the light technical parameters from the table to use in the lighting design

Lighting category	(\bar{E}_h) Lux Average Horizontal Illuminance	(E_{ph}) Lux Point Horizontal Illuminance	(U_{E2}) Illuminance Uniformity	(EP_v) Lux Point Vertical Illuminance	Permissible Luminaire Type
P11a	14	3	10	3	Types 3,4,5,or 6
P11b	7	1.5	10	1.5	
P11c	3.5	0.7	10	N/A	
P12	N/A	≥ 14 and $\geq E_h$	N/A	N/A	

*Please note- the highest level of any selection criteria determines the applicable lighting category)

THE BASICS ARE COVERED, WHAT'S NEXT?

Outdoor car parks have three common requirements:

- People must be (and feel) safe .
- Vehicles and circulation routes must be well lit.
- The luminaires must have optics that minimise upward and stray light.



YOUR GUIDE ON HOW TO LIGHT A CAR PARK OR PATHWAY

PATHWAY LIGHTING (FOOTPATH & CYCLEWAYS)

THE THEORY

The key document to reference when designing for these areas is AS/NZS1158.3.1. The lighting standard draws upon studies and experiences which demonstrate the link between lighting design and community benefits. These provide fiscal returns (i.e. from the reduction in crime and increased use of space) which can be offset against the provision of lighting.

THE BASICS

1. Determine your criteria

Type of area		Selection criteria			Applicable lighting category
General description	Basic operation mode	Pedestrian Cycle activity	Risk of Crime	Need to enhance prestige	
Pedestrian or cycle orientated pathway	Pedestrian or cycle traffic only	N/A	High	N/A	P1
		High	Medium	High	P2
		Medium	Low	Medium	P3
		Low	Low	N/A	P4

2. Select the category

Example 1:

- High pedestrian or cycle activity, a medium risk of crime and a low need to enhance prestige, then you would choose the applicable lighting category P2

Example 2:

- Low pedestrian or cycle activity with high risk of crime and a N/A need to enhance prestige, then you would choose the applicable lighting category P1

3. Now take the light technical parameters from the table to use in the lighting design

Lighting category	(E _h) Lux Average Horizontal Illuminance	(E _{ph}) Lux Point Horizontal Illuminance	(U _{E2}) Illuminance Uniformity	(EPv) Lux Point Vertical Illuminance	Permissible Luminaire Type
P1	7	2	10	2	Types 4 or Types 2,3,4 or 6 elsewhere
P2	3.5	0.7	10	0.7	
P3	1.75	0.3	10	0.3**	
P4	0.85	0.14	10	N/A	
P5	0.5	0.07	10	N/A	

*Please note- the highest level of any selection criteria determines the applicable lighting category)

**Only applicable to local roads

THE BASICS ARE COVERED, WHAT'S NEXT?

Consider:

- P-Classifications provide the best lighting for different areas/activities in a public space.
- Local authorities have a duty of care to residents and to road users. This is usually taken to mean conformance to AS/NZS1158.3.1.
- Vertical illuminance helps to give better visual appreciation to the user of all of these areas. Facial recognition is also a priority.
- If pedestrian routes or cycle ways are remote from roads and have their own lighting, hazards need to be considered.



INDOOR CAR PARKS

BEST PRACTICE

While different approaches are required for interior and exterior car parks, lighting is a key factor in determining how safe people will feel. It is not only lighting fixtures that can achieve an overall feeling of safety, lighter colours on ceilings can also increase levels of illumination. Various approaches are required for buildings and open car parks, yet general principles relating to sightlines, lighting and access control can also increase safety levels.

Lighting throughout underground and multistorey car parks must conform to ASNZ 2890.1 and ASNZ 1680.2 as minimum standards. A critical consideration is how the design of the car park is experienced from the pedestrian's perspective. It is important that lighting enables a person to clearly identify vehicles, objects, people approaching and permit colour rendition.

ASNZ 1680 Interior Lighting addresses providing well-lit areas in car parks not only assists in the safety of vehicles using them, but perhaps more importantly offers a more inviting environment for the public when leaving or returning to parked cars.

The choice of fittings to achieve these results is important. They should be robust and vandal resistant. In addition the fitting should provide good distribution with minimum glare, particularly as mounting heights are usually low. Polycarbonate diffusers should be a minimum requirement with suitably finished metal bodies or gear/reflector enclosures.

Eagle Lighting Australia is able to offer a wide choice of standard or suitably modified fittings to suit particular site conditions.

KEY LIGHTING REQUIREMENTS

Emergency Lighting

Proper design and implementation of emergency lighting in an indoor car park is vital for both pedestrian and driver safety. The reliability of the emergency lighting system as a whole is equally important. The use of emergency versions of fittings to operate in maintained mode on designated escape routes, stairs, landings and designated pedestrian areas, should be incorporated into the design.



Lighting Control Systems

Appropriate lighting control systems, preferably intelligent control systems such as the eSense range, should be incorporated into the design for daylight harvesting, minimising energy consumption whilst providing the right light levels at the right times and locations. The expected level of pedestrian and vehicle traffic at a given spot, such as transit areas is a major factor in designing and optimising the lighting control system to be used.



Colour Rendering

The key is to provide the required average and minimum levels of illumination with good uniformity and colour rendering over all areas, whilst paying particular attention to areas used as entrances, exits, ramps and awkward changes in direction.



Entrances & Exits

Entrances and exits to covered car parks are likely to exhibit contrast between internal and external conditions that may cause viewing difficulties. During the night it may be necessary to reduce the interior level or increase exterior levels. During the day the contrast can be reduced by increasing interior levels in these areas.



TABLE-1 – Required illuminance levels for indoor car parks

CAR PARKS (INDOORS)	Horizontal Illuminance (Lux)	Maximum Glare Index
Entrances (during daytime)		
First 15m:	800	-
Next 4m:	160	-
Entrances (during night time)	160	-
Pay booths	160	19
Aisles, ramps, circulating roads, pedestrian crossings	40	-
Normal parking spaces	40	-
Parking spaces for disabled	40	-
Toilets	80	-

INDOOR CAR PARK SOLUTIONS

Densus LED



The Densus LED is a weather proof, vandal resistant and dust proof IP65 rated LED luminaire, suitable for most commercial and industrial applications. The Densus LED has an IK10 rating.

Services such as emergency and sensors are integral to the luminaire.

Technical Specifications

Total Luminaire Efficacy	135lm/W
MacAdam 3 SDCM Initial	
CRI	>84
Lifetime	L80B50 73,000hrs
System Guarantee	5 years

HercuLED



The HercuLED is an LED lowbay solution, surface mounted IK10 and IP65 rated luminaire designed, tested and manufactured in Australia. The HercuLED is best used for car park entrances as it achieves 800lux, the requirement in AU/NZ for the entry and exit lanes of undercover car parks.

Technical Specifications

Total Luminaire Efficacy	101lm/W
MacAdam 3 SDCM Initial	
CRI	>84
Lifetime	L80B50 71,000hrs
System Guarantee	5 years

Vanguard



The Vanguard range of luminaires is suitable for industrial and commercial areas where security and visibility are of paramount importance at all times. Applications include subways, underpasses and any areas where a robust, vandal proof fitting is required.

The luminaire has a reinforced hidden back plate, tamper-proof stainless steel retaining screws and its construction ensures that it is virtually vandal proof.

Technical Specifications

Total Luminaire Efficacy	92lm/W
MacAdam 3 SDCM Initial	
CRI	>84
Lifetime	L80B50 81,000hrs
System Guarantee	5 years

DENSUS LED



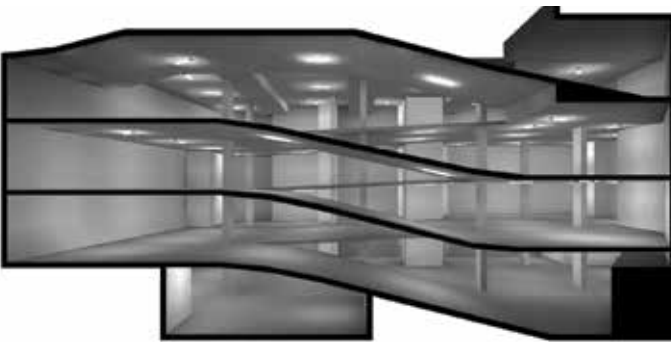
The Densus LED is a weatherproof, vandal resistant and dust proof IP65 rated LED luminaire, suitable for most commercial and industrial applications.

It is particularly suited for underground car parks, where its wide beam distribution ensures that it provides excellent uniformity and illuminance levels on maximum mounting centres. The LED boards used within the Densus LED are easily replaceable, allowing for easy maintenance and a reduced life cycle cost.

Services such as Emergency and Sensors are integral to the luminaire.

By using upgradeable/interchangeable LED boards in the luminaire, it is assured that you will always be able to easily replace or upgrade the Densus to take advantage of the latest available LED technology and energy savings.

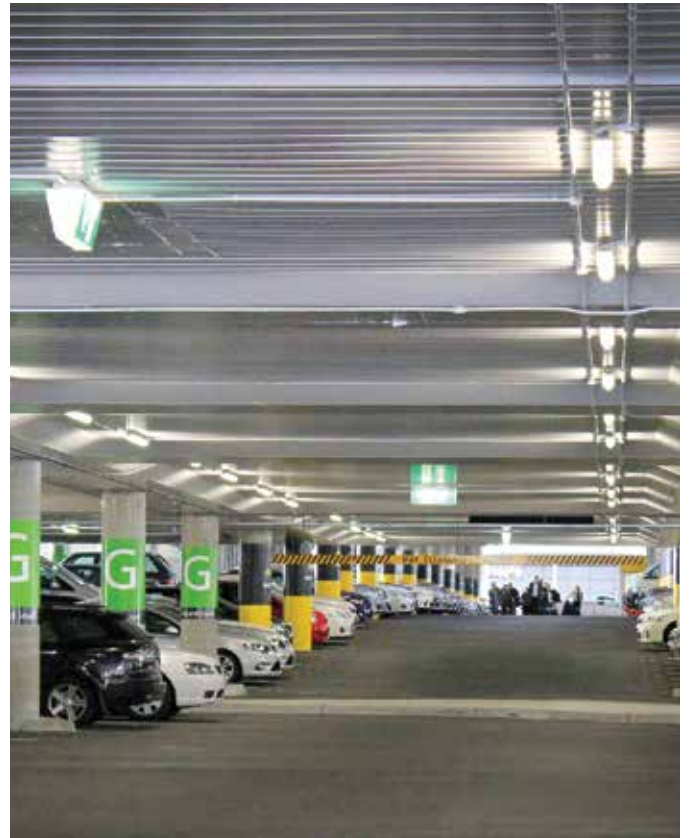
EXAMPLE LAYOUTS



An example of the Densus LEDs ability to light a multistorey car park in accordance to ASNZ 1680.2.1 2008.



The Densus LED has the versatility to light different aspects of multistorey car parks



The Densus LED at Melbourne Airport multistorey car park

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Options

- » Emergency
- » DALI Monitored Emergency
- » Microwave Motion / Light Sensor

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W	Size	Sys. lm	lm	lm/W	K	Code	Suffix
Densus LED Surface Mounted							
9W	680 x 150	1250	977	108	4000	EL-DENL-2103-	___
22W	680 x 150	3500	2672	124	4000	EL-DENL-2104-	___
20W	1280 x 150	3250	2513	123	4000	EL-DENL-2100-	___
32W	1280 x 150	5000	3843	120	4000	EL-DENL-2101-	___
39W	1280 x 150	6800	5252	135	4000	EL-DENL-2102-	___
Densus LED Emergency Classification C0 D80 / C90 D50							
24W	1280 x 150	3250	2513	123	4000	EL-DENL-2100-	800, 801
36W	1280 x 150	5000	3843	120	4000	EL-DENL-2101-	800, 801
Densus LED Emergency Classification C0 D63 / C90=D27 D40 / C180 D80							
43W	1280 x 150	6800	5215	120	4000	EL-DENL-2102-	800, 801

Wiring options	Suffix
Standard	-000
DSI/STD terminal block	-100
DALI/STD terminal block	-200
Maintained Emergency	-800
Maintained DALI Monitored Emergency	-801

Technical specifications
Luminaire Efficacy: $\geq 108 \text{ lm/W}$
MacAdam 3 SDCM Initial
CRI > 84
LLMF* (TM21-11): L80(12k) > 72000h
System guarantee 5 years
*Lamp Lumen Maintenance Factor



Stainless Steel Clips



Opalised Diffuser

Nominal dimensions (mm)

Technical drawing of the luminaire showing nominal dimensions. The main view is a side elevation showing a long, narrow fixture with four mounting brackets. Dimension A is the total length, B is the width, C is the height, and D is the length of the central section.

FITTING DIMENSIONS				
FITTING	A	B	C	D
1280 x 150	1280	150	100	872
680 x 150	680	150	100	383

Polar Curve

Polar curve diagram showing the beam distribution. The diagram is a circular grid with radial lines every 10 degrees and concentric circles representing beam diameters. A green curve represents the beam distribution, starting at the center and extending to the outer edge of the grid. The curve is labeled 'A' at its ends and 'B' at its peak.

EL-DENL-2102-000

HERCULED



The HercuLED is a surface mounted IK10 & IP65 rated luminaire designed, tested and manufactured in Australia.

The product has been designed as an LED lowbay solution for the transitional zones of underground car parks but it may be used in any under-canopy application where a robust luminaire is required.

The front frame is made of 1.2mm stainless steel whilst the body is constructed of aluminium. The diffuser used is made of UV stabilised polycarbonate and the prisms act as a light guide whilst eliminating glare.

It is available in black as standard but other colours are available on request.



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W	Size	Sys. lm	lm	lm/W	K	Code	Suffix
Herculed Surface Mounted, Delta Diffused							
92	675 x 675	14750	9291	101	4000K	EL-HCL-1100-	___

Wiring options	Suffix
Standard	-000
DALI/STD terminal block	-200
Add one suffix code to the end of the luminaire part number to indicate required function.	

Technical specifications
MacAdam 3 SDCM Initial
CRI: 84
R _g : 14
LLMF*: TM21 L ₈₀ (12k) = 69,000hrs
System guarantee 5 years

*Lamp Lumen Maintenance Factor



Anti-tamper screws

Nominal dimensions (mm)

FITTING DIMENSIONS			
FITTING	A	B	C
SM 675 x 675	675	675	100

Polar Curve

EL-HCL-1100
Maximum Candela = 575 cd/klm
1 - Vertical Plane Through Horizontal Angles (90 - 270)



Multiple cable entry and exit points

VANGUARD LED



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Size	Ra	lm	lm/W	K	Code	Suffix
Vanguard LED - Surface Mounted						
1275x210x85mm	84	3083	92	4000	EL-CV824L-1100	___
1275x210x85mm	84	3620	92	4000	EL-CV824L-1101	___

Wiring options	Suffix
Standard	-000
DALI/STD terminal block	-200
Add one suffix code to the end of the luminaire part number to indicate required function.	

Technical specifications
MacAdam 4 SDCM Initial
R _g : 23
Lifetime: TM21 L ₈₀ (12k) = 69,000hrs
System guarantee 5 years



A surface mounted, vandal proof luminaire suitable for secure environments.

An Australian made, robust and virtually indestructible luminaire. With a 30% reduction in running costs compared to T5 will ensure a longer lifetime and trouble free maintenance for many years.

Applications include correctional institutions, prison cells, mental health facilities, railways, tunnels and any areas where a robust, vandal proof fitting is required.

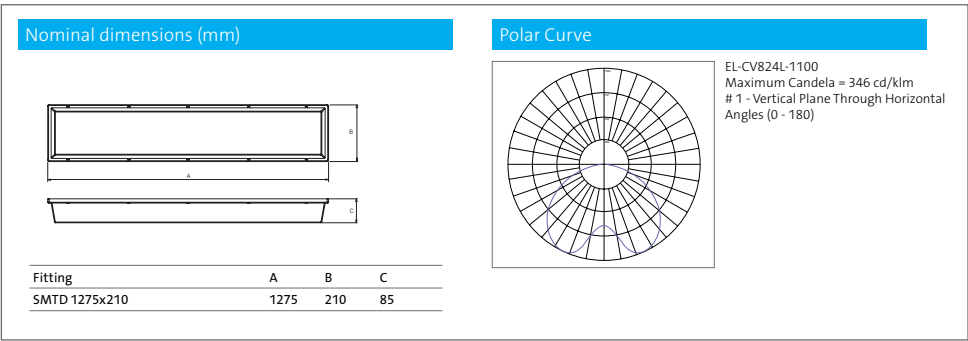
An approved prison 'non-ligature' luminaire.

Vanguard LED features a one piece, injection moulded polycarbonate diffuser that provides excellent lamp obscuration, wide light distribution and excellent glare control.

The hidden back plate, tamperproof stainless steel retaining screws and the overall construction ensures that the luminaire will repel any attempts at vandalism.

Options:

- » LED Night Light
- » Emergency - Non Monitored
- » Emergency - DALI Monitored
- » Microwave Sensor - Motion/Light



STAIRWELLS AND RAMPS

BEST PRACTICE

A key area to consider when lighting stairwells and ramps is emergency lighting. For obvious reasons emergency lighting has become increasingly important in all public buildings. It is essential that escape routes are clearly visible in emergency situations with adequate lighting levels in all areas to ensure the prompt and safe evacuation of buildings. Emergency lighting is available in many different arrangements. Where possible the use of the standard fitting, which has incorporated in it the emergency control gear and battery, will often be the most cost effective answer. Not only saving on installation time and money but with the additional benefit of less fittings cluttering the ceiling. This results in a more aesthetically pleasing installation.

Emergency lighting has by law to be regularly tested. To ensure compliance with current testing procedures we recommend the addition of an 'Auto Test' system within emergency fittings.

The required lighting levels are given in TABLE-1

KEY LIGHTING REQUIREMENTS

Emergency Lighting

It is advisable to include an emergency facility within fittings so that in the event of mains failure illumination is maintained, thereby mitigating any risk to car park users.



Robust Lighting

Often stairway areas are among the most prone to vandalism and since it is vital for safety to always have good illumination to stairs, the chosen fitting must be able to withstand the likely level of vandalism.



TABLE-1 – Required illuminance levels for indoor car parks

CAR PARKS (INDOORS)	Horizontal Illuminance (Lux)	Maximum Glare Index
Entrances (during daytime)		
First 15m:	800	-
Next 4m:	160	-
Entrances (during night time)	160	-
Pay booths	160	19
Aisles, ramps, circulating roads, pedestrian crossings	40	-
Normal parking spaces	40	-
Parking spaces for disabled	40	-
Toilets	80	-

STAIRWELLS AND RAMP SOLUTIONS

Discovery Evo



Discovery Evo is the new generation of Fagerhult's classic multi-purpose luminaire. Developed to utilise all the benefits of LED technology, Discovery Evo is a versatile lighting concept that satisfies the requirements of demanding environments.

Technical Specifications

Total Luminaire Efficacy	135 lm/W
MacAdam 3 SDCM Initial	
CRI	>80
Lifetime	L80B10 90,000 hrs
System Guarantee	5 years

Basilica



A contemporary and robust anti-ligature bulkhead with light output of 116 lm/W. Within this design there are no ligature points which help to prevent self-harming.

The range is also impact resistant to an IK10 rating, the highest level prescribed in the international standard IEC 60068-2-75. Our experience has taught us that IK10 is inadequate against the sort of vandalism our products face on a regular basis. By testing to the EN60068-2-75 standard using a pendulum hammer, Designplan have extrapolated the ratings from the 20 joules (IK10) rating all the way up to 150 joules of impact (IK16).

Technical Specifications

Total Luminaire Efficacy	91lm/W
MacAdam 5 SDCM Initial	
CRI	>80
Lifetime	L80B50 60,000hours
System Guarantee	5 years

QuadEvo



QuadEvo's market leading light output ensures that you need fewer luminaires for your application, reducing your cost of ownership and also uses significantly less electricity than traditional fluorescent fittings, potentially reducing your annual energy costs by up to 60%.

The luminaire's IK15 rating means that it can resist 125 joules of impact, 6.25 times more than a standard luminaire. It also makes QuadEvo a class-leading offer for applications where there is a high risk of vandalism or damage and a highly robust product is required. The high impact resistant diffuser is secured by Resistorx screws ensuring that its 'tamperproof' rating is maintained.

Technical Specifications

Total Luminaire Efficacy	100lm/W
MacAdam 5 SDCM Initial	
CRI	>80
Lifetime	L80B50 60,000hours
System Guarantee	5 years

DISCOVERY EVO



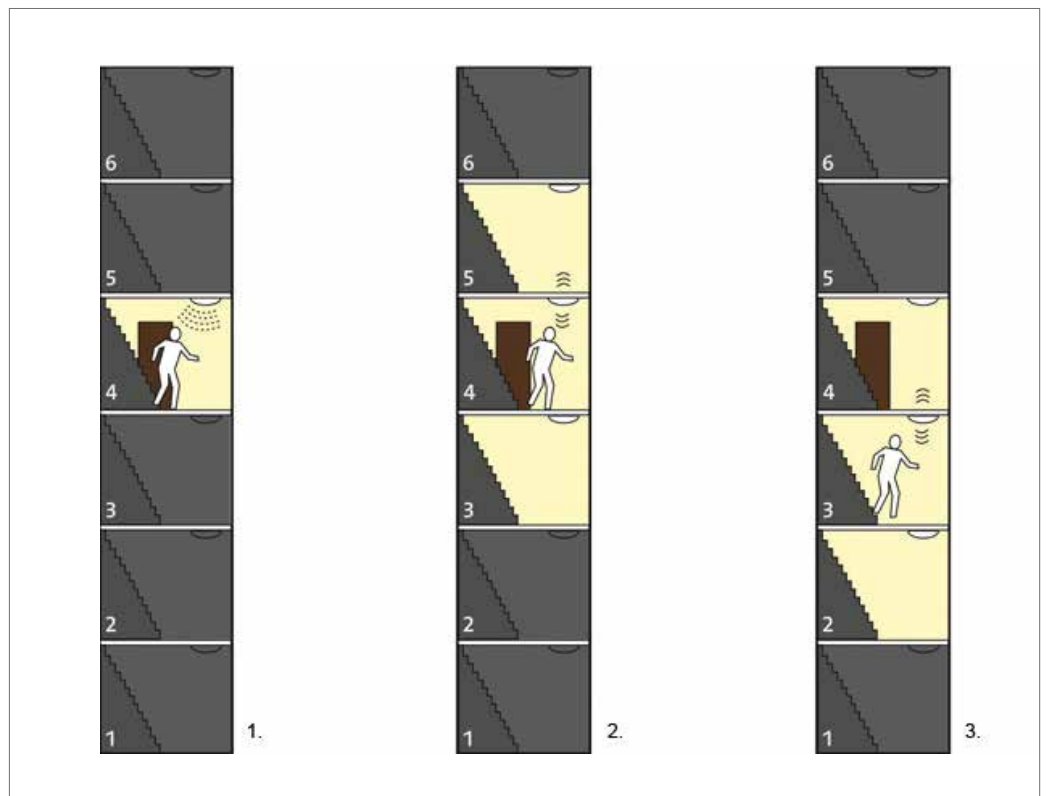
Discovery Evo is the new generation of Fagerhult's classic multi-purpose luminaire. Developed to utilise all the benefits of LED technology, Discovery Evo is a versatile lighting concept that satisfies the requirements of demanding environments.

A neat design and a comfortable, space-creating light pattern enhances the lit experience in stairwells, corridors, kitchens, bathrooms and cellars in both public and private environments. Discovery Evo can be surface mounted or recessed in ceilings or on walls. It is also available in an anti-ligature design IK10, as well as an outdoor model which combines IK10 with IP55. Based upon an innovative solution with recess ring and a user friendly light package, the installation is one of the quickest on the market.

Discovery Evo can be equipped with presence control via microwave sensors or PIR and can be optimised with e-Sense Move.



An example of the Discovery Evo's ability to light a stairwell



1. Presence is detected on 4th floor, light turns on.
2. Simultaneously the sensor transmits RF-commands to the closest floors to turn lights on.
3. If a person then moves downwards, the sensors will continue to turn the light on ahead of person being detected.

DISCOVERY EVO



Installation

Four securing holes. For recess or surface mounting on ceilings or walls. Brackets for recessed installation ordered separately, please see accessories. There are holes for a surface mounted installation socket.

Connection

230 V integrated LED driver. Snap-in terminal block 5 × 2.5 mm². 1-phase through-wiring possible. Cable entry at rear or via knockouts for surface mounting, through wiring 0° or 180°.

Design

Luminaire body of polycarbonate and diffuser of opal polycarbonate.

Emergency lighting

The product is equipped with the ability to connect a monitoring system based on communication via DALI. The system is not dependent on a DALI system being connected or in operation. Emergency lighting luminaires can be supplemented with sensor on request.

Accessories

Anti-ligature casing in white enamelled sheet steel. Supplied with safety screws (tamper-proof torx) IK10, IP 55. Outdoor casing in lacquered aluminium, IK10, IP 55. Surface mounted mains cable possible.

LED-information

Driver life time: up to 100.000 h/10 % (max failure).

FAGERHULT

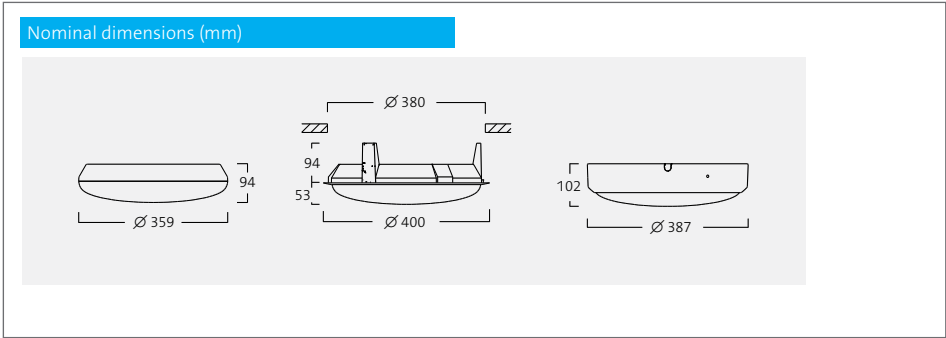
W	lm	lm/W	Ra(CRI)	K	Life	SDCM	Code	Suffix
19W	2438	128	≥ 80	3000	L ₉₀ B ₅₀ 60.000h	3	FG-57758	●
19W	2566	135	≥ 80	4000	L ₉₀ B ₅₀ 60.000h	3	FG-57759	●

Emergency lighting luminaire, decentralised 3 h, self-test AT4 + DALI surveillance, can be supplemented with sensor.

19W	2438	128	≥ 80	3000	L ₉₀ B ₅₀ 60.000h	3	FG-57728-	800
19W	2566	135	≥ 80	4000	L ₉₀ B ₅₀ 60.000h	3	FG-57729-	800

Accessories	Suffix
Recess rings including spring clips for recess mounting	92650
Anti-ligature casing IK10, white	92651
Mounting plate for recessed installation in soft tile suspended ceilings.	92652
Mounting plate for recessed installation in soft tile suspended ceilings.	92653
Outdoor casing IK10, anthracite grey (Gris 900 Sablé str.)	92654
Outdoor casing IK10, black (RAL 9005 str.)	92655
Remote control e-Sense Move DALI	86305

Suffix Code
● -402 DALI/Phase-pulse control
Add suffix code to the end of the luminaire part number to indicate required function. Only one suffix can be added.



Outdoor accessories.

BASILICA



designplan
LIGHTING

W	Size	Sys. lm	lm	lm/W	K	Code
350mm OPAL DIFFUSER						
23	350mm	2400	2063	91	3000K	BA35/2400WW/XC31

Optics
350mm Opal Diffuser

Finishes
Smooth White C31

Fitting Options	
Natural white LEDs (4000K)	replace WW with NW
Smooth silver finish	replace C31 with C45
Smooth cream finish	replace C31 with C44
Integral 3 hour duration emergency	add suffix /EM3
Self test 3 hour duration emergency	add suffix /EM3S
DALI 3 hour duration	add suffix /EM3D
Emergency DALI dimming	add suffix /DALI
Monitoring Night light	add suffix /NL
Microwave sensor – Advanced	add suffix /MWSA
Microwave sensor – Basic	add suffix /MWSB

Nominal dimensions (mm)

Polar Curve

IK16	IP65	150 JOULE
------	------	-----------

Contemporary and robust anti-ligature bulkhead with light output of 116 lm/W.

Contemporary design with no ligature points to help prevent self harming.

Attractive LED only fitting, providing uniform light distribution and impressive light output of up to 116 luminaire lumens per circuit watt.

Suitable for wall or ceiling mounting.

Smooth surfaces make cleaning easy to help maintain a bright welcoming environment.

Aluminium die-cast body finished in smooth white polyester powder coat.

Opal polycarbonate diffuser held in place with Resistorix tamper resistant screws.

Electronic control gear on removable tray with fused plug and socket connector block.

Provision for conduit entry in back, gaskets provided.

Our experience has taught us that IK10 is inadequate against the sort of vandalism our products face on a regular basis. By testing to the EN60068-2-75 standard using a pendulum hammer, Designplan have extrapolated the ratings from the 20 joules (IK10) rating all the way up to 150 joules of impact (IK16).

5 year warranty (full product).

ANATOMY OF AN ANTI-LIGATURE BASILICA

A

An oven-baked finish provides a protective skin of tough polyester paint. The die cast aluminium body is strong and durable ensuring the luminaire can resist up to 150 joules of impact (IK16).

B

A removable gear tray allows for easy upgrade and maintenance of all component parts without the need to disturb the anti-pick mastic.

C

The high impact resistant diffuser is secured by Resistorx screws ensuring that its tamper-proof rating is maintained.

D

Minimise aperture between diffuser and body.





designplan
LIGHTING

W	Size	Sys. lm	lm	lm/W	K	Code
OPAL DIFFUSER						
16.5	312 x 90mm	1900	1650	100	3000K	QTR/1900NW/XC49

Finishes
Matt white finish C46
Matt black finish C04

Fitting Options	
DALI dimming/monitoring	add suffix /DALI
Photocell	add suffix /PEC
Microwave sensor – Advanced	add suffix/MWSA
Microwave sensor – Basic	add suffix /MWSB
Side entry(s)	add suffix /H or /HH
Warm white LEDs	replace NW with WW
Corridor function*	add suffix /CF10

Nominal dimensions (mm)

Polar Curve

IK15 IP65

Contemporary, robust bulkhead fitting particularly suited to social housing environments.

Attractive LED only fitting with uniform light distribution and 104 luminaire lumens per circuit watt.

Circa 85% efficacy increase and 60% load reduction versus equivalent 28W 2D fitting, providing increased illumination for less energy.

Suitable for wall and ceiling mounting.

Die cast aluminium body finished in titanium polyester powder coat.

Opal polycarbonate diffuser held against gasket by tamperproof Resistorx screws.

Electronic control gear on removable tray with fused plug and socket connector block.

Provision for conduit entry in backs and options for side cable entry.

5 year warranty (full product).



OUTDOOR CAR PARKS

BEST PRACTICE

Outdoor car parks have three common requirements:

- People must be (and feel) safe.
- Vehicles and circulation routes must be well lit.
- The luminaires must have optics that minimise upward and stray light.

Car parks need lighting from several directions. Lighting from one side only will produce deep shadows. Single-side illumination also means that people and the sides of vehicles facing away from the light, can only be seen in silhouette. This can generate a feeling of insecurity among users. The major problem at the initial stage of designing a car park installation is that there are so many variables. Unlike interior lighting, where the boundaries are clearly defined by walls, ceilings and floors, floodlighting equipment can be placed within the area to be lit or placed on columns well outside the area. The best advice for anyone beginning a design is to start by studying the characteristics and limitations of the site.



KEY LIGHTING REQUIREMENTS

As per AS/NZS1158.3.1:2005, determine your criteria and select your lighting category.

Your Layout – Choosing your positions

Where possible, use the landscaped areas or walkways for column locations to avoid creating hazards. Small car parks are often illuminated from the perimeter whilst larger car parks often have columns at the centre. Consider how the traffic will use the space, as well as all of the parking options available.



Lighting Control / Dimming

Don't over complicate it. The lighting level you need at 5pm compared to 2am may be totally different as the usage levels drop. Consider lowering lighting levels to suit the traffic at different times. This not only provides all important energy savings, but will also ensure that the scheme is not over-lit.



Spill Light – Glare

Now let's not blind anyone with unnecessary light spill... Lighting should be concentrated onto the main car parking area, with careful consideration given to adjacent buildings.



Ra

To ensure good CCTV footage your light source should have a minimum colour rendering of 70. Be mindful of current research in choosing your temperature of 3000/4000K. This is most definitely a separate topic of discussion as the health benefits and light pollution attributes of blue rich lighting is well documented to date.



Maintenance

The designer needs to consider the following aspects in the maintenance strategy:

- Can the system be maintained safely?
- Who maintains the system?
- How is the system maintained?
- When is the system maintained?
- How frequently is maintenance required?
- How much does maintenance cost?
- How does the design age between regular maintenance periods?



OUTDOOR CAR PARK SOLUTIONS

Evolume 1



Evolume 1 combines excellent lighting properties and visual comfort with a modern cost-effective design. Thanks to its flat appearance, the post top luminaire blends well into numerous different environments.

Technical Specifications

Total Luminaire Efficacy	Max 117lm/W
MacAdam 5 SDCM Initial	
CRI	>70
Lifetime	L100B50 100,000hrs
System Guarantee	5 years

Vialume 1



The Vialume 1 post top luminaire is characterised by a soft, organic shape with simple lines, which link it to Fagerhult's Nordic design tradition. The timeless, stylish design enhances the area during the daytime and provides brilliant lighting in the dark of night.

Technical Specifications

Total Luminaire Efficacy	Max 124lm/W
MacAdam 5 SDCM Initial	
CRI	>70 or 80
Lifetime	L100B50 100,000hrs
System Guarantee	5 years

Park



Park is an urban lighting fitting with high energy performances from Simes for more architectural and landscape environments: parking lots, pedestrian and cycling paths as well as green areas.

Technical Specifications

Total Luminaire Efficacy	Max 79lm/W
MacAdam 5 SDCM Initial	
CRI	>70
Lifetime	L70B20 50,000hrs
System Guarantee	5 years

EVOLUME



Evolume combines excellent lighting properties and visual comfort with a modern cost-effective design. Thanks to its flat appearance, the post top luminaire blends well into numerous different environments. The Evolume family has now expanded to include a more powerful option with high luminous flux.

Thanks to the Evolume 2 post top luminaire, we are now able to offer complete, energy-efficient lighting solutions for the entire urban environment. Evolume 1 has met the needs of urban streets, footpaths, bicycle paths and smaller car parks. Evolume 2 is a larger luminaire with advanced optics offering a luminous flux up to 18,300 lumens – a more powerful version intended for illuminating wider main streets, motorways and large car parks. A road lighting system may include hundreds of posts and here every watt is important. This is why Fagerhult's development team has focused on obtaining as much light as possible from the luminaire.

The Evolume family put simply means good light without frills – technically advanced luminaires at a low investment cost.

OPTIMISED OPTICS

In lighting technology terms, Evolume is optimised in line with the latest lighting standard requirements, and you can choose from several different lenses with various light distribution. They are adapted for different areas of application from roads, streets, parking lots, footpaths and bicycle paths. With visual comfort and uniformity as the basis, Fagerhults AGC (Advanced Glare Control) lenses are optimised for maximum post spacing, maximum light within a work area, maximum luminosity and maximum glare reduction for given road conditions.

LENS OPTIONS AVAILABLE & POTENTIAL APPLICATION AREAS:

- E1- streets and car parks.
- E2- streets, car parks, footpaths and cycle paths
- E3- streets, car parks, footpaths and cycle paths
- E5- footpaths, cycle paths and illuminated jogging trails
- L2- Luminance optics optimised for wet roads.
- L4- Luminance optics optimised for wet roads.



The light is distributed through large lenses that are protected by screen printed safety glass (IK08)



Evolume can be tilted for good positioning above the road surface



An example of the Evolume 2 lighting an outdoor car park with approximate pole height of 8m, adhering to the lighting category P11a and P12.



EVOLUME 1 730 CLO



LED IP66 IK08

Installation
Post top luminaire which in its standard design can be mounted on a Ø 48-60 mm post top or post arm bracket. Accessories for other mounting options are ordered separately, see Accessories. Tilting function ± 15°. Post height 3–8 m.

Connection
Connection cable 3x1.5 mm² type H07RN-F. 4- and 6-LED version is delivered with 6 m cable. 8-LED version is delivered with 8 m cable. 10- and 12-LED versions are delivered with 10 m cable. DALI version available on request, delivered with a 5-pin cable. Other cable versions on request.

Design
Body and post bracket in cast aluminium. Aluminium-zinc coated screws. Ballast is built into the luminaire. Flanges for optimum cooling. Screen printed safety glass.

Light distribution
Asymmetrical. The E-lens are designed to focus on illuminance. L lenses are ideal if the luminance from the ground is the main priority.

Optics
AGC-lenses (Advanced Glare Control) for both illuminance and luminance classifications.

Dimming
CLO (Constant Light Output) maintains the correct light from the luminaire for the duration of its service life. DALI version is available on request.

Accessories
Spigot for post arm, post-top bracket, single or double.

Standard Colour
Alu-grey (RAL 9006, semi-gloss).

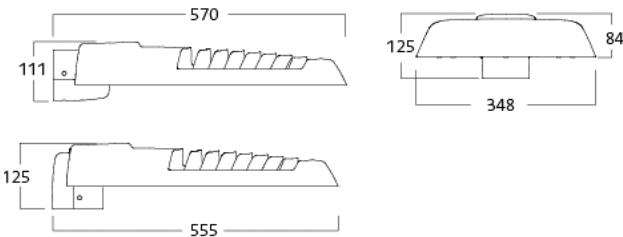
LED-information
LED-module: 730 (3000 K, Ra 70) MacAdam 5 SDCM. Driver life-time: up to 100.000 h/10 % (max failure). DALI version is equipped with NTC, over-heat protection. Driver with integrated surge protection (DM: 6 kV. CM: 8 kV). Extra surge protection (DM and CM: 10 kV) available on request.

Miscellaneous
Projected wind area: from the side 0,035 m², from below 0,158 m².
Luminaire weight: 7 kg.

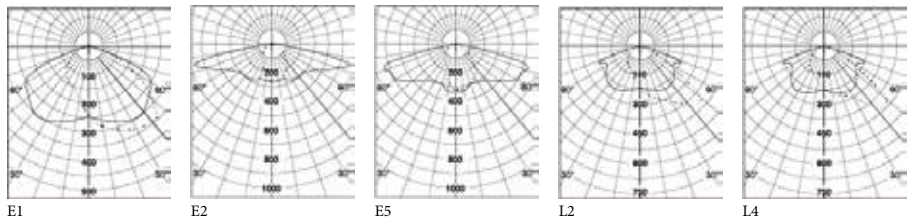
FAGERHULT

Average W	End W	No. of LEDs	Class	lm	lm/W	Useful life	Art.No.
Lens E2 LED							
39	40	4	I	3300	88	L ₁₀₀ B ₅₀ 100.000h	303360-480

Dimensions (mm)



Polar Curves



SPACING CHART EVOLUME 1

P Category PATHWAY Lighting Spacing Chart

AS/NZS 1158.3.1:2005



Luminaire Description

Evolume 1 E2 39W 730 3300 lms

Stores Code	303360-480
Initial Lamp/LED Fixture Flux	3300 lms
Light Source	LED - Light Emitting Diode
Maintenance Factor	0.8

Lighting Category

P2 (Pathways - Tables 2.2 & 2.6)

Upcast Angle	0 degrees
Arrangement	Single Side
Offset Distance	-.5 m [ie. away from Path edge]
Upward Waste Light Ratio	.0 %

Spacings

		Maximum Spacing for Different Path Widths							
Mounting Height		1	1.5	2	2.5	3	3.5	4	4.5
	4	17.5	17.3	17.2	16.3	15.5	15.1	14.4	13.1
	4.5	20.0	19.9	19.7	18.9	18.2	17.4	16.8	15.8
	5	22.4	22.2	22.1	21.2	20.6	19.8	19.2	18.5
	5.5	24.5	24.4	24.2	23.3	22.8	22.2	21.8	20.9
	6	26.5	26.3	26.1	25.3	25.0	24.6	24.2	23.1

Values of light technical parameters and permissible luminaire types for roads in local areas and for pathways

Lighting subcategory	Light technical parameters			
	Average horizontal illuminance (\bar{E}_h) lux	Point horizontal illuminance (E_h) lux	Illuminance (horizontal) uniformity Cat. P (UE2)	Point vertical illuminance (E_{pv}) lux
P2	3.50 lx	0.70 lx	10	0.70 lx

Value/s in above table are all in metres. The table contains maximum spacings which, for the specified luminaire and lamp combination, provide compliance with the light technical parameters (LTPs) of Table 2.6 of AS/NZS 1158.3.1:2005. Perfect Lite V3.10

EVOLUME 2 730 CLO



FAGERHULT

Average W	End W	No. of LEDs	Class	lm	lm/W	Useful life	Art.No.
Lens E2 LED							
90	95	10	I	8300	97	L ₁₀₀ B ₅₀ 100.000h	301357-480

LED	IP66	IK08
-----	------	------

Installation
Post top luminaire which in its standard design can be mounted on a Ø 60 mm post top or post arm bracket. Accessories for other mounting options are ordered separately, see Accessories. Tilting function +10°, -15°. Post height 8–18 m.

Connection
Halogen free connection cable 3x1.5 mm² type FQQ. Delivered with 12 m cable. DALI version available on request, delivered with a 5-pin cable. Other cable versions on request.

Design
Body and post bracket in cast aluminium. Aluminium-zinc coated screws. Ballast is built into the luminaire. Flanges for optimum cooling. Screen printed safety glass.

Light distribution
Asymmetrical. The E-lens are designed to focus on illuminance. L lenses are ideal if the luminance from the ground is the main priority.

Optics
AGC-lenses (Advanced Glare Control) for both illuminance and luminance classifications.

Dimming
CLO (Constant Light Output) maintains the correct light from the luminaire for the duration of its service life. Night dimming or DALI version available on request.

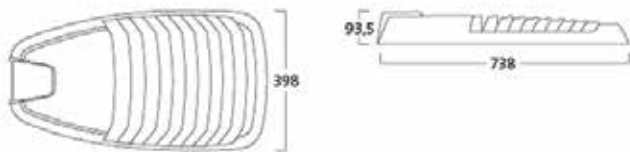
Accessories
Post-top bracket, Ø 76 mm.

Standard Colour
Alu-grey (RAL 9006, semi-gloss).

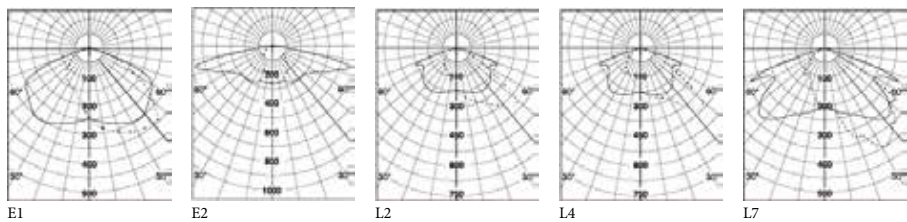
LED-information
LED-module: 730 (3000 K, Ra 70)
MacAdam 5 SDCM.
Driver life-time: up to 100.000h/10 % (max failure). DALI version is equipped with NTC, over-heat protection. Driver with integrated surge protection (DM: 6 kV. CM: 8 kV). Extra surge protection (DM and CM: 10 kV) available on request.

Miscellaneous
Projected wind area: from the side 0,053 m², from below 0,255 m². Max luminaire weight: 12 kg.

Dimensions (mm)



Polar Curves



SPACING CHART EVOLUME 2

P Category PATHWAY Lighting Spacing Chart AS/NZS 1158.3.1:2005



Luminaire Description	Evolume 2 E2 730 90W 8300 lms	
	Stores Code	301357-480
	Initial Lamp/LED Fixture Flux	8300 lms
	Light Source	LED - Light Emitting Diode
	Maintenance Factor	0.8
Lighting Category	P1 (Pathways - Tables 2.2 & 2.6)	
	Upcast Angle	0 degrees
	Arrangement	Single Side
	Offset Distance	-.5 m [ie. away from Path edge]
	Upward Waste Light Ratio	.0 %

Spacings

		Maximum Spacing for Different Path Widths						
		1	1.5	2	2.5	3	3.5	4
Mounting Height	8	37.2	37.3	37.3	37.2	37.3	37.3	37.3
	8.5	38.6	38.6	38.7	38.6	38.6	38.6	38.7
	9	39.8	39.8	39.8	39.8	39.8	39.8	39.8
	9.5	40.9	40.9	40.9	40.9	40.9	40.9	40.9
	10	42.0	42.0	42.0	42.0	42.0	42.0	42.0
	10.5	43.0	43.0	43.0	43.0	43.0	43.0	43.0
	11	43.9	43.9	44.0	43.9	43.9	43.9	44.0
	11.5	44.7	44.7	44.7	44.7	44.7	44.7	44.7
	12	44.7	44.7	44.7	44.7	44.4	43.9	43.4

Values of light technical parameters and permissible luminaire types for roads in local areas and for pathways

Lighting subcategory	Light technical parameters			
	Average horizontal illuminance (E _h) lux	Point horizontal illuminance (E _{ph}) lux	Illuminance (horizontal) uniformity Cat. P (UE2)	Point vertical illuminance (E _{pv}) lux
P1	7.00 lx	2.00 lx	10	2.00 lx

Value/s in above table are all in metres. The table contains maximum spacings which, for the specified luminaire and lamp combination, provide compliance with the light technical parameters (LTPs) of Table 2.6 of AS/NZS 1158.3.1:2005. Perfect Lite V3.10

VIALUME 1 830 CLO



LED IP66 IK09

Installation
Post top luminaire which in its standard design can be mounted on a Ø 48 mm post arm bracket. Accessories for other mounting options are ordered separately, see Accessories. Variable tilting function ± 15° for perfect installation. Post height 5–8 m.

Connection
Connection cable 3x1.5 mm² type H07RN-F. 4-LED version is delivered with 6 m cable. 7- and 9-LED versions are delivered with 8 m cable. DALI version available on request, delivered with a 5-pin cable. Other cable versions on request.

Design
Body and post bracket in cast aluminium. Aluminium-zinc coated stainless screws. Driver is integrated in the luminaire. Hardened flat glass IK09. PMMA diffuser with IK10 on request.

Light distribution
Asymmetrical. The E-lens are designed to focus on illuminance. L lenses are ideal if the luminance from the ground is the main priority.

Optics
AGC-lenses (Advanced Glare Control) for both illuminance and luminance classifications.

Dimming
CLO (Constant Light Output) maintains the correct light from the luminaire for the duration of its service life. DALI version is available on request.

Accessories
See Accessories. Spigot for flush mounting against post arm bracket Ø 60 mm. Post-top bracket, single or double.

Designed by
ÅF Lighting and Tuxen Design.

Standard Colour
Alu-grey (RAL 9006, semi-gloss). Anthracite grey (Gris 900 Sablé), black (RAL 9005) or white (RAL 9010, semigloss) on request.

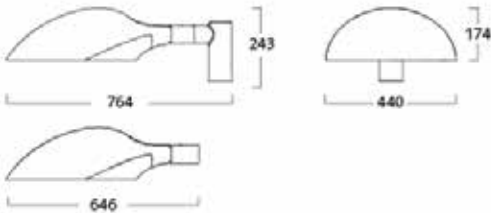
LED-information
LED-modul: 830 (3000 K, Ra 80) MacAdam 5 SDCM. Driver life-time: up to 100.000 h/10 % (max failure). DALI version is equipped with NTC, over-heat protection. Driver with integrated surge protection (6 kV). Extra surge protection (10 kV) available on request.

Miscellaneous
Projected wind area 0,07 m². Luminaire weight: 8.5 kg.

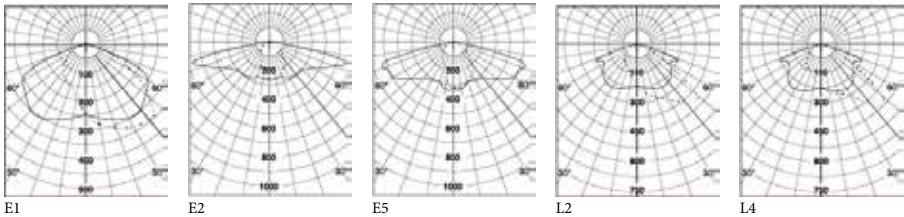
FAGERHULT

Average W	End W	No. of LEDs	Class	lm	lm/W	Useful life	Art.No.
Lens E2 LED - 7300, 8300 lm on request.							
27	28	4	I	2300	89	L ₁₀₀ B ₅₀ 100.000h	304103-480

Dimensions (mm)



Polar Curves



PARK POST TOP

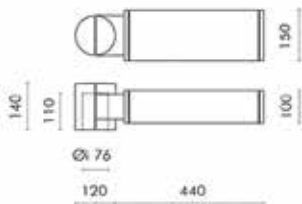


SIMES

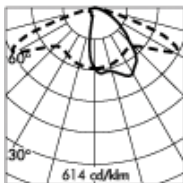
luce per l'architettura

Average W	End W	No. of LEDs	Class	lm	lm/W	Useful life	Art.No.
46	47.2	20	II	3866	86	L70B20 50.000h	S.7120

Dimensions (mm)



Polar Curve



Product Type
Bollard fitting. IP rating IP 65

Material Characteristics
Extruded EN AW-6060 aluminium profile, die-cast EN AB-44100 aluminium housing (copper free) with high corrosion resistance. Stone wash surface treatment prior to painting process. A4 grade Stainless Steel screws with 2,5-3% molybdenum content which increases the resistance against corrosion. Pre treated Silicone Gaskets. Painting Process : 3 Step Process
1) Surface treatment with BONDERITE. A heavy metal free chemical surface treatment containing ceramic nano particles giving a cohesive, inorganic and highly dense protective coating.
2) PRE POLYMERIZATION a process of introducing an epoxy primer with excellent characteristics to the paint which also offers very high resistance to oxidation due to its Zinc content.
3) POLYMERIZATION a process with the application of polyester powder with high resistance against UV rays and harsh weather conditions. Resistance test protection for Marine applications for 1500h. Mechanical resistance of diffuser IK 09

Lighting Performance
The circuit is characterized by a series of LEDs specifically oriented to assure excellent light distribution on the street. PARK supplied with electronic circuit with temperature sensors for each LED to optimize the lifetime. The light distribution is in accordance with light pollution regulations. Lamp fixed position . LOR --

Pole Connection
Pole head in painted aluminium with Ø 76 mm connection.
ON REQUEST ADAPTOR for cylindrical poles with welded spigot Ø 60 mm.

Wiring
PROTECTIONS AGAINST DISCHARGES AND HIGH VOLTAGE SPIKES, Controlgear equipped with protections against discharges and high voltage spikes on the mains: 3,5kV differential mode (L-N), 4,0kV common mode (PE).Luminaire hard wired with H07RN-F cable. Single cable entry with PG13,5 (Ø 6÷12 mm) cable gland in PMMA. Fast connector IP67 (Ø 6÷12 mm) supplied as standard for single cable connection . Isolation: CLASS II . Available colours: Aluminium grey (cod.14). Weight: 6.8 Kg Glow Wire test: -- Exposed windage area : 0,09 m² Lamp included.

Park Registered Design
This luminaire contains built-in LED modules with energy class: A, A+, A++. The LED modules cannot be changed in the luminaire (Regulation UE 874/2012).

LED circuit boards are engineered accordingly to actual Lumen Maintenance regulation (LM80) and Technical Memorandum (TM21) where uniformity and quality of light is 50.000 hours referred to L70 B20 Ta 25°C. Lifecycle refers to LED circuit boards only, all others components of the luminaire are excluded.

BEST PRACTICE

This application epitomises what exterior lighting was made for. Pedestrians and cyclists rely heavily on pathway lighting as it is often the only source of light in these areas. In these circumstances the designer needs to be particularly mindful of the user and how safe they will feel in the space. Whilst also considering life-time maintenance factors.

AS/NZS1158.3.1:2005 is the key document when designing these areas. The lighting standard draws upon studies and experience which demonstrate the link between lighting design and community benefits. These provide fiscal returns (i.e. from the reduction in crime and increased use of space) which can be offset against the provision of lighting. Vertical illuminance helps to give better visual appreciation to the user of these areas, and facial recognition is a priority. If people are able to see another person's face, features and the colour of their clothing, it helps to provide a sense of safety. In addition vertical illuminance assists to provide quality imagery for CCTV. White light is preferable for both facial recognition and CCTV. Not all lighting levels as described in AS/NZS1158.3.1:2005 require vertical illuminance.



KEY LIGHTING REQUIREMENTS

As per AS/NZS1158.3.1:2005, determine your criteria and select your lighting category.

Your Layout – Choosing your positions

Would you like a single sided pole arrangement, opposite or staggered?

**Lighting Control / Dimming**

Don't over complicate it. The lighting level you need at 5pm compared to 2am may be totally different as the usage levels drop. Consider lowering lighting levels to suit the pedestrian and cycle traffic flow at different times. This not only provides all important energy savings, but will also ensure that the scheme is not over-lit.

**Spill Light – Glare**

Now let's not blind anyone with unnecessary light spill... Lighting should be concentrated onto the main car parking area, with careful consideration given to adjacent buildings. Further guidance is provided in the following guidelines.

AS/NZS1158.3.1:2005 – Section 2.5.3.4 Light Spilling into Abutting properties

Refer: AS/NZS1158.2:2005 – Section 3.3.9 Obtrusive Light

Refer: AS4282:1997

**Ra**

To ensure good CCTV footage your light source should have a minimum colour rendering of 70. Be mindful of current research in choosing your temperature of 3000/4000K. This is most definitely a separate topic of discussion as the health benefits and light pollution attributes of blue rich lighting is well documented to date.

**Maintenance**

The designer needs to consider the following aspects in the maintenance strategy:

- Can the system be maintained safely?
- Who maintains the system?
- How is the system maintained?
- When is the system maintained?
- How frequently is maintenance required?
- How much does maintenance cost?
- How does the design age between regular maintenance periods?



PATHWAY SOLUTIONS

Vialume 1



The Vialume 1 post top luminaire is characterised by a soft, organic shape with simple lines, which link it to Fagerhult's Nordic design tradition. The timeless, stylish design enhances the area during the daytime and provides brilliant lighting in the dark of night..

Technical Specifications

Total Luminaire Efficacy	Max 124lm/W
MacAdam 5 SDCM Initial	
CRI	>70 or 80
Lifetime	L100B50 100,000hrs
System Guarantee	5 years

Vialume 75



The smaller post luminaire, Vialume 75, has been developed with outstanding light properties for smaller streets, footpaths and cycle paths. As the name implies, the luminaire is 75 per cent the size of its larger sibling Vialume 1.

Technical Specifications

Total Luminaire Efficacy	Max 123lm/W
MacAdam 5 SDCM Initial	
CRI	>70 or 80
Lifetime	L100B50 100,000hrs
System Guarantee	5 years

Evolume 1



Evolume 1 combines excellent lighting properties and visual comfort with a modern cost-effective design. Thanks to its flat appearance, the post top luminaire blends well into numerous different environments.

Technical Specifications

Total Luminaire Efficacy	Max 117lm/W
MacAdam 5 SDCM Initial	
CRI	>70
Lifetime	L100B50 100,000hrs
System Guarantee	5 years

PATHWAY SOLUTIONS

Park



Park is an urban light fitting with high energy performances for more architectural and landscape context: parking lots, pedestrian and cycling paths as well as green areas.

Technical Specifications

Total Luminaire Efficacy	Max 79lm/W
MacAdam 5 SDCM Initial	
CRI	>70
Lifetime	L70B20 50,000hrs
System Guarantee	5 years

Poster



Poster, the perfect solution to light up your landscape in a stylish and elegant way. The sophisticated die cast aluminium structure with low copper content, contrasts effectively the oxidation process and makes Poster a lighting system that is not only minimal and dynamic, but also perfectly functional and resistant

Technical Specifications

Total Luminaire Efficacy	Max 59lm/W
MacAdam 5 SDCM Initial	
CRI	>80
Lifetime	L70B20 50,000hrs
System Guarantee	5 years

Mini Poster



Poster, the perfect solution to light up your landscape in a stylish and elegant way. The sophisticated die cast aluminium structure with low copper content, contrasts effectively the oxidation process and makes Poster a lighting system that is not only minimal and dynamic, but also perfectly functional and resistant

Technical Specifications

Total Luminaire Efficacy	Max 57lm/W
MacAdam 5 SDCM Initial	
CRI	>80
Lifetime	L70B20 50,000hrs
System Guarantee	5 years

Azur



Azur is a luminaire family with a consistent, contemporary design. Bollard, post, ceiling and wall variations are all based on a vertical light for optimal lighting comfort. This indirect light combined with opal surfaces provides soft, pleasant contrasts and a dynamic light setting in outdoor spaces.

Technical Specifications

Total Luminaire Efficacy	Max 58lm/W
MacAdam 5 SDCM Initial	
CRI	>70 or 80
Lifetime	L100B50 100,000hrs
System Guarantee	5 years

Conledo G2



The second generation of the Conledo post top luminaire has been equipped with our unique AGC lenses offering a great choice of optics for optimised lighting in parks and residential areas, as well as on streets and minor roads.

Technical Specifications

Total Luminaire Efficacy	Max 122lm/W
MacAdam 5 SDCM Initial	
CRI	>70 or 80
Lifetime	L100B50 100,000hrs
System Guarantee	5 years

Vialume 2



The Vialume post top luminaire is characterised by a soft, organic shape with simple lines, which link it to Nordic design tradition. The timeless, stylish design enhances the area during the daytime and provides brilliant lighting in the dark of night. Vialume is, quite simply, a luminaire which is equally well-suited to classic surroundings as it is to city environments.

Technical Specifications

Total Luminaire Efficacy	Max 117lm/W
MacAdam 5 SDCM Initial	
CRI	>70 or 80
Lifetime	L100B50 100,000hrs
System Guarantee	5 years

Lunova



Combining exceptional visual comfort and a classic design with cost-effectiveness, Lunova is the perfect choice when it comes to omnidirectional post luminaires for park and close to the building environments.

Technical Specifications

Total Luminaire Efficacy	Max 77lm/W
MacAdam 5 SDCM Initial	
CRI	>70 or 80
Lifetime	L100B50 100,000hrs
System Guarantee	5 years

Outline Flood



A basic and sophisticated design created for a lighting system that shapes the space with a distinctive, clean and tasteful style. Whether as pole, wall or floor mounted, Outline enhances the expressivity of pure aluminium through minimal and simple lines that illuminate space and reveal its true potential.

Technical Specifications

Total Luminaire Efficacy	Max 96lm/W
MacAdam 3 SDCM Initial	
CRI	>90
Lifetime	L70B20 50,000hrs
System Guarantee	5 years

VIALUME



OPTIMISED OPTICS FOR A VARIETY OF PROJECTS

During the development of Fagerhults AGC (Advanced Glare Control) lenses, the aim was to produce optics with perfect light distribution suitable for most wall geometries while also minimising glare to increase visual comfort.

Choose from a variety of lenses that are developed in line with the latest lighting standard, as well as providing a high level of visual comfort. The E-lenses are designed to focus on illuminance. L-lenses are ideal if the luminance from the ground is the main priority.

Taking inspiration from the beautiful Nordic light, we created Vialume 1 – Fagerhult's first self-manufactured post top luminaire for city streets, pathways and parking lots. After being very well received, the family is now being expanded with several variations on the Nordic classic.

The Vialume post top luminaire is characterised by a soft, organic shape with simple lines, which link it to the Nordic design tradition. The timeless, stylish design enhances the area during the daytime and provides brilliant lighting in the dark of night. Vialume is quite simply, a luminaire which is equally well-suited to classic surroundings as it is to the modern city environment. With three luminaire sizes in the same design, Fagerhult can now offer complete, energy-efficient lighting solutions for any city environment – from footpaths to motorways.

The smaller post top luminaire, Vialume 75 has been developed with outstanding light properties for smaller streets, footpaths and bicycle paths. As the name suggests, the luminaire is 75% the size of its bigger sibling Vialume 1. In contrast, Vialume 2 is a bigger, more powerful version with high luminous flux and advanced optics developed for illuminating wider main streets, motorways and large car parks.

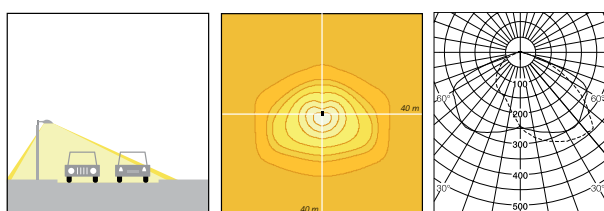


OPTIMISED OPTICS FOR A VARIETY OF PROJECTS

During the development of our own AGC (Advanced Glare Control) lenses, the aim was to produce optics with perfect light distribution suitable for most wall geometries while also minimising glare to increase the visual comfort.

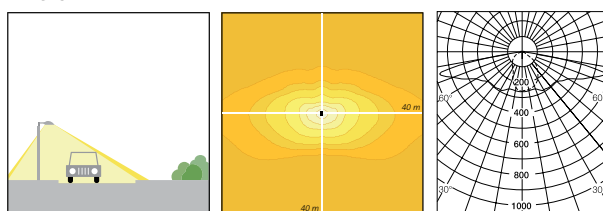
Choose from a variety of lenses that are developed in line with the latest lighting standard – as well as providing a high level of visual comfort. The E-lens are designed to focus on illuminance. L-lenses are ideal if the luminance from the ground is the main priority.

E1 lens



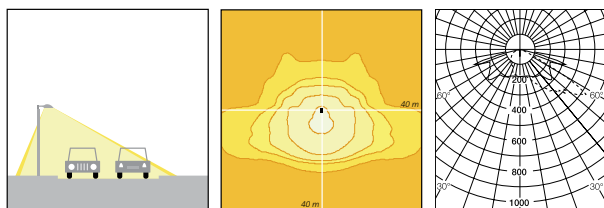
Potential application areas: streets and car parks.
Luminous intensity class G6.

E2 lens



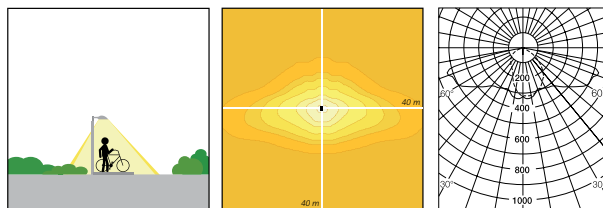
Potential application areas: streets, car parks, footpaths and cycle paths.

E3 lens



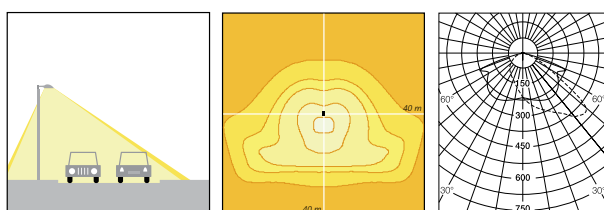
Potential application areas: streets, car parks, footpaths and cycle paths.

E5 lens



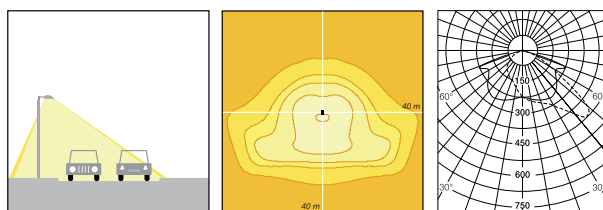
Potential application areas: footpaths, cycle paths and illuminated jogging trails.

L2 lens



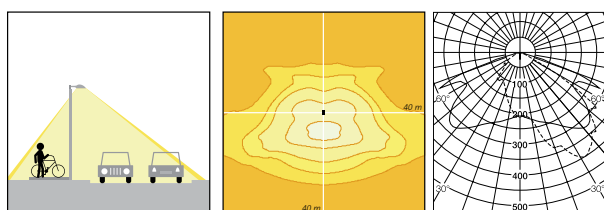
Luminance optics optimised for wet roads.
Luminous intensity class G6.

L4 lens



Luminance optics optimised for wet roads.
Luminous intensity class G6.

L7 lens



Luminance optics optimised for wet roads.

Vialume 1 830 CLO



LED IP66 IK09

Installation

Post top luminaire which in its standard design can be mounted on a Ø 48 mm post arm bracket. Accessories for other mounting options are ordered separately, see Accessories. Variable tilting function $\pm 15^\circ$ for perfect installation. Post height 5–8 m.

Connection

Connection cable 3x1.5 mm² type H07RN-F. 4-LED version is delivered with 6 m cable. 7- and 9-LED versions are delivered with 8 m cable. DALI version available on request, delivered with a 5-pin cable. Other cable versions on request.

Design

Body and post bracket in cast aluminium. Aluminium-zinc coated stainless screws. Driver is integrated in the luminaire. Hardened flat glass IK09. PMMA diffuser with IK10 on request.

Light distribution

Asymmetrical. Choose between the different lens options. The E-lens are designed to focus on illuminance. L lenses are ideal if the luminance from the ground is the main priority.

Optics

AGC-lenses (Advanced Glare Control) for both illuminance and luminance classifications.

Dimming

CLO (Constant Light Output) maintains the correct light from the luminaire for the duration of its service life. DALI version is available on request.

Accessories

See Accessories. Spigot for flush mounting against post arm bracket Ø 60 mm. Post-top bracket, single or double.

Designed by

ÅF Lighting and Tuxen Design.

Standard Colour

Alu-grey (RAL 9006, semi-gloss). Anthracite grey (Gris 900 Sablé), black (RAL 9005) or white (RAL 9010, semigloss) on request.

LED-information

LED-modul: 830 (3000 K, Ra 80) MacAdam 5 SDCM. Driver life-time: up to 100.000 h/10 % (max failure). DALI version is equipped with NTC, over-heat protection. Driver with integrated surge protection (6 kV). Extra surge protection (10 kV) available on request.

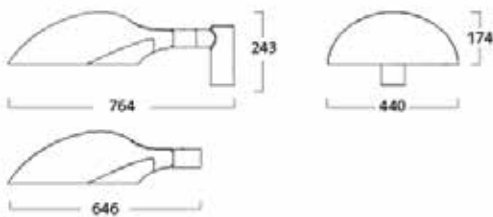
Miscellaneous

Projected wind area 0,07 m². Luminaire weight: 8.5 kg.

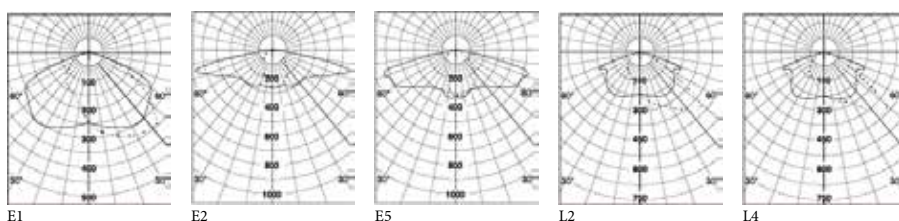
FAGERHULT

Average W	End W	No. of LEDs	Class	lm	lm/W	Useful life	Art.No.
Lens E2 LED - 7300, 8300 lm on request.							
27	28	4	I	2300	89	L ₁₀₀ B ₅₀ 100.000h	304103-480

Dimensions (mm)



Polar Curves



SPACING CHART VIALUME 1

P Category PATHWAY Lighting Spacing Chart AS/NZS 1158.3.1:2005



Luminaire Description

Vialume 1 830 E2 27W 2300 lms

Stores Code	304103-480
Initial Lamp/LED Fixture Flux	2300 lms
Light Source	LED - Light Emitting Diode
Maintenance Factor	0.8

Lighting Category

P2 (Pathways - Tables 2.2 & 2.6)

Upcast Angle	0 degrees
Arrangement	Single Side
Offset Distance	-.5 m [ie. away from Path edge]
Upward Waste Light Ratio	.0 %

Spacings

		Maximum Spacing for Different Path Widths							
		1	1.5	2	2.5	3	3.5	4	4.5
Mounting Height	4	18.0	18.0	18.0	18.0	18.0	18.0	17.8	17.0
	4.5	20.6	20.6	20.6	20.5	20.5	20.5	20.5	19.8
	5	22.9	22.9	22.9	22.8	22.8	22.8	22.7	22.4
	5.5	25.0	25.0	25.0	24.9	24.9	24.8	24.7	24.6
	6	26.9	26.9	26.9	26.8	26.8	26.7	26.6	26.4

Values of light technical parameters and permissible luminaire types for roads in local areas and for pathways

Lighting subcategory	Light technical parameters			
	Average horizontal illuminance (\bar{E}_h) lux	Point horizontal illuminance (E_{ph}) lux	Illuminance (horizontal) uniformity Cat. P (UE2)	Point vertical illuminance (E_{pv}) lux
P2	3.50 lx	0.70 lx	10	0.70 lx

Value/s in above table are all in metres. The table contains maximum spacings which, for the specified luminaire and lamp combination, provide compliance with the light technical parameters (LTPs) of Table 2.6 of AS/NZS 1158.3.1:2005. Perfect Lite V3.10

VIALUME 75 830 CLO



LED IP66 IK10

Installation
Post top luminaire which in its standard design can be mounted on a Ø 60 mm post top. Accessories for other mounting options are ordered separately, see Accessories. Variable tilting function +10°, -15° for perfect installation. Post height 3–5 m.

Connection
Connection cable 3x1.5 mm² type H05RN-F. Delivered with 5 m cable. DALI version available on request, delivered with a 5-pin cable. Other cable versions on request.

Design
Body and post bracket in cast aluminium. Aluminium-zinc coated stainless screws. Driver is integrated in the luminaire. Hardened flat glass.

Light distribution
Asymmetrical. Choose between the different lens options. The E-lens are designed to focus on illuminance. L lenses are ideal if the luminance from the ground is the main priority.

Optics
AGC-lenses (Advanced Glare Control) for both illuminance and luminance classifications.

Dimming
CLO (Constant Light Output) maintains the correct light from the luminaire for the duration of its service life. DALI version is available on request.

Accessories
Spigot for post arm bracket Ø 48 mm.

Designed by
ÅF Lighting and Tuxen Design.

Standard Colour
Alu-grey (RAL 9006, semi-gloss). Anthracite grey (Gris 900 Sablé), black (RAL 9005) or white (RAL 9010, semi-gloss) on request.

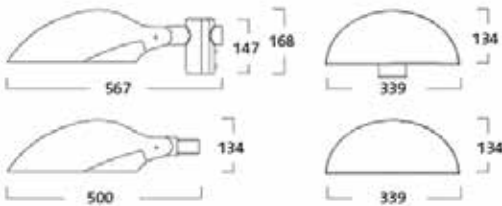
LED-information
LED-module: 830 (3000 K, Ra 80) MacAdam 5 SDCM. Driver life-time: up to 100.000 h/10 % (max failure). DALI version is equipped with NTC, over-heat protection. Driver with integrated surge protection (DM: 6 kV. CM: 8 kV). Extra surge protection (DM and CM: 10 kV) available on request.

Miscellaneous
Projected wind area: from the side 0,04 m², from below 0,10 m². Max luminaire weight: 6 kg.

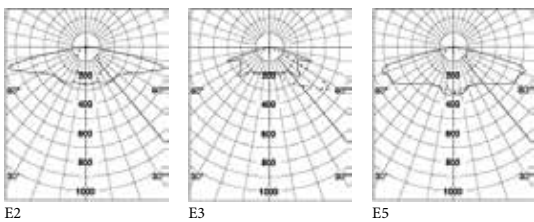
FAGERHULT

Average W	End W	No. of LEDs	Class	lm	lm/W	Useful life	Art.No.
LED							
25	26	4	I	2300	96	L ₁₀₀ B ₅₀ 100.000h	304020-480

Dimensions (mm)



Polar Curves



SPACING CHART VIALUME 75

P Category PATHWAY Lighting Spacing Chart AS/NZS 1158.3.1:2005



Luminaire Description

Vialume75 E2 830 25W 2298 lms

Stores Code	304020-480
Initial Lamp/LED Fixture Flux	2298 lms
Light Source	LED - Light Emitting Diode
Maintenance Factor	0.8

Lighting Category

P4 (Pathways - Tables 2.2 & 2.6)

Upcast Angle	0 degrees
Arrangement	Single Side
Offset Distance	-.5 m [ie. away from Path edge]
Upward Waste Light Ratio	.0 %

Spacings

		Maximum Spacing for Different Path Widths				
Mounting Height		1	1.5	2	2.5	3
	4	48.5	48.5	48.5	48.5	48.5
	4.5	52.6	52.6	52.7	52.6	52.6
	5	56.9	56.9	56.9	56.9	56.9
	5.5	60.9	61.0	61.0	61.0	61.0
	6	65.0	65.0	65.1	65.0	65.0

Values of light technical parameters and permissible luminaire types for roads in local areas and for pathways

Lighting subcategory	Light technical parameters			
	Average horizontal illuminance (\bar{E}_h) lux	Point horizontal illuminance (E_{ph}) lux	Illuminance (horizontal) uniformity Cat. P (UE2)	Point vertical illuminance (E_{pv}) lux
P4	0.85 lx	0.14 lx	10	N/A

Value/s in above table are all in metres. The table contains maximum spacings which, for the specified luminaire and lamp combination, provide compliance with the light technical parameters (LTPs) of Table 2.6 of AS/NZS 1158.3.1:2005. Perfect Lite V3.10

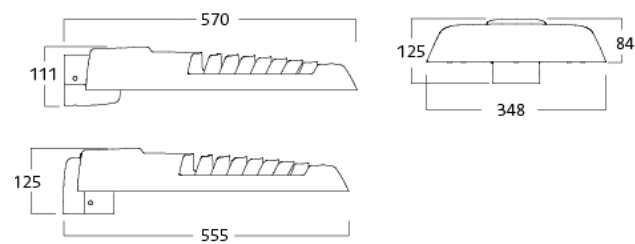
Evolume 1 730 CLO



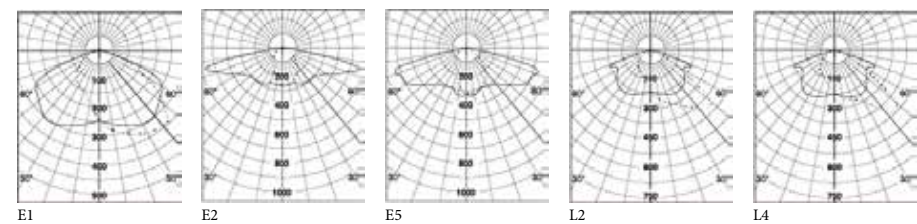
FAGERHULT

Average W	End W	No. of LEDs	Class	lm	lm/W	Useful life	Art.No.
Lens E2 LED							
39	40	4	I	3300	88	L ₁₀₀ B ₅₀ 100.000h	303360-480

Dimensions (mm)



Polar Curves



LED IP66 IK08

Installation

Post top luminaire which in its standard design can be mounted on a Ø 48-60 mm post top or post arm bracket. Accessories for other mounting options are ordered separately, see Accessories. Tilting function ± 15°. Post height 3–8 m.

Connection

Connection cable 3x1.5 mm² type H07RN-F. 4- and 6-LED version is delivered with 6 m cable. 8-LED version is delivered with 8 m cable. 10- and 12-LED versions are delivered with 10 m cable. DALI version available on request, delivered with a 5-pin cable. Other cable versions on request.

Design

Body and post bracket in cast aluminium. Aluminium-zinc coated screws. Ballast is built into the luminaire. Flanges for optimum cooling. Screen printed safety glass.

Light distribution

Asymmetrical. Choose between the different lens options. The E-lens are designed to focus on illuminance. L lenses are ideal if the luminance from the ground is the main priority.

Optics

AGC-lenses (Advanced Glare Control) for both illuminance and luminance classifications.

Dimming

CLO (Constant Light Output) maintains the correct light from the luminaire for the duration of its service life. DALI version is available on request.

Accessories

Spigot for post arm, post-top bracket, single or double.

Standard Colour

Alu-grey (RAL 9006, semi-gloss).

LED-information

LED-module: 730 (3000 K, Ra 70) MacAdam 5 SDCM. Driver life-time: up to 100.000 h/10 % (max failure). DALI version is equipped with NTC, over-heat protection. Driver with integrated surge protection (DM: 6 kV. CM: 8 kV). Extra surge protection (DM and CM: 10 kV) available on request.

Miscellaneous

Projected wind area: from the side 0,035 m², from below 0,158 m². Luminaire weight: 7 kg.

PARK POST TOP



SIMES

luce per l'architettura

Average W	End W	No. of LEDs	Class	lm	lm/W	Useful life	Art.No.
46	47.2	20	II	3866	86	L70B20 50.000h	S.7120



Product Type

Bollard fitting. IP rating IP 65

Material Characteristics

Extruded EN AW-6060 aluminium profile, die-cast EN AB-44100 aluminium housing (copper free) with high corrosion resistance. Stone wash surface treatment prior to painting process. A4 grade Stainless Steel screws with 2,5-3% molybdenum content which increases the resistance against corrosion. Pre treated Silicone Gaskets.

Painting Process : 3 Step Process

1) Surface treatment with BONDERITE. A heavy metal free chemical surface treatment containing ceramic nano particles giving a cohesive, inorganic and highly dense protective coating.

2) PRE POLYMERIZATION a process of introducing an epoxy primer with excellent characteristics to the paint which also offers very high resistance to oxidation due to its Zinc content.

3) POLYMERIZATION a process with the application of polyester powder with high resistance against UV rays and harsh weather conditions. Resistance test protection for Marine applications for 1500h. Mechanical resistance of diffuser IK 09

Lighting Performance

The circuit is characterized by a series of LEDs specifically oriented to assure excellent light distribution on the street. PARK supplied with electronic circuit with temperature sensors for each LED to optimize the lifetime. The light distribution is in accordance with light pollution regulations. Lamp fixed position.

Pole Connection

Pole head in painted aluminium with Ø 76 mm connection.

ON REQUEST ADAPTOR for cylindrical poles with welded spigot Ø 60 mm.

Wiring

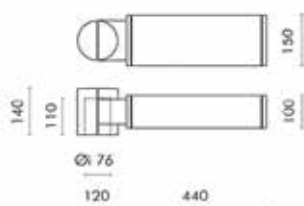
PROTECTIONS AGAINST DISCHARGES AND HIGH VOLTAGE SPIKES, Controlgear equipped with protections against discharges and high voltage spikes on the mains: 3,5kV differential mode (L-N), 4,0kV common mode (PE). Luminaire hard wired with H07RN-F cable. Single cable entry with PG13,5 (Ø 6÷12 mm) cable gland in PMMA. Fast connector IP67 (Ø 6÷12 mm) supplied as standard for single cable connection. Isolation: CLASS II. Available colours: Aluminium grey (cod.14). Weight: 6.8 Kg Exposed windage area : 0,09 m²

Park Registered Design

This luminaire contains built-in LED modules with energy class: A, A+, A++. The LED modules cannot be changed in the luminaire (Regulation UE 874/2012).

LED circuit boards are engineered accordingly to actual Lumen Maintenance regulation (LM80) and Technical Memorandum (TM21) where uniformity and quality of light is 50.000 hours referred to L70 B20 Ta 25°C. Lifecycle refers to LED circuit boards only, all others components of the luminaire are excluded.

Dimensions (mm)



Polar Curve



POSTER



Product Type
Post top luminaire. IP rating IP 65

Material Characteristics
Aluminium die cast housing in EN AB-47100 (low copper content) and extruded EN AWW-6060 with high resistance against corrosion. Stone wash surface treatment prior to painting process. A4 grade Stainless Steel screws with 2,5-3% molybdenum content which increases the resistance against corrosion. Silicone gaskets. Painting Process : 3 Step Process
1) Surface treatment with BONDERITE. A heavy metal free chemical surface treatment containing ceramic nano particles giving a cohesive, inorganic and highly dense protective coating.
2) PRE POLYMERIZATION a process of introducing an epoxy primer with excellent characteristics to the paint which also offers very high resistance to oxidation due to its Zinc content.
3) POLYMERIZATION a process with the application of polyester powder with high resistance against UV rays and harsh weather conditions. Resistance test protection for Marine applications for 1500h. Mechanical resistance of diffuser IK 08

Lighting Performance
Toughened glass 6 mm thick.

Pole Connection
Pole head in painted aluminium with Ø 76 mm connection.

Wiring
Luminaire suitable for single cable gland. Isolation: CLASS II . Available colours: Aluminium grey (cod.14), Anthracite grey (cod.24). Exposed windage area : 0,14 m²

Park Registered Design
This luminaire contains built-in LED modules with energy class: A, A+, A++. The LED modules cannot be changed in the luminaire (Regulation UE 874/2012).

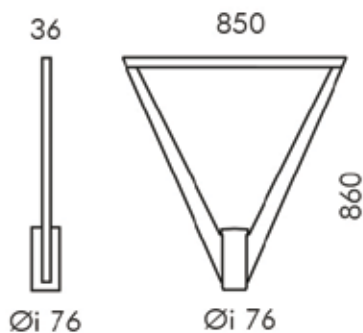
LED circuit boards are engineered accordingly to actual Lumen Maintenance regulation (LM80) and Technical Memorandum (TM21) where uniformity and quality of light is 50.000 hours referred to L70 B20 Ta 25°C. Lifecycle refers to LED circuit boards only, all others components of the luminaire are excluded.

SIMES

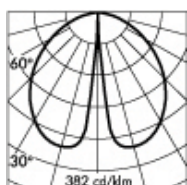
luce per l'architettura

Average W	End W	No. of LEDs	Class	lm	lm/W	Useful life	Art.No.
63	64.4	N/A	II	3726	59	L70B20 50.000h	S.7050

Dimensions (mm)



Polar Curve



MINI POSTER

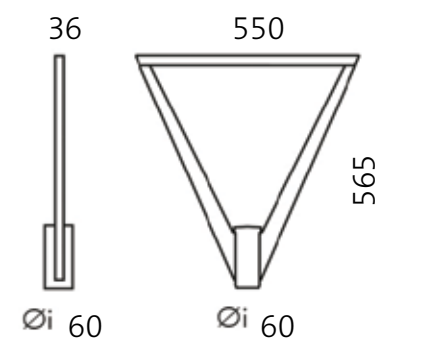


SIMES

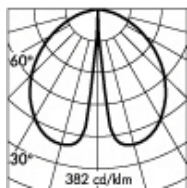
luce per l'architettura

Average W	End W	No. of LEDs	Class	lm	lm/W	Useful life	Art.No.
30	32.4	N/A	II	3360	57	L70B20 50.000h	S.7045

Dimensions (mm)



Polar Curve



Product Type
Post top luminaire. IP rating IP 65

Material Characteristics
Aluminium die cast housing in EN AB-47100 (low copper content) and extruded EN AW-6060 with high resistance against corrosion. Stone wash surface treatment prior to painting process. A4 grade Stainless Steel screws with 2,5-3% molybdenum content which increases the resistance against corrosion. Silicone gaskets. Painting Process : 3 Step Process
1) Surface treatment with BONDERITE. A heavy metal free chemical surface treatment containing ceramic nano particles giving a cohesive, inorganic and highly dense protective coating.
2) PRE POLYMERIZATION a process of introducing an epoxy primer with excellent characteristics to the paint which also offers very high resistance to oxidation due to its Zinc content.
3) POLYMERIZATION a process with the application of polyester powder with high resistance against UV rays and harsh weather conditions. Resistance test protection for Marine applications for 1500h. Mechanical resistance of diffuser IK 08

Lighting Performance
Toughened glass 6 mm thick.

Pole Connection
Pole head in painted aluminium with Ø 76 mm connection.

Wiring
Luminaire suitable for single cable gland. Isolation: CLASS II . Available colours: Aluminium grey (cod.14), Anthracite grey (cod.24). Exposed windage area : 0,14 m²

Park Registered Design
This luminaire contains built-in LED modules with energy class: A, A+, A++. The LED modules cannot be changed in the luminaire (Regulation UE 874/2012).

LED circuit boards are engineered accordingly to actual Lumen Maintenance regulation (LM80) and Technical Memorandum (TM21) where uniformity and quality of light is 50.000 hours referred to L70 B20 Ta 25°C.
Lifecycle refers to LED circuit boards only, all others components of the luminaire are excluded.

AZUR POST LED



Installation
Luminaire for assembly on a post, with post top Ø 60 mm or Ø 76 mm.

Connection
Supplied with 5 m cable, 2x1.5 mm².

Design
Body of cast aluminium and stainless steel details. Shade of UVstabilised, clear polycarbonate. Relamping from the top. Driver in the luminaire and fuse insert integrated in the post.

Louvre
Acrylic louvre.

Optics
AGC-lenses (Advanced Glare Control) for both illuminance and luminance classifications.

Reflector
Reflector of anodised aluminium.

Accessories
See Accessories and Posts at Fagerhult.com.

Designed by
Tommy Govén.

Standard Colour
Anthracite grey (Gris 900 Sablé). Other colours are ordered with additional suffix code: Alu-grey (RAL 9006) -236.

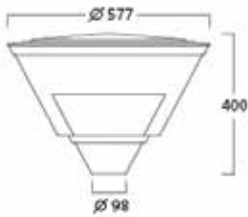
LED-information
Driver life-time: up to 80.000 h/10 % (max failure).

Miscellaneous
Projected wind area 0.14 m².

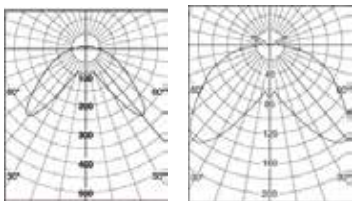
FAGERHULT

Average W	Weight KG	Length mm	Colour	lm	lm/W	Useful life	Art.No.
LED							
31	10.5	577	Anthracite grey	1700	55	L90B50 50.000h	300132

Dimensions (mm)



Polar Curves



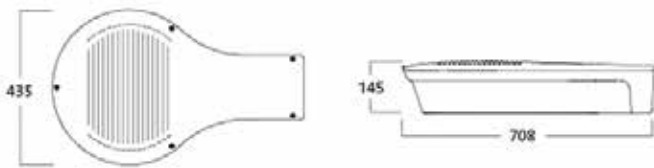
CONLEDO G2 830 CLO



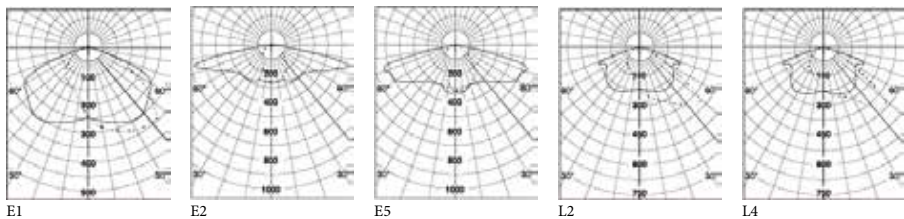
FAGERHULT

Average W	End W	Weight KG	CCT (K)	Class	lm	lm/W	Useful life	Art.No.
LED								
45	46	12.7	3000	I	4300	96	L ₁₀₀ B ₅₀ 100.000h	303045-480

Dimensions (mm)



Polar Curves



IK09 LED IP65

Installation
Luminaire for assembly on a post, with post top Ø 60/76 mm or post arm Ø 60 mm. Post height 4-8 m.

Connection
Connection cable 3x1.5 mm² type H07RN-F. Delivered with 8 m cable. Class II available on request.

Design
Frame of cast aluminium. Aluminium-zinc coated screws. Impact-stabilised acrylic diffuser. Driver is integrated in the luminaire.

Light distribution
Asymmetrical. Choose between the different lens options. The E-lens are designed to focus on illuminance. L lenses are ideal if the luminance from the ground is the main priority.

Optics
AGC lenses (Advance Glare Control). 7 lenses.

Dimming
CLO (Constant Light Output) maintains the correct light from the luminaire for the duration of its service life. For more information, see Light control. DALI version is available on request.

Standard Colour
Anthracite grey (Gris 900 Sablé). Alu-grey (RAL 9006, semi-gloss), black (RAL 9005) or white (RAL 9010, semi-gloss) on request.

LED-information
830=3000 K, Ra 80. MacAdam 5 SDCM. Driver life-time: up to 100.000 h/10 % (max failure).

Miscellaneous
Projected wind area 0,09 m². Equipped with an integrated surge protection (6 kV). NTC, over-heat protection available on request.

VIALUME 2 730 CLO, L7



LED IP66 IK08

Installation
Post top luminaire which in its standard design can be mounted on a Ø 60 mm post arm bracket. Accessories for other mounting options are ordered separately. Variable tilting function ± 10° for perfect installation. Post height 8-15 m.

Connection
Halogen free connection cable 3x1.5 mm² type FQQ. Delivered with 16m cable. DALI version available on request, delivered with a 5-pin cable. Other cable versions on request.

Design
Body and post bracket in cast aluminium. Aluminium-zinc coated stainless screws. Driver is integrated in the luminaire. Hardened flat glass.

Optics
AGC-lenses (Advanced Glare Control). The E-lens are designed to focus on illuminance. L lenses are ideal if the luminance from the ground is the main priority.

Dimming
CLO (Constant Light Output) maintains the correct light from the luminaire for the duration of its service life.

Designed by
ÅF Lighting and Tuxen Design.

Standard Colour
Alu-grey (RAL 9006, semi-gloss).

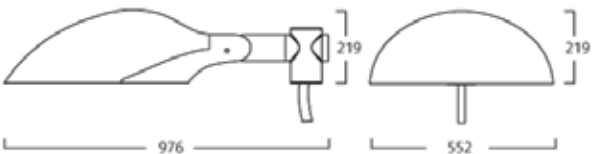
LED-information
DALI version is equipped with NTC, over-heat protection.

Miscellaneous
Weight, 20kg
Projected wind area, m2 0,122

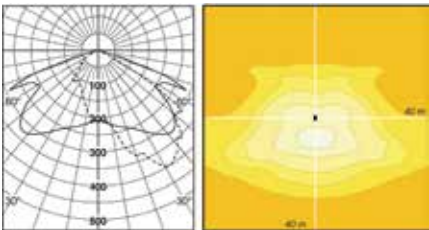
FAGERHULT

Average W	End W	No. of LEDs	Class	lm	lm/W	Useful life	Art.No.
157	165	21	I	18300	123	L ₁₀₀ B ₅₀ 100.000h	303821-489

Dimensions (mm)



Polar Curves





FAGERHULT

Average W	End W	Class	lm	lm/W	Useful life	Art.No.
LED						
54	56	I	3000	58	L ₁₀₀ B ₅₀ 100.000h	303634

IK10 LED IP66

Installation
Luminaire for assembly on a post, with post top Ø 60 mm or Ø 76 mm. Connection Supplied with 6 m 3x1,5 mm² connection cable (H07RN-F). DALI versions come with a 5-pin cable.

Design
Body and heat sink of cast aluminium. Aluminium-zinc coated stainless screws. Diffuser of impact and UV-resistant acrylic. Driver is integrated in the luminaire.

Reflector
White-enamelled omnidirectional reflector of anodised aluminium.

Dimming
Available with a number of different light regulation options. See Lighting control for more information.

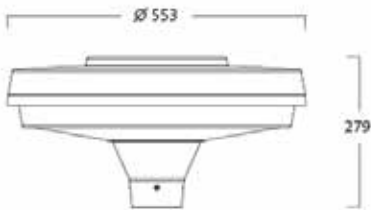
Designed by
Torbjörn Eliasson and Andreas Sture.

Standard Colour
Anthracite grey (Gris 900 Sablé). Alu-grey (RAL 9006, semi-gloss), black (RAL 9005) or white (RAL 9010, semi-gloss) on request.

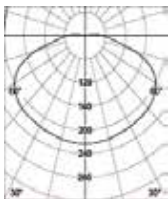
LED-information
LED-modules: 830 (3000 K, Ra 80) and 740 (4000 K, Ra 70). MacAdam 5 SDCM. Driver life-time: up to 100.000 h/10 % (max failure). DALI versions are equipped with NTC, over-heat protection. Driver with integrated surge protection (6 kV). Extra surge protection (10 kV) available on request.

Miscellaneous
Projected wind area 0.086m². Luminaire weight: 10 kg.

Dimensions (mm)



Polar Curves



OUTLINE FLOOD



Product Type

Projector. IP rating IP 65

Material Characteristics

Die-cast EN AB-47100 aluminium housing with high corrosion resistance. Extruded EN AW-6060 aluminium structure (arm version) with high corrosion resistance. Stone wash surface treatment prior to painting process. A4 grade Stainless Steel screws with 2,5-3% molybdenum content which increases the resistance against corrosion. Silicone gaskets. Painting Process : 3 Step Process
 1) Surface treatment with BONDERITE. A heavy metal free chemical surface treatment containing ceramic nano particles giving a cohesive, inorganic and highly dense protective coating.
 2) PRE POLYMERIZATION a process of introducing an epoxy primer with excellent characteristics to the paint which also offers very high resistance to oxidation due to its Zinc content.
 3) POLYMERIZATION a process with the application of polyester powder with high resistance against UV rays and harsh weather conditions. Resistance test protection for Marine applications for 1500h. Mechanical resistance of diffuser IK 08

Lighting Performance

HI-GRADE aluminium reflectors for OUTLINE FLOOD, Concentrating or diffusing lenses for OUTLINE SPOT. Clear toughened glass.

Installation and Maintenance

The tempered front glass diffuser is fixed externally to the fitting through silicon resin, perfectly flush with the front ring. Water and dirt deposits that can disturb the lighting performance of the projector can easily flow away. The pre-wired connecting wall plaque and its fast connector make the installation and maintenance process quick, easy and safe.

Wiring

Luminaire suitable for single cable gland. Isolation: CLASS I. Available colours: Aluminium grey (cod.14). Weight: 1.7 Kg

Outline Registered Design

This luminaire contains built-in LED modules with energy class: A, A+, A++. The LED modules cannot be changed in the luminaire (Regulation UE 874/2012).

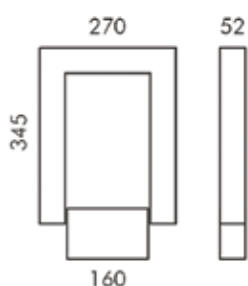
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SIMES

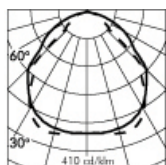
luce per l'architettura

Average W	End W	No. of LEDs	Class	lm	lm/W	Useful life	Art.No.
46	47.3	N/A	I	4420	96	L70B20 50.000h	S.3105

Dimensions (mm)



Polar Curves





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