

**we-ef**

# **AFL100 SERIES**

The new generation street and area lighting

**SEE THE STARS**



# ABOUT US

WE-EF is a global manufacturer of high-performance exterior luminaires renowned for outstanding engineering design and innovative optical systems. Established in 1950 in Germany, WE-EF is recognised worldwide as a leading exterior lighting specialist that provides professional lighting solutions for various applications, ranging from urban spaces to architectural projects.



WE-EF Headquarter, Bispingen (DE)

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# Challenge

Cities and communities all must adapt and do more with less, and yet still meet the need for safety and ambience, in designing exciting night-time environments.

**This means:**

- Less energy
- Less waste
- Improved light control
- Additional colour temperatures
- Greater sustainability

Constitution Avenue, Canberra (AU)



"Many cities have converted streetlights to LEDs, and some monitor and manage their light points using a smart lighting management system."





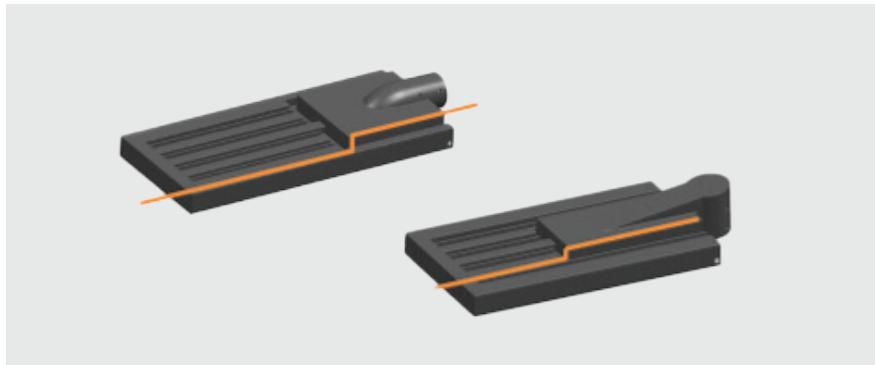
"Such initiatives have proven to reduce energy usage for street lighting by around 63 percent and saving the cities millions in annual operational and maintenance costs."

# Introduction AFL100

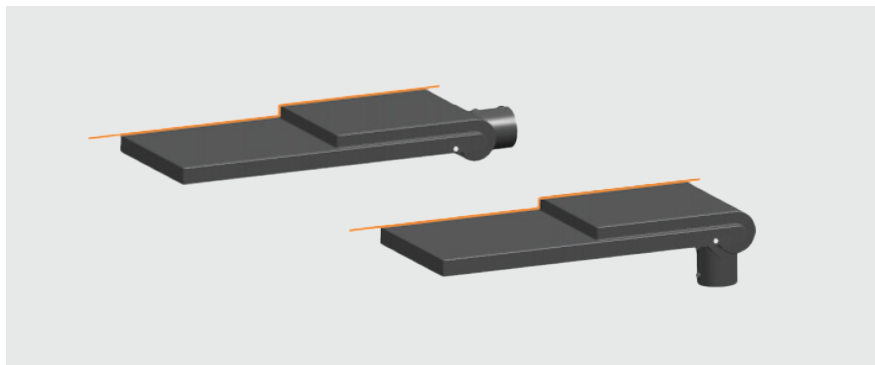
## State of the art engineering

- Evolution of the VFL500 series street and area lighting luminaire - optimised design and performance
- Broader lumen package relative to size - more lumens per watt (from streets to boulevards)
- Modular and flexible spigot to fit any installation (new or refurbishment)
- Right to repair - Zhaga compliant components and upgrade kits
- Key differentiators - Sustainability, serviceability and connectivity

## VFL500 Series



## AFL100 Series



Connection to predecessor due to recurrence of lines and shapes.

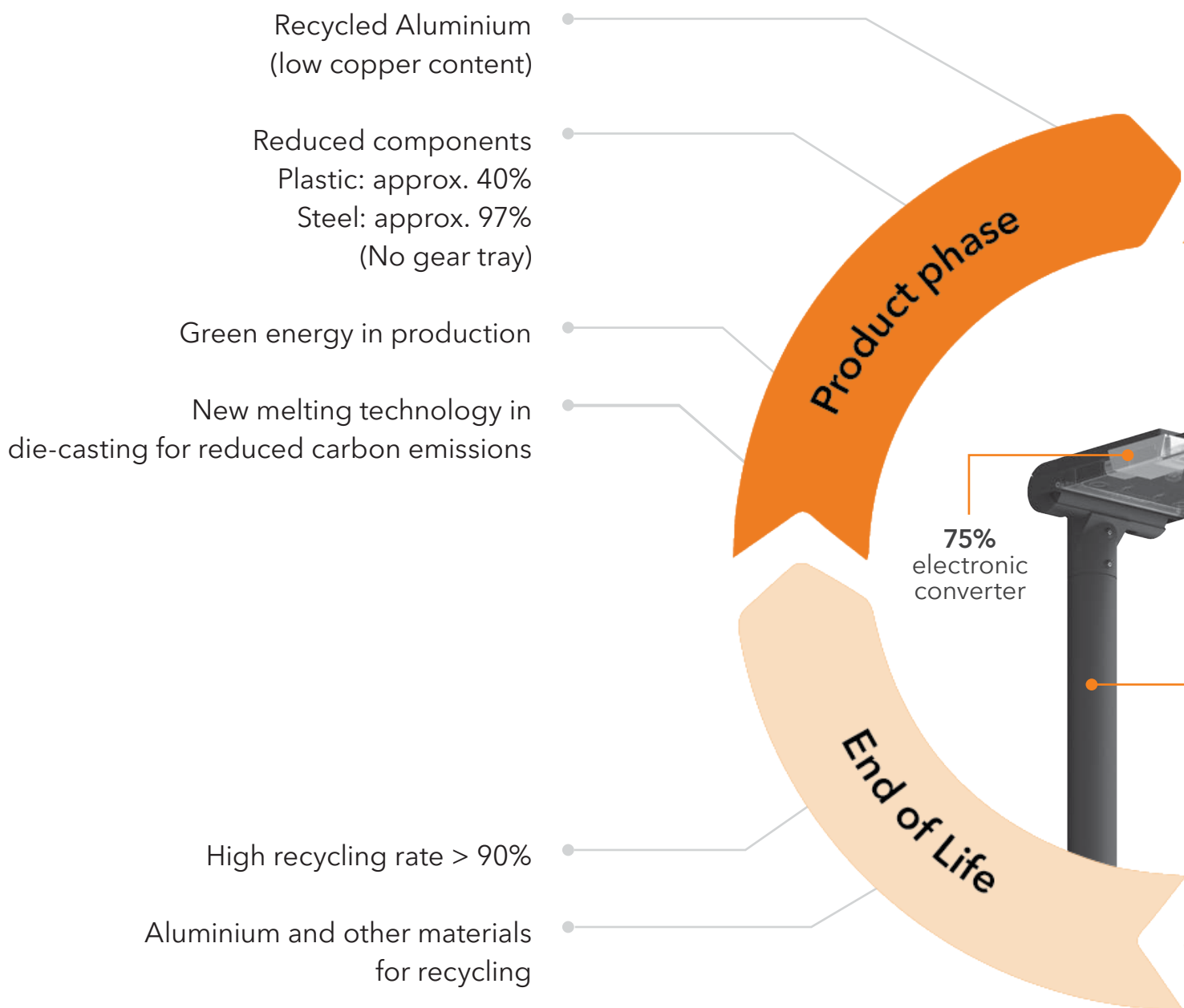


# PROTECT THE BEAUTY OF OUR SKIES

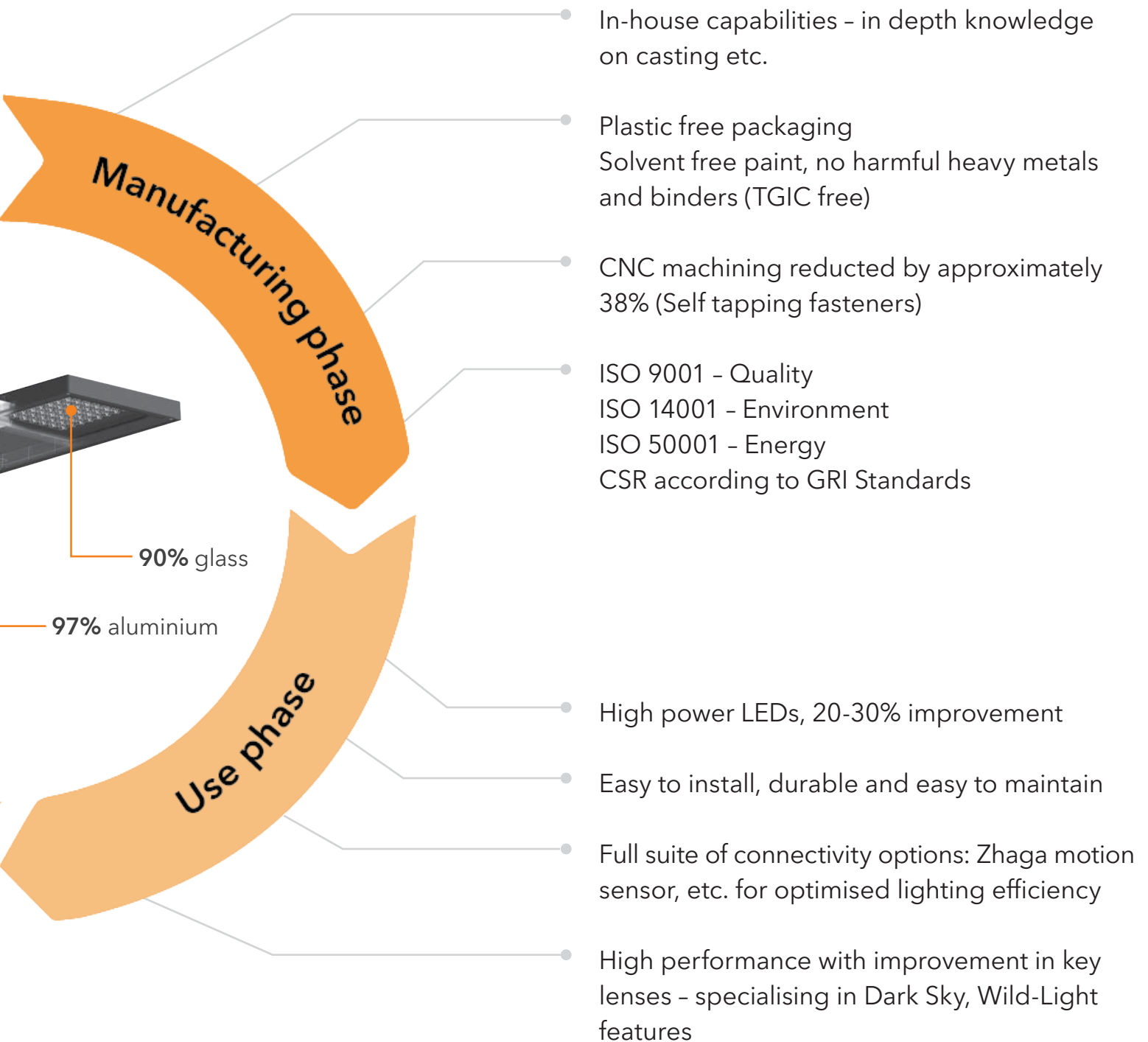


# Sustainable Engineering

The entire life cycle was taken into consideration from the start







# Sustainable Solution

Guided by 'five principles for responsible outdoor lighting'

1

## **Useful** - All light should have a clear purpose

- Wide array of applications:  
Residential streets/Traffic roads/Pedestrian paths/Bicycle paths/  
Urban plazas/Retail zones/Parking spaces/Industrial areas/  
Private facilities
- Dark sky optics and meaningful connectivity options
- Reduced energy consumption with superior performance

2

## **Targeted** - Light should be directed only to where needed

- Different lens optics are used, partly as an in-house development in order to ensure the best possible light distribution
- Optimised standard-compliant illumination of wider road cross-sections

3

## **Low light levels** - Light should not be brighter than necessary

- Designed to be dimmable, providing only the required level of brightness

4

## **Controlled** - Light should be used only when it is useful

- A broad range of connectivity interfaces
- Designed specifically for Zhaga or NEMA connection with 2 sensors

5

## **Light colour** - As warm as possible

- Offering a wide range of colour temperatures, with reduced blue components in the light spectrum
- Mixed-colour LED applications, called "Wild-Light", with special attention to light-sensitive creatures



Penguin Parade, Phillip Island (AU)

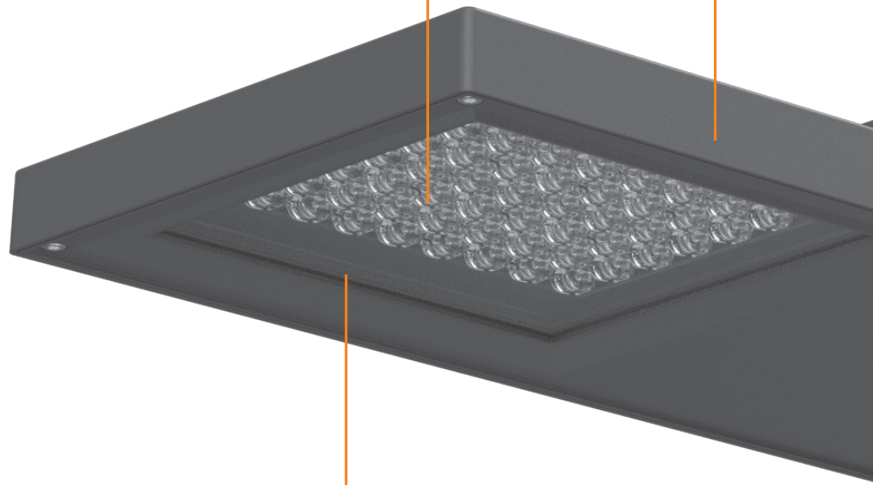


# Product Overview

1

## Lens

Non-reflective safety glass lens for improved LOR



2

## CCG® Controlled Compression Gasket

- Weatherproof, non-ageing, high temperature rated
- Provides long-term, maintained, high IP rating



3

**Body**

Marine-grade, die cast aluminium alloy for long design life

4

**Fasteners**

Polymer Coated Stainless Steel Hardware protect against galvanic corrosion and ensures longevity

5

**Spigot**

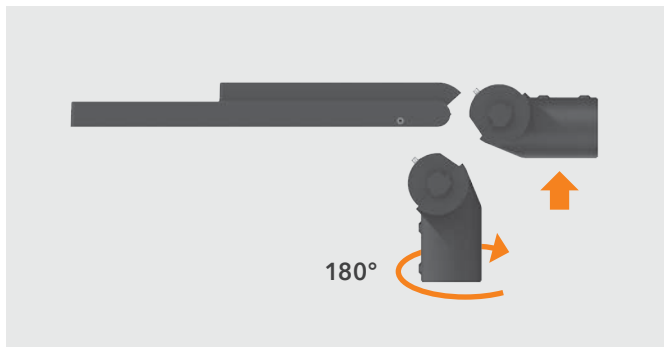
Design flexibility, combined functionality - post top or side entry

6

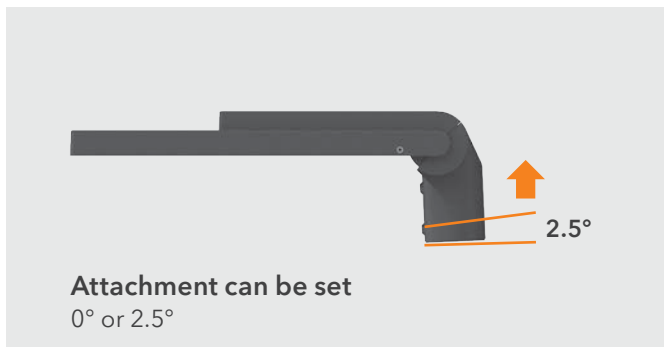
**Driver**

DALI, Internal EC electronic converter 220-240 V/50-60 Hz

# Features & Benefits

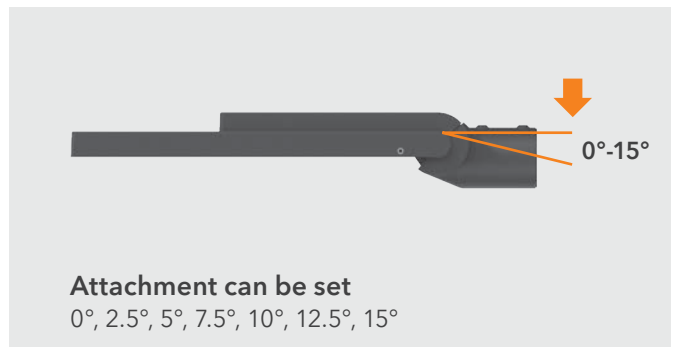


Post top or side entry



Attachment can be set  
0° or 2.5°

Rotate spigot to post top

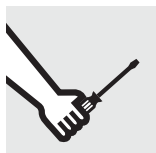


Attachment can be set  
0°, 2.5°, 5°, 7.5°, 10°, 12.5°, 15°

Rotate spigot to side entry

**Design flexibility, combined functionality fit for any application**

Spigot  $\varnothing$  76 x 100 mm



**Designed for serviceability**

- Easy disassembly
- Quicker and more cost-effective repair & maintenance
- Ready for upgrades in the future





## DURABILITY

In-house developed technologies (5CE anti-corrosion treatment and PCS hardware to ensure a long component life).



## LIGHTING SOLUTION

Precise optics, direct light exactly where it is needed.



## RECYCLING

At the end of its service life, the aluminium housing can be disassembled and recycled.



## 5CE

Quality checks on finish parts up to 3,000 hours salt spray exposure test.



## 5CE +PRIMER

5CE + Primer is suitable for coastal and aggressive environments.



## PCS

Polymer coated stainless steel hardware protects against galvanic corrosion and ensures longevity.







## FACTORY SEALED

Supplied ready for connection without opening the luminaire.

# Product Details



Luminaire housing:	Marine-grade, die-cast aluminium alloy				
Corrosion protection:	5CE, including PCS hardware 5CE+Primer optional				
Driver:	Integral EC electronic converter, DALI				
Main lens:	Non-reflective safety glass lens				
Gasketing:	CCG® Controlled Compression Gasket				
Optics:	CAD-optimised for superior illumination and glare control OLC® One LED Concept				
Installation:	Luminaire is factory-sealed and does not need to be opened during installation				
Accessories:	Bird spike				



Wild-Light see page 16



Connectivity see page 18

- For detailed specifications, product codes and latest performance data, refer to [www.we-ef.com](http://www.we-ef.com)
- Shown above are rated lumens for 3000 K at  $T_q = 25\text{ °C}$

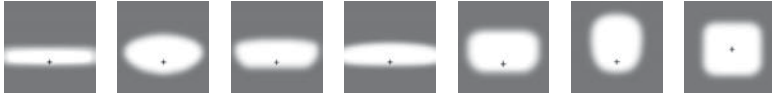
Standard colours:



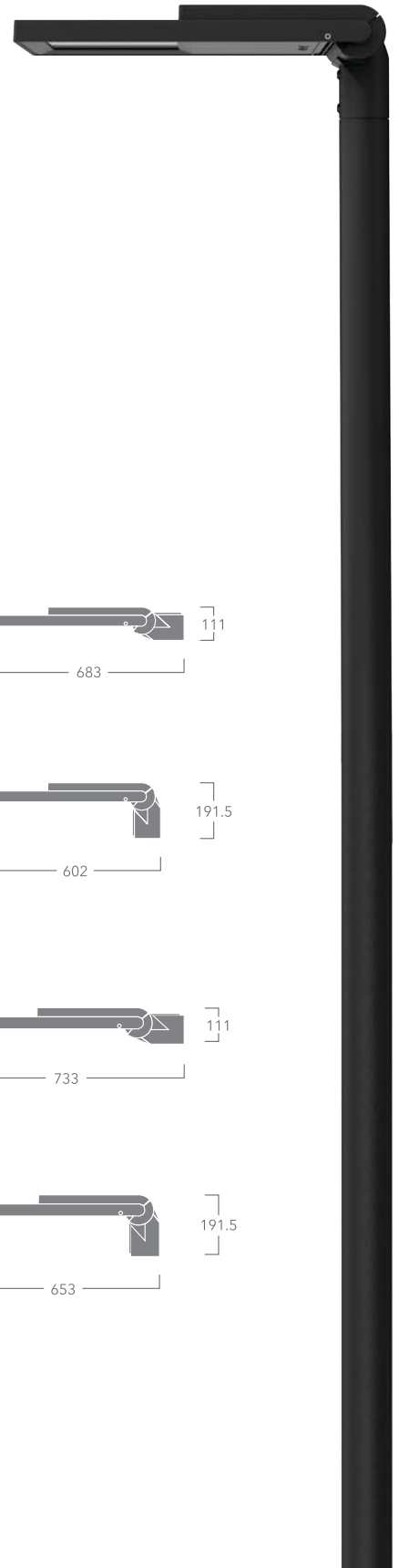
RAL 9004 9006 9007 7016 9016



[P46R] Pedestrian crossing, for right-hand traffic  
 [P46L] Pedestrian crossing, for left-hand traffic

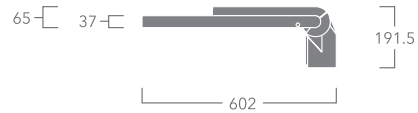
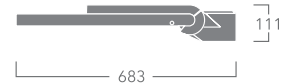


[P66] Pedestrian / bicycle lane  
 [S61] [S65] [S66] [S70] [S71] Streetlighting  
 [R60] [R61] Rectangular 'side throw'  
 [A61] Asymmetric 'forward throw'  
 [Q66] Square distribution



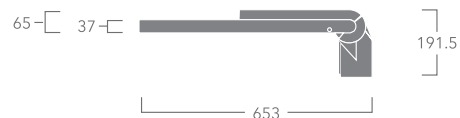
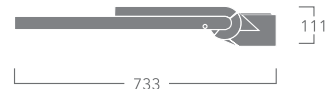
**AFL120**

[S70] [S65] [R60]  
 [S71] [S66] [R61]  
 [A61] [S61] [P66] [Q66] [P46R] [P46L]  
 24 LED  
 24-48 W  
 3480-8400 lm

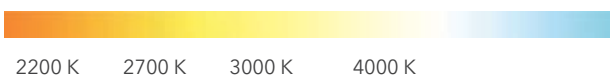


**AFL130**

[S70] [S65] [R60]  
 [S71] [S66] [R61]  
 [A61] [S61] [P66] [Q66] [P46R] [P46L]  
 48 LED  
 48-96 W  
 6960-16800 lm



Four colour temperatures to enhance the lighting environment suitable for any applications



Wild-Light offers two fully integrated standard configurations





# Wild-Light & Colour Temperatures

## Protecting sensitive spaces with adaptive light

WE-EF developed the Wild-Light concept as a synthesis of the demands arising from the protection of nature and human users: an integrated system composed of adaptive lighting technology, sensors and networking. At the heart of the concept are new luminaires for street lighting that combine LED modules in a very warm colour temperature (e.g. True Amber or 2200 K) with LED modules in warm white eg. 3000 K. Motion sensors activate the 3000 K channel only when passers-by or vehicles are within their range. Otherwise, the lighting is reduced to a low level of the specified warmer temperature in order to continue to enable orientation from a distance – or if necessary it is switched off completely. This results in the best possible protection of the environment as well as additional energy savings. Possible areas of application are, for example, footpaths through green areas or car parks at nature reserves.

### **An element of the WE-EF sustainability strategy**

With Wild-Light, WE-EF develops innovative lighting solutions that minimise the negative effects on the environment, save energy and at the same time offer users comfort and safety. The technology is based on proven components and thus offers from the outset the quality, reliability and durability that our brand stands for: an all-round sustainable concept.

### **WE-EF offers two fully integrated standard configurations for Wild-Light:**

- True Amber and 2200 K
- 2200 K and 3000 K

However, any combination of two colour temperatures can be configured on request.



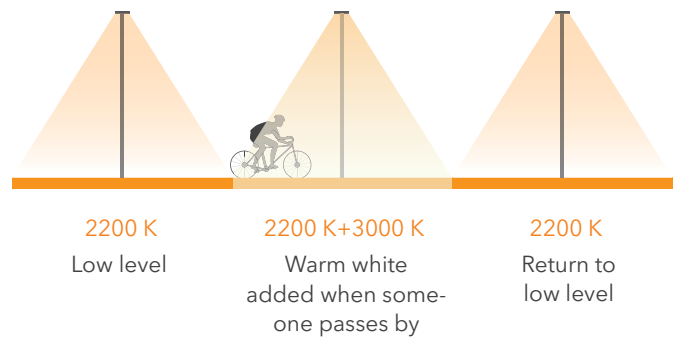
Penguin Parade, Phillip Island (AU)



The mixture between the two lighting modes can be controlled in two different ways:

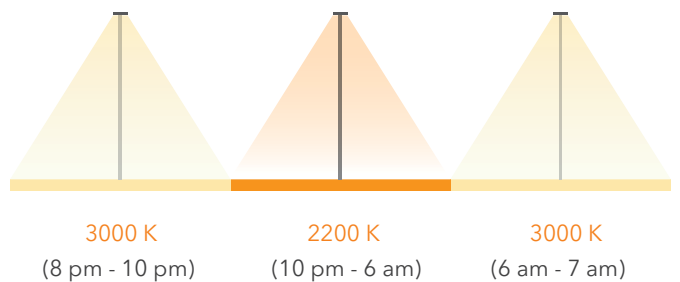
### 1 Wild-Light Motion

Example: The biodiversity-friendly 2200 K light shines all night at a low level to limit the impact on wildlife and save energy. In the presence of human traffic, colour temperature is immediately increased to 3000 K. When no one is in the vicinity, it then returns to 2200K.



### 2 Wild-Light Advanced

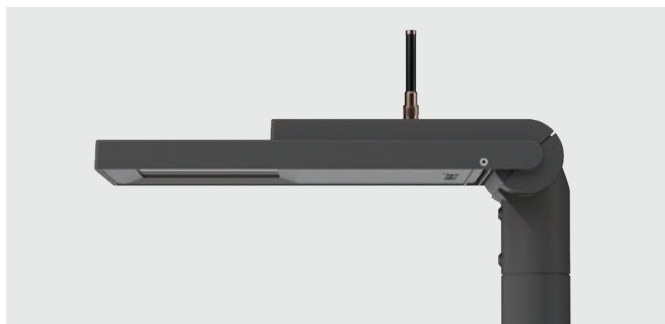
Example: Fully automatic dimming preset that starts the night with warm white (3000 K from 8 pm to 10 pm), reduces to biodiversity-friendly light in the middle of the night (2200 K from 10 pm to 6 am) and returns to warm white in the early morning (3000 K from 6 am to 7 am): a particularly simple and economical solution.



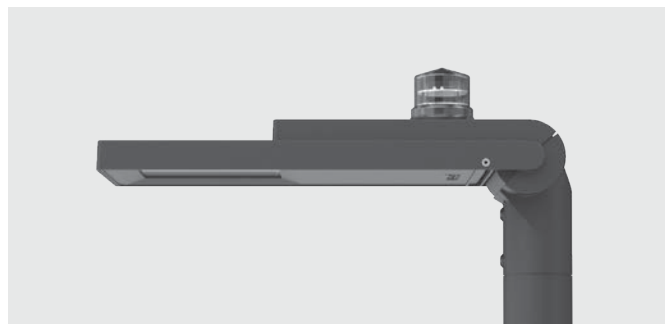
# Connectivity

## Smart City made easy

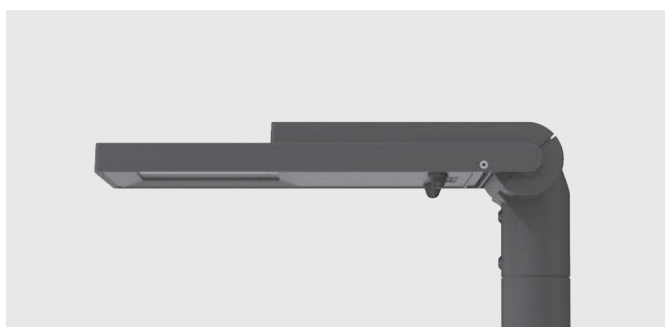
Extend to Smart City when needed for future proofing with a full suite of connectivity options.  
All systems compatible with Standard and Wild-Light versions.



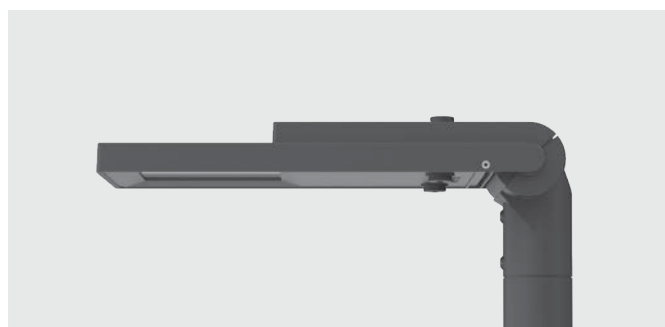
**eSAVE**  
Option available for ANZ, AP and EU



**NEMA**  
Option available for ANZ, EU and USA



**Citygrid**  
Option available for ANZ and EU



**Zhaga / R2C**  
Options available for ANZ, AP and EU



## Benefits for the user



### Energy savings

Light only as much as is needed, and only when it is needed: up to 85 % energy can be saved through the smart dimming of street and area lighting



### Protection and Preservation of nature

In order to minimise the influence of artificial lighting on flora and fauna, it is not only the intensity and duration of the illumination that counts, but also the light colour. Connectivity is the basis of smart concepts for environmentally friendly lighting such as WE-EF Wild-Light.



### Safety

Road and pathway lighting is indispensable for traffic safety as well as for a feeling of safety in night-time surroundings. Connectivity enables scenarios such as "Light on Demand" for footpaths and cycle paths.



### Comfort

With connectivity, control scenarios can be designed conveniently - for instance "moving light" with soft dimming curves. This way the eye can adapt to the respective conditions.



### Flexibility

As a state-of-the-art networked system, connectivity makes the street lighting futureproof: short-term or temporary requirements, for example for the saving of energy, can be achieved by changing the programming.



### Design and effects

Theatrical area or architecture lighting (projectors, colour changers, projections) can be integrated in connectivity systems via DMX Bridge.



### Maintenance costs

Luminaires networked with connectivity register operating data and report technical problems. Maintenance costs can be reduced by up to 40 % through remote and predictive maintenance.

# Connectivity Packages

Control the light in a simple and extremely efficient way with modern connectivity solutions



Parramatta Escarpment Boardwalk, Sydney (AU)


**1** — **Entry-level package** —

- WE-EF supplies and configures
- Reconfigurations available as additional service

**NOT INCLUDED:** Dongle/App


**2** — **Standalone package** —

- Operator can configure and change setting at any time via dongle/app on-site

**INCLUDED:** Dongle/App 

**3** — **Smart-city package** —

- Cloud solution intelligent outdoor lighting control
- Dashboard for monitoring and maintenance optimisation

**INCLUDED:** Internet gateway (via mobile phone) and dashboard 



**Useful**

All lighting should have a clear purpose



**Low light levels**

Light should not be brighter than necessary



**Light colour**

As warm as possible



**Targetted**

Light should be directed only to where needed



**Controlled**

Light should be used only when it is useful



**Tailored lighting / light solutions**

Hybrid optics fit for any application challenges

# Light Distribution & Performance

## Light Distributions



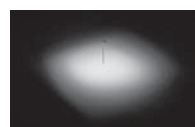
**[S70] [S71]**  
Asymmetric,  
'side throw'



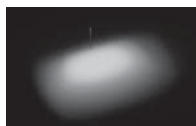
**[P66]**  
Pedestrian/  
bicycle lane



**[S65] [S66]**  
Asymmetric,  
'side throw'



**[Q66]**  
Square  
distribution



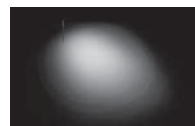
**[R60] [R61]**  
Rectangular,  
'side throw'



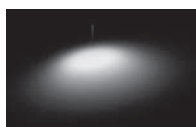
**[P46L]**  
Pedestrian crossing,  
left-hand traffic



**[A61]**  
Asymmetric,  
'forward-throw'



**[P46R]**  
Pedestrian crossing,  
right-hand traffic

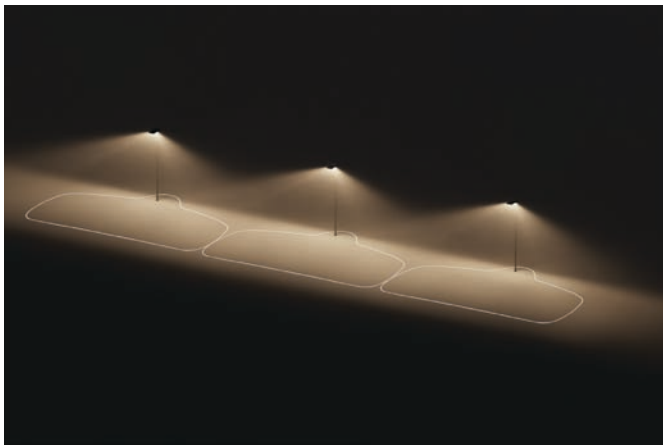


**[S61]**  
Asymmetric,  
'side throw'



**Three key WE-EF lenses have been reengineered.**

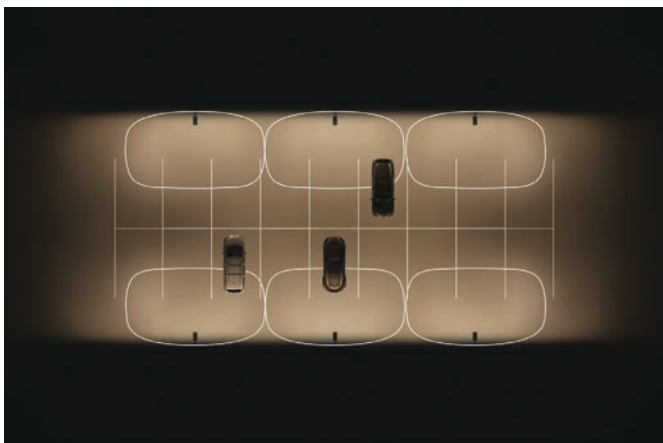
Developed in response to Night Sensitive Lighting guidelines, strict limited rear light characteristics for reducing light wastage and no light above 90°.



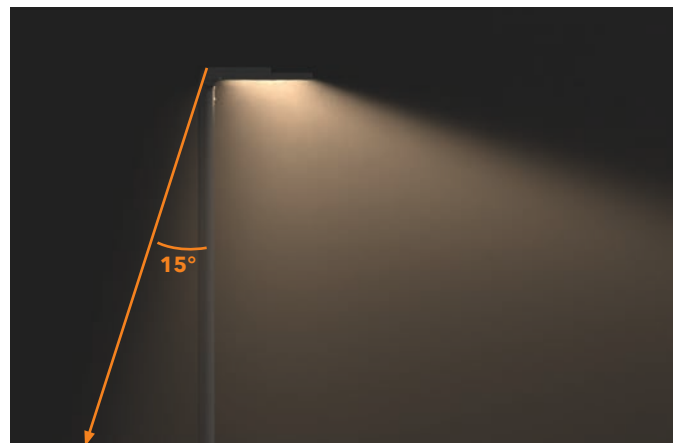
[S70] Asymmetric, 'side throw'



[S65] Asymmetric, 'side throw'



[R60] Rectangular, 'side throw'



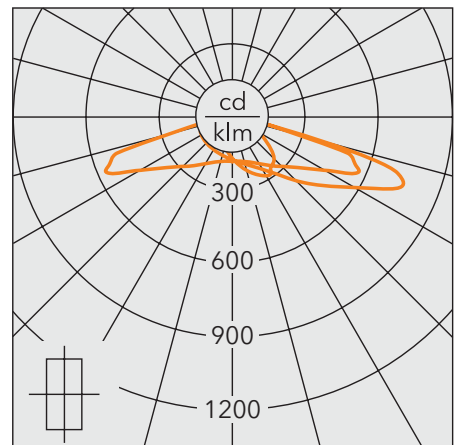
**NEW non-reflective flat glass**

- Reduced back spill
- 20 % more lumen output in direction of the roadway

# Application Examples

University





**AFL130**  
3000 K, 72 W  
[S70] Asymmetric, 'side throw'

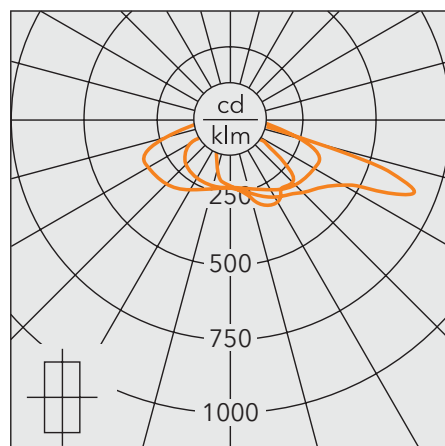
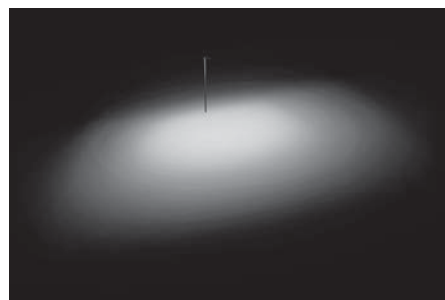


# Application Examples

View point - Wild-Light Solution





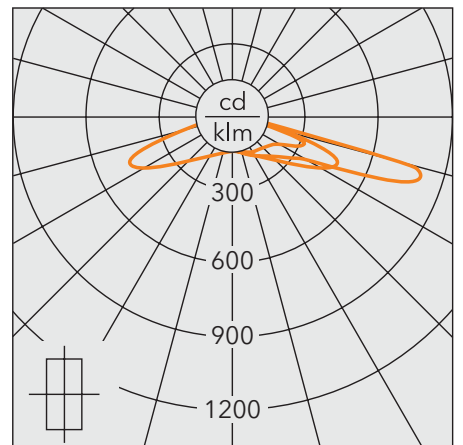
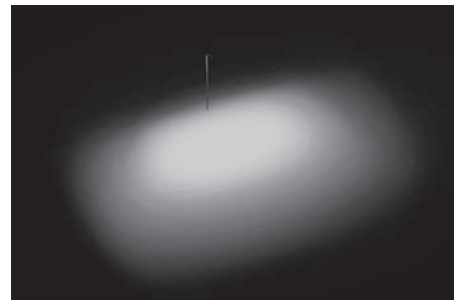


**AFL120**  
3000 K, 48 W  
[S65] Asymmetric, 'side throw'

# Application Examples

Residential area





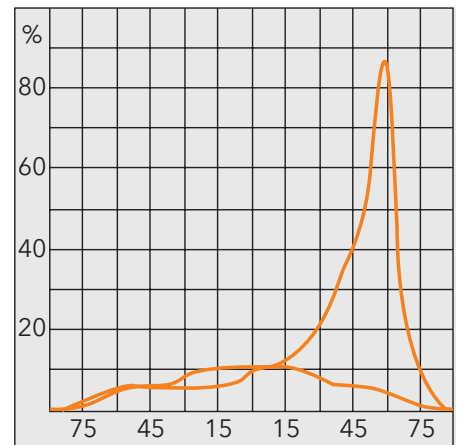
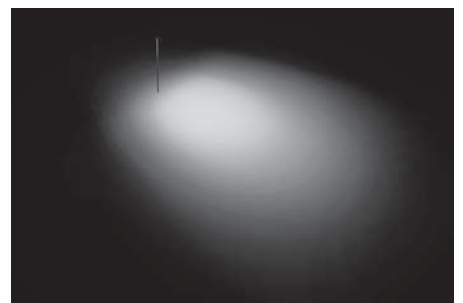
**AFL120**  
3000 K, 48 W  
[R60] Rectangular, 'side throw'



# Application Examples

Bridge





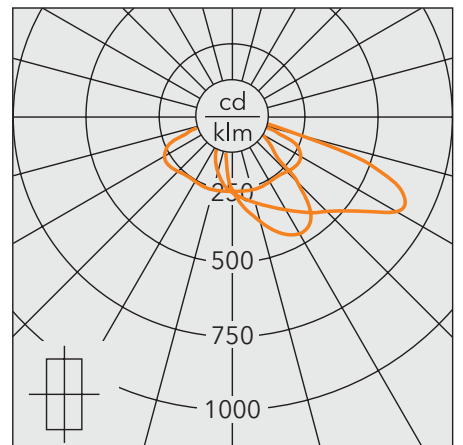
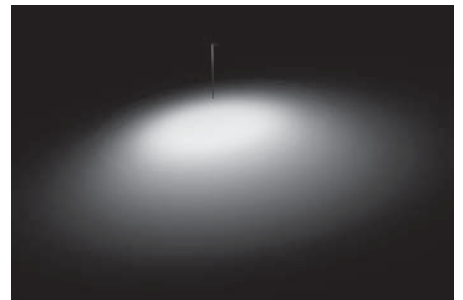
**AFL130**  
3000 K, 72 W  
[A61] Asymmetric, 'forward throw'



# Application Examples

Foreshore





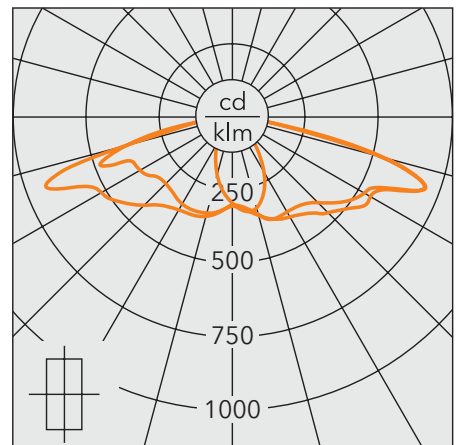
**AFL130**  
2700 K, 48 W  
[S61] Asymmetric, 'side throw'



# Application Examples

Park - Wild-Light Solution





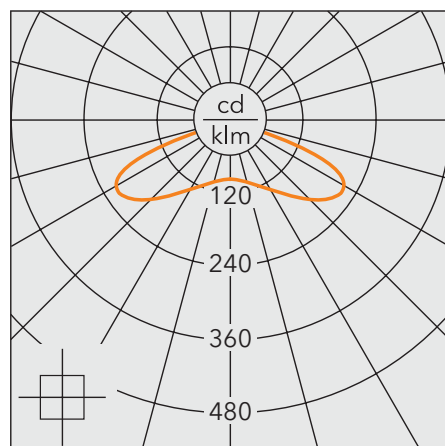
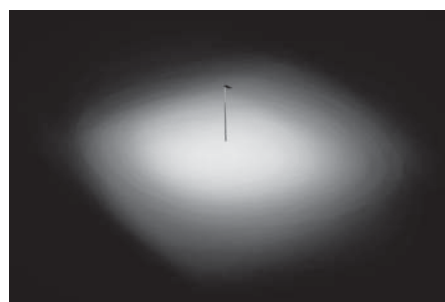
**AFL130**  
2200 K - 3000 K, 48 W  
[P66] Pedestrian/bicycle lane



# Application Examples

Train station





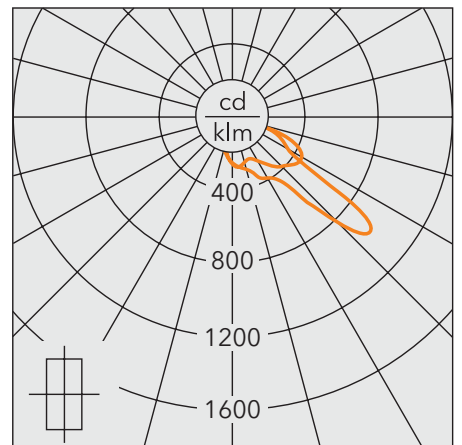
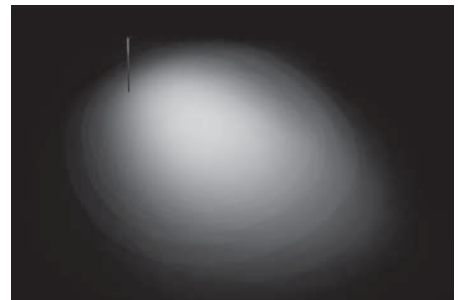
**AFL130**  
3000 K, 48 W  
[Q66] Square distribution



# Application Examples

Pedestrian crossing





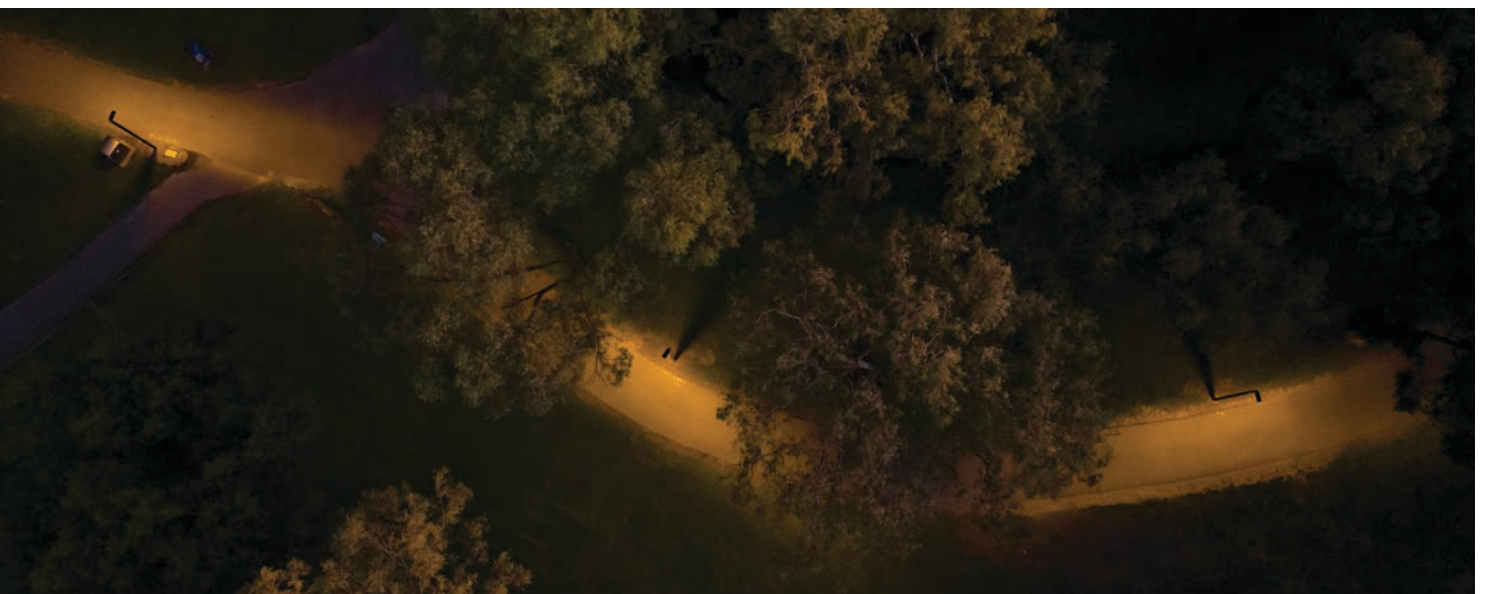
**AFL130**  
3000 K, 72 W  
[P46R] Pedestrian crossing,  
right-hand traffic

# Dark Sky Compliance

## WE-EF's contribution

As a manufacturer specialising in high-precision LED optics, WE-EF is able to offer certified luminaires that comply with Dark Sky regulations in many regions of the world – for example, in Australia. The portfolio ranges from bollards to luminaires for open spaces and street lighting in a wide variety of power ratings. The luminaires are specifically designed to prevent user and installation errors such as incorrect alignment or orientation. Precision and minimising stray light are a focus of all lighting technology developments. For example, WE-EF light shields were developed to this end as elements integrated in the optics of existing products, in order to meet strict Dark Sky requirements.

WE-EF also has extensive experience in the design and production of project-specific luminaires using colour temperatures with an even lower blue component than the warmest standard colour temperature of 2700 K. For example, LED modules with extremely warm amber (PC) LEDs have been used in sensitive projects such as the "Penguin Parade" in an Australian nature reserve. Thanks to WE-EF's flexibility and a high level of vertical integration, the company is the ideal partner for projects worldwide where special demands on environmental protection call for customised product and light solutions.







Little Para River Trail, Adelaide (AU)

# WE-EF DNA

## Meet the experts



### **We design our product.**

**Meet Lara** - Lead Designer for AFL100 Series

"You can say that we have a classic form follows function design - starting from the pole, everything is related to one another other - and that just makes the project fun and exciting."



### **We manufacture our own moulds.**

**Meet Alex** - Head of Toolshop

"The advantage of having a tool shop in-house and developing our own moulds give us enormous flexibility in the sense that we are faster in term of optimising the moulds and going quicker to market."



### **We challenge ourselves to find new solutions.**

**Meet Andreas** - Lead Engineer for AFL100 Series

"The task was to develop an efficient and future-oriented street and area lighting luminaire. The result is a very nice compact luminaire with a combined post top and side entry attachment piece."



### **We built luminaires for the future.**

**Meet Peter** - Head of Connectivity Solutions

"Our main goal in developing the AFL100 series was to create luminaire that includes state-of-the-art technology. In that it provides enough space for all the requirements of connectivity. And at the same time, it should reflect WE-EF design."



### **We design our own optics.**

**Meet Dr. Quang** - Lead Technical Development

"I am responsible for developing the new light engine for the AFL100. In short, the LED modules are based on Zhaga Book 15 for standard replacement. However, special LEDs and board construction by us, allow us to go beyond the standard."



### **We optimise processes and implement solutions to improve efficiency.**

**Meet Oliver** - Head of Continuous Improvement

"For improved sustainability compared to the VFL500, on the material side, the gear tray has been eliminated and the plastic cover has been replaced by glass. In addition, the internal lamination cover is made of recycled ABS, which is also NIR-detectable with a special additive and can thus be successfully recycled again."



**we-ef**

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