

# Stela

IP 66

IK 10  
(Housing)

Class I

Class II 



Stela is at the forefront of LED technology in real street lighting. Indal's REVOLED™ cooling and light distribution concept enable enormous energy savings/CO<sub>2</sub>-reductions, whilst meeting current lighting standards.

The perfect cooling of the LED's give a very long life expectancy making lamp replacement superfluous. Resulting Total Costs of Ownership become very attractive. Stela, available for post top and side entry mounting, has a clear own identity meant for a new era of lighting.

#### Lamps

up to 52 LED  
from 14W to 62W system power



Stela Square 10/14/18 LED  
Post top Ø 60-76mm



Stela Wide 24/36/52 LED  
Post top Ø 60-76mm

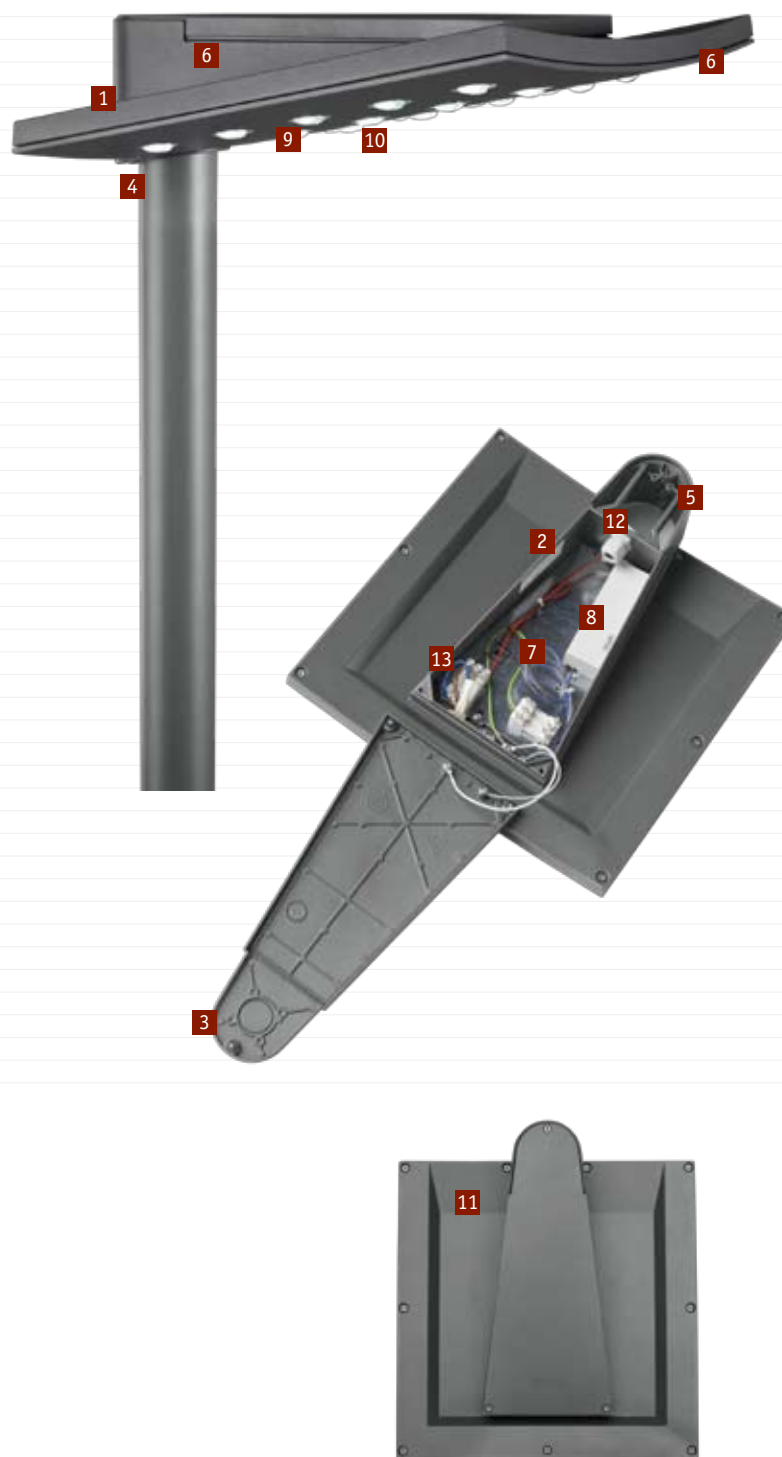


Stela Long 10/14/24/30 LED  
Side entry Ø 32-60mm/Post top Ø 60mm



Stela Long 10/14/24/30 LED  
Post top Ø 60-76mm

- 1 **Housing** made in very corrosion resistant die-cast (LM6 quality) aluminium in Futura Gris 900 Sablé (anthracite), sealed together by stainless steel screws.
- 2 **Driver compartment** made of die-cast (LM6 quality) aluminium in Futura Gris 900 Sablé, captively attached to the housing after opening.
- 3 **Opening/closing** only needed for incidental replacement of driver (sealed for life). Driver compartment easily accessible by removal of three screws in the canopy.
- 4 **Spigot** made in die-cast (LM6 quality) aluminium in Futura Gris 900 Sablé. Stela Square and Wide for post top  $\varnothing$  76mm (special adapter for  $\varnothing$  60mm available). Stela Long for post top  $\varnothing$  60mm and side entry  $\varnothing$  32-60mm, separate version for post top  $\varnothing$  76mm.
- 5 **Mounting** with two stainless steel M10 bolts (extra long bolts for small side entry diameters can be ordered with the lantern).
- 6 **Gasket** made of weather resistant material, for sealing upper and lower frame, and for ingress protection of driver compartment and lenses. Overall ingress protection is IP 66. All screws for assembly of upper/lower frame and driver compartment are positioned outside the IP 66 area.
- 7 **Gear tray** galvanised steel plate, mounted to bottom of driver compartment on top of the housing. Easy disconnection by plug and socket.
- 8 **Gear** electronic LED driver(s) are mounted on the gear tray. Special driver available for DIM versions with various regimes for switching time/dim %. Electrical supply available in three currents: 350mA and for higher lumen output also 500mA and 700mA.



- 9 **Optics LED** only binning of high quality High-Power LED's are used. The Stela range offers three different light colours to meet the different demands in public lighting: cool white (most efficient light colour), neutral white and warm white.
- 10 **Optics DIRECTA™ lens technology**
  - Transparent impact resistant lenses.
  - Identical lens for each individual LED guaranteeing the original light distribution also in case of incidental LED failure.
  - Lenses available in three light distribution versions:
    - Narrow optic (optimised for widths 0.5-0.75x mounting height) for narrow streets, paths or alleys.
    - Standard optic (optimised for widths 1-1.5x mounting height) for common residential streets.
    - Wide optic (optimised for widths 2-2.5x mounting height) for wide streets and areas.
  - Minimal backward obtrusive light, light pollution and glare (up to G3).
  - Slightly curved lantern shape for optimal orientation and guidance.
- 11 **COO-LED™ thermal management principle:**
  - Flat, smooth and draining upper frame forms large cooling area.
  - Low current (350mA) LED operation for optimal ratio light output/power consumption.
  - LED life expectancy matching normal lantern service life time (~20-25 years), making lamp replacement no longer necessary.
- 12 **Cable connection** M20 gland, cable entry 10-14mm, with strain relief.
- 13 **Electrical connection** cable is standard connected to plug/socket on gear tray in the driver compartment. NEMA version connection in spigot (plug included in delivery) as an option. Insulation Class I and II available. Class I through connection to earth terminal in the driver compartment.

Large cool, flat and smooth upper frame.

### Mounting

#### Stela Square / Wide

Suitable for post top mounting  $\varnothing$  60mm and  $\varnothing$  76mm. When installed on a  $\varnothing$  60mm post top, an aesthetically pleasing adapter is used.

Adapter for post top  $\varnothing$  60mm.



#### Stela Long

With a universal spigot for side entry  $\varnothing$  32-60mm and post top  $\varnothing$  60mm. The spigot can easily be put in either post top or side entry position by changing the fixation of the two spigot bolts. For post top  $\varnothing$  76mm a special spigot is available.



Side entry  $\varnothing$  32-60mm.



Post top  $\varnothing$  60mm.



Dedicated spigot for post top  $\varnothing$  76mm.

#### Stela Long tilt angle

Stela Long in post top comes standard in  $10^\circ$  tilt, and in side entry at  $0^\circ$  tilt. To optimise the light distribution for varying road geometries, the tilt angle can be adjusted:  
 - post top  $+5^\circ$  and  $+10^\circ$ .  
 - side entry  $+0^\circ$ ,  $+5^\circ$ ,  $+10^\circ$ ,  $+15^\circ$  and  $+20^\circ$ .  
 The tilt angle can easily be adjusted by loosening the two bolts at the outside of the spigot, putting the spigot in the required angle and refastening the bolts.



Stela Long post top  $10^\circ$  tilt angle.

#### Column mounting

Simple attachment to the column with two M10 bolts (optional anti theft bolts available).



Simple attachment to the column.



Stela Long side entry  $0^\circ$  tilt angle.

### Stela Family

The Indal design team opted for a clearly individual character for this first functional LED product: it is immediately clear that the Stela involves something new.

The modern shape has serene, recognisable lines and will therefore be at home in various environments.

This makes Stela extremely suitable as a standard lantern for residential areas in particular, where a certain timelessness is often essential, especially when applied at a larger scale.



Stela Square and Wide.



Stela Long in post top and side entry position.

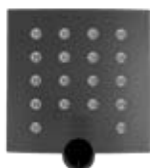
### Stela Square



Square 10 LED's.



Square 14 LED's.



Square 18 LED's.

The Stela family comes in a number of standard versions as shown here.

These standard LED configurations can be combined with:

- Different operating current options; 350mA, 500mA or 700mA.
- Different DIRECTA™ lens optics; narrow, standard or wide.
- Different LED light colours; cool white, neutral white or warm white.

In this way already a wide range of lumen packages and light distributions can be used in order to:

- Achieve the most energy efficient installation (W/lux/m<sup>2</sup>) at low (350mA) current.
- By operating the LED's at higher currents (500 or 700mA) or playing with the LED configurations:
  - 1) With relatively less LED's, so relatively lower initial costs, with higher lumen output. So the same system lumen output at a relatively higher energy consumption and reduced service life.
  - 2) With the same number of LED's with higher lumen output. So increased system lumen output at a relatively higher energy consumption and reduced service life.

### Stela Wide



Wide 24 LED's.



Wide 36 LED's.



Wide 52 LED's.

### Stela Long



Long 10 LED's.



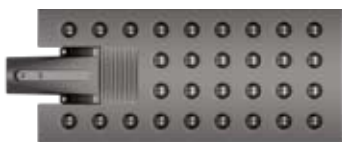
Long 14 LED's.



Long 18 LED's.



Long 24 LED's.



Long 30 LED's.

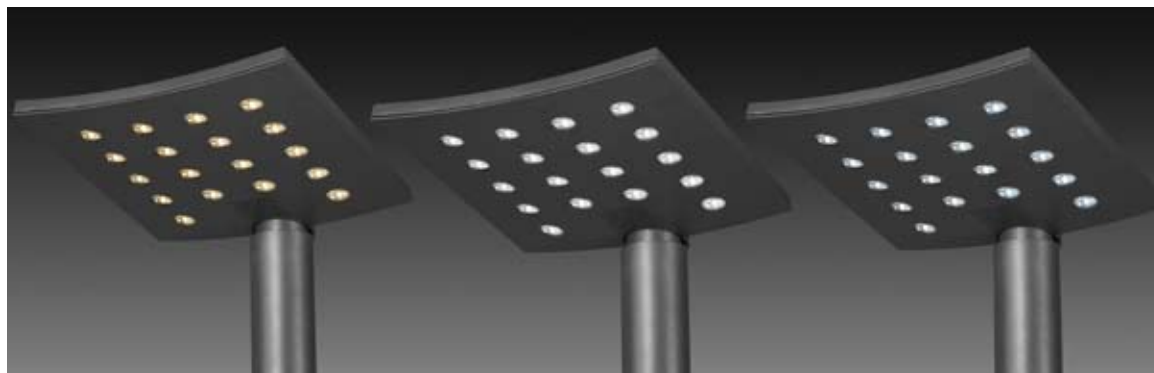
Other LED configurations are on request as extra option when a specific project demands another LED configuration/lumen packages. These are already offered in the Stela photometries.

Per Stela lantern type these additional configurations are:

- Stela Square 12 or 16 LED's.
- Stela Wide 28, 32, 40, 44 or 48 LED's.
- Stela Long 12, 16, 20, 22, 26 or 28 LED's.

In the case of ordering these different LED configurations you need to consider a longer delivery time and a minimum order quantity.

### Stela light colours



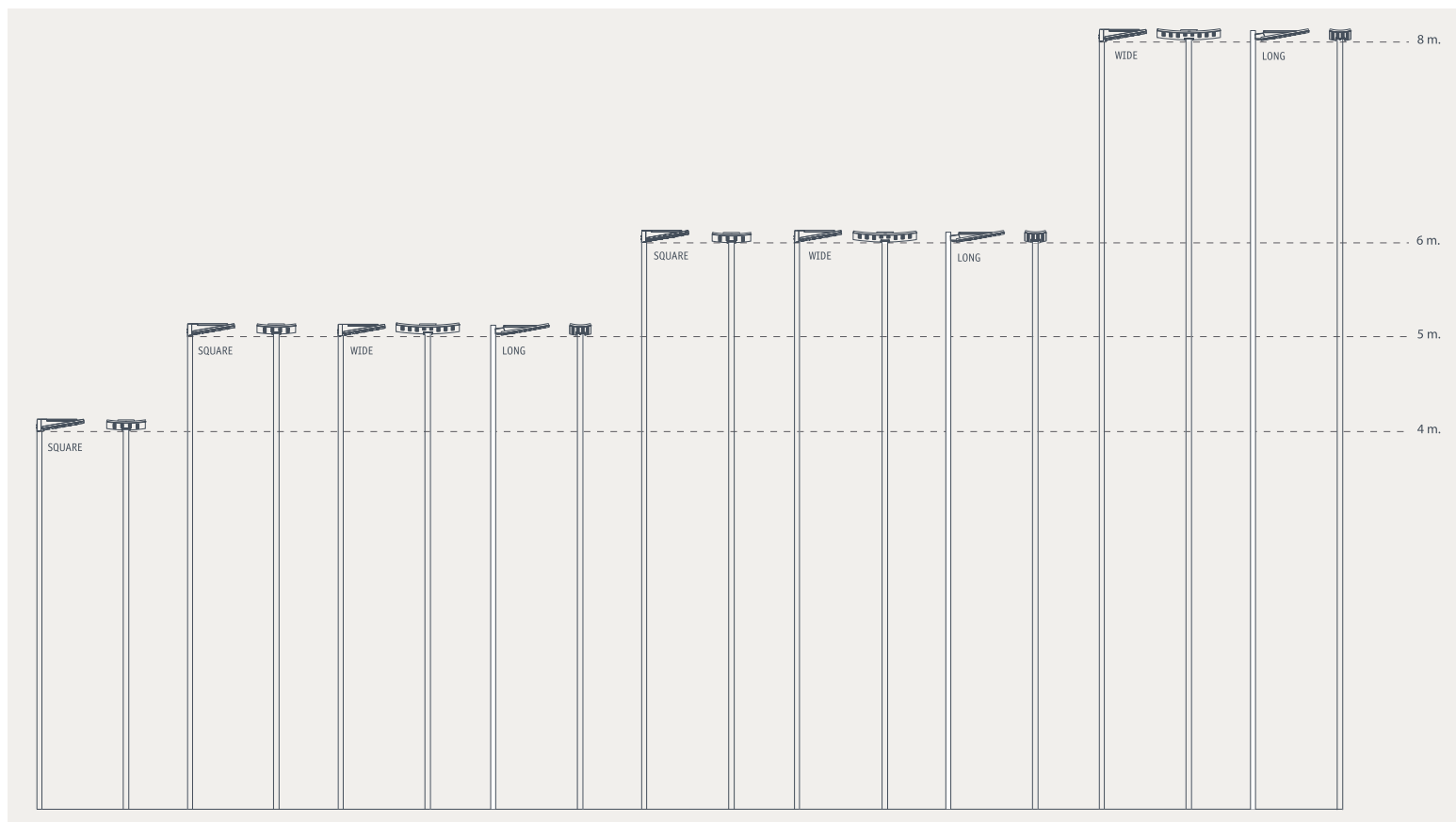
Warm white

Neutral white

Cool white (most efficient light colour)

### In perspective

The Stela family is the perfect LED solution for the main road and amenity lighting applications.



**Stela Square** (10 to 18 LED's) is suitable for mounting heights of 4-6m post top.

**Stela Wide** (24 to 52 LED's) is designed for mounting heights of 5-8m post top.

**Stela Long** (10 to 30 LED's) is specially suited for side entry, but also post top mounting at heights of 5-8m.

### Indal REVOLED™ technology

Indal has developed the REVOLED™ technology to respond to the high priority today's society puts on energy saving and CO<sub>2</sub>-emission reduction. The technology consists of the innovative COO-LED™ and DIRECTA™ technical concepts.

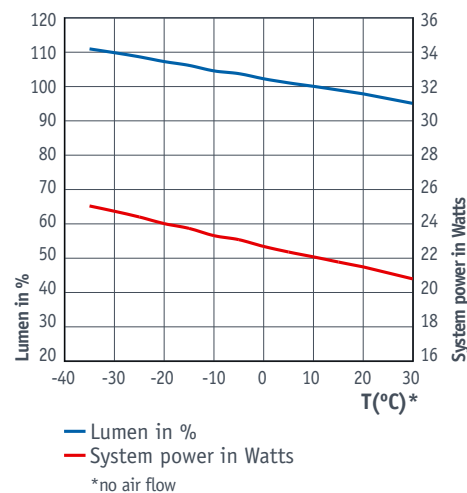
The aim is to achieve considerable energy saving and CO<sub>2</sub>-reduction by using white High-Power LED's, in new installations, but certainly also in point for point replacements whilst achieving the required lighting standards: real functional street lighting.

### COO-LED™ thermal management

As the light performance of LED's heavily depends on its operating temperature, optimum cooling is key. Therefore, a large and smooth cooling surface is an integral part in Stela's design concept. The LED's are installed directly to the lantern housing. The smooth surface also gives optimal drainage and cleaning of the lantern, thus optimising the cooling process. The LED's are operated on a low (350mA) current in order to optimise their efficiency (lumen/Watt ratio). Other currents 500mA and 700mA are available to meet special demands, like requirements for higher wattages.



Large, smooth and free draining cooling surface.



Typical Temperature-Lumen-System power curve for Stela 18LED.

### DIRECTA™ LED optical technology

The DIRECTA™ lens technology renders a much higher light output ratio than conventional lanterns.



#### Existing light technology:

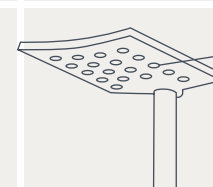
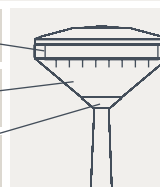
Reflector: loss ~10% - 15%

(Bowl) protection: loss ~10%

Shadow producing parts<sup>1)</sup>: loss ~10%

#### Result

**Threefold optics:**  
lamp + reflector + protección  
**Lantern output:**  
~65%-80%



#### DIRECTA™ lens technology:

REVOLED™: loss ~6%

<sup>1)</sup> Loss ratio depends on the lantern type

#### Conclusion

This means an output gain of ~14% - 29% in comparison to existing light technology.

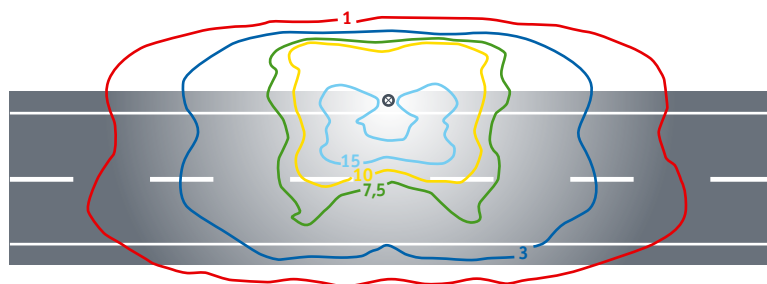
#### Result

**Twofold optics:**  
lamp (LED) + lens  
**Lantern output:**  
~94%

### DIRECTA™ lens

The DIRECTA™ lens is designed to distribute the light in a very effective way, exactly hitting the surface to be lit with low glare. Giving a somewhat rectangular light distribution. This light distribution is secured for the service life of Stela by the direct overlay lighting concept: every single lens has the same distribution, so in case of incidental LED failure the light distribution remains unaffected.

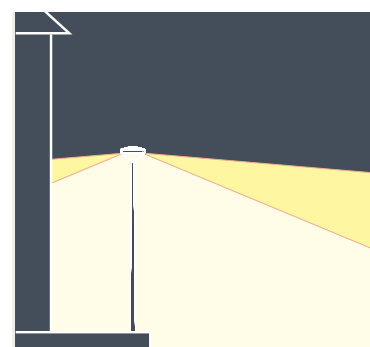
Rectangular light distribution pattern for standard lens.



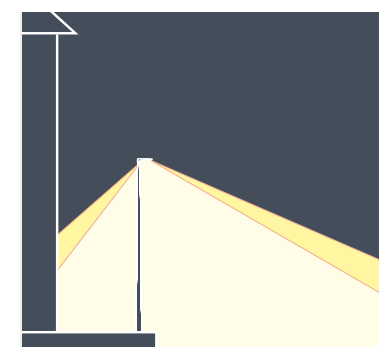
### DIRECTA™ light performance

The Stela lanterns are installed at an angle of 10°, which causes less obtrusive light backwards. This is especially important in the present urban designed profiles, where housing and columns are positioned closer to each other. In many existing constructions, this can also contribute to reducing complaints about obtrusive light in dwellings.

#### Traditional FSD lantern



#### Stela LED lantern



Less obtrusive light and glare.

### The result - High energy saving potential<sup>(1)</sup>

System power consumption	Lumens	lm/Wsys	Traditional	Typical energy saving /CO <sub>2</sub> reduction %
Stela*				
Square/Long 10LED-10W (250mA)	1050	105	FSD24-26W	62%
Square/Long 10LED-14W	1400	100	FSD36-37W	62%
Square/Long 14LED-18W	2000	111	FSD36-37W	51%
Square/Long 18LED-22W	2550	116	FSD40-43W/ST50-60W**	49%/63%
Long 24LED-29W	3400	117	FSD55-59W/ST70-84W**	51%/65%
Wide 24LED-29W	3350	116	ST50-60W/ST70-84W**	52%/65%
Long 30LED-36W	4250	118	FSD80-87W	59%
Wide 36LED-44W	5000	114	ST70-84W	48%
Wide 52LED-62W	7200	116	ST100-115W	46%
Wide 52LED-123W (700mA)	12700	103	ST150-169W	27%

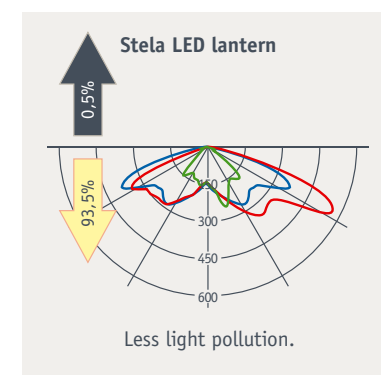
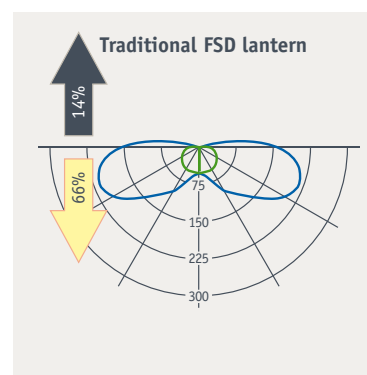
<sup>(1)</sup> Typical energy savings based on:

- Operating at 350mA unless stated differently.
- Cool white LED (efficiency ~12% higher than neutral white and ~23% higher than warm white).
- Indal REVOLED™ systems subject to continuous improvement; please always ask for the current data.

\* Replacement option depending on lighting scheme

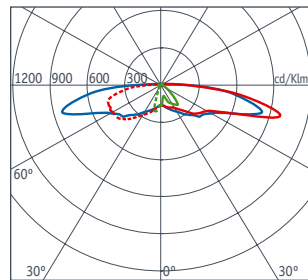
\*\* When white light is awarded by allowing one lighting class lower

The design of Stela and the DIRECTA™ technology also ensure that barely any light is emitted above the horizon, so that unnecessary light pollution is prevented.



Less light pollution.

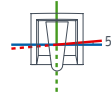
### Stela Square



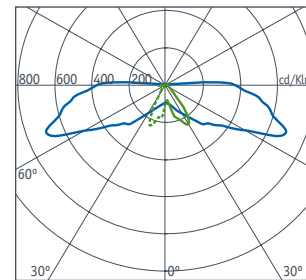
**Reflector**  
Narrow

**Lamp**  
14LED

**Performance**  
ULOR: 0.5%  
DLOR: 88%



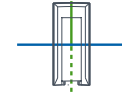
### Stela Long



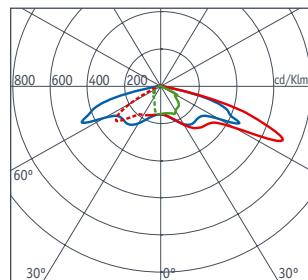
**Reflector**  
Narrow

**Lamp**  
14LED

**Performance**  
ULOR: 2%  
DLOR: 86%



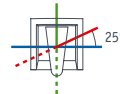
### Stela Square



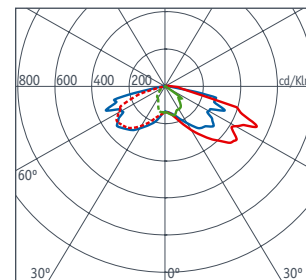
**Reflector**  
Standard

**Lamp**  
14LED

**Performance**  
ULOR: 0.5%  
DLOR: 91%



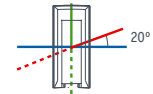
### Stela Long



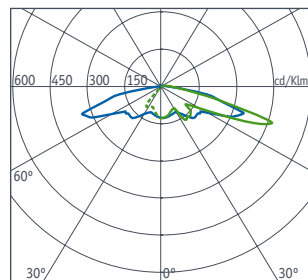
**Reflector**  
Standard

**Lamp**  
14LED

**Performance**  
ULOR: 0.5%  
DLOR: 91%



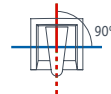
### Stela Square



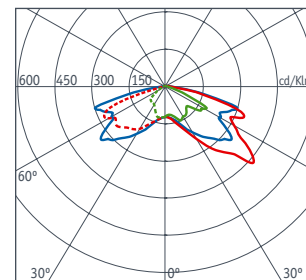
**Reflector**  
Wide

**Lamp**  
14LED

**Performance**  
ULOR: 1%  
DLOR: 91%



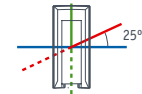
### Stela Long



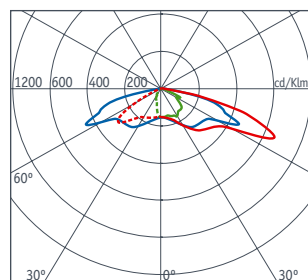
**Reflector**  
Wide

**Lamp**  
14LED

**Performance**  
ULOR: 0.5%  
DLOR: 91%



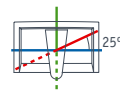
### Stela Wide



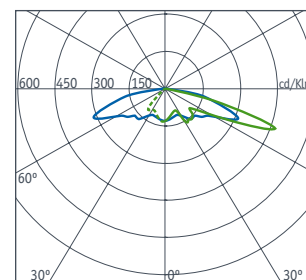
**Reflector**  
Standard

**Lamp**  
24LED

**Performance**  
ULOR: 0.5%  
DLOR: 91%



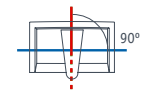
### Stela Wide



**Reflector**  
Wide

**Lamp**  
24LED

**Performance**  
ULOR: 0.5%  
DLOR: 91%



MODEL	TYPE	SHAPE	SYSTEM POWER*	REFLECTOR			LENS	W.a. (m <sup>2</sup> )	
				Narrow	Standard	Wide		Kg	
Stela Square	10LED		10W (250mA)	•	•	•	PMMA	0.04	5.3
	10LED		14W						
	14LED		18W						
	18LED		22W						
Stela Wide	24LED		29W	•	•	•	PMMA	0.06	8.2
	36LED		44W						
	52LED		62W						
Stela Long	10LED		10W (250mA)	•	•	•	PMMA	0.05	7
	10LED		14W						
	14LED		18W						
	18LED		22W						
	24LED		29W						
	30LED		36W						

\*Typical system power driven at 350mA current and cool white LED light colour.

W.a. (Windage area)  
Kg (Weight)

### OPTIONS

Other Stela configurations/lumen packages on request:

- Square 12 or 16 LED's
- Wide 28, 32, 40, 44 or 48 LED's
- Long 12, 16, 20, 22, 26 or 28 LED's

Other current versions 500mA or 700mA on request

Other light colours warm white or neutral white on request

Including cable

Class II versions

Wired for cell (WFC), mini Photocell or NEMA socket

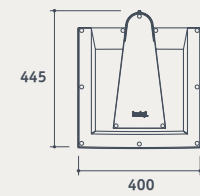
Other RAL colours on request

DIM versions

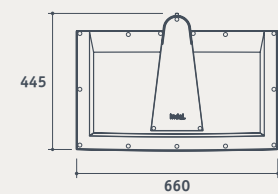
### ACCESSORIES

902140000 Special adapter for Ø 60mm post top

Stela Square



Stela Wide



Stela Long post top



Stela Long side entry

