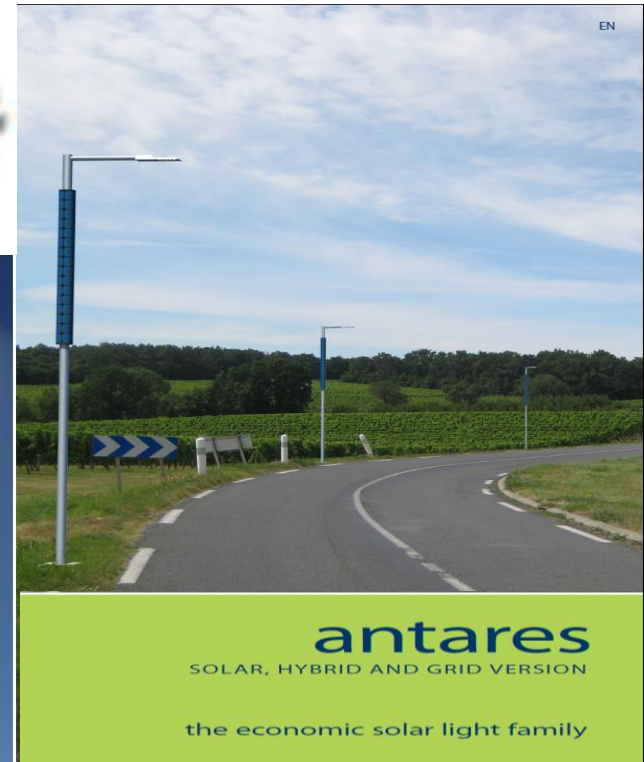


# Solar Street Lamps for the World

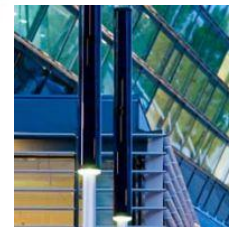


# Product Overview

- Antares Street Lamp solution uses reliable European highest and robustness Technology
- Antares is developed for the hardest areas and conditions on this world
- Antares is solar powered and grid connected street lighting with aligned light distribution where solar collection panel is integrated into the pole of the light
- The solar lights solution will have the ability to generate an extra power of energy
- Antares street lamp has state of the art features i.e. CCTV, remote control, motion detector, light cloud & is equipped with advanced LED & Photovoltaic technology



# Benefits of Antares Solar Street Lamp Solution



- Aesthetical

- Solar collection is now part of the pole – patented design known as the “powertube” is quite beautiful

- Environmentally friendly

- Zero CO<sub>2</sub> emissions
  - Highly efficient photovoltaic technology
  - Attracts less insects [poor UV-LED light]

- Economical

- Low cost to install
  - No costs for trenching cabling and rearrangement of surface [no cabling]
  - No electricity costs
  - Low maintenance – long living illuminant
  - No need to replace the illuminant [LEDs] as covered under warranty

- Quick Implementation

- No need for cabling / wiring thus a quick implementation

- Energy Efficient modern LED technology

- Reliable in operation.

- Customer specific light control by a programmable microcontroller

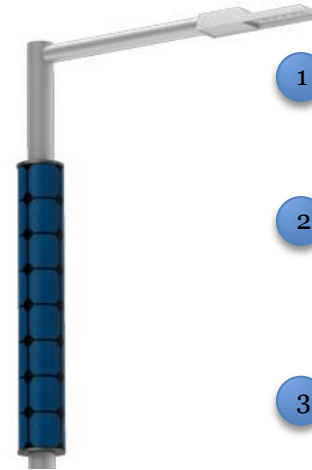


# Antares Street Lamp Solution Components

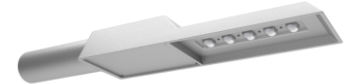


1. On grid stand-alone high powered latest LED light with uniform light distribution [185 lumens/watt]
2. Highest power LEDs – easy to replace, high efficiency and with optic lense
3. Highest power tube – patented unique photovoltaic – the module technology assures continuous power supply & optimized for poor light conditions
4. Power control – programmable microcontroller monitors the charging condition of energy storage device, optimizes the energy efficiency & ensure a trouble free operation of solar lights even during bad weather conditions in military quality
5. Build for the hardest conditions / jungle, desert, highest humidity + thief proof !

The **Street Light series** offers an optimal aligned and symmetric light distribution, ideal for modern nightlight applications and specially adapted for the lighting of roads, streets, and railroads.



1



2



3



4

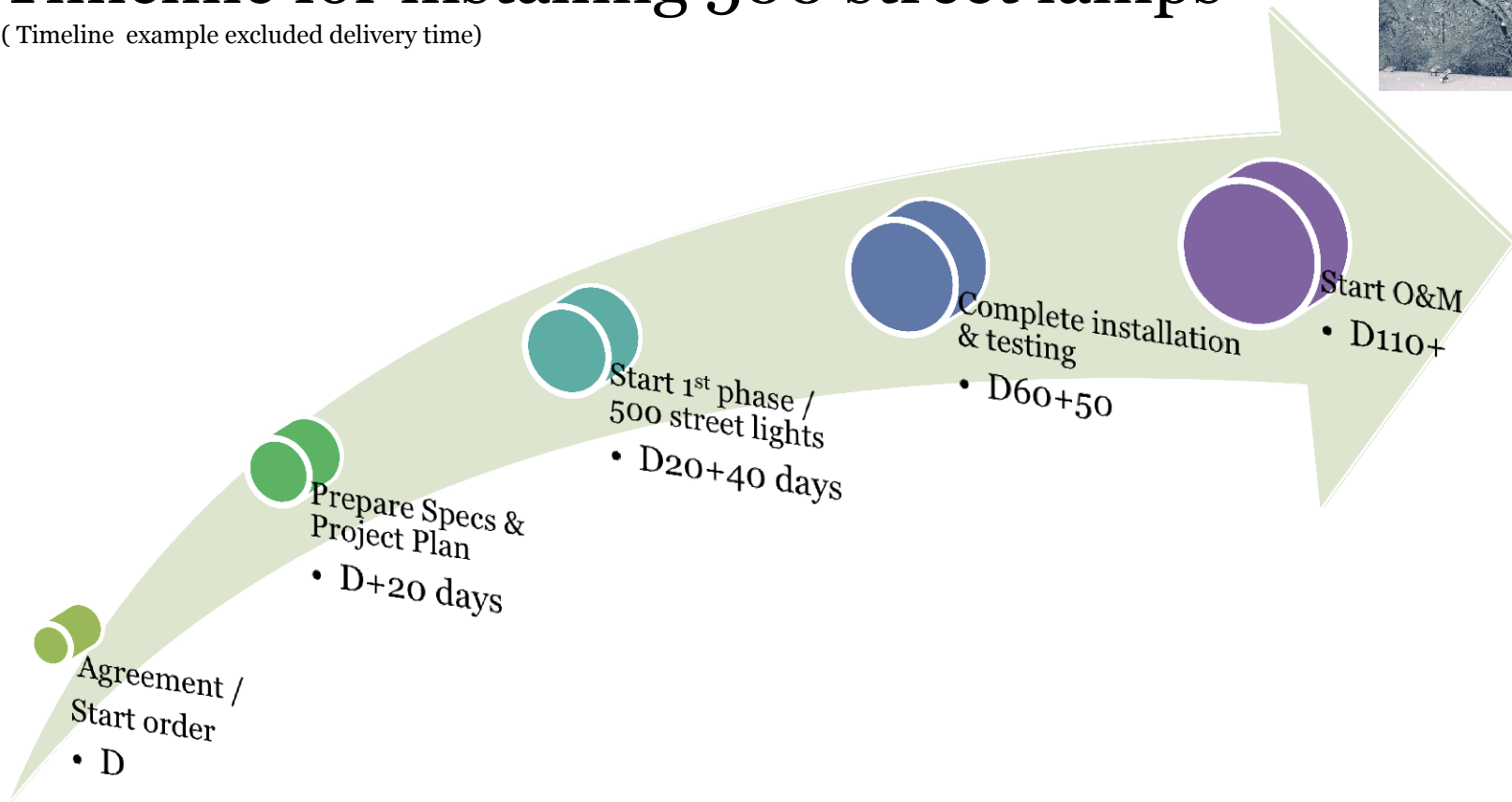


5



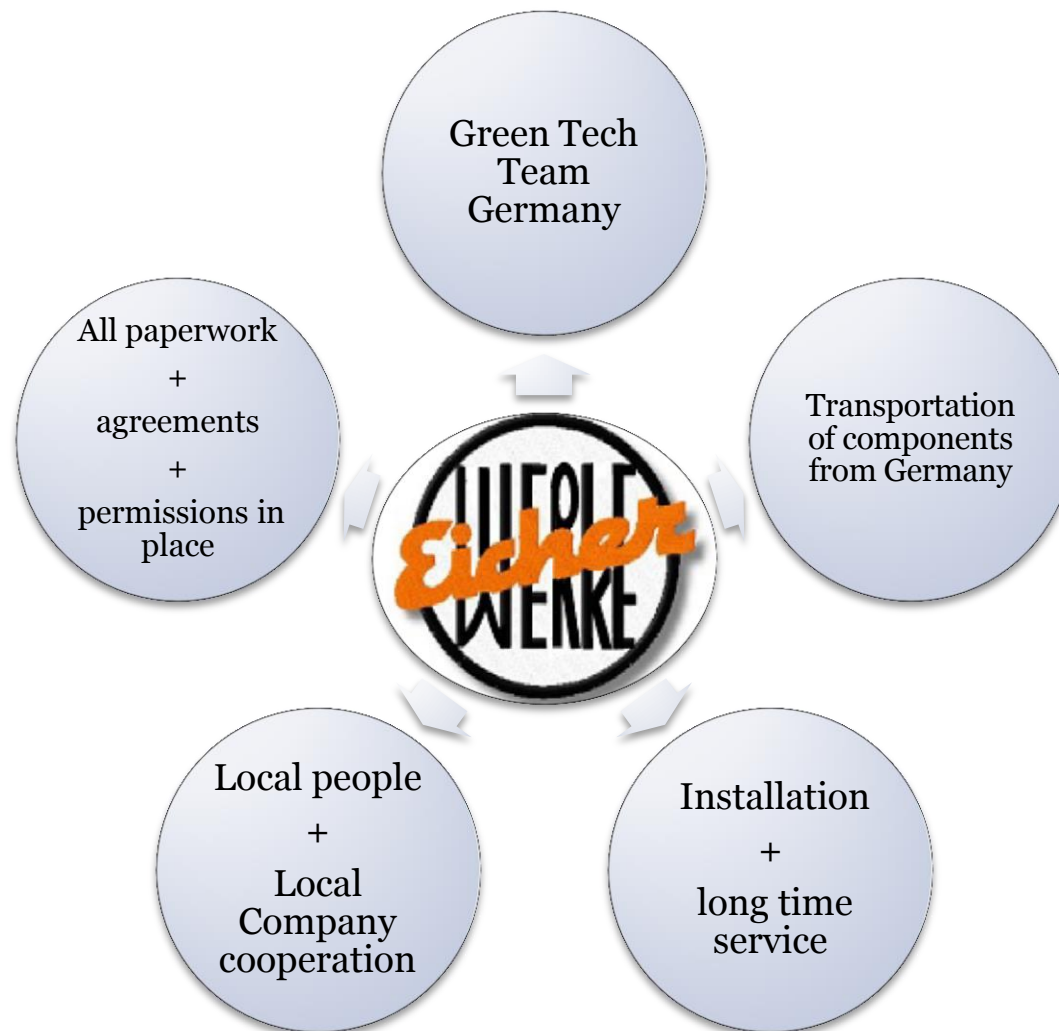
# Timeline for installing 500 street lamps

( Timeline example excluded delivery time)



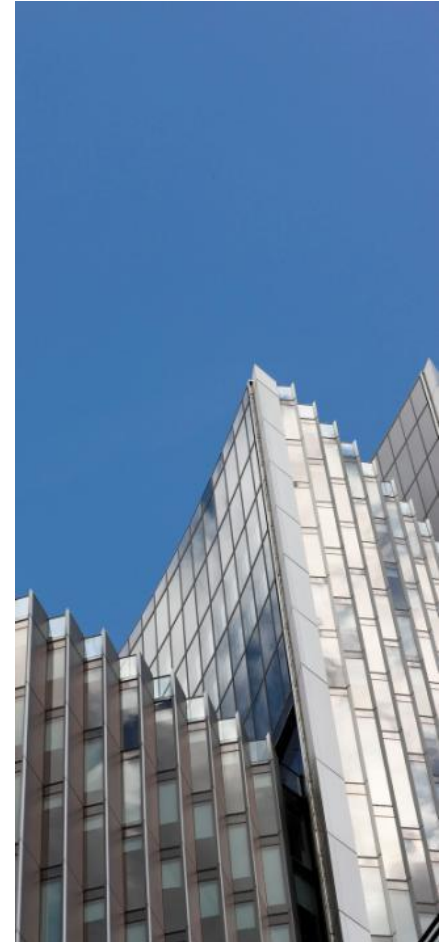


# Dependencies and Resources



# Next Steps

- Ordering 50 piece.
- Start build 50 pattern street lights
- Test running and you can see.....
- Ordering from the rest of your contingent
- Installation / building with our local partner + local people
- 5 years service included / 10 years additional charge
- Teaching from local people + production in Surinam for next Project





# Appendix

Antares series

Light Distribution

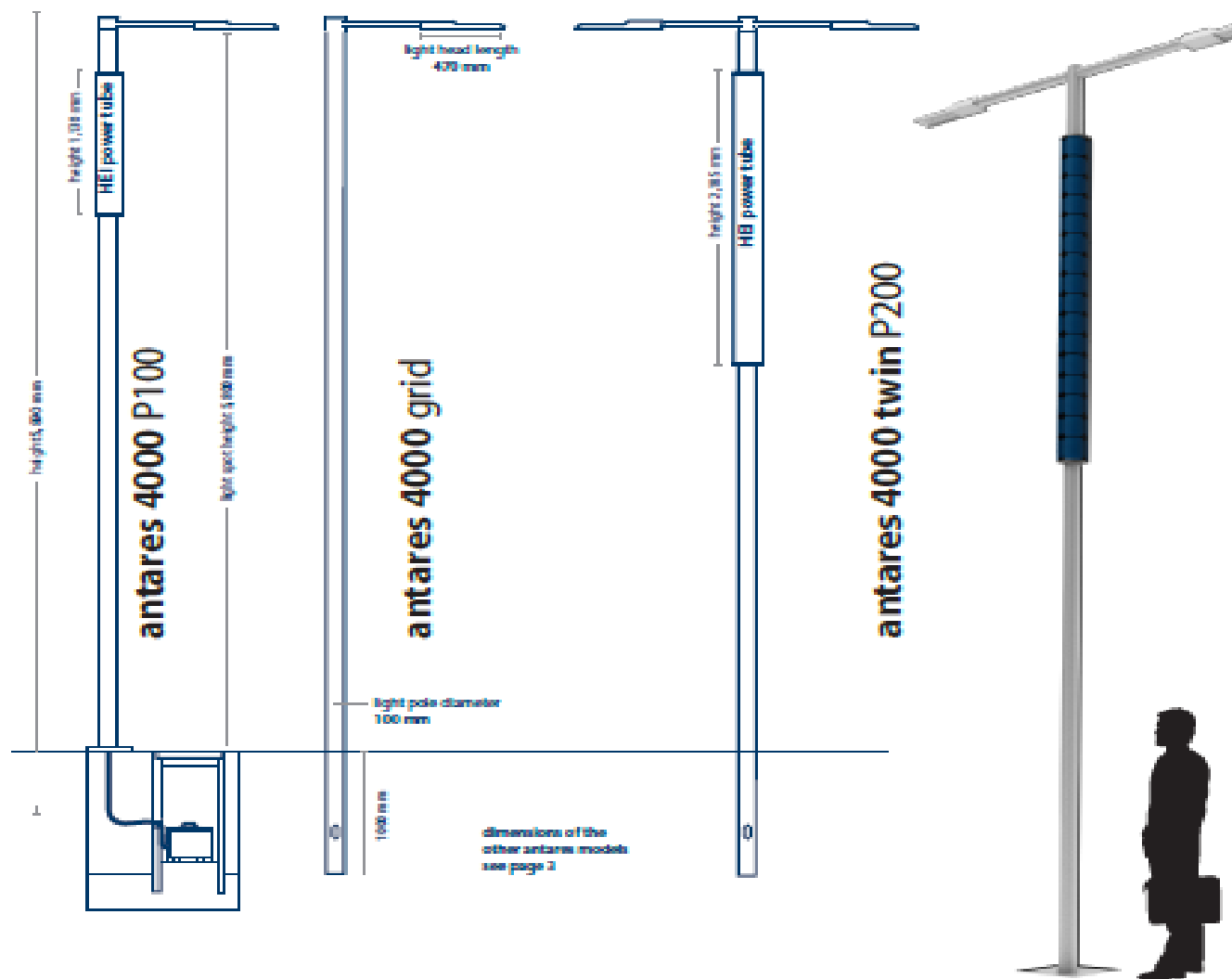
Installation example

Technical data

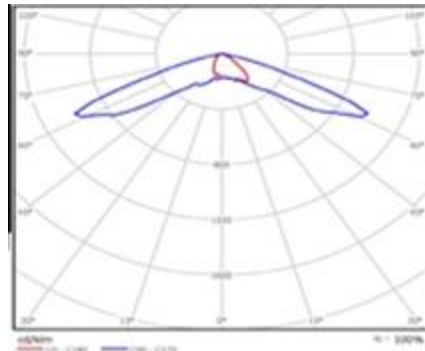
Reference Projects A, B, C



# Antares Series



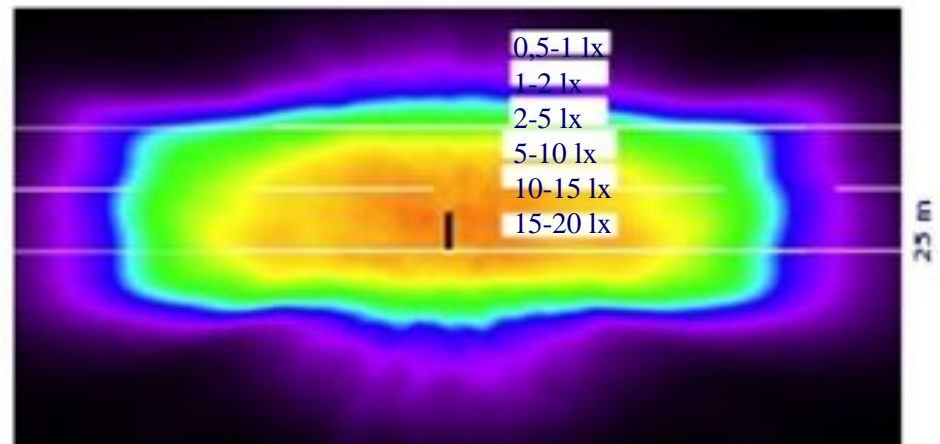
# Light Distribution - A



distance [m]	$E_{av}$ [lx]	$E_{min}$ [lx]	$U_0$
15	20	11	0.56
20	15	8.1	0.55
23	13	6.9	0.54
25	12	5.8	0.50
30	9.8	3.7	0.38
40	7.4	0.5	0.07

$E_{av}$  [lx]: average illuminance;  $E_{min}$  [lx]: minimum illuminance;  
 $U_0$ : overall uniformity; maintenance factor: 0.85

Lengthwise aligned; Antares 4000, light spot height: 5.8 m, tilt 0°



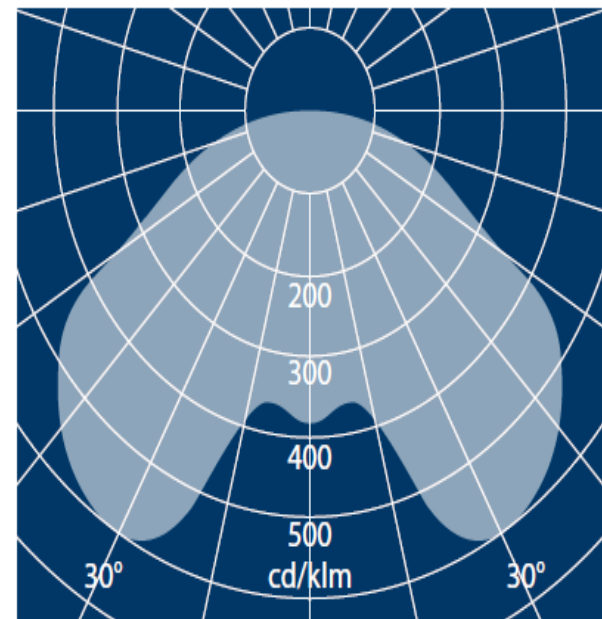
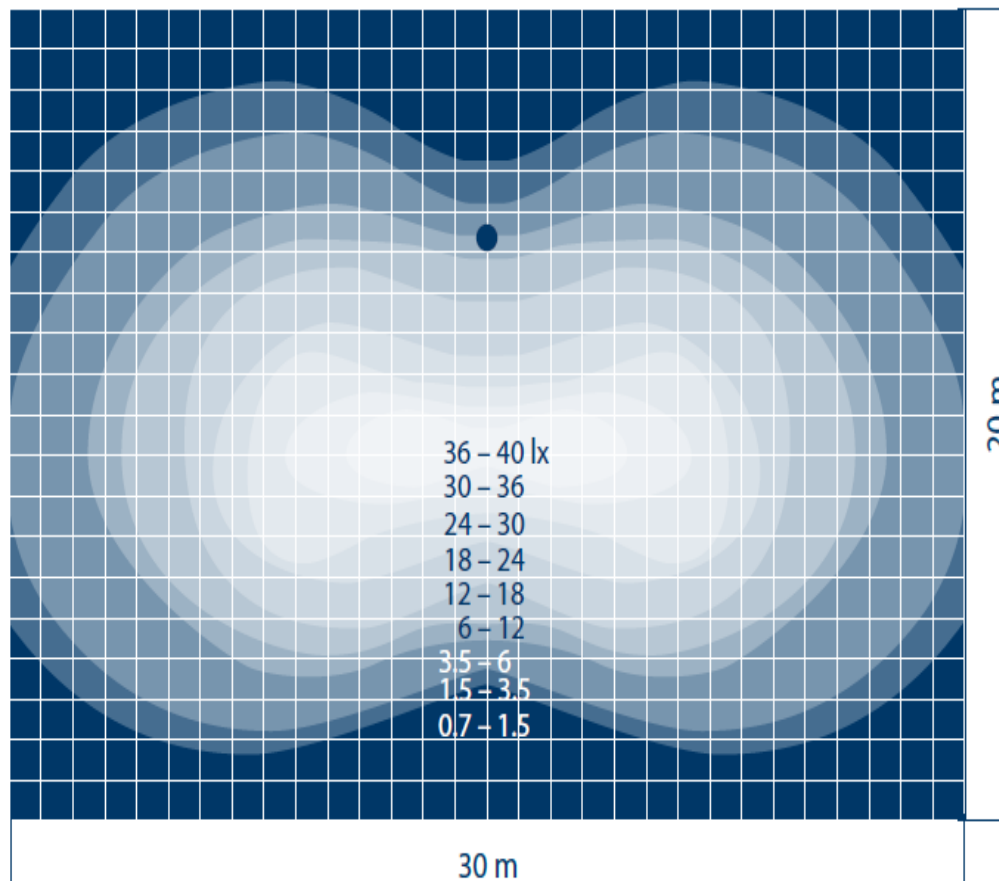
Flange plate  
according to EN 40-5



Hole spacing: 200 to 250mm

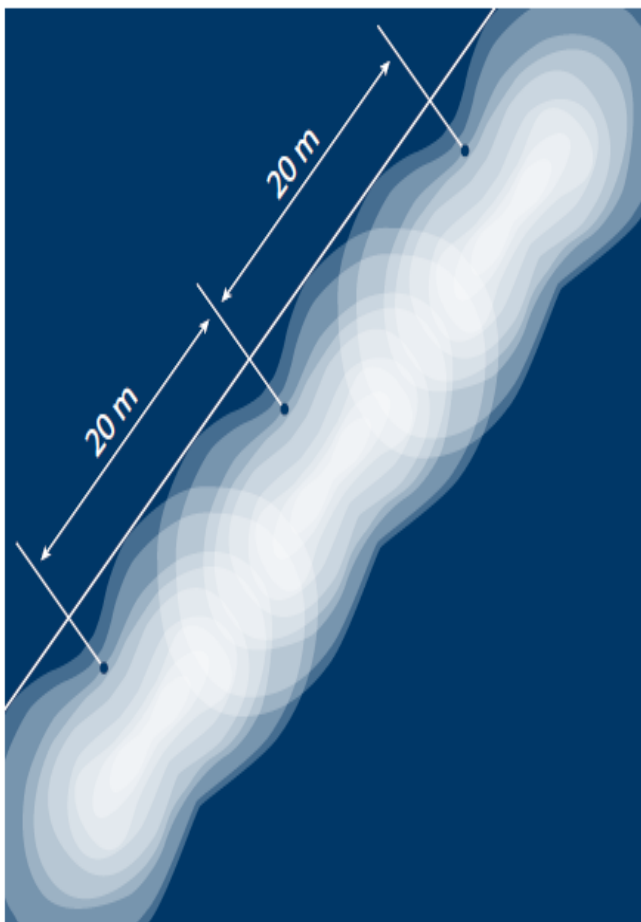
# Light Distribution - B

Light distribution: lengthwise aligned    Light spot height: 5.50 m    36 LEDs / 4,320 lm



# Installation Example

Distance between lights: 20 m    Average illuminance: 18 lx



## Illuminance

36 LEDs / 4,320 lm    at full operation    path-width: 7 m

distance [m]	area [sqm]	$E_{av}$ [lx]	$E_{min}$ [lx]
10	60	32.4	15.6
15	90	21.6	10.1
20	120	18	6.6
25	150	13.2	3.7
30	180	10.6	2
40	240	8	0.7
50	300	7.2	0.4

$E_{av}$  [lx]: average illuminance

$E_{min}$  [lx]: minimum illuminance

Illuminance in operation depending on local site conditions (average daylight available) and customer-specific lighting times.

# Technical Data of Antares Series

Model	antares 2000			antares 4000			antares 8000		antares 16000	
	P70	P100	twin P200	P100	P200	twin P200	P200	twin P400	P400	twin P400
	LIGHTING HEAD, OPTICAL FEATURES									
High-efficiency LEDs	3		2 x 3	5		2 x 5	10	2 x 10	20	2 x 20
Maximum power	12 Watt		2 x 12 Watt	20 Watt		2 x 20 Watt	40 Watt	2 x 40 Watt	80 Watt	2 x 80 Watt
Maximum luminous flux	2,220 lm		2 x 2,220 lm	3,700 lm		2 x 3,700 lm	7,400 lm	2 x 7,400 lm	14,800 lm	2 x 14,800 lm
Light output ratio	85%			85%			85%		85%	
	LIGHT HEAD, MECHANICS									
Light head width	130 mm			130 mm			130 mm		200 mm	
Light head height	70 mm			70 mm			70 mm		70 mm	
Light head length	470 mm			470 mm			670 mm		690 mm	
Length brackets	1,500 mm			1,500 mm			2,170 mm		2,170 mm	
Light head weight	3 kg		2 x 3 kg	2 x 3 kg		2 x 3 kg	7 kg	2 x 7 kg	18 kg	2 x 18 kg
	LIGHT SYSTEM									
Installation height	4,590 mm			5,890 mm			8,090 mm		10,090 mm	
Light spot height	4,500 mm			5,800 mm			8,000 mm		10,000 mm	
Diameter of light pole	100 mm			100 mm			100 mm		120 mm	
Weight (Solar)	ca. 100 kg	ca. 105 kg	ca. 120 kg	ca. 130 kg	ca. 140 kg	ca. 145 kg	ca. 175 kg	ca. 230 kg	ca. 250 kg	ca. 300 kg
	STREET LIGHTING									
Optimum pole distance	23 m	18 m	23 m	23 m	23 m	23 m	32 m	32 m	36 m	36 m
Typical street width	5 m	5 m	2 x 5 m	7 m	7 m	2 x 7 m	9 m	2 x 9 m	11 m	2 x 11 m
Typical illuminance	11 lx	14 lx	11 lx	13 lx	13 lx	13 lx	15 lx	15 lx	20 lx	20 lx
Lighting classes	CE5	ME5	ME5	CE4	ME4	CE4	CE3	CE3	CE3	CE3
	POWER SUPPLY OPTIONS									
Solar, Hybrid, Grid	S, H, G			S, H, G			S, H, G		S, H, G	H, G
	HEI POWER TUBE [SOLAR VERSION]									
Length of PV-tube	1,000 mm	1,525 mm	2,185 mm	1,130 mm	2,185 mm	2,185 mm	2,185 mm	2 x 2,185 mm	2 x 2,185 mm	2 x 2,185 mm
Diameter of PV-tube	140 mm	140 mm	180 mm	180 mm	180 mm	180 mm	180 mm	180 mm	180 mm	180 mm
Number of PV-cells	21 pcs	33 pcs	64 pcs	32 pcs	64 pcs	64 pcs	64 pcs	2 x 64 pcs	2 x 64 pcs	2 x 64 pcs
Nominal power output	69 Watt	109 Watt	210 Watt	105 Watt	210 Watt	210 Watt	210 Watt	2 x 210 Watt	2 x 210 Watt	2 x 210 Watt
	HEI POWER CONTROL [SOLAR VERSION]									
Capacity of battery 12V	36 Ah		75 Ah	55 Ah		120 Ah		250 Ah		
	HEI POWER CONTROL [GRID VERSION]									
Power consumption	15 Watt		30 Watt	25 Watt		50 Watt		100 Watt		200 Watt

