

**Robusta14000 / 105** is a street lamp system designed for applications where best **Life Cycle Costs** are needed combined with lowest costs for installation. The lamp is designed for a 60 mm diameter standard pole and have a solid design in casted aluminum with a modern design. Lamp is simple straight and have no special features except simple design low installation costs costs and excellent life cycle costs for many years. Lamp is designed and developed in Sweden with highest demands in quality and reliability. Lamp have our special cold finger design for best LCC costs and longest life time. LED and driver shall not be to warm. We are happy to offer full **10 years warranty of the complete lamp.**

### Features of Robusta 14000 / 105 street LED lamps.

- \* Led emitter of COB type with highest optical efficiency up to over 214 Lumen / W from emitter
- \* System efficiency and losses gives up to 133 Lumen / W in light flux out from complete luminaire
- \* European / US made key components designed for maximum life time and the reliability
- \* Unique cooling design makes components to operate at lower temperature than normal lamps
- \* Natural white light at 5000 K in color temperature and CRI 70 or better
- \* Power consumption is 105 W and 14000 Lumen light flux with unique performance in efficiency
- \* Rectangular output beam for best adaption to road like surfaces and lowest waste light spread beside important areas ( Light Pollution ) . Special high quality glass lens in BK7 glass.
- \* Solid design is solid casted aluminum with powder paint coating. IP 66 encapsulation.
- \* Mount that handle horisontal 60 mm diameter poles for horisontal mount. Optional swivel mount.
- \* Life times MTBF over 300 000 hours for booth driver and LED emitter. L70 tested to 396 K Hours
- \* Very good Life cycle costs with 10 years warranty and over 30-35 years expected lifetime
- \* Tropical design for high humidity, anticorrosion to salt and arcing protection to thunder and lightning bolts.
- \* Casing injection moulded in Aluminum and power painted ( Only this component from China )
- \* Reverse casing with no holes on top side of encapsulation for best sealing to water for many many years ahead.
- \* Optional timer with intelligent features and power controls. Sun switch as option.



**Robusta street lamps** This lamp is designed for best Life Cycle Costs ( LCC ) and earnings in low power consumption.

Why burn money and pay 30% more for electricity where the only happy are birds sitting lamps that will have warm fets.

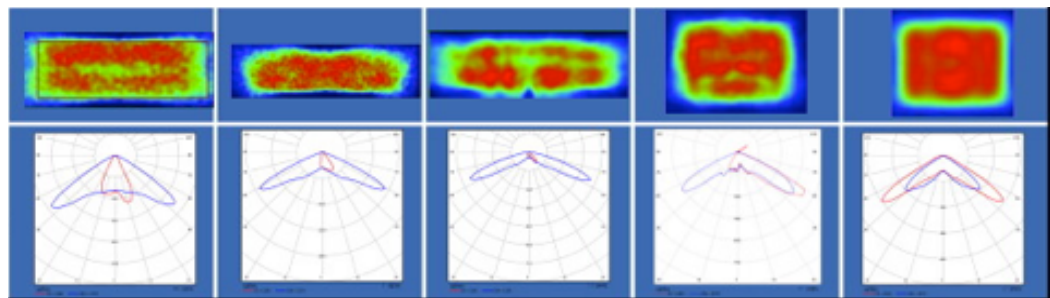
This lamp replace a 450 W Sodium or Mercury lamps or more in intensity and have far better and more uniform light distribution by special lens. Square / Rectangular beam output. Compared to other led street lamps we save typically 20-30% in electricity. With typically over 20-30 years lite cycle this difference is huge in costs.

**Technical specifications of Robusta led lamp series.**

Housing powder	Injection casted aluminum with black paint.
Weight	4,6 Kg complete with adjustable bracket
Dimensions	720x275x100 mm with 60 mm mount
Encapsulation	IP 66 waterproof and corrosion resistant to a very high degree. Stainless screws
Operating temperature	- 35 C to + 50 C in ambient air temperature
Connection	Cable 3x1,5 mm2 grounded plastic cable
Cable length	50 cm out of end of casted bracket, flying leads. No screw junctions to resist corrosion
Color temperature	5000 K natural white CRI color rendering index 70
Led emitter L70 spec.	COB array of USA / MTBT L70 397 K Hours / 70% Standard
Life expectancy	300 000 hours / 70% output and less 5 % maintenance and service
Lens system/ Window	BK 7 glass optics and 100% UV light resistant to degeneration (see image)
Illumination field of view	7 models available with bat wing lens design. Different patterns
Optics transmission	95% through lens
Input voltage	90-305VAC 50-60 Hz with Power factor 0.95 Start up time less 1 sec.
Surge/ lightning	All lamps have a 20 KA 1000 volt surge protection for lightning protection
CE standards	EN 61347-1 and EN 61347-2-13, ROHS 2011/65/EU, ROHS IEC 62031:2008+A1 Low voltage directive 2014/35/EU. IEC 72717:2014. ENEC -01559, EN55022 , CISPR22 Class B EN 61000-3-2 Class A. EN6100-3-3
UL standard	UL 8750, UL 935, UL 1012, UL 1310 Class 2, CSA-C-22.2 EN 55024 Industry level, Criteria A , 107.1, CSA C 22.2 No 223-M91 Class 2, Reach No 1907/2007 standard. MIL HDBK-217F ( 25C ) Comply with UL8750 & EN 61347 Safety regulations. Conflict material acceptance CFSI.



Examples of beam pattern on streets with the aspheric lens system we always use, We have 7 models today and we assist in what is best if we have



pole height, pole distance and road width.

Most roads need a beam of about 25 meter x 8 meter so image at right fits best here. Rectangular beam fits a road surface far better than other shapes. Often we can use longer distance between lamps ( Fewer lamps) as the very uniform light pattern still makes light better than what old Sodium and Mercury lamps can offer. Advanced aspheric un-linear optics get this output. Light pollution is highly reduces and this saves power as well as do not disturb neighbours. We use rugged BK7 glass lenses as they will not get yellow by age as plastics often do.

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All Registered companies

**Characteristics**

Light flux out of lamp  
 Light flux out of led  
 Input power in Watt  
 Lumen / W total light flux  
 4000 Hours operation / year

**Robusta Street lamp Model 2600 / 21**

14000 Lm  
 About 18000 Lm  
 105 W  
 133 Lumen/ W  
 420 KWH / Year

Light flux out from lamp in Lumen  
 Inside lamp out of 2 LED emitters  
 Into led driver. PF 0.95  
 Out of Luminaire all included  
 Power in KWH needed over 1 year

**Notes.**

Temperature affect characteristics so when we give a span in output and ty LED data based at 85C chip temperature but we are normally we have about 50C at 20C / ambient temperature.  
 LED emitters are always used far under recommended output in Lumen.  
 We have numerous options like timer, dimmer and detectors for all of our led lamps  
 450W+30W Sodium needs 1920 KWH and gives far less illumination of the street surface

- \* **L70 value** of LED is one point where the LED emitter keeps at least 70% of specified output in light flux. COB emitter is produced in USA by nr 1 globally in white led production volumes. Certified lab has tested L70 it to me 397 000 hours equal to over 90 years operation. Test is done at 85C in temperature while we use about 55C in most installations so we have more margins in promises that others. 10 years warranty is OK for us as reliability will be very good.
- \* **Meanwell led driver** is possible nr 1 in quality and reliability. MIL Spec is the most demanding procedure and we have over 300 000 hours MTBF / Mean time between failure. We have different models in different sizes and all are IP 65 or better and fully potted and sealed to water.
- \* **Aluminum casing** is a solid piece of casted aluminum designed to remove heat from led emitter and power supply in best ways. It is well analysed in aluminum thickness to keep all inside as cold as possible. General rule say 7 C lower temperature double life time of components. We have an own special solution called cold finger that distribute and cool better. The casting is the only China made product in this lamp. Casing have all seals at down side to avoid future water leaks of bad sealings.
- \* **Anti corrosion design** is a key as after 10 years and up often corrosion make problems and finally stop lamp. Stainless screws and rubber gaskets keep moisture out. We have no screw connection inside unit as this is a weak point and only solder connections with sealed shrink hose at outside. This keeps corrosion out.
- \* **Electricity and power** is the most costly part of operation. Often electricity is so costly that costs will pay a new lamp unit each less 2-3 years. Here we are possible by far the lamp with highest Lumen/ W ratio. Pls note many talk about LED flux inside lamp where we measure what really comes out of the lamp.
- \* **Sodium and mercury lamps** Typically we save 75-90 % of electricity and offer same light quality at street surface.

**Here is the very large earning in costs !**



- \* **No problem**

**operation.** In real life we expect that if lamp is installed in a 20C night time temperature area with rainy and wet weather we will have a reclamation level first 10 years of less 0.25% / year and between 10-20 years 0.5%

- \* **Warranty**

We offer 10 years warranty for entire lamp.

- \* **Financial solution**

If all is a solid project we can often offer a financial solution that is attractive. Costs from day 1 is cheaper that todays budget as we get paid by savings of power alone. Contract is between 3 and 7 years. Pls discuss this with us !