

OUTDOOR
LIGHTING

ROSA



 **Nordic
EcoEnergy**

Svensk återförsäljare

Nordic Eco Energy AB, Skelleftehamn

Tel. 070-644 2816

info@nordicecoenergy.se - www.nordicecoenergy.se



**ECOLOGY
FIRST**





Ecology, economy, safety, aesthetics

This, in a few words, is how you can describe ROSA Company's mission, which we have been implementing for over 31 years.

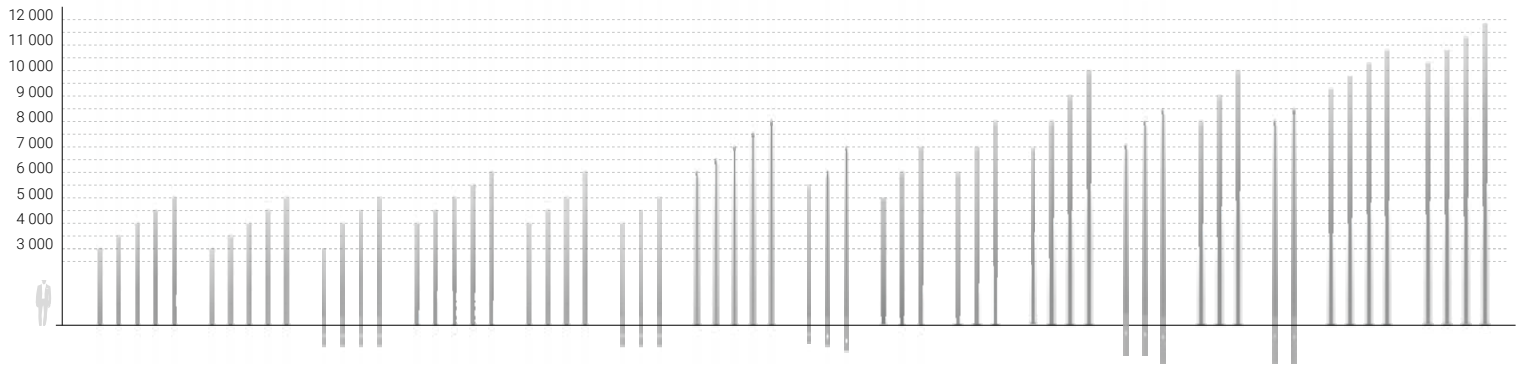
We fight about our planet by choosing eco-friendly materials with a low carbon footprint.
We understand the economical approach, which is why we have confirmation for 50-year service life of our aluminium anodised products.

We care about safety by verifying that our lighting columns meet passive safety standards.
We focus on aesthetics offering a wide range of design possibilities for our products and an option to choose from 10 anodising colours.

See how we do it.

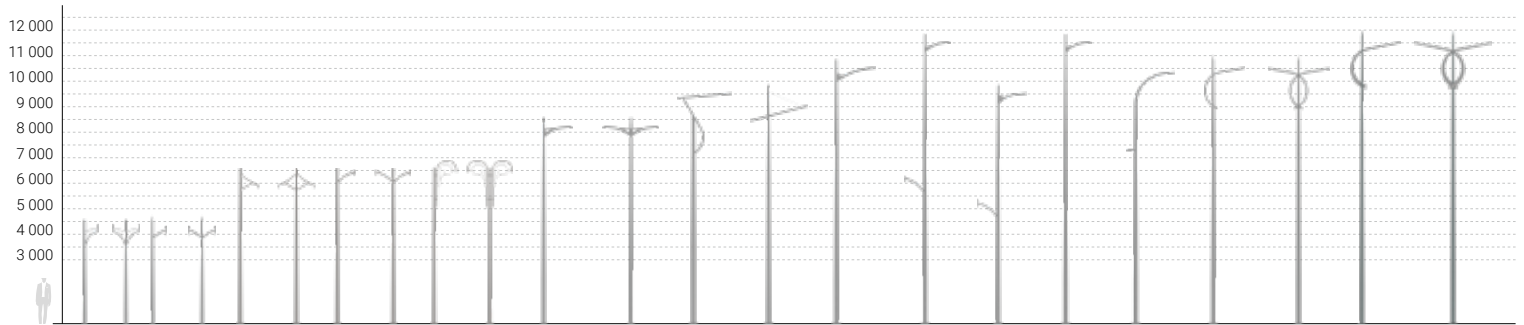
Straight aluminium columns

48-75



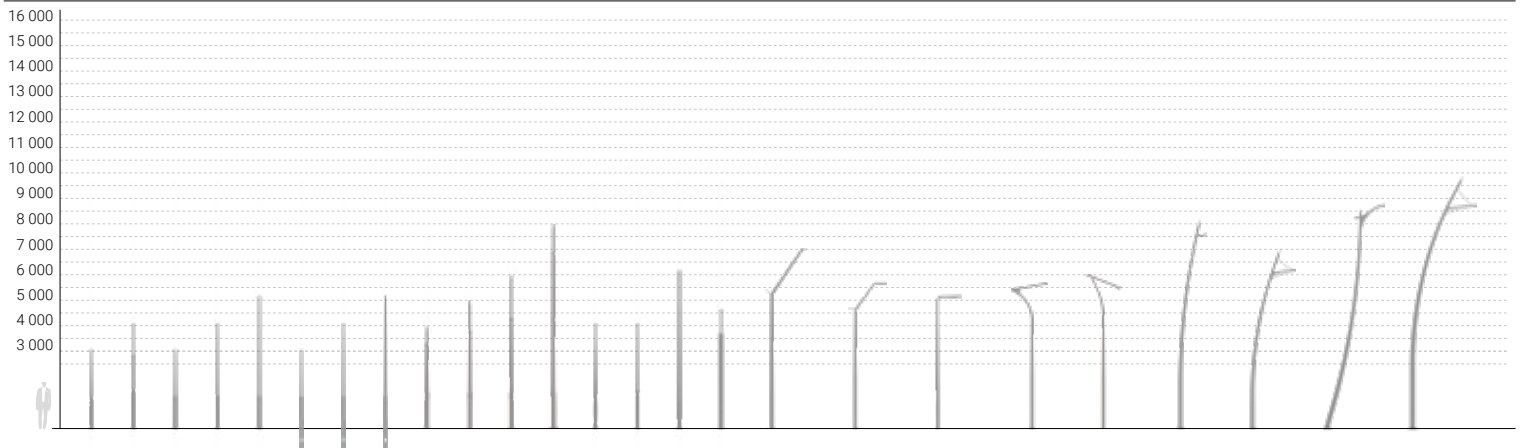
Aluminium columns with welded extension arms

76-87



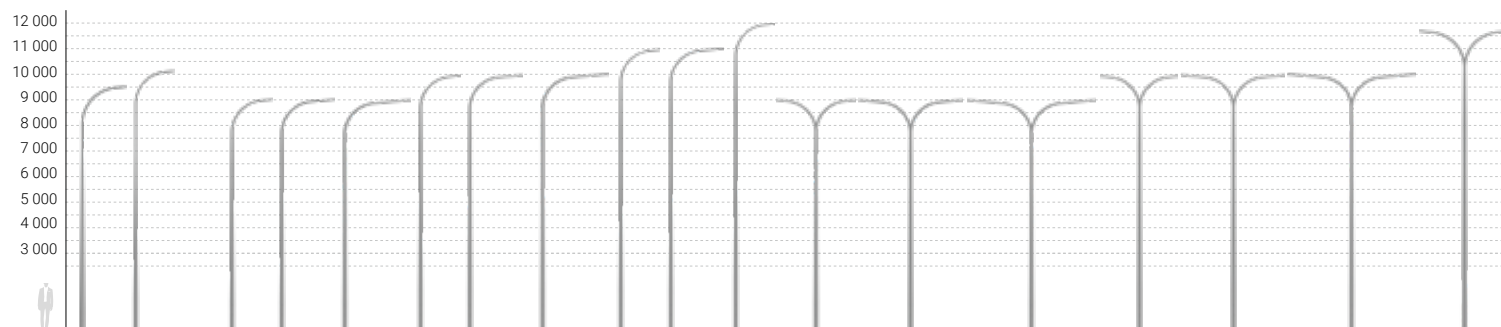
Decorative aluminium columns

88-101



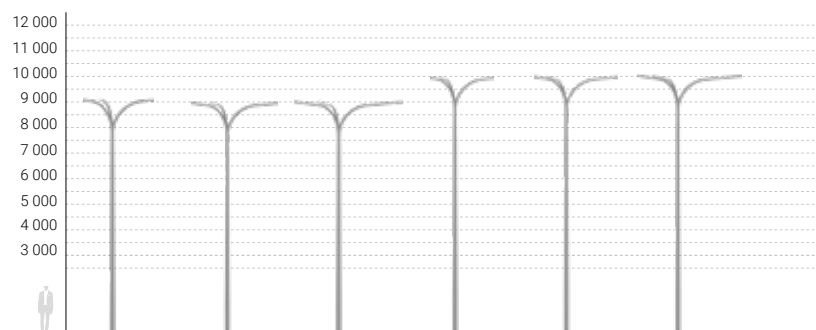
Two-piece aluminium columns with curved extension arms

102-107



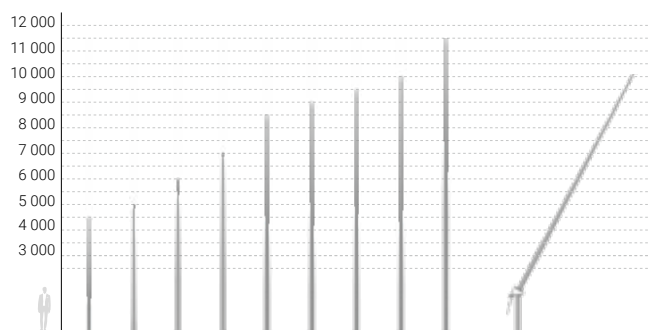
Two-piece aluminium columns with curved extension arms

108-109



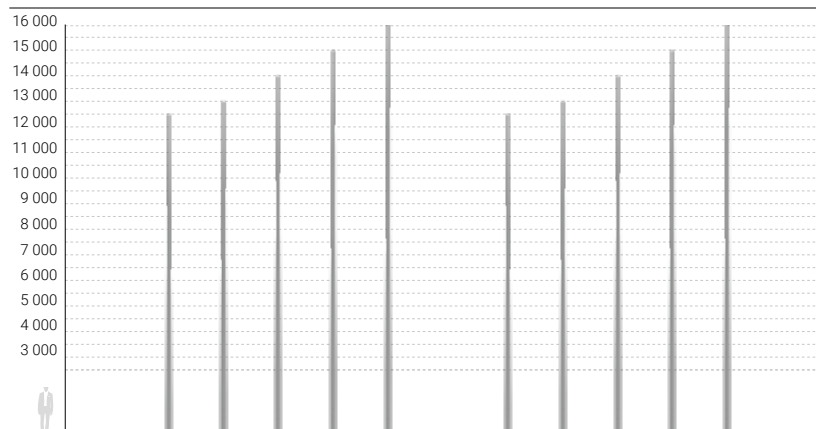
Lowering-and-raising columns

110-113



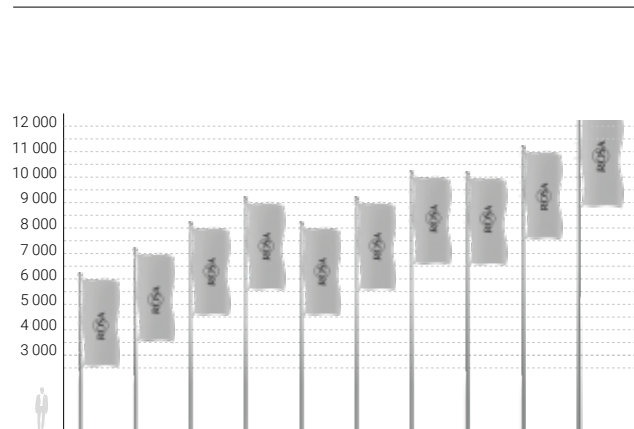
Aluminium light masts

114-115



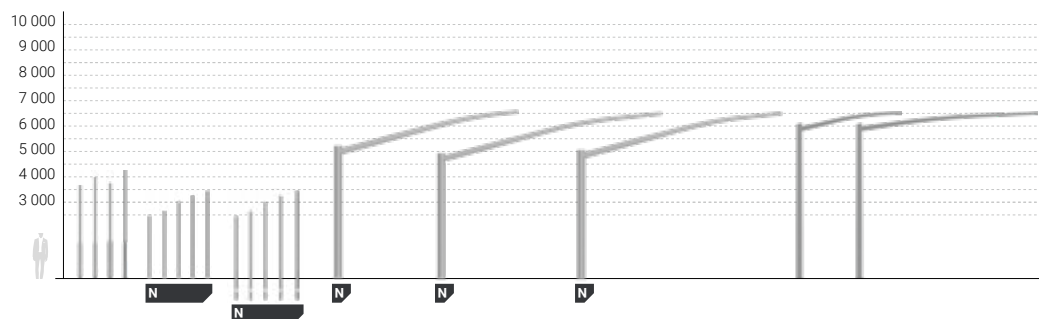
Aluminium flag poles

126-127

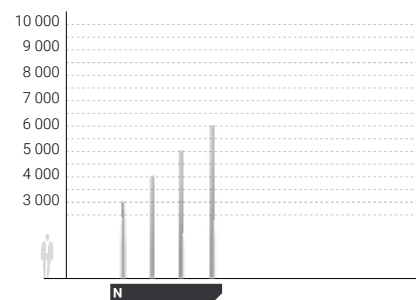


Aluminium columns with photovoltaic panels

116-125



Aluminium columns for CCTV 128-129



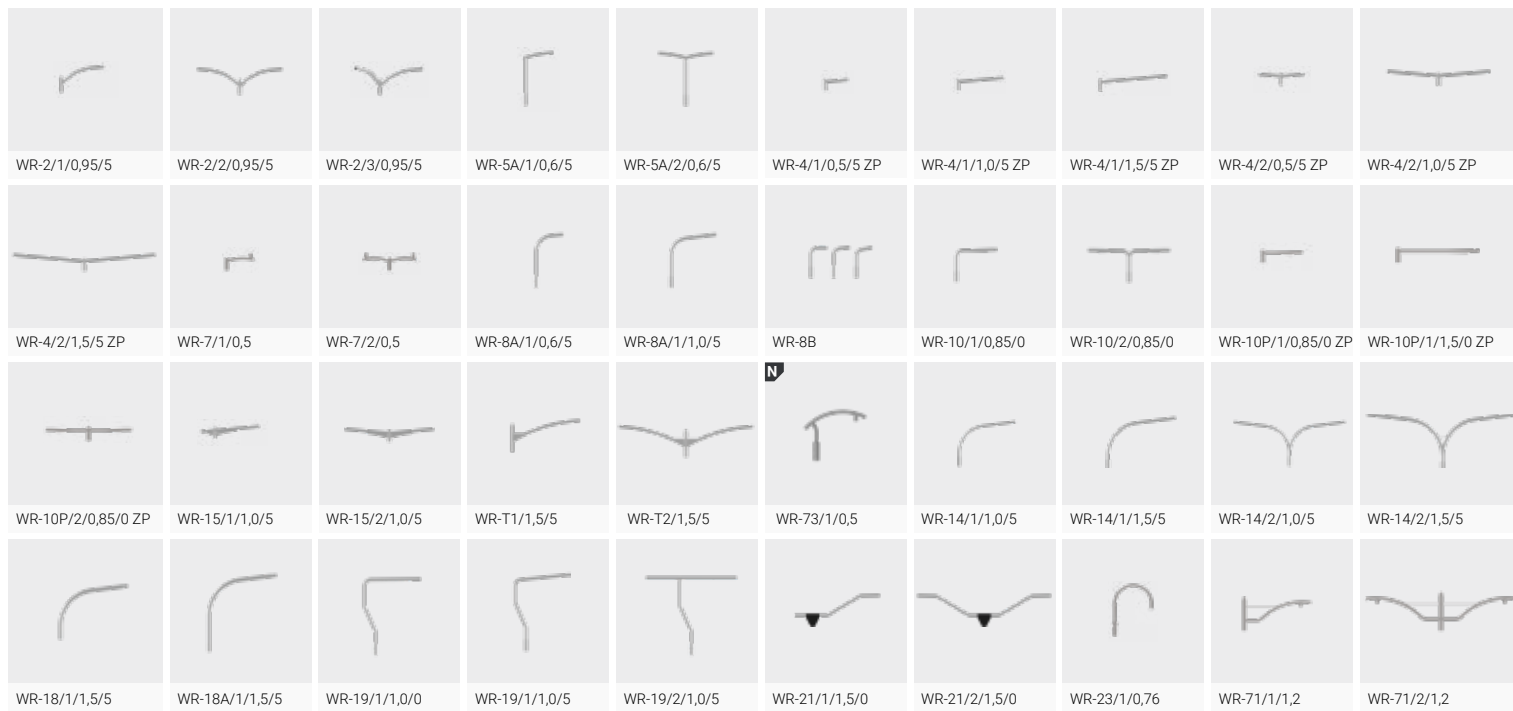
Aluminium extension arms WA

132-133

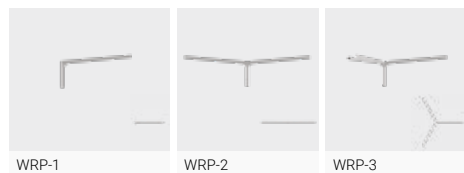


Aluminium extension arms WR

134-143

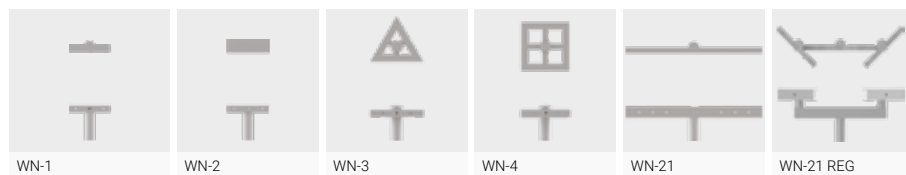


Aluminium extension arms WRP 144-145



Aluminium extension arms WN

146-147



Aluminium extension arms WM

148-149



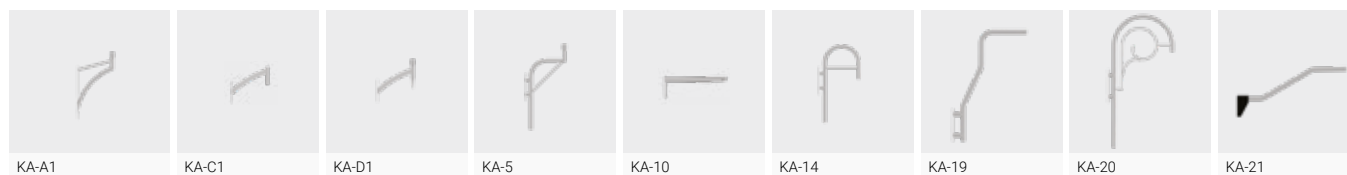
Aluminium extension arms WRK

150-151



Aluminium wall brackets KA

152-153



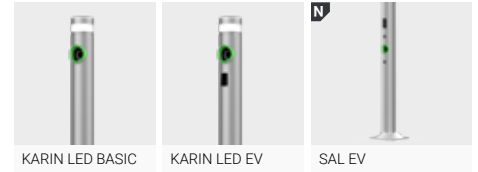
Aluminium column with photovoltaic panels

156-159



Charging stations

164-169



LED luminaires

186-231



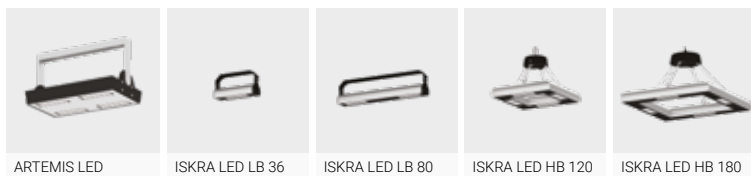
LED luminaires for pedestrian crossings

236-245

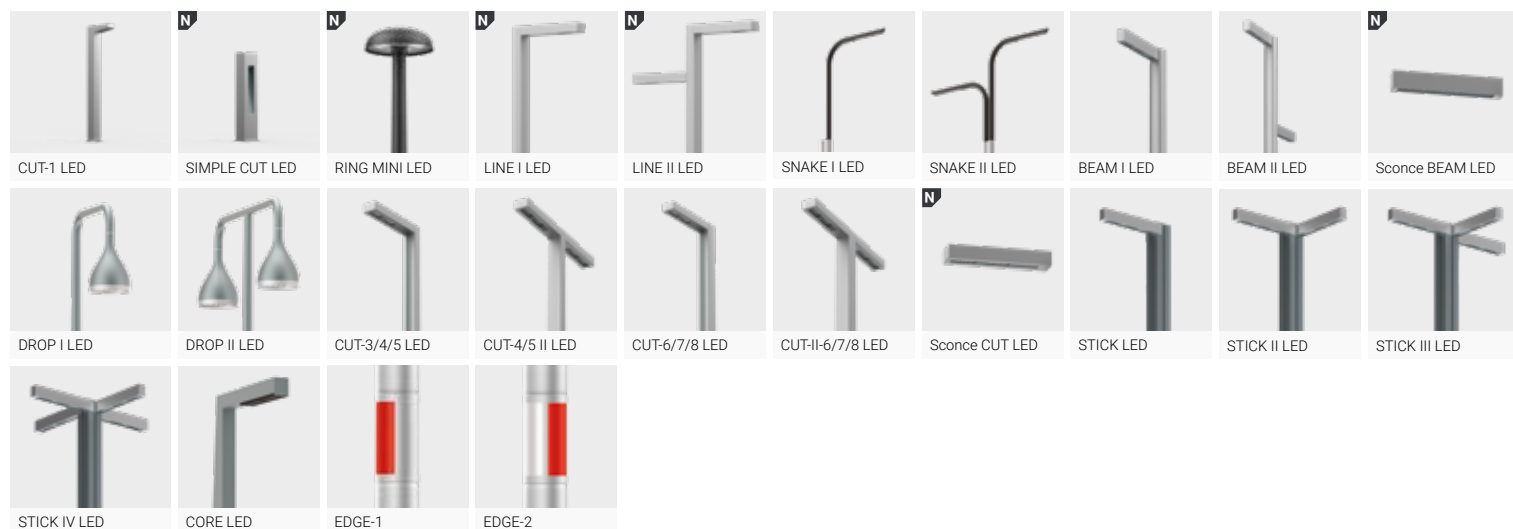


Industrial LED luminaires

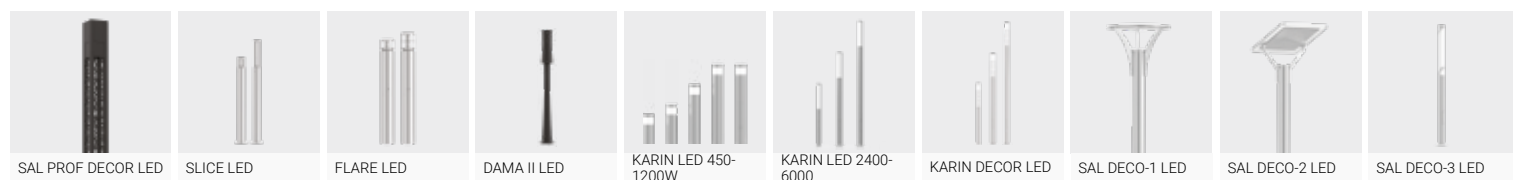
246-251



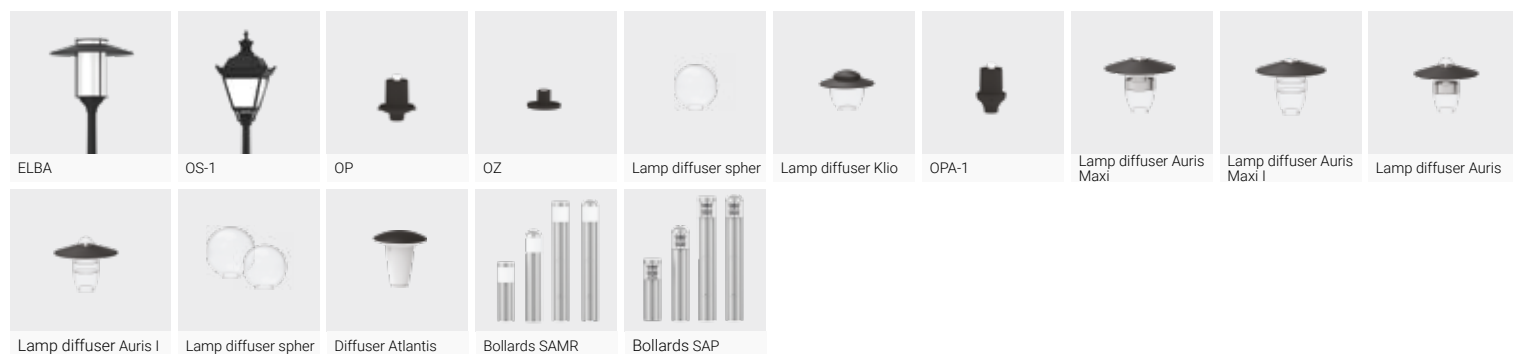
LED lighting sets



LED lighting columns

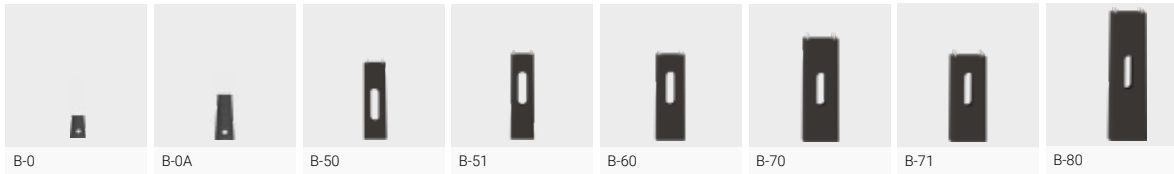


High-intensity discharge luminaires



Concrete footings

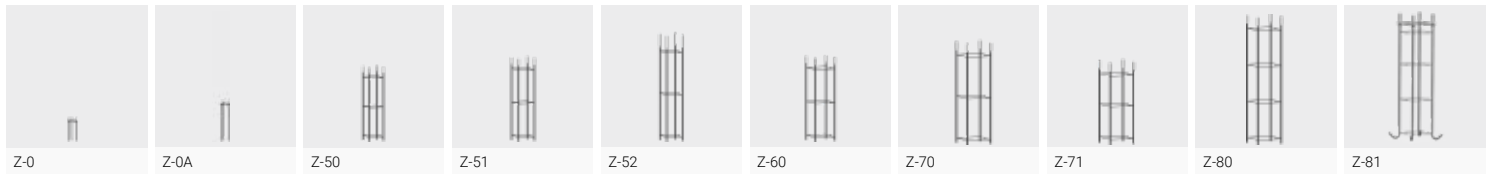
350-351



B-0 B-0A B-50 B-51 B-60 B-70 B-71 B-80

Reinforcement baskets

352-353



Z-0 Z-0A Z-50 Z-51 Z-52 Z-60 Z-70 Z-71 Z-80 Z-81

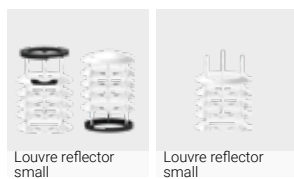
Connection boxes

354-358



NTB-11 NTB-12 NTB-1 NTB-2 NTB-3 TB-1 TB-2 TB-11 TB-12

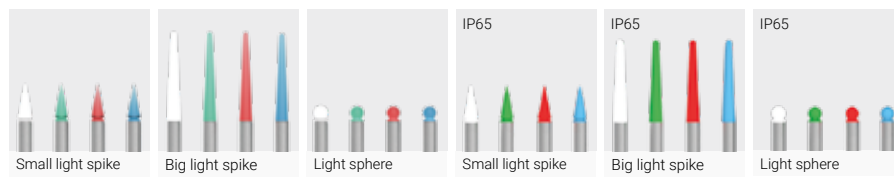
Louvre reflectors 359



Louvre reflector small

Louvre reflector small

Decorative elements 360



Small light spike

Big light spike

Light sphere

Small light spike

Big light spike

Light sphere

Symbols

	New
	ENEC certified
	Symbol CE
	Insulation class I
	Insulation class II
	Ingress protection IP65
	Ingress protection IP66
	Input voltage 230 V AC
	Input voltage 220-240 V AC
	Possibility to connect to an external control system via DALI
	Surge protection device 10 kV
	Operating temperature range from -40° to +55°
	Operating temperature range from -40° to +40°
	Material aluminium
	Symbol CE, Standard EN 40
	100-NE-C-S-SE-MD-0 – energy absorption levels according to standard EN 12767:2019
	The option of anodising in 10 colours

ROSA

Today, ROSA is one of the leading manufacturers of outdoor lighting, and our products are located in more than 70 countries around the world. We have now entered the fourth decade of our activity, constantly developing, and employing over 300 employees people working on 38,000 m² of space. But it wasn't always this way.

Beginnings

In 1992, the company founded by Stanisław Rosa employed only a few people. A lot has changed since then, and today, ROSA is one of the leaders in the lighting industry and a thriving company

However, the company grows thanks to the people who work in it. ROSA is a specialised team of engineers, a reliable group of conscientious production and anodising plant employees and the best specialists in the industry in Poland, characterised by an individualised approach to each client.



Polish production

We are a Polish company that cares about the development of Polish economy. That is why the entire production process – from design, through production, anodising, to research – takes place in Poland, specifically in Tychy (Silesian Province) in the Tychy Subzone of the Katowice Special Economic Zone in 4 production plants:

- at 1 Strefowa Street
- at 16 Cielmicka Street
- at 13 Towarowa Street
- at 54 Towarowa Street

Location of all ROSA branches is a guarantee of supervision at every stage of production, which also affects the high quality of our services and products that we offer. Locating all plants close to each other also allows for a significant improvement and acceleration of work, which means faster delivery time for the customer.



Innovation is us

We develop our own technical thought – our engineering staff and project teams are constantly developing innovative methods of product manufacturing. Our own ROSA anodising plant guarantees supervision over the entire anodising process and accelerates the execution of the order. The anodising process is fully automated, which allows interference or electrochemical colouring of aluminium elements up to 10 m long including complex shapes and in 10 colours.

In 2019, we completed the construction and commissioned another ZPSO III plant at Towarowa Street. Since then, on more than 10,000 m², thanks to the use of innovative machines, robots, and the creation of a machining centre, we have led to full automation of the production process.

Thanks to this, today it takes us 5 minutes to produce a 5-meter column.

In 2021, in the newly built ROSA office building with a usable area of over 3,000 m², the modern design and development centre and research laboratory were created. Designers constantly test and improve production technology so that our product is unrivalled.



Research centre of the future

It is a laboratory equipped with modern devices for measuring the quality of anodic coatings. Thanks to the spark spectrometer, we can determine the quantitative composition of alloying additives, based on which, it is possible to qualify aluminium alloys for anodising. The high-class spectrophotometer enables the measurement of the coatings' colour quality, broken down into spectral bands, as well as the intensity of colour and the level of their tarnishing. Both devices guarantee the highest quality of anodising, which affects the unrivalled performance of our products.

Research & Development Laboratory

In the research and development laboratory, we conduct research and analyse the impact of different environments on the strength and quality of the materials we use. We do this using:

- climatic chamber, dust chamber, thermal chamber, NSS and CASS salt chambers, aging chambers (xenontest)
- Tensile Testing machine
- test benches: fatigue, glowing wire, photobiological safety, IP

The laboratory is also equipped with:

- Ulbricht integrating sphere for advanced lighting research
- goniophotometer to examine the distribution of light intensity

In the laboratory, we personally analyse the components of our products in terms of heat conduction, corrosion resistance, resistance to UV rays, determination of light distribution and photometric properties of the diodes used.

Thanks to this, we have full control over the production processes – starting from raw materials and ending with final products. Only this guarantees us the high

quality and reliability of the finished product, the service life of which reaches 50 years.

Design with awards

We know how important it is to stand out, which is why we are open to new ideas and are constantly looking for innovative solutions, that simply look beautiful in the chosen place. Thanks to this, our creative approach to lighting has been repeatedly distinguished by both Polish and foreign specialists:

- DROP LED lighting set, which was awarded in the international Red Dot Award
- SNAKE LED lighting set was honoured with a prestigious award in the national Good Design competition

ROSA – and it's all (b)right now!

Cooperation with ROSA is a guarantee of support and advice of experts, who care about the client. We are guided by a combination of tradition and experience supported by innovative, creative ecological solutions and our own technological thought. These advantages make us recognizable in Poland and in over 70 countries around the world, to which we export our products.



Anodised aluminium columns production

Material

Cooperation with ROSA is a guarantee of support and advice of experts, who care about the client. We are guided by a combination of tradition and experience supported by innovative, creative ecological solutions and our own technological thought. These advantages make us recognizable in Poland and in over 70 countries around the world, to which we export our products.

Standard columns production technology

Two automatic production lines have six technologically advanced stations each, which, depending on the needs, can work simultaneously or separately. Full automation of the production process of anodised aluminium columns significantly increases efficiency. It allows us to produce 1 meter of aluminium column within 1 minute. As a result, the production of a five-meter ROSA column takes only 5 minutes.

The production lines of ROSA anodised aluminium columns are the only such investments in the world, and the innovative solutions used in them are protected by patents and every stage of the production process is subject to strict control.

Non-standard columns production technology

Innovative production lines open many possibilities. Therefore, in addition to catalogue projects, we also carry out individual orders, in accordance with original projects.

We offer both minor modifications, based on typical products included in the catalogue, as well as brand new projects, completely different from our standard offer. Experienced engineering staff in the design and technical department performs the design and valuation for every customer inquiry.

Everything is possible when you have an extensive and modern machine park with such devices as a waterjet cutting machine, laser cutting station, CNC machine tools or bending machines for columns, sheets and pipes. These devices allow us to make various details with complex shapes, cut decorative elements for columns and extension arms and bend columns and extension arms to a given radius.



Column construction – wiring chamber and screws

It is worth knowing that each aluminium lighting column has a wiring chamber, in which connection boxes are installed. At ROSA, the wiring chamber cover is cut with a laser (straight columns) or on a specially designed saw (in the case of columns manufactured outside the technological line) and fixed by bolts. The wiring chambers of aluminium columns, which are laser cut on the technological line, have an ingress protection IP54. The closure of the chamber is equipped with a catch (lock) welded into the cover and chamber, so that the cover additionally transfers the load resulting from the column's operating conditions.



Wiring chamber in anodised aluminium columns

Bolts for wiring chamber cover

Safety of use is a priority. That is why the wiring chamber door is secured with M8 stainless steel bolts with a special, unusual socket shape, which prevents unwanted persons from opening the chamber. O-ring washers are fitted to each bolt to prevent them falling out during unscrewing. At the customer's request, the column can be equipped with triangular head bolts.

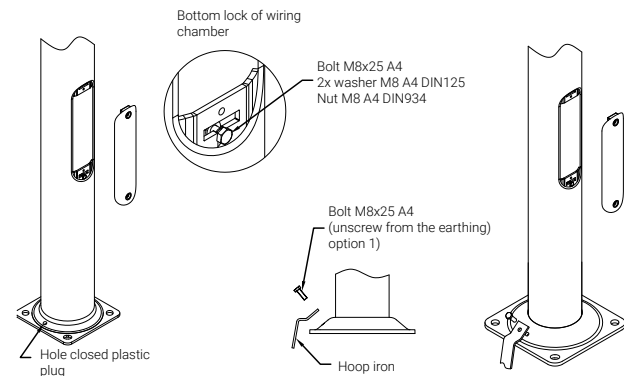


Triangular key and bolt

Hexagonal key and bolt

Column construction – earthing

Of course, we ensure the earthing of our columns. Therefore, in the hole of the lower wiring chamber lock there is a M8 bolt for screwing the earthing wire. This location allows easy access to the bolt and thus for quick assembly and maintenance. But this is not the only solution. An alternative to the earthing used in the wiring chamber is an additional earthing in the column's base-plate made as standard. This solution can be used especially when earthing columns with a hoop iron. In this case, earthing is carried out on the base of the column. The earthing hoop iron is being screwed to the base-plate of the column using M8 bolt taken from the wiring chamber (option 1) and screwed into the hole made in the base-plate. When using option 1, the hole will remain closed with a plastic plug.



Earthing option 1

Earthing option 2

Column reinforcement

Column reinforcement

Our offer includes columns marked with the „wzm“ index. This means that they have a reinforcement. Reinforcing the column within the base and wiring chamber with an additional tubes or thicker wall allows the use of more luminaires or extension arms, as well as their installation in places exposed to large wind speed.

Connection of two-element columns

We provide a permanent connection of two-element anodised aluminium columns thanks to the use of a specially constructed connector made of stainless steel.

The connecting element is secured by using:

- 3 M10 bolts – for two-element SAL type columns,
- 4 M10 bolts – for two-element MAL type masts



Connecting element for two-element SAL type column



Connecting element for two-element MAL type column

Acceptable column loads

Designing of lighting columns is based on the EN 40 group of standards. Thanks to the company's control system, we have obtained the Certificate of Constancy of Performance, which confirms that the manufacturer meets all the requirements contained in the following standards of the EN 40 group and ensures that they are maintained in continuity.

1. EN 40-1 – Lighting columns – Terms and definitions
2. EN 40-2 – Lighting columns – General requirements and dimensions
3. EN 40-3-1 – Lighting columns – Design and verification – Specification of characteristic loads and referenced EN 1991-1-4. Design basics and impacts on structures.
- 2-4. Wind loads.
4. EN 40-3-2 – Lighting columns – Design and verification – Verification by means of research.
5. EN 40-3-3 – Lighting columns – Design and verification – Verification by means of calculations.
6. EN 40-6 – Aluminium lighting columns – requirements
7. EN 40-5 – Steel lighting columns – Requirements

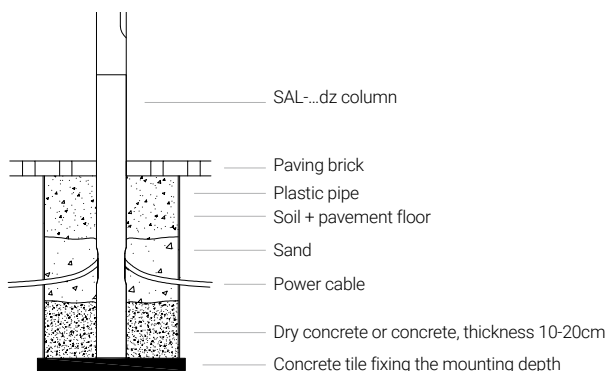
These standards are not just a series of recommendations. They also specify the

method of determining the permissible load of the column structure. When calculating the permissible load of columns, many characteristic parameters are considered, such as: average wind speed, terrain category, horizontal deviation, or shape factor.

Resistance calculations

Calculations of column's resistance are performed in an original calculation program in accordance with the applicable requirements contained in EN 40 and EN 1991-1.4. Resistance is calculated for columns without a wiring chamber cover.

Recommendations for SAL-...dz column installation method



1. Dig a hole in the ground at the installation site.
2. At the bottom of the hole, place a concrete tile to fix the depth of installation.
3. Insert a plastic pipe of suitable diameter (at least twice the diameter size of the column) into the hole with the holes prepared on the sides to feed the power cable. The length of the pipe should be long enough so that its edge does not interfere with the subsequent installation of paving bricks.
4. Cover the outside of the pipe with soil, so that the groundworks can be completed with laying paving bricks.
5. Unscrew the wiring chamber cover.
6. Place the column in the hole manually while inserting the power cables to the holes in the underground part of the column, so that their ends appear in the open wiring chamber of the column.
7. Place the column vertically and/or block the column in this position, if possible, with the help of wedges.
8. Pour dry concrete or concrete into the hole to a depth of approx. 10-20cm. This constitutes the basic stabilisation of the column.
9. Then pour sand into the hole in the amount to cover the power cables along with holes in the column. Sand protects against damage to the cables.
10. Cover the rest of the hole with soil and compress. Fill in the missing part of the pavement around the column.
11. After completing these steps, proceed to the operation of mounting luminaires, extension arms and connection boxes.

Warning! On the columns up to 5m, where luminaires with mounting directly at the end of the column are used, it is possible to put them on before starting the mounting to the ground, eliminating the need to rent a car with a lift.

Passive safety

Aware of the safety requirements expected from the producers of lighting columns, to minimise the danger resulting from road accidents we have carried out passive safety tests on our products according to standard EN 12767:2019 "Passive safety of support structures for road equipment. Requirements and test methods."

As a result of the tests, we identified class of passive safety for aluminium columns in heights from 2 to 12 m:

- SAL and MAL from $\varnothing 114$ to $\varnothing 225$ mm rooted, which have been classified:

100-NE-C-S-SE-MD-0; 70-NE-C-S-SE-MD-0; 50-NE-C-S-SE-MD-0

- SAL from $\varnothing 114$ to $\varnothing 180$ mm with base-plate, which have been classified:

100-NE-B-S-SE-MD-0; 70-NE-B-S-SE-MD-0; 50-NE-B-S-SE-MD-0

Where:

50, 70, 100 – tested impact speed

NE – non-energy-absorbing construction

B, C – Occupant safety class

S – Backfill type: standard.

SE – Collapse mode: Separation from the foundation

MD – Direction class: multidirectional

0 – Risk of roof deformation: low risk < 102mm

Categories and parameters

Construction categories in respect of the energy absorption degree:

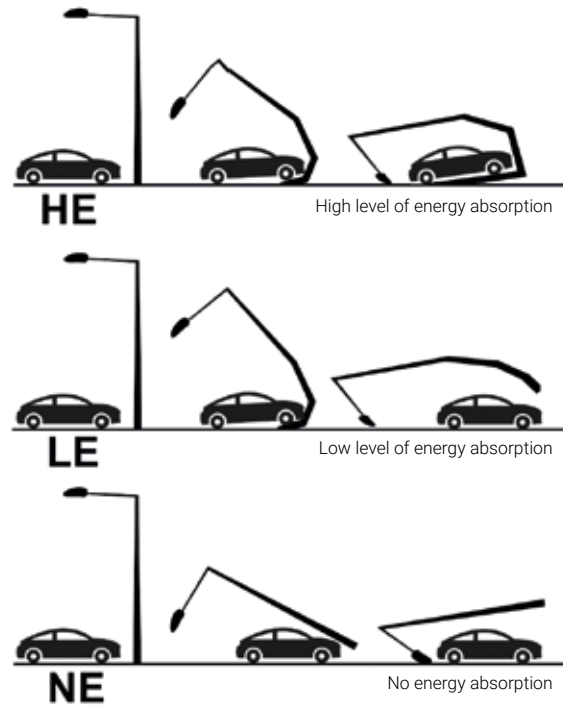
HE – high level of energy absorption

LE – low level of energy absorption

NE – no energy absorption

Class „0“ – passive safety requirements are not met

Levels of energy absorption according to EN 12767



Anodising process

ROSA Anodising plant

Since 2009, the anodising plant of aluminium products has been part of ROSA, which today is one of the largest plants of this type in Central and Eastern Europe. Anodising is performed here with electrochemical and interference colouring of aluminium materials, among others: sheets, pipes, profiles, or other structural elements.

Modern interference colouring technology enables the use of a richer than traditional colour palette resistant to external factors, including UV radiation. We anodise products up to 10 m long in 10 unique colours. Because we also carry out individual orders in the anodising plant, we can adapt the shape of the product precisely to the customer's needs.

Anodising process

Anodising is one of many ways to protect aluminium from dirt and aggressive corrosion and it is second to none, because in addition to protection against adverse weather conditions, it is characterised by high aesthetic values.

Anodising is used for the following purposes:

- the anti-corrosion and mechanical protection of the metal surface, with particular emphasis on atmospheric corrosion, especially against aggressive environmental factors such as sea water, acid rain, salt etc.,
- decorative – anodised surfaces achieve a smooth, satin finish and additional colouring guarantees exceptional aesthetics of surface finish.

Quality guaranteed!

In our R&D laboratory we have conducted resistance tests of anodic oxide coatings to UV radiation. Tests were performed in accordance with the recommendation of the standard EN ISO 6581 „Anodising of aluminium and its alloys – Determination of the comparative fastness to ultraviolet light and heat of coloured anodic oxidation coatings“. During 14600 h of the sample's exposure in Q-Sun Xe-3 device, there was no colour change of observed oxide layers. Such exposure

period is equivalent to 20 years of operation in Polish climatic conditions.

In order to determine corrosion resistance, the samples of anodised aluminium lighting columns were tested in a salt chamber at a salt concentration of 5% (for comparison, salt concentration in the Baltic Sea is 0.8% and in the North Sea it is 3%).

Exposure of samples in the chamber lasted in total 20 000 h. Despite such long period of test, no corrosion was detected. The test was carried out in accordance with the standard DIN EN ISO 9227, according to the NSS method.

The company received technical approval of The European Association for Surface Treatment on Aluminium QUALANOD with the right to use the Quality Label QUALANOD of Anode Coatings, which confirms the highest quality of services provided by ROSA anodising plant.



Aluminium Anodising – why is it worth it?

- anodised coatings are integrally connected with the surface, so there is no option of peeling, chipping of or delamination,
- long useful lifetime, with the option of receiving a guarantee up to 20 years,
- high aesthetics for a long time of use,
- high resistance to UV radiation,
- high abrasion resistance due to greater hardness of the coating,
- corrosion-free,
- availability of a wide range of colours,
- decorative surface function.

	Black steel	Galvanised steel	Hot dip galvanised steel	Raw aluminium	Anodised aluminium
Model sample					
Test in salt chamber Standard DIN EN ISO 9227– NSS method Test in neutral salt fog					
Test in salt chamber Standard DIN EN ISO 9227– CASS method Test in acid salt fog with addition of copper					

Anodising process

The process of anodising is carried out on an automated technological line equipped with 28 tanks. This process can be divided into three stages. Between the essential processes the rinsing operation of the product is performed.



Stages of the anodising process:

1. Surface preparation

The first step is degreasing, consisting of removing oils, their derivatives, and any impurities from the mechanical processing of details from the aluminium surface.

The second step is alkaline etching (satin finishing), which aims to remove the self-created oxide layer from the surface of the product and give the surface a uniformly matt (or, on the contrary – shiny) look.

The third step is brightening (pickling), the purpose of which is the final removal of thin oxide layers and deposits that may have remained after satin etching or brightening processes, and the removal of which is necessary to achieve a structurally uniform oxide coating.

2. Anodising and colouring:

Anodising is controlled formation of aluminium oxide layer on the aluminium surface during electrochemical process. Anodised coating is formed by electrolysis, in a sulfuric acid solution involving direct current of a certain density. The anodic coating grows in 2/3 of its thickness into the metal surface and grows 1/3 above it. It becomes much thicker than the natural one, so it effectively protects

the aluminium surface from further oxidation i.e., corrosion. Its structure allows permanent colouring of the product by chemical, electrochemical or interference method. Colouring can be:

- **Electrochemical** – based on the treatment of the anodised product in the electrolyte containing tin salt ions. Metal, reduced in a cathode cycle, is deposited on the bottom of the pores of the oxide coating and gives a permanent colouring to the aluminium surface. This results in a range of colours from bright to dark shades of brown and black.

- **Interferential** – preceded by anodic layer's pore shape modification. Then, the surface of the aluminium is permanently coloured in baths based on tin salts, widening the palette of colours obtained in electrochemical colouring with new shades of grey and green. This method uses the phenomenon of interference, that is, the overlapping of reflected light waves, leading to the increase or decrease of the resultant wave amplitude. Modifying this amplitude through the appropriate controlled variation of the pore shape in the anode layer allows to obtain the appropriate optical effect (colour).

3. Sealing

This is the process by which a porous structure is closed. We use two-stage cold-hot sealing, consisting in immersing the product in a solution of a cold sealing bath. Its purpose is to deposit nickel salt on the inner part of the pores. Then, after proper rinsing of the surface, there is a hot sealing stage, in which the process of accelerated closure of the anode pores takes place. This process makes the surface of the anodised element tight and smooth, thanks to which the oxide coating is resistant to atmospheric corrosion factors and reduces the tendency to settle contaminants on the product's surface.

ROSA anodising plant can perform 2 types of finish of anodised surfaces:

- **Brightened**

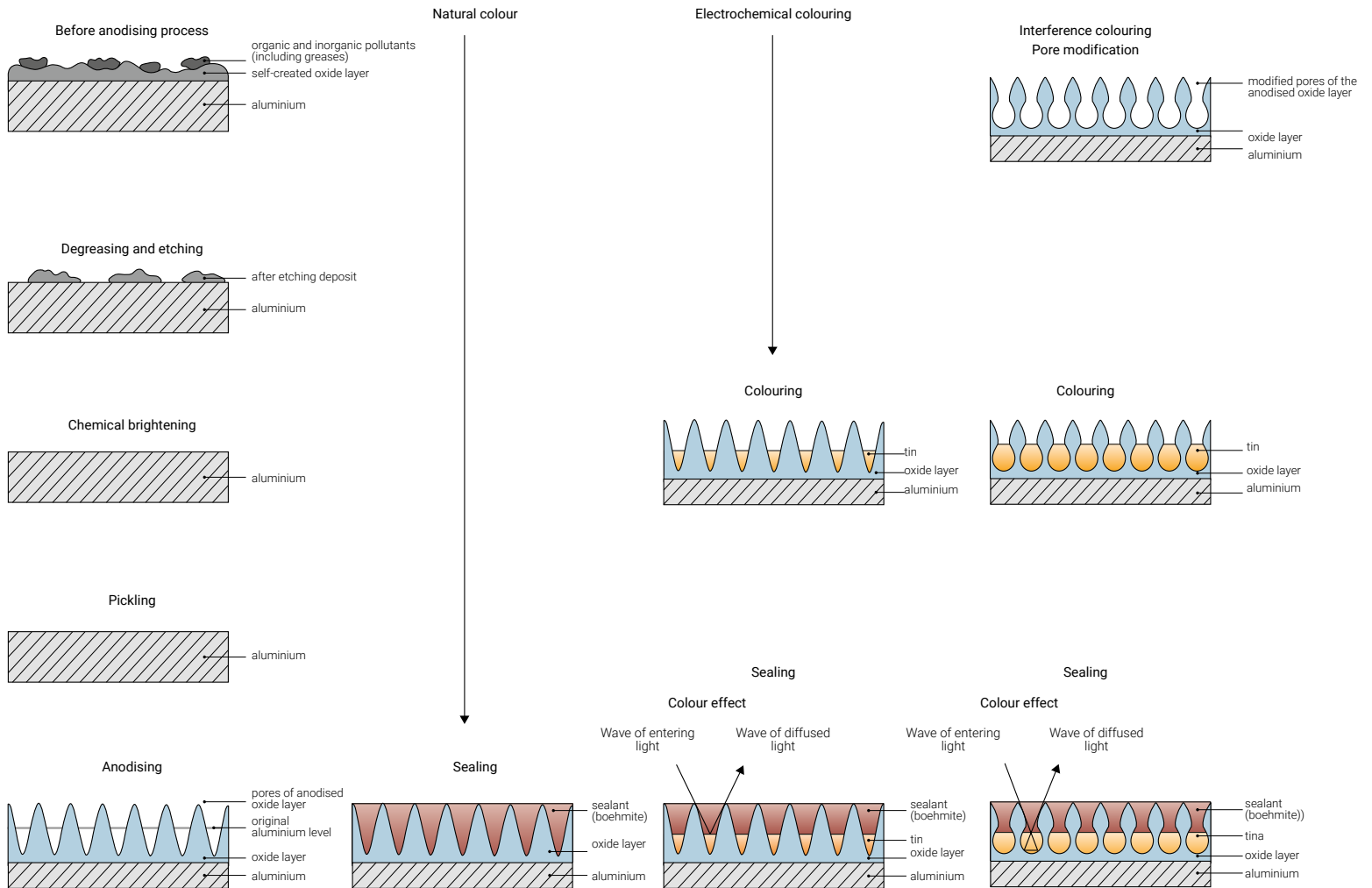
Getting glossy aluminium surface is obtained by the chemical etching before anodising process. The process is based on chemical smoothing of the surface structure, this results in a reduction of matt effect and lightens the metal surface, which gives the gloss finish.

- **Satin**

Obtaining a surface with a delicate satin finish is possible thanks to the so-called dry etching technology. It involves surface treatment by shot blasting using a modern machine for tarnishing the surface. The workpieces are blasted using shot with a diameter of about 0.1 mm, thanks to which a final satin effect is obtained. Importantly, this type of technology allows to significantly eliminate all kinds of surface defects arising in extrusion or rolling processes, such as streaks, thermal stripes, etc., as well as minor mechanical damage in the form of scratches or abrasions. The surfaces obtained this way are characterised by much better quality compared to traditional chemical etching. The applied technical solutions allow to shot blast elements made of 1 mm thick metal sheets without the risk of damage to the surface.



Anodising process of aluminium products



Anodising colour palette



Natural **C-0**



Champagne **C-32**



Olive **C-33**



Brown **C-34**



Black **C-35**



Inox **C-45**



Grey **CI-63**



Graphite **CI-65**



Green **CI-75**



Anthracite **CI-78**

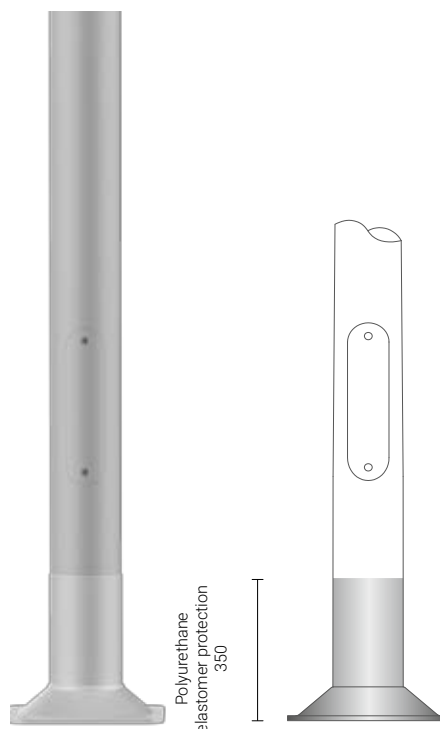
Real anodising colour can differ from presented colour sample.

Elastomer protection

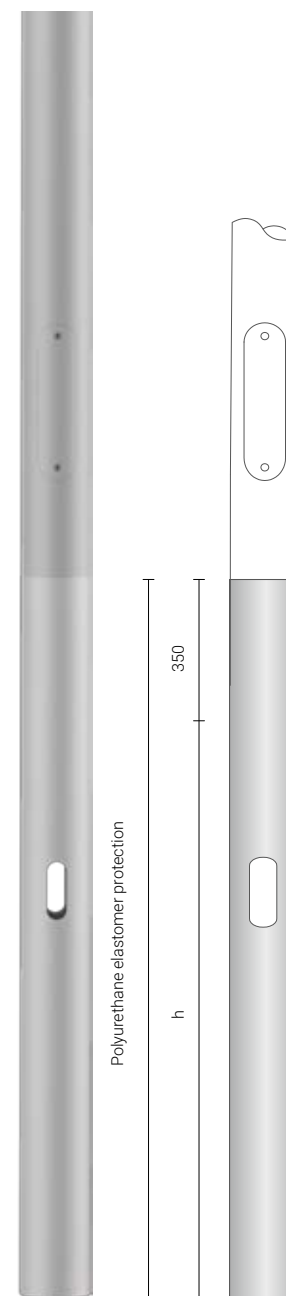
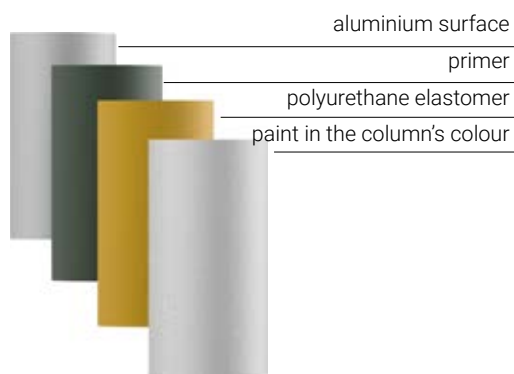
In very unfavourable (environmental) conditions, the base-plates and parts of the rooted column are exposed to the adverse effects of salt compounds and mechanical damage. For additional corrosion protection at the bottom of the column, we offer the option of covering the base-plate (including holes for mounting bolts) and a part of column (up to 350 mm) with polyurethane elastomer.

The thickness of the protective coating is from 0.7 mm to 1 mm with a hardness of about 90°sh. The surface of the elastomer is painted with a UV-resistant paint, similar to the colour of the anodic coating of the column. Elastomer protection is in accordance with the EN-40 standards, i.e., the European requirements for aluminium lighting columns.

All rooted columns type SAL DZ are protected with a polyurethane elastomer as standard. Both material and production technology are environmentally friendly.



Polyurethane elastomer protection of columns with base-plate



Polyurethane elastomer protection of rooted columns

Ecology, economy, and quality of our products

Ecology – we act for the climate.

We have always been focused on keeping up with the changes that affect us. Climate change is one of them. That is why, we have focused on ensuring that our products guarantee long-term operation – 50 years of lighting sets' service life is an absolute record on the market.

All our products are manufactured in a process, that protects the natural environment and are intended to be used without harming it. For the sake of our surroundings, every day we take actions, that are a joint investment in the future.

For us and our loved ones.

'Green metal'

ROSA columns are mainly made of a material that is called "green metal" for a reason. It is aluminium. Why „green metal“?

Effective aluminium recycling allows to save up 95% of energy needed to produce new material, without losing original value. In relation to environmental protection, this process allows a 100% reduction in the amount of solid waste, multiple reduction of CO2 emissions to the atmosphere and to minimise water consumption to 97%.

The pro-ecological choice of raw material is a wise decision, which benefits not only current but also future generations.

Economic modernisation

Thanks to the fact, that ROSA columns are anodised aluminium, the surface renewal (even after a very long period of use), does not require any special technological processes, that involve additional environmental pollution. Removing an anodic layer from the columns and the application of new ones take place during the same technological process. The anodic layer can be freely modified for both corrosion resistance and the colour style of the finish.

Environment friendly production

In addition, our ROSA products are manufactured in environmentally friendly conditions. They are created in production plants that are efficient in energy management. The energy is obtained, among others, from company's own photovoltaic farms. We also produce energy in cogeneration, where the fuel used for energy production is natural gas, the combustion of which is less harmful to the environment, and its use contributes to the active fight for healthier air.

The generated waste heat is used in the process of anodising aluminium, as well as for heating and cooling rooms and production halls or heating utility water.

Energy efficiency

ROSA LED luminaires significantly reduce energy consumption, providing A ++ savings class. Moreover, LEDs are environmentally friendly because they do not emit UV rays or infrared radiation.

Photobiological safety

Photobiological safety is one of the basic requirements of European directive included in PN-EN 62471:2010 standards, that must be met by a light-emitting product.

Threats resulting from the use of artificial lighting:

- eye hazard of UV radiation
- burn to eye's cornea
- cataract
- retinal injury - from staring at strong light source

At ROSA, we strive for a high level of health, safety, and environment protection.

We own specialised research equipment, that allows us to outline photometric parameters based on which, the risk group (RG0, RG1, RG2, RG3) is determined, to which the LED luminaire will be included. By choosing our products, you can be sure that the equipment is tested and safe.

Quality is a priority

We know how ground-breaking the technologies and ways of manufacturing our products are. They cost us many years of trials, that led the development of production to where it is now. Therefore, that's why we protect them with patents.

We take quality seriously. Therefore, we conduct our daily activities in accordance with the Quality Management System ISO 9001:2015.

We also have all certificates in force in the EU, including Qualanod, which is awarded to the highest quality anode coatings and confirms compliance with European standards, as well as a passive safety certificate of anodised aluminium columns in the class 100-NE-C-S-SE-MD-0 according to EN 12767: 2019 (100 NE2 according to EN 12767:2007).

ENEC Certificate

The high quality of our products has been confirmed by granting the Certificate of Electrical Products – ENEC to luminaires' series CUDDLE II LED, CUDDLE II LED REG, ISKRA LED and ISKRA LED ALFA, ISKRA LED PROG, as well as ISKRA LED PROG ALFA for selected optics.

ENEC is a European mark that guarantees compliance with European EN standards, safety, reliability and confirms the highest quality. The certification process includes inspections at the production plant and product testing. Awarded by an independent certification and testing body, it is recognised throughout the EU. ROSA, as a brand with many years of experience, performs regular inspections to make sure that products meet all the requirements of standards.



Anodised aluminium – cleaning and maintenance

Proper maintenance and regular cleaning of anodised aluminium products allows to keep their aesthetic and decorative appearance for longer.

Below we have defined the division of contaminations and indicate the recommended cleaning products

I Category

industrial atmosphere pollution, road salt residues, permanent precipitation from car exhausts, etc.,



Recommended cleaning products

- HENKEL LOCTITE SF 7840
- HG – Super Cleaner;

Contamination removing process:

1. Apply the cleaner to the column, then wait until it reacts with dirt.
2. Wash column with a sponge or brush (soft bristle).
3. Rinse thoroughly with clean water



If necessary, repeat the process until effect is achieved

Recommendations before maintenance

1. It is not recommended to clean aluminium with:
 - corrosive potassium (potassium hydroxide),
 - technical soda (sodium carbonate),
 - caustic soda,
 - acid products,
 - polishing products,
 - products that can damage the anode surface.

II Category

graffiti, paint, markers



- HG – Graffiti Remover
- HENKEL BODERITE S-ST 1302
- AGS 5SR;

1. Wash column according to first category cleaning procedure.
2. Apply graffiti and paint remover. Leave for the time specified in the product card. Wash with sponge and cleaning detergent.
3. Rinse thoroughly with clean water.



III Category

stickers, tape, glues



- HG - Sticker Remover
- HENKEL BODERITE C-MC 400
- AGS GLUE REMOVER;

1. Wash column according to first category cleaning procedure.
2. Use a plastic spatula to remove stickers and tapes. Apply a sticker remover. Leave for the time specified in the product card. Wash with sponge and cleaning detergent.
3. Rinse thoroughly with clean water.



2. Health and safety information:

- Use protective clothing as recommended by the cleaning product producer.
- It is recommended to use biodegradable preparations and liquids with a neutral pH. Before cleaning the surface, it is necessary to check the effect of the cleaning agents used for this purpose. You can do test in a less visible place. In case of undesirable effects, the use of the tested cleaner should be stopped.

Luminaires

LED Luminaires

ROSA LED luminaires feature a unique design, innovative LED light sources and anodising technology. In our products we focus on quality, durability, and aesthetics. In the ROSA LED offer, you can find:

- park luminaires designed for illuminating urban areas (parks, traffic routes, and squares),
- street luminaires dedicated to highways, roads, avenues, and industrial areas,
- floodlights used to illuminate architectural elements, sports facilities, car parks, and other outdoor areas,
- industrial luminaires available for industrial halls, warehouses, petrol stations.

ROSA LED luminaires – real benefits:

- reduction of electricity consumption up to 75%
- lowering operating and maintenance costs
- the power reduction option
- lighting points quantity reduction
- aesthetic and decorative appearance

Light sources

ROSA LED products are equipped with high-efficiency light sources, capable of reaching luminous efficacy up to 150lm/W for the whole luminaire.

Light colour temperature, colour rendering index

ROSA LED luminaires are available as standard with four colour temperatures: 2700K, 3500 K, 4000 K or 5000 K.

Light colour	Correlated colour temperature (CCT)	Colour rendering index (CRI)
Warm white	2 700 K	>70
	3 500 K	>70
Neutral white	4 000 K	>70
Cold white	5 000 K	>70

Warm white light colours of 2700K, 3500 K and neutral white light of 4000 K is preferred in lighting of urban spaces and parks (marked with number "1", "3" and "4" in the product code). While cold white light colour of 5000 K, due to higher luminous efficacy, is commonly used in street lighting (marked with number "5" in product code). Selecting one of these options depends only on the customer's preference. It is also possible to order luminaires with different colour temperature: 2200 K, 3000 K, 4500 K as a custom-made variant.

Optics

ROSA LED luminaires mostly use optical system made of PMMA (polymethyl methacrylate) with increased temperature resistance. It is used both in lenses

and lamp diffusers/light diffusing plates (ELBA LED, ATLANTIS LED, CORONA LED, KARIN LED, OS-11 LED, AURIS LED).

Standard LED module – used in park luminaires and lighting sets: DROP LED and FLEXI LED



Replaceable led module

Interchangeable module contains 12 LEDs. It is available with nine unique optical systems. Module has a thermal protection sensor, increased resistance to electrical discharges and IP66 ingress protection. Assembly and disassembly of the module can be done using standard tools.



Tempered glass

In our luminaires from the LOCO LED and RING LED series, and RING MINI LED lighting sets, we use tempered glass protection. This gives modern design, but above all it has a high protective function. Tempered glass provides an impact resistance grade of IK08 - this corresponds to the impact of a 1.7 kg hammer from a height of 29.5 cm.

In the future, we plan to introduce tempered glass to more ROSA luminaires and lighting sets.

Luminaire construction

Housings of ROSA LED luminaires and lighting sets are made of profiles and sheets of high-quality aluminium alloy* subjected to anodising process. They are characterised by high thermal properties (conductivity >200 W/mK). Anodising process protects luminaire body from corrosion and aggressive external factors such as acid rain, sea water, UV radiation, salt, while giving it a decorative character. In addition to aesthetics, it improves heat dissipation via thermal radiation, maintaining low operating temperatures of LED is the key for its longevity

* Exceptions are luminaires ELBA LED, ATLANTIS LED, OS-11 LED, AURIS LED.

Smart lighting - step towards Smart City

Smart City

Nowadays, the idea of a smart city equals idea of better life, aimed at improving quality of joint capital, the environment and technology. Implementation of smart solutions and digitisation of cities are processes of urban infrastructure modernisation, thanks to which currently transformed resources can be basis for future improvements and innovations. This, in turn, will reduce costs and time necessary for further investments or coping with new challenges.

Smart Lighting

The concepts of modern cities assume the introduction of solutions enabling intelligent lighting control. This is what ROSA LED luminaires offer.

Innovative programming of luminaires with LED light source allows to reduce energy consumption, while increasing light efficiency. Modernisation and investment in the latest generation luminaires is the right step, not only because of savings - luminaires equipped with appropriate system sensors create a lot of new possibilities, including:

- during night hours, when power reduction is on, lamps can brighten up to the route of emergency vehicles like ambulances or fire trucks,
- illumination intensity can be correlated with data from meteorological stations and react to changing weather conditions e.g., by increasing its intensity unfavourable weather conditions,
- when pedestrians cross street, luminaires around the intersection can switch to brighter light (underlit pedestrian crossings),
- when a bus arrives at the bus stop, streetlights around the bus stop can be automatically set up brighter than those further away.

IoT solutions

The next stage towards the digitisation of cities is the option of implementing pioneering IoT solutions (Internet of Things). Modern lighting infrastructure, due to dense distribution, is a great place to locate a huge network of receivers. This allows to get all kinds of city data using sensors, which collect data from the environment and traffic recording cameras e.g. searching for free parking spaces or microphones that respond to specific sounds. Thanks to this, the society work in a safer and more sustainable way.

Vehicle charging stations

Electric cars are now chosen by consumers looking for modern solutions. Moreover, due to EU requirements of air quality improvement, there will be more and more electric cars on the roads. In response to these changes, we have created Karin LED EV – a lighting column fully integrated into an electric vehicle charging station. Thanks to the fact, that we are the manufacturer of complete lighting sets, we have the opportunity to assemble and create the most innovative technologies today.

Zhaga (D4i) and Nema sockets

Our offer includes products equipped with D4i sockets (in accordance with Zhaga Book 18 standards) and NEMA sockets – ANSI C136.41. Lighting controllers are connected to them which enable efficient wireless control of LED luminaires via the DALI bus. It is used for two-way light control (controller – luminaire, luminaire – controller), and its most important function, however, is to reduce the power of the luminaire. In ROSA luminaires we use a universal housing, that allows for the installation of the interface and sensors of any manufacturer, whose product will comply with specific standards. Each ROSA luminaire is equipped with a socket cap.

This standardization is in line with the goal of the Zhaga Consortium, which is to unify the specifications for LED luminaire components commonly used in the global lighting market.

The socket choice depends entirely on the needs and preferences of the investor. The decision on the type of socket should be made at the stage of ordering, because there are differences in the number of inputs between D4i and NEMA sockets (4 and 5-7 inputs respectively).



Optics for LED interchangeable module

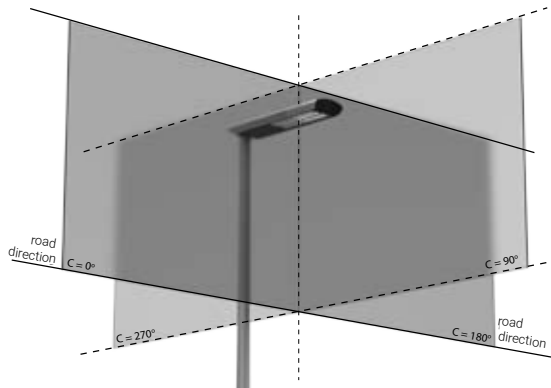
Optics controls where light distribution is directed. Its proper selection ensures sustainable energy consumption and reduces investment costs.

Light Distribution Curve

Light distribution curves define the amount of light coming out of the luminaire in a given direction. The photometric body, together with electrical and photometric parameters such as luminous flux, active power, PF, etc., is determined on the goniophotometer. The distribution of light depends mainly on the optics used, but also on the construction of the luminaire and the diodes used on the module. The diagram gives the luminaire distribution in planes:

- C0-C180 planes perpendicular to the housing axis.
- vertical plane C90-C270 passing through the longitudinal axis of the housing

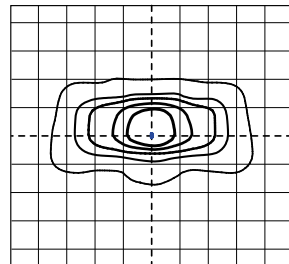
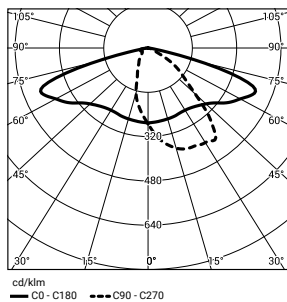
Diagram of planes



Street lighting

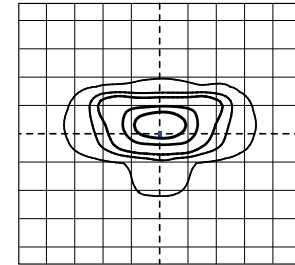
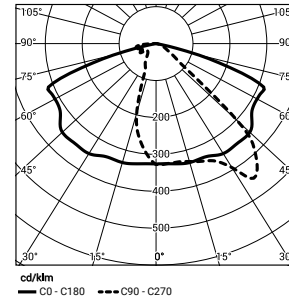
DW optics

It is universal optic used in traffic with even combination of lighting parameters.



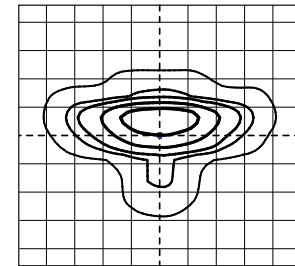
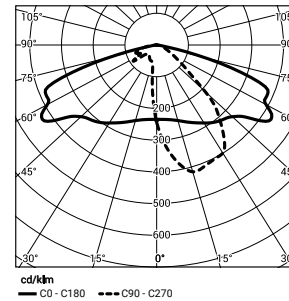
ME optics

It is recommended for wider roads to illuminate even three lanes with sidewalks on both sides of the road with luminaires only on the one side of the road.



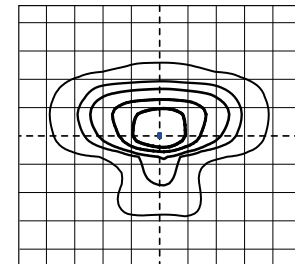
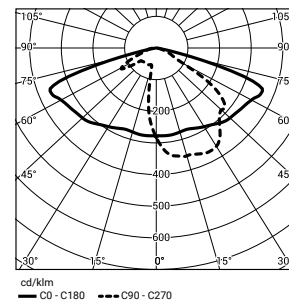
T2 optics

It works well in lighting narrower roads with two lanes, and when installing luminaires on the central lane separating the roadways in a dual carriageway configuration (road classes P and M).



T3 optics

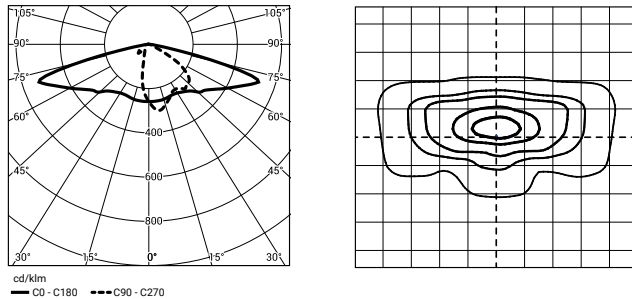
It allows for wider light distribution forward than the T2 optics, it works similarly in lighting roads with two lanes and sidewalks.



Illumination of pedestrian routes / residential roads

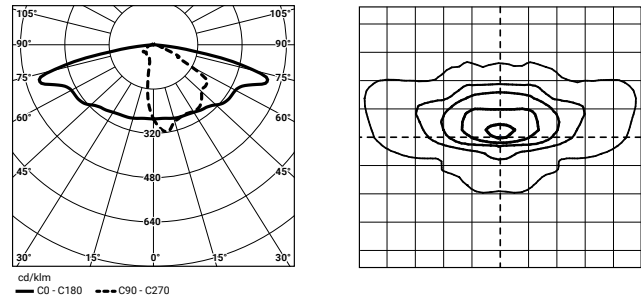
SP optics

It emits light very widely, so distance between the luminaires can be up to eight times greater, than the height of the column on which they are installed.



3L optics

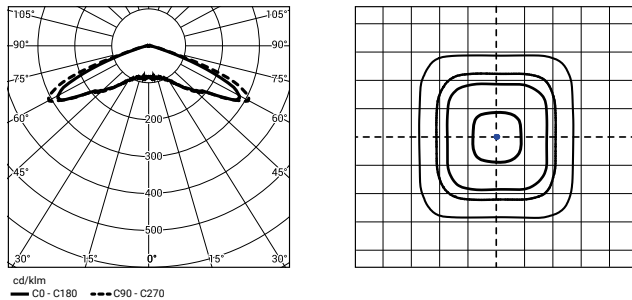
Designed for bicycle paths, it is characterised by a wide light distribution. Long distances from low columns.



Park / Area Lighting

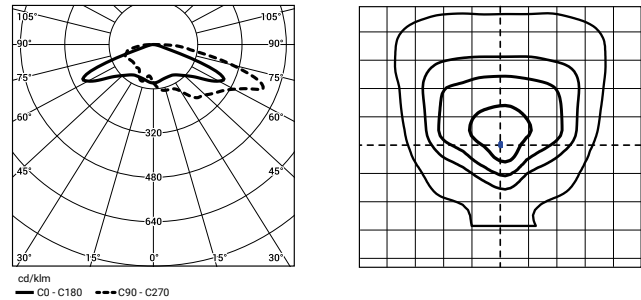
VS optics

It is characterised by uniformly symmetrical light distribution around the luminaire (square beam).



T4 optics

It is recommended for low-height luminaires located at short distances from each other. It is characterised by light emission far forward.

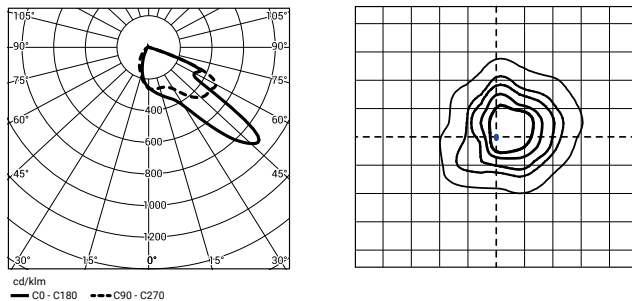


Pedestrian crossings

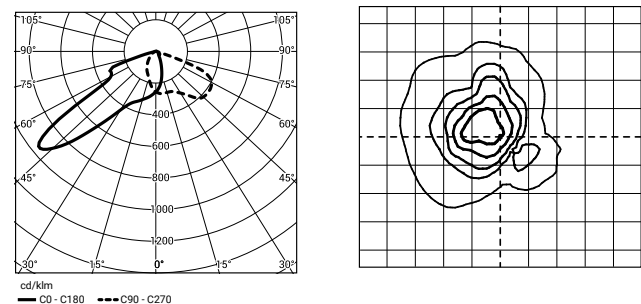
At pedestrian crossings, to avoid glare, it is recommended to use optics with an asymmetrical distribution of luminous flux on the right and left respectively.

Important! The optics for left-hand traffic also works well for pedestrian crossings in the right-hand traffic configuration when installing columns on the traffic island.

PP optics



PL optics



Power supply

ROSA LED luminaires are equipped with high-performance, constant current and programmable power supplies from the renowned Philips Xitanium and Osram 4DIM series. They offer reliability and high flexibility thanks to the large number of programmable options according to different customer requirements.

The user can implement functions such as the ability to adjust the output current, DALI interface, optional 1-10 V or programmable time profiles. In addition, the power supply has an option to control the temperature of the LED modules, which allows the user to lower the power if a temperature higher than recommended is detected. Thanks to this, the diode is protected against overheating, and thus – against faster wear.

Thanks to the housing with introduced quick connectors, the possible replacement of the power supply requires only basic tools.

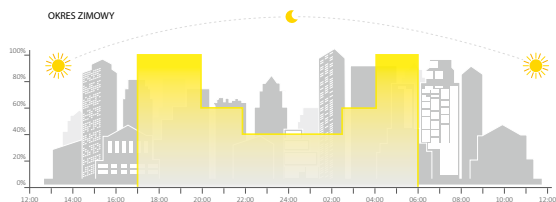


For the CUDDLE LED II luminaire, we have created the special power driver body with built-in Zhaga or Nema sockets, to which sensors for intelligent lighting control can be connected.



LED driver parameters, used in selected street luminaries

Programmable time profiles guarantee increased savings in the use of lighting based on LED technology. Our clients can set up to five power levels, ranging from 10 to 100% of rated power, in any operation time interval of the luminaire. The power supply implements selected time profile – variable luminaire power level, on daily basis, according to investor needs. This solution reduces overall luminaire power consumption, which translates into economic savings.



External control system

ROSA LED luminaires are equipped with DALI interface or 1-10V (as standard or as an option, depending on the luminaire type), which enables them to be connected to an independent controller or a connected control system that limits energy consumption.

Appropriate control of luminaires output power can for example bring 40-70% savings in situations such as traffic volume on a selected road section. The ability to join luminaires to specific groups (e.g., a group of pedestrian crossings or a group of major city roads) facilitates simultaneous control of classified luminaires.

In addition, the lighting control system allows to report faults (e.g., when a luminaire stops working – it can signal an error via in-system notification, e-mail, or text message).

Advantages:

- reducing energy consumption and running costs,
- monitoring and remote control of urban lighting,
- real-time light intensity control,
- programming switching times and illumination intensity for selected times of day, year.

Surge protection

Outdoor lighting using LED technology is particularly vulnerable to overvoltage caused by disturbances in the operation of the electrical network and caused by atmospheric phenomena, e.g., lightning. All ROSA LED luminaires are equipped with 10 kV surge protectors, which reduce the overvoltage energy to a level safe for the electronics used in LED luminaires. This protection significantly increases the luminaire's resistance to electrical discharges (up to 15 pulses with 10 kV voltage). In addition, in the case of a larger number of pulses or a pulse with higher energy – it is destroyed by cutting off the luminaire from the power supply.

