



Aba-Szer Fémbútor Kft.

ROSA

Kültéri
világítás



At the end of the 20th century, there was a breakthrough in thinking about environment and its connection with socio-economic development.

The idea of sustainable development, based on building a low-carbon economy, using natural resources in a rational and economical way and using environmentally friendly technologies and production methods, has become more popular.

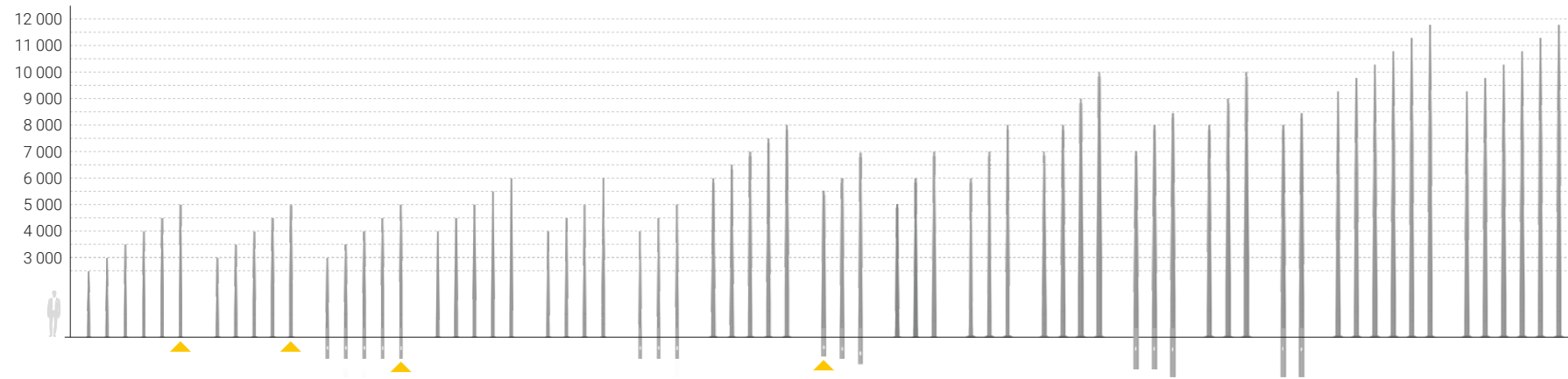
Implementing these demands in reference to production processes as well as to the product life cycle including material recycling options, it forces producers to use materials, which are able to connect all these features together and at the same time take account of economic factors. Among such materials aluminum is one of the leaders, which over the last decades has become one of the most appreciated in almost every industry.

Aluminum due to its pro-ecological features, as well as technical values has been used as the main material for production of the ROSA lighting columns - being a byword for modernity, economy and sustainable development.

Elements made from appropriate quality aluminum alloys, are 100% eternally recyclable, without losing any properties and material quality. Including the ROSA anodized columns, made of high quality EN AW-6060 alloy, protected with a thin layer of aluminum oxide, can be directly recycled - without burdening the environment.

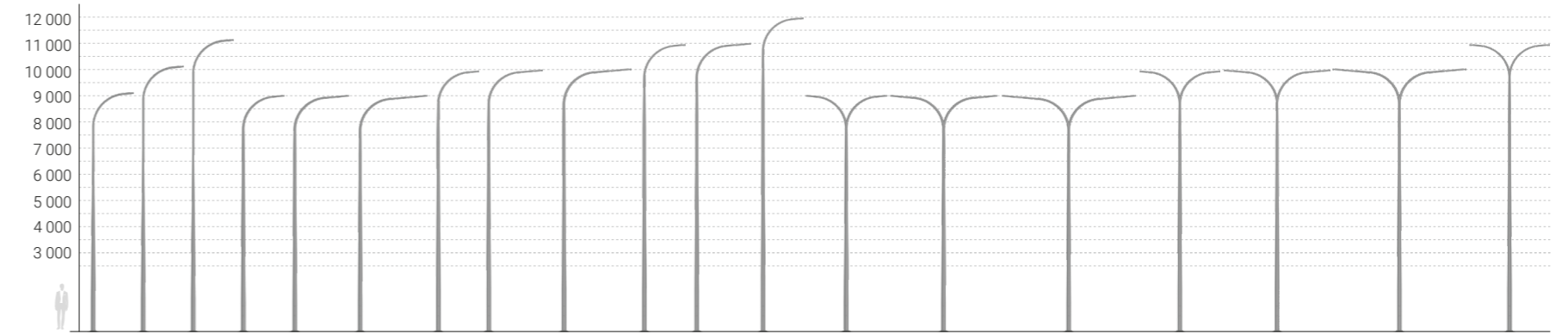
Egyenes alumínium lámpaoszlopok

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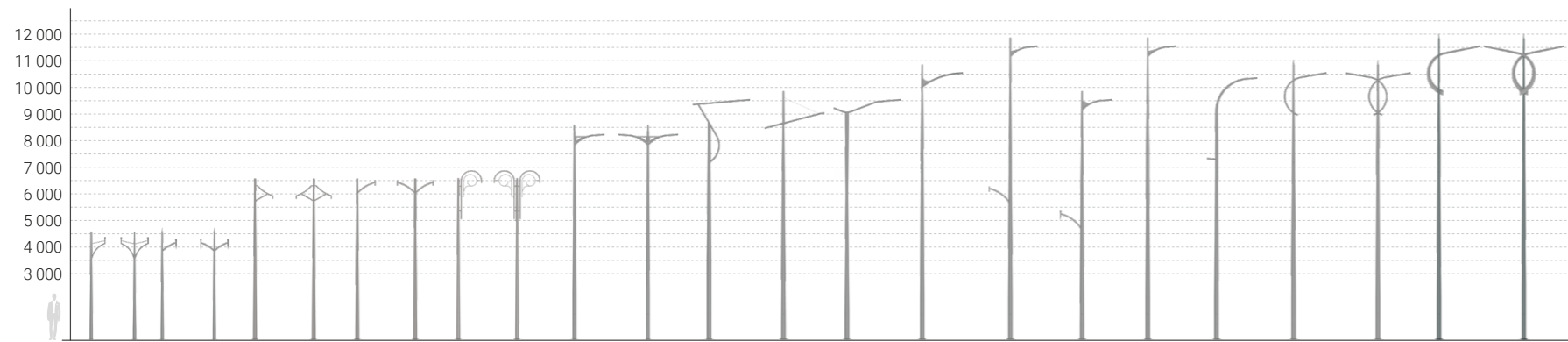
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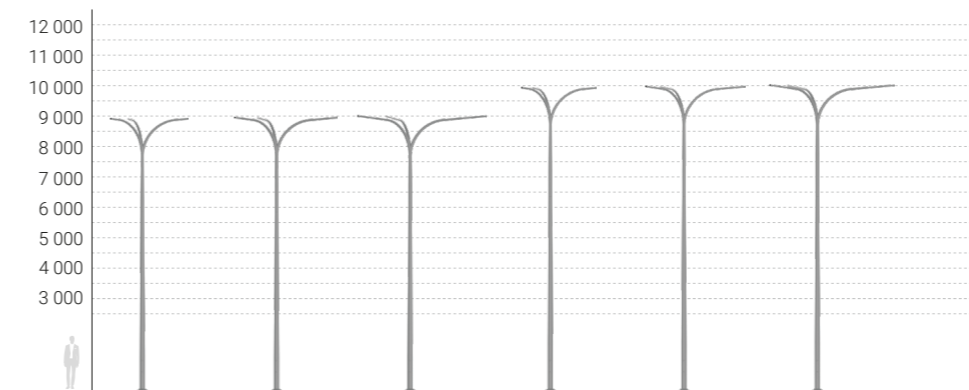
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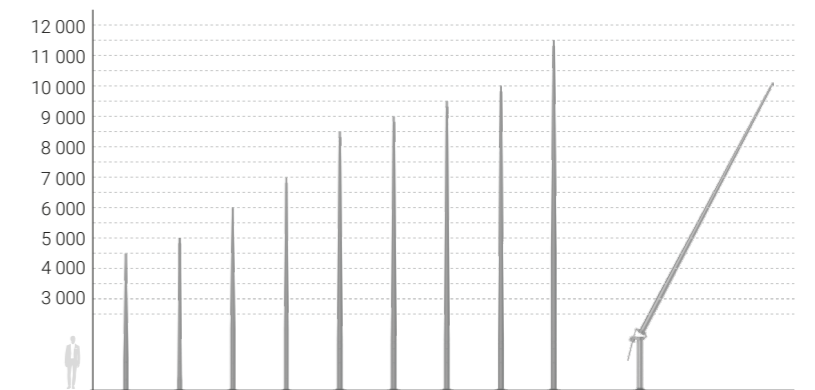
Kétrészes alumínium lámpaoszlopok ívelt lámpakarral

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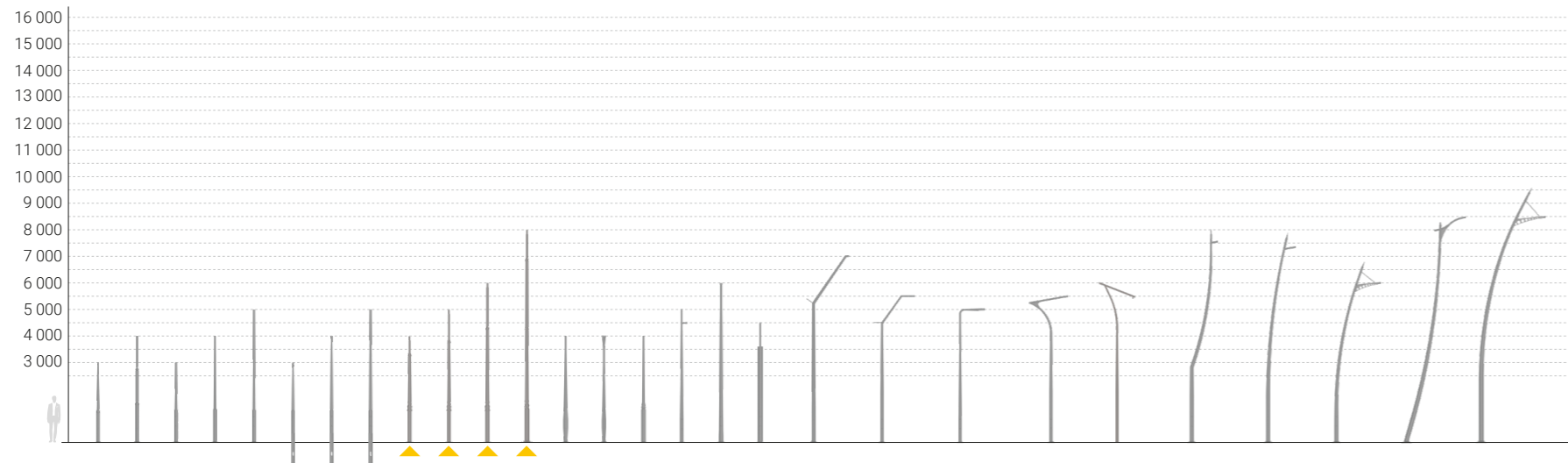
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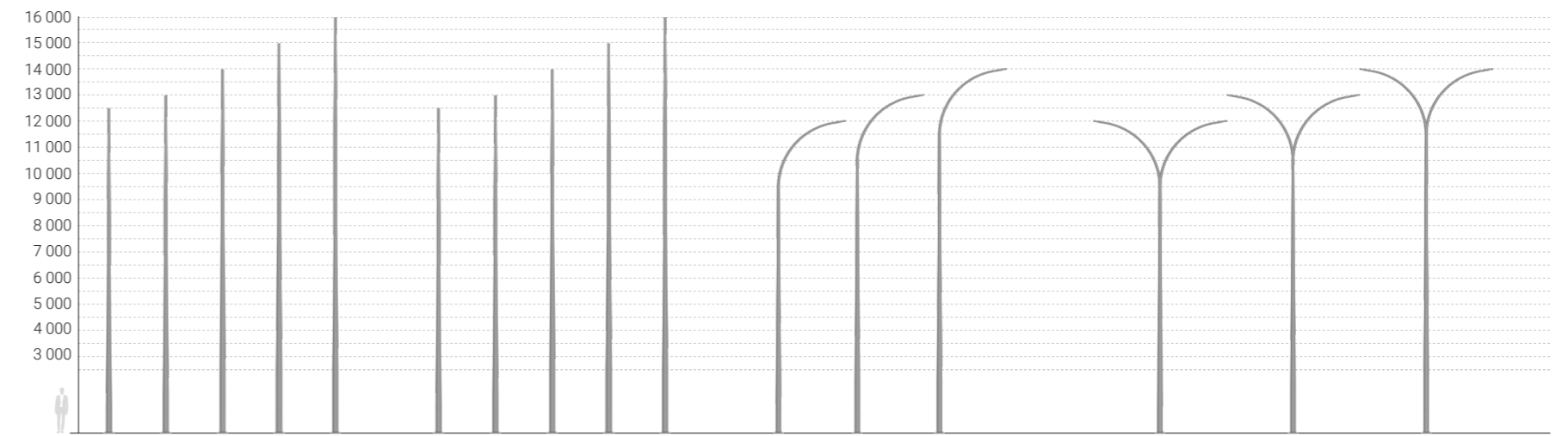
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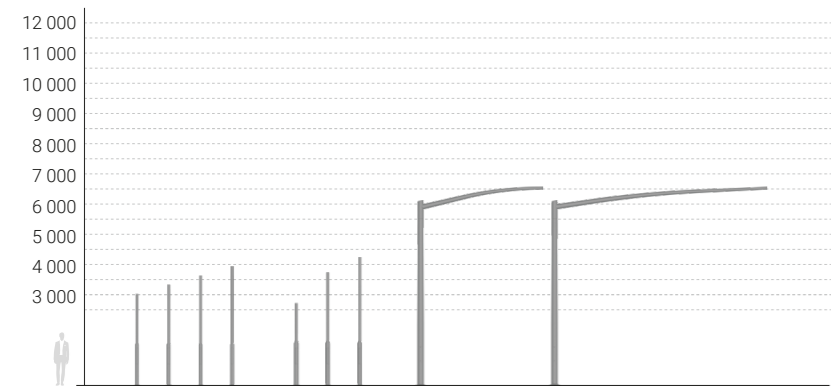


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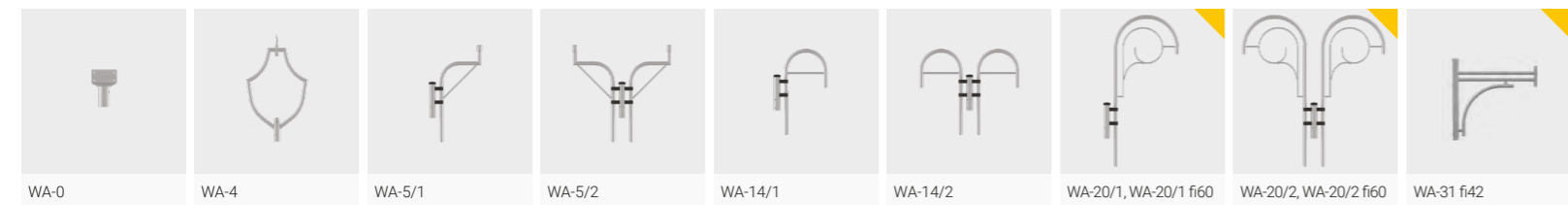
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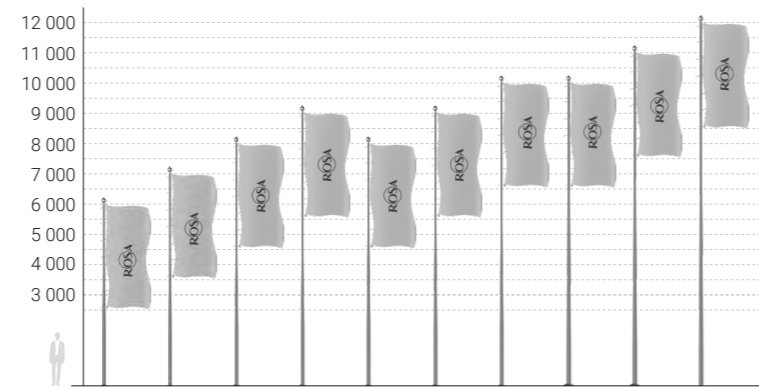
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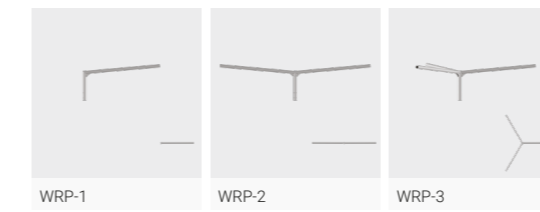
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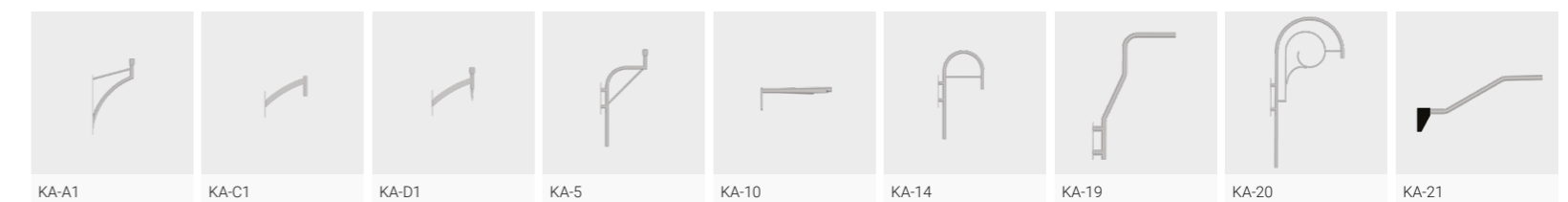
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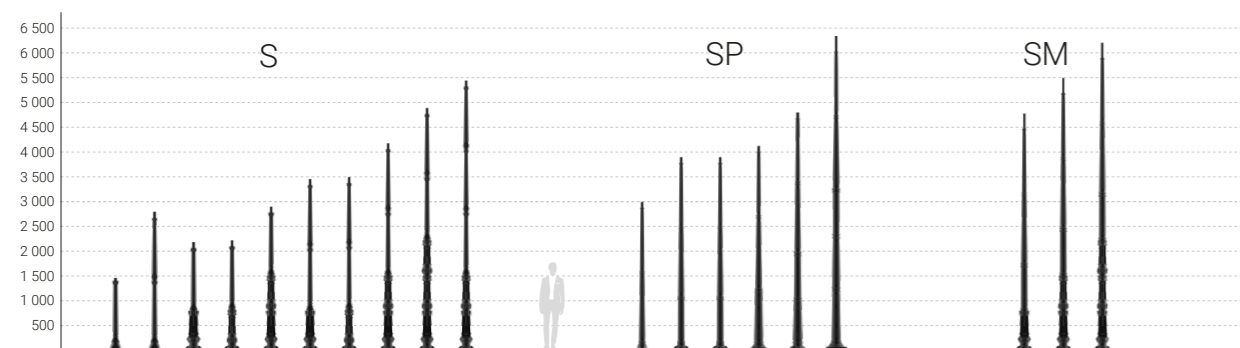


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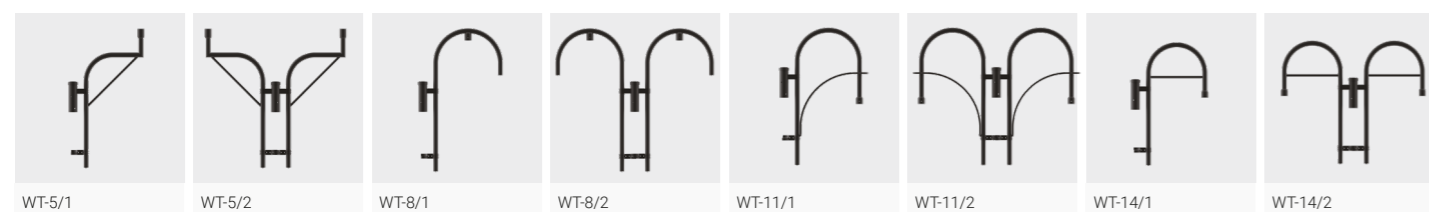
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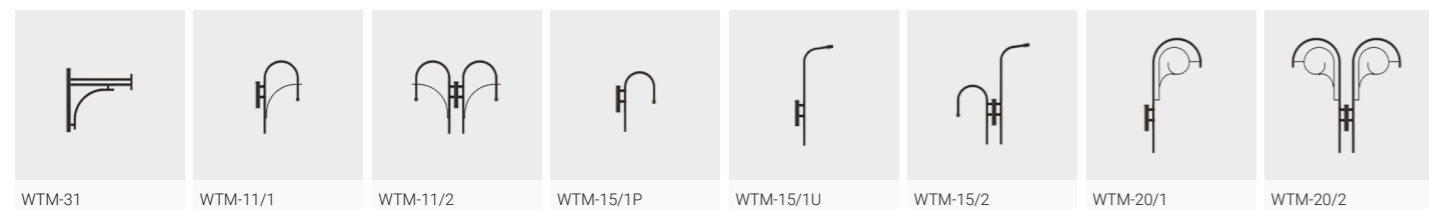
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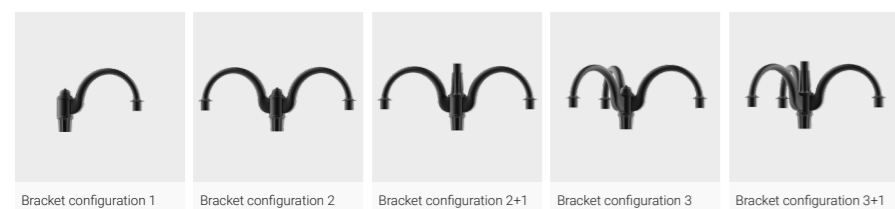
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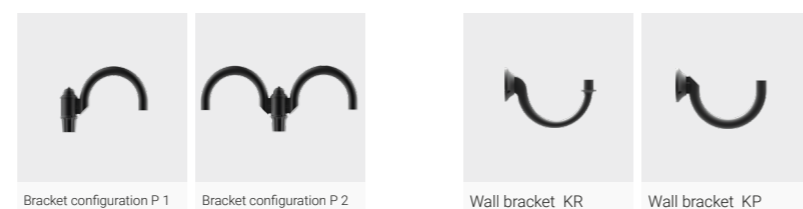
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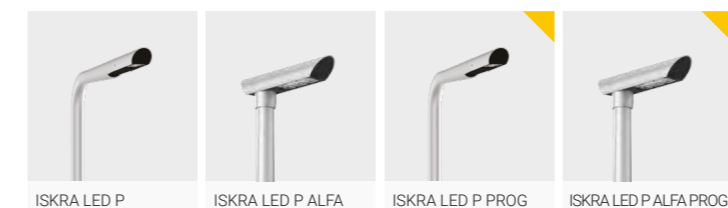


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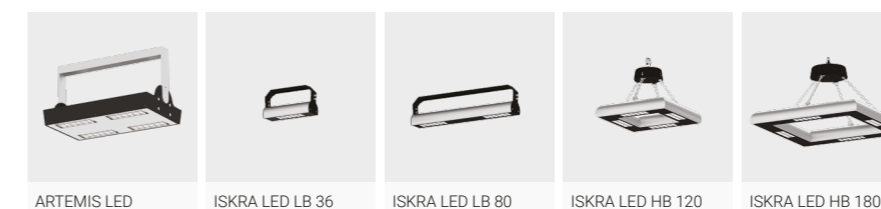


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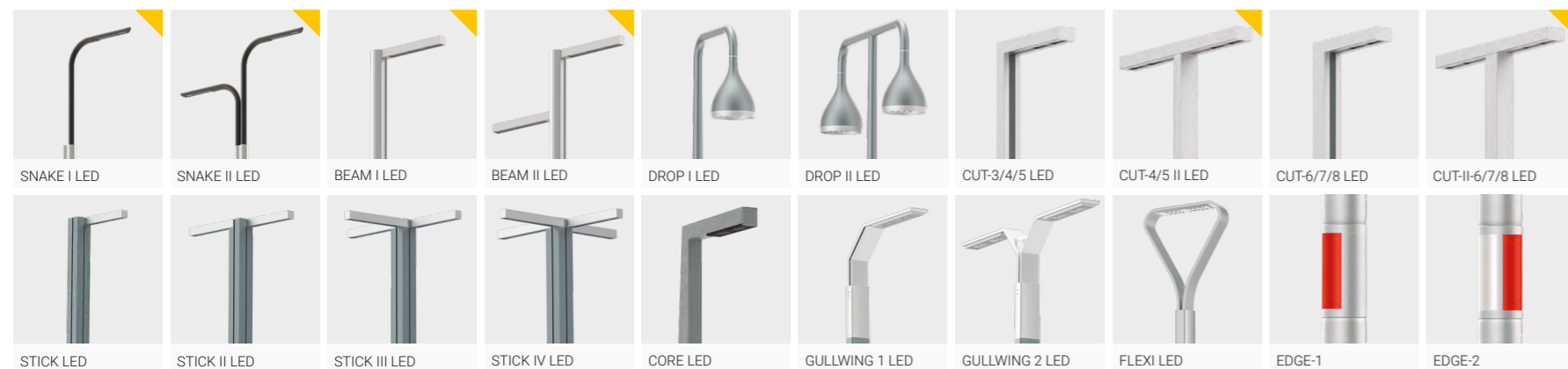
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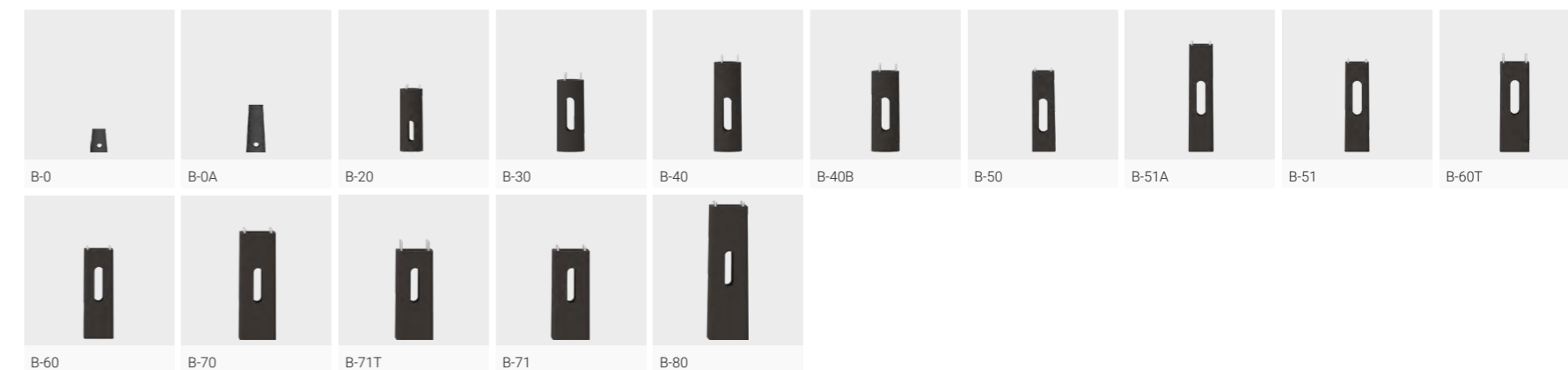
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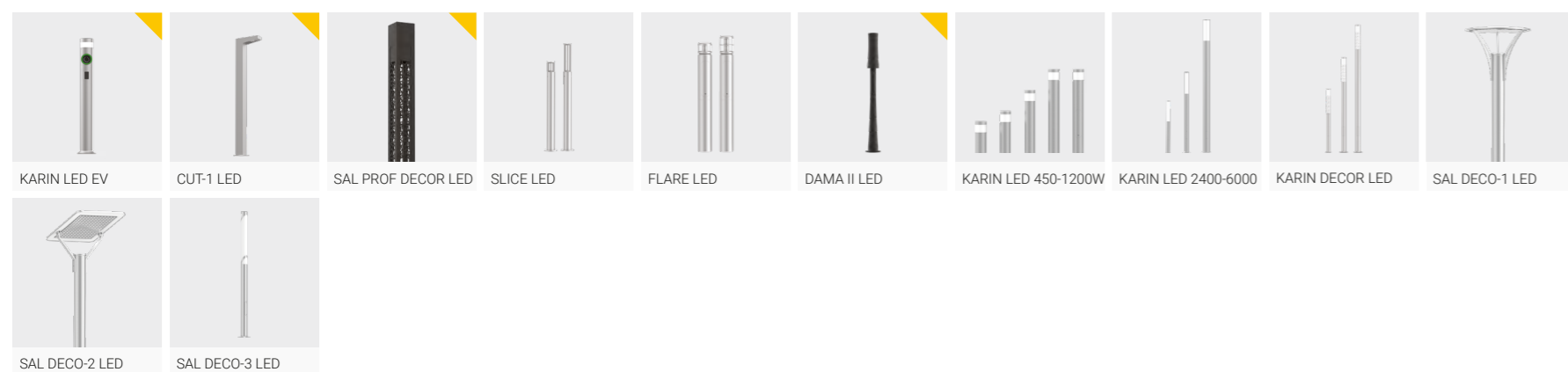
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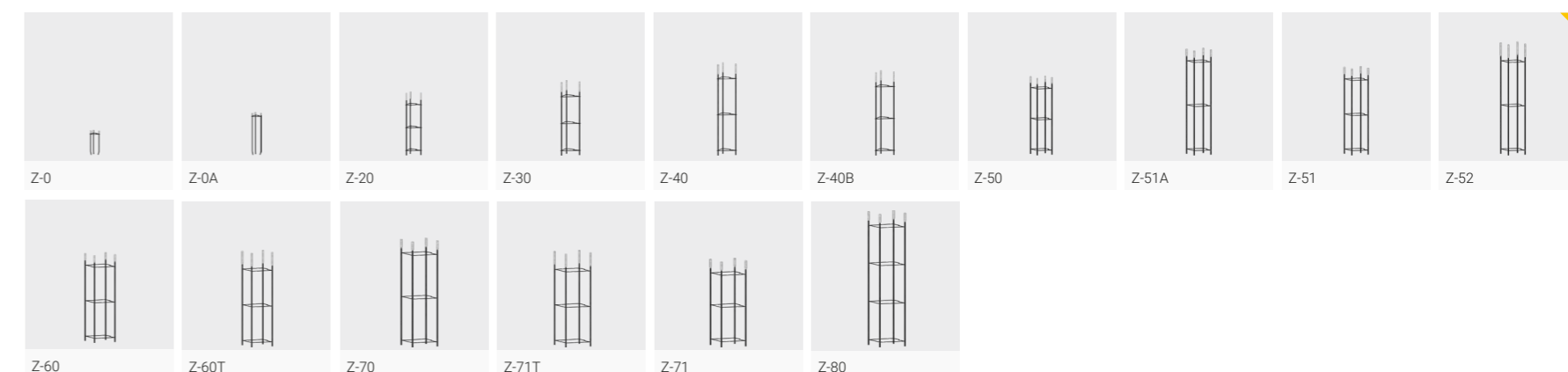
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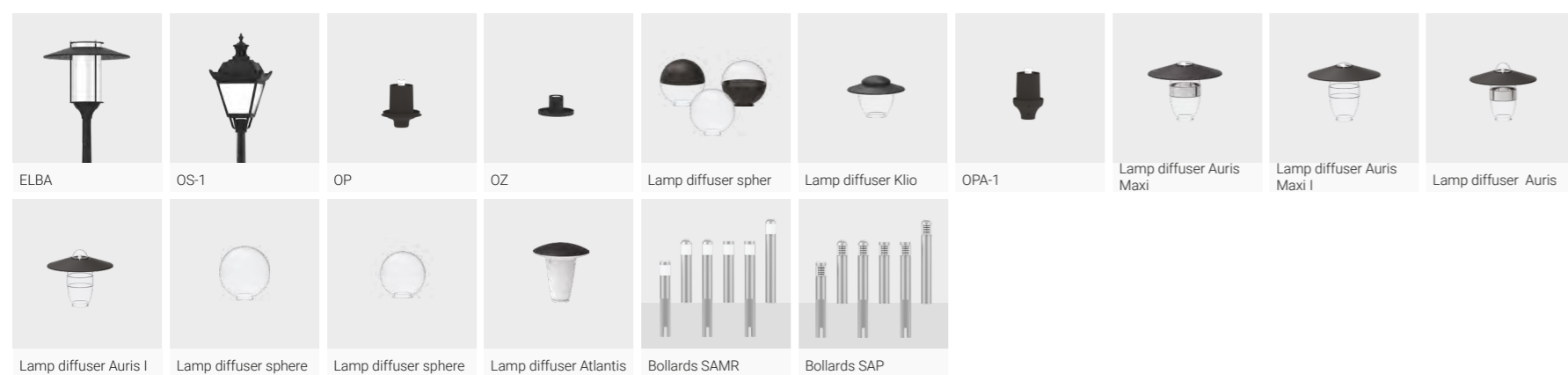
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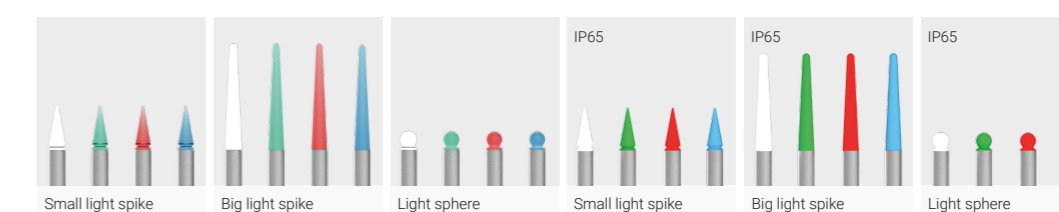
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ROSA Group, established in 1992 by Stanisław Rosa, is a Polish company specializing in the design and production of complete outdoor lighting sets. At that time company employed several people. Today it is a dynamic company in the lighting industry. In production plants with total area of 34 000 m², located in Tychy and in one foreign company, ROSA employs almost 400 people.

The success of the company is made up of many factors, but the most important are the people who work in it. Tradition, experience, reliability, individual approach to each customer, supported by innovative, creative and ecological solutions are the advantages recognized not only in Poland but also in almost sixty countries on all continents to which we export our products. By deciding to cooperate with ROSA, the customer receives the support, assistance and advisory service of the best specialists in the industry in Poland. Highly specialized engineering staff and our own technical know-how guarantee professional and efficient execution of even the most difficult tasks.



Companies within the ROSA Group:

- **ZPSO ROSA Stanisław Rosa** – producer of aluminium columns, luminaires, connection boxes, plastic coated poles, concrete footings and reinforcement baskets, three company branches:
 ZPSO I, 1 Strefowa Street, Tychy
 ZPSO II, 16 Cielmicka Street, Tychy
 ZPSO III, 54 Towarowa Street, Tychy

- **ZU ROSA Ltd.** 13 Towarowa Street, Tychy – the largest and most modern anodising plant in Central and Eastern Europe using interference colouring technology for profiles up to 10 m long,
- **ROSA Vostok Ltd.** 23 Kashena Street, Smoleńsk, Rosja – company which operates on Kazakhstan, Belarus and Russian market (except the Kaliningrad district),



A modernség ereje

We develop Polish technical thought. Our engineering staff and research teams constantly develop innovative product manufacturing methods. In 2019, construction of the third plant "ZPSO III" at Towarowa Street was finished. It is a 10,000sqm production and warehouse facility equipped with innovative machines, robots and a machining center. At the same time, our second aluminium columns production line began work. Complete automation of the production process produces one metre of column in a record time of one minute. The new ROSA Office building with a usable area of over 3,000 sqm with development center, research laboratory, exhibition room and conference-training room, will be completed in 2020. The ROSA anodising plant is one of the most modern facilities of its kind in Europe. The implemented solutions allow for interference or electrochemical colouring of aluminium elements up to 10m long, also in complex shapes and in 10 colours, each with the option of chemical brightening.



Jövő laboratóriuma

Our laboratories primarily allow for fast and flexible response to market needs as well as creating innovative lighting solutions.

The chemical laboratory is equipped with modern equipment for measuring the quality of anodic coatings. The spectrometer determines the qualitative and quantitative composition of the alloy admixtures, which is a key factor in the qualification of aluminium alloys for anodising. The measurement of the quality of oxide coatings colouring separated into spectral, colour intensity and matt surface level is measured by a high quality spectrophotometer.

The R&D laboratory allows to conducts research and analysis of materials used in various aggressive environments. It is equipped with the following:

- climatic chamber
- dust chamber
- xenotest (aging chamber)
- resistance testing machine
- column fatigue test stand
- photobiological safety tests stand;
- NSS & CASS salt chamber
- thermal chamber
- goniophotometer
- integrating sphere 'Ulbricht sphere'
- glow wire testing stand
- IP code testing stand;

We thoroughly analyze the components of our products for heat conduction, corrosion resistance, UV resistance, light distribution and photometric properties of the used LEDs. This gives us full control over the manufacturing processes, from raw materials to final products. This allows us to ensure high quality and reliability of the finished product.

Formatervezés

We are open to new ideas and we are constantly looking for innovative solutions. Our creative approach to lighting has been many times awarded by both Polish and foreign specialists. An example is the DROP LED lighting set, which is a laureate in the international Red Dot Award competition, as well as appreciated design of the SNAKE LED lighting set that won prestigious award in the national Dobry Wzór competition.

ROSA – and it's all (b)right now!

- **we have been in the lighting industry for over 28 years,**
- we offer complex commercial and engineering service,
- we specialize in the production of complete lighting sets,
- we offer a wide range of energy-saving LED luminaires,
- our products made of anodised aluminium are available in 10 colours, each with the option of chemical brightening,
- we make unusual and unique product solutions of columns, masts and luminaires,
- we have copyright protected technological solutions,
- we offer added value as comfort, safety, quality and aesthetics,
- we illuminate and decorate the surroundings in which we live.



Ökológia, gazdaságosság és minőség

Eco revolution for the environment

ROSA products are aesthetic, easy to assemble and guarantee long-term product life. They are produced in a process that protects the natural environment and intended for use without harming the environment. In care for our surroundings, we take specific actions every day, which are our common investment in the future.

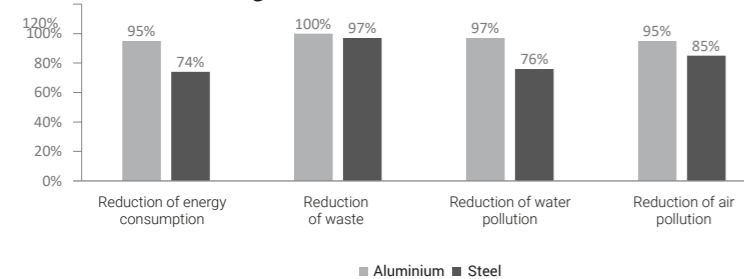
Energy efficiency

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

Aluminum ,Green Metal'

Aluminium is the main material for production of ROSA columns. Effective aluminium recycling allows save up 95% of energy needed to produce a new material, without losing original value. In relation to environmental protection, this process allows 100% reduction of the amount of solid waste, several times reduction of CO2 emissions to the atmosphere and minimize of water consumption to 97%. The pro-ecological choice of raw material is a wise decision which benefits not only current but also future generations.

A környezeti hatások csökkentésének területe [%] Gazdasági modernizáció



The surface of anodised aluminium Rosa products can be renewed even after a very long period of use, this operation 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 column colour

Environment friendly

ROSA products are manufactured in environment friendly conditions and energy efficient plants. Fuel used to generate energy in our company is a natural gas whose burning is not harmful to the environment and its use contributes to active fight for healthier air. We also use generated off-heat in the aluminum anodizing process and in addition to heat and cool production rooms and halls, or heat tap water.

Confirmed quality

Technologies and methods of our production are protected by patents. Our daily activities are based on the Quality Management System ISO 9001: 2008. We have all certificates applicable in the EU including Qualanod, which is awarded to the highest quality of anodic layers and confirms the compliance with European standards. We also have the passive safety certificate for aluminium columns in class 100-NE-C-S-SE-MD-0 according to EN standard 12767:2019 (100 NE2 acc. to EN 12767:2007).

Photo biological safety

Due to the huge impact of lighting on the environment and the hazard associated with it, photo biological safety is one of the basic requirements by european directive included in PN-EN 62471: 2010 standards, that must be met by a light-emitting product.

Potential threats resulting from the use of artificial lighting:

- eye hazard of UV radiation
- damage to cornea of the eye
- cataract
- retinal thermal injury - from staring at strong light source

Out of concern for a high level of protection of public interests such as health, safety and the environment we have specialised equipment testing to confirm the safety of our products. We subject our products to numerous tests i.e. checking light source exposure times and viewing distances, colour temperatures and luminaire power. We prepare lighting distribution diagrams specifying the risk group classification (RG0, RG1, RG2, RG3) for each LED luminaire.

ENEC Certificate



The high quality of our products is confirmed by European Norms Electrical Certification. ENEC - for the series of luminaires: CUDDLE II LED, CUDDLE II LED REG and ISKRA LED, ISKRA LED ALFA, ISKRA LED PROG, ISKRA LED PROG ALFA for selected optics. ENEC is the European mark that compliance with European safety, reliability and the highest quality. The certification process includes inspections at manufacturing plants and product testing. ROSA as a brand with many years of experience, carries out regular checks to ensure that products fulfil the requirements of standards.



Eloxált alumínium - Tisztítás és karbantartás

Proper maintenance and regular cleaning of anodized aluminum products allows to keep their aesthetic and decorative appearance for a longer period of time.

Types of contamination and recommended cleaning products

I Category	II Category	III Category
industrial atmosphere pollution, road salt residues, permanent precipitation from car exhausts, etc.,	graffiti, paint, markers	stickers, tape, glues
		
Recommended cleaning products	Recommended cleaning products	Recommended cleaning products
HENKEL LOCTITE SF 7840 HG – Super Cleaner;	HG – Graffiti Remover HENKEL BODERITE S-ST 1302 MetalZell L250 AGS 5SR;	HG - Sticker Remover HENKEL BODERITE C-MC 400 AGS GLUE REMOVER;

A szennyezés eltávolításának folyamata

- | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. Apply the cleaner to column, then wait until it reacts with dirt. 2. Wash column with a sponge or brush (soft bristle). 3. Rinse thoroughly with clean water | <ol style="list-style-type: none"> 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. | <ol style="list-style-type: none"> 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 card. Wash with sponge and cleaning detergent. 3. Rinse thoroughly with clean water. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



If necessary, repeat the process until effect is achieved;

Javaslatok a karbantartás előtt

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

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 surface, check function of the products. You can do test in an invisible place. In case of adverse effects from tested cleaning product, do not continue cleaning process.

Az extrudált alumínium oszlopok gyártása

Material

Conical columns are rolled from EN AW-6060 aluminium alloy tubes. Aluminium column base-plates are pressed from EN AW-5754 aluminium alloy sheet. Used materials guarantee correct automatic welding process, polishing and creation of anodised oxide layers on manufactured products.

Technology of production of standard columns

Two automatic production lines consisting of six highly technologically advanced stations, which depending on requirements, can work simultaneously or as separate items. Complete automation of aluminium columns' production process significantly increases productivity. Just one minute is needed to produce 1 meter of aluminium column. As a result, production of a ten meter ROSA column takes only 10 minutes. The innovative ROSA aluminium column production line is unique in the world and solutions used in it are protected by patent. Each stage of the production process is closely monitored and controlled, which makes the final product stand out for its high quality.

Technology of production of non standard columns

In addition to catalogue projects we realize individual orders in accordance with the individual projects. We have practically unlimited production capabilities to produce any nonstandard column or extension arm. We offer both minor modifications based on standard products listed in the catalogue as well as completely new projects, totally different from our standard offer. Experienced engineers in the Design and Technical Department can create a design and calculation for any customer inquiry. We have a highly expanded and modern machinery park. Devices such as water cutting machine, laser cutting station, CNC machines, benders for columns, aluminium sheets and pipes allow us to make different details of complicated shapes and to cut different decorative elements for columns and extension arms and finally to bend column and extension arms at a given angle.



Huzalozó kamra

Each aluminium lighting column has a wiring chamber, where the connection box is installed. The wiring chamber cover is laser cut (straight columns) or by specially designed saw (in case of columns produced outside the technological line) and fixed by bolts. Wire chamber of aluminium columns which are laser cut on the technological line has an ingress protection IP 54.

The closure of the chamber is equipped with catch (locks) welded into the cover and chamber, so that the cover additionally transfers the load resulting from the column's operating conditions.

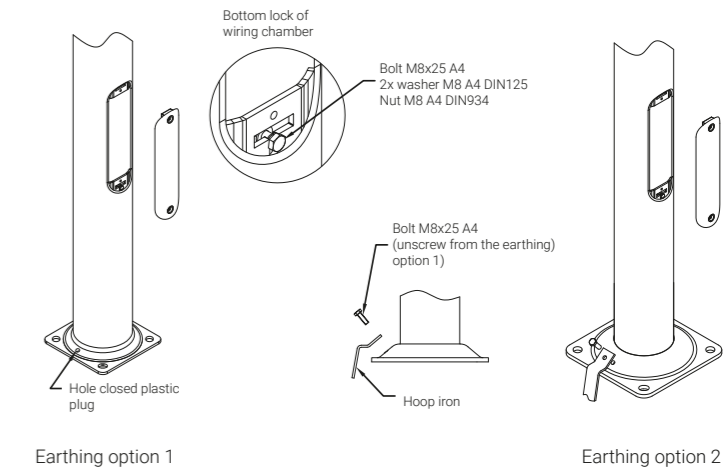


The wiring chamber in aluminium columns

Földelés

There is an M8 bolt in the hole of the lower lock of the chamber for fastening the earthing wire. This location allows easy access to the bolt, thus allows for quick maintenance and assembly.

As an alternative to earthing used in the wiring chamber there is additional earthing possibility in column's base-plate. This solution can be used especially when applying earthing of columns using hoop iron. In this case, earthing is made in column base-plate. The earthing hoop iron is being screwed to the base-plate of the column using bolt M8 taken from wiring chamber (OPTION 1) and screwed into hole made in the base-plate. When using OPTION 1 the hole will stay closed by plastic plug.



Süllyesztett imbuszkulc (6-os)

The wiring chamber door is secured by hexagonal stainless steel bolts with prevent door opening by unauthorised persons. O-ring washers are fitted to each bolt to prevent falling out during unscrewing. On customer request, the column can be equipped with triangular head screws.



Triangular key and bolt

Hexagonal key and bolt

Column reinforcement

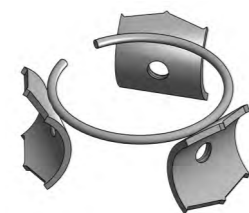
Columns marked with index "wzm" are reinforced. Reinforcement of the column within the base-plate and wiring chamber by an additional tube or a thicker wall allows the use of more luminaires or extension arms, or their installations in areas exposed to high wind speeds.

Connection of two-piece aluminium columns

Permanent connection of two-piece aluminium columns is assured by using specially designed stainless steel coronet connection clamp.

Connecting element is secured by using:

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



Connecting clamp for two-piece column type SAL



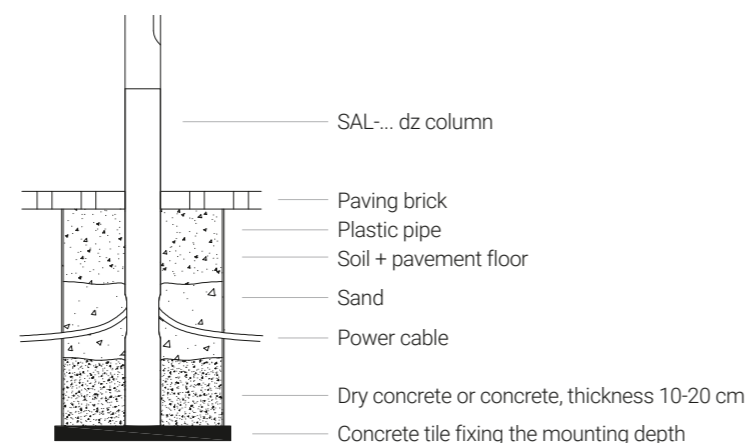
Connecting clamp for two-piece column type MAL

The above listed standards, apart from a number of recommendations, specify the method of determining the permissible load on the structure of the column. By calculating the permissible load on the columns, a number of characteristic parameters are taken into account, such as: average wind speed, location category, horizontal deviation, shape factor.

Resistance calculations

Column resistance calculations are made in resistance program in accordance with standards EN 40 and EN 1991-1-4. Column resistance is calculated for columns without wiring chamber door fitted.

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 fixing the installation depth.
3. Insert a plastic pipe of suitable diameter (at least twice the diameter size of the column) into the hole with prepared holes 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 installation of paving bricks.
4. Cover the pipe from outside with earth so that the groundworks can be completed together with the position of the paving bricks.
5. Unscrew the wiring chamber door
6. Place the column in the hole by hand, while introducing the power cables into the holes in the underground part of the column, so that their ends appear in the open wiring chamber of the column.
7. Set the column vertically and / or block the column in this position with wedge if possible.
8. Pour dry concrete or concrete to the bottom of the hole to a depth of about 10-20 cm. It is a fundamental the column stabilization.
9. Then pour sand into the hole in an amount that covers the power cables with the holes in the column. Sand protects against damage to the cables.
10. Cover the rest of the hole with soil and compact. Complete the missing part of the pavement around the pole.
11. After completing these steps, proceed to the operation of mounting the 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.

Passzív védelem

Aware of the safety requirements expected from the producers of lighting columns in order to minimize the danger resulting from road accidents we have carried out passive safety tests on our products according to standard EN 12767 "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 aluminum columns in heights from 2 to 12 m:

- SAL and MAL from $\varnothing 114$ to $\varnothing 225$ mm rooted
- SAL from $\varnothing 114$ to $\varnothing 180$ mm with base-plate

According to requirements of EN 12767:2019 standard the columns have functional properties in terms of passive safety when impacting a vehicle of 100-NE-C-S-SE-MD-0 classification (100 NE2 acc. EN 12767:2007).

Where:

- 100 – tested impact speed
- NE – non-energy-absorbing construction
- 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

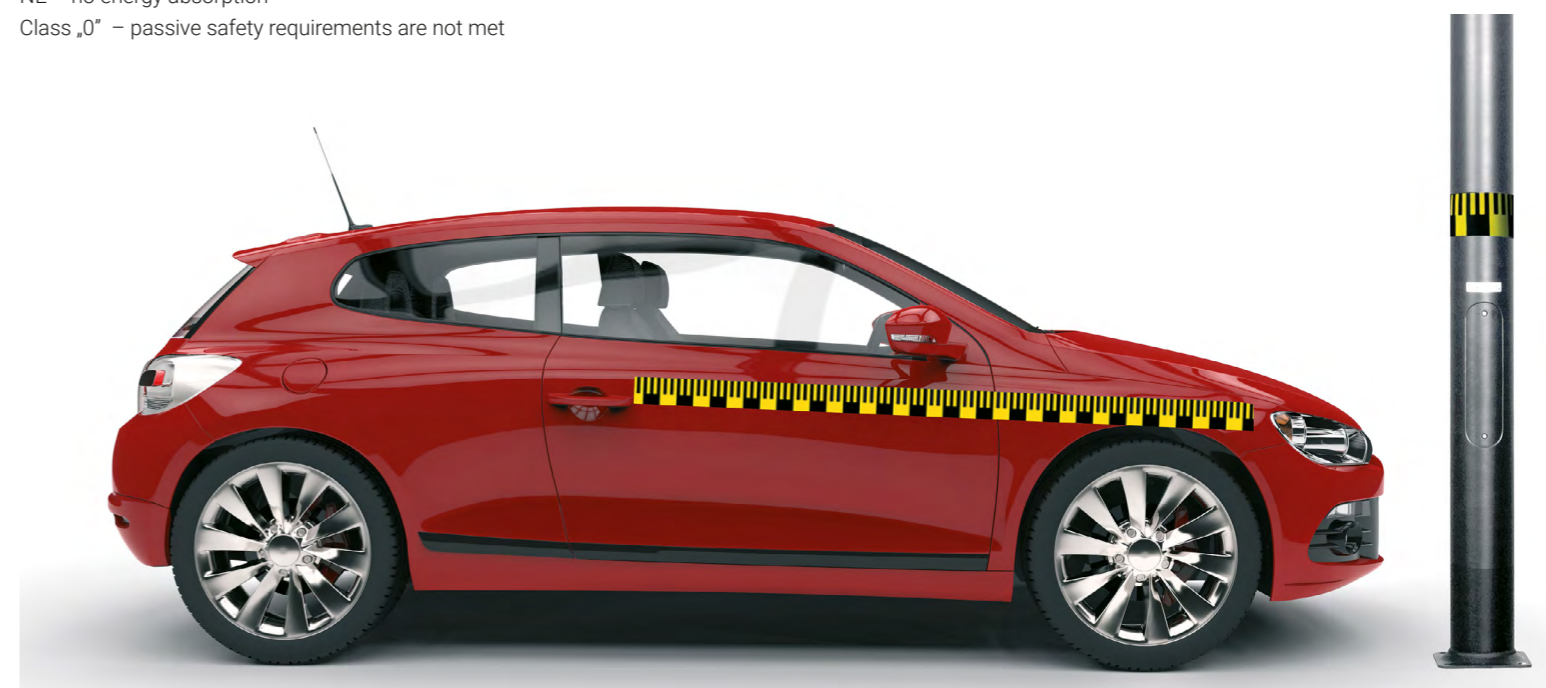
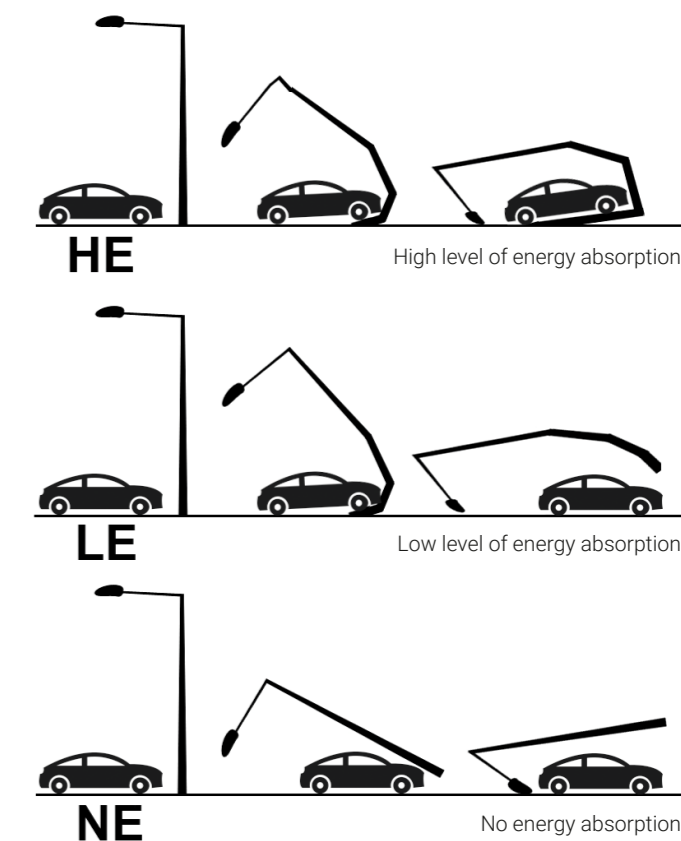
Definition of standards

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



Anodizálás folyamata

Rosa Anodising Plant

The anodised products anodising plant is part of the ROSA GROUP. It has been in operation since 2009 and is today the largest facility of its kind in East-Central Europe. Modern interference clouring technology provides a colour palette with a wide range..... resistant to external factors including UV radiation. ROSA anodising plant specializes in services such as anodising electrochemical or interference colouring of aluminium materials (including metal sheets, pipes, profiles or other structural elements). Modern interference technology of colouring provides colour palette, which is wider than traditional one, resistant to external factors including UV radiation. The ROSA anodising plant anodises sections up to 10m long, in simple or complex shapes, in ten unique anodising colours each with the option of chemical brightening (soft gloss).

Anodising process

Raw and unsecured aluminium is susceptible to dirt and it corrodes in the polluted and aggressive environment. We offer to our clients the highest quality products, that's why all of our aluminium columns are anodised. Anodising is a surface treatment of aluminium and its alloys consisting of a controlled electrolytic formation of a protective layer of aluminium oxide. Depending on product destination and terms of use anodised coatings are made in several thickness classes. The thickness of the anodic coating lighting columns is 20 µm. This ensures safe use in moderate and harsh conditions. For exceptionally harsh conditions a coat of 25 µm is recommended. The porous structure of the oxide coating allows to permanent colouring of metal by electrochemical or interference method. In these technologies, metallic fraction is permanently associated with the structure of an anode layer and the appropriate geometry and orientation of the pores determines the perceived colour.

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!

We have conducted in our R&D laboratory a test of resistance of anodic oxide coatings to UV radiation. The test was 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 samples 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 a total of 20 000 h and despite such a 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 of Surface Treatment 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.



Value of anodised aluminium?

- anodised coatings are integrally connected with the surface, so there is no the option of peeling, spalling or delamination,
- long useful lifetime, with the 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	Galvanized steel	Hot galvanized 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					

Comparative test result of aluminium material quality with corrosion protection and without such protection.

Anodizálás folyamata

The process of anodising is carried out on an automated technological line equipped with 27 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:

- surface pre-treatment phase - removal of grease and other contaminants of various origin from the surface of the aluminium,
- alkaline bath phase – removal of oxide layer from product surface, giving it a matt finish.
- pickling (lightening) phase – removal residual alloy impurities and thin oxide layers and sediments that may remain after the etching process, the removal is necessary to achieve the correct adhesion of the oxide coating to the surface.

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.

- electrochemical colouring is based on the treatment of the anodised product in the electrolyte containing tin ions. Reduced in a cathode cycle metal 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.

- interference colouring is preceded by pore shape modification operation of the anodic layer. Then, in such modified pores, the surface of the aluminium is permanently coloured, widening the palette of colours obtained in electrochemical colouring with new colours. This method uses the phenomenon of interference, that is, the overlapping of reflected light waves, leading to the increase or decrease of the amplitude of the incident wave. Modifying this amplitude through the appropriate controlled variation of the pore shape of the anode layer allows for the creation of new Colours.

3. Sealing

Sealing aims to close the porous oxide layer, which guarantees proper corrosion resistance. This is the final stage of the anodising process, carried out in a hot dematerialized water bath with small accelerating additives, where the pores of the oxide coating are filled with boehmite and aluminium hydroxide.

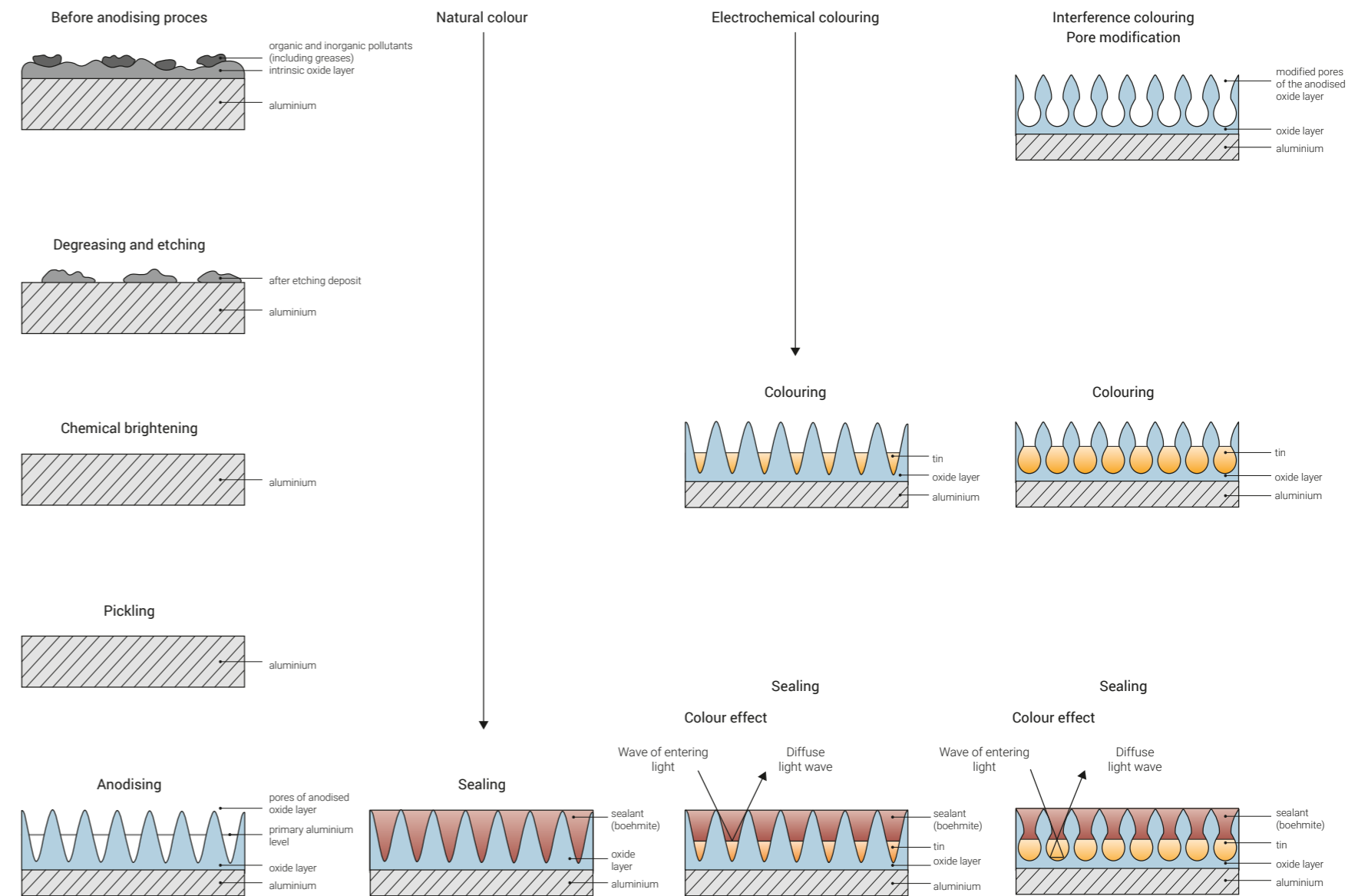
Chemical brightening

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

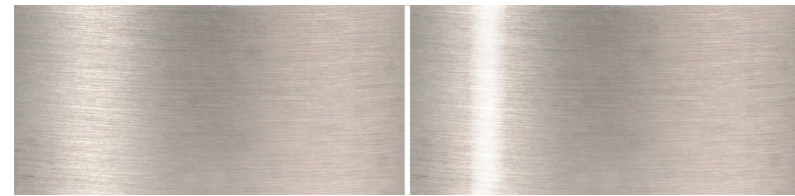
Dry etching technology

The so-called dry etching technology involves surface treatment by shot blasting method. The process is carried out using a modern machine to matt the surface by subjecting the workpieces to abrasive blasting operations using shot with a diameter of about 0.1 mm, giving the surfaces a delicate, satin appearance. This type of technology allows to significantly eliminate all kinds of surface defects arising from extrusion or rolling processes such as streaks, thermal lines, etc. and minor mechanical damages in the form of scratches and abrasions. The surfaces thus obtained are characterized by much better quality compared to traditional chemical etching. Used technical solutions allow to shot blast elements from sheet thickness of 1mm without the risk of surface damage.

Az alumínium oszlopok anodizálás folyamata



Választható anodizált színek



Natural **C-0**

Natural **C-0W**



Champagne **C-32**

Champagne **C-32W**



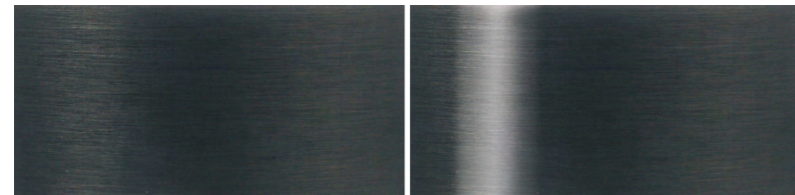
Olive **C-33**

Olive **C-33W**



Brown **C-34**

Brown **C-34W**



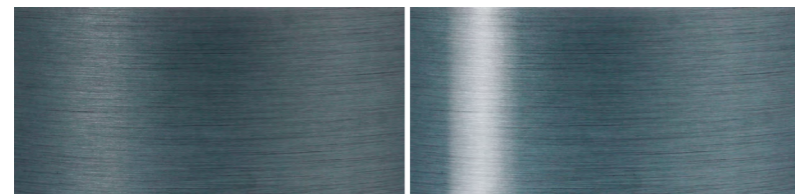
Black **C-35**

Black **C-35W**



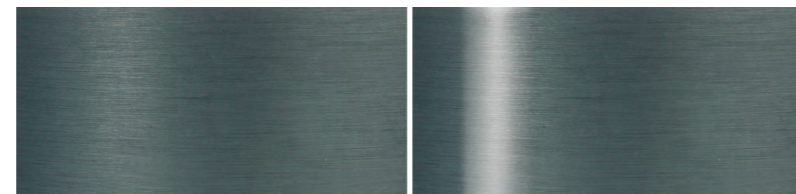
Inox **C-45**

Inox **C-45W**



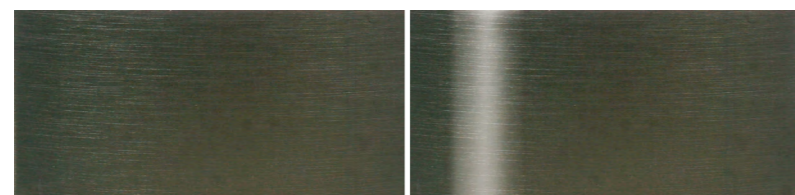
Grey **CI-63**

Grey **CI-63W**



Graphite **CI-65**

Graphite **CI-65W**



Green **CI-75**

Green **CI-75W**



Anthracite **CI-78**

Anthracite **CI-78W**

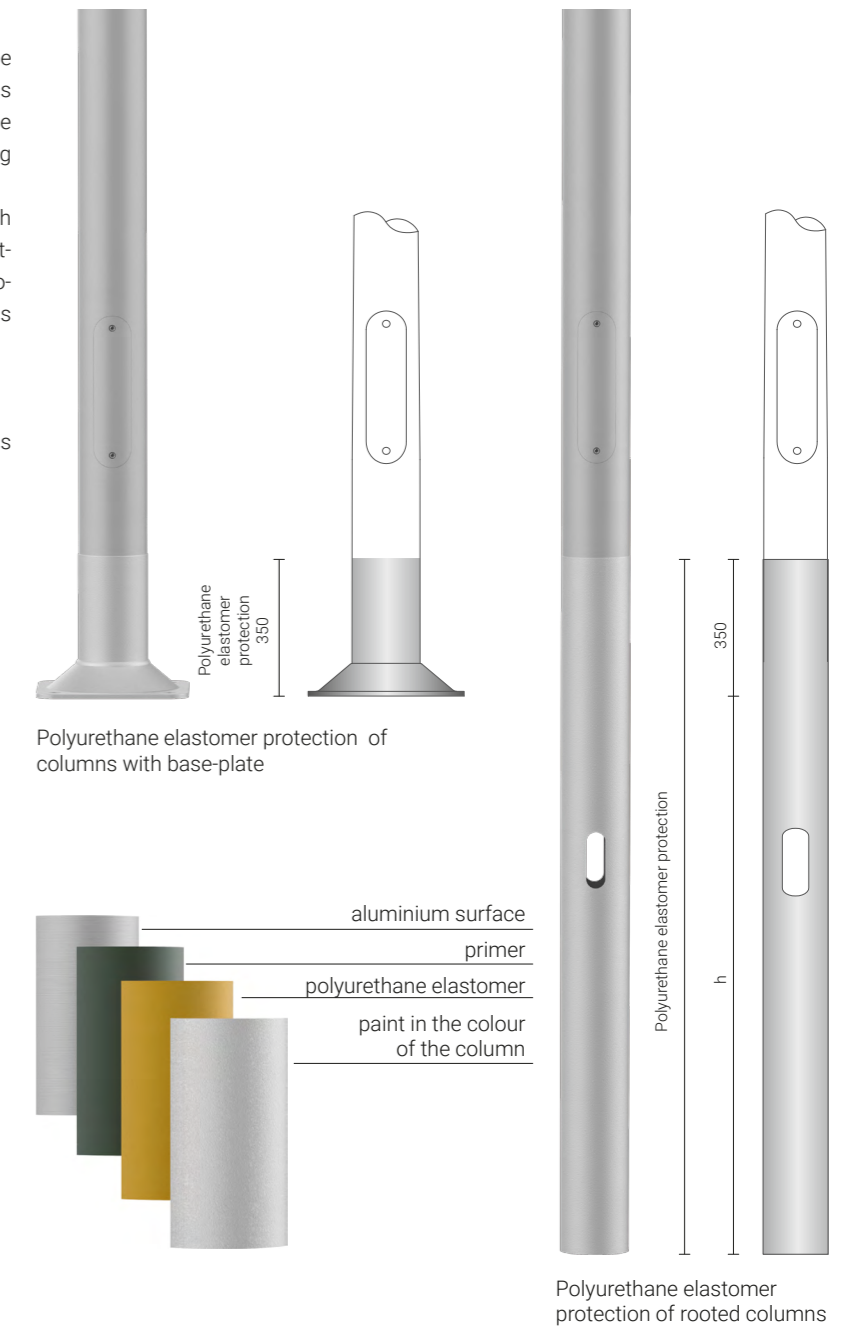
Real anodising colour can differ presented colour sample.
"W" means brightening.

Elasztomer védelem

In very unfavorable (environmental) conditions, the base-plates and parts of the rooted column are exposed to the adverse effects of salt and ammonia 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 fragment of rolled part up to 350 mm by polyurethane elastomer.

The thickness of the protective coating is within the range of 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 by a polyurethane elastomer as standard. Both material and production technology are environmentally friendly.



Production of plastic coated poles

Stylish plastic coated poles are elements of small architecture and are designed to illuminate parks, squares, green spaces and urban markets. Variety of shapes and heights of poles allows to adjust the lighting to the surrounding. Plastic coated poles are characterized by high aesthetics, easy transport and assembly, resistance to adverse external factors, high mechanical resistance.

Pole construction

Plastic coated pole is built of three connected elements:

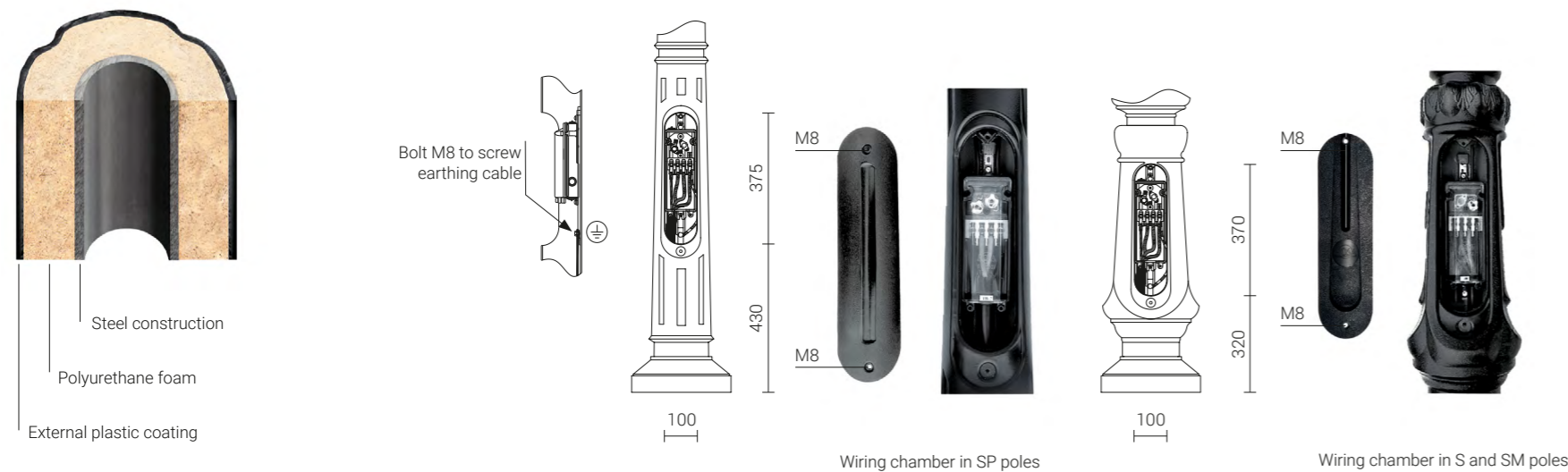
- supporting structure made of steel tubes of hybrid construction, welded to the steel base-plate which is reinforced with angle braces,
- external components made of special composition of plastics by thermoforming and injection molding method,
- self-extinguishing, rigid polyurethane foam that fills the space between the structure and the plastic coating of the pole.

The pole steel construction was specially designed to absorb the load created mostly by wind pressure.

Plastic coating is made in two versions:

- standard thermal resistance – poles used in countries where air temperature varies between -30°C to +40°C,
- high thermal resistance – poles used in countries where air temperature is less than -30°C and exceeds +40°C. This applies to poles in black colour. This type of pole is additionally marked with letter "F".

Wiring chamber



Poles with wiring chamber are additionally marked with letter "W". The wiring chamber is located in the first, lower section of the lighting pole. It is designed for installation connection box on the aluminium rail located on the back of the steel structure of the pole. The rail fixing clamp can be used as a protective clamp. The wiring chamber is protected by decorative plastic cover in identical colour and texture to the pole.

Plastic coated poles are characterized by:

- corrosion resistance,
- light weight to facilitate transport and assembly,
- aesthetic appearance,
- resistance to adverse weather conditions,
- resistance to salt, ammonia and other caustic substance,
- UV resistant,
- high mechanical qualities,
- suitable for every climatic zone,
- low cost of maintenance.

Types of plastic coated poles

Plastic coated poles are produced in three versions:

- S – traditional,
- SP – straight,
- SM – composite.

Three types of spigot are used depending on type of plastic coated pole:

- type „A“ – designed for assembly arm systems in poles type S and SP and extension arms WT in poles type SP,
- type „B“ – designed for using luminaires with assembly spigot $\varnothing 60$ mm (OS -1 LED, OS -11 LED, ELBA LED, ELBA, OS -1, OP, OPA -1) in poles type S and SP,
- type „E“ – designed for assembly extension arms WTM in poles type SM.

The spigot is an integral and non-modified part of the pole.

Types of spigot



Example of construction of a pole S-40W

Example of construction of a pole SM-1W

Cross-section of spigots in plastic coated poles

Lámpatestek

LED luminaires

ROSA LED luminaires feature an 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, plazas 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; there are also industrial luminaires available for high- and low-bay applications as well as gas stations.

ROSA LED luminaires – real benefits:

- reduction of electricity consumption up to 75%
- lower operating and maintenance costs
- the option of applying power reduction
- reduction in number of used lighting points
- aesthetic and decorative appearance

Light sources

ROSA LED products are equipped with state of the art light sources, capable of reaching luminous efficacy up to 136lm/W on luminaire level.

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.

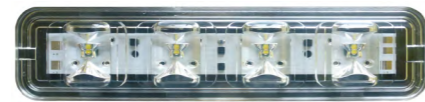
Light colour	Correlated colour temperature (CCT)	Colour rendering index (CRI)
Warm white	2 700 K	>80
	3 500 K	>80
Neutral white	4 000 K	>70
	5 000 K	>70

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 neutral white light colour of 5000 K, due to higher luminous efficacy is commonly used in street lighting (marked with number "6" 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 use only optics 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.

Luminaire construction

Housings of ROSA LED luminaires and lighting sets are made of profiles and sheets of high-quality aluminum alloy* subjected to anodising process. They are characterized 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.

Az intelligens világítás a Smart City felé nagy lépés

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 digitization of cities is a process of modernizing urban infrastructure, by which currently transformed resources can be basis for future improvements and innovations. Which will reduce costs and time necessary for further investments or dealing with new challenges.

Okos világítás

The concepts of large cities assume the introduction of solutions enabling intelligent lighting control, which ROSA LED luminaires are equipped now. Innovative programming of luminaires with LED light source allows to reduce energy consumption, at the same time increase light efficiency, economically for economy of constantly growing agglomerations. Modernization and investment in smart luminaires is good step not only because of savings, the luminaires equipped with appropriate system sensors create a number of new possibilities, incl.:

- during night hours when power reduction is on, lamps can light up following route of emergency vehicles like ambulances or fire trucks;
- power of light can be correlated with data of weather stations, reacting to changing weather conditions e.g. increasing the power of light when weather is bad;

- when pedestrians cross street, luminaire can change power to brighter light (underexposed pedestrian crossings);
- when bus is close to bus stop, streetlights around the bus stop can be automatically set up brighter than those further away.

IoT solutions

The next stage towards the digitization 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, that allow to get all kinds of city data using sensors that collect data from the environment and traffic recording cameras incl.: search for free parking spaces or microphones that respond to specific sounds. All this to make society work in a safer and more sustainable way.

We make future now

Along with the global growth rate of electric vehicles and realizing EU requirements for improving air quality, incl.: One of our products implementing SMART technologies is Karin LED EV. It is the lighting column fully integrated with electric vehicle charging station. Our company as a producer of the complete lighting set, has ability to assemble and create the most innovative technologies today.

Zhaga (D4i) i Nema konnektorok

New is introduction of D4i sockets (according to Zhaga Book 18) and NEMA – ANSI C136.41 sockets, that are used to connect lighting sensors enabling wireless control of LED luminaires. Universal construction gives possibility to installation of control interface and sensors of any producer whose product will be compatible with current standards. The D4i socket has 4 inputs and the NEMA socket has 5-7 inputs. Each luminaire is equipped with socket cap.

Introduction of these normalization into ROSA products is compatible with goals the Zhaga Consortium, whose demands regarding to standardization of specifications for LED luminaire components are already in common use in the global lighting market.



A LED cserélhető modulhoz való optika

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

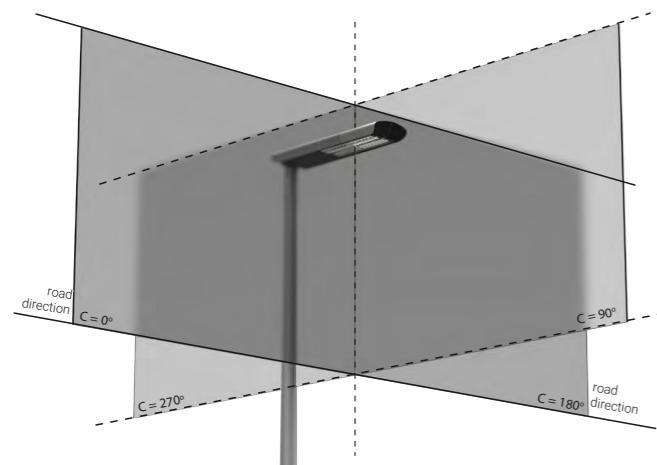
Light Distribution Curve

Optics for LED interchangeable module are determined using Light Distribution Curve that is visual representation of the light diffused by a luminaire, which results from construction of light source or luminaire shape. To specify the distribution, light intensity measurements are made using light sources with a total stream of 1000 lm, then a curve is created for the characteristic plane or planes of the luminaire.

The graph gives light distribution in two planes:

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

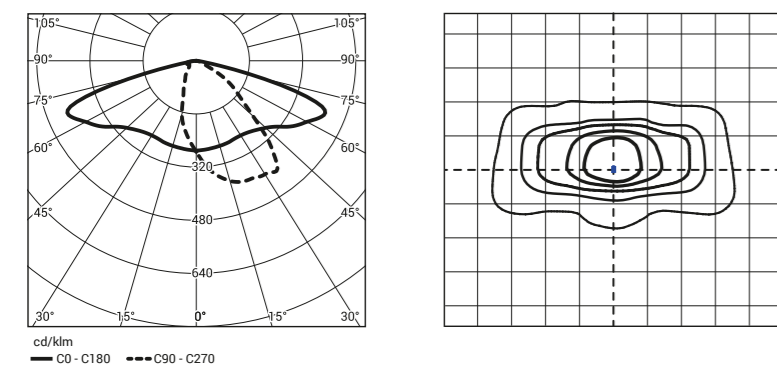
Diagram of planes



Street lighting

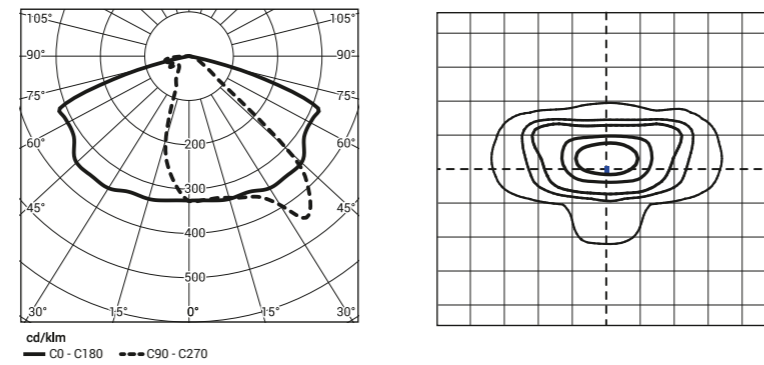
DW Optics

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



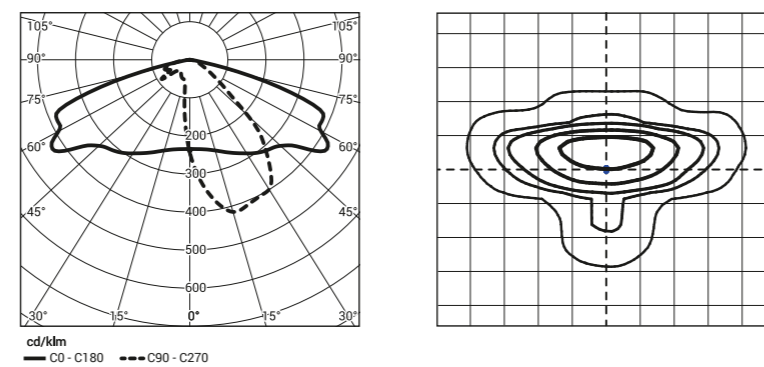
ME optics

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



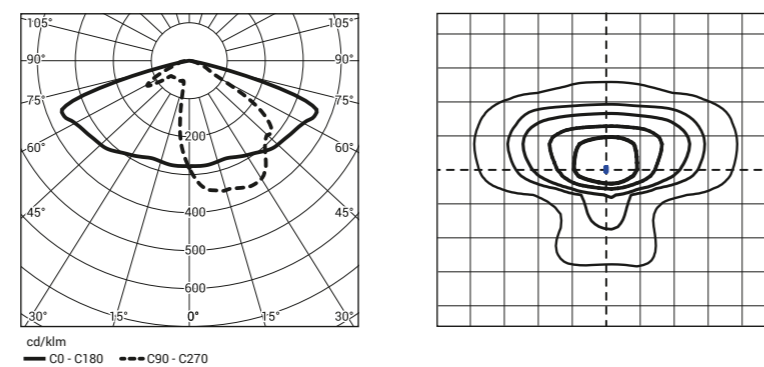
T2 optics

It is best to illuminate narrower roads with two lanes, as well as in the installation of luminaires on the center lane which separating the roadway into a two-lane configuration (road classes P and M).



T3 optics

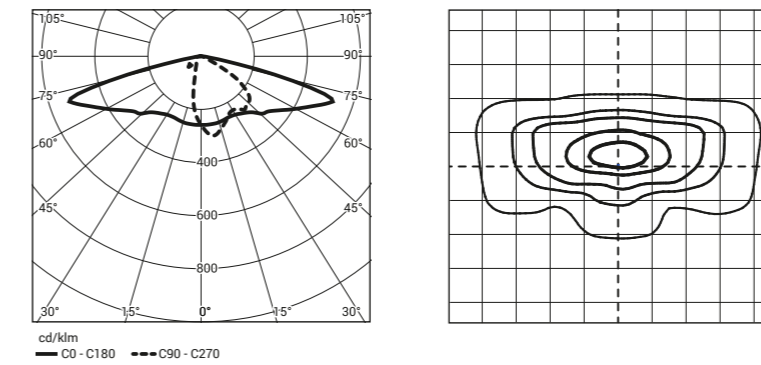
It allows for wider light distribution than the T2 optics, it works similarly in lighting roads with two lanes and sidewalks.



Gyalogos utak megvilágítása

SP optics

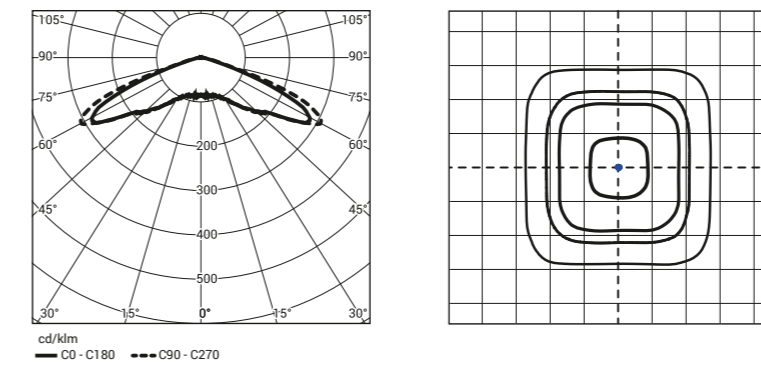
It emits light very widely, so distance between the luminaires can be eight times bigger than the height of the columns on which they are installed.



Park / Area Lighting

VS optics

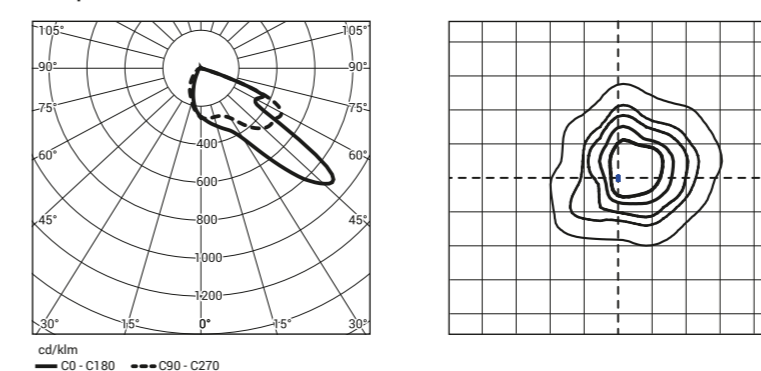
It is characterized by uniformly asymmetrical light distribution around the luminaire (square beam).



Pedestrian crossings

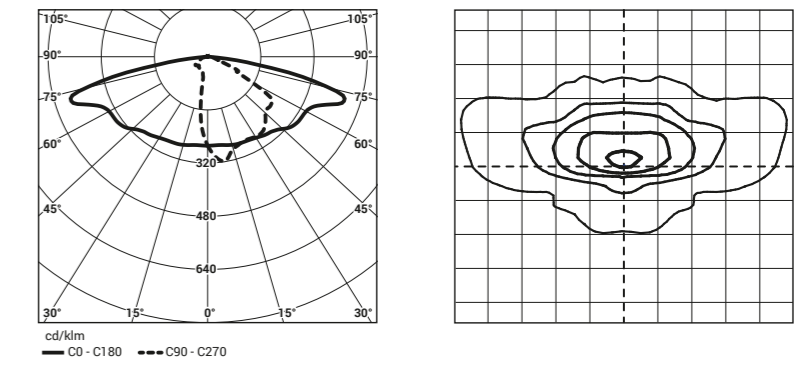
To avoid discomfort glare for drivers in pedestrian crossing lighting is recommended to use optics with an asymmetrical light distribution, respectively right and left side traffic.

PP optics



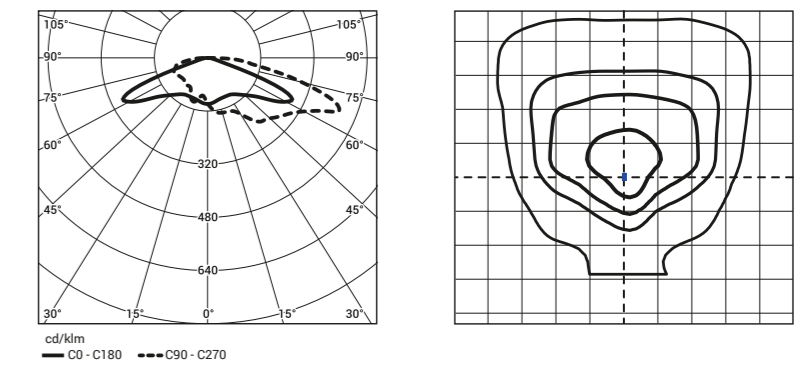
3L optics

Dedicated to bike path, has wide light distribution. Long distances from low columns.



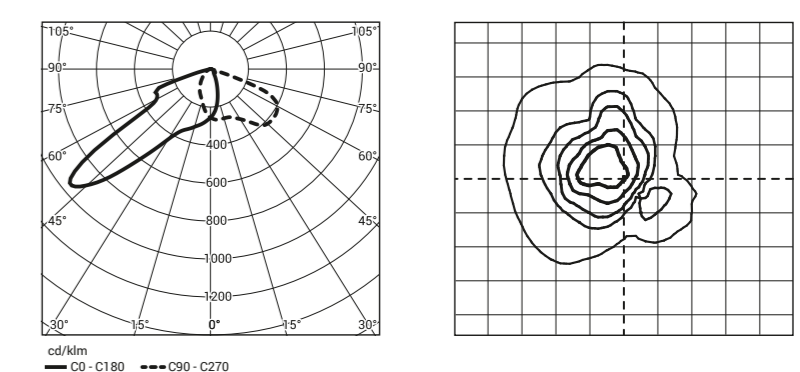
T4 optics

It is recommended for low-height luminaires located at small distance from each other. It is characterized by light emission far forward.



Important! The optics for left side traffic also works in the case of lighting pedestrian crossings in the configuration for right side traffic when installing columns on the refuge island.

PL optics



Meghajtó

In LED luminaires we use highly efficient current and programmable constant drivers of Philips Xitanium and Osram 4DIM. These LED drivers offer high reliability and flexibility due to a large number of programmable options, which can be applied accordingly to customer requirements. A number of functions are available at the user's disposal: adjustable output current, DALI interface, optional 1-10 V, programmable time profiles. Additionally, the driver has an option to monitor temperature of LED modules, it will reduce luminaire power when it detects temperature higher than recommended. This protects LEDs from overheating, and hence from faster wear.

The driver is enclosed in a body with connectors that facilitates possible replacement with simple tools only.

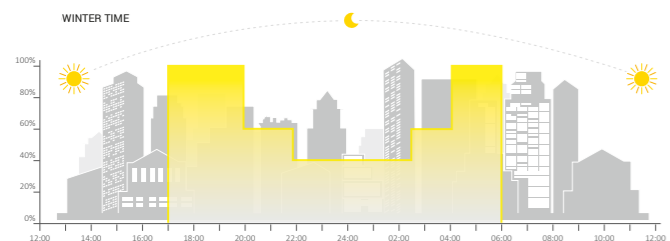


For the CUDDLE LED II luminaire, we created a special power driver body with built-in Zhaga or Nema sockets, to which sensors for intelligent lighting control can be connected.



LED driver parameters, used in selected street luminaries

Programmable time profiles guarantee increased LED lighting savings. Our clients has a choice of up to five power levels, ranging from 10 to 100% of rated power, at any luminaire operation time interval. Driver utilize selected time profile – variable luminaire power level according to investor needs during operation hours. This solution reduces luminaire overall 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 lighting fixture type), which enables them to be connected to an independent controller or a connected control system that limits energy consumption.

Proper control of luminaires output power depending on f.ex. traffic on selected stretch of road, can provide additional savings of 40-70%. The ability to join luminaires to specific groups (f.ex. a group of pedestrian crossings or a group of major city roads) facilitates simultaneous control of classified luminaires. In addition, the lighting control system enables reporting of faults (f. ex. when a luminaire stops working – it can signal an error via in-system notification, e-mail or sms).

Advantages:

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

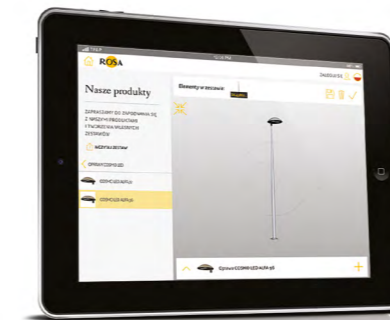
Overvoltage protection

Outdoor lighting utilising LED technology is particularly prone to overvoltages and surges in electrical network or from atmospheric events such as lightning. All ROSA LED luminaires are equipped with 10 kV overvoltage protection, which lowers the overvoltages to a safe level for the electronics used in the LED luminaires. This protection significantly increases luminaire resistance to electrical discharges (up to 15 surges at 10 kV). In addition, in case of higher number of surges or higher single surge - it breaks and cuts off the luminaire from the mains.

ROSA látványtervező App Store-on keresztül elérhető

The electronic products' catalogue

ROSA DESIGNER is a complete range of products: columns, extension arms, luminaires or whole lighting sets. Wide range of products allows to easily use the catalogue and selection of elements so that the final effect not only meets the visual but also technical expectations. Check all the possibilities.



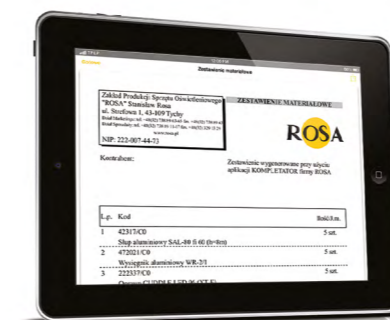
Complete panel

Composing the lighting set has never been so easy. Effortless in use panel allows for quick and accurate adjustment of the selected products. Just a few clicks to connect all the necessary elements and determine their colour from the anodising colour palette.



Spatial visualization

You do not need imagination – simply go to the Visualizer to see how the composed lighting set will be presented in a specific location. Take a picture of the street or square and place the selected lighting in it. And everything is light up ...



Automatic inquiry generation

From the application level there are technical drawings of individual products available. Log in to be able to generate a product list.

Egyenes alumínium lámpaoszlopok

Lakópark, Wrocław Lengyelország





Irodaház
Cracow, Lengyelország

North Bypass
Jaworzno, Poland

Rybaczówka Park
Strzelce Opolskie, Poland





Integrated transport interchange
node Cieszyn, Lengyelország

Vízduzzasztó, Lengyelország





Stadion, Tychy,
Lengyelország



PE Academy
Gorzów Wielkopolski, Poland



Egyenes alumínium lámpaoszlopok

Ø114 mm at the base

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: Ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



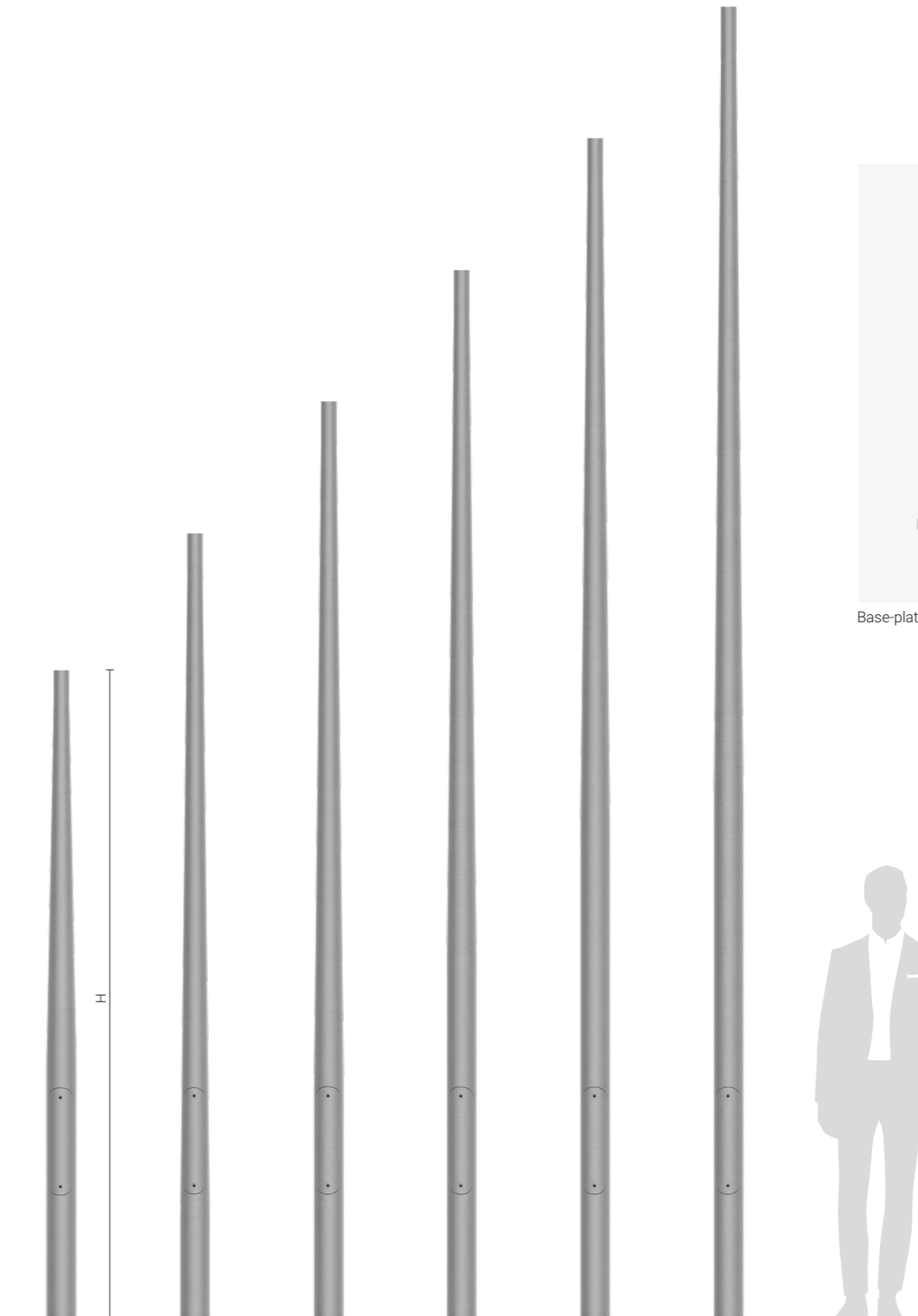
Column type	SAL-2,5/B60	SAL-3/B60	SAL-3,5/B60	SAL-4/B60	SAL-4,5/B60	SAL-5/B60
Height of the column H [mm]	2 500	3 000	3 500	4 000	4 500	5 000
Code	42126/C...	42120/C...	42101/C...	42102/C...	42103/C...	42127/C...
Net weight [kg]	7,1	8,3	9,8	11,4	12,9	13,6
Approximate unit volume [m³]*	0,056	0,067	0,078	0,09	0,1	0,11
Recommended luminaires for column top mounting	ISKRA LED ALFA, ISKRA LED ALFA PROG, ELBA LED, AURIS LED, ATLANTIS LED, MIRA LED, ELBA, OPA-1, OP, OZ					
Recommended extension arms and luminaires	WA-14/1, WA-41 fi42 - OW LED					
Concrete footing / reinforcement basket type	B-50 / Z-50					
Threaded anchor ending	4xM14					
Concrete footing / reinforcement basket code	311150 / 311205					
Fasteners	4006					
Dimension of the base plate (side / bolt spacing / thickness) [mm]	224 / 180 / 8					

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

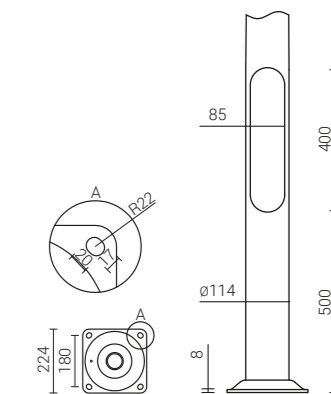
Cracow, Poland



Luminaire: ISKRA LED ALFA
 Column: SAL-4/B60



Base-plate of aluminium column 224 x 180 x 8



SAL-2,5/B60 SAL-3/B60 SAL-3,5/B60 SAL-4/B60 SAL-4,5/B60 SAL-5/B60

Egyenes alumínium lámpaoszlopok

Ø114 mm at the base

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: Ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



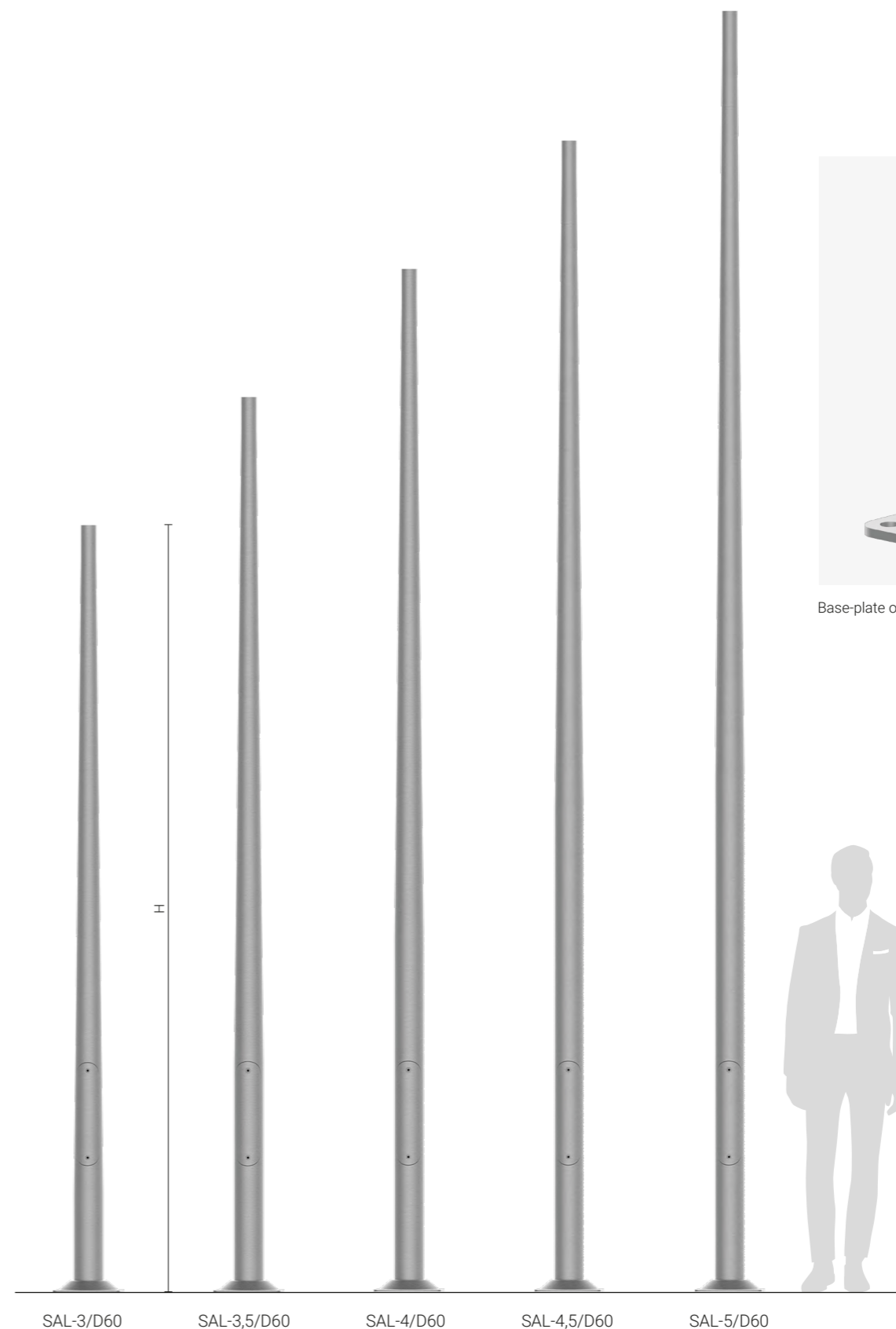
Column type	SAL-3/D60	SAL-3,5/D60	SAL-4/D60	SAL-4,5/D60	SAL-5/D60
Height of the column H [mm]	3 000	3 500	4 000	4 500	5 000
Code	42122/C...	42114/C...	42115/C...	42116/C...	42128/C...
Net weight [kg]	8,7	10,2	11,7	13,3	14
Approximate unit volume [m³]*	0,087	0,101	0,115	0,13	0,145
Recommended luminaires for column top mounting	ISKRA LED ALFA, ISKRA LED ALFA PROG, ELBA LED, AURIS LED, ATLANTIS LED, MIRA LED, ELBA, OPA-1, OP, OZ				
Recommended extension arms and luminaires	WA-14/1, WA-41 fi42 - OW LED				
Concrete footing / reinforcement basket type	B-51 / Z-51				
Threaded anchor ending	4xM18				
Concrete footing / reinforcement basket code	311151 / 311251				
Fasteners	4008				
Dimension of the base plate (side / bolt spacing / thickness) [mm]	260 / 200 / 8				

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

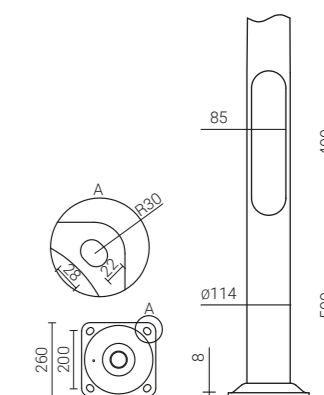
Tymbark, Poland



Luminaire: ATLANTIS LED
 Column: SAL-4/D60



Base-plate of aluminium column 260x200x8



Egyenes alumínium lámpaszlopok

Ø114 mm at ground level

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: Ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



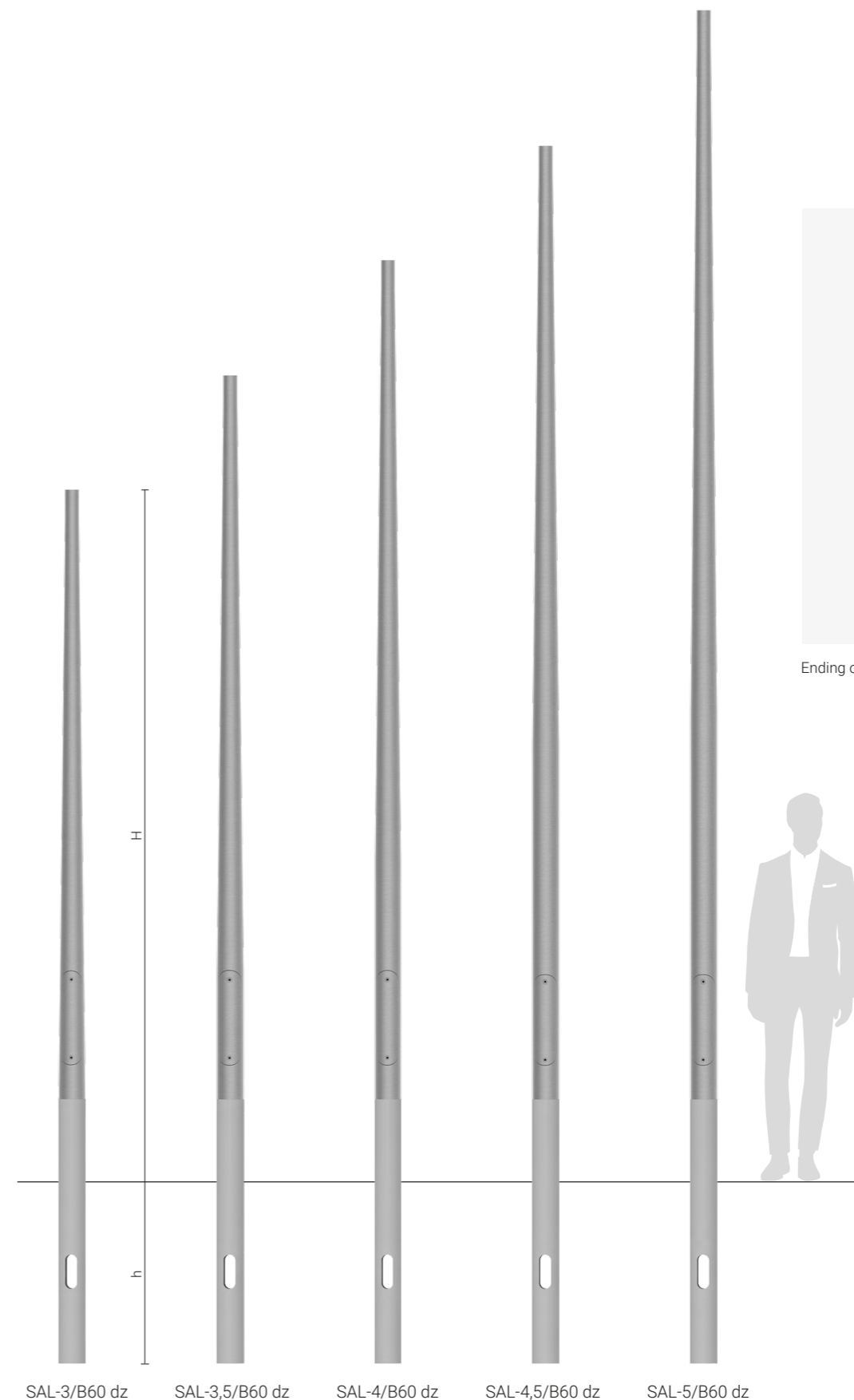
Column type	SAL-3/B60 dz	SAL-3,5/B60 dz	SAL-4/B60 dz	SAL-4,5/B60 dz	SAL-5/B60 dz
Height of the column nad gruntem H [mm]	3 000	3 500	4 000	4 500	5 000
Code	42124/C...	42108/C...	42111/C...	42107/C...	42113/C...
Net weight [kg]	9,8	11,3	12,9	14,4	15,5
Approximate unit volume [m³]*	0,024	0,027	0,03	0,033	0,036
Recommended luminaires for column top mounting	ISKRA LED ALFA, ISKRA LED ALFA PROG, ELBA LED, AURIS LED, ATLANTIS LED, MIRA LED, ELBA, OPA-1, OP, OZ				
Recommended extension arms and luminaires	WA-14/1, WA-41 fi42 - OW LED				
Rooted section h [mm]	800				

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

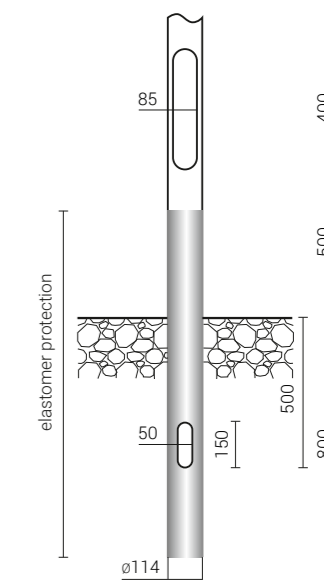
Suwałki, Poland



Luminaire: ELBA LED
 Column: SAL-4/B60 dz



Ending of aluminium column



Egyenes alumínium lámpaoszlopok

Ø120 mm at the base

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: Ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



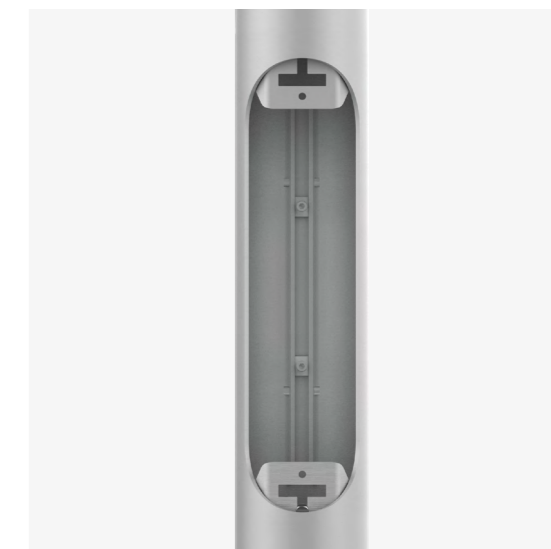
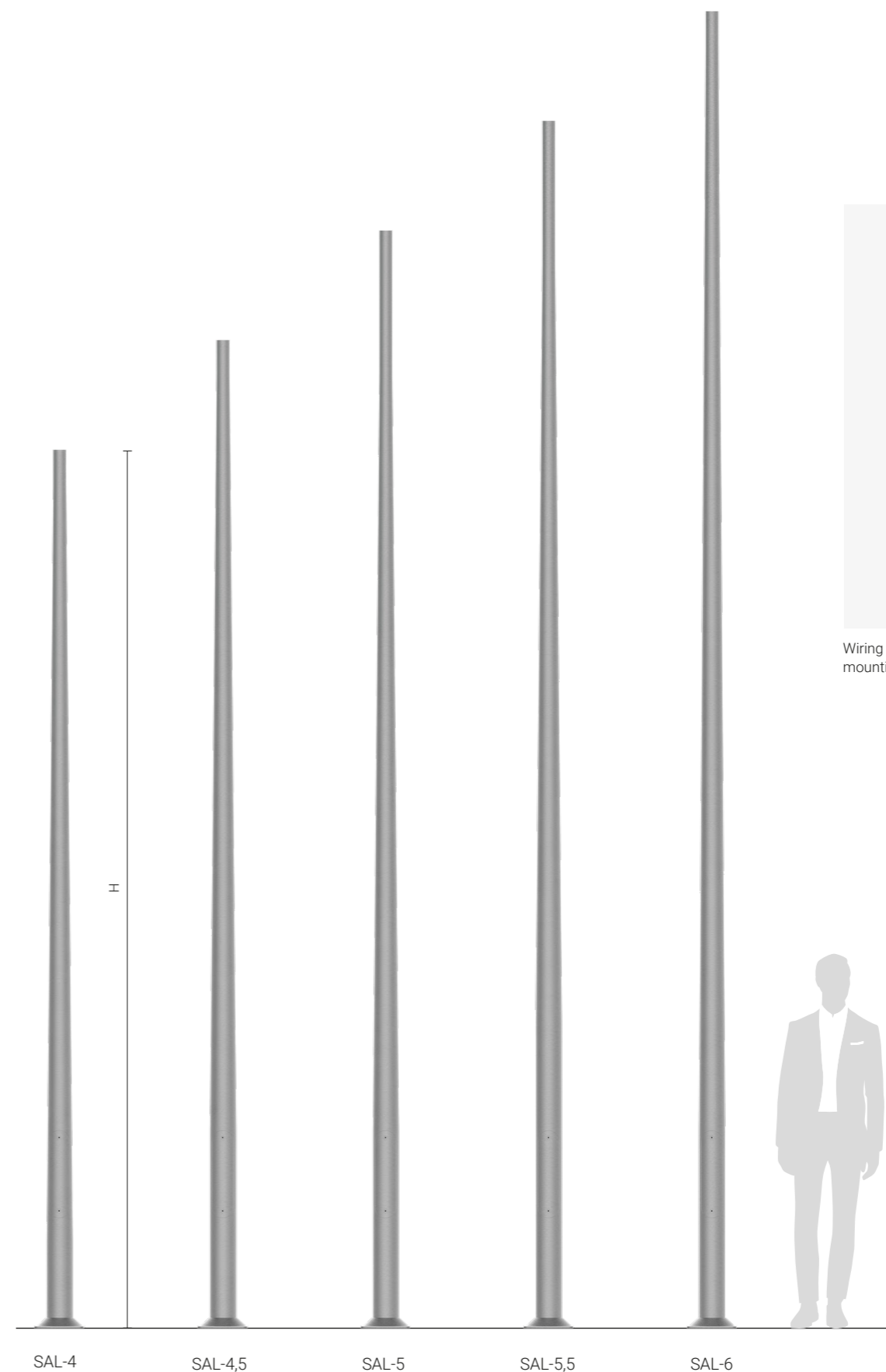
Column type	SAL-4	SAL-4,5	SAL-5	SAL-5,5	SAL-6
Height of the column H [mm]	4 000	4 500	5 000	5 500	6 000
Code	42201/C...	42202/C...	42203/C...	42205/C...	42207/C...
Net weight [kg]	13,9	15,9	16,9	19,0	21,1
Approximate unit volume [m³]*	0,09	0,101	0,112	0,123	0,134
Recommended luminaires for column top mounting	ISKRA LED ALFA, ISKRA LED P ALFA, ELBA LED, ATLANTIS LED, COSMO DELTA LED, VEGA LED ALFA, VEGA LED BETA, MIRA LED, MIZAR LED, ELBA, OPA-1, OP, OZ				
Recommended extension arms and luminaires	WA-41 fi42 - Luminaire OW LED; WA-5/1 - Luminaire ELBA LED, ATLANTIS LED, OPA-1, OP, OZ; WA-14/1 - Luminaire OW LED, DROP LED;				
Concrete footing / reinforcement basket type	B-50 / Z-50				
Threaded anchor ending	4xM14				
Concrete footing / reinforcement basket code	311150 / 311205				
Fasteners	4006				
Dimension of the base plate (side / bolt spacing / thickness) [mm]	224 / 180 / 8				

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

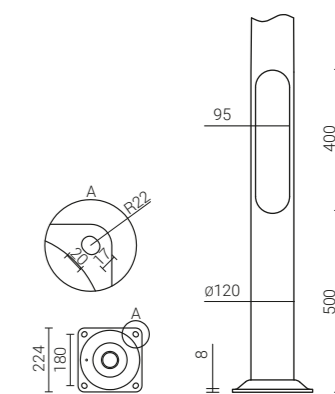
Radom, Poland



Luminaire: AURIS LED
 Column: SAL-5



Wiring chamber of aluminium column with mounting rail for connection box



Egyenes alumínium lámpaoszlopok

Ø120 mm at the base

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: Ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



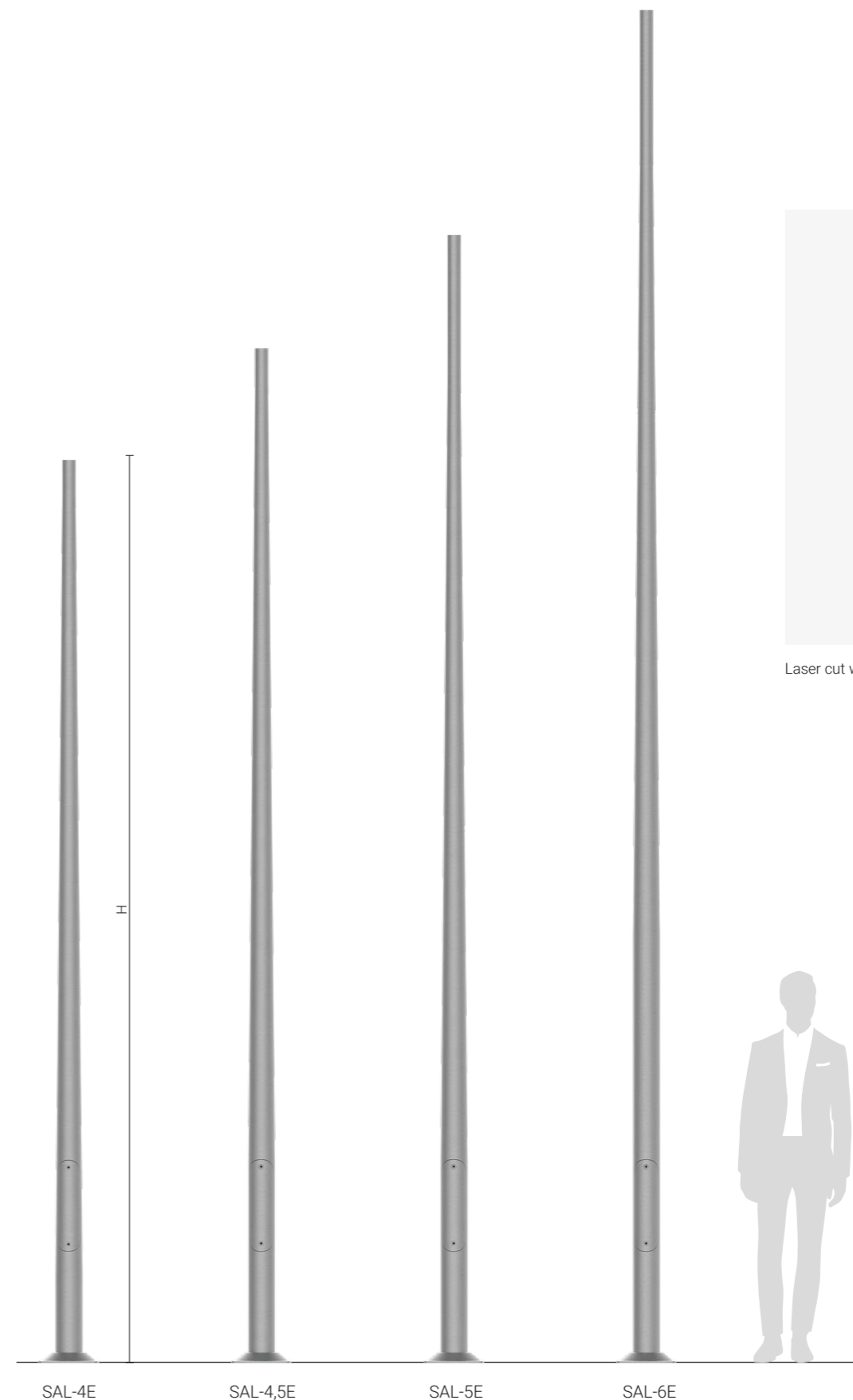
Column type	SAL-4E	SAL-4,5E	SAL-5E	SAL-6E
Height of the column H [mm]	4 000	4 500	5 000	6 000
Code	42217/C...	42218/C...	42219/C...	42223/C...
Net weight [kg]	14,3	16,4	17,4	21,5
Approximate unit volume [m ³]*	0,116	0,13	0,145	0,174
Recommended luminaires for column top mounting	ISKRA LED ALFA, ISKRA LED ALFA PROG, ISKRA LED P ALFA, ISKRA LED P ALFA PROG, ELBA LED, AURIS LED, ATLANTIS LED, COSMO DELTA LED, VEGA LED ALFA, VEGA LED BETA, MIRA LED, MIZAR LED, ELBA, OPA-1, OP, OZ			
Recommended extension arms and luminaires	WA-41 fi42 - Luminaire OW LED, WA-5/1 - Luminaire ELBA LED, ATLANTIS LED, OPA-1, OP, OZ, WA-14/1 - Luminaire OW LED, DROP LED;			
Concrete footing / reinforcement basket type	WA-14/2- oprawy OW LED, DROP LED;		B-51 / Z-51	
Threaded anchor ending	4xM18			
Concrete footing / reinforcement basket code	311151 / 311251			
Fasteners	4008			
Dimension of the base plate (side / bolt spacing / thickness) [mm]	260 / 200 / 8			

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

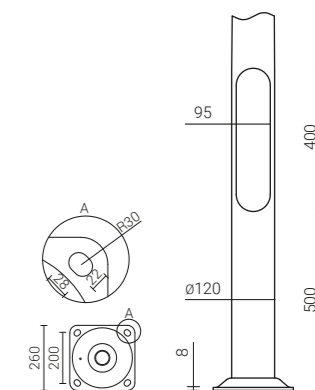
Gorzów Wielkopolski, Poland



Luminaire: VEGA LED ALFA
 Column: SAL-5E



Laser cut wiring chamber of aluminium column



Egyenes alumínium lámpaoszlopok

Ø120 mm at ground level

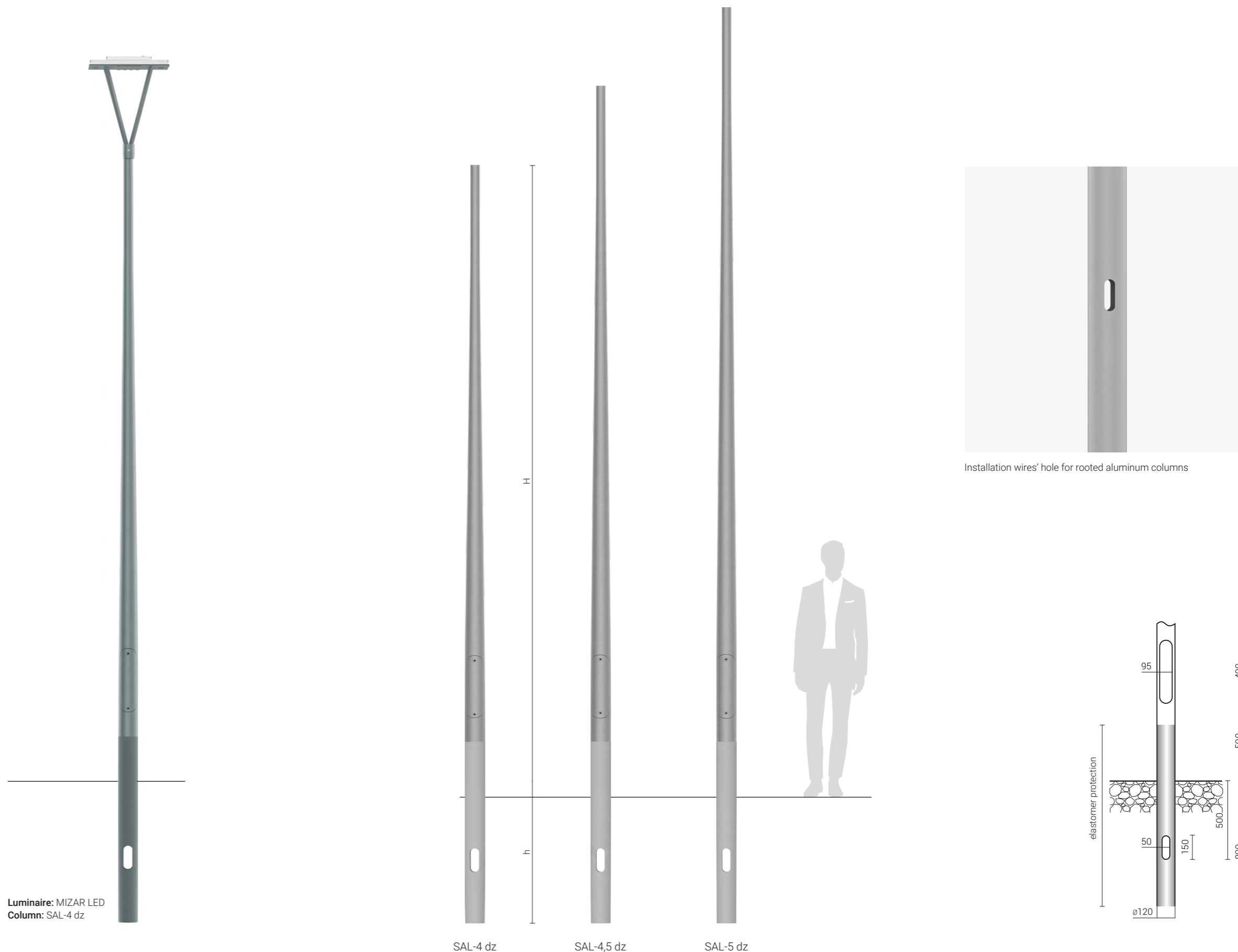
Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: Ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



Column type	SAL-4 dz	SAL-4,5 dz	SAL-5 dz
Height of the column nad gruntem H [mm]	4 000	4 500	5 000
Code	42231/C...	42232/C...	42233/C...
Net weight [kg]	15,7	17,4	19,5
Approximate unit volume [m³]*	0,032	0,035	0,039
Recommended luminaires for column top mounting	ISKRA LED ALFA, ISKRA LED P ALFA, ISKRA LED ALFA PROG, ISKRA LED P ALFA PROG, ELBA LED, AURIS LED, ATLANTIS LED, COSMO DELTA LED, VEGA LED ALFA, VEGA LED BETA, MIRA LED, MIZAR LED, ELBA, OPA-1, OP, OZ		
Recommended extension arms and luminaires	WA-41 fi42 - Luminaire OW LED; WA-5/1 - Luminaire ELBA LED, ATLANTIS LED, OPA-1, OP, OZ; WA-14/1 - Luminaire OW LED, DROP LED;		
Rooted section h [mm]	800		

* For order of more than 10 pcs stated volume may change according to packing
 /C... - choice of anodising colour

Wroclaw, Poland



Egyenes alumínium lámpaoszlopok

Ø146 mm at the base

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: Ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



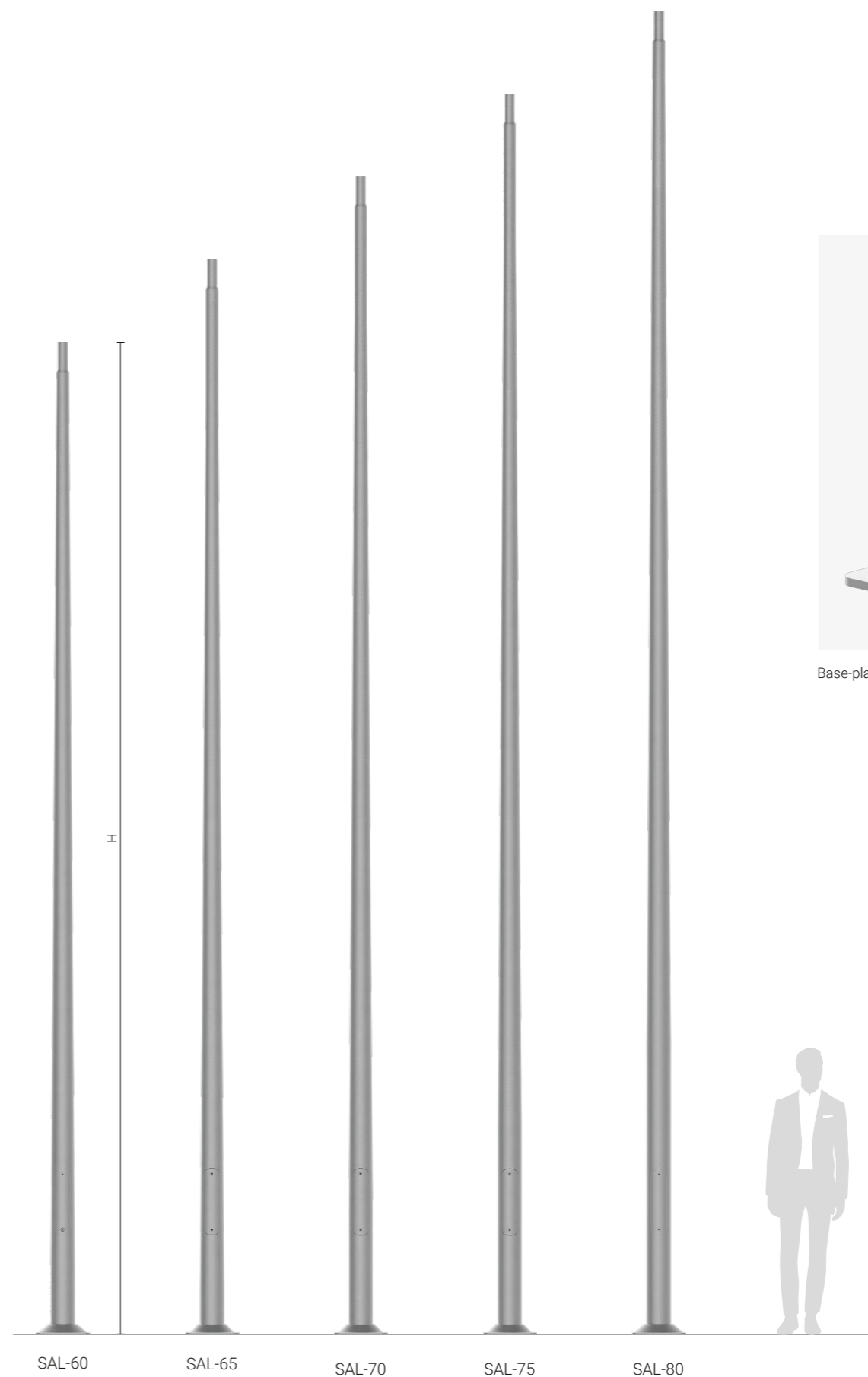
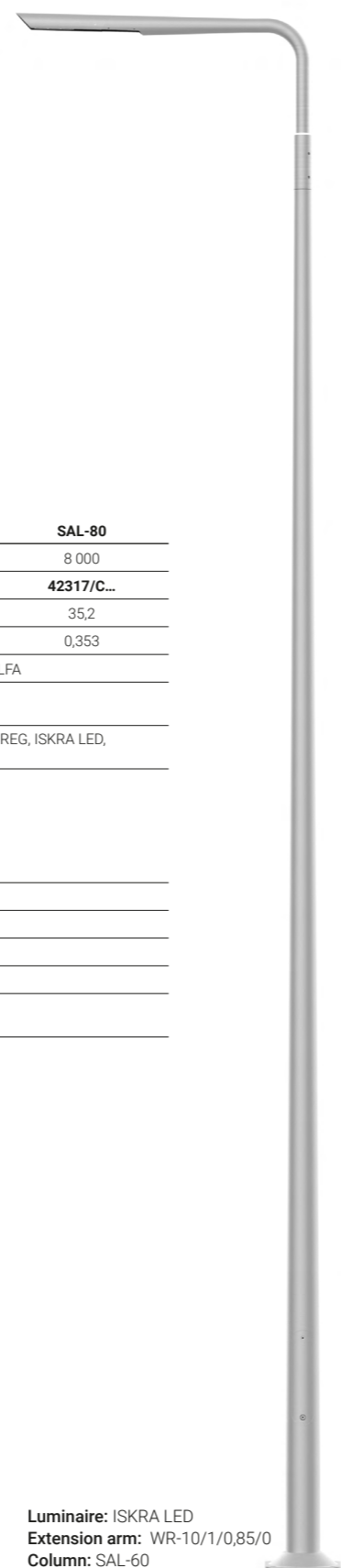
Column type	SAL-60	SAL-65	SAL-70	SAL-75	SAL-80
Height of the column H [mm]	6 000	6 500	7 000	7 500	8 000
Code	42313/C...	42314/C...	42315/C...	42316/C...	42317/C...
Net weight [kg]	25,4	27,3	30	32,6	35,2
Approximate unit volume [m ³]*	0,265	0,287	0,309	0,331	0,353
Recommended luminaires for column top mounting	CUDDLE II LED REG, COSMO DELTA LED, VEGA LED ALFA, VEGA LED BETA, COSMO LED ALFA ISKRA LED ALFA, ISKRA LED P ALFA, ISKRA LED ALFA PROG, ISKRA LED P ALFA PROG,				
Recommended extension arms and luminaires	WR-4/1/1,0/5 ZP, WR-10P/1/0,85/0 ZP, WR-10P/2/0,85/0 ZP - Luminaire CUDDLE II LED, CUDDLE II LED REG, ISKRA LED, ISKRA LED PROG, COSMO LED, WN-1 - Luminaire ARTEMIS LED WR-2/1/0,95/5, WR-4/2/1,0/5 ZP, WR-4/1/1,5/5 ZP, WR-4/2/1,5/5 ZP, WR-8A/1/0,6/5, WR-5A/1/0,6/5, WR-13/1/0,8/5 ZP, WR-15/1/1,0/5 - Luminaire CUDDLE II LED, CUDDLE II LED REG, ISKRA LED, ISKRA LED PROG, COSMO LED; WR-10/1/0,85/0, WR-10P/1/0,85/0 ZP - Luminaire ISKRA LED, ISKRA LED PROG, WA-20/1 f60, WA-20/2 f60, WR-71/1/1,2, WR-71/2/1,2 - OW II LED; WN-2 - Luminaire ARTEMIS LED				
Concrete footing / reinforcement basket type	B-60 / Z-60				
Threaded anchor ending	4xM18				
Concrete footing / reinforcement basket code	311160 / 311206				
Fasteners	4008				
Dimension of the base plate (side / bolt spacing / thickness) [mm]	320 / 250 / 10				

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

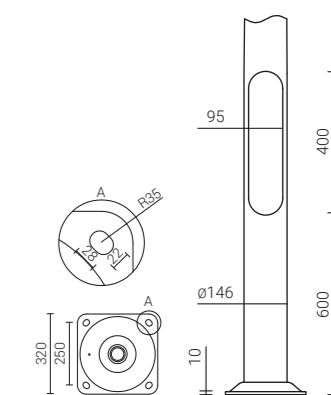
Ilawa, Poland



Luminaire: ISKRA LED
 Extension arm: WR-10/1/0,85/0
 Column: SAL-60



Base-plate of aluminium column 320x250x10



Egyenes alumíniumlámpaoszlopok

Ø146 mm at ground level

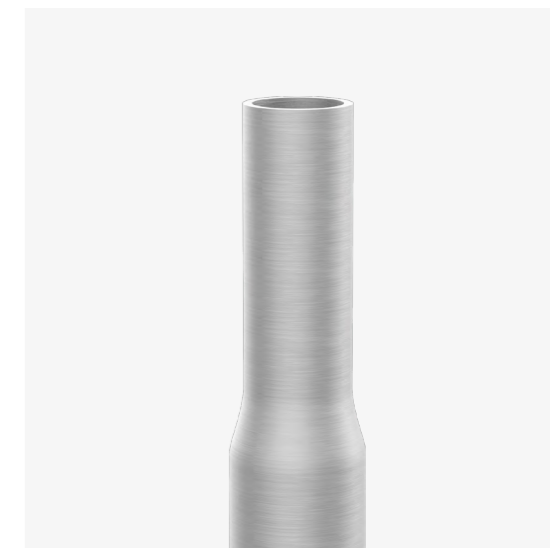
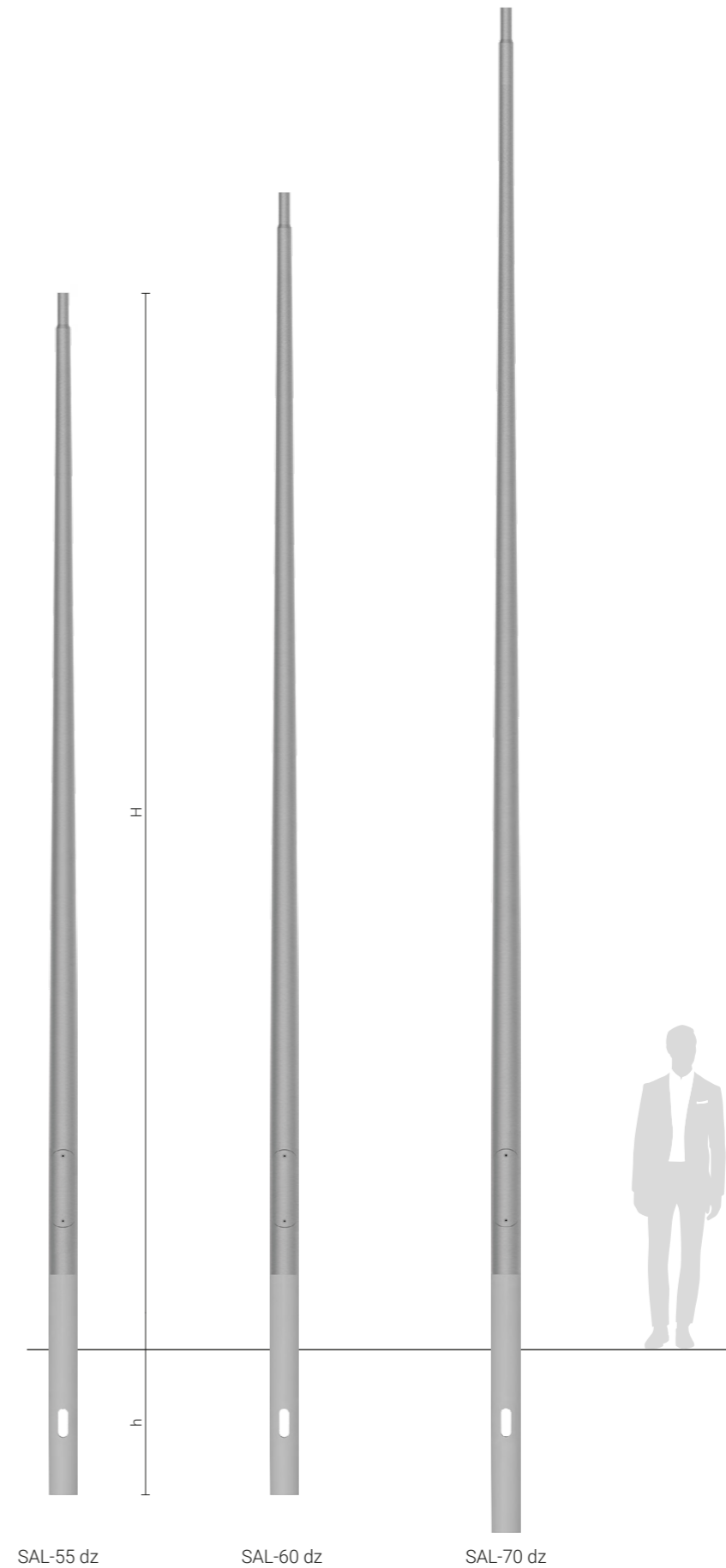
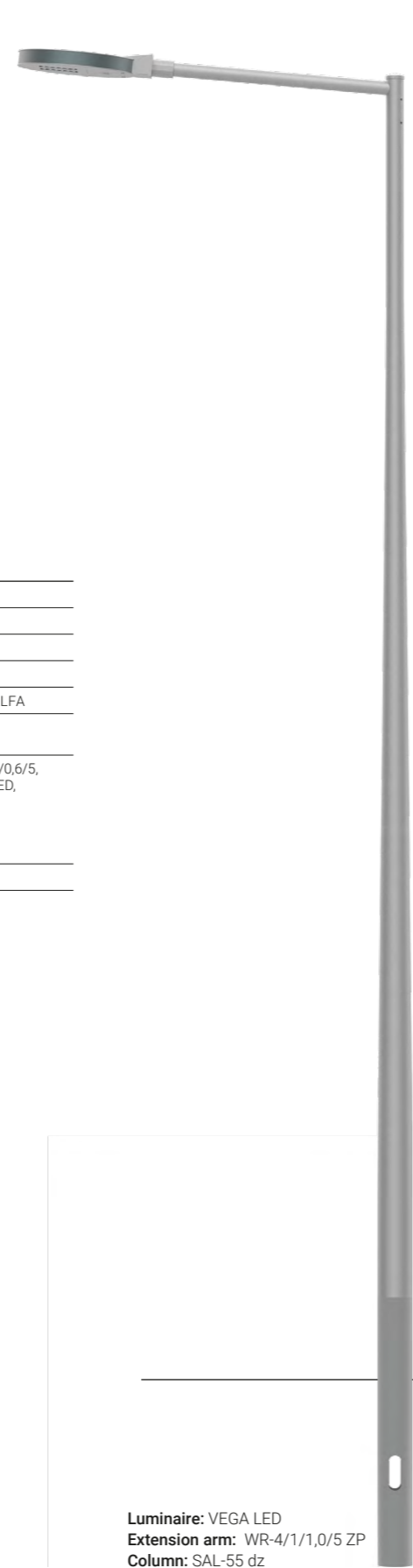
Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: Ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



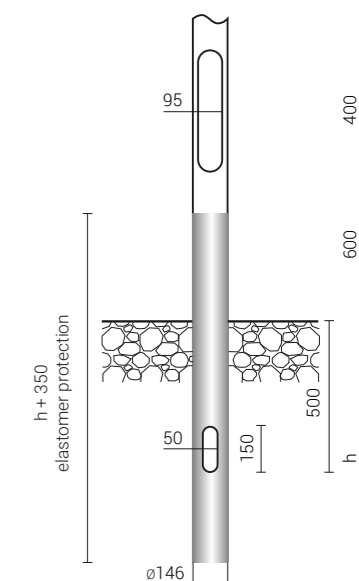
Column type	SAL-55 dz	SAL-60 dz	SAL-70 dz
Height of the column nad gruntem H [mm]	5 500	6 000	7 000
Code	42322/C...	42323/C...	42325/C...
Net weight [kg]	24,1	26,7	32,8
Approximate unit volume [m ³]*	0,064	0,069	0,082
Recommended luminaires for column top mounting	CUDDLE II LED REG, COSMO DELTA LED, VEGA LED ALFA, VEGA LED BETA, COSMO LED ALFA ISKRA LED ALFA, ISKRA LED P ALFA, ISKRA LED ALFA PROG, ISKRA LED P ALFA PROG		
Recommended extension arms and luminaires	WR-2/1/0,95/5, WR-4/2/1,0/5 ZP, WR-4/1/1,5/5 ZP, WR-4/2/1,5/5 ZP, WR-8A/1/0,6/5, WR-5A/1/0,6/5, WR-13/1/0,8/5 ZP, WR-15/1/1,0/5 - Luminaire CUDDLE II LED, CUDDLE II LED REG, ISKRA LED, ISKRA LED PROG, COSMO LED; WR-10P/1/0,85/0 ZP - Luminaire ISKRA LED, ISKRA LED PROG, WA-20/1 fi60, WA-20/2 fi60, WR-71/1/1,2, WR-71/2/1,2 - OW II LED; WN-2 - Luminaire ARTEMIS LED		
Rooted section h [mm]	800	800	1000

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

Elk, Poland



Ending of aluminium column



Egyenes alumínium lámpaoszlopok

Ø146 mm at the base

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: Ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



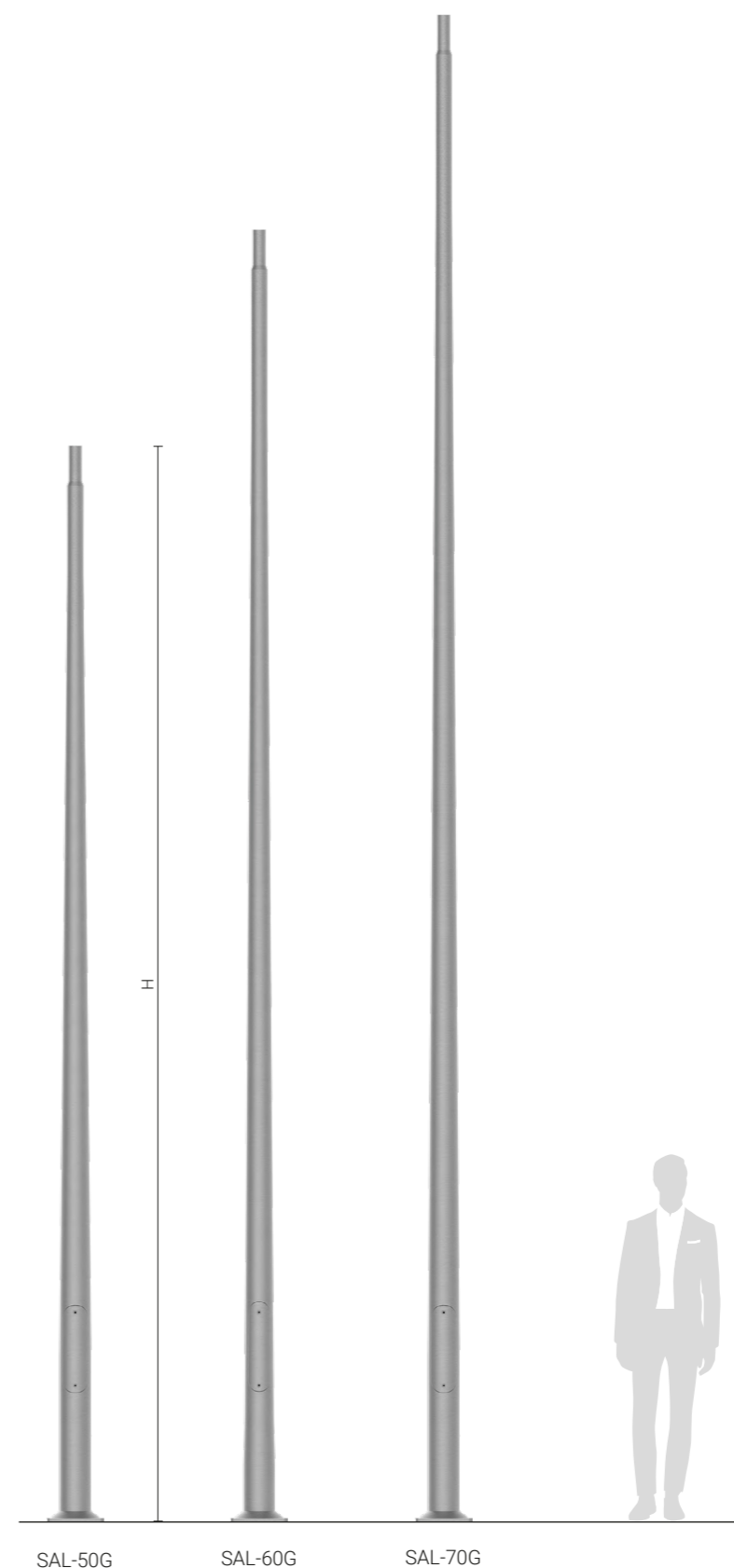
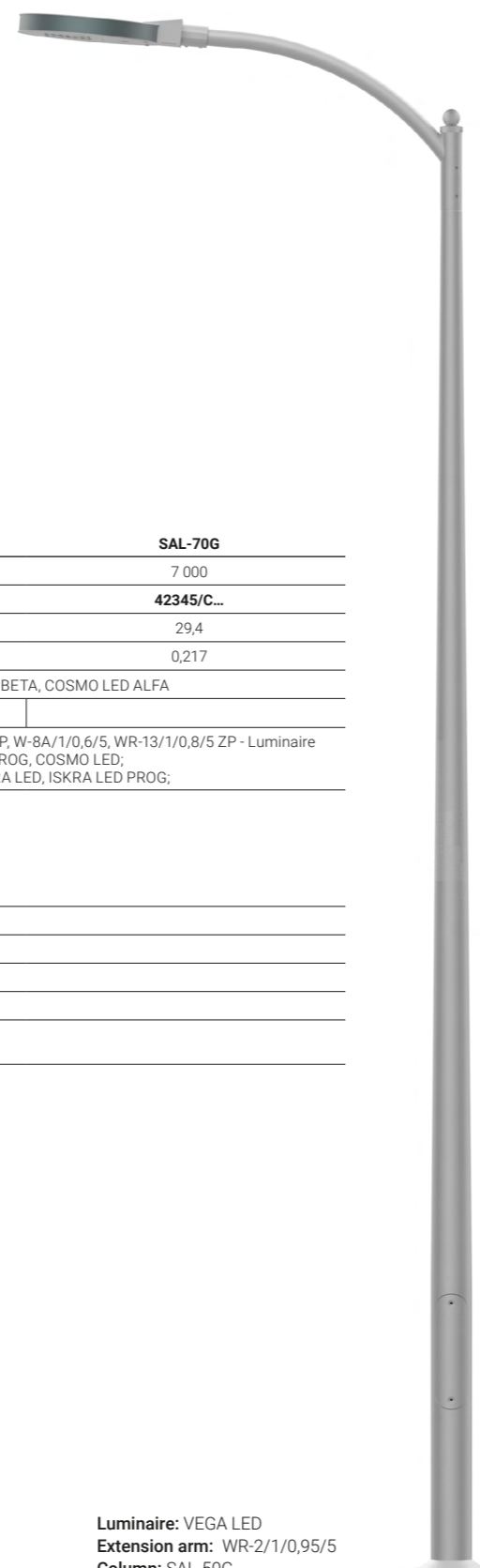
Column type	SAL-50G	SAL-60G	SAL-70G
Height of the column H [mm]	5 000	6 000	7 000
Code	42341/C...	42343/C...	42345/C...
Net weight [kg]	22,8	24,8	29,4
Approximate unit volume [m³]*	0,155	0,186	0,217
Recommended luminaires for column top mounting	CUDDLE II LED REG, COSMO DELTA LED, VEGA LED ALFA, VEGA LED BETA, COSMO LED ALFA ISKRA LED ALFA, ISKRA LED P ALFA, ISKRA LED ALFA PROG, ISKRA LED P ALFA PROG		
Recommended extension arms and luminaires	OW; WR-2/1/0,95/5, WR-4/1/0,5/5 ZP, WR-4/2/0,5/5 ZP, WR-4/1/1,5/5 ZP, WR-4/2/1,5/5 ZP, W-8A/1/0,6/5, WR-13/1/0,8/5 ZP - Luminaire CUDDLE II LED, CUDDLE II LED REG, ISKRA LED, ISKRA LED PROG, COSMO LED; WR-10P/1/0,85/0 ZP, WR-10P/2/0,85/0 ZP, WR-10P/1/1,5/0 ZP - ISKRA LED, ISKRA LED PROG; WA-20/1 - Luminaire OW LED, DROP LED, WR-5A/1/0,6/5, WR-8B/1/0,35/... WR-14/1/1,0/5 - Luminaire CUDDLE II LED, CUDDLE II LED REG, ISKRA LED, ISKRA LED PROG, COSMO LED; WN-2 - Luminaire ARTEMIS LED		
Concrete footing / reinforcement basket type	B-51 / Z-51		
Threaded anchor ending	4xM18		
Concrete footing / reinforcement basket code	311151 / 311251		
Fasteners	4008		
Dimension of the base plate (side / bolt spacing / thickness) [mm]	260 / 200 / 12		

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

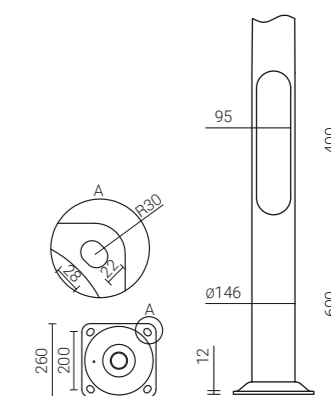
Czechowice-Dziedzice, Poland



Luminaire: VEGA LED
 Extension arm: WR-2/1/0,95/5
 Column: SAL-50G



Assembly of aluminium column's door



Egyenes alumínium lámpaoszlopok

Ø146 mm at the base

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: Ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



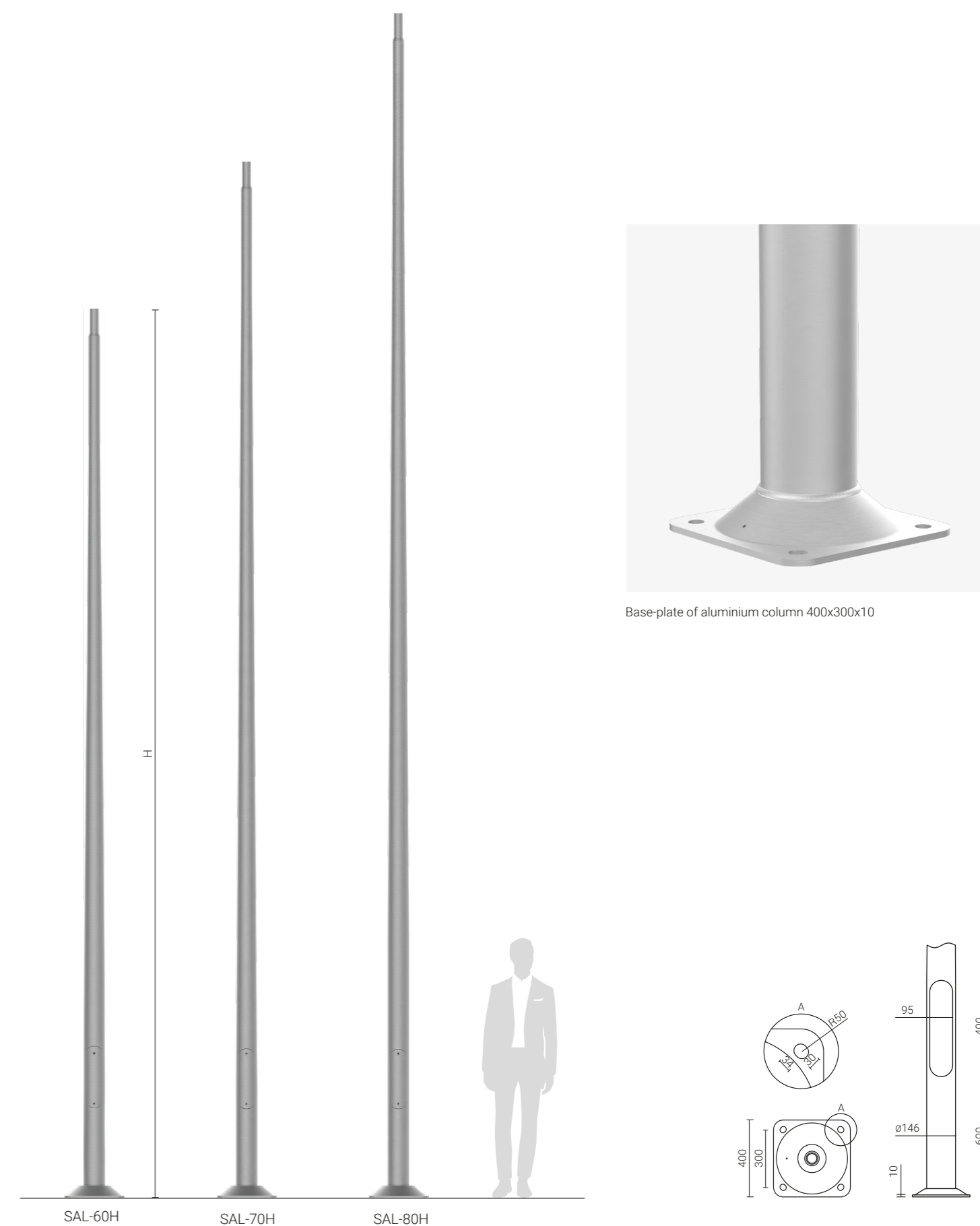
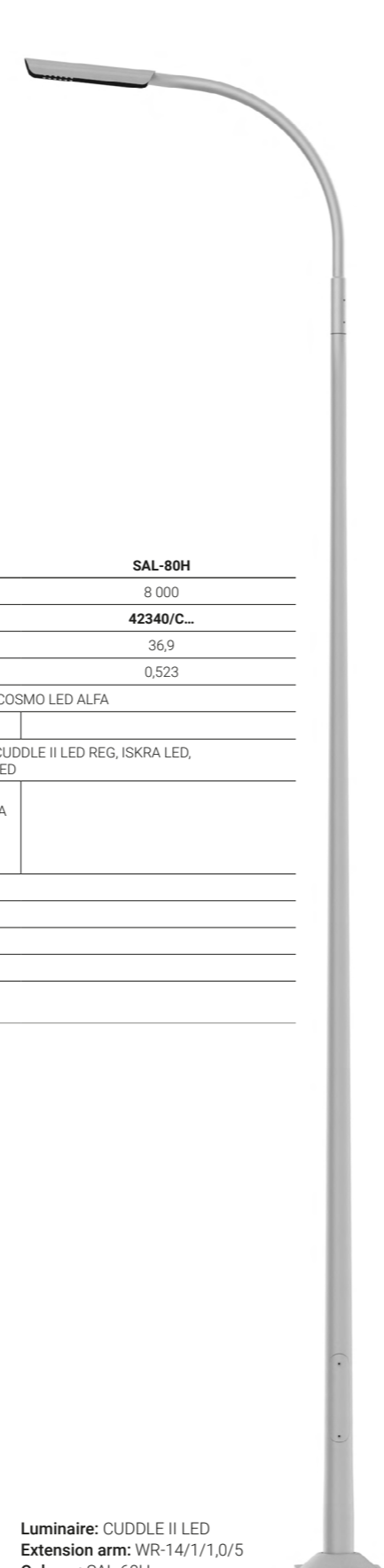
Column type	SAL-60H	SAL-70H	SAL-80H
Height of the column H [mm]	6 000	7 000	8 000
Code	42335/C...	42337/C...	42340/C...
Net weight [kg]	27,1	31,7	36,9
Approximate unit volume [m ³]*	0,392	0,458	0,523
Recommended luminaires for column top mounting	CUDDLE II LED REG, COSMO DELTA LED, VEGA LED ALFA, VEGA LED BETA, COSMO LED ALFA ISKRA LED ALFA, ISKRA LED P ALFA, ISKRA LED ALFA PROG, ISKRA LED P ALFA PROG		
Recommended extension arms and luminaires	WR-4/1/1,0/5 ZP; WR-10P/1/0,85/0 ZP; WR-10P/2/0,85/0 ZP - Luminaire CUDDLE II LED, CUDDLE II LED REG, ISKRA LED, ISKRA LED PROG, COSMO LED; WN-1 - Luminaire ARTEMIS LED WR-2/1/0,95/5, WR-4/2/1,0/5 ZP; WR-4/1/1,5/5 ZP; WR-4/2/1,5/5 ZP; WR-8A/1/0,6/5, WR-5A/1/0,6/5, WR-13/1/0,8/5 ZP; WR-15/1/1,0/5 - Luminaire CUDDLE II LED, CUDDLE II LED REG, ISKRA LED, ISKRA LED PROG, COSMO LED; WR-10P/1/0,85/0 ZP - Luminaire ISKRA LED, ISKRA LED PROG, WA-20/1 f60, WA-20/2 f60, WR-71/1/1,2, WR-71/2/1,2 - OW II LED; WN-2 - Luminaire ARTEMIS LED		
Concrete footing / reinforcement basket type	B-71 / Z-71		
Threaded anchor ending	4xM24		
Concrete footing / reinforcement basket code	311171 / 311271		
Fasteners	4012		
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 10		

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

Tychy, Poland



Luminaire: CUDDLE II LED
Extension arm: WR-14/1/1,0/5
Column: SAL-60H



Base-plate of aluminium column 400x300x10

Egyenes alumínium lámpaszlopok

Ø178 mm at the base

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: Ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



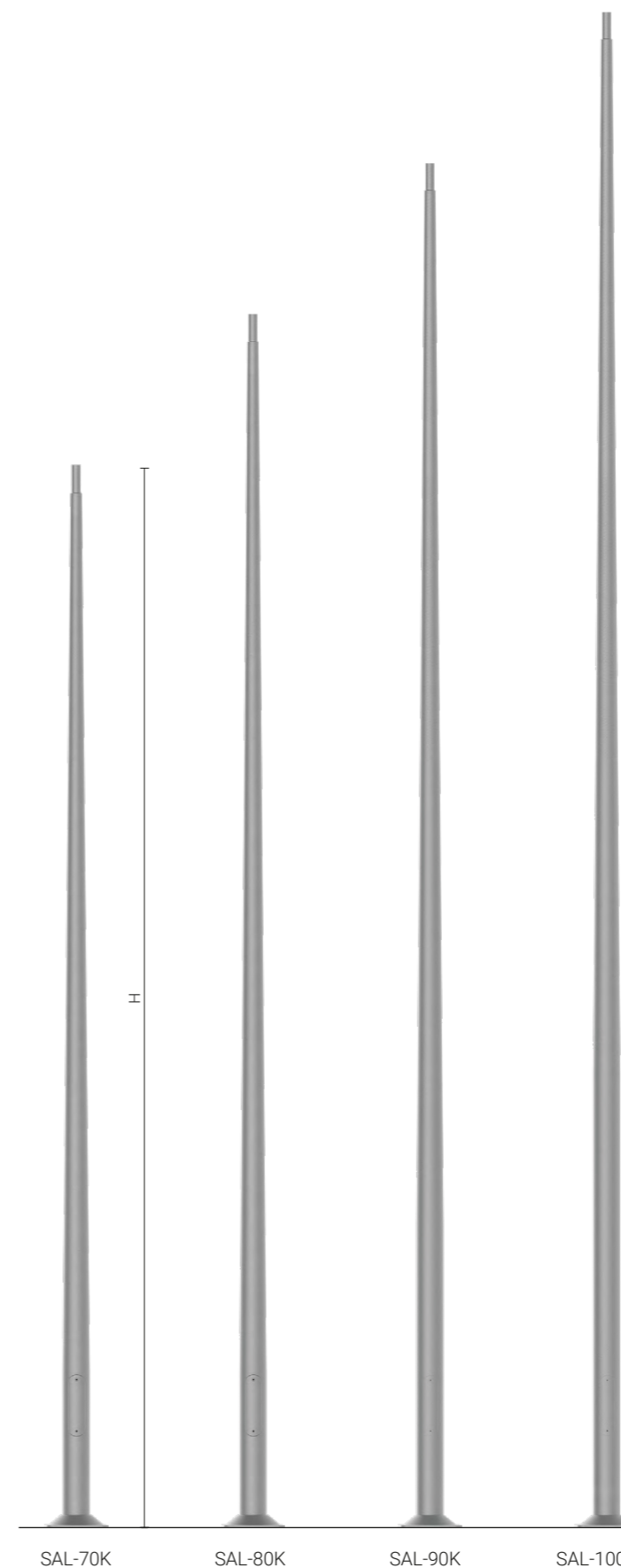
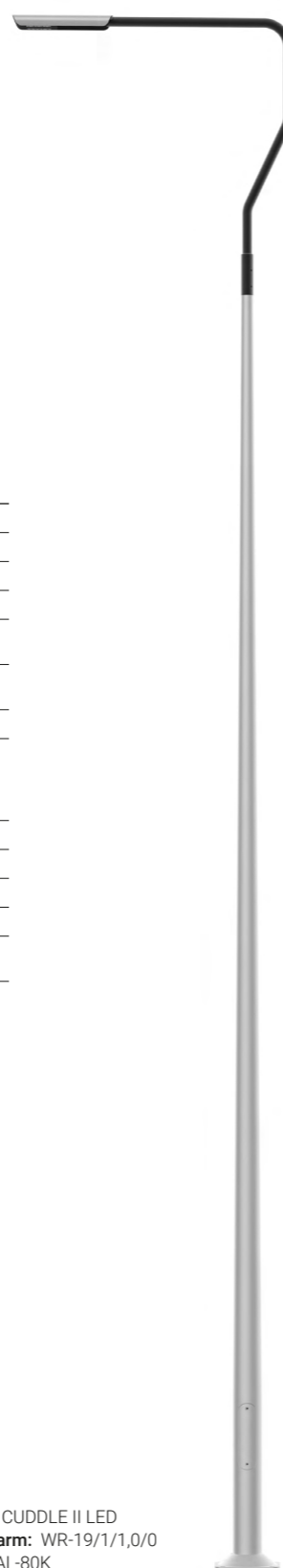
Column type	SAL-70K	SAL-80K	SAL-90K	SAL-100K
Height of the column H [mm]	7 000	8 000	9 000	10 000
Code	42628/C...	42630/C...	42632/C...	42634/C...
Net weight [kg]	35,3	37,4	42,7	47,5
Approximate unit volume [m³]*	0,458	0,525	0,589	0,654
Recommended luminaires for column top mounting	COSMO LED ALFA, CUDDLE II LED REG			
Recommended extension arms and luminaires	WR-2/1/0,95/5, WR-4/1/1,0/5 ZP, WR-4/2/1,0/5 ZP, WR-4/1/1,5/5 ZP, WR-4/2/1,5/5 ZP, WR-15/1/1,0/5- Luminaire CUDDLE II LED, CUDDLE II LED REG, COSMO LED			
	WR-2/2/0,95/5, WR-15/2/1,0/5- Luminaire CUDDLE II LED, CUDDLE II LED REG, COSMO LED;			
	WR-8A/1/1/5, WR-14/1/1,0/5, WR-14/2/1,0/5 - Luminaire CUDDLE II LED, CUDDLE II LED REG, COSMO LED; WA-20/1 f60, WA-20/2 f60, WR-71/1/1,2, WR-71/2/1,2 - Luminaire OW II LED			
Concrete footing / reinforcement basket type	B-71 / Z-71	B-70, B-71 / Z-70, Z-71		
Threaded anchor ending	4xM24	4xM24		
Concrete footing / reinforcement basket code	311171 / 311271	311170, 311171 / 311207, 311271		
Fasteners	4012	4012		
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 10	400 / 300 / 10		

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

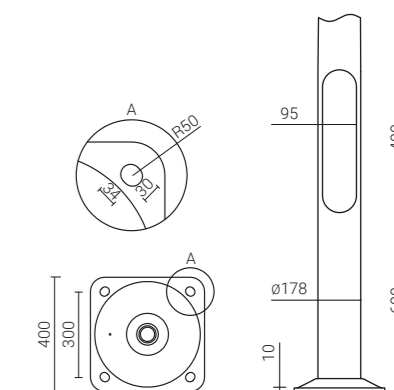
Rzeszów, Poland



Luminaire: CUDDLE II LED
Extension arm: WR-19/1/1,0/0
Column: SAL-80K



Laser cut wiring chamber of aluminium column



Egyenes alumínium lámpaoszlopok

Ø180 mm at the base

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: Ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



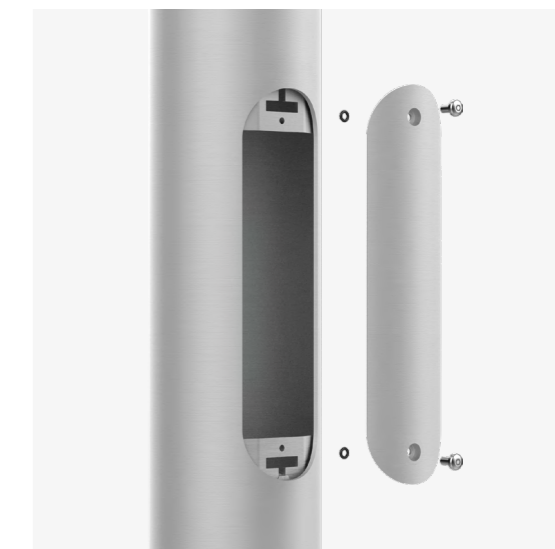
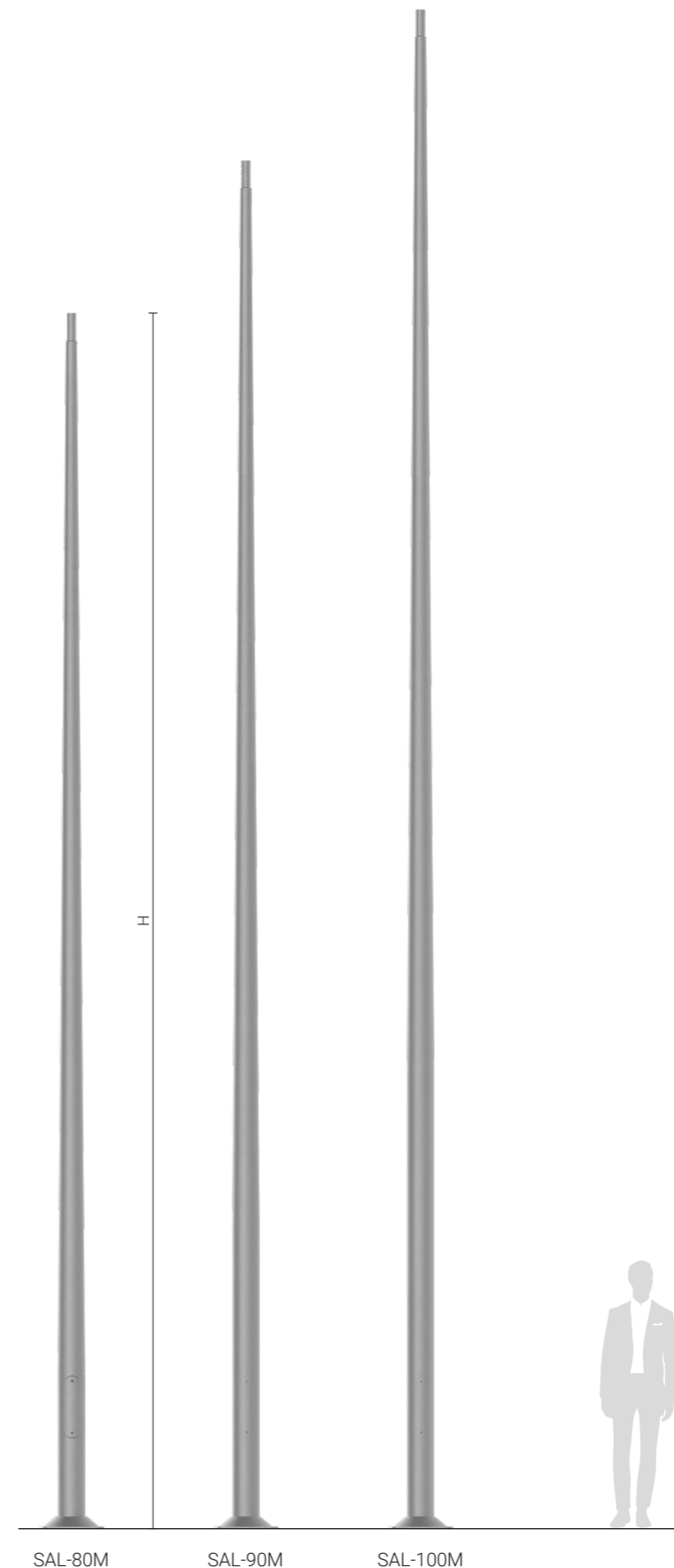
Column type	SAL-80M	SAL-90M	SAL-100M
Height of the column H [mm]	8 000	9 000	10 000
Code	42755/C...	42757/C...	42759/C...
Net weight [kg]	42,7	49,3	55,1
Approximate unit volume [m³]*	0,523	0,589	0,654
Recommended luminaires for column top mounting	COSMO LED ALFA, CUDDLE II LED REG		
Recommended extension arms and luminaires	WR-4/1/1,5/5 ZP, WR-4/2/1,5/5 ZP, WR-T1/1,5/5, WR-14/2/1,0/5, WR-21/1/1,5/0, WRP/1/L/Z/5 - Luminaire CUDDLE II LED, CUDDLE II LED REG, COSMO LED		
Concrete footing / reinforcement basket type	B-70, B-71 / Z-70, Z-71		
Threaded anchor ending	4xM24		
Concrete footing / reinforcement basket code	311170, 311171 / 311207, 311271		
Fasteners	4012		
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 12		

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

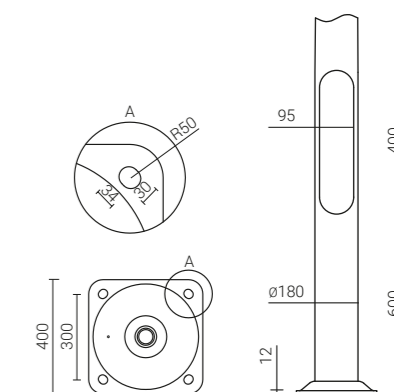
Tychy, Poland



Luminaire: CUDDLE II LED
 Extension arm: WR-14/1/1,5/5
 Column: SAL-80M



Assembly of aluminium column's door



Egyenes alumínium lámpaoszlopok

Ø178 i Ø180 mm at ground level

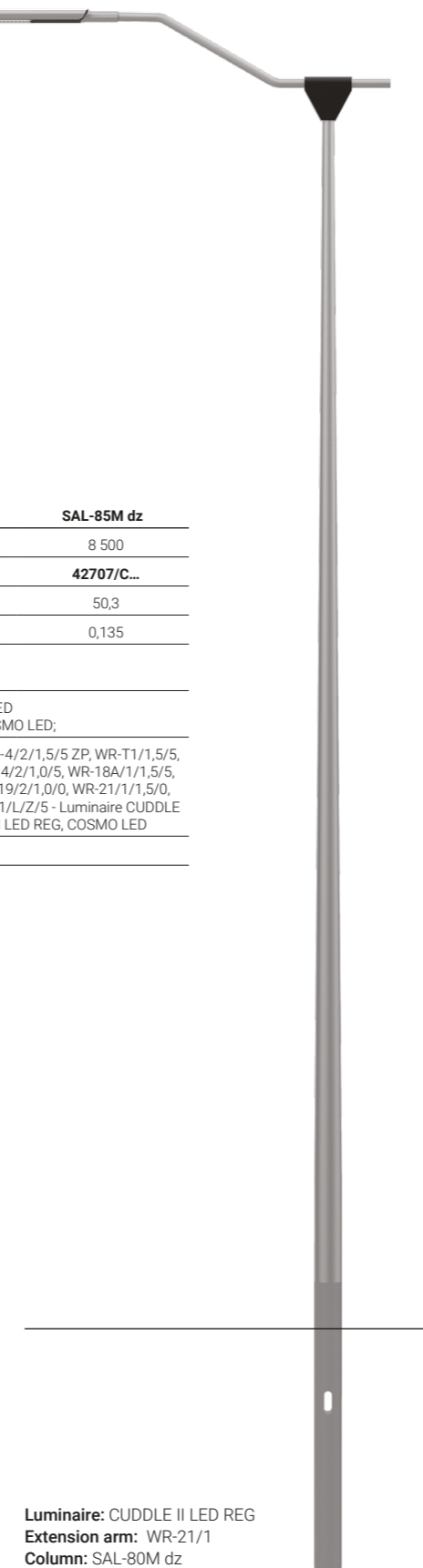
Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: Ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



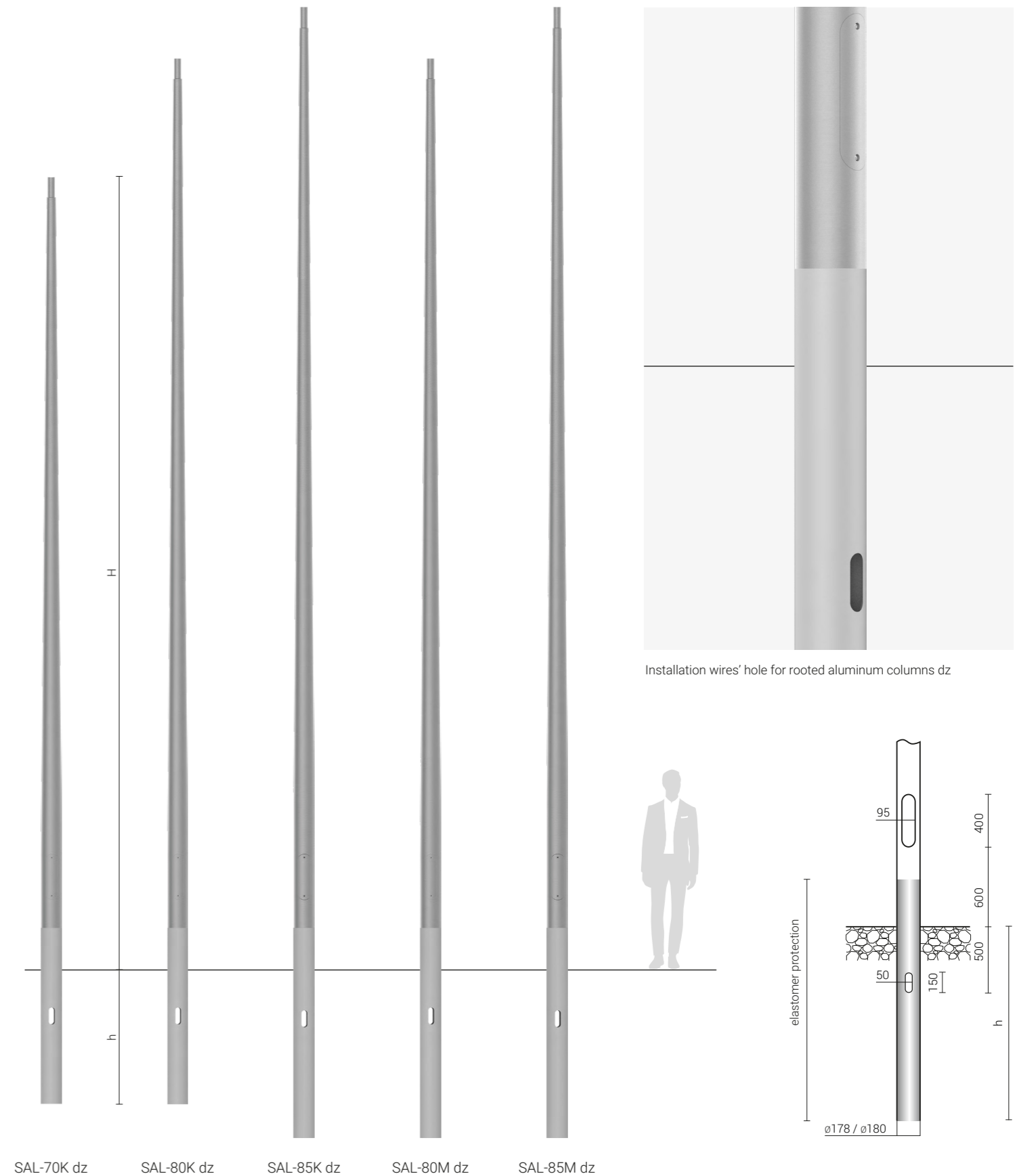
Column type	SAL-70K dz	SAL-80K dz	SAL-85K dz	SAL-80M dz	SAL-85M dz
Height of the column nad gruntem H [mm]	7 000	8 000	8 500	8 000	8 500
Code	42604/C...	42606/C...	42607/C...	42706/C...	42707/C...
Net weight [kg]	35,8	41,4	43,6	47,7	50,3
Approximate unit volume [m ³]*	0,109	0,127	0,133	0,128	0,135
Recommended luminaires for column top mounting	COSMO LED ALFA, CUDDLE II LED REG				
Recommended extension arms and luminaires	WA-20/1 fi60, WA-20/2 fi60, WR-71/1/1,2, WR-71/2/1,2 - Luminaire OW II LED WR-14/1/1,0/5, WR-14/2/1,0/5 - Luminaire CUDDLE II LED, CUDDLE II LED REG, COSMO LED;		WR-4/1/1,5/5 ZP, WR-4/2/1,5/5 ZP, WR-T1/1,5/5, WR-14/1/1,5/5, WR-14/2/1,0/5, WR-18A/1/1,5/5, WR-19/1/1,0/0, WR-19/2/1,0/0, WR-21/1/1,5/0, WR-21/2/1,5/0, WRP/1/L/Z/5 - Luminaire CUDDLE II LED, CUDDLE II LED REG, COSMO LED		
Rooted section h [mm]	1 200		1 500		

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

Nysa, Poland



Luminaire: CUDDLE II LED REG
 Extension arm: WR-21/1
 Column: SAL-80M dz



Egyenes alumínium lámpaszlopok

two-piece / reinforced / $\varnothing 176$ mm at the base

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: $\varnothing 60$ mm
Luminaire mounting: directly on the column, luminaires with mounting $\varnothing 60$ mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



Column type	SAL-9,3	SAL-9,8	SAL-10,3	SAL-10,8	SAL-11,3	SAL-11,8
Height of the column H [mm]	9 300	9 800	10 300	10 800	11 300	11 800
Code	42456/C...	42457/C...	42458/C...	42459/C...	42460/C...	42461/C...
Net weight [kg]	47,6	50,8	53,9	56,0	57,0	60,2
Approximate unit volume [m ³]*	0,437	0,473	0,509	0,513	0,516	0,55
Recommended luminaires for column top mounting	COSMO LED ALFA, CUDDLE II LED REG					
Recommended extension arms and luminaires	WR-4/1/0,5/5 ZP, WR-4/1/1,0/5 ZP, WR-8B/1/0,35/0, – Luminaire: CUDDLE II LED, CUDDLE II LED REG, COSMO LED ALFA; WN-1 – Luminaire ARTEMIS LED					
Concrete footing / reinforcement basket type	B-70, B-71 / Z-70, Z-71					
Threaded anchor ending	4xM24					
Concrete footing / reinforcement basket code	311170, 311171 / 311207, 311271					
Fasteners	4012					
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 12					

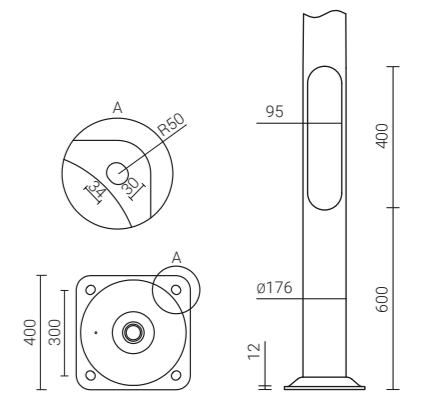
Column type	SAL-9,3 wzm	SAL-9,8 wzm	SAL-10,3 wzm	SAL-10,8 wzm	SAL-11,3 wzm	SAL-11,8 wzm
Height of the column H [mm]	93 00	98 00	10 300	10 800	11 300	11 800
Code	42476/C...	42477/C...	42478/C...	42479/C...	42470/C...	42471/C...
Net weight [kg]	53,3	57,2	61,1	63,2	64,2	67,8
Approximate unit volume [m ³]*	0,437	0,473	0,509	0,513	0,516	0,55
Recommended luminaires for column top mounting	COSMO LED ALFA, CUDDLE II LED REG					
Recommended extension arms and luminaires	WR-4/1/0,5/5 ZP, WR-4/1/1,0/5 ZP, WR-4/2/1,0/5 ZP, WR-8B/1/0,35/0, – Luminaire: CUDDLE II LED, CUDDLE II LED REG, COSMO LED ALFA; WN-1 – Luminaire ARTEMIS LED					
Concrete footing / reinforcement basket type	B-70 / Z-70					
Threaded anchor ending	4xM24					
Concrete footing / reinforcement basket code	311170 / 311207					
Fasteners	4012					
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 12					

* For order of more than 10 pcs stated volume may change according to packing
 /C... – choice of anodising colour

Luminaire: ARTEMIS LED
 Extension arm: WN-1
 Column: SAL-11,3



Connection of two-piece aluminium column type SAL



Alumínium oszlopok hegesztett lámpakarral

Ø120 mm at the base

Anodising: 10 colours, each with the option of chemical brightening

Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)

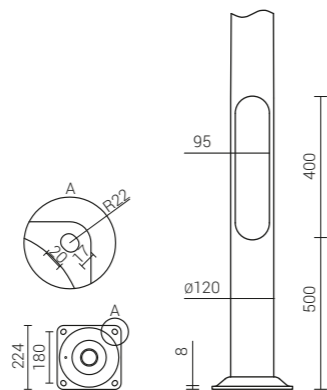
Luminaire mounting: directly on the extension arm, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



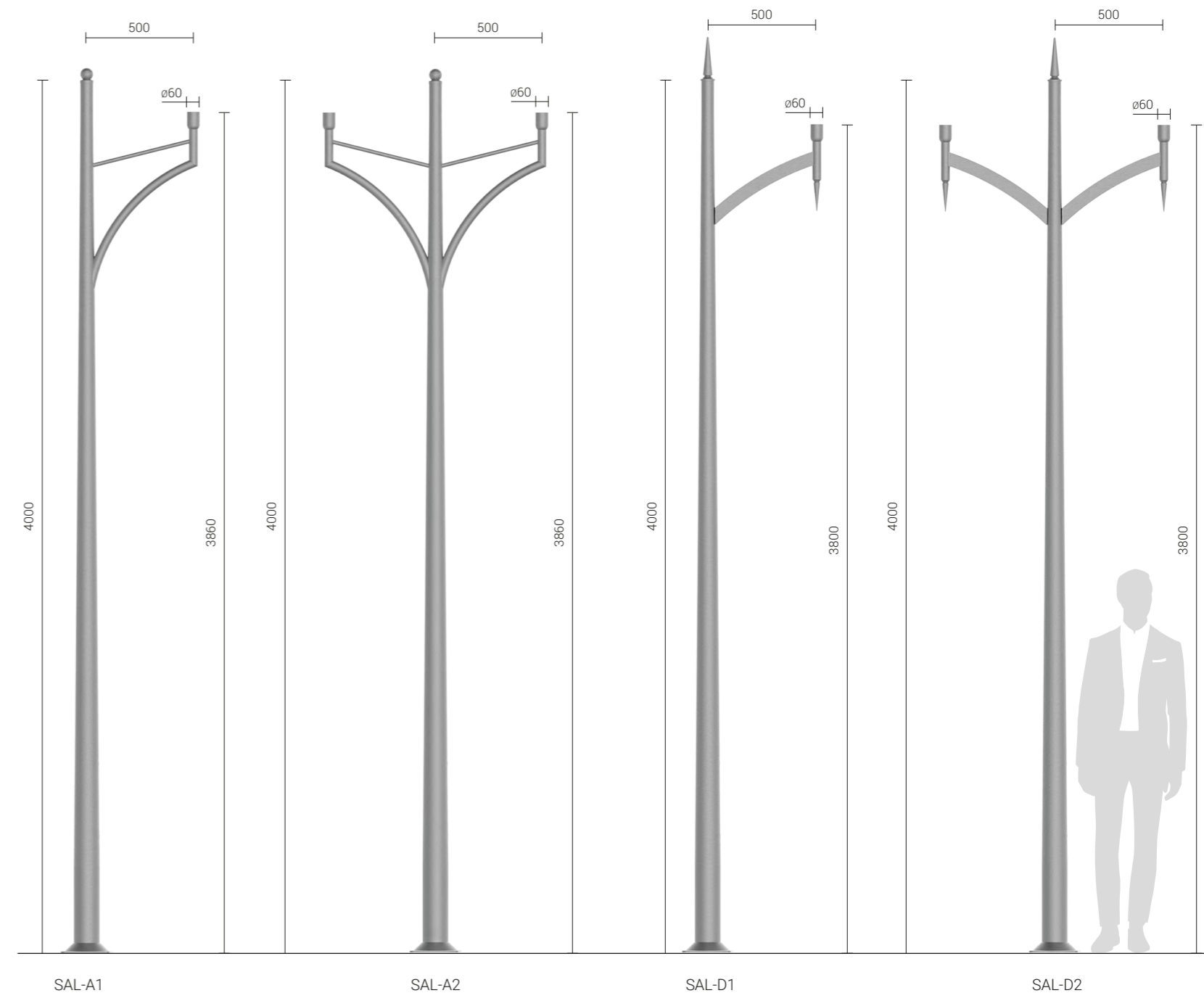
Column type	SAL-A1	SAL-A2	SAL-D1	SAL-D2
Height of the column [mm]	4 000	4 000	4 000	4 000
Code	42209/C...	42210/C...	42215/C...	42216/C...
Net weight [kg]	15,1	16,4	15,6	16,8
Approximate unit volume [m ³]*	0,263	0,397	0,282	0,431
Recommended luminaires	ISKRA LED ALFA, ELBA LED, AURIS LED, ATLANTIS LED, VEGA LED ALFA, VEGA LED BETA, MIRA LED, MIZAR LED, OS-1 LED, OS-11 LED			
Concrete footing / reinforcement basket type	B-50 / Z-50			
Threaded anchor ending	4xM14			
Concrete footing / reinforcement basket code	311150 / 311205			
Fasteners	4006			
Dimension of the base plate (side / bolt spacing / thickness) [mm]	224 / 180 / 8			

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

Nowe Miasteczko, Poland



Luminaire: ATLANTIS LED
Column: SAL-A1



Alumínium lámaoszlopok hegesztett lámpákkal

Ø146 mm at the base

Anodising: 10 colours, each with the option of chemical brightening

Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)

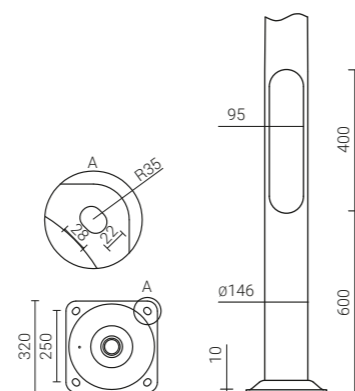
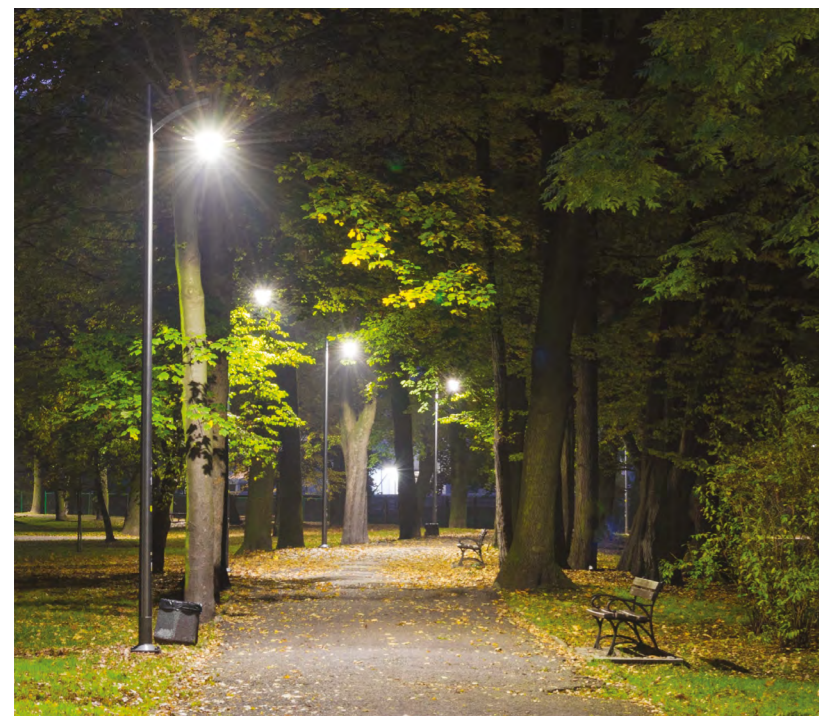
Luminaire mounting: directly on the extension arm, luminaires with mounting Ø42 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



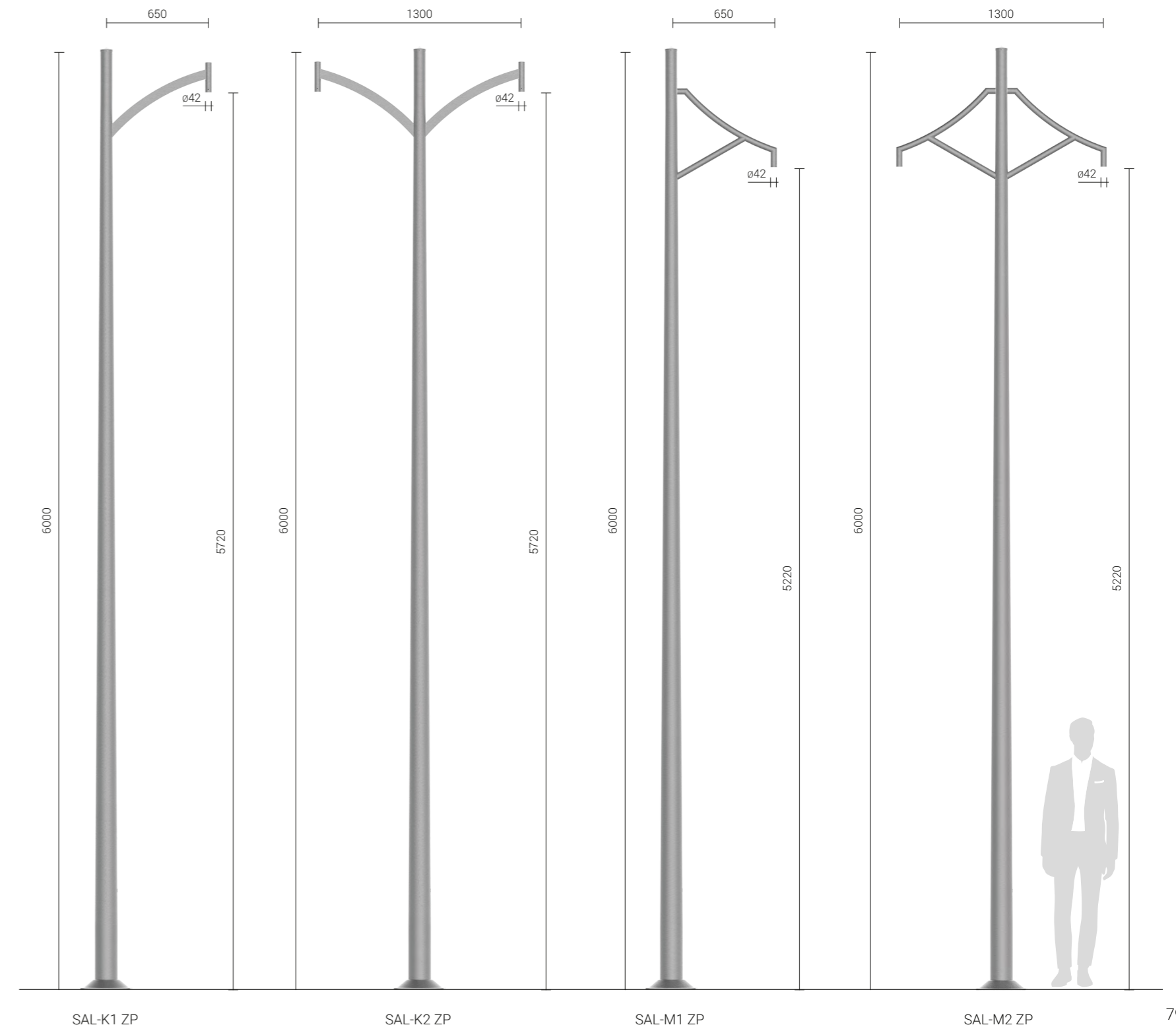
Column type	SAL-K1 ZP	SAL-K2 ZP	SAL-M1 ZP	SAL-M2 ZP
Height of the column [mm]	6 000	6 000	6 000	6 000
Code	423309/C...	423069/C...	423089/C...	423099/C...
Net weight [kg]	26,5	27,6	26,9	28,3
Approximate unit volume [m ³]*	0,67	0,972	0,661	0,951
Recommended luminaires	OW LED, DROP LED			
Concrete footing / reinforcement basket type	B-60 / Z-60			
Threaded anchor ending	4xM18			
Concrete footing / reinforcement basket code	311160 / 311206			
Fasteners	4008			
Dimension of the base plate (side / bolt spacing / thickness) [mm]	320 / 250 / 10			

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

Sosnowiec, Poland



Luminaire: DROP LED
Column: SAL-K1 ZP



Alumínium lámpaoszlopok hegesztett lámpakarokkal

Ø146 mm at the base

Anodising: 10 colours, each with the option of chemical brightening

Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)

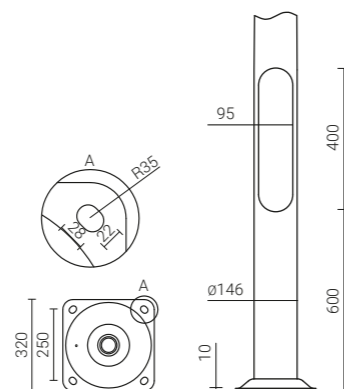
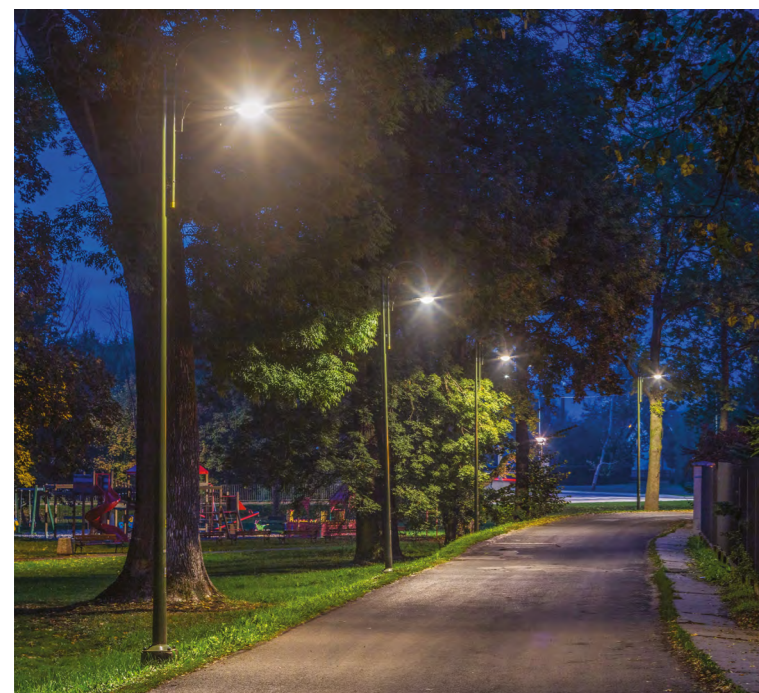
Luminaire mounting: directly on the extension arm, luminaires with mounting Ø60 mm or Ø42 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



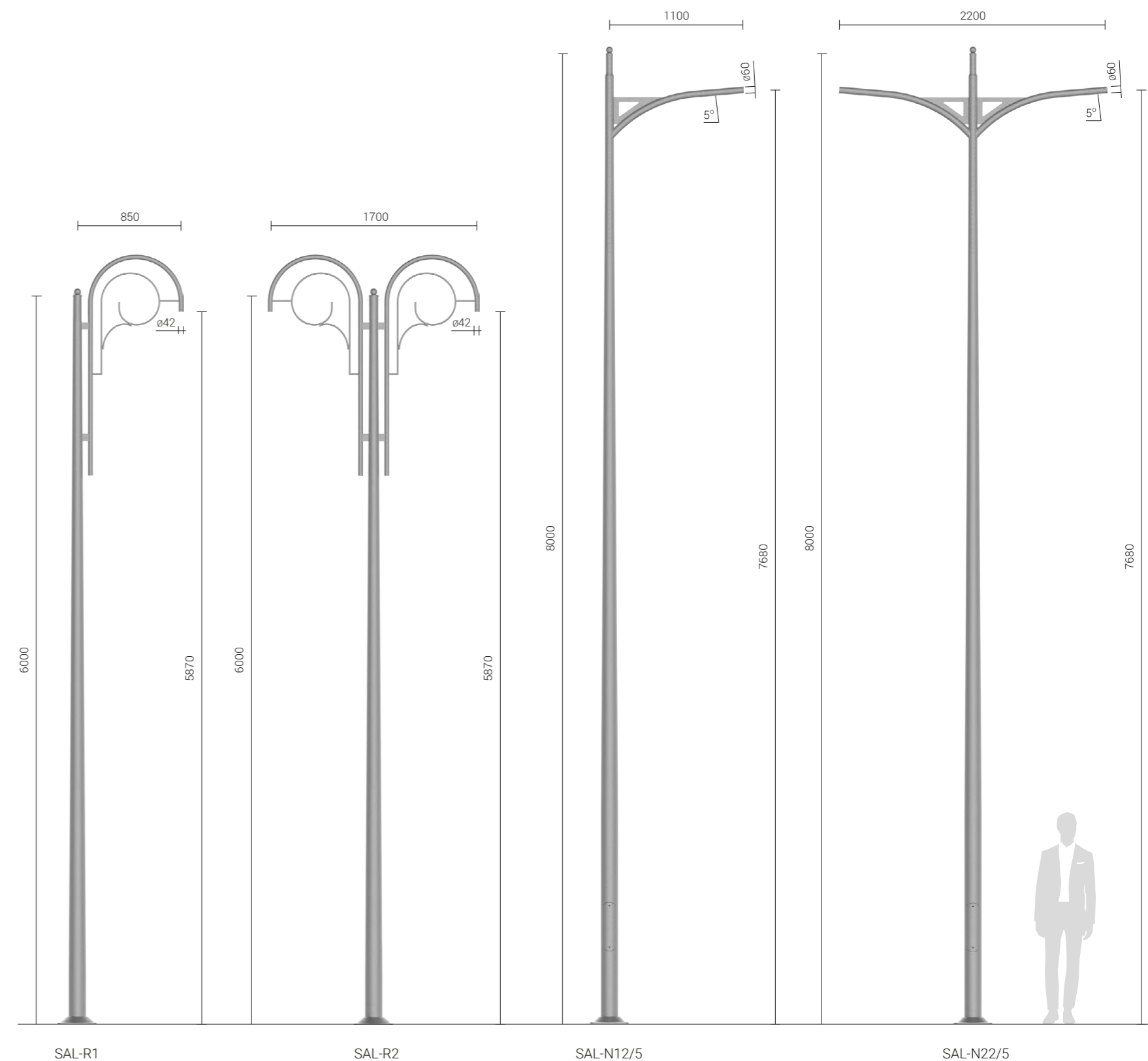
Column type	SAL-R1	SAL-R2	SAL-N12/5	SAL-N22/5
Height of the column [mm]	6 000	6 000	8 000	8 000
Code	42334/C...	42311/C...	4234711/C...	4234811/C...
Net weight [kg]	29,0	32,6	37,7	40,2
Approximate unit volume [m³]*	0,831	1,306	1,21	1,94
Recommended luminaires	OW LED, DROP LED		CUDDLE II LED, CUDDLE II LED REG, COSMO LED, VEGA LED	
Concrete footing / reinforcement basket type	B-60 / Z-60			
Threaded anchor ending	4xM18			
Concrete footing / reinforcement basket code	311160 / 311206			
Fasteners	4008			
Dimension of the base plate (side / bolt spacing / thickness) [mm]	320 / 250 / 10			

* For order of more than 10 pcs stated volume may change according to packing
/C... - choice of anodising colour

Rzeszów, Poland



Luminaire: OW LED
+ transparent diffuser
Column: SAL-R1



Alumínium lámpaoszlopok hegesztett lámpakarokkal

Ø176 i Ø180 mm at the base

Anodising: 10 colours, each with the option of chemical brightening

Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)

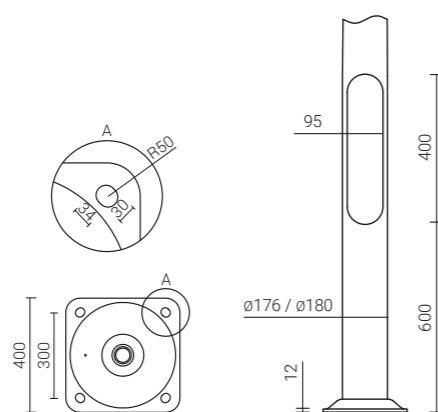
Luminaire mounting: directly on the extension arm, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



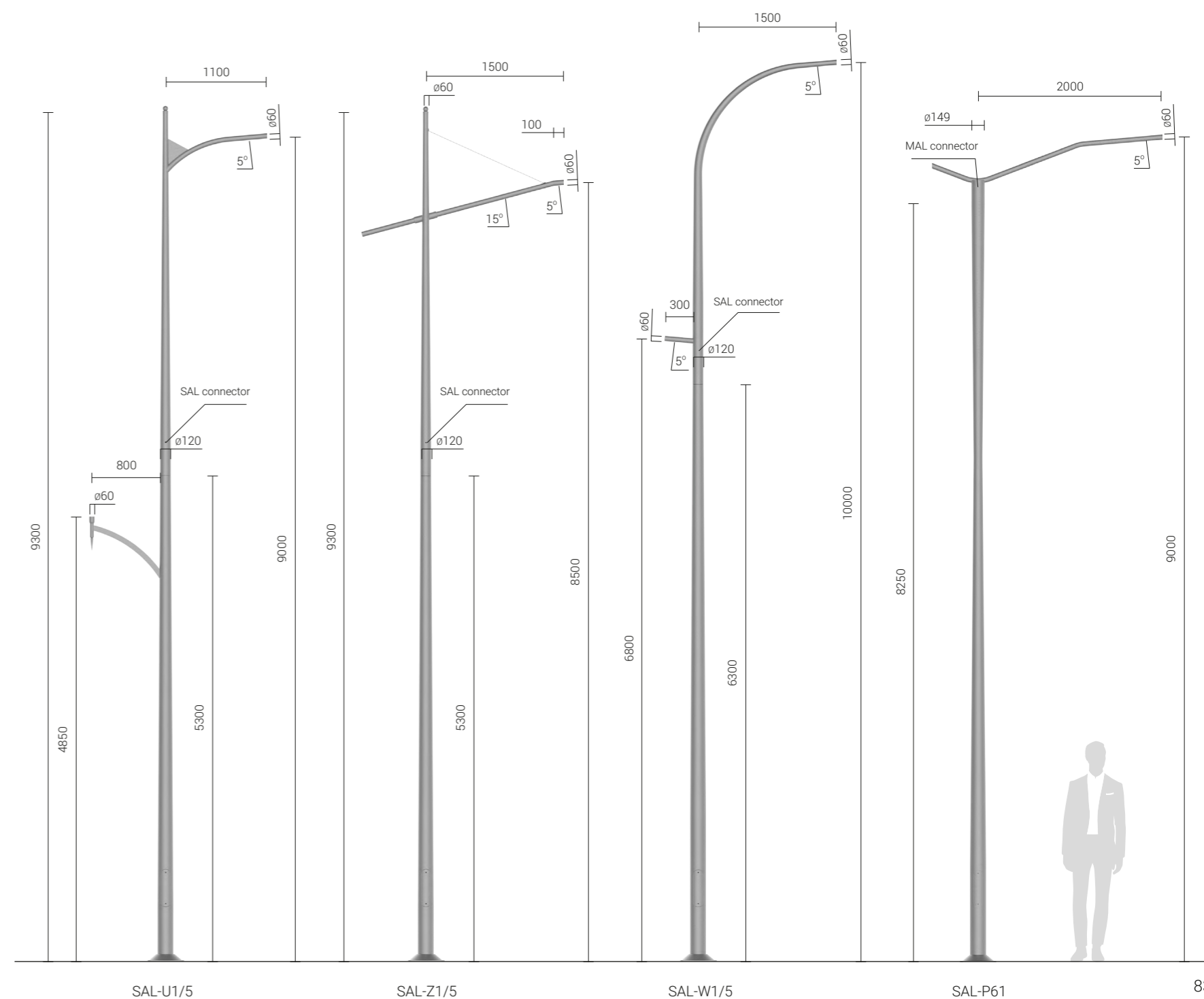
Column type	SAL-U1/5	SAL-Z1/5	SAL-W1/5	SAL-P61
Height of the column [mm]	9 300	9 300	1 0000	9 000
Code	4246515/C...	4247415/C...	4246915/C...	42487/C...
Net weight [kg]	51,0	53,0	56,5	59,5
Approximate unit volume [m ³]*	1,79	0,98	0,916	0,8
Recommended luminaires	CUDDLE II LED, CUDDLE II LED REG, COSMO LED			
Concrete footing / reinforcement basket type	B-70 / Z-70			
Threaded anchor ending	4xM24			
Concrete footing / reinforcement basket code	311170 / 311207			
Komplet elementów łącznych	4012			
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 12			

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

Stary Sącz, Poland



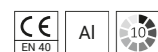
Luminaire: CUDDLE II LED
Column: SAL-P61



Alumínium lámpaoszlopok hegesztett lámpakarral

Ø176 i Ø180 mm at the base

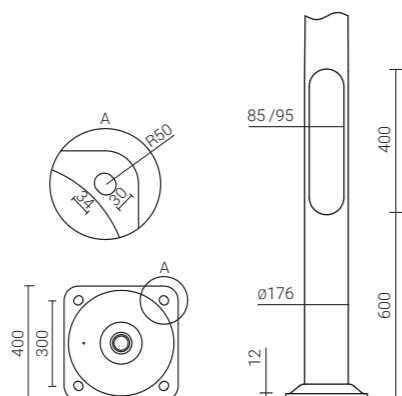
Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Luminaire mounting: directly on the extension arm, luminaires with mounting Ø60 mm or Ø42 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



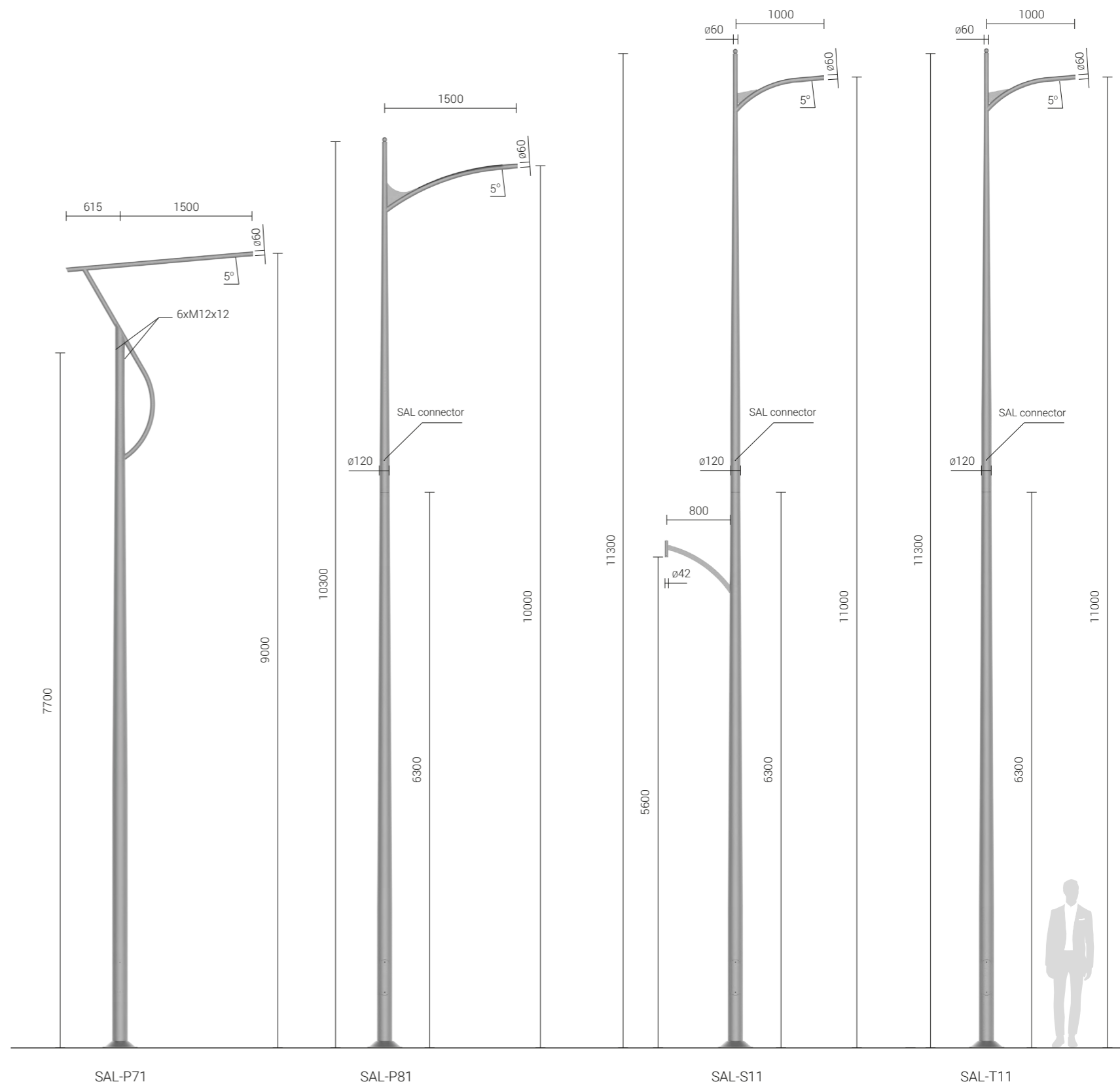
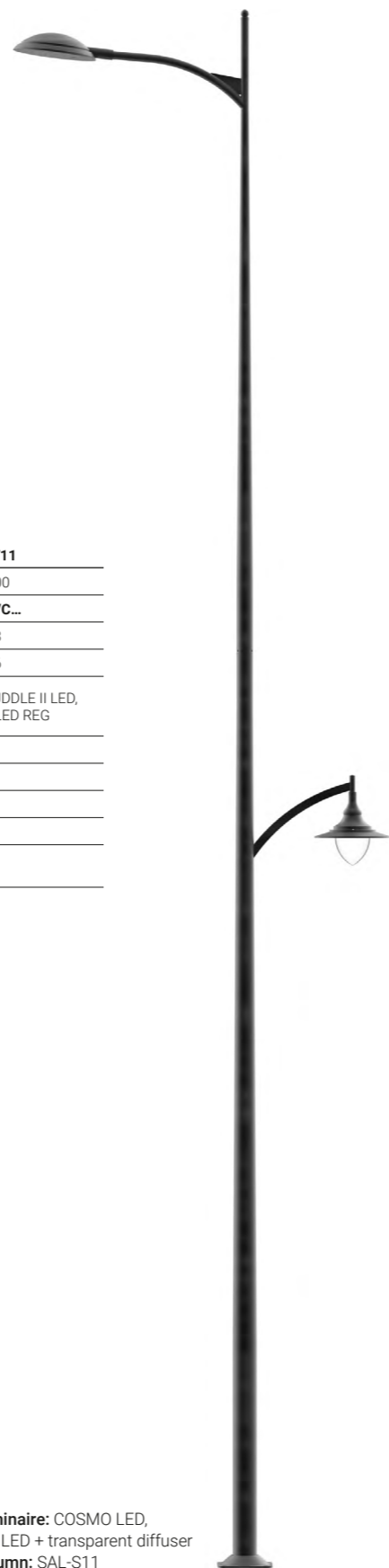
Column type	SAL-P71	SAL-P81	SAL-S11	SAL-T11
Height of the column [mm]	9 000	10 300	11 300	11 300
Code	42488/C...	42489/C...	42495/C...	42496/C...
Net weight [kg]	60,3	58,8	67,3	66,3
Approximate unit volume [m³]*	0,873	0,803	1,35	0,76
Recommended luminaires	COSMO LED, CUDDLE II LED, CUDDLE II LED REG		COSMO LED, CUDDLE II LED, CUDDLE II LED REG, OW LED, DROP LED	COSMO LED, CUDDLE II LED, CUDDLE II LED REG
Concrete footing / reinforcement basket type	B-71 / Z-71		B-70 / Z-70	
Threaded anchor ending	4xM24		4xM24	
Concrete footing / reinforcement basket code	311171 / 311271		311170 / 311207	
Fasteners	4012			
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 12			

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

Płock, Poland



Luminaire: COSMO LED, OW LED + transparent diffuser
Column: SAL-S11



Alumínium lámpaoszlopok hegesztett lámpakarral

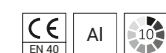
Ø176 mm at the base

Anodising: 10 colours, each with the option of chemical brightening

Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)

Diameter of the column ending: Ø60 mm

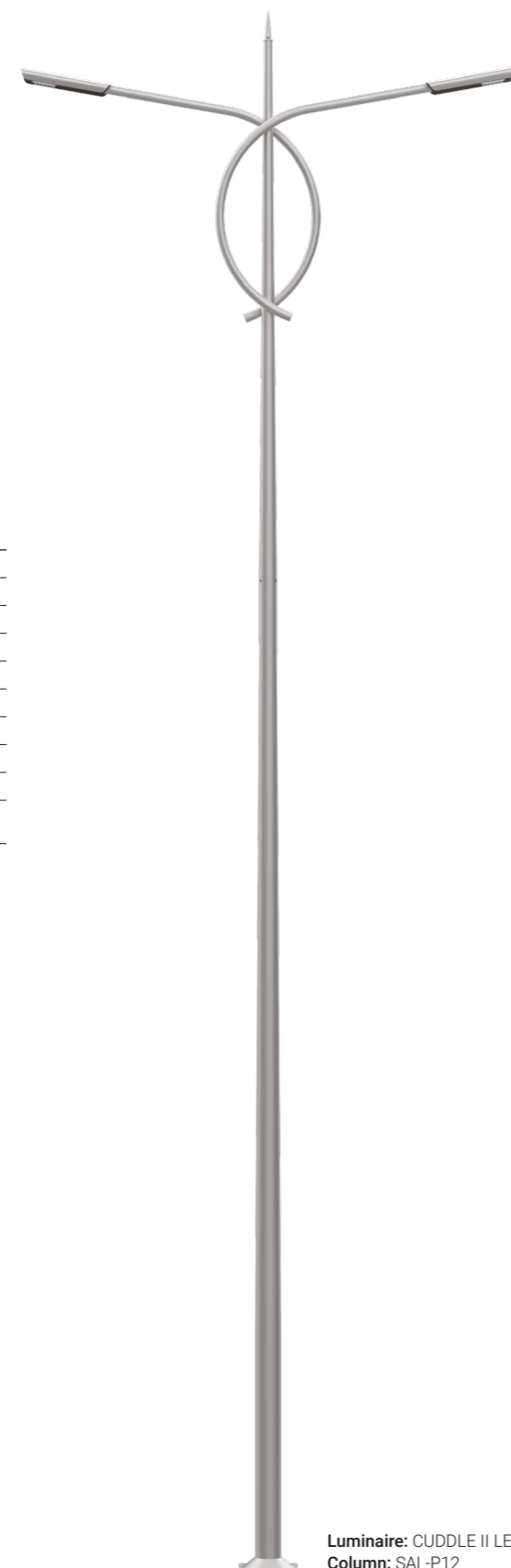
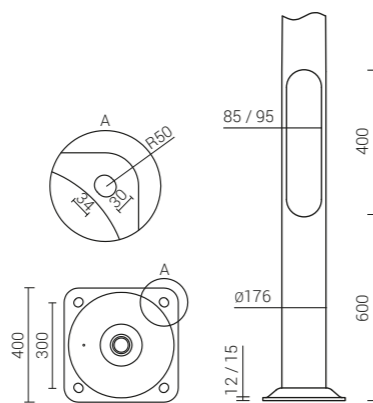
Luminaire mounting: directly on the extension arm, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



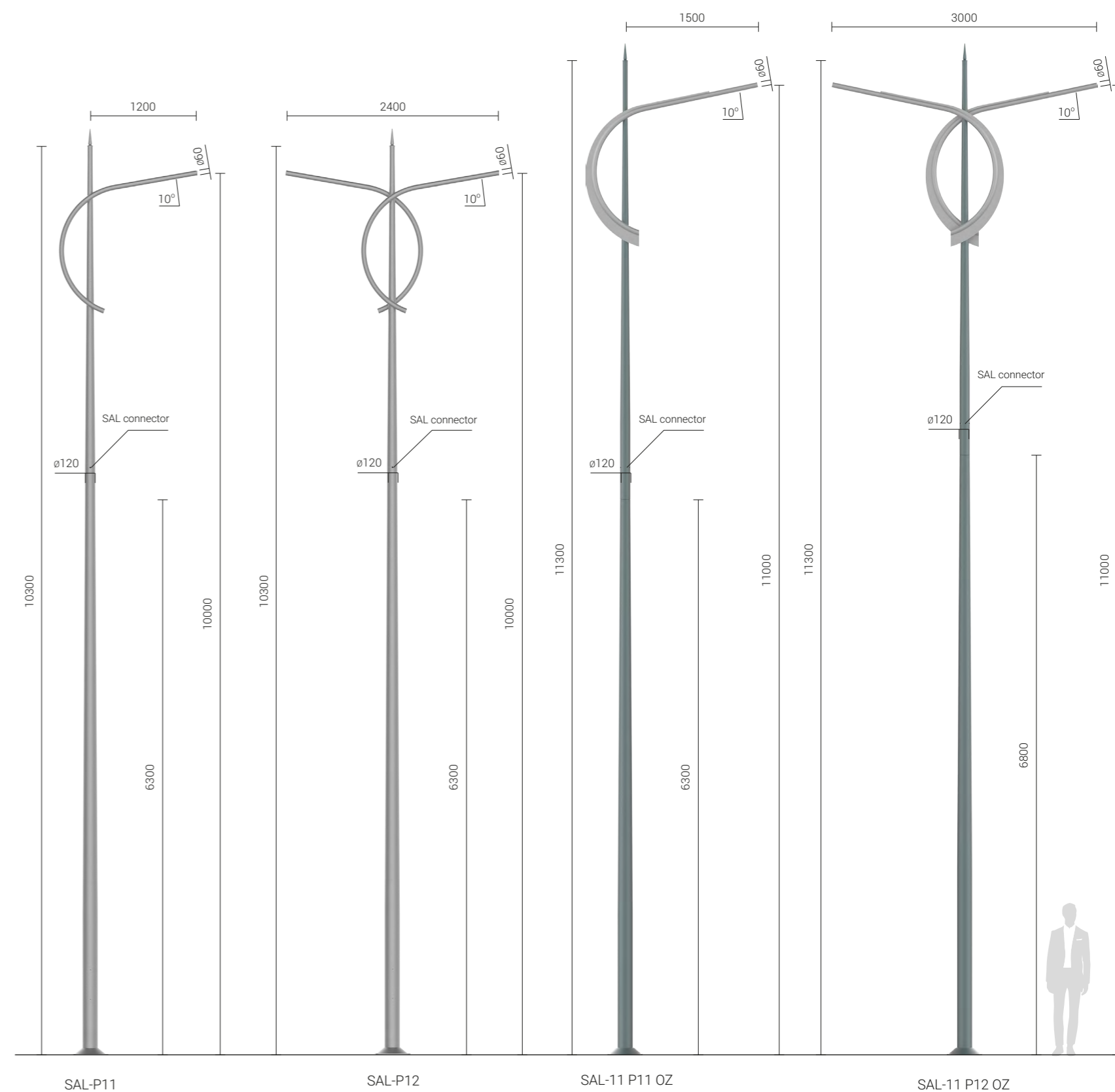
Column type	SAL-P11	SAL-P12	SAL-11 P11 OZ	SAL-11 P12 OZ
Height of the column [mm]	10 300	10 300	11 300	11 300
Code	42481/C...	42482/C...	42493/C165/C45	42494/C165/C45
Net weight [kg]	59,4	64,3	73,3	84,6
Approximate unit volume [m³]*	1,03	1,42	0,705	0,858
Recommended luminaires	COSMO LED, CUDDLE II LED, CUDDLE II LED REG		COSMO LED, CUDDLE II LED, CUDDLE II LED REG	
Concrete footing / reinforcement basket type	B-70 / Z-70			
Threaded anchor ending	4xM24			
Concrete footing / reinforcement basket code	311170 / 311207			
Fasteners	4012			
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 12	400 / 300 / 12	400 / 300 / 12	400 / 300 / 15

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

Stepnica, Poland



Luminaire: CUDDLE II LED
Column: SAL-P12



Dekoratív alumínium lámpaoszlopok

Aodising: 10 colours, each with the option of chemical brightening

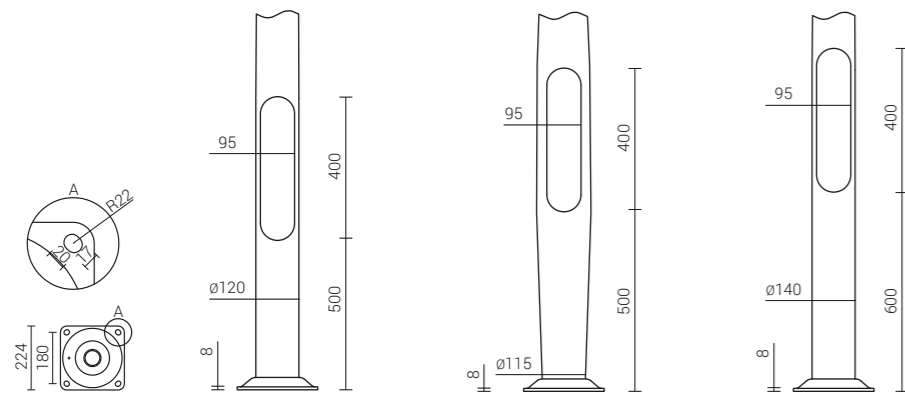
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)

Luminaire mounting: directly on the column, luminaires with mounting $\varnothing 60$ mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



Column type	SAL DP-31	SAL DP-42	SAL DP-44	SAL DP-46	SAL DP-45
Height of the column [mm]	3 000	4 000	4 000	4 000	4 000
Code	42910/C...	42911/C...	42913/C...	42943/C...	42914/C...
Net weight [kg]	12,6	16,2	16,8	16,8	17,3
Approximate unit volume [m ³]*	0,067	0,09	0,09	0,09	0,14
Recommended luminaires	ISKRA LED ALFA, ISKRA LED ALFA PROG, ELBA LED, AURIS LED, ATLANTIS LED, VEGA LED BETA, MIRA LED, MIZAR LED, OS-1 LED, OS-11 LED				OPA-1, AURIS LED, ATLANTIS LED
Concrete footing / reinforcement basket type	B-50 / Z-50				
Threaded anchor ending	4xM14				
Concrete footing / reinforcement basket code	311150 / 311205				
Fasteners	4006				
Dimension of the base plate (side / bolt spacing / thickness) [mm]	224 / 180 / 8				

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

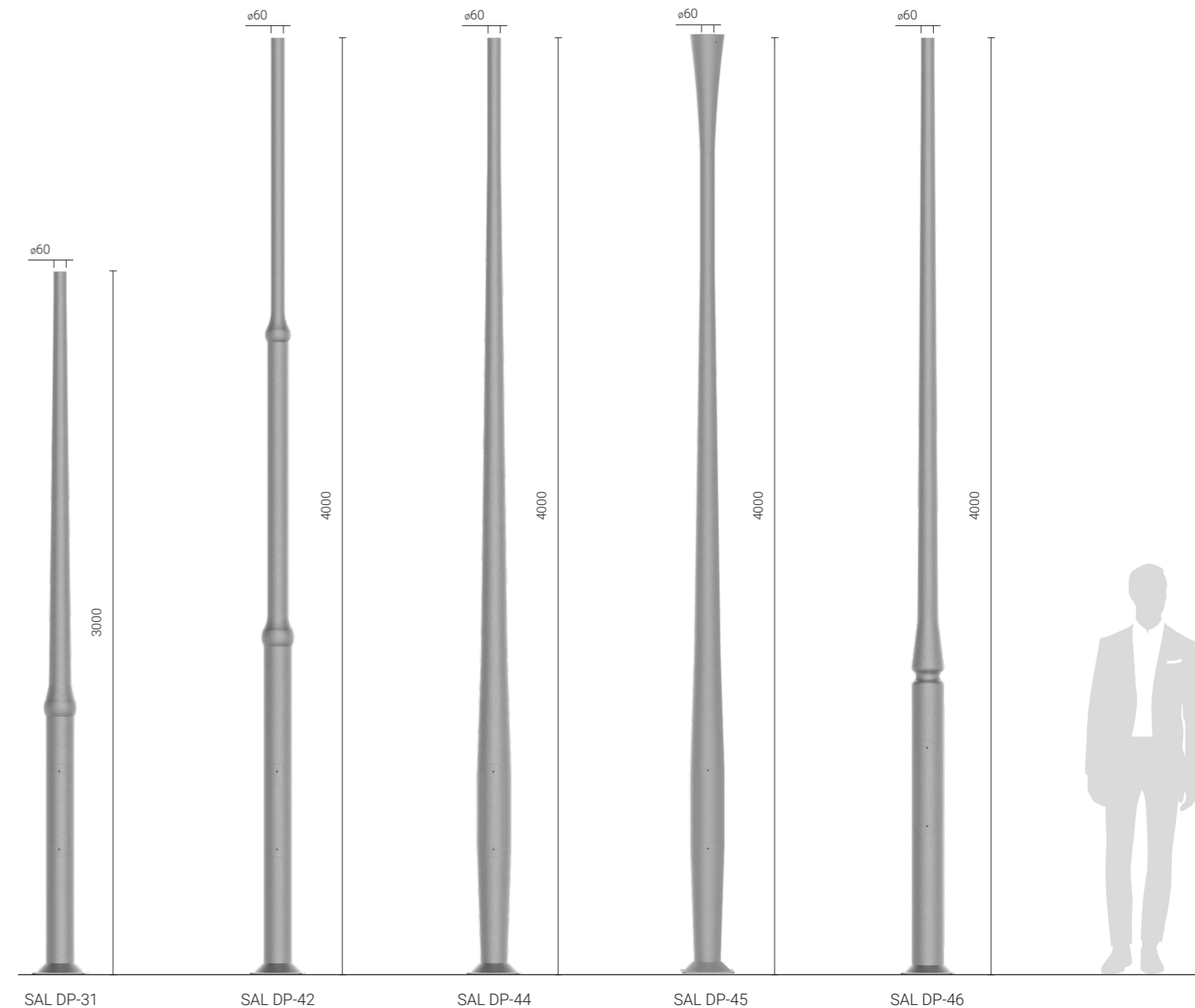


SAL DP-31 • SAL DP-42

SAL DP-44 • SAL DP-45

SAL DP-46

Luminaire: ATLANTIS LED
Column: SAL DP-44



Dekoratív alumínium lámpaoszlopok

Anodising: 10 colours, each with the option of chemical brightening

Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)

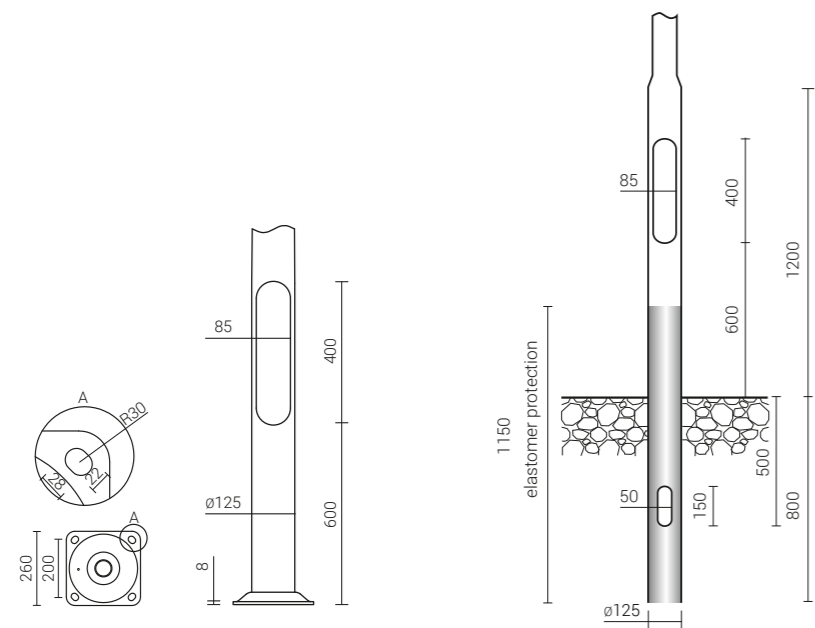
Diameter of the column ending: $\phi 60$ mm

Luminaire mounting: directly on the column, luminaires with mounting $\phi 60$ mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet

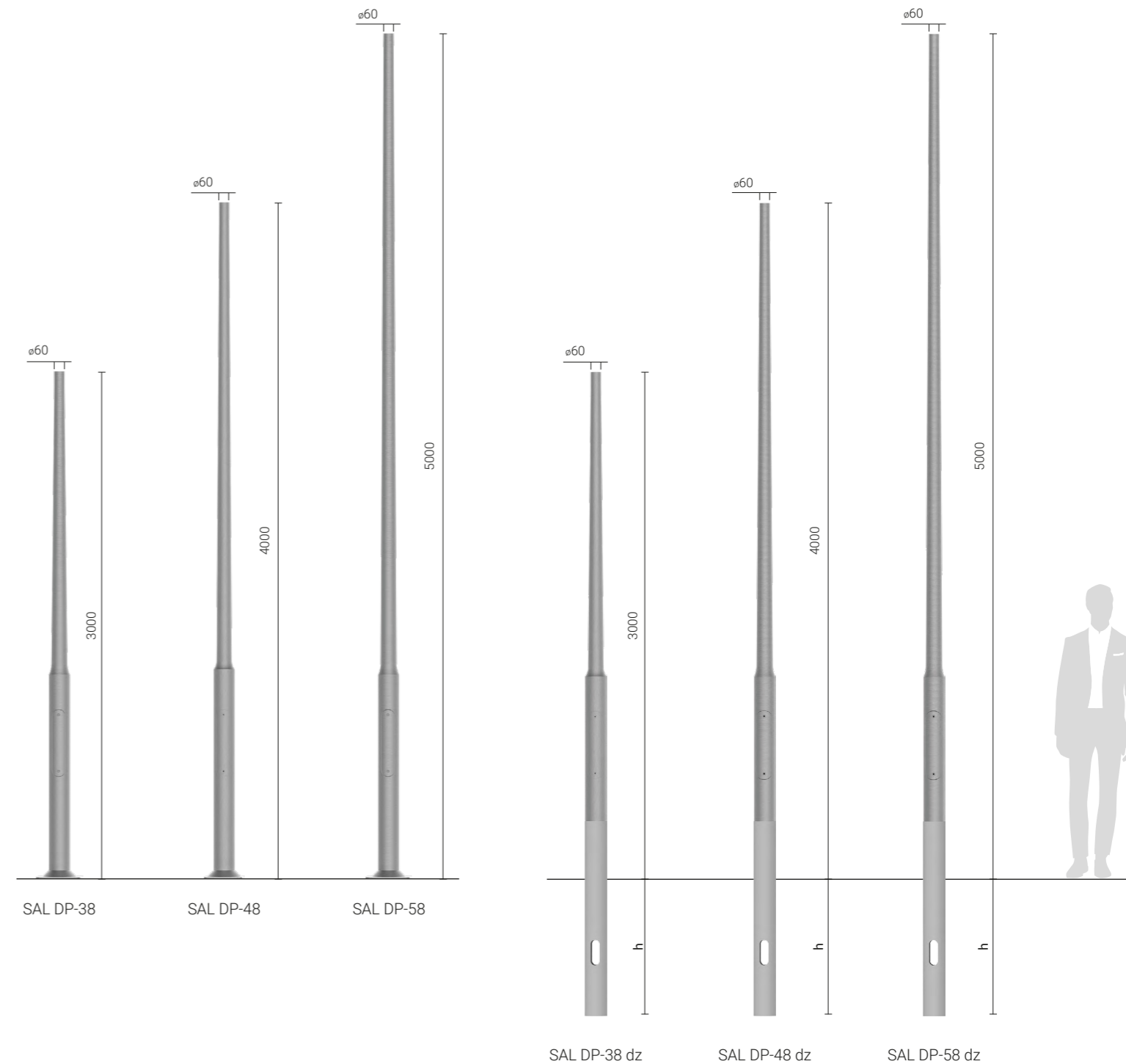


Column type	SAL DP-38	SAL DP-48	SAL DP-58	SAL DP-38 dz	SAL DP-48 dz	SAL DP-58 dz
Height of the column [mm]	3 000	4 000	5 000	3 000	4 000	5 000
Code	42945/C...	42946/C...	42947/C...	42965/C...	42966/C...	42967/C...
Net weight [kg]	9,5	11,7	13,4	10,8	13,0	14,7
Approximate unit volume [m ³]*	0,087	0,116	0,145	0,027	0,034	0,041
Recommended luminaires	ISKRA LED ALFA, ISKRA LED ALFA PROG, ELBA LED, AURIS LED, ATLANTIS LED, VEGA LED BETA, MIRA LED, MIZAR LED, OS-1 LED, OS-11 LED					
Concrete footing / reinforcement basket type	B-51 / Z-51					-
Threaded anchor ending	4xM18					-
Concrete footing / reinforcement basket code	311151 / 311251					-
Fasteners	4008					-
Dimension of the base plate (side / bolt spacing / thickness) [mm]	260 / 200 / 8					-
Rooted section h [mm]	-					800

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour



Luminaire: ELBA LED
Column: SAL DP-48



Dekorativ alumínium lámpaoszlopok

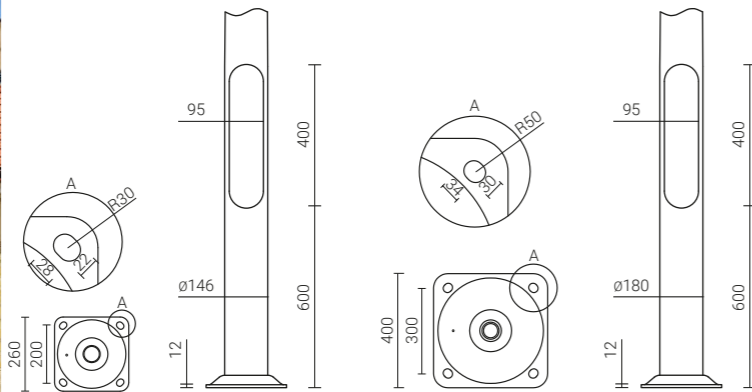
Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: ø60 mm



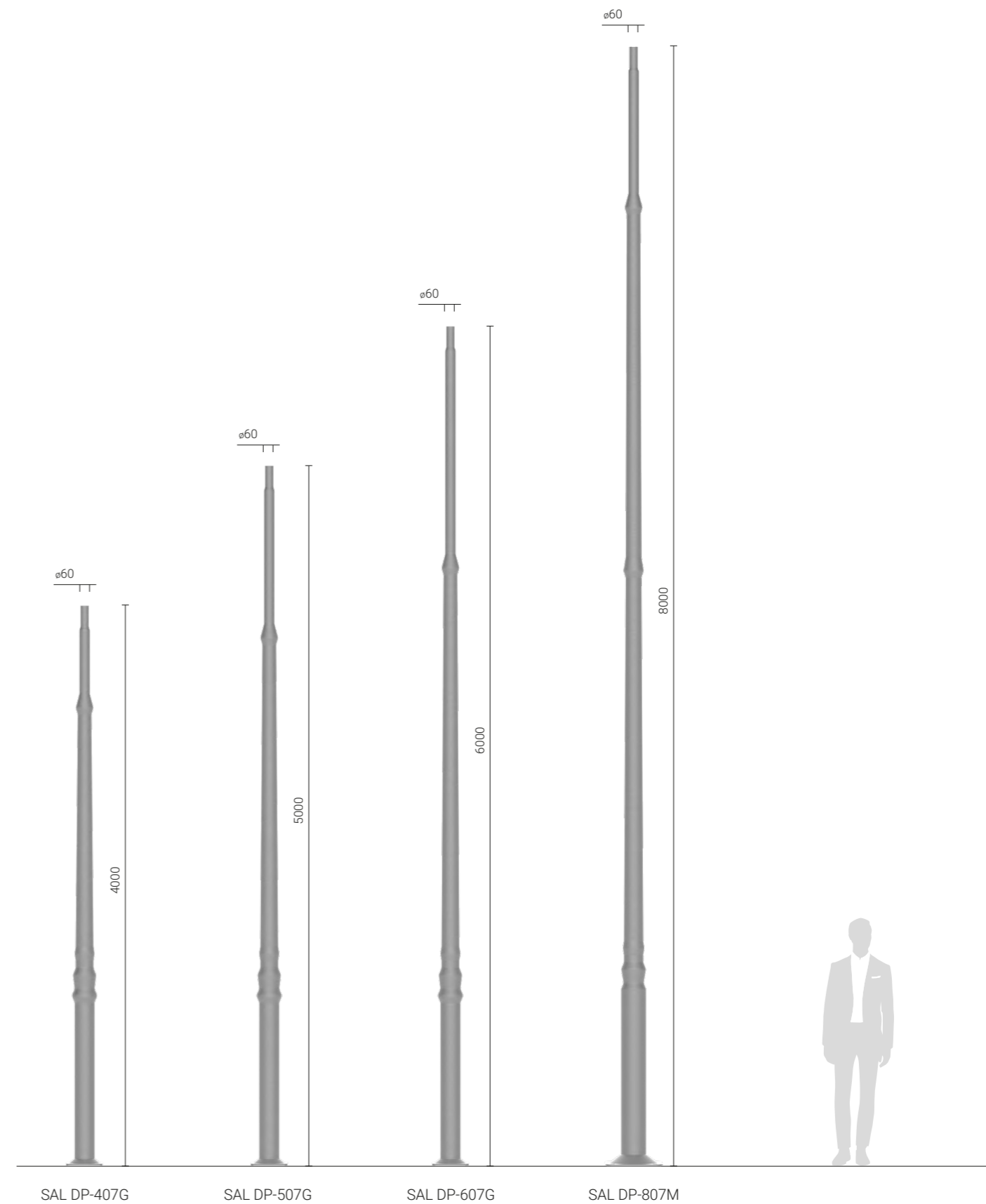
Column type	SAL DP-407G	SAL DP-507G	SAL DP-607G	SAL DP-807M
Height of the column [mm]	4 000	5 000	6 000	8 000
Code	42970/C...	42971/C...	42972/C...	42974/C...
Net weight [kg]	20,8	24,6	28,5	44,2
Approximate unit volume [m³]*	0,139	0,164	0,187	0,537
Recommended extension arms and luminaires	WR-7/1/0,5, WR-7/2/0,5 - Luminaire OS-1 LED, OS-11 LED; WA-31 fi42, WA-20/1, WA-20/2 - Luminaire OW LED		WR-23/1/0,76, WR-71/1/1,2, WR-71/2/1,2, WA-20/1 fi60, WA-20/2 fi60 - OW II LED	
Concrete footing / reinforcement basket type	B-51 / Z-51		B-70, B-71 / Z-70, Z-71	
Threaded anchor ending	4xM18		4xM24	
Concrete footing / reinforcement basket code	311151 / 311251		311170, 311171 / 311207, 311271	
Fasteners	4008		4012	
Dimension of the base plate (side / bolt spacing / thickness) [mm]	260 / 200 / 12		400 / 300 / 12	

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

Bochnia, Poland



Luminaire: OW II LED
 Extension arm: WR-71/1/1,2
 Column: SAL DP-807M



Dekoratív alumínium lámpaoszlopok

Anodising: 10 colours, each with the option of chemical brightening

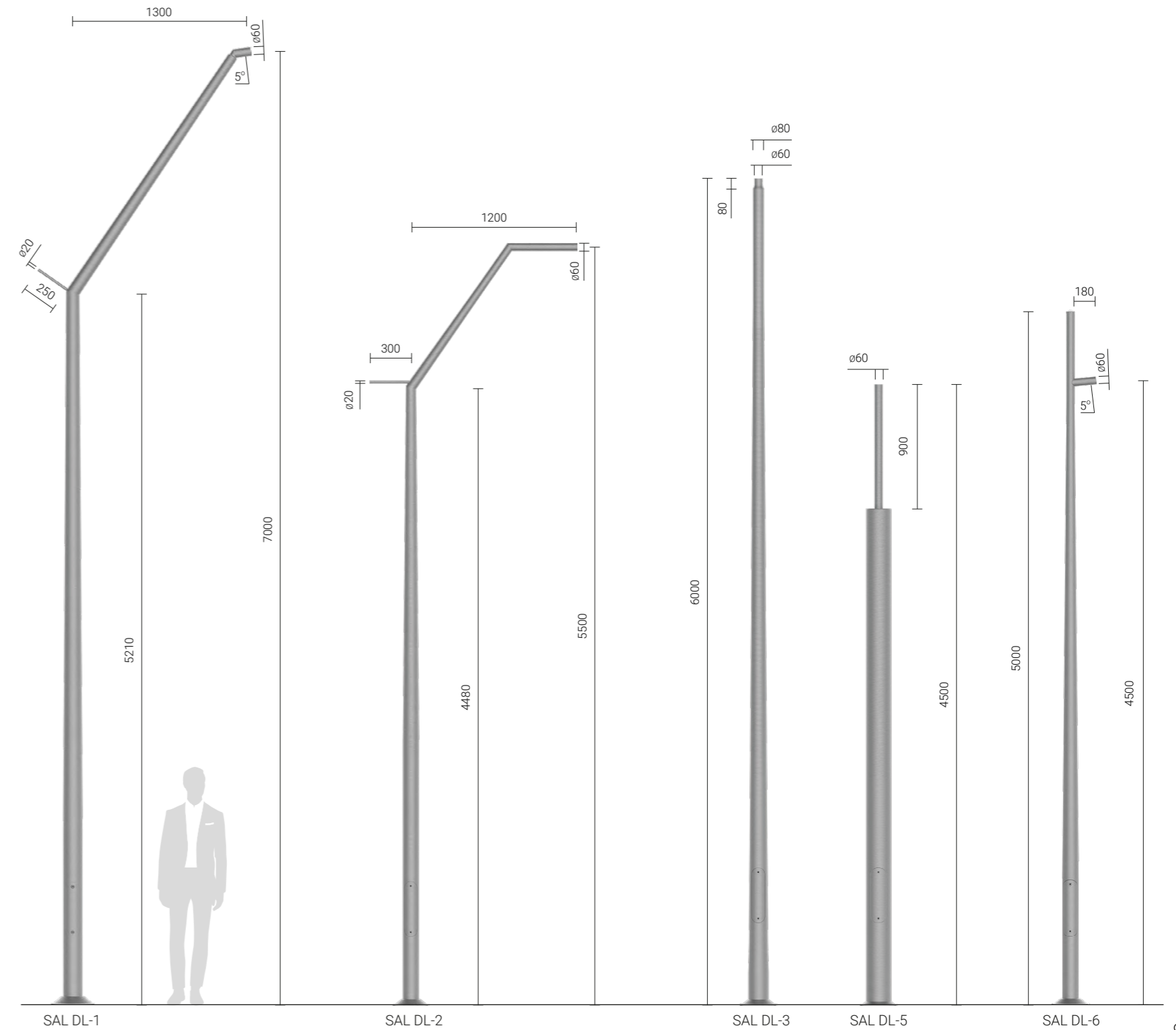
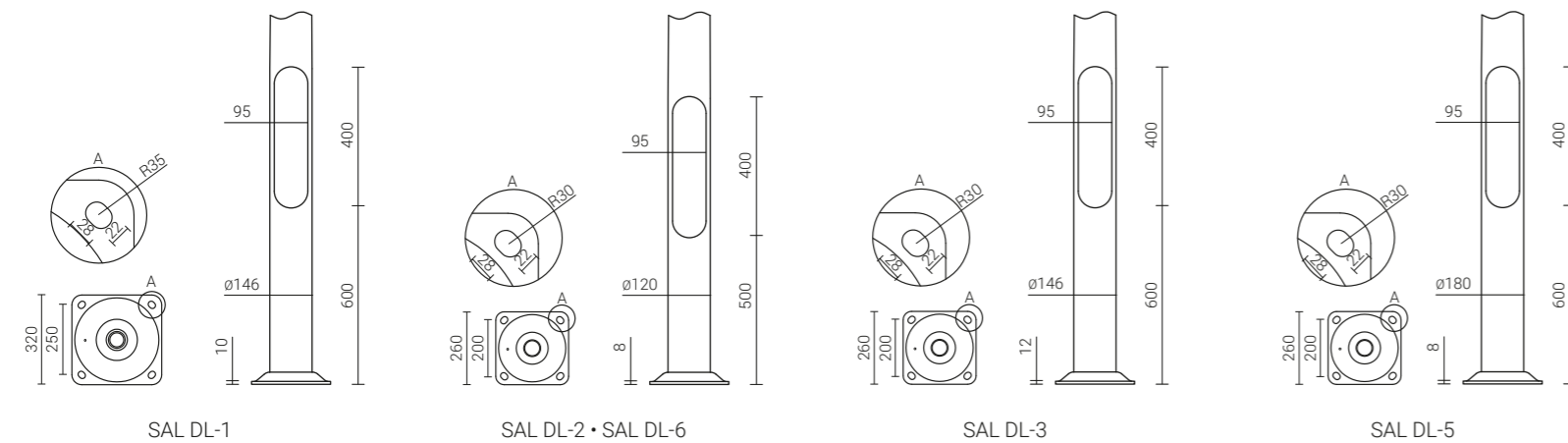
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)

Luminaire mounting: directly on the extension arm of the column, or on the column, luminaires with mounting $\varnothing 60$ mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



Column type	SAL DL-1	SAL DL-2	SAL DL-3	SAL DL-5	SAL DL-6
Height of the column [mm]	7 000	5 500	6 000	4 500	5 000
Code	42993/C...	42994/C...	42995/C...	42997/C...	42998/C...
Net weight [kg]	32,7	21,5	24,8	24,9	17,7
Approximate unit volume [m ³]*	1,09	0,714	0,186	0,159	0,186
Recommended luminaires	ISKRA LED, ISKRA LED PROG, GEMINI LED, CUDDLE II LED, CUDDLE II LED REG, COSMO LED	ISKRA LED, ISKRA LED PROG, GEMINI LED, VEGA LED,	CORONA LED, COSMO DELTA LED	VEGA LED BETA	ISKRA LED, ISKRA LED PROG, GEMINI LED, VEGA LED
Concrete footing / reinforcement basket type	B-60 / Z-60	B-51 / Z-51			
Threaded anchor ending	4xM18				
Concrete footing / reinforcement basket code	311160 / 311206	311151 / 311251			
Fasteners	4008	4008			
Dimension of the base plate (side / bolt spacing / thickness) [mm]	320 / 250 / 10	260 / 200 / 8	260 / 200 / 12	260 / 200 / 8	

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour



Dekoratív alumínium lámpaoszlopok

Anodising: 10 colours, each with the option of chemical brightening

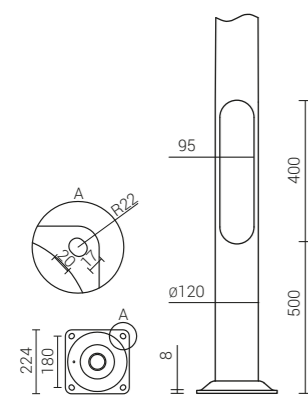
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)

Luminaire mounting: directly on the extension arm of the column, or on the column, luminaires with mounting $\varnothing 60$ mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet

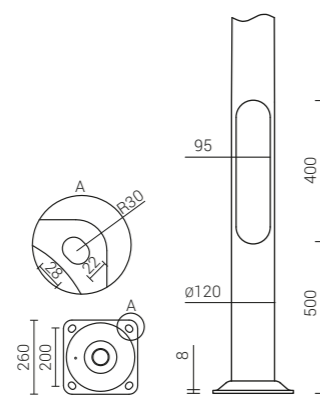


Column type	SAL DL-10	SAL DS-51	SAL DS-52
Height of the column [mm]	5 000	6 000	5 500
Code	42999/C45/C35	42224/C...	42225/C...
Net weight [kg]	23,0	24,2	23,4
Approximate unit volume [m ³]*	0,3	0,804	0,735
Recommended luminaires	ISKRA LED, ISKRA LED P ISKRA LED PROG, ISKRA LED P PROG	OW LED, DROP LED	ISKRA LED, ISKRA LED PROG, GEMINI LED, VEGA LED,
Concrete footing / reinforcement basket type	B-50 / Z-50	B-51 / Z-51	
Threaded anchor ending	4xM14	4xM18	
Concrete footing / reinforcement basket code	311150 / 311205	311151 / 311251	
Fasteners	4006	4008	
Dimension of the base plate (side / bolt spacing / thickness) [mm]	224 / 180 / 8	260 / 200 / 8	

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour



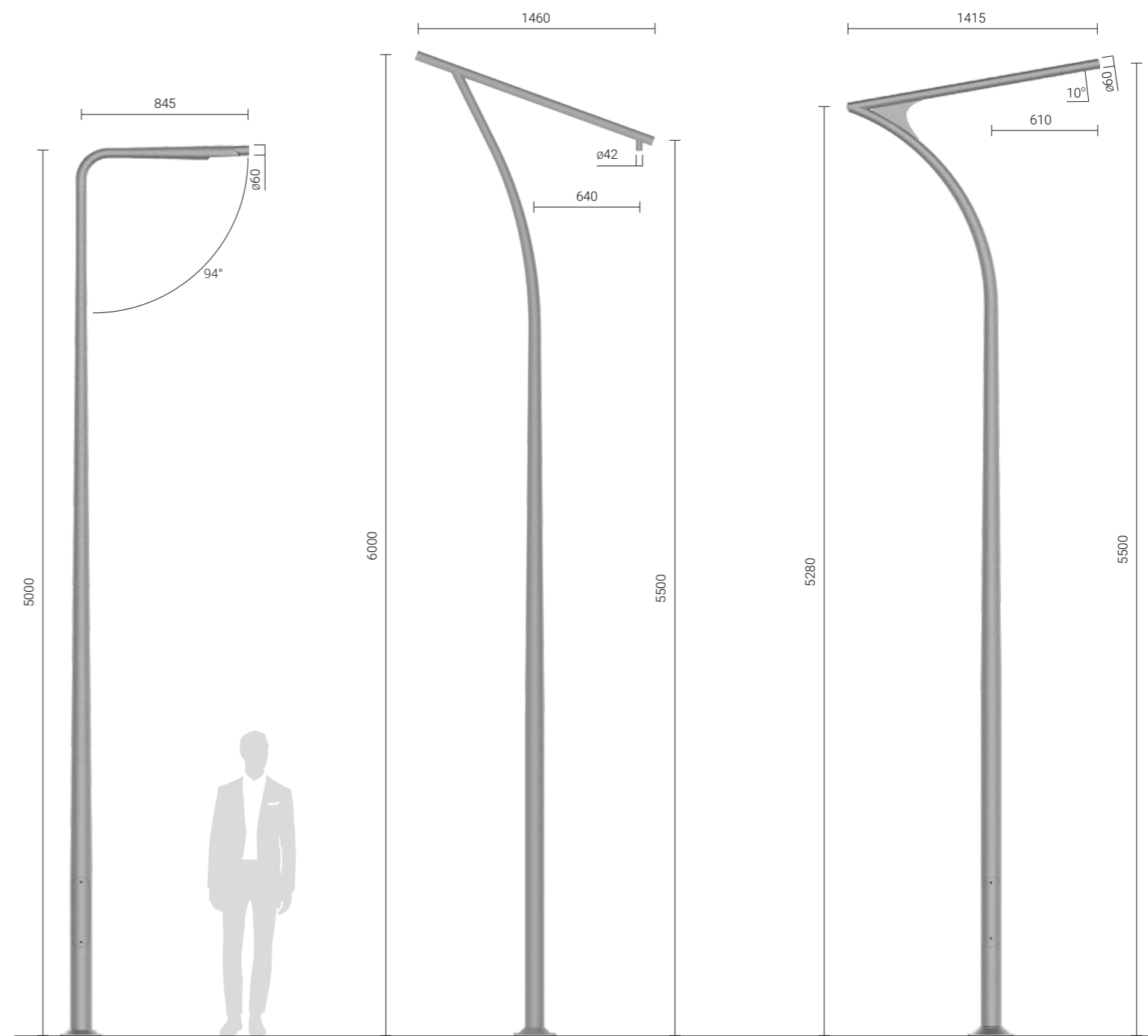
SAL DL-10



SAL DS-51 / SAL DS-52



Luminaire: OW LED
+ transparent diffuser
Column: SAL DS-51



SAL DL-10

SAL DS-51

SAL DS-52

Dekoratív alumínium lámpaszlopok

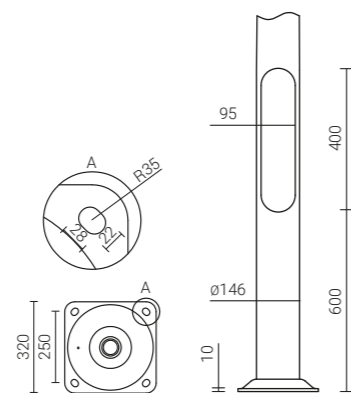
Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Luminaire mounting: directly on the extension arm of the column, luminaires with mounting $\varnothing 60$ mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



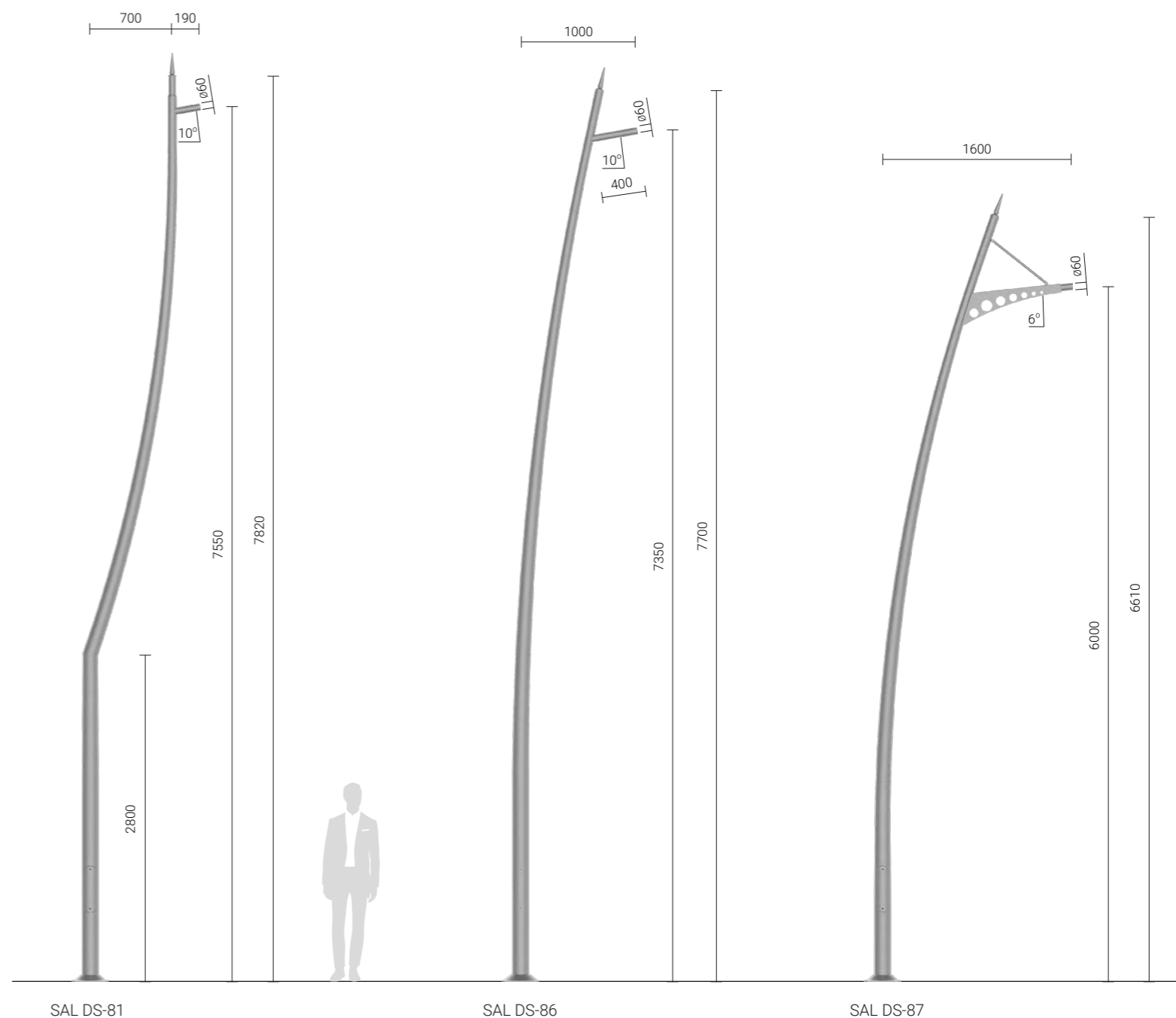
Column type	SAL DS-81	SAL DS-86	SAL DS-87
Height of the column [mm]	7 820	7 700	6 600
Code	42937/C...	42942/C...	42976/C...
Net weight [kg]	36,0	36,2	34,1
Approximate unit volume [m ³]*	0,61	0,79	0,66
Recommended luminaires	CUDDLE II LED, CUDDLE II LED REG, COSMO LED, VEGA LED		
Concrete footing / reinforcement basket type	B-60 / Z-60		
Threaded anchor ending	4xM18		
Concrete footing / reinforcement basket code	311160 / 311206		
Fasteners	4008		
Dimension of the base plate (side / bolt spacing / thickness) [mm]	320 / 250 / 10		

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

Kielce, Poland



Luminaire: COSMO LED
 Column: SAL DS-87



Dekoratív alumínium lámpaoszlopok

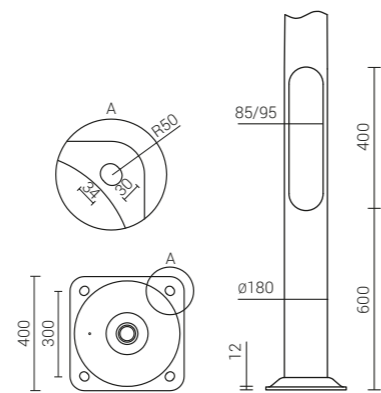
Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Luminaire mounting: directly on the extension arm of the column, luminaires with mounting $\varnothing 60$ mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



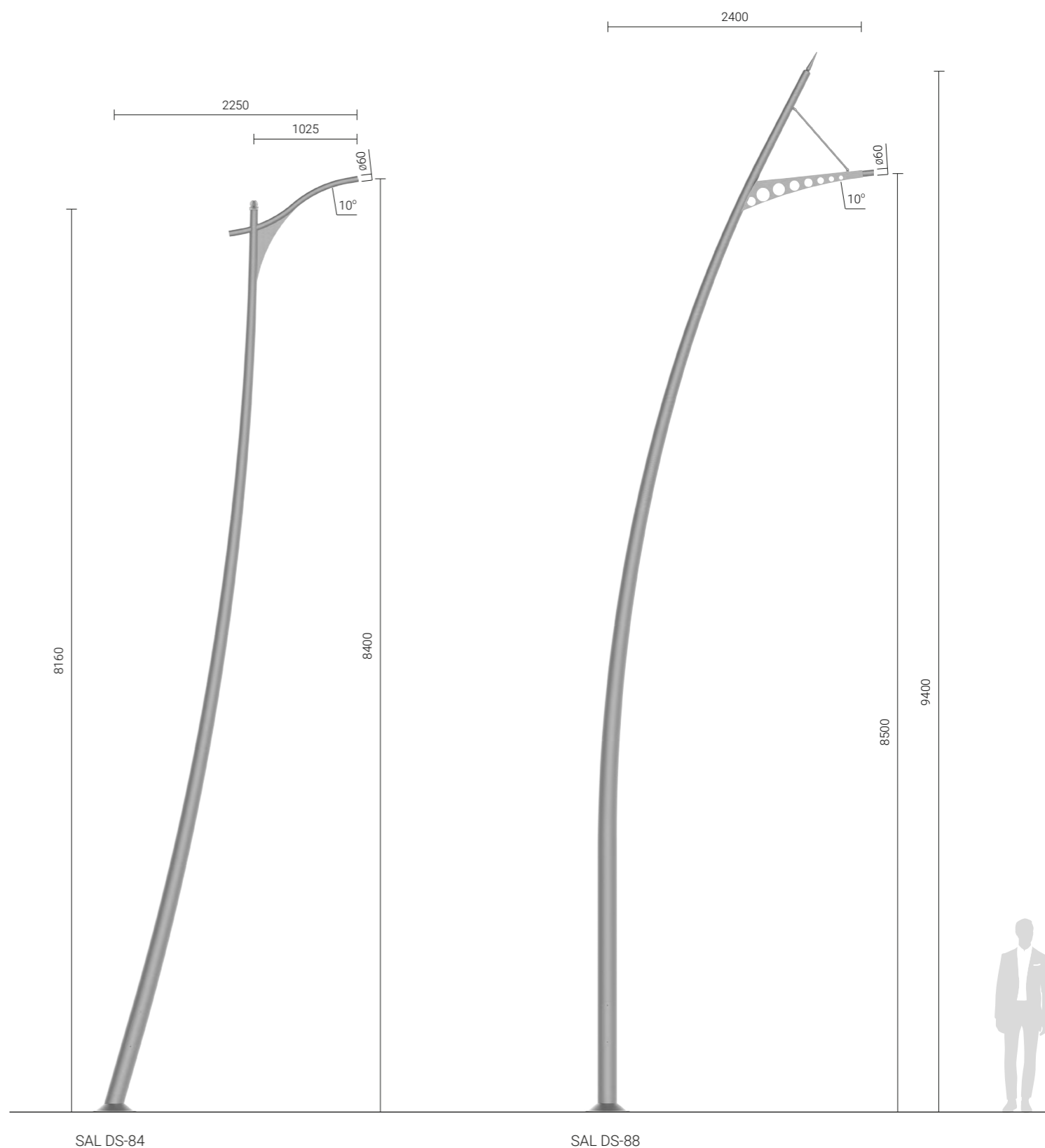
Column type	SAL DS-84	SAL DS-88
Height of the column H [mm]	8 400	9 400
Code	42940/C...	42988/C...
Net weight [kg]	48,2	60,6
Approximate unit volume [m ³]*	1,57	1,895
Recommended luminaires	CUDDLE II LED, CUDDLE II LED REG, COSMO LED	
Concrete footing / reinforcement basket type	B-70 / Z-70	
Threaded anchor ending	4xM24	
Concrete footing / reinforcement basket code	311170 / 311207	
Fasteners	4012	
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 12	

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

Stronie Śląskie, Poland



Luminaire: COSMO LED
 Column: SAL-84



SAL DS-84

SAL DS-88

Kétrészes alumínium lámpaoszlopok ívelt lámpakarral

Ø180 mm at the base

Anodising: 10 colours, each with the option of chemical brightening

Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)

Luminaire mounting: directly on the extension arm of the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



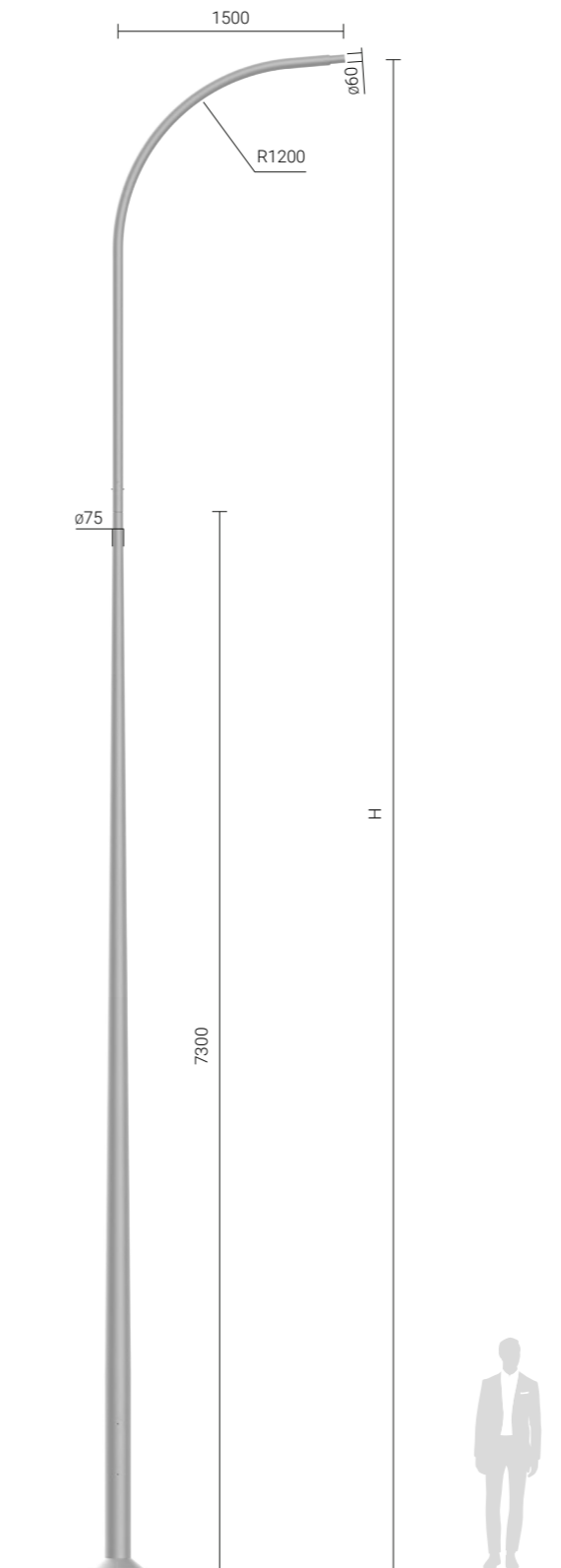
Column type	SAL-9 WLN 1/1,5/1,7/5	SAL-10 WLN 1/1,5/2,7/5	SAL-11 WLN 1/1,5/3,7/5
Height of the column H H [mm]	9 000	10 000	11 000
Arm length [mm]	1 500	1 500	1 500
Code	42720/C...	42721/C...	42722/C...
Net weight [kg]	45,3	47,4	49,5
Approximate unit volume [m ³]*	0,67	0,74	0,82
Recommended luminaires	CUDDLE II LED, CUDDLE II LED REG, COSMO LED		
Concrete footing / reinforcement basket type	B-71 / Z-71		
Threaded anchor ending	4xM24		
Concrete footing / reinforcement basket code	311171 / 311271		
Fasteners	4012		
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 10		

* For order of more than 10 pcs stated volume may change according to packing
/C... - choice of anodising colour

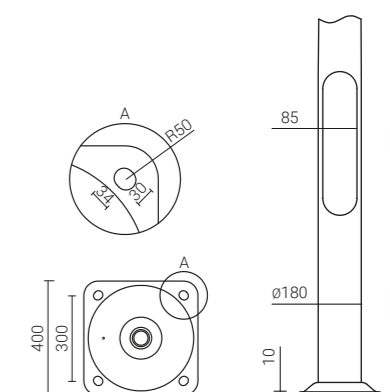
Wroclaw, Poland



Luminaire: CUDDLE II LED
Column: SAL-9 WLN 1/1,5/1,7/5



Two – piece aluminium column joint with curved extension arm WLN



Kétrészes alumínium lámpaoszlopok ívelt lámpakarral

Ø176 mm at the base

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Luminaire mounting: directly on the extension arm of the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet

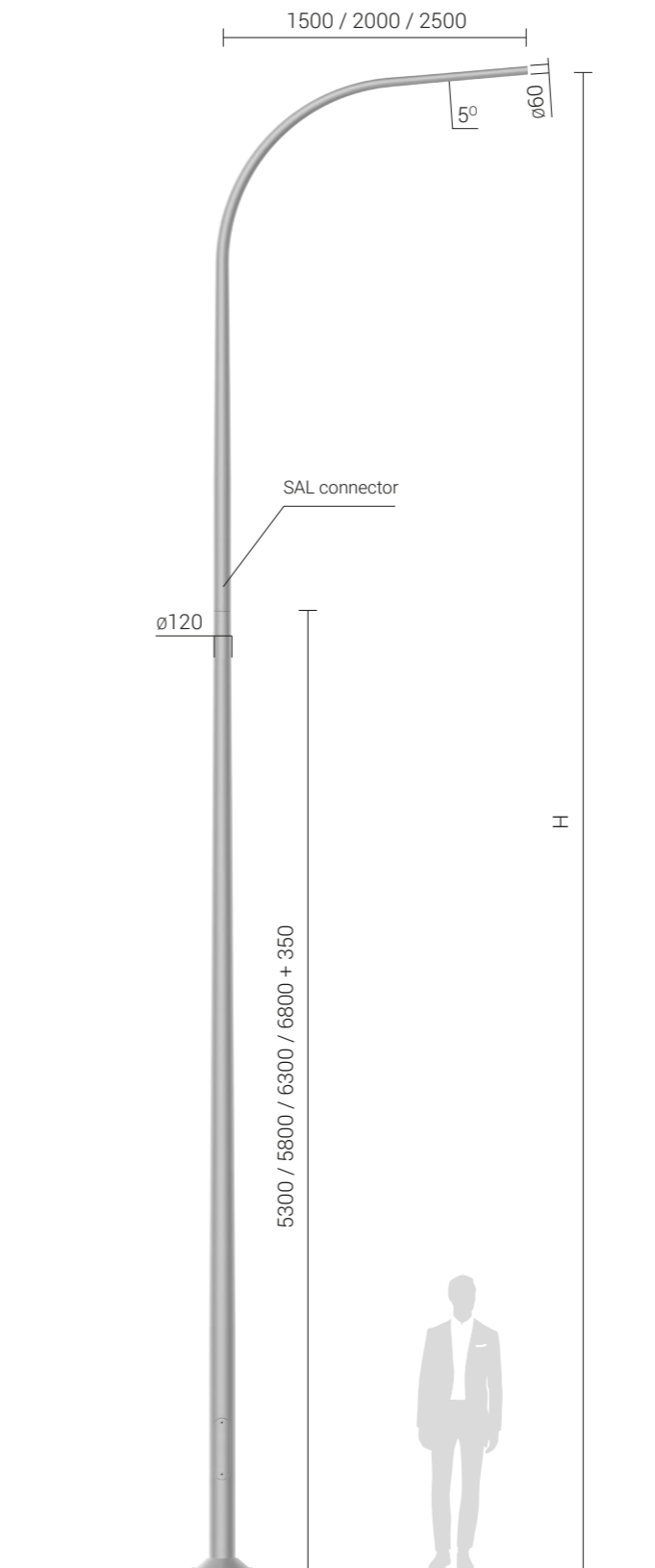


Column type	SAL 9 WL1/1,5/3,2/5	SAL 9 WL1/2,0/3,2/5	SAL 9 WL1/2,5/3,2/5	SAL 10 WL1/1,5/3,7/5	SAL 10 WL1/2,0/3,7/5
Height of the column H [mm]	9 000	9 000	9 000	10 000	10 000
Arm length [mm]	1 500	2 000	2 500	1 500	2 000
Code	42419/C...	42422/C...	42425/C...	42437/C...	42440/C...
Net weight [kg]	50,8	52,8	53,9	56	57
Approximate unit volume [m ³]*	0,67	0,73	0,8	0,74	0,82
Recommended luminaires	CUDDLE II LED, CUDDLE II LED REG, COSMO LED				
Concrete footing / reinforcement basket type	B-71 / Z-71	B-70 / Z-70	B-70 / Z-70	B-71 / Z-71	B-70 / Z-70
Threaded anchor ending	4xM24	4xM24	4xM24	4xM24	4xM24
Concrete footing / reinforcement basket code	311171 / 311271	311207 / 311270	311207 / 311270	311171 / 311271	311207 / 311270
Fasteners	4012				
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 12				

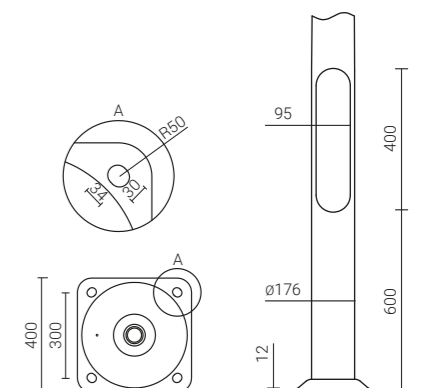
Column type	SAL 10 WL1/2,5/3,7/5	SAL 11 WL1/1,5/4,7/5	SAL 11 WL1/2,0/4,7/5	SAL 12 WL1/1,5/5,2/5
Height of the column H [mm]	10 000	11 000	11 000	12 000
Arm length [mm]	2 500	1 500	2 000	1 500
Code	42443/C...	42451/C...	42453/C...	42455/C...
Net weight [kg]	59,1	59,1	61,2	64,3
Approximate unit volume [m ³]*	0,89	0,82	0,92	0,89
Recommended luminaires	CUDDLE II LED, CUDDLE II LED REG, COSMO LED			
Concrete footing / reinforcement basket type	B-70 / Z-70	B-71 / Z-71	B-70 / Z-70	B-71 / Z-71
Threaded anchor ending	4xM24	4xM24	4xM24	4xM24
Concrete footing / reinforcement basket code	311207 / 311270	311171 / 311271	311207 / 311270	311171 / 311271
Fasteners	4012			
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 12			

* For order of more than 10 pcs stated volume may change according to packing /C... - choice of anodising colour

Luminaire: CUDDLE II LED
 Column: SAL 9 WL1/1,5/3,2/5



Curved extension arm of two-piece aluminium column



Kétrészes alumínium lámpaoszlopok ívelt lámpakarral

Ø176 mm at the base

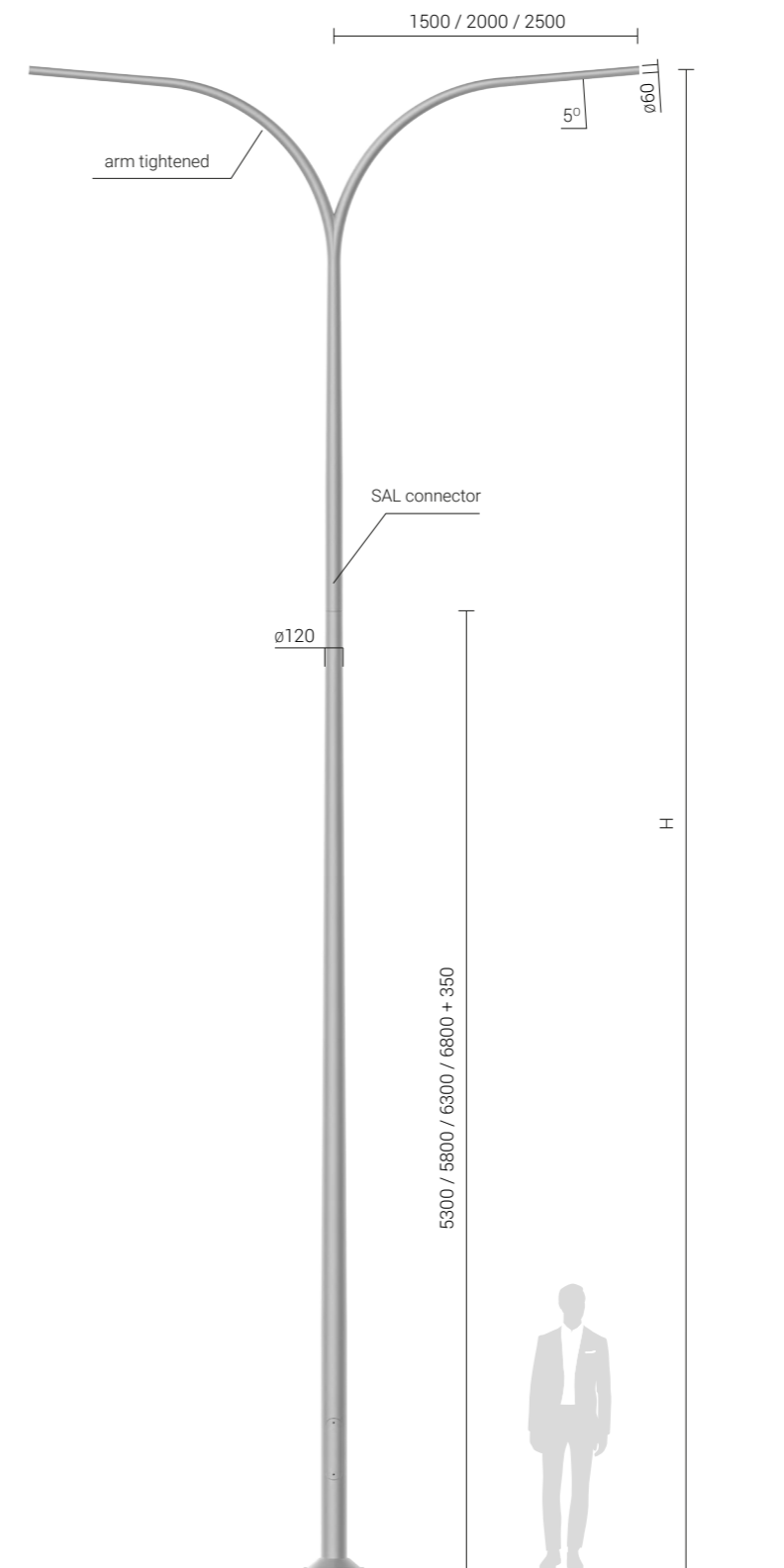
Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Luminaire mounting: directly on the extension arm of the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet
 ściowej zawartej w karcie technicznej



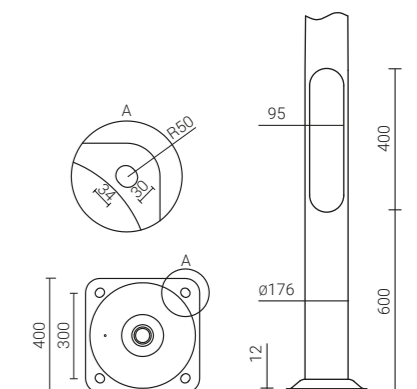
Column type	SAL 9 WL2/1,5/3,2/5	SAL 9 WL2/2,0/3,2/5	SAL 9 WL/2/2,5/3,2/5	SAL 10 WL2/1,5/3,7/5	SAL 10 WL2/2,0/3,7/5	SAL 10 WL2/2,5/3,7/5	SAL 11 WL2/1,5/4,7/5
Height of the column H [mm]	9 000	9 000	9 000	10 000	10 000	10 000	11 000
Arm length [mm]	1 500	2 000	2 500	1 500	2 000	2 500	1 500
Code	42420/C...	42423/C...	42426/C...	42438/C...	42441/C...	42444/C...	42452/C...
Net weight [kg]	56,4	60,1	62,2	61,6	63,7	67,4	64,2
Approximate unit volume [m³]*	0,73	0,81	0,89	0,8	0,89	0,99	0,88
Recommended luminaires	CUDDLE II LED, CUDDLE II LED REG, COSMO LED						
Concrete footing / reinforcement basket type	B-71 / Z-71	B-70 / Z-70	B-70 / Z-70	B-71 / Z-71	B-70 / Z-70	B-70 / Z-70	B-71 / Z-71
Threaded anchor ending	4xM24	4xM24	4xM24	4xM24	4xM24	4xM24	4xM24
Concrete footing / reinforcement basket code	311171 / 311271	311207 / 311270	311207 / 311270	311171 / 311271	311207 / 311270	311207 / 311270	311171 / 311271
Fasteners	4012						
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 12						

* For order of more than 10 pcs stated volume may change according to packing
 /C... - choice of anodising colour

Wroclaw, Poland



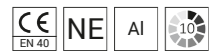
Curved extension arms of two-piece aluminium column



Kétrészes alumínium lámpaoszlopok ívelt lámpakarral

Ø176 mm at the base

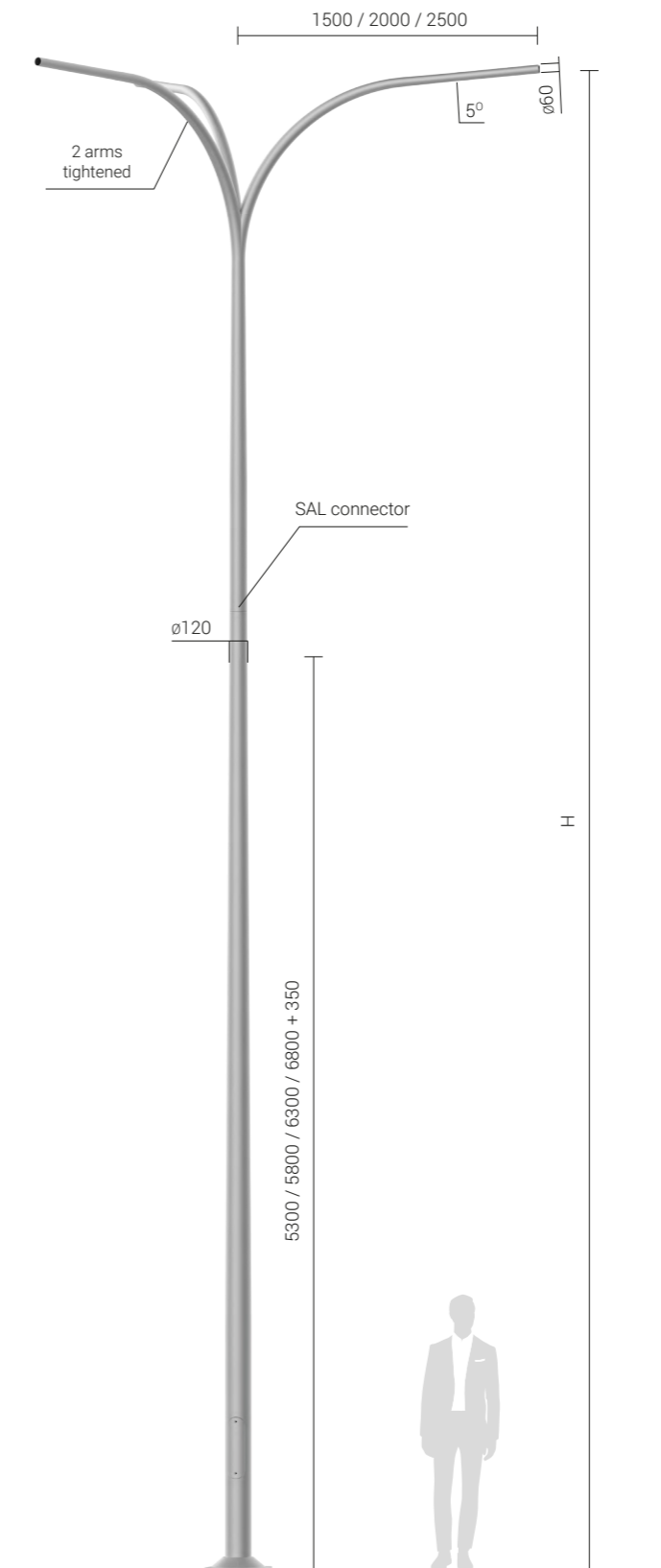
Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Luminaire mounting: directly on the extension arm of the column, luminaires with mounting Ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet



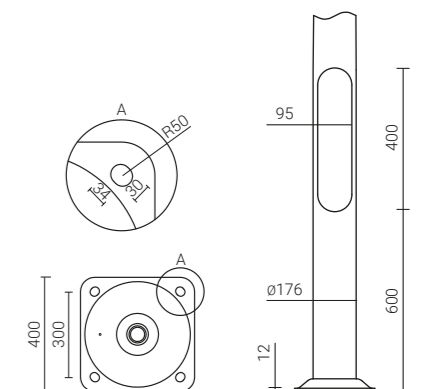
Column type	SAL 9 WL3/1,5/3,2/5	SAL 9 WL3/2,0/3,2/5	SAL 9 WL3/2,5/3,2/5	SAL 10 WL3/1,5/3,7/5	SAL 10 WL3/2,0/3,7/5	SAL 10 WL3/2,5/3,7/5
Height of the column H [mm]	9 000	9 000	9 000	10 000	10 000	10 000
Arm length [mm]	1 500	2 000	2 500	1 500	2 000	2 500
Code	42421/C...	42424/C...	42427/C...	42439/C...	42442/C...	42445/C...
Net weight [kg]	60,4	65,9	68,9	65,6	68,9	74,2
Approximate unit volume [m ³]*	1,06	1,25	1,43	1,19	1,38	1,61
Recommended luminaires	CUDDLE II LED, CUDDLE II LED REG, COSMO LED					
Concrete footing / reinforcement basket type	B-70 / Z-70					
Threaded anchor ending	4xM24					
Concrete footing / reinforcement basket code	311207 / 311270					
Fasteners	4012					
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 12					

* For order of more than 10 pcs stated volume may change according to packing
 /C... - choice of anodising colour

Jaworzno, Poland



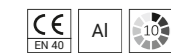
Curved extension arm of two-piece aluminium column



Dönthető alumínium lámpaoszlopok

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer's request)
Diameter of the column ending: ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet

1



Column type	SAL-45/P	SAL-50/P	SAL-60/P	SAL-70P
Height of the column H [mm]	4 500	5 000	6 000	7 000
Code	42915/C...	42916/C...	42925/C...	42927/C...
Net weight [kg]	21,6	23,8	29,7	33
Approximate unit volume [m ³]*	0,13	0,145	0,174	0,203
Recommended luminaires for column top mounting	ISKRA LED ALFA, ISKRA LED ALFA PROG, ELBA LED, AURIS LED, ATLANTIS LED, VEGA LED BETA, MIRA LED, MIZAR LED, OS-1 LED, OS-11 LED		ISKRA LED ALFA, ISKRA LED ALFA PROG, VEGA LED ALFA, CORONA LED, COSMO DELTA LED, COSMO ALFA LED	
Recommended extension arms and luminaires	WN-1 – Luminaire ISKRA LED LB; WR-4/1/0,5/5 – Luminaire: ISKRA LED, ISKRA LED PROG, VEGA LED			
Concrete footing / reinforcement basket type	B-51 / Z-51			
Threaded anchor ending	4xM18			
Concrete footing / reinforcement basket code	311151 / 311251			
Fasteners	4008			
Dimension of the base plate (side / bolt spacing / thickness) [mm]	260 / 200 / 8		260 / 200 / 12	

* For order of more than 10 pcs stated volume may change according to packing
 /C... – choice of anodising colour

France



1. Removing the door



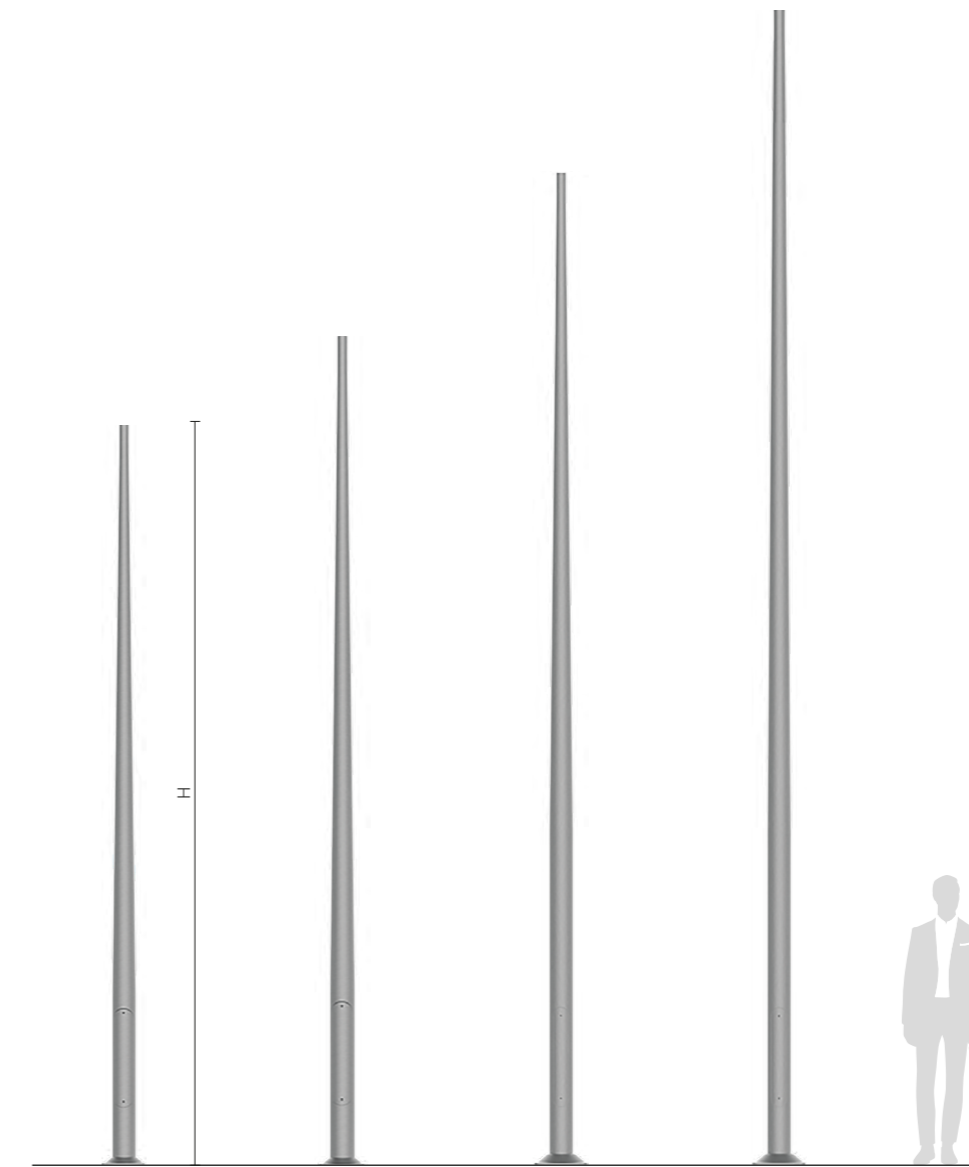
2. Unscrewing the hinge's bolt



3. Manually lowering the column



Easy and safe way of lowering the column

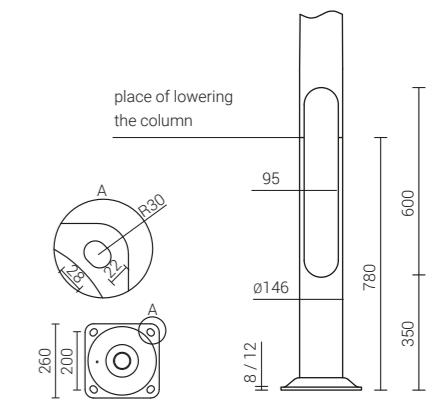


SAL-45/P

SAL-50/P

SAL-60/P

SAL-70/P



Dönthető alumínium lámpaoszlopok

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, elastomer protection in the colour of the column up to the height of 350 mm (other height on customer request)
Diameter of the column ending: ø60 mm
Luminaire mounting: directly on the column, luminaires with mounting ø60 mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet

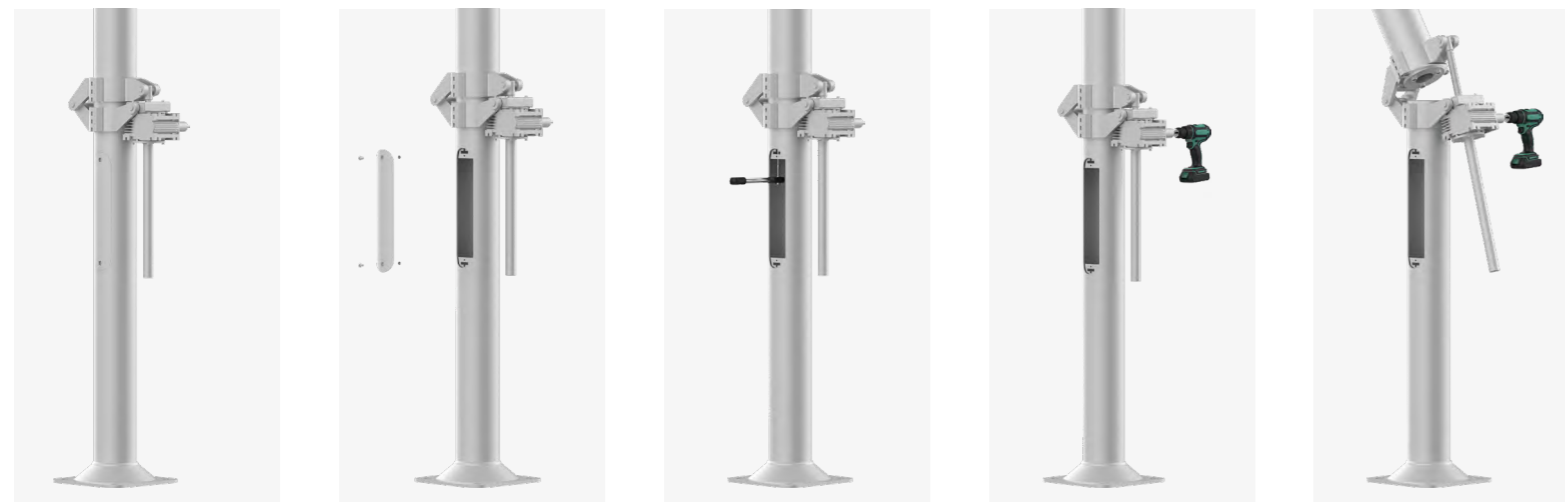


Malczyce, Poland

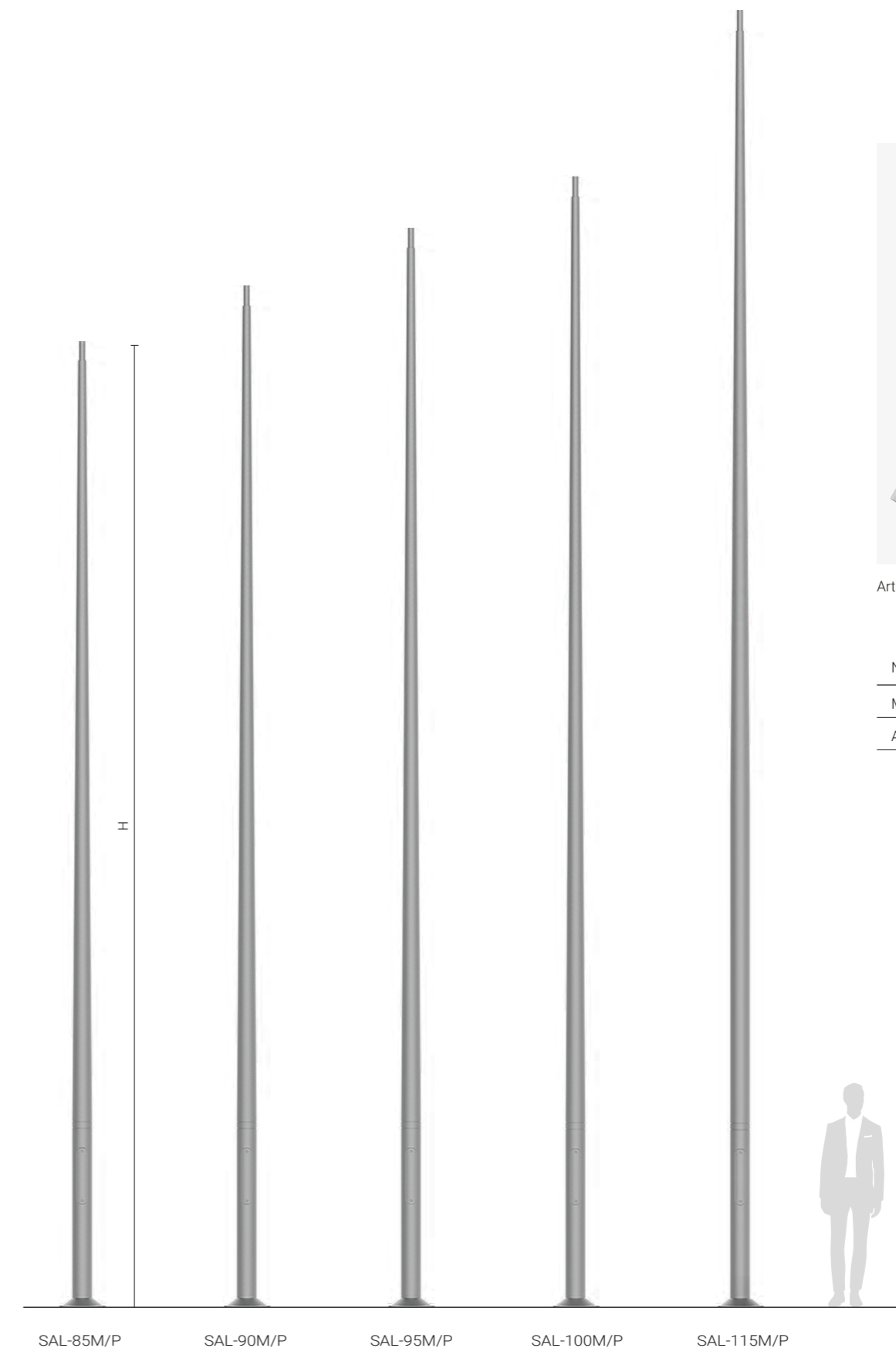


Column type	SAL-85M/P	SAL-90M/P	SAL-95M/P	SAL-100M/P	SAL-115M/P
Height of the column H [mm]	8 500	9 000	9 500	10 000	11 500
Code	42930/C...	42931/C...	42932/C...	42933/C...	42949/C...
Net weight [kg]	51,1	54,4	57,6	60,2	71,6
Approximate unit volume [m ³]*	0,556	0,589	0,621	0,654	0,275
Recommended luminaires for column top mounting	COSMO LED ALFA, CUDDLE II LED REG				
Recommended extension arms and luminaires	WR-4/1/1,0/5 ZP, WR-8B/1/0,35/0, WR-13/1/0,8/5 ZP, WR-13/2/0,8/5 ZP, WR-15/1/1,0/5, WR-15/2/1,0/5 – Luminaire CUDDLE II LED, CUDDLE II LEG REG, COSMO LED; WN-21, WN-21 REG, WN-4 – floodlights				
Concrete footing / reinforcement basket type	B-70 / Z-70				
Threaded anchor ending	4xM24				
Concrete footing / reinforcement basket code	311170 / 311207				
Fasteners	4012				
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 12				

* For order of more than 10 pcs stated volume may change according to packing
 /C... – choice of anodising colour

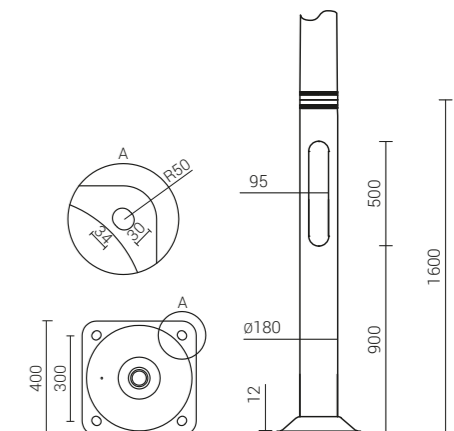


1. Assembly of (manual or articulated) mechanism on the column
2. Removing the door of wiring chamber
3. Unscrewing 3 column's securing bolts at the break point
4. Mounting the drill in the mechanism
5. Lowering the column



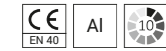
Articulated mechanism for SAL-...M/P column

Name	Code
Manual mechanism	4005
Articulated mechanism	4010



Aluminińium lampa árbócok

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the mast up to the height of 350 mm
 (other height on customer' request)
Diameter of the mast ending: $\varnothing 100$ mm

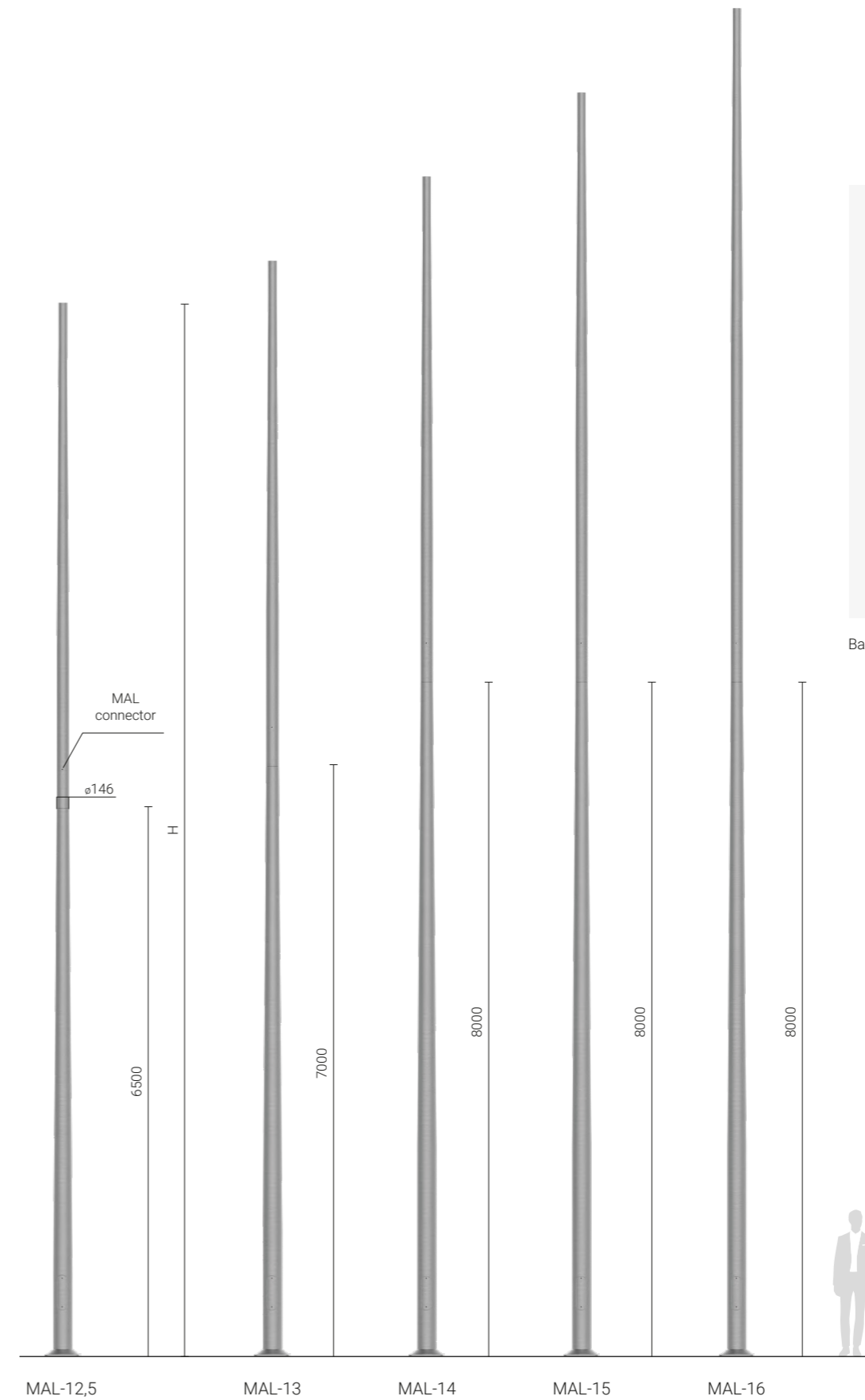
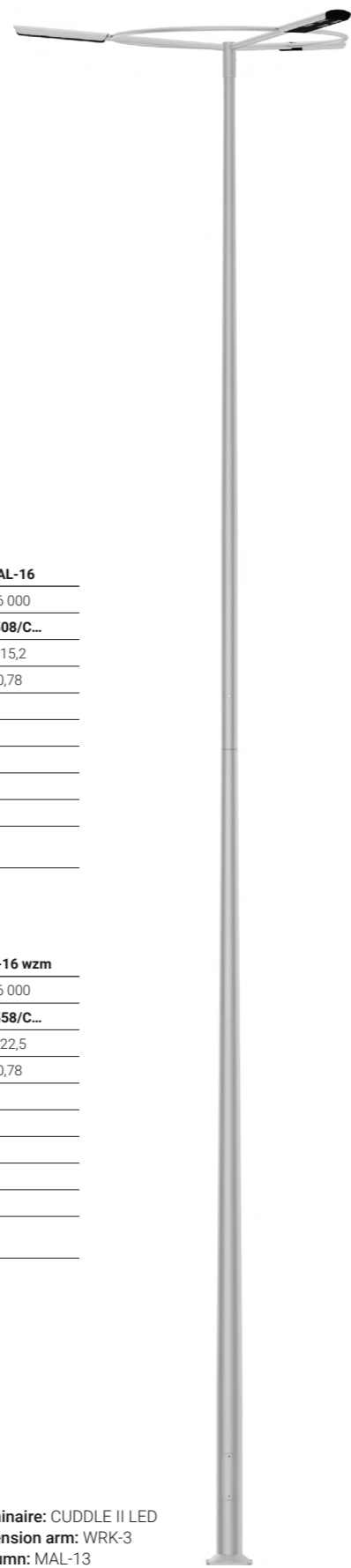


Column type	MAL-12,5	MAL-13	MAL-14	MAL-15	MAL-16
Height of the column H [mm]	12 500	13 000	14 000	15 000	16 000
Code	42501/C...	42502/C...	42504/C...	42506/C...	42508/C...
Net weight [kg]	93,8	98,7	107,6	111,1	115,2
Approximate unit volume [m ³]*	0,64	0,68	0,76	0,77	0,78
Recommended extension arms for light masts	WM, WRK				
Concrete footing / reinforcement basket type	B-80 / Z-80				
Threaded anchor ending	4xM24				
Concrete footing / reinforcement basket code	311180 / 311208				
Fasteners	4012				
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 20				

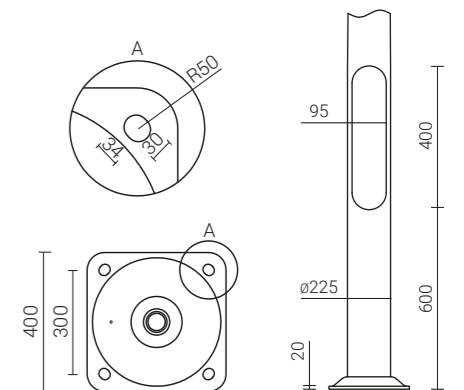
Column type	MAL-12,5 wzm	MAL-13 wzm	MAL-14 wzm	MAL-15 wzm	MAL-16 wzm
Height of the column H [mm]	12 500	13 000	14 000	15 000	16 000
Code	42551/C...	42552/C...	42554/C...	42556/C...	42558/C...
Net weight [kg]	101,2	106,2	114,9	118,4	122,5
Approximate unit volume [m ³]*	0,64	0,68	0,76	0,77	0,78
Recommended extension arms for light masts	WM, WRK				
Concrete footing / reinforcement basket type	B-80 / Z-80				
Threaded anchor ending	4xM24				
Concrete footing / reinforcement basket code	311180 / 311208				
Fasteners	4012				
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 20				

* For order of more than 10 pcs stated volume may change according to packing
 /C... - choice of anodising colour

Luminaire: CUDDLE II LED
Extension arm: WRK-3
Column: MAL-13

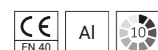


Base-plate of aluminium column 400x300x20



Aluminińium lampa árbócok

Anodising: 10 colours, each with the option of chemical brightening
Finish: brushed, anodised aluminium, option of elastomer protection in the colour of the column up to the height of 350 mm (other height on customer request)
Luminaire mounting: directly on the mast, luminaires with mounting $\varnothing 60$ mm with weight and surface parameters not exceeding the data from the strength table included in the technical data sheet
 w karcie technicznej zawartej w karcie technicznej



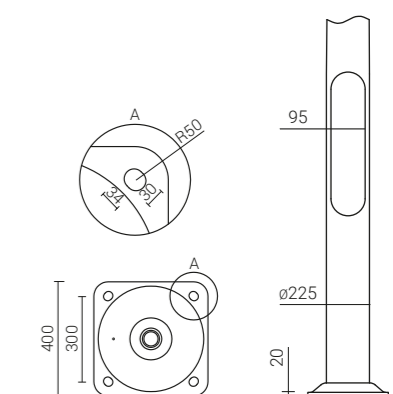
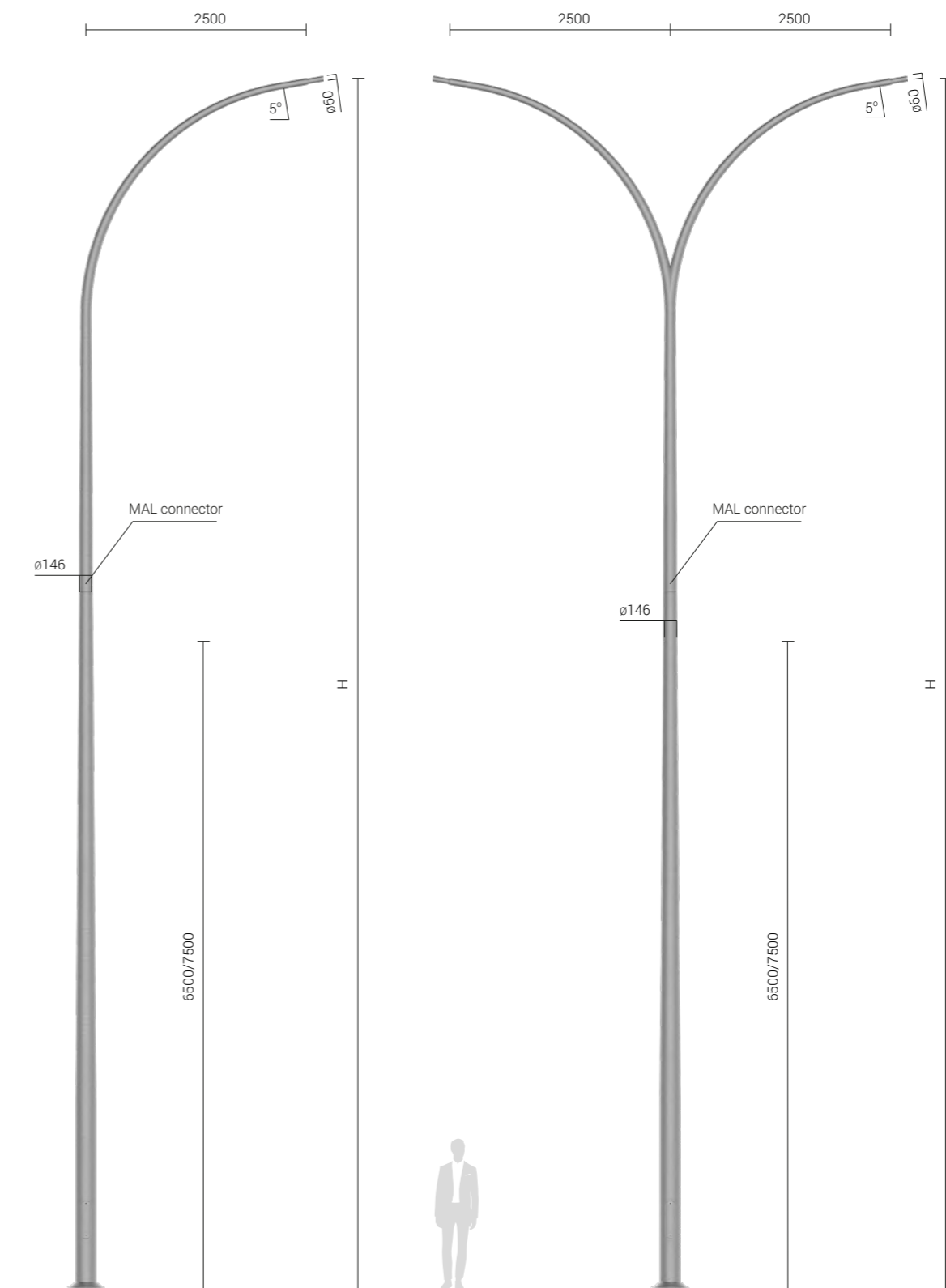
Column type	MAL-12 WL 1/2,5/5,5/5	MAL-12 WL 2/2,5/5,5/5	MAL-13 WL 1/2,5/5,5/5	MAL-13 WL 2/2,5/5,5/5	MAL-14 WL 1/2,5/6,5/5	MAL-14 WL 2/2,5/6,5/5
Height of the column H [mm]	12 000	12 000	13 000	13 000	14 000	14 000
Arm length [mm]	2 500	2 500	2 500	2 500	2 500	2 500
Code	42509/C...	42510/C...	42511/C...	42512/C...	42513/C...	42514/C...
Net weight [kg]	93,4	106,8	103,2	116,6	108,4	121,8
Approximate unit volume [m ³]*	0,84	1,15	0,93	1,21	1,1	1,27
Recommended luminaires	CUDDLE II LED, CUDDLE II LED REG					
Concrete footing / reinforcement basket type	B-80 / Z-80					
Threaded anchor ending	4xM24					
Concrete footing / reinforcement basket code	311180 / 311208					
Fasteners	4012					
Dimension of the base plate (side / bolt spacing / thickness) [mm]	400 / 300 / 20					

* For order of more than 10 pcs stated volume may change according to packing
 /C... - choice of anodising colour

Astana, Kazakhstan



Luminaire: CUDDLE II LED
 Column: MAL-12 WL 1/2,5/5,5/5



Alumínium lámpaoszlopok lámpakarjai

Városi stadion, Tychy, Lengyelország

Rzeszów, Poland
Investor: The Road Administration in Rzeszów

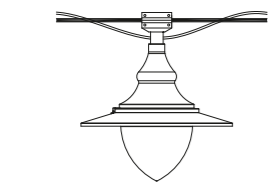


WA típusú lámpakarok

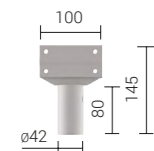
Application: aluminium columns SAL with spigot $\varnothing 60 \times 130 / 180$ mm

Material: anodised aluminium alloy

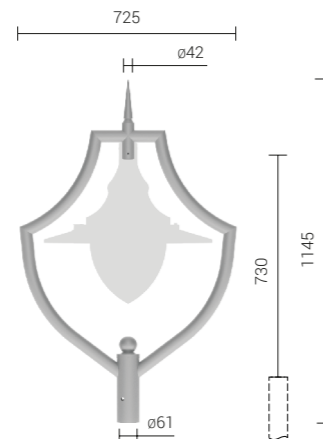
Anodising: 10 colours, each with the option of chemical brightening



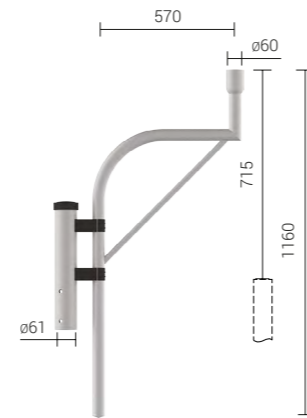
Mounting example of WA-0 with OW LED luminaire, cone lamp diffuser



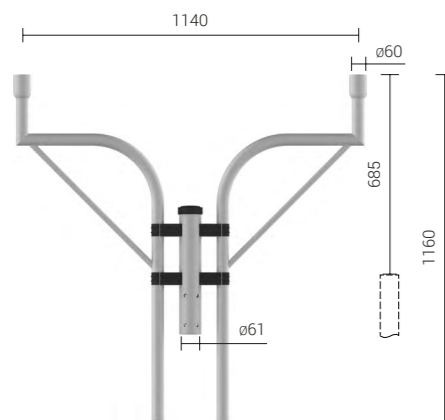
WA-0



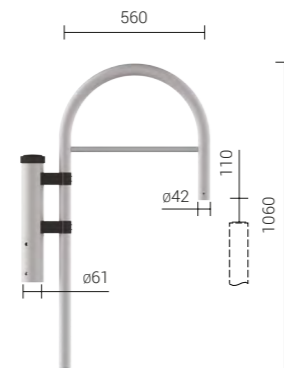
WA-41 fi42



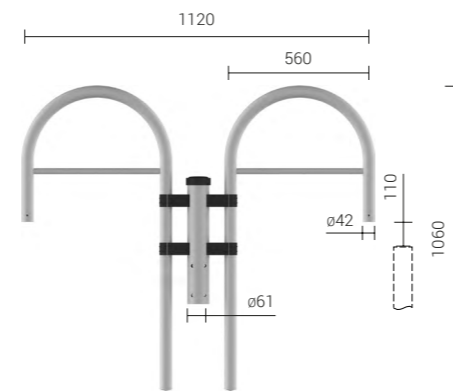
WA-5/1



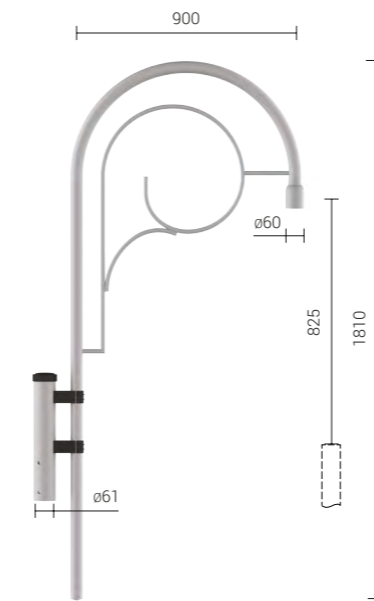
WA-5/2



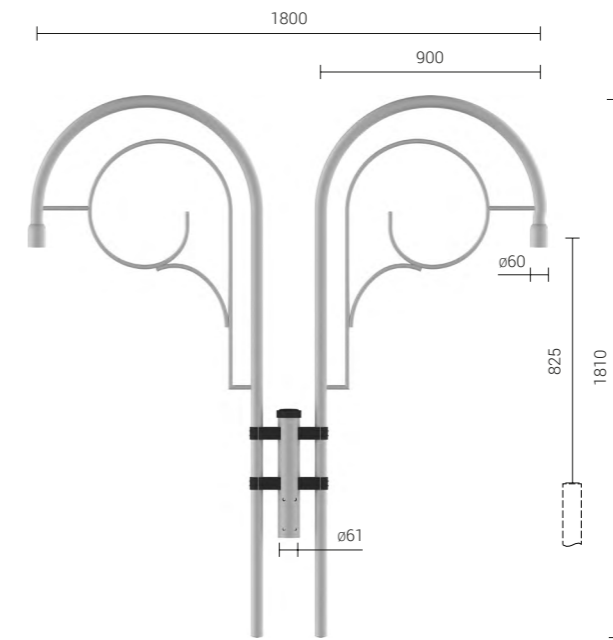
WA-14/1



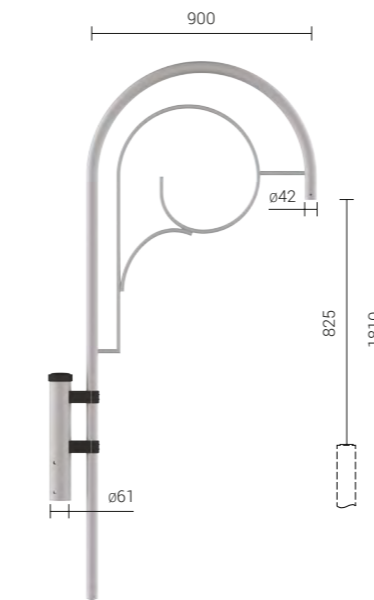
WA-14/2



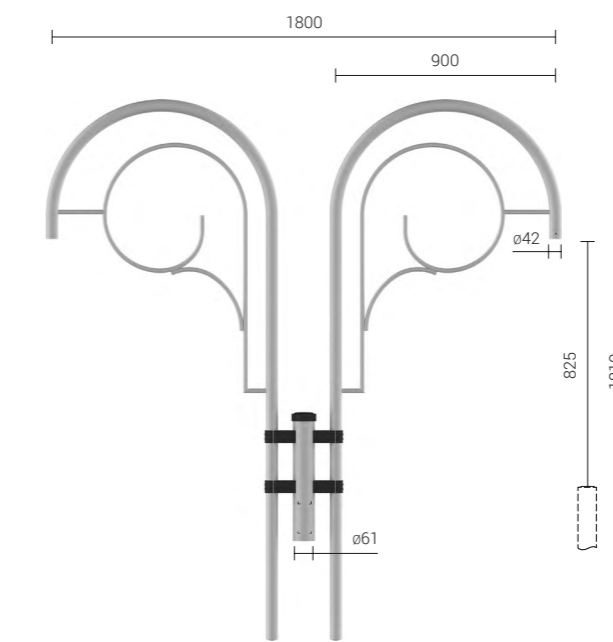
WA-20/1 fi60



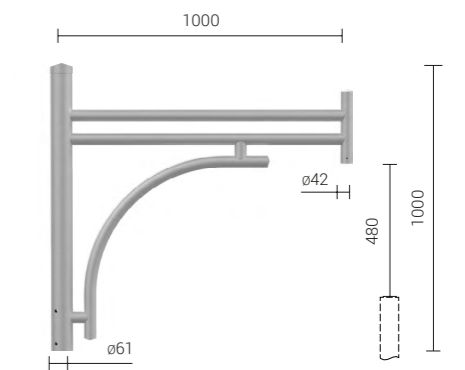
WA-20/1 fi60



WA-20/1



WA-20/2



WA-31 fi42

Extension arm type	WA-0	WA-41 fi42	WA-5/1	WA-5/2	WA-14/1	WA-14/2
Number of arms	1	1	1	2	1	2
Code	40270/C...	471041/C...	471051/C...	471052/C...	471141/C...	471142/C...
Net weight [kg]	0,4	3,9	3,6	5,8	3,9	5,7
Extension arm effective projected area [m ²]		0,13	0,116	0,197	0,12	0,206
Approximate unit volume [m ³]	0,001	0,045	0,021	0,04	0,018	0,035
Luminaire mounting diameter [mm]	$\varnothing 42$	$\varnothing 42$	$\varnothing 60$	$\varnothing 60$	$\varnothing 42$	$\varnothing 42$

The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour

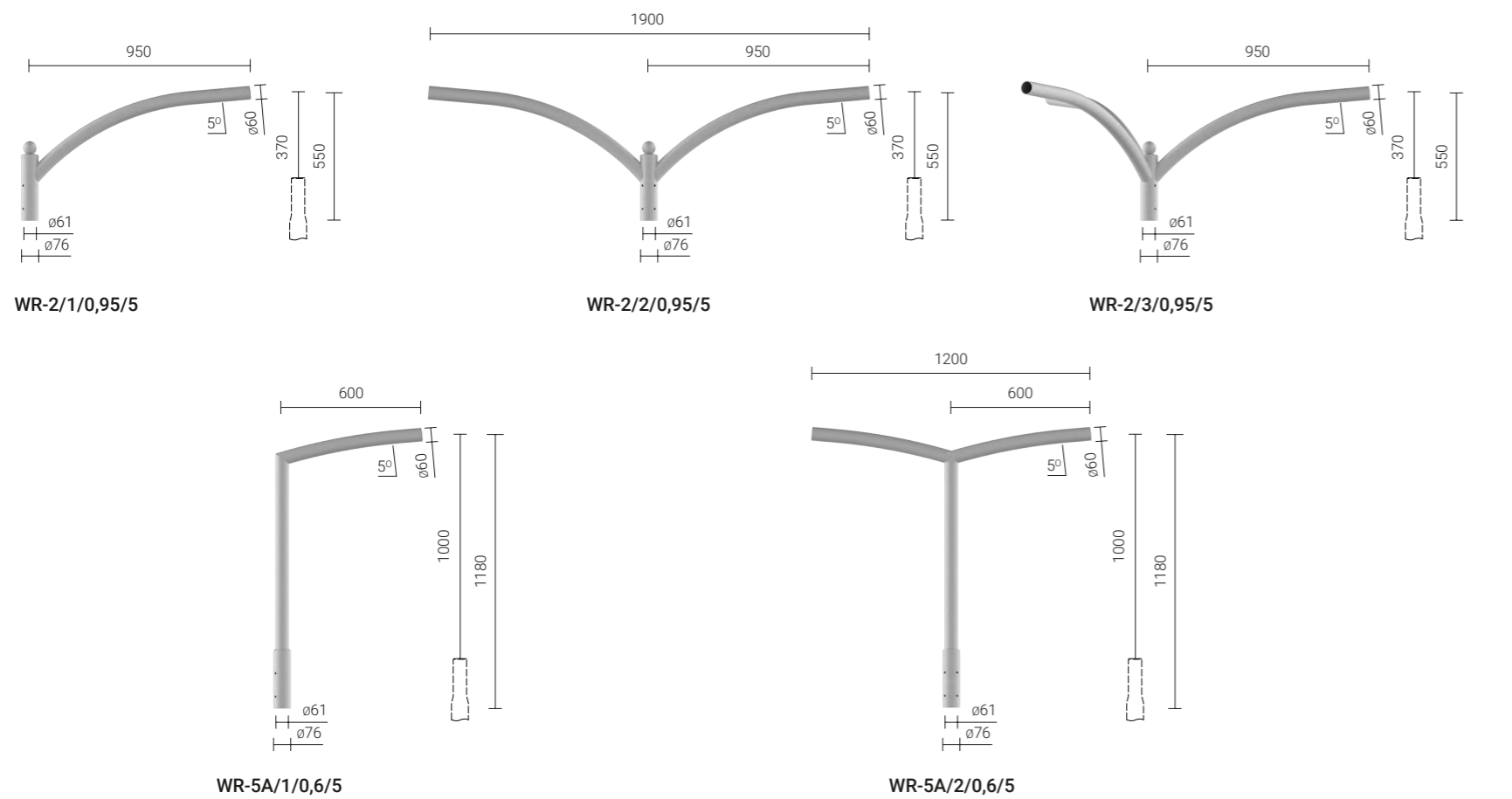
Extension arm type	WA-20/1 fi60	WA-20/2 fi60	WA-20/1	WA-20/2	WA-31 fi42
Number of arms	1	2	1	2	1
Code	471201/60/C...	471202/60/C...	471201/C...	471202/C...	471031/C...
Net weight [kg]	5,5	9,5	5,5	9,1	8,7
Extension arm effective projected area [m ²]	0,198	0,346	0,19	0,346	0,213
Approximate unit volume [m ³]	0,078	0,122	0,078	0,122	0,022
Luminaire mounting diameter [mm]	$\varnothing 60$	$\varnothing 60$	$\varnothing 42$	$\varnothing 42$	$\varnothing 42$

WR típusú lámpakarok

Application: aluminium columns SAL with spigot $\varnothing 60 \times 180$ mm

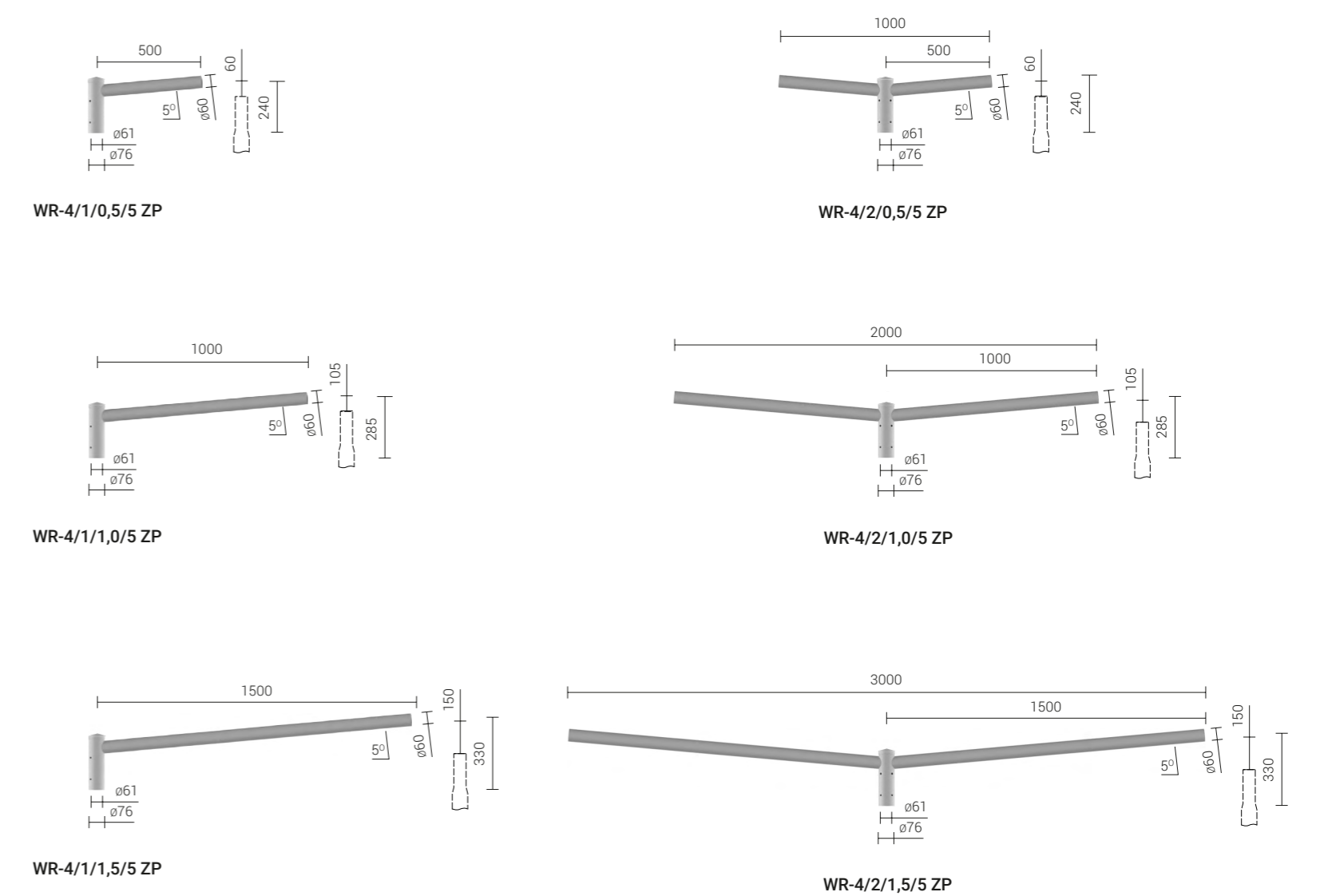
Material: anodised aluminium alloy

Anodising: 10 colours, each with the option of chemical brightening



Extension arm type	WR-2/1/0,95/5	WR-2/2/0,95/5	WR-2/3/0,95/5	WR-5A/1/0,6/5	WR-5A/2/0,6/5
Number of arms	1	2	3	1	2
Code	472021/C...	472022/C...	472023/C...	47250106/C...	47250206/C...
Net weight [kg]	2,8	4,4	6,3	3,4	4,5
Extension arm effective projected area [m ²]	0,085	0,145	0,145	0,11	0,14
Approximate unit volume [m ³]	0,023	0,05	0,26	0,03	0,06
Luminaire mounting diameter [mm]	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$

The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour



Extension arm type	WR-4/1/0,5/5 ZP	WR-4/1/1,0/5 ZP	WR-4/1/1,5/5 ZP	WR-4/2/0,5/5 ZP	WR-4/2/1,0/5 ZP	WR-4/2/1,5/5 ZP
Number of arms	1	1	1	2	2	2
Code	472041059/C...	472041109/C...	472041159/C...	472042059/C...	472042109/C...	472042159/C...
Net weight [kg]	1,7	2,5	3,4	2,5	4,2	5,9
Extension arm effective projected area [m ²]	0,05	0,08	0,108	0,08	0,14	0,196
Approximate unit volume [m ³]	0,01	0,02	0,02	0,03	0,03	0,48
Luminaire mounting diameter [mm]	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$

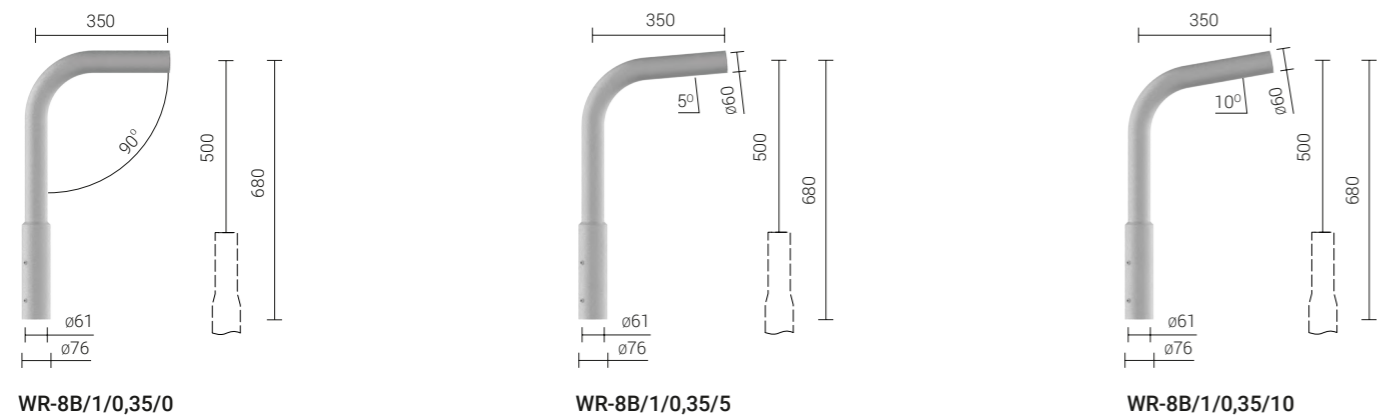
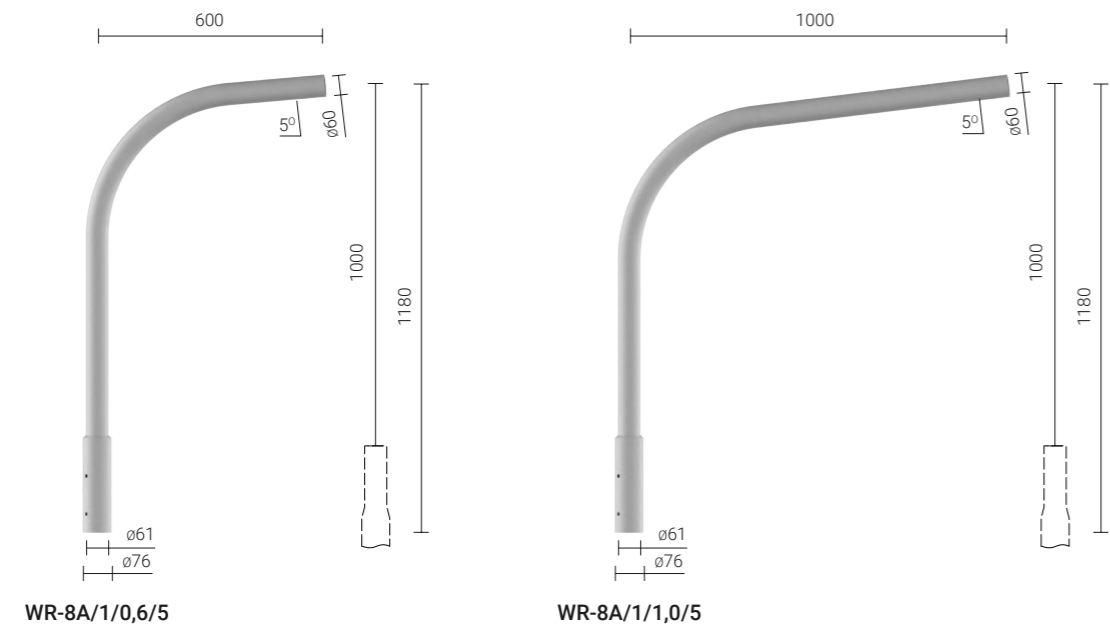
The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour

WR típusú lámpakarok

Application: aluminium columns SAL with spigot $\varnothing 60 \times 180$ mm

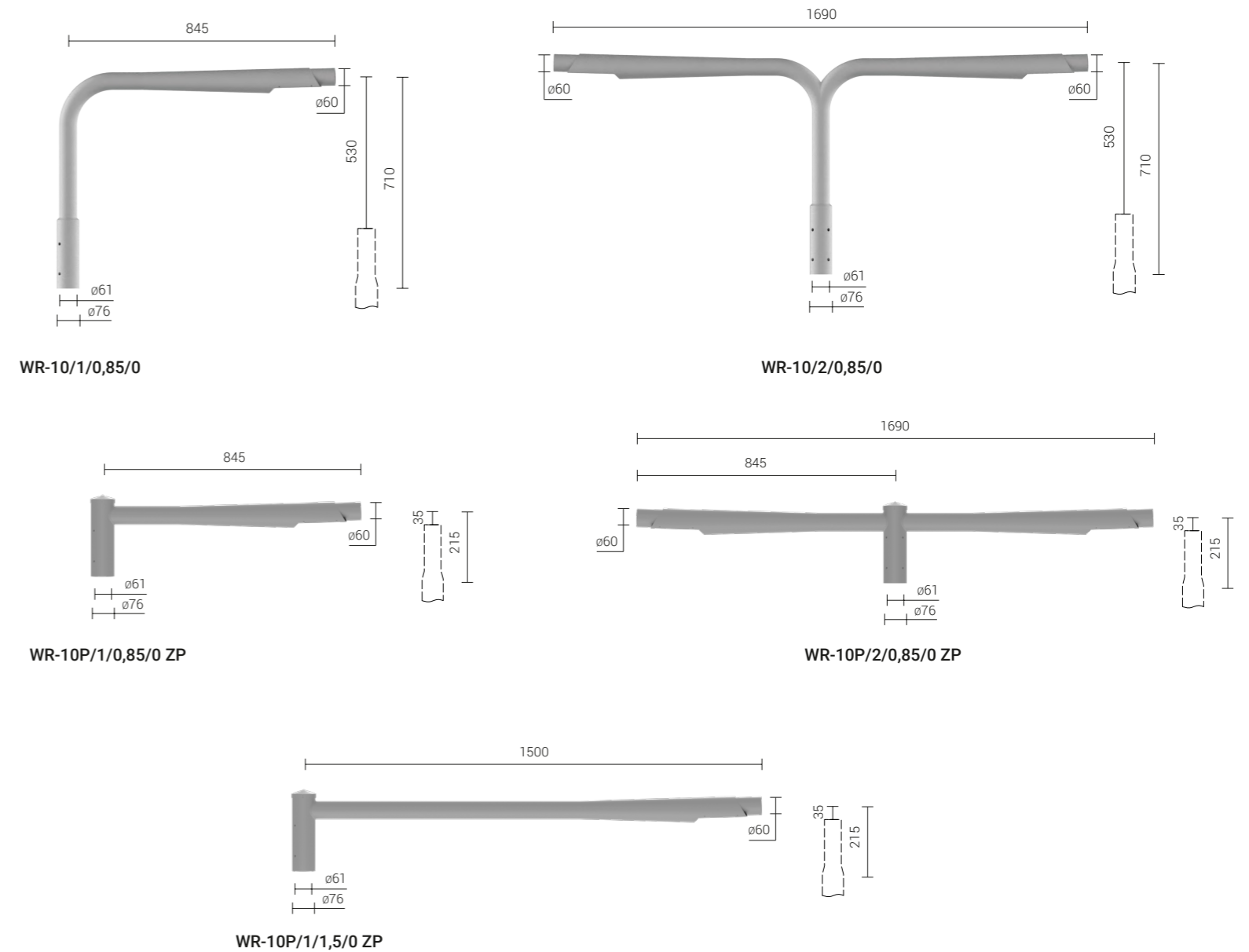
Material: anodised aluminium alloy

Anodising: 10 colours, each with the option of chemical brightening



Extension arm type	WR-8A/1/0,6/5	WR-8A/1/1,0/5	WR-8B/1/0,35/0	WR-8B/1/0,35/5	WR-8B/1/0,35/10
Number of arms	1	1	1	1	1
Code	47280106/C...	47280110/C...	472831/C...	472841/C...	472851/C...
Net weight [kg]	3,2	3,8	2,1	2,1	2,1
Extension arm effective projected area [m ²]	0,1	0,12	0,05	0,05	0,05
Approximate unit volume [m ³]	0,03	0,05	0,015	0,015	0,015
Luminaire mounting diameter [mm]	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$

The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour



Extension arm type	WR-10/1/0,85/0	WR-10/2/0,85/0	WR-10P/1/0,85/0 ZP	WR-10P/2/0,85/0 ZP	WR-10P/1/1,5/0 ZP
Number of arms	1	2	1	2	1
Code	472221/C45/C35	472222/C45/C35	4722419/C45/C35	4722429/C45/C35	4722519/C45/C35
Net weight [kg]	4	6,7	3,3	5,7	4,8
Extension arm effective projected area [m ²]	0,11	0,19	0,073	0,127	0,112
Approximate unit volume [m ³]	0,05	0,1	0,013	0,026	0,022
Luminaire	ISKRA LED, ISKRA LED PROG	ISKRA LED, ISKRA LED PROG	ISKRA LED, ISKRA LED PROG	ISKRA LED, ISKRA LED PROG	ISKRA LED, ISKRA LED PROG

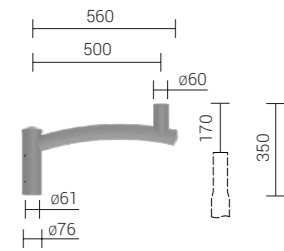
The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour

WR típusú lámpakarok

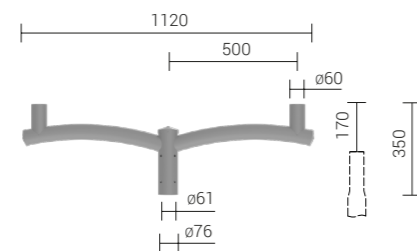
Application: aluminium columns SAL with spigot $\varnothing 60 \times 180$ mm

Material: anodised aluminium alloy

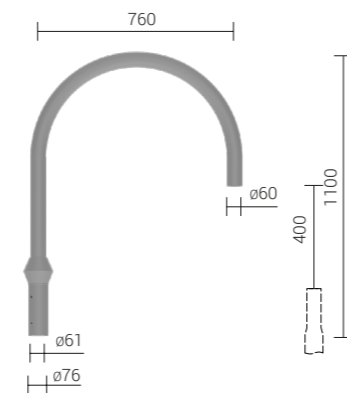
Anodising: 10 colours, each with the option of chemical brightening



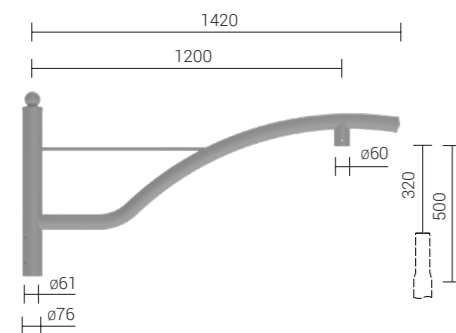
WR-7/1/0,5



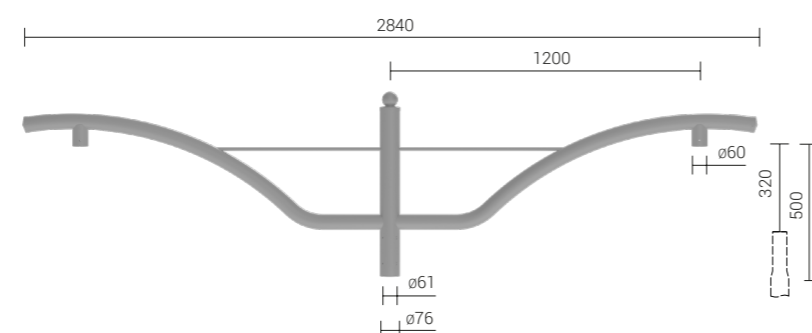
WR-7/2/0,5



WR-23/1/0,76



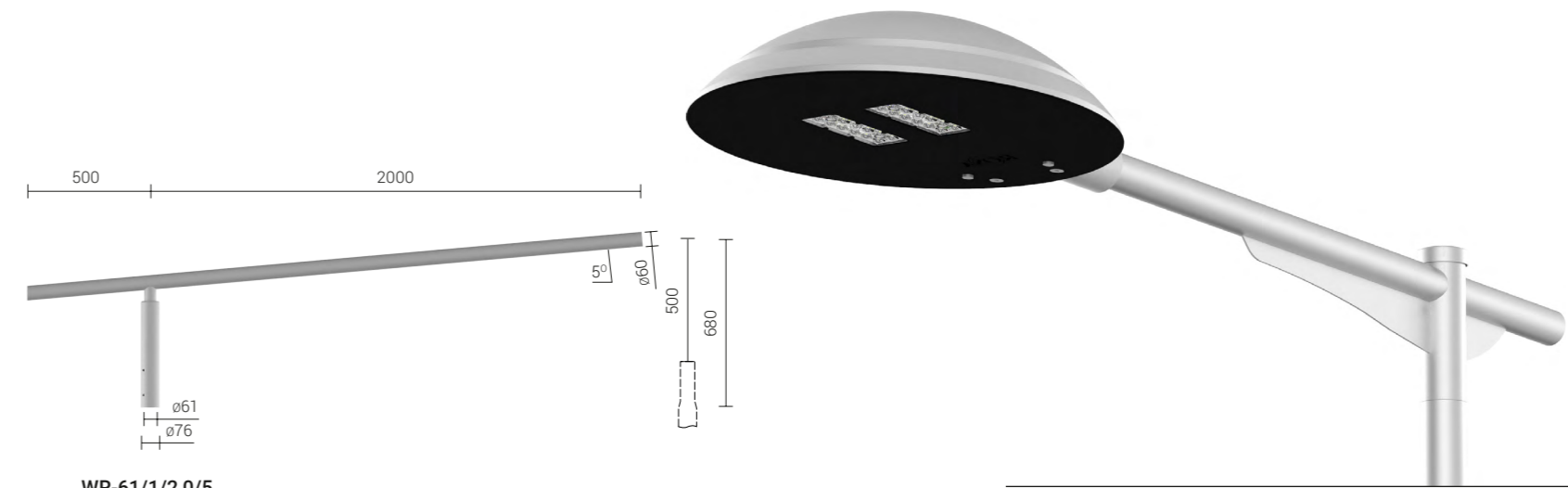
WR-71/1/1,2



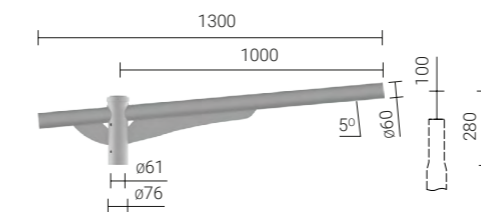
WR-71/2/1,2

Extension arm type	WR-7/1/0,5	WR-7/2/0,5	WR-23/1/0,76	WR-71/1/1,2	WR-71/2/1,2
Number of arms	1	2	1	1	2
Code	472071/C...	472072/C...	472231/C...	472711/C...	472712/C...
Net weight [kg]	2	3,2	4,9	5	7,8
Extension arm effective projected area [m ²]	0,057	0,094	0,126	0,153	0,254
Approximate unit volume [m ³]	0,01	0,022	0,06	0,04	0,076
Średnica montażowa oprawy [mm]	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$

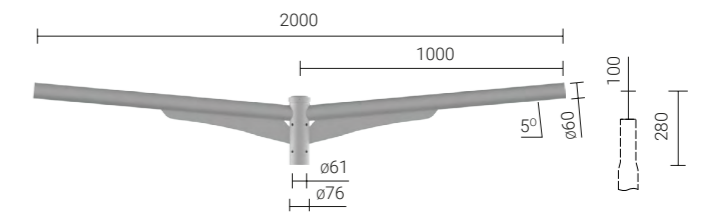
The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour



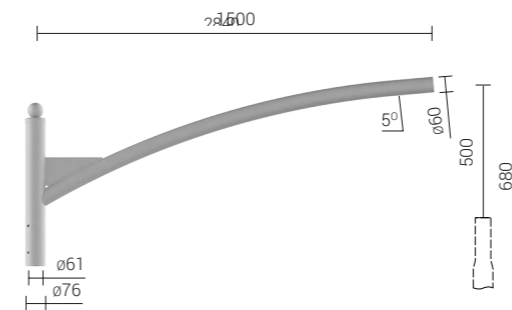
WR-61/1/2,0/5



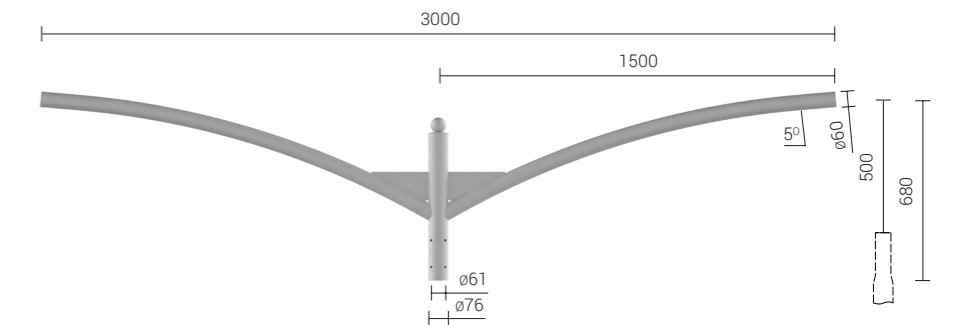
WR-15/1/1,0/5



WR-15/2/1,0/5



WR-T1/1,5/5



WR-T2/1,5/5

Extension arm type	WR-15/1/1,0/5	WR-15/2/1,0/5	WR-T1/1,5/5	WR-T2/1,5/5	WR-61/1/2,0/5
Number of arms	1	2	1	2	1
Code	472151/C...	472152/C...	472101/C...	472102/C...	472611/C...
Net weight [kg]	3,4	5	4,7	8,8	5,9
Extension arm effective projected area [m ²]	0,123	0,183	0,147	0,249	0,185
Approximate unit volume [m ³]	0,03	0,05	0,041	0,096	0,09
Luminaire mounting diameter [mm]	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$

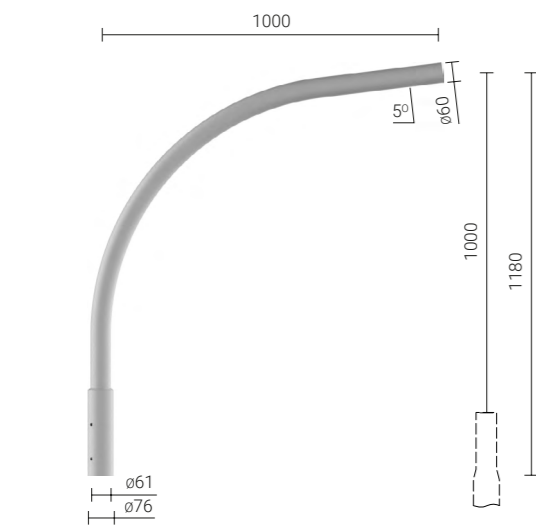
The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour

WR típusú lámpakarok

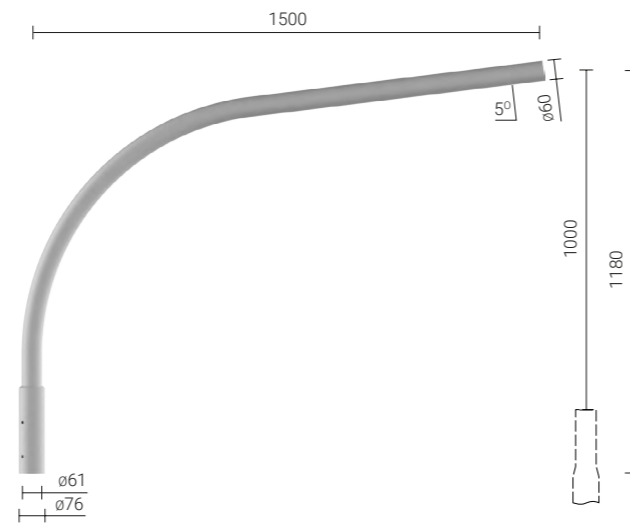
Application: aluminium columns SAL with spigot $\varnothing 60 \times 180$ mm

Material: anodised aluminium alloy

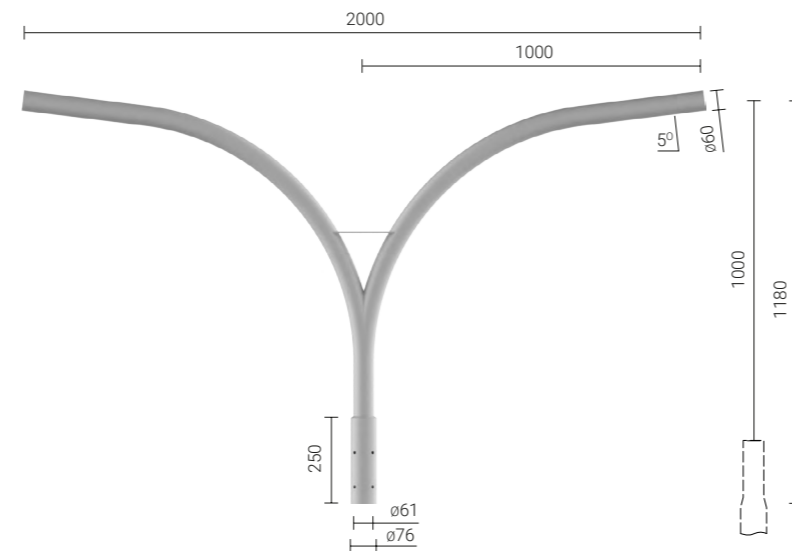
Anodising: 10 colours, each with the option of chemical brightening



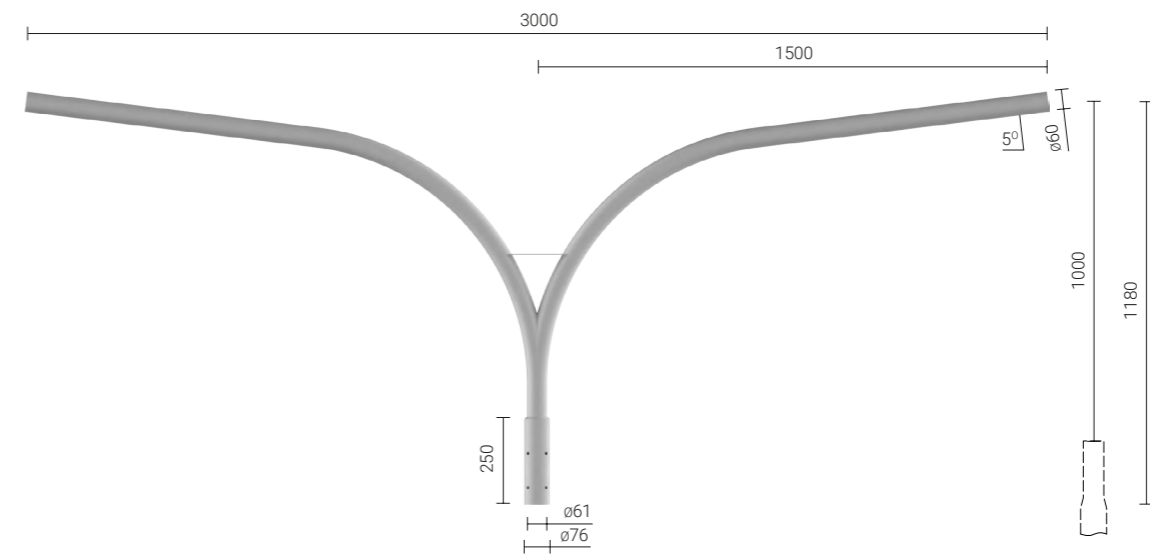
WR-14/1/1,0/5



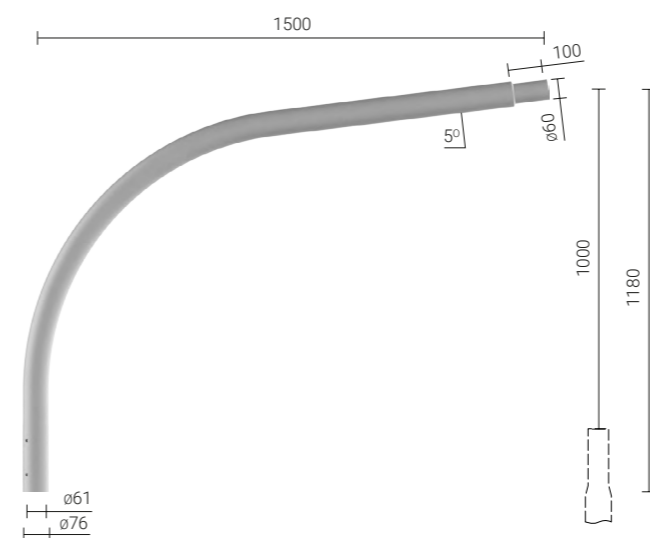
WR-14/1/1,5/5



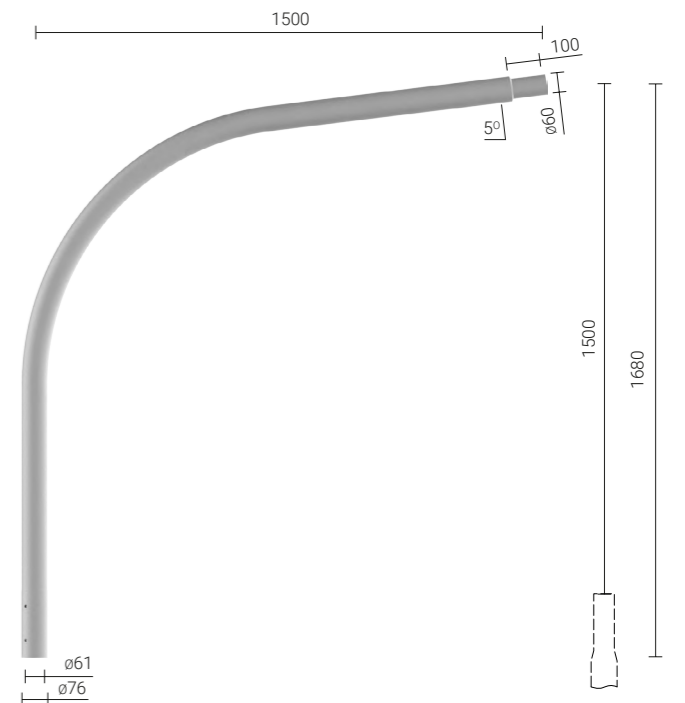
WR-14/2/1,0/5



WR-14/2/1,5/5



WR-18/1/1,5/5



WR-18A/1/1,5/5

Extension arm type	WR-14/1/1,0/5	WR-14/1/1,5/5	WR-14/2/1,0/5
Number of arms	1	1	2
Code	472141/C...	47214115/C...	472142/C...
Net weight [kg]	3,7	4,4	5,7
Extension arm effective projected area [m ²]	0,114	0,14	0,191
Approximate unit volume [m ³]	0,06	0,066	0,1
Luminaire mounting diameter [mm]	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$

The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour

Extension arm type	WR-14/2/1,5/5	WR-18/1/1,5/5	WR-18A/1/1,5/5
Number of arms	2	1	1
Code	47214215/C...	47218115/C...	47281115/C...
Net weight [kg]	7,3	5,2	6,3
Extension arm effective projected area [m ²]	0,247	0,17	0,21
Approximate unit volume [m ³]	0,148	0,06	0,09
Luminaire mounting diameter [mm]	$\varnothing 60$	$\varnothing 60 \times 100$	$\varnothing 60 \times 100$

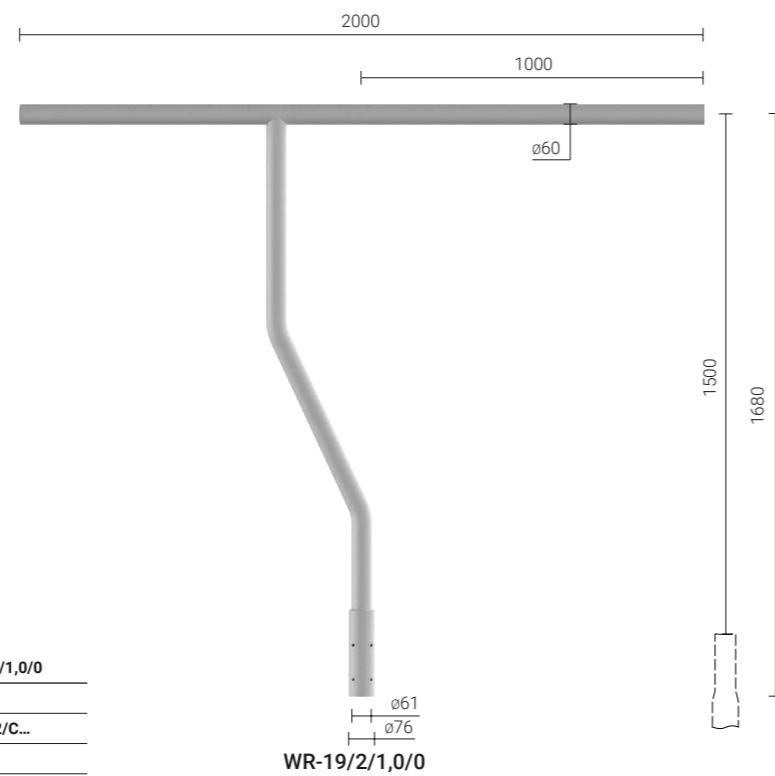
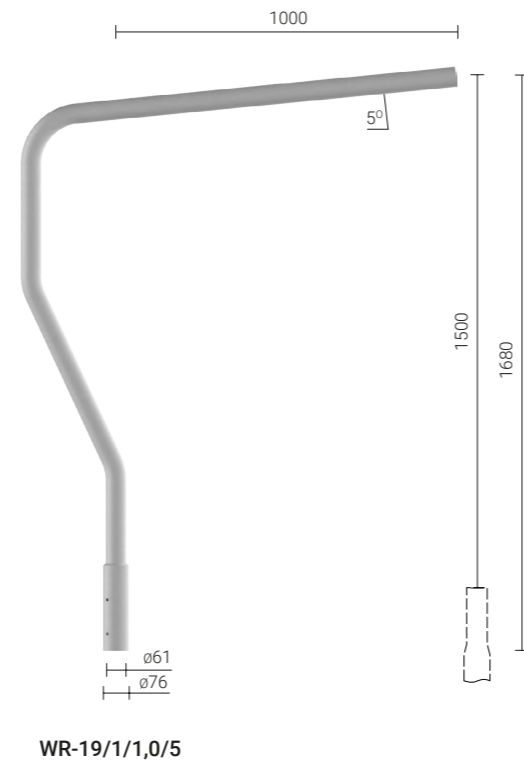
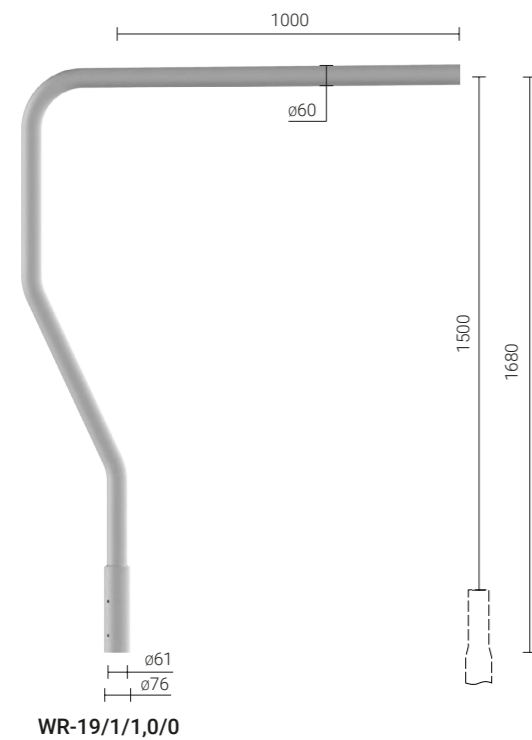
The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour

WR típusú lámpakarok

Application: aluminium columns SAL with spigot $\varnothing 60 \times 180$ mm

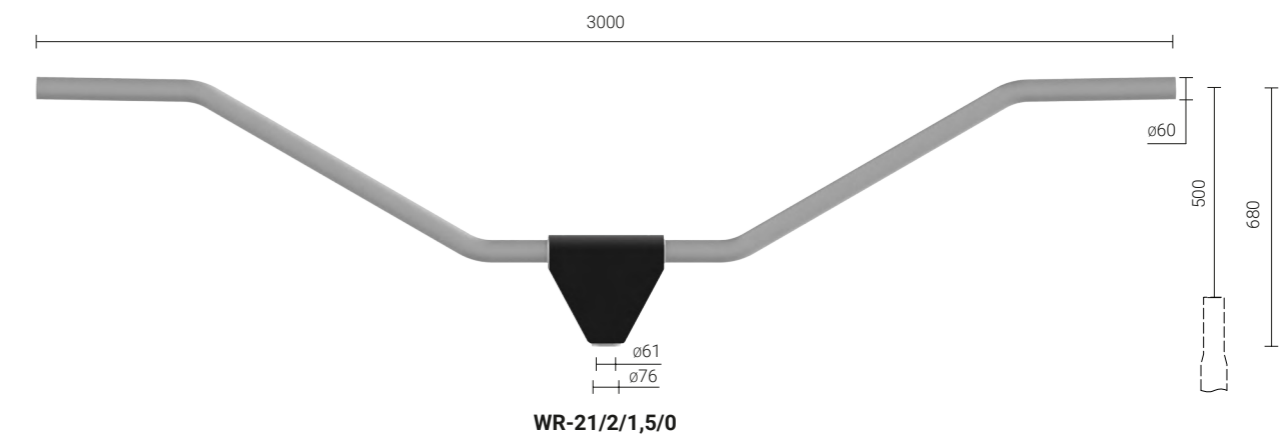
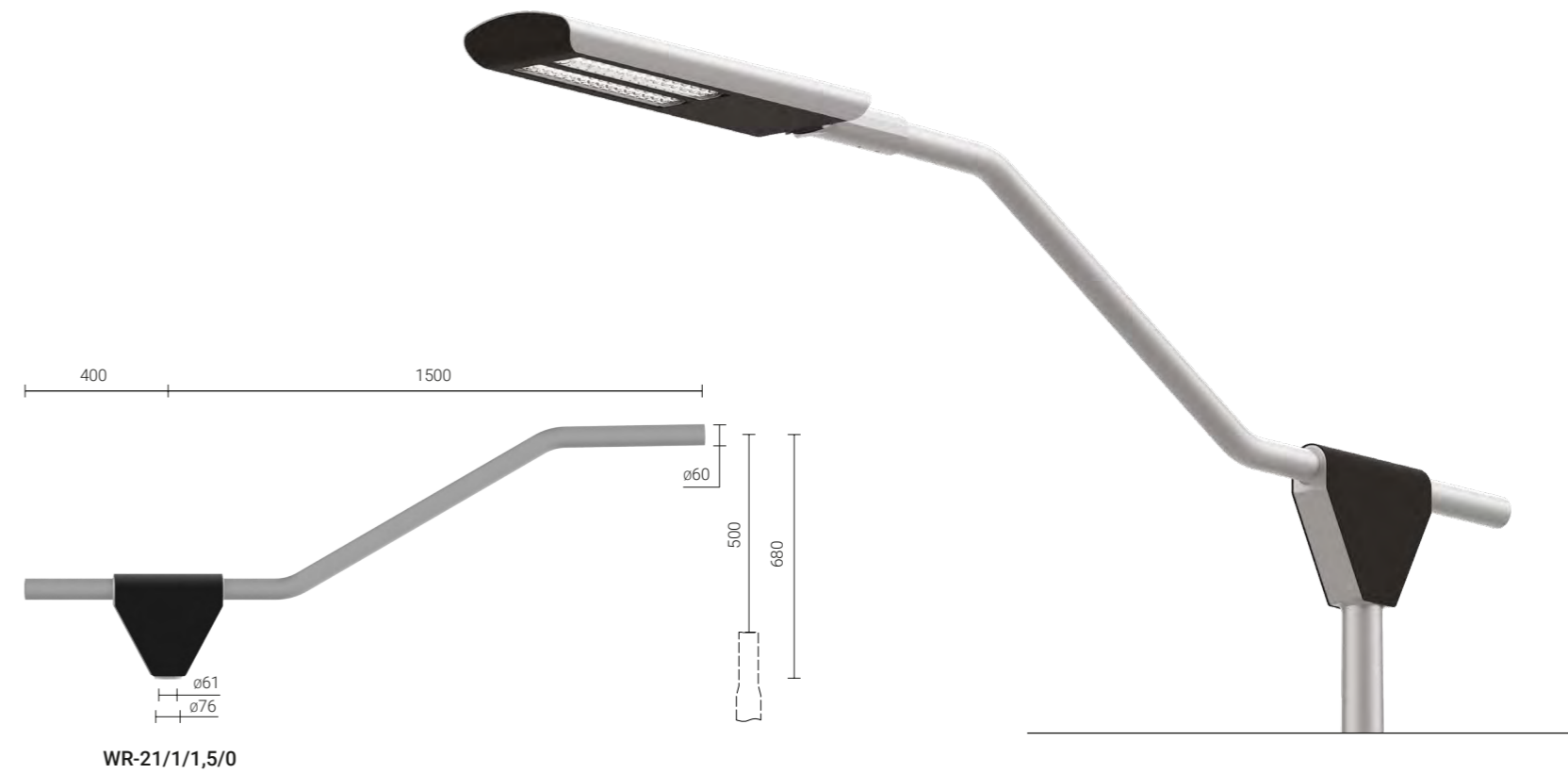
Material: anodised aluminium alloy,

Anodising: 10 colours, each with the option of chemical brightening



Extension arm type	WR-19/1/1,0/0	WR-19/1/1,0/5	WR-19/2/1,0/0
Number of arms	1	1	2
Code	472191/C...	47219110/C...	472192/C...
Net weight [kg]	7,2	7,2	7,7
Extension arm effective projected area [m ²]	0,17	0,17	0,22
Approximate unit volume [m ³]	0,08	0,08	0,1
Luminaire mounting diameter [mm]	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$

The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour



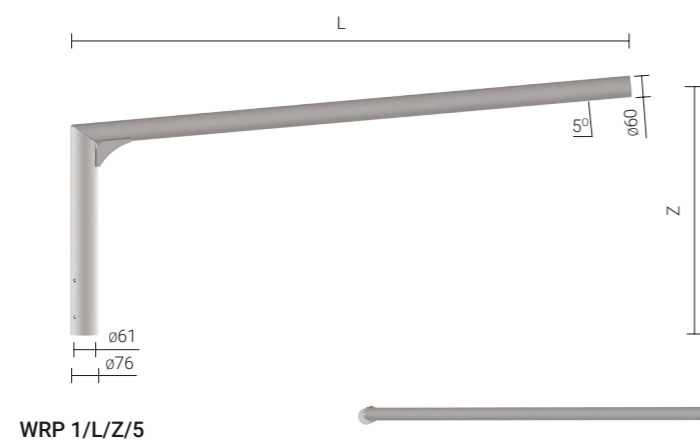
Extension arm type	WR-21/1/1,5/0	WR-21/2/1,5/0
Number of arms	1	2
Code	472211/C...	472212/C...
Net weight [kg]	7,2	9,9
Extension arm effective projected area [m ²]	0,18	0,24
Approximate unit volume [m ³]	0,075	0,1
Luminaire mounting diameter [mm]	$\varnothing 60$	$\varnothing 60$

The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour

WRP típusú lámpakarok

Application: aluminium columns SAL with spigot
 ø60x180 mm

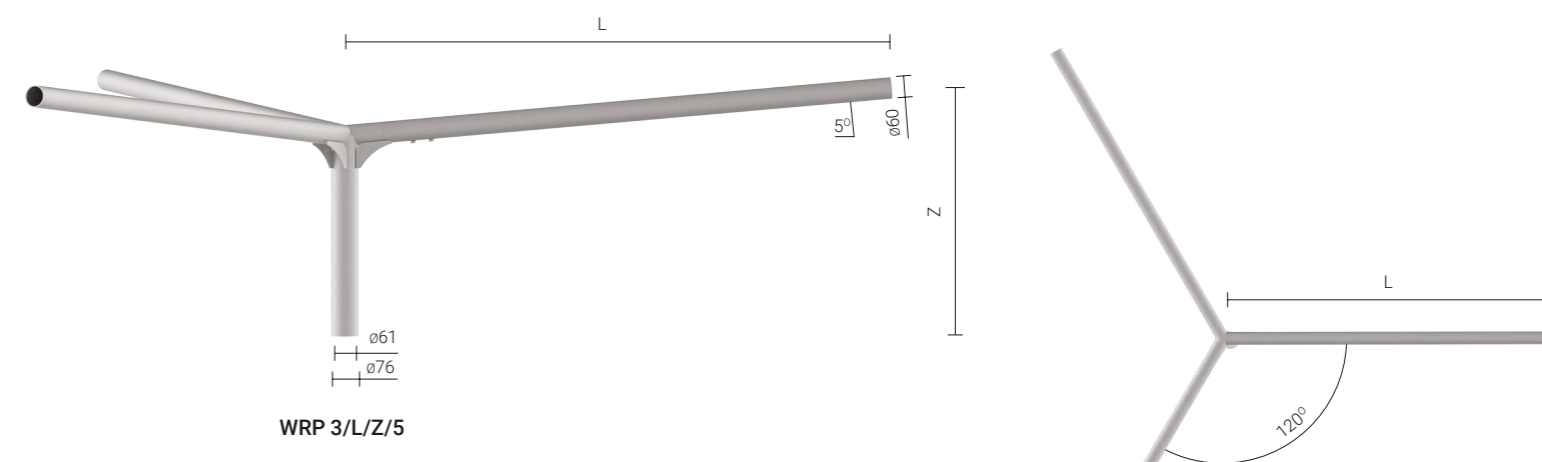
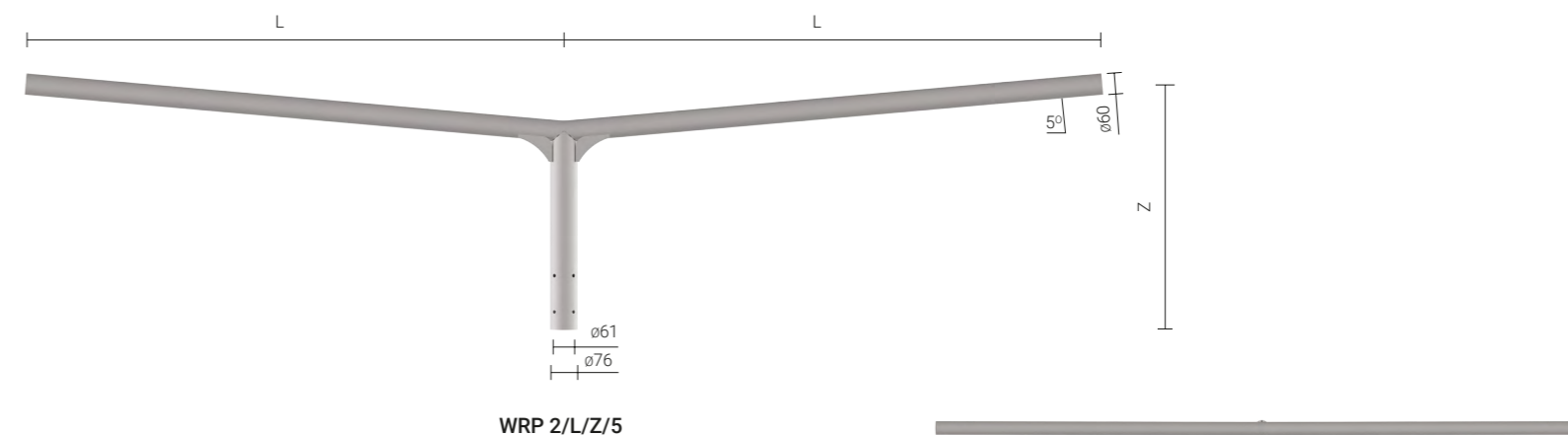
Material: anodised aluminium alloy, **Anodising:** 10
 colours, each with the option of chemical
 brightening



L – outreach length
 ZZ – height of extension arm
 5° – the angle of the arm
 1 / 2 / 3 – number of arms

Extension arm type	WRP-1/1,0/0,7/5	WRP-1/1,0/1,2/5	WRP-1/1,5/0,7/5	WRP-1/1,5/1,2/5	WRP-2/1,0/0,7/5	WRP-2/1,0/1,2/5
Number of arms	1	1	1	1	2	2
Code	47219111/C...	47219112/C...	47219121/C...	47219122/C...	47219211/C...	47219212/C...
Net weight [kg]	3,7	5,3	4,4	6	5,4	7
Extension arm effective projected area [m ²]	0,106	0,144	0,133	0,17	0,163	0,196
Approximate unit volume [m ³]	0,05	0,09	0,07	0,12	0,09	0,11
Luminaire mounting diameter [mm]	ø60	ø60	ø60	ø60	ø60	ø60

The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
 /C... – choice of anodising colour



L – outreach length
 ZZ – height of extension arm
 5° – the angle of the arm
 1 / 2 / 3 – number of arms

Extension arm type	WRP-2/1,5/0,7/5	WRP-2/1,5/1,2/5	WRP-3/1,0/0,7/5	WRP-3/1,0/1,2/5	WRP-3/1,5/0,7/5	WRP-3/1,5/1,2/5
Number of arms	2	2	3	3	3	3
Code	47219221/C...	47219222/C...	47219311/C...	47219312/C...	47219321/C...	47219322/C...
Net weight [kg]	6,9	8,5	8	9,6	10,4	12
Extension arm effective projected area [m ²]	0,221	0,259	0,132	0,17	0,176	0,214
Approximate unit volume [m ³]	0,11	0,17	0,09	0,16	0,13	0,21
Luminaire mounting diameter [mm]	ø60	ø60	ø60	ø60	ø60	ø60

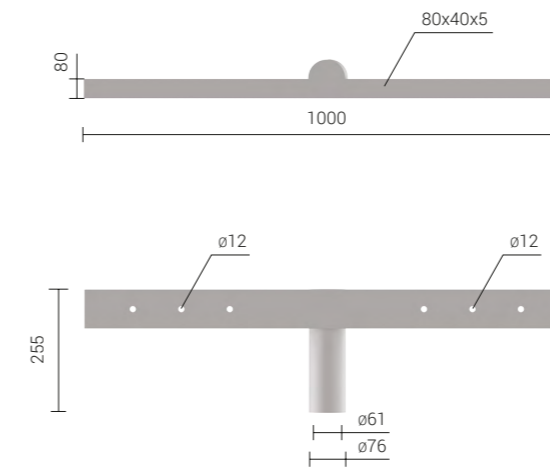
The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
 /C... – choice of anodising colour

WN típusú lámpakarok

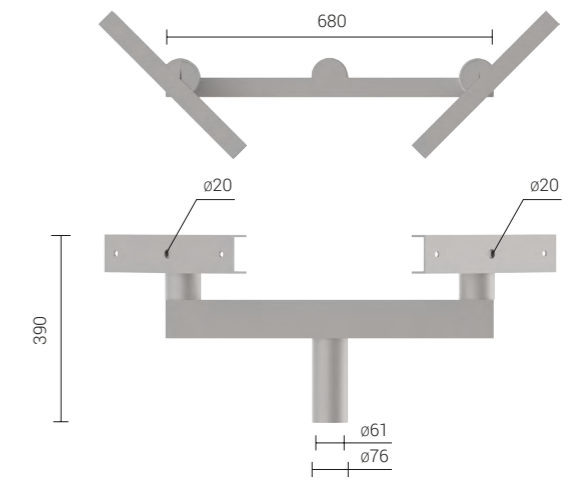
Application: aluminium columns SAL with spigot $\varnothing 60 \times 180$ mm

Material: anodised aluminium alloy

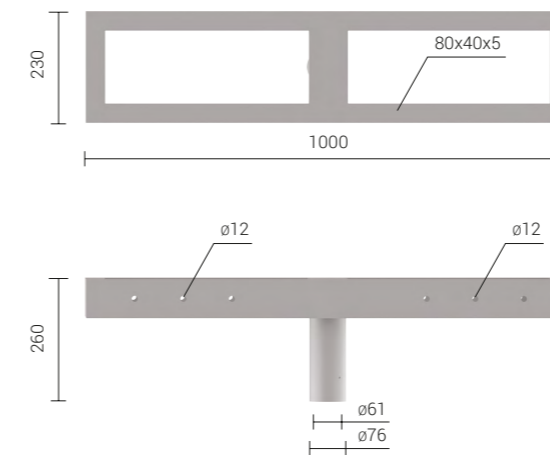
Anodising: 10 colours, each with the option of chemical brightening



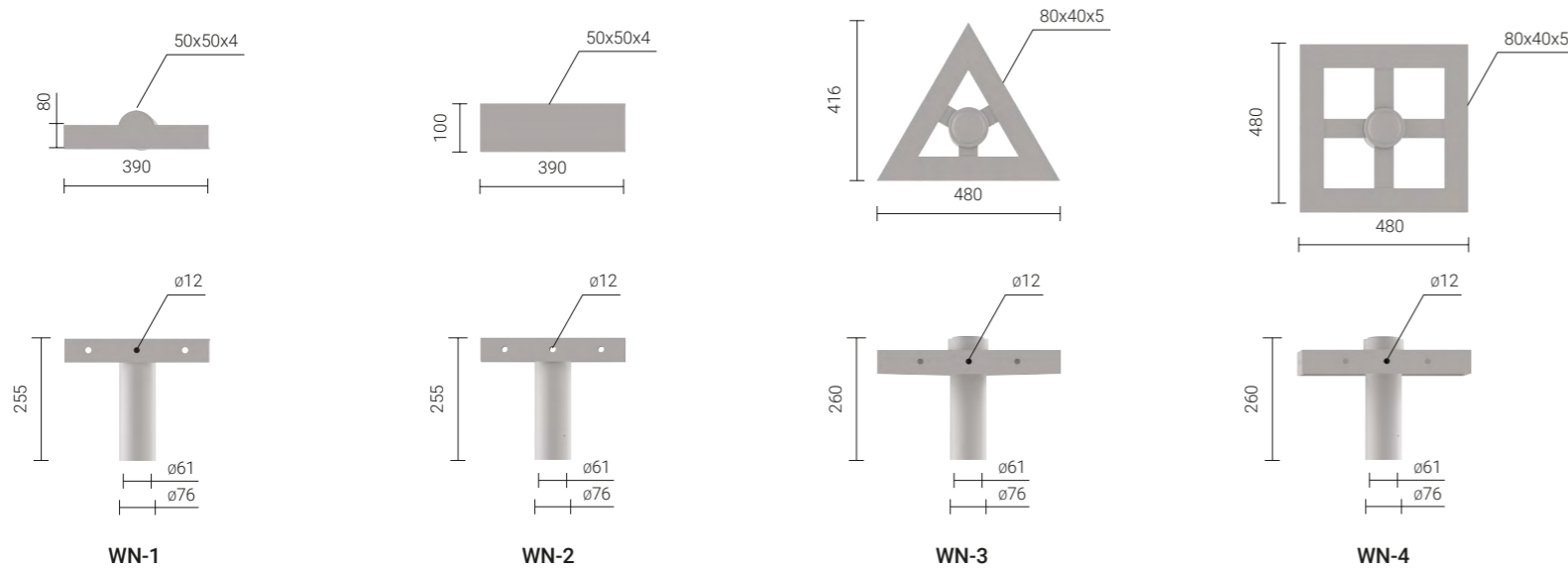
WN-21



WN-21REG



WN-42



WN-1

WN-2

WN-3

WN-4

Extension arm type	WN-1	WN-2	WN-3	WN-4
Number of arms	1	2	3	4
Code	473010/C...	473020/C...	473030/C...	473040/C...
Net weight [kg]	1,2	1,6	2,7	3,8
Extension arm effective projected area [m ²]	0,03	0,03	0,04	0,04
Approximate unit volume [m ³]	0,01	0,01	0,02	0,03
Type of luminaire	floodlights	floodlights	floodlights	floodlights

The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour

Extension arm type	WN-21	WN-21 REG	WN-42
Number of arms	2	2	4
Code	473210/C...	473211/C...	473420/C...
Net weight [kg]	3	5,5	6,3
Extension arm effective projected area [m ²]	0,09	0,14	0,09
Approximate unit volume [m ³]	0,02	0,05	0,03
Type of luminaire	floodlights	floodlights	floodlights

The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour

Katowice Airport, Poland

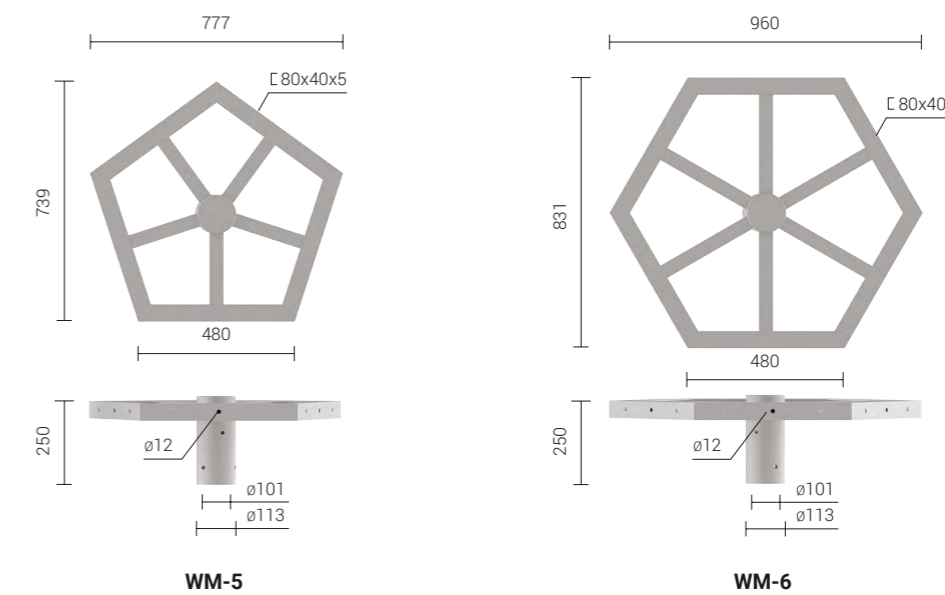
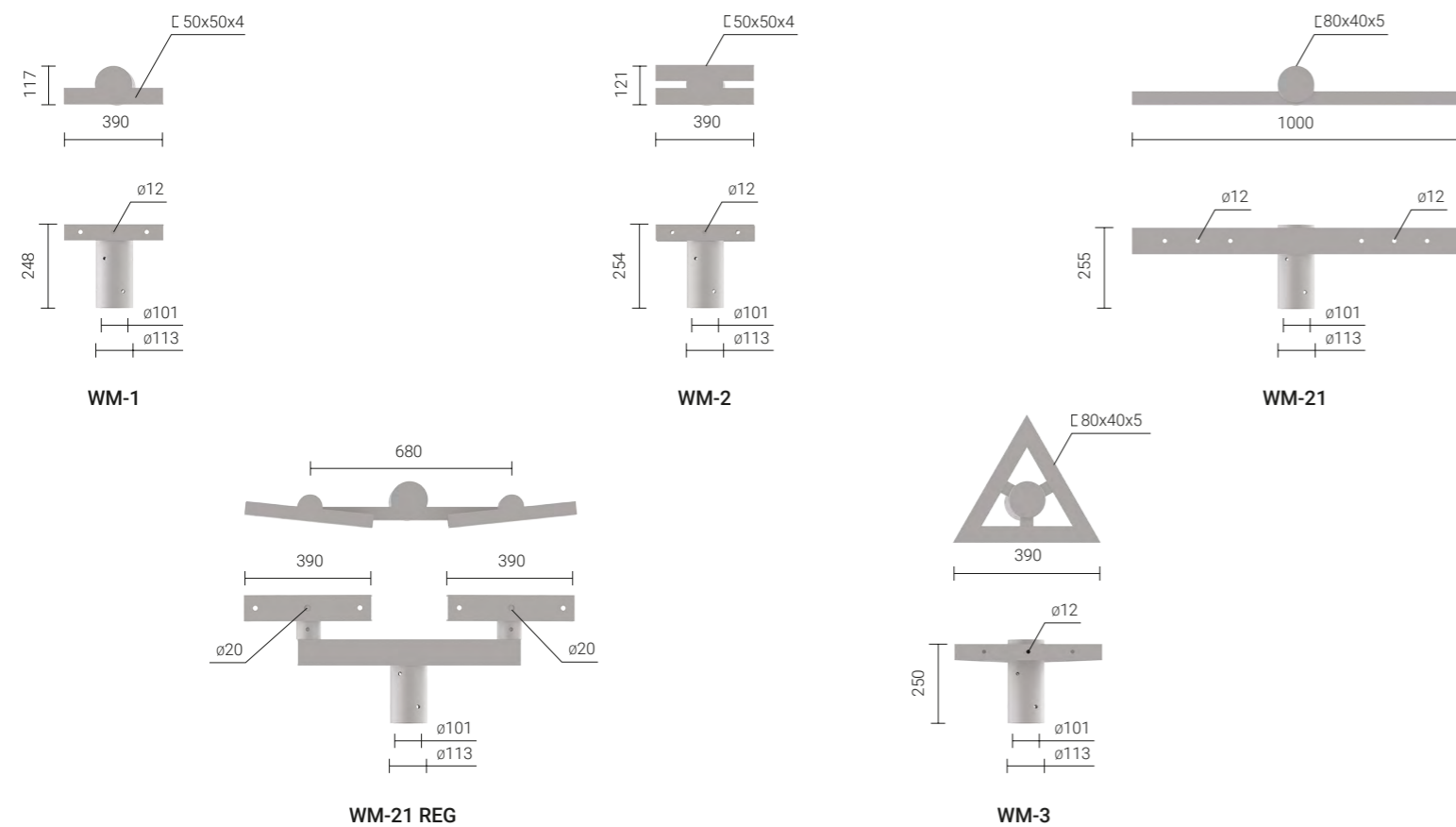
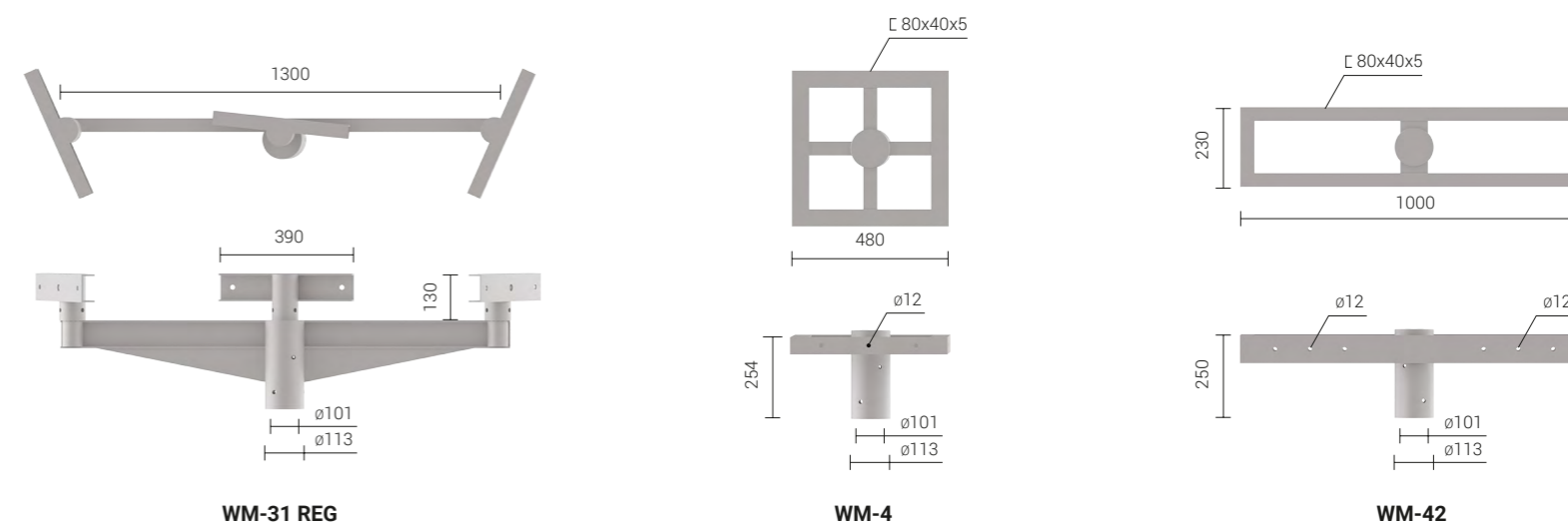


WM típusú lámpakarok

Application: aluminium masts MAL with spigot $\varnothing 100 \times 180$ mm

Material: anodised aluminium alloy

Anodising: 10 colours, each with the option of chemical brightening



Extension arm type	WM-1	WM-2	WM-21	WM-21 REG	WM-3
Number of arms	1	2	2	2	3
Code	474010/C...	474020/C...	474210/C...	474211/C...	474030/C...
Net weight [kg]	2	2,3	3,7	6,2	3,4
Extension arm effective projected area [m ²]	0,04	0,04	0,1	0,145	0,05
Approximate unit volume [m ³]	0,01	0,01	0,02	0,05	0,02
Type of luminaire	floodlights	floodlights	floodlights	floodlights	floodlights

The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour

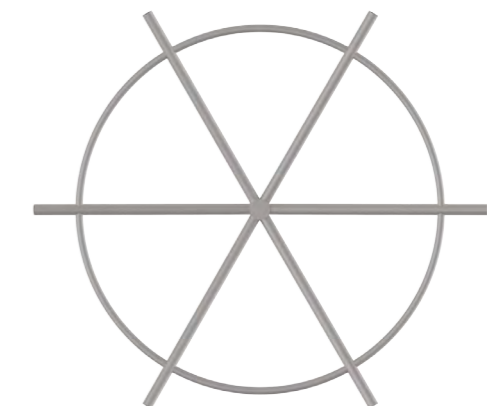
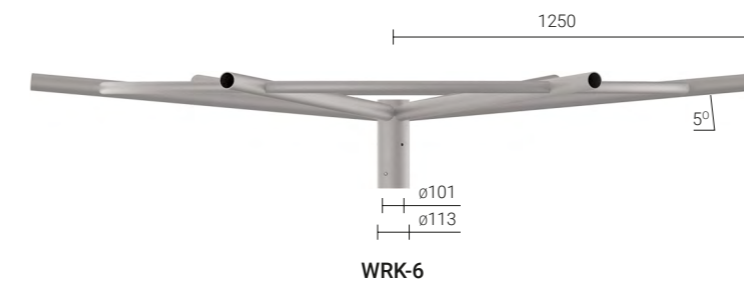
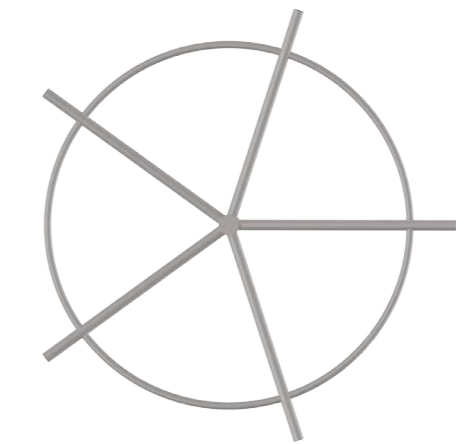
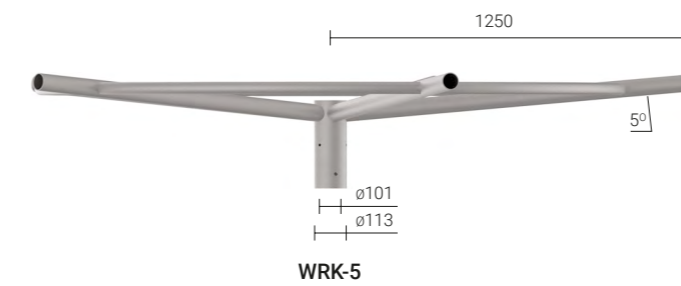
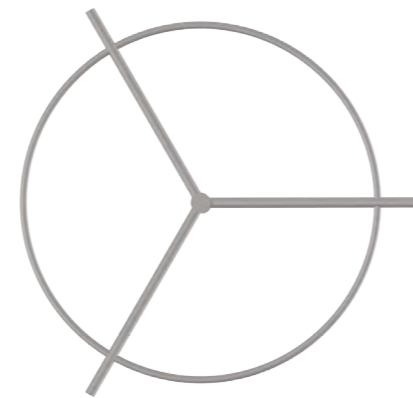
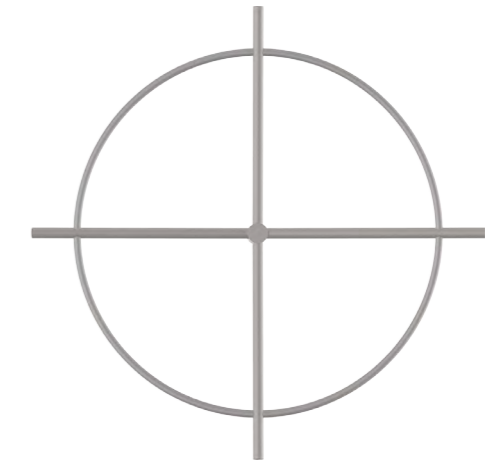
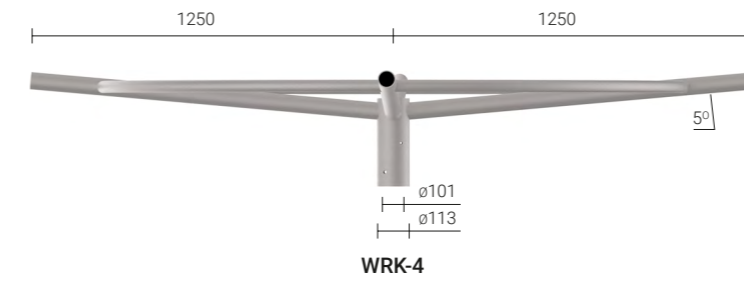
Extension arm type	WM-31 REG	WM-4	WM-42	WM-5	WM-6
Number of arms	3	4	4	5	6
Code	474311/C...	474040/C...	474420/C...	474050/C...	474060/C...
Net weight [kg]	10	4,5	7,1	5,9	7,4
Extension arm effective projected area [m ²]	0,281	0,05	0,1	0,06	0,07
Approximate unit volume [m ³]	0,087	0,03	0,03	0,05	0,07
Type of luminaire	floodlights	floodlights	floodlights	floodlights	floodlights

The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour

WRK típusú lámpakarok

Application: aluminium masts MAL
with spigot $\varnothing 100 \times 180$ mm
Material: anodised aluminium alloy **Anodising:** 10
colours, each with possibility of chemical brightening

Al



Extension arm type	WRK-3	WRK-4	WRK-5	WRK-6
Number of arms	3	4	5	6
Code	475030/C...	475040/C...	475050/C...	475060/C...
Net weight [kg]	16	18	20	22,1
Extension arm effective projected area [m ²]	0,23	0,26	0,25	0,26
Approximate unit volume [m ³]	0,81	0,81	0,81	0,81
Luminaire mounting diameter [mm]	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$	$\varnothing 60$

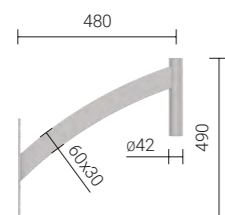
The use of extension arm should always be verified with a permissible loading for specified wind zone (technical cards available at www.rosa.pl)
/C... - choice of anodising colour

KA típusú falikarok

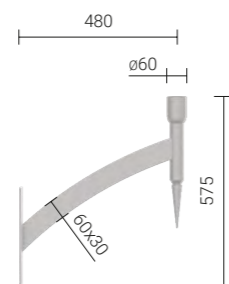
Application: aluminium wall brackets for wall mounting

Material: anodised aluminium alloy

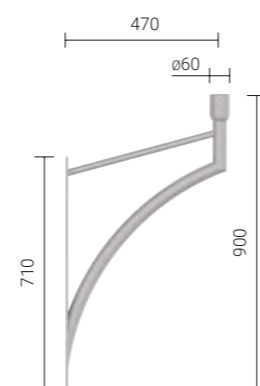
Anodising: 10 colours, each with the option of chemical brightening



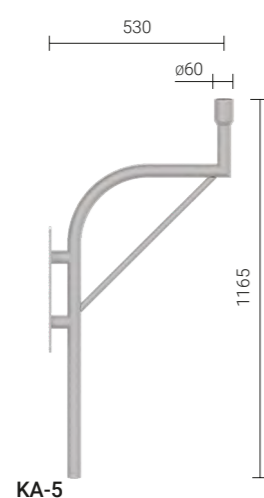
KA-C1



KA-D1



KA-A1



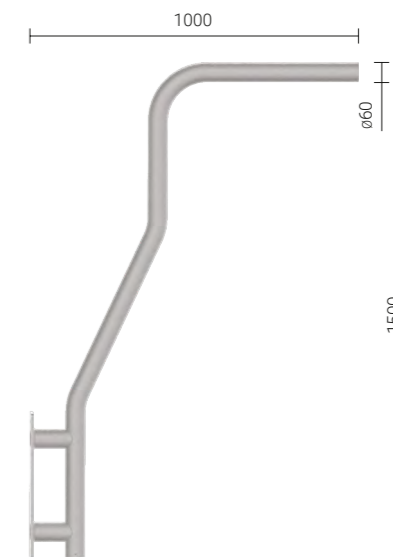
KA-5



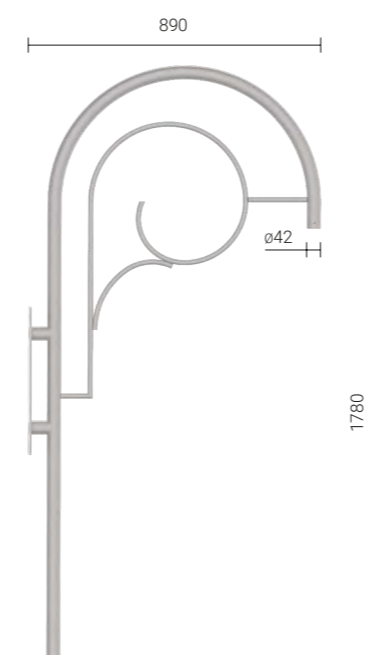
KA-10



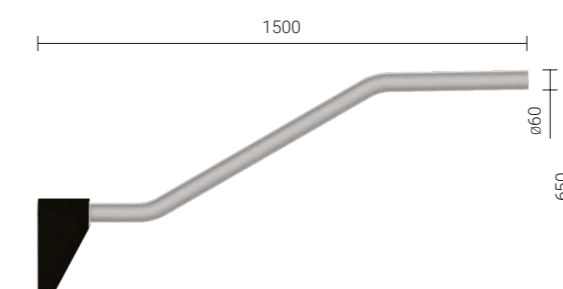
KA-14



KA-19



KA-20



KA-21

Poznan, Poland



Wall bracket type	KA-A1	KA-C1	KA-D1	KA-5	KA-10
Number of arms	1	1	1	1	1
Code	478100/C...	478102/C...	478103/C...	478050/C...	478220/C45/C35
Net weight [kg]	2,1	1,1	1,6	2,5	2,6
Approximate unit volume [m³]	0,17	0,009	0,008	0,02	0,021
Luminaire mounting diameter [mm]	ø60	ø42	ø60	ø60	ISKRA LED, ISKRA LED PROG

/C... - choice of anodising colour

Wall bracket type	KA-14	KA-19	KA-20	KA-21
Number of arms	1	1	1	1
Code	478140/C...	478190/C...	478200/C...	478210/C45/C35
Net weight [kg]	2,6	6	4,3	5,3
Approximate unit volume [m³]	0,04	0,021	0,09	0,03
Luminaire mounting diameter [mm]	ø42	ø60	ø42	ø60

/C... - choice of anodising colour



Műanyagbevonatos fém lámpaoszlopok



S típusú klasszikus lámpaoszlopok

Outdoor lighting as part of the landscaping gives a unique character of urban space. What matters is aesthetics, quality, durability and economy of operating. A wide range of decorative plastic coated poles and extension-arms allows to choose perfect lighting of urban green spaces, squares and neighborhoods.

Ostróda, Poland



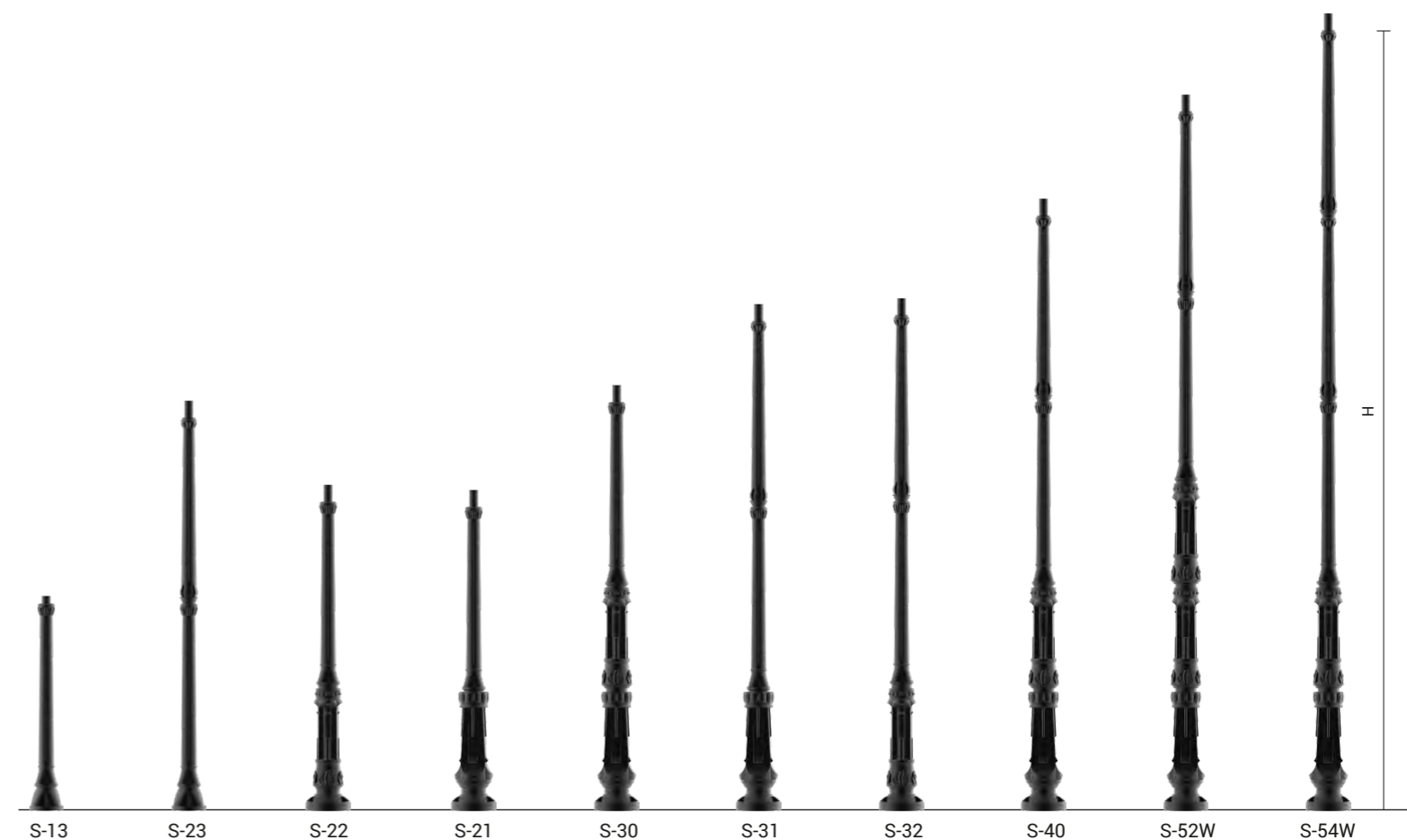
Example of the pole construction S-40W



S típusú klasszikus lámpaoszlopok



Pole S-13/B
Luminaire OP
lamp diffuser
Klio white
Pole S-21W/B
Luminaire
OS-11 LED
Pole S-22/B
Luminaire OP
lamp diffuser
Klio smoke
with cap
Pole S-23/B
Luminaire
OS-11 LED
Pole S-30/A
arm system 2+1
downwards luminaires
OP, lamp diffusers
Sphere transparent
Ø400, stainless steel
louvre reflectors
Pole S-31W/A
arm system 2
upwards,
luminaires
OS-1 LED
Pole S-32/A
arm system
2 downwards,
luminaires
OS-11 LED
Pole S-40W/B
Luminaire
ATLANTIS LED
Slup S-52W/B
Luminaire
ELBA LED
Slup S-54 W/A
arm system 2 down-
wards, luminaires OP,
lamp diffusers Sphere
transparent Ø450,
Stainless steel louvre
reflectors



S-13 S-23 S-22 S-21 S-30 S-31 S-32 S-40 S-52W S-54W

Pole type	S-13	S-23	S-22	S-21	S-21W	S-30	S-30W
Height of the pole H [mm]	1 400	2 655	2 090	2 055	2 055	2 765	2 765
Code	Spigot type A	–	12310	12210	12110	13010	13011
	Spigot type B	11320	12320	12220	12120	13020	13021
Net weight [kg]	Spigot type A	–	17	17	22	24	26
	Spigot type B	9	15	17	17	22	25
Approximate unit volume [m ³]*	Spigot type A	–	0,06	0,08	0,07	0,07	0,1
	Spigot type B	0,03	0,06	0,08	0,07	0,07	0,1
Proposed types of luminaires mounted directly on the pole / pole top mounted	Spigot type "B": ELBA LED, AURIS LED, OS-1 LED, OS-11 LED, ATLANTIS LED, ELBA, OS-1, OP, OPA-1						
Bracket configuration	Spigot type "A": "1" "2", "2+1", "3", "3+1" for poles type S-23, S-54W use maximum bracket configuration „2”						
Concrete footing / reinforcement basket type	B-20/Z-20	B-20/Z-20	B-30/Z-30	B-30/Z-30	B-30/Z-30	B-30/Z-30	B-30/Z-30
Threaded anchor ending	3xM12	3xM12	3xM14	3xM14	3xM14	3xM14	3xM14
Concrete footing / reinforcement basket code	311120 / 311202	311120 / 311202	311130 / 311203	311130 / 311203	311130 / 311203	311130 / 311203	311130 / 311203
Fasteners	311002	311002	311003	311003	311003	311003	311003
Dimension of the base plate	ø225	ø225	ø300	ø300	ø300	ø300	ø300

* For order of more than 10 pcs stated volume may change according to packing.
W – pole with wiring chamber

Pole type	S-31	S-31W	S-32	S-40	S-40W	S-52W	S-54W
Height of the pole H [mm]	3 320	3 320	3 355	4 030	4 030	4 735	5 285
Code	Spigot type A	13110	13111	13210	14010	14011	15211
	Spigot type B	13120	13121	13220	–	14021	15221
Net weight [kg]	Spigot type A	29	30	28	39	42	49
	Spigot type B	29	27	28	–	33	41
Approximate unit volume [m ³]*	Spigot type A	0,12	0,12	0,12	0,14	0,14	0,17
	Spigot type B	0,12	0,12	0,14	–	0,14	0,17
Proposed types of luminaires mounted directly on the pole / pole top mounted	Spigot type "B": ELBA LED, AURIS LED, OS-1 LED, OS-11 LED, ATLANTIS LED, ELBA, OS-1, OP, OPA-1						
Bracket configuration	Spigot type "A": "1" "2", "2+1", "3", "3+1" for poles type S-23, S-54W use maximum bracket configuration „2”						
Concrete footing / reinforcement basket type	B-30/Z-30	B-30/Z-30	B-30/Z-30	B-40B/Z-40B	B-40B/Z-40B	B-40/Z-40	B-40/Z-40
Threaded anchor ending	3xM14	3xM14	3xM14	3xM14	3xM14	3xM14	3xM14
Concrete footing / reinforcement basket code	311130 / 311203	311130 / 311203	311130 / 311203	311140B / 311204B	311140B / 311204B	311140 / 311204	311140 / 311204
Fasteners	311003	311003	311003	311003	311003	311003	311003
Dimension of the base plate	ø300	ø300	ø300	ø300	ø300	ø300	ø300

* For order of more than 10 pcs stated volume may change according to packing.
W – pole with wiring chamber

SP típusú klasszikus lámpaoszlopok



Pole SP-3W/A
Extension arm WT-5/2
Luminaires ELBA LED

Pole SP-4W/E
Extension arm WTM-11/2 luminaires
OP lamp diffusers
Sphere transparent
Ø400 stainless steel
louvre reflectors

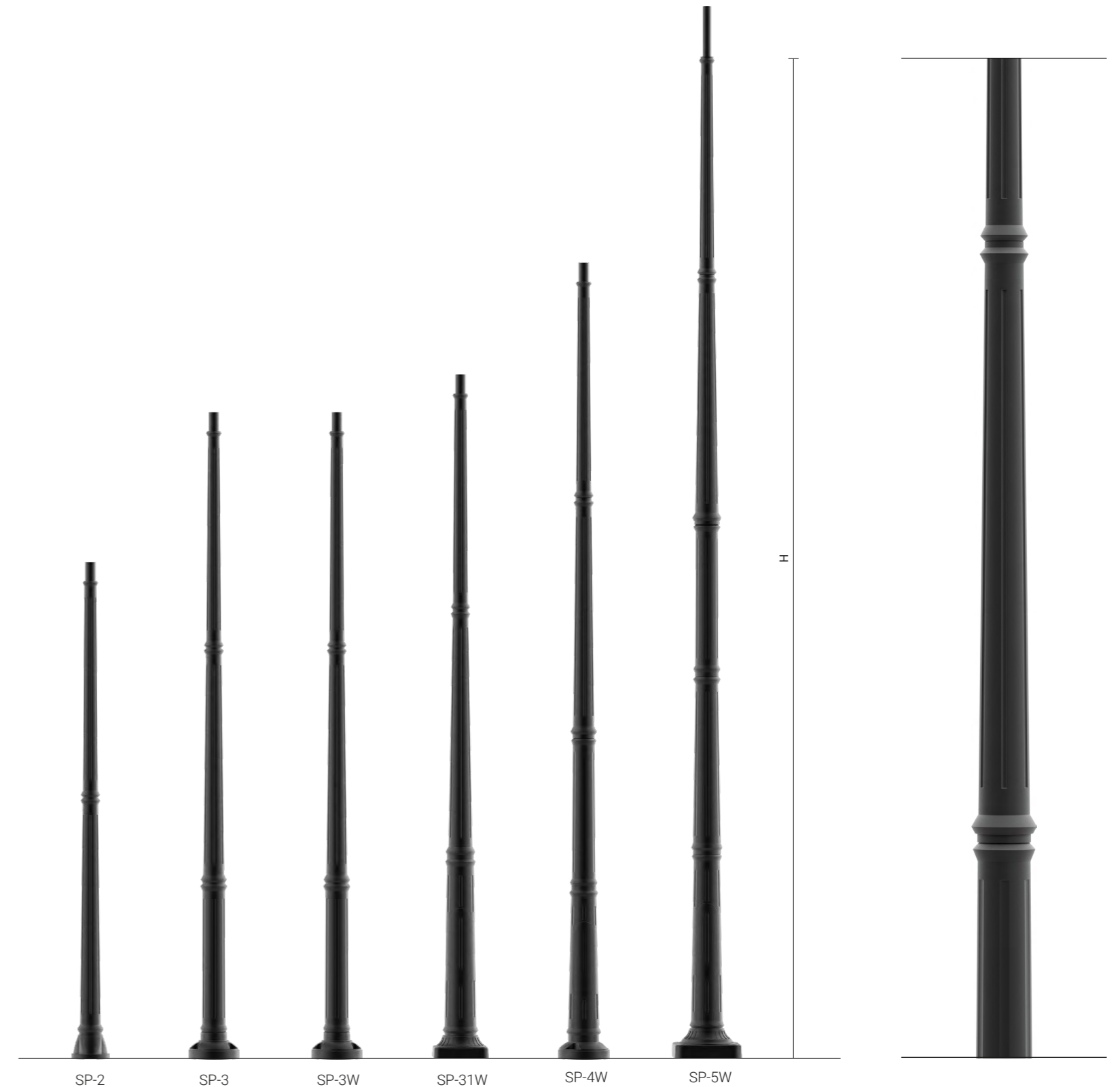
Pole SP-5W/E
Extension arm WTM-20/2 luminaires
OW LED transparent
lamp diffuser



Example of the pole construction SP-4W

Pole type	SP-2	SP-3	SP-3W	SP-31W	SP-4W	SP-5W
Height of the pole H [mm]	2 818	3 735	3 735	4 000	4 645	6 000
Code	Spigot type A	17210	17310	17311	17311	–
	Spigot type B	17220	–	17321	17321	–
	Spigot type E	–	–	17351	17351	17551
Net weight [kg]	Spigot type A	19	34	37	41	44
	Spigot type B	17	–	31	35	37
	Spigot type E	–	–	40	42	50
Approximate unit volume [m³]*	Spigot type A	0,06	0,13	0,13	0,19	0,16
	Spigot type B	0,06	–	0,13	0,19	0,16
	Spigot type E	–	–	0,14	0,2	0,17
Proposed types of luminaires mounted directly on the pole / pole top mounted	Spigot type "B": ELBA LED, AURIS LED, OS-1 LED, OS-11 LED, ATLANTIS LED, ELBA, OS-1, OP, OPA-1					
Bracket configuration	Spigot type "A", Spigot type "P", Extension arms WT, WA-1, WA-01, WA-4 Spigot type "E": Extension arms WTM					
Concrete footing / reinforcement basket type	B-20 / Z-20	B-40B / Z-40B	B-40B / Z-40B	B-60T / Z-60T	B-40 / Z-40	B-71T / Z-71T
Threaded anchor ending	3xM12	3xM14	3xM14	4xM18	3xM14	4xM18
Concrete footing / reinforcement basket code	311120 / 311202	311140B / 311204B	311140B / 311204B	311160T / 311206T	311140 / 311204	311171T / 311271T
Fasteners	311002	311003	311003	4008	311003	4008
Dimension of the base plate	ø225	ø300	ø300	320x320	ø300	400x400

* For order of more than 10 pcs stated volume may change according to packing.
W – pole with wiring chamber



SM típusú összetett stílusú lámpaoszlopok



Example of the pole construction SM-1W/E

Tychy, Poland



Pole type	SM-1W	SM-2W	SM-3W
Height of the pole H [mm]	4 440	5 150	5 855
Code (Spigot type E)	15551	15651	15751
Net weight [kg]	48	55	61
Approximate unit volume [m ³]*	0,16	0,19	0,21
Proposed extension arm types		WTM	
Concrete footing / reinforcement basket type		B-40 / Z-40	
Threaded anchor ending		3xM14	
Concrete footing / reinforcement basket code		311140 / 311240	
Fasteners		311003	
Dimension of the base plate		ø300	

* For order of more than 10 pcs stated volume may change according to packing.
W – pole with wiring chamber



Gulbene, Latvia

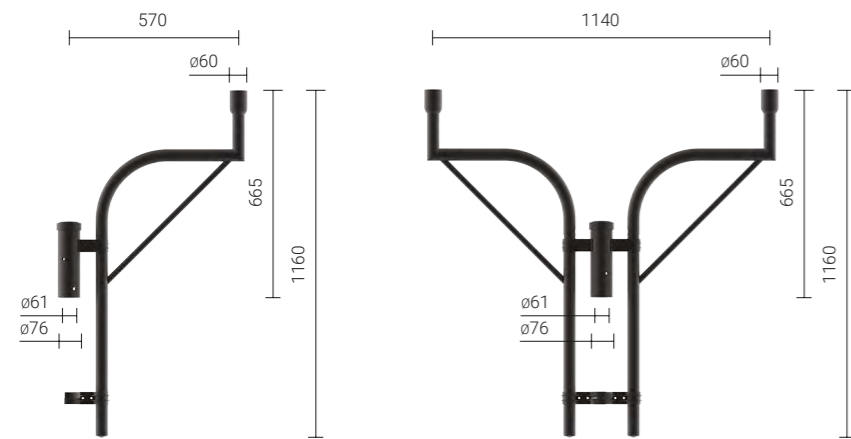


Műanyagbevonatos oszlopok lámpakarjai

WT típusú lámpakarok

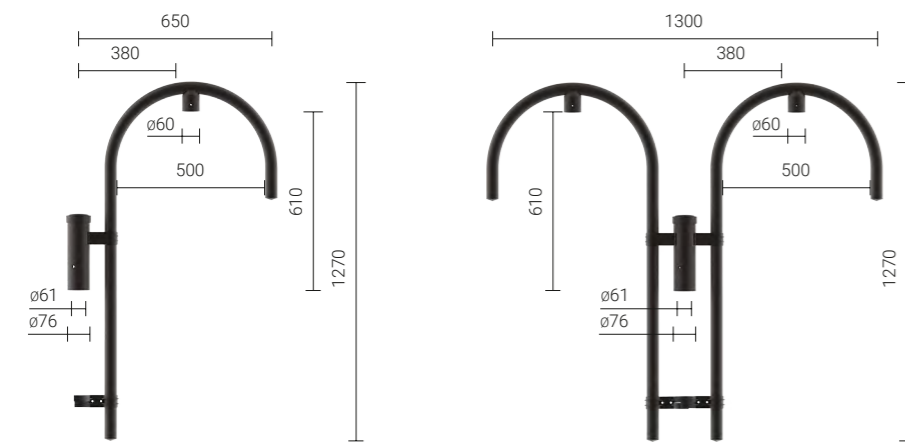
Application: mounting on poles type S and SP with spigot type „A”

Material: aluminium alloy anodised in black - other anodised colours optional



WT-5/1

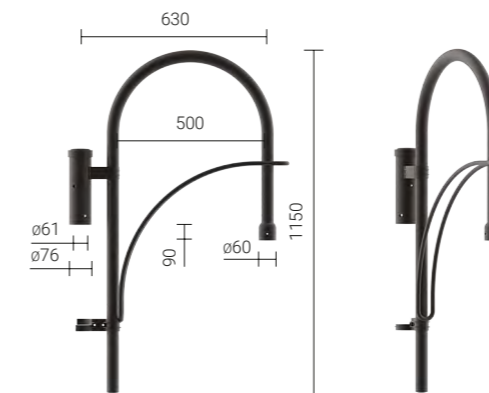
WT-5/2



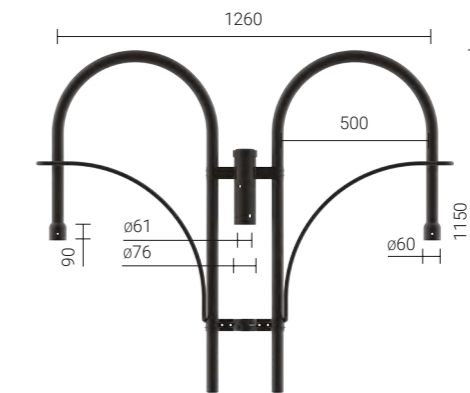
WT-8/1

WT-8/2

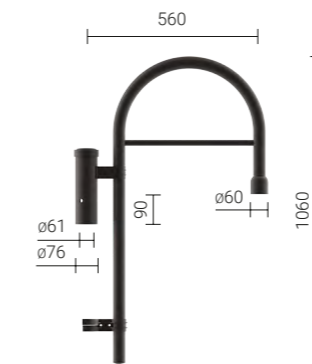
Extension arm type	WT-5/1	WT-5/2	WT-8/1	WT-8/2
Number of arms	1	2	1	2
Code	477051/C35	477052/C35	477081/C35	477082/C35
Net weight [kg]	2,9	4,9	3,2	5,4
Approximate unit volume [m³]	0,02	0,04	0,03	0,06
Compatible luminaires	OPA-1	OPA-1	OP 400	OP 400



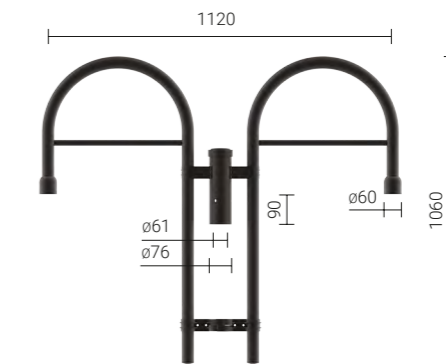
WT-11/1



WT-11/2



WT-14/1

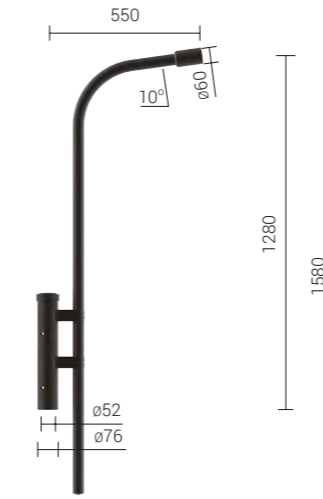


WT-14/2

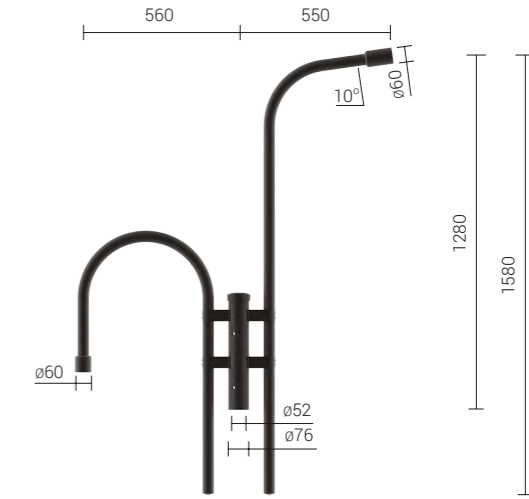
Extension arm type	WT-11/1	WT-11/2	WT-14/1	WT-14/2
Number of arms	1	2	1	2
Code	477111/C35	477112/C35	477141/C35	477142/C35
Net weight [kg]	3,7	6,3	3,2	5,2
Approximate unit volume [m³]	0,04	0,075	0,024	0,047
Compatible luminaires	OP 400, OP 450	OP 400, OP 450	OP 400, OP 450	OP 400, OP 450

WTM típusú lámpakarok

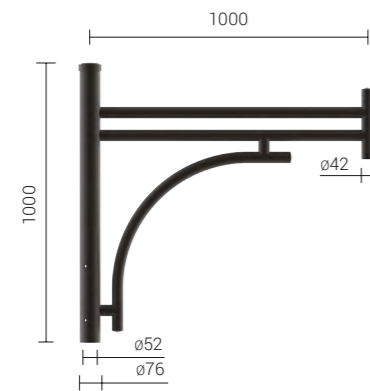
Application: mounting on poles type S and SP with spigot type „E”
Material: aluminium alloy anodised in black - other anodised colours optional



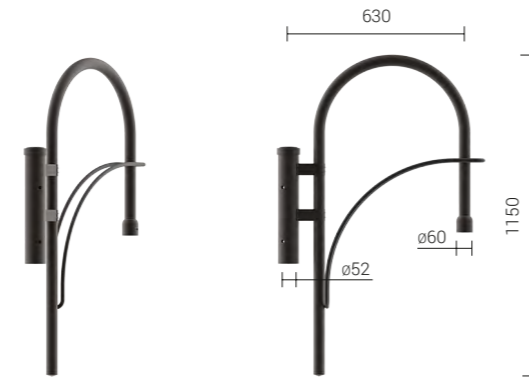
WTM-15/1U



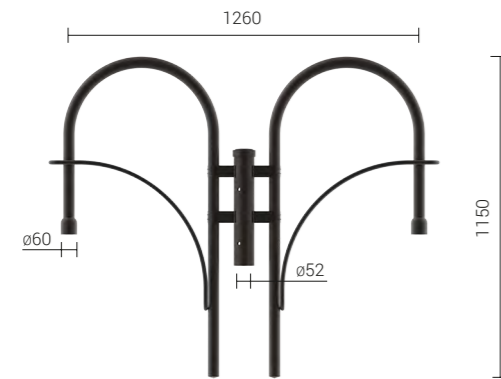
WTM-15/2



WTM-31



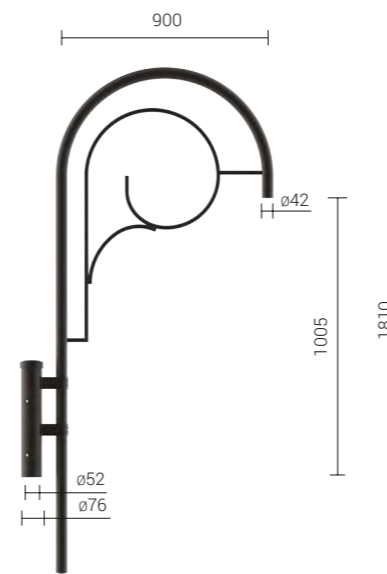
WTM-11/1



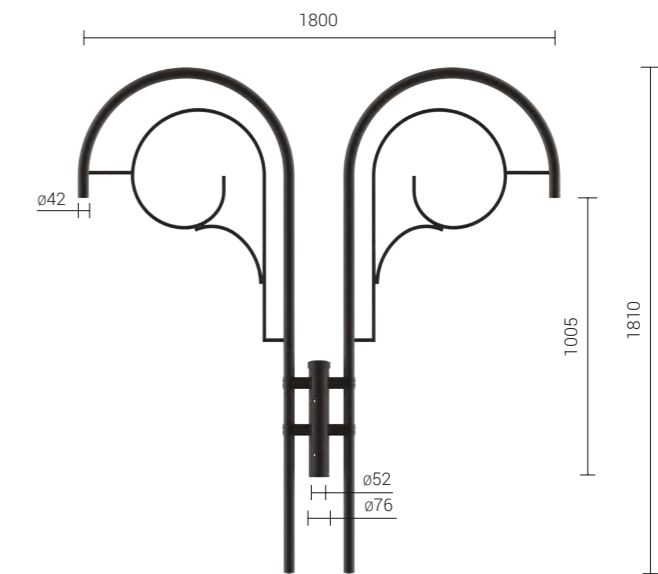
WTM-11/2



WTM-15/1P



WTM-20/1



WTM-20/2

Extension arm type	WTM-11/1	WTM-11/2	WTM-15/1P	WTM-31
Number of arms	1	2	1	1
Code	476111/C35	476112/C35	476151/C35	476301/C35
Net weight [kg]	4,8	7,5	4,4	9,7
Approximate unit volume [m³]	0,04	0,075	0,025	0,054
Compatible luminaires	OP 400, OP 450	OP 400, OP 450	OP 400, OP 450	OW LED, DROP LED

Extension arm type	WTM-15/1U	WTM-15/2	WTM-20/1	WTM-20/2
Number of arms	1	2	1	2
Code	476150/C35	476152/C35	476201/C35	476202/C35
Net weight [kg]	4,4	7	5,7	9,6
Approximate unit volume [m³]	0,027	0,05	0,042	0,081
Compatible luminaires	uliczne	OP 400, OP 450, uliczne	OW LED, DROP LED	OW LED, DROP LED

Konzol konfigurációk

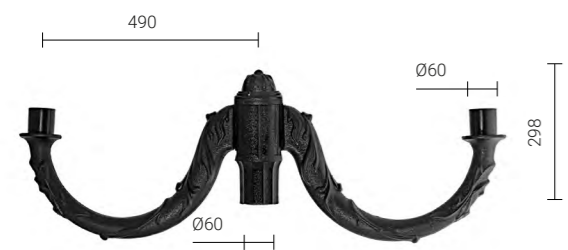
Application: mounting on traditional plastic coated poles type S with spigot type „A”
Material: arm – polypropylene reinforced with steel tube, head and extension of the head – polyamide
Construction: arm connected to head by a connecting socket
Optional arm configuration: upwards or downwards
Colour: black



Bracket configuration 1 – upwards



Bracket configuration 1 – downwards



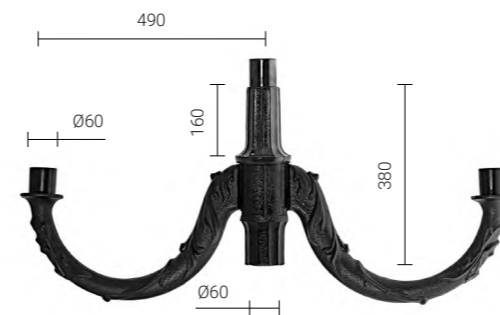
Bracket configuration – upwards



Bracket configuration 2 – downwards



Bracket configuration 2 – upwards and downwards



Bracket configuration 2+1 – upwards



Bracket configuration 2+1 – downwards



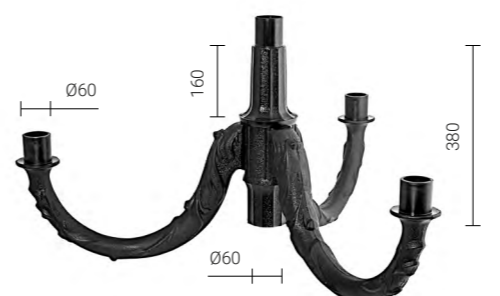
Bracket configuration 2+1 – upwards and downwards



Bracket configuration 3 – upwards



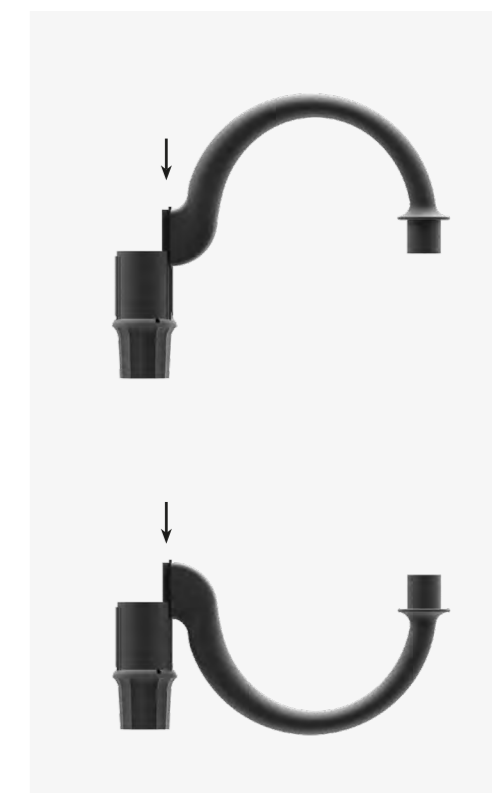
Bracket configuration 3 – downwards



Bracket configuration 3+1 – upwards



Bracket configuration 3+1 – downwards



The way of assembling an arm system in head

Extension arm type	Bracket conf. 1	Bracket conf. 2	Bracket conf. 2+1	Bracket conf. 3	Bracket conf. 3+1
Number of arms	1	2	2	3	3
Code	331000	332000	332100	333000	333100
Net weight [kg]	3,1	5,3	5,9	7,9	8,3
Approximate unit volume [m³]	0,024	0,024	0,024	0,032	0,032
Compatible luminaires	OS-1 LED, OS-11 LED, OP, OS-1				

P típusú konzol konfigurációk

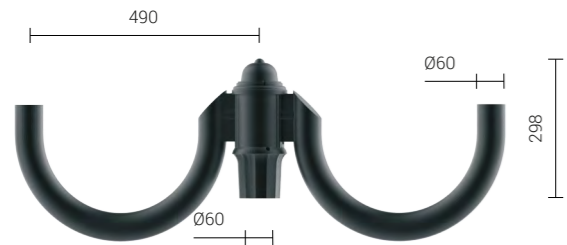
Application: mounting on traditional plastic coated poles type SP with spigot type „A”
Material: arm – polypropylene reinforced with steel tube, head and extension of the head – polyamide
Construction: arm connected to head by a connecting socket
Optional arm configuration: upwards or downwards
Colour: black



Bracket configuration P1 – upwards



Bracket configuration P1 – downwards



Bracket configuration P2 – upwards



Bracket configuration P2 – downwards



Bracket configuration P2
– upward and downwards

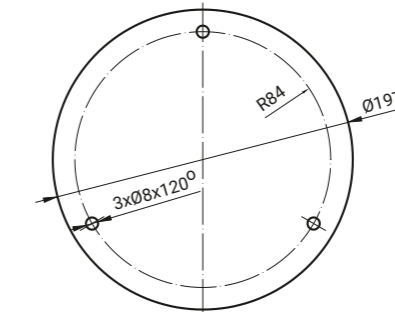
Extension arm type	Bracket conf. P 1	Bracket conf. P 2
Number of arms	1	2
Code	341000	342000
Net weight [kg]	3,3	5,6
Approximate unit volume [m³]	0,024	0,024
Compatible luminaires	ATLANTIS LED (only upwards), ELBA LED (only upwards), AURIS LED (only upwards), ELBA (only upwards), OPA-1 (only upwards), OS-1 LED, OS-11 LED, OP, OS-1	

KR, KP típusú konzolok

Application: aluminium wall brackets for wall mounting
Material: arm – polypropylene reinforced with steel tube, holder – polyamide
Construction: arm connected to head by a connecting socket
Optional arm configuration: upwards or downwards
Colour: black



Wall bracket KR



Wall bracket KP



Wall bracket type	KR	KP
Number of arms	1	1
Code	330100	340200
Net weight [kg]	2,6	2,7
Approximate unit volume [m³]	0,032	0,032
Compatible luminaires	OS-1 LED, OS-11 LED, OS-1, OP	ATLANTIS LED (only upwards), OS-1 LED, OS-11 LED, OS-1, OP, OPA-1 (only upwards)