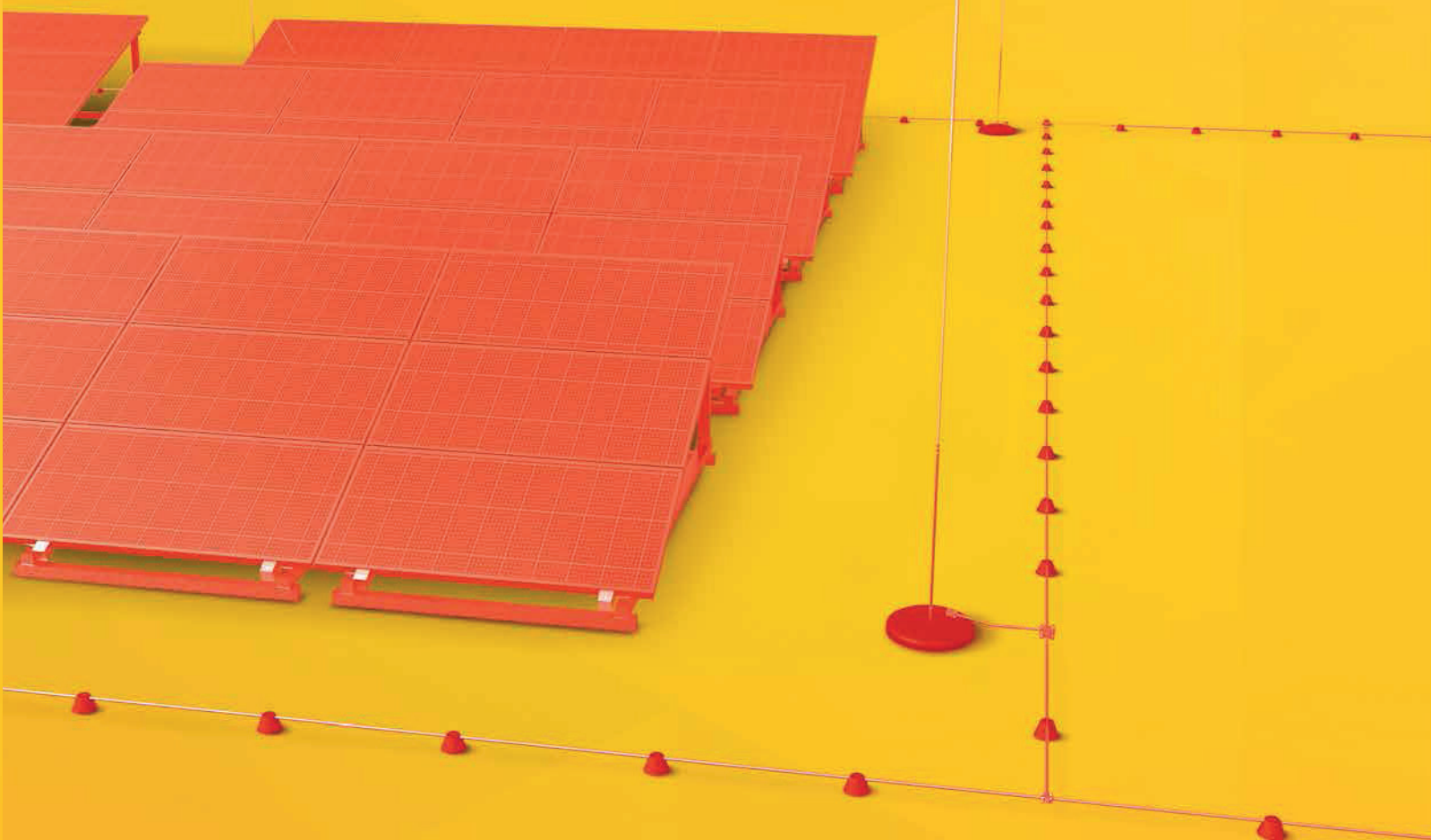


20 YEARS OF THE BEST SOLUTIONS



**ELKO-BIS**

SYSTEMY ODGROMOWE

**LIGHTNING PROTECTION  
OF PHOTOVOLTAIC PANELS**



# Our future – solar energy



Facing decrease of fossil fuel resources and continuous global growth demand for energy, it is essential to seek alternative energy acquisition sources. Estimated demand for energy in 2040 will increase by 56 %. One of the ways to deal with this problem is to use renewable energy sources.

Renewable sources technology is getting cheaper and cheaper, therefore it's been growing dynamically. It is estimated that currently „green energy“ meets about 10% of world's energy demand. Considering inexhaustibility of its sources and lack of waste treatment costs, this share will undoubtedly increase.

In the 'green energy' sector, it is the Sun that is indicated as the main source of energy acquisition. It mainly results from the universality and availability of this solution. Theoretically, solar radiation with the total power of 89,000 terawatts (1 terawatt is  $10^{12}$  watt) reaches the Earth, whereby for comparison, humanity currently needs about 18 terawatts of energy. So it's almost 5,000 times more than we need. Considering the available fossil fuels, it can be stated that their amount allows to produce as much energy as reaches the Earth from the Sun within just 56 days.

**MORE INFORMATION AVAILABLE ON OUR  
WEBSITE**

[www.elkobis.com](http://www.elkobis.com)



# Lightning protection of photovoltaic panels

Photovoltaic panel devices containing photovoltaic cells responsible for the conversion of solar radiation energy into electricity. Used in outdoors places, with high intensity of solar radiation, such as roofs of construction facilities and the ground, forming so-called photovoltaic farms. Outdoor location, make them particularly vulnerable to direct atmospheric discharges and overvoltages induced in the event of a nearby lightning discharge.

Following applicable safety rules and generally accepted industry guidelines, there are two basic rules in determining the location of lightning rods (masts, air terminals):

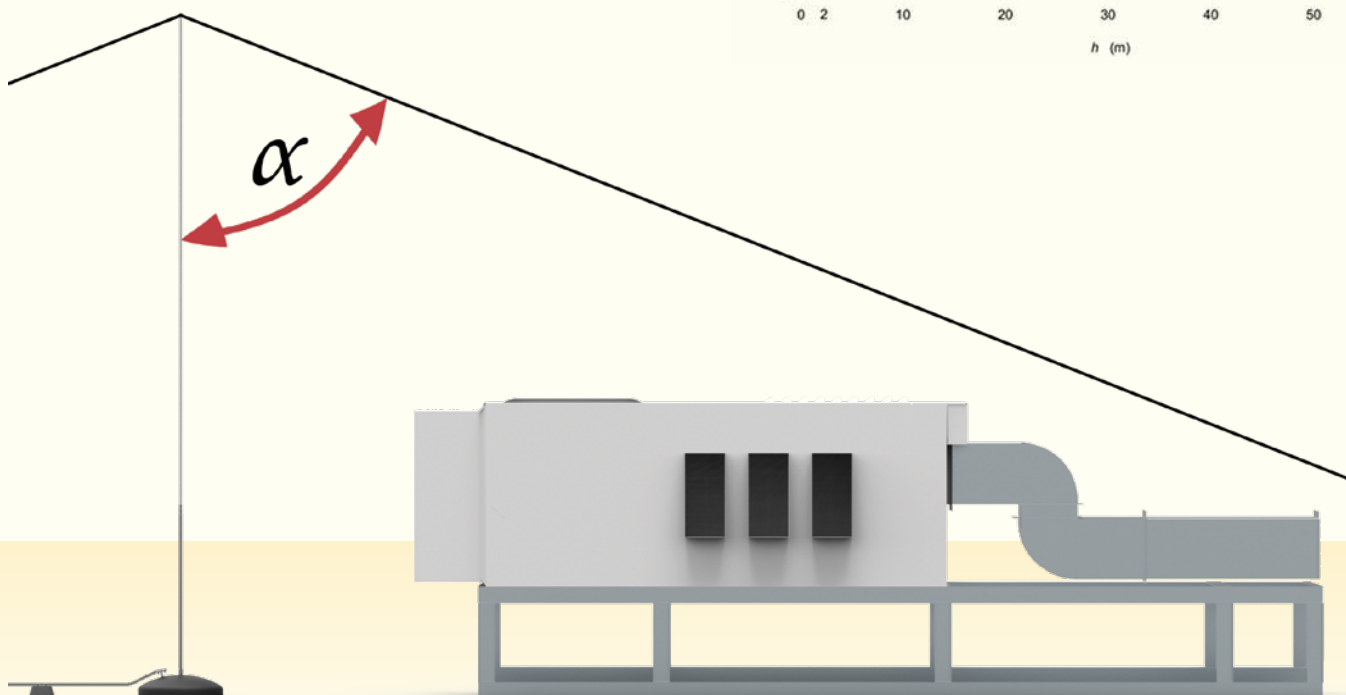
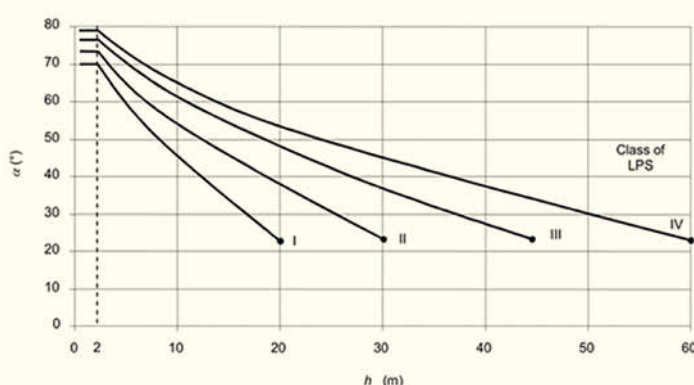
- ✚ The arrangement of masts is considered as appropriate, when protected facility is entirely within the protection zone.
- ✚ Lightning masts, lightning rod and air terminal system are moved away from protected devices, creating minimum separation distance ( $s$ ).

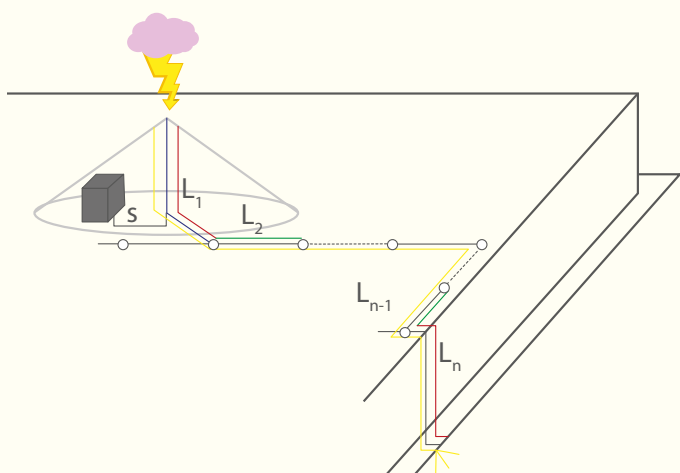
**The protection zone created by the system of lightning masts depends on the selected method of determination. The designer may use the rolling sphere method or the protective angle method.**

The rolling sphere method consists in „rolling“ a sphere with a given radius  $r$  dependent on the LPS class, around the facility. The place where the sphere touches the facility is a place exposed to direct atmospheric discharge and lightning protection should be applied there. When the rolled sphere does not touch the protected devices, lightning protection is considered to be suitable.

The protective angle method is a method determining protection zone, using lightning rods. A lightning mast creates a cone-shaped protective zone for electrical devices. This cone depends on the angle, determined on the basis of LPS class and mast height.

SPHERE RADIUS	LPS I	LPS II	LPS III	LPS IV
$r$	20	30	45	60

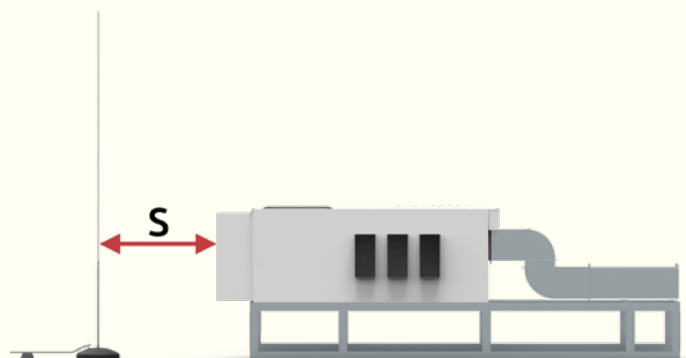




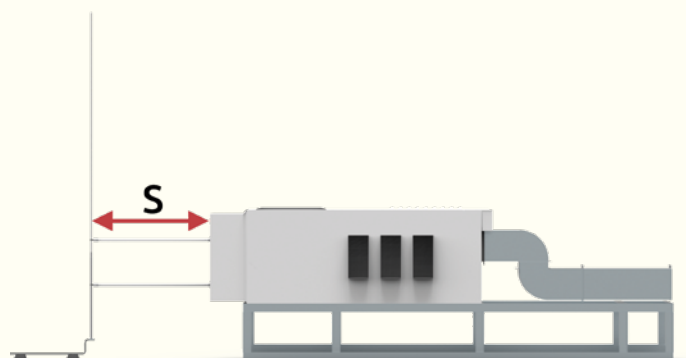
When designing or making an external lightning protection device, we should pay special attention to protection of devices located on protected roofs, both from the effects of direct lightning discharge, as well as from the charge transfer from the lightning protection system to the protected device. Multi-sheet standards PN-EN 62305 state unequivocally that: „All roof devices made of insulating or conductive material, which contain electrical equipment and / or equipment processing information, should be located in the protective zone of the air termination system“.

**Depending on the constraints with the insulation clearances that designers and contractors encounter during implementation of the investment, three types of lightning protection are applied:**

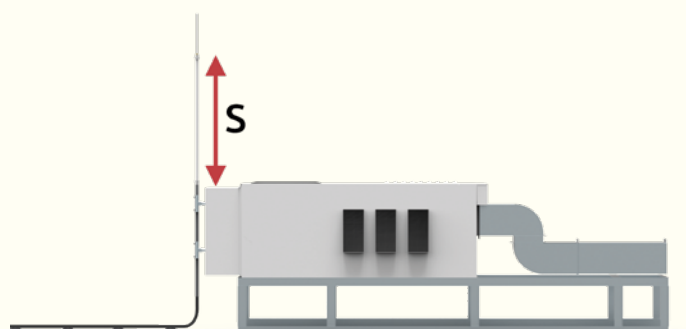
1. Maintaining the insulation clearance without interfering with the protected device - used in places where there are no problems with obtaining insulation clearances and there is enough space for lightning masts.



2. Maintaining the insulation clearance on insulation bars - used in places where mounting to the device or shutter structure is possible. By using insulation bars made of non-conductive material, we keep the insulation clearance despite mechanical connection



3. Keeping the insulation clearance using insulated high-voltage cable system – used in places where it is not possible to keep the insulation clearance due to the lack of space on the roof or the architectural point of view to keep aesthetics of the facility. High-voltage cable system compliant with the PN-EN 62305 standard provides us with an insulation clearance of 75 cm.





# Threats and responsibility

ELKO-BIS is a Polish manufacturing leader within external lightning protection systems and products protecting building facilities, along with their electrical equipment, including photovoltaic systems. For over 20 years we have developed and implemented more than 1,000 widely used products in lightning protection technology, responding to all requirements and industry standards. That is why designers and contractors can be sure that products are complete and reliable.

Following Polish Insurance Association, main insurance obligation is to perform lightning protection system accordingly to lightning protection standards PN-EN 62305, which strictly establish designing principles and standards for lightning protection systems, including particular tests performance for lightning protection components. It is designers and contractors obligation to apply appropriate products and solutions. Effective and long-lasting operation of lightning protection system rely on tested and verified materials. Using ELKO-BIS products, contractor gets 3 to 5 years warranty which only confirms high quality of our components.

## QUALITY IN THE FIRST PLACE!

Our products have not only been thoroughly tested and provided with the necessary certificates, but also obtained numerous awards and distinctions! Owing to this, our customers can enjoy the highest quality lightning protection.

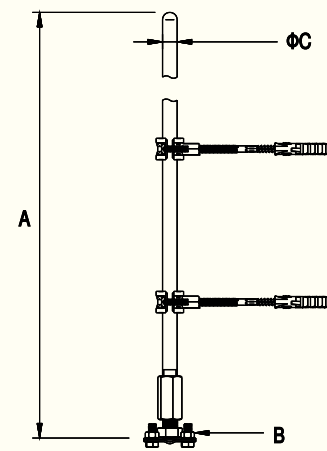


Decide with Confidence



## 1 Chimney Spire

For chimneys protection. Spire set include 2 fix plug holders and wire connector. Can be use as a protection of attic and elements around it.



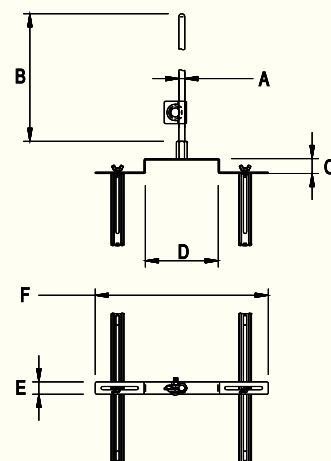
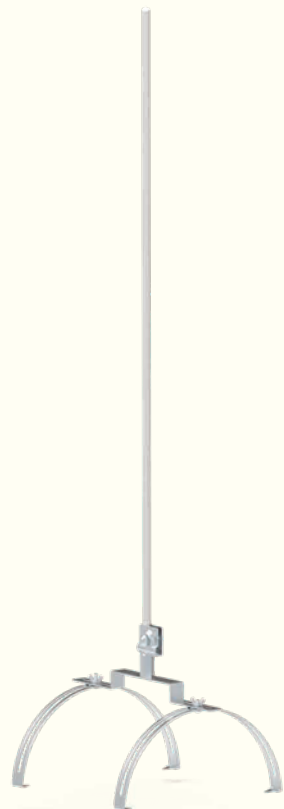
CATALOG NUMBER	TYPE	A	B	C
97001009	70.10	1000	4 × M8 × 20	16
97001509	70.15	1500	4 × M8 × 20	16
97002009	70.20	2000	4 × M8 × 20	16
97002509	70.25	2500	4 × M8 × 20	16
97003009	70.30	3000	4 × M8 × 20	16

Alternative material options – change last two catalog number digits.

CU 03 AL 09

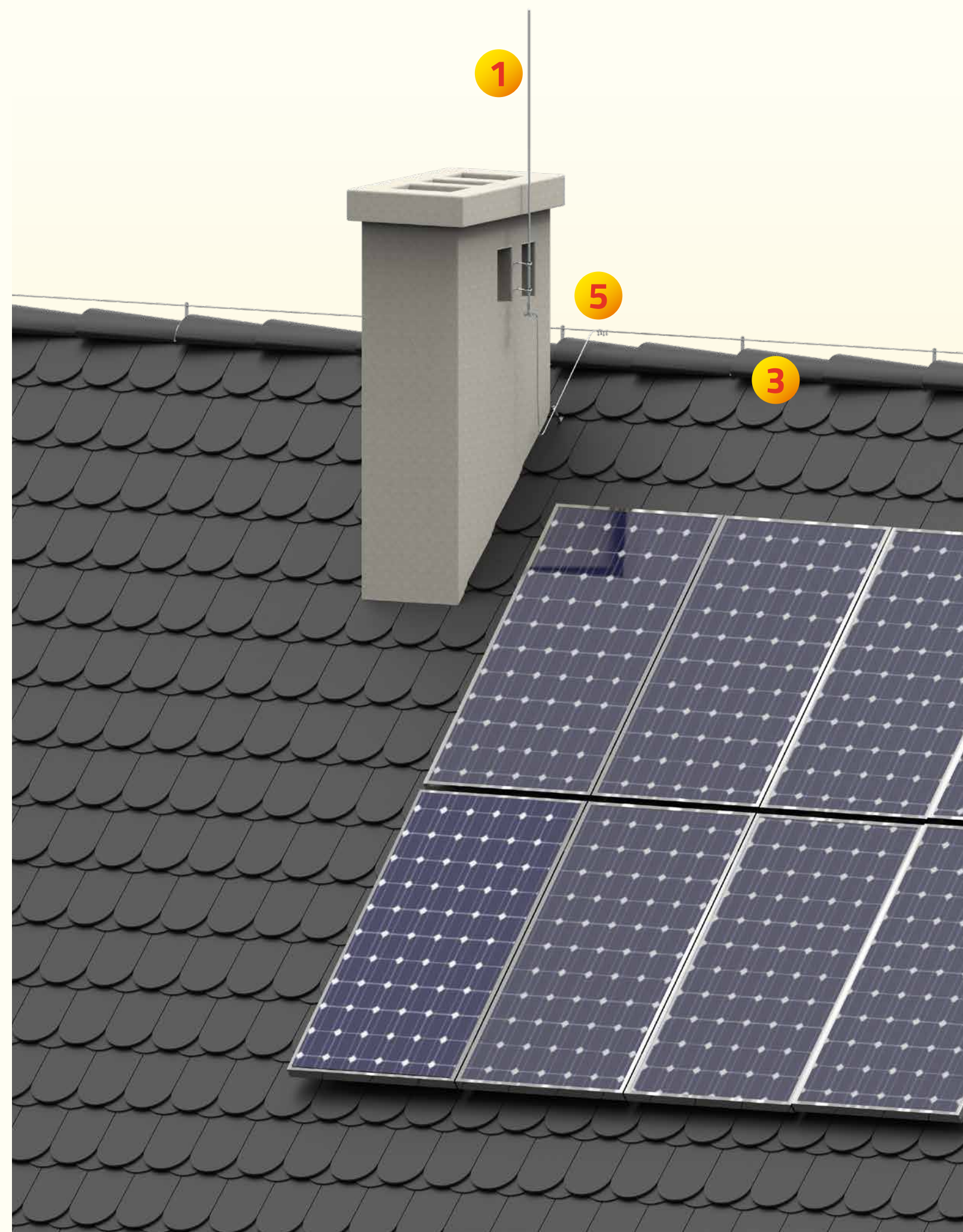
## 2 Double Ridge Tile Spire

For Lightning Protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels). For tile roofs. Direct screw assembly to ridge tile. Complete set include horizontal wire connector. Stability of spire up to 2 meters.



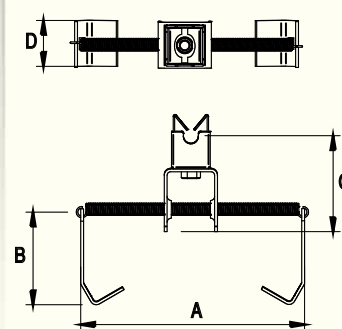
CATALOG NUMBER	TYPE	A	B	C	D	E	F
97101009	71.10	Ø 12	1000	30	150	2,5	350
97101509	71.15	Ø 12	1500	30	150	2,5	350
97102009	71.20	Ø 12	2000	30	150	2,5	350

CU 03 AL 05

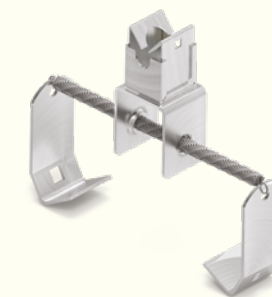




### 3 Low profiled ridge tile wire conductor holder with springs

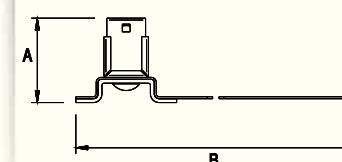


To lead wire conductor on a roof tops covered in ceramic or steel sheet roof tiles. Flexible spring mounting to ridge tile, fits with majority of ridge tile types. To be used for  $\varnothing 8$  wire conductor.

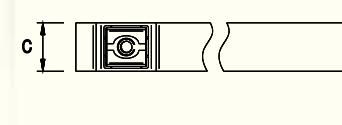
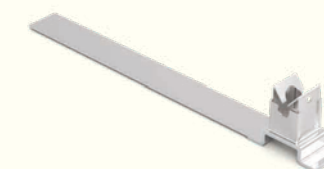


CATALOG NUMBER	TYPE	A	B	C	D
25910105	–	140–500	55	54	26
NI	OC				

### 4 Low Profiled Tape Universal Under Tile Wire Holder

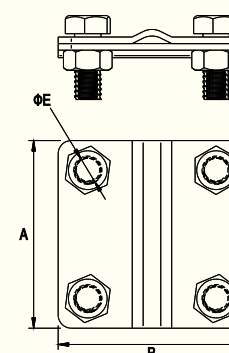


For fixing wire on the roof surface covered in roof tiles with lock. Tape is made of plastic aluminum, allowing easy adoption to each type of roof tile. Stainless steel grip element. Holder allows to lead wire parallel and perpendicular to roof edge.



CATALOG NUMBER	TYPE	A	B	C
21004005	–	44	255	25
NI				

### 5 4 Screws Cross Connection Clamp



For cross wire connections. Two parts 2 mm thick, assembled with 4 screws M8. Option 90100101 suitable to connect wires up to  $\varnothing 8$ mm, as option 90100201 suitable to connect wires up to  $\varnothing 10$ mm.

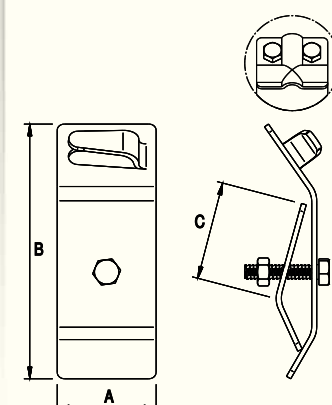


CATALOG NUMBER	TYPE	A	B	E	SCREW
90100101	1.1	57	57	9	4 × M8 × 20
90100201	1.2	57	57	9	4 × M8 × 30

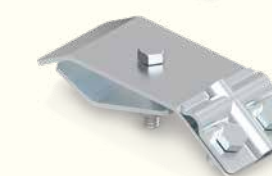
Alternative material options – change last two catalog number digits.

OC	01	OG	02	CU	03	NI	05	CU/OC	06	MS	10
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### 6 Gutter Wire Holder



To connect wire with all types of gutters. Two parts 2mm thick, assembled with M6 screw. Option 90300201 allows to place wire along the gutter.



CATALOG NUMBER	TYPE	VERSION	A	B	C	SCREW
90300101	3.1	clinched	40	103	40	M6 × 30
90300201	3.1/5	screwed	40	103	40	M6 × 30

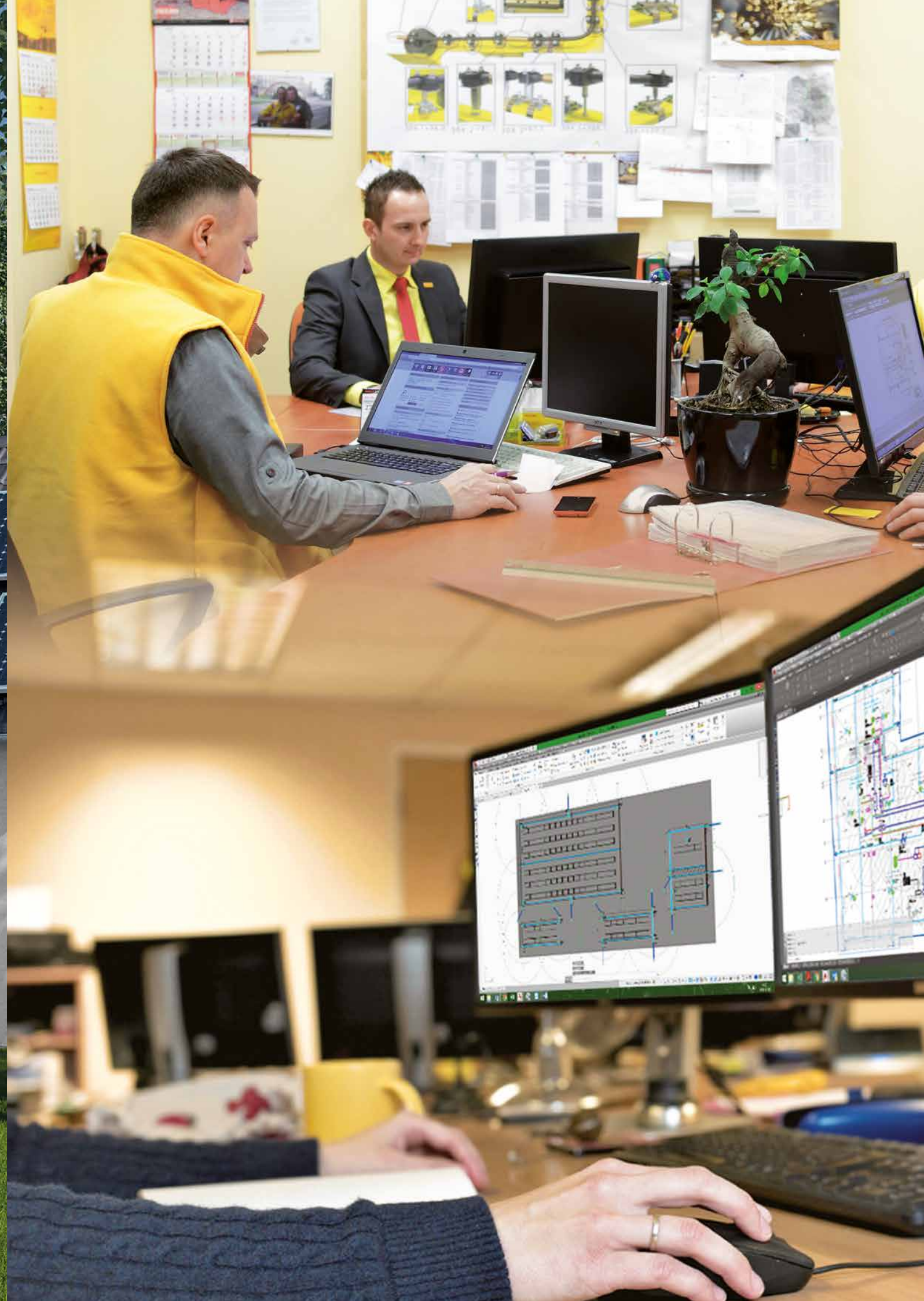
Alternative material options – change last two catalog number digits.

OC	01	OG	02	CU	03	NI	05	MS	10	LA	16
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## Detached houses photovoltaic protection

Those days there are more photovoltaic panel systems installed on the roofs of detached houses . It is related to new panel production technologies, which are significantly cheaper than a few years ago, and also with many government funds for renewable energy investments. In case of photovoltaic lightning protection, it is important to keep appropriate separation distance from air termination, which in many cases is associated with reduction of panel numbers used. The most common protection practices include use of chimney spires and gable spires on the facility



## Project support



Following lightning protection standards, it is designers duty to perform complete risk assessment, in order to determined appropriate lightning protection class (LPS). Only than and after, designer should proceed further with lightning protection of construction facilities and its devices. Unfortunately quite often project working pace and frequent conflicts, being an effect of project infliction from various industries being involved in the process , are leading to nonconformities and errors within lightning protection concept itself. The most common are: lack of separation distance and insufficient protection zone as a result of wrong LPS elements selection. Therefore, to meet designers expectations, we have created a dedicated technical department, where designers can get answers to their questions on various lightning protection issues, standard requirements, also obtaining help and support within design process. Our engineers have an access to Auto-CAD software, being able to check all documentation, provide corrections or prepare full design offer. Designers can be sure that project will follow current standards and modern lightning protection solution will be applied. Additionally, we have created free to download CAD software overlay, containing current library of products as best solutions for lightning protection. Overlay also contains many tools supporting design process, such as:

- ✚ Calculation of insulation clearances.
- ✚ Determination of protection zones of lightning rods.
- ✚ Spreadsheets dedicated to lightning protection of photovoltaic systems.
- ✚ Designer tool-kits containing basic information on lightning protection standards.
- ✚ Engineering graphics used in electrical projects.
- ✚ Counting module for applied elements.

### CONTACT US!

✉ [export@elkobis.com.pl](mailto:export@elkobis.com.pl)

### DOWNLOAD FOR FREE ELKO-BIS CAD 2.0

<http://elkobis.com.pl/download/>

### MORE INFORMATION AVAILABLE ON OUR WEBSITE

[www.elkobis.com](http://www.elkobis.com)



## 1 Steel High Voltage Interception Air Rod

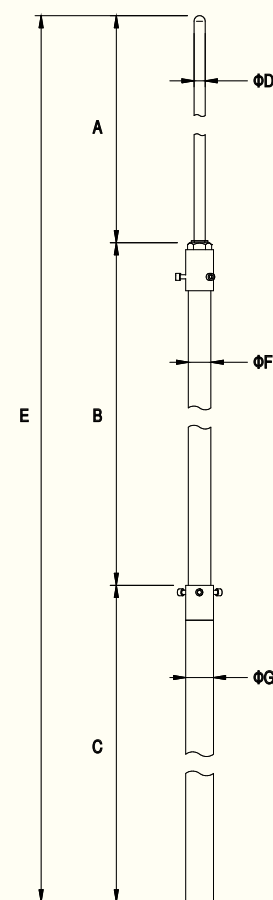


For Lightning Protection of steel roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Choose correct mast holders depending on assembly place e.g mast holder 96000201 for wall mounting. To be use at places with non possibility of keeping isolation distance from protected equipment. Made of stainless steel, insulation Bar with 1 meter aluminum spire.

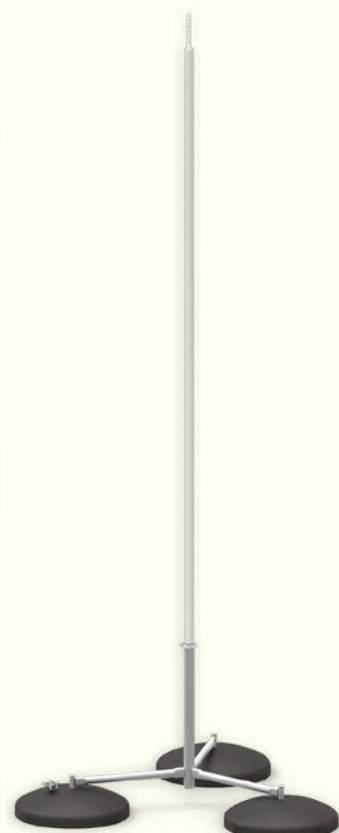
NOTICE: High Voltage Cable ordered separately

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G
96223005	62.3 WVM	500	1500	1000	16	3000	32	40
96223505	62.35 WVM	1000	1500	1000	16	3500	32	40
96224005	62.4 WVM	1000	1500	1500	16	4000	32	40
96224505	62.45 WVM	1000	1500	2000	16	4500	32	40
96225005	62.5 WVM	1000	1500	2500	16	5000	32	40
96225505	62.55 WVM	1000	1500	3000	16	5500	32	40
96226005	62.6 WVM	1000	1500	3500	16	6000	32	40
96226505	62.65 WVM	1000	1500	4000	16	6500	32	40
96227005	62.7 WVM	1000	1500	4500	16	7000	32	40

NI



## 2 Tripod Concrete Base Interception Mast

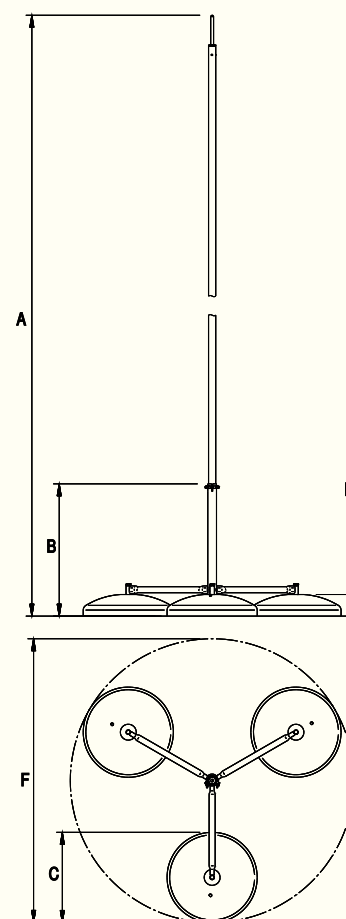


For Lightning Protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Tripod concrete base gives appropriate wind resistance. Free standing mast with total weight up to 135kg. It is recommended to use pads under concrete base. Option 94308222 for tar board roofs and option 94308221 for membrane roofs.

CAT. NUM.	TYPE	A	B	C	D	F
96504005	65.4	4000	640	500	120	1450
96505005	65.5	5000	640	500	120	1450
96506005	65.6	6000	640	500	120	1450
96507005	65.7	7000	640	500	120	1450

Alternative material options – change last two catalog number digits.

OC 01 NI 05



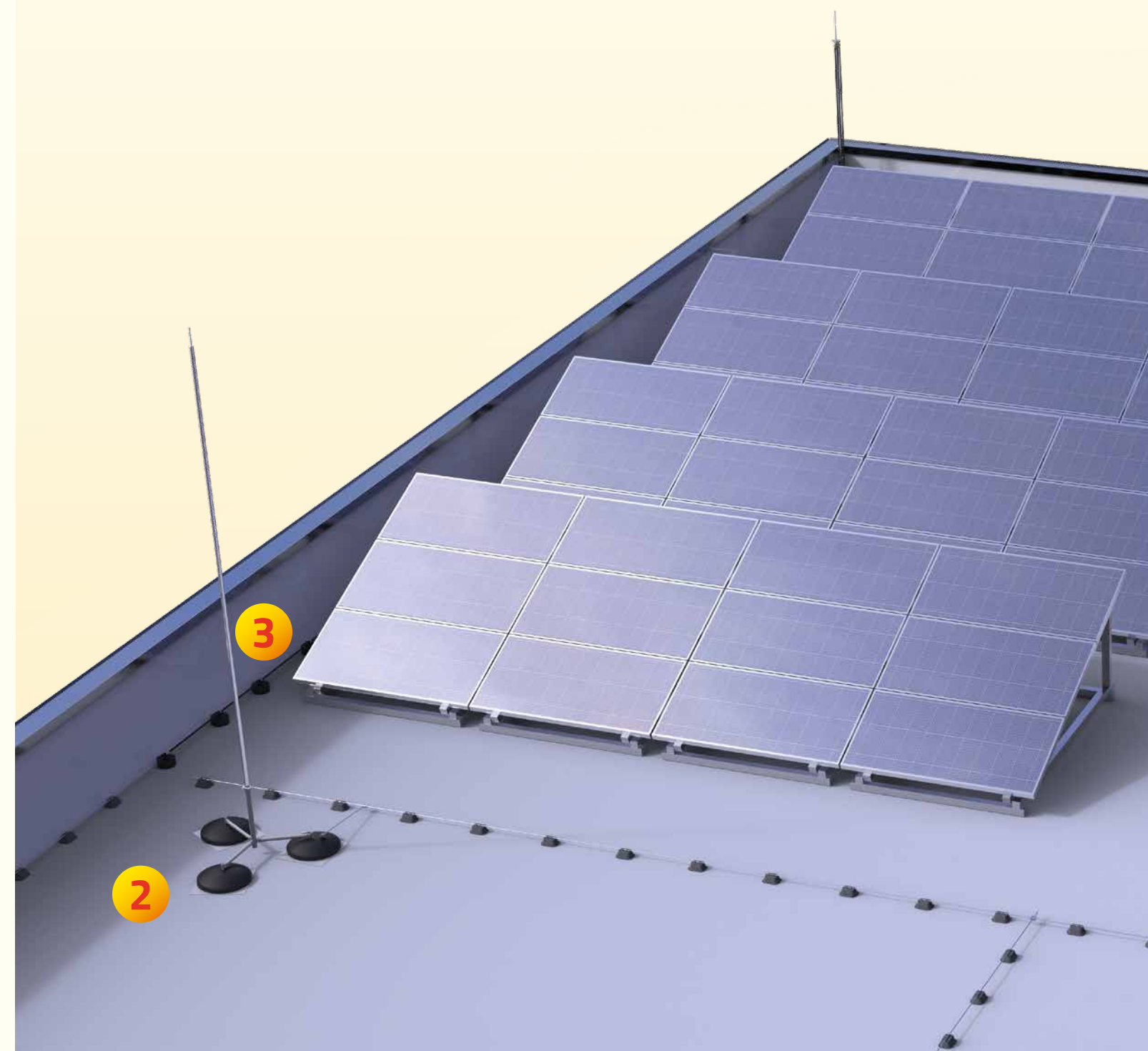
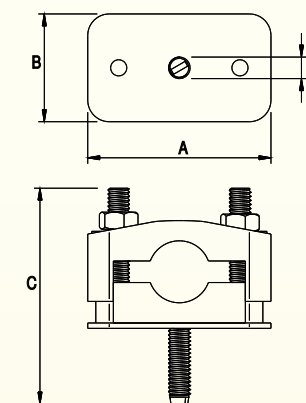
If classified to III wind zone (PN-77/B-0211) permanent fixing to surface is essential.

## 3 M8 Thread – High Voltage Cable Holder

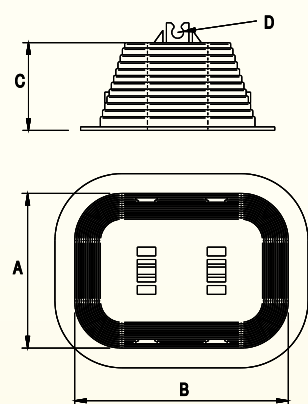


For High Voltage Cable mounting. Holder to be used together with concrete bases 92910101 (order separately). To lead cable on flash roofs membrane or tar board covered. Can be also fastened to steel sheet roofs e.g obornicka steel sheet, using special footer 30600101.

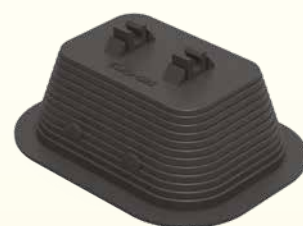
CATALOG NUMBER	TYPE	A	B	C	D
30500101	305.1	70	40	72	M8
OC					



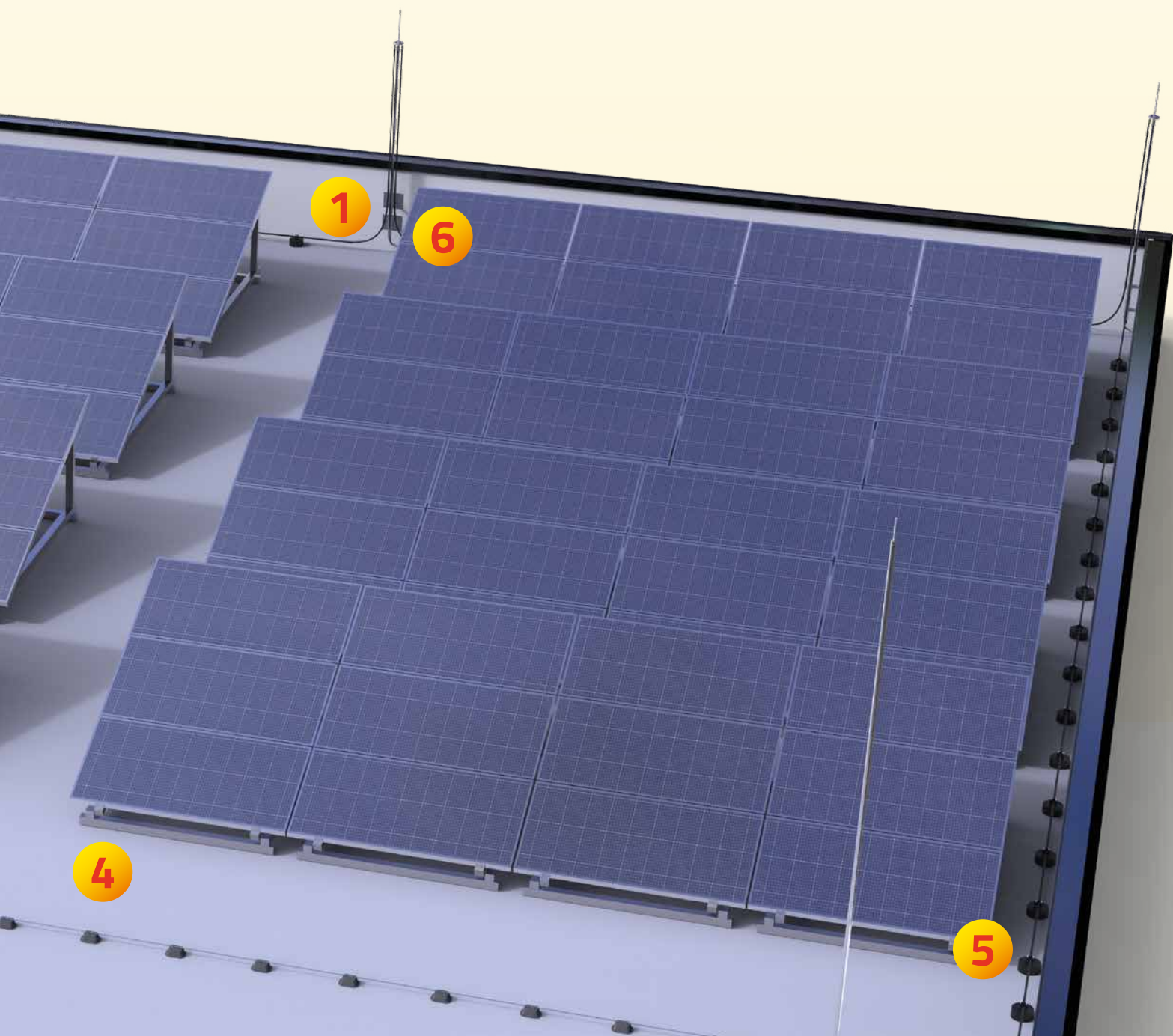
## 4 PVC Coated Concrete Wire Holder



For fixing wire on the flash roofs. Can be glued to roof surface using glueing composition ELKO-FIX 99300199 or membrane glue 11000599. Use only 8mm wire. Glue assembly details, see: [www.elkobis.com.pl/download](http://www.elkobis.com.pl/download).

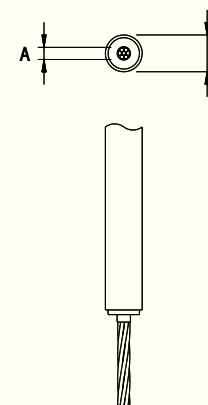


CATALOG NUMBER	TYPE	A	B	C	D	WEIGHT
93000211	30.2	105	145	60	6-8	~1,2 kg
PCV						



## 5 Insulated High Voltage Cable

To discharge strike electric stream. Use at places where appropriate insulation distance from protected elements can not be kept or close to communication strings. Cable construction guarantee insulation distance of 75cm. Can be directly lead on electric devices. Resistant to weather conditions. Copper wire. Projects support on: [export@elkobis.com.pl](mailto:export@elkobis.com.pl). Detailed technical features: [www.elkobis.com.pl/high-voltage-cable](http://www.elkobis.com.pl/high-voltage-cable).



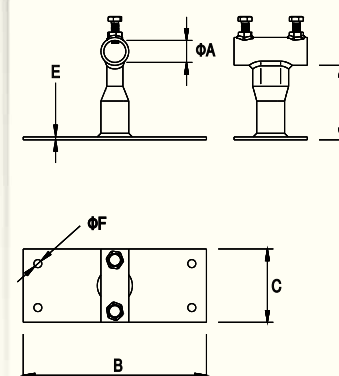
CATALOG NUMBER	TYPE	A	B
30000199	300.1	35 mm <sup>2</sup>	23 mm

Product sizes can be changed.

## 6 Interception Air Rod Holder

For wall and construction mounting of mast and spires. Use minimum 2 holders for one mast. Recommended distance between holders is 0,8m.

NOTICE: We supply non typical holders, adjusted to roof construction. For size and price quotation mail contact: [export@elkobis.com.pl](mailto:export@elkobis.com.pl).



CATALOG NUMBER	TYPE	A	B	C	D	E	F	SCREW
96000101	60.1	31	250	100	100	4	11	2 × M10 × 30
96000201	60.2	42	250	200	100	4	11	2 × M10 × 30

Alternative material options – change last two catalog number digits.

OC	01	OG	02	LA	16
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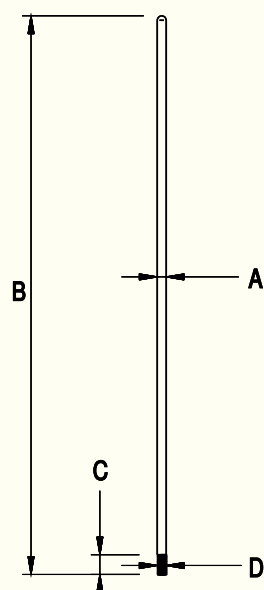


## Industrial roofs –photovoltaic protection

Industrial facilities are characterised by a large roof surface, which is used for refrigerating, ventilation appliances and devices to obtain energy, for example through photovoltaic panels. Designers of these devices strive for the most effective use of this surface, which creates problems with obtaining the insulation clearance of LPS elements. In such cases, it is necessary to use a high voltage cable system with masts, which allows to come directly to the devices. This solution combines optimal roof construction with the best lightning protection.

## 1 Aluminum Interception Air Rod

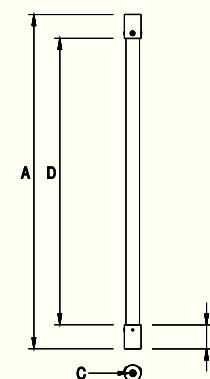
For Lightning Protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Choose correct mast holders depending on assembly place. Mast holder 96000101 for wall mounting, wire clamp 94200201 and connector 94200401.



CATALOG NUMBER	TYPE	A	B	C	D
94301009	43.010	16	1000	35	M16
94301509	43.015	16	1500	35	M16
94302009	43.020	16	2000	35	M16
94302509	43.025	16	2500	35	M16
94303009	43.030	16	3000	35	M16
94303509	43.035	16	3500	35	M16
94304009	43.040	16	4000	35	M16

AL

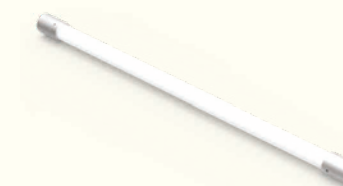
## 2 Separation Bar



To get insulation distance from protected device. Bar can be fixed to device cover, blinds, masts, pipes or steel chimneys using dedicated holder or clamp. Guarantee electric insulation.

CATALOG NUMBER	TYPE	A	B	C	D	E
97900729	79.075	750	51	M8	638	32
97900029	79.100	1000	51	M8	888	32
97901529	79.150	1500	51	M8	1388	32
97920029	79.200	2000	51	M8	1888	32

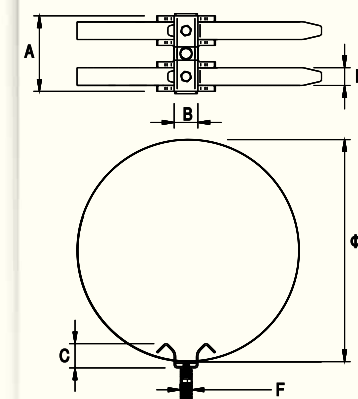
PCV



M16 Thread Separation Bars available on order.

## 3 Double Universal Piping Clamp

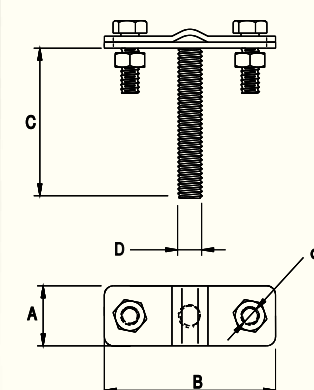
For insulated bar, interception rod or high voltage cable mounting to pipe constructions. Flexible stainless tape conductor adjust to different shapes, allowing assembly of lightning protection at different shape constructions. Clamp should be directly fastened with insulation bar e.g 97900729 or high voltage cable e.g 30400101. or interception air rod 96000701.



CATALOG NUMBER	TYPE	A	B	C	D	E	F	SCREW
96701105	67.1/M16	120	30	30	24 × 0,4	150–300	M16 × 50	2 × M8 × 20
96700105	67.1/M8	120	30	30	24 × 0,4	150–300	M8 × 25	2 × M8 × 20
96701205	67.2/M16	120	30	30	24 × 0,4	≤150	M16 × 50	2 × M8 × 20
96700205	67.2/M8	120	30	30	24 × 0,4	≤150	M8 × 25	2 × M8 × 20
96701305	67.3/M16	120	30	30	24 × 0,4	300–500	M16 × 50	2 × M8 × 20
96700305	67.3/M8	120	30	30	24 × 0,4	300–500	M8 × 25	2 × M8 × 20

NI

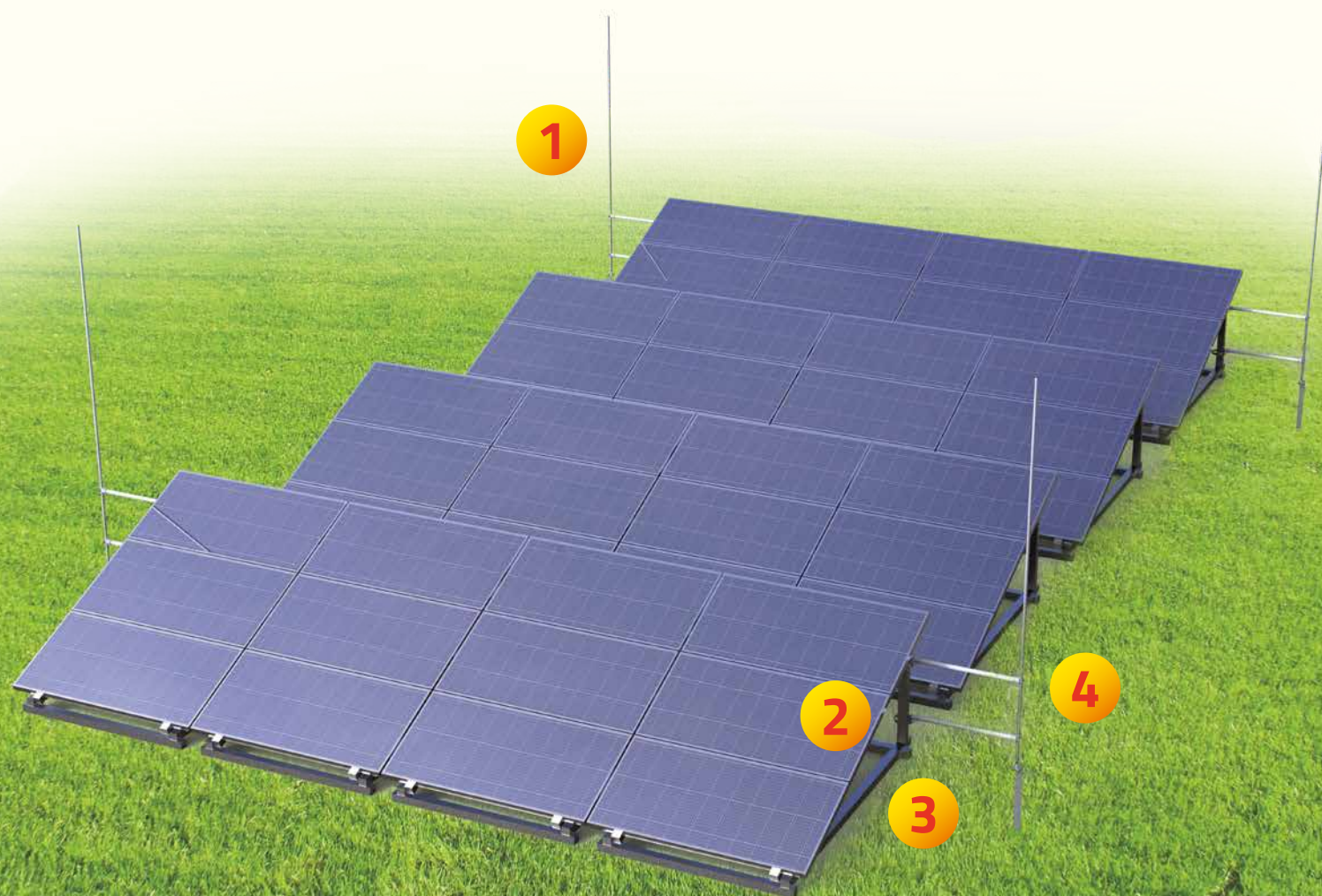
## 4 Wire Conductor Holder



For insulated bars wire conductors leading. Insulated bars should be firstly mounted to steel construction, device cover or interception air rods.

CATALOG NUMBER	TYPE	A	B	C	D	E	SCREW
98400201	84.2	20	57	M8 × 45	M8	7	2 × M6 × 16
98401201	84.2.1	20	57	M8 × 45	M8	7	2 × M6 × 30

OC





## Photovoltaic farm protection

The potential of the Sun's energy undoubtedly inspires the greatest minds of the world. Continuous development and discoveries have made photovoltaic panel technology very effective and the price relatively low. This encourages investors to build large-surface photovoltaic farms. Despite the low construction of these panels it should be remembered that the risk of discharge into the device or the surge occurrence is large, and the costs associated with the lightning protection system are only a fraction of the cost of the entire investment. Insulation bar system, simple to use, will allow to obtain effective lightning protection compatible with lightning protection standards and requirements set by insurers.

## Overvoltage protection



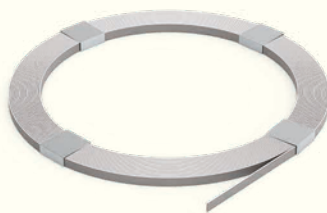
Proper design and construction of the external lightning protection system of photovoltaic panels, with maintaining a safe insulation clearance (s), protect photovoltaic systems against direct atmospheric discharge and the effects of lightning current flowing through these devices. This allows to avoid the most dangerous effects of lightning discharges, that is the damage of photovoltaic panels and penetration of the whole lightning current into the internal electrical installation of the facility.

However, it should be remembered that the effects of discharges causing damaging or destroying electrical devices can be felt within a radius of up to 2 km from the place of lightning discharge due to the so-called lightning electromagnetic pulses that can cause voltage increase in the electrical installation of the construction facility, whose level may exceed the highest allowed operating voltage. The effect of this voltage increase is professionally determined as a "surge".

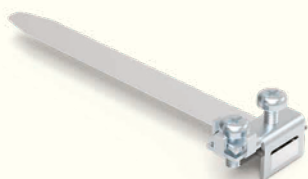
Photovoltaic panels produce direct current and a device called an inverter transforms it into alternating current with network parameters. The inverter is, however, a device with complicated electronics, and therefore sensitive to all effects of lightning electromagnetic pulses.

Taking these two facts into consideration, external lightning protection of photovoltaic panels should also be completed by surge arresters dedicated to them and in compliance with the zone protection concept included in the PN-EN 62305-4 standard. Coordinated external and internal (surge) lightning protection allows to fully protect photovoltaic panels and internal installation against any effects of lightning discharges.





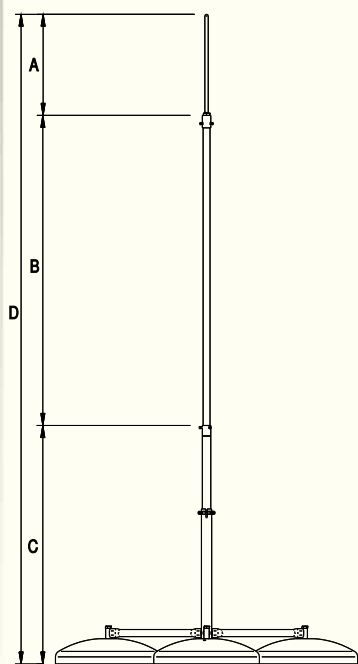
## Complementary products



## Tripod High Voltage Interception Mast

For Lightning Protection of steel roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Choose correct mast holders depending on assembly place e.g mast holder 96000201 for wall mounting. To be use at places with non possibility of keeping isolation distance from protected equipment. Made of stainless steel, insulation Bar with 1 meter aluminum spire.

NOTICE: High Voltage Cable ordered separately. Tripod concrete base gives appropriate wind resistance. Free standing mast with total weight up to 142kg. It is recommended to use pads under concrete base. Option 94308222 for tar board roofs and option 94308221 for membrane roofs.



CATALOG NUMBER	TYPE	A	B	C	D	E	F	G
96573005	65.3WVM	500	1500	1000	3000	16	32	40
96573505	65.35WVM	1000	1500	1000	3500	16	32	40
96574005	65.4WVM	1000	1500	1500	4000	16	32	40
96574505	65.45WVM	1000	1500	2000	4500	16	32	40
96575005	65.5WVM	1000	1500	2500	5000	16	32	40
96575505	65.55WVM	1000	1500	3000	5500	16	32	40
96576005	65.6WVM	1000	1500	3500	6000	16	32	40
96576505	65.65WVM	1000	1500	4000	6500	16	32	40
96577005	65.7WVM	1000	1500	4500	7000	16	32	40

NI



## High Voltage Cable End Tip

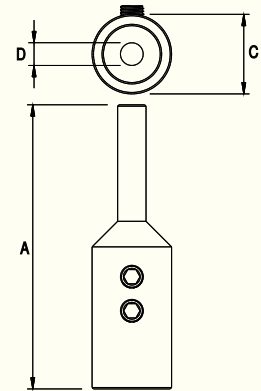


For High Voltage Cable connections with horizontal conductor or directly with earthing electrode. Brass tip allows connection to copper or steel construction, being resistance to weather conditions. In a set with screw protection glue and heat shrink tubing.

NOTE: End Tip assembly according to instruction.

CATALOG NUMBER	TYPE	A	C	D	SOCKET SCREWS
30100110	301.1	100	28	10	2 × M8 × 12

MS



Product sizes can be changed.

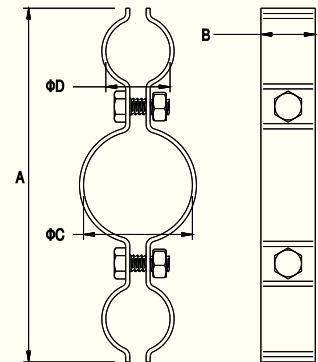
## High Voltage Interception Air Rod Holder



For leading 2 high voltage cables on the outer side of Interception Rod e.g 96575005. Distance between holders should not exceed 1 meter. Stainless steel holder.

CATALOG NUMBER	TYPE	A	B	C	D	SCREW
30900105	—	130	20	40	23,6	2 × M6 × 16

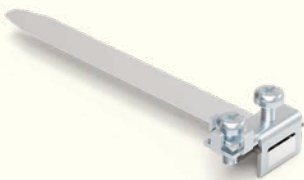
NI



Product sizes can be changed.

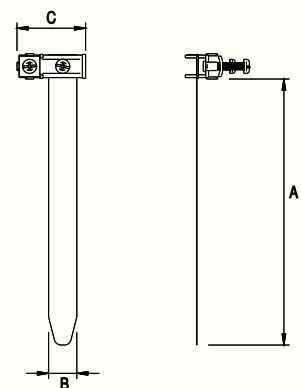
## Earthing Tensioning Strap

For equipotential connections at pipe constructions and installations. Pipe diameter scale in table form. Clamp sectional dimensions for conductor connection from 2,5 up to 16mm. Strap 96440101 also used for earthing semiconductive external coating of high voltage cable 30000199.

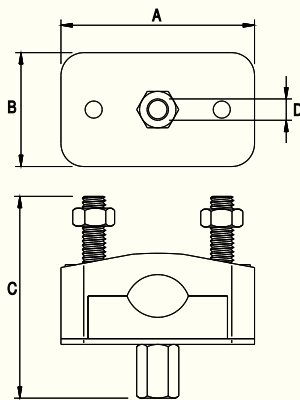


CATALOG NUMBER	TYPE	A	B	C	PIPE DIAMETER
96440101	—	125	14	32	< 36
96440201	—	190	20	48	< 54
96440301	—	410	20	48	< 124
96440401	—	585	20	48	< 180

NI



## High Voltage Cable Holder with Connector

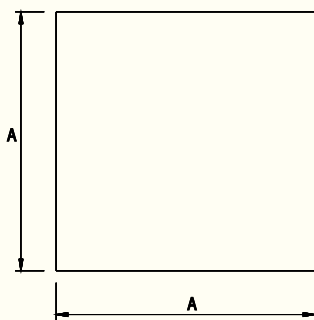


For High Voltage Cable mounting. Used with other ELKOBIS products, assembly on different type constructions e.g 31100110, 97701105, 96701105. Holder resistance to weather conditions and UV radiation.

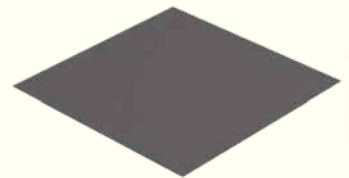


CATALOG NUMBER	TYPE	A	B	C	D
30400101	304.1	70	40	70	M8
30400201	304.2	70	40	94	M16
OC					

## Concrete Base Pad

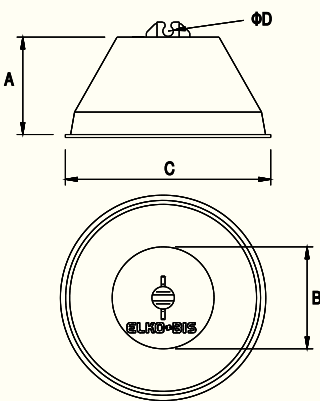


For mechanical damage protection of roof surface. To use under concrete base of mast. Depending on roof covering type use appropriate pad: tar board or membrane.



CATALOG NUMBER	TYPE	VERSION	A
94308222	43.82/P	tar board	500
94308221	43.82/M	membrane	500

## PVC Coated Concrete Wire Holder

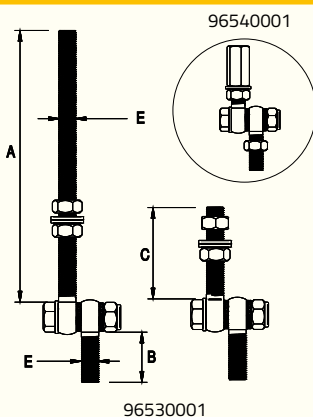


For fixing wire on the flash roofs. Can be glued to roof surface using glueing composition 99401099 (only option with concrete bottom). Glue assembly details, see: [www.elkobis.com.pl/download](http://www.elkobis.com.pl/download).



CATALOG NUMBER	TYPE	DESCRIPTION	A	B	C	D	WEIGHT
93000111	30.1	concrete bottom	75	70	130	6-8	~1,1 kg
93020111	30.1D PL	plastic bottom	75	70	138	6-8	~1,1 kg
93010111	-	concrete bottom	75	70	130	8-10	~1,1 kg
93030111	-	plastic bottom	75	70	138	8-10	~1,1 kg
PCV							

## Mast Regulating Set



For vertical-lining of masts including roof slope. It is recommended to use regulation sets above 3% slope. Set 96530001 dedicated to vertical-lining of tripod masts up to 25% roof slope.

CATALOG NUMBER	TYPE	VERSION	A	B	C	E
96530001	65.R	three-element for tripod masts	250	40	80	M16
96540001	65.R.1	single-element for one base masts	80	40	-	M16

OC

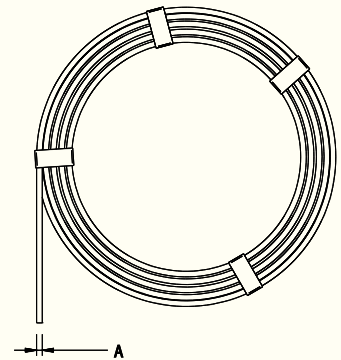


## Wire Conductor

For earth – termination systems. Coating thickness comply with PN-EN 62561-2:2012 standard (zinc coating minimum 350g/m<sup>2</sup>, copper bonded minimum 70 µm). 50 kg rolls on offer (steel wire) 20 kg rolls (aluminium wire). Confectioned sale also available



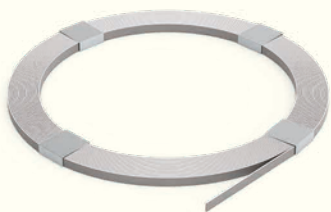
ZINC PLATED	CATALOG NUMBER	A	WEIGHT 1 m.b. (kg)
DR6	80000602	6	0,220
DR8	80000802	8	0,395
DR10	80001002	10	0,620
COPPER	CATALOG NUMBER	A	WEIGHT 1 m.b. (kg)
DR6	80000603	6	0,252
DR8	80000803	8	0,447
DR10	80001003	10	0,699
ALUMINUM	CATALOG NUMBER	A	WEIGHT 1 m.b. (kg)
DR8	80000809	8	0,130
DR10	80001009	10	0,200
COPPER BONDED	CATALOG NUMBER	A	WEIGHT 1 m.b. (kg)
DR8	80000804	8	0,410
STAINLESS GAT V4A	CATALOG NUMBER	A	WEIGHT 1 m.b. (kg)
DR8	80000805	8	0,391



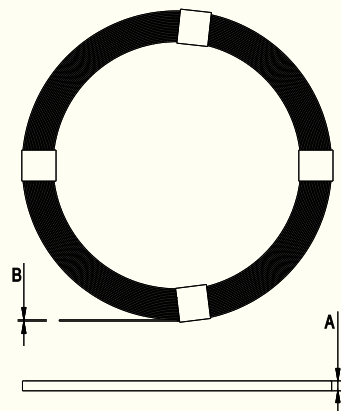
Before order check availability and leadtime.

## Tape Conductor

Use for foundation earthing, lattice mats or ring earthing conductors and down conductors, equipotential installations. Zinc coating comply with norm. On offer 25 kg or 50 kg roller. Confectioned sale also available.



ZINC PLATED	CATALOG NUMBER	A	B	WEIGHT 1 m.b. (kg)
25 × 3	82503002	25	3	0,600
25 × 4	82504002	25	4	0,800
30 × 4	83004002	30	4	0,961
40 × 4	84004002	40	4	1,185
50 × 4	85000402	50	4	1,601
COPPER	CATALOG NUMBER	A	B	WEIGHT 1 m.b. (kg)
25 × 3	82503003	25	3	0,670
25 × 4	82504003	25	4	0,890
30 × 4	83004003	30	4	1,070
40 × 4	84004003	40	4	1,424
COPPER BONDED	CATALOG NUMBER	A	B	WEIGHT 1 m.b. (kg)
25 × 4	82504004	25	4	0,820
30 × 4	83004004	30	4	0,980
STAINLESS GAT V4A	CATALOG NUMBER	A	B	WEIGHT 1 m.b. (kg)
30 × 3,5	83003505	30	3,5	0,833



Before order check availability and leadtime.



## Sample projects



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