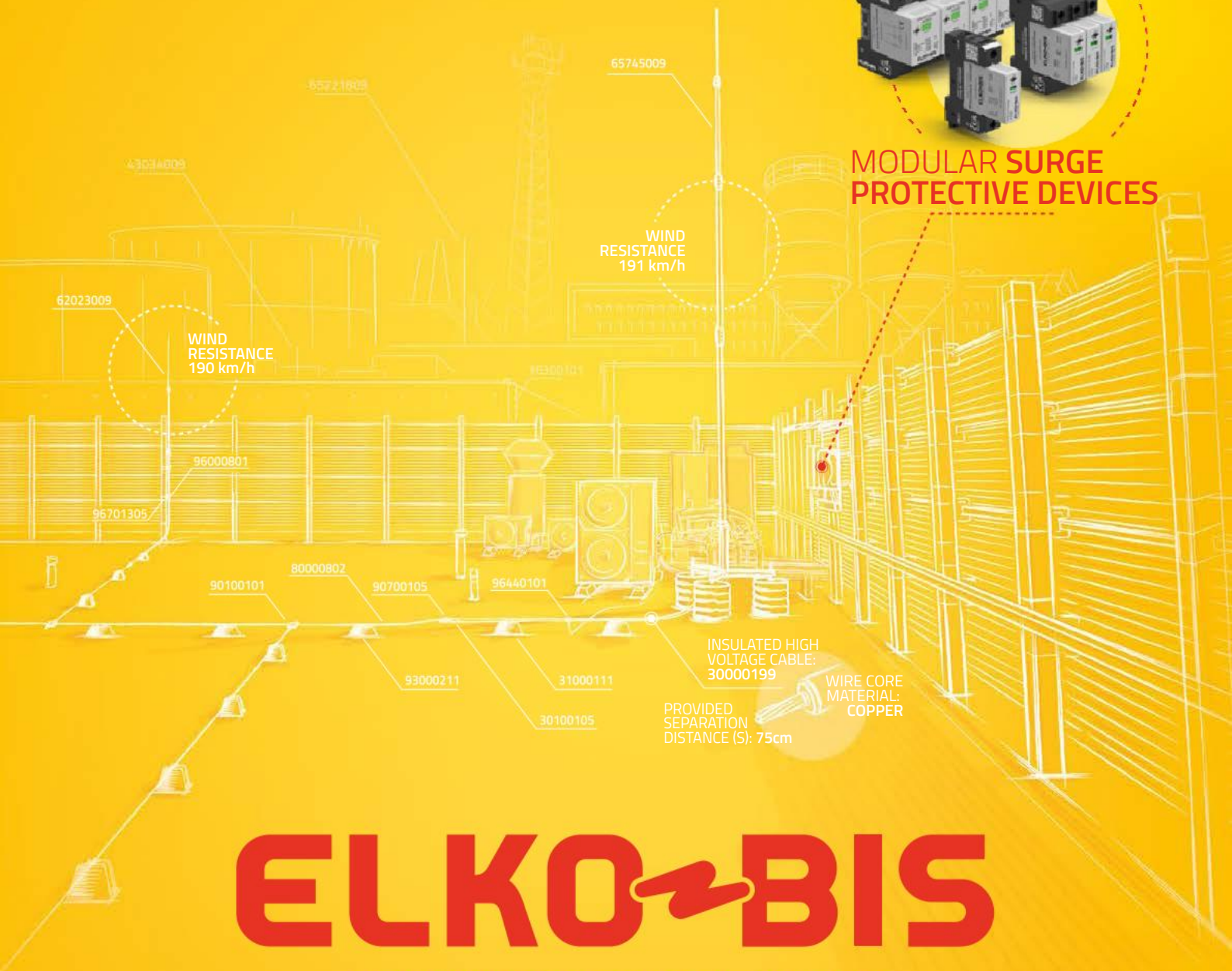


THE BEST SOLUTIONS SINCE 1998



**MODULAR SURGE
PROTECTIVE DEVICES**



ELKO-BIS

LIGHTNING PROTECTION SYSTEMS

**INTERNAL AND EXTERNAL
LIGHTNING PROTECTION**

2026/2027

www.elkobis.com



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Connecting Components

GROUP II
Earthing & Equipotential
Bonding

GROUP III
Down
Conductors

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Air Termination

GROUP V
Air Termination:
Masts, Rods, Spires

GROUP VI
Insulated Air
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TECHNICAL
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ABOUT US:



ELKO-BIS Lightning Protection Systems Ltd is a family-owned company based in Wrocław, with over 28 years of experience in the design, manufacturing, and supply of comprehensive lightning protection systems. The company is recognized on the Polish and European markets, as well as in distant countries such as Singapore, the United Arab Emirates, and Thailand.

Thanks to its innovative approach, ELKO-BIS expands its product portfolio every year with new solutions tailored to evolving requirements and technological standards. High quality, reliability, and an individual approach make the brand a synonym for safety and professionalism in its industry.



The challenges we solve are part of everyday life.

The ELKO-BIS offer includes a complete range of lightning protection components and accessories, enabling the selection of suitable solutions for any type of facility, regardless of its purpose. We protect both large-scale investments—such as the LNG terminal in Świnoujście—as well as public buildings, sports stadiums, and

the metro lines in Warsaw, along with hundreds of thousands of residential buildings and individual projects. Our portfolio also includes products dedicated to the lightning protection of pipelines and the increasingly popular photovoltaic installations.



We're here to answer **your** questions.

By working with ELKO-BIS, you gain:

- ▶ the **highest quality** lightning protection systems,
- ▶ **immediate** order execution,
- ▶ sales, technical and designing **support at every stage**,
- ▶ the **longest product warranty** on the market.

SAFETY AT THE HIGHEST LEVEL!

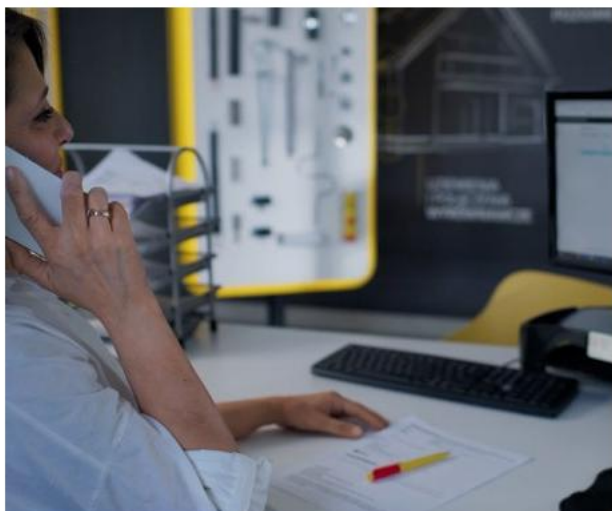
At ELKO-BIS, our priority is product compliance with applicable standards confirmed by testing, as well as the highest quality—backed by a warranty of up to five years. Our technical department designers answer all questions, including those related to the increasingly popular topic of lightning protection for photovoltaic panels. For investors, we prepare free-of-charge design proposals tailored to their specific facilities.

We focus on product quality and safety, which we verify through extensive testing. The certificates and awards we have obtained confirm the effectiveness of this approach and earn us the trust of our customers. We aim to spread awareness of how important properly

designed lightning protection is for everyone. We challenge common problems, ensuring that the information we provide is clear, accessible, and easy to understand for potential investors. There is still much work ahead of us, but it is driven by strong commitment—what we believe to be the recipe for success. As you can see, we set the bar high when it comes to company development.

And besides...

We are a team where people with diverse competencies, skills, and passions have found their place—we learn from one another and achieve our goals together.



P.S. We also take care of the magical residents of our city!

Uziomek the Dwarf is one of the bravest residents of the Wrocław land of dwarfs. Fascinated by the extraordinary power of lightning, he decided to dedicate himself to protecting people from its dangerous effects.

He chose the headquarters of ELKO-BIS Lightning Protection Systems in Wrocław as his home, where—together with a team of experts—he helps ensure the safety not only of Wrocław's residents, but of people all around the world.



1998

Establishment of ELKO-BIS

The total area of production and warehouse halls exceeds

6000 m²

9000 m²

External warehouse area

Highest lightning protection mast

21 m

PROJECTS PORTFOLIO

Selected projects using ELKO-BIS lightning protection systems.



HOUSING

Yacht Park, Gdynia

Złota 44, Warsaw

Olympia Port, Wrocław

Sowa Apartments, Bydgoszcz

Madison Apartments, Warsaw

Tens of thousands of houses across Poland



POWER ENGINEERING/ ENERGY SECTOR

CHP Plant – Gorzów Wielkopolski

CHP Plant – Turów

Power Plant – Opole

LNG Terminal – Świnoujście

Dolna Odra Power Plants – Szczecin

Wind Farms – Poland



COMMERCIAL AND PUBLIC BUILDINGS

Kaufland retail chain

Magnolia Park Shopping Center – Wrocław

IKEA – Bielany Wrocławskie

Galeria Północna – Warsaw

Fabryczna Office Park – Cracow

GreenWings Offices – Warsaw



INDUSTRIAL BUILDINGS

Nestlé Purina – Bielany Wrocławskie

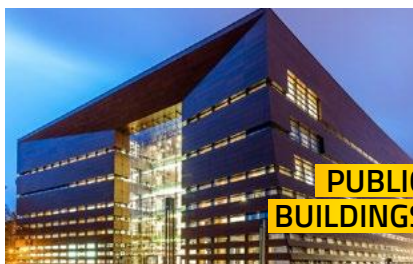
Zoeller Tech – Rekowo Górne

Bridgestone – Stargard

Carlsberg – Szczecin

x-kom – Częstochowa

Wipasz – Międzyrzec Podlaski



PUBLIC BUILDINGS

Metro – Warsaw

National Forum of Music – Wrocław

Central Clinical Hospital of the Ministry of the Interior – Warsaw

Suwałki Arena – Suwałki

Archcathedral Basilica – Frombork



PHOTOVOLTAIC FARMS

Malow Suwałki, Suwałki

Solar Park, Postomino

Caparol, Żłobnica

Bieldruk, Drukarnia Białystok

Leroy Merlin: Radom, Mirków, Tarnów



MILITARY FACILITIES

CONFIDENTIAL

Check out our projects:
www.elkobis.com.pl/en



Scotland
Wind farm



Doha, Qatar
Integrated port infrastructure



Singapore
Formula 1 Race Track



Southern Europe
Automotive industry facilities

SPD

GROUP I
Connecting Components

GROUP II
Earthing & Equipotential Bonding

GROUP III
Down Conductors

GROUP IV
Air Termination

GROUP V
Air Termination: Masts, Rods, Spikes

GROUP VI
Insulated Air Termination System

GROUP VII
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TECHNICAL INFORMATION

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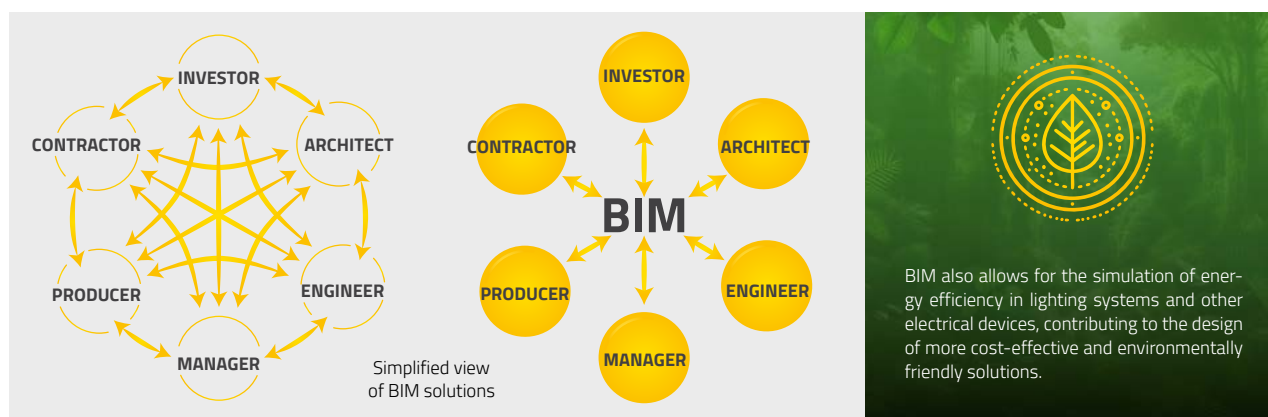
OUR PROFESSIONAL TOOLS FOR DESIGNERS

OUR BIM MODELS

BIM (Building Information Modeling) technology is a digital, advanced process for managing building or infrastructure information throughout the entire project lifecycle. Its growing popularity stems from the ability to integrate data, enabling the creation of 3D models, performance of analyses, generation of documentation, and management of various aspects of a construction project. This technology supports a deeper understanding of the planned

facility, helps identify potential issues, and prevents design clashes, thus optimizing both time and costs related to late-stage changes.

BIM is widely recognized by industry professionals as a fundamental tool for integrating MEP (Mechanical, Electrical, and Plumbing) systems with other building components such as structural, architectural, and interior design elements.



The use of BIM technology in designing **lightning protection systems** enables the creation of more precise and **efficient solutions** **that comply with current safety standards** and requirements related to protection against the effects of lightning strikes.

Key benefits of using our BIM families:

Precise Design

Our BIM models enable precise design of lightning protection system layouts. 3D modeling allows for the realistic incorporation of topographical and architectural elements, minimizing the risk of design errors.

Easier Collaboration

Centralized data ensures all project stakeholders have easy access to up-to-date information, facilitating communication and improving project execution.

Integration with Other Systems

Our models allow for seamless integration of lightning protection systems with other building installations, such as electrical, structural, and HVAC systems.

Expert Support

Our specialists offer expert assistance in the design and optimization of lightning protection installations using both basic CAD tools and advanced solutions like Revit. Upon request, we also develop custom solutions tailored to the specific needs and requirements of each project.

We will be happy to help you:

BIM Specialist Support:

+48 663 252 521

bim@elkobis.com.pl

CONTACT US TO DOWNLOAD THE BIM FILES AND INSTRUCTIONS!

OUR CUSTOM ELKO-BIS CAD SOLUTION

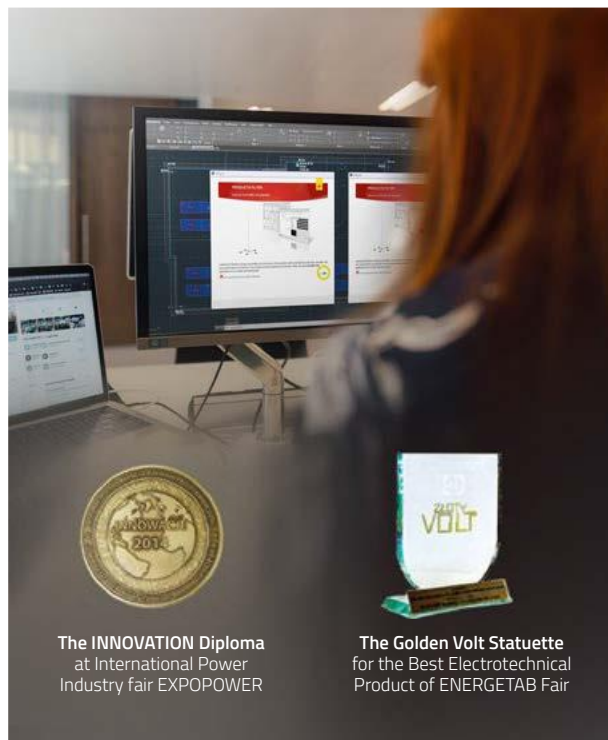
In response to the needs of designers, we have created an innovative tool to facilitate design and cost estimation work in the field of lightning protection: the ELKO-BIS CAD program. This is the first Polish

software for designing lightning protection systems in engineering environments. Its development was made possible through the collaboration of experienced ELKO-BIS designers and IT industry specialists.

So far, we have registered **over 3,700 users**
in nearly **80 countries worldwide.**

Why is the ELKO-BIS CAD program unique?

- ▶ Completely free, with a lifetime license for users.
- ▶ Endorsed by the Polish Lightning Protection Committee, ensuring credibility and compliance.
- ▶ Integrated product library and catalog available in PDF format for quick and easy access.
- ▶ Built-in lightning protection guide, fully aligned with current industry standards.
- ▶ Advanced material listing and dynamic legend creation to streamline project workflows.
- ▶ Protection zone determination and a system solution graphics database to enhance design precision.
- ▶ Developed in C++ and fully compatible with leading CAD applications, including AutoCAD, BricsCAD, ZWCAD, 4M CAD, progeCAD, CADopia, StarCAD, GstarCAD, Intersoft IntelliCAD, BitCAD, Arcadia, IntelliPlus, JetCAD, and ARES.



OUR EXPERIENCED SPECIALISTS



Looking for **the right solution** for your business?

Have questions about our services?

Our team is ready to assist you!

Our technical department provides support at every stage of project execution. A dedicated team of specialists is ready to assist in optimizing designs while ensuring compliance with current standards. For more complex installations, we offer a free on-site visit to assess the situation thoroughly and propose the best-suited solution. Our experience and commitment guarantee the highest level of collaboration.

We will be happy to help you:

Technical support:

☎ +48 71 330 66 13

✉ techniczny@elkobis.com.pl

INTERNAL LIGHTNING PROTECTION

SPD FAMILIES: ESPAC AND ESPPV | Page 14

MODULAR SURGE PROTECTIVE DEVICES

AC ESPAC

- Series ESPAC Type 1 + Type 2 25 kA
- Series ESPAC Type 1 + Type 2 12,5 kA
- Series ESPAC Type 2 20 kA
- Series ESPAC Type 3 5 kA

PV ESPPV

- Series ESPPV Type 1 + Type 2 12,5 kA
- Series ESPPV Type 2 20 kA and 15 kA

ESPM

- Replacement modules for surge protective devices from ESPAC and ESPPV families



EXTERNAL LIGHTNING PROTECTION

I GROUP I | Page 31

CONNECTING COMPONENTS

- Cross connection clamps
- Universal connection clamp
- Control clamp
- Earthing foundation clamp
- Ks connectors



INDEX BY CATALOG
NUMBER: PAGE 152

EXTERNAL LIGHTNING PROTECTION

II GROUP II | Page 41

EARTHING & EQUIPOTENTIAL BONDING

- Earthing type A
- Earthing type B
- Control pits
- Equipotential bar
- Supplementary elements



III GROUP III | Page 57

DOWN CONDUCTORS

- Wire conductor
- Wire Holders
- Facade control pits



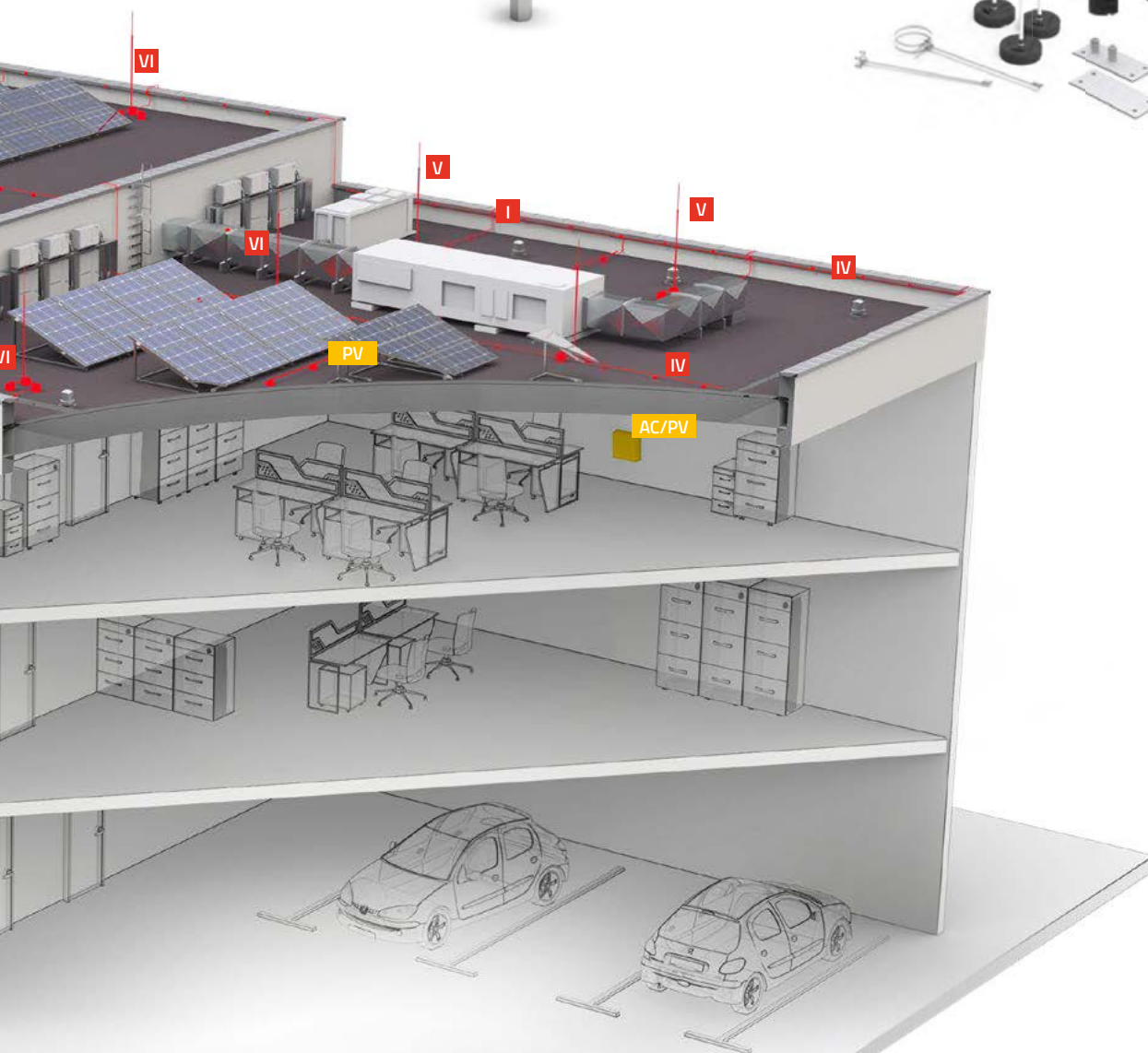
IV GROUP IV | Page 69 AIR TERMINATION

- Under tile and angle wire holder
- Universal wire holders
- Ridge tile wire holders
- Concrete and plastic holders
- Compensating connections
- Air termination studs
- Concrete holder for cable trays
- Supplementary elements



V GROUP V | Page 91 AIR TERMINATION: INTERCEPTION MASTS, SPIRES

- Lightning protection masts
- Ridge spires
- Mast for high air termination
- Air terminal on concrete foundation
- Insulated rod systems
- Supplementary elements



EXTERNAL LIGHTNING PROTECTION

VI GROUP VI | Page 125 HIGH VOLTAGE INSULATED AIR TERMINATION

- Insulated high voltage cables
- High voltage cables holders
- High voltage interception masts



VII GROUP VII | Page 135 ACCESSORIES

- Specialized tools for the installation of lightning protection systems
- Adhesives and sealants
- Anti-corrosion protection
- Supplementary elements



HOW TO READ CATALOG INDEXES?

Catalog number structure

MODEL MATERIAL

MATERIAL OPTION NUMERICAL DESIGNATION

To order a specific material option, replace the last two digits with the material code:

Material Options specification:

St/bare	00	bare steel
St/Zn	01	galvanized steel
St/tZn	02	hot galvanized steel
CU	03	copper
St/Cu	04	copper-bonded steel
V2A	05	stainless steel V2A
V4A	55	stainless steel V4A
Cu-CuZn-St/Zn	06	brass spacer
St/Zn-CuZn-Cu	07	brass spacer
PVC	08	PVC
AL	09	aluminum
CuZn	10	brass
RAL	16	varnished galvanized steel
Other	99	Other

Color Options

The material version numerical designation **RAL 16** indicates the possibility of ordering a lacquered version of the product in the chosen color. When ordering the lacquered version, change the last two digits of the catalog number according to the table below.

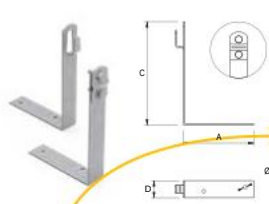
RAL 3011	RAL 3011	12
RAL 8004	RAL 8004	13
RAL 8017	RAL 8017	14
RAL 9005	RAL 9005	15
RAL 7016	RAL 7016	17

We varnish our products in five standard colors. Other color options are available on special request (at an additional cost).

HOW TO ESTABLISH CATALOG NUMBER (EXAMPLE)

Do you want to order **the copper, clinched** angle holder (page 70)?

Angle wire holder



For fixing wire on the roof surface covered with bituminous and wooden shingle. Screwed or nailed. Use screwed type holders for wire with diameter 10 mm. Holder allows to lead the wire along the roof edge.

CATALOG NUMBER	TYPE	Version	A	C	D	E
91000102	10.1	clinched	100	150	25	5
91000702	10.1.1	clinched	100	100	25	5
91001102	10.1/5	screwed	100	150	25	5
91001602	10.1.1/5	screwed	100	100	25	5

To order a specific material option, replace last two digits into material equivalent from Material Options specification.
St/tzn 02 CU 03 RAL 16 We varnish only the screwed version.

1 Select the clinched version of the product with the required height from the table.

2 In the selected number 910007**02**, change the last two digits to the equivalent of the copper version: **CU – 03**.

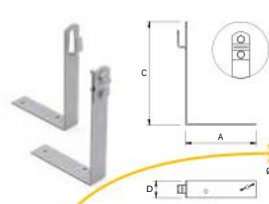


Zmiana dwóch ostatnich cyfr numeru katalogowego pozwoli na zamianę wersji materiału.
OG 02 CU 03 LA 16 Lakierujemy tylko wersję skręcaną.

3 Your number is 910007**03**.

Do you want to order **the screwed** angle holder, **varnished light brown: RAL 8004** (page 70)?

Angle wire holder



For fixing wire on the roof surface covered with bituminous and wooden shingle. Screwed or nailed. Use screwed type holders for wire with diameter 10 mm. Holder allows to lead the wire along the roof edge.

CATALOG NUMBER	TYPE	Version	A	C	D	E
91000102	10.1	clinched	100	150	25	5
91000702	10.1.1	clinched	100	100	25	5
91001102	10.1/5	screwed	100	150	25	5
91001602	10.1.1/5	screwed	100	100	25	5

To order a specific material option, replace last two digits into material equivalent from Material Options specification.
St/tzn 02 CU 03 RAL 16 We varnish only the screwed version.

1 Select the screwed version of the product with the required height from the table.

2 In the selected number 910011**02**, change the last two digits to the equivalents of the desired RAL paint version.



Zmiana dwóch ostatnich cyfr numeru katalogowego pozwoli na zamianę wersji materiału.
OG 02 CU 03 RAL 16 We varnish only the screwed version.

LA 3011	12
LA 8004	13
LA 8017	14
LA 9005	15

3 Your number is 910011**13**.

ELKO-BIS catalog cards: Up-to-date technical product data.

In order to provide solutions of the highest quality, we focus on meeting user expectations while complying with applicable norms and standards. We introduce changes that respond to the challenges of the modern market.

Modifications to the manufacturing technology of our products result from continuous improvement efforts;

therefore, the technical data included in this catalog are for reference purposes only and are valid as of the publication date of this document.

Up-to-date information is always available on our website: www.elkobis.com.pl/en, where you can **generate a catalog card containing all current data for any product from the ELKO-BIS range.**

Product catalog card.

How to generate it?

Method 1

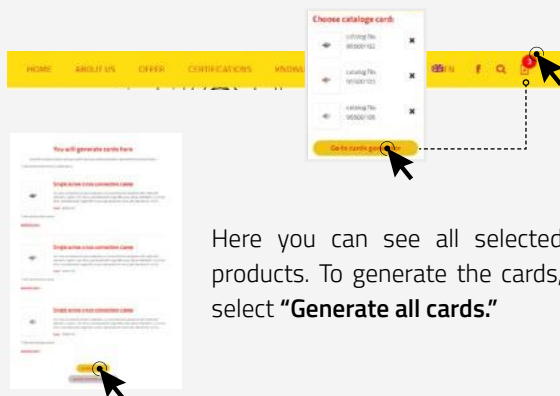
In the **OFFER** tab at www.elkobis.com.pl/en, select the desired product.



By clicking **"Generate card"** under the selected material version of the product, you will download a single catalog card.

To download a larger number of cards at once, click **"Add to generator"** for all desired products.

Next, in the upper left corner of the page, select the cart and then click **"Go to the card generator."**



Here you can see all selected products. To generate the cards, select **"Generate all cards."**

Method 2

Enter the website address in your browser:

www.elkobis.com.pl/en/XXXXXXXX

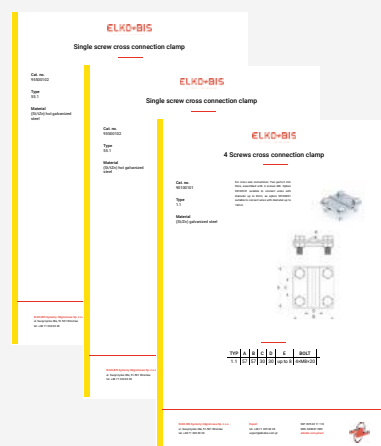
Replace **XXXXXXXX** with the **catalog number of the selected product** (including the material version).

This method also allows catalog cards for several different products to be **generated simultaneously**. Enter the selected product numbers **without spaces and separated by commas**.

Example:

www.elkobis.com.pl/en/card/90100101,95500105,91400103

Catalog cards are generated in PDF format.



**MORE
INFORMATION**



* Actual colors may slightly differ from the presented samples.

* Product dimensions in the catalog are valid as of the publication date and may be subject to change. Current information is available at www.elkobis.com.pl/en

MODULAR SURGE PROTECTIVE DEVICES ESPAC AND ESPPV

ESPAC surge protective devices are designed for use in low-voltage AC electrical installations. All ESPAC surge arresters have replaceable modules. The surge protective devices in this family are equipped with thermal protection combined with an optical indicator.

If the optical indicator changes color to red, the replaceable module of the surge arrester must be changed.

ESPAC



Type 1 + Type 2 25 kA

page 16-17



Type 1 + Type 2 12,5 kA

page 18-19



Type 2 20 kA

page 20-21



Type 3 5 kA

page 22-23

ESPAC applications:

A range of surge protective devices dedicated to buildings with a lightning protection system of LPL class I, II, III and IV:

- large industrial facilities,
- facilities of special importance,
- technological facilities,
- administrative facilities,
- public facilities,
- single-family houses and larger residential buildings,
- telecommunication and electrical installations near transformer stations.





ESPPV surge protective devices are designed for use in PV electrical installations, including photovoltaic farms. All arresters in this family are equipped with thermal protection combined with an optical indicator. surge protective devices in this family are available as mono-blocks (no possibility of replacing the module for Type 1 + Type 2 arresters) and also as standard surge arresters with replaceable modules (Type 2 surge arresters). If the optical indicator changes color to red, the device or replaceable module of the surge arrester must be changed.

ESPPV



Type 1 + Type 2 12,5 kA

page 24-25



Type 2 20 kA and 15 kA

page 26-27

ESPM



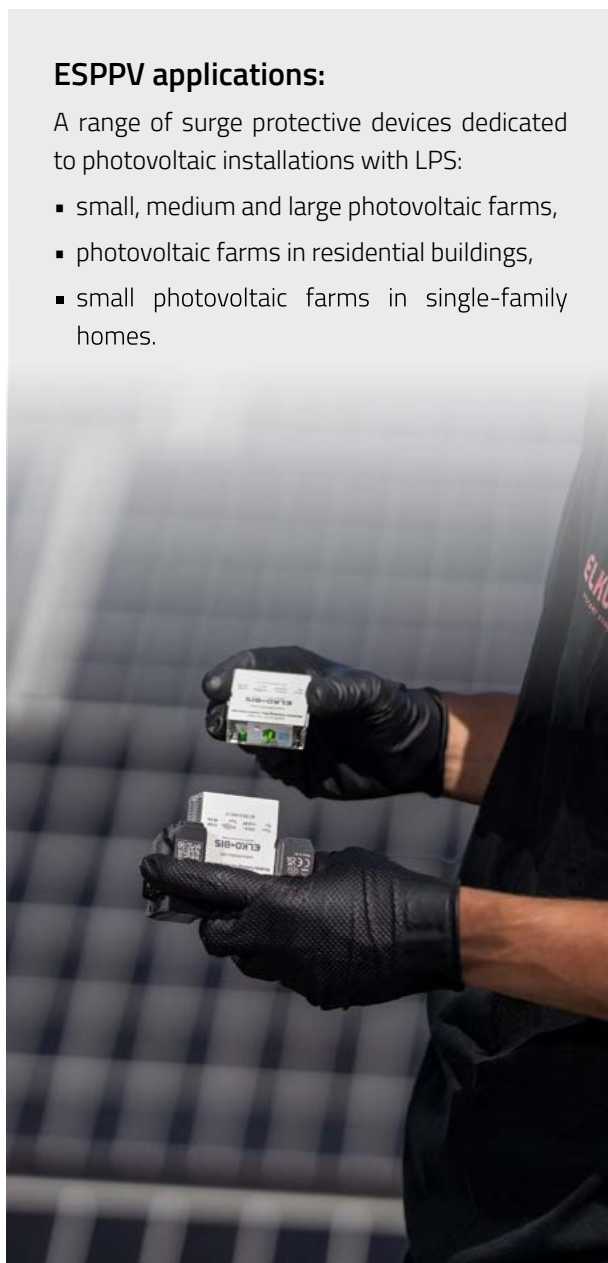
Replacement modules for surge protective devices from ESPAC and ESPPV families

page 28-29

ESPPV applications:

A range of surge protective devices dedicated to photovoltaic installations with LPS:

- small, medium and large photovoltaic farms,
- photovoltaic farms in residential buildings,
- small photovoltaic farms in single-family homes.



Type 1 + Type 2 25 kA

ESPAC VG T12 25/260

ESPAC VG T12 25/260 surge protective devices are designed for internal use in the main switchboard of a building as Type 1 or Type 2 protection against surges caused by direct and indirect atmospheric discharges or surges caused by switching of electrical apparatuses. The devices are equipped with thermal protection and optical signalling, which, by changing color from green to red, indicates the need to replace the arrester module.

The ESPAC VG T12 25/260 series of arresters is used in buildings with a TN (TN-S, TN-C, TN-C-S) and TT network system.

SERIES CHARACTERISTICS

- High-performance series of surge arresters in single, two, three and four-pole versions with a modular width from two (36 mm) to eight modules (144 mm).
- Provided protection against surges resulting from direct and indirect lightning strikes – homes, offices or industrial buildings, recommended for use in main switchboards of large buildings.
- Possible remote signalization of damage with a voltage and current signal – 250V/0,5A AC and 250V/0,1A DC.
- No leakage current, no follow current.
- Optical indicator informing about the device status: green – functional, red – replace.
- Possibility of installing the surge protective device in two positions on a TH 35 rail.
- Replaceable modules.
- Possibility of feeding to the power terminals with a cable or a rail – prong or fork type.



Replaceable modules
page 28-29



Summary table of basic technical parameters
of ELKO-BIS surge surge protective devices – page 150



TECHNICAL DATA

SPD Series		ESPAC VG T12 25/260
Type	Type 1 + Type 2	
U_n	Nominal voltage	230 V AC
U_c	Maximum operating voltage	260 V
I_{imp}	Lightning impulse current (10/350 μ s)	25 kA
I_n	Nominal discharge current (8/20 μ s)	30 kA
I_{max}	Maximum discharge current (8/20 μ s)	60 kA
U_p	Voltage protection level	1,5 kV
t_a	Response time	100 ns
U_{res}	Reduced voltage during the flow of nominal discharge current I_n	0,85 kV
I_{scrr}	Short-circuit current rating	50 kA
Maximum overcurrent protection		250 A gL/gG
Executive component		MOV + GDT (combined)
TOV 5 s L-N		335 V
Network system		TN-S, TN-C, TN-C-S, TT
Range of operating temperatures (min/max)		- 40 °C ...+ 85 °C
Humidity		5 - 95 %
Cross-section of connected conductors		solid: min. 2,5 mm ² - max. 50 mm ² ; stranded: min. 2,5 mm ² - max. 30 mm ²
Degree of protection		IP20
Mounting		DIN rail 35 mm
LPS		I, II, III, IV
According to standard		PN-EN 61643-11; IEC 61643-11

Certifications



VDE Certification

PRODUCT DATA

SPD Series ESPAC VG T12 25/260

NAME	CATALOG NUMBER	I_{imp} (10/350 μ s) [kA]	Network system	Remote indicator
ESPAC VG T12 25/260 1+0	10100250080	25	TN-S, TN-C, TN-C-S	NO
ESPAC VG T12 25/260 2+0	10200250080		TN-S, TN-C, TN-C-S	
ESPAC VG T12 25/260 3+0	10300250080		TN-C	
ESPAC VG T12 25/260 4+0	10400250080		TN-S, TN-C-S	
ESPAC VG T12 25/260 1+0 RI	10100250180		TN-S, TN-C, TN-C-S	YES
ESPAC VG T12 25/260 2+0 RI	10200250180		TN-S, TN-C, TN-C-S	
ESPAC VG T12 25/260 3+0 RI	10300250180		TN-C	
ESPAC VG T12 25/260 4+0 RI	10400250180		TN-S, TN-C-S	
ESPAC VG T12 25/260 1+1 RI	10210251180		TT, TN-S, TN-C	
ESPAC VG T12 25/260 3+1 RI	10410251180		TT, TN-S, TN-C-S	

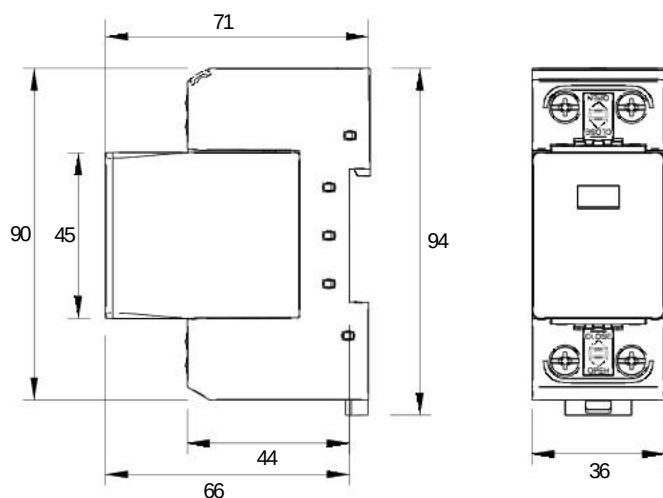
Type 1 + Type 2 25 kA

ESPAC VG T12 25/260

ESPAC VG T12 25/260 1+0

CATALOG
NUMBER:

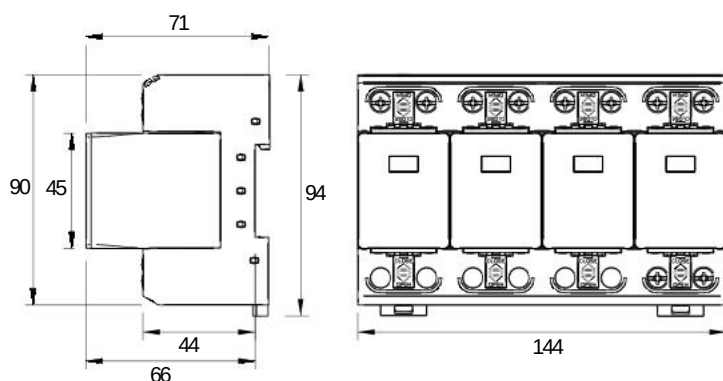
10100250080



ESPAC VG T12 25/260 4+0

CATALOG
NUMBER:

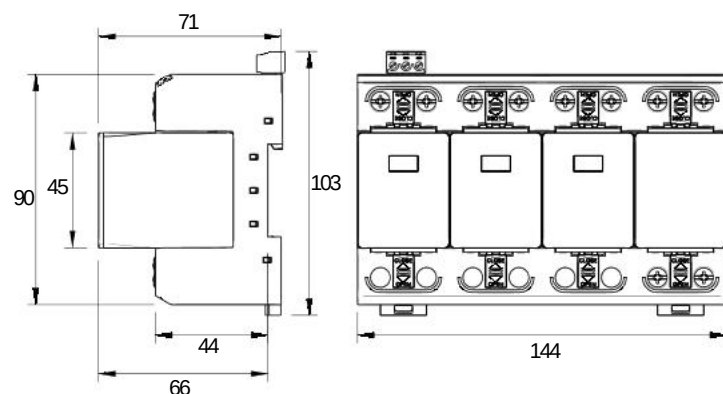
10400250080



ESPAC VG T12 25/260 3+1 RI

CATALOG
NUMBER:

10410251180



* All dimensions are specified in millimeters.

SPD

GROUP I
Connecting ComponentsGROUP II
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ESPAC V T12 12,5/275

ESPAC V T12 12,5/275 surge protective devices are designed for internal use in the main switchboard or sub-distribution boards of a building as Type 1 or Type 2 protection against surges caused by direct and indirect atmospheric discharges or surges caused by switching of electrical apparatuses. The devices are equipped with thermal protection and optical signalling, which, by changing color from green to red, indicates the need to replace the arrester module. The ESPAC V T12 12,5/275 series of surge arresters is used in buildings with a TN (TN-S, TN-C, TN-C-S) and TT network system.

SERIES CHARACTERISTICS

- High-performance series of surge arresters in single, two, three and four-pole versions with a modular width from one (18 mm) to four modules (72 mm).
- Provided protection against surges resulting from direct and indirect lightning strikes – homes, offices or industrial buildings, recommended for use in main or sub-distribution boards of a building.
- Possible remote signalization of damage with a voltage and current signal – 250V/0,5A AC and 250V/0,1A DC.
- Optical indicator informing about the device status: green – functional, red – replace.
- Possibility of installing the surge protective device in two positions on a TH 35 rail.
- Replaceable modules.
- Possibility of feeding to the power terminals with a cable or a rail – prong or fork type.



Replaceable modules
page 28-29



Summary table of basic technical parameters
of ELKO-BIS surge surge protective devices – page 150



TECHNICAL DATA

SPD Series	ESPAC V T12 12,5/275
Type	Type 1 + Type 2
U_n Nominal voltage	230 V AC
U_c Maximum operating voltage	275 V
I_{imp} Lightning impulse current I_{imp} (10/350 μ s) / 1 pole	12,5 kA
I_n Nominal discharge current (8/20 μ s)	30 kA
I_{max} Maximum discharge current (8/20 μ s)	60 kA
U_p Voltage protection level	1,5 kV
U_p Voltage protection level- at I_n (8/20 μ s)	0,9 kV
I_{scrr} Short-circuit current rating	50 kA
t_a Response time	25 ns
Maximum overcurrent protection	160 A gL/gG
Executive component	MOV
TOV 5 s L-N	335 V
Network system	TN-S, TN-C, TN-C-S, TT
Cross-section of connected conductors	solid: min. 1 mm ² - max. 35 mm ² ; stranded: min. 1 mm ² - max. 25 mm ²
Degree of protection	IP20
Range of operating temperatures (min/max)	- 40°C ...+ 80°C
Humidity	5 - 95 %
Mounting	DIN rail 35 mm
LPS	III, IV
According to standard	PN-EN 61643-11; IEC 61643-11

Certifications

ezü EZÜ Certification

PRODUCT DATA

SPD Series ESPAC VG T12 12,5/275

NAME	CATALOG NUMBER	I_{imp} (10/350 μ s) [kA]	Network system	Remote indicator
ESPAC V T12 12,5/275 1+0	10100120080	12,5	TN-S, TN-C, TN-C-S	NO
ESPAC V T12 12,5/275 2+0	10200120080		TN-S, TN-C, TN-C-S	
ESPAC V T12 12,5/275 3+0	10300120080		TN-C	
ESPAC V T12 12,5/275 4+0	10400120080		TN-S, TN-C-S	
ESPAC V T12 12,5/275 1+0 RI	10100120180		TN-S, TN-C, TN-C-S	YES
ESPAC V T12 12,5/275 2+0 RI	10200120180		TN-S, TN-C, TN-C-S	
ESPAC V T12 12,5/275 3+0 RI	10300120180		TN-C	
ESPAC V T12 12,5/275 4+0 RI	10400120180		TN-S, TN-C-S	
ESPAC V T12 12,5/275 1+1	10210121080		TT, TN-S, TN-C, TN-C-S	NO
ESPAC V T12 12,5/275 3+1	10410121080		TT, TN-S, TN-C-S	
ESPAC V T12 12,5/275 1+1 RI	10210121180		TT, TN-S, TN-C, TN-C-S	YES
ESPAC V T12 12,5/275 3+1 RI	10410121180		TT, TN-S, TN-C-S	

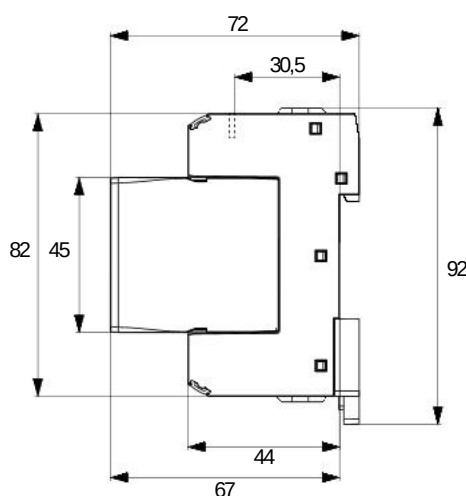
Type 1 + Type 2 12,5 kA

ESPAC V T12 12,5/275

ESPAC V T12 12,5/275 1+0

CATALOG
NUMBER:

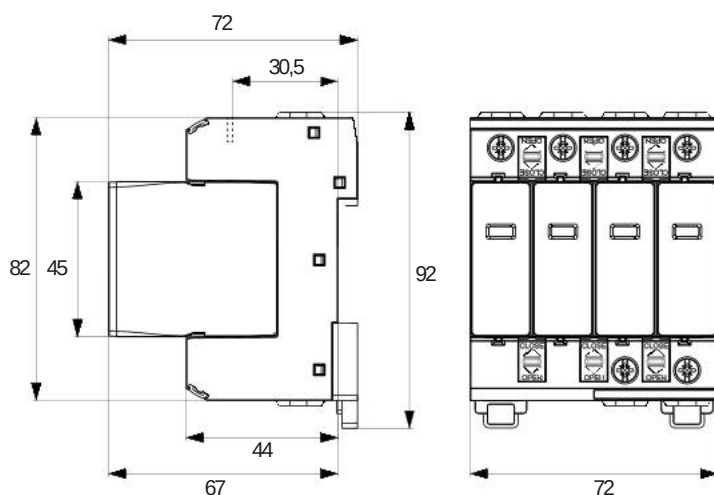
10100120080



ESPAC V T12 12,5/275 4+0

CATALOG
NUMBER:

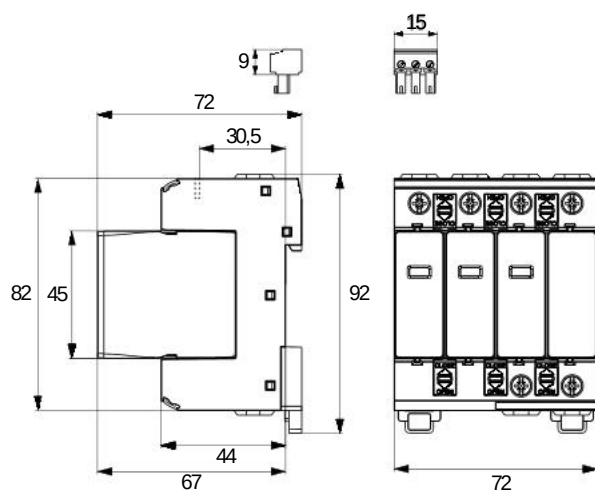
10410121180



ESPAC V T12 12,5/275 3+1 RI

CATALOG
NUMBER:

10410121180



* All dimensions are specified in millimeters.

SPD

GROUP I
Connecting ComponentsGROUP II
Earthing & Equipotential
BondingGROUP III
Down
ConductorsGROUP IV
Air TerminationGROUP V
Air Termination:
Masts, Rods, SpikesGROUP VI
Insulated Air
Termination SystemGROUP VII
AccessoriesTECHNICAL
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ESPAC V T2 20/275

The ESPAC V T2 20/275 and ESPAC V T2 20/600 surge protective devices are designed for indoor use, mainly in sub-switchboards of a building and, in specific cases, in the main switchboard of a building as Type 2 protection against surges caused by indirect atmospheric discharges or surges caused by switching of electrical apparatuses. The devices are equipped with thermal protection and optical signalization, which, by changing color from green to red, indicates the need to change the replaceable arrester module. The ESPAC V T2 20/275 series of arresters is used in buildings with a TN (TN-S, TN-C, TN-C-S) and TT network layout. The ESPAC V T2 20/600 surge arrester of arresters is used in buildings with an IT network system.

SERIES CHARACTERISTICS

- Surge arresters in single, two, three and four-pole versions with a modular width from one (18 mm) to four modules (72 mm).
- Provided protection against surges resulting from indirect lightning strikes – homes, offices or industrial buildings, recommended for use in main or sub-distribution boards of a building.
- Possible remote signalization of damage with a voltage and current signal – 250V/0,5A AC and 250V/0,1A DC.
- Optical indicator informing about the device status: green – functional, red – replace.
- Possibility of installing the surge protective device in two positions on a TH 35 rail.
- Replaceable modules.
- Possibility of feeding to the power terminals with a cable or a rail – prong or fork type.



Replaceable modules
page 28-29



Summary table of basic technical parameters
of ELKO-BIS surge surge protective devices – page 150



TECHNICAL DATA

SPD Series		ESPAC V T2 20/275	ESPAC V T2 20/600
Type		Type 2	
U_n	Nominal voltage	230 V AC	400 - 690 V AC
U_c	Maximum operating voltage	275 V	760 V
I_n	Nominal discharge current (8/20 μ s)	20 kA	
I_{max}	Maximum discharge current (8/20 μ s)	40 kA	
U_p	Voltage protection level	1,35 kV	3,4 kV
U_p	Voltage protection level – at I_n (8/20 μ s)	0,9 kV	2,5 kV
I_{scrr}	Short-circuit current rating	50 kA	25 kA
t_a	Response time	25 ns	100 ns
Maximum overcurrent protection		160 A gL/gG	100 A gL/gG
Executive component		MOV	
TOV 200 ms L-PE		-	1960 V
TOV 5 s L-N		335 V	-
TOV 120 min L-N		440 V	-
Network system		TN-S, TN-C, TN-C-S, TT	IT
Cross-section of connected conductors		solid: min. 1 mm ² – max. 35 mm ² ; stranded: min. 1 mm ² – max. 25 mm ²	
Degree of protection		IP20	
Range of operating temperatures (min/max)		- 40 °C ...+ 80 °C	
Humidity		5 - 95 %	
Mounting		DIN rail 35 mm	
According to standard		PN-EN 61643-11; IEC 61643-11	
Certifications		 VDE Certification	 EZÚ Certification

PRODUCT DATA

SPD Series ESPAC V T2 20/275 and ESPAC V T2 20/600

NAME	CATALOG NUMBER	I_n (8/20 μ s) [kA]	Network system	Remote indicator
ESPAC V T2 20/275 1+0	12100200080	20	TN-S, TN-C, TN-C-S	NO
ESPAC V T2 20/275 2+0	12200200080		TN-S, TN-C, TN-C-S	
ESPAC V T2 20/275 3+0	12300200080		TN-C	
ESPAC V T2 20/275 4+0	12400200080		TN-S, TN-C-S	
ESPAC V T2 20/275 1+0 RI	12100200180		TN-S, TN-C, TN-C-S	YES
ESPAC V T2 20/275 2+0 RI	12200200180		TN-S, TN-C, TN-C-S	
ESPAC V T2 20/275 3+0 RI	12300200180		TN-C	
ESPAC V T2 20/275 4+0 RI	12400200180		TN-S, TN-C-S	
ESPAC V T2 20/275 1+1	12210201080		TT, TN-S, TN-C	NO
ESPAC V T2 20/275 3+1	12410201080		TT, TN-S	
ESPAC V T2 20/275 1+1 RI	12210201180		TT, TN-S, TN-C	YES
ESPAC V T2 20/275 3+1 RI	12410201180		TT, TN-S	
ESPAC V T2 20/600 3+0 RI	12300102180		IT	

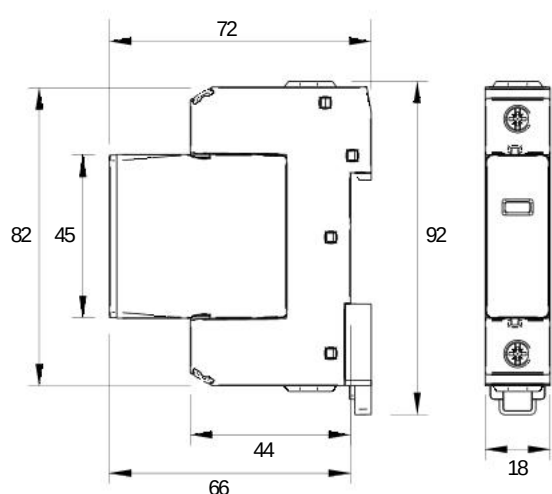
Type 2 20 kA

ESPAC V T2 20/275

ESPAC V T2 20/275 1+0

CATALOG
NUMBER:

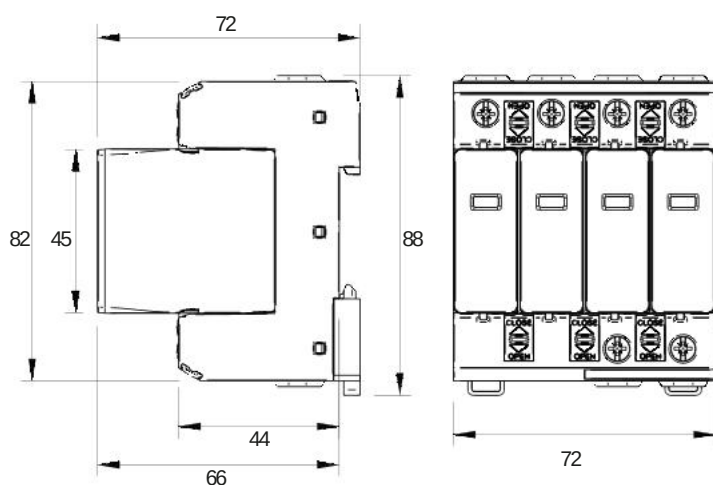
12100200080



ESPAC V T2 20/275 4+0

CATALOG
NUMBER:

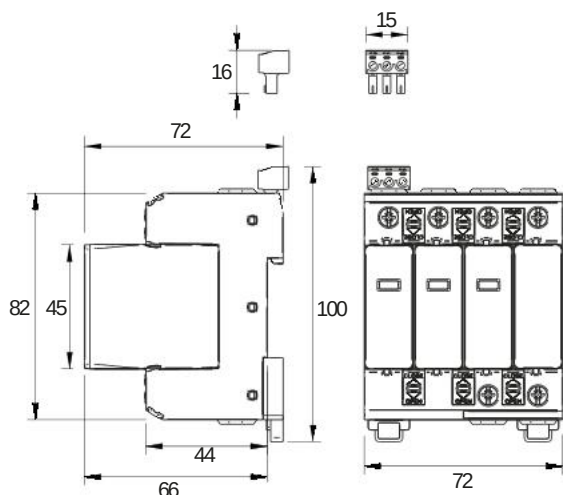
12400200080



ESPAC V T2 20/275 3+1 RI

CATALOG
NUMBER:

12410201180



* All dimensions are specified in millimeters.

SPD

GROUP I
Connecting ComponentsGROUP II
Earthing & Equipotential
BondingGROUP III
Down
ConductorsGROUP IV
Air TerminationGROUP V
Air Termination:
Masts, Rods, SpikesGROUP VI
Insulated Air
Termination SystemGROUP VII
AccessoriesTECHNICAL
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ESPAC V T3 5/275

ESPAC V T3 5/275 surge protective devices are designed for internal use in subordinate, single-phase switchboards of a building as Type 3 protection against commutative or indirect surges. Protective devices from this series are very often used as additional surge protection for sensitive electronic devices. The surge protective devices are equipped with thermal protection and optical signalization, which, by changing color from green to red, indicates the need to change the replaceable arrester module. The ESPAC V T3 5/275 series of arresters is used in buildings with a TN network system (TN-S, TN-C, TN-C-S) and TT.



SERIES CHARACTERISTICS

- ▶ Surge arresters in two-pole versions with a modular width of 36 mm.
- ▶ Provided protection against surges resulting from indirect lightning strikes – homes, offices or industrial buildings, recommended for use in one phase sub-distribution boards of a building.
- ▶ Additional surge protection of electronic devices.
- ▶ Possible remote signalization of damage with a voltage and current signal - 250V/0,5A AC and 250V/0,1A DC.
- ▶ Optical indicator informing about the device status: green - functional, red - replace.
- ▶ Possibility of installing the surge protective device in two positions on a TH 35 rail.
- ▶ Replaceable modules.
- ▶ Possibility of feeding to the power terminals with a cable or a rail - prong or fork type.



Replaceable modules
page 28-29



Summary table of basic technical parameters
of ELKO-BIS surge surge protective devices - page 150

TECHNICAL DATA

SPD Series		ESPAC V T3 5/275
Type	Type 3	
U _n	Nominal voltage	230 V AC
U _c	Maximum operating voltage	275 V
I _n	Nominal discharge current (8/20 μs)	5 kA
U _{oc}	Class test T3: Test voltage L-N	10 kV
U _p	Voltage protection level	1 kV
U _p	Voltage protection level- at I _n (8/20 μs)	0,9 kV
U _p	Voltage protection level- L-PE/N-PE	1,5 kV/1,5 kV
I _{sc}	Short-circuit current rating	25 kA
t _a	Response time	25 ns
Maximum overcurrent protection		63 A gL/gG
Executive component		MOV + GDT (combined)
TOV 200 ms L-PE		1455 V
TOV 5 s L-N		335 V
TOV 120 min L-N		safe failure
Response time t _a N-PE		100 ns
Network system		TN-S, TN-C, TN-C-S, TT
Cross-section of connected conductors		solid: min. 1 mm ² - max. 35 mm ² ; stranded: min. 1 mm ² - max. 25 mm ²
Degree of protection		IP20
Range of operating temperatures (min/max)		- 40 °C ... + 80 °C
Humidity		5 - 95 %
Mounting		DIN rail 35 mm
According to standard		PN-EN 61643-11; IEC 61643-11
Certifications		ezú EZÚ Certification

PRODUCT DATA

SPD Series ESPAC V T3 5/275

NAME	CATALOG NUMBER	I _n (8/20 μs) [kA]	Network system	Remote indicator
ESPAC V T3 5/275 1+1	13210051080	5	TN-S, TN-C, TN-C-S, TT	NO
ESPAC V T3 5/275 1+1 RI	13210051180		TN-S, TN-C, TN-C-S, TT	YES

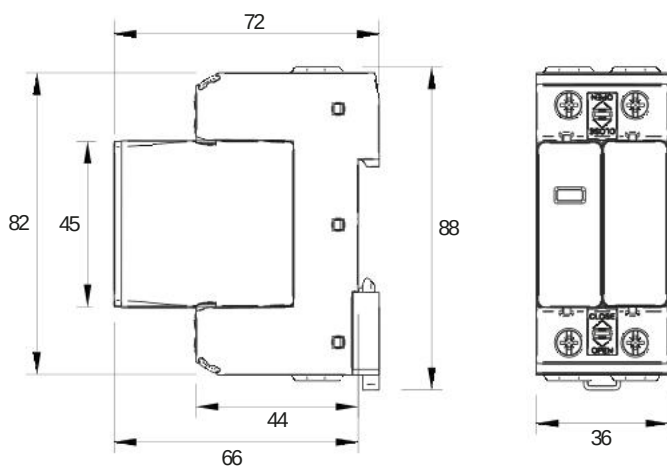
Type 3 5 kA

ESPAC V T3 5/275 5/275

ESPAC V T3 5/275 1+1

CATALOG
NUMBER:

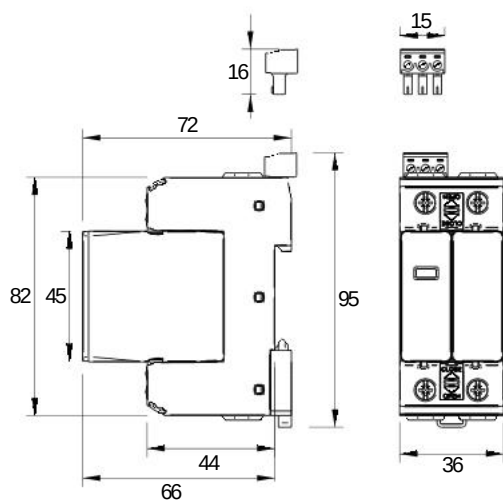
13210051080



ESPAC V T3 5/275 1+1 RI

CATALOG
NUMBER:

13210051180

GROUP I
Connecting ComponentsGROUP II
Earthing & Equipotential
BondingGROUP III
Down
ConductorsGROUP IV
Air TerminationGROUP V
Air Termination:
Masts, Rods, SpikesGROUP VI
Insulated Air
Termination SystemGROUP VII
AccessoriesTECHNICAL
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* All dimensions are specified in millimeters.

ESPPV T12 12,5

The ESPPV V T12 12,5/1000 and ESPPV V T12 12,5/1500 surge protective devices are used to protect photovoltaic installations against surges caused by direct and indirect atmospheric discharges or surges caused by switching of electrical apparatuses. They are used in facilities equipped with an external lightning protection system. The executive elements of these arresters are 3 varistors connected in a Y configuration. The devices are equipped with thermal protection and optical signalization, which, by changing color from green to red, indicates the need to replace the surge arrester. Protective device dedicated to use in a situation where the arrangement of panels, which are a key element of every photovoltaic installation, did not allow for maintaining separation distances.



SERIES CHARACTERISTICS

- High-performance series of surge arresters in Y configuration with a modular width of 72 mm (4 modules).
- Provided protection against surges resulting from direct and indirect lightning strikes – homes, offices or industrial buildings, recommended for use in switchboards of PV installations.
- Possible remote signalization of damage with a voltage and current signal – 250V/0,5A AC and 250V/0,1A DC.
- Optical indicator informing about the device status: green – functional, red – replace.
- Possibility of installing the surge protective device in two positions on a TH 35 rail.
- Execution of surge protective devices as monoblocks (no replaceable modules).

TECHNICAL DATA

SPD Series	ESPPV V T12 12,5/1000	ESPPV V T12 12,5/1500
Type	Type 1 + Type 2	
U_{cpv} Maximum operating voltage +/-, +/PE, -/PE	1050 V DC	1500 V DC
I_{Total} Total discharge current (10/350 μ s)	12,5 kA	
I_{imp} Discharge current (10/350 μ s) / per 1 pole	6,25 kA	
I_n Nominal discharge current (8/20 μ s)	20 kA	
I_{max} Maximum discharge current (8/20 μ s)	40 kA	
U_p Voltage protection level +/-, +/PE, -/PE	3,8 kV	5,4 kV
I_{SCP} Short-circuit current rating	10 kA	
t_a Response time	25 ns	
I_{PE} Residual current mode +/-PE, -/PE	10 μ A DC	
Cross-section of connected conductors	solid: min. 4 mm ² – max. 35 mm ² ; stranded: min. 2,5 mm ² – max. 25 mm ²	
Executive component	MOV	
Degree of protection	IP20	
Range of operating temperatures (min/max)	- 40°C ... + 80°C	
Humidity	5 – 95 %	
Mounting	DIN rail 35 mm	
According to standard	PN-EN 61643-31; IEC 61643-31	
Certifications	VDE Certification	



Summary table of basic technical parameters of ELKO-BIS surge surge protective devices – page 150

PRODUCT DATA

SPD Series ESPPV T12 12,5

NAME	CATALOG NUMBER	I_{imp} (10/350 μ s) [kA]	Replaceable module	Remote indicator
ESPPV V T12 12,5/1000 Y	20121003080	12,5	NO	NO
ESPPV V T12 12,5/1000 Y RI	20121003180			YES
ESPPV V T12 12,5/1500 Y	20121503080			NO
ESPPV V T12 12,5/1500 Y RI	20121503180			YES

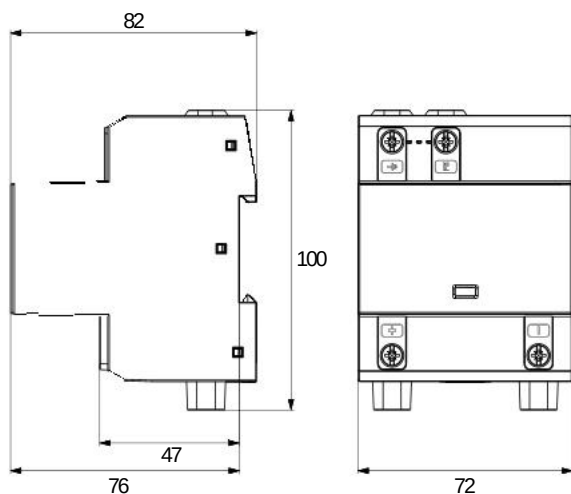
Type 1 + Type 2 12,5 kA

ESPPV T12 12,5

ESPPV V T12 12,5/1000 Y

CATALOG
NUMBER:

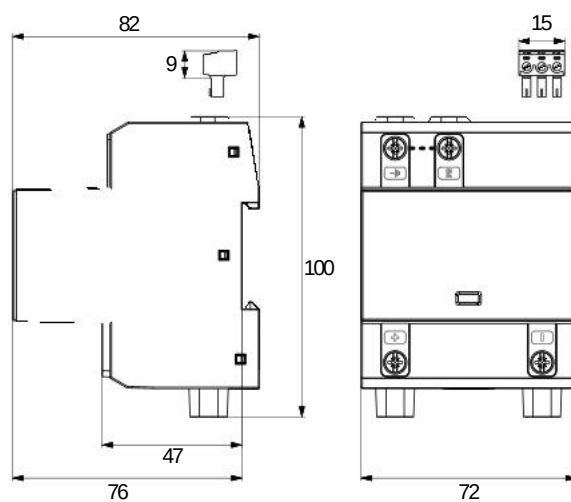
20121003080



ESPPV V T12 12,5/1500 Y RI

CATALOG
NUMBER:

20121503180



SPD

GROUP I
Connecting ComponentsGROUP II
Earthing & Equipotential
BondingGROUP III
Down
ConductorsGROUP IV
Air TerminationGROUP V
Air Termination:
Masts, Rods, SpikesGROUP VI
Insulated Air
Termination SystemGROUP VII
AccessoriesTECHNICAL
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* All dimensions are specified in millimeters.

ESPPV T2

The ESPPV V T2 15/700 and ESPPV V T2 15/1000 surge arresters are used to protect photovoltaic installations against surges from indirect atmospheric discharges or surges caused by switching of electrical apparatuses. They are used in facilities without an external lightning protection system as their main surge protective device. The executive elements of these arresters are 3 varistors connected in a Y configuration. The devices are equipped with thermal protection and optical signalization, which, by changing color from green to red, indicates the need to change the replaceable arrester module. The surge arresters are dedicated for use in situations where the arrangement of panels, which are a key element of every photovoltaic installation, allows for maintaining separation distances, or when the building is not equipped with a lightning protection system (building without LPS).



SERIES CHARACTERISTICS

- Series of surge arresters in Y configuration with a modular width of 54 mm (3 modules).
- Provided protection against surges resulting from indirect lightning strikes – homes, offices or industrial buildings, recommended for use in switchboards of PV photovoltaic installations.
- Possible remote signalization of damage with a voltage and current signal – 250V/0,5A AC and 250V/0,1A DC.
- Optical indicator informing about the device status: green – functional, red – replace.
- Possibility of installing the surge protective device in two positions on a TH 35 rail.
- Replaceable modules.



Replaceable modules
page 28-29

TECHNICAL DATA

SPD Series		ESPPV V T2 20/700	ESPPV V T2 15/1000
Type		Type 2	
U_{CPV}	Maximum operating voltage +/-, +/- PE, -/PE	750 V DC	1020 V DC
I_n	Nominal discharge current (8/20 μ s)	20 kA	15 kA
I_{max}	Maximum discharge current (8/20 μ s)	40 kA	
I_{total}	Nominal discharge current (8/20 μ s)	40 kA	
U_p	Voltage protection level +/-, +/- PE; -/PE	3,6 kV	4 kV
I_{SCP}	Short-circuit current rating	10 kA	
t_a	Response time	25 ns	
I_{PE}	Residual current mode +/- PE, -/PE	0,005 mA DC	
Cross-section of connected conductors		solid: min. 1 mm ² – max. 35 mm ² ; stranded: min. 1 mm ² – max. 25 mm ²	
Executive component		MOV	
Degree of protection		IP20	
Range of operating temperatures (min/max)		- 40°C ... + 80°C	
Humidity		5 - 95 %	
Mounting		DIN rail 35 mm	
According to standard		PN-EN 61643-31; IEC 61643-31	
Certifications		ezü EZÜ Certification	 VDE Certification



Summary table of basic technical parameters
of ELKO-BIS surge surge protective devices – page 150

PRODUCT DATA

SPD Series ESPPV T2 20 i ESPPV T2 15

NAME	CATALOG NUMBER	I _n (8/20 μs) [kA]	Replacement modules	Remote indicator
ESPPV V T2 20/700 Y	22120703080	20	YES	NO
ESPPV V T2 20/700 Y RI	22120703180			YES
ESPPV V T2 15/1000 Y	22121003080	15		NO
ESPPV V T2 15/1000 Y RI	22121003180			YES

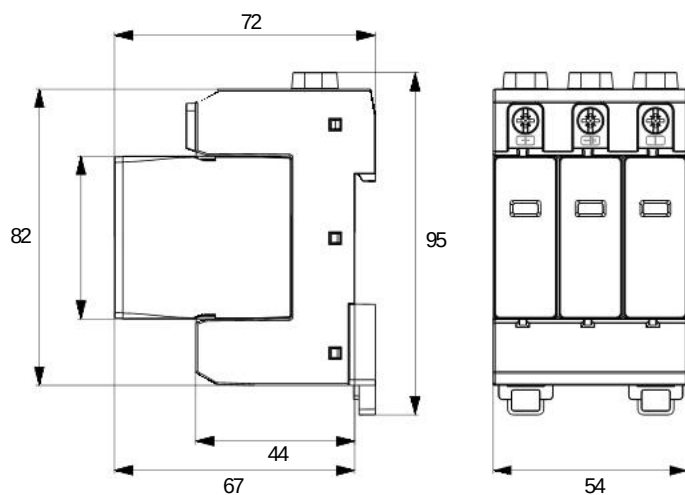
Type 2 20 kA and 15 kA

ESPPV T2 15

ESPPV V T2 20/700 Y

CATALOG
NUMBER:

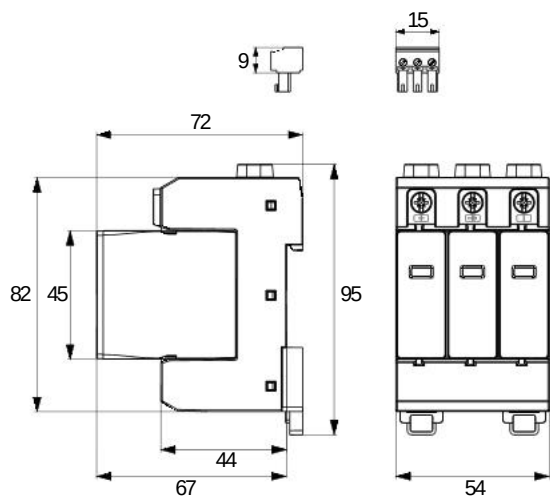
22120703080



ESPPV V T2 15/1000 Y RI

CATALOG
NUMBER:

22121003180

GROUP I
Connecting ComponentsGROUP II
Earthing & Equipotential
BondingGROUP III
Down
ConductorsGROUP IV
Air TerminationGROUP V
Air Termination:
Masts, Rods, SpikesGROUP VI
Insulated Air
Termination SystemGROUP VII
AccessoriesTECHNICAL
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* All dimensions are specified in millimeters.

Surge protective devices modules

Replaceable surge protective devices modules are an extremely practical and convenient technical solution when a fault occurs.

When the optical indicator of the surge arrester (visible on each replaceable module) changes color from green to red, it should be replaced immediately with a new one.

In order to ensure continuous protection of the electrical installation against surges, it is possible to use a signalling contact and regularly send a signal to a remote signalization device, for example a lamp on the switchboard housing.



ATTENTION! When the optical indicator turns red, the electrical installation is not protected against overvoltage until the fault is rectified (replacement of the module with a new one).

Selection table of replaceable modules - SPDs from ESPAC and ESPPV families

REPLACEABLE MODULE		SURGE PROTECTIVE DEVICE		NOTE
Name	CATALOG NUMBER	Name	CATALOG NUMBER	
ESPAC VG T12 25/260	10630253280	ESPAC VG T12 25/260 1+0	10100250080	-
		ESPAC VG T12 25/260 2+0	10200250080	
		ESPAC VG T12 25/260 3+0	10300250080	
		ESPAC VG T12 25/260 4+0	10400250080	
		ESPAC VG T12 25/260 1+0 RI	10100250180	
		ESPAC VG T12 25/260 2+0 RI	10200250180	
		ESPAC VG T12 25/260 3+0 RI	10300250180	
		ESPAC VG T12 25/260 4+0 RI	10400250180	
		ESPAC VG T12 25/260 1+1 RI	10210251180	
		ESPAC VG T12 25/260 3+1 RI	10410251180	
ESPAC VG T12 50 NPE	10640503280	ESPAC VG T12 25/260 1+1 RI	10210251180	Additional module type for 1+1 or 3+1 configurations - NPE
ESPAC VG T12 100 NPE	10641003280	ESPAC VG T12 25/260 3+1 RI	10410251180	Additional module type for 1+1 or 3+1 configurations - NPE
ESPAC V T12 12,5/275	10530123280	ESPAC V T12 12,5/275 1+0	10100120080	-
		ESPAC V T12 12,5/275 2+0	10200120080	
		ESPAC V T12 12,5/275 3+0	10300120080	
		ESPAC V T12 12,5/275 4+0	10400120080	
		ESPAC V T12 12,5/275 1+0 RI	10100120180	
		ESPAC V T12 12,5/275 2+0 RI	10200120180	
		ESPAC V T12 12,5/275 3+0 RI	10300120180	
		ESPAC V T12 12,5/275 4+0 RI	10400120180	
		ESPAC V T12 12,5/275 1+1	10210121080	
		ESPAC V T12 12,5/275 3+1	10410121080	
		ESPAC V T12 12,5/275 1+1 RI	10210121180	
		ESPAC V T12 12,5/275 3+1 RI	10410121180	
ESPAC V T12 25 NPE	10540253280	ESPAC V T12 12,5/275 1+1	10210121080	Additional module type for 1+1 or 3+1 configurations - NPE
		ESPAC V T12 12,5/275 1+1 RI	10210121180	
ESPAC V T12 50 NPE	10540503280	ESPAC V T12 12,5/275 3+1	10410121080	Additional module type for 1+1 or 3+1 configurations - NPE
		ESPAC V T12 12,5/275 3+1 RI	10410121180	

Replaceable module

Selection table of replaceable modules - SPDs from ESPAC and ESPPV families

REPLACEABLE MODULE		SURGE PROTECTIVE DEVICE		NOTE
Name	CATALOG NUMBER	Name	CATALOG NUMBER	
ESPAC V T2 20/275	12530203280	ESPAC V T2 20/275 1+0	12100200080	-
		ESPAC V T2 20/275 2+0	12200200080	
		ESPAC V T2 20/275 3+0	12300200080	
		ESPAC V T2 20/275 4+0	12400200080	
		ESPAC V T2 20/275 1+0 RI	12100200180	
		ESPAC V T2 20/275 2+0 RI	12200200180	
		ESPAC V T2 20/275 3+0 RI	12300200180	
		ESPAC V T2 20/275 4+0 RI	12400200180	
		ESPAC V T2 20/275 1+1	12210201080	
		ESPAC V T2 20/275 3+1	12410201080	
		ESPAC V T2 20/275 1+1 RI	12210201180	
		ESPAC V T2 20/275 3+1 RI	12410201180	
ESPAC V T2 20 NPE	12540203280	ESPAC V T2 20/275 1+1	12210201080	Additional module type for 1+1 or 3+1 configurations - NPE
		ESPAC V T2 20/275 3+1	12410201080	
		ESPAC V T2 20/275 1+1 RI	12210201180	
		ESPAC V T2 20/275 3+1 RI	12410201180	
ESPAC V T2 20/600	12530103280	ESPAC V T2 20/600 3+0 RI	12300102180	-
ESPAC V T3 5/275	13530053280	ESPAC V T3 5/275 1+1	13210051080	Additional module type for 1+1 - NPE
		ESPAC V T3 5/275 1+1 RI	13210051180	Additional module type for 1+1 - NPE
ESPAC V T3 5 NPE	13540053280	ESPAC V T3 5/275 1+1	13210051080	Additional module type for 1+1 - NPE
		ESPAC V T3 5/275 1+1 RI	13210051180	Additional module type for 1+1 - NPE
-	-	ESPPV V T12 12,5/1500 Y	20121503080	No replaceable modules - monoblock
		ESPPV V T12 12,5/1500 Y RI	20121503180	
		ESPPV V T12 12,5/1000 Y	20121003080	
		ESPPV V T12 12,5/1000 Y RI	20121003180	
ESPPV V T2 20/700	22530703280	ESPPV V T2 20/700 Y	22120703080	-
		ESPPV V T2 20/700 Y RI	22120703180	-
ESPPV V T2 15/1000	22531003280	ESPPV V T2 15/1000 Y	22121003080	-
		ESPPV V T2 15/1000 Y RI	22121003180	-

ATTENTION!

In order to ensure correct replacement of the module in the surge surge protective device, it is recommended to read the contents of the technical instructions in detail. In case of any ambiguities, please contact our Technical Support Department.



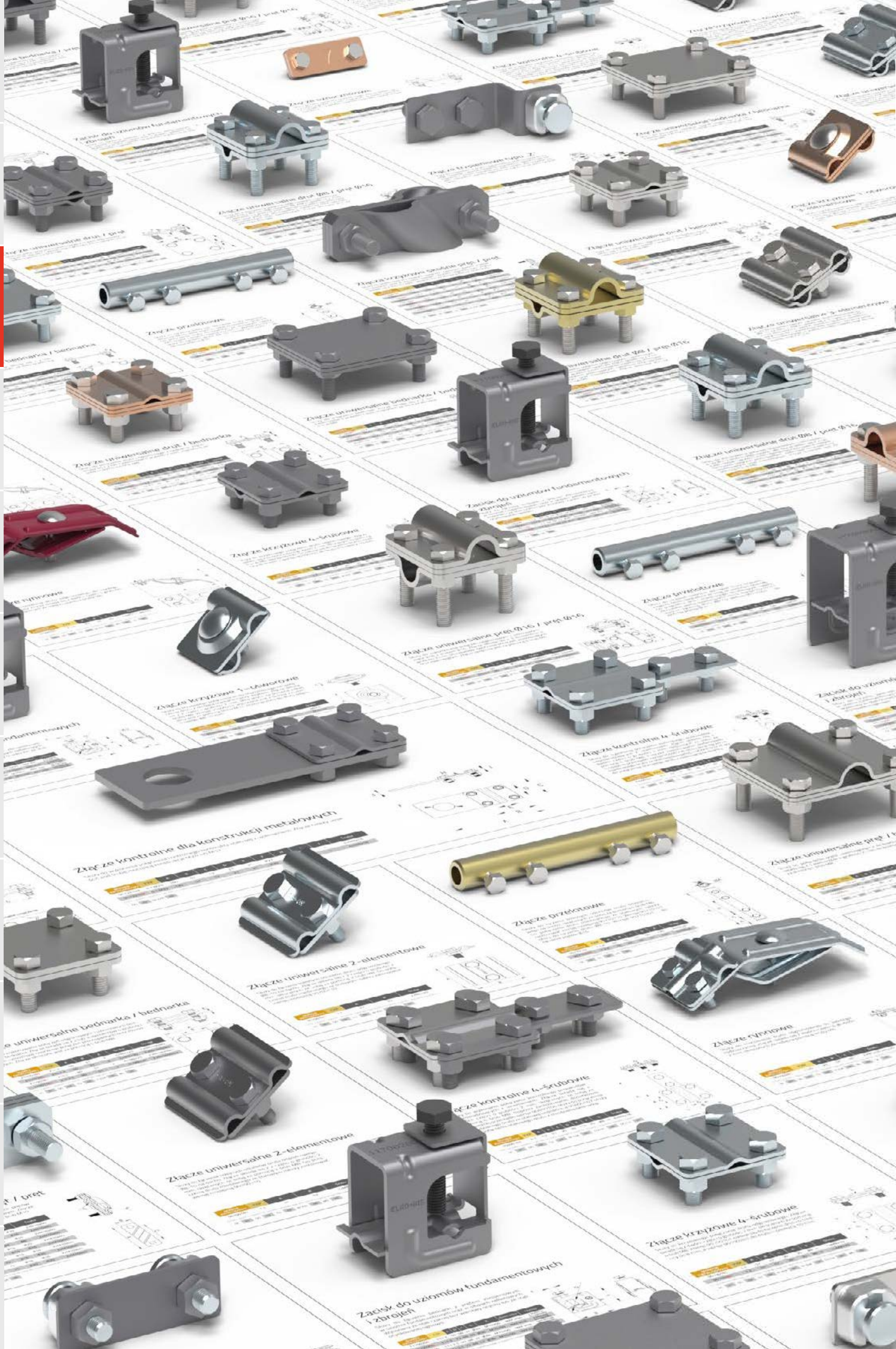
CHECK QR

for more information

We will be happy to help you!

Technical support:

✉ SPD@elkobis.com.pl



GROUP I CONNECTING COMPONENTS

SPD

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Connecting ComponentsGROUP II
Earthing & Equipotential
BondingGROUP III
Down
ConductorsGROUP IV
Air TerminationGROUP V
Air Termination:
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Lightning protection connectors are components of lightning protection systems, ensuring durable and safe connections between individual system elements. Thanks to a wide selection of materials such as hot-dip or electro-galvanized steel, copper, stainless steel, or brass, the products can be adapted to various environmental conditions. They meet the requirements of international standards, such as EN 62305 and EN 62561, guaranteeing long-term and effective performance.

Cross connection clamps

Page 32



Universal connection clamps

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Control clamp

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Earthing foundation clamp

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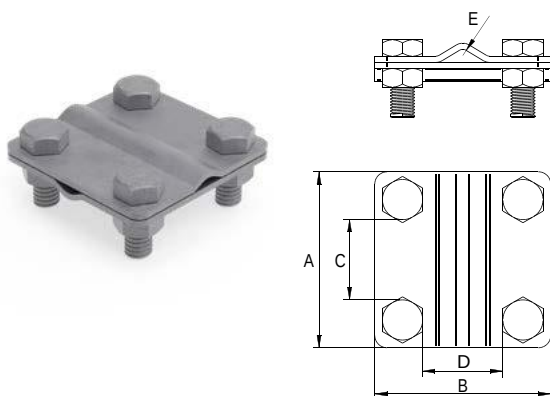


Ks connectors

Page 39-40



4 Screws cross connection clamp



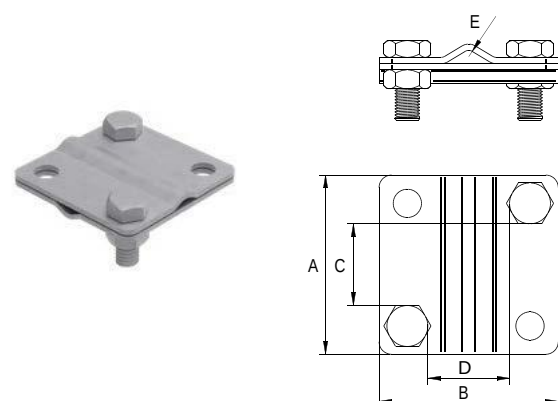
For cross wire connections. Two parts 2 mm thick, assembled with 4 screws M8. Option 90100101 suitable to connect wires with diameter up to 8mm, as option 90100201 suitable to connect wires with diameter up to 10mm.

CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt
90100102	1.1	57	57	30	30	Ø8-10	4×M8×20
90100202	1.2	57	57	30	30	Ø8-10	4×M8×30

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	V4A	55	Cu-CuZn-St/Zn	06	CuZn	10
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2 Screws cross connection clamp



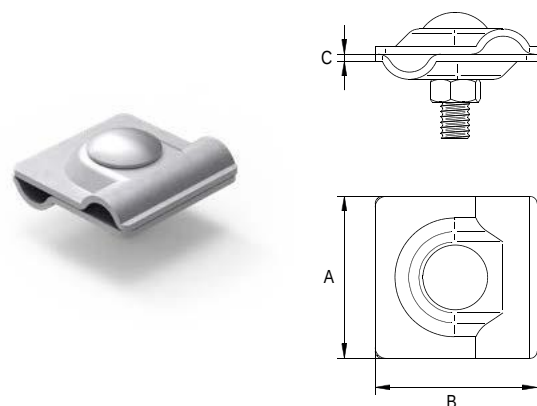
For cross wire connections. Two parts 2 mm thick, assembled with 2 screws M8. Option 90200101 suitable to connect wires with diameter up to 8mm, as option 90200201 suitable to connect wires with diameter up to 10mm.

CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt
90200102	2.1	57	57	30	30	Ø8-10	2×M8×20
90200202	2.2	57	57	30	30	Ø8-10	2×M8×30

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	V4A	55	Cu-CuZn-St/Zn	06	CuZn	10
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Single screw cross connection clamp



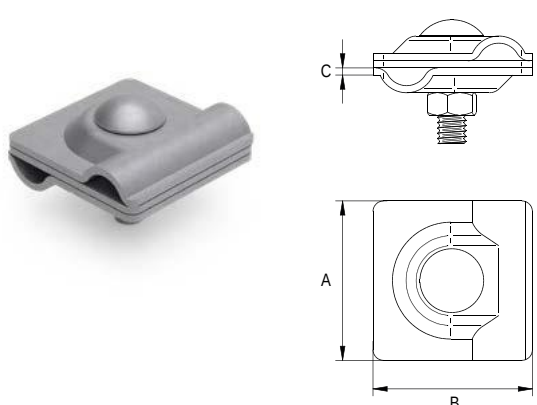
For cross connections of wire conductors, or to connect wire conductor with metal roof elements. 2 parts 2 mm thick, assembled with single M8 screw. Option 95500201 is 2,5 mm thick, assembled with single M10 screw. Appropriate for wires with diameter 8- 10 mm.

CATALOG NUMBER	TYPE	A	B	C	Bolt
95500102	55.1	45	45	2	M8×30
95500202	55.2	45	45	2,5	M10×35

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	V4A	55	CuZn	10
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Single screw cross connection clamp 3-part

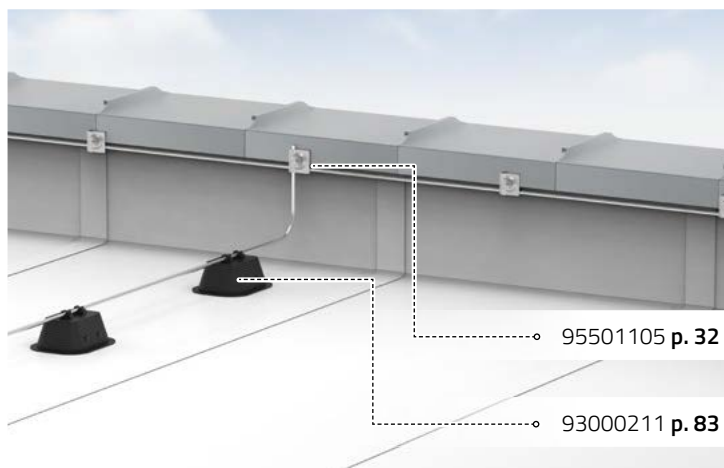


For cross connections of wire conductors, or to connect wire conductor with metal roof elements. 3 parts 2 mm thick, assembled with single M8 screw. Appropriate for wires with diameter 8- 10 mm.

CATALOG NUMBER	TYPE	A	B	C	Bolt
95501102	55.1.1	45	45	2	M8×30

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	CuZn	10
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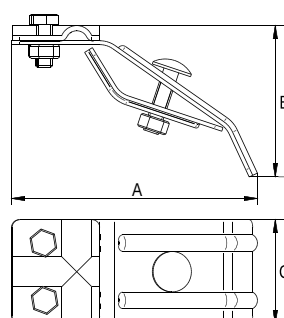
Gutter wire holder

To connect wire with all types of gutters. Two parts 2mm thick, assembled with M6 screw.

CATALOG NUMBER	TYPE	A	B	C	Bolt
90300202	3.1/S	93	54	40	2×M6×16; M6×25

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	CuZn	10	RAL	16
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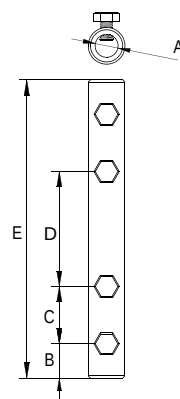
Connecting sleeve

To connect sections of horizontal wires. Assembled with 4 screws M8. Use brass option 90710110 to connect copper with steel wire. Option 90710101 to be used for connection of wires with diameter 8-10mm, as option 90710201 for connection of rods with diameter 16mm.

CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt
90710102	7.1 R	10	15	25	50	130	4×M6×8
90710202	7.2 R	16	25	26	51	150	4×M6×8

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CuZn	10
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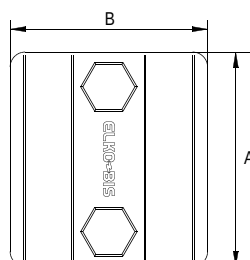
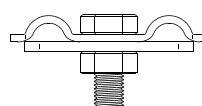
2 – Elements universal clamp

To connect sections of horizontal wires. 2 parts 2mm thick, assembled with 2 screws M8. Use brass option 90700210 to connect copper with steel wire. Appropriate for wires with diameter 8-10mm.

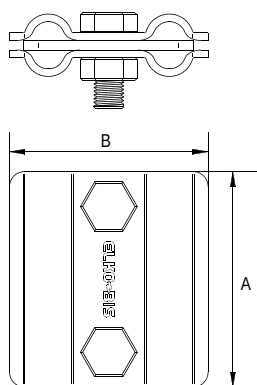
CATALOG NUMBER	TYPE	A	B	Bolt
90700102	7.1	57	53	2×M8×20

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	CuZn	10
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3 – Elements universal clamp



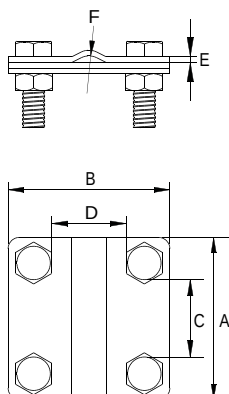
To connect sections of horizontal wires. 3 parts 2mm thick, assembled with 2 screws M8. Enables connection up to 4 wire conductors. Use brass option 90700210 to connect copper with steel wire. Appropriate for wires with diameter 8-10mm.

CATALOG NUMBER	TYPE	A	B	Bolt
90800102	8.1	57	53	2×M8×20

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	CuZn	10
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Universal connection clamp - wire / tape conductor



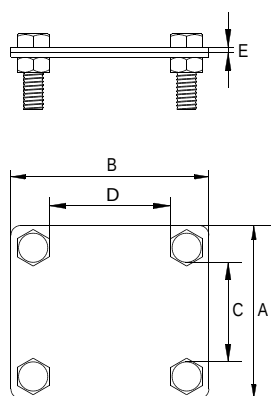
Used for making a test connection between the lightning down conductor and the tape conductor. The clamp consists of 2 or 3 elements with a thickness of 2 mm, bolted together with 4 M8 bolts.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt	Note
91400102	14.1	57	57	31	31	2	Ø8	4×M8×25	3 parts
91400202	14.2	57	80	31	51	2	Ø8	4×M8×25	3 parts
91403302	14.3.3	70	80	43	53	2	Ø8	4×M8×25	2 parts
91403502	14.3.5	70	80	43	53	2	Ø8	4×M8×30	3 parts

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	V4A	55	Cu-CuZn-St/Zn	06	St/Zn/CU	07	CuZn	10
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Universal connection clamp - tape / tape conductor



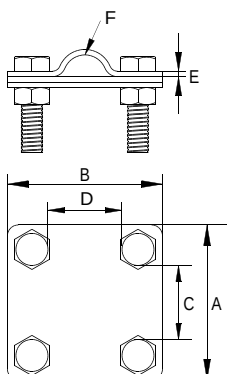
To connect tape conductors. 2 or 3 parts 2 mm thick, assembled with 4 screws M8.

CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt	Note
91400302	14.3	70	80	43	53	2	4×M8×25	3 parts
91402302	14.3.2	70	80	43	53	2	4×M8×20	2 parts
91400402	14.4	100	100	65	65	3	4×M10×30	3 parts
91400702	14.7	57	57	31	31	2	4×M8×20	2 parts
91401702	14.7.1	57	57	31	31	2	4×M8×30	3 parts

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	V4A	55	Cu-CuZn-St/Zn	06	CuZn	10
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Universal connection clamp: earthing rod / tape conductor



To connect tape conductor with earthing rod. 3 parts 2 mm thick, assembled with 4 screws M8.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt	Note
91401302	14.3.1	70	80	43	53	2	Ø16	4×M8×30	3 parts
91400502	14.5	57	57	31	31	2	Ø16	4×M8×30	3 parts
91400602	14.6	57	80	31	51	2	Ø16	4×M8×30	3 parts
91407302	14.3.7	70	80	44	54	2	Ø20	4×M8×30	3 parts

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	V4A	55	Cu-CuZn-St/Zn	06	CuZn	10
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NEW

NEW!

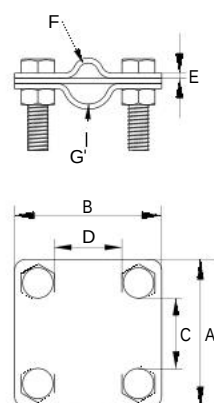
Universal connection clamp wire conductor / wire conductor

To connect wire conductor with wire conductor. 3 parts 2 mm thick, assembled with 4 screws M8.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	Bolt	Note
91401102	14.1.1	57	57	31	31	2	Ø8	Ø8	4×M8×30	3 parts
91403402	14.3.4	70	80	43	53	2	Ø8	Ø16	4×M8×40	3 parts
91401502	14.5.1	57	57	31	31	2	Ø8	Ø16	4×M8×30	3 parts
91401602	14.6.1	57	80	31	51	2	Ø8	Ø16	4×M8×30	3 parts

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03 V2A 05 V4A 55 Cu-CuZn-St/Zn 06 St/Zn-CuZn-Cu 07 CuZn 10



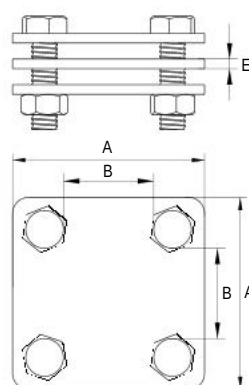
Universal connection clamp – tape/tape conductor

To connect tape conductors. 2 parts 3 mm thick, assembled with 4 screws M8. For cross or parallel connections.

CATALOG NUMBER	TYPE	A	B	E	Bolt	Note
21400102	214.1	60	31	3	4×M8×25	2 parts
21401102	214.1.1	60	31	3	4×M8×30	3 parts
21500102	215.1	80	51	3	4×M8×25	3 parts
21501102	215.1.1	80	51	3	4×M8×30	3 parts

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03 V2A 05 CuZn 10



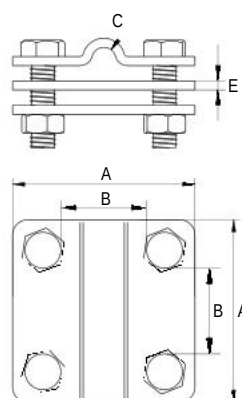
Universal connection clamp – wire Ø8/tape conductor

To connect wire conductor with tape conductor. 2 parts 3 mm thick, assembled with 4 screws M8. For cross or parallel connections.

CATALOG NUMBER	TYPE	A	B	C	E	Bolt	Note
21400202	214.2	60	31	Ø8	3	4×M8×30	2 parts
21401202	214.2.1	60	31	Ø8	3	4×M8×30	3 parts
21500202	215.2	80	51	Ø8	3	4×M8×30	2 parts
21501202	215.2.1	80	51	Ø8	3	4×M8×30	3 parts

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03 V2A 05 CuZn 10



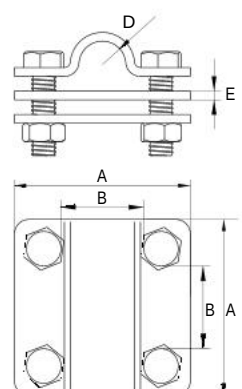
Universal connection clamp – earth rod Ø16/tape conductor

To connect earthing rod with tape conductor. 2 parts 3 mm thick, assembled with 4 screws M8. For cross or parallel connections.

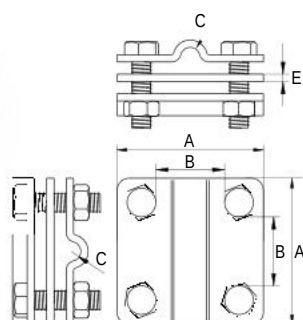
CATALOG NUMBER	TYPE	A	B	D	E	Bolt	Note
21400302	214.3	60	31	Ø16	3	4×M8×30	2 parts
21401302	214.3.1	60	31	Ø16	3	4×M8×35	3 parts
21500302	215.3	80	51	Ø16	3	4×M8×30	2 parts
21501302	215.3.1	80	51	Ø16	3	4×M8×35	3 parts

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03 V2A 05 CuZn 10



Universal connection clamp – wire Ø8/wire Ø8



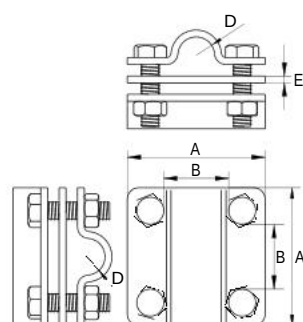
To connect wire conductors. 2 parts 3 mm thick, assembled with 4 screws M8. 2 plates for cross connections, 3 plates for cross and parallel connections.

CATALOG NUMBER	TYPE	A	B	C	E	Bolt	Note
21400402	214.4	60	31	Ø8	3	4×M8×30	2 parts
21401402	214.4.1	60	31	Ø8	3	4×M8×30	3 parts
21500402	215.4	80	51	Ø8	3	4×M8×30	2 parts
21501402	215.4.1	80	51	Ø8	3	4×M8×30	3 parts

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	CuZn	10
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Universal connection clamp – earth rod Ø16/earth rod Ø16



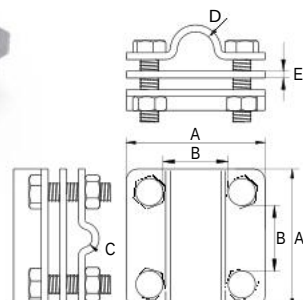
To connect earthing rods. 3 parts 3 mm thick, assembled with 4 screws M8.

CATALOG NUMBER	TYPE	A	B	D	E	Bolt	Note
21401502	214.5.1	60	31	Ø16	3	4×M8×40	3 parts
21501502	215.5.1	80	51	Ø16	3	4×M8×40	3 parts

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	CuZn	10
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Universal connection clamp – wire Ø8/earth rod Ø16



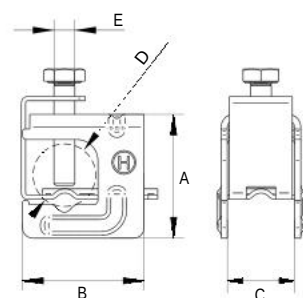
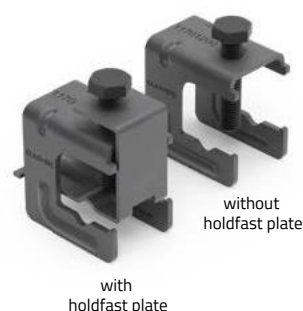
To connect wire conductor with earthing rod. 2 parts 3 mm thick, assembled with 4 screws M8. 2 plates for cross connections, 3 plates for cross and parallel connections.

CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt	Note
21400602	214.6	60	31	Ø8	Ø16	3	4×M8×35	2 parts
21401602	214.6.1	60	31	Ø8	Ø16	3	4×M8×35	3 parts
21500602	215.6	80	51	Ø8	Ø16	3	4×M8×35	2 parts
21501602	215.6.1	80	51	Ø8	Ø16	3	4×M8×35	3 parts

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	CuZn	10
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Rebar and earthing foundation clamp



To connect tape conductors with reinforcing bars at foundation earthing and in reinforced concrete columns. Black steel or hot-dip galvanized options.

CATALOG NUMBER	TYPE	A	B	C	D	E	TAPE CONDUCTOR [mm]	Note
11700200	117.2	59	58	32	Ø28	M10x50	30x4	with holdfast plate
11700300	117.3	73	69	42	Ø38	M10x50	40x5	with holdfast plate
11701200	117.2.1	59	58	32	Ø28	M10x50	30x4	without holdfast plate
11701300	117.3.1	73	69	42	Ø38	M10x50	40x5	without holdfast plate

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/bare	00	St/tZn	02
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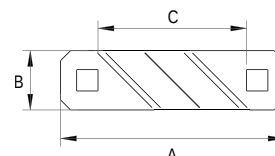
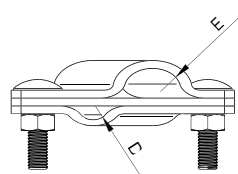
Angular cross connection clamp – rod/rod

Used for cross earthing connections of two earthing rods or earthing rod with wire conductor. 3 parts, assembled with M10 screws.

CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt
11600102	116.1	113	30	75	Ø8	Ø20	2×M10x40
11600202	116.2	113	30	75	Ø8	Ø16	2×M10x40
11600302	116.3	113	30	75	Ø8	Ø14	2×M10x40
11600402	116.4	113	30	75	Ø8	Ø8	2×M10x40
11600502	116.5	113	30	75	Ø14	Ø20	2×M10x40
11600602	116.6	113	30	75	Ø14	Ø16	2×M10x40
11600702	116.7	113	30	75	Ø14	Ø14	2×M10x40
11600802	116.8	113	30	75	Ø16	Ø20	2×M10x40
11600902	116.9	113	30	75	Ø16	Ø16	2×M10x40
11601002	116.10	113	30	75	Ø20	Ø20	2×M10x40

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05
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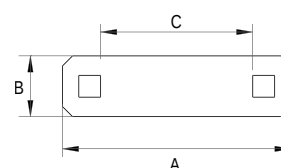
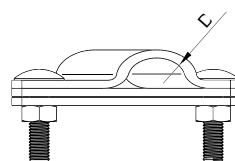
Angular cross connection clamp – tape/tape

Used for cross flat tape with flat tape. Three or two parts, bolted together with two M10 bolts.

CATALOG NUMBER	TYPE	A	B	C	D	TAPE CONDUCTOR [mm]	Bolt	Note
11610002	116.0.1	113	30	75	-	MAX 50x4	2×M10x40	2 parts
11602002	116.0.2	113	30	75	-	MAX 50X4	2×M10x40	3 parts
11601102	116.1.1	113	30	75	Ø20	MAX 50x4	2×M10x40	2 parts
11602102	116.1.2	113	30	75	Ø20	MAX 50X4	2×M10x40	3 parts
11601202	116.2.1	113	30	75	Ø16	MAX 50x4	2×M10x40	2 parts
11602202	116.2.2	113	30	75	Ø16	MAX 50X4	2×M10x40	3 parts
11601302	116.3.1	113	30	75	Ø14	MAX 50x4	2×M10x40	2 parts
11602302	116.3.2	113	30	75	Ø14	MAX 50X4	2×M10x40	3 parts
11601402	116.4.1	113	30	75	Ø8	MAX 50x4	2×M10x40	2 parts
11602402	116.4.2	113	30	75	Ø8	MAX 50X4	2×M10x40	3 parts

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05
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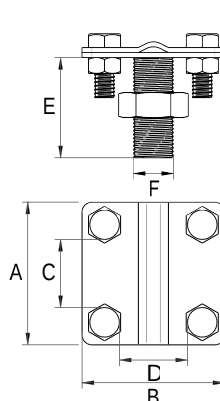
Threaded clamp

Used to connect the tape conductor or lightning conductor to the earthing rod by screwing using a threaded connector. Also used in earthing connections, metal mast bases and other metal structures.

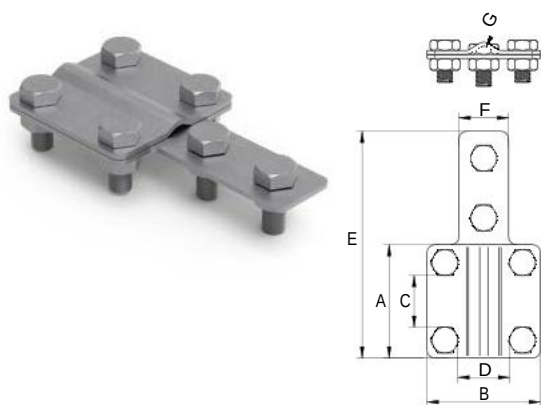
CATALOG NUMBER	TYPE	A	B	C	D	E	F
94200201	42.2	57	57	39	30	50	M16
94211201	42.2.1	57	57	39	30	50	M20

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	V2A	05
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4 Screws control clamp



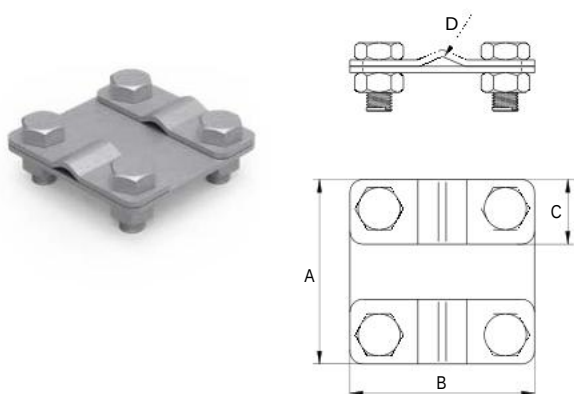
Control connection between down conductors & earthing system for separation points. Two parts 2mm thick, assembled with 6 screws M8. Additional brass spacer allows to connect copper wire with steel tape conductor (option 90400106) and steel rod with copper tape conductor (option 90400107).

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	Bolt
90400102	4.1	57	57	30	30	114	25	Ø8-10	6×M8×16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	Cu-CuZn-St/Zn	06	St/Zn/CU	07
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Wire-wire control clamp



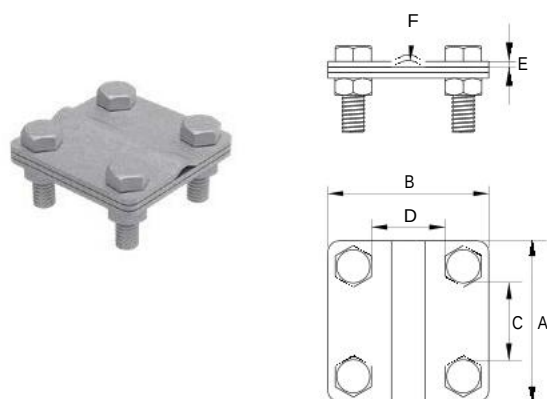
Control connection between wire conductors for separation points. 3 parts 2mm thick, assembled with 4 screws M8. Appropriate for wires with diameter 8-10mm.

CATALOG NUMBER	TYPE	A	B	C	D	Bolt
90600102	6.1	57	57	20	Ø8-10	4×M8×16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05
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Universal connection clamp - wire / tape conductor



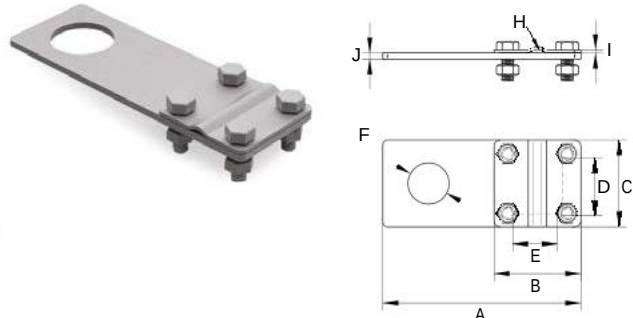
Used for making a test connection between the lightning down conductor and the tape conductor. The clamp consists of 2 or 3 elements with a thickness of 2 mm, bolted together with 4 M8 bolts.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt	Note
91400102	14.1	57	57	31	31	2	Ø8	4×M8x25	3 parts
91400202	14.2	57	80	31	51	2	Ø8	4×M8x25	3 parts
91403302	14.3.3	70	80	43	53	2	Ø8	4×M8x25	2 parts
91403502	14.3.5	70	80	43	53	2	Ø8	4×M8x30	3 parts

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	V4A	55	Cu-CuZn-St/Zn	06	St/Zn/CU	07	CuZn	10
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Metal constructions control clamp



For control connection of steel structure with earthing system. The clamp should be installed under a fastening bolt M24 or M32.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	H	I	J	Bolt
94124102	4.1 M24	160	57	57	31	31	Ø27	Ø8	2	4	4×M8x16
94132102	4.1 M32	160	57	57	31	31	Ø35	Ø8	2	4	4×M8x16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn	02	V2A	05
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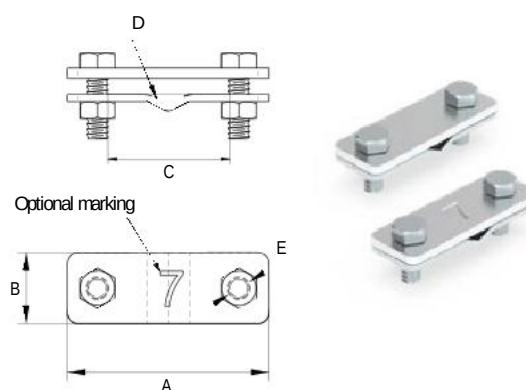
Marking connection clamp

To mark control clamp. 2 parts 3mm thick, assembled with 2 screws M6. Numbers need to be provided, when placing an order.

CATALOG NUMBER	TYPE	A	B	C	D	Bolt	Note
97200109	72.1	57	20	34	Ø7	2×M6×16	Unmarked
97201109	72.1.1	57	20	34	Ø7	2×M6×16	Marked

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

CU 03 AL 09



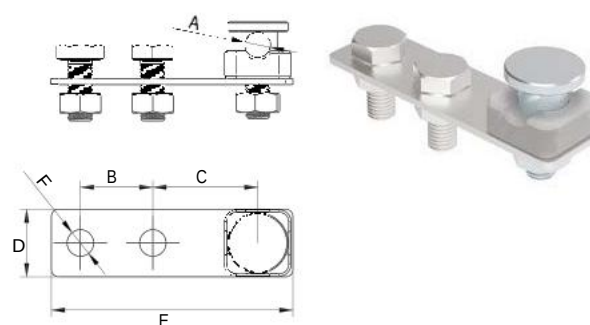
Ks connector flat

Use to attach the wire conductor to roof metal elements for example attic covering, profiles, poles, landings, other roof elements used as natural lightning conductors, etc. Assembled with M10 screws.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt
21600102	216.1	Ø10	30	43,5	30	100	Ø11	2×M10×25

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 V2A 05



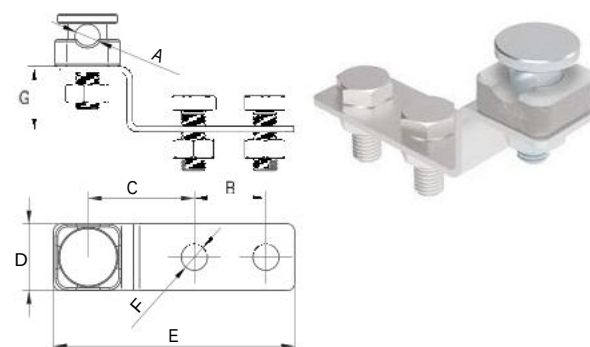
Ks connector type „Z“

Use to attach the wire conductor to roof metal elements for example attic covering, profiles, poles, landings, other roof elements used as natural lightning conductors, etc. Assembled with M10 screws.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	Bolt
21600202	216.2	Ø10	30	43,5	30	100	Ø11	28	2×M10×25

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 V2A 05



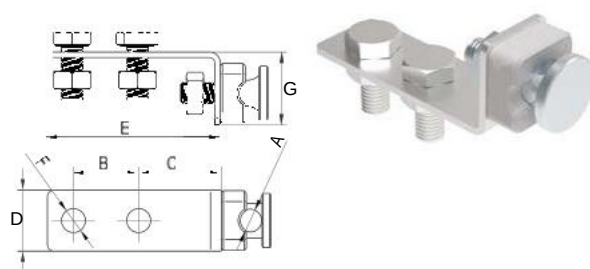
Ks connector angle type

Use to attach the wire conductor to roof metal elements for example attic covering, profiles, poles, landings, other roof elements used as natural lightning conductors, etc. as well as machinery and equipment. Assembled with M10 screws.

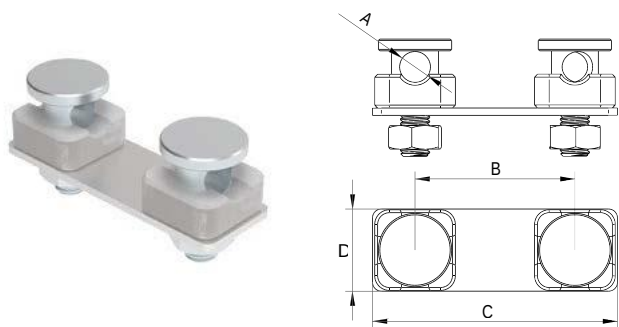
CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	Bolt
21600302	216.3	Ø10	30	33,5	30	80	Ø11	33,5	2×M10×25

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 V2A 05



Ks connector wire / wire



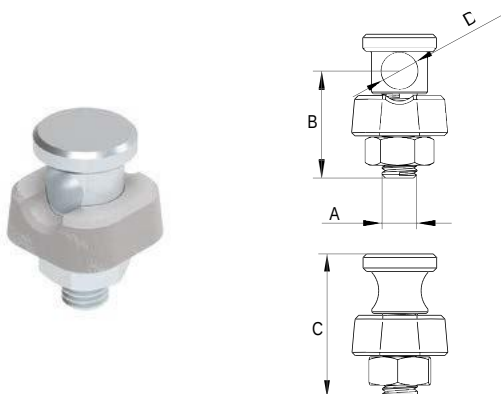
Use to connect sections of horizontal or down wire conductors. Assembled with M10 screws.

CATALOG NUMBER	TYPE	A	B	C	D
21600402	216.4	Ø10	55	83,5	30

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn	02	V2A	05
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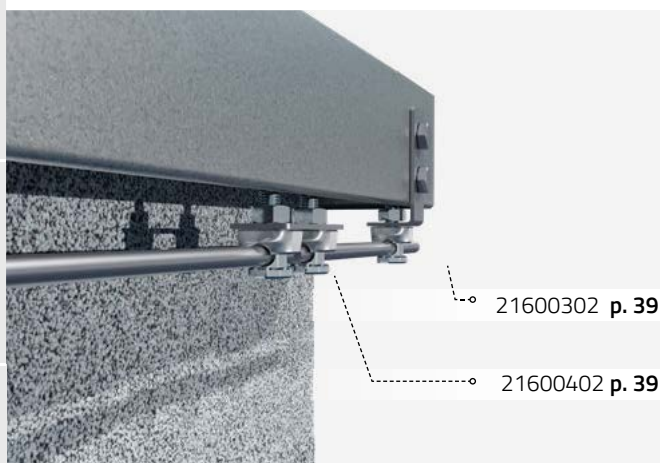
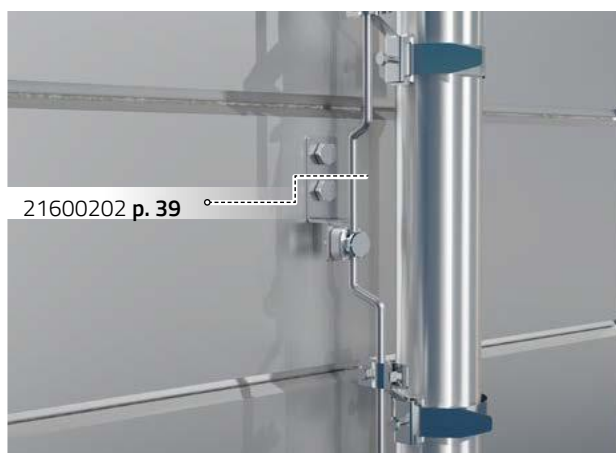
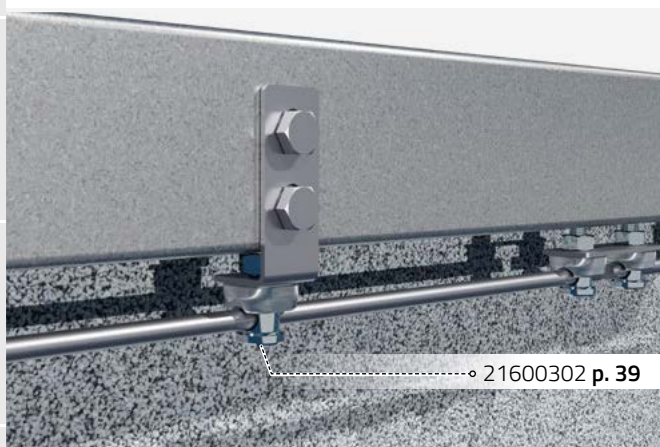
Ks screw



A component for KS connectors, suitable for wire conductor diameter 8–10 mm

CATALOG NUMBER	TYPE	A	B	C	D
21600001	–	M10	31	42	Ø10

St/Zn



GROUP II EARTHING & EQUIPOTENTIAL BONDING

Earthing systems ensure the safe dissipation of lightning current into the ground, which is essential for the protection of both buildings and people in their vicinity. The product range includes solutions for Type A vertical earth electrodes as well as Type B horizontal earth electrodes, along with connectors and clamps manufactured from materials such as electro-galvanized or hot-dip galvanized steel, copper, stainless steel, and brass. All earthing components comply with international standards, including EN 62305 and EN 62561, ensuring the highest level of lightning protection performance.

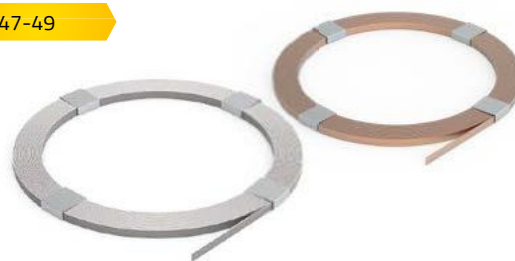
Earthing Type A

Page 42-46



Earthing Type B

Page 47-49



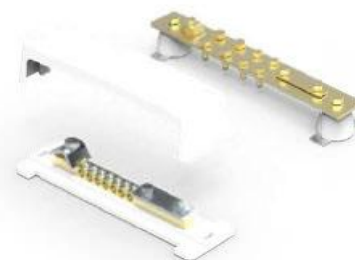
Control pits

Page 52



Equipotential bar

Page 52-53

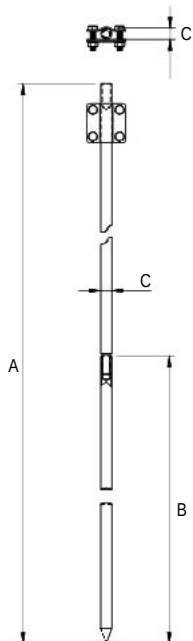


Supplementary elements

Page 53-54



Complete "Elkonomic" Earthing Rod Set



Use Hammer insert
94209901 p. 47

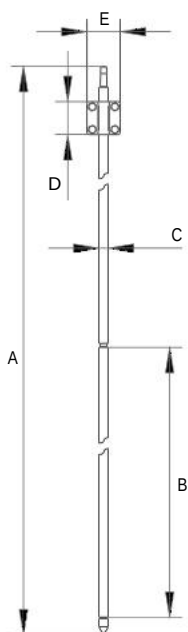
Used to create vertical earthing systems (type A). The set consists of 1,5-metre rods connected by driving. The rods are driven into the ground using an impact tip, and the earthing length can be extended by successively driving further elements until an earthing resistance not exceeding 10 Ohm is achieved (for lightning protection systems in accordance with EN 62305-3:2011). The simple design speeds up installation. The product is available in three material versions: hot-dip galvanized steel with coating thickness up to 100 µm, stainless steel V2A and acid-resistant stainless steel V4A. The product complies with the requirements of EN IEC 62561-2:2018-04. It is ideally suited for earthing systems in power engineering, railway infrastructure and the building industry.

CATALOG NUMBER	TYPE	A	B	C
94173002	-	3000	1500	Ø16
94183002	-	3000	1500	Ø20

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn	02	V2A	05	V4A	55
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Complete "Elkonomic" Earthing Rod Set with Driving Spike



Use hammer insert for
„Elkonomic“ earthing
rods 94209899 p. 47

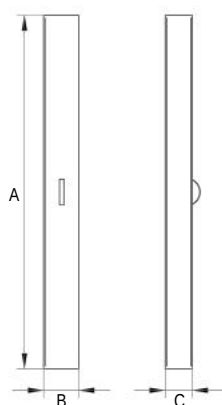
Used to create vertical earthing systems (type A). The set consists of 1,5-meter rods connected by driving. The rods are driven into the ground using a driving spike, and the earthing length can be extended by successively driving further elements until an earthing resistance not exceeding 10 Ohm is achieved (for lightning protection systems in accordance with EN 62305-3:2011). The simple design speeds up installation. The product is available in three material versions: hot-dip galvanized steel with coating thickness up to 100 µm, stainless steel V2A and acid-resistant stainless steel V4A. The product complies with the requirements of EN IEC 62561-2:2018-04. It is ideally suited for earthing systems in power engineering, railway infrastructure and the building industry.

CATALOG NUMBER	TYPE	A	B	C	D	E
94273002	-	3000	1500	Ø16	57	57
94283002	-	3000	1500	Ø20	57	57

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn	02	V2A	05	V4A	55
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„Elkonomic“ earthing rods



Use Hammer insert
94209901 page 47

Set of earthing rods with accessories necessary to provide vertical earthing. Set includes: rods, connectors, impact tip, tape conductor clamp (max. 50 mm), technical vaseline and anticorrosive tape.

CATALOG NUMBER	TYPE	A	B	C	Length [m]	Diameter [mm]
24173002	-	1550	150	110	3	16
24176002	-	1550	150	110	6	16

St/tZn

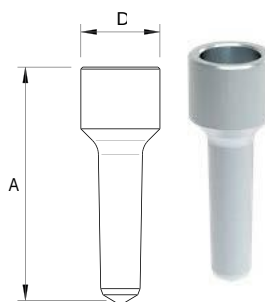
„Elkonomic“ unthreaded earthing rod elements

Unthreaded earthing rod header

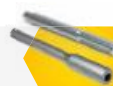
Used to protect earthing rods during driving into the ground using a hammer insert.

CATALOG NUMBER	TYPE	A	D
94213301	42.3.3 OC	60	20

St/Zn



Use Hammer insert: **page 47**



WARNING: It is recommended to drive the earthing rods using a rotary hammer with an impact energy not exceeding 11 J.



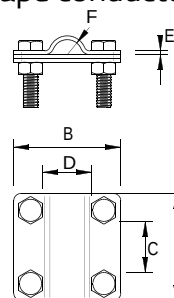
Universal connection clamp - earthing rod / tape conductor

Used to connect the tape conductor with the earthing rod.

CATALOG NUMBER	TYPE	A	B	C	D	E	F
91400502	-	57	57	31	31	2	Ø16
91401302	-	70	80	43	53	2	Ø16
91407302	14.3.7	70	80	44	54	2	Ø20

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 02 V2A 05 V4A 55



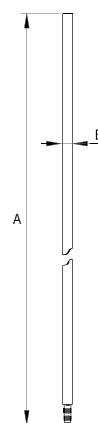
Unthreaded earthing rod plunger rod

Used to create vertical earthing systems (type A). Extension of the earthing length is possible by driving successive elements into the ground or by using a driving spike. The product is available in three material versions: hot-dip galvanized steel with coating thickness up to 100 µm, stainless steel V2A and acid-resistant stainless steel V4A. The product complies with the requirements of EN IEC 62561-2:2018-04. It is ideally suited for earthing systems in power engineering, railway infrastructure and the building industry.

CATALOG NUMBER	TYPE	A	B
94252102	-	1500	Ø16
94262102	-	1500	Ø20

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 02 V2A 05 V4A 55



Unthreaded earthing rod plunger rod



Unthreaded earthing rod sharp end rod

Used to create vertical earthing systems (type A) by driving the sharp end into the ground. The product is available in three material versions: hot-dip galvanized steel with coating thickness up to 100 µm, stainless steel V2A and acid-resistant stainless steel V4A. The product complies with the requirements of EN IEC 62561-2:2018-04. It is ideally suited for earthing systems in power engineering, railway infrastructure and the building industry.

CATALOG NUMBER	TYPE	A	B
94251102	-	1500	Ø16
94261102	-	1500	Ø20

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 02 V2A 05 V4A 55



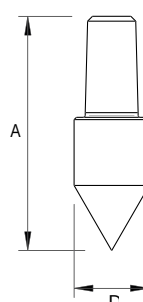
Impact tip

Used to be mounted on the unthreaded earthing rod plunger rod to facilitate driving it into the ground.

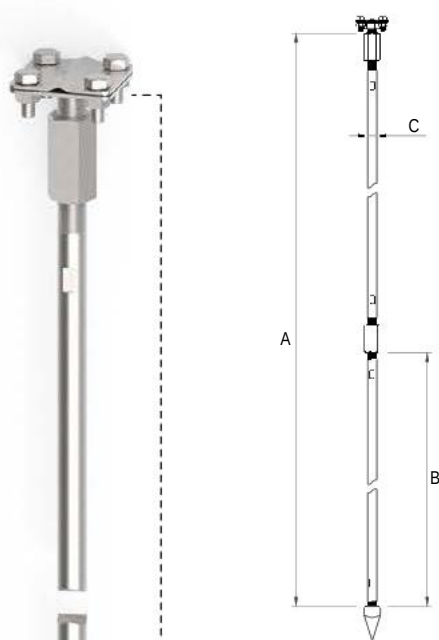
CATALOG NUMBER	TYPE	A	D
94253002	-	50	Ø16
94263002	-	53	Ø20

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 02 V2A 05 V4A 55



Threaded earthing rod



For vertical earthing. Mounted by successive rod installation $\varnothing 16$ or $\varnothing 20$, reaching earthing resistance $\leq 10 \text{ Ohm}$ (for lightning protection systems). Set comes with an impact tip and clamp, suitable to connect tape or earthing rod. Great to use in energy sector, rail infrastructure and building industry.

Earthing rod $\varnothing 16$

CATALOG NUMBER	TYPE	A	B	C	Bolt
94103001	41.1	3000	1000	$\varnothing 16$	4xM8x20
94123001	41.1.1	3000	1500	$\varnothing 16$	4xM8x20

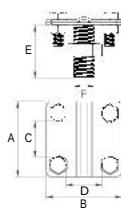
Earthing rod $\varnothing 20$

CATALOG NUMBER	TYPE	A	B	C	Bolt
94133001	41.10	3000	1000	$\varnothing 20$	4xM8x20
94113001	41.10.1	3000	1500	$\varnothing 20$	4xM8x20

Threaded earthing rod elements

Threaded earthing rod clamp

Used to connect the tape conductor or lightning conductor with the earthing rod. Mounted on the earthing rod by screwing using a threaded connector.

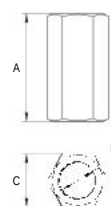


CATALOG NUMBER	TYPE	A	B	C	D	E	F
94200201	42.2	57	57	39	30	50	M16
94211201	42.2.1	57	57	39	30	50	M20

St/Zn

Threaded earthing rod connector

Used to connect earthing rods together or to mount an impact tip, clamp or header.

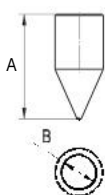


CATALOG NUMBER	TYPE	A	B	C
94200401	42.4	48	M16	27
94211401	42.4.1	54	M20	30

St/Zn

Threaded earthing rod impact tip

Mounted on the earthing rod using a threaded connector to facilitate driving it into the ground.



CATALOG NUMBER	TYPE	A	B
94200501	42.5	48	M16
94211501	42.5.1	48	M20

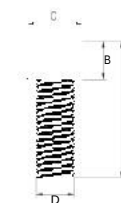
St/Zn

Threaded earthing rod header

Used to protect earthing rods during driving into the ground using a hammer insert. Mounted on the earthing rod by screwing using a threaded connector.



Use Hammer insert
94209901 p. 47

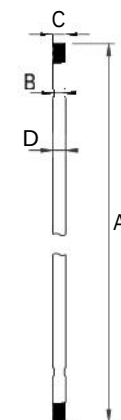


CATALOG NUMBER	TYPE	A	B	C	D
94200301	42.3	50	$\varnothing 16$	24	M16
94211301	42.3.1	69	$\varnothing 20$	30	M20

St/Zn

Threaded earthing rod

Used to create vertical earthing systems (type A). Earthing rods are connected together by screwing using a threaded connector.



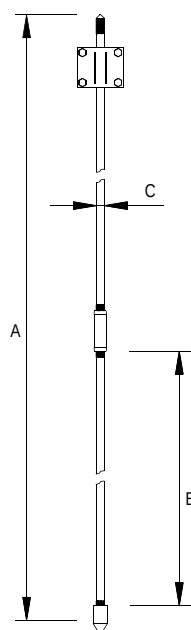
CATALOG NUMBER	TYPE	A	B	C	D
94200101	42.1	1000	13	M16x23	$\varnothing 16$
94201101	42.1.1	1500	13	M16x23	$\varnothing 16$
94210101	42.10	1000	17	M20x25	$\varnothing 20$
94211101	42.10.1	1500	17	M20x25	$\varnothing 20$

St/Zn

Copper bonded earthing rod – complete

For vertical earthing type A. Extension of earthing by wedging single rods (3/4" or 5/8") reaching earthing resistance point $\leq 10 \text{ Ohm}$. Set with end tip and clamp. Great to use in energy sector, rail infrastructure and building industry. 250 μm type use in earthing of lightning protection installations. 100 μm type use for equipotentialisation of electric devices over 1 kV.

CATALOG NUMBER	TYPE	A	B	C	Bonding thickness
14103004	-	3000	1500	$\varnothing 14,2$	100 μm
14113004	-	3000	1500	$\varnothing 17,2$	100 μm
14123004	-	3000	1500	$\varnothing 14,2$	250 μm
14133004	-	3000	1500	$\varnothing 17,2$	250 μm



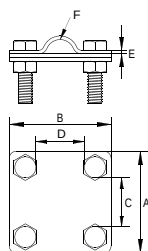
Copper bonded earthing rod elements



See also: Copper-bonded earthing rod set **page 46**



Use Hammer insert **94209901 page 47**



Universal branching clamp

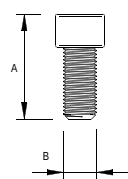
Used to connect the tape conductor and the earthing rod.

Threaded earthing rod header

Used to protect earthing rods during driving into the ground using a hammer insert. Mounted on the earthing rod by screwing using a threaded connector.

CATALOG NUMBER	TYPE	A	B
14201301	-	62	$\varnothing 19$
14200301	-	50	$\varnothing 15,8$

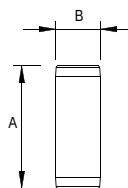
St/Zn



CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt
91401305	14.3.1	70	80	43	53	2	$\varnothing 16$	4xM8x30
V2A	05							

Earthing rod connector

Used to connect earthing rods together or to mount an impact tip or header.



CATALOG NUMBER	TYPE	A	B
14211410	-	60	$\varnothing 24$
14210410	-	60	$\varnothing 22$

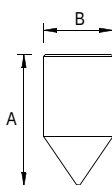
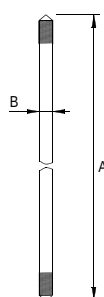
CuZn

Earthing rod

Used to create vertical earthing systems (type A). Earthing rods are connected together by screwing using a threaded connector.

CATALOG NUMBER	TYPE	A	B	Bonding thickness
14221104	-	1000	$\varnothing 17,2$	100 μm
14220104	-	1000	$\varnothing 14,2$	100 μm
14231104	-	1000	$\varnothing 17,2$	250 μm
14230104	-	1000	$\varnothing 14,2$	250 μm
14201104	-	1500	$\varnothing 17,2$	100 μm
14200104	-	1500	$\varnothing 14,2$	100 μm
14211104	-	1500	$\varnothing 17,2$	250 μm
14210104	-	1500	$\varnothing 14,2$	250 μm

St/Cu



Impact tip

Mounted on the earthing rod using a threaded connector to facilitate driving it into the ground.

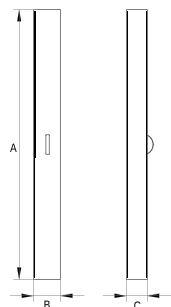
CATALOG NUMBER	TYPE	A	B
14201501	-	50	$\varnothing 25$

St/bare

14200501	-	40	$\varnothing 20$
St/bare	01	CuZn	10



Copper bonded earthing rods



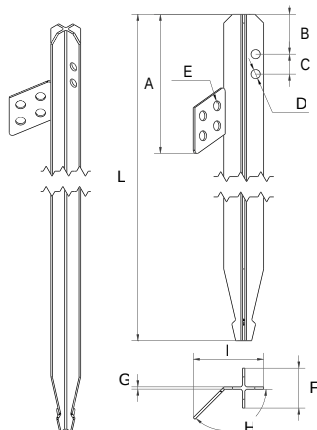
Set of earthing rods with accessories necessary to provide vertical earthing. Set includes: rods, connectors, impact tip, tape conductor clamp (max. 50 mm), technical vaseline and anticorrosive tape.

CATALOG NUMBER	TYPE	A	B	C	Length [m]	Diameter [mm]	Copper bonding thickness
24113004	-	1550	150	110	3m	Ø14,2	250 µm
24116004	-	1550	150	110	6m	Ø14,2	250 µm
24123004	-	1550	150	110	3m	Ø17,2	250 µm
24126004	-	1550	150	110	6m	Ø17,2	250 µm

CATALOG NUMBER	TYPE	A	B	C	Length [m]	Diameter [mm]	Copper bonding thickness
24133004	-	1550	150	110	3m	Ø14,2	100 µm
24136004	-	1550	150	110	6m	Ø14,2	100 µm
24143004	-	1550	150	110	3m	Ø17,2	100 µm
24146004	-	1550	150	110	6m	Ø17,2	100 µm

CuZn

Profile earthing rod



Used to create vertical earthing systems (type A). The earthing rod is installed by driving it into the ground. It is ideally suited for earthing systems in power engineering, railway infrastructure and the building industry.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	H	I	L	Weight [kg]
94001002	40.10	165	50	25	Ø11,5	Ø12,5	50	3	135°	91	1000	2,292
94001502	40.15	165	50	25	Ø11,5	Ø12,5	50	3	135°	91	1500	3,435
94002002	40.20	165	50	25	Ø11,5	Ø12,5	50	3	135°	91	2000	4,579
94002502	40.25	165	50	25	Ø11,5	Ø12,5	50	3	135°	91	2500	5,723
94003002	40.30	165	50	25	Ø11,5	Ø12,5	50	3	135°	91	3000	6,866

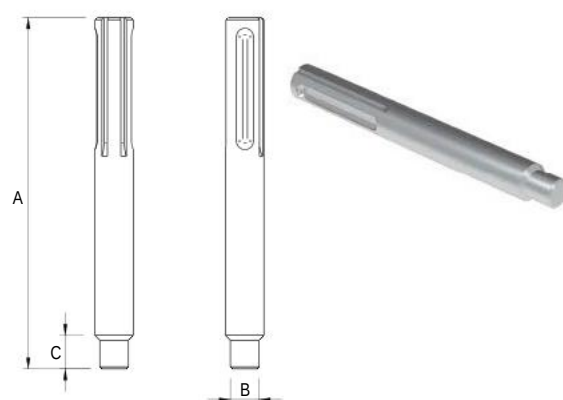
St/tZn

Hammer insert

For driving down earth rods using vibrating hammers. SDSMAX fixing holder standard. Only direct use with header of earthing rod.

CATALOG NUMBER	TYPE	A	B	C
94209901	42.3 SDS	165	Ø13,5	14

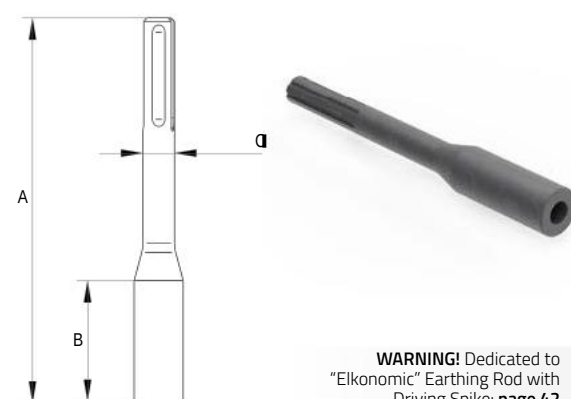
St/Zn



SDS MAX hammer insert for „Elkonomic“ earthing rod

For driving down earth rods "Elkonomic", using vibrating hammers. SDS-MAX fixing holder standard. Only direct use with header of earthing rod.

CATALOG NUMBER	TYPE	A	B	C
94209899	-	220	70	Ø18

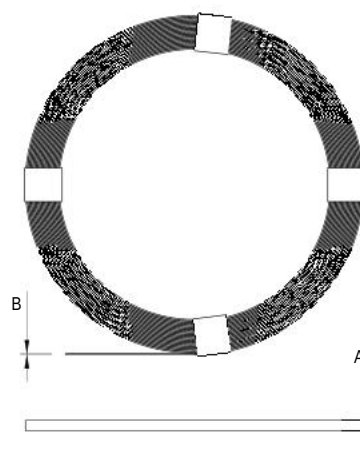


WARNING! Dedicated to "Elkonomic" Earthing Rod with Driving Spike: **page 42**

Tape conductor

Used for foundation earthing, grid or perimeter (type B) grounding, down conductors and discharge conductors, as well as equipotential bonding installations. Coating thickness complies with EN IEC 62561-2:2018-04. Tolerance $\pm 5\%$ of the ordered quantity.

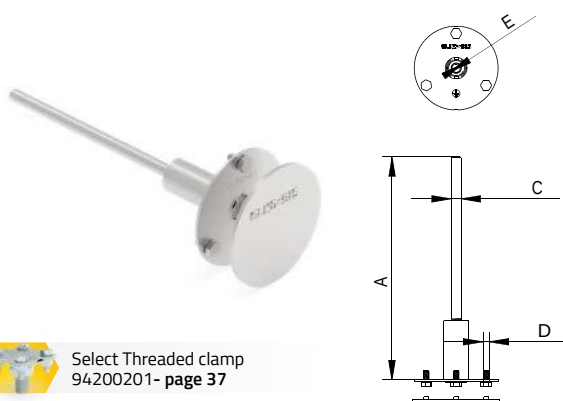
CATALOG NUMBER	MATERIAL	Size	A	B	Weight 1 m [kg]
82503002	Zinc plated	25×3	25	3	0,588
82504002	Zinc plated	25×4	25	4	0,785
83003502	Zinc plated	30×3,5	30	3,5	0,824
83004002	Zinc plated	30×4	30	4	0,961
84004002	Zinc plated	40×4	40	4	1,285
84005002	Zinc plated	40×5	40	5	1,601
85004002	Zinc plated	50×4	50	4	1,601
82503003	Copper	25×3	25	3	0,668
82504003	Copper	25×4	25	4	0,890
83004003	Copper	30×4	30	4	1,068
84004003	Copper	40×4	40	4	1,424
84005003	Copper	40×5	40	5	1,780
82504004	Copper bonded	25×4	25	4	0,790
83004004	Copper bonded	30×4	30	4	0,980
84004004	Copper bonded	40×4	40	4	1,285
84005004	Copper bonded	40×5	40	5	1,630
83003555	Stainless Steel type V4A	30×3,5	30	3,5	0,833
83013505	Stainless Steel type V2A	30×3,5	30	3,5	0,833



Tools for tape straightening:
pages 134-136

Before ordering, check availability and lead time.

Plate type earthing connector



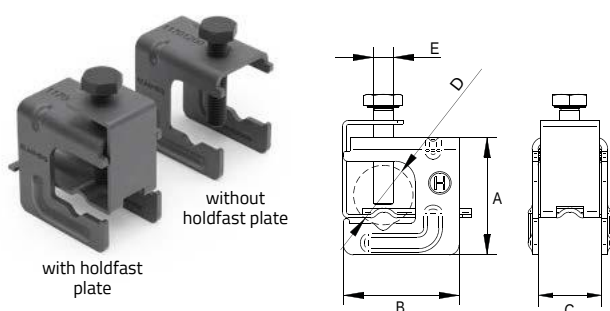
Select Threaded clamp
94200201- page 37

Used in LPS connections or equipotential installations. Plate with a clamp need to be extended outside the building. Before concrete filling, fix plate permanently to formwork and tight up the rod. Other side of rod permanently connected with reinforcement bars by welding or using universal unit clamps (ordered separately). Use 94200201 for connecting tape conductor with grounding.

CATALOG NUMBER	TYPE	A	B	C	D	E
97300105	73.1	225	85	10	3×M6×16	M10
97300205	73.2	225	85	12	3×M6×16	M12
97300305	73.3	225	85	16	3×M6×16	M16

V2A

Rebar and earthing foundation clamp



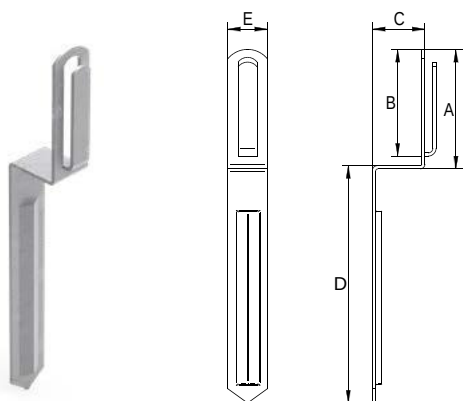
To connect tape conductors with reinforcing bars at foundation earthing and in reinforced concrete columns. Black steel or hot-dip galvanized options.

CATALOG NUMBER	TYPE	A	B	C	D	E	Note
11700200	117.2	59	58	32	Ø28	M10x50	with holdfast plate
11700300	117.3	73	69	42	Ø38	M10x50	with holdfast plate
11701200	117.2.1	59	58	32	Ø28	M10x50	without holdfast plate
11701300	117.3.1	73	69	42	Ø38	M10x50	without holdfast plate

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/bare 00 St/tZn 02

Tape conductor holder

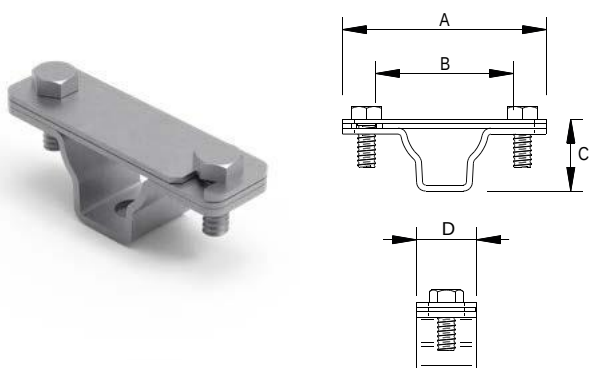


To fix tape conductor in foundation or ring type earthing. Keeping the distance of 1 meter between holders, ensures sufficient stiffness, whilst deeping the tape in foundation. Footer shape ensures accurate assembly in concrete, preventing corrosion. Maximum sectional fixing dimensions of tape 50x5mm.

CATALOG NUMBER	TYPE	A	B	C	D	E
97100102	71.1	75	67	33	149	25

St/tZn

Tape conductor holder



To lead tape conductor (max 40x5) over the facade walls and various steel constructions. Direct mounting to flat surface.

CATALOG NUMBER	TYPE	A	B	C	D	Bolt
12600102	126.1	68	45	24	20	2xM6x16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

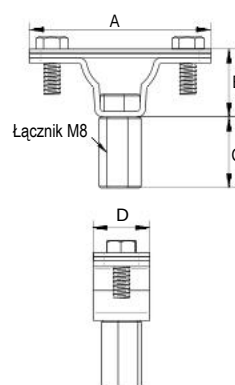
St/Zn 01 St/tZn 02 V2A 05

Tape conductor holder with connector

To lead tape conductor (max 40x5) over the facade walls and various steel constructions. Connector enabling the use of a double-threaded screw.

CATALOG NUMBER	TYPE	A	B	C	D	Bolt	Note
12601105	126.1.1	68	28	25	20	2×M6×16	with connector

V2A



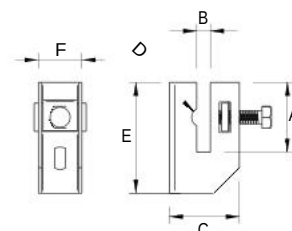
Tape conductor holder with tightening screw

For wall tape mounting. Fastened with fixing extension plugs. Maximum sectional dimension of tape 50x5 mm.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt
97400102	74.1	41	8	41	Ø8-Ø10	65	25	M8×25

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03



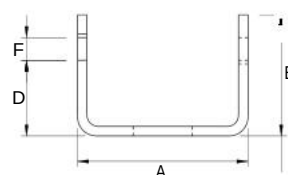
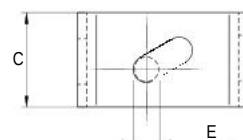
Tape conductor holder

For wall and ceiling tape mounting. Fastened with fixing extension plugs. Option 97400201 - maximum sectional dimension of tape 30x4 mm. Option 97401201 - maximum sectional dimension of tape 50x4 mm.

CATALOG NUMBER	TYPE	A	B	C	D	E	F
97400202	74.2	45	32	25	20	Ø7	6
97401202	74.2.1	70	35	45	19	Ø8	6

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03 V2A 05 RAL 16



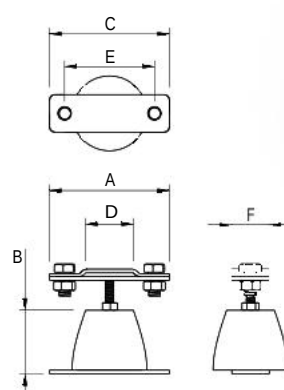
Insulation tape conductor holder

For wall and ceiling tape mounting. Can be also mounted on cable trays. Polyamide Insulator reinforced with fibreglass up to 1 kV. Maximum sectional dimension of tape 40x5 mm. Distance between holders should not exceed 1 meter.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt
97400402	—	80	40	80	40	60	25	2×M6×16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

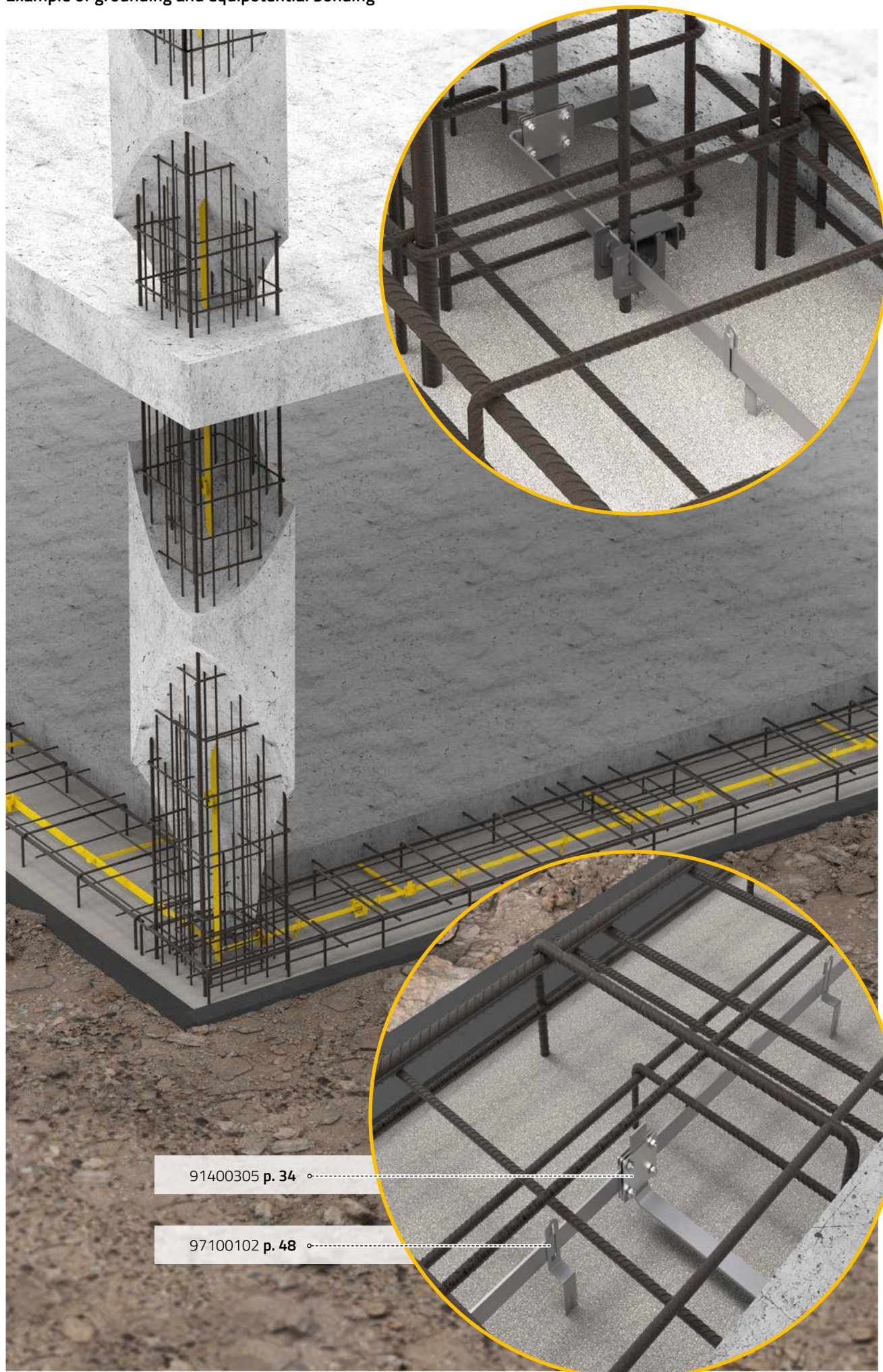
St/Zn 01 St/tZn 02



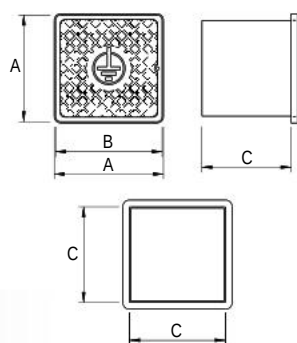
Example of grounding and equipotential bonding



Example of grounding and equipotential bonding



Ground inspection pit



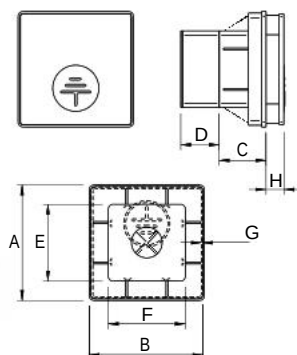
See also facade
control pits: p. 67

For ground control connections. Used in the places where there is no communication paths. One screw lid, enables fast and easy access to control connection in order to interim test/ review of LPS.

CATALOG NUMBER	TYPE	A	B	C
94900108	49.1	200	193	166

PVC

Ground inspection pit



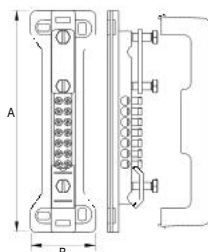
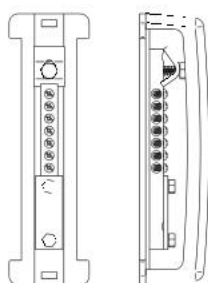
See also facade
control pits: p. 67

For ground control connections. Modular construction enables regulation of assembly deepness (by adding distance element). Cover guarantee excellent mechanical resistance, test proven with accordance to LPS norm EN 62561-5:2011. Can be used in communication paths dedicated for heavy transport. Two screws lid, enables fast and easy access to control connection in order to interim test/review of LPS.

CATALOG NUMBER	TYPE	TYPE	A	B	C	D	E	F	G	H
95000108	50.1	set	300	300	120	93	200	200	5	33
95010108	50.A	lid	–	–	–	–	–	–	–	33
95020108	50.B	foundation	300	300	120	–	–	–	–	–
95030108	50.C	distance element	–	–	–	93	200	200	5	–
95040108	50.D	bottom	–	–	–	–	–	–	–	–

PVC

Equipotential bar



Used in surge protection and electric shock installation. Enables direct equipotential bonding between earthing and conducting parts such as piping, reinforcement bars, construction parts of building, covers of electrical devices. Equipotential bar is to get similar potential on conducting parts in the normal work conditions, either in case of installation defects and failure of electric devices.

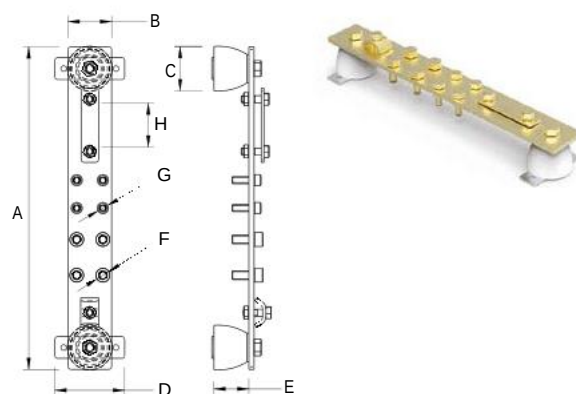
CATALOG NUMBER	TYPE	A	B	CONNECTION OPTIONS	VERSION
99200199	92.1	170	50	7×16 mm ²	single-row
				1×50 mm ²	
				1×tape conductor max. 25×4 mm	
99201199	92.1.1	170	50	14×16 mm ²	double-row
				1×50 mm ²	
				1×tape conductor max. 25×4 mm	

Main earthing equipotential bar

Used in LPS, surge protection and electric shock installation. Enables direct equipotential bonding between earthing and conducting parts such as piping, reinforcement bars, construction parts of building, covers of electrical devices. Equipotential bar is to get similar potential on conducting parts in the normal work conditions, either in case of installation defects and failure of electric devices.

CATALOG NUMBER	TYPE	Bolt	A	B	C	D	E	F	G	H
99200210	-	4xM8, 4xM10	370	50	50	80	40	M10	M8	51

CuZn

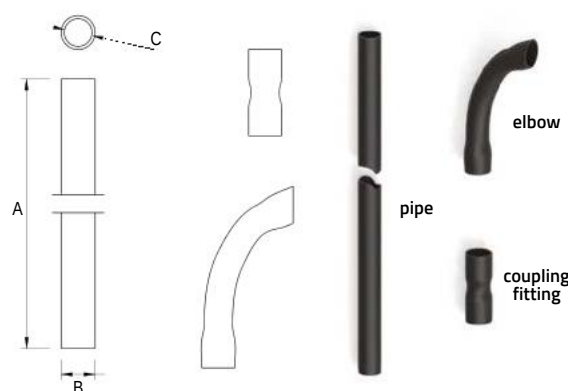


Tape conductor assembly pipe

To lead tape under facade or under plaster of the building. Material ensures sufficient stiffness and non flammability. Diameter allows to use maximum sectional dimension 30 x 4. For wall mounting use 94800901 clamp.

CATALOG NUMBER	TYPE	Version	A	B	C
10420108	-	pipe	3000	40	34
10500308	-	coupling fitting	-	-	-
10500408	-	elbow	-	-	-

PVC

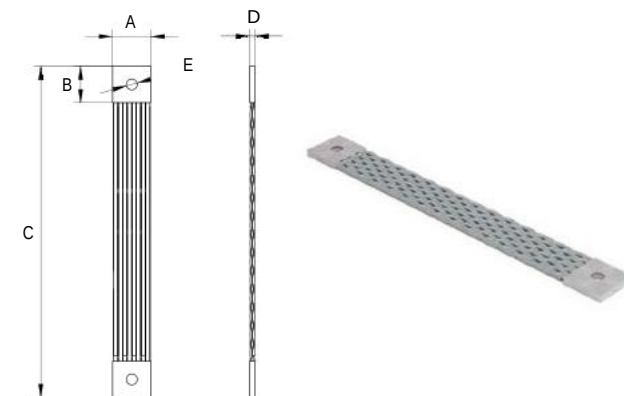


Flexible tin-plated copper bridging braid

For flexible connections of wire and / or tape conductors.

CATALOG NUMBER	TYPE	A	B	C	D	E
10100403	101.2 CU/30	40	40	300	6	Ø12
10100503	101.2 CU/40	40	40	400	6	Ø12

CU



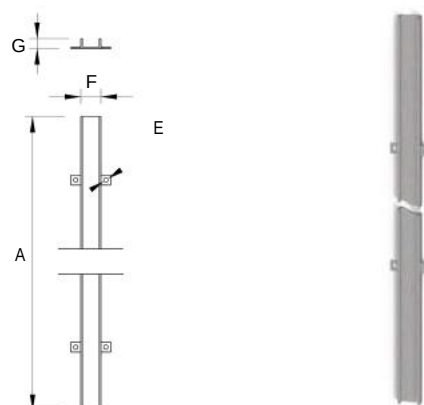
Earth conductor cover

Mechanical cover of earth conductor. Prevents mechanical damages especially in traffic areas, such as warehouse for example.

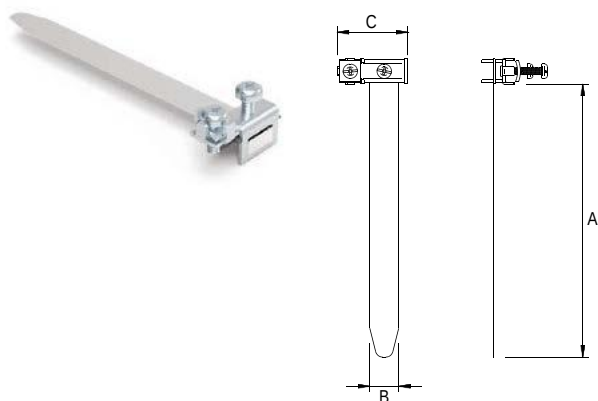
CATALOG NUMBER	TYPE	A	B	C	D	E	F	G
93900102	39.1	1400	250	250	40	9	40	20

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 RAL 16



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 or 30000299).

CATALOG NUMBER	TYPE	A	B	C	Pipe diameter	Pipe diameter [mm]
96440101	64.1/E	136	14	32	3/8"	< Ø36
96440201	64.2/E	209	20	48	1 1/2"	< Ø55
96440301	64.3/E	428	20	48	4"	< Ø125
96440401	64.4/E	605	20	48	6"	< Ø180
96440501	64.5/E	1000	20	48	10"	< Ø300

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	V2A	05
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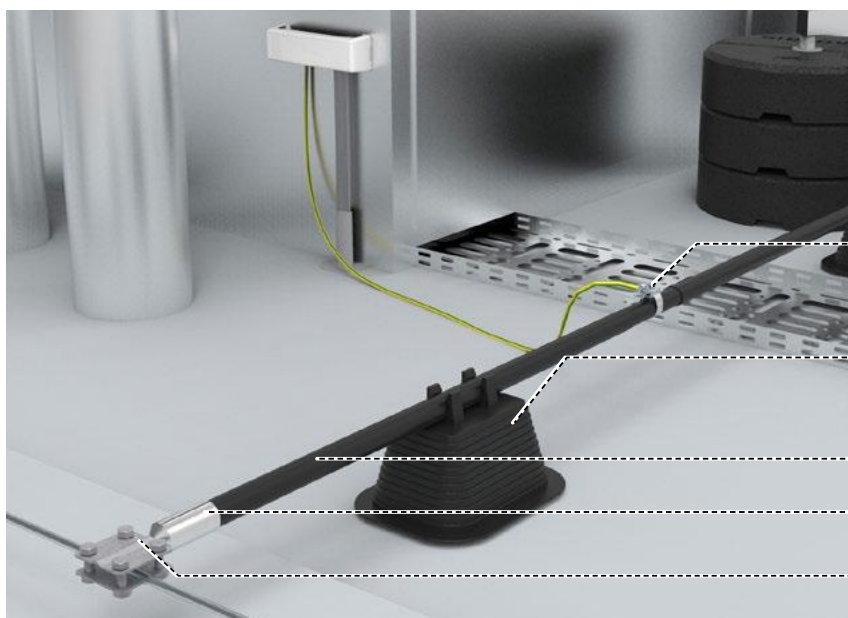
An example of the use of an Earthing Tensioning Strap and an Equipotential Bar for grounding electrical devices and high-voltage installations.



91403505 p. 34

97300105: p. 48

An example of the use of an Earthing Tensioning Strap and an Equipotential Bar for grounding electrical devices and high-voltage installations.



96440105: p. 132

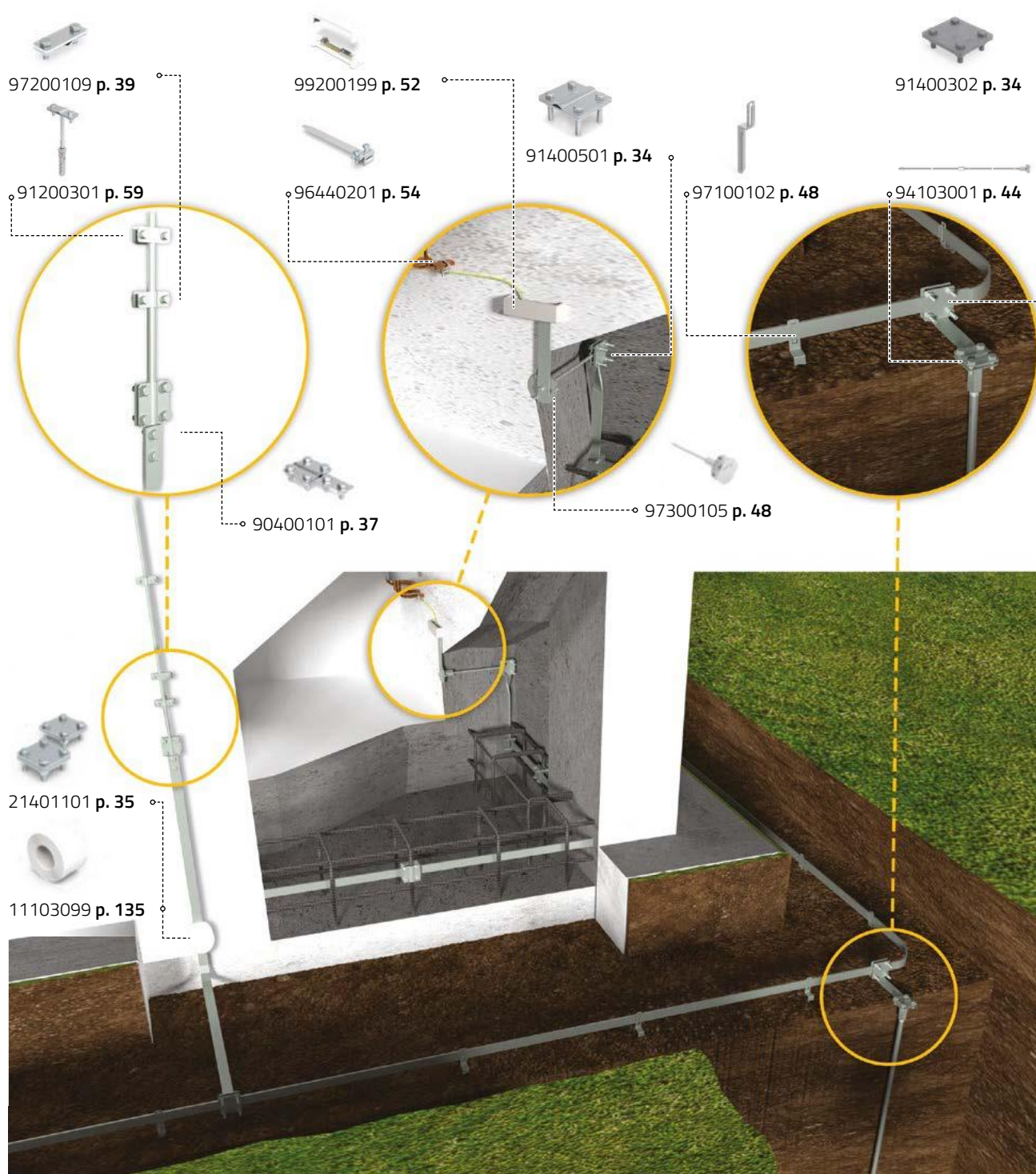
31000111: p. 126

30000199: p. 124

30100105: p. 126

90100102: p. 32

Example of grounding and equipotential bonding

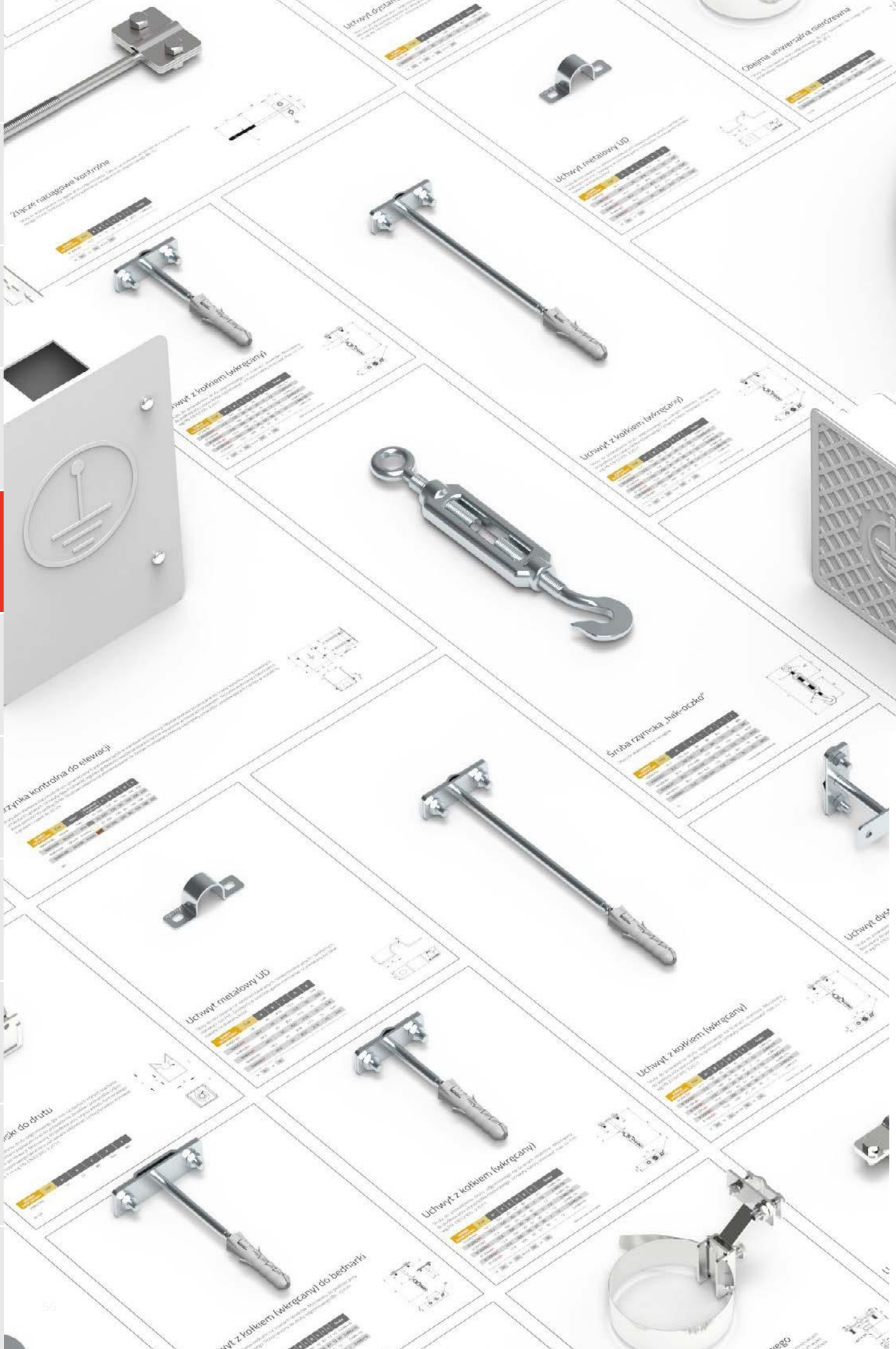


An example of grounding using an Earthing Electrode



An example of grounding using a Tape Conductor.





GROUP III DOWN CONDUCTORS

Down Conductors ensure safe current flow from lightning rods to grounding. ELKO-BIS offers both uninsulated and insulated conductors, as well as solutions for their proper installation. The products are available in various materials, which allows for optimization in terms of resistance to environmental factors, ensuring system reliability. The varnishing of selected products allows the aesthetic appearance of the building facade to be maintained while complying with the highest safety standards.

Wire conductors

Page 58



Conductor holders

Page 59-66

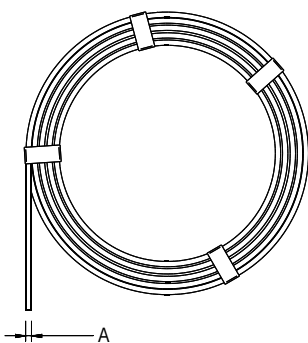


Facade control pits

Page 67



Wire conductor



Wire straightening tools:
page 134-136



Wire conductor
cap: **12400105**

Before order check availability
and lead time.

To be used as down or horizontal conductor. Coating thickness complies with EN 62561-2:2012 norm (zinc plated minimum 350g/m², copper bonded minimum 70 µm). Available packaging: 50 kg coils (galvanised & stainless steel wires) 10 kg and 20 kg coils (aluminum wire). Cut-to-length sales also available.

A tolerance of +/- 5% applies.

Cut-to-length sales also available.

A tolerance of +/- 5% applies.

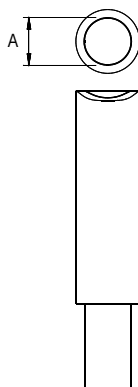
CATALOG NUMBER	TYPE	MATERIAL	A	Weight m [kg]
80000802	DR8	Zinc plated	8	0,395
80001002	DR10	Zinc plated	10	0,620
80000603	DR6	Copper	6	0,252
80000803	DR8	Copper	8	0,447
80001003	DR10	Copper	10	0,699
80000804	DR8	Copper bonded	8	0,410
80000805	DR8	Stainless Steel type V2A	8	0,391
80000855	DR8	Stainless Steel type V4A	8	0,391

Available packing: 10 kg and 20 kg coils.

CATALOG NUMBER	TYPE	MATERIAL	A	Weight m [kg]	Coil weight [kg]	Length [m] +/- 5%
80010809	DR 8/10KG	Aluminum	8	0,136	10	75
80000809	DR 8/20KG	Aluminum	8	0,136	20	150
80011009	DR 10/10KG	Aluminum	10	0,212	10	50
80001009	DR 10/20KG	Aluminum	10	0,212	20	100

Wire with a diameter smaller
than Ø8 available on request

PVC insulated wire conductor

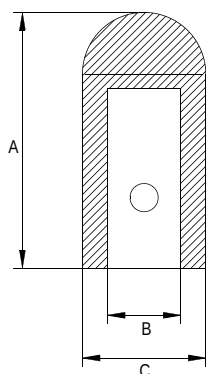


Wire conductor
cap: **12400105**

To be used as down or horizontal conductor, PVC insulation protects the conductor from mechanical damages.

CATALOG NUMBER	TYPE	A	PVC COATING [mm]	WEIGHT 1 m [kg]
80101001	DR 10 OC/PVC	10	1,5	0,69
80100809	DR 8 AL/PVC	8	1,5	0,203

Wire conductor cap



Anti-corrosion protection cap. Should be used with galvanised or copper bonded wires.

CATALOG NUMBER	TYPE	A	B	C	Bolt
12400105	124.1	30	8,5	14	M6

V2A

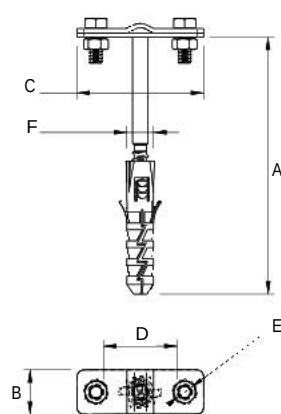
Fixing holder (screwed)

For wire conductor wall fixing. Fixed into surface using wall plug. Distance between holders max each 1 meter according to EN 62305-3:2011.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt
91200102	12.1	~100	20	57	34	7	10	2×M6×16
91200202	12.2	~120	20	57	34	7	12	2×M6×16
91200302	12.3	~160	20	57	34	7	12	2×M6×16
91200902	12.9	~200	20	57	34	7	12	2×M6×16
91200402	12.4	~250	20	57	34	7	12	2×M6×16
91200502	12.5	~300	20	57	34	7	12	2×M6×16
91200602	12.6	~400	20	57	34	7	12	2×M6×16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	V2A	05	RAL	16
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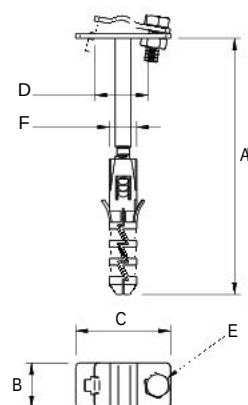
Wire holder with fixing plug

For wire wall mounting. Fastened to surface with fixing extension plugs. Appropriate for wire conductor with diameter 8-10 mm.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt
91210102	12.1.1	~100	20	43	30	7	10	M6×16
91210202	12.2.1	~120	20	43	30	7	12	M6×16
91210302	12.3.1	~160	20	43	30	7	12	M6×16
91210902	12.4.1	~250	20	43	30	7	12	M6×16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	RAL	16
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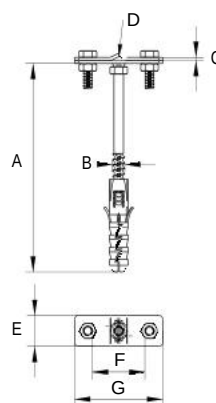
Conductor holder with screw and wall plug

Used for routing the lightning conductor on building walls. Fixed to the substrate using a wall plug. The holder should be installed at maximum intervals of 1 m in accordance with EN 62305-3:2011.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	Bolt
91200226	12.2	~120	M8	2	Ø8	20	34	57	2×M6×16
91200326	12.3	~160	M8	2	Ø8	20	34	57	2×M6×16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

CU/CuZn



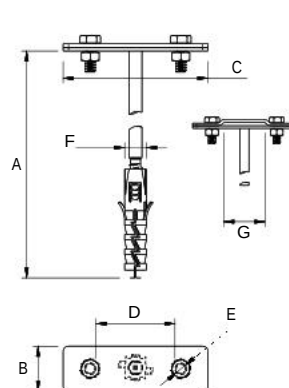
Tape conductor holder with fixing plug

For wire wall mounting. Fastened to surface with fixing expansion plugs. Appropriate for wire conductor with diameter 8-10 mm.

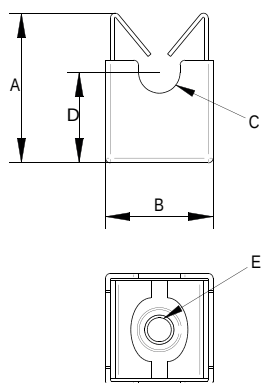
CATALOG NUMBER	TYPE	VERSION	A	B	C	D	E	F	G	Bolt
91230302	12.3/B	creased	~160	25	80	50	Ø7	12	40	2×M6×16
91231302	12.3.1/B	creased	~120	25	80	50	Ø7	12	40	2×M6×16
91230802	12.8/B	noncreased	~160	25	80	50	Ø7	12	-	2×M6×16
91231802	12.8.1/B	noncreased	~120	25	80	50	Ø7	12	-	2×M6×16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	V2A	05	RAL	16
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Low-profile wire holder

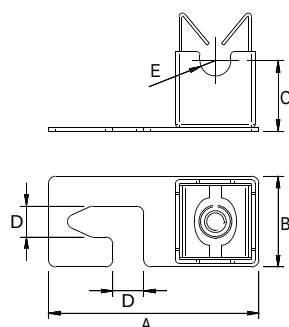


Used for routing the lightning conductor on roofs covered with metal roofing tiles or bitumen shingles, as well as for routing down conductors along the facade. Intended for use only with conductors of Ø8 mm. Fixed to the substrate using a wall plug (ordered separately). The holder allows the conductor to be routed both parallel and perpendicular to the roof edge. The holders should be installed at maximum intervals of 1 m in accordance with EN 62305-3:2011.

CATALOG NUMBER	TYPE	A	B	C	D	E
25902105	259.1 B	31	22	Ø8	18,5	M6

V2A

Low-profile wire holder with latch

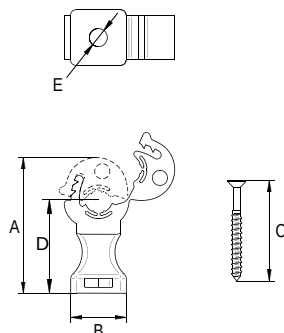


Used to mount wire conductor on corrugated roofs. Fixed into roof surface using either a screw (to be ordered separately) or already existing roof mounting screws, with no necessity for additional drilling in the roof surface.

CATALOG NUMBER	TYPE	A	B	C	D	E
25903105	–	58	25	19,5	8,5	Ø8

V2A

Plastic clip holder



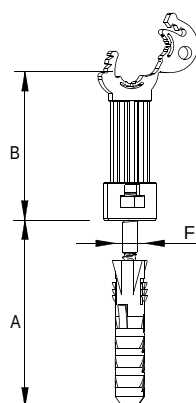
For wire conductor wall fixing. Fixed into surface using expansion plug. Available colors: grey, brown, black, brick. Appropriate only for wire conductor with diameter 8 mm.

Available colors of the plastic holder:

12000108	12040108
12050108	12030108

CATALOG NUMBER	TYPE	Version	A	B	C	D	E
12000108	120.1	clip	50	20	–	35	M6
12007001	120.70	screw	–	–	70	–	–

Plastic clip holder with expansion plug



For wire conductor wall fixing. Fixed into surface using expansion plug. Available colors: grey, black, brick. Appropriate only for wire conductor with diameter 8 mm.

CATALOG NUMBER	TYPE	A	B	F
91220101	12.1/P	50	70	10
91220201	12.2/P	65	70	12
91220301	12.3/P	105	70	12
91220401	12.4/P	190	70	12

St/Zn

Available colors of the plastic holder:

RAL 7035	RAL 8004
RAL 9005	

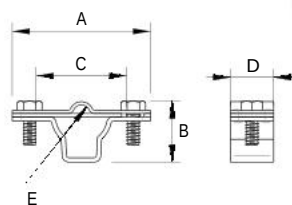
Wire conductor holder

For wire conductor wall or metal structure fixing. Option without a connector enabling screwing the holder directly on a flat surface. Appropriate for wire conductor with diameter 8-10 mm.

CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt
12500102	125.1	68	28	45	20	Ø8-Ø10	2xM6x16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	V2A	05
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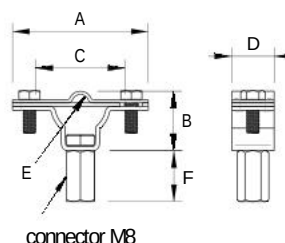


Wire conductor holder with connector

For wire conductor wall or metal structure fixing. Option with a connector enabling to use double threaded screw on a flat surface. Appropriate for wire conductor with diameter 8-10 mm.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt
12501105	125.1.1	68	28	45	20	Ø8-Ø10	24	2xM6x16

V2A



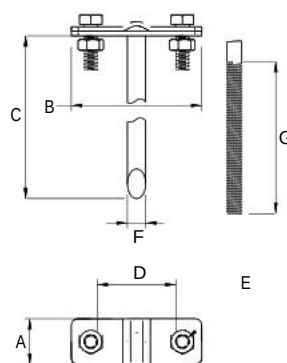
Distance holder: screwed or hammered

For wire or tape conductor wall fixing. Fixed into surface by screwing or hammering. Maximum distance between holders according to EN 62305-3:2011 should be 1 m. Appropriate for wire conductor with diameter 8-10 mm.

CATALOG NUMBER	TYPE	Version	A	B	C	D	E	F	G	Bolt
92400102	24.1	hammered	20	57	160	30	Ø7	8	-	2xM6x16
92400202	24.2	hammered	20	57	250	30	Ø7	8	-	2xM6x16
92401102	24.1/GW	threaded	20	57	160	30	Ø7	8	75	2xM6x16
92401202	24.2/GW	threaded	20	57	250	30	Ø7	8	75	2xM6x16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	CU	03	V2A	05	RAL	16
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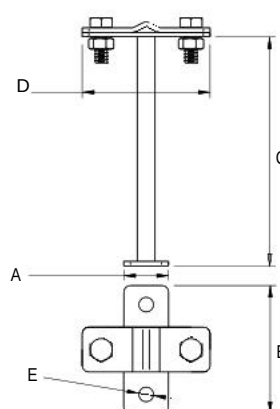
Screwed distance holder

For wire or tape conductor wall fixing. Fixed into surface by screwing in. Maximum distance between holders according to EN 62305-3:2011 should be 1 m. Appropriate for wire conductor with diameter 8-10 mm.

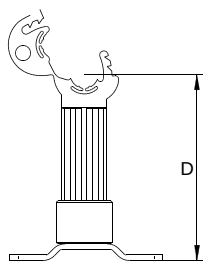
CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt
96300102	63.1	20	57	100	57	Ø7	2xM6x16
96300202	63.2	20	57	50	57	Ø7	2xM6x16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

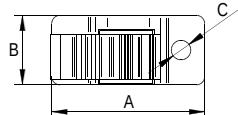
St/Zn	01	St/tZn	02	CU	03	V2A	05
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Screwed plastic clip distance holder



The color of the plastic handle is similar to the color of the material version of the product.



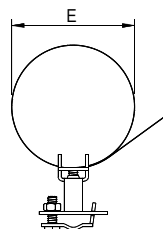
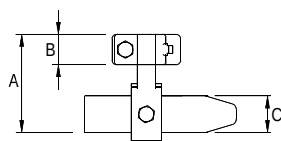
For wire conductor wall fixing. Fixed into surface by screwing in. Available colors: grey, black, brick. Appropriate only for wire conductor with diameter 8 mm.

CATALOG NUMBER	TYPE	A	B	C	D
96304102	63.1/P	55	20	Ø7	70

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	RAL	16
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Stainless steel universal clamp



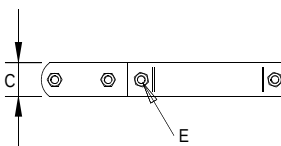
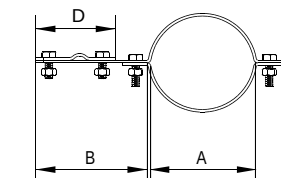
Used to fix the wire conductor to a drain pipe or any other hollow profile. Appropriate for wire conductor with diameter 8-10 mm.

CATALOG NUMBER	TYPE	A	B	C	E*	Bolt
96432105	64.1/U V2A	75	21	24	up to 80	2×M6×20
96432205	64.2/U V2A	75	21	24	up to 160	2×M6×20

V2A

*Other sizes available on request.

Drainage pipe holder



Used to fix the wire conductor to a drain pipe. Appropriate for wire conductor with diameter 8-10 mm. Holders appropriate for different pipe diameters available on request.

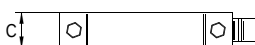
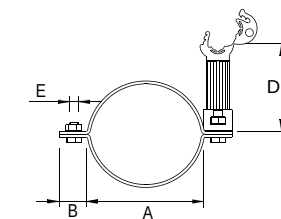
CATALOG NUMBER	TYPE	A	B	C	E	D
96410805	64.08/S	80	85	26	7	60
96410905	64.09/S	90	85	26	7	60
96411005	64.10/S	100	85	26	7	60

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

CU	03	V2A	05	RAL	16
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*Other sizes available on request.

Drainage pipe plastic clip holder



The color of the plastic handle is matched to the material version of the product.

Used to fix the wire conductor to a drain pipe. Available colors: grey, black, brick. Appropriate only for wire conductor with diameter 8 mm.

CATALOG NUMBER	TYPE	A	B	C	D	E
96420805	64.08/P	80	25	26	70	7
96421005	64.10/P	100	25	26	70	7

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

CU	03	V2A	05	RAL	16
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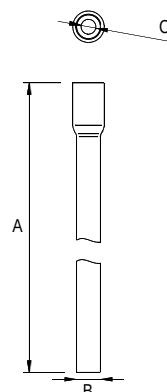
*Other sizes available on request.

Lightning conductor assembly pipe

Used for surface-mounted and flush-mounted routing of the lightning conductor. Available in 2 m and 3 m sections, finished with a socket allowing connection of two sections. The pipe wall thickness complies with the requirements of EN 62305-3:2011. The product has been tested for mechanical strength and insulation during a 100 kV impulse voltage test in accordance with EN 60060-1:2011. It meets the flammability requirements of class V0 according to UL94 and is UV resistant.

CATALOG NUMBER	TYPE	Version	Wall thickness	A	B	C
10400208	104.1/2	pipe	3 mm	2000	20	Ø14
10400308	104.1/3	pipe	3 mm	3000	20	Ø14
10500108	105.1	straight coupling	-	-	-	-
10500208	105.2	flexible coupling	-	-	-	-

PVC



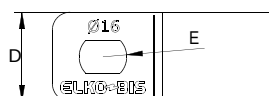
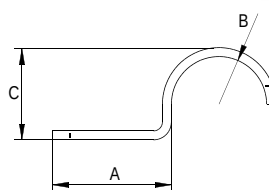
Zobacz także rurę instalacyjną do bednarki: p. 53

UJ metal holder

Used to mount different types of pipes: telecommunication, sanitary, electric installations; steel or PVC. Vast sizes range available. Can be varnished in any color upon request.

CATALOG NUMBER	TYPE	A	B	C	D	E
94700101	47.1	20	Ø16	15,5	15	5×8
94700201	47.2	20	Ø18	17,5	15	5×8
94700301	47.3	20	Ø20	19,5	15	5×8
94700401	47.4	20	Ø22	21,5	15	5×8
94700501	47.5	20	Ø28	27,5	15	5×8
94700601	47.6	20	Ø32	31,5	15	5×8
94700701	47.7	20	Ø37	36,5	15	5×8
94700801	47.8	20	Ø47	46,5	15	5×8
94700901	47.9	20	Ø40	39,5	15	5×8

St/Zn

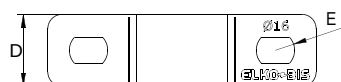
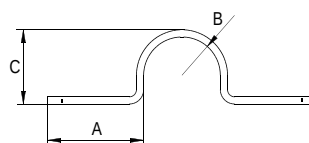


UD metal holder

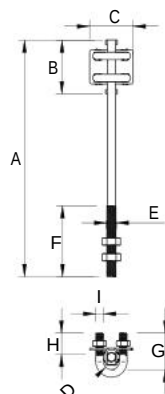
Used to mount different types of pipes: telecommunication, sanitary, electric installations; steel or PVC. Vast sizes range available. Can be varnished in any color upon request.

CATALOG NUMBER	TYPE	A	B	C	D	E
94800101	48.1	20	Ø16	15,5	15	5×8
94800201	48.2	20	Ø18	17,5	15	5×8
94800301	48.3	20	Ø20	19,5	15	5×8
94800401	48.4	20	Ø22	21,5	15	5×8
94800501	48.5	20	Ø28	27,5	15	5×8
94800601	48.6	20	Ø32	31,5	15	5×8
94800701	48.7	20	Ø37	36,5	15	5×8
94800801	48.8	20	Ø47	46,5	15	5×8
94800901	48.9	20	Ø40	39,5	15	5×8

St/Zn



Tensioning clamp holder



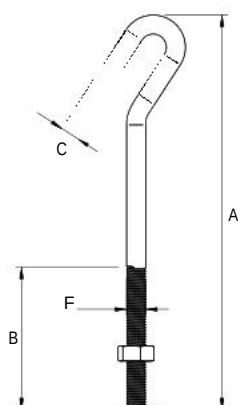
Used for wire conductor tensioning, recommended to use together with a tensioning pipe or tensioning rod (cat. No. 92800xxx).

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	H	I
92700102	27.1	250	57	46	Ø17	M10	75	38	24	M8

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	V2A	05
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Tensioning holder



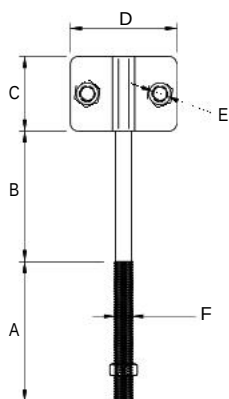
Holders 200 & 300 mm length are recommended to use together with a tensioning pipe or tensioning rod (cat. No. 92800xxx). Longer holders (of 500 & 700 mm) are used for wire tensioning on the firewalls.

CATALOG NUMBER	TYPE	A	B	C	F
92600002	26.0	200	75	8,6	M10
92600102	26.1	300	75	8,6	M10
92600202	26.2	500	75	8,6	M10
92600302	26.3	700	75	8,6	M10

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02
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Tensioning control connector



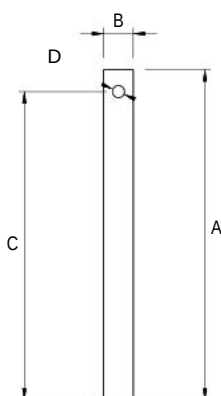
Used for wire conductor tensioning, recommended to use together with a tensioning pipe or tensioning rod (cat. No. 92800xxx). Appropriate for tensioning the wire conductor with diameter 8-10 mm.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt
91300102	13.1	75	70	40	57	9	M10	2×M8×16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	V2A	05
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Tensioning pipe



Used for wire conductor tensioning, mounting to surface by hammering in or by using a chemical anchor.

CATALOG NUMBER	TYPE	A	B	C	D
92800102	28.1	300	27	280	Ø11
92800202	28.2	400	27	380	Ø11

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	RAL	16
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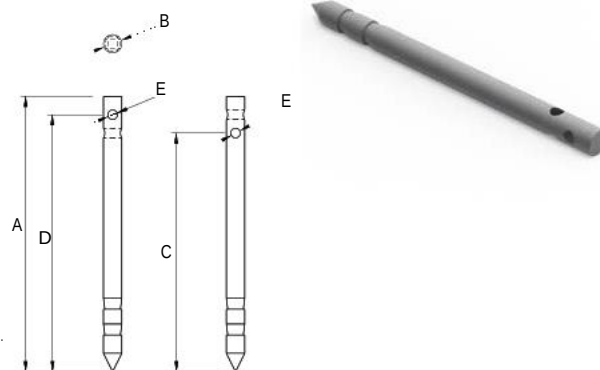
Tensioning rod

Used for wire conductor tensioning, mounting to surface by hammering in or by using a chemical anchor.

CATALOG NUMBER	TYPE	A	B	C	D	E
92800302	28.3	300	20	260	280	Ø10,5
92800402	28.4	400	20	360	380	Ø10,5

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	V2A	05
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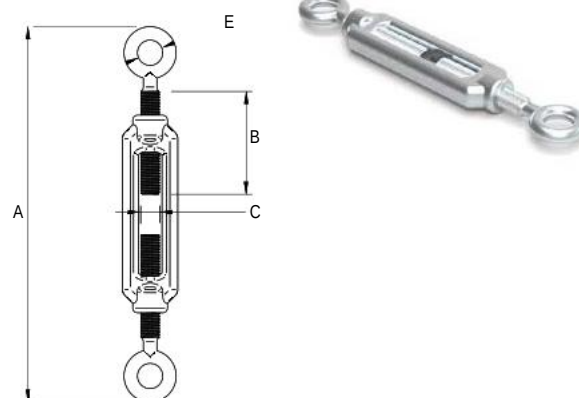
Turnbuckle screw „eye-eye”

Used for wire conductor tensioning.

CATALOG NUMBER	TYPE	A	B	C	E
93200101	32.1	167–247	80	M6	Ø9
93200201	32.2	179–254	84	M8	Ø10
93200301	32.3	210–295	105	M10	Ø14
93200401	32.4	230–310	115	M12	Ø16
93200501	32.5	250–340	122	M14	Ø18
93200601	32.6	330–440	165	M16	Ø22

St/Zn

*Other sizes available on request.



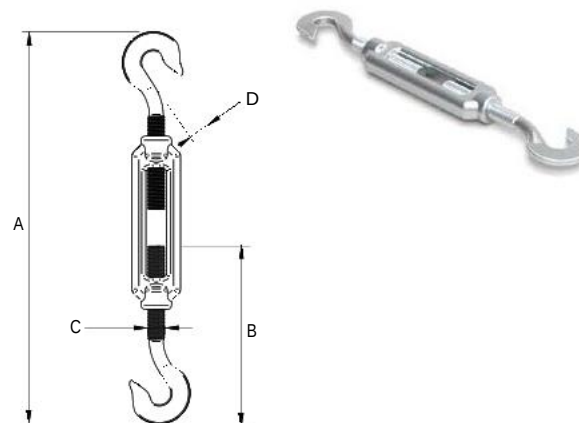
Turnbuckle screw „hook-hook”

Used for wire conductor tensioning.

CATALOG NUMBER	TYPE	A	B	C	D
93400101	34.1	180–260	85	M6	8,5
93400201	34.2	195–270	85	M8	11
93400301	34.3	230–315	112	M10	13,5
93400401	34.4	250–330	117	M12	15,51
93400501	34.5	280–370	122	M14	8,5
93400601	34.6	320–430	138	M16	19

St/Zn

*Other sizes available on request.



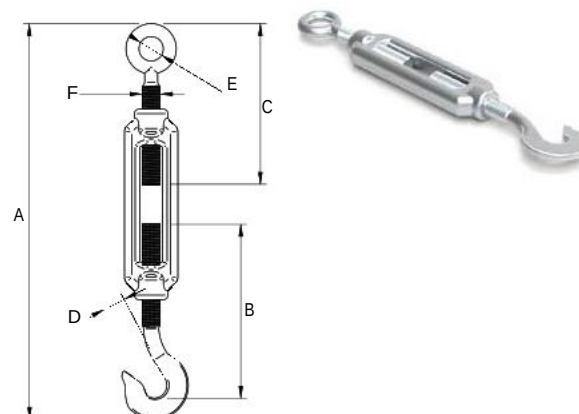
Turnbuckle screw „hook-eye”

Used for wire conductor tensioning.

CATALOG NUMBER	TYPE	A	B	C	D	E	F
93500101	35.1	170–252	85	80	8,5	Ø9	M6
93500201	35.2	182–257	85	84	11	Ø10	M8
93500301	35.3	213–298	112	105	13,5	Ø14	M10
93500401	35.4	238–318	117	115	15,5	Ø16	M12
93500501	35.5	263–353	122	122	8,5	Ø18	M14
93500601	35.6	320–430	138	165	19	Ø22	M16

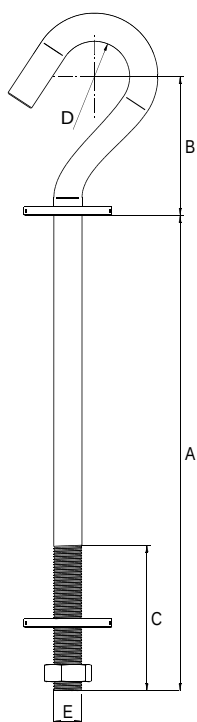
St/Zn

*Other sizes available on request.



Hook screw

For overhead line insulated tensioning.

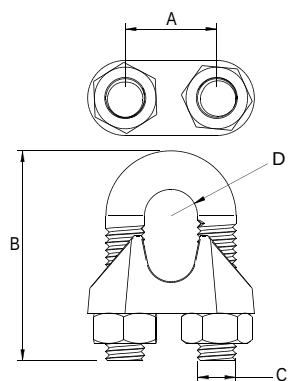


CATALOG NUMBER	TYPE	A	B	C	D	E
97500101	75.1	110	80	80	40	M16
97500201	75.2	150	80	80	40	M16
97500301	75.3	215	80	80	40	M16
97500501	75.4	255	80	80	40	M16
97500601	75.5	300	80	80	40	M16
97500701	75.6	360	80	80	40	M16
97500801	75.7	420	80	80	40	M16
97500901	75.8	500	80	80	40	M16
97501001	75.9	550	80	80	40	M16
97501101	75.10	600	80	80	40	M16
97511101	75.11	120	80	80	40	M20
97511201	75.12	160	80	80	40	M20
97511301	75.13	220	80	80	40	M20
97511401	75.14	250	80	80	40	M20
97511501	75.15	320	80	80	40	M20
97511601	75.16	340	80	80	40	M20
97511701	75.17	370	80	80	40	M20
97511801	75.18	510	80	80	40	M20

St/Zn

Rope clamping ring

For steel ropes and wire conductors looping



CATALOG NUMBER	TYPE	A	B	C	D*
93600101	36.1	9	20	M4	3
93600201	36.2	11	24	M5	5
93600301	36.3	13	28	M5	6
93600401	36.4	16	34	M6	8
93600501	36.5	19	42	M8	10
93600601	36.6	20	44	M8	11
93600701	36.7	24	55	M10	12
93600801	36.8	25	57	M10	14
93600901	36.9	29	63	M12	16

St/Zn



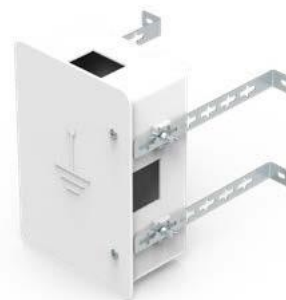
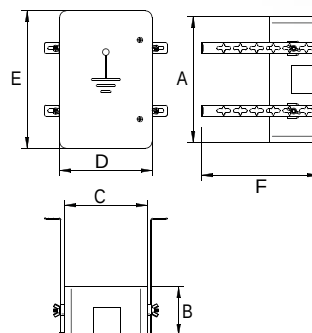
More tensioning solutions
- page 89

Facade control pit

Used for separation points when mounting the wire conductor under the wall or in the thermal insulation layer. Mounting by drilling into the wall using adjustable angle brackets. Regulated brackets allow to adjust embedding depth by manual break or narrowing points. Flammability class V0 acc to UL94, cover doors - UV resistant. Assembly kit consist 4 sets of brackets allowing assembly in insulation with a thickness up to 20 cm.

CATALOG NUMBER	TYPE	Color*	A	B	C	D	E	F
96801408	68.4/B	white	230	89	150	168	250	89-240
96802408	68.4/SZ	grey	230	89	150	168	250	89-240
96803408	68.4/K	cream	230	89	150	168	250	89-240
96804408	68.4/BR	brown	230	89	150	168	250	89-240

ABS

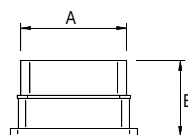
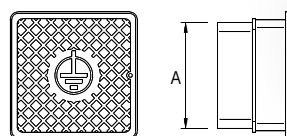


Facade control pit

Used for separation points when mounting the wire conductor under the wall or in the thermal insulation layer. Mounting by drilling into the wall. Flammability class V0 acc to UL94, cover doors - UV resistant.

CATALOG NUMBER	TYPE	Color*	A	B	Bolt
96800108	68.1/B	white	140	60	2×screw
96800208	68.2/B	white	140	100	2×screw
96801108	68.1/SZ	grey	140	60	2×screw
96801208	68.2/SZ	grey	140	100	2×screw

PVC



*Color may slightly differ from the sample.

See also ground control pits: p. 52



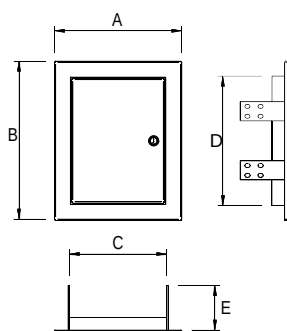
Inspection doors

Used for separation points when mounting the wire conductor under the wall. Stainless steel frame and assembly parts. Mounting by drilling into the wall niche.

CATALOG NUMBER	TYPE	A	B	C	D	E
96800305	68.3	200	250	150	200	70

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

CU 03 V2A 05 RAL 16





GROUP IV AIR TERMINATION

Air termination conductors are responsible for intercepting lightning discharges along the surface of protected structures, connecting to the down conductors. A wide range of holders is available for the most commonly used types of roofing materials, such as roof tiles, metal roof tiles, standing seam sheets, shingles, roofing membranes, bitumen roofing, flat metal sheets, and many others.

The availability of various material versions allows their use in diverse environmental conditions, while optional coating ensures an aesthetic finish of the installation while maintaining the highest safety standards.



We varnish only the **screwed** version of holders

Under-tile holders

Page 70-76



Universal holders for metal roofing

Page 80-81



Ridge tile holders

Page 77-80



Compensation elements

Page 83-85



Compensation connections

Page 86



Air termination studs

Page 87



Cable tray holders

Page 88

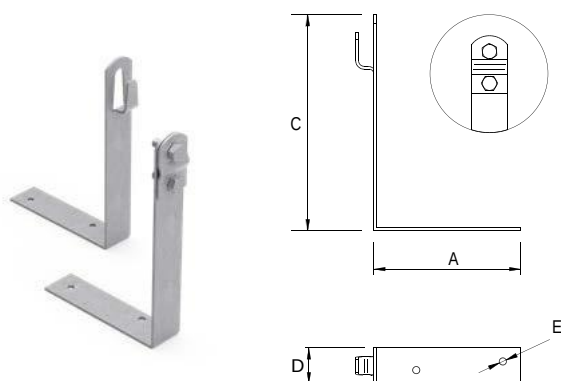


Complementary products

Page 89-90



Angle wire holder



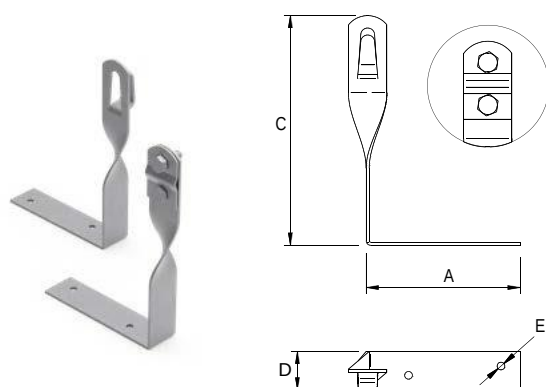
For fixing wire on the roof surface covered with bituminous and wooden shingle. Screwed or nailed. Use screwed type holders for wire with diameter 10 mm. Holder allows to lead the wire along the roof edge.

CATALOG NUMBER	TYPE	Version	A	C	D	E
91000102	10.1	clinched	100	150	25	Ø5
91000702	10.1.1	clinched	100	100	25	Ø5
91001102	10.1/S	screwed	100	150	25	Ø5
91001602	10.1.1/S	screwed	100	100	25	Ø5

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 CU 03 RAL 16 We varnish only the screwed version.

Twisted angle wire holder



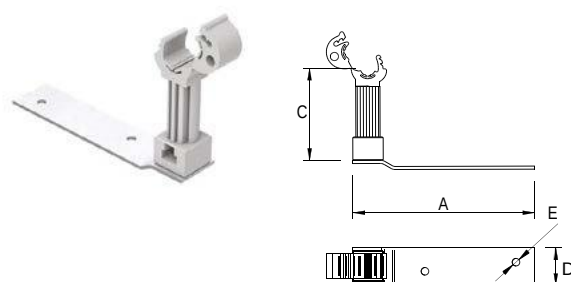
For fixing wire on the roof surface covered with bituminous and wooden shingle. Screwed or nailed. Use screwed type holders for wire with diameter 10 mm. Holder allows to lead the wire along the roof edge.

CATALOG NUMBER	TYPE	Version	A	C	D	E
91100102	11.1	clinched	100	150	25	Ø5
91100702	11.1.1	clinched	100	100	25	Ø5
91101102	11.1/S	screwed	100	150	25	Ø5
91101602	11.1.1/S	screwed	100	100	25	Ø5

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 CU 03 RAL 16 We varnish only the screwed version.

PVC angle wire holder



The color of the plastic handle is matched to the material version of the product.

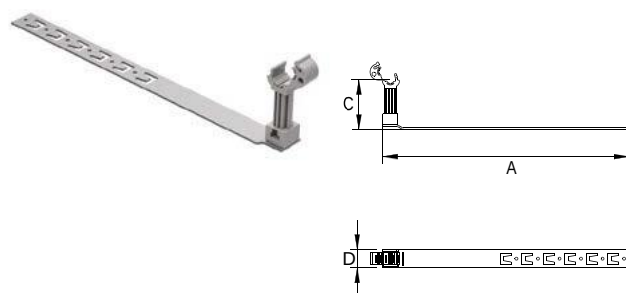
For fixing wire on the roof surface covered with bituminous and wooden shingle. Screwed or nailed. Appropriate only for wire conductor with diameter 8 mm. Holder allows to lead the wire along the roof edge to roof edge.

CATALOG NUMBER	TYPE	A	C	D	E
91002002	10.1/P	120	70	25	Ø5

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 CU 03 RAL 16 We varnish only the screwed version.

PVC under tile wire holder with hook



The color of the plastic handle is matched to the material version of the product.

For fixing wire on the roof surface covered with flat tiles. Screwed, nailed or hooked to the tile, using embossed hook. Appropriate only for wire conductor with diameter 8 mm. Holder allows to lead the wire along the roof edge.

CATALOG NUMBER	TYPE	A	C	D
91003702	10.2/Z/P	330	70	25
91003802	10.3/Z/P	415	70	25
91003902	10.4/Z/P	450	70	25

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 CU 03 RAL 16 We varnish only the screwed version.

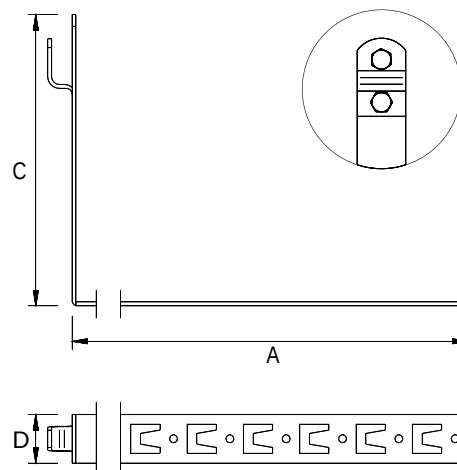
Under tile wire holder with hook

For fixing wire on the roof surface covered with flat tiles. Screwed, nailed or hooked to the tile, using embossed hook. Use screwed type holders for wire with diameter 10 mm. Holder allows to lead the wire along the roof edge.

CATALOG NUMBER	TYPE	Version	A	C	D
91002402	10.2/Z	clinched	330	150	25
91002502	10.3/Z	clinched	415	150	25
91002602	10.4/Z	clinched	450	150	25
91002702	10.2.1/Z	clinched	330	100	25
91002802	10.3.1/Z	clinched	415	100	25
91002902	10.4.1/Z	clinched	450	100	25
91003002	10.2/Z/S	screwed	330	150	25
91003102	10.3/Z/S	screwed	415	150	25
91003202	10.4/Z/S	screwed	450	150	25
91003302	10.2.1/Z/S	screwed	330	100	25
91003402	10.3.1/Z/S	screwed	415	100	25
91003502	10.4.1/Z/S	screwed	450	100	25

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 CU 03 RAL 16 We varnish only the screwed version.



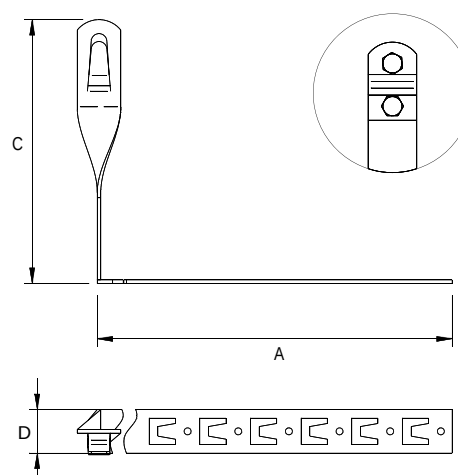
Twisted under tile wire holder with hook

For fixing wire on the roof surface covered with flat tiles. Screwed, nailed or hooked to the tile, using embossed hook. Appropriate only for wire conductor with diameter 8 mm. Holder allows to lead the wire along the roof edge.

CATALOG NUMBER	TYPE	Version	A	C	D
91102402	11.2/Z	clinched	330	150	25
91102502	11.3/Z	clinched	415	150	25
91102602	11.4/Z	clinched	450	150	25
91102702	11.2.1/Z	clinched	330	100	25
91102802	11.3.1/Z	clinched	415	100	25
91102902	11.4.1/Z	clinched	450	100	25
91103002	11.2/Z/S	screwed	330	150	25
91103102	11.3/Z/S	screwed	415	150	25
91103202	11.4/Z/S	screwed	450	150	25
91103302	11.2.1/Z/S	screwed	330	100	25
91103402	11.3.1/Z/S	screwed	415	100	25
91103502	11.4.1/Z/S	screwed	450	100	25

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

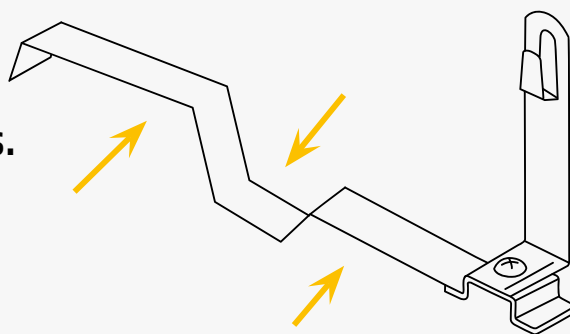
St/tZn 02 CU 03 RAL 16 We varnish only the screwed version.



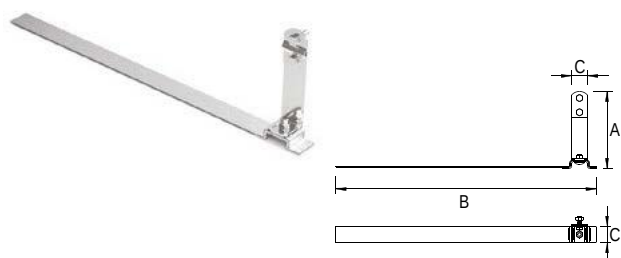
Explore the range of
universal holders
designed to fit all types of roof tiles.



Scan the code or visit our website
www.elkobis.com.pl/uniwersalne



Tape universal under tile wire holder

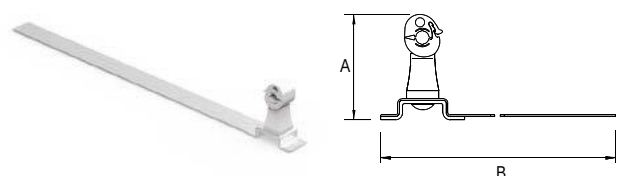


For fixing wire on the roof surface covered in roof tiles with lock. Tape is made of bendable aluminum, allowing easy adoption to each type of roof tile. Steel fixing element type St/Zn, St/tZn or RAL. Holder allows to lead wire parallel and perpendicular to roof edge.

CATALOG NUMBER	TYPE	A	B	C
91004009	10.10/S AL	120	400	25

AL

PVC tape universal under tile wire holder



For fixing wire on the roof surface covered in roof tiles with lock. Tape is made of bendable aluminum, allowing easy adoption to each type of roof tile. Plastic clip holder. Holder allows to lead wire parallel and perpendicular to roof edge.

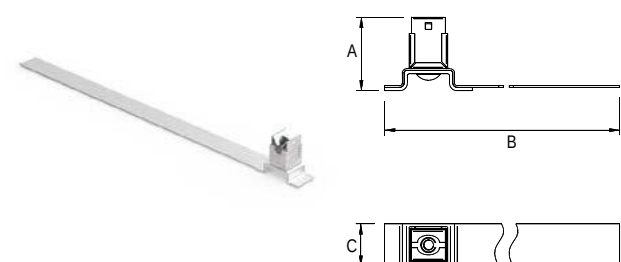
CATALOG NUMBER	TYPE	A	B	C
91004109	10.10/P	70	400	25

AL

Available plastic handle colors:

91004109	91004138
91004140	91004139

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 bendable 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	210.10	44	400	25

V2A

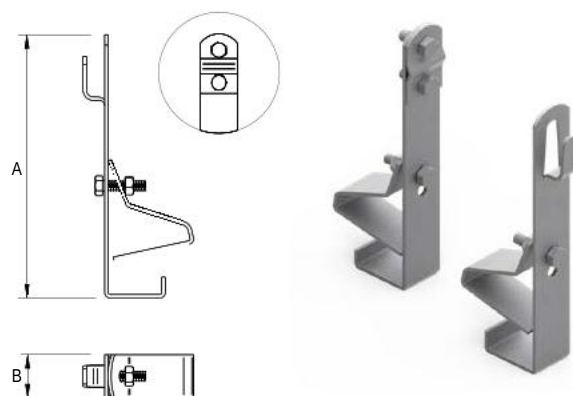
Universal wire holder

For fixing wire on the roof surface covered in ceramic or concrete roof tiles. Clinched to tile front. Suitable for all tile types due to its clamping design. Use screwed type holders for wire with diameter 10 mm. Holder allows to lead the wire along the roof edge.

CATALOG NUMBER	TYPE	Version	A	B
91010002	10.6	clinched	150	25
91010102	10.6/S	screwed	150	25

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 CU 03 V2A 05 RAL 16 We varnish only the screwed version.



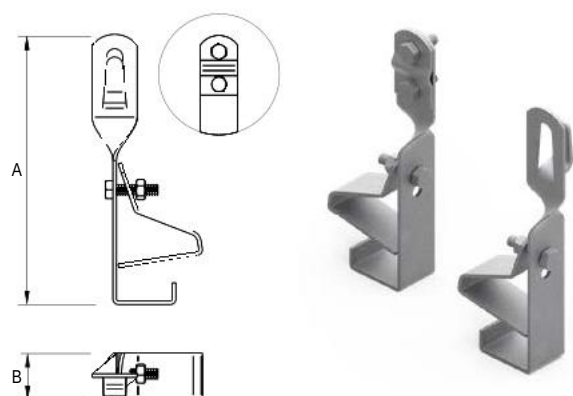
Twisted universal wire holder

For fixing wire on the roof surface covered in ceramic or concrete roof tiles. Clinched to tile front. Suitable for all tile types due to its clamping design. Use screwed type holders for wire with diameter 10 mm. Holder allows to lead the wire along the roof edge.

CATALOG NUMBER	TYPE	Version	A	B
91110002	11.6	clinched	150	25
91110102	11.6/S	screwed	150	25

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 CU 03 V2A 05 RAL 16 We varnish only the screwed version.



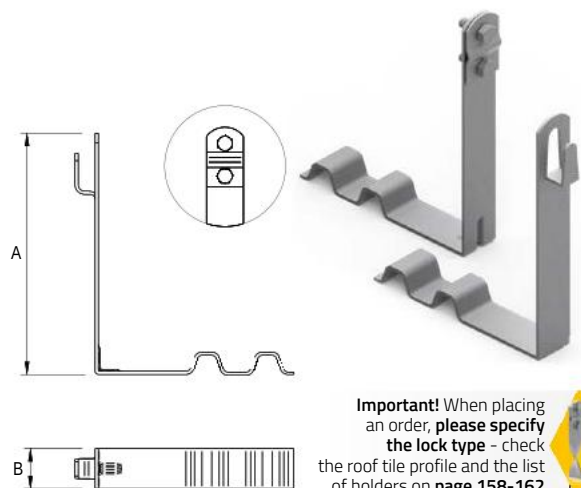
Under tile wire holder with hook

For fixing wire on the roof surface covered with flat tiles. Screwed, nailed or hitched to the tile, using embossed hitch. Use screwed type holders for wire with diameter 10 mm. Holder allows to lead the wire along the roof edge.

CATALOG NUMBER	TYPE	Version	A	B
91005002	10.5	clinched	150	25
91008002	10.5.1	clinched	100	25
91006002	10.5/S	screwed	150	25
91009002	10.5.1/S	screwed	100	25

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 CU 03 V2A 05 RAL 16 We varnish only the screwed version.



Important! When placing an order, please specify the lock type - check the roof tile profile and the list of holders on page 158-162

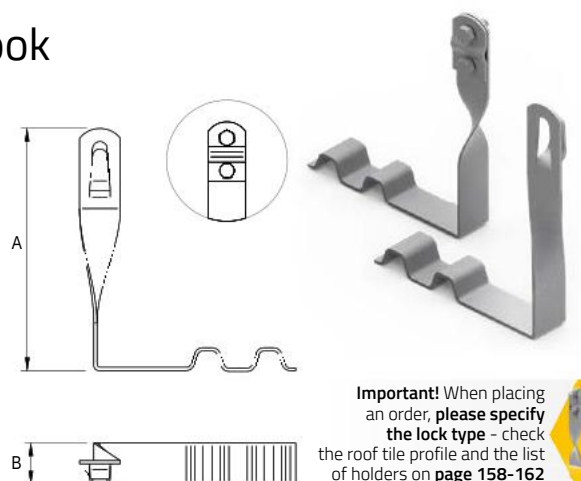
Twisted under tile wire holder with hook

For fixing wire on the roof surface covered in ceramic roof tiles with lock. Applied to lock between roof tiles. Use screwed type holders for wire with diameter 10 mm. Holder allows to lead the wire along the roof edge.

CATALOG NUMBER	TYPE	Version	A	B
91105002	11.5	clinched	150	25
91108002	11.5.1	clinched	100	25
91106002	11.5/S	screwed	150	25
91109002	11.5.1/S	screwed	100	25

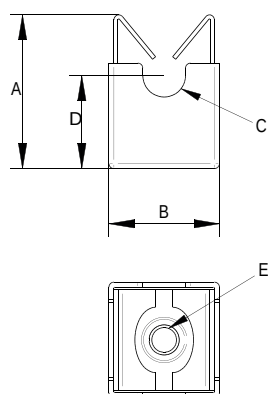
To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 CU 03 V2A 05 RAL 16 We varnish only the screwed version.



Important! When placing an order, please specify the lock type - check the roof tile profile and the list of holders on page 158-162

Low profiled wire holder

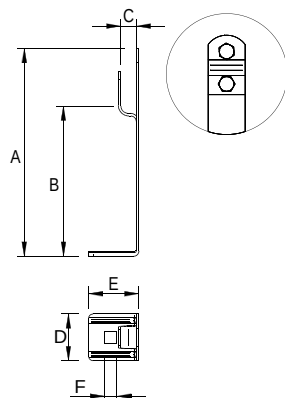


Used for routing the lightning conductor on roofs covered with metal roofing tiles or bitumen shingles, as well as for routing down conductors along the facade. Intended for use only with conductors of Ø8 mm. Fixed to the substrate using a wall plug (ordered separately). The holder allows the conductor to be routed both parallel and perpendicular to the roof edge. The holders should be installed at maximum intervals of 1 m in accordance with EN 62305-3:2011.

CATALOG NUMBER	TYPE	A	B	C	D	E
25902105	259.1 B	31	22	Ø8	18,5	M6

V2A

Universal wire holder



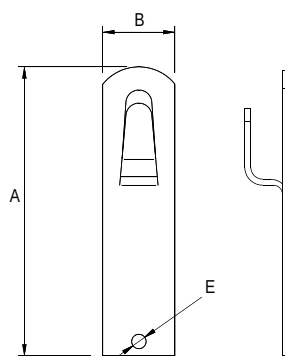
For fixing wire on the roof surface covered in trapezoidal sheet, steel panel tiles or tar board shingle. Self-drilled to surface using self drilling screw 99900101- separate order. Use screwed type holders for wire with diameter 10 mm. Holder allows to lead the wire along the roof edge.

CATALOG NUMBER	TYPE	Version	A	B	C	D	E	F
95902102	59.1B	clinched	115	84	8,5	26	28	7
95912102	59.1B/S	screwed	115	94	8-10	26	28	7

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03 V2A 05 RAL 16 We varnish only the screwed version.

GERARD, TILCOR type wire holder



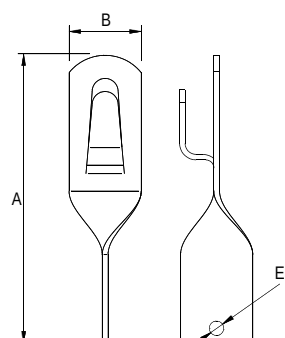
For fixing wire on the roof surface covered in GERARD or TILCOR type roof tile. Self-drilled to tile front using self-drilling screw 99900101. Appropriate only for wire conductor with diameter 8 mm. This holder allows the wire along the roof edge.

CATALOG NUMBER	TYPE	Version	A	B	E
91010202	10.7	clinched	110	25	Ø5
91012202	10.7/S	screwed	110	25	Ø5

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 CU 03 RAL 16 We varnish only the screwed version.

Twisted GERARD, TILCOR type wire holder



For fixing wire on the roof surface covered in GERARD or TILCOR type roof tile. Self-drilled to tile front using self-drilling screw 99900101. Appropriate only for wire conductor with diameter 8 mm. This holder allows perpendicular lead to roof edge.

CATALOG NUMBER	TYPE	Version	A	B	E
91110202	11.7	clinched	110	25	Ø5
91140202	11.7/S	screwed	110	25	Ø5

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 CU 03 RAL 16 We varnish only the screwed version.

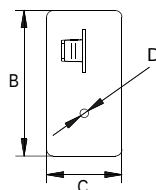
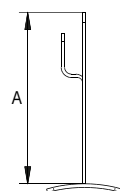
Perforated „Eurofala“ steel sheet roof holder

To lead wire conductor over the roofs covered in perforated Eurofala type steel sheets. Screwed into the surface.

CATALOG NUMBER	TYPE	Version	A	B	C	D
91080002	10.1 FALA B5	clinched	100	85	44	Ø5
91090002	10.1/S FALA B5	screwed	100	85	44	Ø5

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02
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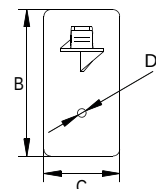
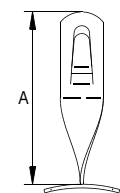
Twisted perforated „Eurofala“ steel sheet roof holder

To lead wire conductor over the roofs covered in perforated Eurofala type steel sheets. Screwed into the surface.

CATALOG NUMBER	TYPE	Version	A	B	C	D
91180002	11.1 FALA B5	clinched	100	85	44	Ø5
91190002	11.1/S FALA B5	screwed	100	85	44	Ø5

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02
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Flat base roof wire holder

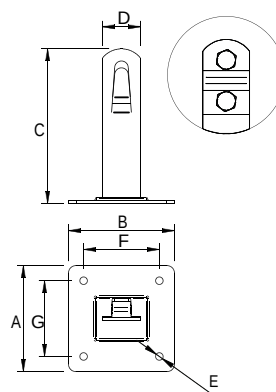
For fixing wire on the roofs covered in metal sheets. Screwed or nailed. Use screwed holder for wire with diameter 10mm.

CATALOG NUMBER	TYPE	Version	A	B	C	D	E	F	G
91500102	15.1	clinched	70	70	150	25	Ø5	50	50
91500402	15.1.1	clinched	70	70	100	25	Ø5	50	50
91500202	15.1/S	screwed	70	70	150	25	Ø5	50	50
91500502	15.1.1/S	screwed	70	70	100	25	Ø5	50	50

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	RAL	16
-------	----	--------	----	----	----	-----	----	-----	----

We varnish only the screwed version.



PVC clip flat base roof wire holder

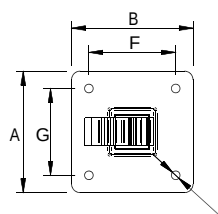
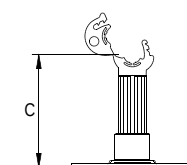
For fixing wire on the roofs covered in metal sheets. Screwed or nailed. Appropriate only for wire conductor with diameter 8 mm. The mounting holder is made of plastic. Available plastic colors: grey, black, and brick red.

CATALOG NUMBER	TYPE	A	B	C	E	F	G
91500302	15.1/P	70	70	65	Ø5	50	50

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

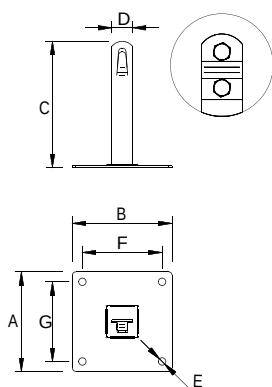
St/Zn	01	St/tZn	02	CU	03	RAL	16
-------	----	--------	----	----	----	-----	----

We varnish only the screwed version.



The color of the plastic handle is matched to the material version of the product.

Flat base roof wire holder - MAX



Select the self-drilling screw: **page 138**

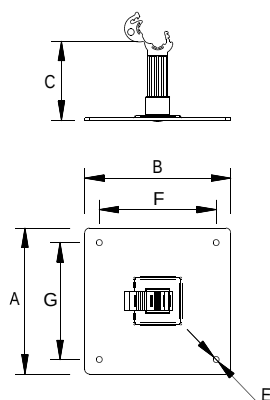
For fixing wire on the roofs covered in metal sheets. Screwed or nailed. Use screwed holder for 10 mm diameter wire.

CATALOG NUMBER	TYPE	Version	A	B	C	D	E	F	G
91600102	16.1	clinched	120	120	150	25	Ø5	96	96
91600402	16.1.1	clinched	120	120	100	25	Ø5	96	96
91600202	16.1/S	screwed	120	120	150	25	Ø5	96	96
91600502	16.1.1/S	screwed	120	120	100	25	Ø5	96	96

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03 RAL 16 We varnish only the screwed version.

PVC clip flat base roof wire holder - MAX



Select the self-drilling screw: **page 138**

The color of the plastic handle is matched to the material version of the product.

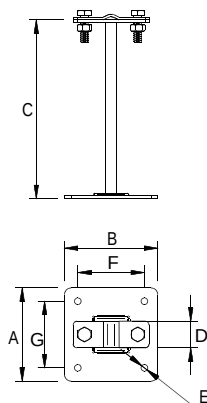
Screwed, nailed or gluing assembly. Appropriate only for wire conductor with diameter 8 mm.

CATALOG NUMBER	TYPE	A	B	C	E	F	G
91600302	16.1/P	120	120	65	Ø5	96	96

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03 RAL 16 We varnish only the screwed version.

Special roof wire holder



Select the self-drilling screw: **page 138**

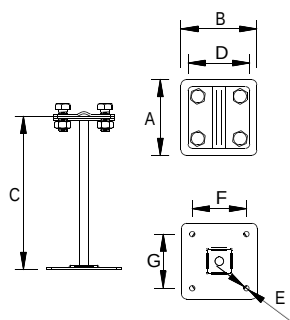
For fixing 8-10 mm diameter wire on the roofs covered in metal sheets. Screwed or nailed.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	Bolt
91700102	17.1	70	70	135	20	Ø5	50	50	2×M6×16
91700202	17.2	120	120	405	20	Ø5	96	96	2×M6×16
91700302	17.3	120	120	605	20	Ø5	96	96	2×M6×16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03 RAL 16 We varnish only the screwed version.

Flat base cross unit roof wire holder



Select the self-drilling screw: **page 138**

For fixing 8-10 mm diameter wire on the roofs covered in metal sheets. Screwed or nailed.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	Bolt
92200102	22.1	70	70	135	57	Ø5	50	50	4×M8×20
92200402	22.1.1	70	70	75	57	Ø5	50	50	4×M8×20

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03

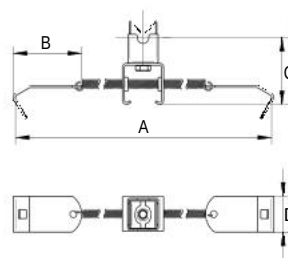
Universal ridge tile holder

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.

Appropriate only for wire conductor with diameter 8 mm.

CATALOG NUMBER	TYPE	A	B	C	D
25910105	–	140-400	55	48,5	26
25910205	–	400-700	55	48,5	26

V2A



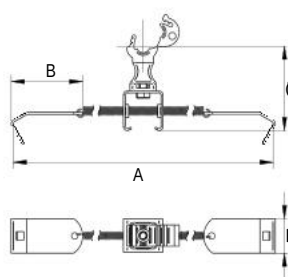
Universal ridge tile holder with plastic clip wire holder

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.

Appropriate only for wire conductor with diameter 8 mm.

CATALOG NUMBER	TYPE	A	B	C	D
25920105	–	140-400	55	64	26
25920205	–	400-700	55	64	26

V2A



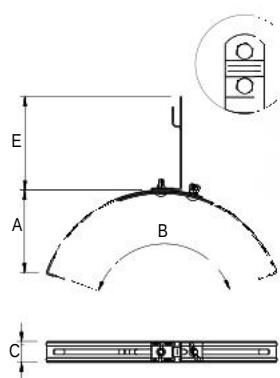
Universal ridge tile wire holder G5

For fixing wire on the roof tops covered in roof tiles. Large adjustment/ regulation scale, allows assembly to the majority of ridge tiles. Use screwed holders for wire with diameter 10mm.

CATALOG NUMBER	TYPE	Version	A	B	C	E	Bolt
95900102	59.1	clinched	65	200-390	26	115	2×M6×16
95910102	59.1/S	screwed	65	200-390	26	115	2×M6×16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03 V2A 05 RAL 16 We varnish only the screwed version.



See also ridge tile spires: [page 109](#)

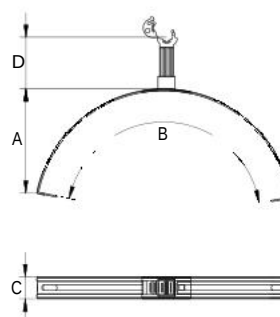
PVC universal ridge tile wire holder G6

For fixing wire on the roof tops covered in roof tiles. Large adjustment/ regulation scale, allows assembly to the majority of ridge tiles. Appropriate only for wire conductor with diameter 8 mm. Plastic made wire fixing element. Available plastic colors: grey, black, and brick red.

CATALOG NUMBER	TYPE	A	B	C	D	Bolt
95900202	59.2	65	200-390	26	70	M6×16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03 V2A 05 RAL 16 We varnish only the screwed version.

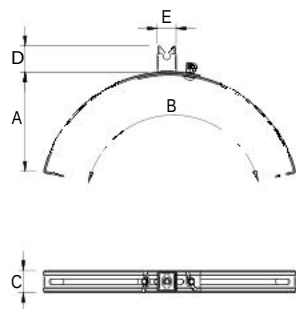


See also ridge tile spires: [page 109](#)

The color of the plastic handle is matched to the material version of the product.

Low profiled ridge tile wire holder

For fixing wire on the roof tops covered in roof tiles. Large adjustment/regulation scale, allows assembly to most of ridge tiles. Appropriate only for wire conductor with diameter 8 mm. Stainless steel fixing element. Wire can be lead on the side of ridge tile.



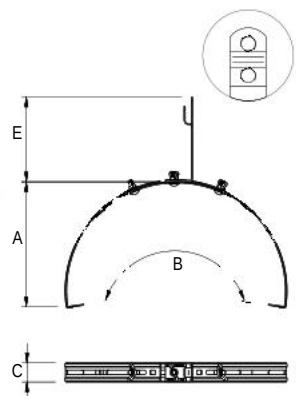
CATALOG NUMBER	TYPE	A	B	C	D	E
25900102	—	65	200–390	26	31	20

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	V2A	05
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Universal ridge tile wire holder G5 MAX

For fixing wire on the roof tops covered in roof tiles and sheet panel tiles. Large adjustment/regulation scale, allows assembly to most of ridge tiles. Use screwed holders for wire with diameter 10 mm.



CATALOG NUMBER	TYPE	Version	A	B	C	E	Bolt
95901102	59.1 MAX	clinched	160	430–550	26	115	3×M6×16
95911102	59.1/S MAX	screwed	160	430–550	26	115	3×M6×16

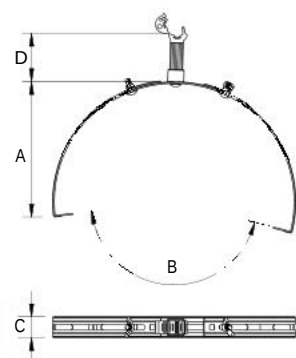
To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	RAL	16	We varnish only the screwed version.
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See also ridge tile spires: [page 105](#)

PVC universal ridge tile wire holder G6 MAX

For fixing wire on the roof tops covered in roof tiles and sheet panel tiles. Large adjustment/regulation scale, allows assembly to most of ridge tiles. Appropriate only for wire conductor with diameter 8 mm. Plastic made wire fixing element.



CATALOG NUMBER	TYPE	A	B	C	D	Bolt
95901202	59.2 MAX	160	430–550	26	70	2×M6×16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	CU	03	V2A	05	RAL	16	We varnish only the screwed version.
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The color of the plastic handle is matched to the material version of the product.

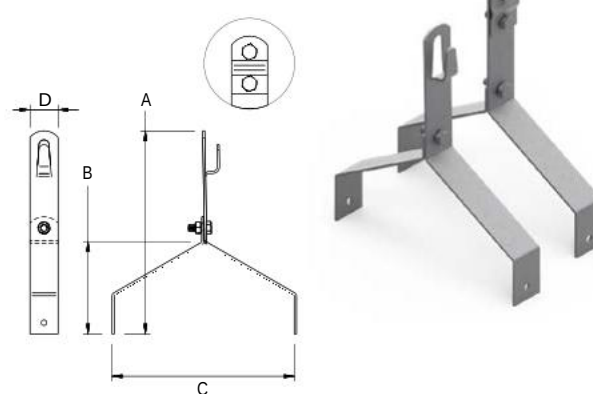
Ridge tile wire holder Gerard Corona/Senator/Tilcor

For fixing wire on the roof tops covered in roof tiles Types: GERRARD Corona, Tilcor and Senator. Self-drilled to ridge tile using 99900101 self-drilling screws - ordered separately. Use screwed holders for wire with diameter 10 mm.

CATALOG NUMBER	TYPE	Version	A	B	C	D
95900302	59.3	clinched	180	80	160	25
95910302	59.3/S	screwed	180	80	160	25

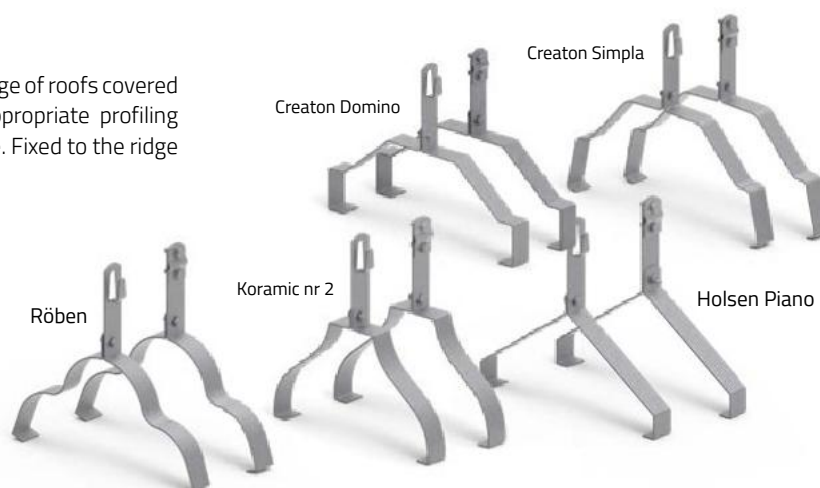
To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 CU 03 RAL 16 We varnish only the screwed version.



Ridge tile wire holder

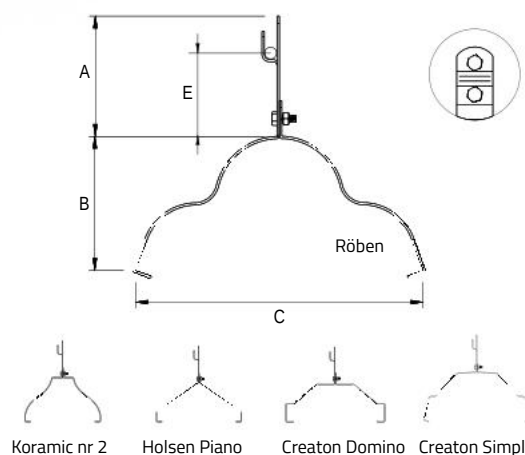
Used for routing the lightning conductor along the ridge of roofs covered with tiles (tile type specified in the table). The appropriate profiling ensures that the holder fits precisely to the ridge tile. Fixed to the ridge tile by screwing.



MODEL	CATALOG NUMBER	TYPE	Version	A	B	C	E
Creaton Domino	95930102	59.1	clinched	100	100	275	70
	95940102	59.1/S	screwed	100	100	275	78
Creaton Simpla	95931002	59.1	clinched	100	126	280	70
	95941002	59.1/S	screwed	100	126	280	78
Röben	95930202	59.1	clinched	100	110	248	70
	95940202	59.1/S	screwed	100	110	248	78
Koramic nr 2	95930302	59.1	clinched	100	118	208	70
	95940302	59.1/S	screwed	100	118	208	78
Holsen Piano	95930402	59.1	clinched	100	103	235	70
	95940402	59.1/S	screwed	100	103	235	78

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 CU 03 V2A 05 RAL 16 We varnish only the screwed version.



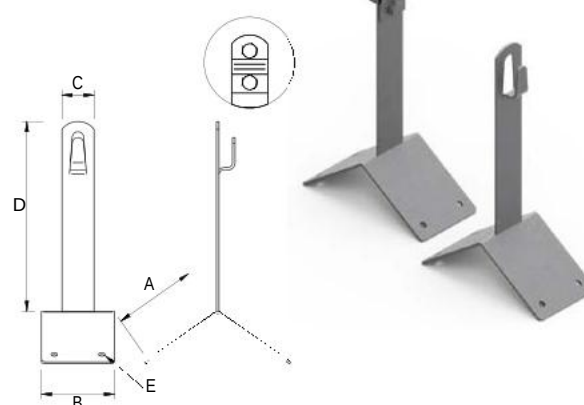
Roof top wire holder

For fixing wire on the roof tops covered in steel sheets or tar board shingle. Screwed or nailed. Use screwed holders for wire with diameter 10 mm.

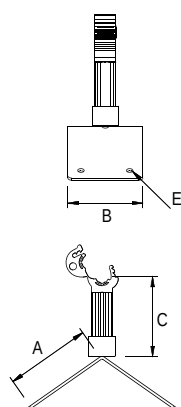
CATALOG NUMBER	TYPE	Version	A	B	C	D	E
92000102	20.1	clinched	70	57	25	150	Ø5
92000402	20.1.1	clinched	70	57	25	100	Ø5
92000202	20.1/S	screwed	70	57	25	150	Ø5
92000502	20.1.1/S	screwed	70	57	25	100	Ø5

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 01 St/tZn 02 CU 03 RAL 16 We varnish only the screwed version.



PVC roof top wire holder



The color of the plastic handle is matched to the material version of the product.

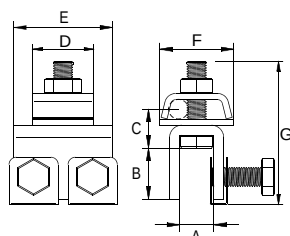
For fixing wire on the roof tops covered in steel sheets or tar board shingle. Screwed or nailed. Appropriate only for wire conductor with diameter 8 mm.

CATALOG NUMBER	TYPE	A	B	C	E
92000302	20.1/P	70	57	70	Ø5

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03 RAL 16 We varnish only the screwed version.

Two-bolt seam wire holder



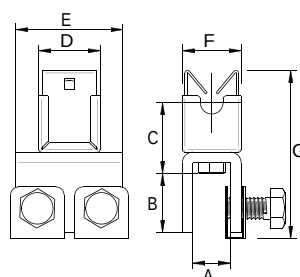
CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	Bolt
99600102	96.0	14	21	16	25	40	30	58	2xM8x20; M8x30
99600202	96.1	25	21	16	25	40	30	63	2xM8x20; M10x35

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03 V2A 05

Low-profile two-bolt seam wire holder

Used for routing the lightning conductor along the lap joints of metal roofing sheets.

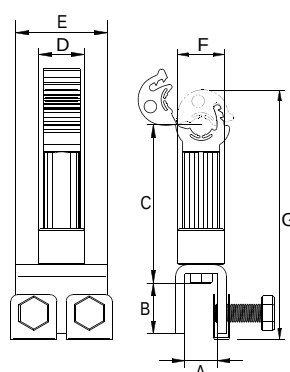


CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	Bolt
99604102	-	14	22	26,5	23	40	23	63	2xM8x20; M6x16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 V2A 05

PVC two-bolt seam wire holder



The color of the plastic handle is matched to the material version of the product.

Used for routing the lightning conductor along the lap joints of metal roofing sheets. The plastic tip provides spacing and insulation. Suitable for conductors Ø6–8 mm. Quick and easy installation. Rotating plastic tip. Available plastic colors: grey, black and brick red.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	Bolt
99610102	96.0/P	14	22	69	20	40	20	108	2xM8x20; M6x16

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 St/tZn 02 CU 03 V2A 05

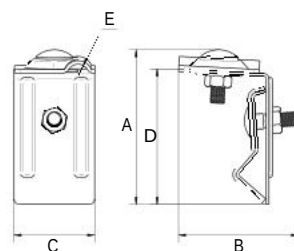
Single-bolt seam wire holder

Used for routing the lightning conductor along the lap joints of metal roofing sheets.

CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt
99600302	96.2	86	67	45	76	Ø10	2x M8x25

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	V2A	05
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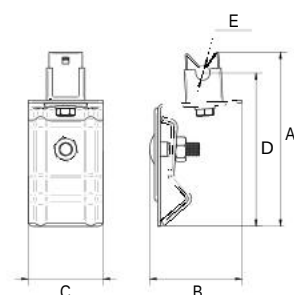
Low-profile single-bolt seam wire holder

Used for routing the lightning conductor along the lap joints of metal roofing sheets.

CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt
99601302	-	105	55	45	92	Ø8	M8x25; M6x10

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	V2A	05
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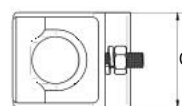
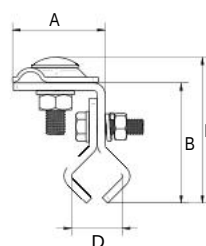


Universal single-bolt seam wire holder

Used for routing the lightning conductor and, additionally, as a fixing or supporting element when installing the lightning protection system on non-standard structures. Suitable for Kalzip metal sheets with standing seam joints.

CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt
99603109	96.0/M	52	63	55	Ø16-Ø30	74	M10x35; M8x30

AL

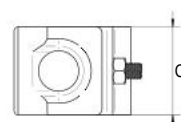
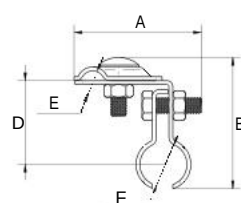


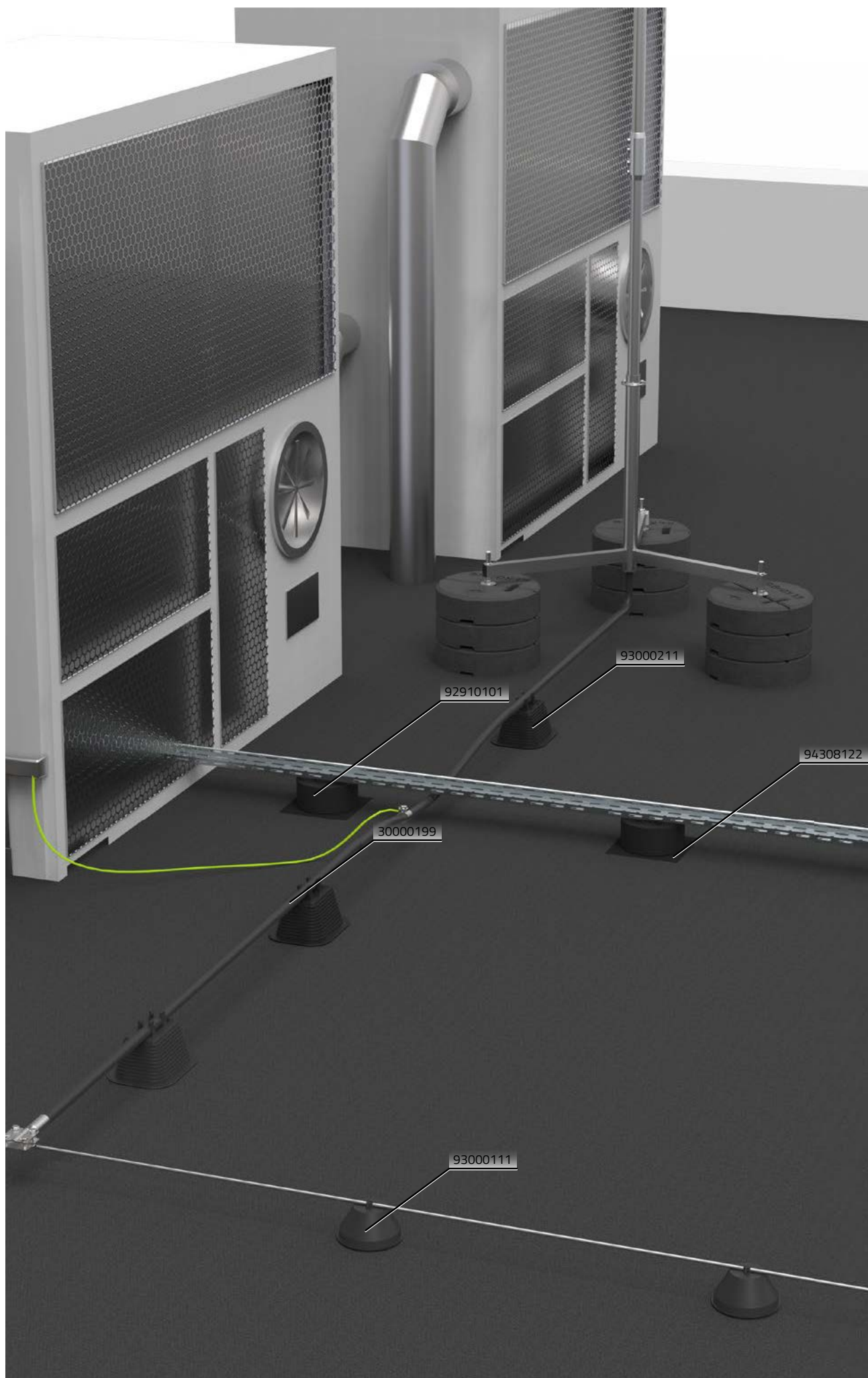
Kalzip standing single-bolt seam wire holder

Used for routing the lightning conductor on roofs covered with Kalzip metal sheets. The rounded fixing part ensures secure fastening without damaging the roof surface.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt
99603205	96.3	65	67	45	43	Ø10	Ø22	M8x25

V2A



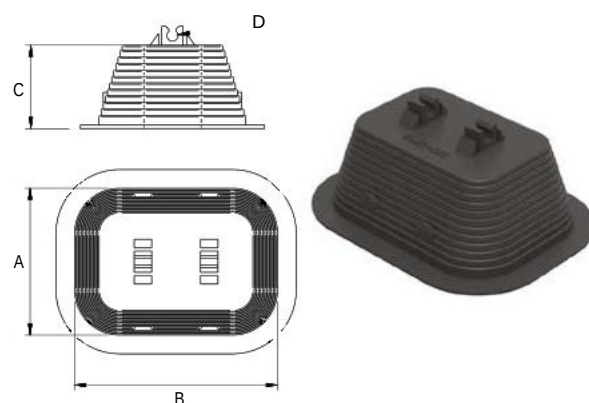


PVC covered concrete wire holder

Used for routing the lightning conductor on flat roofs. The holder can be bonded to the substrate using ELKO-FIX 99300199 or membrane adhesive 11000599. Detailed bonding instructions are available at www.elkobis.com.pl/en

CATALOG NUMBER	TYPE	A	B	C	D	Weight
93000211	30.2	105	145	60	6-8	~1,1 kg
93010211	30.2 FI 10	105	145	60	10	~1,0kg

PVC



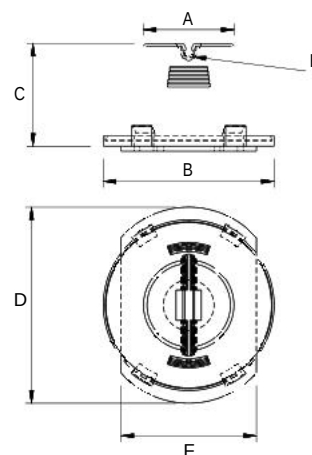
PVC covered concrete conductor holder

For fixing wire conductor over the flat roofs. Assembly height of 10 cm for flammable roof covers. Fixed to surface using ELKO-FIX adhesive 99300199 or membrane glue 11000599. Appropriate only for wire conductor with diameter 8 mm. Assembly details on www.elkobis.com.



CATALOG NUMBER	TYPE	Version	A	B	C	D	E	F	Weight
93001111	30.1.1	concrete bottom	70	130	75	-	6-8	-	~1,2 kg
93002111	30.1.2	plastic bottom	70	135	75	-	6-8	-	~1,0 kg
93005111	-	concrete bottom	70	130	75	-	8-10	-	~1,3 kg
93006111	-	plastic bottom	70	135	75	-	8-10	-	~0,9 kg
93003211	30.1.3	clipped bottom	-	-	-	155	-	107	-

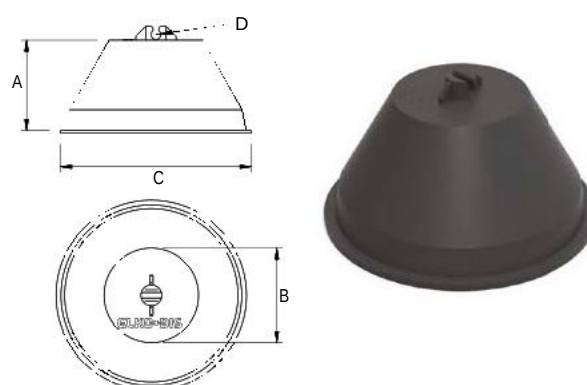
PVC



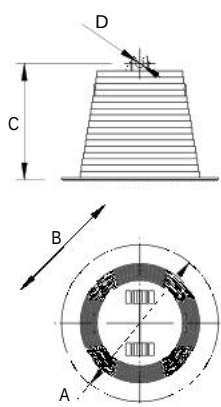
PVC covered concrete wire holder

For fixing wire on the flat roofs. Can be glued to roof surface. Glue assembly details, see: www.elkobis.com.

CATALOG NUMBER	TYPE	Version	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	~1,0 kg
93030111	-	plastic bottom	75	70	138	8-10	~1,1 kg



High profiled PVC covered concrete wire holder



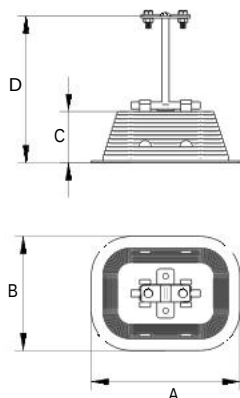
For fixing conductor over the flat roofs. Assembly height of 10 cm for flammable roof covers. Can be glued to roof surface using gluing composition ELKO-FIX 99300199 or membrane glue 11000599.

Glue assembly details, see: www.elkobis.com.pl

CATALOG NUMBER	TYPE	A	B	C	D	Weight
93001211	30.2.1	150	114	111	Ø8	~1,4 kg
93011211	30.2.1 FI 10	150	114	111	Ø10	~1,4 kg

PVC

High profiled PVC covered concrete wire holder



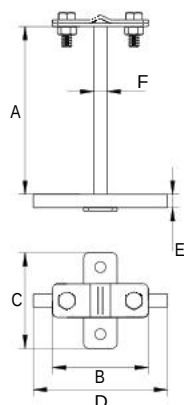
For fixing wire over the flat roofs. Assembly 16 cm height use 93070201 holder. Concrete PVC covered holder can be glued to roof surface using gluing composition ELKO-FIX 99300199 or membrane glue 11000599.

Glue assembly details, see: www.elkobis.com.pl

CATALOG NUMBER	TYPE	A	B	C	D	Weight
93050211	30.2/W	170	130	60	160	~1,2 kg

PVC

High profiled wire holder



For fixing 8-10 mm diameter wire on the flat roofs. For higher conductor lead - 16 cm. To be used with PVC coated concrete holder (93000201).

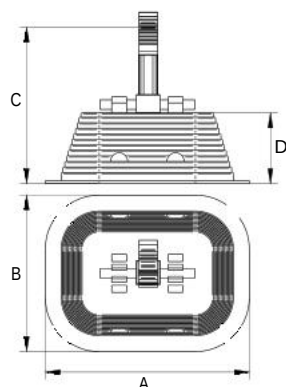
CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt
93070201	30.2 W OC	100	57	57	80	Ø8	Ø8	2×M6×16

St/Zn



Black PVC covered concrete wire holder 93000211: p. 83

PVC covered concrete wire holder with plastic clip



For fixing wire on the flat roofs. Can be glued to roof surface using gluing composition ELKO-FIX 99300199 or membrane glue 11000599. Appropriate only for wire conductor with diameter 8 mm.

Glue assembly details, see: www.elkobis.com.pl

CATALOG NUMBER	TYPE	A	B	C	D	Weight
93090211	30.2/P	170	130	120	60	~1,2 kg

PVC

Tape Conductor Holder for Plastic Concrete Base

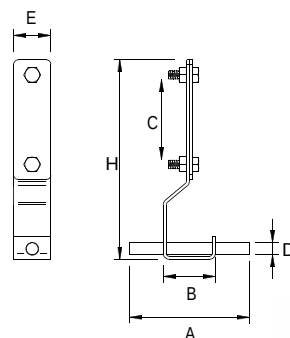
Used for routing tape conductors on flat roofs. This holder must be used together with concrete bases 93000211 (ordered separately). The plastic concrete base can be glued to the surface using, for example, ELKO-FIX 99300199 or membrane adhesive 11000599.

For more information on adhesive application, visit: www.elkobis.com.pl/do-pobrania.

CATALOG NUMBER	TYPE	A	B	C	D	E	H
93000505	30.5	80	35	54	Ø8	25	134

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn	01	St/tZn	02	V2A	05
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NEW!

Select PVC covered concrete wire holder 93000211: p. 83

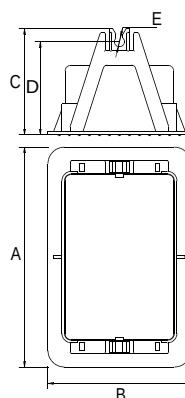
Roof Wire Conductor Holder

Used for routing Ø8–Ø10 lightning protection wire on flat roofs. The holder can be bonded to the surface using ELKO-FIX 99300199.

For detailed adhesive instructions, visit: www.elkobis.com.pl/do-pobrania.

CATALOG NUMBER	TYPE	A	B	C	D	E	Weight
93000411	30.4	160	104	78	67,5	Ø8-Ø10	~0,95 kg

PVC



NEW!

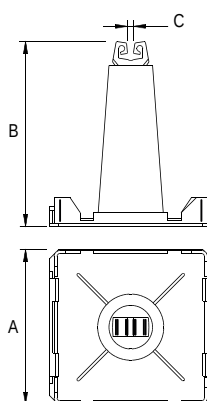
Fixing with ELKO-FIX 99300199: p. 134

PVC conductor holder

To lead wire conductor over the flat roofs. Fixed to surface using adhesive membrane strap, enabling quick and easy installation. Assembly details on: www.elkobis.com.pl

CATALOG NUMBER	TYPE	A	B	C	Color
93001311	30.3/M PL	102	118	Ø6-Ø8	White
93000311	30.3/P PL	102	118	Ø6-Ø8	Black

PVC

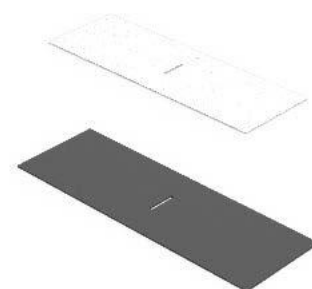
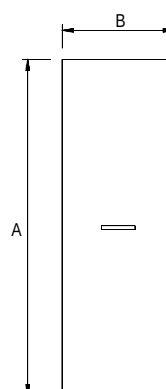


Fastening strap

For fixing holder 93000311 or 93001311 on the flash or sloping roofs covered in tar board or membrane foil.

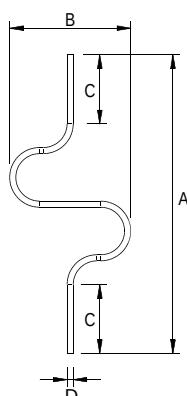
Glue assembly details, see: www.elkobis.com.pl

CATALOG NUMBER	TYPE	Version	A	B
93020311	30.3/P	tar board	300	100
93010311	30.3/M	membrane	300	100



Compensation piece

To compensate effect of wire conductor widening and shrinkage under the influence of temperature. Recommended when distance of wire is more than 40 meters, than use aluminum compensation piece.



CATALOG NUMBER	TYPE	A	B	C	D
12300109	123.1	330	158	60	Ø8

AL

Compensation connection clamp

For flexible connections of wire and/or tape conductors. Connection made with use of aluminum line ALDREY - equatorial diameter 50 mm². Recommended use distance between connection clamps is 40 meters.

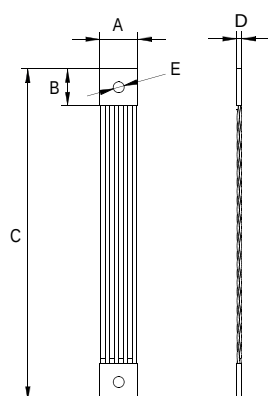


CATALOG NUMBER	TYPE	L	APPLICATION
10100301	101.1 DD	1 m	wire / wire
10100201	101.1 DB	1 m	wire / tape conductor
10100101	101.1 BB	1 m	tape conductor / tape conductor

AL

Flexible tin-plated copper bridging braid

For flexible connections of wire and / or tape conductors.



CATALOG NUMBER	TYPE	A	B	C	D	E
10100403	101.2 CU/30	40	40	300	6	12
10100503	101.2 CU/40	40	40	400	6	12

CU

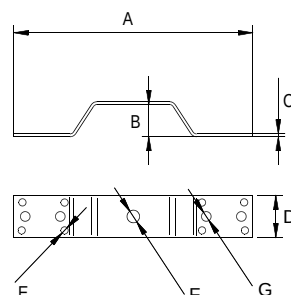
Bridging braid

Use to connect steel sheets on firewalls or other natural wire connections. Connect with screwing.



CATALOG NUMBER	TYPE	A	B	C	D	E	F	G
12200109	122.1	170	25	2	30	Ø5,2	Ø9	Ø6,9

AL



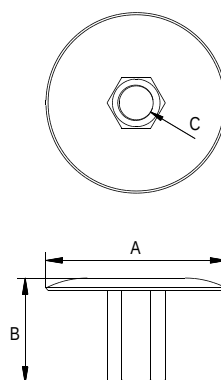
Air termination stud

To protect flat roofs with communication channels, such as roofs of multi-storey car parks, green roofs. Mounted at the intersection of the horizontal air terminal grid.



CATALOG NUMBER	TYPE	A	B	C	Note
11400105	114.1	85	52	M16	Without connector

V2A

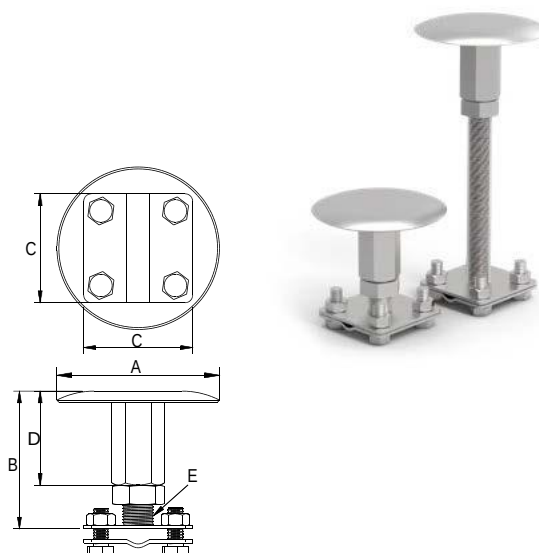


Air termination stud with connector

To protect flat roofs with communication channels, such as roofs of multi-storey car parks, green roofs. Mounted at the intersection of the horizontal air terminal grid. Sold in a set.

CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt	Note
11401105	114.1.1	85	62-80	57	52	M16	4×M8×20	with connector
11402105	114.1.2	85	132-150	57	52	M16	4×M8×20	with connector

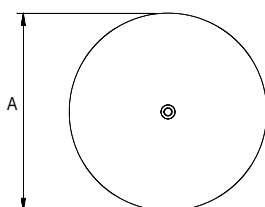
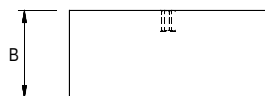
V2A



Concrete holder for cable trays

For flat roofs routing cable trays and high voltage cable 30000199. Can be glued to roof surface using gluing composition 99401099 or dedicated pad 94308111. Ecologically impregnated, highly resistant to atmospheric conditions.

Glue assembly details, see: www.elkobis.com.pl

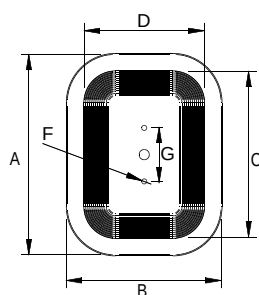


CATALOG NUMBER	TYPE	A	B	Weight	Thread
92910101	29.1K	180	80	~5,1 kg	M8

St/Zn

PVC covered concrete cable traces holder

To fix cable traces over the flat roofs. Two fixing holes for screws. Recommended distance between holders is 1 meter.

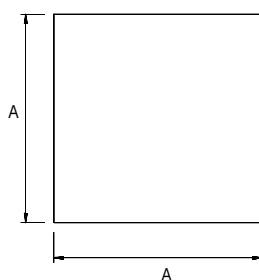


CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	Weight
92910311	-	160	208	165	125	95	Ø4	55	~2,1 kg

PVC

Concrete base underneath pad for cable trays

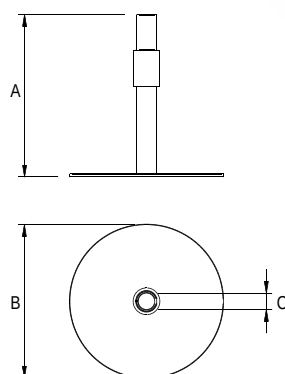
For additional protection of roof surface. Use with concrete holder (92910101). Additionally it is recommended to cover roof with a layer of membrane.



CATALOG NUMBER	TYPE	Version	A
94308122	43.81/P	to roof	200
94308111	43.81/F	to mambrane	200

Wire conductor sealant

For seal 8-10 mm diameter wire conduits on tar board or membrane covered roofs. Bonding to surface using ELKO-FIX adhesive. Heat shrink tubing attached. Use with flat rubber sealant.

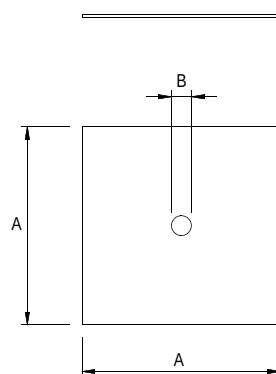


CATALOG NUMBER	TYPE	A	B	C
10900199	109.1/M	155	150	Ø20

PVC

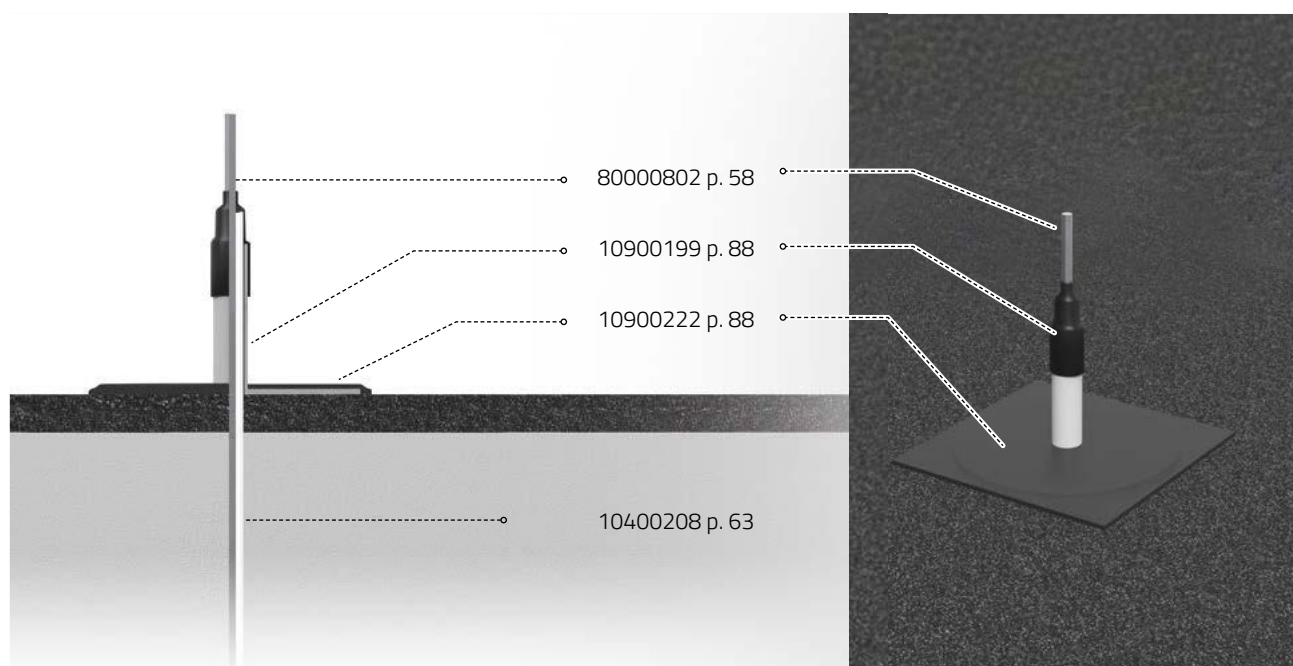
Flat rubber sealant

For sealing roof conduits. Ensures appropriate bonding to roof surface and moisture/humidity protection. Fix to membrane using glue/adhesive 11000599, bonding to tar board by heat treatment or using ELKO-FIX adhesive.

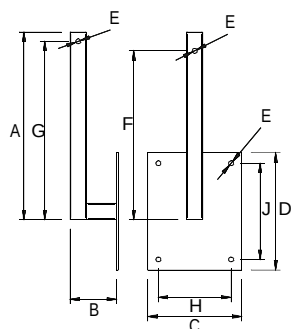


CATALOG NUMBER	TYPE	A	B	Type
10900221	109.2/M	250	Ø25	membrane
10900222	109.2/P	250	Ø25	tar board

PVC



Side tensioning holder

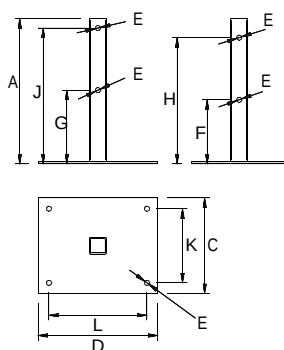


For horizontal tensioning of conductors. Anchor assembly to walls and attics. To tension the wire use tensioning clamp holder 92700101.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	H	J
98700101	87.1	400	100	200	250	11	360	380	155	205

St/tZn

Straight tensioning holder

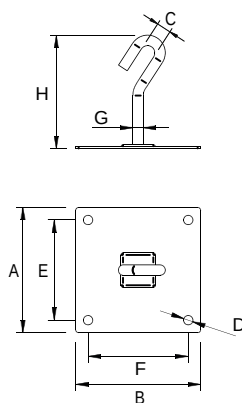


For horizontal tensioning of conductors. Anchor assembly to walls and attics. To tension the wire use tensioning clamp holder 92700101.

CATALOG NUMBER	TYPE	A	C	D	E	F	G	H	J	K	L
98700201	87.2	300	200	250	11	130	150	260	280	155	205

St/tZn

Horizontal tensioning holder



For horizontal tensioning of conductors. Anchor assembly to walls and attics. To tension the wire use Turnbuckles 93500401.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	H
98800101	88.1	120	120	14	Ø9	96	96	Ø10	106

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 RAL 16



More solutions for tension holders: **page 65-67**

GROUP V

AIR TERMINATION:

INTERCEPTION MASTS, SPIRES

NEW!

LAUNCH: Q2 2026

Telescopic lightning protection masts

Page 92-93



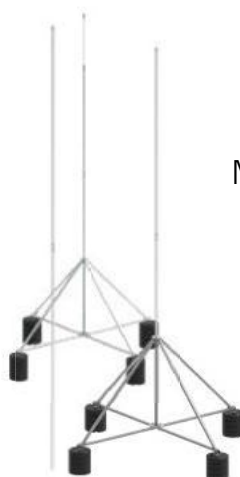
Lightning protection masts

Page 97-108



Ridge spires

Page 104-106



Mast for high air termination

Page 107-110

Air terminal on concrete foundation

Page 111



Insulated rod systems

Page 118-120



Supplementary elements

Page 112-122



Vertical air terminals are an essential component of lightning protection systems, providing protection against direct lightning strikes, especially in locations where installations at significant heights are required. Masts and air rods are used to protect roof elements and equipment such as skylights, air-conditioning units, air handling units, ventilation ducts, and pipelines.

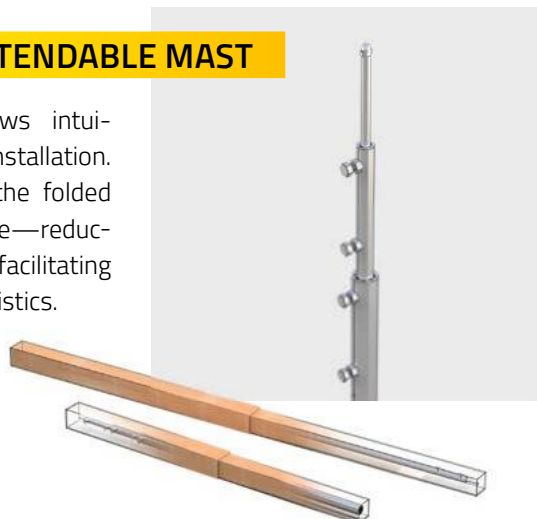
These products are available in versions made of materials such as aluminum, hot-dip galvanized steel, stainless steel, or copper, allowing them to be adapted to specific environmental and technical requirements. System solutions for free-standing masts enable installation in the most demanding locations.

Telescopic lightning protection masts

ELKO-BIS telescopic lightning protection masts have been designed with maximum logistical efficiency in mind—both in storage and transportation. Thanks to their innovative segmented construction, they require up to several times less space than traditional lightning protection masts with the same working height.

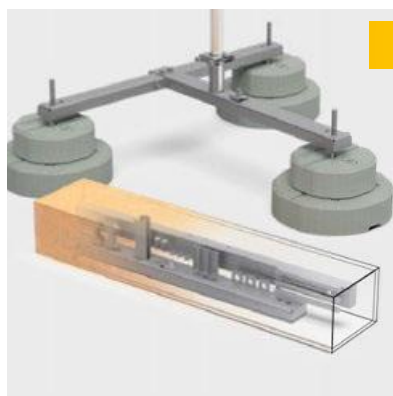
TELESCOPICALLY EXTENDABLE MAST

The telescopic design allows intuitive, efficient and secure installation. The compact packaging of the folded mast also ensures safe storage—reducing the risk of damage and facilitating easier intermediate-stage logistics.



MODULAR TRIPOD

An ergonomic modular tripod reduces storage costs - allowing a greater number of products to be stored within the same warehouse space and enabling more efficient transportation to end customers. All this is achieved while maintaining simple installation, which reduces assembly time and ensures correct installation.



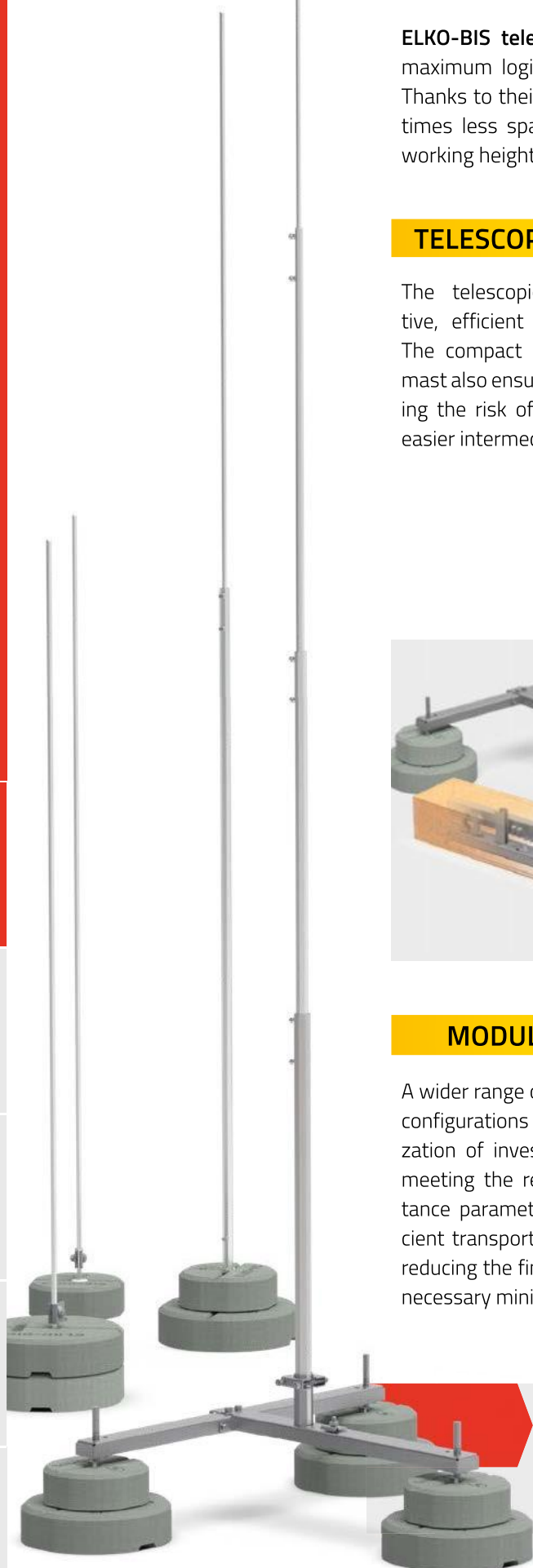
MODULAR CONCRETE BASES

A wider range of modular concrete base configurations allows for the optimization of investment costs while fully meeting the required wind load resistance parameters. This facilitates efficient transportation and installation by reducing the final product weight to the necessary minimum.



For further information, contact our advisors
to explore the benefits of our new solutions
for your project.

✉ export@elkobis.com.pl



Telescopic lightning protection mast on a concrete base

Height: 1–4 m

CATALOG NUMBER	TYPE	Approximate height [m]
44101009	44.10.10	1
44011009	44.10.01	
44101509	44.15.10	1,5
44011509	44.15.01	
44111509	44.15.11	
44021509	44.15.02	
44102009	44.20.10	2
44012009	44.20.01	
44112009	44.20.11	2,5
44012509	44.25.01	
44112509	44.25.11	
44022509	44.25.02	
44122509	44.25.12	
44032509	44.25.03	
44132509	44.25.13	
44042509	44.25.04	
44113009	44.30.11	3
44023009	44.30.02	
44123009	44.30.12	
44033009	44.30.03	
44133009	44.30.13	
44043009	44.30.04	
44143009	44.30.14	
44053009	44.30.05	
44023509	44.35.02	3,5
44123509	44.35.12	
44033509	44.35.03	
44133509	44.35.13	
44043509	44.35.04	
44143509	44.35.14	
44053509	44.35.05	
44034009	44.40.03	4
44134009	44.40.13	
44044009	44.40.04	
44144009	44.40.14	
44054009	44.40.05	

Telescopic lightning protection mast with tripod base

Height: 4–7 m

CATALOG NUMBER	TYPE	Approximate height [m]
66103592	66.35.10	3,5
66013592	66.35.01	
66113592	66.35.11	
66023592	66.35.02	
66123592	66.35.12	
66033592	66.35.03	4
66104092	66.40.10	
66014092	66.40.01	
66114092	66.40.11	
66024092	66.40.02	
66124092	66.40.12	4,5
66034092	66.40.03	
66104592	66.45.10	
66014592	66.45.01	
66114592	66.45.11	
66024592	66.45.02	5
66124592	66.45.12	
66034592	66.45.03	
66134592	66.45.13	
66044592	66.45.04	
66015092	66.50.01	5,5
66115092	66.50.11	
66205092	66.50.20	
66125092	66.50.12	
66035092	66.50.03	
66135092	66.50.13	6
66045092	66.50.04	
66015592	66.55.01	
66115592	66.55.11	
66025592	66.55.02	
66125592	66.55.12	6,5
66035592	66.55.03	
66135592	66.55.13	
66045592	66.55.04	
66145592	66.55.14	
66055592	66.55.05	7
66116092	66.60.11	
66026092	66.60.02	
66126092	66.60.12	
66036092	66.60.03	
66136092	66.60.13	7
66046092	66.60.04	
66146092	66.60.14	
66056092	66.60.05	
66026592	66.65.02	
66126592	66.65.12	7
66036592	66.65.03	
66136592	66.65.13	
66046592	66.65.04	
66146592	66.65.14	7
66056592	66.65.05	
66027092	66.70.02	
66127092	66.70.12	
66037092	66.70.03	
66137092	66.70.13	7
66047092	66.70.04	
66147092	66.70.14	
66057092	66.70.05	



IMPORTANT!

The presented visualizations are for informational purposes only and may not reflect the final technical specifications.

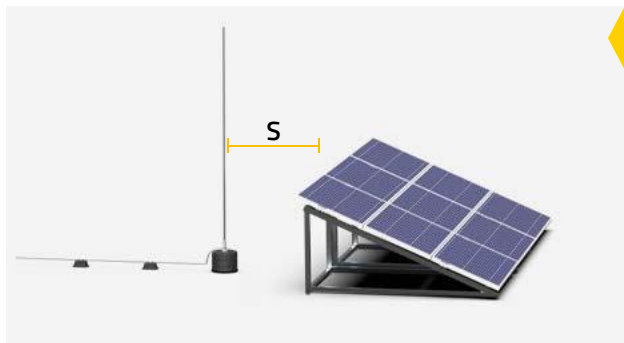
Planned market launch: Q2 2026.

The most up-to-date information is always available on our website: www.elkobis.com.pl

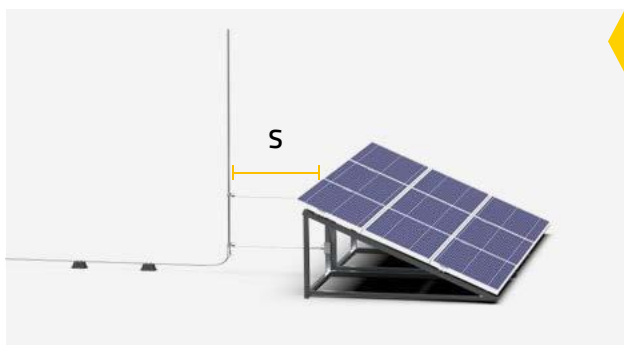
INTERCEPTION AIR RODS

Air termination rods are used to protect metal roof components and devices such as: skylights, air conditioners, air handling units, ventilation ducts, gas and water pipes. There are insulated and non - insulated air termination systems. Insulated systems are used directly

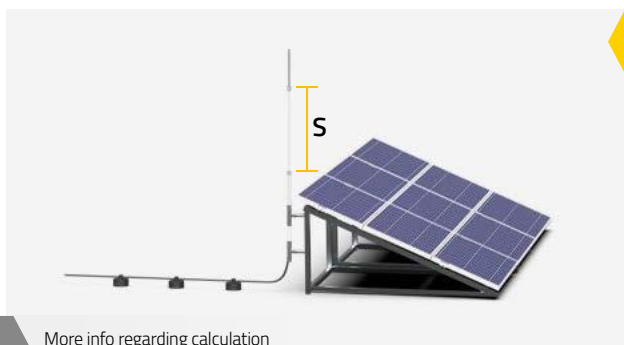
on protected equipment or less than calculated minimum separation distance (s). For non-insulated air termination, the minimum separation distance (s) must be maintained.



Maintaining the separation distance without interfering into a protected device. Used in cases where appropriate separation distance can be maintained, having enough space for lightning protection masts / air termination rods.



Maintaining the separation distance using insulation bars. Used in cases where air termination rod can be directly assembled to device or blind structures. Using insulation bars made of non-conductive material, keeps separation distance, despite the mechanical connection.



Maintaining the separation distance using Insulated High Voltage Cable System. Used at objects where there is no possibility to keep separation distance, due to lack of enough space or simply aesthetic reasons. Insulated High Voltage Cable system according to EN 62305 standard give us 75 cm separation distance.

More info regarding calculation of separation distance on Page 128.

WIND LOADING

Non-insulated air termination rods/masts are most often used in free-standing option (on tripods or single foundations without permanent connection to the object surface), therefore manufacturing materials must be high quality to guarantee wind loading resistance. European Union norms which constructions comply with: Eurocode 1: Actions on structures Part 1-4: General actions - Wind

actions. After years of research and computer calculations ELKO-BIS managed to create appropriate constructions, providing the highest quality, wind and corrosion resistance. Being aware of masts high quality, ELKO-BIS as the only among others, provides 5 years guarantee.

SELECTION OF INTERCEPTION AIR RODS

For non-experienced person, selection of appropriate lightning protection masts for given object can be difficult issue. Apart of choosing the right height and location of masts, we also need to determine their type and loading to ensure adequate wind resistance.

Wind speed depends on 3 factors: wind zone (location), terrain category (roughness), and mast height above the ground.

There are four steps to determine wind speed:

1

1. Determination of wind zone.

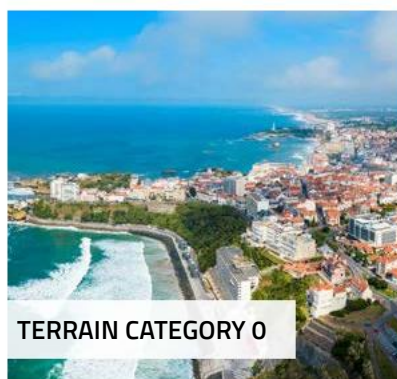
To determine the wind zone of the facility's location, please use the wind zone map appropriate for that location.



2

2. Determination of terrain category.

The shape of terrain environment affects the wind speed. The more area around the object is flat and free from other building structures or trees, the value of wind speed may be higher. The terrain category is determined according to the following classification.



TERRAIN CATEGORY 0

Sea, sea shore opened for sea.



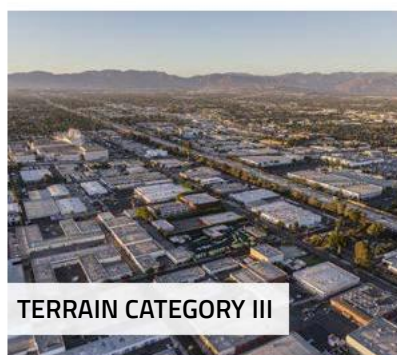
TERRAIN CATEGORY I

Lakes or areas with a negligible small amount of vegetation plants with no other obstacles.



TERRAIN CATEGORY II

Areas with low vegetation plants such as grass, and single obstacles (trees, buildings distant from each other not less than 20 times of their height).



TERRAIN CATEGORY III

Areas regularly covered with vegetation plants either buildings or with single obstacles spaced apart on distanced not more than 20 times of their height (like villages, suburban areas, forests).



TERRAIN CATEGORY IV

Areas where at least 15% is covered by medium-sized buildings exceeding 15 m height.

3

3. Determination of height to the ground.

It is the height between the top of the mast and the ground.



4

4. Determination of wind speed.

After the wind zone, terrain category and height are determined we can read the maximum wind speed that can occur for our building object:

Zone 1 and 3 (0 to 300 m. a. s. l.)		TERRAIN CATEGORY					
		0	I	II	III	IV	
Height of the mast top above ground level [m]	0	97	90	70	58	40	
	5	120	114	101	94	73	
	10	127	122	109	99	86	
	15	131	126	114	103	89	
	20	134	130	118	107	93	
	25	137	133	122	109	95	
	30	139	135	125	112	98	
	40	143	139	129	116	102	
	50	145	143	133	119	105	
	75	151	149	141	126	113	
	100	155	153	147	132	118	

Zone 2 (0 to 300 m. a. s. l.)		TERRAIN CATEGORY					
		0	I	II	III	IV	
Height of the mast top above ground level [m]	0	114	106	83	68	47	
	5	142	135	119	111	86	
	10	150	144	129	117	102	
	15	155	149	135	122	106	
	20	159	154	140	126	109	
	25	162	157	144	129	113	
	30	164	160	147	132	115	
	40	169	165	153	137	120	
	50	172	169	158	141	125	
	75	178	176	166	149	133	
Zone 3 (300 to 500 m. a. s. l.)		TERRAIN CATEGORY					
		0	I	II	III	IV	
Height of the mast top above ground level [m]	0	x	100	79	65	45	
	5	x	128	113	105	82	
	10	x	136	122	111	97	
	15	x	142	128	116	100	
	20	x	146	133	119	104	
	25	x	149	136	122	107	
	30	x	152	140	125	109	
	40	x	156	145	130	114	
	50	x	160	149	134	118	
	75	x	167	158	141	126	
	100	x	172	164	147	133	

After determination of the maximum wind speed in the region, selection of masts can be proceed. It is important that selected masts have a wind resistance index higher than the calculated theoretical wind speed.

HEIGHT	WIND RESISTANCE	A	B	C	D	E	F	G	H	M
8	122 km/h	8050			1600					5x16 kg
	116 km/h	8060	3000	3000	1700					4x16 kg
	101 km/h	8070			1800					3x16 kg
	140 km/h	7050			600					5x16 kg
7	133 km/h	7060			700					4x16 kg
	117 km/h	7070	3000	3000	800	Ø40	Ø16	Ø1357	Ø340	3x16 kg
	97 km/h	7080			900					2x16 kg
	140 km/h	6550			100					5x16 kg
6.5	133 km/h	6560	3000	3000	200					4x16 kg

INCREASE OF MAST WIND SPEED

The mast wind resistance can be increased by using support rods for masts: 67900211.



Supportive Air Rod Bars
67900211: p. 113



In the event of design-related issues, we recommend consulting the ELKO-BIS Technical Support Department. Our lightning protection system designers have the expertise and experience to provide advice at the highest professional level.

+48 71 330 66 13

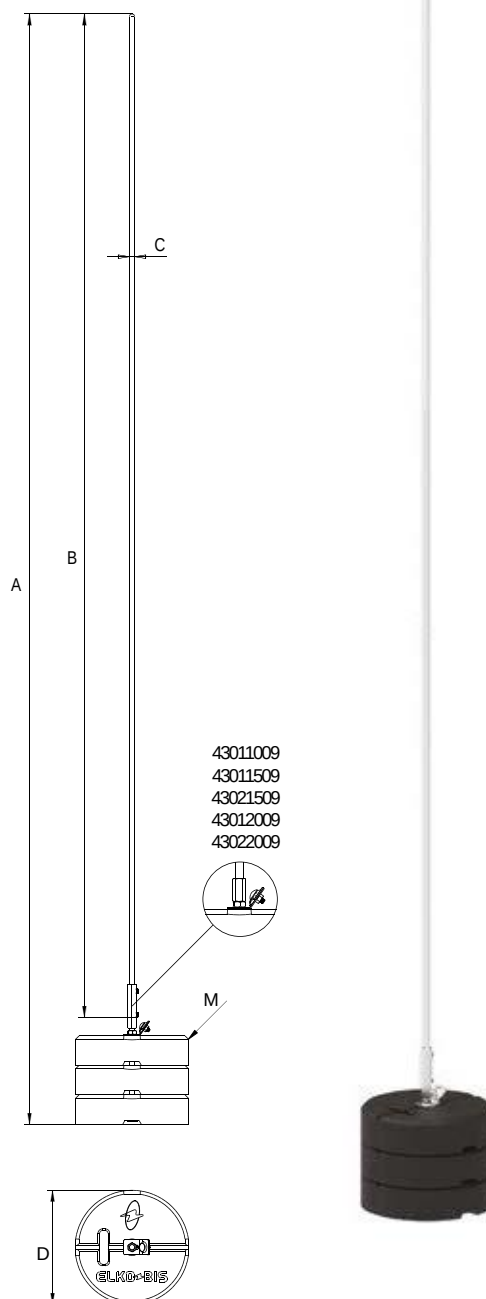
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+48 667 017 617

techniczny@elkobis.com.pl

Single concrete base interception air terminal

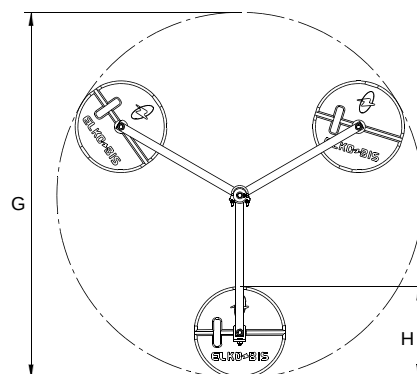
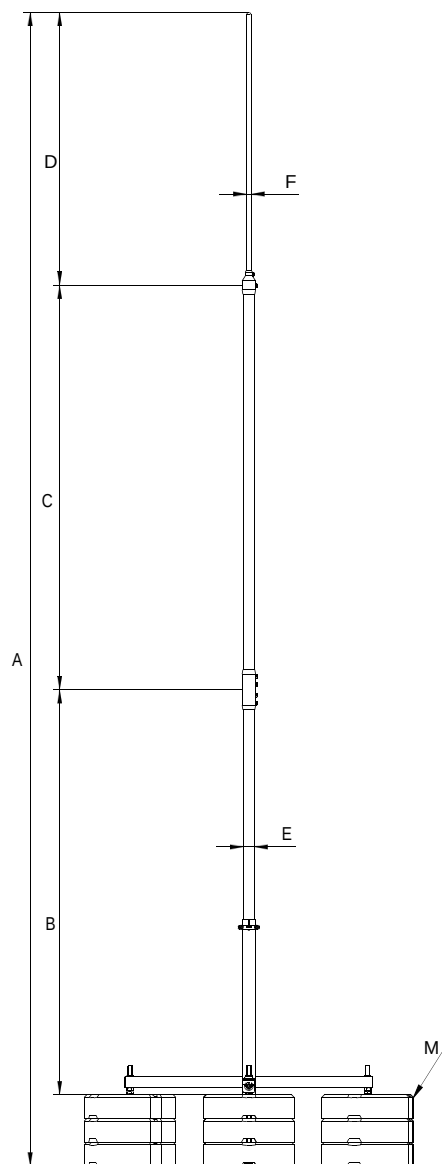
Aluminum made Air Terminal for lightning protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels) Wire conductor clamp included. Use concrete base pad underneath 44408208- to be ordered separately. Additionally it is recommended to cover roof with a layer of membrane.



CATALOG NUMBER	TYPE	Height [m]	WIND RESISTANCE	A	B	C	D	M
43044009	43.4 AL 4p cz	4	116 km/h	4340	4000	Ø16	340	4x16 kg
43034009	43.4 AL 3p cz		107 km/h	4255				3x16 kg
43043509	43.35 AL 4p cz	3,5	116 km/h	3840	3500	Ø16	340	4x16 kg
43033509	43.35 AL 3p cz		107 km/h	3755				3x16 kg
43043009	43.3 AL 4p cz	3	155 km/h	3340	3000	Ø16	340	4x16 kg
43033009	43.3 AL 3p cz		142 km/h	3255				3x16 kg
43023009	43.3 AL 2p cz		118 km/h	3170				2x16 kg
43042509	43.25 AL 4p cz	2,5	155 km/h	2840	2500	Ø16	340	4x16 kg
43032509	43.25 AL 3p cz		142 km/h	2755				3x16 kg
43022509	43.25 AL 2p cz		118 km/h	2670				2x16 kg
43022009	43.2 AL 2p cz	2	174 km/h	2170	2000	Ø16	340	2x16 kg
43012009	43.2 AL 1p cz		125 km/h	2085				1x16 kg
43021509	43.15 AL 2p cz	1,5	174 km/h	1670	1500	Ø16	340	2x16 kg
43011509	43.15 AL 1p cz		125 km/h	1585				1x16 kg
43011009	43.1 AL 1p cz	1	247 km/h	1085	1000	Ø16	340	1x16 kg

Tripod lightning protection 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. It is recommended to use pads under concrete base 44408208. Option 94308022 for tar board roofs and option 94308021 for membrane roofs.



Mast regulating set
66598005: p. 114

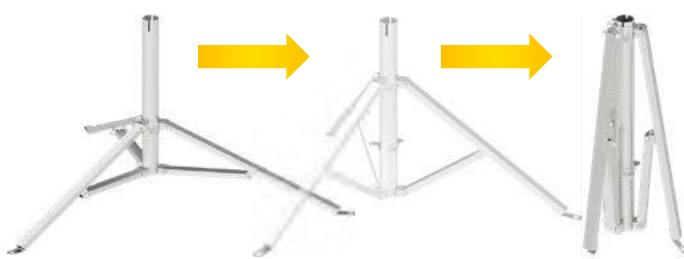
Also available with a modular tripod.
More information is provided on the next page.

CATALOG NUMBER	TYPE	Height [m]	WIND RESISTANCE	A	B	C	D	E	F	G	H	M
65058009	65.8 5p cz	8	122 km/h	8425	3000	3000	2000	Ø40	Ø16	Ø1350	Ø340	15x16 kg
65048009	65.8 4p cz		116 km/h	8340	3000	3000	2000	Ø40	Ø16	Ø1350	Ø340	12x16 kg
65038009	65.8 3p cz		101 km/h	8255	3000	3000	2000	Ø40	Ø16	Ø1350	Ø340	9x16 kg
65057009	65.7 5p cz	7	140 km/h	7425	3000	3000	1000	Ø40	Ø16	Ø1350	Ø340	15x16 kg
65047009	65.7 4p cz		133 km/h	7340	3000	3000	1000	Ø40	Ø16	Ø1350	Ø340	12x16 kg
65037009	65.7 3p cz		117 km/h	7255	3000	3000	1000	Ø40	Ø16	Ø1350	Ø340	9x16 kg
65027009	65.7 2p cz		97 km/h	7170	3000	3000	1000	Ø40	Ø16	Ø1350	Ø340	6x16 kg
65056509	65.65 5p cz	6,5	140 km/h	6925	3000	3000	500	Ø40	Ø16	Ø1350	Ø340	15x16 kg
65046509	65.65 4p cz		133 km/h	6840	3000	3000	500	Ø40	Ø16	Ø1350	Ø340	12x16 kg
65036509	65.65 3p cz		117 km/h	6755	3000	3000	500	Ø40	Ø16	Ø1350	Ø340	9x16 kg
65026509	65.65 2p cz	6	97 km/h	6670	3000	3000	500	Ø40	Ø16	Ø1350	Ø340	6x16 kg
65056009	65.6 5p cz		149 km/h	6425	3000	2000	1000	Ø40	Ø16	Ø1350	Ø340	15x16 kg
65046009	65.6 4p cz		146 km/h	6340	3000	2000	1000	Ø40	Ø16	Ø1350	Ø340	12x16 kg
65036009	65.6 3p cz		127 km/h	6255	3000	2000	1000	Ø40	Ø16	Ø1350	Ø340	9x16 kg
65026009	65.6 2p cz		106 km/h	6170	3000	2000	1000	Ø40	Ø16	Ø1350	Ø340	6x16 kg
65055509	65.55 5p cz	5,5	149 km/h	5925	3000	2000	500	Ø40	Ø16	Ø1350	Ø340	15x16 kg
65045509	65.55 4p cz		146 km/h	5840	3000	2000	500	Ø40	Ø16	Ø1350	Ø340	12x16 kg
65035509	65.55 3p cz		127 km/h	5755	3000	2000	500	Ø40	Ø16	Ø1350	Ø340	9x16 kg
65025509	65.55 2p cz	5	106 km/h	5670	3000	2000	500	Ø40	Ø16	Ø1350	Ø340	6x16 kg
65045009	65.5 4p cz		175 km/h	5340	2000	2000	1000	Ø40	Ø16	Ø1350	Ø340	12x16 kg
65035009	65.5 3p cz		153 km/h	5255	2000	2000	1000	Ø40	Ø16	Ø1350	Ø340	9x16 kg
65025009	65.5 2p cz		127 km/h	5170	2000	2000	1000	Ø40	Ø16	Ø1350	Ø340	6x16 kg
65015009	65.5 1p cz		93 km/h	5085	2000	2000	1000	Ø40	Ø16	Ø1350	Ø340	3x16 kg
65044509	65.45 4p cz	4,5	175 km/h	4840	2000	2000	500	Ø40	Ø16	Ø1350	Ø340	12x16 kg
65034509	65.45 3p cz		153 km/h	4755	2000	2000	500	Ø40	Ø16	Ø1350	Ø340	9x16 kg
65024509	65.45 2p cz		127 km/h	4670	2000	2000	500	Ø40	Ø16	Ø1350	Ø340	6x16 kg
65014509	65.45 1p cz	4	93 km/h	4585	2000	2000	500	Ø40	Ø16	Ø1350	Ø340	3x16 kg
65034009	65.4 3p cz		192 km/h	4255	3000	----	1000	Ø40	Ø16	Ø1350	Ø340	9x16 kg
65024009	65.4 2p cz		159 km/h	4170	3000	----	1000	Ø40	Ø16	Ø1350	Ø340	6x16 kg
65014009	65.4 1p cz		116 km/h	4085	3000	----	1000	Ø40	Ø16	Ø1350	Ø340	3x16 kg
65033509	65.35 3p cz	3,5	192 km/h	3755	3000	----	500	Ø40	Ø16	Ø1350	Ø340	9x16 kg
65023509	65.35 2p cz		159 km/h	3670	3000	----	500	Ø40	Ø16	Ø1350	Ø340	6x16 kg
65013509	65.35 1p cz		116 km/h	3585	3000	----	500	Ø40	Ø16	Ø1350	Ø340	3x16 kg
65033009	65.3 3p cz	3	258 km/h	3255	2000	----	1000	Ø40	Ø16	Ø1350	Ø340	9x16 kg
65023009	65.3 2p cz		213 km/h	3170	2000	----	1000	Ø40	Ø16	Ø1350	Ø340	6x16 kg
65013009	65.3 1p cz		155 km/h	3085	2000	----	1000	Ø40	Ø16	Ø1350	Ø340	3x16 kg

AL/V2A

Tripod concrete base interception mast

Composed construction to ease and reduce logistic processes.



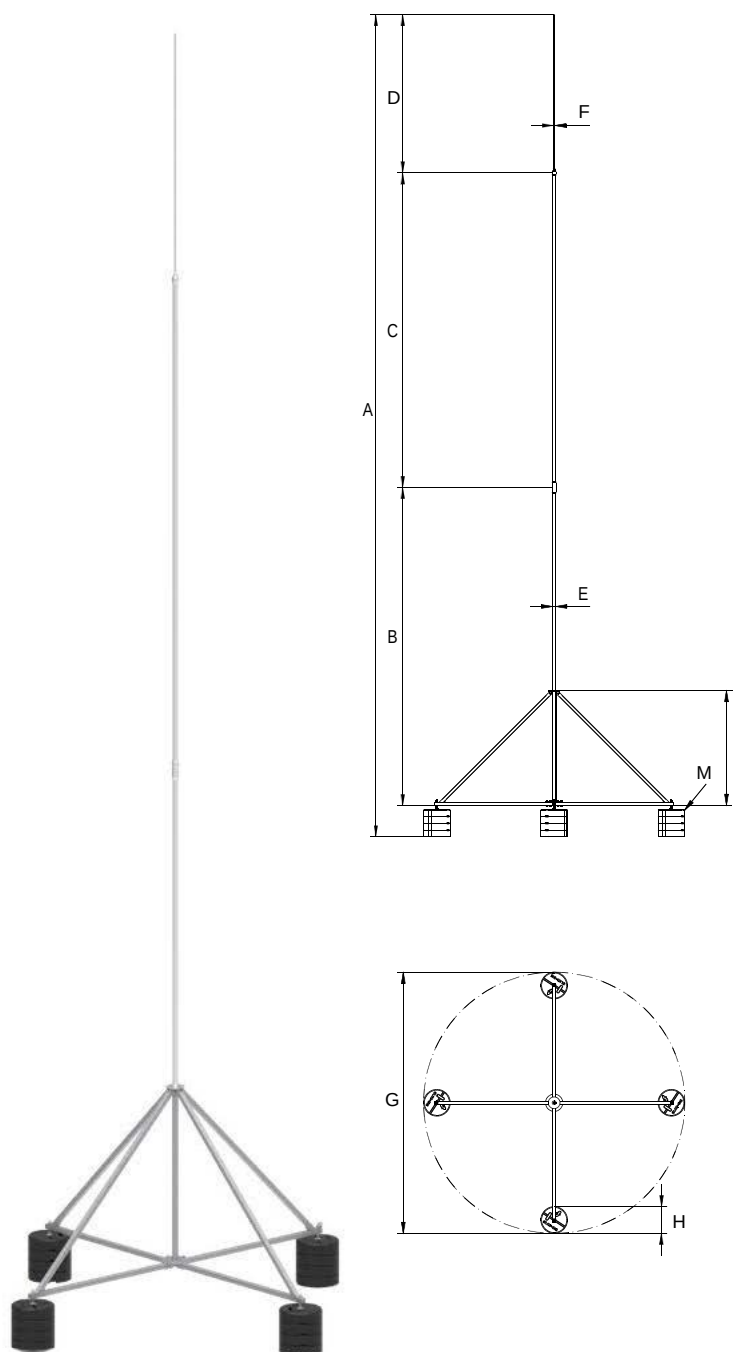
NOTE!

To order mast with foldable tripod frame construction, change second digit in the catalog number **7**.

65045009 Interception Air Rod 5m with standard tripod frame

↓
67045009 Interception Air Rod 5m with foldable tripod frame

Fourpod lightning protection mast



For lightning protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Wire conductor clamp included in the set. Use concrete base underneath pad 44408208 - to be ordered separately. Additionally it is recommended to use 94308022 pad for tarboard roofs cover or 94308021 for membrane cover. Aluminum made air terminal and hot deep galvanized base frame.

Note!

To order stainless steel fourpod base frame, change 2 last digits of catalog number for "09".



Fourpod masts regulating
set: p. 114

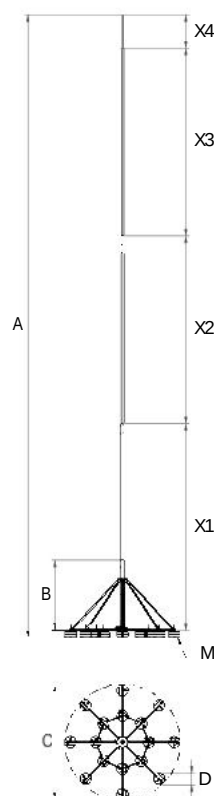
CATALOG NUMBER	TYPE	HEIGHT [m]	WIND RESISTANCE	A	B	C	D	E	F	G	H	I	M
65451092	65.10.1 5P CZ	10	145 km/h	10530	4000	4000	2000	Ø40	Ø16	Ø3320	Ø340	1460	20x16 kg
65441092	65.10.1 4P CZ		134 km/h	10442	4000	4000	2000	Ø40	Ø16	Ø3320	Ø340	1460	16x16 kg
65431092	65.10.1 3P CZ		120 km/h	10354	4000	4000	2000	Ø40	Ø16	Ø3320	Ø340	1460	12x16 kg
65421092	65.10.1 2P CZ		103 km/h	10266	4000	4000	2000	Ø40	Ø16	Ø3320	Ø340	1460	8x16 kg
6544092	65.9.1 4P CZ	9	148 km/h	9442	4000	4000	1000	Ø40	Ø16	Ø3320	Ø340	1460	16x16 kg
6543092	65.9.1 3P CZ		133 km/h	9354	4000	4000	1000	Ø40	Ø16	Ø3320	Ø340	1460	12x16 kg
6542092	65.9.1 2P CZ		115 km/h	9266	4000	4000	1000	Ø40	Ø16	Ø3320	Ø340	1460	8x16 kg
6545082	65.8.1 5P CZ	8	185 km/h	8530	3000	3000	2000	Ø40	Ø16	Ø3320	Ø340	1460	20x16 kg
6544082	65.8.1 4P CZ		169 km/h	8442	3000	3000	2000	Ø40	Ø16	Ø3320	Ø340	1460	16x16 kg
6543082	65.8.1 3P CZ		150 km/h	8354	3000	3000	2000	Ø40	Ø16	Ø3320	Ø340	1460	12x16 kg
6542082	65.8.1 2P CZ		130 km/h	8266	3000	3000	2000	Ø40	Ø16	Ø3320	Ø340	1460	8x16 kg

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

AL/St/tZn 92 AL/V2A 09 The AL/St/tZn version is an Aluminum Interception Air Rod with a Zinc plated flame quadrant. The AL version is Aluminum Interception Air Rod with a stainless steel quadrant.

Free standing lightning protection masts 12-18m

Used to protect metal elements of the roof and devices (skylights, air conditioners, air handling units, ventilation ducts) against the effects of lightning. The supporting structure is an octopod frame base with concrete blocks, ensuring adequate wind load resistance. Mast mounting sets allow vertical plumbing in the range of 0° - 1.5°. 44408208 PVC pad should be applied under the concrete blocks - to be ordered separately. Additionally, we recommend use of washers 94308222 for roofs covered with tar paper and 94308221 for roofs covered in membrane. Aluminum made mast and stainless steel octagonal frame base.

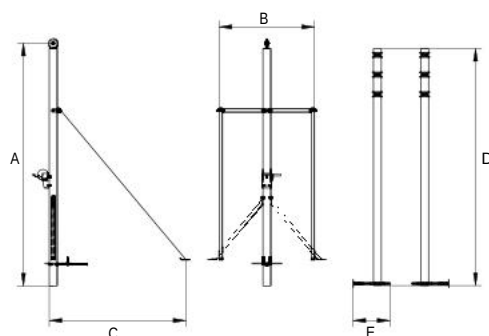


CATALOG NUMBER	TYPE	HEIGHT [m]	WIND RESISTANCE	A	B	C	D	X1	X2	X3	X4	M
65221809	65.18 AL 2P CZ	18	144 km/h	18250	2000	3380	340	6000	5500	5500	1000	34x16kg
65211809	65.18 AL 1P CZ	18	122 km/h	18160	2000	3380	340	6000	5500	5500	1000	17x16kg
65221709	65.17 AL 2P CZ	17	176 km/h	17250	2000	3380	340	6000	3500	5500	2000	34x16kg
65211709	65.17 AL 1P CZ	17	133 km/h	17160	2000	3380	340	6000	3500	5500	2000	17x16kg
65221609	65.16 AL 2P CZ	16	198 km/h	16250	2000	3380	340	3000	5500	5500	2000	34x16kg
65211609	65.16 AL 1P CZ	16	144 km/h	16160	2000	3380	340	3000	5500	5500	2000	17x16kg
65221509	65.15 AL 2P CZ	15	215 km/h	15250	2000	3380	340	3000	5500	5500	1000	34x16kg
65211509	65.15 AL 1P CZ	15	144 km/h	15160	2000	3380	340	3000	5500	5500	1000	17x16kg
65221409	65.14 AL 2P CZ	14	223 km/h	14250	2000	3380	340	3000	3500	5500	2000	34x16kg
65211409	65.14 AL 1P CZ	14	167 km/h	14160	2000	3380	340	3000	3500	5500	2000	17x16kg
65221309	65.13 AL 2P CZ	13	241 km/h	13250	2000	3380	340	3000	2500	5500	2000	34x16kg
65211309	65.13 AL 1P CZ	13	176 km/h	13160	2000	3380	340	3000	2500	5500	2000	17x16kg
65221209	65.12 AL 2P CZ	12	253 km/h	12250	2000	3380	340	3000	2500	5500	1000	34x16kg
65211209	65.12 AL 1P CZ	12	191 km/h	12160	2000	3380	340	3000	2500	5500	1000	17x16kg

AL

Lifting device for free standing masts 12-18 m

Used to lift lightning protection masts on an octopod frame base to a vertical position. Enables the installation of masts without use of crane or other heavy equipment.

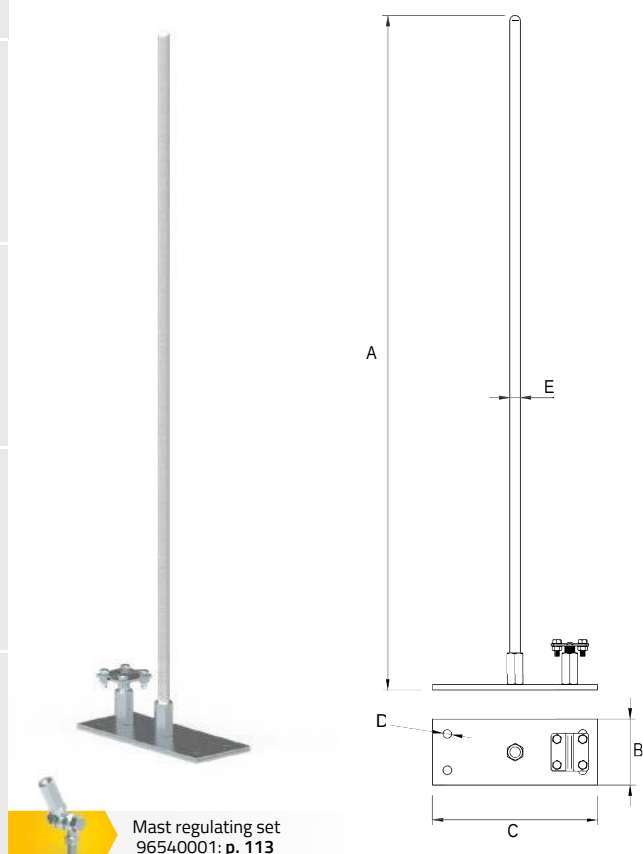


CATALOG NUMBER	TYPE	A	B	C	D	E
60000002	-	3131	1205	1730	3000	466

St/tZn

Steel base interception mast

For lightning protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Permanent fixing of steel base using screws or anchors. Total weight up to 5 kg.



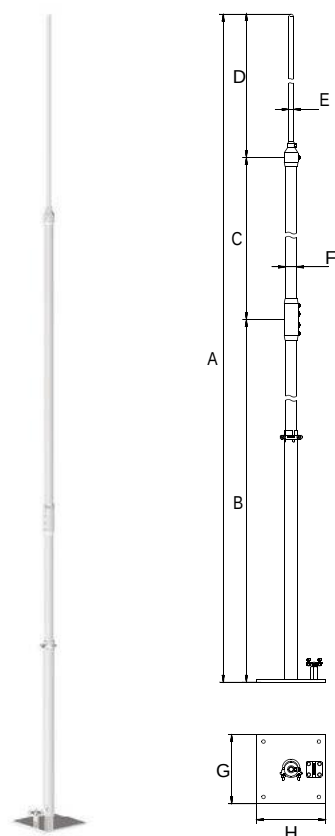
*Can be used for III – th wind loading zone (acc. PN 77/B-0211) being permanently fixed to surface.

CATALOG NUMBER	TYPE	WIND RESISTANCE	A	B	C	D	E
94384009	43.4/M	116 km/h	4000	200	250	Ø11	16
94383509	43.35/M	116 km/h	3500	200	250	Ø11	16
94383009	43.3/M	155 km/h	3000	200	250	Ø11	16
94382509	43.25/M	155 km/h	2500	200	250	Ø11	16
94382009	43.2/M	174 km/h	2000	100	250	Ø11	16
94381509	43.15/M	174 km/h	1500	100	250	Ø11	16
94381009	43.1/M	247 km/h	1000	100	250	Ø11	16

AL

Steel base interception mast

For lightning protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Permanent fixing of steel base using screws or anchors. Total weight up to 20 kg.

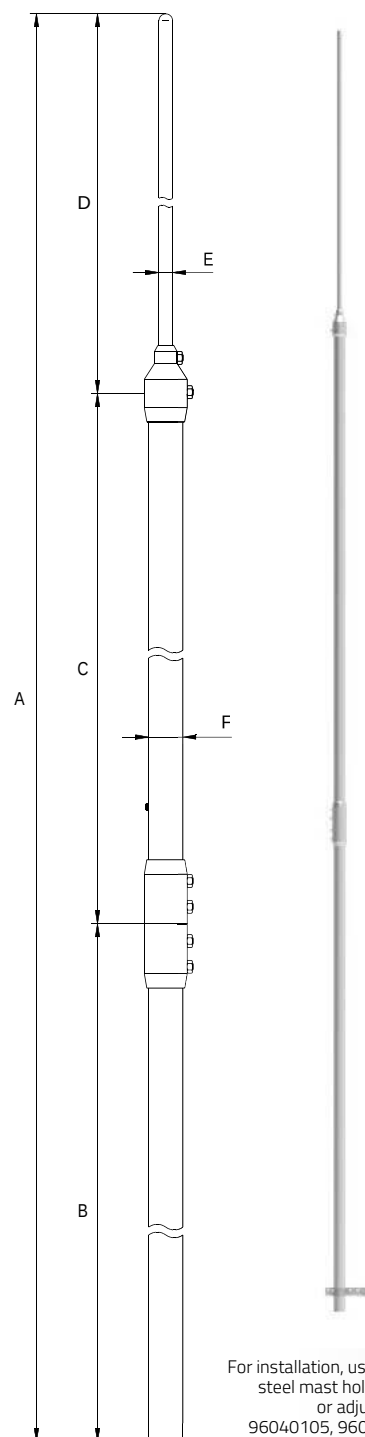
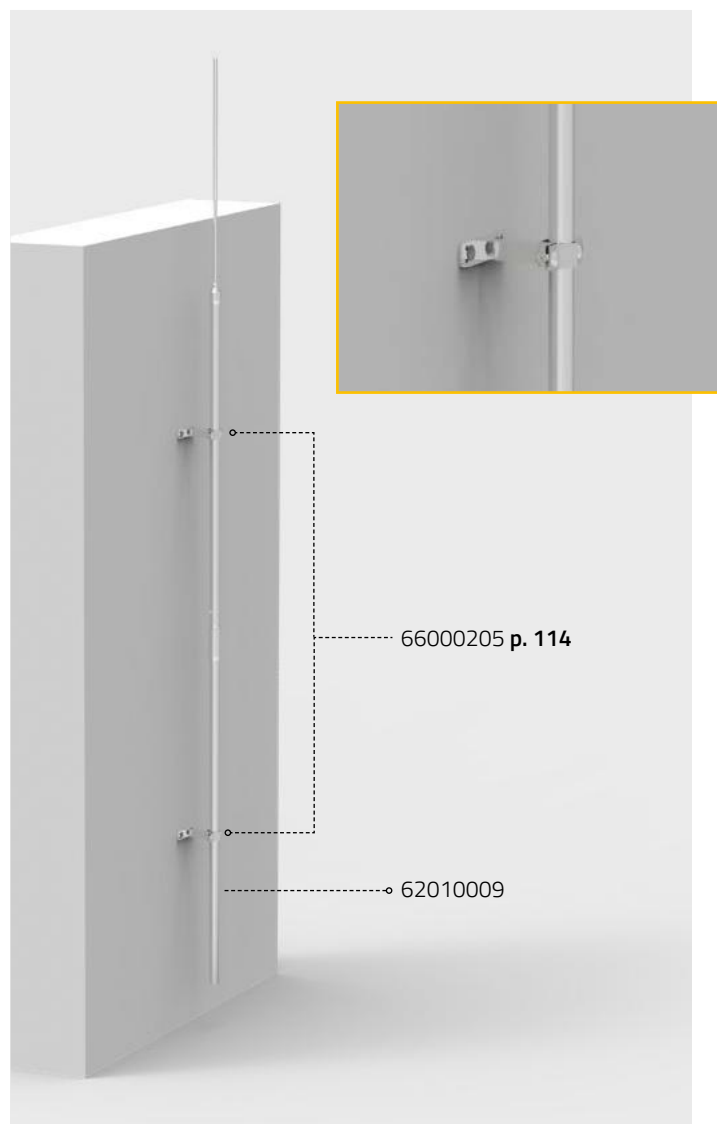


CATALOG NUMBER	TYPE	WIND RESISTANCE	A	B	C	D	E	F	G	H
65607009	65.7/M AL	140 km/h	7023	3000	3000	1000	Ø16	Ø40	250	250
65606509	65.65/M AL	140 km/h	6523	3000	3000	500	Ø16	Ø40	250	250
65606009	65.6/M AL	149 km/h	6023	3000	2000	1000	Ø16	Ø40	250	250
65605509	65.55/M AL	149 km/h	5523	3000	2000	500	Ø16	Ø40	250	250
65605009	65.5/M AL	175 km/h	5023	2000	2000	1000	Ø16	Ø40	250	250
65604509	65.45/M AL	175 km/h	4523	2000	2000	500	Ø16	Ø40	250	250
65604009	65.4/M AL	192 km/h	4023	3000	-	1000	Ø16	Ø40	250	250

AL

Lightning protection air terminal

For lightning protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Depending on assembly location, appropriate holder need to be applied example 66000205 (wall holder) Air terminal made of durable aluminum.

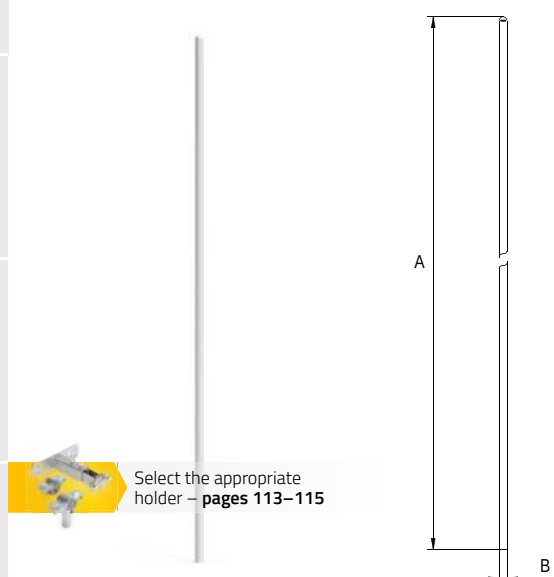


For installation, use the stainless steel mast holder 66000205 or adjustable holders 96040105, 96040205: **p. 112**



CATALOG NUMBER	TYPE	WIND RESISTANCE	A	B	C	D	E	F
62010009	62.10 AL	145 km/h	10000	4000	4000	2000	Ø16	Ø40
62009009	62.9 AL	148 km/h	9000	4000	4000	1000	Ø16	Ø40
62008009	62.8 AL	185 km/h	8000	3000	3000	2000	Ø16	Ø40
62007009	62.7 AL	140 km/h	7000	3000	3000	1000	Ø16	Ø40
62006509	62.65 AL	140 km/h	6500	3000	3000	500	Ø16	Ø40
62006009	62.6 AL	149 km/h	6000	3000	2000	1000	Ø16	Ø40
62005509	62.55 AL	149 km/h	5500	3000	2000	500	Ø16	Ø40
62005009	62.5 AL	175 km/h	5000	2000	2000	1000	Ø16	Ø40
62004509	62.45 AL	175 km/h	4500	2000	2000	500	Ø16	Ø40
62004009	62.4 AL	192 km/h	4000	3000	----	1000	Ø16	Ø40
62003509	62.35 AL	192 km/h	3500	3000	----	500	Ø16	Ø40
62003009	62.3 AL	192 km/h	3000	2000	----	1000	Ø16	Ø40

Aluminum interception air rod

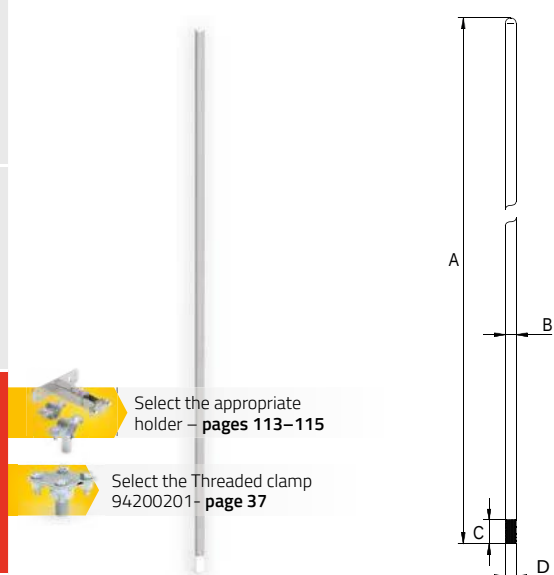


For lightning protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Choose correct mast holders depending on assembly place.

CATALOG NUMBER	TYPE	A	B
44331009	443.010	1000	Ø16
44331509	443.015	1500	Ø16
44332009	443.020	2000	Ø16
44332509	443.025	2500	Ø16
44333009	443.030	3000	Ø16
44333509	443.035	3500	Ø16
44334009	443.040	4000	Ø16

AL

Aluminum interception air rod

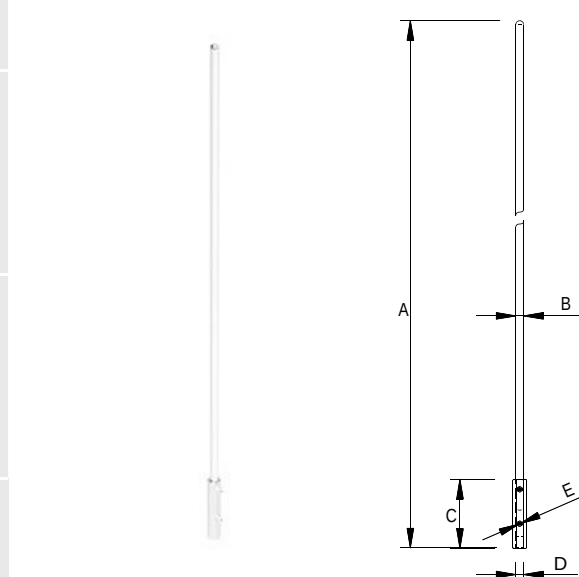


For lightning protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Choose correct mast holders depending on assembly place. Mast holder 96000101 for wall mounting, wire clamp 94200201 and connector 94200401.

CATALOG NUMBER	TYPE	A	B	C	D
94301009	43.010	1000	Ø16	35	M16
94301509	43.015	1500	Ø16	35	M16
94302009	43.020	2000	Ø16	35	M16
94302509	43.025	2500	Ø16	35	M16
94303009	43.030	3000	Ø16	35	M16
94303509	43.035	3500	Ø16	35	M16
94304009	43.040	4000	Ø16	35	M16

AL

Aluminum interception air rod with stabilizer



For lightning protection of roof elements and devices (sky lights, air conditioners, air handling units, air handling channels). Appropriate air terminal holders to be chosen. Stabilizer spire allows fixing into concrete and steel bases.

CATALOG NUMBER	TYPE	A	B	C	D	E
44322509	443.025 S AL	2500	Ø16	130	M16	M8
44323009	443.030 S AL	3000	Ø16	130	M16	M8
44323509	443.035 S AL	3500	Ø16	130	M16	M8
44324009	443.040 S AL	4000	Ø16	130	M16	M8

AL

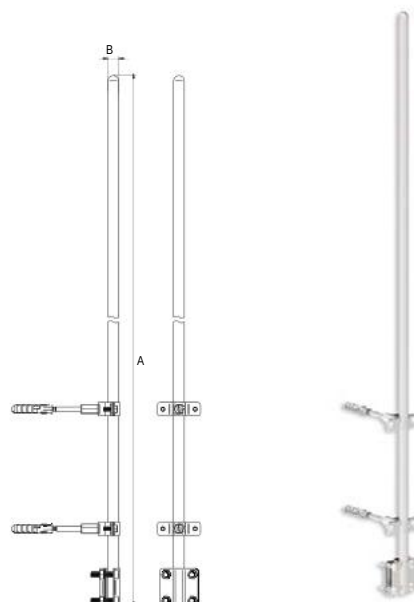
Chimney spire

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. Spire weight is maximum 3 kg.

CATALOG NUMBER	TYPE	A	B	Bolt
97001009	70.10	1000	Ø16	4×M8×20
97001509	70.15	1500	Ø16	4×M8×20
97002009	70.20	2000	Ø16	4×M8×20
97002509	70.25	2500	Ø16	4×M8×20
97003009	70.30	3000	Ø16	4×M8×20

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

CU	03	V2A	05	AL	09
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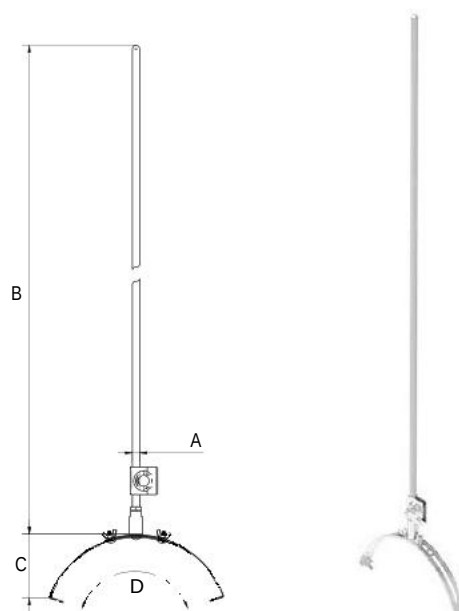


Single ridge tile spire

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 includes horizontal wire connector

CATALOG NUMBER	TYPE	A	B	C	D
97111009	71.10/1	Ø12	1000	65	200-390

AL



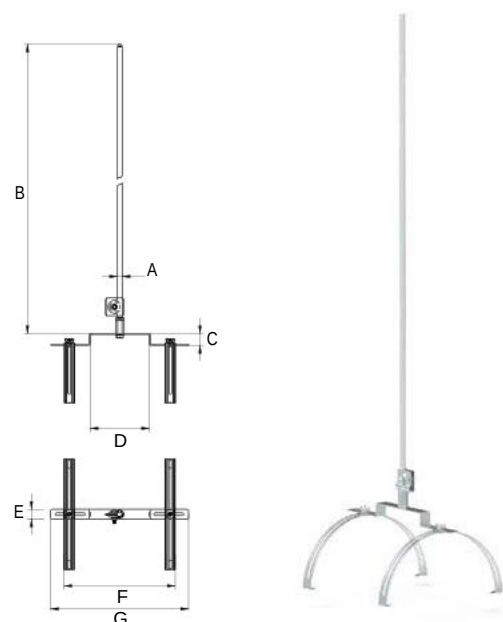
Double ridge tile spire

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.

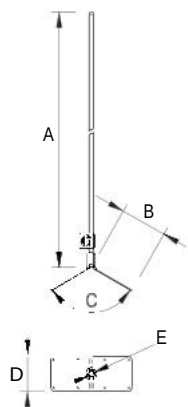
CATALOG NUMBER	TYPE	A	B	C	D	E	F	G
97101009	71.10	Ø12	1000	30	150	25	206-346	350
97101509	71.15	Ø12	1500	30	150	25	206-346	350
97102009	71.20	Ø12	2000	30	150	25	206-346	350

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

CU	03	AL	09
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Top roof spire



For lightning protection of top roof elements and devices (skylights, air conditioners, air handling units, air handling channels) covered in trapezoid and seam steel sheets. Complete set with connector allowing spire connection to horizontal conductor on the roof

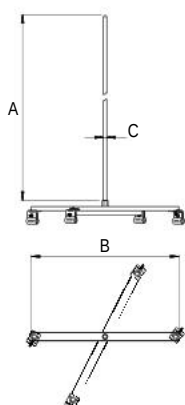
CATALOG NUMBER	TYPE	A	B	C	D	E
97131009	71.10.1/M	1000	160	120	120	Ø12
97131509	71.15.1/M	1500	160	120	120	Ø12
97132009	71.20.1/M	2000	160	120	120	Ø12

AL

Steel roofs spire



Select the adjustment set
96540001: page 113



For lightning protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Dedicated to roofs covered in standing seam, steel sheets. Aluminum made spire with zinc plated steel base. On the roofs with large slope angle, use regulation set 96540001 for vertical lining.

CATALOG NUMBER	TYPE	A	B	C
97121009	71.10/M AL	1000	700	Ø16
97121509	71.15/M AL	1500	700	Ø16
97122009	71.20/M AL	2000	700	Ø16

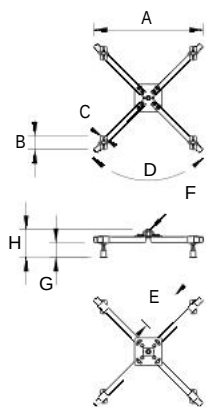
AL

Adjustable Air Terminal Base for Sheet Metal Roofs



NEW!

Select the air terminal
- page 104

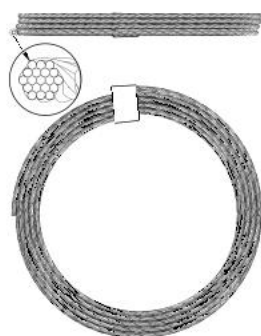


Used for mounting air terminals on various types of corrugated roofs by adjusting the spacing of the mounting arms. Adjustment set 66599005 (ordered separately) allows tilt adjustment of the air terminal from 0° to 20°. Compatible with Ø16 air terminals with a height of 1–2 m using a connector, and with air terminals over 2 m in height using a stabilizer (both ordered separately).

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	H	I
17200105	172.1	640	60	11	35°-145°	45°-90°	M16	90	280	300

V2A

ALDREY lightning protection rope



For horizontal conductors grid between air termination masts. Maximum distance between masts should not exceed 10 meters.

For technical advice and project of such solution please contact our team at: export@elkobis.com.pl

CATALOG NUMBER	TYPE	Strand type	Weight 1 m	Diameter
80200809	ALDREY 50 mm ²	19×Ø1,8 mm	0,14 kg	Ø8

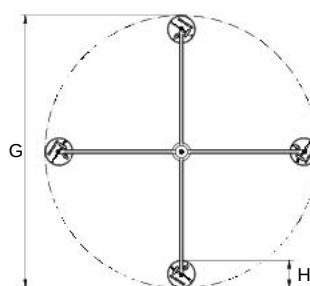
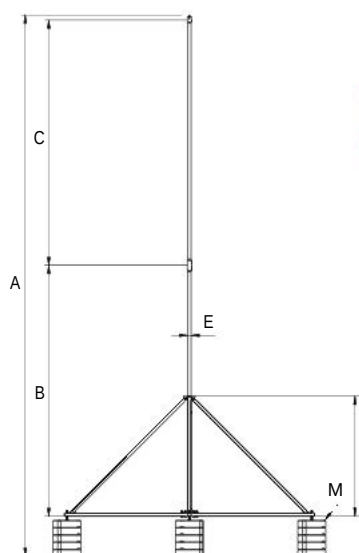
AL

Fourpod lightning protection mast for high air termination

For lightning protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Providing supporting structure for high horizontal air termination with use of Aldrey rope. Composed of durable aluminum mast and hot-dip galvanized steel fourpod frame. Distance between Aldrey rope connected masts cannot exceed 10 meters. Conductor connection clamp included in the set. Use concrete base underneath pad 44408208 - to be ordered separately. Additionally it is recommended to use 94308022 pad for tarboard roofs cover or 94308021 for membrane cover.

Note!

To order stainless steel fourpod base frame, change 2 last digits of catalog number for "09".



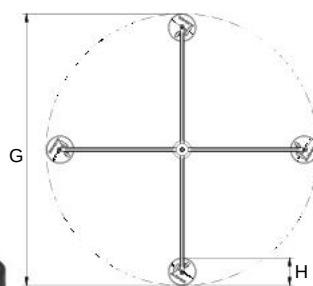
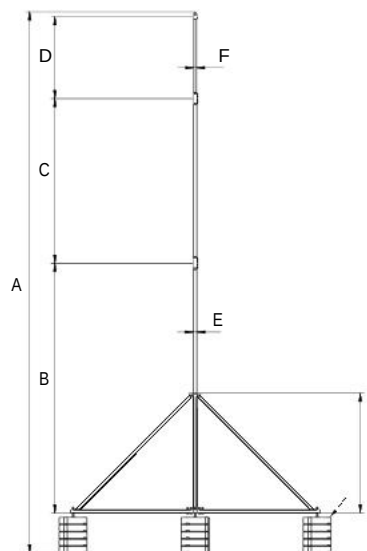
Select the adjustment set
- page 114

CATALOG NUMBER	TYPE	Height [m]	Wind Resistance	A	B	C	E	G	H	I	M
65156092	65.6 ZA 5P CZ	6	147 km/h	6590	3000	3000	Ø40	Ø3320	Ø340	1460	20x16 kg
65146092	65.6 ZA 4P CZ		142 km/h	6502	3000	3000	Ø40	Ø3320	Ø340	1460	16x16 kg
65136092	65.6 ZA 3P CZ		125 km/h	6414	3000	3000	Ø40	Ø3320	Ø340	1460	12x16 kg
65126092	65.6 ZA 2P CZ		106 km/h	6326	3000	3000	Ø40	Ø3320	Ø340	1460	8x16 kg
65155092	65.5 ZA 5P CZ	5	178 km/h	5590	3000	2000	Ø40	Ø3320	Ø340	1460	20x16 kg
65145092	65.5 ZA 4P CZ		160 km/h	5502	3000	2000	Ø40	Ø3320	Ø340	1460	16x16 kg
65135092	65.5 ZA 3P CZ		141 km/h	5414	3000	2000	Ø40	Ø3320	Ø340	1460	12x16 kg
65125092	65.5 ZA 2P CZ		120 km/h	5326	3000	2000	Ø40	Ø3320	Ø340	1460	8x16 kg
65154092	65.4 ZA 5P CZ	4	140 km/h	4590	2000	2000	Ø40	Ø1820	Ø340	1040	20x16 kg
65144092	65.4 ZA 4P CZ		120 km/h	4502	2000	2000	Ø40	Ø1820	Ø340	1040	16x16 kg
65134092	65.4 ZA 3P CZ		102 km/h	4414	2000	2000	Ø40	Ø1820	Ø340	1040	12x16 kg
65153092	65.3 ZA 5P CZ	3	159 km/h	3580	3000	-	Ø40	Ø1820	Ø340	1040	20x16 kg
65143092	65.3 ZA 4P CZ		137 km/h	3492	3000	-	Ø40	Ø1820	Ø340	1040	16x16 kg
65133092	65.3 ZA 3P CZ		113 km/h	3404	3000	-	Ø40	Ø1820	Ø340	1040	12x16 kg
65152092	65.2 ZA 5P CZ	2	140 km/h	2580	2000	-	Ø40	Ø1820	Ø340	1040	20x16 kg
65142092	65.2 ZA 4P CZ		110 km/h	2492	2000	-	Ø40	Ø1820	Ø340	1040	16x16 kg

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

AL/St/tZn 92 AL/V2A 09

Fourpod insulated lightning protection mast for high air termination



For lightning protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Providing supporting structure for high horizontal air termination with use of Aldrey rope. Made of durable aluminum, finished with 1 meter insulation bar, allowing to be placed near by the devices with lower distance, than required separation distance. Frame stainless steel made. Distance between Aldrey rope connected masts cannot exceed 10 meters. Conductor connection clamp included in the set. Use concrete base underneath pad 44408208 - to be ordered separately. Additionally it is recommended to use 94308022 pad for tarboard roofs cover or 94308021 for membrane cover.

Note!

To order stainless steel fourpod base frame, change 2 last digits of catalog number for "09".



Select the adjustment set
- page 114

CATALOG NUMBER	TYPE	Height [m]	Wind Resistance	A	B	C	D	E	F	G	H	I	M
65356092	65.6 IZ 5P CZ	6	147 km/h	6600	3000	2000	1000	Ø40	Ø32	Ø3320	Ø340	1460	20x16 kg
65346092	65.6 IZ 4P CZ		142 km/h	6512	3000	2000	1000	Ø40	Ø32	Ø3320	Ø340	1460	16x16 kg
65336092	65.6 IZ 3P CZ		125 km/h	6424	3000	2000	1000	Ø40	Ø32	Ø3320	Ø340	1460	12x16 kg
65326092	65.6 IZ 2P CZ		106 km/h	6336	3000	2000	1000	Ø40	Ø32	Ø3320	Ø340	1460	8x16 kg
65355092	65.5 IZ 5P CZ	5	178 km/h	5600	2000	2000	1000	Ø40	Ø32	Ø3320	Ø340	1460	20x16 kg
65345092	65.5 IZ 4P CZ		160 km/h	5512	2000	2000	1000	Ø40	Ø32	Ø3320	Ø340	1460	16x16 kg
65335092	65.5 IZ 3P CZ		141 km/h	5424	2000	2000	1000	Ø40	Ø32	Ø3320	Ø340	1460	12x16 kg
65325092	65.5 IZ 2P CZ		120 km/h	5336	2000	2000	1000	Ø40	Ø32	Ø3320	Ø340	1460	8x16 kg
65354092	65.4 IZ 5P CZ	4	140 km/h	4600	3000	-	1000	Ø40	Ø32	Ø1820	Ø340	1040	20x16 kg
65344092	65.4 IZ 4P CZ		120 km/h	4512	3000	-	1000	Ø40	Ø32	Ø1820	Ø340	1040	16x16 kg
65334092	65.4 IZ 3P CZ		102 km/h	4424	3000	-	1000	Ø40	Ø32	Ø1820	Ø340	1040	12x16 kg
65353092	65.3 IZ 5P CZ	3	159 km/h	3590	2000	-	1000	Ø40	Ø32	Ø1820	Ø340	1040	20x16 kg
65343092	65.3 IZ 4P CZ		137 km/h	3502	2000	-	1000	Ø40	Ø32	Ø1820	Ø340	1040	16x16 kg
65333092	65.3 IZ 3P CZ		113 km/h	3414	2000	-	1000	Ø40	Ø32	Ø1820	Ø340	1040	12x16 kg
65352092	65.2 IZ 5P CZ	2	140 km/h	2790	1200	-	1000	Ø40	Ø32	Ø1820	Ø340	1040	20x16 kg
65342092	65.2 IZ 4P CZ		110 km/h	2702	1200	-	1000	Ø40	Ø32	Ø1820	Ø340	1040	16x16 kg

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

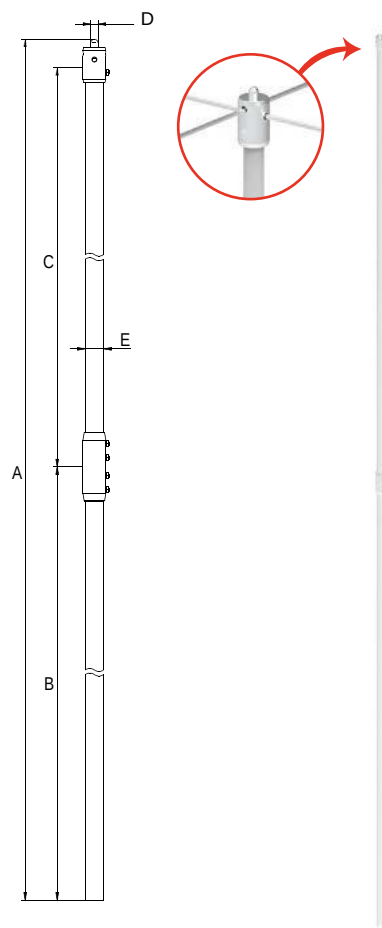
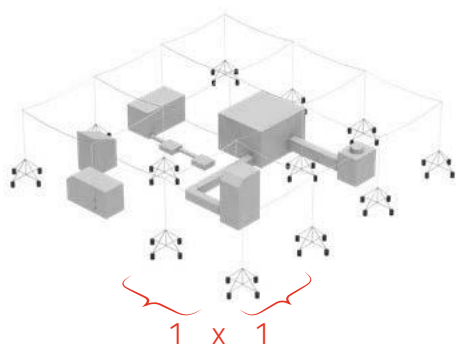
AL/St/tZn 92 AL/V2A 09 The AL/St/tZn version is an Aluminum Interception Air Rod with a Zinc plated flame quadrant. The AL version is Aluminum Interception Air Rod with a stainless steel quadrant.

Mast air terminal for high air termination

For lightning protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Providing supportive structure for Aldrey rope supplied between the masts spaced appropriately, keeping separation distance from the protected devices. Two Aldrey rope lines can be installed through the mounting system. Distance between Aldrey rope connected masts cannot exceed 8 meters. Strengthened masts more resistant to wind speed. Depending on the mounting location, appropriate holders should be applied e.g. 66000105. Made of durable aluminum.

NOTE!

Wind resistance of masts is dependent on the number of masts in the mesh. Read the correct value from the table below!



ALDREY lightning protection rope 80200809: [page 104](#)

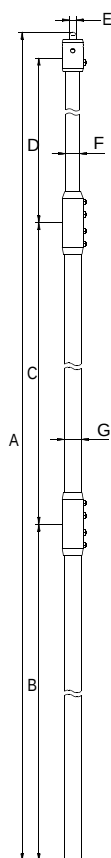
Select the mast holder **66000105**: [page 113](#)

CATALOG NUMBER	TYPE	Version	Height [m]	Wind Resistance	A	B	C	D	E
62057009	62.7.1 AL ZA	enhanced	7		7065	4000	3000	Ø16	Ø40
62056009	62.6.1 AL ZA	enhanced	6		6065	3000	3000	Ø16	Ø40
62046009	62.6 AL ZA	standard	6		6065	3000	3000	Ø16	Ø40
62055009	62.5.1 AL ZA	enhanced	5		5065	3000	2000	Ø16	Ø40
62045009	62.5 AL ZA	standard	5		5065	3000	2000	Ø16	Ø40
62054009	62.4.1 AL ZA	enhanced	4		4065	2000	2000	Ø16	Ø40
62044009	62.4 AL ZA	standard	4		4065	2000	2000	Ø16	Ø40
62043009	62.3 AL ZA	standard	3		3045	3000	-	Ø16	Ø40
62042009	62.2 AL ZA	standard	2		2045	2000	-	Ø16	Ø40

Mast wind speed resistance depends on the number of masts used in the mesh.

CATALOG NUMBER	TYPE	Height [m]	5x5	4x4	3x3	2x2	1x1
62057009	62.7.1 AL ZA	7	107	107	108	112	129
62056009	62.6.1 AL ZA	6	123	124	125	128	148
62046009	62.6 AL ZA	6	99	100	102	105	122
62055009	62.5.1 AL ZA	5	142	143	145	149	172
62045009	62.5 AL ZA	5	116	117	119	123	141
62054009	62.4.1 AL ZA	4	168	171	173	178	203
62044009	62.4 AL ZA	4	138	140	143	147	167
62043009	62.3 AL ZA	3	166	169	174	182	201
62042009	62.2 AL ZA	2	198	202	208	220	250

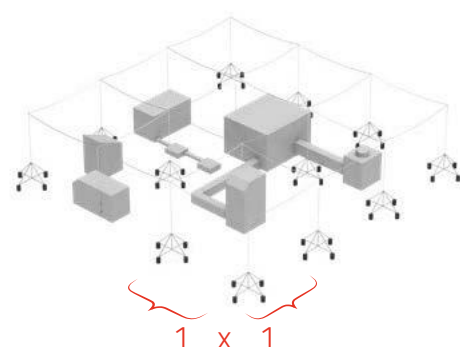
Insulated mast air terminal for high air termination



For lightning protection of roof elements and devices (skylights, air conditioners, air handling units, air handling channels). Providing supporting structure for high horizontal air termination with use of Aldrey rope. Made of durable aluminum, finished with 1 meter insulation bar, allowing to be placed near by the devices with lower distance, than required separation distance. 2 lines of Aldrey rope through mounting possible. Distance between Aldrey rope connected masts cannot exceed 8 meters. Strengthened masts more resistant to wind speed. Depending on the mounting location, appropriate holders should be applied e.g. 66000105.

NOTE!

Wind resistance of masts is dependent on the number of masts in the mesh. Read the correct value from the table below!



CATALOG NUMBER	TYPE	Version	Height [m]	Wind Resistance	A	B	C	D	E	F	G
62077009	62.7.1 AL IZ	enhanced	7		7075	3000	3000	1000	Ø16	Ø32	Ø40
62076009	62.6.1 AL IZ	enhanced	6		6075	3000	2000	1000	Ø16	Ø32	Ø40
62066009	62.6 AL IZ	standard	6		6075	3000	2000	1000	Ø16	Ø32	Ø40
62075009	62.5.1 AL IZ	enhanced	5		5075	2000	2000	1000	Ø16	Ø32	Ø40
62065009	62.5 AL IZ	standard	5		5075	2000	2000	1000	Ø16	Ø32	Ø40
62074009	62.4.1 AL IZ	enhanced	4		4065	3000	-	1000	Ø16	Ø32	Ø40
62064009	62.4 AL IZ	standard	4		4065	3000	-	1000	Ø16	Ø32	Ø40
62063009	62.3 AL IZ	standard	3		3065	2000	-	1000	Ø16	Ø32	Ø40
62062009	62.2 AL IZ	standard	2		2065	1000	-	1000	Ø16	Ø32	Ø40

Mast wind speed resistance depends on the number of masts used in the mesh.

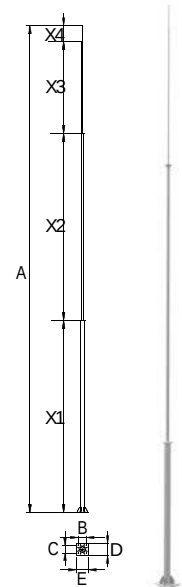
CATALOG NUMBER	TYPE	Height [m]	5x5	4x4	3x3	2x2	1x1
62077009	62.7.1 AL IZ	7	107	107	108	112	129
62076009	62.6.1 AL IZ	6	123	124	125	128	148
62066009	62.6 AL IZ	6	99	100	102	105	122
62075009	62.5.1 AL IZ	5	142	143	145	149	172
62065009	62.5 AL IZ	5	116	117	119	123	141
62074009	62.4.1 AL IZ	4	168	171	173	178	203
62064009	62.4 AL IZ	4	138	140	143	147	167
62063009	62.3 AL IZ	3	166	169	174	182	201
62062009	62.2 AL IZ	2	198	202	208	220	250

Air terminal 6, 9, 12, 15 m

Made of hot galvanised steel. Lightning protection air terminal is used to protect certain devices and objects. Allows creation of extensive protection zones at facilities requiring high class protection (for example: objects with a high risk of explosion or important for region). Air terminal can provide a large separation distance and protection for a group of high objects. Concrete foundation is ordered separately.

CATALOG NUMBER	TYPE	A	B	C	D	E	X1	X2	X3	X4	Weight
16206002	-	6000	250	250	380	380	3000	-	3000	500	~60 kg
16209002	-	9000	250	250	380	380	6000	-	3000	500	~80 kg
16212002	-	12000	250	250	380	380	3000	6000	3000	500	~160 kg
16215002	-	15000	250	400	380	380	6000	6000	3000	500	~220 kg

St/tZn

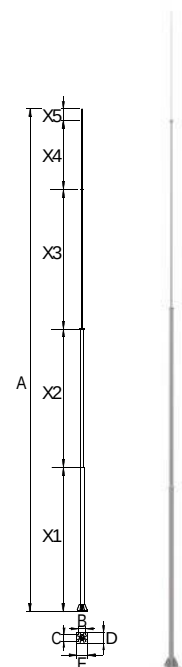


Air terminal 18, 21 m

Made of hot galvanised steel. Lightning protection air terminal is used to protect certain devices and objects. Allows creation of extensive protection zones at facilities requiring high class protection (for example: objects with a high risk of explosion or important for region). Air terminal can provide a large separation distance and protection for a group of high objects. Concrete foundation is ordered separately.

CATALOG NUMBER	TYPE	A	B	C	D	E	X1	X2	X3	X4	X5	Weight
16218002	-	18000	300	300	450	450	3000	6000	6000	3000	500	~360 kg
16221002	-	21000	300	300	450	450	6000	6000	6000	3000	500	~550 kg

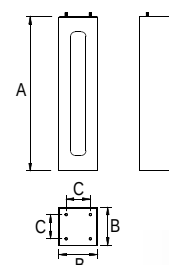
St/tZn



Air terminal concrete foundation

Concrete foundation 16290299 applied with 6 m (cat. no. 16206002), 9 m (cat. no. 16209002), 12 m (cat. no. 16212002) and 15 m (cat. no. 16215002) air terminals.

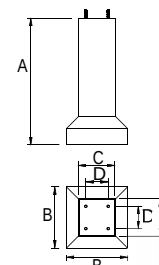
Concrete foundation 16290199 applied with 18 m (cat. no. 16218002) and 21 m (cat. no. 16221002) air terminals.



16290299



Select the control clamp 94124102 - page 38



16290199

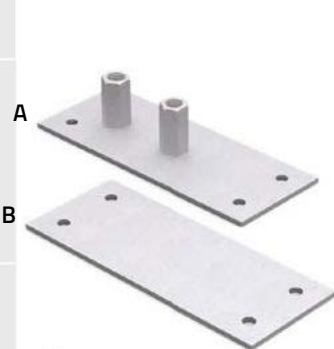


Select the control clamp 94132102 - page 38

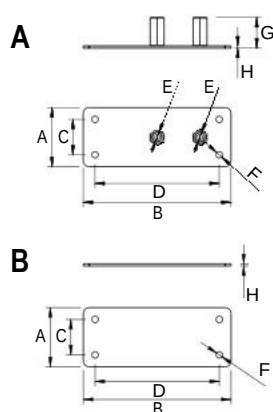


CATALOG NUMBER	TYPE	A	B	C	D	Bolt	Weight
16290299	-	1600	400	250	-	M24	400 kg
16290199	-	1700	820	500	300	M33	1150 kg

Small steel interception mast base



Select the adjustment set
96540001: page 113



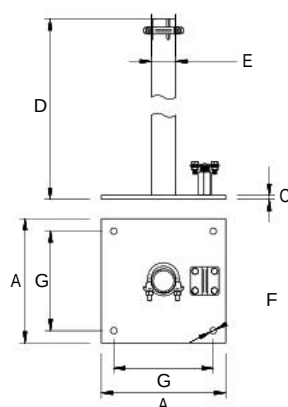
For masts fixing e.g. 94383009. Permanent fixing using screws or anchors. Fixing to construction surface or sub-construction derived above roof surface.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	H
94301302	43.13A	100	250	60	210	M16	Ø11	52	4
94301402	43.14A	200	250	160	210	M16	Ø11	52	4
94311302	43.13B	100	250	60	210	-	Ø11	-	4
94311402	43.14B	200	250	160	210	-	Ø11	-	4

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 V2A 05

Interception mast base



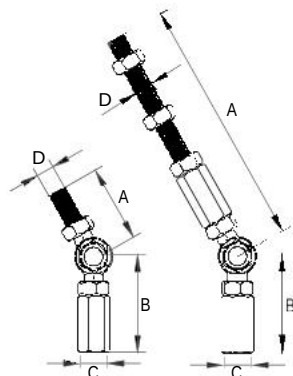
For masts fixing e.g. 62005009. Permanent fixing using screws or anchors. Fixing to construction surface or sub-construction derived above roof surface.

CATALOG NUMBER	TYPE	A	C	D	E	F	G	Bolt
94309002	43.9	250	8	900	48	13	200	4×M8×20

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 V2A 05

Mast regulating set

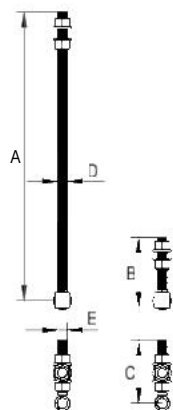


For vertical-lining of masts including roof slope. It is recommended to use regulation sets above 5% slope. Set 66598005 dedicated to vertical-lining of tripod masts up to 15% roof slope.

CATALOG NUMBER	TYPE	A	B	C	D	Note
66598005	-	208	83	M16	M16	three-element for tripod masts
66599005	-	65	83	M16	M16	single-element for one base masts

V2A

Fourpod masts regulating set



Used to adjust the verticality of the fourpod lightning protection masts, depending on the roof slope range from 0 to 10° slope. Must be used when the roof slope is above 5°. The 66596005 option is intended for the vertical alignment of 5 meter masts and higher, and 66597005 used for 4 meter masts and lower.

CATALOG NUMBER	TYPE	A	B	C	D	E	Note
66596005	-	460	90	90	M16	M16	for masts over 5m
66597005	-	380	90	90	M16	M16	for masts 4 and lower

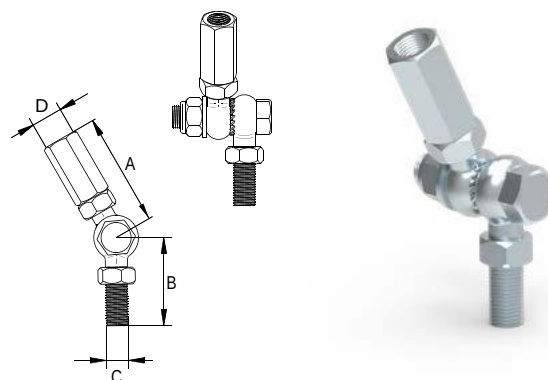
V2A

Single mast adjustment set

Used to adjust the vertical alignment of lightning protection masts depending on the roof slope. The use of the adjustment set is recommended for slopes above 3%. The set is dedicated to leveling lightning air terminals for metal roofs (e.g. 97121009) and lightning masts with a metal base, 1–4 m high (e.g. 94384009). The correct tightening torque for the M16 bolt maintaining the selected adjustment angle is 210 Nm.

CATALOG NUMBER	TYPE	A	B	C	D
96540001	65.R.1	65	83	M16	M16

St/Zn

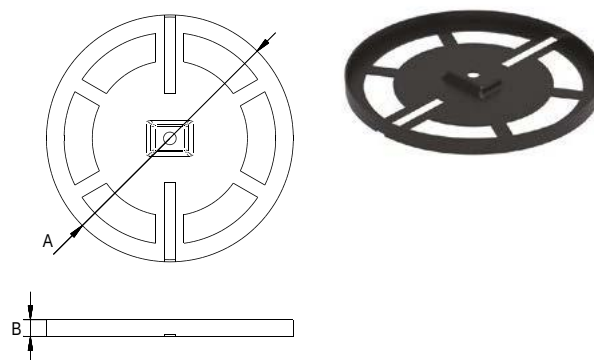


Concrete base underneath pad

For additional protection of roof surface. To be placed directly underneath concrete base 44311111. Additionally it is recommended to cover roof with a layer of membrane.

CATALOG NUMBER	TYPE	A	B
44408208	–	Ø350	23

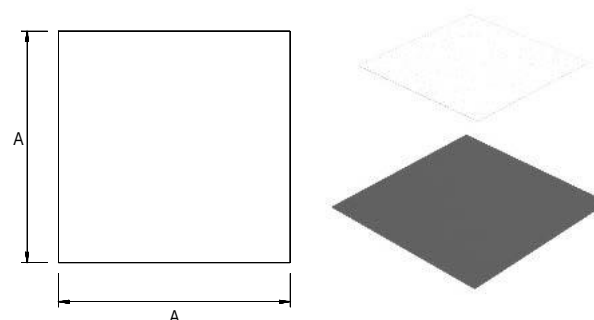
PVC



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
94308022	43.80/P	tar board	400
94308021	43.80/F	membrane	400

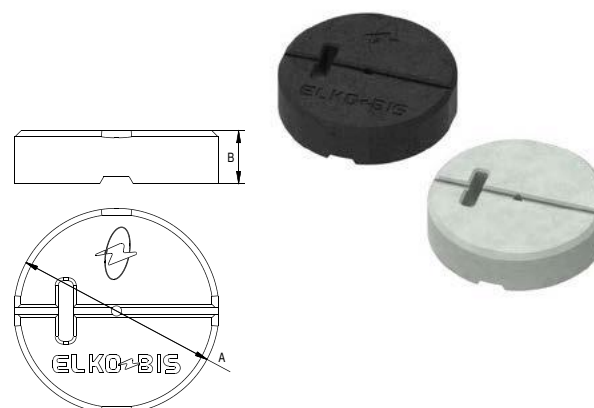


Concrete mast base

To give loading of lightning protection masts. Appropriate quantity according to mast assembly instruction. Made of vibrated concrete. For additional protection of roof surface, it is recommended to use pads underneath 94308221 or 94308222.

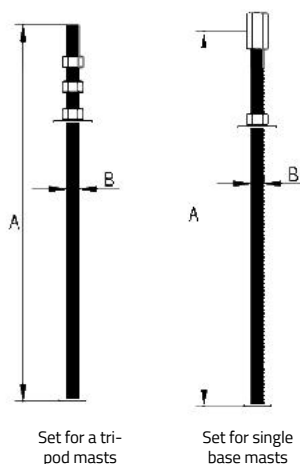
CATALOG NUMBER	TYPE	A	B	WEIGHT	COLOUR
44311111	43.111	Ø340	88	~16 kg	black
44311211	43.112	Ø340	88	~16 kg	gray

CONCRETE 11



Connection set for concrete mast bases

To mount concrete bases for lightning protection masts on a tripod or on a single base.



Set for a tripod masts

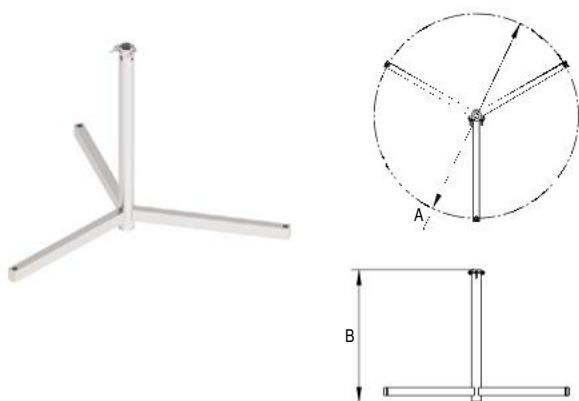
CATALOG NUMBER	TYPE	NUMBER OF CONCRETE BASES	A	B	NOTES
46400105	–	1	205	M16	The set consists of 3 connecting elements
46400205	–	2	290	M16	The set consists of 3 connecting elements
46400305	–	3	380	M16	The set consists of 3 connecting elements
46400405	–	4	460	M16	The set consists of 3 connecting elements
46400505	–	5	550	M16	The set consists of 3 connecting elements

Set for single base masts

CATALOG NUMBER	TYPE	NUMBER OF CONCRETE BASES	A	B	NOTES
44400105	–	1	120	M16	The set consists of 1 connecting element
44400205	–	2	205	M16	The set consists of 1 connecting element
44400305	–	3	290	M16	The set consists of 1 connecting element
44400405	–	4	380	M16	The set consists of 1 connecting element

StSt (V2A) 05

Mast tripod frame

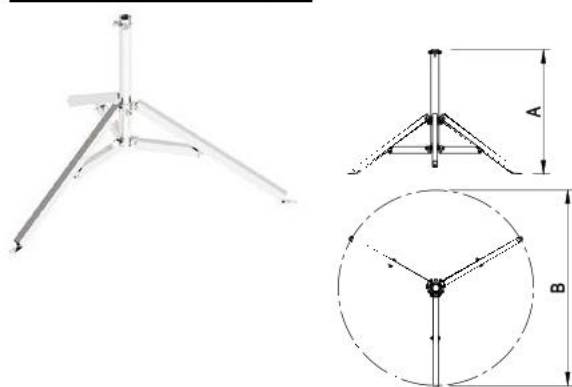


To mount free standing air termination rod to concrete bases. Concrete bases to be ordered separately, following assembly instruction.

CATALOG NUMBER	TYPE	A	B
66410005	–	Ø1017	660

(V2A) 05

Mast tripod frame



To mount free standing air termination rod to concrete bases. Composed construction to ease and reduce logistic processes. Concrete bases to be ordered separately, following assembly instruction.

CATALOG NUMBER	TYPE	A	B
66420005	–	Ø1017	750

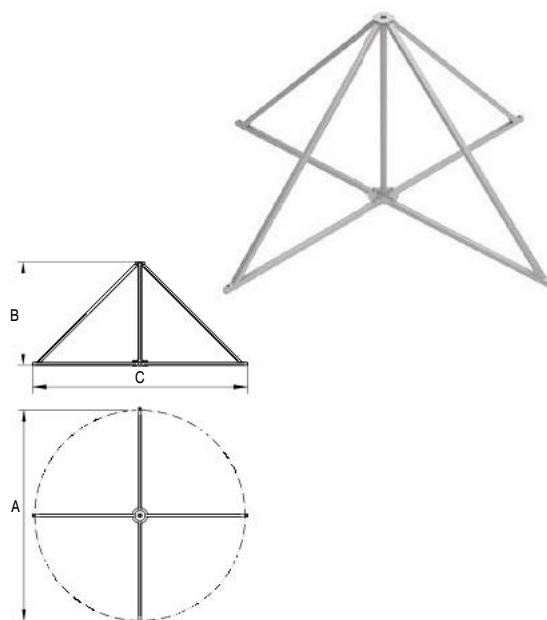
V2A 05

Mast fourpod frame

To mount free standing air terminal together with concrete bases. For masts 2 - 4 meters use smaller frame (66450002), higher above use bigger frame (66460002). Durable construction made of hot deep galvanized steel or stainless steel. Concrete bases to be ordered separately, following instruction.

CATALOG NUMBER	TYPE	A	B	C
66460002	–	2980	1465	3048
66450002	–	1480	1040	1548

St/tZn

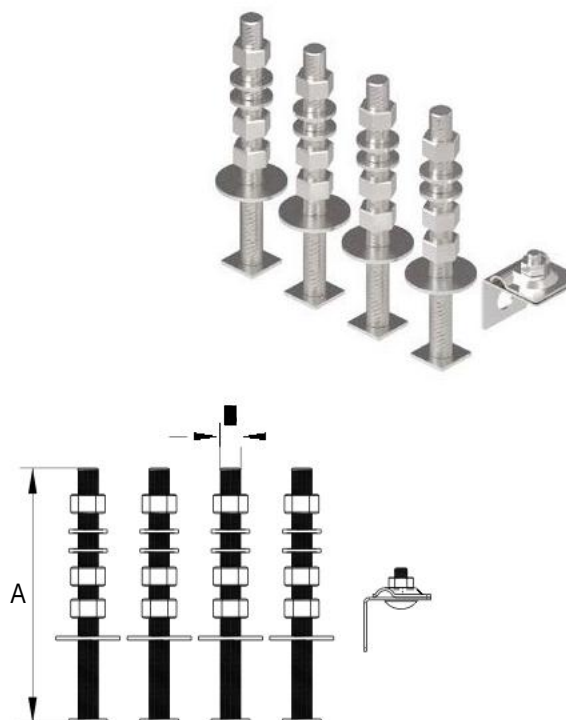


Fourpod assembly set

Used to mount concrete bases to the lightning mast fourpod frame, vertical range of 0° - 2°. Appropriate set selection depends on the number of concrete bases per leg. Wire conductor connector comes in the set.

CATALOG NUMBER	TYPE	A	B	NUMBER OF CONCRETE BASES
46440505	46440505	550	M16	20x16 kg
46440405	46440405	460	M16	16x16 kg
46440305	46440305	380	M16	12x16 kg
46440205	46440205	290	M16	8x16 kg

(V2A)

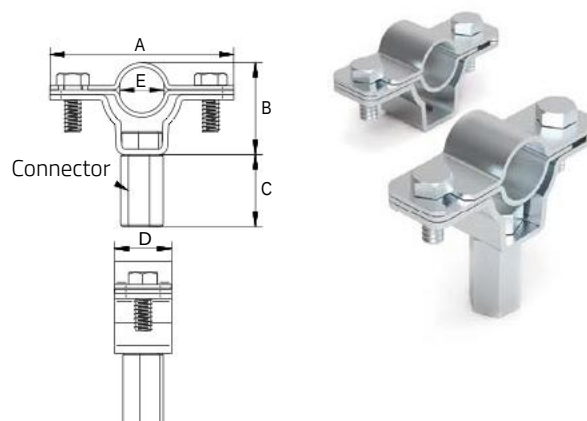


Lightning spire holder

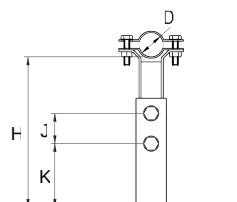
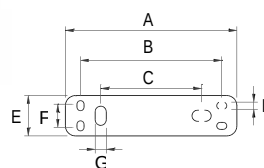
To fix Ø16 Air terminal onto facade, separation bars or different types of steel structures. 2 types with and without connector to direct flat surface fixing.

CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt	Note
12700105	127.1	64	30,5	–	20	16	2xM6x16	without connector
12701105	127.1.1	64	30,5	25	20	16	2xM6x16	with connector

V2A



Adjustable Air Terminal Holder



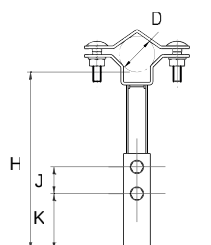
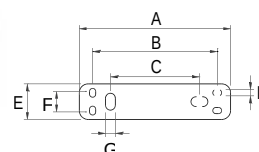
NEW!

Used for mounting the air terminal to building walls, chimneys, or various types of structures. The holder allows adjustment of the distance between the air terminal and the wall. At least two holders should be used per air terminal.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	H	I	J	K
96016105	60.16.1	170	140	100	Ø16	40	23	11	150-200	7	30	63
96016205	60.16.2	170	140	100	Ø16	40	23	11	200-320	7	30	132
96024105	60.24.1	170	140	100	Ø24	40	23	11	150-200	7	30	63
96024205	60.24.2	170	140	100	Ø24	40	23	11	200-320	7	30	132

V2A

Adjustable Mast Holder



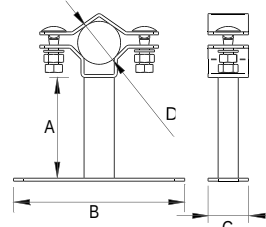
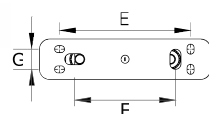
NEW!

Used for mounting lightning protection masts to building walls or various structures. The holder allows adjustment of the distance by which the mast is offset from the wall. A minimum of two holders should be used per mast. The recommended spacing between holders is 0.8 m.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	H	I	J	K
96040105	60.40.1	170	140	100	Ø40-50	40	23	11	150-200	7	30	63
96040205	60.40.2	170	140	100	Ø40-50	40	23	11	230-385	7	30	168

V2A

Mast holder



To mount interception air rods and spires to walls and other constructions. Minimum 2 holders to be used for one air rod. Recommended distance between holders minimum 0,8 m.

ATTENTION: Non standard made to order holders can be also provide.
To inquire and quote contact: export@elkobis.com.pl

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G
66000205	-	100	170	40	Ø40 - Ø50	140	100	20

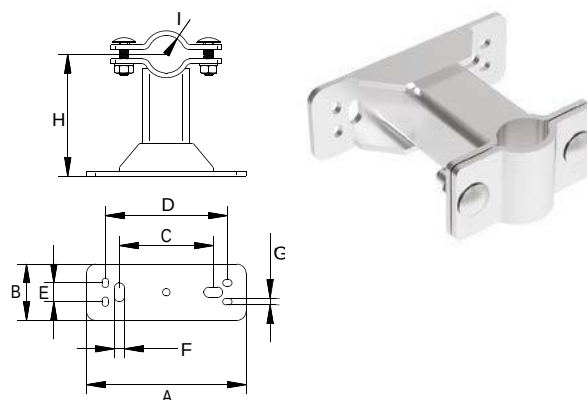
V2A

Mast holder for high horizontal air termination

To mount Ø40 air terminal to walls or constructions. Durable construction dedicated mainly for high air termination masts in a mesh setups. Use minimum 2 holders for 1 air terminal. Recommended distance between holders 0,8 m.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	H	I	Bolt
66000105	-	170	60	100	130	20	11	7	130	40	2×M10×35

V2A



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 0,8 m.

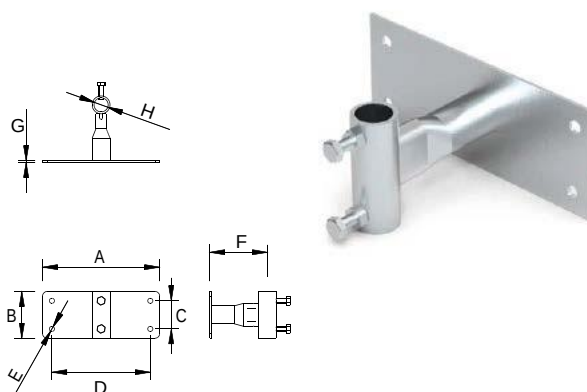
NOTICE: We can supply non typical custom made holders according to the requirement.

For additional information please contact: export@elkobis.com.pl.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	H	Bolt
96000102	60.1	250	100	60	210	Ø11	123	4	Ø31	2×M10×30
96000202	60.2	250	200	160	210	Ø11	130	4	Ø42	2×M10×30

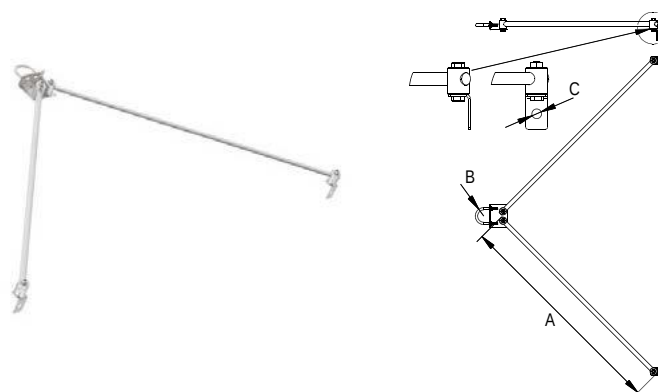
To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 V2A 05 RAL 16

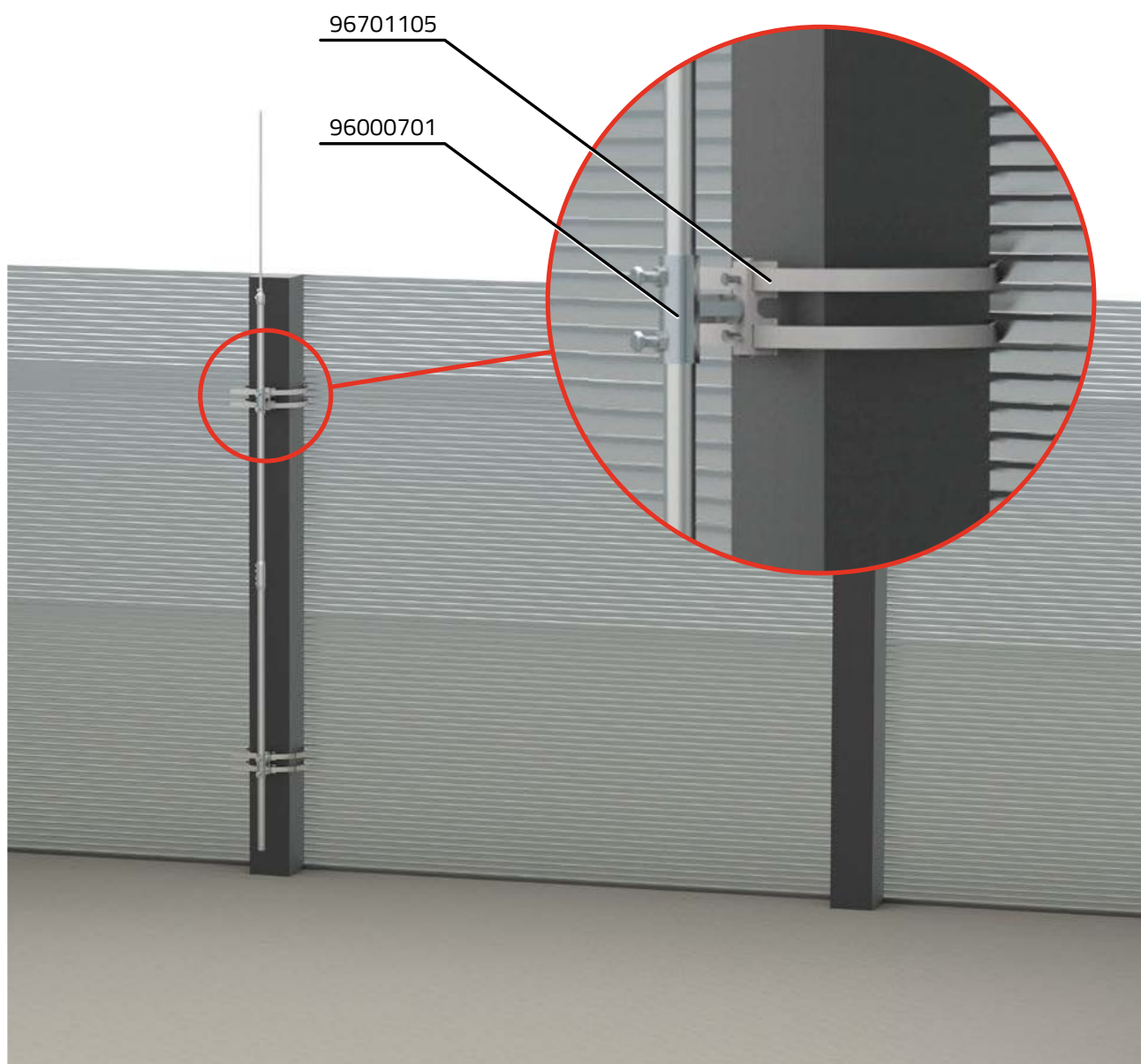


Supportive air rod bars

For additional stiffening of air termination rods, to exceed wind speed resistance. Made out of non conductive material, allowing direct mounting to devices, constructions or walls.

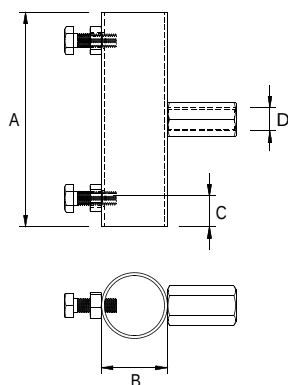


CATALOG NUMBER	TYPE	A	B	C
67900211	-	500	Ø40	Ø11
67900311	-	750	Ø40	Ø11
67900411	-	1000	Ø40	Ø11
67910211	-	500	Ø16-20	Ø11
67910311	-	750	Ø16-20	Ø11
67910411	-	1000	Ø16-20	Ø11



Interception air rod holder for universal construction clamp

For mast and spires mounting. Threaded holder element, thread M16 e.g. double clamp 96701105. Use minimum 2 holders for one mast. Recommended distance between holders is 0,8 m.



CATALOG NUMBER	TYPE	APPLICATION FOR MASTS	A	B	C	D	Bolt
96000701	60.7/M16	-	100	30	22	M16	2×M10×30
96000801	60.8/M16	62004009 p. 103	150	42	22	M16	2×M10×30
		62005009 p. 103					
		62006009 p. 103					

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

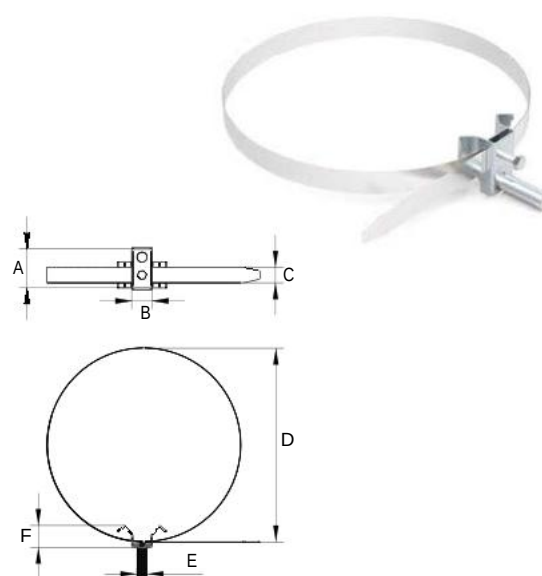
St/Zn	01	RAL	16
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Single universal construction clamp

For insulated bar or high voltage cable mounting to pipe constructions. Flexible stainless tape conductor adjust to different shapes, allowing assemble 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

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt
97701105	77.1/M16	60	30	24x0,25	150-300	M16x50	30	M8x20
97700105	77.1/M8	60	30	24x0,25	150-300	M8x25	30	M8x20
97701205	77.2/M16	60	30	24x0,25	≤150	M16x50	30	M8x20
97700205	77.2/M8	60	30	24x0,25	≤150	M8x25	30	M8x20
97701305	77.3/M16	60	30	24x0,25	300-500	M16x50	30	M8x20
97700305	77.3/M8	60	30	24x0,25	300-500	M8x25	30	M8x20

V2A

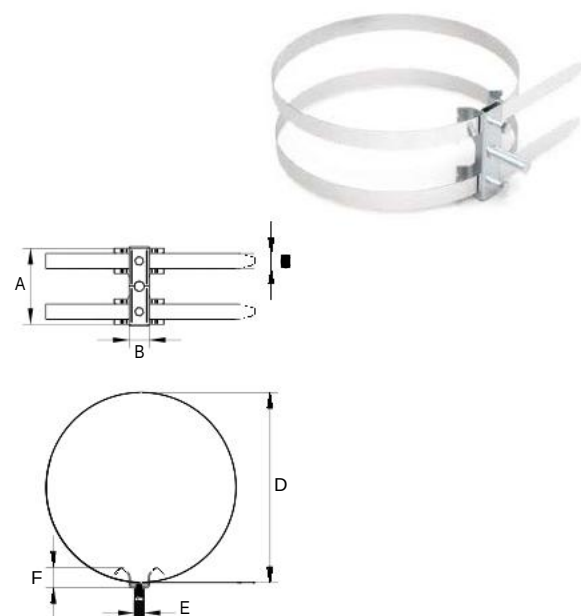


Double universal construction clamp

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

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt
96701105	67.1/M16	120	30	24x0,25	150-300	M16x50	30	2xM8x20
96700105	67.1/M8	120	30	24x0,25	150-300	M8x25	30	2xM8x20
96701205	67.2/M16	120	30	24x0,25	≤150	M16x50	30	2xM8x20
96700205	67.2/M8	120	30	24x0,25	≤150	M8x25	30	2xM8x20
96701305	67.3/M16	120	30	24x0,25	300-500	M16x50	30	2xM8x20
96700305	67.3/M8	120	30	24x0,25	300-500	M8x25	30	2xM8x20

V2A

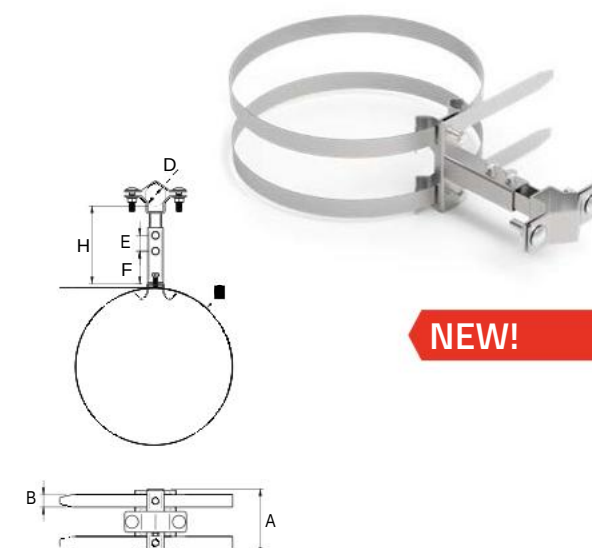


Adjustable Universal Double Clamp

Used for mounting masts and air-termination conductors to various types of structures. The flexible and adaptable stainless steel band conforms to different shapes, enabling the installation of lightning protection systems on metal structures with diverse profiles.

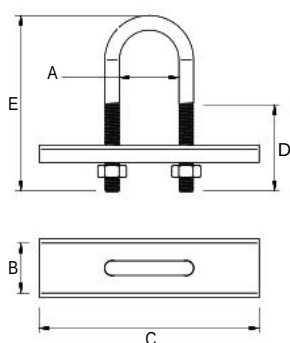
CATALOG NUMBER	TYPE	A	B	C	D	E	F	H
96740205	67.2.40	120	24	≤150	Ø40-Ø50	30	62	150-200
96740105	67.1.40	120	24	150-300	Ø40-Ø50	30	62	150-200
96740305	67.3.40	120	24	300-500	Ø40-Ø50	30	62	150-200

V2A



NEW!

U-screw clamp holder

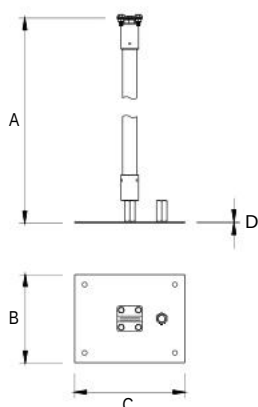


For pipes and railing, mast mounting. Use 2 holders for one mast. Recommended distance between holders is 0,8 m.

CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt
96000401	60.4	40,5	40	150	60	110	M10

St/Zn

Insulated support bracket for vertical air termination



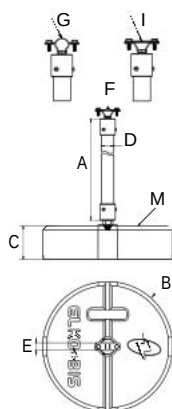
For leading Aldrey rope or wire conductor, using device covers or steel constructions. Insulation Bar gives demanded insulation distance. Distance between brackets should not exceed 4 meters

CATALOG NUMBER	TYPE	A	B	C	D
98010002	80.100	1000	200	250	4

St/tZn

Inne wymiary na zamówienie Klienta.

Bar holder fixed to the concrete base



Used to lead tape, wire conductors or high voltage insulated cable on flat roofs. Insulating bar provides the required insulating distance.

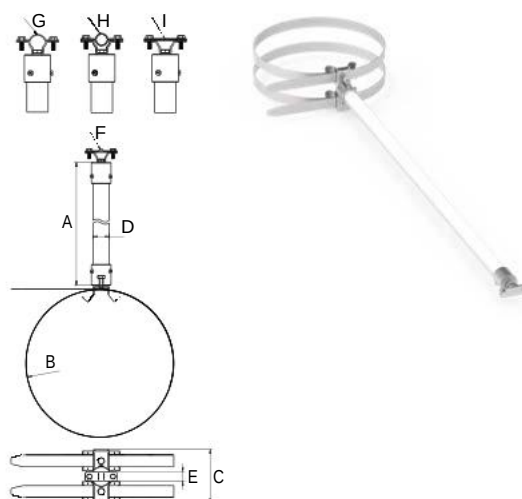
The distance between holders should not exceed 4 m.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	I	M	Note
13100505	131.0.050	500	Ø340	88	Ø32,5	20	-	-	max 40x5mm	1x16 kg	Tape Conductor
13100705	131.0.075	750	Ø340	176	Ø32,5	20	-	-	max 40x5mm	2x16 kg	Tape Conductor
13101005	131.0.100	1000	Ø340	176	Ø32,5	20	-	-	max 40x5mm	2x16 kg	Tape Conductor
13110505	131.1.050	500	Ø340	88	Ø32,5	20	Ø8-10	-	-	1x16 kg	wire Ø8-10
13110705	131.1.075	750	Ø340	176	Ø32,5	20	Ø8-10	-	-	2x16 kg	wire Ø8-10
13111005	131.1.100	1000	Ø340	176	Ø32,5	20	Ø8-10	-	-	2x16 kg	wire Ø8-10
13130505	131.3.050	500	Ø340	88	Ø32,5	20	-	Ø23	-	1x16 kg	Insulated High Voltage Cable
13130705	131.3.075	750	Ø340	176	Ø32,5	20	-	Ø23	-	2x16 kg	Insulated High Voltage Cable
13131005	131.3.100	1000	Ø340	176	Ø32,5	20	-	Ø23	-	2x16 kg	Insulated High Voltage Cable

V2A

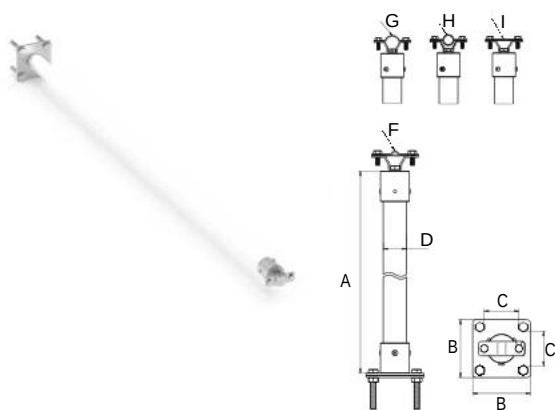
Bar holder fixed to the clamp

Used to lead tape, wire conductors or high voltage insulated cable on a pipe structures. It also allows mounting to the structure of Ø16 lightning protection masts. Insulating bar provides the required insulating distance. The distance between holders should not exceed 4 m.



CATALOG NUMBER	TYPE	A	B	C	D	E	F	G	H	I	Note
13200505	132.0.050	500	Ø≤150	120	Ø32,5	20	-	-	-	max 40x5mm	Tape Conductor
13200705	132.0.075	750	Ø≤150	120	Ø32,5	20	-	-	-	max 40x5mm	Tape Conductor
13201005	132.0.100	1000	Ø≤150	120	Ø32,5	20	-	-	-	max 40x5mm	Tape Conductor
13210505	132.1.050	500	Ø≤150	120	Ø32,5	20	Ø8-10	-	-	-	wire Ø8-10
13210705	132.1.075	750	Ø≤150	120	Ø32,5	20	Ø8-10	-	-	-	wire Ø8-10
13211005	132.1.100	1000	Ø≤150	120	Ø32,5	20	Ø8-10	-	-	-	wire Ø8-10
13220505	132.2.050	500	Ø≤150	120	Ø32,5	20	-	-	Ø16	-	mast Ø16
13220705	132.2.075	750	Ø≤150	120	Ø32,5	20	-	-	Ø16	-	mast Ø16
13221005	132.2.100	1000	Ø≤150	120	Ø32,5	20	-	-	Ø16	-	mast Ø16
13230505	132.3.050	500	Ø≤150	120	Ø32,5	20	-	Ø23	-	-	Insulated High Voltage Cable
13230705	132.3.075	750	Ø≤150	120	Ø32,5	20	-	Ø23	-	-	Insulated High Voltage Cable
13231005	132.3.100	1000	Ø≤150	120	Ø32,5	20	-	Ø23	-	-	Insulated High Voltage Cable
13300505	133.0.050	500	Ø150-300	120	Ø32,5	20	-	-	-	max 40x5mm	Tape Conductor
13300705	133.0.075	750	Ø150-300	120	Ø32,5	20	-	-	-	max 40x5mm	Tape Conductor
13301005	133.0.100	1000	Ø150-300	120	Ø32,5	20	-	-	-	max 40x5mm	Tape Conductor
13310505	133.1.050	500	Ø150-300	120	Ø32,5	20	Ø8-10	-	-	-	wire Ø8-10
13310705	133.1.075	750	Ø150-300	120	Ø32,5	20	Ø8-10	-	-	-	wire Ø8-10
13311005	133.1.100	1000	Ø150-300	120	Ø32,5	20	Ø8-10	-	-	-	wire Ø8-10
13320505	133.2.050	500	Ø150-300	120	Ø32,5	20	-	-	Ø16	-	mast Ø16
13320705	133.2.075	750	Ø150-300	120	Ø32,5	20	-	-	Ø16	-	mast Ø16
13321005	133.2.100	1000	Ø150-300	120	Ø32,5	20	-	-	Ø16	-	mast Ø16
13330505	133.3.050	500	Ø150-300	120	Ø32,5	20	-	Ø23	-	-	Insulated High Voltage Cable
13330705	133.3.075	750	Ø150-300	120	Ø32,5	20	-	Ø23	-	-	Insulated High Voltage Cable
13331005	133.3.100	1000	Ø150-300	120	Ø32,5	20	-	Ø23	-	-	Insulated High Voltage Cable
13400505	134.0.050	500	Ø300-500	120	Ø32,5	20	-	-	-	max 40x5mm	Tape Conductor
13400705	134.0.075	750	Ø300-500	120	Ø32,5	20	-	-	-	max 40x5mm	Tape Conductor
13401005	134.0.100	1000	Ø300-500	120	Ø32,5	20	-	-	-	max 40x5mm	Tape Conductor
13410505	134.1.050	500	Ø300-500	120	Ø32,5	20	Ø8-10	-	-	-	wire Ø8-10
13410705	134.1.075	750	Ø300-500	120	Ø32,5	20	Ø8-10	-	-	-	wire Ø8-10
13411005	134.1.100	1000	Ø300-500	120	Ø32,5	20	Ø8-10	-	-	-	wire Ø8-10
13420505	134.2.050	500	Ø300-500	120	Ø32,5	20	-	-	Ø16	-	mast Ø16
13420705	134.2.075	750	Ø300-500	120	Ø32,5	20	-	-	Ø16	-	mast Ø16
13421005	134.2.100	1000	Ø300-500	120	Ø32,5	20	-	-	Ø16	-	mast Ø16
13430505	134.3.050	500	Ø300-500	120	Ø32,5	20	-	Ø23	-	-	Insulated High Voltage Cable
13430705	134.3.075	750	Ø300-500	120	Ø32,5	20	-	Ø23	-	-	Insulated High Voltage Cable
13431005	134.3.100	1000	Ø300-500	120	Ø32,5	20	-	Ø23	-	-	Insulated High Voltage Cable

Bar holder fixed to the structure



Used to lead tape, wire conductors or high voltage insulated cable on device casings or metal structures. It also allows mounting to the structure of Ø16 lightning protection masts. Insulating bar provides the required insulating distance. The distance between holders should not exceed 4 m.

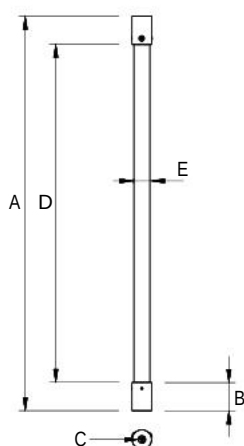
CATALOG NUMBER	TYPE	A	B	C	D	F	G	H	I	Bolt	Note
13000505	130.0.050	500	80	51	Ø32,5	-	-	-	max 40x5mm	4xM10x40	Tape Conductor
13000705	130.0.075	750	80	51	Ø32,5	-	-	-	max 40x5mm	4xM10x40	Tape Conductor
13001005	130.0.100	1000	80	51	Ø32,5	-	-	-	max 40x5mm	4xM10x40	Tape Conductor
13010505	130.1.050	500	80	51	Ø32,5	Ø8-10	-	-	-	4xM10x40	wire Ø8-10
13010705	130.1.075	750	80	51	Ø32,5	Ø8-10	-	-	-	4xM10x40	wire Ø8-10
13011005	130.1.100	1000	80	51	Ø32,5	Ø8-10	-	-	-	4xM10x40	wire Ø8-10
13020505	130.2.050	500	80	51	Ø32,5	-	-	Ø16	-	4xM10x40	mast Ø16
13020705	130.2.075	750	80	51	Ø32,5	-	-	Ø16	-	4xM10x40	mast Ø16
13021005	130.2.100	1000	80	51	Ø32,5	-	-	Ø16	-	4xM10x40	mast Ø16
13030505	130.3.050	500	80	51	Ø32,5	-	Ø23	-	-	4xM10x40	Insulated High Voltage Cable
13030705	130.3.075	750	80	51	Ø32,5	-	Ø23	-	-	4xM10x40	Insulated High Voltage Cable
13031005	130.3.100	1000	80	51	Ø32,5	-	Ø23	-	-	4xM10x40	Insulated High Voltage Cable

V2A

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 M8/M8	750	51	M8/M8	638	32
97900029	79.100 M8/M8	1000	51	M8/M8	888	32
97901529	79.150 M8/M8	1500	51	M8/M8	1388	32
97920029	79.200 M8/M8	2000	51	M8/M8	1888	32
97910729	79.075 M8/M16	750	51	M8/M16	638	32
97911029	79.100 M8/M16	1000	51	M8/M16	888	32
97911529	79.150 M8/M16	1500	51	M8/M16	1388	32
97912029	79.200 M8/M16	2000	51	M8/M16	1888	32
97920729	79.075 M16/M16	750	51	M16/M16	638	32
97921029	79.100 M16/M16	1000	51	M16/M16	888	32
97921529	79.150 M16/M16	1500	51	M16/M16	1388	32
97922029	79.200 M16/M16	2000	51	M16/M16	1888	32

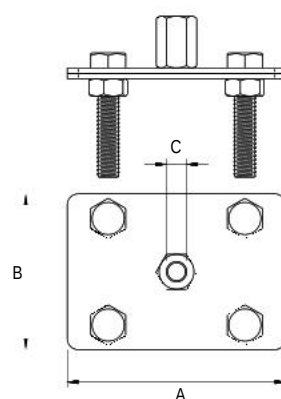
PVC

Flash bar holder

For insulated bar mounting to metal construction or wall mounting. For bar connection use straight connector 98100101 or swivel connector 98200101.

CATALOG NUMBER	TYPE	A	B	C	Bolt
98400101	84.1	80	57	M8	4×M8×40

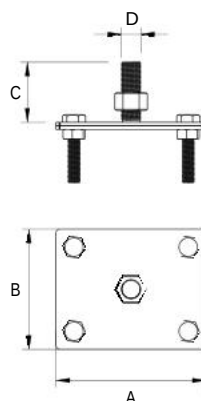
St/Zn



Large flat bar holder

Used to fix an insulating rod to a metal structure on the roof or to a wall. The rod is screwed directly into the holder. Holder 98400301 is made of electro-galvanized steel, and holder 98400405 is made of stainless steel.

CATALOG NUMBER	TYPE	A	B	C	D	Bolt
98400301	84.3	125	100	50	M16	4×M10x50
98400405	84.4	80	80	50	M16	4×M8x50

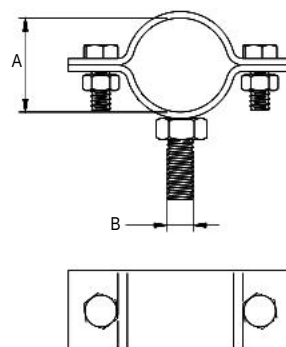


Round bar holder

For insulated bar mounting to interception rods or piping Ø32 or 40 mm. Bar should be directly fastened to holder. For different diameters inquiries please contact: export@elkobis.com.pl.

CATALOG NUMBER	TYPE	A	B	Bolt
98300401	83.4	32	M8	2×M6×16
98300601	83.6	40	M8	2×M6×16

St/Zn

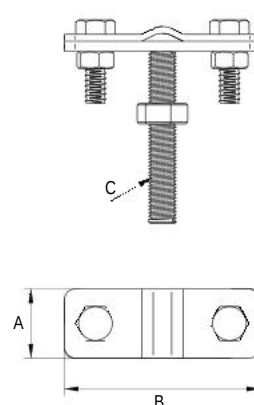


Wire conductor holder

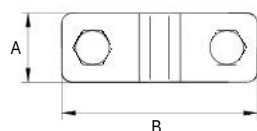
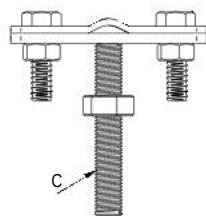
Used for routing the lightning conductor Ø8–10 mm on insulating rods previously fixed to a metal structure, equipment enclosure or mast.

CATALOG NUMBER	TYPE	A	B	C	Bolt
98400201	84.2	20	57	M8×50	2×M6×16

St/Zn



Wire conductor holder



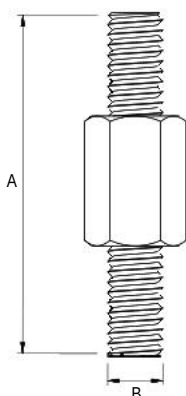
Used for aluminum masts: p. 102

Used to fix the air terminal on insulating rods previously mounted to a metal structure, equipment enclosure or mast.

CATALOG NUMBER	TYPE	A	B	C	Bolt
98401201	84.2.1	20	57	M8×50	2×M6×30

St/Zn

Straight connector



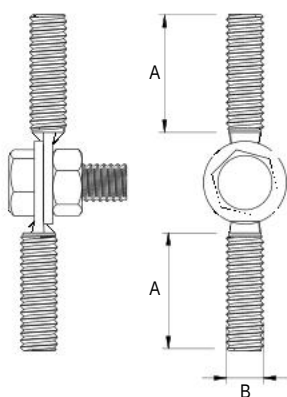
Perpendicular connections of insulation bar to flash holder.

CATALOG NUMBER	TYPE	A	B
98100101	81.1	50	M8

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 V2A 05

Swivel connector



Connections of insulation bar to flash holder 98400101. Swivel allows bar connection at any angle.

CATALOG NUMBER	TYPE	A	B	Bolt
98200101	82.1	25	M8	M8×20

St/Zn

GROUP VI HIGH VOLTAGE INSULATED AIR TERMINATION

High voltage insulated air terminals are used for lightning protection in locations where maintaining the required separation distance is difficult.

They provide an equivalent insulation distance of up to 95 cm, enabling the use of lightning protection systems even in the most demanding conditions.

Insulated high voltage cables

page 126



Products dedicated to the installation of high voltage insulated conductors

page 124-126



High voltage interception air rod

page 128-130

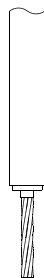
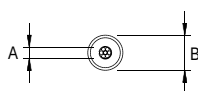


SPD

GROUP I
Connecting ComponentsGROUP II
Earthing & Equipotential
BondingGROUP III
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Air TerminationGROUP V
Air Termination:
Masts, Rods, Spikes**GROUP VI**
Insulated Air
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Insulated high voltage cable



To discharge strike electric stream. Use at places where appropriate insulation distance from protected elements cannot be kept or close to communication strings. Cable construction guarantee insulation distance 75cm with copper conductor and 95 cm with aluminum conductor. Can be directly lead on electric devices.

Projects support on: export@elkobis.com.pl

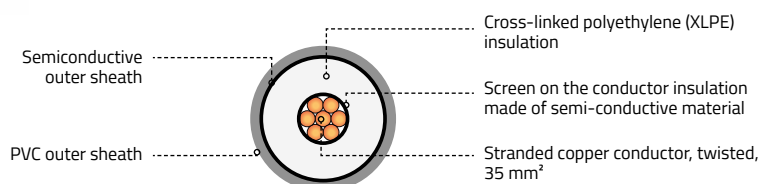
Detailed technical features: www.elkobis.com.pl

CATALOG NUMBER	TYPE	A	B	WIRE CORE MATERIAL	AIR SEPARATION DISTANCE
30000199	300.1	35 mm ²	24,4 mm	copper	75 cm
30000299	300.2	50 mm ²	25 mm	aluminum	95 cm



Dedicated accessories for insulation stripping: p. 134

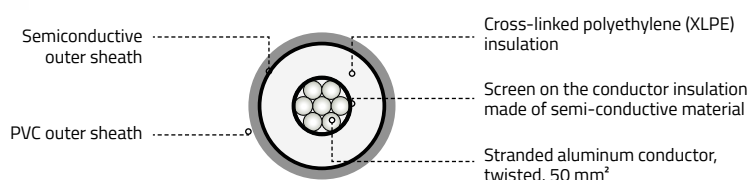
Properties of conductor 30000199



TECHNICAL DATA

Color	Black
Outer cable diameter	23,4 mm
Conductor cross-section	35 mm ²
Maximum conductor resistance at 20°C	0,524 Ω/km
Equivalent air insulation distance	75 cm
Equivalent insulation distance for solid building materials	150 cm
Cable weight	0,735 kg/m
Operating temperature range	-30°C to +70°C
Installation temperature range	-5°C to +40°C
Minimum bending radius	approx. 280 mm
Flame propagation	non-flame propagating
Flammability tests	PN-EN 60332-1-2; IEC 60332-1
UV resistance	UV-resistant cable sheath

Properties of conductor 30000299



TECHNICAL DATA

Color	Black
Outer cable diameter	25 mm
Conductor cross-section	50 mm ²
Maximum conductor resistance at 20°C	<0,70 Ω/km
Equivalent air insulation distance	95 cm
Equivalent insulation distance for solid building materials	190 cm
Cable weight	0,51 kg/m
Operating temperature range	max 100°C
Installation temperature range	-5°C to +40°C
Minimum bending radius	about 200 mm

INSULATION DISTANCE

Proper application of the high voltage cable requires determining the minimum insulation distance for the specific structure in accordance with the EN 62305-3 standard: "Electrical insulation of the external LPS."

The insulation distance provided by the high voltage cable is as follows:

CATALOG NUMBER	PRODUCT	PROVIDED SEPARATION DISTANCE (S)
30000199	High Voltage Cable End Tip (stranded copper conductor)	75 cm
30000299	High Voltage Cable End Tip (stranded aluminum conductor)	95 cm

Depending on the cable design and the LPS class of the structure, the maximum recommended cable length is:

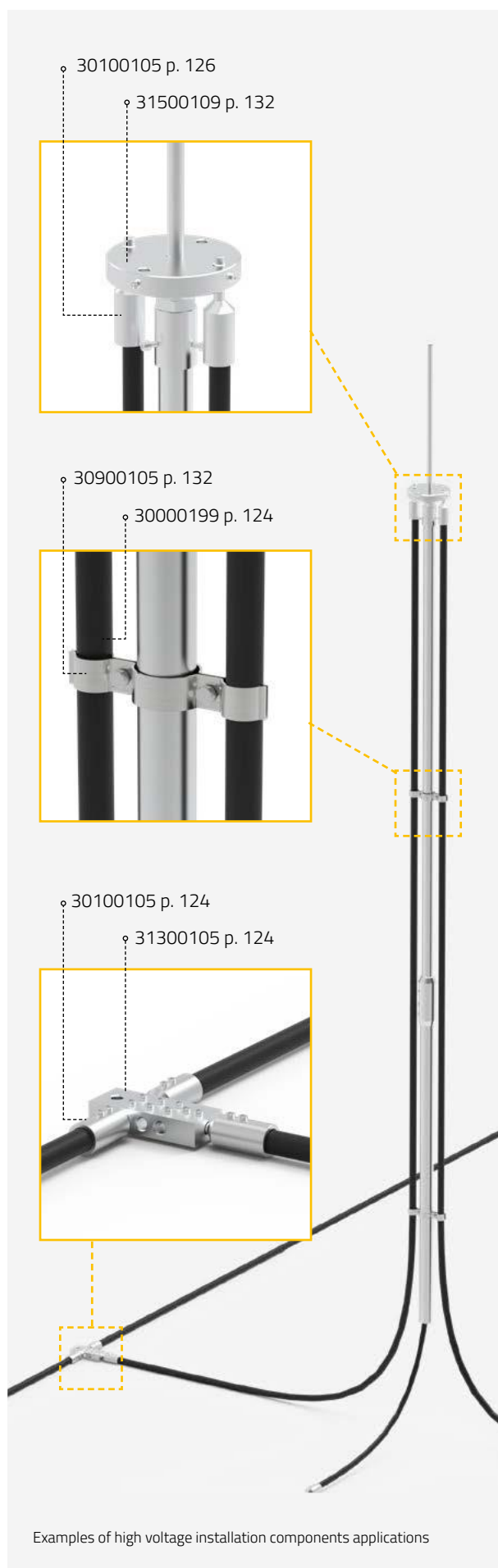
30000199	MAXIMUM CABLE LENGTH		
	Lightning protection class		
Number of cables	I	II	III and IV
1	-	12,50 m	18,75 m
2	14,20 m	18,94 m	28,40 m
3 or more	21,30 m	28,40 m	42,61 m

30000299	MAXIMUM CABLE LENGTH		
	Lightning protection class		
Number of cables	I	II	III and IV
1	-	15,83 m	23,75 m
2	17,99 m	23,99 m	35,98 m
3 or more	26,99 m	36,98 m	53,98 m

If the required insulation distance exceeds $s = 75$ cm, additional high voltage cables should be used to reduce it. This reduction is effective only if the distance between the cables is no less than 20 cm, which minimizes mutual magnetic field interference.

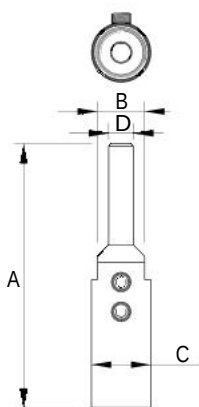
If the cables are laid in parallel along the same path, the insulation distance and maximum cable length remain unchanged.

The values provided in the table are valid for all Type B earth-termination systems and for Type A systems where the resistance difference between individual vertical electrodes is less than 2Ω . If the installation conditions require longer cable runs, consultation with a lightning protection expert is recommended. A detailed assessment of the insulation distance directly affects the maximum permissible length of the high voltage cable.



Examples of high voltage installation components applications

High voltage cable end tip



Note: The end tip must be installed in accordance with the instructions.

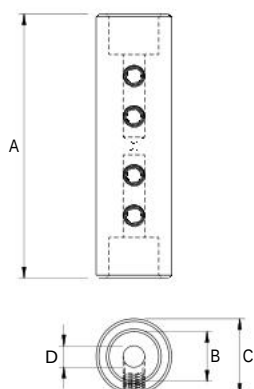
Used for terminating a high voltage cable in order to connect it to the horizontal air-termination conductor or directly to the earthing system. Depending on the conductor core material, the appropriate termination shall be used: for copper cores – a stainless steel high voltage cable termination, for aluminum cores – an aluminum high voltage cable termination. Supplied complete with thread-locking adhesive and heat-shrink tubing.

CATALOG NUMBER	TYPE	A	B	C	D	Allen bolt
30100105	301.1 V2A	107	19	24	10	2xM8x12
30100109	301.1 AL	109	19	24	9	2xM8x12

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

V2A 05 AL 09

High voltage cable connector



For insulated high voltage cables connections. Stainless steel guarantees excellent resistance to weather conditions. In a set with screw protection glue and heat shrink tubing.

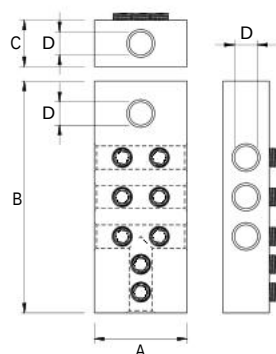
NOTE: End tip assembly according to instruction. Consider connection point as non-insulated installation, keeping demanded separation distance.

CATALOG NUMBER	TYPE	A	B	C	D	Allen bolt
31100105	311.1	98	20	28	9	4xM8x12

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

V2A 05 AL 09

High voltage cables connector

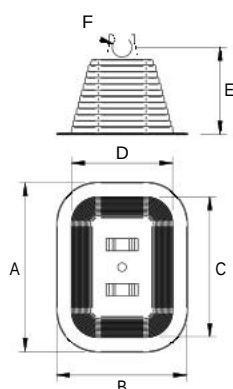


For insulated high voltage cables connections. Connector arrangement allows 3-4 cable connection at the same time together with air termination installation. Consider connection point as non-insulated installation, keeping demanded separation distance.

CATALOG NUMBER	TYPE	A	B	C	D	Allen screw
31300105	313.1	40	100	20	10,5	8xM8x12

V2A

High voltage cable - PVC coated concrete holder



To lead insulated high voltage cable conductor over the flat roofs. Fixed to surface using ELKO-FIX adhesive 99300199 or membrane glue 11000599. Use only with high voltage conductor 30000199.

Assembly details on www.elkobis.com.pl

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Weight
31000111	-	208	160	165	125	106	Ø24	~1,2 kg

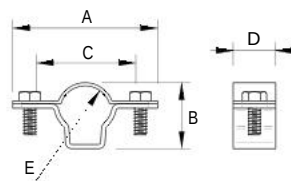
PVC

High voltage cable holder

To lead insulated high voltage cable conductor over walls and steel constructions. Cable holder without connector to direct flat surface fixing.

CATALOG NUMBER	TYPE	A	B	C	D	E	Bolt	Note
31600105	316.1	68	31	45	20	Ø23	2xM6x16	without connector

V2A

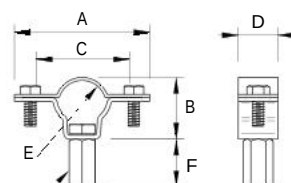


High voltage cable holder with coupling

To lead insulated high voltage cable conductor over walls and steel constructions. Available with a connector allowing the use of a double-threaded screw.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	Bolt	H
31600205	316.2	68	31	45	20	Ø23	24	2xM6x16	with connector

V2A



Łącznik M8



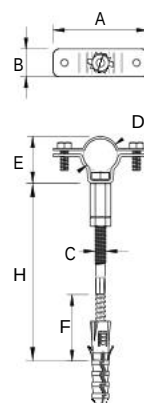
High Voltage Insulated Cable Holder with Expansion Plug

Used for routing High Voltage Insulated Cable. Mounted to masonry walls using the expansion plug included in the set.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	H	Bolt
31610205	316.2.1	68	20	M8	Ø24-Ø26	33,5	12x60	89	M8x60
31620205	316.2.2	68	20	M8	Ø24-Ø26	33,5	12x60	129	M8x60
31630205	316.2.3	68	20	M8	Ø24-Ø26	33,5	12x60	209	M8x60

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 V2A 05



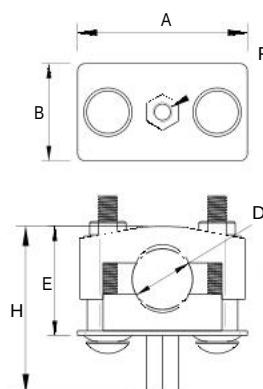
NEW!

High voltage cable holder with connector

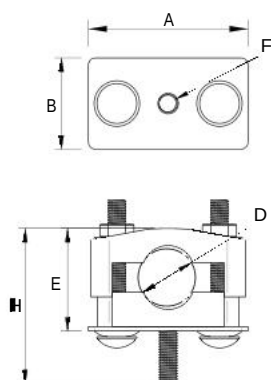
For insulated high voltage cable mounting Ø24-26 mm. Used with other ELKO-BIS products, assembly on different type constructions e.g. 31100110, 97701105, 96701105. Holder resistance to weather conditions and UV radiation.

CATALOG NUMBER	TYPE	A	B	D	E	F	H	Bolt
30400101	304.1	70	40	Ø24-Ø26	45	M8	70	M8x60
30400201	304.2	70	70	Ø24-Ø26	45	M16	94	M8x60

St/Zn



M8 thread - high voltage cable holder

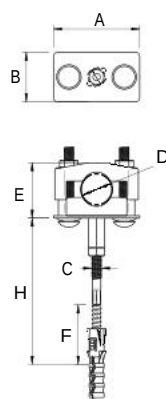


For insulated high voltage cable mounting $\varnothing 24\text{--}26$ mm. Used with other ELKO-BIS products, assembly on different type constructions e.g. 31100110, 97701105, 96701105. Holder resistance to weather conditions and UV radiation.

CATALOG NUMBER	TYPE	A	B	D	E	F	H	Bolt
30500101	305.1	70	40	$\varnothing 24\text{--}\varnothing 26$	45	$\varnothing 5$	68	M8x60

St/Zn

Plastic High Voltage Insulated Cable Holder with Expansion Plug



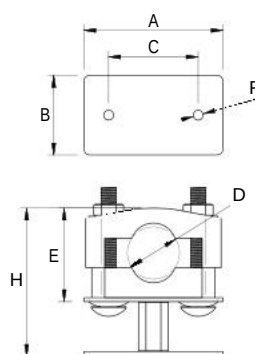
Used for mounting High Voltage Insulated Cable $\varnothing 24\text{--}26$ mm. The holder is made of weather-resistant and UV-resistant plastic. Mounted to masonry walls using the expansion plug included in the set.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	H	Bolt
30410101	304.1.1	70	40	M8	$\varnothing 24\text{--}\varnothing 26$	45	12x60	80	M8x60
30420101	304.1.2	70	40	M8	$\varnothing 24\text{--}\varnothing 26$	45	12x60	120	M8x60
30430101	304.1.3	70	40	M8	$\varnothing 24\text{--}\varnothing 26$	45	12x60	200	M8x60

St/Zn

NEW!

Plastic High Voltage Insulated Cable Holder for Flat Surfaces



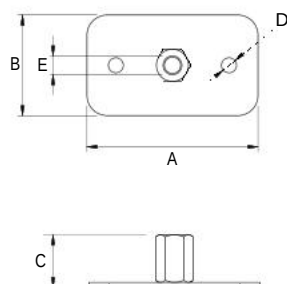
Used to mount High Voltage Insulated Cable with a diameter of $\varnothing 24\text{--}26$ mm. Attached to metal roofs and facades using two anchors or screws.

CATALOG NUMBER	TYPE	A	B	C	D	E	F	H	Bolt
30510101	305.1.1	70	40	45	$\varnothing 24\text{--}\varnothing 26$	45	$\varnothing 5$	72,5	M8x60

St/Zn

NEW!

Holder module with connector for fixing the Plastic Cable Holder



Used to fix the Plastic High Voltage Insulated Cable Holder (30500101) using anchors or screws, to flat roof or facade surfaces.

CATALOG NUMBER	TYPE	A	B	C	D	E
30600101	306.1	70	40	26	$\varnothing 6,5$	M8

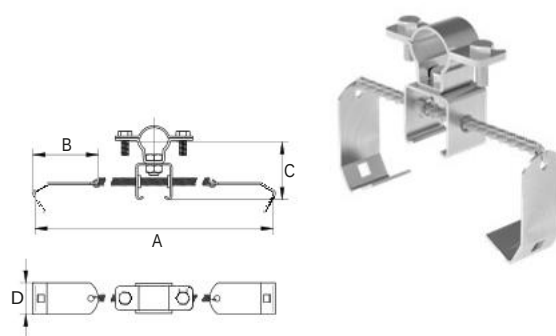
St/Zn

Universal ridge tile holder for high voltage cable

To lead High Voltage Insulated Cable 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.

CATALOG NUMBER	TYPE	A	B	C	D
25930105	–	140-400	55	47,5	26
25930205	–	400-700	55	47,5	26

V2A



SELECTION OF INTERCEPTION AIR RODS

For non-experienced person, selection of appropriate lightning protection masts for given object can be difficult issue. Apart of choosing the right height and location of masts, we also need to determine their

type and loading to ensure adequate wind resistance. Wind speed depends on 3 factors: wind zone (location), terrain category (roughness), and mast height above the ground.

THERE ARE FOUR STEPS TO DETERMINE WIND SPEED:

1. Determination of wind zone.

To determine the wind zone of the facility's location, please use the wind zone map appropriate for that location.



2. Determination of terrain category.

The shape of terrain environment affects the wind speed. The more area around the object is flat and free from other building structures or trees, the value of wind speed may be higher. The terrain category is determined according to the following classification.



TERRAIN CATEGORY I

Lakes or areas with a negligible small amount of vegetation plants with no other obstacles.



TERRAIN CATEGORY III

Areas regularly covered with vegetation plants either buildings or with single obstacles spaced apart on distanced not more than 20 times of their height (like villages, suburban areas, forests).



TERRAIN CATEGORY 0

Sea, sea shore opened for sea.



TERRAIN CATEGORY II

Areas with low vegetation plants such as grass, and single obstacles (trees, buildings distant from each other not less than 20 times of their height).

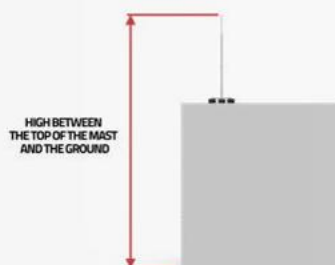


TERRAIN CATEGORY IV

Areas where at least 15% is covered by medium-sized buildings exceeding 15 m height.

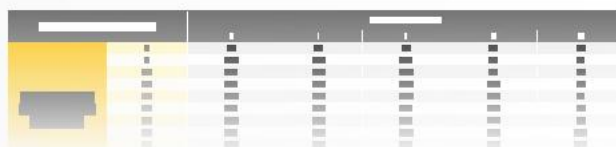
3. Determination of height to the ground

It is the height between the top of the mast and the ground.

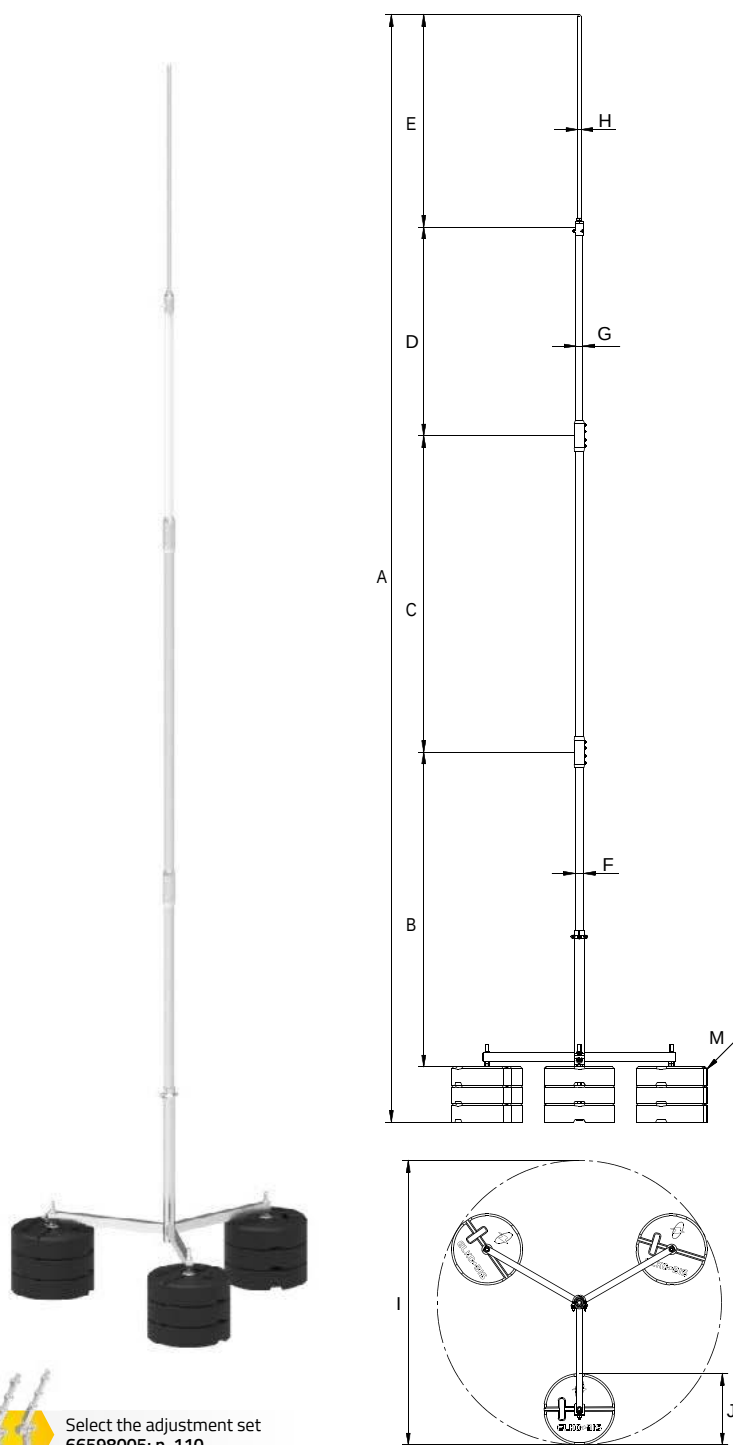


4. Determination of wind speed

After the wind zone, terrain category and height are determined we can read the maximum wind speed that can occur for our building object. **Full instructions and the table are available on pages 94–95.**



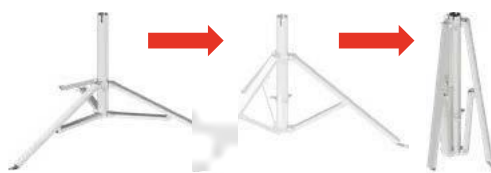
Tripod high voltage interception mast



Select the adjustment set
66598005: p. 110

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 96000202 for wall mounting. To be use at places with non-possibility of keeping separation distance from protected equipment. Made of stainless steel, insulation bar with 1 meter aluminum spire. Tripod concrete base gives appropriate wind resistance. Free standing mast with total weight up to 142 kg. It is recommended to use pads under concrete base. Option 94308222 for tar board roofs and option 94308221 for membrane roofs. NOTICE: Insulated high voltage cable ordered separately.

Composed construction to ease and reduce logistic processes.



NOTE!

To order mast with foldable tripod frame construction, change second digit in the catalog number.

65745009 - Interception Air Rod 5m with standard tripod frame

67745009 - Interception Air Rod 5m with foldable tripod frame

CATALOG NUMBER	TYPE	Height	Wind resistance	A	B	C	D	E	F	G	H	I	J	M
65747009	65.7 4p cz WVM	7	133 km/h	7340	3000	2000	1500	500	40	32	16	Ø1350	Ø340	12x16 kg
65737009	65.7 3p cz WVM		116 km/h	7255	3000	2000	1500	500	40	32	16	Ø1350	Ø340	9x16 kg
65727009	65.7 2p cz WVM		96 km/h	7170	3000	2000	1500	500	40	32	16	Ø1350	Ø340	6x16 kg
65746009	65.6 4p cz WVM	6	157 km/h	6340	2000	2000	1500	500	40	32	16	Ø1350	Ø340	12x16 kg
65736009	65.6 3p cz WVM		137 km/h	6255	2000	2000	1500	500	40	32	16	Ø1350	Ø340	9x16 kg
65726009	65.6 2p cz WVM		113 km/h	6170	2000	2000	1500	500	40	32	16	Ø1350	Ø340	6x16 kg
65745009	65.5 4p cz WVM	5	191 km/h	5340	3000	----	1500	500	40	32	16	Ø1350	Ø340	12x16 kg
65735009	65.5 3p cz WVM		166 km/h	5255	3000	----	1500	500	40	32	16	Ø1350	Ø340	9x16 kg
65725009	65.5 2p cz WVM		138 km/h	5170	3000	----	1500	500	40	32	16	Ø1350	Ø340	6x16 kg
65724009	65.4 2p cz WVM	4	175 km/h	4170	2000	----	1500	500	40	32	16	Ø1350	Ø340	6x16 kg
65714009	65.4 1p cz WVM		128 km/h	4085	2000	----	1500	500	40	32	16	Ø1350	Ø340	3x16 kg
65713009	65.3 1p cz WVM		175 km/h	3085	1000	----	1500	500	40	32	16	Ø1350	Ø340	3x16 kg

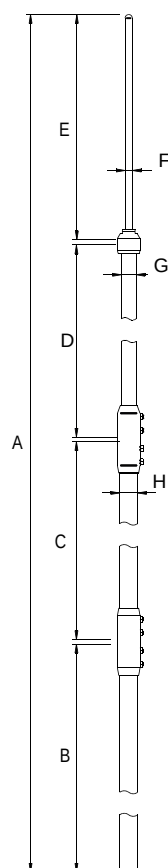
Steel high voltage interception air rod

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 96000202 for wall mounting. To be use at places with non-possibility of keeping separation distance from protected equipment. Made of stainless steel, insulation bar with 1 meter aluminum spire.

NOTICE: Insulated high voltage cable ordered separately.

CATALOG NUMBER	TYPE	Wind resistance	A	B	C	D	E	F	G	H
62027009	62.7 AL WVM	133 km/h	7000	3000	2000	1500	500	Ø16	Ø32	Ø40
62026009	62.6 AL WVM	157 km/h	6000	2000	2000	1500	500	Ø16	Ø32	Ø40
62025009	62.5 AL WVM	175 km/h	5000	3000	-	1500	500	Ø16	Ø32	Ø40
62024009	62.4 AL WVM	190 km/h	4000	2000	-	1500	500	Ø16	Ø32	Ø40
62023009	62.3 AL WVM	190 km/h	3000	1000	-	1500	500	Ø16	Ø32	Ø40

AL



Note: The high voltage conductor must be ordered separately: **page 122**



Mast holder for high horizontal air terminals **66000105: page 115**

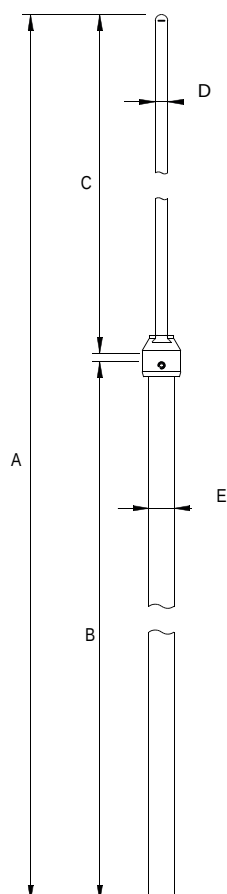


High voltage interception air rod

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 no possibility of keeping separation distance from protected equipment. Composed of insulation bar with 1 meter aluminum spire connected using special brass connector with high voltage cable.

NOTICE: Insulated high voltage cable ordered separately.

CATALOG NUMBER	TYPE	A	B	C	D	E
96212505	62.25 WVP	2500	2000	500	Ø16	Ø32,5
96213005	62.3 WVP	3000	2000	1000	Ø16	Ø32,5
96214005	62.4 WVP	4000	3000	1000	Ø16	Ø32,5



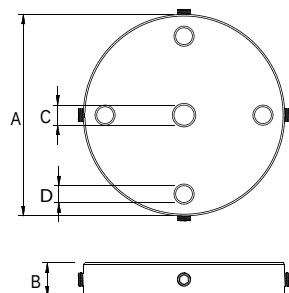
Note: The high voltage conductor must be ordered separately: **page 122**



Mast holder for high horizontal air terminals **66000105: page 115**



High voltage cable connection ring

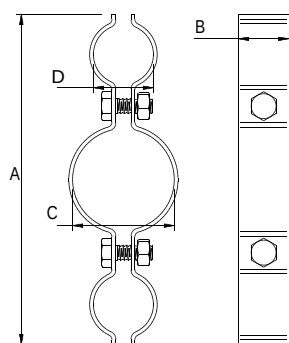


For insulated high voltage cable connection to Interception air rod WVM. Ring allows simultaneous 4 cable connection to one interception rod e.g. 62023009. Ring assembled to interception rod spire, using socket screw M10x35. Insulated high voltage cable should be connected with firstly applied end tip 30100105.

CATALOG NUMBER	TYPE	A	B	C	D	Bolt imbusowa
31500109	315.1 AL	120	20	16	10	4×M8×12

AL

High voltage interception air rod holder

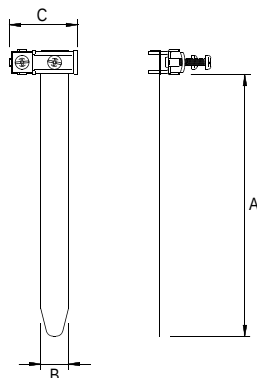


For leading 2 insulated high voltage cables on the outer side of Interception Rod e.g. 62023009. Distance between holders should not exceed 1 meter. Stainless steel holder

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

V2A

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	Pipe diameter
96440101	64.1/E	136	14	32	3/8"	< Ø36

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn 01 V2A 05



WARNING! Please read the high voltage conductor installation instructions.

GROUP VII ACCESSORIES

SPD

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The installation of lightning protection systems is a process that requires the use of specialized tools and dedicated accessories. Adhesives and sealants enable proper and safe installation. Anti-corrosion protection protects connections against moisture, which significantly increases the durability of the lightning protection system and ensures effective protection of the building.

Tools dedicated to the installation of lightning protection systems

Page 134-136



Anti-corrosion protection

Page 137



Adhesives and sealants

136

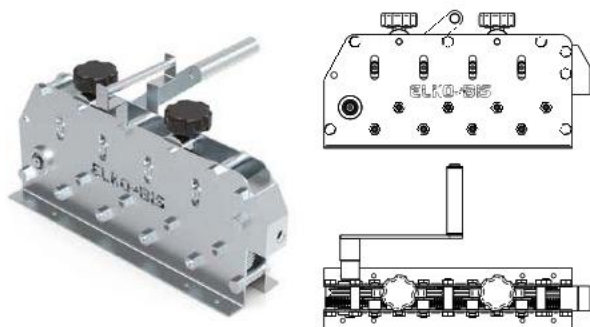


Additional components

Page 138



Mechanical wire straightening tool - 9 rolls

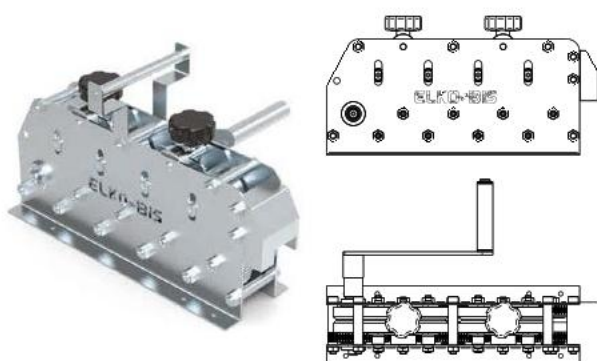


For mechanical wire conductor straightening with manual drive. Can be used with Ø6-8 mm wires. It is recommended to use supportive straightening tool. Renting option available.

More info at: www.elkobis.com.pl

CATALOG NUMBER	TYPE	Weight
10000199	100.1	14 kg

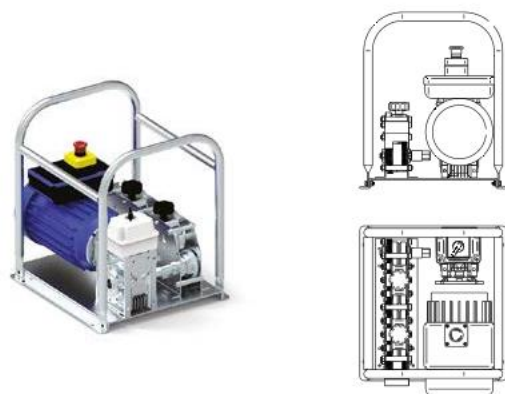
Mechanical tape&wire straightening tool



For mechanical tape and wire conductor straightening. Light and mobile with manual drive. Apply tape max 40x4 and wire Ø6-8 mm. Option with electric drive also available. It is recommended to use supportive straightening tool. More info at: www.elkobis.com.pl

CATALOG NUMBER	TYPE	Weight
10002199	100.3	20 kg

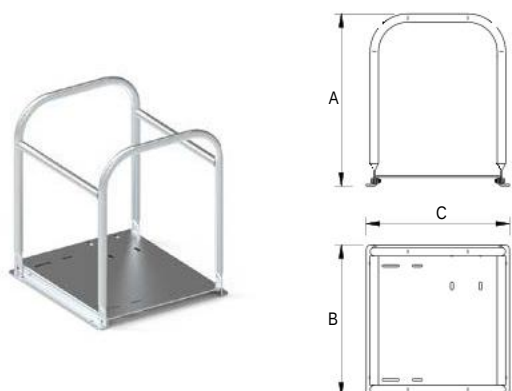
Electric drive straightening tools



For mechanical tape or wire conductor straightening with electric engine drive. After removal of electric drive can be used as a manual straightening device.

CATALOG NUMBER	TYPE	Version	Parameters
10000299	100.1 EL	wire	Power supply: 230 V Rotations: 46/min
10002299	100.3 EL	wire and tape conductor	Power consumption: 7 A Nominal power: 1,1 kW Weight: 48 kg

Electric straightener holder



For easy and comfortable handling of electric straightener tool, directly mounted to steel base, compatible with all electric straighteners.

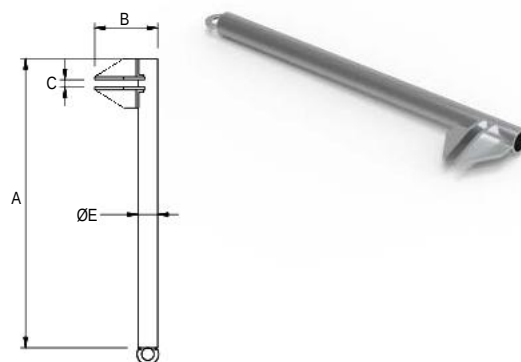
CATALOG NUMBER	TYPE	A	B	C
10010001	-	513	450	427

Wire straightening tool

For manual wire conductor straightening and forming. ELKO-BIS offer includes tape and wire conductors straightening devices with mechanical and electric drive.

CATALOG NUMBER	TYPE	A	B	C	E
98600102	86.1	400	60	10	27

St/tZn

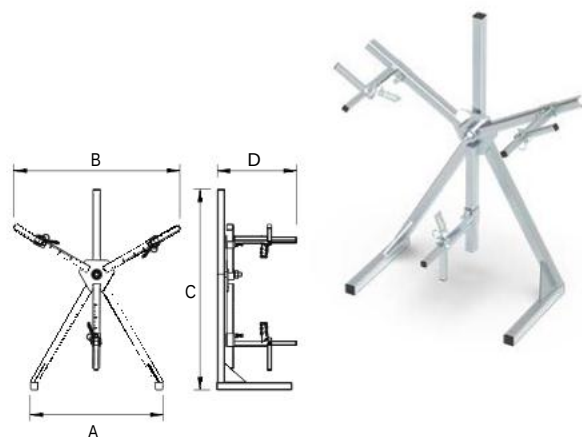


Tape & wire pulley tool

To roll off wire and tape conductors into straightener tool. Light and easy construction allows safe work.

CATALOG NUMBER	TYPE	A	B	C	D
10000099	100.0	630	785	950	375

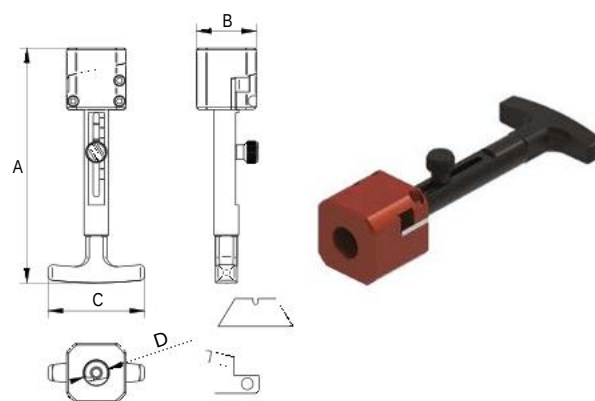
St/Zn



Stripping tool

To peel off insulation layers from end of insulated high voltage cable - 30000199. Adjustable insulation removal length from 30 to 90 mm. Removal of 30 mm enables cable end tip assembly or connection to high voltage mast. Product in a set with comfortable and durable case and additional exchanging blades (31710001; 31720001).

CATALOG NUMBER	TYPE	A	B	C	D
31700109	317.1	230	58	94	Ø24



Stripping tool blade

Exchangeable stripping tool blade, for insulated high voltage conductor (31700109).

CATALOG NUMBER	TYPE
31710001	317.1 E

St/Zn



Trapezoidal blade

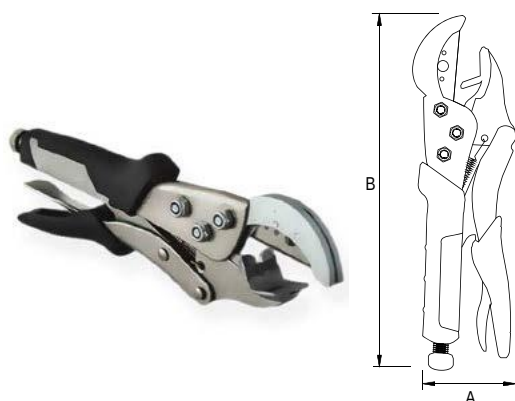
Exchangeable trapezoidal blade for insulated high voltage conductor (31700109).

CATALOG NUMBER	TYPE
31720001	317.1 F

St/Zn



High voltage cable scissors



To remove insulation bit out of insulated high voltage cable, enabling end tip fixing 30100105.

CATALOG NUMBER	TYPE	A	B
31400101	314.1	60	245

St/Zn

Adhesive mass



For roof holders bonding at roofs with bituminal cover. Do not apply to other/different roof covers. Bonding details see: www.elkobis.com

CATALOG NUMBER	TYPE	Application for holders		Weight
99401099	94.10	92910101	p. 87	10 kg
		93000111	p. 83	
		93001111	p. 83	

PVC membrane adhesive



For roof holders bonding at flash membrane roofs. Follow use instruction on packaging and manufacturer recommendations. Bonding details see: www.elkobis.com

Details on bonding can be found at www.elkobis.com.pl
Before use, check the expiration date on the packaging.

CATALOG NUMBER	TYPE	Application for holders		Weight
11000599	110.5	93000211	p. 83	5 kg
		93050211	p. 84	
		93090211	p. 84	
		93000311	p. 85	

ELKO-FIX assembly adhesive



Universal and flexible glue. Can be used with different materials and surfaces (concrete, steel, plastics, etc., excluding PE, PP, silicone and teflon) Recommended to fix/bond: concrete base holders (e.g. 93000211) plate roof holders (e.g. 91500101) flash roofs covered in steel sheets. Follow instructions on the packaging. Endurance test recommended. It is absolutely necessary to follow the method of use indicated on the package.

We recommend performing a strength test before use, check the expiration date on the package.

CATALOG NUMBER	TYPE	Properties	Capacity
99300199	93.1	Permanently elastic, seals after curing	290 ml

Technical vaseline

To protect screw connections. Apply to all connections and screws using paintbrush for example. Use of technical vaseline is essential to keep products warranty

CATALOG NUMBER	TYPE	Weight
99500199	95.1	0,5 kg



Zinc spray

For anti-corrosion protection of constructions and elements. Fast-drying aluminum-zinc spray. Dedicated to machined zinc plated surfaces as for direct application on steel surfaces.

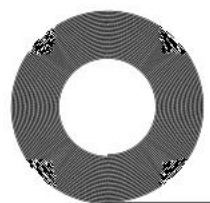
CATALOG NUMBER	TYPE	Capacity
10200199	102.1	400 ml



Denso tape

Anti-corrosive tape, humidity protection of pipelines, weldings, rods, screws connection and conduits. Tape made of waterproofing fabric, improves corrosion resistance

CATALOG NUMBER	TYPE	A	Length	Weight
11210099	112.100	100	10 m	~0,24 kg
11220099	112.200	200	10 m	~0,52 kg



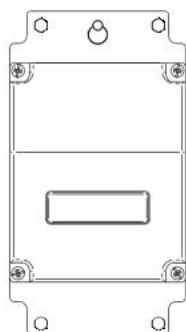
Anti-corrosive tape for earthing connections

Designed to provide corrosion and moisture protection for earthing rods, welded joints, pipelines, screw connections and conduits. The tape is made of waterproof insulating fabric, improving corrosion resistance and providing good electrical insulation properties. Suitable for use with bituminous insulation and polyethylene (PE) coatings.

CATALOG NUMBER	TYPE	A	Length
11103099	111.30	30	10 m
11105099	111.50	50	10 m
11110099	111.100	100	10 m



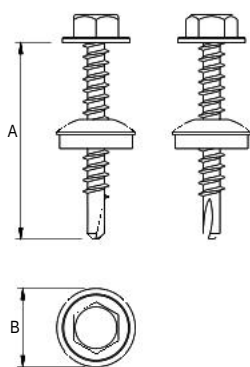
Lightning current counter



For digital acquisition of impulse currents caused by lightning effects. Capture date and time of discharge with estimation of discharge amplitude.

CATALOG NUMBER	TYPE	Version
96100899	61.8	PLW-03a

Washer self-drilling screw



Fixing of roof air termination holders.

CATALOG NUMBER	TYPE	Version	Application	A	B	Bolt
99900101	99.1	screw with washer	wood	35	14	4,8
99910101	99.1/B	screw with washer	steel sheet	35	14	4,8
99900201	99.2	screw with washer	wood	63	14	5,5
99800101	98.1	additional washer	universal	–	14	–

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/Zn

TECHNICAL INFORMATION

SPD

GROUP I
Connecting ComponentsGROUP II
Earthing & Equipotential BondingGROUP III
Down ConductorsGROUP IV
Air TerminationGROUP V
Air Termination: Masts, Rods, SpikesGROUP VI
Insulated Air Termination SystemGROUP VII
AccessoriesTECHNICAL
INFORMATION

INDEX

In case of design-related issues, we recommend consulting the ELKO-BIS Technical Support Department. Our lightning protection system designers have the appropriate expertise and experience to provide the highest level of technical advice.

☎ +48 71 330 66 13

☎ +48 693 980 298

✉ techniczny@elkobis.com.pl

Did you know...

For centuries lightning strikes were attributed to magical background?

It was only eighteenth century when hypothesis on electrical nature of lightning strikes had been put forward, and in 1752. Benjamin Franklin proved the electrical nature of lightning. He is also the inventor of lightning rod. His most famous experiment was to release the kite during

a thunderstorm, allowing him to discover that effective protection against lightning. In Poland Lightning Rods appeared thanks to initiative of King Stanislaw August Poniatowski. In 1783 Town Hall in Rawicz, and soon after Royal Castle in Warsaw were equipped with lightning rods

How are lightning discharges formed?

In a thundercloud, a spatial electric charge is formed and undergoes separation. Positive charge accumulates in the upper parts of the cloud, while negative charge gathers in the lower regions. A strong electric field develops between these charge concentrations, increasing as further charge separation occurs. When the field strength exceeds a critical value, the air—previously non-conductive—becomes conductive. Nature seeks equilibrium, and the potential difference is equalized through the transfer of a vast amount of energy. At this moment, an electrical discharge occurs, known as an atmospheric (lightning) discharge.



There are 4 types of lightning discharges:

1. between clouds
2. inside the clouds
3. cloud – an air
4. cloud – an earth

The last one are the most dangerous for humans. Despite lasting less than a second, may cause extensive damages. Every year in Poland there are about 500,000 discharges, dozens of people being seriously injured and property damage are counted in millions.



HOW LIGHTNING PROTECTION SYSTEM WORKS?

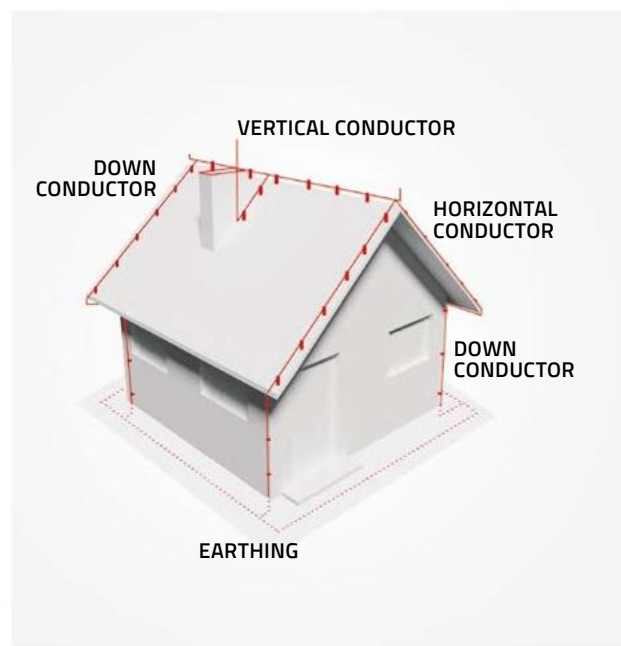
Lightning Protection System has to conduct lightning current and bring it the shortest way to the earthing. Lightning Protection System can be divided into three zones: roof air termination/conductors, down conductors and earth electrodes.

Air Termination Zone – contains the largest amount of different mounting components, among others vertical and horizontal conductors for variety of roof types, walls and constructions.

Down Conductors Zone – includes equipment for wall mounting in different techniques: surface mounted, inside insulation surface, tensioning systems.

Earthing Zone – a group of underground works, invisible to the eye, being sunk in the ground. Properly made earthing is crucial to functioning of Lightning Protection System. Standard EN 62305 defines two types of earthing.

Earthing type A contains horizontal and vertical conductors, externally assembled and connected to each down conductor.



Earthing type B external ring type earthing, at least 80% of its length stays in contact with ground, includes also foundation and lattice earthing. Grounding resistance for Lightning Protection Systems should not exceed 10 Ω at each control joint.

The earth resistance must be confirmed/comply with post-implementation electric measurements.

EUROPEAN AND INTERNATIONAL STANDARDS FOR LIGHTNING PROTECTION

Lightning protection systems shall be designed, installed and maintained in accordance with the EN 62305 series of standards. These European standards define the

general principles, risk assessment methods and technical requirements for lightning protection systems (LPS).

LIGHTNING PROTECTION STANDARDS

NUMBER	TITLE	SCOPE
EN 62305-1:2011	Protection against lightning – Part 1: General principles	Lightning protection of buildings, including their contents (people and installations), as well as service installations connected to the structure. The recommendations do not apply to: railway installations, vehicles, ships, aircraft, offshore installations, underground high-pressure pipelines, pipelines, and power or telecommunication lines not connected to the structure.
EN 62305-2:2012	Lightning protection – Part 2: Risk management	Assessment of the risk caused by lightning ground flashes affecting buildings and service installations. Selection of LPS protection levels for the lightning protection system.
EN 62305-3:2011	Lightning protection – Part 3: Physical damage to structures and life hazard	Requirements for protecting structures against physical damage using an LPS and for protecting living beings against electric shock caused by touch and step voltages in the vicinity of the lightning protection system. ▪ Design, installation, inspection, and maintenance of LPS for structures of any height. ▪ Determination of protective measures for living beings against electric shock caused by touch and step voltages.
EN 62305-4:2011	Lightning protection – Part 4: Electrical and electronic systems within structures	Design, installation, maintenance, inspection, and testing of a system of protective measures against the effects of LEMP on electrical and electronic equipment inside a structure, in order to reduce the risk of permanent damage caused by lightning electromagnetic impulses.

QUALITY STANDARDS

The risks associated with a direct lightning strike to lightning protection system components—such as thermal erosion, conductor incandescence, and dynamic effects—as well as the appearance of low-quality components on the market, have led to the introduction of quality standards. The requirements that lightning protection compo-

nents must meet are defined in the multi-part European standard EN IEC 62561, which is referenced by the EN 62305-3:2011 standard in force under the Regulation of the Minister of Infrastructure. ELKO-BIS products are regularly tested in accordance with these requirements.

LIST OF EN IEC 62561 STANDARDS

NUMBER*	TITLE
EN IEC 62561-1:2023	Lightning protection system components (LPSC) – Part 1: Requirements for connection components
EN IEC 62561-2:2025	Lightning protection system components (LPSC) – Part 2: Requirements for conductors and earth electrodes
EN IEC 62561-3:2023	Lightning protection system components (LPSC) – Part 3: Requirements for isolating spark gaps (ISGs)
EN IEC 62561-4:2023	Lightning protection system components (LPSC) – Part 4: Requirements for conductor fasteners
EN IEC 62561-5:2023	Lightning protection system components (LPSC) – Part 5: Requirements for earth electrode inspection housings and earth electrode seals
EN IEC 62561-6:2023	Lightning protection system components (LPSC) – Part 6: Requirements for lightning strike counters (LSCs)
EN IEC 62561-7:2024	Lightning protection system components (LPSC) – Part 7: Requirements for earthing enhancing compounds
IEC TS 62561-8:2018	Lightning protection system components (LPSC) – Part 8: Requirements for components for isolated LPS

TESTS

The harmonization of standards obligate manufacturers of lightning protection systems to carry out compliance tests described in EN IEC 62561 Standard. At ELKO-BIS we attach great importance to tests, knowing that their results are crucial to health and property protection of our customers. As a result, they receive highest quality products, they can rely on.

LIGHTNING CURRENT PULSE PARAMETERS CONSIDERED FOR STUDIES				
Connection load capacity	$I_{imp} \pm 10\%$ [kA]	W/R $\pm 35\%$ [kJ/ Ω]	T ₋₁ [μ s]	T _{-d} [ms]
H connection for considerable current capacity	100	2500	≤ 50	≤ 2
N connection for regular current capacity	50	630	≤ 50	≤ 2
Note: The parameters specified in the table can be achieved when using bi-exponential current with time T2 equaling 350 μ s in accordance with EN 62305-1.				

LPS MATERIALS AND CONDITIONS OF USE ^a						
MATERIAL	USE			CORROSION		
	In open air	In earth	In concrete	Resistance	Increased by	May be destroyed by galvanic coupling with
Copper	Solid Stranded	Solid Stranded As coating	Solid Stranded As coating	Good in many environments	Sulfur compounds	-
Hot galvanized steel ^{c, d, e}	Solid Stranded ^b	Solid	Solid Stranded ^b	Acceptable in air, in concrete and in benign soil	High chlorides content	Copper
Steel with electrodeposited copper	Solid	Solid	Solid	Good in many environments	Sulfur compounds	-
Stainless steel	Solid Stranded	Solid Stranded	Solid Stranded	Good in many environments	High chlorides content	-
Aluminium	Solid Stranded	Unsuitable	Unsuitable	Good in atmospheres containing low concentrations of sulfur and chloride	Alkaline solutions	Copper
Lead ^f	Solid As coating	Solid As coating	Unsuitable	Good in atmosphere with high concentration of sulphates	Acid soils	Copper Stainless steel

^a This table gives general guidance only. In special circumstances more careful corrosion immunity considerations are required (see Annex E).

^b Stranded conductors are more vulnerable to corrosion than solid conductors. Stranded conductors are also vulnerable where they enter or exit earth/concrete positions. This is the reason why stranded galvanized steel is not recommended in earth.

^c Galvanized steel may be corroded in clay soil or moist soil.

^d Galvanized steel in concrete should not extend into the soil due to possible corrosion of the steel just outside the concrete.

^e Galvanized steel in contact with reinforcement steel in concrete should not be used in coastal areas where there may be salt in the ground water.

^f Use of lead in the earth is often banned or restricted due to environmental concerns.

PERMISSIBLE METAL COMBINATIONS IN A NORMAL INDUSTRIAL ATMOSPHERE						
Version	Al	Pb	Cu	Zn	Inox	StZn
Aluminum Al	+	+	-	+	+	+
Lead Pb	+	+	+	+	+	+
Copper Cu	-	+	+	-	+	-
Zinc Zn	+	+	-	+	+	+
Stainless steel Inox	+	+	+	+	+	+
Stainless steel StZn	+	+	-	+	+	+

+

Permissible metal combinations

-

Prohibited metal combinations

Lightning Protection System Designer's Guide

Procedures for selecting the lightning protection system class

Risk analysis

The design of lightning protection systems begins with a risk analysis. The calculation method is specified in Part 2 of the EN 62305-2:2012 standard..

Calculation method

Risk calculations take into account factors both inside and outside the structure. The risk calculation algorithm analyzes more than 100 parameters related to building dimensions, installed equipment, types of incoming services, loss of life, loss of property, and other factors. The large number of variables makes the calculations complex, and their interpretation may lead to widely differing results. **For this reason, the calculation method is considered controversial by many design professionals.**

Who is authorized to design, install, and inspect lightning protection systems?

Participation in lightning protection system projects requires professional qualifications to perform independent technical functions in construction. The rules for obtaining construction licenses are defined in the Construction Law Act of 7 July 1994, published in the Journal of Laws of 1994, No. 98, item 414, as amended. Chapter 3, Article 17 lists the participants who make and are responsible for decisions in the construction process. These include the designer, contractor, and investor's supervision inspector. Each of these parties must hold appropriate construction licenses specifying the scope of work they are authorized to perform. In addition, individuals involved in construction projects are required to be members of the Chamber of Civil Engineers.

Proposal for lightning protection presented by polish committee for lightning protection

No.	DESCRIPTION OF FACILITY		PROTECTION CLASS/LEVEL		
	GENERAL FEATURE	VERSION OR PURPOSE b)	I	II	III-IV
1.1	Public facilities in conditions of normal hazard a)	Administration buildings			X
1.2		Cinemas, theaters, schools, kindergartens			X
1.3		Churches with a tower of up to 20m			X
1.4		Museums and historic buildings and buildings of cultural value			X
1.5		Covered markets, entertainment arenas, etc...			X
1.6		Market places			X
1.7		Close sports facilities			X
1.8		Swimming pools			X
1.9		Garages (medium-sized and large)			X
2.1	Industrial facilities and craft workshops in conditions of normal hazard	Office			X
2.2		Production, warehouse a)			X
2.3		Food-related			X
3.1	Accommodation	Hotels, inns, guesthouses			X
3.2		Large hotels		X	
3.3	Railway facilities	Hostels, night shelters		X	
4.1		Shipment facilities (railway stations, platforms)a)			X
4.2		Administration buildings			X
4.3	Air facilities	Warehouses			X
5.1		Building sections with explosion zones	X		
5.2		Airline supervision and handling centers	X		
5.3		Other air supervision center		X	
5.4	Health and care facilities	Check-in buildings a)			X
5.5		Administration buildings			X
6.1		Hangars, warehouses	X		
6.2	Large-format facilities	Intensive care facilities		X	
6.3		Nursing homes and residential homes			X
6.4		Hospital pavilions			X
7.1	Residential buildings	Administration buildings		X	
7.2		Buildings higher than 30 m		X	
8.1	Agricultural facilities	Churches with a tower of more than 20 m			X
8.2		Single-family houses			X
9.1	Facilities with explosion or fire hazard	Multi-family houses			X
10.1		Farm buildings	X		
10.2		Explosives manufacturing and storing units	X		
10.3		Ammunition depots	X		
10.4	Technical service facilities	Pyrotechnic facilities	X		
10.5		Building sections with ex zones	X		
10.6		Sewage treatment plants	X		
10.7		Gas/combustible liquid systems		X	
10.8		Pyrotechnic facilities		X	
11.1		Inflammable buildings		X	
11.2		Power engineering facilities		X	
11.3		Telecommunications facilities		X	
11.4		IT facilities		X	

a) in the conditions of increased hazard (facilities situated on hills or containing multi-person rooms, structures or materials which are not resistant to heat, etc), it is necessary to increase the protection level to class II, and in the case of facilities sections which contain ex zones or devices sensitive to electromagnetic impact – to class I.

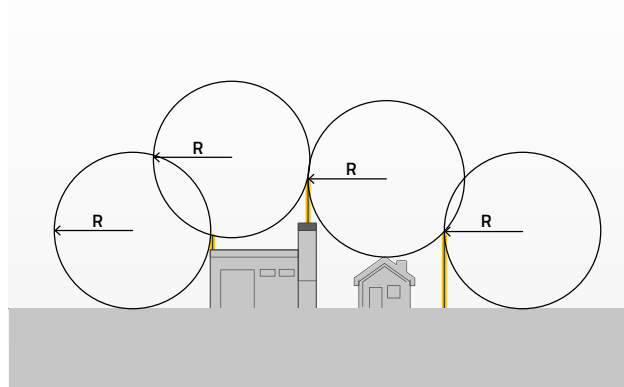
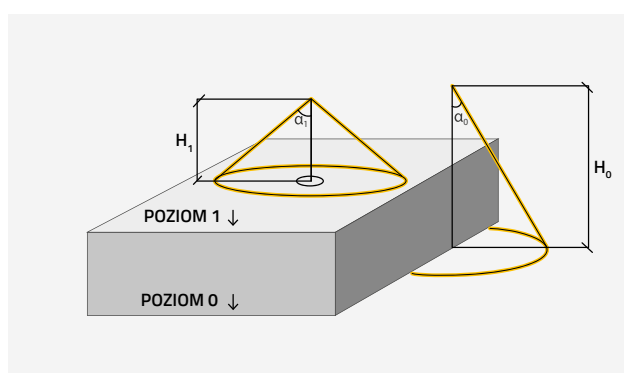
b) It is necessary to pay special attention to effectiveness of internal protection means (protection of electric devices and electronics against overvoltage).

Designing methods of lightning protection systems

Methods of dimensioning the protection zones have remained unchanged in terms of their name for many years. Applicable since 2011, EN 62305-3:2011 standard introduced essential changes concerning dimensioning methods.

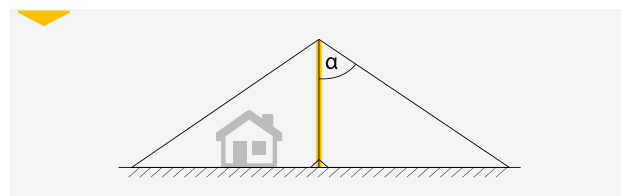
Flash roofs

With regard to flat roof surfaces, the loop method in the form of nets of horizontal air terminals having the dimensions specified in the standard for each LPS class is applied. This method is applied for simple facilities devoid of elements elevated above them



Sloping roofs and others

When it comes to protection of roof slopes of various height with diverse facilities and systems on the surface of the roof, two methods are applied, that is a rolling sphere and protective angle. Both methods are equivalent in terms of reference plane height (H) specified in EN 62305 standard.



Protective angle method

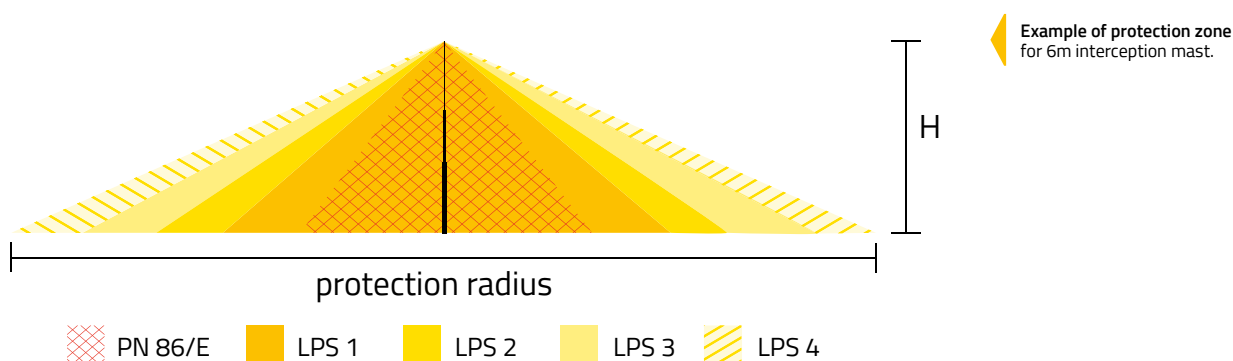
For LPS IV class, the method of protective angle (shielding angle) can be used for the reference plane height up to 60 m. Most frequently the reference plane height is the height of the mast which protects the facility when the mast and the facility are at the same level. When the lightning mast and the facility are protected at various levels, the reference plane height is the total of mast height and level difference. The table above shows protection angle and radiuses for the method of shielding angle in LPS class and series of masts manufactured by ELKO-BIS.

Method of rolling sphere

The method of rolling sphere is an all-purpose method relevant to all types of civil structure. It is concerned with creating protection zones by basing the ball with a radius specified by the standard (in accordance with LPS class) on one or many peak points of lighting masts. The volume under the zone of this ball under the mast or between masts may be considered a lightning protection zone (subject to facilities with ex zone – then the zones must be dimensioned in a way that the distance between them is not lower than 1 m).

ELKO-BIS CALCULATION SHEET AND TABLES

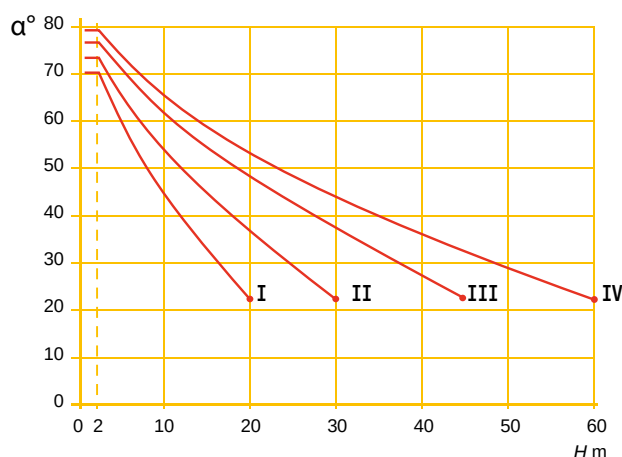
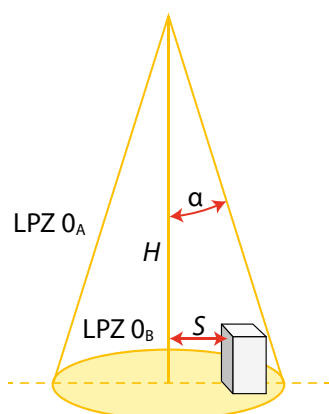
H [m]	LPS I		LPS II		LPS III		LPS IV	
	SHIELDING ANGLE A	PROTECTIVE RADIUS a [m]	SHIELDING ANGLE A	PROTECTIVE RADIUS a [m]	SHIELDING ANGLE A	PROTECTIVE RADIUS a [m]	SHIELDING ANGLE A	PROTECTIVE RADIUS a [m]
1	70	2,75	73	3,27	76	4,01	79	5,14
2	70	5,49	73	6,54	76	8,02	79	10,29
3	66	6,74	71	8,71	74	10,46	76	12,03
4	62	7,52	68	9,90	72	12,31	74	13,95
5	59	8,32	65	10,72	70	13,74	72	15,39
6	56	8,90	62	11,28	68	14,85	71	17,43
7	53	9,29	60	12,12	66	15,72	69	18,24
8	50	9,53	58	12,80	64	16,40	68	19,80
9	48	10,00	56	13,34	62	16,93	66	20,21
10	45	10,00	54	13,76	61	18,04	65	21,45



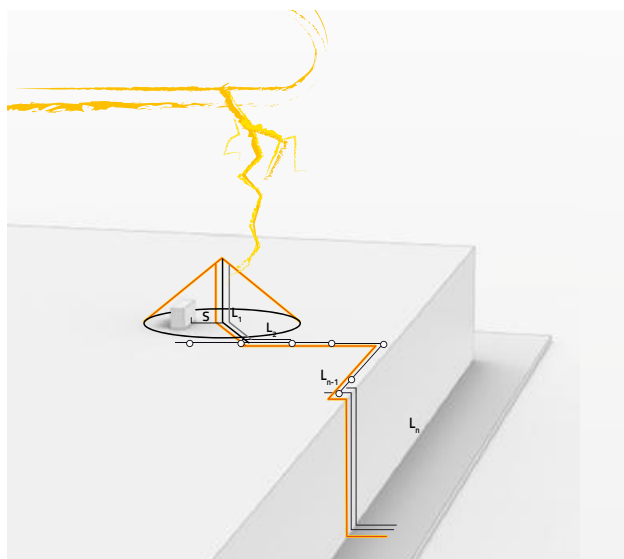
LIGHTNING PROTECTION SYSTEM PARAMETERS ACCORDING TO LPS CLASSES

Parameter	LPS classes (LEVEL LPL)			
	I	II	III	IV
Protection efficiency according to earlier standards editions	98%	95%	90%	80%
Rolling sphere radius r (m)	20	30	45	60
Grid size formed by horizontal air termination in (m)	5 x 5	10 x 10	15 x 15	20 x 20
Distance between down conductors (m)	10	10	15	20

Cover angle α° (as a function of height relative to the reference plane)



Separation distance in lightning protection



The separation distance must be maintained in order to avoid spark snap.

Designing or manufacturing the external lightning protection device, we should pay special attention to protection of devices on roofs against effects of direct lightning discharge and a jump of charge from lightning protection system to protected device. Multisheet EN 62305 standards explicitly state that: "All roof devices made of insulating or conductive material which include electric equipment and/or equipment serving to convert information, should be located in the protected space of air terminals".

Separation distance step by step:

Using one of the methods (rolling ball or shielding angle), it is necessary to arrange air terminals and/ or devices in a way that all elements of the protected device are "hidden" in designated protected zones. This way we can protect the device against direct discharge, and by

calculating a required insulating clearance for the given place, that is the distance we need to assure to avoid the spark-over, we protect the device not only on the roof but also internal systems against overvoltage caused by the flow of lightning current through the system.

The separation distance S in the simplest case can be calculated from the formula below:

$$S \geq k_i I \frac{k_c}{k_m}$$

k_i – is fixed and depends on lightning protection class the system use.

k_c – accepts numerical values ranging from 1 to $1/n$ depending on certain condition compliance, where n is the number of down conductors.

k_m – It takes a value of 1 when calculated for air, and a value of 0.5 for brick or concrete. For the insulating rods manufactured by us, a value of 0.7 should be applied.

In case of expanded external lightning protection systems, below formula shall apply:

$$S \geq \frac{k_i}{k_m} (k_{c1} I_1 + k_{c2} I_2 + \dots + k_{cn} I_n)$$

COEFFICIENTS VALUES TO CALCULATE SEPARATION DISTANCES

k_i	k_c	k_m
LPS class III-IV	0,04	$n = 1^*$ 1
LPS class II	0,06	$n = 2$ 0,66
LPS class I	0,08	$n > 2$ 0,44
* Applies to separated LPS and vertical air terminals; n - number of down conductors		

Elko Bis Calculation Sheet

It takes a value of 1 when calculated for air, and a value of 0.5 for brick or concrete.

For the insulating rods manufactured by us, a value of 0.7 should be applied.

Emergencies

When the calculated separation distance for air is lower than 75 cm, the standard solutions do not let us keep such a clearance, be it for structural or aesthetic reasons, our company provides an insulated highvoltage system based on the insulated highvoltage cable 30000199 and 30000299 and a wide range of holders, fittings and interception masts which we are constantly expanding.

BE AWARE!

Lightning protection is an important part of any newly built building, so do not leave it to last stage. Doing so, it may appear that costs of its implementation, are overestimated.

You may then find that you are required expensive items, that purchase could have been avoided if they were properly coordinated at all phases of construction project.

We invite you to contact our technical department export@elkobis.com.pl

We provide professional assistance at every stage of the investment, as well as the optimization of already finished projects. In case of difficult installations we provide free on-site verification in order to choose the best solution.

Protection against lightning discharges and surges

Introduction

The use of modern advanced electrical equipment, consumer electronics and control systems places high demands on their electromagnetic compatibility. Modern electronic control systems equipped with circuits manifesting a very high level of integration are becoming increasingly sensitive to electromagnetic interferences and surges. Installation of surge protective devices in accordance with current legal standards increases the safety of consumers and their electrical installations connected to the electrical system. Surge arresters are defined by standards harmonized with EU standards:

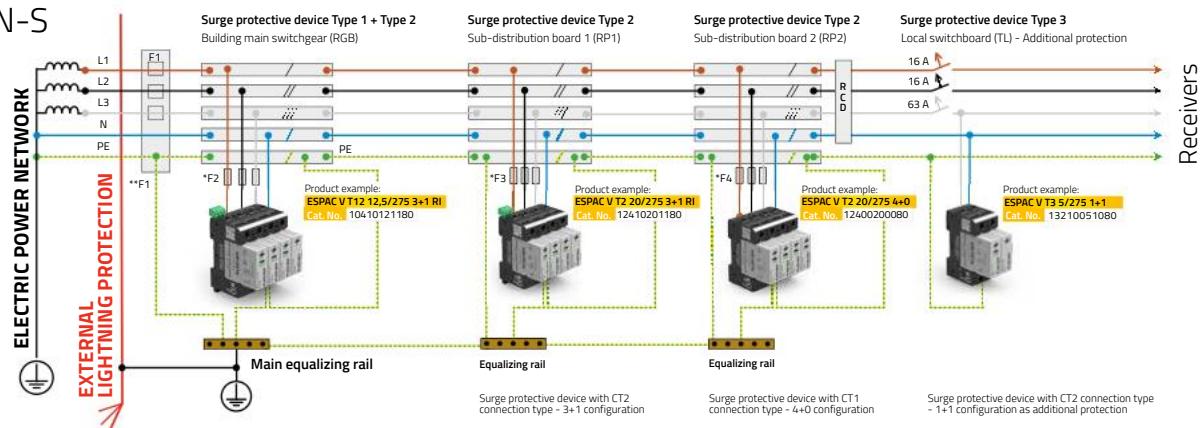
- ▶ Technical data on protective connections for the same potential, including conductor cross-sections, main and additional connections, are specified in standards PN-EN 50310 (EN 50310), PN-HD 60364-5-54 (IEC 60364-5-54), PN-HD 60364-4-41 (IEC 60364-4-41).
- ▶ Lightning protection is specified in EN 62305-1 (IEC 62305), harmonized with European standards.

LPL (Lightning Protection Level)	Highest value of lightning current depending on Lightning Protection Level (LPL)
LPL	Lightning impulse current
LPL I	200 kA
LPL II	150 kA
LPL III	100 kA
LPL IV	100 kA

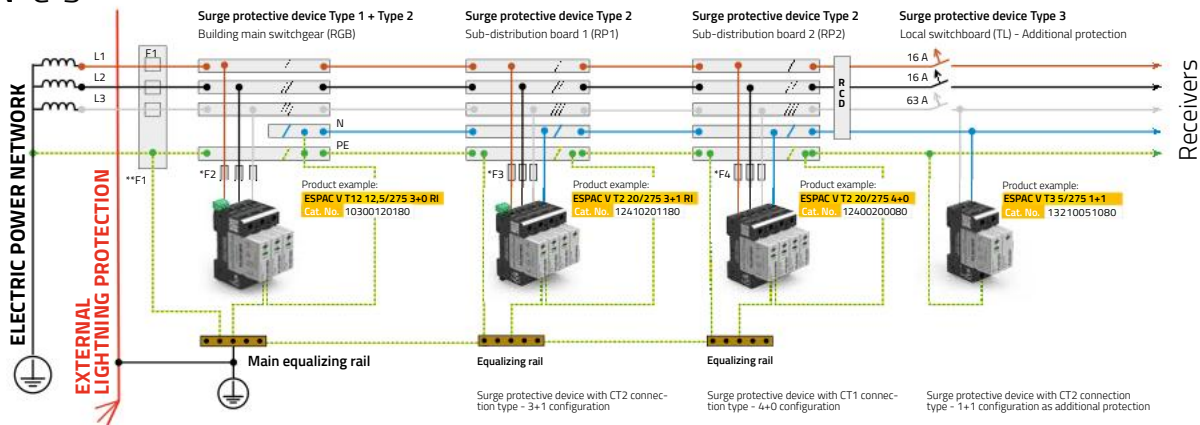


Application of surge arresters in electrical installations:

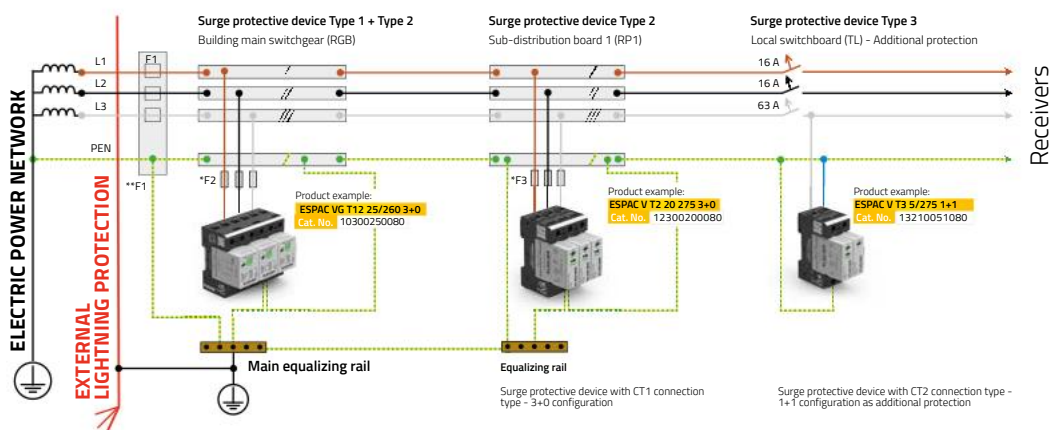
TN-S



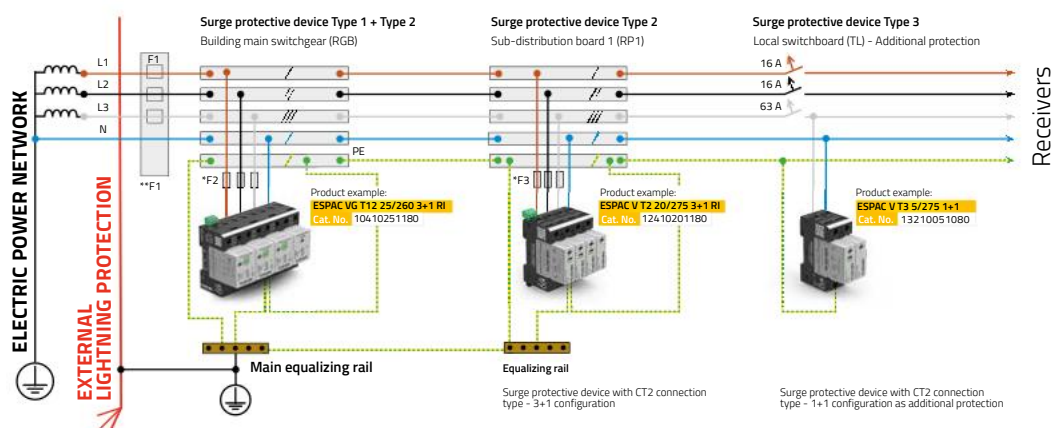
TN-C-S

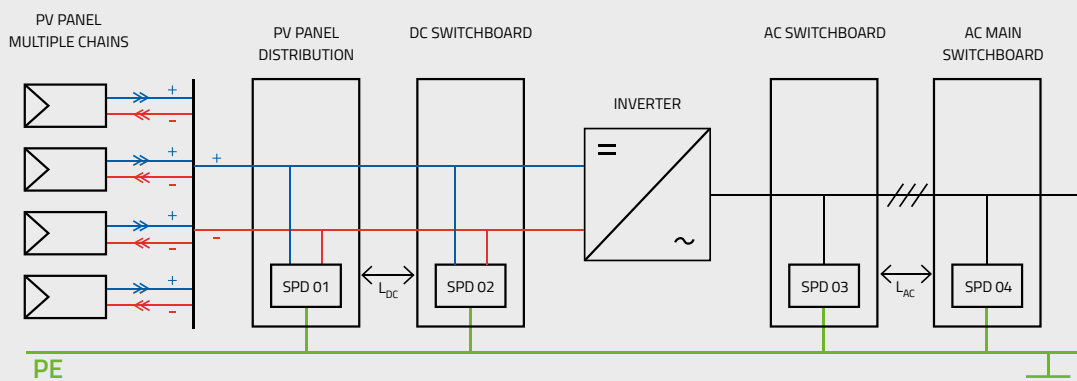


TN-C



TT





Installation locations of surge protective devices in the PV electrical installation – AC and DC side.

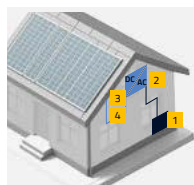
The rules for installing surge protective devices in a PV AC/DC installation are described in the following guidelines – according to the drawings, SPD 01 should be installed next to the panels when the L_{DC} distance is > 10 m. If the L_{DC} distance is < 10 m, this arrester can be omitted. SPD 02 should always be installed next to the inverter in every photovoltaic installation. SPD 03 should be installed on the AC side of the converter when the L_{AC} distance is > 10 m. If the L_{AC} distance is < 10 m, this arrester can be omitted. SPD 04 should be installed in the main distribution board of the facility on the AC side in every installation of this type. Additionally, when selecting the arrester type, the following guidelines should be followed:

- When the protected facility is powered by a cable line and does not have an LPS, then you can install: SPD 01 and SPD 02 – Type 2 DC surge arrester ($I_n = 20$ kA), e.g. 22121003080 ESPPV V T2 15/1000 Y; SPD 03 and SPD 04 – T2 AC surge arrester ($I_n = 20$ kA), e.g. 12400200080 ESPAC V T2 20/275 4+0;

- When the protected facility is powered by an overhead line or cable and additionally has an LPS, but the separation distances for the photovoltaic panels are maintained: SPD 01 and SPD 02 – T2 DC surge arrester ($I_n = 20$ kA), e.g., 22120703080 ESPPV V T2 20/700 Y; SPD 03 and SPD 04 – T12 AC surge arrester ($I_{imp} = 12,5$ kA), e.g., 10400120080 ESPAC V T12 12,5/275 4+0. The separation distance should be calculated according to section 6.3 of the EN 62305-3 standard;

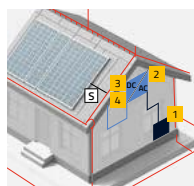
- When the protected facility is powered by an overhead line or cable and additionally has an LPS, but the separation distances for the photovoltaic panels are not maintained: SPD 01 and SPD 02 – T12 DC surge arrester ($I_{imp} = 12,5$ kA), e.g., 20121003080 ESPPV V T12 12,5/1000 Y; SPD 03 and SPD 04 – T12 AC surge arrester ($I_{imp} = 12,5$ kA), e.g., 10400250080 ESPAC VG T12 25/260 4+0.

EXAMPLE OF SELECTION SPDs FOR PHOTOVOLTAIC INSTALLATIONS



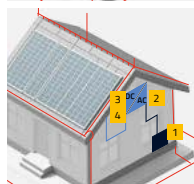
Exemplary conditions:

Building power supply via cable line, building without LPS.



Exemplary conditions:

Building supplied with power by cable or overhead lines, PV panel separation distances maintained, building equipped with LPS III or IV.



Exemplary conditions:

Building power supply via cable or overhead line, PV panel separation distances not maintained, building equipped with LPS I or II.

1 Main distribution board

ESPAC V T2 20/275 4+0
CAT. NO. 12400200080
T2 $I_n = 20$ kA



ESPAC V T12 12,5/275 4+0
CAT. NO. 10400120080
T1 $I_{imp} = 12,5$ kA
T2 $I_n = 30$ kA



ESPAC VG T12 25/260 4+0 RI
CAT. NO. 10400250180
T1 $I_{imp} = 25$ kA
T2 $I_n = 30$ kA



2 AC side

ESPAC V T2 20/275 4+0
CAT. NO. 12400200080
T2 $I_n = 20$ kA



ESPAC V T2 20/275 4+0
CAT. NO. 12400200080
T2 $I_n = 20$ kA



ESPAC V T12 12,5/275 4+0 RI
CAT. NO. 10400120180
T1 $I_{imp} = 12,5$ kA
T2 $I_n = 30$ kA



3 4 DC side

ESPPV T2 15/1000 Y
CAT. NO. 22121003080
T2 $I_n = 15$ kA



ESPPV T2 15/1000 Y
CAT. NO. 22121003080
T2 $I_n = 15$ kA



ESPPV V T12 12,5/1000 Y RI
CAT. NO. 20121003180
T1 $I_{imp} = 12,5$ kA
T2 $I_n = 20$ kA



Summary table of basic technical parameters of ELKO-BIS surge protective devices.

	CATALOG NUMBER	NAME	U _n [V]	U _{c/cpv} [V]	I _{imp} [kA]	I _n [kA]	I _{max} [kA]	U _p [kV]	I _{scrr/scpv} [kA]	
1	10100250080	ESPAC VG T12 25/260 1+0	230	260	25	30	60	1,5	50	
2	10200250080	ESPAC VG T12 25/260 2+0	230	260	25	30	60	1,5	50	
3	10300250080	ESPAC VG T12 25/260 3+0	230	260	25	30	60	1,5	50	
4	10400250080	ESPAC VG T12 25/260 4+0	230	260	25	30	60	1,5	50	
5	10100250180	ESPAC VG T12 25/260 1+0 RI	230	260	25	30	60	1,5	50	
6	10200250180	ESPAC VG T12 25/260 2+0 RI	230	260	25	30	60	1,5	50	
7	10300250180	ESPAC VG T12 25/260 3+0 RI	230	260	25	30	60	1,5	50	
8	10400250180	ESPAC VG T12 25/260 4+0 RI	230	260	25	30	60	1,5	50	
9	10210251180	ESPAC VG T12 25/260 1+1 RI	230	260	25	30	60	1,5	50	
10	10410251180	ESPAC VG T12 25/260 3+1 RI	230	260	25	30	60	1,5	50	
11	10100120080	ESPAC V T12 12,5/275 1+0	230	275/350	12,5	30	60	1,5	50	
12	10200120080	ESPAC V T12 12,5/275 2+0	230	275/350	12,5	30	60	1,5	50	
13	10300120080	ESPAC V T12 12,5/275 3+0	230	275/350	12,5	30	60	1,5	50	
14	10400120080	ESPAC V T12 12,5/275 4+0	230	275/350	12,5	30	60	1,5	50	
15	10100120180	ESPAC V T12 12,5/275 1+0 RI	230	275/350	12,5	30	60	1,5	50	
16	10200120180	ESPAC V T12 12,5/275 2+0 RI	230	275/350	12,5	30	60	1,5	50	
17	10300120180	ESPAC V T12 12,5/275 3+0 RI	230	275/350	12,5	30	60	1,5	50	
18	10400120180	ESPAC V T12 12,5/275 4+0 RI	230	275/350	12,5	30	60	1,5	50	
19	10210121080	ESPAC V T12 12,5/275 1+1	230	275	12,5	25	60	1,5	50	
20	10410121080	ESPAC V T12 12,5/275 3+1	230	275	12,5	30	60	1,5	50	
21	10210121180	ESPAC V T12 12,5/275 1+1 RI	230	275	12,5	25	60	1,5	50	
22	10410121180	ESPAC V T12 12,5/275 3+1 RI	230	275	12,5	30	60	1,5	50	
23	12100200080	ESPAC V T2 20/275 1+0	230	275/350	-	20	40	1,35	50	
24	12200200080	ESPAC V T2 20/275 2+0	230	275/350	-	20	40	1,35	50	
25	12300200080	ESPAC V T2 20/275 3+0	230	275/350	-	20	40	1,35	50	
26	12400200080	ESPAC V T2 20/275 4+0	230	275/350	-	20	40	1,35	50	
27	12100200180	ESPAC V T2 20/275 1+0 RI	230	275/350	-	20	40	1,35	50	
28	12200200180	ESPAC V T2 20/275 2+0 RI	230	275/350	-	20	40	1,35	50	
29	12300200180	ESPAC V T2 20/275 3+0 RI	230	275/350	-	20	40	1,35	50	
30	12400200180	ESPAC V T2 20/275 4+0 RI	230	275/350	-	20	40	1,35	50	
31	12210201080	ESPAC V T2 20/275 1+1	230	275	-	20	40	1,35	50	
32	12410201080	ESPAC V T2 20/275 3+1	230	275	-	20	40	1,35	50	
33	12210201180	ESPAC V T2 20/275 1+1 RI	230	275	-	20	40	1,35	50	
34	12410201180	ESPAC V T2 20/275 3+1 RI	230	275	-	20	40	1,35	50	
35	12300102180	ESPAC V T2 20/600 3+0 RI	400+690	760	-	20	40	3,4	25	
36	13210051080	ESPAC V T3 5/275 1+1	230	275	-	5	-	1	-	
37	13210051180	ESPAC V T3 5/275 1+1 RI	230	275	-	5	-	1	-	
38	20121003080	ESPPV V T12 12,5/1000 Y	-	1050	-	20	40	3,8	20	
39	20121003180	ESPPV V T12 12,5/1000 Y RI	-	1050	-	20	40	3,8	20	
40	20121503080	ESPPV V T12 12,5/1500 Y	-	1500	-	20	40	5,4	20	
41	20121503180	ESPPV V T12 12,5/1500 Y RI	-	1500	-	20	40	5,4	20	
42	22120703080	ESPPV V T2 20/700 Y	-	750	-	20	40	3,6	10	
43	22120703180	ESPPV V T2 20/700 Y RI	-	750	-	20	40	3,6	10	
44	22121003080	ESPPV V T2 15/1000 Y	-	1020	-	15	40	4	10	
45	22121003180	ESPPV V T2 15/1000 Y RI	-	1020	-	15	40	4	10	

	t_a [ns]	U_{oc} [kV]	I_{cw} [kA]	MAXIMUM OVERCURRENT PROTECTION	NETWORK SYSTEM	REMOTE INDICATOR	WIDTH
	100	20	-	250 A gL/gG	TN-S, TN-C, TN-C-S	NO	2 modules (36 mm)
	100	20	-	250 A gL/gG	TN-S, TN-C, TN-C-S	NO	4 modules (72mm)
	100	20	-	250 A gL/gG	TN-C	NO	6 modules (108 mm)
	100	20	-	250 A gL/gG	TN-S, TN-C-S	NO	8 modules (144 mm)
	100	20	-	250 A gL/gG	TN-S, TN-C, TN-C-S	YES	2 modules (36 mm)
	100	20	-	250 A gL/gG	TN-S, TN-C, TN-C-S	YES	4 modules (72mm)
	100	20	-	250 A gL/gG	TN-C	YES	6 modules (108 mm)
	100	20	-	250 A gL/gG	TN-S, TN-C-S	YES	8 modules (144 mm)
	100	20	-	250 A gL/gG	TT, TN-S, TN-C, TN-C-S	YES	4 modules(72mm)
	100	20	-	250 A gL/gG	TT, TN-S, TN-C-S	YES	8 modules(144 mm)
	25	-	-	160 A gL/gG	TN-S, TN-C, TN-C-S	NO	1 module (18 mm)
	25	-	-	160 A gL/gG	TN-S, TN-C, TN-C-S	NO	2 modules (36 mm)
	25	-	-	160 A gL/gG	TN-C	NO	3 modules (54 mm)
	25	-	-	160 A gL/gG	TN-S, TN-C-S	NO	4 modules(72 mm)
	25	-	-	160 A gL/gG	TN-S, TN-C, TN-C-S	YES	1 module (18 mm)
	25	-	-	160 A gL/gG	TN-S, TN-C, TN-C-S	YES	2 modules (36 mm)
	25	-	-	160 A gL/gG	TN-C	YES	3 modules (54 mm)
	25	-	-	160 A gL/gG	TN-S, TN-C-S	YES	4 modules (72 mm)
	25	-	-	160 A gL/gG	TT, TN-S, TN-C, TN-C-S	NO	2 modules(36 mm)
	25	-	-	160 A gL/gG	TT, TN-S, TN-C-S	NO	4 modules (72 mm)
	25	-	-	160 A gL/gG	TT, TN-S, TN-C, TN-C-S	YES	2 modules (36 mm)
	25	-	-	160 A gL/gG	TT, TN-S, TN-C-S	YES	4 modules (72 mm)
	25	-	-	160 A gL/gG	TN-S, TN-C, TN-C-S	NO	1 module (18 mm)
	25	-	-	160 A gL/gG	TN-S, TN-C, TN-C-S.	NO	2 modules (36 mm)
	25	-	-	160 A gL/gG	TN-C	NO	3 modules (54 mm)
	25	-	-	160 A gL/gG	TN-S, TN-C-S	NO	4 modules (72 mm)
	25	-	-	160 A gL/gG	TN-S, TN-C, TN-C-S	YES	1 module (18 mm)
	25	-	-	160 A gL/gG	TN-S, TN-C, TN-C-S.	YES	2 modules (36 mm)
	25	-	-	160 A gL/gG	TN-C	YES	3 modules (54 mm)
	25	-	-	160 A gL/gG	TN-S, TN-C-S	YES	4 modules (72 mm)
	25	-	-	160 A gL/gG	TT, TN-S, TN-C, TN-C-S	NO	2 modules (36 mm)
	25	-	-	160 A gL/gG	TT, TN-S, TN-C-S	NO	4 modules (72 mm)
	25	-	-	160 A gL/gG	TT, TN-S, TN-C, TN-C-S	YES	2 modules (36 mm)
	25	-	-	160 A gL/gG	TT, TN-S, TN-C-S	YES	4 modules (72 mm)
	100	-	-	100 A gL/gG	IT	YES	3 modules (54 mm)
	25	10	5	63 A gL/gG lub C 63 A	TN-S, TN-C, TN-C-S, TT	NO	2 modules(36 mm)
	25	10	5	63 A gL/gG lub C 63 A	TN-S, TN-C, TN-C-S, TT	YES	2 modules(36 mm)
	25	-	-	-	-	NO	4 modules (72 mm)
	25	-	-	-	-	YES	4 modules (72 mm)
	25	-	-	-	-	NO	4 modules(72 mm)
	25	-	-	-	-	YES	4 modules (72 mm)
	25	-	-	-	-	NO	3 modules (54 mm)
	25	-	-	-	-	YES	3 modules (54 mm)
	25	-	-	-	-	NO	3 modules (54 mm)
	25	-	-	-	-	YES	3 modules (54 mm)

INDEX BY CATALOG NUMBER

CATALOG NUMBER	TYPE	Name	p.	CATALOG NUMBER	TYPE	Name	p.	CATALOG NUMBER	TYPE	Name	p.
10000099	100.0	Tape & wire pulley tool	137	13021005	130.2.100	Bar holder fixed to the clamp	120	21400201	214.2	Universal connection clamp – wire Ø8/tape conductor	35
10000199	100.1	Mechanical wire straightening tool – 9 rolls	136	13030505	130.3.050	Bar holder fixed to the clamp	120	21400301	214.3	Universal connection clamp – earth rod Ø16/ tape conductor	35
10000299	100.1 EL	Electric drive straightening tools	136	13030705	130.3.075	Bar holder fixed to the clamp	120	21400401	214.4	Universal connection clamp – wire Ø8/wire Ø8	36
10002199	100.3	Mechanical tape&wire straightening tool	136	13031005	130.3.100	Bar holder fixed to the clamp	120	21400601	214.6	Universal connection clamp – wire Ø8/earth rod Ø16	36
10002299	100.3 EL	Electric drive straightening tools	136	13100505	131.0.050	Bar holder fixed to the concrete base	118	21401101	214.1.1	Universal connection clamp – tape / tape conductor	35
10010001		Electric straightener holder	136	13100705	131.0.075	Bar holder fixed to the concrete base	118	21401201	214.2.1	Universal connection clamp – wire Ø8/tape conductor	35
10100101	101.1 BB	Compensation connection clamp	86	13101005	131.0.100	Bar holder fixed to the concrete base	118	21401301	214.3.1	Universal connection clamp – earth rod Ø16/ tape conductor	35
10100201	101.1 DB	Compensation connection clamp	86	13110505	131.1.050	Bar holder fixed to the concrete base	118	21401401	214.4.1	Universal connection clamp – wire Ø8/wire Ø8	36
10100301	101.1 DD	Compensation connection clamp	86	13110705	131.1.075	Bar holder fixed to the concrete base	118	21401501	214.5.1	Universal connection clamp – earth rod Ø16/ earth rod Ø16	36
10100403	101.2 CU/30	Flexible tin-plated copper bridging braid	53	13111005	131.1.100	Bar holder fixed to the concrete base	118	21401601	214.6.1	Universal connection clamp – wire Ø8/earth rod Ø16	36
10100503	101.2 CU/40	Flexible tin-plated copper bridging braid	53	13130505	132.3.050	Bar holder fixed to the concrete base	118	21500101	215.1	Universal connection clamp – tape / tape conductor	35
10200199	102.1	Zinc spray	139	13130705	131.3.075	Bar holder fixed to the concrete base	118	21500201	215.2	Universal connection clamp – wire Ø8/tape conductor	35
10400208	104.1/2	Lightning conductor assembly pipe	63	13131005	131.3.100	Bar holder fixed to the concrete base	118	21500301	215.3	Universal connection clamp – earth rod Ø16/ tape conductor	35
10400308	104.1/3	Lightning conductor assembly pipe	63	13200505	132.0.050	Bar holder fixed to the clamp	119	21500401	215.4	Universal connection clamp – wire Ø8/wire Ø8	36
10420108		Tape conductor assembly pipe	53	13200705	132.0.075	Bar holder fixed to the clamp	119	21500601	215.6	Universal connection clamp – wire Ø8/earth rod Ø16	36
10500108	105.1	Lightning conductor assembly pipe	63	13201005	132.0.100	Bar holder fixed to the clamp	119	21501101	215.1.1	Universal connection clamp – tape / tape conductor	35
10500208	105.2	Lightning conductor assembly pipe	63	13210505	132.1.050	Bar holder fixed to the clamp	119	21501201	215.2.1	Universal connection clamp – wire Ø8/tape conductor	35
10500308		Tape conductor assembly pipe	53	13210705	132.1.075	Bar holder fixed to the clamp	119	21501301	215.3.1	Universal connection clamp – wire Ø8/earth rod Ø16/ tape conductor	35
10500408		Tape conductor assembly pipe	53	13211005	132.1.100	Bar holder fixed to the clamp	119	21501401	215.4.1	Universal connection clamp – wire Ø8/wire Ø8	36
10900199	109.1/M	Wire conductor sealant	89	13220505	132.2.050	Bar holder fixed to the clamp	119	21501501	215.5.1	Universal connection clamp – earth rod Ø16/ earth rod Ø16	36
10900221	109.2/M	Flat rubber sealant	89	13220705	132.2.075	Bar holder fixed to the clamp	119	21501601	215.6.1	Universal connection clamp – wire Ø8/earth rod Ø16	36
10900222	109.2/P	Flat rubber sealant	89	13221005	132.2.100	Bar holder fixed to the clamp	119	21600001		Ks screw	40
11000599	110.5	PVC membrane adhesive	136	13230505	132.3.050	Bar holder fixed to the clamp	119	21600102	216.1	Ks connector flat	39
11103099	111.30	Anti-corrosive tape for earth connections	139	13230705	132.3.075	Bar holder fixed to the clamp	119	21600202	216.2	Ks connector type „z”	39
11105099	111.50	Anti-corrosive tape for earth connections	139	13231005	132.3.100	Bar holder fixed to the clamp	119	21600302	216.3	Ks connector angle type	39
11110099	111.100	Anti-corrosive tape for earth connections	139	13300505	133.0.050	Bar holder fixed to the clamp	119	21600402	216.4	Ks connector wire / wire	39
11210099	112.100	Denso tape	139	13300705	133.0.075	Bar holder fixed to the clamp	119	24113004		Copper bonded earthing rods	46
11220099	112.200	Denso tape	139	13301005	133.0.100	Bar holder fixed to the clamp	119	24116004		Copper bonded earthing rods	46
11400105	114.1	Air termination stud	87	13310505	133.1.050	Bar holder fixed to the clamp	119	24123004		Copper bonded earthing rods	46
11401105	114.1.1	Air termination stud with connector	87	13310705	133.1.075	Bar holder fixed to the clamp	119	24126004		Copper bonded earthing rods	46
11402105	114.1.2	Air termination stud with connector	87	13311005	133.1.100	Bar holder fixed to the clamp	119	24133004		Copper bonded earthing rods	46
11600101	116.1	Angular cross connection clamp – rod/rod	37	13320505	133.2.050	Bar holder fixed to the clamp	119	24136004		Copper bonded earthing rods	46
11600201	116.2	Angular cross connection clamp – rod/rod	37	13320705	133.2.075	Bar holder fixed to the clamp	119	24143004		Copper bonded earthing rods	46
11600301	116.3	Angular cross connection clamp – rod/rod	37	13321005	133.2.100	Bar holder fixed to the clamp	119	24146004		Copper bonded earthing rods	46
11600401	116.4	Angular cross connection clamp – rod/rod	37	13330505	133.3.050	Bar holder fixed to the clamp	119	24173002		„Elkonomic” earthing rods	42
11600501	116.5	Angular cross connection clamp – rod/rod	37	13330705	133.3.075	Bar holder fixed to the clamp	119	24176002		„Elkonomic” earthing rods	42
11600601	116.6	Angular cross connection clamp – rod/rod	37	13331005	133.3.100	Bar holder fixed to the clamp	119	25900101		Low profiled ridge tile wire holder	78
11600701	116.7	Angular cross connection clamp – rod/rod	37	13400505	134.0.050	Bar holder fixed to the clamp	119	25902105		Low-profile wire holder	60
11600801	116.8	Angular cross connection clamp – rod/rod	37	13400705	134.0.075	Bar holder fixed to the clamp	119	25902105		Low-profile wire holder	74
11600901	116.9	Angular cross connection clamp – rod/rod	37	13401005	134.0.100	Bar holder fixed to the clamp	119	25903105		Low-profile wire holder z zaczepek	60
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11601301	116.3.1	Angular cross connection clamp – tape/tape	37	13420505	134.2.050	Bar holder fixed to the clamp	119	25920205		Universal ridge tile holder with plastic clip wire holder	77
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13011005	130.1.100	Bar holder fixed to the clamp	120	17200105	172.1	Podstawa iglicy na dach blaszany	106	43022509	43.25 AL 2p cz	Single concrete base interception air terminal	97
13020505	130.2.050	Bar holder fixed to the clamp	120	21004005		Uchwyt pod dachówkę uniwersalny taśmowy niski	72	43023009	43.3 AL 2p cz	Single concrete base interception air terminal	97
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43034009	43.4 AL 3p cz	Single concrete base interception air terminal	97	65048009	65.8 4p cz	Tripod lightning protection mast	99	66597005		Fourpod masts regulating set	112
43042509	43.25 AL 4p cz	Single concrete base interception air terminal	97	65055509	65.55 5p cz	Tripod lightning protection mast	99	66598005		Mast regulating set	112
43043009	43.3 AL 4p cz	Single concrete base interception air terminal	97	65056009	65.6 5p cz	Tripod lightning protection mast	99	66599005		Mast regulating set	112
43043509	43.35 AL 4p cz	Single concrete base interception air terminal	97	65056509	65.65 5p cz	Tripod lightning protection mast	99	67900211		Supportive air rod bars	113
43044009	43.4 AL 4p cz	Single concrete base interception air terminal	97	65057009	65.7 5p cz	Tripod lightning protection mast	99	67900311		Supportive air rod bars	113
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44323009	443.030 S AL	Aluminium interception air rod with stabilizer	104	65125092	65.5 2A 2P CZ	Fourpod lightning protection mast for high air termination	107	67910211		Supportive air rod bars	113
44323509	443.035 S AL	Aluminium interception air rod with stabilizer	104	65126092	65.6 2A 2P CZ	Fourpod lightning protection mast for high air termination	107	67910311		Supportive air rod bars	113
44324009	443.040 S AL	Aluminium interception air rod with stabilizer	104	65133092	65.3 2A 3P CZ	Fourpod lightning protection mast for high air termination	107	67910411		Supportive air rod bars	113
44331009	443.010	Aluminium interception air rod	104	65134092	65.4 2A 3P CZ	Fourpod lightning protection mast for high air termination	107	80000603	DR6	Wire conductor	58
44331509	443.015	Aluminium interception air rod	104	65135092	65.5 2A 3P CZ	Fourpod lightning protection mast for high air termination	107	80000802	DR8	Wire conductor	58
44332009	443.020	Aluminium interception air rod	104	65136092	65.6 2A 3P CZ	Fourpod lightning protection mast for high air termination	107	80000803	DR8	Wire conductor	58
44332509	443.025	Aluminium interception air rod	104	65142092	65.2 2A 4P CZ	Fourpod lightning protection mast for high air termination	107	80000804	DR8	Wire conductor	58
44333009	443.030	Aluminium interception air rod	104	65143092	65.3 2A 4P CZ	Fourpod lightning protection mast for high air termination	107	80000805	DR8	Wire conductor	58
44333509	443.035	Aluminium interception air rod	104	65144092	65.4 2A 4P CZ	Fourpod lightning protection mast for high air termination	107	80000855	DR8	Wire conductor	58
44334009	443.040	Aluminium interception air rod	104	65145092	65.5 2A 4P CZ	Fourpod lightning protection mast for high air termination	107	80001002	DR10	Wire conductor	58
44408208		Concrete base underneath pad	113	65146092	65.6 2A 4P CZ	Fourpod lightning protection mast for high air termination	107	80001003	DR10	Wire conductor	58
60000002		Lifting device for free standing masts 12-18 m	101	65152092	65.2 2A 5P CZ	Fourpod lightning protection mast for high air termination	107	80100809	DR 8 AL/PVC	Wire conductor w izolacji PVC	58
62003009	62.3 AL	Lightning protection air terminal	103	65153092	65.3 2A 5P CZ	Fourpod lightning protection mast for high air termination	107	80101001	DR 10 OC/PVC	Wire conductor w izolacji PVC	58
62003509	62.35 AL	Lightning protection air terminal	103	65154092	65.4 2A 5P CZ	Fourpod lightning protection mast for high air termination	107	80200809	ALDREY 50 mm"	ALDREY lightning protection rope	106
62004009	62.4 AL	Lightning protection air terminal	103	65155092	65.5 2A 5P CZ	Fourpod lightning protection mast for high air termination	107	82503002		Tape conductor	47
62004509	62.45 AL	Lightning protection air terminal	103	65156092	65.6 2A 5P CZ	Fourpod lightning protection mast for high air termination	107	82503003		Tape conductor	47
62005009	62.5 AL	Lightning protection air terminal	103	65211209	65.12 AL 1P CZ	Free standing lightning protection masts 12-18m	101	82504002		Tape conductor	47
62005509	62.55 AL	Lightning protection air terminal	103	65211309	65.13 AL 1P CZ	Free standing lightning protection masts 12-18m	101	82504003		Tape conductor	47
62006009	62.6 AL	Lightning protection air terminal	103	65211409	65.14 AL 1P CZ	Free standing lightning protection masts 12-18m	101	82504004		Tape conductor	47
62006509	62.65 AL	Lightning protection air terminal	103	65211509	65.15 AL 1P CZ	Free standing lightning protection masts 12-18m	101	83003502		Tape conductor	47
62007009	62.7 AL	Lightning protection air terminal	103	65211609	65.16 AL 1P CZ	Free standing lightning protection masts 12-18m	101	83003555		Tape conductor	47
62008009	62.8 AL	Lightning protection air terminal	103	65211709	65.17 AL 1P CZ	Free standing lightning protection masts 12-18m	101	83004002		Tape conductor	47
62009009	62.9 AL	Lightning protection air terminal	103	65221209	65.12 AL 2P CZ	Free standing lightning protection masts 12-18m	101	83004003		Tape conductor	47
62010009	62.10 AL	Lightning protection air terminal	103	65221309	65.13 AL 2P CZ	Free standing lightning protection masts 12-18m	101	83004004		Tape conductor	47
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62024009	62.4 AL WVM	Steel high voltage interception air rod	133	65221509	65.15 AL 2P CZ	Free standing lightning protection masts 12-18m	101	84004002		Tape conductor	47
62025009	62.5 AL WVM	Steel high voltage interception air rod	133	65221609	65.16 AL 2P CZ	Free standing lightning protection masts 12-18m	101	84004003		Tape conductor	47
62026009	62.6 AL WVM	Steel high voltage interception air rod	133	65221709	65.17 AL 2P CZ	Free standing lightning protection masts 12-18m	101	84004004		Tape conductor	47
62027009	62.7 AL WVM	Steel high voltage interception air rod	133	65325092	65.5 IZ 2P CZ	Fourpod insulated lightning protection mast for high air termination	108	84005002		Tape conductor	47
62042009	62.2 AL ZA	Mast air terminal for high air termination	109	65326092	65.6 IZ 2P CZ	Fourpod insulated lightning protection mast for high air termination	108	84005003		Tape conductor	47
62043009	62.3 AL ZA	Mast air terminal for high air termination	109	65333092	65.3 IZ 3P CZ	Fourpod insulated lightning protection mast for high air termination	108	84005004		Tape conductor	47
62044009	62.4 AL ZA	Mast air terminal for high air termination	109	65334092	65.4 IZ 3P CZ	Fourpod insulated lightning protection mast for high air termination	108	84005002		Tape conductor	47
62045009	62.5 AL ZA	Mast air terminal for high air termination	109	65335092	65.5 IZ 3P CZ	Fourpod insulated lightning protection mast for high air termination	108	90100101	1.1	4 Screws cross connection clamp	32
62046009	62.6 AL ZA	Mast air terminal for high air termination	109	65336092	65.6 IZ 3P CZ	Fourpod insulated lightning protection mast for high air termination	108	90100201	1.2	4 Screws cross connection clamp	32
62054009	62.4.1 AL ZA	Mast air terminal for high air termination	109	65342092	65.2 IZ 4P CZ	Fourpod insulated lightning protection mast for high air termination	108	90200101	2.1	2 Screws cross connection clamp	32
62055009	62.5.1 AL ZA	Mast air terminal for high air termination	109	65343092	65.3 IZ 4P CZ	Fourpod insulated lightning protection mast for high air termination	108	90200201	2.2	2 Screws cross connection clamp	32
62056009	62.6.1 AL ZA	Mast air terminal for high air termination	109	65344092	65.4 IZ 4P CZ	Fourpod insulated lightning protection mast for high air termination	108	90300201	3.1/5	Gutter wire holder	33
62057009	62.7.1 AL ZA	Mast air terminal for high air termination	109	65345092	65.5 IZ 4P CZ	Fourpod insulated lightning protection mast for high air termination	108	90400101	4.1	4 Screws control clamp	37
62062009	62.2 AL IZ	Insulated mast air terminal for high air termination	110	65346092	65.6 IZ 4P CZ	Fourpod insulated lightning protection mast for high air termination	108	90600101	6.1	Wire-wire control clamp	38
62063009	62.3 AL IZ	Insulated mast air terminal for high air termination	110	65352092	65.2 IZ 5P CZ	Fourpod insulated lightning protection mast for high air termination	108	90700101	7.1	2 – Elements universal clamp	33
62064009	62.4 AL IZ	Insulated mast air terminal for high air termination	110	65353092	65.3 IZ 5P CZ	Fourpod insulated lightning protection mast for high air termination	108	90710101	7.1 R	Connecting sleeve	33
62065009	62.5 AL IZ	Insulated mast air terminal for high air termination	110	65354092	65.4 IZ 5P CZ	Fourpod insulated lightning protection mast for high air termination	108	90710201	7.2 R	Connecting sleeve	33
62066009	62.6 AL IZ	Insulated mast air terminal for high air termination	110	65355092	65.5 IZ 5P CZ	Fourpod insulated lightning protection mast for high air termination	108	90800101	8.1	3 – Elements universal clamp	34
62074009	62.4.1 AL IZ	Insulated mast air terminal for high air termination	110	65356092	65.6 IZ 5P CZ	Fourpod insulated lightning protection mast for high air termination	108	91000102	10.1	Angle wire holder	70
62075009	62.5.1 AL IZ	Insulated mast air terminal for high air termination	110	65420892	65.8.1 2P CZ	Fourpod lightning protection mast	100	91000702	10.1.1	Angle wire holder	70
62076009	62.6.1 AL IZ	Insulated mast air terminal for high air termination	110	65420992	65.9.1 2P CZ	Fourpod lightning protection mast	100	91001102	10.1/5	Angle wire holder	70
62077009	62.7.1 AL IZ	Insulated mast air terminal for high air termination	110	65421092	65.10.1 2P CZ	Fourpod lightning protection mast	100	91001602	10.1.1/5	Angle wire holder	70
65013009	65.3 1p cz	Tripod lightning protection mast	99	65430892	65.8.1 3P CZ	Fourpod lightning protection mast	100	91002002	10.1/P	Angle wire holder 2 plastikiem	70
65013509	65.35 1p cz	Tripod lightning protection mast	99	65430992	65.9.1 3P CZ	Fourpod lightning protection mast	100	91002402	10.2/Z	Under tile wire holder with hook	71
65014009	65.4 1p cz	Tripod lightning protection mast	99	65431092	65.10.1 3P CZ	Fourpod lightning protection mast	100	91002502	10.3/Z	Under tile wire holder with hook	71
65014509	65.45 1p cz	Tripod lightning protection mast	99	65440892	65.8.1 4P CZ	Fourpod lightning protection mast	100	91002602	10.4/Z	Under tile wire holder with hook	71
65015009	65.5 1p cz	Tripod lightning protection mast	99	65440992	65.9.1 4P CZ	Fourpod lightning protection mast	100	91002702	10.2.1/Z	Under tile wire holder with hook	71
65023009	65.3 2p cz	Tripod lightning protection mast	99	65441092	65.10.1 4P CZ	Fourpod lightning protection mast	100	91002802	10.3.1/Z	Under tile wire holder with hook	71
65023509	65.35 2p cz	Tripod lightning protection mast	99	65450892	65.8.1 5P CZ	Fourpod lightning protection mast	100	91002902	10.4.1/Z	Under tile wire holder with hook	71
65024009	65.4 2p cz	Tripod lightning protection mast	99	65451092	65.10.1 5P CZ	Fourpod lightning protection mast	100	91003002	10.2/Z/5	Under tile wire holder with hook	71
65024509	65.45 2p cz	Tripod lightning protection mast	99	65604009	65.4/M AL	Steel base interception mast	102	91003102	10.3/Z/5	Under tile wire holder with hook	71
65025009	65.5 2p cz	Tripod lightning protection mast	99	65604509	65.45/M AL	Steel base interception mast	102	91003202	10.4/Z/5	Under tile wire holder with hook	71
65025509	65.55 2p cz	Tripod lightning protection mast	99	65605009	65.5/M AL	Steel base interception mast	102	91003302	10.2.1/Z/5	Under tile wire holder with hook	71
65026009	65.6 2p cz	Tripod lightning protection mast	99	65605509	65.55/M AL	Steel base interception mast	102	91003402	10.3.1/Z/5	Under tile wire holder with hook	71
65026509	65.65 2p cz	Tripod lightning protection mast	99	65606009	65.6/M AL	Steel base interception mast	102	91003502	10.4.1/Z/5	Under tile wire holder with hook	71
65027009	65.7 2p cz	Tripod lightning protection mast	99	65606509	65.65/M AL	Steel base interception mast	102	91003702	10.2/Z/P	PVC under tile wire holder with hook	70
65033009	65.3 3p cz	Tripod lightning protection mast	99	65607009	65.7/M AL	Steel base interception mast	102	91003802	10.3/Z/P	PVC under tile wire holder with hook	70
65033509	65.35 3p cz	Tripod lightning protection mast	99	65713009	65.3 1p cz WVM	Tripod high voltage interception mast	132	91003902	10.4/Z/P	PVC under tile wire holder with hook	70
65034009	65.4 3p cz	Tripod lightning protection mast	99	65714009	65.4 1p cz WVM	Tripod high voltage interception mast	132	91004009	10.10/S AL	Tape universal under tile wire holder	72
65034509	65.45 3p cz	Tripod lightning protection mast	99	65724009	65.4 2p cz WVM	Tripod high voltage interception mast	132	91004109	10.10/P	PVC tape universal under tile wire holder	72
65035009	65.5 3p cz	Tripod lightning protection mast	99	65725009	65.5 2p cz WVM	Tripod high voltage interception mast	132	91005002	10.5	Under tile wire holder with hook	73
65035509	65.55 3p cz	Tripod lightning protection mast	99	65726009	65.6 2p cz WVM	Tripod high voltage interception mast	132	91006002	10.5/5	Under tile wire holder with hook	73
65036009	65.6 3p cz	Tripod lightning protection mast	99	65727009	65.7 2p cz WVM	Tripod high voltage interception mast	132	91008002	10.5.1	Under tile wire holder with hook	73
65036509	65.65 3p cz	Tripod lightning protection mast	99	65735009	65.65 3p cz WVM	Tripod high voltage interception mast	132	91009002	10.5.1/5	Under tile wire holder with hook	73
65037009	65.7 3p cz	Tripod lightning protection mast	99	65736009	65.6 3p cz WVM	Tripod high voltage interception mast	132	91010002	10.6	Universal wire holder	73
65038009	65.8 3p cz	Tripod lightning protection mast	99	65737009	65.7 3p cz WVM	Tripod high voltage interception mast	132	91010102	10.6/5	Universal wire holder	73
65044509	65.45 4p cz	Tripod lightning protection mast	99	65745009	65.5 4p cz WVM	Tripod high voltage interception mast	132	91010202	10.7	GERARD, TILCOR type wire holder	74
65045009	65.5 4p cz	Tripod lightning protection mast	99	65746009	65.6 4p cz WVM	Tripod high voltage interception mast	132	91012202	10.7/5	GERARD, TILCOR type wire holder	74
65045509	65.55 4p cz	Tripod lightning protection mast	99	65747009	65.7 4p cz WVM	Tripod high voltage interception mast	132	91080001	10.1 FALA B5	Perforated „Eurofala” steel sheet roof holder	75
65046009	65.6 4p cz	Tripod lightning protection mast	99	66000105		Mast holder for high horizontal air termination	117	91090001	10.1/5 FALA B5	Perforated „Eurofala” steel sheet roof holder	75

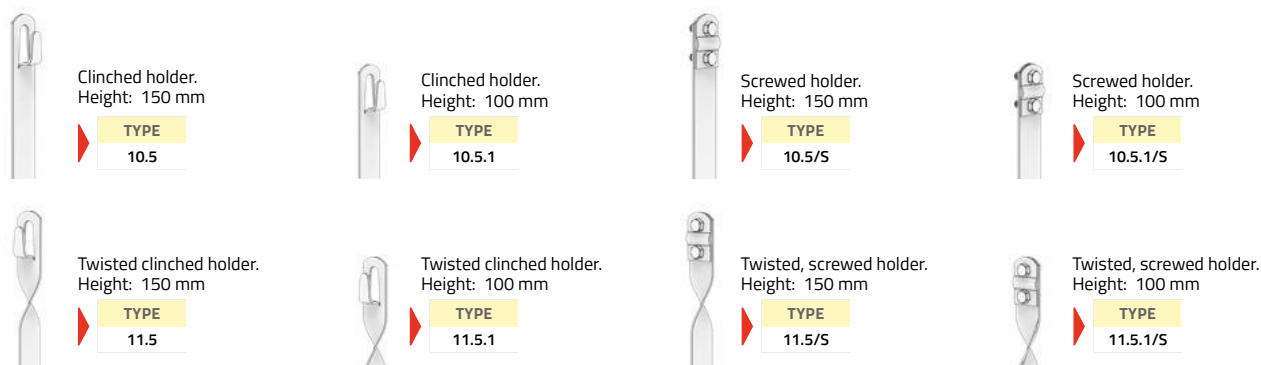
CATALOG NUMBER	TYPE	Name	p.	CATALOG NUMBER	TYPE	Name	p.	CATALOG NUMBER	TYPE	Name	p.
91100102	11.1	Twisted angle wire holder	70	91700201	17.2	Special roof wire holder	76	94173002		Complete "Elkonomic" Earthing Rod Set	42
91100702	11.1.1	Twisted angle wire holder	70	91700301	17.3	Special roof wire holder	76	94183002		Complete "Elkonomic" Earthing Rod Set	42
91101102	11.1/5	Twisted angle wire holder	70	92000101	20.1	Roof top wire holder	79	94200101	42.1	Threaded earthing rod	44
91101602	11.1.1/5	Twisted angle wire holder	70	92000201	20.1/5	Roof top wire holder	79	94200201	42.2	Threaded earthing rod clamp	44
91102402	11.2/2	Under tile wire holder with hook skřęconý	71	92000301	20.1/P	PVC roof top wire holder	80	94200301	42.3	Threaded earthing rod header	44
91102502	11.3/2	Under tile wire holder with hook skřęconý	71	92000401	20.1.1	Roof top wire holder	79	94200401	42.4	Threaded earthing rod connector	44
91102602	11.4/2	Under tile wire holder with hook skřęconý	71	92000501	20.1.1/5	Roof top wire holder	79	94200501	42.5	Threaded earthing rod impact tip	44
91102702	11.2.1/2	Under tile wire holder with hook skřęconý	71	92200101	22.1	Uchwytyt krzyżowy z płytką	76	94201101	42.1.1	Threaded earthing rod	44
91102802	11.3.1/2	Under tile wire holder with hook skřęconý	71	92200401	22.1.1	Uchwytyt krzyżowy z płytką	76	94209899		SDS MAX hammer insert for „Elkonomic” earthing rods	47
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91200201	12.2	Fixing holder (screwed)	59	93000411	30.4	Uchwytyt plastikowy z obciążnikiem	85	94301402	43.14A	Small steel interception mast base	110
91200226	12.2	Conductor holder with screw and wall plug	59	93000505	30.5	Tape conductor holder do uchwytyt betonowego w tworzywie	85	94301509	43.015	Aluminium interception air rod	104
91200301	12.3	Fixing holder (screwed)	59	93001111	30.1.1	Uchwytyt betonowy w tworzywie	83	94302009	43.020	Aluminium interception air rod	104
91200326	12.3	Conductor holder with screw and wall plug	59	93001211	30.2.1	Uchwytyt betonowy w tworzywie wysoki	84	94302509	43.025	Aluminium interception air rod	104
91200401	12.4	Fixing holder (screwed)	59	93001311	30.3/M PL	Uchwytyt z tworzywa	85	94303009	43.030	Aluminium interception air rod	104
91200501	12.5	Fixing holder (screwed)	59	93002111	30.1.2	Uchwytyt betonowy w tworzywie	83	94303509	43.035	Aluminium interception air rod	104
91200601	12.6	Fixing holder (screwed)	59	93003211	30.1.3	Uchwytyt betonowy w tworzywie	83	94304009	43.040	Aluminium interception air rod	104
91200901	12.9	Fixing holder (screwed)	59	93005111		Uchwytyt betonowy w tworzywie	83	94308021	43.80/F	Podkładka do podstawy betonowej	111
91210101	12.1.1	Wire holder with fixing plug	59	93006111		Uchwytyt betonowy w tworzywie	83	94308022	43.80/P	Podkładka do podstawy betonowej	111
91210201	12.2.1	Wire holder with fixing plug	59	93010111		Uchwytyt betonowy w tworzywie	83	94308111	43.81/F	Podkładka do uchwytyt betonowego do koryt kablowych	88
91210301	12.3.1	Wire holder with fixing plug	59	93010211	30.2 F1 10	Uchwytyt betonowy w tworzywie	83	94308122	43.81/P	Podkładka do uchwytyt betonowego do koryt kablowych	88
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91220301	12.3/P	Plastic clip holder with with expansion plug	60	93020311	30.3/P	Pasek mocujący	85	94381009	43.1/M	Steel base interception mast	100
91220401	12.4/P	Plastic clip holder with with expansion plug	60	93030111		Uchwytyt betonowy w tworzywie	83	94381509	43.15/M	Steel base interception mast	100
91230301	12.3/B	Fixing holder (screwed) do bednarki	59	93050211	30.2/W	Uchwytyt betonowy w tworzywie wysoki	84	94382009	43.2/M	Steel base interception mast	100
91230801	12.8/B	Fixing holder (screwed) do bednarki	59	93070201	30.2 W OC	Uchwytyt wysoki do uchwytyt betonowego w tworzywie	84	94382509	43.25/M	Steel base interception mast	100
91231301	12.3.1/B	Fixing holder (screwed) do bednarki	59	93090211	30.2/P	Uchwytyt betonowy w tworzywie z plastikiem	84	94383009	43.3/M	Steel base interception mast	100
91231801	12.8.1/B	Fixing holder (screwed) do bednarki	59	93200101	32.1	Bolt rzymska „oczko-oczko”	65	94383509	43.35/M	Steel base interception mast	100
91300101	13.1	Tensioning control connector	64	93200201	32.2	Bolt rzymska „oczko-oczko”	65	94384009	43.4/M	Steel base interception mast	100
91400101	14.1	Universal connection clamp - wire / tape conductor	34	93200301	32.3	Bolt rzymska „oczko-oczko”	65	94700101	47.1	Uchwytyt metalowy UJ	63
91400101	14.1	Universal connection clamp - wire / tape conductor	38	93200401	32.4	Bolt rzymska „oczko-oczko”	65	94700201	47.2	Uchwytyt metalowy UJ	63
91400201	14.2	Universal connection clamp - wire / tape conductor	34	93200501	32.5	Bolt rzymska „oczko-oczko”	65	94700301	47.3	Uchwytyt metalowy UJ	63
91400201	14.2	Universal connection clamp - wire / tape conductor	38	93200601	32.6	Bolt rzymska „oczko-oczko”	65	94700401	47.4	Uchwytyt metalowy UJ	63
91400301	14.3	Universal connection clamp - tape / tape conductor	34	93400101	34.1	Bolt rzymska „hak-hak”	65	94700501	47.5	Uchwytyt metalowy UJ	63
91400401	14.4	Universal connection clamp - tape / tape conductor	34	93400201	34.2	Bolt rzymska „hak-hak”	65	94700601	47.6	Uchwytyt metalowy UJ	63
91400501	14.5	Universal connection clamp: earthing rod / tape conductor	34	93400301	34.3	Bolt rzymska „hak-hak”	65	94700701	47.7	Uchwytyt metalowy UJ	63
91400502	14.5	Universal connection clamp: earthing rod / tape conductor	34	93400401	34.4	Bolt rzymska „hak-hak”	65	94700801	47.8	Uchwytyt metalowy UJ	63
91400601	14.6	Universal connection clamp: earthing rod / tape conductor	34	93400501	34.5	Bolt rzymska „hak-hak”	65	94700901	47.9	Uchwytyt metalowy UJ	63
91400701	14.7	Universal connection clamp - tape / tape conductor	34	93400601	34.6	Bolt rzymska „hak-hak”	65	94800101	48.1	Uchwytyt metalowy UD	63
91401101	14.1.1	Universal connection clamp wire conductor / wire conductor	35	93500101	35.1	Bolt rzymska „hak-oczko”	65	94800201	48.2	Uchwytyt metalowy UD	63
91401301	14.3.1	Universal connection clamp: earthing rod / tape conductor	34	93500201	35.2	Bolt rzymska „hak-oczko”	65	94800301	48.3	Uchwytyt metalowy UD	63
91401302	14.3.1	Universal connection clamp - earthing rod / tape conductor	43	93500301	35.3	Bolt rzymska „hak-oczko”	65	94800401	48.4	Uchwytyt metalowy UD	63
91401305	14.3.1	Universal connection clamp - earthing rod / tape conductor	45	93500401	35.4	Bolt rzymska „hak-oczko”	65	94800501	48.5	Uchwytyt metalowy UD	63
91401501	14.5.1	Universal connection clamp wire conductor / wire conductor	35	93500501	35.5	Bolt rzymska „hak-oczko”	65	94800601	48.6	Uchwytyt metalowy UD	63
91401601	14.6.1	Universal connection clamp wire conductor / wire conductor	35	93500601	35.6	Bolt rzymska „hak-oczko”	65	94800701	48.7	Uchwytyt metalowy UD	63
91401701	14.7.1	Universal connection clamp - tape / tape conductor	34	93600101	36.1	Rope clamping ring	66	94800801	48.8	Uchwytyt metalowy UD	63
91402301	14.3.2	Universal connection clamp - tape / tape conductor	34	93600201	36.2	Rope clamping ring	66	94800901	48.9	Uchwytyt metalowy UD	63
91403301	14.3.3	Universal connection clamp - wire / tape conductor	34	93600301	36.3	Rope clamping ring	66	94900108	49.1	Obudowa na złącze kontrolne do gruntu	52
91403301	14.3.3	Universal connection clamp - wire / tape conductor	38	93600401	36.4	Rope clamping ring	66	94940102	59.1/5	Ridge tile wire holder	79
91403401	14.3.4	Universal connection clamp wire conductor / wire conductor	35	93600501	36.5	Rope clamping ring	66	94940202	59.1/5	Ridge tile wire holder	79
91403501	14.3.5	Universal connection clamp - wire / tape conductor	34	93600601	36.6	Rope clamping ring	66	94940302	59.1/5	Ridge tile wire holder	79
91403501	14.3.5	Universal connection clamp - wire / tape conductor	38	93600701	36.7	Rope clamping ring	66	95000108	50.1	Obudowa na złącze kontrolne do gruntu najazdowa	52
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91500101	15.1	Flat base roof wire holder	75	93600901	36.9	Rope clamping ring	66	95020108	50.B	Obudowa na złącze kontrolne do gruntu najazdowa	52
91500201	15.1/5	Flat base roof wire holder	75	93900102	39.1	Earth conductor cover	53	95030108	50.C	Obudowa na złącze kontrolne do gruntu najazdowa	52
91500301	15.1/P	PVC clip flat base roof wire holder	75	94001002	40.10	Profile earthing rod	46	95040108	50.D	Obudowa na złącze kontrolne do gruntu najazdowa	52
91500401	15.1.1	Flat base roof wire holder	75	94001502	40.15	Profile earthing rod	46	95211809	65.18 AL 1P CZ	Free standing lightning protection masts 12-18m	99
91500501	15.1.1/5	Flat base roof wire holder	75	94002002	40.20	Profile earthing rod	46	95221809	65.18 AL 2P CZ	Free standing lightning protection masts 12-18m	99
91600101	16.1	Flat base roof wire holder MAX	76	94002502	40.25	Profile earthing rod	46	95400101	54.1	Złącze trójnikowe	33
91600201	16.1/5	Flat base roof wire holder MAX	76	94003002	40.30	Profile earthing rod	46	95500101	55.1	Single screw cross connection clamp	32
91600301	16.1/P	PVC clip flat base roof wire holder - MAX	76	94103001	41.1	Threaded earthing rod	44	95500201	55.2	Single screw cross connection clamp	32
91600401	16.1.1	Flat base roof wire holder MAX	76	94123001	41.1.1	Threaded earthing rod	44	95501101	55.1.1	Single screw cross connection clamp 3-part	32
91600501	16.1.1/5	Flat base roof wire holder MAX	76	94124102	4.1 M24	Metal constructions control clamp	38	95900101	59.1	Universal ridge tile wire holder G5	77
91700101	17.1	Special roof wire holder	76	94132102	4.1 M32	Metal constructions control clamp	38	95900201	59.2	PVC universal ridge tile wire holder G6	77

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95900302	59.3	Ridge tile wire holder Gerard Corona/ Senator/Tilor	79	97300105	73.1	Plate type earthing connector	48	10210121080		ESPAC V T12 12,5/275 1+1	18
95901101	59.1 MAX	Universal ridge tile wire holder G5 MAX	78	97300205	73.2	Plate type earthing connector	48	10210121180		ESPAC V T12 12,5/275 1+1 RI	18
95901201	59.2 MAX	Uchwyt gąsiorowy uniwersalny G6 MAX z plastikiem	78	97300305	73.3	Plate type earthing connector	48	10210251180		ESPAC VG T12 25/260 1+1 RI	16
95902101	59.1B	Universal wire holder	74	97400101	74.1	Tape conductor holder ze śrubą dociskową	49	10300120080		ESPAC V T12 12,5/275 3+0	18
95910101	59.1/5	Universal ridge tile wire holder G5	77	97400201	74.2	Tape conductor holder	49	10300120180		ESPAC V T12 12,5/275 3+0 RI	18
95910302	59.3/5	Ridge tile wire holder Gerard Corona/ Senator/Tilor	79	97400401		Tape conductor holder z izolatorem	49	10300250080		ESPAC VG T12 25/260 3+0	16
95911101	59.1/5 MAX	Universal ridge tile wire holder G5 MAX	78	97401201	74.2.1	Tape conductor holder	49	10300250180		ESPAC VG T12 25/260 3+0 RI	16
95912101	59.1B/5	Universal wire holder	74	97500101	75.1	Hook screw	66	10400120080		ESPAC V T12 12,5/275 4+0	18
95930102	59.1	Ridge tile wire holder	79	97500201	75.2	Hook screw	66	10400120180		ESPAC V T12 12,5/275 4+0 RI	18
95930202	59.1	Ridge tile wire holder	79	97500301	75.3	Hook screw	66	10400250080		ESPAC VG T12 25/260 4+0	16
95930302	59.1	Ridge tile wire holder	79	97500501	75.4	Hook screw	66	10400250180		ESPAC VG T12 25/260 4+0 RI	16
95930402	59.1	Ridge tile wire holder	79	97500601	75.5	Hook screw	66	10410121080		ESPAC V T12 12,5/275 3+1	18
95931002	59.1	Ridge tile wire holder	79	97500701	75.6	Hook screw	66	10410121180		ESPAC V T12 12,5/275 3+1 RI	18
95940402	59.1/5	Ridge tile wire holder	79	97500801	75.7	Hook screw	66	10410251180		ESPAC VG T12 25/260 3+1 RI	16
95941002	59.1/5	Ridge tile wire holder	79	97500901	75.8	Hook screw	66	10530123280		ESPAC V T12 12,5/275	28
96000102	60.1	Uchwyt masztu	113	97501001	75.9	Hook screw	66	10540253280		ESPAC V T12 12,5 NPE	28
96000202	60.2	Uchwyt masztu	113	97501101	75.10	Hook screw	66	10540503280		ESPAC V T12 50 NPE	28
96000401	60.4	Uchwyt cybantowy	116	97511101	75.11	Hook screw	66	10630253280		ESPAC VG T12 25/260	28
96000701	60.7/M16	Uchwyt masztu do obejm uniwersalnych	114	97511201	75.12	Hook screw	66	10640503280		ESPAC VG T12 50 NPE	28
96000801	60.8/M16	Uchwyt masztu do obejm uniwersalnych	114	97511301	75.13	Hook screw	66	10641003280		ESPAC VG T12 100 NPE	28
96016105	60.16.1	Uchwyt iglicy regulowany	112	97511401	75.14	Hook screw	66	12100200080		ESPAC V T2 20/275 1+0	20
96016205	60.16.2	Uchwyt iglicy regulowany	112	97511501	75.15	Hook screw	66	12100200180		ESPAC V T2 20/275 1+0 RI	20
96024105	60.24.1	Uchwyt iglicy regulowany	112	97511601	75.16	Hook screw	66	12200200080		ESPAC V T2 20/275 2+0	20
96024205	60.24.2	Uchwyt iglicy regulowany	112	97511701	75.17	Hook screw	66	12200200180		ESPAC V T2 20/275 2+0 RI	20
96040105	60.40.1	Uchwyt masztu regulowany	112	97511801	75.18	Hook screw	66	12210201080		ESPAC V T2 20/275 1+1	20
96040205	60.40.2	Uchwyt masztu regulowany	112	97700105	77.1/M8	Objeina uniwersalna pojedyncza do konstrukcji	117	12210201180		ESPAC V T2 20/275 1+1 RI	20
96100899	61.B	Licznik wyładowań cyfrowy	136	97700205	77.2/M8	Objeina uniwersalna pojedyncza do konstrukcji	117	12300102180		ESPAC V T2 20/600 3+0 RI	20
96212505	62.25 WVP	Maszty wysokonapięciowy z tworzywa	129	97700305	77.3/M8	Objeina uniwersalna pojedyncza do konstrukcji	117	12300200080		ESPAC V T2 20/275 3+0	20
96213005	62.3 WVP	Maszty wysokonapięciowy z tworzywa	129	97701105	77.1/M16	Objeina uniwersalna pojedyncza do konstrukcji	117	12300200180		ESPAC V T2 20/275 3+0 RI	20
96214005	62.4 WVP	Maszty wysokonapięciowy z tworzywa	129	97701205	77.2/M16	Objeina uniwersalna pojedyncza do konstrukcji	117	12400200080		ESPAC V T2 20/275 4+0	20
96300101	63.1	Uchwyt dystansowy przykręcany	61	97701305	77.3/M16	Objeina uniwersalna pojedyncza do konstrukcji	117	12400200180		ESPAC V T2 20/275 4+0 RI	20
96300201	63.2	Uchwyt dystansowy przykręcany	61	97900029	79.100 M8/M16	Separation bar	120	12410201080		ESPAC V T2 20/275 3+1	20
96304101	63.1/P	Uchwyt dystansowy przekręcany z plastikiem	62	97900729	79.075 M8/M8	Separation bar	120	12410201180		ESPAC V T2 20/275 3+1 RI	20
96410805	64.08/5	Uchwyt do rury spustowej	62	97901529	79.150 M8/M8	Separation bar	120	12530103280		ESPAC V T2 20/600	29
96410905	64.09/5	Uchwyt do rury spustowej	62	97910729	79.075 M8/M16	Separation bar	120	12530203280		ESPAC V T2 20/275	29
96411005	64.10/5	Uchwyt do rury spustowej	62	97911029	79.100 M8/M16	Separation bar	120	12540203280		ESPAC V T2 20 NPE	29
96420805	64.08/P	Uchwyt do rury spustowej z plastikiem	62	97911529	79.150 M8/M16	Separation bar	120	13210051080		ESPAC V T3 5/275 1+1	22
96421005	64.10/P	Uchwyt do rury spustowej z plastikiem	62	97912029	79.200 M8/M16	Separation bar	120	13210051180		ESPAC V T3 5/275 1+1 RI	22
96432105	64.1/U Ni	Objeina uniwersalna nierdzewna	62	97920029	79.200 M8/M8	Separation bar	120	13530053280		ESPAC V T3 5/275	29
96432205	64.2/U Ni	Objeina uniwersalna nierdzewna	62	97920729	79.075 M16/M16	Separation bar	120	13540053280		ESPAC V T23 5 NPE	29
96440101	64.1/E	Earthing tensioning strap	54	97921029	79.100 M16/M16	Separation bar	120	20121003080		ESPPV V T12 12,5/1000 Y	24
96440101	64.1/E	Earthing tensioning strap	130	97921529	79.150 M16/M16	Separation bar	120	20121003180		ESPPV V T12 12,5/1000 Y RI	24
96440201	64.2/E	Earthing tensioning strap	54	97922029	79.200 M16/M16	Separation bar	120	20121503080		ESPPV V T12 12,5/1500 Y	24
96440301	64.3/E	Earthing tensioning strap	54	98010002	80.100	Wspornik izolowany z wodu pionowego	118	20121503180		ESPPV V T12 12,5/1500 Y RI	24
96440401	64.4/E	Earthing tensioning strap	54	98100101	81.1	Łącznik prosty	122	22120703080		ESPPV V T2 20/700 Y	26
96440501	64.5/E	Earthing tensioning strap	54	98200101	82.1	Łącznik przegubowy	122	22120703180		ESPPV V T2 20/700 Y RI	26
96540001	65.R.1	Zestaw regulacyjny do masztów z podstawą metalową	111	98300401	83.4	Uchwyt drążka okrągły	121	22121003080		ESPPV V T2 15/1000 Y	26
96700105	67.1/M8	Objeina uniwersalna podwójna do konstrukcji	117	98300601	83.6	Uchwyt drążka okrągły	121	22121003180		ESPPV V T2 15/1000 Y RI	26
96700205	67.2/M8	Objeina uniwersalna podwójna do konstrukcji	117	98400101	84.1	Uchwyt drążka płaski	121	22530703280		ESPPV V T2 20/700	29
96700305	67.3/M8	Objeina uniwersalna podwójna do konstrukcji	117	98400201	84.2	Uchwyt drążka z nasadką do drutu	121	22531003280		ESPPV V T2 15/1000	29
96701105	67.1/M16	Objeina uniwersalna podwójna do konstrukcji	117	98400301	84.3	Uchwyt drążka do konstrukcji	121				
96701205	67.2/M16	Objeina uniwersalna podwójna do konstrukcji	117	98400405	84.4	Uchwyt drążka do konstrukcji	121				
96701305	67.3/M16	Objeina uniwersalna podwójna do konstrukcji	117	98401201	84.2.1	Uchwyt drążka z nasadką do iglicy	122				
96740105	67.1.40	Objeina uniwersalna podwójna z uchwytem regulowanym	117	98600102	86.1	Uchwyt do prostowania drutu i bednarki	135				
96740205	67.2.40	Objeina uniwersalna podwójna z uchwytem regulowanym	117	98700101	87.1	Uchwyt naciągowy boczny	90				
96740305	67.3.40	Objeina uniwersalna podwójna z uchwytem regulowanym	117	98700201	87.2	Uchwyt naciągowy prosty	90				
96800108	68.1/B	Facade control pit	67	98800101	88.1	Uchwyt naciągowy poziomy	90				
96800208	68.2/B	Facade control pit	67	99200199	92.1	Szyna ekwipotencjalna	52				
96800305	68.3	Inspection doors	67	99200210		Główna szyna wyrównawcza (luziemająca)	53				
96801108	68.1/S2	Facade control pit	67	99201199	92.1.1	Szyna ekwipotencjalna	52				
96801208	68.2/S2	Facade control pit	67	99300199	93.1	Klej montażowy ELKO-FIX	136				
96801408	68.4/B	Facade control pit	67	99401099	94.10	Masa klejąca	136				
96802408	68.4/S2	Facade control pit	67	99500199	95.1	Wazelina techniczna	137				
96803408	68.4/K	Facade control pit	67	99600101	96.0	Uchwyt do drutu „na felc” dwuśrubowy	80				
96804408	68.4/BR	Facade control pit	67	99600201	96.1	Uchwyt do drutu „na felc” dwuśrubowy	80				
97001009	70.10	Iglica kominowa	105	99600301	96.2	Uchwyt do drutu „na felc” jednośrubowy	81				
97001509	70.15	Iglica kominowa	105	99601301		Low-profile wire holder „na felc” jednośrubowy	81				
97002009	70.20	Iglica kominowa	105	99603109	96.0/M	Uchwyt do drutu „na felc” jednośrubowy uniwersalny	81				
97002509	70.25	Iglica kominowa	105	99603205	96.3	Uchwyt do drutu do blach Kalzip jednośrubowy	81				
97003009	70.30	Iglica kominowa	105	99604101		Low-profile wire holder „na felc” dwuśrubowy	80				
97100102	71.1	Wspornik uziomowy do bednarki	48	99610101	96.0/P	Uchwyt do drutu „na felc” dwuśrubowy z plastikiem	80				
97101009	71.10	Iglica gąsiorowa podwójna	105	99800101	98.1	screw with washer	138				
97101509	71.15	Iglica gąsiorowa podwójna	105	99900101	99.1	screw with washer	138				
97102009	71.20	Iglica gąsiorowa podwójna	105	99900201	99.2	screw with washer	138				
97111009	71.10/1	Iglica gąsiorowa pojedyncza	105	99910101	99.1/B	screw with washer	138				
97121009	71.10/M AL	Iglica odgromowa na dach blaszany	106	10100120080		ESPAC V T12 12,5/275 1+0	18				
97121509	71.15/M AL	Iglica odgromowa na dach blaszany	106	10100120180		ESPAC V T12 12,5/275 1+0 RI	18				
97122009	71.20/M AL	Iglica odgromowa na dach blaszany	106	10100250080		ESPAC VG T12 25/260 1+0	16				
97131009	71.10.1/M	Iglica szczytowa	106	10100250180		ESPAC VG T12 25/260 1+0 RI	16				
97131509	71.15.1/M	Iglica szczytowa	106	10200120080		ESPAC V T12 12,5/275 2+0	18				
97132009	71.20.1/M	Iglica szczytowa	106	10200120180		ESPAC V T12 12,5/275 2+0 RI	18				
97200109	72.1	Złącze oznacznikowe	38	10200250080		ESPAC VG T12 25/260 2+0	16				
97201109	72.1.1	Złącze oznacznikowe	38	10200250180		ESPAC VG T12 25/260 2+0 RI	16				

TILE TEMPLATES

Types of holders

When ordering selected holder type, pay attention to the **TYPE** of the product.



Selection of material option

Changing the last two digits of the catalog number allows you to change the material option of the selected product.

St/tZn	02	hot galvanized steel
CU	03	copper
V2A	05	stainless steel V2A

Selection of varnished color version

Changing the last two digits of the catalog number in the varnished version allows the selection of a specific color. Below are the available color options together with their corresponding catalog number suffixes.*

RAL 3011	RAL 8004	RAL 8017	RAL 9005	RAL 7016
RAL 3011 12	RAL 8004 13	RAL 8017 14	RAL 9005 15	RAL 7016 17

*Actual colors may slightly differ from the presented samples.

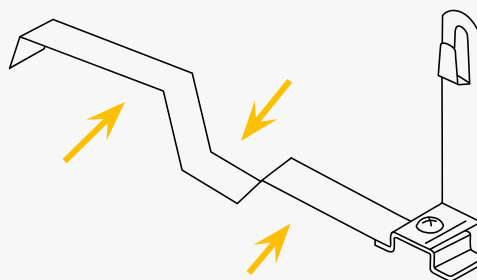
TILE HOLDERS MATCHING TABLE

HOLDER	The holder fits	Producer	HOLDER	The holder fits	Producer	HOLDER	The holder fits	Producer
Braas	Nibra H10	Nelskamp	Creaton	TG 10	ABC Klinkergruppe	Creaton Simpla	Simpla	Creaton
	Nibra H14			Innovo 10	Bogener	Domino	Domino	Creaton
	Innovo 12	Bogener		Reform 11			Actua 10	Koramic/ Wienerberger
	Granat 11V	Braas		Magnum	Creaton		Koramic L-15	Figaro
	Granat 13V			Balance		Renesansowa L-15		Koramic/ Wienerberger
	Rubin 9V			Futura		Marsylka	Marsylka	Creaton
	Rubin 13V			Harmonica	Nibra	Nibra G10 Pro	Nelskamp	
	Topas 11V	Premion		Optima	Optima/Terraoptima	Creaton		
	Alegra 12	Koramic/ Wienerberger		Uniwerso 10	Koramic/ Wienerberger	Orea	Orea 9	Koramic/ Wienerberger
	Cavus 14			Renesansowa E-32		Piano	Piano	Meyer-Holsen
	Madura			Reńska Cosmo 11			Plano 11	Bogener
	OVH			Reńska Cosmo 12		Plano	Bergamo	Röben
	Ravensburger	Meyer-Holsen		Reńska Cosmo 15		Roben	Piemont	Röben
	Monza Plus	Röben		Romańska Kathago 14		Sinfonie	Sinfonie	Creaton
	Bornholm			Tandem/Tandem Junior	Sirius	Sirius 13	Monier/Braas/ Rupp Ceramika	
				VarioAltstadt Vario	Meyer-Holsen	Titania	Titania	Creaton
		Zwilling/Zwilling Junior						
		Nibra F7	Nelskamp					
		Nibra F10						
		Nibra F13 Classic						
		Nibra F14						
		Nibra F15						
		Nibra R13 S reformowana						
		Holenderka 11	Tondach					
		Romańska 12						

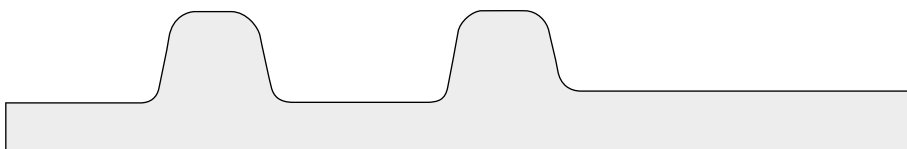
Check out our range of **universal holders**,
which allow **easy adjustment**
to any type of roof tile!



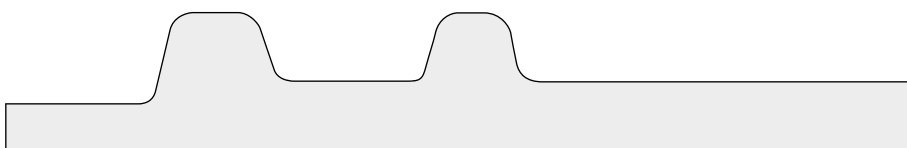
Scan the code or check on website:
<https://elkobis.com.pl/uniwersalne>



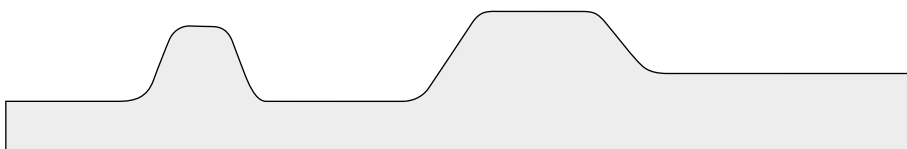
TILE TEMPLATES:



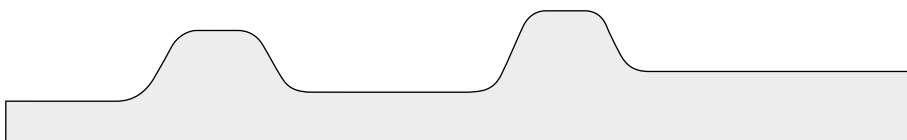
Röben



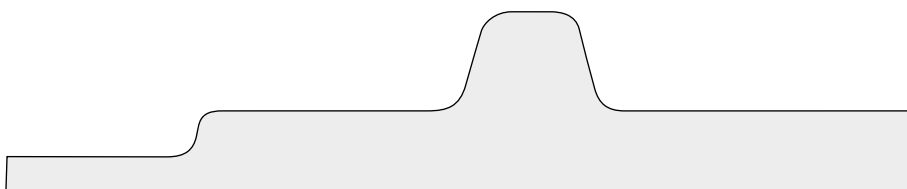
Rupp Ceramika



Koramic L-15



Koramic L25

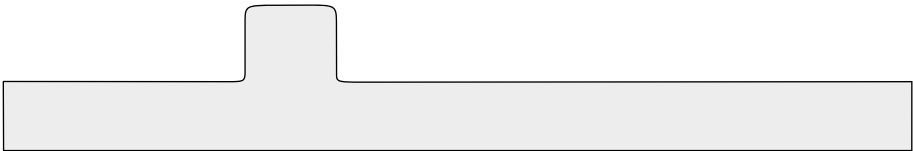


Koramic Z18S

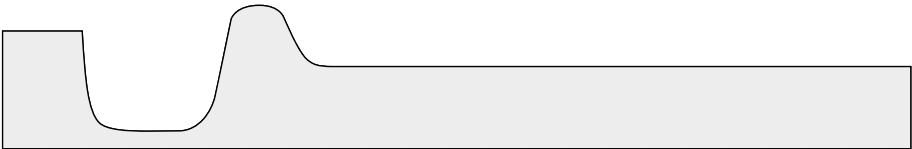


Braas

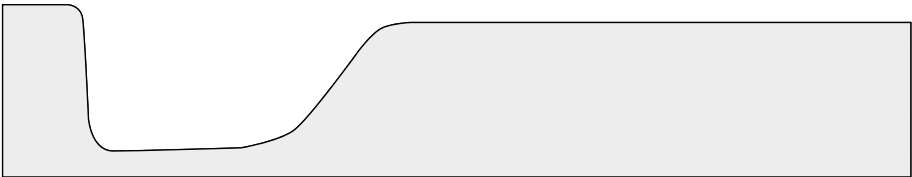
TILE TEMPLATES:



Creaton



Domino



Nibra



Marsylka



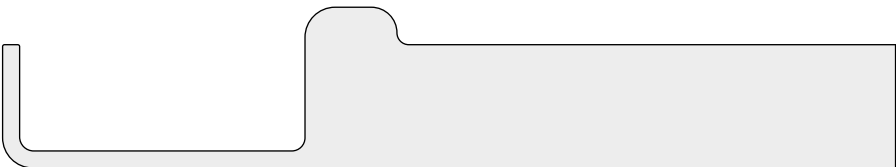
Piano



Orea



Sinfonie



Creaton Simpla

Röben

PRODUCT EXAMPLE	CATALOG NUMBER	TYPE	Version	Tile model
	91005102	10.5	clinched	ROBEN
	91008102	10.5.1	clinched	ROBEN
	91006102	10.5/S	screwed	ROBEN
	91009102	10.5.1/S	screwed	ROBEN
	91105102	11.5	clinched	ROBEN
	91108102	11.5.1	clinched	ROBEN
	91106102	11.5/S	screwed	ROBEN
	91109102	11.5.1/S	screwed	ROBEN

Rupp Ceramika

PRODUCT EXAMPLE	CATALOG NUMBER	TYPE	Version	Tile model
	91005202	10.5	clinched	RUPP / SIRIUS
	91008202	10.5.1	clinched	RUPP / SIRIUS
	91006202	10.5/S	screwed	RUPP / SIRIUS
	91009202	10.5.1/S	screwed	RUPP / SIRIUS
	91105202	11.5	clinched	RUPP / SIRIUS
	91108202	11.5.1	clinched	RUPP / SIRIUS
	91106202	11.5/S	screwed	RUPP / SIRIUS
	91109202	11.5.1/S	screwed	RUPP / SIRIUS

Koramic L-15

PRODUCT EXAMPLE	CATALOG NUMBER	TYPE	Version	Tile model
	91005302	10.5	clinched	KORAMIC L-15
	91008302	10.5.1	clinched	KORAMIC L-15
	91006302	10.5/S	screwed	KORAMIC L-15
	91009302	10.5.1/S	screwed	KORAMIC L-15
	91105302	11.5	clinched	KORAMIC L-15
	91108302	11.5.1	clinched	KORAMIC L-15
	91106302	11.5/S	screwed	KORAMIC L-15
	91109302	11.5.1/S	screwed	KORAMIC L-15

Koramic L25

PRODUCT EXAMPLE	CATALOG NUMBER	TYPE	Version	Tile model
	91005402	10.5	clinched	KORAMIC L-25
	91008402	10.5.1	clinched	KORAMIC L-25
	91006402	10.5/S	screwed	KORAMIC L-25
	91009402	10.5.1/S	screwed	KORAMIC L-25
	91105402	11.5	clinched	KORAMIC L-25
	91108402	11.5.1	clinched	KORAMIC L-25
	91106402	11.5/S	screwed	KORAMIC L-25
	91109402	11.5.1/S	screwed	KORAMIC L-25

Koramic Z18S

PRODUCT EXAMPLE	CATALOG NUMBER	TYPE	Version	Tile model
	91005502	10.5	clinched	KORAMIC Z18S
	91008502	10.5.1	clinched	KORAMIC Z18S
	91006502	10.5/S	screwed	KORAMIC Z18S
	91009502	10.5.1/S	screwed	KORAMIC Z18S
	91105502	11.5	clinched	KORAMIC Z18S
	91108502	11.5.1	clinched	KORAMIC Z18S
	91106502	11.5/S	screwed	KORAMIC Z18S
	91109502	11.5.1/S	screwed	KORAMIC Z18S

Brass / Monza Plus

PRODUCT EXAMPLE	CATALOG NUMBER	TYPE	Version	Tile model
	91005602	10.5	clinched	BRASS
	91008602	10.5.1	clinched	BRASS
	91006602	10.5/S	screwed	BRASS
	91009602	10.5.1/S	screwed	BRASS
	91105602	11.5	clinched	BRASS
	91108602	11.5.1	clinched	BRASS
	91106602	11.5/S	screwed	BRASS
	91109602	11.5.1/S	screwed	BRASS

Creton

PRODUCT EXAMPLE	CATALOG NUMBER	TYPE	Version	Tile model
	91005702	10.5	clinched	CREATON
	91008702	10.5.1	clinched	CREATON
	91006702	10.5/S	screwed	CREATON
	91009702	10.5.1/S	screwed	CREATON
	91105702	11.5	clinched	CREATON
	91108702	11.5.1	clinched	CREATON
	91106702	11.5/S	screwed	CREATON
	91109702	11.5.1/S	screwed	CREATON

Domino

PRODUCT EXAMPLE	CATALOG NUMBER	TYPE	Version	Tile model
	91005802	10.5	clinched	DOMINO
	91008802	10.5.1	clinched	DOMINO
	91006802	10.5/S	screwed	DOMINO
	91009802	10.5.1/S	screwed	DOMINO
	91105802	11.5	clinched	DOMINO
	91108802	11.5.1	clinched	DOMINO
	91106802	11.5/S	screwed	DOMINO
	91109802	11.5.1/S	screwed	DOMINO

Nibra

PRODUCT EXAMPLE	CATALOG NUMBER	TYPE	Version	Tile model
	91005902	10.5	clinched	NIBRA
	91008902	10.5.1	clinched	NIBRA
	91006902	10.5/S	screwed	NIBRA
	91009902	10.5.1/S	screwed	NIBRA
	91105902	11.5	clinched	NIBRA
	91108902	11.5.1	clinched	NIBRA
	91106902	11.5/S	screwed	NIBRA
	91109902	11.5.1/S	screwed	NIBRA

Marsylka

PRODUCT EXAMPLE	CATALOG NUMBER	TYPE	Version	Tile model
	91011802	10.5	clinched	MARSYLKA
	91012102	10.5.1	clinched	MARSYLKA
	91011902	10.5/S	screwed	MARSYLKA
	91013302	10.5.1/S	screwed	MARSYLKA
	91111802	11.5	clinched	MARSYLKA
	91112102	11.5.1	clinched	MARSYLKA
	91111902	11.5/S	screwed	MARSYLKA
	91113302	11.5.1/S	screwed	MARSYLKA

Piano

PRODUCT EXAMPLE	CATALOG NUMBER	TYPE	Version	Tile model
	91010302	10.5	clinched	PIANO
	91010602	10.5.1	clinched	PIANO
	91010402	10.5/S	screwed	PIANO
	91010702	10.5.1/S	screwed	PIANO
	91110302	11.5	clinched	PIANO
	91110602	11.5.1	clinched	PIANO
	91110402	11.5/S	screwed	PIANO
	91110702	11.5.1/S	screwed	PIANO

Orea

PRODUCT EXAMPLE	CATALOG NUMBER	TYPE	Version	Tile model
	91010802	10.5	clinched	OREA
	91011102	10.5.1	clinched	OREA
	91010902	10.5/S	screwed	OREA
	91011202	10.5.1/S	screwed	OREA
	91110802	11.5	clinched	OREA
	91111102	11.5.1	clinched	OREA
	91110902	11.5/S	screwed	OREA
	91111202	11.5.1/S	screwed	OREA

Sinfonie

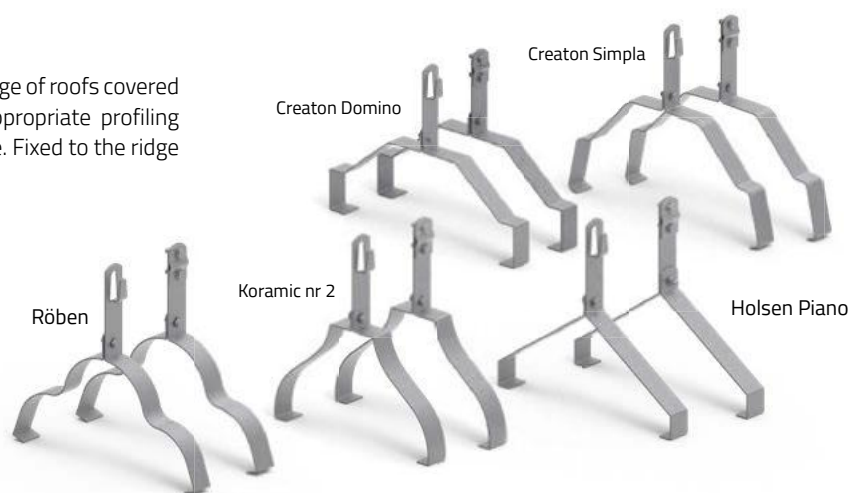
PRODUCT EXAMPLE	CATALOG NUMBER	TYPE	Version	Tile model
	91011302	10.5	clinched	SINFONO
	91011602	10.5.1	clinched	SINFONO
	91011402	10.5/S	screwed	SINFONO
	91011702	10.5.1/S	screwed	SINFONO
	91111302	11.5	clinched	SINFONO
	91111602	11.5.1	clinched	SINFONO
	91111402	11.5/S	screwed	SINFONO
	91111702	11.5.1/S	screwed	SINFONO

Creaton Simpla

PRODUCT EXAMPLE	CATALOG NUMBER	TYPE	Version	Tile model
	91013402	10.5	clinched	CREATON SIMPLA
	91013502	10.5.1	clinched	CREATON SIMPLA
	91013702	10.5/S	screwed	CREATON SIMPLA
	91013802	10.5.1/S	screwed	CREATON SIMPLA
	91113402	11.5	clinched	CREATON SIMPLA
	91113502	11.5.1	clinched	CREATON SIMPLA
	91113702	11.5/S	screwed	CREATON SIMPLA
	91113802	11.5.1/S	screwed	CREATON SIMPLA

Ridge tile wire holder

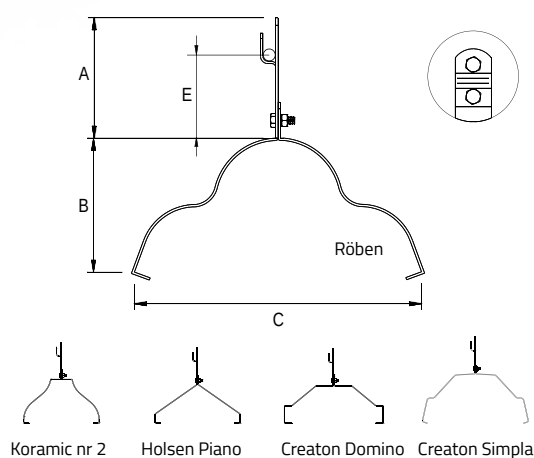
Used for routing the lightning conductor along the ridge of roofs covered with tiles (tile type specified in the table). The appropriate profiling ensures that the holder fits precisely to the ridge tile. Fixed to the ridge tile by screwing.



Tile model	CATALOG NUMBER	TYPE	Version	A	B	C	E
Creaton Domino	95930102	59.1	clinched	100	100	275	70
	95940102	59.1/S	screwed	100	100	275	78
Creaton Simpla	95931002	59.1	clinched	100	126	280	70
	95941002	59.1/S	screwed	100	126	280	78
Röben	95930202	59.1	clinched	100	110	248	70
	95940202	59.1/S	screwed	100	110	248	78
Koramic nr 2	95930302	59.1	clinched	100	118	208	70
	95940302	59.1/S	screwed	100	118	208	78
Holsen Piano	95930402	59.1	clinched	100	103	235	70
	95940402	59.1/S	screwed	100	103	235	78

To order a specific material option, replace last two digits into material equivalent from Material Options specification.

St/tZn 02 CU 03 V2A 05 RAL 16 We varnish only the screwed version.



You can find a detailed table of application options for our roof tile holders at www.elkobis.com.pl/do-pobrania



LIGHTNING PROTECTION SYSTEMS

ELKO-BIS Lightning Protection Systems Ltd.

Company address

Swojczycka 38e St.
51-501, Wrocław
Poland

TAX ID 8952011110

www.elkobis.com.pl

elkobis@elkobis.com.pl

Technical advice

 +48 71 335 69 45

export@elkobis.com.pl

Export Department

 +48 71 330 69 25

 +48 669 252 528

export@elkobis.com.pl



CONTACT
YOUR
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