The power of our knowledge, is superior to the forces of nature.

LIGHTNING PROTECTION

Issue 15

www.hermi-solutions.com

HERMI®

About us

With professionalism we achieve expectations.

With innovation we exceed them.

In the company Hermi we develop and operate four production programs: lightning and surge protection programs, cable trays and ladders program and mounting system program. Our own knowledge and innovation provide us a place among the best. We can offer our customers quality and advanced solutions that we deliver reliably and quickly with the help of our high-performance production.

By continuous development we are improving our offer and provide superior integrated solutions in the field of economy, construction, electrical industry, telecommunications and other areas.

Our advantage is professionalism, and our principle is 100-percent customer satisfaction. We do business according to the highest ethical standards; therefore, we use only quality and durable environmental-friendly materials. We are actively investing in expertise and expanding competencies of our employees and provide a healthy, friendly, and supportive working environment. An environment where changes represent challenges and innovations represent the momentum for new success.

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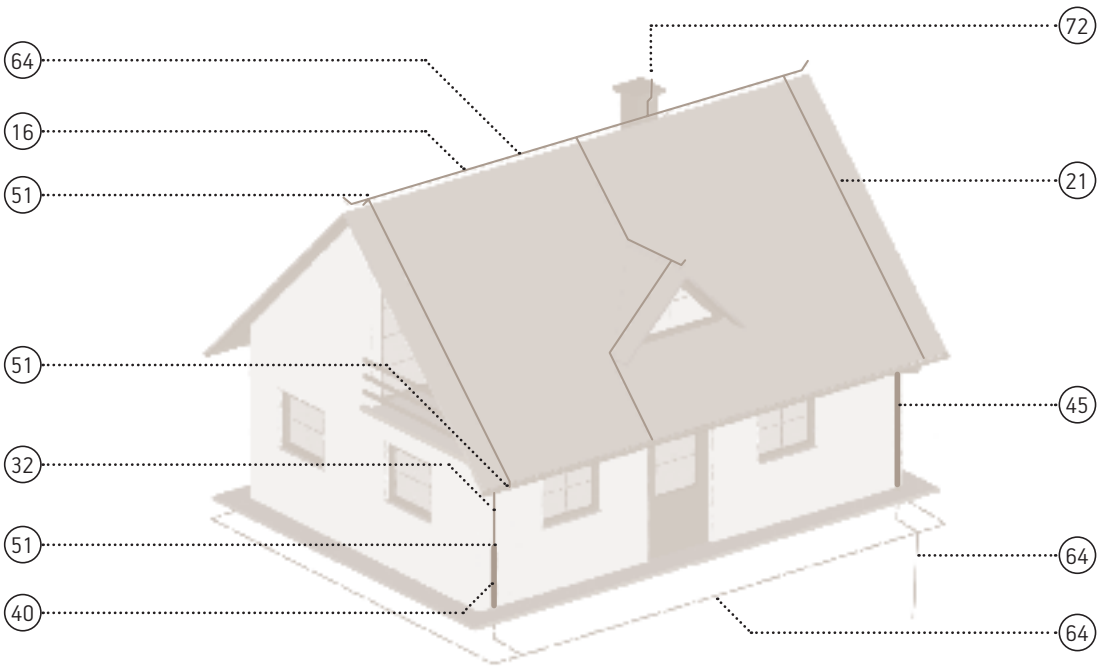
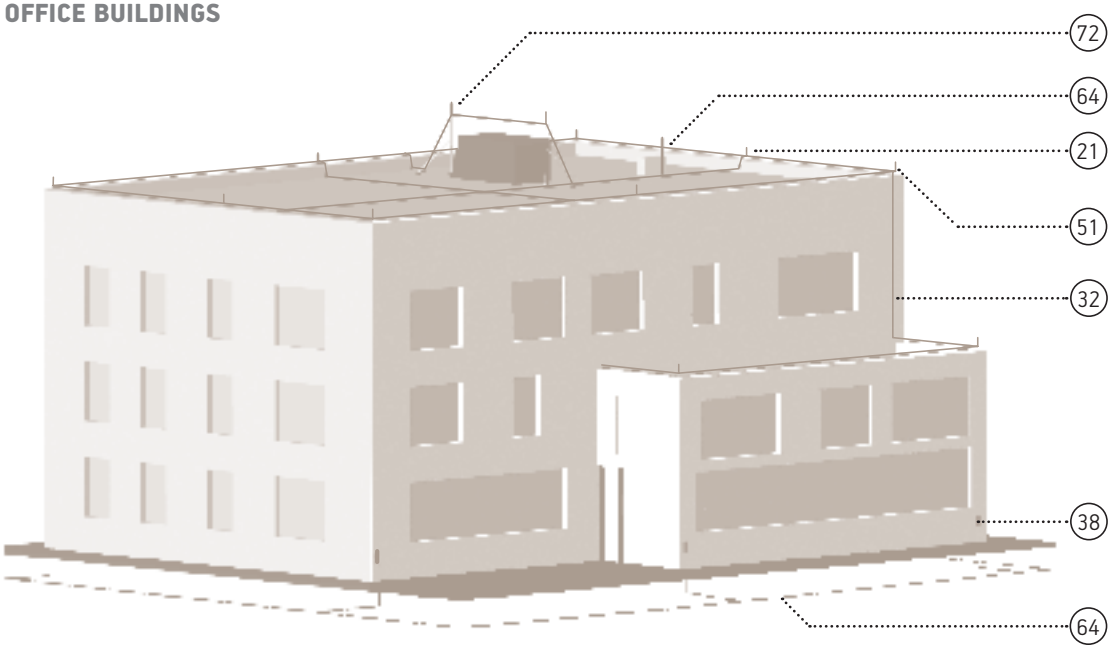
PRIVATE HOUSES



OFFICE BUILDINGS



Numbers in circles show the page where products are presented.

INTRODUCTION

TEHNICAL DATA

EXTERNAL LIGHTNING PROTECTION EQUIPMENT

PRODUCT CODE

The power of our knowledge is superior to the forces of nature.

Nature enthrals us with its exceptional beauty, but it also has immense destructive powers. A lightning strike can seriously jeopardize our safety and quality of life, thus the choice of an appropriate and long-lasting solution is cruical. To have confidence in the safety of one's home is to have confidence in knowledge, expertise and innovation. In this respect, the Hermi company is recognized in Slovenia and throughout Europe as a high-tech partner that offers superior-quality products for comprehensive external and internal protection against the effects of lightning and over voltage.

KNOWLEDGE IS THE INNOVATIVITY THAT WE DIRECT TOWARDS THE FUTURE.

The product program of the Hermi company is the result of our commintment to development and constant professional training. Hermi is the first company in Slovenia and in the former Yugoslavia to work comprehensively on surge protection. With its long-term, partner and customer-focused vision, the company strategically develops its innovative products, which are distinguished by their adaptability and versatility.

COMPANY ACTIVITY

- **production, sales and installation of lightning protection equipment under the Hermi company's own brand name**
- **professional advice on the means of protection against lightning**
- **production, sales and installation of surge protection under the Hermi company's own brand name**

COMPANY MISSION

To fulfill our customer's needs and wishes for high-quality lightning protection products by using our knowledge, year-long experience and innovative ideas. To use modern technology to develop and manufacture a lightning protection product program that sets new standards of the safety of individual's life and property.

COMPANY VISION

We wish to continue developing our own brand through innovations and professional knowledge that we have obtained during thirty years of successful operation. We have achieved competitive advantage through developing comprehensive external and internal protection against lightning, thus the challenges that await us are mostly in the field of business internationalization. We wish to become the most recognized provider of external and internal lightning protection in the countries of former Yugoslavia, and to increase our market share in other European countries as well.

COMPANY STRATEGY

The company's objectives and vision will be achieved through offering innovative products, competitive and comprehensive range of external and internal surge protection equipment, excellent technical support, efficiency and speed of execution, as well as ecologically irreproachable products. Our advantage is that we are in constant contact with developers and investors, who are aware of the importance of high-quality lightning protection equipment. In cooperation with external partners, but under our own brand name, we will expand our development strategies and establish new company branches in Europe, outside Slovenia.

COMPETITIVE ADVANTAGE

- **lightning conductors** - low, standard fasteners posts, which can be adapted to all kinds of roof coverings
- **extraordinary adaptability** - creative adaptation of the lightning protection equipment to the shape of a building
- **quality of materials** - lightning conductors made of long-lasting materials: stainless steel, copper and aluminium;
- **safety guarantee** - lightning conductors provide maximum protection against damage due to lightning strikes
- **environmental solutions** – our lightning conductors are ecologically irreproachable

KNOWLEDGE IS THE QUALITY THAT WE PROVIDE.

Our product program and the Hermi brand are both protected. All our products are manufactured in accordance with European, international and national standards. They were successfully tested, and we obtained all necessary certification, including IEC 62305, EN 62561. The company was also awarded the SQ gold certificate and obtained expert evaluations by the Milan Vidmar Electric Power Research Institute in Ljubljana (Slovenia), the Institute of Electricity and Energetics in Zagreb (Croatia), the Institute for Safety at Work in Sarajevo (Bosnia and Hercegovina), Faculty of Electrotechnics in Belgrade (Serbia), the Serbian Institute for Standardization, etc.

COMPANY HISTORY 1985 - 2018

Herman Rauter, an electrician and the author of the Hermi trademark modern lightning protection equipment, became an entrepreneur in 1985. He focused primarily on electrical measurements, which includes measurements of lightning protection installations. At the time, lightning conductor installations were poorly maintained. Especially religious buildings (churches) had poor and unprofessionally installed lightning protection. Fires and other damage due to lightning were a frequent occurrence. This presented a new challenge for Herman Rauter: the reconstruction – renovation of the old lightning conductors using long-lasting materials that would cost less than those on the market.

Up until 1992, he focused on the development of new, more simple products, mostly made of stainless materials. His aim was to make a lightning protection system that would be hardly visible when installed on a building. In other words, he wanted to make a more discreet system that would still be in accordance with the standards in force.

In 1993, he cooperated with a renowned company Bramac in presenting his program at the international trade fair in Celje. Especially architects and investors recognized the quality and aesthetic advantages of the Hermi lightning protection products.

In 1994, the production moved from Velenje to Celje, but had to move again two years later to a new location because of the construction of a new Interspar shopping centre. The production was moved to the Prevozništvo business zone in Celje, and the product range soon began to expand.

In 1997, the company started providing its customers with engineering and consulting services as an addition to the sales of company's products from the corrosion-resistant lightning protection product program. The production, sales, installation and engineering of Hermi lightning conductors, which were becoming a well known brand, were the composite parts of the company's comprehensive offer. We succeeded in achieving competitive advantage – we offered our customers a comprehensive professional solution for protection against lightning, which was a product at the same time. Hermi products were 20 – 30% cheaper than other lightning protection products on the market.

In 2001, a new extension to the existing building was built to improve the general operating conditions. In 2002, 2004 and 2006 we opened company branches in Croatia, Bosnia and Serbia, respectively. From the beginning, Herman Rauter has been systematically investing in the development of the company and tools. He immediately started connecting with experts in the field, with the Milan Vidmar Electric Power Research Institute, where his products were tested; with the Faculty of Electrical Engineering and Computer Science in Maribor, where the company's current employee developed the SHIELD computer programme; as well as with other professional institutions, including the Slovenian Institute for Standardization.

Hermi is a family company. In 2002, Herman Rauter appointed his son, Miran Rauter, B.A.Econ., to the position of the company's Managing Director. While growing up, Miran Rauter developed his business and professional skills under his fathers guidance – even when he practised skiing as a member of the Slovenian Olympic ski team together with Jure Košir and other skiers.

Due to production expansion, a new business building intended for sales and storage of products was built in May 2006. This way the company's production and management departments, which remained in the old building, gained more space.

In 2007, we took a big step forward and introduced the HERMI surge protection products to the market. This way we enabled our customers to find everything for both internal and external surge protection in one place.

In 2008, we actively entered new markets in Romania, Russia, Bulgaria, Kosovo and Macedonia, where we and our representatives took part in fairs, demonstrations and presentations for our customers and partners in the mentioned markets.

In 2009, we expended a lot of energy and resources on the modernization and automation of production, as well as on the development of new products manufactured in accordance with European, international and national standards. We successfully tested the new products and obtained all necessary international certification, including EN 62305, EN50164, EN 62561.

In 2011, we built a new commercial and production facility in Celje, as the existing capacities and facilities were fully occupied. In this way, it is now easier to realize set plans and market demands.

In 2012, we built a business, storage and production facility in Sveti Ivan Zelina, near Zagreb (Croatia).

In 2013, we founded a company in Romania, Hermi Protection Srl. We actively began to appear on the market in Austria and Hungary.

In the coming years, we plan to build own business facilities in countries where we already have our own businesses.

THERE IS NO DEVELOPMENT WITHOUT EXPERTISE

The adoption of standards is carried out in cooperation with the Institute for Standardization. The company is a member of a technical committee for lightning conductors at the institute. All our new products, such as insulation systems, are tested at the Infrastructure Centre for Energetic Measurements (ICEM) in Maribor. We cooperate with the Faculty of Electrical Engineering and Computer Science, secondary school centres around Slovenia and Croatia where we carry out training of students in advanced years of study of electrical engineering and majoring in protection against lightning strikes.

We also cooperate with electrical installation designers when they experience difficulties; and they help us with our problems when they inform us about what they need. The company, as the lightning conductor equipment manufacturer, has to face new challenges brought about by the development of civil engineering. Global warming will cause even more lightning strikes and not less. Our lightning conductor equipment can compete that from Europe.

We possess all the know-how that is known in Europe.

INSTALLATION MANUAL

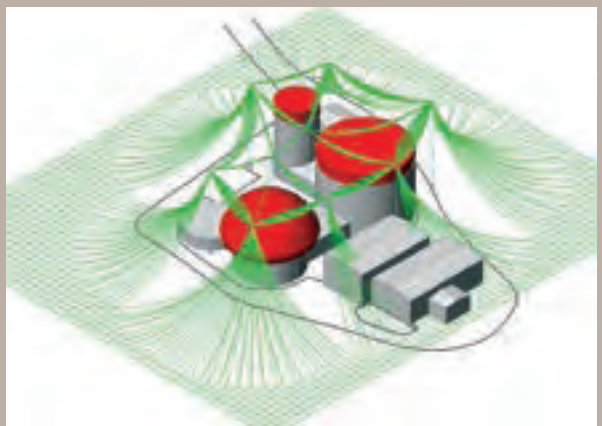
Due to increasing availability of different roof coverings on the market and due to a bigger choice of lightning equipment we have prepared, in co-operation with roof covering producers and representatives, an INSTALLATION MANUAL to make the installations of our equipment easier. The manual is available in all our business units.

SHIELD PROGRAMME

Computer-aided design of lightning protection installations for protection against lightning strikes

Our company devotes a lot of attention to cooperation with designers, contractors and other participants in lightning conductor installations. In the desire to make the work of designers easier and contribute solutions for lightning conductor installations of higher quality, we have, in cooperation with the Faculty of Electrical Engineering and Computer Science of the University in Maribor, created the SHIELD COMPUTER SOFTWARE – Computer-aided design of lightning protection installations for the protection against lightning strikes.

Shield software



Protection zone calculated with SHIELD

STANDARDS

With the correct use of our production programme elements experts can thoroughly protect buildings from damage caused by lightning strikes. But they are expected to stick to the rules, stated in the following standards:

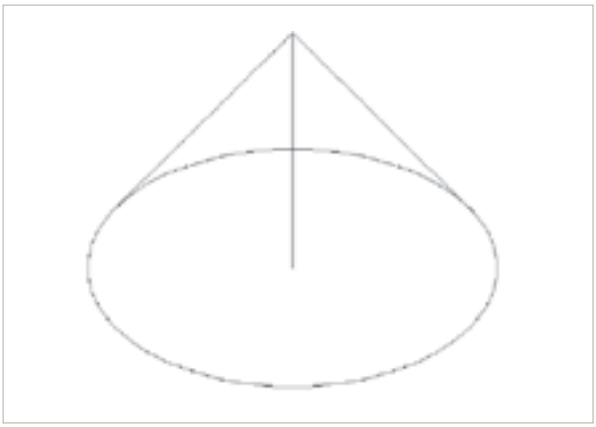
CLC/TR 50469:2005	Lightning protection systems - Symbols
EN 50468:2009	Resistibility requirements to overvoltages and overcurrents due to lightning for equipment having telecommunication ports
EN 50536:2011	Protection against lightning - Thunderstorm warning systems
EN 62305-1:2011	Protection against lightning - Part 1: General principles
EN 62305-2:2012	Protection against lightning - Part 2: Risk management
EN 62305-3:2011	Protection against lightning - Part 3: Physical damage to structures and life hazard
EN 62305-4:2011	Protection against lightning - Part 4: Electrical and electronic systems within structures
EN 62561-1:2012	Lightning Protection System Components (LPSC) - Part 1: Requirements for connection components
EN 62561-2:2012	Lightning Protection System Components (LPSC) - Part 2: Requirements for conductors and earth electrodes
EN 62561-3:2012	Lightning Protection System Components (LPSC) - Part 3: Requirements for isolating spark gaps
EN 62561-4:2011	Lightning protection system components (LPSC) - Part 4: Requirements for conductor fasteners
EN 62561-5:2011	Lightning protection system components (LPSC) - Part 5: Requirements for earth electrode inspection housings and earth electrode seals
EN 62561-6:2011	Lightning protection system components (LPSC) - Part 6: Requirements for lightning strike counters (LSC)
EN 62561-7:2012	Lightning Protection System Components (LPSC) - Part 7: Requirements for earthing enhancing compounds

HOW FAR FROM A LIGHTNING PROTECTION INSTALLATION ARE WE STILL SAFE?

It is said that lightning protection installed on e. g. church tower enables protection for at least half of the village. It is also believed that the conductor on our neighbour's house protects us from a lightning strike.

Lightning protection installations have been known from 1752 on a building when Benjamin Franklin proved lightning to be an electrical discharge, and that a metal conductor or a collector – Franklin's rod – could protect the building from a lightning strike. The question that arises here is how wide the protected area offered by such a rod is. The information is crucial for everyone dealing with lightning installation design.

According to 18th century knowledge the protected area of such a rod extends round the rod in the shape of a cone. The diameter of the cone plane has been changing over the years. In 1892 Sir Oliver Lodge published a review of different protected area concepts. The concepts differed a lot; protected angles varied from 90°to 30°. The angles are still in use.



Lightning rod protection area

In 1976 an electrogeometrical model of a lightning stroke was made, which enables to define the protected area with more accuracy.

The concept of a jump distance is essential for the electrogeometrical model or the conception of the protected area. A storm cloud causes an electric field to be formed. It can reach more than 100 kV/m. Raindrops with better conductivity can cause a leading spark, which then travels to the earth coincidentally and uncontrolled. The speed of the forming of such a spark is about one thousandth of speed of light (300 km/s). About 10 – 100 m above the earth the electric field on trees' branches or spires is enlarged. When the value of the electric field overcomes the breakthrough hardness of air, a counter-spark from the point of a lightning strike unites with the leading spark from the cloud thus forming a conducting canal. The distance in which the electric field starts rising depends on the cloud charge or the lightning current flowing from the cloud to the ground. It is called a final jump distance.

For the calculation of final jump distance, where the leading spark and the counter-spark are united, Lowe's equation may be used:

$$D=10I^{0,65} \quad [1]$$

I – maximum lightning current

In accordance with the standard for building protection against lightning strikes EN 62305 buildings are classified into four protective levels with regard to their type, use, size, location and other characteristics.

In compliance with the protective levels minimum values of lightning current amplitude are determined which enables to calculate the final jump distance for the protective levels.

Protective level	Minimum values of lightning current (kA)	Final jump distance D (m)
I	3	20
II	5	30
III	10	45
IV	16	60

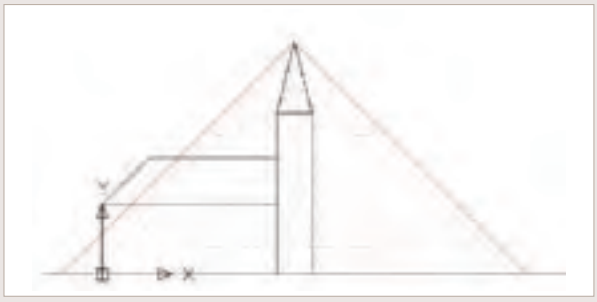
Table 1: Values of lightning current and breakthrough distance for different protective levels

In EN 62305 standard there is a rollingsphere method used for the lightning protection installation design. The sphere with a radius equal to the final jump distance D is rolled all over the building that is to be protected with a lightning protection installation. Lightning strikes are possible to occur at the points where the sphere touches the building – the points are usually roof ridges and edges.

WHAT IS THE PROTECTION OFFERED BY A LIGHTNING CONDUCTOR, INSTALLED ON THE BUILDING?

Several cases of a protected area are described below

1st case: Protected area on a church
Dimensions: aisle size 15 m x 30 m, ridge height up to 25 m, church tower size 6 m x 6 m, height 40 m.



Protective angle 45°

Protected area in accordance with EN 62305, standard III protected level (sphere radius R=45 m)

Picture 2 shows that in the case of a protected angle of 45° a part of the church aisle remains unprotected (outside the hatched area). Picture 3 shows a protected area (the area within the green hatched area) according to the rollingsphere method in accordance with EN 62305 standard for III protective level. Also this picture suggests that the lightning conductor on the church tower does not protect the aisle. The simulation was made with Shield.

2nd case: Protected area on a house
Dimensions: 10 m x 13 m, roof ridge height 9 m, roof inclination 35°.

Protective angle 45°

Protected area in accordance with EN 62305, standard III protected level (sphere radius R=45 m)

Pictures 4 and 5 show that the whole building is within the protected area offered by the lightning protection installation.

3rd case: Protected area on two houses of the same size (10 m x 13 m)
The house on the left has a lightning conductor installed while the one on the right does not. The houses are situated 15 m from each other.

Protective angle 45°

Protected area in accordance with EN 62305, standard III protected level (sphere radius R=45 m)

Pictures 6 and 7 suggest that only the house with a lightning conductor installed is actually protected while the other one remains unprotected.

From the examples given above it may be seen that a lightning protection installation on the church tower does not always protect the aisle, let alone the whole village. The same can be concluded from the case of two neighbouring houses mentioned above.

Janez Podlipnik, BSc. E. E.

INSULATED LIGHTNING PROTECTION SYSTEMS AND THEIR USE

Function of insulated lightning protection systems

There has been an increase in electrical devices installed on roofs. In many cases, these devices are intended for air conditioning. Due to their location, these devices can be exposed to direct lightning strikes. As their housing is usually made of metal, it seem quite simple to protect them from direct lightning strikes. Once lightning strikes, the metal housing joint to the lightning protection installation and the lightning current will go through the housing and on through the lightning protection installation into the ground.

This explanation is indeed correct, yet it is also incomplete.

Electrical devices are usually connected through energy cables with the building's interior or with a transformer station in the building's interior. Lightning strikes into metal housings cause voltage of up to several hundreds of kV between the device's housing and electric lines. This is enough to pass through insulation and consequently destroy the device.

This means that otherwise properly conducted lightning protection can destroy the device. The described protection is thus not adequate and one needs to search for a better one. As excess voltage has practically 'fried' our device, we protect it with a surge suppressor. When lightning strikes the housing, there is once again voltage of several hundred kV between the housing and electrical lines. This causes a reaction from surge arresters and sets the electrical lines and the housing on the same potential. In this case, insulation remains intact and the lightning current runs through into the building's interior through a protective conducter to the potential equalizing busbar. The surge suppressor in the building is usually designed to divert voltage spikes to the earthing. Here, the spike occurs from the other side and destroys the surge suppressor. This is why it is free to run along the installation and destroy all connected electrial devices.

Not even this solution ensures enough safety from lightning strikes.

In order for us to enable the right protection for all devices in the building, we need to protect the electrical device on the roof with an insulated lightning protection system. The idea of an insulated system is further described in the EN 62305-3 standard about protecting buildings from lightning effects.

Insulated lightning protection systems are essentially on-roof systems not connected to an electrical device, but, as the name suggests, insulated. This means there has to be enough safety distance between lightning protection conductors and the protected device. This ensures there can be no leap from the system to the device. The lightning current runs into the system through the system itself or through lightning protection installation into the ground. As the system is isolated from the protected device, there is no excess voltage between the housing of the device and electric lines which means the device is properly protected. The current also does not run through the lightning protection conductor into the interior of the building so there are no effects caused by the strike. Thus, the insulated lightning protections offers optimum protection to electrical devices in exposed areas.

It is also worth mentioning that ensuring sufficient distances between the device we wish to protect and the lightning protection system is not enough. We also need to make sure the entire device is in the area protected by the system; if we fail to do so, there is still a chance of a direct strike into the device.

Insulated lightning protection system protection area of a building.The simulation was carried out by means of the SHIELD software

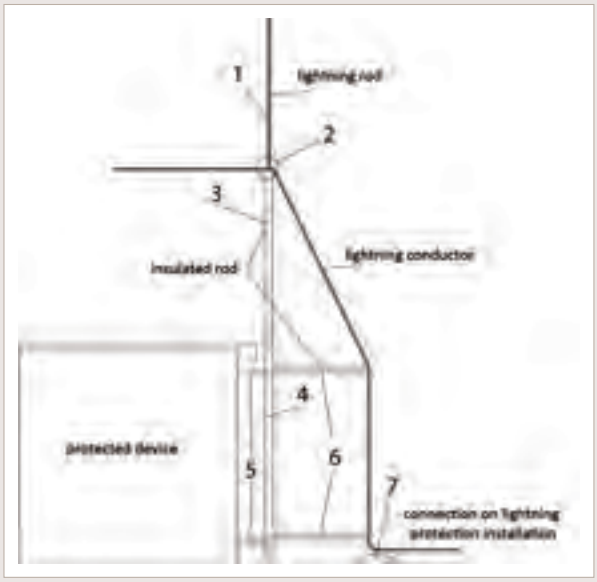
Practical insulated lightning protection system installation

The installation of an insulated lightning protection system, which is actually self-standing, is already known to be used in buildings having so called Ex zones or no spark zones, as sparks could potentially cause an explosion. This protection system is also well know in military complexes.

The installation of an insulated lightning protection system is quite simple in theory. All we need to do is ensure safety distance between the protected device and the lightning protection conductor.

In practice, ensuring this safety distance means we need to use special insulated supporting elements capable of holding the conductor above the device.

Such supporting elements or insulated lightning posts are composed of insulation pipes ensuring the right safety distance. The distance between supporting elements is constricted to 5 m due to conductor sag.



Insulated supporting elements

This type of protection, i.e. fixing the metal housing to a lightning protection installation, is more expensive than traditional solutions because of the supporting elements mentioned. Supporting elements within an insulated lightning protection system are significantly larger (usually 4,5 m long) than traditional lightning protection conductors and fixing such elements to the roof of a building is not easy, as appropriate mechanically stability must be ensured.

Designing of insulated lightning conductors

The designing of insulated lightning conductors is essentially the same as designing non-insulated lightning conductors, as described in the standard **EN 62305**. Only some additional steps have been added, preventing lightning strikes into the protected building or device and dangerous sparks. Insulated lightning systems are also divided into air-termination system, down conductors and earthing.

Fixing insulated supporting elements to electrical devices

Fixed insulated supporting elements

Earthing

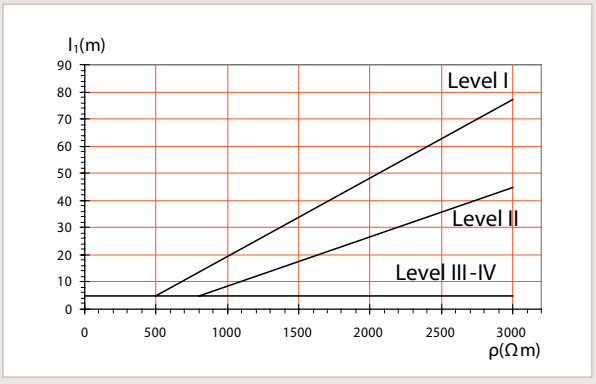
Designing the earthing system is exactly the same as designing a non-insulated one.

TYPE A - This type of arrangement consists of vertical and horizontal earth electrodes connected to each down conductor. When there is a circular conductor present, connecting the down conductors with earthing, the configuration is still type A if the circular conductor is connected to earthing with less than 80 % of its length.

Length of each grounding:
l_1 for horizontal groundings
$l_{½}$ for vertical groundings

TYPE B - This type of arrangement includes either a circular earthing connected to the ground with at least 80 % of its length or a foundation earthing.

r - radius of the area clasped by the snare
r≥l1



Minimal earthing lengths

Designing of down-conductor systems

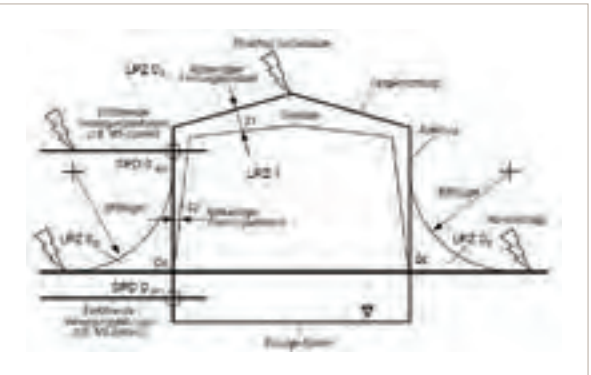
The number of downleads and the arrangement are the same as in a non-insulated system.

Typical distance between down condustors according to protective levels

Protection level	Typical distance (m)
I	10
II	10
III	15
IV	20

Table 1: Typical distance between down condustors

Down condustors are fixed at distances preventing dangerous sparks.



Safety distance

Safety distance s is the minimum distance between the protected device and lightning protection system. It is calculated by the equation:

$$s = k_i \frac{k_c}{k_m} l \qquad (1)$$

where:

k_i – depends on the selecred class of LPS (table 2)

k_c – depends on the lightning current (table 3)

k_m – depends on the electrical insulation material

air – 1

solid – 0,5

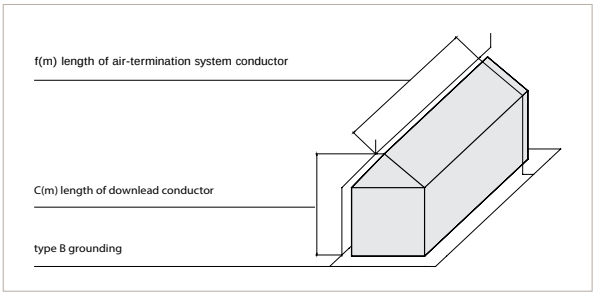
$l_{(m)}$ – length along down condustors, measured from where proximity is assessed to the nearest point of potential equalizing.

Protection level	Typical distance (m)
I	0,08
II	0,06
III	0,04
IV	0,04

Table 2: dependence of coefficient ki of the chosen protection level

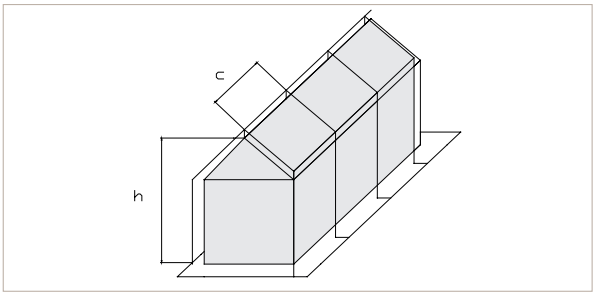
	Value of k_c	
Type of lightning protection system	Type A groundings	Type B groundings
Lightning rod	1	Equation 1
Conductor	1	Equation 2
Mesh	1	Equation 3

Table 3: Current distribution factor calculation.



Building with on-roof conductor

$$k_c = \frac{(c+f)}{2*c+f} \qquad (2)$$



Building with on-roof mesh

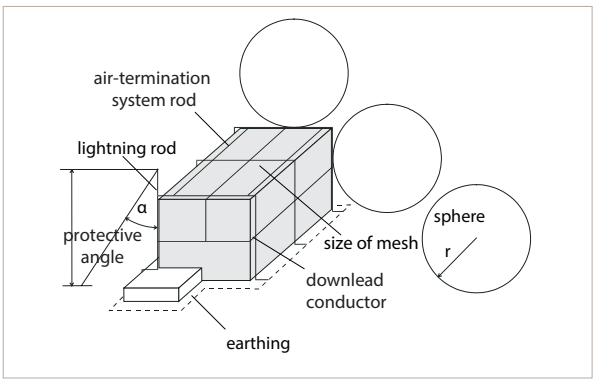
$$k_c = \frac{1}{2*n} + 0{,}1 + 0{,}2 * \sqrt[3]{\frac{c}{h}} \qquad (3)$$

h = downlead length
c = medium downlead distance
n = downlead number

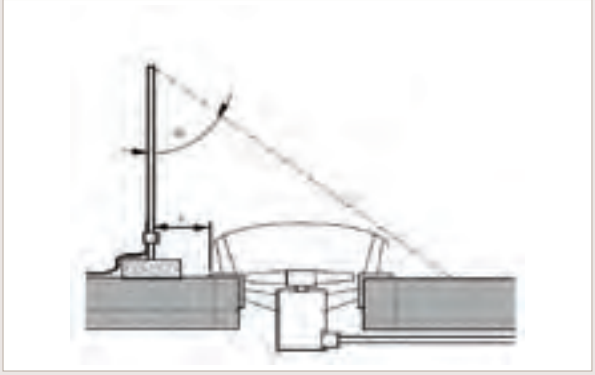
Designing of air-termination systems

Designing a air-termination system is essentially the same as designing a non-insulated system.

When designing an insulated air-termination system, one must be careful of the distance between the protected device and the system. Minimum distance is calculated like stated for down conductor systems.



Methods for calculation of protection zone



Carrying out an insulated lightning protection system

Conclusion

Investors are deciding more and more for insulated lightning protection systems, despite their slightly bigger costs. This is often the only effective protection from lightning effects for buildings or devices.

The system can of course only be effective if it has been properly designed and carried out. Designing an insulated system is an upgrade to designing non-insulated systems, as shown in this section.

Problems occur with carrying out the project. Contractors carrying out the system often do not know the main principle of insulated systems and simply make galvanic connections between the protected device and the lightning protection system on the roof itself. By doing so, they destroy the entire insulated lightning protection system. Such mistakes are often unnoticed or can even be demanded by supervisors who are usually not experts in this field. Insulated lightning protection and their appearance often cause problems to architects. Compromises must be made but they must not ruin the technically properly carried out installations. In theory, the designer can see what is being done while the system is being installed and right after it is finished. Problems arise later, as users introduce new devices or use the building for other purposes. This often destroys the concept of an insulated lightning protection system to a certain extent.

TEHNICAL DATA

LEGEND

Material	
Rf	stainless steel
Rf*H4	acid-resisting stainless steel
Cu	copper
Al	aluminium
Fe	steel
FeZn	galvanized steel
KFe	hardened steel
FeCu	copper coated steel
Me	brass
PE	polyetilen - UV resistant
N	nylon – UV resistant
P-SV	polyester with UV resistant glass fibres
pvc	electrostatic plastic-coated
PVC	resistant synthetic material
Wood	wood
Concrete	concrete
Ltž	cast iron
CuSn	tinned copper
PP	polypropylen

Conductor dimensions	
(appropriateness of holders for a certain profile of conductors)	
Φ	round cross-section conductor
P	rectangular cross-section conductor

Conductor attachment on fastener	
N	attachment with nylon attachment elements
PE	attachment with polyetilen attachment elements
K	click attachment system
V	screw attachment
*	upon request

MATERIAL COMPATIBILITY

	FeZn	Al	Cu	Rf
FeZn	+	+	-	+
Al	+	+	-	+
Cu	-	-	+	+
Rf	+	+	+	+

Standard hand tools are to be used. Torque moment is dependent on the shape and material of a conductor and clip, and on the material and mechanical properies of the screw. We recommend torque moment as follows.

TORQUE

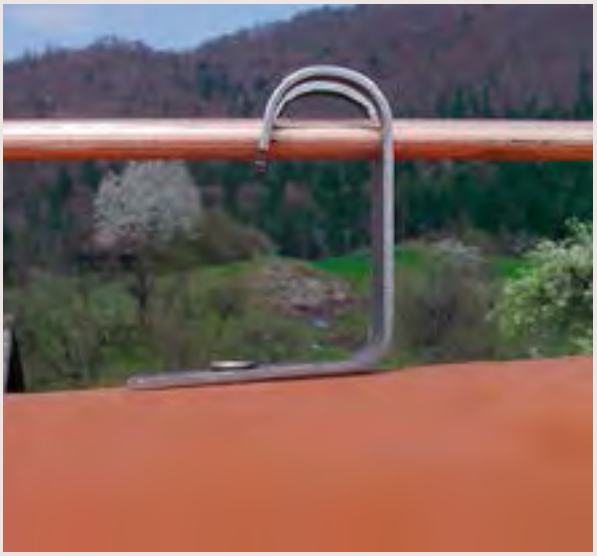
Screw	Torque (Nm)
M5	3
M6	4
M8	10
M10	15

Before using HERMI products a professional has to make a calculation for their use. Since we do not deal with the planning of protecting systems from lightning strikes take the content of this product catalogue as information and/or advice. Our advice is based on experience from practice and our knowledge. We recommend you to enquire at qualified experts if Hermi products are appropriate for your needs. It is not allowed to reconsruct and use reconstructed Hermi products without our knowledge and supervision. If there is a question of warranty all damage is turned to value of products supplied by us and fitted by you. Constant quality is our guarantee suitable to our specification and in terms of supply conditions..

Our varanty is equal quality according to our specifications and general terms of delivery.

SON ROOF RIDGE FASTENERS

SON roof ridge conductor fasteners are designed to attach a lightning conductor to the ridge of the roof. Particular roof ridge fasteners are adapted to a specific type of roof tile, which means that installation of a conductor to the fastener is simple and fast. The conductor is fixed without screwing, except in some cases in which the conductor can be screwed.



SON ROOF RIDGE FASTENERS

SON01

roof ridge conductor fastener, is appropriate for concrete and fire-baked roof tile such as BRAMAC, BOBROVEC, TONDACH, KOREC, CREATON and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu N-N grey	Φ8	11301	80
Cu N-N brown		11302	80
Cu N-N brick red		11303	80
Rf N-N grey	Φ8	10301	80
Rf N-N brown		10302	80
Rf N-N brick red		10303	80

SON02

roof ridge conductor fastener, universal, is appropriate for concrete and fire-baked roof tile such as BRAMAC, BOBROVEC, TONDACH, KOREC, CREATON and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu N-N brown	Φ8	2304	45
Cu N-N brick red		2305	45
Rf N-N grey	Φ8	2301	45
Rf N-N brown		2302	45
Rf N-N brick red		2303	45

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	2307	25
Rf-K		2306	25
Rf*H4-K		* 2311 *	25

! Coloring according to RAL color scale

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	Φ8 - Φ10	* 2324 *	25

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	P 20x3	* 2325 *	25

SON02 A

ridge bracket, for KOREC type brick roofing and similar.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	2313	25
Rf-K		2312	25
Rf*H4-K		2314	25
Rf-V	P 20x3	* 2315 *	25

SON03

roof ridge conductor fastener, is appropriate for roof coverings such as ESAL (Roofing Slates), ETERNIT and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf- N	Φ8	322	100
	Φ10	323	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	Φ8 - Φ10	* 324 *	100

* upon or[illegible] e catalogue number when placing your order.

SON ROOF RIDGE FASTENERS

SON05

roof ridge conductor fastener, is appropriate for sheet metal roof coverings such as GERARD, DECRA, METROTILE, HOSEKRA, ALUMET, METALKO, METROBOND, ISOLA, ROSER and the like; installation when covering the roof.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-N	Φ8	522	50
	Φ10	523	50
Rf/PVC brown-N	Φ8	5220	50
	Φ10	5230	50
Rf-V	Φ8 - Φ10	* 524 *	50

! Coloring according to RAL color scale

SON05 A

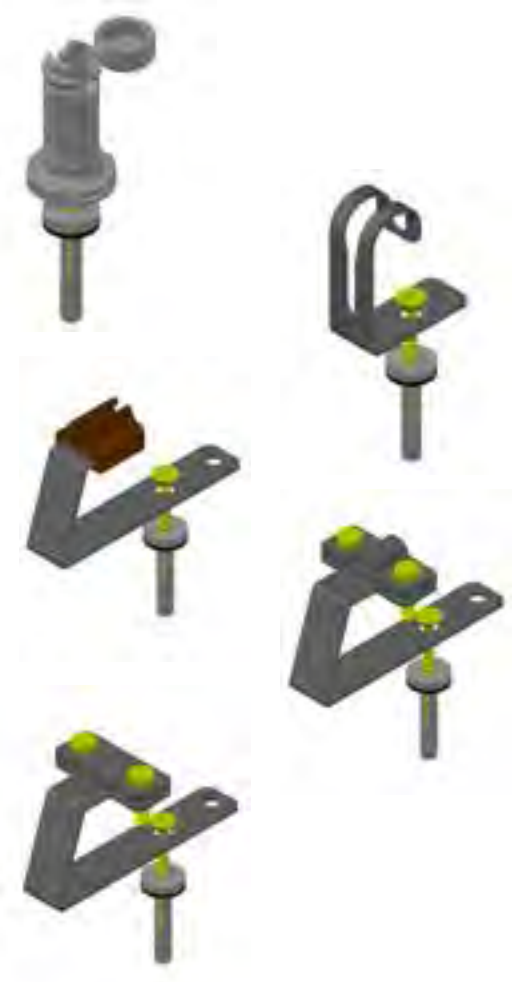
roof ridge conductor fastener, is appropriate for sheet metal roof coverings such as GERARD, DECRA, METROTILE, HOSEKRA, ALUMET, METALKO, METROBOND, ISOLA, ROSER and the like; installation when covering the roof, the holder being fixed to the roof ridge.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-K	Φ8	521	100
Rf*H4-K		527	100

! Coloring according to RAL color scale

SON06

roof ridge conductor fastener with a screw, rubber seal and plug is appropriate for concrete and fire-baked roof coverings such as BRAMAC, BOBROVEC, TONDACH, KOREC, CREATON and the like.



Material/Fixing	Conductor (mm)	Product code	Pack.
N-N grey	Φ8	6301	100
N-N brown		6302	100
N-N brick red		6303	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	609	100
Rf-K		621	100
Rf*H4-K		* 627 *	100

! Coloring according to RAL color scale

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-N	Φ8	607	80
Rf-N	Φ8	622	80
	Φ10	623	80
Rf*H4-N	Φ8	626	80

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-V	Φ8	* 608 *	50
Rf-V	Φ8 - Φ10	* 624 *	50

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	P 20x3	* 625 *	50

SON ROOF RIDGE FASTENERS

SON07

roof ridge conductor fastener with a screw and washer is appropriate for triangular concrete and fire-baked roof coverings.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-V	Φ8 - Φ10	* 708 *	50
Rf-V	Φ8 - Φ10	* 724 *	50

SON08

roof ridge conductor fastener with a screw and washer is appropriate for roofing slates or corrugated bituminized roof coverings such as TEGULA, GUTANIT, ONDULINE, sheet metal roof coverings such as LINDAB, S-METAL and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-N	Φ8	807	100
Rf-N	Φ8	822	100
	Φ10	823	100
Rf/PVC brown-N	Φ8	8220	100

SON14

roof ridge conductor fastener with a screw and rubber seal is appropriate for roofing slates or corrugated bituminized roof coverings such as TEGULA, GUTANIT, ONDULINE, and roofs already covered with sheet metal coverings such as GERARD, DECRA, HOSEKRA, ALUMET, METALKO, METROBOND, LINDAB, S-METAL and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	1409	100
Rf-K		1421	100
Rf*H4-K		* 1427 *	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-N	Φ8	1407	100
Rf-N	Φ8	1422	100
	Φ10	1423	100
Rf/PVC brown-N	Φ8	14220	100
	Φ10	14230	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-V	Φ8	* 1408 *	50
Rf-V	Φ8 - Φ10	* 1424 *	50

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	P 20x3	* 1425 *	50

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	P 20x3	425	100

* upon or[illegible] e catalogue number when placing your order.

SON ROOF RIDGE FASTENERS

SON16

roof ridge conductor fastener with a screw and rubber seal is appropriate for METAL SHEET PANEL coverings such as TRIMO and the like, fibrocement roof coverings such as SALONIT VALOVITKA and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-K	Φ8	11621	120
Rf*H4-K		* 11623 *	120

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	Φ8 - Φ10	11622	120
Rf*H4-V		11627	120

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	P 20x3	11625	120
	P 30x3,5	11626	120
Rf*H4-V	P 20x3	* 11628 *	120
	P 30x3,5	* 11629 *	120

SON20 L

roof ridge conductor fastener, made of oak tree wood is appropriate for wooden roof coverings and other flammable roof coverings.

SON20 L Bracket height: 40 cm

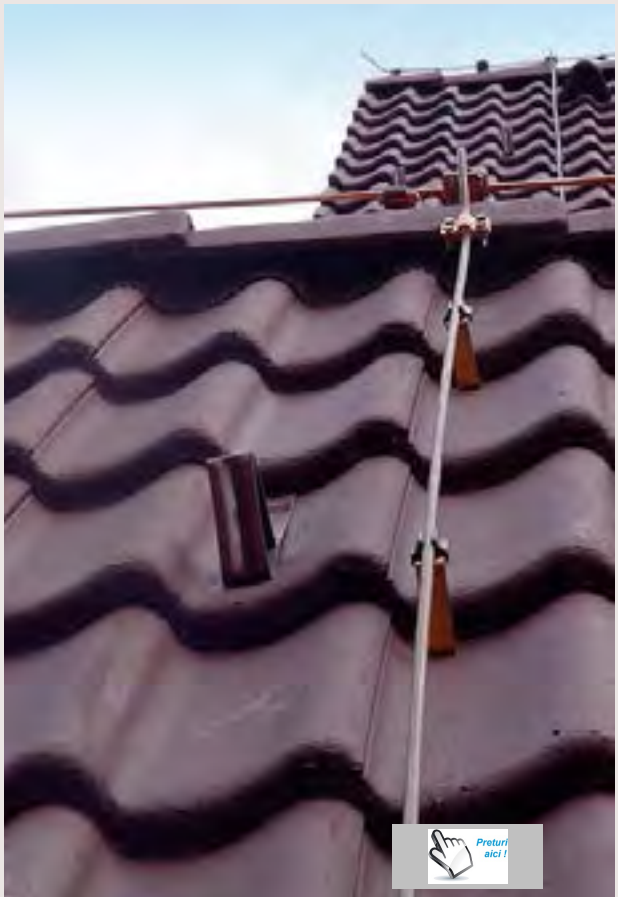
Material/Fixing	Conductor (mm)	Product code	Pack.
Wood/Rf-V	Φ8 - Φ10	12032	4
Wood/Rf*H4-V	Φ8 - Φ10	* 12037 *	4

SON20 L-B Bracket height: 10 cm

Material/Fixing	Conductor (mm)	Product code	Pack.
Wood/Rf-V	Φ8 - Φ10	12034	4

SON ROOF FASTENERS

SON roof conductor fasteners are designed for fitting on-roof conductors on the roof sides or roof tiles. Particular roof conductor fasteners are adapted to a specific type of roof tiles, so that the installation of the conductor to the fastener is simple and easy. The roof conductor is fixed without screwing, except in those cases in which the conductor can be screwed.



SON ROOF FASTENERS

SON04 A

roof conductor fastener, is appropriate for installation on an attica covered with a sheet metal border.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	Φ8 - Φ10	426	100

SON12

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as BRAMAC, BOBROVEC, SKRILAVEC, NIBRA D55 and the like.

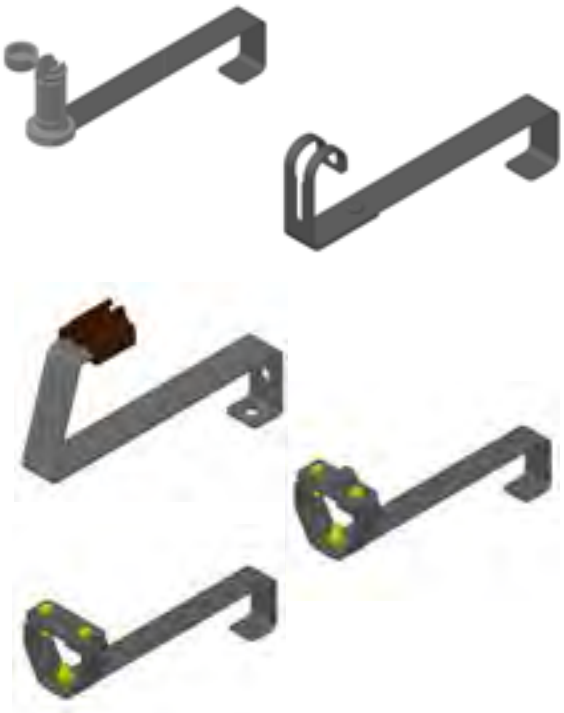
Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-N	Φ8	11207	80
Rf-N	Φ8	11222	80
	Φ10	11223	80

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-V	Φ8	* 11208 *	50
Rf-V	Φ8 - Φ10	* 11224 *	50

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	P 20x3	* 11225 *	50

SON12 A

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as BRAMAC (MARKANT, ALPSKI, MEDITERAN, KLASIK, DONAV, ADRIA) TONDACH (CONTINENTAL, EFEKT, FRAGMENT, ZAREZNI BOBROVEC, NORMA), MONDO L42, ERGOLDSBACHER GROSSFALZZIEGEL XXL D, KIKINDA (VELIKA KIKINDA M-333, MALA KIKINDA M272, CLASSIC M-002, BANAT M-997, PVC), POLET M-555, PIKA, NELASKAMP NIBRA, BENDERS, ETERNIT, concrete roof coverings such as WIENER NORMA, DVOJNI ZAREZNIK and the like.



Material/Fixing	Conductor (mm)	Product code	Pack.
Rf N-N grey	Φ8	112301	80
Rf N-N brown		112302	80
Rf N-N brick red		112303	80

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	112090	80
Rf-K		112210	80
Rf*H4-K		* 112217 *	80

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-N	Φ8	112070	80
Rf-N	Φ8	112220	80
	Φ10	112230	80

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf	Φ8 - Φ10	112211	80
Rf-V	P 20x3	112214	80

SON ROOF FASTENERS

SON13 A

roof conductor fastener, is appropriate for concrete and fire-baked coverings such as TONDACH (BOBROVEC, ZAREZNI BOBROVEC), BOBROVEC, KIKINDA BANAT M-997 and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf N-N grey	Φ8	113301	100
Rf N-N brown		113302	100
Rf N-N brick red		113303	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	113090	100
Rf-K		113210	100
Rf*H4-K		* 113217 *	100

! Coloring according to RAL color scale

Material/Fixing	Conductor (mm)	kat..št.	Pack.
Cu-N	Φ8	* 113070 *	50
Rf-N	Φ8	* 113220 *	50
	Φ10	* 113230 *	50

SON14

SON14 roof conductor fastener with a screw and rubber seal is appropriate for roofing slates or corrugated bituminized roof coverings such as TEGULA, GUTANIT, ONDULINE, and roofs already covered with sheet metal coverings such as GERARD, DECRA, HOSEKRA, ALUMET, METALKO, METROBOND, LINDAB, S-METAL and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	1409	100
Rf-K		1421	100
Rf*H4-K		* 1427 *	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-N	Φ8	1407	100
Rf-N	Φ8	1422	100
	Φ10	1423	100
Rf/PVC brown-N	Φ8	14220	100
	Φ10	14230	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-V	Φ8	* 1408 *	50
Rf-V	Φ8 - Φ10	* 1424 *	50

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	P 20x3	* 1425 *	50

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	P 20x3	425	100

SON ROOF FASTENERS

SON15

roof conductor fastener, is appropriate for roof coverings such as GERARD, DECRA, HOSEKRA, ALUMET, METROTILE, METALKO, METROBOND, ISOLA, ROSER and the like, installation when covering the roof.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-K	Φ8	11521	100
Rf*H4-K		* 11527 *	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-N	Φ8	11522	50
	Φ10	11523	50
Rf/PVC brown-N	Φ8	115220	50
	Φ10	115230	50

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	Φ8 - Φ10	* 11524 *	50

SON15 A

roof conductor fastener, is appropriate for roof coverings such as GERARD, DECRA, HOSEKRA, ALUMET, METROTILE, METALKO, METROBOND, ISOLA, ROSER and the like, installation when covering the roof.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-K	Φ8	115225	100
Rf*H4-K		* 115228 *	100

! Coloring according to RAL color scale

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-N	Φ8	115222	100
	Φ10	115232	100
Rf/PVC brown-N	Φ8	115221	100

! Coloring according to RAL color scale

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	Φ8 - Φ10	115227	80

SON N-N

roof conductor fastener with a screw and rubber seal.

Material/Fixing	Conductor (mm)	Product code	Pack.
N-N grey	Φ8	116301	150
N-N brown		116302	150
N-N brick red		116303	150

SON ROOF FASTENERS

SON16

roof conductor fastener with a screw and rubber seal is appropriate for SHEET METAL PANEL coverings such as TRIMO and the like, fibrocement roof coverings such as SALONIT VALOVITKA and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-K	Φ8	11621	120
Rf*H4-K		* 11623 *	120

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	Φ8 - Φ10	11622	120
Rf*H4-V		11627	120

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	P 20x3	11625	120
	P 30x3,5	11626	120
Rf*H4-V	P 20x3	* 11628 *	120
	P 30x3,5	* 11629 *	120

SON16 A

roof conductor fastener with a screw and rubber seal is appropriate for SHEET METAL PANEL coverings such as TRIMO (TPO DOM) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	Φ8 - Φ10	116220	120

SON16 C

roof conductor fastener with a screw and rubber seal is appropriate for SHEET METAL PANEL coverings.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	Φ8 - Φ10	* 116222 *	70

SON16 D

roof conductor fastener with a screw and rubber seal is appropriate for SHEET METAL PANEL coverings.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-K	Φ8	116227	40

SON16 E

roof bracket in a set with a gasket and screw, suitable for SHEET METAL roofing.

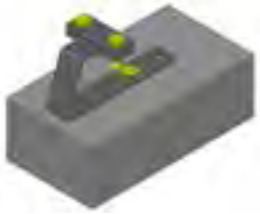
Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	Φ8 - Φ10	*116228*	40

* upon or[illegible] e catalogue number when placing your order.

SON ROOF FASTENERS

SON17

roof conductor fastener, roof conductor fastener is appropriate for FLAT ROOFS with BITUMEN HIDROISULATION and the like. The holder consists from a **concrete block (Product code 40) and a lightning conductor fastener (SON14)**. Order the block and SON14 fastener separately.



Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	11709	
Rf-K		11721	
Rf*H4-K		* 11727 *	

Material/Fixing	Conductor (mm)	kat..št.	Pack.
Cu-N	Φ8	11707	
Rf-N	Φ8	11722	
	Φ10	11723	

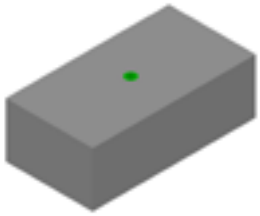
Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-V	Φ8	* 11708 *	
Rf-V	Φ8 - Φ10	* 11724 *	

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	P 20x3	* 11725 *	

SON 17 consists of:

BLOCK FOR SON17

a concrete block with a plug, onto which SON14 roof conductor fastener is screwed.



mat.	Conductor (mm)	Product code	Pack.
concrete		40	1

SON14

roof conductor fastener, which is screwed onto the concrete block.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	1409	100
Rf-K		1421	100
Rf*H4-K		* 1427 *	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-N	Φ8	1407	100
Rf-N	Φ8	1422	100
	Φ10	1423	100
Rf/PVC brown-N	Φ8	14220	100
	Φ10	14230	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-V	Φ8	* 1408 *	50
Rf-V	Φ8 - Φ10	* 1424 *	50

* upon order / Please refer ber when placing your order.

SON ROOF FASTENERS

SON14

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	P 20x3	* 1425 *	50

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	P 20x3	425	100

HORIZONTAL STRIP

used **UNDER THE CONCRETE BLOCK** 250 x 150 mm prevents possible damage on roof coverings caused by the block.

mat.	Product code	Pack.
bitumen	117225	50

SON17 A

roof conductor fastener, is appropriate for FLAT ROOFS covered with PVC roof coverings such as SIKA, PROTAN, SARNAFIL and SINTAFOIL and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
PE	Φ8	117220	40

FIXING TAPE

for SON17 A, designed for fixing a roof conductor fastener SON 17 A for roofs covered with PVC roof coverings such as SIKA, PROTAN, SARNAFIL, SINTAFOIL and the like. The tape MUST BE from the same material as the roof covering on which the fastener is fixed. **ATTENTION: before ordering please check the producer and the type of roof covering! The tape must be attached according to the instructions of the roof covering producer.**

mat.	Product code	Pack.
Sika	117221	1
Protan	117222	1
Sintafoil	117223	1

SON17 B

roof conductor fastener, appropiate for flat roofs with different types of roof coverings. No filling. The fastener is filled with granular material.

Material/Fixing	Conductor (mm)	Product code	Pack.
PP	Φ8 - Φ10	117226	40

SON17 C

roof conductor fastener, appropriate for flat roofs with bitumen isolation and the like. Composition: **fastener (Product code 117227) and concrete block (Product code 41).** Individual parts can be supplied.

Material/Fixing	Conductor (mm)	Product code	Pack.
PP	Φ8 - Φ10	117227	40
concrete		41	1

SON17 D

roof bracket, suitable for flat roofs with bitumen isolation and similar. The bracket is intended to ensure the gap distances between the interception lead and conductive parts (cable paths, ...) The height of the bracket is 610 mm.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V/concrete	Φ8 - Φ10	*117232*	1

SON ROOF FASTENERS

SON18

roof conductor fastener, appropriate for roof coverings such as ESAL (Roofing Slates), ETERNIT and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-N	Φ8	11822	100
	Φ10	11823	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	Φ8 - Φ10	* 11824 *	100

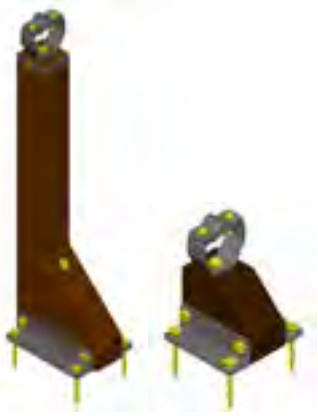
SON19

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as CREATON (FUTURA, FUTURA 2002), JUNGMEIER, MEDITERAN PLUS and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	11909	100
Rf-K		11921	100
Rf*H4-K		* 11927 *	100

SON20 L

roof conductor fastener, made of oak tree wood is appropriate for wooden roof coverings such as SKODLA and other flammable roof coverings.



SON20 L Bracket height: 40 cm

Material/Fixing	Conductor (mm)	Product code	Pack.
Wood/Rf-V	Φ8 - Φ10	12032	4
Wood/Rf*H4-V	Φ8 - Φ10	* 12037 *	4

SON20 L-B Bracket height: 10 cm

Material/Fixing	Conductor (mm)	Product code	Pack.
Wood/Rf-V	Φ8 - Φ10	12034	4

SON22

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as TONDACH (LANDDACH), COMPACT, CONSTANT, CONTRAST, CONSTANT PLUS, FRAGMENT PLUS, EFEKTPLUS, BOGENER INNOVO 12, POLET M-555 and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	12209	100
Rf-K		12221	100
Rf*H4-K		* 12227 *	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-N	Φ10	* 12223 *	100

SON23

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as TONDACH (SULM), CREATON (SINFONIE, HARMONIE), UNIVERSO L43, POLET M-222, KIKINDA (CLASSIC M-002, HOLANDEZ M-993) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	12309	100
Rf-K		12321	100
Rf*H4-K		* 12327 *	100

* upon order / Please refer ber when placing your order.

SON ROOF FASTENERS

SON24

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as TONDACH (CARMEN), CREATON (KERA-PFANNE 2003), JUNGMEIER (COSMO) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	12409	100
Rf-K		12421	100
Rf*H4-K		* 12427 *	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	Φ8 - Φ10	* 12422 *	100

SON25

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as CREATON (MAGNUM) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	12509	100
Rf-K		12521	100
Rf*H4-K		* 12527 *	100

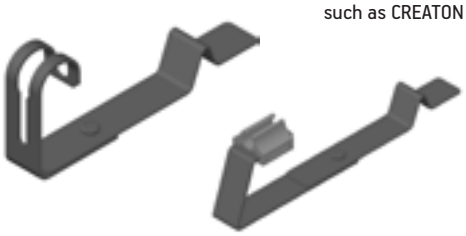
SON26

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as CREATON (DOMINO), TONDACH (FIGARO, FIDELIO, JUPITER, KONTINENTAL PLUS, LANDACH VZ) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	12609	100
Rf-K		12621	100
Rf*H4-K		* 12627 *	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-N	Φ10	* 12623 *	80

SON27



roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as CREATON (BALANCE) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	12709	100
Rf-K		12721	100
Rf*H4-K		* 12727 *	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-N	Φ10	* 12723 *	80

SON28

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as CREATON (ELEGANZ) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	12809	100
Rf-K		12821	100
Rf*H4-K		* 12827 *	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	Φ8 - Φ10	* 12822 *	100

SON29

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as TONDACH (MULDE, CONTINENTAL–22, CONTINENTAL PLUS), PFLEIDERER TERRA EXTRA, BRAS TOPAZ 13 and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	12909	100
Rf-K		12921	100
Rf*H4-K		* 12927 *	100

* upon or[illegible] e catalogue number when placing your order.

SON ROOF FASTENERS

SON40

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as CREATON (RUSTICO) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	14009	100
Rf-K		14021	100
Rf*H4-K		* 14027 *	100

SON41

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as CREATON (RATIO) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	14109	100
Rf-K		14121	100
Rf*H4-K		* 14127 *	100

SON42

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as WAZTENPUTL, WALTHER DACHZIEGEL TRADITIONAL (VELIKI ZAREZNIK) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	14209	100
Rf-K		14221	100
Rf*H4-K		* 14227 *	100

SON43

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as SKRILAVEC and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	* 14309 *	100
Rf-K		* 14321 *	100
Rf*H4-K		* 14327 *	100

SON44

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as WALTHER DACHZIEGEL (model W5) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	14409	100
Rf-K		14421	100
Rf*H4-K		* 14427 *	100

SON45

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as ERLUS (KARAT) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	14509	100
Rf-K		14521	100
Rf*H4-K		* 14527 *	100

SON ROOF FASTENERS

SON46

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as ERLUS (E58 S) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	* 14609 *	100
Rf-K		* 14621 *	100
Rf*H4-K		* 14627 *	100

SON47

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as CREATON (RAPIDO) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	14709	100
Rf-K		14721	100
Rf*H4-K		* 14727 *	100

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	Φ8 - Φ10	* 14724 *	80

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-V	P 20X3	* 14725 *	80

SON48

roof conductor fastener, is appropriate for concrete and fire-baked roof coverings such as RÖBEN (MONZA PLUS) and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	14809	100
Rf-K		14821	100
Rf*H4-K		* 14827 *	100

SON49

roof conductor fastener is appropriate for fire-baked roof coverings such as KOREC and the like.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	14909	50
Rf-K		14921	50
Rf*H4-K		14927	50
Rf-V	Φ8 - Φ10	14924	25
Rf-V	P 20x3	14925	25

SON50

roof conductor fastener, universal, is appropiate for concrete and fire-baked roof tiles. The fastener must be adapted to the shape of the tile at fitting.

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf N-N grey	Φ8	15301	80
Rf N-N brown		15302	80
Rf N-N brick red		15303	80

SON60

roof bracket, suitable for brick roofing BOGENER MAXIFALZZIEGEL and similar.

Material/Fixing	Conductor (mm)	Product code	Pack.
Cu-K	Φ8	16009	80
Rf-K		16021	80
Rf*H4-K		16027	80

Material/Fixing	Conductor (mm)	Product code	Pack.
Rf-N	Φ10	* 16023 *	80

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ZON WALL FASTENERS

ZON on-wall conductor fasteners are designed for the installation of downlead conductors to the walls of the building. The fastener has to be fixed, so that it is always rectangular to the wall, irrespective of the borehole. The fasteners are made of stainless steel or they are plastic coated in white or brown colour. The conductor is screwed to the support element with screws (ZON01, 02, 03, 04, 08, 09, 10). In our sales assortment we also have a new support element made of a synthetic material. The conductor can be fixed without screwing (ZON01 N-N, 02 N-N, 03 N-N, 04 N-N, 08 N-N, 09 N-N, 10 N-N).

ZON WALL FASTENERS

ZON03

on-wall conductor fastener, made of stainless steel, is appropriate for solid walls with screw lentgh of 50 mm and a wall plug Φ8 mm, the conductor is **screwed** to the fastener.

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		Φ8 - Φ10	20322	100
Rf*H4-V			20327	100
Rf/PVC-V	white		20301	100
	brown		203010	100

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		16-35 mm^2	20335	100
Rf-V		50 mm^2	20343	100
Rf-V		70 mm^2	20334	100
Rf-V		95 mm^2	20333	100
Rf-V		120 mm^2	20324	100
Rf-V		150 mm^2	20330	100
Rf-V		185 mm^2	20331	100
Rf-V		240 mm^2	20332	100
Rf*H4-V		16-35 mm^2	20341	100
Rf*H4-V		50 mm^2	20342	100
Rf*H4-V		70 mm^2	20340	100
Rf*H4-V		95 mm^2	20339	100
Rf*H4-V		120 mm^2	20326	100
Rf*H4-V		150 mm^2	20336	100
Rf*H4-V		185 mm^2	20337	100
Rf*H4-V		240 mm^2	20338	100

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 25 x 4	20325	100
Rf*H4-V			20328	100

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 30 x 3,5	203250	100
Rf*H4-V			20329	100

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 40 x 4	203251	80

ZON03 N-N

on-wall conductor fastener, made of a synthetic material sustainable to atmospheric influences (N), appropriate for solid walls with screw lentgh of 50 mm and a wall plug Φ8 mm, the conductor is fixed to the fastener **without screwing**.

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
N-N	grey	Φ8	22322	150
	brown		22333	150
	brick red		22344	150

ZON WALL FASTENERS

ZON02

ZON02 on-wall conductor fastener, made of stainless steel is appropriate for hollow walls with insulation up to 50 mm, with screw length of 100 mm and a wall plug Φ10 mm; the conductor is **screwed** to the fastener.

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		Φ8 - Φ10	20222	50
Rf*H4-V			20227	50
Rf/PVC-V	white		20201	50
	brown		202010	50

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 25 x 4	20225	50
Rf*H4-V			20228	50

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 30 x 3,5	202250	50
Rf*H4-V			20229	50

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 40 x 4	202251	50

ZON02 N-N

ZON02 N-N on-wall conductor fastener, made of a synthetic material sustainable to atmospheric influences (N), appropriate for hollow walls with insulation up to 50 mm, with screw lentgh of 100 mm and a wall plug Φ10 mm, the conductor is fixed to the fastener **without screwing.**

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
N-N	grey	Φ8	22222	50
	brown		22233	50
	brick red		22244	50

ZON01

on-wall conductor fastener, made of stainless steel is appropriate for hollow walls with insulation up to 100 mm, with screw length of 160 mm and a wall plug Φ10 mm, the conductor is **screwed** to the fastener.

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		Φ8 - Φ10	20122	50
Rf*H4-V			20127	50
Rf/PVC-V	white		20101	50
	brown		201010	50

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 25 x 4	20125	50
Rf*H4-V			20128	50

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 30 x 3,5	201250	50
Rf*H4-V			20129	50

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 40 x 4	201251	50

* upon order / Please refer ber when placing your order.

ZON WALL FASTENERS

ZON01 N-N

on-wall conductor fastener, made of a synthetic material sustainable to atmospheric influences (N), appropriate for hollow walls with insulation up to 100 mm, with screw lentgh of 160 mm and a wall plug Φ10 mm, the conductor is fixed to the fastener **without screwing.**

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
N-N	grey	Φ8	22122	50
	brown		22133	50
	brick red		22144	50

ZON08

on-wall conductor fastener, made of stainless steel is appropriate for hollow walls with insulation up to 140 mm, with screw length of 200 mm and a wall plug Φ10 mm, the conductor is **screwed** to the fastener.

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		Φ8 - Φ10	20822	50
Rf*H4-V			20827	50
Rf/PVC-V	white		20801	50
	brown		20802	50

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 25 x 4	20825	50
Rf*H4-V			20828	50

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 30 x 3,5	20826	50
Rf*H4-V			20829	50

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 40 x 4	20830	50

ZON08 N-N

on-wall conductor fastener, made of a synthetic material sustainable to atmospheric influences (N), appropriate for hollow walls with insulation up to 140 mm, with screw lentgh of 200 mm and a wall plug Φ10 mm, the conductor is fixed to the fastener **without screwing.**

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
N-N	grey	Φ8	22822	50
	brown		22833	50
	brick red		22844	50

* upon or e catalogue number when placing your order.

ZON WALL FASTENERS

ZON09

on-wall conductor fastener, made of stainless steel is appropriate for fixing on thermal insulation lining (outdoor facade) from foamed or extruded polystyrene (styrofoam or styrodur) with thickness of 50 mm or more. The conductor is **screwed** to the fastener.

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		Φ8 - Φ10	22306	40

ZON09 N-N

on-wall conductor fastener, made of a synthetic material sustainable to atmospheric influences (N) is appropriate for fixing on thermal insulation lining (outdoor facade) from foamed or extruded polystyrene (styrofoam or styrodur) with thickness of 50 mm or more. The conductor is fixed to the fastener **without screwing.**

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
N-N	grey	Φ8	22305	40
	brown		22307	40
	brick red		22308	40

ZON10

wall bracket, made of stainless steel (Rf), suitable for hollow walls with isolation up to 200 mm, with a 300 mm screw and Φ10 mm PVC insert, the lead is attached to bracket **with screws.**

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		Φ8 - Φ10	21022	50
Rf*H4-V			21027	50
Rf/PVC-V	white		21020	50
	brown		21021	50

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 25 x 4	21025	50
Rf*H4-V			21028	50

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 30 x 3,5	21026	50
Rf*H4-V			21029	50

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		P do 40 x 4	21030	50

ZON10 N-N

wall bracket, made of stainless steel (Rf), suitable for hollow walls with isolation up to 200 mm, with a 300 mm screw and Φ10 mm PVC insert, the lead is attached to bracket **with screws.**

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
N-N	grey	Φ8	21031	50
	brown		21032	50
	brick red		21033	50

ZON WALL FASTENERS

ZON03 DIREKT

on-wall conductor fastener, made of stainless steel (Rf) is appropriate for fixing a lightning conductor directly to a concrete wall if the conductor is installed under roughcast, with screw length of 50 mm and a wall plug Φ8 mm; the conductor is **screwed** to the fastener.

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		Φ8 - Φ10	21322	200

ZON04

on-wall conductor fastener, made of stainless steel (Rf), is appropriate for wooden and flammable walls, the conductor is **screwed** to the fastener.

Material/Fixing	height (mm)	Conductor (mm)	Product code	Pack.
Rf-V	100	Φ8 - Φ10	20422	50
Rf-V	upon order		* 20421 *	50
Rf*H4-V	100	Φ8 - Φ10	20427	50

Material/Fixing	height (mm)	Conductor (mm)	Product code	Pack.
Rf-V	100	P do 25 x 4	20425	50

ZON04 N-N

wall bracket, made of artificial material, durable in atmosphere (N), suitable for wooden, flammable walls, the lead is attached to bracket **without screws.**

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
N-N	grey	Φ8	20435	50
	brown		20436	50
	brick red		20437	50

ZON04 P

wall bracket, made of stainless steel (Rf), suitable for sheet metal roofs and similar, the lead is attached to bracket **with screws.**

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Rf-V		Φ8 - Φ10	20433	25
Rf-V		P do 25 x 4	20434	25

ZON04 L

on-wall conductor fastener, made of oak tree wood is appropriate for wooden and flammable walls, the conductor is **screwed** to the fastener.

Material/Fixing	Colour	Conductor (mm)	Product code	Pack.
Wood/Rf-V		Φ8 - Φ10	20432	32

* upon or[illegible] e catalogue number when placing your order.

ZON MEASURING CABINETS

ZON measuring cabinets are designed for carrying out measuring joints in the wall of a building or in the ground when lightning protection is under roughcast. The frame of the cabinet is made of stainless steel or synthetic materials sustainable to atmospheric influences (PE, PVC). The covering of the cabinet is made of stainless steel with an option of plastic coating in white colour, of cast iron or a synthetic material sustainable to atmospheric influences (PE, PVC).

ZON MEASURING CABINETS

ZON05

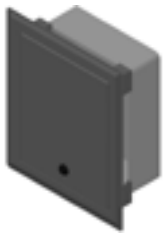
in-wall measuring cabinet, 200 mm x 150 mm x 100 mm (D x W x H), the frame and cover are made of stainless steel (Rf) in one piece.

Material/Fixing	Colour	Product code	Pack.
Rf-V		20522	4
Rf/PVC-V	white	* 20722 *	4
Rf*H4		* 20527 *	4

! Coloring according to RAL color scale

ZON05 A

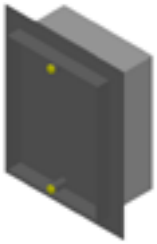
in-wall measuring cabinet, 200 mm x 150 mm x 100 mm (D x W x H), the frame of the cabinet is made of a synthetic material sustainable to atmospheric influences (PVC) and is installed when the wall is being built. The cover of the cabinet is made of stainless steel with an option of plastic coating in white color. The cover is mounted after the facade is finished and can be totally adjusted to the wall with a screw.



Material/Fixing	Colour	Product code	Pack.
PVC/Rf		20524	4
PVC/Rf/PVC	white	20528	4

ZON05 B

in-wall measuring cabinet, 200 mm x 150 mm x 100 mm (D x W x H), the frame of the cabinet is made of a synthetic material sustainable to atmospheric influences (PVC) and is installed when the wall is being built. The cover of the cabinet is made of stainless steel. It is adapted to GLUING STONE to the cover of the cabinet.



Material/Fixing	Colour	Product code	Pack.
PVC/Rf		* 900907 *	1

ZON06

drivable measuring cabinet, 325 mm x 225 mm x 150 mm (D x W x H), **bearing capacity 5t**, the frame of the cabinet is made of a synthetic material sustainable to atmospheric influences (PE). Its cover is made of cast iron (Ltž).

Material/Fixing	Colour	Product code	Pack.
PE-Ltž	black	20525	1

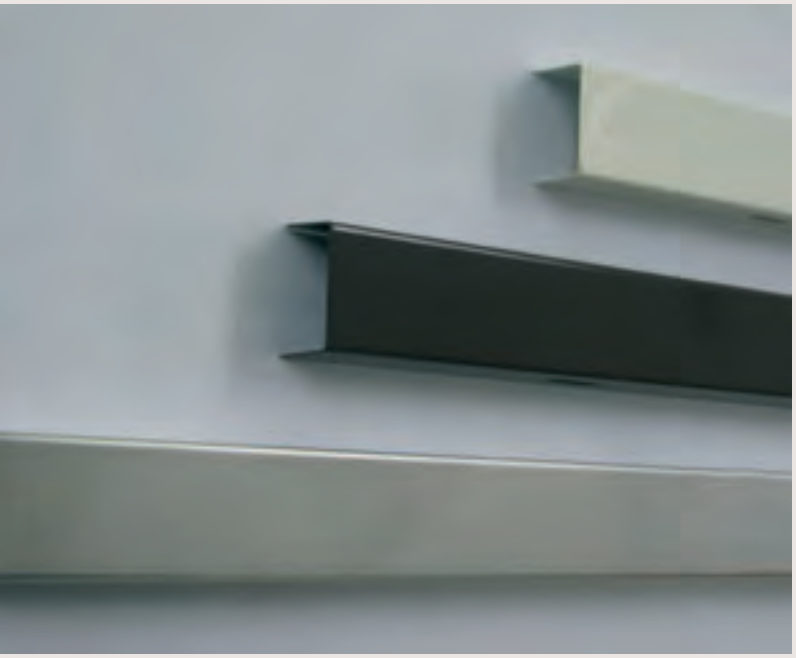
ZON07

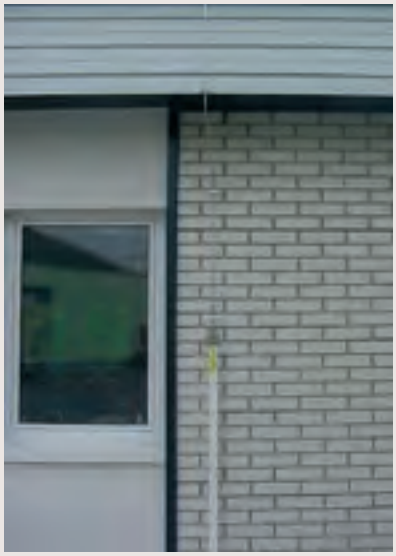
walkable measuring cabinet, 225 mm x 125 mm x 100 mm (D x W x H), the frame of the cabinet is made of a synthetic material sustainable to atmospheric influences (PE). Its cover is made of cast iron (Ltž).

Material/Fixing	Colour	Product code	Pack.
PE-Ltž	black	20526	1

VZ VERTICAL PROTECTION

VZ vertical protection equipment with dimensions 1500 mm x 50 mm x 1 mm is used for mechanical protection of earth lead-in conductors to a measuring joint. It is made of stainless steel or it is plastic coated in white or brown colour. The protection consists of a bare protection frame (Product code 10, 17, 20, 30) and two support holders of vertical protection (Product code 301, 302, 303, 305, 306, 307, 308, 309, 310, 311, 312, 313, 316, 317, 318, 319).





VZ VERTICAL PROTECTION

VZ01

vertical protection, 1,5 m length, appropriate for hollow walls with insulation up to 100 mm, together with holders, screws, length 160 mm, and a wall plug Φ10 mm.

Material	Colour	Product code
Rf		
Rf*H4-V		
RfPVC	white	
	brown	

VZ02

vertical protection, 1,5 m length, appropriate for hollow walls with insulation up to 50 mm, together with holders, screws, length 100 mm, and a wall plug Φ10 mm.

Material	Colour	Product code
Rf		
Rf*H4-V		
RfPVC	white	
	brown	

VZ03

vertical protection, 1,5 m length, appropriate for non-insulated walls, with holders, screws, length 50 mm, and a wall plug Φ8 mm.

Material	Colour	Product code
Rf		
Rf*H4-V		
RfPVC	white	
	brown	

VZ08

vertical protection, 1,5 m length, appropriate for hollow walls with insulation up to 140 mm, together with holders, screws, length 200 mm, and a wall plug Φ10 mm.

Material	Colour	Product code
Rf		
Rf*H4-V		
RfPVC	white	
	brown	

VZ10

vertical protection, 1,5 m in length, suitable for hollow walls with isolation of up to 200 mm, along with brackets, 300 mm screws and Φ10 mm PVC inserts. The protection consists of 1x VZ vertical protection bare + 2x VZ bracket 10.

Material	Colour	Product code
Rf		
Rf*H4-V		
RfPVC	white	
	brown	

VZ VERTICAL PROTECTION

VZ04

vertical protection, 1,5 m length, appropriate for wooden, flammable walls, together with holders.

Material	Colour	Product code
Rf		
Rf*H4-V		
RfPVC	white	
	brown	

VZ09

vertical protection, lentgh 1,5 m, appropriate for fixing on thermal insulation lining (outdoor facade) from foamed or extruded polystyrene (styrofoam or styrodur) with thickness of 50 mm or more.

Material	Colour	Product code
Rf		
Rf*H4-V		
RfPVC	white	
	brown	

VZ16

vertical protection, lentgh 1,5 m, appropriate for fixing on sheet metal walls and the like.

Material	Colour	Product code
Rf		
Rf*H4-V		
RfPVC	white	
	brown	

VZ vertical protection consists of: VZ VERTICAL PROTECTION FRAMES and VZ VERTICAL PROTECTION HOLDERS:

VZ BARE PROTECTION FRAMES

length 1,5 m, made of stainless steel or plastic coated in white or brown colour.

Material	Marking	Colour	Product code	Pack.
Rf	VZ Rf 1,5 m		10	1
Rf*H4	VZ Rf*H4 1,5 m		17	1
Rf/pvc	VZ Rf White 1,5 m	white	20	1
	VZ Rf Brown 1,5 m	brown	30	1

! Coloring according to RAL color scale

VZ HOLDER 01

for vertical protection, made of stainless steel, appropriate for hollow walls with insulation up to 100 mm.

Material	Marking	Screw (mm)	Product code	Pack.
Rf	VZ HOLDER 01	160	301	50
Rf*H4	VZ HOLDER 01	160	310	50

* upon order / Please refer ber when placing your order.

VZ VERTICAL PROTECTION

VZ HOLDER 02

for vertical protection, made of stainless steel, appropriate for hollow walls with insulation up to 50 mm.

Material	Marking	Screw (mm)	Product code	Pack.
Rf	VZ HOLDER 02	100	302	50
Rf*H4	VZ HOLDER 02	100	311	50

VZ HOLDER 03

for vertical protection, made of stainless steel, appropriate for non-insulated walls.

Material	Marking	Screw (mm)	Product code	Pack.
Rf	VZ HOLDER 03	50	303	100
Rf*H4	VZ HOLDER 03	50	307	100

VZ HOLDER 08

for vertical protection, made of stainless steel, appropriate for hollow walls with insulation up to 140 mm.

Material	Marking	Screw (mm)	Product code	Pack.
Rf	VZ HOLDER 08	200	308	50
Rf*H4	VZ HOLDER 08	200	309	50

VZ HOLDER 10

for vertical protection, made of stainless steel, appropriate for hollow walls with insulation up to 200 mm.

Material	Marking	Screw (mm)	Product code	Pack.
Rf	VZ HOLDER 10	300	313	50
Rf*H4	VZ HOLDER 10	300	312	50

* upon or e catalogue number when placing your order.

VZ VERTICAL PROTECTION

VZ HOLDER 09

for vertical protection, made of stainless steel (Rf), appropriate for fixing on thermal insulation lining (outdoor facade) from foamed or extruded polystyrene (styrofoam or styrodur) with thickness of 50 mm or more.

Material	Marking	Screw (mm)	Product code	Pack.
Rf	VZ HOLDER 09		305	50
Rf*H4	VZ HOLDER 09		306	50

VZ HOLDER 16

for vertical protection, made of stainless steel, appropriate for fixing on metal sheet walls and the like.

Material	Marking	Screw (mm)	Product code	Pack.
Rf	VZ HOLDER 16		316	100
Rf*H4	VZ HOLDER 16		317	100

VZ HOLDER 04

for vertical protection, made of stainless steel, appropriate for fixing on wooden, flammable walls.

Material	Marking	Screw (mm)	Product code	Pack.
Rf	VZ HOLDER 08		318	50
Rf*H4	VZ HOLDER 08		319	50

KON PIPE BONDING CLAMPS

KON pipe bonding clamps are designed for the installation of down conductors to the sink pipe and for sink pipe grounding. The conductors can be round or flat. With regard to the pipe material pipe bonding clamps can be made of copper or stainless steel or plastic coated in brown. Other colours are available upon order.

KON PIPE BONDING CLAMPS

KON10 A

pipe bonding clamps, made in one piece, designed for **grounding** of sink pipes and attaching rolled steel earthing conductor to sink pipes of different dimensions. The conductor is **screwed** to the pipe bonding clamp.

Material/Fixing	Dimension (mm)	Conductor (mm)	Product code	Pack.
Cu-V	Φ80	P 30 x 4	700150	50
	Φ100		700154	50
	Φ110		700156	40
	Φ120		700158	40
	Φ130		700160	20
	Φ140		700162	20
	Φ150		700164	20
	Φ160		700166	20
	Φ170		700168	1
	Φ180		700170	1
	Φ190		700172	1
	Φ200		700174	1
	Φ210		700176	1
	Φ220		700178	1
	Φ230		700180	1
	Φ240		700182	1
	Φ250		700184	1
Rf-V	Φ80		700350	50
	Φ100		700354	50
	Φ110		700356	40
	Φ120		700358	40
	Φ130		700360	20
	Φ140		700362	20
	Φ150		700364	20
	Φ160		700366	20
	Φ170		700368	1
	Φ180		700370	1
	Φ190		700372	1
	Φ200		700374	1
	Φ210		700376	1
	Φ220		700378	1
	Φ230		700380	1
	Φ240		700382	1
	Φ250		700384	1

Material/Fixing	Dimension (mm)	Colour	Conductor (mm)	Product code	Pack.
Rf/PVC-V	Φ100	brown	P 30 x 4	700474	50
	Φ120			700475	40

- Other dimensions of pipe bonding clamps are available upon order.
- Different colours are available, according to RAL color scale.

KON PIPE BONDING CLAMPS

KON11 A

pipe bonding clamps, made in one piece, designed for the attachment of round conductors to sink pipes of different dimensions. The conductor is **screwed** to the pipe bonding clamp.

Material/Fixing	Dimension (mm)	Conductor (mm)	Product code	Pack.
Cu-V	Φ80	Φ8 - Φ10	700100	50
	Φ100		700104	50
	Φ110		700106	40
	Φ120		700108	40
	Φ130		700110	20
	Φ140		700112	20
	Φ150		700114	20
	Φ160		700116	20
	Φ170		700118	1
	Φ180		700120	1
	Φ190		700122	1
	Φ200		700124	1
	Φ210		700126	1
	Φ220		700128	1
	Φ230		700130	1
	Φ240		700132	1
	Φ250		700134	1
Rf-V	Φ80		700300	50
	Φ100		700304	50
	Φ110		700306	40
	Φ120		700308	40
	Φ130		700310	20
	Φ140		700312	20
	Φ150		700314	20
	Φ160		700316	20
	Φ170		700318	1
	Φ180		700320	1
	Φ190		700322	1
	Φ200		700324	1
	Φ210		700326	1
	Φ220		700328	1
	Φ230		700330	1
	Φ240		700332	1
	Φ250		700334	1

Material/Fixing	Dimension (mm)	Colour	Conductor (mm)	Product code	Pack.
Rf/PVC-V	Φ100	brown	Φ8 - Φ10	700476	50
	Φ120			700477	40

• Other dimensions of pipe bonding clamps are available upon order.
• Different colours are available, according to RAL color scale.

* upon or[illegible] e catalogue number when placing your order.

KON PIPE BONDING CLAMPS

KON12 A

pipe bonding fastener, made in one piece, designed for the attachment of round conductors to sink pipes of different dimensions; attachment without screwing (N - nylon holder).

Material/Fixing	Dimension (mm)	Colour	Conductor (mm)	Product code	Pack.
Cu-N	Φ100		Φ8	700204	50
	Φ110			700206	40
	Φ120			700208	40
Rf-N	Φ100			700404	50
	Φ110			700406	40
	Φ120			700408	40
Rf-N	Φ100		Φ10	700454	50
	Φ110			700456	40
	Φ120			700458	40
Rf/PVC-N	Φ100	brown	Φ8	700459	50
	Φ120			700465	40

• Other dimensions of pipe bonding clamps are available upon order.
• Different colours are available, according to RAL color scale.

KON10

pipe bonding clamps, consisting of two parts, designed for grounding of sink pipes and attaching a rolled steel earthing conductor to sink pipes of different dimensions. The conductor is screwed to the pipe bonding clamp.

Material/Fixing	Dimension (mm)	Conductor (mm)	Product code	Pack.
Cu-V	Φ100	P 30 x 4	70309	40
	Φ120		70109	40
Rf-V	Φ100		72122	40
	Φ120		71922	40

• Other dimensions of pipe bonding clamps are available upon order.

KON11

pipe bonding clamps, consisting of two parts, designed for grounding of sink pipes and attaching round conductors to sink pipes of different dimensions. The conductor is screwed to the pipe bonding clamp.

Material/Fixing	Dimension (mm)	Conductor (mm)	Product code	Pack.
Cu-V	Φ100	Φ8 - Φ10	703090	40
	Φ120		701090	40
Rf-V	Φ100		721220	40
	Φ120		719220	40

• Other dimensions of pipe bonding clamps are available upon order.

* upon order / Please refer ber when placing your order.

KON PIPE BONDING CLAMPS

KON12

pipe bonding fastener, consisting of two parts, designed for the attachment of round conductors to sink pipes of different dimensions; attachment without screwing (N - nylon holder).

Material/Fixing	Dimension (mm)	Colour	Conductor (mm)	Product code	Pack.
Cu-N	Φ100		Φ8	70712	40
	Φ120			70512	40
Rf-N	Φ100			71413	40
	Φ120			71213	40
	Φ100		Φ10	71414	40
	Φ120			71214	40
Rf/PVC-N	Φ100	brown	Φ8	71415	40
	Φ120		Φ10	71215	40

• Other dimensions of pipe bonding clamps are available upon order.

KON10

pipe bonding clamps, consisting of two parts, designed for **grounding of square** sink pipes and attaching a rolled steel earthing conductor to sink pipes of different dimensions. The conductor is screwed to the pipe bonding clamp.

Material/Fixing	Dimension (mm)	Conductor (mm)	Product code	Pack.
Rf-V	100x100	P 30 x 4	90806	40

• Other dimensions of pipe bonding clamps are available upon order.

KON11

pipe bonding clamps, consisting of two parts, designed for **grounding of square** sink pipes and attaching round conductors to sink pipes of different dimensions. The conductor is screwed to the pipe bonding clamp.

Material/Fixing	Dimension (mm)	Conductor (mm)	Product code	Pack.
Rf-V	100x100	Φ8 - Φ10	908062	40

• Other dimensions of pipe bonding clamps are available upon order.

* upon or[illegible] e catalogue number when placing your order.

KON PIPE BONDING CLAMPS

KON pipe bonding clamps for grounding of smaller dimension pipes

KON11 A

pipe bonding clamps, made in one piece, designed for **grounding** of smaller dimension pipes made of metal. The conductor is screwed to the pipe bonding clamps.

Material/Fixing	Dimension (mm)	Conductor (mm)	Product code	Pack.
Cu-V	Φ 10(1/8")	16–35mm²	700087	100
	Φ 13(1/4")		700088	50
	Φ 17(3/8")		700089	50
	Φ 21(1/2")		700090	50
	Φ 27(3/4")		700091	50
	Φ 34 (1")		700092	50
	Φ 42(1 1/4")		700093	80
	Φ 48 (1 1/2")		700094	80
	Φ 60 (2")		700096	50
Rf-V	Φ 10(1/8")		700287	100
	Φ 13(1/4")		700288	50
	Φ 17 (3/8")		700289	50
	Φ 21 (1/2")		700290	50
	Φ 27 (3/4")		700291	50
	Φ 34 (1")		700292	50
	Φ 42 (1 1/4")		700293	80
	Φ 48 (1 1/2")		700294	80
	Φ 60 (2")		700296	50

• Other dimensions of pipe bonding clamps are available upon order.

KON11 B

pipe clamp, intended for earthing of steel pipes of smaller diameters, attachment of leads to pipe clamp **with screws.**

Material/Fixing	Dimension (mm)	Conductor (mm)	Product code	Pack.
Rf-V	Φ 10(1/8")	4-6 mm²	*700280*	100
Rf-V	Φ 12(1/4")	4-6 mm²	*700281*	100

KON13 TAPE Rf

perforated tape, 1,0 m, 7 mm holes, designed for making pipe bonding clamps.

Material/Fixing	Dimension (mm)	Length (mm)	Product code	Pack.
Rf-V	20	1000	9	50
Rf-V	20	upon order	* 90714 *	*

• The tape can be bought in various lengths (1,0 m – 50,0 m or more).

KON CONTACT CLAMPS

KON contact clamps are designed for the connection of different parts of lightning protection elements together and for joining of a lightning conductor with different metal elements. The joint between separate conductors and metal parts must be properly made. We must also pay attention to the appropriateness of materials to avoid the so-called galvanic coupling.

KON CONTACT CLAMPS

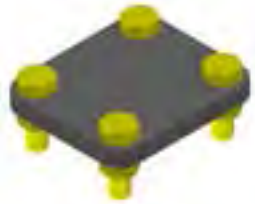
KON01

measuring cross clamp, consisting of **3 plates 58 mm x 58 mm and 4 screws and M8 nuts**, designed for carrying out measurement and others joints in the ground and above it **between square conductors** of up to **30 mm** width.

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	P do 30	P do 30	400110	120
Rf			50422	120
Rf*H4			50423	120
Rf/FeZn			50420	120
Cu/Rf			400611	50

KON01 A

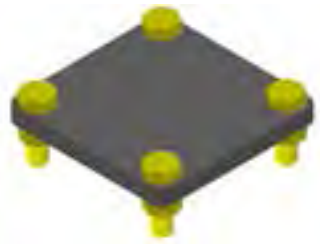
measuring cross clamp, consisting of 3 **plates 58 mm x 68 mm and 4 screws and M8 nuts**, designed for carrying out measurement and others joints in the ground and above it **between square conductors** of up to **42 mm** width.



mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	P do 42	P do 42	540109	50
Rf			500422	50
Rf*H4			500423	50

KON01 B

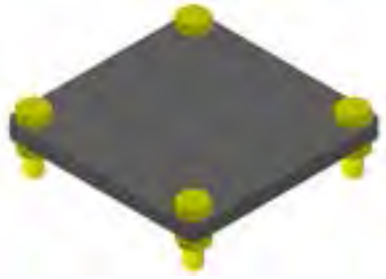
measuring cross clamp, consisting of 3 **plates 78 mm x 78 mm and 4 screws and M8 nuts**, designed for carrying out measurement and others joints in the ground and above it **between square conductors** of up to **50 mm** width.



mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	P do 50	P do 50	400612	40
Rf			400610	40

KON01 C

measuring cross clamp, consisting of 3 **plates 100 mm x 100 mm and 4 screws and M8 nuts**, designed for carrying out measurement and others joints in the ground and above it **between square conductors** of up to **70 mm** width.



mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu/Rf/Rf	P do 70	P do 70	400623	25
Rf			400614	25

KON CONTACT CLAMPS

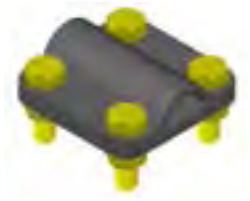
KON02

measuring cross clamp, consisting of **3 plates 58 mm x 58 mm and 4 screws and M8 nuts,** designed for carrying out measurement and others joints in the ground and above it **between round conductors and square conductors** of up to **30 mm** width.

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	Φ8	P do 30	40109	65
	Φ16		40619	50
	Φ20		40617	50
Rf	Φ8 - Φ10	P do 30	40122	65
	Φ16		40644	50
	Φ20		40620	50
	Φ10	LOP-P	40613	65
	Φ16		40612	50
Rf*H4	Φ8 - Φ10	P do 30	40127	65

Cu	16-35 mm^2	P do 30	40621	65
	50 mm^2		40622	65
	70 mm^2		40623	65
	95 mm^2		40624	50
	120 mm^2		40625	50
	150 mm^2		40626	50
	185 mm^2		40627	50
	240 mm^2		40628	50

Cu/Rf/Rf	16 – 35 mm^2	P do 30	40615	50
	50 mm^2		40629	65
	70 mm^2		40630	65
	95 mm^2		40507	50
	120 mm^2		40607	50
	150 mm^2		40608	50
	185 mm^2		40631	50
	240 mm^2		40632	50



Rf	16-35 mm^2	P do 30	40633	65
	50 mm^2		40634	65
	70 mm^2		40635	65
	95 mm^2		40636	50
	120 mm^2		40637	50
	150 mm^2		40638	50
	185 mm^2		40639	50
	240 mm^2		40640	50

KON02 A

measuring cross clamp, consisting of **3 plates 58 mm x 68 mm and 4 screws and M8 nuts,** designed for carrying out measurement and others joints in the ground and above it **between round conductors and square conductors** of up to **42 mm** width.

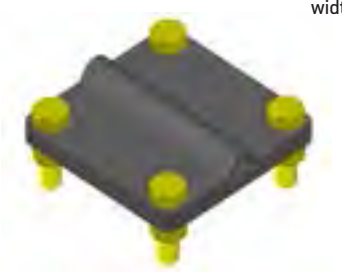
mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	95 mm^2	P do 42	400613	50
Cu/Rf/Rf	Φ8	P do 42	400109	50
	95 mm^2		400507	50
	120 mm^2		400607	50
	150 mm^2		400616	50
Rf	Φ8 - Φ10	P do 42	400122	50

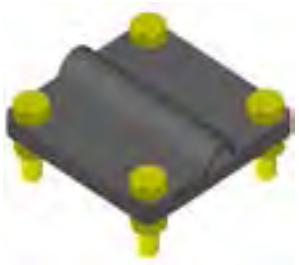
* upon or[illegible] e catalogue number when placing your order.

KON Contact clamps

KON02 B

measuring cross clamp, consisting of **3 plates 78 mm x 78 mm and 4 screws and M8 nuts**, designed for carrying out measurement and others joints in the ground and above it **between round conductors and square conductors** of up to **50 mm** width.





mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	Φ8	P do 50	400606	40
Cu/Rf/Rf	Φ8 - Φ10	P do 50	400621	40
Rf	Φ8 - Φ10	P do 50	400609	40

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	16-35 mm²	P do 50	400626	40
	50 mm²		400627	40
	70 mm²		400628	40
	95 mm²		400629	40
	120 mm²		400630	40
	150 mm²		400631	40
	185 mm²		400632	40
	240 mm²		400633	40
Cu/Rf/Rf	16 – 35 mm²		400641	40
	50 mm²		400642	40
	70 mm²		400643	40
	95 mm²		400644	40
	120 mm²		400645	40
	150 mm²		400646	40
	185 mm²		400647	40
	240 mm²		400648	40
Rf	16-35 mm²		400657	40
	50 mm²		400658	40
	70 mm²		400659	40
	95 mm²		400660	40
	120 mm²		400661	40
	150 mm²		400662	40
	185 mm²		400663	40
	240 mm²		400664	40

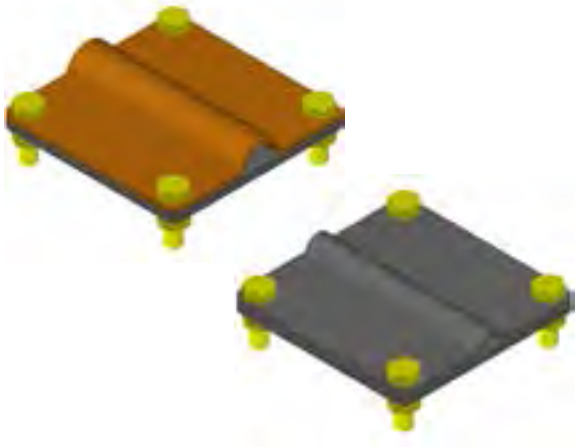
KON02 C

measuring cross clamp, consisting of **3 plates 100 mm x 100 mm and 4 screws and M8 nuts**, designed for carrying out measurement and others joints in the ground and above it **between round conductors and square conductors** of up to **70 mm** width.

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	16-35 mm²	P do 70	400634	40
	50 mm²		400635	40
	70 mm²		400636	40
	95 mm²		400637	40
	120 mm²		400638	40
	150 mm²		400639	40
	185 mm²		400622	40
	240 mm²		400640	40

KON Contact clamps

KON02 C



mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu/Rf/Rf	16 – 35 mm2	P do 70	400649	40
	50 mm2		400650	40
	70 mm2		400651	40
	95 mm2		400652	40
	120 mm2		400653	40
	150 mm2		400654	40
	185 mm2		400655	40
	240 mm2		400656	40
Rf	16-35 mm2	P do 70	400665	40
	50 mm2		400666	40
	70 mm2		400667	40
	95 mm2		400668	40
	120 mm2		400669	40
	150 mm2		400670	40
	185 mm2		400671	40
	240 mm2		400672	40

KON02 D

measuring cross clamp, consisting of **3 plates 58 mm x 90 mm and 4 screws and M8 nuts**, designed for carrying out measurement and others joints in the ground and above it **between round conductors and square conductors** of up to **20 mm** width.

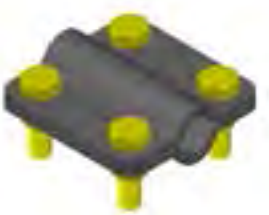
mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Rf	120 mm^2	**P do 60**	400608	40

KON03

cross clamp, consisting of **3 plates 48 mm x 48 mm and 4 screws and M6 nuts**, designed for carrying out joints above the ground **between round conductors and square conductors** of up to **20 mm** width.

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu/Rf/Rf	Φ8	P do 20	50207	140
	16-35 mm^2		50307	140
Rf	Φ8 - Φ10		50222	140
	16-35 mm2		30122	140

KON04



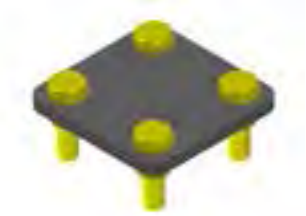
bonding clamp, consisting of **2 plates 48 mm x 48 mm and 4 screws and M6 nuts**, designed for carrying out joints above the ground **between round conductors 8 – 10 mm**.

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	Φ8	Φ8	50107	140
Rf	Φ8 - Φ10	Φ8 - Φ10	50122	140
Rf*H4	Φ8 - Φ10	Φ8 - Φ10	50127	140

* upon or e catalogue number when placing your order.

KON CONTACT CLAMPS

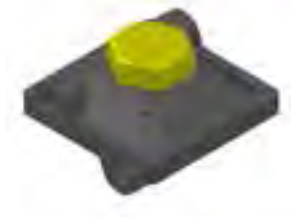
KON04



bonding clamp, consisting of **2 plates 48 mm x 48 mm and 4 screws and M6 nuts**, designed for carrying out joints above the ground **between square conductors** of up to **20 mm** width.

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Rf	P do 20	P do 20	50322	140

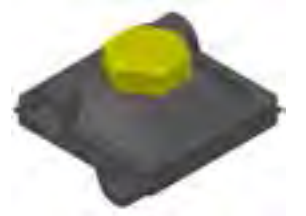
KON04 A SIMPLE



bonding clamp, consisting of **2 plates 40 mm x 40 mm, screw and M10 nut**, designed for carrying out joints above the ground **between round conductors 8 – 10 mm** and metal parts.

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	Φ8	Φ8	50507	120
Rf	Φ8 - Φ10	Φ8 - Φ10	50522	120

KON04 C SIMPLE



bonding clamp, consisting of **3 plates 40 mm x 40 mm, screw and M10 nut**, designed for carrying out joints above the ground **between round conductors 8 – 10 mm** and metal parts.

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	Φ8	Φ8	50508	120
Cu/Rf/Rf	Φ8	Φ8 - Φ10	50509	
Rf	Φ8 - Φ10	Φ8 - Φ10	50523	120

KON04 B

bonding clamp, made of stainless steel, length 100 mm, designed for carrying out joints above the ground between **round conductors 8 – 10 mm.**

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Rf	Φ8 - Φ10	Φ8 - Φ10	50530	120

KON05

contact clamp, consisting of **3 plates 20 mm x 48 mm and 2 screws and M6 nuts**, designed for carrying out joints **between round conductors 8 – 10 mm** and metal parts.

mat.	Conductor 1 (mm)	Metal part	Product code	Pack.
Cu/Rf/Rf	Φ8		80107	100
Rf	Φ8 - Φ10		80518	100
Rf*H4	Φ8 - Φ10		80527	100

KON CONTACT CLAMPS

KON05

contact clamp, consisting of **3 plates 20 mm x 48 mm and 2 screws and M6 nuts**, designed for carrying out joints **between square conductors 25 mm** and metal parts.

mat.	Conductor 1 (mm)	Metal part	Product code	Pack.
Rf	P do 25 mm		80525	100

KON05 A

contact clamp, consisting of **3 plates 20 mm x 58 mm and 2 screws and M6 nuts**, designed for carrying out joints **between square conductors 30 mm** and metal parts.

mat.	Conductor 1 (mm)	Metal part	Product code	Pack.
Rf*H4	P do 30		80529	100

KON05-1

BRIDGING CABEL CLAMP, 16 mm², length 150 mm, consisting of 2 cable bonding lugs with a screw and a nut, designed for bridging of different metal parts of a lightning protection installation and for equalizing potentials.

mat.	Conductor 1 (mm)	Metal part	Product code	Pack.
Cu	16 mm²		90211	10

Various lengths are available upon order!

KON05-2

FLEXIBLE CONNECTING ELEMENT, 200 x 3 x 22 mm - 25 mm² and 230 x 4 x 20 mm – 50 mm², designed for connection between different metal parts of a lightning protection installation which are not fixed connected and for joining of on-roof conductors where materials are stretching because of temperature differences.

mat.	Conductor 1 (mm)	Dimensions (mm)	Product code	Pack.
CuSn	25 mm²	200x3x22	90210	10
	50 mm²	230x4x20	90212	10
	50 mm²	530x4x20	90214	10

KON05 C

contact clamp designed for grounding and for equalizing potential **between round conductors 8 – 10 mm** and metal parts.

mat.	Conductor 1 (mm)	Metal part	Product code	Pack.
FeZn	Φ8 – 10 mm		80519	100

KON05 D

contact clip consisting of **2 plates sized 20 mm x 32 mm and the screw and nut M6**, intended for contacts between sheet metal parts of round dimensions **10 - 16 mm²**. The contact is made with the aid of item **KON05-1** (e.g. earthing / equalisation of potential of a wire fence).

mat.	Conductor 1 (mm)	Metal part	Product code	Pack.
Rf	10 – 16 mm²		80520	100

* upon or[illegible] e catalogue number when placing your order.

KON CONTACT CLAMPS

KON06

gutter clamp, consisting of **plates 48 mm x 85 mm and screws and M6 nuts,** designed for carrying out contact joints **between round conductors and gutter.**

mat.	Conductor 1 (mm)	gutter	Product code	Pack.
Cu	Φ8		60107	80
Rf	Φ8 - Φ10		60122	80
Rf*H4	Φ8 - Φ10		60127	80

KON06

gutter clamp, consisting of **plates 48 mm x 85 mm and screws and M6 nuts**, designed for carrying out contact joints **between square conductors** up to **25 mm** width and gutter.

mat.	Conductor 1 (mm)	gutter	Product code	Pack.
Rf	P do 25		60222	80
Rf*H4	P do 25		* 60228 *	80

KON07

clamp, consisting of **3 plates 58 mm x 58 mm, screws and M8 nuts**, designed for carrying out contact joints in the ground and above it **between round conductors** of different dimensions.

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	Φ8	Φ8	40110	65
		Φ16	400127	50
Cu/Rf/Rf	Φ8	Φ8 - Φ10	40112	65
Rf	Φ8 - Φ10	Φ8 - Φ10	40111	65
		120 mm²	400111	50
		150 mm²	4000111	50
		Φ16	40611	50
		Φ20	40711	50
Rf*H4	Φ8 - Φ10	Φ8 - Φ10	40726	65
		Φ16	40614	50
		Φ20	40725	50

KON07

clamp, consisting of **3 plates 58 mm x 58 mm, screws and M8 nuts**, designed for carrying out contact joints in the ground and above it, 16-35 mm² / 240 mm².

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	16-35 mm²	16-35 mm²	400128	50
	50 mm²	16-35 mm²	400129	50
		50 mm²	400130	50
	70 mm²	16-35 mm²	400131	50
		50 mm²	400132	50
		70 mm²	400133	50
	95 mm²	16-35 mm²	400134	50
		50 mm²	400135	50
		70 mm²	400136	50
		95 mm²	40410	50

* upon order / Please refer ber when placing your order.

KON CONTACT CLAMPS

KON07

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	120 mm²	16-35 mm²	40311	50
		50 mm²	400137	50
		70 mm²	400138	50
		95 mm²	40510	50
		120 mm²	40310	50
	150 mm²	16-35 mm²	400615	50
		50 mm²	400139	50
		70 mm²	400140	50
		95 mm²	400141	50
		120 mm²	400142	50
		150 mm²	400116	50
	185 mm²	16-35 mm²	400143	50
		50 mm²	400144	50
		70 mm²	400145	50
		95 mm²	400146	50
		120 mm²	400147	50
		150 mm²	400148	50
		185 mm²	400118	50
	240 mm²	16-35 mm²	400149	50
		50 mm²	400150	50
		70 mm²	400151	50
		95 mm²	400125	50
		120 mm²	400152	50
		150 mm²	400153	50
		185 mm²	400154	50
		240 mm²	400123	50
Cu/Rf/Rf	16-35 mm²	16-35 mm²	400160	50
	50 mm²	16-35 mm²	400161	50
		50 mm²	400162	50
	70 mm²	16-35 mm²	400163	50
		50 mm²	400164	50
		70 mm²	400165	50
	95 mm²	16-35 mm²	400166	50
		50 mm²	400167	50
		70 mm²	400168	50
		95 mm²	400169	50
	120 mm²	16-35 mm²	400170	50
		50 mm²	400171	50
		70 mm²	400172	50
		95 mm²	400173	50
		120 mm²	400174	50
	150 mm²	16-35 mm²	400175	50
		50 mm²	400176	50
		70 mm²	400177	50
		95 mm²	400178	50
		120 mm²	400179	50
		150 mm²	400180	50
	185 mm²	16-35 mm²	400181	50
		50 mm²	400182	50
		70 mm²	400183	50
		95 mm²	400184	50
		120 mm²	400185	50
		150 mm²	400186	50
		185 mm²	400187	50

* upon or[illegible] e catalogue number when placing your order.

KON CONTACT CLAMPS

KON07

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu/Rf/Rf	240 mm²	16-35 mm²	400188	50
		50 mm²	400189	50
		70 mm²	400190	50
		95 mm²	400191	50
		120 mm²	400192	50
		150 mm²	400193	50
		185 mm²	400194	50
		240 mm²	400195	50
Rf	16-35 mm²	16-35 mm²	400200	50
	50 mm²	16-35 mm²	400201	50
		50 mm²	400202	50
	70 mm²	16-35 mm²	400203	50
		50 mm²	400204	50
		70 mm²	400205	50
	95 mm²	16-35 mm²	400206	50
		50 mm²	400207	50
		70 mm²	400208	50
		95 mm²	400113	50
	120 mm²	16-35 mm²	400209	50
		50 mm²	400210	50
		70 mm²	400211	50
		95 mm²	400212	50
		120 mm²	400213	50
	150 mm²	16-35 mm²	400214	50
		50 mm²	400215	50
		70 mm²	400216	50
		95 mm²	400217	50
		120 mm²	400218	50
		150 mm2	400117	50
	185 mm²	16-35 mm²	400219	50
		50 mm²	400220	50
		70 mm²	400221	50
		95 mm²	400222	50
		120 mm²	400223	50
		150 mm²	400224	50
		185 mm²	400225	50
	240 mm²	16-35 mm²	400226	50
		50 mm²	400227	50
		70 mm²	400228	50
		95 mm²	400229	50
		120 mm²	400230	50
		150 mm²	400231	50
		185 mm²	400232	50
		240 mm²	400233	50

KON CONTACT CLAMPS

KON07

clamp, consisting of **3 plates 58 mm x 58 mm, screws and M6 nuts,** designed for carrying out contact joints between **conductors** of different dimensions 16-35 mm² / 240 mm² and **earth rod** Φ16 - Φ20 mm.

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	16-35 mm²	Φ20	400235	50
	50 mm²		400236	50
	70 mm²		400237	50
	95 mm²		400238	50
	120 mm²		400239	50
	150 mm²		400240	50
	185 mm²		400241	50
	240 mm²		400124	50
CU/Rf/Rf	16-35 mm²	Φ20	400250	50
	50 mm²		400251	50
	70 mm²		400252	50
	95 mm²		400253	50
	120 mm²		400254	50
	150 mm²		400255	50
	185 mm²		400119	50
	240 mm²		400256	50
Rf	16-35 mm²	Φ20	400270	50
	50 mm²		400271	50
	70 mm²		400272	50
	95 mm²		400273	50
	120 mm²		400274	50
	150 mm²		400275	50
	185 mm²		400276	50
	240 mm²		400277	50

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	16-35 mm²	Φ16	400242	50
	50 mm²		400243	50
	70 mm²		400244	50
	95 mm²		400245	50
	120 mm²		400246	50
	150 mm²		400247	50
	185 mm²		400248	50
	240 mm²		400249	50
Cu/Rf/Rf	16-35 mm²	Φ16	400257	50
	50 mm²		400258	50
	70 mm²		400259	50
	95 mm²		400260	50
	120 mm²		400261	50
	150 mm²		400262	50
	185 mm²		400263	50
	240 mm²		400264	50
Rf	16-35 mm²	Φ16	400278	50
	50 mm²		400279	50
	70 mm²		400280	50
	95 mm²		400281	50
	120 mm²		400282	50
	150 mm²		400283	50
	185 mm²		400284	50
	240 mm²		400285	50

* upon or[illegible] e catalogue number when placing your order.

KON CONTACT CLAMPS

KON08

clamp, consisting of **3 plates 48 mm x 48 mm, screws and M6 nuts**, designed for carrying out contact joints in the ground and above it **between round conductors** of different dimensions.

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	Φ8	Φ8	50110	140
		16-35 mm^2	50310	140
	16-35 mm^2	16-35 mm^2	50311	140
Cu/Rf/Rf	16-35 mm^2	Φ8 - Φ10	50313	140
Rf	Φ8 - Φ10	Φ8 - Φ10	50111	140
		16-35 mm^2	50112	140
	16-35 mm^2	16-35 mm^2	50312	140
Rf*H4	Φ8 - Φ10	Φ8 - Φ10	50117	140

KON09

clamp, consisting of **plates 40 mm x 30 mm and a M10 screw**, designed for carrying out contact joints **between square ground conductors** of up to **40 mm** width and reinforced steel armature of up to **Φ 20** in concrete.

mat.	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Fe	P do 40	< Φ 20	90122	100

KON09 A

clamp, consisting of **plates 50 mm x 35 mm x 45 mm, 40 mm x 40 mm and a M10 screw**, designed for carrying out contact joints **between square ground conductors** of up to **40 mm** width, **clamp KON30** and reinforced steel armature of up to **Φ 20** in concrete.

mat.	Conductor 1 (mm)	pločevina	Product code	Pack.
Fe	P do 40	< Φ 20	90123	100

KON20

clamp, consisting of **plates 48 mm x 83 mm and M6 screws**, designed for carrying out contact joints **between round conductors 8 - 10 mm** and metal parts or intended as a holder of round conductors on sheet metal roofs.

mat.	Conductor 1 (mm)	metal	Product code	Pack.
Cu	Φ8		200107	80
Rf	Φ8 - Φ10		200122	80
Rf*H4	Φ8 - Φ10		200127	80

KON Contact clamps

KON21 WET-PREVENTING CLAMP

consisting of **plates 48 mm x 85 mm, screws and M6 nuts**, prevents wetting over a lightning conductor.

mat.	Conductor 1 (mm)	Product code	Pack.
Cu	Φ8	200207	100
Rf	Φ8 - Φ10	200212	100

KON22

construction clamp, made of Al 50 x 58 x 78 mm, designed for grounding of constructions of up 20 mm thickness with **round or square conductors.**

mat.	Conductor 1 (mm)	construction	Product code	Pack.
Rf	Φ8 - Φ10 P do 30	up to 20 mm	200222	50

MŠ MEASURING NUMBER

designed for marking measuring points.

mat.	Conductor 1 (mm)	Product code	Pack.
Rf	Φ8 - Φ10	80122	1
Rf*H4	Φ8 - Φ10	80127	1

MS STANDARD CAP

a connecting clamp: **its body is** made of brass and put and installed into the ground, **a stainless steel screw and a nut** are used for joining metal masses. The clamp is designed to connect metal masses with the purpose of equalizing electric potentials (metal shelves, furniture, machines etc.) in shopping centres, warehouses etc.

mat.	Conductor 1 (mm)	Product code	Pack.
Me/Rf	16 mm^2	110022	200

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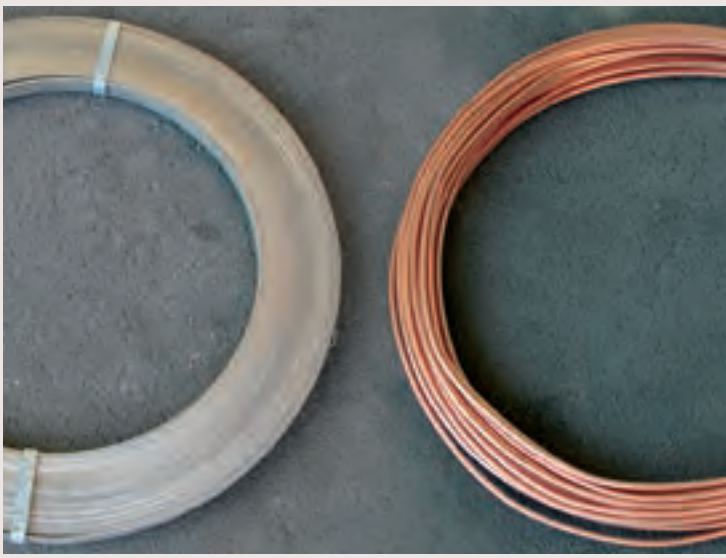
ON-ROOF AND DOWNLEAD CONDUCTOR INSTALLATIONS, EARTHING AND EQUIPOTENTIAL BONDINGS

On-roof and down conductor installations are designed for the interception and diversion of lightning currents. On-roof and down conductor installations are made with different conductors. Conductors are made of different materials and are fixed to roof coverings with SON roof conductor fasteners or fixed to walls with ZON wall fasteners. The chosen conductor material depends on the roof covering material, metal parts on the roof, gutter material, technical conditions, architecture of the building and the purpose of the building.



ON-ROOF AND DOWNLEAD CONDUCTOR INSTALLATIONS, EARTHING AND EQUIPOTENTIAL BONDINGS

CH 1

round conductors made of copper, Φ8mm.

mat.	Dimension (mm)	Product code	Pack.
Cu	Φ 8	90100	40-80 m

RH 3

round conductors made of stainless steel, Φ8mm.

mat.	Dimension (mm)	Product code	Pack.
Rf	Φ 8	90300	40-120 m
Rf*H4	Φ 8	90301	40-120 m

RH 5

round conductors made of stainless steel, Φ10mm.

mat.	Dimension (mm)	Product code	Pack.
Rf	Φ 10	90160	40-120 m
Rf*H4	Φ 10	90302	40-120 m

AH 1

round conductors made of an aluminium alloy, Φ8mm.

mat.	Dimension (mm)	Product code	Pack.
Al legura	Φ 8	90250	40-120 m

AH 2

round conductors made of an aluminium alloy, Φ10mm.

mat.	Dimension (mm)	Product code	Pack.
Al	Φ 10	90200	40-120 m

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ON-ROOF AND DOWNLEAD CONDUCTOR INSTALLATIONS, EARTHING AND EQUIPOTENTIAL BONDINGS

FeZn Φ8mm

round conductors made of galvanized steel, Φ8mm.

mat.	Dimension (mm)	Product code	Pack.
FeZn	Φ 8	90310	40-120 m

FeZn Φ10mm

round conductors made of galvanized steel, Φ10mm.

mat.	Dimension (mm)	Product code	Pack.
FeZn	Φ 10	90600	40-120 m

RH1

rolled stainless steel conductor, 30 mm x 3,5 mm, to install different types of earthings.

mat.	Dimension (mm)	Product code	Pack.
Rf	P 30 x 3,5	90701	≈ 50 m
Rf*H4	P 30 x 3,5	90704	≈ 50 m

FeZn

rolled galvanized steel conductor, 25mm x 4mm, 30mm x 4mm, 40mm x 4mm, to install different types of earthings.

mat.	Dimension (mm)	Product code	Pack.
FeZn	P 25 x 4	90400	
FeZn	P 30 x 4	90402	
FeZn	P 40 x 4	90401	

COPPER WIRE

for making different earthing or equipotentialisation.

mat.	Dimension (mm²)	Product code	Pack.
Cu	240	* 90124 *	
Cu	185	* 90119 *	
Cu	150	* 90107 *	
Cu	120	* 90103 *	
Cu	95	*90101*	
Cu	70	*90102*	
Cu	50	*90105*	
Cu	35	*90104*	
Cu	25	*90120*	
Cu	16	*90108*	

ON-ROOF AND DOWNLEAD CONDUCTOR INSTALLATIONS, EARTHING AND EQUIPOTENTIAL BONDINGS

BONDING BAR Cu

for making different earthing or equipotentialisation.

mat.	Dimension (mm)	Product code	Pack.
Cu	P 60 x 5	* 90144 *	
Cu	P 50 x 5	* 90111 *	
Cu	P 40 x 5	* 90112 *	
Cu	P 40 x 4	* 90148 *	
Cu	P 30 x 5	* 90110 *	
Cu	P 30 x 4	* 90118 *	
Cu	P 30 x 3	* 90146 *	
Cu	P 25 x 5	* 90113 *	
Cu	P 25 x 4	* 90109 *	
Cu	P 25 x 3	* 90135 *	

POS FeZn

earth rod made of hot galvanized steel with cross-section dimensions **50 mm x 50 mm x 5 mm, together with a connecting clamp** for tape conductor up to 30 mm width, to install rod earthings and reconstruction of damaged earthings

mat.	Length (mm)	Dimension (mm)	Product code	Pack.
FeZn	1000	50 x 50 x 5	90708	1
	1500		90707	1
	2000		90706	1
	3000		90716	1

POS FeZn

earth rod made of hot galvanized steel with cross-section dimensions **50 mm x 50 mm x 5 mm,** to install rod earthings and reconstruction of damaged earthings. **Without connecting clamp!**

mat.	Length (mm)	Dimension (mm)	Product code	Pack.
FeZn	1000	50 x 50 x 5	90719	1
	1500		90720	1
	2000		90721	1
	3000		90722	1

POS FeCu

earth rod made of steel, copper coated, **Φ20 mm with a connection clamp for round cross-section conductor** of up to 10 mm diameter, to install rod earthings and reconstruction of damaged earthings.

mat.	Length (mm)	Dimension (mm)	Product code	Pack.
FeCu	1500	Φ20	90705	1

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ON-ROOF AND DOWNLEAD CONDUCTOR INSTALLATIONS, EARTHING AND EQUIPOTENTIAL BONDINGS

POS FeCu-P

staff probe, steel covered in copper, different dimensions, intended for staff earthing, repairs of worn earhings...
NOTE: Contact between earthing probe POS FeCu-P and earthing lead is carried out with the connection clip **KON02** or **KON07** of the appropriate dimension. The clips **KON02** or **KON07** can be found in the KON contact equipment section.

mat.	Length (mm)	Dimension (mm)	Product code	Pack.
FeCu	1500	Φ 17,2 mm (3/4")	90730	1
FeCu	1500	Φ 20 mm	90732	1
FeCu	2100	Φ 14,2 mm	90733	1
FeCu	3000	Φ 17,2 mm (3/4")	90734	1

KS tip for POS FeCu-P

made of steel, is mounted onto the **POS FeCu-P**, where a hole for the tip can be found.

mat.	Product code	Pack.
Fe	90729	1

PS connection for POS FeCu-P

intended for connecting probes **POS FeCu-P.**

mat.	Product code	Pack.
CuZn	90727	1

POS Rf

earth rod made of stainless steel, **Φ20 mm**, to install rod earthings and reconstruction of damaged earthings; **the rod can be extended** with a special element; another rod is placed on the previous rod and hammered into it thus being pushed deeper into the ground.

mat.	Length (mm)	Dimension (mm)	Product code	Pack.
Rf	1500	Φ 20	90711	1
Rf*H4	1500	Φ 20	90725	1

NIB for POS Rf

made of stainless steel and placed on the hole prepared on the POS Rf rod.

mat.	Product code	Pack.
Rf	90712	1
Rf*H4	90726	1

AH STRETCHING ELEMENT

STRETCHING ELEMENT Al Φ8mm, designed for the compensation of temperature stretching of lightning conductors. We recommend stretching elements in lightning protection installations where the distance of conductor installations exceeds 20 m.

mat.	Dimension (mm)	Product code	Pack.
Al	Φ 8	90213	1

ON-ROOF AND DOWNLEAD CONDUCTOR INSTALLATIONS, EARTHING AND EQUIPOTENTIAL BONDINGS

SON LIGHTNING PROTECTION DISC

element for fixing onto drivable or walkable surfaces as the lightning strike spot.

mat.	Conductor (mm)	Product code	Pack.
Al/Rf	P do 30mm	40000	12
	Φ8 – Φ10	40001	12

SON extension for LIGHTNING PROTECTION DISC

an **extension** for mounting on drivable or walkable surfaces as striking point.

mat.	Product code	Pack.
Rf	39999	12

LOV LIGHTNING PROTECTION NIB

element for carrying out lightning strike spots on the ends of on-roof conductors.

mat.	Dimension (mm)	Product code	Pack.
Rf	Φ8 – Φ10	300400	100
Rf*H4	Φ8 – Φ10	300399	100

DV holder for rolled condutor

designed for upright installation of earthing in the ground.

mat.	Dimension (mm)	Product code	Pack.
Rf	-	110020	30

NRZ-B nozzle for POS FeCu-P

intended for driving in **POS FeCu-P** lightning rods.

mat.	Product code	Pack.
KFe	90731	1

* upon or[illegible] e catalogue number when placing your order.

ON-ROOF AND DOWNLEAD CONDUCTOR INSTALLATIONS, EARTHING AND EQUIPOTENTIAL BONDINGS

NRZ nozzle for POS Rf

manual tool intended for manual driving in **POS Rf** lightning rods.

mat.	Product code	Pack.
Rf	90713	1

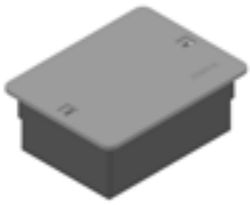
GROUNDING PILLAR Rf

made of stainless steel, **1130 x 80 x 60 mm**, designed for grounding the vehicle while pumping fuel at petrol stations.

mat.	Product code	Pack.
Rf	110027	1

H/RIP

EQUIPOTENTIAL BONDING BAR 145 mm x 190 mm x 75 mm (D x W x H), for main equipotential bonding and lightning equipotential bonding.



mat.	application	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
PVC/Rf	external	P do 30	4x16 mm^2	20550	4
	internal	7x16 mm^2		20551	4

H/ZIP, H/ZIP A

collector for potential equalisation, 300 mm x 50 mm x 5 mm, (L x W x H), for potential equalisation and connection to earthing.

mat.	application	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
Cu	external / internal	P do 30	4x16-32 mm^2	90116	1
Cu			8x16-32 mm^2	90117	1
Rf			4x16-32 mm^2	90114	1
Rf			8x16-32 mm^2	90115	1

H/ZIP B

collector for potential equalisation, 210 mm x 30 mm x 3 mm, (L x W x H), for potential equalisation and connection to earthing.

mat.	application	Conductor 1 (mm)	Conductor 2 (mm)	Product code	Pack.
RF/Sn			16 x 16 mm^2	90079	1
Rf			8 x 16-32 mm^2	90080	1

KON30

bonding conector M10, for making connections to earthing on the wall.

mat.	dimension	Product code	Pack.
Rf	M10	110021	20
Rf*H4	M10	110029	20
Rf	M12	110034	20
Rf*H4	M12	110035	20

* upon order / Please refer ber when placing your order.

ON-ROOF AND DOWNLEAD CONDUCTOR INSTALLATIONS, EARTHING AND EQUIPOTENTIAL BONDINGS

KON31

clip, consisting of three plates sized **58 mm x 58 mm** with threaded screws **M10 and M12**, intended for potential equalisation.

mat.	dimension	Product code	Pack.
Rf	M10	40642	20
Rf*H4	M10	40643	20
Rf	M12	40616	20
Rf*H4	M12	40641	20

KON32

clip, intended for potential equalisation. The KON32 clip serves as a connection between KON30 or KON33 and the potential equalisation lead. The lead is attached with the KON05 C clip, KON02 clip or another suitable clip (depending on lead).

mat.	dimension	Conductor	Product code	Pack.
Rf		Φ8 – Φ10	40618	20

KON33

fixed attachment for potential equalisation M10 and M12, without an axis, intended for the equalisation of potential between walls.

mat.	dimension	Product code	Pack.
Rf	M10	110031	20
Rf*H4	M10	110030	20
Rf	M12	110033	20
Rf*H4	M12	110032	20

INSULATED AIR TERMINATION SYSTEMS

Insulated lightning protection systems are designed for protection of metal and nonmetal devices with sensitive installs (electrical devices) as well as for protection of metal devices or parts of buildings which should be protected against lightning strikes but are not suitable for the installation of common lightning conductor holders. Learn more about protection with insulated lightning protection systems in the catalogue's introduction.

INSULATED AIR TERMINATION SYSTEMS

LOP LIGHTNING RODS are designed for lightning protection of smaller air conditioning devices, light cupolas or parts of roofs which cannot be effectively protected with the installation of common lightning protection conductors.

LOP01 ... 09

Name	mat.	Length (m)	Dimension (mm)	Individual lengths (m)	Product code	Pack.
LOP0,5	Al	0,5	Φ 10	0,5	300510	1
LOP01	Al	1	Φ 10	1	300501	1
LOP1,5	Al	1,5	Φ 16 / Φ 10	1+0,5	300511	1
LOP02	Al	2	Φ 16 / Φ 10	1+1	300502	1
LOP2,5	Al	2,5	Φ 16 / Φ 10	2+0,5	300512	1
LOP03	Al	3	Φ 16 / Φ 10	2+1	300503	1
LOP3,5	Al	3,5	Φ 16 / Φ 10	3+0,5	300513	1
LOP04	Al	4	Φ 16 / Φ 10	3+1	300504	1
LOP4,5	Al	4,5	Φ 16 / Φ 10	4+0,5	300514	1
LOP05	Al	5	Φ 35 / Φ 25 / Φ10	2+2+1	300505	1
LOP5,5	Al	5,5	Φ 35 / Φ 25 / Φ10	3+2+0,5	300515	1
LOP06	Al	6	Φ 35 / Φ 25 / Φ10	3+2+1	300506	1
LOP6,5	Al	6,5	Φ 35 / Φ 25 / Φ10	2,5+2+1,5+0,5	300516	1
LOP07	Al	7	Φ 50 / Φ 35 / Φ 25 / Φ10	2,5+2+1,5+1	300507	1
LOP7,5	Al	7,5	Φ 50 / Φ 35 / Φ 25 / Φ10	3+2+2+0,5	300517	1
LOP08	Al	8	Φ 50 / Φ 35 / Φ 25 / Φ10	3+2+2+1	300508	1
LOP8,5	Al	8,5	Φ 50 / Φ 35 / Φ 25 / Φ10	3+3+2+0,5	300518	1
LOP09	Al	9	Φ 50 / Φ 35 / Φ 25 / Φ10	3+3+2+1	300509	1

LOP INTERCEPTION PILLAR is intended for the protection of larger buildings... or those parts of buildings, which cannot be efficiently protected with lightning rod leads.

LOP10 A... LOP29 A

Name	Length (m)	Product code	Pack.
LOP10 A	10	300210	1
LOP11 A	11	300211	1
LOP12 A	12	300212	1
LOP13 A	13	300213	1
LOP15 A	15	300234	1
LOP16 A	16	300231	1
LOP17 A	17	300223	1
LOP18 A	18	300232	1
LOP20 A	20	300233	1
LOP22 A	22	300222	1
LOP24 A	24	300224	1
LOP25 A	25	300225	1
LOP27 A	27	300227	1
LOP29 A	29	300229	1

* upon or[illegible] e catalogue number when placing your order.

INSULATED AIR TERMINATION SYSTEMS

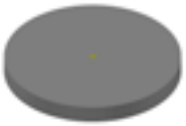
LOP ATTACHMENT KITS are designed for installing and fixing lightning rods to buildings or their roofs. LOP attachment kits are adapted to all kinds of roof coverings and surfaces intended for fixing lightning rods.

LOP-P01

attachment kit for placing lightning rods LOP01, LOP02, LOP03 on flat roofs. The kit consists of a concrete base with a fastening coil M10 or M16. Use attachment kit with fastening coil M10 for lightning rod LOP01 and attachment kit with fastening coil M16 for lightning rods LOP02, LOP03.

Fixing	mat.	Product code	Pack.
M10	concrete	301501	1
M16	concrete	301502	1

LOP-P02



attachment kit for placing lightning rods LOP04 - LOP09 on flat roofs. The kit consists of a concrete base and fastening coil M8, appropriate for setting up lightning bars LOP04 – LOP09 together with the appropriate "V" or "I" distance element or a concrete base with a hole appropriate for setting up lightning rods LOP04 – LOP09 together with the appropriate fixing construction LOP-P03 or LOP-P04.

Fixing	mat.	Product code	Pack.
M8	concrete	301508	1
-	concrete	301511	1

HORIZONTAL STRIP

for the protection of roofing for interception rods / isolating carrier pillars on flat bitumen roofings.

mat.	Dimensions (mm)	Product code	Pack.
bitumen	500 x 500	117224	1
SIKA	500 x 500	117228	1

LOP-P12

attachment kit for placing lightning rods LOP01, LOP02, LOP03, LOP04, etc. on concrete or fire-baked roof coverings. The lightning rod is fixed to the attachment element with the appropriate clamp KON02. The fixing construction is fixed to the attachment element with the appropriate screw. Lightning rods must be additionally anchored with "V" or "I" distance elements.

mat.	Product code	Pack.
Rf	301512	1

LOP-P13 and LOP-P13 A

attachment kit for fixing lightning rods LOP01 – LOP09 on solid wall (wall, chimney,...). The lightning rod is fixed to the attachment element with the appropriate plate and screws. Lightning rods must be additionally anchored with "V" or "I" distance elements. For different rod heights, appropriate amount of attachment kits is required (2x LOP-P13 A; 3xLOP-P13).

mat.	Product code	Pack.
Rf	301513	1
Rf	301515	1

LOP-P14

attachment kit for placing lightning rods LOP05 – LOP09, etc. on concrete or fire-baked roof coverings. The lightning rod is fixed to the attachment element with the appropriate screw. The fixing construction is fixed to the attachment element with the appropriate screw. Lightning rods must be additionally anchored with "V" or "I" distance elements.

mat.	Product code	Pack.
Rf	301514	1

* upon order / Please refer ber when placing your order.

INSULATED AIR TERMINATION SYSTEMS

LOP-P15

attachment set for the placement of interception rod LOP02, LOP03, LOP04 onto sheet metal roofings with litter. Attachment of plate through roofing onto roof lathes. Penetration point is sealed with appropriate sealing mass. Interception rods must be additionally anchored with a suitable number of »V« or »I« distancing elements.

mat.	Product code	Pack.
Rf	301525	1

LOP-P16

attachment kit for placing lightning rod LOP01 on sheet metal coverings. The lightning rod is fixed to the attachment element with clamp KON02. The fixing construction is fixed to the attachment element with the appropriate screw. Lightning rods LOP02, LOP03, LOP04 must be additionally anchored with "V" or "I" distance elements.

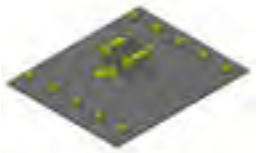
mat.	Product code	Pack.
Rf	301516	1

LOP-P16 A

attachment kit for placing lightning rods LOP02, LOP03, LOP04 on sheet metal coverings. The fixing element enables inclination to be adapted to the inclination of the roof.

mat.	Product code	Pack.
Al	301507	1

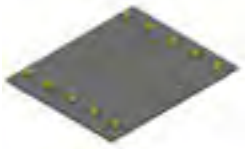
LOP-P16 B



fixing element for placing lightning rods LOP02, LOP03, LOP04, LOP05, LOP06, LOP07, LOP08, LOP09 on metal sheet coverings. Lightning rods must be additionally anchored with "V" or "I" distance elements.

mat.	Product code	Pack.
Al	301509	1

LOP-P16 C



fixing element for placing lightning rods LOP05, LOP06, LOP07, LOP08, LOP09 on metal sheet coverings. Lightning rods must be additionally anchored with "V" or "I" distance elements.

mat.	Product code	Pack.
Al	301522	1

LOP-P16 D

attachment kit for the installation of the LOP02, LOP03, LOP04, LOP04 on sheet metal roofs, which are compressed with each other by »stiches«. The lightning rods must be anchored with " V " or " I " distance elements.

mat.	Product code	Pack.
Rf	301510	1

* upon or[illegible] e catalogue number when placing your order.

INSULATED AIR TERMINATION SYSTEMS

LOP-P03

fixing construction for fixing lightning rods LOP03, LOP04, LOP05. The kit consists of a fixing construction for fixing a lightning rod. The construction is fixed to the roof with attachment kits LOP-P suitable for the roof covering or the fixing area.

mat.	Length (m)	Product code	Pack.
Al	1350	301503	1

LOP-P04

fixing construction for fixing lightning rods LOP06, LOP07, LOP08, LOP09. The kit consists of a fixing construction for fixing a lightning rod. The construction is fixed to the roof with attachment kits LOP-P suitable for the roof covering or the fixing area.

mat.	Length (m)	Product code	Pack.
Al	1850	301504	1

LOP-''V'' DIST

distance element for fixing lightning rods LOP04, LOP05, LOP06, LOP07, LOP08, LOP09. The kit consists of two distance elements which are fixed to the lightning rod in a 'V' shape. Lightning rods with a height of 7, 8 or 9 m need to have two distance elements fixed to ensure stability.

mat.	Length (m)	Product code	Pack.
Rf/P-SV	1000	301505	1

LOP-''I'' DIST

distance element for fixing lightning rods LOP04, LOP05, LOP06, LOP07, LOP08, LOP09. The kit consists of a distance element which is fixed to the lightning rod. Lightning rods with a height of 7, 8 or 9 m need to have two distance elements fixed to ensure stability.

mat.	Length (m)	Product code	Pack.
Rf/P-SV	1000	301506	1

LOP-''V'' DIST upon order

distancing elements of various lengths by order for the placement of interception rod LOP02, LOP03, LOP04. The set contains two distancing elements, which are attached onto the interception rod in a »V« shape. For interception rods of 7, 8 or 9 m, achievement of suitable stability requires the use of two distancing elements.

mat.	Length (m)	Product code	Pack.
Rf/P-SV	upon order	*301530*	1

LOP-''I'' DIST upon order

distancing elements of various lengths by order for the placement of interception rod LOP02, LOP03, LOP04. The set contains one distancing element. For interception rods of 7, 8 or 9 m, achievement of suitable stability requires the use of two distancing elements.

mat.	Length (m)	Product code	Pack.
Rf/P-SV	upon order	*301531*	1

INSULATED AIR TERMINATION SYSTEMS

LOP-P34

bracket / attachment element for connection between bars **LOP-''I'' DIST by order.**

mat.	Product code	Pack.
Al/Rf	*301533*	1

LOP-P30

insulated fastening element for installation of the LOP02, LOP03, LOP04, on wooden structures. The lightning rod is fastened to the fastening element by screwing.

mat.	Length (m)	Product code	Pack.
Al/P-SV	1500	301521	1

LOP-P20

clamp for fastening the LOP04 to the LOP-P03 attachment kit.

mat.	Product code	Pack.
Al	301523	1

LOP-P32

attachment element for the placement of interception rods LOP02 - LOP09 onto various types of fences, pillars,... The quantity of elements depends on the height of the rod, manufacture by order.

mat.	Product code	Pack.
Rf	*301527*	1

LOP-P36

attachment element for the placement of interception rods LOP02, LOP03, LOP04, onto the earthing probe POS. Placement is suitable for ground solar power plants.

mat.	Product code	Pack.
Rf-Al	300217	1

SON02

adjustable attachment kit for fixing lightning rods on roof ridges. The kit contains an adjustable coupling fastener and a lightning rod with length of 0,5 m or 1,0 m.

mat.	Length (m)	Product code	Pack.
Rf/Al	0,5	2440	1
Rf/Al	1	2441	1

* upon or[illegible] e catalogue number when placing your order.

INSULATED AIR TERMINATION SYSTEMS

IZO INSULATED SUPPORTING POSTS are designed for lightning protection of bigger electric devices or parts of buildings (Ex zones) fitted on exposed places. Insulated holding rods are holding elements for lightning protection mesh over the protected devices. The insulated part of the rod assures safe distance between the device and lightning mesh.

IZO20 ... 60

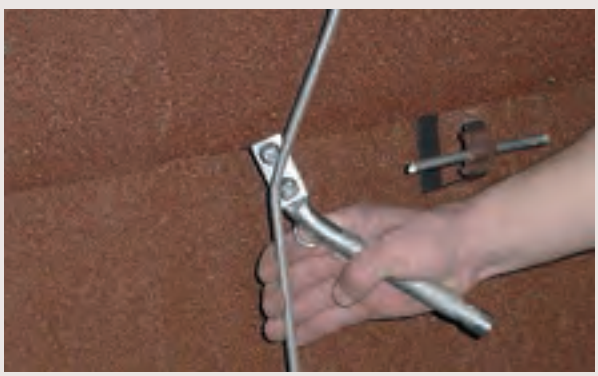
insulated supporting post with three concrete bases.

Name	mat.	Dimension (mm)	Length (m) total length / length per Φ	Product code	Pack.
IZO20	P-SV/Al	Φ42/Φ10	2 + 0,5	300020	1
IZO30	P-SV/Al	Φ42/Φ10	3 + 0,5	300030	1
IZO45	P-SV/Al	Φ42/Φ10	4,5 + 0,5	300045	1
IZO60	P-SV/Al	Φ42/Φ10	6 + 0,5	300060	1

* upon order / Please refer ber when placing your order.

ACCESSORIES

A whole range of helping tools has been developed for quicker, easier and more productive work of lightning protection equipment installers.



ACCESSORIES

RRŽ

straightening device enables effective and quick straightening of round conductors with dimensions from Φ6mm toΦ10 mm.

Material	Dimension of conductor (mm)	Product code	Pack.
Fe	Φ6 - Φ10	110025	1

ROŽ

manual unwinding device for round conductors enables fast and effective unwinding of round conductors.

Material	Dimension of conductor (mm)	Product code	Pack.
Fe	Φ6 - Φ10	110028	1

ROT

unwinding device for rolled steel conductors, enables effective and quick unwinding of earthing conductors of 25 to 30 mm width.

Material	Dimension of conductor (mm)	Product code	Pack.
Fe	P 25 - 30	110026	1

ACCESSORIES

RP

manual tool, designed for making curves and manual straightening of round conductors.

Material	Dimension of conductor (mm)	Product code	Pack.
FeZn	Φ8 - Φ10	110024	1

RPV

manual tool, designed for making curves and manual straightening of rolled steel conductors.

Material	Dimension of conductor (mm)	Product code	Pack.
KFe	P 40 x 4	110023	1

ŠUS

lightning strike counter.

Product code	Pack.
7770042	1

KP

fixing COMPONENT for fasteners.

Product code	Pack.
27	1

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is superior to the forces of nature.
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Neprimjetni gromobrani

Surge protection

Prenapetostna zaščita

Prenaponska zaštita

Cable tray systems

Kabelske police

Kabelske police

Mounting systems

Konstrukcijski sistemi

Konstrukcijski sustavi

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Hermi

HERMI is a high technology partner with superior product quality for external and internal lightning protection and overvoltage protection. It is present with its own offices in the markets of Croatia, Bosnia and Herzegovina, Serbia and Romania and in other countries of Europe with distributors and partners.

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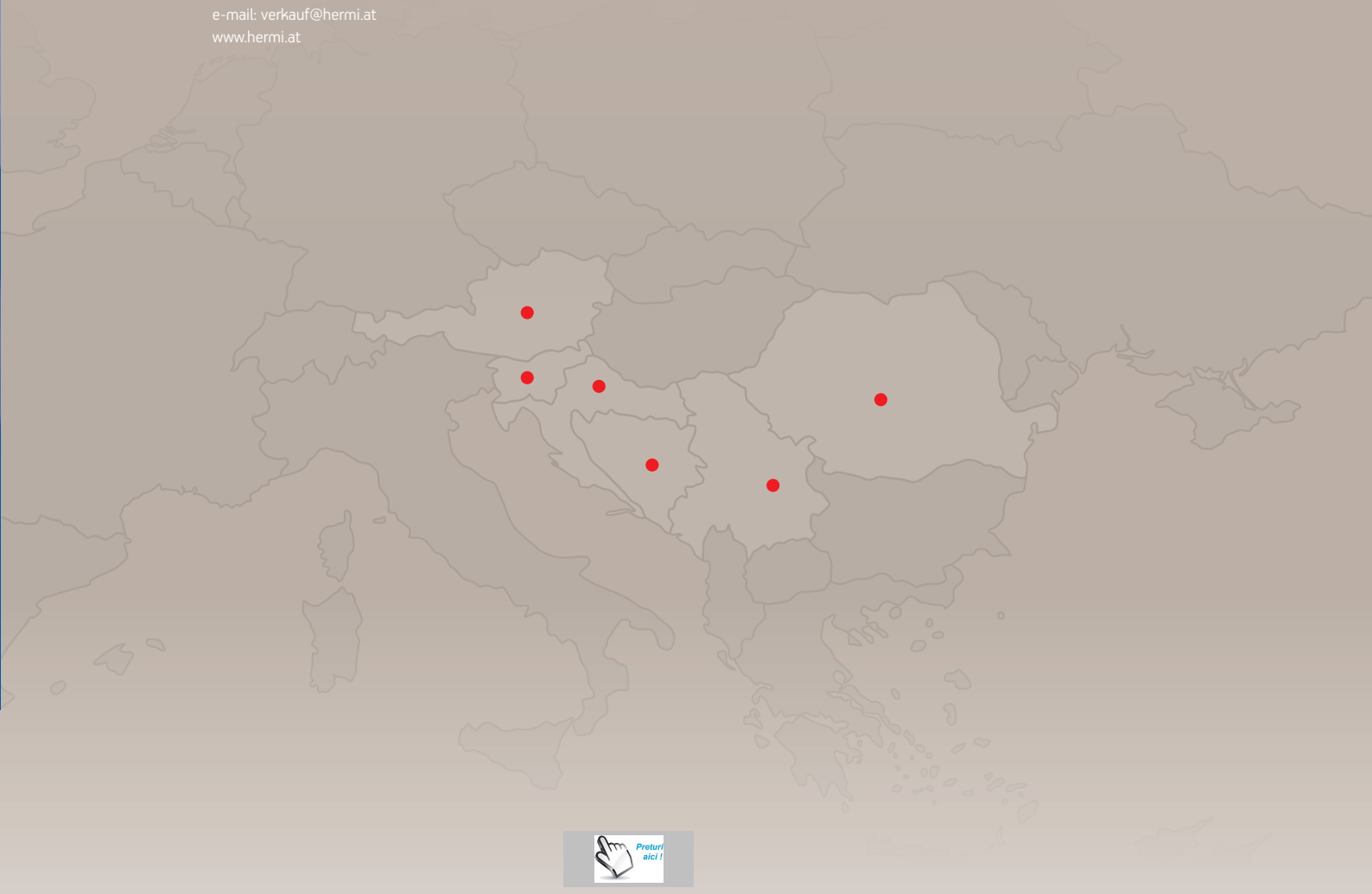

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