



# lightning protection systems



## CATALOG LIGHTNING PROTECTION SYSTEMS

[www.fs-lps.com](http://www.fs-lps.com)



### Group C - Connectors

Connectors for connecting conductors during installation of the lightning protection grid, down conductors and earthing

p. 12



### Group H - Holders

Holders for fixing wires of lightning protection system on roofs and walls during installation of the lightning protection grid and down conductors

p. 20



### Group G - Grounding

Modular sets and additional elements for construction of driving-in vertical earthing

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### Group W - Conductors

Round wires and strips for using in lightning protection system and earthing

p. 38



### Group K - Other components

Additional components that are used in lightning protection system and earthing

p. 40



### Group M - Air termination rods

Sets of reliable vertical air termination rods and masts

p. 50



### Components for air termination rods

Additional components for vertical air termination rods

p. 76

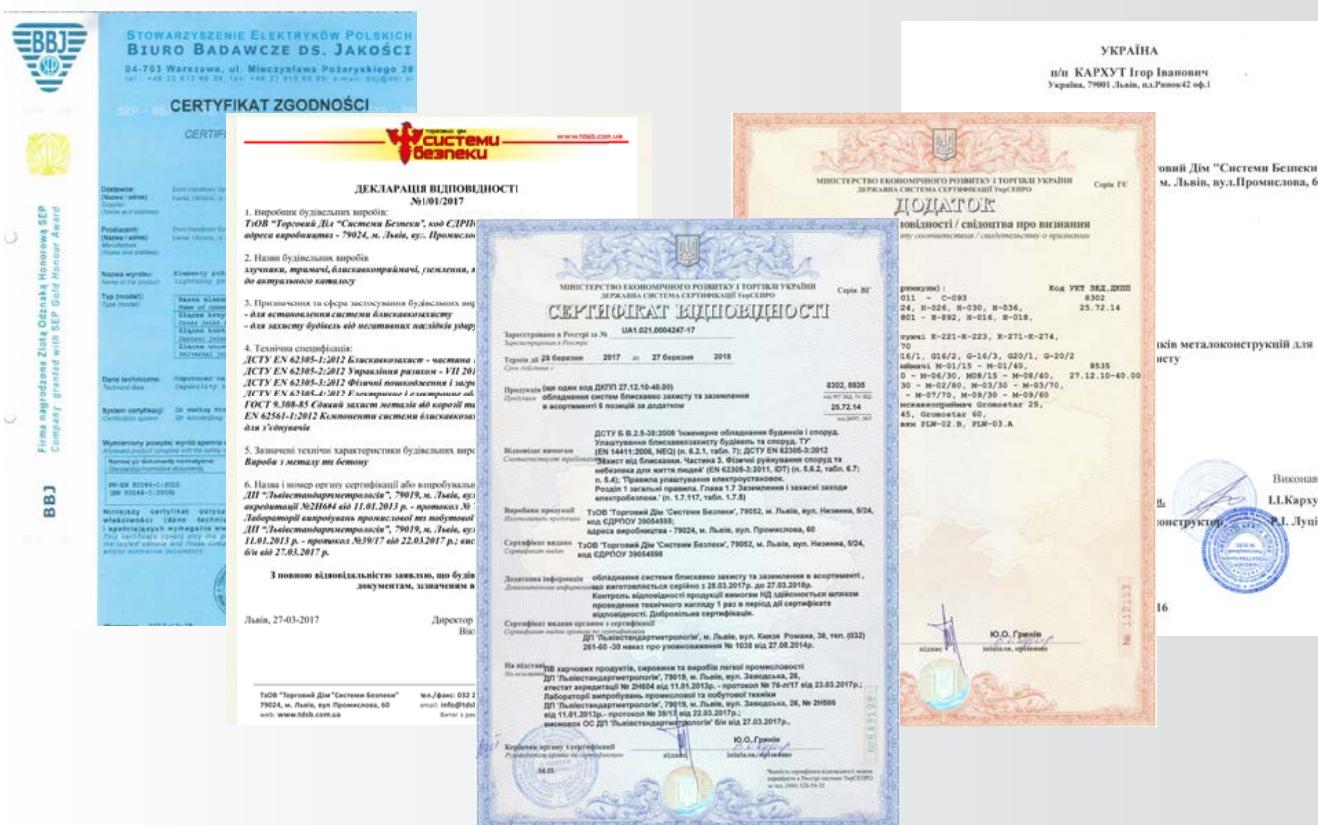


# Certificates for FS equipment

Since the creation of TM «Lightning Protection FS» we are constantly working on improvement of the quality of our products! To prove the quality of our equipment we successfully tested elements on corrosion resistance in accordance with IEC 68-2-11-81, calculated the resistance of air termination rods to wind loads in I-IV wind areas in Ukraine, and, for the first time among domestic producers, tested for consistency with international standard EN 62561 in Europe!

## Quality and reliability of FS lightning protection elements is proved by:

- ⚡ certificate of conformity to the standard IEC 62561-1
- ⚡ declaration of conformity to the standards IEC 62305 and IEC 62561
- ⚡ certificate of conformity to UkrSEPRO
- ⚡ calculation of air termination rod resistance to wind loads



Relevant certificates are always available on our webpage

[www.fs-lps.com/sertificate](http://www.fs-lps.com/sertificate)



## Advantages of FS lightning protection



### GUARANTEE OF QUALITY

choosing FS lightning protection you receive high-quality equipment of Ukrainian production certified in Europe and Ukraine, and 2-5 years of warranty from manufacturer



### PROFESSIONAL TECHNICAL SUPPORT

our specialists will help you to make the right designing decisions, calculate or optimize the system, and also select the necessary equipment for installation



### COMPLEX DELIVERY

constant availability of the offered equipment in our warehouse and fast shipment will allow you to receive the goods as soon as possible and without additional expenses, and start installation of the system!



### INSTRUMENTS FOR DESIGNING

manual on LPS calculation, DWG schemes and other technical material will save your time and efforts when calculating and implementing lightning protection projects



### COMMERCIAL SUPPORT

the system of discounts for installation organizations, the possibility of delayed payment, commercial protection of projects will facilitate your work with the customer and will allow you to maximize the revenue from the project implementation

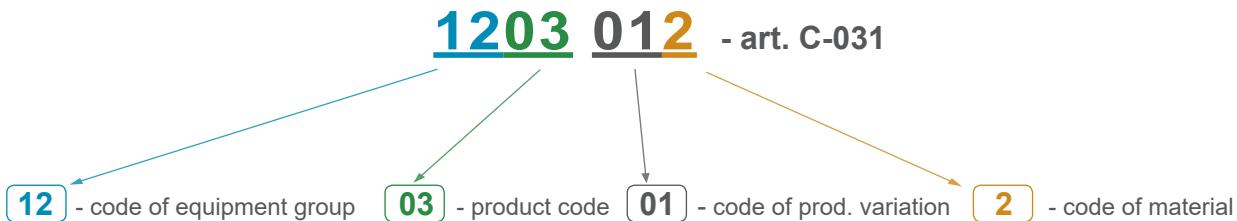


### STUDYING

by visiting our regular workshops you will improve your professional level and will gain new knowledge, and personal training will help your new professionals quickly learn the system and start independent work with lightning protection

**⚡ FS - PROFESSIONAL LIGHTNING PROTECTION**

### The structure of equipment code building on the example of connector art. C-031



• **Codes og groups:**

- 10** - group G - earthing
- 11** - group W - conductors
- 12** - group C - connectors
- 13** - group H - holders
- 14** - group K - other components
- 15** - group M - air termination rods

• **Codes of material:**

- 1** - hot-dipped galvanized steel
- 2** - galvanized steel
- 3** - stainless steel
- 4** - copper
- 6** - aluminium
- 8** - galvanized steel, varnished in color
- 9** - plastic

### Symbols of materials

- OC** - galvanized steel
- ST** - hot-dipped galvanized steel
- NI** - stainless steel
- CU** - copper
- AL** - aluminium
- LA** - galvanized steel, varnished in color
- PL** - plastic

### Varnished elements (LA)

Varnished elements (LA) can be painted in the color of the roof according to RAL

RAL 3011		RAL 9005	
RAL 8004		RAL 6005	
RAL 3009		RAL 8017	

### Haven't found anything in our catalogue?

Do you need help with equipment selection or implementation of atypical solution? Contact us with the contacts below and we will help you to resolve the issues!



+38032 2420407, +38098 3063294, +38067 6730111



[support@tdsb.com.ua](mailto:support@tdsb.com.ua)



# New Website

## TM "Lightning protection FS"

Welcome to our new website, where you can always use our catalog, find the necessary technical information or prices for the items you need!

You will find on our website the following:

- technical information, photo and schemes of FS lightning protection elements
- Current price list and certificates
- information on calculation and designing of LPS
- instruments for calculation of lightning protection
- news about upcoming events and seminars



[www.fs-lps.com](http://www.fs-lps.com)



### ONLINE CATALOG of lightning protection equipment

With the online catalog of FS lightning protection equipment you can always find quickly the right information about the elements you need, view the photos of the item's use, find schemes and characteristics and download the technical card and installation schemes.

For convenience, all equipment is divided into groups, the same as in the FS catalog.



[www.fs-lps.com/products](http://www.fs-lps.com/products)



### INSTRUMENTS FOR DESIGNERS

On the page for designers you can always download the installation schemes for the items in DWG format, Excel worksheets, project examples and other tools, which will make your work on lightning protection projects easier



[www.fs-lps.com/project](http://www.fs-lps.com/project)

## Conformity of elements to EN 62561-1:2012

For us, experts with many years of experience, the assessment of the quality of lightning protection elements is a priority task that requires systematic approach and constant control.

To determine corrosion resistance, we work closely with specialized Ukrainian and European laboratories where standardized testing methods are used. According to the standard IEC 68-2-11-81 the test of corrosion resistance of coating of galvanized parts from the assortment of FS lightning protection equipment in the salt spray was conducted and lasted 168 hours. According to the results of the tests, galvanized parts of lightning protection FS do not differ in quality in comparison with the parts, produced by foreign manufacturers.

A very important criterium for us is the conformity of lightning protection system connectors to the requirements of the European standard IEC 62561-1:2012 "Components of lightning protection systems", which will be introduced in Ukraine in the near future and implemented in accordance with the series of standards IEC 62305:2012 "Lightning protection".



Connectors are intended to connect two or more down conductors in a way that the lightning current charge is transferred without extensive damage to the conductors or systems. Connectors must be solid, durable and safe for people and devices located nearby.

In accordance with the standard IEC 62561-1:2012, FS™ connectors are subjected to salt spray, bend and adhesion tests, climatic tests, and electrical test for lightning stroke resistance.

Pulse current of a discharge is classified by two parameters - H, when the amplitude value  $I_{imp}$  is 100 kA and N, when the amplitude meaning  $I_{imp}$  is 50 kA, and the corresponding specific energy W/R.

Connectors meet the requirements if tested samples do not have obvious damage, there are no loosen or deformed parts that would worsen their normal use.

*Parameters of lightning pulse current ( $I_{imp}$ )*

Classification	$I_{imp}$ , kA 10%	W/R, kJ 35%
H	100	2500
N	50	625

FS connectors comply with the requirements of current regulatory documents, their high quality and reliability is confirmed by the tests, declaration of conformity to IEC 62561-1:2012 and certificate of conformity to UkrSEPRO!

## Guarantee of quality of FS lightning protection equipment



We have no doubt about the quality of our products, so we provide a 2.. 5 years guarantee of corrosion resistance of FS lightning protection elements, depending on the material!

- **2 YEARS** - galvanized elements (OC)
- **3 YEARS** - hot-dipped galvanized elements (ST)
- **5 YEARS** - elements made of stainless steel (NI), copper (CU) and aluminium (AL)

The condition for maintaining the warranty on FS products is its proper service. Avoid touching of aggressive materials (CU-OC, CU-ST, CU-AL). Also, all connectors and elements with bolted connection must be maintained by covering them with a thick layer of technical petroleum jelly (art. K-950). This must be repeated every 12 months.

### Available material variants for FS equipment

FS lightning protection equipment allows to protect the object of any complexity. Regardless of the type of roofing material, facade or certain special painted products (e.g. coast), we will always offer you the best solution.

We offer our clients various materials of equipment:



- **Galvanized steel (OC)**

Galvanized metal elements have the thickness of zinc coating of 12 to 20 µm, additionally undergo the process of preliminary mechanical cleaning and additional varnishing. Testing proved that these and other processes increase the corrosion resistance of galvanized parts several times.

This group of items gained its popularity because of reasonable prices and excellent appearance. Recommended use: objects with simple operation conditions, shopping centers, industrial and residential buildings, private sector.



- **Hot-dipped galvanized steel (ST)**

Metal elements protected by hot-dipped galvanization have the thickness of zinc coating of 50.90 µm, which provides excellent corrosion resistance of galvanized parts in an aggressive environment.

Elements of this group are mostly used in the earthing system, in industrial complexes and other objects, where special attention is paid to the corrosion resistance of materials. The difference is in higher price, compared to galvanized elements, and unattractive dark-gray matte color.



- **Stainless steel (NI)**

Stainless steel elements have higher corrosion resistance and attractive appearance. We especially recommend ready-made threaded sets of down conductors, where it is necessary to achieve maximum values of earthing resistance, and where there are special conditions of deep protective earthing (more than 30 m.). The useful life of stainless steel products is more than 50 years! The only minuses are the processing difficulty and price.



- **Copper (CU)**

Copper elements are used on the most strategic objects: historical buildings, objects of the banking structure, where the installed system requires durability, quality, solidity and reliability. The minus of this group is high price.

- **Colored painting (LA)**

Another elements of the "OC" group are special painted colors, painted in the corresponding RAL color. The products are covered with powder coating, after which we obtain a polymeric coating with high protective and decorative properties.

This group is the most popular among representatives of the «private sector», where it is necessary to pay special attention to the design and coloring.





# Lightning protection of industrial and public buildings

**1**

## Connectors



p. 12

**2**

## Holders

for flat roofs



p. 30

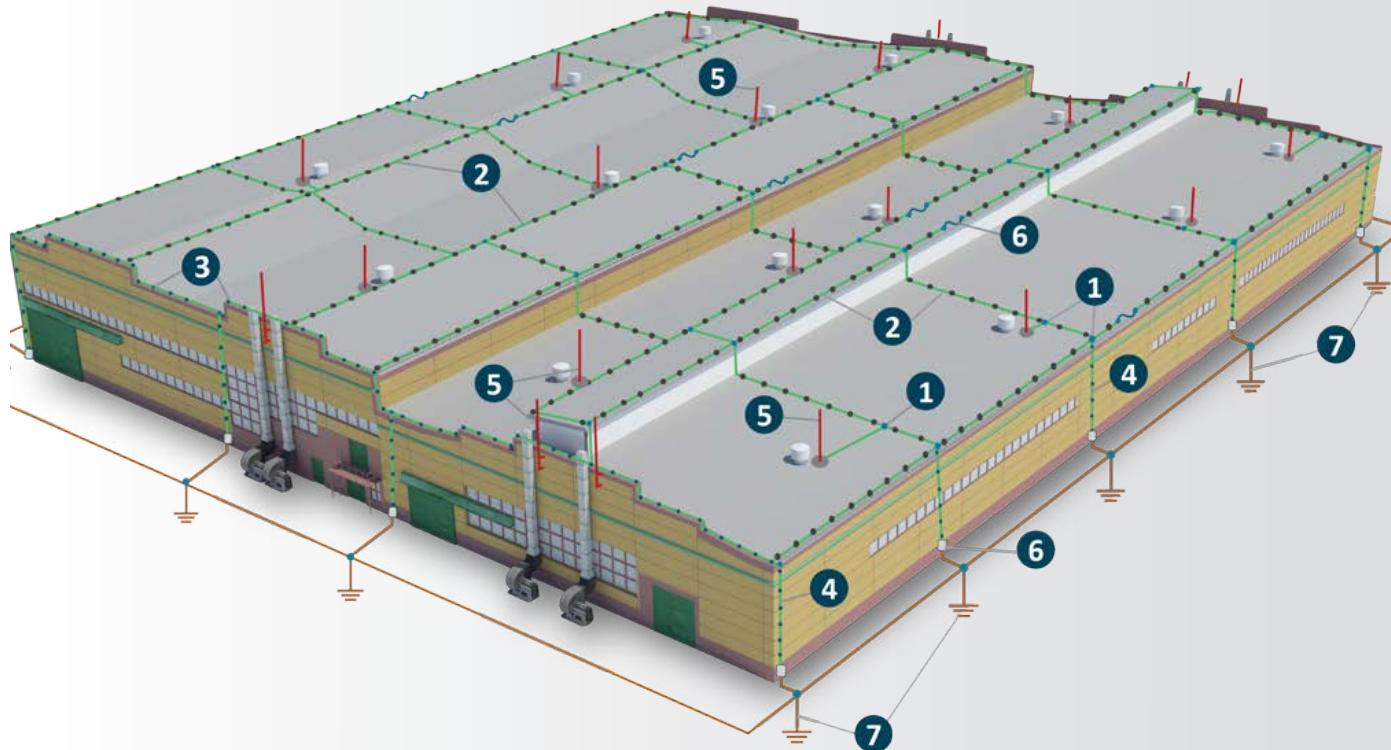
**3**

## Holders

for metal roofs/parapets



p. 20

**4**

## Holders

for wires on walls



p. 20

**5**

## Vertical

air termination rods



p. 50

**6**

## Other

components



p. 40

**7**

## Earthing



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# Lightning protection of private buildings

**1**

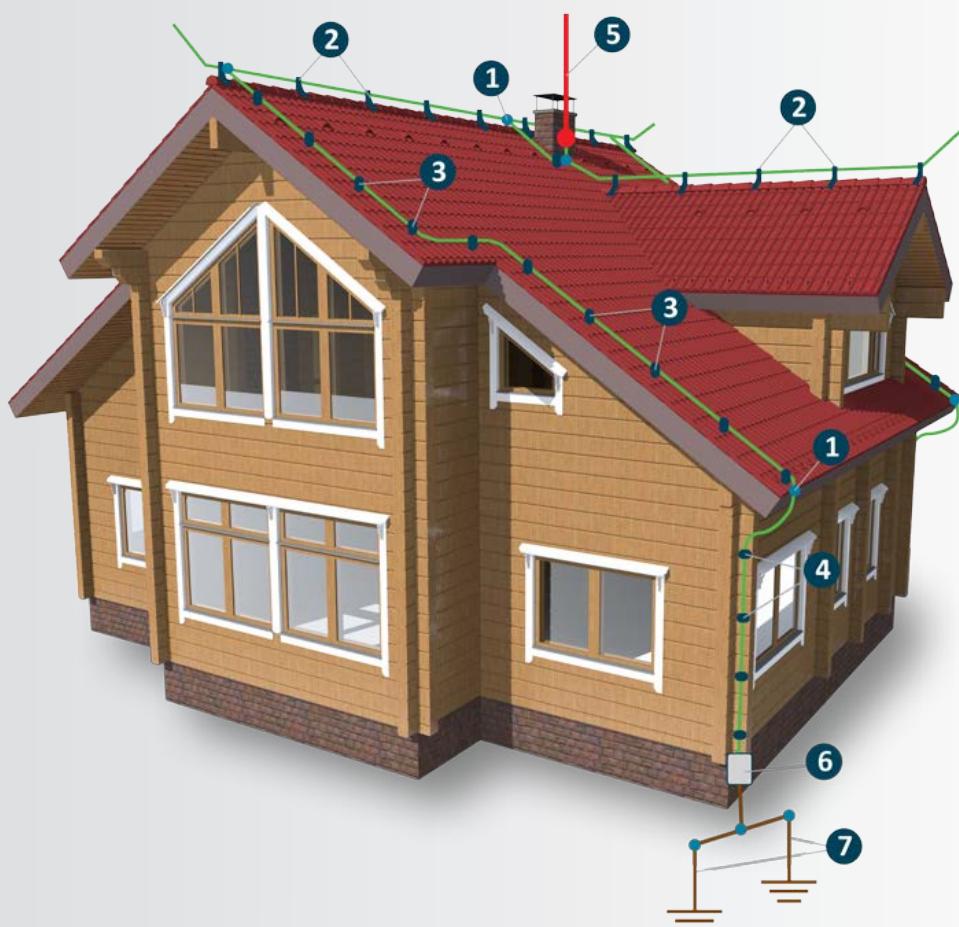
## Connectors

**2**

## Ridge conductor holders

**3**

## Holders for pitched roofs

**4**

## Holders for down conductors

**5**

## Vertical air termination rods

**6**

## Other components

**7**

## Earthing



## GROUP C - CONNECTORS

connectors for connecting conductors during installation of the lightning protection grid, down conductors and earthing



### C-011 Universal wire connector

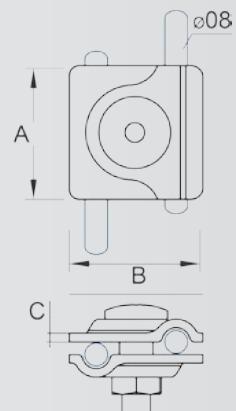


- It is used for cross or longitudinal connection of Ø 8..10 mm wire
- quick and easy installation

article

**C-011**

code	1201 012	1201 011	1201 013	1201 014
material	OC	ST	NI	CU
plate C thickness	2,5 mm	2,5 mm	2,0 mm	2,0 mm
plate AxB size			47 x 47 mm	
screw			M10x35	



### C-021 Wire cross connector

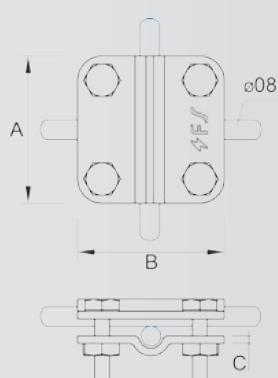


- It is used for cross connection of Ø 8..10 mm wire
- reliable fixation of a wire with 4 screws

article

**C-021**

code	1202 012	1202 011	1202 013	1202 014
material	OC	ST	NI	CU
plate C thickness	2,5 mm	2,5 mm	2,0 mm	2,0 mm
plate AxB size			60 x 60 mm	
screw			[4x] M8x25	



## C-022 Cross connector for flat conductors

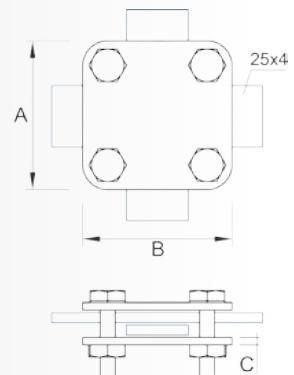


- It is used for cross or longitudinal connection of a flat conductor up to 30 mm wide

article

**C-022**

code	1202 022	1202 021	1202 023	1202 024
material	OC	ST	NI	CU
plate C thickness	2,5 mm	2,5 mm	2,0 mm	2,0 mm
plate AxB size			60 x 60 mm	
screw			[4x] M8x25	



## C-024 Cross connector for flat conductors B40

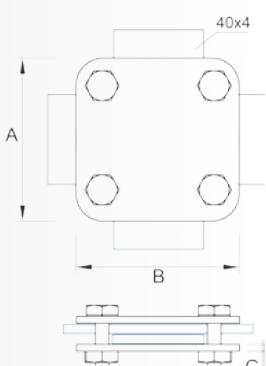


- It is used for cross or longitudinal connection of a flat conductor up to 40 mm wide

article

**C-024**

code	1202 041
material	ST
plate C thickness	3 mm
plate AxB size	72 x 72 mm
screw	[4x] M8x30



## C-028 Connecting sleeve

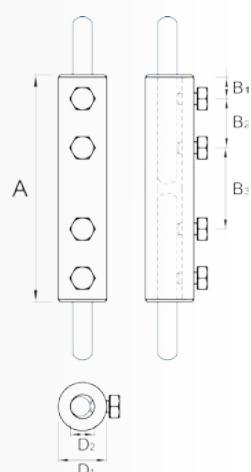


- It is used for longitudinal connection of ø 8 mm lightning protection wire

article

**C-028**

code	1202 086
material	AL
length of connector A	95 mm
sizes B <sub>1</sub> / B <sub>2</sub> / B <sub>3</sub>	10 / 20 / 35 mm
diameter D <sub>1</sub> / D <sub>2</sub>	20 / 10 mm
screw	[4x] M6x15





## C-031 Test joint

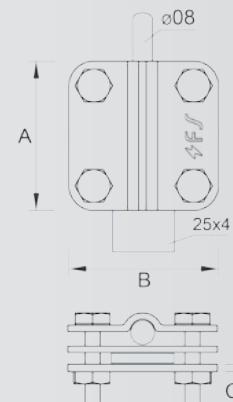


- It is used for control connection of ø 8..10 mm wire and flat conductor up to 30 mm wide
- intermediate plate for better fixation and contact

article

**C-031**

code	1203 012	1203 011	1203 014
material	OC	ST	CU/NI
plate C thickness	2,5 mm	2,5 mm	2,0 mm
plate AxB size	60 x 60 mm		
number of plates		3	
screw		[4x] M8x30	



## C-032 Test joint

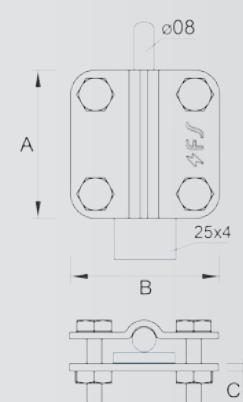


- It is used for control connection of ø 8..10 mm wire and flat conductor up to 30 mm wide

article

**C-032**

code	1203 022	1203 021	1203 024
material	OC	ST	CU
plate C thickness	2,5 mm	2,5 mm	2,0 mm
plate AxB size	60 x 60 mm		
number of plates		2	
screw		[4x] M8x25	



## C-033 Test joint wire-wire

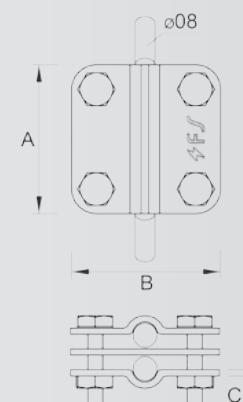


- It is used for control connection of ø 8..10 mm round connector with ø 8..12 mm round connector or wire
- intermediate plate for better fixation and contact

article

**C-033**

code	1203 032	1203 031	1203 034
material	OC	ST	CU/NI
plate C thickness	2,5 mm	2,5 mm	2,0 mm
plate AxB size	60 x 60 mm		
number of plates		3	
screw		[4x] M8x30	



## C-034 Test joint for round and flat conductors B40



- It is used for control connection of ø 8..10 mm wire and 40 mm wide flat conductor

article

**C-034**

code

1203 042      1203 041

material

OC      ST

plate C thickness

2,5 mm

plate AxB size

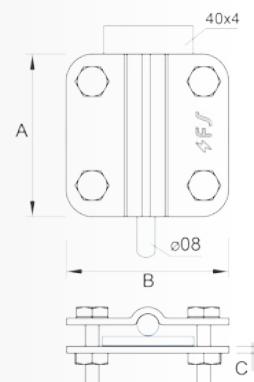
72 x 72 mm

number of plates

2

screw

[4x] M8x30



## C-035 Test joint for round and flat conductors B40



- It is used for control connection of ø 8..10 mm wire and 40 mm wide flat conductor
- intermediate plate for better fixation and contact

article

**C-035**

code

1203 052      1203 051      1203 053

material

OC      ST      NI

plate C thickness

2,5 mm      2,5 mm      2,0 mm

plate AxB size

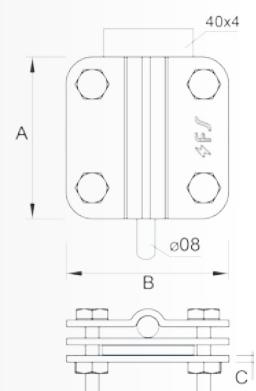
72 x 72 mm

number of plates

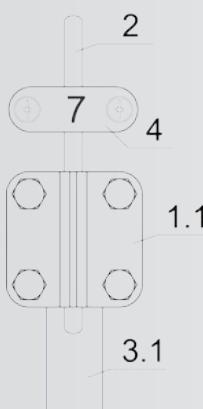
3

screw

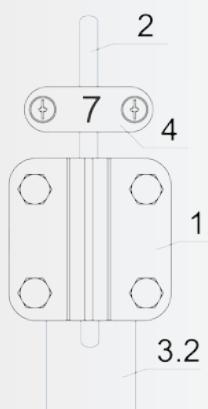
[4x] M8x30



### Examples of test joints appliance



- 1.1** - Test joint C-031 or C-032  
**2** - Galvanized wire 8 mm or 10 mm  
**3.1** - Grounding flat conductor 25x4 mm or 30x4 mm  
**4** - Labelling connection



- 1.1** - Test joint C-034 or C-035  
**2** - Galvanized wire 8 mm or 10 mm  
**3.2** - Grounding flat conductor 40x4 mm  
**4** - Labelling connection



## C-041 Connector for a rod D16 and round/flat conductor

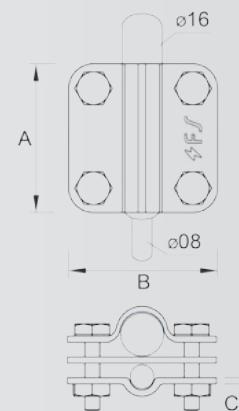


- It is used for connection of ø 8.. 10 mm round conductor or flat conductor up to 30 mm with a ø 16 mm rod
- intermediate plate for better fixation and contact

article

**C-041**

code	1204 012	1204 011	1204 014
material	OC	ST	NI
plate C thickness	2,5 mm	2,5 mm	2,0 mm
plate AxB size	60 x 60 mm		
number of plates	3		
screw	[4x] M8x30		



## C-042 Connector for a rod D16 and round/flat conductor

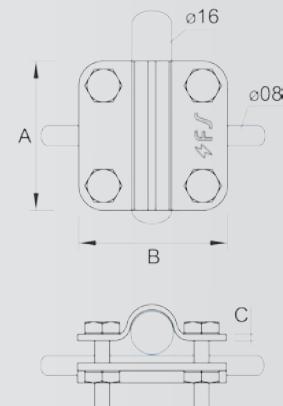


- It is used for connection of ø 8.. 10 mm round conductor or flat conductor up to 30 mm with a ø 16 mm rod

article

**C-042**

code	1204 022	1204 021	1204 023	1204 024
material	OC	ST	NI	CU
plate C thickness	2,5 mm	2,5 mm	2,0 mm	2,0 mm
plate AxB size	60 x 60 mm			
number of plates	2			
screw	[4x] M8x30			



## C-043 Connector for a rod D16-20 and round/flat conductor B40

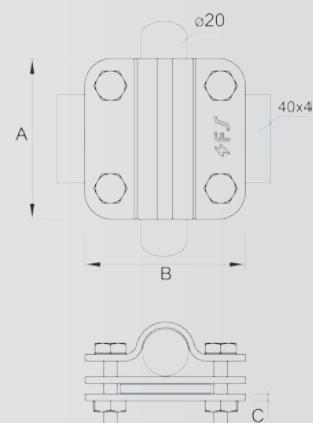


- It is used for connection of ø 8.. 10 mm round conductor or 40 mm flat conductor with a ø 16.. 20 mm rod
- intermediate plate for better fixation and contact

article

**C-043**

code	1204 031
material	ST
plate C thickness	3 mm
plate AxB size	72x72 mm
number of plates	3
screw	[4x] M8x30



## C-044 Connector for a rod D16-20 and round/flat conductor B40



- It is used for connection of ø 8.. 10 mm round conductor or 40 mm flat conductor with a ø 16.. 20 mm rod

article

**C-044**

code

**1204 041**

material

**ST**

plate C thickness

**3 mm**

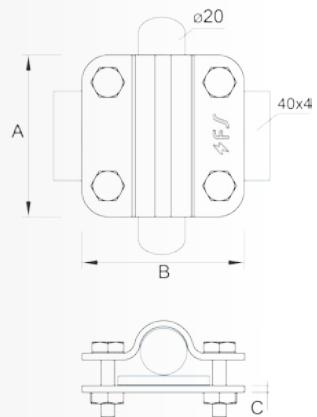
plate AxB size

**72 x 72 mm**

number of plates

**2**

screw

**[4x] M8x30**

## C-061 Gutter clamp



- It is used for laying wires horizontally on the gutter or for vertical transition of wire through the gutter
- ability to lay ø 8..10 mm wire in any direction

article

**C-061**

code

**1206 012 1206 018 1206 014**

material

**OC****LA****CU**

plate AxB size

**107 x 40 mm**

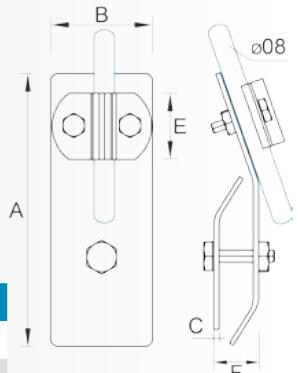
plate C thickness

**2,0 mm**

size E / F

**20 / 30 mm**

screw

**M8/35 + [2x] M6x20**

## C-062 Labelling connector



- It is designed for labelling down-conductors in lightning protection system
- It is installed on ø 8.. 10 mm wire near the test joint

article

**C-062**

code

**1206 026**

material

**AL**

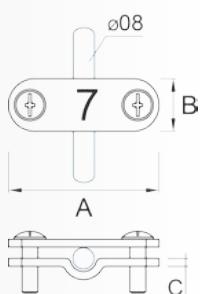
plate AxB size

**60 x 20 mm**

plate C thickness

**2,0 mm**

screw

**[2x] M6x20**



## C-091 Folded cleat with plastic

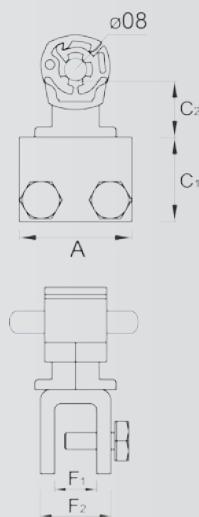


- It is designed for laying ø 8.. 10 mm wires of lightning protection system on folded roofs or constructions
- Fixes wire to folds with fastening screws

article

**C-091**

code	1209 012	1209 011	1209 014
material of cleat	OC	ST	CU
material of holder	PL	PL	PL
cleat A size		40 mm	
height C1/ C2		30 x 26 mm	
size F1/ F2		12 / 22 mm	
fastening screws		[2x] M8x20	



## C-092 Metal folded cleat

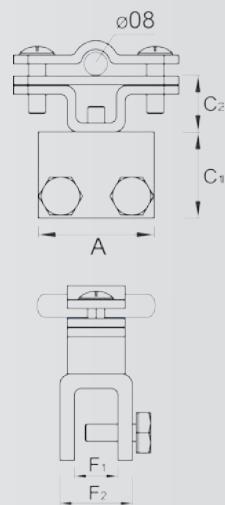


- It is designed for laying ø 8.. 10 mm wires of lightning protection system on folded roofs or constructions, and also for connection of wires to metal constructions
- Fixes wire to folds with fastening screws

article

**C-092**

code	1209 022	1209 021	1209 024
material of cleat	OC	ST	CU
material of holder	OC	ST	CU
width A		40 mm	
height C1/ C2		30 x 20 mm	
size F1/ F2		12 / 22 mm	
fastening screws		[2x] M8x20	



## C-093 Branched folded cleat

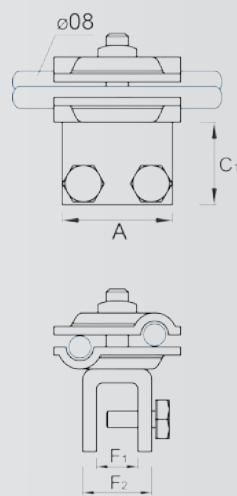


- It is used for cross connection of ø 8.. 10 mm wires on the folded roof or for connection of wire to metal constructions.
- Fixes wire to folds with fastening screws

article

**C-093**

code	1209 032	1209 031	1209 034
material of cleat	OC	ST	CU
material of holder	OC	ST	CU
width A		40 mm	
height C1		30 mm	
size F1/ F2		12 / 22 mm	
fastening screws		[2x] M8x20	



## C-094..95 Metal folded cleat for flat conductors

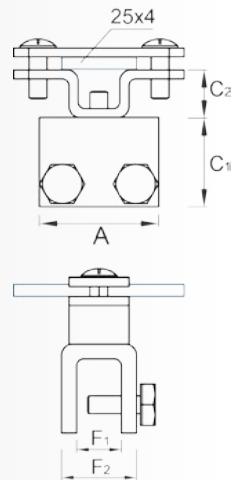


- It is designed for connection of grounding flat conductor to metal constructions
- Fixes wire to folds with fastening screws

article

**C-094****C-095**

code	1209 042	1209 041	1209 052	1209 051
material of cleat	OC	ST	OC	ST
material of holder	OC	ST	OC	ST
for flat conductor width	20..30 mm		40 mm	
width A	40 mm		40 mm	
height C1/ C2	30 x 20 mm		30 x 20 mm	
size F1/ F2	12/ 22 mm		12/ 22 mm	
fastening screws	[2x] M8x20		[2x] M8x20	



## C-099 Connecting cleat

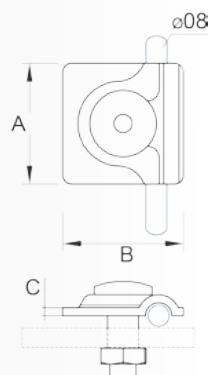


- It is designed for connection of  $\varnothing$  8.. 10 mm wires to metal constructions
- reliable fixation by screw joint

article

**C-099**

code	1209 092	1209 091	1209 093
material of cleat	OC	ST	NI
plate C thickness	2,5 mm	2,5 mm	2,0 mm
plate AxB size		47 x 47 mm	
screw		M10x35	



# GROUP H - HOLDERS

holders for fixing wires of lightning protection system on roofs and walls during installation of the lightning protection grid and down conductors

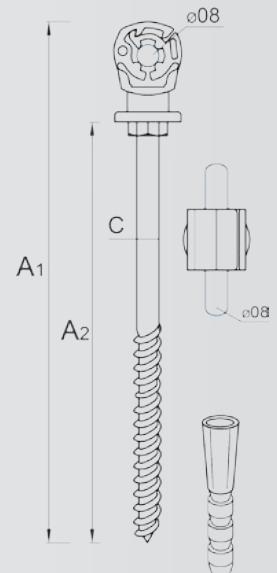


## H-011..14 Plastic conductor holder with a dowel



- It is designed for laying  $\varnothing$  8..10 mm wires on the objects' walls
- It is fixed by a pin with a dowel
- quick and easy installation due to latch

article	H-011	H-012	H-013	H-014
code	1301 019	1301 029	1301 039	1301 049
material of pin	OC	OC	OC	OC
material of holder	PL	PL	PL	PL
length A1	110 mm	150 mm	180 mm	250 mm
length A2	70 mm	110 mm	140 mm	210 mm
$\varnothing$ pin C	8 mm	8 mm	8 mm	8 mm
dowel	12x60	12x60	12x60	12x80

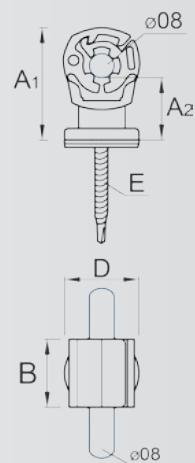


## H-015 Plastic conductor holder with a screw and pad



- It is designed for laying  $\varnothing$  8..10 wires on metal roofing or walls (metal tile, profiled flooring, plate, sandwich panel)
- It is fixed by a roof screw with a pad (goes in set)

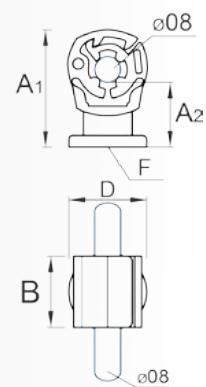
article	H-015		
code	1301 059	1301 159	1301 259
material	PL	PL	PL
color	grey	brown	red
height A1/ A2	40 / 26 mm		
size B/ D	22 / 24 mm		
screw E	4,2x40 mm		



## H-016..18 Plastic conductor holder



- It is designed for laying  $\varnothing$  8..10 wires on metal roofing or walls (metal tile, profiled flooring, sandwich panel)
- Made of atmosphere and temperature-resistant plastic
- quick and easy installation due to latch
- inner opening and thread M6/M8 for fixation with a screw or pin



article

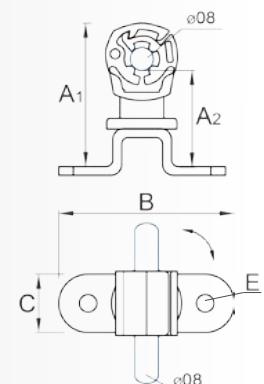
**H-016****H-018**

code	1301 069	1301 169	1301 269	1301 089
material	PL	PL	PL	PL
color	grey	brown	red	grey
height A1/ A2	40 / 26 mm			40/ 26 mm
width B		22 mm		22 mm
diameter of base D		24 mm		24 mm
inner opening F		M6		M8

## H-019 Plastic conductor holder with metal base



- It is designed for laying  $\varnothing$  8 mm wires on metal roofing made of profiled flooring, plate or sandwich panel)
- metal base is fixed by 2 screws and provides better endurance of a holder
- ability to rotate holder 90° relative to the base



article

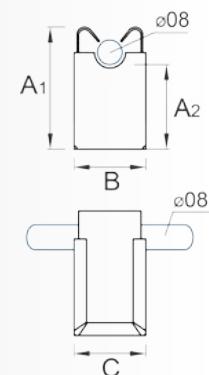
**H-019**

code	1301 092	1301 098
material of holder	PL	PL
material of base	OC	LA
height A1/ A2	55 / 40 mm	
size of base BxC	23 x 24 mm	
opening E		$\varnothing$ 5 mm

## H-020 Conductor holder Niro



- It is designed for laying  $\varnothing$  8 mm wires on metal roofing made of metal tile, profiled flooring or plate
- inner opening and thread M6
- quick and easy installation
- art. H-021 goes with a roof screw and pad



article

**H-020****H-021**

code	1302 003	1302 013
material	NI	NI
height A1/ A2	42/ 25 mm	42/ 25 mm
sizes BxC	23 x 24 mm	23 x 24 mm
inner opening F	M6	M6
screw in set	-	4,2x40 mm

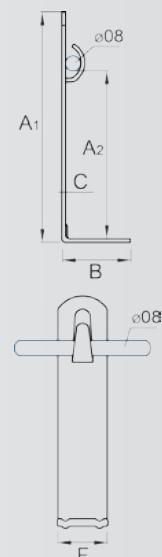


## H-024 Conductor holder L-120



- It is designed for laying ø 8..10 wires on metal roofing made of metal tile, profiled flooring or plate
- It is fixed by a roof screw with a pad (art. K-901)
- art. H-025 (1302 052) goes in set with a roof screw and pad

article	<b>H-024</b>		
code	1302 042	1302 048	1302 044
material	OC	LA	CU
height A1/ A2	120 / 90 mm		
size BxF	35 x 25 mm		
thickness C	2 mm		

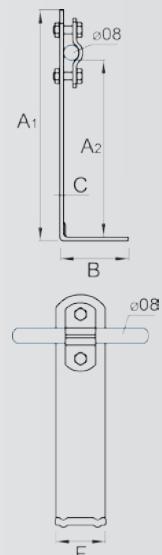


## H-026 Conductor holder L-120 (screwed in)



- It is designed for laying ø 8..10 wires on metal roofing made of metal tile, profiled flooring or plate
- It is fixed by a roof screw with a pad (art. K-901)
- art. H-027 (1302 072) goes in set with a roof screw and pad

article	<b>H-026</b>		
code	1302 062	1302 068	1302 064
material	OC	LA	CU
height A1/ A2	120 / 95 mm		
size BxF	35 x 25 mm		
thickness C	2 mm		
screw	[2x] M6x15		

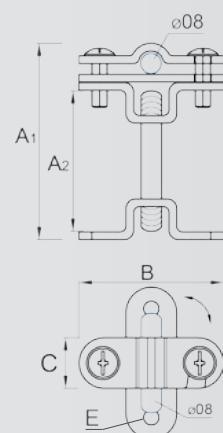


## H-028..29 Distance conductor holder FLIP



- It is designed for laying ø 8..10 mm wire on metal walls (sandwich-panels) or other constructions
- metal base is fixed by 2 screw and provides better endurance of a holder
- quick and easy installation due to latch
- ability to rotate holder 90° relative to the base

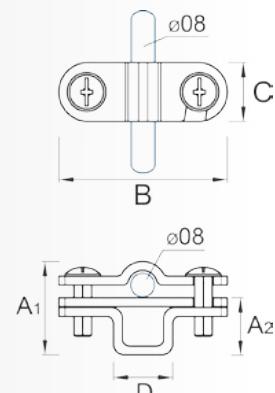
article	<b>H-028</b>		<b>H-029</b>
code	1302 082	1302 092	
material	OC	OC	
height A1/ A2	70/ 50 mm	120/ 100 mm	
size of plate BxC	60x20 mm	60x20 mm	
opening E	[2x] ø 5 mm	[2x] ø 5 mm	
screw	[2x] M6x15	[2x] M6x15	



## H-030 Metal conductor holder FLIP



- It is designed for laying ø 8..10 wires on the objects' walls, metal and other constructions
- inner opening and thread M8
- quick and easy installation due to latch
- reliable fixation of a wire with 2 screws



article

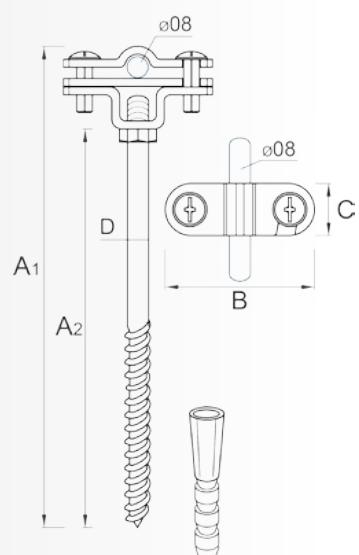
**H-030**

code	1303 002	1302 004
material	OC	CU
height A1/ A2	30 / 20 mm	
size of plate BxC	60 x 20 mm	
size D	20 mm	
screw	[2x] M6x15	

## H-031..34 Metal conductor holder FLIP with a dowel



- It is designed for laying ø 8..10 wires on the objects' walls and other constructions
- It is fixed by a pin with a dowel
- quick and easy installation due to latch
- reliable fixation of a wire with 2 screws



article

**H-031****H-032****H-033****H-034**

code	1303 011	1303 014	1303 021	1303 024	1303 031	1303 034	1303 041	1303 044
material	OC	CU	OC	CU	OC	CU	OC	CU
length A1	100 mm		140 mm		170 mm		240 mm	
length A2	70 mm		110 mm		140 mm		210 mm	
size of holder BxC	20 x 60 mm							
ø pin D	8 mm		8 mm		8 mm		8 mm	
dowel F	12x60		12x60		12x60		12x80	
screw	[2x] M6x15		[2x] M6x15		[2x] M6x15		[2x] M6x15	



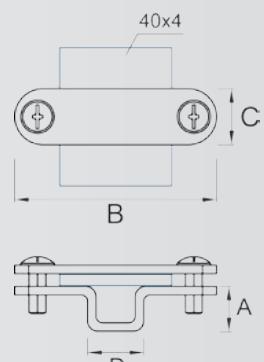
## H-035 Metal flat strip holder B40



- It is used for laying a 40 mm wide flat strip (40x4 mm) on objects' walls, metal and other constructions
- inner opening and thread M8
- art. H-039 (1303 092) goes in set with a pin L-80 and a dowel

article **H-035**

<b>code</b>	<b>1303 052</b>
material	<b>OC</b>
height A	20 mm
plate BxC size	72 x 20 mm
size D	20 mm
screw	[2x] M6x15



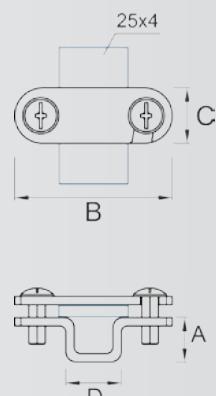
## H-036 Metal flat strip holder FLIP



- It is used for laying a flat strip up to 30 mm (25x4 mm, 30x4 mm) wide on walls, metal and other constructions
- inner opening and thread M8
- quick and easy installation due to latch
- art. H-037 (1303 072) goes in set with a pin L-80 and a dowel

article **H-036**

<b>code</b>	<b>1303 062</b>	<b>1303 064</b>
material	<b>OC</b>	<b>CU</b>
height A	20 mm	
plate BxC size	60 x 20 mm	
size D	20 mm	
screw	[2x] M6x15	



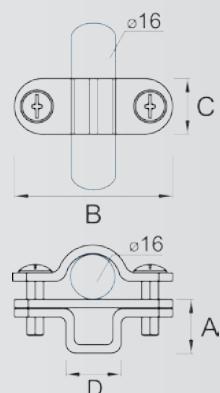
## H-038 Metal rod holder D16



- It is designed for fixing ø16 mm rod to the walls, metal and other constructions
- inner opening and thread M10

article **H-038**

<b>code</b>	<b>1303 082</b>	<b>1303 084</b>
material	<b>OC</b>	<b>CU</b>
plate AxB size	60 x 20 mm	
height C	16 mm	
size D	20 mm	
screw	[2x] M6x15	

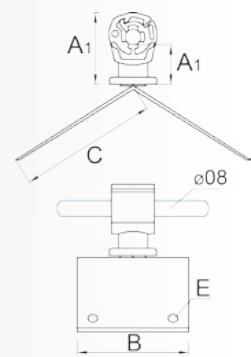


## H-041 Ridge conductor holder straight with plastic



- It is used for laying Ø 8..10 mm wires on the ridge of roofing made of plate, profiled flooring or asphalt shingle
- It is fixed to the ridge by 4 roof screws

article	<b>H-041</b>		
code	1304 012	1304 018	1304 014
material of base	OC	LA	CU
material of holder	PL	PL	PL
height A1/ A2	40 / 26 mm		
size BxC	57 x 70 mm		
opening E	[4x] Ø 5 mm		

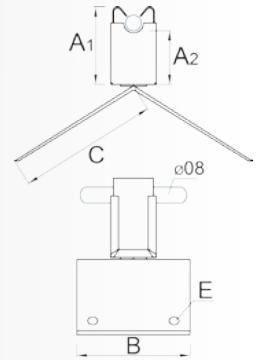


## H-042 Ridge conductor holder straight with Niro



- It is used for laying Ø 8 mm wires on the ridge of roofing made of plate, profiled flooring or asphalt shingle
- It is fixed to the ridge by 4 roof screws

article	<b>H-042</b>		
code	1304 022	1304 028	1304 024
material of base	OC	LA	CU
material of holder	NI	NI	NI
height A1/ A2	42 / 25 mm		
size BxC	57 x 70 mm		
opening E	[4x] Ø 5 mm		

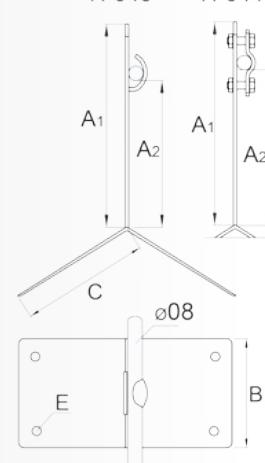


## H-043..44 Ridge conductor holder straight L-120



- It is used for laying Ø 8..10 mm wires on the ridge of roofing made of plate, profiled flooring or asphalt shingle
- Increased height of wire fixation over the roof
- It is fixed to the ridge by 4 roof screws
- art. H-043 - Is fixed by clamping the conductor
- art. H-044 - Is fixed by screws

H-043      H-044



article	<b>H-043</b>			<b>H-044</b>		
code	1304 032	1304 038	1304 034	1304 042	1304 048	1304 044
material	OC	LA	CU	OC	LA	CU
height A1/ A2	120 / 90 mm			120 / 95 mm		
size BxC	57 x 70 mm			57 x 70 mm		
opening E	[4x] Ø 7 mm			[4x] Ø 5 mm		
screw fixation	-			[2x] M6x15		



## H-051 Ridge conductor holder half-round with plastic

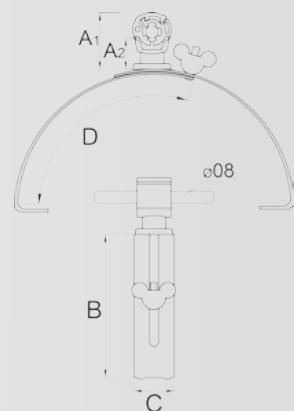


- It is used for laying  $\varnothing$  8..10 mm wires on the ridge of roofing made of tile or metal tile
- It is fixed to the ridge by clamping

article

**H-051**

code	1305 012	1305 018	1305 014
material of base	OC	LA	CU
material of holder	PL	PL	PL
height A1/ A2	40 / 26 mm		
size BxC	65 x 26 mm		
size D	125.. 205 mm		



## H-052 Ridge conductor holder half-round with Niro

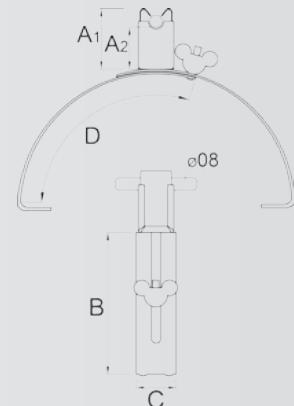


- It is used for laying  $\varnothing$  8 mm wires on the ridge of roofing made of tile or metal tile
- It is fixed to the ridge by clamping

article

**H-052**

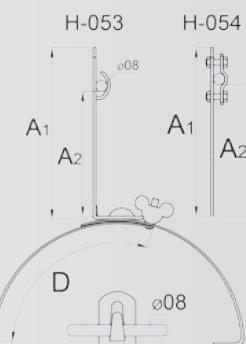
code	1305 022	1305 028	1305 024
material of base	OC	LA	CU
material of holder	NI	NI	NI
height A1/ A2	42 / 25 mm		
size BxC	65 x 26 mm		
size D	125.. 205 mm		



## H-053..54 Ridge conductor holder half-round L-120



- It is used for laying  $\varnothing$  8..10 mm wires on the ridge of roofing made of tile or metal tile
- Increased height of wire fixation over the roof
- It is fixed to the ridge by clamping
- art. H-053 - is fixed by clamping the conductor
- art. H-054 - is fixed by screws



article

**H-053****H-054**

code	1305 032	1305 038	1305 034	1305 042	1305 048	1305 044
material	OC	LA	CU	OC	LA	CU
height A1/ A2	120 / 90 mm			120 / 95 mm		
size BxC	65 x 26 mm			65 x 26 mm		
size D	125.. 205 mm			125.. 205 mm		
screw fixation	-			[2x] M6x15		

## H-061 Plastic conductor holder with a stand

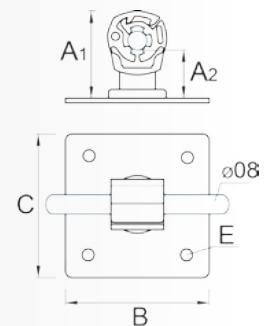


- It is used for laying  $\varnothing$  8..10 mm wires on the roofing made of plate, asphalt shingle or on metal parapets
- It is fixed to the roofing by 4 roof screws

article

**H-061**

code	1306 012	1306 018	1306 014
material of base	OC	LA	CU
material of holder	PL	PL	PL
height A1/ A2	40 / 26 mm		
size BxC	60 x 60 mm		
opening E	[4x] $\varnothing$ 5 mm		



## H-062 Conductor holder Niro with a stand

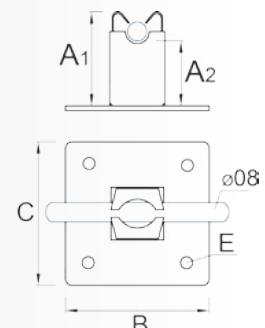


- It is used for laying  $\varnothing$  8 mm wires on the roofing made of plate, asphalt shingle or on metal parapets
- It is fixed to the roofing by 4 roof screws

article

**H-062**

code	1306 022	1306 028	1306 024
material of base	OC	LA	CU
material of holder	NI	NI	NI
height A1/ A2	42 / 25 mm		
size BxC	60 x 60 mm		
opening E	[4x] $\varnothing$ 5 mm		

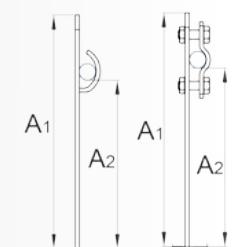


## H-063..64 Conductor holder L-120 with a stand



- It is used for laying  $\varnothing$  8..10 mm wires on the roofing made of plate, asphalt shingle or on metal parapets
- Increased height of wire fixation over the roof
- It is fixed to the ridge by 4 roof screws
- art. H-063 - is fixed by clamping the conductor
- art. H-064 - is fixed by screws

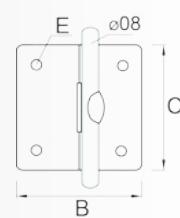
H-063      H-064



article

**H-063****H-064**

code	1306 032	1306 038	1306 034	1306 042	1306 048	1306 044
material	OC	LA	CU	OC	LA	CU
height A1/ A2	120 / 90 mm			120 / 95 mm		
size BxC	60 x 60 mm			60 x 60 mm		
opening E	[4x] $\varnothing$ 5 mm			[4x] $\varnothing$ 5 mm		
screw fixation	-			[2x] M6x15		

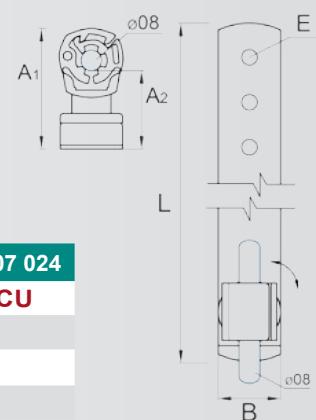




## H-071..72 Under tile conductor holder with plastic



- It is used for laying Ø 8..10 mm wires on the roofing made of tiles
- is installed under tiles
- material of holder - temperature-resistant plastic

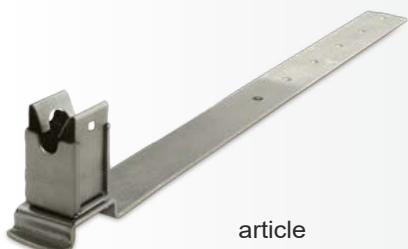


article

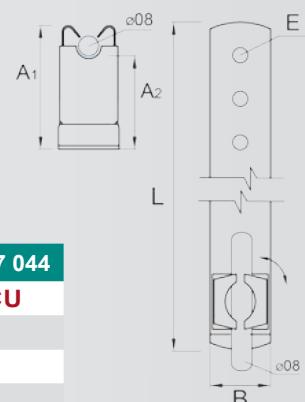
**H-071****H-072**

code	1307 012	1307 018	1307 014	1307 022	1307 028	1307 024
material	OC	LA	CU	OC	LA	CU
height A1/ A2	50 / 36 mm			50 / 36 mm		
size LxB	330 x 30 mm			400 x 30 mm		
opening E	Ø 5 mm			Ø 5 mm		

## H-073..74 Under tile conductor holder with Niro



- It is used for laying Ø 8 mm wires on the roofing made of tiles
- is installed under tiles
- material of holder - stainless steel



article

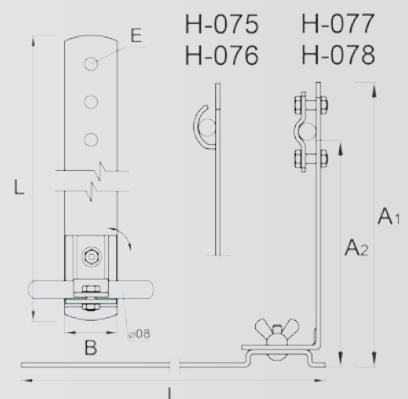
**H-073****H-074**

code	1307 032	1307 038	1307 034	1307 042	1307 048	1307 044
material	OC	LA	CU	OC	LA	CU
height A1/ A2	50 / 36 mm			50 / 36 mm		
size LxB	330 x 30 mm			400 x 30 mm		
opening E	Ø 5 mm			Ø 5 mm		

## H-075..78 Under tile conductor holder L-120



- It is used for laying Ø 8..10 mm wires on the roofing made of tiles
- is installed under tiles
- Increased height of wire fixation over the roof
- art. H-075..76 - is fixed by clamping the conductor
- art. H-077..78 - is fixed by screws



article

**H-075****H-076****H-077****H-078**

code	1307 052	1307 058	1307 054	1307 062	1307 068	1307 064	1307 072	1307 078	1307 074	1307 082	1307 088	1307 084
material	OC	LA	CU									
height A1/ A2	130 / 100 mm											
size LxB	330 x 30 mm			400 x 30 mm			330 x 30 mm			400 x 30 mm		
screw fixation	-			-			[2x] M6x15			[2x] M6x15		

## H-081 Angle conductor holder with plastic

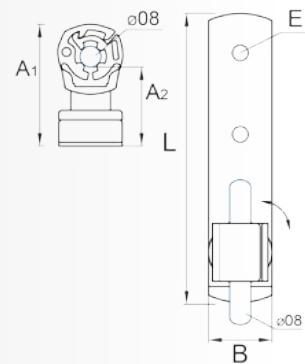


- It is used for laying Ø 8..10 mm wires on metal roofing and parapets
- holder can be rotated 90° relative to the base
- Reliable fixation with support for better stability during the laying of horizontal lines on roofs with a slope
- It is fixed by 2 screws (art. K-901)

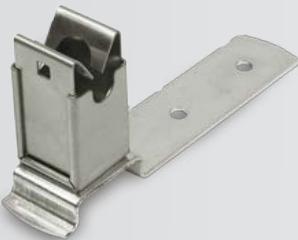
article

**H-081**

code	1308 012	1308 018	1308 014
material of base	OC	LA	CU
material of holder	PL	PL	PL
height A1/ A2	50 / 36 mm		
size LxB		110 x 23 mm	
opening E		Ø 5 mm	



## H-082 Angle conductor holder with Niro

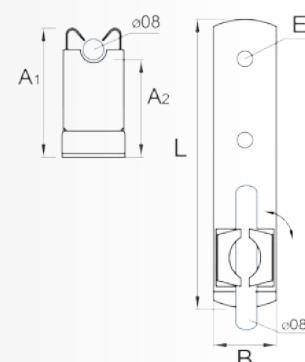


- It is used for laying Ø 8 mm wires on metal roofing and parapets
- Reliable fixation with support for better stability during the laying of horizontal lines on roofs with a slope
- holder can be rotated 90° relative to the base
- It is fixed by 2 screws (art. K-901)

article

**H-082**

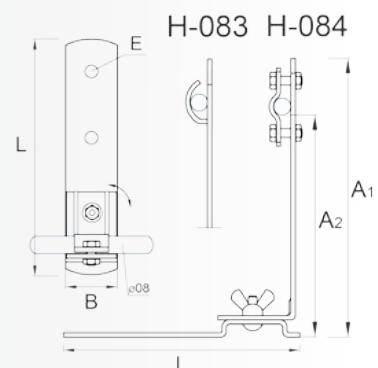
code	1308 022	1308 028	1308 024
material of base	OC	LA	CU
material of holder	NI	NI	NI
height A1/ A2	50 / 36 mm		
size LxB		110 x 23 mm	
opening E		Ø 5 mm	



## H-083..84 Angle conductor holder L-120



- It is used for laying Ø 8..10 mm wires on metal roofing (profiled flooring, metal tile)
- Reliable fixation with support for better stability during the laying of horizontal lines on roofs with a slope
- holder can be rotated 90° relative to the base
- It is fixed by 2 screws (art. K-901)
- art. H-083 - is fixed by clamping the conductor
- art. H-084 - is fixed by screws



article

**H-083****H-084**

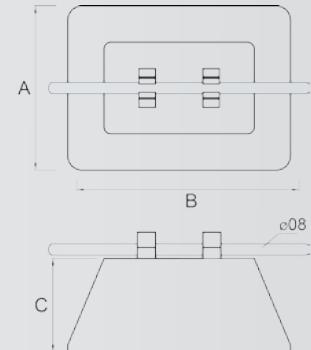
code	1308 032	1308 038	1308 034	1308 042	1308 048	1308 044
material	OC	LA	CU	OC	LA	CU
height A1/ A2	130 / 100 mm			130 / 100 mm		
size LxB		110 x 23 mm			110 x 23 mm	
screw fixation	-				[2x] M6x15	
opening E		Ø 5 mm			Ø 5 mm	



## H-301..302 Plastic conductor holder for a flat roof



- It is used for laying ø 8 mm wires on a flat roof made of roofing felt or membrane
- Holder goes empty, for filling it with concrete
- It is recommended to stick the holder to the roofing with a glue:
  - a) for bitumen roofing use glue art. K-950 (80 gr for 1 holder)
  - b) for membrane roofing use glue on a polypropylene basis
- art. H-301 - without bottom cap
- art. H-302 - with bottom cap

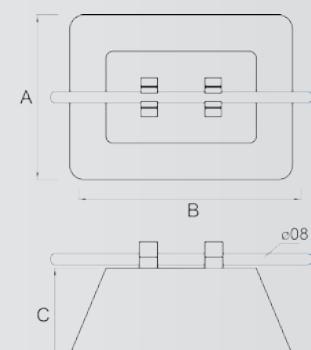


article	<b>H-301</b>	<b>H-302</b>
code	<b>1330 019</b>	<b>1330 029</b>
material	<b>PL</b>	<b>PL</b>
size of base AxB	128x160 mm	128x160 mm
height C	50 mm	50 mm
for wire ø	8 mm	8 mm
bottom cap	-	128x160 mm

## H-303..304 Plastic conductor holder for a flat roof with concrete



- It is used for laying ø 8 mm wires on a flat roof made of roofing felt or membrane
- Holder goes filled with concrete
- It is recommended to stick the holder to the roofing with a glue:
  - a) for bitumen roofing use glue art. K-950 (80 gr for 1 holder)
  - b) for membrane roofing use glue on a polypropylene basis
- art. H-303 - with bottom cap
- art. H-304 - without bottom cap

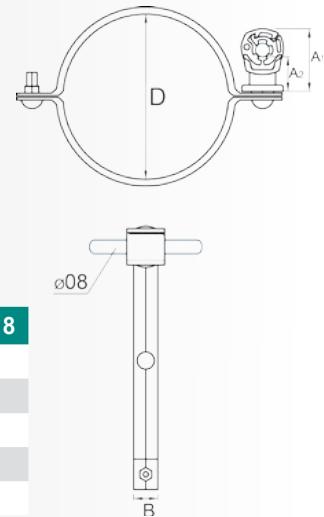


article	<b>H-303</b>	<b>H-304</b>
code	<b>1330 039</b>	<b>1330 049</b>
material	<b>PL</b>	<b>PL</b>
size of base AxB	128x160 mm	128x160 mm
height C	50 mm	50 mm
for wire ø	8 mm	8 mm
bottom cap	128x160 mm	-
weight	1,2 kg	1,2 kg

## H-801..891 Pipe clamp with a plastic conductor holder



- It is used for laying Ø 8..10 mm wires on a downpipe



article

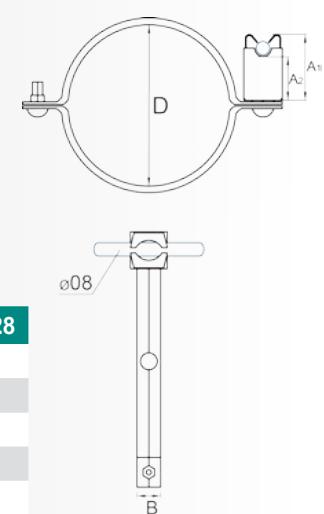
**H-801****H-881****H-891**

code	1380 012	1380 018	1380 812	1380 818	1380 912	1380 918
material of clamp	OC	LA	OC	LA	OC	LA
material of holder	PL	PL	PL	PL	PL	PL
for pipe D	Ø 100 mm		Ø 80 mm		Ø 90 mm	
width of clamp B	25 mm		25 mm		25 mm	
height A1/ A2	40/ 26 mm		40/ 26 mm		40/ 26 mm	

## H-802..892 Pipe clamp with a conductor holder Niro



- It is used for laying Ø 8 mm wires on a downpipe



article

**H-802****H-882****H-892**

code	1380 022	1380 028	1380 822	1380 828	1380 922	1380 928
material of clamp	OC	LA	OC	LA	OC	LA
material of holder	NI	NI	NI	NI	NI	NI
for pipe D	Ø 100 mm		Ø 80 mm		Ø 90 mm	
width of clamp B	25 mm		25 mm		25 mm	
height A1/ A2	40/ 26 mm		40/ 26 mm		40/ 26 mm	



# GROUP G - EARTHING

modular sets and additional elements  
for construction of driving-in vertical earthing

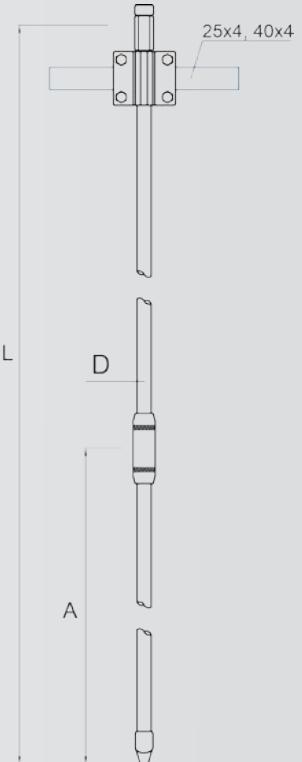
## G-16 Earthing electrode set ø16 mm



- It is used for construction of driving-in vertical earthing
- the set is based on galvanized threaded rods with coupling connection
- ready sets of 3..12 m length; to increase the length of grounding electrode use additional rods G-16/1 and connectors G-16/2
- Deepen rods with a sledgehammer (by using a driving screw, which goes in set) or jackhammer (by using a nozzle G-160, can be ordered separately)

### The earthing electrode set G-16 includes:

- earthing electrode ø16 mm - X pieces (see table)
- connecting coupling - M pcs (see table)
- tip for the rod - 1 pc
- rod and flat conductor connector C-044 - 1 pc
- driving screw - 1 pc
- driving coupling - 1 pc

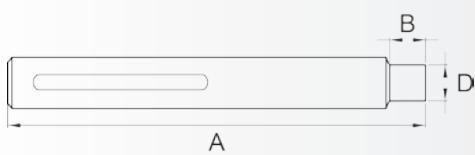


article	G-16/30	G-16/45	G-16/60	G-16/90	G-16/120
code	1016 302	1016 452	1016 602	1016 902	1016 122
material of rod	OC	OC	OC	OC	OC
length of set L	3 000 mm	4 500 mm	6 000 mm	9 000 mm	12 000 mm
length of rod A	1 500 mm				
diameter of rod D	16 mm				
number of rods X	2	3	4	6	8
number of couplings M	1	2	3	5	7
weight of set	5,2 kg	7,6 kg	10 kg	14,8 kg	19,6 kg

## G-160 Impact nozzle SDS-MAX for earthing electrodes ø16 mm



- It is used for deepening ø16 mm earthing electrodes with a jackhammer
- the upper part of the nozzle was produced by the SDS-MAX standard
- the lower part can fit in a driving screw of the earthing electrode set G-16



article	G-160
code	1016 002
length A / B	165 / 14 mm
diameter D	13,5 mm

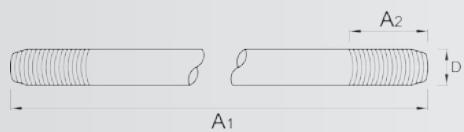


## Components of earthing electrode G-16

### G-16/1 Earthing electrode ø16 mm L-1500



- Threaded earthing rod ø16 mm and 1,5 m long for the earthing electrode set G-16
- made of galvanized steel, covered with protective varnish



article	G-16/1
code	1016 012
material	OC
length A1 / A2	1500 / 40 mm
diameter D	16 mm
weight of electrode	2,3 kg

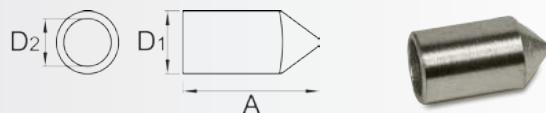
### G-16/2 Connecting coupling for rods ø16 mm

- Threaded connecting coupling for earthing electrodes G-16/1
- made of galvanized steel, by diffusion (70 mkm)



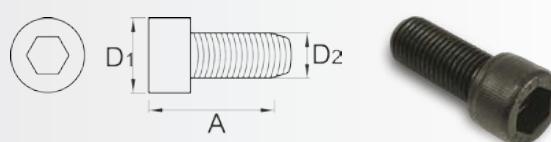
### G-16/3 Tip for rods ø16 mm

- Threaded tip, used for passage through the soil of earthing electrodes G-16/1



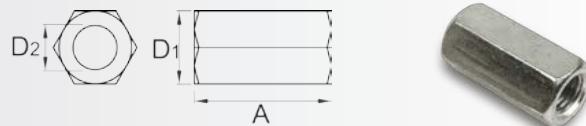
### G-16/4 Driving screw for rods ø16 mm

- It is used for deepening earthing electrodes G-16/1 with a sledgehammer or jackhammer (use a nozzle G-160)



### G-16/5 Impact coupling for rods ø16 mm

- It is used for connecting earthing electrodes G-16/1 with driving screw G-16/3



article	G-16/2	G-16/3	G-16/4	G-16/5
code	1016 021	1016 032	1016 042	1016 052
material	ST	OC	OC	OC
length A	70 mm	40 mm	55 mm	50 mm
diameter D1/ D2	22 / 16 mm	22 / 16 mm	24 / 16 mm	27 / 16 mm
type	connecting coupling	tip	driving screw	impact coupling



## G-20 Earthing electrode set ø20 mm

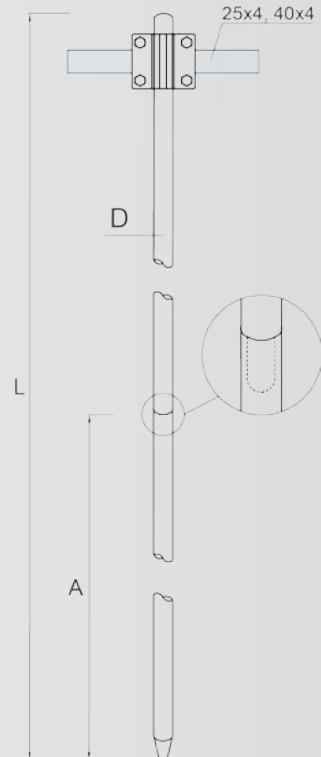


- It is used for construction of driving-in vertical earthing

• The set is based on earth rods, made of hot-dipped galvanized steel, which are connected by method of press-fitting

• standard sets with length of 3, 4.5 and 6 m.

- Deepen rods with a sledgehammer (by using a nozzle art. G-20/5, can be ordered separately) or jackhammer (by using a nozzle art. G-20/8, can be ordered separately)

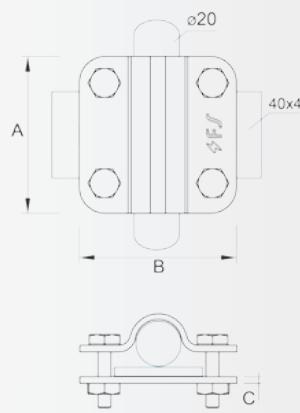


### the earthing electrode set G-20 includes:

- earthing electrode ø20 mm - X pcs (see table)
- tip for the rod - 1 pc
- connector for a rod and flat conductor C-044 - 1 pc

article	G-20/30	G-20/45	G-20/60
code	1020 301	1020 451	1020 601
material of rod	ST	ST	ST
length of set L	3 000 mm	4 500 mm	6 000 mm
length of rod A	1 500 mm	1 500 mm	1 500 mm
diameter of rod D	20 mm	20 mm	20 mm
number of rods X	2	3	4
weight of set	7,5 kg	11 kg	14,5 kg

## C-044 Connector for a rod D16-20 and round/flat conductor B40



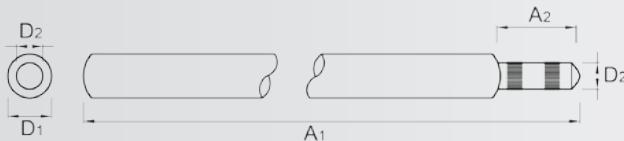
- It is used for connection of flat conductor up to 40 mm wide or ø 8..10 mm round conductor with a rod of ø 16 mm (G-16/1) or ø 20 mm (G-20/1)

article	C-044
code	1204 041
material	ST
plate AxB size	72 x 72 mm
thickness of plate C	3 mm
number of plates	2
screw	[4x] M8x30



## Components for earthing electrodes G-20

### G-20/1 Earthing electrode ø20 mm L-1500

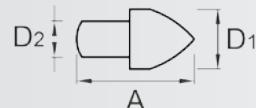


- Earthing electrode of ø20 mm and 1,5 m long for the earthing electrode set G-20
- made of hot-dipped galvanized steel (70 mkm)

article	<b>G-20/1</b>
code	<b>1020 011</b>
material	<b>ST</b>
length A1/ A2	<b>1500 / 40 mm</b>
diameter D1/ D2	<b>20 / 12 mm</b>
weight of rod	<b>3,65 kg</b>

### G-20/2 Tip for rods ø20 mm

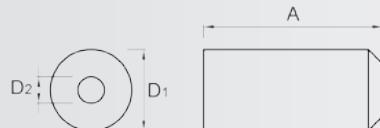
- threadless tip for earthing electrodes G-20/1
- made of hot-dipped galvanized steel (70 mkm)



article	<b>G-20/2</b>
code	<b>1020 021</b>
material	<b>ST</b>
length A	<b>30 mm</b>
diameter D1/ D2	<b>20 / 12 mm</b>

### G-20/5 A nozzle for manual installation for rods ø20 mm

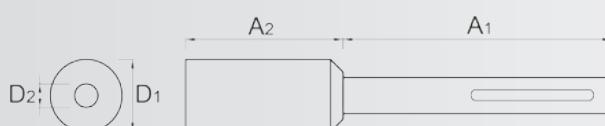
- It is used for manual deepening of earthing electrodes ø20 mm
- made of steel of increased strength



article	<b>G-20/5</b>
code	<b>1020 052</b>
length A	<b>30 mm</b>
diameter D1/ D2	<b>20 / 12 mm</b>

### G-20/8 Impact nozzle SDS-MAX for earthing electrodes ø20 mm

- It is used for deepening earthing electrodes of ø20 mm with a jackhammer
- the upper part of the nozzle was produced by the SDS-MAX standard
- The lower part is laid on the pin of a rod from the earthing electrode set G-20



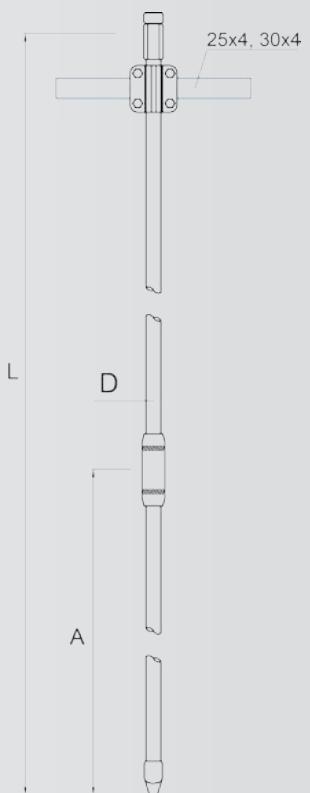
article	<b>G-20/8</b>
code	<b>1020 082</b>
length A1 / A2	<b>150 / 90 mm</b>
diameter D1 / D2	<b>40 / 13 mm</b>



## G-15 Earthing electrode set ø16 mm, stainless steel



- It is used for construction of driving-in vertical earthing
- the set is based on threaded rods made of stainless steel with coupling connection
- Allows to perform reliable earthing of lightning protection or deep protective earthing (more than 30 m) for banks and other institutions
- **the useful life is more than 50 years!**
- Ready sets with length of 3..15 m; to increase the length of the earthing electrode use rods G-15/1 and connectors G-15/2
- Deepen rods with a jackhammer (by using a nozzle G-160, can be ordered separately)



### Earthing electrode set G-15 includes:

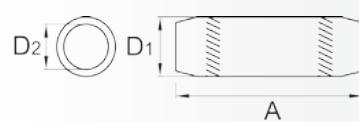
- NI earthing electrode ø16 mm - X pcs (see table)
- NI connecting coupling - M pcs (see table)
- NI tip for rods - 1 pc
- NI connector for a rod with flat conductor C-041 - 1 pc
- driving screw - 1 pc
- driving coupling - 1 pc

article	<b>G-15/30</b>	<b>G-15/45</b>	<b>G-15/60</b>	<b>G-15/90</b>	<b>G-15/120</b>	<b>G-15/150</b>
code	1015 303	1015 453	1015 603	1015 903	1015 123	1015 153
material of rod	<b>NI</b>	<b>NI</b>	<b>NI</b>	<b>NI</b>	<b>NI</b>	<b>NI</b>
length of set L	3 000 mm	4 500 mm	6 000 mm	9 000 mm	12 000 mm	15 000 mm
length of rod A	1 500 mm	1 500 mm				
diameter of rod D	16 mm	16 mm				
number of rods X	2	3	4	6	8	10
number of couplings M	1	2	3	5	7	9
weight of set	5,9 kg	8,6 kg	11,4 kg	16,8 kg	22,1 kg	30 kg

### Additional components for earthing electrode G-15



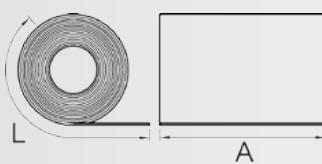
- additional component for increasing length of earthing electrode G-15:
- **G-15/1** stainless earthing electrode 1,5 m
- **G-15/2** stainless connecting coupling for ø16 mm rod



article	<b>G-15/1</b>	<b>G-15/2</b>
code	1015 013	1015 023
material	<b>NI</b>	<b>NI</b>
length A1	1500 mm	70 mm
length A2	140 mm	-
diameter D1	16 mm	22 mm
diameter D2	-	16 mm
weight	2,6 kg	0,06 kg
type	rod	connecting coupling



## G-112 Waterproof tape DENSO



- It is used for additional protection of bolted joints in the ground from corrosion
- made of fabric saturated with anticorrosive paste

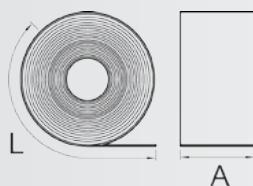
article **G-112**

code	<b>1011 020</b>
------	-----------------

width A	100 mm
---------	--------

length L	10 m
----------	------

## G-115 Anticorrosive tape 50 mm



- It is used for additional protection of bolted joints in the ground from corrosion
- made of fabric saturated with anticorrosive paste

article **G-115**

code	<b>1011 050</b>
------	-----------------

width A	50 mm
---------	-------

length L	10 m
----------	------

## G-290 Equipotential bonding bar

- It is used for equipotential bonding of electrical connections
- It is used for earthing of household appliances and installations



article **G-290**

code	<b>1029 000</b>
------	-----------------

ability of wire connection	[1x] 50 mm <sup>2</sup>
----------------------------	-------------------------

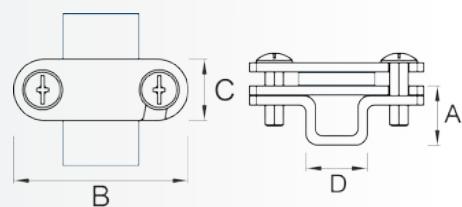
ability of cable connection	[7x] 16 mm <sup>2</sup>
-----------------------------	-------------------------

ability of flat strip connection	[1x] 25x4 mm
----------------------------------	--------------

## H-035..39 Metal flat strip holder



- It is used for laying a flat strip on walls, metal and other constructions
- inner opening and thread M8
- art. H-037, H-039 goes in set with a pin L-80 and a dowel



article

**H-035**

**H-039**

**H-036**

**H-037**

code	<b>1303 052</b> <th><b>1303 092</b></th> <th><b>1303 062</b></th> <th><b>1303 064</b></th> <th><b>1303 072</b></th> <th><b>1303 074</b></th>	<b>1303 092</b>	<b>1303 062</b>	<b>1303 064</b>	<b>1303 072</b>	<b>1303 074</b>
material	OC	OC	OC	CU	OC	CU
size A x D	50 x 20 mm	50 x 20 mm	50 x 20 mm		50 x 20 mm	
size of plate BxC	72 x 20 mm	72 x 20 mm	60 x 20 mm		60 x 20 mm	
for flat strip	40x4 mm	40x4 mm	25..30x4 mm		25..30x4 mm	
pin with dowel	-	M8x80	-		M8x80	



## GROUP W - CONDUCTORS

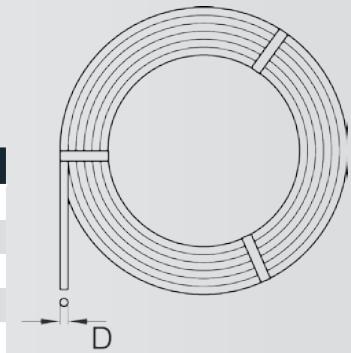
round wires and strips for using in lightning protection system and earthing

### W-08/ST Galvanized round wire for lightning protection



- It is used for setting of down conductors, lightning protection grid and other conductors in lightning protection system
- Wire is supplied in bundles of 25 kg or 50 kg
- It is made of hot-dipped galvanized steel, the zink coating of a wire is not less than 350 g/m / 50 µm<sup>2</sup>

article	W-08/ST	W-10/ST
code	1108 001	1110 001
material	ST	ST
diameter D	8 mm	10 mm
1 m =	0,39 kg	0,62 kg
1 kg =	2,56 m	1,61 m
50 kg =	128 m	80,5 m

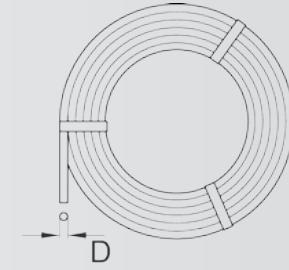


### W-08/AL Aluminium round wire for lightning protection



- It is used for setting of down conductors, lightning protection grid and other conductors in lightning protection system
- It is sold in meters

article	W-08/AL	W-10/AL
code	1108 006	1110 006
material	AL	AL
diameter D	8 mm	10 mm
1 m =	0,135 kg	0,21 kg
1 kg =	7,4 m	4,7 m

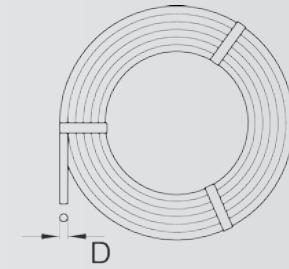


### W-08/CU Copper round wire for lightning protection



- It is used for setting of down conductors, lightning protection grid and other conductors in lightning protection system
- It is sold in meters

article	W-08/CU	W-06/CU
code	1108 004	1106 004
material	CU	CU
diameter D	8 mm	6 mm
1 m =	0,45 kg	0,25 kg
1 kg =	2,2 m	4 m

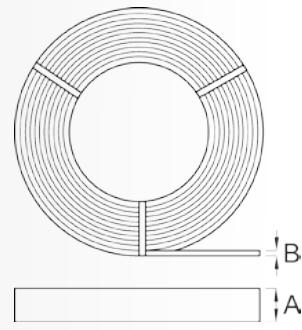




## W-25x4/ST Galvanized strip for lightning protection

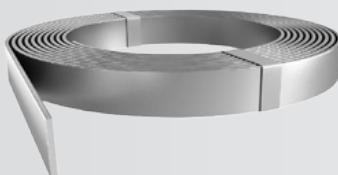


- It is designed for usage in lightning protection system and earthing
- Strip is supplied in bundles of 25 kg or 50 kg
- It is made of hot-dipped galvanized steel, the zinc coating of a wire is not less than 500 g/m / 70 mkm<sup>2</sup>

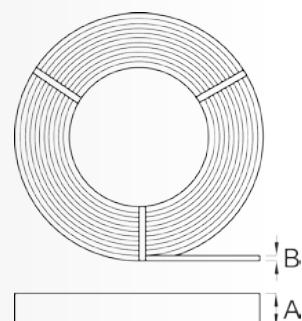


article	<b>W-25x4/ST</b>	<b>W-30x4/ST</b>	<b>W-40x4/ST</b>
code	<b>1125 041</b>	<b>1130 041</b>	<b>1140 041</b>
material	<b>ST</b>	<b>ST</b>	<b>ST</b>
size AxB	25x4 mm	30x4 mm	40x4 mm
1 m =	0,8 kg	0,92 kg	1,29 kg
1 kg =	1,25 m	1,08 m	0,78 m
50 kg =	62,5 m	54 m	39 m

## W-25x4/NI Stainless strip for lightning protection



- It is designed for usage in lightning protection system and earthing
- It is sold in meters
- **the useful life is more than 50 years!**

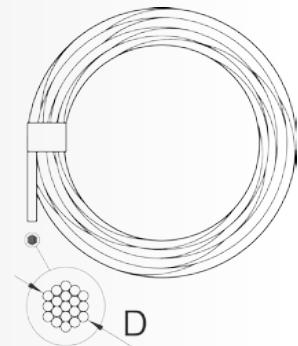


article	<b>W-25x4/NI</b>
code	<b>1125 043</b>
material	<b>NI</b>
size AxB	25x4 mm
1 m =	0,8 kg
1 kg =	1,25 m

## W-09/T Galvanized cable for lightning protection



- It is used for setting down conductors or cable air termination rods in lightning protection system
- It is sold in meters
- It is made of galvanized steel, 19-wired, meets GOST standards 3063-80



article	<b>W-09/T</b>
code	<b>1109 011</b>
material	<b>OC</b>
wire section	1,9 + [18x] 1,8 mm
diameter D	9,1 mm
1 m =	0,42 kg
1 kg =	2,38 m

## GROUP K - OTHER COMPONENTS

additional components that are used in lightning protection system and earthing

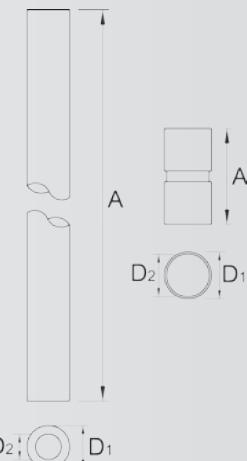


### K-201 Installation pipe for lightning protection 20/12



- It is used for laying grounding wire on a wall in plaster or under insulation
- the pipe is made of heat-resistant plastic
- to connect all segments of the pipe together use pipe connectors art. K-202
- to attach the pipe to the wall use holders UD-20 art. K-203

article	<b>K-201</b>	<b>K-202</b>
code	<b>1420 019</b>	<b>1420 029</b>
material	<b>PL</b>	<b>PL</b>
length A	2000 mm	45 mm
diameter D1/ D2	20 / 12 mm	22 / 20 mm
type	pipe	connector

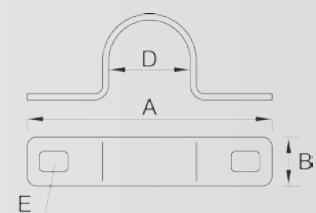


### K-203 Holder UD-20 for pipes 20/12



- It is used for attachment of pipes 20/12 art. K-201 to the walls or constructions
- Can be attached to the walls or constructions by bolts or screws

article	<b>K-203</b>
code	<b>1420 032</b>
material	<b>OC</b>
size AxB	60 x 12 mm
for pipe with diameter D	20 mm
opening E	[2x] ø 7 mm





## K-220 Compensation joint

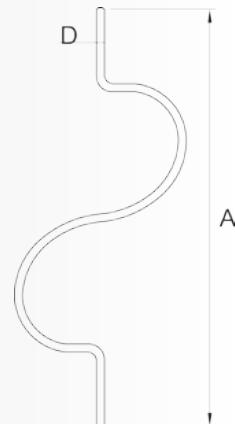


- It is used to compensate the change of length of wire or lightning protection strip due to thermal changes
- It is used on straight segments of wires or lightning protection strips that are more than 40 m long
- Compensation joint is made of aluminium wire ø 8 mm

article

**K-220**

<b>code</b>	<b>1422 006</b>
material	AL
length A	500 mm
diameter D	8 mm



## K-221..23 Compensation connector



- It is used to compensate the change of lightning protection wire length due to thermal changes
- It is used on straight segments of wires or lightning protection strips that are more than 40 m long
- Compensation joint is made of aluminium wire ø 8 mm
- The set includes 2 clamps to connect ø 8..10 mm wire or strip

article

**K-221****K-222****K-223**

<b>code</b>	<b>1422 016</b>	<b>1422 026</b>	<b>1422 036</b>
material	AL	AL	AL
length A	500 mm	500 mm	500 mm
diameter D	8 mm	8 mm	8 mm
connection	wire-wire	strip-strip	wire-strip
clamps	[2x] C-011	[2x] C-032	C-011, C-032



## K-391 Protection screen 1,4 m

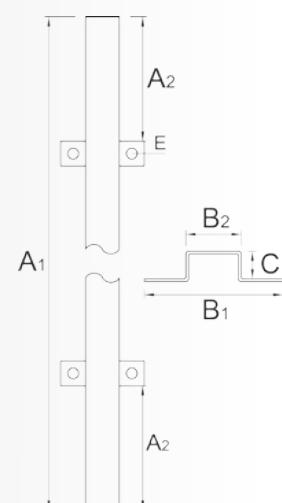


- It is used to protect wire or strip from mechanical damage
- It is recommended for prevention of mechanical damage of conductor by transport or mechanisms at factories or warehouses
- It is attached to the walls and constructions by screws or bolts

article

**K-391**

<b>code</b>	<b>1439 011</b>
material	ST
length A1/ A2	1400 / 250 mm
sizes B1/ B2/ C	100 / 40 / 20 mm
opening E	[4x] 7 mm





## K-271 Pull clamp



- It is used for setting down conductors by method of pulling
- Can be used for pulling down conductors at the height of up to 30 m
- Reliable fixation of wire by connector with 4 screws

article

**K-271**

code

**1427 012**

material

**OC**

size of clamp AxB

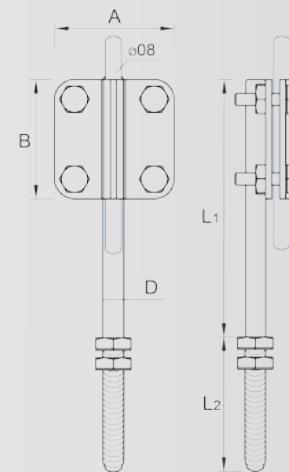
60 x 60 mm

length L<sub>1</sub>/ L<sub>2</sub>

175 / 75 mm

diameter D

10 mm



## K-274..76 Pull pipe



- It is used for setting down conductors by method of pulling
- Can be used for pulling down conductors at the height of up to 30 m

article

**K-274****K-276**

code

**1427 041****1427 061**

material

**ST****ST**length L<sub>1</sub>/ L<sub>2</sub>

400 / 380 mm

600 / 580 mm

diameter D

27 mm

27 mm

opening E

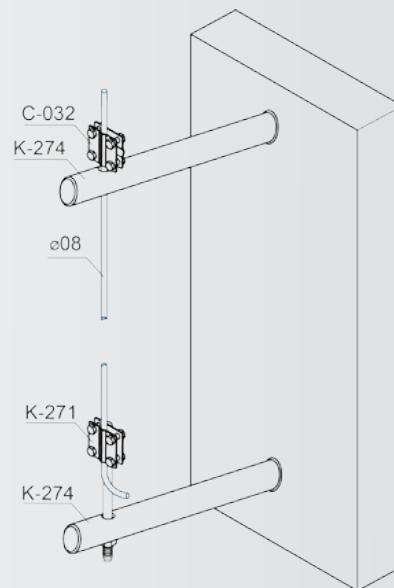
ø 11 mm

ø 11 mm



### The scheme of setting a pull down conductor

- Test joint C-032 - 1 pc
- Pull pipe K-274 (or K-276) - 2 pcs
- Pull clamp K-271 - 1 pc
- Galvanized wire ø8 mm W-08/ST



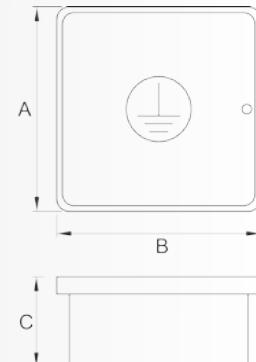


## K-681..82 Test joint box for facades



- It is used for setting test joints of down conductors that are under the facade

article	<b>K-681</b>	<b>K-682</b>
code	<b>1468 019</b>	<b>1468 029</b>
material	<b>PL</b>	<b>PL</b>
size AxB	140 x 140 mm	140 x 140 mm
height C	60 mm	100 mm
color	white	white

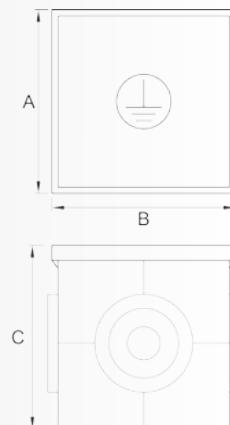


## K-683 Ground test joint box



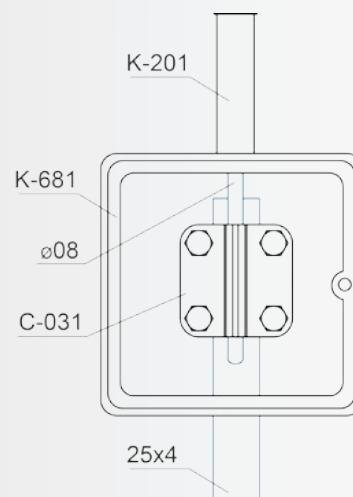
- It is used for setting test joints of down conductors that are in the ground
- It can be used for other purposes, like cable or pipe connection

article	<b>K-683</b>
code	<b>1468 039</b>
material	<b>PL</b>
size AxB	300 x 300 mm
height C	300 mm
color	black



### The scheme of setting a test joint in a box

- Test joint box for facades **K-681** (or **K-682**) - 1 pc
- Test joint **C-031** (or **C-032**) - 1 pc
- Installation pipe for lightning protection **K-201**
- Galvanized wire Ø8 mm **W-08/ST**
- Galvanized strip 25x4 mm **W-25x4/ST**



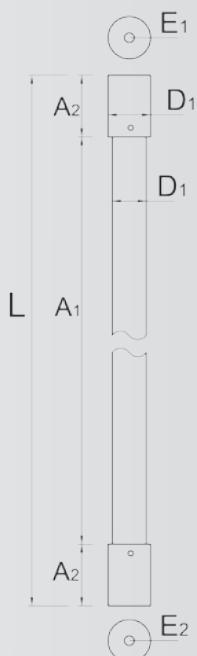


## INSULATED DOWN CONDUCTORS

### K-700 Insulation rod



- It is used for laying down conductors on protected constructions keeping to safe insulation distance or for fixation of 1-4 m mast to the construction keeping to safe insulation gap
- both sides have openings with thread M8 or M16
- To fix the rod to the wire or constructions we recommend to use additional elements K-801..875
- material: dielectric insulation pipe and aluminium tips

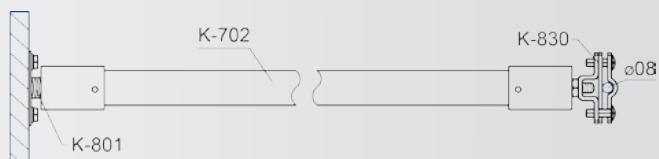


article	K-700	K-701	K-702	K-750	K-751	K-752	K-770	K-771	K-772
code	1470 100	1471 100	1472 100	1470 050	1471 050	1472 050	1470 070	1471 070	1472 070
length L, mm	1000	1000	1000	500	500	500	750	750	750
size A1, mm	890	890	890	390	390	390	640	640	640
size A2, mm	51	51	51	51	51	51	51	51	51
diameter D1/ D2	35/ 30 mm								
opening E1	M8	M16	M8	M8	M16	M8	M8	M16	M8
opening E2	M8	M16	M16	M8	M16	M16	M8	M16	M16
weight	0,65 kg	0,65 kg	0,65 kg	0,45 kg	0,45 kg	0,45 kg	0,55 kg	0,55 kg	0,55 kg

### Examples of insulated down conductors assembly

#### fixation to metal constructions

- Insulation rod K-702 - 1 pc
- Insulation rod holder K-801 - 1 pc
- Holder of wire to the rod K-830 - 1 pc
- Galvanized wire ø8 mm W-08/ST



#### fixation to masts ø 32 mm

- Insulation rod K-770 - 1 pc
- Holder of rod to the tube K-803 - 1 pc
- Holder of wire to the rod K-818 - 1 pc
- Galvanized wire ø8 mm W-08/ST



#### Fixation to boiler tubes

- Insulation rod K-750 - 1 pc
- Universal pipe holder K-870 - 1 pc
- Holder of wire to the rod K-830 - 1 pc
- Galvanized wire ø8 mm W-08/ST



## Conductor holders for insulation rod

### K-818 Plastic conductor holder for insulation rod



- It is used for fixation of ø 8..10 mm down conductor to the insulation rod
- Fixation of a rod through the threaded connection M8

article

**K-818**

code

**1480 189**

material of holder/pin

**PL / OC**length A<sub>1</sub>/ A<sub>2</sub>

40 x 25 mm

width B

22 mm

connection to rod

M8



### K-830 Metal conductor holder for insulation rod



- It is used for fixation of ø 8..10 mm down conductor to the insulation rod
- Fixation of a rod through the threaded connection M8

article

**K-830**

code

**1480 302**

material

**OC**length A<sub>1</sub>/ A<sub>2</sub>

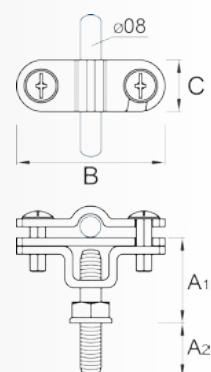
40 x 25 mm

size BxC

60 x 20 mm

connection to rod

M8



### K-838 Conductor holder ø16 mm for insulation rod



- It is used for fixation of ø 12..16 mm pin to the insulation rod
- Fixation of a rod through the threaded connection M8

article

**K-838**

code

**1480 382**

material

**OC**length A<sub>1</sub>/ A<sub>2</sub>

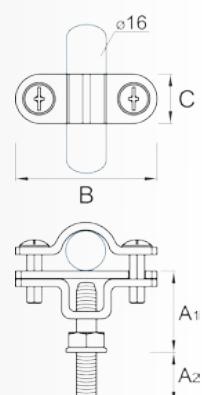
40 x 25 mm

size BxC

60 x 20 mm

connection to rod

M8





## Holders for insulation rod fixation

### K-801 Insulation rod holder



- It is used for fixation of insulation rod to the constructions or parts of protected equipment
- It is fixed to the constructions with bolts or screws
- Fixation of a rod through the threaded connection M16

article

**K-801**

code

**1480 012**

material

**OC**

size of plate AxB

60 x 60 mm

height C

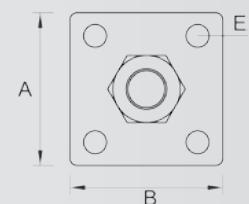
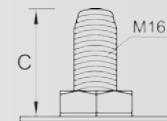
40 mm

opening E

[4x] ø 9 mm

connection to rod

M8



### K-803..04 Insulation rod holder for masts



- It is used for fixation of insulation rod to the mast or pipe of ø 32 or ø 42 mm
- Fixation of a rod through the threaded connection M8

article

**K-803****K-804**

code

**1480 032****1480 042**

material

**OC****OC**

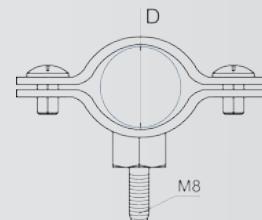
for mast with diameter D

32 mm

42 mm

connection to rod

M8



### K-805 Folded insulation rod holder



- It is used for fixation of insulation rod to constructions or parts of protected equipment by bolt clamping
- Fixation of a rod through the threaded connection M8

article

**K-805**

code

**1480 052**

material

**OC**

width A

40 mm

height C1/ C2

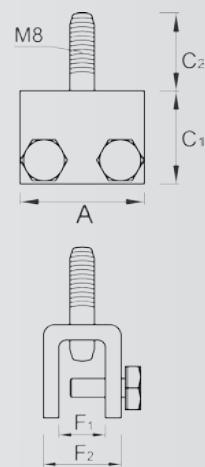
30 / 30 mm

size F1/ F2

12 / 22 mm

connection to rod

M8



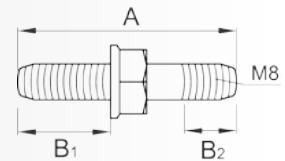
## Holders for insulation rod fixation

### K-808..16 Straight connector for insulation rod



- It is used for connection of holders and other elements with threads M8 or M16 to the insulation rod

article	<b>K-808</b>	<b>K-816</b>
code	<b>1480 082</b>	<b>1480 162</b>
material	OC	OC
length A	40 mm	80 mm
size B1/ B2	20 / 10 mm	40 / 20 mm
connection to rod	M8	M16

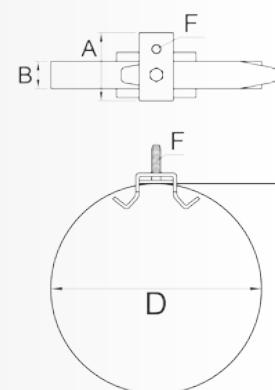


### K-870..73 Universal conductor holder for pipes



- It is used for fixation of insulation rod or down conductor wire to pipes or constructions
- For fixation tighten the pipe with with a clamp and fix reliably with a screw
- Fixation of a rod through the threaded connection M8 or M16

article	<b>K-870</b>	<b>K-871</b>	<b>K-872</b>	<b>K-873</b>
code	<b>1480 703</b>	<b>1480 713</b>	<b>1480 723</b>	<b>1480 733</b>
material	OC - NI	OC - NI	OC - NI	OC - NI
sizes AxB	60 x 24 mm			
for pipe with diam. D	100..300 mm	100..300 mm	300..500 mm	300..500 mm
pin F	M8x25	M16x50	M8x25	M16x50
weight	0,20 kg	0,25 kg	0,20 kg	0,25 kg

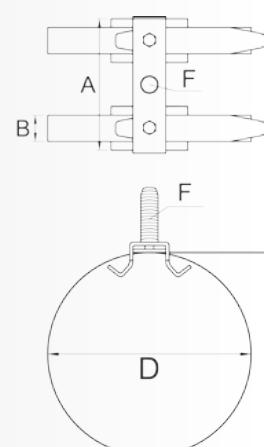


### K-874..75 Universal double conductor holder for pipes



- It is used for fixation of insulation rod or down conductor wire to pipes or constructions
- For fixation tighten the pipe with with a clamp and fix reliably with a screw
- Fixation of a rod through the threaded connection M16

article	<b>K-874</b>	<b>K-875</b>
code	<b>1480 743</b>	<b>1480 753</b>
material	OC - NI	OC - NI
sizes AxB	120 x 24 mm	120 x 24 mm
for pipe with diam. D	100..300 mm	300..500 mm
pin F	M16x50	M16x50
weight	0,40 kg	0,40 kg





## Additional components and expendable materials

### K-308 Cleat for wire holder



- It is used for fixation of  $\varnothing$  8..10 mm wires to the walls and constructions, allows to fix the wire to the wall as close as possible (for example, while laying a wire under mineral wool)
- It is fixed with bolts or screws

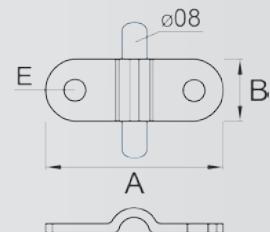
article **K-308**

code	<b>1430 082</b>
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material	<b>OC</b>
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size of plate AxB	60 x 20 mm
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opening E	[2x] $\varnothing$ 5 mm
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### K-316 Cleat for rod holder D16



- It is used for fixation of a rod or pipe of  $\varnothing$  14..16 mm to the walls and constructions
- It is fixed with bolts or screws

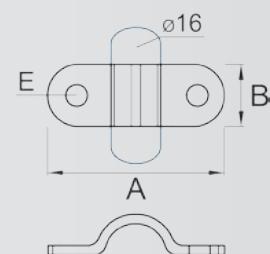
article **K-316**

code	<b>1430 162</b>
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material	<b>OC</b>
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size of plate AxB	60 x 20 mm
-------------------	------------

opening E	[2x] $\varnothing$ 5 mm
-----------	-------------------------



### K-901 Roof screw with 2 pads



- It is used for fixation of holders to metal roofs and other constructions
- the set includes a screw and 2 rubber pads for it

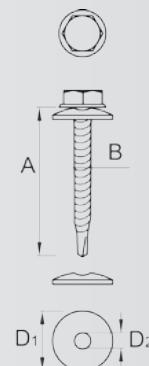
article **K-901**

code	<b>1490 012</b>	<b>1490 016</b>
------	-----------------	-----------------

material	<b>OC</b>	<b>LA</b>
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size of screw AxB	35 x 4,5 mm
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diameter of pad D1/ D2	14 / 4,8 mm
------------------------	-------------



### K-902 Slotted roof screw with a pad



- It is used for fixation of plastic holders H-016 and Niro H-020 to metal roofs and other constructions
- the set includes a screw and a rubber pad for it

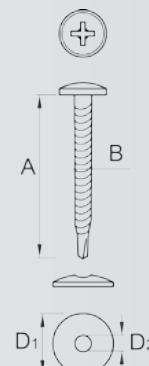
article **K-902**

code	<b>1490 022</b>
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material	<b>OC</b>
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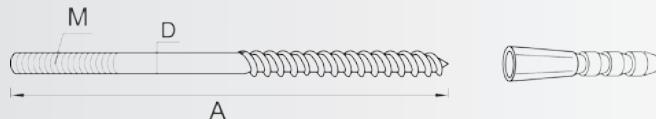
size of screw AxB	40 x 4,2 mm
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diameter of pad D1/ D2	14 / 4,8 mm
------------------------	-------------





## K-921..27 Double-threaded screw with a dowel



- It is used for fixation of plastic holders H-018 and metal holders H-030..038 to the walls and constructions
- The set includes a pin and a dowel

article	<b>K-921</b>	<b>K-922</b>	<b>K-923</b>	<b>K-924</b>	<b>K-925</b>	<b>K-926</b>	<b>K-927</b>
code	1490 212	1490 222	1490 232	1490 242	1490 252	1490 262	1490 272
material	OC						
length of screw A	80 mm	120 mm	150 mm	200 mm	220 mm	200 mm	220 mm
diameter D	8 mm	10 mm	10 mm				
thread M	M8x20	M8x50	M8x50	M8x50	M8x50	M10x50	M10x50
dowel	12x60	12x60	12x860	12x80	12x80	14x80	14x80

## K-910 Bituminous glue for concrete and plastic holders



- It is used for gluing plastic holders with concrete H-303 to the roofing made of 3 bitumen felt
- Expenditure of glue is 80 g for 1 holder
- It is supplied in 10 L buckets (9 kg)

article	<b>K-910</b>
code	1490 100
volume	10 L
weight	9 kg



## K-950 Anticorrosive paste (petroleum jelly)



- It is used for protection of screw connections from corrosion
- It is supplied in 0,5 kg small buckets

article	<b>K-950</b>
code	1490 500
weight	0,5 kg





# GROUP M

## AIR TERMINATION RODS

Reliable vertical air termination rods and masts



- Vertical air termination rod FS meets the requirements of IEC 62305-3:2010 and IEC 50164 concerning air termination rods.
- According to calculations of masts, nodes and support construction, these air termination rods are suitable for normal operation and perception of estimated wind loads 0,55 kPa in I, II, III and IV wind zones according to the building regulations B.1.2-2:2006 "Loads and impacts" during the standard useful life of 30 years!

### УКРАЇНА

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Україна, 79001 Львів, п.Русовід 42 оф.1

«Затверджено»  
І. Кархут  
2016 р.

**ЗВІТ**  
за результатами статичних розрахунків металоконструкцій для  
бліскавкох захисту

ІПП. к.т.н.  
Інженер-конструктор  
Львів - 2016

Дана робота включає в себе статичні розрахунки альбому бліскавкох захисту №57/2016-Бюро неробочого ТД «Системи безпеки» на міцність, стійкість та деформативність. Розрахунки на міцність, стійкість та деформативність проведено на навантаження згідно ДБН В. 1.1-2:2006 «Навантаження і вимоги» (з змінами №1 від 13 серпня 2007 р.) за програмним комплексом «ЛітР 9.6».

Виконані дани для розрахунків приведені згідно чинних норм, у вигляді найбільш небезпечних випадків дії вітрового навантаження. Розрахункові схеми стояків приведені у вигляді консольного стояка довжиною 3-9 м, закріплених на стіні довжиною 3-7м на відмітках до 30 м та довжиною 1,5-4м на діаметрі відміткою до 20м, консольного стояка довжиною 3-9 м на трьох вільно опирах бетонних опорах на відмітках до 30м; консольного стояка довжиною 1,5-7м на анкерованій стяговій плиті на відмітках до 30м (наведені в альбомі робочих кресел). Стійки та опори бліскавкох захисту розраховані на наступні навантаження: вертикальні від власної ваги конструкцій ноги та фактичного кріплення, горизонтальні характеристичне від вітру для 1-4 районів - 40-55 кН/м<sup>2</sup> (з коефіцієнтом γ=0,9 на термін експлуатації 30 років, С<sub>0</sub>=1,0) для висоти до 40,0м відповідно та тиму місцевості ІІ-ІV за [1] рівномірне розподілене по висоті стояків γ<sub>z</sub>=0,95 для категорії конструкцій «ІІ» класу відповідальності «СС1» за [3].

При підборі перетинів конструктивних елементів бліскавкох захисту на розрахункові зусилля використані з використанням другої групи граничних ставів. Перетин підібран за вимогами граничних ставів при дотриманні немою щодо граничної густини [γ]-200. Горизонтальні переміщення консольних опор від нормативних навантажень не перевищують допустимих 1/120 висоти цієї за [5] і не регламентуються для конструкцій такого типу за [4].

Результати проведені статичних розрахунків міцності, стійкості та деформативності конструктивних елементів бліскавкох захисту підтверджують їх надійність використанням чинних норм ДБН В. 1.2-2:2006 «Навантаження і вимоги» (з зм. №1), стійкість при дії розрахункових статичних та динаміческих вітрових навантажень 1-4 вітрових районів на висотах до 500 м над рівнем моря і відміткою

до 30 м над поверхнею землі. Несучу здатність, стійкість та деформативність штанги та опор і вузлів кріплень на максимальні навантаження від тиску вітру, соковід та власної ваги забезпечена. За результатами розрахунків конструкції іншої, вузлів та опор призначенні до нормальної експлуатації та сприйняття розрахункових навантажень протягом нормативного терміну експлуатації 30 років.

### 3. ЛІТЕРАТУРА

- 1.ДБН В.1.2-2:2006 Навантаження і вимоги.
- 2.ДБН В.1.1-12:2006 будівництво в сейсмічних районах України.
- 3.ДБН В.1.1-14:2009 Загальні принципи забезпечення надійності та конструктивної безпеки будівель, споруд, будівельних конструкцій та основ.
- 4.ДСТУ Б.В.1.2-3:2006 Прогини і переміщення.
- 5.ДБН В.2.6-198-2014 Сталеві конструкції. Норми проєктування, виготовлення та монтажу.



### Ready-made sets of air termination rods

art	name	material	type of fixing	page
<b>M-01</b>	Air termination rod for a chimney 1,5..4 m	<b>AL</b>	side	p. 54
<b>M-02</b>	Air termination mast 3..8 m	<b>NI</b>	no fixing	p. 55
<b>M-03</b>	Air termination rod with side fixation 3..6m	<b>NI</b>	side	p. 56
<b>M-04</b>	Air termination rod with a concrete base 1,5..4 m	<b>AL</b>	for flat roof	p. 57
<b>M-05</b>	Air termination rod on a tripod 3..8 m	<b>NI</b>	for flat roof	p. 58-59
<b>M-05</b>	Air termination rod with concrete bases 9..16 m	<b>NI</b>	for flat roof	p. 60-61
<b>M-06</b>	Air termination rod adjustable 0,5..1 m	<b>AL</b>	for steep roof	p. 62
<b>M-06</b>	Air termination rod with a metal base 0,5..3 m	<b>AL</b>	for metal	p. 62-63
<b>M-07</b>	Air termination rod with a metal base 3..8m	<b>NI</b>	for metal	p. 64-65
<b>M-08</b>	Air termination rod with fixation to pipes 1,5..4 m	<b>AL</b>	for pipe	p. 66
<b>M-09</b>	Air termination rod with fixation to pipes 4..6 m	<b>NI</b>	for pipe	p. 67
<b>M-10</b>	Air termination rod for a ridge 1..3 m	<b>AL</b>	for ridge	p. 68-69
<b>M-12</b>	Mast with insulated down conductor 3..7 m	<b>NI</b>	no fixing	p. 70-71

### Masts set for E.S.E. Lightning conductors

art	name	material	type of fixing	page
<b>M-02.2</b>	Mast for E.S.E. Lightning conductor 3-8 m	<b>NI</b>	no fixing	p. 72
<b>M-05.2</b>	Mast for E.S.E. Lightning conductor on a tripod 3-9 m	<b>NI</b>	for flat roof	p. 73-74
<b>M-07.2</b>	Mast for E.S.E. Lightning conductor with a base 3-8 m	<b>NI</b>	for metal	p. 75

### Components for air termination rods

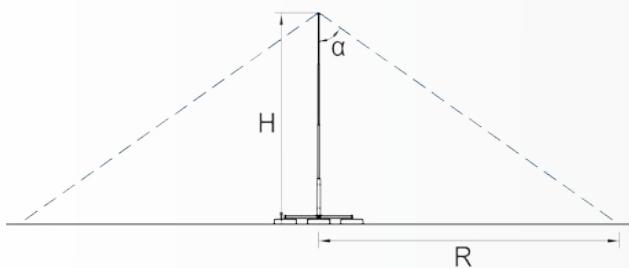
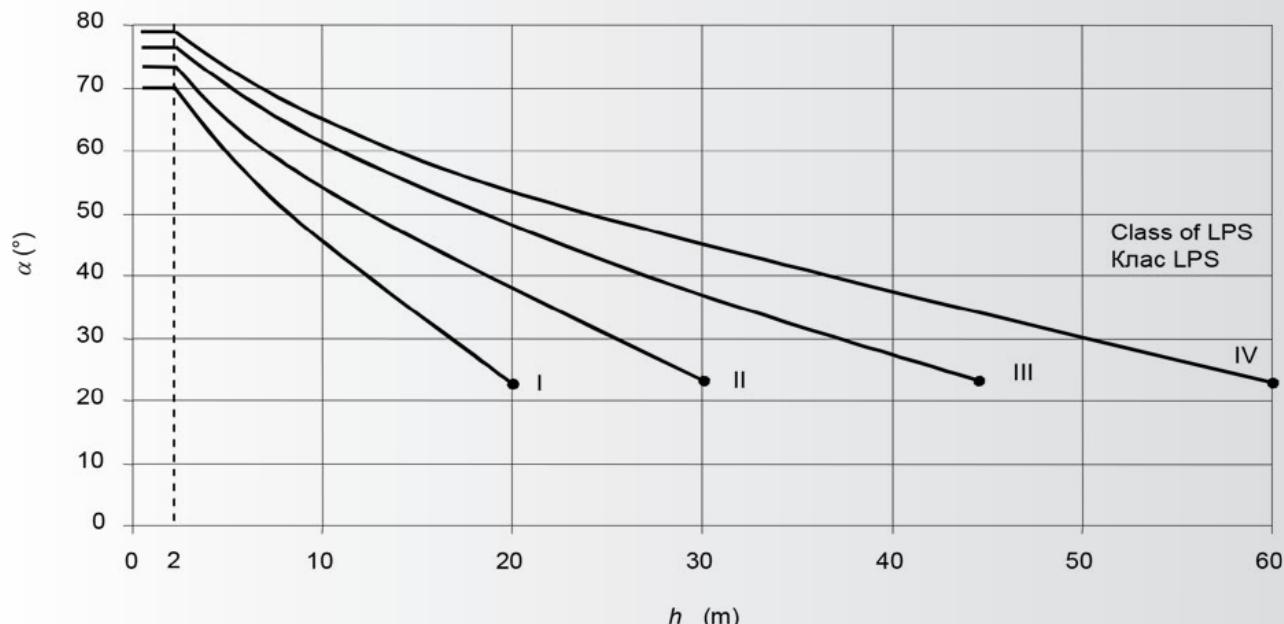
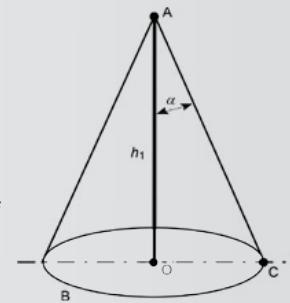
	name	page
• Threaded air termination rods 1,5..4 m, Tubular air termination rods 1,5..3 m		p. 76-77
• Air termination rod holder D16		p. 78-79
• Holders and clamps for air termination masts, metal bases		p. 80-81
• Tripods for air termination masts		p. 82
• Holders of air termination rod to pipes		p. 83
• Holders of air termination masts to constructions		p. 84
• Insulated holders for air termination rod D16		p. 85



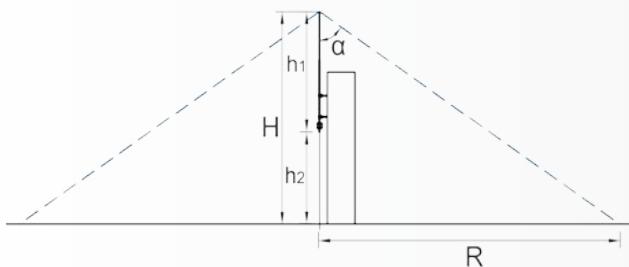
## ZONES OF AIR TERMINATION RODS PROTECTION

Vertical air termination rods form a protection zone, which, according to IEC 62305-3:2010 when calculated by the protection angle method, has a form of straight circular cone whose vertex A is located on the axis of air termination rod, with a one-half angle  $\alpha$ , depending on the LPS class and height of air termination rod  $h_1$ .

The value of the protection angle  $\alpha$  for desired LPS (lightning protection level) at the height of air termination rod  $h$  is selected from the drawing of table 2 IEC 62305-3:2010 (see the drawing below).



For the air termination rods installed on a flat surface (art. M-04, M-05, M-06, M-07, M-10, M-11, M-20), there are the following parameters of protection zones in the table on the right: the value of the protective angle  $\alpha$  and the radius of the protected zone  $R$  at the base.



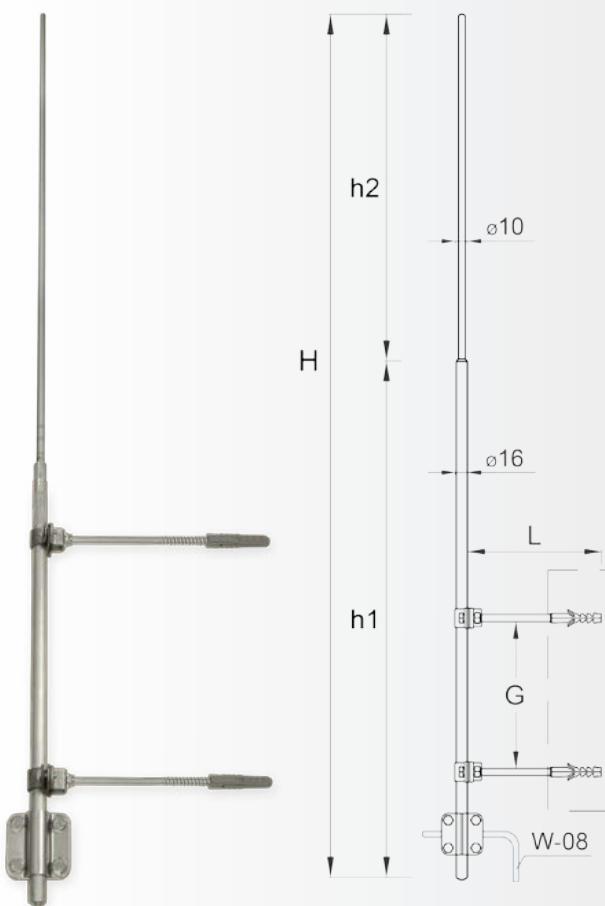
To determine the parameters of the protection zones for air termination rods with side fixation (art. M-01, M-03, M-08, M-09, M-12) it is necessary to take the height of the air termination rod  $H$ , which consists of the height of the air termination rod  $h_1$  and the height of its fixation over the protected surface  $h_2$ .

## PROTECTION ZONES OF VERTICAL AIR TERMINATION RODS FS

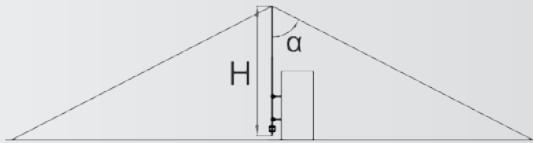
Height of air termin. rod H	Article	type of fixation	material	p.	Protection angle $\alpha$				Protection ray R, m			
					LPS I	LPS II	LPS III	LPS IV	LPS I	LPS II	LPS III	LPS IV
<b>1,0 m</b>	M-06/02	metal base	AL	66	70°	73°	76°	79°	2,7	3,3	4,0	5,1
	M-10/10	for a ridge	AL	72								
<b>1,5 m</b>	M-04/15	concrete base	AL	61								
	M-06/15	metal base	AL	67	70°	73°	76°	79°	4,1	4,9	6,0	7,7
	M-10/15	for a ridge	AL	72								
<b>2,0 m</b>	M-04/20	concrete base	AL	61								
	M-06/20	metal base	AL	67	70°	73°	76°	79°	5,5	6,5	8,0	10,3
	M-10/20	for a ridge	AL	72								
<b>2,5 m</b>	M-04/25	concrete base	AL	61								
	M-06/25	metal base	AL	67	69°	72°	76°	78°	6,5	7,7	11,8	11,8
	M-10/26	for a ridge	AL	73								
<b>3,0 m</b>	M-04/30	concrete base	AL	61								
	M-06/30	metal base	AL	67	69°	71°	74°	76°	7,8	8,7	10,5	12,0
	M-10/31	for a ridge	AL	73								
<b>3,5 m</b>	M-04/35	concrete base	AL	61	65°	69°	73°	75°	7,5	9,1	11,4	13,1
<b>4,0 m</b>	M-04/40	concrete base	AL	61								
	M-05/40	tripod	NI-AL	62	62°	68°	72°	74°	7,5	9,9	12,3	13,9
	M-07/40	metal base	NI-AL	68								
<b>5,0 m</b>	M-05/50	tripod	NI-AL	62								
	M-07/50	metal base	NI-AL	68	59°	65°	70°	72°	8,3	10,7	13,7	15,4
<b>6,0 m</b>	M-05/60	tripod	NI-AL	62								
	M-07/60	metal base	NI-AL	68	56°	62°	68°	71	8,8	11,3	14,9	17,4
<b>7,0 m</b>	M-05/70	tripod	NI	63								
	M-07/70	metal base	NI	69	53°	60°	66°	69°	9,3	12,1	15,7	18,2
<b>8,0 m</b>	M-05/80	tripod	NI	63								
	M-07/80	metal base	NI	69	50°	58°	64°	68°	9,5	12,8	16,4	19,8
<b>9,0 m</b>	M-05/90	tripod	NI	64	48°	56°	63°	66°	10,0	13,3	17,7	20,2
<b>10 m</b>	M-05/100	tripod	NI	64	45°	54°	61°	65°	10,0	13,8	18,0	21,4
<b>11 m</b>	M-05/110	tripod	NI	64	43°	52°	60°	64°	10,3	14,1	19,1	22,6
<b>12 m</b>	M-05/120	tripod	NI	65	41°	50°	59°	63°	10,4	14,3	20,0	23,6
<b>14 m</b>	M-05/140	tripod	NI	65	36°	46°	56°	60°	10,2	14,5	20,8	24,2
<b>16 m</b>	M-05/160	tripod	NI	65	31°	44°	53°	58°	9,6	15,5	21,2	25,6



## AIR TERMINATION RODS WITH SIDE FIXATION

**M-01/15..40** Air termination rod for a chimney 1,5...4 m

- It is used for protection from lightning strikes of chimneys, ventilation ducts or other elements on the roofs of the buildings
- It is fixed with 2 or 3 holders with a dowel art. **M-016**, which go in set
- Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- It forms a protection zone around at an angle  $\alpha$  \*



\* See the values of protection angles and radii at p. 53

## Components and materials of air termination rod:

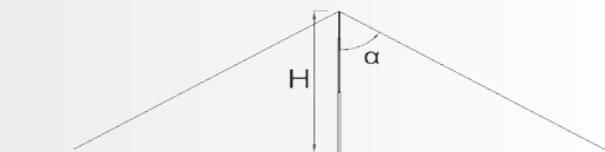
- |  |            |
|--|------------|
| - <b>AL</b> rod $\varnothing 16$ mm with length $h_1$                          | - 1 pc     |
| - <b>AL</b> rod $\varnothing 10$ mm with length $h_2$                          | - 1 pc     |
| - <b>OC</b> rod holder with a dowel <b>M-016</b>                               | - 2..3 pcs |
| - <b>OC</b> connector of a rod with a wire $\varnothing 8..10$ mm <b>C-041</b> | - 1 pc     |

article	<b>M-01/15</b>	<b>M-01/20</b>	<b>M-01/25</b>	<b>M-01/30</b>	<b>M-01/35</b>	<b>M-01/40</b>
<b>code</b>	1501 156	1501 206	1501 256	1501 306	1501 356	1501 406
<b>height H</b>	1500 mm	2000 mm	2500 mm	3000 mm	3500 mm	4000 mm
material of rod	<b>AL</b>	<b>AL</b>	<b>AL</b>	<b>AL</b>	<b>AL</b>	<b>AL</b>
height $h_1$	500 mm	1000 mm	1500 mm	2000 mm	2500 mm	3000 mm
height $h_2$	1000 mm					
diameter	16/10 mm					
rod	M-315	M-320	M-325	M-330	M-135	M-140
fixation	[2x] M-016	[2x] M-016	[2x] M-016	[2x] M-016	[3x] M-016	[3x] M-016
distance betw. hol. G	300..400 mm					
length of holder L	225 mm					
weight	1,10 kg	1,35 kg	1,65 kg	1,90 kg	2,40 kg	2,70 kg

## AIR TERMINATION RODS WITH SIDE FIXATION

**M-02/30..80** Air termination mast 3-8 m

- It is used for protection from lightning strikes of roof elements and equipment or constructions on the roofs of the buildings (ventilators, ventilation ducts, solar collectors etc.)
- It is fixed to the wall with 2 or 3 mast holders art. **M-060** or **M-062** (is ordered separately)
- Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- It forms a protection zone around at an angle  $\alpha^*$



\* See the values of protection angles and radii at p. 53

## Components and materials of air termination rod:

- NI	mast Ø42 mm with length h1	- 0..1 pc
- NI	mast Ø32 mm with length h2	- 1 pc
- AL	rod Ø16 mm with length h3	- 1 pc
- AL	rod Ø10 mm with length h4	- 0..1 pc
- NI	connector with a wire <b>M-032</b> or <b>M-042</b>	- 1 pc
-	set of fixation elements for mast connection	- 1 pc

- Connection of the elements to each other:  
h1-h2 - with a sleeve 42/32, h2-h3 - threaded M16,  
h3-h4 - threaded M10

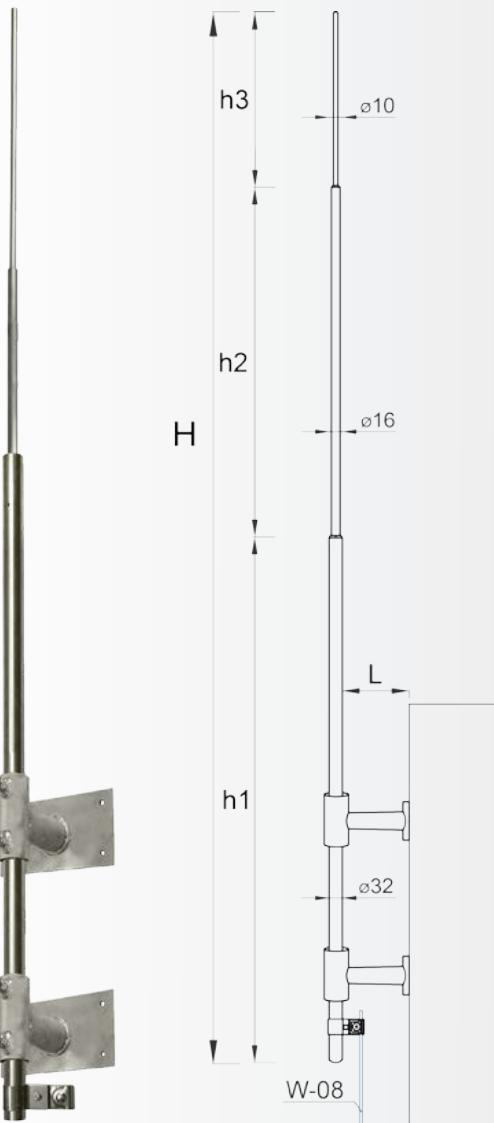
article	<b>M-02/30</b>	<b>M-02/40</b>	<b>M-02/50</b>	<b>M-02/60</b>	<b>M-02/70</b>	<b>M-02/80</b>
<b>code</b>	1502 303	1502 403	1502 503	1502 603	1502 703	1502 803
<b>height H</b>	3000 mm	4000 mm	5000 mm	6000 mm	7000 mm	8000 mm
material of mast	<b>NI - AL</b>					
height h1, Ø42	-	-	-	-	3000 mm	3000 mm
height h2, Ø32	3000 mm	3000 mm	3000 mm	3000 mm	2000 mm	3000 mm
height h3, Ø16	200 mm	1000 mm	1000 mm	2000 mm	1000 mm	1000 mm
height h4, Ø10	-	-	1000 mm	1000 mm	1000 mm	1000 mm
diameter	32/16 mm	32/16 mm	32/16/10 mm	32/16/10 mm	42/32/16/10	42/32/16/10
connector with wire	M-032	M-032	M-032	M-032	M-042	M-042
weight	3,85 kg	4,50 kg	4,70 kg	5,20 kg	10,7 kg	10,9 kg
fixation*	[2x] M-060	[2x] M-060	[2x] M-060	[2x] M-060	[2x] M-062	[3x] M-062

\* Mast holder does not go in set. See more details about M-060 and M-062 on p. 81.

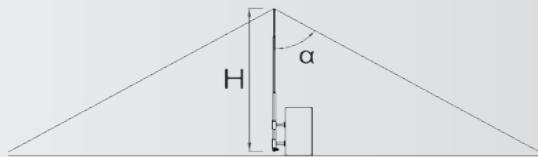


## AIR TERMINATION RODS WITH SIDE FIXATION

### M-03/30..60 Air termination mast with side fixation 3-6 m



- It is used for protection from lightning strikes of roof elements and equipment or constructions on the roofs of the buildings (ventilators, ventilation ducts, solar collectors etc.)
- It is fixed to the wall with 2 mast holders art. M-060, which go in set
- Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- It forms a protection zone around at an angle  $\alpha$ \*



\* See the values of protection angles and radii at p. 53

#### Components and materials of air termination rod:

- NI mast Ø32 mm with length h1 with a sleeve 32/M16 - 1 pc
- AL rod Ø16 mm with length h2 - 1 pc
- AL rod Ø10 mm with length h3 - 1 pc
- ST mast holder for a wall M-060 - 2 pcs
- NI connector of a mast with a wire M-032 - 1 pc

- Connection of the elements to each other:  
h1-h2 - threaded M16, h2-h3 - threaded M10

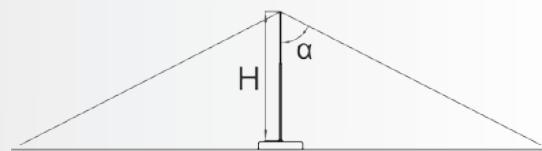
article	<b>M-03/30</b>	<b>M-03/40</b>	<b>M-03/50</b>	<b>M-03/60</b>
<b>code</b>	<b>1503 303</b>	<b>1503 403</b>	<b>1503 503</b>	<b>1503 603</b>
<b>height H</b>	<b>3000 mm</b>	<b>4000 mm</b>	<b>5000 mm</b>	<b>6000 mm</b>
material of mast	<b>NI - AL</b>	<b>NI - AL</b>	<b>NI - AL</b>	<b>NI - AL</b>
height h1, Ø32	3000 mm	3000 mm	3000 mm	3000 mm
height h2, Ø16	200 mm	1000 mm	1000 mm	2000 mm
height h3, Ø10	-	-	1000 mm	1000 mm
diameter	32/16 mm	32/16 mm	32/16/10 mm	32/16/10 mm
con. with a wire	M-032	M-032	M-032	M-032
length to the wall L	120 mm	120 mm	120 mm	120 mm
weight	11,25 kg	11,90 kg	12,10 kg	12,6 kg
fixation	[2x] <b>M-060</b>	[2x] <b>M-060</b>	[2x] <b>M-060</b>	[2x] <b>M-060</b>

- Holders M-060 are reliably fixed to the wall with 4-x anchor bolts
- See more information about holders M-060 on p. 81.

## AIR TERMINATION RODS WITH CONCRETE BASES

**M-04/15..40 Air termination rod with a concrete base 1,5-4 m**

- It is used for protection from lightning strikes of equipment or constructions on the roofs of the buildings (ventilators, ventilation ducts, solar collectors etc.)
- It is set on a concrete base and does not need additional pulling elements • Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- It forms a protection zone around at an angle  $\alpha^*$



\* See the values of protection angles and radii at p. 53

## Components and materials of air termination rod:

- AL rod Ø16 mm with length h1	- 1 pc
- AL rod Ø10 mm with length h2	- 1 pc
- OC connector of a rod with a wire Ø8..10 mm	- 1 pc
- concrete base of air termination rod 30 kg	- 1 pc
- concrete base of air termination rod 15 kg	- 0.1 pc
- a pad for concrete base	- 1 pc

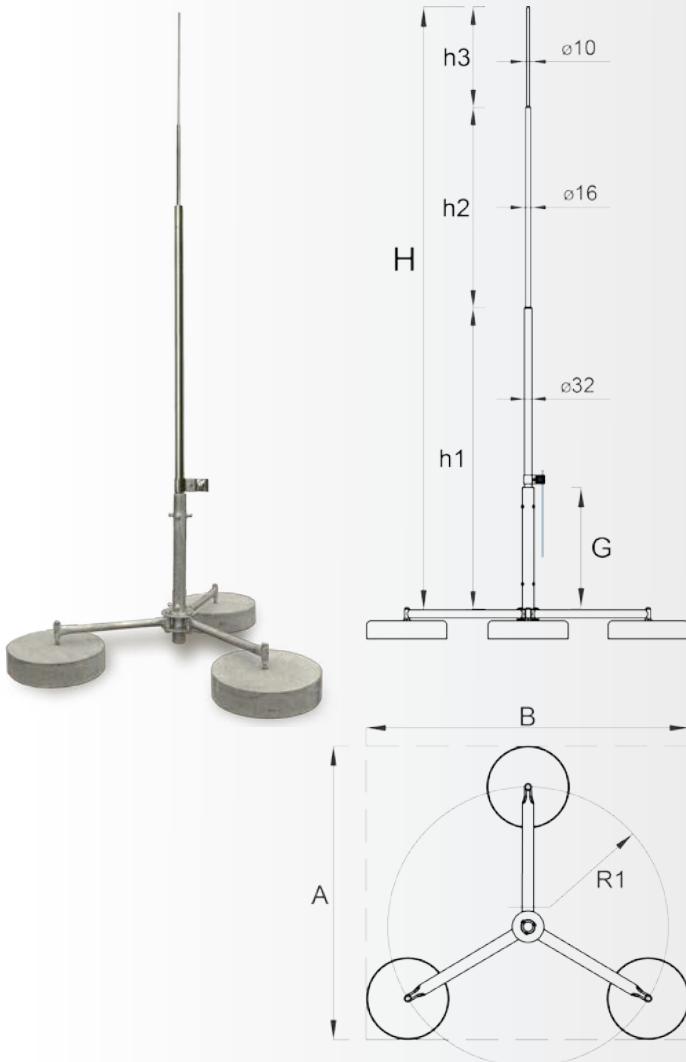
• Masts 3,5 and 4 m high are delivered with 2 concrete bases (30 kg + 15 kg), which are set on each other

article	M-04/15	M-04/20	M-04/25	M-04/30	M-04/35	M-04/40
code	1504 156	1504 206	1504 256	1504 306	1504 356	1504 406
height H	1500 mm	2000 mm	2500 mm	3000 mm	3500 mm	4000 mm
material of rod	AL	AL	AL	AL	AL	AL
height h1, Ø16	500 mm	1000 mm	1500 mm	2000 mm	2500 mm	3000 mm
height h2, Ø10	1000 mm	1000 mm				
diameter of rod	16/10 mm	16/10 mm				
diameter of base	300 mm	400 mm	400 mm	400 mm	300/400 mm	300/400 mm
concrete base	15 kg	30 kg	30 kg	30 kg	30kg +15kg	30kg +15kg
weight	15,9 kg	31,1 kg	31,4 kg	31,7 kg	47,0 kg	47,3 kg

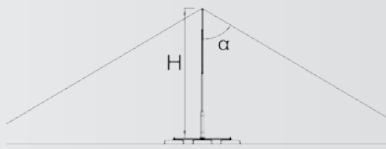
- Concrete bases for masts 3-4 m high for III and IV wind zones are recommended to be glued to the roofing
- The rod can be set at an angle with an adjustable clamp M-091 (see p. 84)



## AIR TERMINATION RODS WITH CONCRETE BASES

**M-05/30..60** Air termination rod on a tripod 3-6 m

- It is used for protection from lightning strikes of roof elements and equipment or constructions on the roofs of the buildings (ventilators, ventilation ducts, solar collectors etc.)
- It is set on a tripod with 3 concrete bases and does not need additional pulling elements
- Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- It forms a protection zone around at an angle  $\alpha$  \*



\* See the values of protection angles and radii at p. 53

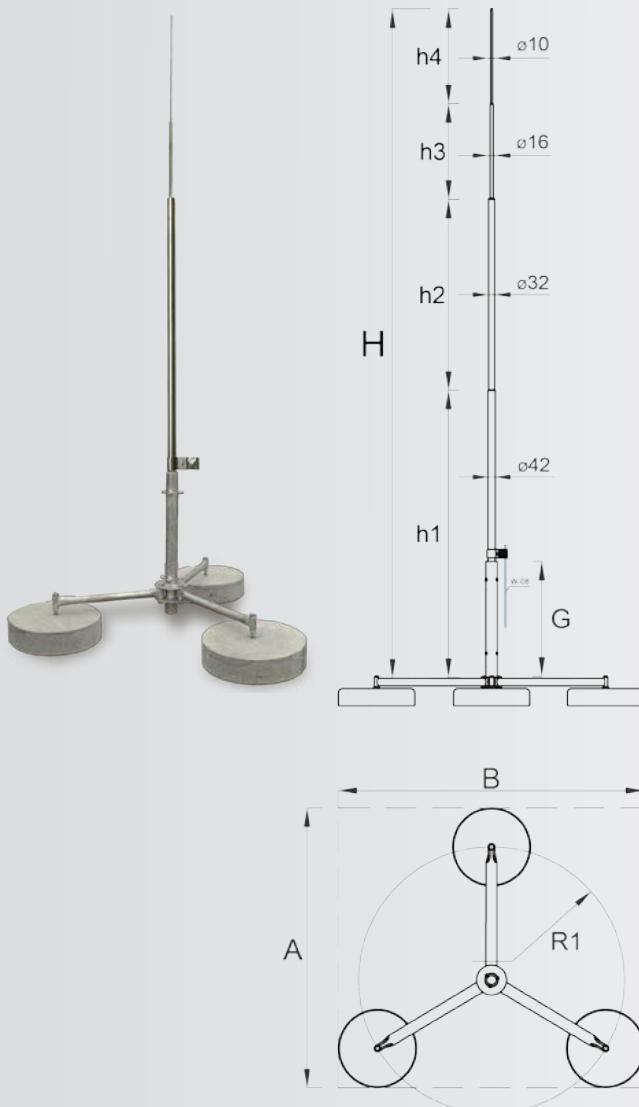
## Components and materials of air termination rod:

- NI mast ø32 mm with length h1	- 1 pc
- AL mast ø16 mm with length h2	- 1 pc
- AL mast ø10 mm with length h3	- 1 pc
- NI connector with a wire M-032	- 1 pc
- ST metal tripod for a mast	- 1 pc
- concrete base with a pad 30 kg	- 3 pcs
- set of fixation elements for mast connection -	1 pc

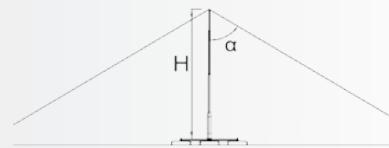
article	M-05/30	M-05/40	M-05/50	M-05/60
code	1505 303	1505 403	1505 503	1505 603
height H	3000 mm	4000 mm	5000 mm	6000 mm
height h1, ø32	3000 mm	3000 mm	3000 mm	3000 mm
height h2, ø16	200 mm	1000 mm	1000 mm	2000 mm
height h3, ø10	-	-	1000 mm	1000 mm
diameter of mast	32/16 mm	32/16 mm	32/16/10 mm	32/16/10 mm
wire clamp	M-032	M-032	M-032	M-032
radius R1	700 mm	700 mm	700 mm	700 mm
height of tripod G	640 mm	640 mm	640 mm	640 mm
installation AxB	1470x1620 mm	1470x1620 mm	1470x1620 mm	1470x1620 mm
concrete bases	[3x] 30 kg	[3x] 30 kg	[3x] 30 kg	[3x] 30 kg
weight	103 kg	104 kg	105 kg	106 kg

- The air termination rod set includes 3 concrete bases, which are made of strong frostproof concrete.
- Concrete bases for masts 6-7 m high for III and IV wind zones are recommended to be glued to the roofing

## AIR TERMINATION RODS WITH CONCRETE BASES

**M-05/70..80 Air termination rod on a tripod 7-8 m**

- It is used for protection from lightning strikes of roof elements and equipment or constructions on the roofs of the buildings (ventilators, ventilation ducts, solar collectors etc.)
- It is set on a tripod with 3.. 6 concrete bases and does not need additional pulling elements
- Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- It forms a protection zone around at an angle  $\alpha$  \*



\* See the values of protection angles and radii at p. 53

**Components and materials of air termination rod:**

- |  |           |
|--|-----------|
| - NI mast Ø42 mm with length h1                | - 1 pc    |
| - NI mast Ø32 mm with length h2                | - 1 pc    |
| - AL rod Ø16 mm with length h3                 | - 1 pc    |
| - AL rod Ø10 mm with length h4                 | - 1 pc    |
| - NI connector with a wire M-042               | - 1 pc    |
| - ST metal tripod for a mast                   | - 1 pc    |
| - concrete base with a pad 30 kg               | - 3/6 pcs |
| - set of fixation elements for mast connection | - 1 pc    |

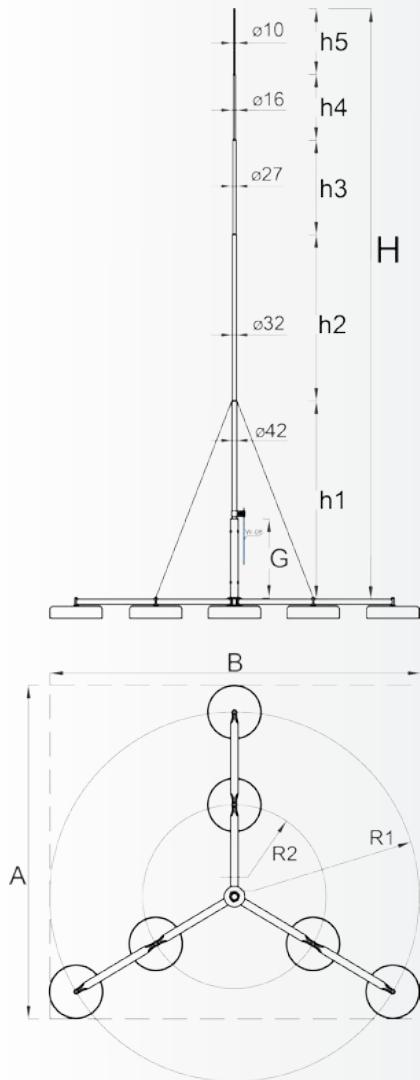
- The lightning protection rod set includes 8 m - 6 concrete bases, two of which are installed on each support

article	<b>M-05/70</b>	<b>M-05/80</b>
code	1505 703	1505 803
height H	7000 mm	8000 mm
height h1, Ø42	3000 mm	3000 mm
height h2, Ø32	3000 mm	3000 mm
height h3, Ø16	1000 mm	1000 mm
height h4, Ø10	-	1000 mm
diameter of mast	42/32/16/10	42/32/16/10
wire clamp	M-042	M-042
radius R1	700 mm	700 mm
height of tripod G	640 mm	640 mm
installation AxB	1470x1620 mm	1470x1620 mm
concrete bases	[3x] 30 kg	[6x] 30 kg
weight	112 kg	210 kg

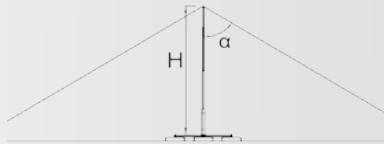
- The air termination rod set includes 3..6 concrete bases, which are made of strong frostproof concrete
- Concrete bases for III and IV wind zones are recommended to be glued to the roofing



## AIR TERMINATION RODS WITH CONCRETE BASES

**M-05/90..110** Air termination rod on a tripod 9-11 m

- It is used for protection from lightning strikes of roof elements and equipment or constructions on the roofs of the buildings (ventilators, ventilation ducts, solar collectors etc.)
- Prefabricated air termination rod is set on a tripod with concrete bases, fixed with guys and does not need any additional installation works
- Installation of air termination rod does not damage the roofing
- Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- It forms a protection zone around at an angle  $\alpha$  \*



\* See the values of protection angles and radii at p. 53

## Components and materials of air termination rod:

- NI	mast Ø42 mm with length h1	- 1 pc
- NI	mast Ø32 mm with length h2	- 1 pc
- NI	mast Ø27 mm with length h3	- 1 pc
- AL	rod Ø16 mm with length h4	- 1 pc
- AL	rod Ø10 mm with length h5	- 1 pc
- NI	connector with a wire M-042	- 1 pc
- ST	metal construction for a mast	- 1 pc
-	concrete base with a pad 30 kg	- 6.9 pcs
-	set of fixation elements for mast connection and guying	- 1 pc

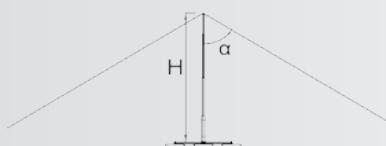
article	M-05/90	M-05/100	M-05/110
code	1505 903	1505 103	1505 113
height H	9 000 mm	10 000 mm	11 000 mm
height h1, Ø42	3000 mm	3000 mm	3000 mm
height h2, Ø32	3000 mm	3000 mm	3000 mm
height h3, Ø27	1000 mm	2000 mm	2000 mm
height h4, Ø16	1000 mm	1000 mm	2000 mm
height h5, Ø10	1000 mm	1000 mm	1000 mm
radius R1	1400 mm	1400 mm	1400 mm
radius R2	700 mm	700 mm	700 mm
installation (AxB)	2550x2830 mm	2550x2830 mm	2550x2830 mm
height of tripod G	640 mm	640 mm	640 mm
concrete bases	[6x] 30 kg	[6x] 30 kg	[9x] 30 kg
weight	220 kg	222 kg	315 kg

- The air termination rod set includes 6..9 concrete bases, which are made of strong frostproof concrete.
- Concrete bases for III and IV wind zones are recommended to be glued to the roofing

## AIR TERMINATION RODS WITH CONCRETE BASES

**M-05/120..160 Air termination rod with concrete bases 12-16 m**

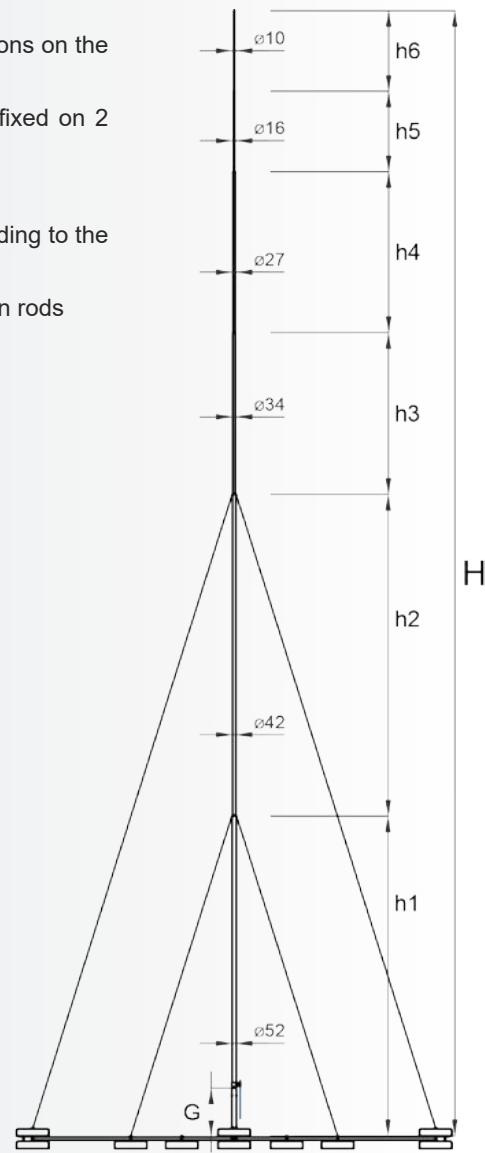
- It is used for protection from lightning strikes of roofs and equipment or constructions on the roofs of the buildings (ventilators, ventilation ducts, solar collectors etc.)
- Prefabricated air termination rod is set on a construction with concrete bases, fixed on 2 levels with guys and does not need any additional installation works
- Installation of air termination rod does not damage the roofing
- Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- It forms a protection zone around at an angle  $\alpha$  \*



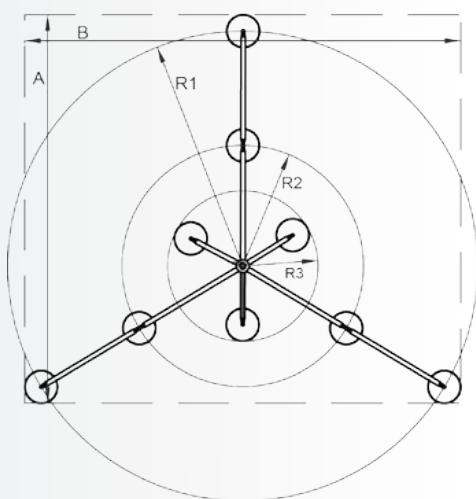
\* See the values of protection angles and radii at p. 53

## Components and materials of air termination rod:

- |   |             |
|---|-------------|
| - <b>NI</b> mast $\varnothing 52$ mm with length $h1$     | - 1 pc      |
| - <b>NI</b> mast $\varnothing 42$ mm with length $h2$     | - 1 pc      |
| - <b>NI</b> mast $\varnothing 34$ mm with length $h3$     | - 1 pc      |
| - <b>NI</b> mast $\varnothing 27$ mm with length $h4$     | - 1 pc      |
| - <b>AL</b> rod $\varnothing 16$ mm with length $h5$      | - 1 pc      |
| - <b>AL</b> rod $\varnothing 10$ mm with length $h6$      | - 1 pc      |
| - <b>NI</b> connector with a wire <b>M-042</b>            | - 1 pc      |
| - <b>ST</b> metal construction for a mast                 | - 1 pc      |
| - concrete base with a pad 30 kg                          | - 9..15 pcs |
| - set of fixation elements for mast connection and guying | - 1 pc      |



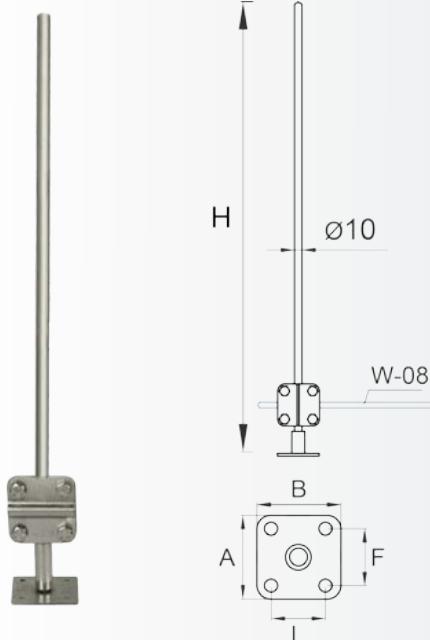
article	<b>M-05/120</b>	<b>M-05/140</b>	<b>M-05/160</b>
code	1505 123	1505 143	1505 163
height H	<b>12 000 mm</b>	<b>14 000 mm</b>	<b>16 000 mm</b>
height $h1$ , $\varnothing 52$	5000 mm	5000 mm	5000 mm
height $h2$ , $\varnothing 42$	3000 mm	4000 mm	5000 mm
height $h3$ , $\varnothing 34$	1000 mm	2000 mm	2000 mm
height $h4$ , $\varnothing 27$	1000 mm	1000 mm	2000 mm
height $h5$ , $\varnothing 16$	1000 mm	1000 mm	1000 mm
height $h6$ , $\varnothing 10$	1000 mm	1000 mm	1000 mm
radius $R1$	3000 mm	3000 mm	3000 mm
radius $R2$	1500 mm	1500 mm	1500 mm
radius $R3$	700 mm	700 mm	700 mm
installation (AxB)	4830x5420 mm	4830x5420 mm	4830x5420 mm
concrete bases	[9x] 30 kg	[12x] 30 kg	[15x] 30 kg
weight	330 kg	425 kg	520 kg



- The air termination rod set includes 9..15 concrete bases, which are made of strong frostproof concrete
- The longest part of mast is 6000 mm



## AIR TERMINATION RODS WITH METAL BASE

**M-06/01..02** Air termination rod with a metal stand 0,5-1 m

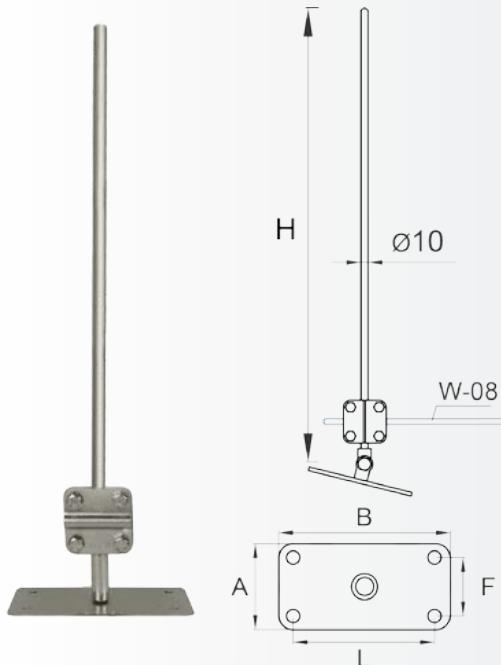
- It is designed for setting on parapets or other constructional elements on the roofing

- It is fixed to a parapet or roofing with 4 roof screws

**Components and materials of air termination rod:**

- |   |        |
|---|--------|
| - AL rod Ø10 mm 0,5 or 1 m high           | - 1 pc |
| - OC connector of a rod with a wire C-021 | - 1 pc |
| - OC metal stand for a rod                | - 1 pc |

article	<b>M-06/01</b>	<b>M-06/02</b>
code	<b>1206 016</b>	<b>1206 026</b>
height H	<b>500 mm</b>	<b>1000 mm</b>
diameter of rod	10 mm	10 mm
material of rod	<b>AL</b>	<b>AL</b>
size of stand AxB	60x60 mm	60x60 mm
dist. betw. openings FxL	40x40 mm	40x40 mm

**M-06/03..04** Adjustable air termination rod 0,5-1 m

- It is used for protection of venting ducts or other protruding elements on steep roofings

- Ability to adjust the tilt angle of air termination rod
- It is fixed to the roof with 4 roof screws

**Components and materials of air termination rod:**

- |   |        |
|---|--------|
| - AL rod Ø10 mm, 0,5 abo 1 m high         | - 1 pc |
| - OC connector of a rod with a wire C-021 | - 1 pc |
| - OC adjusting metal stand                | - 1 pc |

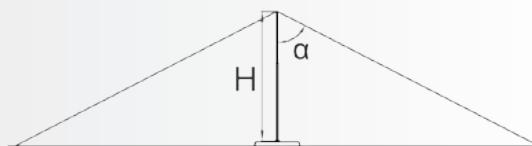
article	<b>M-06/03</b>	<b>M-06/04</b>
code	<b>1206 036</b>	<b>1206 046</b>
height H	<b>500 mm</b>	<b>1000 mm</b>
diameter of rod	10 mm	10 mm
material of rod	<b>AL</b>	<b>AL</b>
size of stand AxB	57x140 mm	57x140 mm
distance between openings FxL	35x116 mm	35x90 mm



## AIR TERMINATION RODS WITH METAL BASE

**M-06/10..30 Air termination rod with a metal base 1,5-3 m**

- It is used for protection from lightning strikes of roof elements and equipment or constructions on the roofs of the buildings (ventilators, ventilation ducts, solar collectors etc.)
- It is set on a metal base and does not need additional pulling elements
- Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- It forms a protection zone around at an angle  $\alpha^*$



\* See the values of protection angles and radii at p. 53

**Components and materials of air termination rod:**

- AL rod Ø16 mm with length h1	- 1 pc
- AL rod Ø10 mm with length h2	- 1 pc
- OC connector of a rod with a wire Ø8..10 mm	- 1 pc
- OC metal base of air termination rod	- 1 pc

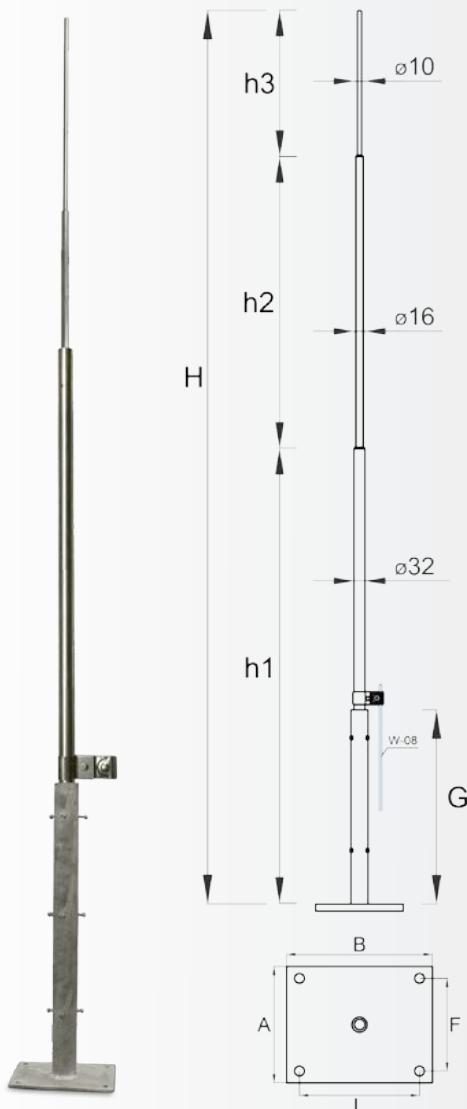
- Connection of the air termination rod elements to each other: base-rod h1 - threaded M16, h1-h2 - threaded M10

article	M-06/10	M-06/15	M-06/20	M-06/25	M-06/30
code	1506 106	1506 156	1506 206	1506 256	1506 306
height H	1000 mm	1500 mm	2000 mm	2500 mm	3000 mm
material of rod	AL	AL	AL	AL	AL
material of base	OC	OC	OC	OC	OC
height h1, Ø16	1000 mm	500 mm	1000 mm	1500 mm	2000 mm
height h2, Ø10	-	1000 mm	1000 mm	1000 mm	1000 mm
diameter of rod	16 mm	16/10 mm	16/10 mm	16/10 mm	16/10 mm
size of base AxB	100x250 mm	100x250 mm	200x250 mm	200x250 mm	200x250 mm
dist. betw. openings FxL	57x205 mm	57x205 mm	157x205 mm	157x205 mm	157x205 mm
weight	3,6 kg	3,8 kg	4,0 kg	4,3 kg	4,6 kg

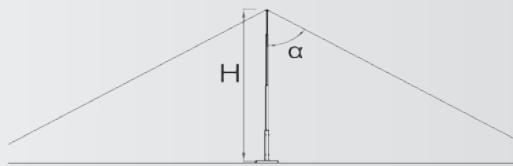
- The metal base is set to the construction with 4 screws M10 or anchor bolts
- The rod can be set at an angle with an adjustable clamp M-091 (see p. 84)



## AIR TERMINATION RODS WITH METAL BASE

**M-07/30..60** Air termination rod with a metal base 3-6 m

- It is used for protection from lightning strikes of roof elements and equipment or constructions on the roofs of the buildings (ventilators, ventilation ducts, solar collectors etc.)
- It is set on a metal base and does not need additional pulling elements
- Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- It forms a protection zone around at an angle  $\alpha^*$



\* See the values of protection angles and radii at p. 53

**Components and materials of air termination rod:**

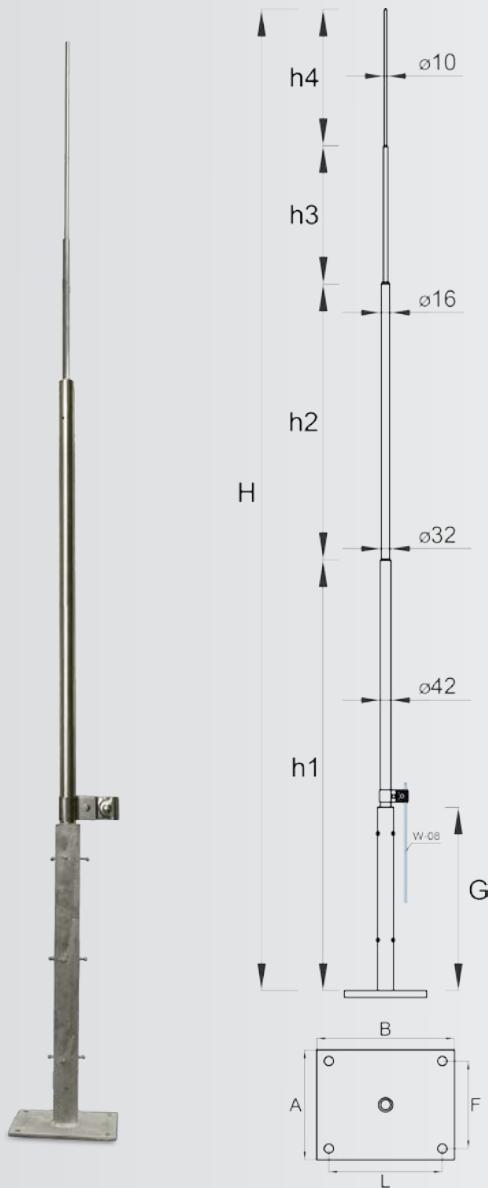
- |  |          |
|--|----------|
| - NI mast Ø32 with length h1                   | - 1 pc   |
| - AL rod Ø16 with length h2                    | - 1 pc   |
| - AL rod Ø10 with length h3                    | - 0.1 pc |
| - NI connector with a wire M-032               | - 1 pc   |
| - ST metal base for a mast                     | - 1 pc   |
| - set of fixation elements for mast connection | - 1 pc   |

- Metal base is reliably fixed to the construction with 4 screws M10 or anchor bolts

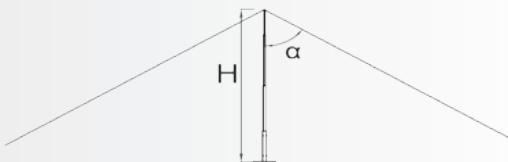
article	<b>M-07/30</b>	<b>M-07/40</b>	<b>M-07/50</b>	<b>M-07/60</b>
<b>code</b>	<b>1507 303</b>	<b>1507 403</b>	<b>1507 503</b>	<b>1507 603</b>
<b>height H</b>	<b>3000 mm</b>	<b>4000 mm</b>	<b>5000 mm</b>	<b>6000 mm</b>
material of mast	<b>NI - AL</b>	<b>NI - AL</b>	<b>NI - AL</b>	<b>NI - AL</b>
height h1, Ø32	3000 mm	3000 mm	3000 mm	3000 mm
height h2, Ø16	200 mm	1000 mm	1000 mm	3000 mm
height h3, Ø10	-	-	1000 mm	1000 mm
diameter	32/16 mm	32/16 mm	32/16/10 mm	32/16/10 mm
height of base G	900 mm	900 mm	900 mm	900 mm
size of base AxB	200x250 mm	200x250 mm	200x250 mm	200x250 mm
dist. betw. openings FxL	150x200 mm	150x200 mm	150x200 mm	150x200 mm
wire clamp	M-032	M-032	M-032	M-032
fixation	4x M10	4x M10	4x M10	4x M10
weight	14,7 kg	14,9 kg	15,0 kg	16,0 kg



## AIR TERMINATION RODS WITH METAL BASE

**M-07/70..80 Air termination rod with a metal base 7-8 m**

- It is used for protection from lightning strikes of roof elements and equipment or constructions on the roofs of the buildings (ventilators, ventilation ducts, solar collectors etc.)
- It is set on a metal base and does not need additional pulling elements
- Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- It forms a protection zone around at an angle  $\alpha$  \*



\* See the values of protection angles and radii at p. 53

## Components and materials of air termination rod:

- |  |        |
|--|--------|
| - NI mast Ø42 mm with length h1                | - 1 pc |
| - NI mast Ø32 mm with length h2                | - 1 pc |
| - AL rod Ø16 mm with length h3                 | - 1 pc |
| - AL rod Ø10 mm with length h4                 | - 1 pc |
| - NI connector with a wire M-042               | - 1 pc |
| - ST metal base for a mast                     | - 1 pc |
| - set of fixation elements for mast connection | - 1 pc |

- Metal base is reliably fixed to the construction with 4 screws M10 or anchor bolts

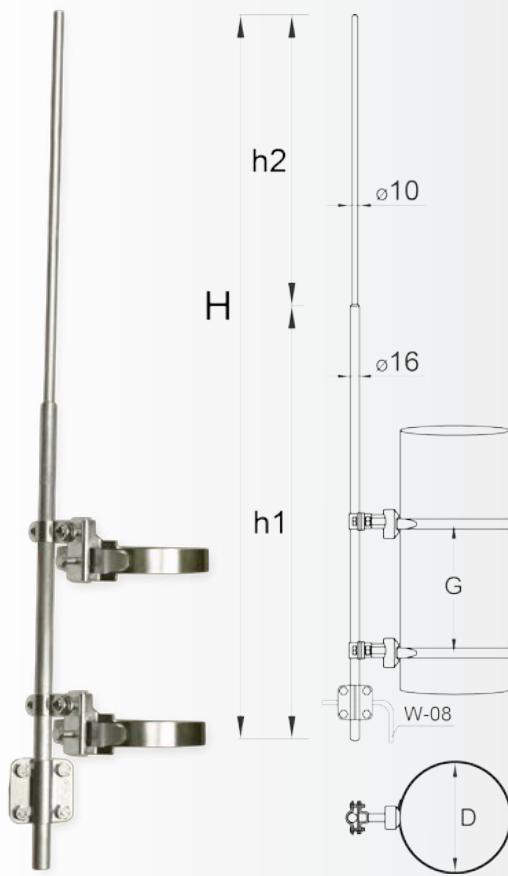
## article

**M-07/70****M-07/80**

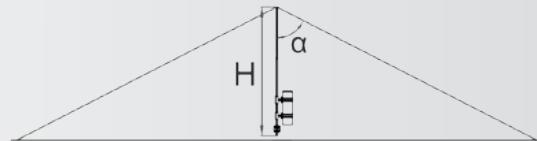
code	<b>1507 703</b>	<b>1507 803</b>
height H	7000 mm	8000 mm
material of mast	<b>NI - AL</b>	<b>NI - AL</b>
height h1, Ø42	3000 mm	3000 mm
height h2, Ø32	2000 mm	3000 mm
height h3, Ø16	1000 mm	1000 mm
height h4, Ø10	1000 mm	1000 mm
diameter	42/32/16 mm	42/32/16 mm
height of base G	900 mm	900 mm
size of base AxB	200x250 mm	200x250 mm
dist. betw. openings FxL	150x200 mm	150x200 mm
wire clamp	M-042	M-042
fixation	4x M10	4x M10
weight	22 kg	23 kg



## AIR TERMINATION RODS WITH FIXATION TO PIPES

**M-08/15..40** Air termination rod with fixation to pipes 1,5-4 m

- It is used for protection from lightning strikes of smoke stacks, ventilation ducts and other equipment or constructions on the roofs of the buildings
- It is set on pipes and constructions and fixed with 2 pipe holders  $\varnothing 100..300$  mm or  $\varnothing 300..500$  mm
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- It forms a protection zone around at an angle  $\alpha^*$



\* See the values of protection angles and radii at p. 53

## Components and materials of air termination rod:

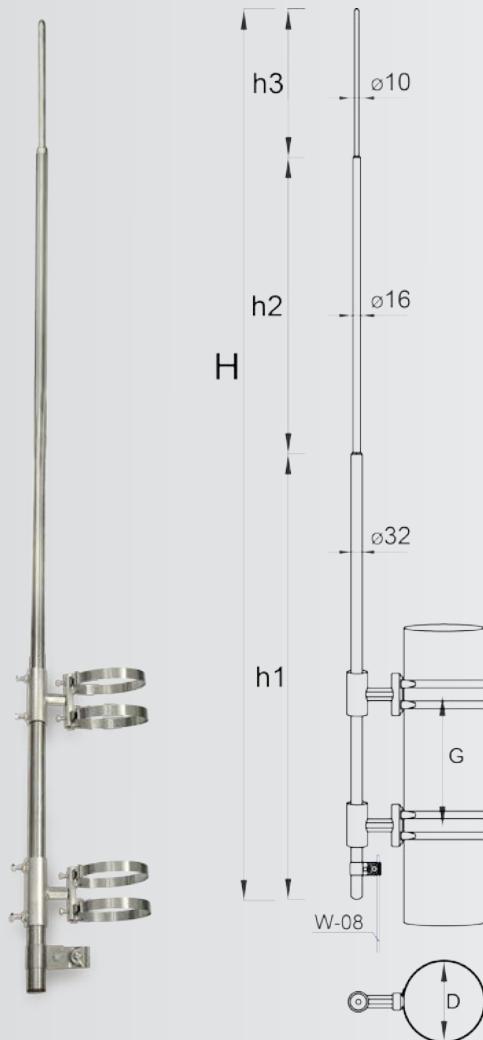
- |  |         |
|--|---------|
| - AL rod $\varnothing 16$ MM with length $h_1$             | - 1 pc  |
| - AL rod $\varnothing 10$ MM with length $h_2$             | - 1 pc  |
| - OC connector of a rod with a wire $\varnothing 8..10$ mm | - 1 pc  |
| - NI universal rod holder $\varnothing 16$ for a pipe      | - 2 pcs |

article	<b>M-08/15</b>	<b>M-08/20</b>	<b>M-08/25</b>	<b>M-08/30</b>	<b>M-08/35</b>	<b>M-08/40</b>
code	<b>1508 156</b>	<b>1508 206</b>	<b>1508 256</b>	<b>1508 306</b>	<b>1508 356</b>	<b>1508 406</b>
height H	<b>1500 mm</b>	<b>2000 mm</b>	<b>2500 mm</b>	<b>3000 mm</b>	<b>3500 mm</b>	<b>4000 mm</b>
height $h_1$ , $\varnothing 16$	500 mm	100 mm	1500 mm	2000 mm	2500 mm	3000 mm
height $h_2$ , $\varnothing 10$	1000 mm					
diameter of rod	16/10 mm					
holder	[2x] M-070					
distance betw. fix. G	300..400 mm	300..400 mm	400..500 mm	400..500 mm	500..700 mm	500..700 mm
diameter of pipe D	100..300 mm					
length of sleeve L	1000 mm					
weight	1,50 kg	1,75 kg	2,05 kg	2,30 kg	2,70 kg	3,10 kg

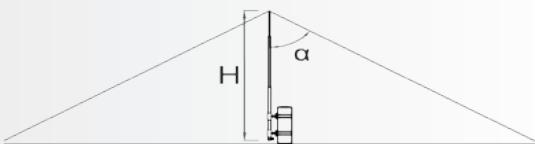
If you need to fasten air termination rod to a pipe with diameter 300..500 mm,  
indicate the following articles and codes of air termination rods:

article	<b>M-08/16</b>	<b>M-08/21</b>	<b>M-08/26</b>	<b>M-08/31</b>	<b>M-08/36</b>	<b>M-08/41</b>
code	<b>1508 166</b>	<b>1508 216</b>	<b>1508 266</b>	<b>1508 316</b>	<b>1508 366</b>	<b>1508 416</b>
height H	<b>1500 mm</b>	<b>2000 mm</b>	<b>2500 mm</b>	<b>3000 mm</b>	<b>3500 mm</b>	<b>4000 mm</b>
holder	[2x] M-071					

## AIR TERMINATION RODS WITH FIXATION TO PIPES

**M-09/40..60** Air termination rod with fixation to pipes 4-6 m

- It is used for protection from lightning strikes of smoke stacks, ventilation ducts and other equipment or constructions on the roofs of the buildings
- It is set on pipes and constructions and fixed with 2 pipe holders ø100..300 mm or ø300..500 mm
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- It forms a protection zone around at an angle  $\alpha$  \*



\* See the values of protection angles and radii at p. 53

## Components and materials of air termination rod:

-	NI	mast ø32 mm with length h1 with a sleeve	-	1 pc
-	AL	rod ø16 mm with length h2	-	1 pc
-	AL	rod ø16 mm with length h3	-	1 pc
-	NI	mast connector with a wire ø8..10 M-032	-	1 pc
-	NI	double mast holder ø32 for a pipe	-	2 pcs

article	<b>M-09/40</b>	<b>M-09/50</b>	<b>M-09/60</b>
code	<b>1509 403</b>	<b>1509 503</b>	<b>1509 603</b>
height H	<b>4000 mm</b>	<b>5000 mm</b>	<b>6000 mm</b>
height h1, ø32	3000 mm	3000 mm	3000 mm
height h2, ø16	1000 mm	1000 mm	2000 mm
height h3, ø10	-	1000 mm	1000 mm
diameter of rod	32/16 mm	32/16/10 mm	32/16/10 mm
holder	<b>[2x] M-076</b>	<b>[2x] M-076</b>	<b>[2x] M-076</b>
distance betw. fix. G	400..600 mm	500..700 mm	500..700 mm
diameter of pipe D	100..300 mm	100..300 mm	100..300 mm
length of sleeve L	1000 mm	1000 mm	1000 mm
weight	6,20 kg	6,40 kg	6,90 kg

If you need to fasten air termination rod to a pipe with diameter 300..500 mm,  
indicate the following articles and codes of air termination rods:

article	<b>M-09/41</b>	<b>M-09/51</b>	<b>M-09/61</b>
code	<b>1509 413</b>	<b>1509 513</b>	<b>1509 613</b>
height H	<b>4000 mm</b>	<b>5000 mm</b>	<b>6000 mm</b>
holder	<b>[2x] M-073</b>	<b>[2x] M-073</b>	<b>[2x] M-073</b>



## AIR TERMINATION RODS FOR A RIDGE

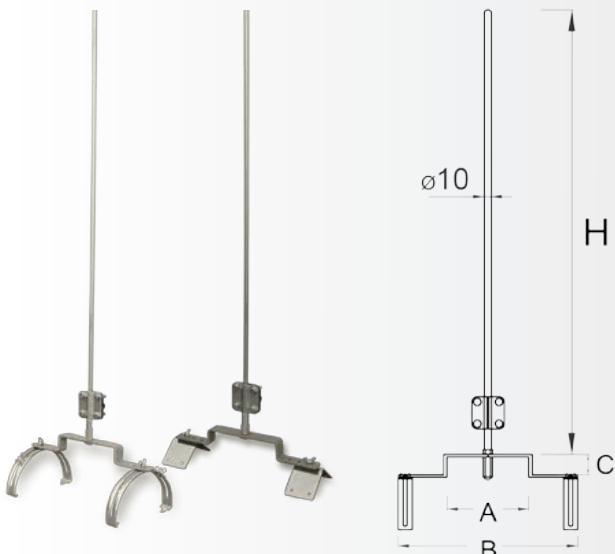
**M-10/10..11** Air termination rod for a ridge 1 m

- It is used for protection from lightning strikes of roof parts and equipment on the roofs of the buildings (ventilation ducts, solar collectors etc.)
- It is set on a ridge of a roof and fixed with a ridge holder for air termination rod
- It forms a protection zone around at an angle  $\alpha^*$

**Components of air termination rod:**

- duralumin rod Ø10 mm, 1 m long;
- air termination rod holder for a ridge;
- connector art. C-021 for connecting a wire with air termination rod

article	<b>M-10/10</b>		<b>M-10/11</b>	
code	1510 106	1510 108	1510 116	1510 118
material of rod	AL	AL	AL	AL
material of holder	OC	LA	OC	LA
height H	1000 mm		1000 mm	
diameter of rod	10 mm		10 mm	
holder	semicircular		straight	

**M-10/15..20** Air termination rod for a ridge 1,5..2 m

- It is used for protection from lightning strikes of roof parts and equipment on the roofs of the buildings (ventilation ducts, solar collectors etc.)

- It is set on a ridge of a roof and fixed with a ridge holder for air termination rod

- It forms a protection zone around at an angle  $\alpha^*$

**Components of air termination rod:**

- duralumin rod Ø10 mm, 1,5..2 m long;
- double holder for a ridge with support;
- connector art. C-021 for wire connection.

article	<b>M-10/15</b>		<b>M-10/16</b>		<b>M-10/20</b>		<b>M-10/21</b>	
code	1510 156	1510 158	1510 166	1510 168	1510 206	1510 208	1510 216	1510 218
material of rod	AL	AL	AL	AL	AL	AL	AL	AL
material of holder	OC	LA	OC	LA	OC	LA	OC	LA
height H	1500 mm		1500 mm		2000 mm		2000 mm	
diameter of rod	10 mm		10 mm		10 mm		10 mm	
size of supp. A/B/C	200/400/30 mm		200/400/30 mm		200/400/30 mm		200/400/30 mm	
holder	[2x] semicircular		[2x] straight		[2x] semicircular		[2x] straight	



## AIR TERMINATION RODS FOR A RIDGE

**M-10/26..31 Air termination rod for a ridge 2,5..3 m**

- It is used for protection from lightning strikes of roof parts and equipment on the roofs of the buildings (ventilation ducts, aerials, solar collectors etc.)
- It is fixed on a ridge of a roof with 4 ridge holders for air termination rod
- It forms a protection zone around at an angle  $\alpha^*$

• Components of air termination rod:

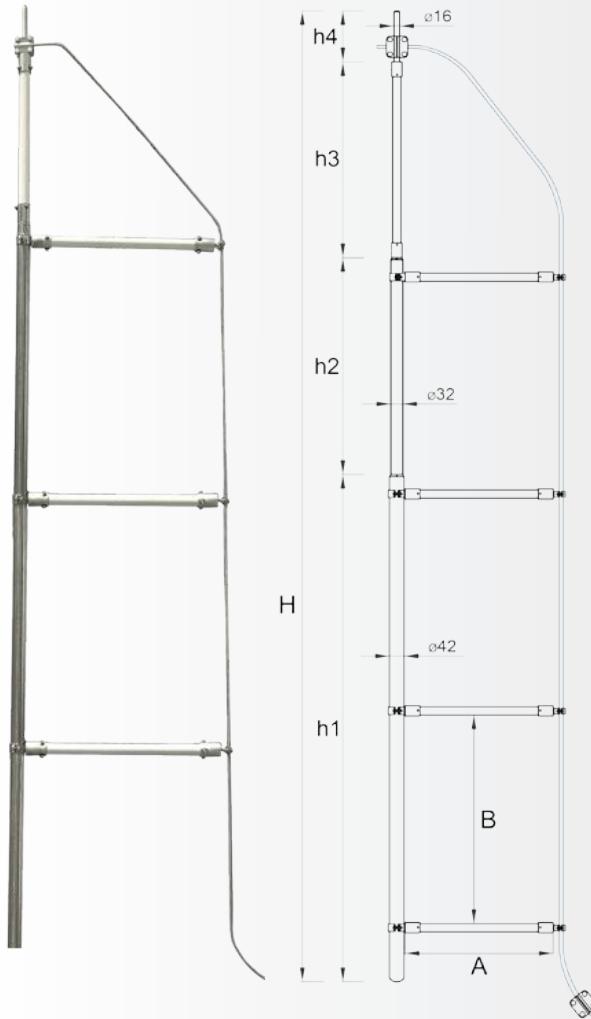
- duralumin rod Ø16/10 mm 2,5..3 m long;
- double holder for a ridge with support;
- connector art. C-041 for wire connection.

article	<b>M-10/26</b>		<b>M-10/31</b>	
code	1510 266	1510 268	1510 316	1510 318
material of rod	AL	AL	AL	AL
material of holder	OC	LA	OC	LA
height H	2500 mm		3000 mm	
height h1, Ø16	1500 mm		2000 mm	
height h2, Ø10	1000 mm		1000 mm	
diameter of rod	16/10 mm		16/10 mm	
size of supp. A/B/C	200/400/30 mm		200/400/30 mm	
holder	[4x] straight		[4x] straight	
length of holder F	300 mm		300 mm	

- straight ridge holders are fixed with roof screws or nails



## MASTS WITH INSULATED DOWN CONDUCTOR

**M-12/30..70 Mast with insulated down conductor 3-7 m**

- It is used for protection from lightning strikes of roof elements and equipment or constructions, which cannot be directly connected to down conductors, or for which insulating distance to the down conductor should be provided

- Down conductor insulated from the mast creates safe insulation distance between mast and down conductor

- It is fixed with mast holders to the wall art. M-060..062, tripod M-065..066, metal base M-054 or pipe holders M-074..77 (can be ordered separately)

- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods

- It forms a protection zone around at an angle  $\alpha^*$

\* See the values of protection angles and radii at p. 53

## Components and materials of air termination rod:

- NI	mast ø42 mm with l. h1 with sleeve 42/32	- 0..1 pc
- NI	mast ø32 mm with l. h2 with sleeve 32/M16	- 1 pc
- AL	tip ø16 mm with length h4	- 1 pc
-	insulation rod M16/M16 with length h3	- 1 pc
-	insulation rod M16/M8 with length A	- 3..7 pcs
- OC	wire holder for insulation rod K-830	- 3..7 pcs
- OC	insulation rod holder for mast	- 3..7 pcs
- OC	tip connector with a wire C-041	- 1 pc
- OC	connector of down conductor with wire C-033	- 1 pc
-	set of fixation elements for mast connection	- 1 pc

article	<b>M-12/30</b>	<b>M-12/40</b>	<b>M-12/50</b>	<b>M-12/60</b>	<b>M-12/70</b>
<b>code</b>	1512 303	1512 403	1512 503	1512 603	1512 703
<b>height H</b>	3000 mm	4000 mm	5000 mm	6000 mm	7000 mm
height h1, ø42	-	-	3000 mm	3000 mm	3000 mm
height h2, ø32	2000 mm	3000 mm	1000 mm	2000 mm	3000 mm
height of insul. rod h3	1000 mm				
height of tip h4	200 mm				
insulation rod A	[3x] 750 mm	[4x] 750 mm	[5x] 750 mm	[6x] 750 mm	[7x] 750 mm
dist. betw. insulation B	1000 mm				
weight	7,2 kg	9,0 kg	14,1 kg	16,1 kg	18,5 kg

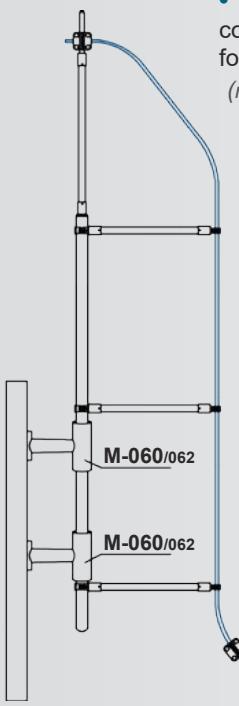
\* Mast holders does not go in set. See the next page to select mast holders



## Installation examples for air termination rod with insulated down conductor

### Fixation of mast M-12 to the wall or construction

- Mast **M-12** is fixed to the walls or constructions with 2 or 3 mast holders for walls art. **M-060** or **M-062**  
(more information about holders on p. 81)

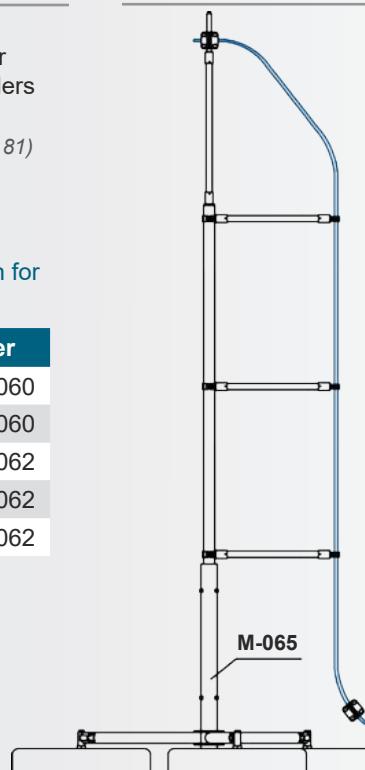


Examples of holders selection for mast setting

height	mast	holder
3 m	<b>M-12/30</b>	[2x] M-060
4 m	<b>M-12/40</b>	[2x] M-060
5 m	<b>M-12/50</b>	[2x] M-062
6 m	<b>M-12/60</b>	[2x] M-062
7 m	<b>M-12/70</b>	[3x] M-062

### Setting of mast M-12 on a flat roof

- Mast **M-12** is fixed to the flat roofing a tripod for a mast with concrete bases art. **M-065** or **M-066**  
(more information about tripod on p. 82)

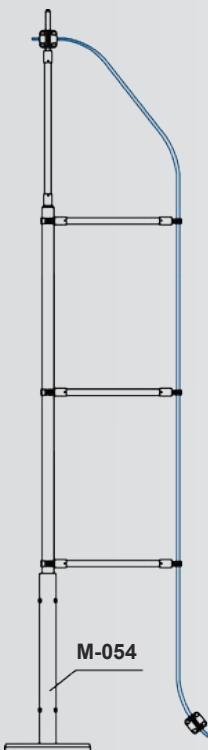


Examples of holders selection for mast setting

height	mast	tripod
3 m	<b>M-12/30</b>	M-065
4 m	<b>M-12/40</b>	M-065
5 m	<b>M-12/50</b>	M-065
6 m	<b>M-12/60</b>	M-065
7 m	<b>M-12/70</b>	M-066

### Installation of mast M-12 on a metal construction

- Mast **M-12** is fixed to metal platform or construction with metal base for a mast art. **M-054** or **M-055**  
(more information about metal base on p. 80)

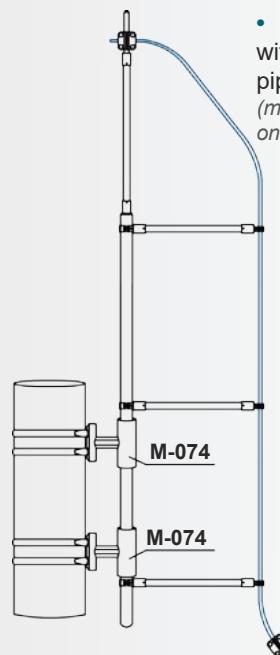


Examples of holders selection for mast setting

height	mast	holder
3 m	<b>M-12/30</b>	M-054
4 m	<b>M-12/40</b>	M-054
5 m	<b>M-12/50</b>	M-054
6 m	<b>M-12/60</b>	M-054
7 m	<b>M-12/70</b>	M-055

### Fixation of mast M-12 to the pipe

- Mast **M-12** is fixed to metal pipe with universal double mast holders for pipes art. **M-074..077**  
(more information about holders for pipes on p. 83)

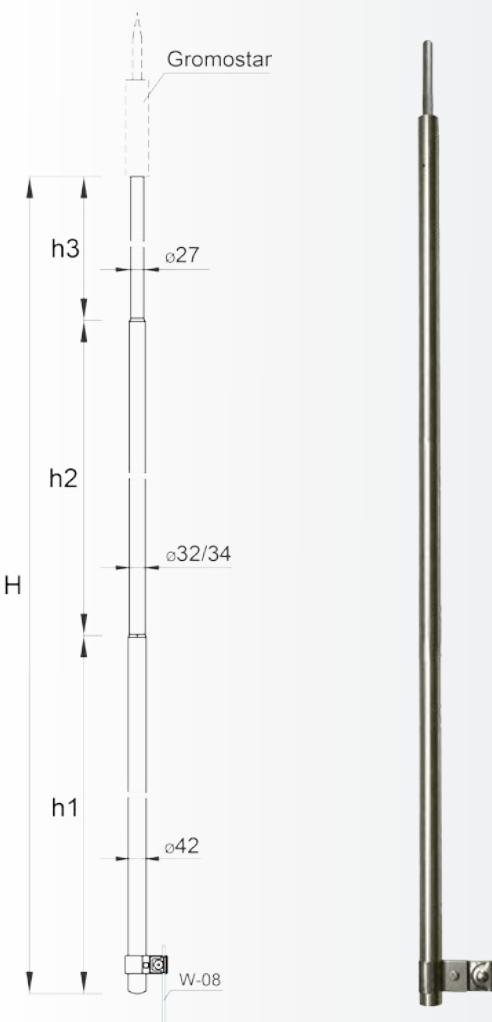


Examples of holders selection for mast setting

height	mast	holder
for pipes Ø 100...300 mm		
3 m	<b>M-12/30</b>	[2x] M-074
4 m	<b>M-12/40</b>	[2x] M-074
5 m	<b>M-12/50</b>	[2x] M-075
6 m	<b>M-12/60</b>	[3x] M-075
for pipes Ø 300...500 mm		
3 m	<b>M-12/30</b>	[2x] M-076
4 m	<b>M-12/40</b>	[2x] M-076
5 m	<b>M-12/50</b>	[2x] M-077
6 m	<b>M-12/60</b>	[3x] M-077



## MASTS FOR E.S.E. LIGHTNING CONDUCTORS

**M-02/32..82 Mast for E.S.E. Lightning conductor 3-8 m**

- It is used for protection from lightning strikes of roof elements and equipment or constructions on the roofs of the buildings.
- Allows to fix E.S.E. lightning conductor like **Gromostar**
- It is fixed to the wall with 2 or 3 mast holders art. **M-060** or **M-062** (is ordered separately)
- Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- Connection of E.S.E. lightning conductor Gromostar with a mast is threaded M16

**Components and materials of air termination rod:**

- |   |           |
|---|-----------|
| - <b>NI</b> mast Ø42,4 mm with l. h1 with sleeve                        | - 0..1 pc |
| - <b>NI</b> mast Ø32 or Ø27 mm with l. h2 with sleeve                   | - 1 pc    |
| - <b>NI</b> mast Ø27 mm with l. h3 with sleeve                          | - 0..1 pc |
| - <b>AL</b> tip Ø16 mm, 200 mm long                                     | - 1 pc    |
| - <b>NI</b> connector of mast with a dowel <b>M-032</b> or <b>M-042</b> | - 1 pc    |
| - set of fixing elements for mast connection                            | - 1 pc.   |



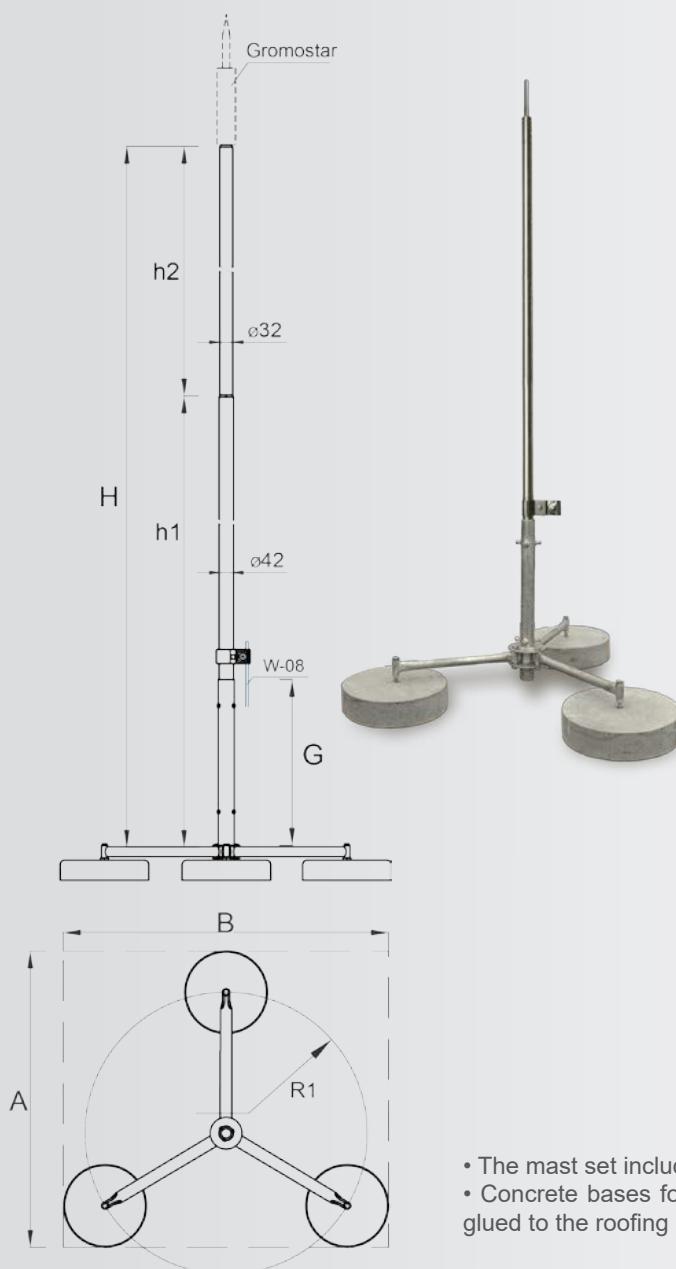
*Suited for installation of E.S.E.  
lightning conductor GROMOSTAR!*

article	<b>M-02/32</b>	<b>M-02/42</b>	<b>M-02/52</b>	<b>M-02/62</b>	<b>M-02/72</b>	<b>M-02/82</b>
code	1502 323	1502 423	1502 523	1502 623	1502 723	1502 823
height H	3000 mm	4000 mm	5000 mm	6000 mm	7000 mm	8000 mm
material of mast	<b>NI</b>	<b>NI</b>	<b>NI</b>	<b>NI</b>	<b>NI</b>	<b>NI</b>
height h1, Ø42	-	3000 mm	3000 mm	3000 mm	3000 mm	3000 mm
height h2, Ø32..34	3000 mm	1000 mm	2000 mm	3000 mm	3000 mm	3000 mm
height h3, Ø25	-	-	-	-	1000 mm	2000 mm
diameter of mast	32 mm	42/32 mm	42/32 mm	42/32 mm	42/34/27 mm	42/34/27 mm
connector with wire	M-032	M-042	M-042	M-042	M-042	M-042
weight	3,9 kg	8,0 kg	9,0 kg	10,4 kg	11,0 kg	11,4 kg
holders*	[2x] M-060	[2x] M-062	[2x] M-062	[2x] M-062	[3x] <b>M-062</b>	[3x] <b>M-062</b>

\* Mast holder does not go in set. See more details about M-060 and M-062 on p. 81.



## MASTS FOR E.S.E. LIGHTNING CONDUCTORS

**M-05/32..62 Mast for E.S.E. Lightning conductor on a tripod 3-6 m**

- It is used for protection from lightning strikes of roof elements and equipment or constructions on the roofs of the buildings.
- Allows to fix E.S.E. lightning conductor like [Gromostar](#)
- It is set on a tripod with 3 metal bases and does not need additional pulling elements
- Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- Connection of E.S.E. lightning conductor [Gromostar](#) with a mast is threaded M16

**Components and materials of air termination rod:**

- |   |           |
|---|-----------|
| - NI mast Ø42,4 mm with l. h1 with sleeve                                 | - 0..1 pc |
| - NI mast Ø32 mm with l. h2 with sleeve                                   | - 1 pc    |
| - AL tip Ø16 mm, 200 mm long  | - 1 pc    |
| - NI connector with a wire <a href="#">M-032</a> or <a href="#">M-042</a> | - 1 pc    |
| - ST metal tripod for a mast <a href="#">M-065</a>                        | - 1 pc    |
| - concrete base 30 kg with a pad  | - 3 pcs   |
| - set of fixing elements for mast connection                              | - 1 pc.   |



*Suited for installation of E.S.E.  
lightning conductor GROMOSTAR!*

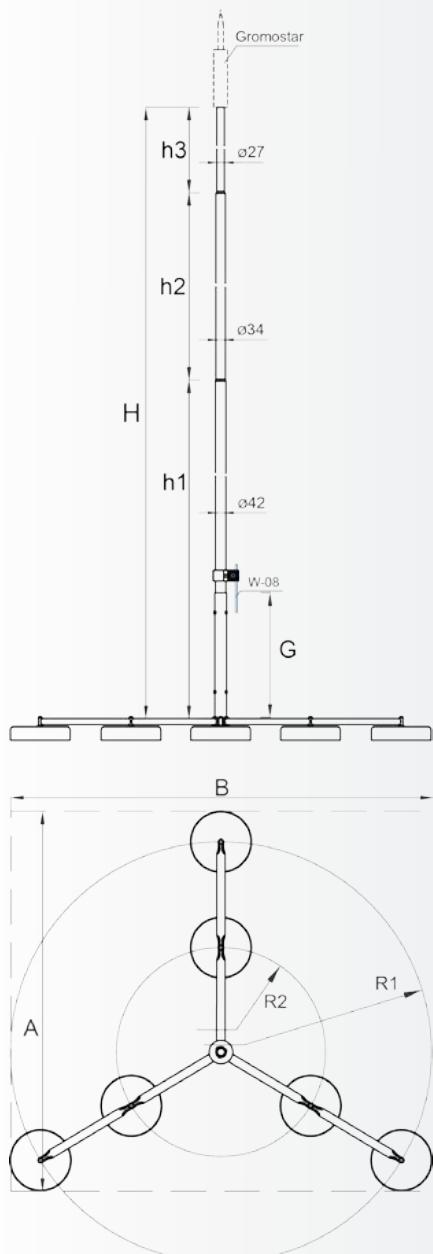
- The mast set includes 3 concrete bases, which are made of strong frostproof concrete
- Concrete bases for 6 m high masts, for III and IV wind zones are recommended to be glued to the roofing

article	<b>M-05/32</b>	<b>M-05/42</b>	<b>M-05/52</b>	<b>M-05/62</b>
<b>code</b>	<b>1505 323</b>	<b>1505 423</b>	<b>1505 523</b>	<b>1505 623</b>
<b>height H</b>	<b>3000 mm</b>	<b>4000 mm</b>	<b>5000 mm</b>	<b>6000 mm</b>
height h1, Ø42	-	3000 mm	3000 mm	3000 mm
height h2, Ø32	3000 mm	1000 mm	2000 mm	3000 mm
diameter of mast	32 mm	42/32 mm	42/32 mm	42/32 mm
wire clamp	M-32	M-42	M-42	M-42
radius R1	700 mm	700 mm	700 mm	700 mm
height of a tripod G	640 mm	640 mm	640 mm	640 mm
installation (KxL)	1470x1620 mm	1470x1620 mm	1470x1620 mm	1470x1620 mm
concrete bases	[3x] 30 kg	[3x] 30 kg	[3x] 30 kg	[3x] 30 kg
weight	104 kg	108 kg	111 kg	112 kg



## MASTS FOR E.S.E. LIGHTNING CONDUCTORS

### M-05/72..92 Mast for E.S.E. Lightning conductor on a tripod 7-9 m



- It is used for protection from lightning strikes of roof elements and equipment or constructions on the roofs of the buildings
- Allows to fix E.S.E. lightning conductor like **Gromostar**
- Prefabricated air termination rod is set on a tripod with concrete bases and does not need any additional installation works. Installation of air termination rod does not damage the roofing
- Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- Connection of E.S.E. lightning conductor Gromostar with a mast is threaded M16

#### Components and materials of air termination rod:

- |      |  |         |
|------|--|---------|
| - NI | mast Ø42,4 mm with length h1               | - 1 pc  |
| - NI | mast Ø34 mm with length h2                 | - 1 pc  |
| - NI | mast Ø27 mm with l. h3 with sleeve M16     | - 1 pc  |
| - AL | tip Ø16 mm, 200 mm long                    | - 1 pc  |
| - NI | connector with a wire M-042                | - 1 pc  |
| - ST | metal tripod for a mast M-066              | - 1 pc  |
| -    | concrete base 30 kg with a pad             | - 6 pcs |
| -    | set of fixing elements for mast connection | - 1 pc. |

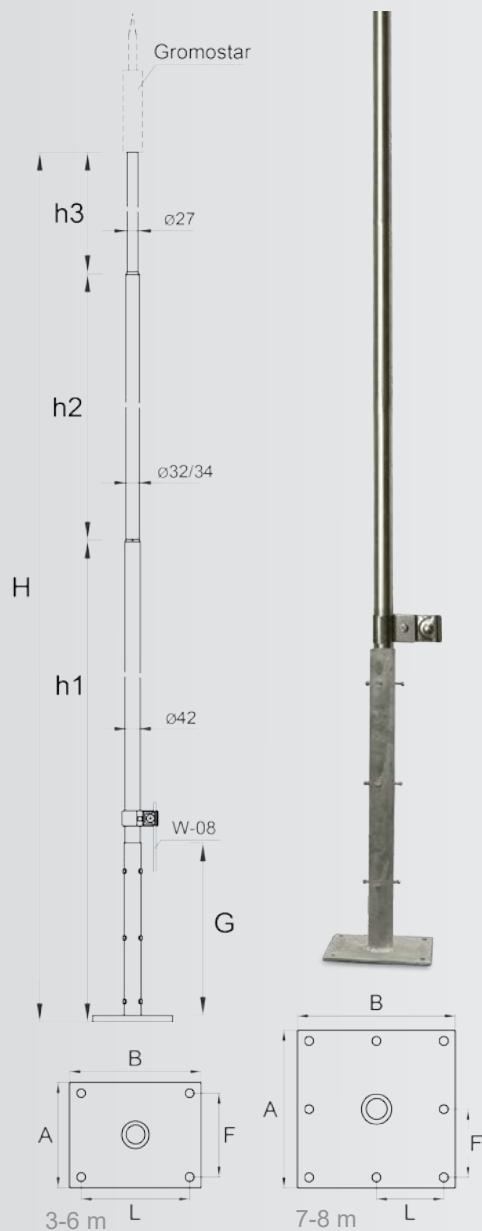


*Suited for installation of E.S.E. lightning conductor GROMOSTAR!*

- The mast set includes 6 concrete bases, which are made of strong frostproof concrete
- Concrete bases for III and IV wind zones are recommended to be glued to the roofing
- 9 m high air termination rod is guyed to a tripod at the level of 6 m (guying elements go in mast set)

article	M-05/72	M-05/82	M-05/92
code	1505 723	1505 823	1505 923
height H	7 000 mm	8 000 mm	9 000 mm
height h1, Ø42	3000 mm	3000 mm	3000 mm
height h2, Ø34	3000 mm	3000 mm	3000 mm
height h3, Ø27	1000 mm	2000 mm	3000 mm
diameter	42/34/27 mm	42/34/27 mm	42/34/27 mm
wire clamp	M-42	M-42	M-42
radius R1/R2	1400/700 mm	1400/700 mm	1400/700 mm
installation (AxB)	2550x2830 mm	2550x2830 mm	2550x2830 mm
height of tripod G	640 mm	640 mm	640 mm
concrete bases	[6x] 30 kg	[6x] 30 kg	[6x] 30 kg
weight	218 kg	220 kg	222 kg

## MASTS FOR E.S.E. LIGHTNING CONDUCTORS

**M-07/32..82 Mast for E.S.E. Lightning conductor with a base 3-8 m**

- It is used for protection from lightning strikes of roof elements and equipment or constructions on the roofs of the buildings
- Allows to fix E.S.E. lightning conductor like [Gromostar](#)
- Prefabricated air termination rod is set on the metal base and is fixed to metal construction with screws or anchor bolts
- Withstands the maximum wind load of 0,55 kPa (I, II, III and IV wind zones) according to the building regulations B. 1.2-2:2006
- Meets the standards of IEC 62305-3:2010 and IEC 50164 about the air termination rods
- Connection of E.S.E. lightning conductor Gromostar with a mast is threaded M16

**Components and materials of air termination rod:**

- |  |         |
|--|---------|
| - NI mast Ø42,4 mm with length h1            | - 1 pc  |
| - NI mast Ø34 mm with length h2              | - 1 pc  |
| - NI mast Ø27 mm with l. h3 with sleeve M16  | - 1 pc  |
| - AL tip Ø16 mm, 200 mm long                 | - 1 pc  |
| - NI connector with a wire M-042             | - 1 pc  |
| - ST metal base size AxBxG                   | - 1 pc  |
| - set of fixing elements for mast connection | - 1 pc. |



*Suited for installation of E.S.E.  
lightning conductor GROMOSTAR!*

- Metal base is reliably fixed to the construction with 4 (9) screws M10 or anchor bolts

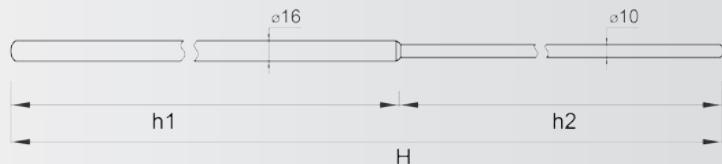
article	M-07/32	M-07/42	M-07/52	M-07/62	M-07/72	M-07/82
code	1507 323	1507 423	1507 523	1507 623	1507 723	1507 823
height H	3000 mm	4000 mm	5000 mm	6000 mm	7000 mm	8000 mm
height h1, Ø42	-	3000 mm	3000 mm	3000 mm	3000 mm	3000 mm
height h2, Ø32..34	3000 mm	1000 mm	2000 mm	3000 mm	3000 mm	3000 mm
height h3, Ø27	-	-	-	-	1000 mm	2000 mm
diameter of mast	32 mm	42/32 mm	42/32 mm	42/32 mm	42/34/27 mm	42/34/27 mm
height of base G	900 mm	900 mm				
size of base AxB	200x250 mm	200x250 mm	200x250 mm	200x250 mm	300x300 mm	300x300 mm
dist. betw. op. FxL	155x205 mm	155x205 mm	155x205 mm	155x205 mm	125/125 mm	125/125 mm
fixation	4x M10	4x M10	4x M10	4x M10	9x M10	9x M10
wire clamp	M-032	M-042	M-042	M-042	M-042	M-042
weight	14,7 kg	18,8 kg	19,8 kg	21,2 kg	22,8 kg	24,2 kg

# COMPONENTS FOR AIR TERMINATION RODS



## THREADED ALUMINIUM AIR TERMINATION RODS

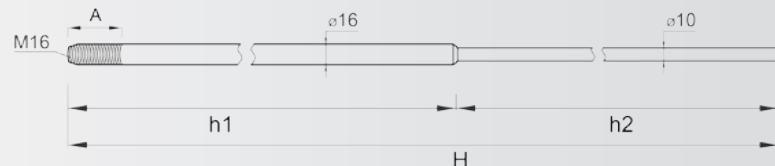
### Prefabricated aluminium air termination rod 16/10



Prefabricated aluminium air termination rod consists of 2 parts with diameter of 10 mm and 16 mm, which are twisted with each other. To attach the wire to air termination rod use connector art. C-041

article	<b>M-115</b>	<b>M-120</b>	<b>M-125</b>	<b>M-130</b>	<b>M-135</b>	<b>M-140</b>
code	1500 115	1500 120	1500 125	1500 130	1500 135	1500 140
height H	1500 mm	2000 mm	2500 mm	3000 mm	3500 mm	4000 mm
material	AL	AL	AL	AL	AL	AL
height h1, ø16	500 mm	1000 mm	1500 mm	2000 mm	2500 mm	3000 mm
height h2, ø10	1000 mm					
diameter	16/10 mm					

### Prefabricated aluminium air termination rod 16/10 with threaded base



Prefabricated aluminium air termination rod consists of 2 parts with diameter of 10 mm and 16 mm, which are twisted with each other. Below - thread M16

article	<b>M-215</b>	<b>M-220</b>	<b>M-225</b>	<b>M-230</b>	<b>M-235</b>	<b>M-240</b>
code	1500 215	1500 220	1500 225	1500 230	1500 235	1500 240
height H	1500 mm	2000 mm	2500 mm	3000 mm	3500 mm	4000 mm
material	AL	AL	AL	AL	AL	AL
height h1, ø16	500 mm	1000 mm	1500 mm	2000 mm	2500 mm	3000 mm
height h2, ø10	1000 mm					
diameter	16/10 mm					
thread MxA	M16x40 mm					



## TUBULAR AIR TERMINATION RODS

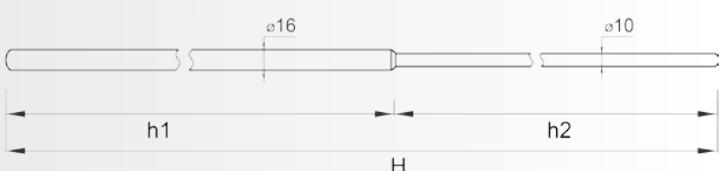
### Tubular air termination rod 16/10, aluminium



Tubular aluminium air termination rod consists of 2 parts: tube ø 16 mm and rod ø 10 mm, which are interconnected. To attach the wire to air termination rod use clamp art. C-041.

article	<b>M-315</b>	<b>M-320</b>	<b>M-325</b>	<b>M-330</b>
code	<b>1500 315</b>	<b>1500 320</b>	<b>1500 325</b>	<b>1500 330</b>
height H	<b>1500 mm</b>	<b>2000 mm</b>	<b>2500 mm</b>	<b>3000 mm</b>
material	<b>AL</b>	<b>AL</b>	<b>AL</b>	<b>AL</b>
height h1, ø16	500 mm	1000 mm	1500 mm	2000 mm
height h2, ø10	1000 mm	1000 mm	1000 mm	1000 mm

### Prefabricated air termination rod 16/10 copper



Prefabricated copper air termination rod consists of 2 parts: tube ø 16 mm and rod ø 10 mm, which are twisted with each other. To attach the wire to air termination rod use clamp art. C-041 NI.

article	<b>M-415</b>	<b>M-420</b>	<b>M-425</b>	<b>M-430</b>
code	<b>1500 415</b>	<b>1500 420</b>	<b>1500 425</b>	<b>1500 430</b>
height H	<b>1500 mm</b>	<b>2000 mm</b>	<b>2500 mm</b>	<b>3000 mm</b>
material	<b>CU</b>	<b>CU</b>	<b>CU</b>	<b>CU</b>
height h1, ø16	500 mm	1000 mm	1500 mm	2000 mm
height h2, ø10	1000 mm	1000 mm	1000 mm	1000 mm

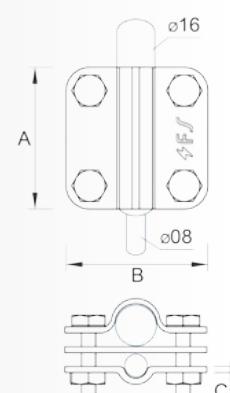
## AIR TERMINATION ROD CONNECTOR D16

### Connector of a rod D16 and wire/strip



article	<b>C-041</b>	
code	<b>1204 012</b>	<b>1204 013</b>
material	<b>OC</b>	<b>NI</b>
size of plate AxBxC	<b>60 x 60 x 2,5 mm</b>	
for fixation of	<b>ø08..10 mm + ø16 mm</b>	

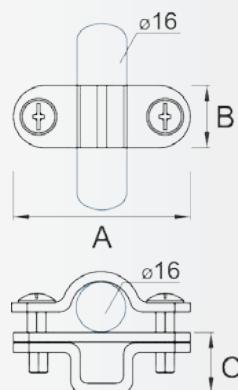
For attaching the wire d 8..10 mm to air termination rod 16/10 mm.  
See more details on p. 16.





## ROD HOLDERS D16

### H-038 Metal rod holder D16



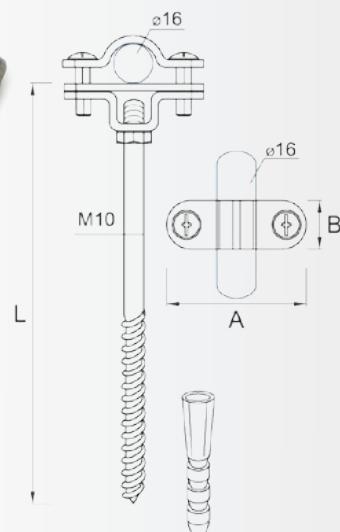
The holder is used for fixation of air termination rod D16 mm. See more details on p. 26.

article

**H-038**

code	1303 082	1303 084
material	OC	CU
for fixation of rod	Ø 14..16 mm	Ø 14..16 mm
size AxBxD	60x20x20 mm	60x20x20 mm
internal thread	M10	M8

### M-016 Air termination rod holder 16/10 with a pin and a dowel



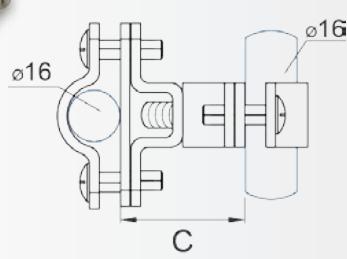
The holder is used for fixation of air termination rod D16 mm to the walls and constructions. It is fixed with a pin with a dowel.

article

**M-016**

code	1500 162	1500 164
material	OC	CU
for fixation of rod	Ø 14..16 mm	Ø 14..16 mm
size of fix. AxB	60x 20 mm	60x 20 mm
length L	225 mm	225 mm
dowel	14x80	12x60

### M-017 Air termination rod holder 16/10 for a handrail



The holder is used for fixation of air termination rod Ø16 mm to the fencing or the bar Ø12..16 mm. It consists of 2 holders H-038, connected to each other. Ability of rotation of the holders relative to each other

article

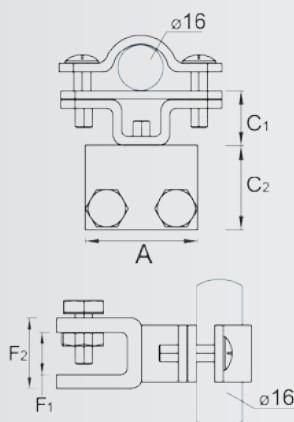
**M-017**

code	1500 172	1500 174
material	OC	CU
for fixation of rod	Ø 14..16 mm	Ø 14..16 mm
fixation to bar	Ø 14..16 mm	Ø 14..16 mm
distance C	40 mm	40 mm



## ROD HOLDERS D16

### M-018 Air termination rod holder 16/10 folded



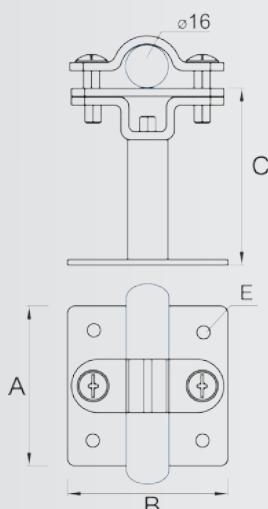
The holder is used for fixation of air termination rod Ø16 mm to channel constructions or folded elements.

article

**M-018**

code	1500 182	1500 184
material	OC	CU
for fixation to rod	Ø 14..16 mm	
size F1/ F2	12 / 22 mm	
size C1/ C2	20 / 30 mm	
clamping by bolts	[2x] M8x20	

### M-019 Air termination rod holder 16/10 with a plate



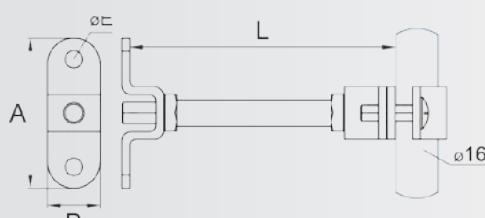
The holder is used for fixation of air termination rod Ø16 mm to metal constructions with 4 screws or rivets.

article

**M-019**

code	1500 192
material	OC
for fixation of rod	Ø 16 mm
size of plate AxB	60 x 60 mm
distance C	20 mm
opening E	Ø 5 mm

### M-020 Air termination rod holder 16/10 with a plate, elongate



The holder is used for fixation of air termination rod Ø16 mm to metal constructions with 2 screws or anchors. Length of 100 or 200 mm to provide a greater distance from construction to air termination rod

article

**M-020**

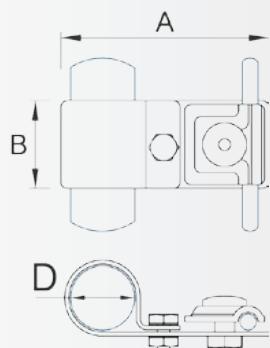
**M-021**

code	1500 202	1500 212
material	OC	OC
for fixation of rod	Ø 16 mm	Ø 16 mm
size of fix. AxB	60 x 20 mm	60 x 20 mm
distance L	120 mm	170 mm
opening E	Ø 5 mm	Ø 5 mm



## CONNECTORS FOR AIR TERMINATION MASTS

### M-032..42 Connector of air termination mast and a wire



- It is used for connection of down conductor with air termination mast

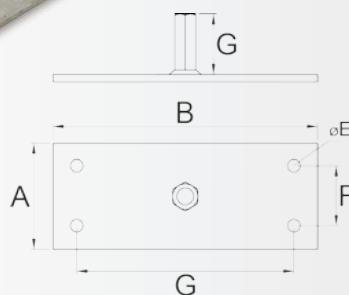
art. M-032 - for mast ø32 mm

art. M-042 - for mast ø42 mm

article	<b>M-032</b>	<b>M-042</b>
code	1500 323	1500 423
material	NI	NI
for fixation øD	32 mm	42 mm
size A	140 mm	140 mm
size B	47 mm	47 mm

## METAL BASES FOR AIR TERMINATION RODS

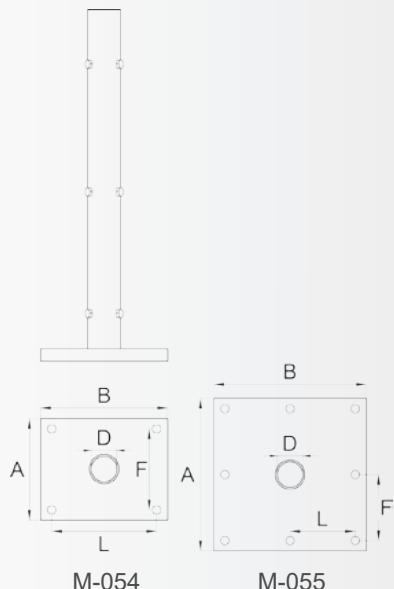
### M-052..53 Metal stand for air termination rod 16 mm



- It is used for fixation of aluminium air termination rod ø 16 mm (art. M-215-240) to constructions or metal platforms

article	<b>M-052</b>	<b>M-053</b>
code	1500 522	1500 523
material	OC	OC
for fixation øD	16 mm	16 mm
size of base AxB	100 x 250 mm	200 x 250 mm
dist. betw. op. FxL	57 x 205 mm	157 x 205 mm
for rod with height	1,5..2 m	2,5..4 m
fixation	[4x] M10	[4x] M10

### M-054..55 Metal base for air termination mast



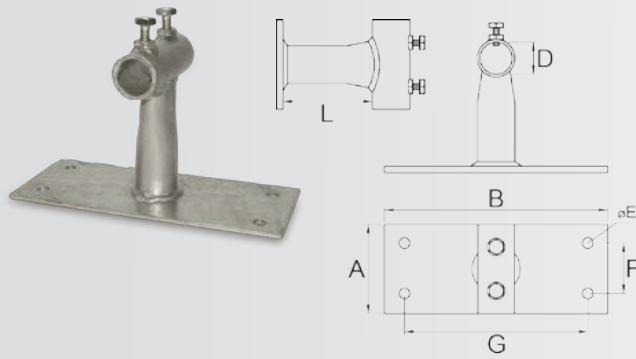
- It is used for fixation of air termination mast ø32..48 mm (art. M-02) to constructions and metal platforms
- Mast is fixed to metal base with screws
- Metal base is fixed to constructions or platforms with screws M10 or anchor bolts

article	<b>M-054</b>	<b>M-055</b>
code	1500 541	1500 551
material	ST	ST
for fixation øD	32..48 mm	32..48 mm
size of base AxB	200 x 250 mm	300 x 300 mm
dist. betw. op. FxL	157 x 205 mm	125 x 125 mm
height of base G	900 mm	900 mm
opening E	[4x] ø10 mm	[9x] ø10 mm
weight	11 kg	12 kg



## HOLDERS FOR AIR TERMINATION MASTS

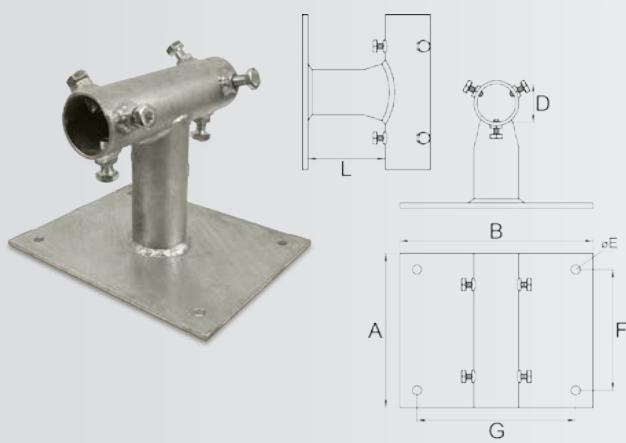
### M-060 Holder for air termination mast ø32 mm



- It is used for fixation of air termination mast ø25..32 mm to the walls and constructions
- It is fixed with 4 screws M10 with a dowel or 4 anchor bolts. Opening E: ø10 mm

article	<b>M-060</b>		<b>M-061</b>	
code	1500 602	1500 608	1500 612	1500 618
material	OC	LA	OC	LA
for fixation øD	25..32 mm		25..32 mm	
distance L	120 mm		300 mm	
size of plate AxB	100 x 250 mm		100 x 250 mm	
dist. betw. op. FxG	57 x 205 mm		57 x 205 mm	
weight	2,5 kg		3,3 kg	

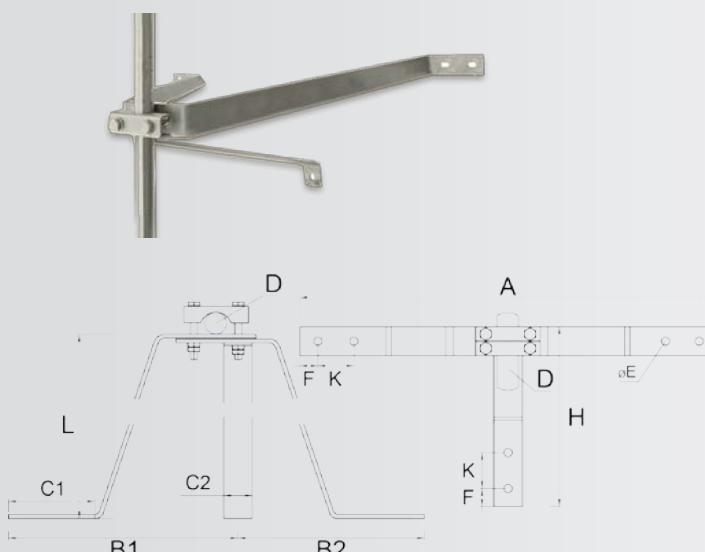
### M-062 Holder for air termination mast ø42 mm



- It is used for fixation of air termination mast ø40..48 mm to the walls and constructions
- It is fixed with 4 screws M10 with a dowel or 4 anchor bolts. Opening E: ø10 mm

article	<b>M-062</b>		<b>M-063</b>	
code	1500 621	1500 628	1500 631	1500 638
material	ST	LA	ST	LA
for fixation øD	40..48 mm		40..48 mm	
distance L	120 mm		400 mm	
size of plate AxB	200 x 250 mm		200 x 250 mm	
dist. betw. op. FxG	157 x 205 mm		157 x 205 mm	
weight	3,7 kg		5 kg	

### M-050 Holder for air termination mast with support



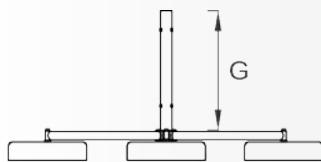
- It is used for fixation of air termination mast ø25..48 mm to the walls and constructions
- Additional support provides resistance of the construction
- It is fixed with 5 anchor bolts M10. Opening E: ø10 mm

article	<b>M-050</b>		<b>M-051</b>	
code	1500 503		1500 513	
material	NI		NI	
for fixation øD	25..48 mm		25..48 mm	
distance L	250 mm		400 mm	
sizes B1xB2	320 x 260 mm		380 x 320 mm	
sizes AxH	580 x 250 mm		700 x 315 mm	
size C1xC2	120 x 40 mm		120 x 40 mm	
dist. betw. op. FxK	25 x 50 mm		25 x 50 mm	

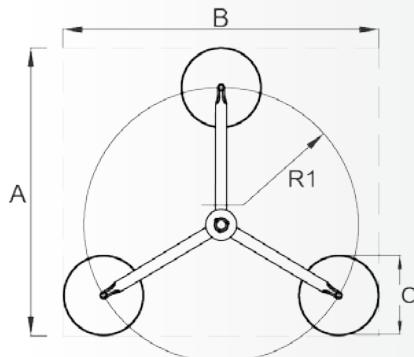


## TRIPODS FOR AIR TERMINATION MASTS

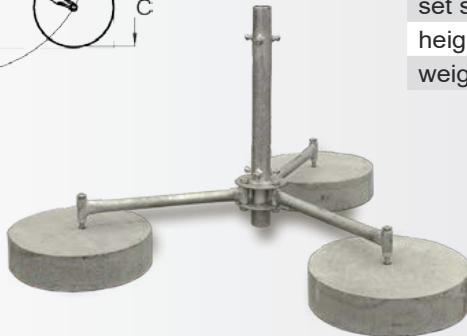
### M-065 Tripod for air termination mast



- It is used for fixation of air termination mast ø32 and ø42 mm or insulated mast up to 7 m high on a flat roof
- air termination mast is fixed to a tripod with 6 bolts
- tripod comes with 3..6 concrete bases B30 (30 kg)
- The tripod can be folded up for convenient transportation



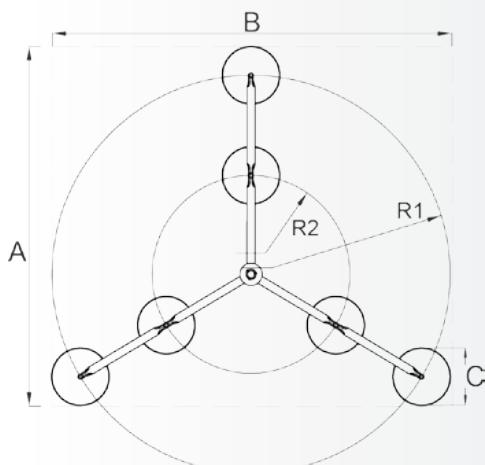
article	<b>M-065</b>	<b>M-066</b>
code	<b>1500 651</b>	<b>1500 661</b>
material of tripod	ST	ST
for mast ø	32..48 mm	32..48 mm
for mast with height	3..7 m	8 m
concrete bases	[3x] 30 kg	[6x] 30 kg
radius R1	700 mm	700 mm
set sizes AxB	1470x1620 mm	1470x1620 mm
height G	640 mm	640 mm
weight with con. bases	100 kg	190 kg



### M-067 Big tripod for air termination mast



- It is used for fixation of air termination mast ø42 mm and 9-10 m high on a flat roof
- air termination mast is fixed to a tripod with 6 bolts
- tripod comes with 6 concrete bases B30 (30 kg)
- The tripod can be folded up for convenient transportation



article	<b>M-067</b>
code	<b>1500 671</b>
material of tripod	ST
for mast ø	32..48 mm
for mast with height	9..10 m
concrete bases	[6x] 30 kg
radius R1	1400 mm
radius R2	700 mm
set sizes AxB	2550 x 2830 mm
height G	640 mm
weight with con. bases	200 kg



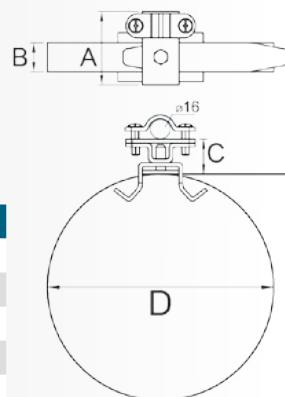
## HOLDERS OF AIR TERMINATION RODS TO PIPES

### M-070..71 Universal rod holder ø16 mm to a pipe



- It is used for fixation of air termination rod ø16 mm (art. M-115..345) to pipes or constructions
- For fixation, compress the pipe with a clamp and reliably fix with a bolt

article	<b>M-070</b>	<b>M-071</b>
code	<b>1500 702</b>	<b>1500 712</b>
material	OC - NI	OC - NI
for fixation ø	16 mm	16 mm
for pipe D	100..300 mm	300..500 mm
sizes A / B	60 / 24 mm	60 / 24 mm
distance C	30 mm	30 mm

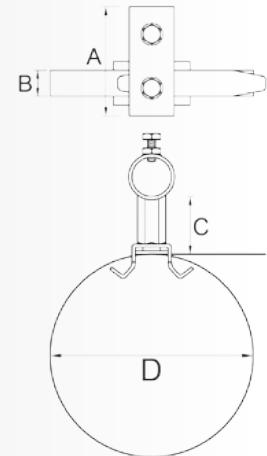


### M-072..73 Universal mast holder ø32 mm to a pipe



- It is used for fixation of air termination mast ø 32 mm (art M-02/30..60) to pipes and constructions
- For fixation, compress the pipe with a clamp and reliably fix with a bolt

article	<b>M-072</b>	<b>M-073</b>
code	<b>1500 722</b>	<b>1500 732</b>
material	OC - NI	OC - NI
for fixation ø	32 mm	32 mm
for pipe D	100..300 mm	300..500 mm
sizes A / B	100 / 24 mm	100 / 24 mm
distance C	55 mm	55 mm

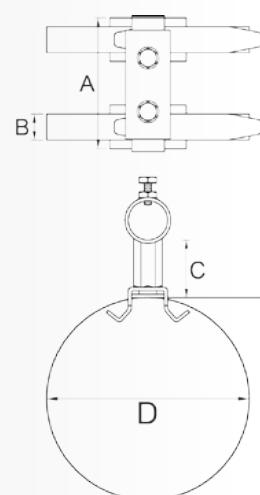


### M-074..77 Universal mast holder ø32..42 mm for a pipe, double



- It is used for fixation of a mast ø 32 mm (art M-02/30..60) or ø 42 mm (art. M-02/32..62) to pipes and constructions
- Double clamp for reliable fixation of a mast
- For fixation, compress the pipe with a clamp and reliably fix with a bolt

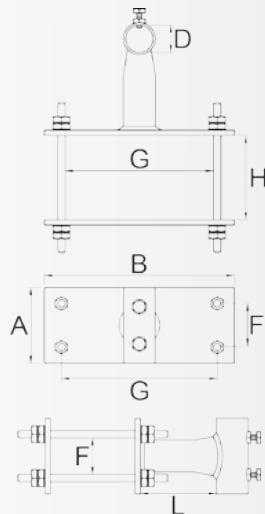
article	<b>M-074</b>	<b>M-075</b>	<b>M-076</b>	<b>M-077</b>
code	<b>1500 742</b>	<b>1500 752</b>	<b>1500 762</b>	<b>1500 772</b>
material	OC - NI	OC - NI	OC - NI	OC - NI
for fixation ø	32 mm	42 mm	32 mm	42 mm
for pipe D	100..300 mm	100..300 mm	300..500 mm	300..500 mm
sizes A / B	120 / 24 mm			
distance C	60 mm	60 mm	60 mm	60 mm





## HOLDERS OF AIR TERMINATION MASTS

### M-080..82 Holder of air termination rod to constructions

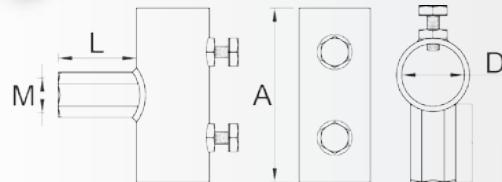


- It is used for fixation of a mast Ø32 mm (art. M-02/30..60) or Ø42 mm (art. M-02/70..80, M-02/42..62) to T-beams or I-beams, or other constructive elements of the building

- Holder is fixed with 4 pins M10x400 with nuts

article	<b>M-080</b>	<b>M-082</b>
code	1500 802	1500 821
material	OC	ST
diameter D	38 mm	48 mm
distance L	120 mm	120 mm
size of plate AxB	100 x 250 mm	200 x 250 mm
dist. betw. pins. FxG	157 x 205 mm	157 x 205 mm
length H	до 300 mm	до 300 mm
fixation	[4x] M10x400	[4x] M10x400
weight	3,5 kg	4,9 kg

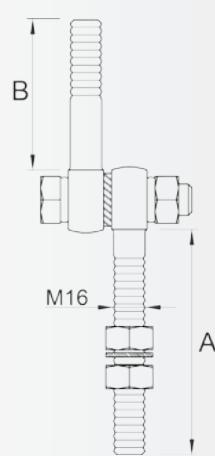
### M-083..84 Mast holder Ø32..42 mm M16



- It is used for fixation of air termination mast Ø25..32 mm or 40..48 mm to constructions with threaded connection M16

article	<b>M-083</b>	<b>M-084</b>
code	1500 832	1500 842
material	OC	OC
for fixation ØD	25..32 mm	40..48 mm
distance L	50 mm	50 mm
height of pipe A	100 mm	200 mm
thread M	M16	M16

### M-091..93 Adjustable connector M16



- It is used for straightening of vertical air termination rod which is set on the roof with a slope

**M-091** is suitable for air termination rods art. M-04, M-06 (connecting coupling goes in set)

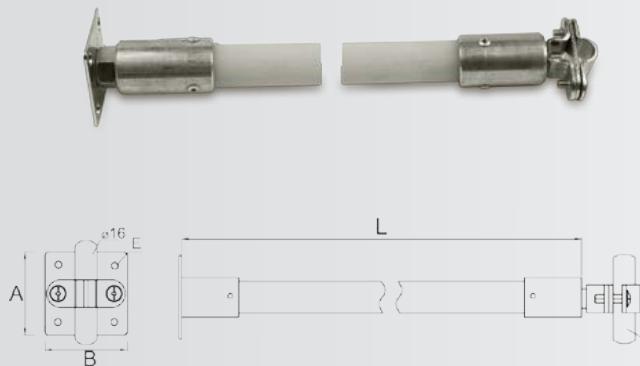
**M-092** is suitable for air termination rods on a tripod art. M-05/30...80 (3 connectors go in set)

article	<b>M-091</b>	<b>M-093</b>
code	1500 912	1500 932
material	OC	OC
length A	115 mm	115 mm
length B	80 mm	80 mm
connection	M16	M16
num. of connectors	1 pc	3 pcs



## INSULATED HOLDERS FOR AIR TERMINATION ROD D16

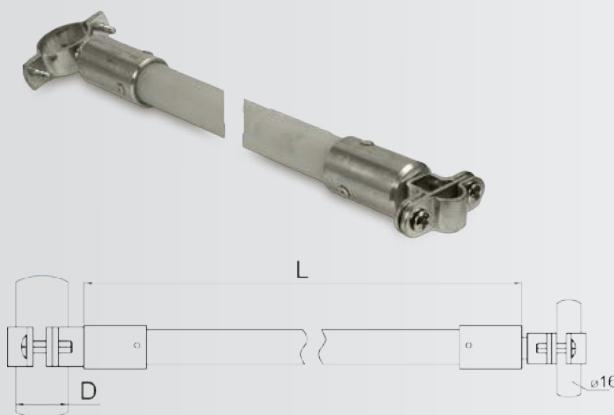
### M-058..59 Insulated holder for air termination rod 16/10 with a plate



- It is used for fixation of air termination rod ø16 mm to metal constructions in compliance to safe insulation distance. It is fixed with 4 screws or bolts

article	<b>M-058</b>	<b>M-059</b>
code	1500 582	1500 592
material	OC	OC
for fixation ø	16 mm	16 mm
size of plate AxB	60 x 60 mm	60 x 60 mm
length of rod L	500 mm	750 mm
opening E	ø 8 mm	ø 8 mm
weight	0,50 kg	0,60 kg

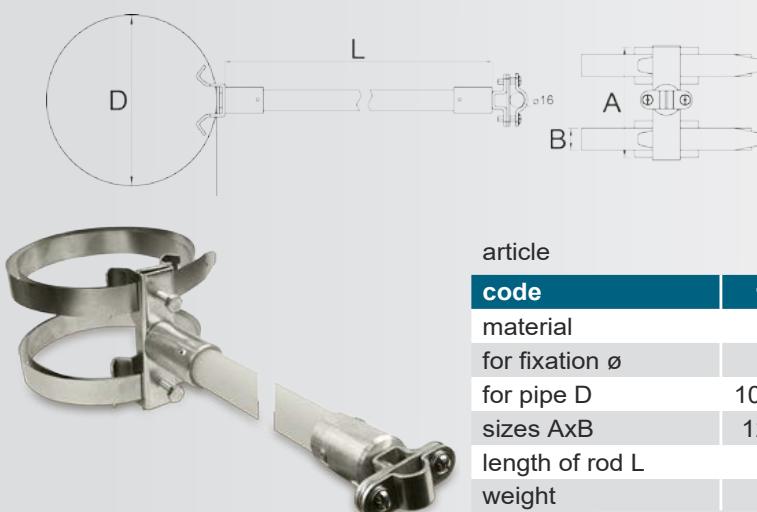
### M-068..69 Insulated holder for air termination rod 16/10 to antennas



- It is used for fixation of air termination rod ø16 mm (art. M-115..345) to antennas or other constructions in compliance to safe insulation distance

article	<b>M-068</b>	<b>M-069</b>
code	1500 682	1500 692
material	OC	OC
for fixation ø	16 mm	16 mm
diameter D	33..37 mm	40..46 mm
length of rod L	500 mm	750 mm
weight	0,50 kg	0,60 kg

### M-078..89 Insulated holder for air termination rod 16/10 to pipes



- It is used for fixation of air termination rod ø16 mm (art. M-115..345) to pipes or constructions in compliance to safe insulation distance

article	<b>M-078</b>	<b>M-079</b>	<b>M-088</b>	<b>M-089</b>
code	1500 782	1500 792	1500 882	1500 892
material	OC - NI	OC - NI	OC - NI	OC - NI
for fixation ø	16 mm	16 mm	16 mm	16 mm
for pipe D	100..300 mm	100..300 mm	300..500 mm	300..500 mm
sizes AxB	120x24 mm	120x24 mm	120x24 mm	120x24 mm
length of rod L	500 mm	750 mm	500 mm	750 mm
weight	0,85 kg	0,95 kg	0,85 kg	0,95 kg

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<b>G-115</b>	1011 050	Anticorrosive tape 50 mm	37	<b>C-032</b>	1203 02X	Test joint	14
<b>G-15/1</b>	1015 013	stainless steel earthing electrode 1,5 m	36	<b>C-033</b>	1203 03X	Test joint wire-wire	14
<b>G-15/2</b>	1015 023	stainless steel connecting coupling for ø16 mm rod	36	<b>C-034</b>	1203 04X	Test joint for round and flat conductors B40	15
<b>G-15/30</b>	1015 303	Earthing electrode set ø16 mm, stainless steel, 3 m	36	<b>C-035</b>	1203 05X	Test joint for round and flat conductors B40	15
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**FOR THE NOTAGE**





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