Main catalogue

hélita® range
Direct lightning protection

Power and productivity
for a better world™

Hélita® range
Direct lightning protection

Lightning protection technologies

Protection against direct lightning stroke

To protect a structure against lightning strokes, a preferred impact point is selected to protect the surrounding structure and conduct the flow of the electric current towards the ground, with minimal impedance on the path followed by the lightning. Four types of protection systems meet these requirements.

Protection systems	Standards
Early streamer emission lightning conductors	**NF** C 17-102 & IEC 62 305-3
Simple rod lightning conductors	IEC 62 305-3
Meshed cages	IEC 62 305-3
Stretched wires	IEC 62 305-3

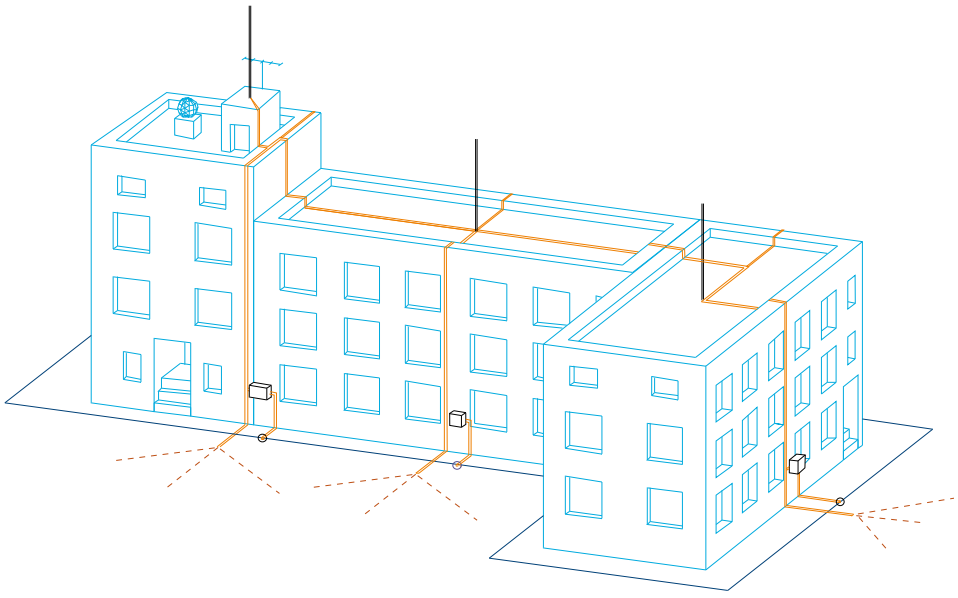
Simple rod lightning conductors

By protruding upwards from the building, they are likely to trigger the release of ascending streamers and thus be selected as impact points by lightning strokes occurring within the vicinity of the structure.

This type of protection is especially recommended for radio stations and antenna masts when the area requiring protection is relatively small.

A simple rod lightning conductor is made up of:

- a rod lightning conductor and its extension mast
- two down conductors
- a connection link or test coupling on each down conductor to check the conductor earth resistance
- a protecting flat to protect the down conductor for the last two meters above ground level
- an equipotential bonding between each earth and the general earthing circuit of the structure; this can be disconnected.



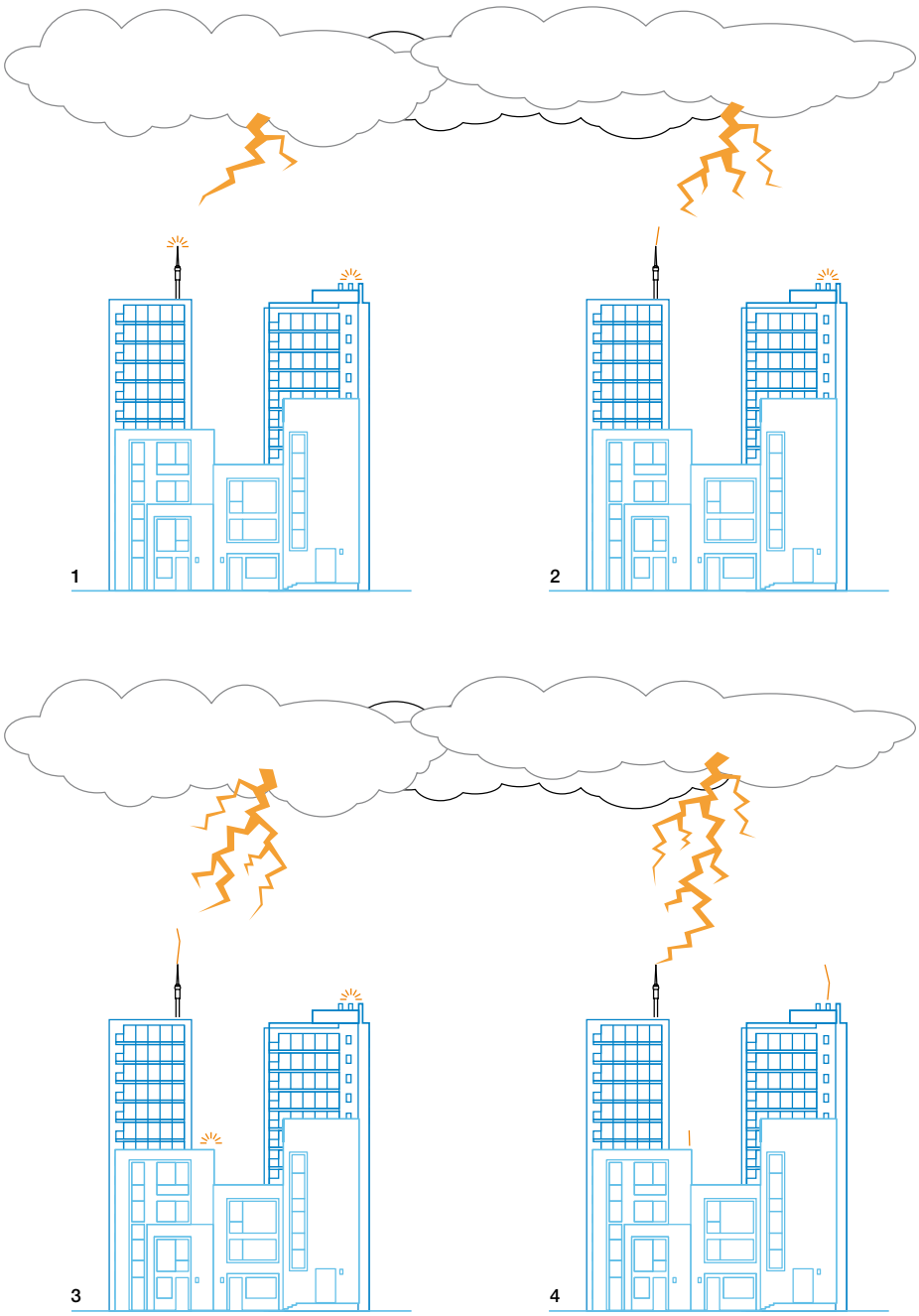
Lightning protection technologies

Early streamer emission (ESE) lightning conductors

These state-of-the-art technologies have been designed on the basis of a series of patents registered jointly by HELITA and the French National Scientific Research Centre (CNRS). The PULSAR is equipped with an electronic device which is high pulse voltage of known and controlled frequency and amplitude enabling the early formation of the upward leader which is then continuously propagated towards the downward leader.

The PULSAR draws its energy from the ambient electrical field during the storm. After capturing the lightning stroke, the PULSAR directs it towards the down conductors to the ground where it is dissipated.

Triggering time of and ESE lightning conductor



Lightning protection technologies

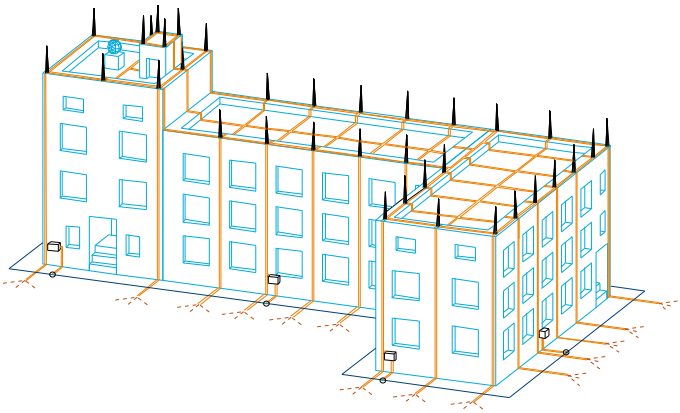
Meshed cages

This principle consists of dividing up and more easily dissipating the lightning current by a network of conductors and earths.

A meshed cage installation has multiple down conductors and consequently provides very effective protection for buildings that house equipment sensitive to electromagnetic disturbance. This is because the lightning current is divided among the down conductors and the low current circulating in the mesh creates very little disturbance by induction.

A meshed cage installation is made up of:

- devices to capture the atmospheric discharges consisting of trike points
- roof ridge conductors
- down conductors
- earths
- an equipotential bonding between each earth and the general earthing circuit of the structure; this can be disconnected.



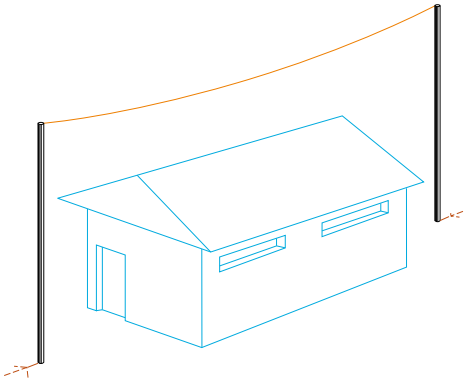
Stretched wires

This system is composed of one or several conductor wires stretched above the protected installation. The protection area is determined by applying the electrogeometrical model.

The conductors must be earthed at each end.

A stretched wire installation requires a thorough preliminary study to consider issues such as mechanical strength, the type of installation, and the insulation distances.

This technology is used to protect ammunition depots and as a general rule in circumstances where the site cannot be protected by using a building structure to support the conductors that convey the lightning currents to the earth.



Scientifically proven efficiency

Hélita has proven commitment to research and development and continuously sets new benchmarks for the efficiency of lightning conductors. Hélita's co-operation with the CNRS led to a better understanding of the test process in high voltage laboratories and of the lightning phenomena itself. The Pulsar® has undergone testing in the IREQ laboratory in Canada and in Hélita's own LEHTM centre. International certification organisations including BSI, LCIE and KERI have validated the results obtained.

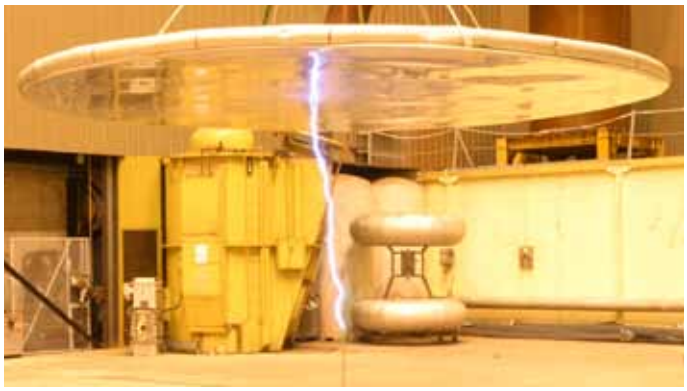
LCIE	Laboratoire Central des Industries Électriques - France
KERI	Korea Electromechanical Research Institute - Korea
BSI	British Standard Institute - Great Britain
WHVRI	Wuha High Voltage Research Institute - China
CEB	Centre d'Essais de Bazet - France

Tests

Tests under Laboratory conditions

Since 2003 our factory located in Bagnères de Bigorre (France) has a high tech laboratory allowing to test our Surge Protective Devices in 10/350 µs and 8/20 µs wave shapes as well as our direct lightning range with lightning currents up to 100 kA.

We also test our lighting rods in a dedicated high voltage laboratory close to our factory allowing normative tests thanks to an up to 3 MV generator.



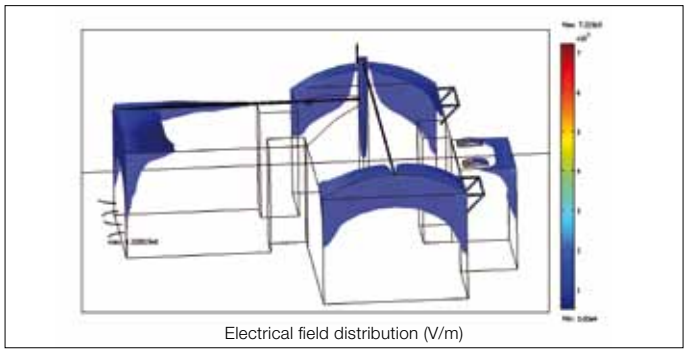
Tests in situs

An experimental site devoted to the study of direct lightning impacts to a lightning protection system has been selected at the top of the "Pic du Midi" in the French Pyrenées mountains for its high lightning impact density.
The "Pic du Midi", famous astronomical observatory, offers an unique scientific environment for lightning observations in collaboration with astronomers.

This unique location enables us to test our products in highly severe conditions (high winds, extremely low temperatures) as these tests are running at an altitude of 2880 m.

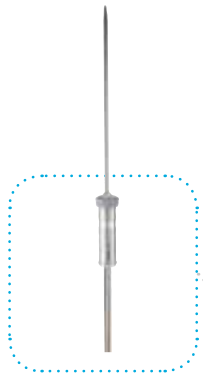
Such tests give us the opportunity to complete our understanding on lightning phenomenon. For this purpose, we are using high speed cameras, lightning current recorders as well as field and light recorders.

Another in situ test runs at the Taoulet station 2300m to verify that theoretical values announced are also validated in real conditions.
A constant partnership with scientists permits to follow these in situs sites and lead to fundamental research on lighting. As an applicative example, a software that determines the weak points of a structure has been developed.



Electrical field distribution (V/m)

Lightning conductor range
ESE typical installation on masonry building



Pulsar® lightning conductor
p.9

Bolted
brackets p.15

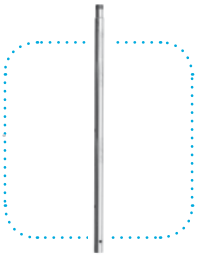
Antenna mast
arrester p.21

Rubberalu clamps
p.17

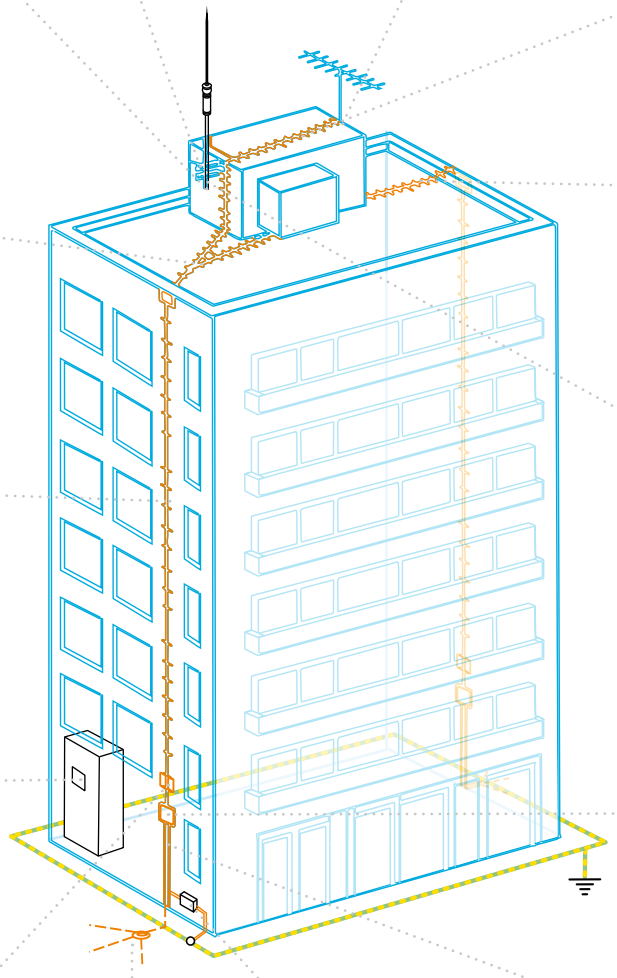
Coupling accessories
p.16

Conductor supporting
stud p.17

Hook p.17



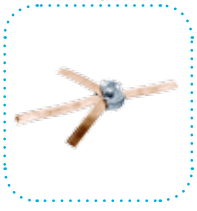
Extension mast p.11



Type 1 SPD
highly
recommanded

Lightning stroke
counter and recorder
p.21

Test coupling p.18

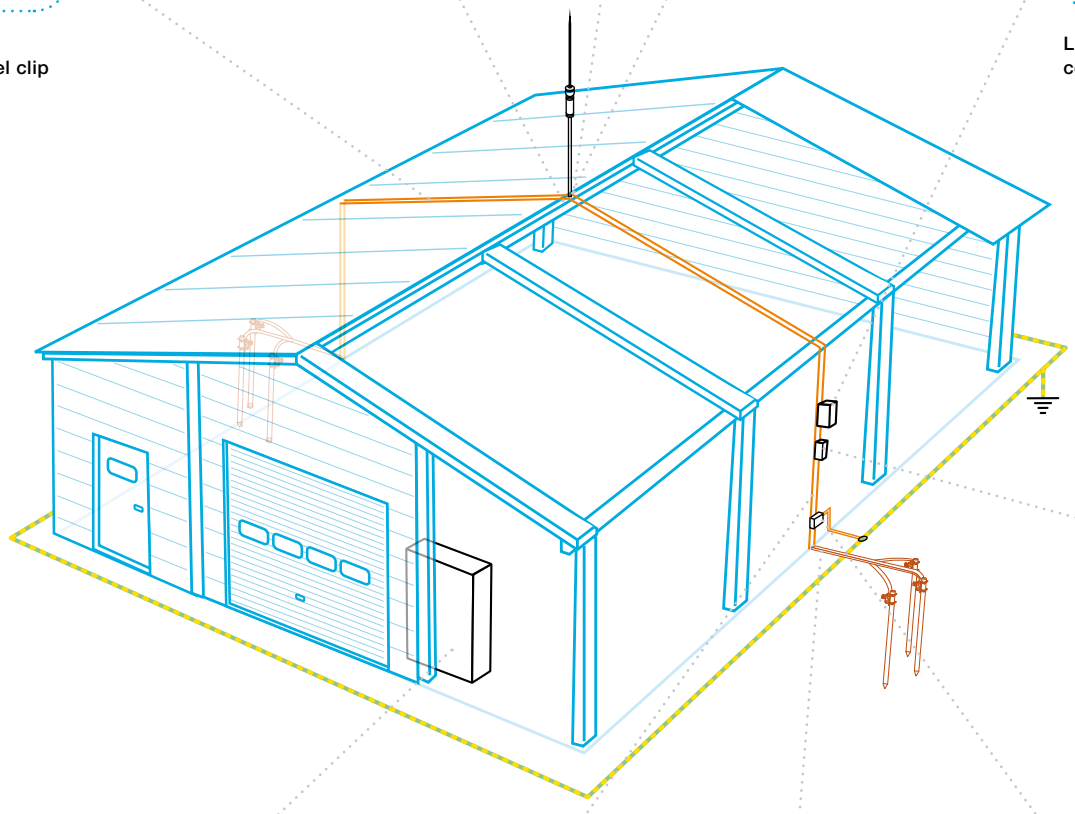


Duck foot connector
p.20

Equipotential box
p.18

Protecting flat
p.18

Lightning conductor range
ESE typical installation on metal cladding



Waterproof
Stainless steel clip
p.17

Water deflecting cones
p.13

Threaded bases
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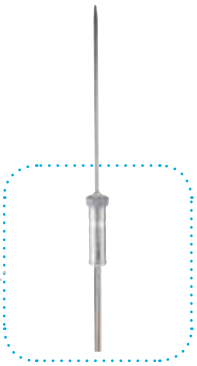


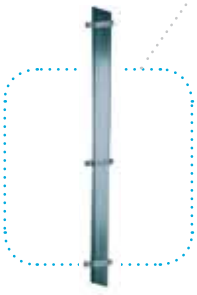
Pulsar® lightning
conductor p.9

Lightning stroke
counter p.21

Test coupling p.18

Equipotential box
p.18

Type 1 SPD
highly
recommanded



Protecting flat
p.18

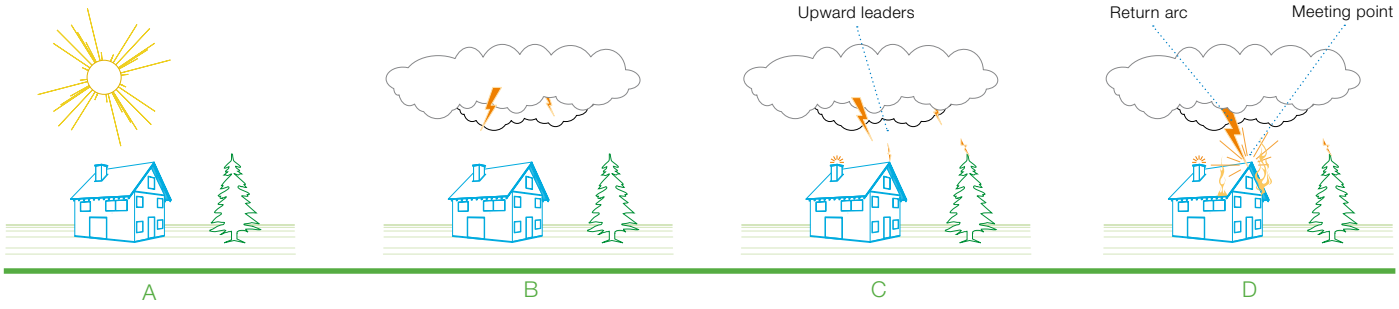
Stainless steel clip
p.17

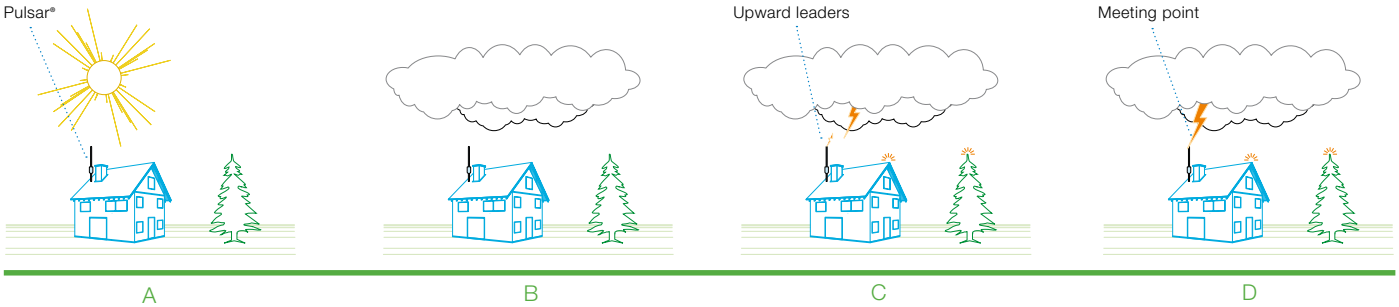
Lightning conductor range
Early streamer emission
Pulsar®, the high pulse voltage, initiation advance lightning conductor

In ongoing collaboration with the CNRS (French National Research Organisation), Hélita continues to innovate, and has developed a new generation of lightning devices. The new Pulsar® range with increased initiation advance performances, represents further progress in terms of protection, operating autonomy and ease of maintenance. These advancements reinforce Hélita's position as International leader in direct lightning protection with over 200 000 installations throughout the world.

Hélita manufacturing quality

The enviable reputation of the Pulsar® has been earned through maintaining a consistently high quality in manufacture. Before leaving the factory, each Pulsar® has been tested for installation breakdown at high voltage, and subjected to a current test that ensures its performance when conducting lightning discharges. The high voltage output pulses at the Pulsar® are also examined to verify correct amplitude and frequency. The Pulsar® is built to withstand the arduous conditions encountered in service, and its ongoing performance can be monitored simply and quickly using the Pulsar® test set.





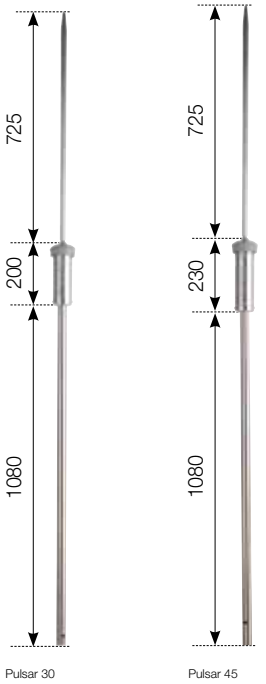
The advantage of initiation advance

The unique efficiency of the Pulsar® lightning conductor is based on a specific initiation advance, well before the natural formation of an upward leader, the Pulsar® generates a leader that rapidly propagates to capture the lightning and direct it to earth. Validated in the laboratory, this gain in time relative to the simple rod provides additional essential protection.

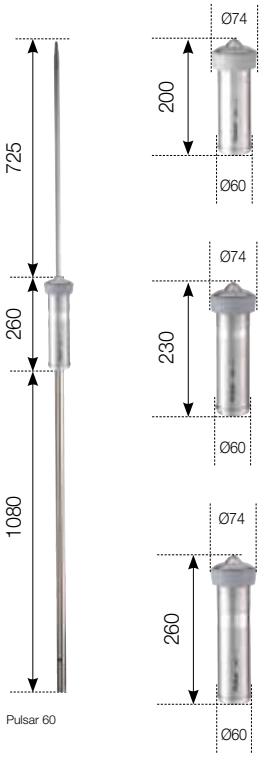
Complete autonomy

During a storm the ambient electric field may rise to between 10 to 20 kV/m. As soon as the field exceeds a threshold representing the minimum risk of a lightning strike, the Pulsar® lightning terminal is activated. It draws its energy from the ambient electric field the energy required to generate high voltage pulses, creating and propagating an upward leader. No other power sources are required, and no radioactive components are used.

Lightning conductor range
Early streamer emission



Pulsar 30 Pulsar 45



Pulsar 60

Typical applications

Industrial sites, buildings, warehouses, where a large protection area is needed.

Pulsar® ordering details

Description	ΔT µs	L m	Order code		Weight kg
Pulsar 30 stainless steel 2 m Lightning conductor	30	2.0	2CT**H0IMH3012**		5.000
Pulsar 30 stainless steel 3 m Lightning conductor	**30**	**3.0**	2CT**H0IMH3013**		**6.500**
Pulsar 45 stainless steel 2 m Lightning conductor	45	2.03	2CT**H0IMH4512**		5.300
Pulsar 45 stainless steel 3 m Lightning conductor	**45**	**3.03**	2CT**H0IMH4513**		**6.800**
Pulsar 60 stainless steel 2 m Lightning conductor	60	2.06	2CT**H0IMH6012**		5.700
Pulsar 60 stainless steel 3 m Lightning conductor	**60**	**3.06**	2CT**H0IMH6013**		**7.000**

Pulsar® radius of protection

Level of protection	I (D = 20 m)			II (D = 30 m)			III (D = 45 m)			IV (D = 60 m)		
Pulsar	Pulsar 30	Pulsar 45	Pulsar 60	Pulsar 30	Pulsar 45	Pulsar 60	Pulsar 30	Pulsar 45	Pulsar 60	Pulsar 30	Pulsar 45	Pulsar 60
h (m)	Radius of protection Rp (m)											
2	19	25	32	22	28	35	25	32	40	28	36	44
3	28	38	48	33	42	52	38	48	59	42	57	65
4	38	51	64	44	57	69	50	65	78	57	72	87
5	**48**	**63**	**79**	**55**	**71**	**86**	**63**	**81**	**97**	**71**	**89**	**107**
6	48	63	79	55	71	87	64	81	97	72	90	108
8	49	64	79	56	72	87	66	83	99	75	92	109
10	49	64	79	57	72	88	66	83	99	75	92	109
15	50	65	80	58	73	89	69	85	101	78	95	111
20	50	65	80	59	74	89	71	86	102	81	97	113
45	50	65	80	60	75	90	75	90	105	89	104	119
60	50	65	80	60	75	90	75	90	105	90	105	120

Note: the optimized radius of protection is reached when placing the ESE lightning conductor at 5 meters above the highest point of the structure to protect. A minimum of 2 meters is a must.

RodCheck system

After May 2011, all Pulsar® lightning rods will be fitted as standard with the RodCheck system.

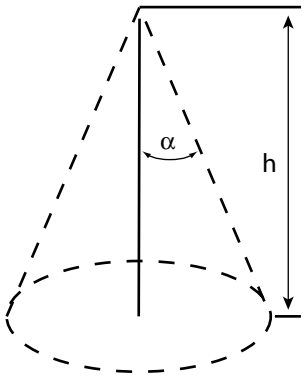
Advantage of this enhanced solution: a visual indication is given for lightning strikes greater than 25 kA (Red ring)

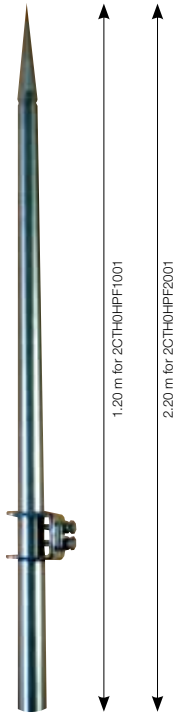
RodCheck has not been hit by a lightning stroke

RodCheck after a 25 kA lightning stroke

RodCheck after a 50 kA lightning stroke

Lightning conductor range
Simple rods





Typical applications
Small structure, pylons, chimney.

Description
The rods are made of a tapered solid stainless steel tip (L = 0.20 m), a stainless steel mast of 1 or 2 m length.
In accordance with standard IEC 62 305-3 (paragraph 5.2.2), the protection radii are as follows:

Radius of protection Rp (m)

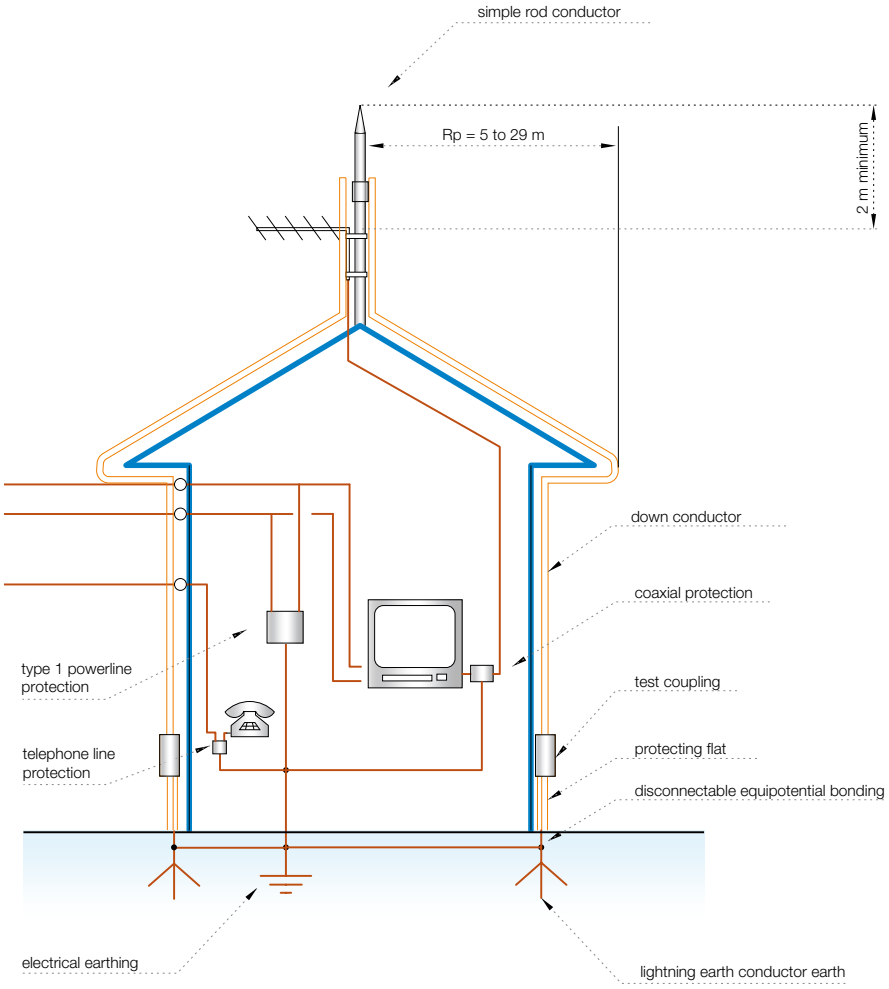
H m	Level of protection H m			
	I	II	III	IV
2	5	6	9	11
4	8	10	12	15
6	10	12	15	20
8	10	13	17	21
10	10	14	17	22
20	10	15	21	29

H: height of conductor tip above protected surface(s).
Rp: radius of protection in horizontal plane located at a vertical distance h from the conductor tip.

Ordering details

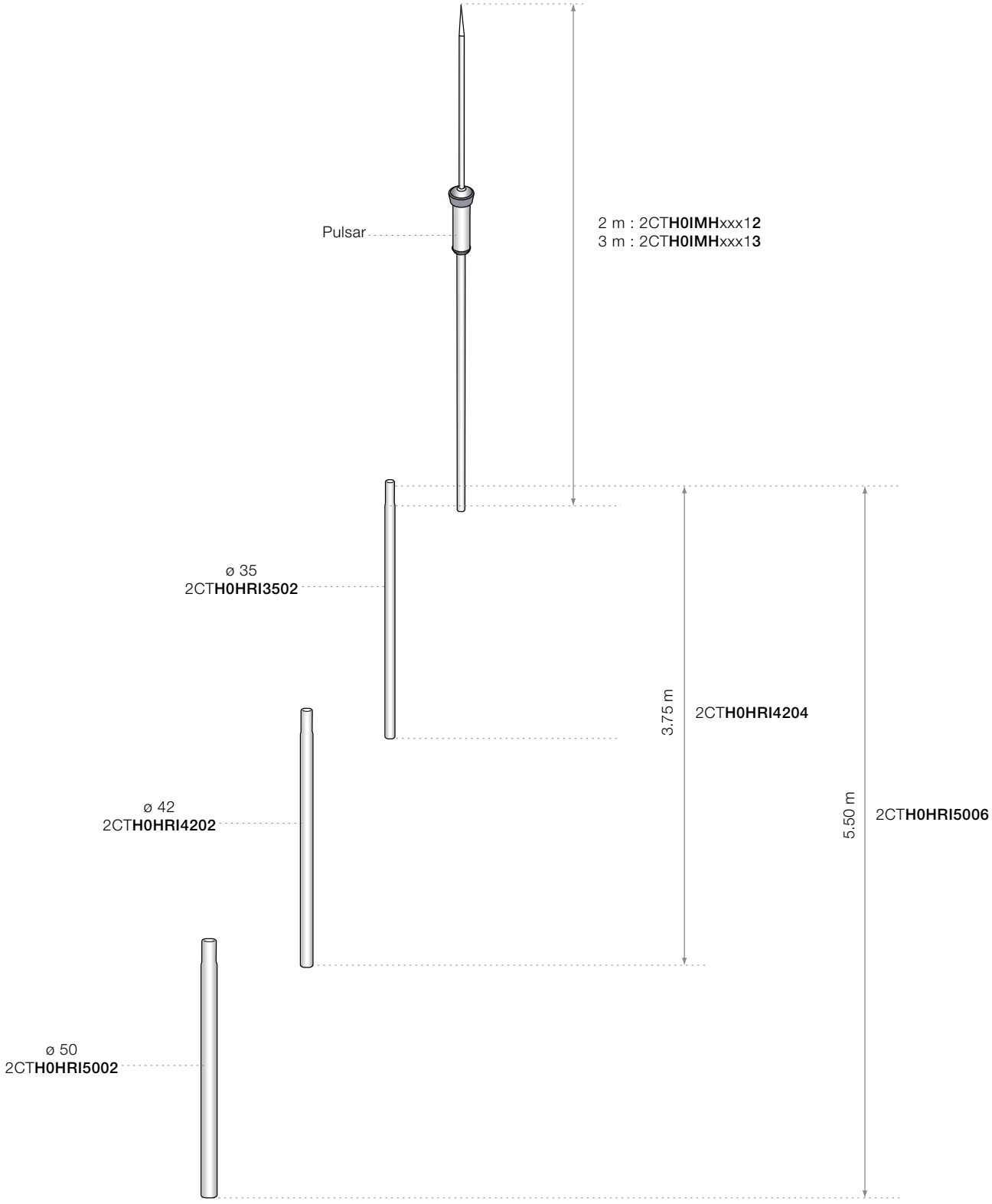
Description	Length m	Order code	Weight kg
on 1 m stainless steel mast	1.20	2CT**H0HPF1001**	2.000
on 2 m stainless steel mast	**2.20**	2CT**H0HPF2001**	**3.500**

Protection of individual houses



Lightning conductor range
Masts

Installation



Lightning conductor range
Masts

Description
The interlocking extension masts reach a maximum height of 5.75 m, i.e. 7.60 m when equipped with a 2 m lightning conductor.

Material: stainless steel.

Ordering details

Description	Length m	Order code	Weight kg
Stainless steel mast Ø 35 / int. 31	2	2CT**H0HRI3502**	3.400
Stainless steel mast Ø 35 / int. 31	**3**	2CT**H0HRI3503**	**5.200**
Stainless steel mast Ø 42 / int. 36	2	2CT**H0HRI4202**	6.400
Stainless steel mast Ø 42 / int. 36	3	2CT**H0HRI4203**	9.600
Stainless steel mast Ø 50 / int. 44	2	2CT**H0HRI5002**	7.500
Set of 2 stainless steel masts / int. 44	3.75	2CT**H0HRI4204**	9.800
Set of 2 stainless steel masts / int. 44	5.75	2CT**H0HRI4206**	14.800
Set of 3 stainless steel masts / int. 44	5.50	2CT**H0HRI5006**	17.300
Stainless steel extension mast Ø 50 / int. 44	3	2CT**H0HRI5003**	11.000

Description
Mast configuration without guying kit for a wind below 140 km/h and more than 6 km away from the sea.

Nominal height m	Conductor type	Mast type
4	2CT**H0IMH**xx**12**	2CT**H0HRI3502**
5	2CT**H0IMH**xx**13**	2CT**H0HRI3502**
6	2CT**H0IMH**xx**13**	2CT**H0HRI3503**
7	2CT**H0IMH**xx**13**	2CT**H0HRI3502** + 2CT**H0HRI4202** = 2CT**H0HRI4204**
8	2CT**H0IMH**xx**12**	2CT**H0HRI3503** + 2CT**H0HRI4203** = 2CT**H0HRI4206**

Description
Mast configuration without guying kit for a wind below 170 km/h.

Nominal height m	Conductor type	Mast type
4	2CT**H0IMH**xx**12**	2CT**H0HRI3502**
5	2CT**H0IMH**xx**13**	2CT**H0HRI3502**
6	2CT**H0IMH**xx**12**	2CT**H0HRI3502** + 2CT**H0HRI4202** = 2CT**H0HRI4204**
7	2CT**H0IMH**xx**13**	2CT**H0HRI3502** + 2CT**H0HRI4202** = 2CT**H0HRI4204**
8	2CT**H0IMH**xx**12**	2CT**H0HRI3502** + 2CT**H0HRI4202** + 2CT**H0HRI5002** = 2CT**H0HRI5006**

For wind speed above 170 km/h a guying must be used.

Lightning conductor range
Roof fixing accessories

Ballasted tripods

– Use: to fit a mast (height 5 m) on flat roof (max. gradient 5%) without drilling or sticking on the roof
– Material: galvanised steel.

Description	Footing	Order code	Weight kg
Ballasted tripod - Wind below 149 km/h		2CT**HCTLB5002**	120.00
Ballasted tripod - Wind below 170 km/h		2CT**HCTLB5004**	200.00
Ballasted tripod - Wind below 186 km/h		2CT**HCTLB5005**	350.00

For wind speed above 186 km/h a guying kit must be used.

Supporting plates / tripods

– Use: to fix lightning conductors or elevation masts to flat roofs
– Material: galvanised steel
– Bolt hole diameters: 12 mm.

	Description	Height mm	Dimensions of base	Centerline distance	Order code	Weight kg
1	Plate for Pulsar® (30 mm) or extension mast (35 mm)	330	200 x 200	160 x 160	2CT**H0HPP4523**	5.500
2	Tripod for 30 to 50 mm tube	800	420 face	390 face	2CT**HCTSH4525**	8.500

H0HPP4523: to be used with a guying kit
HCTSH4523: maximum height in wind zone 3 is 3 m

Carriage bolt holdfasts

– Use: to fix a single conductor rod (with no extension mast) in timber frameworks or bedding in masonry
– Material: galvanised steel
– Delivered complete with hardware.

Description	Effective thread L. mm	Effective L. after fixing m	Hole Ø mm	Order code	Weight kg
Short sup.	150	0.10	18	2CT**H0HST2044**	1.250

Maximum height in wind zone 3 is 5 m (without guying kit)
Important: not to omit the use of water deflecting cone to secure watertightness of the installation.

Threaded bases

– Use: to fix a conductor to a metal framework. The conductor may be raised by a Ø 35 mm extension mast
– Material: galvanised steel
– Delivered complete with hardware.

Description	Maximum tightening L. mm	Thread Ø mm	Order code	Weight kg
Pulsar® mast base	115	30	2CT**H0HEF2107**	2.200
Ø 35 mm extension mast base	150	36	2CT**H0HEF2313**	4.500

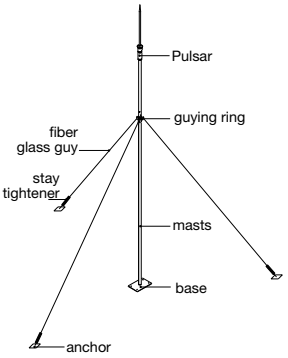
Maximum height in wind zone 3 is 5 m (without guying kit)
Important: not to omit the use of water deflecting cone to secure watertightness of the installation.

Water deflecting cones

– Use: to ensure the watertightness in between the roof and the mast when fixing is used under roofing. Cut according to mast diameter (CRE)
– Material: rubber (CRE).

Description	Taper opening mm	Height mm	Order code	Weight kg
Water deflecting cone	6 to 50	55	2CT**HCCRE2700**	0.040

Lightning conductor range
Pylons



Self carrying pylons

- Material: hot galvanised steel
- These pylons are made of a welded steel lattice with a triangular cross-section. Each element is 3 m in length, except the ground anchoring section (about 1 m).
- Delivered complete with stainless steel hardware and Hélita Ø 35 mm mast head (to receive Pulsar® mast)
- The concrete anchorage blocks should be made with concrete in a proportion of 350 kg/m³ and calculated for a good ground.

Height *	Self-supporting			
	Zone I	Zone II	Zone III	Zone IV
m	136 km/h	149 km/h	167 km/h	183 km/h
9	2CT**HCHPA0109**	2CT**HCHPA0209**	2CT**HCHPA0309**	2CT**HCHPA0409**
12	2CT**HCHPA0112**	2CT**HCHPA0212**	2CT**HCHPA0312**	2CT**HCHPA0412**
15	2CT**HCHPA0115**	2CT**HCHPA0215**	2CT**HCHPA0315**	2CT**HCHPA0415**
18	2CT**HCHPA0118**	2CT**HCHPA0218**	2CT**HCHPA0318**	2CT**HCHPA0418**

* Other sizes on request - Technical specifications available - For wind zone V (210 km/h) please consult us.

Guyed pylons

- Material: hot galvanised steel
- These pylons are made of a welded steel lattice with a triangular cross-section (centerline distance 175 mm) supplied in lengths of 3 or 6 m
- Use: lightning conductor supports for flat roofs
- Fibre glass guying (1 set per section)
- Delivered complete with base and neoprene tile, Hélita Ø 35 mm mast head, fibre glass and accessories (anchoring clips and stay tighteners) for guying, with bolted anchoring.

Height *	Guyed
m	Zones I and II
9	2CT**HCHPH0900**
12	2CT**HCHPH1200**
15	2CT**HCHPH1500**
18	2CT**HCHPH1800**

* Other sizes on request - Technical specifications available - For wind zone V (210 km/h) please consult us.

Guying kit for lightning rod with mast

Complete kit with:
- 25 m of fibre glass cable
- 6 anchoring clips
- 3 stay tighteners
- 3 ring fasteners
- 1 3-directional clamp
- 1 base (2CT**HCHPP4523**).

Description	Order code	Weight kg
Guying kit	2CT**H0HKH0025**	12.000

OBSTA obstruction lights

The OBSTA HISTI is an obstruction light for hazard to low-flying aircraft for airport, building, broadcast transmitting towers, chimneys, bridges and transmission lines. This lamp based on cold neon discharge principle offers high reliability, robustness in hostile environments (EMC, climatic...), proven long life (more than 25 000 hours) on all kinds of obstacle like transmission lines, TV towers and exposure in electromagnetic fields and high temperature. One unique model will adjust itself to the main supply voltages, continuously from 100 V to 240 Vrms 50/60 Hz.

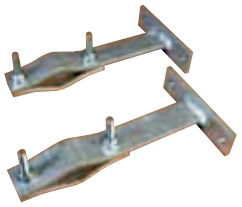
Description	Order code	Weight kg
OBSTA HISTI 110 to 240 V	2CT**HCHCO0071**	5.000
OBSTA photoelectric cell 230 V	2CT**HCHCO0752**	0.400

Incendescent obstruction lights

Simple obstruction light of very simple conception with special lamp 55 W - 230 V (2CT**HCFOH2101**) having an average life time of 8 000 hours.

	Description	Order code	Weight kg
1	Single obstruction light - H 190 mm - Ø 110 mm	2CT**HCFOH2100**	1.400
2	Support plate with studs for obstruction light - H 145 mm	2CT**HCFOH2101**	0.600
	55 W lamp - 230 V - 8 000 hours	2CT**HCFOH2201**	

Lightning conductor range
Lateral fixations



Wall fixing accessories

Bolted brackets

– Use: bolted fixing for an offset mast on a vertical wall (M 10)
– Bolt hole diameter: Ø 11 mm
– Distance between bolt holes: 120 mm.

Description / offset	Order code	Weight kg
Set of 2 brackets / 290 mm	2CT**H0HPS2705**	**3.800**
Set of 3 brackets / 290 mm	2CT**H0HPS2845**	5.700
Set of 2 brackets / 125 mm	2CT**H0HPS2708**	**2.800**
Set of 3 brackets / 125 mm	2CT**H0HPS2848**	4.200

Version in 3 brackets for installation of 5 m (and 6 m) consisting of a 2 m (or 3 m) lightning rod with additional 3 m mast, with a wind less than 136 km/h.

Pylons, ladders, guardrail or fences fixing accessories

Offset clamps

– Use: fixing of a mast offset from a vertical wall or a horizontal section by means of Ø 10 mm bolts.

	Description	Use	Order code	Weight kg
1	**Set of 2 clamps**	**Horizontal support**	2CT**H0HPS2704**	**3.400**
	Set of 3 clamps	Horizontal support	2CT**H0HPS2844**	5.100
2	**Set of 2 clamps**	**Vertical support**	2CT**H0HPS2706**	**3.400**
	Set of 3 clamps	Vertical support	2CT**H0HPS2846**	5.100

Version in 3 brackets for installation of 5 m (and 6 m) consisting of a 2 m (or 3 m) lightning rod with additional 3 m mast, with a wind less than 136 km/h.

Steel hoops

Masonry chimney (rectangular/square section)

– Use: fixing of a mast on a chimney, a concrete mast, etc. (rectangular/square section)

Description	Clamping Ø mm	Order code	Weight kg
Set of 2 brackets square section	from 30 to 60	2CT**H0HCC4000**	2.000
Coil of steel hoop (25 m)		2CT**H0HFC4002**	5.000

Metal cylindrical chimney

– Use: fixing of a mast on a chimney, round section)

Description	Clamping Ø mm	Order code	Weight kg
Set of 2 brackets cylindrical section	250	2CT**H0HCC5000**	2.200
Stainless steel tape 20 x 0.7 (50 m)		2CT**HCHFP2650**	4.000
5 tightening clips 200 mm		2CT**H0HCP2651**	0.050

3 bracket versions available on request.

Wide offset bracket

– Use: bolted fixing of a mast offset from a vertical wall (M 10)
– Material: galvanised steel
– Offset distance: 45 cm
– Distance between bolt holes: 54 cm
– Minimum distance between brackets: 50 cm to fix a set of masts for a building with a height of 5 m; 1 m for higher buildings
– Delivered complete with hardware and back plate.

Description	Clamping Ø mm	Order code	Weight kg
Set of 2 brackets	from 30 to 60	2CT**H0HPS2710**	10.500

Lightning conductor range
Conductors and coupling accessories

Conductors

Flat conductors* (sold per meter)

Description	Material	Order code	Weight kg/m
30 x 2 mm strip	**Tin-plated copper**	2CT**HCCPC2712**	**0.535**
30 x 2 mm strip	Stainless steel	2CT**HCCPI2711**	0.474

* Other dimensions on request.

Round conductors*

Material	Section mm²	Order code	Weight kg/m
Ø 8 tin-plated copper	50	2CT**HCCRC8000**	0.450

* Other dimensions on request.

Shunts

– Electrolytically tin-plated flat flexible copper braid with welded eyelet at each end
– Other lengths and cross-sections available on request.

Length m	Section mm²	Order code	Weight kg
0.30	50	2CT**H0STP5030**	0.160
0.50	50	2CT**H0STP5050**	0.270
0.75	50	2CT**H0STP5075**	0.400
1.00	50	2CT**H0STP5100**	0.600

Coupling accessories

Coupling strips

– Use: for coupling or crossing two conductors without riveting
– The "standard" models accommodate 30 mm wide strips and rounds with Ø 6 and 8 mm
– The "multiple" model also enables crossings of round conductors
– The special strip model only accommodates flat strips.

	Description	Order code	Weight kg
1	Galvanised steel "standard" coupling	2CT**HCBRP2680**	0.300
2	Copper "standard" coupling	2CT**H0BRC2780**	0.210
3	Copper "multiple" coupling	2CT**H0BRX3780**	0.300
4	Special copper coupling for strip	2CT**H0BRH2779**	0.200
5	Special stainless steel coupling for strip	2CT**H0BRI2779**	0.204
6	3 x 2 and Ø 8 mm line coupling	2CT**H0BRC2781**	0.202

Connector for round conductors

Description	Order code	Weight kg
Lug with offset base for 8 mm conductors	2CT**HCPRC8000**	0.050

Lightning conductor range
Conductor fasteners

Roof fixing accessories

Conductor supporting studs

– Material: black synthetic exterior filled with cement (except 2CT**HCHPV2771** to be filled up by your means)
– Eliminates the need to drill through waterproofing to attach the conductor
– Can be glued with neoprene glue
– Height: 8 cm.

	Description	Use	Order code	Weight kg
1	Hollow stud	Ø 8 mm conductor 30 x 2 mm conductor Cable raceway	2CT**HCHPV2771**	0.160
2	**Solid stud (clip)**	**Ø 8 mm conductor** **30 x 2 mm conductor**	2CT**HCHPB2772**	**1.290**

Ruberalu brackets for flat roof with waterproofing

– Material: bituminised aluminium
– These brackets are attached by hot-melt gluing.

Dimensions mm	Order code	Weight kg
150 x 40	2CT**H0HBR2717**	0.020

Rolls also available

Wall fixing accessories for flat conductors

Hook for masonry walls

– Fixing: on masonry by driving into lead dowels
– For flat strip.

Description	Material	Order code	Weight kg
Hook 30 mm	Galvanised steel	2CT**H0HCM2704**	0.014
Dowel	Lead	2CT**H0HCC2696**	0.003

Stainless steel clips

– Material: stainless steel
– For fixing a flat strip conductor
– Fixed with pop rivets or screws (Ø 4 mm) not supplied.

	Description	Order code	Weight kg
1	Stainless steel clips for 30 x 2	2CT**H0HBI2703**	0.002
2	50 aluminium waterproof pop rivets Ø 4	2CT**H0HRP2705**	0.100
3	Stainless steel clip for waterproof cladding for 30 x 2	2CT**H0HCB4240**	0.005

Wall fixing accessories for round conductors

	Description	Order code	Weight kg
4	Grey PVC fixture	2CT**H0HAR2445**	0.007
5	Grey clipped tile fastener	2CT**H0HAR2745**	0.045

Pylon or ladder fixing accessories for round or flat conductor

Stainless steel collars

– Use: to clamp conductors on tube supports
– Material: stainless steel.

Tightening Ø mm	Order code	Weight kg
30 to 50	2CT**HCHCI2419**	0.015
40 to 70	2CT**HCHCI2420**	0.020
60 to 100	2CT**HCHCI2421**	0.025

Lightning conductor range
Earth coupling accessories

Test coupling

- Enables the disconnection of the conductors for insulation and earthing measurements
- Material: die-cast brass
- No need to drill the conductors
- Accommodate Ø 6 and 8 mm round conductors and 30 x 2 or 30 x 3 mm flat conductors
- Guarantee perfect conductivity, low impedance
- Fixed by brackets with wood or metal screws, etc.
- In accordance with NF C 17-102 standard.

Dimensions mm	Order code	Weight kg
70 x 50 x 20	2CT**H0JCH2708**	0.390

Note: Down conductors have to overlap on the whole height of the test coupling.

Protecting flats and tubes

- 2 m galvanised steel flats or tubes to protect the down conductors against mechanical impact
- Generally placed between the test coupling and the ground
- Delivered complete with 3 clamps (bracket, wood screw).

Description	Order code	Weight kg
Protecting flat for strip	2CT**H0TPH2705**	1.000
Protecting tube for round conductor	2CT**H0TPH2768**	1.000

Inspection earth pit

- Used to house the test coupling at ground level, the earth rod connections or earth interconnections
- The 2CT**H0RVH3073** and 2CT**H0RVH3074** models are equipped with a copper bar enabling the interconnection of 3 conductors or 2 conductors and a test coupling.

	Material	Dimensions mm	Order code	Weight kg
1	Cast iron	Ø ext. 190	2CT**H0RVH3071**	2.400
2	Yellow polyester concrete	350 x 250	2CT**H0RVH3072**	13.000
3	**Yellow polyester concrete with earth bar**	**350 x 250**	2CT**H0RVH3073**	**14.500**
4	Grey PVC with earth bar	300 x 300	2CT**H0RVH3074**	3.300

Interconnection box for equipotential bonding

- These boxes are fixed to the bottom of the down conductor and enable easy, accessible interconnection and disconnection of the lightning conductor earth and the building's earth loop
- They are made of a galvanised steel cover over a copper bar mounted on two insulators enabling the connection of 2 conductors
- Delivered complete with wood screw brackets and earth identification labels.

Dimensions mm	Order code	Weight kg
150 x 65 x 65	2CT**H0BLH2707**	0.550

Identification plate

Description	Order code	Weight kg
Identification plate	2CT**H0PSH2009**	0.010

Lightning conductor range
Earthing system

Overview

Each down conductor in a lightning protection system must be connected to an earth termination system designed to carry away the lightning current. The earth termination system must fulfil three indispensable conditions:

– **The earth termination resistance value**
  French and other international standards, as well as the technical requirements of a number of authorities stipulate an earth termination resistance value of less than 10 ohms. This value should be measured on the earth connection isolated from any other conductive component.
  If the resistance value of 10 ohms cannot be achieved, the earth termination is nonetheless considered compliant if it is made up of at least 100 m of conductors or electrodes, each section measuring no more than 20 m (for level of protection 2, 3 and 4) and 160 m (8 x 20 m) for level 1.

– **Equipotential bonding**
  Standards require the equipotential bonding of lightning conductor earth termination systems with the existing earthing systems.

– **Inspection earth pit**
  The connection parts between lightning earth system and electrical system test coupling can be accessed by an inspection pit.

General earth system

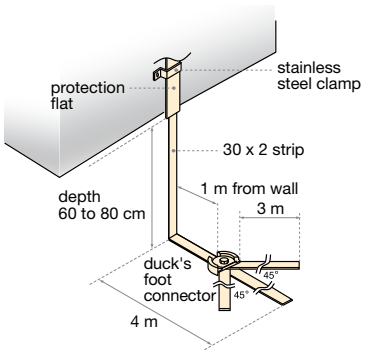
Duck's foot earth termination system

The minimum earth termination system is made up of 25 meters of 30 x 2 mm tin-plated copper strip, split into 3 strands buried in 3 trenches at a depth of 60 to 80 cm dug in a fan shape like a duck's foot: one end of the longest strand is connected to the test coupling, the two other strands being linked to a special connection known as a duck's foot connector.

Standard list of material

Description	Order code	Nb of pcs or m
Duck's foot connector	2CT**H0RPO2840**	1 pc
Flat conductor	2CT**HCCPC2712**	25 m

Note: The earth termination is covered by a red or orange warning grid.



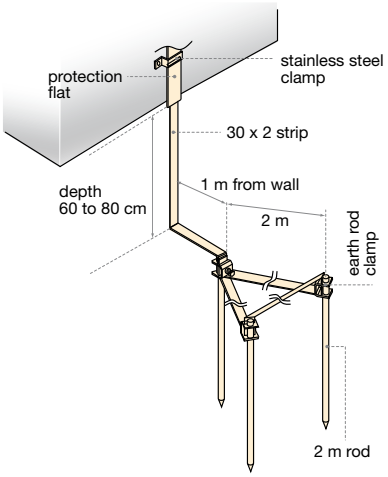
Rod triangle earth termination system

When the site topography does not lend itself to the installation of a duck's foot as described above, an earth termination system can be developed using at least 3 copper earth rods each with a minimum length of 2 m, buried vertically in the ground: the rods should be spaced at intervals of about 2 m and at a mandatory distance of 1 m to 1.5 m from the foundations.

Standard list of material

Rod system		
Description	**Order code**	**Nb of pcs or m**
Duck's foot connector	2CT**H0RPO2840**	1 pc
Flat conductor	2CT**HCCPC2712**	10 m
Self-extensible earth rod	2CT**HCPVB2010**	6 pcs
Manual snap tool Ø 19	2CT**HCBMA0019**	1 pc
Earth rod clamp	2CT**H0CRH4020**	3 pcs

Note: The earth termination is covered by a red or orange warning grid.



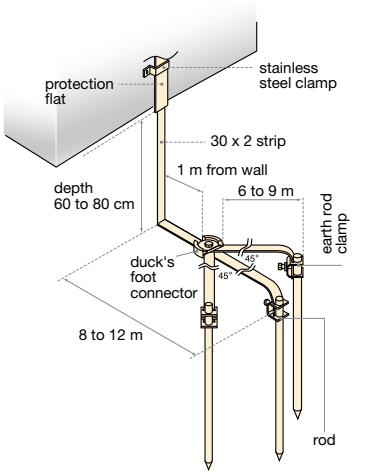
Duck's foot earth termination system with earth rods

If the soil type is not altogether suitable for a duck's foot connector, a combination of duck's foot and earth rods will significantly enhance protection. In this case, the end of each duck's foot connector strand is connected to an earth rod.

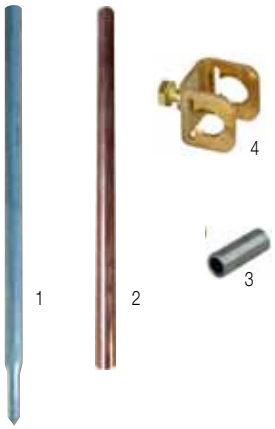
Standard list of material

Rod system		
Description	**Order code**	**Nb of pcs or m**
Duck's foot connector	2CT**H0RPO2840**	1 pc
Flat conductor	2CT**HCCPC2712**	25 m
Standard copperbond rod, 2 m	2CT**H0PCS1920**	3 pcs
Manual snap tool Ø 19	2CT**HCBMA0019**	1 pc
Earth rod clamp	2CT**H0CRH4020**	3 pcs

Note: The earth termination is covered by a red or orange warning grid.



Lightning conductor range
Earthing system



Earth rods

– The use of a reusable treated steel snap tool is compulsory to protect the rod head when driving in

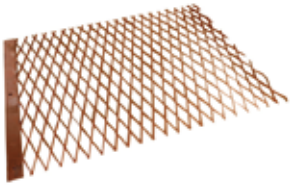
Description	Order code	Weight kg
1 Galvanised steel rod Ø 20 - L. 1 m	2CT**HCPVB2010**	2.400
2 Standard copperbond earth rod Ø 19 - L. 210 m	2CT**HCPCS1920**	
3 Manual snap tool Ø 19*	2CT**HCBMA0019**	0.300
4 Earth rod clamp for 30 x 2 strip	2CT**H0CRH4020**	0.150

(1) 2CT**HCPVB2010**: high resistance steel tube hot galvanised
(2) 2CT**HCPCS1920**: high corrosion resistance due to a 250 µ thickness of electrolytically plated copper
(3) 2CT**HCBMA0019**: manual snap tool - one for 3 rods to be hammered in

Duck foot connectors

– Zinc-plated, die-cast brass parts enabling the connection of three of four strands of tin-plated copper 30 x 2 mm conductor strip
– Variable strand angles
– Perfect electrical conductivity and strong tightening.

Description	Order code	Weight kg
Duck foot connector Ø 85 - thickness 30 mm	2CT**H0RPO2840**	0.800



Earth grids

– Earth grids are made of solid red copper with a mesh size of 115 x 40 mm.

Description	Thickness mm	Order code	Weight kg
Earth grid 0.66 x 0.92 m *	3	2CT**HCGMD6692**	3.800
Earth grid 1.00 x 2.00 m **	3	2CT**HCGMD1020**	8.400

* Equivalent to 18 m of Ø 8 mm round conductor
** Equivalent to 54 m of Ø 8 mm round conductor

Digital earth test set

– Battery-powered and watertight the 2CT**HCACA6460** is a device that is easy to use and has been designed for operation in the field
– On all installations requiring the qualification of electrical or lightning conductor earths, using traditional earth rod methods, the 2CT**HCACA6460** measures the earth resistance and resistivity of the soil.

Description	Order code	Weight kg
1 Digital earth and resistivity test set	2CT**HCACA6460**	1.300
Housing for test set with accessories (4 leads + 4 rods)	2CT**HCACA2025**	6.000
2 High frequency ground test *	2CT**HCACA9500**	3.500

* The high frequency ground test set 2CT**HCACA9500** is a self powered and easily carried impedance analyser that measures automatically the R (resistance), **Z** (impedance) and X (imaginary impedance) of a ground system or a ground loop on a bandwidth from 10 Hz to 1 MHz. This test set permits to improve the present measurement standards by introducing the frequency response to a discharge current impulse. Delivered with housing of accessories.

Lightning conductor range
Equipotential bonding

1

2

3

4

Antenna mast arrester

– Use: temporary grounding of an antenna mast in the event of lightning impact directly on the antenna
– In normal circumstances, the arrester insulates the antenna from the earth, but also from the Lightning Protection System in the event of a lightning strike on the LPS.
– The arrester can also be used to earth metallic structures such as pylons, motor chassis, roof equipment, etc.
– Characteristics:
  - dynamic excitation < 1800 V
  - static excitation voltage < 1100 V
  - nominal discharge current: 25 kA
  - dimensions: 280 x 45 x 30 mm
  - delivered complete with clamp for mast attachment.

Description	Order code	Weight kg
Antenna mast arrester	2CT**H0EAH4005**	0.400

Lightning counter

– This counter is a standard down conductor fitting and records each passing lightning stroke with a current in the range 0.4 kA to 150 kA
– This counter uses the current induced in a secondary circuit to activate an electromechanical counter. It has been tested in High Voltage laboratories and in situ
– Mounted directly on an existing flat or round down conductor without cutting it.

	Description	Order code	Weight kg
1	Lightning stroke counter with a flat conductor connection	2CT**H0CCF2004**	0.410
2	Lightning stroke counter and recorder	2CT**H0CIF2006**	0.340

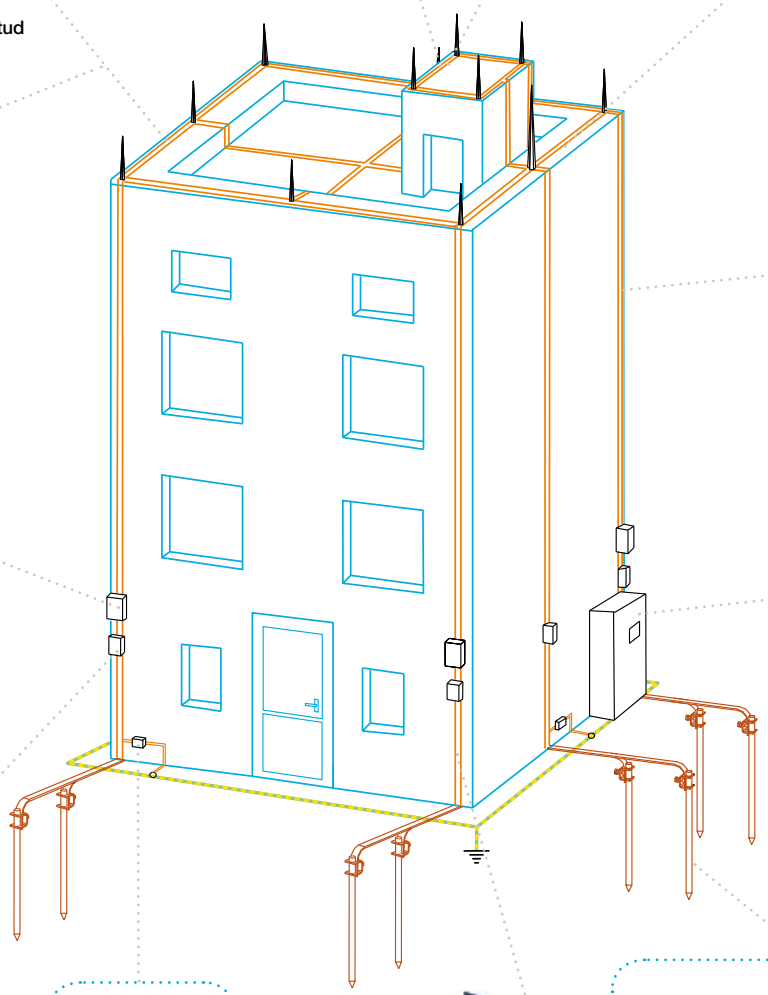
Pulsar® test kit

Pulsar® lightning conductor testing kit

– The testing kit needs a contact with the Pulsar® tip in one hand, and the bottom of the pole or the down conductor in the other hand
– It tests the Pulsar® electronics by activating the high-voltage internal circuit of the Pulsar®.

	Description	Order code	Weight kg
3	8 m testing kit with Pulsar® test set	2CT**H0PMH0800**	6.000
4	Pulsar® test set	2CT**H0HPT9211**	1.900

Meshed cage
Typical installation



Conductor supporting stud
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Fixture accessories for air terminals
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Air terminal
p.23

Flat or round conductor connection
p.16

Rubberalu clamps
p.17

Hook
p.17

Lightning stroke counter (every 4 down conductor)
p.21

Type 1 SPD highly recommended

Test coupling
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Equipotential box
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Protecting flat
p.19

Earth rod clamp
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Earth rods with clamps
p.20

Meshed cage
Accessories

Air terminal

Meshed cage air terminals are designed for easy, rapid installation on a wide range of structures.
They are made up of:
– A cylindrical (Ø 18 mm) bright nickel-plated copper cylinder tapered at the top and with a threaded lower section
– A bright tapped nickel-plated brass base M 10 for the connection and intersection of flat or round conductors. They are adaptable to all fixtures shown below.

Length m	Material	Order code	Weight kg
0.50	Nickel copper	2CT**H0HPC5000**	1.500

Fixture accessories for air terminals

Vertical mounting

– Material: tin-plated or galvanised steel.

	Description	Length cm	Hole Ø mm	Order code	Weight kg
1	To bed	10	16	2CT**HCSSH5001**	0.120
2	To bold	16	8	2CT**HCSTH5002**	0.070
3	S/Steel threaded base	13	10	2CT**H0EFH5003**	0.100

Supporting plates

– Material: stainless steel
– Fixing: 2 Ø 10 mm bolt holes (centerline distance 93 mm).

	Description	Length x width mm	Order code	Weight kg
1	Flat plate PM	50 x 50	2CT**H0PSH5002**	0.100
	Flat plate GM	120 x 50	2CT**H0PSH5004**	0.200
2	Swivelling plate	120 x 50	2CT**H0SOH5006**	0.460
3	Roof ridge plate	250 x 120	2CT**H0PFH5000**	0.500

Offset plate

– Material: galvanised steel
– Fixing: by M8 screw.

Description	Order code	Weight kg
15 cm offset plate	2CT**H0PDH5015**	0.200

Adaptor sleeve

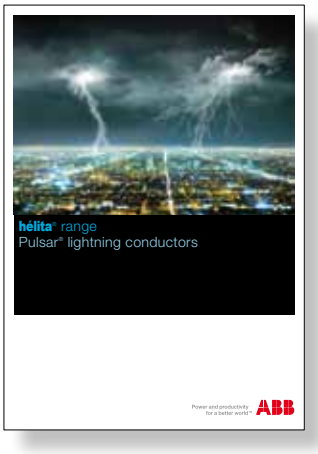
– Use: to fix air terminals to existing supports (max. Ø 50 mm)
– Material: stainless steel.

Max. tightening length L mm	Order code	Weight kg
100	2CT**H0HMA5010**	0.400

Index

Order code

Other documentation



hélita® range
Pulsar® lightning conductors

1TXH 000 084 B0201

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