

Maintaining the **separation distance s** is important when designing and realising a lightning protection system, in order to prevent dangerous flashovers between components of the external lightning protection system and conductive internal system components (electrical installation, piping, etc.).

Maintaining the **separation distance s** often is difficult at new installations as well as in existing systems. With the innovative HVI Conductor this requirement can be easily met.

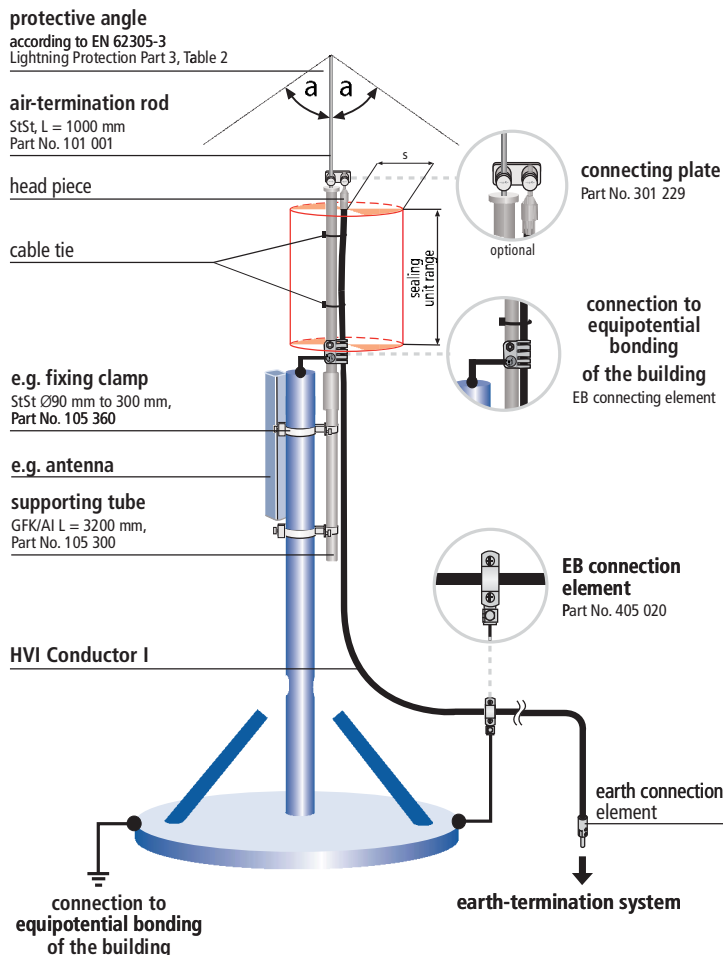
Function of the HVI Conductor:

High impulse voltages cause flashovers, also known as creep-flashovers, at insulating material surfaces, unless additional measures are taken. If the so-called creepage discharge voltage is exceeded, a surface discharge is initiated which can easily flash over a distance of some meters. In order to avoid creepage discharges, the HVI Conductor has a special outer coating which allows high lightning impulse voltages to be discharged to a reference potential. For this purpose a connection will be implemented in the sealing end range between the external semiconductive coating and the equipotential bonding of the building (not subject to lightning voltage). This equipotential bonding can be provided e.g. by connection to metallic earthed roof-mounted structures, located in the protected area of the lightning protection system, to earthed parts of the building construction which are not exposed to lightning voltage or to the protective conductor of the low-voltage system.

In the sensitive sealing end range there may not be any metal parts within the space of the **separation distance s** .



Isolated air-termination system for recooling plant with HVI conductor grey in a supporting tube



Parallel ducted HVI conductor with terminal clamp Part No. 301 329

Schematic illustration showing the application at a mobile radio antenna

High-voltage resistant insulated down conductor for keeping the separation distance from electrically conductive parts according to IEC/EN 62305-3

Equivalent separation distance $s \leq 0.75$ m (in air) or $s \leq 1.5$ m (solid building material).

Thus, according to the class of lightning protection system (LPS), the following maximum conductor lengths can be realised at one down conductor:

LPS I	max.	9.40 m
LPS II	max.	12.50 m
LPS III/IV	max.	18.75 m

The HVI Conductor meets the requirements according to EN 50164-2.

A processing temperature of ≥ 0 °C and a permanent temperature range (at fixed installation) of -30 °C up to +70 °C are to be taken into account.

Minimum order length 4 m, conductor length to be indicated when ordering.

The HVI Conductor is available in two versions:

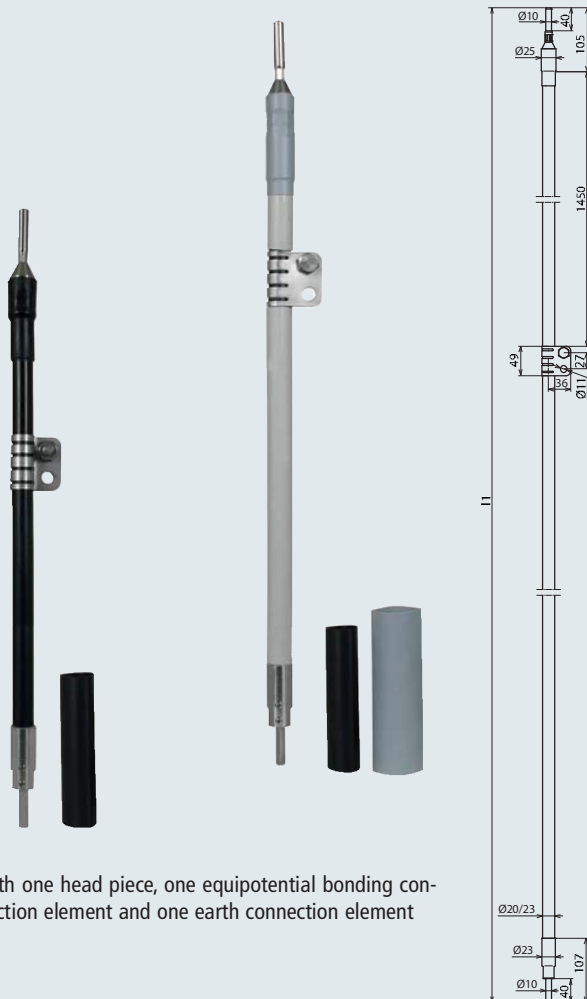
HVI Conductor I is for use to connect the air-termination system of the external lightning protection directly to the earth-termination system of the building.

HVI Conductor III with a pre-assembled sealing end and a sealing end to be implemented on site, typically is for use in cases where the total conductor length can not be determined exactly when designing the installation. The HVI Conductor III is used where e.g. several system parts to be protected are not connected individually but commonly via an "isolated ring conductor" to the earth-termination system of the building.

HVI Conductors I and III may be shortened, but not extended.

Note: When using the HVI Conductors in hazardous areas, information on Page 100 shall be observed.

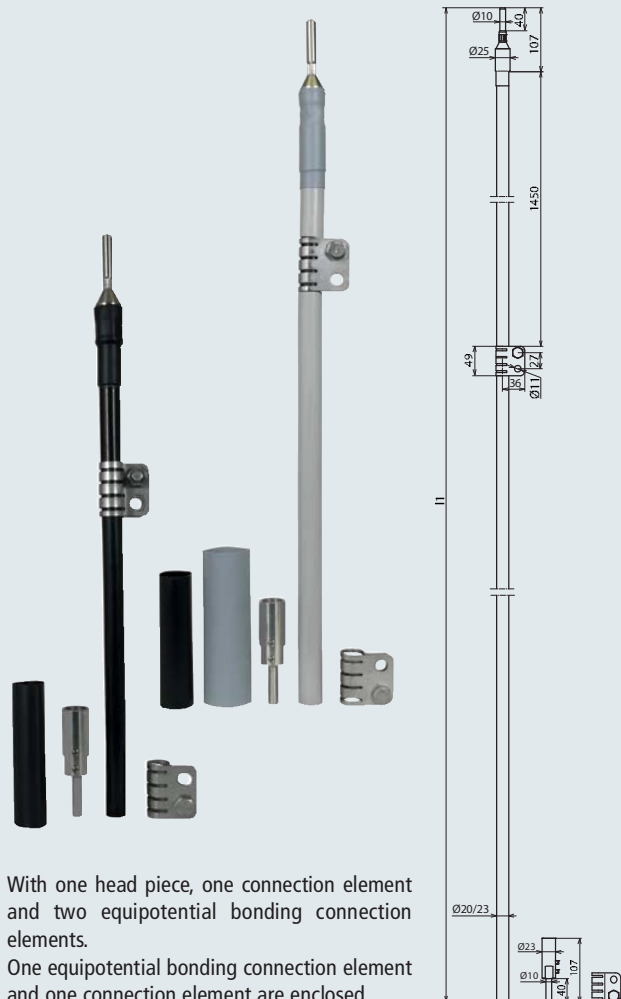
HVI Conductor I



With one head piece, one equipotential bonding connection element and one earth connection element

Part No.	819 020	819 023
Material of conductor	Cu	Cu
Material of insulation	PE	PE
Material of coating	PVC	PVC
Colour of conductor	black	grey
Cross section of core	19 mm ²	19 mm ²
Outer Ø conductor	20 mm	23 mm
Minimum order length (l1)	4 m	4 m

HVI Conductor III



With one head piece, one connection element and two equipotential bonding connection elements.

One equipotential bonding connection element and one connection element are enclosed.

Part No.	819 022	819 025
Material of conductor	Cu	Cu
Material of insulation	PE	PE
Material of coating	PVC	PVC
Colour of conductor	black	grey
Cross section of core	19 mm ²	19 mm ²
Outer Ø conductor	20 mm	23 mm
Minimum order length (l1)	4 m	4 m

More details about the HVI Conductor system in installation instructions No.1811.

Due to the order-related manufacturing (customised conductor length) the conductor can not be taken back.

High-voltage resistant insulated down conductor for keeping the separation distance to electrically conductive parts according to IEC/EN 62305-3

Equivalent separation distance $s \leq 0.75$ m (in air) or $s \leq 1.5$ m (solid building material).

Diameter 23 mm, grey



The HVI long Conductor for on-site assembly will be delivered in a length of 100 m on a disposable plywood reel (diameter approx. 755 mm, width approx. 480 mm) including one Allen key.

Part No.	819 136
Material of conductor	Cu
Material of insulation	PE
Material of coating	PVC
Colour of conductor	grey
Cross section of core	19 mm ²
Outer Ø conductor	23 mm

Diameter 20 mm, black



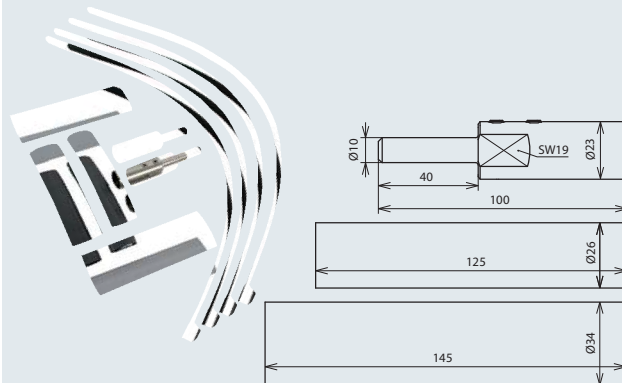
The HVI long Conductor for on-site assembly will be delivered in a length of 100 m on a disposable plywood reel (diameter approx. 800 mm, width approx. 485 mm) including one Allen key.

Part No.	819 135
Material of conductor	Cu
Material of insulation	PE
Material of coating	PVC
Colour of conductor	black
Cross section of core	19 mm ²
Outer Ø conductor	20 mm

More details in installation instructions No. 1811.

Accessories for HVI®long Conductor

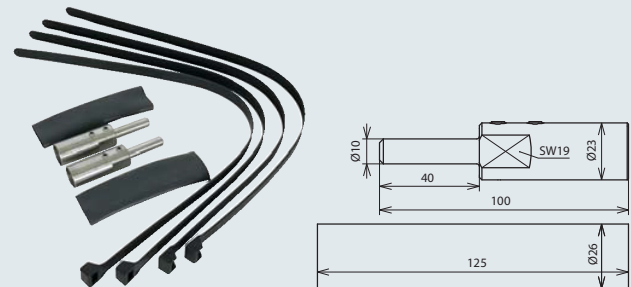
Connection Kit for HVI®long Conductor Ø23 mm



Connection elements for sealing the HVI®long Conductor on both sides, to implement the sealing ends of the conductor for connection e.g. to the air-termination rod at the supporting tube or to other parts of the external lightning protection system (including four heat-shrinkable sleeves (2x black and 2x grey) and four cable ties)

Part No.	819 140
Material	StSt
Connection diameter	10 mm
Outer diameter	23 mm
Screw	threaded pin M6x10 mm

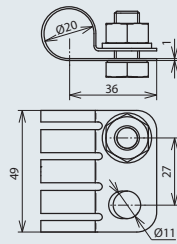
Connection Kit for HVI®long Conductor Ø20 mm



Connection elements for sealing the HVI®long Conductor on both sides, to implement the sealing ends of the conductor to be connected e.g. with the air-termination rod at the supporting tube or other parts of the external lightning protection system (including two heat-shrinkable sleeves and four cable ties)

Part No.	819 139
Material	StSt
Connection diameter	10 mm
Outer diameter	23 mm
Screw	threaded bolt M6x10 mm

EB Connecting Element for HVI®long Conductor



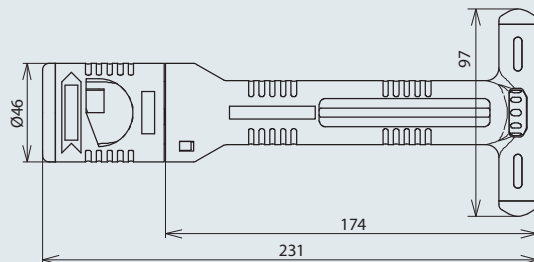
For discharging the electrical field of the HVI long Conductor in the sealing end range.

Specially slotted design for electrical contacting of the semi-conductive coating.

Part No.	410 229
Material	StSt
Clamping range Ø	20 mm
Connection bore Ø	11 mm
Screw	● M10x20 mm
Material of screw/nut	StSt

Stripping Tool for HVI® Conductors

HVI®strip 20



Tool for stripping the semi-conductive coating and the PE insulation of the HVI Conductor and HVI light Conductor with an outer diameter of 20 mm.

- The tool consists of a handle and an exchangeable cutting head
- The stripping length of the HVI Conductor may be set in steps of 0.2 mm (catch points) by the setting wheel in the handle; the set length is indicated on the handle scale

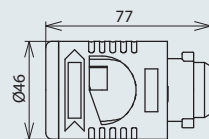
Handling

Apply the cutting head at the cut end of the conductor and turn it clockwise with light pressure for cutting and stripping.

Part No.	597 220
Outer Ø conductor	20 mm
Material of moulded part	plastic
Material of blade	StSt
Colour	black/red
Dimension	approx. 231x97 mm

HVI®head 20

Cutting head with bajonet coupling for exchange without tools.



Part No.	597 120
Outer Ø conductor	20 mm
Material of moulded part	plastic
Material of blade	StSt
Colour	black/red
Dimension	approx. 77x46 mm

More details in instructions No. 1786.

Air-termination Rod with Lock Nut

For screwing on top of the supporting tube and for connecting the HVI conductor

Part No.	101 001
Material	StSt
Diameter	10 mm
Length	1000 mm
Thread	M10
Material of nut	StSt
Standard	EN 50164-2

Supporting Tubes GRP/Al

For a separated (insulated) installation of air-termination systems with female thread for air-termination rod or MV clamp for spanning

Also for use to fix the HVI Conductor

One-piece

Part No.	105 300	105 301
Material of supporting tube	GRP / Al	GRP / Al
Length of supporting tube (l1)	3200 mm	4700 mm
Outer diameter	50 mm	50 mm
Transport length	3200 mm	4700 mm
Length of insulating clearance	1535 mm	1535 mm
Permanent temperature range	-50 to +100 °C	-50 to +100 °C

Supporting Tube GRP/Al

For a separated (insulated) installation of air-termination systems with female thread for air-termination rod or MV clamp for spanning

Also for use to fix the HVI Conductor

Two-piece

Part No.	105 302
Material of supporting tube	GRP / Al
Length of supporting tube	6200 mm
Outer diameter	50 mm
Transport length	3200/3000 mm
Length of insulating clearance	1535 mm
Permanent temperature range	-50 to +100 °C

Supporting Tube GRP/Al

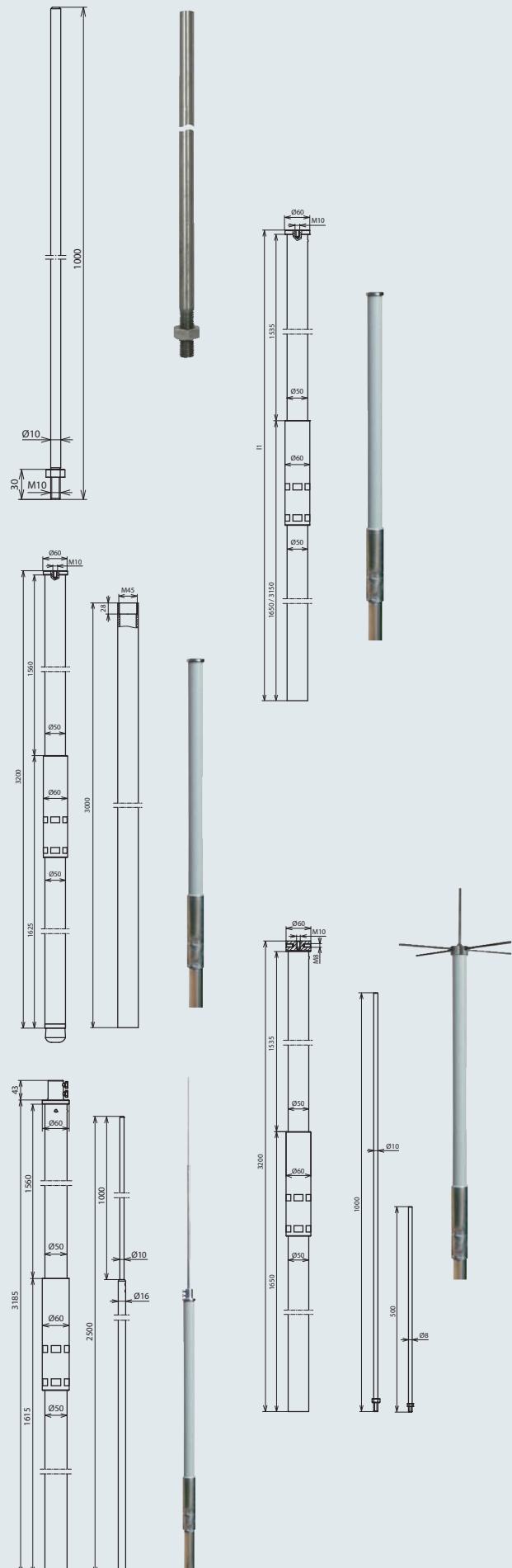
One-piece, with Al air-termination rod Ø10 mm, length 1000 mm and lateral/horizontal StSt air-termination rods Ø8 mm, length 500 mm

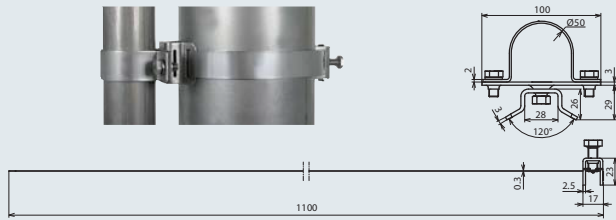
Part No.	105 310
Material of supporting tube	GRP / Al
Length of supporting tube	3200 mm
Outer diameter	50 mm
Transport length	3200 mm
Length of insulating clearance	1535 mm
Permanent temperature range	-50 to +100 °C

Supporting Tube GRP/Al

One-piece, combined with Al air-termination rod Ø16/10 mm, length 2500 mm

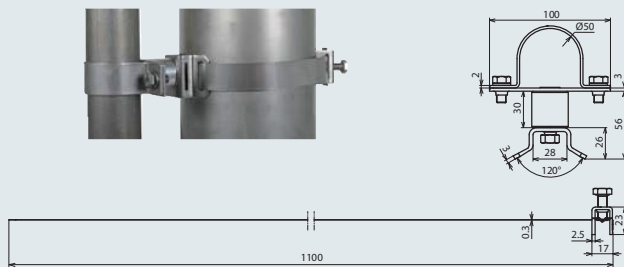
Part No.	105 306
Material of supporting tube	GRP / Al
Length of supporting tube	3200 mm
Outer diameter	50 mm
Transport length	3200 mm
Length of insulating clearance	1535 mm
Permanent temperature range	-50 to +100 °C



**Fixing Clamp with Tensioning Strap**

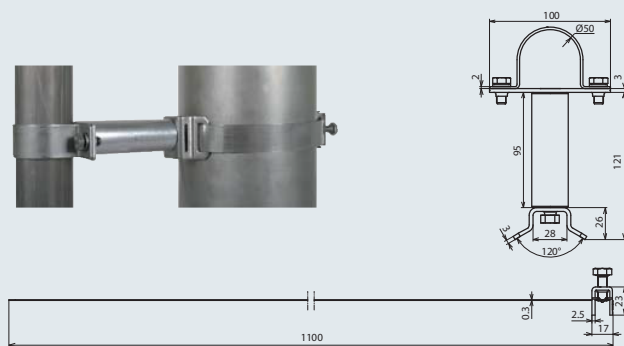
For fixing the supporting tubes at construction elements e.g. antenna masts

Part No.	105 360
Material of clip	StSt
Clamping range of supporting tube	50 mm
Clamping range pipe Ø	50-300 mm
Material of tensioning strap	StSt
Material of screw	StSt
Dimension of strap (w x d)	25x0.3 mm

**Fixing Clamp with Tensioning Strap**

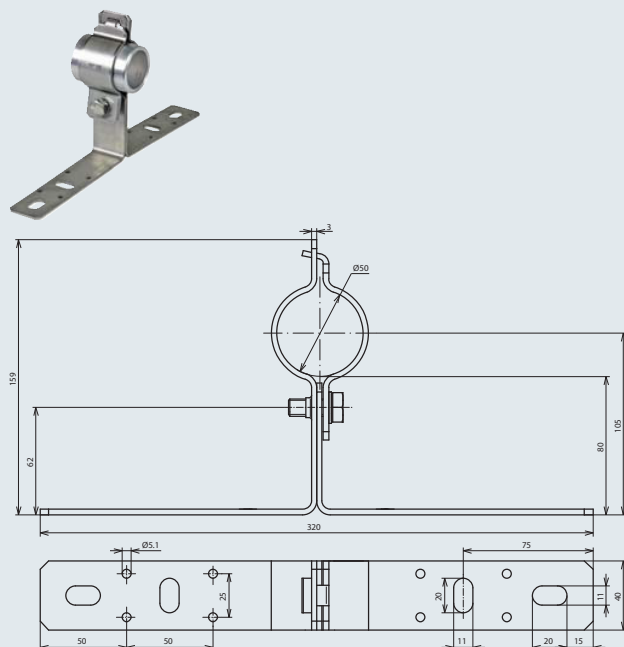
With additional spacer (30 mm) for adjusting holders of sector antennas at the mast

Part No.	105 361
Material of clip	StSt
Clamping range of supporting tube	50 mm
Clamping range pipe Ø	50-300 mm
Material of tensioning strap	StSt
Material of screw	StSt
Length of spacer	30 mm
Material of spacer	Al
Dimension of strap (w x d)	25x0.3 mm

**Fixing Clamp with Tensioning Strap**

With additional long spacer (100 mm) for adjusting holders of sector antennas at the mast

Part No.	105 362
Material of clip	StSt
Clamping range of supporting tube	50 mm
Clamping range pipe Ø	50-300 mm
Material of tensioning strap	StSt
Material of screw	StSt
Length of spacer	95 mm
Material of spacer	Al
Dimension of strap (w x d)	25x0.3 mm

**Fixing Bracket**

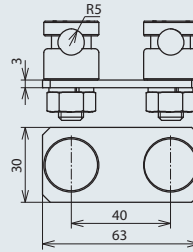
For fixing the supporting tubes at the structure to be protected or at the wall

Part No.	105 340
Material	StSt
Clamping range of supporting tube	50 mm
Wall/corner distance	80 mm
Dimension of fixing	320 mm
Fixing	[8x] Ø5.1 / [4x] 11x20 mm
Material of screw	StSt

Terminal Plate

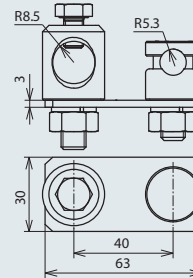
For connecting the HVI conductor to the air-termination rod with two KS connectors

Part No.	301 229
Material of terminal plate	StSt
Material of KS connector	StSt
Clamping range Rd	2x 6-10 mm
Type	with spring washer
Dimension (l x w x d)	63x30x3 mm
Standard	EN 50164-1

**Terminal Plate**

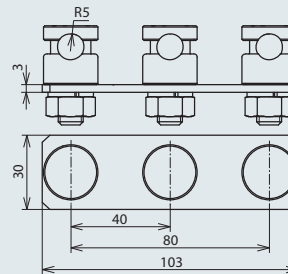
For connecting the HVI conductor to the air-termination rod Ø16 mm with KS screw

Part No.	301 239
Material of terminal plate	StSt
Material of KS connector	StSt
Clamping range Rd	1x 16 / 1x 6-10 mm
Type	with spring washer
Dimension (l x w x d)	63x30x3 mm
Standard	EN 50164-1

**Terminal Plate**

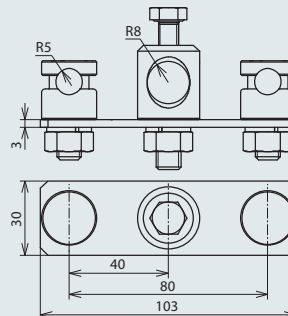
For connecting two HVI conductors to the air-termination rod Ø10 mm with KS connector

Part No.	301 329
Material of terminal plate	StSt
Material of KS connector	StSt
Clamping range Rd	3x 6-10 mm
Type	with spring washer
Dimension (l x w x d)	103x30x3 mm

**Terminal Plate**

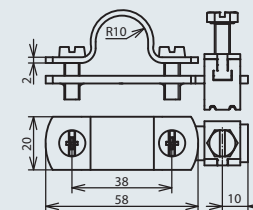
For connecting two HVI conductors to the air-termination rod Ø16 mm with KS screw

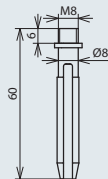
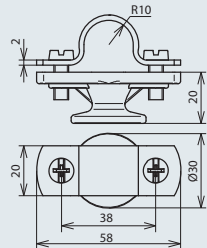
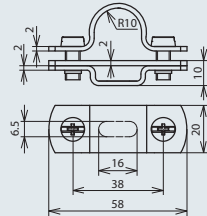
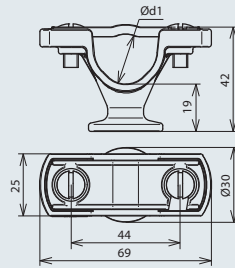
Part No.	301 339
Material of terminal plate	StSt
Material of KS connector	StSt
Clamping range Rd	1x 16 / 2x 6-10 mm
Type	with spring washer
Dimension (l x w x d)	103x30x3 mm
Standard	EN 50164-1

**EB Clamp**

For connecting the special coating of the HVI Conductor to the equipotential bonding

Part No.	405 020
Material of clamp	St/tZn
Clamping range Ø	20 mm
Terminal cross section	4-95 mm²
Material of cleat	StSt
Type of screw	T M6x16 mm / T M6x 20 mm
Material of screw	StSt





Conductor Holder for HVI Conductor

For wall mounting and for mounting in the sealing end range

Part No.	275 220	275 225
Material of conductor holder	PA	PA
Conductor holder support Rd	20 mm	23 mm
Female thread	M8	M8
Fixing bore	6.5 mm	6.5 mm
Screw	▼ M6x16 mm	▼ M6x16 mm

Conductor Holder for HVI Conductor

For wall mounting with two-screw cleat (not in the sealing end range)

Part No.	275 229	275 239
Material of conductor holder	StSt	StSt
Conductor holder support Rd	20 mm	23 mm
Female thread	6.5x16 mm	6.5x16 mm
Fixing bore	6.5x16 mm	6.5x16 mm
Screw	⚡ M6x14 mm	⚡ M6x14 mm

Conductor Holder for HVI Conductor

For wall mounting with two-screw cleat (not in the sealing end range)

Part No.	275 120
Material of conductor holder	ZDC / StSt
Conductor holder support Rd	20 mm
Female thread	M8
Fixing bore	6.5 mm
Screw	⚡ M6x16 mm

Impact Dowel for Conductor Holder for HVI Conductor

Impact dowel (8x60 mm) for solid brickwork, for fixing the conductor holder (Part No. 275 220 or 275 225) applied in the sealing end range

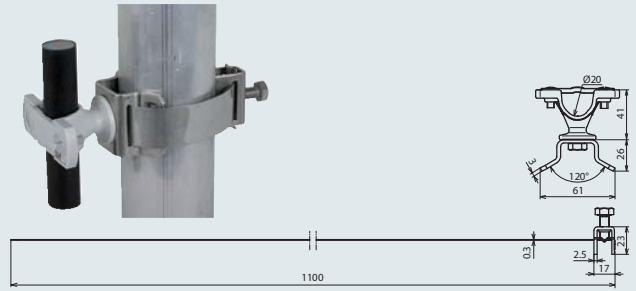
Note: When installing at honeycomb bricks, drill without drive

Part No.	106 760
Material	GRP
Female thread	M8x6 mm
Fixing bore	8 mm

Conductor Holder with Tensioning Strap

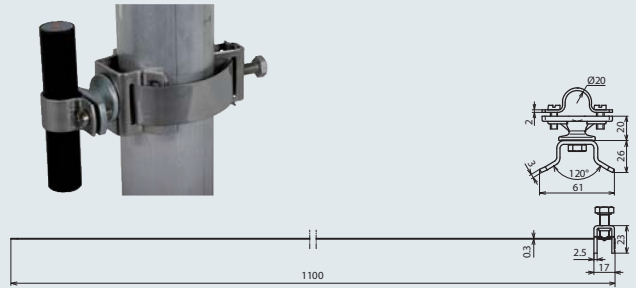
With conductor holder PA

Part No.	275 330	275 333
Material of conductor holder	PA	PA
Conductor holder support Rd	20 mm	23 mm
Tensioning range Ø pipe	50-300 mm	50-300 mm
Screw	M6x16 mm	M6x16 mm
Material of screw	StSt	StSt

**Conductor Holder with Tensioning Strap**

With metal conductor holder

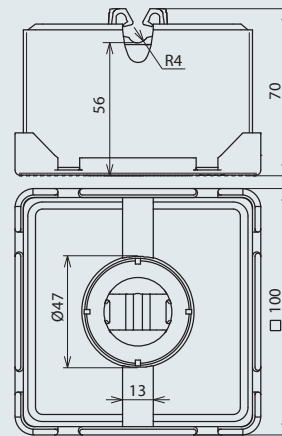
Part No.	275 320
Material of conductor holder	ZDC / StSt
Conductor holder support Rd	20 mm
Tensioning range Ø pipe	50-300 mm
Screw	M6x16 mm
Material of screw	StSt

**Roof Conductor Holder for Flat Roofs**

For fixing of round conductors and strips on flat roofs

With single conductor holder Type FB

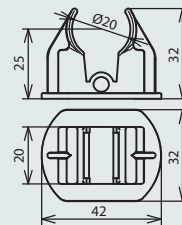
Part No.	253 015
Conductor leading	loose
Material of conductor holder	plastic
Colour of conductor holder	black
Conductor holder support Rd	8 mm
Block	concrete (C35/45)
Weight	1 kg

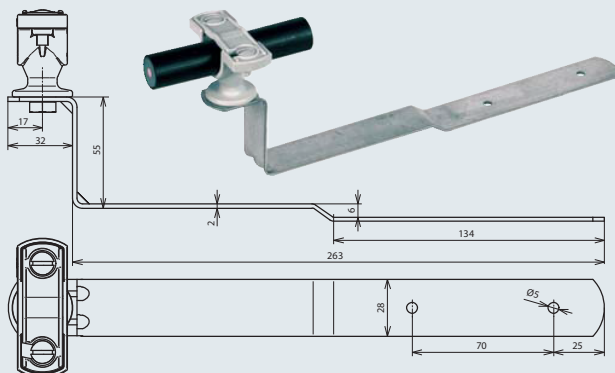
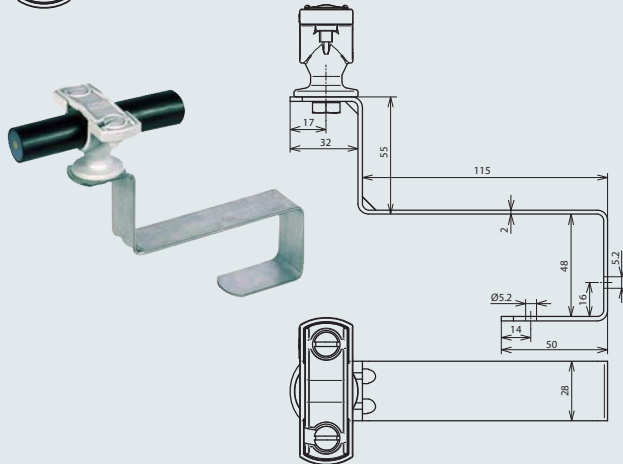
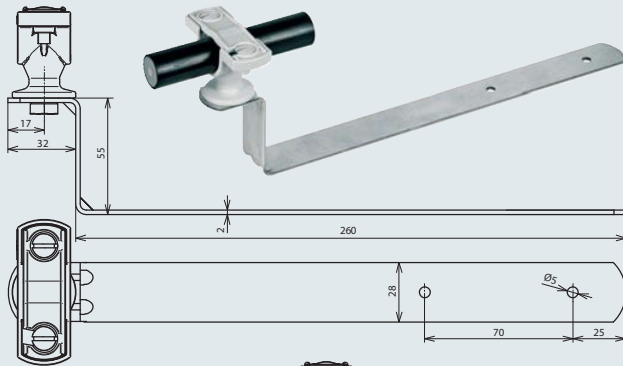
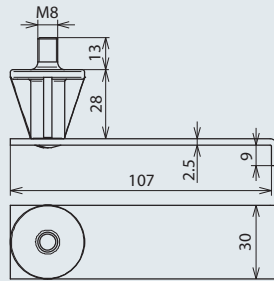
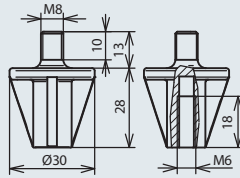
**Adapter for HVI Conductor Installation on Flat Roofs**

With roof conductor holder Type FB (Part No. 253 015)

For snapping on

Part No.	253 026	253 027
Material	plastic	plastic
Colour	black	black
Conductor holder support Rd	20 mm	23 mm





Adapter for Roof Conductor Holders

For fixing plastic conductor holders with thread M8 on different roof conductor holder base parts (standard conductor holder will be removed)

Part No.	106 898
Material	plastic
Thread	M8
Female thread	M6
Length	28 mm

Plastic Fixing Brace

For mounting of the plastic conductor holder (Part No. 275 220 and 275 223) with thread M8

For hooking or pushing underneath of tiles

For the sealing end range

Part No.	202 890
Material of roof conductor holder	plastic
Thread	M8
Length of brace	107 mm

Roof Conductor Holder with Straight Brace for HVI Conductor

For installing the HVI conductor on gable roof surfaces

Part No.	202 831	202 841
Material of roof conductor holder	St/tZn	St/tZn
Material of conductor holder	PA	PA
Conductor leading	fixed	fixed
Conductor holder support Rd	20 mm	23 mm
Height of brace	55 mm	55 mm
Length of brace	260 mm	260 mm
Fixing	[2x] Ø5 mm	[2x] Ø5 mm

Roof Conductor Holder with Angled Brace for HVI Conductor

For installing the HVI conductor on the surface of gable roofs

Part No.	202 830	202 840
Material of roof conductor holder	St/tZn	St/tZn
Material of conductor holder	PA	PA
Conductor leading	fixed	fixed
Conductor holder support Rd	20 mm	23 mm
Height of brace	55 mm	55 mm
Length of brace	115 mm	115 mm
Fixing	[2x] Ø5.2 mm	[2x] Ø5.2 mm

Roof Conductor Holder with Cranked Brace for HVI Conductor

For installing the HVI conductor on the surface of gable roofs

Part No.	202 832	202 842
Material of roof conductor holder	St/tZn	St/tZn
Material of conductor holder	PA	PA
Conductor leading	fixed	fixed
Conductor holder support Rd	20 mm	23 mm
Height of brace	55 mm	55 mm
Length of brace	260 mm	260 mm
Fixing	[2x] Ø5 mm	[2x] Ø5 mm

Spacer for HVI Conductor

With polyamide conductor holder (Part No. 275 220 or 275 225) for the sealing end range

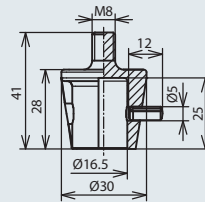
Part No.	106 852	106 812	106 813
Material of spacer	GRP	GRP	GRP
Material of conductor holder/adapter	PA	PA	PA
Length (l1)	500 mm	1000 mm	1000 mm
Insulating clearance (l2)	475 mm	975 mm	975 mm
Conductor holder support Rd	20 mm	20 mm	23 mm
Conductor leading	fixed	fixed	fixed
Thread	M8	M8	M8
Screw / grooved pin	▼ M6x16	▼ M6x16	▼ M6x16



Fixing Adapter for Conductor Holder

For conductor holder (Part No. 275 220 or 275 225) at GRP spacer bars (Ø16 mm) for cutting to length (Part No. 106 125), for use in the sealing end range

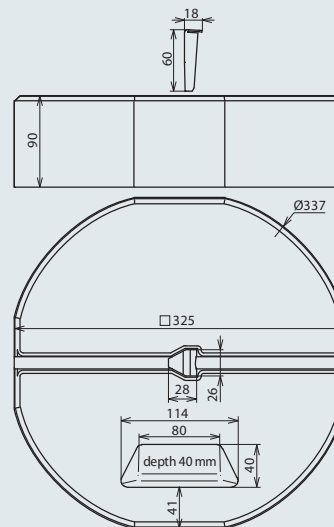
Part No.	106 899
Material of conductor holder/adapter	plastic
Length	28 mm
Thread	M8
Screw / grooved pin	cylindrical pin 5 mm



Concrete Base

For wedge mounting, stackable, for air-termination rods Ø16 mm, chamfered or tapered or DEHNiso spacers Ø16 mm

Part No.	102 010
Weight	17 kg
Support	wedge mounting Ø16 mm
Diameter	337 mm
Material	concrete (C45/55)
Material of wedge/adapter	StSt

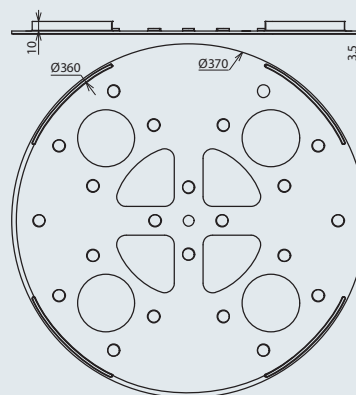


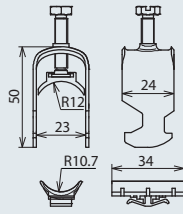
Support Plate

For protecting the roofing sheets under the concrete base

For concrete bases (Part No. 102 010, 102 002)

Part No.	102 050
Diameter outer	370 mm
Diameter inner	360 mm
Material	EVA
Colour	black

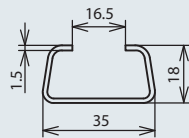
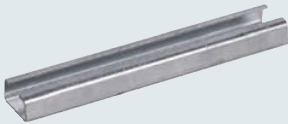




Bolt Clamp

For fixing the HVI conductor e.g. at already mounted C rails
Clamp with bottom saddle

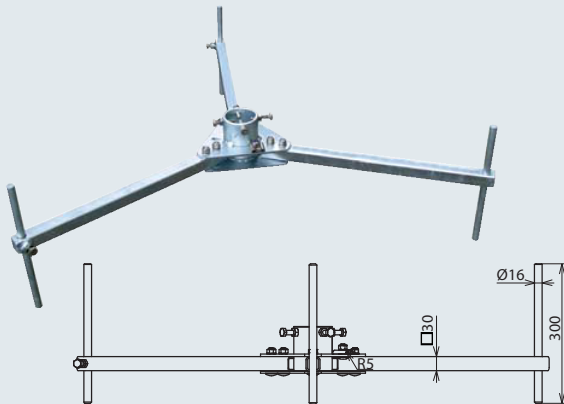
Part No.	275 520
Material of conductor holder	St/tZn-P
Conductor holder support Rd	20/23 mm
Screw	M6x25 mm
Material of screw	St/tZn



C-Profile Rail

Separate for cutting to length

Part No.	275 521
Material	St/tZn
Length	2000 mm



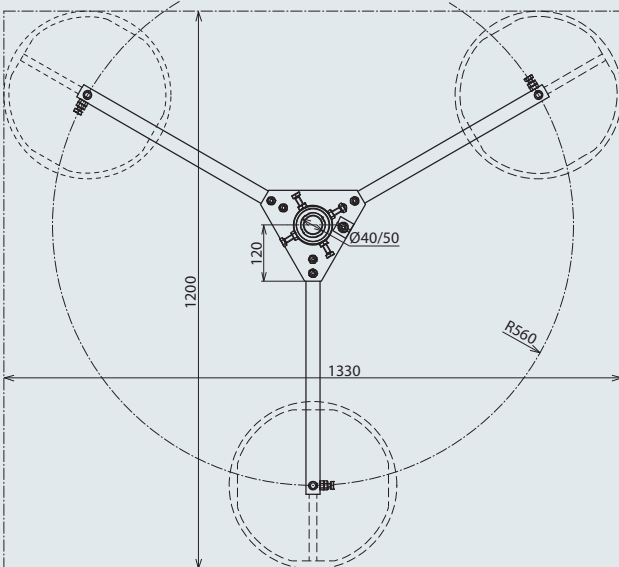
Tripod for HVI Conductor in Supporting Tube

Special design for HVI Conductor run inside of the supporting tube (length 3200 mm), with double cleat for connection of 2x Rd 8-10 mm

In order to maintain the bending radius of the HVI Conductor at the bottom of the tripod, two concrete blocks will be positioned under the limb and one on top.

The stackable concrete block (Part No. 102 010) and the support plate (Part No. 102 050) have to be ordered separately.

Part No.	105 350
Material of tripod	St/tZn
Support	50 mm
Radius	560 mm
Quantity of concrete blocks	9 blocks of 17 kg each
Space required for tripod	1180x1320 mm



Sign**Front in English**

"Attention! Separated Lightning Protection with HVI conductor system"

Back in French

"Attention! Protection contre la foudre séparée avec un conducteur HVI"

Part No.	480 597
Material	plastic
Dimension (l x b x d)	300x210x1 mm
Fixing	[4x] Ø6.5 mm
Distance of bores	270 / 180 mm
Type	weather resistant and UV stabilised



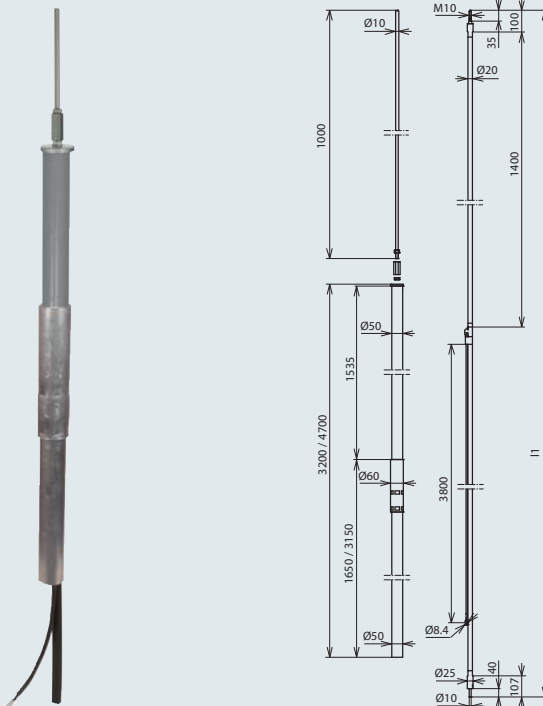


Optically adjusted interior laying of the HVI Conductor in the supporting tube with little wind exposed surface

Minimum order length 6 or 8 m. Conductor length to be indicated when ordering.

Due to the order-related production (customised conductor length) the conductor can not be taken back.

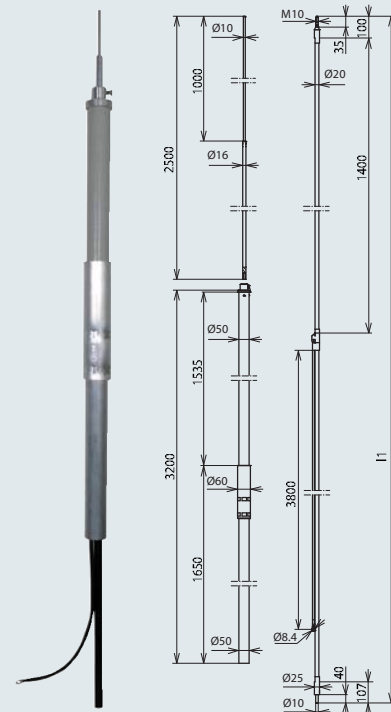
HVI Conductor I in supporting tube with air-termination rod



With interior sealing end and air-termination rod Ø10 mm, length 1000 mm

Part No.	819 320	819 323	819 420	819 423
Material of conductor	Cu	Cu	Cu	Cu
Length of supporting tube	3200 mm	3200 mm	4700 mm	4700 mm
Colour of conductor	black	grey	black	grey
Outer Ø conductor	20 mm	23 mm	20 mm	23 mm
Minimum order length (l1)	6 m	6 m	8 m	8 m
Conductor length of HVI conductor	..... m	..... m	..... m	..... m

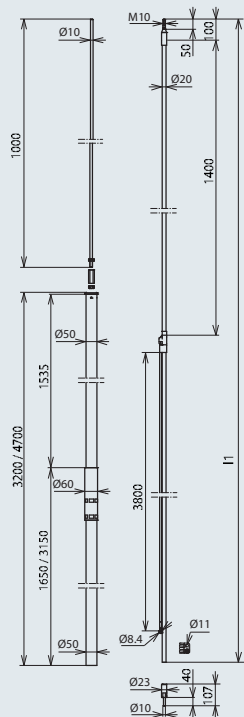
HVI Conductor I in supporting tube with air-termination rod



With interior sealing end and air-termination rod Ø16/10 mm, length 2500 mm

Part No.	819 360
Material of conductor	Cu
Length of supporting tube	3200 mm
Colour of conductor	black
Outer Ø conductor	20 mm
Minimum order length (l1)	6 m
Conductor length of HVI conductor	..... m

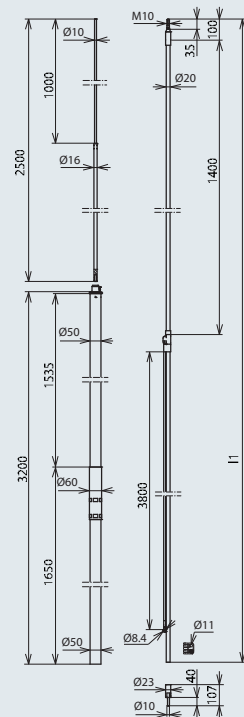
HVI Conductor III in supporting tube with air-termination rod



With interior sealing end and air-termination rod Ø10 mm, length 1000 mm

Part No.	819 322	819 325	819 422	819 425
Material of conductor	Cu	Cu	Cu	Cu
Length of supporting tube	3200 mm	3200 mm	4700 mm	4700 mm
Colour of conductor	black	grey	black	grey
Outer Ø conductor	20 mm	23 mm	20 mm	23 mm
Minimum order length (l1)	6 m	6 m	8 m	8 m
Conductor length of HVI conductor	..... m	..... m	..... m	..... m

HVI Conductor III in supporting tube with air-termination rod



With interior sealing end and air-termination rod Ø16/10 mm, length 2500 mm

Part No.	819 362
Material of conductor	Cu
Length of supporting tube	3200 mm
Colour of conductor	black
Outer Ø conductor	20 mm
Minimum order length (l1)	6 m
Conductor length of HVI conductor	..... m

Due to the order-related production (customised conductor length) the conductor can not be taken back.



Antennas with a radiation characteristic of 360° are used in different fields of radio application. Such antennas usually are known as “omnidirectional antennas” (omni antennas). Typical applications of omnidirectional antennas in practice are private mobile radio (PMR) systems, safety nets and sometimes also GSM networks. In GSM networks, however, they are only applied if there is a low frequency of radio waves.

For omnidirectional antennas it has to be taken into account that metal structures in the direct vicinity have a negative, i.e. attenuating influence on the radiation characteristics. Hence, the further from the antenna, the lower the influence of these structures on the radiation characteristics. Together with the Kathrein company in Rosenheim, Germany, DEHN carried out measurements for evaluating what kind and size of nearby metal structures interfere the radiation characteristics.

When installing an isolated air-termination system at an omnidirectional antenna it has to be minded that an isolated air-termination rod provides a sufficient protective angle for the antenna to be protected. A sufficient separation distance s has to be kept as well.

If the HVI Conductor is used for isolated air-termination systems, a maximum separation distance in air of 0.75 m has to be complied with. Considering the mechanical deflection of antenna and air-termination system in case of wind, a distance of 1 m between antenna and isolated air-termination system has to be specified for wind velocities up to 145 km/h.

Referring to the radio technical evaluation the resulting distance is equal to one quarter of the wave length.

Calculation of wave length and a **synoptical table** are shown in the following.

Preferred frequency range of private mobile radio systems is 40 MHz. The typical frequency range of emergency call systems (fire brigade, police etc.) presently is 80 and 160 MHz. Security authorities and organizations (BOS) in Germany are going to be operated at a frequency of 400 MHz. Current GSM networks are operated at 900 MHz and 1800 MHz, UMTS system has 2 GHz.

The corresponding wave length is shown in the synoptical table. This table also states that the quarter-wave distance is more critical for applications with a lower transmission frequency than for GSM and UMTS networks, for example.

Examinations with an air-termination system of Ø50 mm (metal pole) and with the HVI Conductor of Ø20 mm (copper conductor Ø5 mm) installed in parallel to the antenna have been carried out. Detailed test results can be obtained at DEHN.

Technical implementation of the isolated air-termination system is shown in **Figure 1**. It refers to an omnidirectional antenna with a length of approx. 1000 mm and a supporting tube with an air-termination rod length of 1000 mm. According to the HVI Conductor I or III (e.g. black), Part Nos. 819 320 or 819322 can be used for the shown application.

Omnidirectional antennas can be up to approx. 3000 mm long. These lengths require supporting tubes with an air-termination rod up to 2500 mm in order to provide the corresponding protective area, e.g. Part No. 819 360 or 819 362.

Figure 2 shows a possible design and the necessary components.

Special spacers are necessary to fasten the supporting tube construction at the antenna pole. This type of spacers is shown in **Figure 3**. At least two spacers have to be mounted at each supporting tubes of the isolated air-termination system, they are available according to the diameter of the pole.

DEHN installation instructions No. 1521 shall be observed for the installation of isolated air-termination system.

Installation of an isolated air-termination system on omnidirectional antennas requires a specification of the wind load and the resulting statics to be approved by the system operator/owner.

Further information about the own weight and the wind exposed surface of the components is available upon request.

Our components and system configurations are dimensioned for wind load zone II with a maximum wind velocity of 145 km/h.

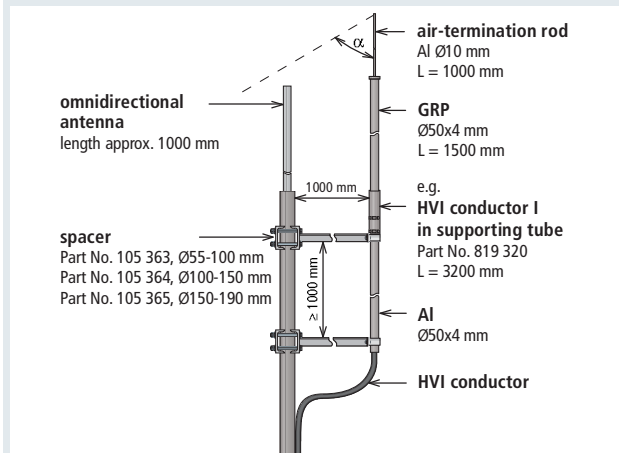


Figure 1: Exemplary design for an omnidirectional antenna length 1000 mm

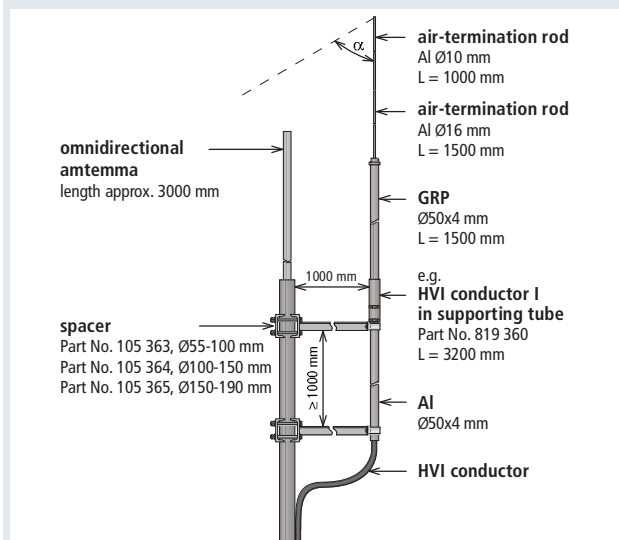
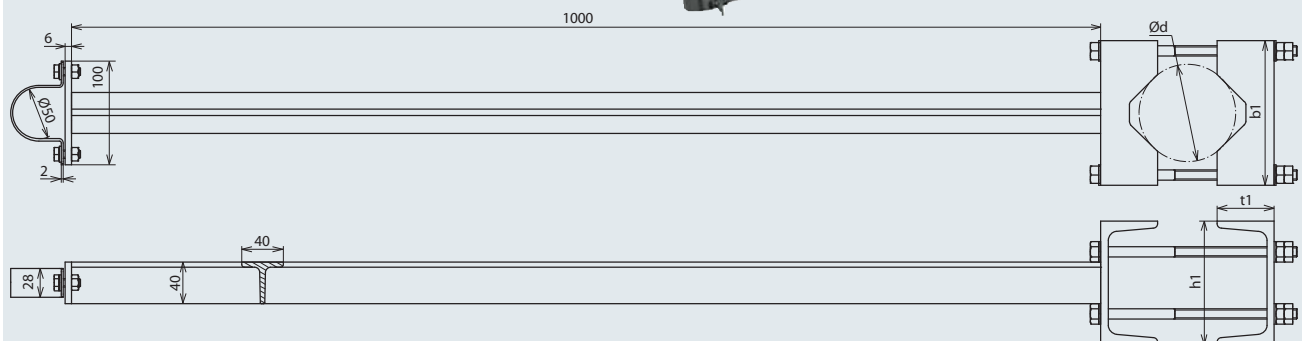


Figure 2: Exemplary design for an omnidirectional antenna, length 3000 mm

Spacer for DEHNiso Combi supporting tubes with interior and/or exterior HVI Conductor at an antenna mast



Part No.	105 363	105 364	105 365
Material of spacer/T profile	St/tZn	St/tZn	St/tZn
Clamping range (Ø mast)	55-100 mm	100-150 mm	150-190 mm
Clamping range of supporting tube	50 mm	50 mm	50 mm
Length of spacer	1000 mm	1000 mm	1000 mm
Screw	T● M10x192/M8x20 mm	T● M10x242/M8x20 mm	T● M10x292/M8x20 mm
Material of screw	StSt	StSt	StSt
Dimension (w1 x h1 x d1)	140x120x55 mm	190x140x60 mm	230x180x70 mm



Figure 3: Spacer – detail view

$$\text{wave length} = \frac{\text{velocity of light}}{\text{frequency}}$$

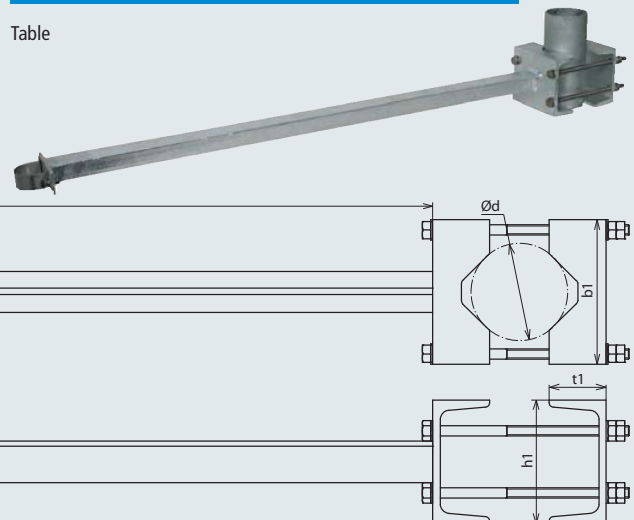
$$\lambda = \frac{c}{f} \left[\frac{m}{s} \right] \left[\frac{1}{s} \right]$$

$$\text{velocity of light } c = 300\,000 \text{ km/s} = 3 \times 10^8 \text{ m/s}$$

Calculation of the wave length

Frequency (Hz = $\frac{1}{s}$)	Wave length (m)
100 000	3000
1 000 000	300
10 000 000	30
100 000 000	3
40×10^6	7.5
80×10^6	3.75
160×10^6	1.875
900×10^6	0.33
1800×10^6	0.17

Table



More details in installation instructions No. 1521.

Calculations on arising mechanical forces / moments upon request.



Biogas/natural gas plant Kerpen, Germany
Protection of the fermenters – air-termination masts with HVI Conductors

Air-termination mast for a maximum free length of the whole air-termination system of 8.5 m.

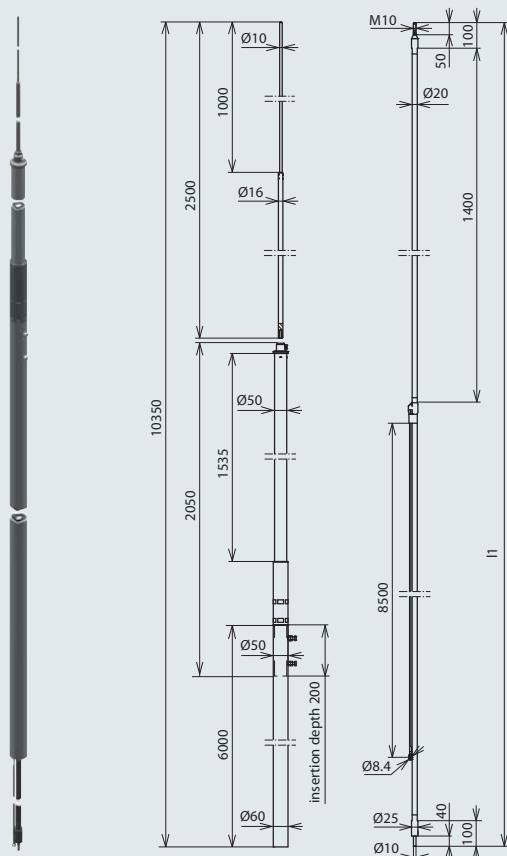
Fixing has to be performed with 3 variable supports (Part No. 105 345).

The air-termination masts are designed for wind velocities up to 145 km/h (wind load zone II).

The separable air-termination mast consists of

- Air-termination rod Al Ø16/10 mm, length 2500 mm
- Supporting tube GRP/Al Ø50/60 length 2050 mm (telescoping 200 mm)
- Mast pipe St/tZn Ø60, length 6000 mm with locking screws M10 StSt
- HVI Conductor installed inside/outside
- Transport length 6000 mm

With one HVI Conductor I



Design with one interior HVI Conductor I, length 10 m

Additionally required conductor length of the HVI Conductor has to be ordered separately

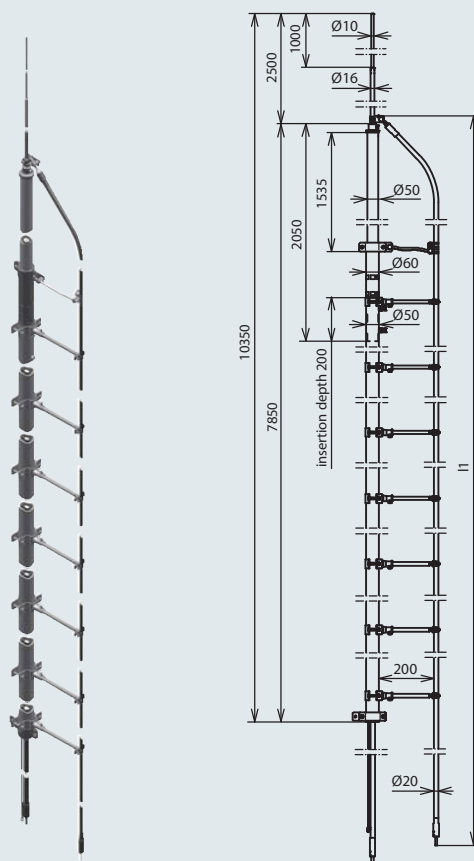
Maximum total length of the HVI Conductor:

12.5 m for a lightning protection system class II

19 m for a lightning protection system class III

Part No.	819 720
Conductor length of HVI conductor (l1)	10000 mm
Length of air-termination rod	2500 mm
Length of supporting tube	2050 mm
Length of mast pipe	6000 mm
Total length of air-termination mast	10350 mm
Conductor length of the whole HVI conductor	..... m

With two HVI Conductors I



Design with 2x HVI Conductor I, conductor length 10.0 m, inside and outside

Additionally required conductor lengths of the HVI Conductors lengths have to be ordered separately (twice)

Maximum total length of the HVI Conductors 16.5 m for protection class II of the lightning protection system


Maximum total length of the HVI Conductors 24 m for protection class III of the lightning protection system

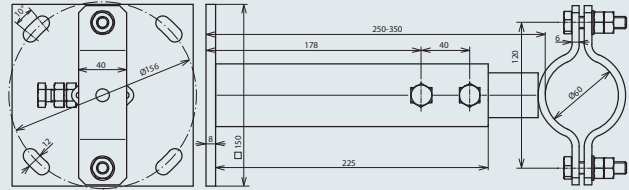
Part No.	819 750
Conductor length of HVI conductor (l1)	10000 mm
Length of air-termination rod	2500 mm
Length of supporting tube	2050 mm
Length of mast pipe	6000 mm
Total length of air-termination mast	10350 mm
Conductor length of the whole HVI conductor	2x m

Accessory for Air-termination Masts with HVI® Conductor**Variable Support for Air-termination Masts**

Three supports per air-termination mast are to be mounted

Clamping range of air-termination mast Ø60 mm

Part No.	105 345
Material of support	St/tZn
Range of adjustment	250-350 mm
Clamping range of air-termination mast	60 mm
Fixing bores Ø	[4x] 12x25 mm
Profile	40x40x4 / 30x30x3
Screw	 M10x30 / M10x45 mm
Material of screw	StSt





HVI light Conductor also allows for installations without an equipotential bonding connection to the building or structure at the end of an adjustment range.

The HVI light Conductor is a supplement to our proven HVI Conductor. Due to the defined coupling point, e.g. at the tripod, an equipotential bonding (functional earth conductor) is not necessary. Thus installation is easier and considerably time-saving.

The roof area of buildings is often used as an installation level. Regardless of the potential risk of lightning strikes, pipings, electrical and information technical systems, or photovoltaic installations are installed there. As all of these systems provide a conductive connection into the building it is also possible that lightning partial currents are conducted into the building, where any sensitive electrical/electronic equipment can be interfered or even damaged. Such spreading of lightning partial currents into a building is avoided by an isolated air-termination system.

HVI light Conductor keeps the separation distance on flat roofs. Uncontrolled flashover e.g. through the roofing to metal or electrical parts underneath will be prevented by the high-voltage resistant insulation of the HVI light conductor.

The conductor will be delivered in a length of 100 m on a disposable plywood reel (diameter approx. 800 mm, width approx. 485 mm) including one Allen key.



- High-voltage-resistant insulated HVI light Conductor for keeping the separation distance from electrically conductive parts according to IEC/EN 62305-3
- Equivalent separation distance $s \leq 0.45$ m (in air), or $s \leq 0.90$ m (solid building material)
- The HVI light Conductor meets the requirements according to EN 50164-2

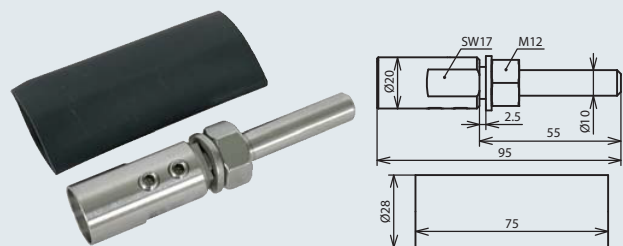
Processing temperature ≥ 0 °C and permanent temperature range (in case of fixed installation) of -30 to +70 °C to be observed.



Part No.	819 125
Material of conductor	Cu
Material of insulation	PE
Material of coating	PVC
Colour of conductor	grey
Cross section of core	19 mm²
Outer Ø conductor	20 mm

More details in installation instructions No. 1637.

Accessories for HVI®light Conductor



Terminal Element for HVI light Conductor

To close the HVI light Conductor on both sides, for connecting the conductor e.g. to the terminal plate at the air-termination mast or to other parts of the external lightning protection system

Including heat-shrinkable sleeve / XLPE

Part No.	819 299
Material	StSt
Terminal bolt	Ø10 mm and M12
Type	with spring washer
Screw	threaded bolt M6x8 mm
Material of screw/nut	StSt

EB Terminal Element for HVI light Conductor

To discharge the electrical field in the sealing end range of the HVI light Conductor

Special slotted design for electrical contacting of the semi-conductive coating

Part No.	410 219
Material	StSt
Clamping range Ø	17 mm
Terminal bore Ø	11 mm
Screw	M10x20 mm
Material of screw/nut	StSt



Air-termination mast complete with quad terminal plate for HVI light conductor and fixing kit for mounting the conductor at the air-termination mast

Adjustable to roof inclination up to max. 10°

Concrete bases (weight 17 kg) and support plates have to be ordered separately

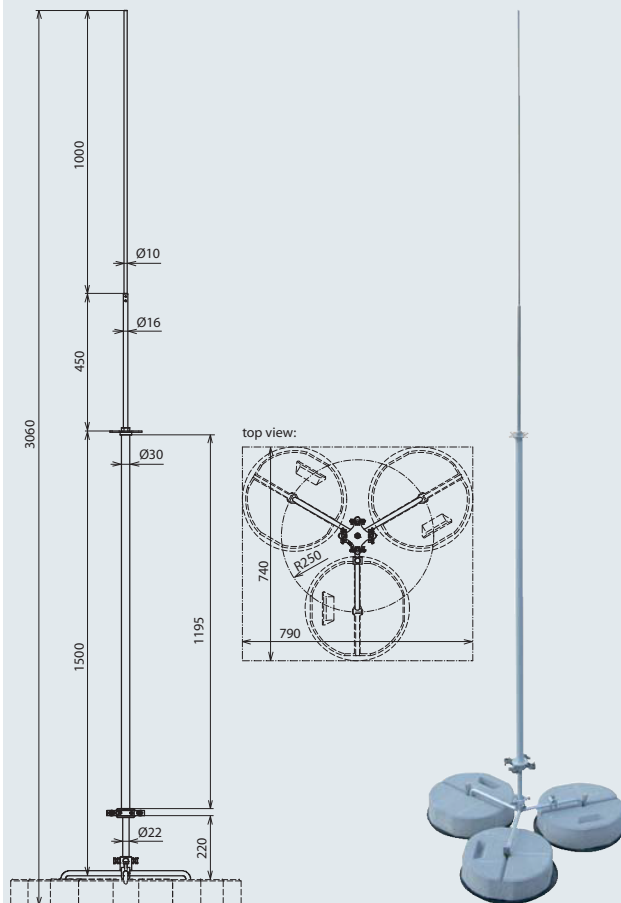
Air-termination mast Part No. 819 280, total height 2900 mm and Part No. 819 281, total height 2600 mm with three concrete bases (weight 17 kg) provides stability for wind velocities up to 162 km/h (wind load zone III).

Air-termination mast Part No. 819 285, total height 3900 mm with three concrete bases (weight 17 kg) provides stability for wind velocities up to 145 km/h (wind load zone II), with six concrete bases (weight 17 kg) it provides stability for wind velocities up to 162 km/h (wind load zone III).

Air-termination mast Part No. 819 286, total height 3100 mm with three concrete bases (weight 17 kg) provides stability for wind velocities up to 145 km/h (wind load zone II).

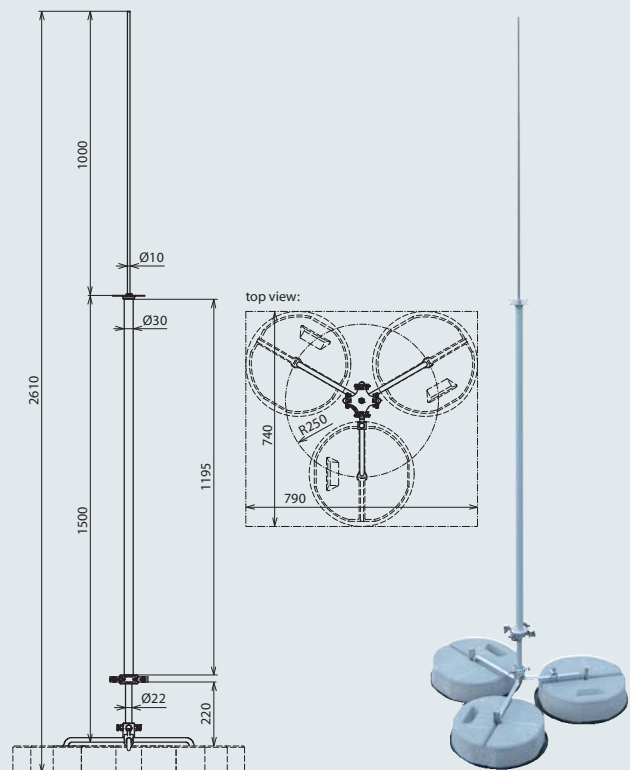


Air-termination mast 30 for HVI light Conductor KIT II 3100 mm total height



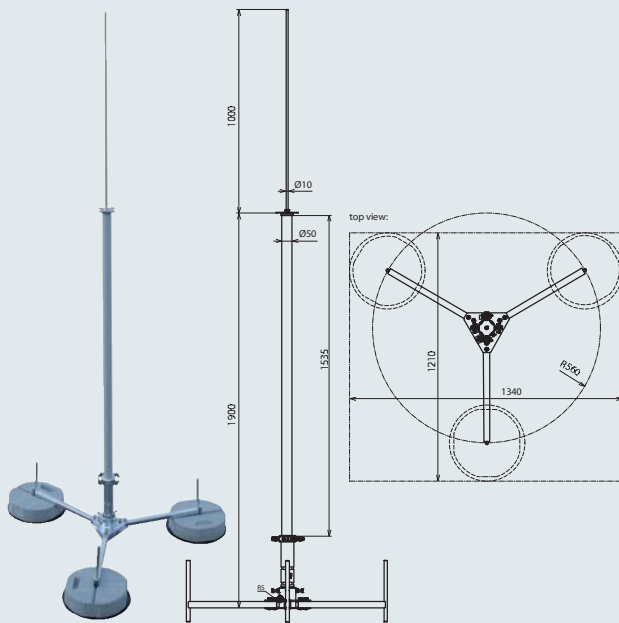
Part No.	819 286
Material of tripod	St/tZn
Radius	250 mm
Material of supporting tube	GRP / Al
Length of supporting tube	1500 mm
Insulating clearance	1195 mm
Female thread	M16
Length of air-termination rod	1500 mm
Material of air-termination rod	Al

Air-termination mast 30 for HVI light Conductor KIT I 2600 mm total height



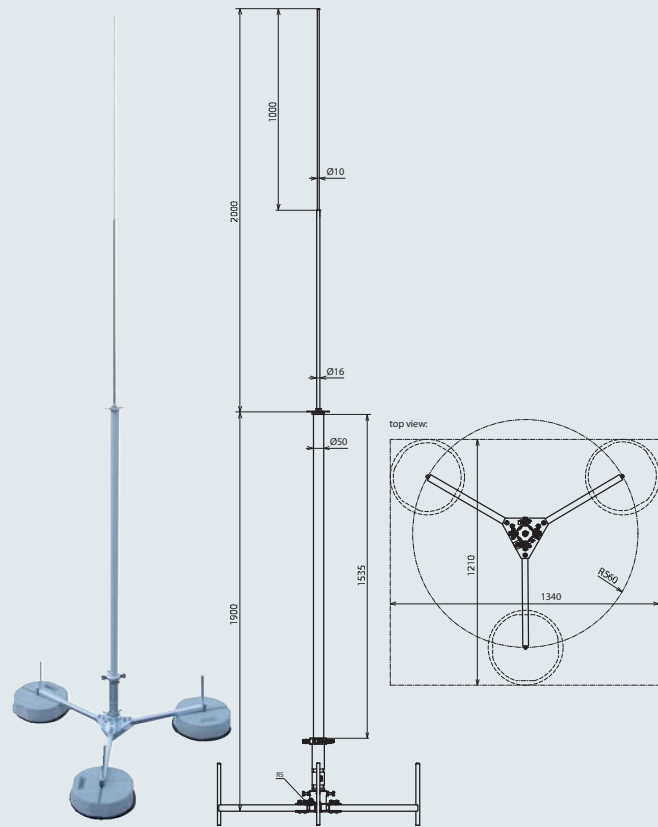
Part No.	819 281
Material of tripod	St/tZn
Radius	250 mm
Material of supporting tube	GRP / Al
Length of supporting tube	1500 mm
Insulating clearance	1195 mm
Female thread	M10
Length of air-termination rod	1000 mm
Material of air-termination rod	StSt

Air-termination mast 50 for HVI light Conductor KIT I 2900 mm total height



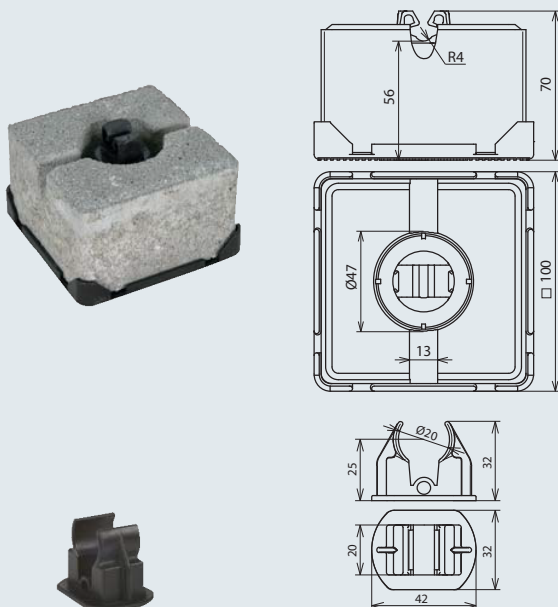
Part No.	819 280
Material of tripod	St/tZn
Radius	560 mm
Material of supporting tube	GRP / Al
Length of supporting tube	1900 mm
Insulating clearance	1535 mm
Female thread	M10
Length of air-termination rod	1000 mm
Material of air-termination rod	StSt

Air-termination mast 50 for HVI light Conductor KIT II 3900 mm total height



Part No.	819 285
Material of tripod	St/tZn
Radius	560 mm
Material of supporting tube	GRP / Al
Length of supporting tube	1900 mm
Insulating clearance	1535 mm
Female thread	M16
Length of air-termination rod	2000 mm
Material of air-termination rod	Al

Accessories for Air-termination Masts for HVI®light Conductor on Flat Roofs



Roof Conductor Holder for Flat Roofs

For fixing of round conductors and strips on flat roofs

With single conductor holder Type FB

Part No.	253 015
Conductor leading	loose
Material of conductor holder	plastic
Colour of conductor holder	black
Conductor holder support Rd	8 mm
Block	concrete (C35/45)
Weight	1 kg

Adapter for HVI Conductor Installation on Flat Roofs

With roof conductor holder Type FB (Part No. 253 015)

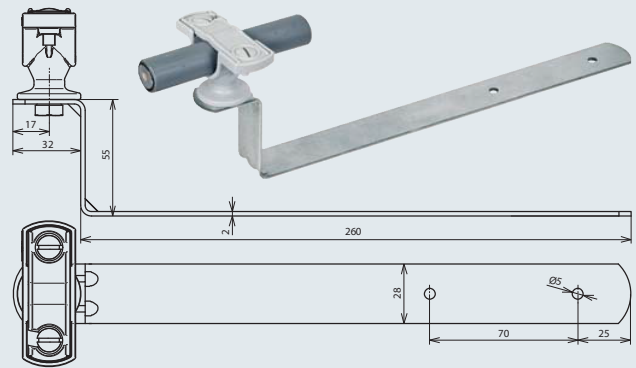
For snapping on

Part No.	253 026
Material	plastic
Colour	black
Conductor holder support Rd	20 mm

Roof Conductor Holder with Straight Brace for HVI Conductor

For installing the HVI conductor in the roof area of gable roofs

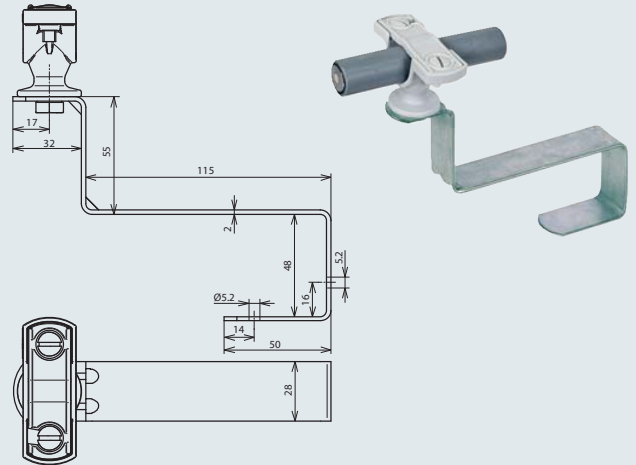
Part No.	202 831
Material of roof conductor holder	St/tZn
Material of conductor holder	PA
Conductor leading	fixed
Conductor holder support Rd	20 mm
Height of brace	55 mm
Length of brace	260 mm
Fixing	[2x] Ø5 mm



Roof Conductor Holder with Cranked Brace for HVI Conductor

For installing the HVI conductor in the roof area of gable roofs

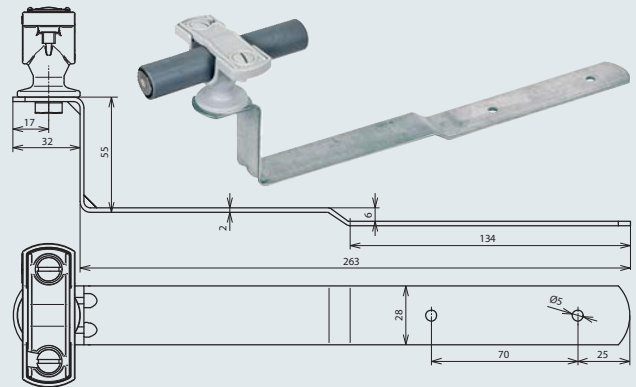
Part No.	202 830
Material of roof conductor holder	St/tZn
Material of conductor holder	PA
Conductor leading	fixed
Conductor holder support Rd	20 mm
Height of brace	55 mm
Length of brace	115 mm
Fixing	[2x] Ø5.2 mm



Roof Conductor Holder with Cranked Brace for HVI Conductor

For installing the HVI conductor in the roof area of gable roofs

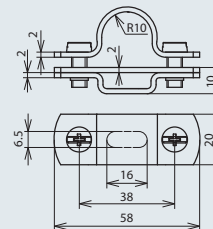
Part No.	202 832
Material of roof conductor holder	St/tZn
Material of conductor holder	PA
Conductor leading	fixed
Conductor holder support Rd	20 mm
Height of brace	55 mm
Length of brace	260 mm
Fixing	[2x] Ø5 mm



Conductor Holder for HVI Conductor

For wall mounting with two-screws-cleat (not in the sealing end range)

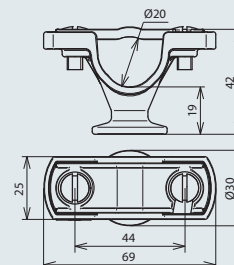
Part No.	275 229
Material of conductor holder	StSt
Conductor holder support Rd	20 mm
Fixing bore	6.5x16 mm
Screw	T M6x14 mm

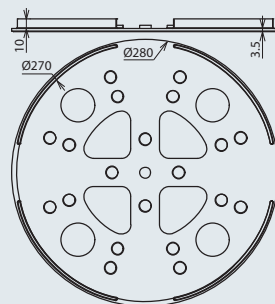
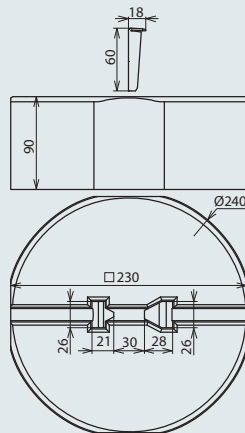
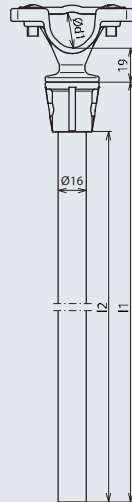
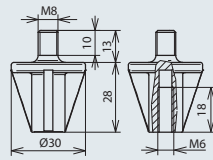


Conductor Holder for HVI Conductor

For wall mounting and for mounting in the sealing end range

Part No.	275 220
Material of conductor holder	PA
Conductor holder support Rd	20 mm
Female thread	M8
Fixing bore	6.5 mm
Screw	T M6x16 mm





Adapter for Roof Conductor Holders

For fixing plastic conductor holders with thread M8 on different roof conductor holder base parts (standard conductor holder will be removed)

Part No.	106 898
Material	plastic
Thread	M8
Female thread	M6
Length	28 mm

Spacers for HVI light Conductor

Spacer for installation e.g. with wedge mounting concrete block 8.5 kg (Part No. 102 075)

Part No.	106 852	106 812
Material of spacer	GRP	GRP
Material of conductor holder/adapter	PA	PA
Length (l1)	500 mm	1000 mm
Insulating clearance (l2)	475 mm	975 mm
Conductor holder support Rd	20 mm	20 mm
Conductor leading	fixed	fixed
Thread	M8	M8
Screw / grooved pin	▼ M6x16	▼ M6x16

Concrete Base

For wedge mounting of air-termination rods Ø10, length 1000 mm or DEHNiso spacers Ø16 mm, length up to 675 mm (distance 0.8 m)

Part No.	102 075
Total weight	8.5 kg
Diameter	240 mm
Material	concrete (C45/55)
Material of wedge/adapter	StSt

Support Plate

For protecting the roofing sheets under the concrete base

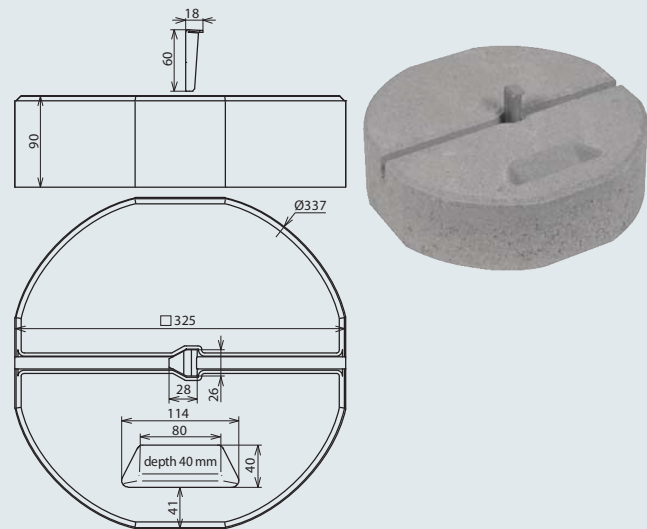
For concrete bases (Part No. 102 075, 102 003)

Part No.	102 060
Diameter outer	280 mm
Diameter inner	270 mm
Material	EVA
Colour	black

Concrete Base

For wedge mounting, stackable, for air-termination rods $\varnothing 16$ mm, chamfered or tapered or DEHNiso spacers $\varnothing 16$ mm

Part No.	102 010
Weight	17 kg
Support	wedge mounting $\varnothing 16$ mm
Diameter	337 mm
Material	concrete (C45/55)
Material of wedge/adaptor	StSt

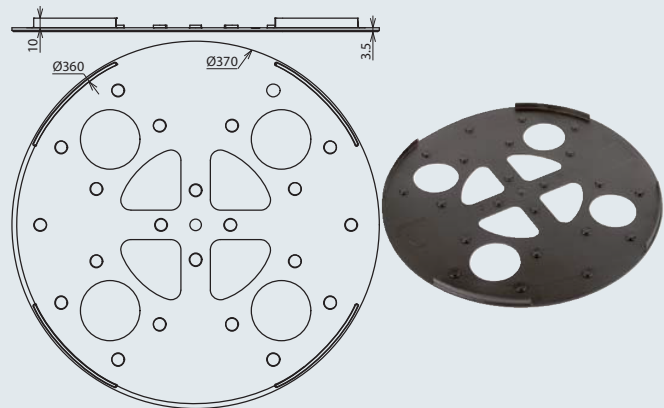


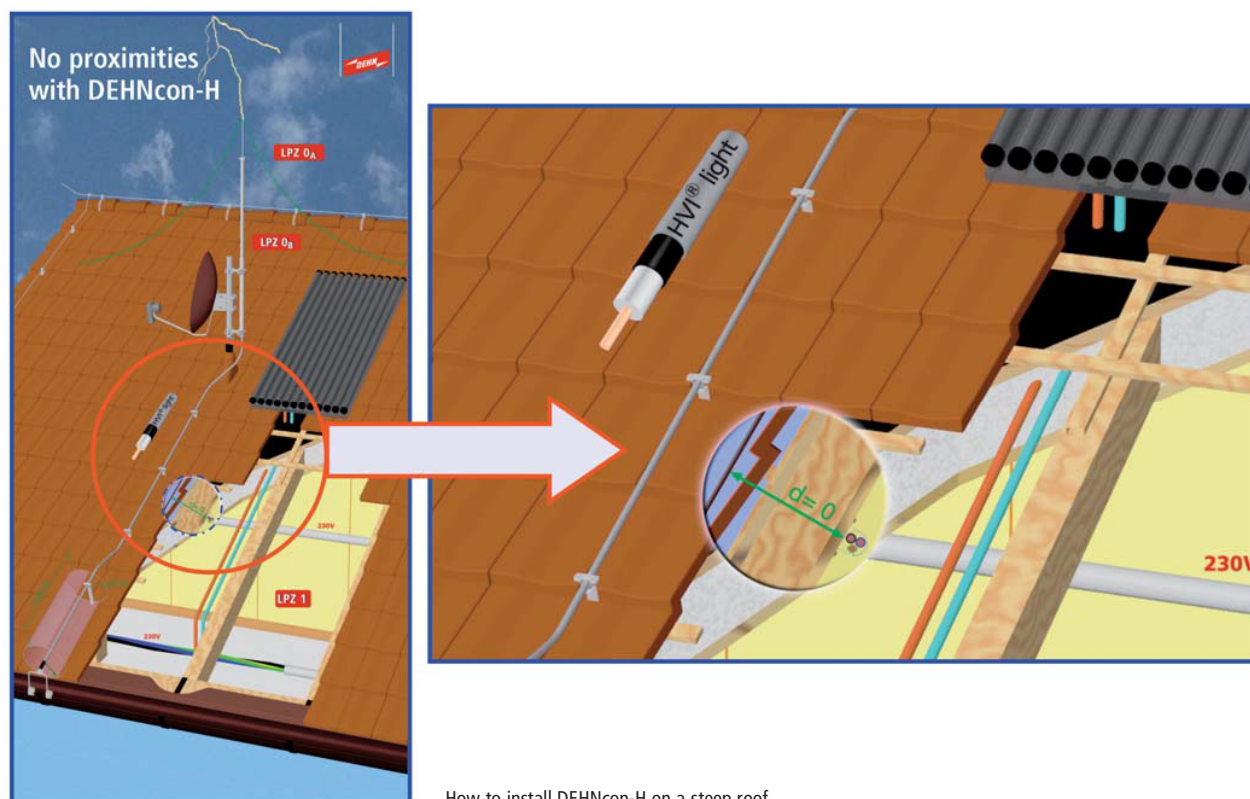
Support Plate

For protecting the roofing sheets under the concrete base

For concrete bases (Part No. 102 010, 102 002)

Part No.	102 050
Diameter outer	370 mm
Diameter inner	360 mm
Material	EVA
Colour	black





How to install DEHNcon-H on a steep roof



Isolated air-termination system – all roof-mounted structures such as solar thermal, PV and exhaust systems incl. the parabolic antenna in the protective area

When installing bare, uninsulated air-termination systems on the roof surface, a separation distance to electrical and metal systems installed under the roof has to be kept according to state-of-the-art and the actual standard of protection against lightning IEC/EN 62305-3.

Cables, pipings and metal parts installed underneath the roofing often are in close vicinity to the air-termination systems/down conductors and thus may provide a problem in terms of proximity. Isolated air-termination systems with high-voltage insulated down conductors are a solution in such cases.

- New type of isolated air-termination system for transmitters/receivers (parabolic, terrestrial antennas) or whole buildings or structures
- Optically adjusted design with the HVI light Conductor inside of the supporting tube, reduced size of the supporting tubes (Al pipe 40x5 mm) and light weight of the whole structure, also suitable for subsequent mounting at antenna poles
- Interior sealing end carried out at the bottom end of the supporting tube with a flexible StSt strip for equipotential bonding connection
- High-voltage-resistant insulated down conductor for keeping the separation distance from electrically conductive parts according to IEC/EN 62305-3

- Equivalent separation distance $s \leq 0.45$ m (in air), $s \leq 0.90$ m (solid building material)
- Supporting tube with insulating section out of glass-fibre reinforced plastic (GRP) tube $\varnothing 30$ mm
- Material factor $k_m = 0.7$
- Colour light grey, UV stabilised

HVI light conductor meets the requirements of EN 50164-2.

The processing temperature of ≥ 0 °C and the permanent temperature range (at fixed installation) of -30 to +70 °C have to be observed.

DEHNcon-H HVI light Conductor I for use if the air-termination system is directly connected with the earth-termination system of the building.



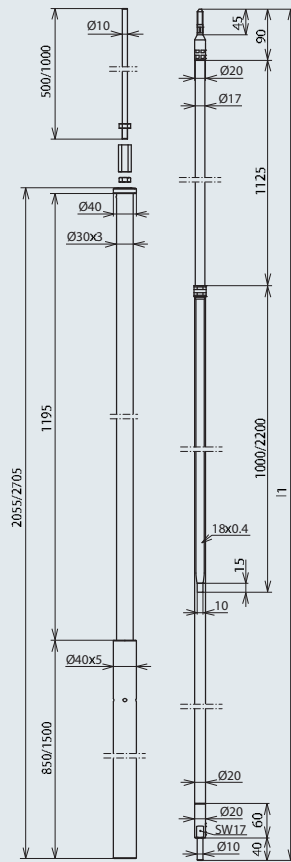
Detail – supporting tube with installed conductor

DEHNcon-H HVI light Conductor III with a sealing end to be implemented on site for use if connection with other parts of the external lightning protection system shall be made. The separation distance at the terminal point is ≤ 0.175 m (in air) or $s \leq 0.35$ m (solid building material).

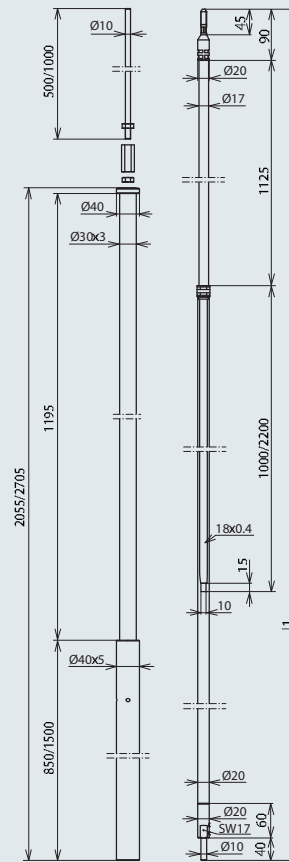
The entire structure is dimensioned for wind velocities up to 185 km/h (wind load zone IV).

The minimum order length is 6 m. Please state the conductor length when ordering.

DEHNcon-H HVI light Conductor I KIT



DEHNcon-H HVI light Conductor III KIT



Part No.	819 250	819 251	819 252	819 253
Material of conductor	Cu	Cu	Cu	Cu
Material of supporting tube	GRP / Al	GRP / Al	GRP / Al	GRP / Al
Length of air-termination spike	500 mm	1000 mm	500 mm	1000 mm
Length of supporting tube	2055 mm	2055 mm	2705 mm	2705 mm
Outer Ø conductor	20 mm	20 mm	20 mm	20 mm
Colour of conductor	grey	grey	grey	grey
Minimum order length (l1)	6 m	6 m	6 m	6 m

Part No.	819 260	819 261	819 262	819 263
Material of conductor	Cu	Cu	Cu	Cu
Material of supporting tube	GRP / Al	GRP / Al	GRP / Al	GRP / Al
Length of air-termination spike	500 mm	1000 mm	500 mm	1000 mm
Length of supporting tube	2055 mm	2055 mm	2705 mm	2705 mm
Outer Ø conductor	20 mm	20 mm	20 mm	20 mm
Colour of conductor	grey	grey	grey	grey
Minimum order length (l1)	6 m	6 m	6 m	6 m

More details in installation instructions No. 1632.

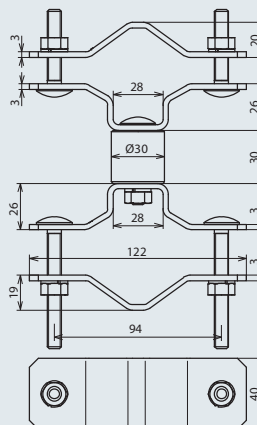
Due to the order-related production (customised conductor length) the conductor can not be taken back.

Accessories for DEHNcon-H

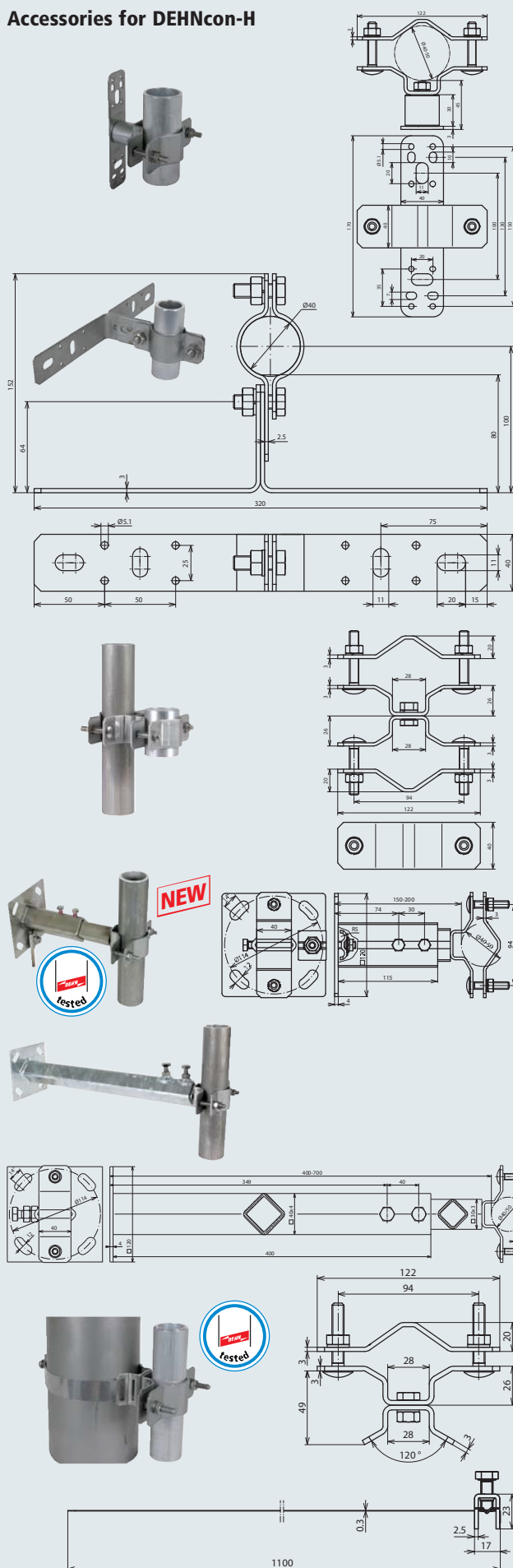
Fixing Clamp for DEHNcon-H

Clamp for fixing the supporting tube e.g. at the antenna pole with spacer length 30 mm, in order to adjust antenna supports

Part No.	105 161
Material	StSt
Clamping range pipe Ø	45-65 mm (1 1/2-2")
Clamping range of supporting tube	40 mm
Length of spacer	30 mm
Screw	⬆ M8x40 / ⬆ M8x70 mm
Material of screw	StSt



Accessories for DEHNcon-H



Fixing Bracket

Wall fixing bracket for vertical mounting

For fixing of the supporting tubes or air-termination rods D40/D50

Part No.	105 342
Material of bracket	StSt
Fixing	[8x] Ø5.1 / [4x] 7x10 / [2x] 11x20 mm
Clamping range of supporting tube	40-50 mm
Wall/corner distance	46 mm
Dimension of fixing	170 mm
Material of screw	StSt

Support for Air-termination Rod D40 and DEHNcon-H

Wall fixing bracket

Part No.	105 140
Material	StSt
Fixing	[8x] Ø5.1 / [4x] 11x20 mm
Wall distance	80 mm
Clamping range of air-termination rod	40 mm
Material of screw	StSt

Fixing Equipment for Use at Railings

For pipes

Part No.	105 354
Material	StSt
Clamping range pipe Ø	48-60 mm (1 1/2-2")
Screw	⬆ M8x40 / ⬆ M8x50 mm
Material of screw	StSt
Clamping range of supporting tube	40-50 mm

Fixing Bracket

Wall fixing bracket with adjustment range of 150-200 mm

For fixing of supporting tubes or air-termination rods D40/D50 with double cleat for connecting 2x Rd 8-10 mm [lightning current carrying capability 100 kA (10/350 μ s)]

Part No.	105 344
Material of bracket	StSt
Clamping range of supporting tube	40-50 mm
Wall/corner distance	150-200 mm
Dimension of plate	120x120x4 mm
Fixing	[4x] 12x26 mm
Standard	EN 50164-1

Fixing Bracket

Wall fixing bracket with adjustment range of 400-700 mm

For fixing of the supporting tubes or air-termination rods D40/D50

Part No.	105 343
Material of bracket	St/tZn / StSt
Clamping range of supporting tube	40-50 mm
Wall/corner distance	400-700 mm
Dimension of plate	120x120x4 mm
Fixing	[4x] 12x25 mm
Profile	40x40x4 / 30x30x3

Support for Air-termination Rod D40 and DEHNcon-H

Fixing clamp with tensioning strap

Part No.	105 160
Material	StSt
Clamping range pipe Ø	50-300 mm
Clamping range of air-termination rod	40 mm
Material of screw	StSt
Dimension of strip (w x d)	25x0.3 mm
Standard	EN 50164-1

Roof Conductor Holder with Straight Brace for HVI Conductor

For installing the HVI conductor in the roof area of gable roofs

Part No.	202 831
Material of roof conductor holder	St/tZn
Material of conductor holder	PA
Conductor leading	fixed
Conductor holder support Rd	20 mm
Height of brace	55 mm
Length of brace	260 mm
Fixing	[2x] Ø5 mm

Roof Conductor Holder with Cranked Brace for HVI Conductor

For installing the HVI conductor in the roof area of gable roofs

Part No.	202 830
Material of roof conductor holder	St/tZn
Material of conductor holder	PA
Conductor leading	fixed
Conductor holder support Rd	20 mm
Height of brace	55 mm
Length of brace	115 mm
Fixing	[2x] Ø5.2 mm

Roof Conductor Holder with Cranked Brace for HVI Conductor

For installing the HVI conductor in the roof area of gable roofs

Part No.	202 832
Material of roof conductor holder	St/tZn
Material of conductor holder	PA
Conductor leading	fixed
Conductor holder support Rd	20 mm
Height of brace	55 mm
Length of brace	260 mm
Fixing	[2x] Ø5 mm

Conductor Holder for HVI Conductor

For wall mounting with two-screws-cleat
(not in the sealing end range)

Part No.	275 229
Material of conductor holder	StSt
Conductor holder support Rd	20 mm
Fixing bore	6.5x16 mm
Screw	T M6x14 mm

Conductor Holder for HVI Conductor

For wall mounting and for mounting in the sealing end range

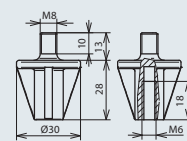
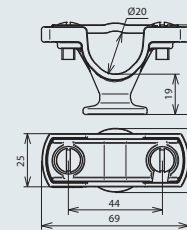
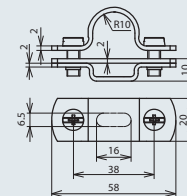
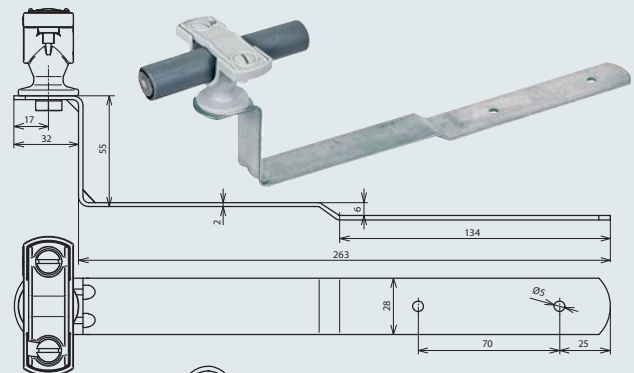
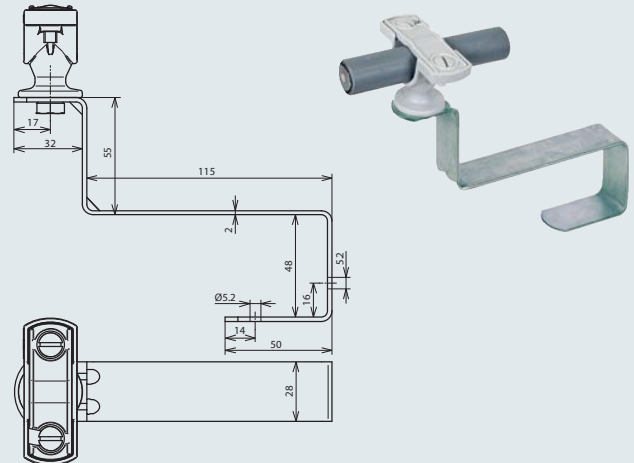
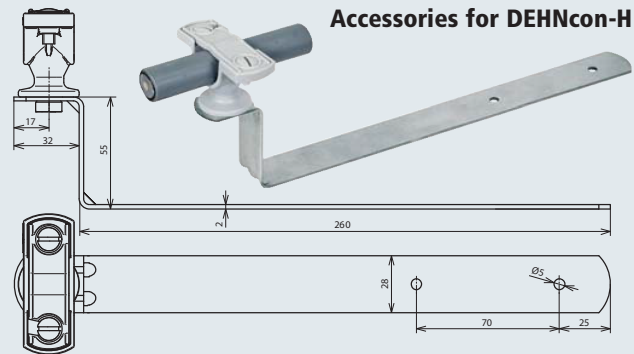
Part No.	275 220
Material of conductor holder	PA
Conductor holder support Rd	20 mm
Female thread	M8
Fixing bore	6.5 mm
Screw	M6x16 mm

Adapter for Roof Conductor Holders

For fixing plastic conductor holders with thread M8 on different roof conductor holder base parts (standard conductor holder will be removed)

Part No.	106 898
Material	plastic
Thread	M8
Female thread	M6
Length	28 mm

Accessories for DEHNcon-H

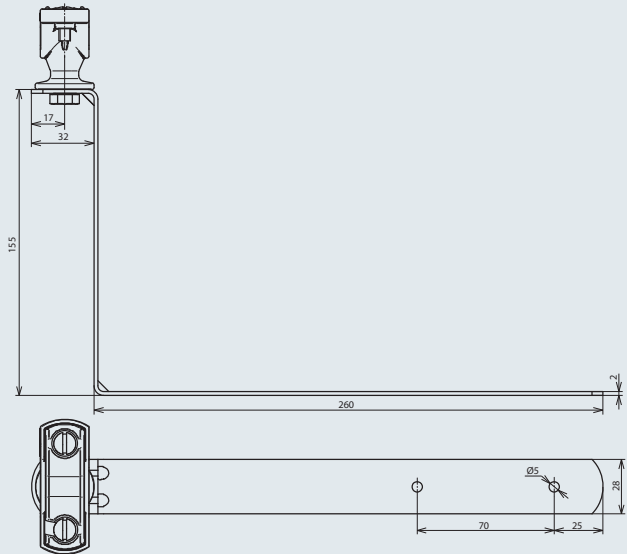


Roof conductor holder for fixing the HVI light conductor I at the end of the connection range (height: 175 mm), e.g. at the eaves of gable roofs

With straight brace



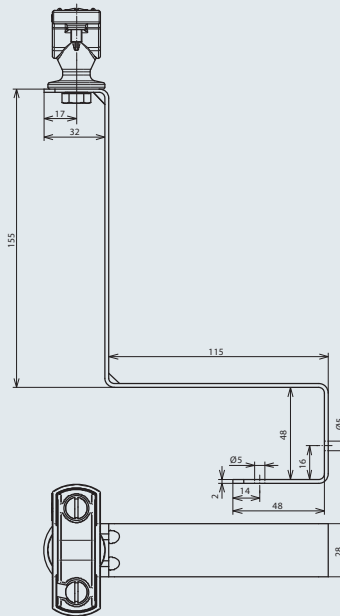
Part No.	202 836
Material of roof conductor holder	St/tZn
Material of conductor holder	PA
Conductor leading	fixed
Conductor holder support Rd	20 mm
Height of brace	155 mm
Length of brace	260 mm
Fixing	[2x] Ø5 mm



With angled brace



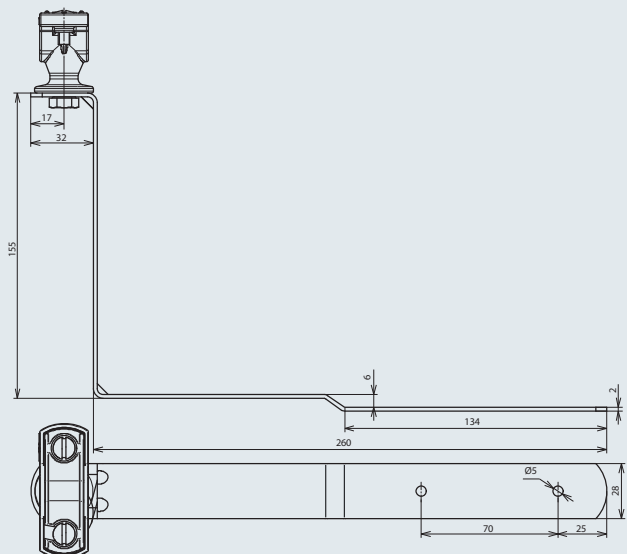
Part No.	202 835
Material of roof conductor holder	St/tZn
Material of conductor holder	PA
Conductor leading	fixed
Conductor holder support Rd	20 mm
Height of brace	155 mm
Length of brace	115 mm
Fixing	[2x] Ø5 mm



With cranked brace



Part No.	202 837
Material of roof conductor holder	St/tZn
Material of conductor holder	PA
Conductor leading	fixed
Conductor holder support Rd	20 mm
Height of brace	155 mm
Length of brace	260 mm
Fixing	[2x] Ø5 mm



Conductor holder for use at rafters for lateral fixing of the

- DEHNcon-H supporting tube (Ø40 mm)
- HVI conductor with supporting tube (Ø50 mm)

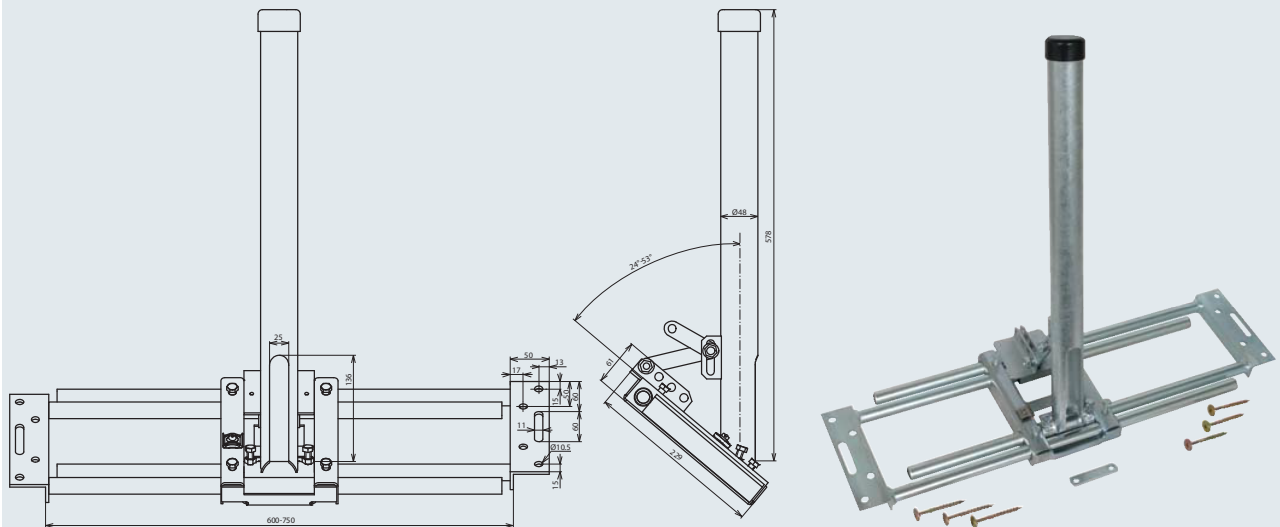
as well as to attach and fix the supporting tubes and for the sub-roof installation of the HVI conductor or HVI light conductor.

The conductor holder for rafters shall only be mounted on suitable, stable subconstructions.

It is designed for up to 485 Nm torque.

Mount the conductor holder from outside and screw it directly on the rafters or on the counter-battening.

The conductor holder for rafters may not be used in case of an on-roof insulation and only conditionally in case of plain tiles.



Part No.	105 240
Material	St/tZn
Adjustment range	600-750 mm
Roof pitch	24° - 53°
Outer Ø of supporting tube	48 mm
Ø of cable bushing in supporting tube	25 mm
Fixing screw	8x120 mm

More details in installation instructions No. 1759

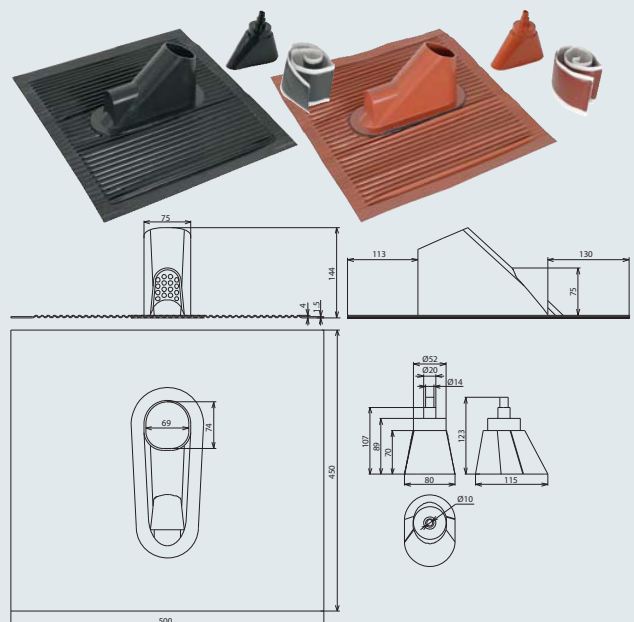
Accessory for Conductor Holder for Rafters

Roof Bushing Kit

- For bushing and sealing of poles and pipes on steep roofs
- For universal use with different roof tiles/roof stones due to formable aluminium roof tile

Roof bushing kit comprising aluminium roof tile, rubber grommet and sealing tape

Part No.	105 245	105 246
Material of roof tile	aluminium, with UV stabilised plastic coating	
Dimension of roof tile	450 x 500 mm	450 x 500 mm
Mast hole Ø	10 / 16 / 48 mm	10 / 16 / 48 mm
Roof inclination	24° - 53°	24° - 53°
Material of rubber grommet	UV stabilised rubber mixture	
Material of sealing tape	rubber based plastical sealant	
Type of sealing tape	strongly adhesive, self-welding	
Dimension of sealing tape	600 x 80 mm	600 x 80 mm
Processing temperature	+5 to +40 °C	+5 to +40 °C
Permanent temperature range of sealing tape	-40 to +80 °C	-40 to +80 °C
Colour	black	red



Air-termination mast for attachment on the conductor holder for rafters
Optically adjusted inside laying of the HVI Conductor or HVI light
Conductor in the supporting tube. The HVI Conductors will be conducted
through the supporting tube of the conductor holder for rafters and
installed in the range of counter-battens/roof battens.

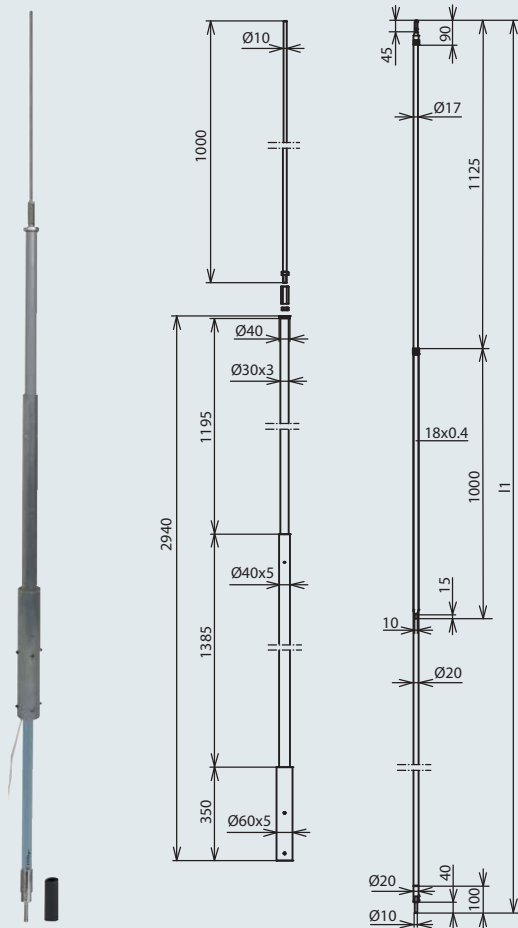
Advantages:

- Sub-roof installation – not visible
- Attachment mounting – only one visible tube
- No mechanical loading e.g. by snow

Minimum order length 6 m. Conductor length to be indicated when
ordering.

Due to the order related manufacturing (customised conductor length)
the conductor can not be taken back.

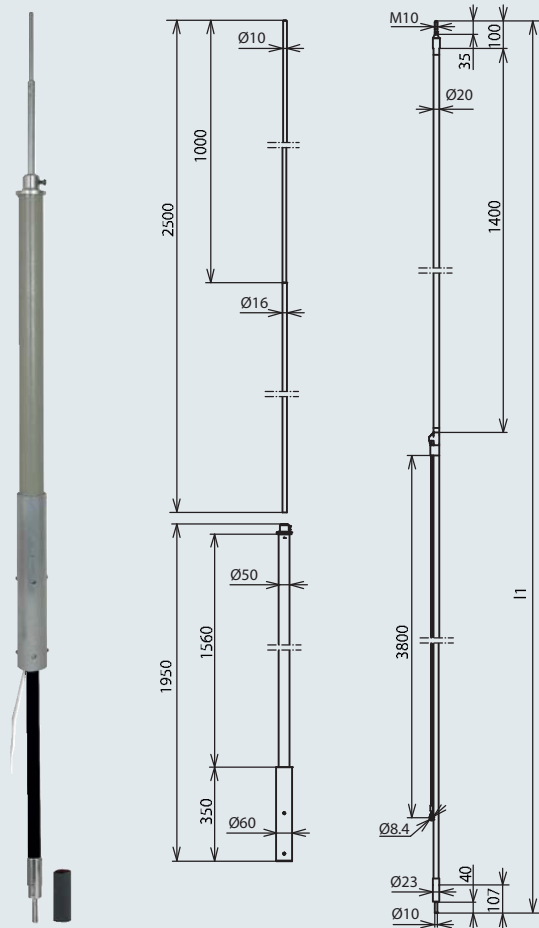
DEHNcon-H HVI light Conductor I in the supporting tube with air-termination rod



With interior sealing end and air-termination rod Ø10 mm,
length 1000 mm

Part No.	819 241
Material of conductor	Cu
Material of supporting tube	GRP / Al
Supporting tube Ø GRP	30 mm
Length of supporting tube	2940 mm
Supporting tube	GRP Ø30 mm
Colour of conductor	grey
Outer Ø of conductor	20 mm
Equivalent separation distance s (in air)	≤ 0.45 m
Minimum order length (l1)	6 m

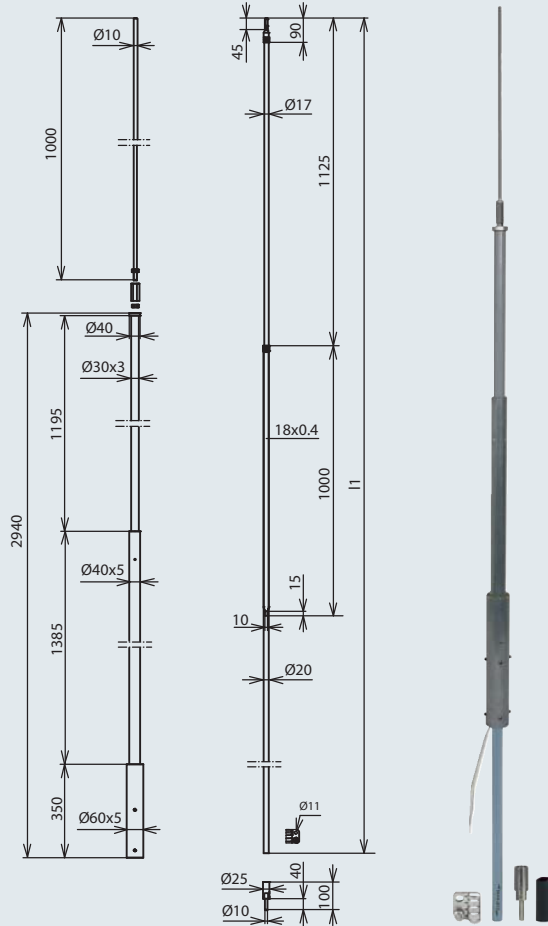
DEHNcon-H HVI Conductor I in the supporting tube with air-termination rod



With interior sealing end and air-termination rod Ø16/10 mm,
length 2500 mm

Part No.	819 245
Material of conductor	Cu
Material of supporting tube	GRP / Al
Supporting tube Ø GRP	50 mm
Length of supporting tube	1950 mm
Supporting tube	GRP Ø50 mm
Colour of conductor	black
Outer Ø of conductor	20 mm
Equivalent separation distance s (in air)	≤ 0.75 m
Minimum order length (l1)	6 m

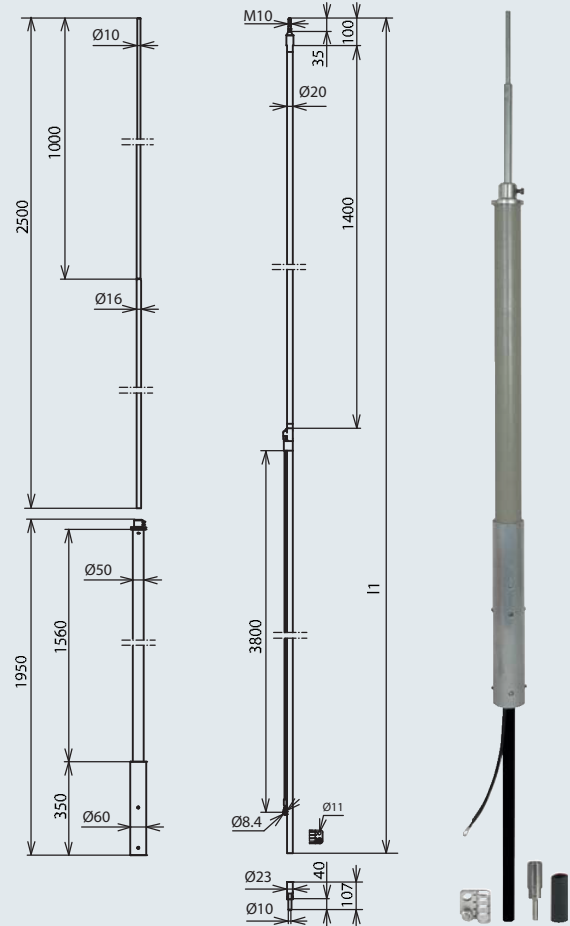
DEHNcon-H HVI light Conductor III in the supporting tube with air-termination rod



With interior sealing end and air-termination rod Ø10 mm, length 1000 mm

Part No.	819 242
Material of conductor	Cu
Material of supporting tube	GRP / Al
Supporting tube Ø GRP	30 mm
Length of supporting tube	2940 mm
Supporting tube	GRP Ø30 mm
Colour of conductor	grey
Outer Ø of conductor	20 mm
Equivalent separation distance s (in air)	≤ 0.45 m
Minimum order length (l1)	6 m

DEHNcon-H HVI Conductor III in the supporting tube with air-termination rod



With interior sealing end and air-termination rod Ø16/10 mm, length 2500 mm

Part No.	819 246
Material of conductor	Cu
Material of supporting tube	GRP / Al
Supporting tube Ø GRP	50 mm
Length of supporting tube	1950 mm
Supporting tube	GRP Ø50 mm
Colour of conductor	black
Outer Ø of conductor	20 mm
Equivalent separation distance s (in air)	≤ 0.75 m
Minimum order length (l1)	6 m

More details in installation instructions No.1759



HVI conductor installed in Ex zone 2

Operators of facilities with potentially explosive atmospheres are obligated to specify these facilities/structures according to the different hazardous areas. For these facilities lightning has to be considered as potential source of ignition. National regulations on health and safety at work require a documentation of the protection against explosion, with a specification of the particular hazardous areas.

The HVI conductor is suitable for use in hazardous areas specified as Ex zones 1 and 2 (gases, vapours, mists) as well as Ex zones 21 and 22 (dusts).

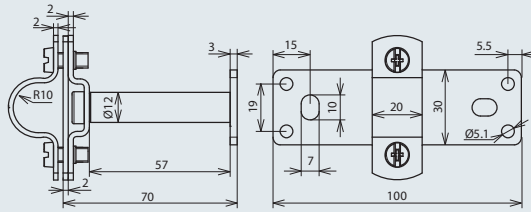
The special terms of installation make sure that any electrical sparking to neighbouring metal parts will be avoided when lightning currents are flowing through the HVI conductor.



Schematic illustration – installation in Ex zones 1 or 2 and 21 or 22 at a metal facade



HVI-Ex W70 holder



NEW

For fixing at metal construction parts (façades) in Ex zones 1 or 2 and 21 or 22

Part No.	275 440
Material	StSt
Conductor holder support Rd	20 mm
Wall distance	70 mm
Fixing	[4x] Ø5.1 / [2x] 7x10 mm
Screw	M6x14 mm
Material of screw	StSt

HVI-Ex W200 holder

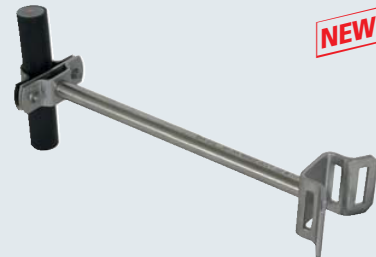
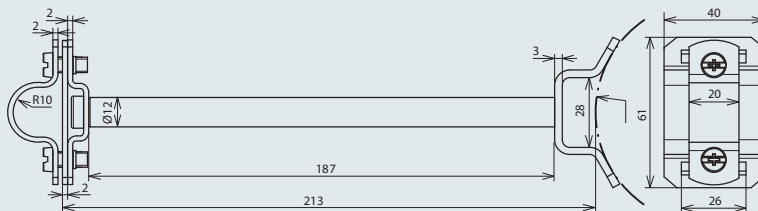


NEW

For fixing at metal construction parts (façades) in Ex zones 1 or 2 and 21 or 22

Part No.	275 441
Material	StSt
Conductor holder support Rd	20 mm
Wall distance	200 mm
Fixing	[4x] Ø5.1 / [2x] 7x10 mm
Screw	M6x14 mm
Material of screw	StSt

HVI-Ex P200 holder



NEW

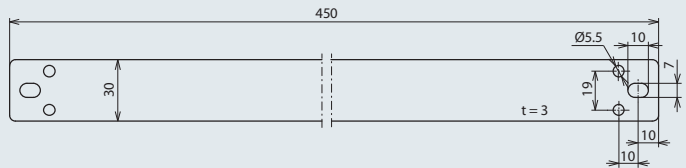
For fixing at pipes e.g. by means of pipe clamp (Part No. 106323) in Ex zones 1 or 2 and 21 or 22

Part No.	275 442
Material	StSt
Conductor holder support Rd	20 mm
Wall distance	200 mm
Clamping range of tube	50-300 mm
Material of fixing bush	StSt
Screw	M6x14 mm
Material of screw	StSt

See installation instructions No. 1811 for the HVI conductor in general and observe installation instructions No. 1501 especially in case of hazardous areas.

HVI-Ex busbar 500

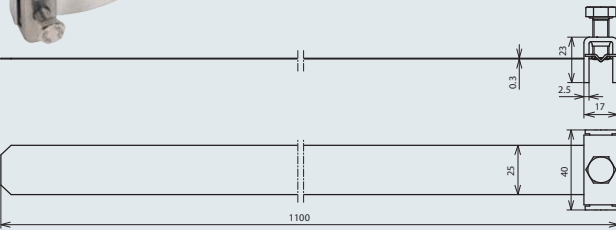
NEW



For installing the HVI conductor by means of conductor holder HVI-Ex (Part No. 275 440, 275 440) at a non-conductive structure, e.g. stone, wood

Part No.	275 498
Material of brace	StSt
Fixing	[4x] Ø5.5 / [2x] 7x10 mm
Dimension (l x w x d)	450x30x3 mm

Accessory for Conductor Holder for HVI® Conductor in Ex Areas



Pipe Clamp

For fixing (tensioning) the HVI-Ex P200 holder (Part No. 275 442) at pipes

Part No.	106 323
Material of head/strap	StSt
Clamping range Ø	50-300 mm
Dimension of strap (l x w x d)	1100x25x0.3 mm
Screw	T● M8x20 mm
Material of screw	StSt