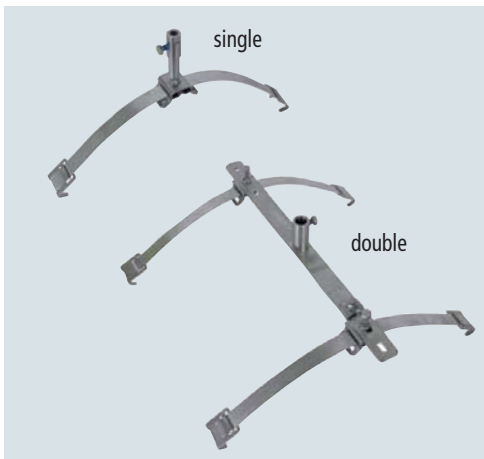




Lightning Protection / Earthing

Main Catalogue 2013/2014





Holders for Air-termination System on Ridge and Hip Tiles

- For air-termination rods / air-termination rods or spacer bars GRP Ø10 mm
- Material StSt

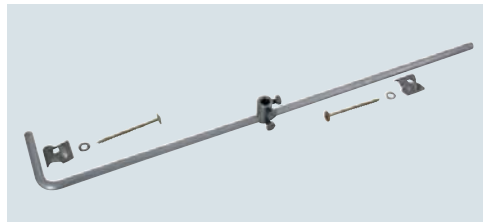
See page 28 / 29



Air-termination Rod Holder for Steep Roofs

- For the installation of air-termination rods or air-termination rods GRP/Al in the roof area to protect e.g. photovoltaic generators on steep roofs
- Fixing at the rafter
- No breaking of tiles

See page 30



Wall Mounting Bracket Adjustment Range 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)

See page 33



Conductor Holder HVI Ex W70/W200/P200 holder

- For the installation of HVI®Conductors in Ex areas (Ex zones 1 or 2 and 21 or 22)
- Entirely of StSt
- Secured against self-loosening

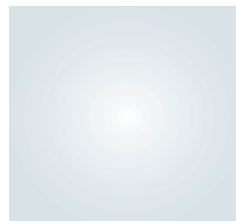
See page 101



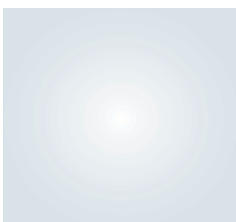
Conductor Holder DEHNgrip

- For loose conductor leading
- Screwless StSt holder system with copper carrier

See page 127



New Products



UNI Saddle Clamp with screw M8 and lock nut

- For integrating the mounting systems e.g. of PV systems into the functional equipotential bonding/functional earthing and lightning equipotential bonding
- With StSt contact plate for different materials (Cu, Al, St/tZn and StSt)

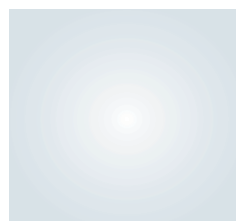
See page 164



Flat Strips angled

- For direct wall mounting (without distance)
- With bores for countersunk-head screws
- Material StSt (V4A)

See page 20



Lightning Protection / Earthing

Main Catalogue 2013/2014







Valid as of 1st January 2013

This catalogue replaces the Lightning Protection / Earthing main catalogue published in 2011/2012.

We reserve the right to introduce changes in configuration and technology, dimensions, weights and materials in the course of technical progress. Illustrations are not binding. Misprints and errors cannot be ruled out and the right to make changes is reserved.

Any reproduction of this catalogue, as a whole or in parts, is only allowed upon approval of DEHN + SÖHNE.

DS427/E/0113

	Conductors	17
	Air-termination Systems and Accessories	23
	Isolated Lightning Protection	41
	HVI Lightning Protection	67
	Protection Against Touch Voltage	103
	Roof Conductor Holders	107
	Conductor Holders	127
	Clamps	143
	Expansion and Bridging Components	173
	Test Joints	181
	Fixed Earthing Terminals	193
	Earth Electrodes	205
	Components for Foundation Earth Electrodes	217
	Equipotential Bonding	225
	Components for Ring Equipotential Bonding	241
	Tools, Measuring Equipment and Accessories	243
	Lightning Protection for Thatched Roofs	253
	Earthing Material for Telecommunications	257
	Pipe Clamps for Hazardous Areas	271
	Connection Components for Roof Poles	274
	Spark Gaps	275
	Index	285



Our promise

DEHN protects

Our family-owned company has been specialising in surge protection, lightning protection and safety equipment for many decades. With the key objective of protecting material assets and workers, we have made a name for ourselves in the market.

It was our pioneering spirit and innovative ideas that have defined our company for more than 100 years and made us a market leader with more than 1500 employees. Our products and developments reflect our market feasibility, commitment and ideas.

As early as in 1923 our founder Hans Dehn started production of external lightning protection and earthing components to optimise the protection of buildings and installations. In 1954, we launched the first series of surge protective devices. Constant further development of these devices ensures safe operation and permanent availability of electrical and electronic installations. Also in the 1950s, our third sector, safety equipment, was added to our portfolio.

The Bavarian town of Neumarkt is the heart of our activities where product managers and developers advance our protection technologies. Here we manufacture our high-quality safety products.

We offer the best solution

Our concern is to be a reliable and fair partner for our industrial, commercial and technical customers all over the world. To this end, we always focus on the best solution to protection problems. Our sales teams in Germany and our global network of 11 subsidiaries as well as more than 70 international sales partners are committed to competent and customer-oriented distribution of our products. Proximity and close contact with our customers is of utmost importance to us, be it on-site support by our experienced field staff team, our telephone hotline or personal contact at trade fairs.

In hundreds of seminar, workshops and conferences held every year throughout the world we impart practical knowledge on products and solutions.

Our specialised book "Lightning Protection Guide" and our brochures will broaden your practical knowledge. Or visit us at www.dehn.de for more information.

DEHN stands for innovation, highest quality and consistent customer and market orientation – also in the future.



Thomas Dehn

Dr. Peter Zahlmann

Dr. Philipp Dehn



Algeria
 Argentina
 Australia
 Austria
 Belgium
 Belize
 Bolivia
 Brazil
 Bulgaria
 Canada
 Cap Verde
 Chile
 China
 Columbia
 Costa Rica
 Croatia
 Cuba
 Czech Republic
 Denmark
 El Salvador
 Estonia
 F.Y.R.O.M
 Finland
 France
 Great Britain

Greece
 Guatemala
 Honduras
 Hungary
 Iceland
 India
 Iran
 Ireland
 Israel
 Italy
 Japan
 Latvia
 Lebanon
 Lithuania
 Luxembourg
 Malaysia
 Mauritius
 Mexico
 Netherlands
 New Zealand
 Nicaragua
 Nigeria
 Norway
 Oman
 Pakistan

Panama
 Peru
 Poland
 Portugal
 Romania
 Russia
 Saudi Arabia
 Serbia
 Singapore
 Slovakia
 Slovenia
 South Africa
 South Korea
 Spain
 Sri Lanka
 Sweden
 Switzerland
 Syria
 Taiwan
 Thailand
 Turkey
 Uganda
 United Arab Emirates
 USA
 Venezuela

We shall be pleased to name you the right contact person of our subsidiaries or representatives.

International Sales Department

Tel. +49 9181 906 1462
 Fax +49 9181 906 1444
export@dehn.de

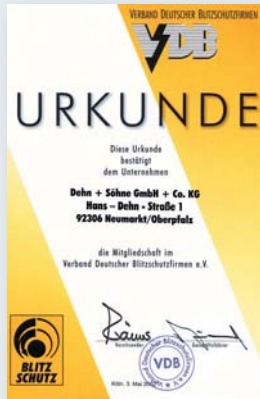
Benjamin Franklin, inventor of the lightning conductor, recognised lightning as an electrical phenomenon back in 1752. It is common knowledge today that lightning protection is more than a “cage” of air termination system, down conductors and earth termination system. A comprehensive protection system which is explained and specified in standards, is necessary. The current standard series IEC/EN 62305 is an internationally coordinated and approved standard. It is binding, both legally and technically and provides a comprehensive overall concept for lightning protection.

DEHN offers components and devices for complete lightning protection systems. Components for the installation of the External Lightning Protection System have to meet the mechanical and electrical requirements as specified in the standard series EN 50164-x. Our products are of course manufactured and tested in accordance with these relevant standards.

It has been, and will always be our aim to be one step ahead of the current state of engineering and to continuously improve in the interest and benefit of our customers.

In our highly specialised laboratories the active parameters of lightning are simulated in order to test installations/systems for lightning safety and to upgrade them if necessary.

Special solutions for lightning and surge protective systems can be tested and analysed in our laboratories in accordance with the current international and national standards. In addition, we have been working actively on international and national standard



committees for decades. You can be assured that our products, tools and extensive knowledge are based on the current state of standardisation. Implementation of a functional lightning protection system requires the application of components and devices that are tested and conform to the latest standards. The installers of lightning protection systems have to choose the components in accordance with the installation requirements of individual sites and to install them correctly. Apart from the mechanical requirements, the electrical criteria also have to be considered and complied with in lightning protection engineering. DEHN provides tests and analyses of lightning protection and surge protection systems for your safety.

IEC 62305 / EN 62305 Protection against lightning

Part 1: General principles

Part 2: Risk management

Part 3: Physical damage to structures and life hazard

Part 4: Electrical and electronic systems within structures

EN 50164 Lightning Protection Components (LPC)

Part 1: Requirements for connection components

Part 2: Requirements for conductors and earth electrodes

Part 3: Requirements for isolating spark gaps

Part 4: Requirements for conductor fasteners

Part 5: Requirements for earth electrode inspection housings and earth electrode seals

Brochures, Data Sheets, Test Reports and Audit Records

DEHN provides you with detailed installation instructions, data sheets and test reports in order to support you in the design of installations and systems. The necessary technical details are readily available and documentation is continuously updated and always available under www.dehn.de. After the system installation we also consult and assist you in the technical documentation, e.g. concerning a system inspection and the corresponding test protocols (e.g. a lightning protection system testing in accordance with IEC/EN 62305-3 or a documentation of the earth-termination system). These are also available under www.dehn.de.

Numerous brochures with practical information on our products as well as many application proposals complete the range of services available and can also be downloaded at www.dehn.de.

Planning Software for Lightning Protection Systems

The DEHNSupport Toolbox software program provides easy to use and practical programmes for planners and installers, ranging from a complete risk assessment to the calculation of the air-termination rod length, the determination of the separation distance and the calculation of the length of the earth electrodes. Designing of a lightning protection system is thus considerably easier. See also the following page for more details.

LIGHTNING PROTECTION GUIDE Reference Book

For more than 30 years, the DEHN LIGHTNING PROTECTION GUIDE has been an indispensable aid for the technical expert and is the trademark for practice orientated technical literature in the field of lightning and surge protection of buildings and structures. Whatever you need for the practical understanding of lightning and surge protection – the LIGHTNING PROTECTION GUIDE provides comprehensive and detailed expert knowledge about e.g. standards, regulations, project planning basics, installation examples and application proposals for special cases on more than 300 pages. The DEHN LIGHTNING PROTECTION GUIDE is available as book, as pdf file on CD or at www.dehn.de.



DEHNacademy

DEHN offers a wide spectrum for practice orientated education and training in the fields of surge protection, lightning protection / earthing and safety equipment. In one or two day seminars and special application seminars we give instructions and training for the practical application of components and devices in special structures and systems. More details and information under www.dehn.de.

DVD

A picture is worth a thousand words. With DVD DS708 we provide 3D-Animated films to show the use of products, and we invite you to meet DEHN + SÖHNE on a tour through the company with the DEHNTour DS 707 DVD.

Tender Specifications

A current description of our products for tenders (delivery list texts) is available in the service download range under www.dehn.de.

DEHN – quick and direct

Proximity to our customers is important to us! For any questions on special application topics of the DEHN products we are at your disposal with the service hotline 09181 906-1750. You can also contact our competent partners in your region. We shall be pleased to provide you with the name of the contact person or our subsidiaries or representatives.

The catalogue lightning protection / earthing comprises components for lightning protection, earthing and equipotential bonding. More technical information is available under www.dehn.de. We also shall be pleased to send you the brochures.



Detailed information and a demo version is available on our homepage www.dehn.de

System requirements

- Operating Systems Supported:
 - Windows® XP
 - Windows® Vista
 - Windows® 7
 - Windows® 8
- Office package with word processing and spreadsheet
- Internet connection (optional)

Programme Contents

Calculation Programme for Lightning Protection Systems

The DEHNSupport Toolbox provides a calculation tool for the specific determination and realisation of lightning and surge protection measures based on the requirements of the IEC/EN 62305-1 to 4 standard series. In addition to international requirements, there are country-specific adaptations which were integrated into the software and which are regularly extended. In order to give the user a targeted support for his application the DEHNSupport Toolbox offers a variety of planning aids:

DEHN Risk Tool; Risk management in accordance with IEC/EN 62305-2

Risk analysis: Analysing the hazard potential for buildings and structures allows for an economically reasonable selection of protection measures, suitable for the characteristics and the utilisation of the building or structure.

DEHN Distance Tool; Calculation of the separation distance in accordance with IEC/EN 62305-3

Basis of the DEHN Distance Tool module is a 3D building model with automatic calculation of the separation distance s . Calculation is based on the nodal-point-potential method. The automatic calculation saves time and simplifies the work steps.

DEHN Air-termination Tool; Calculation of the air-termination rod length in accordance with IEC/EN 62305-3

This software tool allows for calculating of air-termination rod lengths depending on the class of the lightning protection system.

DEHN Earthing Tool; Calculation of the earth electrode length in accordance with IEC/EN 62305-3

This software provides an aid to determine the necessary earth electrode length depending on the type of earth electrode and on the specific earth resistance.

Order Information

DEHNSupport Toolbox software can be obtained from DEHN. The product includes two single user licences. A server installation is possible. DEHNSupport Toolbox software is available in different combinations:

Basic Edition

DEHNSupport Basic Edition software with risk analysis, earth electrode length calculation, determination of air-termination rod length and calculation of separation distance (usual).

Distance Edition Single User Installation

DEHNSupport Distance Edition software with risk analysis, earth electrode length calculation, determination of air-termination rod length and calculation of separation distance according to the nodal-point-potential method.

Distance Edition Multi User Installation

Also a multi user installation can be obtained. The price depends on the number of users.

Upgrading from Basic to Distance Edition

Upgrading for calculating the separation distance according to the nodal-point-potential method for an already installed Basic Edition can be obtained.

Detailed information, order form and DEMO version are available on our homepage www.dehn.de.

Components used for installing the external lightning protection system shall meet certain mechanical and electrical requirements, which are specified in the EN 50164-x standard series. Lightning protection components are categorised according to their function, for example connection components (EN 50164-1, conductors and earth electrodes (EN 50164-2).

Testing of conventional lightning protection components

Metal lightning protection components (clamps, conductors, air-termination rods, earth electrodes) exposed to weathering have to be subjected to artificial ageing/conditioning prior to testing to verify their suitability for the intended application. In accordance with EN 60068-2-52 and BS EN ISO 6988 metal components are subjected to artificial ageing and tested in two steps.

Natural weathering and exposure to corrosion of lightning protection components

Step 1: Salt mist treatment

This test is intended for components or devices which were designed to withstand exposure to a saline atmosphere. The test equipment (**Figure 1**) consists of a salt mist chamber where the specimens are tested at a severity level 2 for more than three days. Severity level 2 includes three spraying phases of 2 h each, using a 5% sodium chloride solution (NaCl), at a temperature between 15 °C and 35 °C, followed by a humidity storage at a relative humidity of 93 ± 3 % and a temperature of 40 ± 2 °C for 20 to 22 hours, in accordance with EN 60068-2-52.

Step 2: Humid sulphurous atmosphere treatment

This test is to evaluate the resistance of materials or objects to condensed humidity containing sulphur dioxide in accordance with BS EN ISO 6988. The test equipment (**Figure 2**) consists of a test chamber where the specimens are treated with a concentration of sulphur dioxide of 667 ppm (in volume) (± 24 ppm (in volume) in seven test cycles. Each cycle which has duration of 24 h is composed of a heating period of 8 h at a temperature of 40 ± 3 °C in a humid, saturated atmosphere which is followed by a rest period of 16 h. After that, the humid sulphurous atmosphere is replaced.

Both components for outdoor use and components buried in the ground are subjected to ageing / conditioning. For components buried in the ground additional requirements and measures have to be considered. No aluminium clamps or conductors may be buried in the ground. If stainless steel is to be buried in the ground, only high-alloy stainless steel may be used, e.g. StSt V4A. In accordance with DIN VDE 0151 StSt V2A is not allowed. Components for indoor use such as equipotential bonding bars do not have to be subjected to ageing / conditioning. The same applies to components which are embedded in concrete. These components are therefore often made of non-galvanised (black) steel.

Air-termination systems / air-termination rods

Mainly air-termination rods are used as air-termination systems. They are available in many different designs, for example in a length of 1 m for installation with concrete base on flat roofs, up to the telescopic lightning protection masts with a length of 25 m for biogas plants.

EN 50164-2 specifies the minimum cross-sections and the permissible materials with the corresponding electrical and mechanical features for air-termination rods.



Figure 1:
Salt spray cabinet



Figure 2:
Ammonia atmosphere cabinet

For longer air-termination rods, proof of the buckling resistance and of the stability of complete systems (air-termination rod in tripod) has to be provided by a static calculation. The required cross-sections and materials have to be selected based on this calculation. Also the wind speeds of the respective wind load zone also have to be taken into account for this calculation.

Connection components

Connection components, or often simply called clamps, are used as lightning protection components to connect conductors (down conductor, air-termination conductor, earth entry) to each other or to an installation. Depending on the type of clamp and clamp material, a lot of different clamp combinations are possible. The conductor leading and the possible material combinations are decisive in this respect. The kind of conductor leading describes how a clamp connects the conductor or conductors in cross or parallel arrangement.

In case of a lightning current loading, clamps are subject to electro dynamic and thermal forces which highly depend on the kind of conductor leading and the clamping connection. **Table 1** shows materials which may be combined without contact corrosion being caused.

Different materials with their individual mechanical strengths and thermal properties being combined, there are different effects on the connection components in case of a lightning current loading. This is particularly evident for stainless steel (StSt) connection components, where due to the low conductivity, high tempera-

Requirements for External Lightning Protection Components

	Steel	Aluminium	Copper	StSt	Titanium	Tin
Steel (St/tZn)	yes	yes	no	yes	yes	yes
Aluminium	yes	yes	no	yes	yes	yes
Copper	no	no	yes	yes	no	yes
StSt	yes	yes	yes	yes	yes	yes
Titanium	yes	yes	no	yes	yes	yes
Tin	yes	yes	yes	yes	yes	yes

Table 1: Possible combinations of materials for air-termination systems and down conductors and for connection with construction parts

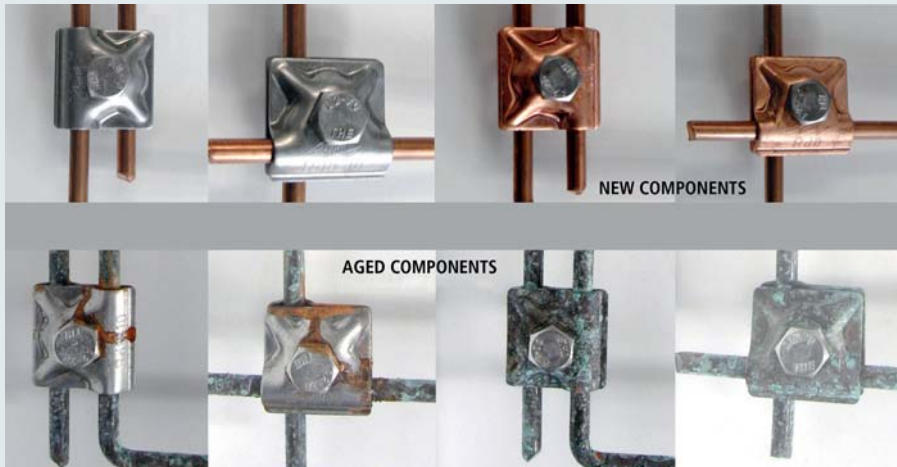


Figure 3: New and aged components

tures arise at lightning current flowing. Therefore a lightning current test in compliance with EN 50164-1 has to be carried out for all clamps. In order to test the worst case, not only the different conductor combinations but also the material combinations specified by the manufacturer have to be tested.

Testing featured by the example of the MV clamp

At first, the number of test combinations has to be determined. The MV clamp concerned, is made of stainless steel (StSt) and hence can be combined with steel, aluminium, StSt and copper conductors as stated in the above table. Moreover, it can be connected in cross and parallel arrangement which also has to be tested. This means that there are eight possible test combinations for the MV clamp used (**Figures 3 and 4**).

In accordance with EN 50164 each of these test combinations has to be tested on three suitable specimens / test set-ups. This means



Figure 4: Test combinations for MV clamps (parallel and cross arrangement)

that 24 specimens of this single MV clamp have to be tested to cover the complete range. Every single specimen is mounted with the adequate tightening torque in compliance with normative requirements and is subjected to artificial ageing by means of salt mist and humid sulphurous atmosphere treatment as described above. For the subsequent electrical test the specimens have to be fixed on an insulating plate (**Figure 5**).

Three lightning current impulses of 10/350 μ s wave shape with 50 kA (Normal duty) and 100 kA (Heavy duty) are applied to every specimen. After being loaded with lightning current, the specimens must not show signs of damage. The transition resistance (measured above the clamp) for a stainless steel clamp must not exceed 1 m Ω in case of normal duty and 2.5 m Ω in case of heavy duty. The required loosening torque has to be ensured. A manufacturer's test report is prepared for every test combination. A detailed test report is available upon request from the manufacturer or a less detailed report (**Figure 6**) can be downloaded from the internet (e.g. www.dehn.de => Products => Product data).



Consequently installers of lightning protection systems have to select the connection components for the duty (H or N) to be expected on site. A clamp for H duty (100 kA) for example, has to be used for an air-termination rod (full lightning current) and a clamp for N duty (50 kA) has to be used in a mesh or at an earth entry (lightning current already distributed).

Conductors

EN 50164-2 also places special demands on conductors such as air-termination and down conductors or earth electrodes e.g. ring earth electrodes, for example:

- Mechanical properties (minimum tensile strength, minimum elongation),
- Electrical properties (max. resistivity) and
- Corrosion resistance properties (artificial ageing as described above).

The mechanical properties have to be tested and observed. **Figure 7** shows the test set-up for testing the tensile strength of circular conductors (e.g. aluminium). The quality of coating (smooth, continuous) as well as the minimum thickness and adhesion to the base material are important and have to be tested particularly if coated materials such as galvanised steel (St/tZn) are used.

This is described in the standard in the form of a bending test. For this purpose, a specimen is bent through a radius equal to 5 times of its diameter to an angle of 90°. In doing so, the specimen may not show sharp edges, breakage or exfoliation. Moreover, the handling of conductor materials shall be light and easy for the installation of lightning protection systems. Wires or strips (coils) are supposed to be easily straightened by means of a wire straightener (guide pulleys) or by means of torsion.

Furthermore, it should be easy to install / bend the materials at structures or in soil. These standard requirements are relevant

product features which have to be documented in the corresponding product data sheets of the manufacturers.

Earth electrodes / earth rods

The separable DEHN earth rods are made of special steel and are completely hot-dip galvanised or consist of high-alloy stainless steel (StSt V4A; material No. 1.4571). A coupling joint which allows connection of the rods without enlarging the diameter is a special feature of these earth rods. Every rod provides a bore and a pin end.

EN 50164-2 specifies the requirements for earth electrodes such as material, geometry, minimum dimensions as well as mechanical and electrical properties. The coupling joints linking the individual rods are weak points. For this reason EN 50164-2 requires that additional mechanical and electrical tests have to be performed to test the quality of these coupling joints.

For testing the rod is put into a guide with a steel plate as impact area. The specimen consists of two joined rods with a length of 500 mm each. Three specimens of each type of earth electrode are to be tested. A blow rate of $2\,000 \pm 1\,000 \text{ min}^{-1}$ with a kinetic energy of impact of $50 \pm 10 \text{ [Nm]}$ is applied on top of the specimen by means of a vibration hammer and the suitable hammer insert.

If the couplings have passed this test without visible defects, they are subjected to artificial ageing by means of salt mist and humid sulphurous atmosphere treatment. Then the couplings are loaded with three lightning current impulses of wave shape 10/350 μs of 50 kA and 100 kA each. The transition resistance (via the coupling) of stainless steel earth rods must not exceed 2.5 m Ω . In order to test whether the connection is sufficiently strong after the lightning current loading, the coupling is tested by means of a tensile strength testing machine.

Implementation of a functional lightning protection system requires the application of normatively tested components and devices. The components are to be selected and duly applied by the installer of lightning protection systems in accordance with the requirements at the installation site. In addition to the mechanical necessities the electrical criteria of the present state of lightning protection engineering are to be considered and complied with.

Figure 5:
Specimen fixed on insulating plate (MV clamp) for a test in the impulse current laboratory



Manufacturer's Test Report

Test according to EN 50164-1

MV Clamp Part No. 390 059

Material: StSt



DEHN + SÖHNE



Application: above ground

Connected conductor	Test result
Conductor (1): Rd 8 St/zn Conductor (2): Rd 8 St/zn	N
Conductor (1): Rd 8 Cu Conductor (2): Rd 8 Cu	H
Conductor (1): Rd 8 StSt Conductor (2): Rd 8 StSt	H
Conductor (1): Rd 8 Al Conductor (2): Rd 8 Al	H

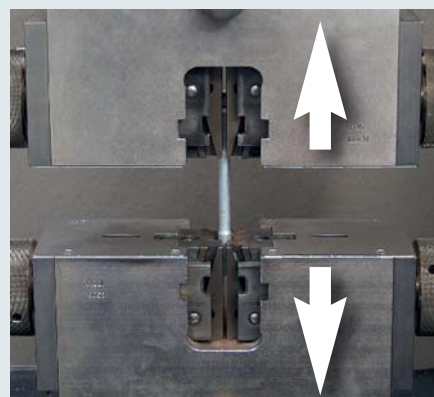
Legend

Lightning current carrying capability class H 100 kA (10/350 μs)
Lightning current carrying capability class N 50 kA (10/350 μs)

More details on the test conditions are available on request.

Figure 6:
Less detailed manufacturer's test report

Figure 7:
Tensile testing of conductors



50 Hz Ampacity of Conductors and Connection Components



Medium voltage supply



Ring equipotential bonding

Different electrical system equipment is interacting in electrical installations:

- High-voltage technology (HV systems)
- Medium voltage technology (MV systems)
- Low-voltage technology (LV systems)
- Information technology (IT systems)

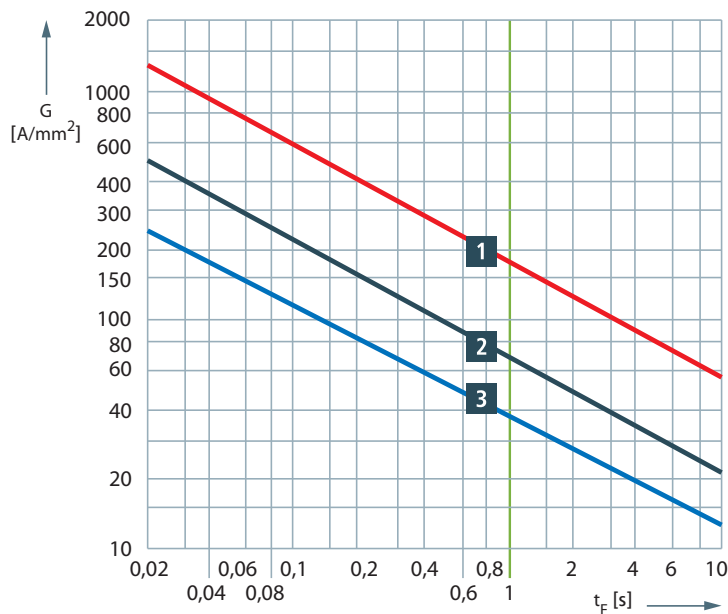
Basis for a reliable interaction of the different systems is a common earth-termination system and a common equipotential bonding system. It is important that all conductors, clamps and connectors are specified for the various applications.

For buildings with integrated transformers, standards and guidelines concerning power plants with nominal voltages over 1 kV have to be considered.

Conductor materials and connection components for use in HV, MV and LV systems have to comply with the requirements arising in case of 50 Hz currents. Due to the prospective short-circuit currents (50 Hz) the cross sections of the earth electrode material for the various systems / buildings have to be especially determined. Currents of short-circuits to earth (standard requirement double short-circuit to earth current I''_{KEE}) must not lead to inadmissible heating of the components.

Unless there are special requirements of the network operator, the standard duration of one second of fault current (time to disconnect) and the maximum permissible temperature of 300 °C for the materials used for the earthing conductors and connection components / clamps are taken as basis. Material and the current density G (in A/mm²) in relation to the fault current duration are essential for the selection of the earthing conductor cross section.

The diagram shows the permissible 50 Hz short-circuit current density (G) for the conductor materials copper, steel and high-alloy steel (stainless steel V4A material No. 1.4571/316Ti). Detailed short-circuit current (I_k) values in case of a current flow duration of 1 s at the earthing conductors, earth rods and various connection components / clamps are indicated in the technical data.



- 1 copper
- 2 galvanised steel
see also
DIN VDE 0101 Fig. B1
- 3 StSt V4A (1.4571)
determined by testing
(Test report EPM No. 6337
dated 1993-12-16)

t_F = duration of fault current
 G = short-circuit current density

Ampacity of earth electrode materials

In the following a calculator of the short-circuit current to earth for the design of the earth conductor:

Version 1

Specification of the three-pole short-circuit current by the system operator, e.g. $I''_{k3} \approx 15000 \text{ A}$

Version 2

Calculation of a theoretical worst case, assuming that the supplying voltage will not collapse (remains constant).

The short-circuit voltage (u_k) is used to determine the max. three-pole short-circuit current. The three-pole short-circuit current I''_{k3} is the max. three-pole short-circuit current at the transformer, neglecting an impedance on the fault site ($Z = 0$).

In the calculation exemplarily a transformer with the following data is considered:

Nominal capacity of the transformer $S = 630 \text{ kVA}$

Nominal voltage on low-voltage side $U = 400 \text{ V}$

Short-circuit voltage $u_k = 6.05 \%$

Design for short-circuit

Linear conversion for the short-circuit voltage (worst case):

$$I''_{k3} = \frac{S}{\sqrt{3} \cdot U \cdot u_k}$$

$$I''_{k3} = \frac{630 \cdot 10^3 \text{ VA}}{\sqrt{3} \cdot 400 \text{ V} \cdot 0.0605} \approx 15000 \text{ A}$$

For dimensioning the cross section of an earthing conductor / earthing bus conductor, the worst case of a double short-circuit to earth in a system shall be assumed. Therefore earth-termination systems shall be designed for the double short-circuit current to earth (I''_{kEE}).

$$I''_{kEE} = 0.85 \cdot I''_{k3}$$

$$I''_{kEE} = 0.85 \cdot 15000 \text{ A} \approx 12750 \text{ A}$$

Based on the three-pole short-circuit-current to earth, the German standard DIN VDE 0101 "Starkstromanlagen mit Wechselspannungen über 1 kV" specifies a factor of 85 % for the dimensioning of the short-circuit current to earth.

For the double short-circuit current to earth I''_{kEE} , the earthing conductor/the protective equipotential bonding conductor has to be designed directly up to the transformer. In this simplified calculation, reduction factors, e.g. by the cable shields, are not considered.

If the short-circuit current to earth spreads via the earthing conductor/protective equipotential bonding conductor to the transformer into the mesh of a system (earthing bus conductor or intermeshed earth-termination system), it may be assumed that the current will be distributed at the nodal point into two directions. The asymmetry in the intermeshing of the earth-termination system can be assumed with a sufficient accuracy to be 65 %. The short-circuit current to earth which has to be taken into account for this earth-termination system (earthing bus conductor or intermeshed earth-termination system) is specified as $I''_{kEE \text{ (branch)}}$ in our example.

$$I''_{kEE \text{ (branch)}} = 0.65 \cdot I''_{kEE}$$

$$I''_{kEE \text{ (branch)}} = 0.65 \cdot 12750 \text{ A} \approx 8300 \text{ A}$$

A current of $I''_{kEE \text{ (branch)}} = 8300 \text{ A}$ therefore is taken as basis for the dimensioning of the cross section of this earth-termination system in the example shown.

Determination of the resulting cross section

The cross section of a conductor results from the material and the disconnecting time. In the German standard VDE 0101 the maximum short-circuit current density $G \text{ [A/mm}^2\text{]}$ is specified for different materials (see VDE 0101 Figure B1).

Time	St/tZn	Copper	StSt (V4A)
0.3 s	129 A/mm ²	355 A/mm ²	70 A/mm ²
0.5 s	100 A/mm ²	275 A/mm ²	55 A/mm ²
1 s	70 A/mm ²	195 A/mm ²	37 A/mm ²
3 s	41 A/mm ²	122 A/mm ²	21 A/mm ²
5 s	31 A/mm ²	87 A/mm ²	17 A/mm ²

Table: Short-circuit current density G

The determined current now is divided by the current density G of the respective material and the assigned disconnecting time and the minimum cross section A_{\min} of the conductor will be determined.

$$A_{\min} = \frac{I''_{kEE \text{ (branch)}}}{G} \text{ [mm}^2\text{]}$$

With the cross section calculated, the conductor may be selected. Always the next largest nominal cross section will be taken.

Legend:

S	Nominal capacity	[VA]
U	Nominal voltage (low voltage)	[V]
u_k	Short-circuit voltage	[%]
I_k	Short-circuit current	[A]
I''_{k3}	Three-pole short-circuit current	[A]
I''_{kEE}	Double short-circuit current to earth	[A]
G	Short-circuit current density	[A/mm ²]
A_{\min}	Minimum cross section	[mm ²]

Wind Load at Isolated Air-termination Systems



Figure 1: Wind load zones in Germany and corresponding values of dynamic pressure and maximum wind speed

External lightning protection system components such as air-termination rods, self-supporting air-termination rods in a tripod or ring conductors with concrete bases have to be erected/installed under consideration of the wind load to be expected at the site of installation. Calculation of the applicable wind load stressing shall not only refer to the zone specific wind load, but also to the building height and to the local conditions (detached building, in open country or surrounded by other buildings). **Figure 1** shows, that approx. 85 % of the area of Germany is wind load zone I or II area.

Zone	Dynmic pressure q	Wind velocity v	Wind force
I	0.80 kN/m ²	127 km/h	12-17
II	1.05 kN/m ²	145 km/h	
III	1.30 kN/m ²	162 km/h	
IV	1.70 kN/m ²	185 km/h	

According to standard, the components are designed for wind velocities up to 145 km/h and a building height up to 40 m.

In addition to the on-site installation environment, the following features shall be taken into account:

- Building height over 40 m
- Area 600 m above sea level (normal zero)
- Dynamic pressure
- Natural oscillation
- Safety coefficients
- Icing

Air-termination rod	Zone I	Zone II	Zone III	Zone IV
1.5 m				
2.0 m				
2.5 m				upon request
3.0 m			upon request	upon request

The particulars apply for all tapered air-termination rods. The spacer is recommended to be mounted in the mid of the air-termination rod.

Following specifications about ring conductor height (Al round wire Ø8 mm), distance and type or quantity of concrete blocks refer to wind load zone II.

High of ring conductor	Distance of concrete bases Middle / Middle	
675 mm	800 mm	
1000 mm	1200 mm	
1500 mm	1200 mm	

Legend:

- 1x concrete block (weight 8.5 kg) Part No. 102 075
- 1x concrete block (weight 17 kg) Part No. 102 010
- 2x concrete block stackered (weight 34 kg) Part No. 102 010
- 1x concrete block (weight 17 kg) with spacer made of GRP Part No. 102 010 e.g. Part No. 106 120

The following list shows and explains all abbreviations mentioned in this catalogue.















Conductor Types:

Abbreviation	Conductor Types
Fl	Flat conductor (strip)
Rd	Round conductor (round wire)

Materials:

Abbreviation	Description
Al	Aluminium
AlMgSi	Aluminium magnesium silicon wrought alloy
StSt	Stainless steel Material No.: ASTM/AISI 304 (Material No.: 1.4301) Material No.: ASTM/AISI 305 (Material No.: 1.4303)
StSt (V4A)	Stainless steel Material No.: ASTM/AISI 316 (Material No.: 1.4401) Material No.: ASTM/AISI 316L (Material No.: 1.4404) Material No.: ASTM/AISI 316Ti (Material No.: 1.4571)
St/blank	Steel (black)
St/tZn	Steel, hot dip galvanised
St/gal Zn	Steel, galvanised
St / Cu	Steel, copper-coated
MCI	Malleable cast iron
MCI/tZn	Malleable cast iron, hot dip galvanised
ZDC	Zinc die casting
GCI	Grey cast iron
Cu	Copper, electrical copper
RCB	Red castin brass
Ms	Brass
Ms/gal Cu	Brass, copper coated
Ms/gal Sn	Brass, tin-coated
Cu/gal Sn	Copper, tin-coated
Sn	Tin
K	Plastic material / Polyethylene / Polyamide / Polystyrene
PVC	Polyvinyl chloride
GRP	Glass-fibre reinforced plastic
UP	Polyester (unsaturated)
PA	Polyamide
EVA	Ethylene vinyl acetate copolymer
XLPE	Cross-linked polyethylene

Symbols:

Screws	Screw heads
 Half-round wood screw	 Slot
 Countersunk head wood screw	 Hexagon
 Wood screw with threaded head	 Hexagon with slot
 Cheese head screw	 Cross recessed
 Truss head screw	 Star drive
 Knurled screw	 Combined slot
 Countersunk screw	
 Raised head screw	

Recommended values:

Screw	Tightening torque
M5 / M6	≥ 4 Nm
M8	≥ 10 Nm
M10	≥ 20 Nm
M12	≥ 25 Nm

Miscellaneous:

Tested according to EN 50164-1



New products



Discontinued products



Round wires according to EN 50164-2, for use in lightning protection and earth-termination systems



DEHNalu wire



Part No.	840 008	840 108	840 018	840 028	840 010
∅ Conductor	8 mm	8 mm	8 mm	8 mm	10 mm
Cross section	50 mm ²	50 mm ²	50 mm ²	50 mm ²	78 mm ²
Material	AlMgSi	AlMgSi	AlMgSi	AlMgSi	Al
Characteristics	semi-rigid	semi-rigid	soft-torsionable	soft-torsionable	soft-torsionable
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Coil weight	approx. 20 kg	approx. 3 kg	approx. 20 kg	approx. 3 kg	approx. 21 kg
Conductor length	148 m	21 m	148 m	21 m	100 m

Al and AlMgSi must not be installed directly (without distance) on, in, or under plaster, mortar or concrete, and not in soil.

DEHNalu wire with plastic coating

Wire with halogen-free, frost-resistant and UV stabilised plastic coating as additional mechanical protection/corrosion protection e.g. for installation behind facades.



Suitable for installation on, in and under plaster, mortar or concrete.

Part No.	840 118
∅ Conductor	8 mm
Cross section	50 mm ²
Material	AlMgSi
Characteristics	soft
Standard	EN 50164-2
∅ Outer	11 mm
Coating material	plastic
Coating thickness	1.5 mm
Coil weight	approx. 20 kg
Conductor length-	100 m

DEHNcupal wire

New composite material.

Lighter than copper.

For use above ground as air-termination and down conductor, or for equipotential bonding.



Part No.	833 008
∅ Conductor	8 mm
Cross section	50 mm ²
Material	Al / Cu
Characteristics	soft-torsionable
Standard	EN 62561-2
Cu coating	min. 0.26 mm
Coil weight	approx. 20 kg
Conductor length	approx. 110 m

Copper wire



Part No.	830 008	830 108	830 038
∅ Conductor	8 mm	8 mm	8 mm
Cross section	50 mm ²	50 mm ²	50 mm ²
Material	Cu	Cu	Cu
Characteristics	soft F20	soft F20	semi-rigid F25
Standard	EN 50164-2	EN 50164-2	EN 50164-2
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	9.8 kA	9.8 kA	9.8 kA
Coil weight	approx. 45 kg	approx. 9 kg	approx. 45 kg
Conductor length	100 m	20 m	100 m

Steel wire



With zinc coating $\geq 50 \mu\text{m}$ average (approx. 350 g/m²)

Part No.	800 008	800 010	800 310
Ø Conductor	8 mm	10 mm	10 mm
Cross section	50 mm ²	78 mm ²	78 mm ²
Material	St/tZn	St/tZn	St/tZn
Standard	EN 50164-2	EN 50164-2	EN 50164-2
Short-circuit current (50 Hz) (1 s; $\leq 300 \text{ }^\circ\text{C}$)	—	5.5 kA	5.5 kA
Coil weight	approx. 50 kg	approx. 50 kg	approx. 18.5 kg
Conductor length	127 m	81 m	30 m

Steel wire with plastic coating



Plastic coating is an additional mechanical protection/corrosion protection e.g. at connections to the lightning protection system

Part No.	800 108	800 110
Ø Conductor	8 mm	10 mm
Cross section	50 mm ²	78 mm ²
Material	St/tZn	St/tZn
Standard	EN 50164-2	EN 50164-2
Ø Outer	11 mm	13 mm
Coating material	plastic	plastic
Coating thickness	1.5 mm	1.5 mm
Coil weight	approx. 33 kg	approx. 34 kg
Conductor length	75 m	50 m

Stainless steel wire



Stainless steel wire (Rd 10 mm) for use in soil has to be made of StSt (V4A) with a molybdenum percentage of $> 2 \%$, e.g. 1.4571, in accordance with EN 50164-2, IEC/EN 62305-3 and DIN VDE 0151.

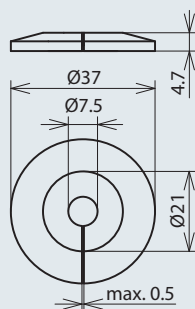
Part No.	860 908	860 910	860 920	860 008	860 010	860 020
Ø Conductor	8 mm	10 mm	10 mm	8 mm	10 mm	10 mm
Cross section	50 mm ²	78 mm ²	78 mm ²	50 mm ²	78 mm ²	78 mm ²
Material	StSt	StSt	StSt	StSt (V4A)	StSt (V4A)	StSt (V4A)
Material No.	1.4301 / 1.4303	1.4301 / 1.4303	1.4301 / 1.4303	1.4571 / 1.4404	1.4571 / 1.4404	1.4571 / 1.4404
ASTM / AISI:	—	—	—	316Ti / 316L	316Ti / 316L	316Ti / 316L
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Short-circuit current (50 Hz) (1 s; $\leq 300 \text{ }^\circ\text{C}$)	—	—	—	—	2.9 kA	2.9 kA
Coil weight	approx. 50 kg	approx. 50 kg	approx. 12 kg	approx. 50 kg	approx. 50 kg	approx. 12 kg
Conductor length	125 m	80 m	20 m	125 m	80 m	20 m

Conductor materials will be delivered in original coil weights only.

More conductor materials and components as specified in the standard series EN 50164-2 upon request.

Dripping Water Protective Collars

Collars for preventing rain water from draining along the round wire. Pollution of the façade thus can be avoided.



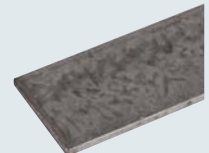
Part No.	276 056	276 057
Material	plastic	plastic
Conductor Rd	8 mm	8 mm
Colour	grey	brown
Diameter	37 mm	37 mm
Bore	7.5 mm	7.5 mm

Strips according to EN 50164-2, for use in earth-termination and lightning protection systems as well as for ring equipotential bonding.



Steel strip

Zinc coating $\geq 70 \mu\text{m}$ average (approx. 500 g/m²)



Part No.	810 225	810 335	852 335	810 304	810 404	810 405
Width	20 mm	30 mm	30 mm	30 mm	40 mm	40 mm
Thickness	2.5 mm	3.5 mm	3.5 mm	4 mm	4 mm	5 mm
Cross section	50 mm ²	105 mm ²	105 mm ²	120 mm ²	160 mm ²	200 mm ²
Material	St/tZn	St/tZn	St/tZn	St/tZn	St/tZn	St/tZn
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Short-circuit current (50 Hz) (1 s; $\leq 300 \text{ }^\circ\text{C}$)	—	7.3 kA	7.3 kA	8.4 kA	11.2 kA	14 kA
Coil weight	approx. 40 kg	approx. 42 kg	approx. 21 kg	approx. 50 kg	approx. 50 kg	approx. 50 kg
Conductor length	100 m	50 m	25 m	52 m	40 m	30 m

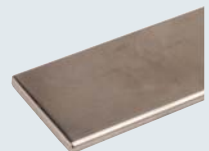
Copper strip



Part No.	831 225
Width	20 mm
Thickness	2.5 mm
Cross section	50 mm ²
Material	Cu
Standard	EN 50164-2
Short-circuit current (50 Hz) (1 s; $\leq 300 \text{ }^\circ\text{C}$)	9.8 kA
Coil weight	approx. 45 kg
Conductor length	100 m

Stainless steel strip

Stainless steel strip for use in soil has to be made of StSt (V4A) with a molybdenum percentage of $> 2 \%$, e.g. 1.4571, 1.4404, in accordance with EN 50164-2, IEC/EN 62305-3 and DIN VDE 0151.

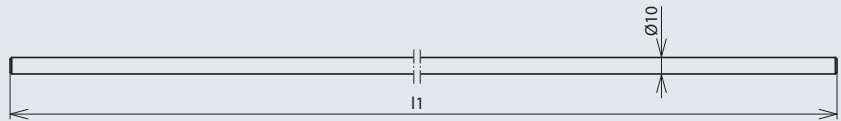


Part No.	860 925	860 900	860 325	860 335
Width	30 mm	30 mm	30 mm	30 mm
Thickness	3.5 mm	3.5 mm	3.5 mm	3.5 mm
Cross section	105 mm ²	105 mm ²	105 mm ²	105 mm ²
Material	StSt	StSt	StSt (V4A)	StSt (V4A)
Material No.	1.4301 / 1.4303	1.4301 / 1.4303	1.4571 / 1.4404	1.4571 / 1.4404
ASTM / AISI:	—	—	316Ti / 316L	316Ti / 316L
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Short-circuit current (50 Hz) (1 s; $\leq 300 \text{ }^\circ\text{C}$)	—	—	3.9 kA	3.9 kA
Coil weight	approx. 21 kg	approx. 50 kg	approx. 21 kg	approx. 50 kg
Conductor length	25 m	60 m	25 m	60 m

Strips in other dimensions and materials upon request.

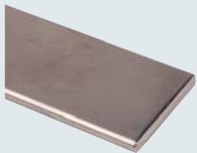
Terminal lugs straightened, for connecting of down conductors to the earth-termination system, made of corrosion resistant stainless steel StSt (V4A)

Round wires



Part No.	860 110	860 115	860 130
Material	StSt (V4A)	StSt (V4A)	StSt (V4A)
Material No.	1.4571 / 1.4404	1.4571 / 1.4404	1.4571 / 1.4404
ASTM / AISI:	316Ti / 316L	316Ti / 316L	316Ti / 316L
Length (l1)	1000 mm	1500 mm	3000 mm
Dimension	Ø10 mm	Ø10 mm	Ø10 mm
Cross section	78 mm ²	78 mm ²	78 mm ²
Standard	EN 50164-2	EN 50164-2	EN 50164-2

Flat strips

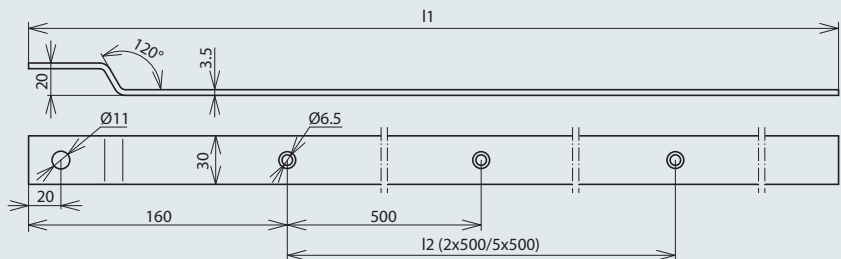


Part No.	860 215	860 230
Material	StSt (V4A)	StSt (V4A)
Material No.	1.4571 / 1.4404	1.4571 / 1.4404
ASTM / AISI:	316Ti / 316L	316Ti / 316L
Length (l1)	1500 mm	3000 mm
Dimension	30x3.5 mm	30x3.5 mm
Cross section	105 mm ²	105 mm ²
Standard	EN 50164-2	EN 50164-2

Flat strips angled



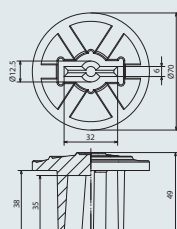
For direct wall mounting (without distance) with bores for countersunk head screws



Part No.	860 315	860 330
Material	StSt (V4A)	StSt (V4A)
Material No.	1.4571 / 1.4404	1.4571 / 1.4404
ASTM / AISI:	316Ti / 316L	316Ti / 316L
Length (l1)	1500 mm	3000 mm
Dimension	30x3.5 mm	30x3.5 mm
Connection	isolating clamp or clamping screw connector	isolating clamp or clamping screw connector
Fixing	[3x] Ø6.5 mm	[6x] Ø6.5 mm
Cross section	105 mm ²	105 mm ²
Standard	EN 50164-2	EN 50164-2

Other dimensions available upon request

Accessory for Terminal Lugs Straightened/Angled



Protective Cap for Terminal Lugs

For attaching on round wires or strips
A striking marker (as required according to DIN 18014) and an accident prevention during the construction phase

Part No.	478 099
Material	PVC
Diameter	70 mm
Support Fl	30x3.5 mm
Support Rd	10 mm
Colour	green/yellow

Cables for use in lightning protection and earth-termination systems

Aluminium cable

e.g. for spanning in case of isolated air-termination systems (DEHNiso-Combi)



Part No.	840 050
Cross section	50 mm ²
Cable structure qty x Ø wire	19 x 1.8 mm
Material	Al
Standard	EN 50164-2
Outer Ø	9 mm
Coil weight	approx. 13.5 kg
Conductors length	100 m

Note: Al must not be installed directly (without distance) on, in or under plaster, mortar or concrete, and not in soil.

Steel cable

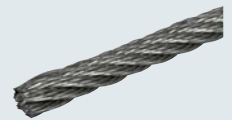
e.g. for equipotential bonding



Part No.	801 050
Cross section	42 mm ²
Cable structure qty x Ø wire	[6x] 19 x 0.65 mm
Material	St/gal Zn
Outer Ø	10 mm
Coil weight	approx. 35 kg
Conductors length	100 m

Stainless steel cable

e.g. for equipotential bonding



Part No.	850 008	850 010
Cross section	27 mm ²	42 mm ²
Cable structure qty x Ø wire	[7x] 19 x ca. 0.59 mm	[7x] 19 x ca. 0.68 mm
Material	StSt (V4A)	StSt (V4A)
Material No.	1.4571 / 1.4404	1.4571 / 1.4404
ASTM / AISI:	316Ti / 316L	316Ti / 316L
Outer Ø	8 mm	10 mm
Coil weight	approx. 23.5 kg	approx. 39.5 kg
Conductors length	100 m	100 m

Copper cable



Part No.	832 739	832 740	832 192	832 193	832 095	832 120
Cross section	50 mm ²	50 mm ²	70 mm ²	70 mm ²	95 mm ²	120 mm ²
Cable structure qty x Ø wire	19 x 1.8 mm	19 x 1.8 mm	19 x 2.1 mm	19 x 2.1 mm	19 x 2.5 mm	19 x 2.8 mm
Material	Cu	Cu	Cu	Cu	Cu	Cu
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Outer Ø	9 mm	9 mm	10.5 mm	10.5 mm	12.5 mm	14.5 mm
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	9.8 kA	9.8 kA	13.7 kA	13.7 kA	18.5 kA	23.4 kA
Coil weight	approx. 22 kg	approx. 44 kg	approx. 30 kg	approx. 60 kg	approx. 42 kg	approx. 53 kg
Conductors length	50 m	100 m	50 m	100 m	50 m	50 m
Stock No.	6145-12-336-0722	—	—	—	—	—

Copper cable tinned



NEW

Part No.	832 839	832 202	832 292	832 295	832 320
Cross section	50 mm ²	70 mm ²	70 mm ²	95 mm ²	120 mm ²
Cable structure qty x Ø wire	19 x 1.8 mm	19 x 2.1 mm	19 x 2.1 mm	19 x 2.5 mm	19 x 2.8 mm
Material	Cu/gal Sn	Cu/gal Sn	Cu/gal Sn	Cu/gal Sn	Cu/gal Sn
Standard	EN 50164-2	DIN EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Outer Ø	9 mm	10.5 mm	10.5 mm	12.5 mm	14.5 mm
Short-circuit current (50 Hz) (1 s; ≤ 150 °C)	7.2 kA	10.1 kA	10.1 kA	13.8 kA	17.3 kA
Coil weight	approx. 44 kg	approx. 30 kg	approx. 60 kg	approx. 42 kg	approx. 53 kg
Conductors length	100 m	50 m	100 m	50 m	50 m

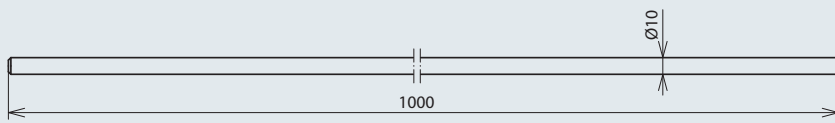
Cables in other dimensions and materials upon request.



Air-termination rods for protecting roof-mounted structures, chimneys, etc. Also for erection with concrete base

Due to the wind load, air-termination rods of more than 2.5 m in free length, erected on concrete base, need to be additionally fixed, e.g. by DEHNiso spacers.

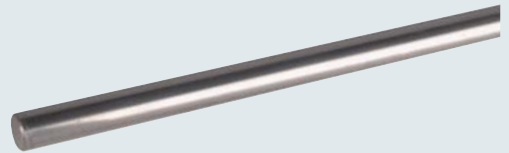
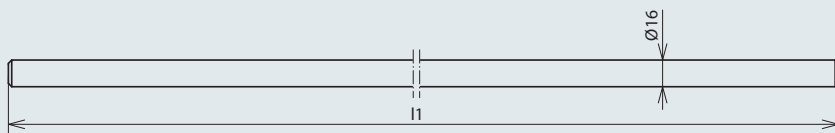
Diameter 10 mm, chamfered



Especially for wedge mounting with concrete base 8.5 kg (Part No. 102 075) or for fixing with conductor holders

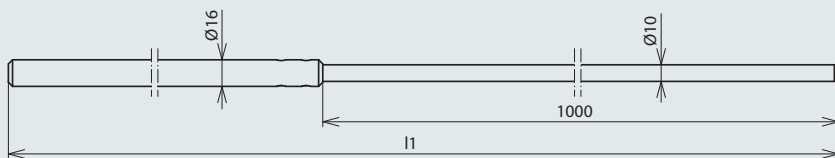
Part No.	101 000	101 009	101 007
Total length (l1)	1000 mm	1000 mm	1000 mm
Material	Al	StSt	Cu
Standard	EN 50164-2	EN 50164-2	EN 50164-2
Diameter	10 mm	10 mm	10 mm

Diameter 16 mm, chamfered



Part No.	104 150	104 200	104 250	104 300	483 100	483 125	483 150	483 200
Total length (l1)	1500 mm	2000 mm	2500 mm	3000 mm	1000 mm	1250 mm	1500 mm	2000 mm
Material	AlMgSi	AlMgSi	AlMgSi	AlMgSi	St/tZn	St/tZn	St/tZn	St/tZn
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Diameter	16 mm	16 mm	16 mm	16 mm	16 mm	16 mm	16 mm	16 mm

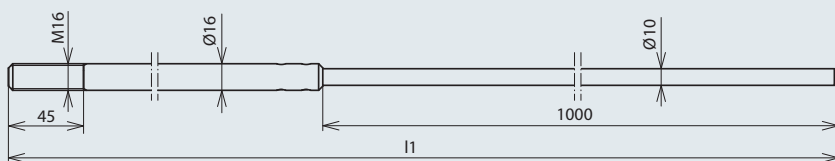
With tapering, chamfered



Length of tapering 1000 mm each

Part No.	103 210	103 220	103 230	103 240	103 250	103 260	103 280
Total length (l1)	1500 mm	2000 mm	2500 mm	3000 mm	3500 mm	4000 mm	5000 mm
Material	AlMgSi	AlMgSi	AlMgSi	AlMgSi	AlMgSi	AlMgSi	AlMgSi
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Diameter	16/10 mm	16/10 mm	16/10 mm	16/10 mm	16/10 mm	16/10 mm	16/10 mm
Type	chamfered	chamfered	chamfered	chamfered	chamfered	chamfered	chamfered

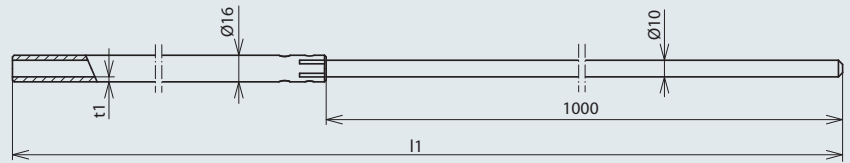
With tapering, thread M16



Length of tapering 1000 mm each

Part No.	103 211	103 221	103 231	103 241	103 251	103 261
Total length (l1)	1500 mm	2000 mm	2500 mm	3000 mm	3500 mm	4000 mm
Material	AlMgSi	AlMgSi	AlMgSi	AlMgSi	AlMgSi	AlMgSi
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Diameter	16/10 mm	16/10 mm	16/10 mm	16/10 mm	16/10 mm	16/10 mm
Type	M16	M16	M16	M16	M16	M16

Tubular air-termination rods with tapering

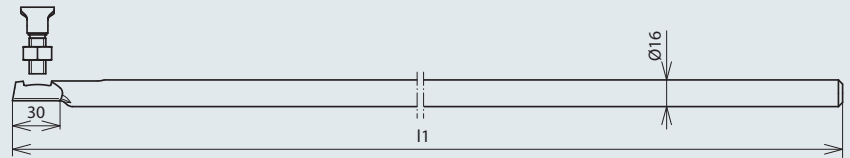


Light design; length of tapering 1000 mm each

Part No.	103 410	103 420	103 430	103 440	103 450	103 460
Total length (l1)	1500 mm	2000 mm	2500 mm	3000 mm	3500 mm	4000 mm
Material	AlMgSi	AlMgSi	AlMgSi	AlMgSi	AlMgSi	AlMgSi
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Diameter	16/10 mm	16/10 mm	16/10 mm	16/10 mm	16/10 mm	16/10 mm
Wall thickness of pipe (t1)	2.5 mm	2.5 mm	2.5 mm	2.5 mm	2.5 mm	2.5 mm

Part No.	103 480	103 417	103 419	103 429	103 439	103 449
Total length (l1)	5000 mm	1500 mm	1500 mm	2000 mm	2500 mm	3000 mm
Material	AlMgSi	Cu	StSt	StSt	StSt	StSt
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Diameter	16/10 mm	16/10 mm	16/10 mm	16/10 mm	16/10 mm	16/10 mm
Wall thickness of pipe (t1)	2.5 mm	2.5 mm	3 mm	3 mm	3 mm	3 mm

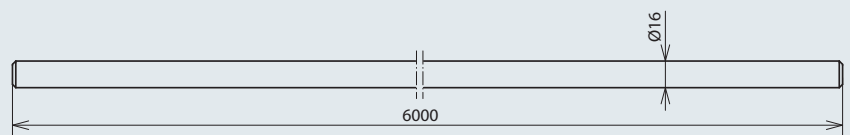
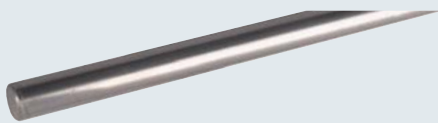
With forged lug



and clamping screw for connecting Rd 7-10 mm

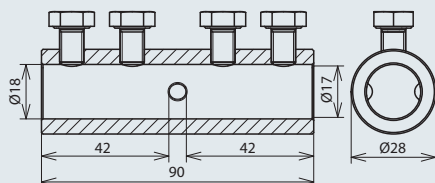
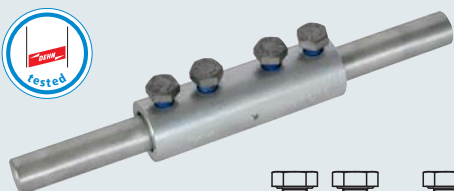
Part No.	100 100	100 150
Total length (l1)	1000 mm	1500 mm
Material	St/tZn	St/tZn
Standard	EN 50164-(1+2)	EN 50164-(1+2)
Diameter	16 mm	16 mm
Terminal clamping range	7-10 mm	7-10 mm

Diameter 16 mm, for cutting to length on site



Part No.	104 600
Total length (l1)	6000 mm
Material	AlMgSi
Standard	EN 50164-2
Diameter	16 mm

Connecting Sleeve for Air-termination Rods



Connecting sleeve with embossings (stop) to join longer air-termination rods (transport length)

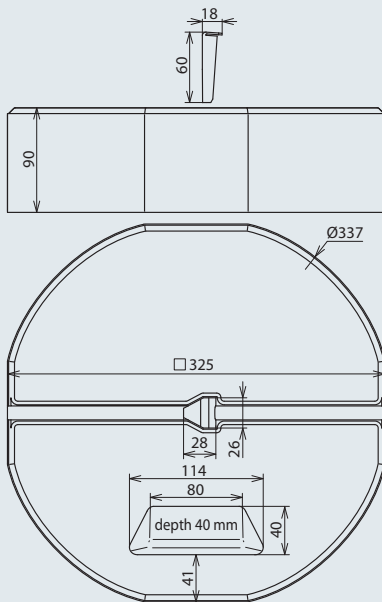
Using the connecting sleeve requires an additional fixing of the air-termination rod above the sleeve.

Part No.	385 216
Material	Al
Clamping range Rd / Rd	16 / 16 mm
Screw	M8x12 mm
Material of screw	StSt
Outer Ø	28 mm
Standard	EN 50164-1

Concrete bases for air-termination rods protecting small-sized roof super-structures on flat roofs and for installing spacers of the DEHNiso spacer programme e.g. for isolated ring conductors or for self-supporting air-termination rods in the tripod (only with a weight of 17 kg)



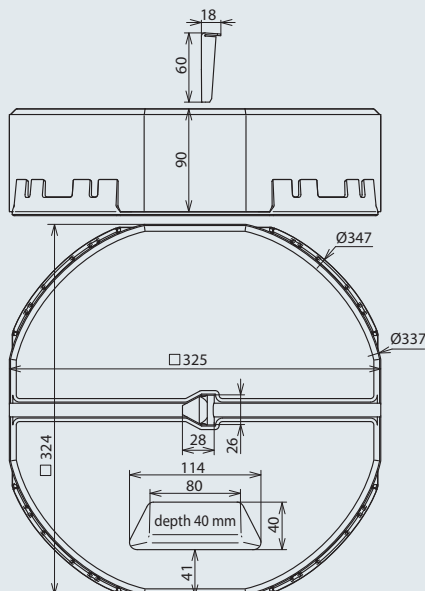
Weight 17 kg, for wedge mounting



Stackable, for air-termination rod Ø16 mm, chamfered, tapered, or for DEHNiso spacer Ø16 mm

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

Weight 17 kg, for wedge mounting, with adapted support plate



Stackable

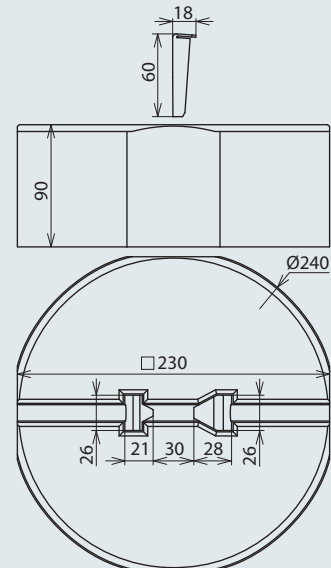
Part No.	102 340
Weight	17 kg
Support	wedge Ø16 mm
Diameter Ø	337 mm
Material	concrete (C45/55)
Material of wedge	StSt

Weight 8.5 kg, for wedge mounting



For air-termination rods $\varnothing 10$ mm, length 1000 mm or DEHNiso spacers $\varnothing 16$ mm, length up to 675 mm (distance 0.8 m)

Part No.	102 075
Weight	8.5 kg
Support	wedge $\varnothing 10/16$ mm
Diameter \varnothing	240 mm
Material	concrete (C45/55)
Material of wedge	StSt

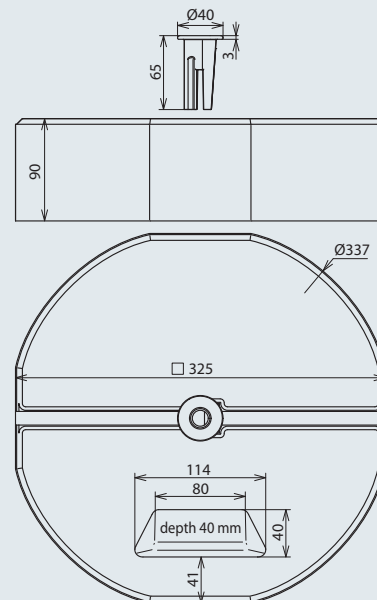


Weight 17 kg, with threaded adapter



For air-termination rods with thread M16

Part No.	102 002
Weight	17 kg
Support	thread M16
Diameter \varnothing	337 mm
Material	concrete (C45/55)
Material of adapter	plastic

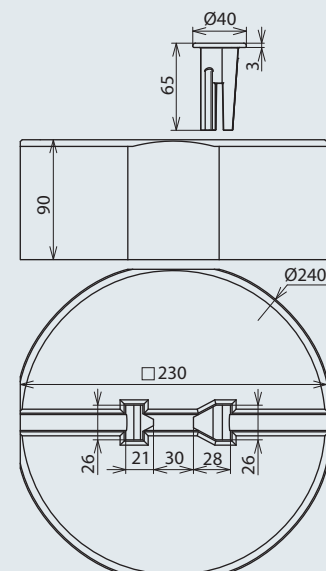


Weight 8.5 kg, with threaded adapter



For air-termination rods with thread M16 and additional fixing e.g. with DEHNiso spacers

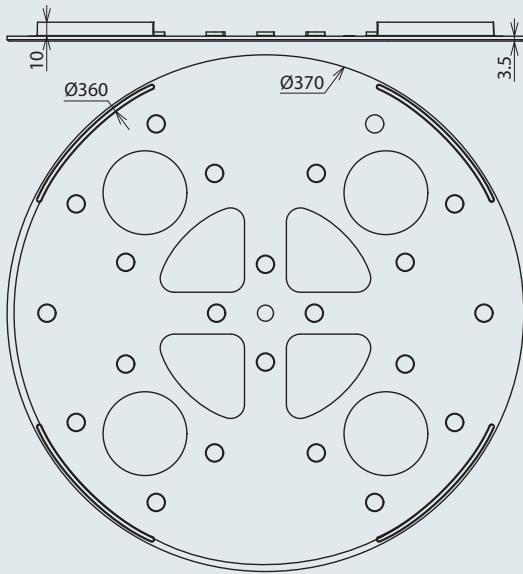
Part No.	102 003
Weight	8.5 kg
Support	thread M16
Diameter \varnothing	240 mm
Material	concrete (C45/55)
Material of adapter	plastic



Support plates to protect the roof sheeting under the concrete base



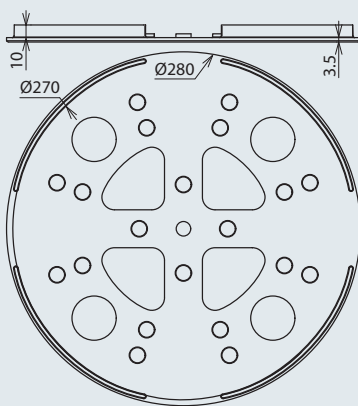
Large



For concrete bases (Part No. 102 010, 102 002) weight 17 kg

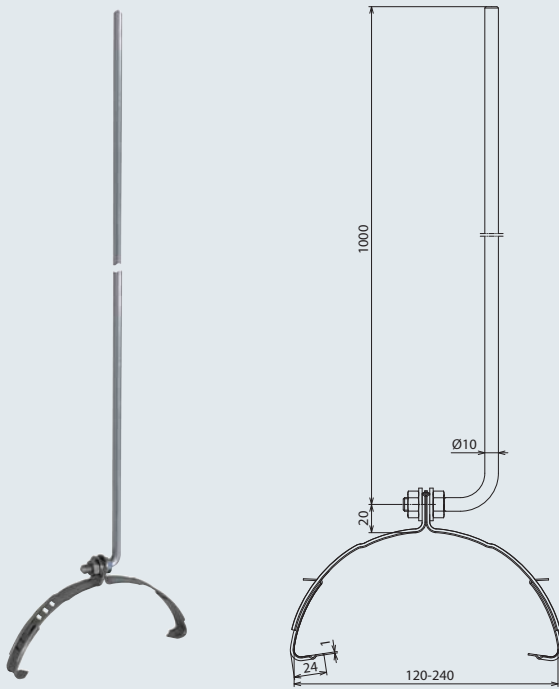
Part No.	102 050
Diameter outer	370 mm
Diameter inner	360 mm
Material	EVA
Colour	black

Small



For concrete bases (Part No. 102 075, 102 003) weight 8.5 kg

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



Air-termination rod to protect solar thermal modules, photovoltaic generators, or other superstructures on gable roofs

Installation by means of clamping bracket which is stepwise adjustable to the diameter of the ridge tiles.

Part No.	123 109
Material of air-termination rod	Al
Length	1000 mm
Diameter	10 mm
Material of clip	StSt
Clamping range	120-240 mm
Standard	EN 50164-2

More details in installation instructions No. 15283

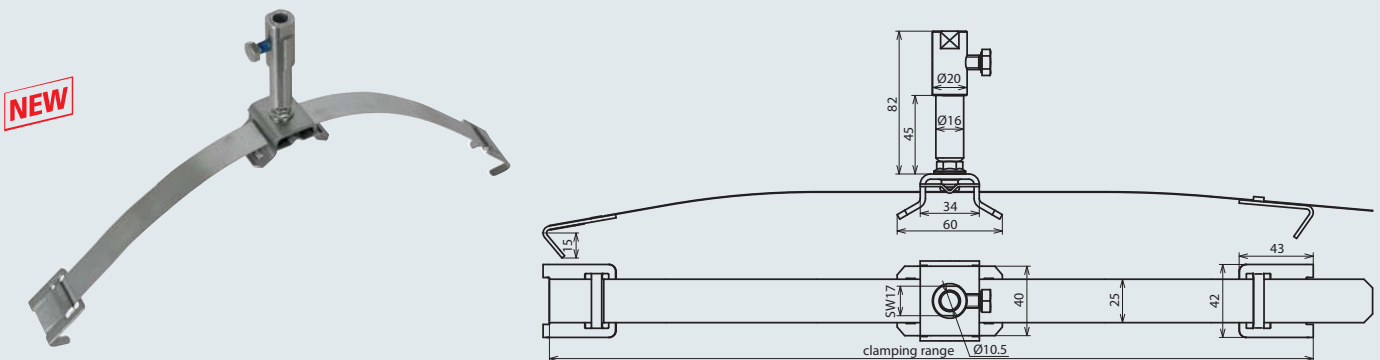
HOLDERS for Air-termination System on Ridge and Hip Tiles

For air-termination rods or spacer bars with conductor holder, for protecting solar thermal modules, photovoltaic generators or other roof-mounted structures on gable roofs.

Holder mounting is based on the tensioning strap technology. With a firmly assembled clip at the tensioning strap and an adjustable clip the holder can be installed at various types of ridge tiles.

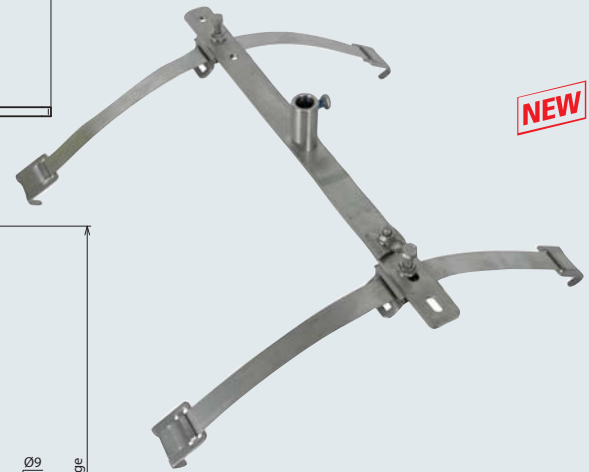
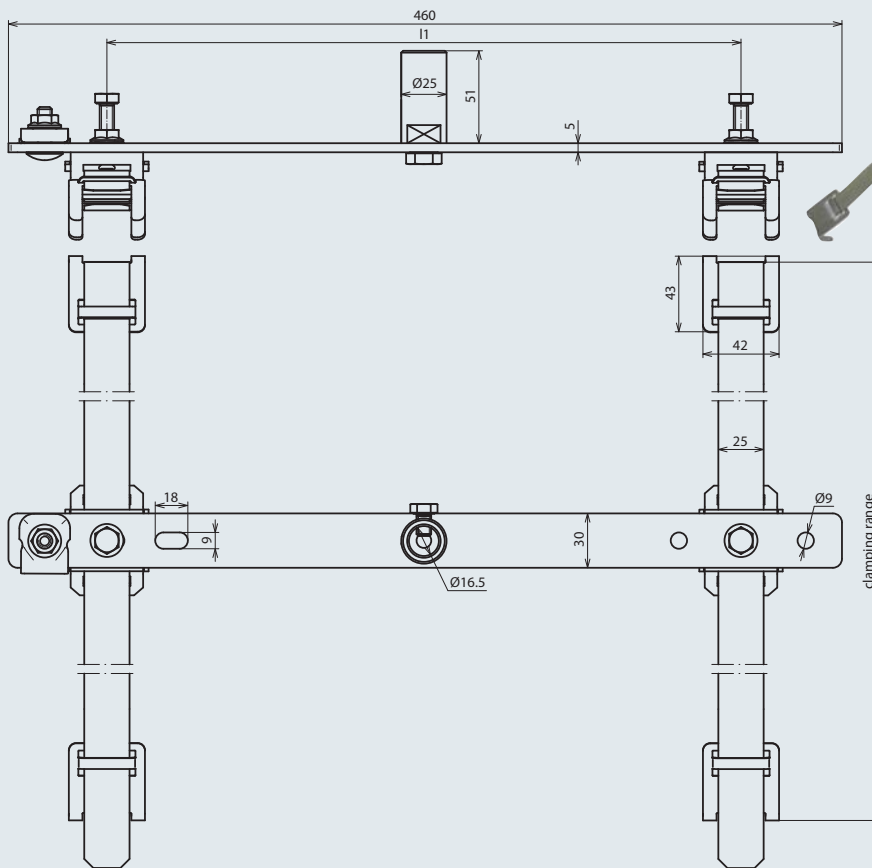
Air-termination rods or spacer bars have to be ordered separately.

Single design



For air-termination rods or spacer bars made of GRP Ø10 mm

Part No.	123 110
Clamping range Rd	10 mm
Tensioning range	120-300 mm
Material of tensioning strap	StSt
Material of fixing bush	StSt
Material of bracket	StSt
Dimension of tensioning strap	500x25x0.3 mm



For air-termination rods $\text{Ø}16/10$ mm, length max. 1.5 m, incl. clamping frame for connection of round conductors Rd 6-10 mm

Part No.	123 116
Clamping range Rd	16 mm
Tensioning range	120-300 mm
Mounting distance (l1)	approx. 280/350/420 mm
Material of tensing strap	StSt
Material of fixing bush	StSt
Material of bracket	StSt
Dimension of tensing strap	500x25x0.3 mm

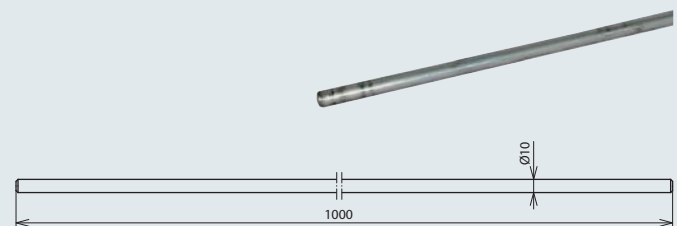
More details in installation instructions No. 1802.

Accessories for Holders for Air-termination System on Ridge and Hip Tiles

Air-termination Rods

To protect roof-mounted structures, chimneys

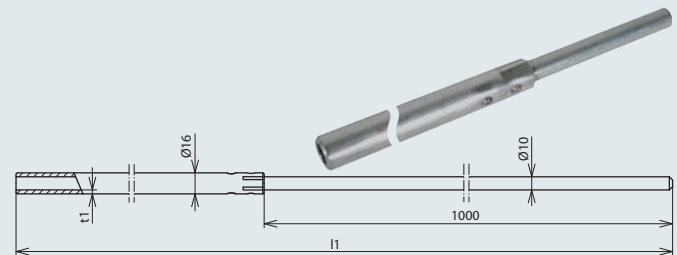
Part No.	101 000	101 009
Total length	1000 mm	1000 mm
Material	Al	StSt
Standard	EN 50164-2	EN 50164-2
Diameter	10 mm	10 mm



Tubular Air-termination Rods

To protect roof-mounted structures

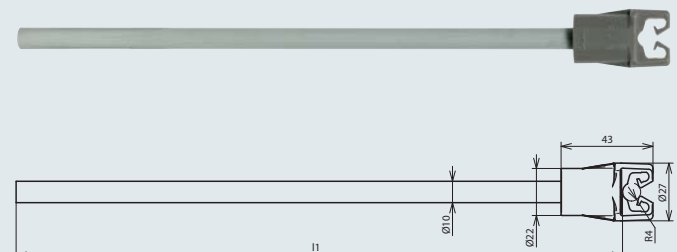
Part No.	103 410
Total length (l1)	1500 mm
Material	AlMgSi
Standard	EN 50164-2
Diameter	16/10 mm
Wall thickness of tube	2.5 mm

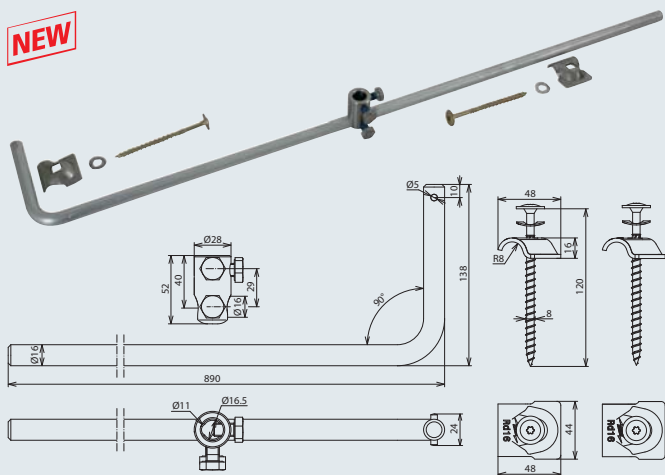


Spacer Bar with Conductor Holder

For putting into the holder for air-termination systems on ridge and hip tiles. For an elevated leading of conductors, loose conductor leading.

Part No.	253 315	253 325
Conductor holder support Rd	8 mm	8 mm
Material of conductor holder	plastic	plastic
Length (l1)	280 mm	420 mm
Insulating clearance	220 mm	360 mm





For the erection of air-termination rods or air-termination rods GRP/Al to protect e.g. photovoltaic generators on gable roofs.

For mounting of:

- Air-termination rods \varnothing 16/10 mm
- Air-termination rods GRP/Al, \varnothing 16/10 mm
- Air-termination rods \varnothing 10 mm

The air-termination rod holder may only be mounted on suitable, stable sub-constructions.

It is designed for an initial torque up to 35 Nm.

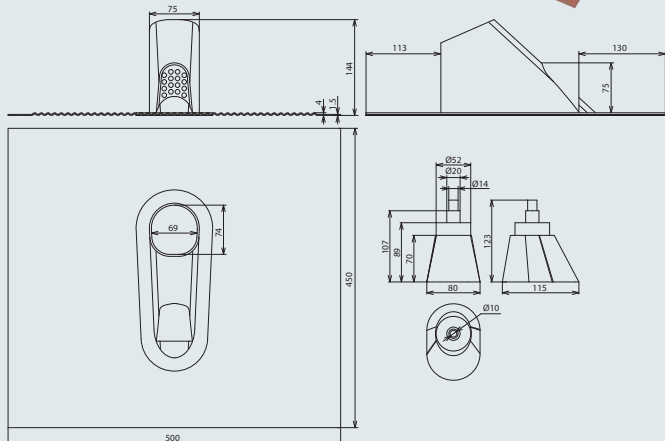
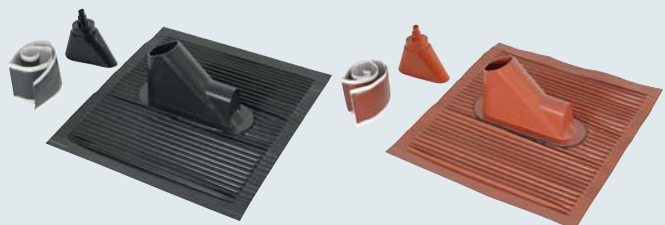
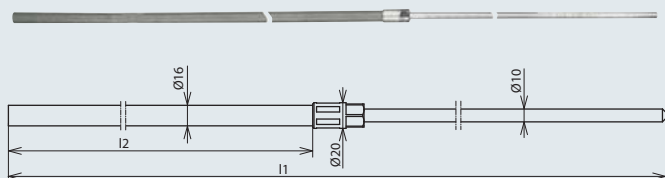
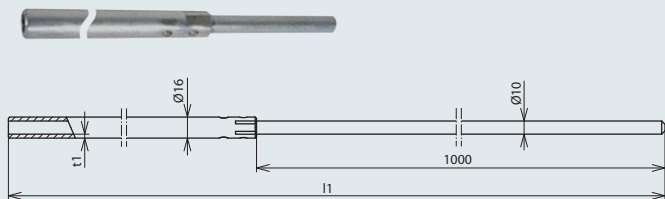
The rod holder is mounted from outside and screwed directly with the rafter through the counter battens, which prevents breaking of roof tiles.

The necessary roof bushing kit has to be ordered separately

Part No.	223 006
Clamping range Rd	10/16 mm
Distance of rafters	500-700 mm
Roof inclination	24° - 53°
Material of brace	Al
Material of fixing bush	StSt
Material of clamping plates	StSt

More details in installation instructions No. 1796.

Accessories f. Air-termination Rod Holder f. Gable Roofs



Tubular Air-termination Rods

To protect roof-mounted structures

Part No.	103 410
Total length (l1)	1500 mm
Material	AlMgSi
Standard	EN 50164-2
Diameter	16/10 mm
Wall thickness of tube	2.5 mm

Air-termination Rods GRP/AL

For the installation of isolated air-termination systems

Part No.	106 207	106 210
Total length (l1)	1660 mm	2000 mm
Isolating clearance (l2)	635 mm	975 mm
Material of air-termination rod/bush	Al	Al
Material of spacer	GRP	GRP

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 \varnothing	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

Rod holder as footing for air-termination rods to be fixed on gable roofs with anti-rotation feature (toothed washer) and lock nut as well as bores for screwing the brace at the roof battens

At the chimney the air-termination rod shall to be fixed additionally e.g. by means of DEHNiso spacer.

Part No.	223 005
Material of brace	St/tZn
Material of bolt	StSt
Fixing	[2x] Ø7 mm
Length of bolt	475 mm
Conductor holder support Rd	16 mm
Material of screw/nut	StSt
Screw	M8x20 mm



Air-termination Rods D40

Air-termination rod for fixing e.g. at walls or other constructions

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

Components:

- Air-termination rod 2000 mm or tubular air-termination rod 2500 mm
- Pipe Ø40x5 mm for mounting Ø22/16 mm
- Earthing terminal St/St with KS connector StSt for Rd 6-10 mm [lightning current carrying capability 100 kA (10/350 µs)]

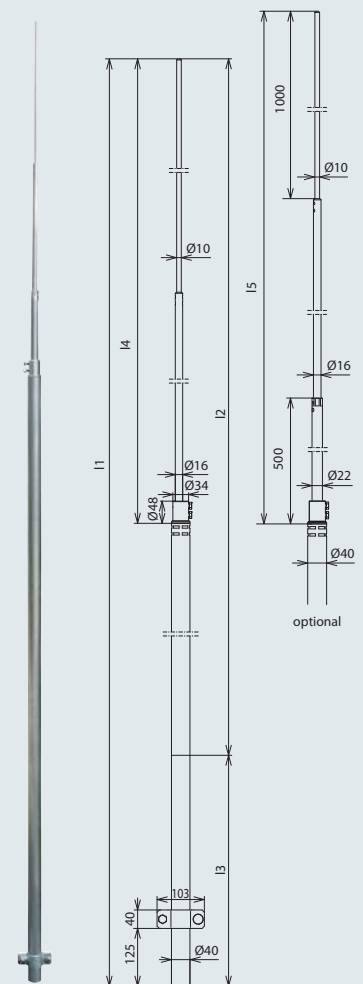
Part No. 105 140 to be used for fixing e.g. at a wall

Part No. 105 354 to be used for fixing at pipes

The maximum free length of the air-termination rod is measured from the tip to the upper support (fixing point).

For stability reasons three supports shall be mounted. The distance between middle and upper support must not exceed 15 cm. At the bottom the rod shall be fixed in a height of ≤ 15 cm.

NEW



Part No.	105 170	105 175	105 171	105 176
Total length (I1)	4000 mm	4500 mm	5000 mm	5500 mm
Length of pipe (Ø40x5)	2000 mm	2000 mm	3000 mm	3000 mm
Length of pipe (Ø16/10) (I4)	2000 mm	—	2000 mm	—
Length of pipe (Ø22/16/10) (I5)	—	2500 mm	—	2500 mm
Max. free length with air-termination rod 2000/2500 mm (I2)	3500 mm	4000 mm	4000 mm	4500 mm
Clamping length with air-termination rod 2000/2500 mm (I3)	500 mm	500 mm	1000 mm	1000 mm
Quantity of fixings	2	2	2	2
Material of air-termination rod	Al	Al	Al	Al
Standard	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)

Part No.	105 172	105 177	105 173	105 178	105 174	105 179
Total length (I1)	6000 mm	6500 mm	7000 mm	7500 mm	8000 mm	8500 mm
Length of pipe (Ø40x5)	4000 mm	4000 mm	5000 mm	5000 mm	6000 mm	6000 mm
Length of pipe (Ø16/10) (I4)	2000 mm	—	2000 mm	—	2000 mm	—
Length of pipe (Ø22/16/10) (I5)	—	2500 mm	—	2500 mm	—	2500 mm
Max. free length with air-termination rod 2000/2500 mm (I2)	4500 mm	5000 mm	5500 mm	5500 mm	5500 mm	5500 mm
Clamping length with air-termination rod 2000/2500 mm (I3)	1500 mm	1500 mm	1500 mm	2000 mm	2500 mm	3000 mm
Quantity of fixings	3	3	3	3	3	3
Material of air-termination rod	Al	Al	Al	Al	Al	Al
Standard	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)

Type with shorter transport lengths (separable pipe) upon request

Tripods for air-termination rods for erection with concrete blocks (weight 17 kg)

Adjustable to the roof inclination up to max. 10° by means of a threaded rod M16

Dimensioned for a wind velocity up to 145 km/h (wind load zone II)

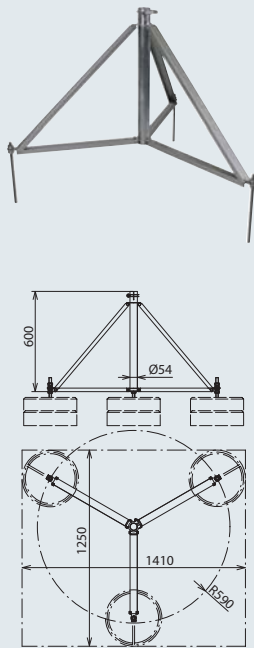
The air-termination rods D40/supporting tubes or the stackable concrete block (Part No. 102 010) and the support plate (Part No. 102 050) have to be ordered separately.

Air-termination rods D40 for self-supporting erection with tripod, no additional fixing.

Possible combinations for the tripod radius 590 mm:

- Height 4000 mm: Part No. 105 170
- Height 4500 mm: Part No. 105 175
- Height 5000 mm: Part No. 105 171
- Height 5500 mm: Part No. 105 176

Hinged design



For air-termination rods D40 height up to 5500 mm, DEHNiso Combi supporting tube length 3200 mm with air-termination rod (nine concrete blocks) or

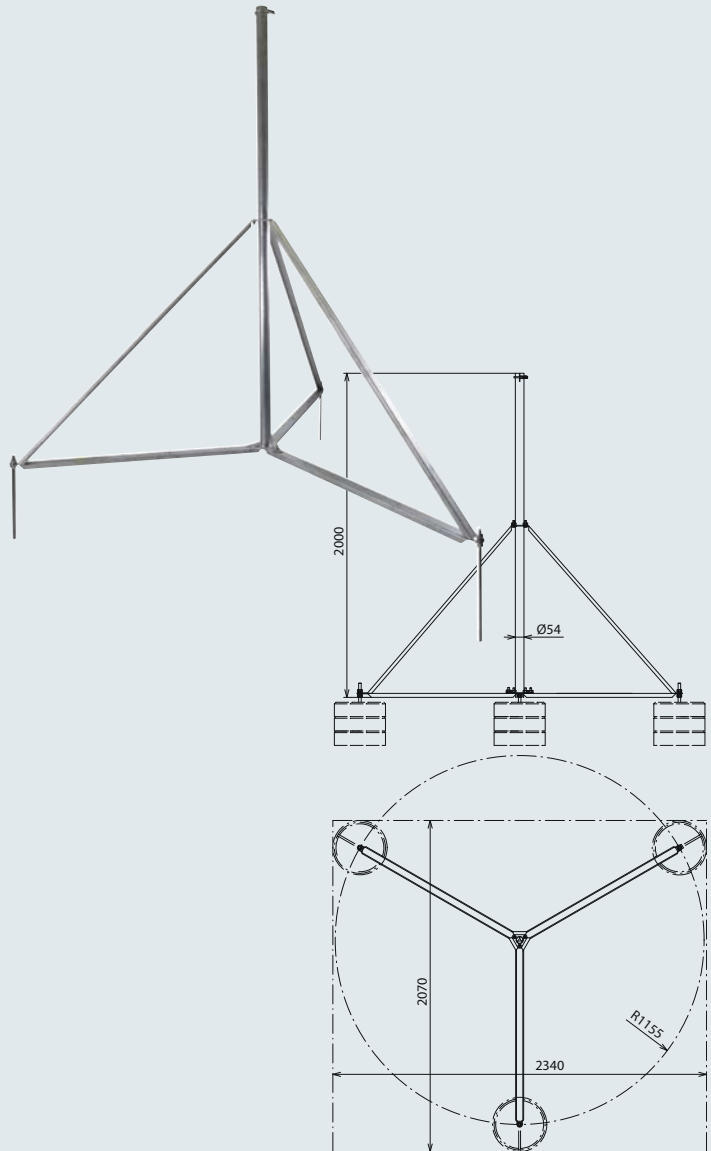
HVI Conductor inside/outside of a supporting tube length 3200 mm (nine concrete blocks)

Part No.	105 290
Material of tripod	StSt
Support	Ø40/50 mm
Radius	590 mm
Required space for tripod	1230x1370 mm
Height - quantity of concrete bases	4000/4500 mm – 3 blocks 5000/5500 mm – 6 blocks

Possible combinations for the tripod radius 1155 mm:

- Height 6000 mm: Part No. 105 172
- Height 6500 mm: Part No. 105 177
- Height 7000 mm: Part No. 105 173
- Height 7500 mm: Part No. 105 178
- Height 8000 mm: Part No. 105 174

Separable design



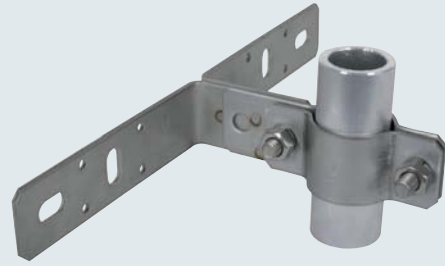
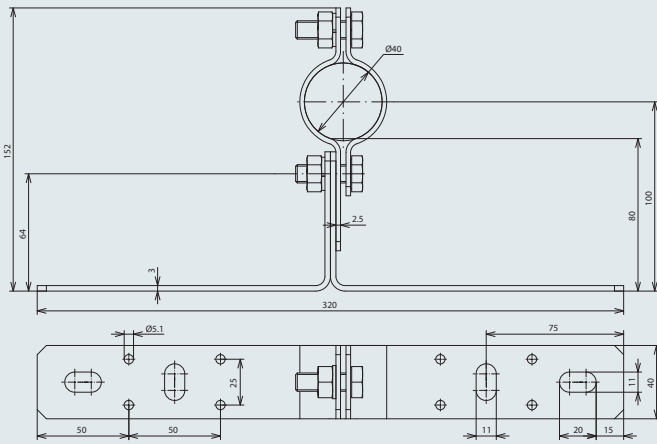
For air-termination rods D40 height up to 8000 mm, DEHNiso Combi supporting tube length 4700 mm with air-termination rod (nine concrete blocks) or

HVI Conductor inside/outside of a supporting tube length 4700 mm (nine concrete blocks)

Part No.	105 291
Material of tripod	StSt
Support	Ø40/50 mm
Radius	1155 mm
Required space for tripod	2050x2300 mm
Height - quantity of concrete bases	6000/6500 mm – 6 blocks 7000/8000 mm – 9 blocks

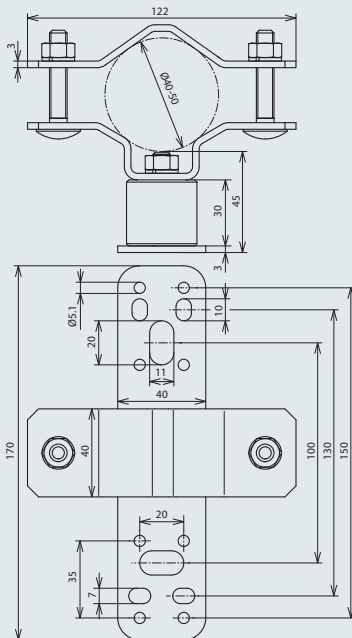
More details in installation instructions No. 1690
For use in other wind load zones / wind velocities upon request.

Wall mounting bracket for horizontal mounting



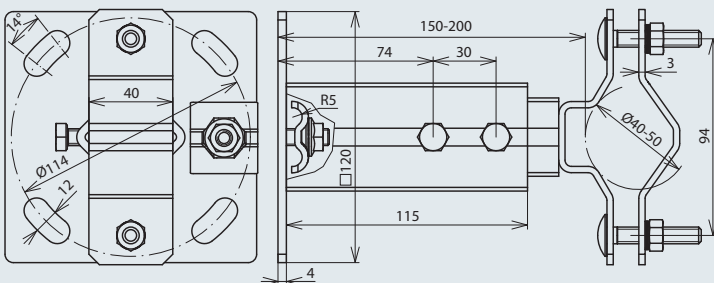
Part No.	105 140
Material	StSt
Fixing	[8x] Ø5.1 / [4x] 11x20 mm
Wall distance	80 mm
Clamping range of air-termination rod	40 mm
Material of screw	StSt

Wall mounting bracket for vertical mounting



Part No.	105 342
Material	StSt
Fixing	[8x] Ø5.1 / [4x] 7x10 / [2x] 11x20 mm
Wall distance	46 mm
Clamping range of air-termination rod	40-50 mm
Material of screw	StSt

Wall mounting bracket with adjustment range of 150-200 mm



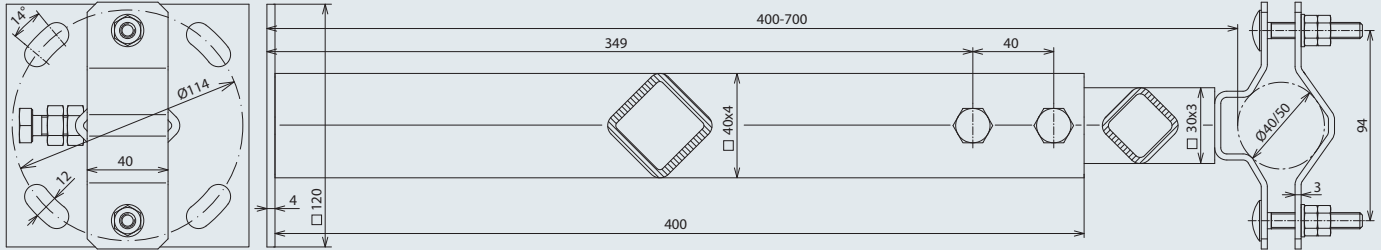
NEW



For fixing the supporting tubes or air-termination rods D40/D50 by double cleat to connect 2x Rd 8-10 mm [lightning current carrying capability 100 kA (10/350 µs)]

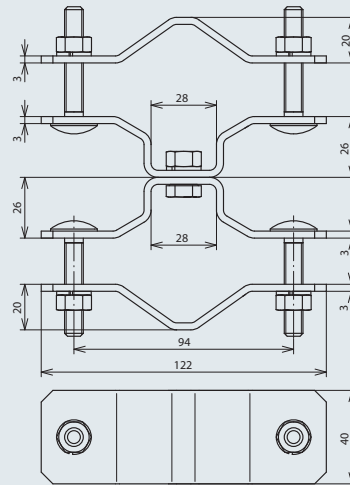
Part No.	105 344
Material	StSt
Fixing	[4x] 12x26 mm
Wall distance	150-200 mm
Clamping range Rd	8-10 mm
Clamping range of air-termination rod	40-50 mm
Material of screw	StSt
Standard	EN 50164-1

Wall mounting bracket with adjustment range of 400-700 mm



Part No.	105 343
Material	St/tZn / StSt
Fixing	[4x] 12x26 mm
Wall distance	400-700 mm
Clamping range of air-termination rod	40-50 mm
Material of screw	StSt

Rail fixing clamp



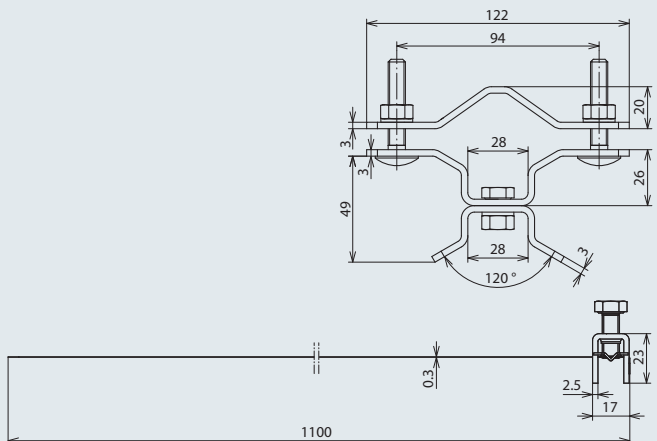
Part No.	105 354
Material	StSt
Clamping range Ø of pipe	48-60 mm (1 1/2 - 2")
Clamping range of air-termination rod	40-50 mm
Material of screw	StSt

Fixing clamp with tensioning strap

Using two fixing clamps provides mechanical stability and a lightning current carrying capability of 100 kA (10/350 µs).



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



Air-termination rods for protecting roof-mounted structures, domelights etc.

Brace ends (borings $\varnothing 11$ mm) to be fixed by means of four roof conductor holders.

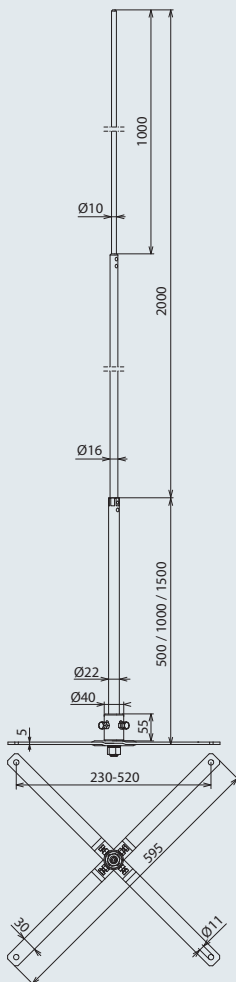
The roof conductor holders have to be selected accordingly (e.g. Part No. 223 010 or Part No. 365 059 for round standing seam).

Using these four conductor holders (clamps) for the corresponding roof profile, provides the lightning current carrying capability of 100 kA (10/350 μ s).

The air-termination rods are dimensioned for wind velocities up to 162 km/h (wind load zone III).



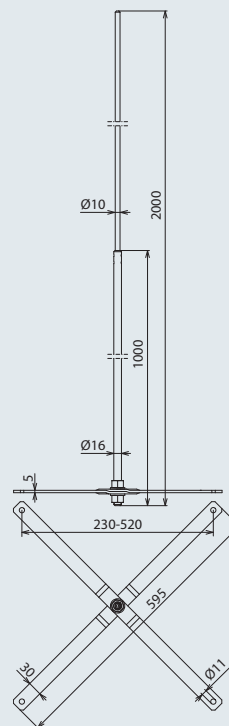
Height up to 3500 mm



Adjustable to the roof inclination up to max. 10°

Part No.	123 425	123 430	123 435
Total length	2500 mm	3000 mm	3500 mm
Length ($\varnothing 16/10$ mm)	2000 mm	2000 mm	2000 mm
Length ($\varnothing 22$ mm)	500 mm	1000 mm	1500 mm
Profile distance	230-520 mm	230-520 mm	230-520 mm
Fixing	[4x] $\varnothing 11$ mm	[4x] $\varnothing 11$ mm	[4x] $\varnothing 11$ mm
Material of air-termination rod	Al	Al	Al
Material of braces	StSt	StSt	StSt
Material of nut/washer	StSt	StSt	StSt
Standard	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)

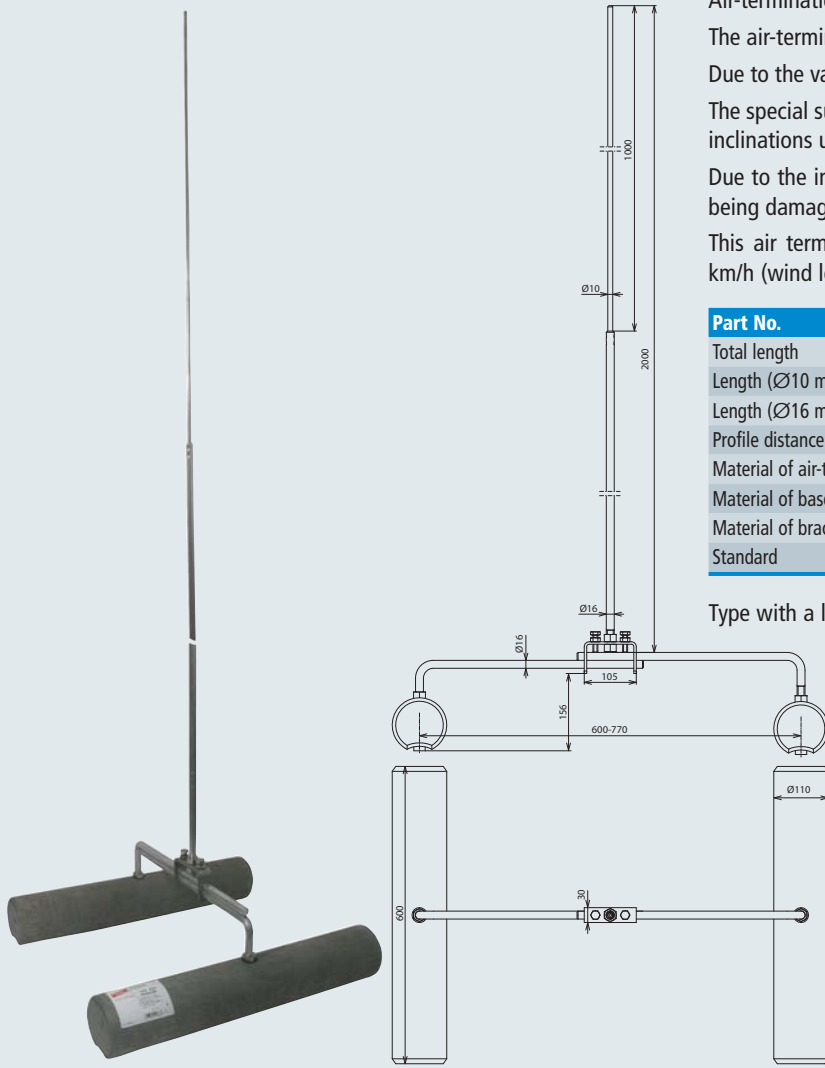
Height 2000 mm



With thread connection M16

Part No.	123 021
Total length	2000 mm
Length ($\varnothing 16/10$ mm)	2000 mm
Profile distance	230-520 mm
Fixing	[4x] $\varnothing 11$ mm
Material of air-termination rod	Al
Material of braces	StSt
Material of nut/washer	StSt
Standard	EN 50164-(1+2)

Type with a length of 1500 mm (Part No. 103 211) available upon request.



Air-termination rod for protecting roof superstructures, domelights etc. The air-termination rod will be set into the profile valley of the sheeting. Due to the variable base frame it is adjustable to any trapezoidal profile. The special support of the air-termination rod allows to compensate roof inclinations up to 10°.

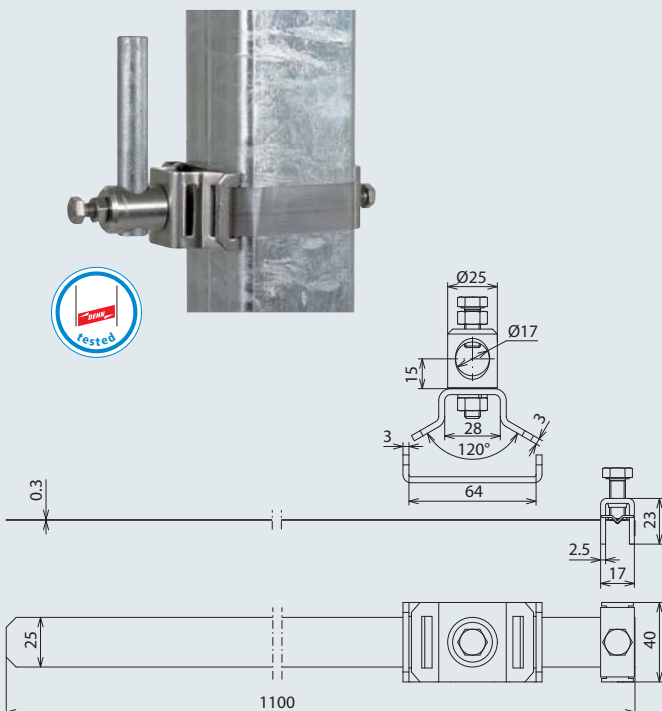
Due to the integrated slip resistance there is no risk of the roof surface being damaged.

This air termination rod is dimensioned for wind velocities up to 145 km/h (wind load zone II).

Part No.	123 031
Total length	2000 mm
Length (Ø10 mm)	1000 mm
Length (Ø16 mm)	1000 mm
Profile distance	600-770 mm
Material of air-termination rod	Al
Material of bases	plastic
Material of braces	Al
Standard	EN 50164-2

Type with a length of 1500 mm (with Part No. 103 211) upon request

Pipe Clamp for Air-termination Rods



Pipe clamp for air-termination rods for fixing as well as lightning-current-carrying-capable contacting of the air-termination rod e.g. at metal sub-structures of photovoltaic (PV) installations (square hollow profile); typically installed at steel skeleton or reinforced concrete structures

For mounting at pipes, the pressure plate (flat plate 2x angled) has to be removed.

Two pipe clamps have to be mounted at every air-termination rod.

Using two pipe clamps provides the mechanical strength and lightning current carrying capacity of 100 kA (10/350 µs).

The maximum free length of the respective air-termination rod according to the wind load has to be considered for the installation.

Part No.	540 105
Material of head/strip	StSt
Clamping range of square hollow profile	40x60 up to 70x70 mm
Clamping range of pipe	50-300 mm
Connection Rd	16 mm
Dimension of strip	1100x25x0.3 mm
Screw	M8x20 mm
Material of screw	StSt
Standard	EN 50164-1
Dimension of strip	25x0.3 mm

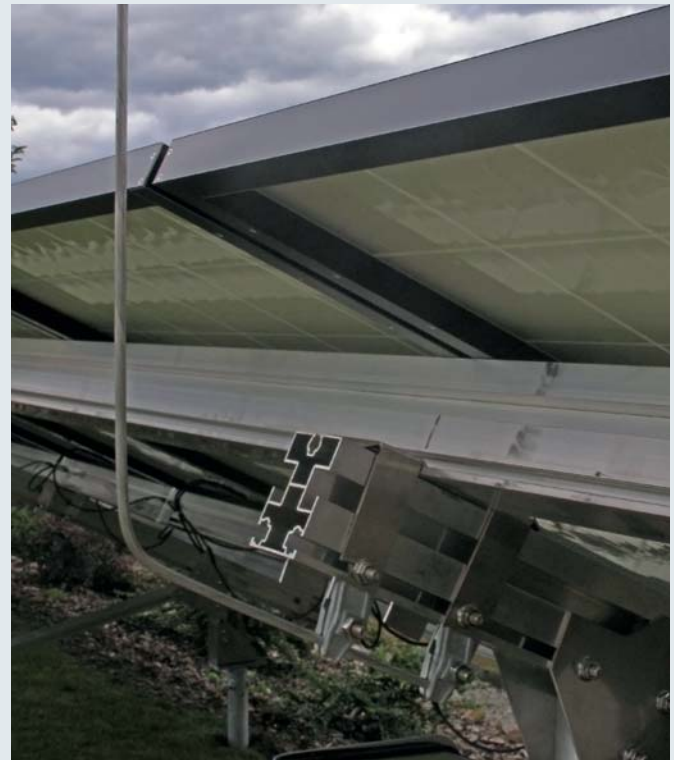
Air-termination rods for protecting e.g. ground-installed photovoltaic systems or PV systems on carports in case of direct lightning strike.

The air-termination rod is fixed e.g. at the metal support structure of the PV modules by two saddle clamps, which also provide a lightning current carrying capable contact.

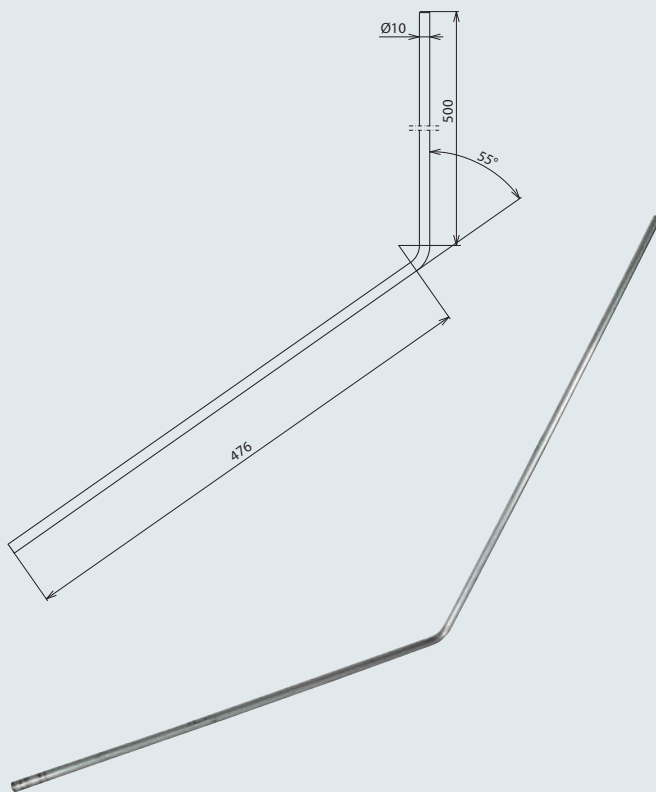
At the installation a distance of 15-20 cm between the saddle clamps and a free length of 80-85 cm have to be observed. The air-termination rod is dimensioned for wind velocities up to 162 km/h (wind load zone III).

In case of correct mounting the mechanical stability and a lightning current carrying capability of 100 kA (10/350 μ s) is provided.

The air-termination rod is adjustable to the inclination angle of the PV system. The standard design is angled to 55° which corresponds to a PV system inclination of 35°.



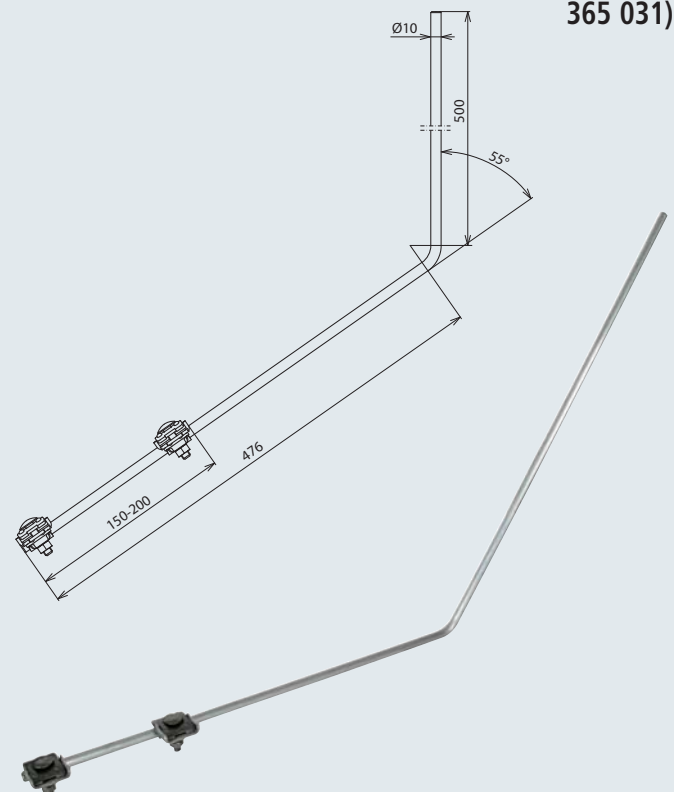
Angled rod



For combining, e.g. with terminal clamps for steel girders

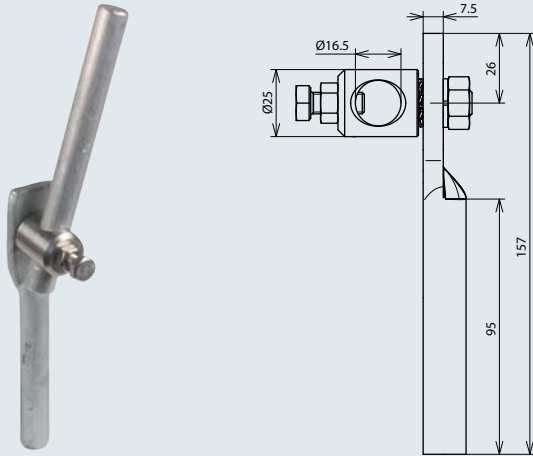
Part No.	101 010
Total length	1000 mm
Material	Al
Diameter	10 mm

Angled rod with two saddle clamps (Part No. 365 031)



Clamping range of the saddle clamps 0.7-8 mm

Part No.	101 110
Total length	1000 mm
Material	Al
Diameter	10 mm



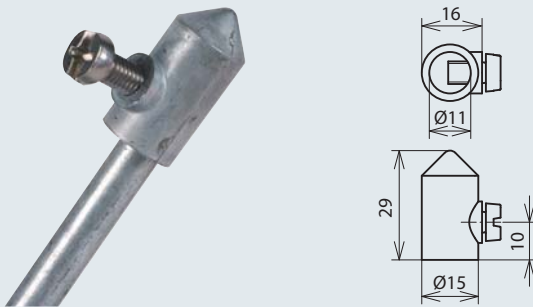
Air-termination rod adapter for vertical positioning of air-termination rods at roof inclinations up to 10°
For use with wedge mounting concrete bases (Part No. 102 010 or 102 340)

Part No.	106 008
Inclination	up to 10°
Material of support	St/tZn
Clamping range	16 mm
Material of bolt	StSt
Type of screw	M8/M10 mm
Material of screw	StSt

Air-termination Caps

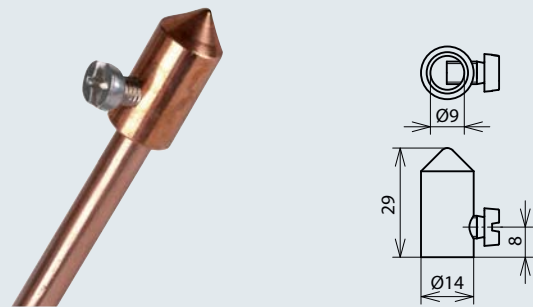
Air-termination caps to be attached on top of the air-termination conductors

For steel or aluminium conductors



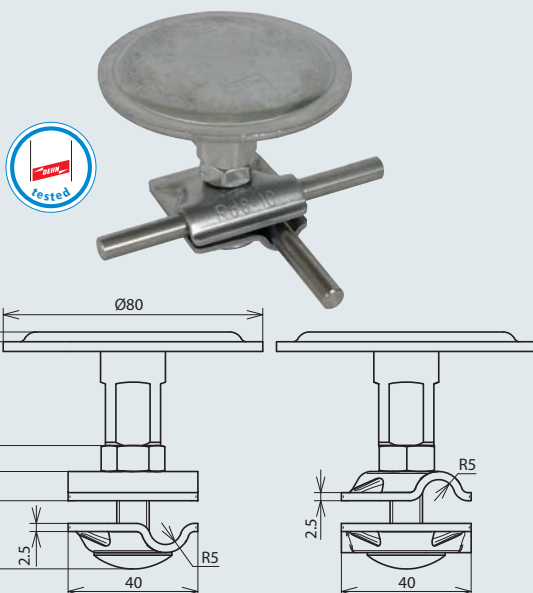
Part No.	110 000
Material	ZG
Conductor Rd	7-10 mm
Length	29 mm
Outside Ø	15 mm

For copper conductors



Part No.	110 017
Material	Ms/gal Cu
Conductor Rd	8 mm
Length	29 mm
Outside Ø	14 mm

Air-termination Stud



Air-termination stud for the installation of meshed air-termination systems, for walkable and drivable flat roofs, e.g. parking decks

The air-termination stud and the conductors may either be installed in concrete or in the joints of the deck slabs.

Part No.	108 009
Material of clamp	StSt
Material of stud	StSt
Connection Rd	8-10 mm
Standard	DIN EN 50164-1
Installation depth	min. 70 mm
Levelling range	18 mm

More details in installation instructions No.1505

Sign calling attention to the hazard of direct lightning strike, e.g. on parking decks (without air-termination systems) or other areas

Front in German
"ACHTUNG! Blitzspannung
Bei Gewitter Bereich räumen / nicht betreten"

Back in English
"ATTENTION! Lightning voltage
Clear / do not enter this area during thunderstorms"

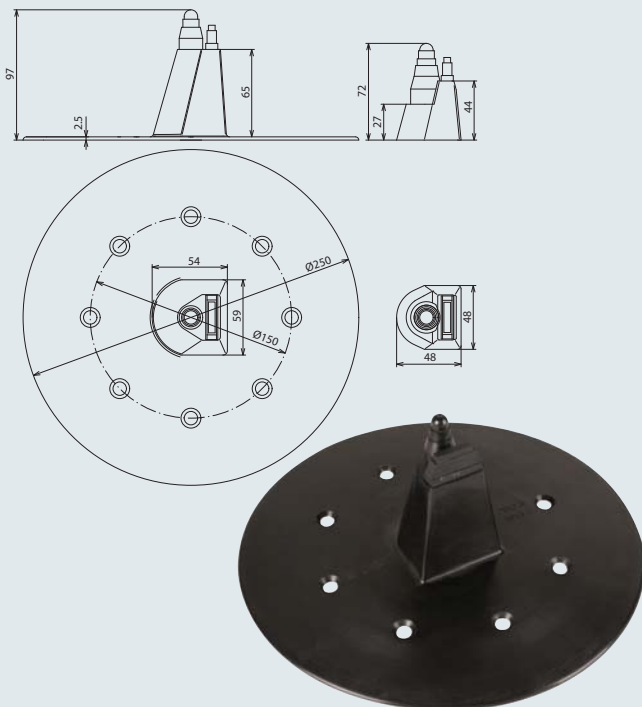
Part No.	480 698
Material	Al
Dimension (l x w x d)	297x210x0.7 mm
Fixing	[4x] Ø6.5 mm



Roof Bushings

For bushing and sealing of the roof when installing down conductors

For flat roofing

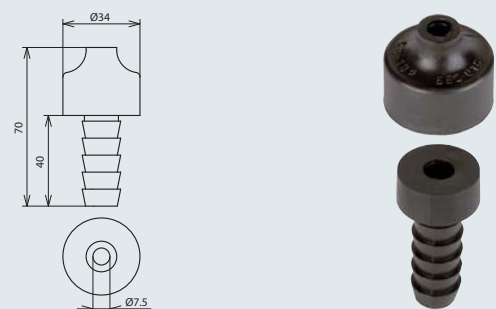


The max. processing temperature of +110 °C has to be minded on installation. In case of connection heights exceeding 100 mm, roof bushing and conductor are to be wrapped with a self-adhesive universal sealing tape (alu-fix tape).

Part No.	552 030
Material	plastic
Colour	black
Bushing Rd	8 / 10 / 16 mm
Bushing Fl	20x2.5 / 30x3.5 mm
Diameter	250 mm

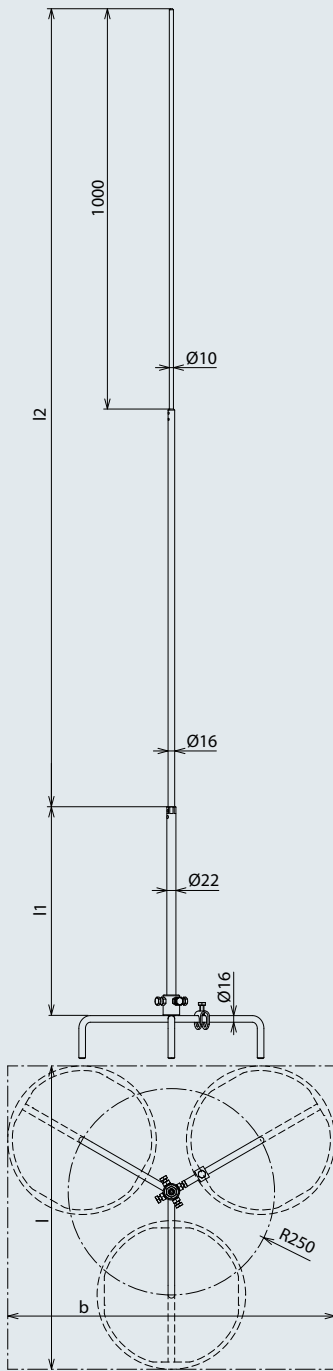


For tiled and corrugated plate roofing



Part No.	552 010
Bore	Ø16 mm
Material	plastic
Colour	black
Bushing Rd	8-10 mm
Diameter	34 mm





Self-supporting air-termination rods with tripod to protect roof-mounted structures, adjustable to the roof inclination up to max. 10°
 The air-termination rods are dimensioned for wind velocities up to 145 km/ and 162 km/h (wind load zone II + III).
 The concrete base (Part No. 102 075 or 102 010) and the support plate (Part No. 102 060 or 102 050) have to be ordered separately.

Air-termination rod	Concrete base	Support plate
Part No.	Part No.	Part No.
105 425	3x 102 075	3x 102 060
105 430	3x 102 010	3x 102 050
105 435	3x 102 010	3x 102 050

Components:

- Tubular air-termination rod, tapered Ø22/16/10 mm
- Terminal clamp (rod clamp) for Rd 8-10 mm
- Tripod for wedge mounting concrete base



Part No.	105 425	105 430	105 435
Height	2500 mm	3000 mm	3500 mm
Length (Ø22x4) (l1)	500 mm	1000 mm	1500 mm
Length (Ø16/10) (l2)	2000 mm	2000 mm	2000 mm
Radius	250 mm	250 mm	250 mm
Space required for tripod (l x w)	620x670 mm	750x810 mm	750x810 mm
Quantity of bases	3 blocks 8.5 kg each	3 blocks 17 kg each	3 blocks 17 kg each
Material of air-termination rod	Al	Al	Al
Material of tripod	St/tZn	St/tZn	St/tZn
Standard	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)

More details in installation instructions No. 1712



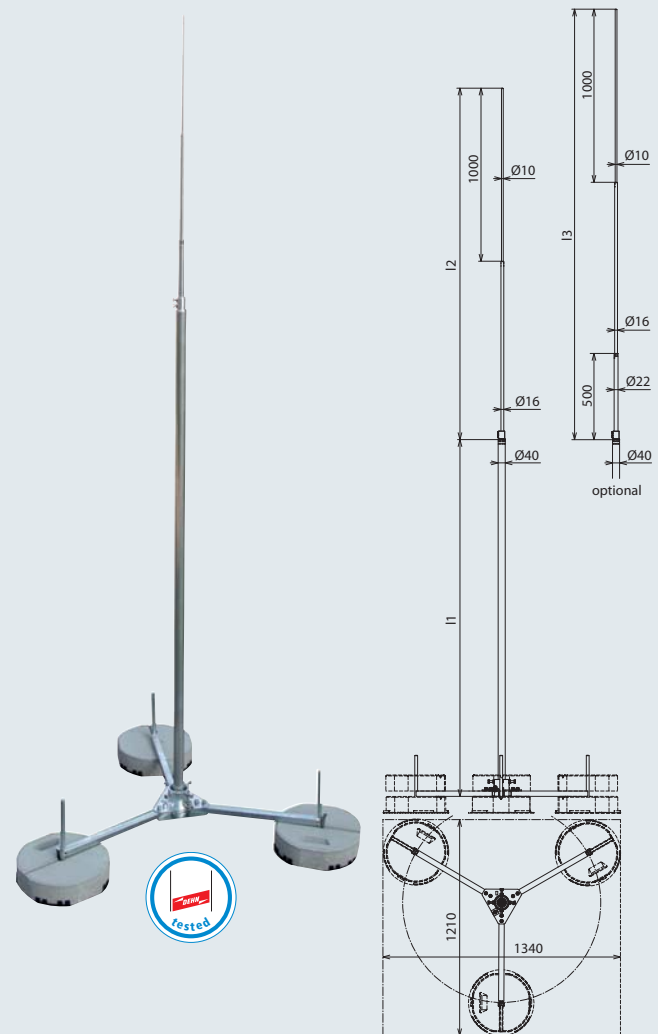
Self-supporting air-termination rods with hinged tripod to protect larger roof-mounted structures, adjustable to the roof inclination up to max. 10°
 The air-termination rods are dimensioned for wind velocities up to 145 km/h (wind load zone II).

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

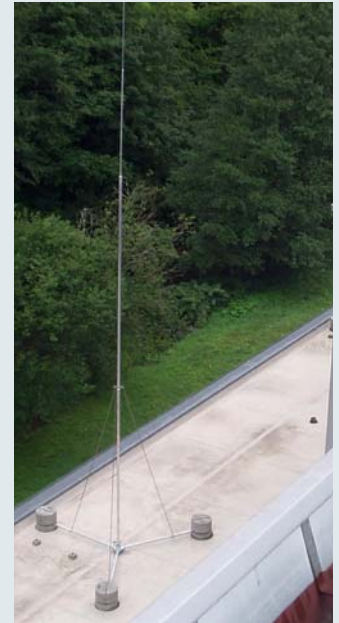
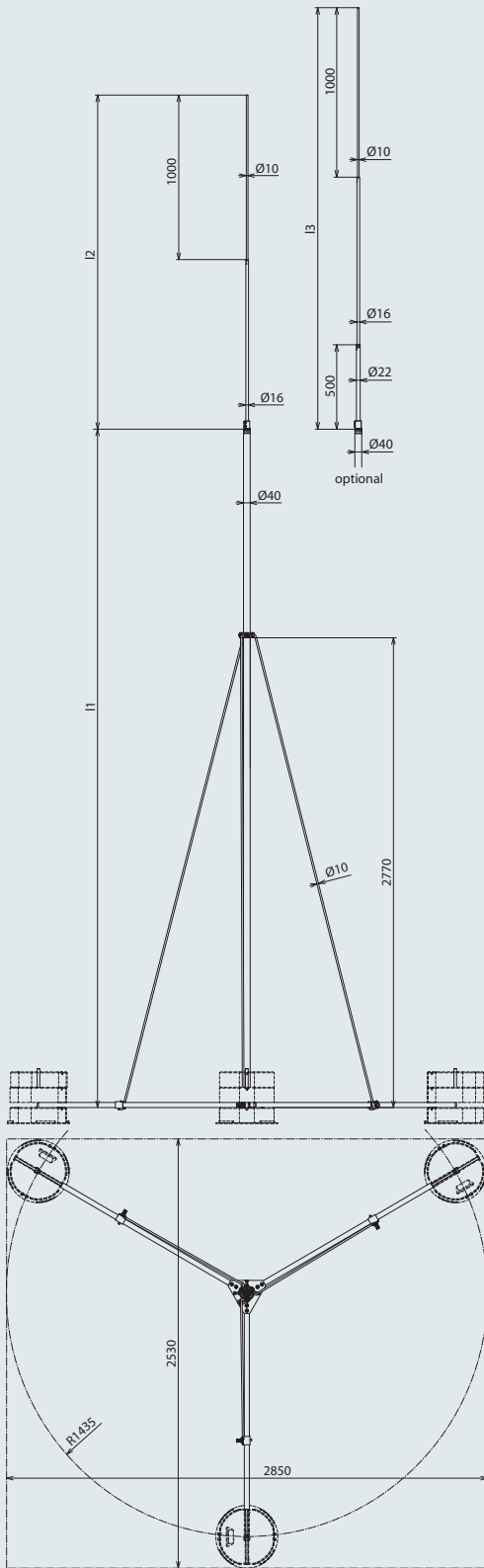
Components:

- Pipe Ø40 x 5 mm
- Tubular air-termination rod tapered Ø16/10 mm; optionally Ø22/16/10 mm
- Double cleat for 2x Rd 8-10 mm
- Tripod for wedge mounting concrete bases

Height up to 5500 mm



Part No.	105 400	105 450	105 500	105 550
Height	4000 mm	4500 mm	5000 mm	5500 mm
Length (Ø40x5) (I1)	2000 mm	2000 mm	3000 mm	3000 mm
Length (Ø16/10) (I2)	2000 mm	—	2000 mm	—
Length (Ø22/16/10) (I3)	—	2500 mm	—	2500 mm
Radius	560 mm	560 mm	560 mm	560 mm
Space required for tripod	1210x1340 mm	1210x1340 mm	1210x1340 mm	1210x1340 mm
Quantity of concrete bases	3 blocks 17 kg each	3 blocks 17 kg each	6 blocks 17 kg each	6 blocks 17 kg each
Material of tripod	St/tZn	St/tZn	St/tZn	St/tZn
Material of air-termination rod	Al	Al	Al	Al
Standard	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)



Part No.	105 600	105 650	105 700	105 750	105 800	105 850
Height	6000 mm	6500 mm	7000 mm	7500 mm	8000 mm	8500 mm
Length (Ø40x5) (I1)	4000 mm	4000 mm	5000 mm	5000 mm	6000 mm	6000 mm
Length (Ø16/10) (I2)	2000 mm	—	2000 mm	—	2000 mm	—
Length (Ø22/16/10) (I3)	—	2500 mm	—	2500 mm	—	2500 mm
Radius	1435 mm	1435 mm	1435 mm	1435 mm	1435 mm	1435 mm
Space required for tripod	2530x2850 mm	2530x2850 mm	2530x2850 mm	2530x2850 mm	2530x2850 mm	2530x2850 mm
Quantity of concrete bases	6 blocks 17 kg each	6 blocks 17 kg each	6 blocks 17 kg each	6 blocks 17 kg each	9 blocks 17 kg each	9 blocks 17 kg each
Material of tripod	St/tZn	St/tZn	St/tZn	St/tZn	St/tZn	St/tZn
Material of air-termination rod	Al	Al	Al	Al	Al	Al
Standard	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)

More details in installation instructions No. 1436

Self-supporting air-termination rods with hinged tripod, to protect larger roof-mounted structures or to be erected on a compacted ground without foundation works, adjustable to the roof inclination up to max. 5°. The air-termination rods are dimensioned for wind velocities up to 145 km/h (wind load zone II). The stackable concrete base (Part No. 102 010) and the support plate (Part No. 102 050) have to be ordered separately.

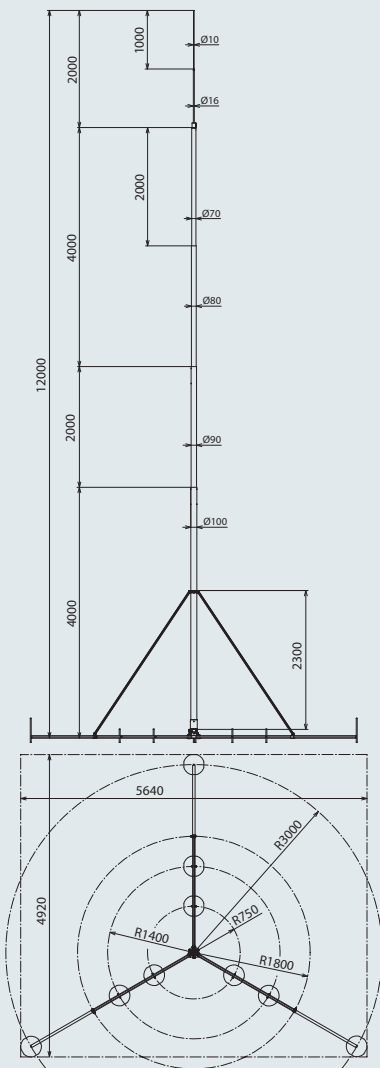
The tapered pipes will be telescoped and then screwed together. The transport length is approx. 4500 mm.

Components:

Aluminium pipe, tapered:

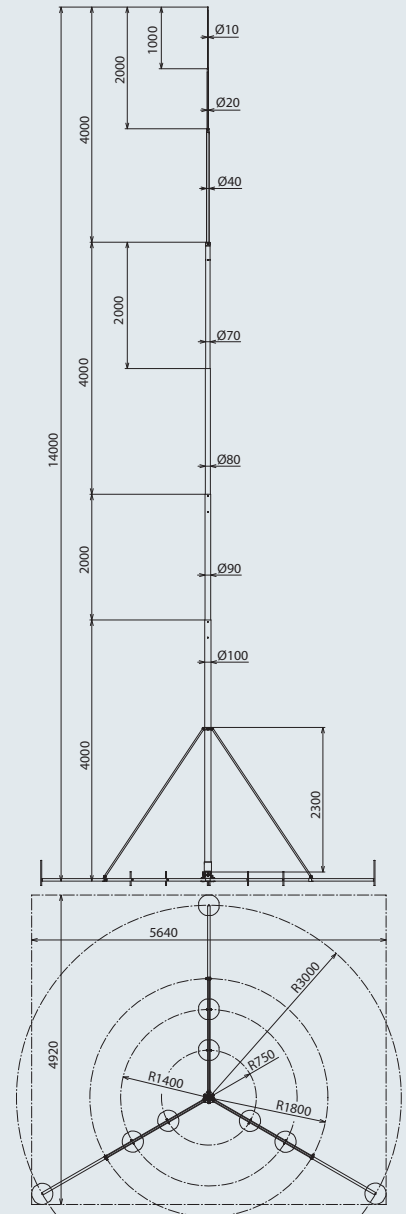
- Pipe Ø100x5 mm, length approx. 4000 mm
- Pipe Ø90x3 mm, length approx. 2000 mm
- Pipe Ø80x3 mm + Ø70x3 mm, length approx. 2000 mm each
- Optionally pipe Ø40x5 mm, length approx. 2000 mm
- Air-termination rod Al
- Double cleat for 2x Rd 8-10 mm
- Tripod for wedge mounting concrete bases including StSt braces 20x20x2 mm

Free height 12 m



Part No.	105 912
Height	12000 mm
Air-termination rod (Ø length)	16/10-2000 mm
Radius	3000 mm
Space required for tripod	4920x5640 mm
Quantity of concrete bases	21 of 17 kg each
Material of tripod	St/tZn
Material of air-termination rod	Al
Standard	EN 50164-(1+2)
Roof load	approx. 460 kg

Free height 14 m



Part No.	105 914
Height	14000 mm
Air-termination rod (Ø length)	20/10-2000 mm
Radius	3000 mm
Space required for tripod	4920x5640 mm
Quantity of concrete bases	24 of 17 kg each
Material of tripod	St/tZn
Material of air-termination rod	Al
Standard	EN 50164-(1+2)
Roof load	approx. 515 kg

Air-termination mast to protect special facilities e.g. biogas plants or ground-installed photovoltaic systems in case of direct lightning strike.

The masts are erected on screw foundation.

Excavation or foundation works are not necessary.

Without any special preparation the screw foundation is simply screwed into the ground and additionally fixed by three earth rods $\varnothing 20$ mm, length 1500 mm (Part No. 620 151), which have to be ordered separately.

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

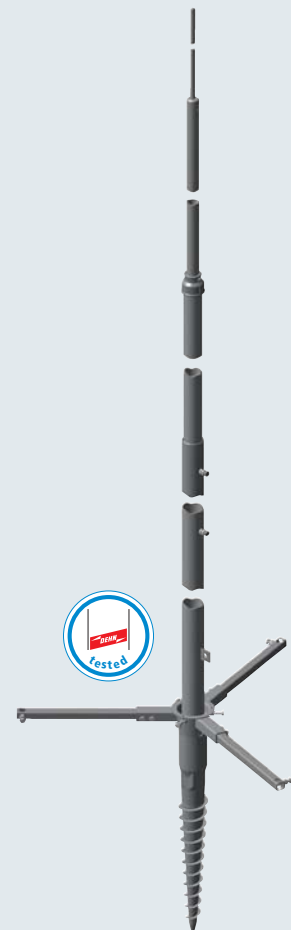
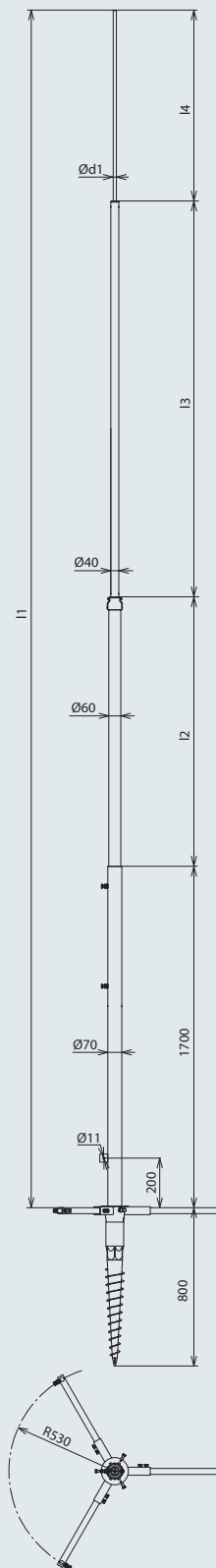
These calculations are based on a natural ground pressure of 0.02 kN/cm² (e.g. loamy, sandy, gravel soil of medium density).

Components:

- Air-termination mast St/tZn and Al, tapered $\varnothing 70/60/40$ mm
- Air-termination rod Al $\varnothing 16/10$ mm, length 1 or 2 m
- Screw foundation St/tZn, length 800 mm with braces length 530 mm and M10 locking screws with lock nut
- Earth connection lug with bore $\varnothing 11$ mm

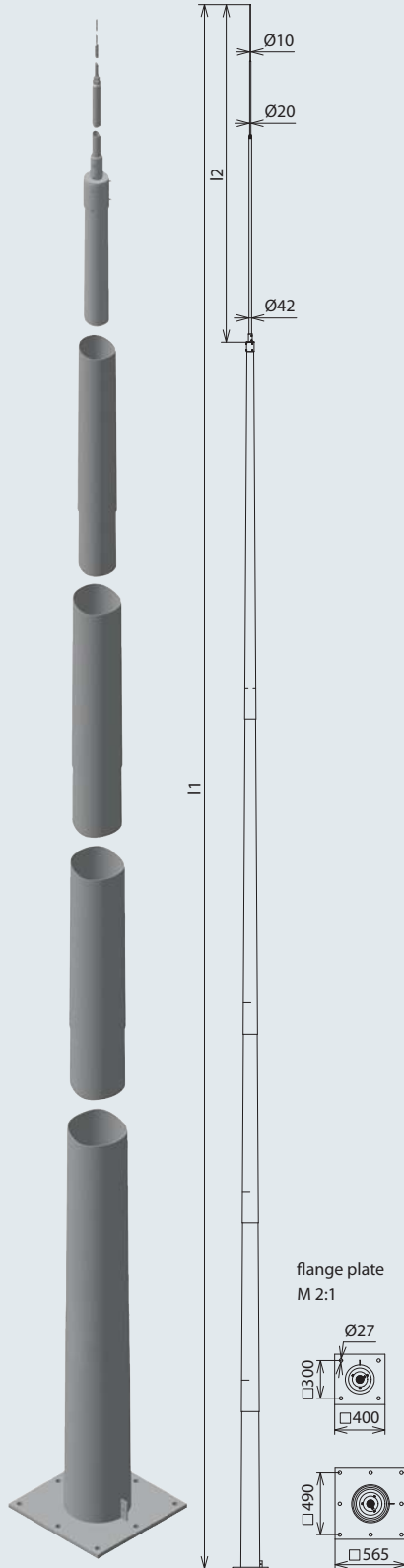
Advantages:

- Easy erection due to tapered design St/tZn and aluminium
- If necessary, the air-termination mast may be easily removed from the screw foundation and put down



Part No.	103 121	103 122	103 123	103 124	103 125	103 126
Material	St/tZn / Al	St/tZn / Al	St/tZn / Al	St/tZn / Al	St/tZn / Al	St/tZn / Al
Height above floor (I1)	6000 mm	7000 mm	8000 mm	9000 mm	10000 mm	11000 mm
Length of pipe $\varnothing 70$ mm	1700 mm	1700 mm	1700 mm	1700 mm	1700 mm	1700 mm
Length of pipe $\varnothing 60$ mm (I2)	2000 mm	2000 mm	4000 mm	4000 mm	6000 mm	6000 mm
Length of pipe $\varnothing 40$ mm (I3)	2000 mm	2000 mm	2000 mm	2000 mm	2000 mm	2000 mm
Air-termination rod (d1) (I4)	16 / 1000 mm	16/10 / 2000 mm	16 / 1000 mm	16/10 / 2000 mm	16 / 1000 mm	16/10 / 2000 mm
Standard	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)

More details in installation instructions No. 1581



Air-termination mast to protect special facilities, e.g. biogas plants, ground-installed photovoltaic systems, Ex systems, ammunition dumps etc. in case of direct lightning strike

The masts will be erected on a bucket foundation (pre-fabricated element) or an on-site concrete foundation with foundation basket (to be ordered separately).

More details on the locking system, the foundation and installation in installation instructions No. 1729.

This air-termination mast system provides a protected area (lightning protection zone O_B) for the whole system/area, without installing horizontal air-termination systems (spanning of cables).

The separation distance s according to IEC/EN 62305-3 between air-termination mast and the object to be protected must be observed.

The masts are dimensioned for wind velocities up to 162 km/h (wind load zone III).

Advantages of the air-termination mast system:

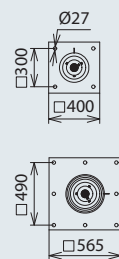
- Earthwork can be completed in advance
- Installation on (prefabricated) bucket foundation with less on-site effort or
- Installation with concrete foundation and foundation basket on site (concrete curing time to be observed for scheduling and installation)
- Type with flange plate for quick mounting
- Easy adjustment by threaded bolts M24
- Detailed installation instructions
- Verifiable statics (upon request)

Components:

- Air-termination rod St/tZn $\varnothing 42/20/10$ mm length 2400 or 5400 mm with thread M20 and lock nut
- Conic mast segments
- Flange plate with connection lug for earth connection bore $\varnothing 12$ mm (of round conductor $\varnothing 10$ mm e.g. with KS connector Part No. 301 019)

Max. transport length 6 m

flange plate
M 2:1

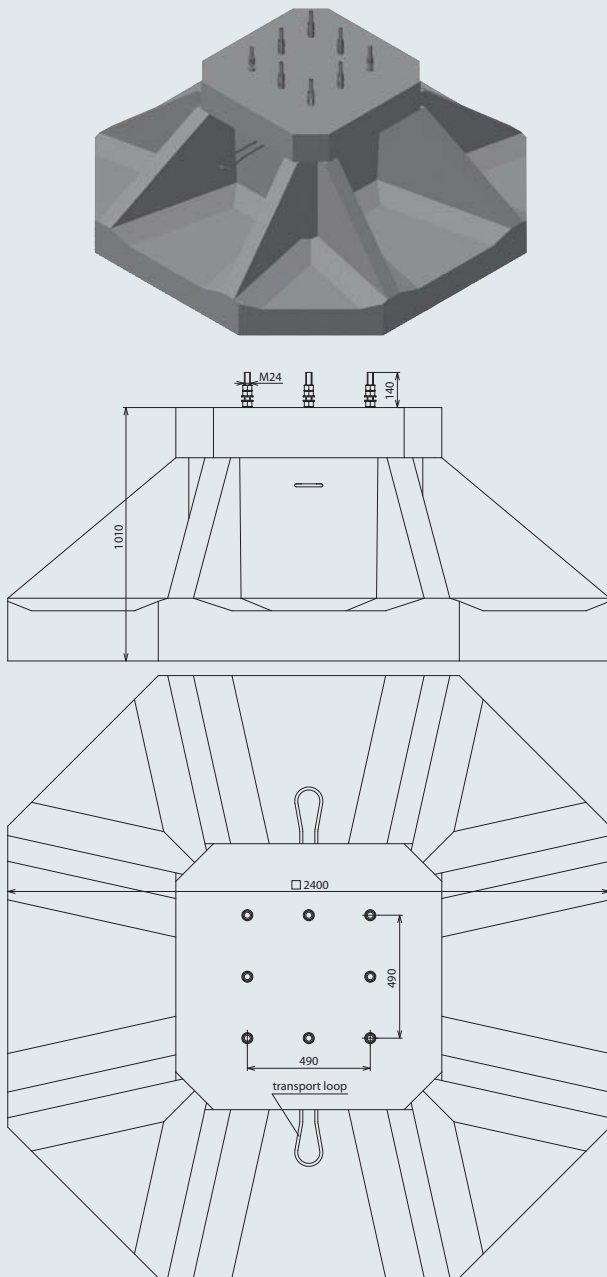


Part No.	103 013	103 016	103 019	103 022	103 025
Material	St/tZn	St/tZn	St/tZn	St/tZn	St/tZn
Height above ground level (I1)	13.35 m	16.35 m	19.35 m	22.35 m	24.85 m
Mast segments	2	2	3	4	5
Length of air-termination rod (I2)	2400 mm	5400 mm	5400 mm	5400 mm	5400 mm
Dimension of flange plate	400x400 mm	400x400 mm	400x400 mm	565x565 mm	565x565 mm
Type of flange plate	4x $\varnothing 28$ mm for 4x M24 (300x300 mm)	4x $\varnothing 28$ mm for 4x M24 (300x300 mm)	4x $\varnothing 28$ mm for 4x M24 (300x300 mm)	8x $\varnothing 28$ mm for 8x M24 (490x490 mm)	8x $\varnothing 28$ mm for 8x M24 (490x490 mm)
Concrete foundation					
on-site (l x w x h)	1400x1400x900 mm	1400x1400x900 mm	1600x1600x900 mm	1800x1800x900 mm	2000x2000x900 mm
Standard	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)	EN 50164-(1+2)
Weight	approx. 228 kg	approx. 230 kg	approx. 310 kg	approx. 450 kg	approx. 550 kg

Bucket foundations as prefabricated elements for easy erection of the telescopic lightning protection masts.
No concreting work on site.



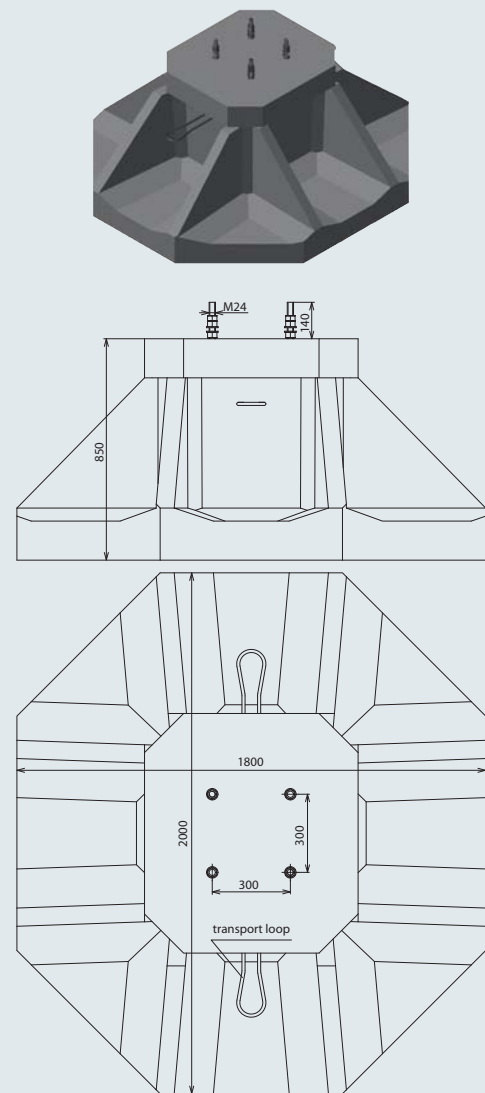
Type KöFU II



For masts of 22.35 or 24.85 m of height above ground level
(Part No. 103 022 or 103 025)
Flange plate 565x565 mm

Part No.	103 031
Material	concrete (C50/60)
Dimension	2400x2400x1010 mm
Weight	approx. 4.9 t
Type of threaded bolts	8x M24 (490x490 mm)

Type KöFU I



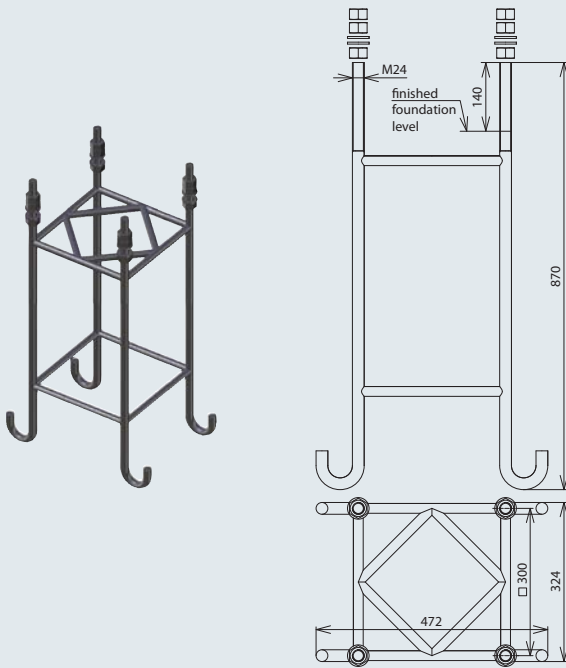
For masts of 13.35 to 19.35 m of height above ground level
(Part No. 103 013 / 103 016 / 103 019)
Flange plate 400x400 mm

Part No.	103 030
Material	concrete (C50/60)
Dimension	1800x2000x850 mm
Weight	approx. 2.5 t
Type of threaded bolts	4x M24 (300x300 mm)

More details in installation instructions No. 1729

Foundation baskets with threaded bolts for concreting, suitable for the flange plate of telescopic lightning protection masts

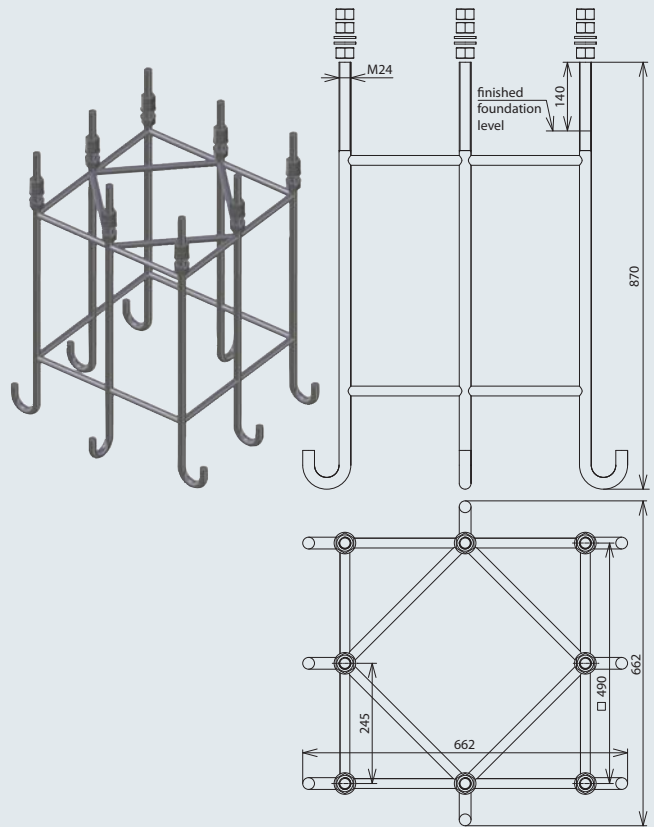
Small design



For masts of 13.35 m up to 19.35 m of height above ground level
 (Part No. 103 013 / 103 016 / 103 019)
 Flange plate 400x400 mm

Part No.	103 040
Material	steel
Dimension	472x324x870 mm
Type of threaded bolt	4x M24 (300x300 mm)

Large design



For masts of 22.35 m or 24.85 m of height above ground level
 (Part No. 103 022 or 103 025)
 Flange plate 565x565 mm

Part No.	103 041
Material	steel
Dimension	662x662x870 mm
Type of threaded bolt	8x M24 (490x490 mm)

More details in installation instructions No. 1729



Elevated air-termination system with spacers and concrete bases in the range of the electrical installation on the roof



Spacer with attachment, fixing bush and tensioning strap



Angled support with saddle clamp



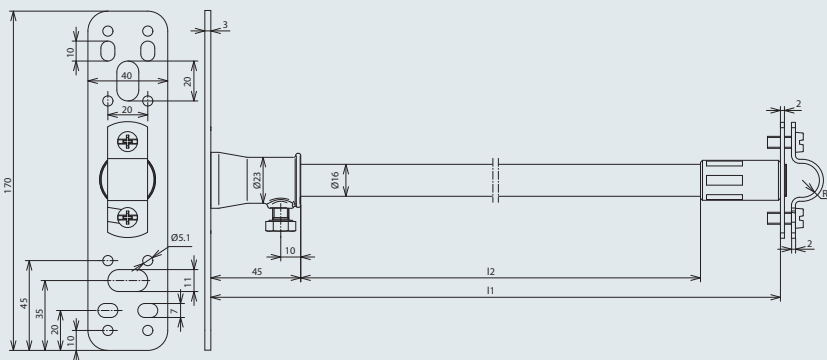
Variable range of supports for conductors and air-termination rods for keeping the separation distance according to IEC/EN 62305-3

Spacer bar made of glass-fibre reinforced plastic (GRP), Ø16 mm, UV stabilised, light grey colour, permanent temperature range -50 to +100 °C

Material factor $k_m = 0.7$ is used to determine the separation distance (length of spacer bar)

1 m of spacer bar is equivalent to a clearance of 700 mm

With rod holder and fixing plate

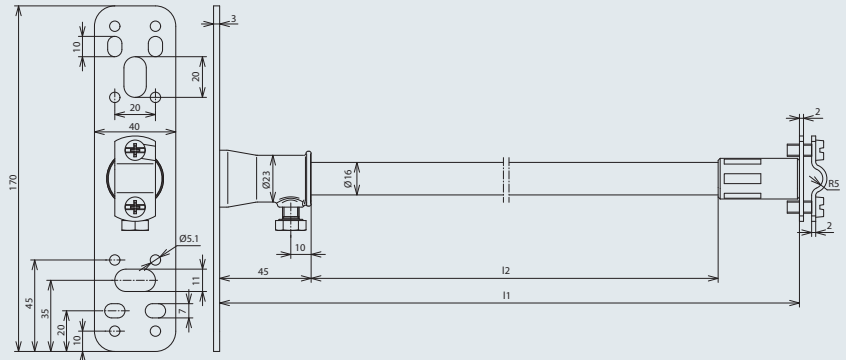


Fixed conductor leading

Part No.	106 115	106 120	106 123
Conductor holder support Rd	16 mm	16 mm	16 mm
Material of conductor holder	StSt	StSt	StSt
Length (l1)	530 mm	690 mm	1030 mm
Insulating distance (l2)	445 mm	605 mm	945 mm
Fixing	[8x] Ø5.1 / [4x] 7x10 / [2x] 11x20 mm	[8x] Ø5.1 / [4x] 7x10 / [2x] 11x20 mm	[8x] Ø5.1 / [4x] 7x10 / [2x] 11x20 mm
Material of plate	StSt	StSt	StSt
Permanent temperature range	-50 bis +100 °C	-50 to +100 °C	-50 to +100 °C
Material of fixing bush	ZDC	ZDC	ZDC

Design with other lengths of spacer bar upon request

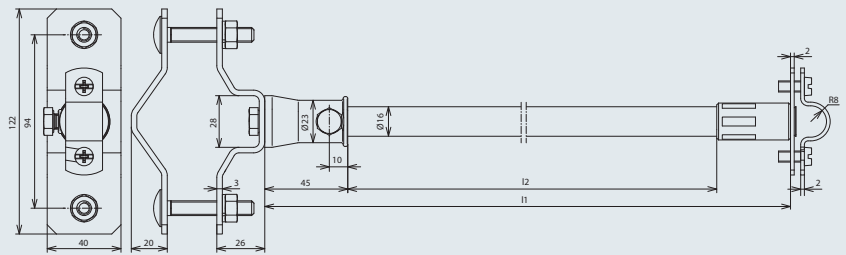
With conductor holder and fixing plate



Fixed conductor leading

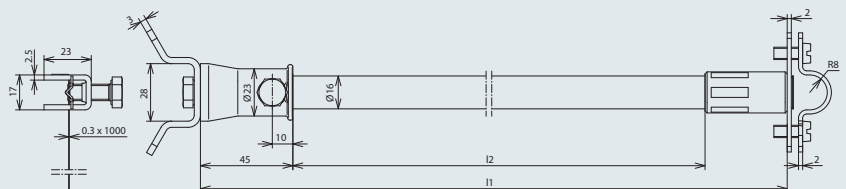
Part No.	106 090	106 100	106 105
Conductor holder support Rd	7-10 mm	7-10 mm	7-10 mm
Material of conductor holder	StSt	StSt	StSt
Length (l1)	530 mm	690 mm	1030 mm
Insulating distance (l2)	445 mm	605 mm	945 mm
Fixing	[8x] Ø5.1 / [4x] 7x10 / [2x] 11x20 mm	[8x] Ø5.1 / [4x] 7x10 / [2x] 11x20 mm	[8x] Ø5.1 / [4x] 7x10 / [2x] 11x20 mm
Material of plate	StSt	StSt	StSt
Permanent temperature range	-50 to +100 °C	-50 to +100 °C	-50 to +100 °C
Material of fixing bush	ZDC	ZDC	ZDC

With rod holder and pipe bracket



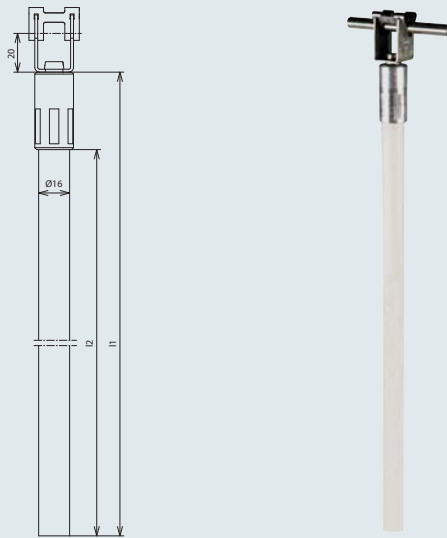
Part No.	106 225	106 226	106 228
Conductor holder support Rd	16 mm	16 mm	16 mm
Material of conductor holder	StSt	StSt	StSt
Length (l1)	530 mm	690 mm	1030 mm
Insulating distance (l2)	445 mm	605 mm	945 mm
Clamping range of pipe	40-60 mm (1 1/4-2")	40-60 mm (1 1/4-2")	40-60 mm (1 1/4-2")
Permanent temperature range	-50 to +100 °C	-50 to +100 °C	-50 to +100 °C
Material of fixing bush	ZDC	ZDC	ZDC
Material of fixing element	StSt	StSt	StSt

With rod holder and strap pipe clamp



Part No.	106 245	106 246	106 248
Conductor holder support Rd	16 mm	16 mm	16 mm
Material of conductor holder	StSt	StSt	StSt
Length (l1)	530 mm	690 mm	1030 mm
Insulating distance (l2)	445 mm	605 mm	945 mm
Clamping range of pipe	50-300 mm	50-300 mm	50-300 mm
Permanent temperature range	-50 to +100 °C	-50 to +100 °C	-50 to +100 °C
Material of fixing bush	ZDC	ZDC	ZDC
Material of fixing element	StSt	StSt	StSt
Dimension of strip (w x d)	25x0.3 mm	25x0.3 mm	25x0.3 mm

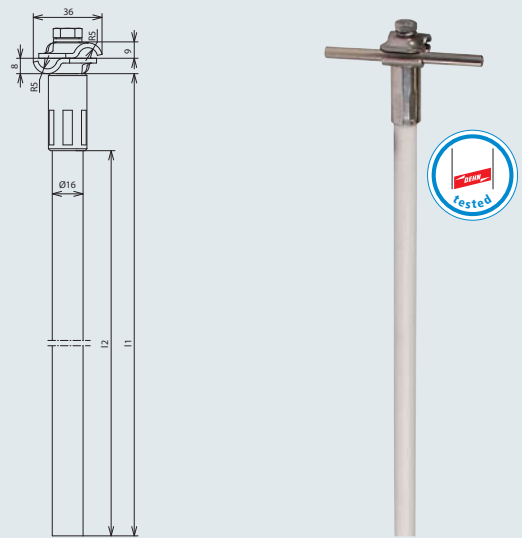
With DEHNgrip conductor holder



For installation e.g. in concrete base (Part No. 102 075) loose conductor leading

Part No.	106 160
Conductor holder support Rd	8 mm
Material of conductor holder	StSt
Length (l1)	675 mm
Insulating distance (l2)	590 mm
Permanent temperature range	-50 to +100 °C
Material of fixing bush	Al

With MMV clamp



For crossings, on installation in concrete base (Part No. 102 075), fixed conductor leading

Part No.	106 150
Conductor holder support Rd	6-10 mm
Material of conductor holder	StSt
Length (l1)	675 mm
Insulating distance (l2)	590 mm
Permanent temperature range	-50 to +100 °C
Material of fixing bush	Al

Single Parts for DEHNiso Spacers

Spacer Bar

For cutting to length

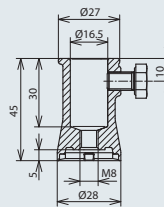
Part No.	106 125
Material	GRP
Permanent temperature range	-50 to +100 °C
Colour of spacer bar	light grey (RAL 7035)
Diameter	16 mm
Total length	3000 mm



Fixing Bush

For variable fixing of conductor and rod holders at a spacer bar (Ø16 mm) with female thread M8

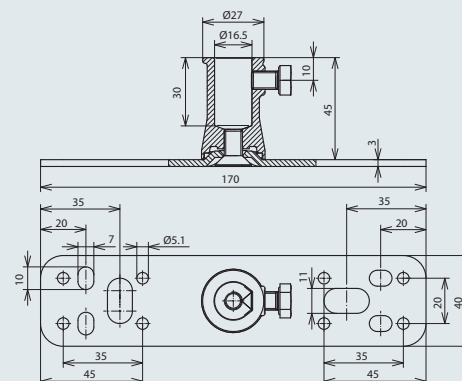
Part No.	106 126
Material	ZDC
Female thread	M8
Diameter	23 mm
Screw	M8x12 mm
Material of screw	StSt



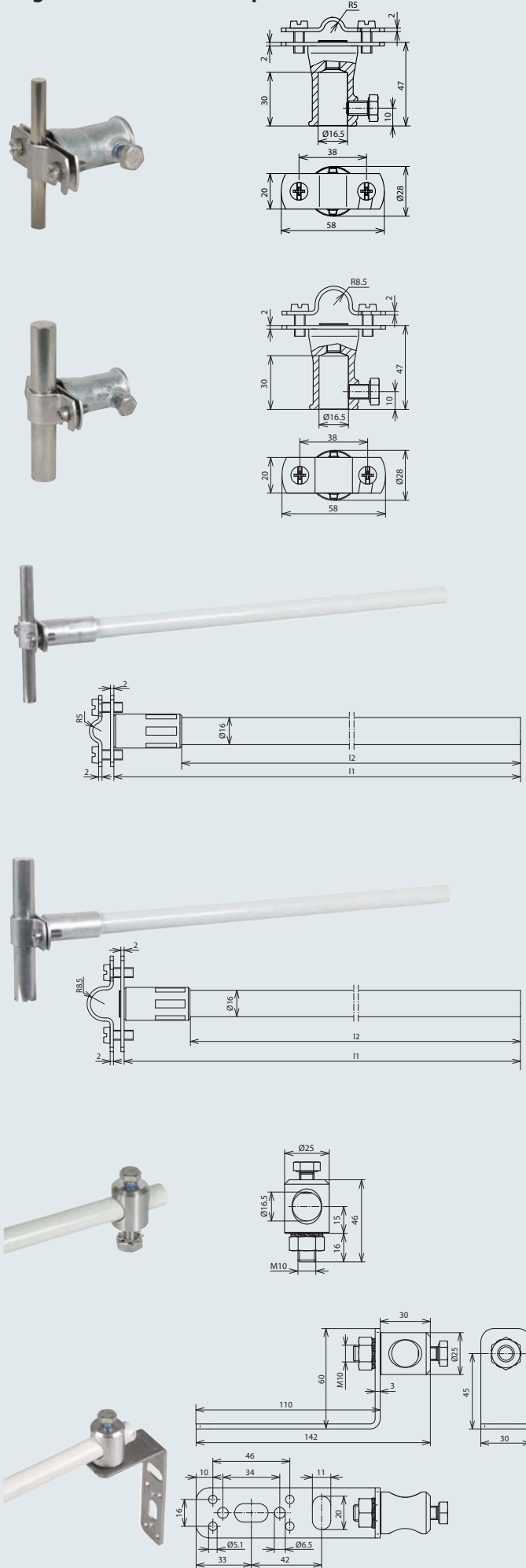
Fixing Plate

Base plate for fixing the spacer or the spacer bar (Ø16 mm) e.g. at construction components

Part No.	106 127
Material of fixing plate	StSt
Material of fixing bush	ZDC
Fixing	[8x] Ø5.1 / [4x] 7x10 / [2x] 11x20 mm
Dimension	170x40x3 mm
Screw	M8x12 mm
Material of screw	StSt



Single Parts for DEHNiso Spacers



Conductor Holder with Fixing Bush

For fixing the conductor at the GRP bar

Part No.	106 128
Material of conductor holder	StSt
Conductor holder support Rd	7-10 mm
Material of fixing bush	ZDC
Conductor leading	fixed
Screw	⊕ M6x14 / 🔩 M8x12 mm
Material of screw	StSt

Rod Holder with Fixing Bush

For fixing the air-termination rod at the GRP bar

Part No.	106 129
Material of conductor holder	StSt
Conductor holder support Rd	16 mm
Material of fixing bush	ZDC
Conductor leading	fixed
Screw	⊕ M6x14 / 🔩 M8x12 mm
Material of screw	StSt

Spacer with Conductor Holder

For fixing conductors at different supports, fixed conductor leading

Part No.	106 165	106 170	106 175
Conductor holder support Rd	7-10 mm	7-10 mm	7-10 mm
Material of conductor holder	StSt	StSt	StSt
Length (l1)	515 mm	675 mm	1015 mm
Insulating clearance (l2)	435 mm	595 mm	935 mm
Material of bush	Al	Al	Al
Permanent temperature range	-50 to +100 °C	-50 to +100 °C	-50 to +100 °C

Spacer with Rod Holder

For fixing air-termination rods at different supports, fixed conductor leading

Part No.	106 178	106 180	106 185
Conductor holder support Rd	16 mm	16 mm	16 mm
Material of conductor holder	StSt	StSt	StSt
Length (l1)	515 mm	675 mm	1015 mm
Insulating clearance (l2)	435 mm	595 mm	935 mm
Material of bush	Al	Al	Al

Fixing Bolt

For the spacer bar, with thread M10, nut, toothed lock washer and screw

Part No.	106 301	106 309
Material of bolt	Al	StSt
Clamping range Rd	16 mm	16 mm
Screw	🔩 M8x12 mm	🔩 M8x12 mm
Material of screw/nut	StSt	StSt

Fixing Bracket

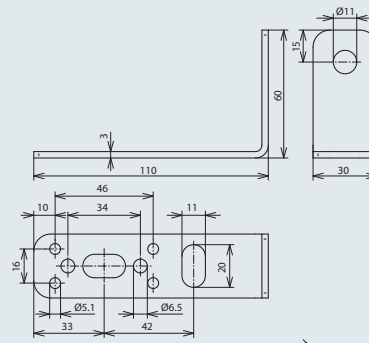
With fixing bolt for spacer bar (Ø16 mm)

Part No.	106 311
Material	StSt
Angle	90°
Fixing	[4x] Ø5.1 / [2x] Ø6.5 / [2x] 11x20 mm
Dimension (l x w x h)	110x60x30 mm

Fixing Bracket

For DEHNiso spacer, with bore $\varnothing 11$ mm

Part No.	106 310
Material	StSt
Angle	90°
Fixing	[4x] $\varnothing 5.1$ / [2x] $\varnothing 6.5$ / [2x] 11x20 mm
Dimension (l x w x h)	110x60x30 mm



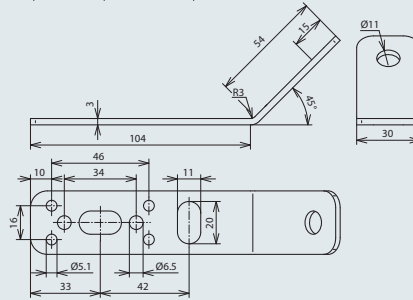
Single Parts for DEHNiso Spacers



Fixing Bracket

For DEHNiso spacer, with bore $\varnothing 11$ mm

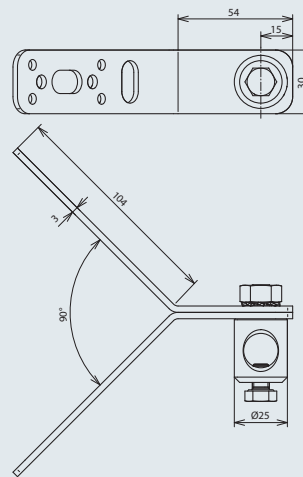
Part No.	106 315
Material	StSt
Angle	45°
Fixing	[4x] $\varnothing 5.1$ / [2x] $\varnothing 6.5$ / [2x] 11x20 mm
Dimension (l x w x h)	104x54x30 mm



Corner Bracket

With fixing bolt for spacer bar ($\varnothing 16$ mm)

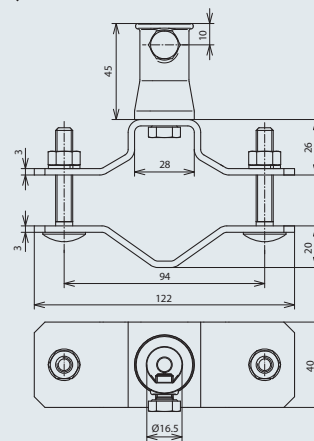
Part No.	106 316
Material	StSt
Angle	90°
Fixing	[8x] $\varnothing 5.1$ / [4x] $\varnothing 6.5$ / [4x] 11x20 mm
Dimension	132x155x30 mm



Pipe Bracket

With fixing bush for spacer ($\varnothing 16$ mm) for pipes up to $\varnothing 60$ mm

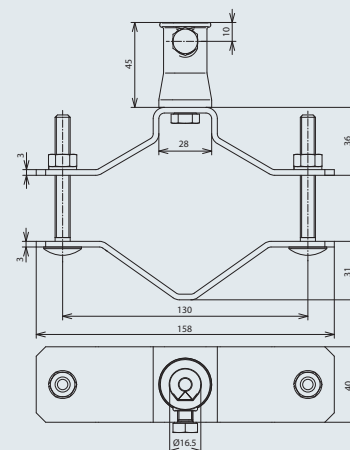
Part No.	106 352
Material of bracket	StSt
Clamping range \varnothing pipe	40-60 mm (1 1/4-2")
Material of bush	ZDC
Screw	⬆ M8x50 / ⬆ M8x12 mm
Material of screw/nut	StSt



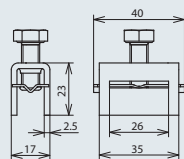
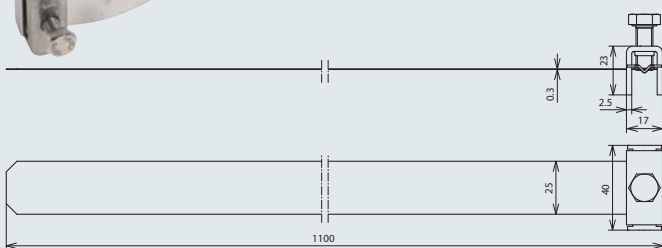
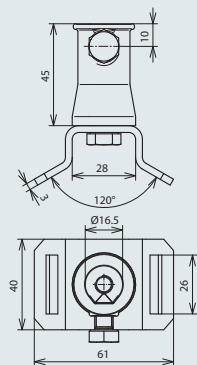
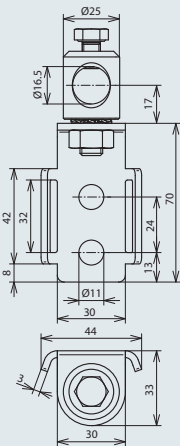
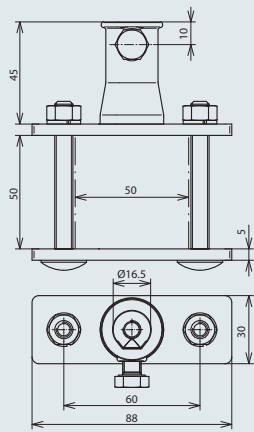
Pipe Bracket

With fixing bush for spacer ($\varnothing 16$ mm) for pipes up to $\varnothing 90$ mm

Part No.	106 353
Material of bracket	StSt
Clamping range \varnothing pipe	70-90 mm (2 1/4-3")
Material of bush	ZDC
Screw	⬆ M8x70 / ⬆ M8x12 mm
Material of screw/nut	StSt



Single Parts for DEHNiso Spacers



Railing Clamp

For square hollow profiles with bush for spacer bar (Ø16 mm)

Part No.	106 312
Material	ZDC / StSt
Clamping range of square profile	20x20 to 50x50 mm
Screw	M8x70 / M8x12 mm
Material of screw	StSt

Clip for Fixing Spacers at Pipes

Fixing by tensioning straps up to 30 mm

(e.g. tensioning strap 25x0.3 mm with grip head Part No. 106323) with fixing bolt for spacer bar (Ø16 mm)

Part No.	106 321
Material of clip	StSt
Material of bolt	Al
Width of slot (l x w)	32x6 mm
Fixing	[2x] Ø11 mm

Attachment with Fixing Bush

For fixing of spacers (Ø16 mm) at pipes e.g. with tensioning strap Part No. 106 323

Part No.	106 322
Material	StSt
Width of slot (l x w)	26x6 mm
Clamping range Rd	16 mm
Material of bush	ZDC

Strap Pipe Clamp

For fixing (tensioning) the clip (106 321) or the attachment with fixing bush (Part No. 106 322) at different pipes

Part No.	106 323
Material of head/strap	StSt
Clamping range Ø	50-300 mm
Dimension of strap	1100x25x0.3 mm
Screw	M8x20 mm
Material of screw	StSt

Separate Grip Head

For combination with endless tensioning strap (Part No. 540 901) in case of larger pipe diameters e.g. for attachment with fixing bush (Part No. 106 322)

Part No.	106 324
Material of head	StSt
For strap (w x d)	25x0.3 mm
Screw	M8x20 mm
Material of screw	StSt

Tensioning Strap

Part No.	540 901
Material	StSt
Dimension of strap (l x w x d)	25x0.3 mm
Length	100 m

Adapter for Angled Support

For air-termination rods (Ø16 mm) with 2 fixing bolts for spacer bar (Ø16 mm)

Part No.	106 325
Material	StSt
Clamping range Rd	16/16 mm
Screw	M6x12 / M8x12 mm
Material of screw/nut	StSt

Adapter for Angled Support

For supporting tubes DEHNiso Combi (Ø50 mm) with 2 fixing bolts for spacer bar (Ø16 mm)

Part No.	106 326
Material	StSt
Clamping range Rd	50/16 mm
Screw	M8x16 mm
Material of screw/nut	StSt

Fixing Adapter

For saddle and terminal clamps, angled

Part No.	106 341
Material of bar	StSt
Bar Ø	8 mm
Angle	90°
Material of bush	ZDC

Fixing Adapter

For saddle and terminal clamps, angled

Part No.	106 342
Material of bar	StSt
Bar Ø	8 mm
Angle	130°
Material of bush	ZDC

Fixing Adapter

For saddle and terminal clamps, straight

Part No.	106 340
Material of bar	StSt
Bar Ø	8 mm
Angle	0°
Material of bush	ZDC

MV Clamp

Especially for the fixing of air-termination rods at the spacer bar without fixing bush

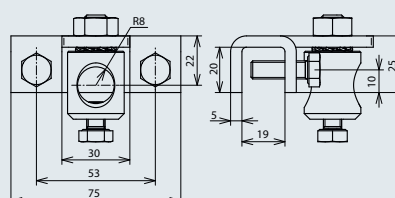
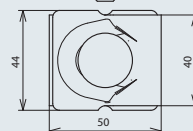
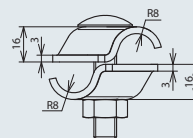
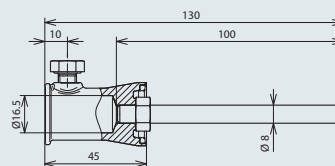
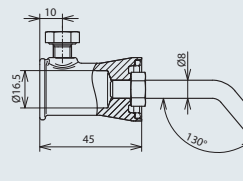
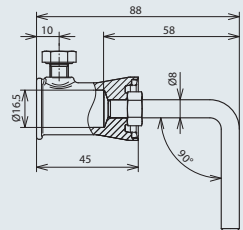
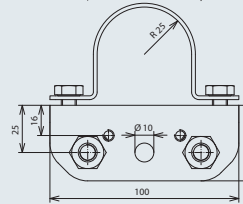
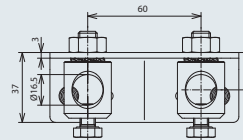
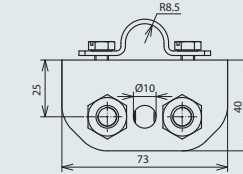
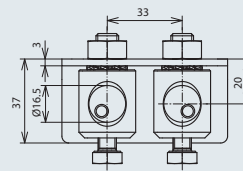
Part No.	393 069
Material	StSt
Conductor holder support Rd	16/16 mm
Conductor leading	fixed
Screw	M10x50 mm
Material of screw	StSt

Terminal Clamp with Fixing Bolt

For fixing of spacers (Ø16 mm) e.g. at steel girders

Part No.	106 319
Material of clamp	StSt
Clamping range	5-18 mm
Clamping range Rd	16 mm
Material of fixing bolt	Al
Connection with	fixing bolt
Screw	M8x25 mm

Single Parts for DEHNiso Spacers





Air-termination rods for implementing isolated air-termination systems e.g. on flat roofs, installed on wedge mounting concrete base

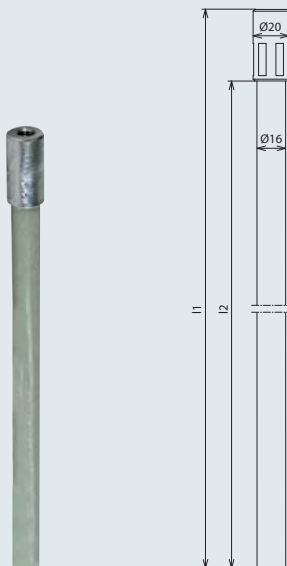
Material factor $k_m = 0.7$ is used to determine the separation distance (length of spacer bar)

Diameter 16 mm, UV stabilised, light grey colour, permanent temperature range -50 to +100 °C.

The air-termination rods to be installed with two concrete blocks (weight 17 kg each) for wind velocities up to 145 km/h (wind load zone II).

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

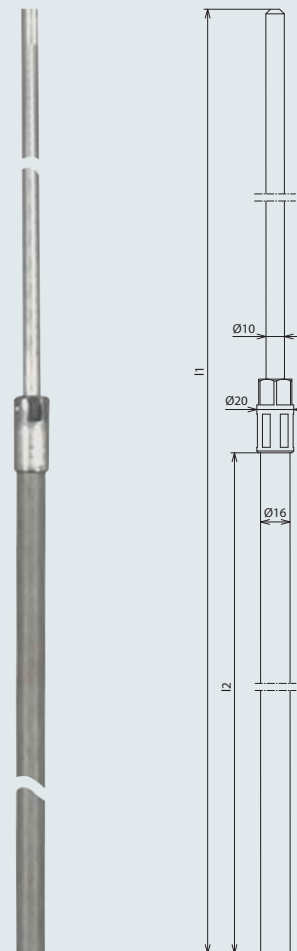
Variable design with thread M10



e.g. for air-termination rod Part No. 101 001, air-termination rod with MV clamp Part No. 105 071 (for crossings) or MV clamp for spanning Part No. 105 079

Part No.	106 217	106 220
Total length (l1)	675 mm	1015 mm
Insulating distance (l2)	635 mm	975 mm
Material of air-termination rod/bushing	Al	Al
Material of spacer	GRP	GRP

Crimped design



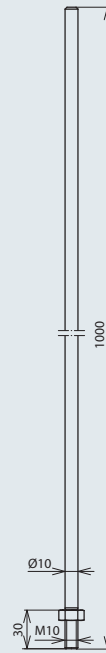
Part No.	106 207	106 210
Total length (l1)	1660 mm	2000 mm
Insulating distance (l2)	635 mm	975 mm
Material of air-termination rod/bushing	Al	Al
Material of spacer	GRP	GRP

Accessories for Air-termination Rods GRP/Al

Air-termination Rod with Lock Nut

For screwing in

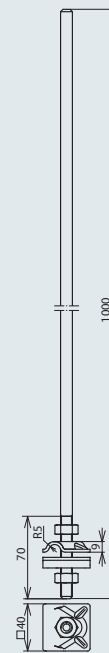
Part No.	101 001
Material	StSt
Diameter	10 mm
Length	1000 mm
Thread	M10
Material of nut	StSt
Standard	EN 50164-2



Air-termination Rod with MV Clamp

For screwing in

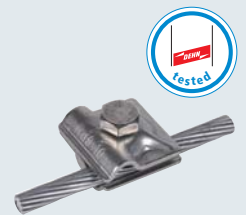
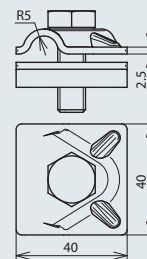
Part No.	105 071
Material of air-termination spike	StSt
Material of MV clamp	StSt
Air-termination rod (l x Ø)	1000x10 mm
Clamping range Rd	8-10 mm
Thread	M10
Standard	EN 50164-(1+2)

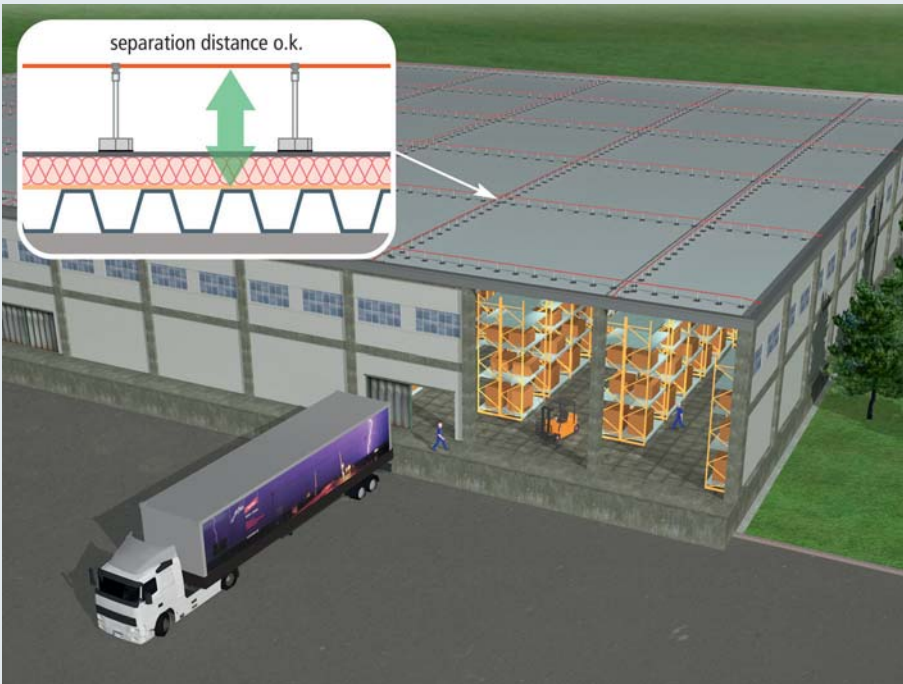


MV Clamp for Spanning

For screwing in

Part No.	105 079
Material	StSt
Clamping range Rd	8-10 mm
Type of scw	⚙ M10x30 mm
Material of screw	StSt
Standard	EN 50164-1





Non-compliance with the separation distance increases the risk of flashovers from the external lightning protection system conductors to electrical and metal installations inside of the building or structure.

Nevertheless, electrical separation often is considered as less important in case of the external lightning protection system. Consequently, the meshes of external lightning protection air-termination system installed e.g. on extended facilities such as logistics centres, high-bay warehouses or production buildings, do not have the necessary separation distance to metal components and electrical systems underneath.

The roof conductor holders DEHNiso RCH have been developed for an easy and practical realisation of electrical separation in external lightning protection. They consist of a glass-fibre reinforced plastic bar (GRP) with plastic conductor holder and a concrete block with support plate.



Distance between the roof conductor holders (mid to mid of GRP bar) is max. 1.2 m each.

The roof conductor holders are dimensioned for wind velocities up to 145 km/h and 162 km/h (wind load zone II + III), provided that the specified distance of ≤ 1.2 m is complied with.

This system is compatible with GRP/Al air-termination rods, if protected zones are needed e.g. for roof-mounted structures.

Spacer bar made of glass-fibre reinforced plastic (GRP) $\varnothing 10$ mm, UV stabilised, light grey colour

Material factor $k_m = 0.7$ is applied to determine the separation distance (length of spacer bar).

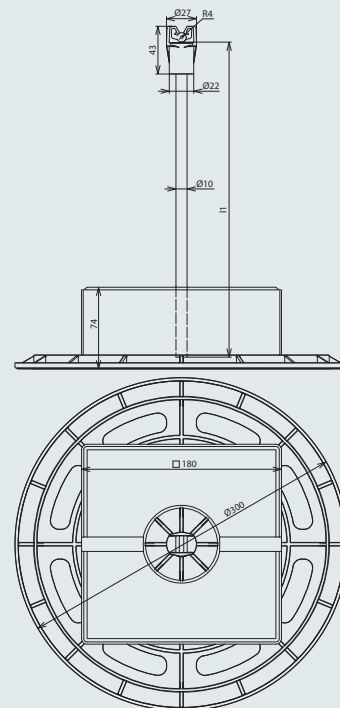
The insulating clearance of 220 / 360 mm thus is equal to a separation distance of 150 / 250 mm (in air) or 300 / 500 mm (solid building material).



Spacer with concrete block and support plate, loose conductor leading

Part No.	253 115	253 125
Conductor holder support Rd	8 mm	8 mm
Material of roof conductor holder	plastic/GRP	plastic/GRP
Length (l1)	295 mm	435 mm
Insulating clearance	220 mm	360 mm
Total weight	approx. 4.8 kg	approx. 4.8 kg
Permanent temperature range	-30 to +80 °C	-30 to +80 °C

More details in installation instructions No. 1802.



Spacer Bars with Conductor Holder

For insertion into the support plate (socket) stabilised with concrete block. For elevated conductor leading, loose conductor leading.

Part No.	253 315	253 325
Conductor holder support Rd	8 mm	8 mm
Material of conductor holder	plastic	plastic
Length (l1)	280 mm	420 mm
Insulating clearance	220 mm	360 mm
Permanent temperature range	-30 up to +80 °C	-30 up to +80 °C

Conductor Holder with Socket

For fixing conductors at the GRP bar

Part No.	253 302
Ø Socket	10 mm
Material	plastic
Colour	grey
Conductor holder support Rd	8 mm
Permanent temperature range	-30 to +80 °C

Spacer Bar for DEHNiso Roof Conductor Holders

For cutting to length

Part No.	253 310
Material	GRP
Colour	light grey (RAL 7035)
Diameter	10 mm
Length	3000 mm
Permanent temperature range	-30 up to +80 °C

Concrete Block

For stabilising the support plate

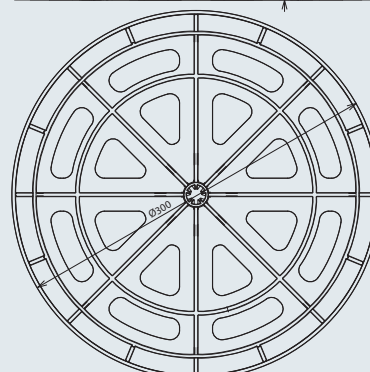
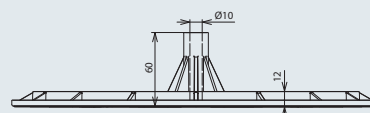
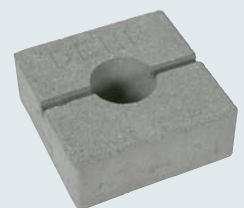
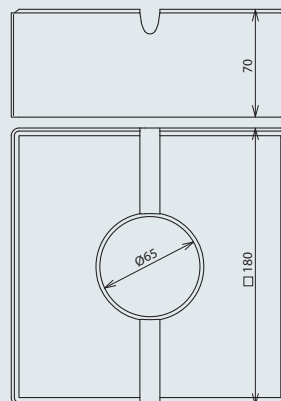
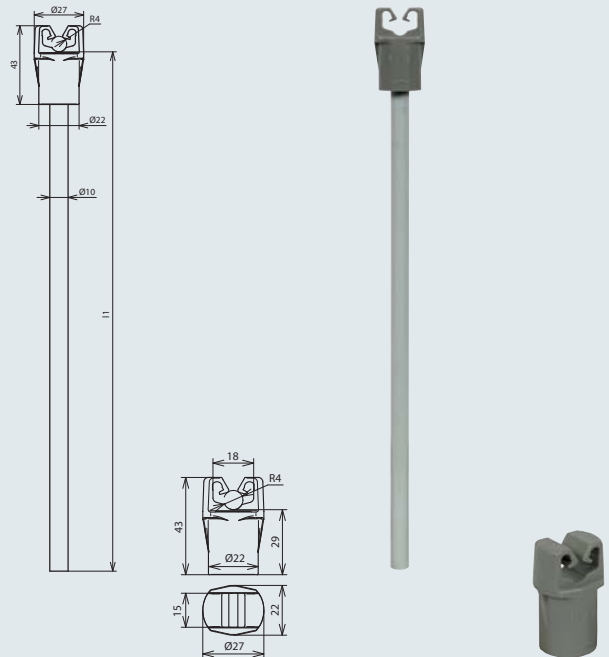
Part No.	253 301
Type	square open form
Material	concrete (C35/45)
Weight	4.6 kg
Dimension	180x180x70 mm

Support Plate

Support plate with socket for the spacer bar (Part No. 253 315, 253 325) and as protection of the roofing sheets under the concrete block (Part No. 253 301)

Part No.	253 300
Diameter	300 mm
Diameter of socket	10 mm
Height	60 mm
Material	plastic
Colour	grey
Permanent temperature range	-30 to +80 °C

Single Parts for DEHNiso Roof Conductor Holders





Spacers at the supporting tube

Components for isolated air-termination systems (insulated)

To protect roof-mounted structures, e.g. air-conditioning systems, recooling systems etc.

For keeping the separation distance to electrically conductive parts according to IEC/EN 62305-3

Tubes and spacers made of glass-fibre reinforced plastic (GRP), UV-stabilised, light grey colour, permanent temperature range -50 up to 100 °C

- Complete unit ready for installation
- Low own weight
- Stable overall design
- One-screw fixing clamps
- Various bores for different mounting requirements

Material factor $k_m = 0.7$ is applied to determine the separation distance (length of spacer bar).

1 m of spacer bar is equivalent to a clearance in air of 0.7 m.

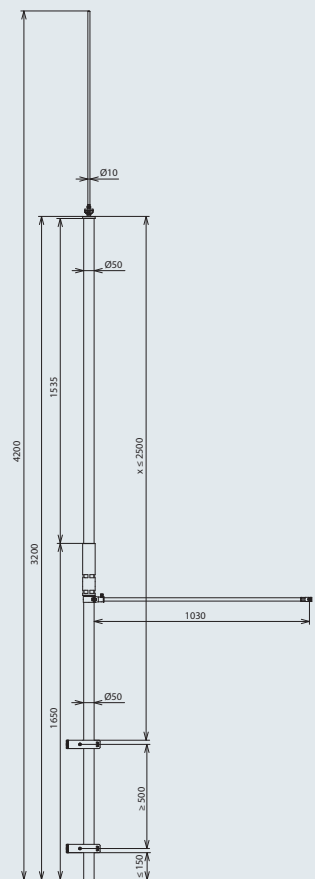
The distance between supporting tube head and upper holder (fixing point) is considered as maximum free length.

Distances for the spanning of aluminium cable (Part No. 840 050) of max. 10 m (mind the sagging) are allowed.



Isolated air-termination system DEHNiso Combi

One-piece, total height 4200 mm

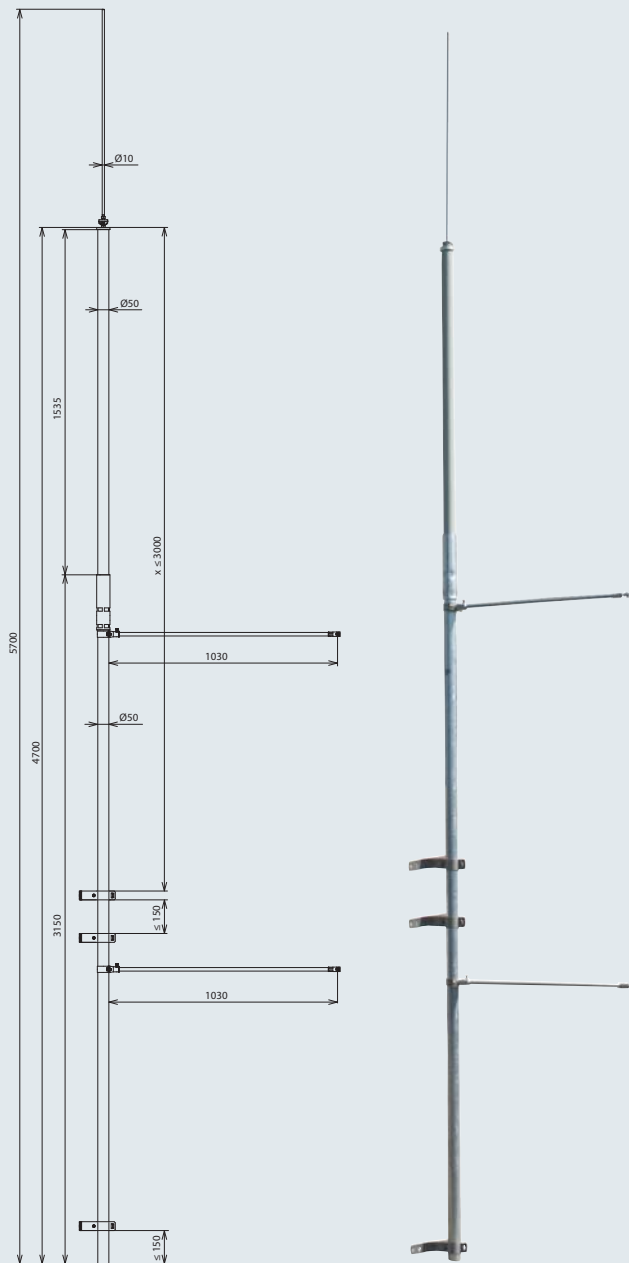


Consisting of:

- 1x air-termination rod StSt, L = 1000 mm (Part No. 105 071)
- 1x supporting tube GRP/Al, L = 3200 mm (Part No. 105 300)
- 2x wall fixing bracket StSt (Part No. 105 340)
- 1x spacer GRP/Al, L = 1030 mm (Part No. 106 331)

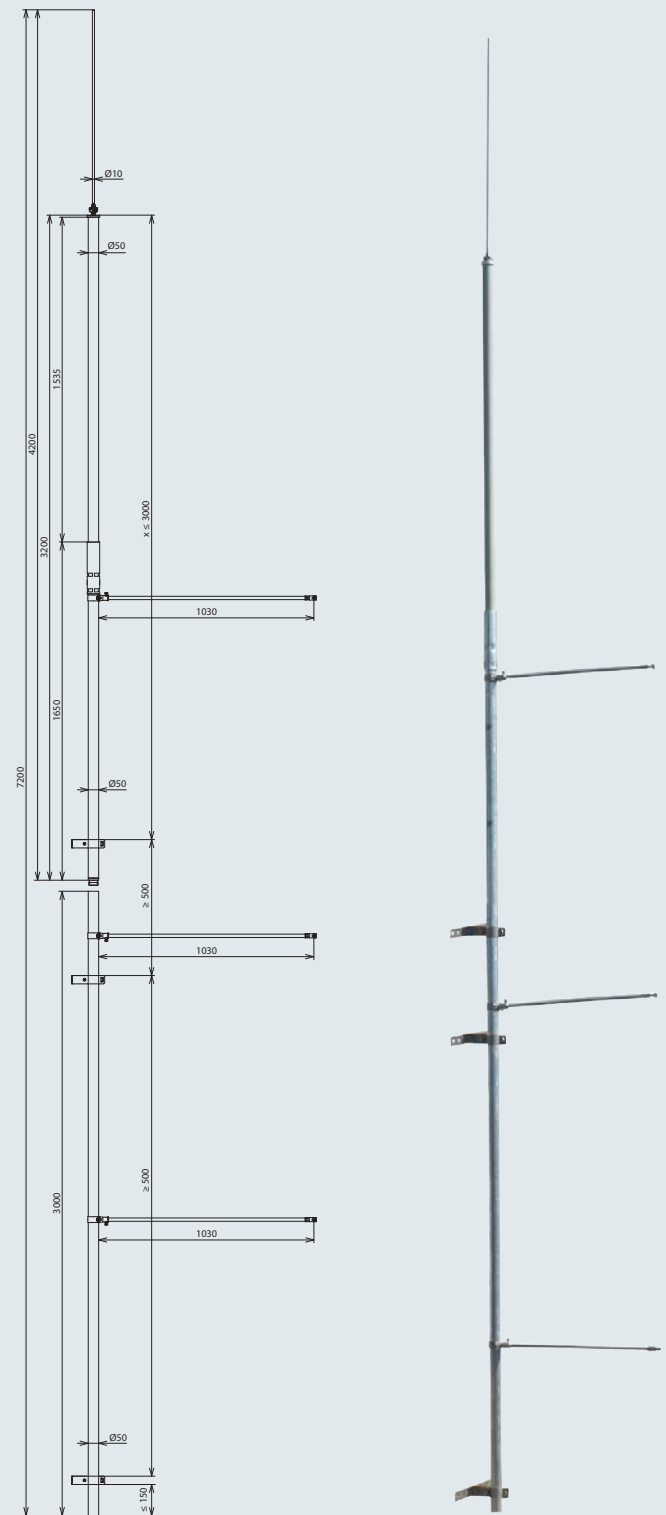
Part No.	105 440
Total length	4200 mm
Quantity of spacers	1
Quantity of fixing brackets	2
Length of supporting tube	3200 mm
Max. free length	2500 mm
Material of supporting tube	GRP / Al

One-piece, total height 5700 mm



Consisting of:
 1x air-termination spike StSt, L = 1000 mm (Part No. 105 071)
 1x supporting tube GRP/Al, L = 4700 mm (Part No. 105 301)
 3x wall fixing bracket StSt (Part No. 105 340)
 2x spacer GRP/Al, L = 1030 mm (Part No. 106 331)

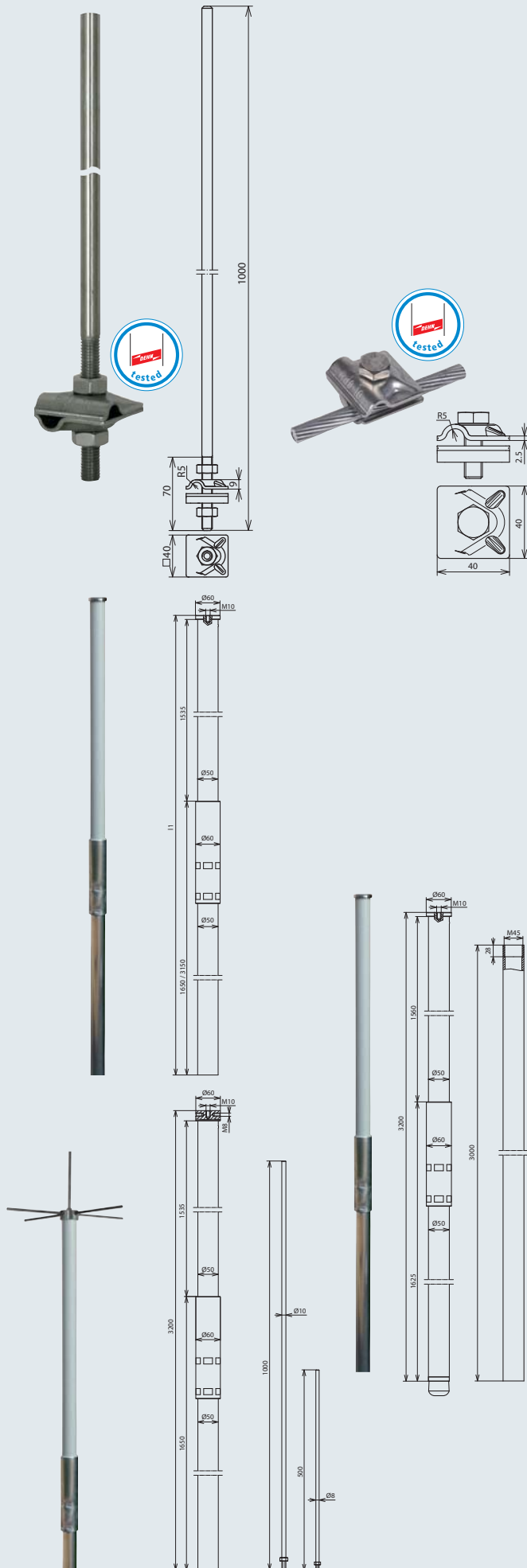
Part No.	105 455
Total length	5700 mm
Quantity of spacers	2
Quantity of fixing brackets	3
Length of supporting tube	4700 mm
Max. free length	3000 mm
Material of supporting tube	GRP / Al



(transport length 3200 mm)
 Consisting of:
 1x air-termination spike StSt, L = 1000 mm (Part No. 105 071)
 1x supporting tube GRP/Al, L = 6200 mm (Part No. 105 302)
 3x wall fixing bracket StSt (Part No. 105 340)
 3x spacer GRP/Al, L = 1030 mm (Part No. 106 331)

Part No.	105 470
Total length	7200 mm
Quantity of spacers	3
Quantity of fixing brackets	3
Length of supporting tube	6200 mm
Max. free length	3000 mm
Material of supporting tube	GRP / Al

Single Parts for DEHNiso Combi Sets



Air-termination Rod with MV Clamp

For screwing on top of the supporting tube and for fixing the air-termination conductor (wire or cable)

With thread M10

Part No.	105 071
Material of air-termination rod	StSt
Material of MV clamp	StSt
Air-termination rod (l x Ø)	1000x10 mm
Clamping range Rd	8-10 mm
Thread	M10
Standard	EN 50164-(1+2)

MV Clamp for Spanning

For screwing on top of the supporting tube with screw M10 in order to support cable spanning

Part No.	105 079
Material	StSt
Clamping range Rd	8-10 mm
Type of screw	M10x30 mm
Material of screw	StSt
Standard	EN 50164-1

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 $\varnothing 16/10$ 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 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] $\varnothing 5.1$ / [4x] 11x20 mm
Material of screw	StSt

Fixing Bracket

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

Part No.	105 341
Material	StSt
Clamping range of supporting tube	50 mm
Wall/corner distance	80 mm
Dimension of fixing	152 mm
Fixing	[8x] $\varnothing 5.1$ / [4x] 11x20 mm
Material of screw	StSt

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] $\varnothing 5.1$ / [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

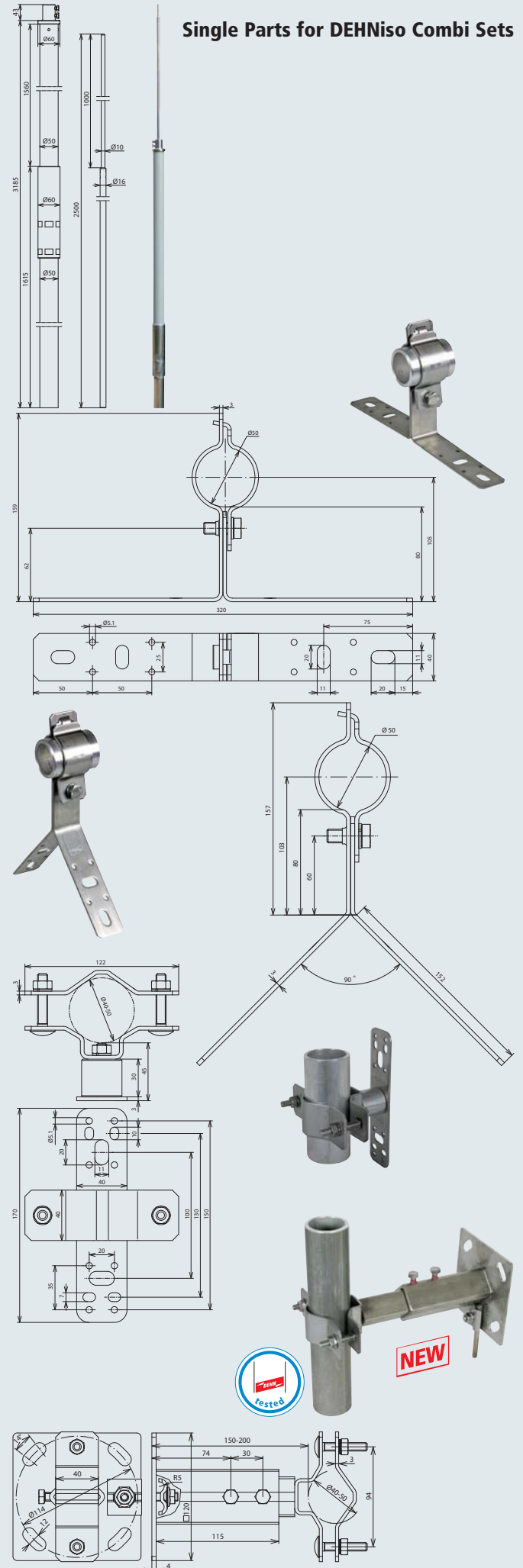
Fixing Bracket

Wall fixing bracket with adjustment range of 150-200 mm

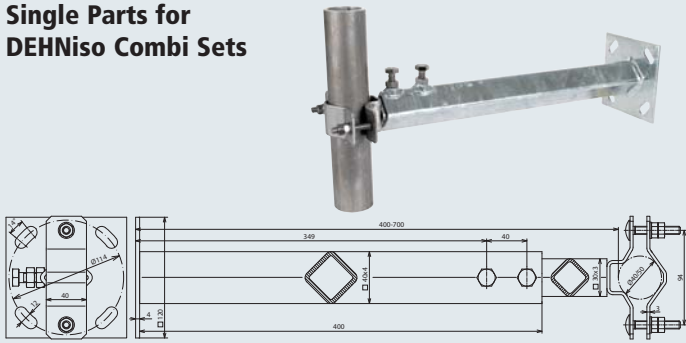
For fixing of supporting tubes or air-termination rods D40/D50 with double cleat for connecting 2x Rd 8-10 mm [lightning current carrying capability 100 kA (10/350 μ s)]

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

Single Parts for DEHNiso Combi Sets



Single Parts for DEHNiso Combi Sets

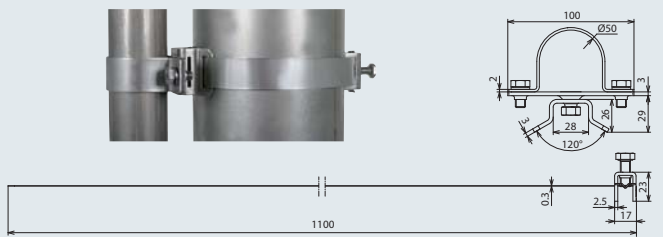


Fixing Bracket

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



Fixing Clamp with Tensioning Strap

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

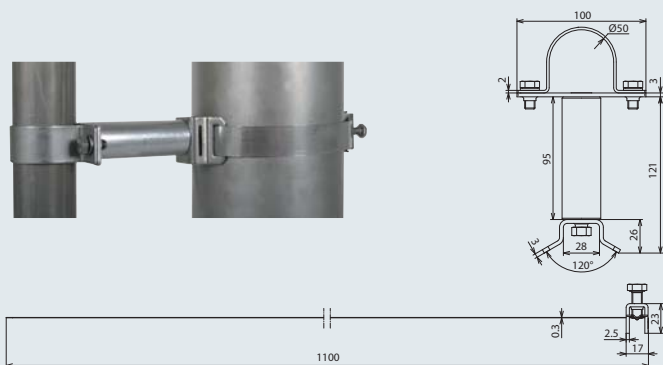
Part No.	105 360
Material of clip	StSt
Clamping range of supporting tube	50 mm
Clamping range Ø pipe	50-300 mm
Material of tensioning strap	StSt
Material of screw	StSt
Dimension of strap (w x d)	25x0.3 mm



Fixing Clamp with Tensioning Strap

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

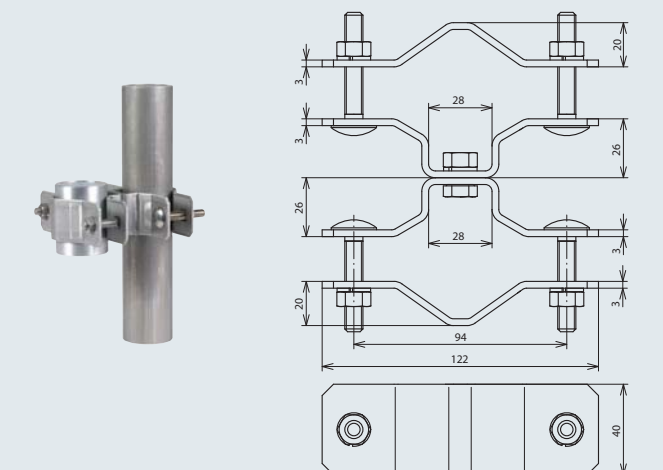
Part No.	105 361
Material of clip	StSt
Clamping range of supporting tube	50 mm
Clamping range Ø pipe	50-300 mm
Material of tensioning strap	StSt
Material of screw	StSt
Length of spacer	30 mm
Material of spacer	Al
Dimension of strap (w x d)	25x0.3 mm



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 Ø pipe	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 Equipment for Use at Railings

For pipes

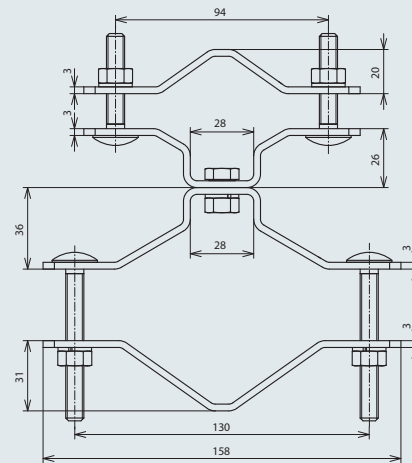
Part No.	105 354
Material	StSt
Clamping range Ø pipe	48-60 mm (1 1/2-2")
Screw	⬆ M8x40 / ⬆ M8x50 mm
Material of screw	StSt
Clamping range of supporting tube	40-50 mm

Single Parts for DEHNiso Combi Sets

Fixing Equipment for Use at Railings

For pipes

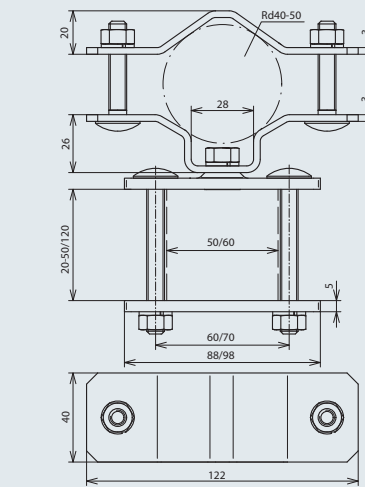
Part No.	105 355
Material	StSt
Clamping range Ø pipe	70-90 mm (2 1/4-3")
Screw	⬆ M8x40 / ⬆ M8x70 mm
Material of screw	StSt
Clamping range of supporting tube	40-50 mm



Fixing Equipment for Use at Railings

For square hollow profiles

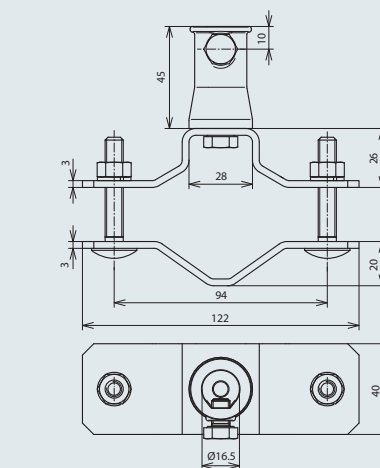
Part No.	105 356	105 376
Material	StSt	StSt
Clamping range of square profile	20x20 to 50x50 mm	60x120 mm
Screw	⬆ M8x40 / ⬆ M8x70 mm	⬆ M8x40 / ⬆ M8x150 mm
Material of screw	StSt	StSt
Clamping range of supporting tube	40-50 mm	40-50 mm



Pipe Bracket

With fixing bush for spacer (Ø16 mm) for pipes up to Ø60 mm

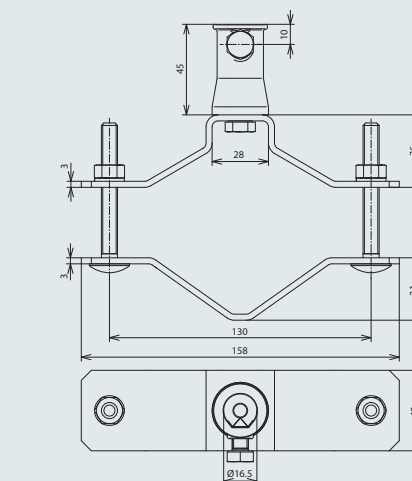
Part No.	106 352
Material of bracket	StSt
Clamping range Ø pipe	40-60 mm (1 1/4-2")
Material of bush	ZDC
Screw	⬆ M8x50 / ⬆ M8x12 mm
Material of screw/nut	StSt



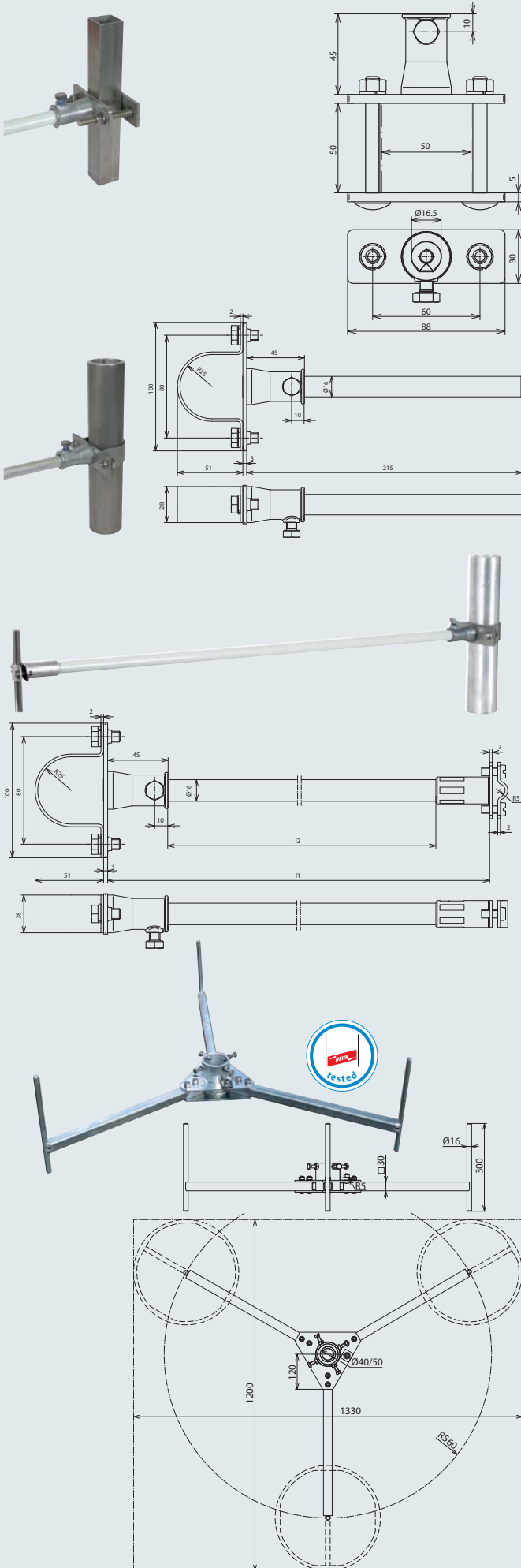
Pipe Bracket

With fixing bush for spacer (Ø16 mm) for pipes up to Ø90 mm

Part No.	106 353
Material of bracket	StSt
Clamping range Ø pipe	70-90 mm (2 1/4-3")
Material of bush	ZDC
Screw	⬆ M8x70 / ⬆ M8x12 mm
Material of screw/nut	StSt



Single Parts for DEHNiso Combi Sets



Fixing Equipment for Use at Railings

For square hollow profiles with bush for spacer bar (Ø16 mm)

Part No.	106 312
Material	ZDC / StSt
Clamping range of square profile	20x20 to 50x50 mm
Screw	⬆ M8x70 / ⬇ M8x12 mm
Material of screw	StSt

Fixing Equipment for Use at Railings

Clamp for supporting tube with spacer bar (Ø16 mm, length 200 mm), for fixing the supporting tubes e.g. at protrusions

Part No.	106 121
Material	StSt
Screw	⬇ M8x16 mm
Material of screw	StSt
Clamping range of supporting tube	50 mm
Material of fixing bush	ZDC

Spacer for Supporting Tubes

For fixing the conductors at the supporting tube and for keeping the separation distance according to IEC/EN 62305

Part No.	106 328	106 331
Material of spacer	GRP	GRP
Material of fixing element	StSt	StSt
Material of conductor holder	StSt	StSt
Conductor holder support Rd	7-10 mm	7-10 mm
Height of conductor holder	20 mm	20 mm
Total length (l1)	690 mm	1030 mm
Insulating clearance (l2)	605 mm	945 mm
Clamping range of supporting tube	50 mm	50 mm
Permanent temperature range	-50 up to +100 °C	-50 to +100 °C

Tripod for DEHNiso Combi

For self-supporting erection of supporting tubes or air-termination rods D40 with a length of 3200 mm (e.g. Part No. 105 300 or 105 440), without additional fixing at construction elements

Adjustable to the roof inclination up to max. 10°

Connection with double cleat for 2x Rd 8-10 mm [lightning current carrying capability 100 kA (10/350 µs)]

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

Hinged for transport

Part No.	105 200
Material of tripod	St/tZn
Support	40/50 mm
Quantity of concrete blocks	6/9 blocks 17 kg each
Radius	560 mm
Space required for tripod	1180x1320 mm
Standard	EN 50164-1

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.

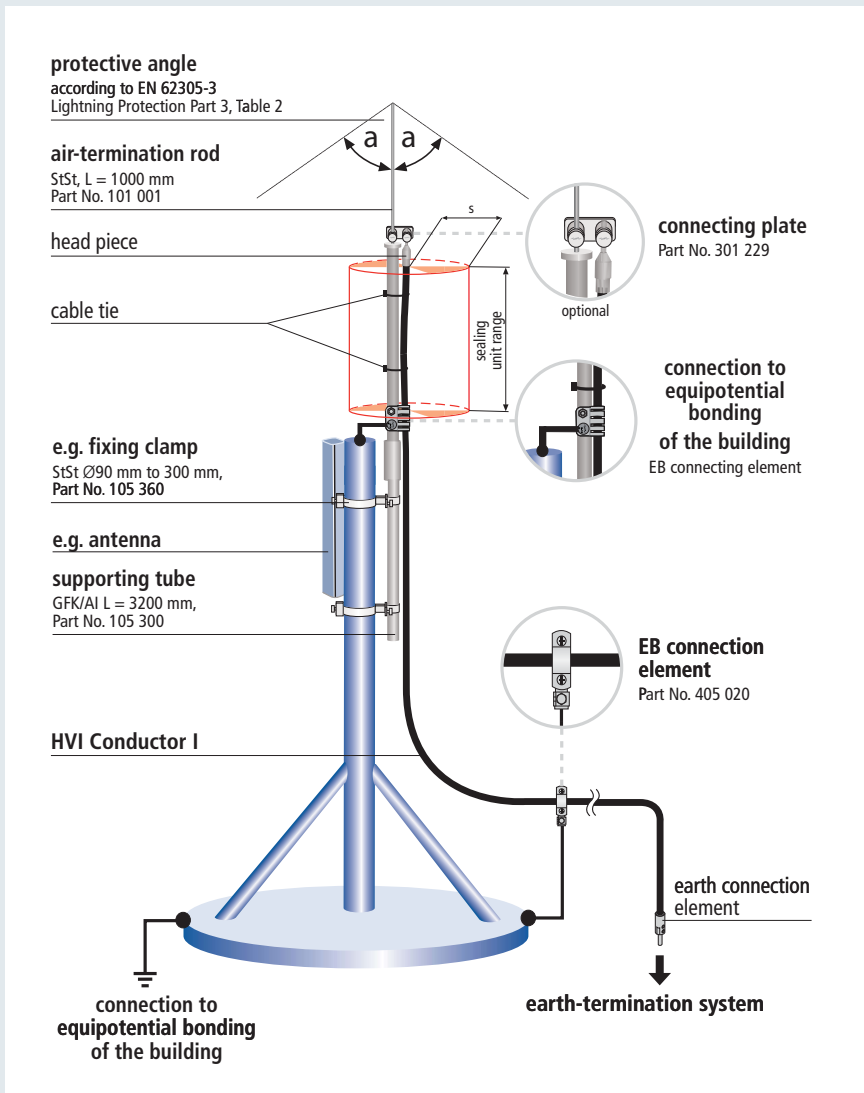
Function of the HVI Conductor:

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:

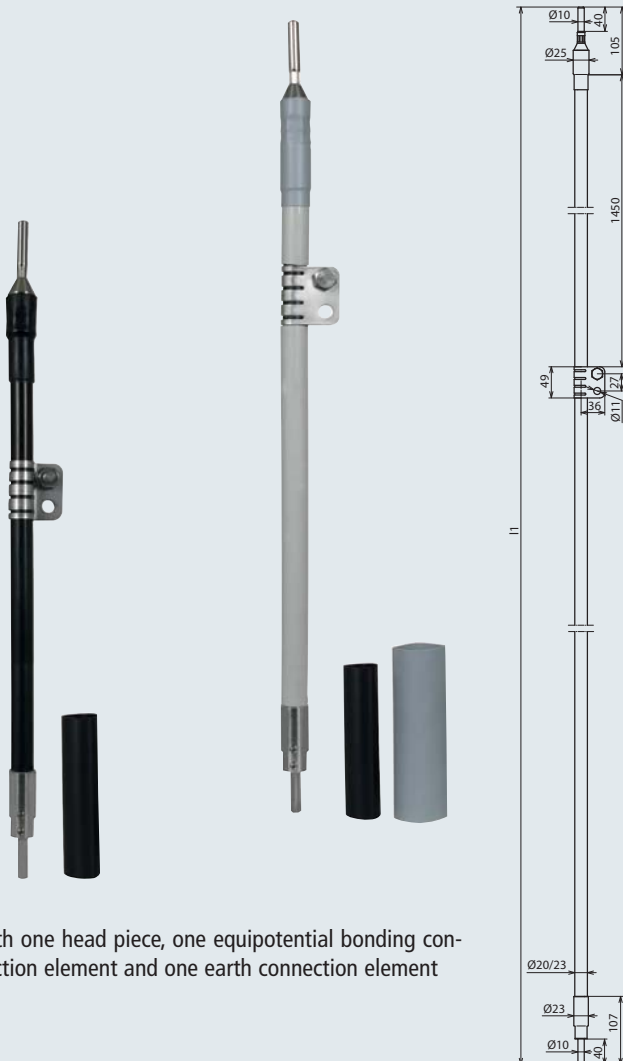
HVI Conductor I is for use to connect the air-termination system of the external lightning protection directly to the earth-termination system of the building.

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.

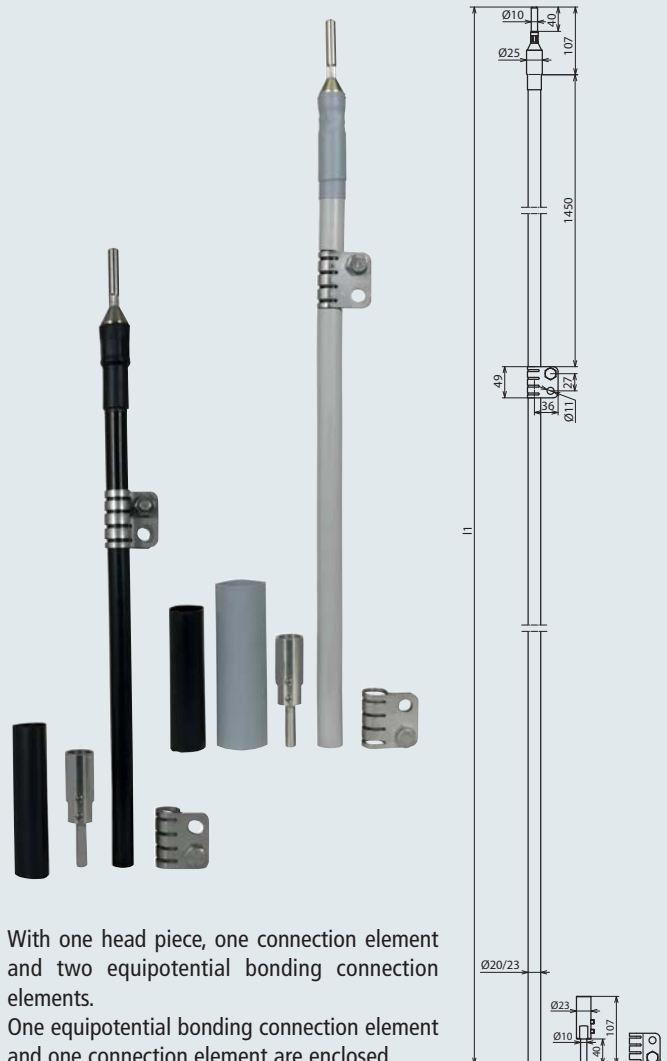
HVI Conductor I



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).

The HVI long 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 up to +70 °C are to be minded.

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



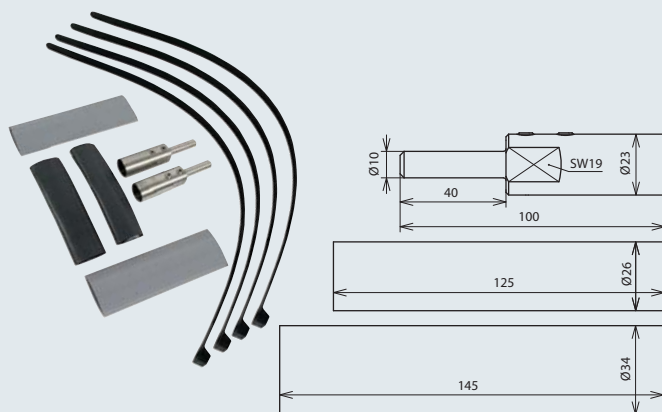
The HVI long Conductor for on-site assembly will be delivered in a length of 100 m on a disposable plywood reel (diameter approx. 800 mm, width approx. 485 mm) including one Allen key.

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

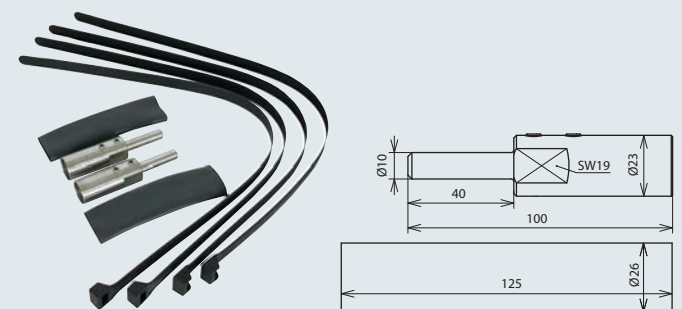
Connection Kit for HVI®long Conductor Ø23 mm



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

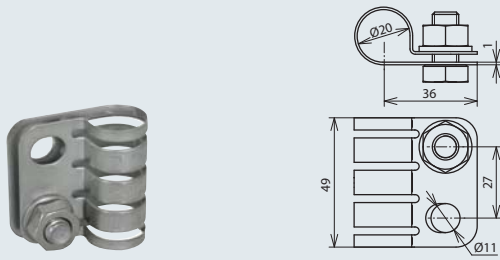
Connection Kit for HVI®long Conductor Ø20 mm



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

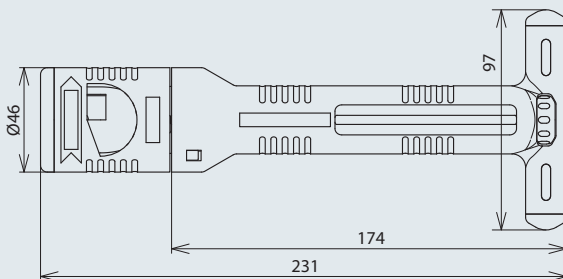
Stripping Tool for HVI® Conductors

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



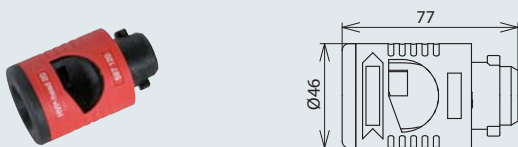
Handling

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

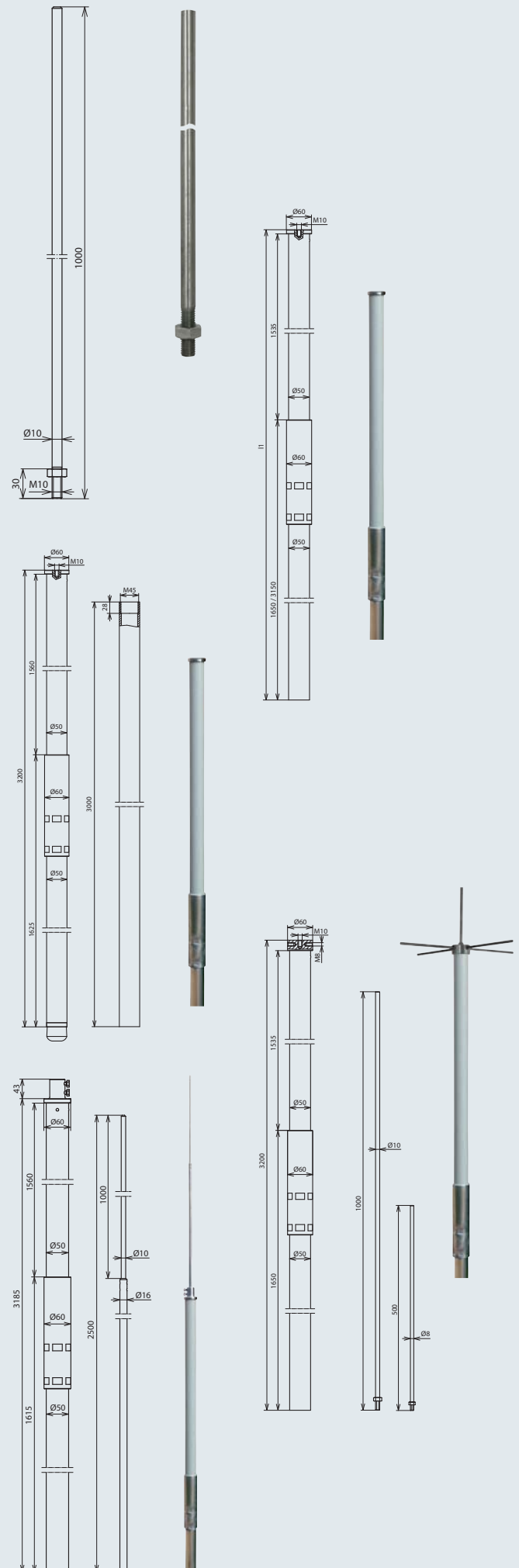
One-piece, with Al air-termination rod Ø10 mm, length 1000 mm and lateral/horizontal StSt air-termination rods Ø8 mm, length 500 mm

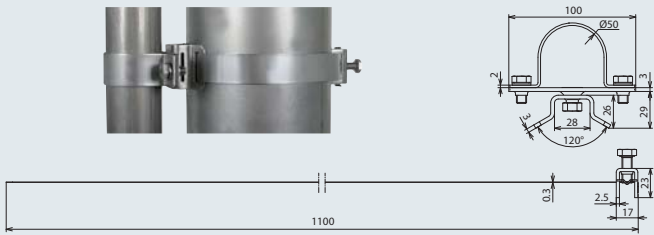
Part No.	105 310
Material of supporting tube	GRP / Al
Length of supporting tube	3200 mm
Outer diameter	50 mm
Transport length	3200 mm
Length of insulating clearance	1535 mm
Permanent temperature range	-50 to +100 °C

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

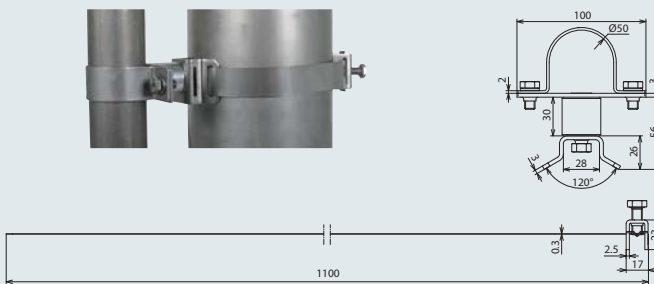




Fixing Clamp with Tensioning Strap

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

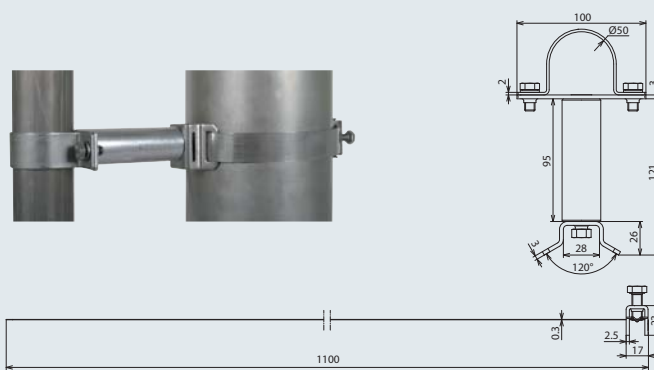
Part No.	105 360
Material of clip	StSt
Clamping range of supporting tube	50 mm
Clamping range pipe Ø	50-300 mm
Material of tensioning strap	StSt
Material of screw	StSt
Dimension of strap (w x d)	25x0.3 mm



Fixing Clamp with Tensioning Strap

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

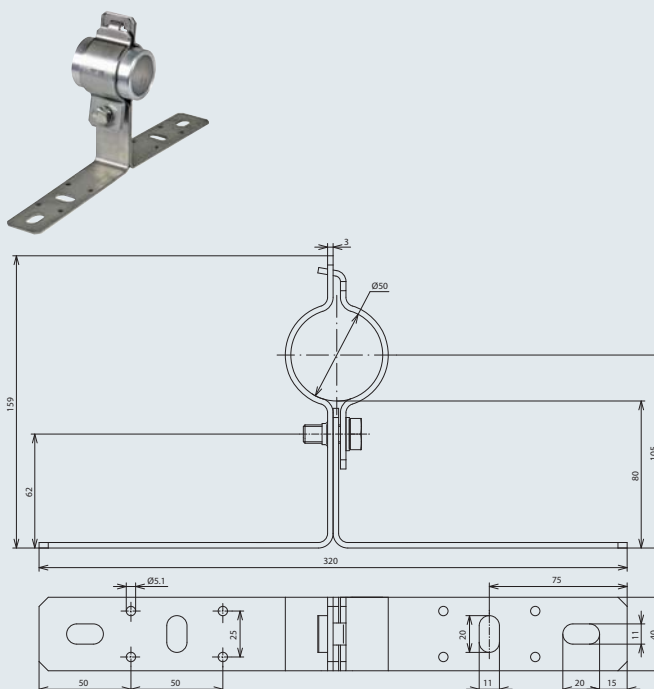
Part No.	105 361
Material of clip	StSt
Clamping range of supporting tube	50 mm
Clamping range pipe Ø	50-300 mm
Material of tensioning strap	StSt
Material of screw	StSt
Length of spacer	30 mm
Material of spacer	Al
Dimension of strap (w x d)	25x0.3 mm



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

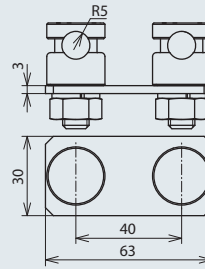
For fixing the supporting tubes at the structure to be protected or at the wall

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

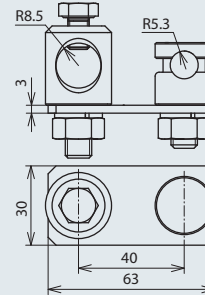
Part No.	301 229
Material of terminal plate	StSt
Material of KS connector	StSt
Clamping range Rd	2x 6-10 mm
Type	with spring washer
Dimension (l x w x d)	63x30x3 mm
Standard	EN 50164-1



Terminal Plate

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

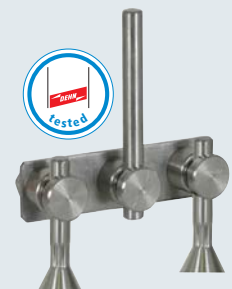
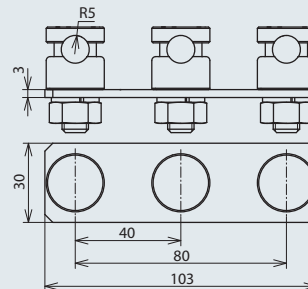
Part No.	301 239
Material of terminal plate	StSt
Material of KS connector	StSt
Clamping range Rd	1x 16 / 1x 6-10 mm
Type	with spring washer
Dimension (l x w x d)	63x30x3 mm
Standard	EN 50164-1



Terminal Plate

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

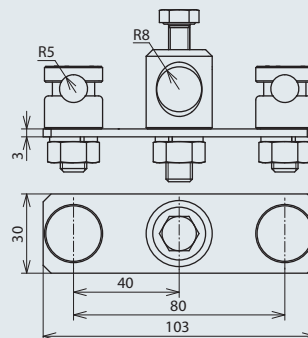
Part No.	301 329
Material of terminal plate	StSt
Material of KS connector	StSt
Clamping range Rd	3x 6-10 mm
Type	with spring washer
Dimension (l x w x d)	103x30x3 mm



Terminal Plate

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

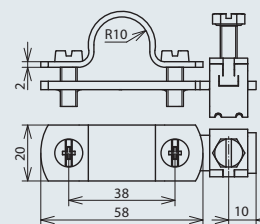
Part No.	301 339
Material of terminal plate	StSt
Material of KS connector	StSt
Clamping range Rd	1x 16 / 2x 6-10 mm
Type	with spring washer
Dimension (l x w x d)	103x30x3 mm
Standard	EN 50164-1

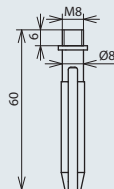
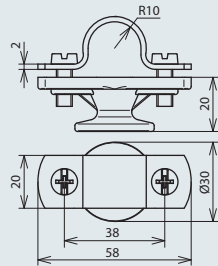
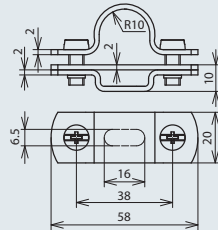
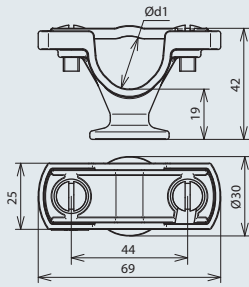


EB Clamp

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 mm ²
Material of cleat	StSt
Type of screw	⚙ M6x16 mm / ⚙ 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	M8	M8
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

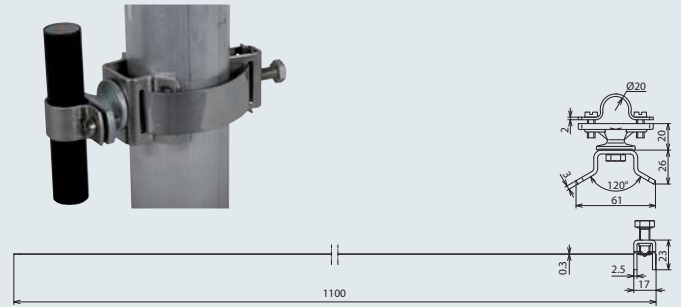
Part No.	275 330	275 333
Material of conductor holder	PA	PA
Conductor holder support Rd	20 mm	23 mm
Tensioning range Ø pipe	50-300 mm	50-300 mm
Screw	M6x16 mm	M6x16 mm
Material of screw	StSt	StSt



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

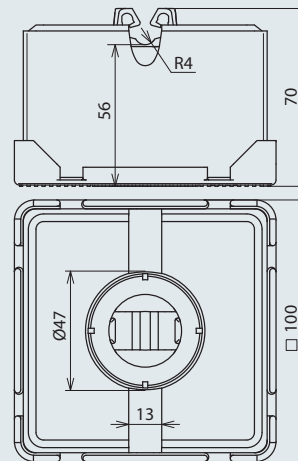


Roof Conductor Holder for Flat Roofs

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

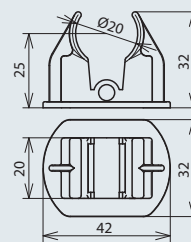


Adapter for HVI Conductor Installation on Flat Roofs

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

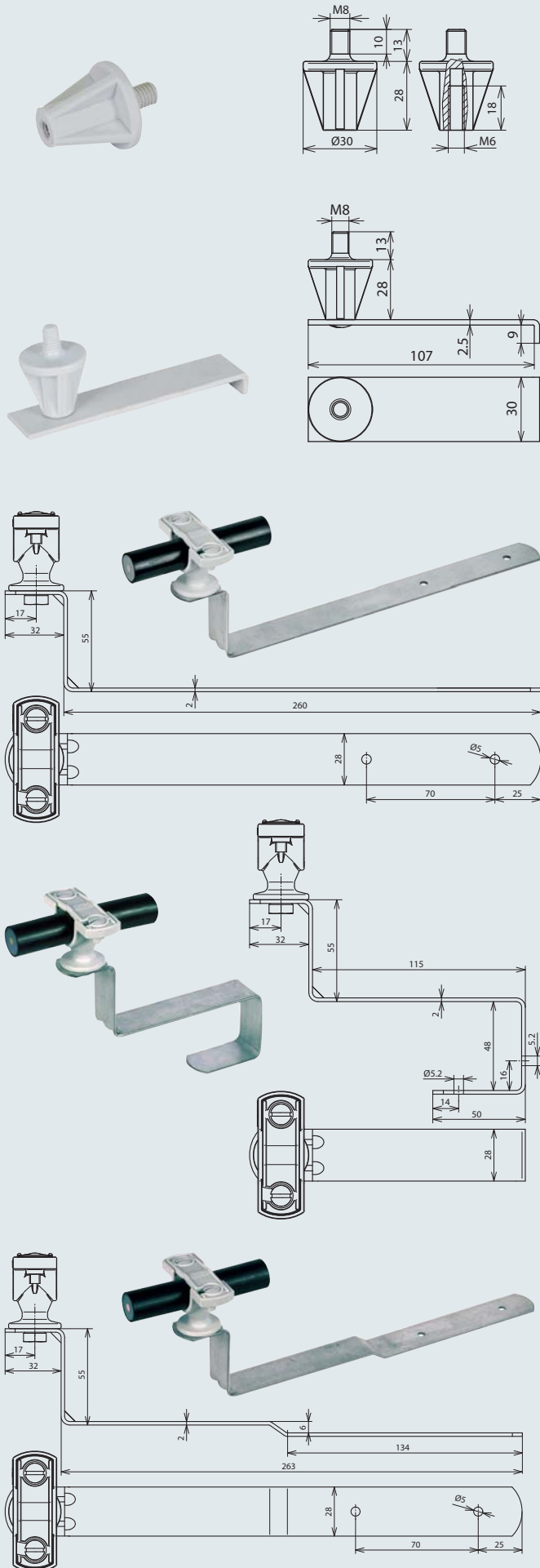
For installing the HVI conductor on the surface of gable roofs

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

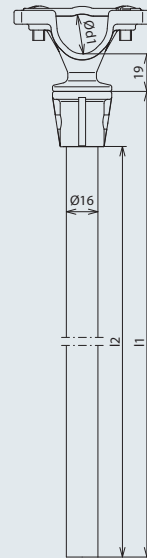
Part No.	202 832	202 842
Material of roof conductor holder	St/tZn	St/tZn
Material of conductor holder	PA	PA
Conductor leading	fixed	fixed
Conductor holder support Rd	20 mm	23 mm
Height of brace	55 mm	55 mm
Length of brace	260 mm	260 mm
Fixing	[2x] Ø5 mm	[2x] Ø5 mm



Spacer for HVI Conductor

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

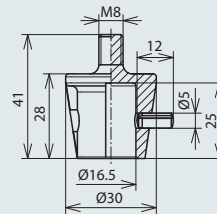
Part No.	106 852	106 812	106 813
Material of spacer	GRP	GRP	GRP
Material of conductor holder/adapter	PA	PA	PA
Length (l1)	500 mm	1000 mm	1000 mm
Insulating clearance (l2)	475 mm	975 mm	975 mm
Conductor holder support Rd	20 mm	20 mm	23 mm
Conductor leading	fixed	fixed	fixed
Thread	M8	M8	M8
Screw / grooved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

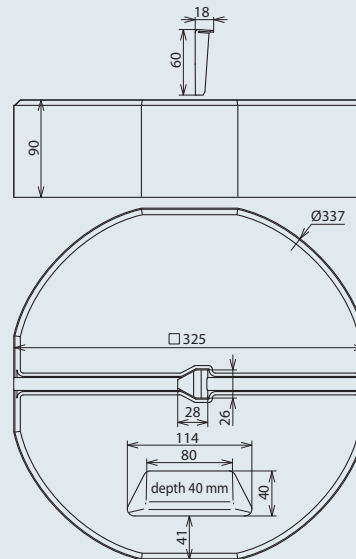
Part No.	106 899
Material of conductor holder/adapter	plastic
Length	28 mm
Thread	M8
Screw / grooved pin	cylindrical pin 5 mm



Concrete Base

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

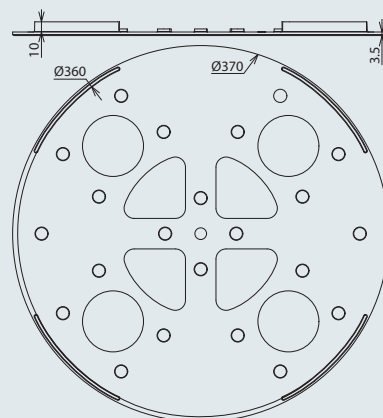
Part No.	102 010
Weight	17 kg
Support	wedge mounting Ø16 mm
Diameter	337 mm
Material	concrete (C45/55)
Material of wedge/adapter	StSt

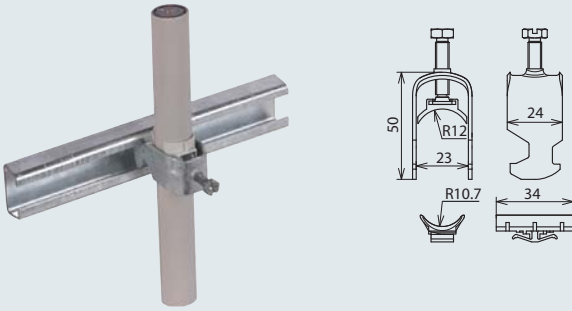


Support Plate

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

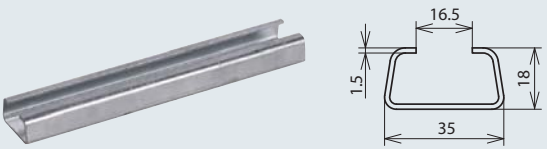




Bolt Clamp

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

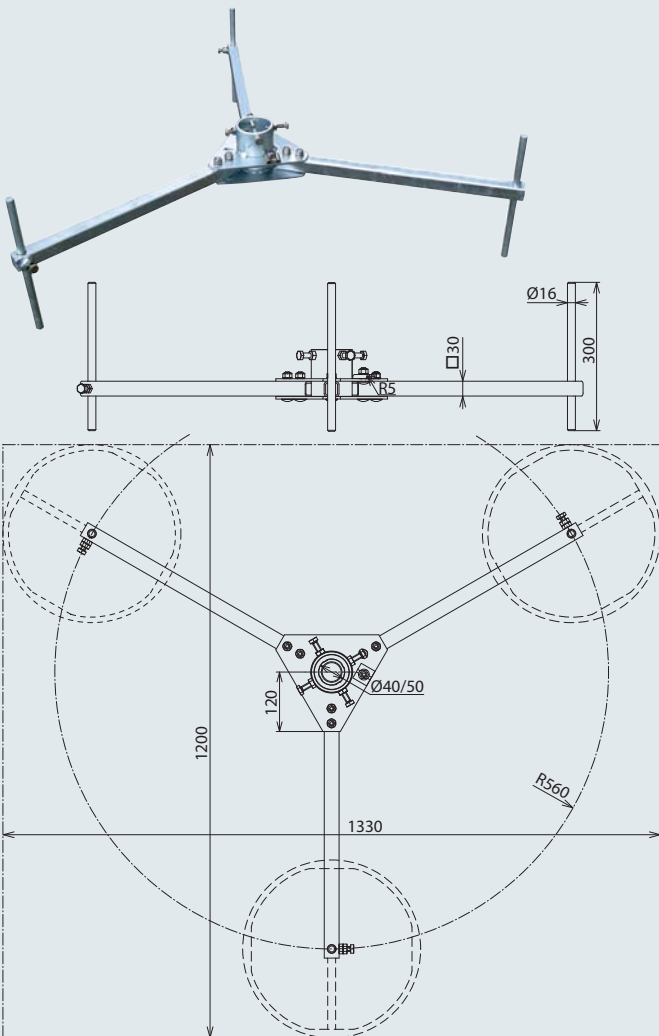
Part No.	275 520
Material of conductor holder	St/tZn-P
Conductor holder support Rd	20/23 mm
Screw	M6x25 mm
Material of screw	St/tZn



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

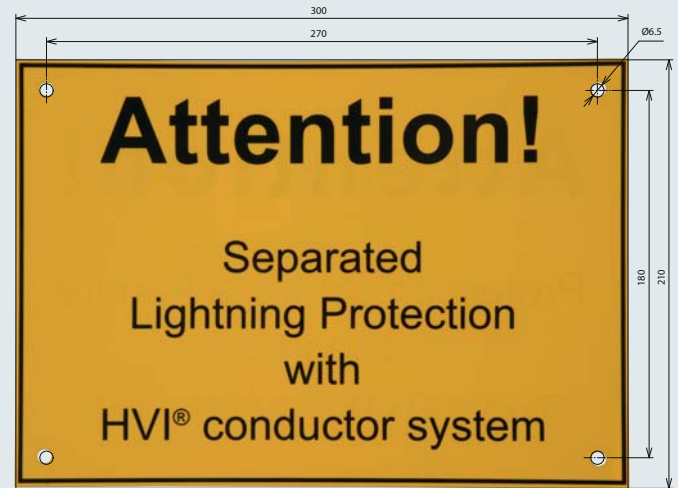
Sign**Front in English**

"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



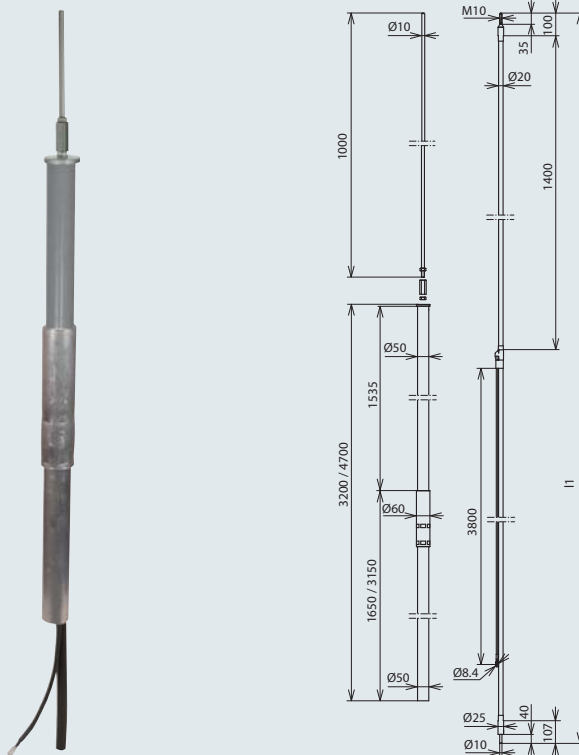


Optically adjusted interior laying of the HVI Conductor in the supporting tube with little wind exposed surface

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.

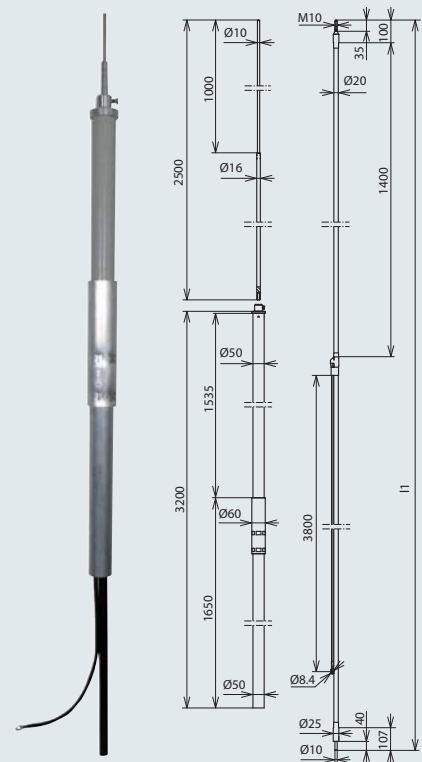
HVI Conductor I in supporting tube with air-termination rod



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

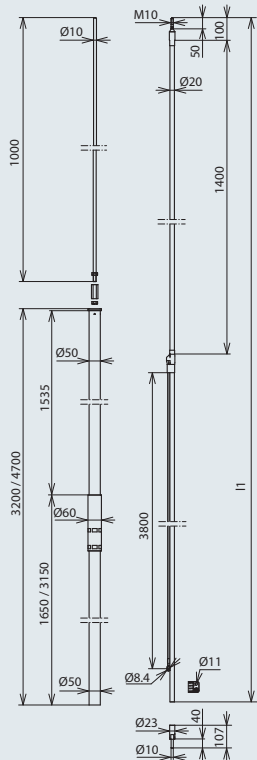
HVI Conductor I in supporting tube with air-termination rod



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

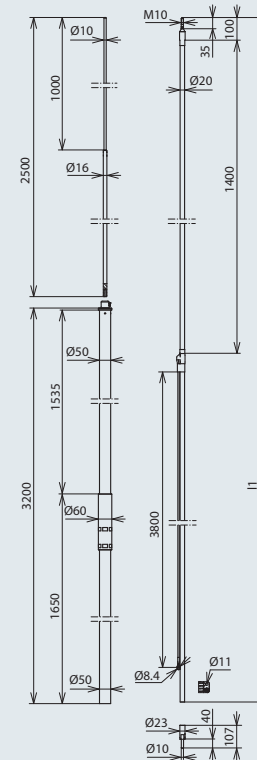
HVI Conductor III in supporting tube with air-termination rod



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 $\varnothing 50$ mm (metal pole) and with the HVI Conductor of $\varnothing 20$ mm (copper conductor $\varnothing 5$ 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.

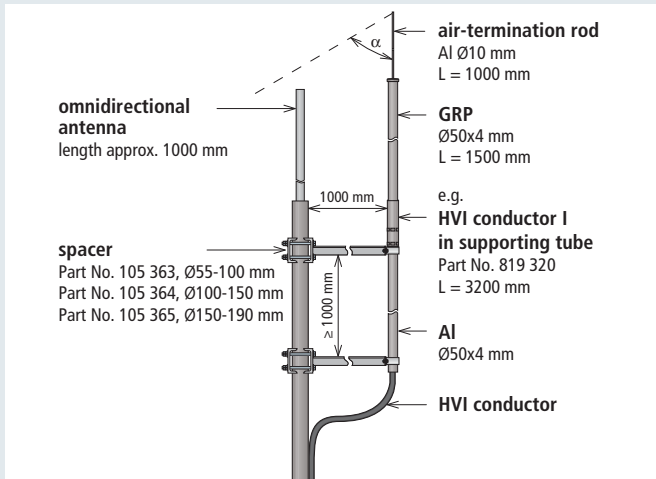


Figure 1: Exemplary design for an omnidirectional antenna length 1000 mm

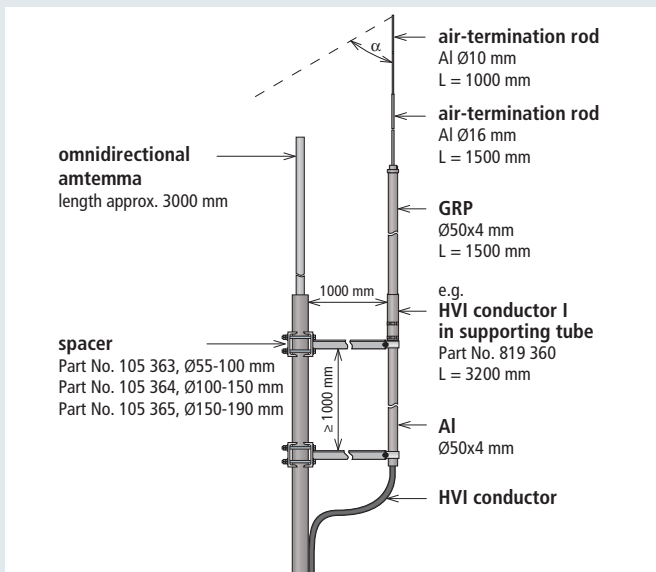
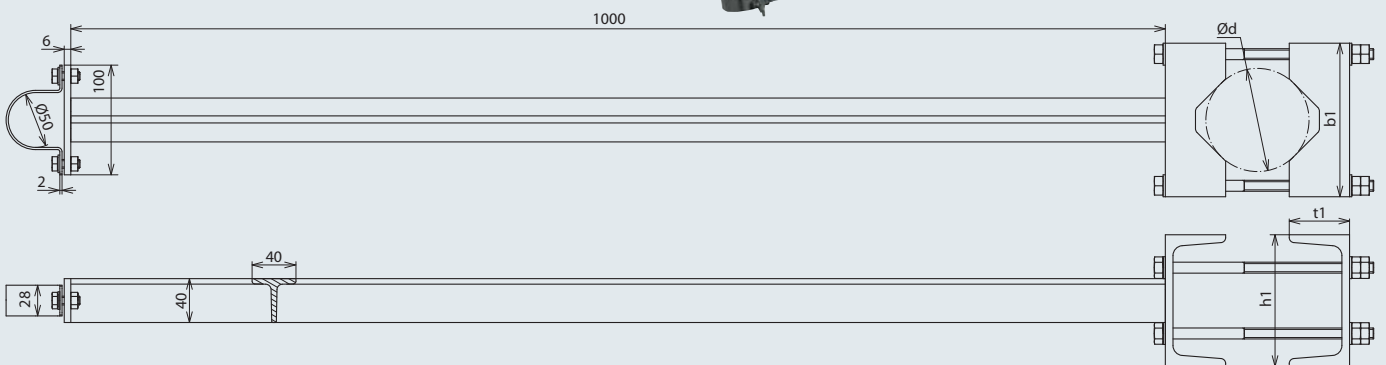


Figure 2: Exemplary design for an omnidirectional antenna, length 3000 mm

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	☛ M10x192/M8x20 mm	☛ M10x242/M8x20 mm	☛ M10x292/M8x20 mm
Material of screw	StSt	StSt	StSt
Dimension (w1 x h1 x d1)	140x120x55 mm	190x140x60 mm	230x180x70 mm

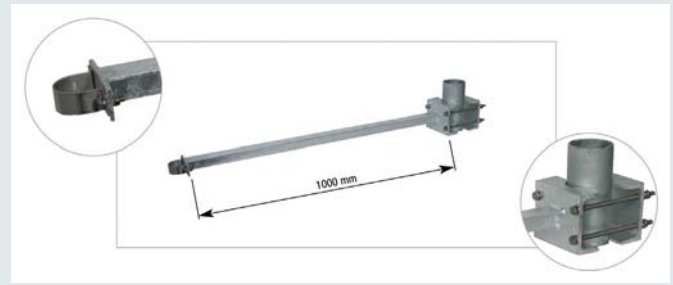


Figure 3: Spacer – detail view

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

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

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

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.

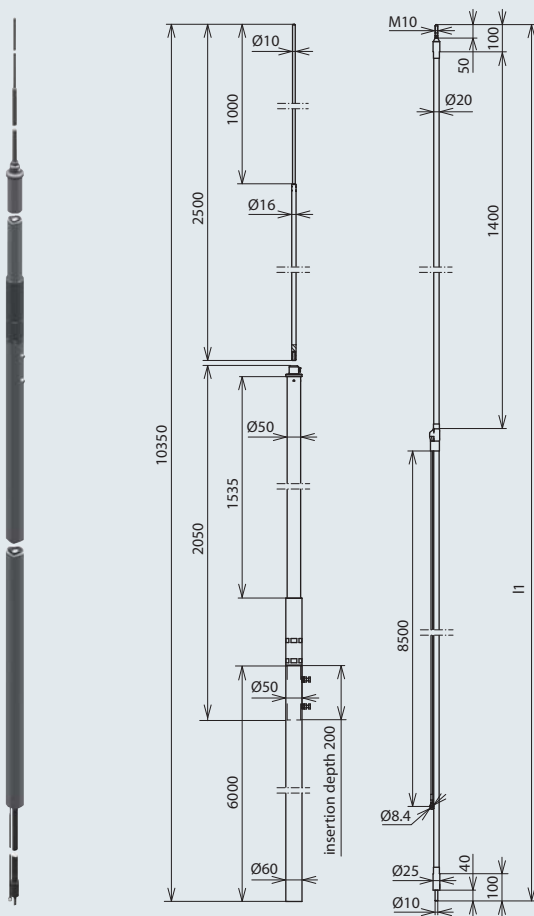
Fixing has to be performed with 3 variable supports (Part No. 105 345).

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

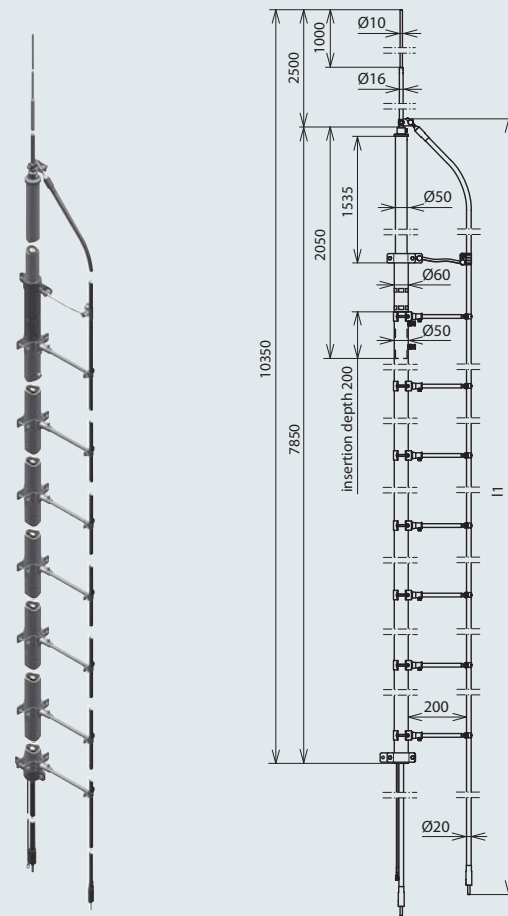
With one HVI Conductor I



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 (I1)	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 (I1)	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

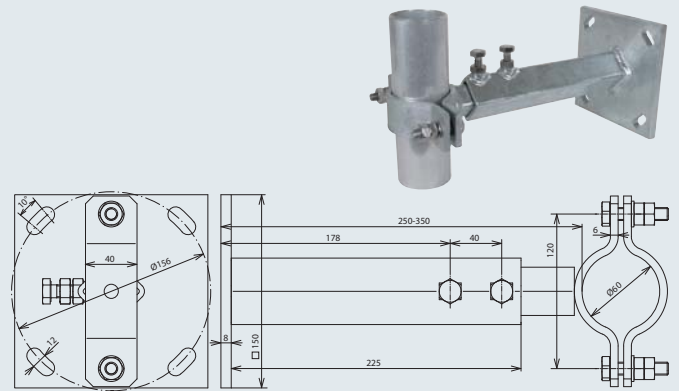
Accessory for Air-termination Masts with HVI® Conductor

Variable Support for Air-termination Masts

Three supports per air-termination mast are to be mounted

Clamping range of air-termination mast $\varnothing 60$ 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 \varnothing	[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.

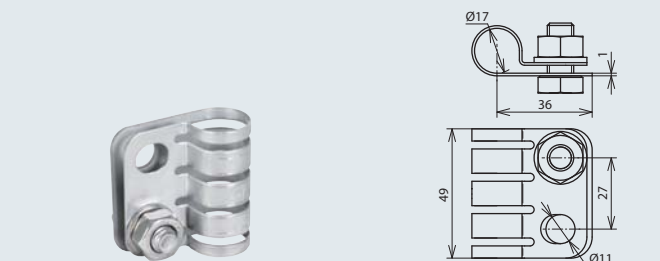
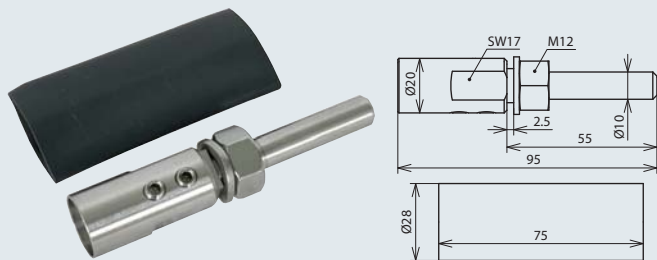
The HVI light Conductor is a supplement to our proven HVI Conductor. Due to the defined coupling point, e.g. at the tripod, an equipotential bonding (functional earth conductor) is not necessary. Thus installation is easier and considerably time-saving.

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.

Accessories for HVI®light Conductor



- 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 mm ²
Outer Ø conductor	20 mm

More details in installation instructions No. 1637.

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

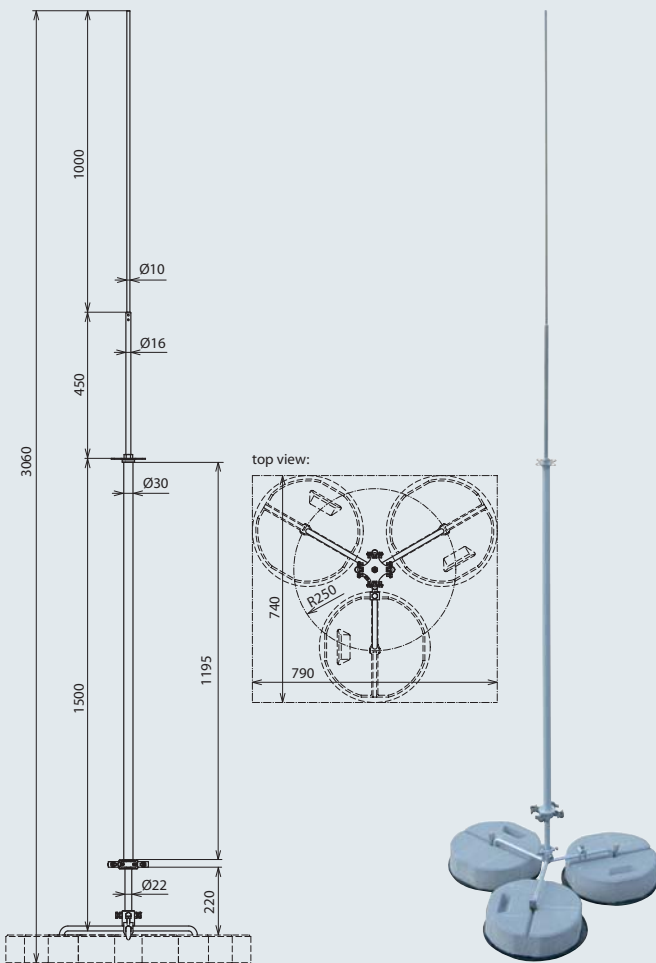
Air-termination mast Part No. 819 280, total height 2900 mm and Part No. 819 281, total height 2600 mm with three concrete bases (weight 17 kg) provides stability for wind velocities up to 162 km/h (wind load zone III).

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).

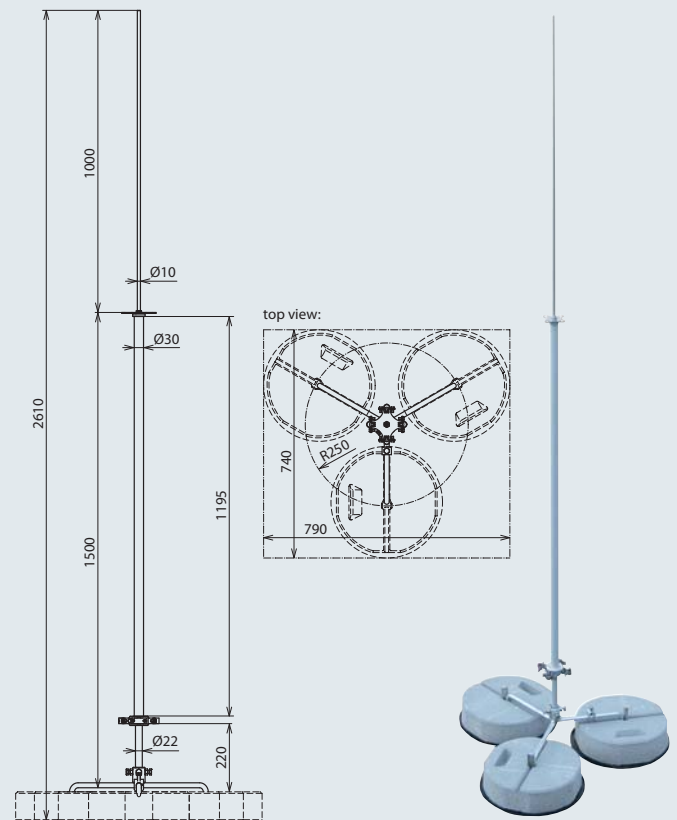


Air-termination mast 30 for HVI light Conductor KIT II
3100 mm total height



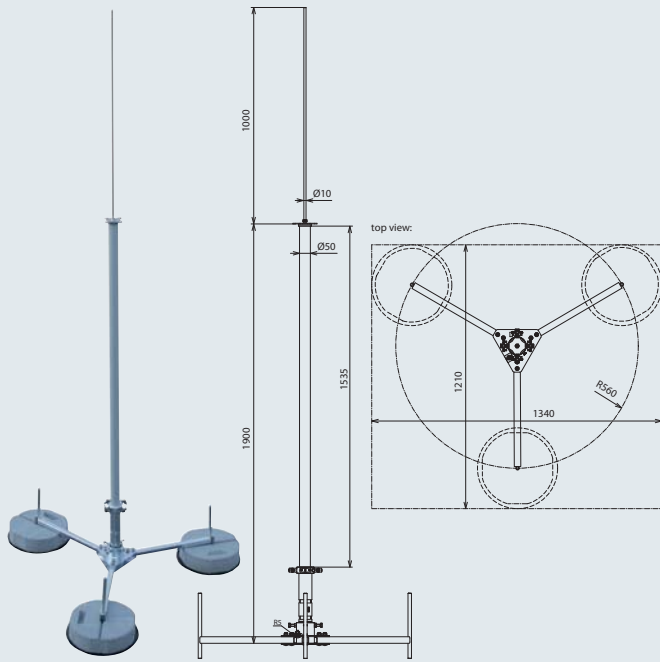
Part No.	819 286
Material of tripod	St/tZn
Radius	250 mm
Material of supporting tube	GRP / Al
Length of supporting tube	1500 mm
Insulating clearance	1195 mm
Female thread	M16
Length of air-termination rod	1500 mm
Material of air-termination rod	Al

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



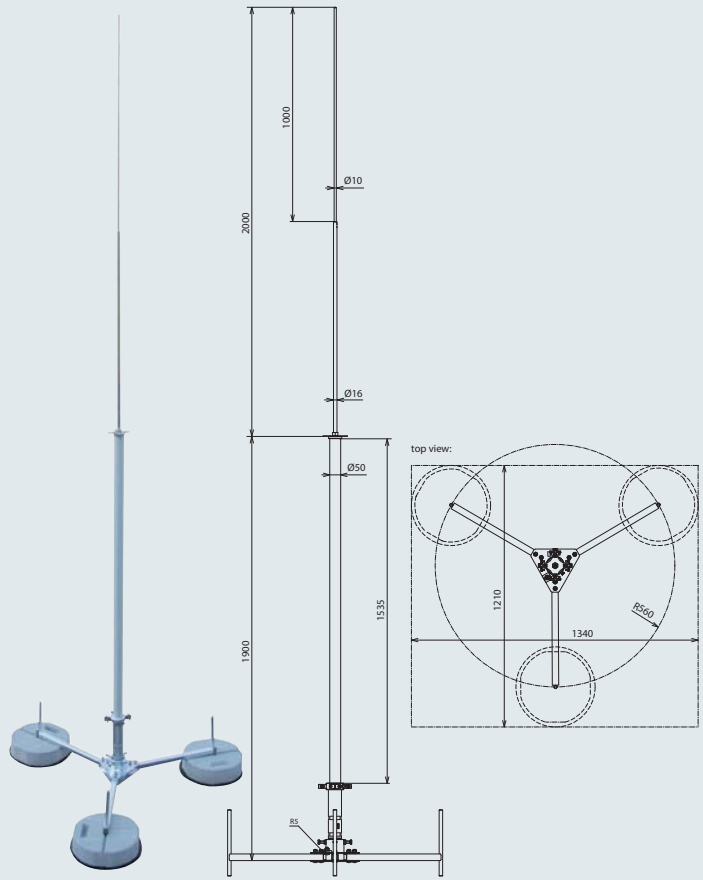
Part No.	819 281
Material of tripod	St/tZn
Radius	250 mm
Material of supporting tube	GRP / Al
Length of supporting tube	1500 mm
Insulating clearance	1195 mm
Female thread	M10
Length of air-termination rod	1000 mm
Material of air-termination rod	StSt

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



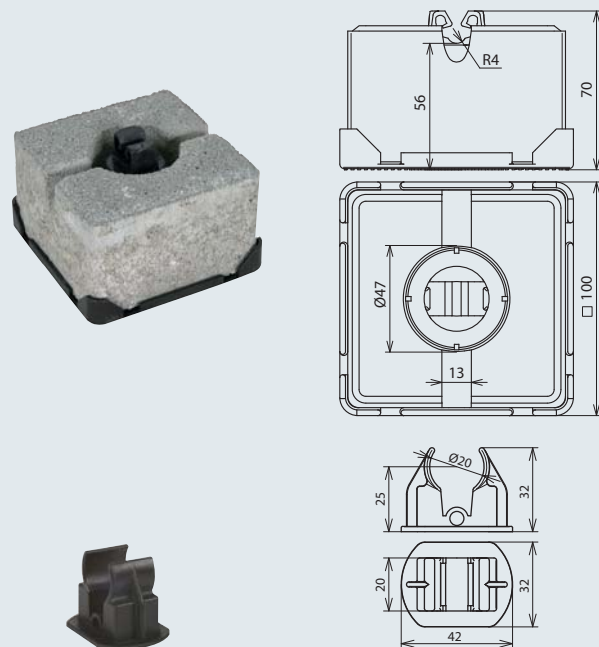
Part No.	819 280
Material of tripod	St/tZn
Radius	560 mm
Material of supporting tube	GRP / Al
Length of supporting tube	1900 mm
Insulating clearance	1535 mm
Female thread	M10
Length of air-termination rod	1000 mm
Material of air-termination rod	StSt

**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

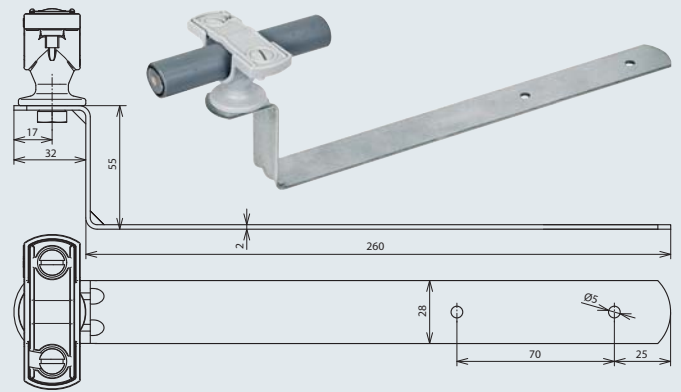
With roof conductor holder Type FB (Part No. 253 015)
For snapping on

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

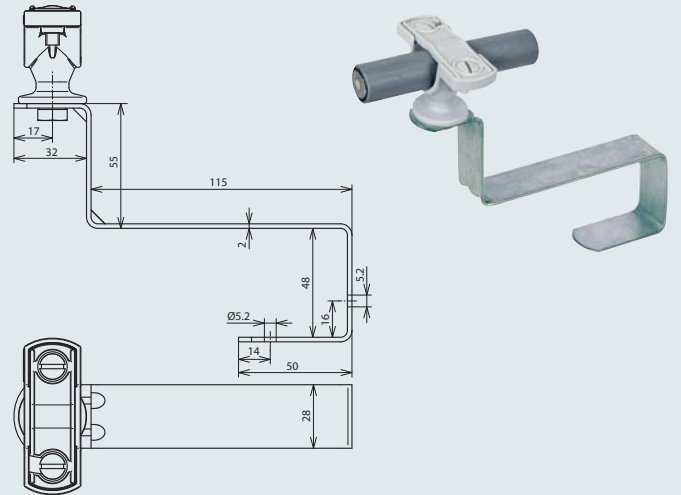
Part No.	202 831
Material of roof conductor holder	St/tZn
Material of conductor holder	PA
Conductor leading	fixed
Conductor holder support Rd	20 mm
Height of brace	55 mm
Length of brace	260 mm
Fixing	[2x] Ø5 mm



Roof Conductor Holder with Cranked Brace for HVI Conductor

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

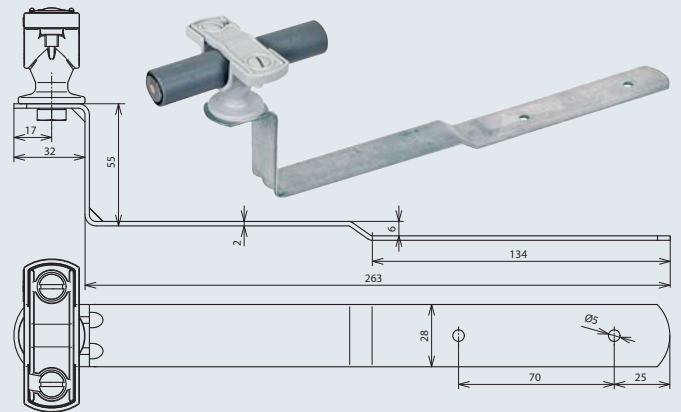
Part No.	202 830
Material of roof conductor holder	St/tZn
Material of conductor holder	PA
Conductor leading	fixed
Conductor holder support Rd	20 mm
Height of brace	55 mm
Length of brace	115 mm
Fixing	[2x] Ø5.2 mm



Roof Conductor Holder with Cranked Brace for HVI Conductor

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

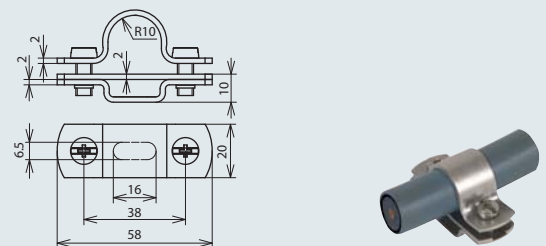
Part No.	202 832
Material of roof conductor holder	St/tZn
Material of conductor holder	PA
Conductor leading	fixed
Conductor holder support Rd	20 mm
Height of brace	55 mm
Length of brace	260 mm
Fixing	[2x] Ø5 mm



Conductor Holder for HVI Conductor

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

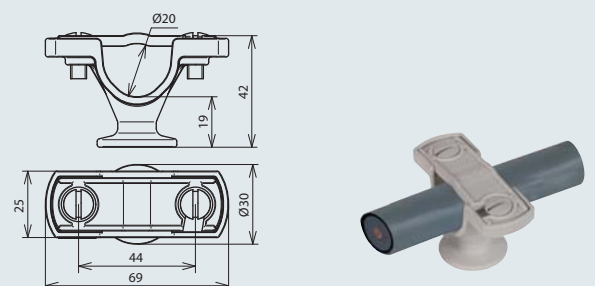
Part No.	275 229
Material of conductor holder	StSt
Conductor holder support Rd	20 mm
Fixing bore	6.5x16 mm
Screw	M6x14 mm



Conductor Holder for HVI Conductor

For wall mounting and for mounting in the sealing end range

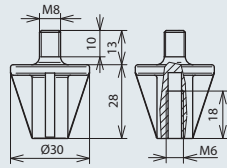
Part No.	275 220
Material of conductor holder	PA
Conductor holder support Rd	20 mm
Female thread	M8
Fixing bore	6.5 mm
Screw	M6x16 mm



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)

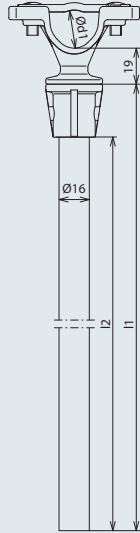
Part No.	106 898
Material	plastic
Thread	M8
Female thread	M6
Length	28 mm



Spacers for HVI light Conductor

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

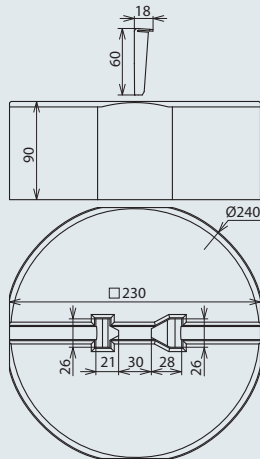
Part No.	106 852	106 812
Material of spacer	GRP	GRP
Material of conductor holder/adapter	PA	PA
Length (l1)	500 mm	1000 mm
Insulating clearance (l2)	475 mm	975 mm
Conductor holder support Rd	20 mm	20 mm
Conductor leading	fixed	fixed
Thread	M8	M8
Screw / grooved pin	🔩 M6x16	🔩 M6x16



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)

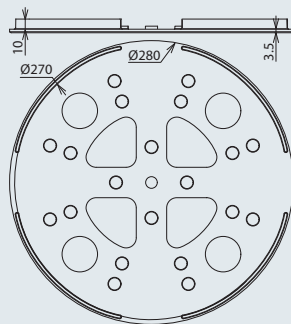
Part No.	102 075
Total weight	8.5 kg
Diameter	240 mm
Material	concrete (C45/55)
Material of wedge/adapter	StSt



Support Plate

For protecting the roofing sheets under the concrete base
For concrete bases (Part No. 102 075, 102 003)

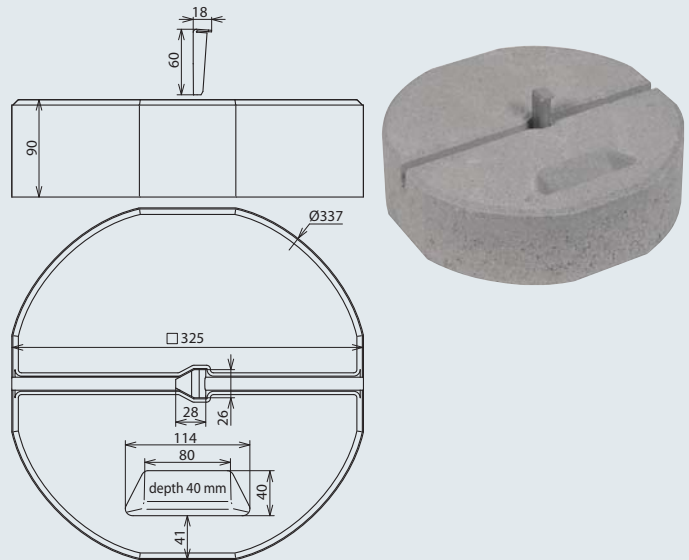
Part No.	102 060
Diameter outer	280 mm
Diameter inner	270 mm
Material	EVA
Colour	black



Concrete Base

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

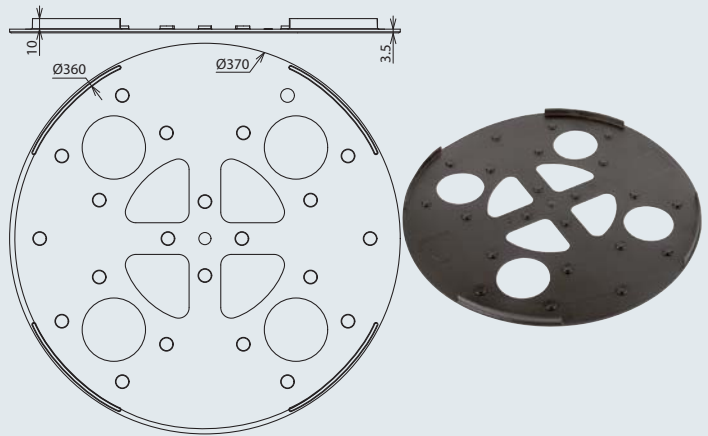
Part No.	102 010
Weight	17 kg
Support	wedge mounting Ø16 mm
Diameter	337 mm
Material	concrete (C45/55)
Material of wedge/adaptor	StSt

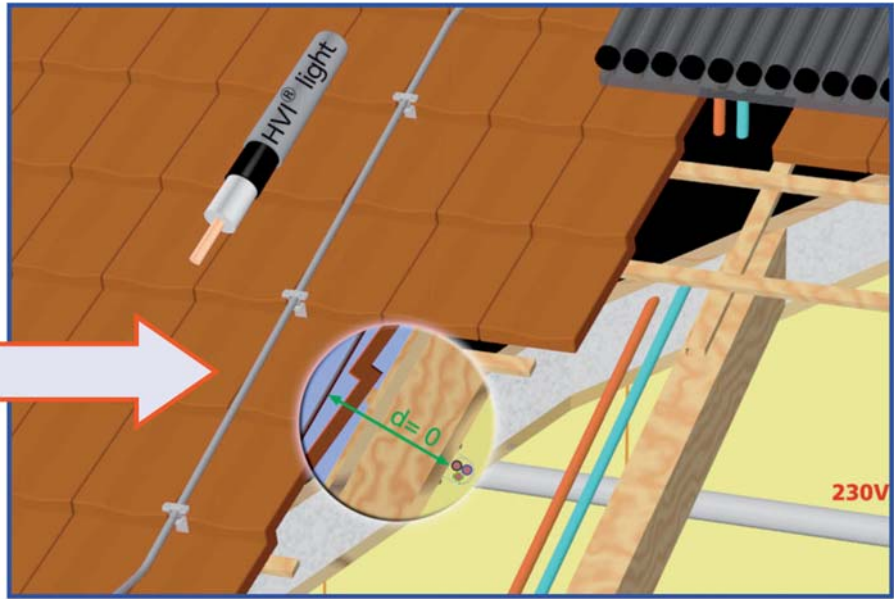


Support Plate

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.



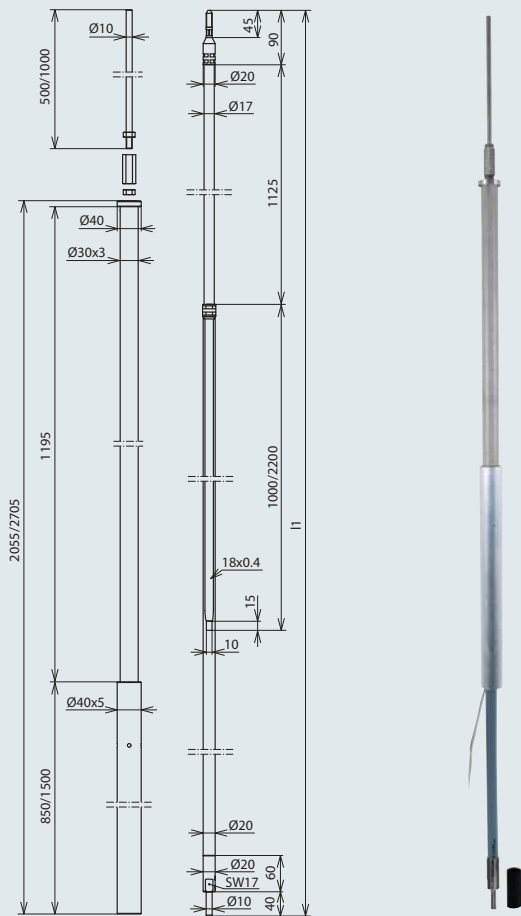
Detail – supporting tube with installed conductor

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).

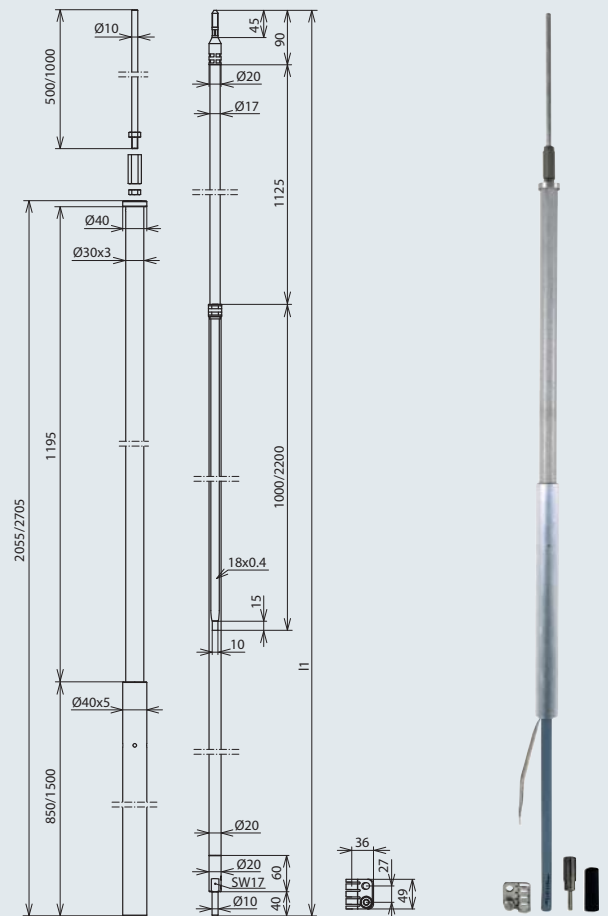
The entire structure is dimensioned for wind velocities up to 185 km/h (wind load zone IV).

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

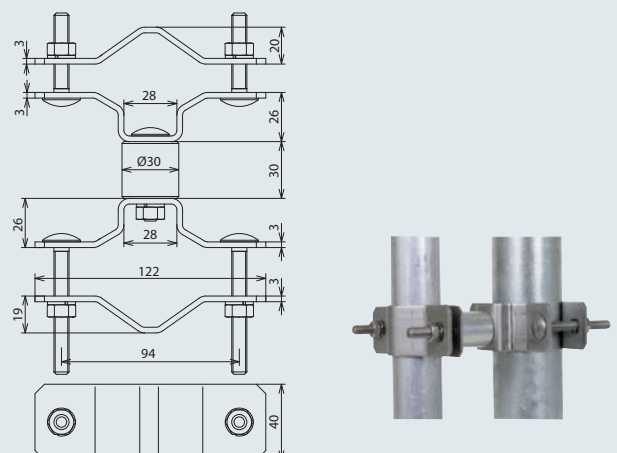
More details in installation instructions No. 1632.
 Due to the order-related production (customised conductor length) the conductor can not be taken back.

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



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-creat (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	M6x14 mm

Conductor Holder for HVI Conductor

For wall mounting and for mounting in the sealing end range

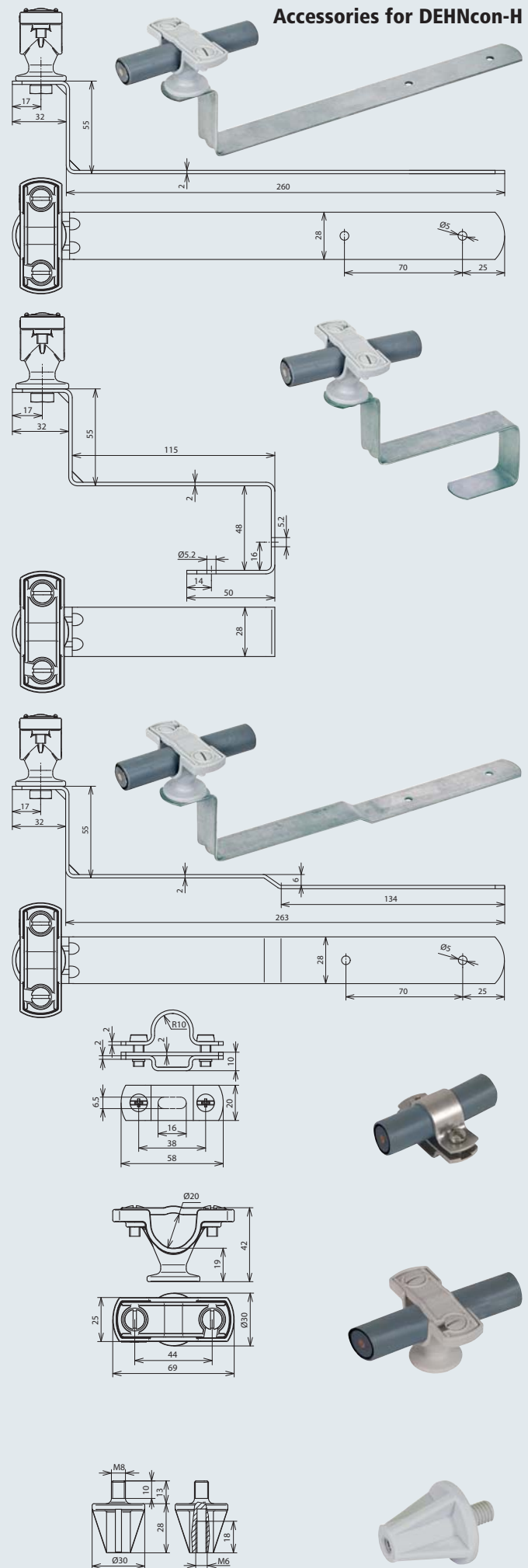
Part No.	275 220
Material of conductor holder	PA
Conductor holder support Rd	20 mm
Female thread	M8
Fixing bore	6.5 mm
Screw	M6x16 mm

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

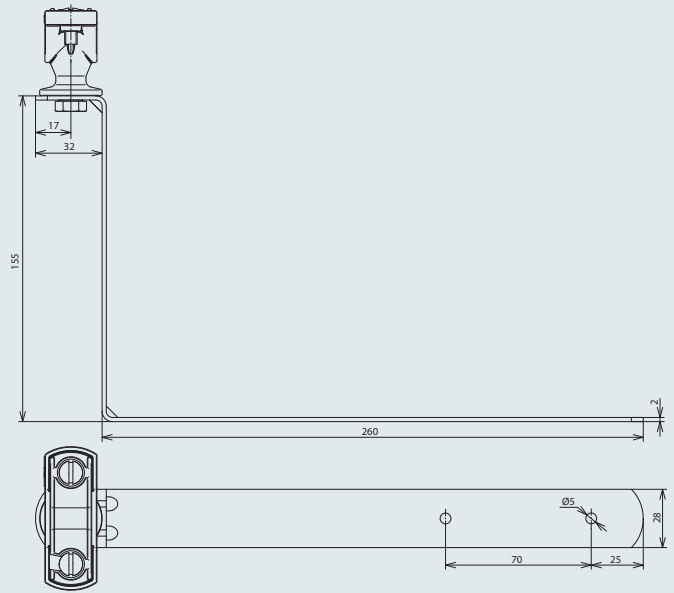


Roof conductor holder for fixing the HVI light conductor I at the end of the connection range (height: 175 mm), e.g. at the eaves of gable roofs

With straight brace



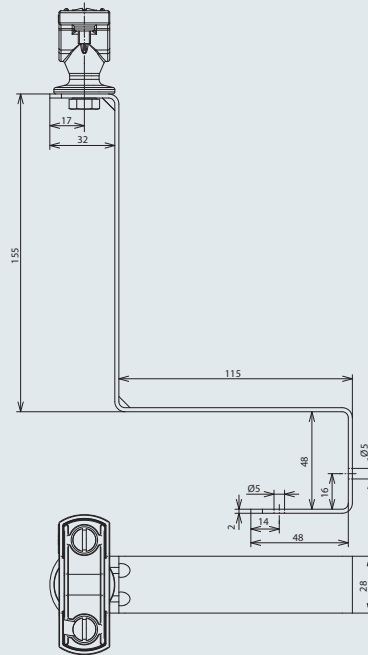
Part No.	202 836
Material of roof conductor holder	St/tZn
Material of conductor holder	PA
Conductor leading	fixed
Conductor holder support Rd	20 mm
Height of brace	155 mm
Length of brace	260 mm
Fixing	[2x] Ø5 mm



With angled brace



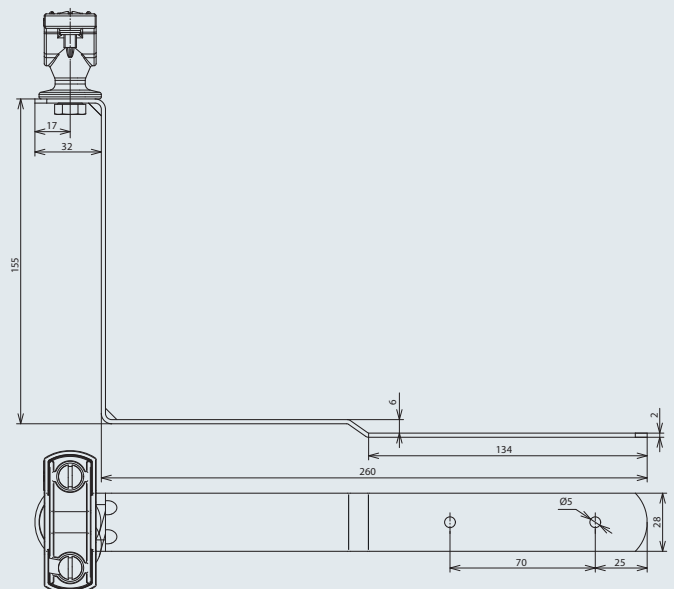
Part No.	202 835
Material of roof conductor holder	St/tZn
Material of conductor holder	PA
Conductor leading	fixed
Conductor holder support Rd	20 mm
Height of brace	155 mm
Length of brace	115 mm
Fixing	[2x] Ø5 mm



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)

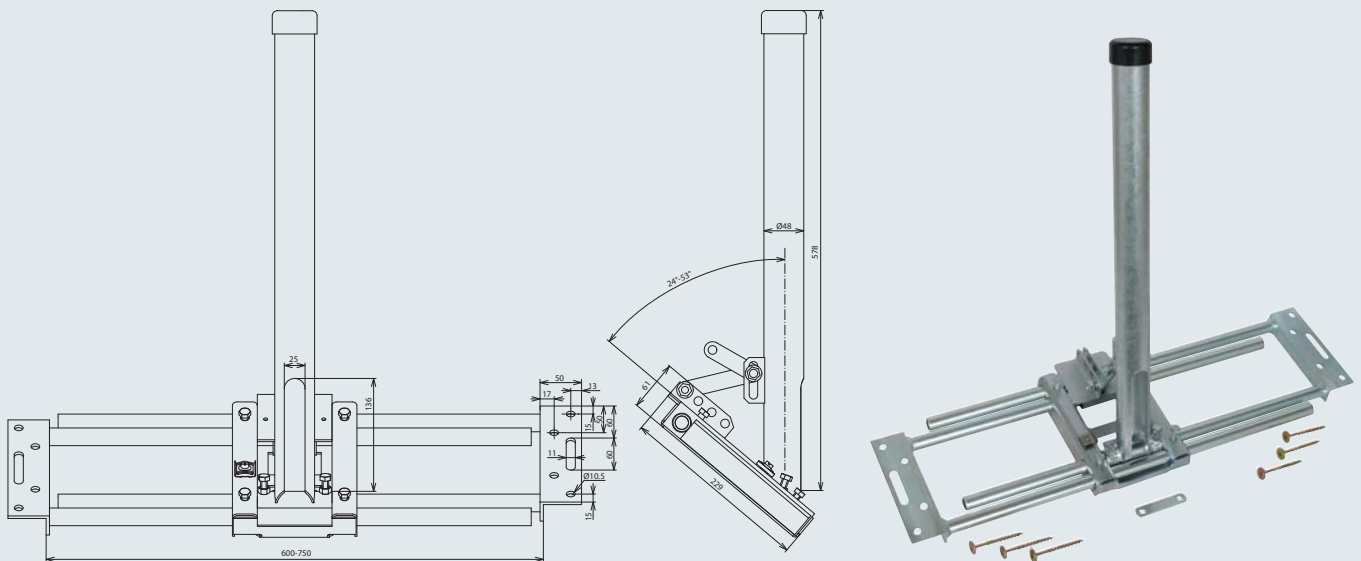
as well as to attach and fix the supporting tubes and for the sub-roof installation of the HVI conductor or HVI light conductor.

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

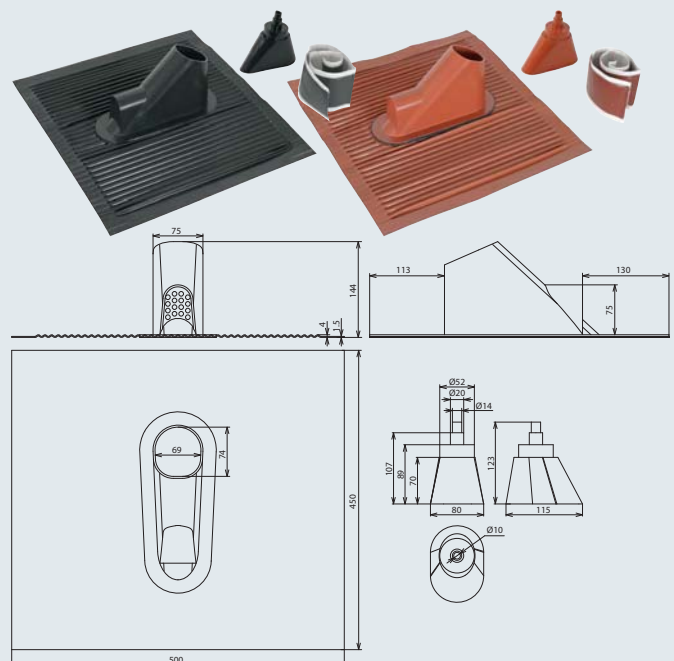
More details in installation instructions No. 1759

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.

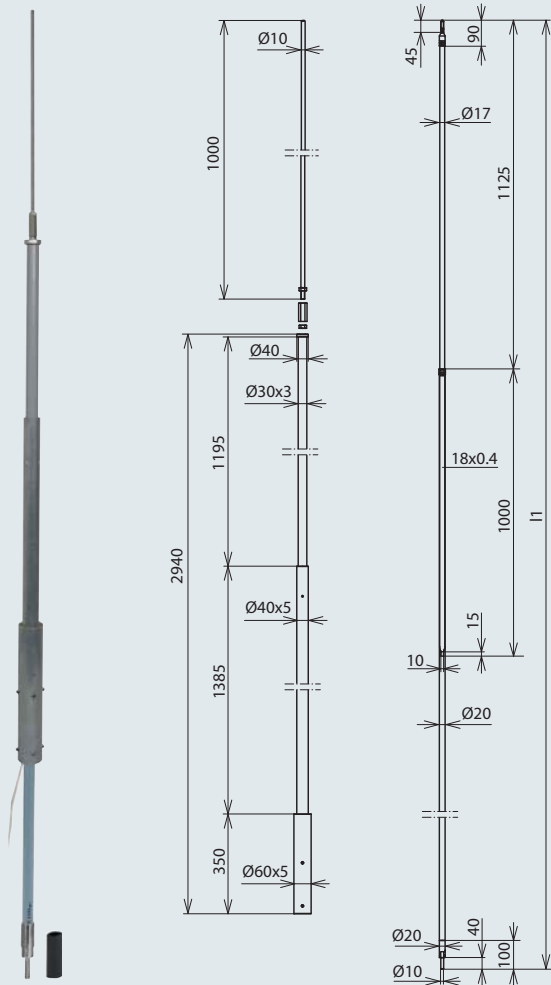
Advantages:

- 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.

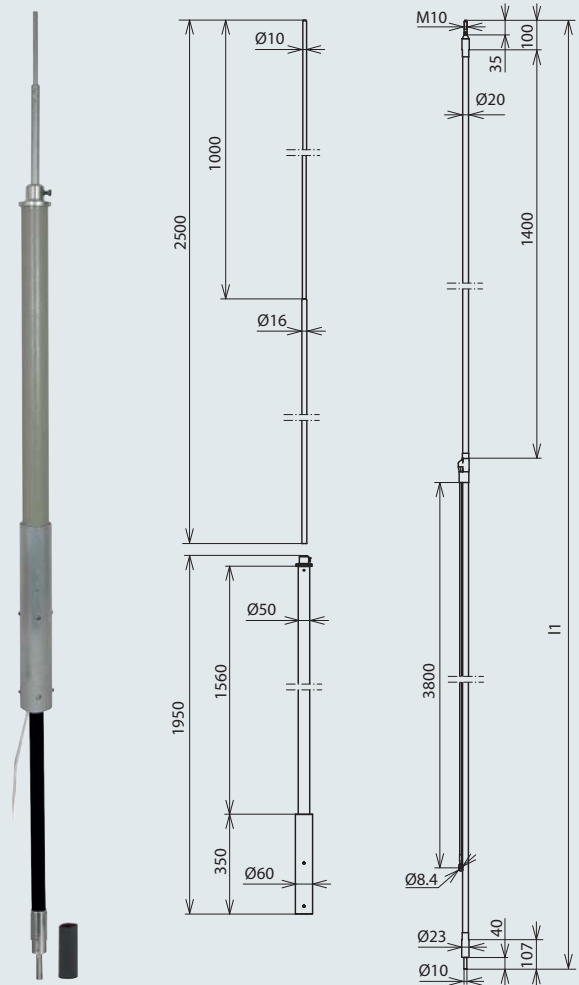
DEHNcon-H HVI light Conductor I in the supporting tube with air-termination rod



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

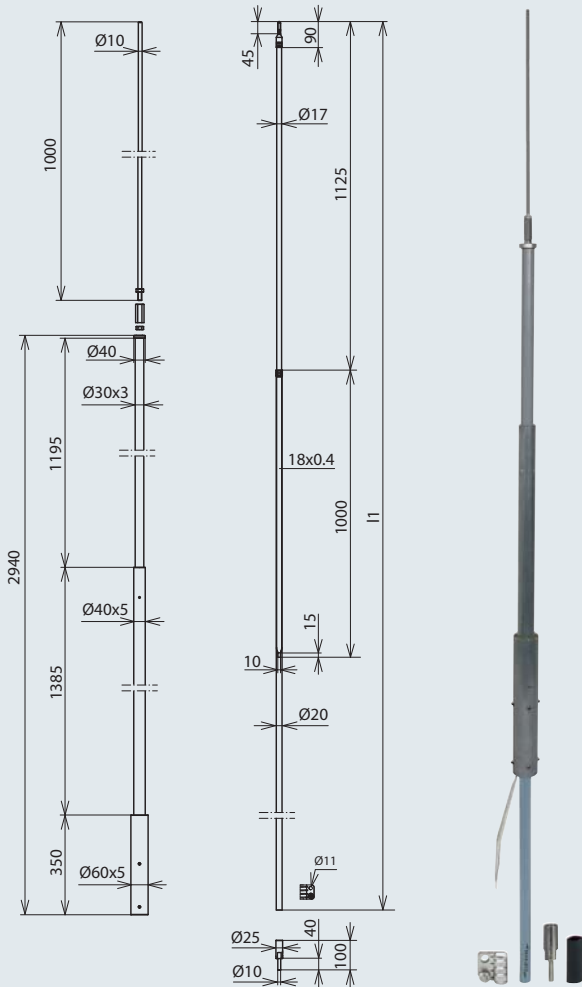
DEHNcon-H HVI Conductor I in the supporting tube with air-termination rod



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

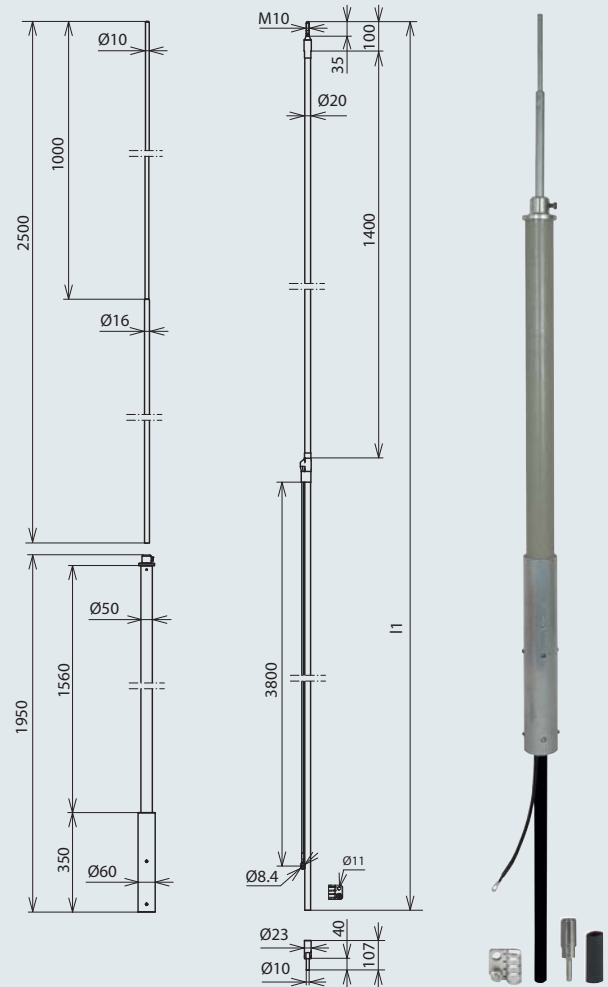
DEHNcon-H HVI light Conductor III in the supporting tube with air-termination rod



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.

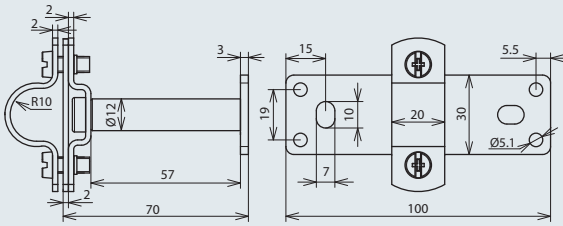


Conductor holder for HVI Conductor (Distance 70 mm)
Part No. 275 440

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

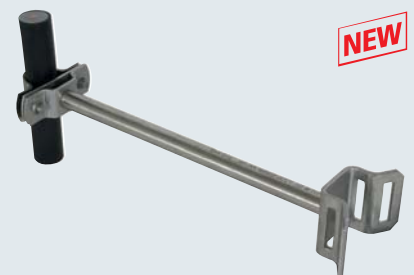
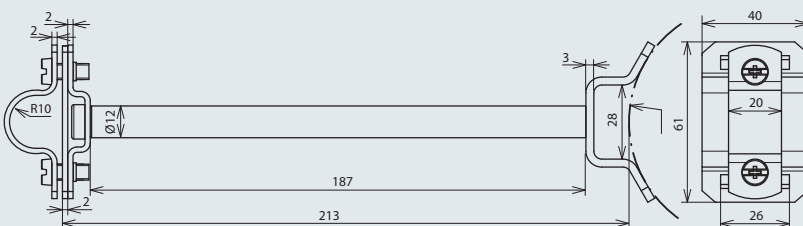


NEW

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

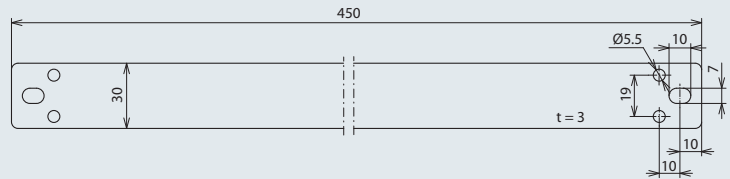
For fixing at pipes e.g. by means of pipe clamp (Part No. 106323) in Ex zones 1 or 2 and 21 or 22

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

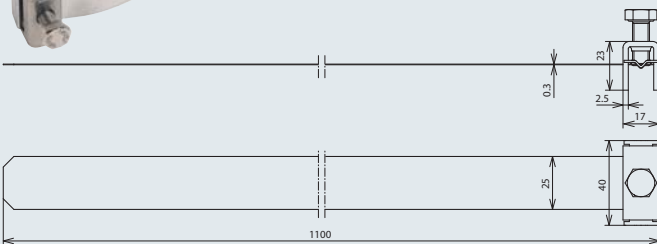
NEW



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	M8x20 mm
Material of screw	StSt

IEC/EN 62305-3 points out that in special cases outside of a building the touch voltage may be extremely dangerous near the down-conductors, although there is a lightning protection system in accordance with the state of standardisation.

This applies for example to entrance or sheltering areas of buildings with a high visitor frequency, such as theatres, cinemas, shopping centres etc., where bare/uninsulated down-conductors and lightning protection earth electrodes are in close proximity.

For especially exposed (lightning endangered) buildings or structures, e.g. shelters, which are open to anybody, measures against inadmissibly high touch voltages may become necessary also.

Touch voltage is defined as the voltage affecting somebody standing on the ground in a distance of approx. 1 m from the down conductor and who touches the down conductor. In such a case the current flows from the hand into the body down to the feet (see **Figure 1**).

The hazardous area for persons outside of a building is defined as an area of 3 m around the down conductor and from ground level up to a height of approx. 3 m.

According to IEC/EN 62305-3 Subclause E.4.2.4.2, the area to be protected against touch voltage corresponds to the height of a person with raised arm plus the separation distance s (see **Figure 2**).

Additionally, the step voltage in the surrounding of the building/down conductor has to be taken into account.

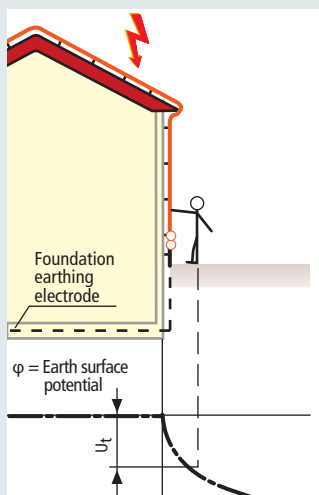


Figure 1: Schematic diagram - touch voltage U_t

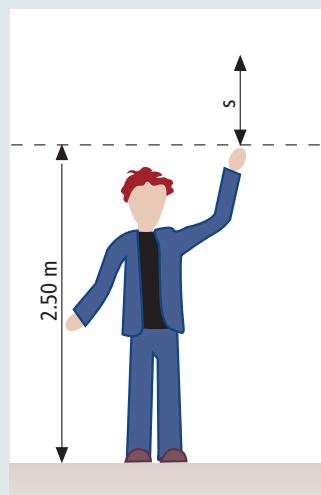


Figure 2: Protected area for a person

Effective protection measures against injuries due to touch voltage are defined according to the standard as follows

- Installation of an insulated (coated) down conductor providing a surge withstand capability of 100 kV at 1.2/50 μ s, e.g. an at least 3 mm thick cross-linked polyethylene
- physical restrictions and/or warning signs to minimise the possibility of down conductors being touched.

The CUI conductor (CU copper Insulated) has an inner copper conductor with a diameter of 8 mm and a high-voltage-resistant insulation (see **Figure 3**).



Figure 3: Design of a CUI conductor

Requirements:

- Surge withstand capability of 100 kV (1.2/50 μ s)
- Prevention of creepage sparkover even at rain.

The surge withstand capability of 100 kV (1.2/50 μ s) is achieved by a special cross-linked polyethylene insulation (XLPE). Unless additional measures are taken, high impulse voltages cause sparkovers at insulating surfaces. This effect is known as creeping discharge. If the creeping discharge inception voltage is exceeded, a surface discharge will be initiated, which can easily spark over a distance of several metres to earthed parts. In order to avoid arising creeping discharges even at rain, the CUI conductor additionally has a shield which keeps the conductor dry. This shield on the conductor and the drops after the rain test is shown in **Figure 4**.



Figure 4: Rain test



Figure 5: Detail of Figure 4

Development of the CUI conductor is based on the "rain test" according to IEC 60-1 Subclause 9.

This test requires a specific quantity of water to be sprayed on the conductor in an angle of approx. 45° (**Figs. 4 and 5**).

The CUI conductor is available in two standard lengths of 3.5 m and 5 m for vertical installation at the wall with corresponding conductor holders. One head piece and the shield are mounted in factory. The conductor can be shortened on site but can not be extended.

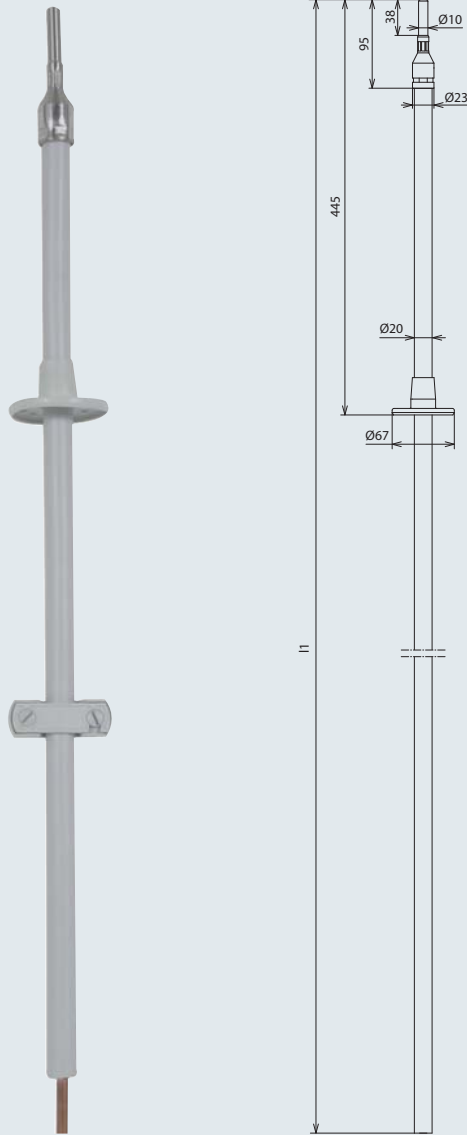
Disconnecting or MV clamps e.g. can be used for connection to the down conductor. Cross units which additionally have to be protected against corrosion can be used e.g. to connect the CUI conductor to the earth-termination system.

Fig. 6 shows a CUI conductor installed in the entrance area of multipurpose hall.

With the new patented system CUI conductor, touch voltage at down conductors can be avoided.



Figure 6: Application in entrance area



The dangerous area of touch and step voltages for living beings is defined as an area of approx. 3 m around the down conductor, from ground level up to a height of approx. 3 m.

The CUI conductor has a copper core and a high-voltage-resistant insulation.

Requirements:

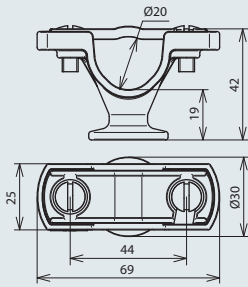
- Surge withstand capability of 100 kV (1.2/50 μ s)
- Prevention of creepage sparkover even at rain

Part No.	830 208	830 218
Material of conductor	Cu	Cu
Material of insulation	XLPE	XLPE
Outer \varnothing of conductor	20 mm	20 mm
Standard	EN 50164-2	EN 50164-2
Colour of conductor	light grey	light grey
Cross section of core	50 mm ²	50 mm ²
Total length (l1)	3500 mm	5000 mm

More details on the CUI conductor in installation instructions No. 1482.

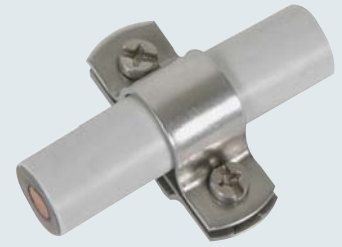
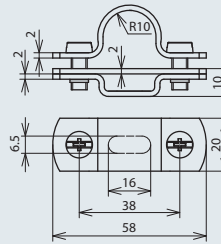
Conductor holder for installing the CUI conductor at walls or façades

Height 19 mm



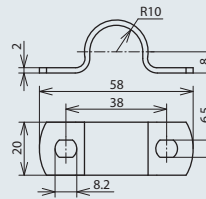
Part No.	275 220
Material of conductor holder	PA
Conductor holder support Rd	20 mm
Height of conductor holder	19 mm
Fixing	Ø6.5 mm
Thread	M8

Height 10 mm



Part No.	275 229
Material of conductor holder	StSt
Conductor holder support Rd	20 mm
Height of conductor holder	10 mm
Fixing	6.5x16 mm

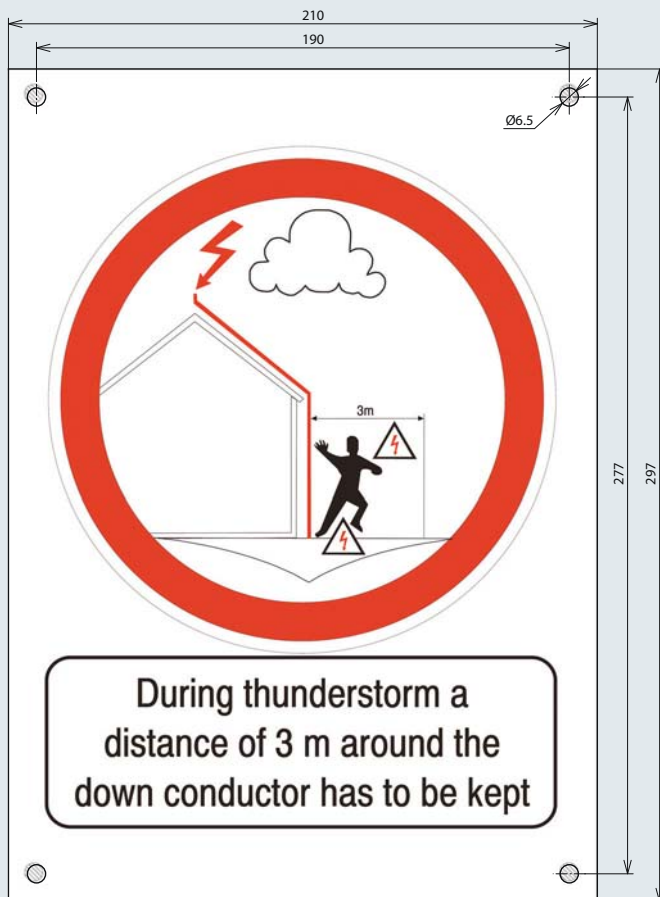
Two-screws-cleat for direct wall mounting



Due to the special kind of installation (without distance) the conductor can not be used as climbing aid and is therefore especially suitable for schools or kindergarten facilities.

Part No.	275 129
Material of conductor holder	StSt
Conductor holder support Rd	20 mm
Fixing	[2x] 6.5x8 mm

Step and Touch Voltage



Warning sign in case of hazard of step and touch voltage, according to the requirements of IEC/EN 62305-3

Front in German

"Bei Gewitter ist der Aufenthalt im Umkreis von 3 m um die Ableitung verboten!"

Back in English

"During thunderstorm a distance of 3 m around the down conductor has to be kept!"

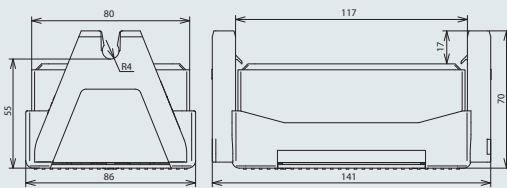
Part No.	480 699
Material	Al
Dimension (l x w x d)	297x210x0.7 mm
Fixing	[4x] Ø6.5 mm

Roof conductor holders to fix round conductors and strips (by means of adapters) on flat roofs

- Conductor holder with support plate, made of weather-resistant plastic, UV stabilised and halogen-free
- Frost-resistant concrete block in accordance with EN 1338 for paving stones, frost-resistance tested according to EN 1926 (frost-dew-test)
- Concrete block and support plate separately recyclable

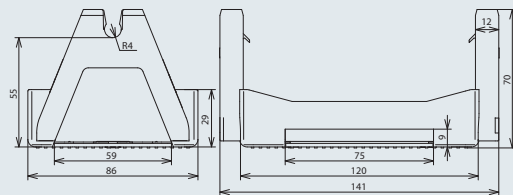


Double conductor holder Type FB2



Part No.	253 050	253 060
Conductor leading	loose	fixed
Material of conductor holder	plastic	plastic
Colour of conductor holder	black	black
Conductor holder support Rd	8 mm	8 mm
Block	concrete (C35/45)	concrete (C35/45)
Weight	1 kg	1 kg
Dimension	141x86x70 mm	141x86x70 mm

Double conductor holder Type KF2

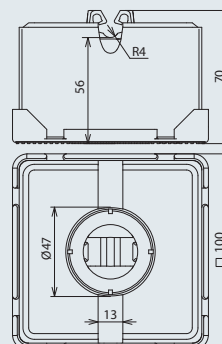


For clamping into roofing sheet stripes (up to 5 mm thick) which are welded with or adhered to the roofing sheet

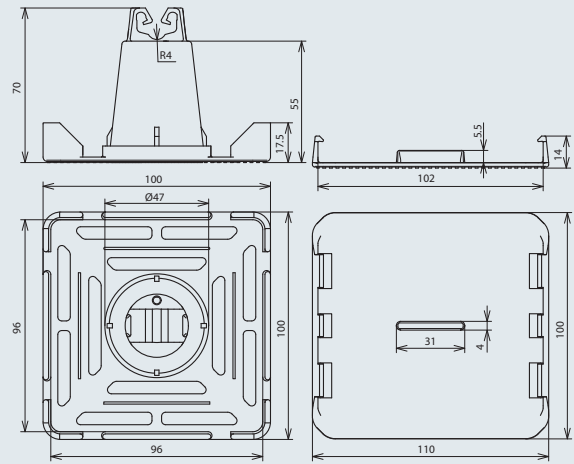
Part No.	253 051
Conductor leading	loose
Material of conductor holder	plastic
Colour of conductor holder	black
Conductor holder support Rd	8 mm
Dimension	141x86x70 mm

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
Dimension	100x100x70 mm



Single conductor holder Type KF

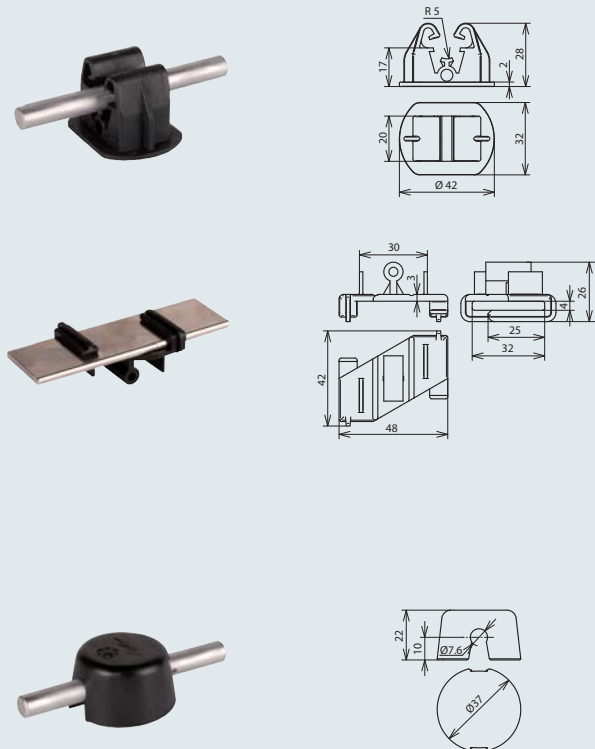


For clamping at roofing sheet stripes (up to 2.5 mm thick) which are welded or adhered to the roofing sheet

Part No.	253 030
Conductor leading	loose
Material of conductor holder	plastic
Colour of conductor holder	black
Conductor holder support Rd	8 mm
Dimension	110x100x75 mm

More details in installation instructions No. 1251. Separate plastic top Type KF Part No. 253 016 upon request.

Accessories for Roof Conductor Holders for flat roofs



Adapter for round conductors Type FB and KF

To be snapped on roof conductor holders for conductors Rd 10 mm, loose conductor leading

Note: Adapters for conductors Rd 6 mm available upon request

Part No.	253 023
Conductor holder support Rd	10 mm
Material	plastic
Colour	black

Adapter for flat conductor holders Type FB and KF

To be snapped on roof conductor holder (Part No. 253015) for flat conductors 30 mm, loose conductor leading

Part No.	253 021
Conductor holder support Fl	30 mm
Material	plastic
Colour	black

Clamp for Type FB and KF

To be snapped on roof conductor holders (Part No. 253015), for additional fixing of the holder at the installed air-termination conductor in case of pitched roofs

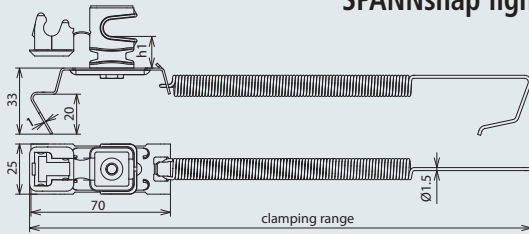
Part No.	253 025
Conductor holder support Rd	8 mm
Material	plastic
Colour	black

Roof conductor holders to fix air-termination conductors at the ridge e.g. of tiled roofs



SPANNsnap with plastic conductor holder DEHNSnap

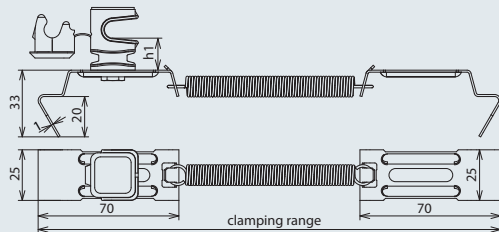
SPANNsnap light



For fixing by StSt tension spring with conductor holder DEHNSnap, loose conductor leading, laterally adjustable

Part No.	204 469	204 449
Material of roof conductor holder	StSt	StSt
Clamping range of ridge tile width	180-280 mm	180-280 mm
Height of conductor holder (h1)	16 mm	36 mm
Material of conductor holder	plastic	plastic
Colour of conductor holder	grey	grey
Conductor holder support Rd	8 mm	8 mm

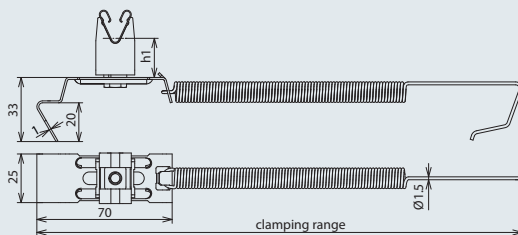
SPANNsnap



For fixing by StSt tension spring with conductor holder DEHNSnap, loose conductor leading, laterally adjustable

Part No.	204 269	204 267	204 249	204 247
Material of roof conductor holder	StSt	Cu	StSt	Cu
Clamping range of ridge tile width	180-280 mm	180-280 mm	180-280 mm	180-280 mm
Height of conductor holder (h1)	16 mm	16 mm	36 mm	36 mm
Material of conductor holder	plastic	plastic	plastic	plastic
Colour of conductor holder	grey	brown	grey	brown
Conductor holder support Rd	8 mm	8 mm	8 mm	8 mm

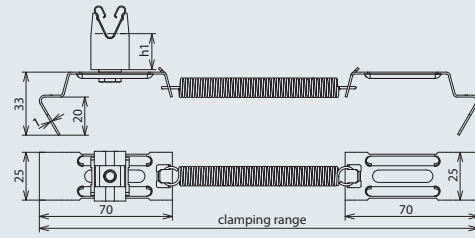
SPANNgrip light



For fixing by StSt tension spring with DEHNgrip conductor holder, loose conductor leading, laterally adjustable

Part No.	206 439	206 449
Material of roof conductor holder	StSt	StSt
Clamping range of ridge tile width	180-280 mm	180-280 mm
Height of conductor holder (h1)	20 mm	32 mm
Material of conductor holder	StSt	StSt
Conductor holder support Rd	8 mm	8 mm
Standard	EN 50164-4	EN 50164-4

SPANNgrip



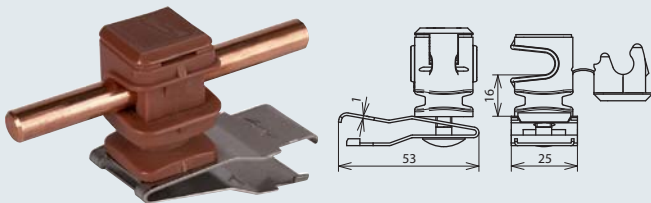
For fixing by StSt tension spring with DEHNgrip conductor holder, loose conductor leading, laterally adjustable

Part No.	206 239	206 237	206 249	206 247
Material of roof conductor holder	StSt	Cu	StSt	Cu
Clamping range of ridge tile width	180-280 mm	180-280 mm	180-280 mm	180-280 mm
Height of conductor holder (h1)	20 mm	20 mm	32 mm	32 mm
Material of conductor holder	StSt	Cu	StSt	Cu
Conductor holder support Rd	8 mm	8 mm	8 mm	8 mm
Standard	EN 50164-4	EN 50164-4	EN 50164-4	EN 50164-4

Roof Conductor Holders for ridge and hip tiles

Roof conductor holders to fix air-termination conductors at the ridge

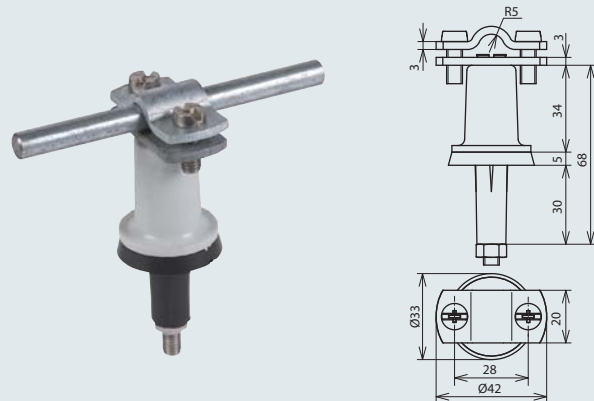
FIRSTsnap



To be attached on the ridge clamp in case of dry ridge, with DEHNSnap conductor holder, loose conductor leading

Part No.	204 029	204 039
Material of roof conductor holder	StSt	StSt
Height of conductor holder	16 mm	16 mm
Material of conductor holder	plastic	plastic
Colour of conductor holder	grey	brown
Conductor holder support Rd	8 mm	8 mm

Two-screws-cleat with clamp bush



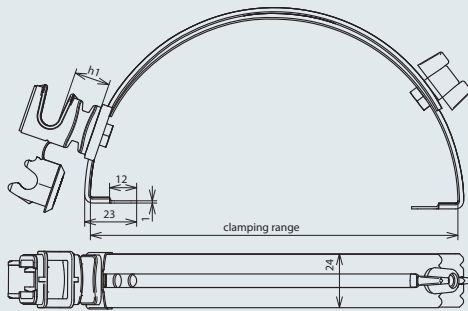
For tiled, slated and corrugated sheet roofs, with weather-resistant clamp bush, fixed conductor leading

Part No.	216 000
Material of roof conductor holder	plastic
Bore	Ø12 mm
Material of conductor holder	St/tZn
Conductor holder support Rd	7-10 mm
Conductor holder support Fl	20 mm

Conductor holder to fix air-termination conductors at the ridge e.g. of tiled roofs



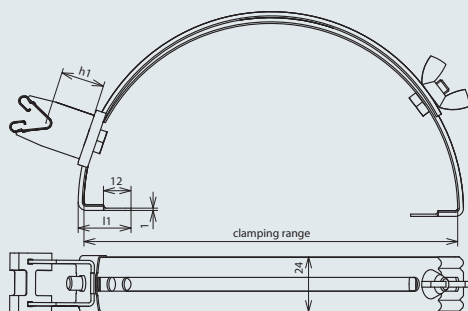
Continuously adjustable with conductor holder DEHNSnap



Loose conductor leading, laterally adjustable (top centre to the bottom)

Part No.	204 109	204 911	204 107	204 129	204 913	204 127
Material of roof conductor holder	StSt	StSt	Cu	StSt	StSt	Cu
Clamping range	180-280 mm	180-280 mm	180-280 mm	180-280 mm	180-280 mm	180-280 mm
Height of conductor holder (h1)	16 mm	16 mm	16 mm	36 mm	36 mm	36 mm
Material of conductor holder	plastic	plastic	plastic	plastic	plastic	plastic
Colour of conductor holder	grey	brown	brown	grey	brown	brown
Conductor holder support Rd	8 mm	8 mm	8 mm	8 mm	8 mm	8 mm
Length of supporting claw	23 mm	23 mm	23 mm	23 mm	23 mm	23 mm

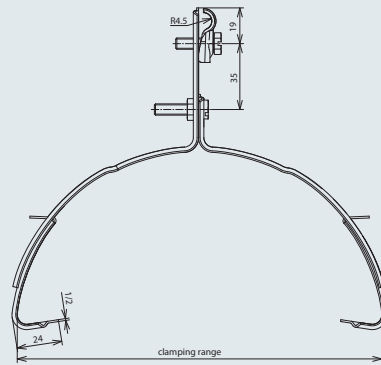
Continuously adjustable with conductor holder DEHNgrip



Loose conductor leading, laterally adjustable (top centre to the bottom)

Part No.	206 109	206 809	206 807	206 817	206 819
Material of roof conductor holder	StSt	StSt	Cu	Cu	StSt
Clamping range	180-280 mm	180-280 mm	180-280 mm	180-280 mm	180-280 mm
Height of conductor holder (h1)	20 mm	20 mm	20 mm	32 mm	32 mm
Material of conductor holder	StSt	StSt	Cu	Cu	StSt
Conductor holder support Rd	8 mm	8 mm	8 mm	8 mm	8 mm
Length of supporting claw	23 mm	15 mm	15 mm	15 mm	15 mm
Standard	EN 50164-4	EN 50164-4	EN 50164-4	EN 50164-4	EN 50164-4

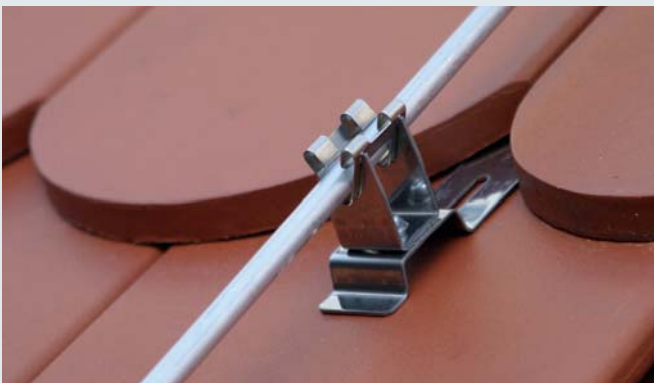
Stepwise adjustable with conductor holder DEHNQUICK



Fixed conductor leading

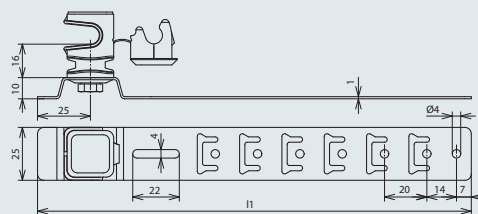
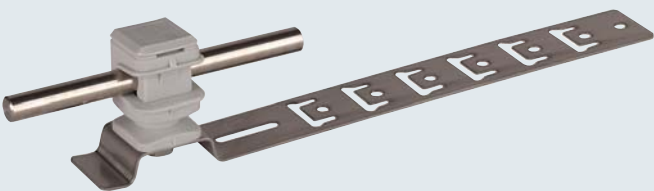
Part No.	202 020	202 021	202 900	202 027	202 227
Material of roof conductor holder	St/tZn	St/tZn	StSt	Cu	Cu
Clamping range	120-240 mm	200-280 mm	120-240 mm	120-240 mm	200-280 mm
Material of conductor holder	St/tZn	St/tZn	StSt	Cu	Cu
Conductor holder support Rd	6-10 mm	6-10 mm	6-10 mm	6-10 mm	6-10 mm
Length of supporting claw	24 mm	24 mm	24 mm	24 mm	24 mm

Roof Conductor Holders with embossed brace for roof surfaces



Roof conductor holders for fixing of air-termination conductors and down conductors

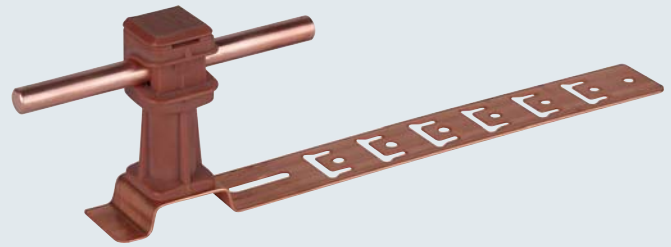
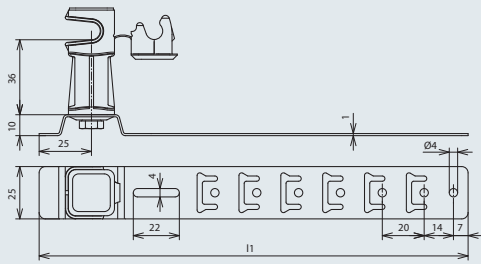
UNIsnap height 16 mm



With preformed bending points for hooking at the tiles or battens, with DEHNSnap conductor holder, loose conductor leading

Part No.	204 149	204 921	204 147	204 159	204 157	204 169
Material of roof conductor holder	StSt	StSt	Cu	StSt	Cu	StSt
Length of brace (l1)	205 mm	205 mm	205 mm	335 mm	335 mm	475 mm
Height of conductor holder	16 mm	16 mm	16 mm	16 mm	16 mm	16 mm
Material of conductor holder	plastic	plastic	plastic	plastic	plastic	plastic
Colour of conductor holder	grey	brown	brown	grey	brown	grey
Conductor holder support Rd	8 mm	8 mm	8 mm	8 mm	8 mm	8 mm

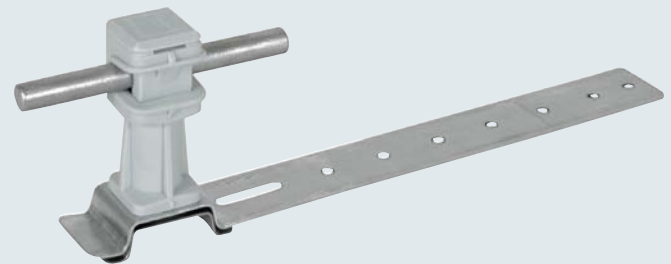
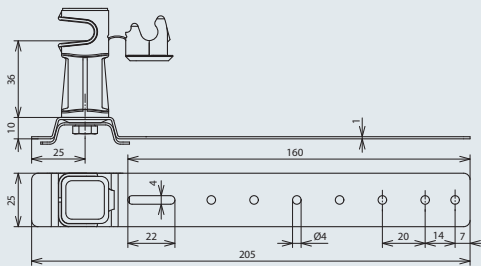
UNIsnap height 36 mm



With preformed bending points for hooking to the roof tiles or battens, with conductor holder DEHNSnap, loose conductor leading

Part No.	204 179	204 924	204 177	204 189	204 925	204 187	204 199	204 197
Material of roof conductor holder	StSt	StSt	Cu	StSt	StSt	Cu	StSt	Cu
Length of brace (l1)	205 mm	205 mm	205 mm	335 mm	335 mm	335 mm	475 mm	475 mm
Height of conductor holder	36 mm	36 mm	36 mm	36 mm	36 mm	36 mm	36 mm	36 mm
Material of conductor holder	plastic	plastic	plastic	plastic	plastic	plastic	plastic	plastic
Colour of conductor holder	grey	brown	brown	grey	brown	brown	grey	brown
Conductor holder support Rd	8 mm	8 mm	8 mm	8 mm	8 mm	8 mm	8 mm	8 mm

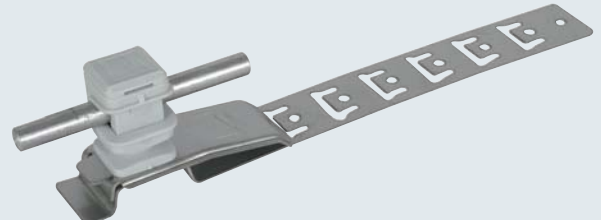
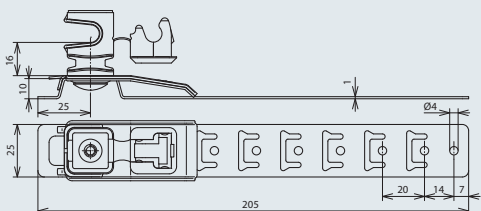
DEHNSnap with Alu base brace



For easy adjustment to interlocking tiles, DEHNSnap conductor holder, loose conductor leading

Part No.	204 170	204 171
Material of roof conductor holder	Al	Al
Length of brace (l1)	205 mm	205 mm
Height of conductor holder	36 mm	36 mm
Material of conductor holder	plastic	plastic
Colour of conductor holder	grey	brown
Conductor holder support Rd	8 mm	8 mm

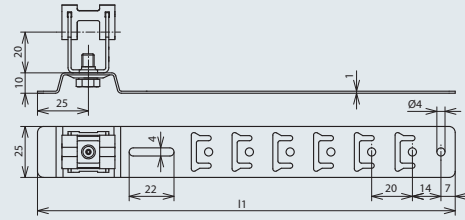
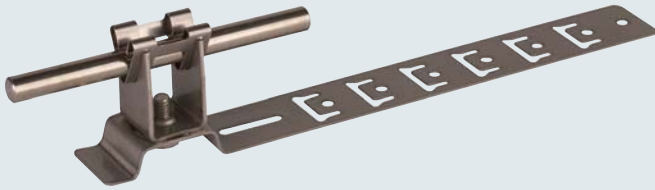
UNIsnap with clamping part



With preformed bending points for hooking at tiles or battens and additional clamping part e.g. for slated roofs, with DEHNSnap conductor holder, loose conductor leading

Part No.	204 089
Material of roof conductor holder	StSt
Length of brace (l1)	205 mm
Height of conductor holder	16 mm
Material of conductor holder	plastic
Colour of conductor holder	grau
Conductor holder support Rd	8 mm

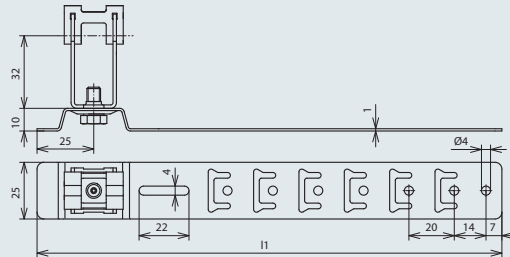
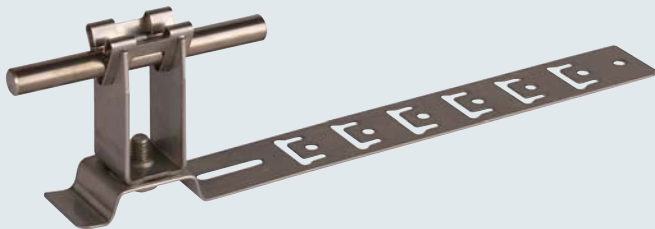
UNIgrip height 20 mm



With preformed bending points for hooking at tiles or battens, with DEHNgrip conductor holder, loose conductor leading

Part No.	206 209	206 207	206 219	206 217	206 229	206 227
Material of roof conductor holder	StSt	Cu	StSt	Cu	StSt	Cu
Length of brace (l1)	205 mm	205 mm	335 mm	335 mm	475 mm	475 mm
Height of conductor holder	20 mm	20 mm	20 mm	20 mm	20 mm	20 mm
Material of conductor holder	StSt	Cu	StSt	Cu	StSt	Cu
Conductor holder support Rd	8 mm	8 mm	8 mm	8 mm	8 mm	8 mm
Standard	EN 50164-4	EN 50164-4	EN 50164-4	EN 50164-4	EN 50164-4	EN 50164-4

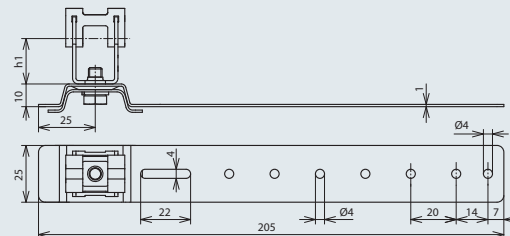
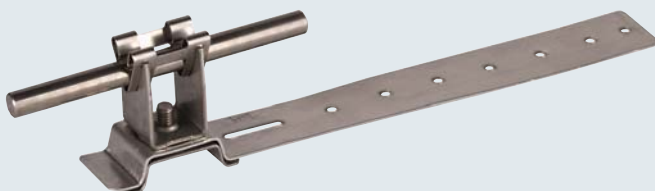
UNIgrip height 32 mm



With preformed bending points for hooking at the roof tiles or battens, with conductor holder DEHNgrip, loose conductor leading

Part No.	206 309	206 319	206 329
Material of roof conductor holder	StSt	StSt	StSt
Length of brace (l1)	205 mm	335 mm	475 mm
Height of conductor holder	32 mm	32 mm	32 mm
Material of conductor holder	StSt	StSt	StSt
Conductor holder support Rd	8 mm	8 mm	8 mm
Standard	EN 50164-4	EN 50164-4	EN 50164-4

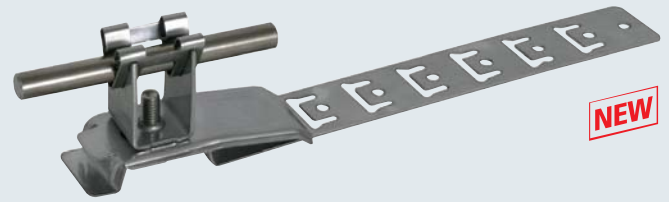
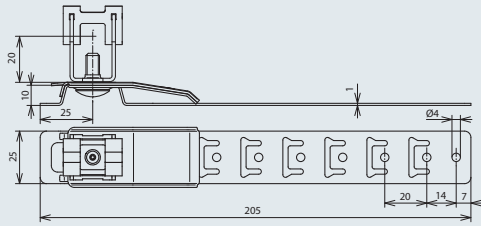
DEHNgrip with Alu base brace



For easy adjustment to interlocking tiles, with DEHNgrip conductor holder, loose conductor leading

Part No.	206 170	206 171
Material of roof conductor holder	Al	Al
Length of brace (l1)	205 mm	205 mm
Height of conductor holder	20 mm	32 mm
Material of conductor holder	StSt	StSt
Conductor holder support Rd	8 mm	8 mm
Standard	EN 50164-4	EN 50164-4

UNlgrip with clamping part height 20 mm



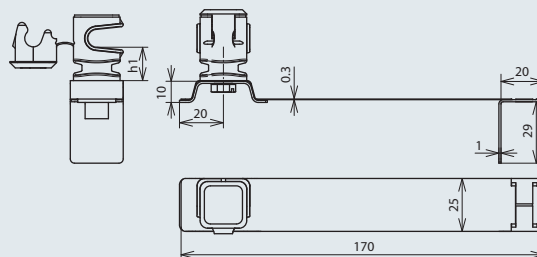
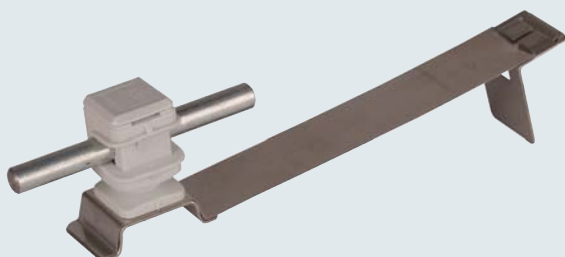
With preformed bending points for bending and hooking and additional clamping part, e.g. for slate roofs, with conductor holder DEHNgrip, loose conductor leading.

Part No.	206 289
Material of roof conductor holder	StSt
Length of brace (l1)	205 mm
Height of conductor holder	20 mm
Material of conductor holder	StSt
Conductor holder support Rd	8 mm



Roof conductor holder with flexible base brace made of StSt (0.3 mm) for hooking at the roof tile, adjustable to interlocking tiles

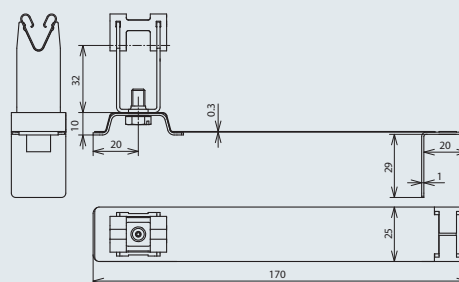
FLEXIsnap



Loose conductor leading

Part No.	204 935	204 936	204 937	204 938
Material of roof conductor holder	StSt	StSt	StSt	StSt
Length of brace	170 mm	170 mm	170 mm	170 mm
Height of conductor holder (h1)	16 mm	16 mm	36 mm	36 mm
Material of conductor holder	plastic	plastic	plastic	plastic
Colour of conductor holder	grey	brown	grey	brown
Conductor holder support Rd	8 mm	8 mm	8 mm	8 mm

FLEXIgrip

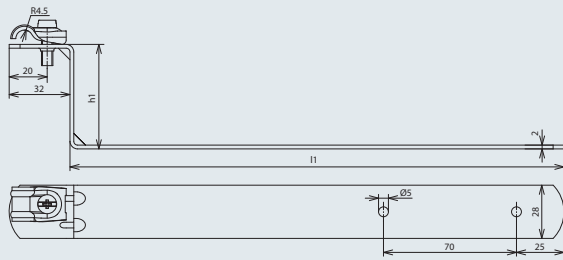


Loose conductor leading

Part No.	204 949	204 957
Material of roof conductor holder	StSt	StSt
Length of brace	170 mm	170 mm
Height of conductor holder (h1)	32 mm	32 mm
Material of conductor holder	StSt	Cu
Conductor holder support Rd	8 mm	8 mm

Roof conductor holder for insertion at tiled, slated and roofing felt roofs

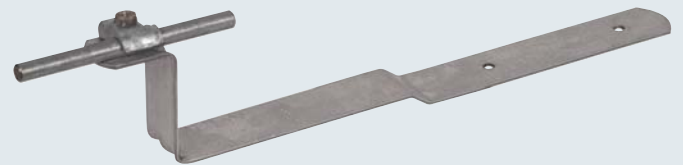
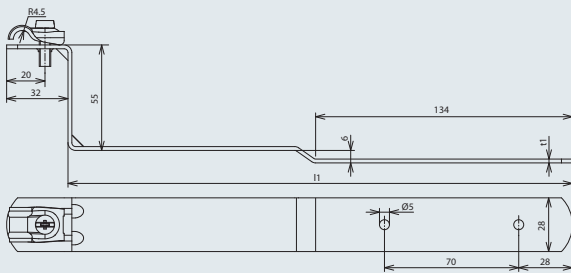
Straight



With DEHNQUICK conductor holder, fixed conductor leading

Part No.	202 040	202 902	202 037	202 008
Material of roof conductor holder	St/tZn	StSt	Cu	St/tZn
Height of brace (h1)	55 mm	55 mm	55 mm	70 mm
Length of brace (l1 / t1)	260 / 2 mm	260 / 1 mm	260 / 2 mm	420 / 2 mm
Material of conductor holder	St/tZn	StSt	Cu	St/tZn
Conductor holder support Rd	6-10 mm	6-10 mm	6-10 mm	6-10 mm

Cranked

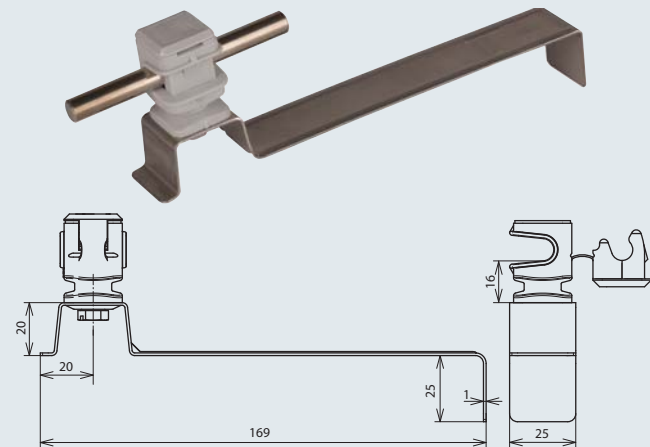


With conductor holder DEHNQUICK, fixed conductor leading

Part No.	202 010	202 901	202 017
Material of roof conductor holder	St/tZn	StSt	Cu
Height of brace (h1)	55 mm	55 mm	55 mm
Length of brace (l1 / t1)	260 / 2 mm	260 / 1 mm	260 / 2 mm
Material of conductor holder	St/tZn	StSt	Cu
Conductor holder support Rd	6-10 mm	6-10 mm	6-10 mm

Roof conductor holders for hooking at the roof tiles

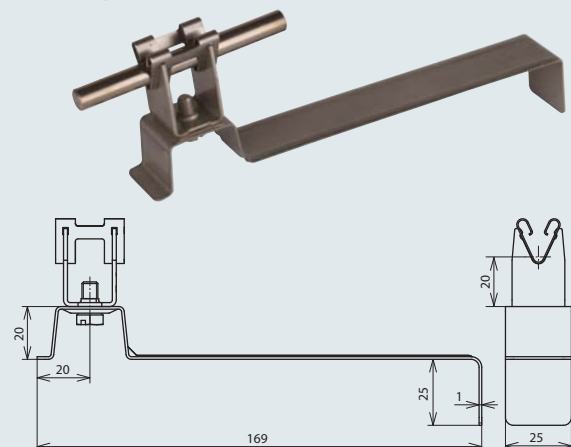
With DEHNSnap conductor holder



Loose conductor leading

Part No.	204 359
Material of roof conductor holder	StSt
Length of brace (l1)	169 mm
Height of conductor holder	16 mm
Material of conductor holder	plastic
Colour of conductor holder	grau
Conductor holder support Rd	8 mm

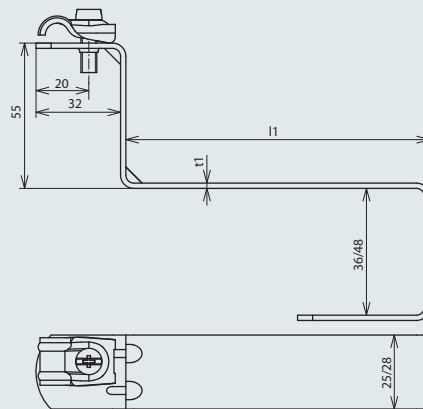
With DEHNgrip conductor holder



Loose conductor leading

Part No.	206 359
Material of roof conductor holder	StSt
Length of brace (l1)	169 mm
Height of conductor holder	20 mm
Material of conductor holder	StSt
Conductor holder support Rd	8 mm
Standard	EN 50164-4

With DEHNQUICK conductor holder



For hooking at the roof tiles or battens, fixed conductor leading length or crosswise

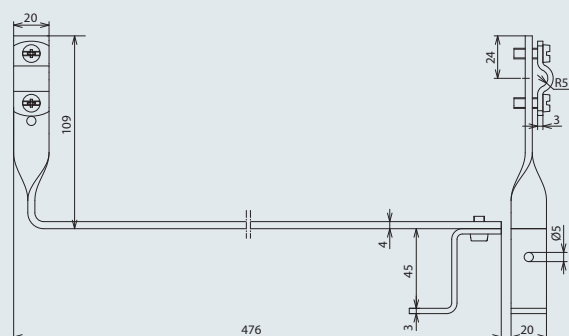
Part No.	202 050	202 080
Material of roof conductor holder	St/tZn	St/tZn
Length of brace (l1)	115 / (48) mm	410 / (36) mm
Material of conductor holder	St/tZn	St/tZn
Conductor holder support Rd	6-10 mm	6-10 mm

With two-screws-cleat



For hooking at the roof battens, fixed conductor leading

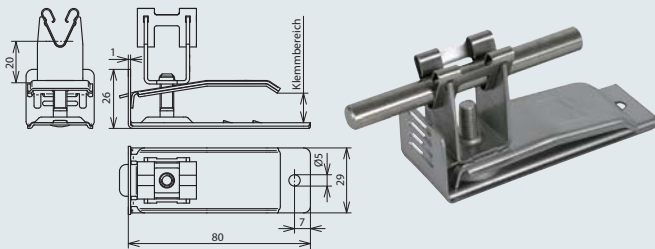
Part No.	223 000
Material of roof conductor holder	St/tZn
Length of brace (l1)	476 mm
Material of conductor holder	St/tZn
Conductor holder support Rd	7-10 mm



Roof conductor holder for the fixing of air-termination conductors and down conductors



DEHNgrip for bitumen shingles



As well as for roof and wall plates, loose conductor leading

Part No.	206 389	206 399
Material of roof conductor holder	StSt	StSt
Clamping range	2-8 mm	8-18 mm
Height of conductor holder	20 mm	20 mm
Material of conductor holder	StSt	StSt
Conductor holder support Rd	8 mm	8 mm
Standard	EN 50164-4	EN 50164-4

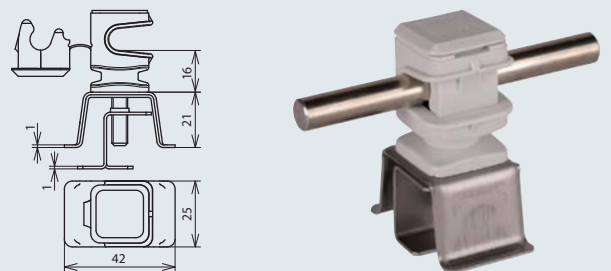
PLATTENsnap



For fixing at overlapping constructions, with DEHNsnap conductor holder, loose conductor leading

Part No.	204 069	204 079
Material of roof conductor holder	StSt	StSt
Clamping range	4-6 mm	4-6 mm
Height of conductor holder	16 mm	16 mm
Material of conductor holder	plastic	plastic
Colour of conductor holder	grey	brown
Conductor holder support Rd	8 mm	8 mm

ZIEGELsnap

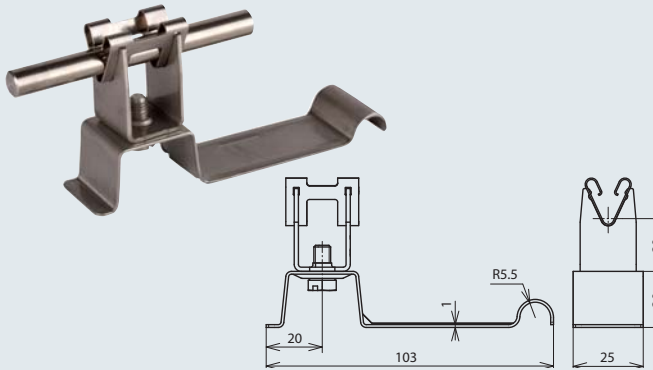


For fixing between flat tiles (pantiles) and plates, with DEHNsnap conductor holder, loose conductor leading

Part No.	204 049	204 059
Material of roof conductor holder	StSt	StSt
Clamping range	4-16 mm	4-16 mm
Height of conductor holder	16 mm	16 mm
Material of conductor holder	plastic	plastic
Colour of conductor holder	grey	brown
Conductor holder support Rd	8 mm	8 mm

Roof conductor holder for hooking at the roof tile groove

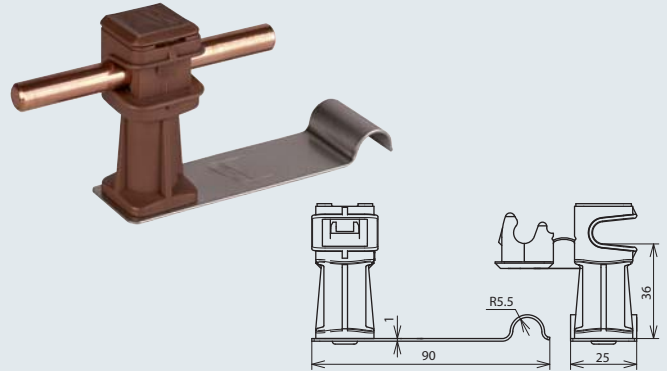
For hooking at the lower groove, with DEHNgrip conductor holder



Loose conductor leading

Part No.	206 349
Material of roof conductor holder	StSt
Length of brace	103 mm
Height of conductor holder	20 mm
Material of conductor holder	StSt
Conductor holder support Rd	8 mm
Standard	EN 50164-4

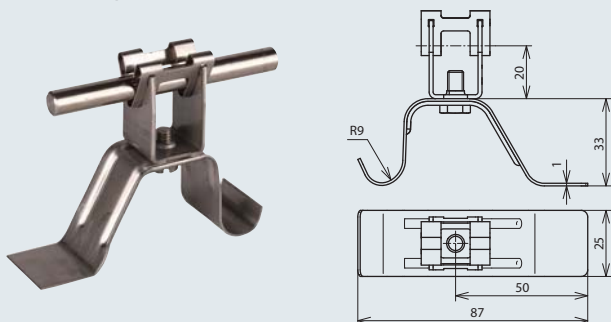
For hooking at the lower groove, with DEHNSnap conductor holder



Loose conductor leading

Part No.	204 229	204 239
Material of roof conductor holder	StSt	StSt
Length of brace	90 mm	90 mm
Height of conductor holder	36 mm	36 mm
Material of conductor holder	plastic	plastic
Colour of conductor holder	grey	brown
Conductor holder support Rd	8 mm	8 mm

For hooking at the upper groove, with DEHNgrip conductor holder



Loose conductor leading

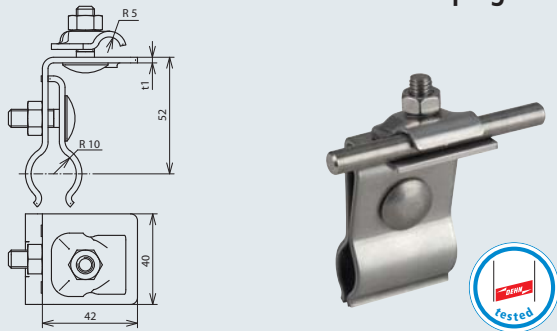
Part No.	206 369
Material of roof conductor holder	StSt
Length of brace	87 mm
Height of conductor holder	20 mm
Material of conductor holder	StSt
Conductor holder support Rd	8 mm
Standard	EN 50164-4

Roof conductor holders for fixing of additional air-termination systems on metal roofs

Mounting of two roof conductor holders (clamps / clamping frames) which are tested for the corresponding roof profiles provides a lightning current carrying capability of 100 kA (10/350 µs).

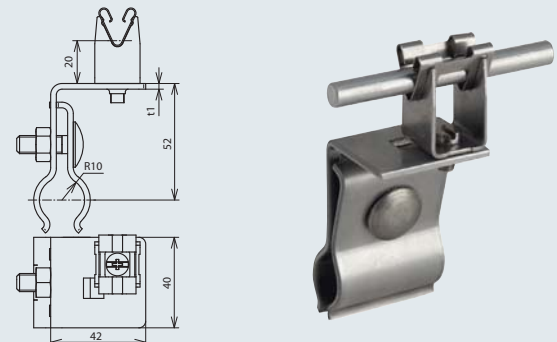


For roofing with round standing seam, with clamping frame



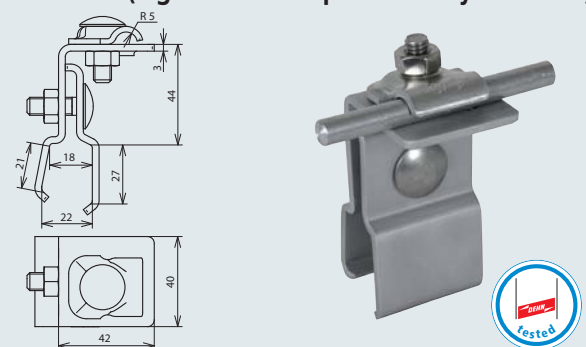
Part No.	223 010	223 040
Material of roof conductor holder	StSt	Al
Material thickness (t1)	2.5 mm	3 mm
Clamping range	Ø20 mm	Ø20 mm
Type of conductor holder	clamping frame	clamping frame
Material of conductor holder	StSt	Al
Conductor holder support Rd	6-10 mm	6-10 mm
Conductor leading	fixed	fixed
Screw	⬆ M8x25 mm	⬆ M8x25 mm
Material screw/nut	StSt	StSt
Standard	EN 50164-1	EN 50164-1

For roofing with round standing seam, with DEHNgrip



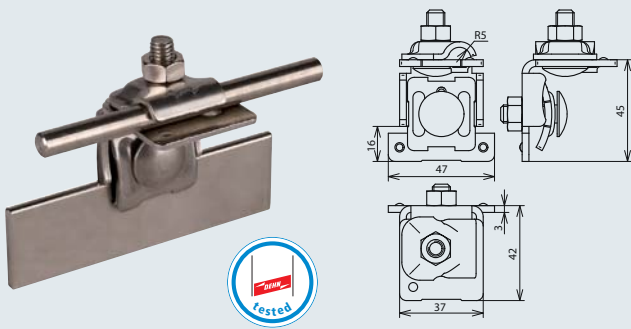
Part No.	223 011	223 041
Material of roof conductor holder	StSt	Al
Material thickness (t1)	2.5 mm	3 mm
Clamping range	Ø20 mm	Ø20 mm
Type of conductor holder	DEHNgrip	DEHNgrip
Height of conductor holder	20 mm	20 mm
Material of conductor holder	StSt	StSt
Conductor holder support Rd	8 mm	8 mm
Conductor leading	loose	loose
Screw	⬆ M8x25 mm	⬆ M8x25 mm
Material screw/nut	StSt	StSt
Standard	EN 50164-4	EN 50164-4

For roofing with clamping seam (e.g. RIB ROOF Speed 500 by Zambelli)



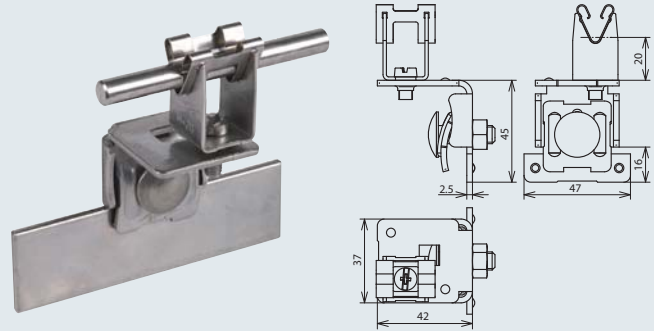
Part No.	223 070
Material of roof conductor holder	Al
Material thickness (t1)	3 mm
Clamping range	approx. 18/22 mm
Type of conductor holder	clamping frame
Material of conductor holder	Al
Conductor holder support Rd	6-10 mm
Conductor leading	fixed
Screw	⬆ M8x25 mm
Material screw/nut	StSt
Standard	EN 50164-1

For roofing with standing seam, with clamping frame



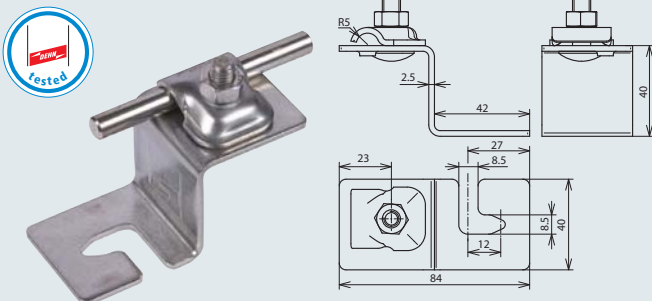
Part No.	365 059
Material of roof conductor holder	StSt
Material thickness (t1)	3 mm
Clamping range	0.7-8 mm
Type of conductor holder	clamping frame
Material of conductor holder	StSt
Conductor holder support Rd	6-10 mm
Conductor leading	fixed
Screw	↑ M8x25 mm
Material screw/nut	StSt
Standard	EN 50164-1

For roofing with standing seam, with DEHNgrip



Part No.	223 031
Material of roof conductor holder	StSt
Material thickness (t1)	2.5 mm
Clamping range	0.7-8 mm
Type of conductor holder	DEHNgrip
Height of conductor holder	20 mm
Material of conductor holder	StSt
Conductor holder support Rd	8 mm
Conductor leading	loose
Screw	↑ M8x25 mm
Material screw/nut	StSt
Standard	EN 50164-4

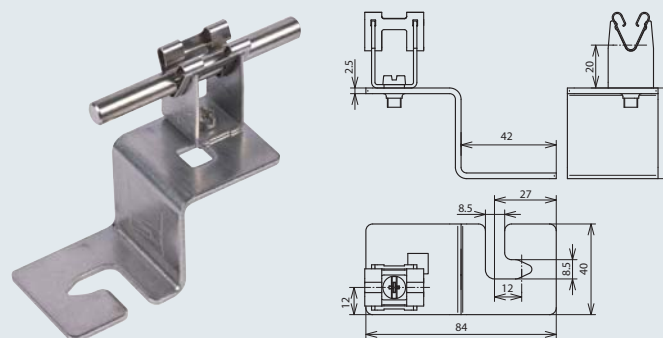
For roofs with trapezoidal sheeting, with clamping frame



For hooking into the fixing screws of the roof

Part No.	223 020
Material of roof conductor holder	StSt
Material thickness (t1)	2.5 mm
Type of conductor holder	clamping frame
Material of conductor holder	StSt
Conductor holder support Rd	6-10 mm
Conductor leading	fixed
Standard	EN 50164-1

For roofs with trapezoidal sheeting, with DEHNgrip



For hooking into the fixing screws of the roof

Part No.	223 021
Material of roof conductor holder	StSt
Material thickness (t1)	2.5 mm
Type of conductor holder	DEHNgrip
Height of conductor holder	20 mm
Material of conductor holder	StSt
Conductor holder support Rd	8 mm
Conductor leading	loose
Standard	EN 50164-4

Roof conductor holders for the installation of air-termination systems e.g. on trapezoidal sheet metal roofing

The conductor holders can be used for plane (unstructured) surfaces such as metal roofs / metal surfaces.

The conductor holders will be adhesively bonded at the roof (remove the protective film from the pad).

The adherend has to be cleaned with the special cleaning liquid (Part No. 297 199) according to the instructions.

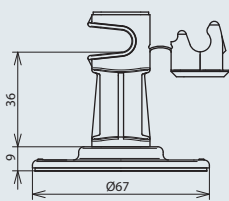
One litre of this liquid is sufficient for cleaning of approx. 1000 spots.

The roof conductor holders shall be installed at a temperature of $\geq +15\text{ }^{\circ}\text{C}$.

Robust, weather-resistant and UV stabilized type, halogen-free

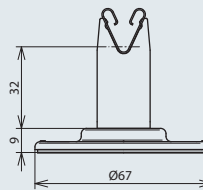


With DEHNSnap



Part No.	297 110
Material of roof conductor holder	plastic
Colour of roof conductor holder	grey
Material of conductor holder	plastic
Conductor holder support Rd	8 mm
Type of conductor holder	DEHNSnap
Height of conductor holder	36 mm
Colour of conductor holder	grey
Conductor leading	loose
Dimension	Ø67 mm

With DEHNgrip



Part No.	297 120
Material of roof conductor holder	plastic
Colour of roof conductor holder	grey
Material of conductor holder	StSt
Conductor holder support Rd	8 mm
Type of conductor holder	DEHNgrip
Height of conductor holder	32 mm
Conductor leading	loose
Dimension	Ø67 mm
Standard	EN 50164-4

Note: Installation instructions No. 1473 shall be observed!

Accessories for Roof Conductor Holders with adhesive pad

Special cleanser

Clean the spot thoroughly with a cloth. One litre of this liquid is sufficient for approx. 500 to 1000 spots to be cleaned.

Mind the instructions for use on the bottle.

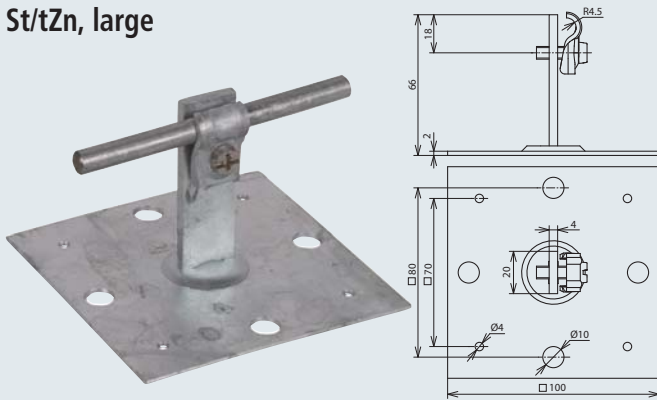
Dangerous goods regulations allow for transportation only in Germany and Austria. Alternatively use ISOPROPYL ALCOHOL 99,1 to 99,9% (CAS - NO. 67-63-0).

Part No.	297 199
Cleanness	99.1 - 99.9 %



Roof conductor holders for the installation of air-termination systems on flat roofs and walls

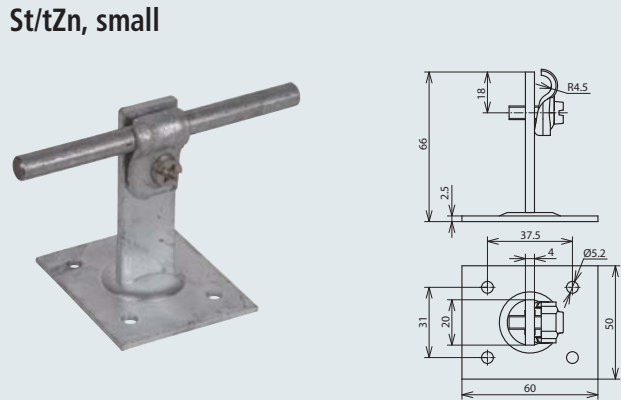
St/tZn, large



With DEHNQUICK conductor holder, fixed conductor leading, height up to conductor mid 60 mm

Part No.	202 060
Material of roof conductor holder	St/tZn
Dimension	100x100 mm
Fixing	[4x] Ø4 / [4x] Ø10 mm
Material of roof conductor holder	St/tZn
Conductor holder support Rd	6-10 mm

St/tZn, small



With DEHNQUICK conductor holder, fixed conductor leading, height up to conductor mid 60 mm

Part No.	202 030
Material of roof conductor holder	St/tZn
Dimension	50x60 mm
Fixing	[4x] Ø5.2 mm
Material of roof conductor holder	St/tZn
Conductor holder support Rd	6-10 mm

St/tZn round, large

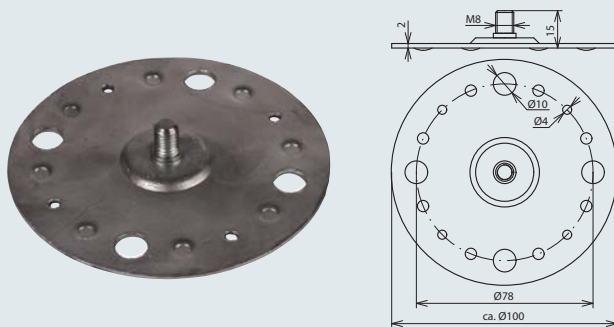


Plate with threaded bolt M8, e.g. for DEHNSnap or DEHNhold for use e.g. at roofing felt, concrete, steel and brickwork

Part No.	297 015
Material of roof conductor holder	St/tZn
Dimension	approx. Ø100 mm
Fixing	[4x] Ø4 / [4x] Ø10 mm

Plastic round, small

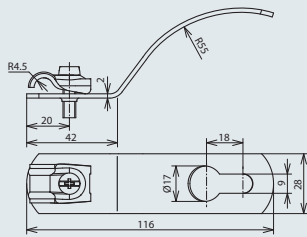


Plate with threaded bolt M8, e.g. for DEHNSnap or DEHNhold for use e.g. at roofing felt, concrete, steel and brickwork

Part No.	297 025
Material of roof conductor holder	plastic
Colour	grey
Dimension	Ø40 mm
Fixing	[4x] Ø4 mm

Roof conductor holders for the installation of conductors on the ridge and on the roof surface
Corrugations 177 mm (profile 5) and 130 mm (profile 8)

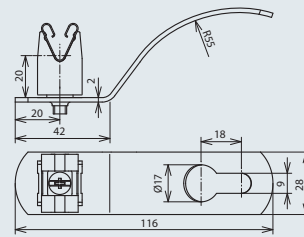
For corrugated sheet roofing profile 5 with DEHNQUICK



For installation on the roof surface

Part No.	202 005
Material of roof conductor holder	St/tZn
Type of conductor holder	DEHNQUICK
Material of conductor holder	St/tZn
Conductor holder support Rd	6-10 mm
Conductor leading	fixed

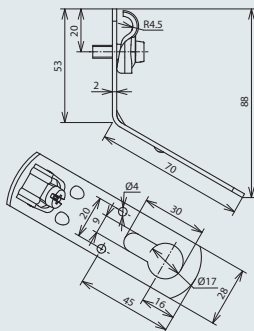
For corrugated sheet roofing profile 5 with DEHNgrip



For installation on the roof surface

Part No.	206 105
Material of roof conductor holder	St/tZn
Type of conductor holder	DEHNgrip
Height of conductor holder	20 mm
Material of conductor holder	StSt
Conductor holder support Rd	8 mm
Conductor leading	loose
Standard	EN 50164-4

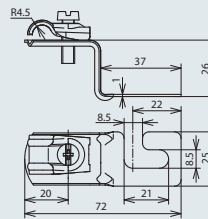
For corrugated sheet roofing profile 5 and profile 8 with DEHNQUICK



For installing ridge conductors and conductors on the roof surface, angled

Part No.	202 015
Material of roof conductor holder	St/tZn
Type of conductor holder	DEHNQUICK
Material of conductor holder	St/tZn
Conductor holder support Rd	6-10 mm
Conductor leading	fixed

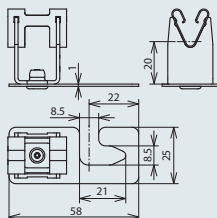
For corrugated sheet roofing profile 5 and profile 8 with DEHNQUICK



For installing ridge conductors and conductors on the roof surface, angled

Part No.	202 906
Material of roof conductor holder	StSt
Type of conductor holder	DEHNQUICK
Material of conductor holder	StSt
Conductor holder support Rd	6-10 mm
Conductor leading	fixed

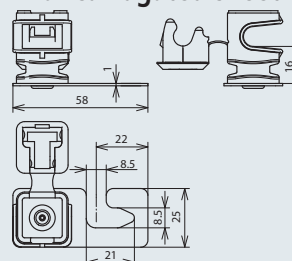
For corrugated sheet roofing profile 5 and profile 8 with DEHNgrip



For installing ridge conductors and conductors on the roof surface, straight

Part No.	206 339
Material of roof conductor holder	StSt
Type of conductor holder	DEHNgrip
Height of conductor holder	20 mm
Material of conductor holder	StSt
Conductor holder support Rd	8 mm
Conductor leading	loose
Standard	EN 50164-4

For corrugated sheet roofing profile 5 and profile 8 with DEHNsnap



For installing ridge conductors and conductors on the roof surface, straight

Part No.	204 906	204 916
Material of roof conductor holder	StSt	StSt
Type of conductor holder	DEHNsnap	DEHNsnap
Height of conductor holder	16 mm	16 mm
Material of conductor holder	plastic	plastic
Colour of conductor holder	grey	brown
Conductor holder support Rd	8 mm	8 mm
Conductor leading	loose	loose

Screwless StSt holder system with loose conductor leading

Easy installation:

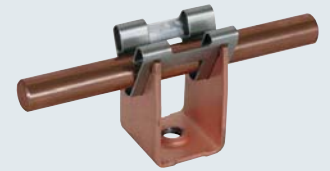
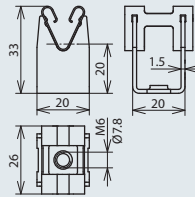
- Just push in the conductor

Advantages:

- Conductor is fixed in the DEHNgrip
- No more screwing



Height 20 mm

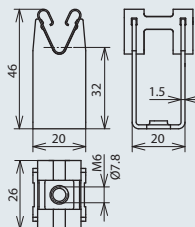


NEW

NEW

Part No.	207 019	207 009	207 017	207 007
Height of conductor holder	20 mm	20 mm	20 mm	20 mm
Thread of conductor holder	M6	—	M6	—
Bore of conductor holder	—	Ø7.8 mm	—	Ø7.8 mm
Material of conductor holder	StSt	StSt	Cu	Cu
Conductor holder support Rd	8 mm	8 mm	8 mm	8 mm
Standard	EN 50164-4	EN 50164-4	EN 50164-4	EN 50164-4

Height 32 mm



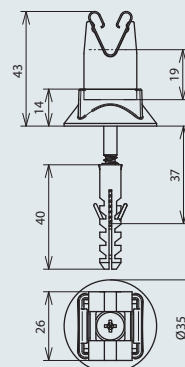
NEW

NEW

Part No.	207 039	207 029	207 037	207 027
Height of conductor holder	32 mm	32 mm	32 mm	32 mm
Thread of conductor holder	M6	—	M6	—
Bore of conductor holder	—	Ø7.8 mm	—	Ø7.8 mm
Material of conductor holder	StSt	StSt	Cu	Cu
Conductor holder support Rd	8 mm	8 mm	8 mm	8 mm
Standard	EN 50164-4	EN 50164-4	EN 50164-4	EN 50164-4

Height 20 mm premounted with screw, plastic base (grey) and dowel

Part No.	207 109
Height of conductor holder	20 mm
Bore of conductor holder	Ø7.8 mm
Material of conductor holder	StSt
Conductor holder support Rd	8 mm
Screw	5x50 mm
Plastic dowel	Ø8x40 mm
Standard	EN 50164-4





Plastic holder system with loose conductor leading

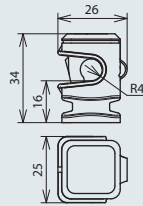
Easy mounting:

- Insert the conductor laterally
- Press fit the cap (self-locking)

Advantages:

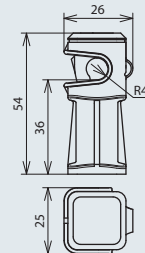
- Conductor is held in a massive recess in the base body, thus no strain on the latch
- Double cap catch (open with tool)
- Straight and loose conductor leading
- Robust and weather-resistant design
- UV stabilised, halogen-free

Height 16 mm with female thread



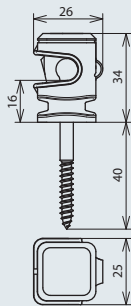
Part No.	204 001	204 007	204 002	204 017
Height of conductor holder	16 mm	16 mm	16 mm	16 mm
Thread of conductor holder	M6	M6	M8	M8
Material of conductor holder	plastic	plastic	plastic	plastic
Colour of conductor holder	grey	brown	grey	brown
Conductor holder support Rd	8 mm	8 mm	8 mm	8 mm

Height 36 mm with female thread



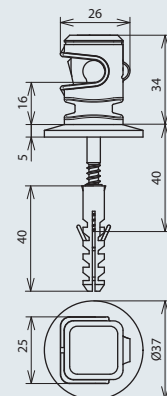
Part No.	204 003	204 027	204 004	204 037
Height of conductor holder	36 mm	36 mm	36 mm	36 mm
Thread of conductor holder	M6	M6	M8	M8
Material of conductor holder	plastic	plastic	plastic	plastic
Colour of conductor holder	grey	brown	grey	brown
Conductor holder support Rd	8 mm	8 mm	8 mm	8 mm

Height 16 mm with screw



Part No.	204 006
Height of conductor holder	16 mm
Thread of conductor holder	M8
Material of conductor holder	plastic
Colour of conductor holder	grey
Conductor holder support Rd	8 mm
Screw	⚙️ 5x50 mm

Height 16 mm premounted with screw, cover plate and dowel



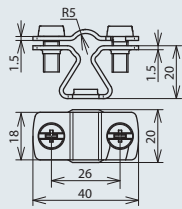
Part No.	204 120
Height of conductor holder	16 mm
Thread of conductor holder	M8
Material of conductor holder	plastic
Colour of conductor holder	grey
Conductor holder support Rd	8 mm
Screw	⚙️ 5x50 mm
Plastic dowel	∅8x40 mm

Conductor holder with slotted cleat for fixing of round conductors, fixed conductor leading

For use with different materials e.g. Al, StSt, St/tZn and Cu

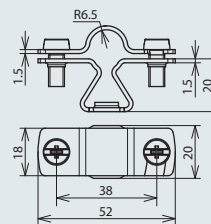


With female thread



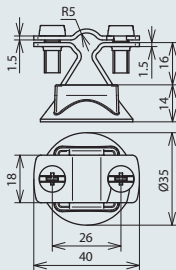
Part No.	274 110	274 117
Material of conductor holder	StSt	StSt / gal Cu
Conductor holder support Rd	8-10 mm	8-10 mm
Conductor holder support Fl	20 mm	20 mm
Height of conductor holder	20 mm	20 mm
Thread of conductor holder	M8	M8
Standard	EN 50164-4	—

With female thread, e.g. for round wire with plastic coating



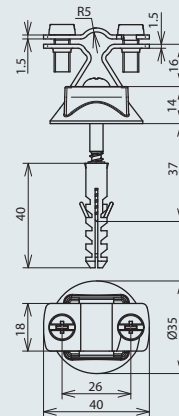
Part No.	274 113
Material of conductor holder	StSt
Conductor holder support Rd	13 mm
Height of conductor holder	20 mm
Thread of conductor holder	M8

With female thread, premounted with plastic base



Part No.	274 150
Material of conductor holder	StSt
Conductor holder support Rd	8-10 mm
Conductor holder support Fl	20 mm
Height of conductor holder	20 mm
Thread of conductor holder	M8

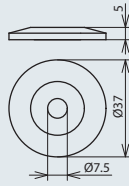
With female thread, premounted with screw, plastic base and dowel



Part No.	274 160	274 167
Material of conductor holder	StSt	StSt / gal Cu
Conductor holder support Rd	8-10 mm	8-10 mm
Conductor holder support Fl	20 mm	20 mm
Height of conductor holder	20 mm	20 mm
Thread of conductor holder	M8	M8
Plastic base	grey	brown
Screw	⚙ 5x50 mm	⚙ 5x50 mm
Plastic dowel	Ø8x40 mm	Ø8x40 mm
Standard	EN 50164-4	—

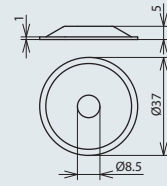
Cover disc and plastic base as an intermediate element for screwable / snap-on conductor holders and rod holders

Cover discs, plastic



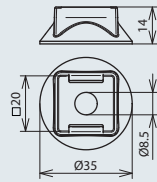
Part No.	276 006	276 007
Height	5 mm	5 mm
Diameter	37 mm	37 mm
Material	plastic	plastic
Colour	grey	brown
Type	UV stabilized	UV stabilized

Cover disc, StSt



Part No.	276 009
Height	5 mm
Diameter	37 mm
Material	StSt

Plastic bases

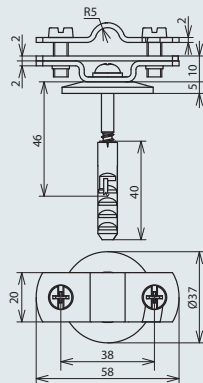


For snapping onto the conductor holders DEHNgrip and DEHNhold

Part No.	276 016	276 017
Height	10 mm	10 mm
Diameter	35 mm	35 mm
Material	plastic	plastic
Colour	grey	brown
Type	UV stabilized	UV stabilized

Conductor Holder with Cleat – Flat Design

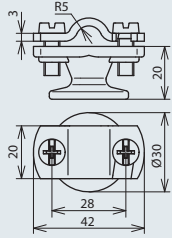
Two-screws-cleat with screws M6, for round and flat conductors



Part No.	286 819
Conductor holder support Rd	7-10 mm
Conductor holder support Fl	30 mm
Height of conductor holder	10 mm
Material of conductor holder	StSt
Screw	⚙️ 5x50 mm
Plastic dowel	Ø8x50 mm
Standard	EN 50164-4

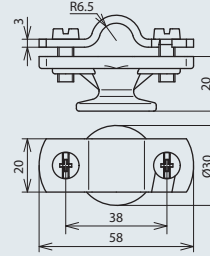
Complete unit with flange for the installation of conductors, fixed conductor leading

With female thread M8



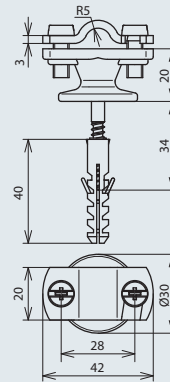
Part No.	275 110
Conductor holder support Rd	7-10 mm
Thread of conductor holder	M8
Height of conductor holder	20 mm
Material of cleat	St/tZn
Material of base part	ZDC
Standard	EN 50164-4

With female thread, e.g. for round wire with plastic coating



Part No.	275 113
Conductor holder support Rd	13 mm
Thread of conductor holder	M8
Height of conductor holder	20 mm
Material of cleat	St/tZn
Material of base part	ZDC

With female thread, premounted with screw and dowel



Part No.	275 160
Conductor holder support Rd	7-10 mm
Thread of conductor holder	M8
Height of conductor holder	20 mm
Material of cleat	St/tZn
Material of base part	ZDC
Screw	5x50 mm
Plastic dowel	Ø8x40 mm
Standard	EN 50164-4

DEHNfix® Conductor Holders

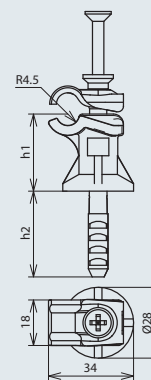
Two-in-one system (fixing of holder and conductor) with conductor holder DEHNQUICK, fixed conductor leading, UV stabilised, height (h1) 30 mm, bore depth (h2) 45 mm, bore Ø8 mm

Easy mounting:

- Just prebore
- Put in holder with inserted conductor
- Fix with a few hammer blows

Advantages:

- Cleat, spacer and dowel form a single unit
- Premounted, ready for driving in

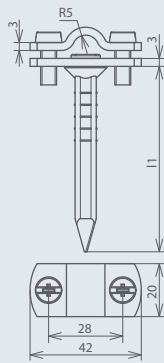


Part No.	250 000	250 001	250 007
Material of cleat	St/tZn	StSt	Cu
Material of base part	plastic	plastic	plastic
Height of base part	30 mm	30 mm	30 mm
Conductor holder support Rd	6-10 mm	6-10 mm	6-10 mm
Colour of conductor holder	grey	grey	brown
Striking dowel	75/30 mm	75/30 mm	75/30 mm

Note: Only suitable for massive stones or concrete

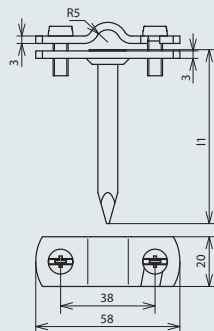
Two-screws-cleat with screws M6, for round and flat conductors

With square pin



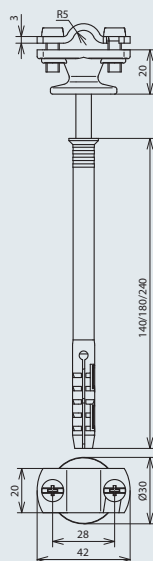
Part No.	260 708	260 108	260 158	260 187
Conductor holder support Rd	7-10 mm	7-10 mm	7-10 mm	7-10 mm
Conductor holder support Fl	20 mm	20 mm	20 mm	20 mm
Material of cleat	St/tZn	St/tZn	St/tZn	Cu
Material of base part	St/tZn	St/tZn	St/tZn	Cu
Fixing (l1)	square pin 70 mm	square pin 100 mm	square pin 150 mm	square pin 100 mm

With loose round pin



Part No.	262 070	262 100
Conductor holder support Rd	7-10 mm	7-10 mm
Conductor holder support Fl	30 mm	30 mm
Material of cleat	St/tZn	St/tZn
Material of base part	St/tZn	St/tZn
Fixing (l1)	round pin 70 mm	round pin 100 mm

Conductor Holders for External Thermal Insulation Composite Systems



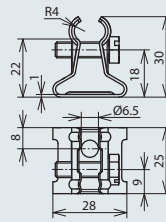
Conductor holders for fixing down conductors at walls with external thermal insulation composite system

Two-screws-cleat with screws M6, fixed conductor leading

Part No.	273 740	273 741	273 742
Thickness of insulating material	approx. 60 mm	approx. 110 mm	approx. 130 mm
Bore depth	approx. 150 mm	approx. 190 mm	approx. 250 mm
Conductor holder support Rd	7-10 mm	7-10 mm	7-10 mm
Material of base part	ZDC	ZDC	ZDC
Material of cleat	St/tZn	St/tZn	St/tZn
Height of conductor holder	20 mm	20 mm	20 mm
Screw of dowel	TX40) 7x140 mm	TX40) 7x180 mm	TX40) 7x240 mm
Standard	EN 50164-4	EN 50164-4	EN 50164-4

Conductor holder for wall mounting with clamping screw M6, fixed conductor leading

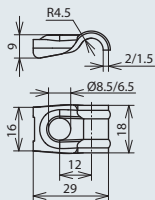
Part No.	273 019
Bore Ø	6.5 mm
Material of conductor holder	StSt
Conductor holder support Rd	6-10 mm
Height of conductor holder	22 mm
Screw	☛ M6x20 mm
Material of screw	StSt



Conductor Holder Cleats

Conductor holders for the installation of round conductors e.g. flush-mounted or wall-mounted (under the thermal insulation composite system)

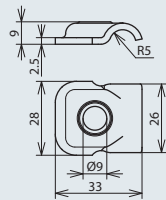
DEHNQUICK



Single-screw-cleat with flexible clamping range and fixed conductor leading

Part No.	202 000	202 001	202 169
Material of conductor holder	St/tZn	StSt	StSt
Conductor holder support Rd	6-10 mm	6-10 mm	6-10 mm
Bore Ø	8.5 mm	8.5 mm	6.5 mm

Clamping frame



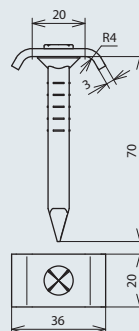
Single-screw-cleat for clamping frames with flexible clamping range and fixed conductor leading

Part No.	390 110	390 119
Material of conductor holder	St/tZn	StSt
Conductor holder support Rd	6-10 mm	6-10 mm
Bore Ø	9 mm	9 mm

Conductor Holder for Flush Mounting

Conductor holder with clamping plate for nailing

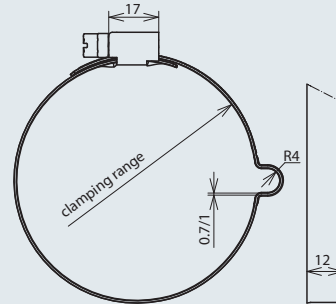
Part No.	260 118
Conductor holder support Rd	6-10 mm
Material of conductor holder	St/tZn
Conductor leading	fixed/loose
Fixing	square pin 70 mm
Clamping plate	36x20x3 mm





Conductor holders for the installation of down conductors at downpipes with fixed conductor leading
All types are suitable also for plastic downpipes.

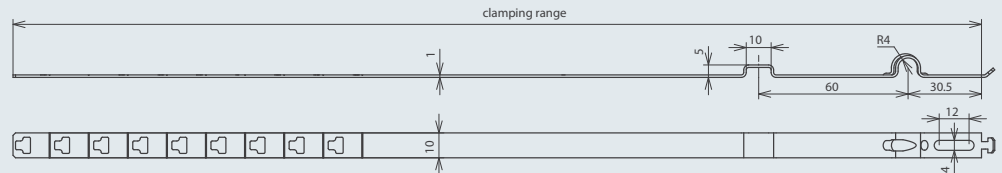
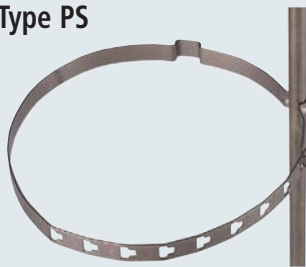
Type PPS



With worm drive and bead

Part No.	200 079	200 077	200 089	200 087
Clamping range Ø pipe	80-100 mm	80-100 mm	100-120 mm	100-120 mm
Conductor holder support Rd	8 mm	8 mm	8 mm	8 mm
Material of conductor holder	StSt	StSt / gal Cu	StSt	StSt / gal Cu
Screw	screw with worm drive SW7 mm	screw with worm drive SW7 mm	screw with worm drive SW7 mm	screw with worm drive SW7 mm
Material of grip head/screw	StSt	StSt / gal Cu	StSt	StSt / gal Cu

Type PS



Screwless, with embossments for tongs

Part No.	200 069	200 067	200 059	200 057
Clamping range Ø pipe	80-120 mm, in steps of 5 mm	80-120 mm, in steps of 5 mm	100 mm	100 mm
Conductor holder support Rd	8 mm	8 mm	8 mm	8 mm
Material of conductor holder	StSt	Cu	StSt	Cu

Type PV

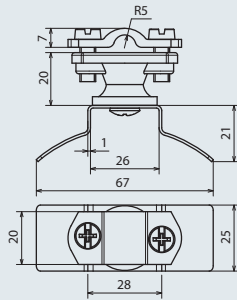


Adjustable, with clamping screw M8

Part No.	200 029	200 039	200 027
Clamping range Ø pipe	50-120 mm	50-150 mm	50 -120 mm
Conductor holder support Rd	6-8 mm	6-8 mm	6-8 mm
Material of conductor holder	StSt	StSt	Cu/bronze
Screw	⚙ (SW13) M8x16 mm	⚙ (SW13) M8x16 mm	⚙ (SW13) M8x16 mm
Material of grip head/screw	StSt	StSt	StSt

Plastic conductor holders for insulated fixing of earth entries at metal downpipes
 Allows for measuring without detaching
 Holder with clamping part for tensioning strap fixing (dimension 14x0.3 mm)

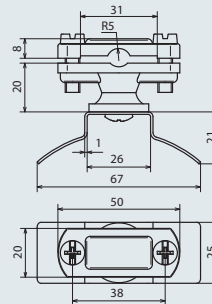
For round conductors



For round conductors, fixed conductor leading, made of weather-resistant plastic, UV stabilised and halogen-free.

Part No.	275 711
Material of conductor holder	PA
Material of clamping part	StSt
Conductor holder support Rd	6-11 mm

For flat strips or round conductors

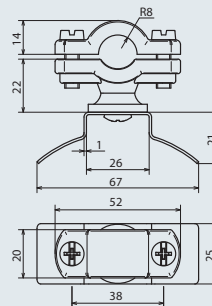


For round conductors and flat strips, fixed conductor leading, made of weather-resistant plastic, UV stabilised and halogen-free.

Part No.	275 730
Material of conductor holder	PA
Material of clamping part	StSt
Conductor holder support Rd	6-11 mm
Conductor holder support Fl	30 mm

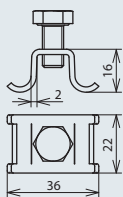
For earth entry rods, fixed conductor leading, made of weather-resistant plastic, UV stabilised and halogen-free

Part No.	275 716
Material of conductor holder	PA
Material of clamping part	StSt
Conductor holder support Rd	16 mm



Single Part for Conductor Holders / Accessory for Plastic Conductor Holders for Downpipes

Separate grip head



For combination with endless tensioning strap (Part No. 540 931)

Part No.	540 930
Conductor holder support Rd	6-8 mm
Material of conductor holder	StSt
Screw	☛ (SW13) M8x16 mm
Material of grip head/screw	StSt

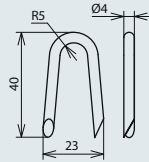
Endless tensioning strap



For cutting to length with sheet shears

Part No.	540 931
Material of conductor holder	StSt
Dimension of strap (w x d)	14x0.3 mm
Length	50 m

Staples for fixing conductors e.g. at wooden masts etc.

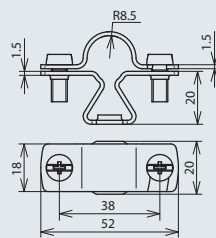


Part No.	538 010
Material of conductor holder	St/tZn
Conductor holder support Rd	6-10 mm
Conductor leading	fixed/loose

Rod Holders DEHNhold

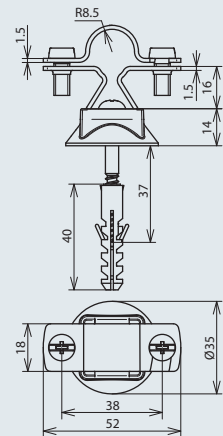
Rod holders for fixing of air-termination rods and earth entry rods, with slotted cleat, fixed conductor leading
For use with different materials e.g. Al, StSt, St/tZn and Cu

With female thread



Part No.	274 116
Material of conductor holder	StSt
Conductor holder support Rd	16 mm
Height of conductor holder	20 mm
Thread of conductor holder	M8

Premounted with screw, plastic base and dowel

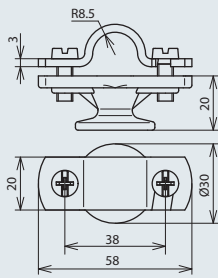


With female thread

Part No.	274 260
Material of conductor holder	StSt
Conductor holder support Rd	16 mm
Height of conductor holder	20 mm
Thread of conductor holder	M8
Screw	⚙️ 5x50 mm
Plastic dowel	Ø8x40 mm

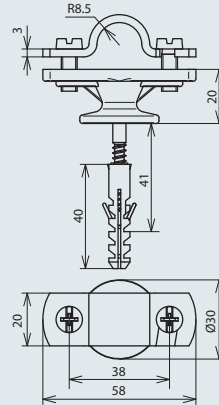
Complete unit with flange for the installation of air-termination rods and earth entry rods, fixed conductor leading

With female thread



Part No.	275 116
Conductor holder support Rd	16 mm
Thread of conductor holder	M8
Height of conductor holder	20 mm
Material of cleat	St/tZn
Material of base part	ZDC

Premounted with screw and dowel

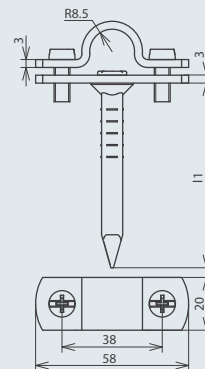


Part No.	275 260
Conductor holder support Rd	16 mm
Thread of conductor holder	M8
Height of conductor holder	20 mm
Material of cleat	St/tZn
Material of base part	ZDC
Screw	⊕ 5x50 mm
Plastic dowel	∅8x40 mm

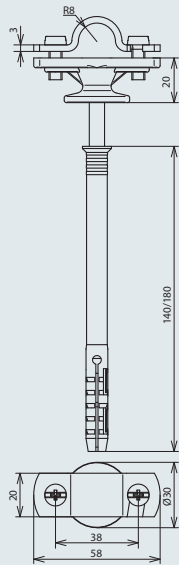
Rod Holders with Cleat and Pin

With square pin

Two-screws-cleat with screws M6 for air-termination and earth entry rods, fixed conductor leading



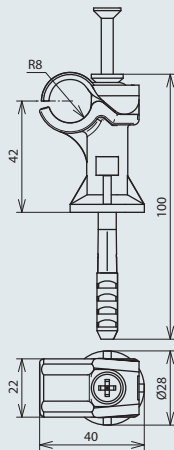
Part No.	260 106
Material of cleat	St/tZn
Material of base part	St/tZn
Conductor holder support Rd	16 mm
Fixing (l1)	square pin 100 mm



Two-screws-cleat with screws M6, with flange (ZDC) and plastic dowel Ø10 mm

Part No.	273 731
Thickness of insulating material	approx. 110 mm
Depth of bore	approx. 190 mm
Material of cleat	St/tZn
Material of base part	ZDC
Height of conductor holder	20 mm
Conductor holder support Rd	16 mm
Screw/dowel	TX40) 7x180 mm

Rod Holders DEHNfix®

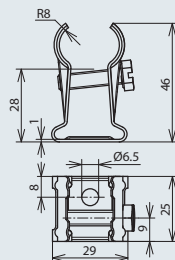


Holder system with two functions (fixing of holder and conductor), fixed conductor leading

Only suitable for massive stones or concrete

Part No.	252 000
Material of cleat	St/tZn
Material of base part	plastic
Colour of conductor holder	grey
Installation height of base part	42 mm
Conductor holder support Rd	16 mm
Impact dowel	100/60 mm
Bore Ø for impact dowel	10 mm
Bore depth	60 mm

Rod Holder with Claw



Rod holder for wall mounting with fixing screw M6, fixed conductor leading

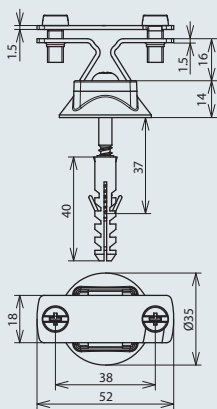
Part No.	275 019
Bore Ø	6.5 mm
Material of conductor holder	StSt
Height of conductor holder	28 mm
Conductor holder support Rd	13-16 mm
Screw	M6x25 mm
Material of screw	StSt

Flat strip holders for the fixing of flat conductors with slotted cleat, fixed conductor leading

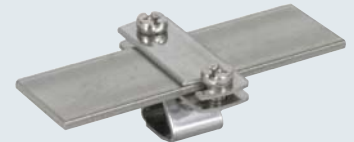
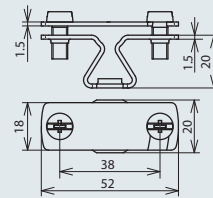
For use with different materials e.g. Al, StSt, St/tZn and Cu



Premounted with screw, plastic base and dowel



With female thread

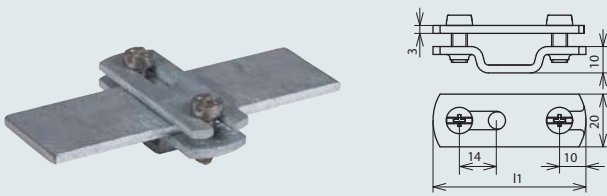


Part No.	274 230
Material of conductor holder	StSt
Conductor holder support Fl	30x3.5 mm
Conductor holder support Rd	6-10 mm
Height of conductor holder	20 mm
Thread of conductor holder	M8
Screw	5x50 mm
Plastic dowel	Ø8x40 mm
Standard	EN 50164-4

Part No.	274 030
Material of conductor holder	StSt
Conductor holder support Fl	30x3.5 mm
Conductor holder support Rd	6-10 mm
Height of conductor holder	20 mm
Thread of conductor holder	M8
Standard	EN 50164-4

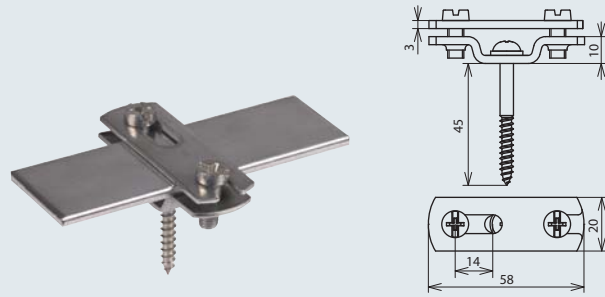
Two-screws-cleat with screws M6

With slot (6.5x16 mm)



Part No.	284 030	284 040
Height of conductor holder	10 mm	10 mm
Conductor holder support Fl	30x3.5 mm	40x4-5 mm
Material of conductor holder	St/tZn	St/tZn
Material of base part	St/tZn	St/tZn
Dimension (l1)	58 mm	70 mm
Standard	EN 50164-4	EN 50164-4

With slot (6.5x16 mm) and premounted wood screw

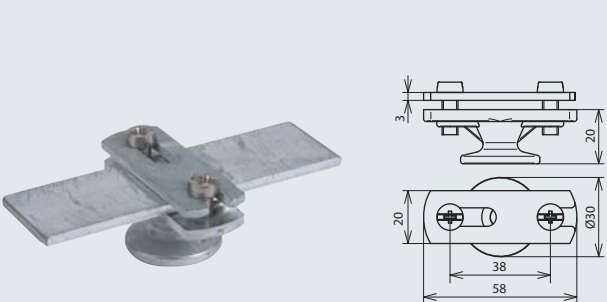


Part No.	286 030	286 139
Height of conductor holder	10 mm	10 mm
Conductor holder support Fl	30x3.5 mm	30x3.5 mm
Material of conductor holder	St/tZn	StSt
Material of base part	St/tZn	StSt
Screw	⚙️ 5x50 mm	⚙️ 5x50 mm
Dimension (l1)	58 mm	58 mm
Standard	EN 50164-4	EN 50164-4

Flat Strip Holders with Cleat and Flange

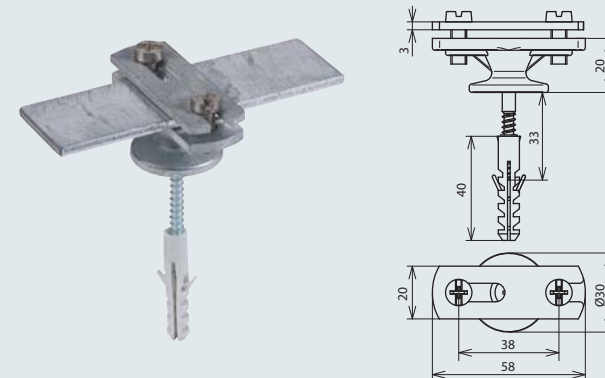
Complete unit with flange for the installation of strip conductors

With female thread



Part No.	275 030
Conductor holder support Fl	30x30.5 mm
Thread of conductor holder	M8
Height of conductor holder	20 mm
Material of cleat	St/tZn
Material of base part	ZDC
Standard	EN 50164-4

With female thread, premounted with screw and dowel



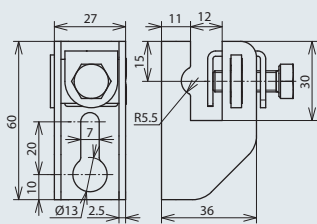
Part No.	275 230
Conductor holder support Fl	30x3.5 mm
Thread of conductor holder	M8
Height of conductor holder	20 mm
Material of cleat	St/tZn
Material of base part	ZDC
Screw	⚙️ 5x50 mm
Plastic dowel	Ø8x40 mm
Standard	EN 50164-4

Flat strip holders for wall mounting

Thrust piece with screw M8 for the installation of strip conductor up to 11 mm and round conductor 6-10 mm

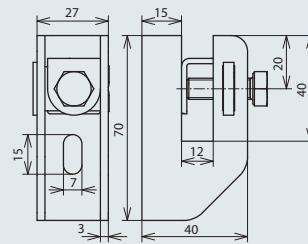


Wall distance 11 mm



Part No.	277 230	277 237	277 239
Material of conductor holder	St/tZn	Cu	StSt
Wall distance	11 mm	11 mm	11 mm
Fixing	Ø13 und 7x20 mm	Ø13 und 7x20 mm	Ø13 und 7x20 mm
Slot width	12 mm	12 mm	12 mm
Screw	M8x25 mm	M8x25 mm	M8x25 mm
Material of screw	StSt	StSt	StSt
Standard	EN 50164-4	EN 50164-4	EN 50164-4

Wall distance 15 mm

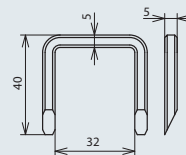


Part No.	277 240
Material of conductor holder	St/tZn
Wall distance	15 mm
Fixing	7x15 mm
Slot width	12 mm
Screw	M8x25 mm
Material of screw	StSt
Standard	EN 50164-4

Staples for Flat Strips

Staples for fixing strip conductors e.g. at wooden masts etc.

Part No.	538 030
Material of conductor holder	St/tZn
Conductor holder support Fl	30 mm
Conductor leading	fixed/loose



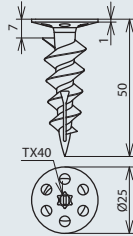
Dowels for rigid foam plates to fix conductor holders, flat strip and rod holders in external thermal insulation composite systems.

With star drive (TX40)

Mounting with wood screws $\varnothing 4.5$ mm

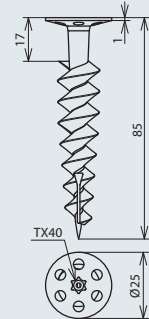
These dowel are only suitable for conductor holder fixing, if there are no additional tensile forces on the down conductor.

Short design



Part No.	200 600
Material	PA
Thickness of insulating material	60 mm
Length of anchoring depth	50 mm
Working load of Styrofoam PS20	35 N
Working load of rigid foam plates	60 N

Long design

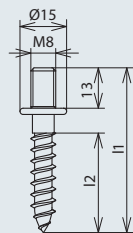


Part No.	200 601
Material	PA
Thickness of insulating material	100 mm
Length of anchoring depth	85 mm
Working load of Styrofoam PS20	60 N
Working load of rigid foam plates	85 N

More details in installation instructions No. 1459.

Wood Screws with Threaded Head

Hanger bolt for fixing of conductor, flat strip and rod holders with female thread

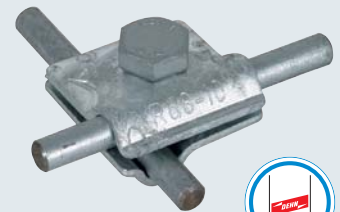
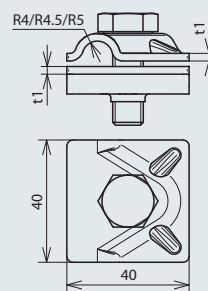


Part No.	528 850	528 870
Material	St/gal Zn	St/gal Zn
Thread	M8	M8
Length (l1)	53 mm	73 mm
Length (l2)	32 mm	42 mm

Multipurpose connecting clamp for universal use as a cross clamp, T clamp and parallel clamp; two-part



With hexagon screw

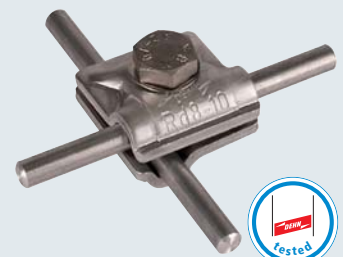
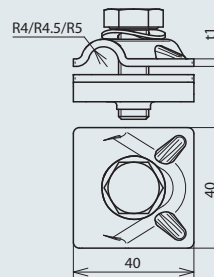


Thread in the base part

Part No.	390 050	390 051	390 059	390 057	391 050	391 059	390 079
Material of clamp	St/tZn	Al	StSt	Cu	St/tZn	StSt	StSt (V4A)
Clamping range Rd	8-10 mm	8-10 mm	8-10 mm	8 mm	10 mm	10 mm	8-10 mm
Material thickness (t1)	2.5 mm	3.0 mm	2.5 mm	3.0 mm	2.5 mm	2.5 mm	2.5 mm
Screw	M10x30 mm	M10x30 mm	M10x30 mm	M10x30 mm	M10x35 mm	M10x35 mm	M10x35 mm
Material of screw/nut	St/tZn	StSt	StSt	StSt	St/tZn	StSt	StSt (V4A)
Material No.	—	—	—	—	—	—	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	—	—	—	—	—	316Ti / 316L / 316
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	5.5 kA	—	—	—	—	—	4.7 kA

Part No. 390 079 with StSt (V4A) also suitable for use underground

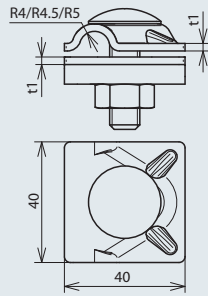
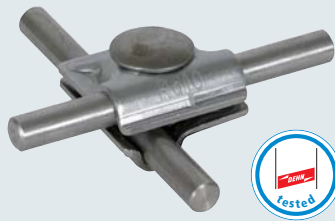
With hexagon screw and spring washer



Thread in the base part

Part No.	390 550	390 551	390 559	390 557	391 550	391 559
Material of clamp	St/tZn	Al	StSt	Cu	St/tZn	StSt
Clamping range Rd	8-10 mm	8-10 mm	8-10 mm	8 mm	10 mm	10 mm
Material thickness (t1)	2.5 mm	3.0 mm	2.5 mm	3.0 mm	2.5 mm	2.5 mm
Screw	M10x30 mm	M10x30 mm	M10x30 mm	M10x30 mm	M10x35 mm	M10x35 mm
Material of screw/nut	St/tZn	StSt	StSt	StSt	St/tZn	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

With truss head screw

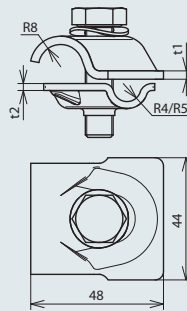


and anti-rotation feature (square hole in the upper part)

Part No.	390 060	390 061	390 067	391 060	391 069
Material of clamp	St/tZn	Al	Cu	St/tZn	StSt
Clamping range Rd	8-10 mm	8-10 mm	8 mm	10 mm	10 mm
Material thickness (t1)	2.5 mm	3.0 mm	3.0 mm	2.5 mm	2.5 mm
Screw	↑ M10x35 mm	↑ M10x35 mm	↑ M10x35 mm	↑ M10x35 mm	↑ M10x35 mm
Material of screw/nut	St/tZn	St/tZn	StSt	St/tZn	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

Type of MV clamp St/tZn Part No. 390 060 with StSt screw Part No. 390 060/S Id. No. 045137 upon request

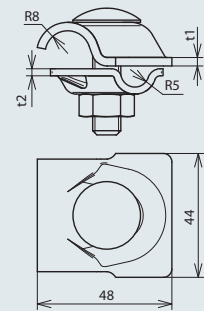
With hexagon screw and spring washer for air-termination rods



With thread in the base part

Part No.	392 050	392 059
Material of clamp	St/tZn	StSt
Clamping range Rd	8-10/16 mm	8-10/16 mm
Material thickness (t1 / t2)	3.0/2.5 mm	3.0/2.5 mm
Screw	↑ M10x40 mm	↑ M10x40 mm
Material of screw/nut	St/tZn	StSt
Standard	EN 50164-1	EN 50164-1

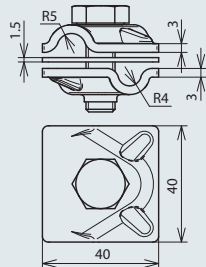
With truss head screw for air-termination rods



and anti-rotation feature (square hole in the upper part)

Part No.	392 060	392 069
Material of clamp	St/tZn	StSt
Clamping range Rd	8-10/16 mm	8-10/16 mm
Material thickness (t1 / t2)	3.0/2.5 mm	3.0/2.5 mm
Screw	↑ M10x40 mm	↑ M10x40 mm
Material of screw/nut	St/tZn	StSt
Standard	EN 50164-1	EN 50164-1

Bimetallic MV clamp



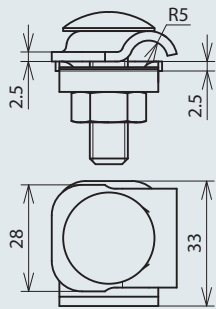
For the connection of conductors made of different materials, with intermediate plate (Cupal) and thread in the base part

Part No.	390 657
Material of clamp	Cu / Al
Clamping range Rd Cu	8 mm
Clamping range Rd Al	8-10 mm
Screw	↑ M10x30 mm
Material of screw/nut	StSt

Mini multipurpose connecting clamp for universal use as a cross clamp, T clamp and parallel clamp, with anti-rotation feature

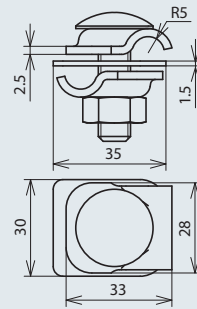


MMV Clamp



Part No.	390 250	390 257	390 259
Material of clamp	St/tZn	Cu	StSt
Clamping range Rd	6-8 mm	6-8 mm	6-8 mm
Material thickness	2.5 mm	2.5 mm	2.5 mm
Screw	⬆ M10x35 mm	⬆ M10x35 mm	⬆ M10x35 mm
Material of screw/nut	St/tZn	StSt	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1

Bimetallic MMV Clamp

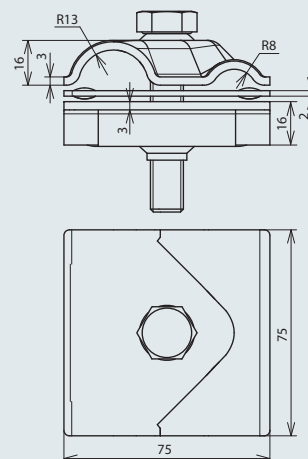


For the connection of conductors made of different materials, with intermediate plate (Cupal)

Part No.	390 267
Material of clamp	Cu / St/tZn
Clamping range Rd Cu	6-8 mm
Clamping range Rd St/tZn	6-8 mm
Screw	⬆ M10x35 mm
Material of screw/nut	StSt
Standard	EN 50164-1

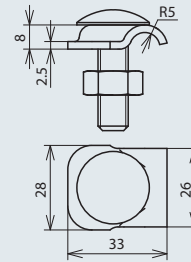
MAXI MV Clamps

Maxi multipurpose connecting clamp for universal use as a cross clamp, T clamp and parallel clamp, for connecting earth rods or reinforcements; three-part, with thread in the base part



Part No.	308 041	308 040
Material of clamp	St/tZn	St/bare
Clamping range Rd	8-16 / 15-25 mm	8-16 / 15-25 mm
Material thickness	3.0 / 2.0 mm	3.0 / 2.0 mm
Screw	⬆ M12x65 mm	⬆ M12x65 mm
Material of screw	St/tZn	St/bare
Standard	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	6.2 kA	10.2 kA
Approval	—	UL467B
Stock No.	5999-12-362-1557	—

Clamping frame variants e.g. as terminal with end piece
 For constructions or for use at downpipe clamps
 Clamping frame with square hole 11 mm and truss head screw



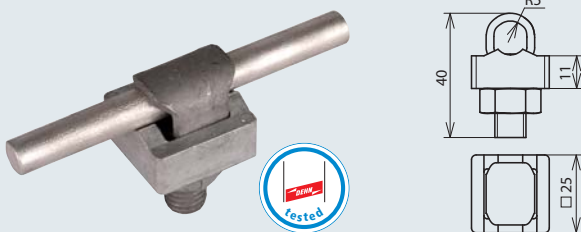
Part No.	390 150	390 157	390 159
Material of clamp	St/tZn	Cu	StSt
Clamping range Rd	6-10 mm	6-10 mm	6-10 mm
Material thickness	2.5 mm	2.5 mm	2.5 mm
Screw	↑ M10x35 mm	↑ M10x35 mm	↑ M10x35 mm
Material of screw/nut	St/tZn	StSt	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1

KS Connectors



Clamping screw connector for lightning current carrying capable connection of round conductors e.g. to flat profiles, downpipe clamps or other parts of the lightning protection system

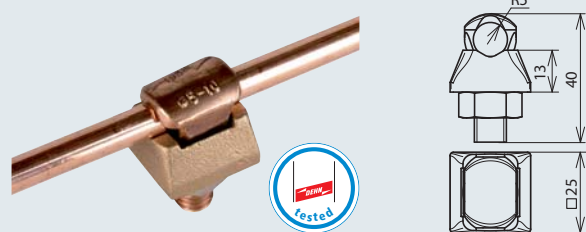
One-piece, St/tZn



With screw and nut M10

Part No.	301 000	301 010
Material of clamping screw	St/tZn	St/tZn
Material of clamp	ZDC	ZDC
Clamping range Rd	7-10 mm	7-10 mm
Type	—	+ spring washer
Material of nut	St/tZn	St/tZn
Standard	EN 50164-1	EN 50164-1

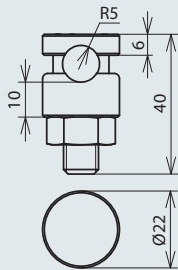
One-piece, Cu



With screw and nut M10

Part No.	301 007	301 017
Material of clamping screw	Cu	Cu
Material of clamp	RCB	RCB
Clamping range Rd	6-10 mm	6-10 mm
Connection		
(single-wire/multi-wire)	25 - 70 mm ²	25 - 70 mm ²
Type	—	+ spring washer
Material of nut	StSt	StSt
Standard	EN 50164-1	EN 50164-1

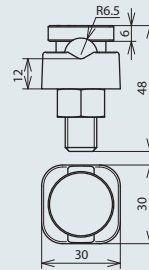
One-piece, StSt



With screw and nut M10

Part No.	301 009	301 019
Material of clamping screw	StSt	StSt
Material of clamp	StSt	StSt
Clamping range Rd	6-10 mm	6-10 mm
Connection (single-wire/multi-wire)	25 - 70 mm ²	25 - 70 mm ²
Type	—	+ spring washer
Material of nut	StSt	StSt
Standard	EN 50164-1	EN 50164-1

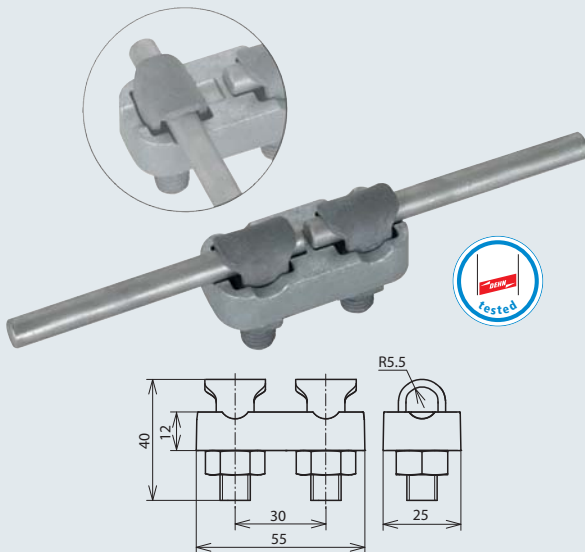
Heavy design



With screw and nut M12

Part No.	300 002	300 017
Material of clamping screw	St/tZn	Cu
Material of clamp	MCI	RCB
Clamping range Rd	8-12.5 mm	8-12.5 mm
Connection (single-wire/multi-wire)	50 - 95 mm ²	50 - 95 mm ²
Material of nut	St/tZn	Cu
Standard	EN 50164-1	EN 50164-1

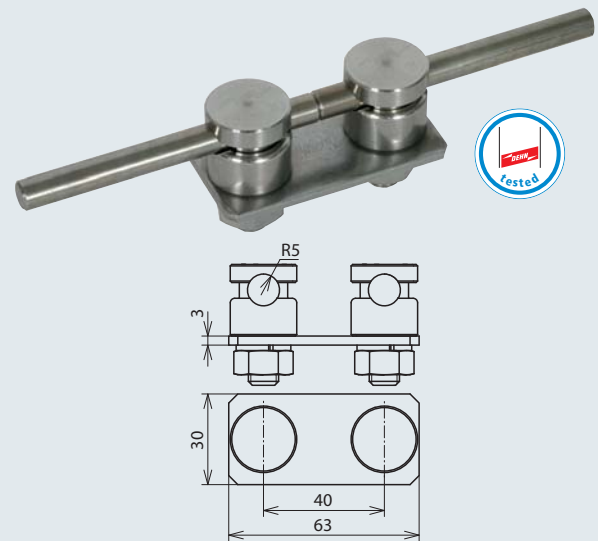
Two-piece, distance 30 mm



With screw and nut M10

Part No.	302 010
Material of clamping screw	St/tZn
Material of clamp	Zamak
Clamping range Rd	7-10 mm
Material of nut	St/tZn
Standard	EN 50164-1

Two-piece, distance 40 mm

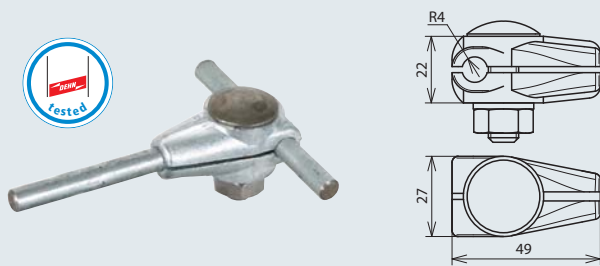


With screw and nut M10

Part No.	301 229
Material of clamping screw	StSt
Material of clamp	StSt
Clamping range Rd	6-10 mm
Type	+ spring washer
Material of nut	StSt
Standard	EN 50164-1

For use to connect round conductors in T and longitudinal arrangements

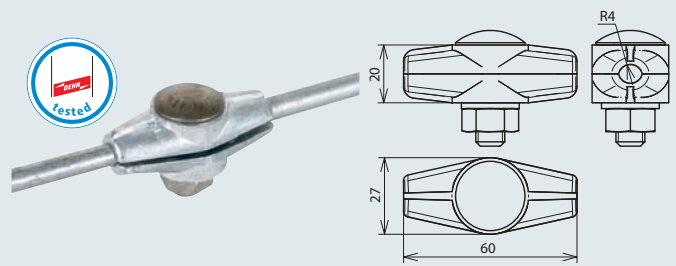
EST Connector



One-screw T connector

Part No.	310 008
Material of clamp	ZDC
Clamping range Rd	8 mm
Screw	⬆ M10x35 mm
Material of screw/nut	StSt
Standard	EN 50164-1

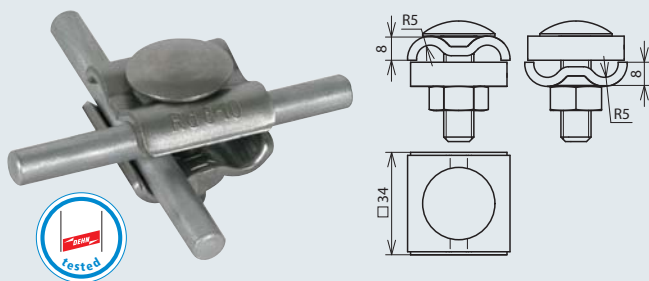
ES Connectors



One-screw connectors for longitudinal arrangements

Part No.	309 008	309 087
Material of clamp	ZDC	RCB
Clamping range Rd	8 mm	8 mm
Screw	⬆ M10x35 mm	⬆ M10x35 mm
Material of screw/nut	StSt	StSt
Standard	EN 50164-1	EN 50164-1

Universal Connector

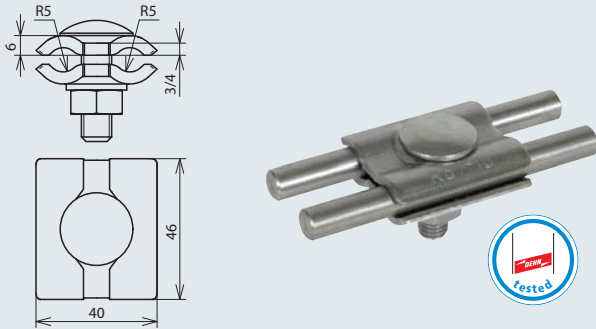


Connection of round conductors, for cross, T, and parallel connections and double conductor connection

Part No.	315 119
Material of clamp	StSt
Clamping range Rd	8-10 mm
Screw	⬆ M10x35 mm
Material of screw/nut	StSt
Standard	EN 50164-1

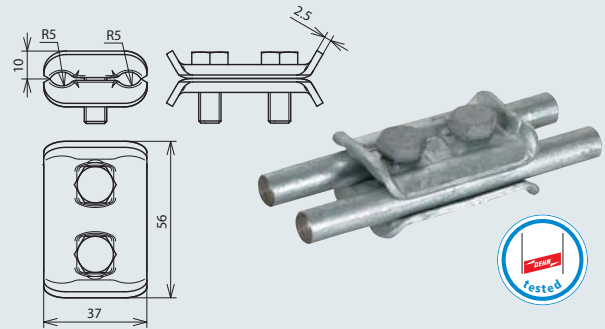
Parallel connector for two conductors in parallel arrangement

For equal diameters with one screw



Part No.	306 020	306 029
Material of clamp	St/tZn	StSt (V4A)
Clamping range Rd/Rd	7-10 mm	7-10 mm
Screw	⬆ M10x35 mm	⬆ M10x35 mm
Material of screw/nut	St/tZn	StSt (V4A)
Material No.	—	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	316Ti / 316L / 316
Standard	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	—	2.9 kA

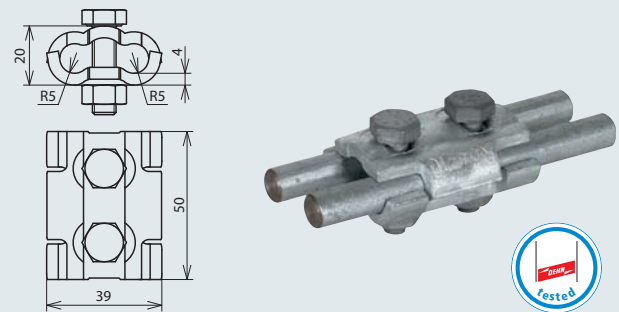
For equal diameters with two screws



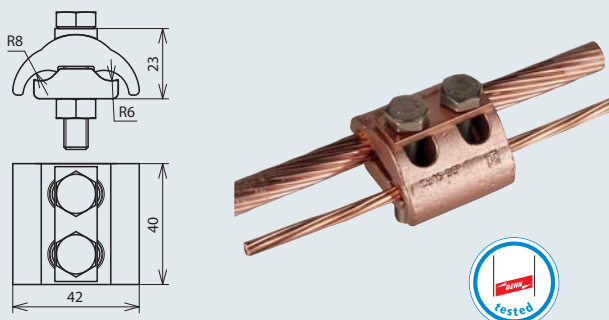
Part No.	307 000	307 007
Material of clamp	St/tZn	Cu
Clamping range Rd/Rd	7-10 mm	7-10 mm
Screw	⬆ M8x20 mm	⬆ M8x20 mm
Material of screw/nut	St/tZn	StSt
Standard	EN 50164-1	EN 50164-1
Military Name	VG 96953 T06 D0002	—
Stock No.	5999-12-158-2303	—

For different diameters 4-10 mm

Part No.	305 000	305 007
Material of clamp	St/tZn	Cu
Clamping range Rd/Rd	4-10 mm	4-10 mm
Screw	⬆ M8x30 mm	⬆ M8x30 mm
Material of screw/nut	St/tZn	StSt
Standard	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	—	13.6 kA



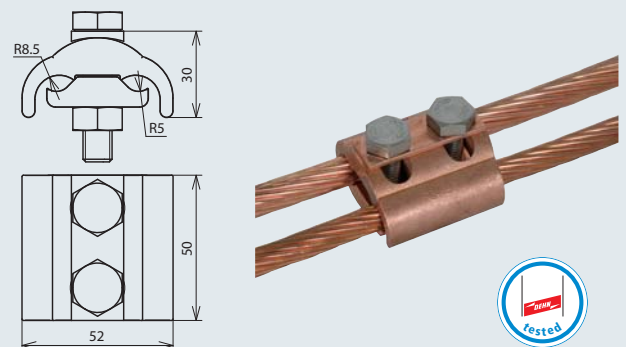
For different cable diameters, small



Specified short-circuit current is valid for 70 mm² Cu cable

Part No.	306 100
Material of clamp	Cu
Clamping range Rd/Rd	5-12.5 mm
Clamping range (stranded or cable)	16-95 mm ²
Screw	⬆ M8x45 mm
Material of screw/nut	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	13.6 kA

For different cable diameters, large



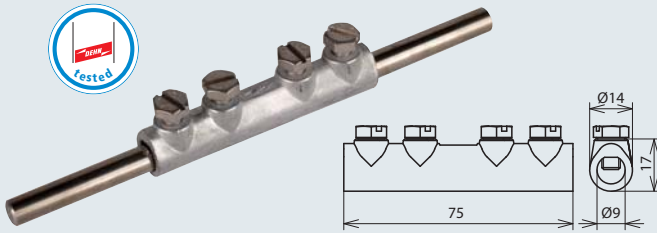
Specified short-circuit current is valid for 70 mm² Cu cable

Part No.	306 101
Material of clamp	Cu
Clamping range Rd/Rd	5-16 mm
Clamping range (stranded or cable)	16-150 mm ²
Screw	⬆ M10x50 mm
Material of screw/nut	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	13.6 kA



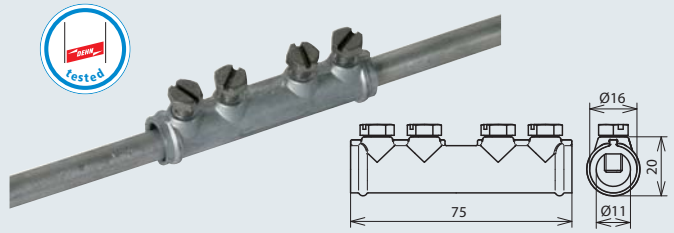
Connecting sleeves for longitudinal connection of two round conductors with four screws M6

ZDC 8



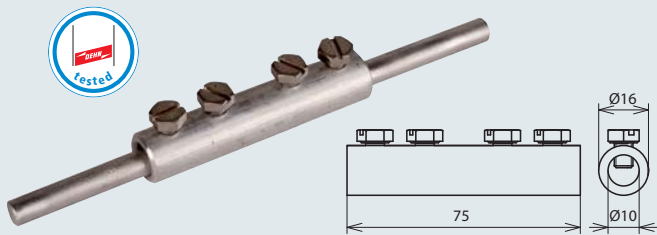
Part No.	385 203
Material of clamp	ZDC
Clamping range Rd	8 mm
Screw	M6x10 mm
Material of screw	StSt
Standard	EN 50164-1

ZDC 7-10



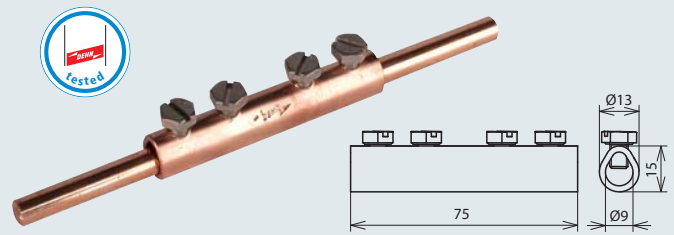
Part No.	385 202
Material of clamp	ZDC
Clamping range Rd	7-10 mm
Screw	M6x12 mm
Material of screw	StSt
Standard	EN 50164-1

Al 8



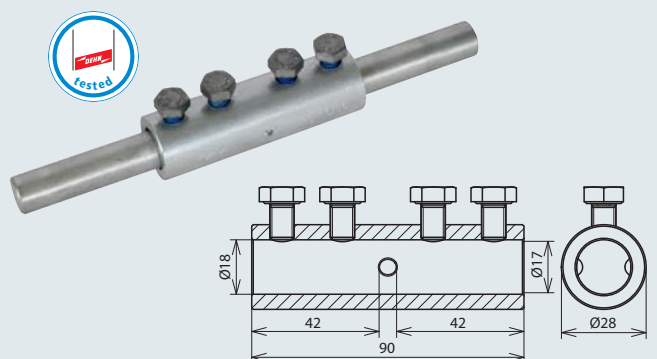
Part No.	385 213
Material of clamp	Al
Clamping range Rd	8 mm
Screw	M6x8 mm
Material of screw	StSt
Standard	EN 50164-1

Cu 8



Part No.	385 207
Material of clamp	Cu
Clamping range Rd	8 mm
Screw	M6x8 mm
Material of screw	StSt
Standard	EN 50164-1

Connecting Sleeve for Air-termination Rods



Connecting sleeve with embossings (stop) to join longer air-termination rods (transport length)

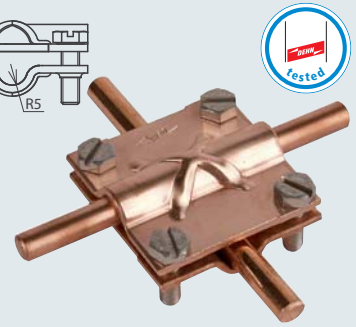
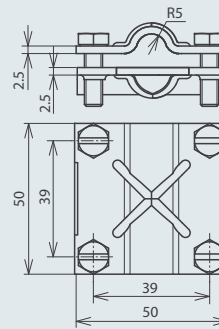
Using the connecting sleeve requires an additional fixing of the air-termination rod above the sleeve.

Part No.	385 216
Material	Al
Clamping range Rd / Rd	16 / 16 mm
Screw	M8x12 mm
Material of screw	StSt
Outer Ø	28 mm
Standard	EN 50164-1

Cross units for aboveground connection of conductors in cross and T arrangement

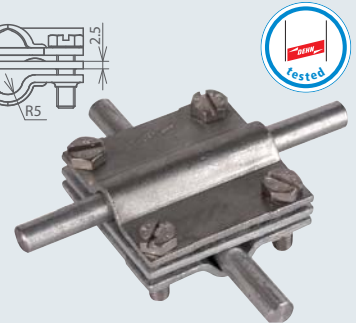
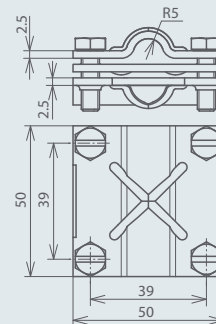
Without intermediate plate

Part No.	314 300	314 307
Material of clamp	St/tZn	Cu
Clamping range Rd / Rd	8-10 / 8-10 mm	8-10 / 8-10 mm
Clamping range Rd / FI	8-10 / 30 mm	8-10 / 30 mm
Clamping range FI / FI	30 / 30 mm	30 / 30 mm
Screw	M6x20 mm	M6x20 mm
Material of screw	StSt	StSt
Dimension	50x50x2.5 mm	50x50x2.5 mm
Standard	EN 50164-1	EN 50164-1



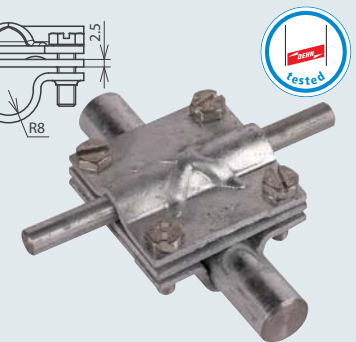
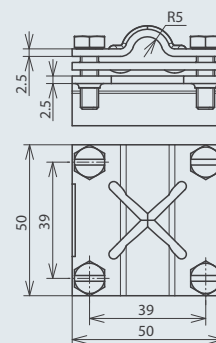
With intermediate plate

Part No.	314 310
Material of clamp	St/tZn
Clamping range Rd / Rd	8-10 / 8-10 mm
Clamping range Rd / FI	8-10 / 30 mm
Clamping range FI / FI	30 / 30 mm
Screw	M6x20 mm
Material of screw	StSt
Dimension	50x50x2.5 mm
Standard	EN 50164-1



With intermediate plate, e.g. for air-termination rods

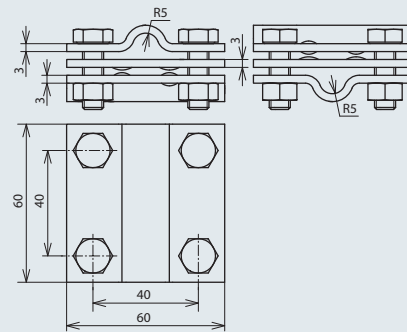
Part No.	316 163	316 167
Material of clamp	St/tZn	Cu
Clamping range Rd / Rd	16 / 8-10 mm	16 / 8-10 mm
Clamping range Rd / FI	16 / 30 mm	16 / 30 mm
Screw	M6x20 mm	M6x20 mm
Material of screw	StSt	StSt
Dimension	50x50x2.5 mm	50x50x2.5 mm
Standard	EN 50164-1	EN 50164-1





Cross units for aboveground and underground connections of conductors in cross and T arrangement

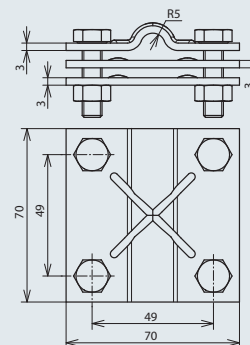
With intermediate plate, for round and flat conductors



Part No.	319 201	319 207	319 209
Material of clamp	St/tZn	Cu	StSt (V4A)
Clamping range Rd / Rd	8-10 / 8-10 mm	8-10 / 8-10 mm	8-10 / 8-10 mm
Clamping range Rd / FI	8-10 / 30 mm	8-10 / 30 mm	8-10 / 30 mm
Clamping range FI / FI	30 / 30 mm	30 / 30 mm	30 / 30 mm
Clamping range (stranded/cable)	—	50-70 mm ²	50-70 mm ²
Screw	M8x25 mm	M8x25 mm	M8x25 mm
Material of screw/nut	St/tZn	StSt (V4A)	StSt (V4A)
Material No.	—	1.4571 / 1.4404 / 1.4401	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	316Ti / 316L / 316	316Ti / 316L / 316
Dimension	60x60x3 mm	60x60x4 mm	60x60x3 mm
Standard	EN 50164-1	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	14 kA	29 kA	7 kA

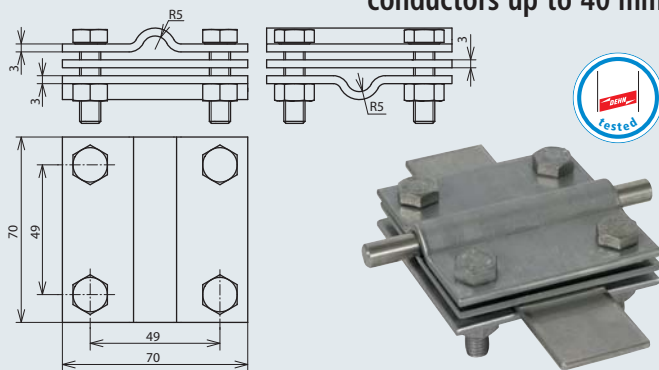
Type StSt (V4A) especially for FI 30 mm and Rd 8-10 mm with intermediate plate (dimension 60x60 mm) Part No. 319 209/S Id. No. 040332 upon request

With intermediate plate, for round and flat conductors up to 40 mm



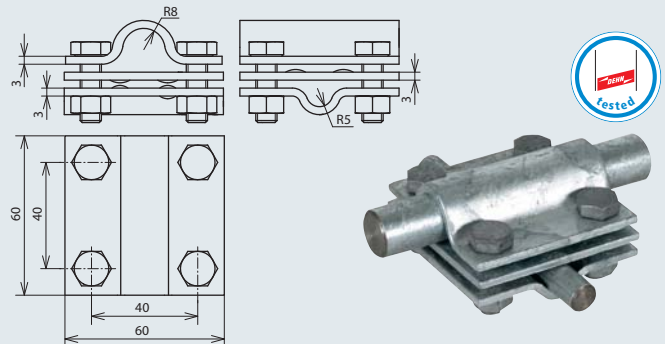
Part No.	321 045	321 047
Material of clamp	St/tZn	Cu
Clamping range Rd / FI	8-10 / 30-40 mm	8-10 / 30-40 mm
Clamping range FI / FI	30-40 / 30-40 mm	30-40 / 30-40 mm
Clamping range (stranded/cable)	—	50-70 mm ²
Screw	M8x30 mm	M8x30 mm
Material of screw/nut	St/tZn	StSt (V4A)
Material No.	—	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	316Ti / 316L / 316
Dimension	70x70x3 mm	70x70x3 mm
Standard	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	12.6 kA	35.1 kA

With intermediate plate, for two round and flat conductors up to 40 mm



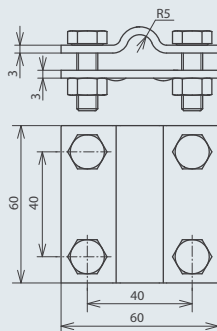
Part No.	319 229
Material of clamp	StSt (V4A)
Clamping range Rd / Rd	7-10 / 7-10 mm
Clamping range Rd / Fl	7-10 / 30-40 mm
Clamping range Fl / Fl	30-40 / 30-40 mm
Clamping range (stranded/cable)	35-70 mm ²
Screw	M8x30 mm
Material of screw/nut	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Dimension	70x70x3 mm
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	5.0 kA

With intermediate plate, for earth entries/air-termination rods



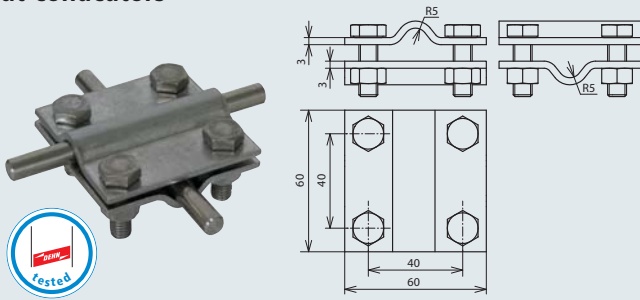
Part No.	319 202	319 219
Material of clamp	St/tZn	StSt (V4A)
Clamping range Rd / Rd	16 / 8-10 mm	16 / 8-10 mm
Clamping range Rd / Fl	16 / 30 mm	16 / 30 mm
Clamping range (stranded/cable)	—	50-70 / 120 mm ²
Screw	M8x25 mm	M8x25 mm
Material of screw/nut	St/tZn	StSt (V4A)
Material No.	—	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	316Ti / 316L / 316
Dimension	60x60x3 mm	60x60x3 mm
Standard	EN 50164-1	EN 50164-1

Without intermediate plate, for round and flat conductors



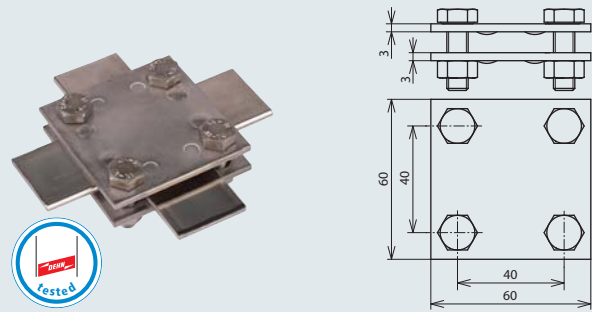
Part No.	318 201	318 207	318 209
Material of clamp	St/tZn	Cu	StSt (V4A)
Clamping range Rd / Fl	8-10 / 30 mm	8-10 / 30 mm	8-10 / 30 mm
Clamping range Fl / Fl	30 / 30 mm	30 / 30 mm	30 / 30 mm
Clamping range (stranded/cable)	—	50-70 mm ²	50-70 mm ²
Screw	M8x25 mm	M8x25 mm	M8x25 mm
Material of screw/nut	St/tZn	StSt (V4A)	StSt (V4A)
Material No.	—	1.4571 / 1.4404 / 1.4401	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	316Ti / 316L / 316	316Ti / 316L / 316
Dimension	60x60x3 mm	60x60x4 mm	60x60x3 mm
Standard	EN 50164-1	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	14 kA	29 kA	7.4 kA

Without intermediate plate, for two round and flat conductors



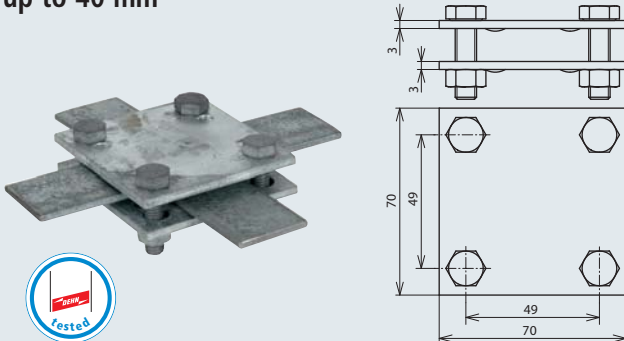
Part No.	318 251	318 219
Material of clamp	St/tZn	StSt (V4A)
Clamping range Rd / Rd	8-10 / 8-10 mm	8-10 / 8-10 mm
Clamping range Rd / Fl	8-10 / 30 mm	8-10 / 30 mm
Clamping range Fl / Fl	30 / 30 mm	30 / 30 mm
Clamping range (stranded/cable)	—	50-70 mm ²
Screw	M8x25 mm	M8x25 mm
Material of screw/nut	St/tZn	StSt (V4A)
Material No.	—	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	316Ti / 316L / 316
Dimension	60x60x3 mm	60x60x3 mm
Standard	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	14 kA	7.4 kA

Without intermediate plate, for two flat conductors



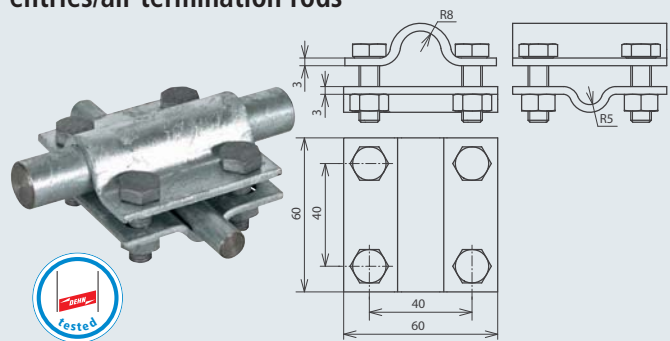
Part No.	318 033	318 233
Material of clamp	St/tZn	StSt (V4A)
Clamping range Fl / Fl	30 / 30 mm	30 / 30 mm
Screw	M8x25 mm	M8x25 mm
Material of screw/nut	St/tZn	StSt (V4A)
Material No.	—	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	316Ti / 316L / 316
Dimension	60x60x3 mm	60x60x3 mm
Standard	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	8.4 kA	7.0 kA

Without intermediate plate, for two flat conductors up to 40 mm



Part No.	320 044
Material of clamp	St/tZn
Clamping range Fl / Fl	30-40 / 30-40 mm
Screw	M8x30 mm
Material of screw/nut	St/tZn
Dimension	70x70x3 mm
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	12.6 kA

Without intermediate plate, for earth entries/air-termination rods

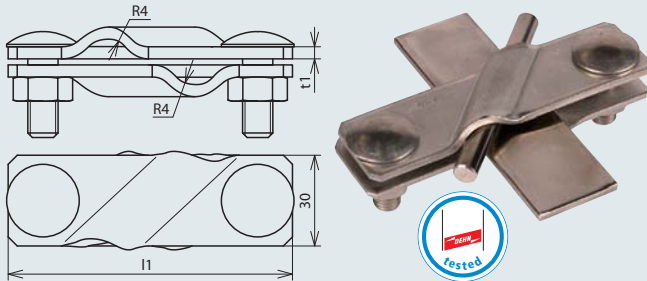


Part No.	318 252
Material of clamp	St/tZn
Clamping range Rd / Rd	8-10 / 16 mm
Clamping range Rd / Fl	16 / 30 mm
Screw	M8x25 mm
Material of screw/nut	St/tZn
Dimension	60x60x3 mm
Standard	EN 50164-1

Diagonal connection clamps for cross connections and T connections, screws with anti-rotation feature

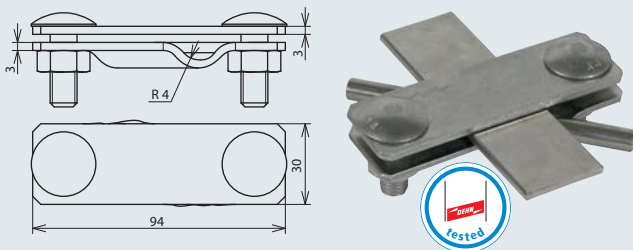


For flat and round conductors



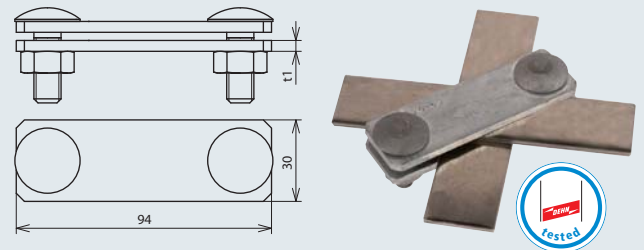
Part No.	308 220	308 229	308 320	308 329
Material of clamp	St/tZn	StSt (V4A)	St/tZn	StSt (V4A)
Clamping range Rd / Rd	7-10 / 7-10 mm	7-10 / 7-10 mm	7-10 / 7-10 mm	7-10 / 7-10 mm
Clamping range Rd / Fl	7-10 / 30 mm	7-10 / 30 mm	7-10 / 30-40 mm	7-10 / 30-40 mm
Clamping range Fl / Fl	30 / 30 mm	30 / 30 mm	30-40 / 30-40 mm	30-40 / 30-40 mm
Screw	⬆ M10x30 mm	⬆ M10x30 mm	⬆ M10x30 mm	⬆ M10x30 mm
Material of screw/nut	St/tZn	StSt (V4A)	St/tZn	StSt (V4A)
Material No.	—	1.4571 / 1.4404 / 1.4401	—	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	316Ti / 316L / 316	—	316Ti / 316L / 316
Dimension (l1 x t1)	94x4 mm	94x3 mm	108x4 mm	108x3 mm
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	7.3 kA	3.2 kA	14.0 kA	14.0 kA

For one flat and one round conductor



Part No.	308 249
Material of clamp	StSt (V4A)
Clamping range Rd / Fl	7-10 / 30 mm
Screw	⬆ M10x30 mm
Material of screw/nut	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Dimension (l1 x t1)	94x3 mm
Standard	EN 50164-1

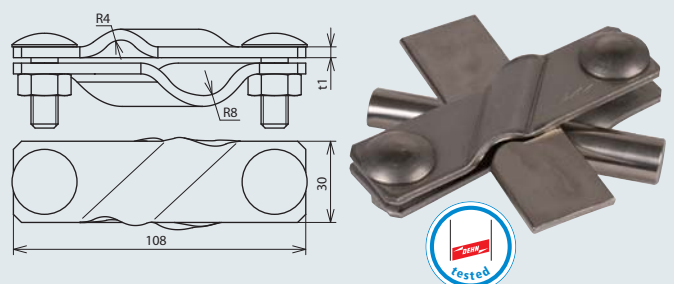
For flat conductors



Part No.	308 230	308 239
Material of clamp	St/tZn	StSt (V4A)
Clamping range Fl / Fl	30 / 30 mm	30 / 30 mm
Screw	⬆ M10x30 mm	⬆ M10x30 mm
Material of screw/nut	St/tZn	StSt (V4A)
Material No.	—	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	316Ti / 316L / 316
Dimension (l1 x t1)	94x4 mm	94x3 mm
Standard	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	8.2 kA	3.9 kA

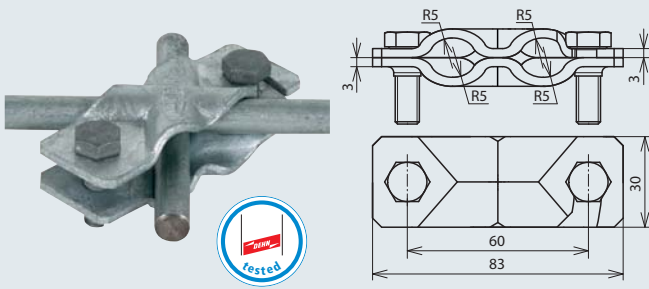
For flat conductors, round conductors and earth entry rods

Part No.	308 330
Material of clamp	St/tZn
Clamping range Rd / Rd	7-10 / 16 mm
Clamping range Rd / Fl	16 / 30-40 mm
Screw	⬆ M10x30 mm
Material of screw/nut	St/tZn
Dimension (l1 x t1)	108x4 mm
Standard	EN 50164-1



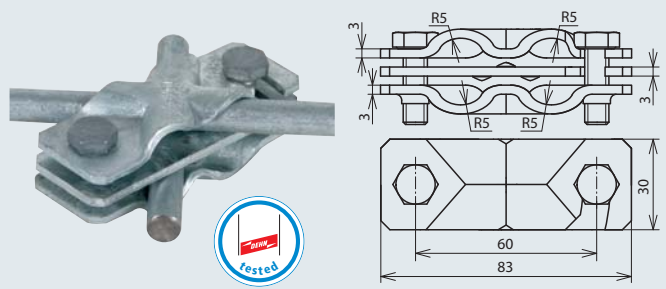
Diagonal connection parallel clamps for cross and parallel connections, with slotted upper part (no need to remove the screws)

Without intermediate plate



Part No.	308 060
Material of clamp	St/tZn
Clamping range Rd / Rd	8-10 / 8-10 mm
Clamping range Rd / FI	8-10 / 30 mm
Clamping range FI / FI	30 / 30 mm
Screw	☛● M8x25 mm
Material of screw	St/tZn
Standard	EN 50164-1

With intermediate plate (slotted)

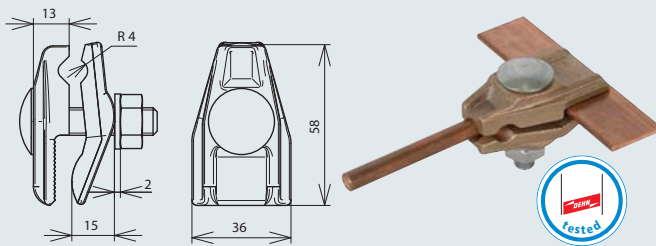


Part No.	308 070
Material of clamp	St/tZn
Clamping range Rd / Rd	8-10 / 8-10 mm
Clamping range Rd / FI	8-10 / 30 mm
Clamping range FI / FI	30 / 30 mm
Screw	☛● M8x25 mm
Material of screw	St/tZn
Standard	EN 50164-1

Clamps for the connection to steel constructions and steel sheets

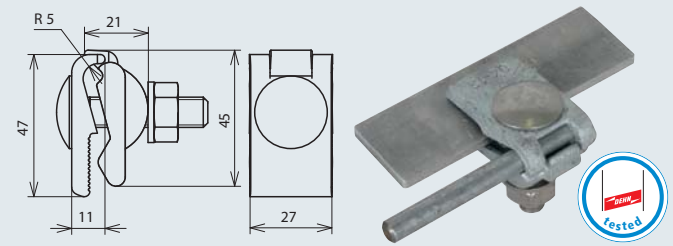


Longitudinal or cross connection



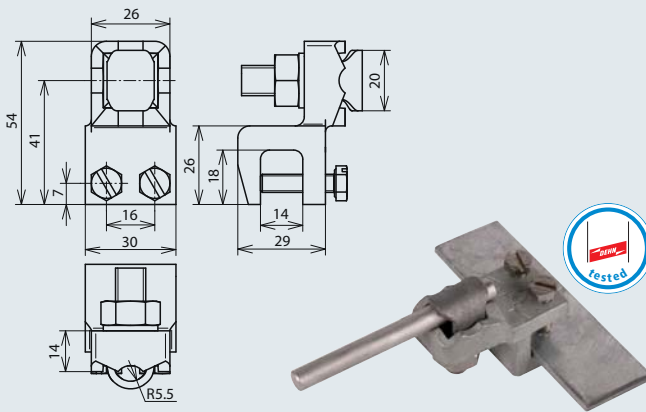
Part No.	371 009	371 007
Clamping range	0.4-12 mm	0.4-12 mm
Material of clamp	MCI/tZn	RCB
Clamping range Rd	7-10 mm	7-10 mm
Screw	⬆ M10x45 mm	⬆ M10x45 mm
Material of screw/nut	StSt	StSt
Standard	EN 50164-1	EN 50164-1

Longitudinal connection



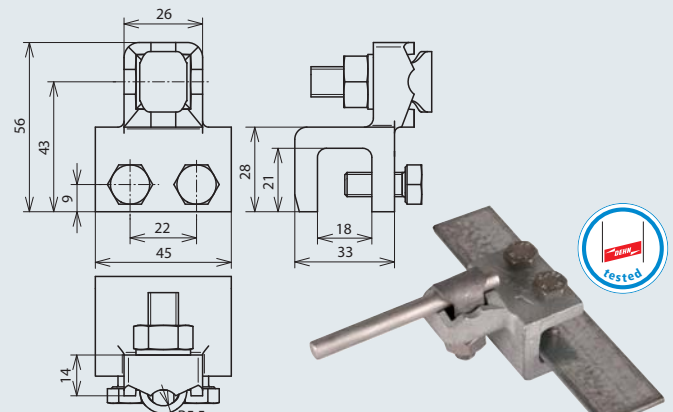
Part No.	371 008
Clamping range	0.4-12 mm
Material of clamp	MCI/tZn
Clamping range Rd	4-10 mm
Screw	⬆ M10x45 mm
Material of screw/nut	StSt
Standard	EN 50164-1

Longitudinal or cross connection with KS screw



Part No.	370 014
Clamping range	1-12 mm
Material of clamp	MCI/tZn
Clamping range Rd	7-10 mm
Screw	⬆ M6x25 mm
Material of screw/nut	StSt
Standard	EN 50164-1

Longitudinal or cross connection with KS screw

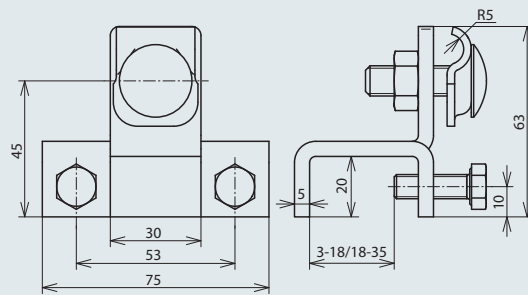
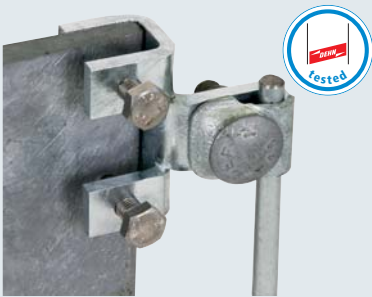


Part No.	370 018
Clamping range	8-18 mm
Material of clamp	MCI/tZn
Clamping range Rd	7-10 mm
Screw	⬆ M8x20 mm
Material of screw/nut	StSt
Standard	EN 50164-1



Terminal clamps, heavy design, for the connection to steel constructions

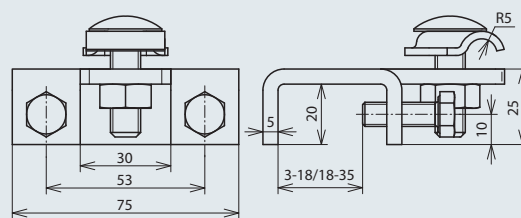
Vertical design, with clamping frame



Longitudinal or cross connection with clamping frame

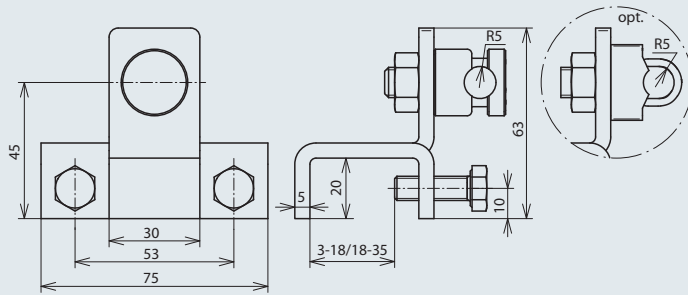
Part No.	372 110	372 119	372 140	372 149
Clamping range	3-18 mm	3-18 mm	18-35 mm	18-35 mm
Material of clamp	St/tZn	StSt	St/tZn	StSt
Clamping range Rd	6-10 mm	6-10 mm	6-10 mm	6-10 mm
Screw	☒ M8x25 mm	☒ M8x25 mm	☒ M8x25 mm	☒ M8x25 mm
Material of screw/nut	StSt	StSt	StSt	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

Horizontal design, with clamping frame



Longitudinal or cross connection with clamping frame

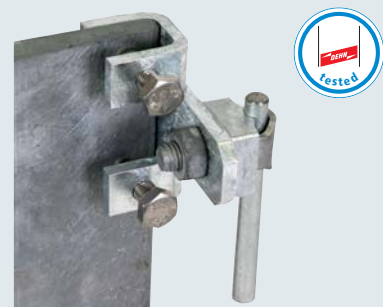
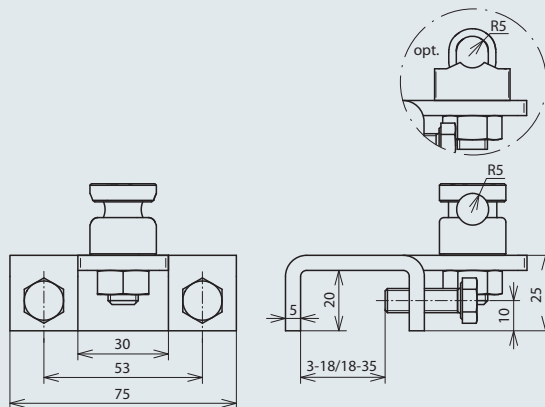
Part No.	372 210	372 219	372 240	372 249
Clamping range	3-18 mm	3-18 mm	18-35 mm	18-35 mm
Material of clamp	St/tZn	StSt	St/tZn	StSt
Clamping range Rd	6-10 mm	6-10 mm	6-10 mm	6-10 mm
Screw	☒ M8x25 mm	☒ M8x25 mm	☒ M8x25 mm	☒ M8x25 mm
Material of screw/nut	StSt	StSt	StSt	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1



Longitudinal or cross connection with KS connector

Part No.	372 120	372 129	372 150	372 159
Clamping range	3-18 mm	3-18 mm	18-35 mm	18-35 mm
Material of clamp	St/tZn	StSt	St/tZn	StSt
Clamping range Rd	7-10 mm	6-10 mm	7-10 mm	6-10 mm
Screw	☛ M8x25 mm	☛ M8x25 mm	☛ M8x25 mm	☛ M8x25 mm
Material of screw/nut	StSt	StSt	StSt	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

Horizontal design, with KS connector

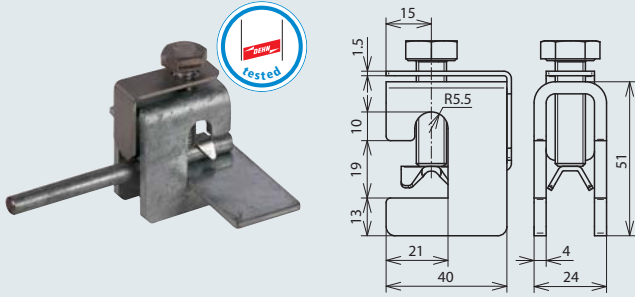


Longitudinal or cross connection with KS connector

Part No.	372 220	372 229	372 250	372 259
Clamping range	3-18 mm	3-18 mm	18-35 mm	18-35 mm
Material of clamp	St/tZn	StSt	St/tZn	StSt
Clamping range Rd	7-10 mm	6-10 mm	7-10 mm	6-10 mm
Screw	☛ M8x25 mm	☛ M8x25 mm	☛ M8x25 mm	☛ M8x25 mm
Material of screw/nut	StSt	StSt	StSt	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

Terminal clamps with thrust piece for the connection to steel constructions and steel sheets by single-screw technique

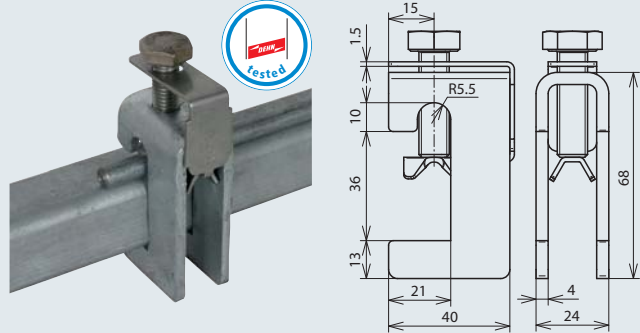
Small design



Longitudinal or cross connection

Part No.	372 018	372 019
Clamping range	5-18 mm	5-18 mm
Material of clamp	St/tZn	StSt
Clamping range Rd	6-10 mm	6-10 mm
Screw	☛ M10x35 mm	☛ M10x35 mm
Material of screw/nut	StSt	StSt
Standard	EN 50164-1	EN 50164-1

Large design

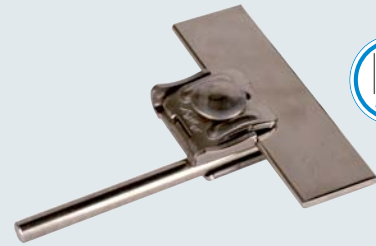
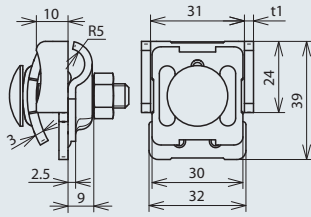


Longitudinal or cross connection

Part No.	372 035
Clamping range	18-35 mm
Material of clamp	St/tZn
Clamping range Rd	6-10 mm
Screw	☛ M10x35 mm
Material of screw/nut	StSt
Standard	EN 50164-1

Clamps for connecting conductors to standing seams or for connecting conductors to standing seams of different materials

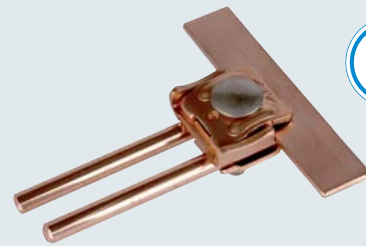
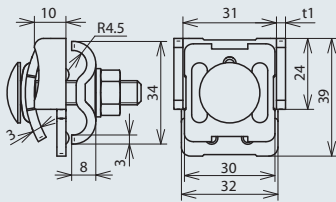
With clamping frame



Longitudinal or crosswise conductor leading

Part No.	365 030	365 031	365 037	365 039
Clamping range of flange	0.7-8 mm	0.7-8 mm	0.7-8 mm	0.7-8 mm
Material of clamp	St/tZn	Al	Cu	StSt
Material thickness (t1)	3 mm	3 mm	3 mm	2.5 mm
Clamping range Rd	6-10 mm	6-10 mm	6-10 mm	6-10 mm
Screw	⬆ M8x35 mm	⬆ M8x35 mm	⬆ M8x35 mm	⬆ M8x35 mm
Material of screw/nut	StSt	StSt	StSt	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

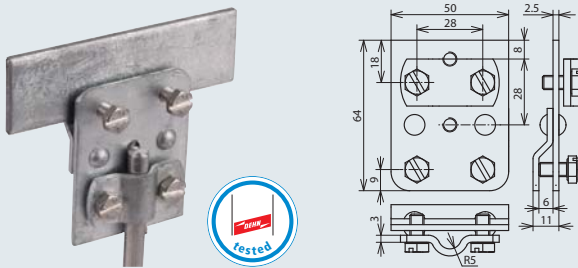
With double cleat



Longitudinal or crosswise conductor leading

Part No.	365 010	365 017	365 019
Clamping range of flange	0.7-8 mm	0.7-8 mm	0.7-8 mm
Material of clamp	St/tZn	Cu	StSt
Material thickness (t1)	3 mm	3 mm	2.5 mm
Clamping range Rd	8-10 mm	8-10 mm	6-10 mm
Screw	⬆ M8x40 mm	⬆ M8x40 mm	⬆ M8x40 mm
Material of screw/nut	StSt	StSt	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1

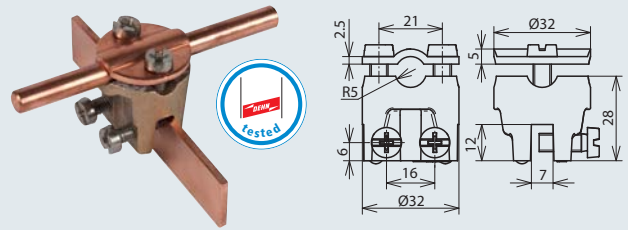
With two-screws-cleat



Longitudinal or crosswise conductor leading

Part No.	251 002	251 027
Clamping range of flange	0.7-5 mm	0.7-5 mm
Material of clamp	St/tZn	Cu
Material thickness (t1)	2.5 mm	2.5 mm
Clamping range Rd	7-10 mm	7-10 mm
Screw	M6x12 mm	M6x12 mm
Material of screw/nut	StSt	StSt
Standard	EN 50164-1	EN 50164-1

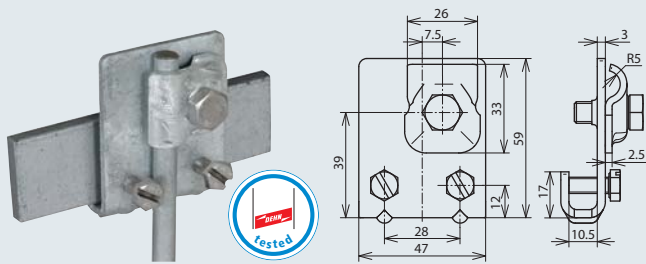
With two-screws-cleat, e.g. for standing seams



Longitudinal or crosswise conductor leading

Part No.	365 000	365 007
Clamping range of flange	0.7-6 mm	0.7-6 mm
Material of clamp	ZDC	RCB
Clamping range Rd	7-10 mm	7-10 mm
Screw	M6x16 mm	M6x16 mm
Material of screw/nut	StSt	StSt
Standard	EN 50164-1	EN 50164-1

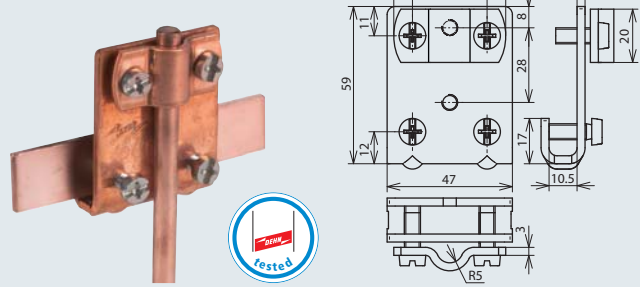
With clamping frame, for hooking at seams



Close to a roof or wall area
Longitudinal and crosswise conductor leading

Part No.	365 020	365 027
Clamping range of flange	0.7-10 mm	0.7-10 mm
Material of clamp	St/tZn	Cu
Material thickness (t1)	3 mm	3 mm
Clamping range Rd	6-10 mm	6-10 mm
Screw	M6x16 / M8x20 mm	M6x16 / M8x20 mm
Material of screw/nut	StSt	StSt
Standard	EN 50164-1	EN 50164-1

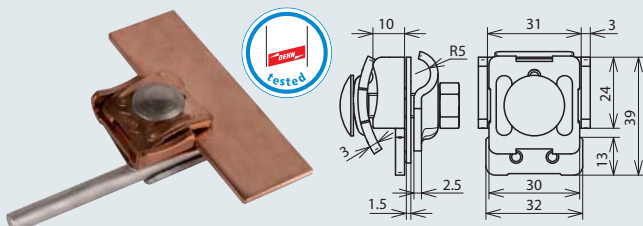
With two-screws-cleat, for hooking at seams



Close to a roof or wall area
Longitudinal and crosswise conductor leading

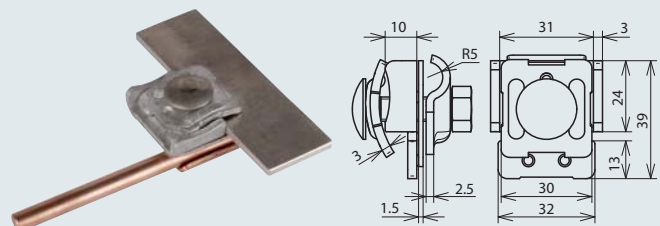
Part No.	365 040	365 047
Clamping range of flange	0.7-10 mm	0.7-10 mm
Material of clamp	St/tZn	Cu
Material thickness (t1)	3 mm	3 mm
Clamping range Rd	7-10 mm	7-10 mm
Screw	M6x16 mm	M6x16 mm
Material of screw/nut	StSt	StSt
Standard	EN 50164-1	EN 50164-1

Bimetallic, for Cu seams, with intermediate plate (Cupal)



Part No.	365 117
Clamping range of flange	0.7-8 mm
Material of clamp	St/tZn / Cu
Clamping range Rd	6-10 mm
Screw	M8x35 mm
Material of screw/nut	StSt
Standard	EN 50164-1

Bimetallic, for St/tZn seams, with intermediate plate (Cupal)

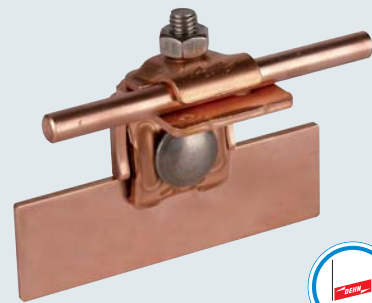
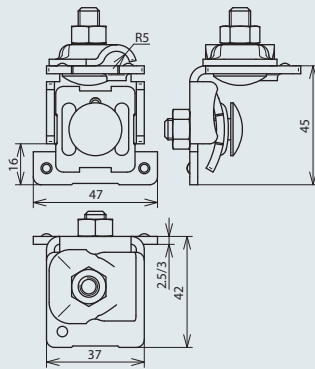


Part No.	365 127
Clamping range of flange	0.7-8 mm
Material of clamp	Cu / St/tZn
Clamping range Rd	6-10 mm
Screw	M8x35 mm
Material of screw/nut	StSt

Clamps for connecting conductors to standing seams;
enlarged contact surface



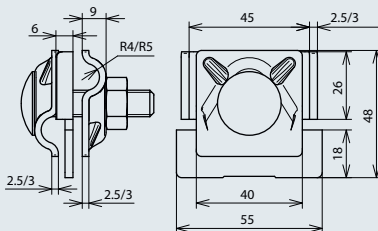
Angled



Longitudinal or cross connection

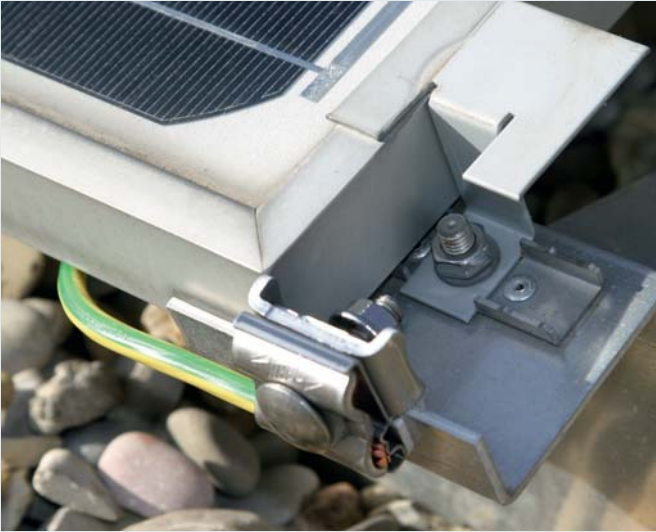
Part No.	365 050	365 051	365 057	365 059
Clamping range of seam	0.7-8 mm	0.7-8 mm	0.7-8 mm	0.7-8 mm
Material of clamp	St/tZn	Al	Cu	StSt
Clamping range Rd	6-10 mm	6-10 mm	6-10 mm	6-10 mm
Screw	⬆ M8x25 mm	⬆ M8x25 mm	⬆ M8x25 mm	⬆ M8x25 mm
Material of screw/nut	StSt	StSt	StSt	StSt
Material thickness	3/3 mm	3/3 mm	3/3 mm	2.5/2.5 mm
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

Straight



Longitudinal or crosswise connection

Part No.	365 220	365 221	365 227	365 229
Clamping range of seam	0.7-10 mm	0.7-10 mm	0.7-10 mm	0.7-10 mm
Material of clamp	St/tZn	Al	Cu	StSt
Clamping range Rd	8-10 mm	8-10 mm	8-10 mm	8-10 mm
Screw	⬆ M10x45 mm	⬆ M10x45 mm	⬆ M10x45 mm	⬆ M10x45 mm
Material of screw/nut	StSt	StSt	StSt	StSt
Material thickness	3/2.5 mm	3/3 mm	3/3 mm	2.5/2.5 mm
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1



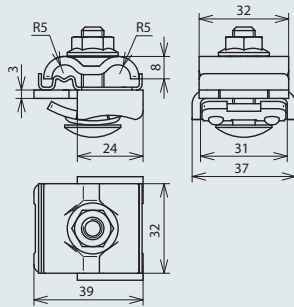
Saddle clamp for integrating the mounting systems e.g. of PV systems into the functional equipotential bonding/functional earthing (optionally black conductor) and lightning equipotential bonding according to IEC/EN 62305-3.

The StSt contact plate (intermediate element) allows for different materials of conductors (Cu, Al, St/tZn and StSt) to be connected to the usual mounting systems, e.g. to aluminium, without the risk of contact corrosion.

The double cleat design allows for easy and quick interconnection of the profiles, e.g. by feed-through wiring.

With screw M8 and locking nut

NEW



Part No.	365 250
Clamping range of saddle	0.7-8 mm
Material of clamping bracket	Al
Material thickness	3 mm
Clamping range Rd	8-10 mm
Connection (solid/stranded)	4-50 mm ²
Material of double cleat	StSt
Screw	⬆ M8x35 mm
Material of screw/nut	StSt
Standard	EN 50164-1

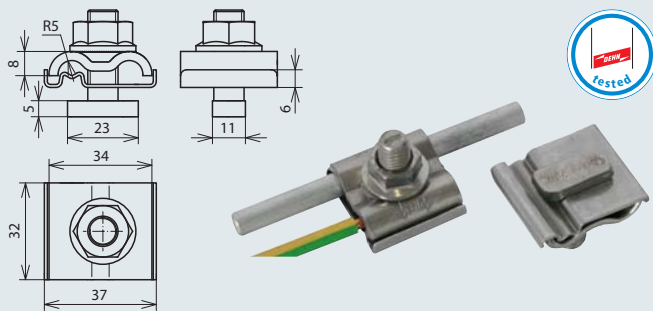
Earthing clamps for integrating the mounting systems e.g. of PV systems into the functional equipotential bonding/functional earthing (optionally black conductor) and lightning equipotential bonding according to IEC/EN 62305-3.

The StSt contact plate (intermediate element) allows for different materials of conductors (Cu, Al, St/tZn and StSt) to be connected to the usual mounting systems, e.g. to aluminium, without the risk of contact corrosion.

The double cleat design allows for easy and quick interconnection of the profiles, e.g. by feed-through wiring.

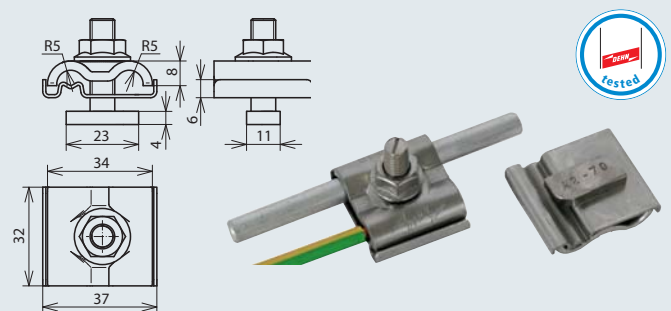


With hammer-head bolt M10 and locking nut



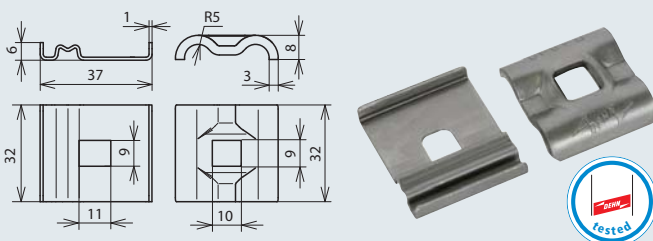
Part No.	540 260
Material of clamp	StSt
Clamping range Rd	8-10 mm
Connection (solid/stranded)	4-50 mm ²
Screw	hammer-head bolt M10x30 mm
Material of screw/nut	StSt
Standard	EN 50164-1

With hammer-head bolt M8 and locking nut



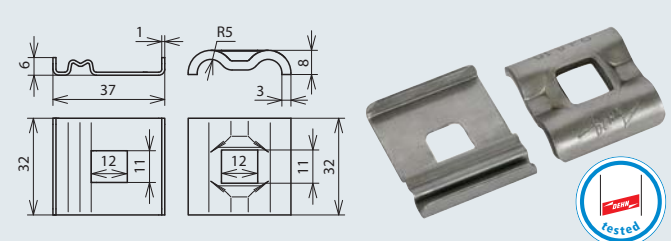
Part No.	540 250
Material of clamp	StSt
Clamping range Rd	8-10 mm
Connection (solid/stranded)	4-50 mm ²
Screw	hammer-head bolt M8x30 mm
Material of screw/nut	StSt
Standard	EN 50164-1

Contact plate and double cleat, with square hole for screw M8 (separate)



Part No.	540 251
Material of clamp	StSt
Clamping range Rd	8-10 mm
Connection (solid/stranded)	4-50 mm ²
Standard	EN 50164-1

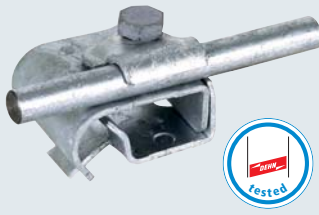
Contact plate and double cleat, with square hole for screw M10 (separate)



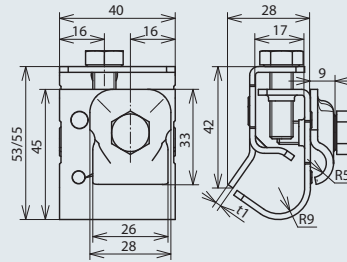
Part No.	540 261
Material of clamp	StSt
Clamping range Rd	8-10 mm
Connection (solid/stranded)	4-50 mm ²
Standard	EN 50164-1

Clamps for connecting conductors to gutters of the same or of different materials

With clamping frame



Longitudinal or crosswise conductor leading

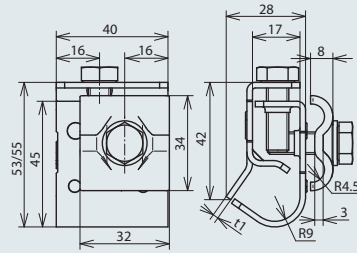


Part No.	339 060	339 061	339 067	339 069
Clamping range of bead	16-22 mm	16-22 mm	16-22 mm	16-22 mm
Material of clamp	St/tZn	Al	Cu	StSt
Clamping range Rd	6-10 mm	6-10 mm	6-10 mm	6-10 mm
Material of cleat	St/tZn	Al	Cu	StSt
Width / material thickness (t1)	40 mm	40 / 3 mm	40 / 2 mm	40 / 2 mm
Screw	● M8x20/25 mm	● M8x20/25 mm	● M8x20/25 mm	● M8x20/25 mm
Material of screw	St/tZn	StSt	StSt	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

With double cleat

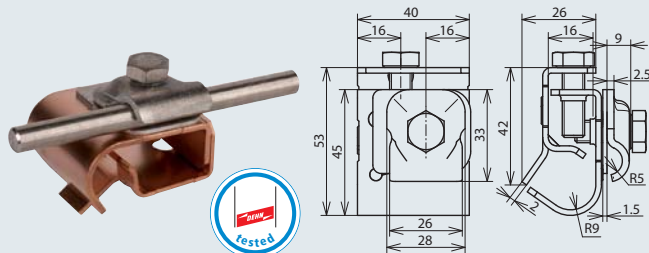


Longitudinal or crosswise conductor leading



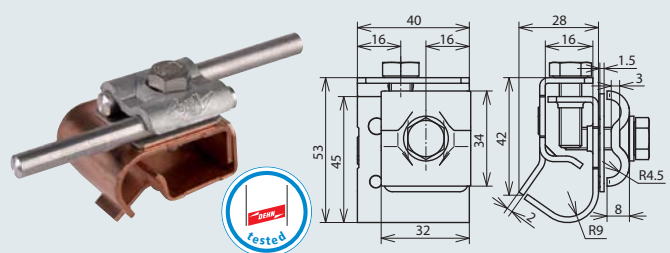
Part No.	339 050	339 051	339 057	339 059
Clamping range of bead	16-22 mm	16-22 mm	16-22 mm	16-22 mm
Material of clamp	St/tZn	Al	Cu	StSt
Clamping range Rd	8-10 mm	8-10 mm	8-10 mm	8-10 mm
Material of cleat	St/tZn	StSt	Cu	StSt
Width / material thickness (t1)	40 / 2 mm	40 / 3 mm	40 / 2 mm	40 / 2 mm
Screw	● M8x20/25 mm	● M8x20/25 mm	● M8x20/25 mm	● M8x20/25 mm
Material of screw	St/tZn	StSt	StSt	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

Bimetallic, for gutters Cu, with clamping frame (St/tZn) and intermediate plate (Cupal)



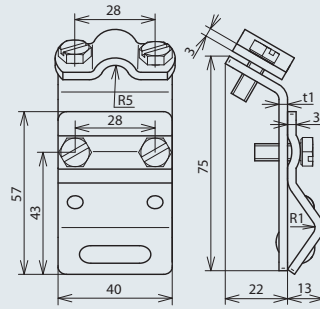
Part No.	339 167
Clamping range of bead	16-22 mm
Material of clamp	Cu / St/tZn
Clamping range Rd	6-10 mm
Screw	● M8x20 mm
Material of screw	StSt
Standard	EN 50164-1

Bimetallic, for gutters Cu, with double cleat (St/tZn) and intermediate plate (Cupal)

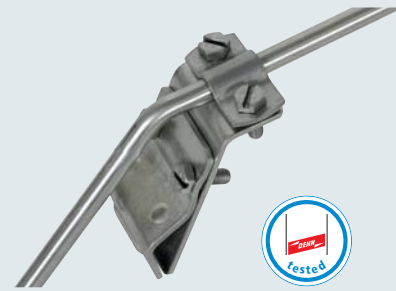


Part No.	339 157
Clamping range of bead	16-22 mm
Material of clamp	Cu / St/tZn
Clamping range Rd	8-10 mm
Screw	● M8x25 mm
Material of screw	StSt
Standard	EN 50164-1

With two-screws-creat, width 40 mm



Longitudinal conductor leading

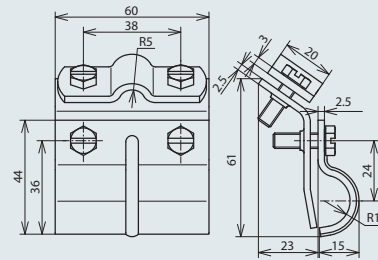


Part No.	338 000	338 001	338 007	338 009
Clamping range of bead	13-25 mm	13-25 mm	13-25 mm	13-25 mm
Material of clamp	St/tZn	Al	Cu	StSt
Clamping range Rd	7-10 mm	7-10 mm	7-10 mm	7-10 mm
Material of cleat	St/tZn	Al	Cu	StSt
Width / material thickness (t1)	40 / 3 mm	40 / 3 mm	40 / 3 mm	40 / 2,5 mm
Screw	M6x16 / M6x10 mm	M6x16 mm	M6x16 / M6x10 mm	M6x16 mm
Material of screw	StSt	StSt	StSt	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

With two-screws-creat, width 60 mm

Longitudinal conductor leading

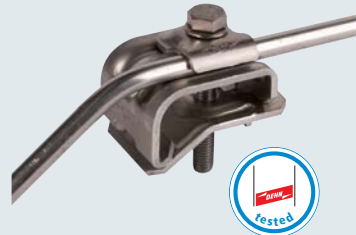
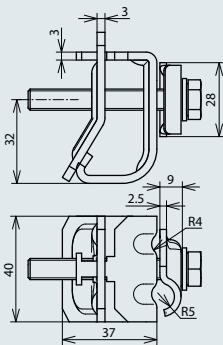
Part No.	339 010
Clamping range of bead	13-25 mm
Material of clamp	St/tZn
Clamping range Rd	7-10 mm
Material of cleat	St/tZn
Width / material thickness (t1)	60 / 2.5 mm
Screw	M6x20 mm
Material of screw	StSt
Standard	EN 50164-1



Gutter Clamps with Single-screw Technique

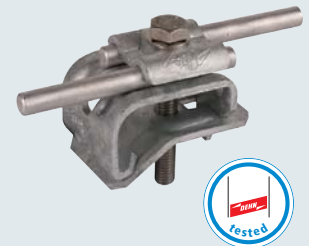
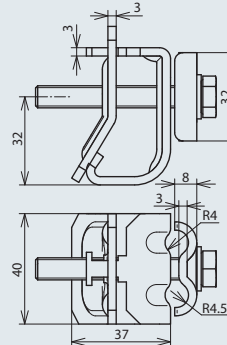
Clamps for connecting conductors to gutters

With clamping frame



Part No.	339 100	339 101
Clamping range of bead	16-22 mm	16-22 mm
Material of clamp	St/tZn	Al
Clamping range Rd	8-10 mm	8-10 mm
Width	40 mm	40 mm
Screw	M8x60 mm	M8x60 mm
Material of screw	StSt	StSt
Standard	EN 50164-1	EN 50164-1

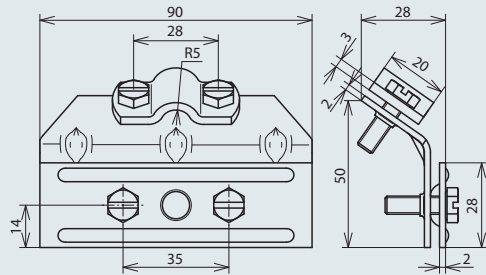
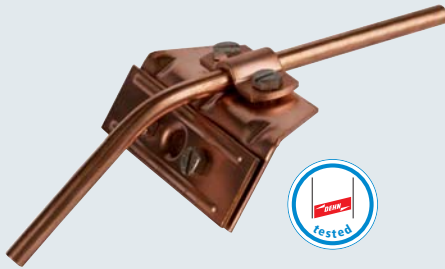
With double cleat



Part No.	339 110	339 111
Clamping range of bead	16-22 mm	16-22 mm
Material of clamp	St/tZn	Al
Clamping range Rd	8-10 mm	8-10 mm
Width	40 mm	40 mm
Screw	M8x60 mm	M8x60 mm
Material of screw	StSt	StSt
Standard	DIN EN 50164-1	DIN EN 50164-1



Clamps for connecting conductors to snow guards, longitudinal connection with two-screws-cleat

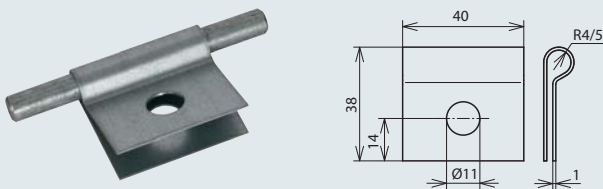


Part No.	343 000	343 007
Clamping range	3-13 mm	3-13 mm
Material of clamp	St/tZn	Cu
Width	90 mm	90 mm
Clamping range Rd	7-10 mm	7-10 mm
Screw	☛ M6x20 mm	☛ M6x20 mm
Material of screw	StSt	StSt
Standard	EN 50164-1	EN 50164-1

Clamping Shoes

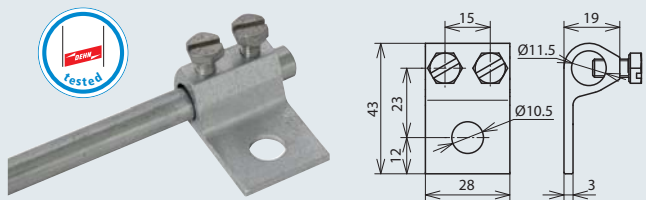
Clamping bushes for connecting conductors to construction parts

With bore



Part No.	345 008	345 010
Clamping range Rd	8 mm	10 mm
Material	St/tZn	St/tZn
Fixing bore Ø	11 mm	11 mm

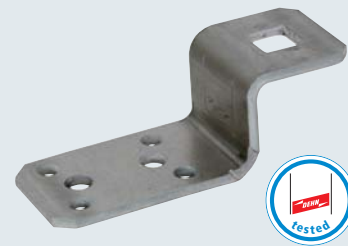
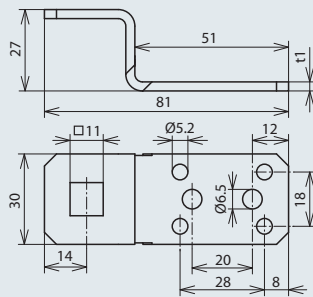
With screws



Part No.	347 205
Clamping range Rd	7-10 mm
Material	Al
Fixing bore Ø	10.5 mm
Screw	☛ M6x12 mm
Material of screw	StSt
Standard	EN 50164-1

Connection lug for the connection of metal claddings by blind rivets or screws

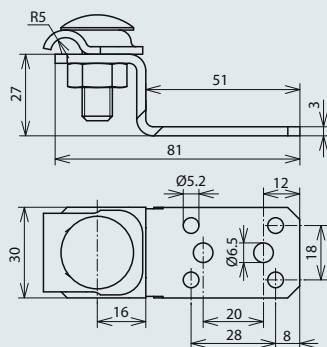
With square hole



Dimension 11x11 mm (e.g. for KS connector M10), longitudinal or crosswise connection

Part No.	377 005	377 017	377 009
Material of bracket	Al	Cu	StSt
Material thickness (t1)	3 mm	2 mm	2.5 mm
Fixing	[4x] Ø5.2 / [2x] Ø6.5 mm	[4x] Ø5.2 / [2x] Ø6.5 mm	[4x] Ø5.2 / [2x] Ø6.5 mm
Standard	EN 50164-1	EN 50164-1	EN 50164-1

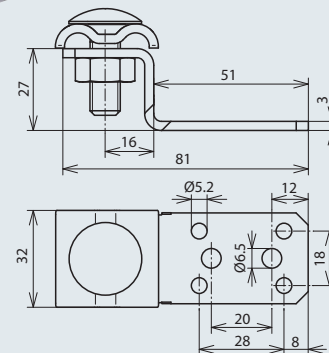
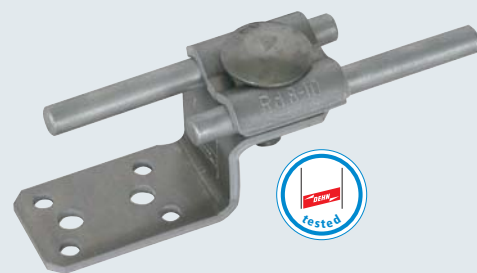
With clamping frame



For conductors Rd 6-10 mm, longitudinal or crosswise connection

Part No.	377 100
Material of bracket	Al
Material thickness (t1)	3 mm
Fixing	[4x] Ø5.2 / [2x] Ø6.5 mm
Material of clamping frame	St/tZn
Screw	↑ M10x30 mm
Material of screw/nut	StSt
Standard	EN 50164-1

With double cleat

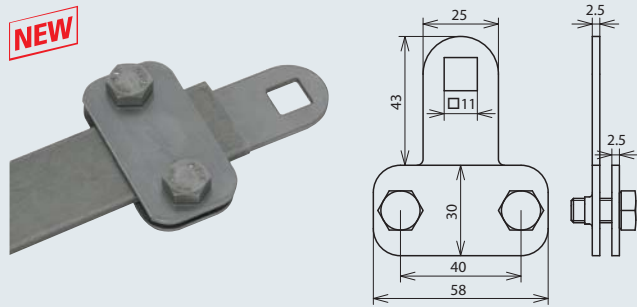


For conductors Rd 8-10 mm, longitudinal or crosswise connection

Part No.	377 200
Material of bracket	Al
Material thickness (t1)	3 mm
Fixing	[4x] Ø5.2 / [2x] Ø6.5 mm
Material of double cleat	Al
Screw	↑ M10x30 mm
Material of screw/nut	StSt
Standard	EN 50164-1



Clamping piece for connecting flat material to construction parts, or e.g. to terminal clamps for steel girders (without bore in the flat strip).



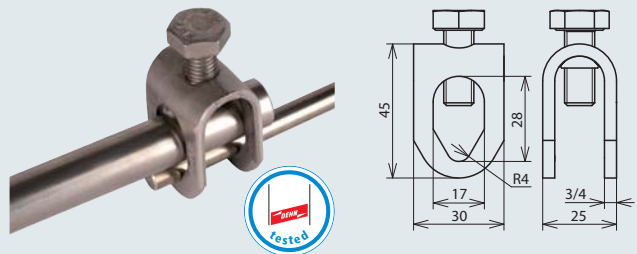
Part No.	380 129
Clamping range Fl	-30x4 mm
Material	StSt
Fixing	square hole 11x11 mm
Screw	● M8x16 mm
Material of screw	StSt
Standard	EN 50164-1

Rod Clamps



Rod clamps for connecting air-termination rods to conductors for longitudinal connection of all conductor materials

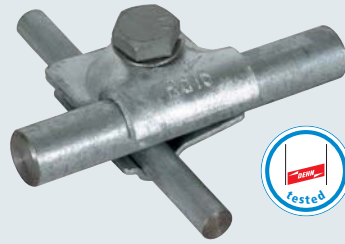
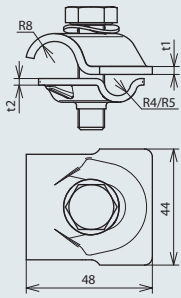
For cross connection (crosswise arrangement) only of St/tZn and StSt



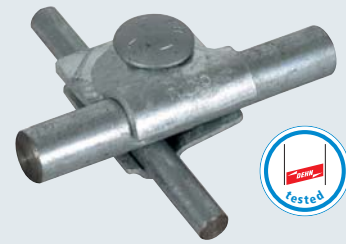
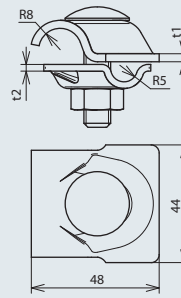
Part No.	380 020	380 029
Material of clamp	St/tZn	StSt
Clamping range Rd / Rd	8-10 / 16 mm	8-10 / 16 mm
Screw	● M10x25 mm	● M10x25 mm
Material of screw	St/tZn	StSt
Standard	EN 50164-1	EN 50164-1

Multi-purpose connecting clamp for universal use as a cross clamp, T clamp and parallel clamp; two-piece

With hexagon screw, spring washer and thread in the base part



With truss head screw and rotation locking



Part No.	392 050	392 059
Material of clamp	St/tZn	StSt
Clamping range Rd	8-10/16 mm	8-10/16 mm
Material thickness (t1 / t2)	3/2.5 mm	3/2.5 mm
Screw	⚙ M10x40 mm	⚙ M10x40 mm
Material of screw/nut	St/tZn	StSt
Standard	EN 50164-1	EN 50164-1

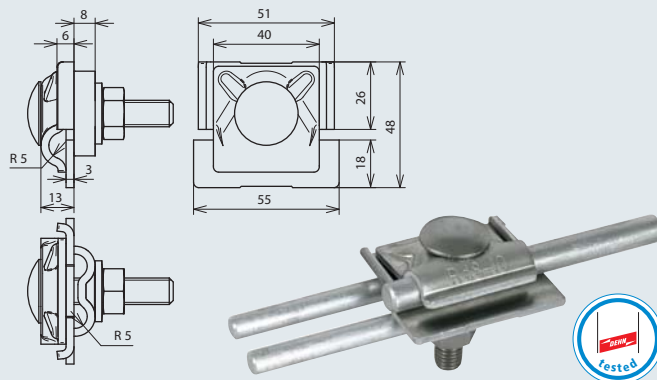
Part No.	392 060	392 069
Material of clamp	St/tZn	StSt
Clamping range Rd	8-10/16 mm	8-10/16 mm
Material thickness (t1 / t2)	3/2.5 mm	3/2.5 mm
Screw	⚙ M10x40 mm	⚙ M10x40 mm
Material of screw/nut	St/tZn	StSt
Standard	EN 50164-1	EN 50164-1

FS Clamps (Air-termination Rod Clamps)



Air-termination rod clamp for connecting air-termination rods to one or two conductors
 Connection of two conductors for a better distribution of the lightning current. Allows for a reduction of the separation distance.
 With special pressure disk for longitudinal and cross connection.

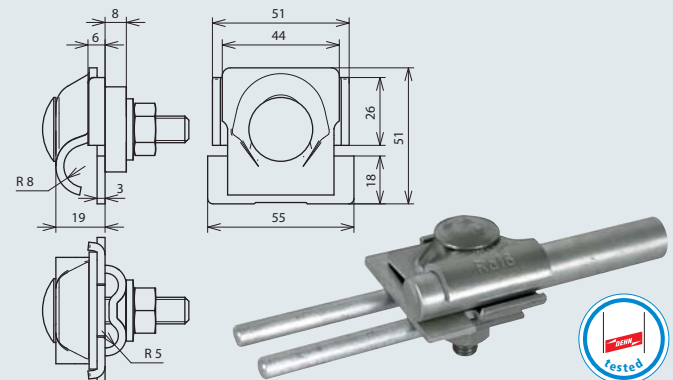
For air-termination rod 10 mm



With truss head screw, disk, nut and double cleat

Part No.	380 110
Material of clamp	Al
Clamping range of air-termination rod	8-10 mm
Clamping range Rd	2x 8-10 mm
Screw	⚙ M10x50 mm
Material of screw/nut	StSt
Material of pressure disk	St/tZn
Standard	EN 50164-1

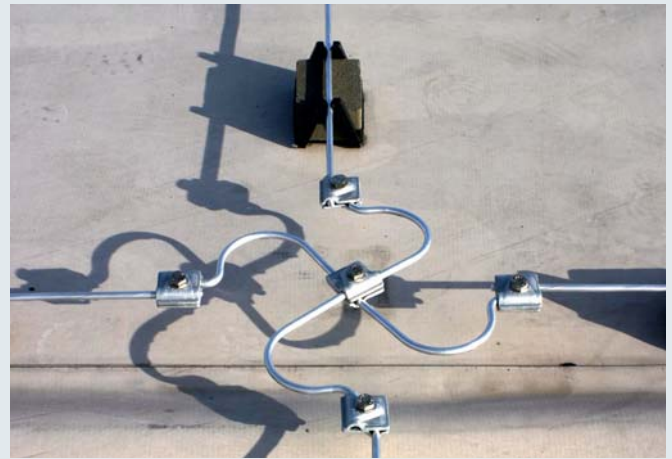
For air-termination rod 16 mm



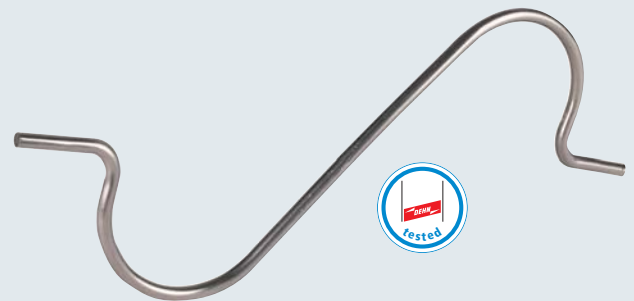
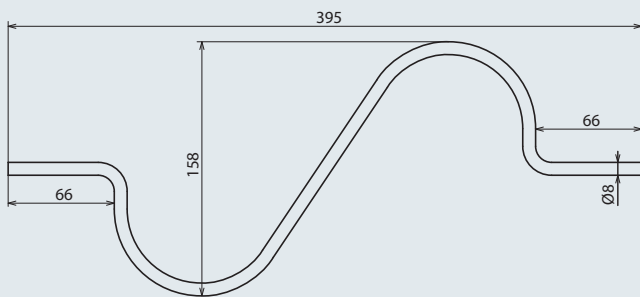
With truss head screw, disk, nut and double cleat

Part No.	380 116
Material of clamp	Al
Clamping range of air-termination rod	16 mm
Clamping range Rd	2x 8-10 mm
Screw	⚙ M10x50 mm
Material of screw/nut	StSt
Material of pressure disk	St/tZn
Standard	EN 50164-1

Expansion pieces for temperature-related length compensation of longer conductors
(requires loose conductor leading in the holders)



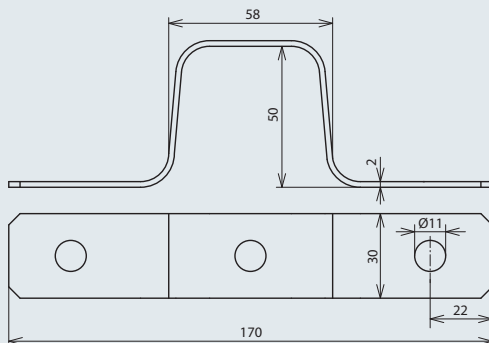
Round design



For connection e.g. by MV clamp (Part No. 390 051)

Part No.	374 011
Material	Al
Dimension	Ø8 mm
Length	approx. 395 mm
Standard	EN 50164-(1+2)

Flat design



For connection e.g. with KS connector (Part No. 301 000)

Note: At crossing points two expansion pieces may be connected with one screw M10x20 mm and nut.

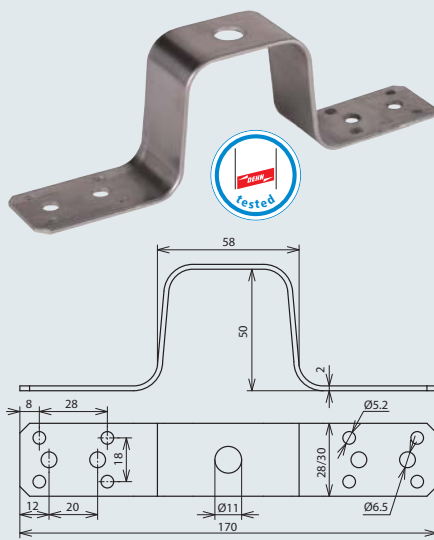
Part No.	374 020
Material	Al
Dimension	30x2 mm
Length	170 mm
Fixing	[2x] Ø11 mm
Central bore	Ø11 mm
Standard	EN 50164-1



Bridging brackets for connecting and joining of metal claddings, for riveting or screwing

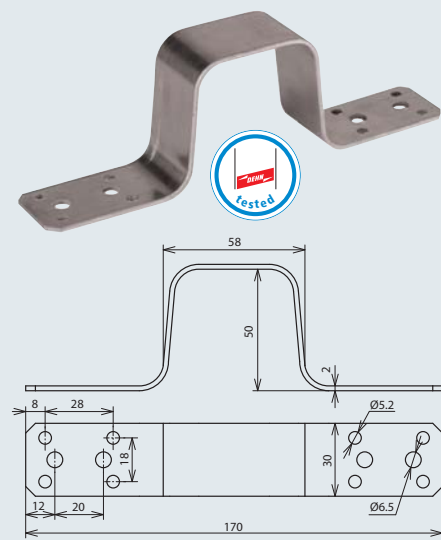
Application note:
According to DIN EN 62305-3 Suppl. 1, four rivets Ø5 mm shall be used to connect material of ≥ 0.5 mm thickness, or two StSt tapping screws Ø6.3 mm (on both sides) for material of ≥ 2 mm thickness.

Short design with central bore



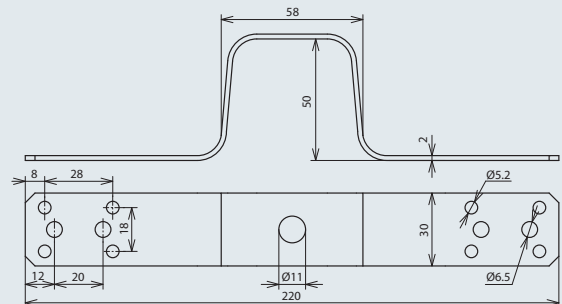
Part No.	377 006	377 027
Material	Al	Cu
Dimension	30x2 mm	28x2 mm
Length	170 mm	170 mm
Fixing	[8x] Ø5.2 / [4x] Ø6.5 mm	[8x] Ø5.2 / [4x] Ø6.5 mm
Central bore	Ø11 mm	Ø11 mm
Standard	EN 50164-1	EN 50164-1

Short design without central bore



Part No.	377 016
Material	Al
Dimension	30x2 mm
Length	170 mm
Fixing	[8x] Ø5.2 / [4x] Ø6.5 mm
Standard	EN 50164-1

Long design with central bore



Part No.	377 026
Material	Al
Dimension	30x2 mm
Length	220 mm
Fixing	[8x] Ø5.2 / [4x] Ø6.5 mm
Central bore	Ø11 mm
Standard	EN 50164-1

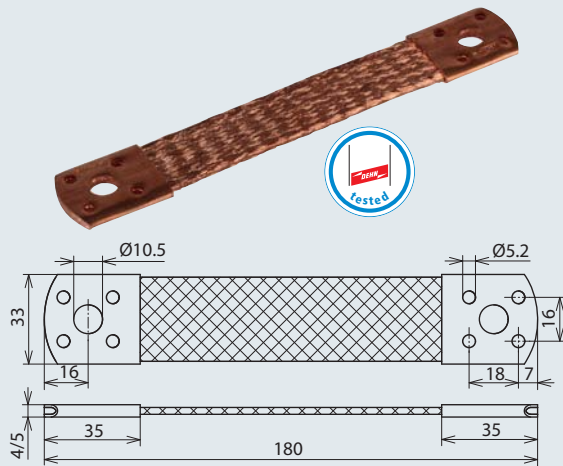
Bridging braids for connecting metal claddings (riveting or screwing) or as expansion compensation piece for round wires; connection e.g. by KS connector Part No. 301 019

Application note:

According to DIN EN 62305-3 Suppl. 1, four rivets Ø5 mm shall be used to connect material of ≥ 0.5 mm thickness, or two StSt tapping screws Ø6.3 mm (on both sides) for material of ≥ 2 mm thickness.

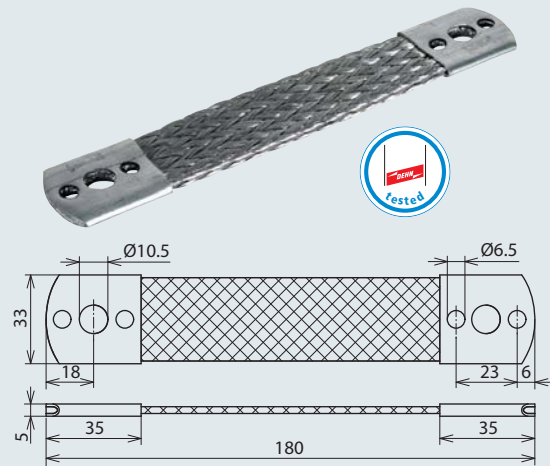


Short design



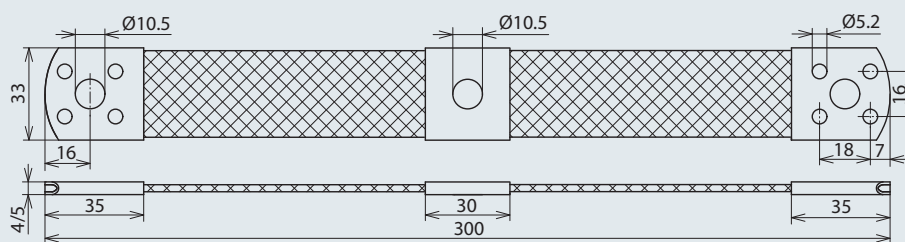
Part No.	377 015	377 007
Material	Al	Cu
Length	180 mm	180 mm
Cross section	50 mm ²	50 mm ²
Fixing	[8x] Ø5.2 / [2x] Ø10.5 mm	[8x] Ø5.2 / [2x] Ø10.5 mm
Fixing possibility	blind rivets/screws	blind rivets/screws
Standard	EN 50164-1	EN 50164-1

Short design for fixing with drilling screws



Part No.	377 045
Material	Al
Length	180 mm
Cross section	50 mm ²
Fixing	[4x] Ø6.5 / [2x] Ø10.5 mm
Fixing possibility	drilling screws/screws
Standard	EN 50164-1

Long design with central bore



Note: At crossing points two bridging braids can be connected with a screw M10x20 mm and nut.

Part No.	377 115	377 107
Material	Al	Cu
Length	300 mm	300 mm
Cross section	50 mm ²	50 mm ²
Fixing	[8x] Ø5.2 / [3x] Ø10.5 mm	[8x] Ø5.2 / [3x] Ø10.5 mm
Central bore Ø	10.5 mm	10.5 mm
Fixing possibility	blind rivets/screws	blind rivets/screws
Standard	EN 50164-1	EN 50164-1

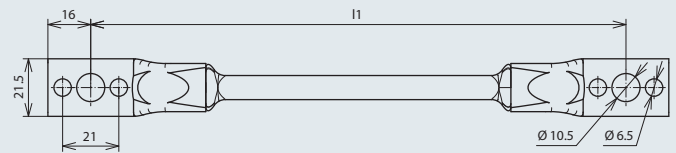
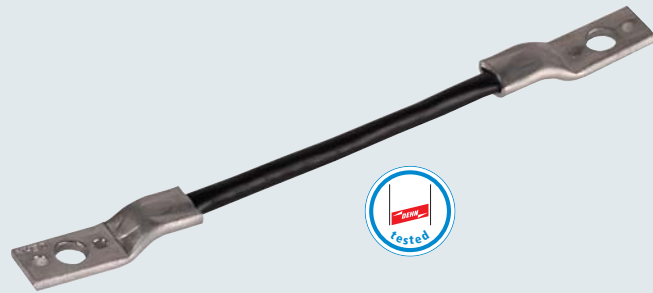




Bridging cables for connecting/bridging of metal claddings by screwing or as expansion compensation piece for round wires connection e.g. with KS connector Part No. 301 019

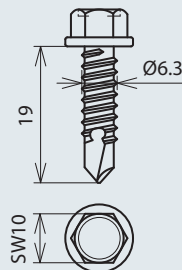
Application note:

According to DIN EN 62305-3 Suppl. 1, two rivets Ø6 mm shall be used to connect material of ≥ 0.5 mm thickness, or two StSt tapping screws Ø6.3 mm (on both sides) for material of ≥ 2 mm thickness.



Part No.	377 210	377 310	377 410	377 510
Length (l1)	200 mm	300 mm	400 mm	500 mm
Material of cable lug	Al	Al	Al	Al
Material of cable	Cu	Cu	Cu	Cu
Cross section	16 mm ²	16 mm ²	16 mm ²	16 mm ²
Fixing	[4x] Ø6.5 / [2x] Ø10.5 mm	[4x] Ø6.5 / [2x] Ø10.5 mm	[4x] Ø6.5 / [2x] Ø10.5 mm	[4x] Ø6.5 / [2x] Ø10.5 mm
Insulation	rubber EM5 black	rubber EM5 black	rubber EM5 black	rubber EM5 black
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

Drilling Screw

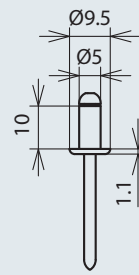


Drilling screw, self-tapping with hexagon head and collar, for connecting bridging brackets or cables e.g. to the metal capped parapet (for materials of ≥ 2 mm thickness)

Part No.	528 619
Material	StSt
Dimension	6.3x19 mm
Head	SW 10
Standard	DIN 7504

Blind rivet with StSt pin according to DIN EN 62305-3 Suppl. 1, for the connection of bridging brackets, bridging braids or bridging cables.

Part No.	528 610
Material	Al / StSt
Head	Ø5 mm
Length	10 mm
Standard	similar to DIN 7337



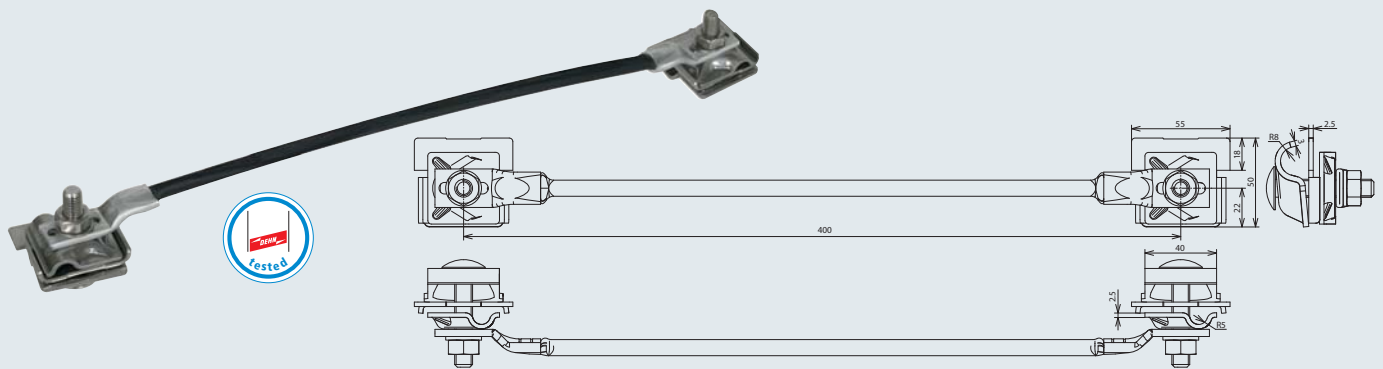
NEW

Bridging Cable with Saddle Clamps

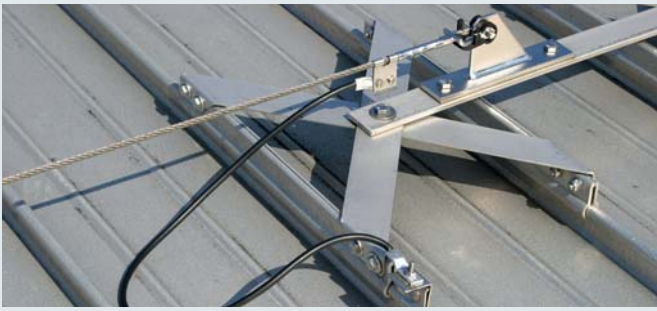
Bridging cable with saddle clamps for connecting or bridging of metal claddings (e.g. metal cappings of roof parapet segments) without boring. No pollution by bore chippings.

With one cleat each e.g. for connection to the air-termination system and for erection of air-termination rods (Rd 8-10 mm)

For use at parapet capping seams angled 0°-45° and up to max. 18 mm long



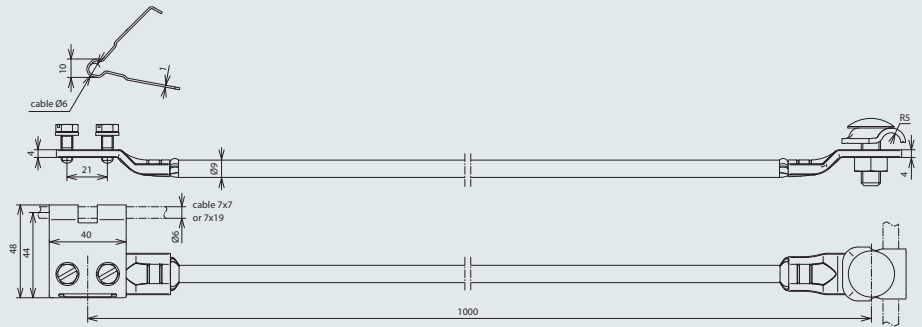
Part No.	365 419
Clamping range of seam	0.7-10 mm
Material of saddle clamps	StSt
Length	200 mm
Material of cable	Cu
Cross section	16 mm ²
Standard	EN 50164-1



System for connecting the safety rope systems on roofs with the air-termination system

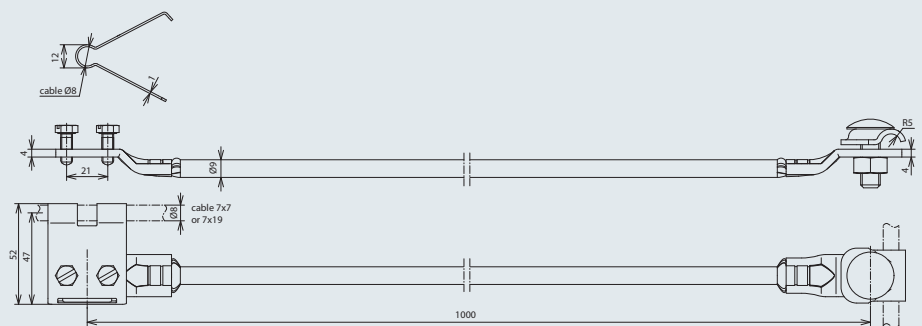
With premounted connection lug for the safety rope (Ø6 mm or Ø8 mm) and clamping frame (Rd 6-10 mm)

Rope diameter 6 mm



Part No.	365 509
Clamping range of connection lug	Ø6 mm
Rope structure	7x7 / 7x19
Material of connection lug	StSt
Clamping range of clamping frame	Rd 6-10 mm
Material of clamping frame	StSt
Length	1000 mm
Material of rope	Cu
Cross section	16 mm ²
Temperature range	-40 to +80 °C
Type of cable	flexible
Insulation	rubber EM5 black
Standard	EN 50164-1

Rope diameter 8 mm

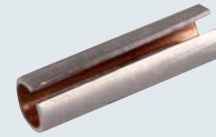


Part No.	365 519
Clamping range of connection lug	Ø8 mm
Rope structure	7x7 / 7x19
Material of connection lug	StSt
Clamping range of clamping frame	Rd 6-10 mm
Material of clamping frame	StSt
Length	1000 mm
Material of rope	Cu
Cross section	16 mm ²
Temperature range	-40 to +80 °C
Type of cable	flexible
Insulation	rubber EM5 black
Standard	EN 50164-1

More details in installation instructions No. 1732

Sleeves for corrosion-resistant connection between steel or aluminium and copper

For pushing onto cut conductors

Note: Rd 8 mm = 50 mm²

Part No.	562 250	562 035	562 050	562 135	562 150
Material outside	Al	Al	Al	Cu	Cu
Material inside	Cu	Cu	Cu	Al	Al
Cross section	25 mm ²	35 mm ²	50 mm ²	35 mm ²	50 mm ²
Length	29 mm	32 mm	40 mm	32 mm	40 mm
Diameter inside	6.3 mm	7.5 mm	8.2 mm	7.5 mm	8.2 mm
Diameter outside	8.3 mm	9.5 mm	10.0 mm	9.5 mm	10.0 mm
Material thickness	1.0 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm

For attaching to uncut conductors

Note: Rd 8 mm = 50 mm²

Part No.	562 001	562 101
Material outside	Al	Cu
Material inside	Cu	Al
Cross section	50 mm ²	50 mm ²
Length	60 mm	60 mm
Diameter inside	8.5 mm	8.5 mm
Diameter outside	9.5 mm	9.5 mm
Material thickness	0.5 mm	0.5 mm

Cupal Sheets

Metal strips for corrosion-resistant connection between steel or aluminium and copper

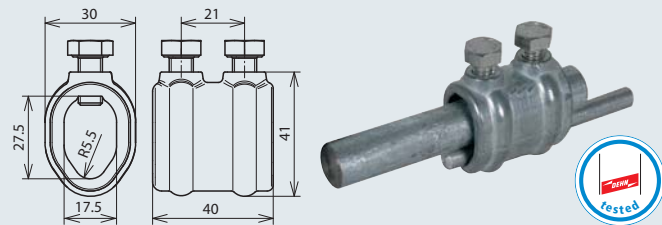


Part No.	562 440	562 460
Material	Al / Cu	Al / Cu
Dimension	500x40x0.5 mm	500x60x0.5 mm

Disconnecting sleeves for connecting down conductors to the earth entries

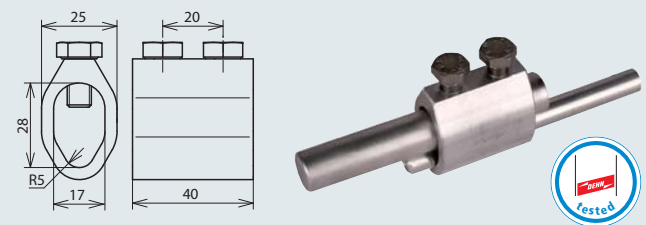


Open design for earth entry rods



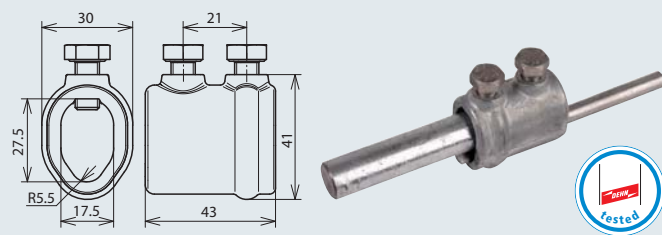
Part No.	450 000	450 007
Material	ZDC	RCB
Clamping range Rd / Rd	7-10 / 16 mm	7-10 / 16 mm
Screw	☛ M8x16 mm	☛ M8x16 mm
Material of screw	StSt	StSt
Standard	EN 50164-1	EN 50164-1

Open design for earth entry rods



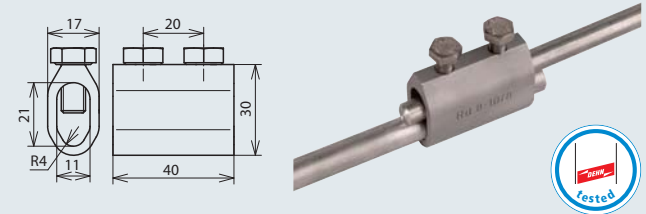
Part No.	450 001
Material	Al
Clamping range Rd / Rd	8-10 / 16 mm
Screw	☛ M8x16 mm
Material of screw	StSt
Standard	EN 50164-1

Closed design for earth entry rods



Part No.	450 011
Material	ZDC
Clamping range Rd / Rd	7-10 / 16 mm
Screw	☛ M8x16 mm
Material of screw	StSt
Standard	EN 50164-1

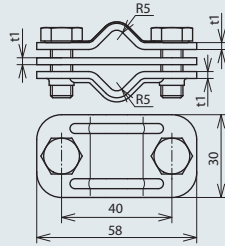
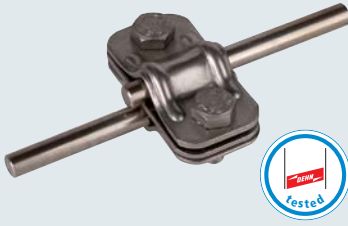
Open design for wires



Part No.	450 101
Material	Al
Clamping range Rd / Rd	8-10 / 8 mm
Screw	☛ M8x16 mm
Material of screw	StSt
Standard	EN 50164-1

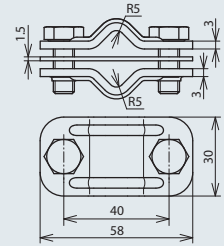
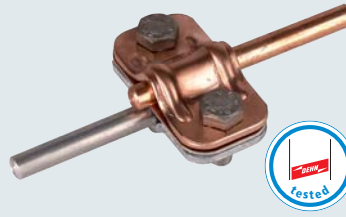
Disconnecting clamps for connecting down conductors to the earth entries

With intermediate plate for two round conductors



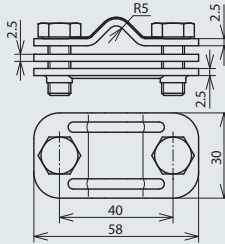
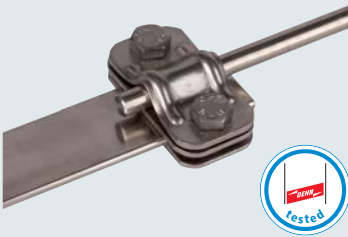
Part No.	459 129	459 127
Material	StSt	Cu
Clamping range Rd / Rd	8-10 / 8-10 mm	8-10 / 8-10 mm
Screw	M8x20 mm	M8x20 mm
Material of screw	StSt	StSt
Distance of screws	40 mm	40 mm
Material thickness (t1)	2.5 mm	3 mm
Standard	EN 50164-1	EN 50164-1

Bimetallic, for two round conductores St/tZn or StSt (V4A)



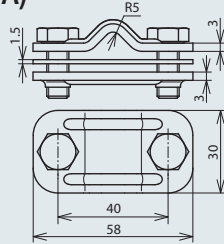
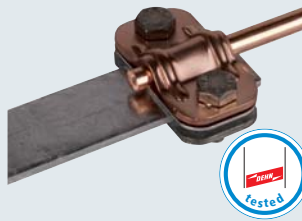
Part No.	460 517
Material	Cu / St/tZn
Clamping range Rd / Rd	8-10 / 8-10 mm
Screw	M8x20 mm
Material of screw	StSt
Distance of screws	40 mm
Material thickness (t1)	3 / 1.5 mm
Standard	EN 50164-1

With intermediate plate for round and flat conductor



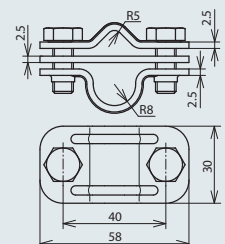
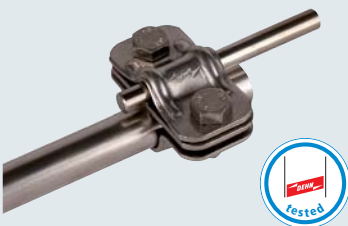
Part No.	459 139
Material	StSt
Clamping range Rd / Fl	8-10 / 30 mm
Screw	M8x20 mm
Material of screw	StSt
Distance of screws	40 mm
Material thickness (t1)	2.5 mm
Standard	EN 50164-1

Bimetallic, for round conductor Cu and flat conductor St/tZn or StSt (V4A)



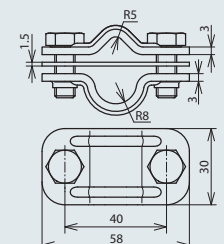
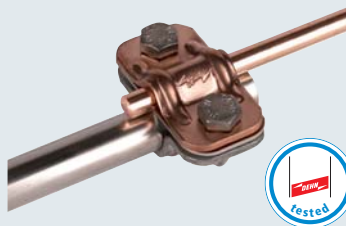
Part No.	460 557
Material	Cu / St/tZn
Clamping range Rd / Fl	8-10 / 30 mm
Screw	M8x20 mm
Material of screw	StSt
Distance of screws	40 mm
Material thickness (t1)	3 / 1.5 mm
Standard	EN 50164-1

With intermediate plate for earth entry rods



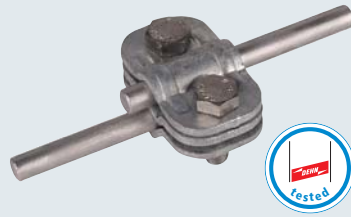
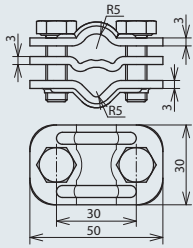
Part No.	459 119
Material	StSt
Clamping range Rd / Rd	8-10 / 16 mm
Screw	M8x20 mm
Material of screw	StSt
Distance of screws	40 mm
Material thickness (t1)	2.5 mm
Standard	EN 50164-1

Bimetallic, for round conductor Cu and earth entry rod St/tZn or StSt (V4A)



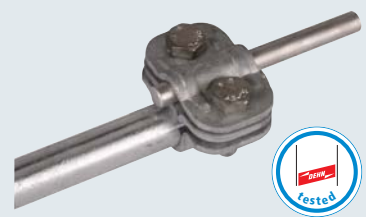
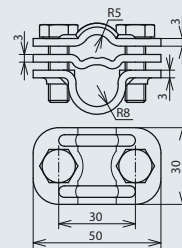
Part No.	460 507
Material	Cu / St/tZn
Clamping range Rd / Rd	8-10 / 16 mm
Screw	M8x20 mm
Material of screw	StSt
Distance of screws	40 mm
Material thickness (t1)	3 / 1.5 mm
Standard	EN 50164-1

With intermediate plate for two round conductors, small design



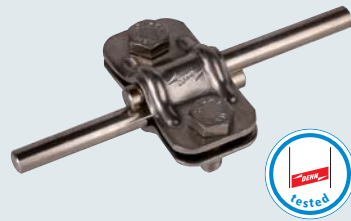
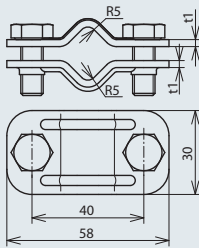
Part No.	459 003
Material	St/tZn
Clamping range Rd / Rd	7-10 / 7-10 mm
Screw	☛ M8x25 mm
Material of screw	StSt
Distance of screws	30 mm
Material thickness (t1)	3 mm
Standard	EN 50164-1

With intermediate plate for earth entry rods, small design



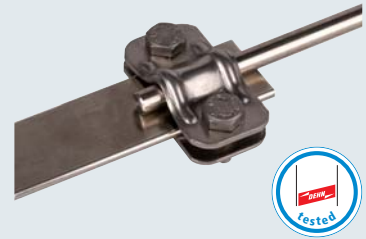
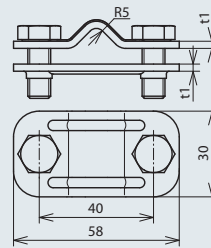
Part No.	459 000
Material	St/tZn
Clamping range Rd / Rd	7-10 / 16 mm
Screw	☛ M8x25 mm
Material of screw	StSt
Distance of screws	30 mm
Material thickness (t1)	3 mm
Standard	EN 50164-1

Without intermediate plate for two round conductors



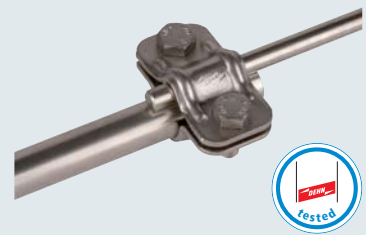
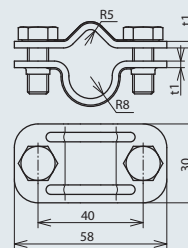
Part No.	459 029	459 020
Material	StSt	St/tZn
Clamping range Rd / Rd	8-10 / 8-10 mm	8-10 / 8-10 mm
Screw	☛ M8x20 mm	☛ M8x20 mm
Material of screw	StSt	StSt
Distance of screws	40 mm	40 mm
Material thickness (t1)	2.5 mm	3 mm
Standard	EN 50164-1	EN 50164-1

Without intermediate plate for round and flat conductor



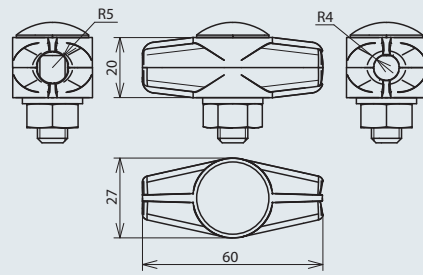
Part No.	459 039	459 030
Material	StSt	St/tZn
Clamping range Rd / Fl	8-10 / 30 mm	8-10 / 30 mm
Screw	☛ M8x20 mm	☛ M8x20 mm
Material of screw	StSt	StSt
Distance of screws	40 mm	40 mm
Material thickness (t1)	2.5 mm	3 mm
Standard	EN 50164-1	EN 50164-1

Without intermediate plate for earth entry rods



Part No.	459 019	459 010
Material	StSt	St/tZn
Clamping range Rd / Rd	8-10 / 16 mm	8-10 / 16 mm
Screw	☛ M8x20 mm	☛ M8x20 mm
Material of screw	StSt	StSt
Distance of screws	40 mm	40 mm
Material thickness (t1)	2.5 mm	3 mm
Standard	EN 50164-1	EN 50164-1

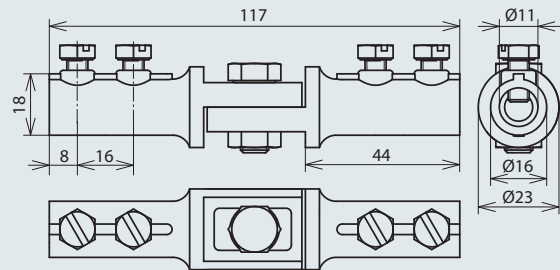
Single-screw disconnecting clamp to connect down conductors to earth entries



Part No.	463 010
Material	ZDC
Clamping range Rd / Rd	8 / 10 mm
Screw	⬆ M10x30 mm
Material of screw/nut	StSt
Standard	EN 50164-1

Disconnecting Clamp – Austrian Standard

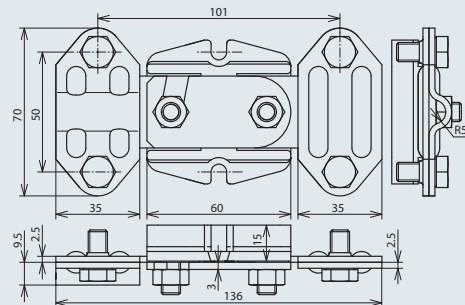
Disconnecting clamp with connecting screw, for round conductors



Part No.	460 213
Material	ZDC
Clamping range Rd / Rd	7-10 / 7-10 mm
Screw	⬆ M6x12 / ⬆ M8x25 mm
Material of screw/nut	StSt
Standard	EN 50164-1

FIX Test Joint

Test joint with insulating piece and disconnection lug

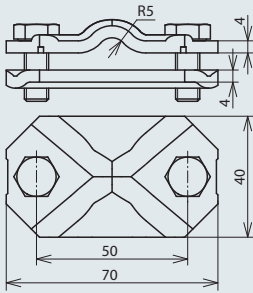


Part No.	453 100
Material	St/tZn
Clamping range Rd / FI	8-10 / 30-40 mm
Screw	⬆ M8x16/M8x20 mm
Material of screw/nut	StSt
Insulating piece	plastic grey
Standard	EN 50164-1

Type for conductors Rd 8-10 and Rd 8-10 upon request

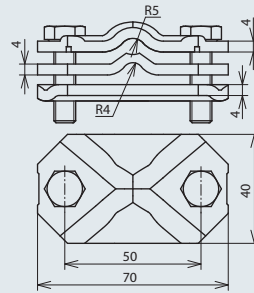
Two-part or three-part connection system with thread in the base part

Two-part, for round and flat conductors



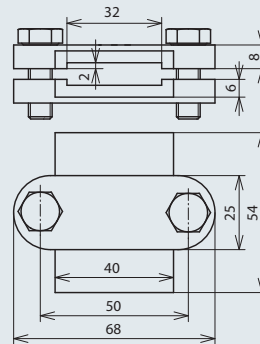
Part No.	454 100	454 107
Material	St/tZn	Cu
Clamping range Rd / Fl	7-10 / 30-40 mm	7-10 / 30-40 mm
Screw	M8x20 mm	M8x20 mm
Material of screw	StSt	StSt
Standard	EN 50164-1	EN 50164-1

Three-part, (with intermediate plate) for round and flat conductors



Part No.	454 000
Material	St/tZn
Clamping range Rd / Fl	5-10 / 30-40 mm
Screw	M8x30 mm
Material of screw	StSt
Standard	EN 50164-1

Two-part, for two flat conductors



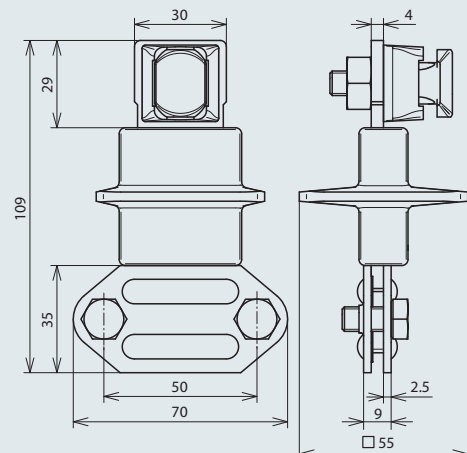
Part No.	455 000
Material	MCl/tZn
Clamping range Fl / Fl	30 / 30 mm
Screw	M8x25 mm
Material of screw	StSt
Standard	EN 50164-1

Bimetallic Disconnecting Clamp with Shield

Bimetallic type to interconnect conductors made of different materials



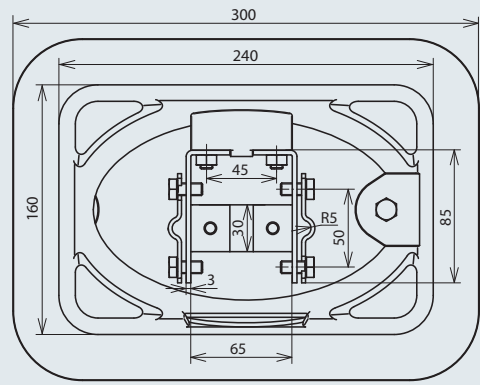
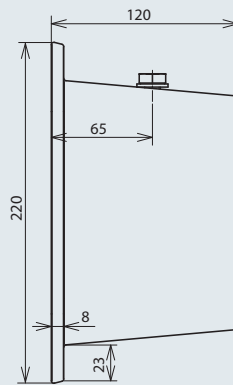
Part No.	460 147
Material	Cu / St/tZn
Clamping range Rd / Fl	6-10 / 30-40 mm
Screw	M8x16 mm
Material of screw	StSt
Shield	plastic grey
Standard	EN 50164-1





Test joint boxes for underfloor mounting, to disconnect the down conductor from the earth-termination system for measuring purposes

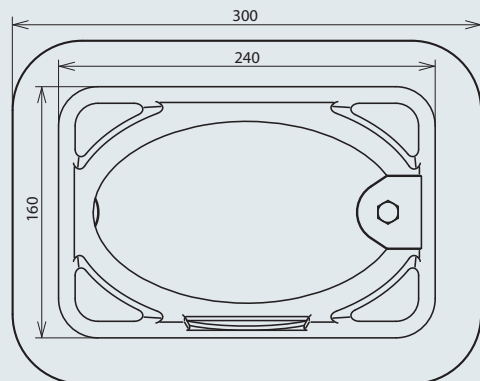
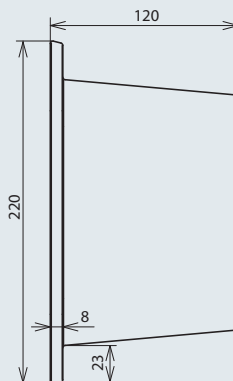
Type GCI – with integrated, easily accessible test joint



Detachable with a key, including terminal for the down conductor and the earth conductor, without bottom

Part No.	549 001
Material	GCI
Colour	black (varnished)
Dimension	300x220x120 mm
Clamping range Rd / FI	7-10 / 30-40 mm
Standard	EN 50164-5
Max. permissible load	40 kg/cm ²
Material of test joint	StSt

Type GCI – without test joint

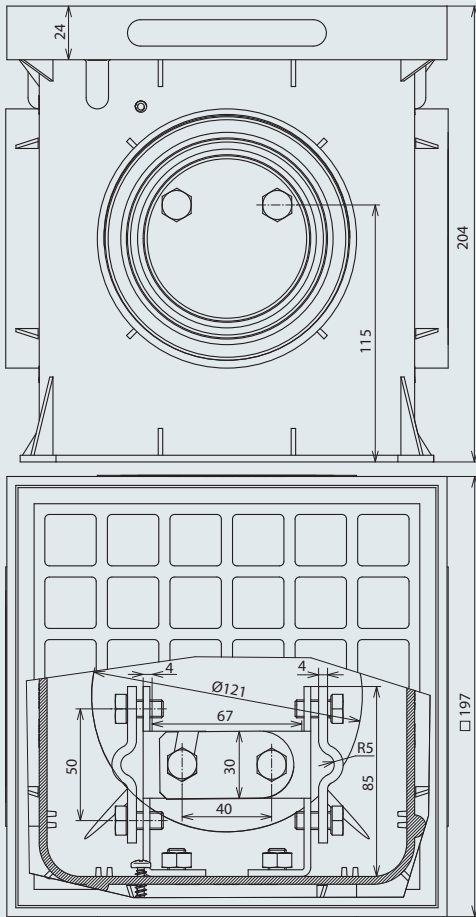


Without bottom

Part No.	549 000
Material	GCI
Colour	black (varnished)
Dimension	300x220x120 mm
Standard	EN 50164-5
Max. permissible load	40 kg/cm ²

More details in installation instructions No. 1718

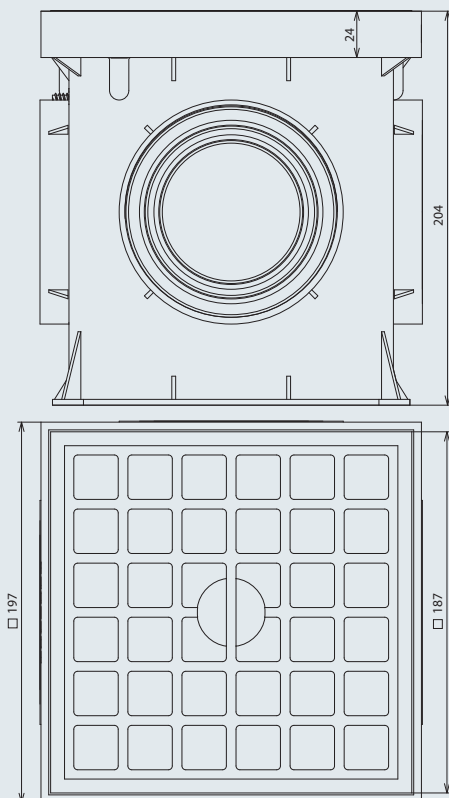
Type Plastic – with integrated, easily accessible test joint



Detachable with a key, with integrated terminal for the connection of the down conductor and earth conductor, open at the bottom (without bottom)

Part No.	549 050
Material	plastic
Colour	grey
Dimension	197x197x204 mm
Clamping range Rd / FI	7-10 / 30-40 mm
Standard	EN 50164-5
Max. permissible load	15 kg/cm ²
Material of test joint	StSt

Type Plastic – without test joint



Open at the bottom (without bottom)

Part No.	549 051
Material	plastic
Colour	grey
Dimension	197x197x204 mm
Standard	EN 50164-5
Max. permissible load	15 kg/cm ²

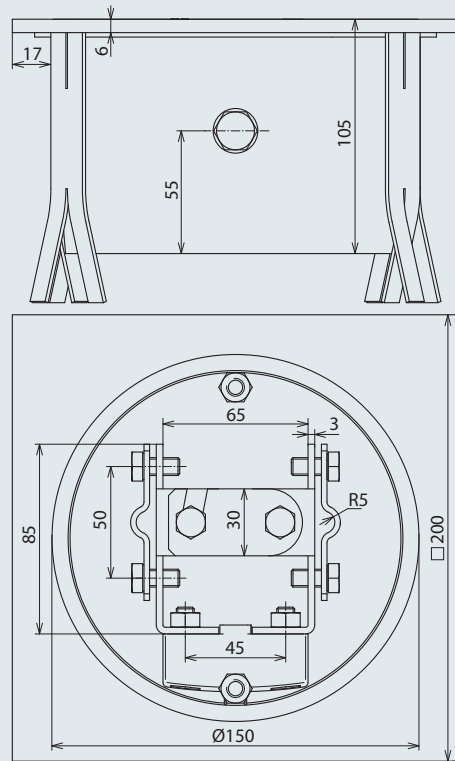
More details in installation instructions No. 1718

Type StSt – with integrated, easily accessible test joint

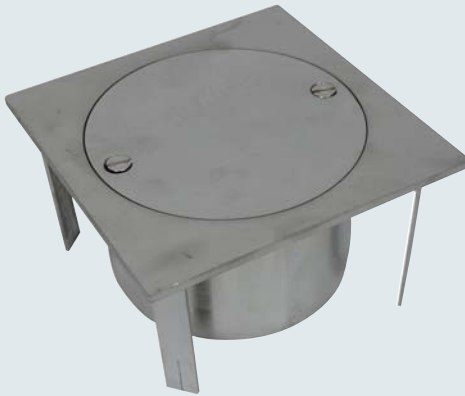


Detachable with a key, with integrated terminal for the connection of down conductor and earth conductor, open at the bottom (without bottom)

Part No.	549 090
Material	StSt
Dimension	200x200x105 mm
Clamping range Rd / FI	7-10 / 30-40 mm
Standard	EN 50164-5
Max. permissible load	40 kg/cm ²
Material of test joint	StSt

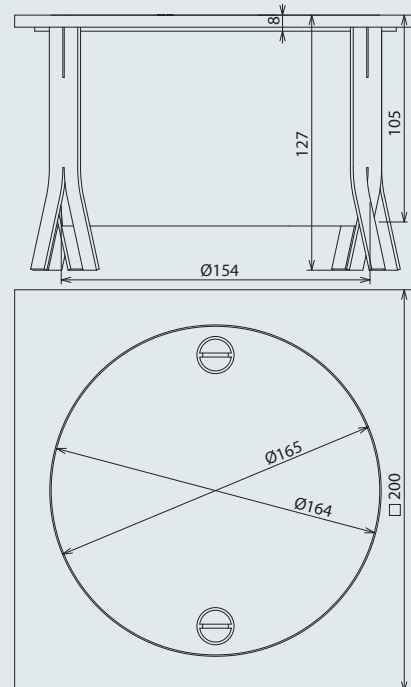


Type StSt – without test joint



Open at the bottom (without bottom)

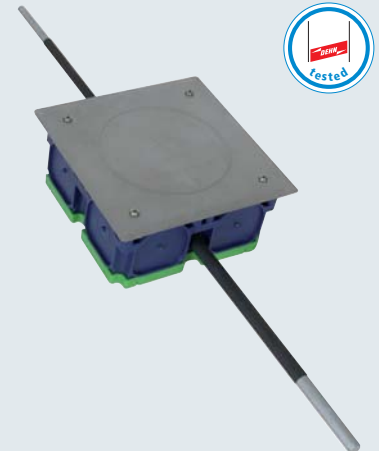
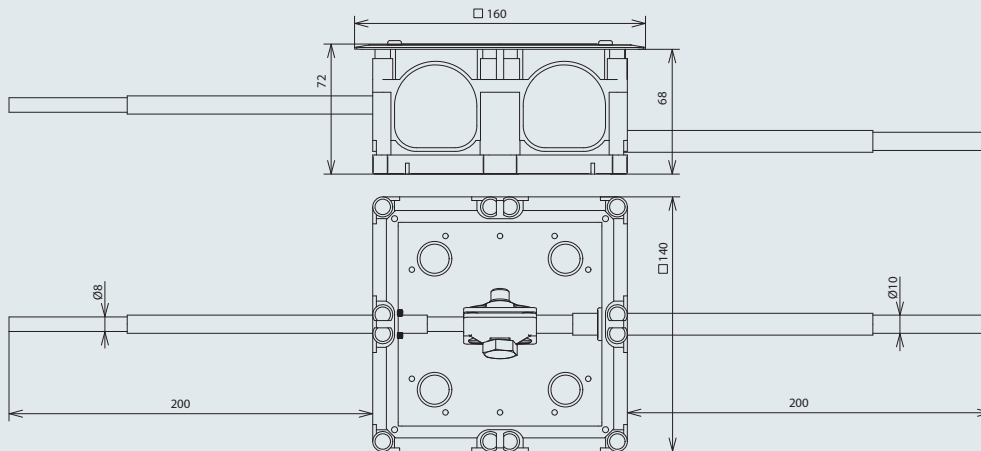
Part No.	549 091
Material	StSt
Dimension	200x200x105 mm
Standard	EN 50164-5
Max. permissible load	40 kg/cm ²



More details in installation instructions No. 1718

Test joint boxes for flush mounting and for concrete structures with integrated test joint
 With symbol for concrete constructions

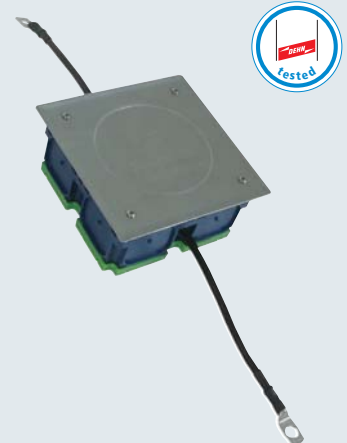
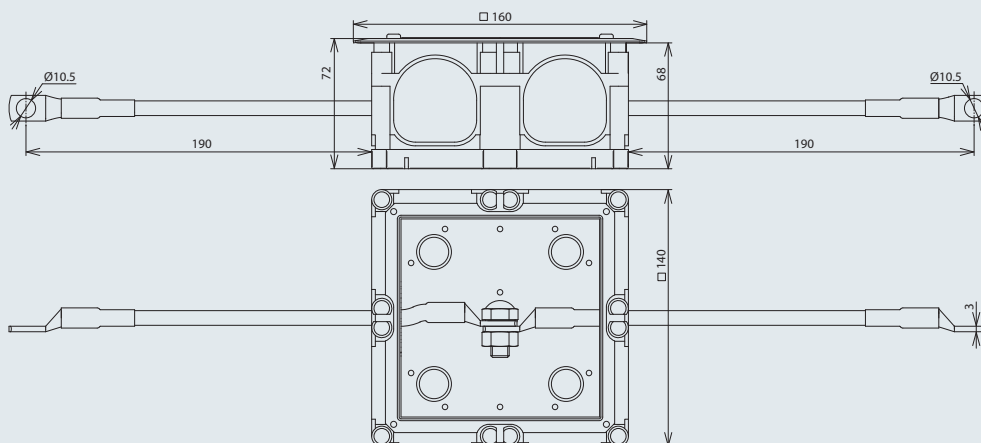
With rigid terminal lugs



Rd 8 and Rd 10 mm, approx. 200 mm long (insulated)

Part No.	476 010
Material of box	plastic
Dimension of box	140x140x68 mm
Material of cover	StSt
Dimension of cover	160x160 mm
Standard	EN 50164-1

With flexible terminal conductors



Made of Cu (16 mm²) and cable lug made of Cu/gal Sn (bore 10.5 mm)

Part No.	476 016
Material of box	plastic
Dimension of box	140x140x68 mm
Material of cover	StSt
Dimension of cover	160x160 mm
Standard	EN 50164-1

More details in installation instructions No. 1020

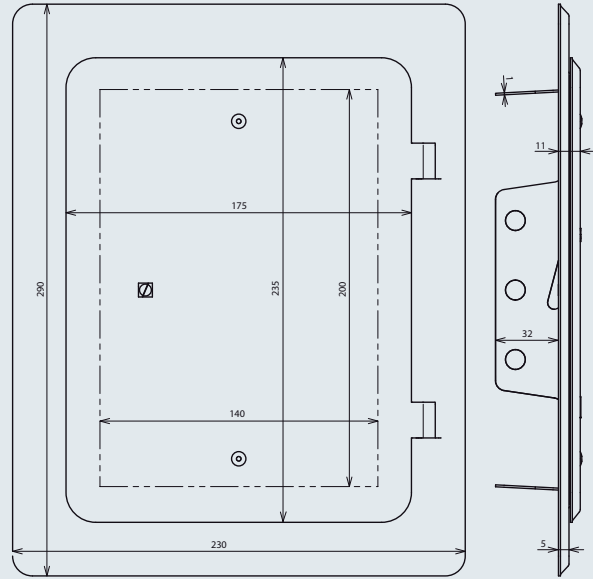
Inspection doors for flush-mounted test joints

Type StSt with square spanner



For screw-mounting (bores Ø8-10 mm) with detachable door

Part No.	476 020
Material	StSt
Mounting dimensions	200x140 mm
Dimension	290x230 mm

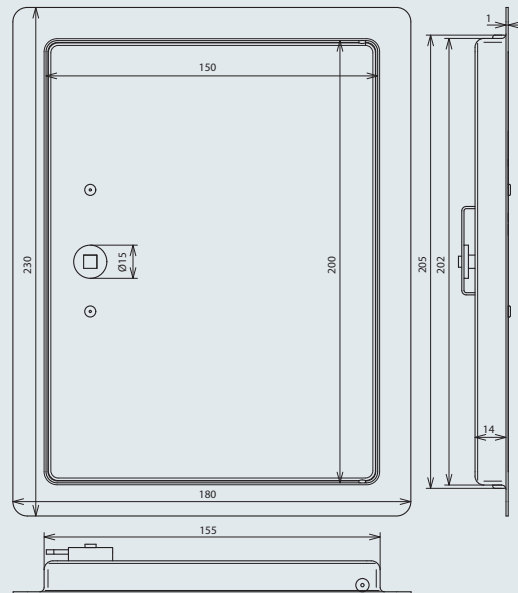


Type St/tZn with square spanner



For immuring/plastering, with claws (length 60 mm, distance 100 mm)

Part No.	476 001
Material	St/tZn
Mounting dimensions	205x155 mm
Dimension	230x180 mm

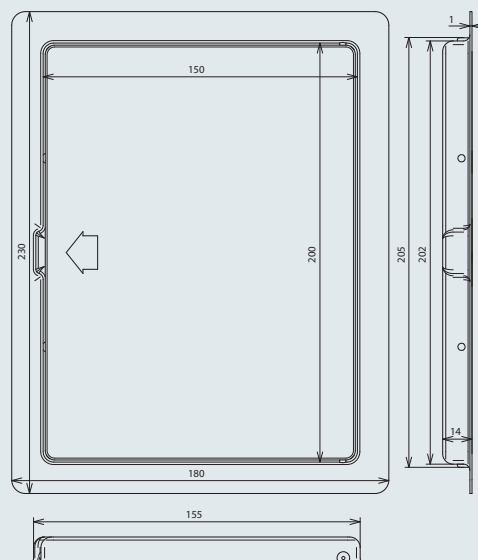


Type St/tZn with snap lock



Light design for immuring/plastering, with claws (length 60 mm, distance 100 mm)

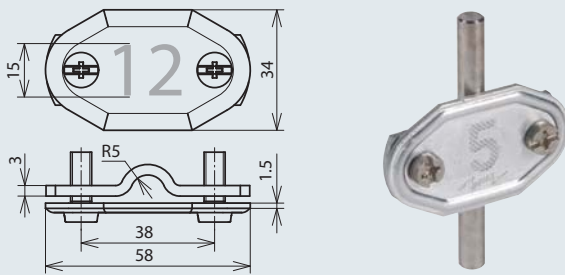
Part No.	476 100
Material	St/tZn
Mounting dimensions	205x155 mm
Dimension	230x180 mm



Number plates for marking the test joints
 Number plates with company logo upon request



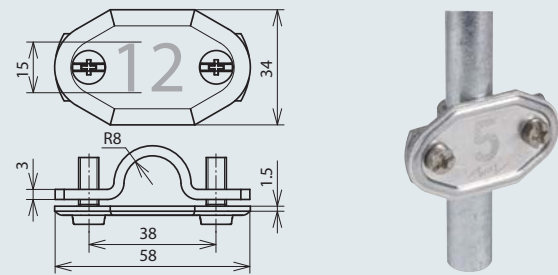
With embossed number for round / flat conductors



State the numbers required when placing your order

Part No.	480 005
Material	Al
Clamping range Rd / Fl	7-10 / 30 mm
Screw	☒ M6x16 mm
Material of screw	StSt

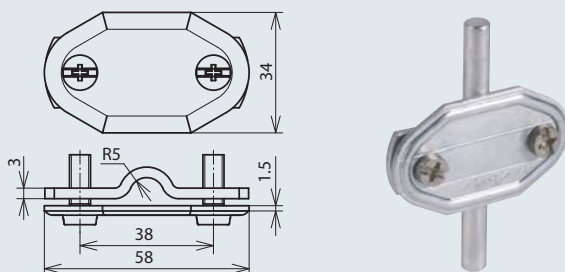
With embossed number for earth entry rods



State the numbers required when placing your order

Part No.	480 006
Material	Al
Clamping range Rd	16 mm
Screw	☒ M6x16 mm
Material of screw	StSt

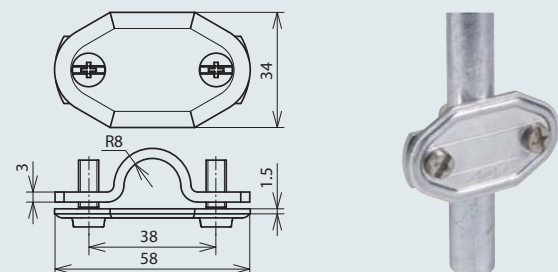
Without number for round / flat conductors



For on-site labelling with punch-type numbers 0-9, size 10 mm.

Part No.	480 003
Material	Al
Clamping range Rd / Fl	7-10 / 30 mm
Screw	☒ M6x16 mm
Material of screw	StSt

Without number for earth entry rods

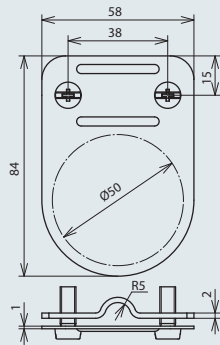



For on-site labelling with punch-type numbers 0-9, size 10 mm.

Part No.	480 004
Material	Al
Clamping range Rd	16 mm
Screw	☒ M6x16 mm
Material of screw	StSt

Supports for the test badge to be fixed at the down conductor or the earth entry

For round / flat conductors



Part No.	480 113
Material	StSt
Clamping range Rd / Fl	7-10 / 30 mm
Screw	 M6x16 mm
Material of screw	StSt
Material of cleat	StSt
Dimension	84x58x1 mm

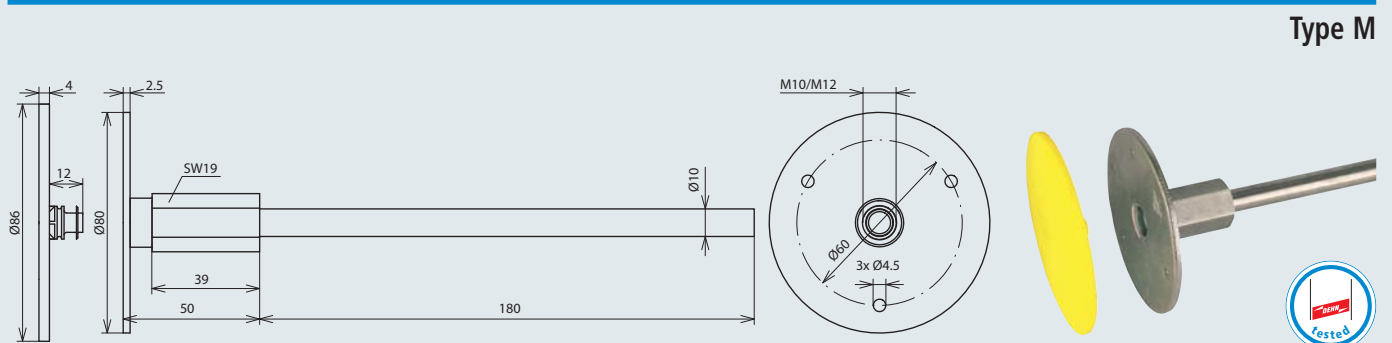
Fixed earthing terminals for installation into concrete as corrosion-free connection to the earth-termination system for protective equipotential bonding and/or functional equipotential bonding of the down conductor e.g. to the reinforcement of buildings.

For the double thread M10 and M12 mind the following minimum lengths of the screws:

35 mm of M10 (thread length 40 mm)

15 mm of M12 (thread length 20 mm)

- Connection possibility at the terminal axis e.g. by cross unit Part No. 319 201, or connecting clamp, e.g. Part No. 308 025 for the reinforcement
- Connection possibility for the equipotential bonding bar, e.g. by end pieces Part No. 390 499
- Connection possibility for flat conductors at the terminal plate (front) by terminal clamp Part No. 478 141, or at the back of the fixed earthing terminal without terminal axis, by terminal clamp Part No. 478 129
- Terminal axis screwed-in or press-fitted
- Snap-on plastic cover (yellow), sealed with pressure tested O-ring (test pressure 0.5 bar)



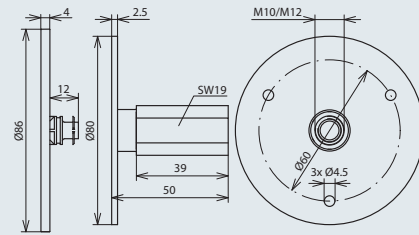
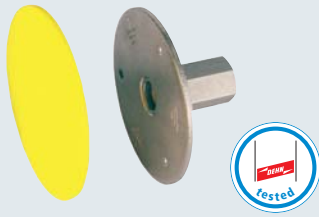
Type M

With terminal axis (l = 180 mm, Ø10 mm)

Part No.	478 011	478 019
Terminal thread	M10 / M12	M10 / M12
Material of plate	StSt (V4A)	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316	316Ti / 316L / 316
Material of axis	St/tZn	StSt
Terminal plate Ø	80 mm	80 mm
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	6.5 kA	3.9 kA
Standard	EN 50164-1	EN 50164-1

More details in installation instructions No. 1476.

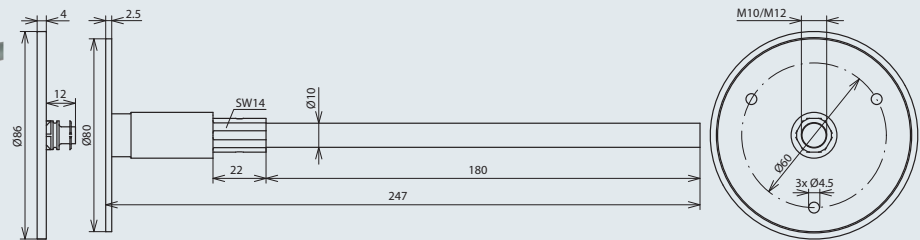
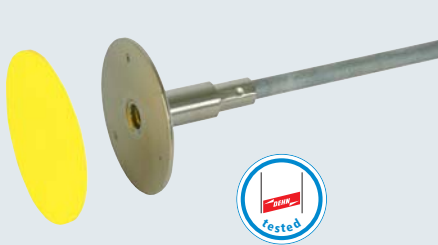
Type M without terminal axis



Part No.	478 012
Terminal thread	M10 / M12
Material of plate	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Terminal plate Ø	80 mm
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	9.3 kA
Standard	EN 50164-1

Specified short-circuit current applies for the connection with copper cable lug

Type M press-fitted

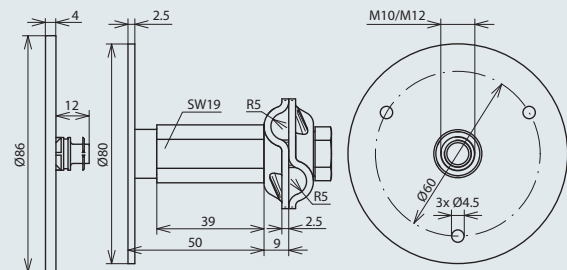
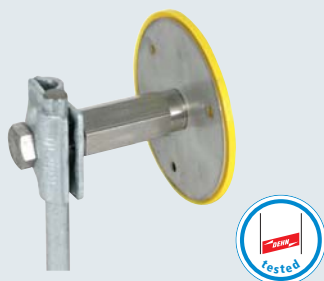


Terminal axis (l = 180 mm, Ø10 mm)

Part No.	478 041	478 049
Terminal thread	M10 / M12	M10 / M12
Material of plate	StSt (V4A)	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316	316Ti / 316L / 316
Material of axis	St/tZn	StSt
Terminal plate Ø	80 mm	80 mm
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	3.7 kA	3.3 kA
Standard	EN 50164-1	EN 50164-1

Part No. 478 049 with UL certification

Type M with MV clamp

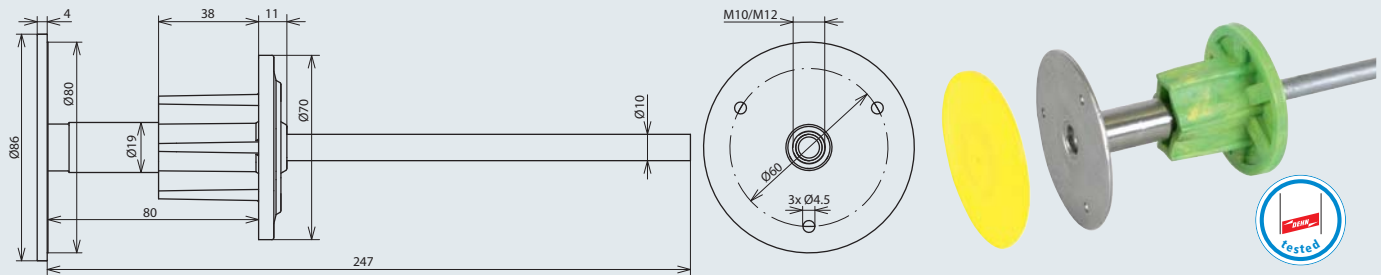


For round conductors 8-10 mm, design requiring little space in the shuttering

Part No.	478 112
Terminal thread	M10 / M12
Material of plate	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Terminal plate Ø	80 mm
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	9.3 kA
Standard	EN 50164-1

More details in installation instructions No. 1476.

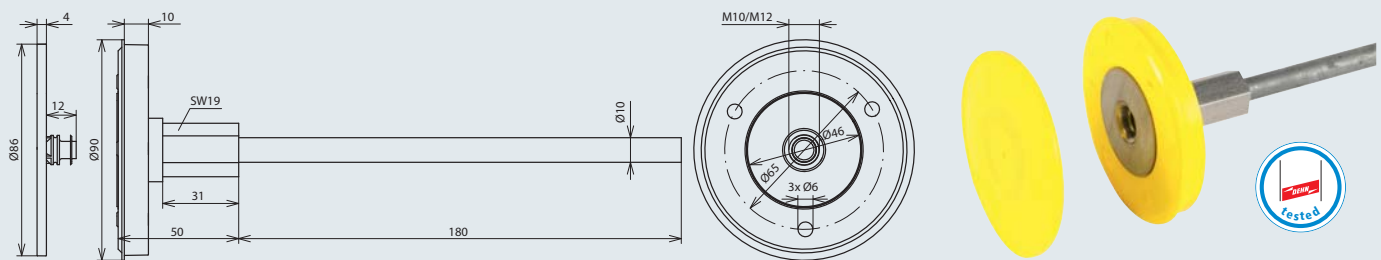
Type M press-fitted with additional water barrier



Against penetration of water along the axis into the wall
(tested with 5 bar compressed air according to EN 50164-5 and 1 bar pressure water)

Part No.	478 051
Terminal thread	M10 / M12
Material of plate	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Material of axis	St/tZn
Terminal plate Ø	80 mm
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	3.7 kA
Material of water barrier	PVC
Standard	EN 50164-1

Type K



With plastic ring and terminal axis (l = 180 mm, Ø10 mm)

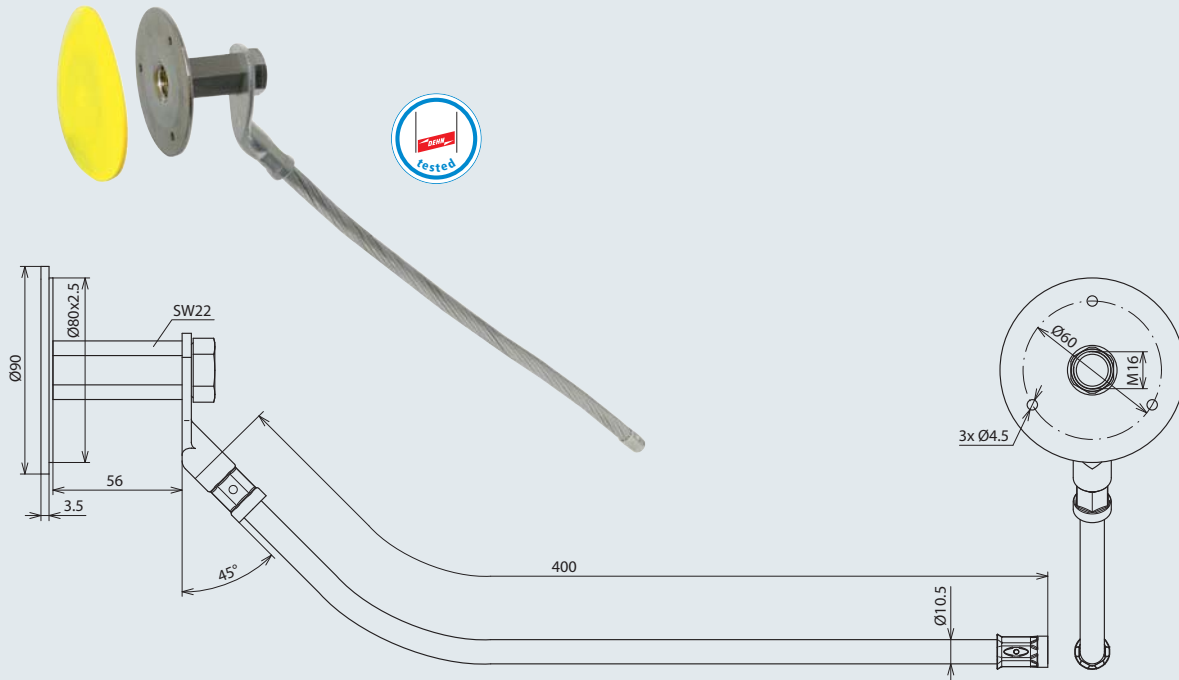
Part No.	478 200
Terminal thread	M10 / M12
Material of plate	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Material of axis	St/tZn
Terminal plate Ø	46 mm
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	6.5 kA
Standard	EN 50164-1

More details in installation instructions No. 1476.

Fixed earthing terminal with terminal thread M16 for higher current loadings (50 Hz), e.g. for connecting the ring equipotential bonding system with the earth-termination systems of power plants having a nominal a.c. voltage over 1 kV (transformer earthing).

The connection cable may be connected e.g. with a cross unit (Part No. 318 207/318 209) to the further components of the earth-termination system, or to the reinforcement with the corresponding clamps.

With snap-on plastic cover (yellow) and sealing around the terminal thread for the formwork installation.



Part No.	478 027
Terminal thread	M16
Material of plate	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Material of cable	Cu/gal Sn
Cross section of terminal cable	70 mm ²
Length of terminal cable	400 mm
Diameter of terminal cable	10.5 mm
Terminal plate Ø	80 mm
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	11 kA

More details in installation instructions No. 1689

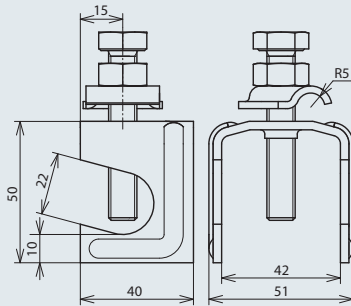
Clamps for connecting the reinforcement by clamping frame
For round conductors or fixed earthing terminals with simultaneous fixing in the formwork

Arrangement:

(II) = parallel

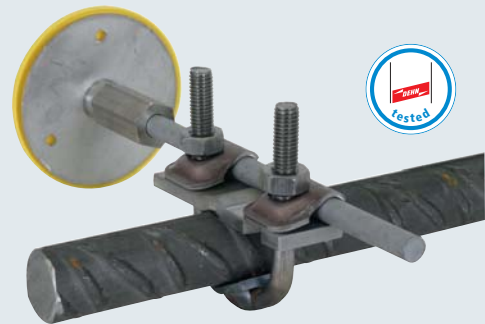
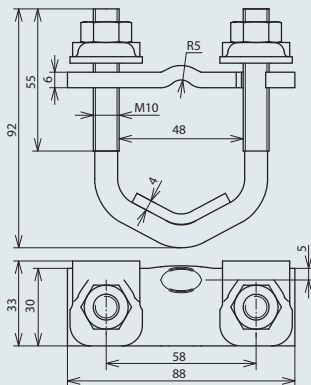
(+) = crosswise

For small diameters



Part No.	308 035
Material	St/bare
Clamping range Rd / Rd	(+//) 6-22 / 6-10 mm
Clamping range Rd / Fl	(+) 6-22 / 40 mm
Screw	☐ M10x60 mm
Material of screw	St/bare
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	1.0 kA

U-clamp for large diameters

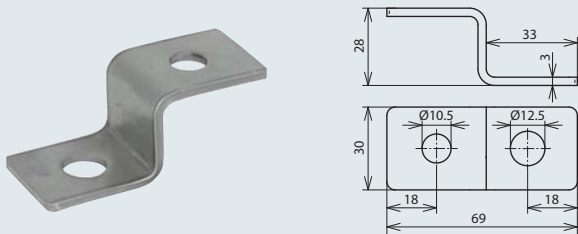


Part No.	308 046
Material	St/bare
Clamping range Rd / Rd	(+//) 16-48 / 6-10 mm
Clamping range Rd / Fl	(II) 16-48 / 30-40 mm
Screw	stirrup bolt M10x48 mm
Material of screw	St/bare
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	6.5 kA



End pieces for screwing on the fixed earthing terminal for connecting e.g. an equipotential bonding bar or for connecting construction elements (e.g. steel girders or alike) by screwing

Simple design

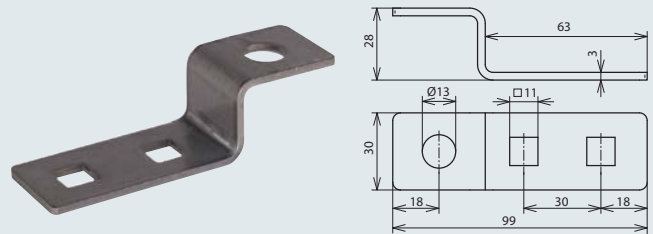


For universal use at terminals M10 and M12, e.g. at the fixed earthing terminal

For connecting Rd e.g. with KS connector (Part No. 301 019), or for connecting FI with screws and nuts M10 or M12

Part No.	390 499
Material	StSt
Bore Ø	10.5/12.5 mm

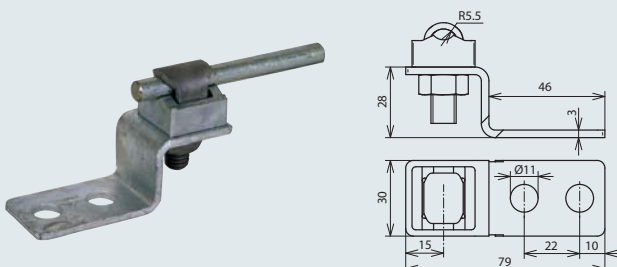
Design with square holes



Dimension 11x11 mm, for connecting Rd e.g. with KS connector (Part No. 301 019) or for connecting FI with screws and nuts M10

Part No.	390 479
Material	StSt
Distance of bores	30 mm
Bore Ø	13 mm

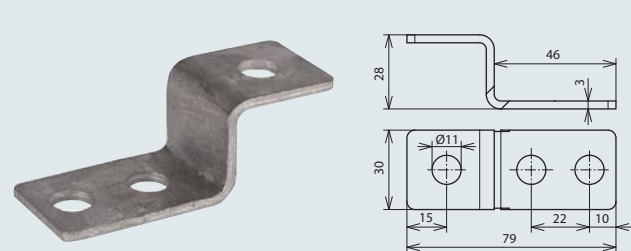
Design with bores and KS connector



Bores Ø11 mm

Part No.	363 010
Material	St/tZn
Distance of bores	22 mm
Bore Ø	11 mm
Clamping range Rd	7-10 mm
Standard	EN 50164-1

Design with bores



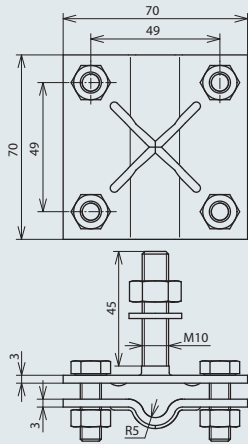
Bores Ø11 mm

Part No.	363 000
Material	St/tZn
Distance of bores	22 mm
Bore Ø	11 mm

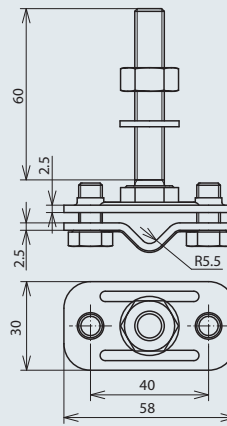
Terminal clamps with threaded bolt for connecting round and flat conductors to fixed earthing terminals with thread M10/M12 (e.g. Part Nos. 478 011, 478 200)

Also suitable for installation on the back side of the fixed earthing terminal without terminal axis e.g. for use with flat strip
Terminal thread M10

Heavy design



Light design



Part No.	478 141
Material of clamp	St/tZn
Clamping range Rd / Fl	7-10 / 30-40 mm
Material of bolt	StSt
Screw	☛ M10x45 / M8x25 mm
Material of screw/nut	StSt
Dimension	70x70x3 mm
Standard	EN 50164-1

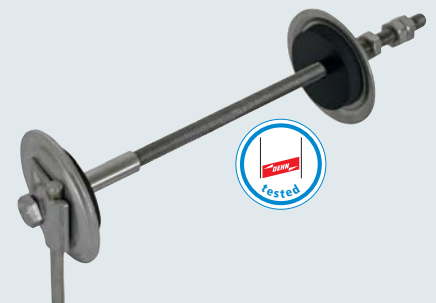
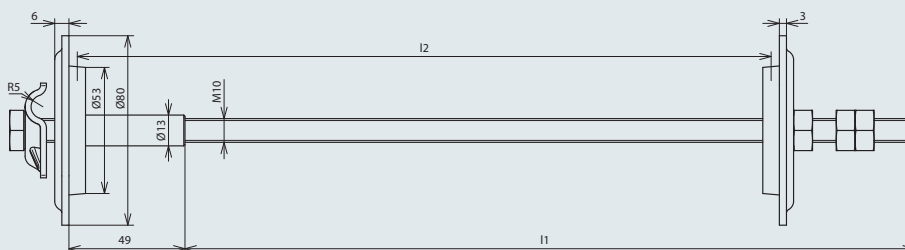
Part No.	478 129
Material of clamp	StSt (V4A)
Clamping range Rd / Fl	8-10 / 30 mm
Material of bolt	StSt (V4A)
Screw	☛ M10x60 / M8x16 mm
Material of screw/nut	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Dimension	58x30x2.5 mm
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	2.7 kA

Earth Electrode and Wall Bushings

Earth electrode and wall bushings with MV clamp made of StSt (V4A) for round conductors 8-10 mm. For water pressure-tight ducting of the earthing conductor/equipotential bonding conductor through walls and brickwork with StSt threaded rod M10

The bushing is ready for connection with MV clamp and all earth contacting components are made of StSt (V4A). Sealing is performed by the pressing of the neopren disks against the brickwork/wall (fixed and loose flange). Installation can be implemented from inside. The threaded rod can be held by the lock nuts (inside) when tightening the screws.

Type for subsequent installation through borehole (Ø14 mm) or if necessary through the formwork spreader.
Tested with water under pressure up to 1 bar which simulates conditions at an installation depth of 10 m and stagnant water.



Part No.	478 410	478 430	478 450
Length of bushing (l2)	100-300 mm	300-500 mm	500-700 mm
Length of threaded rod (l1)	308 mm	508 mm	708 mm
Sealings	Neopren	Neopren	Neopren
Sealing disk Ø	80 mm	80 mm	80 mm
Material of disk	StSt (V4A)	StSt (V4A)	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401	1.4571 / 1.4404 / 1.4401	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316	316Ti / 316L / 316	316Ti / 316L / 316
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	2.7 kA	2.7 kA	2.7 kA
Standard	EN 50164-1	EN 50164-1	EN 50164-1

More details in installation instructions No.1332



Figure 1: Wall bushing with formwork installation

According to modern structural technology the basement of buildings shall be carried out as a white tank construction. The white tank design requires no additional sealing layer because base plate and outer walls are implemented as closed tank made of highly waterproof concrete according to DIN EN 206-1 and DIN 1045-2. This concrete is characterized as waterproof or impervious concrete.

As the earthing material is covered with an at least 5 cm thick concrete layer (measure of protection against corrosion), there is no longer any humidity in the installation range, so the concrete has an insulating effect. Therefore an earth electrode has to be installed outside of the white tank. In case of new constructions this earth electrode usually will be installed in the blinding layer underneath the foundation plate.

The effects of the modified composition of impervious concrete are described in DIN 18014 Fundamentorder – Allgemeine Planungsgrundlagen“:2007-09 be (Title English: Foundation earth electrode – General planning criterial).

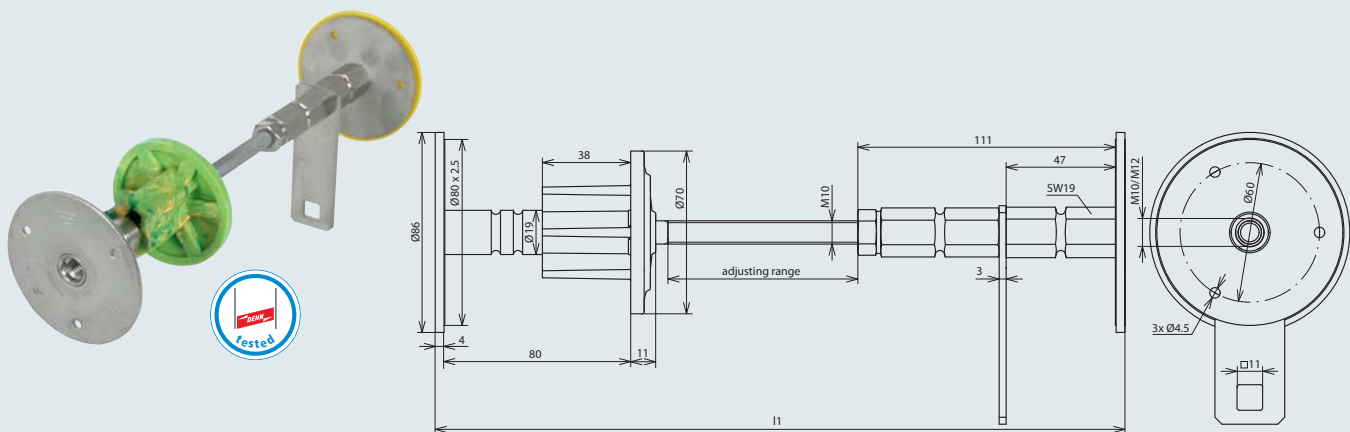
The ring earth electrode meshes under the foundation plates installed according to DIN 18014 have to be connected with the main earthing busbar of the building for equipotential bonding.

The electrical connection with the ring earth electrode also has to be water-tight. DEHN has applied the requirements made for white tanks also to the water-tight wall bushing when developing the product. For that reason explicit care was taken in the development to configurate the component requirements as reality conform as possible. The specimen were encased into concrete (Figure 1) and then submitted to a pressure-water test. In regular construction technology installation sites in a depth of 10 m (e.g. underground car parks) are quite usual. Such terms of installation was simulated for the specimen and a water pressure of 1 bar was imposed (Figure 2). After the required hardening period of the concrete, the specimen were subjected to a pressure water test and examined for watertightness during a 65 hours longterm test. Another challenge was the capillary attraction of bushings. The capillary effect means that liquids (e.g. water) spread quite differently in narrow gaps, cracks or tubes (capillaries) in fact they will literally be sucked or drawn into the building. Such fissures and cracks may arise during the hardening and the concurrent shrinking process of the concrete. Therefore a professional, competent and correct installation of the wall bushing in the formwork as described in detail in the installation instructions, is quite important.



Figure 2: Set-up with terminal for the pressure-water test

- Tested with 5 bar compressed air according to EN 50164-5
- Type for formwork installation with water barrier and double thread M10 / M12 for connection e.g. to the equipotential bonding bar
- Adjustable according to wall thickness by thread M10 and lock nut
- Bushing thread may be cut to length if necessary
- including connecting piece (St/tZn dimension 30x4 mm) with square hole for connection with clamping frame at round conductors or cross unit at flat strips



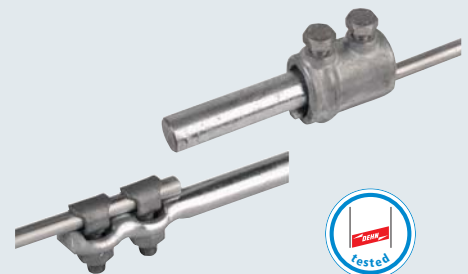
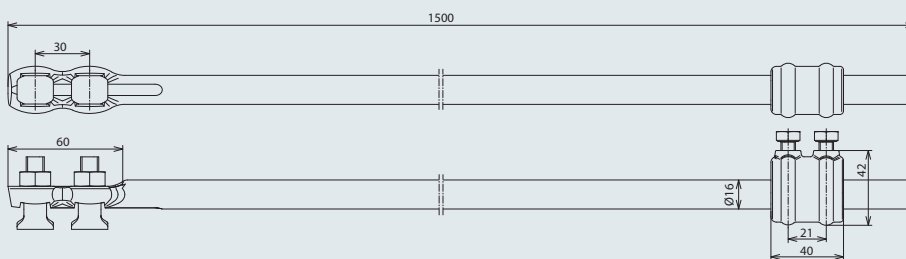
Part No.	478 530	478 540	478 550
Material of plate	StSt (V4A)	StSt (V4A)	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401	1.4571 / 1.4404 / 1.4401	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316	316Ti / 316L / 316	316Ti / 316L / 316
Material of axis	St/tZn	St/tZn	St/tZn
Wall thickness (I1)	200-300 mm	300-400 mm	400-500 mm
Terminal thread	M10 / 12	M10 / 12	M10 / 12
Terminal plate Ø	80 mm	80 mm	80 mm
Standard	EN 50164-1	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	4.1 kA	4.1 kA	4.1 kA

More details in installation instructions No. 1654

Earth entry rod - kit, complete with disconnecting sleeve and terminal clamps (KS screws)



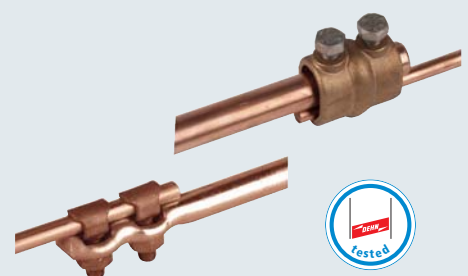
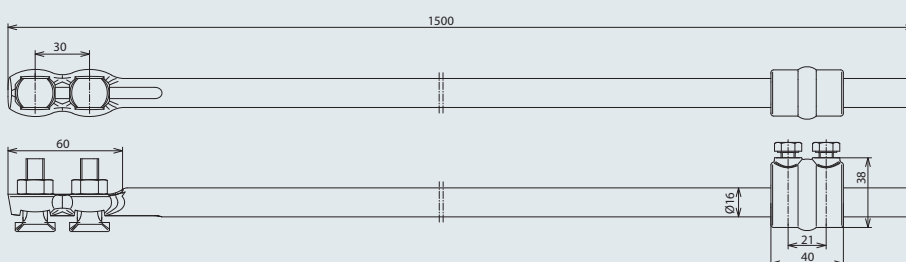
Type St/tZn



With disconnecting sleeve (Part No. 450 000) and KS screws (Part No. 300 000)

Part No.	480 150
Material	St/tZn
Standard	EN 50164-(1+2)
Length	1500 mm
Connection KS screw Rd	7-10 mm
Connection sleeve Rd / Rd	7-10 / 16 mm

Type Cu



With disconnecting sleeve (Part No. 450 007) and KS screws (Part No. 300 007)

Part No.	480 157
Material	Cu
Standard	EN 50164-(1+2)
Length	1500 mm
Connection KS screw Rd	6-10 mm
Connection sleeve Rd / Rd	7-10 / 16 mm



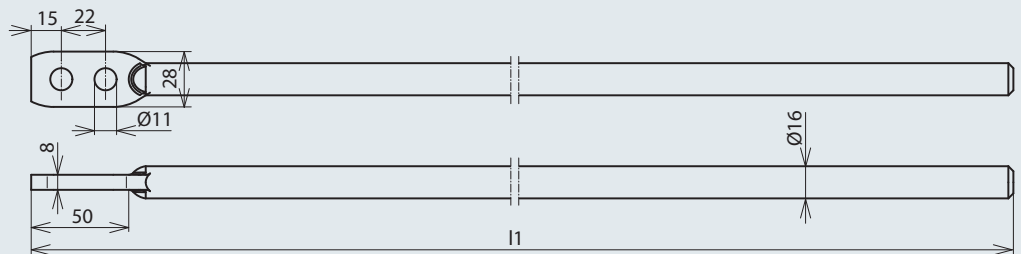
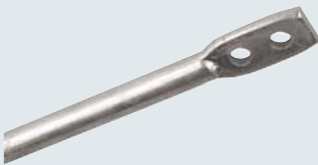
Earth entry rods to connect down conductors to the earth-termination system

Chamfered



Part No.	483 150	483 200	104 903	104 905	104 906
Material	St/tZn	St/tZn	StSt (V4A)	StSt (V4A)	StSt (V4A)
Material No.	—	—	1.4571 / 1.4404 / 1.4401	1.4571 / 1.4404 / 1.4401	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	—	316Ti / 316L / 316	316Ti / 316L / 316	316Ti / 316L / 316
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Diameter	16 mm	16 mm	16 mm	16 mm	16 mm
Length (l1)	1500 mm	2000 mm	1000 mm	1500 mm	2000 mm

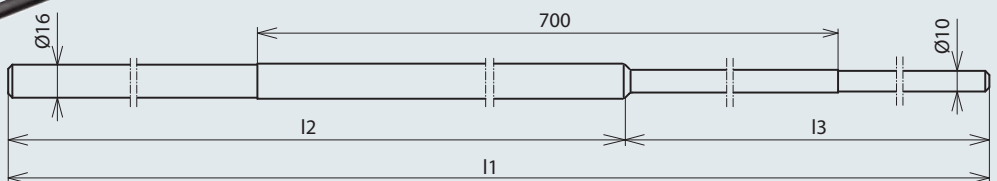
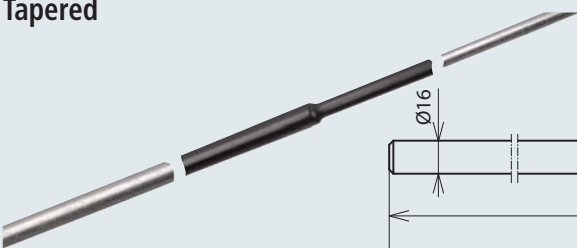
With forged flat lug



Bores [2x] Ø11 mm

Part No.	101 150
Material	St/tZn
Standard	EN 50164-2
Diameter	16 mm
Length (l1)	1500 mm
Bore distance	22 mm

Tapered

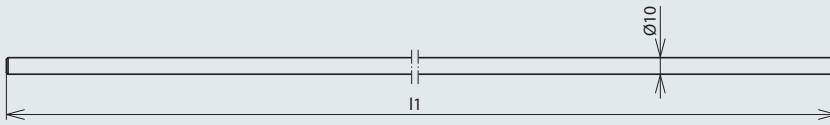


Notched conductor Ø10 mm, partly insulated (length approx. 700 mm)

Part No.	480 018	480 019	480 020	480 021
Material	St/tZn	St/tZn	St/tZn	St/tZn
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Diameter	16/10 mm	16/10 mm	16/10 mm	16/10 mm
Length (l1)	1500 mm	1750 mm	2000 mm	2500 mm
Partial length Ø16 mm (l2)	1000 mm	750 mm	1000 mm	1500 mm
Partial length Ø10 mm (l3)	500 mm	1000 mm	1000 mm	1000 mm

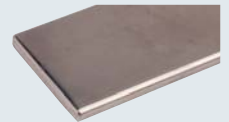
Terminal lugs straightened, for the connection of down conductors with the earth-termination system, made of corrosion-resistant stainless steel StSt (V4A)

Round wires



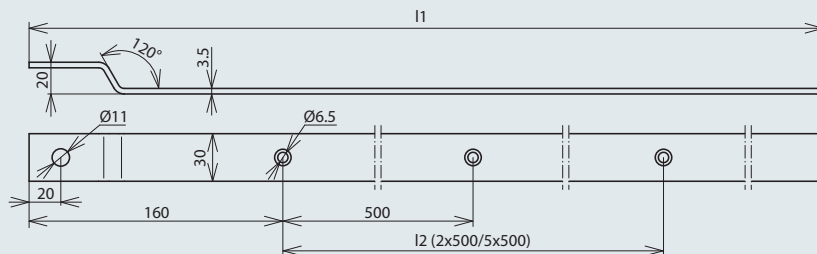
Part No.	860 110	860 115	860 130
Material	StSt (V4A)	StSt (V4A)	StSt (V4A)
Material No.	1.4571 / 1.4404	1.4571 / 1.4404	1.4571 / 1.4404
ASTM / AISI:	316Ti / 316L	316Ti / 316L	316Ti / 316L
Length (l1)	1000 mm	1500 mm	3000 mm
Dimension	Ø10 mm	Ø10 mm	Ø10 mm
Cross section	78 mm ²	78 mm ²	78 mm ²
Standard	EN 50164-2	EN 50164-2	EN 50164-2

Flat strips



Part No.	860 215	860 230
Material	StSt (V4A)	StSt (V4A)
Material No.	1.4571 / 1.4404	1.4571 / 1.4404
ASTM / AISI:	316Ti / 316L	316Ti / 316L
Length (l1)	1500 mm	3000 mm
Dimension	30x3.5 mm	30x3.5 mm
Cross section	105 mm ²	105 mm ²
Standard	EN 50164-2	EN 50164-2

Flat strips angled



For direct wall mounting (without distance) with bores for countersunk head screws

Part No.	860 315	860 330
Material	StSt (V4A)	StSt (V4A)
Material No.	1.4571 / 1.4404	1.4571 / 1.4404
ASTM / AISI:	316Ti / 316L	316Ti / 316L
Length (l1)	1500 mm	3000 mm
Dimension	30x3.5 mm	30x3.5 mm
Connection	isolating clamp or clamping screw connector	isolating clamp or clamping screw connector
Fixing	[3x] Ø6.5 mm	[6x] Ø6.5 mm
Cross section	105 mm ²	105 mm ²
Standard	EN 50164-2	EN 50164-2

Other dimensions available upon request

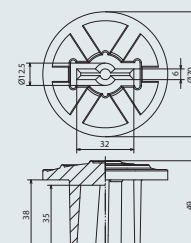
Accessory for Terminal Lugs Straightened/Angled

Protective Cap for Terminal Lugs

For attaching on round wires or strips

A striking marker (as required according to DIN 18014) and an accident prevention during the construction phase

Part No.	478 099
Material	PVC
Diameter	70 mm
Support Fl	30x3.5 mm
Support Rd	10 mm
Colour	green/yellow



Earth rods usually consist of composable single rods with a length of 1.5 m. Earth rods of DEHN have a self-locking coupling with bore and pin.

Advantage of this construction is that the coupling locks automatically during the driving process, thus implementing a mechanically high-strength and electrically safe connection. Additional work steps such as screwing are not necessary.

Different types of impact tool are used to drive in the earth rods. Driving in should be carried out at 1200 blows/min. At a considerably higher blow rate the power usually is not sufficient to reach the required depth with the earth rod. At a too low blow frequency as typical for compressed-air driven hammer tool, the blow power often is too high and the blow rate too low.

The own weight of the driving hammer should be ≥ 20 kg.

The possible driving depth of earth electrodes depends on the geological conditions. In light soil areas, e.g. in coastal areas or in wetlands, depths

of 30 m to 40 m can be reached. In extremely heavy soils, e.g. sandy soils the driving depth often is max. 12 m.

The more the soil around the earth rod is compressed on driving in, the better the electrical contact. An earth rod of 20 mm outer diameter provides less compression than an earth rod of 25 mm outer diameter. According to experience, 25 mm outer diameter earth rods provide the best result in heavy soils with regard to the maximum driving depth and soil compression.

Using a hammer frame, e.g. Part No. 600 003 of DEHN is recommended for deep driving of earth rods.

When using the hammer frame with attached impact tool, the blow power will be constantly applied on the earth rod via the hammer insert. This is not possible without hammer frame and a manual operating of the hammer.

Recommended vibration hammers are listed below.



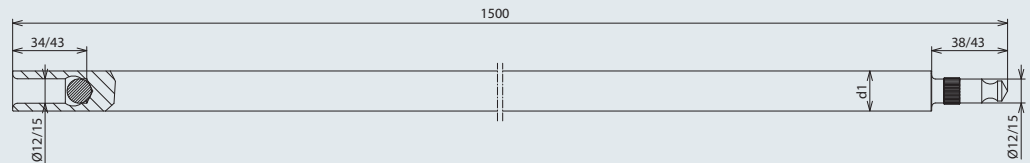
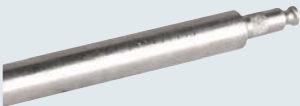


Earth rods for implementing earth-termination systems for down conductors or transformer stations

Features:

- No cross section thickening at the coupling point
- Self-locking coupling
- Corrosion resistance
- Easier storage and transport
- Universal application according to local soil conditions
- Constant resistance values
- Easy driving-in by vibration hammer

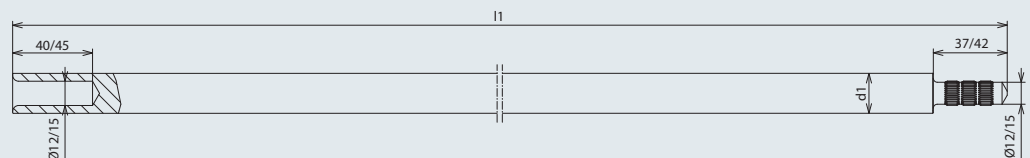
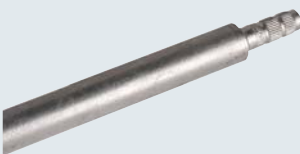
Type S



With lead ball in the coupling

Part No.	620 150	619 157	625 150
Material	St/tZn	St / Cu	St/tZn
Standard	EN 50164-2	—	EN 50164-2
Rod length (l1)	1500 mm	1500 mm	1500 mm
Diameter (d1)	20 mm	20 mm	25 mm
Pin diameter	12 mm	12 mm	15 mm
Cu layer	—	min. 0.3 mm	—
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	7.9 kA	7.9 kA	12.3 kA

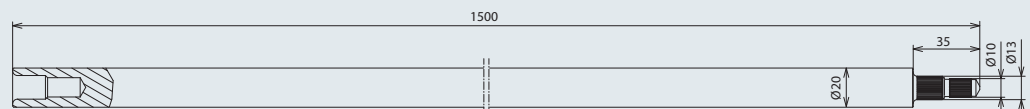
Type Z



With triple knurled pin (coupling with especially high tensile strength)

Part No.	620 101	620 151	625 101	625 151
Material	St/tZn	St/tZn	St/tZn	St/tZn
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Rod length (l1)	1000 mm	1500 mm	1000 mm	1500 mm
Diameter (d1)	20 mm	20 mm	25 mm	25 mm
Pin diameter	12 mm	12 mm	15 mm	15 mm
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	7.9 kA	7.9 kA	12.3 kA	12.3 kA

Type AZ



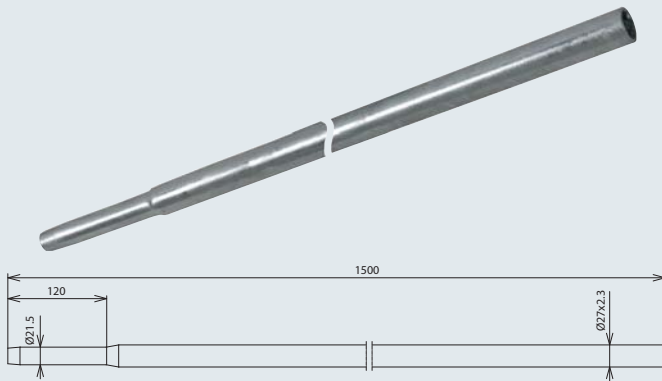
With offset knurled pin

Part No.	620 902
Material	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Standard	EN 50164-2
Rod length (l1)	1500 mm
Diameter (d1)	20 mm
Pin diameter	10 / 13 mm
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	4.2 kA

More details in installation instructions No. 1014

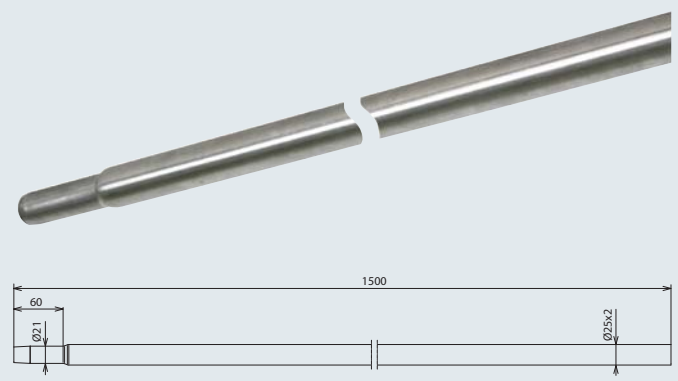
Tubular earth rods, light design, for the installation of earth-termination systems for down conductors

Steel



Part No.	640 150
Material	St/tZn
Standard	EN 50164-2
Rod length	1500 mm
Diameter	27 mm

StSt



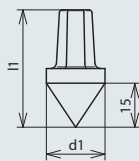
Part No.	649 150
Material	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Standard	EN 50164-2
Rod length	1500 mm
Diameter	25 mm

More details in installation instructions No. 1515.

Impact Spikes

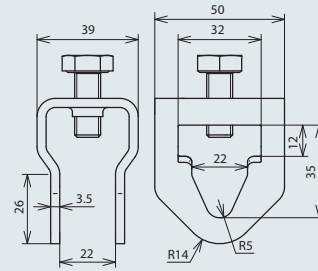
Impact spikes for driving-in the first earth rod

The impact spikes can be used for earth rods made of steel as well as StSt and they are also applicable for tubular earth rods.



Part No.	620 001	625 001
Material	MCI/tZn	MCI/tZn
Type	for earth rods Ø20 mm or tubular earth rods St/tZn Ø27 mm	for earth rods Ø25 mm or tubular earth rods StSt (V4A) Ø25 mm
Dimension (d1 x l1)	20x40 mm	25x45 mm

Clamps for connecting round conductors, flat strips or cables to earth rods
Suitable for cross and parallel connection

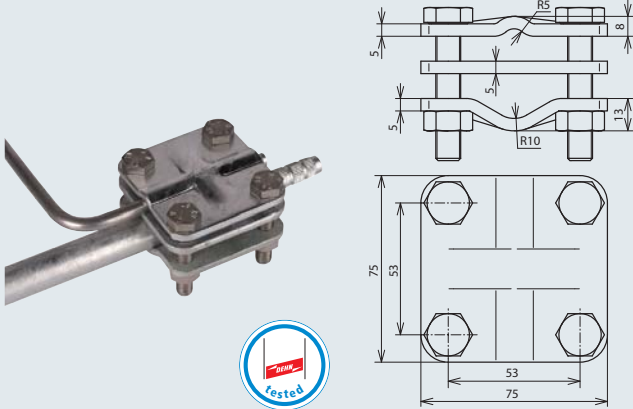


Part No.	630 120	630 129
Material	St/tZn	StSt (V4A)
Clamping range Rd / Fl	10 / -30x4 mm	10 / -30x4 mm
Clamping range of cable	70 mm ²	70 mm ²
Type for earth rods	Ø20 mm	Ø20 mm
Screw	● M10x25 mm	⚙ M10x25 mm
Material of screw	St/tZn	StSt (V4A)
Material No.	—	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	316Ti / 316L / 316
Standard	EN 50164-1	EN 50164-1

Terminal Clamps

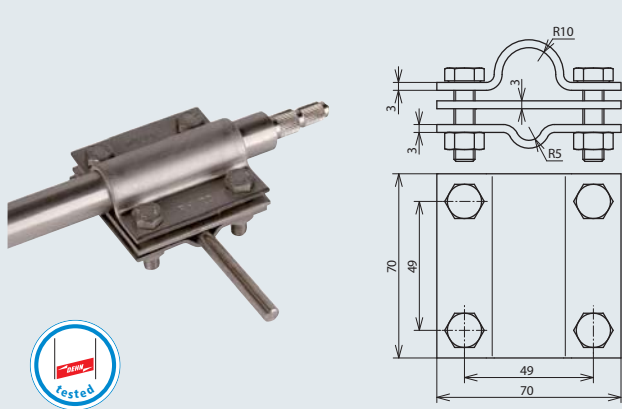
Clamps for cross and parallel connection of round conductors, flat strips or cables to earth rods

For earth rods Ø20-30 mm

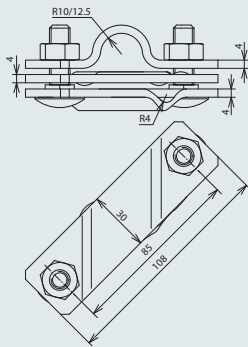


Part No.	610 010
Material	St/tZn
Clamping range Rd / Fl	8-12.5 / -40 mm
Clamping range (stranded/cable)	50-95 mm ²
Screw	⚙ M10x55 mm
Material of screw/nut	StSt
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	18 kA

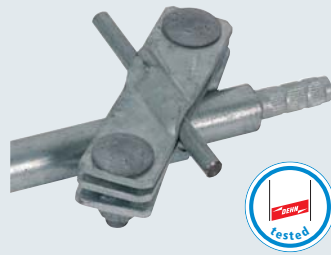
For earth rods Ø20 mm



Part No.	610 020
Material	StSt (V4A)
Clamping range Rd / Fl	7-10 / -40 mm
Clamping range (stranded/cable)	35-70 mm ²
Screw	⚙ M8x30 mm
Material of screw/nut	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	8 kA



Diagonal design

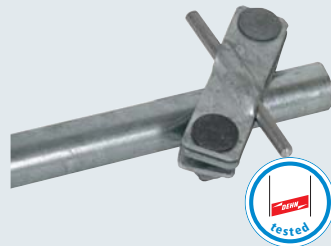
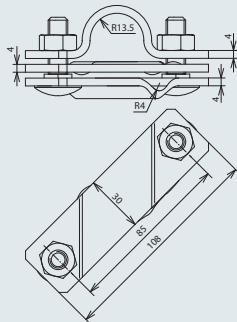


Brackets for connecting round conductors, cables and flat strips to earth rods

Also for use with uncut earth conductors

Part No.	620 015	620 017	620 915	625 015	649 015
Material	St/tZn	Cu	StSt (V4A)	St/tZn	StSt (V4A)
Clamping range Rd / Fl	7-10 / -40 mm	7-10 / -40 mm	7-10 / -40 mm	7-10 / -40 mm	7-10 / -40 mm
Clamping range (stranded or cable)	—	35-95 mm ²	35-95 mm ²	—	35-95 mm ²
Type for earth rods	Ø20 mm	Ø20 mm	Ø20 mm	Ø25 mm	Ø25 mm
Screw	⬆ M10x35 mm	⬆ M10x35 mm	⬆ M10x35 mm	⬆ M10x35 mm	⬆ M10x35 mm
Material of screw/nut	St/tZn	StSt	StSt (V4A)	St/tZn	StSt (V4A)
Material No.	—	—	1.4571 / 1.4404 / 1.4401	—	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	—	316Ti / 316L / 316	—	316Ti / 316L / 316
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	21.0 kA	29.0 kA	7.3 kA	18 kA	8 kA

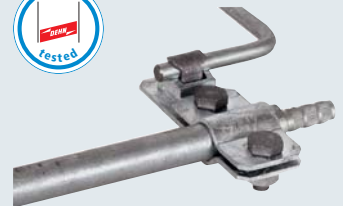
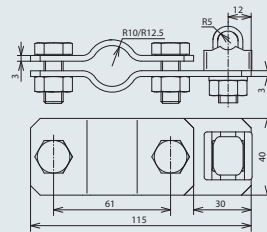
Diagonal design – especially for tubular earth rods St/tZn



Also for use with uncut earth electrodes

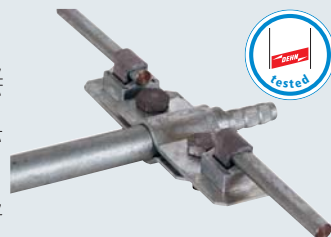
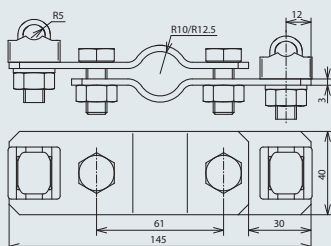
Part No.	640 015
Material	St/tZn
Clamping range Rd / Fl	7-10 / -40 mm
Type for earth rods	Ø27 mm
Screw	⬆ M10x35 mm
Material of screw/nut	St/tZn
Standard	EN 50164-1

One-sided connection with KS connector



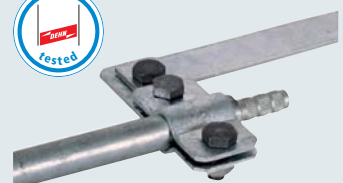
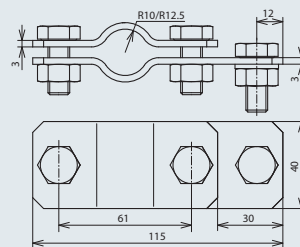
Part No.	620 011	625 011
Material	St/tZn	St/tZn
Clamping range Rd	7-10 mm	7-10 mm
Type for earth rods	Ø20 mm	Ø25 mm
Screw	⬆ M10x25 mm	⬆ M10x25 mm
Material of screw/nut	St/tZn	St/tZn
Standard	EN 50164-1	EN 50164-1

Both-sided connection with KS connectors (St/tZn)



Part No.	620 012	625 012
Material	St/tZn	St/tZn
Clamping range Rd	7-10 mm	7-10 mm
Type for earth rods	Ø20 mm	Ø25 mm
Screw	⬆ M10x25 mm	⬆ M10x25 mm
Material of screw/nut	St/tZn	St/tZn
Standard	EN 50164-1	EN 50164-1

One-sided connection with screw M10



Part No.	620 021	625 021
Material	St/tZn	St/tZn
Clamping range Fl	-40 mm	-40 mm
Type for earth rods	Ø20 mm	Ø25 mm
Screw	⬆ M10x25 mm	⬆ M10x25 mm
Material of screw/nut	St/tZn	St/tZn
Standard	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	8.4 kA	8.4 kA

Recheck the type of supporting device for the vibration hammer and order accordingly.

Product	Type	Connection	Weight (without tool)	Blow count (per min.)	Blow power	Hammer Insert Part No.
Wacker Neuson	BH 23 petrol engine	round Ø27x80 mm	24.0 kg	1300	55 J	620 009 625 009
	BH 24 petrol engine		25.0 kg	1250	65 J	620 009 625 009
	BH 24 Low Vib petrol engine		25.0 kg	1350	55 J	620 009 625 009
	BH 30 petrol engine (no longer available)		27.4 kg	1270	47 J	620 005 625 005
	EH 23 Low Vib universal engine 230 V		22.4 kg	1280	50 J	620 009 625 009
	EH 25 asynchronous engine 230 V		25.0 kg	1275	70 J	620 009 625 009
	EH 22/400 electric engine 400 V		22.0 kg	1250	40 J	620 009 625 009
Atlas Copco	Cobra Combi (former 149) petrol engine	hexagon SW22x108 mm	25.0 kg	2500-2600	24 J	620 007 625 007
	CP Red Hawk (former Cobra Standard) petrol engine	hexagon SW22x108 mm	23.0 kg	2600	24 J	620 007 625 007
	Cobra TT * petrol engine	hexagon SW32x160 mm	25.2 kg	720-1600	40 J	625 007/S Id. No. 46399
	Cobra PRO * (former MK1) petrol engine		25.2 kg	720-1440	60 J	625 007/S Id. No. 46399
* Hexagon SW 32x160 Part No. 625 007/S Id. No. 46399 (special design on request)						
Note: The details of the DEHN + SÖHNE installation instructions Nr. 1014 for earth rods have to be considered!						

Hammer inserts to drive in earth rods by vibration hammer

For earth rods Types S + Z

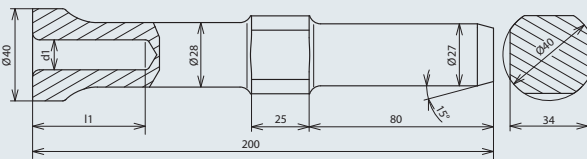
Ø20 mm (pin Ø12 mm Part No. 620...) or

Ø25 mm (pin Ø15 mm Part No. 625...)

For Atlas Copco equipment several types of supports can be used.
Please note when placing your order.



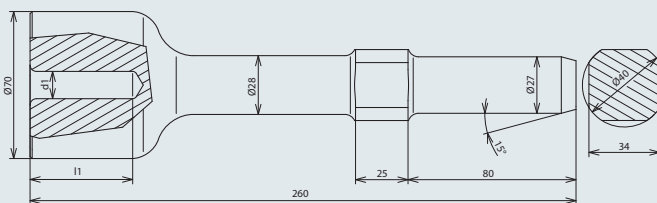
Design for Wacker Neuson



Part No.	620 005	625 005
Type	EH 23/230, EH 22/400 and BHF 30	EH 23/230, EH 22/400 and BHF 30
Adapter	round Ø27x80 mm	round Ø27x80 mm
Material	St/bare	St/bare
Bore (d1 x l1)	13x50 mm	16x55 mm
Length	200 mm	200 mm

Special hammer insert for earth rods d=20 mm, StSt for Wacker equipment Part No. 620 005/S Id. No. 046377 upon request.

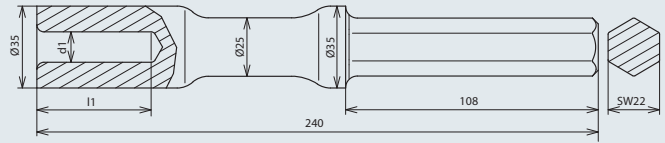
Heavy design for Wacker Neuson



Part No.	620 009	625 009
Type	EH 23 Low Vib, BH 24 Low Vib, BH 23 and EH 25	EH 23 Low Vib, BH 24 Low Vib, BH 23 and EH 25
Adapter	round Ø27x80 mm	round Ø27x80 mm
Material	St/bare	St/bare
Bore (d1 x l1)	13x50 mm	16x55 mm
Length	260 mm	260 mm

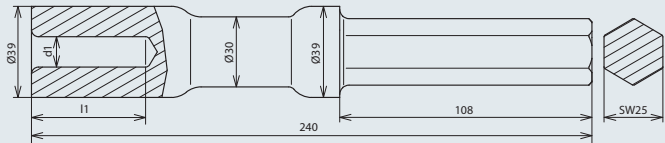
Design for other types of hammer available upon request.

Design for Atlas Copco SW 22



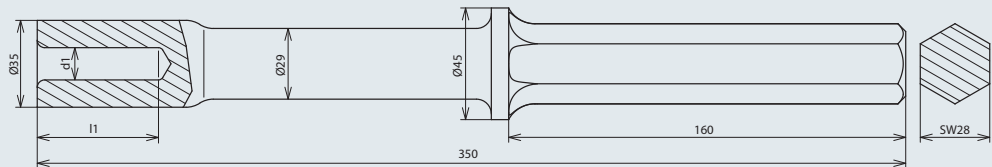
Part No.	620 007	625 007
Type	Cobra Combi, CP Red Hawk (Cobra Standard)	Cobra Combi, CP Red Hawk (Cobra Standard)
Adapter	hexagon SW22x108 mm	hexagon SW22x108 mm
Material	St/bare	St/bare
Bore (d1 x l1)	13x50 mm	16x55 mm
Length	240 mm	240 mm

Design for Atlas Copco SW 25



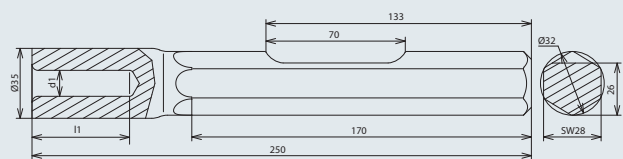
Part No.	620 008	625 008
Type	TEX 15 PE, 19 PE, 23 PE	TEX 15 PE, 19 PE, 23 PE
Adapter	hexagon SW25x108 mm	hexagon SW25x108 mm
Material	St/bare	St/bare
Bore (d1 x l1)	13x50 mm	16x55 mm
Length	240 mm	240 mm

Design for Atlas Copco SW 28



Part No.	620 019	625 019
Type	TEX 28 HE, 27 H, 15 PE, 19 PE, 23 PE, 22 PS	TEX 28 HE, 27 H, 15 PE, 19 PE, 23 PE, 22 PS
Adapter	hexagon SW28x160 mm	hexagon SW28x160 mm
Material	St/bare	St/bare
Bore (d1 x l1)	13x50 mm	16x55 mm
Length	350 mm	350 mm

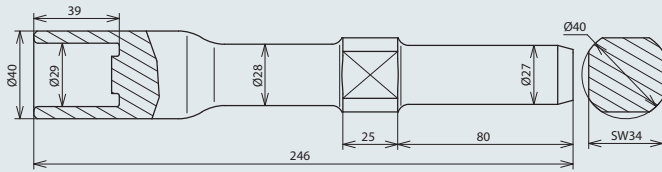
Design for Bosch



Part No.	620 029	625 029
Type	GSH 27	GSH 27
Adapter	hexagon SW28 (1 1/8")	hexagon SW28 (1 1/8")
Material	St/bare	St/bare
Bore (d1 x l1)	13x50 mm	16x55 mm
Length	250 mm	250 mm

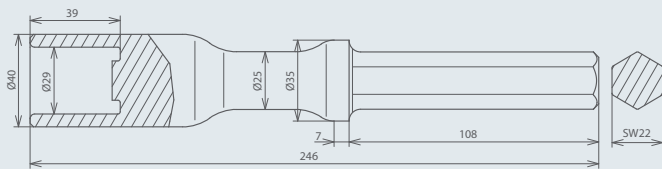
Hammer inserts to drive in tubular earth rods by vibration hammer

Design for tubular earth rods $\varnothing 27$ mm (St/tZn) Wacker Neuson



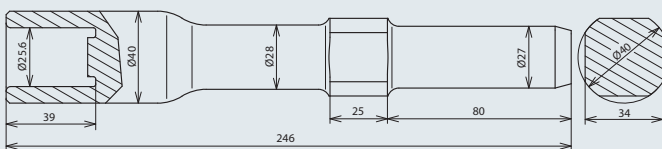
Part No.	649 005
Type	EH 22/400, EH 23/230, EH 24/042/200, BH 23 and BHF 30
Support	round $\varnothing 27 \times 80$ mm
Material	St/bare
Length	246 mm

Design for tubualr earth rods $\varnothing 27$ mm (St/tZn) Atlas Copco



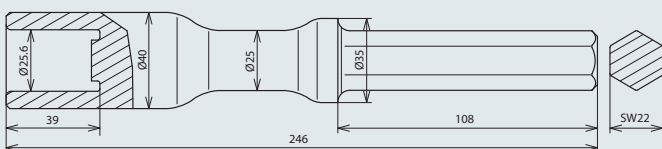
Part No.	649 007
Type	Cobra 149+248 and Cobra 120+130
Support	hexagon SW22x108 mm
Material	St/bare
Length	246 mm

Design for tubualr earth rods $\varnothing 25$ mm StSt (V4A) Wacker Neuson



Part No.	648 005
Type	EH 22/400, EH 23/230, EH 24/042/200, BH 23 and BHF 30
Support	round $\varnothing 27 \times 80$ mm
Material	St/bare
Length	246 mm

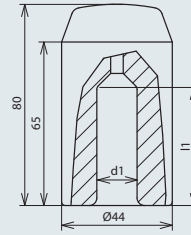
Design for tubular earth rods $\varnothing 25$ mm StSt (V4A) Atlas Copco



Part No.	648 007
Type	Cobra 149+248 and Cobra 120+130
Support	hexagon SW22x108 mm
Material	St/bare
Length	246 mm

Design for other types of hammer upon request

Impact heads to drive in earth rods by manual beetle



Part No.	620 002	625 002
Type of earth rod	types S + Z + AZ (Ø20 mm)	types S + Z (Ø25 mm)
Dimension (d1 x l1)	13x42 mm	16x47 mm
Material	St/bare	St/bare

Hammer Frame

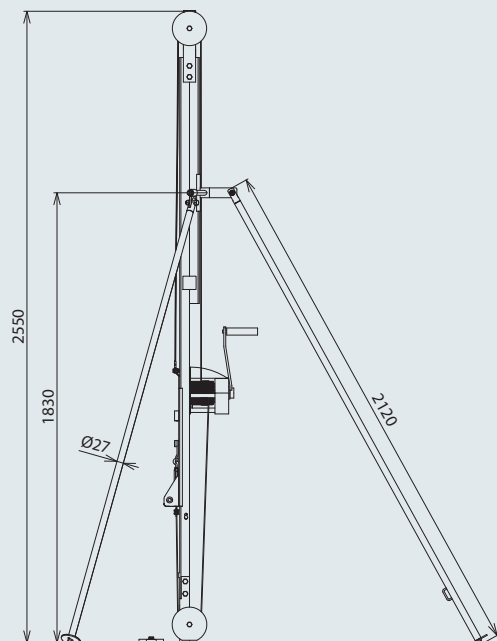


Hammer frame to drive in earth rods of 1000 mm or 1500 mm in length by vibration hammer

The hammer frame will be delivered with hammer guiding rider.

The device features a stable and practical design and is easy to transport.

The attached cable winch allows for safe hammer guiding.

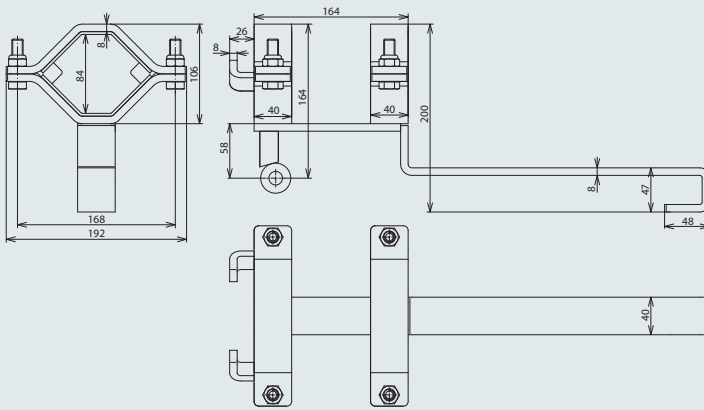


Part No.	600 003
Material	St/tZn
Height	2550 mm

More information about working with the hammer frame (with list of spare parts) in the instructions for use No. 1171

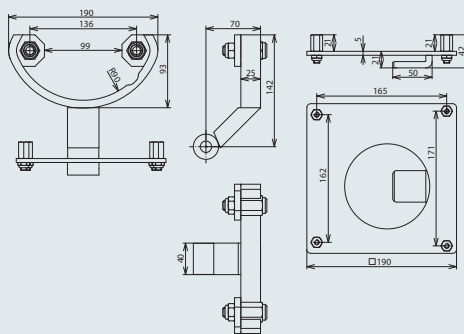
For use with hammer guiding riders for vibration hammers of the following manufacturers

Design for Wacker Neuson



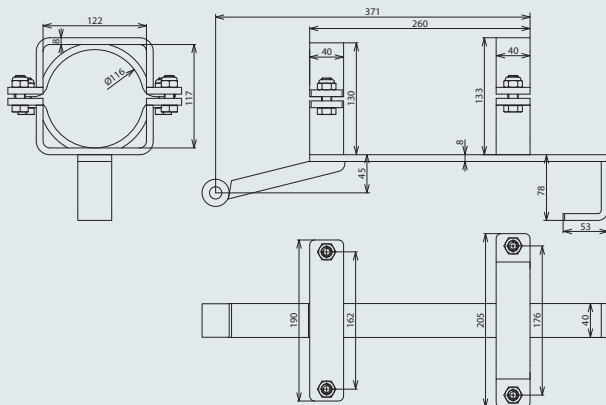
Part No.	600 035
Types	EH 23 Low Vib, EH 22/400, EH 25, BH 24 Low Vib, BH 23 und BHF 30
Material	St/tZn

Design for Atlas Copco



Part No.	600 029
Types	Cobra Combi, CP Red Hawk (Cobra Standard)
Material	St/tZn

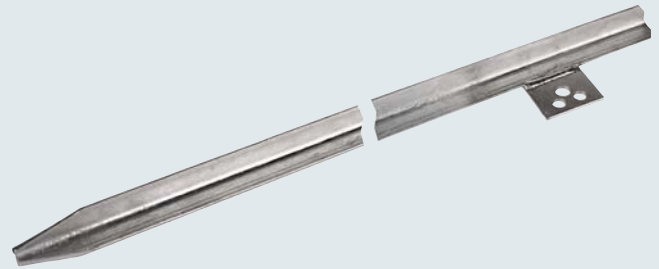
Design for Bosch



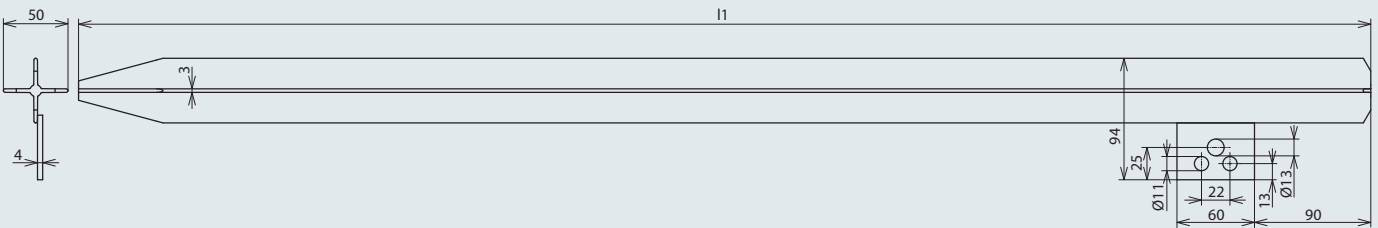
Part No.	600 050
Types	GSH 27
Material	St/tZn



Profiled earth rods for the installation of earth-termination systems e.g. for antennas or construction site distribution boards



Profile (50x50x3 mm), with connection lug and bores e.g. for KS connector



Part No.	635 100	635 150	635 200	635 250
Material	St/tZn	St/tZn	St/tZn	St/tZn
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Length (l1)	1000 mm	1500 mm	2000 mm	2500 mm
Bores Ø	[2x] 11 / [1x] 13 mm	[2x] 11 / [1x] 13 mm	[2x] 11 / [1x] 13 mm	[2x] 11 / [1x] 13 mm

In accordance with the German standard DIN 18014: 2007-09 Fundamente der – Allgemeine Planungsgrundlagen (Title English: Foundation earth electrode - General planning criteria), foundation earth electrodes have to be connected every two meters with the foundation plate. Among the various connection possibilities the clamping connection has turned out to be the most economic, as it can be realised quickly and easily on site.

According to the current lightning protection standards among others also the reinforcement steels shall be used as natural components of the down-conductor system. In the following a survey of the nominal and outer diameters as well as of the reinforcement steel cross sections according to DIN 1045-1:2001-07 (see Figure 1).

In order to allow the advantageous clamping connection to be used also in case of reinforcement steels of larger diameters, DEHN has developed special clamps.

They can be installed quickly and easily. As shown in Figures 2 and 3 they can be used as connecting and fastening element for fixed earthing terminals as well.

Optionally, this new type of connecting clamp also allows to use cable lugs for a flexible connection, as shown in Figure 4.

The already practice proven connecting clamp for T, cross and parallel connections has been equipped with an additional clamping frame. Thus, as Figure 5 shows, both, the electrical contact between reinforcement steel and fixed earthing terminal and the mechanical fixing in the formwork is realised. This clamp may also be used for the T or cross connection of a round conductor.



Figure 2:
U-bolt clamp Part No. 308 045



Figure 3:
U-bolt clamp Part No. 308 046



Figure 4:
U-bolt clamp with cable lug



Figure 5:
Connecting clamp Part No. 308 035



The outer diameter including corrugation is approx. $d_A = 1.15 \times d_s$.

Nominal diameter d_s (mm)	6	8	10	12	14	16	20	25	28	32	40
Outer diameter incl. corrugation d_A (mm)	6.9	9.2	11.5	13.8	16.1	18.4	23	29	32	37	46
Nominal cross section (mm ²)	28.3	50.3	78.5	113.1	154	201	314	491	616	804	1257

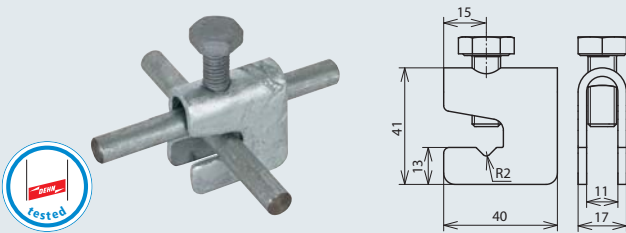
Figure 1: Diameter of reinforcement steels
Ref.: Bewehrungen von Tragwerken aus Beton, Stahlbeton und Spannbeton nach DIN 1045-1:2001-07



Clamps to connect reinforcing steel mesh or reinforcement with round and flat conductors

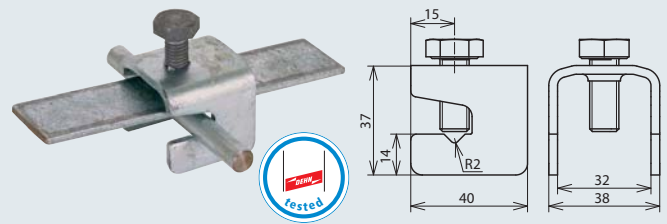
Arrangement:
(II) = parallel
(+) = cross

For T, cross and parallel connections



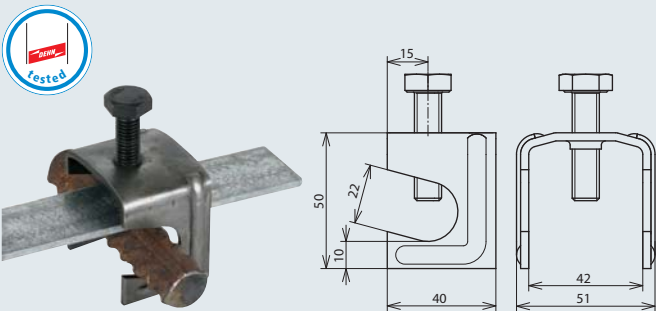
Part No.	308 025
Material	St/tZn
Clamping range Rd / Rd	(+) 6-10 / 6-10 mm
Clamping range Rd / Fl	(+) 6-10 / 30 mm
Clamping range Fl / Fl	(II) 30 / 30 mm
Screw	M10x25 mm
Material of screw	StSt
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	9 kA

For T, cross and parallel connections



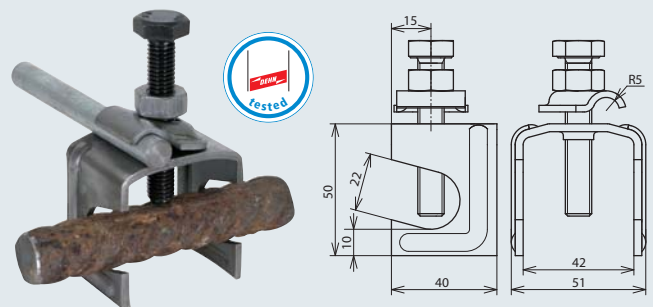
Part No.	308 026
Material	St/tZn
Clamping range Rd / Fl	(+) 6-10 / 30 mm
Clamping range Fl / Fl	(+ / II) 30 / 30 mm
Screw	M10x25 mm
Material of screw	St/tZn
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	13 kA

For T and cross connections



Part No.	308 030
Material	St/bare
Clamping range Rd / Fl	(+) 6-22 / 40 mm
Screw	M10x40 mm
Material of screw	St/bare
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	1.0 kA

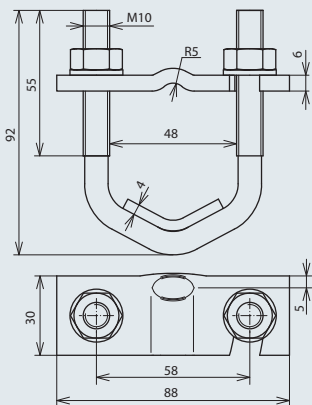
For T, cross and parallel connections with clamping frame



For flexible connection of round conductors or for fixed earthing terminals with simultaneous fixing in the formwork

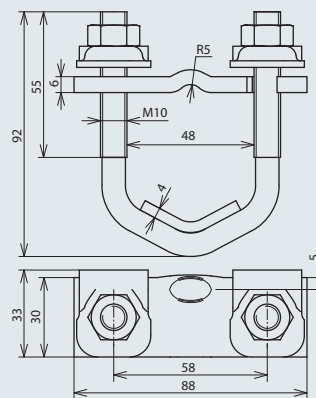
Part No.	308 035
Material	St/bare
Clamping range Rd / Rd	(+ / II) 6-22 / 6-10 mm
Clamping range Rd / Fl	(+) 6-22 / 40 mm
Screw	M10x60 mm
Material of screw	St/bare
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	1.0 kA

U-bolt clamp for large diameters



Part No.	308 045
Material	St/bare
Clamping range Rd / Rd	(II) 16-48 / 6-10 mm
Clamping range Rd / Fl	(II) 16-48 / 30-40 mm
Screw	stirrup bolt M10x48 mm
Material of screw	St/bare
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	16 kA

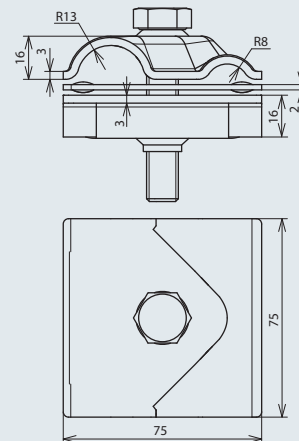
U-bolt clamp for large diameters with two additional clamping frames



Cross connections of round conductors (6-10 mm) or for the fixing with simultaneous connection of fixed earthing terminals

Part No.	308 046
Material	St/bare
Clamping range Rd / Rd	(+ / II) 16-48 / 6-10 mm
Clamping range Rd / Fl	(II) 16-48 / 30-40 mm
Screw	stirrup bolt M10x48 mm
Material of screw	St/bare
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	11 kA

MAXI MV clamps



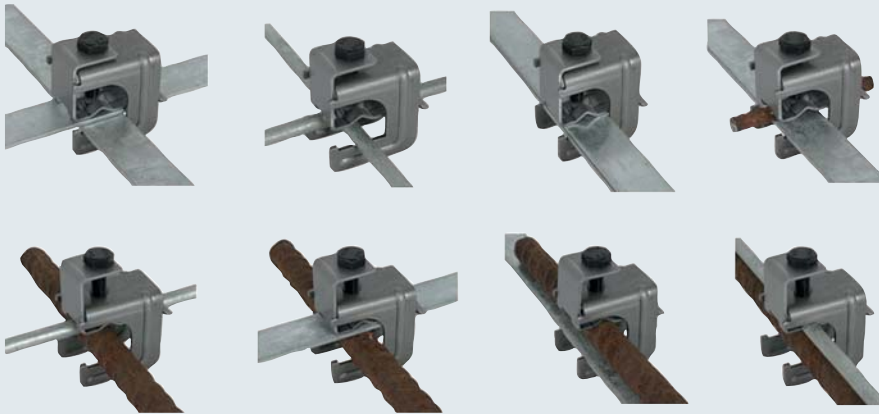
For T, cross and parallel connections

Part No.	308 041	308 040
Material	St/tZn	St/bare
Clamping range Rd / Rd	(+ / II) 8-16 / 15-25 mm	(+ / II) 8-16 / 15-25 mm
Screw	M12x65 mm	M12x65 mm
Material of screw	St/tZn	St/bare
Standard	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	6.2 kA	10.2 kA
UL certification	—	UL467B
Stock No.	5999-12-362-1557	—

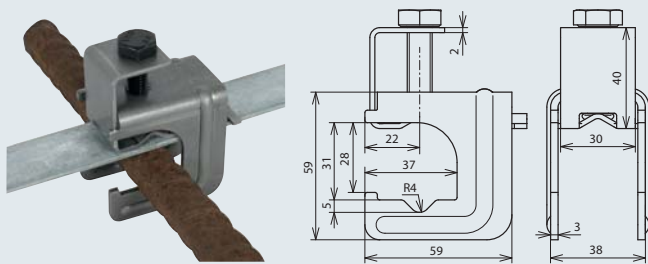
Clamps for connecting round and flat conductors in the concrete foundation or the reinforcing steel mesh and the reinforcement with round and flat conductors

Arrangement:
(//) = parallel
(+) = cross

Possible connections:



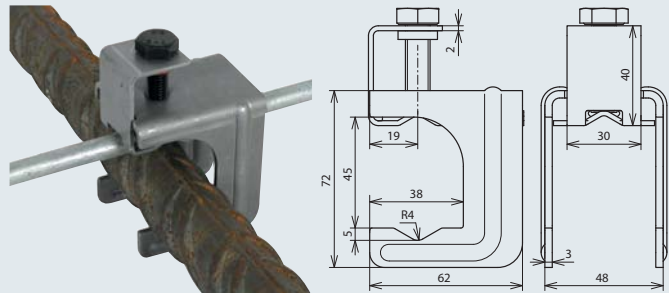
Pressure U-clamp



For T, cross and parallel connections

Part No.	308 031
Material	St/bare
Clamping range Rd / Rd	(+//) 6-20 / 6-10 mm
Clamping range Rd / Fl	(+//) 6-20 / 30x3-4 mm
Clamping range Fl / Fl	(+//) 30x3-4 / 30x3-4 mm
Type of screw	☛ M10x25 mm
Material of screw	St/bare
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	8.4 kA

Pressure U-clamp MAXI

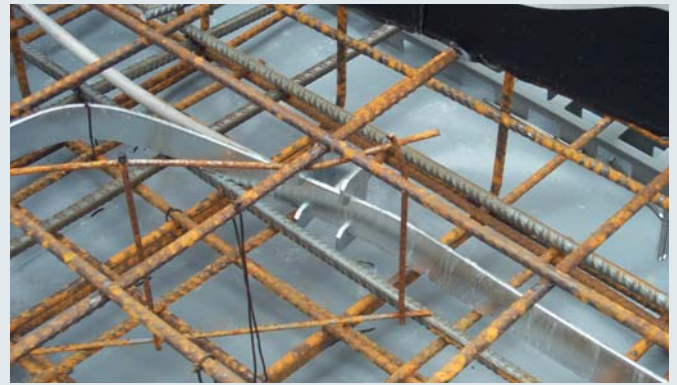


For T, cross and parallel connections

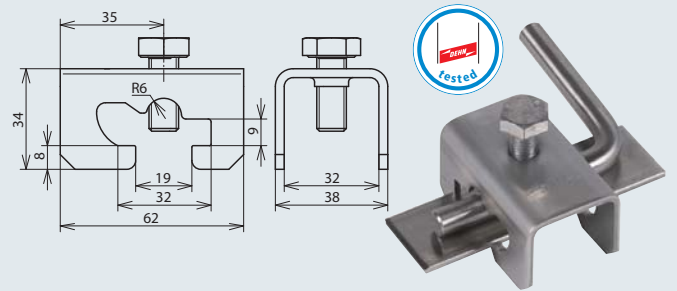
Part No.	308 036
Material	St/bare
Clamping range Rd / Rd	(+//) 20-32 / 6-10 mm
Clamping range Rd / Fl	(+//) 20-32 / 40x4-5 mm
Type of screw	☛ M10x25 mm
Material of screw	St/bare
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	14.0 kA

To connect round and flat conductors in the concrete foundation
 For T, cross and parallel connections, no need of threading the conductors

Arrangement:
 (II) = parallel
 (+) = crosswise



Part No.	308 120	308 129
Material	St/tZn	StSt
Clamping range Rd / Fl	(+) 10 / 30 mm	(+) 10 / 30 mm
Clamping range Fl / Fl	(+ / II) 30 / 30 mm	(+ / II) 30 / 30 mm
Screw	M10x25 mm	M10x25 mm
Material of screw	St/tZn	StSt
Standard	EN 50164-1	EN 50164-1

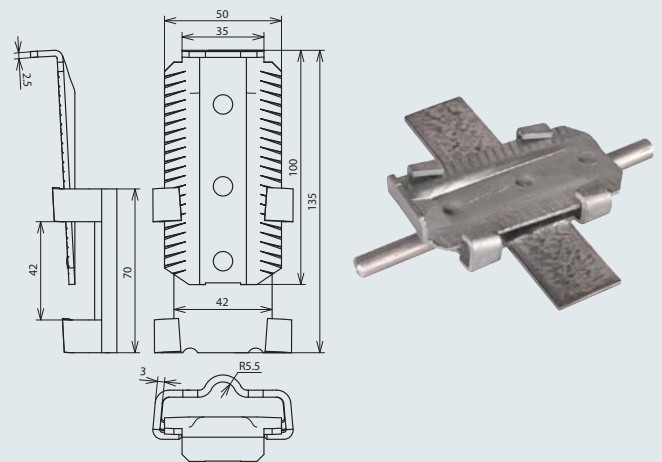


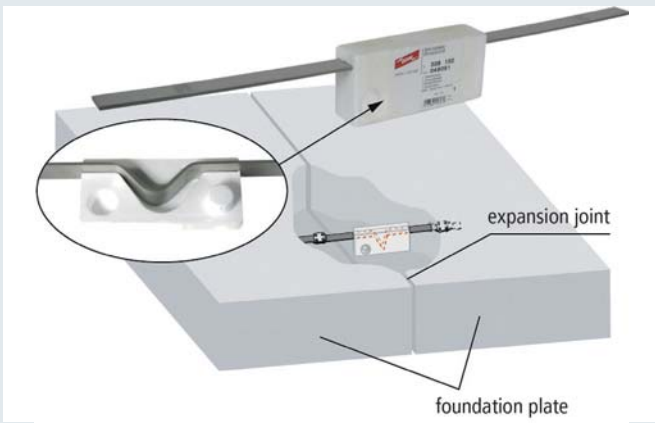
Wedge Connector

Wedge connector with latches for T, cross and parallel connections for use in concrete foundations

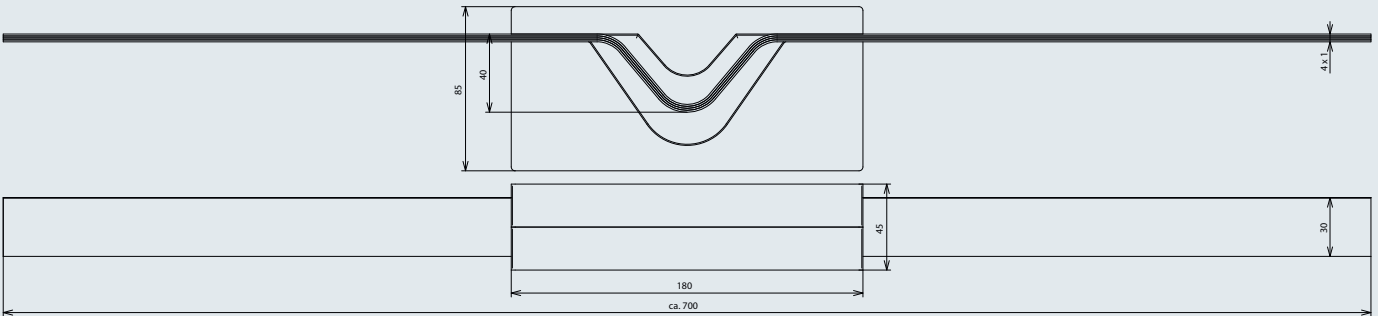


Part No.	308 001
Material	St/tZn
Clamping range Rd / Fl	10 / 30x3.5-40x4 mm
Clamping range Fl / Fl	30x3.5-40x4 / 30x3.5-40x4 mm
Material of wedge	St/tZn





Expansion strap to lead the foundation earth electrode through the expansion joints of extended foundations (several sections). It is not necessary to lead the earth electrode out of the base plate, because the polystyrene block can be concreted in the one section, the other end of the strap will be carried on loosely in the opposite section.

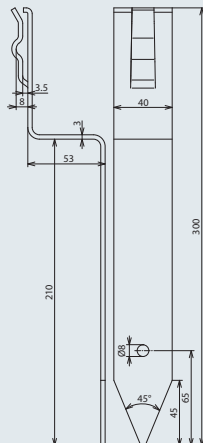


Part No.	308 150
Material of strap	StSt
Dimension of strap (l x w x d)	approx. 700x30x(4x1) mm
Cross section	120 mm ²
Material of block	polystyrene
Dimension of block (l x w x d)	180x85x45 mm
Standard	EN 50164-2
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	6 kA

Spacers

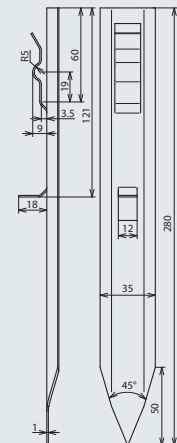
Spacers for installing earth conductors in the foundation slab with catch lug to avoid loosening of the conductor

Angled and reinforced design



Part No.	290 001
Material	St/tZn
Support Fl	40 mm
Support Rd	8-10 mm
Length	300 mm

Straight design



Part No.	290 002
Material	St/tZn
Support Fl	40 mm
Support Rd	8-10 mm
Length	280 mm

Method to improve and stabilise the earth electrode resistance

The highly swellable, powdery special clay has a high water binding capacity. Thus it provides a conductive enclosure for the earth electrode which has a positive effect concerning the earth electrode resistance.

The principle of the DEHNIT earthing method is to mix the fine-grained DEHNIT with water and sand and to enclose the earth electrode with this mixture. This conductive enclosure enlarges the earthing surface.

Compared with the conventional earthing method without enclosure the DEHNIT method has three important pros:

- A low earthing resistance can be achieved even in case of a poor ground conductivity.
- With the enclosure the achieved earth-electrode resistance will be approx. 50 % lower and thus less earthing material is needed.
- The earth electrode resistance will be largely independent of temperature and weather fluctuations and remain constant for years (see Figure 1).

Proceeding instructions:

For 1 m³ DEHNIT filling you need approx. 67 kg DEHNIT.

1. Surface earthing method

- 1.1 Excavate the duct for the earth conductor (approx. 0.6 ... 0.8 m deep).
- 1.2 Mix the DEHNIT (e.g. with a concrete mixer) as indicated:
 - 5 parts of sand
 - 1 part of DEHNIT
 - 1/2 part of water

Mind the indicated sequence, otherwise heavy clodding is possible:
DEHNIT – sand – water
- 1.3 Fill this mixture into the duct to form a layer of approx. 5 cm.
- 1.4 Lay the straightened earth conductor directly on this DEHNIT layer.
- 1.5 Fill in another 5 cm layer of DEHNIT so that the earth conductor is completely enclosed.
- 1.6 Pound the filling mechanically or per foot.
- 1.7 Refill the earth excavation.
- 1.8 Make first resistance measuring of the earth-termination system.

Proceeding instructions:

Following this procedure, usually 2 kg of DEHNIT is needed per running metre of duct for the earth conductor.

2. Procedure for earth rods

- 2.1 Drill a hole as deep as the length of the earth electrode with a diameter of at least 10 cm wider than the diameter (d) or the outer dimensions of the earth rod.
- 2.2 Mix DEHNIT according to 1.2.
- 2.3 Put the earth rod into the centre of the hole and fill the remaining space with DEHNIT. Pound every 0.5 m filling level. Finally refill the upper approx. 0.5 m with natural soil.
- 2.4 Make the first resistance measuring of the earth-termination system.

Following this procedure, usually 0.84 kg of DEHNIT is needed per metre of earth rod depth (d = 20 mm).

The final earth electrode resistance will be achieved after about 3-4 months.

It is 1/2 – 1/3 of the value measured immediately after the filling with DEHNIT.

After this time the DEHNIT earth-termination system has an earth electrode resistance which is approx. 50 % lower than that of usual earth-termination systems without enclosure. This resistance value remains constant throughout years.

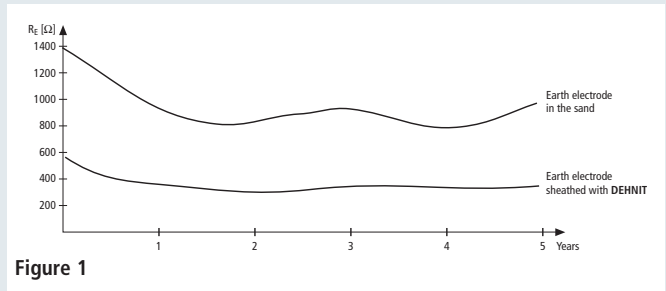


Figure 1

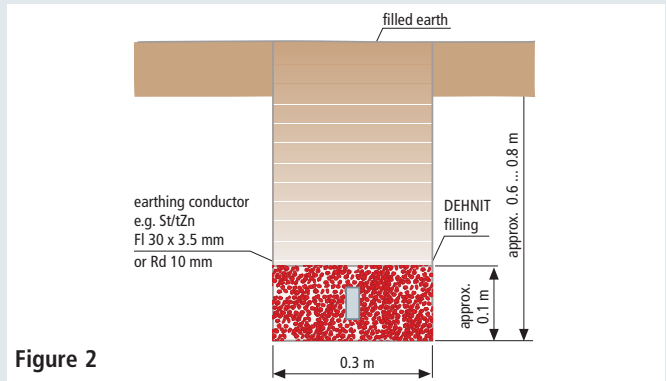


Figure 2

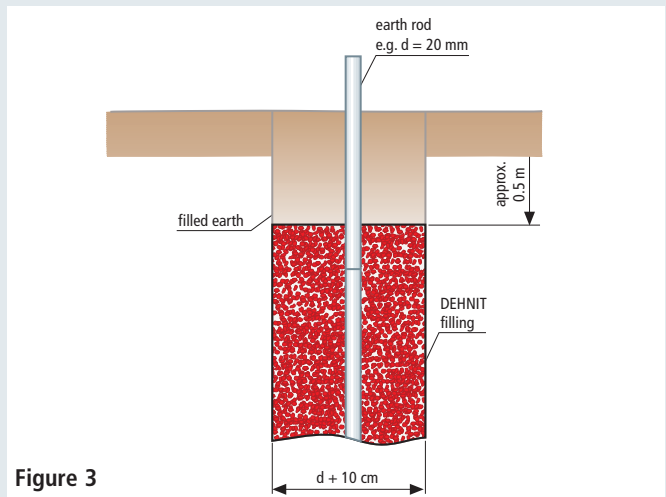


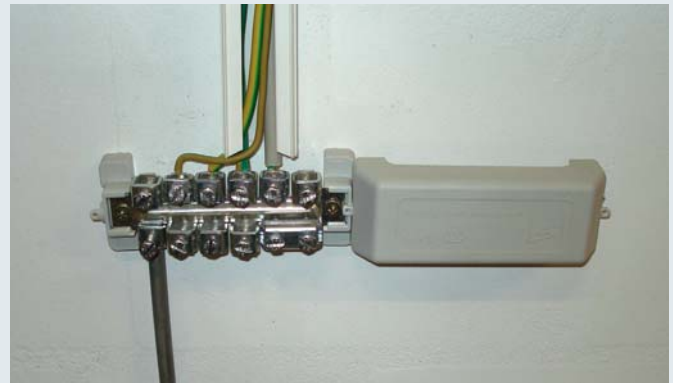
Figure 3



Part No.	573 000
Material	special clay
Mixing ratio	5 parts sand / 1 part DEHNIT / 0.5 parts water

Equipotential busbars for protective and functional equipotential bonding according to IEC 60364-4-41/60364-5-54 (DIN VDE 0100 Part 410/540) and lightning equipotential bonding according to IEC/EN 62305-3

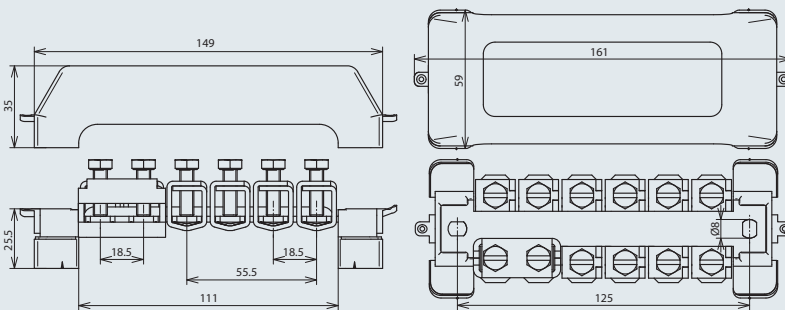
- Tested according to DIN VDE 0618 Part 1
- CE sign
- Fixing frames and plastic cover grey or black (halogen-free)
- Sealable / labelable cover
- Snap-on terminals, St/gal Zn
- With 12 contact studs



Assignment:

For Rd one contact stud each
 For FI two contact studs each

Standard design

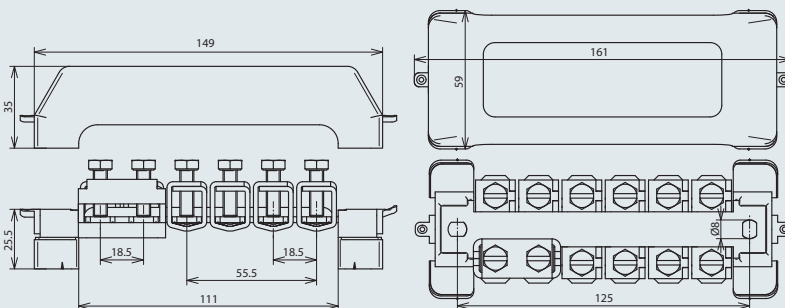


Terminals for:

10 conductors 2.5-95 mm² (solid/stranded) or Rd Ø10 mm
 1 conductor FI up to 30x4 mm

Part No.	563 200
Contact bar	Cu/gal Sn
Cross section	30 mm ²
Fixing	[2x] 6x8 mm
Standard	EN 50164-1

UV stabilised design



Terminals for:

10 conductors 2.5-95 mm² (solid/stranded) or Rd Ø10 mm
 1 conductor FI up to 30x4 mm

Part No.	563 201
Contact bar	Cu/gal Sn
Cross section	30 mm ²
Fixing	[2x] 6x8 mm
Standard	EN 50164-1

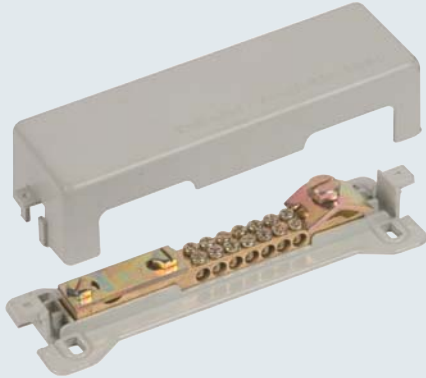
Busbar for equipotential bonding

Terminals for:

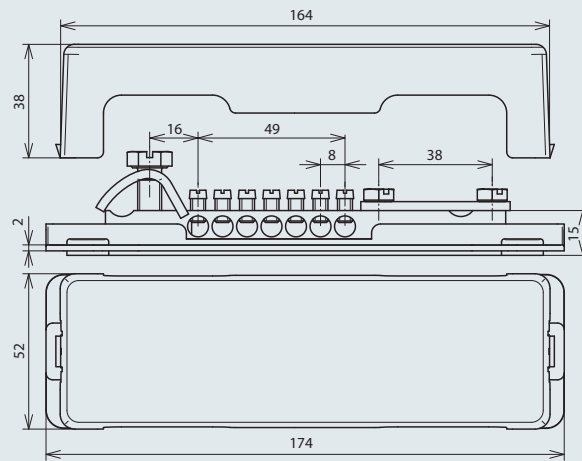
7 conductors 2.5-16 mm² (solid/stranded)

1 conductor Rd Ø7-10 mm

1 conductor Fl up to 30x3.5 mm or Rd Ø8-10 mm



With plastic cover, grey



Part No.	563 050
Contact bar	Ms
Cross section	50 mm ²
Fixing	[4x] 6x10 mm

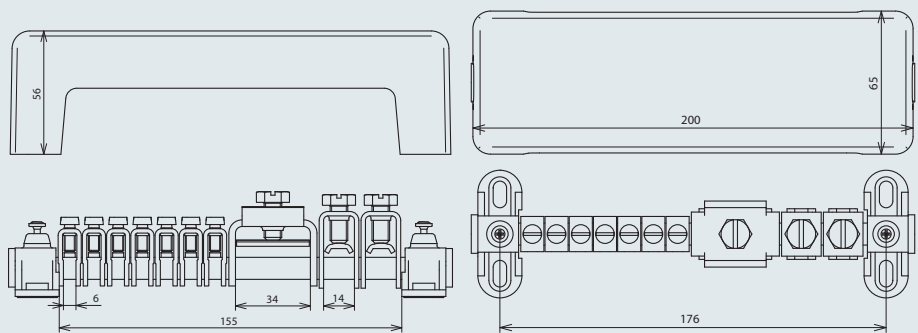
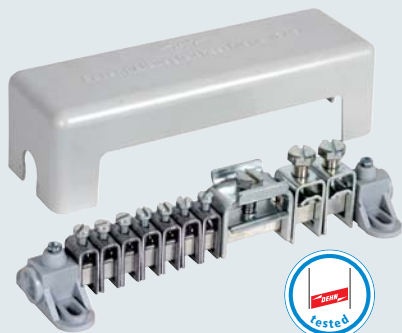
Equipotential Busbars R15 with Terminal Block System / Kit



Equipotential busbars for protective and functional equipotential bonding according to IEC 60364-4-41/60364-5-54 (DIN VDE 0100 Part 4107540) and lightning equipotential bonding according to IEC/EN 62305-3

- Tested according to DIN VDE 0609
- 15 modules
- Grey plastic bar frames and cover (halogen-free)
- Sealable / labelable cover
- Terminal block St/gal Zn

Type A



Terminals for:

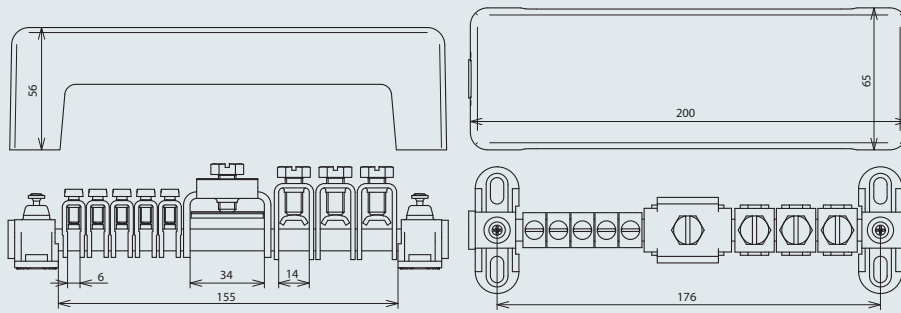
7 conductors 2.5-25 mm² (solid/stranded)

2 conductors 16-95 mm² (solid/stranded) or Rd Ø8-10 mm

1 conductor Fl up to 30x4 mm

Part No.	563 010
Clamping bar	Ms/gal Sn
Cross section	100 mm ²
Fixing	[4x] 6x12 mm
Standard	EN 50164-1

Type B

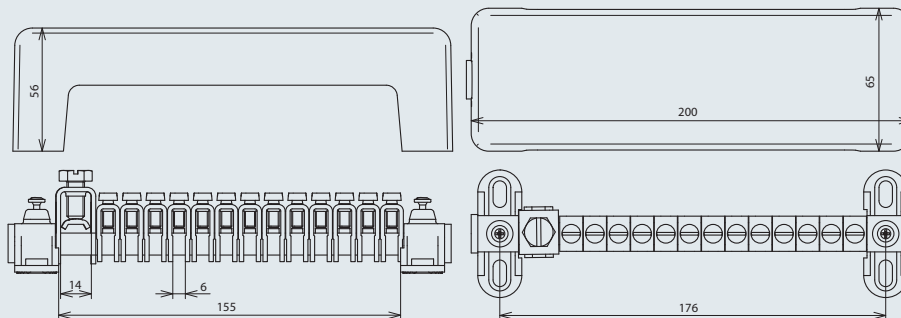


Terminals for:

- 5 conductors 2.5-25 mm² (solid/stranded)
 3 conductors 16-95 mm² (solid/stranded) or Rd Ø8-10 mm
 1 conductor FI up to 30x4 mm

Part No.	563 020
Clamping bar	Ms/gal Sn
Cross section	100 mm ²
Fixing	[4x] 6x12 mm
Standard	EN 50164-1

Type C

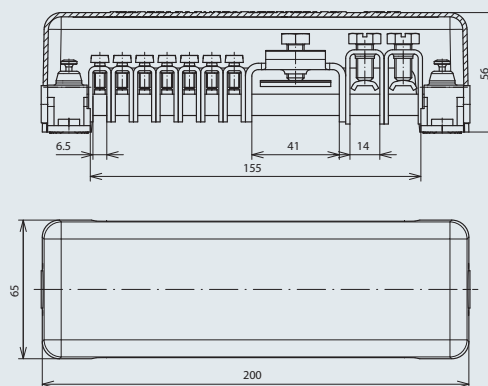


Terminals for:

- 13 conductors 2.5-25 mm² (solid/stranded)
 1 conductor 16-95 mm² (solid/stranded) or Rd Ø8-10 mm

Part No.	563 030
Clamping bar	Ms/gal Sn
Cross section	100 mm ²
Fixing	[4x] 6x12 mm
Standard	EN 50164-1

Type D

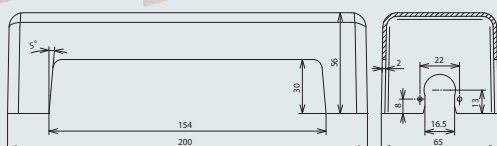
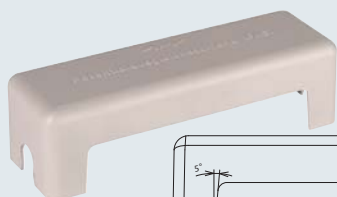
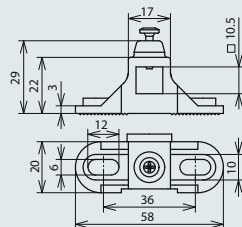
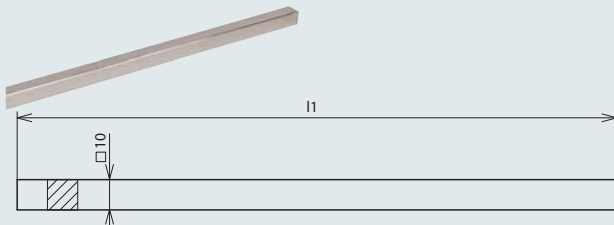
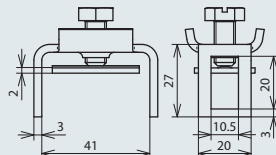
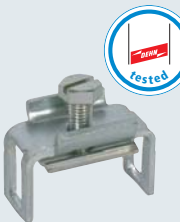
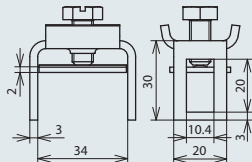
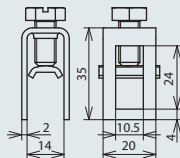
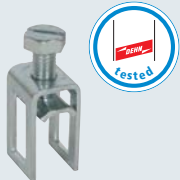
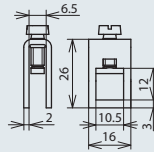
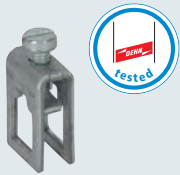


Terminals for:

- 7 conductors 2.5-25 mm² (solid/stranded)
 2 conductors 16-95 mm² (solid/stranded) or Rd Ø8-10 mm
 1 conductor FI up to 40x5 mm

Part No.	563 040
Clamping bar	Ms/gal Sn
Cross section	100 mm ²
Fixing	[4x] 6x12 mm
Standard	EN 50164-1

Accessories for Equipotential Busbars R15



Series Terminal

For connection of:

1 conductor 2.5-25 mm² (solid/stranded)

Part No.	563 011
Material	St/gal Zn
Modules	1
Standard	EN 50164-1

Series Terminal

For connection of:

1 conductor 16-95 mm² (solid/stranded) or Rd Ø8-10 mm

Part No.	563 013
Material	St/gal Zn
Modules	2
Standard	EN 50164-1

Series Terminal

For connection of:

1 conductor FI up to 30x4 mm

Part No.	563 012
Material	St/gal Zn
Modules	4
Standard	EN 50164-1

Series Terminal

For connection of:

1 conductor FI up to 40x5 mm

Part No.	563 019
Material	St/gal Zn
Modules	5
Standard	EN 50164-1

Clamping Bar

Part No.	563 016	563 017	563 018
Length (l1)	198 mm	398 mm	798 mm
Modules	15	30	60
Material	Ms/gal Sn	Ms/gal Sn	Ms/gal Sn
Cross section	100 mm ²	100 mm ²	100 mm ²
Quantity of bar frames	2	4	8
Quantity of covers	1	2	4

Bar Frame

Part No.	563 014
Material	plastic
Colour	grey
Fixing	[2x] 6x12 mm

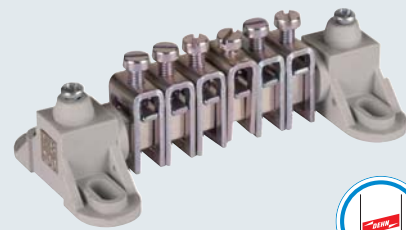
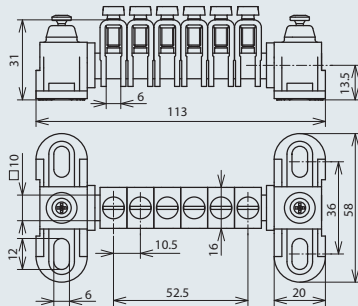
Cover

To snap on / labelable

Part No.	563 015
Material	plastic
Colour	grey
Modules	15

Equipotential busbars for protective and functional equipotential bonding according to IEC 60364-4-41/60364-5-54 (DIN VDE 0100 Part 410/540) in small installations

- Tested according to DIN EN 60999-2
- Terminal block St/gal Zn



Without cover

Terminals for:
6 conductors 2.5-25 mm² (solid/stranded)

Part No.	563 105
Clamping bar	Ms/gal Sn
Cross section	100 mm ²
Bar frames	plastic
Fixing	[4x] 6x12 mm
Standard	EN 50164-1

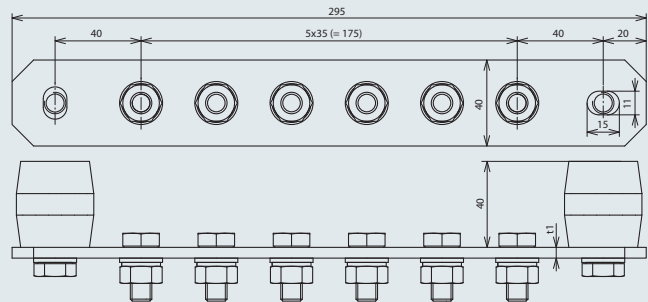


Equipotential busbars for the protective and functional equipotential bonding according to IEC 60364-4-41/60364-5-54 (DIN VDE 0100 Part 410/540) and lightning equipotential bonding according to IEC/EN 62305-3.

Also for use in potentially explosive atmospheres (self-locking screws to avoid accidental loosening)

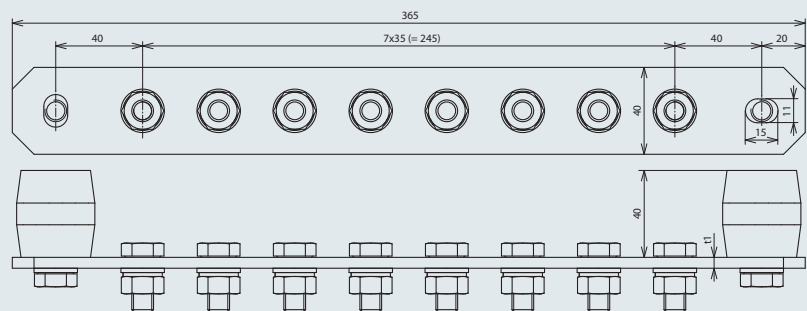
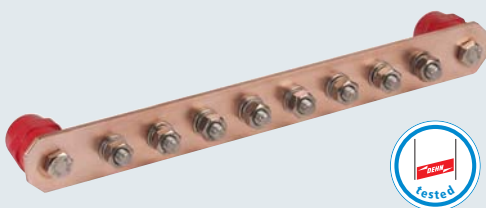
- With spring washer
- Insulator UP (duroplastic, red) with thread M10
- UV stabilised and halogen-free

6 Terminals

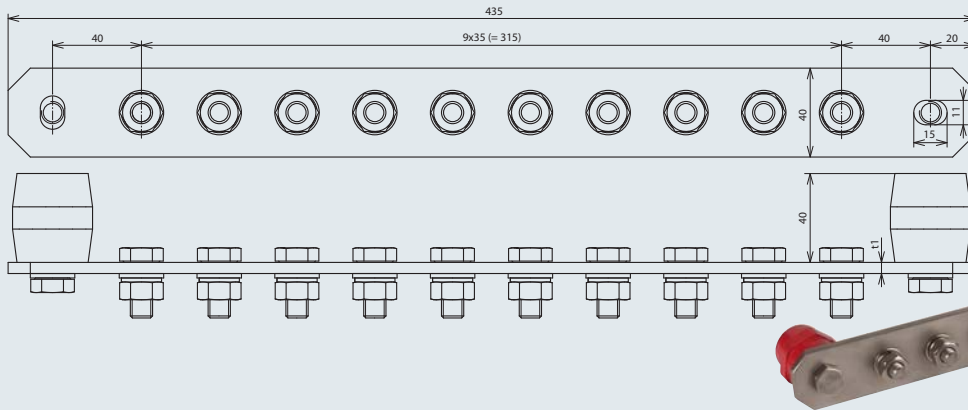


Part No.	472 207	472 209
Quantity of terminals	6	6
Material	Cu	StSt
Dimension (l x w x t1)	295x40x5 mm	295x40x6 mm
Cross section	200 mm ²	240 mm ²
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	39 kA	8.9 kA
Screw	⚙ M10x25 mm	⚙ M10x25 mm
Material of screw/nut	StSt	StSt
Design	with spring washer	with spring washer
Material of insulator	UP	UP
Standard	EN 50164-1	EN 50164-1

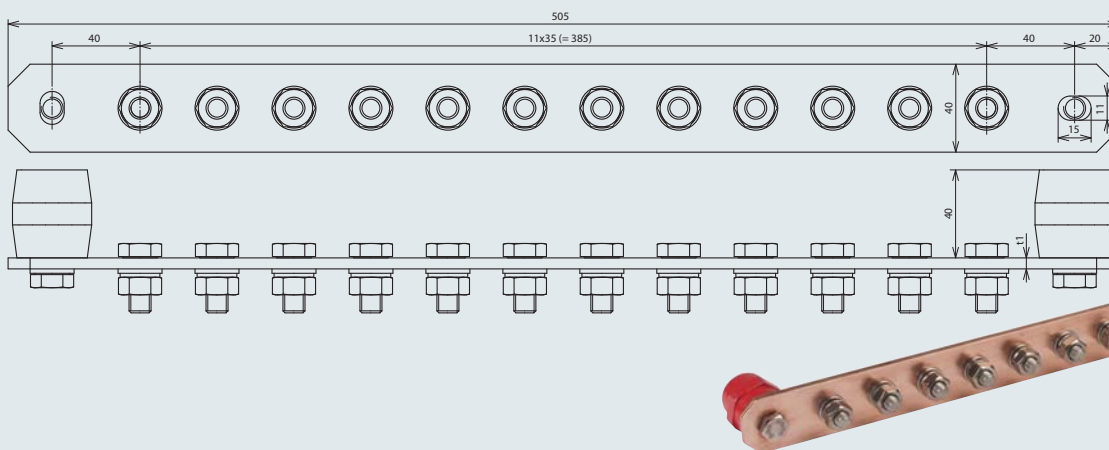
8 Terminals



Part No.	472 227	472 229
Quantity of terminals	8	8
Material	Cu	StSt
Dimension (l x w x t1)	365x40x5 mm	365x40x6 mm
Cross section	200 mm ²	240 mm ²
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	39 kA	8.9 kA
Screw	⚙ M10x25 mm	⚙ M10x25 mm
Material of screw/nut	StSt	StSt
Design	with spring washer	with spring washer
Material of insulator	UP	UP
Standard	EN 50164-1	EN 50164-1



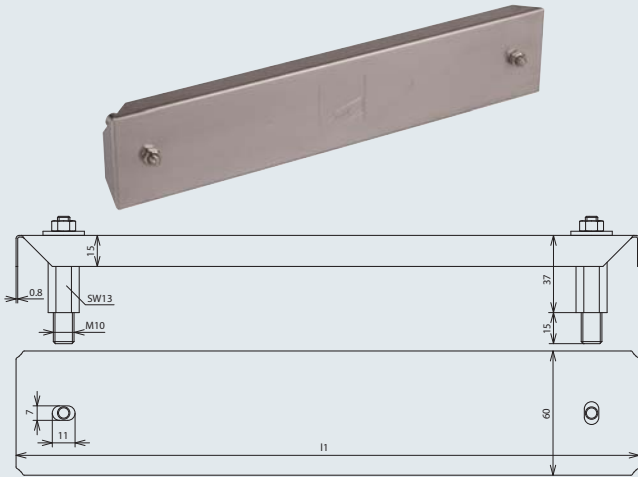
Part No.	472 217	472 219
Quantity of terminals	10	10
Material	Cu	StSt
Dimension (l x w x t1)	435x40x5 mm	435x40x6 mm
Cross section	200 mm ²	240 mm ²
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	39 kA	8.9 kA
Screw	☛ M10x25 mm	☛ M10x25 mm
Material of screw/nut	StSt	StSt
Design	with spring washer	with spring washer
Material of insulator	UP	UP
Standard	EN 50164-1	EN 50164-1



Part No.	472 237	472 239
Quantity of terminals	12	12
Material	Cu	StSt
Dimension (l x w x t1)	505x40x5 mm	505x40x6 mm
Cross section	200 mm ²	240 mm ²
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	39 kA	8.9 kA
Screw	☛ M10x25 mm	☛ M10x25 mm
Material of screw/nut	StSt	StSt
Design	with spring washer	with spring washer
Material of insulator	UP	UP
Standard	EN 50164-1	EN 50164-1

Special design upon request

Accessories for Equipotential Busbars Industry Design

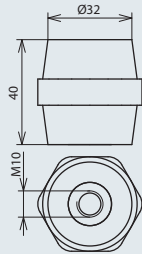


Cover for EBB Industry Design

Covers for EBB with insulators

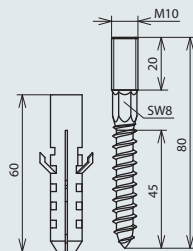
Part No.	472 279	472 269
Type of EBB	6 terminals	8 terminals
Dimension (l x w x d)	301x60x0.8 mm	371x60x0.8 mm
Material	StSt	StSt
Spacer bolt	M10 / M6	M10 / M6
Material of screw/nut	StSt	StSt

Part No.	472 289	472 299
Type of EBB	10 terminals	12 terminals
Dimension (l x w x d)	441x60x0.8 mm	511x60x0.8 mm
Material	StSt	StSt
Spacer bolt	M10 / M6	M10 / M6
Material of screw/nut	StSt	StSt



Insulator for EBB Industry Design

Part No.	472 210
Material	UP (Duroplast)
Terminal thread	M10 (length 12 mm)
Colour	red
Dimension (d x h)	32x40 mm



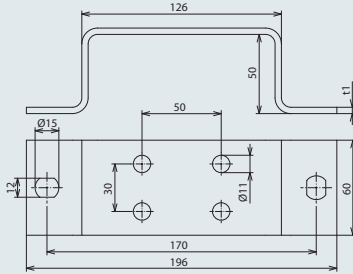
Fixing Kit for EBB Industry Design

For mounting the insulators e.g. at walls.

Part No.	472 201
Material of screw	St/tZn
Screw	45 mm ∇ M10x20 mm
Plastic dowel	\varnothing 12x60 mm
Total length	80 mm

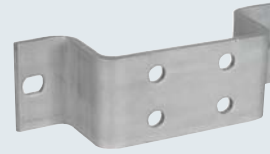
Connection possibilities:

- Flat strip with bore: with hexagon screws M10, nuts and spring washer
- Flat strip (-40 mm) without bore: with cleat of disconnecting clamps e.g. Part No. 454 100
- Round conductor: with KS connector e.g. Part No. 301 000 / 301 019 or with clamping frame e.g. Part No. 390 150

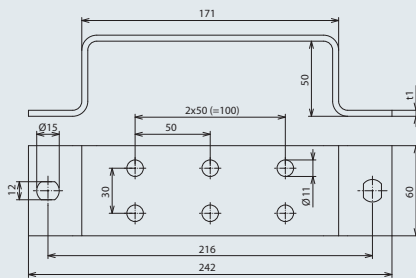


Earthing busbars for screwing or welding to steel structures, distance of bores 50 mm

2x2 Terminals



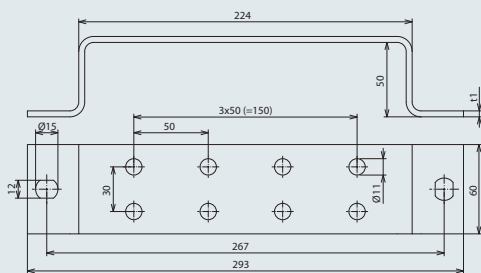
Part No.	472 023	472 109
Material	St/tZn	StSt
Cross section	240 mm ²	300 mm ²
Connection bores Ø	11 mm	11 mm
Dimension (l x w x d1)	196x60x4 mm	196x60x5 mm
Fixing	[2x] 12x15 mm	[2x] 12x15 mm



2x3 Terminals



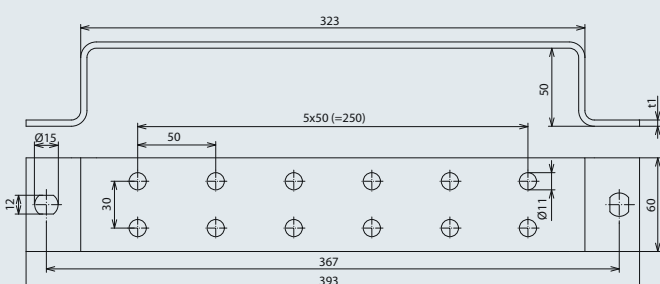
Part No.	472 022	472 119
Material	St/tZn	StSt
Cross section	240 mm ²	300 mm ²
Connection bores Ø	11 mm	11 mm
Dimension (l x w x d1)	242x60x4 mm	242x60x5 mm
Fixing	[2x] 12x15 mm	[2x] 12x15 mm



2x4 Terminals



Part No.	472 024	472 129
Material	St/tZn	StSt
Cross section	240 mm ²	300 mm ²
Connection bores Ø	11 mm	11 mm
Dimension (l x w x d1)	293x60x4 mm	293x60x5 mm
Fixing	[2x] 12x15 mm	[2x] 12x15 mm

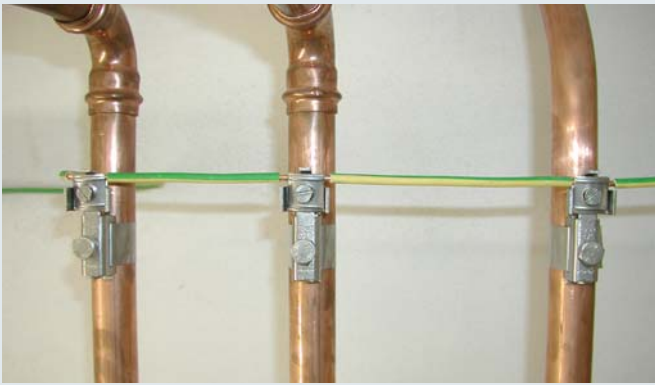


2x6 Terminals



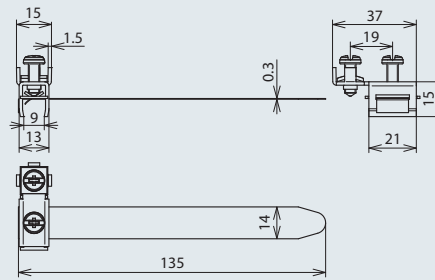
Part No.	472 021	472 139
Material	St/tZn	StSt
Cross section	240 mm ²	300 mm ²
Connection bores Ø	11 mm	11 mm
Dimension (l x w x d1)	393x60x4 mm	393x60x5 mm
Fixing	[2x] 12x15 mm	[2x] 12x15 mm

Special design upon request



Earthing pipe clamps for integrating pipes into the protective and functional equipotential bonding, with continuously adjustable tensioning strap

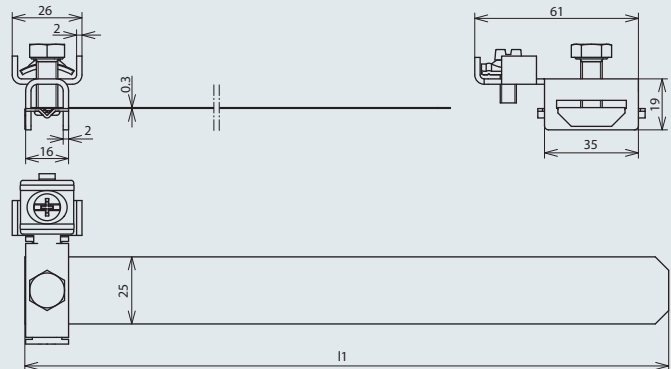
Type BRS17



For connecting 1 or 2 conductors or through-wiring, terminal cross section 2.5–10 mm²

Part No.	540 920
Material	StSt
Clamping range pipe Ø	9.5-17 mm (3/8 - 5/8")
Screw	M5x14 mm
Material of screw	StSt
Dimension of strap (l1 x w x d)	135x14x0.3 mm
Terminal cross-section	2.5-10 mm ²

Type Standard



For connecting 1 or 2 conductors or through-wiring, terminal cross-section 4-25 mm²

Part No.	540 910	540 911	540 912
Material	StSt	StSt	StSt
Clamping range pipe Ø	26.9-60.3 mm (1 - 2")	26.9-114.3 mm (1 - 4")	26.9-165 mm (1 - 6")
Screw	M8x20 / M6x16 mm	M8x20 / M6x16 mm	M8x20 / M6x16 mm
Material of screw	StSt	StSt	StSt
Dimension of strap (l1 x w x d)	240x25x0.3 mm	410x25x0.3 mm	570x25x0.3 mm
Terminal cross-section	4-25 mm ²	4-25 mm ²	4-25 mm ²

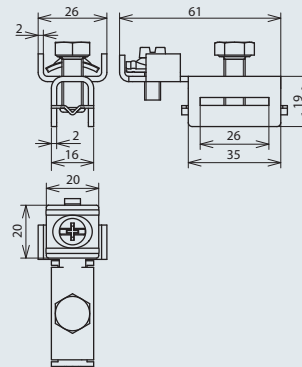
Endless tensioning strap



For cutting to length by means of a sheet shear

Part No.	540 901
Material	StSt
Dimension of strap (w x d)	25x0.3 mm
Length	100 m

Separate grip head



For combination with endless tensioning strap (Part No. 540 901), terminal cross-section 4-25 mm²

Part No.	540 900
Material	StSt
Screw	☛ M8x20 / ☛ M6x16 mm
Material of screw	StSt
Terminal cross-section	4-25 mm ²

Lightning Protection Pipe Clamp with Tines

Pipe clamp for the integration of pipes with surface protection into the lightning equipotential bonding according to IEC/EN 62305-3

Applicable e.g. on varnished or powder-coated surfaces up to a layer thickness of 0.2 mm

The special tines penetrate the surface protection and thus provide the necessary contact.

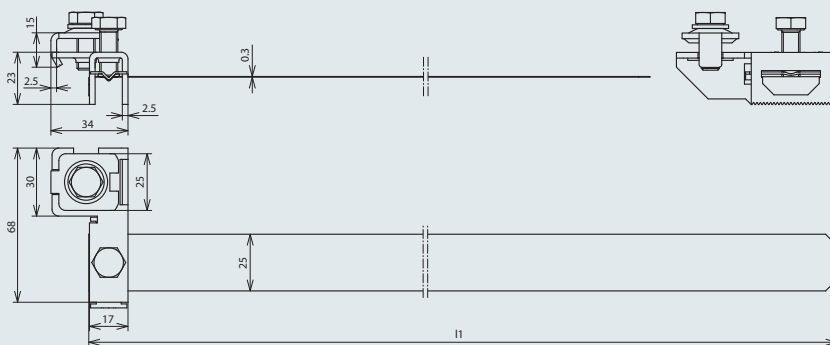
Lightning current tested according to EN 50164-1 with 50 kA (10/350 μs)

Terminal for:

1 conductor Rd Ø10 mm

or

1-2 conductors Rd Ø6-8 mm or 4-50 mm² (solid/stranded)



Part No.	540 200
Material	StSt
Clamping range pipe Ø	26.9-165 mm (1/4 - 6")
Screw	☛ M8x20 mm
Material of screw	StSt
Dimension of strap (l1 x w x d)	570x25x0.3 mm
Standard	EN 50164-1

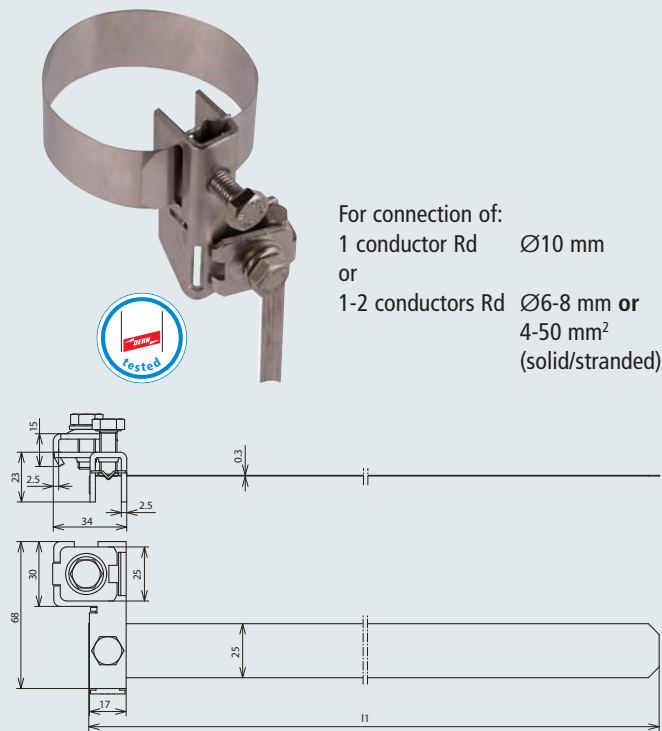


Pipe clamp for lightning equipotential bonding of pipes (e.g. antenna masts) according to IEC/EN 62305-3

With continuously adjustable tensioning strap, to connect one or two conductors and suitable for through-wiring

Lightning current tested according to EN 50164-1 up to 100 kA (10/350 μ s)

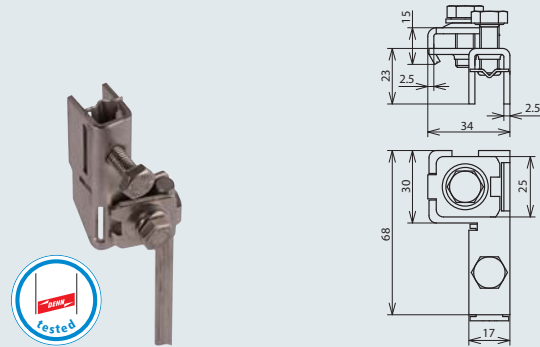
Pipe clamps for antennas – complete



For connection of:
 1 conductor Rd \varnothing 10 mm
 or
 1-2 conductors Rd \varnothing 6-8 mm or 4-50 mm² (solid/stranded)

Part No.	540 103	540 100
Material	StSt	StSt
Clamping range pipe \varnothing	26.9-88.9 mm ($\frac{3}{4}$ - 3")	26.9-165 mm ($\frac{3}{4}$ - 6")
Screw	M8x20 mm	M8x20 mm
Material of screw	StSt	StSt
Dimension of strap (l1 x w x d)	330x25x0.3 mm	570x25x0.3 mm
Standard	EN 50164-1	EN 50164-1
Military Name	VG 96953 T05 B0001	VG 96953 T05 B0002
Stock No.	—	5975-12-120-7744

Separate grip head



For combination with endless tensioning strap (Part No. 540 901)

For connection of:
 1 conductor Rd \varnothing 10 mm
 or
 1-2 conductors Rd \varnothing 6-8 mm or 4-50 mm² (solid/stranded)

Part No.	540 110
Material	StSt
Screw	M8x20 mm
Material of screw	StSt
Standard	EN 50164-1

Endless tensioning strap



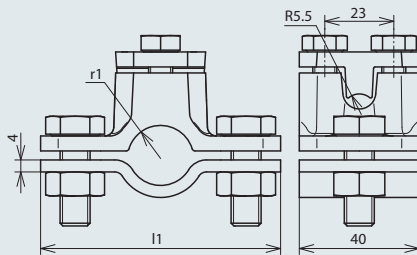
For cutting to length e.g. by means of a sheet shear

Part No.	540 901
Material	StSt
Dimension of strap (w x d)	25x0.3 mm
Length	100 m

Earthing pipe clamps for integrating pipes into the protective and functional equipotential bonding according to IEC 60364-4-41/60364-5-54 (DIN VDE 0100 Part 410/540) and lightning equipotential bonding according to IEC/EN 62305-3.

The clamping range (specified in mm) refers to the outer diameter and the clamping range (specified in inch) refers to the inner diameter (nominal width) of the pipes.

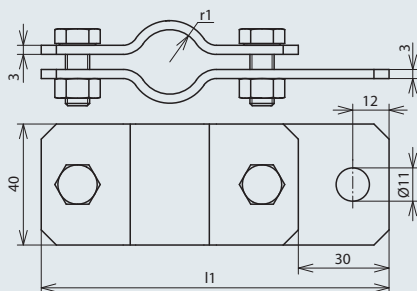
Type with screws M10



Terminal for Rd 4-10 mm or terminal conductor cross section of max. 70 mm²

Part No.	407 012	407 034	407 100	407 114	407 112	407 200
Clamping range pipe Ø	21.3 mm (1/2")	26.9 mm (3/4")	33.7 mm (1")	42.4 mm (1 1/4")	48.3 mm (1 1/2")	60.3 mm (2")
Material	MCl / St/tZn	MCl / St/tZn	MCl / St/tZn	MCl / St/tZn	MCl / St/tZn	MCl / St/tZn
Screw	☛ M10x30 / M8x20 mm	☛ M10x30 / M8x20 mm	☛ M10x30 / M8x20 mm	☛ M10x30 / M8x20 mm	☛ M10x30 / M8x20 mm	☛ M10x30 / M8x20 mm
Material of screw/nut	St/tZn	St/tZn	St/tZn	St/tZn	St/tZn	St/tZn
Dimension (l1 x r1)	80x11 mm	83x14 mm	85x17.5 mm	100x24.5 mm	95x22 mm	113x30.5 mm
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

Type St/tZn with screws M8



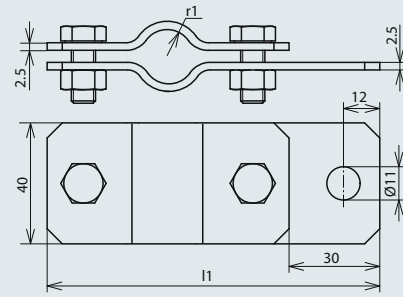
St/tZn material thickness 3 mm

Terminal for FI with screws and nuts M10, for Rd 7-10 mm e.g. KS connector Part No. 301 000 or clamping frame, Part No. 390 150

Part No.	410 038	410 012	410 034	410 100	410 114
Clamping range pipe Ø	17.2 mm (5/8")	21.3 mm (1/2")	26.9 mm (3/4")	33.7 mm (1")	42.4 mm (1 1/4")
Material	St/tZn	St/tZn	St/tZn	St/tZn	St/tZn
Screw	☛ M8x20 mm	☛ M8x20 mm	☛ M8x20 mm	☛ M8x20 mm	☛ M8x20 mm
Material of screw/nut	St/tZn	St/tZn	St/tZn	St/tZn	St/tZn
Dimension (l1 x r1)	110x8.5 mm	115x10.5 mm	115x13.5 mm	124x17 mm	132.5x21 mm
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

Part No.	410 112	410 134	410 200	410 212	410 300
Clamping range pipe Ø	48.3 mm (1 1/2")	54.5 mm (1 3/4")	60.3 mm (2")	76.1 mm (2 1/2")	88.9 mm (3")
Material	St/tZn	St/tZn	St/tZn	St/tZn	St/tZn
Screw	☛ M8x20 mm	☛ M8x20 mm	☛ M8x20 mm	☛ M8x20 mm	☛ M8x20 mm
Material of screw/nut	St/tZn	St/tZn	St/tZn	St/tZn	St/tZn
Dimension (l1 x r1)	140.5x24 mm	145x27.5 mm	151x30 mm	169x38 mm	182.5x44.5 mm
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

Type StSt with screws M8



StSt material thickness 2.5 mm

Terminal for FI with screws and nuts M10, for Rd 7-10 mm e.g. KS connector Part No. 301 000 or clamping frame, Part No. 390 150

Part No.	410 309	410 319	410 329	410 339	410 349
Clamping range pipe Ø	17.2 mm (5/8")	21.3 mm (1/2")	26.9 mm (3/4")	33.7 mm (1")	42.4 mm (1 1/4")
Material	StSt	StSt	StSt	StSt	StSt
Screw	M8x20 mm	M8x20 mm	M8x20 mm	M8x20 mm	M8x20 mm
Material of screw/nut	StSt	StSt	StSt	StSt	StSt
Dimension (l1 x r1)	110.5x8.5 mm	114.5x10.5 mm	115.5x13.5 mm	124x17 mm	132.5x21 mm
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

Part No.	410 359	410 369	410 379	410 389	410 399
Clamping range pipe Ø	48.3 mm (1 1/2")	54.5 mm (1 3/4")	60.3 mm (2")	76.1 mm (2 1/2")	88.9 mm (3")
Material	StSt	StSt	StSt	StSt	StSt
Screw	M8x20 mm	M8x20 mm	M8x20 mm	M8x20 mm	M8x20 mm
Material of screw/nut	StSt	StSt	StSt	StSt	StSt
Dimension (l1 x r1)	140.5x24 mm	145x27.5 mm	151x30 mm	169x38 mm	182.5x44.5 mm
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1

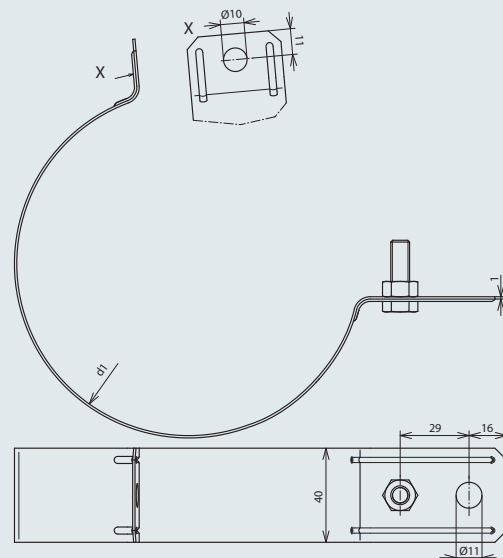
Downpipe Clamps



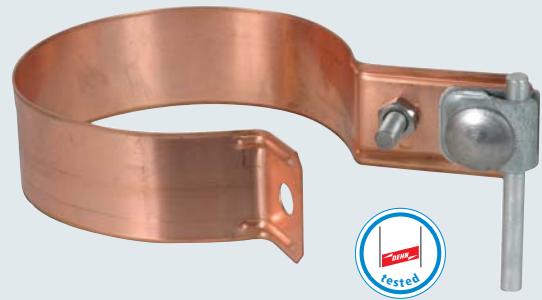
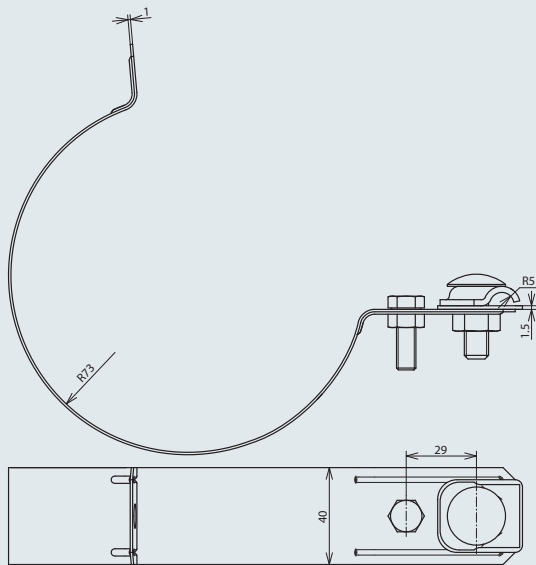
Pipe clamps for lightning equipotential bonding connection of downpipes according to IEC/EN 62305-3

Connection possibilities for Rd e.g. with KS connector Part No. 301 000 or with clamping frame Part No. 390 150 (according to material)

For fixed pipe diameters



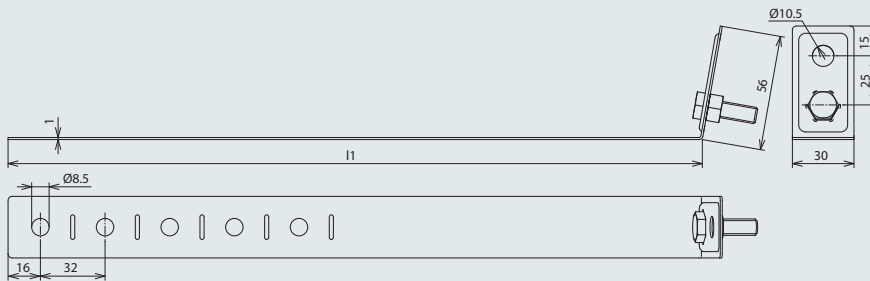
Part No.	420 100	420 120	420 107	420 127
Material	St/tZn	St/tZn	Cu	Cu
Clamping range pipe Ø (d1)	100 mm	120 mm	100 mm	120 mm
Bore Ø	11 mm	11 mm	11 mm	11 mm
Screw	M8x25 mm	M8x25 mm	M8x25 mm	M8x25 mm
Material of screw/nut	StSt	StSt	StSt	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1



For the connection of conductors made of St with downpipe clamps made of Cu, with clamping frame St/tZn and intermediate plate (Cupal)

Part No.	420 207
Material	Cu / St/tZn
Clamping range pipe \varnothing (d1)	100 mm
Clamping range Rd	6-10 mm
Screw	⚙ M8x25 / ⚙ M10x30 mm
Material of screw/nut	StSt
Standard	EN 50164-1

Type RV adjustable



With additional screw-retaining thread insert of the fixing screw and markings, preset bending points as well as punched cutting aids

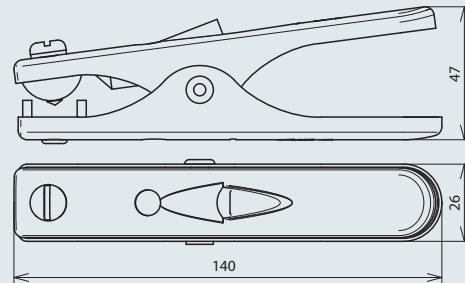
Part No.	423 010	423 011	423 017	423 019	423 020	423 021	423 027	423 029
Material	St/tZn	Al	Cu	StSt	St/tZn	Al	Cu	StSt
Clamping range pipe \varnothing (d1)	60-100 mm	60-100 mm	60-100 mm	60-100 mm	60-150 mm	60-150 mm	60-150 mm	60-150 mm
Length (l1)	337 mm	337 mm	337 mm	337 mm	494 mm	494 mm	494 mm	494 mm
Bore \varnothing	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm
Screw	⚙ M8x25 mm	⚙ M8x25 mm	⚙ M8x25 mm	⚙ M8x25 mm	⚙ M8x25 mm	⚙ M8x25 mm	⚙ M8x25 mm	⚙ M8x25 mm
Material of screw/nut	StSt	StSt	StSt	StSt	StSt	StSt	StSt	StSt
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1



Earthing tongs for controlled earthing and discharging of static charge of tank vehicles, aircrafts, containers, tanks, etc.
Also for use in hazardous areas.



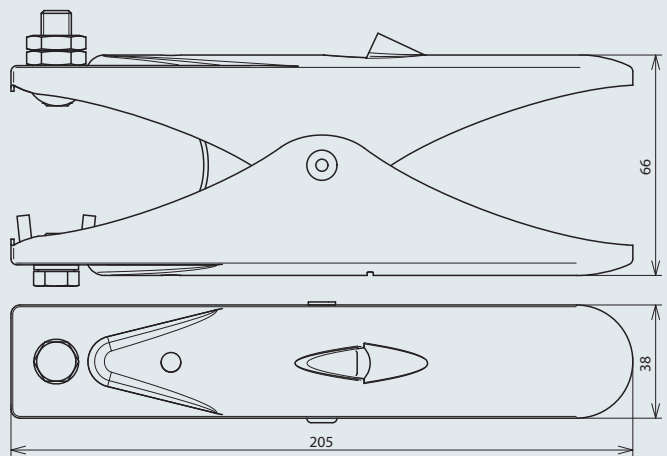
Small design



Brass jaw with steel tips (Material No. 1.4104) and copper contact clip;
Terminal: Flat head screw with slot or with enclosed crimped cable lug 25 mm² – M6 (Cu/gal Sn)

Part No.	546 025	546 002
Material of tongs	St/gal Zn	StSt
Clamping range	up to Ø16 / up to 13 mm	up to Ø16 / up to 13 mm
Length	140 mm	140 mm
Terminal screw	M6x12 mm	M6x12 mm
Material of screw	StSt	StSt

Large design



Brass jaw without steel tips and copper contact clip;
Terminal: Threaded bolt with nut

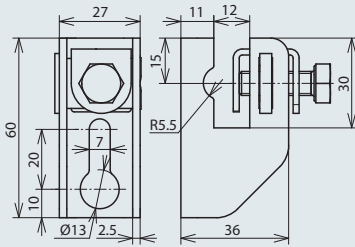
Part No.	546 000	546 001
Material of tongs	St/gal Zn	StSt
Clamping range	up to Ø55 / up to 45 mm	up to Ø55 / up to 45 mm
Length	205 mm	205 mm
Terminal nut	M10	M10
Material of screw	StSt	StSt

More details in installation instructions No. 1530

Flat strip holders for wall mounting

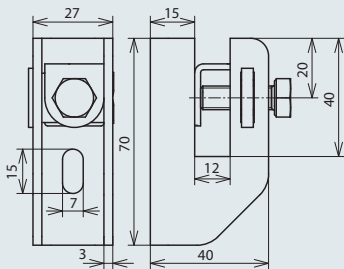
Thrust piece with screw M8 for the installation of strip conductor up to 11 mm and round conductor 6-10 mm

Wall distance 11 mm



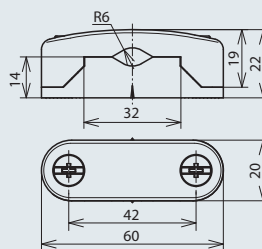
Part No.	277 230	277 237	277 239
Material of conductor holder	St/tZn	Cu	StSt
Wall distance	11 mm	11 mm	11 mm
Fixing	Ø13 und 7x20 mm	Ø13 und 7x20 mm	Ø13 und 7x20 mm
Slot width	12 mm	12 mm	12 mm
Screw	M8x25 mm	M8x25 mm	M8x25 mm
Material of screw	StSt	StSt	StSt
Standard	EN 50164-4	EN 50164-4	EN 50164-4

Wall distance 15 mm



Part No.	277 240
Material of conductor holder	St/tZn
Wall distance	15 mm
Fixing	7x15 mm
Slot width	12 mm
Screw	M8x25 mm
Material of screw	StSt
Standard	EN 50164-4

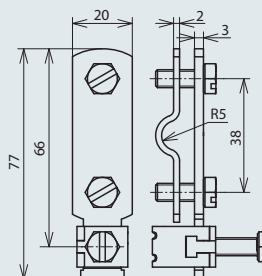
Conductor holder to install round and flat conductors for equipotential bonding e.g. in transformer stations, processor rooms
 Conductor holder insulated



Part No.	277 130
Conductor holder support Rd / Fl	6-13 / 30x4 mm
Fixing	Ø10 and 6x19 mm
Material	plastic
Colour	grey
Screw	M6x16 mm
Material of screw	StSt

Terminal Clamp

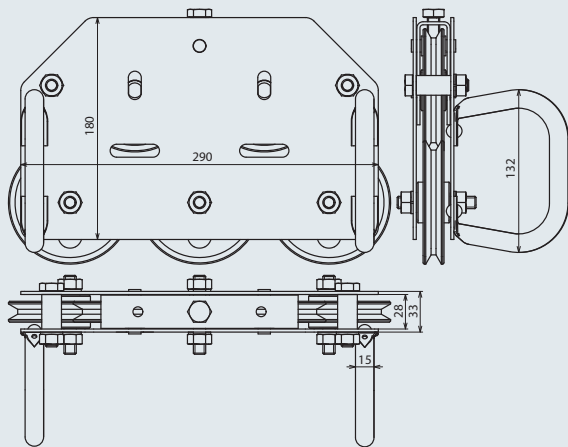
Clamp for universal connection to the ring equipotential bonding for St/tZn, copper or stainless steel (StSt)



Part No.	563 169
Conductor holder support Rd / Fl	Ø8-10 / 30x3 to 11 mm
Material	StSt
Terminal cross section	2.5-95 mm ²
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	5.5 kA
Screw	M6x16/20 mm
Material of screw	StSt

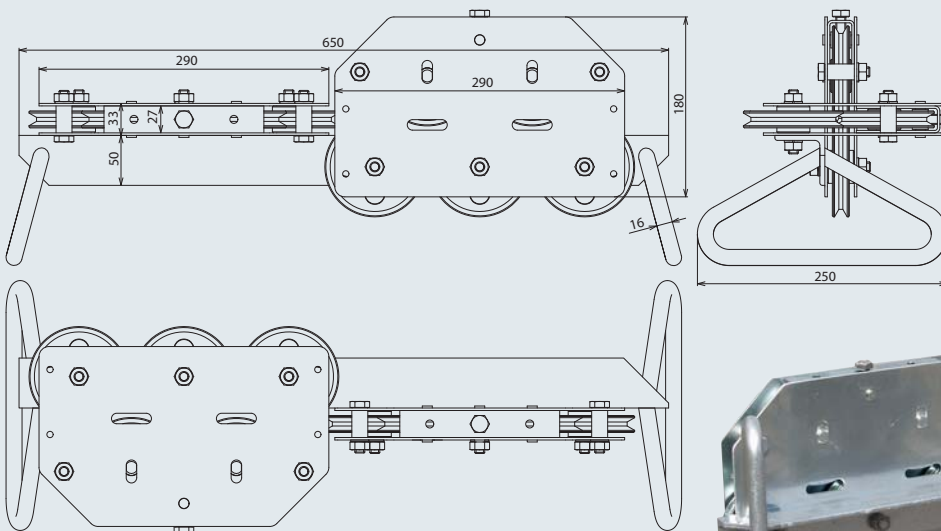
Wire straighteners for round conductors made of different materials (semi-rigid)

5 guide pulleys, with handles



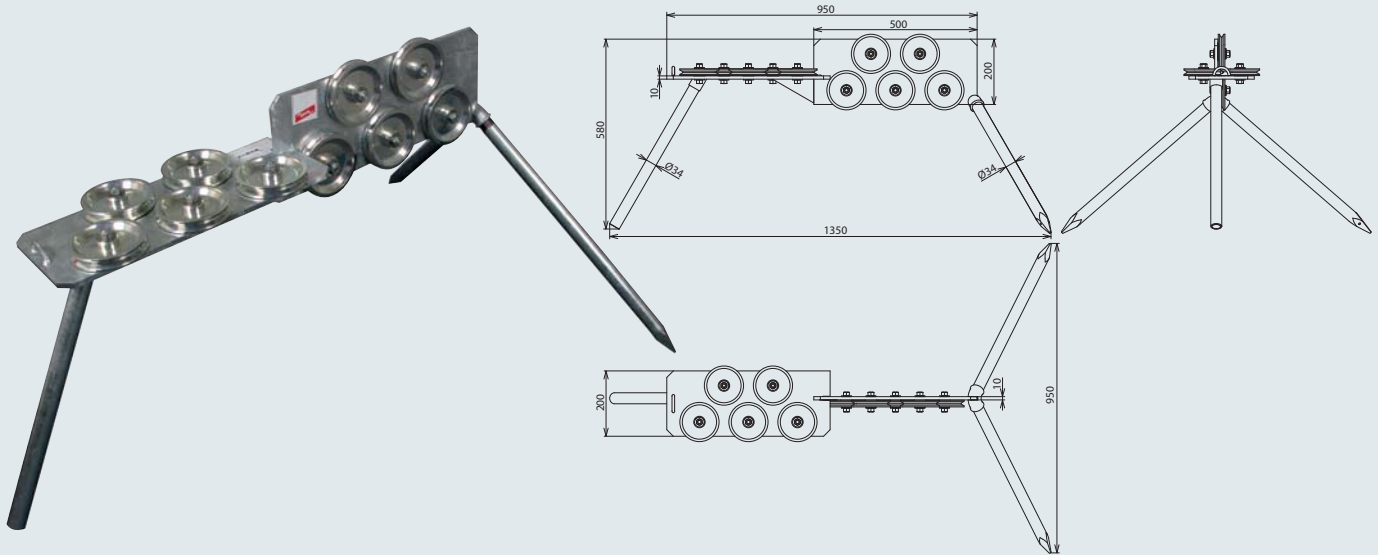
Part No.	597 004
Material	St/gal Zn
Support Rd	7-10 mm
Material of guide pulleys	St/gal Zn
Dimension	approx. 180x290 mm

10 guide pulleys, with handles



Part No.	597 005
Material	St/gal Zn
Support Rd	7-10 mm
Material of guide pulleys	St/gal Zn
Dimension	approx. 650x180 mm

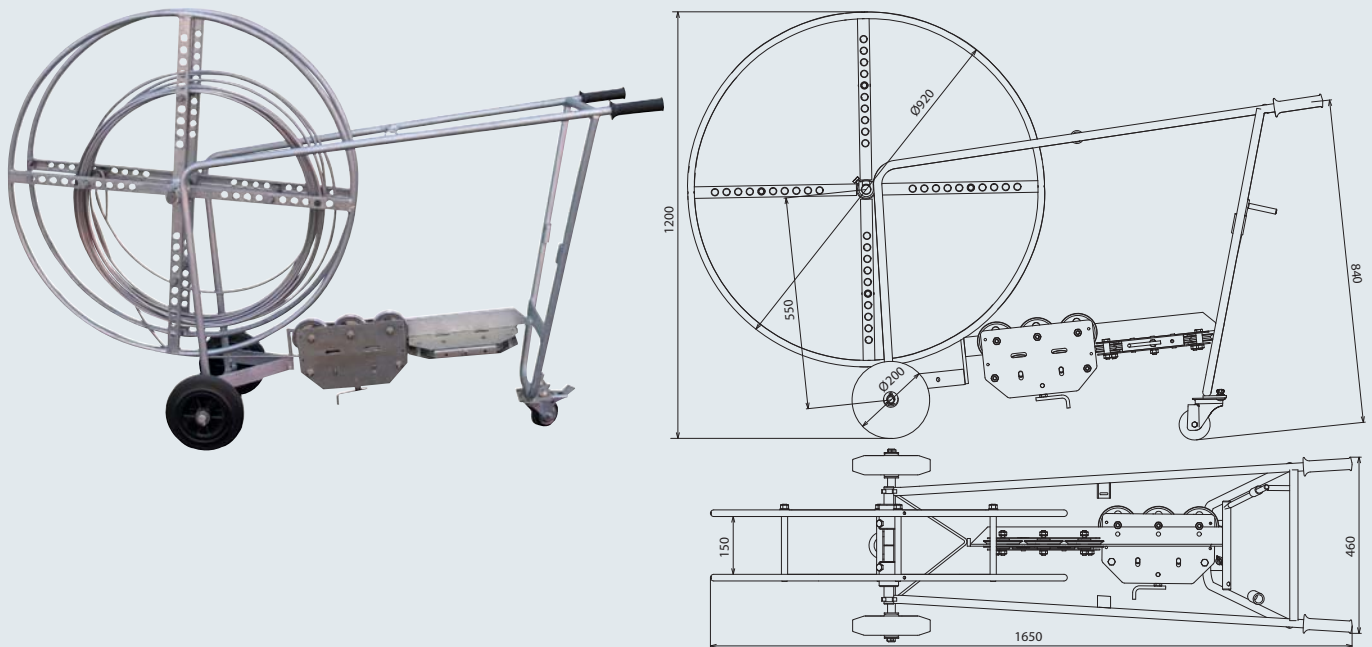
10 guide pulleys, with derrick



For stationary set-up

Part No.	597 003
Material	St/tZn
Support Rd	7-10 mm
Material of guide pulleys	St/gal Zn
Dimension	approx. 1350x580 mm

10 guide pulleys, movable on rubber wheels

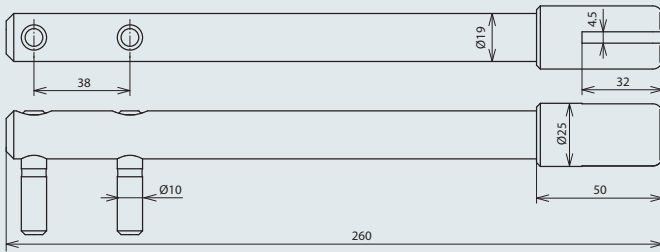


With wire unwinding device, for handling of coils (St/tZn and Al) with an inner diameter of 450-800 mm and coil widths up to 150 mm
More details in installation instructions No. 1096

Part No.	597 006
Material	St/tZn
Support Rd	7-10 mm
Material of guide pulleys	St/gal Zn
Dimension	approx. 1650x1200 mm

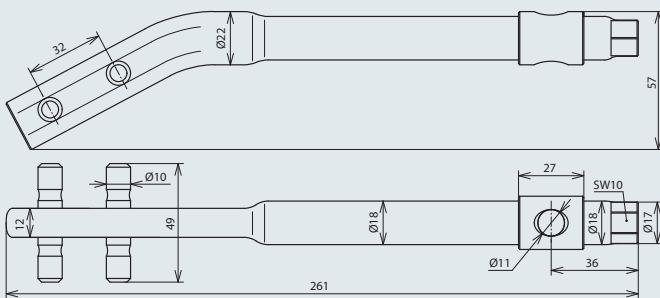
Straightening tool for angling and straightening of conductors

Straight design



Part No.	596 000
Material	St/barnished
Application Rd / Fl	8-10 / -4 mm
Length	260 mm
Weight	623 g

Cranked design

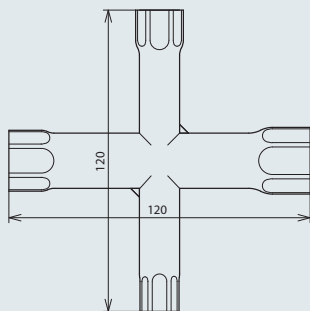


Wrench size A/F 10 for screwing

Part No.	595 000
Material	St/barnished
Application Rd / Fl	8 mm
Length	260 mm
Weight	322 g

Spider Wrench

For universal use at the installation of lightning protection systems. With four wrench sizes.



Part No.	572 000
Material	St/gal Zn
Wrench size	10, 13, 17, 19 mm



Meter for measuring the resistance to earth and continuity test with automatic measuring range selection for checking of sensor resistance, auxiliary earth-electrode resistance and soil resistivity.

- Digital LCD indication
- Measuring range 0.15 ... 2000 Ω
- Measuring frequency 128 Hz
- 2-/3-pole measuring method
- 2-pole a.c. resistance test

Part No.	578 350
Housing material	plastic
Dimension (l x w x d)	216x113x54 mm
Weight	860 g

Earthing Resistance Meter GEOHM C



Meter for measuring the resistance to earth and the soil resistivity with automatic measuring range selection and checking of sensor resistance, auxiliary earth-electrode resistance.

- Digital LCD indication
- Measuring range 0.01 ... 20 000 Ω
- Measuring frequency 45 ... 200 Hz
- 3-/4-pole measuring method

Part No.	578 110
Housing material	plastic
Dimension (l x w x d)	275x140x65 mm
Weight	1200 g

Earthing Test Tongs CA 6412



To be used for earth electrode loop measuring
Automatic measuring range selection

- Digital LCD indication
- Measuring range 0.1 ... 1200 Ω
- Measuring of fault currents 1 mA ... 30 A RMS
- Measuring frequency 2400 Hz
- Tongs opening 32 mm
- With transport case
- Weight incl. case 2580 g

Part No.	578 360
Housing material	plastic
Dimension (l x w x d)	235x100x55 mm
Weight	960 g

Continuity tester for resistance measuring e.g. at air-termination conductors or down conductors and supplementary used reinforcing rods of buildings with a test current of 200 mA according to IEC/EN 62305-3

- Digital LCD indication
- Different measuring ranges of 0,01 Ω ... 2 000 k Ω
- Measuring current 200 mA ranging up to 10 Ω according to EN 61557-4
- Automatic data storage
- Quick compensation of the measuring line



Part No.	578 370
Housing material	plastic
Dimension (l x w x d)	230x60x40 mm
Weight	250 g

More details in installation instructions No. 1567.

Leather Case with Measuring Accessories for Continuity Tester

Leather case for storing the continuity tester and measuring accessories

Equipment includes:

- 2 coilers with handle for unwinding and 50 m measuring line, blue, with split plug, Part No. 585 320
- 1 measuring line 0.75 mm², 3 m long, black, with split plug on both sides, Part No. 545 020
- 1 test terminal, clamping range 2-21 mm, Part No. 588 000



Part No.	582 620
Material	artificial leather
Dimension (l x w x h)	370x130x220 mm



Case with shoulder strap for easy transport and combination lock

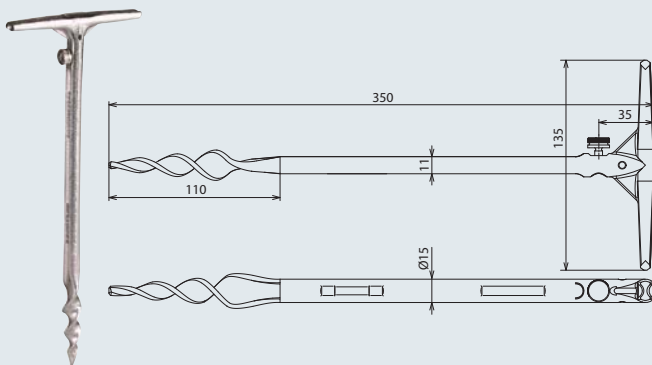
Equipment includes:

- 1 coiler with handle for unwinding and 25 m measuring line red, with split plug, Part No. 585 310
- 1 coiler with handle for unwinding and 50 m measuring line blue, with split plug, Part No. 585 320
- 2 earth borers 350 mm long, Part No. 587 460
- 2 measuring lines black 0.75 mm², 3 m long, with split plug on both sides, Part No. 545 010 (connection between earth termination system and earth resistance meter)
- 1 measuring line red 0.75 mm², 0.5 m long, with split plug on both sides, Part No. 545 010
- 1 measuring line blue 0.75 mm², 0.5 m long, with split plug on both sides, Part No. 545 011 (connection between coiler and earth borer)
- 1 test terminal, clamping range 2-21 mm, Part No. 588 000

The case provides an empty compartment for optional support of either FLUKE 1621 or GEOHM C measuring device.

Part No.	582 600
Material	artificial leather
Dimension (l x w x h)	400x200x240 mm

Accessories for Earth Resistance Measuring Equipment in a leather case

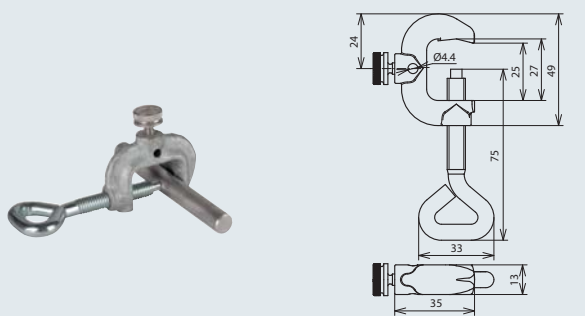


Earth Drilling Device

For use as an auxiliary earth electrode and sensor for measuring of earthing resistances

With bore for split plug of the measuring line

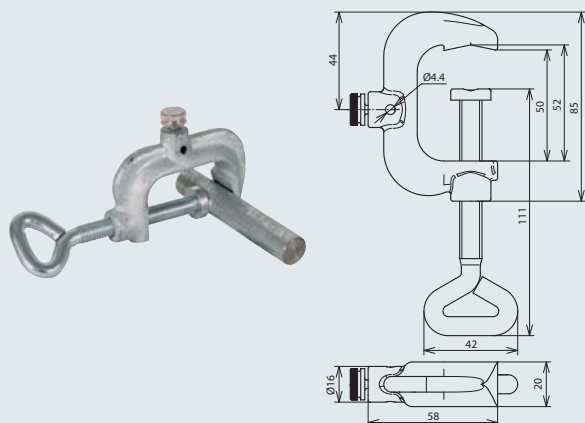
Part No.	587 460
Terminal	M5
Material	TG/gal Zn
Length	350 mm



Test Clamp up to 21 mm

For earth electrode measuring

Part No.	588 000
Connection	M5
Material	MCl/tZn
Clamping range	2-21 mm
Clamping spindle	M8



Test Clamp up to 45 mm

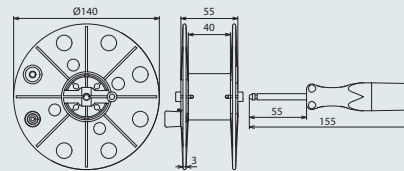
For earth electrode measuring

Part No.	589 000
Connection	M5
Material	MCl/tZn
Clamping range	4-45 mm
Clamping spindle	M10

Coiler 40 mm wide, red wire

With split plug and socket

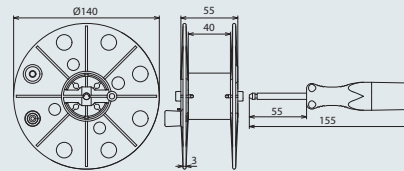
Part No.	585 310	585 051
Length of measuring line	25 m	50 m
Colour of measuring line	red	red
Cross section	0.75 mm ²	0.75 mm ²
Designaiton	H05V-K	H05V-K
Width	40 mm	40 mm
Material	plastic	plastic



Coiler 40 mm wide, blue wire

With split plug and socket

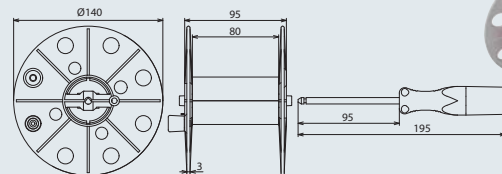
Part No.	585 025	585 320
Length of measuring line	25 m	50 m
Colour of measuring line	blue	blue
Cross section	0.75 mm ²	0.75 mm ²
Designaiton	H05V-K	H05V-K
Width	40 mm	40 mm
Material	plastic	plastic



Coiler 80 mm wide, red wire

With split plug and socket

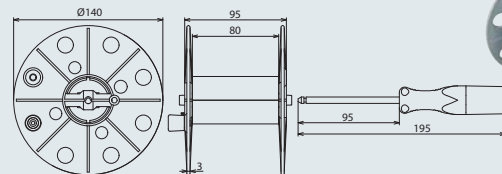
Part No.	585 211
Length of measuring line	100 m
Colour of measuring line	red
Cross section	0.75 mm ²
Designaiton	H05V-K
Width	80 mm
Material	plastic



Coiler 80 mm wide, blue wire

With split plug and socket

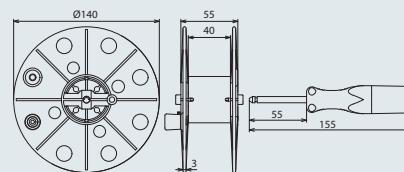
Part No.	585 210
Length of measuring line	100 m
Colour of measuring line	blue
Cross section	0.75 mm ²
Designaiton	H05V-K
Width	80 mm
Material	plastic



Coiler 40 mm wide, empty

With socket

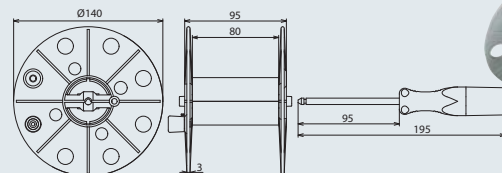
Part No.	585 010
Length of measuring line	0 m
Width	40 mm
Material	plastic
Colour	grey



Coiler 80 mm wide, empty

With socket

Part No.	585 200
Length of measuring line	0 m
Width	80 mm
Material	plastic
Colour	grey



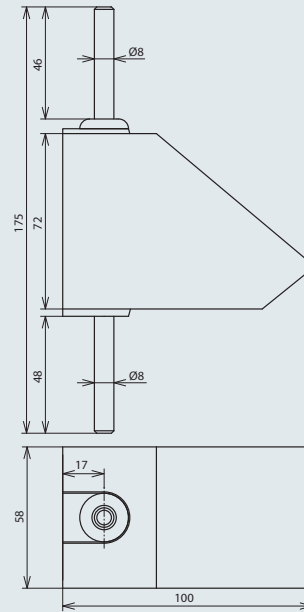
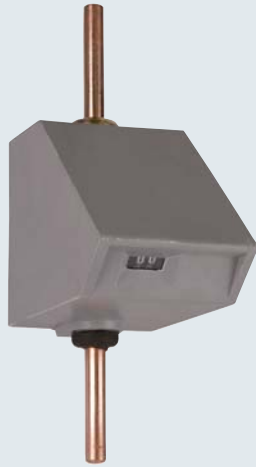
Measuring Line

Part No.	545 000	545 001
Cross section	0.75 mm ²	0.75 mm ²
Material	Cu	Cu
Designaiton	H05V-K	H05V-K
Insulation	PVC	PVC
Colour	blue	red



Counter for digital recording of impulse currents

The device is preferably installed as a discharge current meter between the equipotential bonding busbar and the earth-termination system.



Part No.	910 001	910 007
Operating range	2-100 kA (8/20 µs)	2-100 kA (8/20 µs)
Counter	0-99	0-99
Lead-through rod	Ø8 mm	Ø8 mm
Material of rod	St/tZn	Cu

More details in installation instructions No. 1133

Anti-corrosion Tape



Anti-corrosion tape for coating of aboveground and underground connections

For use in the soil according to DIN 30672

In reels, length 10 m

UV stabilised

Part No.	556 125	556 130
Width	50 mm	100 mm
Material	petrolatum	petrolatum

Heat-shrinkable Sleeve



Heat-shrinkable sleeve for coating of conductors Rd and FI e.g. when leading terminal lugs out of the concrete or earth entries out of the ground

UV stabilised, customised length

Part No.	554 011
For use with Rd	16 mm
For use with FI	30 mm
Material	DERAY
Colour	black

Special coating paint for lightning protection components and conductors, weather resistant

The coating paint may be used without pretreatment also for weathered, hot-dip galvanized, spray-galvanized and electrogalvanized surfaces as well as aluminium sheets.

Hazardous materials regulations allow for transportation only in Germany and Austria. Alternatively use a suitable zinc protection paint.

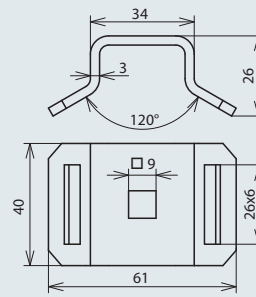


Part No.	559 010	559 011
Colour	grey	brown
Content	0.75 litres	0.75 litres

Clip

Clip for fixing at pipes by tensioning strap Part No. 540 901 (dimension 25x0.3mm) combined with grip head Part No. 106 324, with square hole, suitable for screws M8

Part No.	106 320
Material	StSt
Clamping range pipe \varnothing	approx. 50-300 mm
Slot width	26x6 mm



Thatched roofs are easily inflammable and the hazard of fire is extremely high.

The high hazard potential requires special measures which reduce the risk in case of a lightning strike. The efficiency of a lightning protection system on thatched roofs can be significantly increased by the installation of a HVI Conductor.

Installation of the HVI conductor in a supporting tube provides a much more aesthetic appearance of the isolated air-termination and down conductor system (Figure 1). A HVI Conductor with the additional grey coating is used (Figure 3).

Using a HVI Conductor allows for installation of the lightning protection system directly at the object to be protected. Spacers in the roof pitch area or supports for guying the conductor along the eaves are not necessary (Figures 3 and 4).

The upper section (GRP) of the supporting tube (GRP/Al) with the HVI conductor inside shall protrude from the roofing and the lower section made of aluminium is used for mechanical fixing. It has to be minded that there are not any earthed parts or electrical equipment within a radius of 1 m around the aluminium pipe.

If the ridge (heather/sod ridge) is covered with a wire mesh, the distance to the supporting tube has to be > 1 m. Alternatively, a non-conductive synthetic braid can be used. Figure 2 shows a schematic drawing.

The performance parameters of the HVI Conductor and the installation instructions shall be taken into account.

For more details on the HVI conductors see pages 67-68.

The conventional installation is described on the next two pages.



Figure 1: New design of lightning protection for thatched roofs (total view)

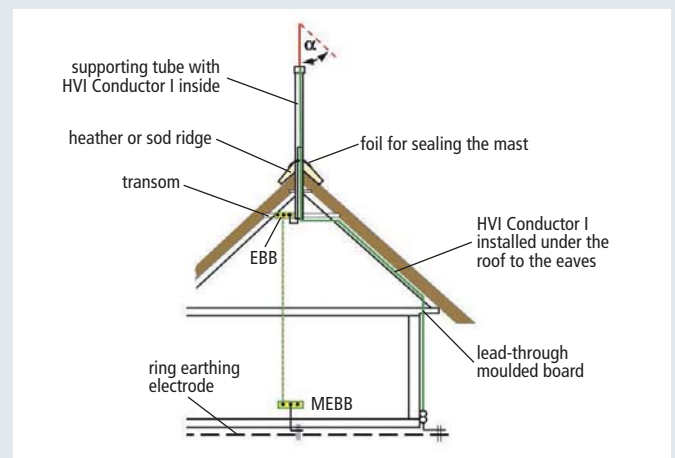


Figure 2: Schematic drawing



Figure 4: New design - lightning protection for thatched roofs (section)

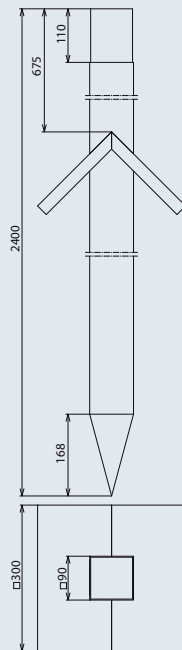


Figure 3: Connection to down conductor - bushing of cornice board



Air-termination conductors on thatched roofs have to be installed as elevated traverses e.g. on isolating supports. Certain distances have to be kept also to the eaves.

Intended span width for ridge conductors is approx. 15 m and for down conductors approx. 10 m without additional supports. Span stakes have to be fastened at the roof construction (rafters and crosspieces) by anchor bolts and flat washers.



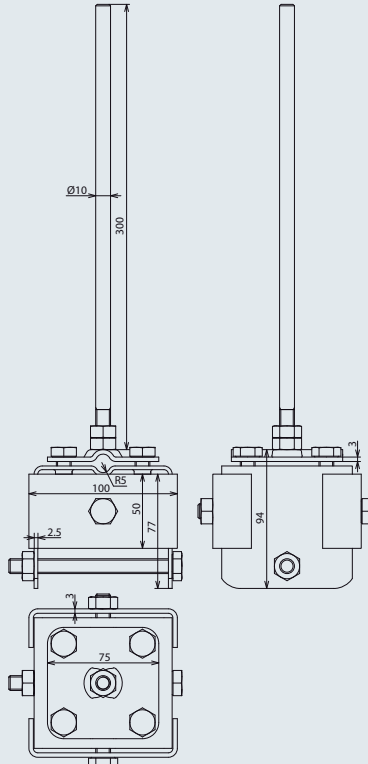
Wooden Stake

With rain shelter, suitable for clamping cap (Part No. 146 309)

Part No.	145 241
Material	oak (impregnated)
Dimension (l x w x h)	90x90x2400 mm

Clamping Cap

For fixing at wooden stakes (Part No. 145 241)
With air-termination rod (length 300 mm, Ø10 mm in StSt)



Part No.	146 309
Material	StSt
Support Rd	7-10 mm
Screw	☛ M10x110 mm
Material of screw/nut	StSt

Roof Conductor Support

With conductor holder

Part No.	240 000
Material	oak (impregnated)
Dimension (l x w x h)	134x300x598 mm
Support Rd	6-10 mm

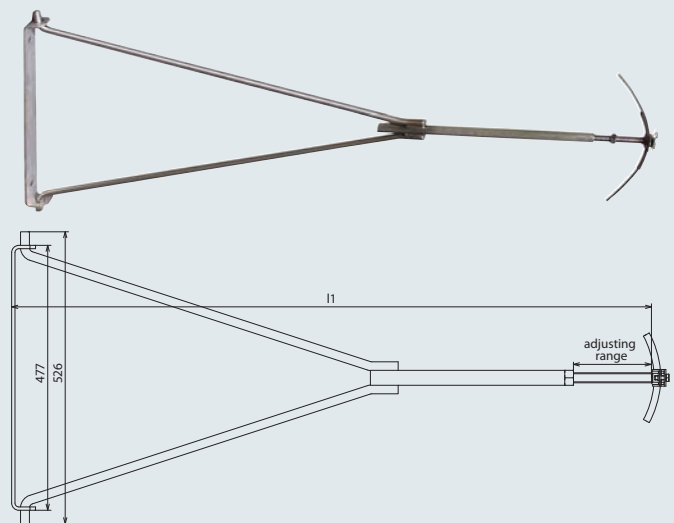


Support St/tZn / StSt for Use at Eaves

For guying the conductors/cables
Distance between wall and conductors is adjustable

Part No.	239 000	239 001
Material	St/tZn	St/tZn
Adjustable range (l1)	1.05-1.20 m	1.40-1.55 m
Support Rd	7-10 mm	7-10 mm

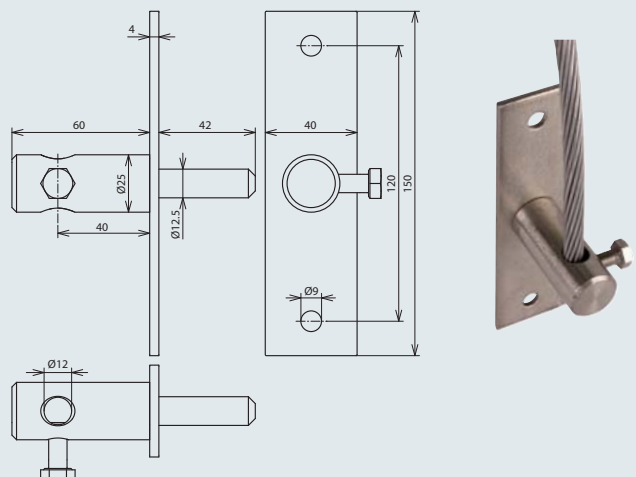
Part No.	239 009	239 019
Material	StSt	StSt
Adjustable range (l1)	1.25-1.55 m	1.45-1.75 m
Support Rd	7-10 mm	7-10 mm



Guy Clamp

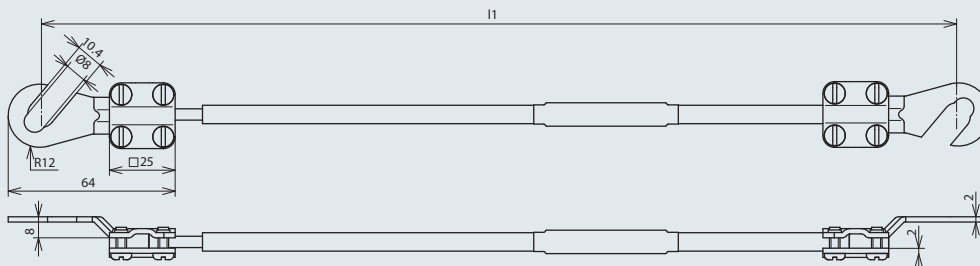
For tightening/guying the conductors/cables at the wall

Part No.	241 009
Material	StSt
Dimension (l x w x d)	150x40x4 mm
Support Rd	8 mm
Bore Ø	9 mm
Screw	M8x20 mm
Material of screw	StSt



Earthing conductor made of highly flexible copper line, frost-resistant, UV stabilised
Packing in accordance with VG 96927-11

Cable lug, 2x open, 2x M8/M10

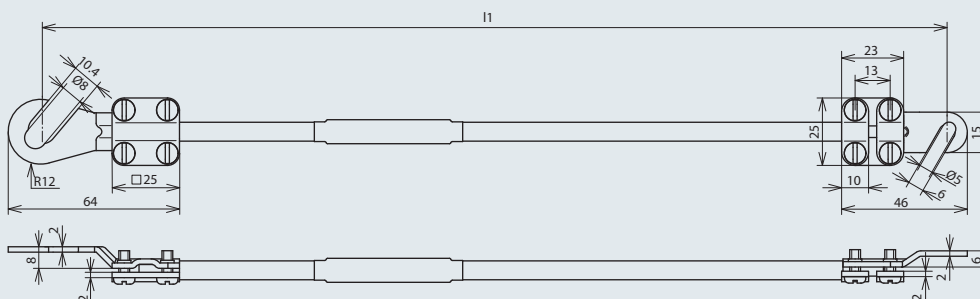


Part No.	410 003	410 005	410 006	410 010	410 015	410 020
Cable cross section	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²
Cable length (l1)	0.35 m	0.55 m	0.65 m	1.05 m	1.55 m	2.05 m
Cable lug open	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10
Colour	black	black	black	black	black	black
Military Name	VG 96927 T011 A044	VG 96927 T011 A045	VG 96927 T011 A046	VG 96927 T011 A047	VG 96927 T011 A048	VG 96927 T011 A049
Stock No.	6150-12-156-9107	6150-12-156-8386	6150-12-156-9108	6150-12-156-8387	6150-12-156-9069	6150-12-156-9073

Part No.	410 025	410 030	410 035	410 040	410 050	410 060
Cable cross section	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²
Cable length (l1)	2.55 m	3.05 m	3.55 m	4.05 m	5.05 m	6.05 m
Cable lug open	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10
Colour	black	black	black	black	black	black
Military Name	VG 96927 T011 A050	VG 96927 T011 A051	VG 96927 T011 A052	VG 96927 T011 A053	VG 96927 T011 A054	VG 96927 T011 A055
Stock No.	6150-12-156-9072	6150-12-156-9109	6150-12-156-9071	6150-12-156-9070	6150-12-156-6051	6150-12-156-9110

Part No.	410 070	410 099	410 140	410 150	410 199	410 299
Cable cross section	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²
Cable length (l1)	7.05 m	10.0 m	14.0 m	15.0 m	20.0 m	30.0 m
Cable lug open	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10
Colour	black	black	black	black	black	black
Military Name	VG 96927 T011 A056	VG 96927 T011 A057	VG 96927 T011 A058	VG 96927 T011 A059	VG 96927 T011 A060	VG 96927 T011 A061
Stock No.	6150-12-156-9111	6150-12-156-9112	6150-12-156-6207	6150-12-161-4272	6150-12-156-9113	6150-12-156-9114

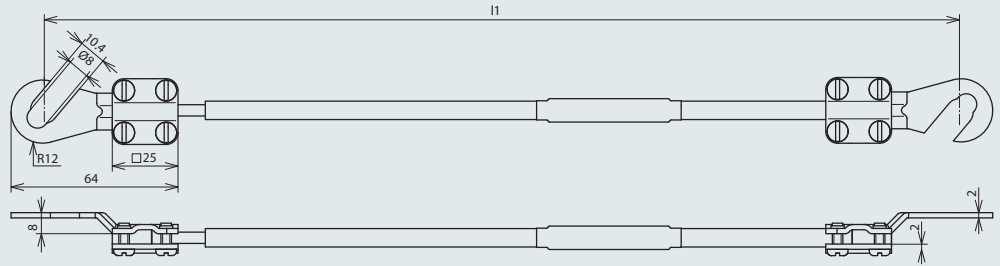
Cable lug, 2x open, 1x M8/M10 and 1x M5/M6



Part No.	410 603	410 605	410 610	410 615	410 620	410 625	410 630
Cable cross section	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²
Cable length (l1)	0.35 m	0.55 m	1.05 m	1.55 m	2.05 m	2.55 m	3.05 m
Cable lug open	1xM8/M10 1xM5/M6	1xM8/M10 1xM5/M6	1xM8/M10 1xM5/M6	1xM8/M10 1xM5/M6	1xM8/M10 1xM5/M6	1xM8/M10 1xM5/M6	1xM8/M10 1xM5/M6
Colour	black	black	black	black	black	black	black
Military Name	—	—	—	VG 96927 T011 A123	—	—	—
Stock No.	—	—	—	6150-12-308-6928	—	—	6150-12-353-5887

Packing in accordance with specifications of the VG standards has to be explicitly indicated when ordering.

Cable lug, 2x open, 2x M8/M10

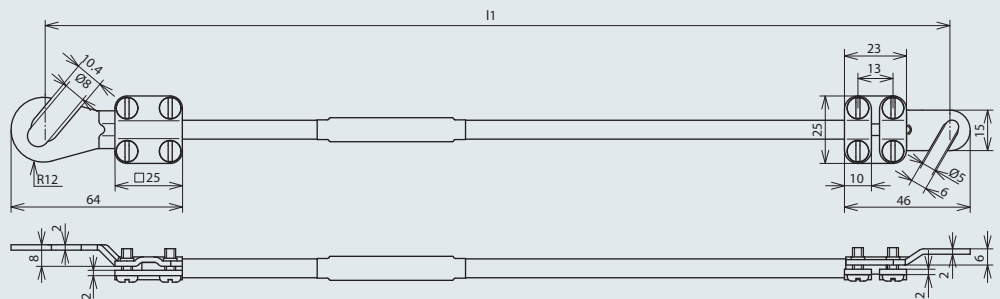


Part No.	416 003	416 005	416 006	416 010	416 015	416 020	416 025	416 030
Cable cross section	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²
Cable length (l1)	0.35 m	0.55 m	0.65 m	1.05 m	1.55 m	2.05 m	2.55 m	3.05 m
Cable lug open	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10
Colour	black	black	black	black	black	black	black	black
Military Name	VG 96927 T011 A062	VG 96927 T011 A063	VG 96927 T011 A064	VG 96927 T011 A065	VG 96927 T011 A066	VG 96927 T011 A067	VG 96927 T011 A068	VG 96927 T011 A069
Stock No.	6150-12-156-9115	6150-12-156-9085	6150-12-156-9116	6150-12-156-9084	6150-12-156-9117	6150-12-156-9118	6150-12-156-9119	6150-12-156-9083

Part No.	416 035	416 040	416 050	416 060	416 070	416 080	416 100
Cable cross section	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²
Cable length (l1)	3.55 m	4.05 m	5.05 m	6.05 m	7.05 m	8.05 m	10.05 m
Cable lug open	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10
Colour	black	black	black	black	black	black	black
Military Name	VG 96927 T011 A070	VG 96927 T011 A071	VG 96927 T011 A072	VG 96927 T011 A073	VG 96927 T011 A074	VG 96927 T011 A075	VG 96927 T011 A076
Stock No.	6150-12-156-6208	6150-12-156-8388	6150-12-156-9120	6150-12-156-9082	6150-12-156-9121	6150-12-188-4475	6150-12-156-9122

Part No.	416 120	416 140	416 150	416 200	416 220	416 280	416 300
Cable cross section	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²
Cable length (l1)	12.05 m	14.05 m	15.05 m	20.05 m	22.05 m	28.05 m	30.03 m
Cable lug open	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10
Colour	black	black	black	black	black	black	black
Military Name	VG 96927 T011 A077	VG 96927 T011 A078	VG 96927 T011 A079	VG 96927 T011 A080	VG 96927 T011 A081	VG 96927 T011 A082	VG 96927 T011 A083
Stock No.	6150-12-188-4476	6150-12-156-9123	6150-12-161-4273	6150-12-156-9124	6150-12-188-4477	6150-12-188-4478	6150-12-156-9125

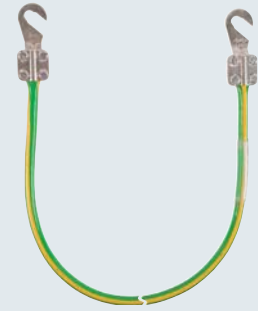
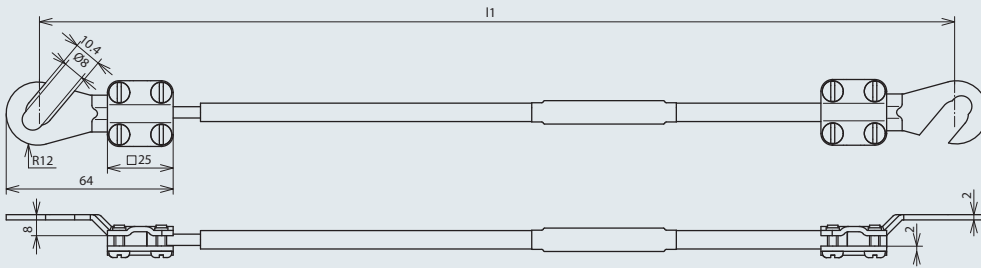
Cable lug, 2x open, 1x M8/M10 and 1x M5/M6



Part No.	416 516
Cable cross section	16 mm ²
Cable length (l1)	1.55 m
Cable lug open	1xM8/M10 1xM5/M6
Colour	black
Military Name	VG 96927 T011 A125
Stock No.	6150-12-308-6607

Packing in accordance with specifications of the VG standards has to be explicitly indicated when ordering.

Cable lug, 2x open, 2x M8/M10 green/yellow



Made of highly flexible copper line (ESY), frost-proof

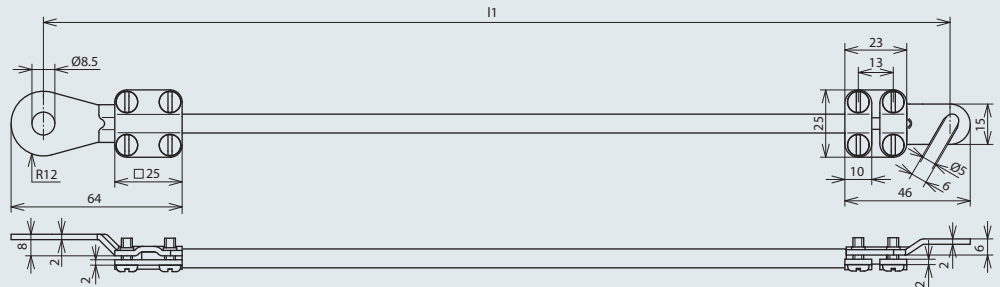
Part No.	417 005	417 010	417 015	417 020	417 030	417 050
Cable cross section	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²
Cable length (l1)	0.55 m	1.05 m	1.55 m	2.05 m	3.05 m	5.05 m
Cable lug open	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10
Colour	green-yellow	green-yellow	green-yellow	green-yellow	green-yellow	green-yellow
Stock No.	6150-12-313-5059	6150-12-313-5060	6150-12-313-5061	6150-12-313-5062	6150-12-313-5063	6150-12-313-5064

Part No.	417 100	417 115	417 120	417 125	417 130	417 150
Cable cross section	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²
Cable length (l1)	10.05 m	15.05 m	20.05 m	25.05 m	30.05 m	50.05 m
Cable lug open	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10	2xM8/M10
Colour	green-yellow	green-yellow	green-yellow	green-yellow	green-yellow	green-yellow
Stock No.	6150-12-313-5065	6150-12-313-5066	6150-12-313-5067	6150-12-185-8587	6150-12-313-5068	6150-12-174-2744

Packing in accordance with specifications of the VG standards has to be explicitly indicated when ordering.

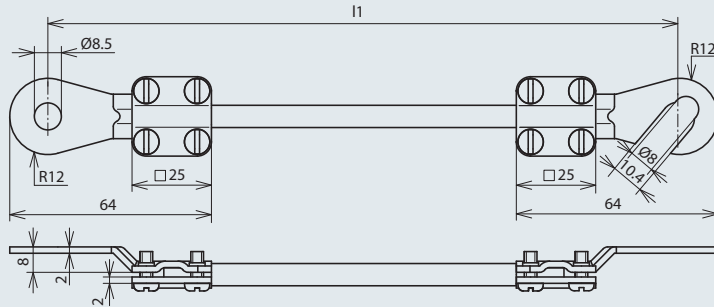
Earthing conductor made of highly flexible copper line, frost-resistant, UV stabilised
 Packing in accordance with VG 96927-11

Cable lug, 1x open M5/M6 and 1x closed M8



Part No.	410 503	410 506	410 510	410 515	410 520	410 525	410 530
Cable cross section	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²
Cable length (l1)	0.35 m	0.65 m	1.05 m	1.55 m	2.05 m	2.55 m	3.05 m
Cable lug open	M5/M6	M5/M6	M5/M6	M5/M6	M5/M6	M5/M6	M5/M6
Cable lug closed	M8	M8	M8	M8	M8	M8	M8
Bore Ø	8.5 mm	8.5 mm	8.5 mm	8.5 mm	8.5 mm	8.5 mm	8.5 mm
Colour	black	black	black	black	black	black	black
Military Name	VG 96927 T011 A116	VG 96927 T011 A117	VG 96927 T011 A118	VG 96927 T011 A119	VG 96927 T011 A120	VG 96927 T011 A121	VG 96927 T011 A122
Stock No.	6150-12-196-7302	6150-12-195-9694	6150-12-196-7304	6150-12-196-7303	6150-12-196-7606	6150-12-198-6807	6150-12-198-6808

Cable lug, 1x open M8/M10 and 1x closed M8

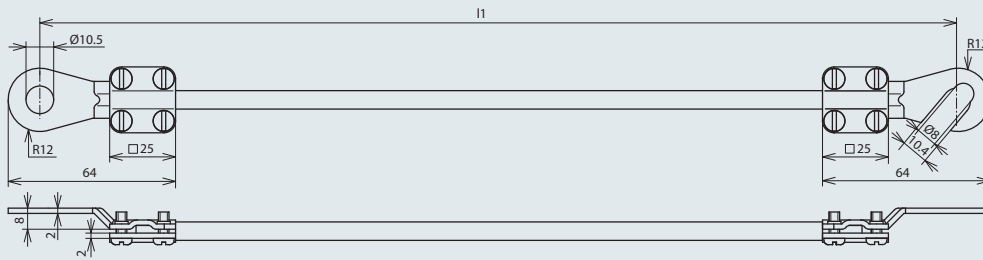


Part No.	410 401	410 403	410 404	410 450	410 406
Cable cross section	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²
Cable length (l1)	0.20 m	0.35 m	0.45 m	0.55 m	0.65 m
Cable lug open	M8/M10	M8/M10	M8/M10	M8/M10	M8/M10
Cable lug closed	M8	M8	M8	M8	M8
Bore Ø	8.5 mm	8.5 mm	8.5 mm	8.5 mm	8.5 mm
Colour	black	black	black	black	black
Military Name	VG 96927 T011 A092	VG 96927 T011 A093	VG 96927 T011 A094	VG 96927 T011 A095	VG 96927 T011 A096
Stock No.	6150-12-300-9132	6150-12-195-9490	6150-12-192-5455	6150-12-197-0088	6150-12-192-5456

Part No.	410 411	410 415	410 420	410 425	410 430
Cable cross section	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²
Cable length (l1)	1.05 m	1.55 m	2.05 m	2.55 m	3.05 m
Cable lug open	M8/M10	M8/M10	M8/M10	M8/M10	M8/M10
Cable lug closed	M8	M8	M8	M8	M8
Bore Ø	8.5 mm	8.5 mm	8.5 mm	8.5 mm	8.5 mm
Colour	black	black	black	black	black
Military Name	VG 96927 T011 A097	VG 96927 T011 A098	VG 96927 T011 A099	VG 96927 T011 A100	VG 96927 T011 A101
Stock No.	6150-12-192-5457	6150-12-192-5458	6150-12-198-1217	6150-12-198-6803	6150-12-198-6805

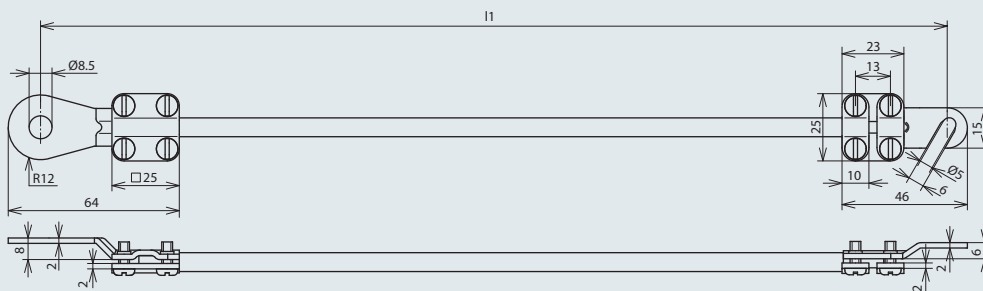
Packing in accordance with specifications of the VG standards has to be explicitly indicated when ordering.

Cable lug, 1x open M8/M10 and 1x closed M10



Part No.	410 413	410 405	410 407	410 410	410 416	410 421	410 426	410 431
Cable cross section	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²
Cable length (l1)	0.35 m	0.55 m	0.65 m	1.05 m	1.55 m	2.05 m	2.55 m	3.05 m
Cable lug open	M8/M10	M8/M10	M8/M10	M8/M10	M8/M10	M8/M10	M8/M10	M8/M10
Cable lug closed	M10	M10	M10	M10	M10	M10	M10	M10
Bore Ø	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm
Colour	black	black	black	black	black	black	black	black
Military Name	VG 96927 T011 A084	VG 96927 T011 A085	VG 96927 T011 A086	VG 96927 T011 A087	VG 96927 T011 A088	VG 96927 T011 A089	VG 96927 T011 A090	VG 96927 T011 A091
Stock No.	6150-12-196-7301	6150-12-196-6346	6150-12-198-7027	6150-12-171-2783	6150-12-198-1216	6150-12-198-1218	6150-12-198-6804	6150-12-198-6806

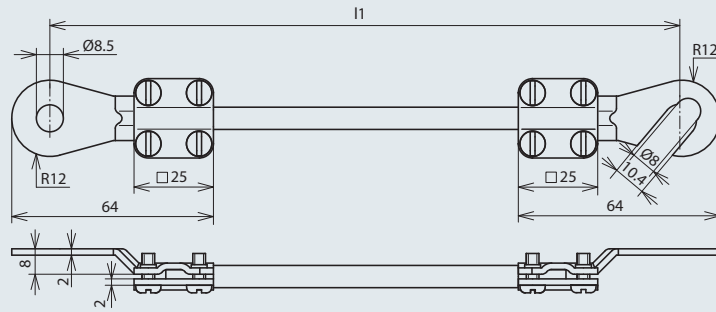
Cable lug, 1x open M5/M6 and 1x closed M8



Part No.	416 505
Cable cross section	16 mm ²
Cable length (l1)	0.55 m
Cable lug open	M5/M6
Cable lug closed	M8
Bore Ø	8.5 mm
Colour	black
Military Name	VG 96927 T011 A124
Stock No.	6150-12-300-9131

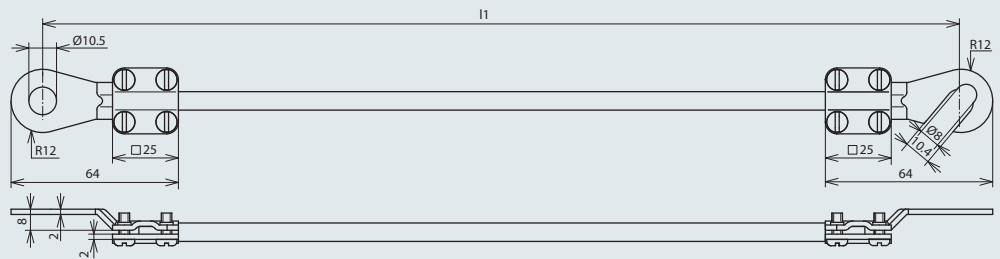
Packing in accordance with specifications of the VG standards has to be explicitly indicated when ordering.

Cable lug, 1x open M8/M10 and 1x closed M8



Part No.	416 411	416 415	416 420	416 425	416 430	416 440	416 450
Cable cross section	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²
Cable length (l1)	1.05 m	1.55 m	2.05 m	2.55 m	3.05 m	4.05 m	5.05 m
Cable lug open	M8/M10	M8/M10	M8/M10	M8/M10	M8/M10	M8/M10	M8/M10
Cable lug closed	M8	M8	M8	M8	M8	M8	M8
Bore Ø	8.5 mm	8.5 mm	8.5 mm	8.5 mm	8.5 mm	8.5 mm	8.5 mm
Colour	black	black	black	black	black	black	black
Military Name	VG 96927 T011 A109	VG 96927 T011 A110	VG 96927 T011 A111	VG 96927 T011 A112	VG 96927 T011 A113	VG 96927 T011 A114	VG 96927 T011 A115
Stock No.	6150-12-308-6934	6150-12-308-6981	6150-12-308-6933	6150-12-308-6932	6150-12-308-6931	6150-12-308-6930	6150-12-308-6929

Cable lug, 1x open M8/M10 and 1x closed M10

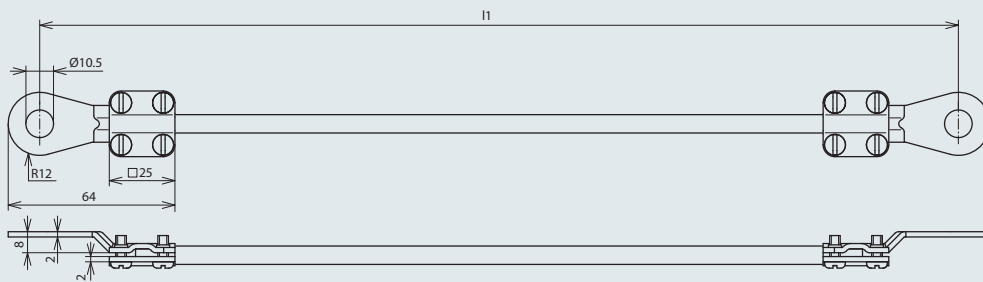


Part No.	416 403	416 410	416 416	416 421	416 426	416 431	416 441	416 451
Cable cross section	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²
Cable length (l1)	0.35 m	1.05 m	1.55 m	2.05 m	2.55 m	3.05 m	4.05 m	5.05 m
Cable lug open	M8/M10	M8/M10	M8/M10	M8/M10	M8/M10	M8/M10	M8/M10	M8/M10
Cable lug closed	M10	M10	M10	M10	M10	M10	M10	M10
Bore Ø	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm
Colour	black	black	black	black	black	black	black	black
Military Name	—	VG 96927 T011 A102	VG 96927 T011 A103	VG 96927 T011 A104	VG 96927 T011 A105	VG 96927 T011 A106	VG 96927 T011 A107	VG 96927 T011 A108
Stock No.	—	6150-12-308-6941	6150-12-308-6940	6150-12-308-6939	6150-12-309-6938	6150-12-308-6937	6150-12-308-6936	6150-12-308-6935

Packing in accordance with specifications of the VG standards has to be explicitly indicated when ordering.

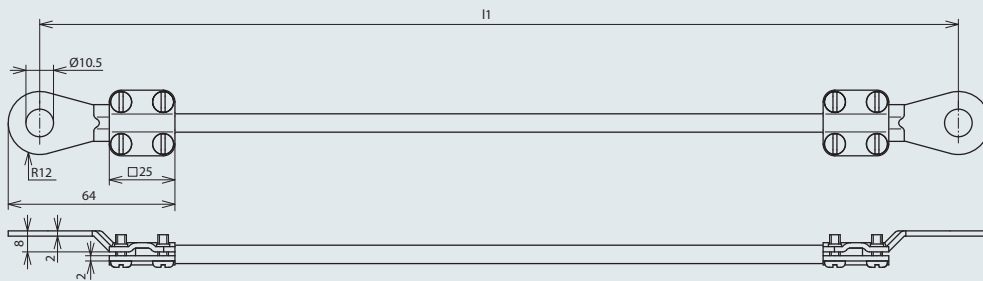
Earthing conductor made of highly flexible copper line, frost-resistant, UV stabilised
Packing in accordance with VG 96927-11

Cable lug, 2x closed M10



Part No.	410 903	410 905	410 906	410 910	410 915	410 920	410 925	410 930
Cable cross section	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²	10 mm ²
Cable length (l1)	0.35 m	0.55 m	0.65 m	1.05 m	1.55 m	2.05 m	2.55 m	3.05 m
Cable lug closed	2xM10	2xM10	2xM10	2xM10	2xM10	2xM10	2xM10	2xM10
Bore Ø	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm
Colour	black	black	black	black	black	black	black	black
Military Name	VG 96927 T011 A027	VG 96927 T011 A028	VG 96927 T011 A029	VG 96927 T011 A030	VG 96927 T011 A031	VG 96927 T011 A032	VG 96927 T011 A033	VG 96927 T011 A034
Stock No.	6150-12-198-1948	6150-12-198-6809	6150-12-198-6810	6150-12-198-1482	6150-12-168-2696	6150-12-168-2695	6150-12-168-2694	—

Cable lug, 2x closed M10



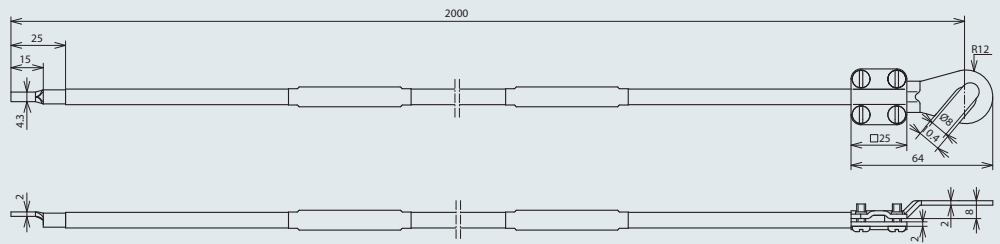
Part No.	416 903	416 905	416 906	416 910	416 915
Cable cross section	16 mm ²	16 mm ²	16 mm ²	16 mm ²	16 mm ²
Cable length (l1)	0.35 m	0.55 m	0.65 m	1.05 m	1.55 m
Cable lug closed	2xM10	2xM10	2xM10	2xM10	2xM10
Bore Ø	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm
Colour	black	black	black	black	black
Military Name	VG 96927 T011 A035	VG 96927 T011 A036	VG 96927 T011 A037	VG 96927 T011 A038	VG 96927 T011 A039
Stock No.	6150-12-198-6812	6150-12-198-6813	6150-12-198-6814	6150-12-168-9942	6150-12-168-2693

Part No.	416 920	416 925	416 930	416 970
Cable cross section	16 mm ²	16 mm ²	16 mm ²	16 mm ²
Cable length (l1)	2.05 m	2.55 m	3.05 m	7.05 m
Cable lug closed	2xM10	2xM10	2xM10	2xM10
Bore Ø	10.5 mm	10.5 mm	10.5 mm	10.5 mm
Colour	black	black	black	black
Military Name	VG 96927 T011 A040	VG 96927 T011 A041	VG 96927 T011 A042	VG 96927 T011 A043
Stock No.	6150-12-198-6815	6150-12-198-6816	6150-12-198-1483	6150-12-168-2692

Packing in accordance with specifications of the VG standards has to be explicitly indicated when ordering.

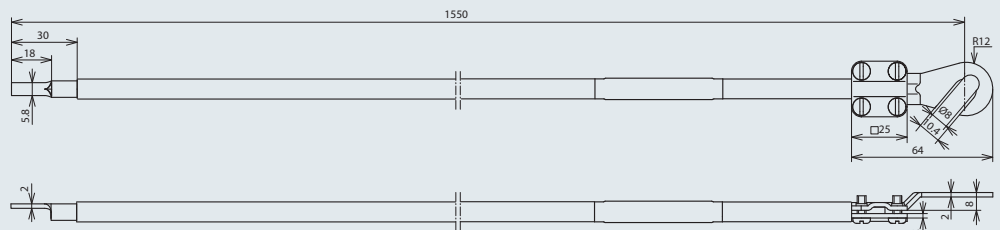
Earthing conductor made of highly flexible copper line, frost-resistant, UV stabilised
 Packing in accordance with VG 96927-11

Cable lug, 1x open and pin cable lug size 10



Part No.	410 720
Cable cross section	10 mm ²
Cable length (l1)	2.05 m
Cable lug open	M8/M10
Pin terminal	size 10 (w = 4.3)
Colour	black
Military Name	VG 96927 T011 A127
Stock No.	6150-12-308-6979

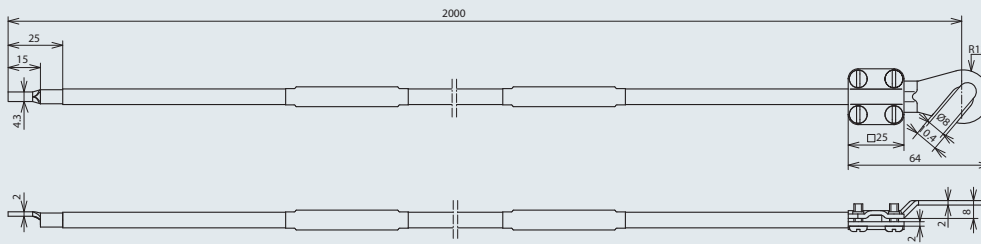
Cable lug, 1x open and pin cable lug size 16



Part No.	416 016
Cable cross section	16 mm ²
Cable length (l1)	1.55 m
Cable lug open	M8/M10
Pin terminal	size 16 (w = 5.8)
Colour	black
Military Name	VG 96927 T011 A128
Stock No.	6150-12-178-9673

Packing in accordance with specifications of the VG standards has to be explicitly indicated when ordering.

Cable lug, 1x closed and pin cable lug size 10



Part No.	410 606
Cable cross section	10 mm ²
Cable length (l1)	0.65 m
Cable lug closed	M8
Bore Ø	8.5 mm
Pin terminal	size 10 (w = 4.3)
Colour	black
Military Name	VG 96927 T011 A126
Stock No.	6150-12-304-4604

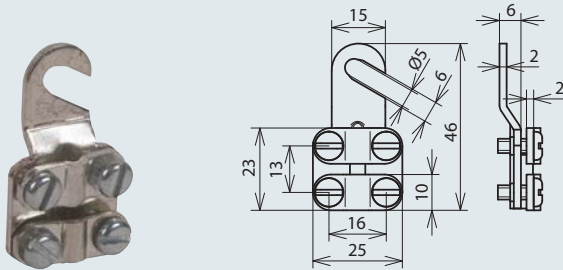
Packing in accordance with specifications of the VG standards has to be explicitly indicated when ordering.

Earthing cable lugs for mounting on site with integrated strain relief (second half of clamping part).

Mind the following parameters for mounting:

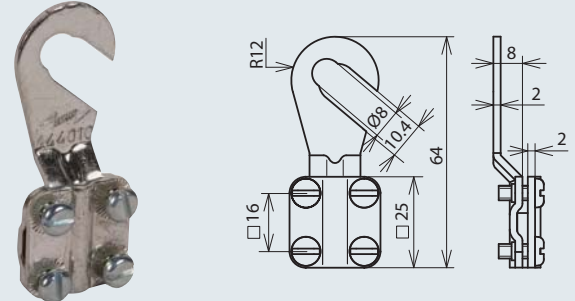
- Stripping approx. 15 mm
- Core end-sleeve acc. to DIN 46228
- Tightening torque of the locking nut screws ≥ 3 Nm

Open M5/M6



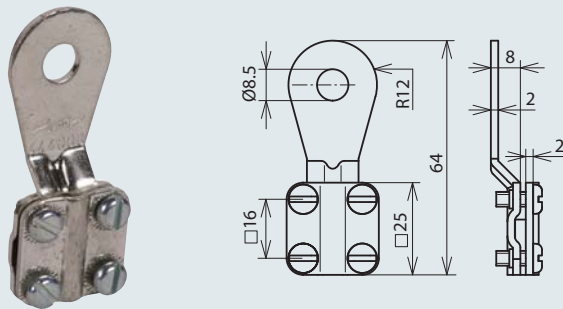
Part No.	444 006
Cable cross section	6-16 mm ²
Cable lug fitting	M5/M6
Material	Cu/gal Sn
Military Name	VG 96933 T14 A002A
Stock No.	5940-12-156-9126

Open M8/M10



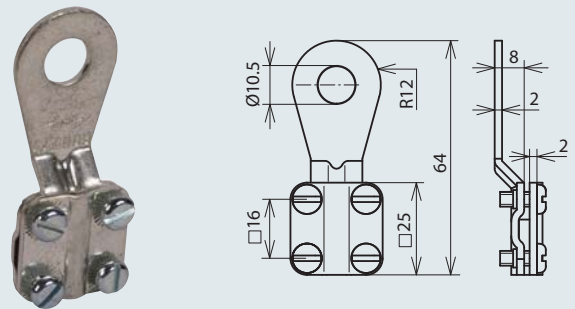
Part No.	444 010
Cable cross section	6-16 mm ²
Cable lug fitting	M8/M10
Material	Cu/gal Sn
Military Name	VG 96933 T14 A001A
Stock No.	5940-12-152-3867

Closed M8



Part No.	444 008
Cable cross section	6-16 mm ²
Cable lug fitting	M8
Material	Cu/gal Sn
Military Name	VG 96933 T14 B001A
Stock No.	5940-12-156-9128

Closed M10



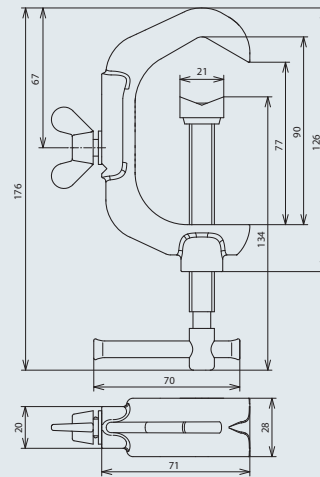
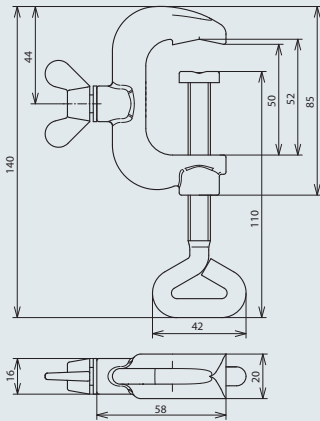
Part No.	444 009
Cable cross section	6-16 mm ²
Cable lug fitting	M10
Material	Cu/gal Sn
Military Name	VG 96933 T14 B002A
Stock No.	5940-12-156-9127

Packing in accordance with specifications of the VG standards has to be explicitly indicated when ordering.

Earthing clamp to connect earthing conductors to pipes, with wing screw M8.

Small design

Large design



Part No.	435 805
Material of clamping body	TG/tZn
Material of spindle	St/gal Zn
Clamping range pipe Ø	4-45 mm (3/8 - 1 1/4")
Terminal cross section	6-16 mm ²
Military Name	VG 96953 T06 A0001
Stock No.	5999-12-156-9129

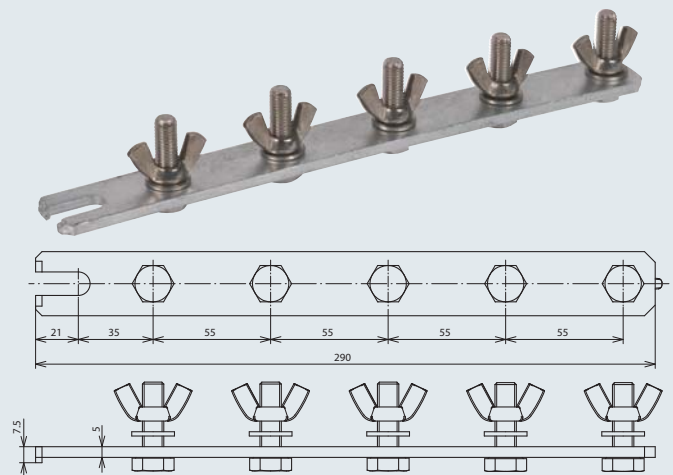
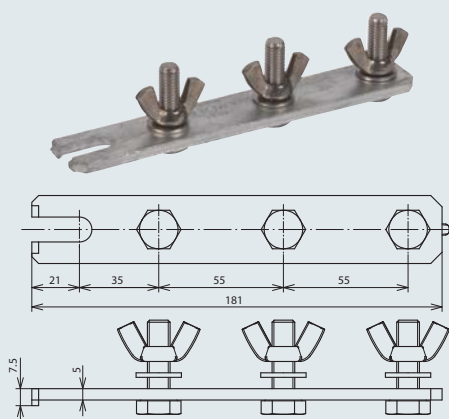
Part No.	435 803
Material of clamping body	TG/tZn
Material of spindle	St/gal Zn
Clamping range pipe Ø	12-60 mm (1/2 - 2")
Terminal cross section	6-16 mm ²
Military Name	VG 96953 T06 B0001
Stock No.	5999-12-156-2656

Earthing Busbars

Earthing busbar with slot and anti-rotation feature, for fixing at the earthing pipe

Three-pole design

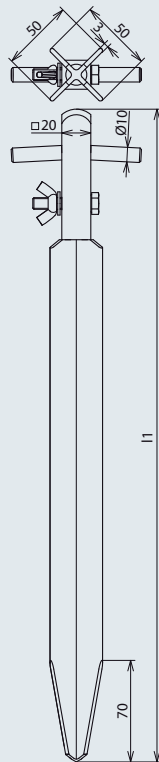
Five-pole design



Part No.	465 801
Design	3-pole
Material of busbar	St/tZn
Length	181 mm
Screw	M10x35 mm
Nut	wing nut M10
Material of screw/nut	StSt
Military Name	VG 96953 T07 A0001
Stock No.	5940-12-156-8385

Part No.	466 192
Design	5-pole
Material of busbar	St/tZn
Length	290 mm
Screw	M10x35 mm
Nut	wing nut M10
Material of screw/nut	StSt
Military Name	VG 96953 T07 B0001
Stock No.	5940-12-188-4931

Packing in accordance with specifications of the VG standards has to be explicitly indicated when ordering.



Earthing spike for earthing of mobile objects such as vehicles, power generators, etc.

Part No.	634 145	634 160
Material of profile	St/tZn	St/tZn
Profile	50x50x3 mm	50x50x3 mm
Length (l1)	450 mm	600 mm
Screw	M8x40 mm	M8x40 mm
Nut	wing nut M8	wing nut M8
Material of screw/nut	StSt	StSt
Military Name	VG 96953 T10 D0003	VG 96953 T10 D0004
Stock No.	5975-12-382-6412	—

Anchoring Pole

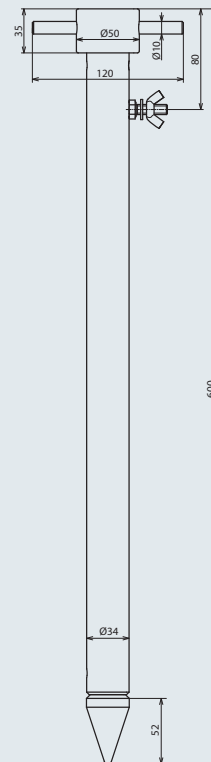


Anchoring pole for guying of rod sections and batten shears e.g. in case of an elevated spanning of telecommunication cables

Part No.	466 203
Material of profile	MCl/tZn
Profile	25x25x3 mm
Length	405 mm
Design	bore Ø28 mm
Military Name	VG 96953 T10 E0001
Stock No.	4030-12-320-9037

Earthing pipe with impact spike for earthing of mobile objects such as vehicles, power generators, etc.

Part No.	646 000
Material	St/tZn
Pipe Ø	34 mm
Length	600 mm
Screw	wing nut M8
Material of screw	StSt
Military Name	VG 96953 T010 B0001
Stock No.	5975-12-133-4342



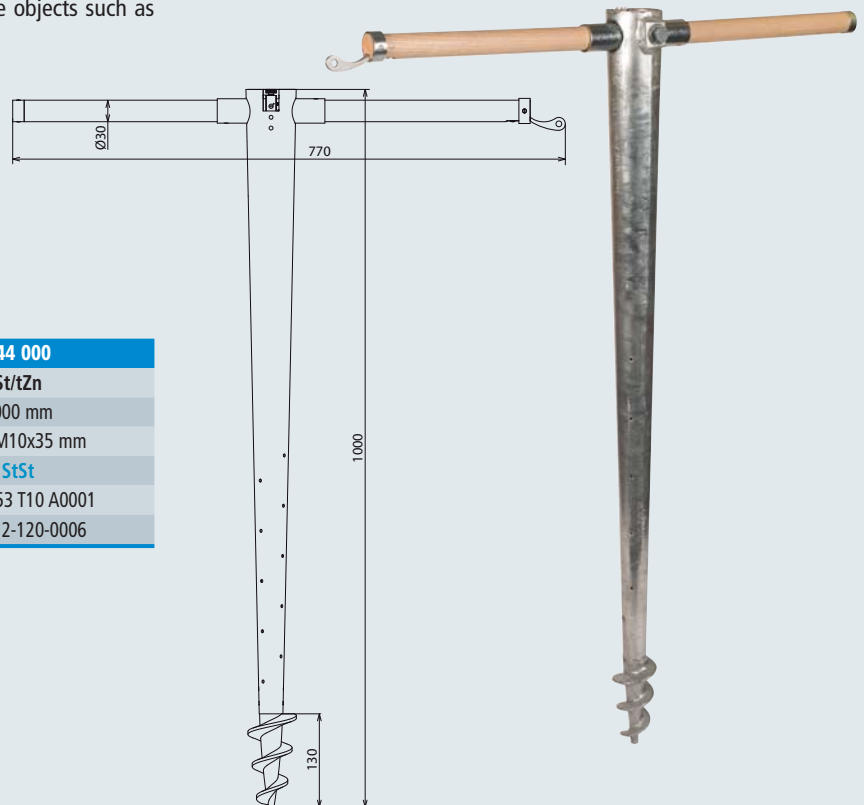
Earthing Pipe with Drilling Spiral

Earthing pipe with drilling spiral for earthing of mobile objects such as vehicles, power generators, etc.

Removable turning handle

- Turning handle (Part No. 462 058
Military name VG 96953 T10 AB001
Stock No. 5975-12-133-7084)
- Earthing pipe (Part No. 462 060
Military name VG 96953 T10 AA001
Stock No. 5975-12-133-7271)

Part No.	644 000
Material	St/tZn
Length	1000 mm
Screw	M10x35 mm
Material of screw	StSt
Military Name	VG 96953 T10 A0001
Stock No.	5975-12-120-0006



- For use in hazardous areas Ex zones 1 and 2 (gases, vapours, mists) as well as Ex zones 21 and 22 (dusts)
- Tested according to explosion group IIB
- Time-saving installation – no need to deactivate systems/areas for welding or drilling works



Installed on a StSt pipe



Pipe clamp for electrical contacting of pipes in hazardous areas for implementing of lightning equipotential bonding according to IEC/EN 62305-3 (EN 62305-3)

DECLARATION OF MANUFACTURER



DEHN + SÖHNE

Product: Pipe clamp for explosive zones

Product description: Part No. 540 821
Part No. 540 801
Part No. 540 803
Part No. 540 805
Part No. 540 810

Manufacturer: DEHN + SÖHNE GmbH + Co.KG.
Hans-Dehn-Str. 1
92318 Neumarkt i.d.OPf., Germany

Application:

The pipe clamp for explosive zones is used for connecting pipes of different materials and diameters to the lightning equipotential bonding structure in explosive atmospheres.

Lightning currents are discharged without formation of sparks as specified in the technical data sheet.

We herewith confirm that the pipe clamp for explosive zones is suitable for the use in explosive zones 1 and 2 (gas, vapour, mist) and explosive zones 21 and 22 (combustible dust) in connection with the installation instructions, Publication No. 1599, "Pipe Clamp for explosive zones" and is tested according to explosion group IIB.

Pipe clamps for explosive zones have no own potential source of ignition (mechanical device) and are thus not subject to the European directive 94/9/EG.

Therefore certification according to the European directive 94/9/EG is **not legally admissible and not necessary** with respect to explosion protection.

Dr.-Ing. Ralph Brocke
Director R&D

Neumarkt i.d.OPf., 12 Okt. 2009

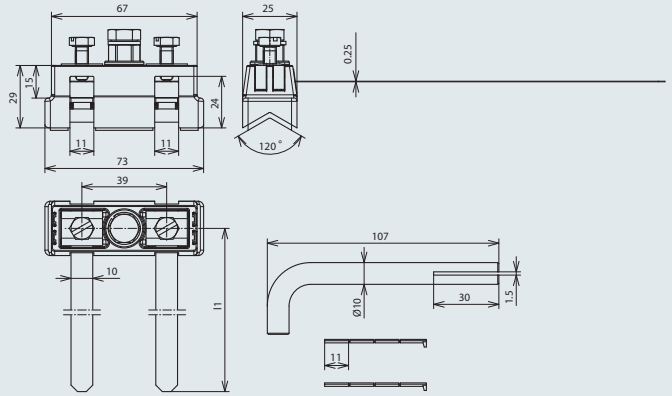
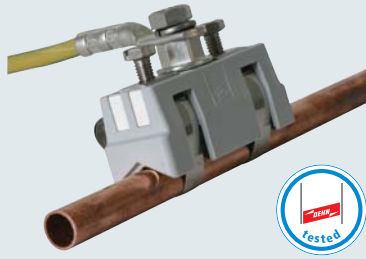
c:\dokume-1\dtd\lokal-1\temp\ggg\pse\hersteller\erklärung_baendrohrschelle_ex_bereiche_upd_ate_ausfuehrung_klein_und_groß_engl_.doc
Page 1

So far equipotential bonding and lightning equipotential bonding of pipes in explosion-hazardous areas has been implemented by means of welded or threaded bushing connections. Using clamps was only permitted if evidence of no ignition sparking in case of lightning current loading was provided. Such proof has now been rendered for a pipe clamp by DEHN. In compliance with and tested according to EN 50164-1 title English: Lightning Protection Components (LPC) - Part 1: Requirements for connection components in a potentially explosive atmosphere (clamps and connectors), the sample passed the test for no occurrence of ignition sparks at a lightning current loading of up to 50 kA (10/350 µs). This novel, patented pipe clamp for hazardous areas not only ensures the safe electrical contact by means of two contact clips, but also the adequate mechanical fixing by an electrically insulated clamping body.

The Ex pipe clamp provides following connection possibilities

- Round conductors made of Cu, St/tZn, Al, StSt with Ø8 mm or stranded copper conductors, cross section 16-35 mm², with E-Cu crimping cable lug (DIN 46235)
- Flat copper conductors with minimum dimensions of 20x2.5 mm and a bore of Ø10.5 mm

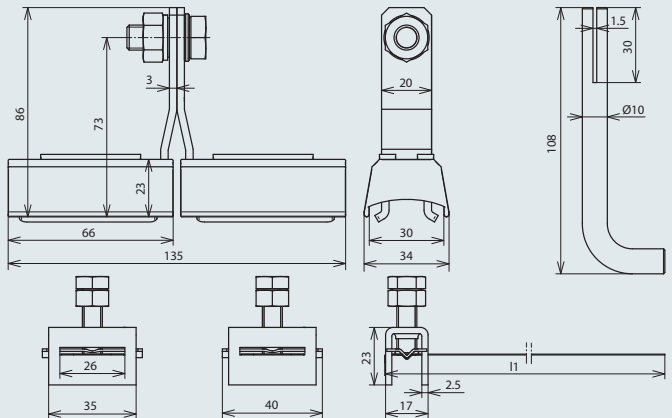
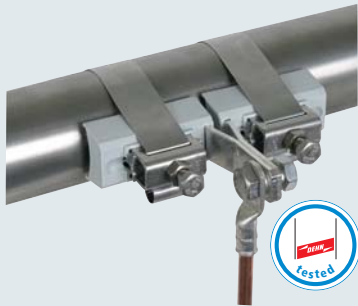
Type EX BRS 27



Clamping range Ø6-26.9 mm (3/4")

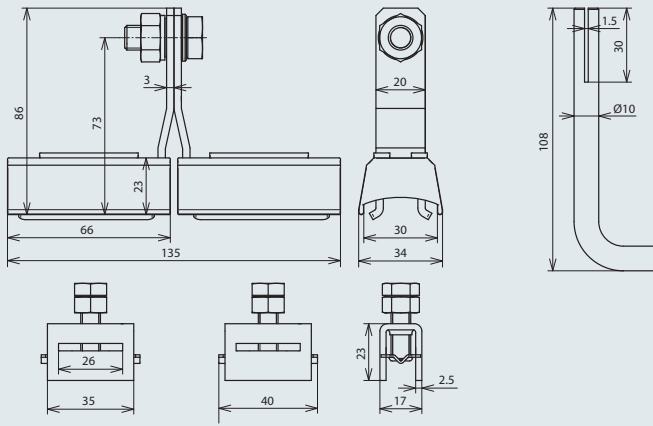
Part No.	540 821
Lightning impulse current (10/350 µs) Cu Ø6-12 mm (I_{imp})	10 kA
Lightning impulse current (10/350 µs) Cu Ø12-26.9 mm (3/4") (I_{imp})	20 kA
Lightning impulse current (10/350 µs) Cu Ø26.9 mm (3/4") (I_{imp})	25 kA
Lightning impulse current (10/350 µs) St/tZn Ø17.2-26.9 mm (3/4") (I_{imp})	25 kA
Lightning impulse current (10/350 µs) StSt Ø6-12 mm (I_{imp})	10 kA
Lightning impulse current (10/350 µs) StSt Ø12-26.9 mm (3/4") (I_{imp})	12 kA
Lightning impulse current (10/350 µs) StSt Ø26.9 mm (3/4") (I_{imp})	25 kA
Terminal	M8
Clamping range pipe Ø	6-26.9 (3/4") mm
Material of clamping body	polyamide
Material of grip head/tensioning strap	StSt
Material of contact clip	Ms/gal Sn
Standard	EN 50164-1

Type EX BRS 90 / 300 / 500



- Type EX BRS 90 Part No. 540 801 clamping range Ø26.9 mm (3/4") to 88.9 mm (3")
- Type EX BRS 300 Part No. 540 803 clamping range Ø88.9 mm (3") to 300 mm and
- Type EX BRS 500 Part No. 540 805 clamping range Ø300 to 500 mm

Part No.	540 801	540 803	540 805
Lightning impulse current (10/350 µs) Cu (I_{imp})	50 kA	50 kA	—
Lightning impulse current (10/350 µs) St/tZn (I_{imp})	50 kA	50 kA	—
Lightning impulse current (10/350 µs) St/blank (I_{imp})	—	—	50 kA
Lightning impulse current (10/350 µs) StSt (I_{imp})	25 kA	50 kA	50 kA
Terminal	M10	M10	M10
Clamping range pipe Ø	26.9 (3/4") - 88.9 (3") mm	88.9 (3") - 300 mm	300 - 500 mm
Material of clamping body	polyamide	polyamide	polyamide
Material of grip head/tensioning strap	StSt	StSt	StSt
Material of contact clip	Cu/gal Sn	Cu/gal Sn	Cu/gal Sn
Standard	EN 50164-1	EN 50164-1	EN 50164-1



For use with endless tensioning strap (Part No. 540 901)
Clamping ranges $\varnothing 26.9$ mm ($3/4$ ") to 500 mm

Part No.	540 810
Lightning impulse current (10/350 μ s) Cu (I_{imp})	50 kA
Lightning impulse current (10/350 μ s) St/tZn (I_{imp})	50 kA
Lightning impulse current (10/350 μ s) StSt (I_{imp})	25 kA
Terminal	M10
Clamping range pipe \varnothing	26.9 ($3/4$ ") - 500 mm
Material of clamping body	polyamide
Material of grip head/tensioning strap	StSt
Material of contact clip	Cu/gal Sn
Standard	EN 50164-1

More details in installation instructions No. 1599.

Accessory for Pipe Clamps for Hazardous Areas

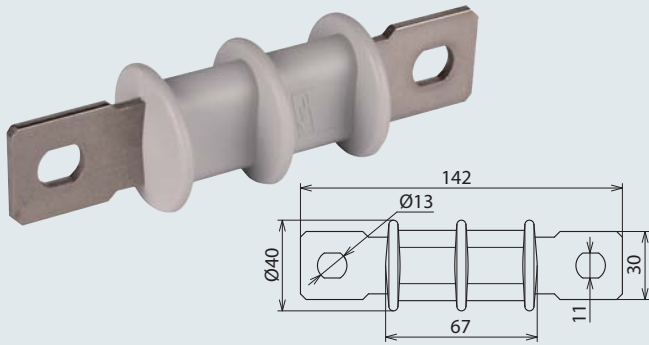
Tensioning Strap

Part No.	540 901
Material	StSt
Dimension of strap (l x w x d)	25x0.3 mm
Length	100 m





For indirect connection of an overhead line roof pole to the external lightning protection system

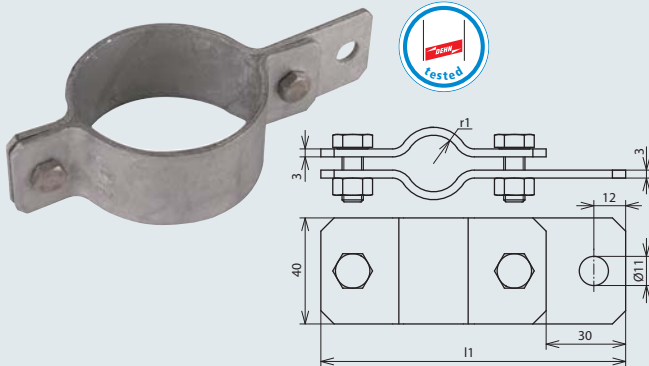


- For indirect connection of an overhead line roof pole to the external lightning protection system
- Corrosion-resistant stainless steel connections

The DSFS spark gap allows to indirectly connect an overhead line roof pole to the external lightning protection system

Typ	DSFS
Part No.	920 000
100% lightning impulse sparkover voltage (1.2/50 µs) (U_{imp})	~ 25 kV
Nominal discharge current (8/20 µs) (I_n)	25 kA
Degree of protection	IP 54
Power frequency sparkover voltage (50 Hz) (U_{aw})	~ 10 kV
Material (connection)	StSt
Connection	slot Ø13x11 mm
Enclosure material	plastic

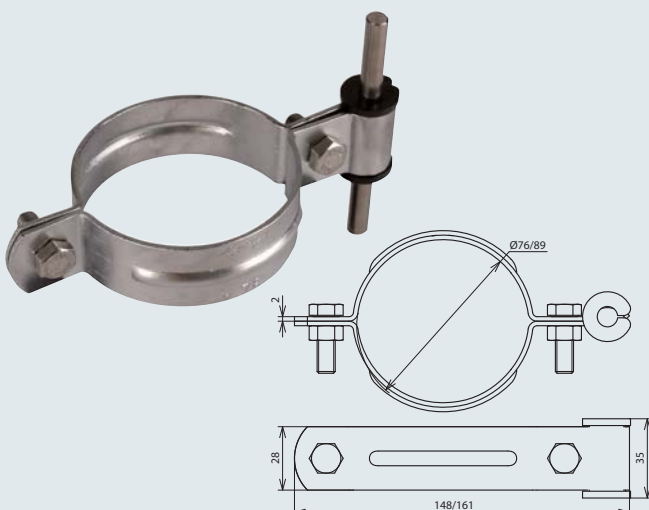
Pipe Clamps for Roof Poles



Pipe clamp to connect the protective spark gap to the overhead line roof pole

Part No.	410 212	410 300
Clamping range of pipe	76.1 mm	88.9 mm
Clamping range Ø pipe	2 1/2"	3"
Material	St/tZn	St/tZn
Bore Ø	11 mm	11 mm
Screw	M8x20 mm	M8x20 mm
Material of screw/nut	St/tZn	St/tZn
Dimension (l1 x r1)	169x38 mm	182.5x44.5 mm
Standard	EN 50164-1	EN 50164-1

Conductor Holders for Roof Poles



Conductor holder for fixing of round conductors at overhead line roof poles, insulated clamp bush

Part No.	425 076	425 089
Clamping range Ø pipe	76 mm	89 mm
Material	St/tZn	St/tZn
Conductor holder support Rd	8-10 mm	8-10 mm
Conductor leading	fixed	fixed
Screw	M8x20 mm	M8x20 mm
Material of screw/nut	StSt	StSt

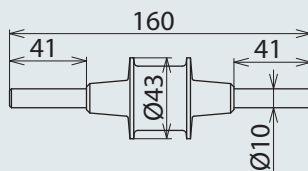
- For indirect connection/earthing of functionally isolated parts of installations under lightning conditions
- For lightning equipotential bonding according to IEC/EN 62305
- With corrosion-resistant stainless steel connections
- For building, outdoor, damp room and underground installation
- Extremely heavy-duty devices

TFS: High-capacity isolating spark gap

KFSU: Isolating spark gap



For lightning equipotential bonding according to IEC/EN 62305 as well as for use in IT installations according to IEC 60364-5-54.



Isolating spark gaps with plastic coating and two stainless steel connections (Rd 10 mm)

Typ	TFS	KFSU
Part No.	923 023	923 021
Lightning impulse current (10/350 μ s) (I_{imp})	100 kA	—
Class of lightning current carrying capability acc. to EN 50164-3	H	—
Nominal discharge current (8/20 μ s) (I_n)	100 kA	100 kA
Rated power-frequency withstand voltage (50 Hz) (U_{wAC})	300 V	300 V
Lightning impulse sparkover voltage ($U_{r imp}$)	≤ 4 kV	≤ 4 kV
Power frequency sparkover voltage (50 Hz) (U_{av})	≤ 2.5 kV	≤ 2.5 kV
Operating temperature range (T_U)	-20 °C...+80 °C	-20 °C...+80 °C
Degree of protection	IP 65	IP 65
Length	160 mm	160 mm
Diameter of the enclosure	43 mm	43 mm
Enclosure material	steel/plastic coating	steel/plastic coating
Connection	Rd 10 mm	Rd 10 mm
Material (connection)	stainless steel	stainless steel



ATEX and IECEx-certified isolating spark gap for lightning equipotential bonding according to IEC/EN 62305 with flexible conductor connection

- For indirect connection/earthing of functionally isolated parts of installations under lightning conditions
- For lightning equipotential bonding according to IEC/EN 62305 in hazardous areas (zone 2)
- Corrosion-resistant zinc die-cast enclosure with plastic cover and flexible conductor connection
- For bridging insulating pieces, insulating flanges etc. in cathodically protected pipe sections
- Extremely heavy-duty device
- Approval according to ATEX directive 94/9/EC and IECEx

EXFS L ...: Isolating spark gap for use in hazardous areas with flexible connecting cable

EXFS KU: Isolating spark gap for use in hazardous areas with two 1.5 m long connecting cables for underground installation

Ex isolating spark gaps of the EXFS L / EXFS KU product family are used when electrically conductive parts of installations cannot be directly interconnected in hazardous areas, for example, in case of cathodically protected pipeline sections.

ATEX and IECEx-certified EXFS L and EXFS KU spark gaps provide approved and tested safety in accordance with harmonised European standards.

The arc-resistant tungsten/copper electrodes ensure a long service life of the Ex spark gaps.

The approved EXFS L type with flexible conductor connection quickly adapts to any application environment. The prewired spark gaps feature connecting cables of different lengths with cable lug, screw and M10 nut. The flat or angled connection brackets (IF), which are available as accessory, allow to easily connect the spark gap to pipeline flanges. The EXFS KU type is enclosed in a moisture-proof PVC enclosure and is ideally suited for underground installation on insulating couplings.



ATEX certificates EXFS (download under www.dehn.de)



IECEX Certificate of Conformity


INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEX DEK 11.0063X	Issue No.:	0
Status:	Current	Certificate history:	
Date of Issue:	2011-10-12	Page 1 of 3	
Applicant:	DEHN + SÖHNE GmbH + Co. KG. Hans-Dehn-Strasse 1 D-92318 Neumarkt / Opf., Germany		
Electrical Apparatus:	Isolating Spark Gap series EXFS		
Optional accessory:			
Type of Protection:	Ex nC		
Marking:	Ex nC IIC T4 Gc		
Approved for issue on behalf of the IECEx Certification Body:	C.G. van Es		
Position:	Certification Manager		
Signature: <small>(for printed version)</small>			
Date:	2011-10-12		

1. This certificate and schedule may only be reproduced in full.
 2. This certificate is not transferable and remains the property of the issuing body.
 3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:
DEKRA Certification B.V.
 Utrechtseweg 319
 6812 AR Arnhem
 The Netherlands
 All testing, inspection, auditing and certification activities of the former KEMA Quality are an integral part of the DEKRA Certification Group.





IECEX Certificate of Conformity

Certificate No.:	IECEX DEK 11.0063X	Issue No.:	0
Date of Issue:	2011-10-12	Page 2 of 3	
Manufacturer:	DEHN + SÖHNE GmbH + Co. KG. Hans-Dehn-Strasse 1 D-92318 Neumarkt / Opf., Germany		
Manufacturing location(s):			

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard set below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx OZ and Operational Documents as amended.

STANDARDS:
 The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:


IEC 60079-0 : 2007-10 Explosive atmospheres - Part 0: Equipment - General requirements
 Edition: 5
IEC 60079-15 : 2010 Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
 Edition: 4

This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
 A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
 NL/DEK/EXTR11.0066/00

Quality Assessment Report:
 NL/KEM/QAR08.0008/02



IECEX Certificate of Conformity

Certificate No.:	IECEX DEK 11.0063X	Issue No.:	0
Date of Issue:	2011-10-12	Page 3 of 3	

Schedule

EQUIPMENT:
 Equipment and systems covered by this certificate are as follows:

The Isolating Spark Gap Types EXFS L 100 (923 060), EXFS L 200 (923 061), EXFS L 300 (923 062), EXFS L ... (special lengths) and EXFS KU (923 019) are used for indirect connection / earthing of functionally isolated conductive system parts in potentially explosive gas atmospheres.

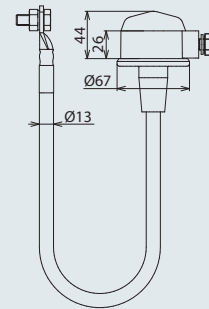
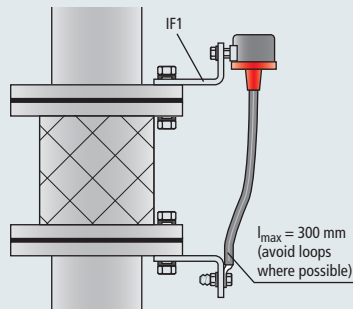
Electrical data

Rated Power frequency withstand voltage (50 Hz): U = 300 V;
 impulse sparkover voltage (1.2/50 µs): U ≈ 2.5 kV;
 Lightning impulse current (10/350 µs): I = 50 kA.

CONDITIONS OF CERTIFICATION: YES as shown below:

Ambient temperature range -20 °C to +60 °C.

EXFS L



Ex isolating spark gap for aboveground installation

Typ	EXFS L100	EXFS L200	EXFS L300
Part No.	923 060	923 061	923 062
Lightning impulse current (10/350 µs) (I_{imp})	50 kA	50 kA	50 kA
Class of lightning current carrying capability acc. to EN 50164-3	N	N	N
Nominal discharge current (8/20 µs) current (8/20) (I_n)	100 kA	100 kA	100 kA
Rated power-frequency withstand voltage (50 Hz) (U_{wAC})	300 V	300 V	300 V
Lightning impulse sparkover voltage ($U_{r imp}$)	≤ 2.5 kV	≤ 2.5 kV	≤ 2.5 kV
Power frequency sparkover voltage (50 Hz) (U_{av})	≤ 1.2 kV	≤ 1.2 kV	≤ 1.2 kV
Operating temperature range (T_U)	-20 °C...+80 °C	-20 °C...+80 °C	-20 °C...+80 °C
Degree of protection	IP 54	IP 54	IP 54
ATEX approvals	DEKRA 11ATEX0146 X	DEKRA 11ATEX0146 X	DEKRA 11ATEX0146 X
Ex marking according to EN 60079-0 and EN 60079-15: gas	II 3 G Ex nC IIC T4 Gc	II 3 G Ex nC IIC T4 Gc	II 3 G Ex nC IIC T4 Gc
IECEx approvals	IECEx DEK 11.0063X	IECEx DEK 11.0063X	IECEx DEK 11.0063X
Ex marking according to EN 60079-0	Ex nC IIC T4 Gc	Ex nC IIC T4 Gc	Ex nC IIC T4 Gc
Enclosure length	90 mm	90 mm	90 mm
Enclosure diameter	63 mm	63 mm	63 mm
Enclosure material	zinc die-cast, plastic	zinc die-cast, plastic	zinc die-cast, plastic
Connecting cable	H01N2-D 25 mm ² with cable lug and screw/nut (M10)	H01N2-D 25 mm ² with cable lug and screw/nut (M10)	H01N2-D 25 mm ² with cable lug and screw/nut (M10)
Cable length	100 mm	200 mm	300 mm
Suitable for flange size	20-130 mm	120-230 mm	220-320 mm

Accessories for EXFS L / EXFS KU

**Angled Connection Brackets - IF 1 -**

Angled connection bracket for EXFS ...; diameter corresponds to the bolt diameter of the bolted flange joint; material: St/tZn

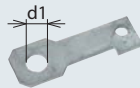
Typ AB EXFS ...	IF1 W 11	IF1 W 14	IF1 W 18
Part No.	923 311	923 314	923 318
Max. bore diameter d1	11 mm	14 mm	18 mm

Typ AB EXFS ...	IF1 W 22	IF1 W 26	IF1 W 30
Part No.	923 322	923 326	923 330
Max. bore diameter d1	22 mm	26 mm	30 mm

Typ AB EXFS ...	IF1 W 33	IF1 W 36	IF1 W 39
Part No.	923 333	923 336	923 339
Max. bore diameter d1	33 mm	36 mm	39 mm

Typ AB EXFS ...	IF1 W 42	IF1 W 48
Part No.	923 342	923 348
Max. bore diameter d1	42 mm	48 mm

Typ AB EXFS ...	IF1 W 56	IF1 W 62
Part No.	923 356	923 362
Max. bore diameter d1	56 mm	62 mm

**Flat Connection Brackets - IF 3 -**

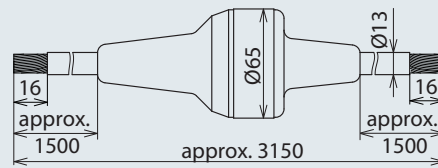
Flat connection bracket for EXFS ...; diameter corresponds to the bolt diameter of the bolted flange joint; material: St/tZn

Typ AB EXFS ...	IF3 G 11	IF3 G 14	IF3 G 18
Part No.	923 211	923 214	923 218
Max. bore diameter d1	11 mm	14 mm	18 mm

Typ AB EXFS ...	IF3 G 22	IF3 G 26	IF3 G 30
Part No.	923 222	923 226	923 230
Max. bore diameter d1	22 mm	26 mm	30 mm

Typ AB EXFS ...	IF3 G 33	IF3 G 36
Part No.	923 233	923 236
Max. bore diameter d1	33 mm	36 mm

Typ AB EXFS ...	IF3 G 39	IF3 G 42
Part No.	923 239	923 242
Max. bore diameter d1	39 mm	42 mm



Ex isolating spark gap with connecting cables for aboveground and underground installation; with water-proof sheath; may be shortened for short cable lengths

Typ	EXFS KU
Part No.	923 019
Lightning impulse current (10/350 μ s) (I_{imp})	50 kA
Class of lightning current carrying capability acc. to EN 50164-3	N
Nominal discharge current (8/20 μ s) current (8/20) (I_n)	100 kA
Rated power-frequency withstand voltage (50 Hz) (U_{wAC})	300 V
Lightning impulse sparkover voltage ($U_{r imp}$)	≤ 2.5 kV
Power frequency sparkover voltage (50 Hz) (U_{sw})	≤ 1.2 kV
Operating temperature range (T_U)	-20 °C...+80 °C
Degree of protection	IP 67
ATEX approvals	DEKRA 11ATEX0146 X
Ex marking according to EN 60079-0 and EN 60079-15: gas	II 3 G Ex nC IIC T4 Gc
IECEx approvals	IECEx DEK 11.0063X
Ex marking according to EN 60079-0	Ex nC IIC T4 Gc
Enclosure length	90 mm
Enclosure diameter	63 mm
Enclosure material	zinc die-cast, plastic
Connecting cable	NYJ-J-1x25 mm ²
Cable length	2x approx. 1500 mm



ATEX and IECEx-certified isolating spark gap with low sparkover voltage for lightning equipotential bonding according to IEC/EN 62305

- For indirect connection/earthing of functionally isolated parts of installations under lightning conditions
- Device for lightning equipotential bonding according to IEC/EN 62305 in hazardous areas
- For bridging insulating pieces, insulating flanges etc. in cathodically protected pipe sections
- For safe installation in Ex zone 1 (gas) or 21 (dust)
- Especially low sparkover voltage
- Especially high a.c. current withstand capability
- Approval according to "ATEX Directive" 94/9/EC and IECEx

EXFS 100: Isolating spark gap for use in hazardous areas with plastic sheath and M10 threaded bushings

EXFS 100 KU: Isolating spark gap for use in hazardous areas with two 2 m long connecting cables for underground installation

The Ex isolating spark gaps of the EXFS 100 / EXFS 100 KU product family are used when conductive installation components situated in hazardous areas cannot be connected directly with each other.

The spark gaps with low sparkover voltage are especially efficient for isolated parts of installations with low insulation resistance.

No special requirements have to be observed for safe installation in zone 1 (gases) or zone 21 (dusts).

With a maximum lightning impulse current of 100 kA (10/350 µs), EXFS 100 and EXFS 100 KU meet class H according to EN 50164-3 "Lightning Protection Components (LPC) – Part 3: Requirements for isolating spark gaps".

The ATEX and IECEx-certified EXFS 100 and EXFS 100 KU spark gaps provide approved safety according to harmonised European standards. For connecting EXFS 100 spark gaps, prewired connecting cables of different lengths are available as accessory.

Flat and angled connection brackets (IF) allow to easily connect the spark gaps to pipe flanges.



EXFS 100 KU types are enclosed by a moisture-proof plastic sheath and are therefore ideally suited for underground installation on insulating couplings.



ATEX certificates EXFS 100 (download under www.dehn.de)

IEC **IECEX** **IECEX Certificate of Conformity**

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX KEM 09.0051X** Issue No.: **2** Certificate history: Issue No. 2 (2011-11-8)
 Status: **Current** Issue No. 1 (2009-11-18)
 Date of Issue: **2011-11-08** Page 1 of 4 Issue No. 0 (2009-9-18)

Applicant: **DEHN + SÖHNE GmbH + Co. KG**
 Hans-Dieth-Strasse 1
 D-92318 Neumarkt,
 Germany

Electrical Apparatus: **Isolating Spark Gap type EXFS 100 and type EXFS 100 KU**
 Optional accessory:

Type of Protection: **Ex d, Ex tD**

Marking: **Ex d IIC T8 Gb**
Ex tb IIC T80°C Db IP 66/67

Approved for issue on behalf of the IECEx Certification Body: **M. Erdhuizen**
 Position: **Certification Manager**
 Signature: 
 Date: **2011-11-08**

1. This certificate and schedule may only be reproduced in full.
 2. This certificate is not transferable and remains the property of the issuing body.
 3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by: **DEKRA Certification B.V.**
 Utrechtseweg 310
 6812 AR Arnhem
 The Netherlands
 All testing, inspection, auditing and certification activities of the former KEMA Quality are an integral part of the DEKRA Certification Group.



IEC **IECEX** **IECEX Certificate of Conformity**

Certificate No.: **IECEX KEM 09.0051X** Issue No.: **2**
 Date of Issue: **2011-11-08** Page 2 of 4

Manufacturer: **DEHN + SÖHNE GmbH + Co. KG**
 Hans-Dieth-Strasse 1
 D-92318 Neumarkt,
 Germany

Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
 The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2007-10 Explosive atmospheres - Part 0: Equipment - General requirements
 Edition: 5
IEC 60079-1 : 2007-04 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
 Edition: 6
IEC 60079-31 : 2008 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
 Edition: 1

This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
 A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
 NL/KEM/EXTR09.0052/00 NL/KEM/EXTR09.0052/01 NL/KEM/EXTR09.0052/02

Quality Assessment Report:
 NL/KEM/QAR08.0008/00 NL/KEM/QAR08.0008/02

IEC **IECEX** **IECEX Certificate of Conformity**

Certificate No.: **IECEX KEM 09.0051X** Issue No.: **2**
 Date of Issue: **2011-11-08** Page 3 of 4

Schedule

EQUIPMENT:
 Equipment and systems covered by this certificate are as follows:
 Isolating Spark Gap type EXFS 100 and type EXFS 100 KU provides galvanic isolation between parts of electrical installations. In case of an increasing potential difference e.g. caused by a lightning strike, the isolation will be abolished by ignition of the spark gap and the building of a low-resistance connection.
 Ambient temperature range for type EXFS 100: -20 °C...+60 °C,
 for type EXFS 100 KU: -40 °C...+60 °C.

Electrical data:
 Rated power frequency withstand voltage (50 Hz) U = 250 Vac
 Impuls spark over voltage (1.2/50 µs) U ≤ 1250 V
 Lightning impuls current (10/350 µs) I = 100 kA

Note:
 The electrical data is not in the scope of IECEx certification.

CONDITIONS OF CERTIFICATION: YES as shown below:
 For type EXFS 100: -20 °C to +60 °C and for type EXFS 100 KU: -40 °C to +60 °C.

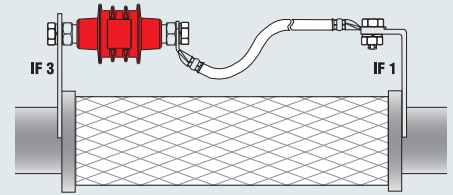
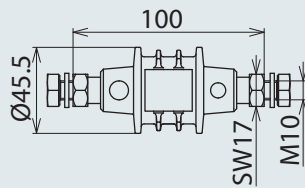
IEC **IECEX** **IECEX Certificate of Conformity**

Certificate No.: **IECEX KEM 09.0051X** Issue No.: **2**
 Date of Issue: **2011-11-08** Page 4 of 4

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 2:
 Extended temperature range of EXFS 100 KU and
 Upgraded standard issue's

EXFS 100



Isolating spark gap for use in hazardous areas with plastic sheath and M10 threaded screws

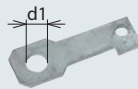
Typ	EXFS 100
Part No.	923 100
Lightning impulse current (10/350 µs) (I_{imp})	100 kA
Class of lightning current carrying capability acc. to EN 50164-3	H
Nominal discharge current (8/20 µs) (I_n)	100 kA
Rated power-frequency withstand voltage (50 Hz) (U_{wAC})	250 V
Lightning impulse sparkover voltage ($U_{r imp}$)	≤ 1.25 kV
Power-frequency sparkover voltage (50 Hz) (U_{av})	≤ 0.5 kV
Rated discharge current (50 Hz) (I_{max})	500 A / 0.5 sec. (T_U ≤ 45 °C)
Operating temperature range (T_U)	-20 °C...+60 °C
Degree of protection	IP 67
ATEX approvals	DEKRA 11ATEX0178 X
Ex marking according to EN 60079-0 and EN 60079-1: gas	II 2 G Ex d IIC T6 Gb
Ex marking according to EN 60079-0 and EN 60079-31: dust	II 2 D Ex tb IIIC T80 °C Db IP 66/67
IECEX approvals	IECEX KEM 09.0051X
Ex marking according to EN 60079-0 and EN 60079-1: gas	Ex d IIC T6 Gb
Ex marking according to EN 60079-0 and EN 60079-31: dust	Ex tb IIIC T80 °C Db IP 66/67
Enclosure length	100 mm
Enclosure diameter	45.5 mm
Enclosure material	plastic sheath
Connection of enclosure	M10 threaded bushing, 2x M10x25 mm, 2x spring washer

Accessories for EXFS 100 / EXFS 100 KU

**Angled Connection Brackets - IF 1 -**

Angled connection bracket for EXFS ...; diameter corresponds to the bolt diameter of the bolted flange joint; material: St/tZn

Typ AB EXFS ...	IF1 W 11	IF1 W 14	IF1 W 18
Part No.	923 311	923 314	923 318
Max. bore diameter d1	11 mm	14 mm	18 mm
Typ AB EXFS ...	IF1 W 22	IF1 W 26	IF1 W 30
Part No.	923 322	923 326	923 330
Max. bore diameter d1	22 mm	26 mm	30 mm
Typ AB EXFS ...	IF1 W 33	IF1 W 36	IF1 W 39
Part No.	923 333	923 336	923 339
Max. bore diameter d1	33 mm	36 mm	39 mm
Typ AB EXFS ...	IF1 W 42	IF1 W 48	
Part No.	923 342	923 348	
Max. bore diameter d1	42 mm	48 mm	
Typ AB EXFS ...	IF1 W 56	IF1 W 62	
Part No.	923 356	923 362	
Max. bore diameter d1	56 mm	62 mm	

**Flat Connection Brackets - IF 3 -**

Flat connection bracket for EXFS ...; diameter corresponds to the bolt diameter of the bolted flange joint; material: St/tZn

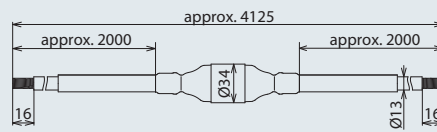
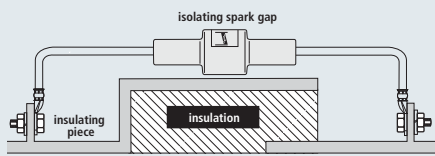
Typ AB EXFS ...	IF3 G 11	IF3 G 14	IF3 G 18
Part No.	923 211	923 214	923 218
Max. bore diameter d1	11 mm	14 mm	18 mm
Typ AB EXFS ...	IF3 G 22	IF3 G 26	IF3 G 30
Part No.	923 222	923 226	923 230
Max. bore diameter d1	22 mm	26 mm	30 mm
Typ AB EXFS ...	IF3 G 33	IF3 G 36	
Part No.	923 233	923 236	
Max. bore diameter d1	33 mm	36 mm	
Typ AB EXFS ...	IF3 G 39	IF3 G 42	
Part No.	923 239	923 242	
Max. bore diameter d1	39 mm	42 mm	

EXFS 100: Connecting Cable, Cu 25 mm²

Connecting cable for EXFS 100; two cable lugs (Ø10.5 mm), screw, nut, and spring washer



Typ AL EXFS ...	L100 KS	L200 KS	L300 KS
Part No.	923 025	923 035	923 045
Cable lug material	Cu/gal Sn	Cu/gal Sn	Cu/gal Sn
Cross-section	25 mm ²	25 mm ²	25 mm ²
Cable length	100 mm	200 mm	300 mm



Ex isolating spark gap with connecting cable for aboveground and underground installation; with water-proof sheath; may be shortened for short cable lengths

Typ	EXFS 100 KU
Part No.	923 101
Lightning impulse current (10/350 μ s) (I_{imp})	100 kA
Class of lightning current carrying capability acc. to EN 50164-3	H
Nominal discharge current (8/20 μ s) (I_n)	100 kA
Rated power-frequency withstand voltage (50 Hz) (U_{wAC})	250 V
Lightning impulse sparkover voltage ($U_{r imp}$)	≤ 1.25 kV
Power-frequency sparkover voltage (50 Hz) (U_{sw})	≤ 0.5 kV
Rated discharge current (50 Hz) (I_{max})	500 A / 0.5 sec. ($T_U \leq 45$ °C)
Operating temperature range (T_U)	-40 °C...+60 °C
Degree of protection	IP 67
ATEX approvals	DEKRA 11ATEX0178 X
Ex marking according to EN 60079-0 and EN 60079-1: gas	II 2 G Ex d IIC T6 Gb
Ex marking according to EN 60079-0 and EN 60079-31: dust	II 2 D Ex tb IIIC T80 °C Db IP 66/67
IECEx approvals	IECEx KEM 09.0051X
Ex marking according to EN 60079-0 and EN 60079-1: gas	Ex d IIC T6 Gb
Ex marking according to EN 60079-0 and EN 60079-31: dust	Ex tb IIIC T80 °C Db IP 66/67
Enclosure length	123 mm
Enclosure diameter	34 mm
Enclosure material	water-proof plastic sheath
Connection of enclosure	NY-Y-J-1x25 mm ²
Cable length	2x approx. 2000 mm

Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page
100 100	24	104 150	23	105 470	61	106 331	66	202 060	124	204 359	118
100 150	24	104 200	23	105 500	42	106 340	55	202 080	118	204 449	109
		104 250	23	105 550	42	106 341	55	202 169	133	204 469	109
101 000	23	104 300	23	105 600	43	106 342	55	202 227	112	204 906	125
101 001	71	104 600	24	105 650	43	106 352	53	202 830	76	204 911	111
101 007	23	104 903	202	105 700	43	106 353	53	202 831	76	204 913	111
101 009	23	104 905	202	105 750	43	106 760	74	202 832	76	204 916	125
101 010	37	104 906	202	105 800	43	106 812	77	202 835	96	204 921	112
101 110	37			105 850	43	106 813	77	202 836	96	204 924	113
101 150	202	105 071	57	105 912	44	106 852	77	202 837	96	204 925	113
		105 079	57	105 914	44	106 898	76	202 840	76	204 935	116
102 002	26	105 140	33			106 899	77	202 841	76	204 936	116
102 003	26	105 160	34	106 008	38			202 842	76	204 937	116
102 010	25	105 161	93	106 090	50	108 009	38	202 890	76	204 938	116
102 050	27	105 170	31	106 100	50			202 900	112	204 949	116
102 060	27	105 171	31	106 105	50	110 000	38	202 901	117	204 957	116
102 075	26	105 172	31	106 115	49	110 017	38	202 902	117		
102 340	25	105 173	31	106 120	49			202 906	125	206 105	125
		105 174	31	106 121	66	123 021	35			206 109	111
103 013	46	105 175	31	106 123	49	123 031	36	204 001	128	206 170	114
103 016	46	105 176	31	106 125	51	123 109	28	204 002	128	206 171	114
103 019	46	105 177	31	106 126	51	123 110	28	204 003	128	206 207	114
103 022	46	105 178	31	106 127	51	123 116	29	204 004	128	206 209	114
103 025	46	105 179	31	106 128	52	123 425	35	204 006	128	206 217	114
103 030	47	105 200	66	106 129	52	123 430	35	204 007	128	206 219	114
103 031	47	105 240	97	106 150	51	123 435	35	204 017	128	206 227	114
103 040	48	105 245	97	106 160	51			204 027	128	206 229	114
103 041	48	105 246	97	106 165	52	145 241	254	204 029	110	206 237	110
103 121	45	105 290	32	106 170	52			204 037	128	206 239	110
103 122	45	105 291	32	106 175	52	146 309	254	204 039	110	206 247	110
103 123	45	105 300	71	106 178	52			204 049	119	206 249	110
103 124	45	105 301	71	106 180	52	200 027	134	204 059	119	206 289	115
103 125	45	105 302	71	106 185	52	200 029	134	204 069	119	206 309	114
103 126	45	105 306	71	106 207	56	200 039	134	204 079	119	206 319	114
103 210	23	105 310	71	106 210	56	200 057	134	204 089	113	206 329	114
103 211	23	105 340	72	106 217	56	200 059	134	204 107	111	206 339	125
103 220	23	105 341	63	106 220	56	200 067	134	204 109	111	206 349	120
103 221	23	105 342	33	106 225	50	200 069	134	204 120	128	206 359	118
103 230	23	105 343	34	106 226	50	200 077	134	204 127	111	206 369	120
103 231	23	105 344	33	106 228	50	200 079	134	204 129	111	206 389	119
103 240	23	105 345	85	106 245	50	200 087	134	204 147	112	206 399	119
103 241	23	105 350	78	106 246	50	200 089	134	204 149	112	206 439	109
103 250	23	105 354	34	106 248	50	200 600	142	204 157	112	206 449	109
103 251	23	105 355	65	106 301	52	200 601	142	204 159	112	206 807	111
103 260	23	105 356	65	106 309	52			204 169	112	206 809	111
103 261	23	105 360	72	106 310	53	202 000	133	204 170	113	206 817	111
103 280	23	105 361	72	106 311	52	202 001	133	204 171	113	206 819	111
103 410	24	105 362	72	106 312	66	202 005	125	204 177	113		
103 417	24	105 363	83	106 315	53	202 008	117	204 179	113	207 007	127
103 419	24	105 364	83	106 316	53	202 010	117	204 187	113	207 009	127
103 420	24	105 365	83	106 319	55	202 015	125	204 189	113	207 017	127
103 429	24	105 376	65	106 320	251	202 017	117	204 197	113	207 019	127
103 430	24	105 400	42	106 321	54	202 020	112	204 199	113	207 027	127
103 439	24	105 425	41	106 322	54	202 021	112	204 229	120	207 029	127
103 440	24	105 430	41	106 323	54	202 027	112	204 239	120	207 037	127
103 449	24	105 435	41	106 324	54	202 030	124	204 247	109	207 039	127
103 450	24	105 440	60	106 325	55	202 037	117	204 249	109	207 109	127
103 460	24	105 450	42	106 326	55	202 040	117	204 267	109		
103 480	24	105 455	61	106 328	66	202 050	118	204 269	109	216 000	110

Part Nos / Page Index

Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page
223 000	118	273 019	133	284 040	140	308 229	155	339 110	167	372 149	158		
223 005	31	273 731	138			308 230	155	339 111	167	372 150	159		
223 006	30	273 740	132	286 030	140	308 239	155	339 157	166	372 159	159		
223 010	121	273 741	132	286 139	140	308 249	155	339 167	166	372 210	158		
223 011	121	273 742	132	286 819	130	308 320	155			372 219	158		
223 020	122					308 329	155	343 000	168	372 220	159		
223 021	122	274 030	139	290 001	222	308 330	155	343 007	168	372 229	159		
223 031	122	274 110	129	290 002	222					372 240	158		
223 040	121	274 113	129			309 008	148	345 008	168	372 249	158		
223 041	121	274 116	136	297 015	124	309 087	148	345 010	168	372 250	159		
223 070	121	274 117	129	297 025	124					372 259	159		
		274 150	129	297 110	123	310 008	148	347 205	168				
239 000	255	274 160	129	297 120	123					374 011	173		
239 001	255	274 167	129	297 199	123	314 300	151	363 000	198	374 020	173		
239 009	255	274 230	139			314 307	151	363 010	198				
239 019	255	274 260	136	300 002	147	314 310	151			377 005	169		
				300 017	147			365 000	162	377 006	174		
240 000	255	275 019	138			315 119	148	365 007	162	377 007	175		
		275 030	140	301 000	146			365 010	161	377 009	169		
241 009	255	275 110	131	301 007	146	316 163	151	365 017	161	377 015	175		
		275 113	131	301 009	147	316 167	151	365 019	161	377 016	174		
250 000	131	275 116	137	301 010	146			365 020	162	377 017	169		
250 001	131	275 120	74	301 017	146	318 033	154	365 027	162	377 026	174		
250 007	131	275 129	105	301 019	147	318 201	153	365 030	161	377 027	174		
		275 160	131	301 229	73	318 207	153	365 031	161	377 045	175		
251 002	162	275 220	74	301 239	73	318 209	153	365 037	161	377 100	169		
251 027	162	275 225	74	301 329	73	318 219	154	365 039	161	377 107	175		
		275 229	74	301 339	73	318 233	154	365 040	162	377 115	175		
252 000	138	275 230	140			318 251	154	365 047	162	377 200	169		
		275 239	74	302 010	147	318 252	154	365 050	163	377 210	176		
253 015	107	275 260	137					365 051	163	377 310	176		
253 021	108	275 320	75	305 000	149	319 201	152	365 057	163	377 410	176		
253 023	108	275 330	75	305 007	149	319 202	153	365 059	163	377 510	176		
253 025	108	275 333	75			319 207	152	365 117	162				
253 026	75	275 440	101	306 020	149	319 209	152	365 127	162	380 020	170		
253 027	75	275 441	101	306 029	149	319 219	153	365 220	163	380 029	170		
253 030	108	275 442	101	306 100	149	319 229	153	365 221	163	380 110	171		
253 050	107	275 498	102	306 101	149			365 227	163	380 116	171		
253 051	107	275 520	78			320 044	154	365 229	163	380 129	170		
253 060	107	275 521	78	307 000	149			365 250	164				
253 115	58	275 711	135	307 007	149	321 045	152	365 419	177	385 202	150		
253 125	58	275 716	135			321 047	152	365 509	178	385 203	150		
253 300	59	275 730	135	308 001	221			365 519	178	385 207	150		
253 301	59			308 025	218	338 000	167			385 213	150		
253 302	59	276 006	130	308 026	218	338 001	167	370 014	157	385 216	150		
253 310	59	276 007	130	308 030	218	338 007	167	370 018	157				
253 315	59	276 009	130	308 031	220	338 009	167			390 050	143		
253 325	59	276 016	130	308 035	218			371 007	157	390 051	143		
		276 017	130	308 036	220	339 010	167	371 008	157	390 057	143		
260 106	137	276 056	18	308 040	219	339 050	166	371 009	157	390 059	143		
260 108	132	276 057	18	308 041	219	339 051	166			390 060	144		
260 118	133			308 045	219	339 057	166	372 018	160	390 061	144		
260 158	132	277 130	242	308 046	219	339 059	166	372 019	160	390 067	144		
260 187	132	277 230	241	308 060	156	339 060	166	372 035	160	390 079	143		
260 708	132	277 237	241	308 070	156	339 061	166	372 110	158	390 110	133		
		277 239	241	308 120	221	339 067	166	372 119	158	390 119	133		
262 070	132	277 240	241	308 129	221	339 069	166	372 120	159	390 150	146		
262 100	132			308 150	222	339 100	167	372 129	159	390 157	146		
		284 030	140	308 220	155	339 101	167	372 140	158	390 159	146		

Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page
390 250	145	410 200	237	416 003	258	417 125	259	460 507	182	480 003	191
390 257	145	410 212	237	416 005	258	417 130	259	460 517	182	480 004	191
390 259	145	410 219	86	416 006	258	417 150	259	460 557	182	480 005	191
390 267	145	410 229	70	416 010	258					480 006	191
390 479	198	410 299	257	416 015	258	420 100	238	463 010	184	480 018	202
390 499	198	410 300	237	416 016	264	420 107	238			480 019	202
390 550	143	410 309	238	416 020	258	420 120	238	465 801	267	480 020	202
390 551	143	410 319	238	416 025	258	420 127	238			480 021	202
390 557	143	410 329	238	416 030	258	420 207	239	466 192	267	480 113	192
390 559	143	410 339	238	416 035	258			466 203	268	480 150	201
390 657	144	410 349	238	416 040	258	423 010	239			480 157	201
		410 359	238	416 050	258	423 011	239	472 021	233	480 597	79
391 050	143	410 369	238	416 060	258	423 017	239	472 022	233	480 698	39
391 059	143	410 379	238	416 070	258	423 019	239	472 023	233	480 699	106
391 060	144	410 389	238	416 080	258	423 020	239	472 024	233		
391 069	144	410 399	238	416 100	258	423 021	239	472 109	233	483 100	23
391 550	143	410 401	260	416 120	258	423 027	239	472 119	233	483 125	23
391 559	143	410 403	260	416 140	258	423 029	239	472 129	233	483 150	23
		410 404	260	416 150	258			472 139	233	483 200	23
392 050	144	410 405	261	416 200	258	425 076	274	472 201	232		
392 059	144	410 406	260	416 220	258	425 089	274	472 207	230	528 610	177
392 060	144	410 407	261	416 280	258			472 209	230	528 619	176
392 069	144	410 410	261	416 300	258	435 803	267	472 210	232	528 850	142
		410 411	260	416 403	262	435 805	267	472 217	231	528 870	142
393 069	55	410 413	261	416 410	262			472 219	231		
		410 415	260	416 411	262	444 006	266	472 227	230	538 010	136
405 020	73	410 416	261	416 415	262	444 008	266	472 229	230	538 030	141
		410 420	260	416 416	262	444 009	266	472 237	231		
407 012	237	410 421	261	416 420	262	444 010	266	472 239	231	540 100	236
407 034	237	410 425	260	416 421	262			472 269	232	540 103	236
407 100	237	410 426	261	416 425	262	450 000	181	472 279	232	540 105	36
407 112	237	410 430	260	416 426	262	450 001	181	472 289	232	540 110	236
407 114	237	410 431	261	416 430	262	450 007	181	472 299	232	540 200	235
407 200	237	410 450	260	416 431	262	450 011	181			540 250	165
		410 503	260	416 440	262	450 101	181	476 001	190	540 251	165
410 003	257	410 506	260	416 441	262			476 010	189	540 260	165
410 005	257	410 510	260	416 450	262	453 100	184	476 016	189	540 261	165
410 006	257	410 515	260	416 451	262			476 020	190	540 801	272
410 010	257	410 520	260	416 505	261	454 000	185	476 100	190	540 803	272
410 012	237	410 525	260	416 516	258	454 100	185			540 805	272
410 015	257	410 530	260	416 903	263	454 107	185	478 011	193	540 810	273
410 020	257	410 603	257	416 905	263			478 012	194	540 821	272
410 025	257	410 605	257	416 906	263	455 000	185	478 019	193	540 900	235
410 030	257	410 606	265	416 910	263			478 027	196	540 901	235
410 034	237	410 610	257	416 915	263	459 000	183	478 041	194	540 910	234
410 035	257	410 615	257	416 920	263	459 003	183	478 049	194	540 911	234
410 038	237	410 620	257	416 925	263	459 010	183	478 051	195	540 912	234
410 040	257	410 625	257	416 930	263	459 019	183	478 099	203	540 920	234
410 050	257	410 630	257	416 970	263	459 020	183	478 112	194	540 930	135
410 060	257	410 720	264			459 029	183	478 129	199	540 931	135
410 070	257	410 903	263	417 005	259	459 030	183	478 141	199		
410 099	257	410 905	263	417 010	259	459 039	183	478 200	195	545 000	249
410 100	237	410 906	263	417 015	259	459 119	182	478 410	199	545 001	249
410 112	237	410 910	263	417 020	259	459 127	182	478 430	199		
410 114	237	410 915	263	417 030	259	459 129	182	478 450	199	546 000	240
410 134	237	410 920	263	417 050	259	459 139	182	478 530	200	546 001	240
410 140	257	410 925	263	417 100	259			478 540	200	546 002	240
410 150	257	410 930	263	417 115	259	460 147	185	478 550	200	546 025	240
410 199	257			417 120	259	460 213	184			549 000	186

Part Nos / Page Index

Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page	Part No.	Page
549 001	186	578 350	246	620 015	209	649 150	207	819 425	81	860 900	19
549 050	187	578 360	246	620 017	209			819 720	84	860 908	18
549 051	187	578 370	247	620 019	212	800 008	18	819 750	84	860 910	18
549 090	188			620 021	209	800 010	18			860 920	18
549 091	188	582 600	248	620 029	212	800 108	18	830 008	17	860 925	19
		582 620	247	620 101	206	800 110	18	830 038	17		
552 010	39			620 150	206	800 310	18	830 108	17	910 001	250
552 030	39	585 010	249	620 151	206			830 208	104	910 007	250
		585 025	249	620 902	206	801 050	21	830 218	104		
554 011	250	585 051	249	620 915	209					920 000	274
		585 200	249			810 225	19	831 225	19		
556 125	250	585 210	249	625 001	207	810 304	19			923 019	279
556 130	250	585 211	249	625 002	214	810 335	19	832 095	21	923 021	275
		585 310	249	625 005	211	810 404	19	832 120	21	923 023	275
559 010	251	585 320	249	625 007	212	810 405	19	832 192	21	923 025	282
559 011	251			625 008	212			832 193	21	923 035	282
		587 460	248	625 009	211	819 020	68	832 202	21	923 045	282
562 001	179			625 011	209	819 022	68	832 292	21	923 060	278
562 035	179	588 000	248	625 012	209	819 023	68	832 295	21	923 061	278
562 050	179			625 015	209	819 025	68	832 320	21	923 062	278
562 101	179	589 000	248	625 019	212	819 125	86	832 739	21	923 100	282
562 135	179			625 021	209	819 135	69	832 740	21	923 101	283
562 150	179	595 000	245	625 029	212	819 136	69	832 839	21	923 211	282
562 250	179			625 101	206	819 139	69			923 214	282
562 440	179	596 000	245	625 150	206	819 140	69	833 008	17	923 218	282
562 460	179			625 151	206	819 241	98			923 222	282
		597 003	244			819 242	99	840 008	17	923 226	282
563 010	226	597 004	243	630 120	208	819 245	98	840 010	17	923 230	282
563 011	228	597 005	243	630 129	208	819 246	99	840 018	17	923 233	282
563 012	228	597 006	244			819 250	93	840 028	17	923 236	282
563 013	228	597 120	70	634 145	268	819 251	93	840 050	21	923 239	282
563 014	228	597 220	70	634 160	268	819 252	93	840 108	17	923 242	282
563 015	228					819 253	93	840 118	17	923 311	282
563 016	228	600 003	214	635 100	216	819 260	93			923 314	282
563 017	228	600 029	215	635 150	216	819 261	93	850 008	21	923 318	282
563 018	228	600 035	215	635 200	216	819 262	93	850 010	21	923 322	282
563 019	228	600 050	215	635 250	216	819 263	93			923 326	282
563 020	227					819 280	88	852 335	19	923 330	282
563 030	227	610 010	208	640 015	209	819 281	87			923 333	282
563 040	227	610 020	208	640 150	207	819 285	88	860 008	18	923 336	282
563 050	226					819 286	87	860 010	18	923 339	282
563 105	229	619 157	206	644 000	269	819 299	86	860 020	18	923 342	282
563 169	242					819 320	80	860 110	20	923 348	282
563 200	225	620 001	207	646 000	269	819 322	81	860 115	20	923 356	282
563 201	225	620 002	214			819 323	80	860 130	20	923 362	282
		620 005	211	648 005	213	819 325	81	860 215	20		
572 000	245	620 007	212	648 007	213	819 360	80	860 230	20		
		620 008	212			819 362	81	860 315	20		
573 000	223	620 009	211	649 005	213	819 420	80	860 325	19		
		620 011	209	649 007	213	819 422	81	860 330	20		
578 110	246	620 012	209	649 015	209	819 423	80	860 335	19		

Part No.	Military name	Stock No.	Page	Part No.	Military name	Stock No.	Page	Part No.	Military name	Stock No.	Page
307 000	VG 96953 T06 D0002	5999-12-158-2303	149	410 615	VG 96927 T011 A123	6150-12-308-6928	257	416 451	VG 96927 T011 A108	6150-12-308-6935	262
308 041	–	5999-12-362-1557	219	410 630	–	6150-12-353-5887	257	416 505	VG 96927 T011 A124	6150-12-300-9131	261
410 003	VG 96927 T011 A044	6150-12-156-9107	257	410 720	VG 96927 T011 A127	6150-12-308-6979	264	416 516	VG 96927 T011 A125	6150-12-308-6607	258
410 005	VG 96927 T011 A045	6150-12-156-8386	257	410 903	VG 96927 T011 A027	6150-12-198-1948	263	416 903	VG 96927 T011 A035	6150-12-198-6812	263
410 006	VG 96927 T011 A046	6150-12-156-9108	257	410 905	VG 96927 T011 A028	6150-12-198-6809	263	416 905	VG 96927 T011 A036	6150-12-198-6813	263
410 010	VG 96927 T011 A047	6150-12-156-8387	257	410 906	VG 96927 T011 A029	6150-12-198-6810	263	416 906	VG 96927 T011 A037	6150-12-198-6814	263
410 015	VG 96927 T011 A048	6150-12-156-9069	257	410 910	VG 96927 T011 A030	6150-12-198-1482	263	416 910	VG 96927 T011 A038	6150-12-168-9942	263
410 020	VG 96927 T011 A049	6150-12-156-9073	257	410 915	VG 96927 T011 A031	6150-12-168-2696	263	416 915	VG 96927 T011 A039	6150-12-168-2693	263
410 025	VG 96927 T011 A050	6150-12-156-9072	257	410 920	VG 96927 T011 A032	6150-12-168-2695	263	416 920	VG 96927 T011 A040	6150-12-198-6815	263
410 030	VG 96927 T011 A051	6150-12-156-9109	257	410 925	VG 96927 T011 A033	6150-12-168-2694	263	416 925	VG 96927 T011 A041	6150-12-198-6816	263
410 035	VG 96927 T011 A052	6150-12-156-9071	257	410 930	VG 96927 T011 A034	–	263	416 930	VG 96927 T011 A042	6150-12-198-1483	263
410 040	VG 96927 T011 A053	6150-12-156-9070	257	416 003	VG 96927 T011 A062	6150-12-156-9115	258	416 970	VG 96927 T011 A043	6150-12-168-2692	263
410 050	VG 96927 T011 A054	6150-12-156-6051	257	416 005	VG 96927 T011 A063	6150-12-156-9085	258	417 005	–	6150-12-313-5059	259
410 060	VG 96927 T011 A055	6150-12-156-9110	257	416 006	VG 96927 T011 A064	6150-12-156-9116	258	417 010	–	6150-12-313-5060	259
410 070	VG 96927 T011 A056	6150-12-156-9111	257	416 010	VG 96927 T011 A065	6150-12-156-9084	258	417 015	–	6150-12-313-5061	259
410 099	VG 96927 T011 A057	6150-12-156-9112	257	416 015	VG 96927 T011 A066	6150-12-156-9117	258	417 020	–	6150-12-313-5062	259
410 140	VG 96927 T011 A058	6150-12-156-6207	257	416 016	VG 96927 T011 A128	6150-12-178-9673	264	417 030	–	6150-12-313-5063	259
410 150	VG 96927 T011 A059	6150-12-161-4272	257	416 020	VG 96927 T011 A067	6150-12-156-9118	258	417 050	–	6150-12-313-5064	259
410 199	VG 96927 T011 A060	6150-12-156-9113	257	416 025	VG 96927 T011 A068	6150-12-156-9119	258	417 100	–	6150-12-313-5065	259
410 299	VG 96927 T011 A061	6150-12-156-9114	257	416 030	VG 96927 T011 A069	6150-12-156-9083	258	417 115	–	6150-12-313-5066	259
410 401	VG 96927 T011 A092	6150-12-300-9132	260	416 035	VG 96927 T011 A070	6150-12-156-6208	258	417 120	–	6150-12-313-5067	259
410 403	VG 96927 T011 A093	6150-12-195-9490	260	416 040	VG 96927 T011 A071	6150-12-156-8388	258	417 125	–	6150-12-185-8587	259
410 404	VG 96927 T011 A094	6150-12-192-5455	260	416 050	VG 96927 T011 A072	6150-12-156-9120	258	417 130	–	6150-12-313-5068	259
410 405	VG 96927 T011 A085	6150-12-196-6346	261	416 060	VG 96927 T011 A073	6150-12-156-9082	258	417 150	–	6150-12-174-2744	259
410 406	VG 96927 T011 A096	6150-12-192-5456	260	416 070	VG 96927 T011 A074	6150-12-156-9121	258	435 803	VG 96953 T06 B0001	5999-12-156-2656	267
410 407	VG 96927 T011 A086	6150-12-198-7027	261	416 080	VG 96927 T011 A075	6150-12-188-4475	258	435 805	VG 96953 T06 A0001	5999-12-156-9129	267
410 410	VG 96927 T011 A087	6150-12-171-2783	261	416 100	VG 96927 T011 A076	6150-12-156-9122	258	444 006	VG 96933 T14 A002A	5940-12-156-9126	266
410 411	VG 96927 T011 A097	6150-12-192-5457	260	416 120	VG 96927 T011 A077	6150-12-188-4476	258	444 008	VG 96933 T14 B001A	5940-12-156-9128	266
410 413	VG 96927 T011 A084	6150-12-196-7301	261	416 140	VG 96927 T011 A078	6150-12-156-9123	258	444 009	VG 96933 T14 B002A	5940-12-156-9127	266
410 415	VG 96927 T011 A098	6150-12-192-5458	260	416 150	VG 96927 T011 A079	6150-12-161-4273	258	444 010	VG 96933 T14 A001A	5940-12-152-3867	266
410 416	VG 96927 T011 A088	6150-12-198-1216	261	416 200	VG 96927 T011 A080	6150-12-156-9124	258	465 801	VG 96953 T07 A0001	5940-12-156-8385	267
410 420	VG 96927 T011 A099	6150-12-198-1217	260	416 220	VG 96927 T011 A081	6150-12-188-4477	258	466 192	VG 96953 T07 B0001	5940-12-188-4931	267
410 421	VG 96927 T011 A089	6150-12-198-1218	261	416 280	VG 96927 T011 A082	6150-12-188-4478	258	466 203	VG 96953 T10 E0001	4030-12-320-9037	268
410 425	VG 96927 T011 A100	6150-12-198-6803	261	416 300	VG 96927 T011 A083	6150-12-156-9125	258	540 100	VG 96953 T05 B0002	5975-12-120-7744	236
410 426	VG 96927 T011 A090	6150-12-198-6804	261	416 410	VG 96927 T011 A102	6150-12-308-6941	262	540 103	VG 96953 T05 B0001	–	236
410 430	VG 96927 T011 A101	6150-12-198-6805	260	416 411	VG 96927 T011 A109	6150-12-308-6934	262	634 145	VG 96953 T10 D0003	5975-12-166-0114	268
410 431	VG 96927 T011 A091	6150-12-198-6806	261	416 415	VG 96927 T011 A110	6150-12-308-6981	262	634 160	VG 96953 T10 D0004	5975-12-153-8505	268
410 450	VG 96927 T011 A095	6150-12-197-0088	260	416 416	VG 96927 T011 A103	6150-12-308-6940	262	644 000	VG 96953 T10 A0001	5975-12-120-0006	269
410 503	VG 96927 T011 A116	6150-12-196-7302	260	416 420	VG 96927 T011 A111	6150-12-308-6933	262	646 000	VG 96953 T010 B0001	5975-12-133-4342	269
410 506	VG 96927 T011 A117	6150-12-195-9694	260	416 421	VG 96927 T011 A104	6150-12-308-6939	262				
410 510	VG 96927 T011 A118	6150-12-196-7304	260	416 425	VG 96927 T011 A112	6150-12-308-6932	262				
410 515	VG 96927 T011 A119	6150-12-196-7303	260	416 426	VG 96927 T011 A105	6150-12-309-6938	262				
410 520	VG 96927 T011 A120	6150-12-196-7606	260	416 430	VG 96927 T011 A113	6150-12-308-6931	262				
410 525	VG 96927 T011 A121	6150-12-198-6807	260	416 431	VG 96927 T011 A106	6150-12-308-6937	262				
410 530	VG 96927 T011 A122	6150-12-198-6808	260	416 440	VG 96927 T011 A114	6150-12-308-6930	262				
410 606	VG 96927 T011 A126	6150-12-304-4604	265	416 441	VG 96927 T011 A107	6150-12-308-6936	262				
				416 450	VG 96927 T011 A115	6150-12-308-6929	262				

Conversion Table

Description	Part No.	Length	Weight	Weight	Length
Round Wire St/tZn , 8 mm	800 008	1 m	393 g	1 kg	2.54 m
Round Wire St/tZn , 10 mm	800 010 / 800 310	1 m	617 g	1 kg	1.62 m
Round Wires St/tZn , with plastic coating, 8 mm	800 108	1 m	440 g	1 kg	2.30 m
Round Wire St/tZn , with plastic coating, 10 mm	800 110	1 m	680 g	1 kg	1.48 m
Round Wire Al , semi-rigid/soft, 8 mm	840 008 / 840 018 840 108 / 840 028	1 m	135 g	1 kg	7.40 m
Round Wire StSt (V2A) / (V4A) , 8 mm	860 008 / 860 908	1 m	395 g	1 kg	2.54 m
Round Wire StSt (V2A) / (V4A) , 10 mm	860 010 / 860 020 860 910 / 860 920	1 m	617 g	1 kg	1.62 m
Round Wire Cu , semi-rigid/soft, 8 mm	830 008 / 830 108 830 038	1 m	448 g	1 kg	2.22 m
Strip St/tZn , 20x2.5 mm, Z500	810 225	1 m	400 g	1 kg	2.50 m
Strip St/tZn , 30x3.5 mm, Z500	810 335 / 852 335	1 m	840 g	1 kg	1.19 m
Strip St/tZn , 30x4 mm, Z500	810 304	1 m	960 g	1 kg	1.04 m
Strip St/tZn , 40x4 mm, Z500	810 404	1 m	1.280 kg	1 kg	0.78 m
Strip St/tZn , 40x5 mm, Z500	810 405	1 m	1.600 kg	1 kg	0.63 m
Strip StSt (V2A) / (V4A) , 30x3.5 mm	860 335 / 860 325 860 900 / 860 925	1 m	825 g	1 kg	1.21 m
Strip Cu , 20x2.5 mm	831 225	1 m	450 g	1 kg	2.22 m

Since we do not plan systems or parts of systems, our product recommendations should be regarded as product information and for advisory purposes only. Our oral and written application proposals are based on experience and

are specified to the best of our knowledge. We do not accept any liability in this respect. This particularly applies to the different conditions of use which are beyond our control. We recommend to check whether the respective DEHN

product is suitable for the intended application. Application, use and processing of our products are beyond our control. Therefore, the product is completely subject to the user's responsibility.

Trademarks

- BLITZPLANER®
- DEHNgrip®
- DEHNfix®
- DEHNQUICK®
- DEHNsnap®
- HVI®
- ...MIT SICHERHEIT DEHN.®
- Colour trademark "red" 302 40 296.9

and our brand



are registered trademarks of
DEHN + SÖHNE GmbH + Co.KG.
in Germany

Key Words

Product	Page	Product	Page	Product	Page	Product	Page
Accessories for HVI Conductor and HVI long Conductor	71	Connectors	148	Gutter Clamps	166	Roof Conductor Holders for ridge and hip tiles	110
Accessories for HVI long Conductor	69	Cover Discs and Plastic Bases	130	Gutter Clamps with Single-screw Technique	167	Round Wires	17
Air-termination Caps	38	Cross Units	151 – 154	Hammer Frame	214	Saddle Clamps	161
Air-termination Masts for HVI light Conductor on Flat Roofs	87	CUI Conductor	103	Hammer Inserts for Earth Rods	211	Saddle Clamps with Enlarged Contact Surface	163
Air-termination Masts for Sub-roof Installation of the HVI Conductor	98	Cupal Sheets	179	Hammer Inserts for Tubular Earth Rods	213	Self-supporting Air-termination Rods 12/14 m	44
Air-termination Masts with HVI Conductor	84	Cupal Sleeves	179	Hammer Support	215	Self-supporting Air-termination Rods	41/42
Air-termination Rod Adapter	38	DEHNcon-H	92	Heat-shrinkable Sleeve	250	Single-screw Terminal Clamps	208
Air-termination Rod for Ridge and Hip Tiles	28	DEHNiso Combi Sets	60	Holdings for Air-termination System on Ridge an Hip Tiles	28	Snow Guard Clamps	168
Air-termination Rod for Trapezoidal Sheet Metal Roofing	36	DEHNiso Roof Conductor Holders	58	HVI Conductor	67	Spacers	222
Air-termination Rod Holder for Gable Roofs	30	DEHNiso Spacers	49	HVI Conductor in Supporting Tube	80	Spacers for Omnidirectional Antennas	82
Air-termination Rods	23	DEHNIT Earthing Method	223	HVI light Conductor	86	Special Coating Paint	251
Air-termination Rods D40	31	Disconnecting Clamp – Austrian Standard	184	HVI Lightning Protection for Thatched Roofs	253	Spider Wrench	245
Air-termination Rods for Metal Roofs	35	Disconnecting Sleeves	181	HVI long Conductor	69	Staples	136
Air-termination Rods GRP/Al	56	Dowels for Rigid Foam Plates	142	Impact Heads	214	Staples for Flat Strips	141
Air-termination Stud	38	Downpipe Clamps	238	Impact Spikes	207	Straightening Tools	245
Anchoring Pole	268	Drilling Screw	176	Information Sign	39	Stripping Tool for HVI Conductors	70
Angled Air-termination Rods	37	Dripping Water Protective Collars	18	Inspection Doors	190	Strips	9
Anti-corrosion Tape	250	Earth Electrode and Wall Bushings	199	Isolating Spark Gaps	275	Support Plates	27
Bimetallic Disconnecting Clamp with Shield	185	Earth Entry Rods – Kit	201	KS Connectors	146	Supports for Air-termination Rods D40 and DEHNcon-H	33
Blind Rivet	177	Earth Entry Rods	202	Leather Case with Measuring Accessories for Continuity Tester	247	Supports for VDB Test Badge	192
Bridging Brackets	174	Earth Resistance Measuring Equipment in a leather case	248	Lightning Protection Pipe Clamp with Tines	235	SV Clamps	155
Bridging Braids	175	Earth Rods	205	MAXI MV Clamps	145	SVP Clamps	156
Bridging Cable with Saddle Clamps	177	Earthing Busbars	233/267	MMV Clamps	145	Telescopic Lightning Protection Masts	45/46
Bridging Cables	176	Earthing Cable Lugs	266	MV Clamps	143	Terminal Brackets	209
Bucket Foundations for Telescopic Lightning Protection Masts	47	Earthing Clamps	267	MV Clamps for Air-termination Rods	171	Terminal Clamps	157/208/242
Cables	21	Earthing Conductors	257 – 265	Number Plates	191	Terminal Clamps for Steel Girders	158
Clamping Frame Variants	146	Earthing Pipe Clamps	234	Occurrence Counter	250	Terminal Clamps with Threaded Bold	199
Clamping Piece	170	Earthing Pipe Clamps Lightning Protection	237	Parallel Connectors	149	Terminal Clamps with Thrust Piece	160
Clamping Shoes	168	Earthing Pipe with Drilling Spiral	269	Pipe Clamp for Air-termination Rods	36	Terminal Lugs	
Clip	251	Earthing Pipe with Impact Spike	269	Pipe Clamps for Antennas	236	Straightened/Angled	20/203
Components for Buildings with Thatched Roof	254	Earthing Resistance Meter	246	Pipe Clamps for Hazardous Areas	271	Tripods for Air-termination Rods D40 and Supporting Tubes GRP/Al	32
Concrete Bases	25	Earthing Spikes	268	Pipe Clamps for Roof Poles	274	Tubular Earth Rods	207
Conductor Holder	242	Earthing Test Tongs CA 6412	246	Plastic Conductor Holders for Downpipes	135	UF Test Joint Boxes	186
Conductor Holder for CUI Conductor	105	Earthing Tongs	240	Profiled Earth Rods	216	UNI Disconnecting Clamps	182
Conductor Holder for HVI Conductor in Ex Areas	100	End Pieces	198	Protective Spark Gap	274	UNI Earthing Clamps	165
Conductor Holder for Rafters	97	EP4 Continuity Tester	247	Rod Clamps	170	UNI Saddle Clamp	164
Conductor Holders	127 – 135	Equipotential Busbars	225 – 232	Rod Holder for Gable Roofs	31	Universal Connector	148
Conductor Holders for Roof Poles	274	ES Disconnecting Clamp	184	Rod Holder with Claw	138	UP Test Joint Boxes	189
Connecting / Disconnecting Clamps	185	EXFS 100 / EXFS 100 KU	280	Rod Holders DEHNfix	138	Warning Sign	106
Connecting Clamps for Fixed Earthing Terminals and Reinforcement	197	EXFS L / EXFS KU	276	Rod Holders DEHNhold	136	Water pressure-tight Wall Bushings for White Tank	200
Connecting Clamps for Foundation Earth Electrodes	221	Expansion Pieces	173	Rod Holders for External Thermal Insulation Composite Systems	138	Wedge Connector	221
Connecting Clamps for Reinforcements	217 – 220	Expansion Strap for Foundation Earth Electrodes	222	Rod Holders with Cleat	137	Wire Straighteners	243
Connecting Set for Safety Rope System	178	FIX Test Joint	184	Roof Bushings	39	Wood Screws with Threaded Head	142
Connecting Sleeve for Air-termination Rods	24/150	Fixed Earthing Terminal M16	196	Roof Conductor Holder with Brace for HVI light Conductor	96		
Connecting Sleeves	150	Fixed Earthing Terminals	193	Roof Conductor Holders	107 – 125		
Connection Lugs	169	Flat Strip Holders DEHNhold	139				
		Flat Strip Holders with Cleat – Flat Design	140				
		Flat Strip Holders with Cleat and Flange	140				
		Flat Strip Holders with Thrust Piece	141/241				
		Foundation Basket for On-site Concrete Foundation	48				
		FS Clamps	171				

KLINKMANN

Helsinki

tel. +358 9 540 4940
automation@klinkmann.fi

Yekaterinburg

tel. +7 343 287 19 19
yekaterinburg@klinkmann.spb.ru

Vilnius

tel. +370 5 215 1646
post@klinkmann.lt

St. Petersburg

tel. +7 812 327 3752
klinkmann@klinkmann.spb.ru

Samara

tel. +7 846 273 95 85
samara@klinkmann.spb.ru

Tallinn

tel. +372 668 4500
klinkmann.est@klinkmann.ee

Moscow

tel. +7 495 641 1616
moscow@klinkmann.spb.ru

Kiev

tel. +38 044 495 33 40
klinkmann@klinkmann.kiev.ua

Riga

tel. +371 6738 1617
klinkmann@klinkmann.lv

Minsk

tel. +375 17 200 0876
minsk@klinkmann.com