



External lightning protection

Building Connections

Digitalisation, the Energiewende (energy transition), mobility – the future is gathering speed. At OBO Bettermann, we're proud to be a driving force. And as a facilitator, we make connections. Today, we are already developing the innovative electrical infrastructure systems and solutions of tomorrow. Reliably, flexibly, sustainably.

Already today, OBO is one of the leading manufacturers of installation systems for the electrical infrastructure in buildings and plants. When it comes to the friction-free flow of power, energy and data, engineers and tradespeople worldwide rely on the comprehensive range from OBO.



OBO applies its slogan "Building Connections" to around 30,000 high-quality branded electrical products and services, which are used in application solutions for projects in industry, business and infrastructure.

OBO operates a global network and employs more than 4,200 people in more than 60 countries. The headquarters of the family company, which was founded in 1911, is located in Menden, Germany. In addition, more than 40 subsidiaries are present in markets on all continents.

Schutzinstallation - Außenbereich / en / 2023/07/24_14:31:29_1.1
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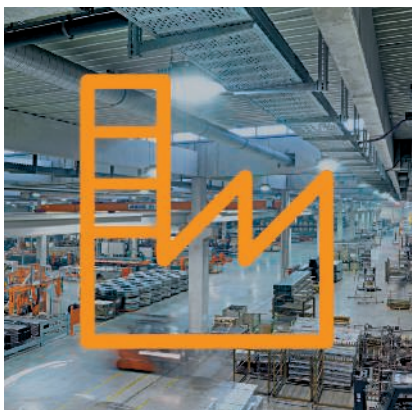
Improved structure, sharpened profile



Each of our products carries a benefit which only the OBO brand can offer. Products are developed, manufactured and tested with a high level of competence – from the idea through to the final check. From flawless logistics through to practical information – we can provide support at every level. We can offer additional security through certificates on the conformity of our products with the most important standards and directives. In a nutshell – OBO helps you more. In every location and in every phase of a project.

To maintain this, we continually challenge ourselves. Not as an end in itself but for the better processing of each customer's requests – fast, reliably and future-oriented. That is the reason we have not only established our three central application areas, but also reworked our catalogue structure. In this way, we can display our service offers more clearly, highlight the product benefits more effectively and illustrate the respective application areas more tangibly.

OBO Product Worlds



Industrial installations

- Cable support systems
- Connection and routing systems
- Fastening material



Building installations

- Cable routing systems
- Device installation ducts, trunking and poles
- Floor installation systems and underfloor applications
- Installation systems



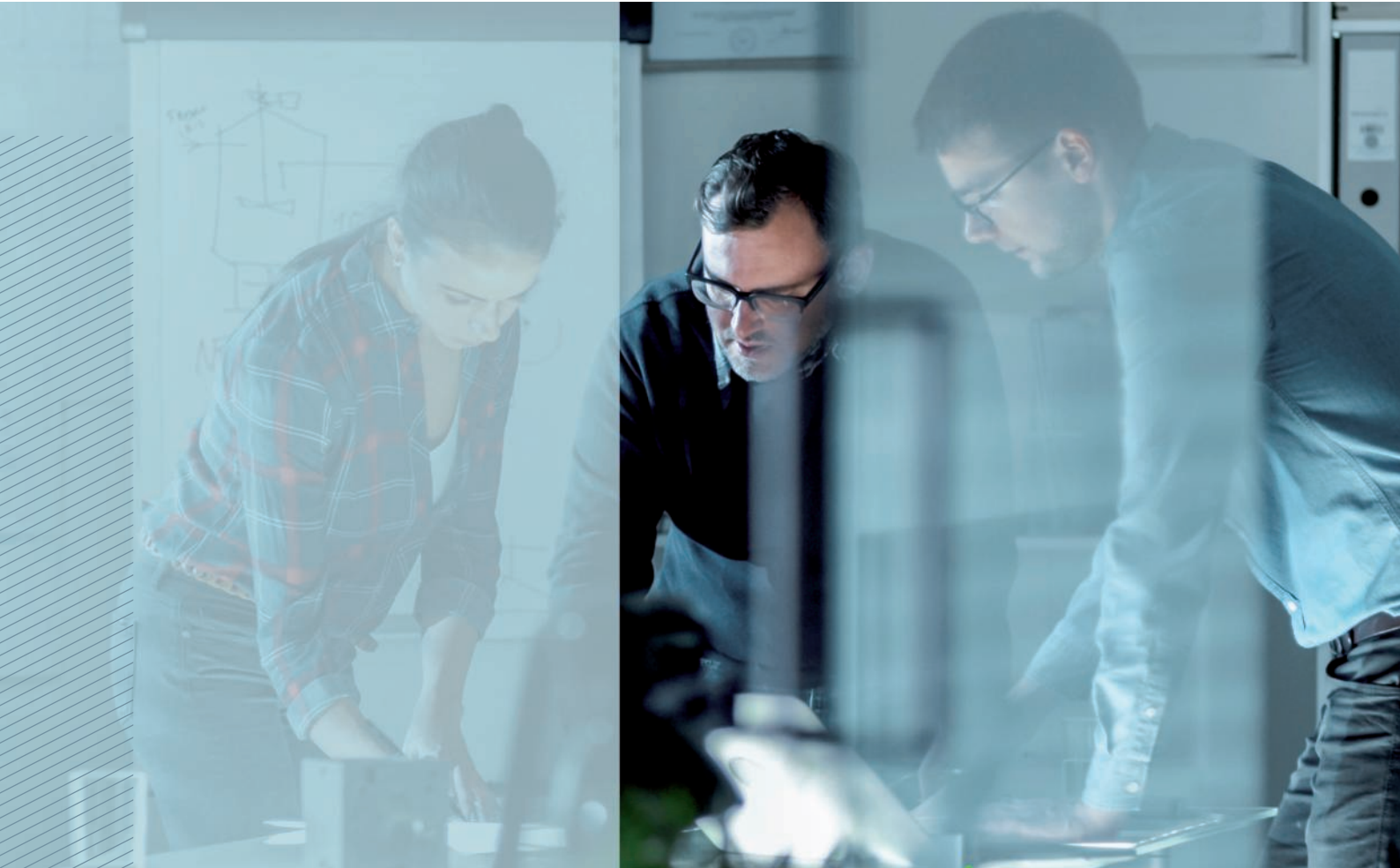
Safety and protection installations

- Surge protection
- External lightning protection
- Equipotential bonding and earthing
- Insulation and cable bandages
- Fire-tested support and routing systems
- Fire protection ducts



It's your choice – from now on there's a catalogue for each OBO product category. Simply select the catalogues and order together with a collection case.

OBO Support & *contact*



***You have a
problem?
We have the
solution!***

OBO Bettermann is more than the sum of its products. In any situation, we are the reliable partner right by your side. You have a problem? We have the solution!

It doesn't matter in which area of industry our support is needed – from industrial and plant engineering to private, public and administrative buildings, as well as in the areas of mobility and renewable energies – we have everything that you need.

OBO can not only provide the entire electro-technical infrastructure with the best possible products. We can also support you with sound expert knowledge and more than 100 years of experience, right from the planning phase through to the realisation of your projects. OBO – solutions you can rely on.

You can contact our Customer Service department on:

Customer Service

Tel.: +49 23 73 89 - 17 00

Monday–Thursday
07.30–17.00

Friday
07.30–15.00

export@obo.de

What is OBO Support?

Every OBO product carries a plus inside it, which only a branded product can offer. It is developed, manufactured and tested with a high level of competence, from the idea right through to the final check. In addition, our specialists are available for consultation and can offer you assistance and training courses for products at any time.

Together with you, we plan your project and help you choose the right products, and are also available to you at any time should you need us. From flawless logistics through to practical information – we can provide support at every level. We can offer security through certificates on the conformity of our products with the most important standards and directives.

We are as flexible as you are – because we know how practical people work and what is important to them. Each step is a plus – that is the OBO Support concept.



Service



Training



Handling



Certification

Service – OBO can help

Everywhere and in every project phase:

- Highly competent hotline
- Product and system information, digitally or printed
- Selection and planning aids on the web, as an app, as a CAD application or in printed form
- 2D and 3D product data for planning
- Field service, branch offices and subsidiaries in 60 countries
- Engineering services for major projects

Training courses from OBO

- Seminars and workshops
- Local consultation and training courses
- Planner days

Handling – OBO delivers reliably

With optimised delivery processes:

- Reliable logistics
- Practical transport systems and packaging
- Loading gear handling and disposal concepts

Certification and guarantee

OBO offers safety. Our products fulfil the most important country-specific regulations:

- Conformity (e.g. IEC, VDE, CE, KEMA, KEUR, UL)
- Certification (e.g. DIN EN, DGNB)
- 5-year guarantee for surge protection products
- Guarantee management



Planning aids

Page 10



OBO isCon® system

Page 26



Conductor material

Page 36



Air-termination systems and air-termination rods

Page 62



Roof cable holders and cable brackets

Page 74



Connection and separating terminals

Page 84



Connection clamps and connection terminals

Page 88



Protection and spark gaps

Page 96



Accessories, external lightning protection

Page 100



Directories

Page 104





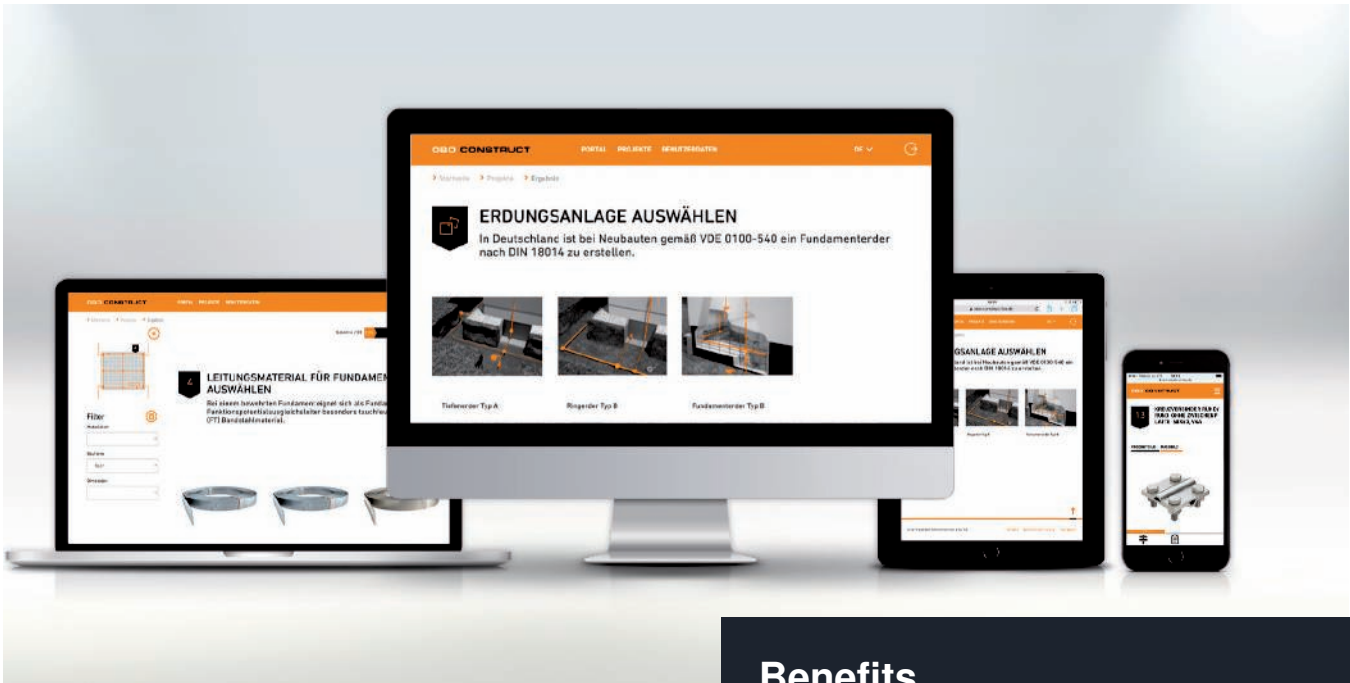
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Planning aids

OBO Construct planning aids	12
Lightning protection guide	13
First-hand support and knowledge	14
Damage caused by surge voltages	16
Financial implications of lightning and surge damage	17
Lightning and surge protection standards	18
Gradual surge reduction with lightning protection zones	20
Choosing the right surge protective devices	21
BET – testing centre for lightning protection, electrical engineering and support systems	22
Certification	23
Types of pulse and their characteristics	24



OBO Construct planning aids



Digital selection aids for earthing systems and surge protection

The OBO Construct electronic planning aids are programs developed to support electrical installation engineers and planners in the design of electrical installation systems. In particular, in complex areas such as surge protection and earthing, there are countless technical and standard general conditions to be observed. The two OBO Construct programs for earthing and surge protection systems should provide active help here. Systematic questions simplify the search for suitable products and guaranteed surge protection systems and earthing systems which fulfil the standards.

OBO Construct for surge protection

This online tool aids you in the project-orientated selection and connection of suitable surge protection systems and provides you with information on the OBO surge protection systems. You can create your personal materials list, connection diagram and invitation to tender texts quickly, efficiently and in a targeted manner for complete surge protection in the fields of energy technology, photovoltaics, telecommunication, MSR, TV, HF and data technology. The result can be exported easily into Excel format for further processing.

Benefits

- Time and place-independent work assistance
- Transmit planning requirements to complete product systems
- Find suitable products quickly and simply
- Calculate material and parts lists automatically
- Download configuration results as Excel or Word files

OBO Construct for earthing systems

Earthing systems can be planned and configured easily using the digital selection aid. The simple and intuitive user guidance leads you through the individual components of the earthing system step by step. The software then automatically calculates the amounts required and the matching accessories. The application can be opened on any end device, irrespective of its operating system – be it smartphone, tablet or desktop PC.



Lightning protection guide. Safely routed.

Reference work and planning aid for electrical installation engineers and technical planners

At OBO Bettermann, we can look back on more than 90 years of experience in the field of lightning and surge protection. This experience and, of course, the latest standards and technical innovations have flowed into the company's new lightning protection guide. The brochure allows you to plan installations in the field of lightning and surge protection faster and more easily.

It contains a balanced mixture of both basic and expert knowledge, as well as planning and selection aids for the protection of buildings and systems.

The new lightning protection guide can be requested by calling +49 23 73 89 - 17 00 and is also available for download on the OBO website.



Topics

- Basic principles
- The external lightning protection system
- Air-termination and down-conductor systems
- Examples and selection aids for wind load calculation conform with Eurocode 1+3
- Earthing systems with foundation earth electrode to current DIN 18014
- The internal lightning protection system
- Equipotential bonding systems
- Overvoltage protection systems
- Current standards
- New selection and planning aids
- Examples



First-hand support and knowledge



OBO TBS seminars: First-hand knowledge

With a comprehensive programme of training courses and seminars on the subject of surge voltage and lightning protection systems, OBO is able to support its customers with specialist knowledge from a single source. Alongside the basic theoretical principles, the programme also deals with practical implementation in everyday applications. Special calculation and application examples round off the comprehensive programme of knowledge transfer.

Invitations to tender on the Internet at www.ausschreiben.de

More than 10,000 entries from the cable support systems, fire protection systems, connection and fastening systems, transient and lightning protection systems, cable routing systems, device systems and underfloor systems can be recalled for free. Regular updates and extensions mean that you always have a comprehensive overview of the OBO products. All the current file formats (PDF, DOC, GAEB, HTML, TEXT, XML, ÖNORM) are available. www.ausschreiben.de

Invitations to tender, product information and data sheets

We can make life easier for you, with our comprehensive selection of materials designed for practical applications, which provide you with effective support with the planning and calculation of a project. These include:

- Invitations to tender
- Product information
- Data sheets

Invitations to tender for lightning protection/earthing at the highest level:

OBO manufactures products to RAL GZ642-5 and is dedicated to compliance with the RAL directives. Lightning protection and earthing products can be used for invitations to tender according to RAL.

These documents are continually updated and can be downloaded for free at any time from the Internet download area at www.obo-bettermann.com.



Customer service and credibility

Friendliness, reliability and competence create acceptance, credibility and lasting working relationships. These shared values arise from OBO's consistent orientation around the wishes and needs of its customers. Close partnerships with customers is OBO's foremost priority.

Speed and reliability

Optimised procedures and highly developed logistics ensure that OBO products are in the right place at the right time, anywhere in the world. OBO offers comprehensive support for large-scale projects, from planning all the way to installation.

Help and advice

Answers to questions about products and installation, planning advice for complex projects – OBO's staff will help you through every phase of your project, no matter what field it is in. We are constantly improving the support we provide in every phase of collaboration, laying the foundations for genuine partnerships.



- Production location
- Subsidiary
- Representative

Minor cause, major effect: Damage caused by surge voltages



Our dependency on electrical and electronic equipment continues to increase, in both our professional and private lives. Data networks in companies or emergency facilities such as hospitals and fire stations are lifelines for an essential real time information exchange. Sensitive databases, e.g. in banks or media publishers, need reliable transmission paths.

It is not only lightning strikes that pose a latent threat to these systems. More and more frequently, today's electronic aids are damaged by surge voltages caused by remote lightning discharges or switching operations in large electrical systems. During thunderstorms too, high volumes of energy are instantaneously released. These voltage peaks can penetrate a building through all manner of conductive connections and cause enormous damage.



Financial implications of lightning and surge damage



Additional costs can also be incurred due to outages and consequential damage in relation to:

- Loss of data
- Production outage
- Loss of contactability (Internet, telephone, fax)
- Faulty heating system
- Costs due to faults and false alarms in fire or burglar alarm systems

Financial losses are on the rise

Recent statistics and numbers show: Surge voltage damages per year have been on the decline since 2014. The positive development could be a result, amongst other things, of the mandatory use of surge protection measures to VDE 0100-443. At the same time, the figures also show that the costs per year are rising significantly. A reason for this is the growing dependency on electrical devices and the increasing number of smart home solutions. Therefore it is always recommended to retrofit surge protection systems, even when they are not required by norms. Although costs will be covered by insurance policies, the annoyance about the preventable damage is initially large. Information on protection measures can be found in, for example, the German Directive VdS 2010.

Financial losses can only be considered in isolation when no legal or insurance requirements for the safety of people apply.

Substantial losses result from the destruction of electrical devices, notably:

- Computers and servers
- Telephone systems
- Fire alarm systems
- Monitoring systems
- Lift, garage door and roller shutter drives
- Consumer electronics
- Kitchen appliances

Year	Amount of lightning and surge voltage damage	Paid damages for lightning and surge voltage damage
2010	290,000	€170 million
2011	380,000	€230 million
2012	360,000	€230 million
2013	290,000	€170 million
2014	380,000	€250 million
2015	350,000	€240 million
2016	320,000	€250 million
2017	300,000	€240 million
2018	280,000	€250 million
2019	230,000	€250 million
2020	200,000	€260 million

Number of instances of damage from lightning and surge voltages and amounts paid out by home and contents insurance companies (the example is of Germany); source: GDV extrapolation based on industry and risk statistics; numbers rounded to the nearest €10,000 or €10 million.

Lightning and surge protection standards

When planning and executing a lightning protection system, it is necessary to observe all relevant national guidelines and take account of any special circumstances or applications and the safety stipulations in the relevant country-specific supplements.

A lightning and surge protection system consists of several systems, each tailored to each of the others. At its most basic, a lightning and surge protection system consists of one internal and one external lightning protection system.

These, in turn, can be categorised as follows:

- Air-termination devices
- Down-conductors
- Earthing systems
- Area shielding
- Separation distance
- Lightning protection equipotential bonding system

These systems must be carefully selected for the application at hand, and used in a coordinated way. Installation of the systems takes place according to various application and product standards. The supplements to the international IEC guidelines and harmonised European versions of the various country-specific translations often contain additional informative information specific to the country in question.

Product standards

To ensure that the components can withstand the loads to which they are likely to be exposed in application, they must be checked against the respective product standard for external and internal lightning protection.



External and internal lightning protection systems



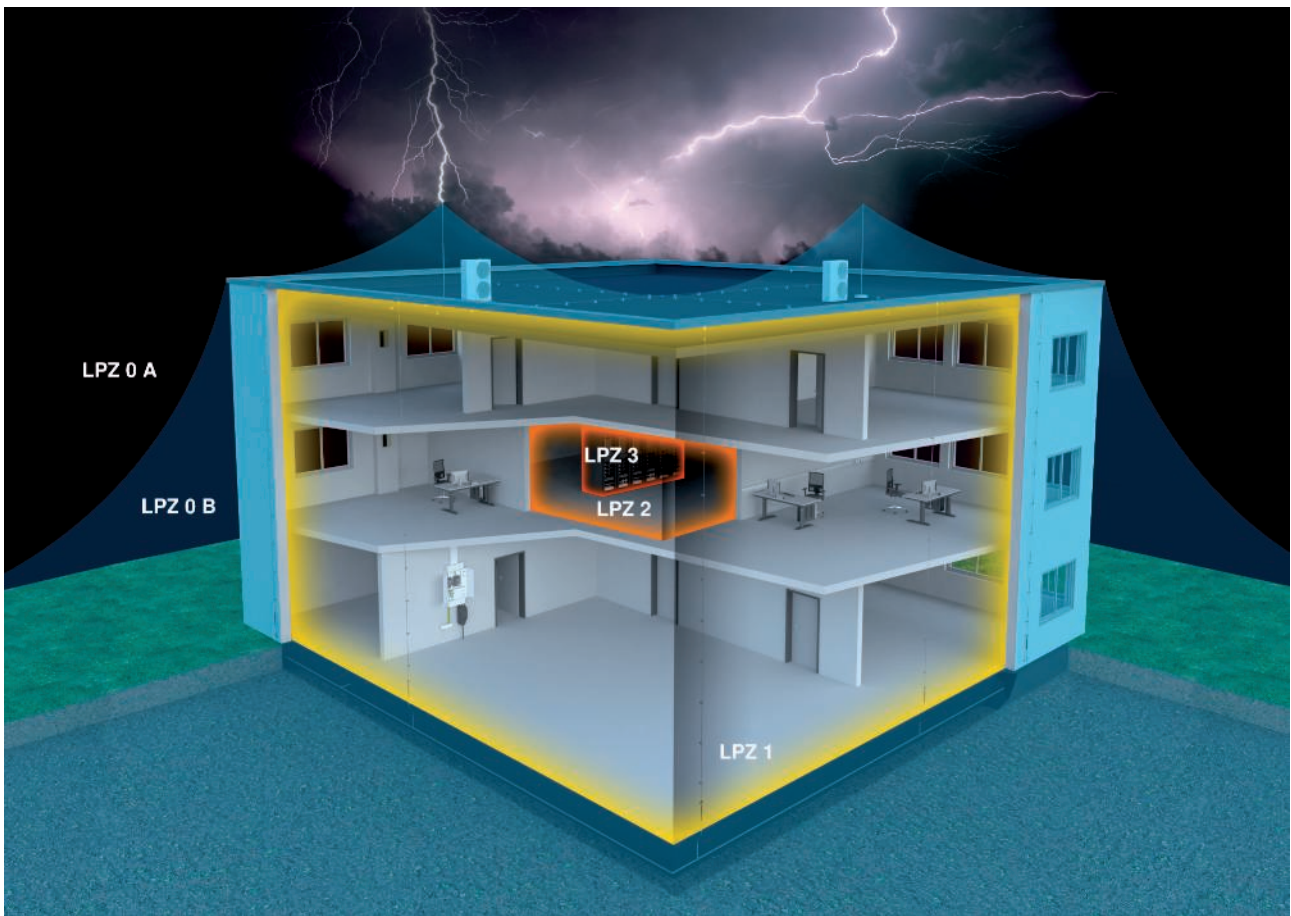
Standard	German supplement	Contents
VDE 0185-305-1 (IEC 62305-1)		Protection against lightning – Part 1: General principles
VDE 0185-305-2 (IEC 62305-2)		Protection against lightning – Part 2: Risk management
	1	Lightning risk in Germany
	2	Calculation aids for estimating the risk of damage for buildings
	3	Additional information on use of EN 62305-2
VDE 0185-305-3 (IEC 62305-3)		Protection against lightning – Part 3: Physical damage to structures and life hazard
	1	Additional information on use of EN 62305-3
	2	Additional information for building structures
	3	Additional information for the testing and servicing of lightning protection systems
	4	Use of metal roofs in lightning protection systems
	5	Lightning and surge protection in PV power supply systems
VDE 0185-305-4 (IEC 62305-4)		Protection against lightning – Part 4: Electrical and electronic systems within structures
	1	Distribution of the lightning current
VDE 0675-6-11 (IEC 60364-5-53)		Low-voltage surge protective devices – Part 11: Surge protective devices connected to low-voltage power systems
VDE 0100-534 (IEC 60364-4-44)		Low-voltage electrical installations – Part 5-53: Selection and erection of electrical equipment – Isolation, switching and control – Clause 534: Devices for protection against surge voltages
VDE 0100-443 (IEC 60364-4-44)		Low-voltage electrical installations – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances – Clause 443: Protection against surge voltages of atmospheric origin or due to switching
VDE 0100-712 (IEC 60364-7-712)		Requirements for operational premises, special rooms and systems – photovoltaic (PV) power supply systems

Key lightning protection standards and specifications

Product standards	Contents
VDE 0185-561-1 (IEC 62561-1)	Lightning protection system components – Requirements for connection components
VDE 0185-561-2 (IEC 62561-2)	Lightning protection system components – Requirements for conductors and earthers
VDE 0185-561-3 (IEC 62561-3)	Lightning protection system components – Requirements for isolating spark gaps
VDE 0185-561-4 (IEC 62561-4)	Lightning protection system components – Requirements for conductor fasteners
VDE 0185-561-5 (IEC 62561-5)	Lightning protection system components – Requirements for earth electrode inspection housings and earth electrode seals
VDE 0185-561-6 (IEC 62561-6)	Lightning protection system components – Requirements for lightning strike counters
VDE 0185-561-7 (IEC 62561-7)	Lightning protection system components – Requirements for earthing enhancing compounds
IEC TS 62561-8	Lightning protection system components – Requirements for components for insulated lightning protection systems
VDE 0675-6-11 (IEC 61643-11)	Surge protective devices for use in low-voltage power systems – Requirements and test methods
VDE 0845-3-1 (IEC 61643-21)	Surge protection for use in telecommunications and signalling networks

Lightning protection and surge protection components

Gradual surge reduction with lightning protection zones



Lightning protection zone concept

The lightning protection zone concept described in international standard IEC 62305-4 (DIN VDE 0185 Part 4) has proved to be practical and efficient. This concept is based on the principle of gradually reducing surges to a safe level before they reach the terminal device and cause damage. In order to achieve this

situation, a building's entire energy network is split into lightning protection zones (LPZ = lightning protection zone). Installed at each transition from one zone to another is a surge arrester for equipotential bonding. These arresters correspond to the requirement class in question.




Lightning protection zone

LPZ 0 A	Unprotected zone outside the building. Direct lightning strike, no shielding against electromagnetic interference pulses LEMP (Lightning Electromagnetic Pulse).
LPZ 0 B	Through the area protected by the external lightning protection system. No shielding against LEMP.
LPZ 1	Zone inside the building. Low partial lightning energies possible.
LPZ 2	Zone inside the building. Low surges possible.
LPZ 3	Zone inside the building (can also be the metal housing of a consumer). No interference pulses through LEMP or surges present.

Choosing the right surge protective devices



The classification of surge protective devices into types means they can be matched to different requirements with regard to location, protection level and current-carrying capacity. The table provides an overview of the zone transitions. It also shows which OBO surge protective devices can be installed in the energy supply network and their respective function.

Zone transition	Protection device and device type	Product example	Product figure
LPZ 0 B to LPZ 1	Protection device for lightning protection equipotential bonding in accordance with VDE 0185-305 (IEC 62305) for direct or close lightning strikes. Devices: Type 1+2 (Class I+II), e.g. CCF Compact Max. protection level according to standard: 1.5 kV OBO protection level: < 1.5 kV Installation, e.g. in the main distributor/at building entry	MCF Compact Item no.: 5096987	
LPZ 1 to LPZ 2	Protection device for lightning protection equipotential bonding in accordance with VDE 0185-305 (IEC 62305) for direct or close lightning strikes. Devices: Type 2 (Class II), e.g. V20 Max. protection level according to standard: 1.5 kV OBO protection level: < 1.3 kV Installation, e.g. in the main distributor/at building entry	V20 Item no.: 5095253	
LPZ 2 to LPZ 3	Protection device, designed for surge protection of portable consumers at sockets and power supplies. Devices: Type 3 (Class III), e.g. ÜSM-A Max. protection level according to standard: 1.5 kV OBO protection level: < 1.3 kV Installation, e.g. on the end consumer	ÜSM-A Item no.: 5092451	

BET Test Centre – for lightning protection, electrical engineering and support systems



BET with countless tasks

Whereas previously only lightning current, environmental and electrical testing had been possible at BET, the BET Test Centre is now also a competent partner for the testing of cable support systems. This combination has made it necessary to revise the meaning of the name. If BET previously stood for "Blitzschutz- und EMV-Technologiezentrum" (Lightning protection and EMC technology centre), since 2009 these letters have meant BET Test Centre for lightning protection, electrical engineering and support systems.

Test generator for lightning current tests

The test generator planned in 1994 and completed in 1996 makes it possible to carry out lightning current tests at up to 200 kA. The generator was planned and constructed in cooperation with Soest Technical College. Due to the intensive planning and scientific support in the construction of the test system, it has worked for 20 years without errors and meets current standardised test requirements.

Testing tasks

The main load of the testing generator is generated through the testing of products from the TBS product division. For this, developmental tests of new developments, modifications to existing OBO products and also comparison tests with competitive products are carried out. These include lightning protection components, surge protective devices and lightning conductors. Tests for lightning protection components are carried out according to DIN EN 62561-1, for spark gaps according to DIN EN 62561-3 and for lightning and surge protective devices according to DIN EN 61643-11. This is only a small amount of the testing standards used for tests in the BET Test Centre.

Certification

In development, manufacture and marketing, the products of OBO Bettermann are subject to high, standardised quality standards and international standards. For decades now, OBO Bettermann has operated an ISO 9001-certified quality management system, which also fulfils the high requirements of the ATEX 2014/34/EU directive for EX products. In addition, OBO has run a certified energy management system according to ISO 50001 and is a long-standing member of Industrieverband Feuerverzinken e.V.

The BET Test Centre is a testing laboratory, recognised and certified by VDE, for the execution of countless tests according to international standards for lightning protection systems.



Confirmation

Herewith we confirm, that

OBO BETTERMANN GmbH & Co. KG
Hüngser Ring 52
58710 Menden

is a member of our association

Industrieverband Feuerverzinken e. V., Düsseldorf.

The company OBO BETTERMANN GmbH & Co. KG provides among other things corrosion protection for fabricated iron and steel articles by hot dip galvanizing and examines that business in accordance with the requirements of the standard

DIN EN ISO 1461
"Hot dip galvanized coatings on fabricated iron and steel articles – specifications and test methods".

Industrieverband Feuerverzinken e.V.
- Director -

Industrieverband Feuerverzinken e.V.
Königsplatz Wupp. 206
40220 Düsseldorf

Mark Huckhold

Mitglied der European General Galvanizers Association (EGGA) - SIC DBU / DEDB/DUE - IBAN DE42 3007 0224 0589 1643 00

Zertifikat zur Anerkennung
Certificate of acceptance

von / of

OBO Bettermann GmbH & Co. KG
BET Testcenter
Hüngser Ring 52
58710 Menden
GERMANY

durch die / by the

VDE Prüf- und Zertifizierungsinstitut GmbH
VDE Testing and Certification Institute

Zertifikat
Mitteilung über die Bewertung des Qualitätssicherungssystems

1. Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen
Richtlinie 2014/34/EU
Anhang IV - Modul D: Konformität mit dem Baumuster auf der Grundlage einer Qualitätssicherung bezogen auf den Produktionsprozess
Anhang VII - Modul E: Konformität mit dem Baumuster auf der Grundlage einer Qualitätssicherung bezogen auf das Produkt

2. Nummer des Zertifikates: **BVS 16 ATEX ZQS/E310**

3. Produktkategorie: **Geräte und Komponenten**
Gerätegruppe II, Kategorien 1G, 2G: Transienten- und Blitzschutz-Systeme

4. **DEKRA**

OBO BETTERMANN

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DEKRA EXAM GmbH, benannte Stelle Nr. 0158 gemäß Artikel 17 der 404/EU vom 26. Februar 2014, bescheinigt, dass der Hersteller ein System in Übereinstimmung mit Anhang IV der Richtlinie entspricht

Anlage werden alle überwachten Produkte mit den Baumusterprüf-
aufgelistet.

im Auditbericht Nr. ZQS/E310/16, ausgestellt am 21.12.2016.

Revisions- und Nachwachsaudits des Qualitätssicherungssystems werden Bestandteil dieses

am 20.08.2016 bis 19.08.2019 und kann zurückgezogen werden, wenn der
Anforderungen an die Qualitätssicherung nach Anhang IV und VII erfüllt.

Richtlinie 2014/34/EU ist hinter der CE-Kennzeichnung die Kennnummer
GmbH als der benannten Stelle anzugeben, die in der Phase der
rd.

Fachzertifizierer:

Seite 1 von 1
Zertifikat darf nur vollständig und unverändert weitervertrieben werden.
Tel. 9, 44609 Bochum, Telefon +49 234 3696-100, Telefax +49 234 3696-110, zc-eam@vde.com

Acceptance Program
Stufe 2 / in Stage 2

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2019-08-22
5022908-9501-0001237781

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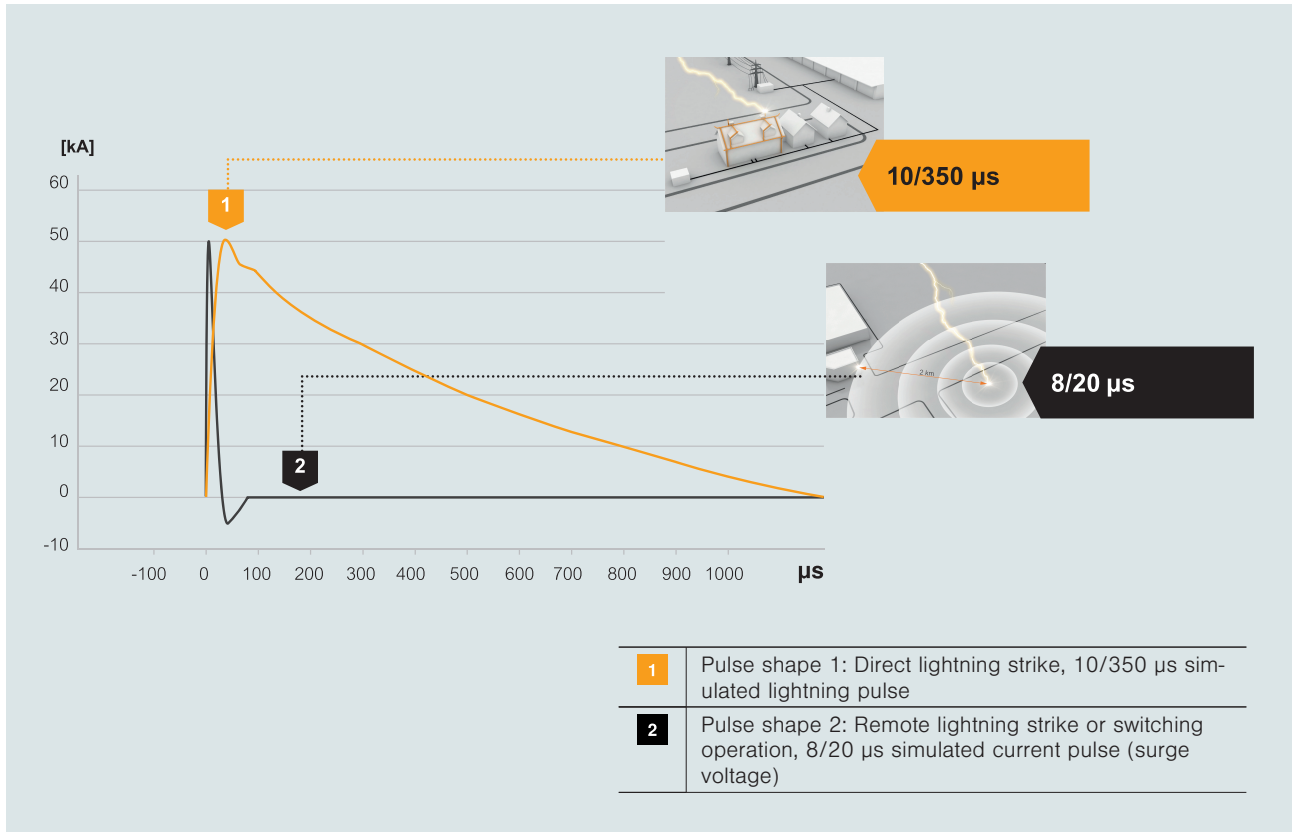
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23 **OBO**

Types of pulse and their characteristics



Testing types for lightning and surge protection

Both lightning current tests and surge voltage tests can be carried out at up to 20 kV. A hybrid generator is used for these tests, which was also developed as part of a cooperation with the Soest Technical College. EMC testing of cable support systems can also be carried out using this test generator. All kinds of cable routing and cable support systems of up to 8 m length can be tested without any difficulties. Tests for electrical conductivity according to IEC 61537 are also carried out.

Simulation of real environmental conditions

To carry out standardised tests on components intended for external use, they must be pretreated under real environmental conditions. This takes place in a salt spray trough and a sulphur dioxide testing

chamber. Depending on the test, the test length and the concentration of the salt spray or sulphur dioxide in the testing chambers may vary. This means that it is possible to conduct tests according to IEC 60068-2-52, ISO 7253, ISO 9227 and EN ISO 6988.

Testing cable support systems

The well-known KTS testing system, newly installed in the BET Test Centre, allows the investigation of the load capacities of any cable support system manufactured by OBO. The basis for this is IEC 61537 and VDE 0639.

In the BET Test Centre, OBO Bettermann has a testing department in which products can be tested according to standards, even during the development phase.





OBO isCon® system



isCon® conductors

28



isCon® conductor accessories

32



Insulated isCon® conductor

The high-voltage-resistant, insulated isCon® down-conductor is the modern solution for planners and erectors of lightning protection systems, in order to maintain the necessary separation distances safely according to VDE 0185-305-3 (IEC/EN 62305-3).

As an innovative international provider of complete lightning and surge protection systems, OBO has adjusted its product range according to the different demands of our customers in the area of insulated lightning protection.

The result: We can now offer the appropriate isCon® conductor system with external certification according to the most recent testing norms (VDE V 0185-561-8/IEC TS 62561-8) for any lightning protection project.



BASIC



$s_e \leq 45 \text{ cm}$



PROFESSIONAL



$s_e \leq 75 \text{ cm}$



EX

PROFESSIONAL+



$s_e \leq 75 \text{ cm}$



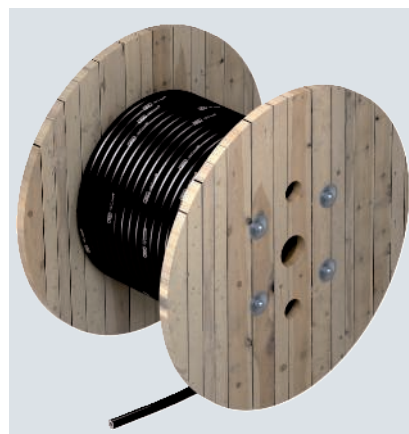
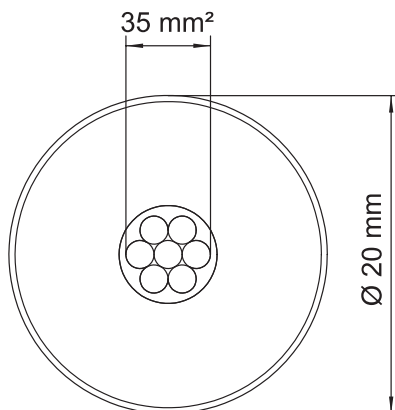
PREMIUM



$s_e \leq 90 \text{ cm}$

isCon® conductor, Professional black

Type	Cross-section mm ²	Nominal size Ø mm	Equivalent separation distance m	Pack m	Weight kg/100 m	Item no.
isCon Pro 75 SW	35	20	0.75	100	57.000	5408008



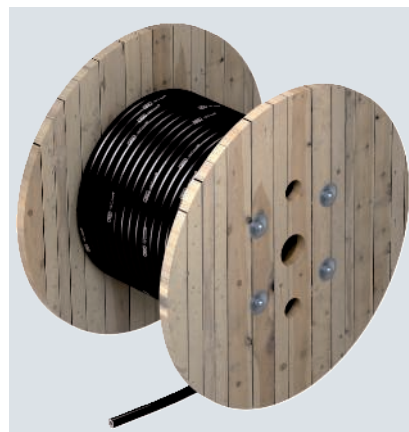
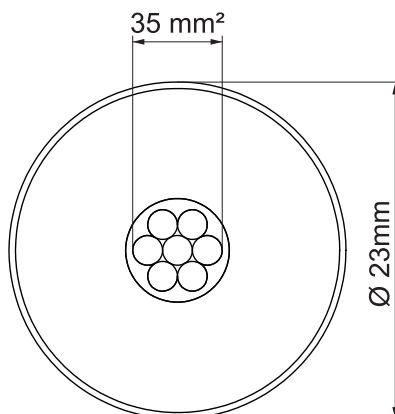
Please refer to the mounting instructions for information on routing the OBO isCon® Pro conductor.

- Highly voltage-resistant, insulated conductor
- Floating discharge-free
- For maintenance of the separation distance according to IEC 62305 (VDE 0185-305-3)
- Tested according to IEC/EN 62561-1 (VDE 0185-561-1) with H1/150 kA
- Equivalent separation distance $se \leq 0.75$ m (air) and $se \leq 1.5$ m (solid material)
- Tested according to IEC TS 62561-8 (VDE V 0185-561-8)
- Halogen-free
- Fire load 3.3 kWh/m

isCon® conductors, Premium

isCon® conductor, Premium black

Type	Cross-section mm ²	Nominal size Ø mm	Equivalent separation distance m	Pack m	Weight kg/100 m	Item no.
isCon PR 90 SW	35	23	0.9	100	66.600	5408018

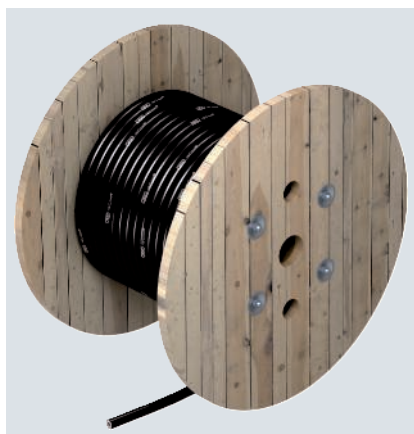


Please refer to the mounting instructions for information on routing the OBO isCon® Premium conductor.

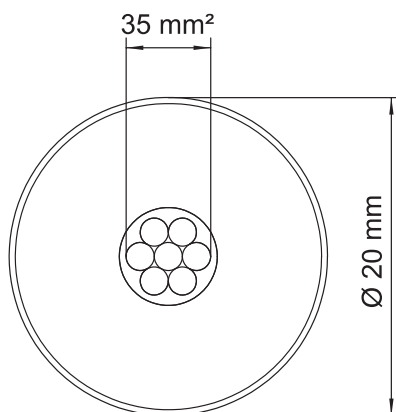
- Highly voltage-resistant, insulated conductor
- Floating discharge-free
- Tested according to IEC/EN 62561-1 (VDE 0185-561-1) with H2/200 kA
- Equivalent separation distance $se \leq 0.90$ m (air) and $se \leq 1.8$ m (solid material)
- Tested according to IEC TS 62561-8 (VDE V 0185-561-8)
- Halogen-free
- Fire load 4.2 kWh/m



isCon® conductor, Basic black



Type	Cross-section mm ²	Nominal size Ø mm	Equivalent separation distance m	Pack m	Weight kg/100 m	Item no.
isCon BA 45 SW	35	20	0.45	100	57.000	5408014



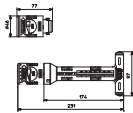
Please refer to the mounting instructions for information on routing the OBO isCon® Basic conductor.

- Highly voltage-resistant, insulated conductor
- For maintenance of the separation distance according to IEC 62305 (VDE 0185-305-3)
- Tested according to IEC/EN 62561-1 (VDE 0185-561-1) with H1/150 kA
- Equivalent separation distance $se \leq 0.45$ m (air) and $se \leq 0.90$ m (solid material)
- Tested according to IEC TS 62561-8 (VDE V 0185-561-8)
- Halogen-free
- Fire load 3.3 kWh/m



Stripping tool for isCon® conductor

PA/PE

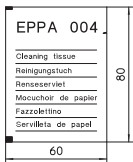


Type	Clamping range D mm	Pack	Weight	Item no.
		Piece	kg/100 pc.	
isCon stripper 2	20-23	1	170.000	5408013

Stripping tool to remove the insulation of the OBO isCon® conductor.

Cleaning cloth

Z-PP-P



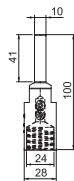
Type	Width mm	Length mm	Pack	Weight	Item no.
			Piece	kg/100 pc.	
isCon EPPA 004	140	200	50	0.420	5408060

- Cellulose polypropylene paper with abrasive sections, folded multiple times
- Doused with 2.8 ml impregnation solution
- For cleaning the external jacket of the OBO isCon® conductor

isCon® connection elements

isCon® connection element

A2



Type	Dim. D Ø mm	Fit mm	Lightning current carrying capacity kA	Pack	Weight	Item no.
				Piece	kg/100 pc.	
isCon con 2	20	10	H1/150	2	21.500	5408021
isCon connect	23	10	H1/150	2	21.500	5408022
isCon con PRE	23	10	H2/200	2	21.500	5408023

- Screw-on termination of the connection for the isCon® conductor
- Incl. heat-shrinkable sleeve, hexagonal
- Tested up to 200 kA (lightning protection class I)

isCon® Basic, Premium and Professional connection elements

Connection element for installation in the insulated air-termination rod isFang IN

A2



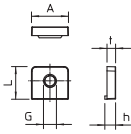
Type	Dim. D Ø mm	Lightning current carrying capacity kA	Pack	Weight	Item no.
			Piece	kg/100 pc.	
isCon IN con 2	20	H1/150	1	27.800	5408019
isCon IN con PRE	23	H2/200	1	27.800	5408020

- Screw-on termination of the connection for the isCon® conductor
- Connection and installation of the cable in the insulated air-termination rod
- Tested up to 200 kA (lightning protection Class I)



starQuick nut

PC



Type	Colour	Nominal size	Dim. A mm	Dim. L mm	Dim. h mm	Dim. t mm	Pack Piece	Weight kg/100 pc.	Item no.
SQ M6	Light grey	M6	17	15	5	4	100	0.070	2146509

Nut for insertion in starQuick clip, to mount the clip on an M6 thread.

Information signs

isCon® information panel EN

PS



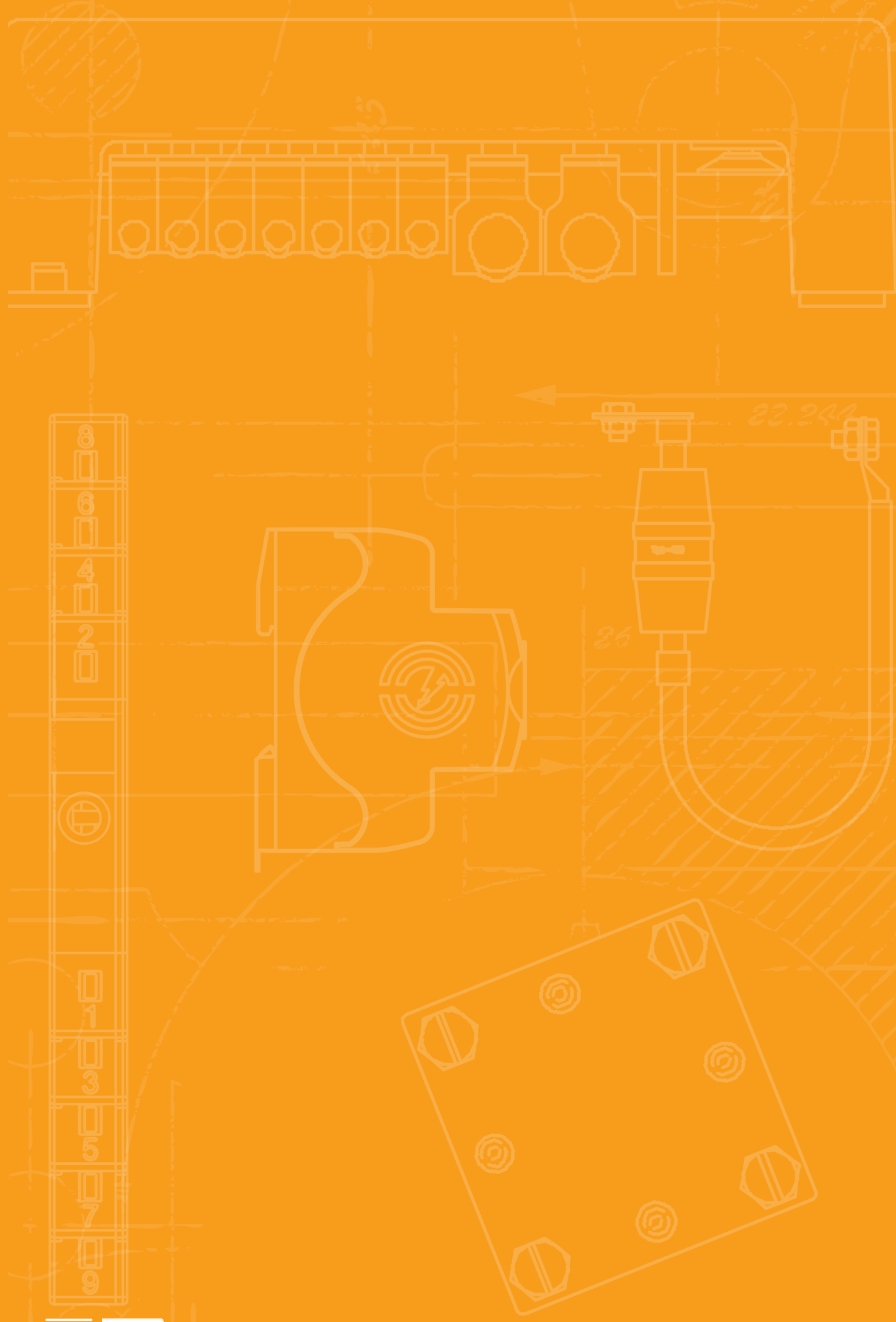
Type	Pack Piece	Weight kg/100 pc.	Item no.
isCon HWS EN	1	2.000	5408059

Label: "NOTE! Insulated lightning protection with the OBO isCon® system. Only a lightning protection specialist may carry out changes"







- To label the lightning protection system
- Self-adhesive and with 4 fastening holes \varnothing 6.5 mm





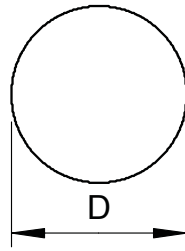


Conductor material

	Cable material	38
	Cable bracket	42
	Connection clamps and connection terminals	44
	Connection and separating terminals	52
	Connection material	54
	Accessories	60



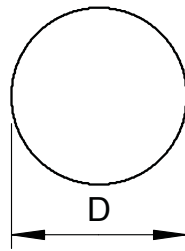
Round conductor, galvanised steel



Type	Nominal size Ø mm	Cross-section mm ²	Normal ring ca. m	Normal ring ca. kg	Pack m	Weight kg/100 m	Item no.
RD 8-FT	8	50	125	50	125	40.000	5021081
RD 8-FT 50	8	50	50	20	50	40.000	5021050
RD 10	10	78	80	50	80	63.000	5021103

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 10 can also be used in the earth
- Zinc coating: ≥ 350 g/m² (approx. 50 µm in mean value)

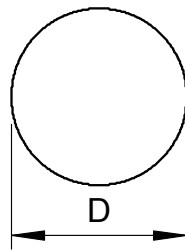
Round conductor, stainless steel A2



Type	Nominal size Ø mm	Cross-section mm ²	Normal ring ca. m	Normal ring ca. kg	Pack m	Weight kg/100 m	Item no.
RD 10-V2A	10	78	50	32	50	63.000	5021227
RD 8-V4A	8	50	125	50	125	40.000	5021644
RD 10-V4A 20	10	78	20	12	20	63.000	5021640
RD 10-V4A	10	78	50	32	50	63.000	5021642

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 10-V4A for applications in the earth
- According to the foundation earth electrode standard DIN 18014, V4A is required in the earth

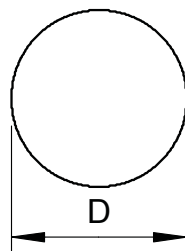
Round conductor, copper



Type	Nominal size Ø mm	Cross-section mm ²	Normal ring ca. m	Normal ring ca. kg	Pack m	Weight kg/100 m	Item no.
RD 8-CU	8	50	100	45	100	45.000	5021480
RD 10-CU	10	78	50	35	50	70.000	5021502

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Round conductor, aluminium



Type	Nominal size Ø mm	Cross-section mm ²	Normal ring ca. m	Normal ring ca. kg	Pack m	Weight kg/100 m	Item no.
RD 8-ALU-T	8	50	150	20	150	13.500	5021294

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 8 ALU: Semi-hard (E-ALMgSi0.5 corresponds to DIN 48801)
- RD 8 ALU-T: Can be subjected to torsion (E-ALMgSi0.5 corresponds to DIN 48801)
- RD 10 ALU: Pure aluminium (E-Al corresponds to DIN 48801)
- AL and ALMgSi may not be routed directly on, in or under plaster, mortar or concrete, nor routed in the earth

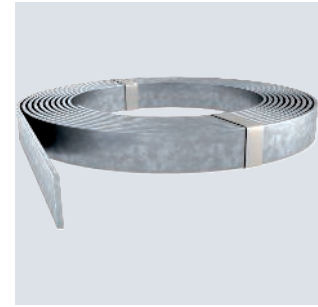
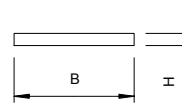
St FT



Galvanised steel flat conductor for earth

Type	Dim. B mm	Dim. H mm	Cross-section mm ²	Normal ring ca. kg	Pack m	Weight kg/100 m	Item no.
5052 DIN 30X3.5	30	3.5	105	25	30	84.000	5019345
5052 DIN 30X3.5	30	3.5	105	50	60	84.000	5019347

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Meets the requirements of VDE 0185-305 (IEC 62305)
- Zinc coating: ≥ 500 g/m² (approx. 70 µm in mean value)
- For lightning protection, earthing systems and ring equipotential bonding



Conductor material

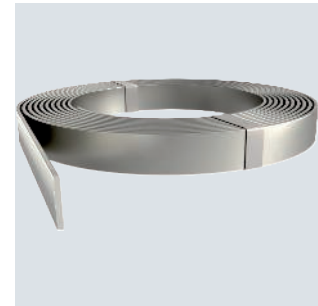
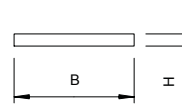
VA



Stainless steel flat conductor

Type	Dim. B mm	Dim. H mm	Cross-section mm ²	Normal ring ca. kg	Pack m	Weight kg/100 m	Item no.
5052 V4A 30X3.5	30	3.5	105	21	25	82.425	5018730

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- According to the foundation earth electrode standard DIN 18014, V4A is required in the earth
- For use in areas at risk of corrosion
- For lightning protection, earthing systems and ring equipotential bonding

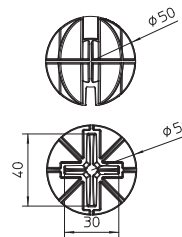


PE

Protective cap for connection lugs, reflective

Type	Fit mm	Pack Piece	Weight kg/100 pc.	Item no.
ProtectionBall	RD 8-10/FL 25/30/40	25	2.050	5018014

- For snapping onto round conductors or flat conductors
- Noticeable, reflective label
- For accident protection during the construction phase



Accessories

Magnetic card PCS

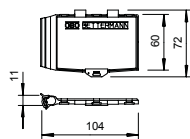
Type	Pack PU	Weight kg/100 PUs	Item no.
PCS	1	5.000	5091438

Peak Current Sensor (PCS) card for recording pulsed/lightning currents. A continuous check of whether lightning has struck the lightning protection system and how high the most recent lightning current was in kA can thus be carried out in the simplest manner by the system operator, specialist lightning protection company or by a surveyor. Here, the printed maintenance circuit and the labelling panels support the maintenance work of the entire lightning protection system which must be performed at defined intervals according to VDE 0185-305-3 (IEC/EN 62305-3).

- Contents = 10 units
- Digital evaluation via the PCS card reading device
- Can be used in addition to the OBO lightning current meter LSC I-II
- With separate labelling panels: "Erected by", "Tested by", "Card code"
- Integrated maintenance circuit (year/month)



Magnetic card holder PCS-H

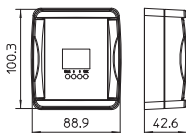


Type	Pack	Weight	Item no.
	PU	kg/100 PUs	
PCS-H	1	31.000	5091527

Magnetic card holder for mounting PCS cards.

- Sealable holder
- For installing on round conductor Rd 8-10
- Simple holder installation by means of clamp
- 1 PU = 10 pieces

Lightning strike and surge counter



Type	Measuring range	Pack	Weight	Item no.
		Piece	kg/100 pc.	
LSC I+II	1 kA - 100 kA	1	32.500	5091722

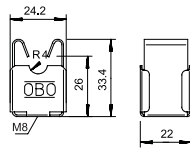
The LSC I+II lightning current meter measures and permanently saves pulse currents, together with the date and time. This ensures constant monitoring in order to notice if any lightning has struck the lightning protection system. Should this be the case, then the lightning protection system must be maintained according to VDE 0185-305 (IEC 62305).

- Saving and display of time and date
- Usable both inside and outside due to its protection class of IP65
- Cable clip for round conductor or flat conductor
- Direct mounting on the conductor or the PE conductor of the surge protective device
- Long lifespan of the internal lithium batteries
- LCD display
- Internal battery
- Tested according to VDE 0185-561-6 (IEC 62561-6)



Cable bracket for Rd 8 mm, through-way Ø 7 mm

A2



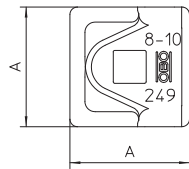
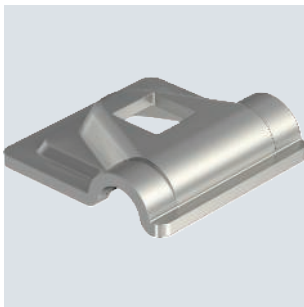
Type	Fit mm	Installation height mm	Pack Piece	Weight kg/100 pc.	Item no.

- With female thread M8 or through hole Ø 5 mm
- From stainless steel (V2A)

Quick connector, covers

Quick connector, upper part Rd 8–10 mm

A2

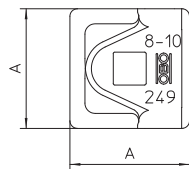
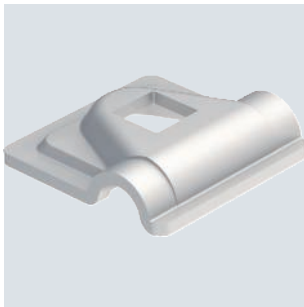


Type	Fit mm	Dim. A mm	Pack Piece	Weight kg/100 pc.	Item no.

- For round conductor Rd 8-10
- Suitable for M10 bolts

Quick connector, upper part Rd 8–10 mm

Alu



Type	Fit mm	Dim. A mm	Pack Piece	Weight kg/100 pc.	Item no.

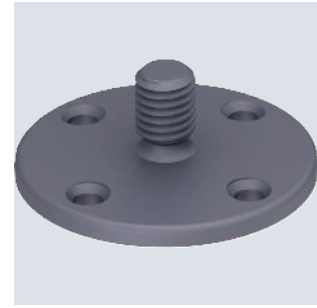
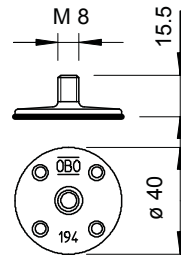
- For round conductor fastening Rd 8-10
- Suitable for M10 bolts

PA

Bonding base including industrial bonding pad

Type	Colour	Thread	Pack Piece	Weight kg/100 pc.	Item no.
194 K	Grey	M8	20	0.600	5207266

- With threaded stem M8
- For mounting cable supports with M8 female thread
- For bonding to concrete, steel or smooth substrates
- Not suitable for rough surfaces such as plaster, wood, bitumen strips
- Processing at > +15 °C and on cleaned substrate
- When installing flat conductors and round conductors, expansion elements are to be used for thermal compensation
- Use on film roofs after consultation with the responsible roof construction company

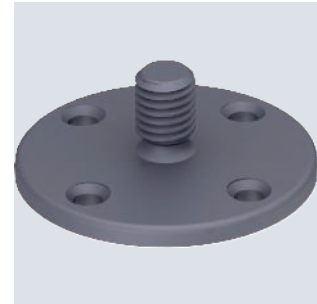
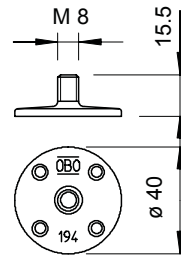


PA

Bonding base

Type	Colour	Thread	Pack Piece	Weight kg/100 pc.	Item no.
194	Grey	M8	100	0.389	5207258

- With threaded stem M8
- For mounting cable supports with M8 female thread
- For bonding to concrete, steel or brickwork
- When installing flat conductors and round conductors, expansion elements are to be used for thermal compensation

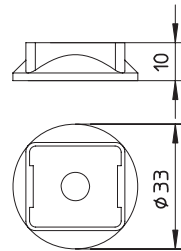


PP

Washer for cable bracket, type 177

Type	Colour	Pack Piece	Weight kg/100 pc.	Item no.
177 U	Light grey	20	0.286	5207371

- For simple wall installation
- UV-resistant



PA

Hard foam plate anchor

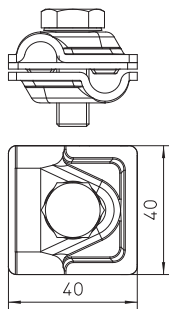
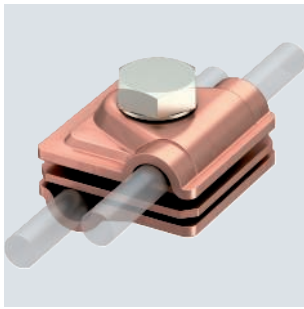
Type	Length mm	Dowel Ø mm	Wood screws Ø mm	Break load kN	Pack Piece	Weight kg/100 pc.	Item no.
177 WDVS 64x25 B	63.5	9	4-5	0.05	50	0.658	5207375

Anchor for universal light-duty fastening in plastered composite heat insulation systems (WDVS). The self-tapping point makes pre-drilling superfluous.



Variable earthing connector Rd 6-8 / 8-10 mm

Cu

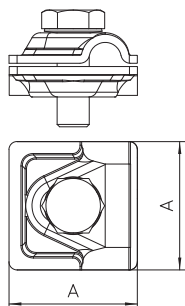
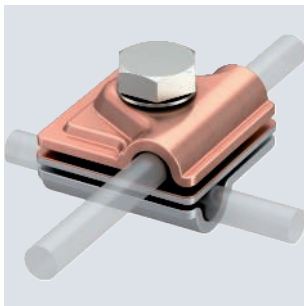


Type	Fit mm	Dim. A mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
249 6-10 CU	Rd 6-8 / 8-10	40	H/100	10	14.540	5311417

- For T, cross-over and parallel connections with adapter plates
- Quick mounting using an M10 x 30 bolt, made from rustproof stainless steel A2
- With sprung washer to DIN 137
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Variable bi-metal quick connector

Cu

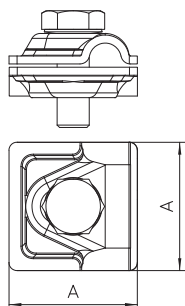
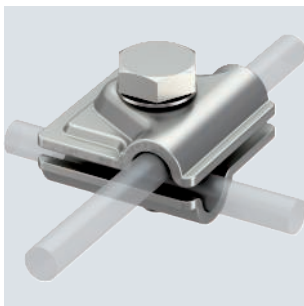


Type	Fit mm	Dim. A mm	Lightning current carrying capacity kA	Material	Pack Piece	Weight kg/100 pc.	Item no.
249 8-10 ZV	Rd 8-10	44	H/100	Cu	10	14.220	5311535

- Intermediate plate, copper/aluminium, top section copper and aluminium
- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- With spring washer according to DIN 137
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Vario quick connector

A2

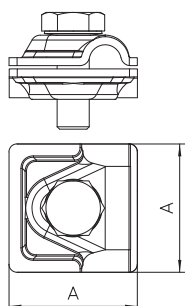
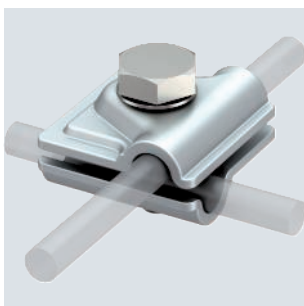


Type	Fit mm	Dim. A mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
249 8-10 VA	Rd 8-10	40	H/100	10	9.276	5311551

- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Vario quick connector

Alu



Type	Fit mm	Dim. A mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
249 8-10 ALU	Rd 8-10	44	H/100	30	6.600	5311519

- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

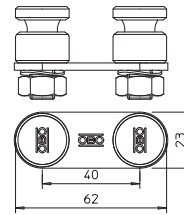
A2



Connector, Rd 8–10 mm, double, with pressure trough

Type	Fit mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
5002 N-VA	Rd 8-10	N/50	10	16.200	5304270

- With 2 Fix contact clamping screws, nuts and serrated washers
- With pre-mounted pressure trough made of VA
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)



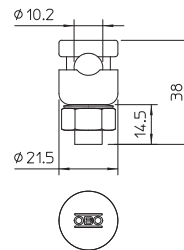
Cu



Connector, Rd 8–10 mm with pressure trough

Type	Fit mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
5001 N-CU	Rd 8-10	H/100	10	6.750	5304172

- With 1 fix contact clamping screw, nut and serrated washer
- Including pre-mounted pressure sump, steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)



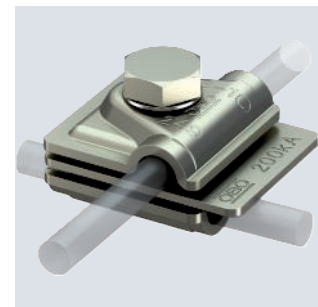
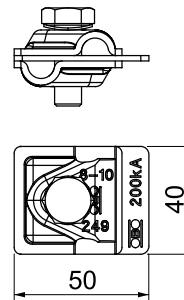
A2



Vario quick connector 200 kA

Type	Fit mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
249 8-10 V2A 200	Rd 8-10	H2/200	10	12.374	5311595

- For T, intersection and parallel connections
- Quick mounting using an M10 x 30 bolt, made from rustproof stainless steel
- Meets the requirements of VDE 0185-305 (IEC 62305)
- Tested according to VDE 0185-561-1 (IEC/EN 62561-1) with 200 kA
- For use in lightning protection class I with the isCon® Premium conductor



Cross-connectors

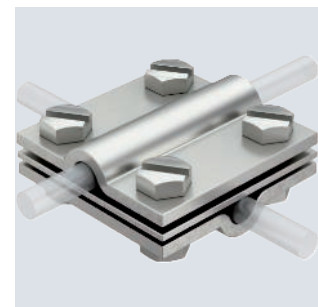
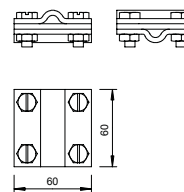
A4



Cross-connector with intermediate plate for Rd 8–10 mm

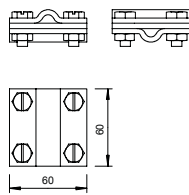
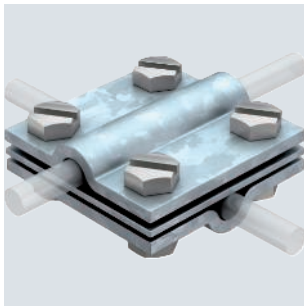
Type	Fit mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
252 8-10 V4A	Rd 8-10	H/100	10	33.530	5312318

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8



Cross-connector with intermediate plate for Rd 8–10 mm

St FT
TESTED

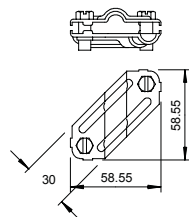


Type	Fit mm	Lightning current carrying capacity kA	Short-circuit current (50 HZ) (1 s; ≤300 °C) kA	Pack Piece	Weight kg/100 pc.	Item no.
252 8-10 FT	Rd 8-10	H/100		25	33.530	5312310

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

Cross-connector for flat conductors and round conductors

A2 A4
TESTED

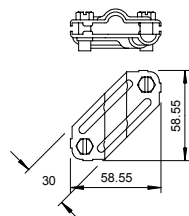
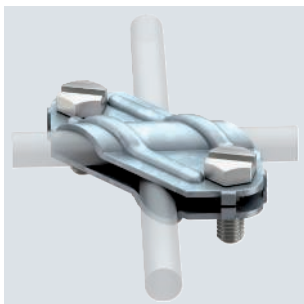


Type	Fit mm	Lightning current carrying capacity kA	Short-circuit current (50 HZ) (1 s; ≤300 °C) kA	Pack Piece	Weight kg/100 pc.	Item no.
250 VA	Rd 8-10/FL30	H/100	1.4	25	10.260	5312922
250 V4A	Rd 8-10/FL30	H/100	1.4	10	10.260	5312925

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- Fit: Rd 8-10 x FL 30
- Fit: FL 30 x FL 30
- Mounted with 2 hexagonal bolts M8 x 20

Cross-connector for flat conductors and round conductors

St FT
TESTED



Type	Fit mm	Lightning current carrying capacity kA	Short-circuit current (50 HZ) (1 s; ≤300 °C) kA	Pack Piece	Weight kg/100 pc.	Item no.
250	Rd 8-10/FL30	N/50	5.6	25	10.260	5312906

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- Fit: Rd 8-10 x FL 30
- Fit: FL 30 x FL 30
- Mounted with 2 hexagonal bolts M8 x 20 (F)

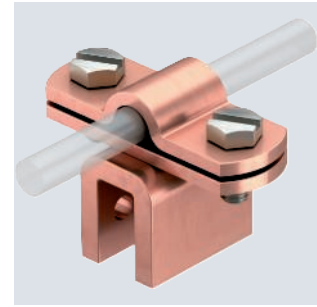
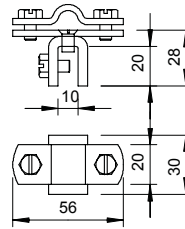
Cu

Folding clamp Rd 8-10 up to 10 mm plate thickness



Type	Fit mm	Clamping range mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
270 8-10 CU	Rd 8-10	-10	H/100	10	14.740	5317258

- Metal thickness to 10 mm
- For conductor routing transverse and in parallel to the plate
- Corresponds to the requirements to DIN V VDE V 0185-3 section 4.5

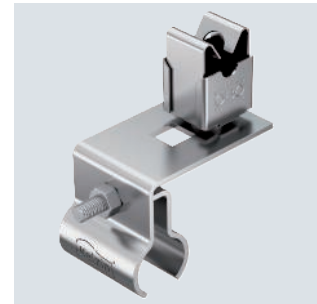
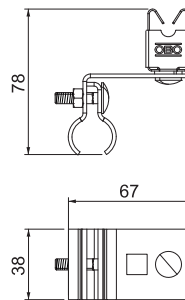


A2



Type	Fit mm	Clamping range mm	Pack Piece	Weight kg/100 pc.	Item no.
RSF 177 20 VA M8	8	8	50	13.400	5317512

- For round standing seam systems, loose cable routing
- Manufacturer release by Kalzip
- Tested according to VDE 0185-561-4 (IEC/EN 62561-4)



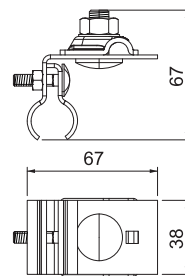
Folding and construction clamp

A2



Type	Fit mm	Clamping range mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
RSF 249 8-10 VA	Rd 8-10	-10	N/50	50	14.200	5317502

- For round standing seam systems, fixed cable routing
- Manufacturer release by Kalzip
- Tested according to VDE 0185-561-1 (IEC/EN 62561-1)



Folding and construction clamp

Roof gutter clamps

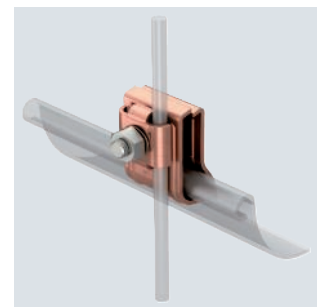
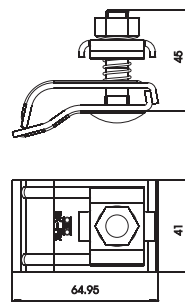
A2

Cu



Type	Fit mm	Lightning current carrying capacity kA	Material	Pack Piece	Weight kg/100 pc.	Item no.
RK-FIX CU	2 x Rd 8 / 2 x Rd 6	H/100	A2	10	21.000	5316468

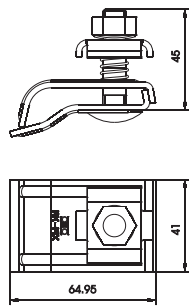
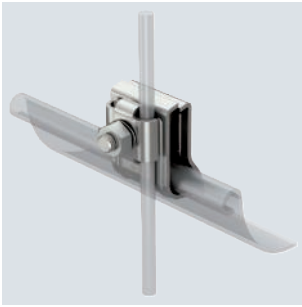
- For up to 2 conductors Rd 6 or Rd 8
- Suitable for all bead thicknesses (15–25 mm)
- With 1 truss-head bolt M10 x 45
- Nut and bolt made of VA stainless steel
- With spring for prefixing on rain gutter
- Tested to VDE 0185-561-1 (IEC/EN 62561-1)



Gutter clamp RK-FIX

Gutter clamp RK-FIX

A2



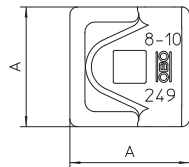
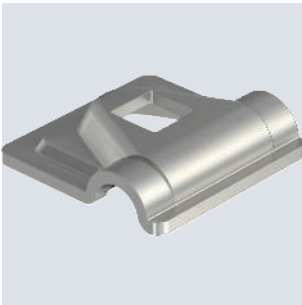
Type	Fit mm	Lightning current carrying capacity kA	Material	Pack Piece	Weight kg/100 pc.	Item no.
RK-FIX VA	2xRd8/2xRd6	H/100	A2	10	19.100	5316459

- For up to 2 round conductors Rd 6 or Rd 8
- Suitable for all bead thicknesses (15–25 mm)
- With 1 truss-head bolt M10 x 45
- Nut and bolt made of VA stainless steel
- With spring for prefixing on rain gutter
- Tested to VDE 0185-561-1 (IEC/EN 62561-1)

Connection terminals

Quick connector, upper part Rd 8–10 mm

A2

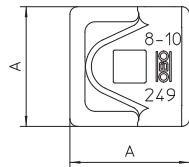
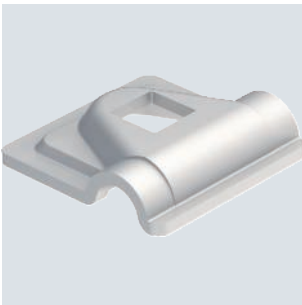


Type	Fit mm	Dim. A mm	Pack Piece	Weight kg/100 pc.	Item no.
249 8-10 VA-OT	Rd 8-10	40	100	3.130	5311554

- For round conductor Rd 8-10
- Suitable for M10 bolts

Quick connector, upper part Rd 8–10 mm

Alu



Type	Fit mm	Dim. A mm	Pack Piece	Weight kg/100 pc.	Item no.
249 8-10 ALU-OT	Rd 8-10	44	100	2.100	5311585

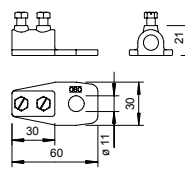
- For round conductor fastening Rd 8-10
- Suitable for M10 bolts

Zn G

End piece

Type	Fit mm	Pack Piece	Weight kg/100 pc.	Item no.
280 8-10	Rd 8-10	20	6.300	5320011

- With \varnothing 11 mm attaching hole
- 2 hexagonal bolts M6 x 12, bolts hot-dip galvanised steel or VA
- Clamping element from die-cast zinc or copper-plated die-cast zinc



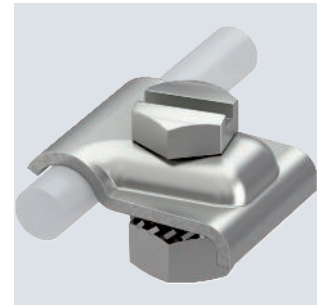
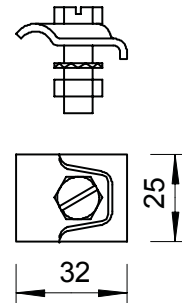
Universal terminal blocks

A2

Universal clamping block Rd 8–10 mm

Type	Fit mm	Pack Piece	Weight kg/100 pc.	Item no.
324 S-VA	Rd 8-10	10	3.400	5326311

- Including hexagonal bolt M8 x 25, washer and nuts



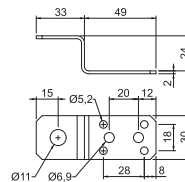
Connection components

Alu

Connection component

Type	Pack Piece	Weight kg/100 pc.	Item no.
287	20	1.600	5320704

- With 1 attaching hole \varnothing 11 mm
- 4 mounting holes \varnothing 5.2 mm
- 2 mounting holes \varnothing 6.9 mm

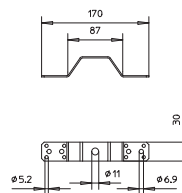


Alu

Connection and bridging component

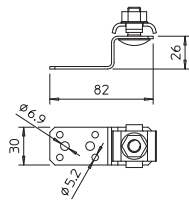
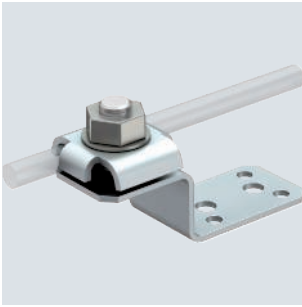
Type	Pack Piece	Weight kg/100 pc.	Item no.
288 DIN	20	2.900	5320712

- With 1 attaching hole \varnothing 11 mm
- With 2 x 4 mounting holes \varnothing 5.2 mm
- With 2 x 2 mounting holes \varnothing 6.9 mm



Connection component with double crossbar

Alu

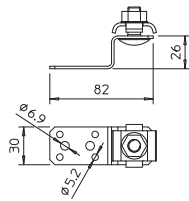
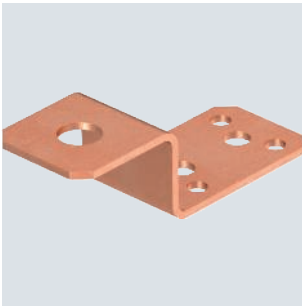


Type	Fit mm	Lightning current carrying capacity kA	Pack	Weight	Item no.
			Piece	kg/100 pc.	
287 DCT	8	N/50	10	6.450	5320707

- Quick mounting thanks to an M10 x 30 bolt made of rustproof stainless steel
- With spring washer
- 4 fastening holes Ø 5.2 mm
- 2 fastening holes Ø 6.9 mm
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Connection component

Cu



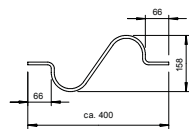
Type	Pack Piece	Weight kg/100 pc.	Item no.

- With 1 attaching hole Ø 11 mm
- 4 mounting holes Ø 5.2 mm
- 2 mounting holes Ø 6.9 mm

Connection clamps and connection terminal accessories

Expansion piece

Alu



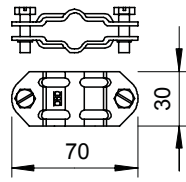
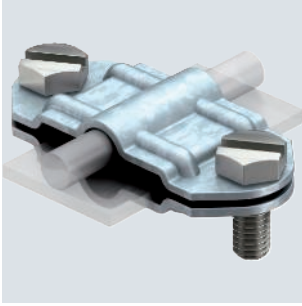
Type	Pack Piece	Weight kg/100 pc.	Item no.

- For equalising temperature-related length changes
- Necessary on conductor lengths over 20 m
- From round conductor Rd 8-Al



Separating piece for Rd 8–10 and FL 30 mm

St FT

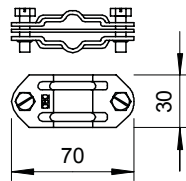
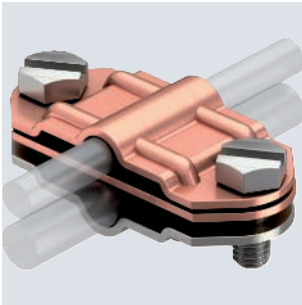


Type	Fit mm	Pack Piece	Weight kg/100 pc.	Item no.
233 8	Rd 8-10/FL30 x Rd 8-10/FL30	20	8.200	5336309

- To fit round conductors Rd 8-10 or flat conductors FL 30
- With 2 hexagonal bolts M8 x 20 made of rustproof steel (VA)
- Short-circuit current I_k (50 Hz), time 0.6 s, temp. max. 300 °C: 8.5 kA

Bi-metal separating piece for Rd 8–10 and FL 30 mm

A2

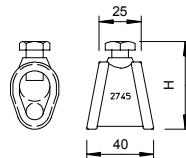


Type	Fit mm	Material upper part	Material lower part	Pack Piece	Weight kg/100 pc.	Item no.
233 ZV	Rd 8-10/FL30 x Rd 8-10/FL30	Cu	VA	10	10.100	5336376

- For fitting round conductors Rd 8-10 to flat conductors FL 30
- With 2 hexagonal bolts M8 x 20, stainless steel (VA)
- Intermediate plate aluminium/copper, top section copper, bottom section stainless steel

Connection clamp for earth rod or cables

CuZn 37 Cu



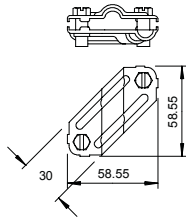
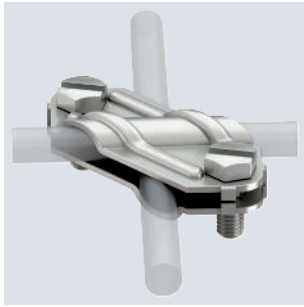
Type	For earth rods	Fit Ø mm	Fit mm	Pack Piece	Weight kg/100 pc.	Item no.
2745 20 MS	20	7-12,5/S95	mm ²	5	16.000	5001560

- For earth rods Ø 20 or conductors of 95 mm²
- For round conductor attachments Rd 7–12.5 with hexagonal bolts M10 x 25



Cross-connector for flat conductors and round conductors

A2 A4
BEST TESTED

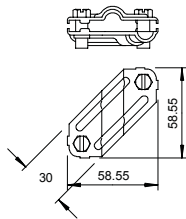
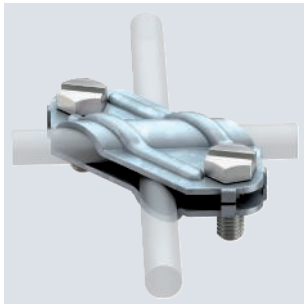


Type	Fit mm	Lightning current carrying capacity kA	Short-circuit current (50 HZ) (1 s; ≤300 °C) kA	Pack Piece	Weight kg/100 pc.	Item no.
250 VA	Rd 8-10/FL30	H/100	1.4	25	10.260	5312922
250 V4A	Rd 8-10/FL30	H/100	1.4	10	10.260	5312925

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- Fit: Rd 8-10 x FL 30
- Fit: FL 30 x FL 30
- Mounted with 2 hexagonal bolts M8 x 20

Cross-connector for flat conductors and round conductors

St FT
BEST TESTED

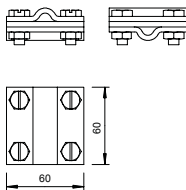
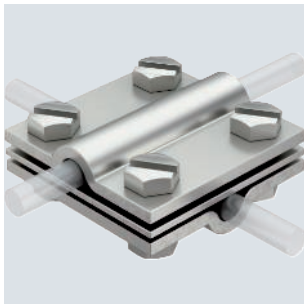


Type	Fit mm	Lightning current carrying capacity kA	Short-circuit current (50 HZ) (1 s; ≤300 °C) kA	Pack Piece	Weight kg/100 pc.	Item no.
250	Rd 8-10/FL30	N/50	5.6	25	10.260	5312906

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- Fit: Rd 8-10 x FL 30
- Fit: FL 30 x FL 30
- Mounted with 2 hexagonal bolts M8 x 20 (F)

Cross-connector with intermediate plate for Rd 8–10 mm

A4
BEST TESTED

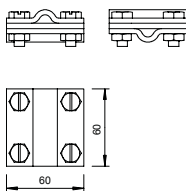
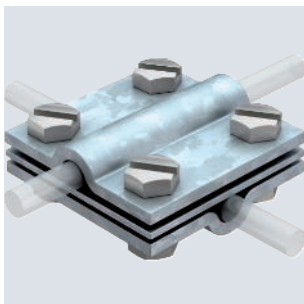


Type	Fit mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
252 8-10 V4A	Rd 8-10	H/100	10	33.530	5312318

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Cross-connector with intermediate plate for Rd 8–10 mm

St FT
BEST TESTED



Type	Fit mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
252 8-10 FT	Rd 8-10	H/100	25	33.530	5312310

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

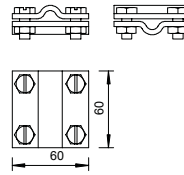
VA

Cross-connector round/round without intermediate plate



Type	Fit	Lightning current carrying capacity	Pack Piece	Weight kg/100 pc.	Item no.
253 8-10 V4A	Rd 8-10	H/100	25	23.650	5312582

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)



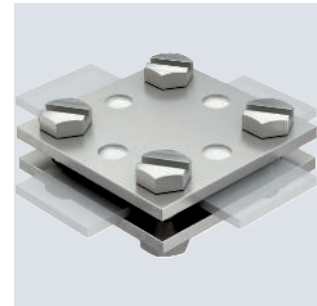
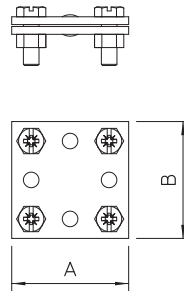
A4

DIN cross-connector for flat conductor



Type	Fit	Dim. A	Dim. B	Lightning current carrying capacity	Pack Piece	Weight kg/100 pc.	Item no.
256 A-DIN 30 V4A	max. FL30	60	60	H/100	10	26.400	5314659

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Max. FL 30 x FL 30
- Without adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8



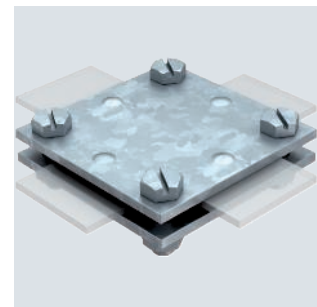
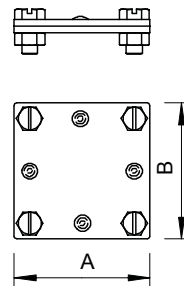
St FT

DIN cross-connector for flat conductor



Type	Fit	Dim. A	Dim. B	Lightning current carrying capacity	Pack Piece	Weight kg/100 pc.	Item no.
256 A-DIN 30 FT	max. FL30	60	60	H/100	10	22.550	5314658

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Max. FL 30 x FL 30 or max. FL 40 x FL 40
- Without adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)



Connection clips

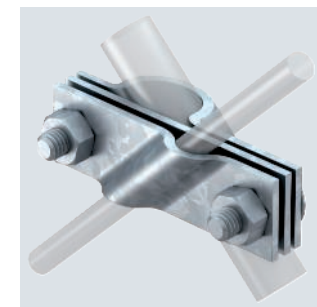
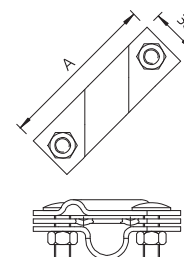
St FT

Connection clamp for earth rod, universal



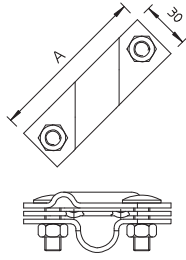
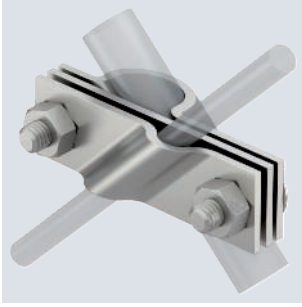
Type	For earth rods	Fit	Short-circuit current (50 HZ) (1 s; ≤300 °C)	Pack Piece	Weight kg/100 pc.	Item no.	
2760 20 FT	101	20	Rd 8-10/FL40	7.9	5	28.335	5001641
2760 25 FT	110	25	Rd 8-10/FL40	8.5	5	38.400	5001668

- Suitable for attaching round conductors Rd 8-10 or flat conductors to FL 40
- With separator plate
- Installed with 2 hexagonal bolts M10 x 30 and 2 hexagonal nuts M10



Connection clamp for earth rod, universal

VA

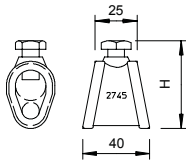


Type	Dim. A mm	For earth rods		Fit mm	Pack Piece	Weight kg/100 pc.	Item no.
		Ø mm					
2760 20 V4A	101	20	Rd 8-10/FL40		5	32.400	5001633

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Suitable for connecting round conductors Rd 8-10 or flat conductors to FL 40
- With adapter plate
- Mounted with 2 hexagonal bolts M10 x 30 and 2 hexagonal bolts M10

Connection clamp for earth rod or cables

CuZn 37 Cu



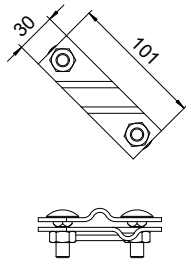
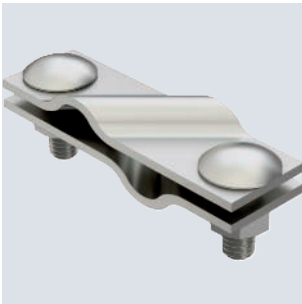
Type	For earth rods		Fit mm	Pack Piece	Weight kg/100 pc.	Item no.
	Ø mm					
2745 20 MS	20	7-12,5/S95 mm ²		5	16.000	5001560

- For earth rods Ø 20 or conductors of 95 mm²
- For round conductor attachments Rd 7–12.5 with hexagonal bolts M10 x 25

Diagonal clamps

Diagonal connector for round conductor

VA



Type	Fit mm	Lightning current carrying capacity		Pack Piece	Weight kg/100 pc.	Item no.
		mm	kA			
2760 8-10 V4A	Rd 8-10	H/100		25	21.364	5313013

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- To connect round conductors 8–10 mm
- Mounted with 2 truss-head bolts M10 x 30 and 2 hexagonal bolts M10

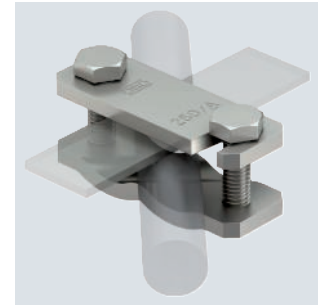
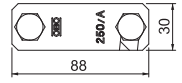
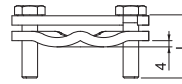
A2

Diagonal clamp for flat conductors and round conductors



Type	Dim. L mm	Fit mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
250 A-VA	40	Rd 6-22/max. FL50	H/100	10	28.800	5313023

- For reinforced steels Ø 6-22 mm and flat conductor 50 x 4
- Installed with bolts M10 x 40
- AS version with bolts M10 x 20
- Simple installation with open slot



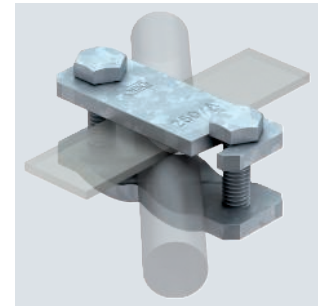
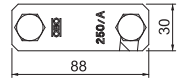
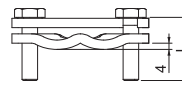
St FT

Diagonal clamp for flat conductors and round conductors



Type	Dim. L mm	Fit mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
250 A-FT	40	Rd 6-22/ max. FL50	H/100	25	28.800	5313015

- For reinforced steels Ø 6-22 mm and flat conductor 50 x 4
- Installed with bolts M10 x 40
- AS version with bolts M10 x 20
- Simple installation with open slot



Connection terminals

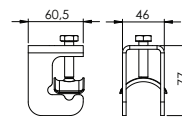
St FT

VARIO earthing terminal for large reinforced steels



Type	Fit mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
1814 ST D37	FL30x3-4mm/ Rd 10xRd 16-37	H/100	25	30.000	5014477
1814 FT D37	FL30x3-4mm/ Rd 10xRd 16-37	H/100	25	30.000	5014469

- For armoured steel with 16-37 mm diameter and round conductors and flat conductors
- Rapid installation using open slot and only one M10 bolt
- Rotatable metal pressure trough for simple, safe mounting



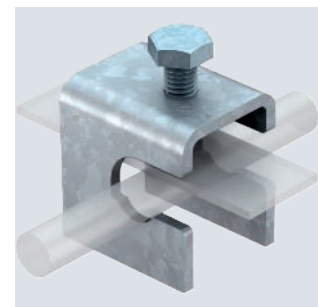
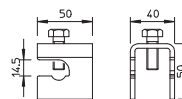
St FT

VARIO earthing terminal for reinforced steels



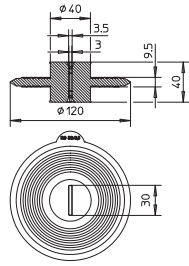
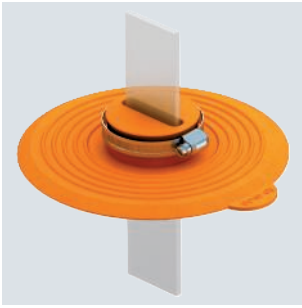
Type	Fit mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
1814 FT	FL30x5 x Rd8-14	N/50	25	20.000	5014468

- For reinforced steels with diameters 8-14 mm and FL 30 x 5
- Simple mounting through open slot
- Side suspension possible



Sealing sleeve for flat conductors

TPE

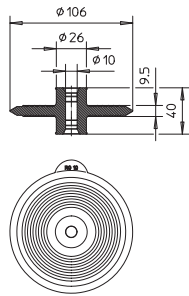


Type	Fit mm	Pack Piece	Weight kg/100 pc.	Item no.
DW FL30x3,5	FL 30x3,5	1	18.000	2360043

- Sealing sleeve for penetrations of waterproof foundation plates/walls (e.g. white trough)
- For mounting on connection lugs with stainless steel tightening straps
- With pressurised water testing to 5 bar
- According to DIN EN 62561-5 (VDE 0185-561-5)

Sealing sleeve for round conductors

TPE



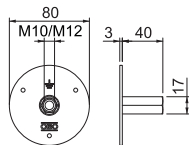
Type	Fit mm	Pack Piece	Weight kg/100 pc.	Item no.
DW RD10	RD 10	1	13.000	2360041

- Sealing sleeve for penetrations of waterproof foundation plates/walls (e.g. white trough)
- For mounting on connection lugs with stainless steel tightening straps
- With pressurised water testing to 5 bar
- According to DIN EN 62561-5 (VDE 0185-561-5)

Earthing fixed points

Fixed earthing terminal with double thread

VA



Type	Thread	Short-circuit current (50 Hz) (1 s; ≤300 °C) kA	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
205 DG V4A	M10/M12	6.2	H/100	10	14.800	5420020

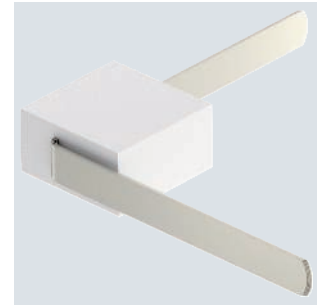
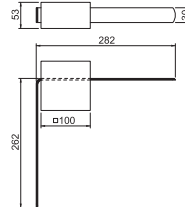
- For connection to earthing systems, conductors and reinforcements
- Contact plate: Ø 80 mm made of stainless steel, rustproof (V4A)
- Double thread M10/M12
- Incl. plastic cover for simple installation

A2

Expansion strip for foundation earth electrode systems

Type	Dimension W x H mm		Pack Piece	Weight kg/100 pc.	Item no.
	30x3,5				
1807 DB	30x3,5		1	40.000	5016160

- Expansion strip according to VDE 0185-561-2 (IEC 62561-2)
- To pass the foundation earth electrode through movement joints



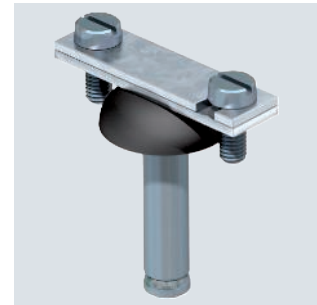
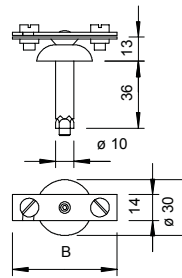
Distance clamps

St G

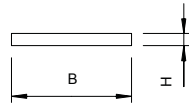
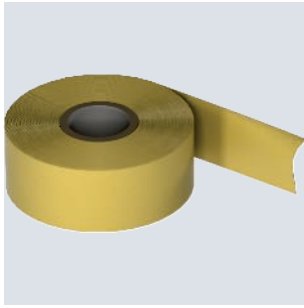
Spacer for flat conductor, with steel spreading anchor Ø 10

Type	Fit mm	Dim. B mm	Pack Piece	Weight kg/100 pc.	Item no.
710 30	max. FL.30	52	25	5.044	5028035

- Fit: FL 30 and FL 40
- With steel straddling dowel Ø 10 mm, spacer and 2 cylinder bolts M5 x 14 (G)



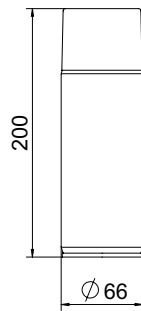
Corrosion protection strip



Type	Dimension		Pack Piece	Weight kg/100 pc.	Item no.
	Width mm	Length m			
356 50	50	10	1	59.000	2360055
356 100	100	10	1	122.200	2360101

- Approx. 1.1 mm thick
- Width: 50 mm or 100 mm, made of petrolatum-coated chemical fibre fabric
- Can be processed cold

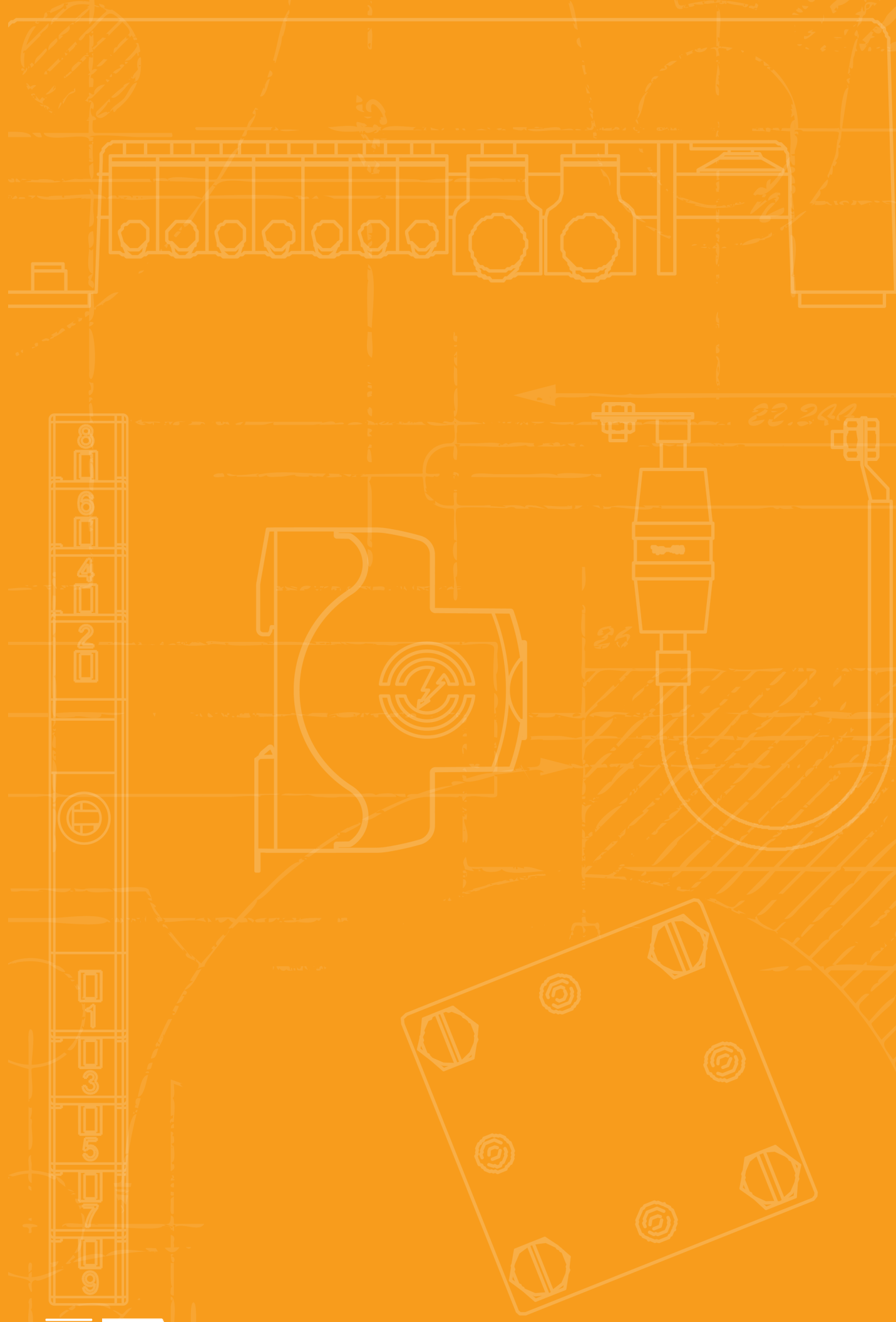
Zinc repairs






Type	Dimension		Pack Piece	Weight kg/100 pc.	Item no.
	Width mm	Length m			
ZSF	400ml		1	45.000	2362970

Zinc spray for treatment of unprotected surfaces and cutting edges. Can contents: 400 ml.

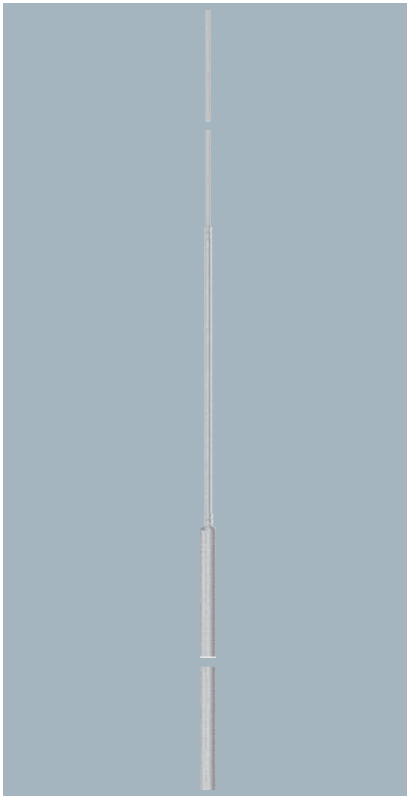




Air-termination systems and air-termination rods

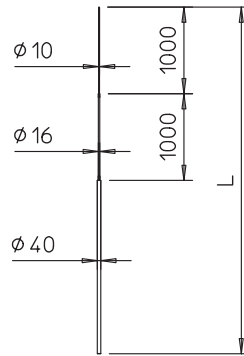
	Air-termination rods	62
	Air-termination systems	68
	Insulated air-termination systems	72

isFang air-termination rod

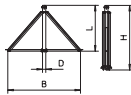


Type	Dim.	Dim.	Length	Pack	Weight	Item no.
	B	D				
	mm	mm	mm	Piece	kg/100 pc.	
101 3B-4000	2000	1000	4000	1	400.000	5402864
101 3B-4500	2500	1000	4500	1	480.000	5402866
101 3B-5000	3000	1000	5000	1	550.000	5402868

- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- Tapered air-termination rod
- Suitable for 40 mm isFang tripod stand and isFang support systems



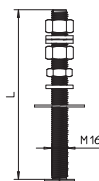
isFang tripod



Type	Dim.	Dim.	Dim.	Dim.	Pack	Weight	Item no.
	B	D	L	H			
	mm	Ø mm	mm	mm	Piece	kg/100 pc.	
isFang 3B-100 AL	1000	40	600	885	1	380.000	5408966
isFang 3B-100	1000	40	600	885	1	620.000	5408968

- Installation of free-standing air-termination rods as well as insulated air-termination rods with 40 mm diameter
- Roof slope to max. 5 degrees
- Incl. Rd 8–10 crossbar for quick round conductor fastening
- Concrete base as well as threaded rods should be ordered separately

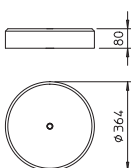
isFang-3B threaded rod



Type	Dim.	Pack	Weight	Item no.
	L			
	mm	Piece	kg/100 pc.	
isFang 3B-G1	270	3	48.000	5408971
isFang 3B-G2	340	3	60.400	5408972

- For fastening on one, two, three or four FangFix concrete bases with tripod stand

Concrete base for FangFix system, min. 16 kg



Type	Nominal	Pack	Weight	Item no.
	size Ø			
	mm	Piece	kg/100 pc.	
F-FIX-S16	365	1	1,773.000	5403227

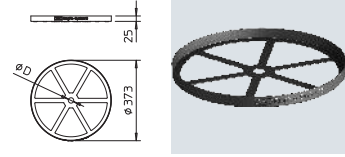
- Min. 16 kg block of Ø 365 mm, high level of stability
- Frost-resistant concrete
- Stackable

PP

Base for FangFix system 16 kg for mounting the isFang tripod

Type	Nominal size Ø mm	Dim. D Ø mm	Pack Piece	Weight kg/100 pc.	Item no.
F-FIX-B16 3B	373	25	10	15.800	5403238

- Edge protection with through hole
- For mounting isFang-3B threaded rod and FangFix concrete block F-FIX-S16

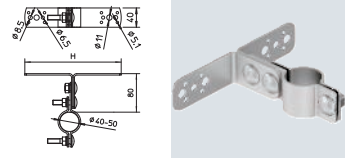


A2

isFang support for wall mounting, 80 mm spacing

Type	Dim. L mm	Pack Piece	Weight kg/100 pc.	Item no.
isFang TW80	80	2	63.000	5408950

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.

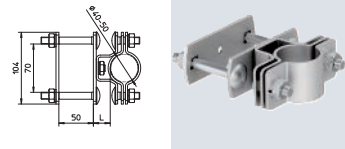


A2

isFang support for corner pipe mounting, 50 x 50 mm

Type	Dim. D Ø mm	Dim. L mm	Pack Piece	Weight kg/100 pc.	Item no.
isFang TS50x50	50	30	2	82.000	5408964

Fastening clip to fasten the insulated support pipes on the structure to be protected or for construction-side corner pipes of 50x50 mm.



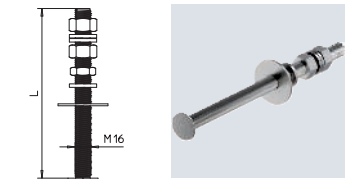
Tele air-termination rod irod

A2

isFang-3B threaded rod

Type	Dim. L mm	Pack Piece	Weight kg/100 pc.	Item no.
isFang 3B-G1	270	3	48.000	5408971
isFang 3B-G2	340	3	60.400	5408972

- For fastening on one, two, three or four FangFix concrete bases with tripod stand

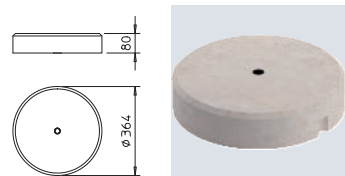


BET

Concrete base for FangFix system, min. 16 kg

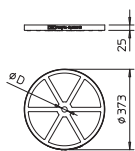
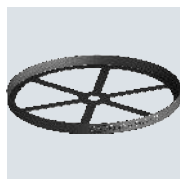
Type	Nominal size Ø mm	Pack Piece	Weight kg/100 pc.	Item no.
F-FIX-S16	365	1	1,773.000	5403227

- Min. 16 kg block of Ø 365 mm, high level of stability
- Frost-resistant concrete
- Stackable



Base for FangFix system 16 kg for mounting the isFang tripod

PP



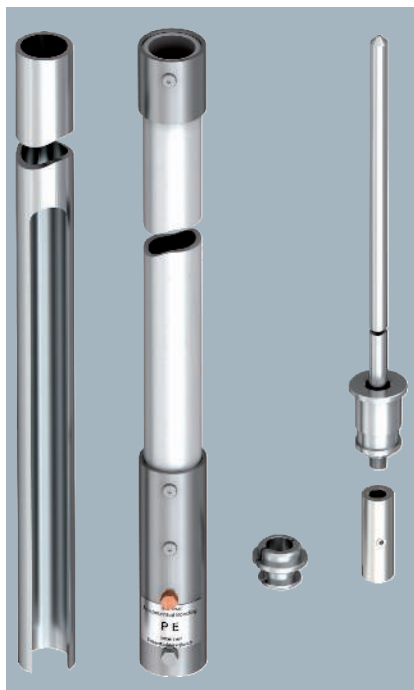
Type	Nominal size	Dim. D	Pack Piece	Weight kg/100 pc.	Item no.
	mm	Ø mm			
F-FIX-B16 3B	373	25	10	15.800	5403238

- Edge protection with through hole
- For mounting isFang-3B threaded rod and FangFix concrete block F-FIX-S16

Insulated air-termination rods

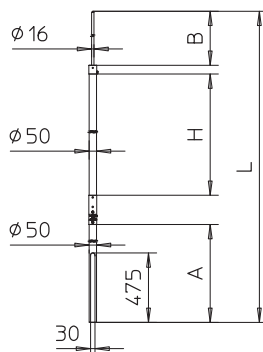
Insulated air-termination rod for inner-routed isCon conductor with side exit

GFK



Type	Dim. D	Dim. A	Dim. H	Dim. B	Length	Pack Piece	Weight kg/100 pc.	Item no.
	mm	mm	mm	mm	mm			
isFang IN-A 4000	50	1325	1500	1000	4000	1	535.000	5408938

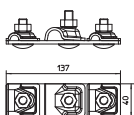
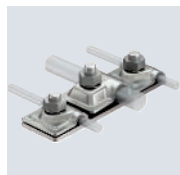
- For installation of the OBO isCon® Pro+ conductor in the pipe
- With side conductor outlet matching isFang air-termination rod stand with side outlet, type isFang 3B-A
- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- Inclusive connection element (type isCon IN connect)
- Inclusive potential connection (type isCon In PAE)



Connection plates

Connection plate for two isCon® conductors

A2



Type	Dimension	Pack Piece	Weight kg/100 pc.	Item no.
	mm			
isCon AP2-16 VA	16x8-10mm	1	39.500	5408028

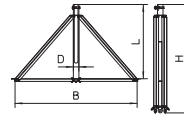
Connection plate to connect two isCon® conductors with air-termination rod Ø 16 mm, tested up to 150 kA (lightning protection class II)

A2

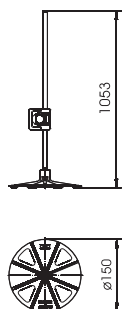
isFang tripod with side outlet

Type	Dim.	Dim.	Dim.	Dim.	Pack Piece	Weight kg/100 pc.	Item no.
	B mm	D Ø mm	L mm	H mm			
isFang 3B-100-A	1026	50	600	885	1	610.000	5408930

- Screwless installation of freestanding air-termination rods as well as insulated air-termination rods with 50 mm diameter
- E.g. for internal OBO isCon® conductor
- Roof slope to max. 5 degrees
- Incl. Rd 8–10 crossbar for quick round conductor fastening
- Concrete plinths as well as threaded rods should be ordered separately



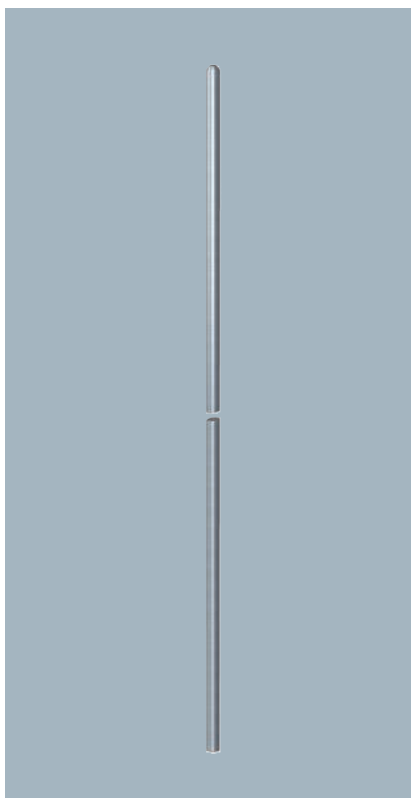
Stand for FangFix Junior system

Alu


Type	Length mm	Nominal size Ø mm	Pack Piece	Weight kg/100 pc.	Item no.

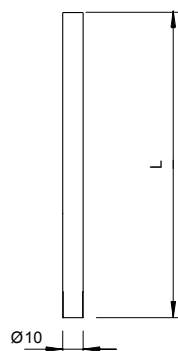
- Incl. aluminium air-termination rod 1,000 mm long (Ø 10 mm)
- Quick mounting of the air-termination rod in the base using plug technology
- With Vario quick connector 249

Air-termination rod for FangFix-Junior

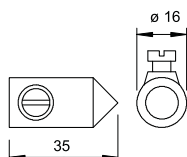
Alu


Type	Length mm	Nominal size Ø mm	Pack Piece	Weight kg/100 pc.	Item no.

- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- Ø 10 mm, aluminium
- Without thread
- Suitable for use in FangFix-Junior



Air-termination tip

Zn G


Type	Fit mm	Pack Piece	Weight kg/100 pc.	Item no.

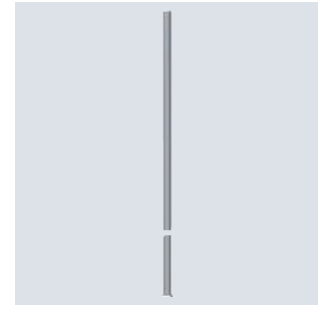
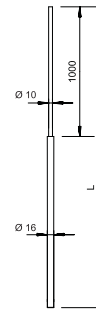
- To be used for Rd 8–10 (corrosion protection)
- With cylinder bolt M6 x 10
- Made of die-cast zinc, bolts made of hot-galvanised steel

Alu

Tapered pipe air-termination rod

Type	Length mm	Nominal size Ø mm	Pack Piece	Weight kg/100 pc.	Item no.
101 VL2000	2000	10/16	1	55.000	5401983
101 VL2500	2500	10/16	1	72.000	5401986
101 VL3000	3000	10/16	1	88.000	5401989
101 VL4000	4000	10/16	1	120.000	5401995

- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- From a free length of > 2.5 m, an additional fastening, e.g. insulated spacer is recommended
- Last metre is tapered from Ø 16 mm to Ø 10 mm, material: AlMgSi
- Matches stand system FangFix

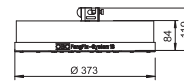


BET

Stand for FangFix system, min. 16 kg

Type	Fit mm	Nominal size Ø mm	Pack Piece	Weight kg/100 pc.	Item no.
F-FIX-16	Rd 8	373	1	1,715.000	5403200

- System consisting of FangFix block with edge protection and clamp
- FangFix clamp made of VA; complies with the requirements of VDE 0185-305 (IEC 62305)
- Min. 16 kg block of Ø 365 mm, high level of stability
- Quick and easy installation of air-termination rod using anchors
- Frost-resistant concrete
- The FangFix block can be stacked
- Suitable for Ø 16 mm pipe air-termination rods

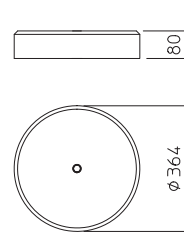


BET

Concrete base for FangFix system, min. 16 kg

Type	Nominal size Ø mm	Pack Piece	Weight kg/100 pc.	Item no.
F-FIX-S16	365	1	1,773.000	5403227

- Min. 16 kg block of Ø 365 mm, high level of stability
- Frost-resistant concrete
- Stackable

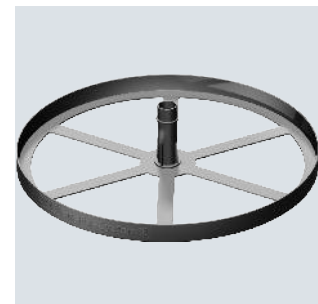
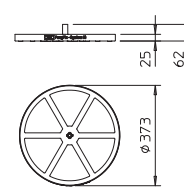


PP

Base for FangFix system 16 kg

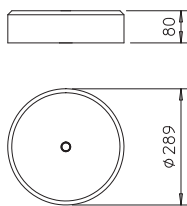
Type	Nominal size Ø mm	Pack Piece	Weight kg/100 pc.	Item no.
F-FIX-B16	373	10	16.400	5403235

Edge protection with integrated dowel (basic) suitable for FangFix system.



Concrete base for FangFix system, min. 10 kg

BET

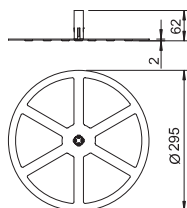


Type	Nominal size Ø mm	Pack Piece	Weight kg/100 pc.	Item no.
F-FIX-S10	289	1	1,000.000	5403117

- Min. 10 kg block of Ø 289 mm, high level of stability
- Frost-resistant concrete
- Stackable

Base for FangFix system 10 kg

PP

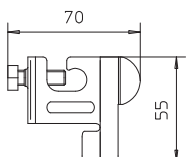


Type	Nominal size Ø mm	Pack Piece	Weight kg/100 pc.	Item no.
F-FIX-B10	295	10	7.600	5403124

Edge protection with integrated dowel (basic) suitable for FangFix 10 kg system.

Terminal for FangFix system

A2

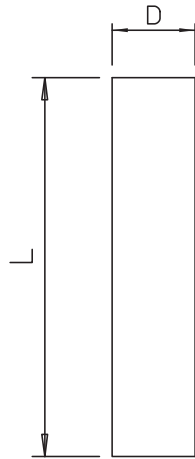
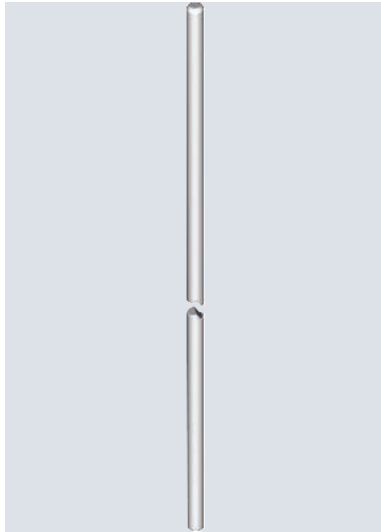


Type	Fit mm	Pack Piece	Weight kg/100 pc.	Item no.
F-FIX-KL	Rd 8	5	8.700	5403219

- FangFix terminal, VA for RD 8 mm
- Tested with H (100 kA) to DIN EN 50164-1
- Round conductor installed on the air-termination rod with only one screw



Insulating rod

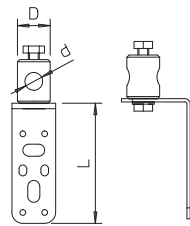


Type	Nominal size Ø mm	Length mm	Pack Piece	Weight kg/100 pc.	Item no.
101 16-3000	16	3000	5	120.000	5408109

- For the erection of insulated air-termination systems to VDE 0185-305 (IEC 62305)
- UV-stabilised and weatherproof
- Continuous temperature range -50 °C to +100°C
- Material factor km = 0.7

Wall connection, angled

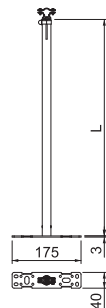
A2



Type	Dim. d Ø mm	Dim. L mm	Dim. D Ø mm	Pack Piece	Weight kg/100 pc.	Item no.
101 WG-16	16	110	30	1	27.960	5408986

- Wall connection for GFK rods
- Dimension D Ø: 16 mm

Adjustable insulating beam – wall

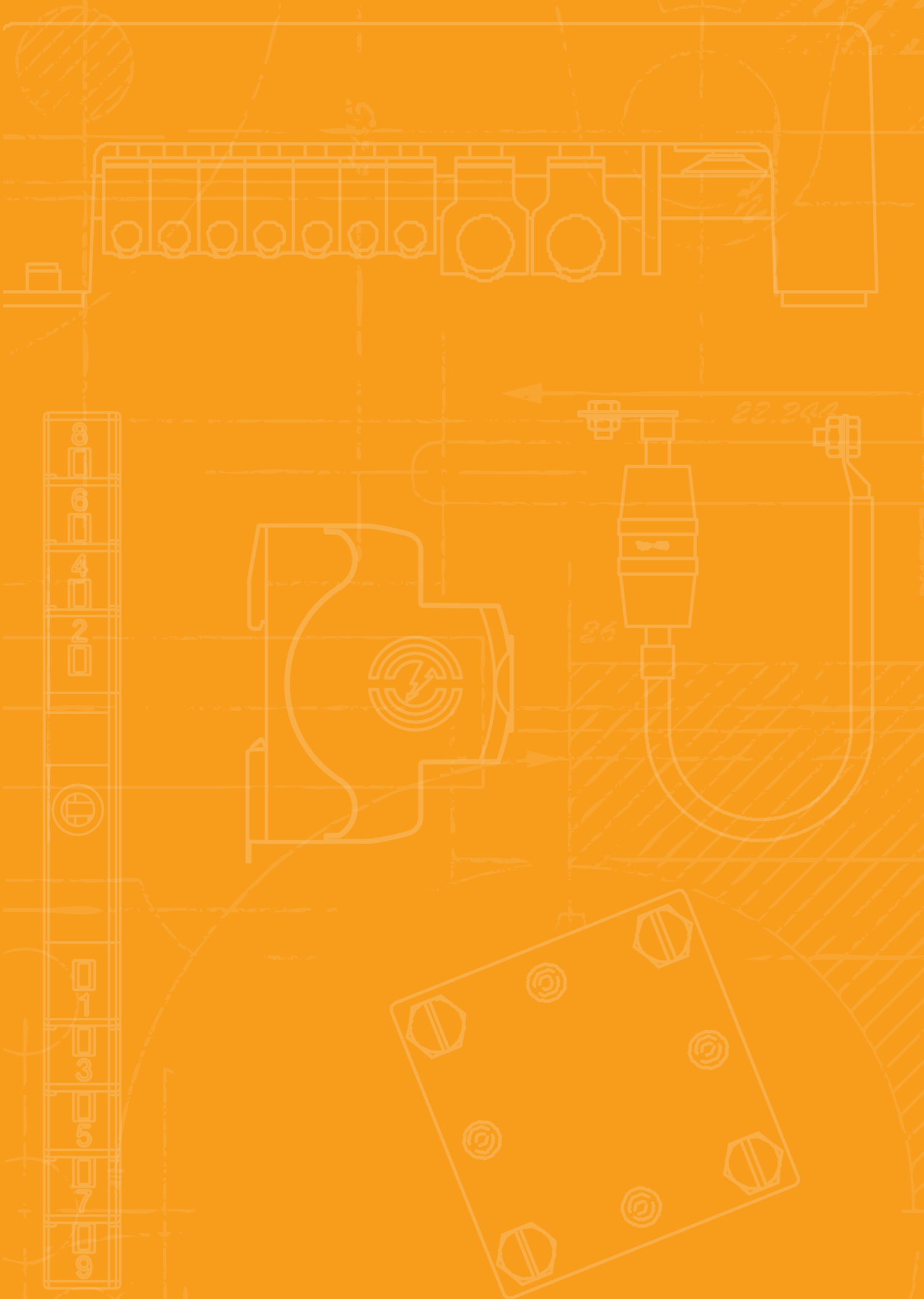


Type	Pack Piece	Weight kg/100 pc.	Item no.
ISAV1000W	1	130.000	5408852

Variable spacer for conductors and air-termination rods to maintain the separation distance.

- Infinitely adjustable distance range (L = 550–1,000 mm)
- Made of fibre-glass-reinforced plastic (km = 0.7)
- For wall mounting with 10 fastening holes (4.2 mm) and 4 fastening holes (6.9 mm)





Roof cable holders and cable brackets



Roof cable holders

76



Cable brackets

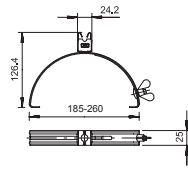
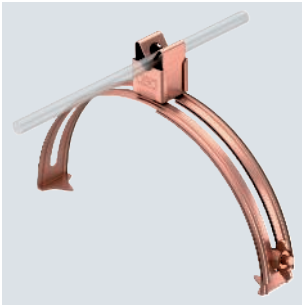
80



Roof conductor holders, ridge

Roof conductor holder for ridge tiles, 185–260 mm, Rd 8

Cu

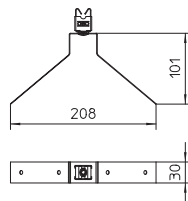
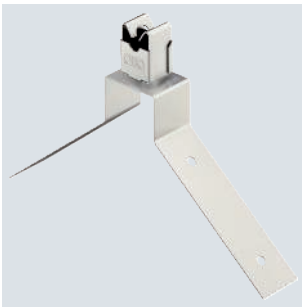


Type	Installation		Pack Piece	Weight kg/100 pc.	Item no.
	Fit mm	height mm			
132 CU	Rd 8	20	10	13.400	5202868

- Adjustable width from 185-260 mm
- Fast installation using wing screw

Roof conductor holder for ridge tiles, metal roofs, Rd 8

A2



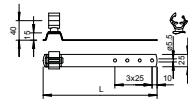
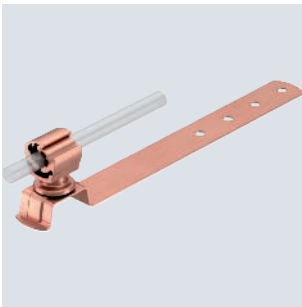
Type	Installation		Pack Piece	Weight kg/100 pc.	Item no.
	Fit mm	height mm			
132 P VA	Rd 8	20	20	8.420	5202510

- For round conductors Rd 8
- Suitable for metal roofs

Roof conductor holders, tiled roofs

Roof conductor holder for tiled roofs, Rd 8–10

Cu



Type	Installation		Length mm	Pack Piece	Weight kg/100 pc.	Item no.
	Fit mm	height mm				
157 FK-CU 230	Rd 8-10	40	230	10	8.800	5216184

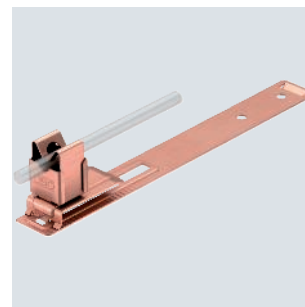
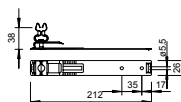
- Conductor holder of polyamide
- Including drill hole in bottom section for quick installation

Cu

Roof conductor holder for slated roofs, Rd 8

Type	Installation			Pack Piece	Weight kg/100 pc.	Item no.
	Fit mm	height mm	Length mm			
157 L-CU	Rd 8	32	212	10	9.900	5215471

• With Ø 5.5 mm drill hole and beading



Type 165 MBG 8-10

Roof conductor holder

For both Ø 8 and 10 mm round wire



Now with larger base for green (living) flat roofs



Mounting of any round conductor of Ø 8 mm or Ø 10 mm

UV-stabilised and weather-resistant closed shape with base

Can be used on almost all roofing felt systems

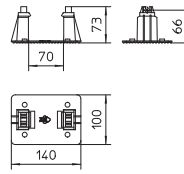


PE

Roof conductor holder, for plastic film roofs

Type	Fit mm	Installation height mm	Pack Piece	Weight kg/100 pc.	Item no.
165 R-8-10 OBG	Rd 8-10		100	6.760	5218999

- For flat roofs
- For round conductors Rd 8 to 10
- Polyethylene plastic holder, light grey
- For clamping in roof strips
- When installing round conductors, expansion elements are to be used for thermal compensation

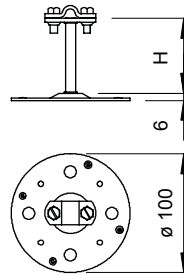


St FT

Roof conductor holder, suitable for direct bonding

Type	Fit mm	Installation height mm	Pack Piece	Weight kg/100 pc.	Item no.
165 B 60	Rd 8-10	60	50	26.100	5218810

- With conductor holder and bottom section, hot-dip galvanised steel
- Bottom section Ø 100 mm



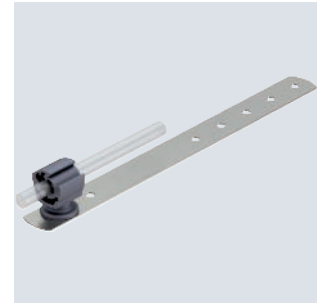
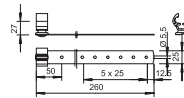
Roof conductor holders for tiled, slated, corrugated roofs

A2

Roof conductor holder for tiled and slated roofs

Type	Fit mm	Installation height mm	Length mm	Pack Piece	Weight kg/100 pc.	Item no.
157 NB-VA	Rd 8-10	27	260	20	6.000	5215277

- With Ø 5.5 mm drill hole
- Conductor holder of polyamide

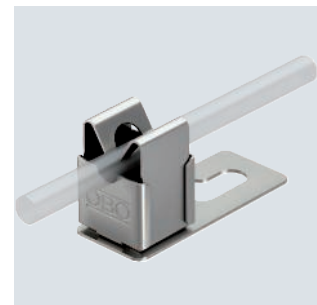
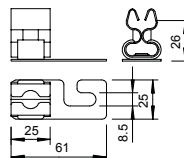


A2

Roof conductor holder for tiled, slated and corrugated roofs, Rd 8

Type	Fit mm	Installation height mm	Pack Piece	Weight kg/100 pc.	Item no.
159 VA-V	Rd 8	21	20	3.900	5217075

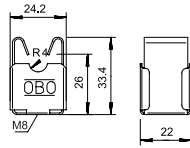
- Bottom section and conductor holder stainless steel (V2A)
- Bottom section with Ø 8.5 mm slot



Screwless cable brackets

Cable bracket for Rd 8 mm, through-way Ø 7 mm

A2

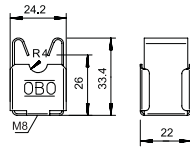


Type	Installation		Pack Piece	Weight kg/100 pc.	Item no.
	Fit mm	height mm			
177 20 VA M8	Rd 8	20	20	1.838	5207347

- With female thread M8 or through hole Ø 5 mm
- From stainless steel (V2A)

Cable bracket for Rd 8 mm, through-way Ø 7 mm, copper-plated

A2 Cu



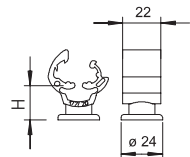
Type	Installation		Pack Piece	Weight kg/100 pc.	Item no.
	Fit mm	height mm			
177 20 VA-VK M8	Rd 8	20	20	1.900	5207819

- With female thread M8 or through hole Ø 5 mm
- From stainless steel (V2A)
- VA-VK: copper-plated

Universal cable brackets

Cable bracket Rd 8–10 mm, copper-plated

PA



Type	Installation		Pack Piece	Weight kg/100 pc.	Item no.
	Fit mm	height mm			
177 20 CU	Rd 8-10	20	10	0.718	5207746

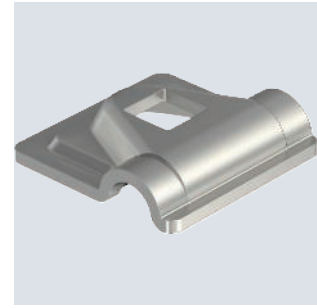
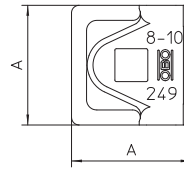
- With female thread M8 for screwing and through hole for wood screws
- Colour: copper
- Weather and temperature-resistant from -35 °C to +90 °C

A2

Quick connector, upper part Rd 8–10 mm

Type	Fit mm	Dim.		Pack Piece	Weight kg/100 pc.	Item no.
		A mm				
249 8-10 VA-OT	Rd 8-10	40		100	3.130	5311554

- For round conductor Rd 8-10
- Suitable for M10 bolts

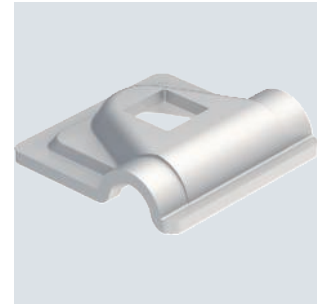
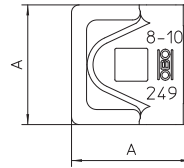


Alu

Quick connector, upper part Rd 8–10 mm

Type	Fit mm	Dim.		Pack Piece	Weight kg/100 pc.	Item no.
		A mm				
249 8-10 ALU-OT	Rd 8-10	44		100	2.100	5311585

- For round conductor fastening Rd 8-10
- Suitable for M10 bolts



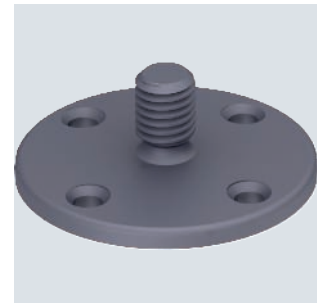
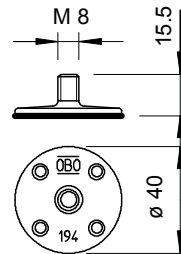
Accessories

PA

Bonding base including industrial bonding pad

Type	Colour	Thread	Pack Piece	Weight kg/100 pc.	Item no.

- With threaded stem M8
- For mounting cable supports with M8 female thread
- For bonding to concrete, steel or smooth substrates
- Not suitable for rough surfaces such as plaster, wood, bitumen strips
- Processing at > +15 °C and on cleaned substrate
- When installing flat conductors and round conductors, expansion elements are to be used for thermal compensation
- Use on film roofs after consultation with the responsible roof construction company

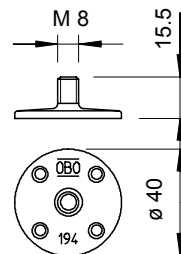


PA

Bonding base

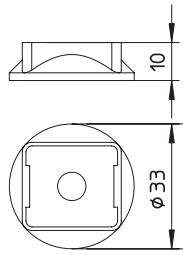
Type	Colour	Thread	Pack Piece	Weight kg/100 pc.	Item no.

- With threaded stem M8
- For mounting cable supports with M8 female thread
- For bonding to concrete, steel or brickwork
- When installing flat conductors and round conductors, expansion elements are to be used for thermal compensation



Washer for cable bracket, type 177

PP

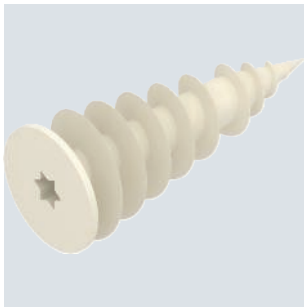


Type	Colour	Pack Piece	Weight kg/100 pc.	Item no.
177 U	Light grey	20	0.286	5207371

- For simple wall installation
- UV-resistant

Hard foam plate anchor

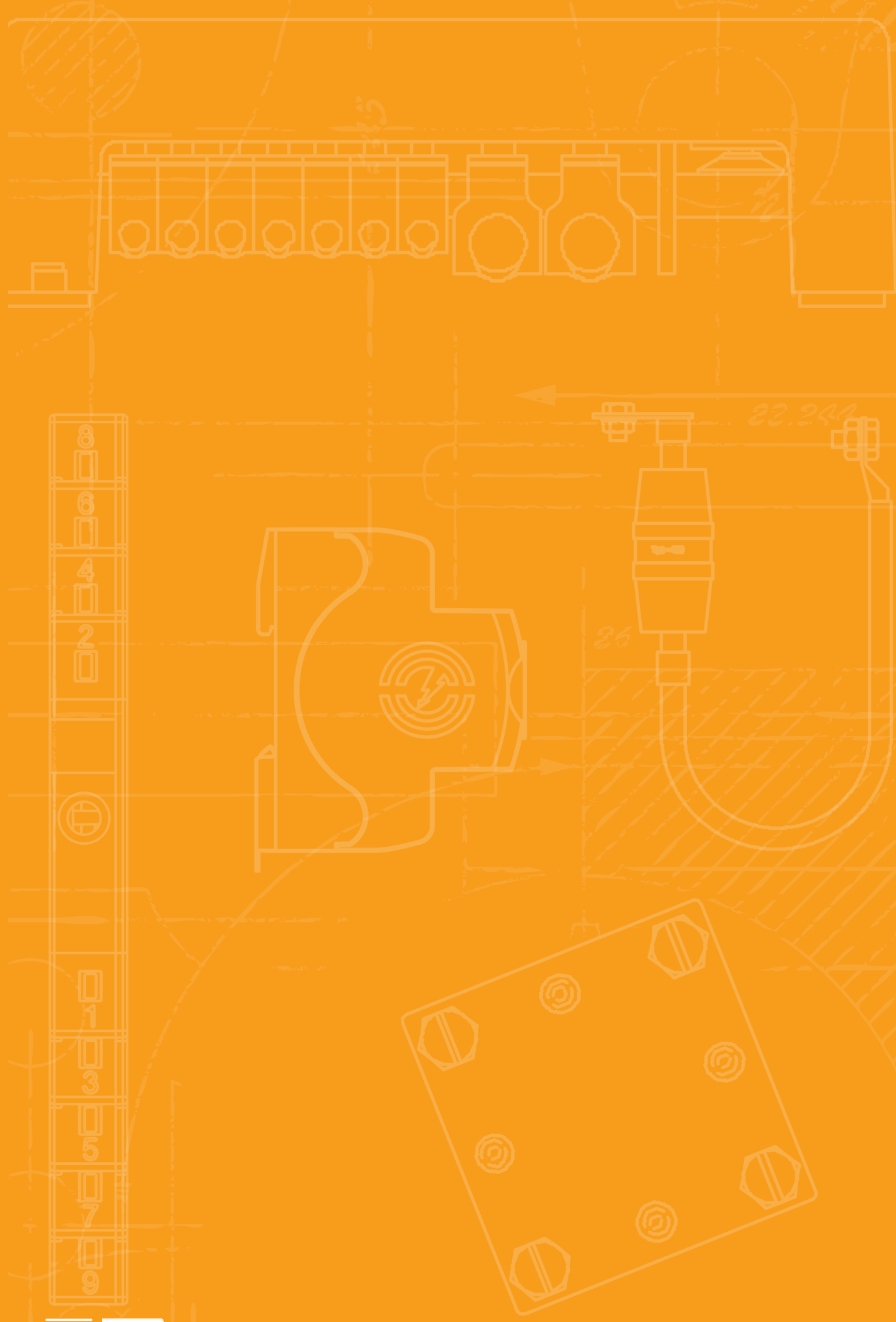
PA



Type	Length mm	Dowel Ø mm	Wood screws Ø mm	Break load kN	Pack Piece	Weight kg/100 pc.	Item no.
177 WDVS 64x25 B	63.5	9	4-5	0.05	50	0.658	5207375

Anchor for universal light-duty fastening in plastered composite heat insulation systems (WDVS). The self-tapping point makes pre-drilling superfluous.





Connection and separating terminals



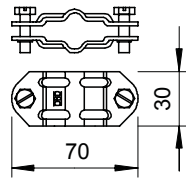
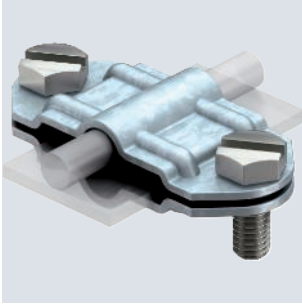
Connection and separating terminals

84



Separating piece for Rd 8–10 and FL 30 mm

St FT

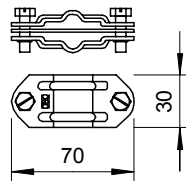
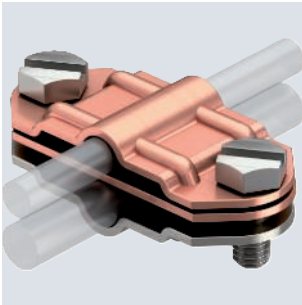


Type	Fit mm	Pack Piece	Weight kg/100 pc.	Item no.
233 8	Rd 8-10/FL30 x Rd 8-10/FL30	20	8.200	5336309

- To fit round conductors Rd 8-10 or flat conductors FL 30
- With 2 hexagonal bolts M8 x 20 made of rustproof steel (VA)
- Short-circuit current I_k (50 Hz), time 0.6 s, temp. max. 300 °C: 8.5 kA

Bi-metal separating piece for Rd 8–10 and FL 30 mm

A2

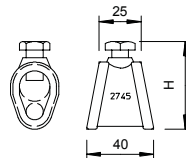


Type	Fit mm	Material upper part	Material lower part	Pack Piece	Weight kg/100 pc.	Item no.
233 ZV	Rd 8-10/FL30 x Rd 8-10/FL30	Cu	VA	10	10.100	5336376

- For fitting round conductors Rd 8-10 to flat conductors FL 30
- With 2 hexagonal bolts M8 x 20, stainless steel (VA)
- Intermediate plate aluminium/copper, top section copper, bottom section stainless steel

Connection clamp for earth rod or cables

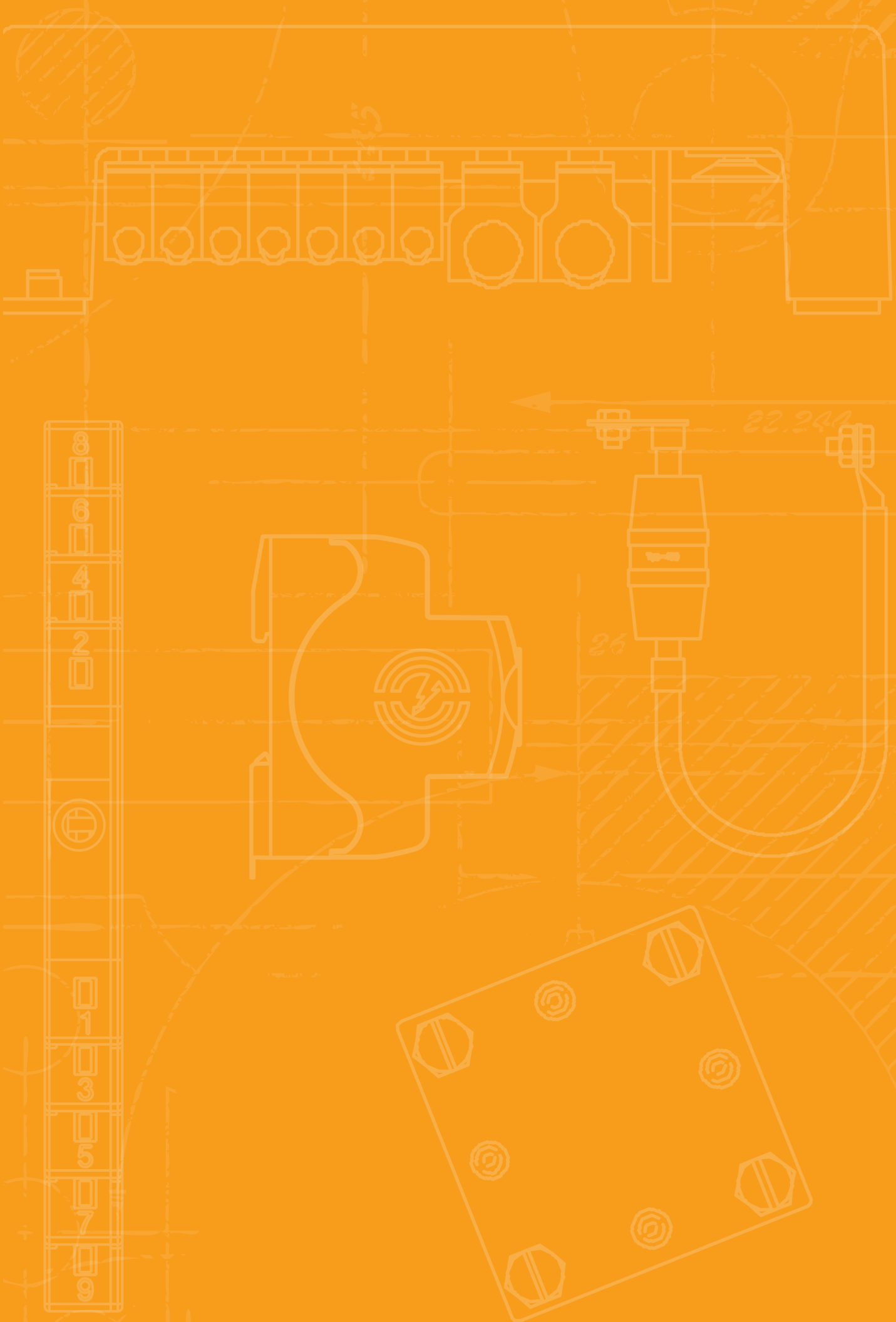
CuZn 37 Cu



Type	For earth rods	Fit Ø mm	Fit mm	Pack Piece	Weight kg/100 pc.	Item no.
2745 20 MS	20	7-12,5/S95	mm ²	5	16.000	5001560

- For earth rods Ø 20 or conductors of 95 mm²
- For round conductor attachments Rd 7–12.5 with hexagonal bolts M10 x 25





Connection clamps and connection terminals



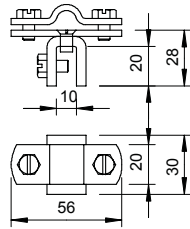
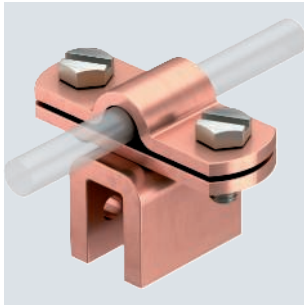
Connection clamps and connection terminals

90



Folding clamp Rd 8-10 up to 10 mm plate thickness

Cu

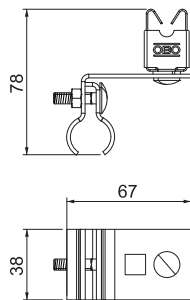
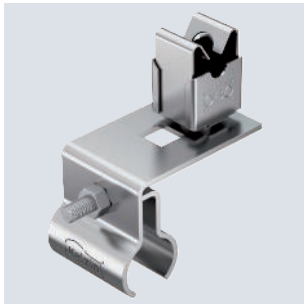


Type	Fit mm	Clamping range mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
270 8-10 CU	Rd 8-10	-10	H/100	10	14.740	5317258

- Metal thickness to 10 mm
- For conductor routing transverse and in parallel to the plate
- Corresponds to the requirements to DIN V VDE V 0185-3 section 4.5

Folding and construction clamp

A2

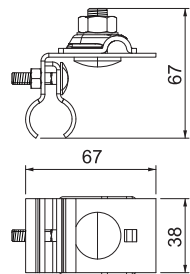
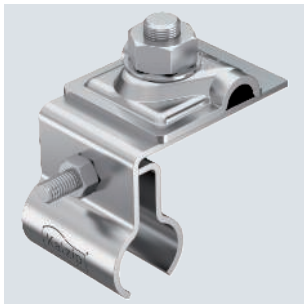


Type	Fit mm	Clamping range mm	Pack Piece	Weight kg/100 pc.	Item no.
RSF 177 20 VA M8	8	8	50	13.400	5317512

- For round standing seam systems, loose cable routing
- Manufacturer release by Kalzip
- Tested according to VDE 0185-561-4 (IEC/EN 62561-4)

Folding and construction clamp

A2



Type	Fit mm	Clamping range mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
RSF 249 8-10 VA	Rd 8-10	-10	N/50	50	14.200	5317502

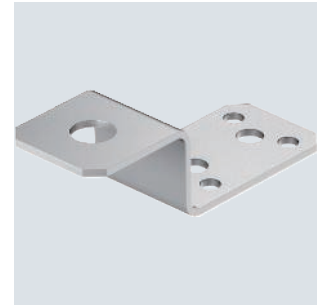
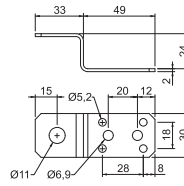
- For round standing seam systems, fixed cable routing
- Manufacturer release by Kalzip
- Tested according to VDE 0185-561-1 (IEC/EN 62561-1)

Alu

Connection component

Type	Pack Piece	Weight kg/100 pc.	Item no.
287	20	1.600	5320704

- With 1 attaching hole Ø 11 mm
- 4 mounting holes Ø 5.2 mm
- 2 mounting holes Ø 6.9 mm

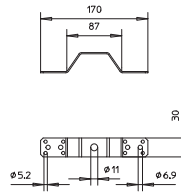


Alu

Connection and bridging component

Type	Pack Piece	Weight kg/100 pc.	Item no.
288 DIN	20	2.900	5320712

- With 1 attaching hole Ø 11 mm
- With 2 x 4 mounting holes Ø 5.2 mm
- With 2 x 2 mounting holes Ø 6.9 mm

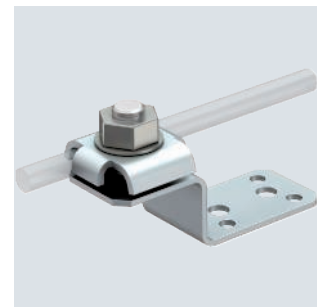
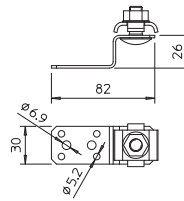


Alu

Connection component with double crossbar

Type	Fit mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
287 DCT	8	N/50	10	6.450	5320707

- Quick mounting thanks to an M10 x 30 bolt made of rustproof stainless steel
- With spring washer
- 4 fastening holes Ø 5.2 mm
- 2 fastening holes Ø 6.9 mm
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

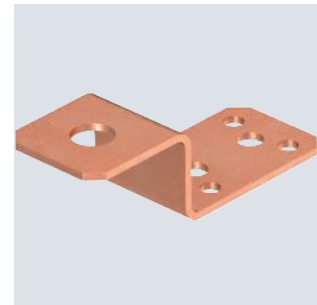
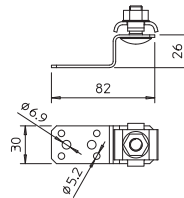


Cu

Connection component

Type	Pack Piece	Weight kg/100 pc.	Item no.
287 CU	10	5.600	5320690

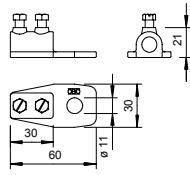
- With 1 attaching hole Ø 11 mm
- 4 mounting holes Ø 5.2 mm
- 2 mounting holes Ø 6.9 mm



End pieces

End piece

Zn G



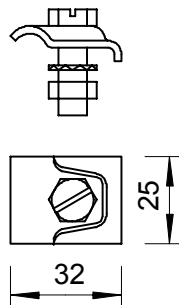
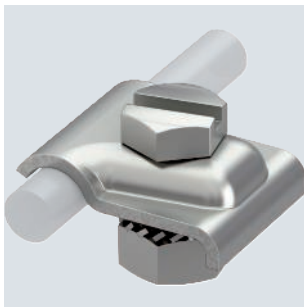
Type	Fit mm	Pack Piece	Weight kg/100 pc.	Item no.
280 8-10	Rd 8-10	20	6.300	5320011

- With \varnothing 11 mm attaching hole
- 2 hexagonal bolts M6 x 12, bolts hot-dip galvanised steel or VA
- Clamping element from die-cast zinc or copper-plated die-cast zinc

Universal terminal blocks

Universal clamping block Rd 8–10 mm

A2



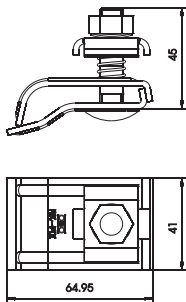
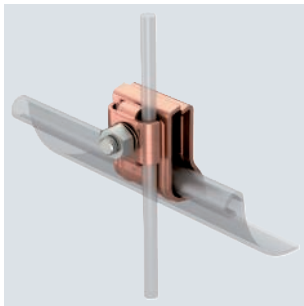
Type	Fit mm	Pack Piece	Weight kg/100 pc.	Item no.
324 S-VA	Rd 8-10	10	3.400	5326311

- Including hexagonal bolt M8 x 25, washer and nuts

Roof gutter clamps

Gutter clamp RK-FIX

A2 Cu



Type	Fit mm	Lightning current carrying capacity kA	Material	Pack Piece	Weight kg/100 pc.	Item no.
RK-FIX CU	2xRd 8/ 2xRd 6	H/100	A2	10	21.000	5316468

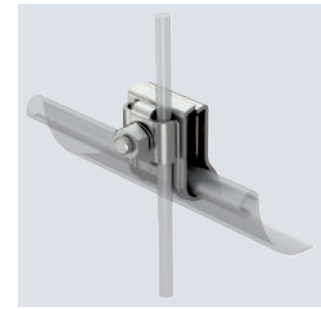
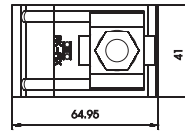
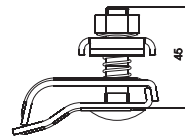
- For up to 2 conductors Rd 6 or Rd 8
- Suitable for all bead thicknesses (15–25 mm)
- With 1 truss-head bolt M10 x 45
- Nut and bolt made of VA stainless steel
- With spring for prefixing on rain gutter
- Tested to VDE 0185-561-1 (IEC/EN 62561-1)

A2



Type	Fit mm	Lightning current carrying capacity kA	Material	Pack Piece	Weight kg/100 pc.	Item no.
RK-FIX VA	2xRd 8/2xRd 6	H/100	A2	10	19.100	5316459

- For up to 2 round conductors Rd 6 or Rd 8
- Suitable for all bead thicknesses (15–25 mm)
- With 1 truss-head bolt M10 x 45
- Nut and bolt made of VA stainless steel
- With spring for prefixing on rain gutter
- Tested to VDE 0185-561-1 (IEC/EN 62561-1)



Gutter clamp RK-FIX

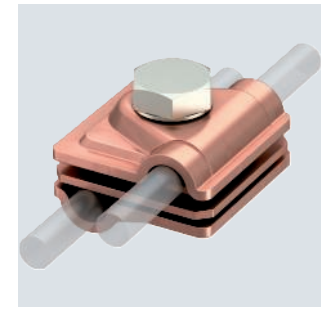
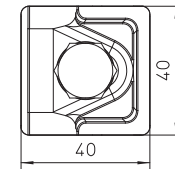
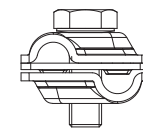
Connectors

Cu



Type	Fit mm	Dim. A mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
249 6-10 CU	RD 6-8 / 8-10	40	H/100	10	14.540	5311417

- For T, cross-over and parallel connections with adapter plates
- Quick mounting using an M10 x 30 bolt, made from rustproof stainless steel A2
- With sprung washer to DIN 137
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)



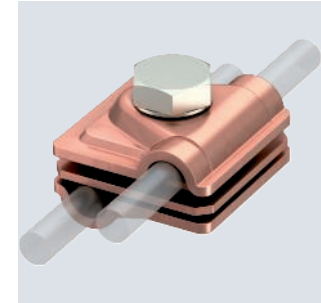
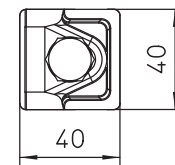
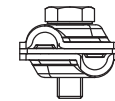
Variable earthing connector Rd 6-8 / 8-10 mm

Cu



Type	Fit mm	Dim. A mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
249 6-8 CU	RD 6-8 / 6-8	40	H/100	10	12.710	5311407

- For T, cross-over and parallel connections with adapter plates
- Quick mounting using an M10 x 30 bolt, made from rustproof stainless steel (A2)
- With sprung washer to DIN 137
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)



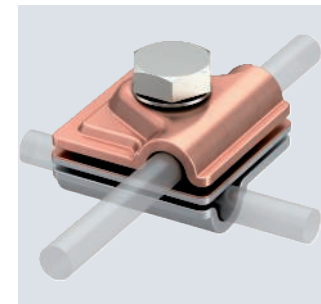
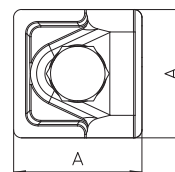
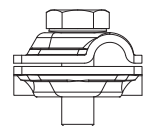
Vario quick connector Rd 6-8 / Rd 6-8 mm

Cu



Type	Fit mm	Dim. A mm	Lightning current carrying capacity kA	Material	Pack Piece	Weight kg/100 pc.	Item no.
249 8-10 ZV	Rd 8-10	44	H/100	Cu	10	14.220	5311535

- Intermediate plate, copper/aluminium, top section copper and aluminium
- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- With spring washer according to DIN 137
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

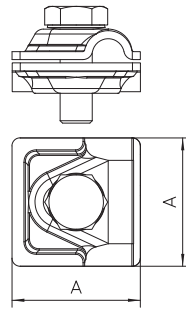
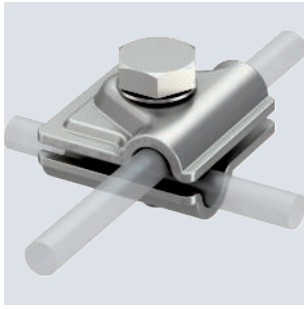


Variable bi-metal quick connector



Vario quick connector

A2

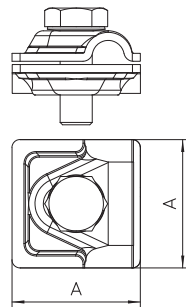
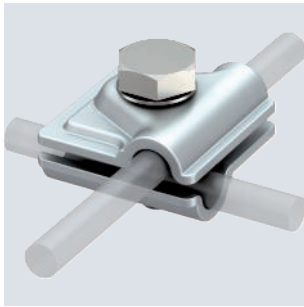


Type	Fit mm	Dim. A mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
249 8-10 VA	Rd 8-10	40	H/100	10	9.276	5311551

- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Vario quick connector

Alu



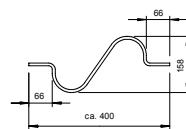
Type	Fit mm	Dim. A mm	Lightning current carrying capacity kA	Pack Piece	Weight kg/100 pc.	Item no.
249 8-10 ALU	Rd 8-10	44	H/100	30	6.600	5311519

- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Accessories, connection clamps and connection terminals

Expansion piece

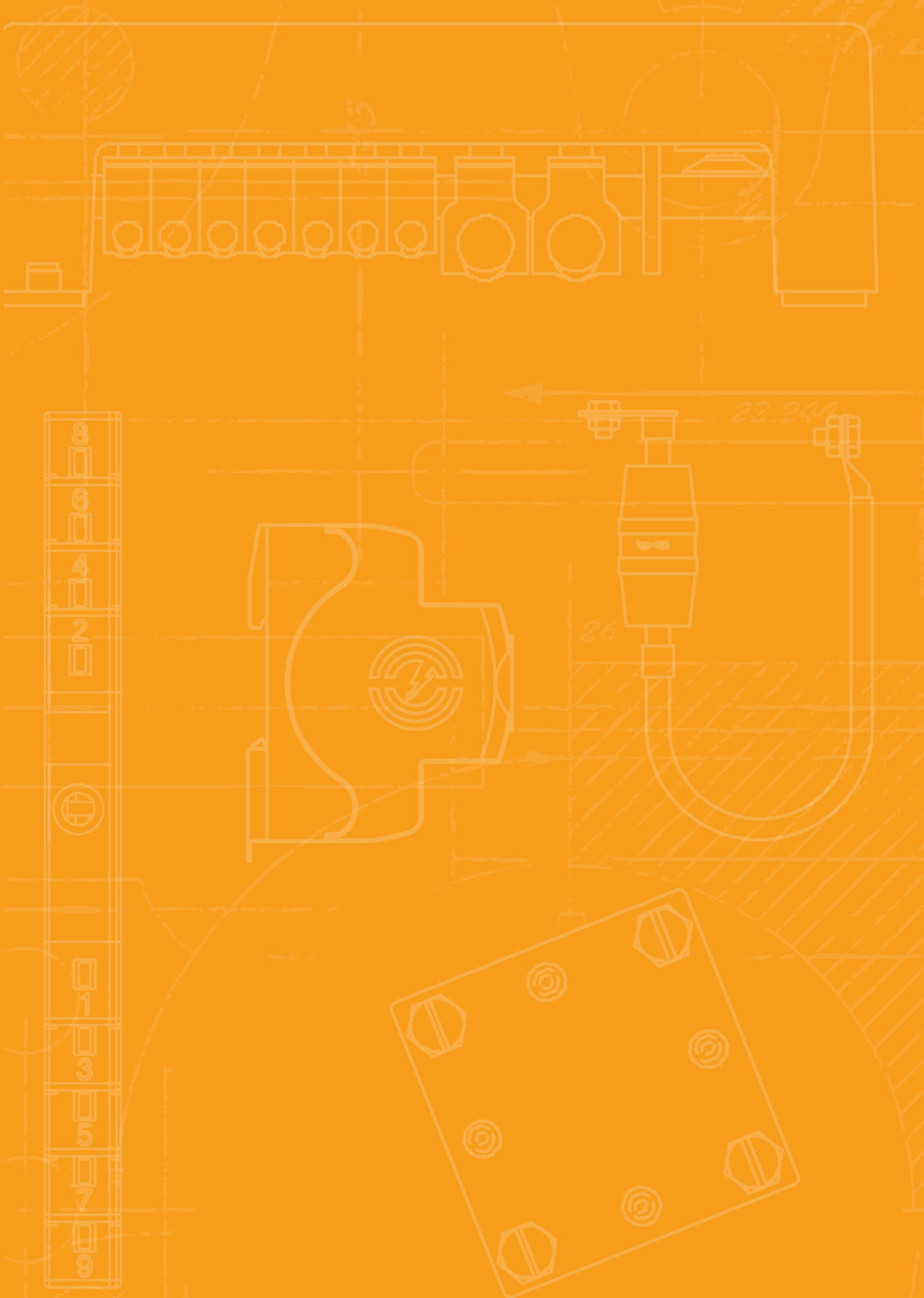
Alu



Type	Pack Piece	Weight kg/100 pc.	Item no.
172 AR	10	7.500	5218926

- For equalising temperature-related length changes
- Necessary on conductor lengths over 20 m
- From round conductor Rd 8-Al





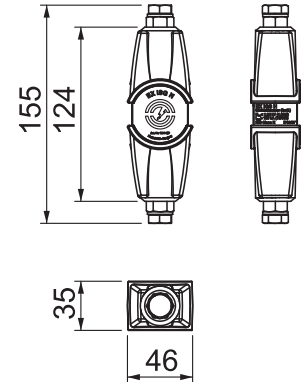
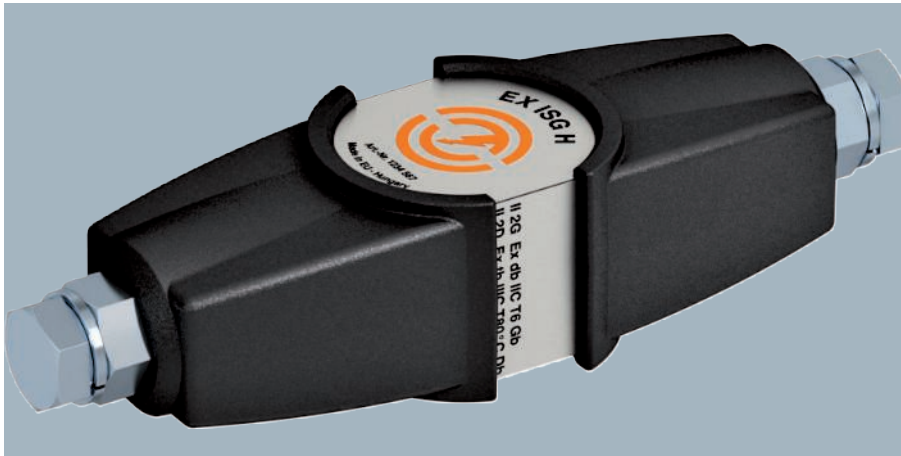
Protection and spark gaps



Protection and spark gaps

98

EX ISG H spark gap, with 2 cables



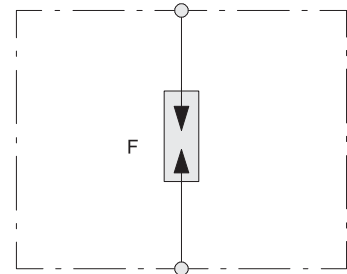
Type	Pack Piece	Weight kg/100 pc.	Item no.
EX ISG H 350 2L	1	74.155	5240033

- Spark gap to VDE 0185-561-3 (IEC 62561-3)
- Ex certificate to ATEX
- Labelling to EN 60079-0/-1: II 2 G Ex db IIC T6 Gb
- Labelling to EN 60079-0/-31: II 2 D Ex td IIIC T80 °C Db IP67
- Ex certificate to IECEx
- Labelling to IEC 60079-0/-1: Ex db IIC T6 Gb
- Labelling to IEC 60079-0/-31: Ex td IIIC T80 °C Db IP67
- Ex certificate to INMETRO
- Labelling to ABNT NBR IEC 60079-0/-1: Ex db IIC T6 Gb
- Labelling to ABNT NBR IEC 60079-31: Ex tb IIIC T80 °C Db IP67

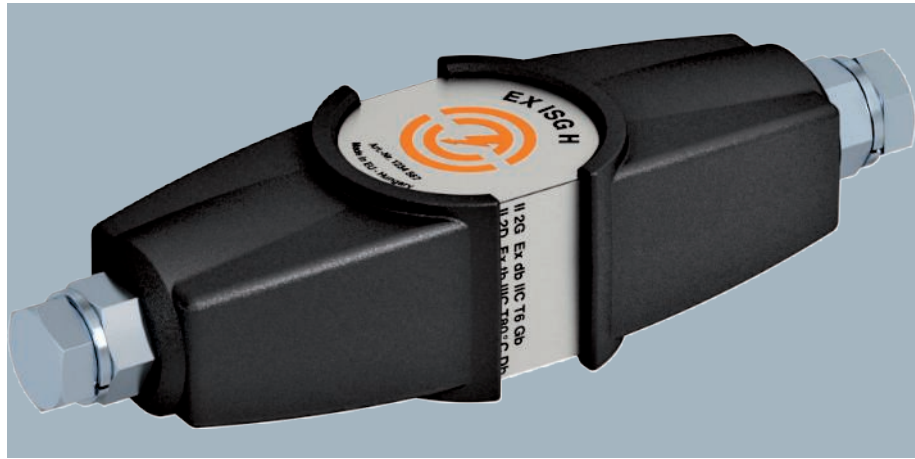
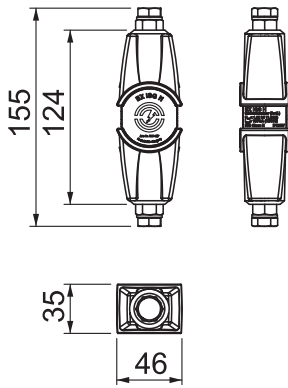
Application: In potentially explosive areas zones 1/21 and 2/22, indirect bridging of insulating flanges and insulating glands, e.g. in cathodic, corrosion-protected (KKS) systems.

EX ISG H 350 2L		
Connecting cable length		0.35 m
Rated impulse sparkover voltage	$U_{f,imp}$	1.25 kV
Rated DC withstand voltage	U_{wDC}	354 V
Rated power frequency withstand voltage	U_{wAC}	250 V
Power frequency spark-over voltage	U_{AS}	0.56 kV
Impulse discharge current (10/350)	I_{imp}	100 kA
Nominal discharge current (8/20)	I_n	100 kA
Lightning current carrying capacity		H/100 kA
Temperature range	ϑ	-20 - +60 °C

Connection options



EX ISG H spark gap, jacketed

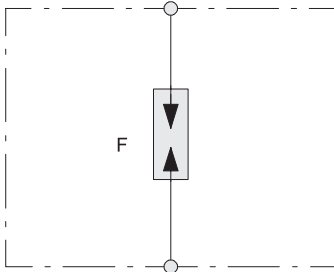


- Spark gap to VDE 0185-561-3 (IEC 62561-3)
- Ex certificate to ATEX
- Labelling to EN 60079-0/-1: II 2 G Ex db IIC T6 Gb
- Labelling to EN 60079-0/-31: II 2 D Ex td IIIC T80 °C Db IP67
- Ex certificate to IECEx
- Labelling to IEC 60079-0/-1: Ex db IIC T6 Gb
- Labelling to IEC 60079-0/-31: Ex td IIIC T80 °C Db IP67
- Ex certificate to INMETRO
- Labelling to ABNT NBR IEC 60079-0/-1: Ex db IIC T6 Gb
- Labelling to ABNT NBR IEC 60079-31: Ex tb IIIC T80 °C Db IP67

Application: In potentially explosive areas zones 1/21 and 2/22, indirect bridging of insulating flanges and insulating glands, e.g. in cathodic, corrosion-protected (KKS) systems.

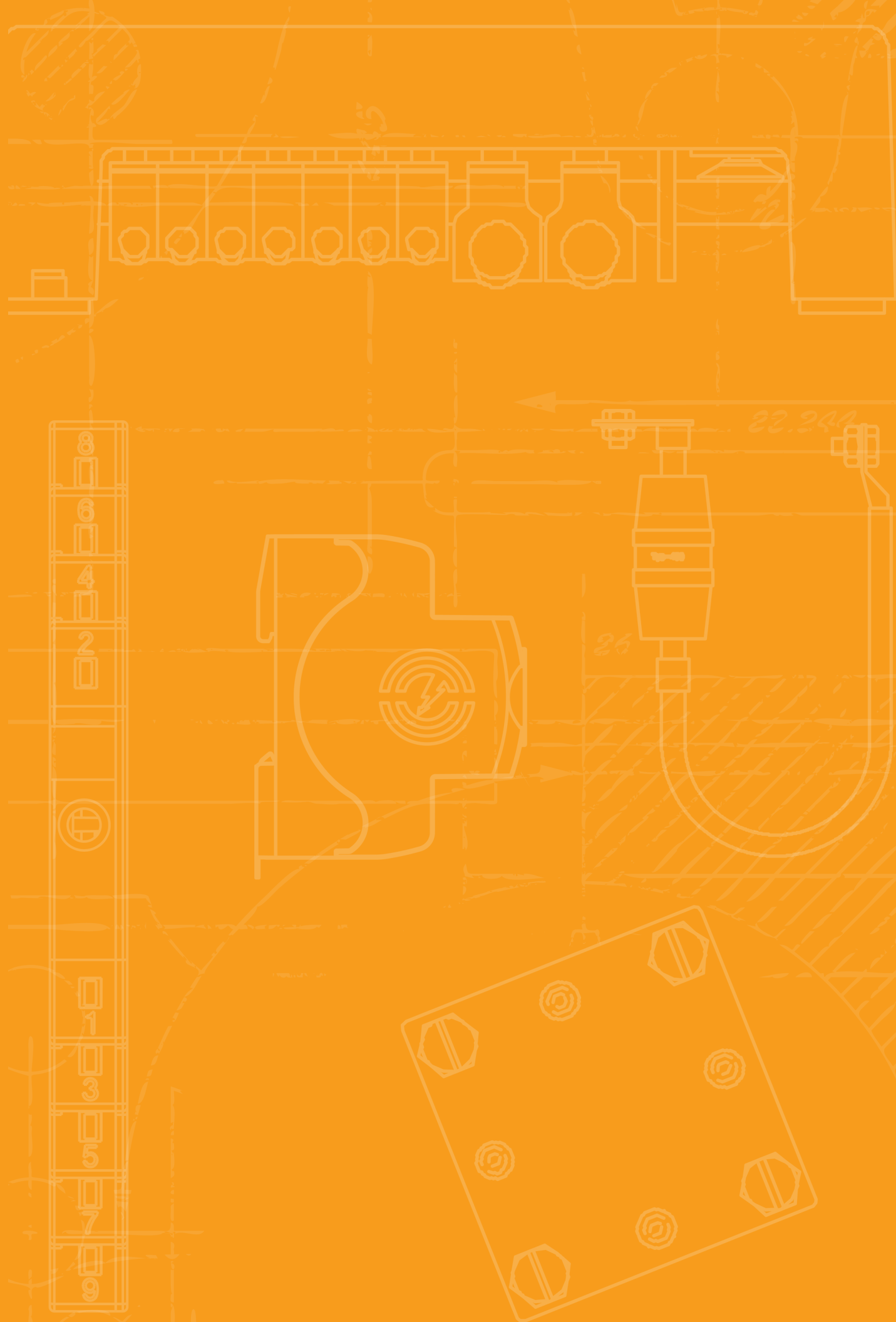
Type	Pack Piece	Weight kg/100 pc.	Item no.
EX ISG H KU	1	210.300	5240032

Connection options



EX ISG H KU

Connecting cable length		2 m
Rated impulse sparkover voltage	$U_{r,imp}$	1.25 kV
Rated DC withstand voltage	U_{wDC}	354 V
Rated power frequency withstand voltage	U_{wAC}	250 V
Power frequency spark-over voltage	U_{AS}	0.56 kV
Impulse discharge current (10/350)	I_{imp}	100 kA
Nominal discharge current (8/20)	I_n	100 kA
Lightning current carrying capacity		H/100 kA
Temperature range	ϑ	-20 - +60 °C



Accessories, external lightning protection

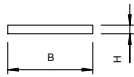
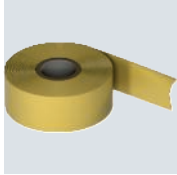


Accessories

100



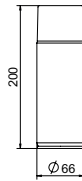
Corrosion protection strip



Type	Width		Length	Pack	Weight	Item no.
	mm	m				
356 50	50	10		1	59.000	2360055
356 100	100	10		1	122.200	2360101

- Approx. 1.1 mm thick
- Width: 50 mm or 100 mm, made of petrolatum-coated chemical fibre fabric
- Can be processed cold

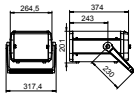
Zinc repairs



Type	Dimension		Pack	Weight	Item no.
ZSF	400ml		1	45.000	2362970

Zinc spray for treatment of unprotected surfaces and cutting edges. Can contents: 400 ml.

Card reader PCS-CS..

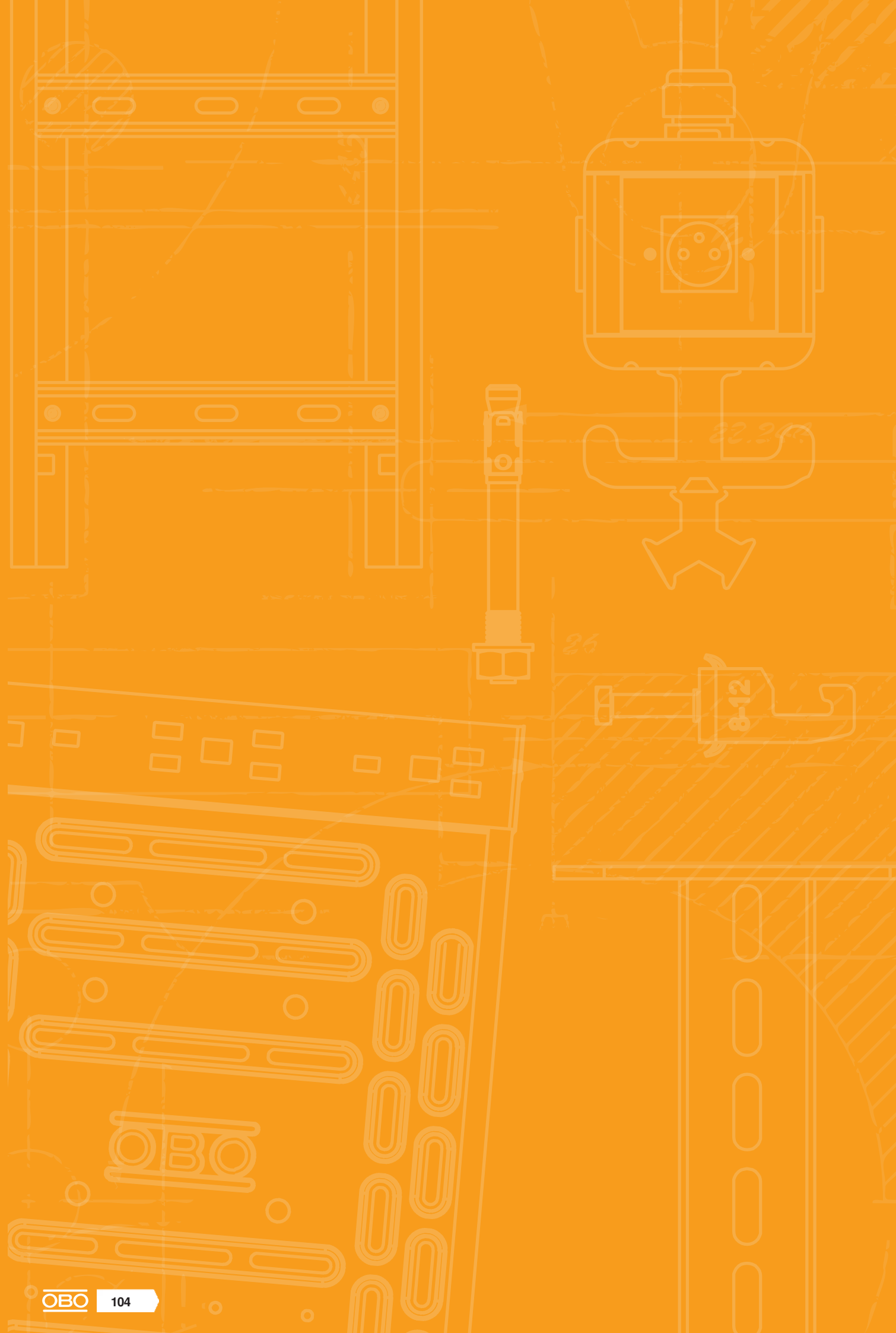


Type	Country version	Nom. V	Nom. range	Measuring range	Measuring tolerances	Pack	Weight	Item no.
PCS-CS-GB	GB	230	3--120 kA	<2 kA (<2%)		1	750.000	5091691







Magnetic card reader for reading and analysing PCS cards.

- Inc. rechargeable battery for 4 h continuous, no-mains operation
- Large, clear display











































Directories

	Test marks	106
	Pictogram explanation	108
	Alphabetical table of contents	112
	Numeric directory	114
	Type listing	116
	For the latest general conditions of sale and delivery please see www.obo.global/general-purchasing-conditions/	



Test marks
























	American Bureau of Shipping, USA		Underwriters Laboratories Inc., USA + CSA, Canada
	AENOR, Producto Certificado, Spain		Österreichischer Verband für Elektrotechnik, Austria
	STOWARZYSZENIE ELEKTRYKÓW POLSKICH, Poland		ISTITUTO ITALIANO DEL MARCHO DI QUALITÀ, Italy
	Lightning current-tested		RINA 1861, Ship Classification, Certification and Services
	Lightning current-tested, Class H (100 kA)		Underwriters Laboratories Inc., USA
	CEBEC, Belgium		SEMKO An Inchcape Testing Services Company, Sweden
	Canadian Standards Association, Canada		Eidgenössisches Starkstrominspektorat, Switzerland
	DEMKO, Danmarks Elektriske Materielkontrol, Denmark		South African Bureau of Standards
	Deutsches Institut für Bautechnik Berlin, Germany		Shock-tested, Bundesamt für Zivilschutz, Germany
	Det Norske Veritas		Sähkötarkastuskeskus Elinspektionscentralen Electrical Inspectorate, Finland
	ENEC Austria		Underwriters Laboratories Inc., USA
	ATEX certificate for explosive areas		Underwriters Laboratories Inc., USA
	ELEKTROTECHNICKÝ ZKUŠEBNÍ ÚSTAV, Czech Republic		Verband der Elektrotechnik, Elektronik, Informationstechnik e.V., Germany
	FIMKO, Finland		German Association of Electricians, tested safety
	Forschungs- und Materialprüfungsanstalt, Germany		5-year warranty
	Russia, GOST The State Committee for Standards		
	Test marks for technical resources, VDE Prüf- und Zertifizierungsinstitut Offenbach, Germany		
	Halogen-free; without chlorine, fluorine and bromine		
	INMETRO, Brazil		
	KEMA-KEUR, Netherlands		
	Indication of metric products		
	MAGYAR ELEKTROTECHNIKAI ELLENŐRZŐ INTÉZET Budapest, Hungary		
	NEMKO, Norway		
	AFNOR Quality symbol of the French standardisation institute		







Pictogram explanation






Surfaces

	Strip galvanised
	Strip galvanised/plastic-coated
	Strip galvanised zinc/aluminium, double dip
	Bright
	Bright, reworked
	Anodised
	Hot-dip galvanised
	Electrogalvanised
	Electrogalvanised/plastic-coated
	Electrogalvanised, yellow-chromatised
	Electrogalvanised, yellow passivated
	Electrogalvanised, transparently passivated
	Primed
	Painted
	Welding primed
	Hot-dip galvanised
	Hot-dip galvanised 85 µm
	Copper-plated
	Nickel-plated
	Galvanised, Deltatone 500
	Galvanised, MAGNI 565
	Zinc-aluminium coated, Galfan
	Zinc scale






Conformity symbol

	Communautés Européennes, EC declaration of conformity according to EC directives
	RoHS-conformant



















Quality marks

	Halogen-free; without chlorine, fluorine and bromine
	Flame resistant 650 °C
	Flame resistant 750 °C
	Flame resistant 960 °C
	UV-resistant




Specific product symbols

	Diameter 60 mm
	Diameter 68 mm
	Protection device to DIN EN 61643-11 or IEC 61643-11
	Transition from LPZ 2 to LPZ 3
	Acoustic signalling



Applications

	Remote signalling
	Acoustic signalling
	Integrated Service Digital Network, ISDN applications
	Digital Subscriber Line, DSL applications
	Analogue telecommunication
	Category 5 TwisterPair
	Channel Performance to American EIA/TIA standard
	Measuring, controlling and regulating systems
	TV applications
	SAT-TV applications
	MultiBase base
	LifeControl
	Intrinsically safe protection device for potentially explosive areas
	Channel Performance to ISO/IEC 11801
	Power over Ethernet
	230/400 V system
	Protection rating IP 54
	Protection rating IP 65







Lightning protection classes

	Protection device to DIN EN 61643-11 or IEC 61643-11
	Combination protection device made of type 1 and type 2
	Protection device to DIN EN 61643-11 or IEC 61643-11






Lightning protection classes

	Protection device to DIN EN 61643-11 or IEC 61643-11
	Protection device to DIN EN 61643-11 or IEC 61643-11



Lightning protection zone

	Transition from LPZ 0 to LPZ 1
	Transition from LPZ 0 to LPZ 2
	Transition from LPZ 0 to LPZ 3
	Transition from LPZ 1 to LPZ 2
	Transition from LPZ 1 to LPZ 3
	Transition from LPZ 2 to LPZ 3



BSS maintenance of electrical function installation

	Fire-tested systems
	Escape route ceiling mounting with pressure clip
	OBO Grip, wall routing type
	OBO Grip, ceiling routing type
	Pressure clip for maintenance of electrical function, ceiling mounting




BSS anchor

	Fire protection anchor
	Fire protection bolt tie

BSS test marks/material class

	Maintenance of electrical function class E30
	Maintenance of electrical function class E90














Clamp clip base shapes

	Clamp clip for C profile rail, slot width 11–12 mm
	Clamp clip for C profile rail, slot width 16–17 mm
	Clamp clip for C profile rail, slot width 18–22 mm



Diameter

	Diameter 60 mm
	Diameter 68 mm
	Diameter 70 mm
	Diameter 74 mm





Entries

	4 cable entries
	6 cable entries
	7 cable entries
	8 cable entries
	9 cable entries
	10 cable entries
	12 cable entries
	10 cable entries ECO
	12 cable entries ECO
	14 cable entries ECO
	16 cable entries
	18 cable entries ECO
	24 cable entries






Gland thread

	Thread metric
	Thread Pg





Entry size

	M20 entry
	M25 entry
	M32 entry
	M40 entry

KTS side heights










	Cable tray, side height 35 mm
	Cable tray, side height 60 mm
	Cable tray, side height 85 mm
	Mesh cable tray, side height 35 mm
	Mesh cable tray, side height 55 mm

Materials




	Flat steel
	Angular steel
	U steel
	Round material

Pictogram explanation







Nominal cross-section

	Nominal cross-section 1.5 mm ²
	Nominal cross-section 1.5–2.5 mm ²
	Nominal cross-section 2.5 mm ²
	Nominal cross-section 2.5–4 mm ²
	Nominal cross-section 4 mm ²
	Nominal cross-section 4–6 mm ²
	Nominal cross-section 6 mm ²
	Nominal cross-section 10 mm ²
	Nominal cross-section 16 mm ²













Nominal voltage

	Nominal voltage 400 V
	Nominal voltage 500 V
	Nominal voltage 660 V





Polarity

	3-pole
	5-pole
	7-pole
	8-pole
	10-pole
	12-pole



Slot widths

	Slot width 7.5 mm
	Slot width 11 mm
	Slot width 11–12 mm
	Slot width 12 mm
	Slot width 15 mm
	Slot width 16 mm
	Slot width 16.5 mm
	Slot width 16–17 mm
	Slot width 17 mm
	Slot width 18 mm
	Slot width 22 mm
	Slot width 35 mm











Screw heads

	Phillips screw
	Torx screw
	Phillips screw
	Pozidriv











Firing devices

	Bolt-firing tool
	Nail device





Protection rating

	Protection rating IP 20
	Protection rating IP 30
	Protection rating IP 31
	Protection rating IP 44
	Protection rating IP 54
	Protection rating IP 55
	Protection rating IP 65
	Protection rating IP 66
	Protection rating IP 67
	Protection rating IP 68

Metals

	Aluminium
	Aluminium/steel
	Stainless steel, rustproof
	Stainless steel, rustproof
	Stainless steel, rustproof
	Copper
	Brass
	Steel
	Malleable iron
	Die-cast zinc

Plastics

	Acrylonitrile butadiene styrene
	Duroplast, Aminoplast, type 131.5
	Duroplast, melamine resin, type 150
	Ethylene vinyl acetate

Plastics

FA	Fibre-proof material DIN 28091
GFK	Fibreglass-reinforced plastic
NBR SBR	Rubber mixture
NBR	Nitrile rubber
PETR	Petrolatum
PA	Polyamide
PA/ GF	Polyamide, fibreglass reinforced
PBPT	Polybutylene terephthalate
PC	Polycarbonate
PE	Polyethylene
PP	Polypropylene
PP/ GF	Polypropylene, fibreglass reinforced
PS	Polystyrene
PVC	Polyvinylchloride
ZELL PC	Cellular polyethylene



Alphabetical table of contents

A

Adjustable insulating beam – wall; 72
Air-termination rod for FangFix-Junior; 68
Air-termination tip; 68

B

Base for FangFix system 10 kg; 70
Base for FangFix system 16 kg; 65-66, 69
Base for FangFix system 16 kg for mounting the; 65-66
isFang tripod
Bi-metal separating piece for Rd 8–10 and FL 30 mm; 52, 86
Bonding base; 43, 81
Bonding base including industrial bonding pad; 43, 81

C

Card reader PCS-CS...; 102
Clamping block for Rd 8-10 mm; 42
Cleaning cloth; 32
Concrete base for FangFix system, min. 10 kg; 70
Concrete block for FangFix system, min. 16 kg; 64-65
Concrete block for FangFix-System 16 kg; 69
Conductor holder for Rd 8 mm, through-way Ø 7 mm.; 80
copper-plated
Conductor holder Rd 8–10 mm, copper-plated; 80
Connection and bridging component; 49, 91
Connection clamp; 52, 55-56
Connection clamp for earth rod or cables; 56
Connection clamp for earth rod, universal; 55-56
Connection clip for earthing rod or cables; 86
Connection component; 49-50, 91
Connection component with double crossbar; 50, 91
Connection element for installation in the insulated air-; 32
termination rod isFang IN
Connection plate for two isCon® conductor; 66
Connection terminal for large reinforced steels; 57
Connection terminal for reinforced steels; 57
Connection terminal, equipotential bonding, Rd 8–10; 48
mm
Connector, Rd 8–10 mm with pressure trough; 45
Connector, Rd 8–10 mm, double, with pressure trough; 45
Cross-connector for flat conductors and round; 54
conductors
Cross-connector for round conductors and flat; 46
conductors
Cross-connector for round conductors Rd 8–10; 55
Cross-connector with intermediate plate for Rd 8–10; 45-46
mm, wide version
Cross-connector with intermediate plate for round; 54
conductors, Rd 8–10

D

Diagonal clamp; 56-57
DIN cross-connector for flat conductor; 55

E

Earthing fixed point with double thread; 58
End piece; 49, 92
EX ISG H spark gap; 98-99
Expansion piece; 50, 94
Expansion strip for foundation earther systems; 59

F

Folding clamp Rd 8-10 up to 10 mm plate thickness; 47, 90
Folding clamp, Kalzip fixed cable routing; 47, 90
Folding clamp, Kalzip loose cable routing; 47, 90

G

Galvanised steel flat conductor; 39
Gutter clamp RK-FIX; 47-48, 92-93

H

Hard foam plate anchor; 43, 82

I

Insulated air-termination rod for inner-routed isCon; 66
conductor with side exit
Insulating rod; 72
isCon® conductor, Basic, black; 30
isCon® conductor, Premium, black; 29
isCon® conductor, Professional, black; 29
IsCon® connection elements; 32
isCon® information panel; 34
isFang air-termination rod; 64, 67
isFang air-termination rod stand; 64, 67
isFang air-termination rod stand with side exit; 67
isFang support for corner pipe mounting, 50 x 50 mm; 65
isFang support for wall mounting, 80 mm spacing; 65
isFang-3B threaded rod; 64-65

L

Lightning strike counter; 40

M

Magnetic card holder PCS-H; 40
Magnetic card PCS; 39

P

Plastic corrosion protection strip; 60, 102
Potential connection; 33
Potential connection for installation in the isFang IN; 33
insulated air-termination rod
Protective cap for connection lugs, reflective; 39

Q

Quick clip, black; 33
Quick connector, cover Rd 8–10 mm; 81

R

Roof cable holder for ridge tiles, 185–260 mm, Rd 8; 76
Roof conductor holder for ridge tiles, metal roofs, Rd 8; 76
Roof conductor holder for slated roofs, Rd 8; 77
Roof conductor holder for tiled and slated roofs, Rd; 79
8–10
Roof conductor holder for tiled roofs, Rd 8–10; 76
Roof conductor holder for tiled, slated and corrugated; 79
roofs, Rd 8
Roof conductor holder, for plastic film roofs; 79
Roof conductor holder, suitable for bonding straight to; 79
flat roofs
Round conductor, aluminium; 38
Round conductor, copper; 38
Round conductor, galvanised steel; 38
Round conductor, stainless steel; 38

S

Screwless conductor bracket for Rd 8 mm, through-; 42, 80
way Ø 7 mm
Sealing sleeve for flat conductors; 58
Sealing sleeve for round conductors; 58
Separating piece for Rd 8–10 and FL 30 mm; 52, 86
Spacer; 33, 59
Spacer clip for flat conductor, with steel spreading; 59
anchor Ø 10



Stainless steel flat conductor; 39
Stand for FangFix Junior system; 68
Stand for FangFix system, min. 16 kg; 69
starQuick nut; 34
Stripping tool for IsCon® conductor; 32

T

Tapered pipe air-termination rod; 69
Terminal for FangFix system; 70

U

Universal clamping block Rd 8–10 mm; 49, 92

V

VA cable bracket for isCon® Professional+ / Premium; 33
Variable bi-metal quick connector; 44, 93
Variable earthing connector Rd 6-8 / 8-10 mm; 44, 93
Vario quick connector; 44-45, 93-94
Vario quick connector Rd 6-8 / Rd 6-8 mm; 93

W

Wall connection, angled; 72
Washer for conductor bracket, type 177; 43, 82

Z

Zinc repairs; 60, 102



Numeric directory

GTIN	Item no.	Page	GTIN	Item no.	Page	GTIN	Item no.	Page
5595717	/100 pc. 2146207	33	6416912	/100 pc. 5311407	93	5674863	/pc. 5408043	33
5016069	2146509	34	5816591	5311417	44	5699668	5408056	33
6421046	2360041	58	5417736	5311519	44	6586981	5408059	34
6421053	2360043	58	5417859	5311535	44		/100 pc.	
	/pc.		5417910	5311551	44	5813781	5408060	32
5230533	2360055	60	5835349	5311554	42		/pc.	
5230595	2360101	60	5466192	5311585	42	5613220	5408109	72
			6656141	5311595	45	5009733	5408852	72
5518419	2362970	60		/100 pc.		5859550	5408930	67
			5418092	5312310	46	5871668	5408938	66
5372851	5001560	52	5700869	5312318	45	5670070	5408950	65
5862697	5001633	56	6466306	5312582	55	5670131	5408964	65
5372912	5001641	55	5418696	5312906	46	5802433	5408966	64
5372974	5001668	55	5418757	5312922	46	5670148	5408968	64
			5700876	5312925	46	5674948	5408971	64
5105015	5014468	57				5674979	5408972	64
6391059	5014469	57	6466290	5313013	56	5613374	5408986	72
6391042	5014477	57	5740537	5313015	57			
			5740476	5313023	57	6505869	5420020	58
6561063	5016160	59						
	/100 pc.		5419471	5314658	55			
6409327	5018014	39	5893080	5314659	55			
	price/100							
5022015	5018730	39	5433729	5316459	48			
			5433736	5316468	47			
5680475	5019345	39	5420675	5317258	47			
5680482	5019347	39	6622368	5317502	47			
			6622375	5317512	47			
5423898	5021050	38						
5381556	5021081	38	5421276	5320011	49			
5381617	5021103	38	5421511	5320690	50			
5801375	5021227	38	5421573	5320704	49			
5901273	5021294	38	6127504	5320707	50			
5382034	5021480	38	5421634	5320712	49			
5382096	5021502	38						
6282425	5021640	38	5422471	5326311	49			
5902058	5021642	38						
5680574	5021644	38	5424635	5336309	52			
			5424819	5336376	52			
	/100 pc.							
5383055	5028035	59	5034810	5401970	68			
	price/pac		5107774	5401983	69			
5461296	5091438	39	5108672	5401986	69			
5461470	5091527	40	5108733	5401989	69			
	/pc.		5050803	5401995	69			
5896111	5091691	102						
6465644	5091722	40	5674733	5402864	64			
	/100 pc.		5674740	5402866	64			
6379965	5202510	76	5674757	5402868	64			
5902171	5202868	76						
			5070078	5403117	70			
5404651	5207258	43	5070085	5403124	70			
5110392	5207266	43	5548713	5403200	69			
5404835	5207347	42	5548775	5403219	70			
5069546	5207371	43	5548898	5403227	64			
6657940	5207375	43	5548959	5403235	69			
	/100 pc.		5926320	5403238	65			
5904991	5207746	80						
5904939	5207819	80	5034872	5403308	68			
5903673	5215277	79						
5812111	5215471	77	5428657	5405068	68			
5902652	5216184	76						
			6591640	price/100 5408008	29			
5407959	5217075	79		/pc.				
			6095346	5408013	32			
5408918	5218810	79		price/100				
5409090	5218926	50	6591664	5408014	30			
6388196	5218999	79	6591657	5408018	29			
	/pc.			/pc.				
6522941	5240032	99	6591695	5408019	32			
6522965	5240033	98	6591701	5408020	32			
			6591671	5408021	32			
	/100 pc.		5674689	5408022	32			
5817574	5304172	45	6591688	5408023	32			
5892847	5304270	45	5674702	5408028	66			
			6591633	5408032	33			
			5674719	5408036	33			





Type listing

Type	GTIN	Item no.	Page
101 16-3000	5613220	/pc. 5408109	72
101 3B-4000	5674733	5402864	64
101 3B-4500	5674740	5402866	64
101 3B-5000	5674757	5402868	64
101 J1000	5034810	/100 pc. 5401970	68
101 VL2000	5107774	5401983	69
101 VL2500	5108672	5401986	69
101 VL3000	5108733	5401989	69
101 VL4000	5050803	5401995	69
101 WG-16	5613374	/pc. 5408986	72
120 A	5428657	/100 pc. 5405068	68
132 CU	5902171	5202868	76
132 P VA	6379965	5202510	76
157 FK-CU 230	5902652	5216184	76
157 L-CU	5812111	5215471	77
157 NB-VA	5903673	5215277	79
159 VA-V	5407959	5217075	79
165 B 60	5408918	5218810	79
165 R-8-10 OBG	6388196	5218999	79
172 AR	5409090	5218926	50
172 AR	5409090	5218926	94
177 20 CU	5904991	5207746	80
177 20 VA M8	5404835	5207347	42
177 20 VA M8	5404835	5207347	80
177 20 VA-VK M8	5904939	5207819	80
177 U	5069546	5207371	43
177 U	5069546	5207371	82
177 WDVS 64x25 B	6657940	5207375	43
177 WDVS 64x25 B	6657940	5207375	82
1807 DB	6561063	/pc. 5016160	59
1814 FT	5105015	5014468	57
1814 FT D37	6391059	5014469	57
1814 ST D37	6391042	5014477	57
194	5404651	/100 pc. 5207258	43
194	5404651	5207258	81
194 K	5110392	5207266	43
194 K	5110392	5207266	81
205 DG V4A	6505869	/pc. 5420020	58
233 8	5424635	/100 pc. 5336309	52
233 8	5424635	5336309	86
233 ZV	5424819	5336376	52
233 ZV	5424819	5336376	86
249 6-10 CU	5816591	5311417	44
249 6-10 CU	5816591	5311417	93
249 6-8 CU	6416912	5311407	93
249 8-10 ALU	5417736	5311519	44
249 8-10 ALU	5417736	5311519	94
249 8-10 ALU-OT	5466192	5311585	42
249 8-10 ALU-OT	5466192	5311585	48
249 8-10 ALU-OT	5466192	5311585	81
249 8-10 V2A 200	6656141	5311595	45
249 8-10 VA	5417910	/100 pc. 5311551	44
249 8-10 VA	5417910	5311551	94
249 8-10 VA-OT	5835349	5311554	42
249 8-10 VA-OT	5835349	5311554	48
249 8-10 VA-OT	5835349	5311554	81
249 8-10 ZV	5417859	5311535	44
249 8-10 ZV	5417859	5311535	93
250	5418696	5312906	46
250	5418696	5312906	54







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Building Connections

