isCon®
System instructions

Building Connections
OBO isCon®
System instructions
Table of contents

1 About these instructions ........................................... 5
1.1 Target group .................................................. 5
1.2 Using these instructions ..................................... 5
1.3 Types of safety information .................................. 5
1.4 Correct use .................................................... 6
1.5 Declaration of conformity ..................................... 6
1.6 Basic standards ............................................... 6

2 General safety information ......................................... 7

3 Product description ................................................ 8
3.1 Basic principles ................................................ 8
3.2 isCon® conductor ............................................. 8
3.3 Insulated air-termination rods ................................. 12
3.4 System accessories for fastening ............................ 14
3.4.1 Air-termination rod stand ................................ 14
3.4.2 Air-termination rod support for isFang mounting .... 17
3.4.3 Holder for the isCon® conductor ......................... 18
3.5 System accessories for connection ......................... 19

4 Planning an installation ............................................. 20
4.1 Schematic diagram of the isCon® system using the example of the isCon® ProPl 75 SW ......................... 21
4.2 Calculating, checking and maintaining the separation distance ...................................................... 23
4.3 Cable lengths and lightning protection classes .......... 23
4.4 Installation in potentially explosive areas ............... 25
4.5 Soft-covered roofs ............................................. 27

5 Installing the isCon® system ....................................... 28
5.1 Cutting and removing the insulation of the isCon® conductor ...................................................... 28
5.1.1 Removing the light grey protective jacket (isCon® ProPI 75 LGR) ................................................. 28
5.1.2 Revealing the copper core for connection .............. 29
5.2 Mounting the isCon® connect connection elements .... 30
5.2.1 Air-termination rod with internal isCon® conductor ................................................................. 32
5.2.2 Air-termination rod with external isCon® conductor ................................................................. 38
5.3 Fastening the air-termination rod in the air-termination rod stand .................................................. 42
5.3.1 Mounting the concrete plinth ................................ 42
5.3.2 Erecting the air-termination rod stand .................... 42
5.3.3 Fastening the air-termination rod in the air-termination rod stand ............................................. 45
5.4 Fastening the air-termination rod to pipes, a wall or T support ...................................................... 47
5.5 Routing the isCon® conductor ................................ 48
5.6 Attaching the potential connection ......................... 49
5.6.1 Installing the potential connection on an insulated air-termination rod ......................................... 49
5.6.2 Installing the potential connection on the end of the isCon® conductor ......................................... 52
5.6.3 Including the air-termination rod stand in the functional equipotential bonding ................................. 54
5.6.4 Installing additional potential connections .............. 55
5.6.5 Creating additional equipotential bonding for isCon® ProPlus in potentially explosive areas ............. 56
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>6.1</td>
<td>Separate lightning protection ring conductor</td>
<td>58</td>
</tr>
<tr>
<td>6</td>
<td>6.2</td>
<td>Metallic roof parapet</td>
<td>59</td>
</tr>
<tr>
<td>6</td>
<td>6.3</td>
<td>Internal and external isCon® conductor</td>
<td>61</td>
</tr>
<tr>
<td>6</td>
<td>6.4</td>
<td>Lightning protection class I</td>
<td>62</td>
</tr>
<tr>
<td>6</td>
<td>6.5</td>
<td>isCon® conductor included in the ring conductor</td>
<td>63</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Checking the lightning protection system</td>
<td>64</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Testing report for the OBO isCon® system</td>
<td>65</td>
</tr>
</tbody>
</table>
1 About these instructions

1.1 Target group

These mounting instructions are intended for specialists, who are qualified to erect lightning protection systems, e.g. lightning protection specialists. These specialists must know the lightning protection standards applicable at the mounting location, as well as the generally recognised rules of technology.

1.2 Using these instructions

• These instructions are based on the standards valid at the time of compilation (January 2018).
• Before commencing work, read these instructions through once completely. In particular, please observe the safety instructions.
• Keep all the documents supplied with the isCon® system safe, so that the information is available should you need it.
• We will not accept any warranty claims for damage caused through non-observance of these instructions.
• Regional and seasonal factors were not taken into account.
• To find out more about planning and installation using the OBO isCon® system, we recommend a comprehensive training course.

1.3 Types of safety information

**WARNING**

Type of risk!
Shows a possibly risky situation. If the situation is not avoided, then death or serious injury may result.

**CAUTION**

Type of risk!
Shows a possibly risky situation. If the situation is not avoided, then light or minor injury or damage to property may result.

**ATTENTION**

Type of risk!
Shows a possibly hazardous situation. If the situation is not avoided, then damage to the product or the surroundings may occur.

**Note!**

*Indicates important information or assistance!*
1.4 Correct use

The OBO isCon® system is a lightning protection system for the external lightning protection of buildings and systems, which, in the case of direct lightning strikes, can arrest the lightning surge currents into the earth, thus protecting the building, the system and people against the impacts of the lightning strike, e.g. fires, mechanical building damage and possibly lethal voltages and current pulses.

The system is not designed for any other purpose than the one described here. If the system is installed and used for another purpose, any liability, warranty or damage claims shall be rendered null and void.

If you require information on the use of the OBO isCon® system for something other than under the conditions of use described here, please speak to your OBO contact.

1.5 Declaration of conformity

Lightning protection components are not subject to an EU directive. Instead, OBO makes the manufacturer’s declarations of conformity available for the appropriate components of the lightning protection systems. These declarations of conformity certify the agreement with the named standards and stored documents, but do not, however, contain any guarantee of properties.

You can find individual proofs for lightning protection components on the OBO web pages (www.obo-bettermann.com).

1.6 Basic standards

Comply with the following standards*, amongst others, during the planning, mounting, maintenance and repair of lightning protection systems:

- DIN EN 62305-1 (IEC 62305-1, VDE 0185-305-1), Protection against lightning Part 1: General principles
- DIN EN 62305-2 (IEC 62305-2, VDE 0185-305-2), Protection against lightning Part 2: Risk management
- DIN EN 62305-3 (IEC 62305-3, VDE 0185-305-3), Protection against lightning – Part 3: Protection of structural facilities and persons
- DIN EN 62305-4 (IEC 62305-4, VDE 0185-305-4), Protection against lightning – Part 4: Electrical and electronic systems within structures
- DIN EN 62561-1 (IEC 62561-1, VDE 0185-561-1), Lightning protection system components – Part 1: Requirements for connection components
- DIN EN 62561-2 (IEC 62561-2, VDE 0185-561-2), Lightning protection system components – Part 2: Requirements for conductors and earth electrodes
- DIN EN 62561-4 (IEC 62561-4, VDE 0185-561-4), Lightning protection system components – Part 4: Requirements for conductor fasteners
- DIN 18014, Foundation earthers
- IEC TS 62561-8 (draft)

* Date of standards: January 2018
2 General safety information

Observe the following general safety information on handling the OBO isCon® system:

• The work may only be carried out by lightning protection specialists, who have been trained for the installation of standard-conformant lightning protection systems.

• If there is a lightning strike, lethal currents can flow through the lightning protection system. Never work on the elements of the lightning protection system during a thunderstorm or if there is a risk of one.

• Lethal voltages can occur during the handling of electrical resources. Therefore, never work on parts through which power is flowing. Wear suitable protective clothing and comply with all the required safety guidelines!

• To install the OBO isCon® system, use only components of the OBO product range, as otherwise there is no guarantee that safe installation is possible.

• Only the jacketing of the grey OBO isCon® conductor may be painted a different colour, as it does not possess any electrical properties which could be at risk from paint.

• The production method means that metallic objects may have areas with sharp edges. Wear suitable protective gloves to avoid cutting injuries.

• When erecting function maintenance systems, take the necessary fire protection regulations into account. These instructions do not mention any fire protection standards which are to be complied with. Read the OBO fire protection guide (article number: 9134859) for more information.
3 Product description

3.1 Basic principles

Without any additional countermeasures, the high-voltage pulses which occur when there is a direct lightning strike will cause arcing to insulation surfaces. This effect is termed a creep flashover. When the so-called creep discharge inception voltage has been exceeded, surface discharge is initiated, which can bridge a gap of several metres. To avoid dangerous arcing between conductive parts (electrical systems, pipelines, etc.), the maintenance of the separation distance is a key requirement when planning and implementing a lightning protection system.

These days, the roof level of building complexes is used as an installation area for air-conditioning, ventilation, transmission and energy collection systems, meaning that the structural features may be in the way of the required spacing between the air-termination systems and the electrical installations.

The isCon® insulated lightning protection system is used to maintain the required separation distance. Depending on the design, after the first potential connection behind the connection element on the air-termination rod, the isCon® conductor reflects an equivalent separation distance of up to 0.45‒0.9 metres in the air or double that in solid matter. This means that installation is possible directly on metallic and electrical structures. If there is a direct lightning strike, the incoming energy is arrested through the isCon® conductor to the building’s earthing system. There is no direct arcing between the down-conductor and the building to be protected.

The isCon® system has a tested arresting capacity of 150‒200 kA lightning surge current (10/350 μs). It primarily consists of the following components:

- isCon® conductor
- Insulated air-termination rods
- System accessories for fastening (air-termination rod stand, support and holder)
- System accessories for connection

3.2 isCon® conductor

According to DIN EN 62305-3/VDE 0185-305-3/IEC 62305-3, the insulated isCon® conductor implements a separation distance of 0.45‒0.9 metres in the air and 0.9‒1.8 metres in the case of solid materials, depending on the product design. The isCon® conductor is equipped with an external semi-conductive jacket, allowing it to limit high lightning voltage pulses against a reference potential, by creating a connection between the external semi-conductive jacket and the building’s equipotential bonding, which is not energised with lightning current, in the area of the connection element.

The isCon® conductor is flame-resistant according to DIN EN 60332-1-2, weather-resistant and halogen-free. It is suitable for routing in external areas and can be routed on roofs, in walls, in concrete, in facade installations or in buildings.
The isCon® conductor is sold by the metre and in five variants:

<table>
<thead>
<tr>
<th>Conductor type</th>
<th>Characteristic</th>
<th>Item number</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon® PR 90 SW (Premium)</td>
<td>Black</td>
<td>5408 018</td>
</tr>
<tr>
<td>isCon® Pro 75 SW</td>
<td>Black</td>
<td>5408 008</td>
</tr>
<tr>
<td>isCon® ProPl 75 SW</td>
<td>Black</td>
<td>5408 002, 5408 004, 5408 006</td>
</tr>
<tr>
<td>isCon® ProPl 75 LGR</td>
<td>Light grey</td>
<td>5407 995, 5407 997</td>
</tr>
<tr>
<td>isCon® BA 45 SW (Basic)</td>
<td>Black</td>
<td>5408 014</td>
</tr>
</tbody>
</table>

**Table 1**: Product variants, isCon® conductor

The light grey isCon® conductor is also suitable for routing in the earth. It can also be painted, e.g. with the paint of the facade. As the external light grey protective jacket is non-conductive, it must be removed in the contact areas.

**Figure 1**: Schematic diagram of the isCon® conductors ProPl 75 SW and ProPl 75 LGR

**Figure 2**: Schematic diagram of the isCon® conductors Pro 75 SW, BA 45 SW and PR 90 SW

**Legend:**
1. Round conductor, multi-wire, 35 mm², Cu
2. Inner conductive layer
3. Insulation
4. Outer conductive layer
5. External jacket
6. External jacket, light grey
Product description

The isCon® conductor may only be connected to air-termination rods or forwarding systems using system-tested connection elements (see also "5.2 Mounting the isCon® connect connection elements" on page 30).

<table>
<thead>
<tr>
<th>Type</th>
<th>isCon® BA 45 SW</th>
<th>isCon® Pro 75 SW</th>
<th>isCon® ProPl 75 SW</th>
<th>isCon® ProPl 75 LGR</th>
<th>isCon® PR 90 SW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>Black</td>
<td>Black</td>
<td>Black</td>
<td>Light grey</td>
<td>Black</td>
</tr>
<tr>
<td>Equivalent separation distance, air (cm)</td>
<td>≤ 45</td>
<td>≤ 75</td>
<td>≤ 75</td>
<td>≤ 75</td>
<td>≤ 90</td>
</tr>
<tr>
<td>Equivalent separation distance, solid materials (cm)</td>
<td>≤ 90</td>
<td>≤ 150</td>
<td>≤ 150</td>
<td>≤ 150</td>
<td>≤ 180</td>
</tr>
<tr>
<td>Equivalent separation distance, mixed materials</td>
<td>See EN 62305-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External diameter</td>
<td>~ 20 mm</td>
<td>~ 20 mm</td>
<td>~ 23 mm</td>
<td>~ 26 mm</td>
<td>~ 23 mm</td>
</tr>
<tr>
<td>Round conductor, multi-wire, Cu</td>
<td>35 mm²</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conductor weight</td>
<td>~ 0.570 kg/m</td>
<td>~ 0.570 kg/m</td>
<td>~ 0.694 kg/m</td>
<td>~ 0.868 kg/m</td>
<td>~ 0.666 kg/m</td>
</tr>
<tr>
<td>Temperature range for routing</td>
<td>min. -5 °C, max. 40 °C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>min. -30 °C, max. 70 °C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bend radius</td>
<td>min. 200 mm</td>
<td>min. 200 mm</td>
<td>min. 230 mm</td>
<td>min. 260 mm</td>
<td>min. 230 mm</td>
</tr>
<tr>
<td>Maximum tensile load</td>
<td>1 750 N</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routing in the earth</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Can be painted</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Weathering resistance (UV-stabilised)</td>
<td>Ozone resistant according to DIN EN 60811-2-1 Section 8 Sunlight resistance test according to UL 1581 Section 1200 Coldness impact resistance according to DIN EN 60811-1-4 Section 8.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire load (kWh/m)</td>
<td>3.3</td>
<td>4.3</td>
<td>5.1</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>Lightning current carrying capacity (class/limp (kA))</td>
<td>H1/150</td>
<td>H1/150</td>
<td>H1/150</td>
<td>H2/200</td>
<td></td>
</tr>
<tr>
<td>Testing certificate according to IEC TS 62561-8</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Halogen-free</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Softener</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Technical data of the isCon® conductors
Figure 3: isCon® conductor in the air-termination rod with internal connection element ① (type isCon® IN connect, isCon® IN con PRE, isCon® IN con 2) and isCon® connection element ② (type isCon® connect)
3.3 **Insulated air-termination rods**

The insulated air-termination rods of the isCon® system come in three parts and consist of the air-termination rod (length 1,000 mm), the insulated central rod (length 1,500 mm) and the retaining rod (length 1,325 mm or 3,325 mm).

**Figure 4: Air-termination rod components**

Legend:

1. Air-termination rod
2. Insulated central rod
3. Retaining rod

The metallic components of the rods are made of aluminium and stainless steel (V2A). The insulated central rod is made of glass-fibre-reinforced plastic (GRP) and allows sufficient spacing of the arresting components (connection element at the bottom end of the air-termination rod) to all roof structures. In addition, it guarantees a sufficient distance of 1,500 mm to the equipotential bonding, which is connected at the bottom end of the insulated rod (see also Figure 13 No. 5).
The system comprises three types of air-termination rods (see Figure 5). This means it can be used in different mounting situations.

**Figure 5:** Three air-termination rod types (without potential connection)

**Legend:**
1. Air-termination rod with internal isCon® conductor and side exit
2. Air-termination rod with external isCon® conductor
3. Air-termination rod with internal isCon® conductor and bottom exit

<table>
<thead>
<tr>
<th>Type</th>
<th>Item number</th>
<th>Overall length m</th>
<th>Diameter mm</th>
<th>Material</th>
<th>Type (Fig. 4)</th>
<th>Corresponding air-termination rod stand</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang IN-A 4000</td>
<td>5408 938</td>
<td>4,000</td>
<td>50</td>
<td>Alu/GRP</td>
<td></td>
<td>isFang 3B-100-A</td>
</tr>
<tr>
<td>isFang IN-A 6000</td>
<td>5408 940</td>
<td>6,000</td>
<td>50</td>
<td>Alu/GRP</td>
<td></td>
<td>isFang 3B-150-A</td>
</tr>
<tr>
<td>isFang IN-A 8000</td>
<td>5408 888</td>
<td>8,000</td>
<td>50</td>
<td>Alu/GRP</td>
<td></td>
<td>isFang 3B-250-A</td>
</tr>
<tr>
<td>isFang IN-A 10000</td>
<td>5408 890</td>
<td>10,000</td>
<td>50</td>
<td>Alu/GRP</td>
<td></td>
<td>isFang 3B-250-A</td>
</tr>
<tr>
<td>isFang 4000 AL</td>
<td>5408 943</td>
<td>4,000</td>
<td>40</td>
<td>Alu/GRP</td>
<td></td>
<td>isFang 3B-100 AL</td>
</tr>
<tr>
<td>isFang 6000 AL</td>
<td>5408 947</td>
<td>6,000</td>
<td>40</td>
<td>Alu/GRP</td>
<td></td>
<td>isFang 3B-150 AL</td>
</tr>
<tr>
<td>isFang 4000</td>
<td>5408 942</td>
<td>4,000</td>
<td>40</td>
<td>V2A/GRP</td>
<td></td>
<td>isFang 3B-100</td>
</tr>
<tr>
<td>isFang 6000</td>
<td>5408 946</td>
<td>6,000</td>
<td>40</td>
<td>V2A/GRP</td>
<td></td>
<td>isFang 3B-150</td>
</tr>
<tr>
<td>isFang IN 4000</td>
<td>5408 934</td>
<td>4,000</td>
<td>50</td>
<td>Alu/GRP</td>
<td></td>
<td>To be fastened with support system</td>
</tr>
<tr>
<td>isFang IN 6000</td>
<td>5408 936</td>
<td>6,000</td>
<td>50</td>
<td>Alu/GRP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>isFang IN 8000</td>
<td>5408 868</td>
<td>8,000</td>
<td>50</td>
<td>Alu/GRP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>isFang IN 10000</td>
<td>5408 870</td>
<td>10,000</td>
<td>50</td>
<td>Alu/GRP</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 3:** Technical data of the isCon® air-termination rods

Contact OBO Customer Service about other air-termination rod variants.
Product description

Scope of delivery of the air-termination rods with internal conductor:
– Insulated air-termination rod with side exit
– Internal connection element (type isCon® IN connect)
– Potential connection element (type isCon® IN PAE)
– Brief instructions

Scope of delivery of the air-termination rods with external conductor:
– Insulated air-termination rod with bottom exit
– Brief instructions

3.4 System accessories for fastening

Air-termination rod stands (see section 3.4.1) or supports for wall or pipe mounting (see section 3.4.2) can be used to fasten the isCon® air-termination rods. In addition, the system offers special holders for the isCon® conductor (see section 3.4.3).

3.4.1 Air-termination rod stand

![Air-termination rod stand with concrete blocks](image)

The isCon® system contains folding air-termination rod stands of different sizes, to allow the isFang air-termination rods to be mounted on flat roofs, for example. The tripod air-termination rod stands allow the erection of the air-termination rods without penetrating the building structure with bolts/anchors.

Instead, the air-termination rod stands are weighed down with FangFix concrete blocks. The number of blocks required is dependent on the height of the air-termination rod and the wind speed zone.

**Note:** You can find further information on wind speed zones in the OBO TBS lightning protection guide (order no.: 9131970) and national directives.

The air-termination rod stand can compensate for a slope in the roof surface of up to 5° (see also Figure 48 on page 44). To protect the roof surface, it may be wise to place a protective film under the concrete blocks of the air-termination rod stand. We recommend contacting the roofer about this.

Scope of delivery of the air-termination rod stand:
– Tripod air-termination rod stand
– Crossbar for potential connection with bolt, nut and lock washer
– Brief instructions
Figure 7: For the dimensions of the air-termination rod stand, see Table 4

<table>
<thead>
<tr>
<th>Type</th>
<th>Item number</th>
<th>Dimension B mm</th>
<th>Dimension D mm</th>
<th>Dimension L mm</th>
<th>Dimension H mm</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>with side exit for internal isCon® conductor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>isFang 3B-100-A</td>
<td>5408 930</td>
<td>1,026</td>
<td>50</td>
<td>600</td>
<td>885</td>
<td>V2A</td>
</tr>
<tr>
<td>isFang 3B-150-A</td>
<td>5408 932</td>
<td>1,500</td>
<td>50</td>
<td>900</td>
<td>1,275</td>
<td>V2A</td>
</tr>
<tr>
<td>isFang 3B-250-A</td>
<td>5408 902</td>
<td>2,900</td>
<td>50</td>
<td>1,450</td>
<td>2,055</td>
<td>V2A</td>
</tr>
<tr>
<td><strong>with bottom exit or for external isCon® conductor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>isFang 3B-100 AL</td>
<td>5408 966</td>
<td>1,000</td>
<td>40</td>
<td>600</td>
<td>885</td>
<td>Al</td>
</tr>
<tr>
<td>isFang 3B-150 AL</td>
<td>5408 967</td>
<td>1,500</td>
<td>40</td>
<td>900</td>
<td>1,275</td>
<td>Al</td>
</tr>
<tr>
<td>isFang 3B-100</td>
<td>5408 968</td>
<td>1,000</td>
<td>40</td>
<td>600</td>
<td>885</td>
<td>V2A</td>
</tr>
<tr>
<td>isFang 3B-150</td>
<td>5408 969</td>
<td>1,500</td>
<td>40</td>
<td>900</td>
<td>1,275</td>
<td>V2A</td>
</tr>
</tbody>
</table>

Table 4: Technical data of the air-termination rod stand

The isCon® concrete blocks weigh approx. 16 kg and are screwed to the bottom of the unfolded air-termination rod stand. The blocks can be stacked to increase the stand weight (e.g. for increased wind speeds) (see Figure 8). Additional blocks can mounted internally in the air-termination rod stands of diameter 1,500 mm (unfolded).

Figure 8: Increasing the stand weight by stacking the concrete blocks
**Legend:**

1. Hexagonal nuts (with washers) for height compensation
2. Lock nut (with washer and plate)
3. Concrete block
4. Edge protection
5. Threaded rod

![Concrete block with fastenings](image)

**Table 5:** Technical data of the concrete blocks with accessories

<table>
<thead>
<tr>
<th>Product</th>
<th>Type</th>
<th>Item number</th>
<th>Features</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>FangFix concrete block</td>
<td>F-FIX-S16</td>
<td>5403 227</td>
<td>Weight: 16 kg; Ø 365 mm; stackable</td>
<td>Concrete, frost-resistant</td>
</tr>
<tr>
<td>Edge protection for concrete block 16 kg</td>
<td>F-FIX-B16 3B</td>
<td>5403 238</td>
<td>Edge protection with gland hole</td>
<td>Polyamide</td>
</tr>
<tr>
<td>Threaded rod</td>
<td>isFang 3B-G1</td>
<td>5408 971</td>
<td>270 mm, for 1 concrete block&lt;sup&gt;1)&lt;/sup&gt;</td>
<td>V2A</td>
</tr>
<tr>
<td>Threaded rod</td>
<td>isFang 3B-G2</td>
<td>5408 972</td>
<td>340 mm, for 2 concrete blocks&lt;sup&gt;1)&lt;/sup&gt;</td>
<td>V2A</td>
</tr>
<tr>
<td>Threaded rod</td>
<td>isFang 3B-G3</td>
<td>5408 973</td>
<td>430 mm, for 3 concrete blocks&lt;sup&gt;1)&lt;/sup&gt;</td>
<td>V2A</td>
</tr>
<tr>
<td>Threaded rod</td>
<td>isFang 3B-G4</td>
<td>5408 905</td>
<td>500 mm, for 4 concrete blocks&lt;sup&gt;1)&lt;/sup&gt;</td>
<td>V2A</td>
</tr>
</tbody>
</table>

<sup>1)</sup> Number of concrete blocks for mounting on flat surface. For height compensation in an inclined position, select a longer threaded rod if necessary (see Figure 48 on page 44).

Nuts and washers are included in the scope of delivery of the threaded rods.
3.4.2 Air-termination rod support for isFang mounting

Figure 10: Support for wall or pipe mounting of the isFang air-termination rods

---

<table>
<thead>
<tr>
<th>Fig no.</th>
<th>Type</th>
<th>Item number</th>
<th>Ø isCon air-termination rod mm</th>
<th>Features</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>isFang TW30</td>
<td>5408 952</td>
<td>40/50</td>
<td>Surface mounting, distance from wall 30 mm</td>
<td>V2A</td>
</tr>
<tr>
<td>2</td>
<td>isFang TW80</td>
<td>5408 950</td>
<td>40/50</td>
<td>Surface mounting, distance from wall 80 mm</td>
<td>V2A</td>
</tr>
<tr>
<td>3</td>
<td>isFang TW200 12</td>
<td>5408 910</td>
<td>40/50</td>
<td>Surface mounting, distance from wall 200 mm</td>
<td>V2A</td>
</tr>
<tr>
<td>4</td>
<td>isFang TW200</td>
<td>5408 954</td>
<td>40/50</td>
<td>Surface mounting, variable distance from wall 200-300 mm</td>
<td>V2A</td>
</tr>
<tr>
<td>5</td>
<td>isFang TW200 Set</td>
<td>5408 914</td>
<td>40/80</td>
<td>Mounting set for T support, in conjunction with isFang TW200 [4]</td>
<td>V2A</td>
</tr>
<tr>
<td>6</td>
<td>isFang TR100</td>
<td>5408 956</td>
<td>40/50</td>
<td>Tightening strap clip for round construction pipes of Ø 50-300 mm; distance to pipe 40 mm</td>
<td>V2A</td>
</tr>
<tr>
<td>7</td>
<td>isFang TR100 100</td>
<td>5408 955</td>
<td>40/50</td>
<td>Tightening strap clip for round construction pipes of Ø 50-300 mm; distance to pipe 100 mm</td>
<td>V2A</td>
</tr>
<tr>
<td>8</td>
<td>isFang TR100 200</td>
<td>5408 957</td>
<td>40/50</td>
<td>Tightening strap clip for round construction pipes of Ø 50-300 mm; distance to pipe 200 mm</td>
<td>V2A</td>
</tr>
<tr>
<td>9</td>
<td>isFang TR100 300</td>
<td>5408 959</td>
<td>40/50</td>
<td>Tightening strap clip for round construction pipes of Ø 50-300 mm; distance to pipe 300 mm</td>
<td>V2A</td>
</tr>
<tr>
<td>10</td>
<td>isFang TS40-50</td>
<td>5408 958</td>
<td>40/50</td>
<td>Pipe ribbon clip for round construction pipes of Ø 40-50 mm; distance to pipe 40 mm</td>
<td>V2A</td>
</tr>
<tr>
<td>11</td>
<td>isFang TS50-60</td>
<td>5408 960</td>
<td>40/50</td>
<td>Pipe ribbon clip for round construction pipes of Ø 50-60 mm; distance to pipe 30 mm</td>
<td>V2A</td>
</tr>
<tr>
<td>12</td>
<td>isFang TS50x50</td>
<td>5408 964</td>
<td>40/50</td>
<td>Pipe ribbon clip for round construction pipes of max 50 x 70 mm; distance to pipe 30 mm</td>
<td>V2A</td>
</tr>
</tbody>
</table>

Table 6: Technical data of the isCon® supports
# Product description

## 3.4.3 Holder for the isCon® conductor

![Figure 11: Holder for the isCon® conductor](image)

<table>
<thead>
<tr>
<th>Fig no.</th>
<th>Product</th>
<th>Type</th>
<th>Item number</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cable bracket for isCon conductor</td>
<td>isCon® H VA isCon® H 26 VA</td>
<td>5408 056 5408 064</td>
<td>Ø 23 mm; V2A Ø 26 mm; V2A</td>
</tr>
<tr>
<td>2</td>
<td>VA cable bracket with tightening strap</td>
<td>isCon® HS VA isCon® HS 26 VA</td>
<td>5408 052 5408 068</td>
<td>Ø 23 mm; V2A; 2 m tightening strap Ø 26 mm; V2A; 2 m tightening strap</td>
</tr>
<tr>
<td>3</td>
<td>PA cable bracket with tightening strap</td>
<td>isCon® HS PA isCon® HS 26 PA</td>
<td>5408 054 5408 066</td>
<td>Ø 23 mm; PA black; 2 m tightening strap Ø 26 mm; PA light grey; 2 m tightening strap</td>
</tr>
<tr>
<td>4</td>
<td>Terminal for steel support with 1. bolt M16x6 and washer</td>
<td>TKf 13-6</td>
<td>1483587</td>
<td>Galvanised terminal with M6 internal thread to fasten an isCon H VA cable bracket with M16x6 bolt</td>
</tr>
<tr>
<td>5</td>
<td>Roof cable bracket with adapter and M-Quick cable bracket</td>
<td>165 MBG-8 165 MBG UH M-Quick M25 SW M-Quick M25 LGR</td>
<td>5218 691 5218 882 2153 787 2153 734</td>
<td>PA/PE roof cable bracket, filled with frost-resistant concrete. Clamping range of M-Quick cable bracket ..SW: 20-25 mm, for ...LGR: 25-32 mm</td>
</tr>
<tr>
<td>6</td>
<td>VA roof cable holder for sloping roof</td>
<td>isCon® H280 VA isCon® H280 26 VA</td>
<td>5408 047 5408 074</td>
<td>Ø 23 mm; V2A Ø 26 mm; V2A</td>
</tr>
<tr>
<td>7</td>
<td>PA roof cable holder for sloping roof</td>
<td>isCon® H280 PA isCon® H280 26 PA</td>
<td>5408 049 5408 072</td>
<td>Ø 23 mm; PA black Ø 26 mm; PA light grey</td>
</tr>
<tr>
<td>8</td>
<td>Spacer for stand-off routing of the isCon conductor</td>
<td>isCon® DH</td>
<td>5408 043</td>
<td>Material: GRP; clamping range Ø 23-26 mm; height 1,000 mm, can be shortened; for mounting on FangFix concrete block, 10 kg, with edge protection</td>
</tr>
</tbody>
</table>

**Table 7:** Technical data of the holder for the isCon® conductor
### 3.5 System accessories for connection

Figure 12: Accessories for connecting the isCon® conductor

<table>
<thead>
<tr>
<th>Fig no.</th>
<th>Product</th>
<th>Type</th>
<th>Item number</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Connection element</td>
<td>isCon® connect</td>
<td>5408 022</td>
<td>See “5.2 Mounting the isCon® connect connection elements” on page 30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>isCon® con 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>isCon® con PRE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Stripping tool</td>
<td>isCon® stripper 2</td>
<td>5408 013</td>
<td>To remove the insulation of the isCon® conductor (see section 5.1.2 on page 29)</td>
</tr>
<tr>
<td>3</td>
<td>Cleaning cloth</td>
<td>isCon® EPPA 004</td>
<td>5408 060</td>
<td>Cellulose polypropylene paper with abrasive sections, doused with impregnation solution, for cleaning the external jacket of the OBO isCon® conductor (see Figure 22 on page 30)</td>
</tr>
<tr>
<td>4</td>
<td>Potential connection terminal</td>
<td>isCon® PAE</td>
<td>5408 036</td>
<td>Potential connection of the isCon® conductor; seat Ø 17-25 mm, V2A</td>
</tr>
<tr>
<td>5</td>
<td>Potential connection clip</td>
<td>927 2 6-K</td>
<td>5057 599</td>
<td>Potential connection on the air-termination rod for external isCon® conductor; seat 3/8-4&quot;, V2A</td>
</tr>
<tr>
<td>6</td>
<td>Connection plate for one isCon® conductor</td>
<td>isCon® AP1-16 VA</td>
<td>5408 026</td>
<td>16 x 8-10 mm, V2A</td>
</tr>
<tr>
<td>7</td>
<td>Connection plate for two isCon® conductors</td>
<td>isCon® AP2-16 VA</td>
<td>5408 028</td>
<td>16 x 8-10 mm, V2A</td>
</tr>
<tr>
<td>8</td>
<td>Strip clip</td>
<td>555 7.6x380 SWUV</td>
<td>2332 784</td>
<td>Black; weatherproof, length approx. 380 mm</td>
</tr>
<tr>
<td>9</td>
<td>Information sign for labelling of the lightning protection system</td>
<td>isCon® HWS</td>
<td>5408 059</td>
<td>Self-adhesive, with 4 fastening holes Ø 6.5 mm</td>
</tr>
<tr>
<td>10</td>
<td>Information sign for labelling of the lightning protection system</td>
<td>isCon® HWS EN</td>
<td>5408 059</td>
<td>Self-adhesive, with 4 fastening holes Ø 6.5 mm</td>
</tr>
</tbody>
</table>

Table 8: System accessories for connection
Planning an installation

When planning the lightning protection of buildings, we recommend taking the following aspects and possible activities into account:

– Determine the protection area, the required height and the arrangement of the air-termination rods, according to DIN EN 62305-3 (IEC 62305-3, VDE 0185-305-3).

– Calculate the necessary separation distance (see “4.2 Calculating, checking and maintaining the separation distance” on page 23).

– Calculate the number of isCon® conductors and air-termination systems according to the lightning protection class and required cable length (see “4.3 Cable lengths and lightning protection classes” on page 23).

– Additional measures are required for installations in potentially explosive areas (see “4.4 Installation in potentially explosive areas” on page 25) and on soft-covered roofs (see “4.5 Soft-covered roofs” on page 27).

– When erecting air-termination rods, take the appropriate wind speed zones into account. You can find further information in the OBO TBS lightning protection guide and national directives.

– Ensure that there is equipotential bonding (see “5.6 Attaching the potential connection” on page 49).

**Note:** You can find additional detailed planning aids on lightning and surge protection systems in the OBO TBS lightning protection guides (order no.: 9131970).

**Note:** To guarantee the functionality of the isCon® lightning protection system, tested components of the OBO delivery range must be used.
4.1 Schematic diagram of the isCon® system using the example of the isCon® ProPI 75 SW

Figure 13: Installation of the isCon® system with the example of the ProPI 75 SW conductor
Planning an installation

Legend:

1. **Air-termination system**
   DIN EN 62305-3 (IEC 62305-3, VDE 0185-305-3) Section 5.2 must be taken into account when planning the design of the air-termination system. The height and arrangement of the air-termination system must be designed in such a way that the objects to be protected are located in the protection area.

2. **Protection area**
   Along the whole of its length, the conductor must be located in the protection area of the air-termination system. \(\alpha\) = Protective angle according to DIN EN 62305 (IEC 62305, VDE 0185-305-3).

3. **Connection element**
   The connection element may only be connected to the air-termination system or forwarding conductor of the external lightning protection.

4. **Required separation distance to first potential connection**
   No electrically conductive or earthed parts may be located in the area of the potential connection within the radius of the calculated separation distance. These include metallic construction parts, cable brackets and reinforcements.

5. **Potential connection**
   The potential connection must be installed in the manner described in “5.6 Attaching the potential connection” on page 49. The potential connection element must be connected to the equipotential bonding with \(\geq 6 \text{ mm}^2\) Cu or an equal conductivity.

6. **Bend radius**
   When routing cables, do not go below the minimum radii.

7. **Additional potential connections**
   After the first potential connection using the potential connection element, the isCon\textsuperscript{®} conductor can be connected multiple times with the earthed components of the structure, through which the lightning current does not flow. See also “5.6.4 Installing additional potential connections” on page 55.

8. **Cable fastening**
   The isCon\textsuperscript{®} conductor must be fastened using the installation material indicated. The maximum distance between the fastenings is 1 metre.

9. **Separation distance of \(s \leq 17.5 \text{ cm in air}\)**
   A potential connection is not required for a calculated separation distance of \(s \leq 17.5 \text{ cm in air}\).

**Note:** Before designing the lightning protection system, obtain information on the function, general design and location of the structure.

**Note:** During routing in buildings, pay attention to the specified protection measures, e.g. division into fire sections. Read the OBO fire protection guide (article number: 9134859) for more information.
4.2 Calculating, checking and maintaining the separation distance

Note: If the approval authorities, the insurance company or the customer has not yet specified whether the appropriate building should be protected by a lightning protection system, we recommend that the lightning protection planner carry out a risk evaluation according to DIN EN 62305-2/IEC 62305-2, which will indicate whether a lightning protection system is required or not.

• Calculate the separation distance at the connection point of the isCon® conductor according to DIN EN 62305-3 (VDE 0185-305-3)/IEC 62305-3 Section 6.3. Measure the distance (l) from the connection point of the isCon® conductor to the next level of the lightning protection equipotential bonding, e.g. earthing system, metal parapet of the construction with electrically connected metal facade or steel reinforcement (high-rise building).
• Check whether the calculated separation distance (s) is less than or equal to the specified equivalent separation distance of the isCon® conductor.
• If the specified equivalent separating distance is exceeded, then you must install additional conductors:
  – The current is split up if you install multiple insulated cables in parallel. The reduced current division coefficient $k_c$ thus also reduces the calculated separation distance (s).
  – We recommend installing the cables at least 20 cm apart. This keeps the magnetic fields to a minimum, preventing the cables from influencing each other.
  – When cables are routed directly beside one another, the inductivity of the total arrangement is not reduced by the factor n and the current division coefficient $k_c$ is not reduced accordingly.
  – Install the cables as far apart from each other as possible, if the installation conditions permit this. Ideally, the second cable should be run to the ground on the other side of the building.

4.3 Cable lengths and lightning protection classes

The possible length of an isCon® conductor can be calculated using the following formula, according to the calculated separation distance (s), the lightning protection class ($k_i$), the number of cables used ($k_c$) and the electrical insulation ($k_m$) (see DIN EN 62305-3):

$$L(m) = \frac{s \cdot k_m}{k_c \cdot k_i}$$

The following Table 9 offers an example of the maximum possible lengths of the isCon® conductor at a separation distance $s = 0.75$ metres in air. Should the cable lengths shown there be insufficient for the construction project, we recommend having a lightning protection specialist carry out a detailed calculation of the factor $k_c$ using the building data. The above formula shows that longer cable lengths are possible with a greater number of conductors and thus the reduction of the factor $k_c$. 
Planning an installation

<table>
<thead>
<tr>
<th>LPS – lightning protection class*</th>
<th>Max. lightning current peak value</th>
<th>Number of conductors</th>
<th>Basic</th>
<th>Professional</th>
<th>Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Length for s ≤ 0.45 m in air</td>
<td>Length for s ≤ 0.75 m in air</td>
<td>Length for s ≤ 0.90 m in air</td>
</tr>
<tr>
<td>I</td>
<td>200 kA</td>
<td>1</td>
<td>-</td>
<td>–</td>
<td>11.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>8.52</td>
<td>14.20 m</td>
<td>17.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 and more</td>
<td>12.78</td>
<td>21.31 m</td>
<td>25.57</td>
</tr>
<tr>
<td>II</td>
<td>150 kA</td>
<td>1</td>
<td>7.50</td>
<td>12.50 m</td>
<td>15.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>11.36</td>
<td>18.94 m</td>
<td>22.73</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 and more</td>
<td>17.05</td>
<td>28.41 m</td>
<td>34.09</td>
</tr>
<tr>
<td>III + IV</td>
<td>100 kA</td>
<td>1</td>
<td>11.25</td>
<td>18.75 m</td>
<td>22.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>17.05</td>
<td>28.41 m</td>
<td>34.09</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 and more</td>
<td>25.57</td>
<td>42.61 m</td>
<td>51.14</td>
</tr>
</tbody>
</table>

Table 9: Maximum length of the isCon® conductors in air

* LPS lightning protection classes according to DIN EN 62305 / DIN VDE 0185-305 / IEC 62305

Note!

The values in the table apply to all type B earthers and for type A earthers, in which the earth resistance of the neighbouring earthing electrodes differs by less than a factor of 2. If the earther resistance of individual electrodes deviates by more than a factor of 2, \( k_e = 1 \) should be assumed (source: DIN EN 62305-3:2011, Table 12).

Installation for lightning protection class II

As the isCon® Pro, isConv Pro Plus and isCon® Basic systems have a tested arresting capacity of 150 kA lightning surge current (10/350 μs), a lightning protection system of lightning protection class II can run the lightning current safely from the air-termination system to another arresting system with a single isCon® conductor (depending on the required cable length, see Table 9).

![Figure 14: One isCon® conductor for lightning protection class II/I](image)

Installation for lightning protection class I

In a lightning protection system of lightning protection class I, one isCon® Premium conductor can be used from the air-termination unit up to the arresting system to implement the separation spacing (depending on the required cable length, see Table 9).
Planning an installation

4.4 Installation in potentially explosive areas

The isCon® ProPlus conductor is ignition-free and can thus be used in lightning protection systems, which are to be located in potentially explosive areas. Here, the isCon® ProPlus conductor may be run through the areas of Ex zone 1/2 and 21/22.

If necessary, an appropriate DEKRA test report can be obtained from your OBO contact.

Note! The system operator must divide a structure into Ex zones (see IEC 60079-10-1 and 2).

When planning and running a lightning protection system through Ex zones, the following rules in particular must be taken into account:

- DIN EN 62305-3 – Appendix D – "Additional information for lightning protection systems for structures in areas with the risk of explosion"
- VDE 0185-305-3 – Supplementary Sheet 2 – "Additional information for special structures"

According to this, planners, craftspeople and testers of lightning protection systems must meet the following requirements and levels of knowledge in potentially explosive areas:

- General principles of explosion protection
- General principles of protection ratings and device labelling
- Technical rules for operational safety (TRBS 2152)
- Testing, maintenance and repair requirements and knowledge of the appropriate technologies and devices
- Meaning of work permission systems and safe electrical separation in potentially explosive areas of explosion protection

For Ex systems with Ex zone 2 and 22, Supplementary Sheet 2 (VDE 0185-305-3, Point 4.3) states that a potentially explosive atmosphere will only occur in rare, unforeseen circumstances. Therefore, it is possible to position air-termination units in Ex zones 2 and 22, taking Appendix D in DIN EN 62305-3 (VDE 0185-305-3) into account.

In the case of installations in potentially explosive areas, you must connect the isCon® ProPlus conductor beyond the potential connection to the equipotential bonding at regular intervals. See "5.6.5 Creating additional equipotential bonding for isCon® ProPlus in potentially explosive areas" on page 56 for more information.
Figure 15: Example of the installation of the isCon® ProPlus conductor in the Ex zones of a potentially explosive area
4.5 Soft-covered roofs

Soft-covered roofs, e.g. straw, reed or thatched roofs, are particularly at risk of fire and require increased protection against lightning strikes. Here, the isCon® system, e.g. with internal conductor (type isFang IN), can be included discreetly in the building's appearance as an air-termination system. The grey variant of the isCon® conductor guarantees a high degree of protection and can be routed safely under the soft roof.

Consult the roofer, in order to have a waterproof penetration of the insulated air-termination rod created. Fasten the insulated air-termination rod to the roof structure using suitable supports (type isFang TW..).

![Diagram of installation example: Soft-covered roof](image)

**Legend:**

1. Air-termination rod
2. isCon® connection element
3. Insulated air-termination rod for internal isCon® conductor
4. isCon® potential connection
5. Support for wall mounting
6. Equipotential busbar
7. isCon® conductor
8. Separator
9. Earthing system
## 5 Installing the isCon® system

**WARNING**

Risk of electric shock!
If there is a lightning strike in the lightning protection system, lethal voltages can occur in the lightning protection system. Do not work on the lightning protection system during a thunderstorm or if there is the risk of one, and do not install air-termination masts in the immediate vicinity of high-voltage cables.

### 5.1 Cutting and removing the insulation of the isCon® conductor

The isCon® conductor is sold by the metre and in five variants:

<table>
<thead>
<tr>
<th>Conductor</th>
<th>Type</th>
<th>Item number</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon®</td>
<td>PR 90 SW</td>
<td>5408 018</td>
</tr>
<tr>
<td>isCon®</td>
<td>Pro 75 SW</td>
<td>5408 008</td>
</tr>
<tr>
<td>isCon®</td>
<td>ProPl 75 SW</td>
<td>5408 002, 5408 004, 5408 006</td>
</tr>
<tr>
<td>isCon®</td>
<td>ProPl 75 LGR</td>
<td>5407 995, 5407 997</td>
</tr>
<tr>
<td>isCon®</td>
<td>BA 45 SW</td>
<td>5408 014</td>
</tr>
</tbody>
</table>

Table 10: Product variants of the isCon conductor

The light grey isCon® conductor is suitable for routing in the earth. It can also be painted, e.g. with the paint of the facade. As the external light grey protective jacket is non-conductive, it must be removed in the contact areas.

- Shorten the isCon® conductor on-site to the required length using standard cable cutters or saw.

#### 5.1.1 Removing the light grey protective jacket (isCon® ProPl 75 LGR)

In the case of the isCon® ProPl 75 LGR conductor, before attaching elements for potential connection, remove the light grey jacket in the contact area, so that the connection comes into contact with the black, weakly conductive material.

**ATTENTION**

Risk of damage!
The black jacket may not be removed, as otherwise the connection to the building’s equipotential bonding can be interrupted. Observe the cutting depth of the grey cable jacket of 1.5 mm.

When mounting isCon® connect or isCon® IN connect:

- Remove 50 mm of the grey cable jacket with a cable knife.

![Figure 17: Cutting and removing the light grey outer jacket in the contact area](image-url)
When mounting equipotential bonding elements (clips, clamps):

- Using a cable knife ("jokari knife"), remove the light grey jacketing in the contact area along a length of 100 mm.

![Figure 18: Releasing the light grey outer jacketing within the cable routing](image)

**Note!**

The jacketing of the light grey isCon® conductor can be painted. It does not possess any electrical properties which could be at risk from paint.

### 5.1.2 Revealing the copper core for connection

- Using the stripping tool isCon® stripper 2, adjust the stripping length to 25 mm.

![Figure 19: Adjusting the stripping length](image)

- Insert the isCon® conductor into the cutting head and, with slight pressure, turn the handle in a clockwise direction until the preset length of the insulation has been cut off.

![Figure 20: Cutting the insulation](image)
5.2 Mounting the isCon® connect connection elements

Using the screw-on connection element isCon® connect, you can connect OBO isCon® conductors to forwarding systems, e.g. to the insulated OBO isFang air-termination rod system or to a separate ring conductor or earthing system using a connection terminal. At the same time, an electrical connection is created between the copper core and the black, weakly conductive external jacket of the isCon® conductor. The grub screws in the connection elements are pre-coated with a reactive screw lock made of two components. The components of the coating react automatically on turning in and stick down the grub screws. If the screws are released once more, the components are separated again and the grub screws are locked again the next time they are screwed in. The screw lock is fully hardened after six hours.

Scope of delivery (per packaging unit): 2 connection elements, 2 heat-shrinkable sleeves, Allen key.

- Remove the two pin screws from the connection element using the Allen key.

![Figure 21: Removing the grub screws](image)

- Free the front area of the black jacket from impurities and grease (e.g. OBO Art. No. 5408 060).

![Figure 22: Using a cleaning cloth](image)

- Using a fork wrench (WAF 19 mm), screw the connection element onto the isCon® conductor, until the copper core can be seen completely in the two screw holes.
19 mm

Figure 23: Screwing on the connection element

- Tighten both grub screws with approx. 10 Nm.

10 Nm

Figure 24: Tightening the grub screws

- Pull the heat-shrinkable sleeve on in such a way that the connection element and cable transition are enclosed completely. Using a gas torch or hot air at approx. 120 °C, shrink the heat-shrinkable sleeve and let it cool.

110-130 °C

Figure 25: Shrinking the heat-shrinkable sleeve

**Note!** The yellow, reactive screw lock of the grub screws in the connection element requires approx. 6 hours to harden fully. Only when the screw lock has fully hardened is an increased releasing torque required to release the screws again.
Assembling the air-termination rod

5.2.1 Air-termination rod with internal isCon® conductor

Figure 26: Air-termination rod with internally routed isCon® conductor

Legend:

1. Air-termination rod
2. Internal connection element
3. Isolated central rod
4. Potential connection with potential connection element
5. Retaining mast with side exit
6. Air-termination rod stand with side exit
7. Concrete plinth with edge protection
8. Internally routed isCon® conductor with connection element
Preparing the isCon® conductor

- When using the isCon® ProPl 75 LGR conductor:
  Using a cable knife, remove the grey cable jacketing to a length of 50 mm (see also “5.1 Cutting and removing the insulation of the isCon® conductor” on page 28).
- Using a stripping stool, e.g. isCon® stripper 2, reveal the copper core along a length of 25 mm.

![Figure 27: Cutting the insulation](image)

- Free the front area of the black jacket from impurities and grease (e.g. OBO Art. No. 5408060).

![Figure 28: Using a cleaning cloth](image)
• Remove the pin screws from the connection element.

![Figure 29: Removing the grub screws](image)

• Using a fork wrench (WAF 19 mm), screw the isCon® IN connect connection element onto the isCon® conductor, until the copper core can be seen completely in the two screw holes.

![Figure 30: Screwing on the connection element](image)

• Tighten both grub screws with approx. 10 Nm.

![Figure 31: Tightening the grub screws](image)
Installing the isCon® system

Only for the light grey isCon® R ProPl 75 LGR conductor:

To connect the potential connection element, the light grey jacket in the contact area must be removed before you push the cable into the air-termination rod.

Risk of damage!
The black, weakly conductive jacket may not be removed, as otherwise the connection to the building's equipotential bonding can be interrupted. In the case of the grey cable jacket, maintain a maximum cutting depth of 1.5 mm.

- Measure 1,500 mm from the bottom edge of the isCon® IN connect connection element.
- Remove 50 mm of the grey cable jacket with a cable knife (“jokari knife”).

Figure 32: Removing the light grey outer jacket

Note!
The jacketing of the light grey isCon® conductor can be painted. It does not possess any electrical properties which could be at risk from paint.

Assembling the air-termination rod

- Lay all three parts of the air-termination rod on the ground.
- From below, run the isCon® conductor through the retaining rod and the middle rod.

Figure 33: Pushing the isCon® conductor through the air-termination rod
• Fix the connection element with a fork wrench (WAF 19 mm) and screw the air-termination rod tight to the connection element.

Figure 34: Screwing the air-termination rod to the connection element

• Insert the bottom part of the air-termination rod into the air-termination mast and fix with the side screw (20 Nm).

Figure 35:Fixing the air-termination rod in the air-termination rod

The internal potential connection element consists of two half shells. These must be located in such a way that they surround the isCon® conductor and one of the half shells is located centrally beneath the screw holes, so that it can be pressed using the side screw (see Figure 38).

• Place the two half shells of the potential connection element on the cable and push them into the retaining pipe.

Figure 36: Attaching the internal potential connection element
• Push the retaining rod as far as it will go into the central rod. In so doing, the opening for the left copper screw (see Figure 38) may not point to the gap between the half shells of the potential connection, but centrally to one of the half shells. If necessary, turn the half shells accordingly.

![Figure 37: Pushing the retaining rod into the central rod](image)

• Tighten the screws (20 Nm).

![Figure 38: Connecting the insulated air-termination rod and the retaining rod](image)

Next steps:
- “5.3 Fastening the air-termination rod in the air-termination rod stand” on page 42 or “5.4 Fastening the air-termination rod to pipes, a wall or T support” on page 47
- “5.5 Routing the isCon® conductor” on page 48
- “5.6 Attaching the potential connection” on page 49
5.2.2 Air-termination rod with external isCon® conductor

Figure 39: Air-termination rod with externally routed isCon® conductor

Legend:
1. Air-termination rod
2. Connection plate
3. Top connection element
4. Insulated central rod
5. Potential connection with potential connection clip
6. Retaining rod
7. Air-termination rod stand
8. Concrete plinth with edge protection
9. isCon conductor with connection element
Preparing the isCon conductor

- When using the isCon® ProPI 75 LGR:
  Using a cable knife, remove the grey cable jacketing to a length of 50 mm (see also “5.1 Cutting and removing the insulation of the isCon® conductor” on page 28).
- Mount the connection element (Figure 39 No. 3) on the isCon® conductor as described in sections “5.1.2 Revealing the copper core for connection” on page 29 and “5.2 Mounting the isCon® connect connection elements” on page 30.

Only for the light grey isCon® conductor:

To connect the potential connection element, the light grey jacket in the contact area must be removed.

ATTENTION

Risk of damage!
The black, weakly conductive jacket may not be removed, as otherwise the connection to the building’s equipotential bonding can be interrupted. In the case of the grey cable jacket, maintain a maximum cutting depth of 1.5 mm.

- Measure 1,500 mm from the bottom edge of the isCon® connect connection element.
- Remove 50 mm of the grey cable jacket with a cable knife.

Figure 40: Removing the light grey outer jacket
Fastening the isCon® conductor to the air-termination rod

For one isCon® conductor:

- Mount the connection plate (type isCon® AP1-16 VA) at the bottom end of the air-termination rod, as shown in Figure 41. Tightening torque: 24 Nm.
- Mount the connection element of the isCon® conductor on the connection plate. Tightening torque: 24 Nm.

For two isCon® conductors on one air-termination rod, use the connection plate for two cables (type isCon® AP2-16 VA). Carry out connection in a similar manner to that described here.

Figure 41: Mounting a connection plate for one isCon® conductor to the air-termination rod

- In addition, fasten the isCon® conductor to the air-termination rod at a maximum distance of 1 metre through non-metallic ribbon clips (cable ties, type 555 7.6x380 SWUV).

Figure 42: Fastening the isCon® conductor to the air-termination rod with ribbon clips
• Fasten the potential connection clip (type 927 2 6-K) to the air-termination rod.

**Figure 43:** Fastening the potential connection clip to the air-termination rod

Next steps:
- “.5.3 Fastening the air-termination rod in the air-termination rod stand” on page 42 or “.5.4 Fastening the air-termination rod to pipes, a wall or T support” on page 47
- “.5.5 Routing the isCon® conductor” on page 48
- “.5.6 Attaching the potential connection” on page 49
5.3 **Fastening the air-termination rod in the air-termination rod stand**

5.3.1 **Mounting the concrete plinth**

![Concrete plinth with fastenings](image)

**Legend:**

1. Hexagonal nuts (with washers) for height compensation
2. Lock nut (with washer and plate)
3. Concrete plinth
4. Edge protection
5. Threaded rod

- From below, push the threaded rod through the opening of the edge protection and the concrete plinth and fix it with the lock nut.

### 5.3.2 Erecting the air-termination rod stand

See also “3.3 Insulated air-termination rods” on page 12

---

**CAUTION**

**Risk of crushing when erecting the air-termination rod stand!**

When erecting the air-termination rod stand, hands and other limbs may be crushed by moving parts.

When erecting the air-termination rod stand, do not reach between moving parts!

---

**Note!**

*To determine how many concrete plinths must be used in the isFang air-termination rod system, we recommend asking a planning office to carry out the static calculations.* You can find further information on wind speed zones in the OBO TBS lightning protection guide and national directives.
• Remove the lock nuts on the threaded rods.
• Unfold the air-termination rod stand.
• Fix the air-termination rod stand by screwing in the three locking screws and the spring washers.
• Check that all the screws on the hinges fit tightly, and retighten as necessary.

Figure 45: Mounted concrete plinth

Figure 46: Unfolding and fixing the air-termination rod stand
• Position the air-termination rod stand on the concrete plinths.

![Figure 47: Positioning the air-termination rod stand](image)

• Determine the inclination of the air-termination rod stand (depending on the slope of the roof) using a spirit level.
• Compensate for the inclination of the air-termination rod stand using the hexagonal height compensation nuts (max. 5 degrees).
• Tighten the lock nuts.

![Figure 48: Compensating for the roof slope](image)
5.3.3 Fastening the air-termination rod in the air-termination rod stand

Air-termination rod with internal isCon® conductor

- Insert the air-termination rod into the air-termination rod stand from above.

**Figure 49:** Inserting the air-termination rod in the air-termination rod stand

- Tighten the clamp clip, thus fixing the air-termination rod.

**Figure 50:** Fastening the air-termination rod in the air-termination rod stand
Installing the isCon® system

**Air-termination rod with external isCon® conductor**

- Insert the air-termination rod into the air-termination rod stand from above.
- Tighten the clamp clip, thus fixing the air-termination rod.

![Figure 51: Fixing the air-termination rod in the air-termination rod stand](image)

- In addition, fasten the isCon® conductor to the air-termination rod stand using ribbon clips (cable ties), whilst maintaining the minimum bend radius (see Table 2 on page 10) of the isCon® conductor to the ground.
5.4 Fastening the air-termination rod to pipes, a wall or T support

The isCon® system can offer supports for fastening to pipes, walls or T supports for mounting isFang air-termination rods with air-termination rod stands (see “3.4.2 Air-termination rod support for isFang mounting” on page 17). This applies to air-termination rods with openings at the side or the bottom, as well as to rods with an external isCon® conductor.

Please note:

- Fasten the air-termination rod to the building structure using the supports listed in Table 6 on page 17 and suitable fastening materials.
- In the case of a non-metallic building structure, connect the equipotential bonding directly to the equipotential bonding of the air-termination rod (see “5.6 Attaching the potential connection” on page 49).

Note! In the case of a metallic, earthed building structure, the equipotential bonding is created using the metallic fastening clips of the air-termination rod. No additional connection is required.
5.5 **Routing the isCon® conductor**

When routing the isCon® conductor to the forwarding conductor system, observe the following information:

- The complete isCon® conductor must be located in the protection area of the lightning protection system.
- The black cables may not be routed in the earth. They may not be painted. Instead, use the grey isCon® ProPI 75 LGR cable.
- Only use the accessories for fastening (see section 3.4.3 on page 18).
- The forwarding connection of the isCon® conductor may only be made using the isCon® connect connection elements of the respective isCon® conductors.
- An isCon® conductor may not be extended.
- When making route changes, maintain the minimum bend radius (see Table 2 on page 10).
- Route the isCon® conductor in such a way that it cannot be damaged by sharp-edged objects.
- If the isCon® conductor is damaged, the entire section must be replaced, as otherwise the correct function cannot be guaranteed. This does not apply to the ProPlus 75 isCon® conductors. The ProPlus 75 variants may not have any damage or interruptions to the grey jacket and/or rubber jacket. The exterior conductive layer may not be damaged or interrupted.
- Ensure that the cable is connected to the equipotential bonding of the structure as described in section 5.6. Create additional equipotential bonding for metallic objects which cross or run in parallel (see section 5.6.4 on page 55).
- Special measures must be complied with for routing in potentially explosive areas (see “4.4 Installation in potentially explosive areas” on page 25).
- No point of the jacket of the isCon® conductor may come into contact with parts carrying lightning current.
- Elements fastening the isCon® conductor may be spaced a maximum of 1 metre apart.
5.6 Attaching the potential connection

If there is a direct lightning strike to the air-termination rod, the incoming energy is run through the connected isCon® conductor to the building's lightning conductor system. To prevent surface discharge moving away along the surface, the isCon® conductor must be connected to the equipotential bonding of the structure in the area of the two connection points.

The potential connection can be made via metallic and earthed roof structures, generally earthed parts of the building structure and via the protective conductor of the low-voltage system.

**WARNING**

Risk of function loss!
Metallic chips from the connection area of the cable could cause a short circuit between the connection element and potential connection if there is a lightning strike.
This can disrupt the arresting function of the insulated cable. Floating discharges may occur.
After installation, clean the connection area of metallic chips.

**WARNING**

Danger of lightning currents entering the building!
If, during a thunderstorm, a lightning strike runs lightning currents into the building, the coupled currents can destroy devices, cause fires and endanger lives.
If there is a lightning strike, the equipotential bonding must not carry lightning current and must be in the protection angle of the lightning protection system.

**Note!**
If you use the light grey isCon® conductor, you must remove the grey cable jacketing before connecting the potential connection (see “5.1.1 Removing the light grey protective jacket (isCon® ProPI 75 LGR)” on page 28).

**Note!**
Before attaching a potential connection element (e.g. clip), clean the black jacket of the isCon® conductor from grease and other impurities using a cleaning cloth, type isCon® EPPA 004 (Art. No. 5408 060), to improve the electrical conductivity.

5.6.1 Installing the potential connection on an insulated air-termination rod

**Note!**
The isCon® conductor, type isCon® Basic 45, does not require an equipotential bonding connection on the internal or external potential connection element

With a calculated separation distance of \(s \leq 0.75\) metres, a distance of \(x = 1.5\) metres must be maintained between the top connection element and the following connection for the equipotential bonding (see Figure 13 on page 21, No. 4). The design of the isFang air-termination rod provides this distance through its 1.5 metre-long central rod.

The potential connection on the insulated air-termination rod must be designed differently for air-termination rods with internal and external conductors.
Installing the isCon® system

**Internal isCon conductor**

In the case of isFang air-termination rods with an internal isCon® conductor, the potential connection must be connected via the potential connection element, which is located internally (see also Figure 36 and Figure 38). The potential connection must be brought into contact with the potential connection element via the bottom screw and also with the weakly conductive external jacket of the isCon® conductor.

- Slacken the bottom screw as shown in Figure 53.
- Connect the protective equipotential bonding of the building to be protected with the internal potential connection element, e.g. with a cable lug.
- Tighten the bottom screw again (20 Nm).

![Figure 53: Connecting the potential connection to the air-termination rod using a cable lug](image-url)
External isCon® conductor

In the case of isFang air-termination rods with an external isCon® conductor, the potential connection must be created using the potential connection clip, type 927 2 6-K. The potential connection clip is used both to fix the cable and to earth it, as well as to earth the air-termination rod and the air-termination rod stand.

If you are using an additional conductor to reduce the separation distance, then observe the following information, in order to maintain as even a division of the lightning current as possible.

- Run the cables downwards on the air-termination rod, ideally opposite one another.
- Further on, install the cables as far apart from each other as possible, if the installation conditions permit this.

Figure 54: Creating equipotential bonding on the air-termination rod with external isCon® conductor
5.6.2 Installing the potential connection on the end of the isCon® conductor

The weakly conductive external jacket of the isCon® conductor must be included in the protective equipotential bonding of the building to be protected (see Figure 55 No. 1). It is important that a specific minimum distance (x) is maintained between the connection element of the isCon® conductor on the cable carrying the lightning current and the upstream potential connection terminal, in order to prevent surface discharge along the high-voltage-resistant isCon conductor.

![Diagram](image)

**Figure 55:** Minimum distance (x) between the connection element and the equipotential bonding

**Note!** The minimum distance (x) can be derived from the calculated separation distance (see “4.2 Calculating, checking and maintaining the separation distance” on page 23). Use the formula $x = s \times 2$, in order to calculate the minimum distance (x) necessary (see also Figure 56).

![Diagram](image)

**Figure 56:** Minimum required distance between the connection element and the potential connection terminal in air
Installing the isCon® system

Legend for Figure 56:

1. Clip distance (x) from the potential connection terminal to the connection element in centimetres
2. Calculated separation distance (s) in centimetres
A. isCon® BA 45 SW
B. isCon® ProPI 75 SW/LGR and isCon® Pro 75 SW
C. isCon® PR 90 SW

Example:

If the calculated separation distance is 60 cm, then you can use the variants isCon® Pro, ProPlus or Premium. Install the potential connection terminal 120 cm in front of the connection element.

Note!

If the calculated separation distance is less than the appropriate tested equivalent separation distance in air, you can reduce the distance between the potential connection terminal and the connection element (x) accordingly.

If the calculated separation distance is less than 17.5 centimetres (Pro, ProPlus, Premium) and 20 centimetres (Basic), then no additional potential connection is required in front of the rear connection element.

Note!

The isCon conductor, type BA 45 SW (Basic), can either be installed with or without a potential connection. If the conductor is installed without a potential connection, the distance x must be maintained between the connection element and the last insulated spacer and from this last spacer in the direction of the other end of the conductor. Within the calculated separation distance s, there must be no electrically conductive parts.

In addition, observe the following when connecting the equipotential bonding:

– Do not locate any electrically conductive or earthed parts within the calculated separation distance s in the area between the potential connection and the connection element (see Figure 55). These include, for example, metallic construction parts, cable brackets and assemblies.
– Connect the potential connection terminal to the equipotential bonding with ≥ 6 mm² Cu or a material with identical conductivity (see Figure 57).

![Figure 57: Distance between the connection element and the potential connection terminal](image)

With metallic, earthed substrates, use the metallic cable bracket isCon® H VA. When screwed directly to the substrate, it also provides equipotential bonding.

Note!

When using the light grey isCon® conductor, the light grey protective jacket must be removed in the area of the cable bracket (see "5.1.1 Removing the light grey protective jacket (isCon® ProPI 75 LGR)" on page 28).
5.6.3 Including the air-termination rod stand in the functional equipotential bonding

- Fasten the crossbar (included in the scope of delivery) to the air-termination rod and connect a round conductor Rd 8-10 to the equipotential bonding of the building.

Figure 59: Connection of the equipotential bonding to the insulated air-termination rod stand
5.6.4 Installing additional potential connections

If the isCon® conductor crosses earthed, metallic installations, or is run in parallel to them, then we recommend additional measures to improve the equipotential bonding.

To do this, connect the isCon® conductor multiple times with these installations, e.g. cable racks, pipelines or parapet plates, after the first potential connection using the potential connection element.

Figure 60: Creating additional equipotential bonding
5.6.5 Creating additional equipotential bonding for isCon® ProPlus in potentially explosive areas

The following information explains the creation of the equipotential bonding of installations in potentially explosive areas. See also “4.4 Installation in potentially explosive areas” on page 25.

In Ex zones 1 and 21, connect the isCon® conductor to the equipotential bonding at regular intervals (≤ 0.5 metres). To do this, bring the black cable jacket into contact with metallic cable brackets, e.g. isCon® H VA or PAE.

Routing on earthed, metallic building structures

For routing along an earthed, metallic building structure (e.g. electrically conductive connected metal facades, steel structures or mesh structures):

- Use the metallic isCon® H VA cable bracket to fasten the cable to the building structure.
- Connect the metallic building structure with the equipotential bonding or with the earthing system.

Figure 61: Equipotential bonding of the isCon® conductor on a metallic surface in a potentially explosive area
Routing on non-conductive building structures
When routed along a non-conductive building structure (e.g. stone, concrete or wood):

- Route electrically conductive connection rails (e.g. flat conductor, type 5052 V2A 30x3.5) in parallel to the isCon® conductor, which you connect with the functional equipotential bonding of the building.
- Fasten the metallic isCon® H VA cable bracket for the isCon® conductor to it.

![Image](isCon H VA)

**Figure 62:** isCon® conductor in potentially explosive area with isCon® H VA cable bracket mounted on flat conductor

Routing along metallic pipes

- Connect the potential connection element to metal pipes routed in parallel (equipotential bonding conductors) and connected to the building's equipotential bonding at regular intervals.

![Image](isCon HS VA)

**Figure 63:** Running the isCon® conductor on an earthed pipe in a potentially explosive area
6 Mounting variants

6.1 Separate lightning protection ring conductor

In the following example, the isCon® conductor 1 is to be connected to a stand-off lightning protection ring conductor 2. For this, we recommend the air-termination rod stand with external isCon® conductor. This is shortened to the right height using spacers 3 (type isCon® DH), run to the ring conductor and connected, e.g. using Vario quick connectors.

The potential is connected to the protective equipotential bonding on the air-termination rod via the potential connection clip 4 (type 927 2 6-K). Alternatively, the potential can be connected at the air-termination rod stand 5, providing that the potential connection clip 4 is mounted, creating the electrical connection between the outer jacket of the isCon conductor and the air-termination rod.

At the end of the isCon® conductor, the potential is connected with a potential connection terminal 6 (type isCon® PAE) to the lightning protection ring conductor in front of the connection element 7. The distance x (= separation distance s multiplied by two) between the potential connection terminal 6 and the rear connection element 7 should be noted.

**Note!** The isCon conductor, type BA 45 SW (Basic), can either be installed with or without a potential connection. If the conductor is installed without a potential connection, the distance x must be maintained between the connection element and the last insulated spacer and from this last spacer in the direction of the other end of the conductor. Within the calculated separation distance s, there must be no electrically conductive parts.
If there is a metallic roof parapet which is used as a natural component of the lightning protection system, the isCon® conductor can be connected to it using a suitable OBO connection component.

The potential is connected to the protective equipotential bonding on the air-termination rod via the potential connection clip (type 927 2 6-K). Alternatively, the potential can be connected at the air-termination rod stand, providing that the potential connection clip is mounted, creating the electrical connection between the outer jacket of the isCon® conductor and the air-termination rod.

The distance $x$ (separation distance $s$ multiplied by two) between the potential connection terminal and the rear connection element should be noted.

Note! The isCon conductor, type BA 45 SW (Basic), can either be installed with or without a potential connection. If the conductor is installed without a potential connection, the distance $x$ must be maintained between the connection element and the last insulated spacer and from this last spacer in the direction of the other end of the conductor. Within the calculated separation distance $s$, there must be no electrically conductive parts.
Figure 65: isCon® conductor connected to metallic parapet
6.3 Internal and external isCon® conductor

The mounting example shows the use of an isFang air-termination rod with internal isCon® conductor ①, to which a second, external isCon® conductor ② is connected.

The potential connection clip ③ (type 927 2 6-K) must be mounted, in order to create an electrical connection between the jacket of the external isCon® conductor and the air-termination rod. The potential is connected here. The internal potential connection element then means that the internal isCon® conductor is also connected with the potential connection. Alternatively, the potential can be connected at the air-termination rod stand ④, providing that the potential connection clip ③ is mounted.

Figure 66: Internal and external isCon® conductor
6.4 Lightning protection class I

The mounting example shows a better division of the lightning current to two isCon® conductors through the use of an isFang air-termination rod with two external cables 1 and 2. The isCon® conductors are run on two separated ring conductors 3 and 4, which are run on opposite sides of the building. Alternatively, the air-termination system can be implemented with a single isCon® Premium cable in lightning protection class 1.

The potential connection clip 5 (type 927 2 6-K) must be mounted, in order to create an electrical connection between the jacket of the external isCon® conductors and the air-termination rod. The potential is connected here. Alternatively, the potential can be connected at the air-termination rod stand 6, providing that the potential connection clip 5 is mounted.

The distance x (= separation distance s multiplied by two) between the potential connection terminals and the rear connection elements should be noted.

Figure 67: Current division to two isCon® conductors, e.g. for lightning protection class I
6.5 isCon® conductor included in the ring conductor

In areas in which a conventional ring conductor would be difficult install whilst maintaining the required separation distance \( s \) (e.g. to roof structures) (see Figure 68 No. 2), the isCon® conductor 1 can be integrated into the mesh, providing that the calculated separation distance is less than or equal to the equivalent separation distance of the isCon® conductor used.

![Diagram of isCon® conductor in a conventional ring conductor](image)

**Figure 68:** Including the isCon® conductor in a conventional ring conductor

**Legend**

1. isCon® conductor
2. Conventional ring conductor with separation distance \( s \)
7 Checking the lightning protection system

The entire lightning protection system must be tested according to DIN EN 62305-3 (IEC 62305-3) and DIN EN 62305-3, Supplementary Sheet 5.

<table>
<thead>
<tr>
<th>Protection class</th>
<th>Visual inspection</th>
<th>Comprehensive test</th>
<th>Comprehensive test in critical situations</th>
</tr>
</thead>
<tbody>
<tr>
<td>I and II</td>
<td>Annually</td>
<td>Every 2 years</td>
<td>Annually</td>
</tr>
<tr>
<td>III and IV</td>
<td>Every 2 years</td>
<td>Every 4 years</td>
<td>Annually</td>
</tr>
</tbody>
</table>

1) Critical situations include structures containing sensitive systems, or office and commercial buildings or places in which a large number of people meet.

Note! In the case of lightning protection systems in structures at risk of explosion, we recommend carrying out a visual inspection every 6 months.

Carrying out a visual inspection

- Check that the black, semi-conductive jacket of the isCon® conductor is undamaged. An interruption in the external black conductive layer will prevent the cable from functioning. In this case, replace the isCon® conductor. The isCon® ProPlus conductors may not have any damage or interruptions to the black rubber jacket and/or the grey jacket.
- Check that the connection elements for the isCon® conductor are tight. If necessary, retighten the screws.
- Check that the potential connection cables and all connection components, in particular the potential connection elements, are undamaged. There must be a low-resistance connection between all the elements. If necessary, restore the flow.
- Check that the function of the holders and other mounting elements is not impaired. If necessary, retighten the screws.
- Check that only products of the isCon® system, such as connection elements, are used during mounting. Replace the parts which are not components of the isCon® system with appropriate products of the system.
Testing report for the OBO isCon® system

Tested building:

Last name

Contact

Street/no.

Postcode/town

Telephone

1. Were all the connection elements installed correctly according to the mounting instructions? [ ]

2. Is the entire routed OBO isCon® conductor in the protected area of the air-termination system? [ ]

3. Is the external jacket of the black cable of type Basic, Pro and Premium free of damage/cracks? [ ]

4. Was the separation distance calculated for the location to be protected according to IEC 62305-3 (VDE 0185-305-3)? [ ]

5. Is the equivalent separation distance maintained? [ ]

6. Is the separation distance maintained in the area between the connection element and the first potential connection of the OBO isCon® conductor? [ ]

7. Is the potential connection connected to the local equipotential bonding of the system to be protected using isCon® PAE with a cable of at least 6 mm²? [ ]

8. Is the minimum bend radius maintained? [ ]

9. With a stand-off installation, is the separation distance to the roof area maintained in the area up to the first equipotential bonding clip? [ ]

10. Is the area up to the first equipotential bonding clip (distance of the calculated separation distance to the cable) free of metallic parts/cable brackets, etc.? [ ]

11. Are test certificates according to IEC TS 62561-8 available? [ ]

Only if all the questions were answered with "Yes" are the requirements of the manufacturer for installation fulfilled.

Tester

Place/date Signature