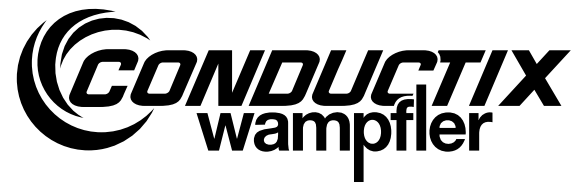


Installation Instructions

Installation of Skillet Systems

125 A / 100 mm Track



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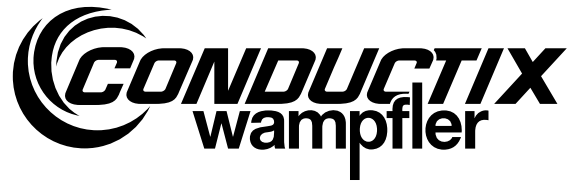
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IMPORTANT:

This document describes the installation of a 125 A primary track on skillet systems only. The manual does not include details about the interaction of the specified components with other IPT®-components within a system.

Component related details please find in the component manuals. Refer always to those documents before starting any works on the system or components within the system or before operating the system.

Installation of Skillet Systems

125 A / 100 mm Track

1 Introduction

This document is understood as a general instruction for the installation of an inductive skillet system. Depending on specific circumstances on site and the design of the skillet system variations may become necessary. In this case please refer to project specific documentation.

Additional information on specific components may be given in their specific operation or installation manual!

Reference numbers (e.g. 1) given in drawings and photos in this document do refer to chapter 16!

Preparation:

- After receipt of the components and prior to starting the installation works, check the package, unpack the components and check carefully for damage that may have occurred during transport or storage (damage to housings and insulation, missing parts etc.).
- Check data on the identification plate to make sure, that the components meet the requirements with regard to nominal power and voltage.
- Check completeness of the documents and conformity with the delivered components.

For tolerances of given dimensions refer to ISO 2768 - mK if not specified differently.

Installation of Skillet Systems

125 A / 100 mm Track

2 Basic understanding of an IPT®-System

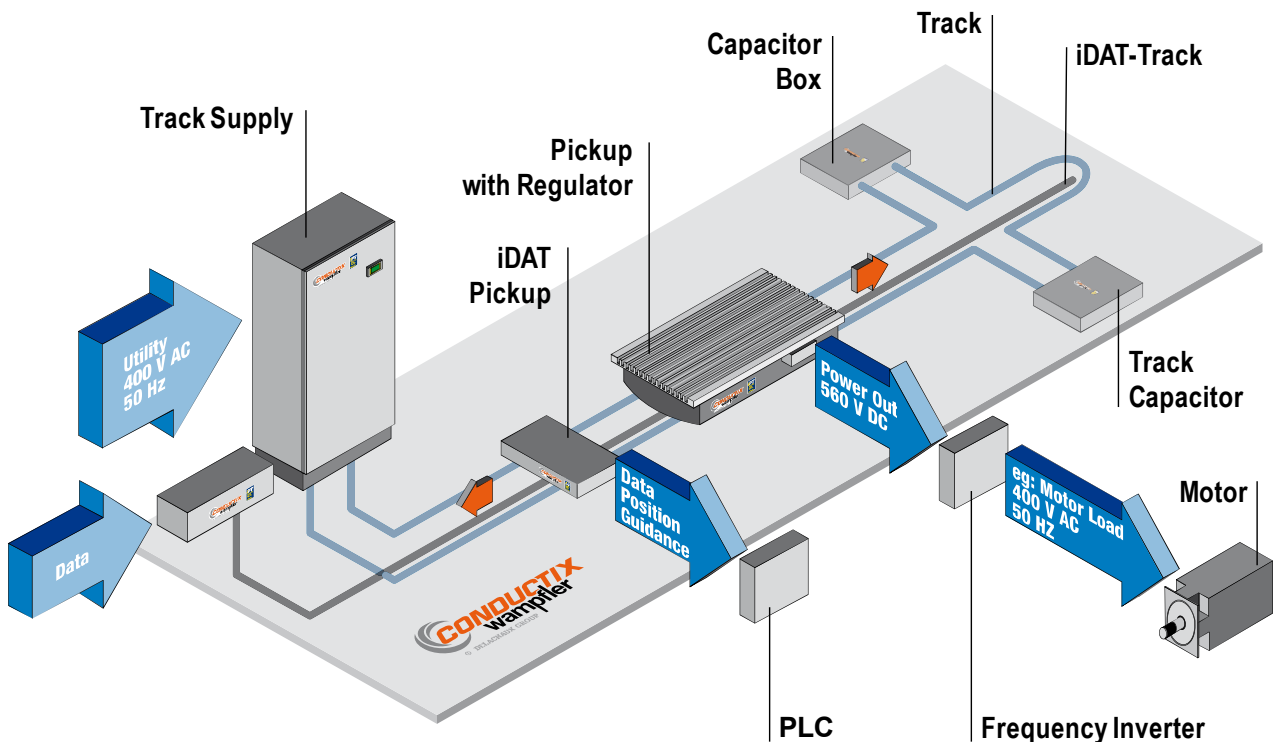
IPT® is a contactless power and data transfer system that allows electrical energy and data to be supplied to mobile consumers without any electrical or mechanical contact.

Each system combines two parts, primary and secondary, which are magnetically coupled, similar to a conventional transformer.

The primary consists of a track supply and track cable along the path of electrification. The installation of the cable along the path of electrification, meaning in our case the track of a skillet system, is in the focus of this document.

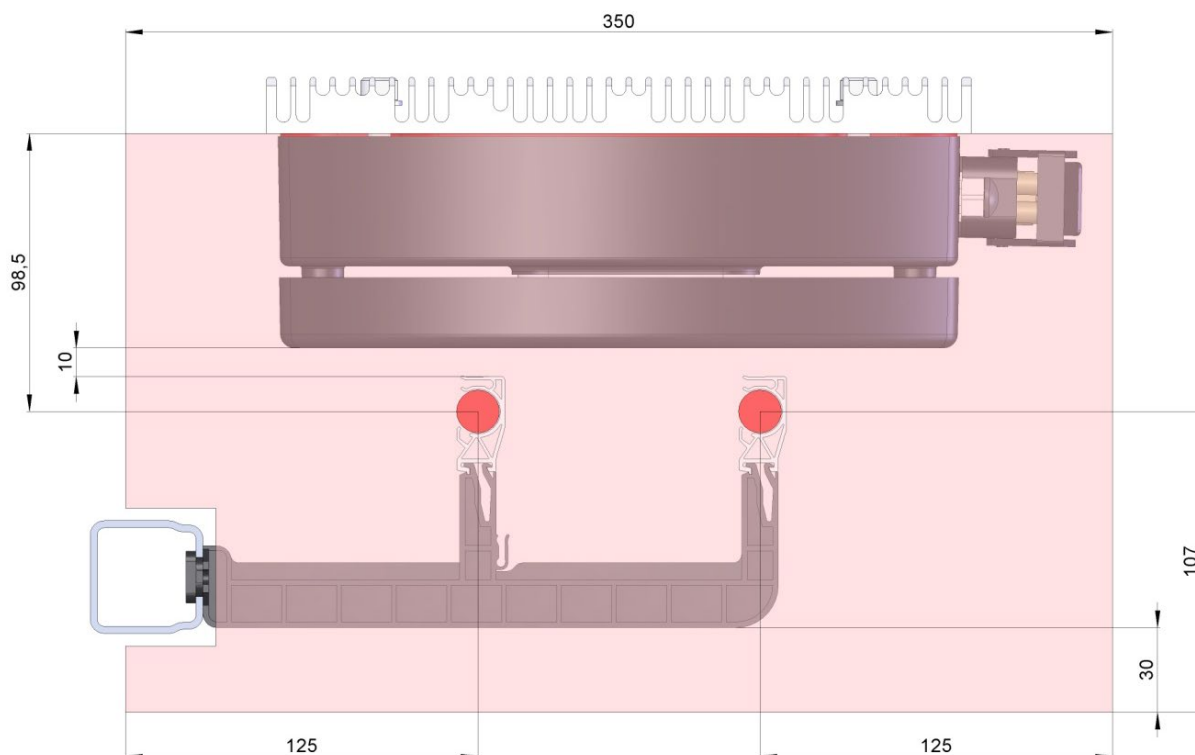
The pick-ups and regulators form the secondary. Unlike a conventional transformer, where primary and secondary are tightly coupled, IPT® is a loosely coupled system without contact.

Power may be transferred across air gaps, because of the high operating frequency creating a magnetic field of high density around the IPT®-track. An IPT®-track is basically one large cable loop.



3 General Rules regarding Metal Parts in close Proximity

3.1 Envelope free of ferromagnetic Material



e.g. skillet system track profile

3.2 Screws, Nuts and other Accessories

- Any metal components in close proximity to IPT®-cables shall be avoided or at least made of non-ferromagnetic material!
- No metal parts shall be placed between IPT®-cables or within the envelope shown in chapter 3.1 "Envelope free of ferromagnetic Material".

Ferromagnetic materials will create high track losses and can become very hot!

Any exceptions from use of non-ferromagnetic materials inside the envelope free of ferromagnetic material do require the explicit approval by Conductix-Wampfler!

4 Requirements on Installation

4.1 Personnel

For the mechanical installation of a 125 A primary track no special skills are required. Only connections of electrical relevance do require specific skills and trained personnel. All electric installation and commissioning works as well as repair works and disassembly have to be carried out by qualified staff (IEC 364 respectively CENELEC HD 384 or DIN VDE 0100 and IEC 664 or DIN VDE 0110 and national safety rules).

Qualified staffs according to the safety regulations are persons that are familiar with the installation, assembly, commissioning and operation of the energy supply system and that have the appropriate qualifications.

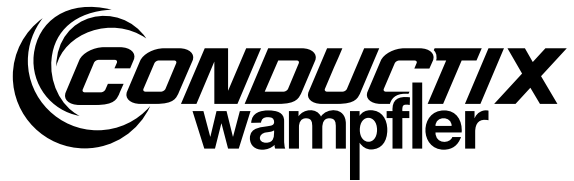
The quality of installation works will have direct influence on the system performance in operation later. Therefore installation has to be done carefully, correct and completely.

4.2 On site conditions and requirements

Do observe all local safety and working standards and regulations. Follow the directives of factory supervisors. Make sure no other personnel is endangered through your installation works.

Make sure all required tools are available on site before starting any installation works. Make sure free access to the installation site is given before starting any installation works.

Installation Instructions



Installation of Skillet Systems

125 A / 100 mm Track

5 Scope of Works

5.1 Pre-installation of Hardware

Specific tasks	By
Preparation and installation cable trays etc.	OEM or other
Installation skillet system-components	OEM or other
Preparation skillet system for IPT®-installation	OEM or other
Installation of IPT®-support components	OEM or other*
Installation of IPT®-cable	OEM or other*
Installation of mains and control cables	OEM or other
Supplying power to the skillet system	OEM or other

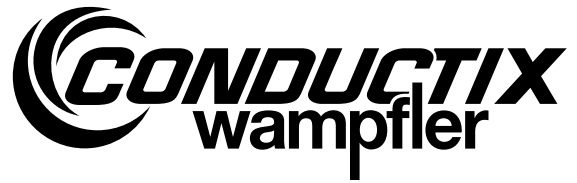
Before IPT® commissioning can take place all of the above listed tasks have to be completed!

Conductix-Wampfler reserves the right to refuse any commissioning works as long as necessary conditions are not given!

Termination of IPT®-cable	Conductix-Wampfler GmbH
Connection of IPT®-track to track supplies	Conductix-Wampfler GmbH
Connection of capacitor boxes	Conductix-Wampfler GmbH
Tuning the IPT®-system	Conductix-Wampfler GmbH
Powering up the IPT®-system	Conductix-Wampfler GmbH

* Conductix-Wampfler GmbH in case of separate order

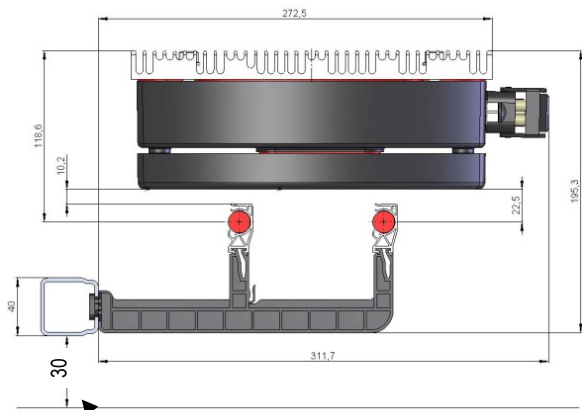
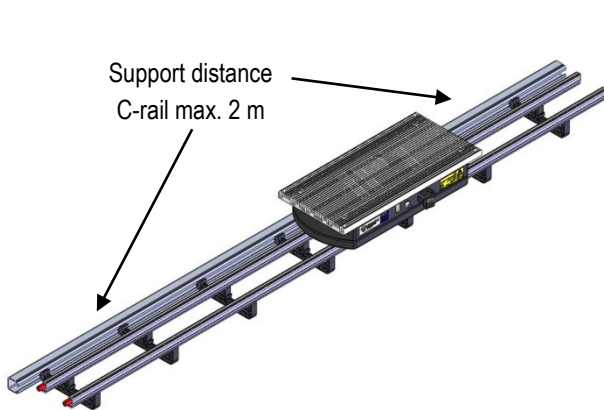
Installation Instructions



Installation of Skillet Systems 125 A / 100 mm Track

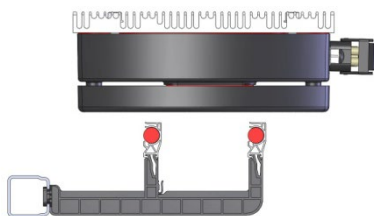
6 Installation Envelope and Support Distances

6.1 C-Rail support



Recommended arrangement

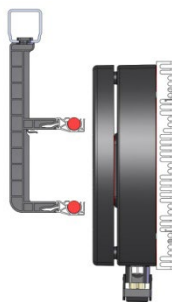
Minimum distance to ground or steel construction!



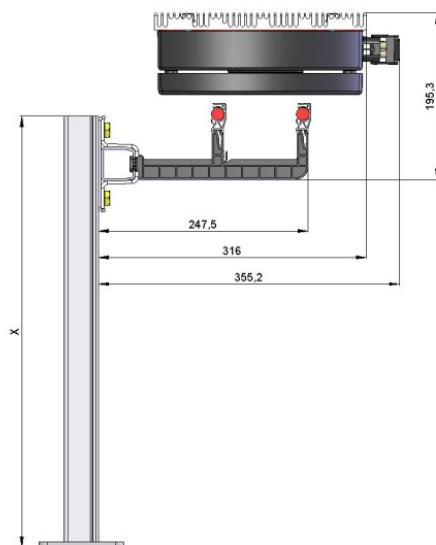
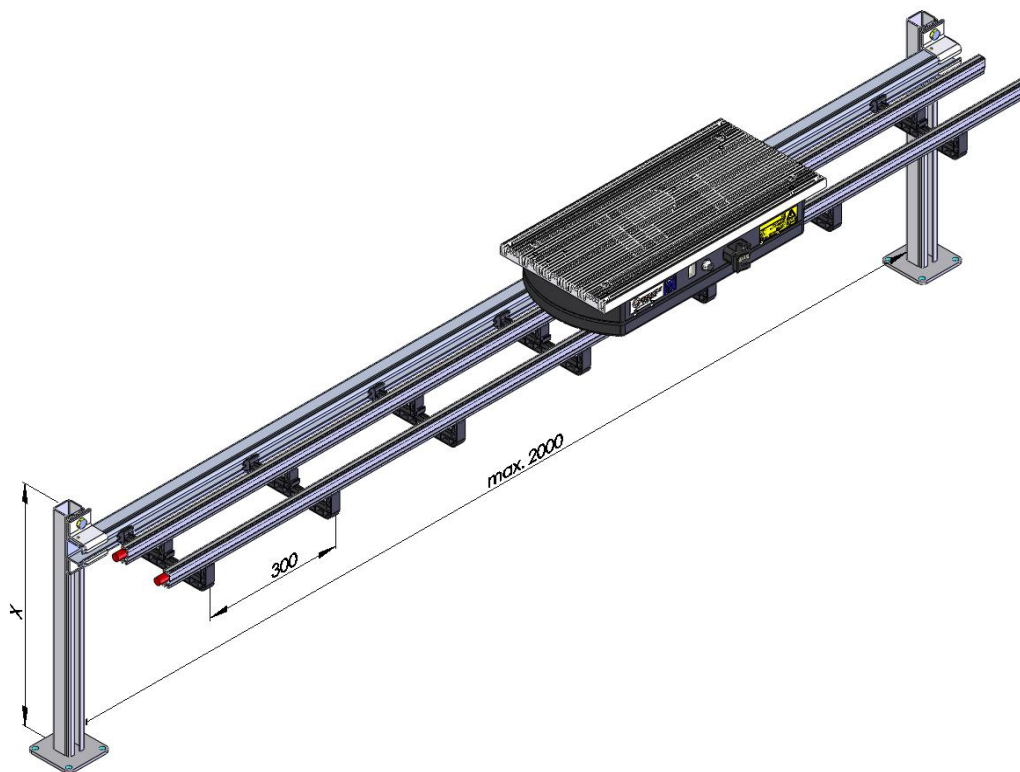
Alternative arrangement „A“

Alternative arrangement „B“

Arrangement not recommended



6.2 C-Rail support with optional Consoles



The height is variable.

Support console is available on request at Conductix-Wampfler.

Support of C-rail can also be realized in other suitable ways.

The individual C-rails can be connected via C-rail-connectors [11].

For two pieces of C-rail (4000 mm) at least four consoles are needed (first console placed maximum one meter from rail end).

A C-rail joint should never be further away from a console than 1000 mm!

Ensure that distances specified in chapter 3.1 are always given!

7 General Rules regarding Cabling

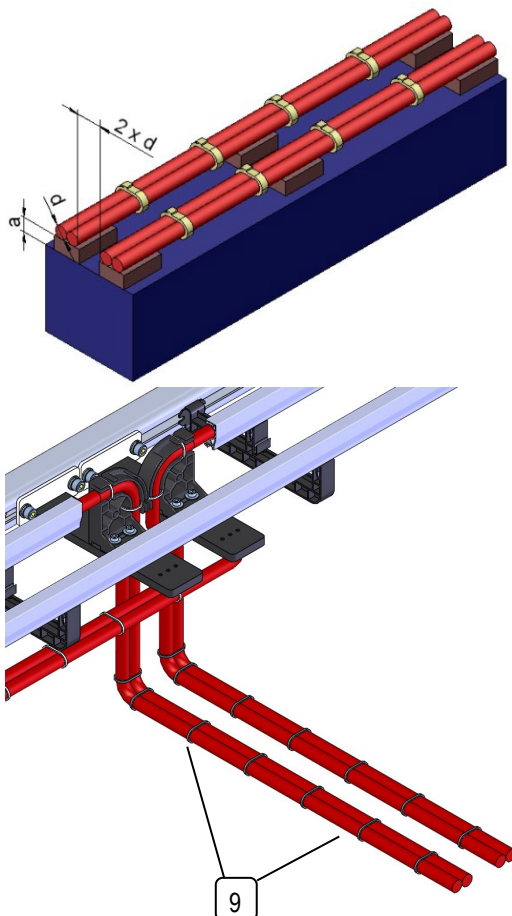
7.1 Cable Specification

For IPT®-systems Litz Cables of different cross sections are available. In this manual Litz Cables refers to 35 mm² cross section with a diameter of $d \approx 16$ mm. Please be aware that accessories for installation and IPT®-components can be customized. Please refer to the project documentation for details about the necessary material in your project.

7.2 Feeding cable

Feeding cables from track supplies to skillet system-track are realized by IPT®-Litz Cables of 35 mm². Junction of different track cable segments is realized in junction boxes.

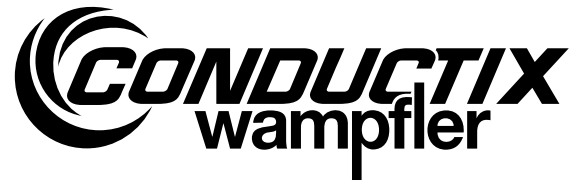
7.3 Cable Routing in Feeding Lines, Conjunctions, Detours, etc.



IPT®-Litz Cable shall be installed as following wherever no pick-up is interfering:

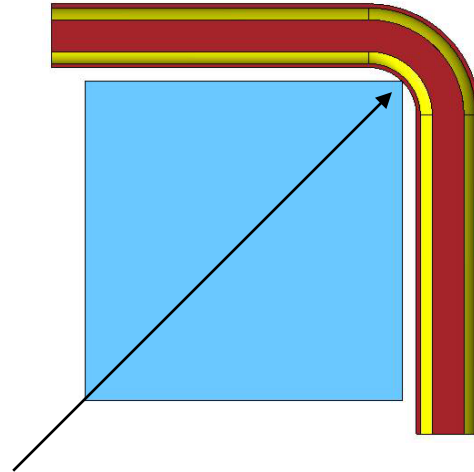
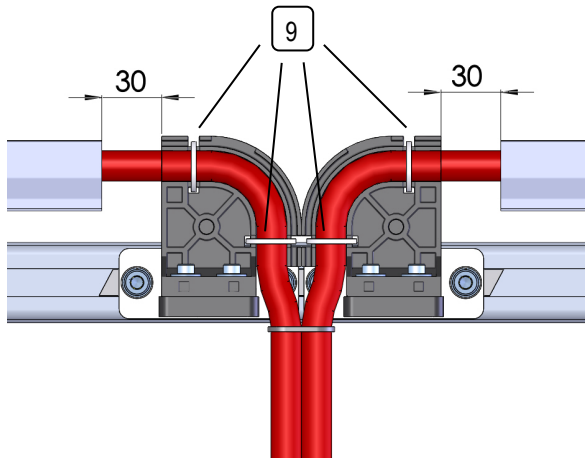
- Do run cable always in pairs of opposite marking
- Distance to any metal structure of at least "a" = cable diameter "d" i.e. 35 mm² cable ~ d = 16 mm
- Cable shall be tied together every 100 mm i.e. with cables ties 9
- Any injuries of cable insulation shall be avoided
- In case cable injuries are likely the cable has to be protected by additional measures (e.g. grommets, conduits)
- No single cable shall go through metal structures
- Cables with 20 kHz shall not be run in metal conduits
- Cable glands with metal rings or any other metal components must be avoided.

Installation Instructions



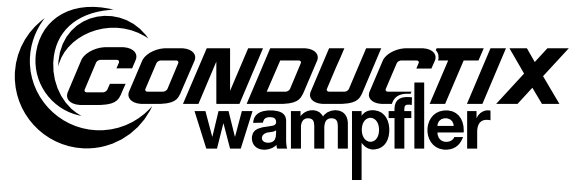
Installation of Skillet Systems

125 A / 100 mm Track



The cable shall be tied to the feed holder **1** with cable ties **9**. On sharp edges, the cable shall be protected using conduits.

Installation Instructions



Installation of Skillet Systems

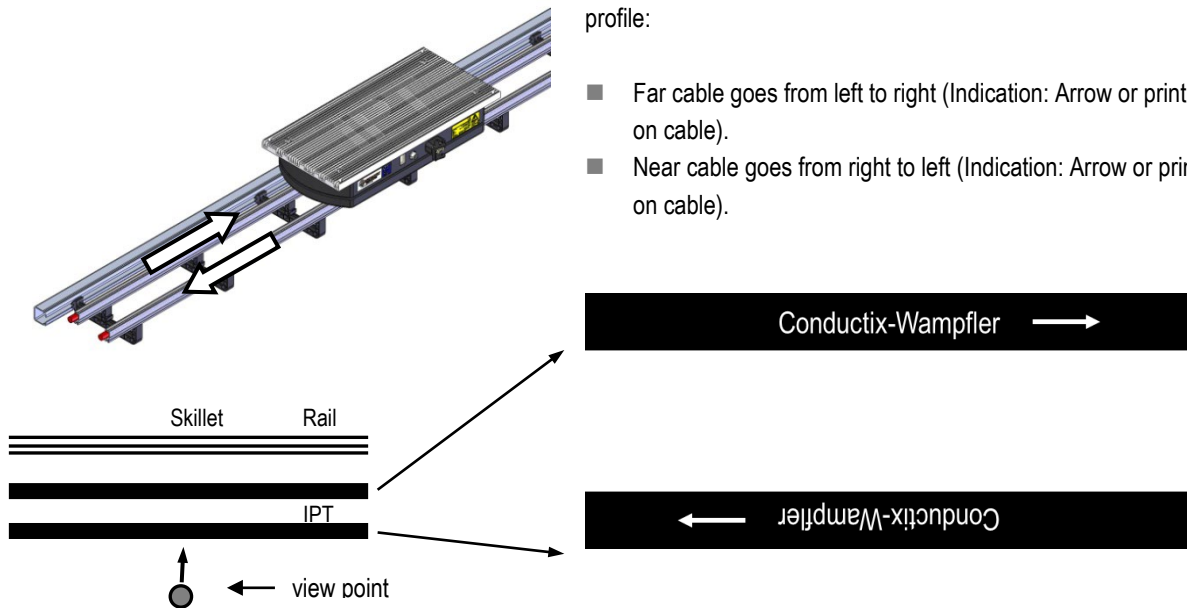
125 A / 100 mm Track

7.4 Cable Orientation

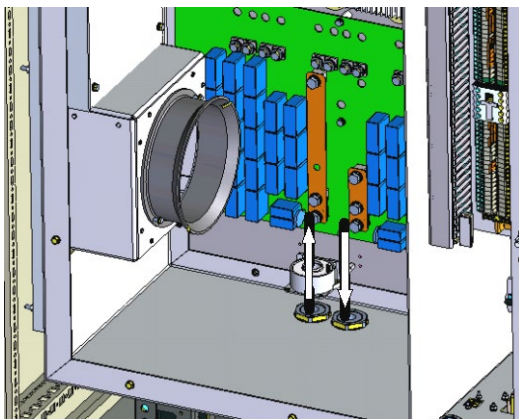
7.4.1 Cable Orientation on Track

General rules for the installation of IPT®-Litz Cable on the track profile:

- Far cable goes from left to right (Indication: Arrow or print on cable).
- Near cable goes from right to left (Indication: Arrow or print on cable).

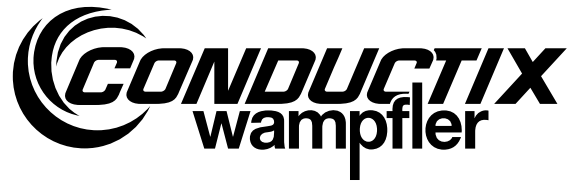


7.4.2 Cable Connection to Track Supplies



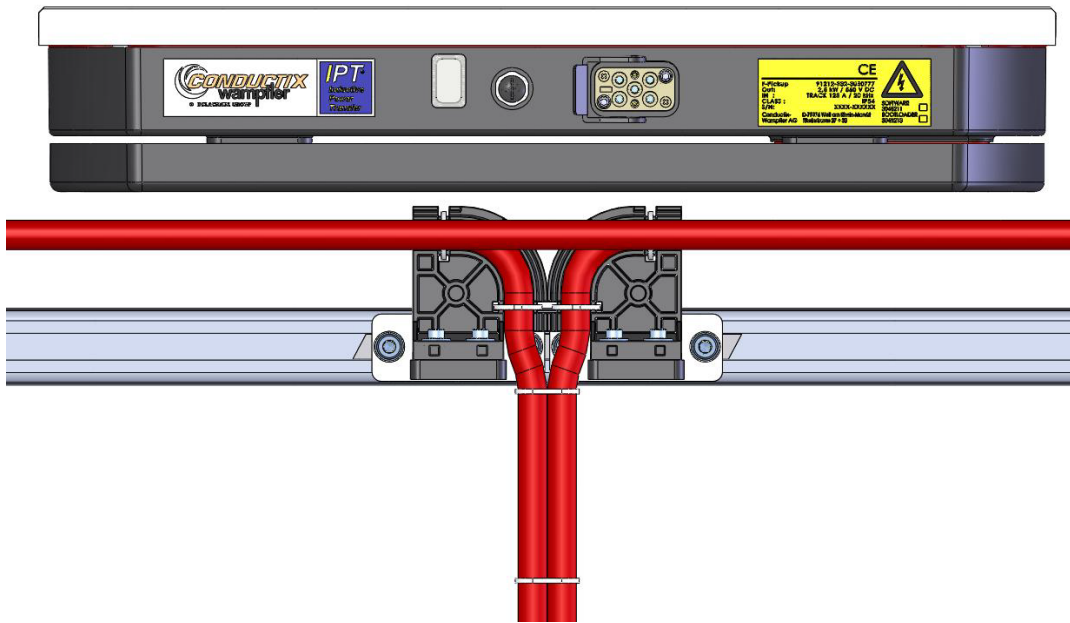
Connection to Track Supply

Installation Instructions

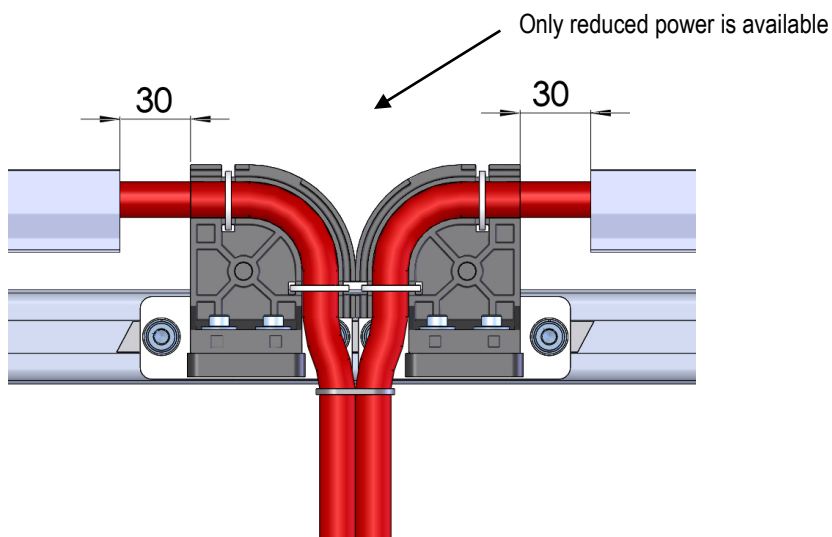


Installation of Skillet Systems 125 A / 100 mm Track

7.5 Power Reduction



At points where the cable is not continuous only reduced power will be available!



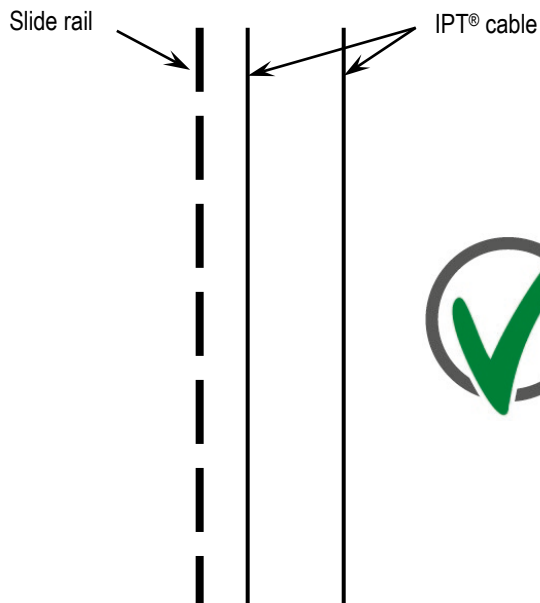
Values for power output given in documents do always refer to position above continuous cable in nominal distance.

Installation of Skillet Systems

125 A / 100 mm Track

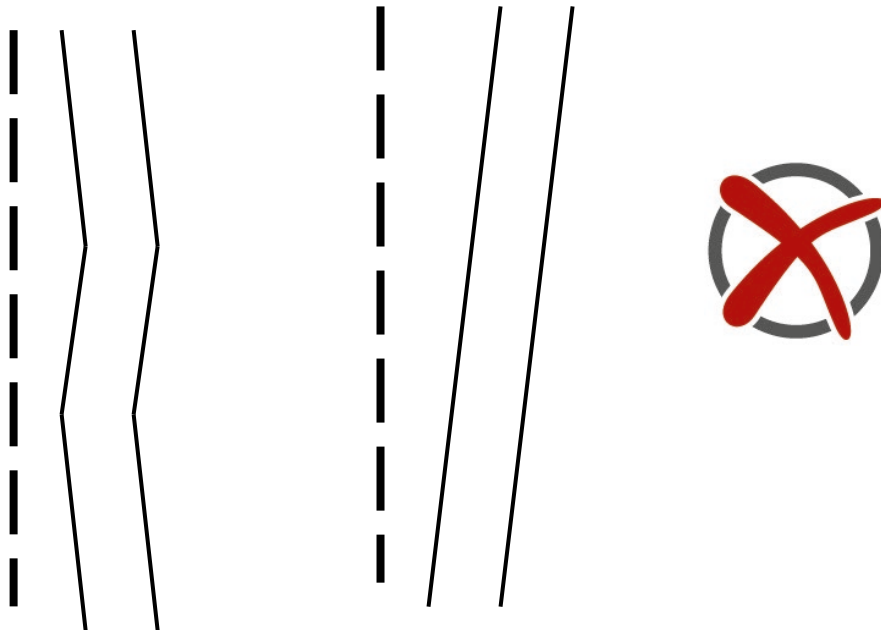
7.6 Principle Installation Process

Good

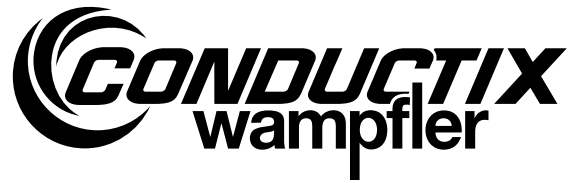


The C-rail with the IPT® cables has to be installed parallel and in corresponding height to the slide rail.

Bad



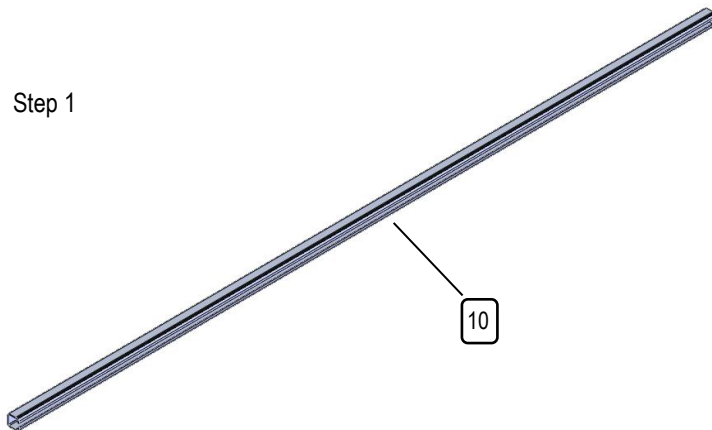
Installation Instructions



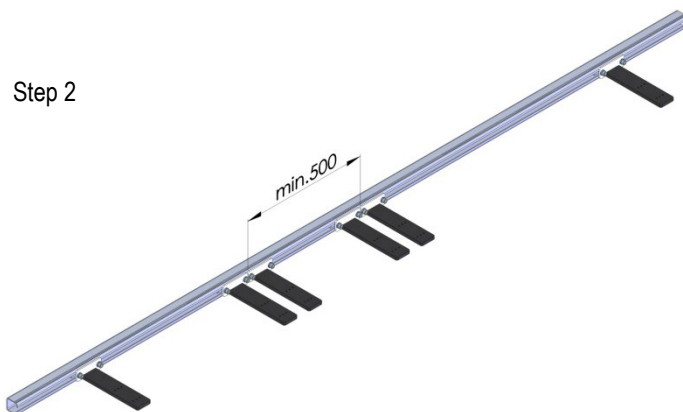
Installation of Skillet Systems 125 A / 100 mm Track

Installation Steps

Step 1



Step 2

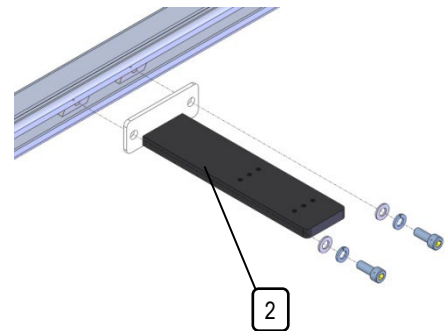


Step 3

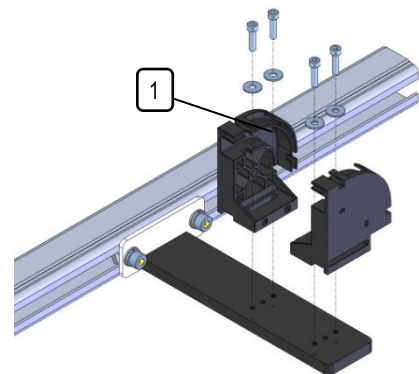


Arrange the C-rail **10** properly along the traveling path. Pay special attention to run the C-rail strictly parallel to the slide rail and on proper height.

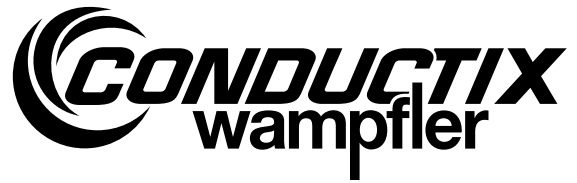
Mount the support plates **2** at the designated positions according to the system layout given.



Fix the feed holders **1** onto the support plates as required.



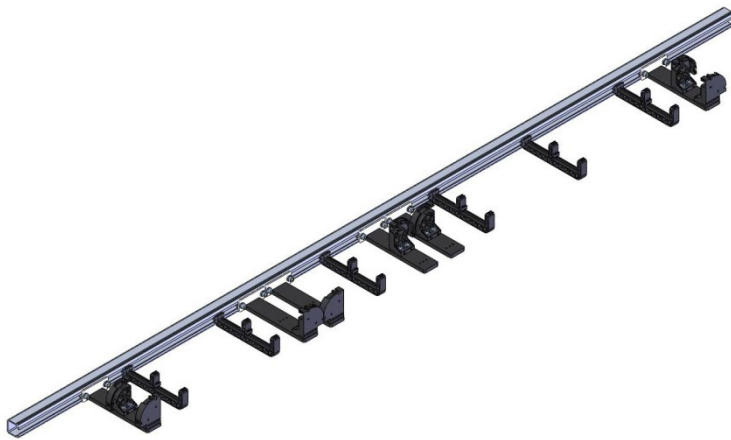
Installation Instructions



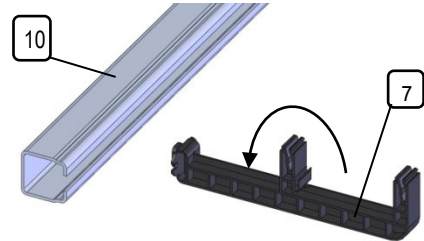
Installation of Skillet Systems

125 A / 100 mm Track

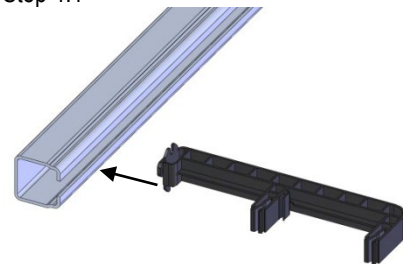
Step 4



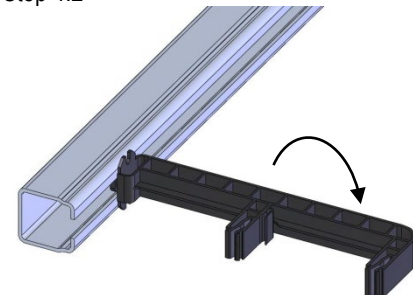
Mount the track holders **7** (as shown at right hand side) in suitable distances of maximum 300 mm.



Step 4.1

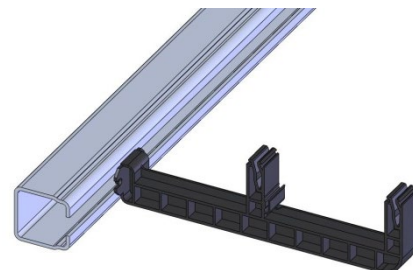


Step 4.2



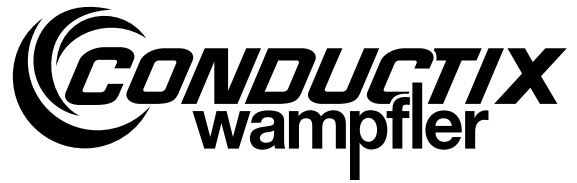
Step 4.3

Hint: use an adjustable wrench to turn track holders.



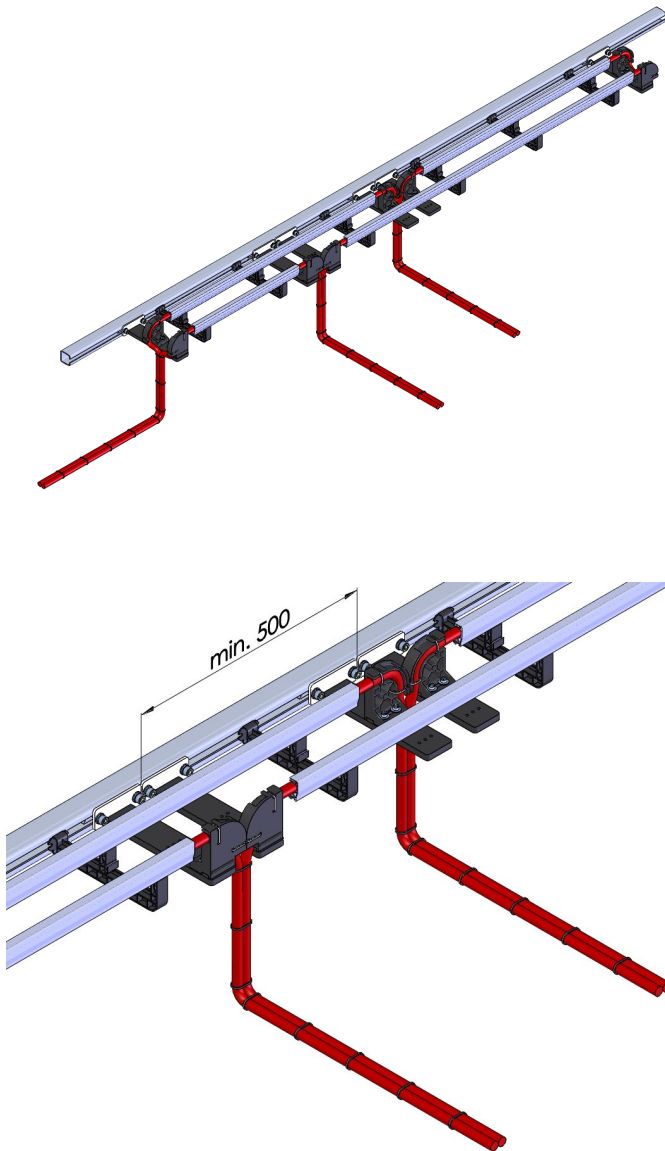
Step 4.4

Installation Instructions

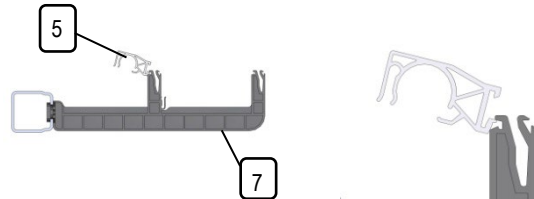


Installation of Skillet Systems 125 A / 100 mm Track

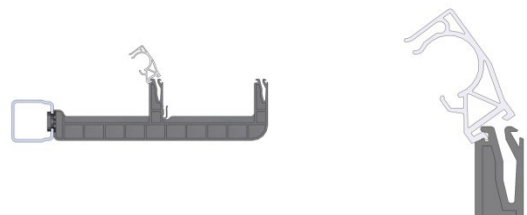
Step 5



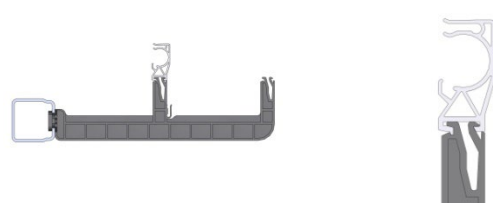
Step 5.1



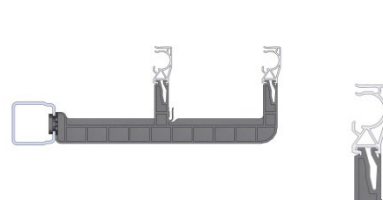
Step 5.2



Step 5.3

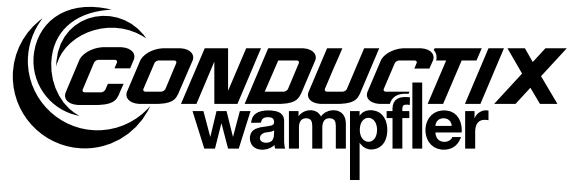


Step 5.4



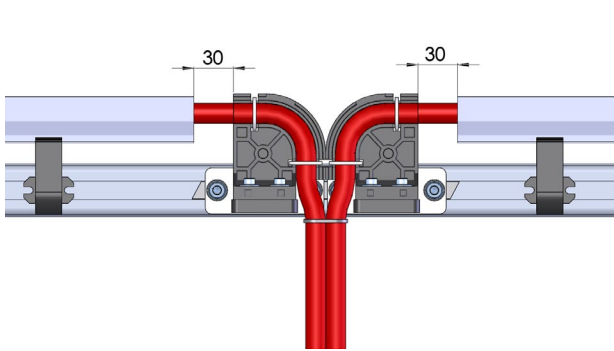
Install the cable and cable profiles [5]. Keep feed cables long enough to make termination connections (see chapter 7.7). Tie cables together wherever no pick-up is interfering according to chapter 7.3. For specific installation situations see chapter 8.

Installation Instructions

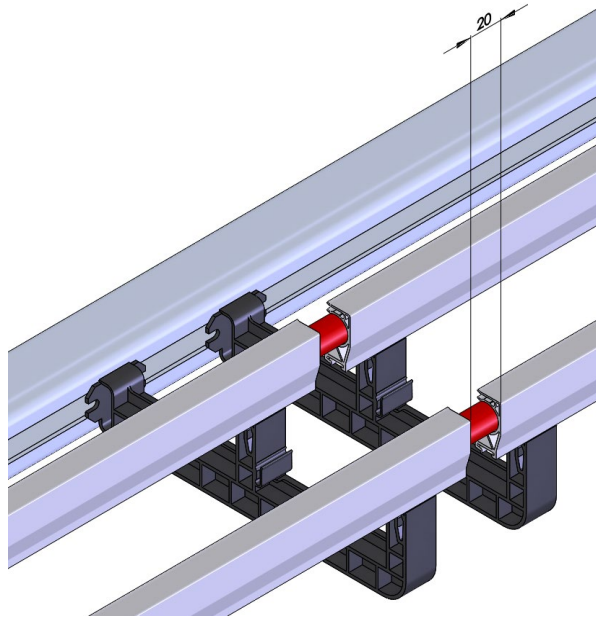


Installation of Skillet Systems

125 A / 100 mm Track



Make sure to keep a distance of 30 mm between cable profile **5** and feed holders **1**.



Make sure to keep a distance of 20 mm between two cable profiles **5**.

Installation of Skillet Systems

125 A / 100 mm Track

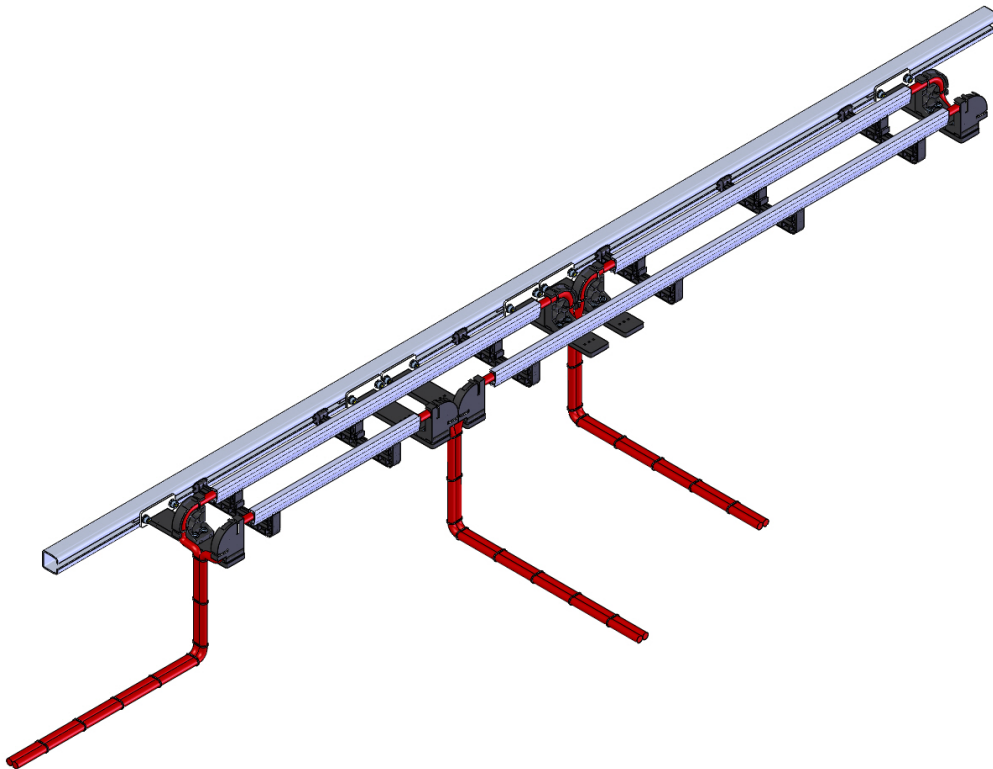
7.7 Cutting Cable

When pre-installing the cable, enough length has to be left to do the termination and connection. Insufficient remaining cable length may make it necessary to replace entire cable segments.

Generally recommended remaining cable length is 2 m. **By specific circumstances it may be necessary to have longer cable.**

If there is any indication that more than 2 m of cable remaining is necessary do cut cable according to the specific project documentation or only after approval by the site manager.

Free cable ends (after pre-installation, before commissioning):

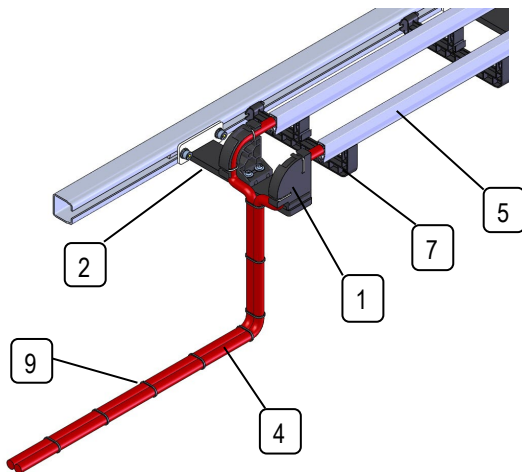


7.8 Preparing Cable Terminations

Preparing cable terminations and soldering cable shoes requires specific skills and equipment and can therefore only be performed by Conductix-Wampfler personnel or staff trained and authorized by Conductix-Wampfler. For further details please refer to chapter 5 "Scope of Works".

8 Mechanical Installation of IPT®-Track

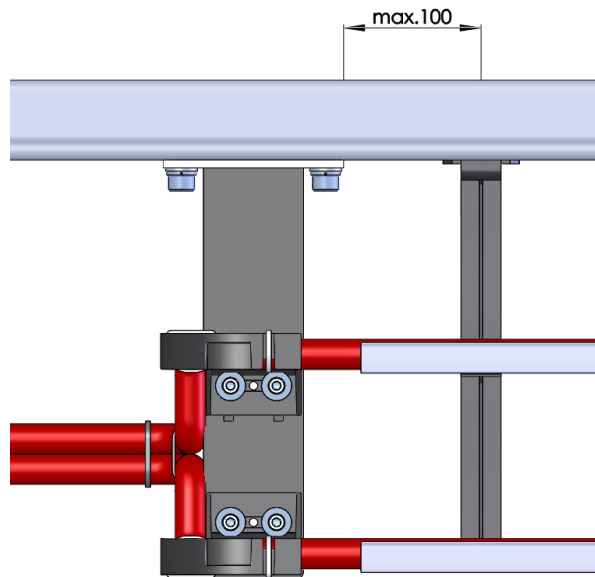
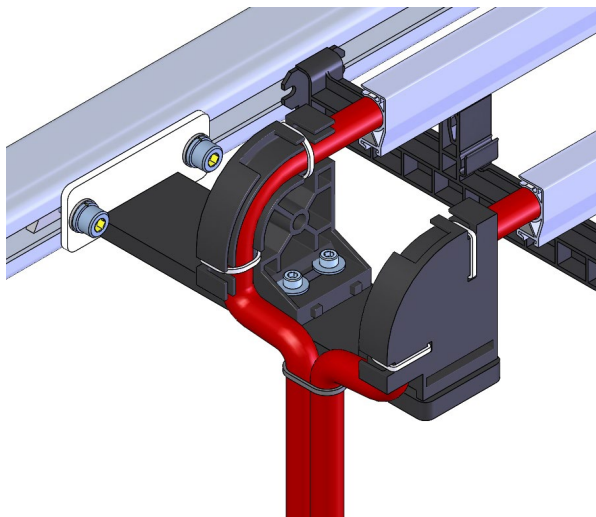
8.1 Feed at Track End



To Track Supply

Hint:

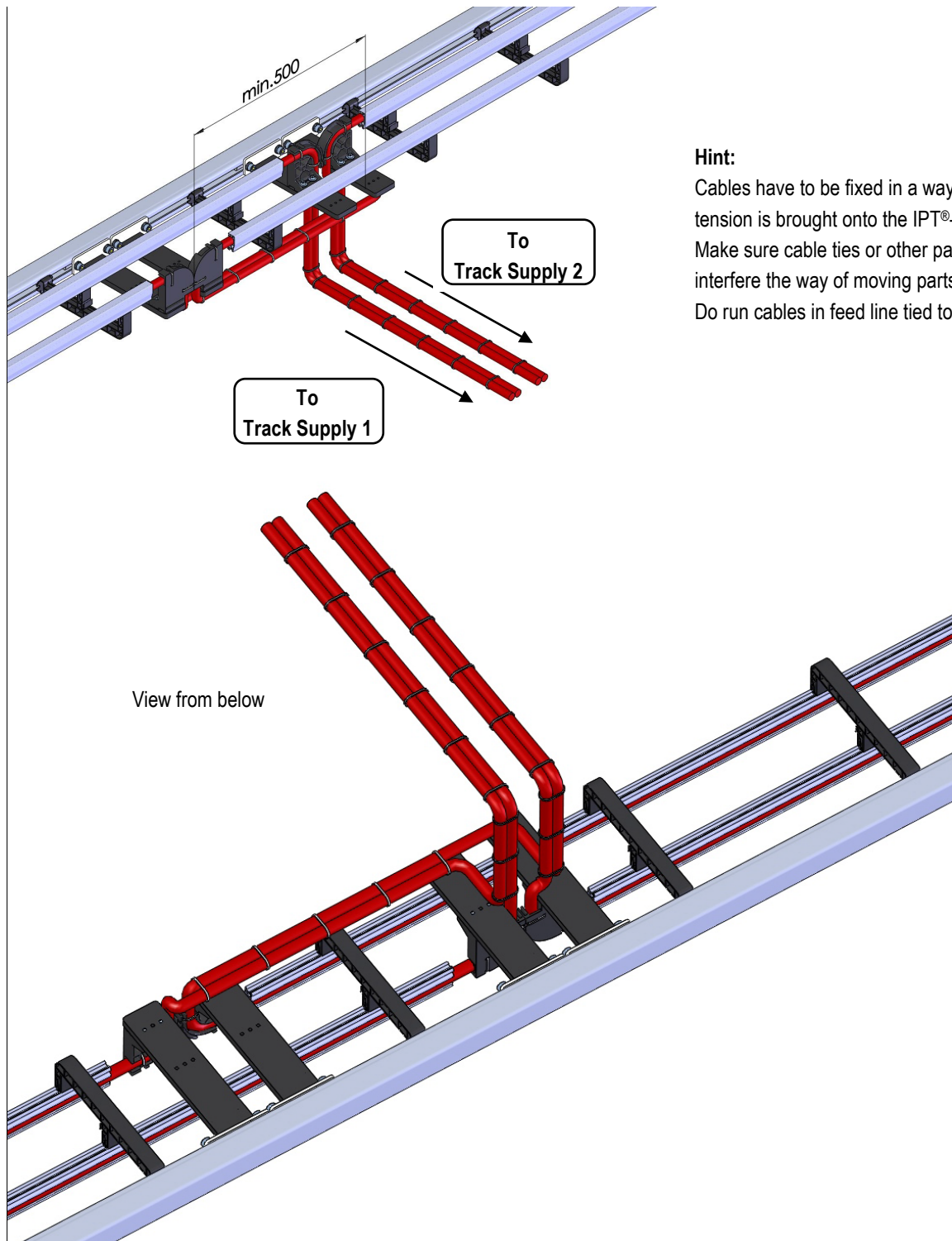
Cables have to be fixed in a way that no tension is brought onto the IPT®-track. Make sure cable ties or other parts do not interfere the way of moving parts! Do run cables in feed line tied together.



Installation of Skillet Systems

125 A / 100 mm Track

8.2 Feed within Track (for two Track supplies)



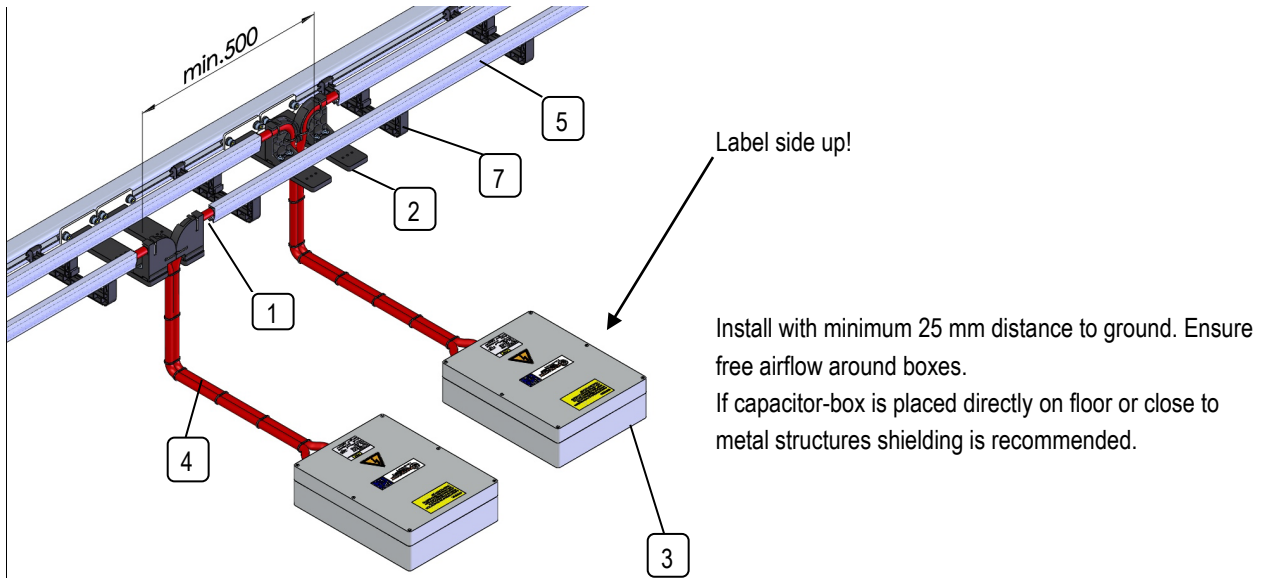
Hint:

Cables have to be fixed in a way that no tension is brought onto the IPT®-track. Make sure cable ties or other parts do not interfere the way of moving parts! Do run cables in feed line tied together.

Installation of Skillet Systems

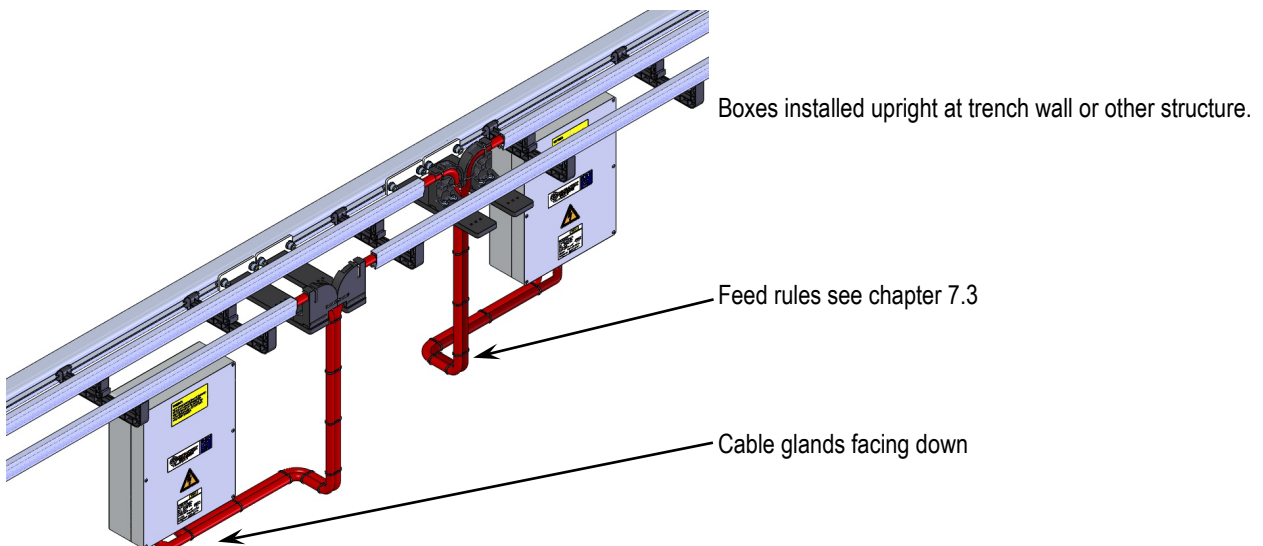
125 A / 100 mm Track

8.3 Capacitor boxes within track



Hint: Cables have to be fixed in a way that no tension is brought onto the IPT®-track. Cables have to be fixed in a way that they can't move up or down by the time. Make sure cable ties or other parts do not interfere the way of moving parts! Do run cables in feed line tied together.

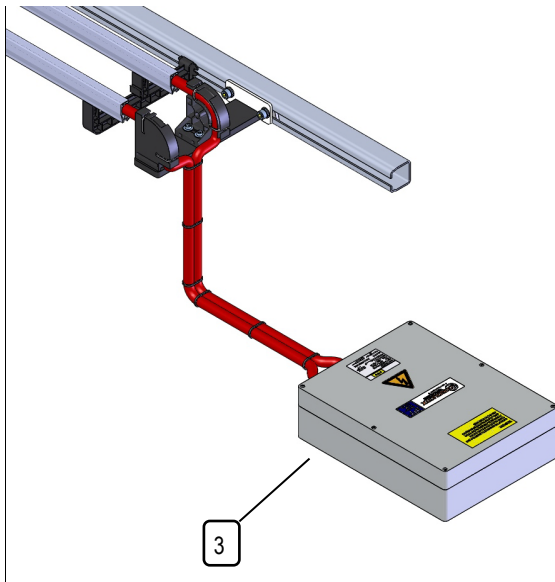
Alternative arrangement within track



Installation of Skillet Systems

125 A / 100 mm Track

8.4 Capacitor-Box at Track End



Hint:

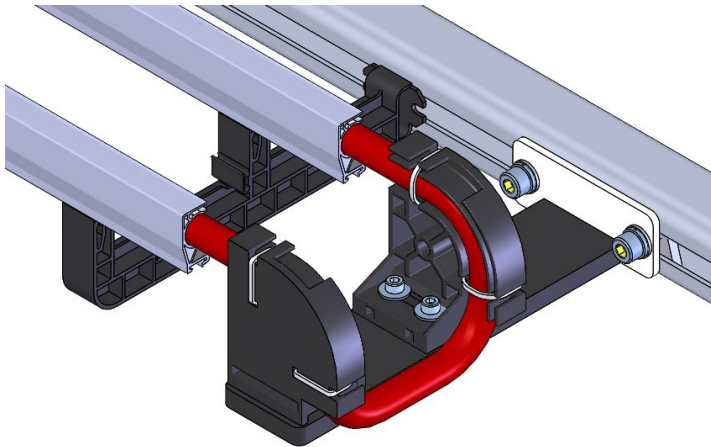
Cables have to be fixed in a way that no tension is brought onto the IPT®-track. Make sure cable ties or other parts do not interfere the way of moving parts!

Do run cables in feed line tied together.

Install upright with minimum 25 mm distance to ground minimum. Ensure free airflow around boxes.

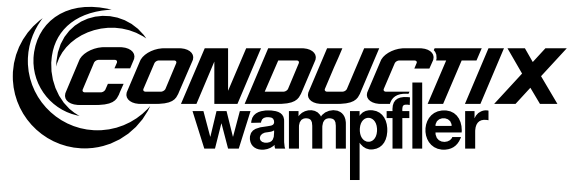
If capacitor-box is placed direct on floor or close to metal structures shielding is recommended.

8.5 Reversal Point at Track End



The loop should be as short as possible but the way of the pick-up has to be free.

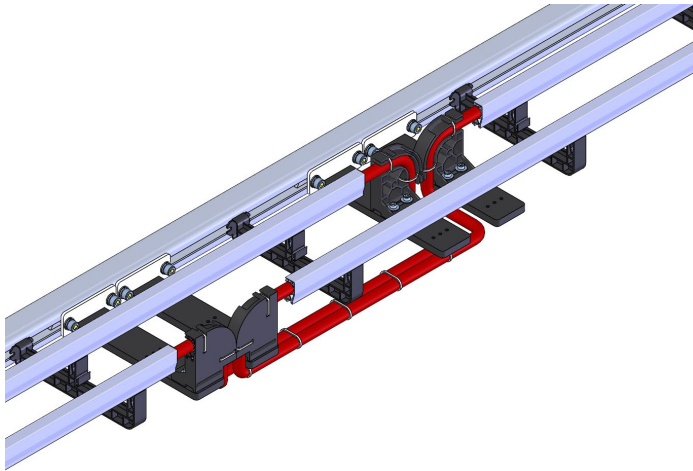
Installation Instructions



Installation of Skillet Systems

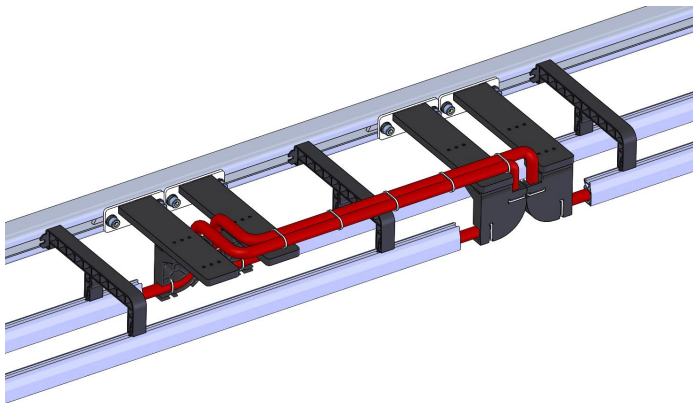
125 A / 100 mm Track

8.6 Reversal Point within Track



The cabling of reversal point within track is done similar to the feed within track described in chapter 8.2.

Instead of the connection to the track supply there is no feed and the two cables are directly connected.



View from below

Installation of Skillet Systems

125 A / 100 mm Track

9 Electrical Installation

All electric installation and commissioning works as well as repair works and disassembly have to be carried out by qualified staff (IEC 364 respectively CENELEC HD 384 or DIN VDE 0100 and IEC 664 or DIN VDE 0110 and national safety rules).

Qualified staffs according to the safety regulations are persons that are familiar with the installation, assembly, commissioning and operation of the energy supply system and that have the appropriate qualifications.

The general electrical operating conditions according to VDE 0100 (installation and operation of electrical equipment up to 1000 V) have to be observed. If necessary observe the local regulations when they go beyond these requirements.

10 Installation of secondary

For details about the installation of IPT® and iDAT secondary components please refer to the corresponding product documentation and to the instructions of the system supplier!

11 Electrostatic Discharge

Hence there is no direct galvanic contact of electronic devices to ground discharging of static electricity has to be ensured by other measures!

12 Commissioning of an IPT®-system

Commissioning of an IPT®-system does require special skills and equipment.

Qualified staffs for commissioning are persons that are familiar with the installation, assembly, commissioning and operation of IPT®-system and that have the appropriate qualifications.

Only Conductix-Wampfler personnel or staff authorized and trained by Conductix-Wampfler is allowed to do this works. If such works is not done by Conductix-Wampfler personnel or staff authorized by Conductix-Wampfler no guarantee on system or component performance can be given.

In case of all electrical works the specific rules for this kind of works have to be observed!

13 Taking a skillet system into operation

13.1 Mechanical aspects related to the IPT®-system

Before starting commissioning or taking the system into operation, the installation needs to be checked carefully for completeness and correctness. A visual inspection for interference points and parts remaining from installation, e.g. cut off cables, must be done. In case of doubts, check critical interference points with a platform you move manually slowly through the critical section. Take caution installation is correct before starting any automated operation. Distances specified in chapter 6.1 shall be given along the entire length of the system!

13.2 Electrical aspects related to the IPT®-system

All electric installation and commissioning works as well as repair works and disassembly have to be carried out by qualified staff (IEC 364 respectively CENELEC HD 384 or DIN VDE 0100 and IEC 664 or DIN VDE 0110 and national safety rules).

Qualified staffs according to the safety regulations are persons who are familiar with the installation, assembly, commissioning and operation of the energy supply system and who have the appropriate qualifications.

The general electrical operating conditions according to VDE 0100 (installation and operation of electrical equipment up to 1000 V) have to be observed. If necessary observe the local regulations when they go beyond these requirements.

Conductix-Wampfler cannot be responsible for damage or breakdowns that have been caused by not observing the instruction manual.

14 Operating an IPT®-System

This document does not describe operation of IPT®-system or a skillet system. Please refer to corresponding system manuals for details!

15 Failure Diagnosis an IPT®-System

This document does not describe failure analysis of IPT®-system or a skillet system, please refer to corresponding manuals for details!

Installation of Skillet Systems

125 A / 100 mm Track

16 Parts of the Skillet Systems - Overview

16.1 Installation Material



- 1 Feed holder 35 mm² Kit
4 incl. screws DIN912 M5x20-A2
4 washers DIN9021 A5,3 A2
91112-205-3058418



- 2 Base holder 100 mm G3
91212-205-3101366
(Mounting screws and washers included!)



- 3 Capacitor box 125 A 2 µF
91012-210-3101180
Capacitor box 125 A 3-8 µF
91012-210-3055524



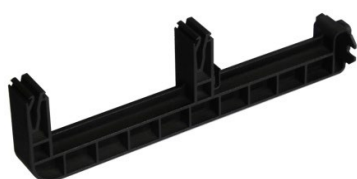
- 4 Litz cable 35 mm²
91012-201-3033261



- 5 Cable profile (4 m)
91012-203-3045402



- 6 Cable shoe for litz cable
35 mm²; M8; 99446



- 7 Track holder 100 mm G3
91212-202-3103222



- 8 Tuning box
91012-211-3019189
BAL9100-0073-E
(Mounting screws not incl.!))



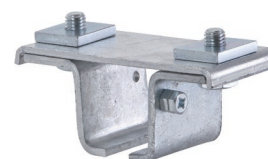
- 9 a) Cable tie 200/25; 52341
b) Cable tie 150/26; 97483
c) Cable tie 100/25; 52340



- 10 C-rail (4 m)
55321

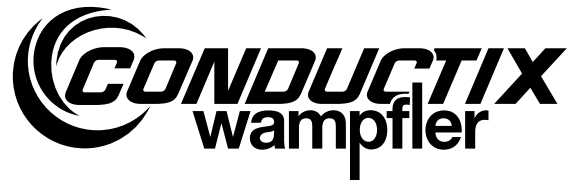


- 11 Track coupler
8986



- 12 Track Support Bracket
9099 (with square nuts, see picture)
9103 (with standard nuts)

Installation Instructions



Installation of Skillet Systems

125 A / 100 mm Track

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