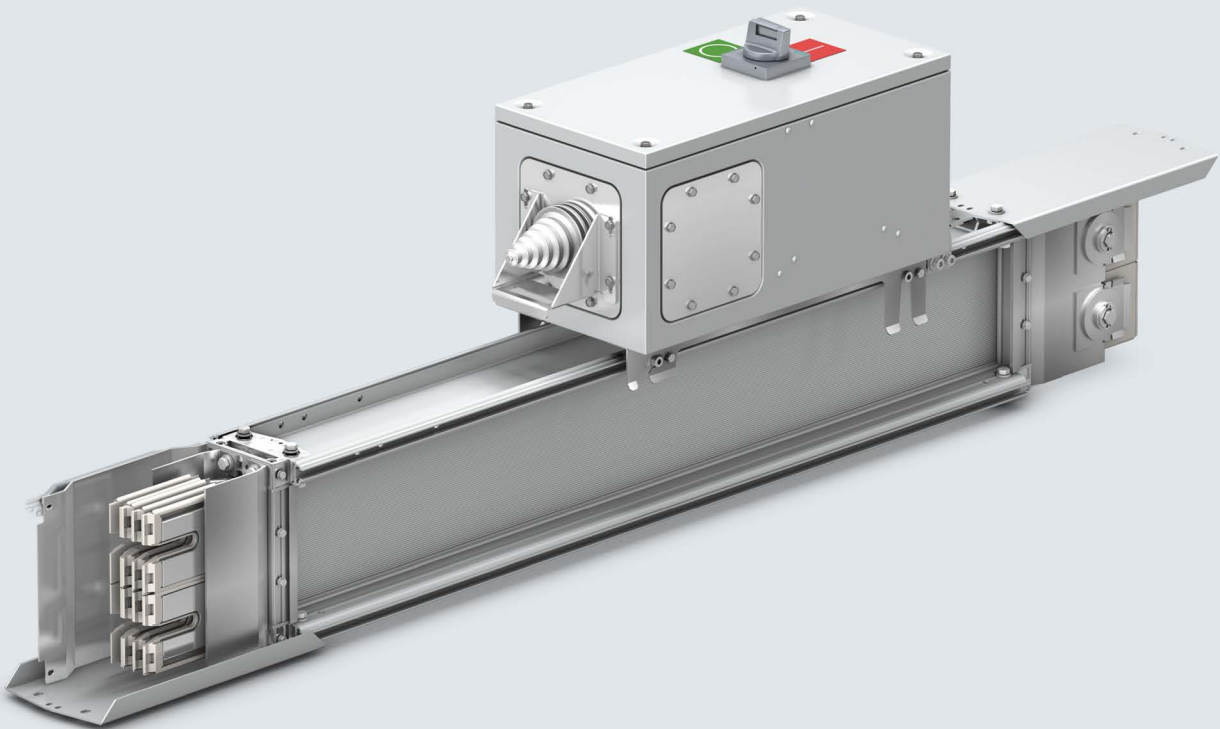


**SIEMENS**



Installation Manual

# Busbar Trunking - System LI

Totally Integrated Power - SIVACON 8PS

Edition

03/2017

[siemens.com/busbar](http://siemens.com/busbar)



# SIEMENS

## Electrical Power Distribution Low-Voltage Systems SIVACON 8PS busbar trunking systems Installing with LI system


Installation Manual


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## Legal information

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 <b>DANGER</b>
indicates that death or severe personal injury <b>will</b> result if proper precautions are not taken.

 <b>WARNING</b>
indicates that death or severe personal injury <b>may</b> result if proper precautions are not taken.

 <b>CAUTION</b>
indicates that minor personal injury can result if proper precautions are not taken.

<b>NOTICE</b>
indicates that property damage can result if proper precautions are not taken.


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The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

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We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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# Introduction

## 1.1 Introduction

This manual is designed to assist you in installing, maintaining and commissioning LI systems.

---

**Note**

Before installing the system on the site, you must read and follow the instructions on storage, transport and handling.

---

** WARNING**

**Failure to observe the safety regulations will cause death or serious injury.**

Only personnel who have been trained in site safety regulations (such as the wearing of helmets, safety goggles, safety shoes, high-visibility tabards, etc.) may work on construction sites and install busbar trunking systems. The responsible safety officer must provide mandatory safety training.

### Manual overview

This manual consists of four sections:

1. General information: Brief overview of busbar trunking system components and how they are installed
2. Installation: Description of how the busbar trunking system elements are installed
3. Inspection, expansions, checks: Description of how to handle the busbar trunking system once it has been installed
4. Checklists and reports

You can find more detailed technical information about LI systems in the planning manual "Planning with SIVACON 8PS" (article number A5E01541101).

In addition, observe the installation instructions for the individual busbar elements. The installation instructions contain specific details on how to install the various busbar elements. You can find an overview of the installation instructions at Installing a busbar run (Page 18).





## Application planning

### 2.1 Scope of delivery

All materials are packaged and sent out together with a delivery note and installation instructions.

### 2.2 Receiving goods

#### Tests

- Check that the material and documentation received correspond to the scope of your installation project.
- Check the components supplied and ensure that they function as intended and correspond with the information in the documentation.
- Take note of the information on the packaging, e.g. symbols, labels, etc. Observe the warning notices!
- The item number on the packaging and the project manual will help you to identify where the element is to be installed in the layout.
- Check that the material has been delivered in perfect condition and with no transport damage.

### 2.3 Safe handling

#### Handling material

---

##### Note

As with all electrical equipment, this material must be handled with care. Follow the instructions in this manual and in the installation instructions.

Proceed with caution. Pay attention to the safety of personnel. Use all of the tools and fixtures that are required to correctly handle the material.

---

## 2.4 Storage

### Storage conditions

1. The material storage area has to meet the following requirements:
  - It must be stable, secure and not on a slope.
  - It must be protected against humidity, extreme temperatures and water penetration.
  - Effective protection must be provided against dust, water, welding sparks and other factors that could damage the material.
  - For safety reasons, the storage area must not serve as a gangway, nor must it be used to assemble other equipment.
2. Take note of the specific storage and packaging information displayed on the packaging, e.g. symbols, labels, etc.
3. Store the material in its transport packaging. As a rule, the elements are supplied on pallets that must not be stacked on top of one another.

If the transport packaging is removed, store the elements in their product packaging as follows:

- Straight trunking units:

You can stack single body systems with up to 3 elements either flat or upright. You can stack double body systems with up to 2 elements flat on top of one another. Separate the individual layers with pieces of wood measuring 25 mm x 100 mm.

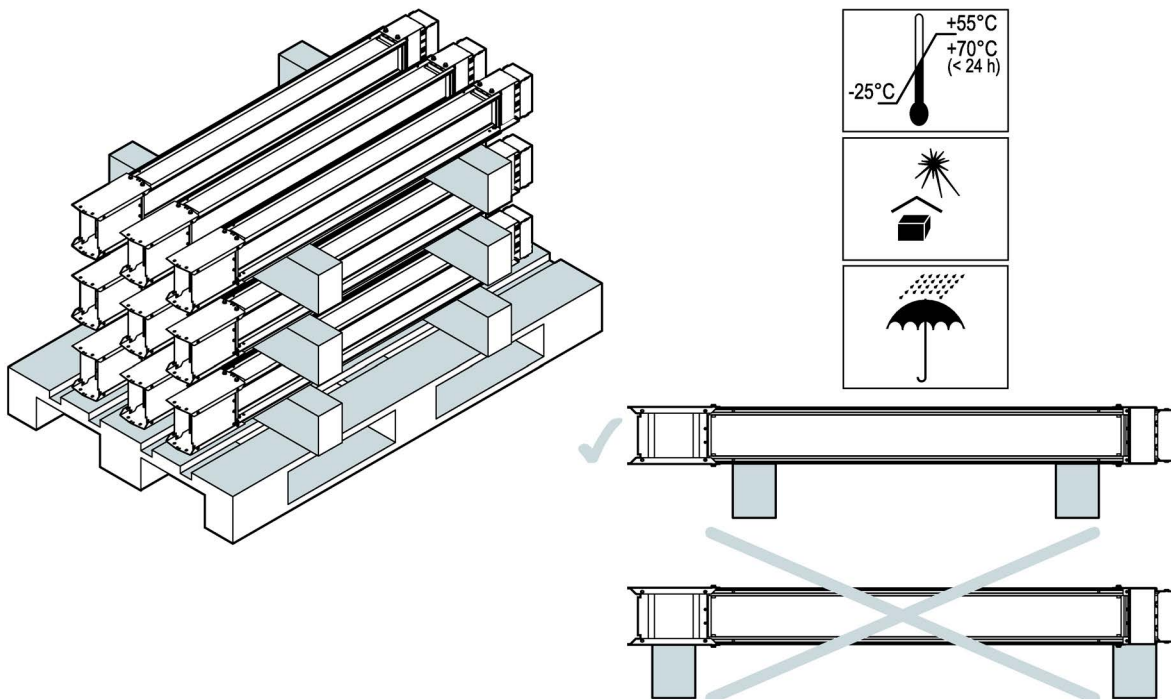


Figure 2-1 Storing straight trunking units

- Tap-off units:
    - You may stack tap-off units up to 630 A to a maximum of two high.
    - You may not stack tap-off units of 800 A and 1 250 A.
  - You may not stack any other elements such as junction units, connection units for non-Siemens distribution boards, transformer feeder units AS, and incoming cable connection units.
4. Connection units for non-Siemens distribution boards and transformer feeder units require special handling. You can find more detailed information in chapters:
- Busbar connection unit for non-Siemens distribution boards (Page 59)
  - Transformer connection (types TCE, TCET) (Page 66)

**NOTICE****Damage to material and impairment of proper functioning**

Removing the protective covers too early may cause damage to the material and impair the ability of the elements to function properly after installation.

Do not remove the protective covers from the ends of the busbars until the busbar trunking system elements are ready to be joined.

## 2.5 Packaging

The busbar trunking system elements are supplied with protective covers on their ends. These protect conductors, insulators and the electrical contact surfaces of the busbar ends against impact during transport and storage on the building site. The protective foil/packaging also protects the elements at the busbar ends against dust and moisture.

---

### Note

Do not remove the protective covers until the busbar trunking system elements are ready to be joined. Do not remove all the protective coverings until you install the elements.

---

<b>NOTICE</b>
<b>Sharp edges of strap retainers may cause injury.</b>
The strap retainers have sharp edges which pose an increased risk of injury when the straps spring open.
Be very careful when removing the strap retainers.

---

### Note

#### Disposal

The protective material can be recycled. When disposing of it, refer to the applicable standards for waste disposal in the installation area and the relevant national regulations.

---

## 2.6 Handling

### Transport

You can move busbar trunking system elements using a forklift, for example, and/or suspend them from slings.



Figure 2-2 Transport using a forklift

Ensure that the elements do not get damaged when transporting them with a forklift.

#### NOTICE

**The use of abrasive or metal slings and/or suspension of the elements by their conductors can cause serious damage.**

Never use abrasive or metal slings under any circumstances.

Never suspend the elements by their conductors, as this could potentially damage them beyond repair.

Use fabric slings to suspend the busbar trunking system elements.

#### Note

In the case of very heavy trunking units (particularly for double body systems), we recommend the use of crane fixtures with bolt and splint to attach slings to the ends of the trunking unit.

As a rule, always attach slings to lift the elements.

Special accessories, such as those illustrated in the examples below, are available for transporting the busbar elements and positioning them at the installation location. The accessory must be appropriately attached to the busbar elements for this purpose. It must be removed again after the busbar element has been positioned. The accessory is reusable.

This accessory is not supplied as standard with the product and must be ordered separately depending on project requirements. Please get in touch with your SIEMENS contact for further information.

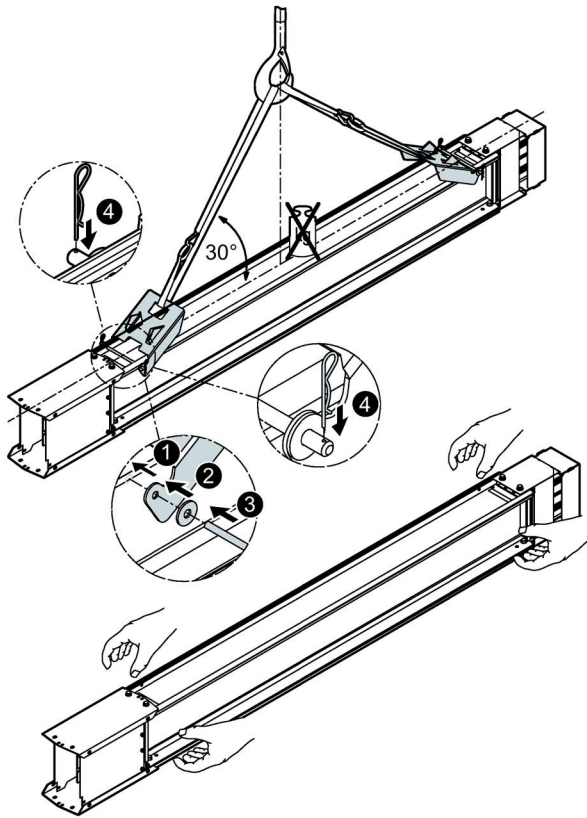


Figure 2-3 Single body system: Suspension from slings with crane fixture / transport for horizontal busbar runs

Type	Max. kg / m	Type	Max. kg / m
LI-A.0800...-L...	15	LI-C.1000...-L...	27
LI-A.1000...-L...	17	LI-C.1250...-L...	31
LI-A.1250...-L...	19	LI-C.1600...-L...	40
LI-A.1600...-L...	24	LI-C.2000...-L...	54
LI-A.2000...-L...	30	LI-C.2500...-L...	69
LI-A.2500...-L...	39	LI-C.3200...-L...	96
LI-A.3200...-L...	47	LI-C.4000...-L...	106
LI-A.4000...-L...	59	LI-C.5000...-L...	137
LI-A.5000...-L...	76	LI-C.6300...-L...	191

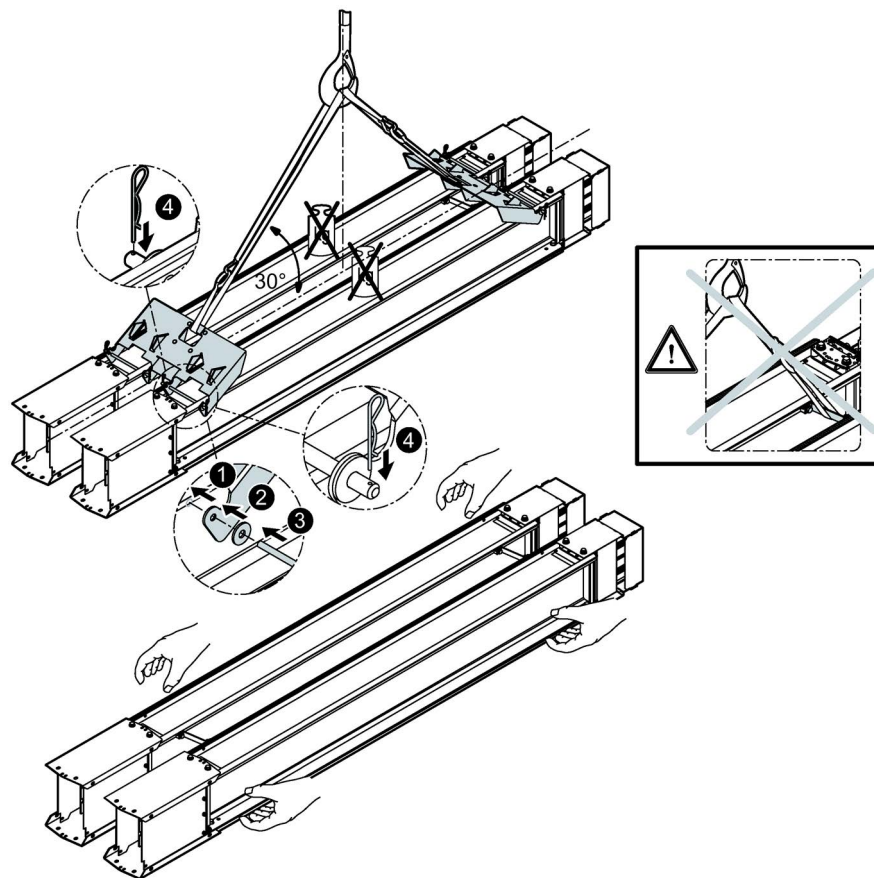


Figure 2-4 Double body system: Suspension from slings with crane fixture / transport for horizontal busbar runs

Type	Max. kg / m	Type	Max. kg / m
LI-A.0800...-L...	15	LI-C.1000...-L...	27
LI-A.1000...-L...	17	LI-C.1250...-L...	31
LI-A.1250...-L...	19	LI-C.1600...-L...	40
LI-A.1600...-L...	24	LI-C.2000...-L...	54
LI-A.2000...-L...	30	LI-C.2500...-L...	69
LI-A.2500...-L...	39	LI-C.3200...-L...	96
LI-A.3200...-L...	47	LI-C.4000...-L...	106
LI-A.4000...-L...	59	LI-C.5000...-L...	137
LI-A.5000...-L...	76	LI-C.6300...-L...	191

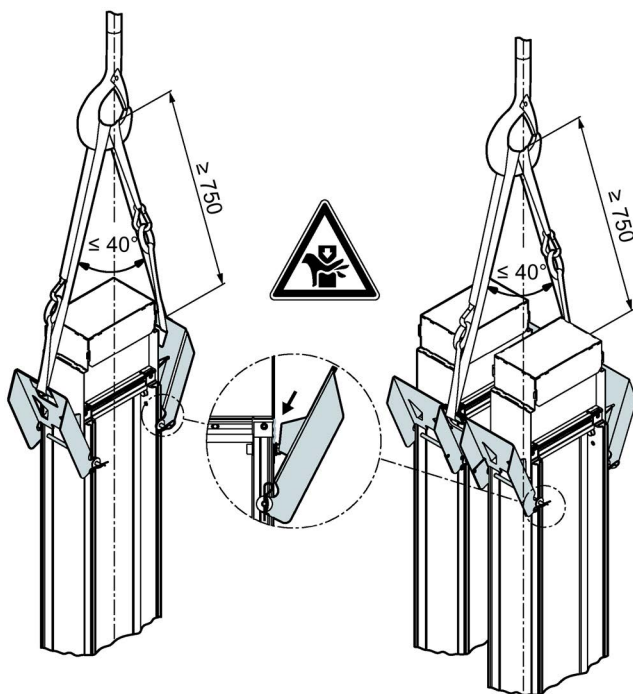


Figure 2-5 Suspension from slings for vertical busbar runs

Type	Max. kg / m	Type	Max. kg / m
LI-A.0800...-L...	15	LI-C.1000...-L...	27
LI-A.1000...-L...	17	LI-C.1250...-L...	31
LI-A.1250...-L...	19	LI-C.1600...-L...	40
LI-A.1600...-L...	24	LI-C.2000...-L...	54
LI-A.2000...-L...	30	LI-C.2500...-L...	69
LI-A.2500...-L...	39	LI-C.3200...-L...	96
LI-A.3200...-L...	47	LI-C.4000...-L...	106
LI-A.4000...-L...	59	LI-C.5000...-L...	137
LI-A.5000...-L...	76	LI-C.6300...-L...	191

**Safety notice regarding transport of double body systems**

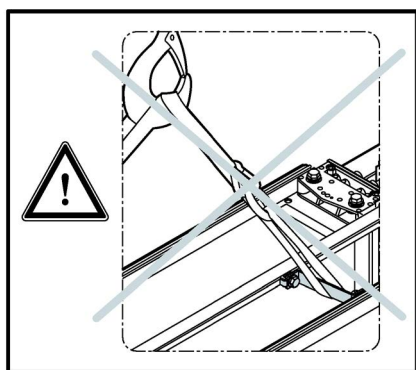


Figure 2-6 Do not attach slings to the transverse stays



## 3.1 Overview

### 1. Check the elements:

Inspect all of the elements when they are delivered. Check to ensure that neither the conductors nor their insulation have been damaged during handling and/or storage.

### 2. Correct installation sequence:

Install the elements in accordance with the planned layout as indicated in the installation drawings supplied.

### 3. Connect the busbar elements:

- Ensure that the spacing between adjoining elements is correct.
- Establish the electrical connection between the conductors and the mechanical connection between the trunking units. Seal the junctions by fitting the covers over the electrical connections. (See "Connecting busbar elements (Page 37)")

### 4. Check the installed elements:

Check the insulation resistance of the run. No other equipment (e.g. transformers, tap-off lines, connections, etc.) may be connected while you check the insulation resistance.

Please refer to chapter "Commissioning (Page 85)"

## 3.2 Installing a busbar run

### Installation

The steps that must be performed to install the different LI system elements are described below. To this are added some accessories designed for this purpose.

Although the parts are listed in order of installation, we do recommend that you read the instructions in full in order to familiarise yourself with the special characteristics of this installation procedure. Installation instructions are also supplied with the elements. The installation instructions contain specific details on how to install the various busbar elements and must be followed at all times.

---

**Note**

A video clip demonstrating LI busbar installation is also available; please contact your SIEMENS contact for further available.

---

**Note**

Plan the installation process carefully, resolving all possible difficulties prior to starting work.

Always pay attention to personnel safety and ensure that material does not become damaged.

---

### Overview of the installation instructions

Link to the installation instructions  
<https://support.industry.siemens.com/cs/ww/en/ps/19877/man>

Elements	Document No.
<b>Trunking units</b>	
Straight lengths	8PS7980-0AA01-5AA1
L units and Z units fixed	8PS7980-0AA14-1AA7
L units and Z units	8PS7980-0AA01-5AA1
T units	8PS7980-0AA14-1AA4
Expansion unit	8PS7980-0AA14-0AA0
End caps	8PS7980-0AA01-6AA3
Special cover hook/bolt joint for tap-off units	8PS7980-0AA13-8AA0
<b>Feeder units</b>	
Transformer connection TCE	8PS7980-0AA13-8AA1
Transformer connection TCET	8PS7980-0AA14-1AA5
Transformer connection TCS	8PS7980-0AA14-1AA6
Busbar connection unit for non-Siemens distribution boards FA	8PS7980-0AA13-8AA2
SIEMENS SIVACON switchboard connection F8PQ	8PS7980-0AA01-5AA7
Cable feeder unit CFE	8PS7980-0AA13-8AA3
Cable feeder unit CFS	8PS7980-0AA14-1AA0

Elements	Document No.
<b>Accessories</b>	
Fixing brackets for horizontal layout	8PS7980-0AA01-5AA5
Fixing brackets for vertical layout	8PS7980-0AA13-8AA7
Wall and floor flange	8PS7980-0AA01-6AA2
Housings for connection units	8PS7980-0AA13-8AA6
Labelling kit for PEN conductor for central earthing point (CEP)	8PS7980-0AA14-1AA1
Fire barrier to be mounted by the customer	8PS7980-0AA01-5AA6
Kit for German approval fire barrier	On request
<b>Tap-off units</b>	
3NP fuse switch disconnectors up to 250 A	8PS7980-0AA01-6AA4
3NP fuse switch disconnectors up to 630 A	8PS7980-0AA01-6AA5
Switch disconnectors with fuses up to 250 A	8PS7980-0AA01-6AA6
Switch disconnectors with fuses up to 630 A	8PS7980-0AA01-6AA7
Fuse base LVHRC up to 400 A	8PS7980-0AA01-5AA8
Fuse base LVHRC up to 630 A	8PS7980-0AA01-6AA8
3VL circuit breakers up to 400 A	8PS7980-0AA01-7AA1
3VL circuit breakers up to 630 A	8PS7980-0AA01-7AA2
3VL circuit breakers up to 800 A, 1 250 A	8PS7980-0AA14-1AA3
Empty tap-off unit 3VL circuit breakers sizes 1, 2 expansion	8PS7980-0AA16-5AA8
Empty tap-off unit 3VL circuit breakers sizes 3, 4 expansion	8PS7980-0AA16-6AA0
Empty tap-off unit 3VL circuit breakers sizes 1, 2	8PS7980-0AA16-6AA1
Empty tap-off unit 3VL circuit breakers sizes 3, 4	8PS7980-0AA16-6AA2
Empty tap-off unit sizes 1, 2 expansion	8PS7980-0AA15-8AA3
Empty tap-off unit sizes 3, 4 expansion	8PS7980-0AA16-0AA0
Empty tap-off unit sizes 1, 2	8PS7980-0AA16-0AA2
Empty tap-off unit sizes 3, 4	8PS7980-0AA16-0AA1
Auxiliary box	8PS7980-0AA13-8AA5

### 3.3 Installation recommendations

Install either the whole line or parts of it, depending on how accessible and safe the layout is.

#### Assembly sequence

1. Connect the distribution board outputs first.
2. Once the distribution board has been installed, continue towards the transformer, sub-distribution board and consumers.

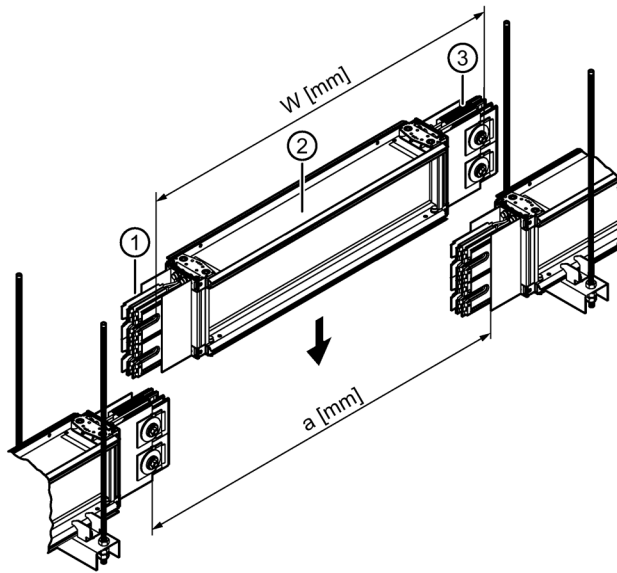


Figure 3-1 Assembly: straight trunking unit as last element in the busbar run

To simplify handling, the last element to be inserted on runs between feeder units should be a straight trunking unit. If the run ends with an end cap, fit this last.

---

#### Note

Protect all elements from adverse ambient conditions and other potentially damaging agents until installation has been completed.

Always pay attention to personnel safety and ensure that material does not become damaged.

---

#### Note

##### Deviating from the recommendations

These installation recommendations specify the general assembly sequence for the various busbar trunking system elements. As local conditions on the building site or within a project can vary, deviations from these recommendations are possible. In such cases, please get in touch with your SIEMENS contact.

---

## 3.4 Attaching fixing elements

The LI busbar trunking system is generally attached to the structure of the building using externally provided supporting structures (e.g. spigots, C-profiles, joists or stands for intermediate levels) and the system-specific fixing brackets.

### 3.4.1 Overview

#### Mounting types

- Fixings for horizontal installations with LI system accessories:  
Mounting brackets for ceiling, wall or floor mounting, fixed-point brackets, C-profiles for attaching the mounting or fixed-point brackets
- Fixing for vertical installations with LI system accessories:  
Wall and floor mounting, fixed-point brackets
- Fixing material not available in the catalogue must be provided by installation experts.  
e.g. dowels, beams, suspension struts, spigots, etc.

#### Attaching fixing elements

Proceed as follows for all installation types:

1. Fix the fixing brackets to the building via the supporting structure.
2. Lift the element of the LI system and suspend it on the fixing brackets without securing it.
3. Move the element until it is inserted in the adjoining hook or bolt.
4. Place the element in its final position.
5. Secure the element.

---

#### Note

Only the fixing brackets for horizontal installation and spring brackets for vertical installation indicated in the selection and ordering data may be used for fixing the trunking units. For further information, refer to chapters "Product selection" and "Installation and mounting > Fixing busbars" in the system manual "Configuring with LI system".

This enables safe clearance for manoeuvre of the busbar run (sliding bearing) when required. The fixing brackets can be attached to the customer's fixing material.

---

---

**Note**

**Consulting installation experts**

These instructions only refer to accessories manufactured by SIEMENS. For further information, please refer to the catalogue.

It is beyond the scope of this manual to document the vast number of different on-site conditions that may arise. For this reason, it is permissible to use commercially available fixing materials supplied by reputable suppliers.

We recommend that specialist installation personnel evaluate on-site conditions.

Further recommendations and guidance can be found in the planning manual "SIVACON 8PS - Planning with SIVACON 8PS".

---

---

**Note**

Always follow the instructions provided in the manual and the installation instructions.

---

### 3.4.2 Fixing for horizontal installation

#### Ceiling mounting by means of brackets

Take the following specifications into account:

- Fix the suspension brackets to the ceiling or another suitable structural support.
- Ensure that the ceiling or structural support is strong enough to hold the weight of the system.

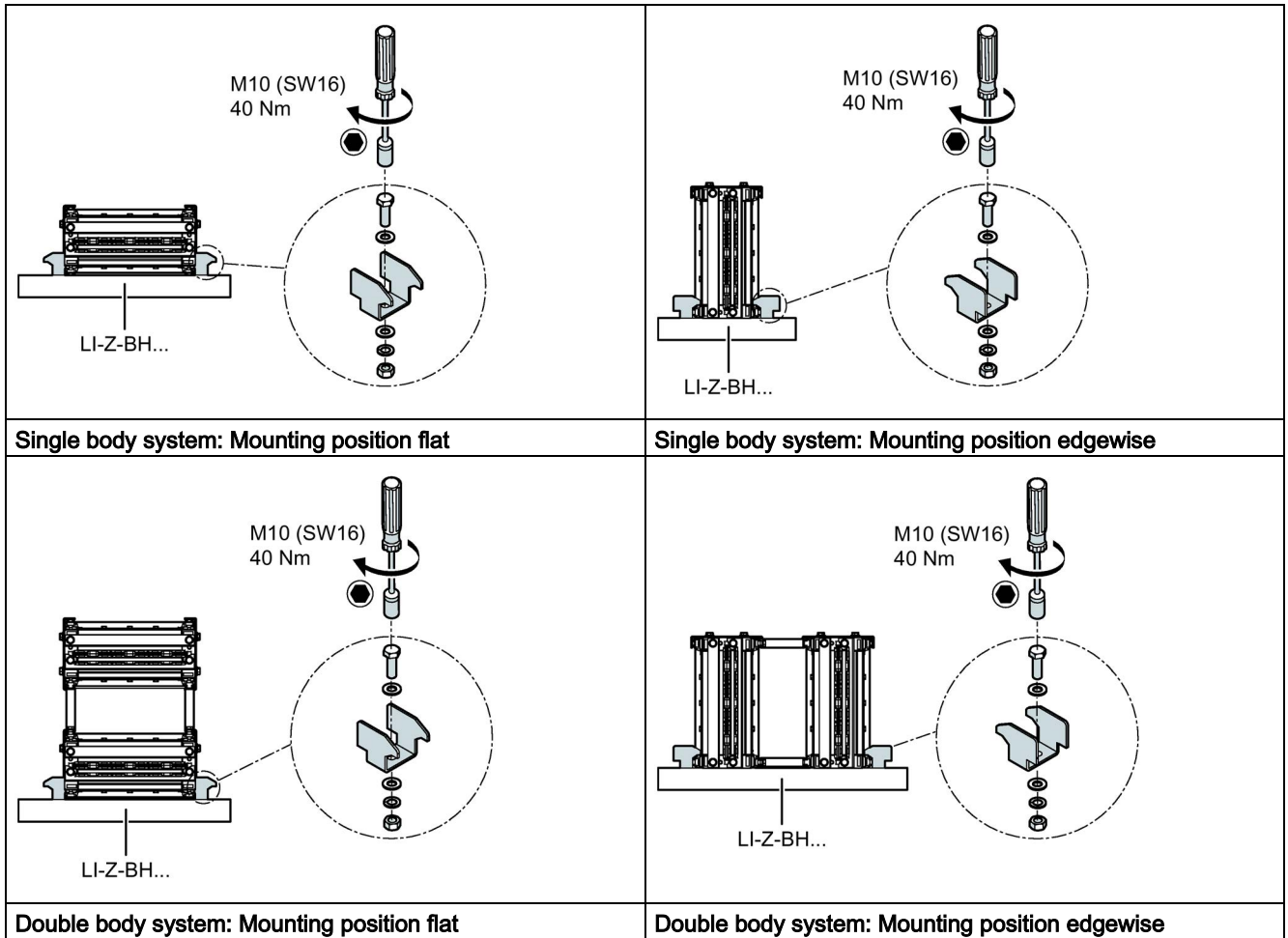
Proceed as follows:

1. Place the element to be suspended in its intended final position on the brackets so that it cannot move out of its final position.
2. Join the adjacent elements. Use the universal mounting bracket to fix the elements in the mounting positions "horizontal flat" and "horizontal edgewise".

The mounting brackets can be used for:

- Elements in the "flat" mounting position (illustrations on the left)
- Elements in the "edgewise" mounting position (illustrations on the right)
- Single body systems (illustrations at top)
- Double body systems (illustrations at bottom)

Single view of terminal clamp LI-Z-BKK.



### Attaching the ceiling bracket

Before attaching the bracket, make sure you are aware of exactly what type of bracket is being used and exactly where it needs to be positioned.

Take the following specifications into account:

- Provide at least one fixing bracket for each element. If possible, always use two brackets per element. You will then find it easier to align the element.
- A bracket must never coincide with a joint block. Always maintain a distance of at least 250 mm between the centre of the joint block and the bracket.
- To meet the specific static circumstances when using fixed-point brackets, we recommend using supporting structures with transverse stays. SIEMENS does not supply supporting structures. Please contact the special suppliers of such materials.

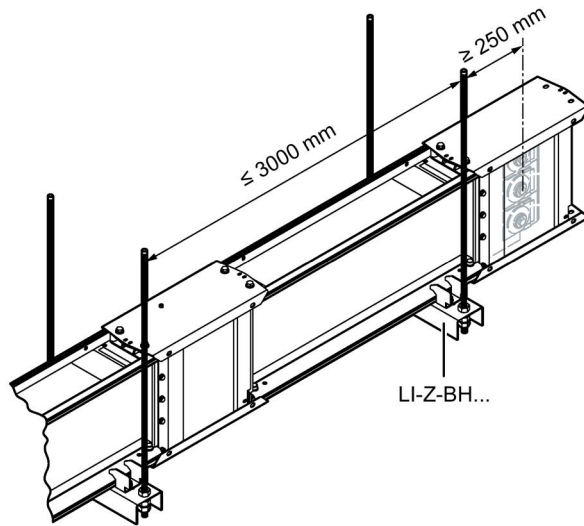


Figure 3-2 Fixing for element of the LI system, mounting position "edgewise"

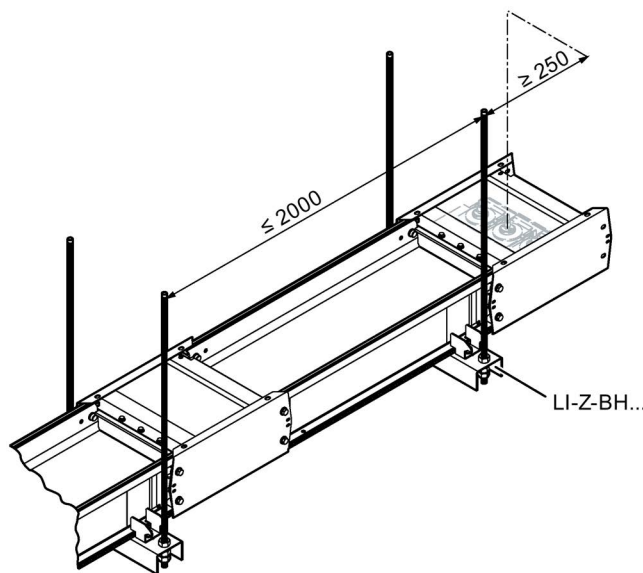


Figure 3-3 Fixing for element of the LI system, mounting position "flat"



### Fixing by means of fixed-point bracket attached directly to building structure

Attach the fixed-point brackets to the ceiling (which must have a suitable structural design).

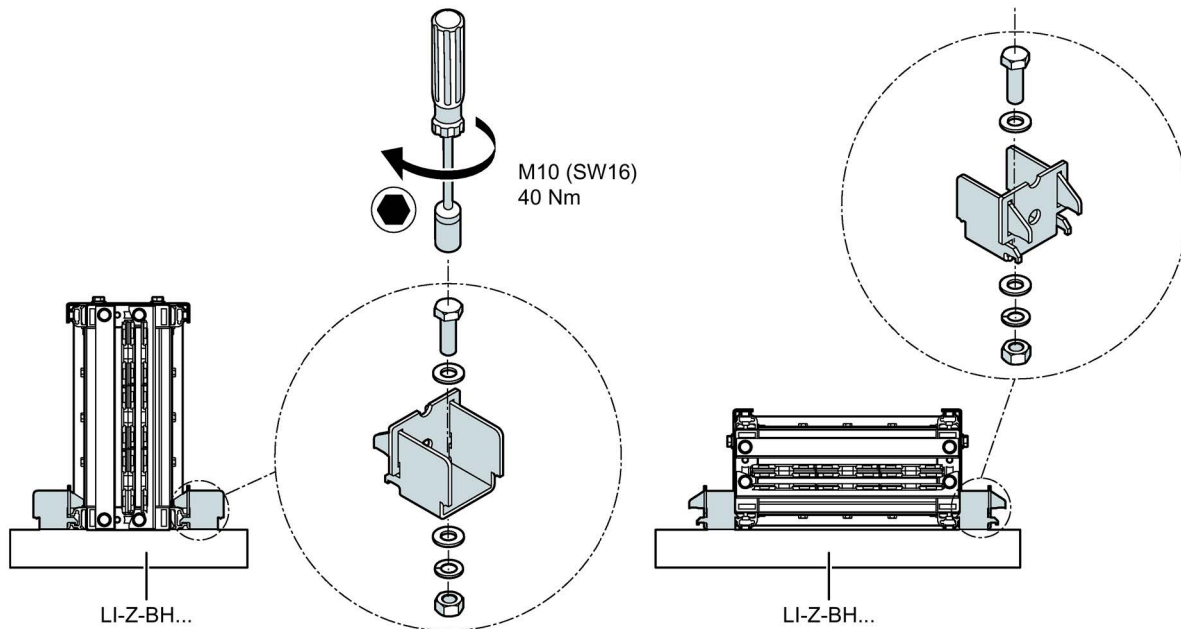


Figure 3-4 Fixed-point brackets attached to solid building structure: horizontal edgewise on left; horizontal flat on right

#### Note

##### Take into account the quality and structural design of the ceiling material

When selecting what dowels to use, take the ceiling material and quality as well as the weight to be supported into account.

The surface finish of the spigots and the screws used must be selected to suit on-site ambient conditions.

Never support an element at any point other than a fixing bracket.

Examples illustrating the possible implementation of fixed points

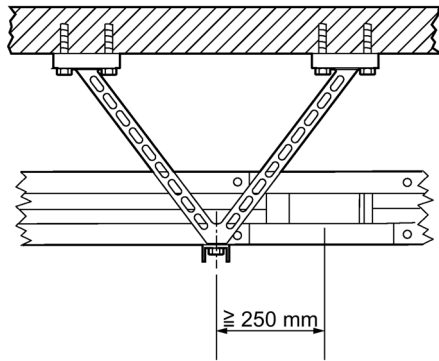


Figure 3-5 LI-Z-BKFK2 - fixing by means of fixed-point brackets: use of transverse stays for large distances between element and ceiling

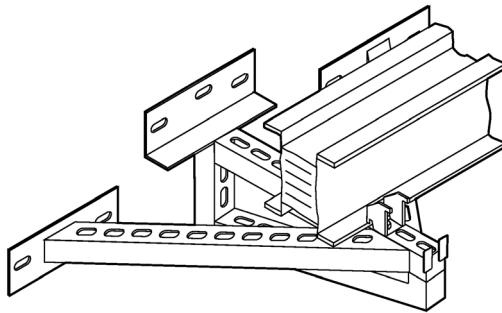


Figure 3-6 Wall fixing for elements of the LI system, mounting position "flat"

- The maximum permissible fixing distances applicable to mounting with brackets also apply to mounting for fixed points.
- We recommend the use of additional transverse stays to implement fixed points by means of beams or ceiling suspensions.
- The trunking unit is fixed by means of a set of terminal clamps of type LI-Z BKK from the LI system product range. The customer must provide the beams with transverse stays.

### Weights and fixing distances of trunking units

- Never support an element at any point other than a fixing bracket. The maximum distance between horizontal fixing brackets will depend on their design and their load-bearing capacity...; in theory, 2 m is considered a suitable distance. The maximum permissible fixing distances can be found in system manual "SIVACON 8PS - Configuring with LI system", chapter "Technical data".

Type	Max. kg / m		Type	Max. kg / m
LI-A.0800...-L...	15		LI-C.1000...-L...	27
LI-A.1000...-L...	17		LI-C.1250...-L...	31
LI-A.1250...-L...	19		LI-C.1600...-L...	40
LI-A.1600...-L...	24		LI-C.2000...-L...	54
LI-A.2000...-L...	30		LI-C.2500...-L...	69
LI-A.2500...-L...	39		LI-C.3200...-L...	96
LI-A.3200...-L...	47		LI-C.4000...-L...	106
LI-A.4000...-L...	59		LI-C.5000...-L...	137
LI-A.5000...-L...	76		LI-C.6300...-L...	191

- When designing supports, take the following into account:
  - The carrying capacity of fixing brackets in terms of supporting at least the weight of the busbar trunking system plus 90 kg, in accordance with IEC/EN 61439-6
  - The fixing points on the structure and suitable accessories (e.g. dowels, etc.)
  - The feasibility of fixed points
    - This aspect is particularly important in relation to horizontal busbar runs.
- Take account of the particular requirements of vertical busbar runs, e.g. manoeuvrability, suspension of elements, execution, etc.

### 3.4.3 Spring brackets for vertical installation on walls

#### Mounting the bracket for vertical installation

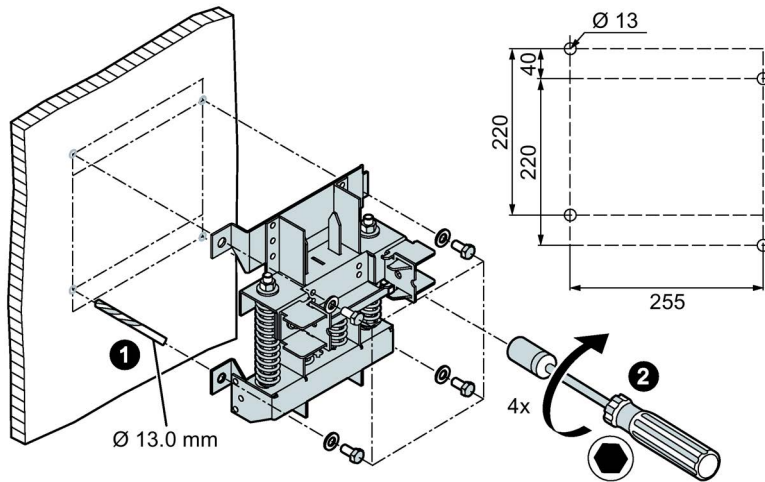


Figure 3-7 Mounting the bracket for vertical installation on the wall - Figure 1

#### NOTICE

##### Risk of property damage when red screws are removed too early

When delivered, fixing brackets are adjusted to the weight to be supported by the red screws. Do not remove these screws until installation has been completed. Follow the installation steps below precisely.

1. Mark the anchorage holes on the wall, using the fixing bracket (1) as a template if you so wish.
2. Drill holes.
3. Insert the dowels into the holes.

#### Note

To attach the fixing bracket to the wall, you must use dowels appropriate to the weight to be supported and the fixing material used.

4. Attach the fixing bracket for vertical installation with the screws (2).

5. Remove the fixing studs (2) that support the busbar trunking system.

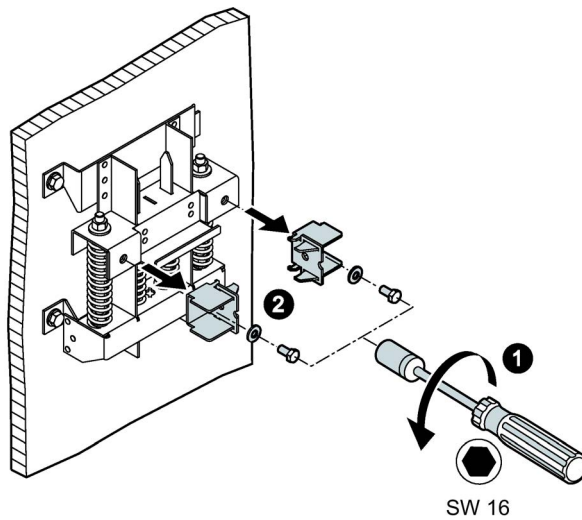


Figure 3-8 Mounting the bracket for vertical installation on the wall - Figure 2

6. Install all fixing brackets in the corresponding locations before installing the busbar trunking run.

### Mounting the busbar trunking system on a bracket for vertical installation

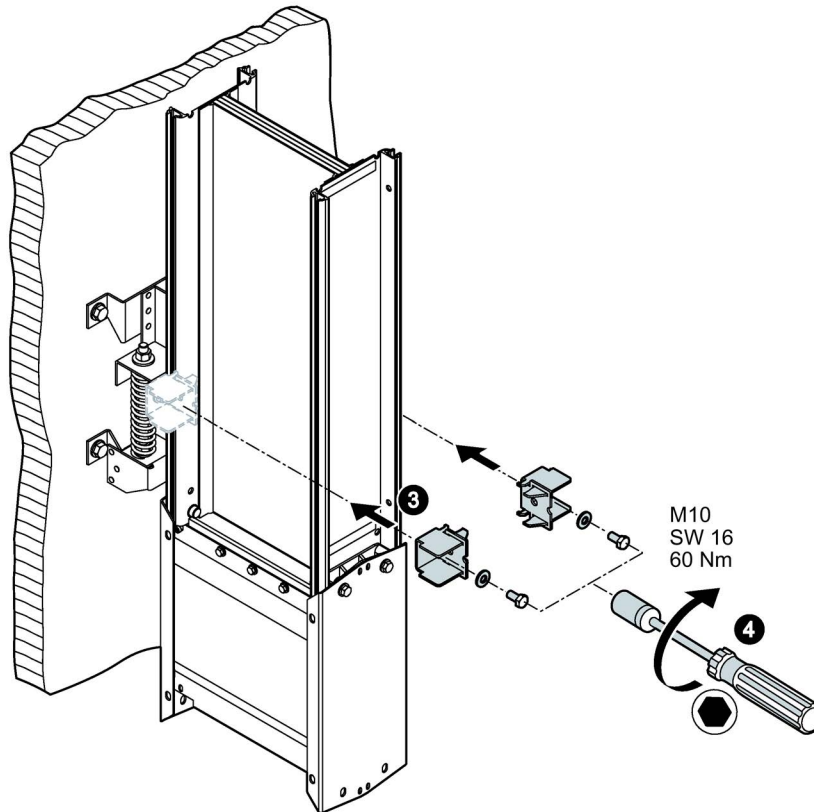


Figure 3-9 Mounting the bracket for vertical installation on the wall - Figure 3

1. Position the busbar trunking system element at the desired installation location using slings or other lifting lugs. Observe the installation instructions.
2. Ensure that the element is correctly aligned with the adjoining element.
3. Establish an electrical and mechanical connection between adjoining elements, taking note of the relevant instructions.
4. Screw fixing studs onto the fixing bracket in order to fasten the busbar trunking system. Place the studs against the wings of the element as shown in the diagram. Use the nuts and washers supplied.

5. Remove the slings or lifting lug used. The element is now supported solely by the fixing bracket.

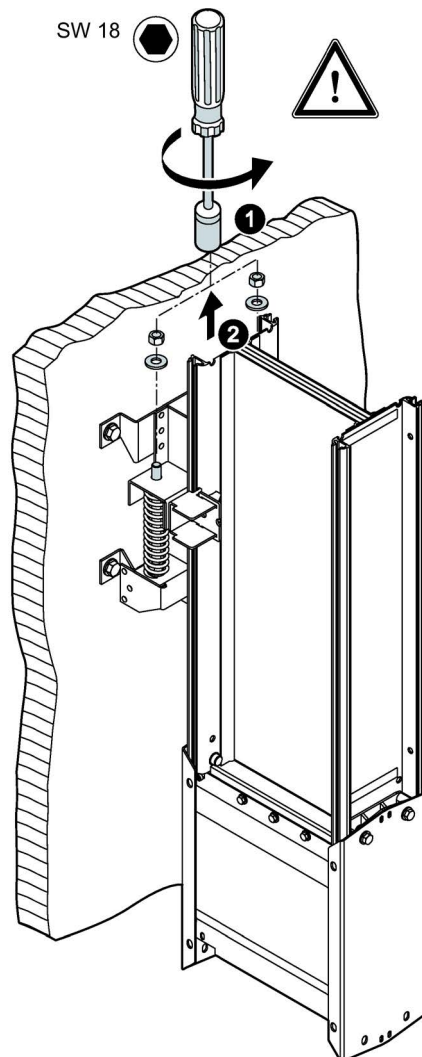


Figure 3-10 Mounting the busbar trunking system on a bracket for vertical installation - removing the adjustment screws

6. Once installation of the entire vertical busbar run is complete, loosen the red upper adjustment screws (2) at all brackets for vertical installation. Remove the red fastening screws. By doing this, you activate the fixing bracket.
7. Keep the red adjustment screws for any extensions that may need to be added later on.

### 3.4.4 Floor fixing for spring brackets

Type	a [mm]	Type	a [mm]
LI-A.0800...-L...	111	LI-C.1000...-L...	111
LI-A.1000...-L...	132	LI-C.1250...-L...	118
LI-A.1250...-L...	147	LI-C.1600...-L...	147
LI-A.1600...-L...	182	LI-C.2000...-L...	174
LI-A.2000...-L...	230	LI-C.2500...-L...	213
LI-A.2500...-L...	297	LI-C.3200...-L...	280
LI-A.3200...-L...	182	LI-C.4000...-L...	174
LI-A.4000...-L...	230	LI-C.5000...-L...	213
LI-A.5000...-L...	297	LI-C.6300...-L...	280

1. Use screws (3) to attach the additional flange to the floor.

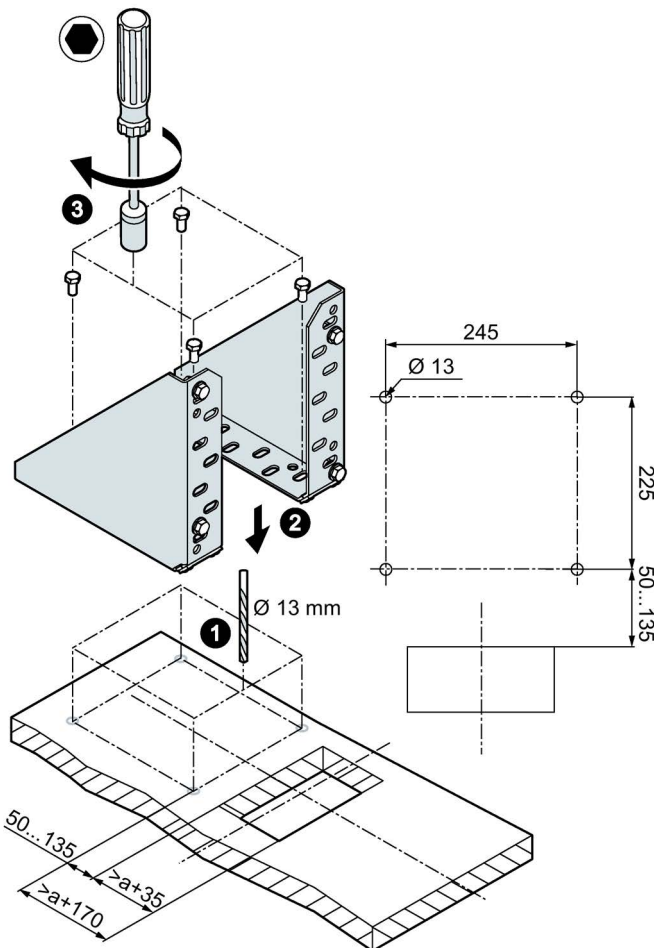


Figure 3-11 Mounting the bracket for vertical installation on the floor - Figure 1



2. Use the screws (4) to attach the additional vertical flange to a module.

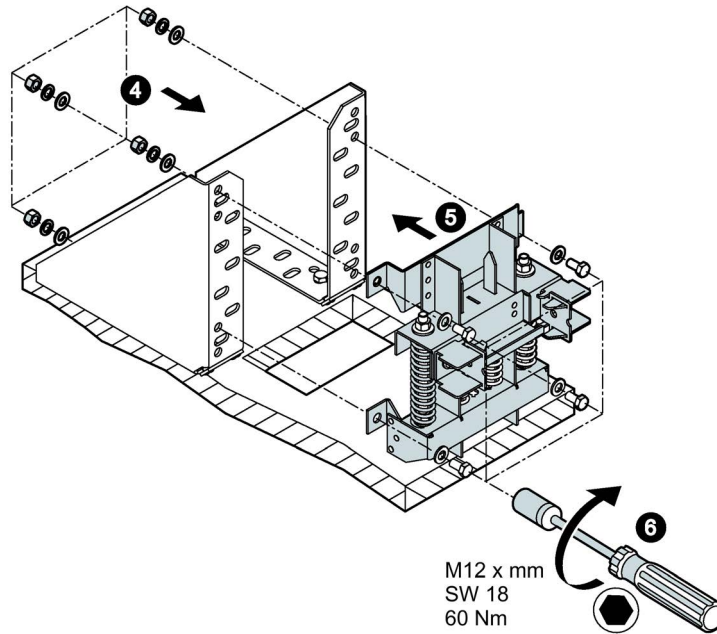


Figure 3-12 Mounting the bracket for vertical installation on the floor - Figure 2

3. Please refer to the chapter "Spring brackets for vertical installation on walls (Page 28)" for details on how to proceed with fixing the remaining busbar trunking system elements.

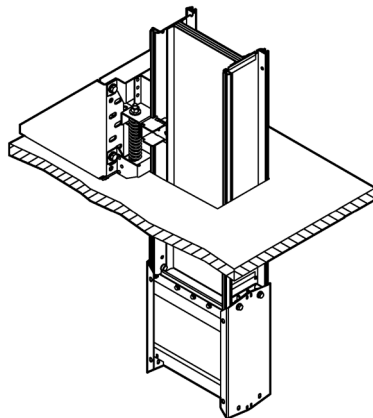


Figure 3-13 Mounting the bracket for vertical installation on the floor - Figure 3

### 3.4.5 Fixing brackets with fixed point for vertical installation

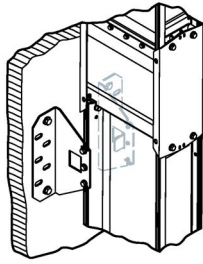


Figure 3-14 Fixing brackets with fixed point for vertical installation

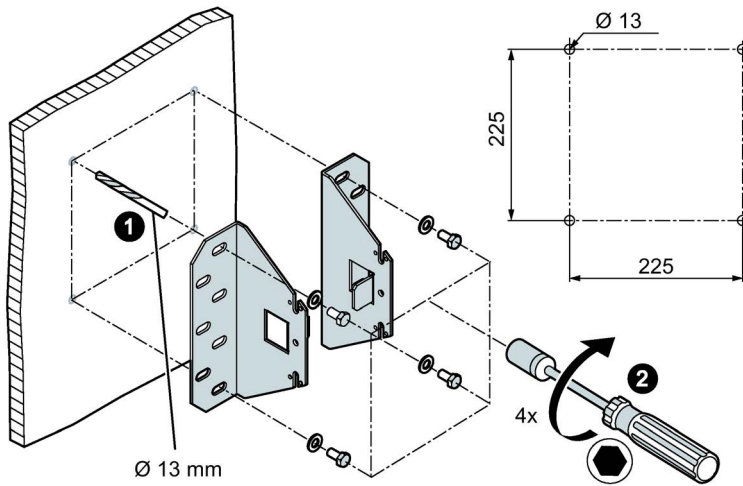


Figure 3-15 Mounting the fixing brackets with fixed point for vertical installation - Figure 1

1. Mark the anchorage holes on the wall, using the fixing bracket (1) as a template if you so wish.
2. Use the screws (2) to attach the fixing brackets with fixed point to the wall.

3. Use the screws to attach the fixing bracket with fixed point to the busbar enclosure.

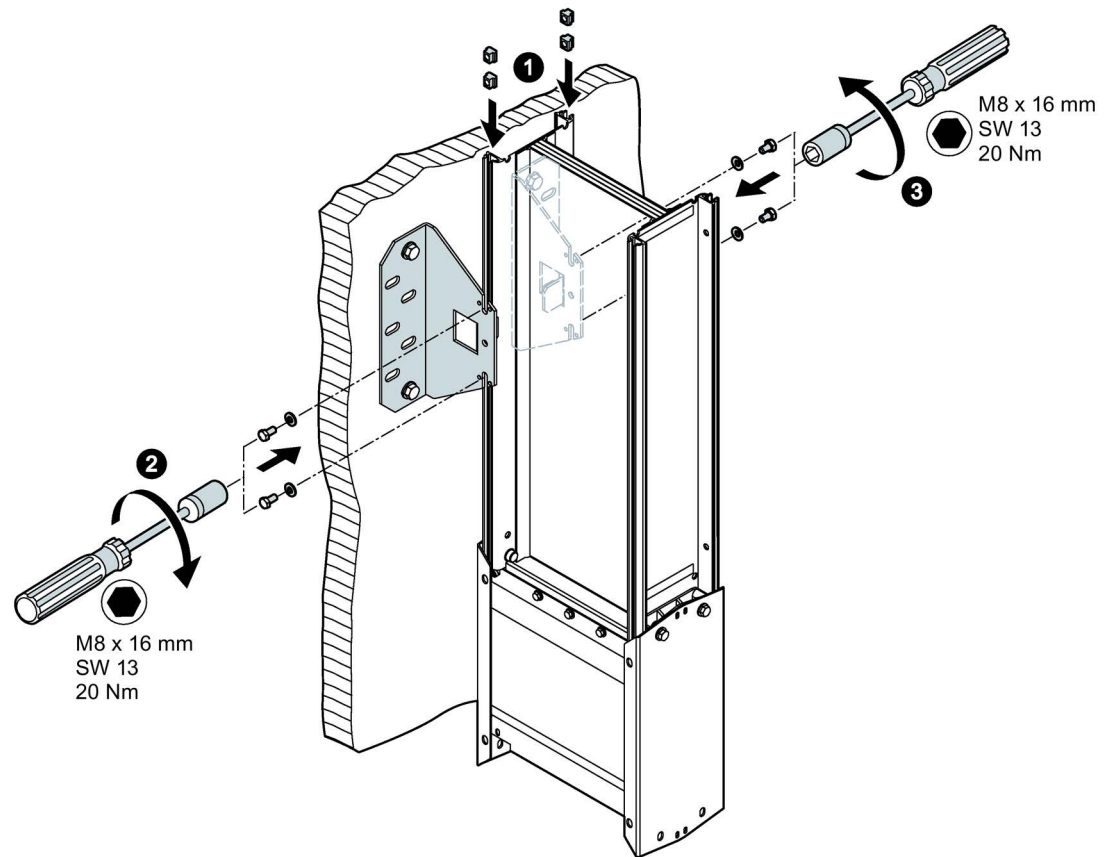


Figure 3-16 Mounting the fixing brackets with fixed point for vertical installation - Figure 2

### 3.4.6 Bracket for transformer connection units

#### Ceiling fixing

1. Fix the suspension brackets to the ceiling or another suitable structural support.

---

**Note**

Ensure that the ceiling or structural support is strong enough to hold the weight of the busbar trunking system.

---

2. Install the transformer connection units in their intended final position. Mount the transformer connection unit on the universal mounting bracket for mounting position "horizontal, edgewise".

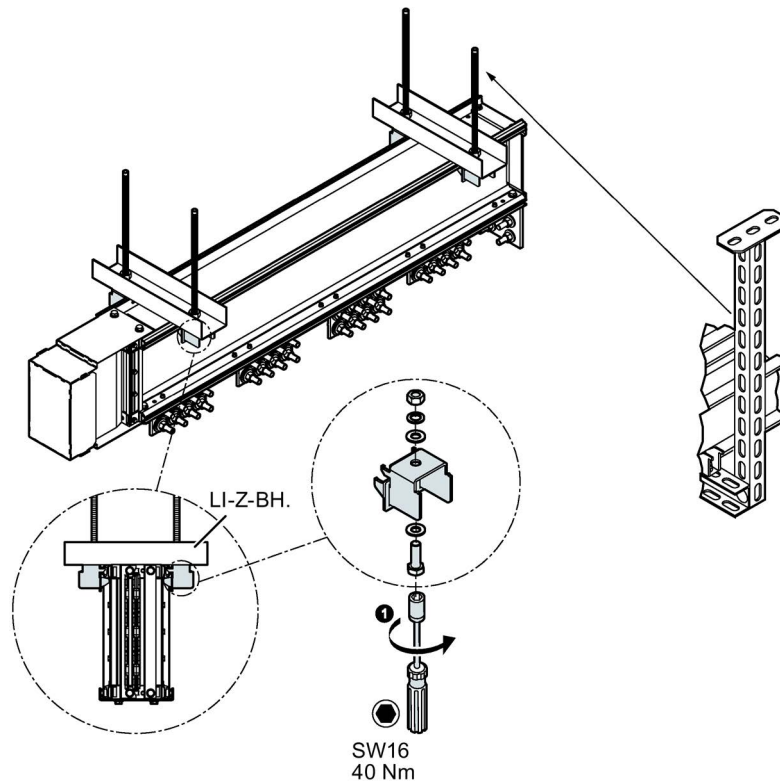


Figure 3-17 Ceiling fixing

---

**Note****Use of fixing accessories**

Our description of the use of spigots for suspension is taken from the installation instructions. Alternative solutions using appropriate commercially available fixing accessories are acceptable: e.g. C-profiles.

---

## 3.5 Connecting busbar elements

---

**Note**

Ensure that all contact surfaces are clean and free of impurities.

---

### 3.5.1 Installing a busbar run

#### 3.5.1.1 Standard installation procedure for single and double body systems

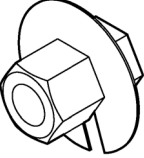



The text below describes how the clamped connection between two bar ends (hook and bolt connection) must be implemented. The clamped connection in the case of double body systems does not basically differ from this method. However, you must take the higher weight and the larger dimensions of a double body system into account. The resulting special features are described in the next chapter.

You will find further information in the installation instructions entitled "LI Length / Accessories" (No.: 8PS7980-0AA01-5AA1.XX).

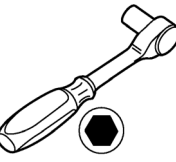
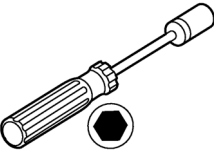
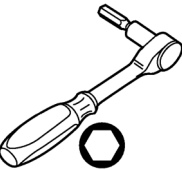
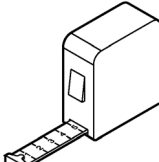
**Scope of delivery**

The scope of delivery of a clamped connection includes:

- Double-head shear nut with red signal washer (one to three of them depending on system size)
- Screws with shims for mounting the side and cover plates

	LI-A.0800... - LI-A.1600... LI-C.1000... - LI-C.2000...	LI-A.2000..., LI-A.3200... LI-C.2500..., LI-C.4000...	LI-A.2500... LI-C.3200...	LI-A.4000... LI-C.5000...	LI-A.5000... LI-C.6300...
	1 x	2 x	3 x	4 x	6 x
 M5 x 12	4 x	8 x	10 x		
 M5	4 x	8 x	10 x		
 M5	4 x	8 x	10 x		

**Required tools**

a	b	c	d
 M10 (SW17)	 M5 / M8 (SW8 / SW 13)	 M5 (SW6)	 ISO tape measure

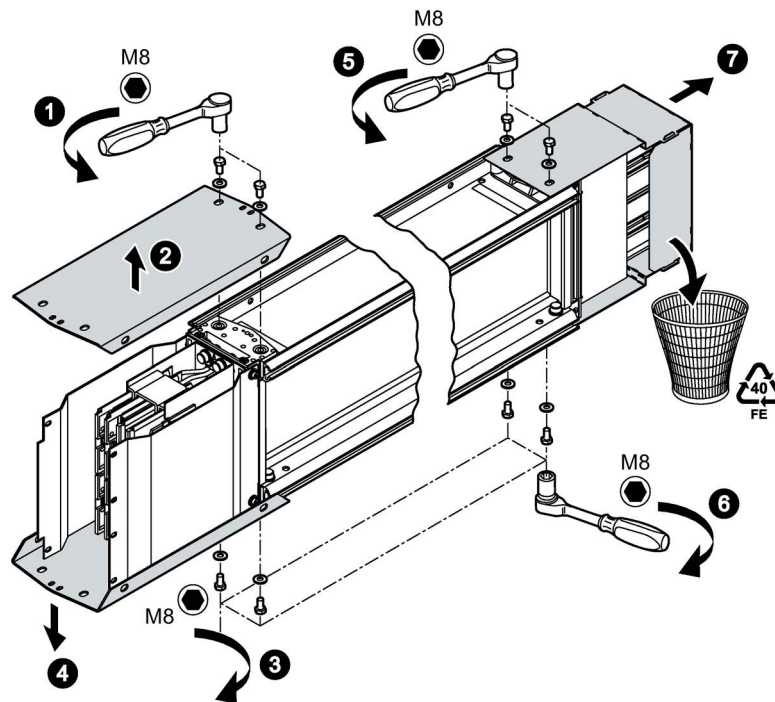
- Torque wrench for bolt clamp, 17 mm wrench size, set to 50 Nm
- Socket spanner for hexagon bolt for cover plates, 13 mm wrench size
- Spanner for side covers, size 6 mm
- Tape measure or folding rule

The following work steps must be carried out to implement a clamped connection:

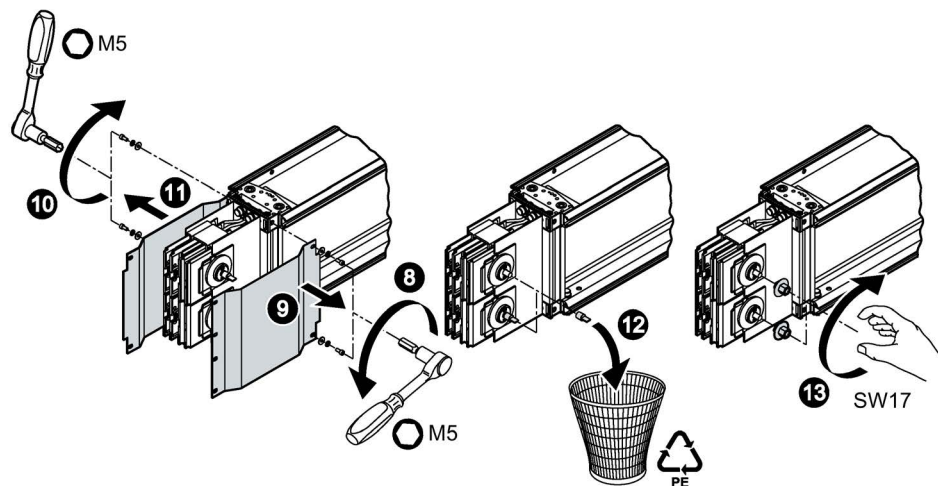
The trunking units can be fitted after removing the transport protection and also the cover and side plates. Beforehand, the protective caps must be removed from the connecting bolts and the included double head shear nuts must be screwed on loosely; see the diagram "Removing the side parts": point 13.

Keep the cover and side plates and also the bolts and washers in a safe place so they can be fitted again in a later mounting step.

**Removal: removing the U cap**



**Removing the side parts**

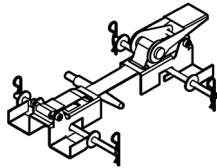


### Mounting the busbars

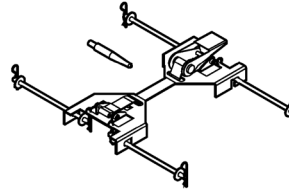
You are advised to use the connecting tool **LI-Z-SAT-SB** (single body system) or **LI-Z-SAT-DB** (double body system) to be able to push the two bar ends into one another with little effort.

This connecting tool is not included in the scope of delivery and must be ordered separately.

**Connecting tool must be ordered separately!**



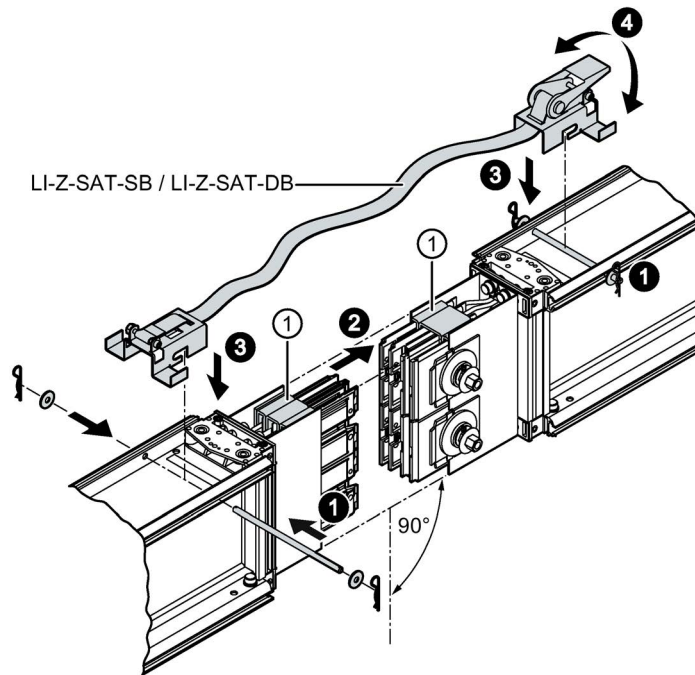
Connecting tool LI-Z-SAT-SB



Connecting tool LI-Z-SAT-DB

The trunking units are joined together by simply sliding the bar ends (longitudinally) into the joint block.

Pay attention to the phase sequence marking, e.g. N-L1-L2-L3-PE, to ensure the right conductor sequence. When you insert the busbar conductors, only remove the red spacers after the busbar conductors have been placed in their final position.

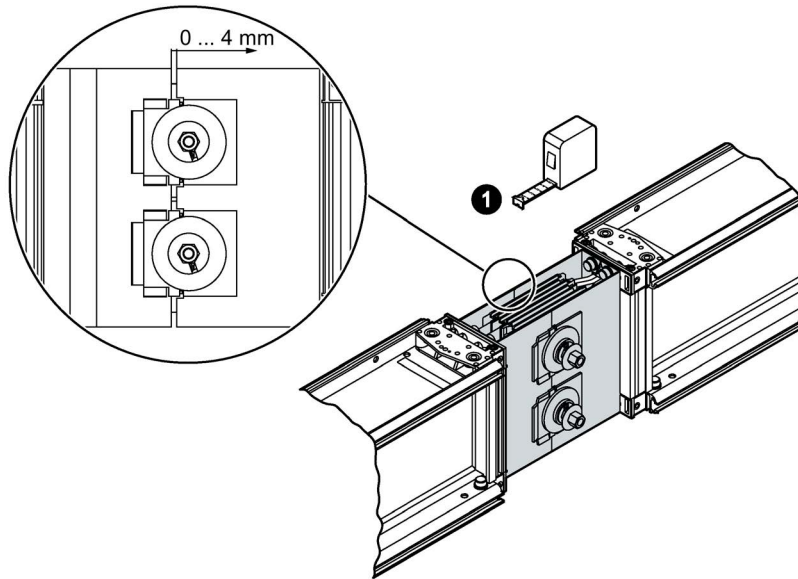


- ① Spacers are not removed until the insulating plates have been pushed inside one another by about 2 cm and before the busbar conductors have been moved to their final position.



### Inserting busbars

The side earthing plates of the two trunking units are positioned flush.



Check the clearance between both trunking units. Their clearance on the earthing guide plates may be within a tolerance range of 0 to max. 4 mm. Then, the hook and bolt connection is adjusted correctly.

### Connection method

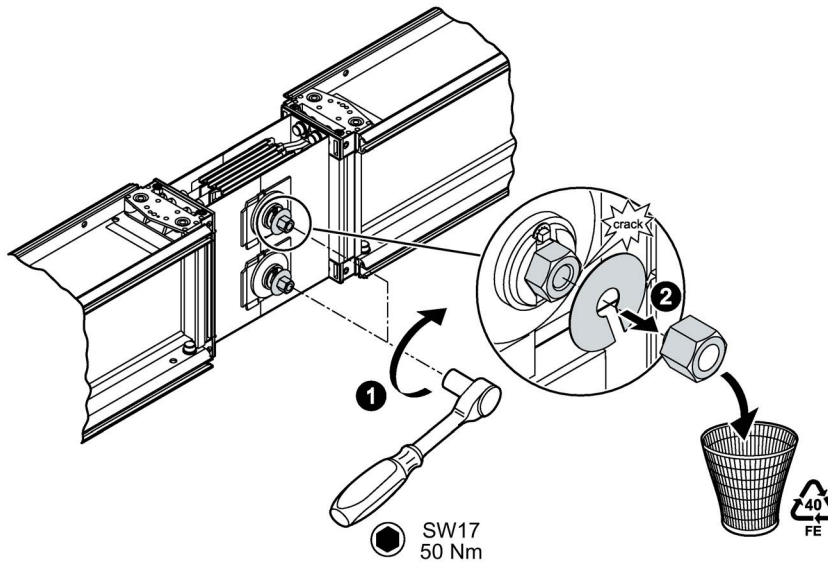
#### Tightening the clamp

During initial installation, the single-bolt clamp can be tightened without a torque wrench.

Depending on the system size, one to a maximum of three double-head nuts can be tightened with a standard wrench (17 mm). When the required pressing force is reached (corresponding to a torque of about 50 Nm), the outer part of the double-head nut shears off automatically. The red signal washer also falls off. This enables an initial visual inspection. In a simple way, this immediately shows that the busbar elements are connected correctly.

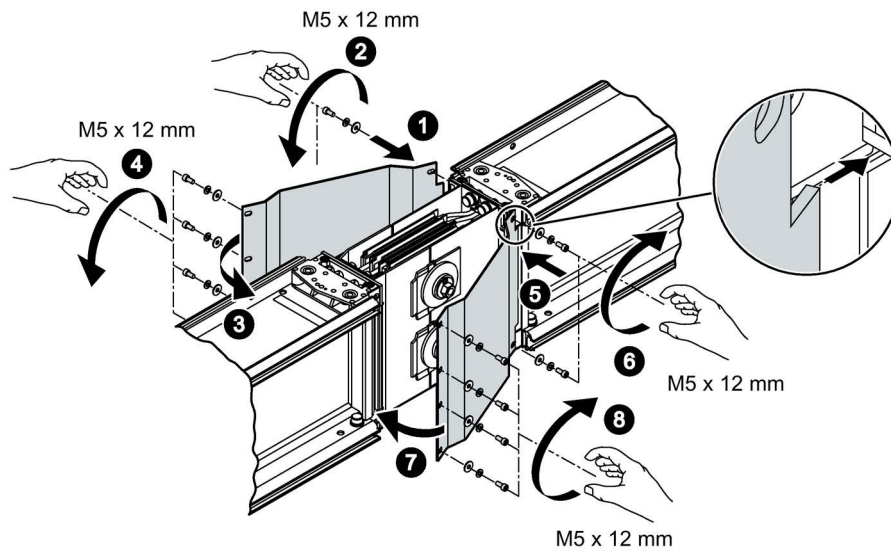
The connection can be released again with the second nut lying under it. When the trunking unit is used again, the second nut must be tightened with a torque wrench to a defined torque of 50 Nm. After the hook and bolt connection has been tightened, first the side plates and then the cover plates are fitted. **(The side plates cannot be fitted until the outer head has sheared off. This provides a second opportunity for carrying out a visual inspection of the electrical connections of the trunking unit during initial installation.)**

The junction does not compensate for the length expansion of the trunking unit. Expansion compensation must therefore be configured in accordance with the applicable configuring rules. See chapter "Expansion unit (Page 54)".

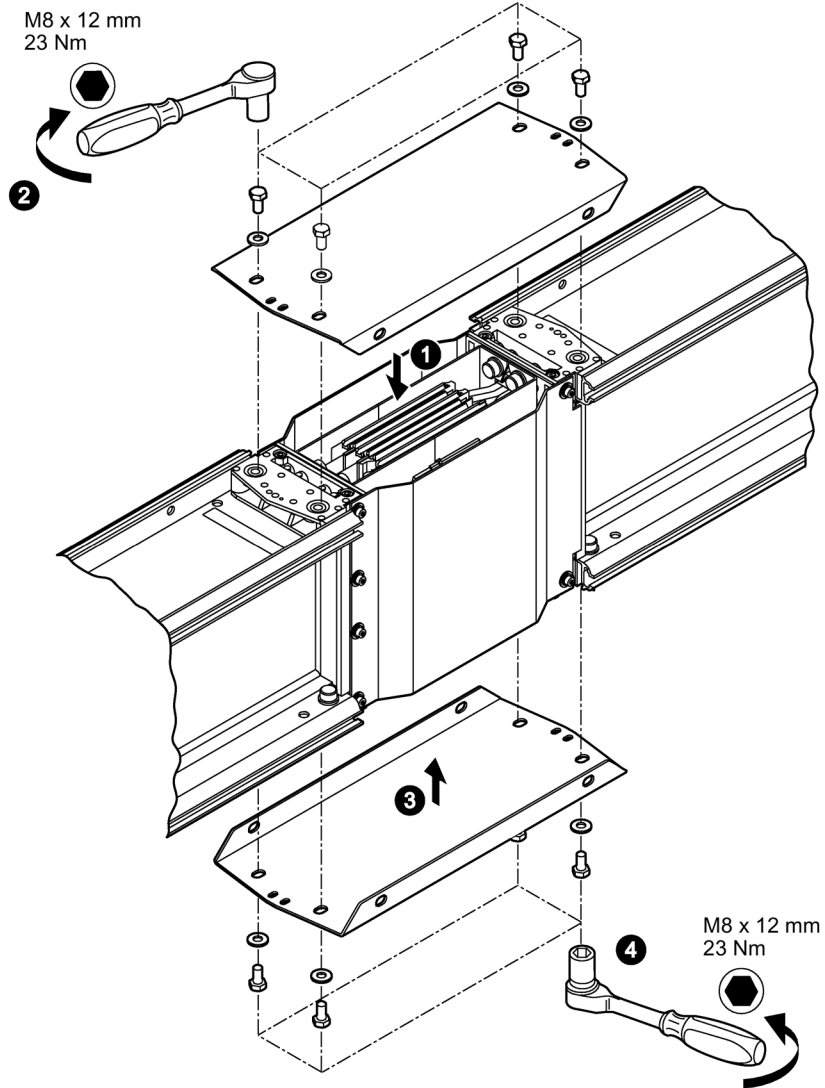


**Attaching side parts**

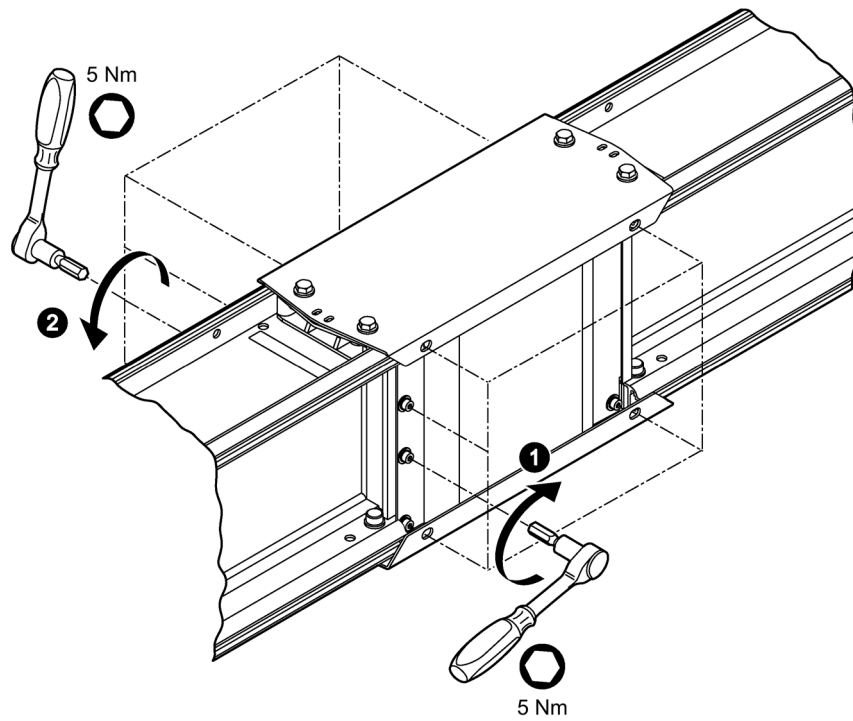
Mounting the covers completes the maintenance-free busbar connection.



Attaching the cover



**Bolting down**

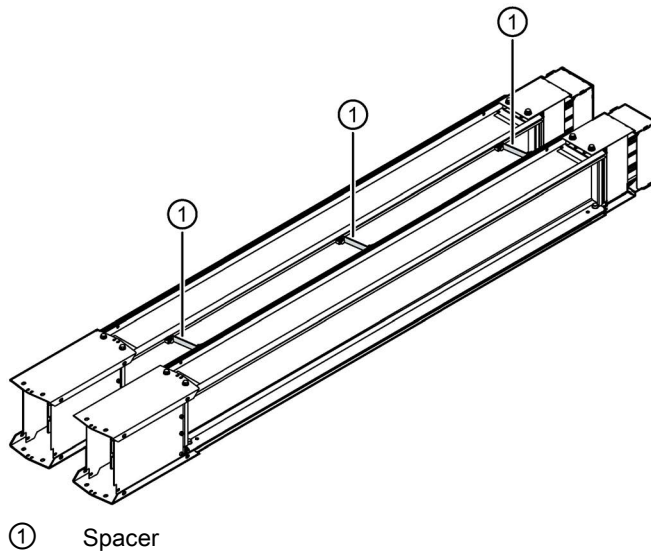


### 3.5.1.2 Double body system installation

In the case of a double body system, mounting can be made difficult by the higher weight and the larger dimensions of the busbar element.

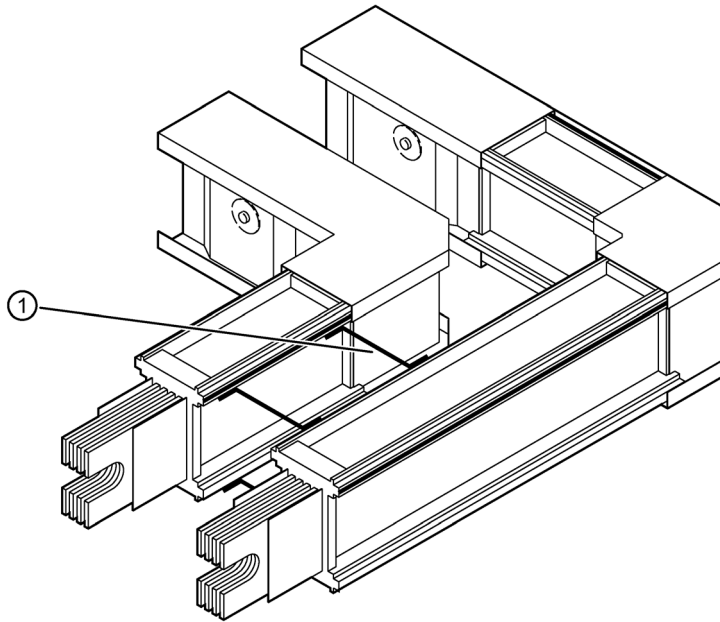
This is why you are advised to split the double body system (e.g. straight length) into two single body systems. To do this, the spacers between the two parallel-routed busbar elements must be removed.

After establishing the relevant clamping connection, the two parallel trunking units can be connected to one another again. To do this, fit the spacers to a tightening torque of approx. 20 Nm.



### Elbow and knee with fixed leg - double body system

Elbow and knee elements are detached when delivered, i.e. as two single body systems. On the nameplate, the two elements that belong together are marked as Part 1/2 and Part 2/2. The spacers are located on one of the two elements. After assembling the individual clamping connections, the two parallel trunking units are mechanically bolted to one another again with the aid of the spacers (20 Nm torque).



① Connecting with spacers (final mounting state)

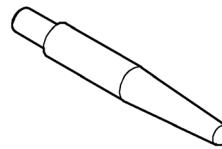
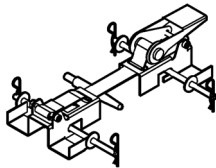
### 3.5.1.3 Mounting the custom length

To be able to insert a custom length as the last busbar element in a run segment, it is necessary to remove the bolts and the insulator tubes out of both mutually opposite clamps. Thus, it is possible to insert the custom length into the busbar run from below or above. To be able to reinsert the bolts and insulator tubes into the clamp again with easy movement, it is necessary to centre the insulating plates again. A centring mandrel is available for this purpose, which can be ordered as an accessory part along with the mounting aid.

In the case of a **double body system**, you are advised to mount the two partial systems **individually** and to then restore the connection with the spacers!

#### Mounting aid

- LI - single body system 8PS7076-0AA00-0AA1 LI-Z-SAT-SB  
(Includes **2** centring mandrels)
- LI - double body system 8PS7076-0AA00-0AA5 LI-Z-SAT-DB  
(Includes **4** centring mandrels)



Centring mandrel



## Preparing to mount the custom length

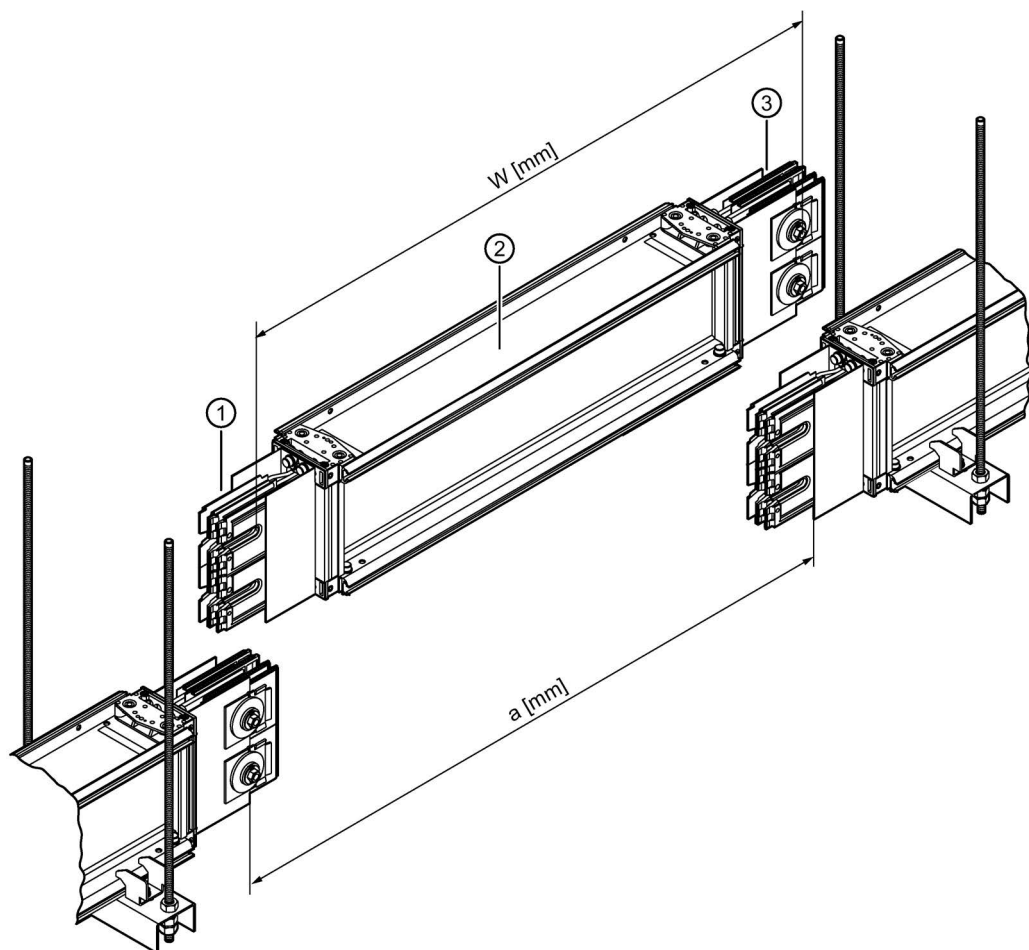
See also the installation instructions "LI Length / Accessories" (No.: 8PS7980-0AA01-5AA1.XX)

### Step 1: Checking

Before installing the custom length, make sure that the trunking units to be connected are firmly mounted and the distance  $a$  from the ordered custom length (see below) is present.

### Step 2: Removing the cover and side plates and the transport protection cap

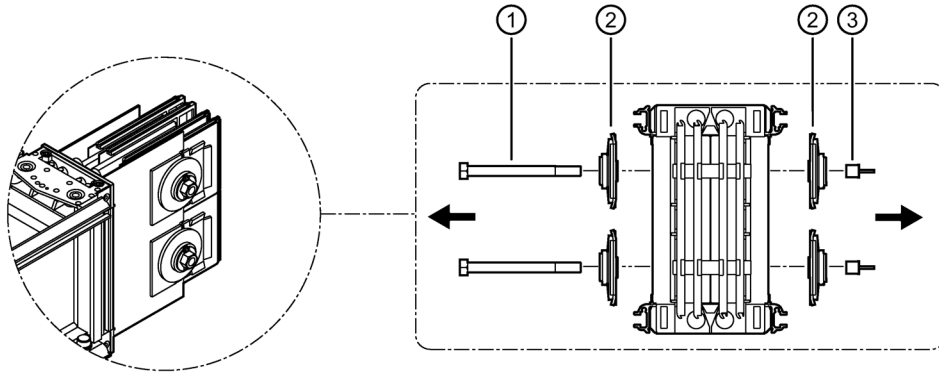
The cover and side plates and the transport protection cap on the custom length and the installed trunking units must be removed and kept in a safe place along with the fasteners (screws, etc.).



- ① Removing the transport protection cap
- ② Custom length
- ③ Removing the flange covers and side plates

**Step 3: Removing the connecting bolts and the pressure plates**

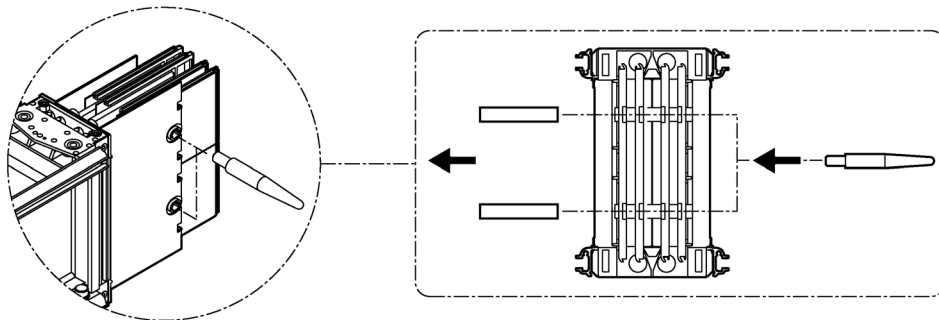
At both ends, the bolts and the pressure plates must be carefully removed by pulling out the bolts and must be kept in a safe place.



- ① Connecting bolts
- ② Pressure plates
- ③ Yellow transport lock of the connecting bolt

**Step 4: Removing all insulating sleeves from the connecting clamps**

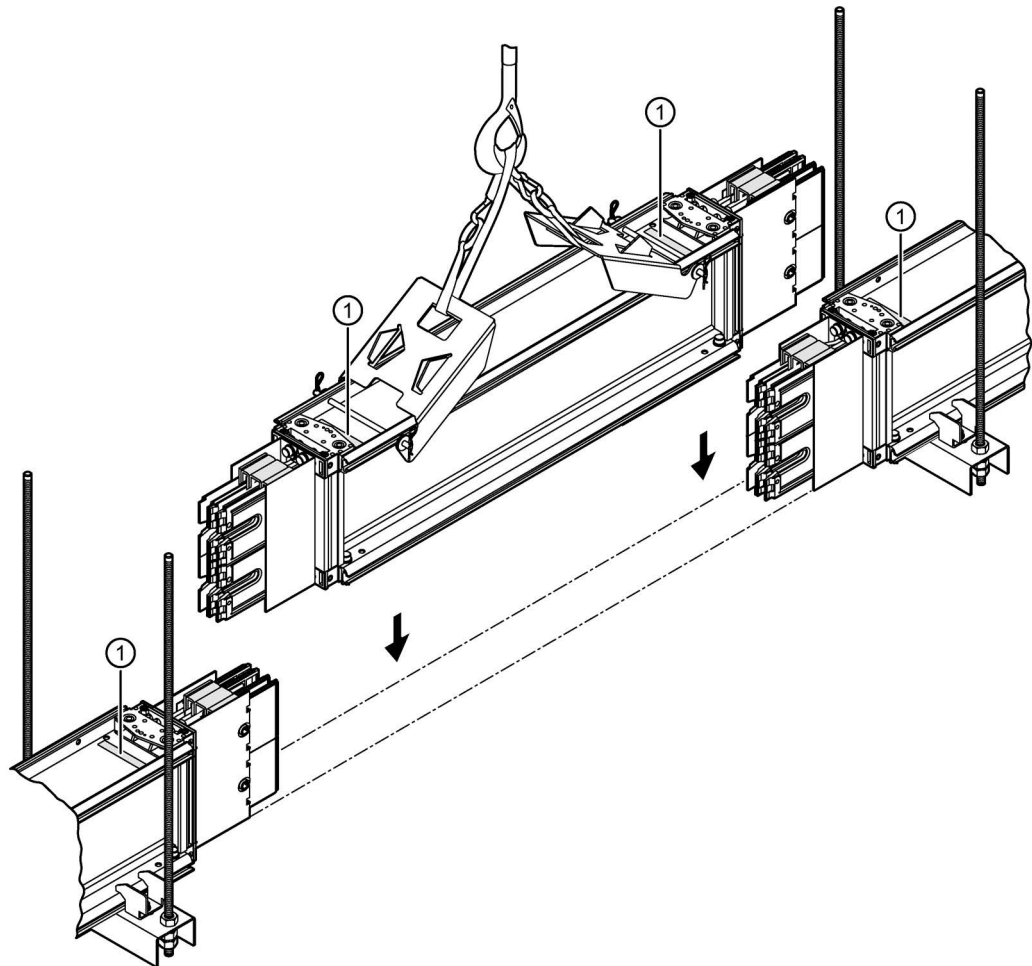
Using the centring mandrel, all insulating sleeves must be carefully pushed out of the connecting clamps of the custom length and the installed busbar element and must be kept in a safe place.



## Mounting the custom length

### Step 5: Mounting the custom length

Before mounting the custom length, check that the conductor configuration is correct. Then insert the custom length in parallel and evenly between the already installed systems.



① Attention: check conformity of the conductor configurations.

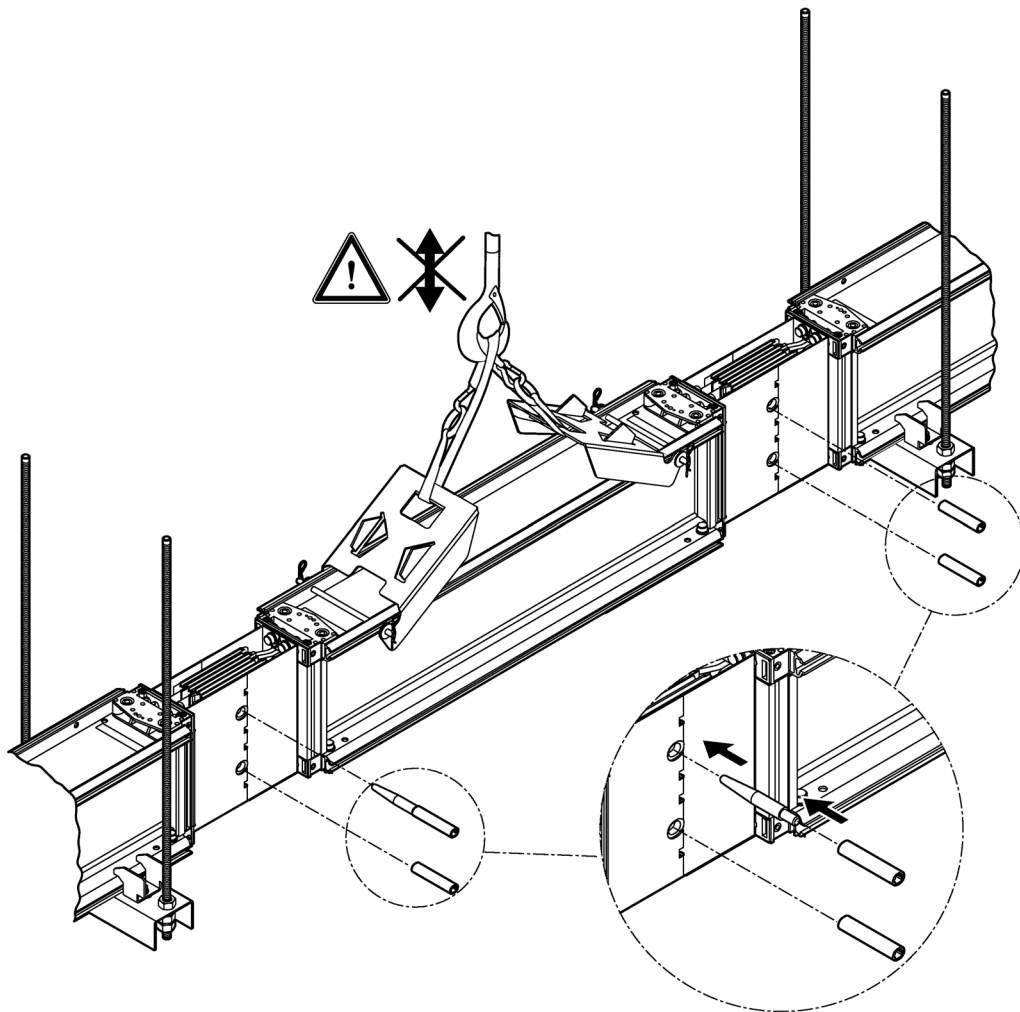
**Step 6: Inserting the insulating sleeves**

The custom length must be aligned so that the bushings for the connecting bolts are all flush.

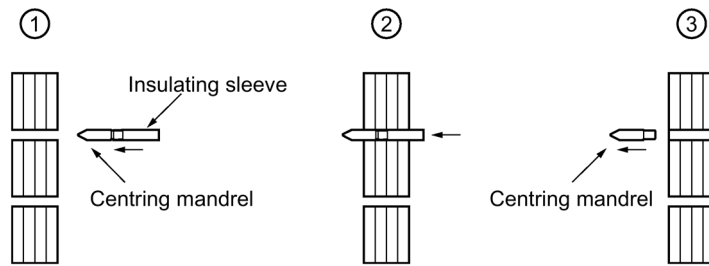
To rule out damage to the insulating sleeves, before inserting them you must make sure that the custom length and the already installed system elements can no longer move and are mutually rigid (avoid shear effects on the insulating sleeves).

Then, use the centring mandrel to insert each individual insulating sleeve through the openings.

Push in the centring mandrel. The insulating sleeve is fitted on the centring mandrel from behind (detail 1) and can thus be pushed into the right position between the insulating plates (detail 2). At the same time, the centring mandrel is removed again on the other side of the bushing (detail 3).

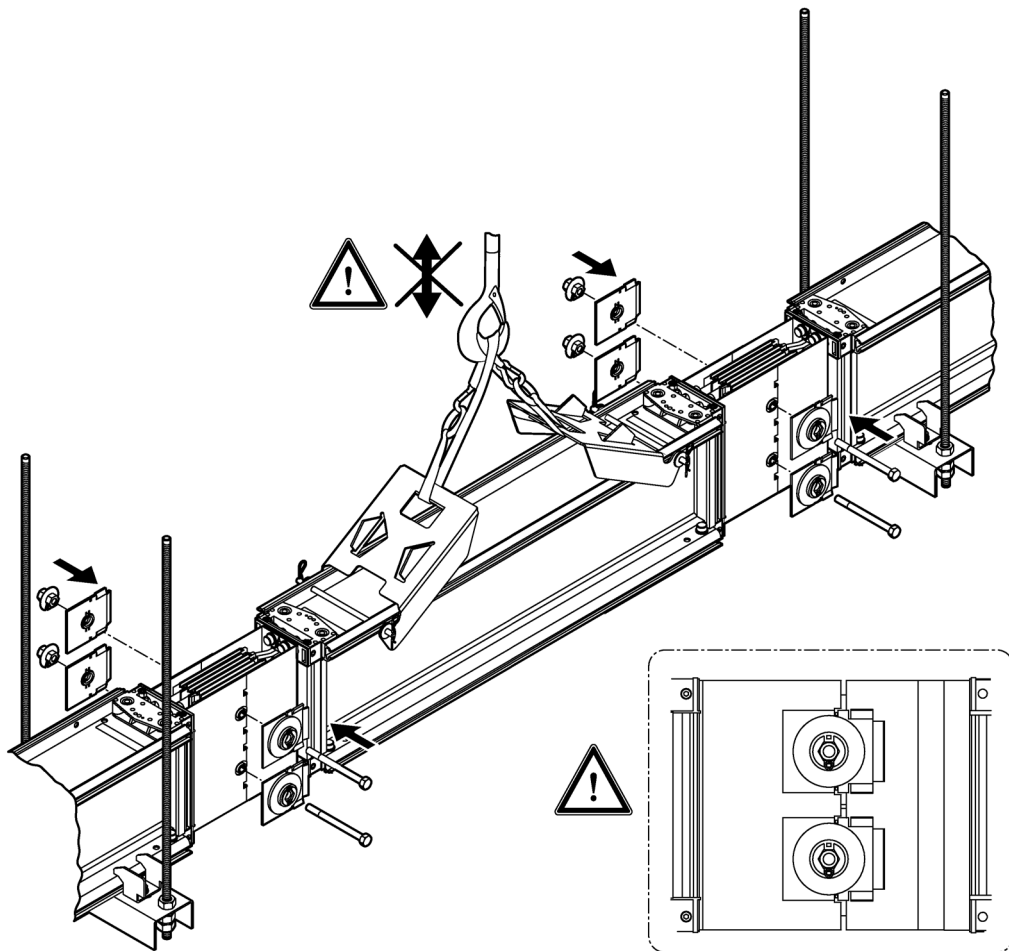


Detailed steps:



**Step 7: Mounting the pressure plates and the connecting bolts**

The pressure plates and the bolts must be mounted in the reverse order to Step 3. Pay attention to the correct position and seat of the pressure plates.



**Step 8: Tightening connecting bolts, mounting side and cover plates**

From here, proceed further as described in chapter "Standard installation procedure for single and double body systems (Page 37)".

## 3.6 Expansion unit

### Mounting the expansion unit

<b>NOTICE</b>
<b>Loss of expansion compensation of the run due to installation errors</b>
Never install fixing brackets in the expansion area.
Do not attach expansion elements to the fixing bracket, as this will result in the temperature-dependent expansion of the run not being fully compensated.
Attach one fixing bracket in front of the expansion area and one behind to ensure that the element works correctly. Two support points are provided for each expansion unit.
Do not remove the adjustment screws without having first installed the two elements adjoining the expansion unit in their final positions. For further details, refer to the installation instructions supplied with the element.

- Prior to mounting ensure that the expansion element is blocked (delivery condition).
- Fit the expansion unit in the same way as any other busbar trunking system element in the position indicated in the installation drawings. Take into account the information in "Connecting busbar elements (Page 37)" in the installation instructions.
- Place the expansion unit on two beams.
- Without releasing the expansion unit, install the following busbar trunking system element. Make the electrical connection as described in chapter "Standard installation procedure for single and double body systems (Page 37)", section "Tightening the clamp".

Fastening the bellows of the expansion unit

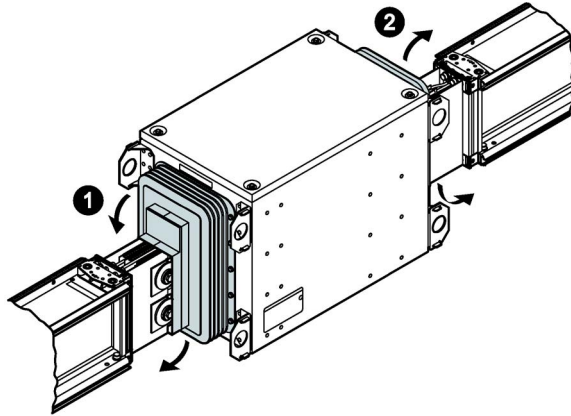


Figure 3-18 Mounting the expansion unit - Figure 1

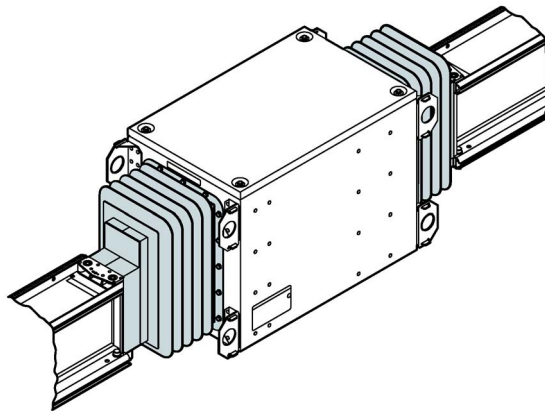


Figure 3-19 Mounting the expansion unit - Figure 2

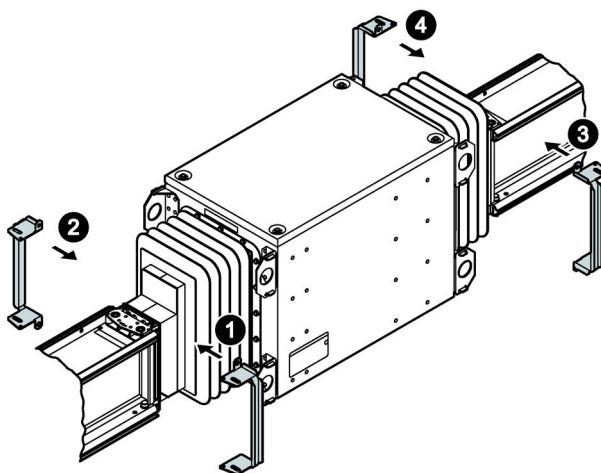


Figure 3-20 Mounting the expansion unit - Figure 3

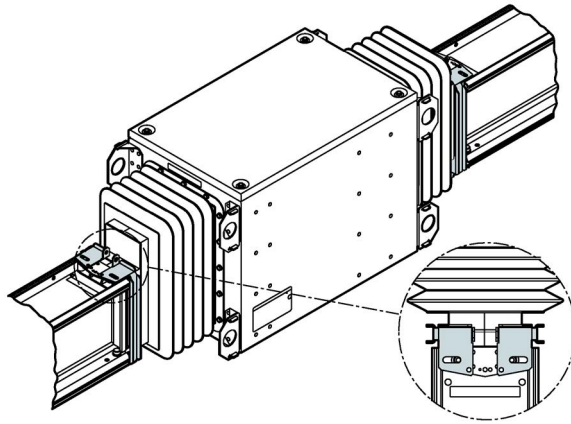


Figure 3-21 Mounting the expansion unit - Figure 4

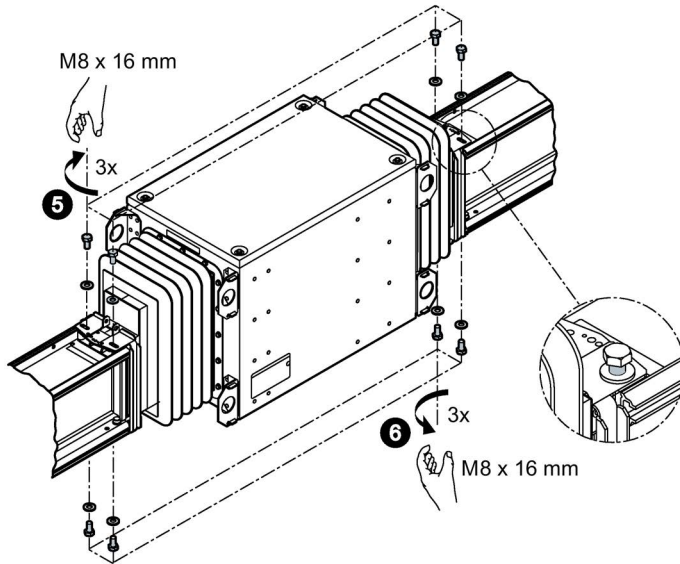


Figure 3-22 Mounting the expansion unit - Figure 5

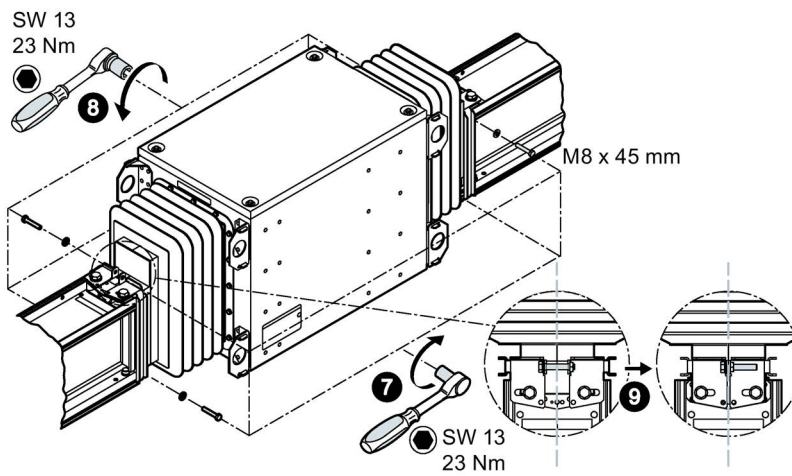


Figure 3-23 Mounting the expansion unit - Figure 6



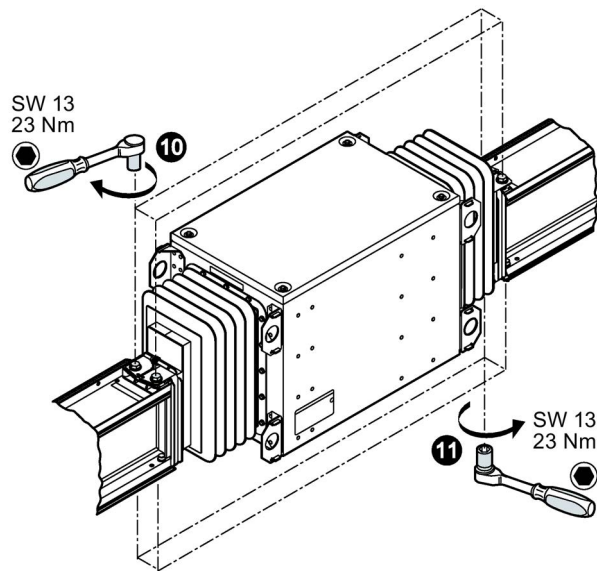


Figure 3-24 Mounting the expansion unit - Figure 7

### Mechanical release

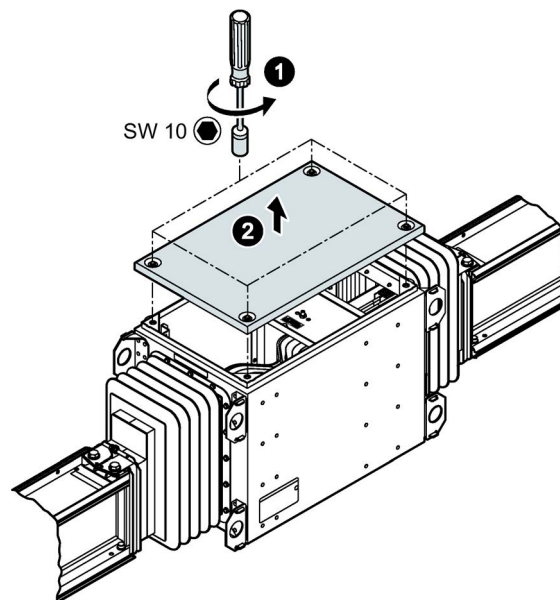


Figure 3-25 Mounting the expansion unit - Figure 8

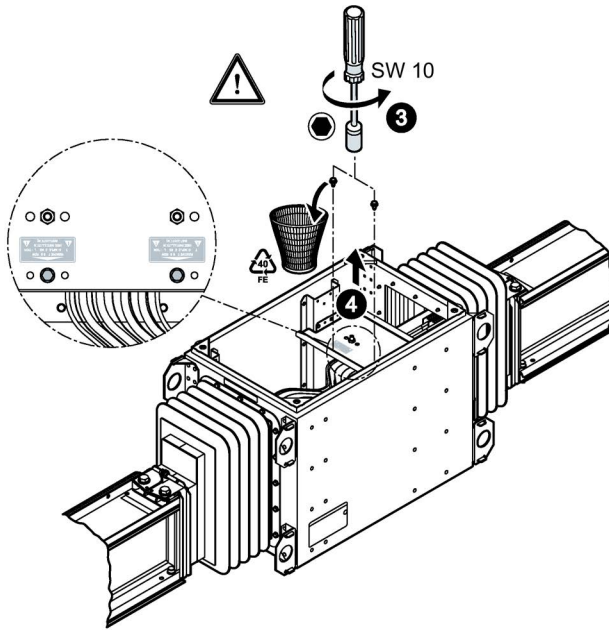


Figure 3-26 Mounting the expansion unit - Figure 9

- Remove the adjustment screws from the expansion element to enable it to move freely.

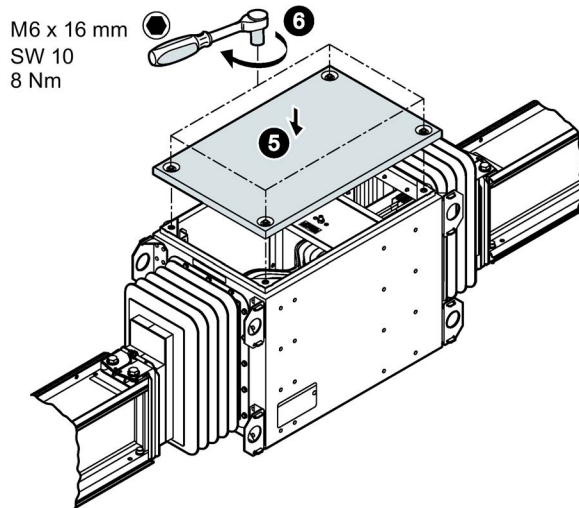


Figure 3-27 Mounting the expansion unit - Figure 10

## 3.7 Busbar connection unit for non-Siemens distribution boards

### 3.7.1 Busbar connection unit for non-Siemens distribution boards

The busbar connection unit for non-Siemens distribution boards connects the busbar trunking system to external power supplies or outputs, both mechanically and electrically. These external power supplies are usually distribution boards for low-voltage main distribution systems.

Once the equipment has been received from the factory, the procedure below must be strictly adhered to prior to installation:

1. Storage in accordance with section "Storage".
2. Transport and handling leading up to installation in the distribution board in accordance with section "Transport and handling at the installation location".
3. Installation in accordance with "Installation (Page 61)".

#### Storage prior to installation

Take note of the following when storing the busbar connection unit for non-Siemens distribution boards:

- Store the connection unit in its original packaging, and use site transportation equipment, e.g. pallet, fixing devices.
- Do not subject the busbar connection unit for non-Siemens distribution boards to any additional mechanical loads.

#### Transport and handling at the installation location

- Only use appropriate transportation equipment. Do not remove the protective transportation devices at any time during transport.
- Attach lifting aids such as fabric ropes and straps to the places provided on the busbar connection unit for non-Siemens distribution boards.
- The LI...FA busbar connection unit for non-Siemens distribution boards must be in a vertical position whilst it is being lifted. Note the details in the following illustration.

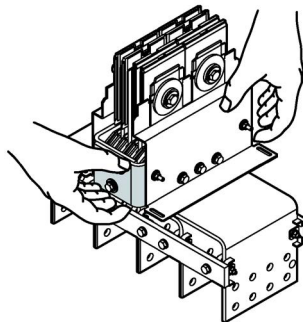


Figure 3-28 LI-.....-00-FA.: Lifting the LI busbar connection unit for non-Siemens distribution boards

Type	Max. kg / m		Type	Max. kg / m
LI-A.0800...-L...	15		LI-C.1000...-L...	27
LI-A.1000...-L...	17		LI-C.1250...-L...	31
LI-A.1250...-L...	19		LI-C.1600...-L...	40
LI-A.1600...-L...	24		LI-C.2000...-L...	54
LI-A.2000...-L...	30		LI-C.2500...-L...	69
LI-A.2500...-L...	39		LI-C.3200...-L...	96
LI-A.3200...-L...	47		LI-C.4000...-L...	106
LI-A.4000...-L...	59		LI-C.5000...-L...	137
LI-A.5000...-L...	76		LI-C.6300...-L...	191

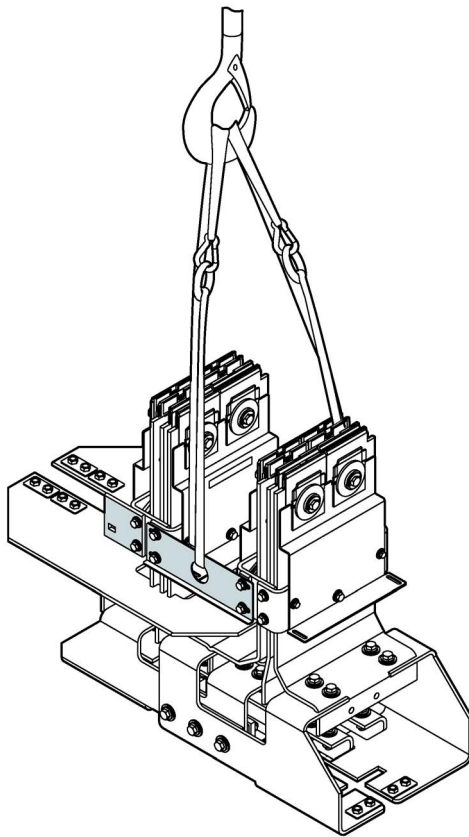


Figure 3-29 LI-.....-00-FA1..., LI-.....-00-FA2...: Transporting the busbar connection unit for non-Siemens distribution boards

## **3.7.2 Installation**

### **Preparing the distribution board for the busbar connection unit for non-Siemens distribution boards**

1. Align the distribution board mounting surface so that it is flat.
2. Make the cut-outs in accordance with the installation instructions 8PS7980-0AA13-8AA2.
3. Reinforce the distribution board mounting surface according to the weight of the connection unit.
4. It is essential that you provide brackets in the distribution board for mechanical fixing of the busbar connection unit for non-Siemens distribution boards. You must mechanically uncouple the connection unit's own weight from the electrical connection (copper-plating).
5. It is essential that you provide the electrical connection lugs for the electrical connection. Take into account the connection dimensions and cross-section specifications for the busbar connection unit for non-Siemens distribution boards, as well as the distribution board manufacturer's specifications.

### Installation in the distribution board

Following storage and transport to the installation location, you must first mechanically secure the connection unit in the distribution board. After that, you electrically connect the connection unit to the busbars or the circuit breaker.

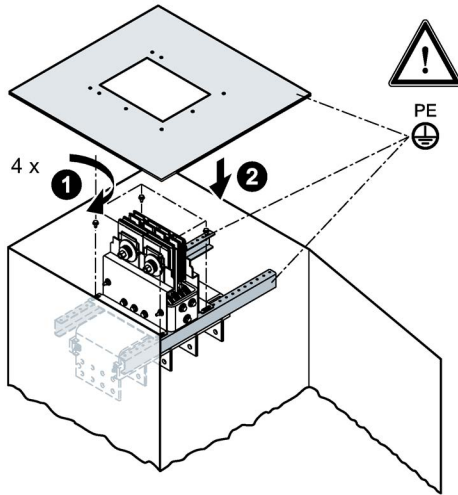


Figure 3-30 Single body system LI-.....-00-FA: Installation in distribution board

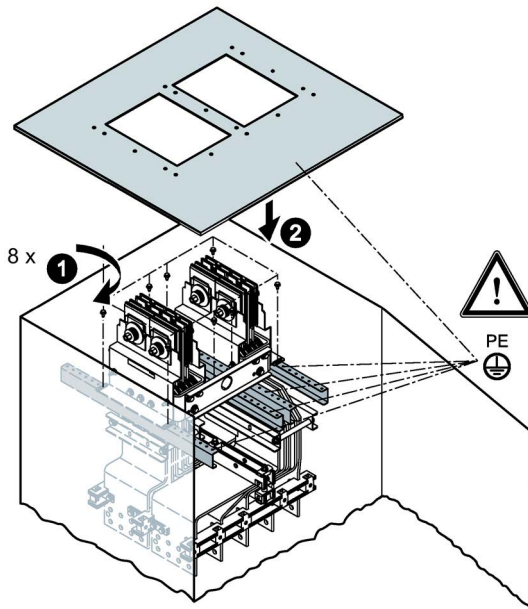
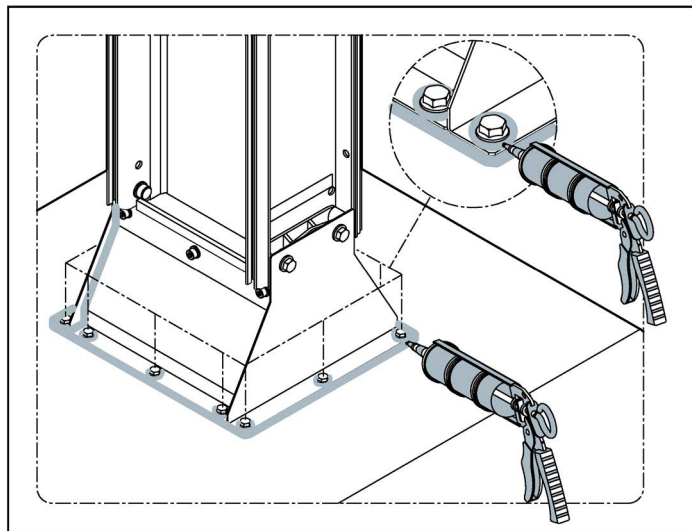
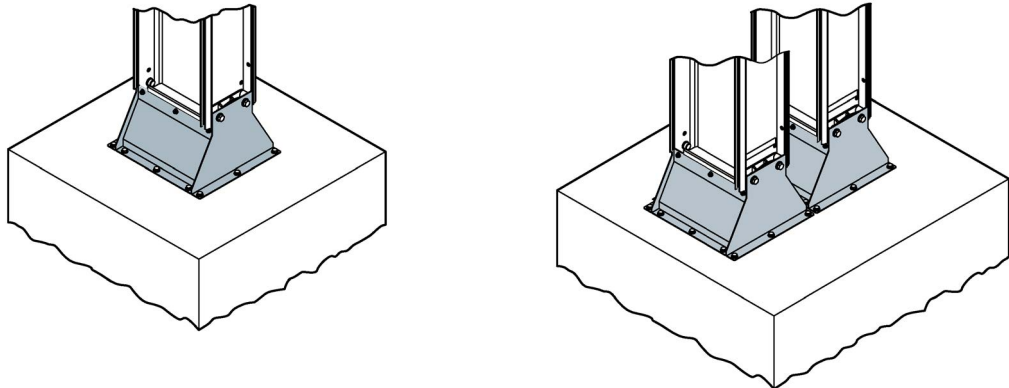


Figure 3-31 Double body system LI-.....-00-FA1..., LI-.....-00-FA2...: Installation in distribution board

## Mechanical fixing

1. You must mechanically secure the power cables of the LI...-FA in the distribution board. The LI...-FA busbars must not be subjected to any additional forces.
2. Attach the busbar connection enclosure to the distribution board enclosure. Observe the distribution board specifications relating to degree of protection. It may also be necessary to use sealant according to the scope of delivery for IP55 covers in order to achieve degrees of protection higher than IP55.



Electrical connection

**NOTICE**

**Failure to observe the specified minimum cross-sections can result in short circuits**

You must comply with the required minimum cross-sections for the busbar connection unit for non-Siemens distribution boards, otherwise the maximum permissible limit temperature of 130 °C cannot be guaranteed.

The design of the electrical connection determines the short-circuit strength.

The designer is responsible for the temperature and short-circuit strength of the electrical connection. The designer is usually the distribution board manufacturer or constructor.

1. Remove the protective transportation devices.
2. The electrical connection is made in accordance with the busbar connection unit for non-Siemens distribution boards specifications (minimum cross-sections in accordance with the installation instructions) and the information provided by the distribution board manufacturer. Dimension the connecting material in accordance with these specifications.
3. Holes are provided in the busbar connection unit for non-Siemens distribution boards to allow the connection of conductor lugs. For dimension information, refer to the installation instructions for the busbar connection unit for non-Siemens distribution boards.

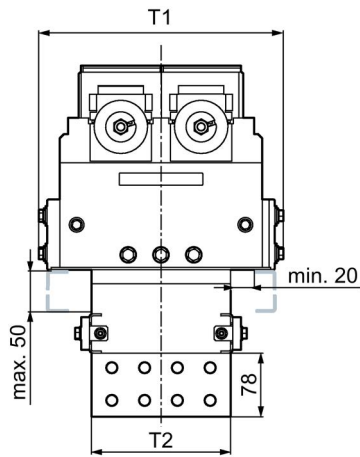


Figure 3-32 Single body system: Busbar connection unit for non-Siemens distribution boards



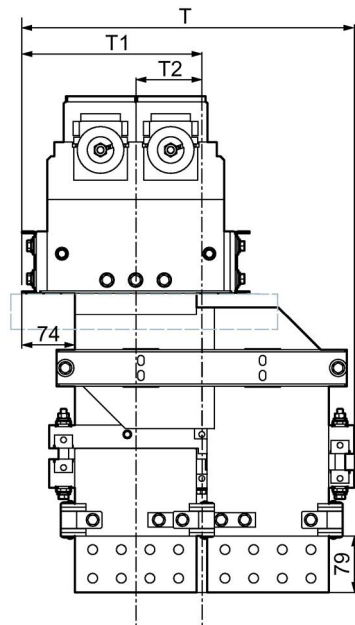


Figure 3-33 Double body system: Busbar connection unit for non-Siemens distribution boards

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**Note**

Depending on the system, connection units for non-Siemens distribution boards weigh between 15 kg and 191 kg.

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## 3.8 Transformer connection (types TCE, TCET)

### 3.8.1 Transformer connection unit

The transformer connection unit connects the busbar trunking system mechanically and electrically to the low-voltage terminals of transformers. The mechanical connection is only possible with encapsulated transformers on the transformer enclosure via the LI-FLP adapter flange.

However, you can also connect the transformer connection unit to other external power sources, such as distribution cabinets for low-voltage main distribution systems or generators.

#### Storage prior to installation

Take note of the following when storing the transformer connection unit:

- Store the connection unit in its original packaging, and use site transportation equipment, e.g. pallet, fixing devices.
- Do not subject the transformer connection unit to any additional mechanical loads.

#### Transport on-site

<b>NOTICE</b>
<b>The use of abrasive or metal slings and/or suspension of the elements by their conductors can cause serious damage.</b>
Never use abrasive or metal slings under any circumstances.
Never suspend the elements by their conductors.
Use fabric slings to suspend the elements.

- Only use appropriate transportation equipment.
- Attach lifting aids, e.g. fabric ropes and straps, to the complete transformer connection unit.

- Use fabric slings to suspend the busbar trunking system elements. Attach the sling as shown in the illustration below.
- We recommend the use of transport accessories to attach the slings and hoist the transformer connection unit. The transport accessories are not included in the scope of delivery and must be ordered separately. Please get in touch with your SIEMENS contact for further information.

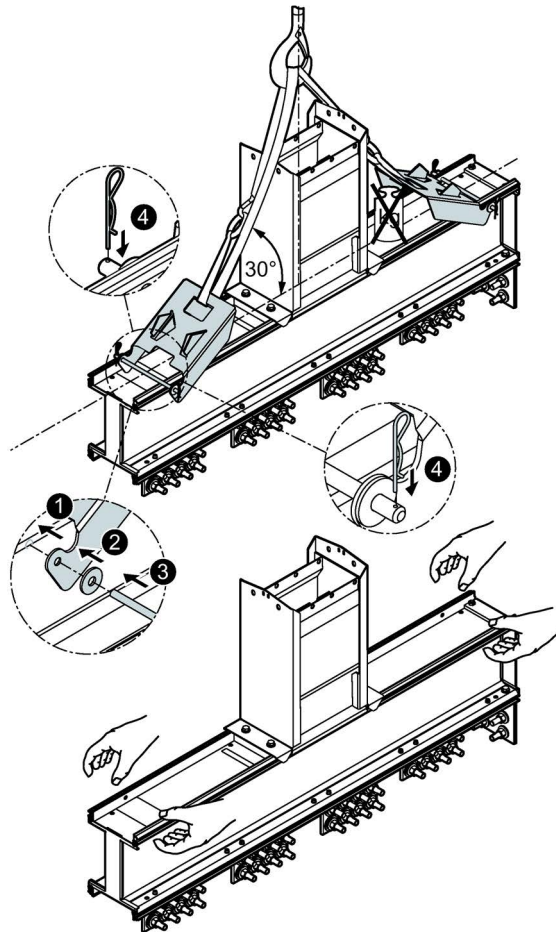


Figure 3-34 Transformer connection units

Type	Max. kg / m		Type	Max. kg / m
LI-A.0800...-L...	21		LI-C.1000...-L...	35
LI-A.1000...-L...	24		LI-C.1250...-L...	39
LI-A.1250...-L...	27		LI-C.1600...-L...	51
LI-A.1600...-L...	31		LI-C.2000...-L...	64
LI-A.2000...-L...	39		LI-C.2500...-L...	81
LI-A.2500...-L...	47		LI-C.3200...-L...	108
LI-A.3200...-L...	65		LI-C.4000...-L...	140
LI-A.4000...-L...	81		LI-C.5000...-L...	173
LI-A.5000...-L...	99		LI-C.6300...-L...	229

### 3.8.2 Positioning the transformer connection unit above the transformer

- Always position the connection tags of the transformer connection unit in the centre above the connection tags of the transformer. If necessary, move the transformer for this purpose.
- Ensure that the distance between the connection tags of the transformer connection unit and those of the transformer does not exceed 200 mm.
- Use only appropriate flexible connecting material (such as flexible copper strips provided by the customer) to establish the electrical connection.

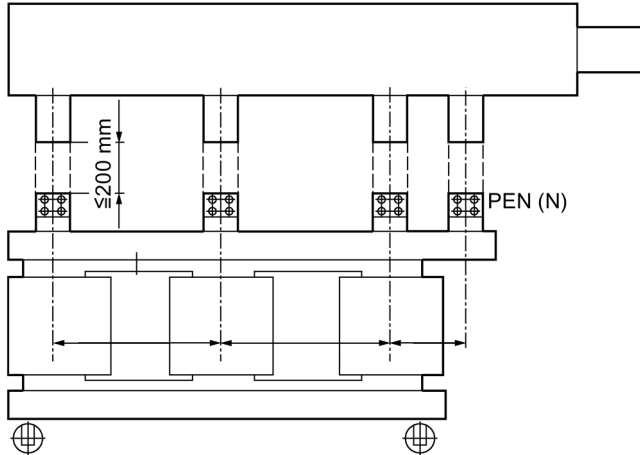


Figure 3-35 Positioning the transformer connection unit

### 3.8.3 Mounting the transformer connection unit at the installation location

You can find a description in chapter "Bracket for transformer connection units (Page 36)".

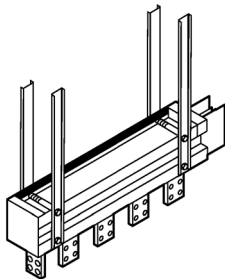


Figure 3-36 Mounting transformer connection unit

## 3.9 Fire barrier

### 3.9.1 Fire barrier regulations

If the busbar run passes through a fire wall or ceiling, you must provide the run with a fire barrier. The fire barrier is supplied separately. It is fitted to the busbar element on site.

It is not permissible to mount the fire barrier via the junction.

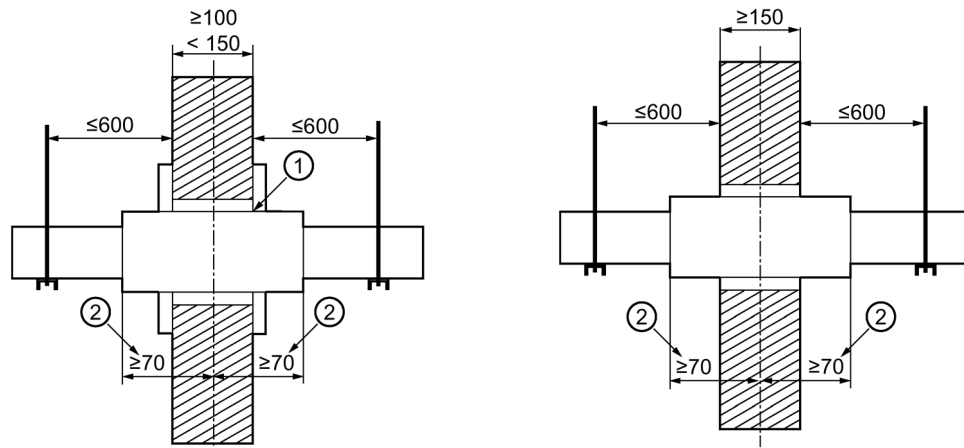
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#### Note

It may be necessary to attach additional fire protection notices directly at the installation site depending on national country-specific regulations.

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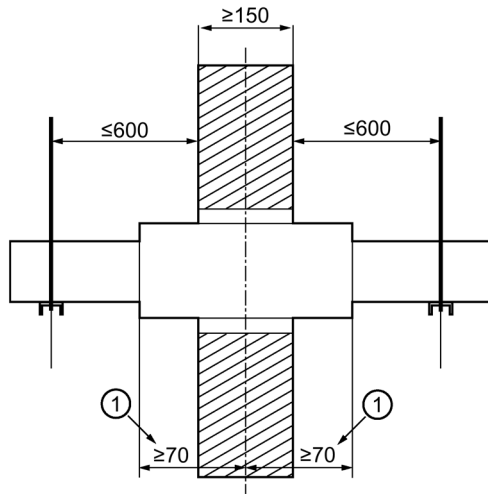
The conditions for installing the fire barrier are as follows (see illustrations):



Installation version 1: EI90

Installation version 2: EI90 / EI120

- ① Cladding on both sides can be dispensed with in the case of installation in solid walls with wall thicknesses > 140 mm.
- ② In the case of installation off-centre with respect to the solid wall, the outer edge of the fire barrier block must be at least 70 mm away from the wall's centre.



Installation version 3: LI-C...-EI 120

- ① In the case of installation off-centre with respect to the solid wall, the outer edge of the fire barrier block must be at least 70 mm away from the wall's centre.

### 3.9.2 Installing the fire barrier

For a detailed description of how to install the fire barrier, refer to installation instructions 8PS7980-0AA01-5AA6.

### 3.9.3 Installation in accordance with building authority approval for the German market

The construction authority technical approval Z-19.5-2209 issued by the DIBt (Deutsches Institut für Bautechnik (German Institute for Structural Engineering)) is valid for the German market and specifies a detailed procedure for the following installation work:

- Partitioning of the LI busbar system of fire resistance classes S60 and S90 in a lightweight partition wall  $\geq 100$  mm

System	L <sub>tot</sub>	L1 / L2	Number of layers from fire barrier block to system 2
LI-A...	$\geq 700$	$\geq 100$	At least 1 layer
LI-C...	$\geq 800$	$\geq 100$	At least 2 layers

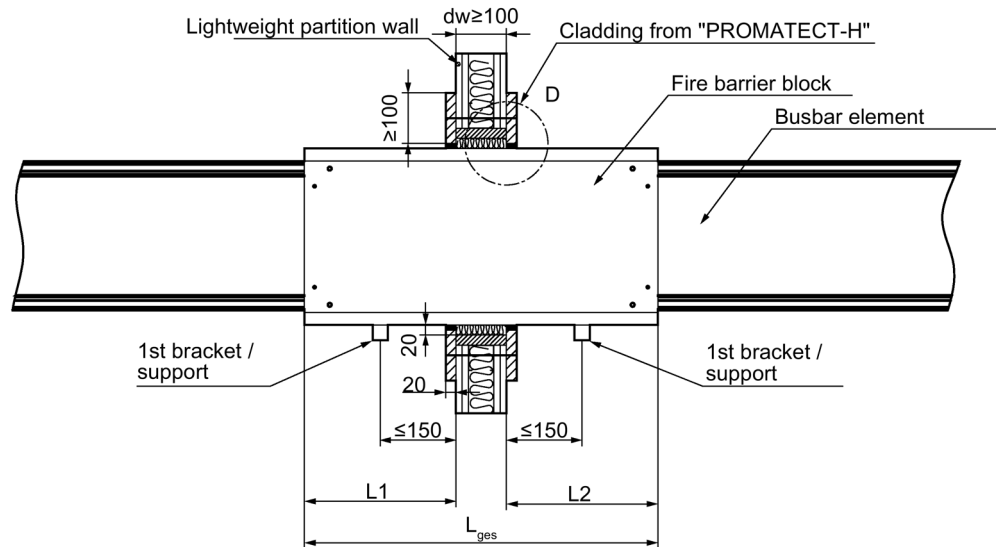
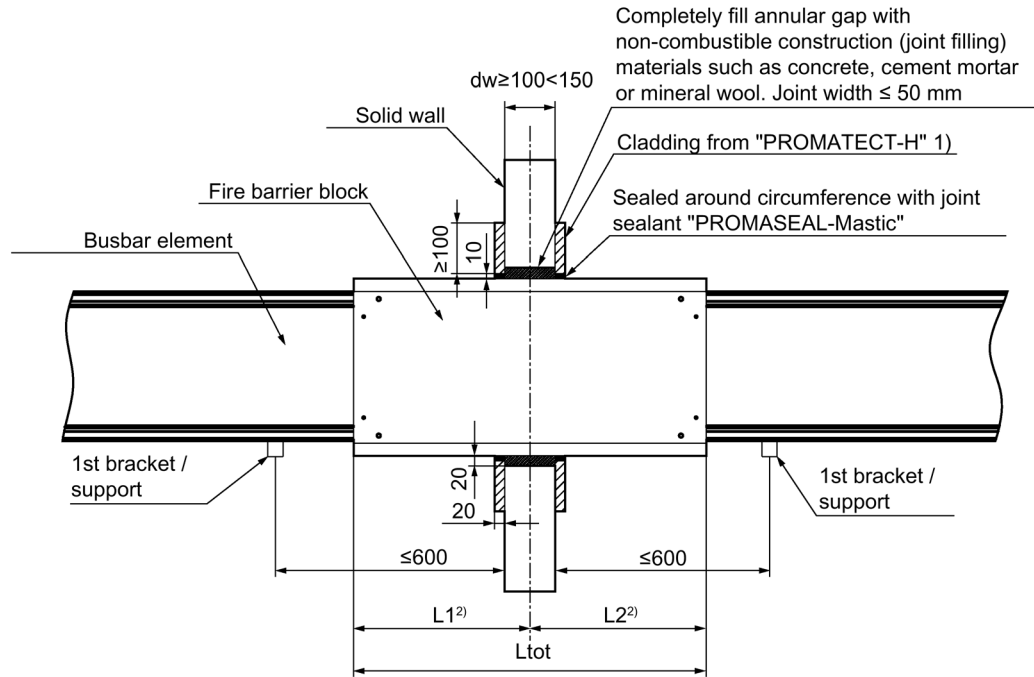


Figure 3-37 Partitioning of the LI busbar system in a lightweight partition wall

- Partitioning of the LI busbar system of fire resistance classes S60 and S90 in a lightweight partition wall  $\geq 100 \text{ mm} < 150 \text{ mm}$

System	Ltot	L1 / L2	Number of layers from fire barrier block to system 2
LI-A...	$\geq 700$	$\geq 70$	At least 1 layer
LI-C...	$\geq 800$	$\geq 70$	At least 2 layers



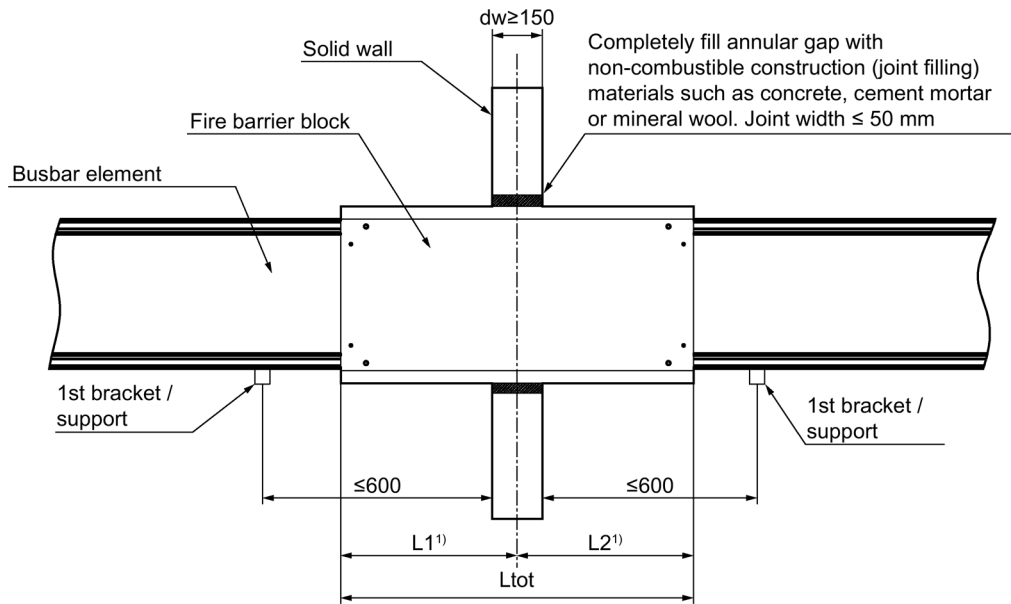
- 1) Cladding on both sides can be dispensed with in the case of installation in solid walls with wall thicknesses  $> 140 \text{ mm}$ .
- 2) In the case of installation off-centre with respect to the solid wall, the outer edge of the fire barrier block must be at least  $70 \text{ mm}$  away from the wall's centre.

Figure 3-38 Partitioning of the LI busbar system in a solid wall



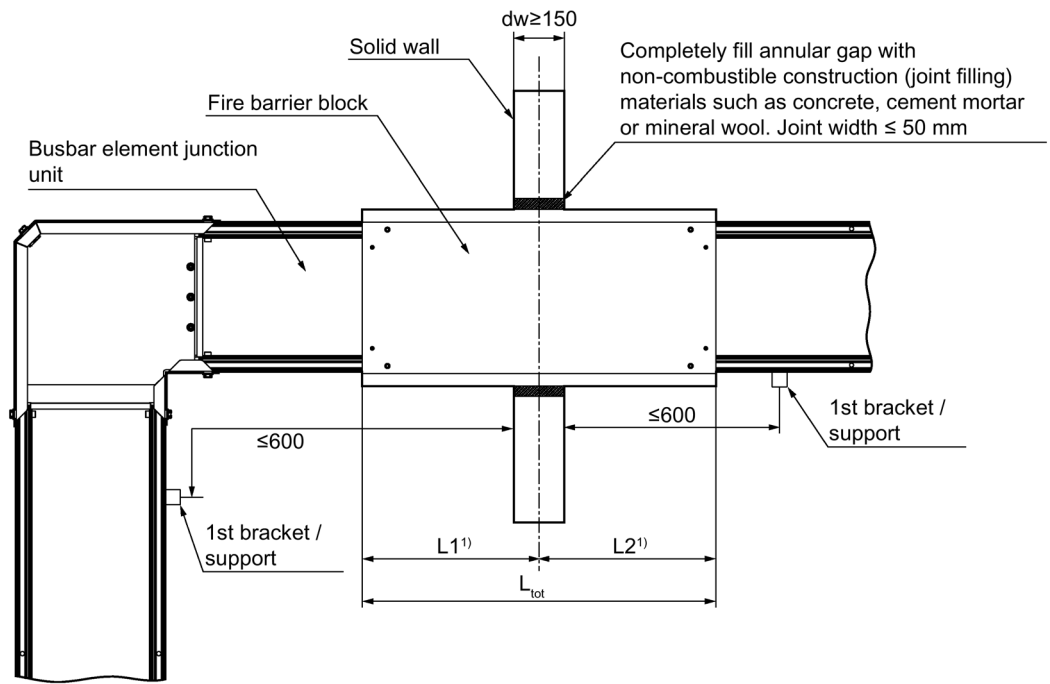
- Partitioning of the LI busbar system of fire resistance classes S60, S90 and S120 in a solid wall  $\geq 150$  mm

FWKL	System	L <sub>tot</sub>	L1 / L2	Number of layers from fire barrier block to system 2
$\leq$ S90	LI-A...	$\geq 700$	$\geq 70$	At least 1 layer
	LI-C...	$\geq 750$	$\geq 70$	At least 2 layers
$\leq$ S120	LI-A...	$\geq 700$	$\geq 70$	At least 2 layers
	LI-C...	$\geq 900$	$\geq 70$	At least 2 layers



- 1) In the case of installation off-centre with respect to the solid wall, the outer edge of the fire barrier block must be at least 70 mm away from the wall's centre.

Figure 3-39 Partitioning of the LI busbar system in a solid wall - Figure 1



- 1) In the case of installation off-centre with respect to the solid wall, the outer edge of the fire barrier block must be at least 70 mm away from the wall's centre.

Figure 3-40 Partitioning of the LI busbar system in a solid wall - Figure 2

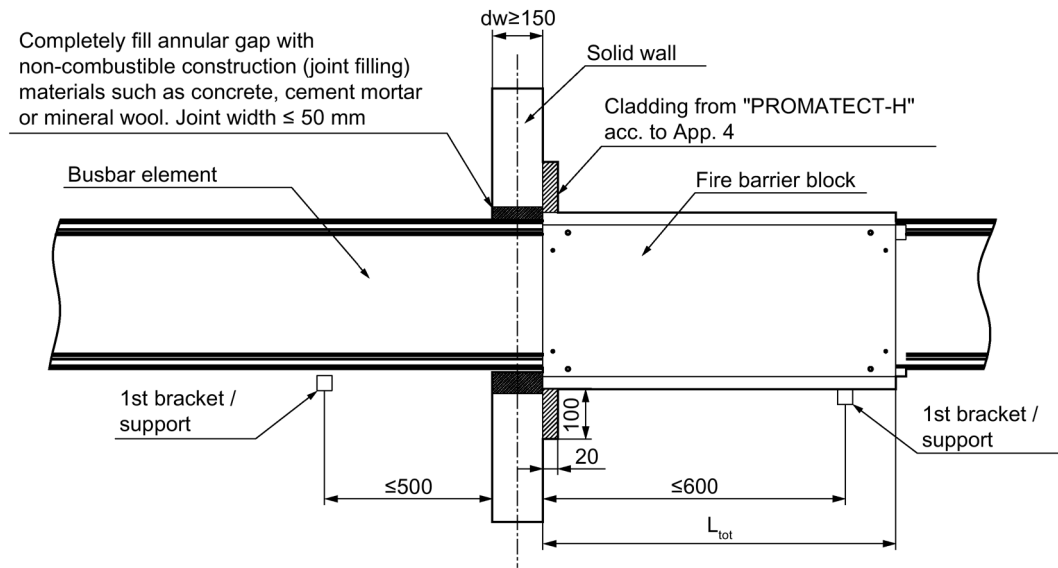


Figure 3-41 Partitioning of the LI busbar system in a solid wall - Figure 3

FWKL	System	L <sub>tot</sub>	L <sub>1</sub> / L <sub>2</sub>	Number of layers from fire barrier collar to system
≤S90	LI-A...	≥300	300	At least 1 layer
	LI-C...	≥350	350	At least 2 layers
≤S120	LI-A...	≥275	≥275	At least 2 layers
	LI-C...	≥400	400	At least 2 layers

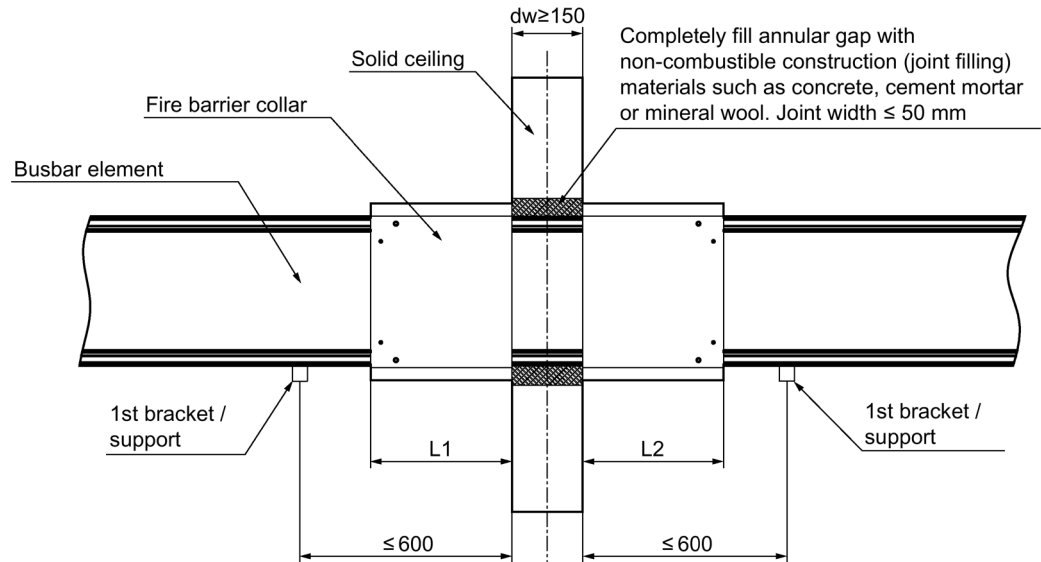
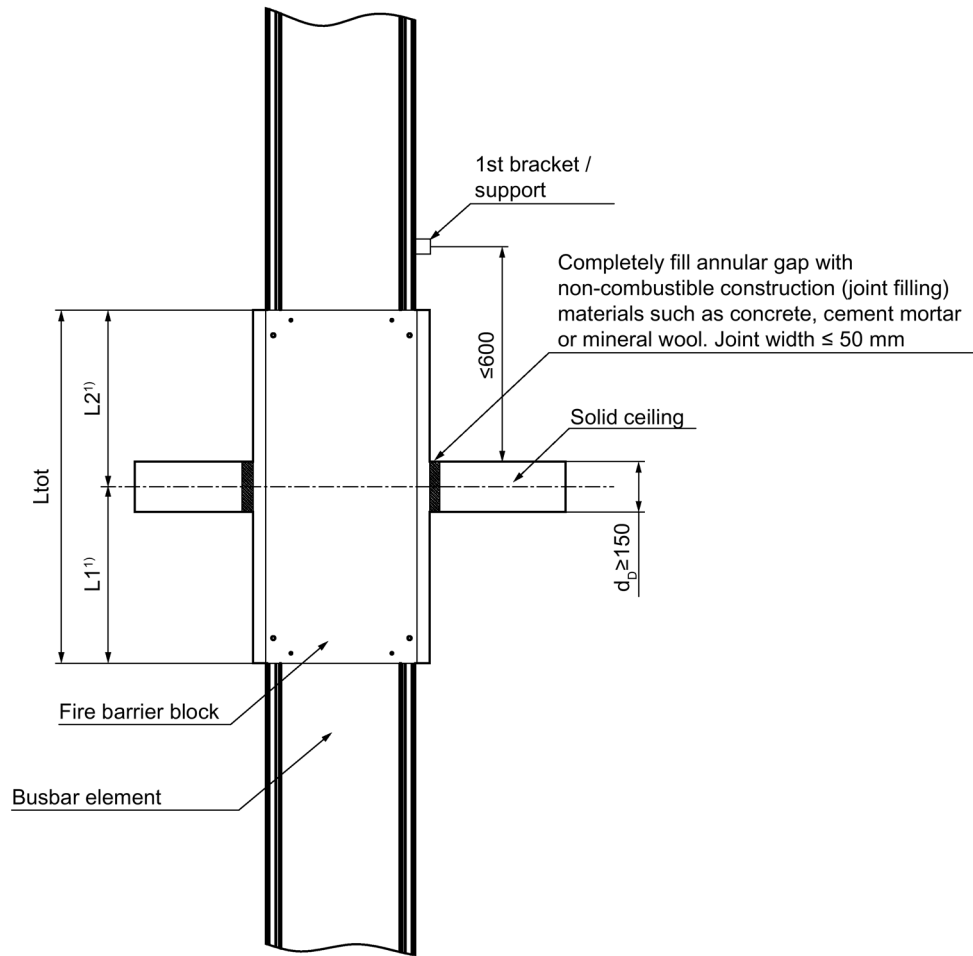


Figure 3-42 Partitioning of the LI busbar system in a solid wall - Figure 4

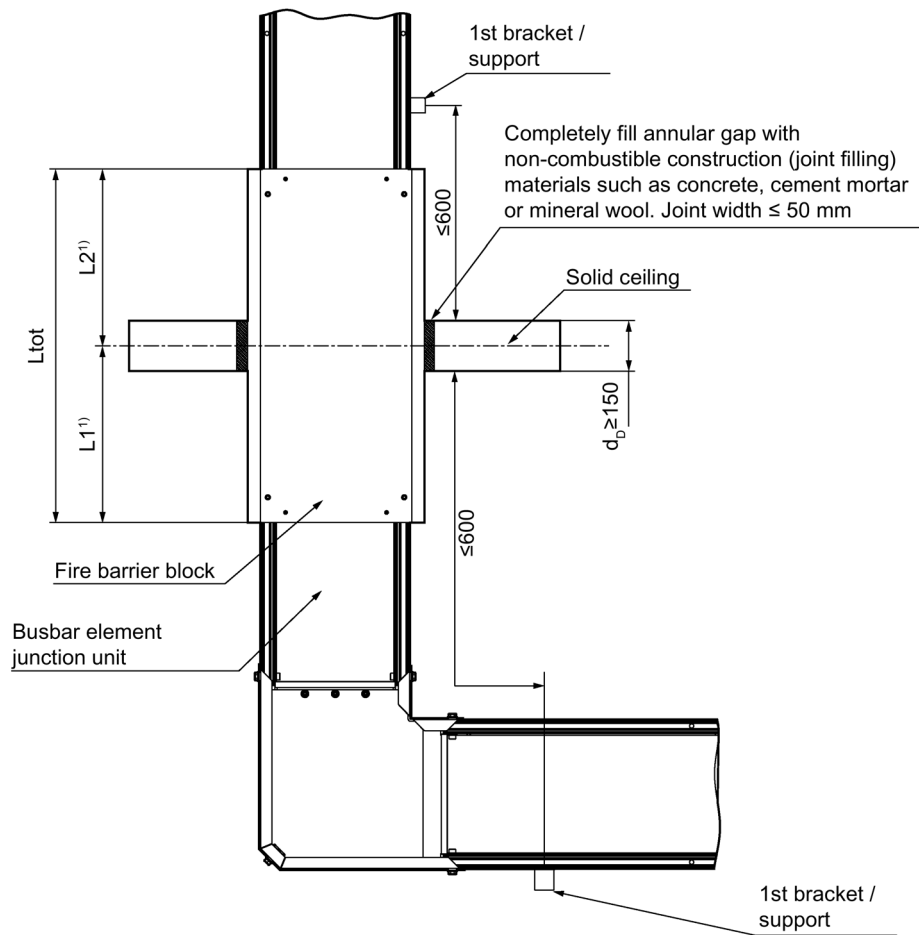
- Partitioning of the LI busbar system of fire resistance classes S60, S90 and S120 in a solid ceiling  $\geq 150$  mm

FWKL	System	Ltot	L1 / L2	Number of layers from fire barrier block to system 2
$\leq$ S90	LI-A...	$\geq$ 700	$\geq$ 70	At least 1 layer
	LI-C...	$\geq$ 800	$\geq$ 70	At least 2 layers
$\leq$ S120	LI-A...	$\geq$ 700	$\geq$ 70	At least 2 layers
	LI-C...	$\geq$ 900	$\geq$ 70	At least 2 layers



- 1) In the case of installation off-centre with respect to the solid ceiling, the outer edge of the fire barrier block must be at least 70 mm away from the centre of the ceiling.

Figure 3-43 Partitioning of the LI busbar system in a solid ceiling, Figure 1



- 1) In the case of installation off-centre with respect to the solid ceiling, the outer edge of the fire barrier block must be at least 70 mm away from the centre of the ceiling.

Figure 3-44 Partitioning of the LI busbar system in a solid ceiling, Figure 2

## 3.10 Replacing the insulating plates

### Note

Replacement of insulating plates recommended for connection of smaller LI system sizes to SIVACON S8 1 600 A connections of type F8PQ

We recommend the replacement of insulating plates when smaller sizes of the LI system (800 A, 1 000 A or 1 250 A) are connected to SIVACON S8 1 600 A connections of type F8PQ. In this case, replace the insulating plates of the incoming LI system before you connect the system (straight length, knee, angle, etc.) to a SIVACON switchboard connection unit.

### Preparation

Prepare the trunking unit component as described in step 2 of the installation instructions "8PS7980-0AA01-5AA1 LI Length / Accessories".

### Dismantling insulating plates

#### Step 1:

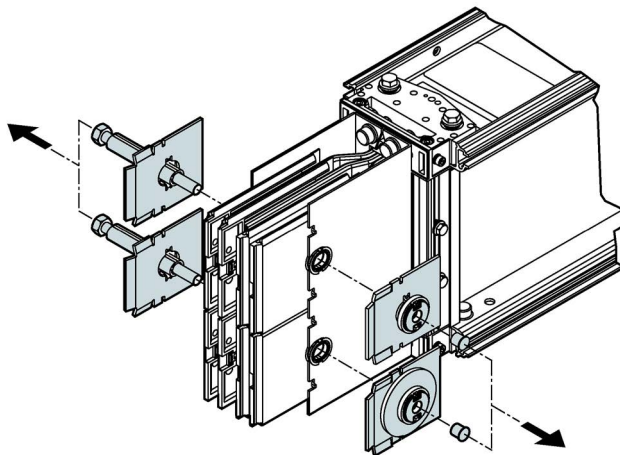


Figure 3-45 Replacing insulating plates - Figure 1

- Remove the M10 bolts and the pressure plates.
- Pull out the plastic insulating sleeve.

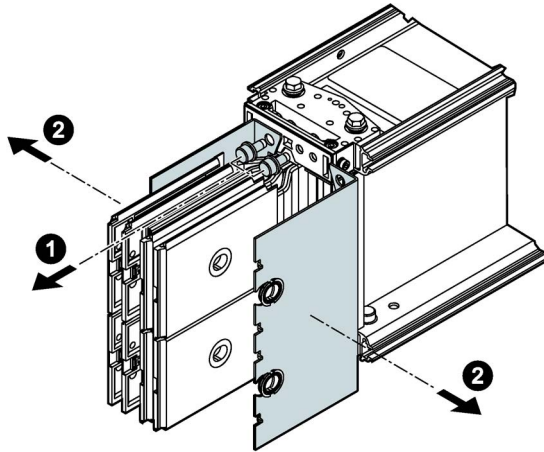
**Step 2:**

Figure 3-46 Replacing insulating plates - Figure 2

1. Use an Allen key to remove the 4 cylinder head screws.
2. Remove the earthing plates at the sides.

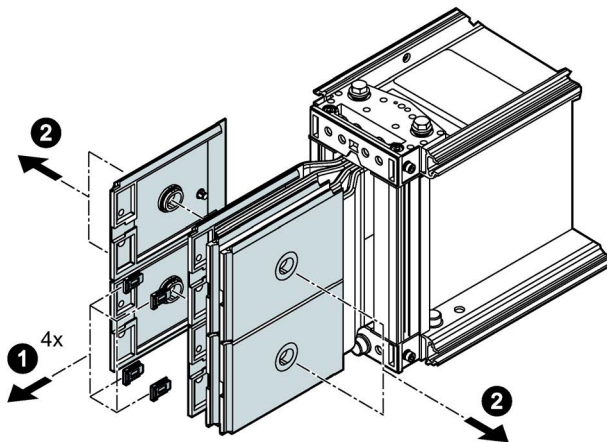
**Step 3:**

Figure 3-47 Replacing insulating plates - Figure 3

1. Use a screwdriver to remove the clips from the insulating plates.
2. Dismantle the insulating plates by moving them outwards. To do this, press the extension in the centre of the plates.

### Installing new insulating plates

Step 1:

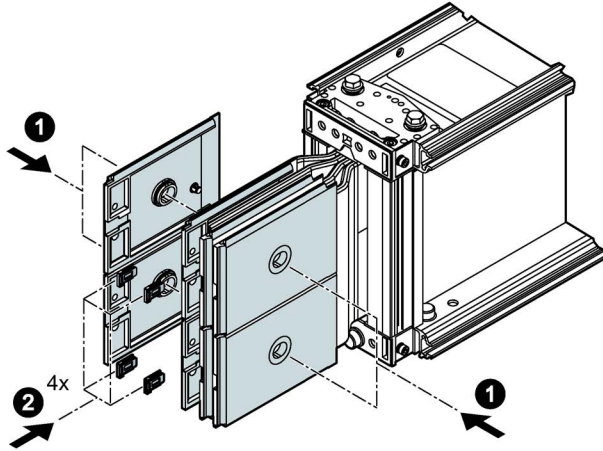


Figure 3-48 Replacing insulating plates - Figure 4

1. Install new insulating plates of the correct height.

---

**Note**

**Important notice for the exceptional case in which a smaller LI system (800 A, 1 000 A or 1 250 A) is connected to SIVACON S8 1 600 A connections of type F8PQ**

In this case, you must connect the insulating plate of size 1 600 A to the smaller system.

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- To do this, install the plates on the diagonal.
  - Then press the pins of the plates into the conductor.
2. Push the clips into the plates.



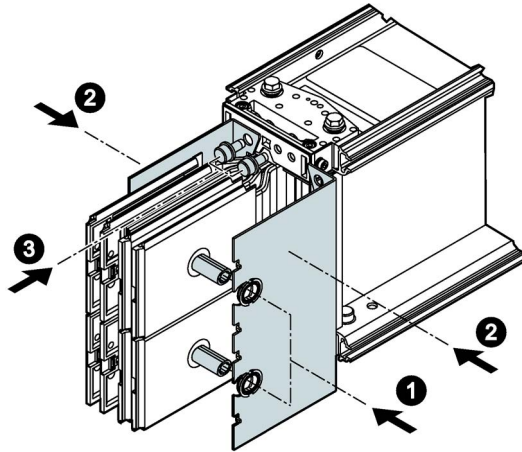
**Step 2:**

Figure 3-49 Replacing insulating plates - Figure 5

1. Use the centring mandrel to insert the plastic insulating sleeve.
2. Fit the earthing plates at the sides. To do this, insert the 4 cylinder head screws and use an Allen key to tighten them.
3. Use a screwdriver to tighten the M8 screws to the standard torque.

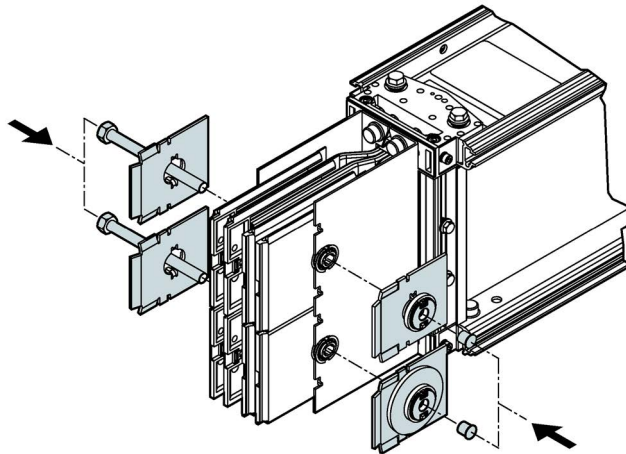
**Step 3:**

Figure 3-50 Replacing insulating plates - Figure 6

- Install the pressure plates and the M10 bolts. When doing so, make sure that the pressure plates are correctly positioned (anti-rotation protection).

**Step 4:**

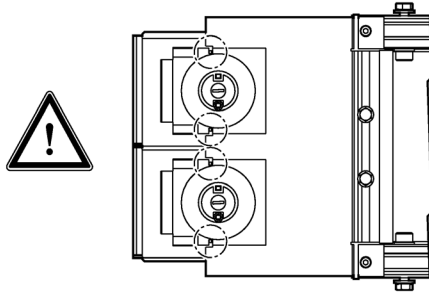


Figure 3-51 Replacing insulating plates - Figure 7

Continue the installation process as described in the installation instructions "8PS7980-0AA01-5AA7 LI-SIVACON switchboard connection".

## 3.11 Tap-off units

### Tap-off units from 50 A to 630 A

- Position these tap-off units at the tap-off points of the trunking unit. Power is tapped via the tap-off point.
- You can find further details about mounting tap-off units in the installation instructions for the relevant tap-off unit. Install the tap-off units as described in the installation instructions.

---

**Note****Check space requirements before installing the tap-off unit**

These tap-off units cannot be positioned at junctions with standard covers above the joint block. Take account of space requirements when you are configuring the system.

As an alternative, you can replace the standard covers with a special cover following consultation with your SIEMENS contact.

---

### Tap-off units 800 A and 1 250 A

- These tap-off units are mounted on a special tap-off point (bolt on).
- You can find further details about mounting tap-off units in the installation instructions for the relevant tap-off unit. Install the tap-off units as described in the installation instructions.

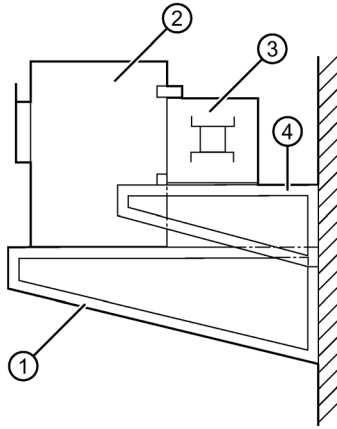
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**Note**

- You must check the necessary space requirements prior to mounting.
  - For horizontal busbar runs that are live, an insertion tool must be used to insert tap-off units from above or from below (tap-off unit upside down) into the tap-off point. It is not permissible to insert tap-off units of 800 A to 1 250 A from the side.
-

### Lateral mounting of tap-off units of 315 A or higher in horizontal busbar runs

The mechanical load caused by the weight of the units and the cables to be connected means that we strongly recommend you use additional supports for lateral mounting of tap-off units. These supports can be, for example, a beam or a bracket.



- ① Additional beam for tap-off unit
- ② Tap-off unit
- ③ Busbar run
- ④ Beam for busbar run

Figure 3-52 Laterally mounted tap-off units should have additional mechanical support

Supplementary beams as stated for (1) and (4) are not fixing accessories of the LI system. The beams must be provided externally.

---

#### Note

**Arrange for an evaluation of on-site conditions by specialist installation personnel.**

It is beyond the scope of this manual to document the vast number of different on-site conditions that may arise. Therefore, we recommend that specialist installation personnel evaluate on-site conditions.

---

# Commissioning

## 4.1 Tests to be performed prior to electrification of conductors

### Steps to be performed prior to electrification of the line

 **WARNING**

**Hazardous voltage. Failure to observe the following instructions can lead to severe injury or death.**

Proceed with extreme caution. It is essential that you carefully follow the instructions below.

1. Check that all connections are fully tightened. Visually inspect them and record the results. Follow the instructions relating to tightening torques.
2. Check all suspension and fixing elements. All the fixing studs and screws of the fixing brackets must be tightened.
3. Make sure that all tap-off units and tapping equipment is disconnected (OFF).
4. Insulate the busbar trunking system from the connections to transformers, switches, meters, etc.
5. Carry out the insulation resistance test. By doing this you can ensure that there are no short circuits or earth faults in the system, e.g. phase - earth, phase - neutral and phase - phase. You will observe that the readings vary depending on the length of the run, the number and size of the conductors and the level of moisture in the atmosphere. Record the measured values in an insulation test report.  
  
If you obtain readings lower than 1 M $\Omega$  per 100 m (1 M $\Omega$  x 100 / length of run in metres), please contact Technical Support. As a rule, you must comply with the relevant country-specific regulations.
6. Check that the poles on the busbar trunking system and those on the transformers, switches, meters, etc. correspond correctly on electrification.

### See also

Test reports (Page 101)

## 4.2 Electrifying the line

### Electrifying the line

 **WARNING**

**Hazardous voltage. Failure to observe the following instructions can lead to severe injury or death.**

The first time that the busbar trunking system conductors are electrified can be risky.

Follow the instructions below along with the regulations valid in the country of installation.

1. Qualified personnel must be present the first time the system is electrified. If short circuits or earth failures caused by incorrect installation have not been previously detected, this can lead to serious consequences once voltage is applied.
2. When electrifying, there must be no electric charge on the busbar trunking system. Check the entire busbar trunking system for electric charges.
3. You must electrify the line step by step, starting at the power supply and moving towards the loads at the end. The principal elements must be electrified first, followed by the feed equipment and, finally, the secondary element circuits. You must act with purpose and conviction when connecting the line.
4. Once the line has been connected, loads such as lights, contactors, heaters and motors can be switched on.
5. In normal operation the busbar trunking system will produce a slight buzzing sound. Excessive noise may indicate that components have not been properly secured or metal parts have been incorrectly assembled.

Faults caused by short circuits must trigger the protective device for the feeder unit in the manner prescribed by the official regulations. Make sure that the system is de-energised before you eliminate the cause of the short circuit. Observe the 5 safety rules:

1. Isolate
2. Safeguard against restart
3. Ensure that the system is de-energised
4. Earth and short-circuit
5. Cover and cordon off adjacent live parts

## Service and maintenance

### 5.1 Service and maintenance

The LI busbar trunking system is maintenance-free as long as the following conditions are met:

- It has been installed in accordance with the valid guidelines as per the installation instructions and the installation manual.
- Commissioning was performed correctly and then checked and logged with insulation measurements and visual inspections.
- It is not subjected to any extreme mechanical stress due to external forces or significant impairment due to foreign bodies or dust.
- It is not subjected to any extreme stresses due to water or liquids.
- It is not subjected to any extreme stresses due to aggressive media.
- It is not subjected to any other malfunction-related stresses due to short circuits, fire or gas.

This maintenance-free claim does not include devices fitted in tap-off units, feeder units or coupling units. The maintenance instructions for these devices can be found in the respective manuals/documentation supplied with the devices.

If any of the conditions listed above cannot be guaranteed, consult your SIEMENS contact directly.

Please also get in touch with your SIEMENS contact for any additional inspections that have to be performed regularly due to country-specific standards for the erector and operator, regulations on accident prevention and safety, as well as for specific business establishments.

### Expansions


As a flexible power distribution board, the LI busbar trunking system can in principle adapt to meet local needs in terms of existing loads and can also be expanded for new loads.


As a first stage it can be sufficient simply to plug existing or new tap-off units into existing, unused tap-off points. If there are no more tap-off points available or if certain buildings/work areas are not supplied by the LI busbar trunking system, it is necessary in a second stage to extend the LI busbar run with appropriate trunking units. To do this, you need to remove the busbar trunking system element from the LI system.

### Dismantling busbar trunking system elements

It may sometimes be necessary to dismantle a length of the busbar trunking system for the purposes of expansion or replacement.

These instructions indicate the correct procedure to follow in such a case.

 <b>WARNING</b>
<b>Severe injury or death due to hazardous voltage</b>
Take into account the switching capacity of the busbar trunking system protector element.
<ul style="list-style-type: none"><li>• Disconnect the main power infeed before you shut down the busbar trunking system.</li><li>• Make sure that the main fuse is switched off before you disconnect the busbar trunking system.</li></ul>

 <b>WARNING</b>
<b>Severe injury or death due to hazardous voltage</b>
Make sure that the line is completely de-energised and isolated before you start work.
Observe the 5 safety rules:
<ol style="list-style-type: none"><li>1. Isolate</li><li>2. Safeguard against restart</li><li>3. Ensure that the system is de-energised</li><li>4. Earth and short-circuit</li><li>5. Cover and cordon off adjacent live parts</li></ol>

---

#### Note

Only qualified electricians may perform the operations indicated in this section.

---



## 5.2 Dismantling a busbar trunking system element in a horizontal line

### Procedure

1. Disconnect all power to the busbar trunking system.
2. Disconnect the busbar trunking system from the supply.
3. Completely disconnect the busbar trunking system. Make sure that the system cannot be connected to the supply again.
4. Secure the surrounding elements to prevent them from falling down.
5. Completely disassemble the hook/bolt joint of the relevant element with a suitable torque wrench.

You can find more detailed information in "Removing trunking units from a busbar run (Page 91)".

Handle the busbar trunking system in accordance with the installation instructions 8PS7980-0AA01-5AA1.

## 5.3 Dismantling a busbar trunking system element in a vertical line

### Procedure

1. Disconnect the power supply to the line. Observe the instructions in chapter "Service and maintenance (Page 87)", section "Dismantling busbar trunking system elements".
2. Let the busbar trunking system cool until the expansion disappears and the run reassumes its normal length. This takes 12 hours at the most.
3. Fix the entire vertical line in place by blocking the springs of all brackets for vertical installation on the respective line.
4. To do this, (manually) thread the red nuts (2) on the vertical installation bracket onto the spigot until they make contact with the profile of the support (1). Do not tighten the nuts.

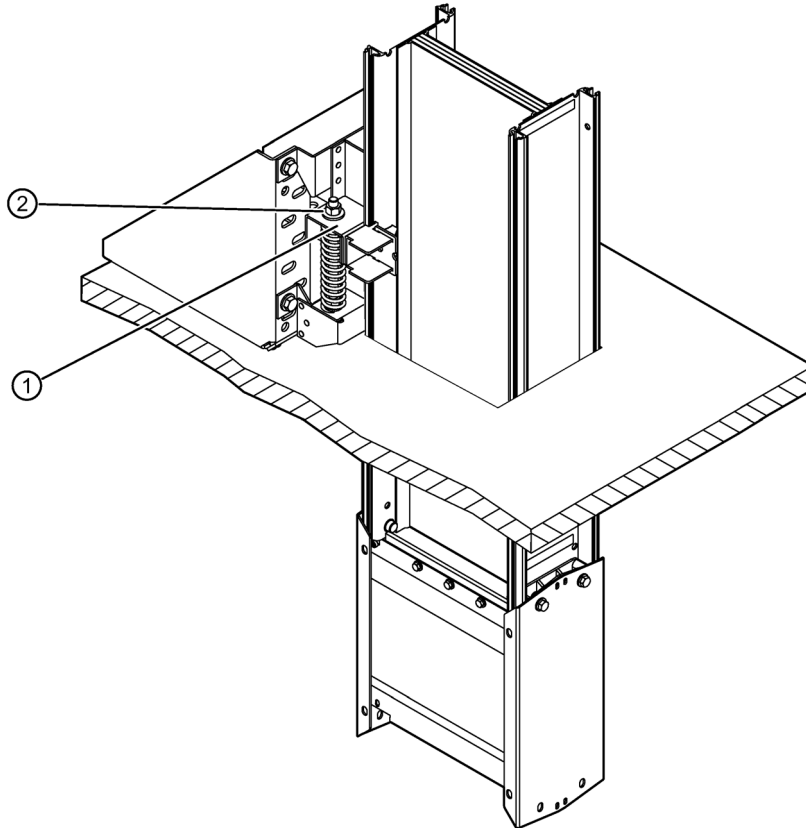


Figure 5-1 Brackets for vertical installation

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### Note

Lock the brackets for vertical installation before removing the weight of the busbar trunking system, otherwise the brackets will have to be readjusted.

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5. Completely disassemble both hook/bolt joints of the element to be dismantled.
6. Release and remove the retaining clamps from the fixing bracket.
7. Remove the element.

Please refer to the following chapter "Removing trunking units from a busbar run (Page 91)" for a detailed description of how to disassemble the hook/bolt joints and remove the trunking unit from the line.

## 5.4 Removing trunking units from a busbar run

Completely disconnect the busbar trunking system from the power supply before you dismantle any connections. This is an important accident prevention measure. To switch off the busbar trunking system, follow the instructions in section "Dismantling busbar trunking system elements" in chapter "Service and maintenance (Page 87)".

### Procedure

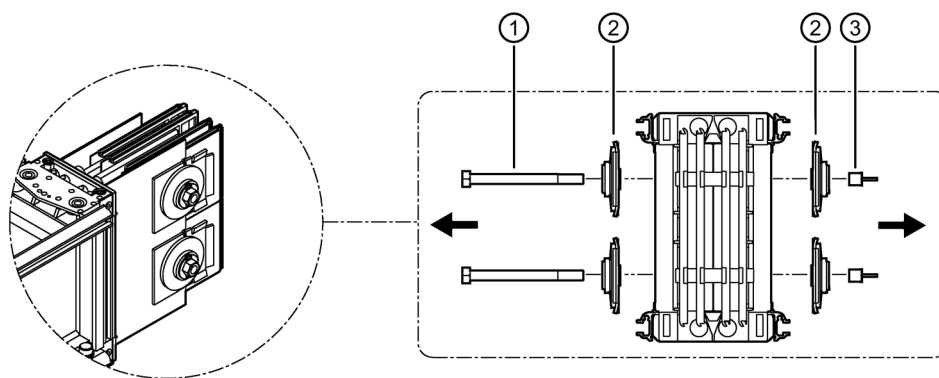
#### Step 1: Removing the cover plate

1. Undo the screws in the top and bottom cover plates.
2. Undo the screws in the side cover plates.

#### Step 2: Removing the connecting bolts and the pressure plates

The connecting bolts and the pressure plates at both ends must be carefully removed by pulling out the bolts (these must be kept in a safe place).

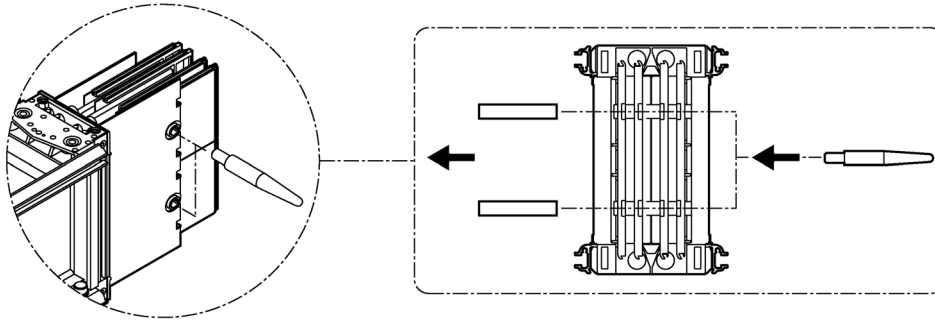
1. Slacken and remove the connection nuts using a suitable tool.
2. Pull out the connecting bolts.



- ① Connecting bolts
- ② Pressure plates
- ③ Yellow transport lock of the connecting bolt

**Step 3: Removing all insulating sleeves from the connecting clamps**

Using the centring mandrel, all insulating sleeves must be carefully pushed out of the connecting clamps of the custom length and the installed busbar element and must be kept in a safe place.



**Step 4: Dismantling the trunking unit**

Use a suitable tool to carefully lift the trunking unit out of the busbar run. Make sure that you do not damage the ends of the trunking unit.

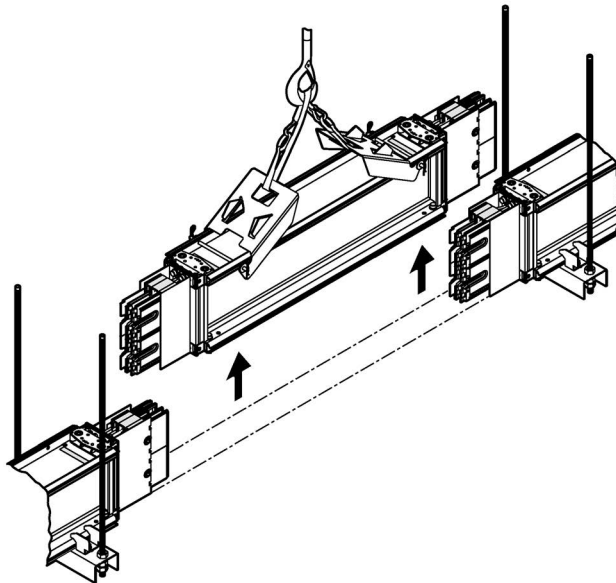


Figure 5-2 Dismantling the trunking unit

## 5.5 Reinstalling trunking units

<b>NOTICE</b>
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<b>Soiled contact surfaces can cause short circuits</b>
---

No proper electrical contact can be established if contact surfaces are soiled. This condition can cause short circuits.
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Make sure that all contact surfaces are clean.
--

Follow the description of the hook/bolt joint between two trunking units. You can find further information in chapter "Installing a busbar run (Page 37)".

<b>NOTICE</b>
---------------

<b>Tightening torque <math>\neq</math> 50 Nm can cause short circuits</b>
---

To ensure proper mechanical and electrical functioning of the connection, it is essential that the applied tightening torque is exactly 50 Nm. No proper electrical contact can otherwise be established. This condition can cause short circuits.
--

## 5.6 Tap-off units with circuit breaker

### Note

Please also observe the maintenance and servicing instructions provided by the manufacturers of the installed circuit breakers.

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### Note

The maintenance and servicing instructions included in the relevant manuals for the circuit breakers must always be observed.

---

### Qualified personnel

The circuit breakers may only be installed and operated in accordance with the instructions in the relevant manuals. All maintenance and servicing work on devices / systems must be carried out by qualified personnel. For the purpose of the safety information in this documentation, "qualified personnel" are persons who are authorized to commission, earth, and tag equipment, systems, and circuits in accordance with established safety procedures.

### Maintenance categories

The valid maintenance categories are those specified in the relevant manual, e.g. SENTRON "3VA moulded case circuit breakers", manufactured by: SIEMENS, 2014 edition.

Maintenance category	Maintenance interval
Inspection	Annually
Service	As required, at the latest 10 years after delivery
Repair	As required, at the latest 20 years after delivery or 1 000 operating cycles

# Weights

## 6.1 Weight data per system

### Aluminium

System		LI-A.	0800	1000	1250	1600	2000
Rated current $I_{nA}$		A	800	1 000	1 250	1 600	2 000
Conductor configuration [number of busbars]		Unit	Weights				
3Ph-PE(H) [3]	L1_L2_L3_PE_housing_(3B)	kg / m	11.2	12.7	13.7	16.2	19.5
3Ph-PEN [4]	PEN_busbar_L1_L2_L3_(4B)	kg / m	12.2	14.1	15.4	18.5	22.8
3Ph-N-PE(H) [4]	N1_L1_L2_L3_PE_housing_(5B)	kg / m	12.2	14.1	15.4	18.5	22.8
3Ph-N-50%PE(B) [5]	N1_L1_L2_L3_50PE_busbar_(5G)	kg / m	12.7	14.8	16.2	19.7	24.5
3Ph-N-100%PE(B) [5]	N1_L1_L2_L3_PE_busbar_(5H)	kg / m	13.2	15.5	17.0	20.9	26.2
3Ph-200%N-PE(H) [5]	N2_N1_L1_L2_L3_PE_housing_(5C)	kg / m	13.2	15.5	17.0	20.9	26.2
3Ph-N-PE(H)-CPE [5]	N1_L1_L2_L3_CPE_PE_housing_(6B)	kg / m	13.2	15.5	17.0	20.9	26.2
3Ph-200%N-PE(H)-CPE [6]	N2_N1_L1_L2_L3_CPE_PE_(6C)	kg / m	14.1	16.9	18.7	23.3	29.5

System		LI-A.	2500	3200	4000	5000
Rated current $I_{nA}$		A	2 500	3 200	4 000	5 000
Conductor configuration [number of busbars]		Unit	Weights			
3Ph-PE(H) [3]	L1_L2_L3_PE_housing_(3B)	kg / m	24.1	32.3	39.0	48.2
3Ph-PEN [4]	PEN_busbar_L1_L2_L3_(4B)	kg / m	28.8	37.1	45.7	57.5
3Ph-N-PE(H) [4]	N1_L1_L2_L3_PE_housing_(5B)	kg / m	28.8	37.1	45.7	57.5
3Ph-N-50%PE(B) [5]	N1_L1_L2_L3_50PE_busbar_(5G)	kg / m	31.1	39.5	49.0	62.1
3Ph-N-100%PE(B) [5]	N1_L1_L2_L3_PE_busbar_(5H)	kg / m	33.4	41.9	52.3	66.7
3Ph-200%N-PE(H) [5]	N2_N1_L1_L2_L3_PE_housing_(5C)	kg / m	33.4	41.9	52.4	66.8
3Ph-N-PE(H)-CPE [5]	N1_L1_L2_L3_CPE_PE_housing_(6B)	kg / m	33.4	41.9	52.3	66.7
3Ph-200%N-PE(H)-CPE [6]	N2_N1_L1_L2_L3_CPE_PE_(6C)	kg / m	38.1	46.7	59.0	76.0

## Copper

System		LI-C.	1000	1250	1600	2000	2500
Rated current I <sub>nA</sub>		A	1 000	1 250	1 600	2 000	2 500
Conductor configuration [number of busbars]		Unit	Weights				
3Ph-PE(H) [3]	L1_L2_L3_PE_housing_(3B)	kg / m	17.4	19.3	24.2	31.0	39.0
3Ph-PEN [4]	PEN_busbar_L1_L2_L3_(4B)	kg / m	20.4	23.0	29.4	38.4	48.9
3Ph-N-PE(H) [4]	N1_L1_L2_L3_PE_housing_(5B)	kg / m	20.4	23.0	29.4	38.4	48.9
3Ph-N-50%PE(B) [5]	N1_L1_L2_L3_50PE_busbar_(5G)	kg / m	21.9	24.9	32.0	42.1	53.9
3Ph-N-100%PE(B) [5]	N1_L1_L2_L3_PE_busbar_(5H)	kg / m	23.4	26.7	34.7	45.7	58.8
3Ph-200%N-PE(H) [5]	N2_N1_L1_L2_L3_PE_housing_(5C)	kg / m	23.4	26.7	34.7	45.8	58.8
3Ph-N-PE(H)-CPE [5]	N1_L1_L2_L3_CPE_PE_housing_(6B)	kg / m	23.4	26.7	34.7	45.7	58.8
3Ph-200%N-PE(H)-CPE [6]	N2_N1_L1_L2_L3_CPE_PE_(6C)	kg / m	26.5	30.4	39.9	53.1	68.7

System		LI-C.	3200	4000	5000	6300
Rated current I <sub>nA</sub>		A	3 200	4 000	5 000	6 300
Conductor configuration [number of busbars]		Unit	Weights			
3Ph-PE(H) [3]	L1_L2_L3_PE_housing_(3B)	kg / m	52.7	61.6	77.6	105.1
3Ph-PEN [4]	PEN_busbar_L1_L2_L3_(4B)	kg / m	67.0	76.2	97.3	133.4
3Ph-N-PE(H) [4]	N1_L1_L2_L3_PE_housing_(5B)	kg / m	67.0	76.2	97.3	133.4
3Ph-N-50%PE(B) [5]	N1_L1_L2_L3_50PE_busbar_(5G)	kg / m	74.1	83.5	107.1	147.6
3Ph-N-100%PE(B) [5]	N1_L1_L2_L3_PE_busbar_(5H)	kg / m	81.2	90.8	116.9	161.8
3Ph-200%N-PE(H) [5]	N2_N1_L1_L2_L3_PE_housing_(5C)	kg / m	81.3	90.9	117.0	161.9
3Ph-N-PE(H)-CPE [5]	N1_L1_L2_L3_CPE_PE_housing_(6B)	kg / m	81.2	90.8	116.9	161.8
3Ph-200%N-PE(H)-CPE [6]	N2_N1_L1_L2_L3_CPE_PE_(6C)	kg / m	95.5	105.4	136.6	190.2



## Incoming cable connection units LI-...-CFS and LI-...-CFE

Incoming cable connection unit	LI-...-CFS	LI-...-CFE
System	[kg]	[kg]
LI-A.0800..	43	124
LI-A.1000...	45	127
LI-A.1250...	46	130
LI-A.1600...	48	135
LI-A.2000..	58	172
LI-A.2500...	68	222
LI-A.3200...	111	-
LI-A.4000...	136	-
LI-A.5000...	179	-
LI-C.1000..	51	133
LI-C.1250...	52	137
LI-C.1600...	57	145
LI-C.2000..	67	190
LI-C.2500...	84	241
LI-C.3200...	93	266
LI-C.4000	159	-
LI-C.5000	202	-
LI-C.6300..	272	-

## Transformer feeder units LI-...-T... and expansion compensation LI-...-D

	Transformer feeder units LI-...-T...	Expansion compensation LI-...-D
System	[kg]	[kg]
LI-A.0800..	21	35
LI-A.1000...	24	38
LI-A.1250...	27	40
LI-A.1600...	31	46
LI-A.2000..	39	57
LI-A.2500...	47	66
LI-A.3200...	65	141
LI-A.4000...	81	157
LI-A.5000...	99	179
LI-C.1000..	35	47
LI-C.1250...	39	50
LI-C.1600...	51	60
LI-C.2000..	64	73
LI-C.2500...	81	92
LI-C.3200...	108	118
LI-C.4000	140	220
LI-C.5000	173	254
LI-C.6300..	229	316

## 6.2 Weight data of tap-off units

Tap-off units	Weight with maximum installed equipment [kg]
LI-T-0050-5H-55-3V...	20
LI-T-0063-5H-55-3V...	20
LI-T-0080-5H-55-3V...	20
LI-T-0100-5H-55-3V...	20
LI-T-0125-5H-55-3V...	20
LI-T-0160-5H-55-3V...	20
LI-T-0200-5H-55-3V...	40
LI-T-0250-5H-55-3V...	40
LI-T-0315-5H-55-3V...	60
LI-T-0400-5H-55-3V...	60
LI-T-0500-5H-55-3V...	80
LI-T-0630-5H-55-3V...	80
LI-T-0630-5H-55-3V...	90

Tap-off units	Weight with maximum installed equipment [kg]
LI-T-0160-5H-55-NH00-3-MO-G-BD-00	20
LI-T-0250-5H-55-NH01-3-MO-G-BD-00	40
LI-T-0400-5H-55-NH02-3-MO-G-BD-00	60
LI-T-0630-5H-55-NH03-3-MO-G-BD-00	80
LI-T-0160-5H-55-3NP1133-3-MO-G-BD-00	40
LI-T-0250-5H-55-3NP1143-3-MO-G-BD-00	60
LI-T-0400-5H-55-3NP1153-3-MO-G-BD-00	80
LI-T-0630-5H-55-3NP1163-3-MO-G-BD-00	90
LI-T-0160-5H-55-FSF-IEC-3-RD-G-BD-00	40
LI-T-0160-5H-55-FSF-BS-3-RD-G-BD-00	60
LI-T-0160-5H-55-FSF-IEC-4-RD-G-BD-00	40
LI-T-0160-5H-55-FSF-BS-4-RD-G-BD-00	60
LI-T-0250-5H-55-FSF-IEC-3-RD-G-BD-00	60
LI-T-0250-5H-55-FSF-BS-3-RD-G-BD-00	80
LI-T-0250-5H-55-FSF-IEC-4-RD-G-BD-00	60
LI-T-0250-5H-55-FSF-BS-4-RD-G-BD-00	80
LI-T-0400-5H-55-FSF-IEC-3-RD-G-BD-00	80
LI-T-0400-5H-55-FSF-BS-3-RD-G-BD-00	90
LI-T-0400-5H-55-FSF-IEC-4-RD-G-BD-00	80
LI-T-0400-5H-55-FSF-BS-4-RD-G-BD-00	90
LI-T-0630-5H-55-FSF-IEC-3-RD-G-BD-00	90
LI-T-0630-5H-55-FSF-BS-3-RD-G-BD-00	90
LI-T-0630-5H-55-FSF-IEC-4-RD-G-BD-00	90
LI-T-0630-5H-55-FSF-BS-4-RD-G-BD-00	90
LI-T-0800-5H-55-3V...	150
LI-T-1250-5H-55-3V...	150

### 6.3 Horizontal maximum permissible fixing distance

System	Edgewise busbars	Flat busbars
LI-A.0800..	3	2
LI-A.1000...	3	2
LI-C.1000..		
LI-A.1250...	3	2
LI-C.1250...		
LI-A.1600...	3	2
LI-C.1600...		
LI-A.2000..	3	2
LI-C.2000..		
LI-A.2500...	3	2
LI-C.2500...		
LI-A.3200...	3	2
LI-C.3200...		
LI-A.4000...	3	2
LI-C.4000		
LI-A.5000...	3	2
LI-C.5000		
LI-C.6300..	3	2

## Test reports

The following test reports are available for commissioning and for maintenance/expansion purposes:

1. Test report for inspecting hook/bolt joints during initial assembly
2. Test report for inspecting hook/bolt joints during subsequent assembly
3. Insulation test report

## 7.1 Test report for inspecting hook/bolt joints during initial assembly

<b>Test report</b>	
For inspecting hook/bolt joints during initial assembly for SIEMENS LI busbar trunking systems	
Customer:	Type of installation:
Contact:	Site:
Street:	Manufacturer / Type:
City / Post code:	Year of manufacture:
Consignment no.:	Run number / designation:
Date:	Run length:
Test starts at position no.:	Drawing coord.:
Date of drawing:	Sheet no.:

Drawing co-ordinates	Position	Initial hook/ bolt joint Red control ring removed	Subsequent hook/ bolt joint(s) Sealed with varnish	Cover plates com- pletely & correctly installed around hook/bolt joint	Miscella- neous Remarks	Test as a whole

Place:	Date:	Tester's signature:
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7.2 Test report for inspecting hook/bolt joints during subsequent assembly

## 7.2 Test report for inspecting hook/bolt joints during subsequent assembly

Test report	
For inspecting hook/bolt joints during subsequent assembly for SIEMENS LI busbar trunking systems	
Customer:	Type of installation:
Contact:	Site:
Street:	Manufacturer / Type:
City / Post code:	Year of manufacture:
Consignment no.:	Run number / designation:
Date:	Run length:
Test starts at position no.:	Drawing coord.:
Date of drawing:	Sheet no.:

Drawing coordinates	Position	Subsequent hook/bolt joint To tightening torque 50 Nm	Hook/bolt joint(s) Sealed with varnish	Cover plates completely & correctly installed around hook/bolt joint	Miscellaneous Remarks	Test as a whole
Place:	Date:	Tester's signature:				

## 7.3 Insulation test report

Insulation test report																		
For inspecting hook/bolt joints during initial assembly for SIEMENS LI busbar trunking systems																		
Customer:									Type of installation:									
Contact:									Site:									
Street:									Manufacturer / Type:									
City / Post code:									Year of manufacture:									
Consignment no.:									Run number / Designation									
Date:									Run length:									
<b>Meter data:</b>																		
Meter manufacturer:						Type:						Direct measuring circuit voltage:						
Climate data:																		
Time:																		
Air temperature:																		
Humidity:																		

**!! There must be no loads connected when the insulation resistance is measured !!**

**!! The insulation resistance must be at least 1 megaohm !!**

System design: 4-pole  5-pole  6-pole (CPE = Clean Earth)

**Specify measured values in megaohms**

Com po- nent	N- PE	L1- L2	L2- L3	L3- L1	L1- PE	L2- PE	L3- PE	L1- N	L2- N	L3- N	L1- PEN	L2- PEN	L3- PEN	N- CPE	L1- CPE	L2- CPE	L3- CPE	PE- CPE	
We hereby confirm that the measurements given above were performed correctly.																			
Place:			Date:			Tester's signature:													



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## Further Information

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Siemens AG  
Division Energy Management  
Medium Voltage & Systems  
Mozartstr, 31 C  
91052 Erlangen  
Germany

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Subject to change  
8PS7980-0AA01-6AA1

Busbar Trunking  
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