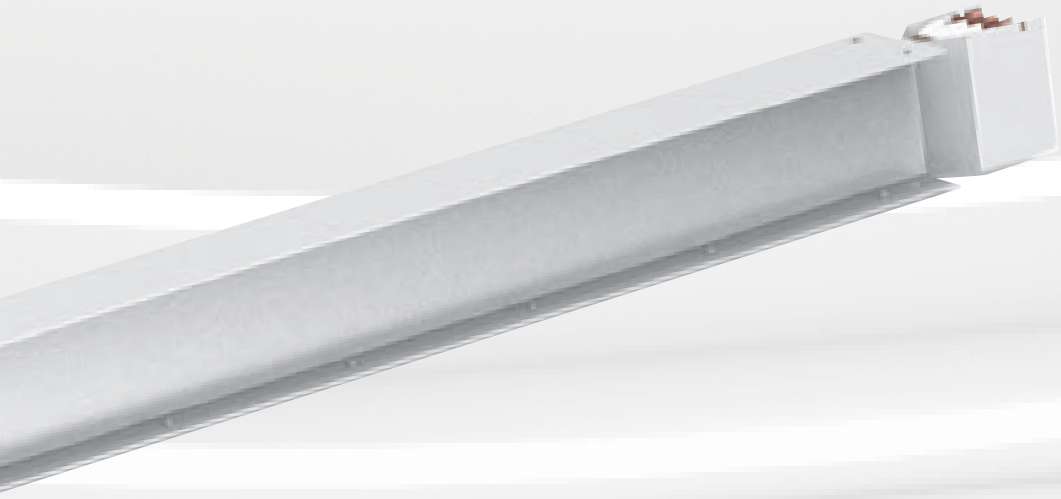
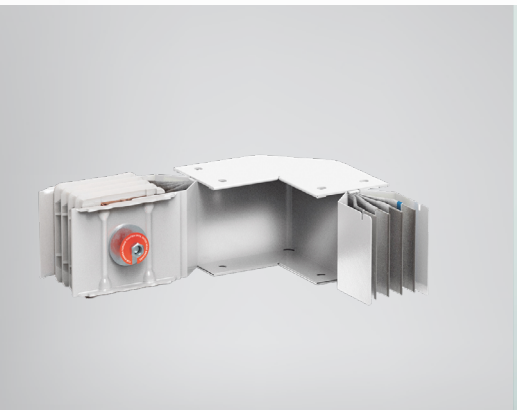
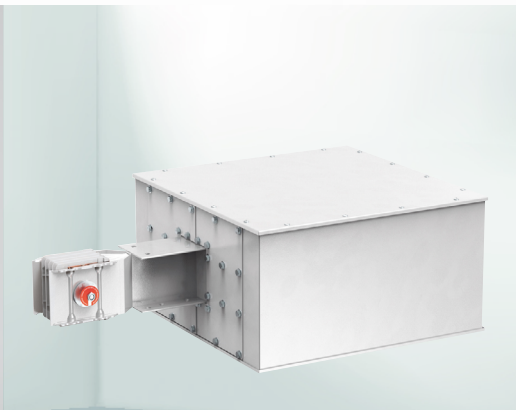
INSTALLER GUIDE

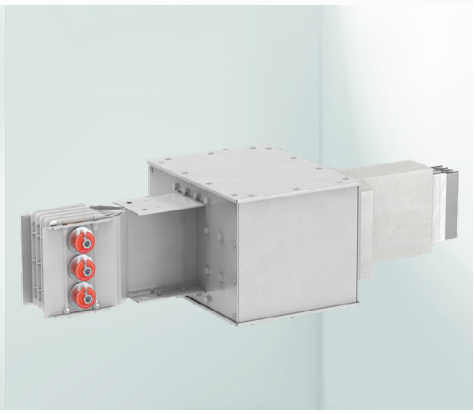
XCP-S, XCP-HP

BUSBAR TRUNKING SYSTEMS









#LegrandImprovingLives

legrand®

LEGRAND SUPPORTS YOU ON ALL YOUR PROJECTS

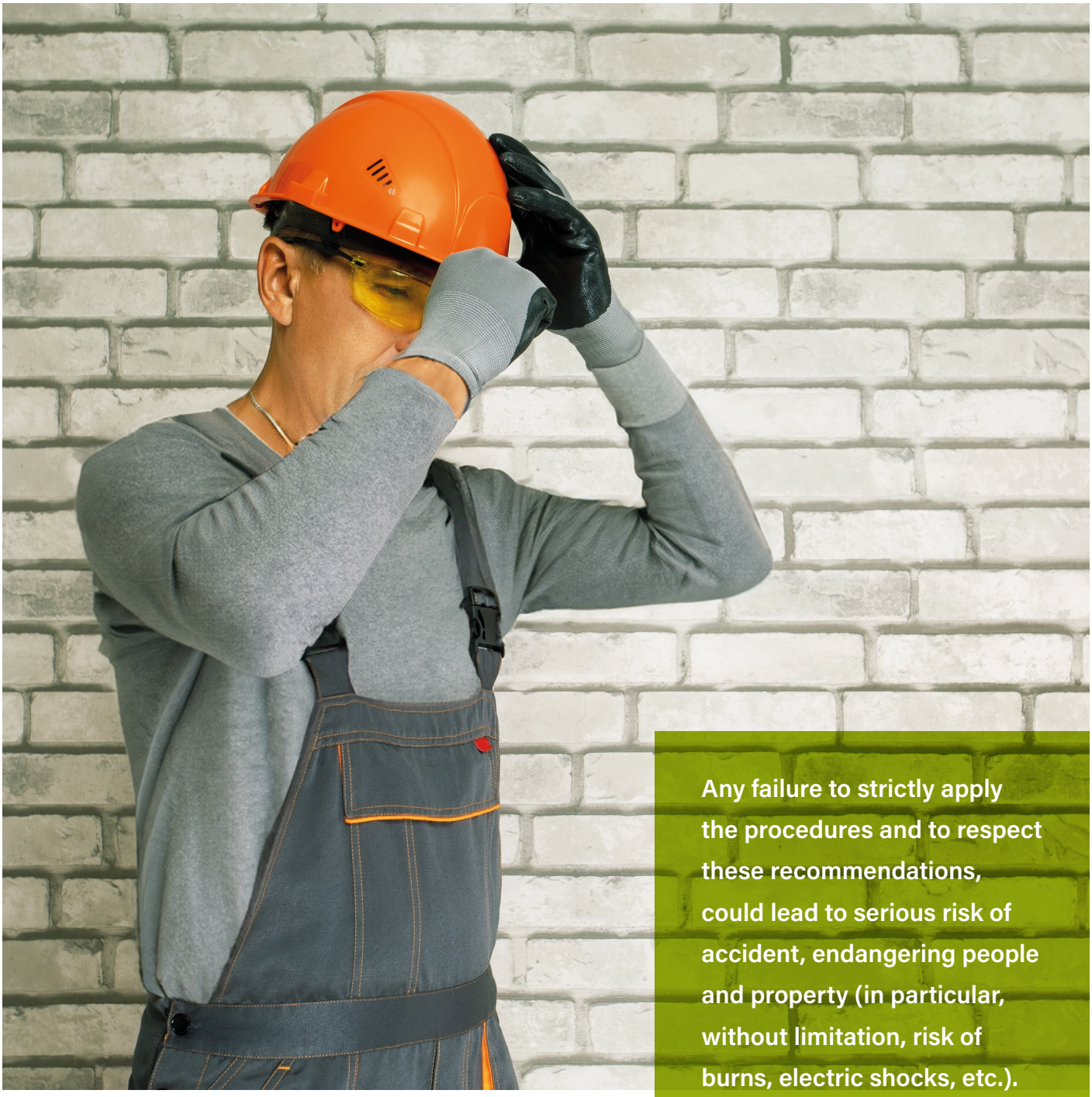
LEGAL INFORMATION

Presentation pictures do not always include Personal Protective Equipment (PPE), but this is a legal and regulatory obligation that must be scrupulously respected.

In accordance with its continuous improvement policy, Legrand reserves the right to change the specifications and illustrations without notice. All illustrations, descriptions and technical information included in this document are provided as indications and cannot be held against Legrand.

Contents

SAFETY INSTRUCTIONS



Any failure to strictly apply the procedures and to respect these recommendations, could lead to serious risk of accident, endangering people and property (in particular, without limitation, risk of burns, electric shocks, etc.).

General information

- Use only the products and accessories recommended by the Legrand Group in the catalogue, instructions, technical data sheets and all other documents provided by Legrand (hereinafter referred to as “the Documentation”) in compliance with the installation rules.

Improper installation or use may result in the risk of arcing in the busbar, overheating or fire. The busbars must be used under normal conditions, they must not be subjected to Voltage / Current / Temperature values other than those specified in the Documentation.

- Legrand declines all responsibility for any modification or repair of the equipment making up the busbars that is not authorized by the Legrand Group, as well as any failure to comply with the rules and recommendations specified by Legrand in the Documentation. In addition, in the cases mentioned above, the warranty granted by Legrand will not be applicable.
- It is necessary to check that the characteristics of the products are appropriate for their environment and use during maintenance operations, and to refer to the Documentation.
- If you have any questions or require clarification, please contact Legrand Group.

Protection/security

- The installation, use and maintenance of the enclosures and their components must be carried out by qualified, trained and authorized personnel, in accordance with the regulations in force in each country.
- The qualified, trained and authorized personnel is in charge of correcting interpretation of the technical documentation, handling and assembling safely the components, verifying the clearances, torque values, and mechanical fixings, executing the tests and inspections before energizing the system, maintenance and troubleshooting in accordance with the product’s technical manual.
- People working on the installation must have the appropriate electrical authorizations for the work to be carried out.

- Wear the PPE (Personal Protective Equipment) necessary to work on live products.
- Respect the safety rules related to electrical work.
- Improper electrical and mechanical use of equipment can be dangerous and may result in personal injury or damage to property.

Maintenance

- Depending on the maintenance operations to be carried out, partial or total power cuts of the enclosure concerned should be planned before any work.
- When performing operations that involve access to the inside of the enclosure, be aware of the risk of burns before touching any.
- Before turning the power back on, make sure that there are no foreign bodies and that all physical protections have been put back in place (e.g.: screens, covers, faceplates).

Risk of electric shock, burns and explosion.

The rules and recommendations in this document are based on our knowledge of the typical conditions of use of our products in the fields of application usually encountered. However, it is always the customer’s responsibility to verify and validate that Legrand products are suitable for its installation and use.

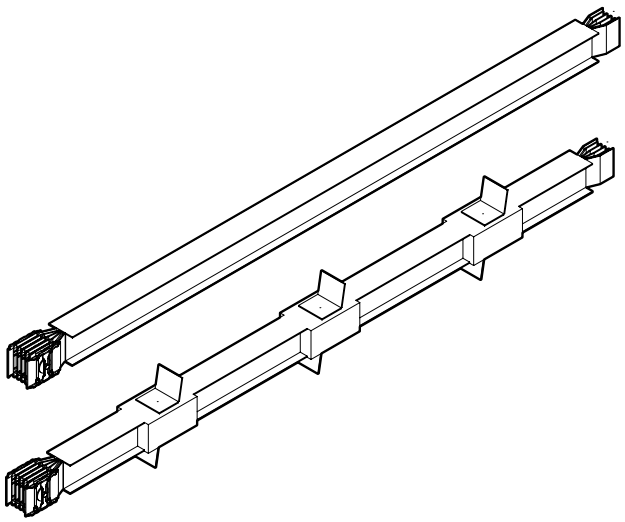
The customer must ensure proper installation, maintenance and operation of the equipment to avoid any risk of injury to personnel or damage to property in the event of product failure, especially for applications that require a very high level of safety (e.g., those in which the failure of a component may endanger human life or health).

The rules for storage, handling, installation and maintenance and the appropriate precautions and warnings must be strictly observed and applied.

PRODUCT COMPONENTS

Straight elements

Supplied with its pre-installed monobloc.



STRAIGHT ELEMENTS

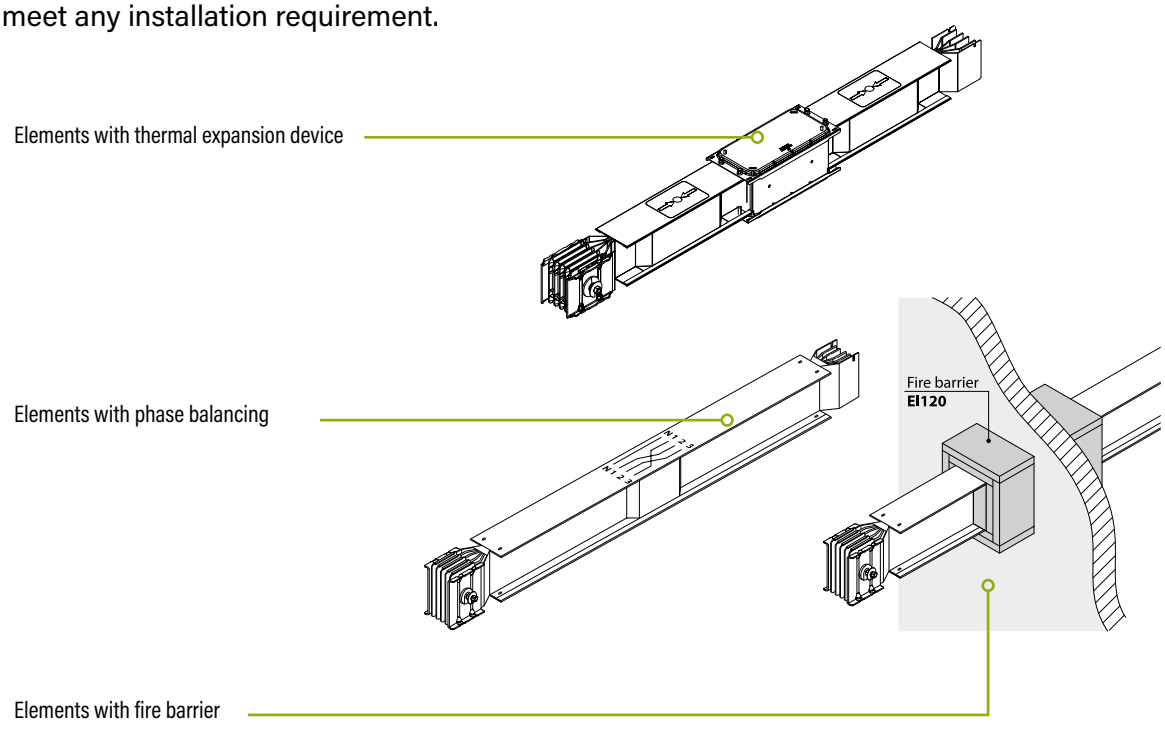
- standard length: 3 m
- special length: from 0.5 m to 3 m

DISTRIBUTION ELEMENTS WITH TAP-OFF OUTLETS:

- standard length: 3 m
- standard tap-off sockets:
  spaced at 850 mm intervals on both sides

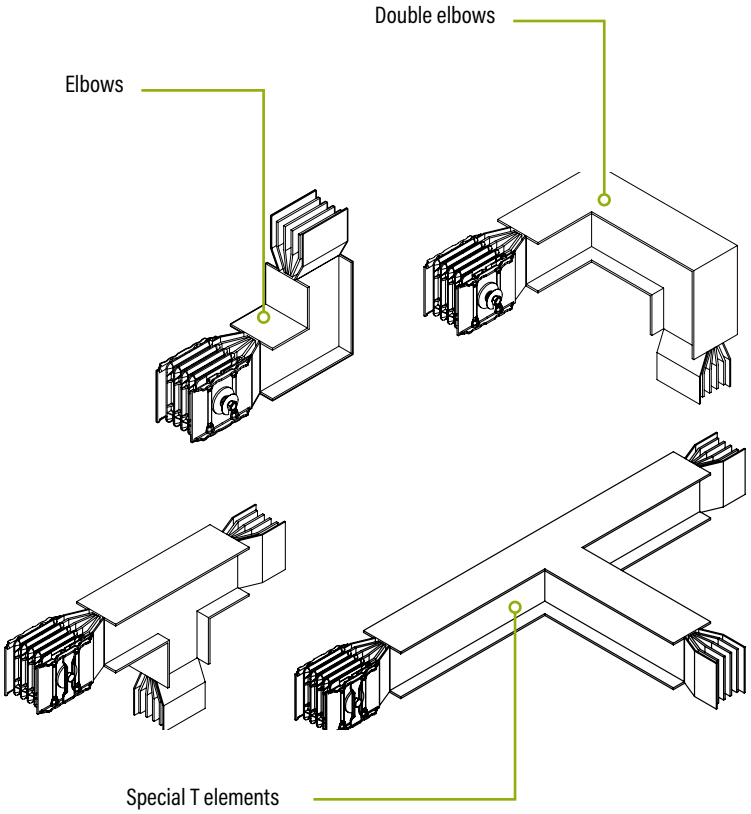
Additional elements

Supplied with its pre-installed monobloc.
Elements able to meet any installation requirement.



Angle components

Supplied with its pre-installed monobloc.
Elements able to meet any change of direction with standard or special solutions.



Tap-off boxes

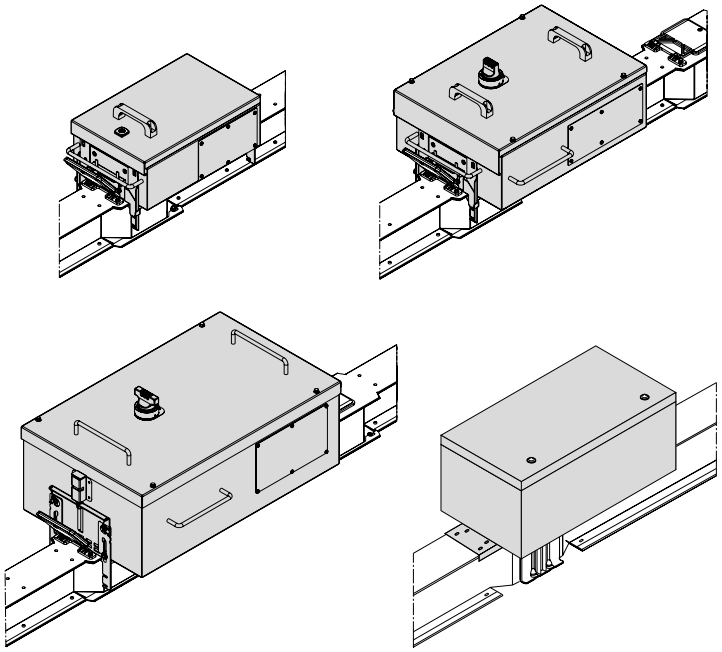
Elements used for connecting and energizing electric loads.

Plug-in tap-off boxes from 63 A up to 630 A: (can be installed with busbar energized)

- with 3P fuse holders
- with switch disconnector and fuse holder
- for MCCB circuit breakers

TOB on the junction: type bolt-on from 125 A to 1250 A:

- with switch disconnector and fuse holder
- for MCCB circuit breakers

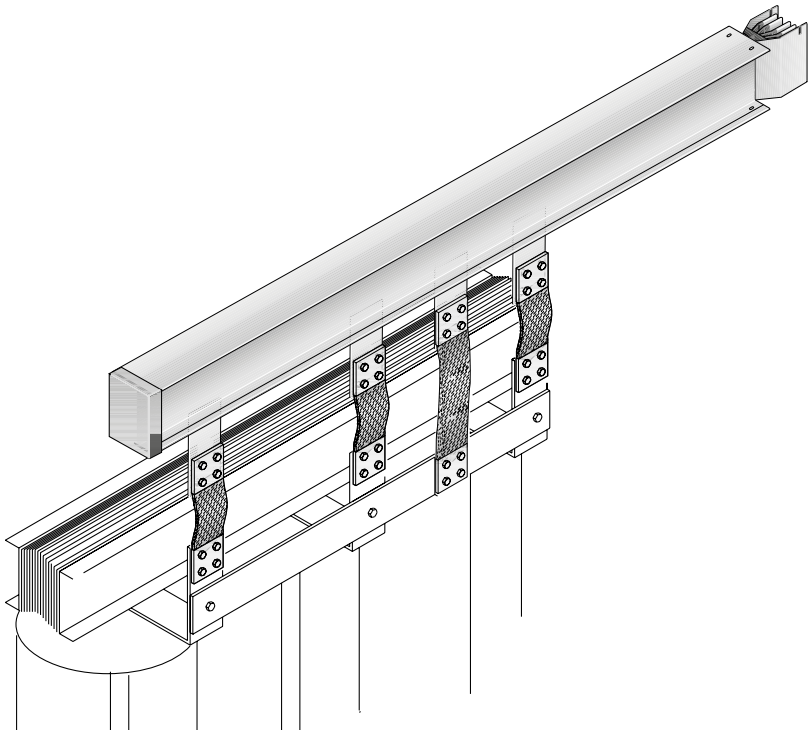


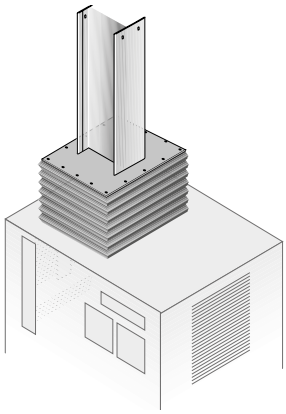
PRODUCT COMPONENTS

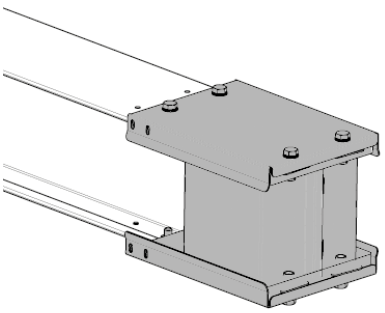
Connection interfaces

Elements used for connecting the busbar to the electric board or transformer.

Solutions for Legrand XL³ HP cabinets and Legrand cast resin transformers Universal solutions.



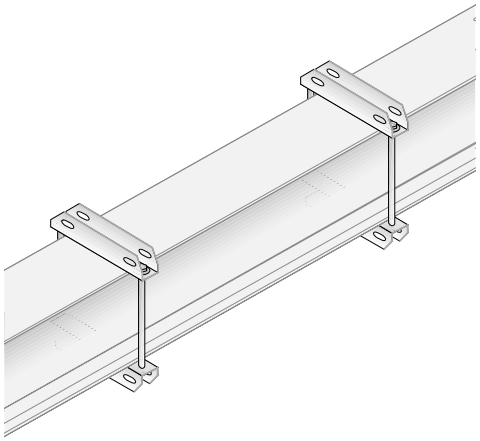


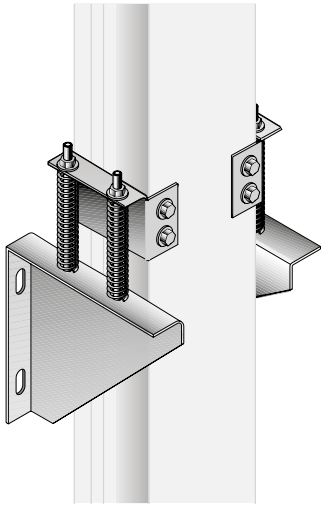


Fixing supports

Elements used for fixing the busbar to the structure of the building.

- Options for horizontal installations
- Options for vertical installations
- Options for special applications (seismic zones, naval environment)





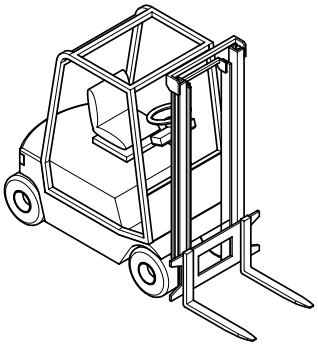
MATERIAL PREPARATION AND ARRANGEMENT

EQUIPMENT AND TOOLS

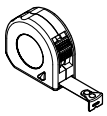
Here below the tools, equipment and materials necessary you need to have before to start the installation of XCP Busbar Trunking System.

LIFTING AND HANDLING EQUIPMENT

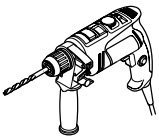
Crane or forklift truck capable of lifting 1.5 tons (minimum).
Depending on the plant and the typology of components.



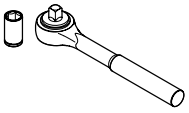
SUPPORTS FOR POSITIONING AND INSTALLING



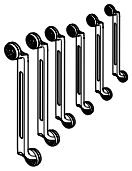
Measuring tape (metric).



Drilling machine capable of drilling through concrete.

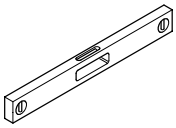


Socket wrench with sockets (8...24 mm).

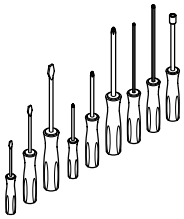


Set of at or ring spanners (8...24 mm).

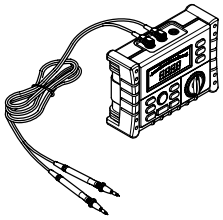
Two slings for handling the components.



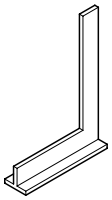
Levelling instrument (spirit level).



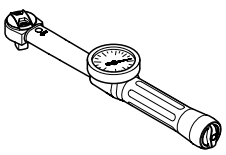
Set of screwdrivers.



Insulation tester (Megohmmeter 1000 Vdc).



Carpenters square.



Torque wrench.

STORAGE

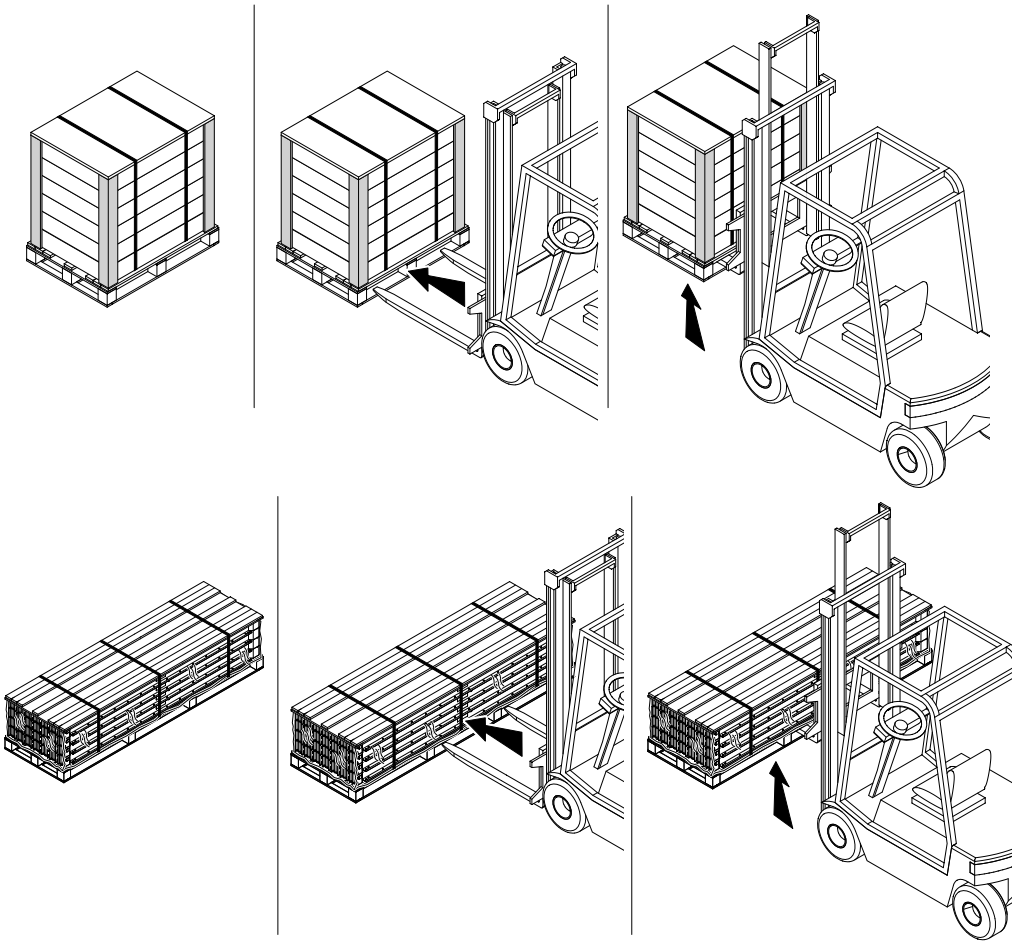
Below are the instructions to follow for a correct storage of the materials.

Failure to comply with the indications supplied may cause damage to the materials, and make the product warranties void.

Store the material in a dry place, protected from weather conditions such as rain and humidity, to prevent the formation of condensation inside the busbars.
Also ensure that the busbars are protected from smoke, water, soil, mud, dust, or dirt in general. Position the material in a way that prevents a physical damage to it.

It is recommended that the material is stored indoor, in a dry location. In case of storing the busbars outside for shortmedium periods, ensure that it is appropriately protected, to avoid accidental infiltration of water, which will result in them being damaged.

The material can be transported and stored at a temperature between -25°C and +55°C.



Handling operations must be carried out implementing all the necessary precautions to ensure the integrity of the materials. The manufacturer shall not be held responsible for any material damage caused by failure to ensure appropriate protection.

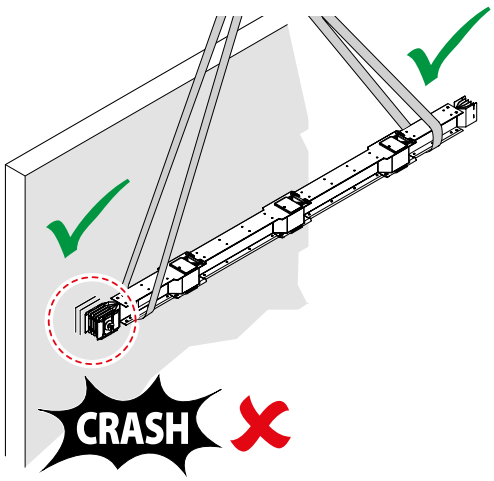
WEIGHT TABLE

	Rated current	In [A]	630	800	1000	1250	1600	2000	2500	3200	4000	5000
XCP-HP 3C AL	Weight (PE 1)	p [kg/m]	14,5	14,5	15,8	16,9	22	25,1	32,6	40,2	45,8	79,7
	Weight (PE 2)	p [kg/m]	17,8	17,8	19,1	20,2	27,1	31,6	41,3	50,5	57,1	96,7
	Weight (PE 3)	p [kg/m]	15,5	15,5	16,9	18	23,6	27	35,4	43,6	49,5	85,2
XCP-HP 4C AL	Weight (PE 1)	p [kg/m]	16	16	17,8	19,3	25,4	29,4	37,7	47,3	54,3	91
	Weight (PE 2)	p [kg/m]	19,3	19,3	21,1	22,6	30,5	35,9	46,4	57,6	65,7	108
	Weight (PE 3)	p [kg/m]	17,1	17,1	18,9	20,3	27,1	31,2	40,5	50,7	58	96,5
XCP-HP 5C AL	Weight (PE 1)	p [kg/m]	17,6	17,6	19,7	21,6	28,7	33,4	42,7	54,3	62,8	101,9
	Weight (PE 2)	p [kg/m]	20,9	20,9	23	24,9	33,8	39,9	51,4	64,6	74,2	118,9
	Weight (PE 3)	p [kg/m]	21,1	18,7	20,8	22,7	30,4	35,3	45,5	57,7	66,5	107,5
XCP-HP 2N AL	Weight (PE 1)	p [kg/m]	17,6	17,6	19,7	21,6	28,7	33,4	42,7	54,3	62,8	101,9
	Weight (PE 2)	p [kg/m]	20,9	20,9	23	24,9	33,8	39,9	51,4	64,6	74,2	118,9
	Weight (PE 3)	p [kg/m]	21,1	18,7	20,8	22,7	30,4	35,3	45,5	57,7	66,5	107,5

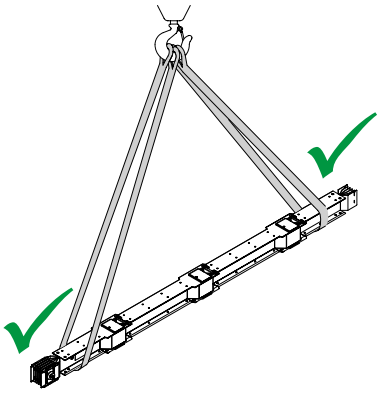
	Rated current	In [A]	630	800	1000	1250	1600	2000	2500	3200	4000	5000
XCP-HP 3C Cu	Weight (PE 1)	p [kg/m]	18,7	22,9	24,9	28	41,6	49,9	60,3	78,6	103,2	136,2
	Weight (PE 2)	p [kg/m]	22	26,2	28,2	32,4	45,9	56,4	69	88,9	114,5	151,6
	Weight (PE 3)	p [kg/m]	19,7	23,9	25,9	29,5	43	51,8	63,1	82	106,9	140,4
XCP-HP 4C Cu	Weight (PE 1)	p [kg/m]	21,2	26,9	29,6	33,5	50,3	62,2	74,2	97,9	130,3	173,6
	Weight (PE 2)	p [kg/m]	24,5	30,2	32,9	37,8	54,7	68,7	83	108,2	141,6	189,1
	Weight (PE 3)	p [kg/m]	22,3	28	30,7	34,9	51,8	64,1	77,1	101,3	133,9	178,7
XCP-HP 5C Cu	Weight (PE 1)	p [kg/m]	23,8	31,1	34,5	39	60	74,3	88,2	117,3	157,4	209
	Weight (PE 2)	p [kg/m]	27,2	34,5	37,8	43,4	64,3	80,8	96,9	127,6	168,8	224,4
	Weight (PE 3)	p [kg/m]	24,9	32,2	35,5	40,4	61,4	76,1	91,1	120,6	161,1	213,2
XCP-HP 2N Cu	Weight (PE 1)	p [kg/m]	23,8	31,1	34,5	39	60	74,3	88,2	117,3	157,4	209
	Weight (PE 2)	p [kg/m]	27,2	34,5	37,8	43,4	64,3	80,8	96,9	127,6	168,8	224,4
	Weight (PE 3)	p [kg/m]	24,9	32,2	35,5	40,4	61,4	76,1	91,1	120,6	161,1	213,2

HANDLING AND LIFTING

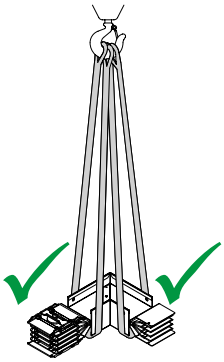
All lifting operations refer to a single component.



Handle the busbars with due care and attention. Do not subject busbars to torsions, dents, violent impacts, or sharp movements that may damage their internal components.

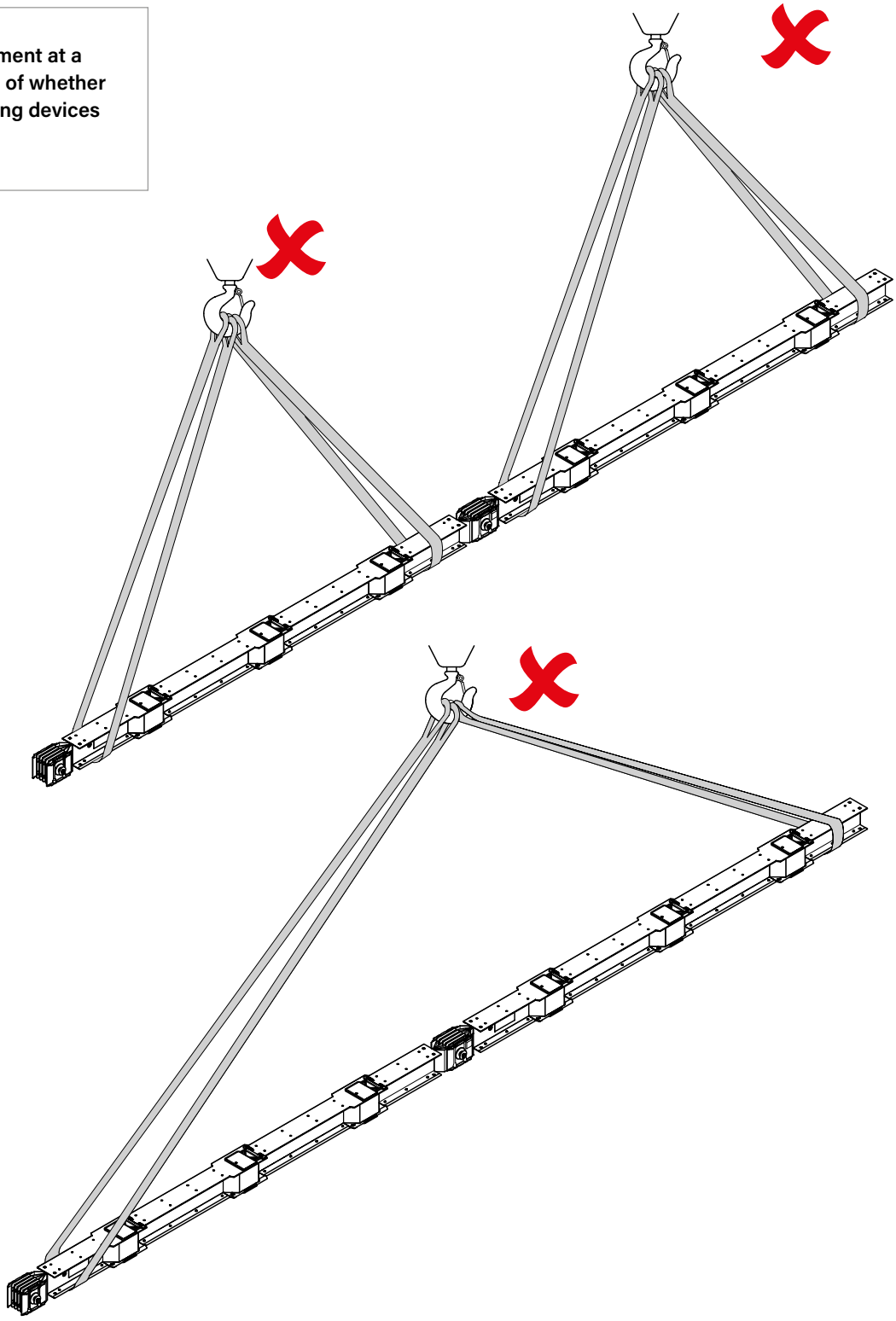


Correct way of lifting the busbars.

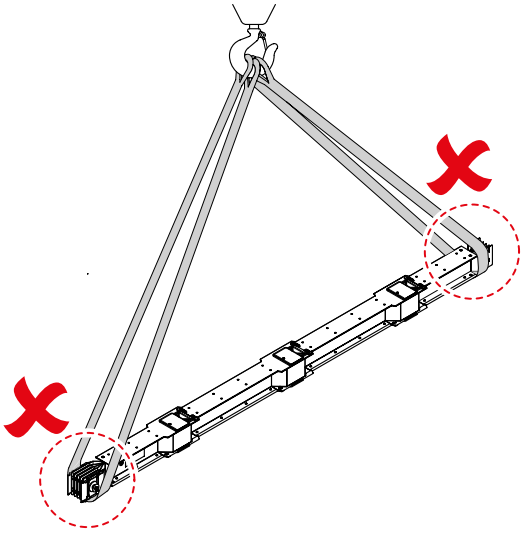


Handle the busbars with due care and attention. Do not subject busbars to torsions, dents, violent impacts, or sharp movements that may damage their internal components.

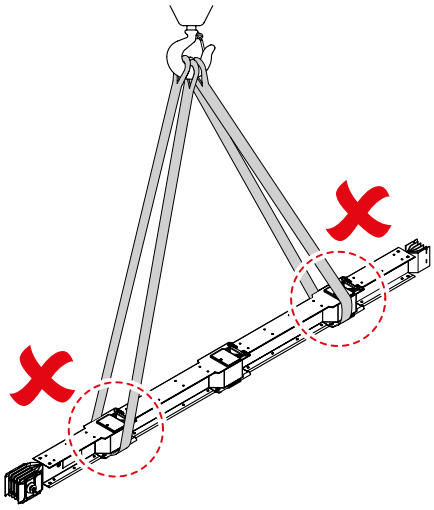
Only lift one element at a time, regardless of whether one or many lifting devices are used



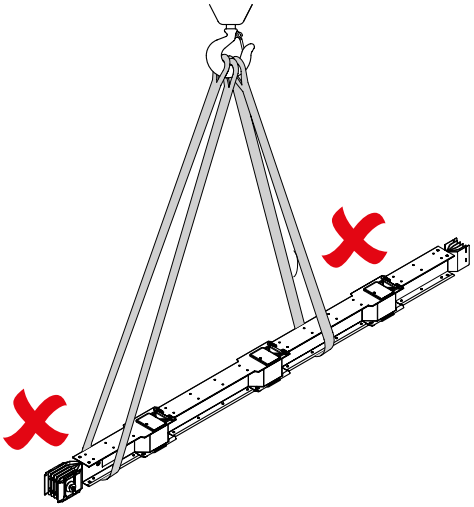
HANDLING AND LIFTING



Do not lift the busbars from their ends.



Do not use belts or other systems to lift them to the junction windows.



Do not use belts or other systems to lift the busbars in unbalanced positions.

MISSING OR DAMAGED COMPONENTS

▪ Good reception

Upon receipt of the goods check the following:

1. integrity of the packaging, and the goods, if delivered in a see-through package.
2. consistency of the material with the delivery note and the packing list, if supplied.
3. consistency of the material with the order acknowledgement details.

In case of any disclaims, please inform us in writing following the instructions found in the notifications section.

▪ Notifications

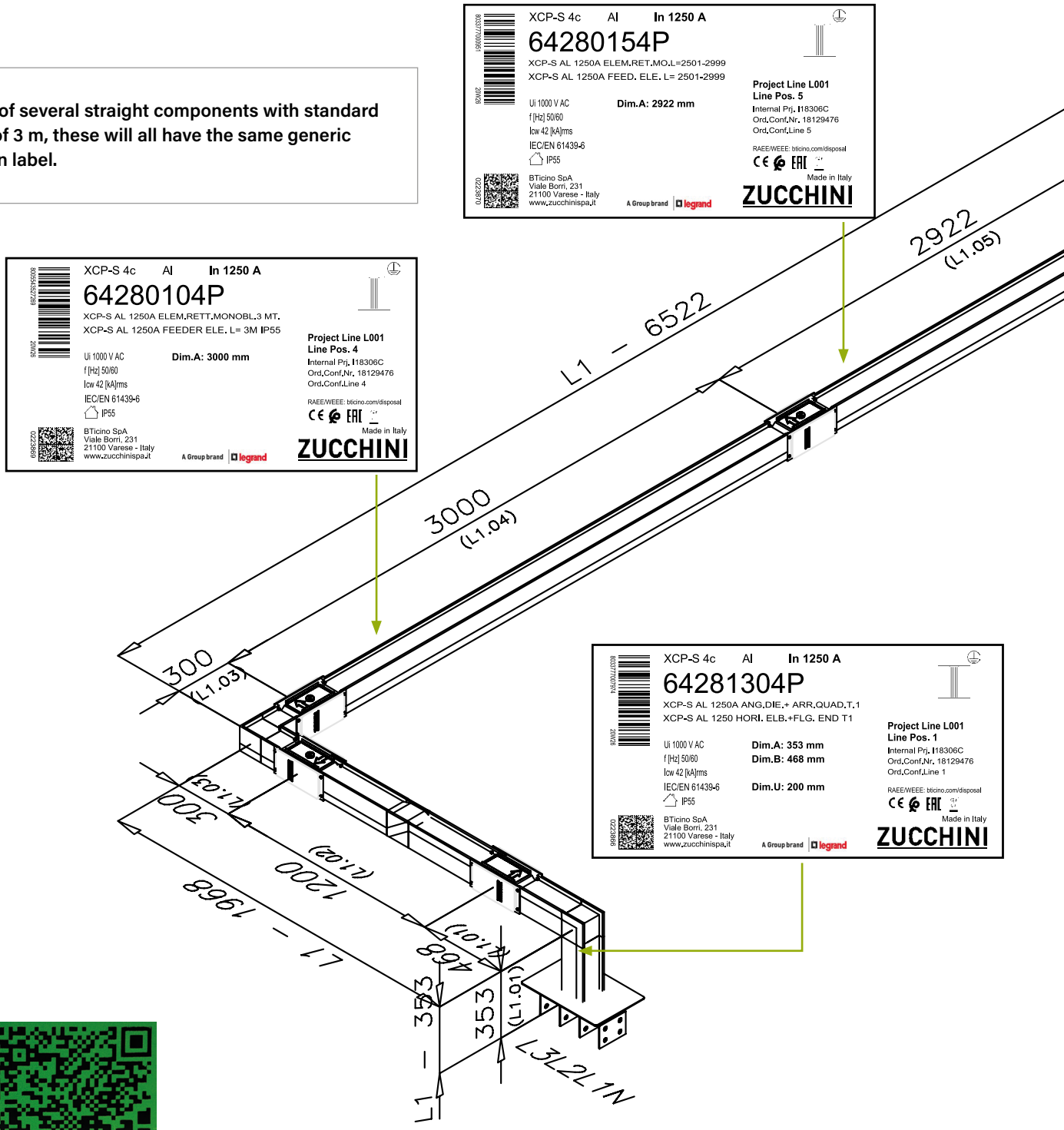
In case of any disclaim, please forward your official complaint to a Legrand referent.

When notifying that a wrong item has been received, please indicate the item code no. found on the packaging, and the item code no. found on the part (if possible include a photo of the labels).

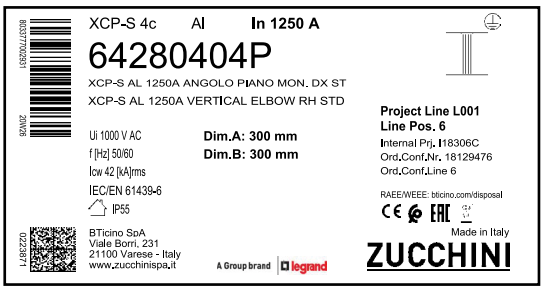
PRODUCT TYPE IDENTIFICATION

Before beginning installation, you must compare the plan which you received from the design office project and the layout of the building. For custom-made products based on specific projects, check the system drawing to ensure that the components match.

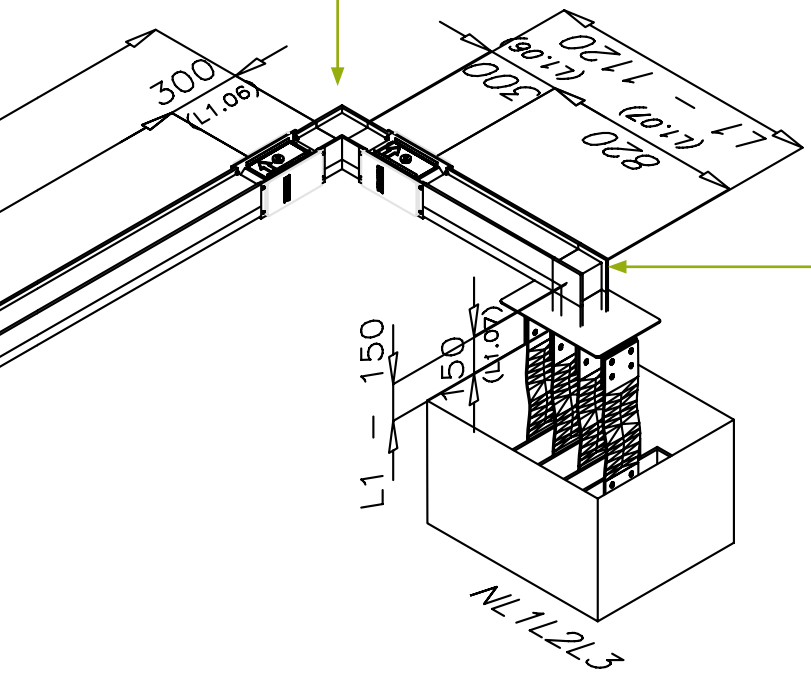
In case of several straight components with standard length of 3 m, these will all have the same generic common label.

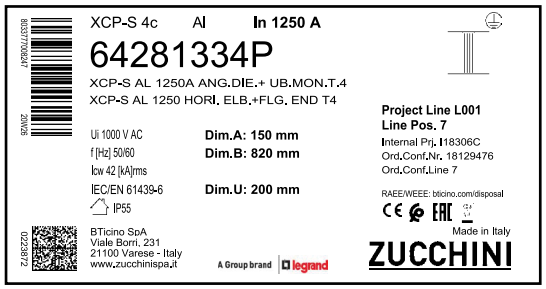


QR code containing all the identification datas of the specific piece with relative quality check details.

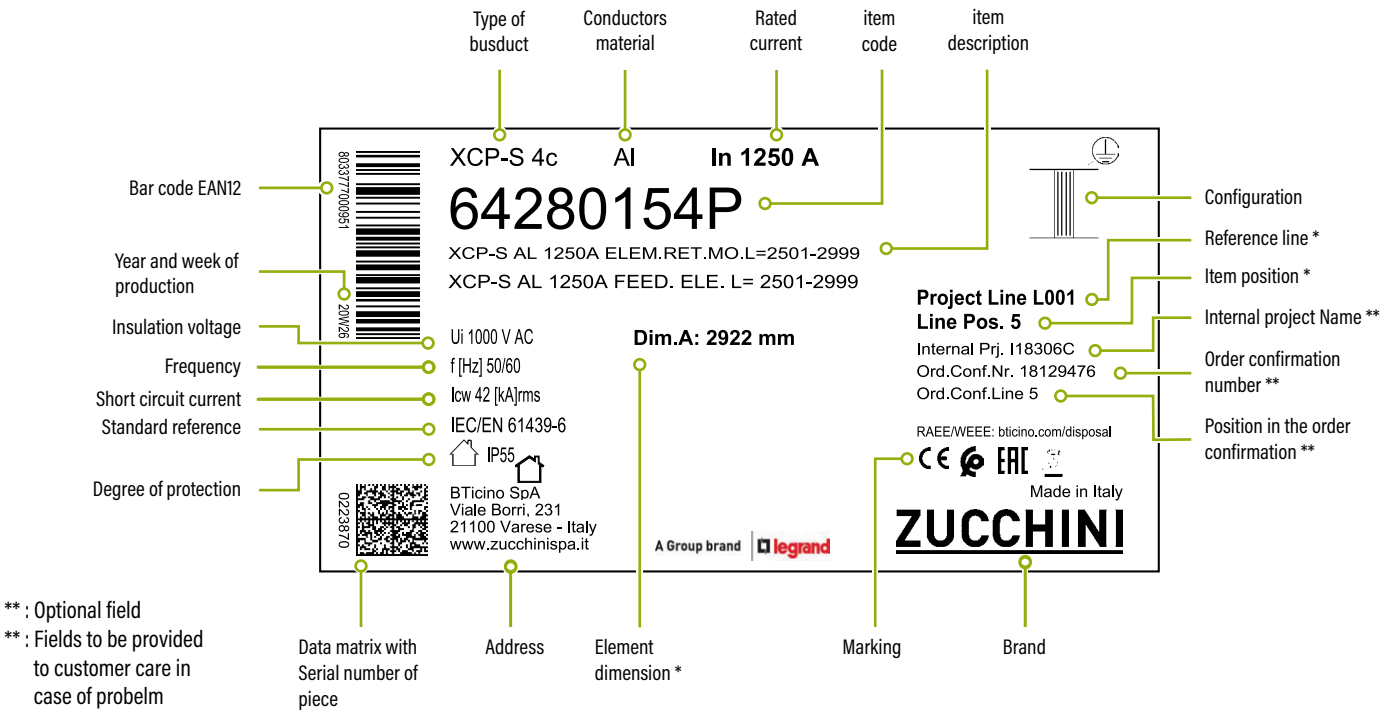


EXAMPLE OF ELEMENTS	
CODE	EXTENDED DESCRIPTION
ZU-64281304P	XCP-S AL 1250A HORI. ELB.+FLG. END T1
ZU-64287124P	XCP-S AL 1250A STR.LENG INVER.FASI L.1,2MT
ZU-64280404P	XCP-S AL 1250A VERTICAL ELB. RH STD
ZU-64280104P	XCP-S AL 1250A FEEDER ELE. L=3M
ZU-64280154P	XCP-S AL 1250A FEEDER ELE. L=2501-2999
ZU-64280404P	XCP-S AL 1250A VERTICAL ELB. RH STD
ZU-64281334P	XCP-S AL 1250A HORI. ELB.+FLG. END T4





DETAILS OF THE ADHESIVE LABEL FOUND ON EACH COMPONENT



INSTALLATION

GENERAL RULES FOR INSTALLING SUPPORTS

Correct installation of supports is fundamental to realize a proper installation of path components.

HAZARD OF IMPROPER INSTALLATION

Before installation

- Be sure to have well the layout plan

During installation

- Be sure to consider correct separation distances between the supports.
  These have to be levelled, so to guarantee final levelling also for path components.
- Be sure that all supports are able to sustain the weights of the path components.

Failure to follow these instructions can result in injury or equipment damage.

CHECKS BEFORE INSTALLATION

Visual / electric checks

Before the installation, all material should be inspected for damage.

When installing the busbars comply with the following:

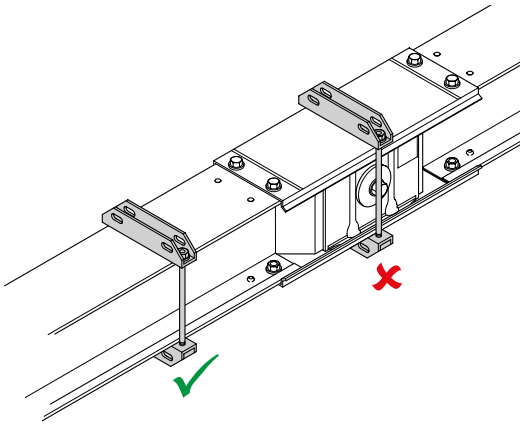
1. Do not position the busbars near pipes containing liquids.
2. For the installation only use bracketing systems supplied by Legrand, and follow the instructions found in the catalogue or enclosed with the item.
3. Only use accessories supplied by Legrand.
4. Check that the operating voltage coincides with that indicated on the product plate.
5. Check that the system operating current does not exceed the product rated current, downgrade it if required.
6. Check if the busbar capacity must be derated (for example due to high ambient temperature, presence of harmonics, etc.)
7. Do not install the standard product in particular environments (high concentration of chlorine, explosive atmosphere, etc.).
8. For outdoor installations, protect the busbar with a protection canopy. The IP55 protection degree can be affected by unsuitably protected outdoor installation.

GENERAL INSTALLATION RULES FOR SUPPORTS

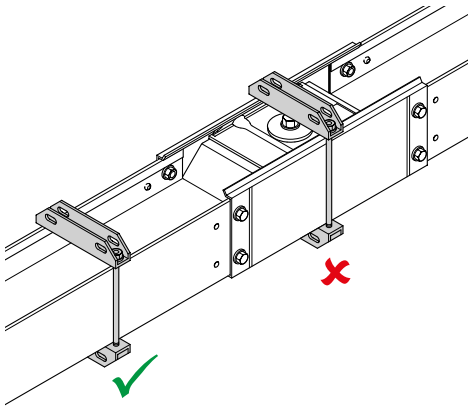
Follow these general rules for installing supports:

- All path components have to be correctly sustained
- To get advantage in installation, be sure to use more than one support for each path component
- The supporting capacity of the support must be at least the weight of the path component plus 90 kg, in accordance with IEC 61439-6.
- Use different support for components at the terminal ends of the path.
- Be sure to not sustain weight of end components by transformers or switchboards.

Edgewise horizontal installation:



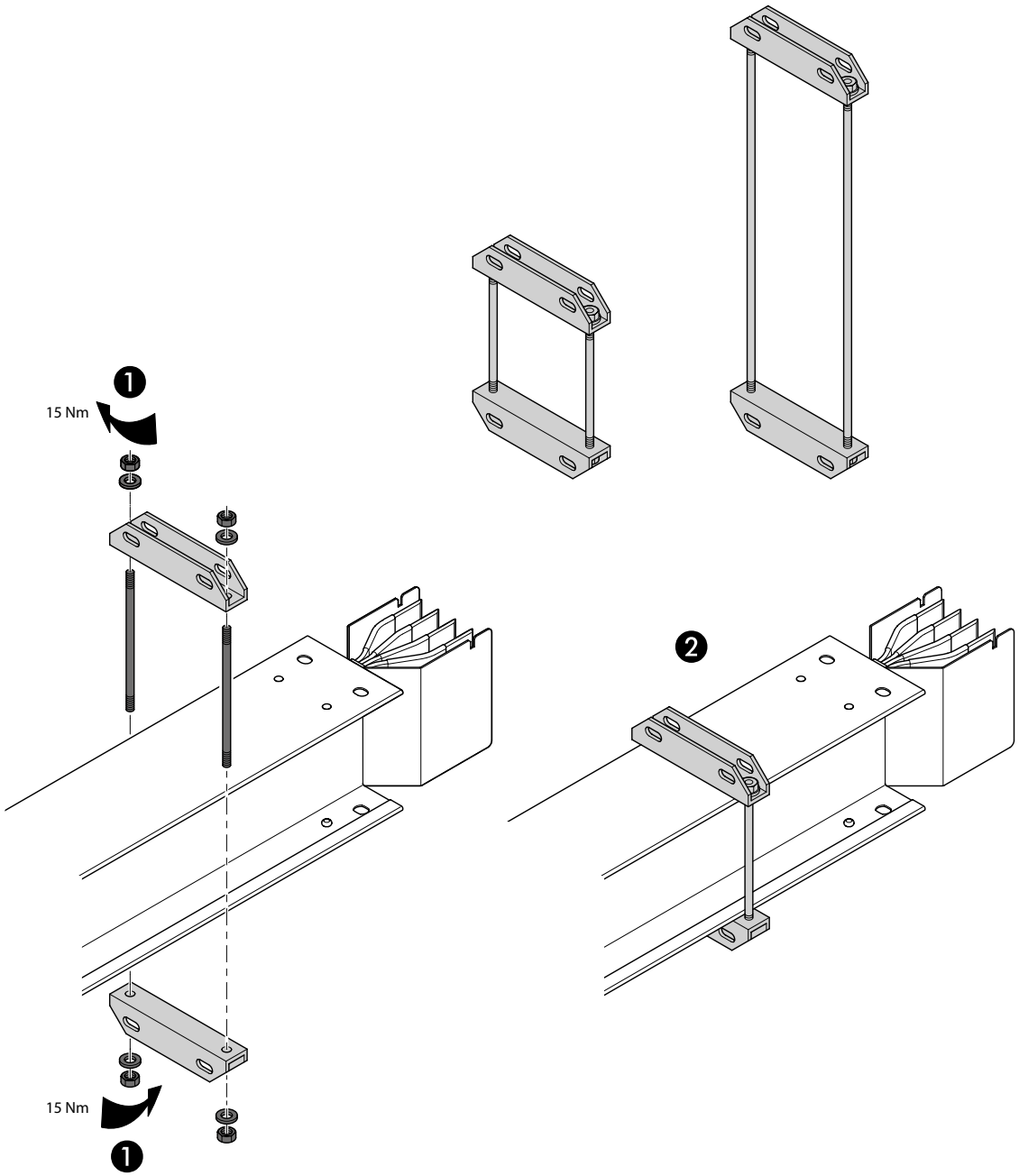
Flatwise horizontal installation:



- Sustain vertical branches near to the elbow angle.
- Make sure that a mounting bracket is installed on each branch of the double elbow.
- Even if supports have to installed near to joint blocks, it has never to be put exactly under a joint block.
- In case TOBs need to be installed on the element, check the clearance before positioning the bracket.

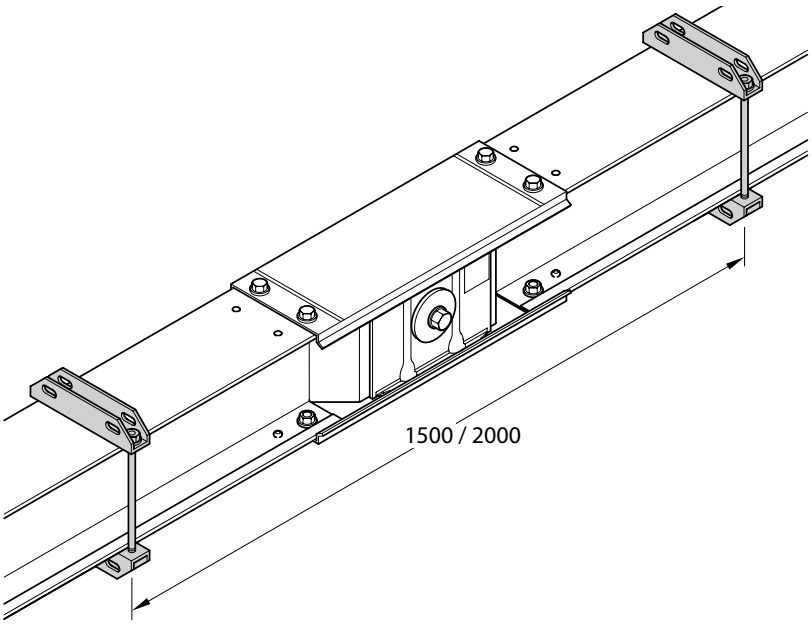
MOUNTING OF THE SUPPORT ELEMENTS

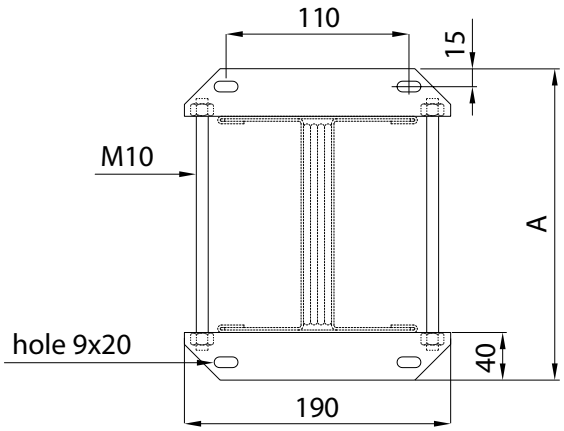
Types of support elements



SUPPORTS FOR EDGEWISE INSTALLATION

For edgewise installations, the maximum recommended distance between supports is 2000 mm.





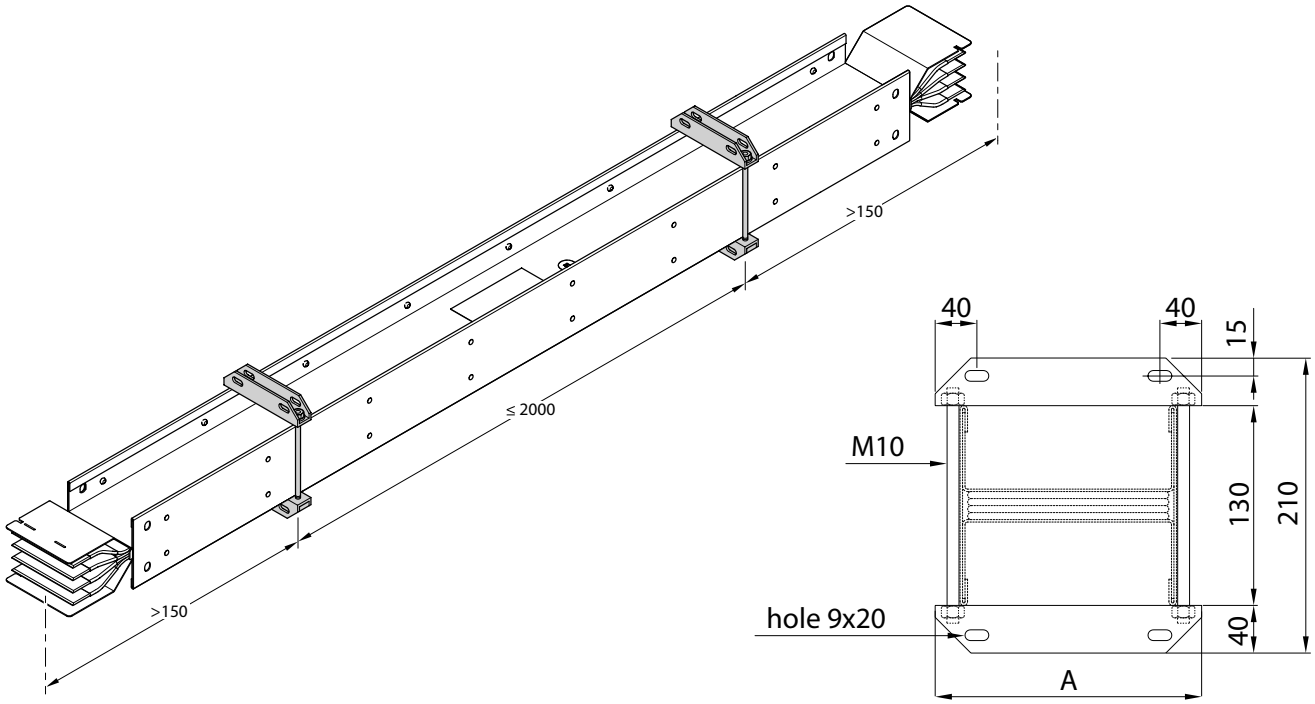
DIMENSIONS		
RATING XCP-S	A (mm)	
	Al	Cu
630	210	-
800	210	210
1000	210	210
1250	250	210
1600	280	250
2000	300	280
2500	460	380
3200	520	460
4000	560	520
5000	670	560
6300	-	670

DIMENSIONS		
RATING XCP-HP	A (mm)	
	Al	Cu
630	210	-
800	210	210
1000	210	210
1250	210	210
1600	280	250
2000	300	250
2500	460	300
3200	520	460
4000	560	520
5000	820	560
6300	-	760

Types of support elements *(continued)*

SUPPORTS FOR FLATWISE INSTALLATION

For flatwise installations, the maximum recommended distance between supports is 2000 mm.
In addition, a support must be placed at a minimun distance of 150mm from the end (joint excluded).



DIMENSIONS		
RATING XCP-S	A (mm)	
	Al	Cu
630	210	-
800	210	210
1000	210	210
1250	250	210
1600	280	250
2000	300	280
2500	460	380
3200	520	460
4000	560	520
5000	670	560
6300	-	670

DIMENSIONS		
RATING XCP-HP	A (mm)	
	Al	Cu
630	210	-
800	210	210
1000	210	210
1250	210	210
1600	280	250
2000	300	250
2500	460	300
3200	520	460
4000	560	520
5000	820	560
6300	-	760

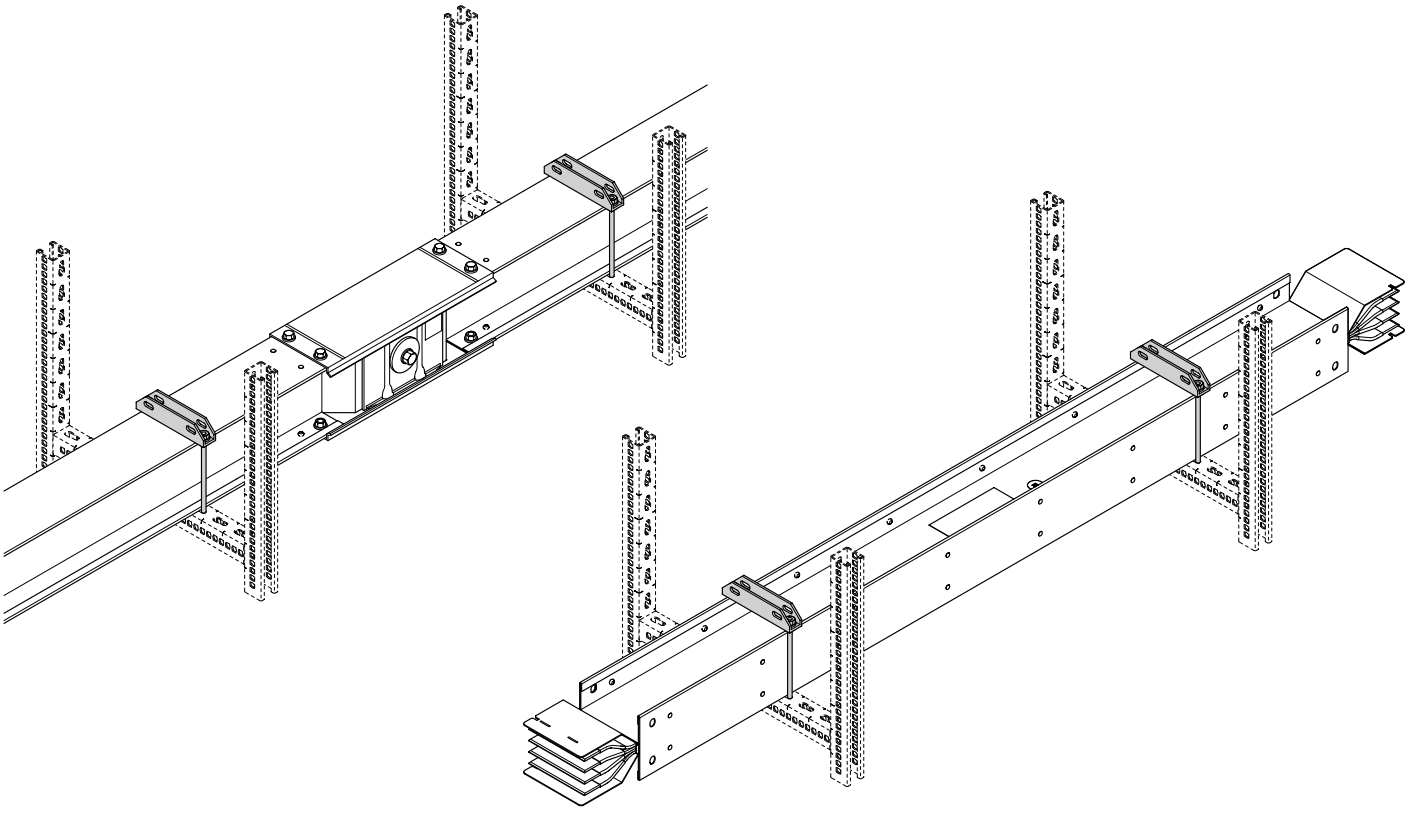
Always consult the general installation rules before installing any type of support p.18

HORIZONTAL SUPPORTS

The function of horizontal supports is to correctly install path components horizontally and also adjust them along the length. Supports also have the function to absorb path components movements.

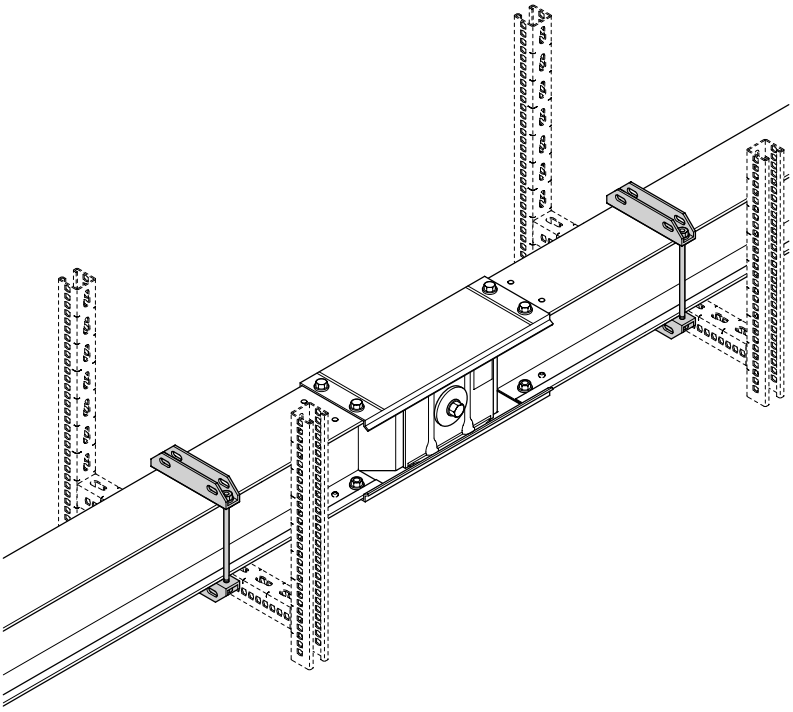
TYPES OF HORIZONTAL SUPPORTS

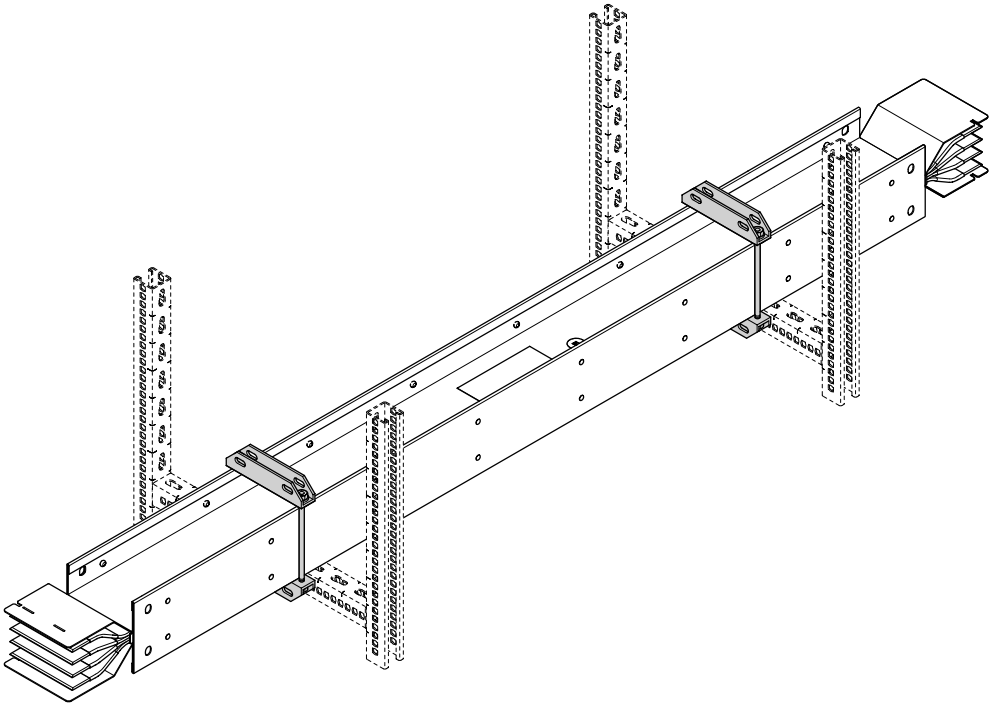
- Attached to the ceiling using 2x2 m threaded M10 rods (NOT provided with the busbar).
- Provide support for edgewise path components from the bottom.
- Attached to the ceiling.
- Provide support for flatwise path components from the bottom.
- Supports are **NOT** provided with the busbar.

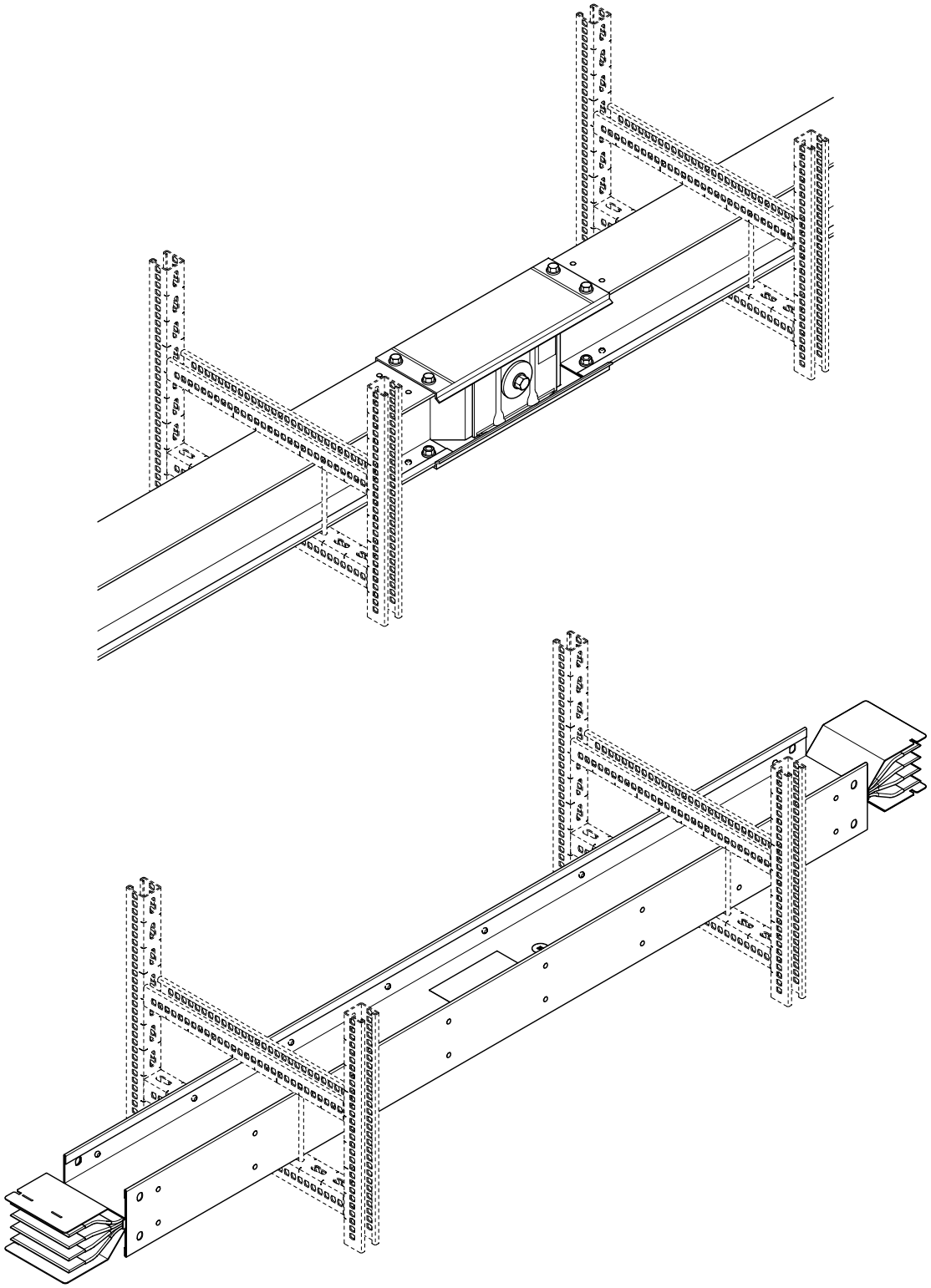


Types of support elements *(continued)*

TYPES OF HORIZONTAL SUPPORTS *(CONTINUED)*



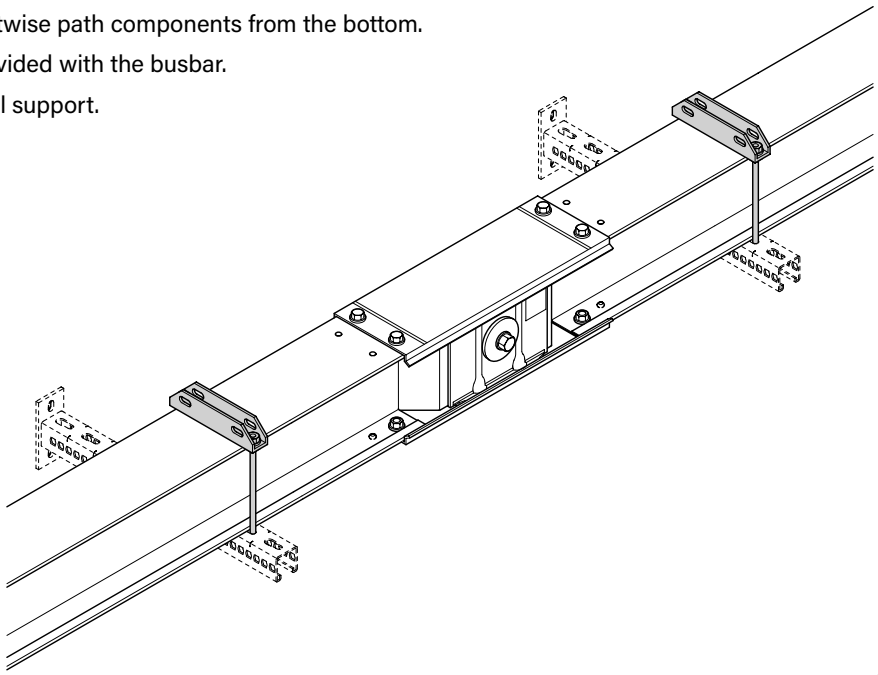


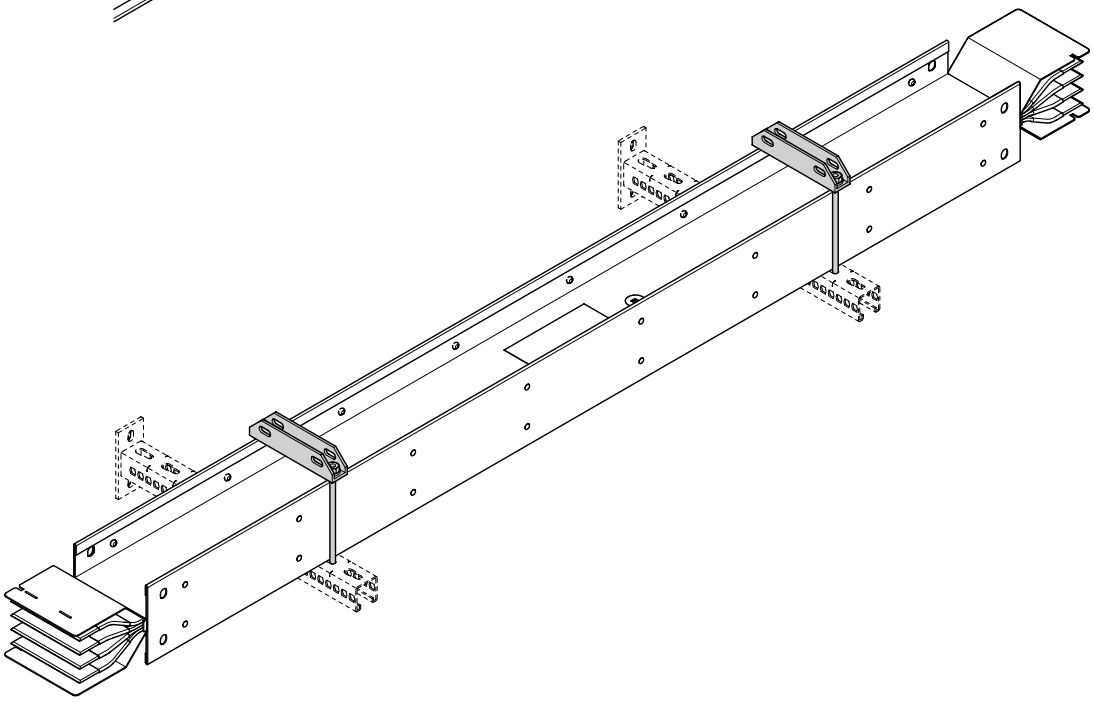


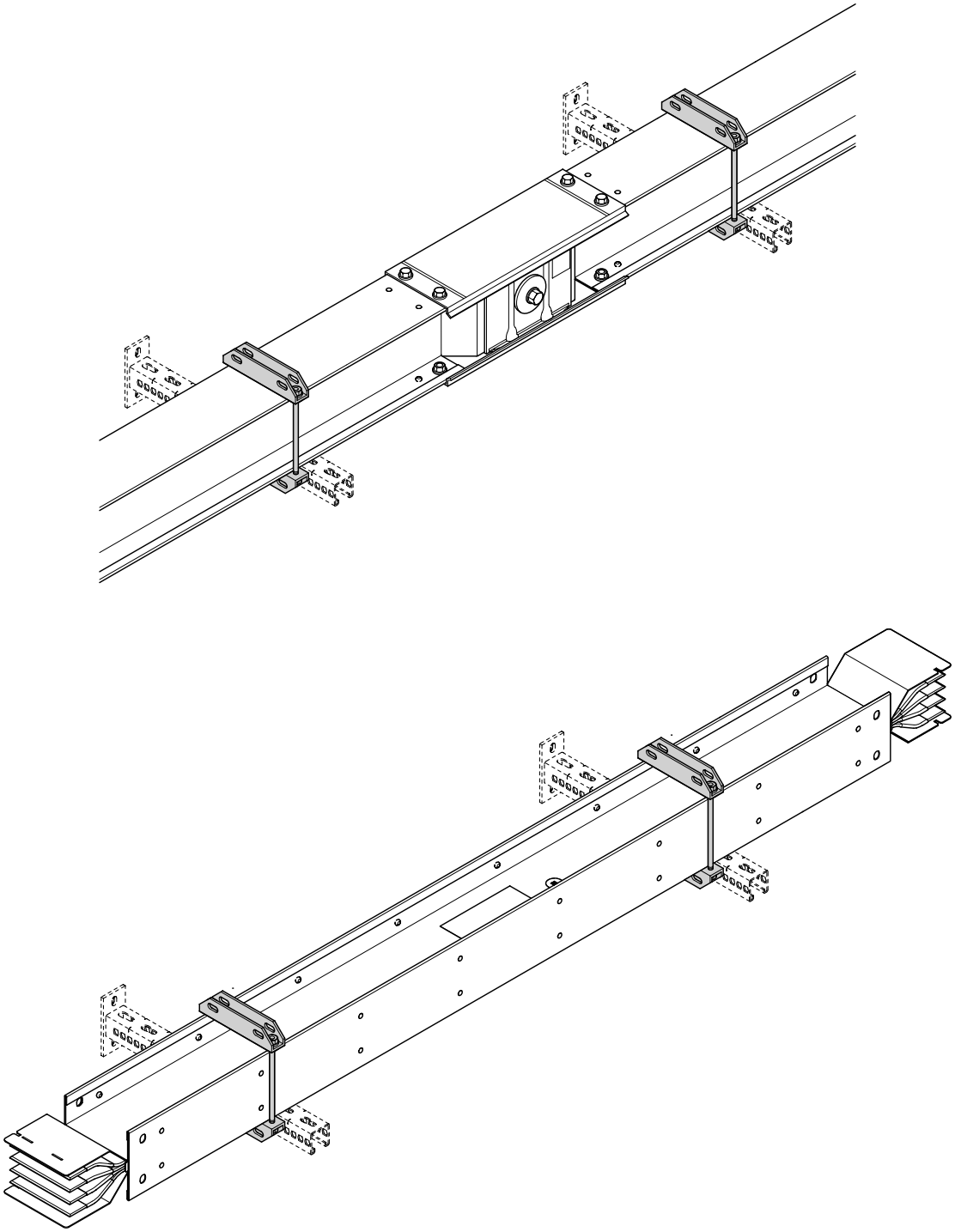
Types of support elements *(continued)*

TYPES OF HORIZONTAL SUPPORTS *(CONTINUED)*

- Attached to the wall.
- Provide support for edgewise path components from the bottom.
- Supports are **NOT** provided with the busbar.
- Attached to the wall.
- Provide support for flatwise path components from the bottom.
- Supports are **NOT** provided with the busbar.
- Fixe the bar on the wall support.

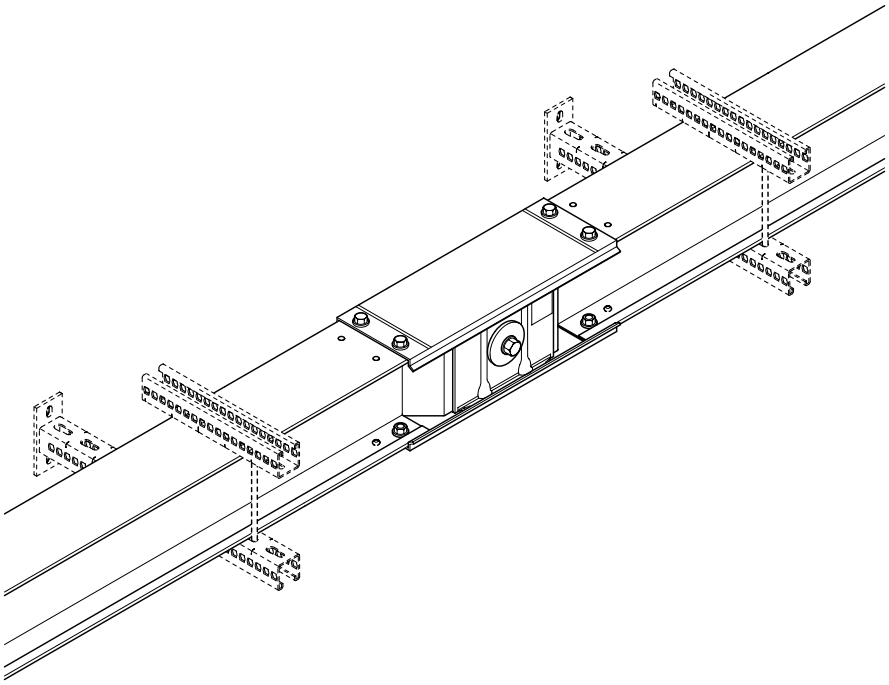


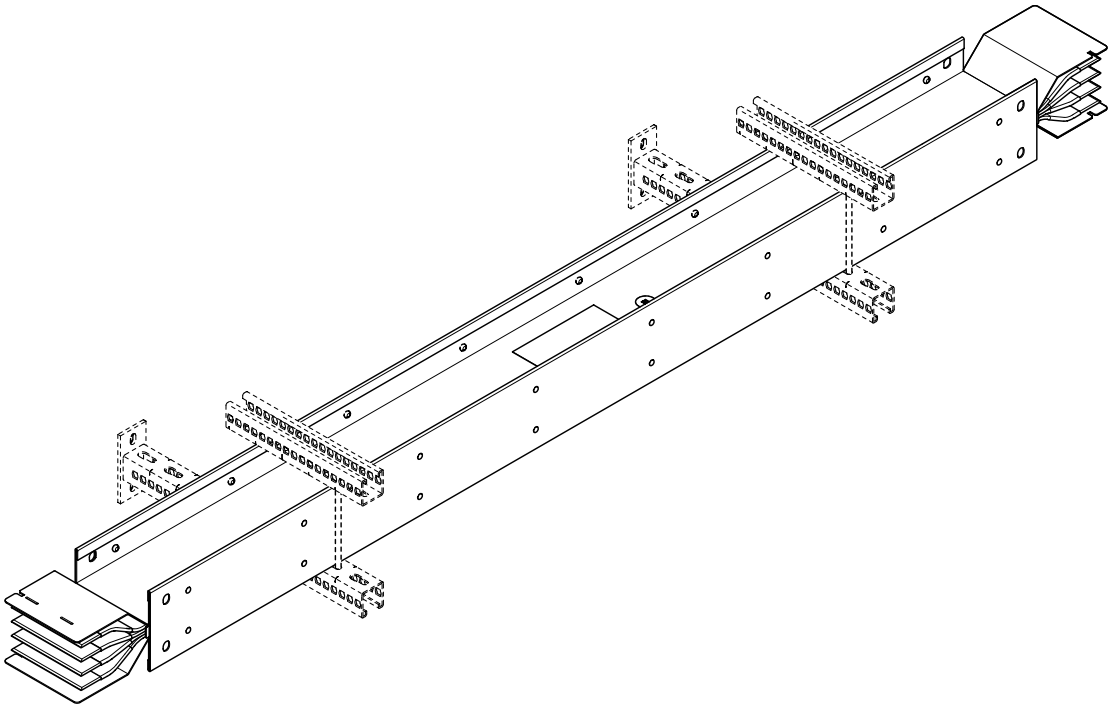




Types of support elements *(continued)*

TYPES OF HORIZONTAL SUPPORTS *(CONTINUED)*

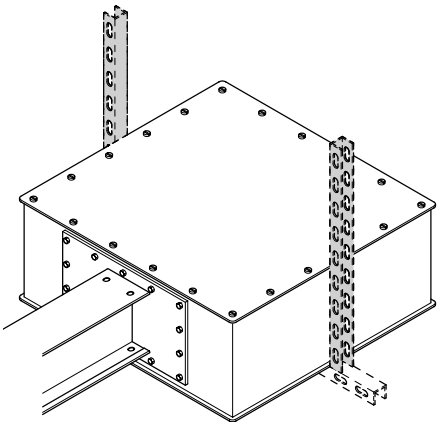




All the dihedral angle components must be supported at the point of the change of direction.

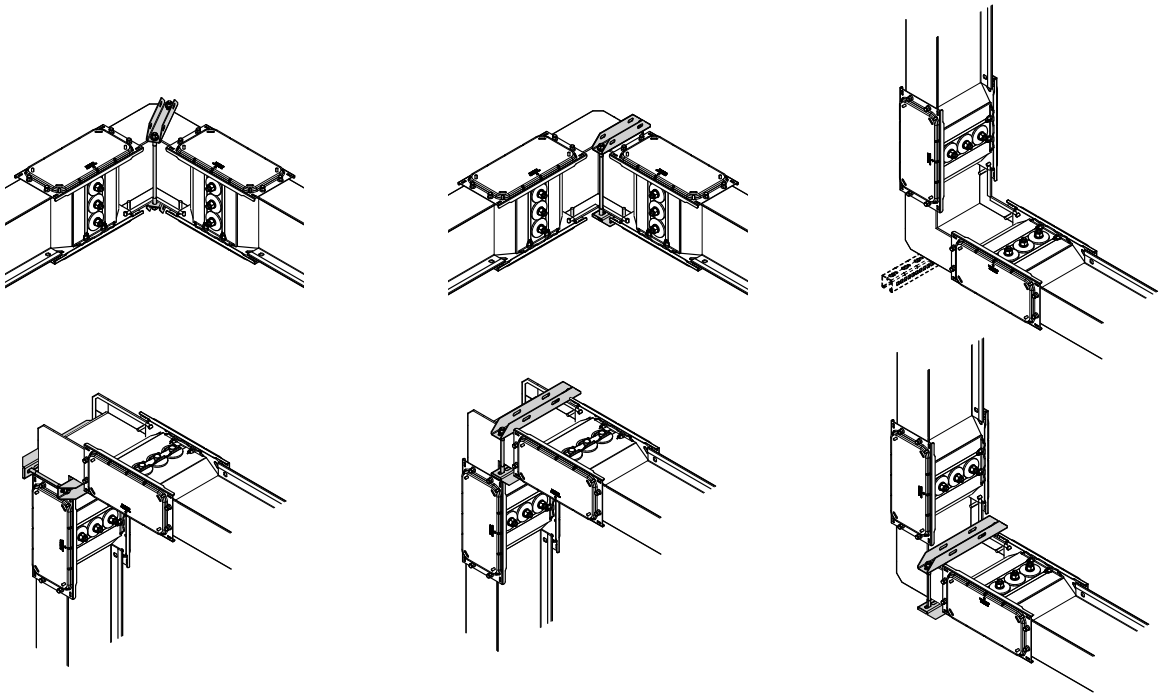
All drawings refer to standard dimensions; for special sizes, in case of doubt, check the bracket points with Legrand.

Use dedicated supports for components at the terminal ends of the path.
Beware to have enough space to connect cables by customer.



SUPPORTS FOR FLATWISE ELBOWS COMPONENTS

Elbows components must have a support installed across the elbow angle.



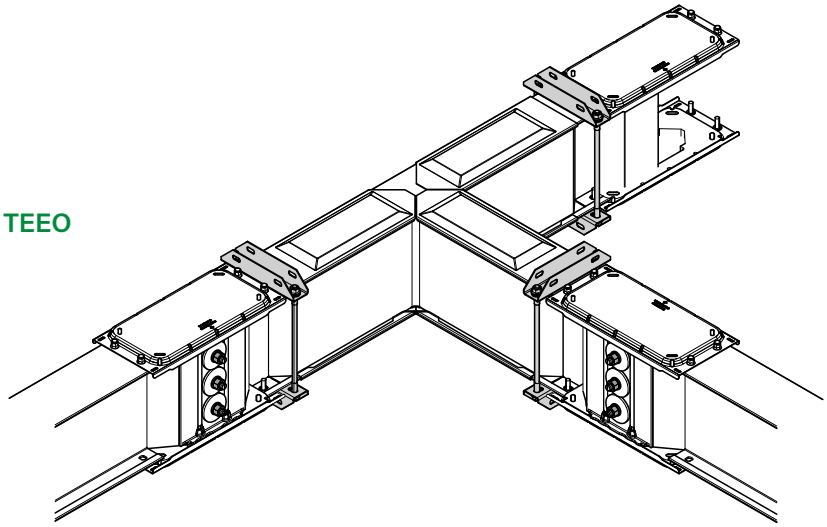
Types of support elements *(continued)*

SUPPORTS FOR T COMPONENTS

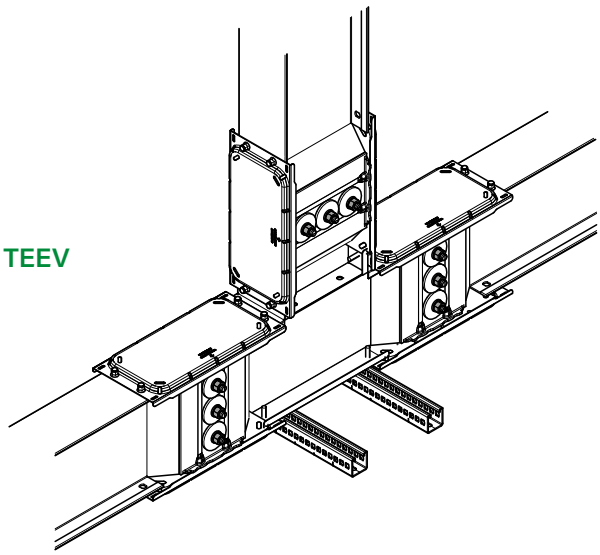
T components must have a support installed across the T-joint.

⚠ Diagonal supports are not supplied.

TEEO

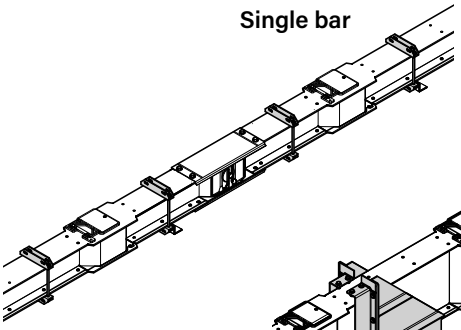


TEEV

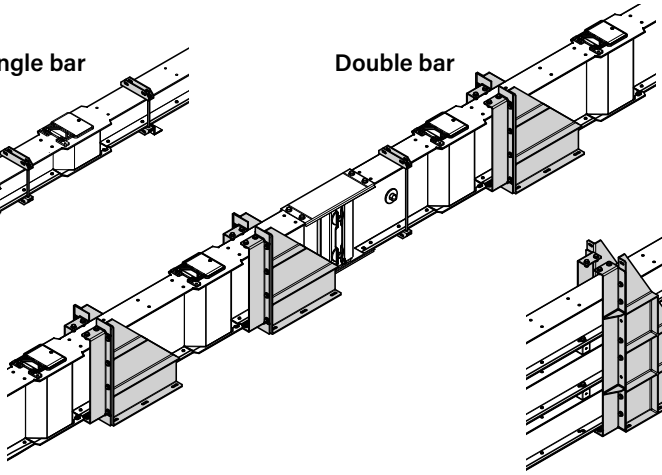


FIXING FOR INSTALLATION IN SEISMIC ENVIRONMENTS IN HORIZONTAL

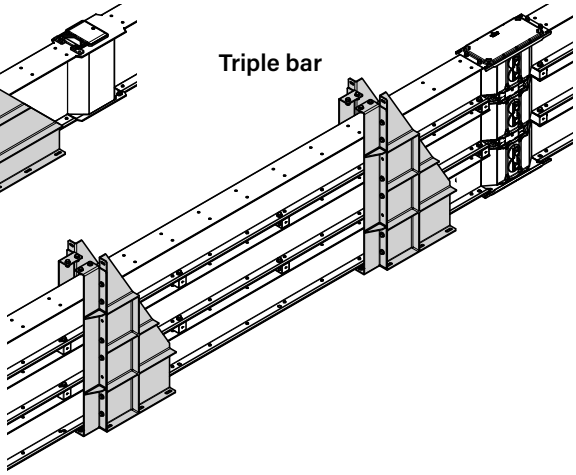
Single bar



Double bar

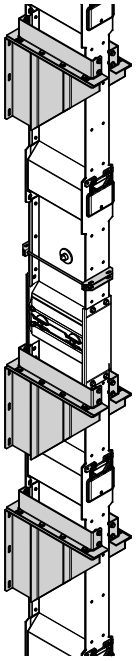


Triple bar

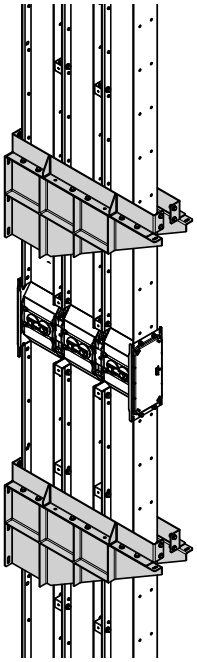


SUPPORT FOR INSTALLATION IN SEISMIC ENVIRONMENTS IN VERTICAL

Single bar / double bar



Triple bar

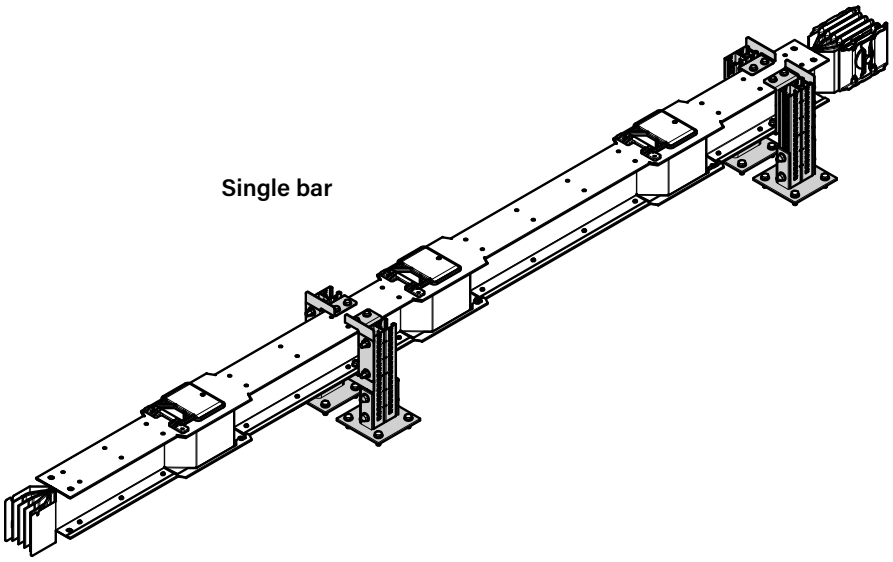


Types of support elements *(continued)*

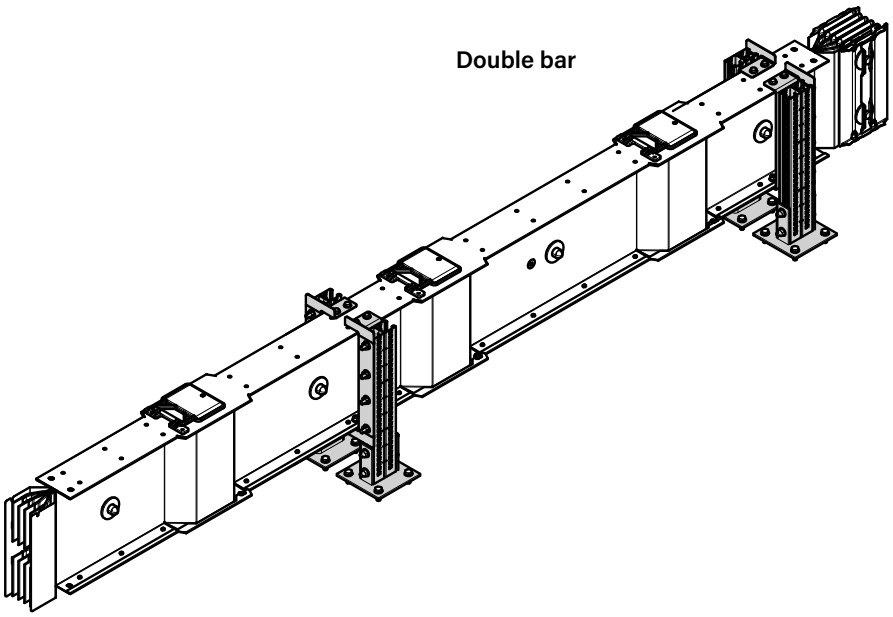
SUPPORT FOR NAVAL INSTALLATION

For naval installations always use a type E bracket.

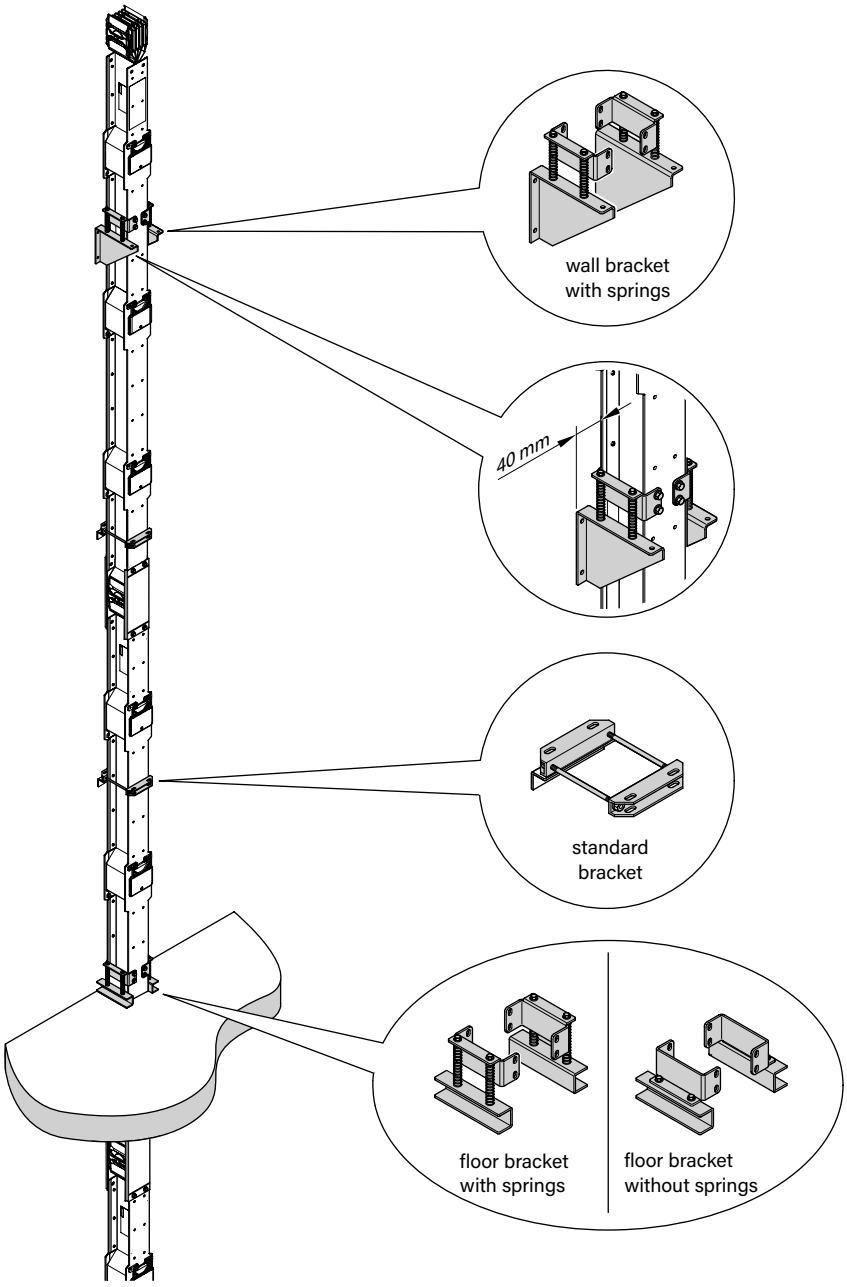
Single bar



Double bar



Example of vertical installation: the standard bracket can be moved if Tap-Off Boxes (TOBs) are present to avoid interference with the TOB position.



When installing a vertical busbar, strictly follow the instructions below:

1. CHARGING DEFINITION IN BRACKETS WITH SPRINGS
2. WALL AND FLOOR DRILLING
3. ATTACHING THE BRACKETS TO THE BUSBARS
4. BUSBAR MOUNTING IN LINE

Installation sizes, distances and positioning logics

Below are some precautions that may be useful to avoid problems during the assembly, which we recommend should be taken into account during the design.

MINIMUM DISTANCES FROM THE STRUCTURE

The minimum distance from the walls, to avoid problems during edgewise installation of the busbar, is 300 mm.

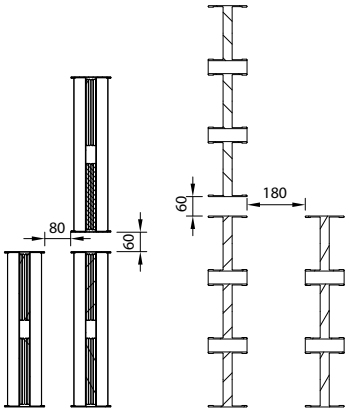
The variables that must be taken into account for correct assembly are:

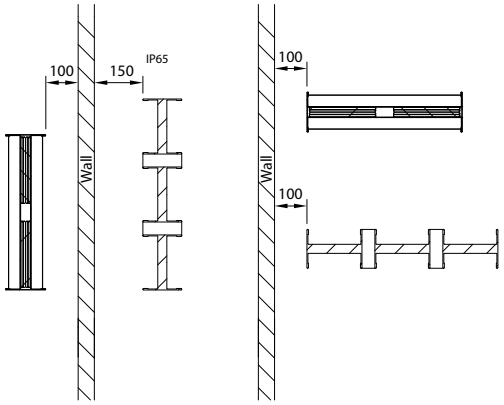
- position of the bolt for tightening the Monobloc; the minimum required distance is 100 mm;
- sizes of the distribution element (box) selected for the collection of power (at least 300 mm);
- any brackets and their assembly;
- accessibility to the screws for the installation of the brackets and the closing of the junctions;
- any material required for the actual installation in order to compensate for wall imperfections.

In case of rising mains installation, if the system does not require fire barriers, the bracket supporting can be directly secured to the wall.

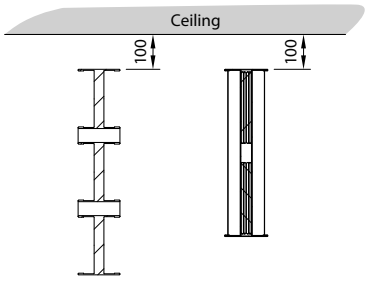
Otherwise, allow for a spacing support between the bracket and the wall, to ensure that the back of the busbar remains at a distance of 100 mm from the wall, therefore ensuring enough space for the positioning of the fire barriers.

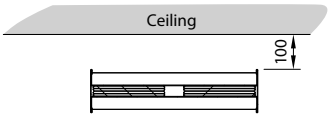
MINIMUM DISTANCE OF THE WALL / CEILING ELEMENTS

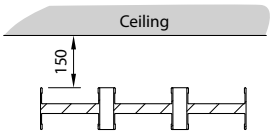




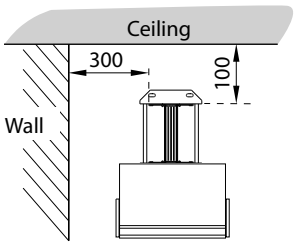
Minimum installation distance when there are several adjacent lines

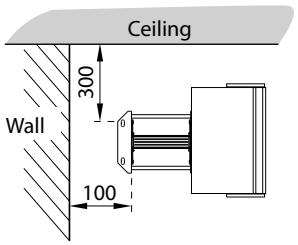


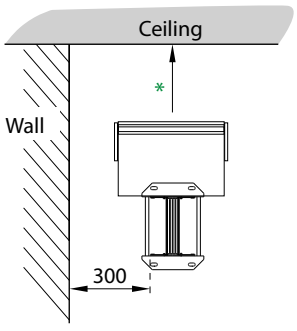




When there are tap-off units along the busbars, the minimum distances depend on the dimensions of the tap-offs selected.







* When there is a tap-off box installed above the busbar, check the overall dimension of the open cover of the tap-off unit used in the specific section.

SPRING BRACKETS : spacing and quantity of spring

Depending on the rating of the busbar, the quantity and the type of brackets being installed, check that the selected distance (D) is the same or less than the maximum distance (Dmax) between two subsequent brackets with springs.

XCP-S 4C Al		
In	D max (m)	Kit spring
630	11	4
800	10	4
1000	10	4
1250	9	4
1600	10	6
2000	9	6
2500	12	8
3200	11	12
4000	10	12
5000	8	12

XCP-S 4C Cu		
In	D max (m)	Kit spring
800	9	4
1000	8	4
1250	7	4
1600	6	4
2000	6	6
2500	9	8
3200	7	8
4000	7	12
5000	5	12
6300	4	12

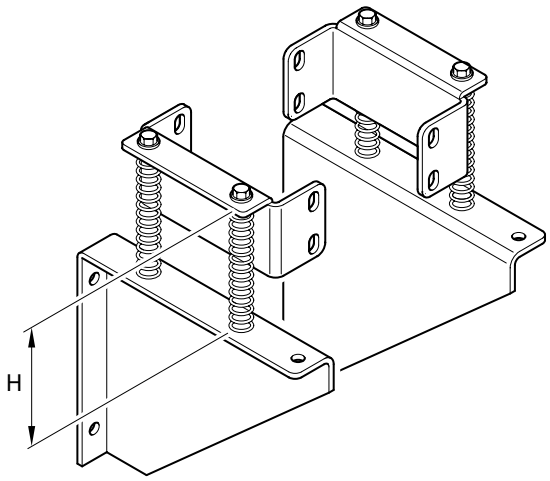
For 5C version multiply Dmax by 0.9
For 3C version multiply Dmax by 1.1

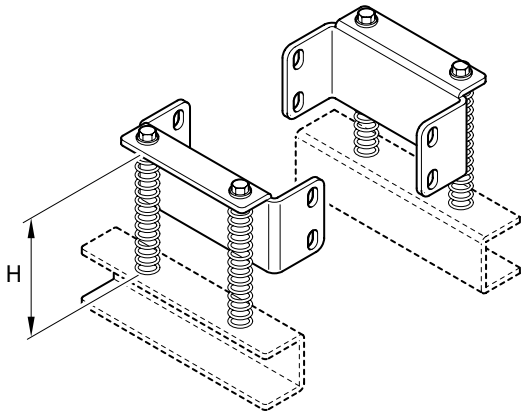
XCP-HP 4C Al		
In	D max (m)	Kit spring
630	10	4
800	10	4
1000	10	4
1250	9	4
1600	7	4
2000	9	6
2500	11	8
3200	11	12
4000	10	12
5000	8	12

XCP-HP 4C Cu		
In	D max (m)	Kit spring
800	9	4
1000	7	4
1250	7	4
1600	6	4
2000	6	6
2500	5	6
3200	6	8
4000	6	12
5000	5	12
6300	4	12

For 5C version multiply Dmax by 0.85
For 3C version multiply Dmax by 1.1

If D≤Dmax, calculate the spring **H CHARGING** value:





$$\mathbf{H} = 130 - \frac{(Wb \times D + Wacc)}{(3 \times n)}$$

Where:

Wb: busbar linear weight (kg/m)

D: actual distance between two brackets with springs (m)

Wacc: sum of the weights of all the accessories connected between two brackets with springs (boxes, cables, etc.) (kg)

n: total number of springs in the brackets (see previous table)

H: charging (mm). CAUTION: H should be between 105 and 130 mm

CALCULATION EXAMPLE:

TYPE OF BUSBAR: S-4C-Cu (Pe2)
In [A]: 800
Dmax [m]: 9
D [m]: 7
BUSBAR [kg/m]: 23,3
BOX WEIGHT 1 [kg]: 18
BOX WEIGHT 2 [kg]: 1

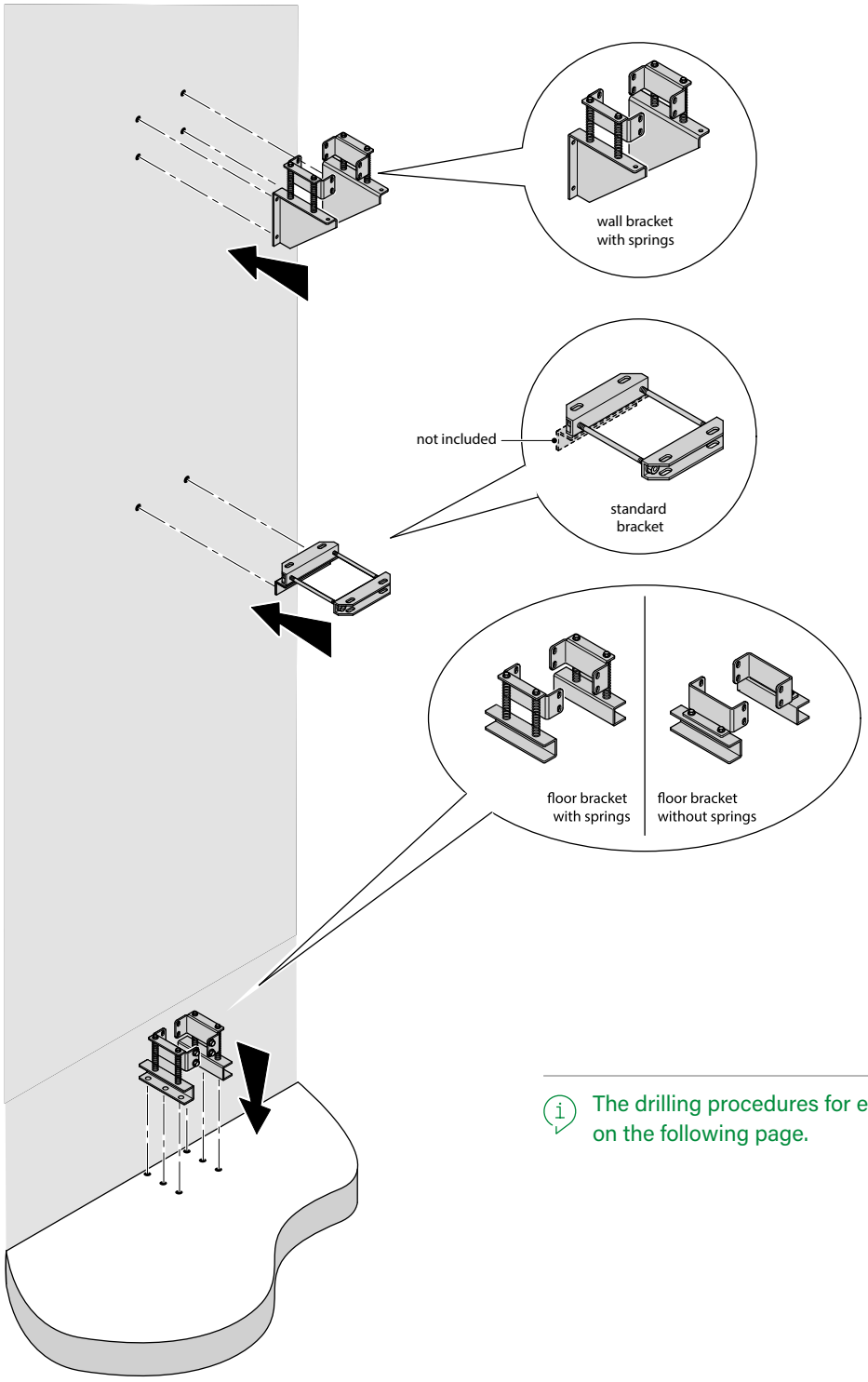
$$\mathbf{H} = 130 - \frac{23{,}3 \times 7 + (18+12)}{3 \times 4} = 113{,}9 \text{ mm}$$

TYPE OF BUSBAR: S-4C-Cu (Pe2)
In [A]: 800
Dmax [m]: 9
D [m]: 7
BUSBAR [kg/m]: 23,3
BOX WEIGHT 1 [kg]: 18
BOX WEIGHT 2 [kg]: 12

$$\mathbf{H} = 130 - \frac{29{,}6 \times 6 + (18+12)}{3 \times 6} = 118{,}5 \text{ mm}$$

Wall and floor drilling

Depending on the rating of the busbar, the quantity and the type of brackets being installed, check that the selected distance (D) is the same or less than the maximum distance (Dmax) between two subsequent brackets with springs.

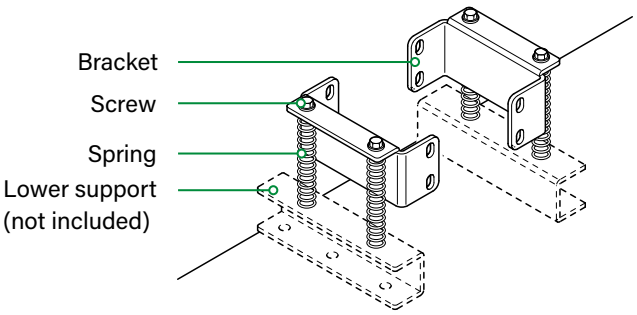


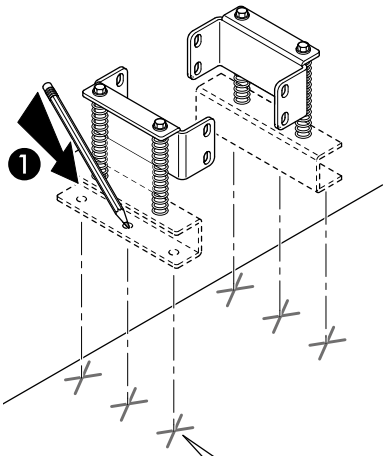
The drilling procedures for each type of bracket are provided on the following page.

FLOOR BRACKET WITH/WITHOUT SPRINGS

The bottom supports (dashed shapes) are not included with the brackets, but are available to order.

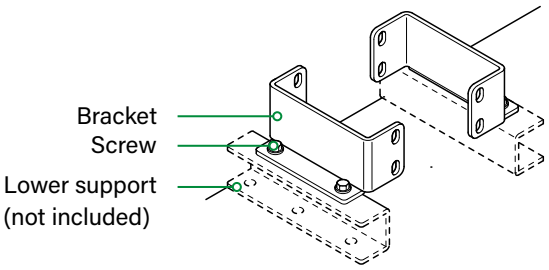
FLOOR BRACKET WITH SPRINGS (TYPE C)

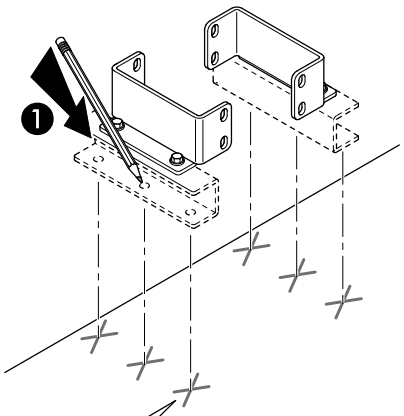


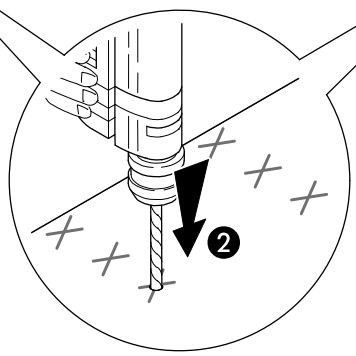


1. On the floor, mark the holes of the bottom supports at the point where the busbar must be secured.

FLOOR BRACKET WITHOUT SPRINGS (TYPE D)







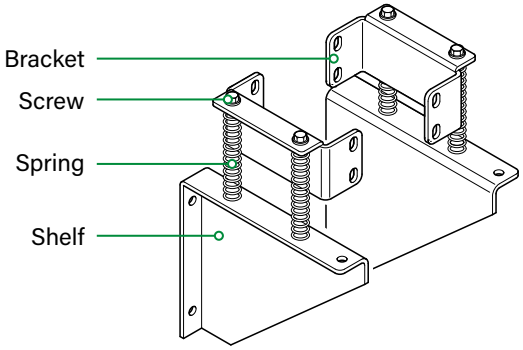
2. Drill the floor at the marked positions.

Wall and floor drilling *(continued)*

WALL BRACKET WITH SPRINGS AND ANTI-SEISMIC BRACKET

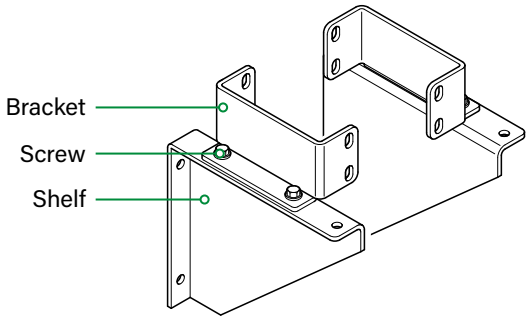
WALL BRACKET WITH SPRINGS (TYPE A)

Section line of over 4 m
In the lowest point **Type A** vertical bracket
if secured **to the wall**

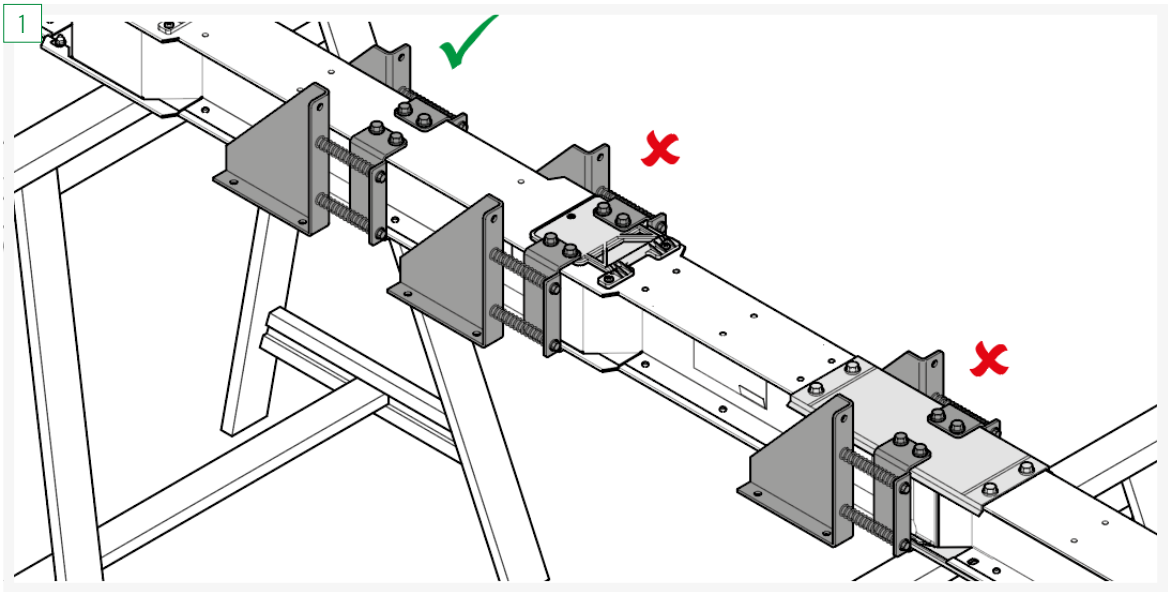


ANTI-SEISMIC WALL BRACKET (TYPE B)

Section line between 2 and 4 m
In the lowest point **Type A** vertical bracket
if secured **to the wall**



1

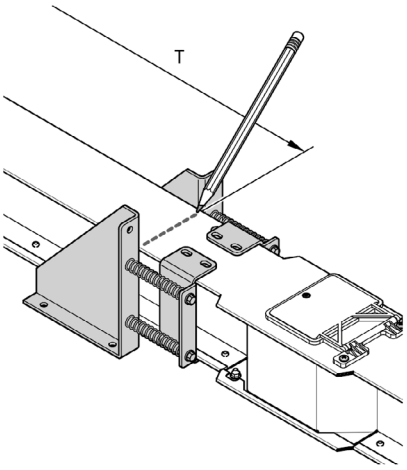


Set the bracket position on the busbar.

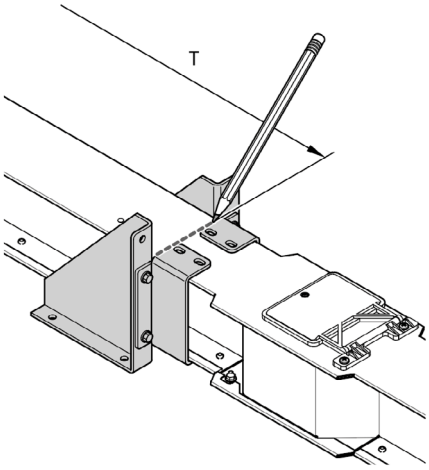
⚠ Do not position the bracket nearby branching, joining ports and tap offs.

2

WALL BRACKET WITH SPRINGS (TYPE A)

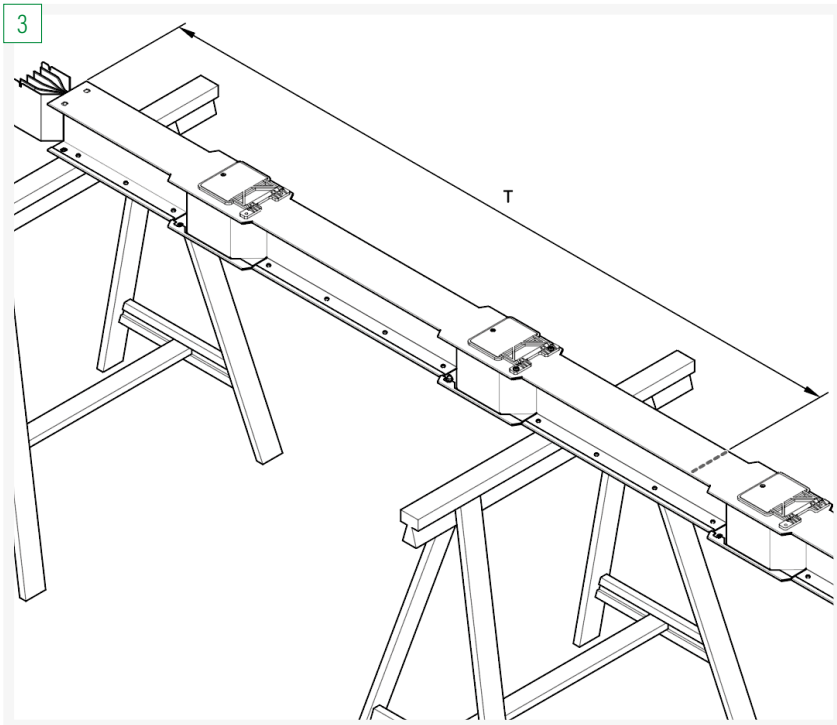


WALL BRACKET (TYPE B)



Place the bracket on the busbar at the fixing position and mark the upper side of the shelf.

3



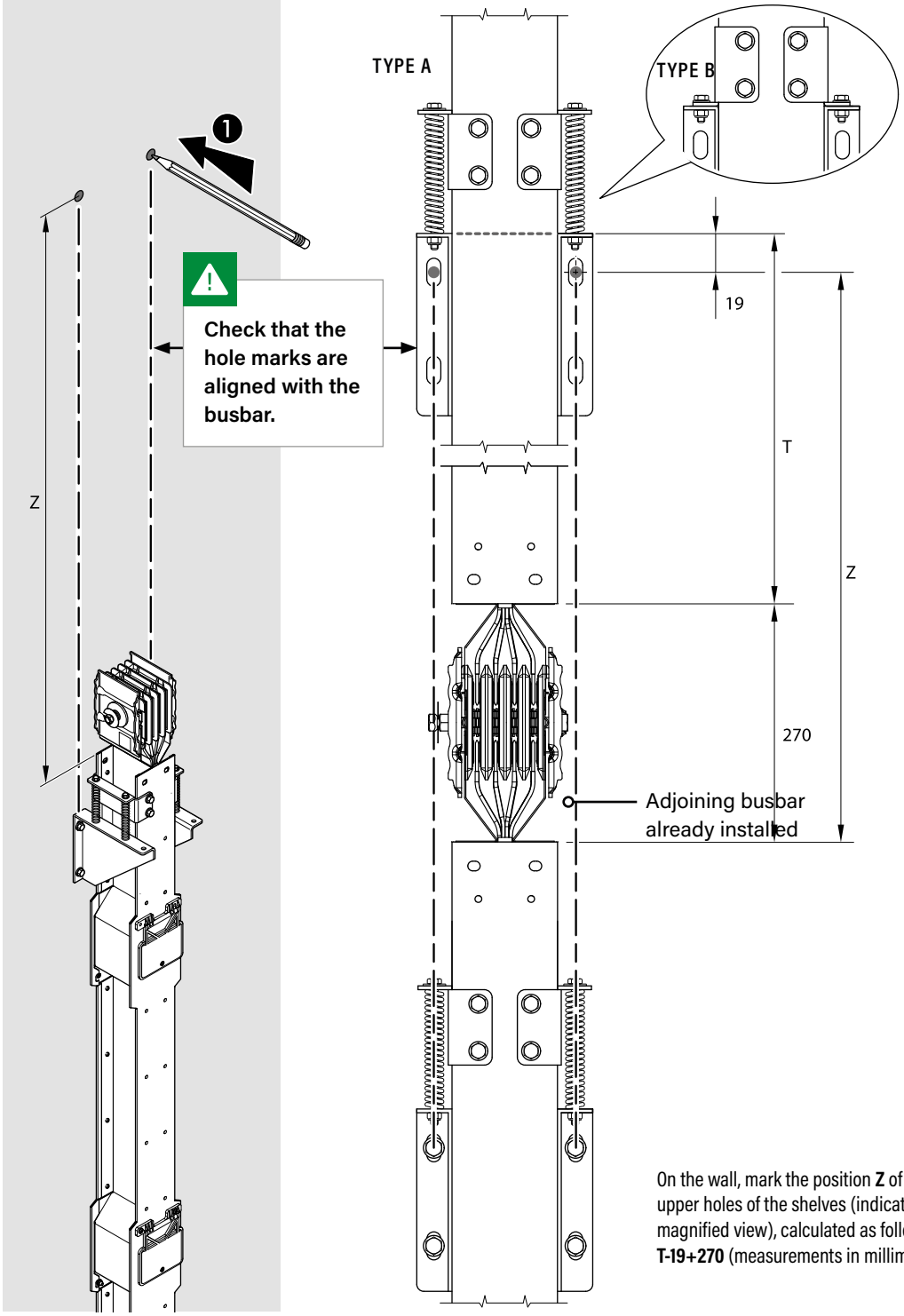
The measurement must be from the busbar cap and not the bars.

Measure the distance T from the mark just made to the bottom cap of the component.

Wall and floor drilling *(continued)*

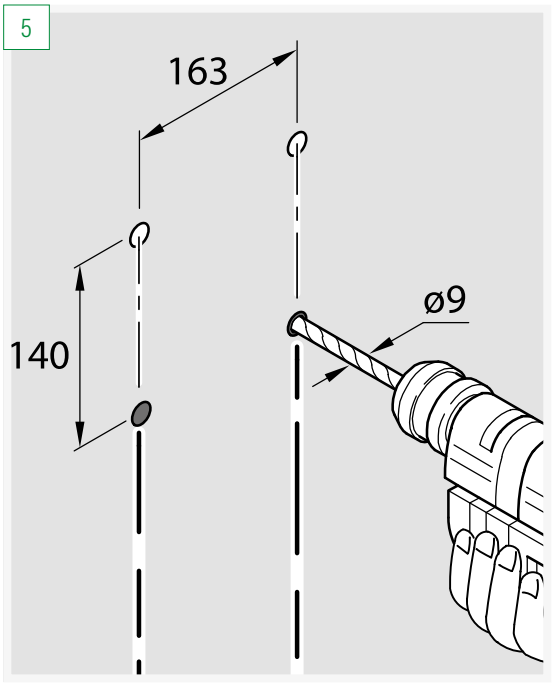
WALL BRACKET WITH SPRINGS AND ANTI-SEISMIC BRACKET *(CONTINUED)*

4



On the wall, mark the position **Z** of the two upper holes of the shelves (indicated in the magnified view), calculated as follows: **Z= T-19+270** (measurements in millimeters).

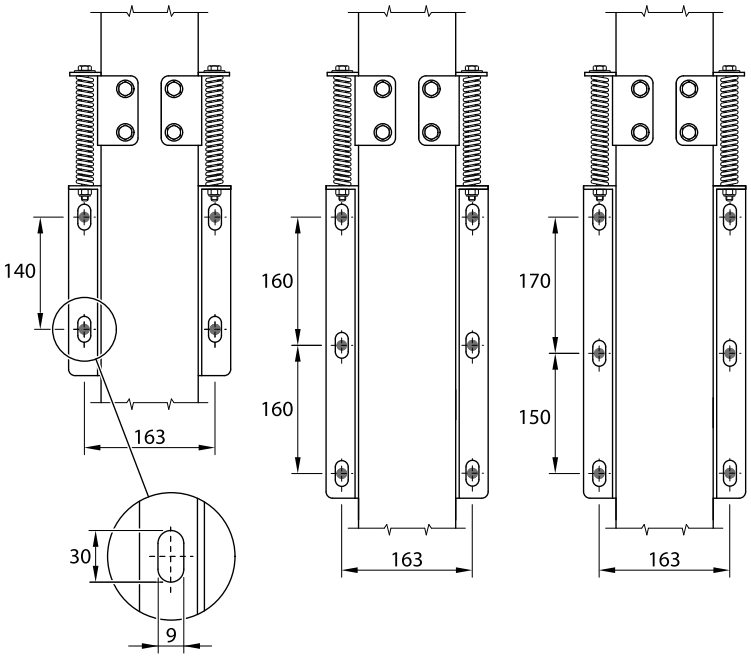
5



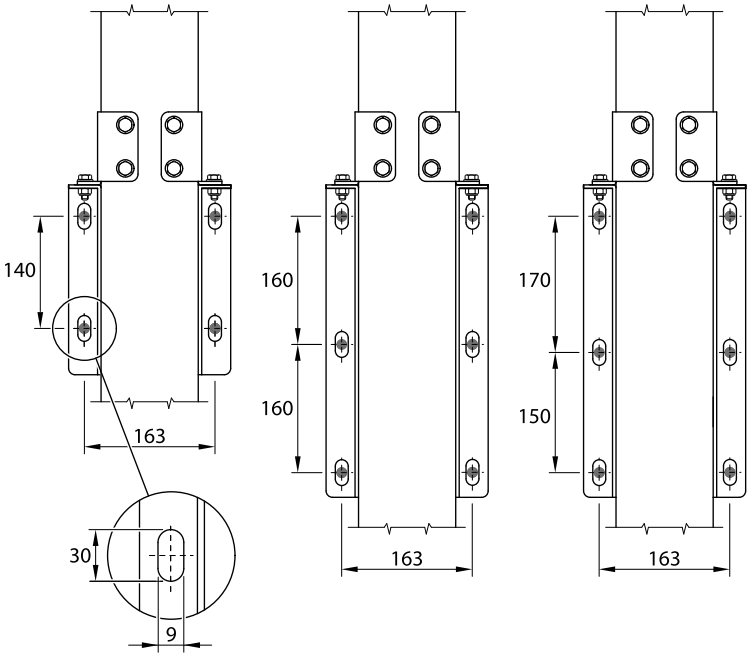
On the wall, mark the positions of the bottom holes of the brackets, using the dimensions indicated.

⚠ The Z value must be measured from the upper cap of the already installed adjoining busbar.

WALL BRACKET WITH SPRINGS (TYPE A)



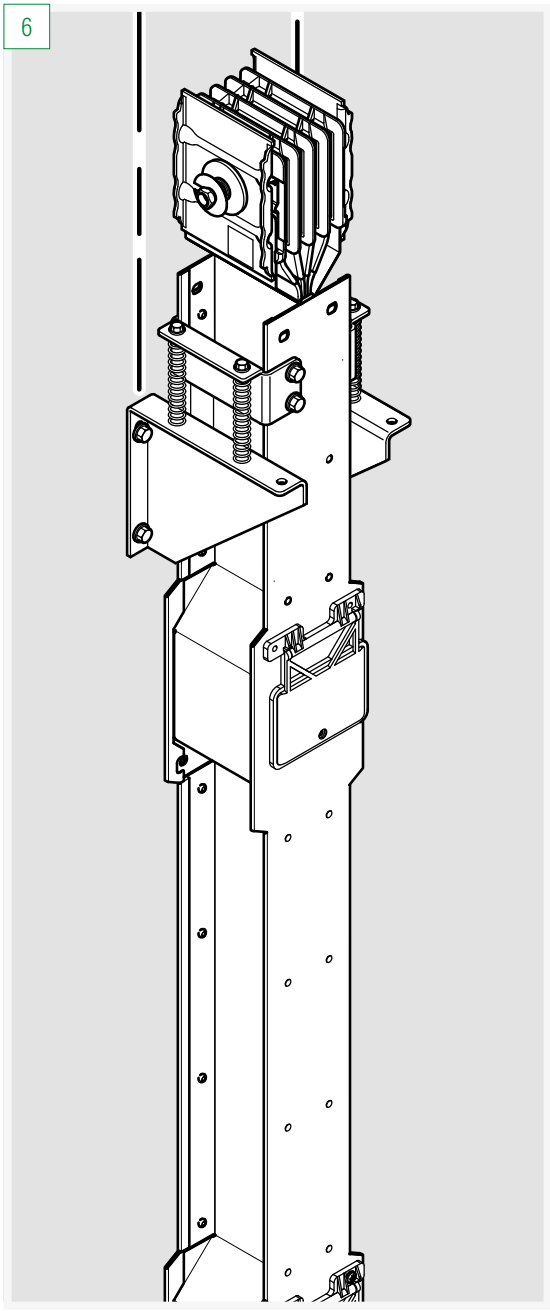
WALL BRACKET (TYPE B)



Wall and floor drilling *(continued)*

WALL BRACKET WITH SPRINGS AND ANTI-SEISMIC BRACKET *(CONTINUED)*

6

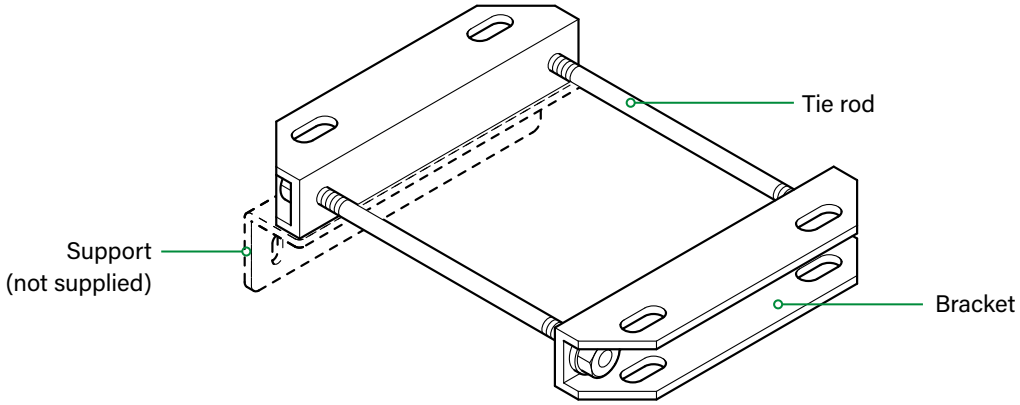


Drill the holes at the marked positions.
Make sure the hole positions remain aligned with the busbar.

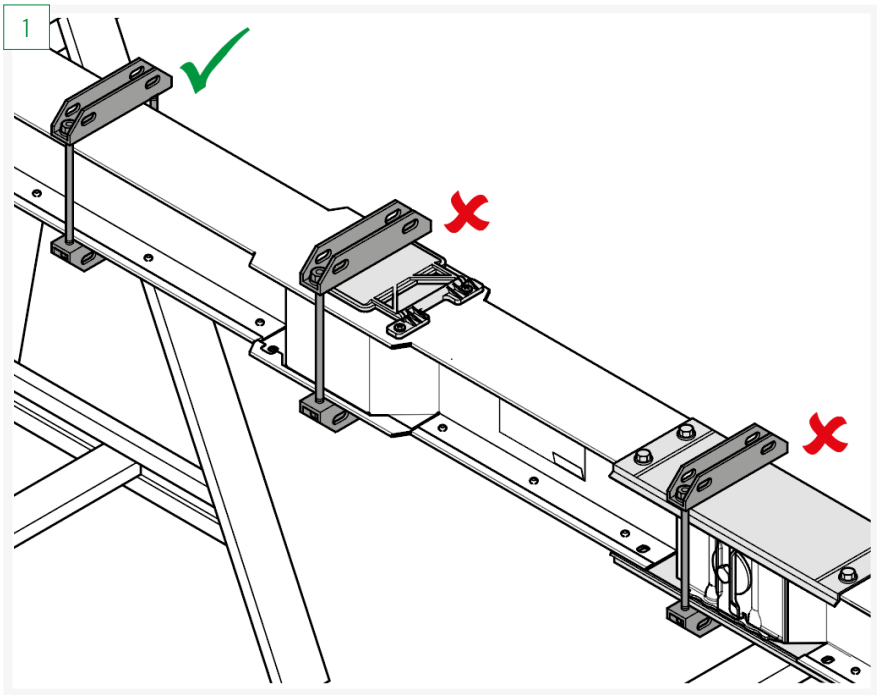
Step 6 must only be performed after completing step 5 and confirming that all reference marks are correctly positioned.

STANDARD BRACKET

The bottom support (dashed shape) is not supplied.

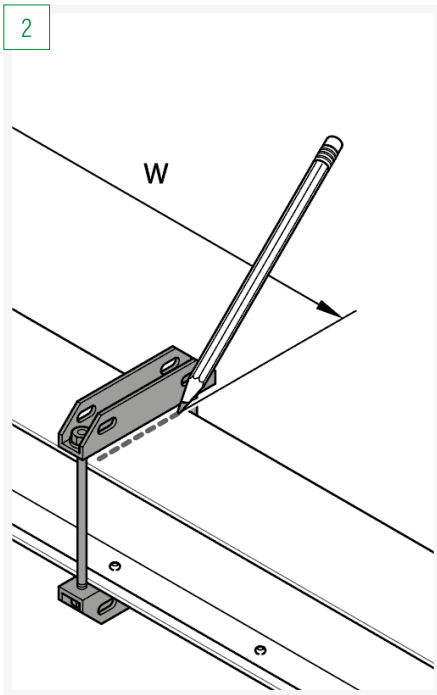


1



Set the bracket position on the busbar.

2



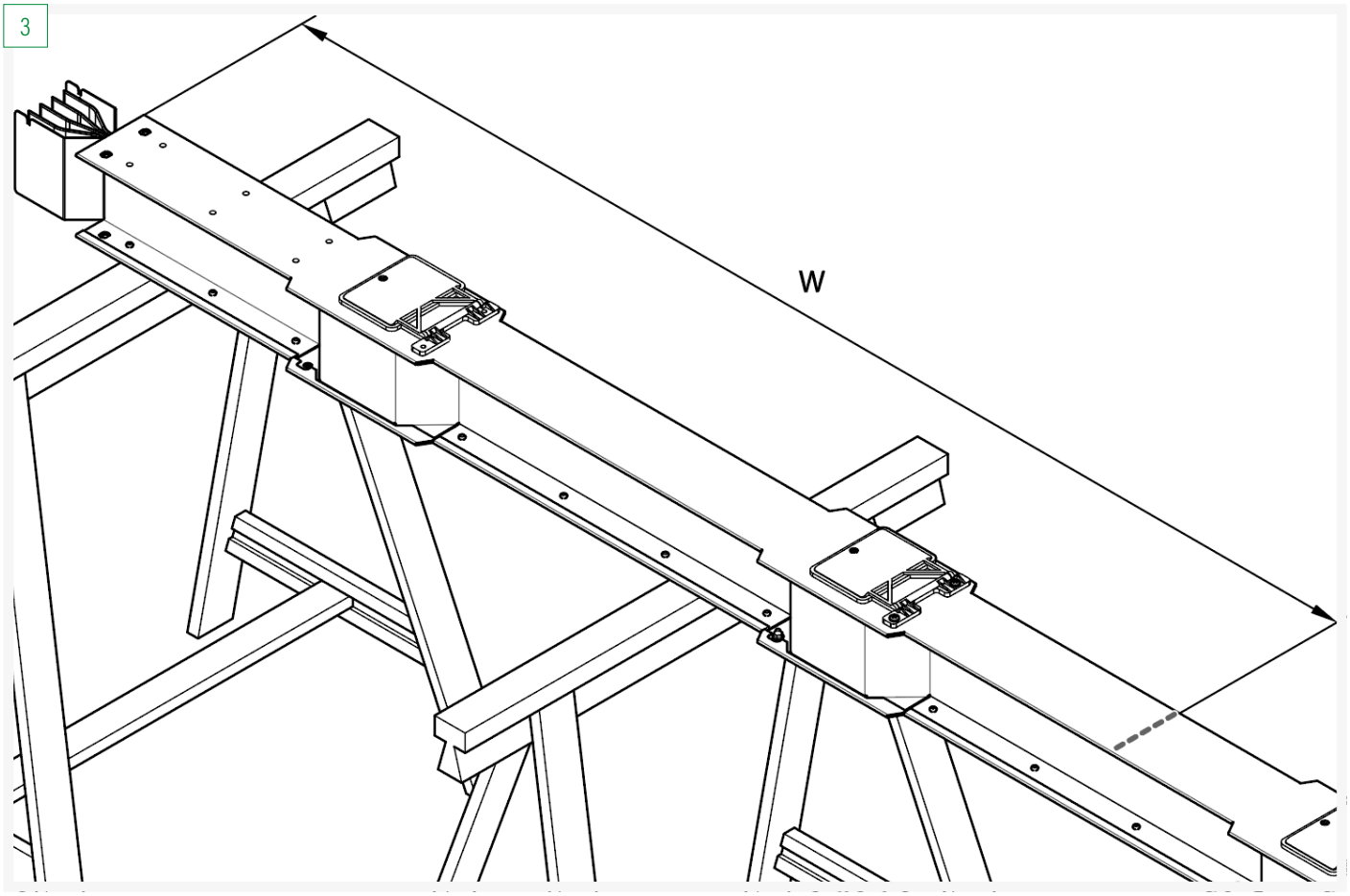
Place the bracket on the busbar and mark its upper side.

⚠ Do not position the bracket nearby branching and joining ports.

Wall and floor drilling *(continued)*

STANDARD BRACKET *(CONTINUED)*

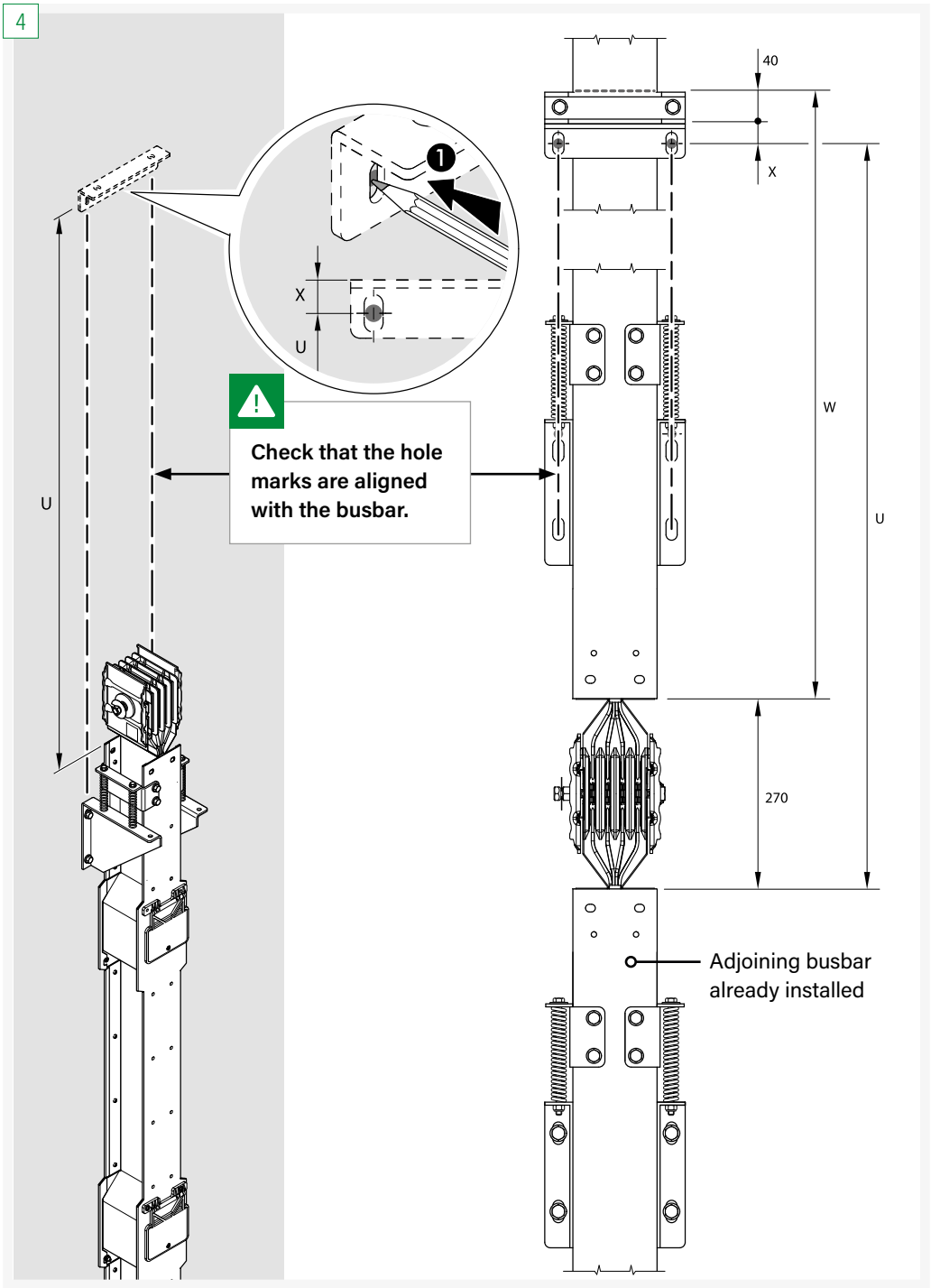
3



Measure the distance W from the mark just made to the bottom cap of the busbar.

⚠ The measurement must be from the busbar cap and not the bars.

4



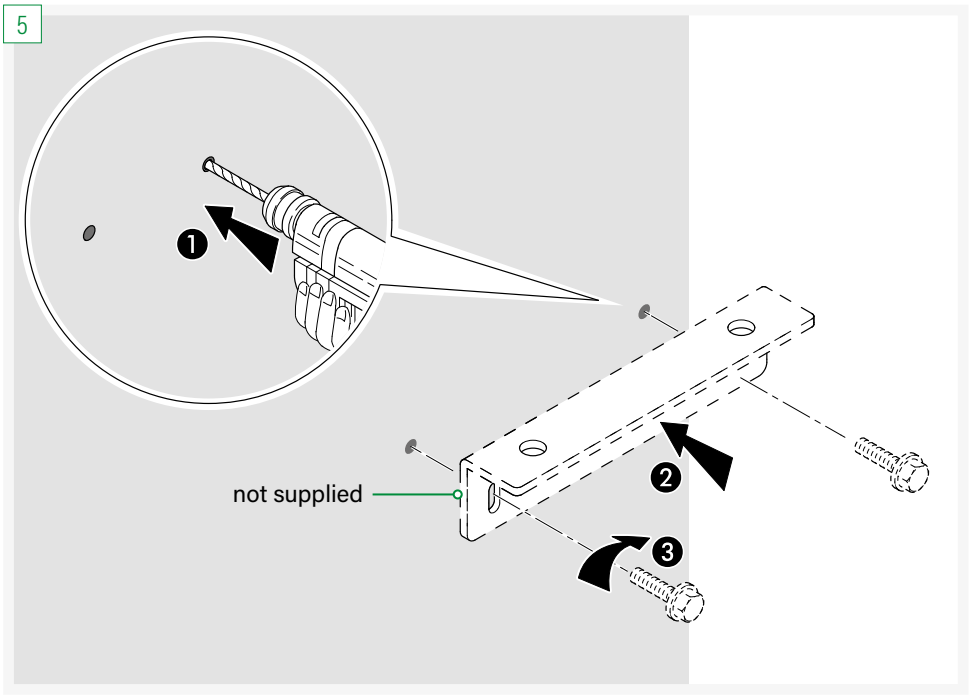
On the wall, mark the position U for fixing the bottom support, calculated as follows:
U= W+270-40-X (measurements in millimeters).

The U value must be measured from the upper cap of the already installed adjoining busbar.

Wall and floor drilling *(continued)*

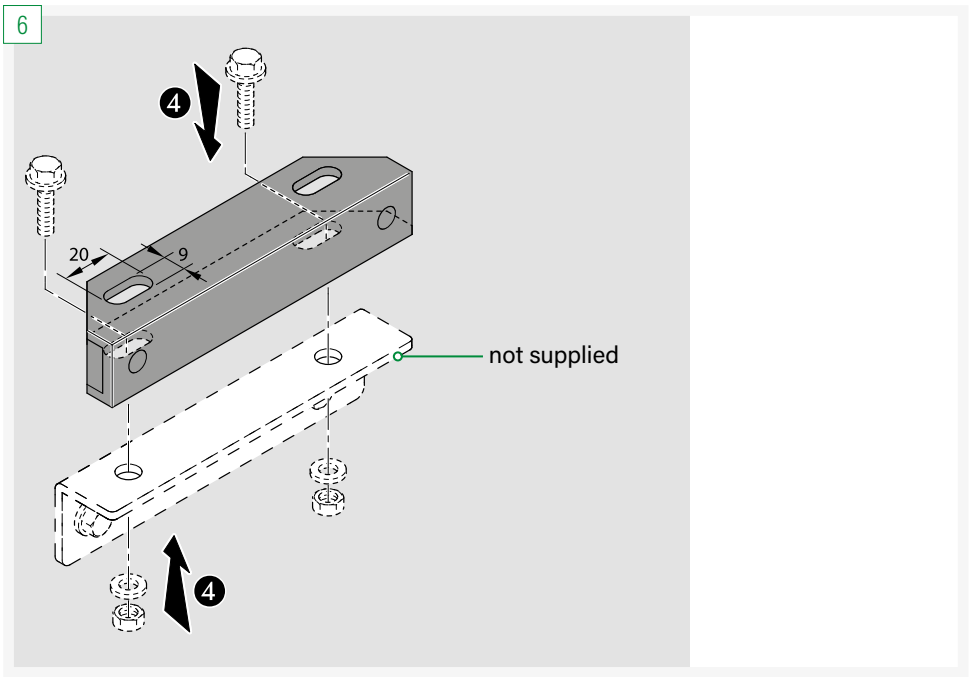
STANDARD BRACKET *(CONTINUED)*

5



Drill the wall and fix the bottom bracket support.

6

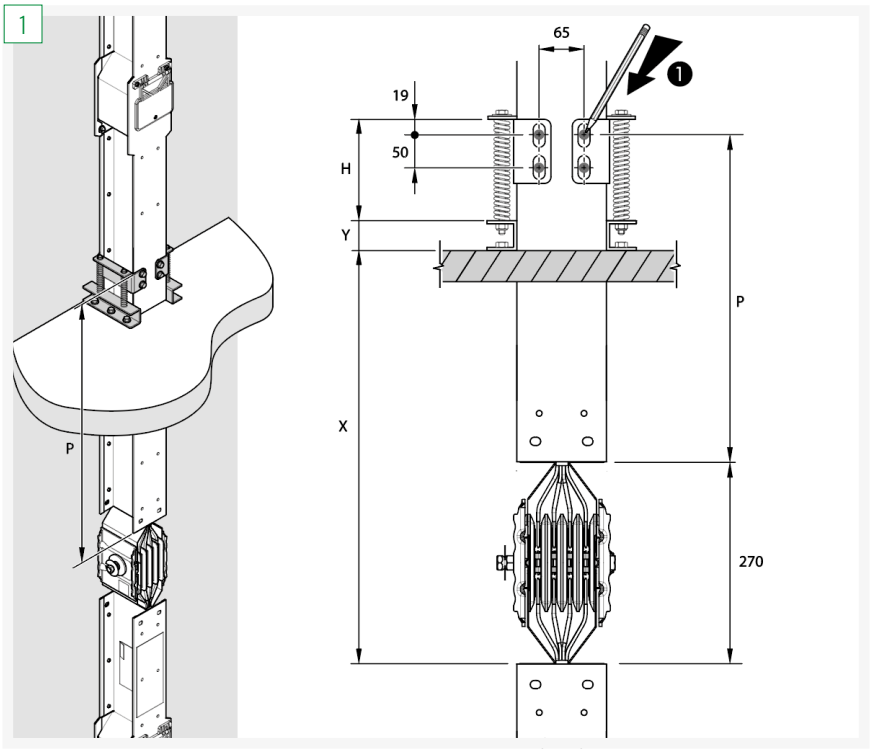


Attach the bracket to the bottom support.

Attaching the brackets to the busbars

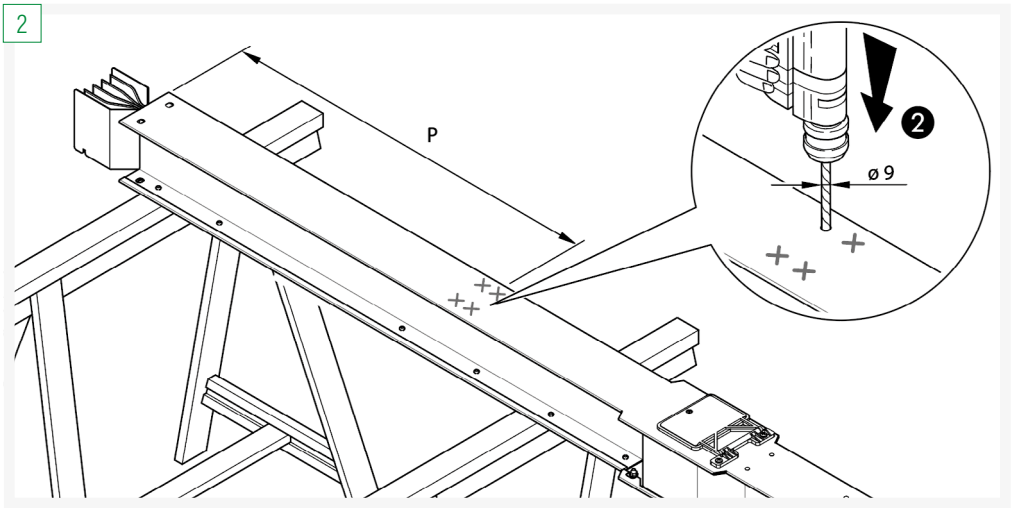
FLOOR BRACKET WITH SPRINGS

1



Mark the four bracket holes on the busbar in accordance with the following values:
P=X+Y+H-270-19 (measurements in millimeters).

2

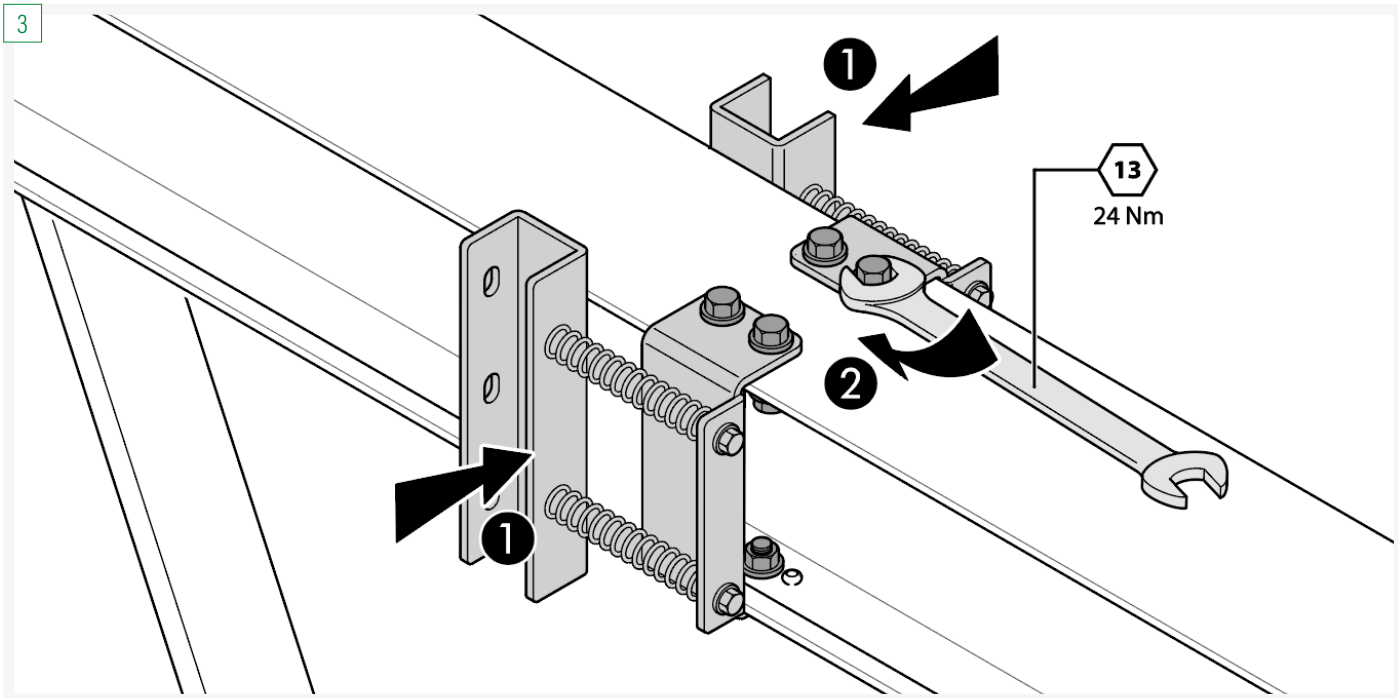


Drill the busbar at the four marks just made:
HOLE ø = 9mm.

Attaching the brackets to the busbars *(continued)*

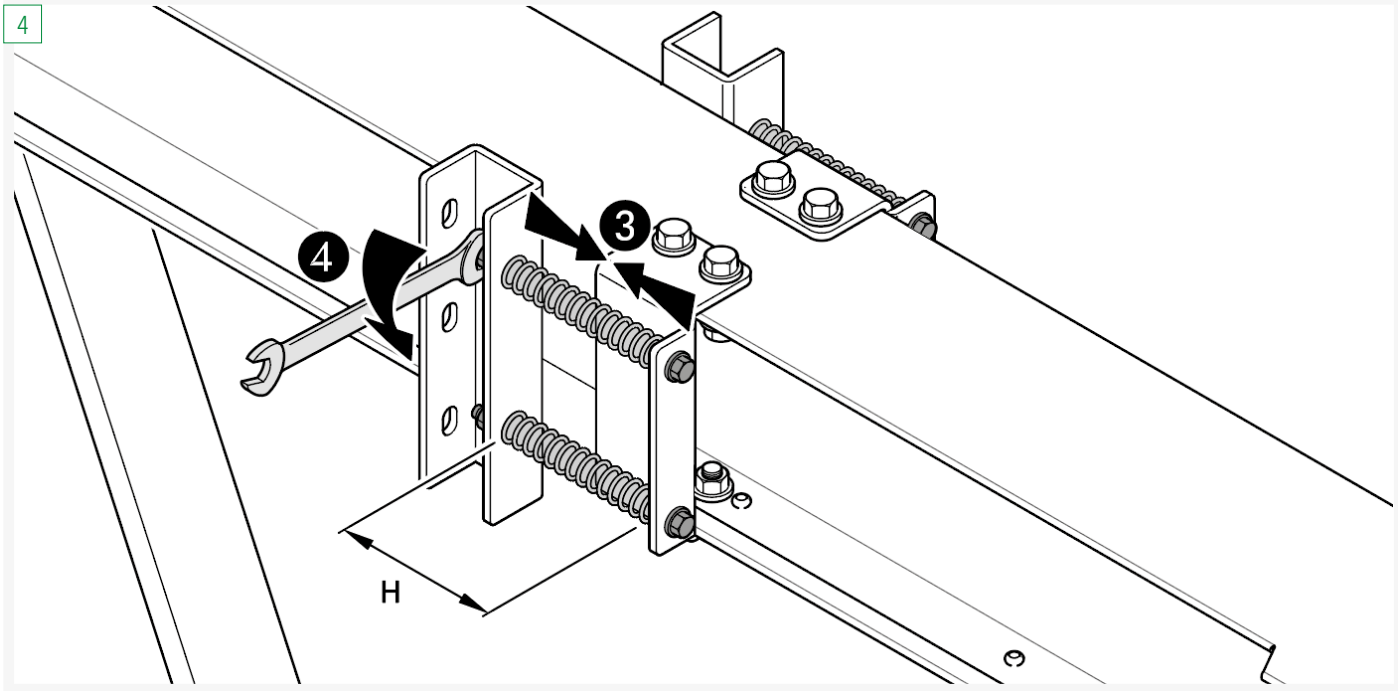
FLOOR BRACKET WITH SPRINGS *(CONTINUED)*

3



Screw the bracket to the busbar with a **torque of 24 Nm.**

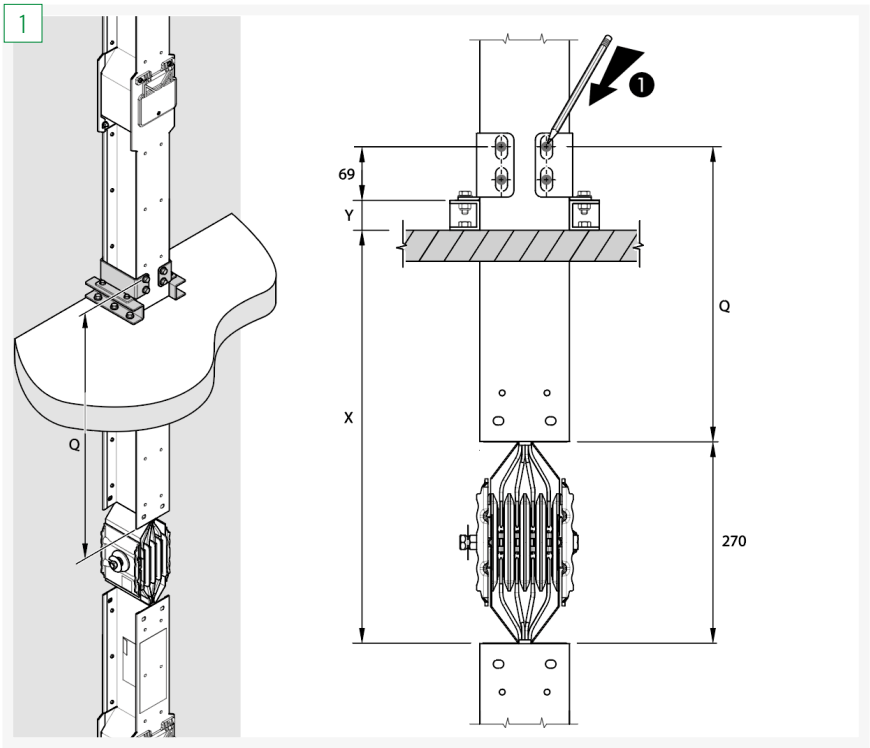
4



Tighten the nuts, bringing the spring to the **CHARGING distance H** as previously defined (p. 39).

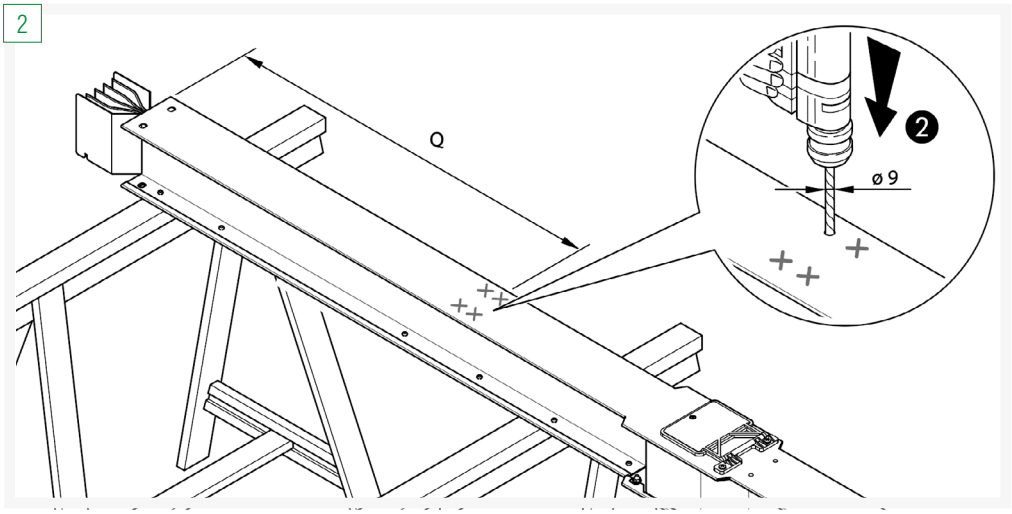
FLOOR BRACKET WITHOUT SPRINGS

1



Mark the four bracket holes on the busbar in accordance with the following values:
P=X+Y+H-270-19 (measurements in millimeters).

2

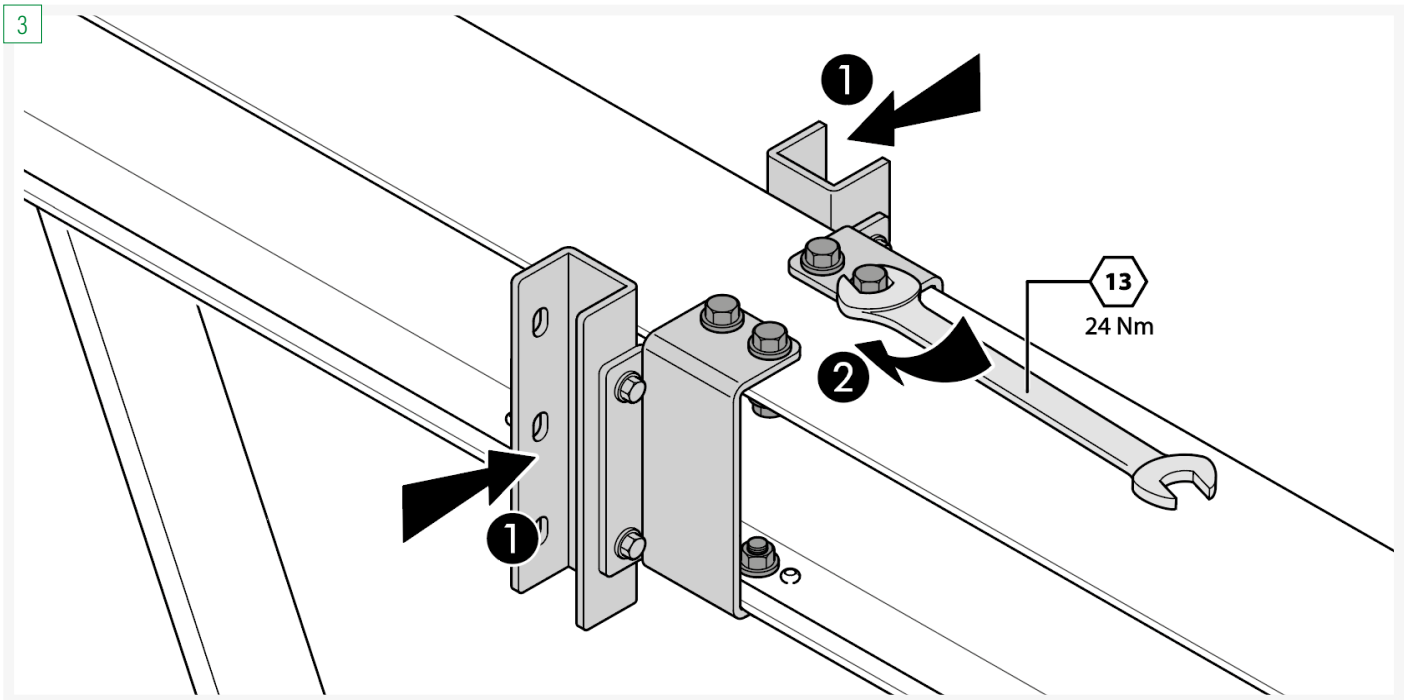


Drill the busbar at the four marks just made:
HOLE ø = 9mm.

Attaching the brackets to the busbars *(continued)*

FLOOR BRACKET WITHOUT SPRINGS *(CONTINUED)*

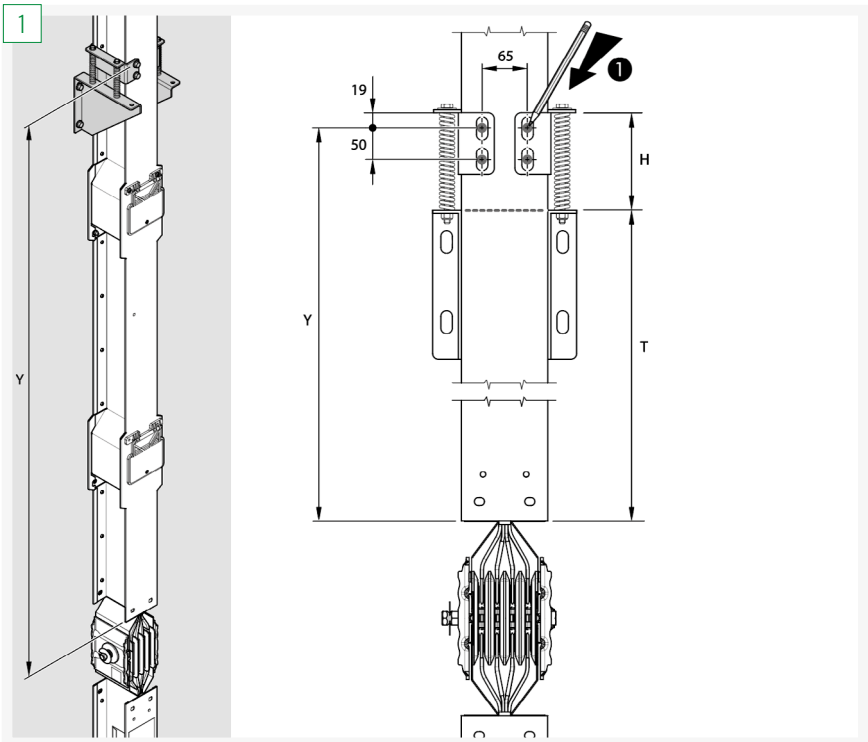
3



Screw the bracket to the busbar with a **torque of 24 Nm.**

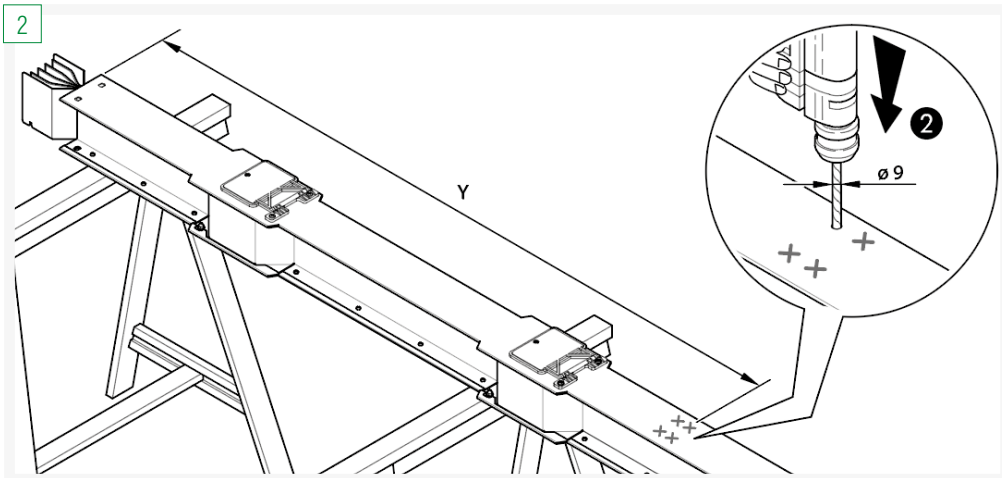
WALL BRACKET WITH SPRINGS

1



Mark the four bracket holes on the busbar, calculated as follows **Y=T+H-19** (measurements in millimeters).

2

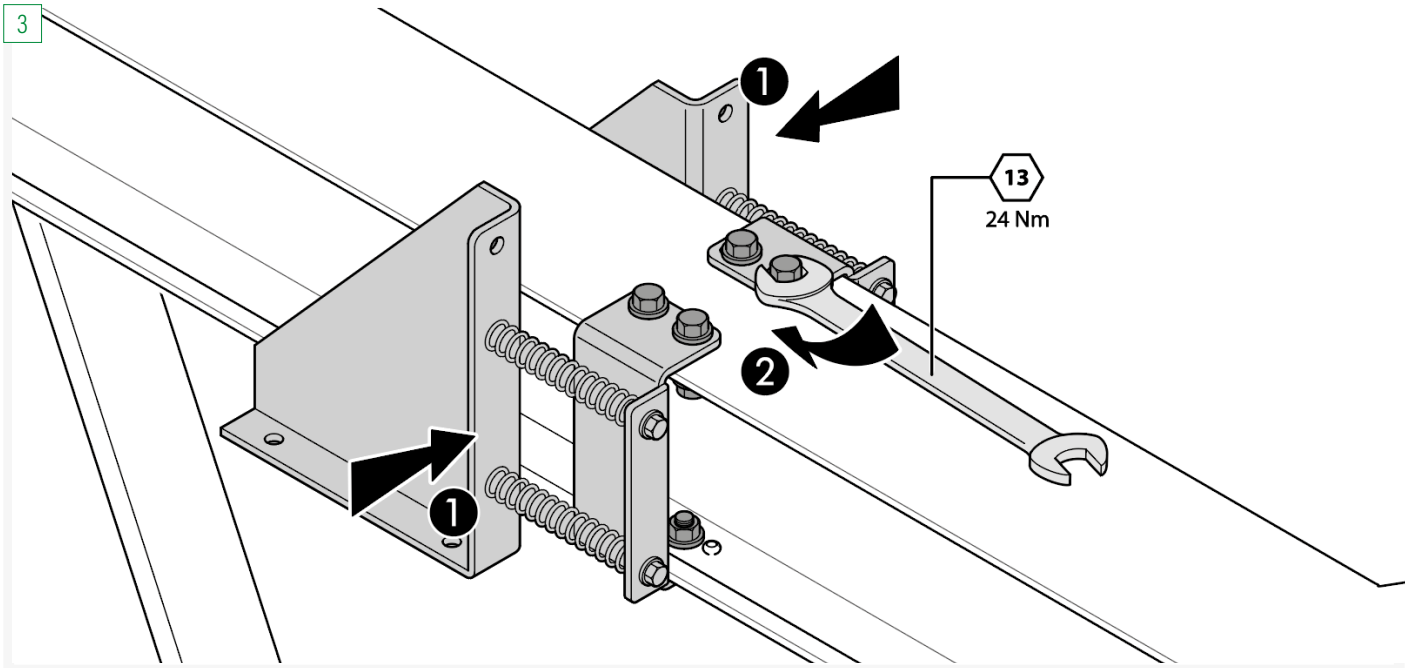


Drill the busbar at the four marks just made:
HOLE ø = 9mm.

Attaching the brackets to the busbars *(continued)*

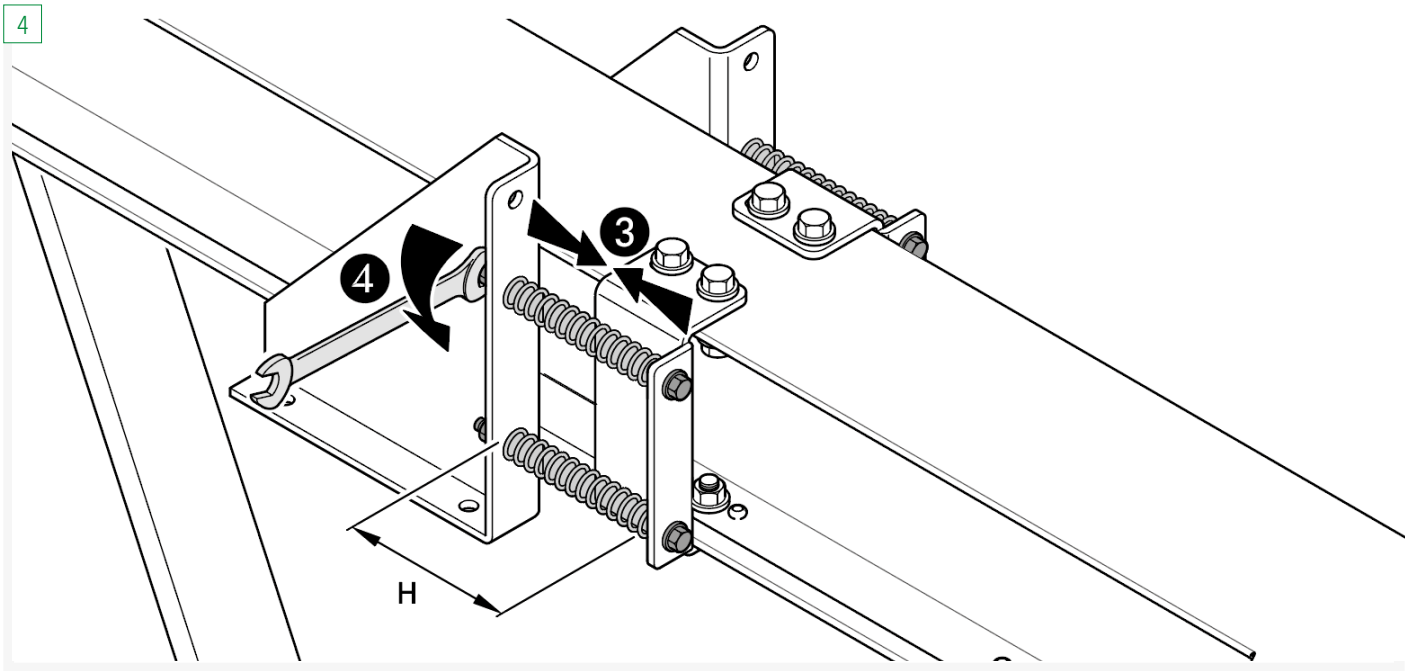
WALL BRACKET WITH SPRINGS *(CONTINUED)*

3



Screw the bracket to the busbar with a **torque of 24 Nm.**

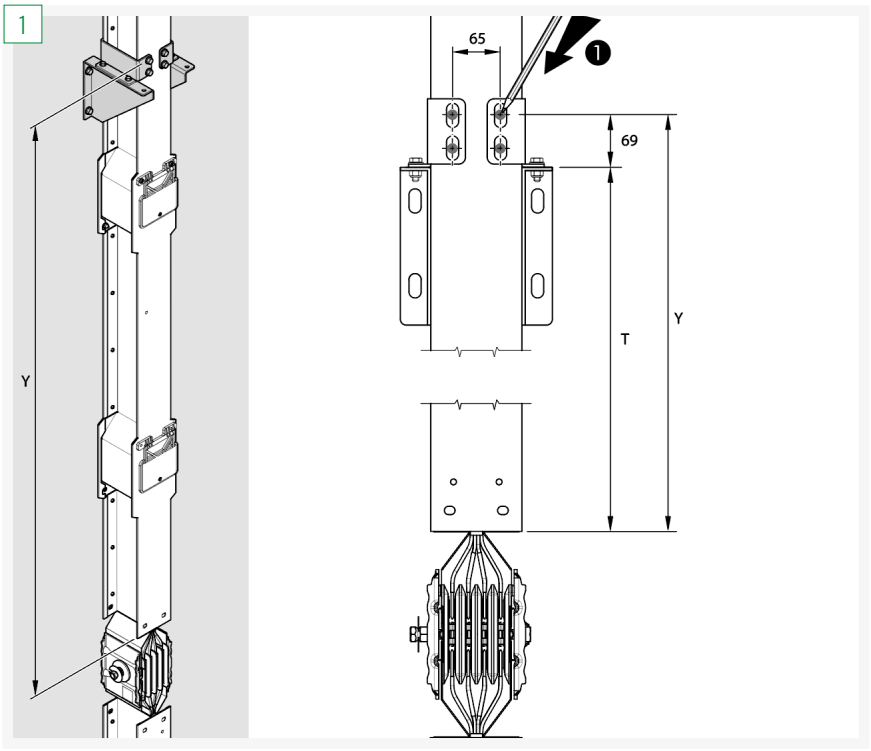
4



Tighten the nuts, bringing the spring to the **CHARGING distance H** as previously defined (p. 36).

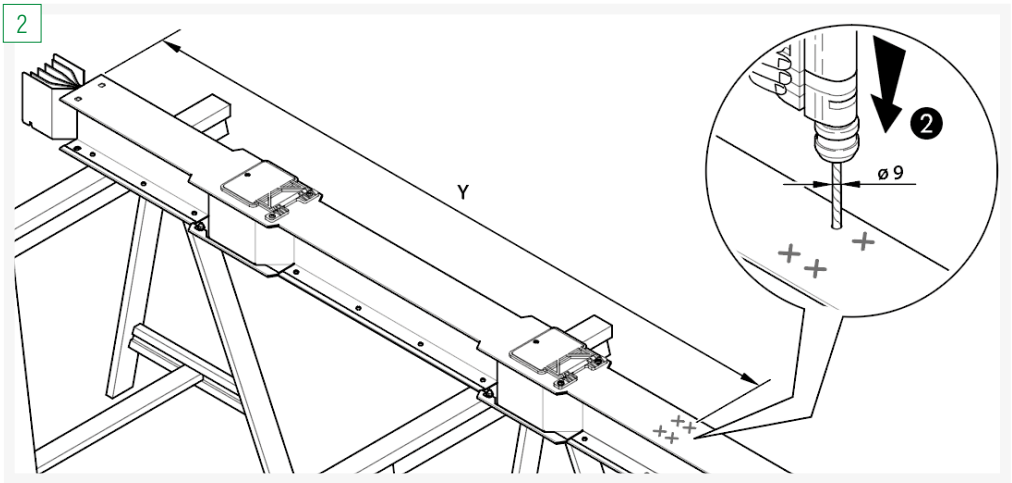
WALL BRACKET WITHOUT SPRINGS

1



Mark the four bracket holes on the busbar, calculated as follows **Y=T+69** (measurements in millimeters).

2

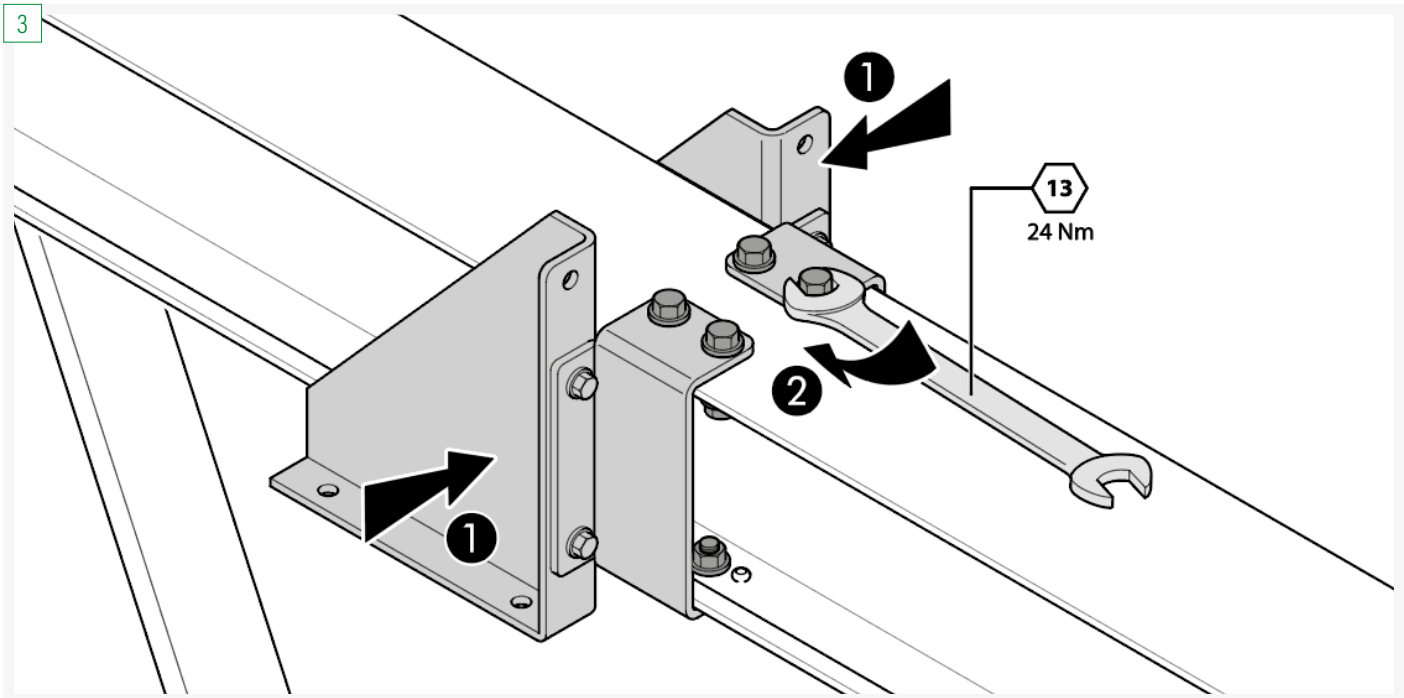


Drill the busbar at the four marks just made:
HOLE ø = 9mm.

Attaching the brackets to the busbars *(continued)*

WALL BRACKET WITHOUT SPRINGS *(CONTINUED)*

3

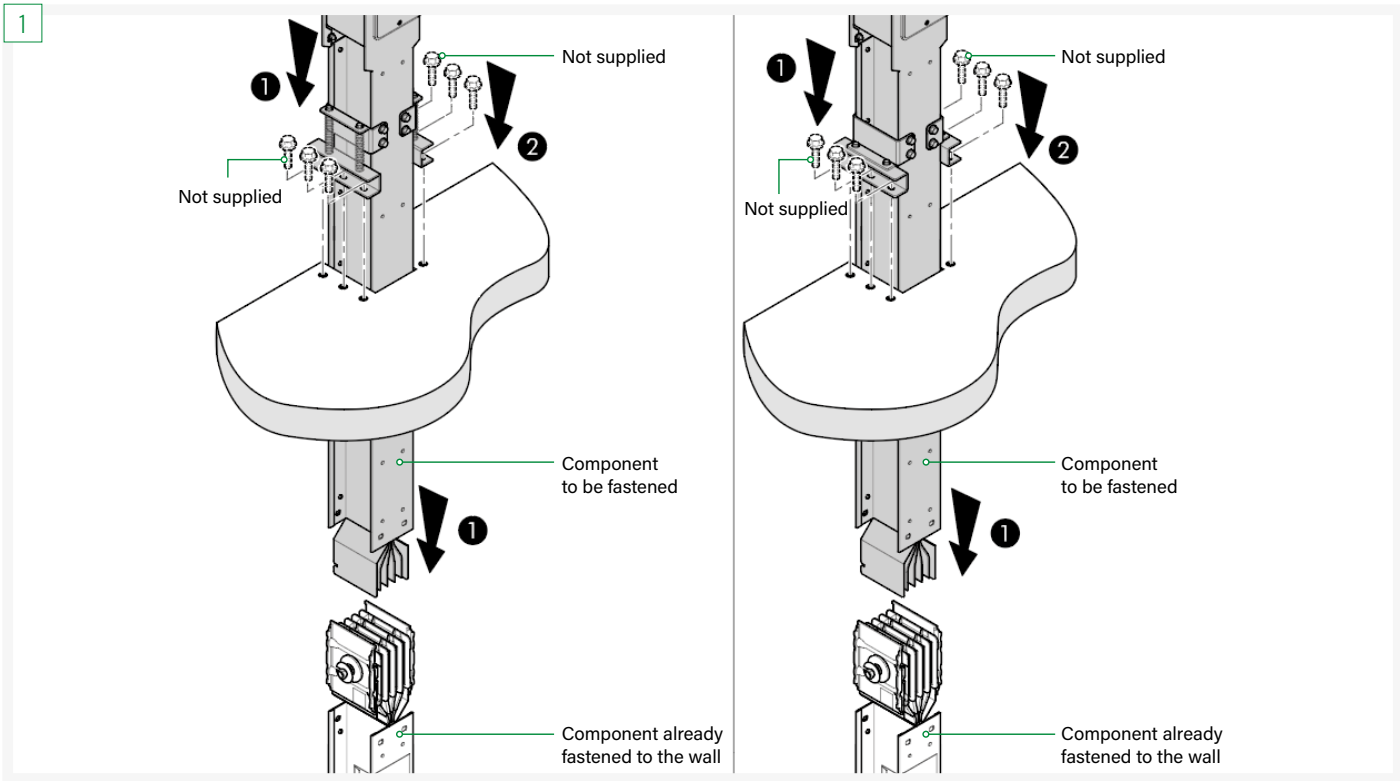


Screw the bracket to the busbar with a **torque of 24 Nm.**

Busbar installation

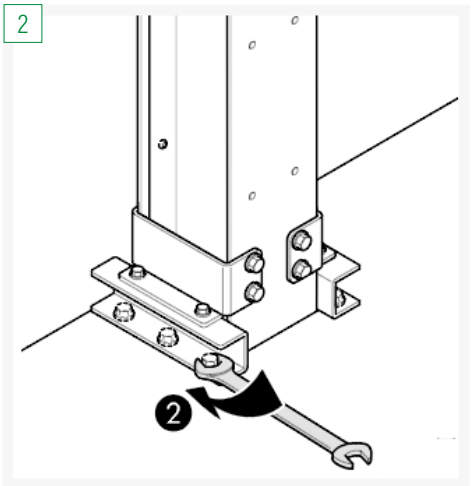
WITH FLOOR BRACKET WITH/WITHOUT SPRINGS

1



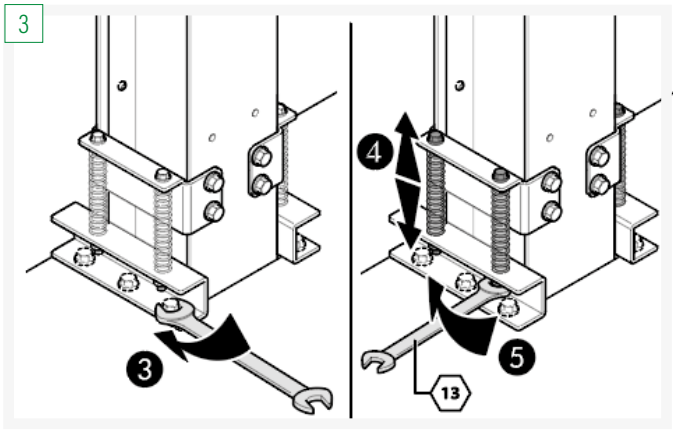
Position and assemble the two components as indicated.

2



Match the bracket with the holes previously drilled on the floor and fasten with the screws.

3



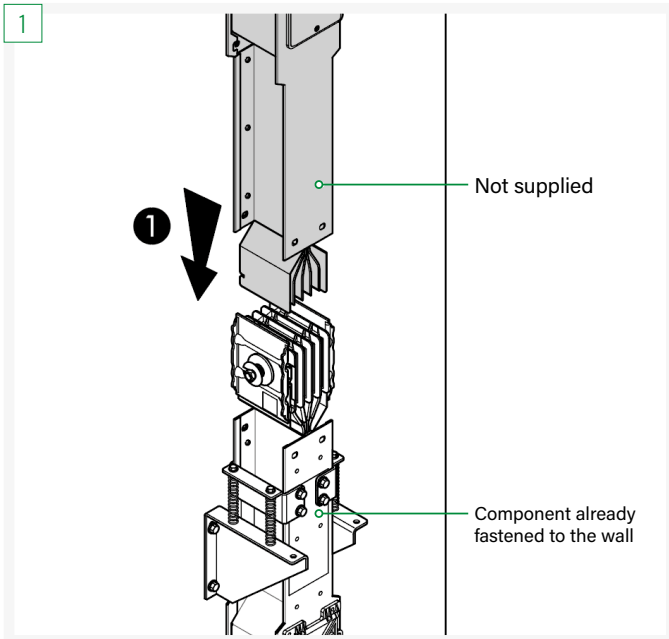
For brackets with springs, unscrew the spring nuts.

⚠ The nut must be fully unscrewed, therefore releasing the springs.

Busbar installation *(continued)*

WITH WALL BRACKET WITH SPRINGS AND ANTI-SEISMIC BRACKET

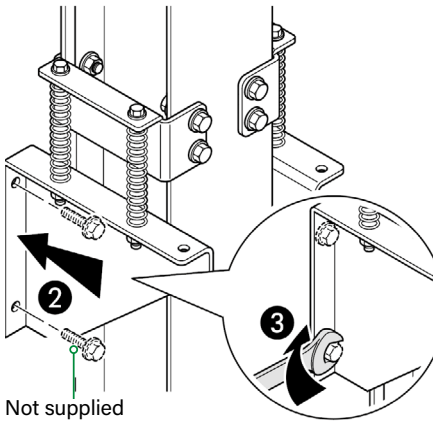
1



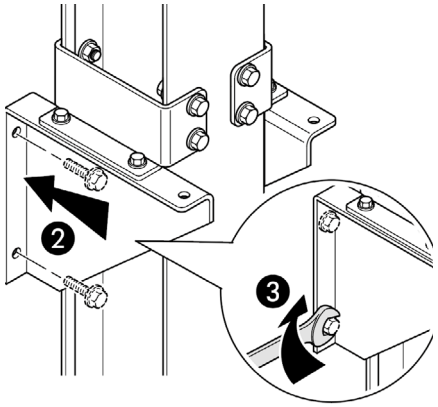
Position and assemble the two components as indicated.

2

WALL BRACKET WITH SPRINGS (TYPE A)

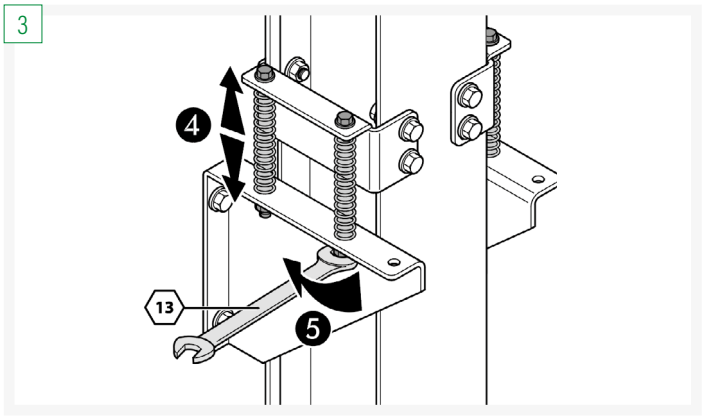


ANTI-SEISMIC BRACKET (TYPE B)



Match the the bracket with the holes previously drilled on the wall and fix with the screws

3

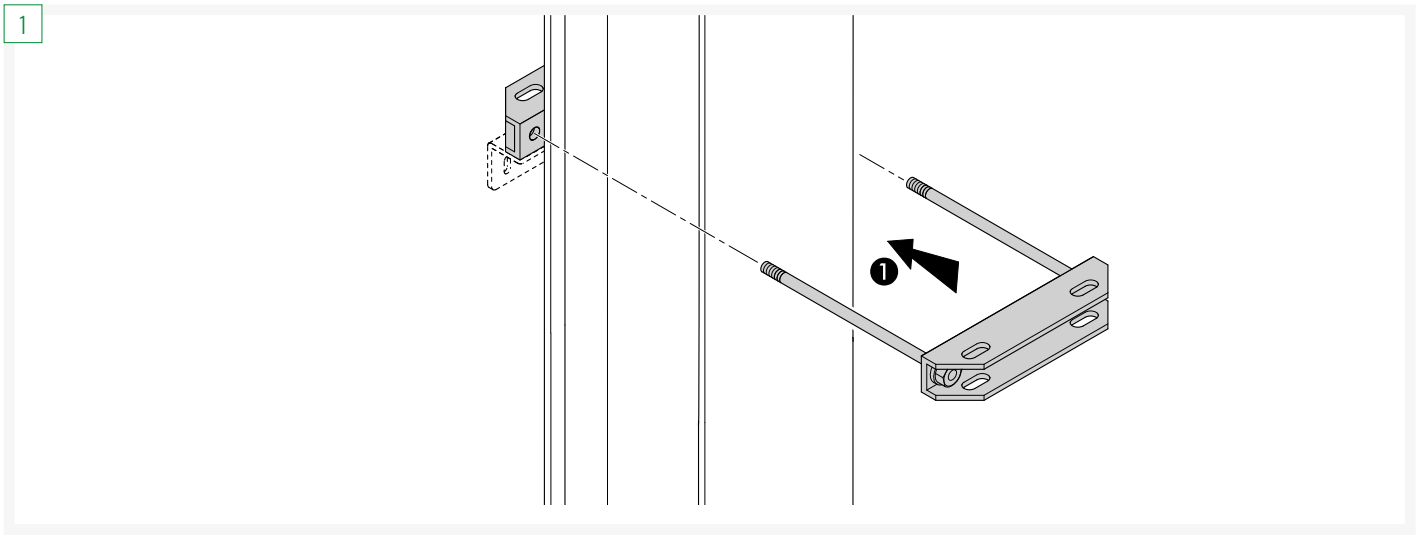


The nut must be fully unscrewed, therefore releasing the springs.

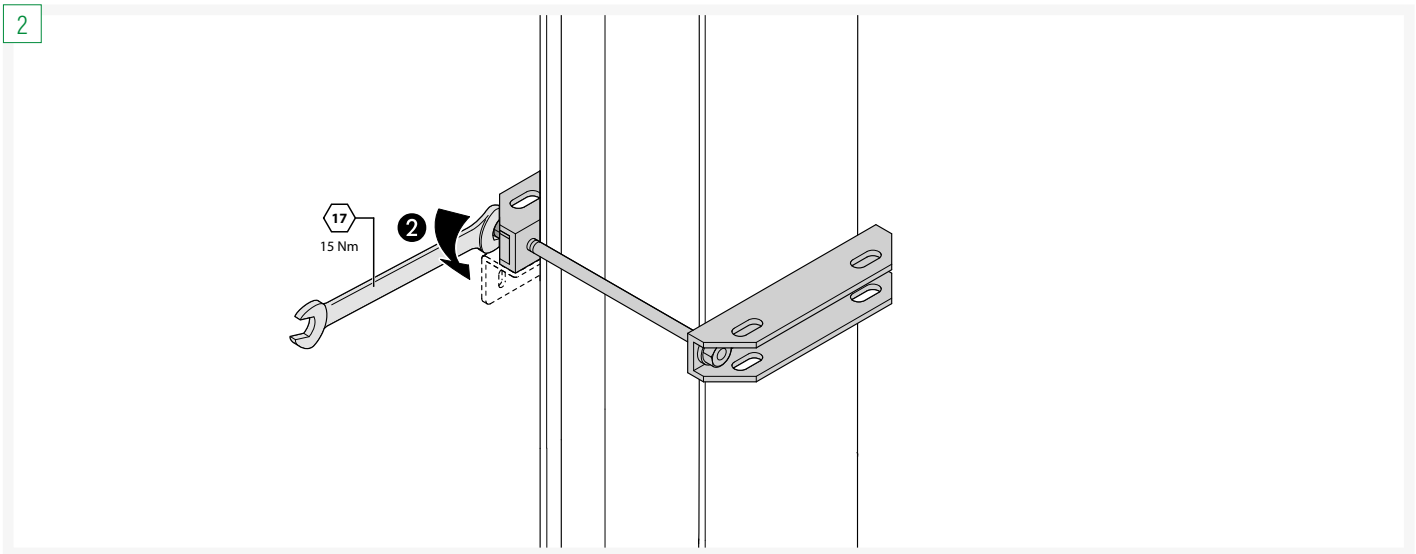
For brackets with springs, unscrew the spring nuts.

WITH STANDARD BRACKET

1



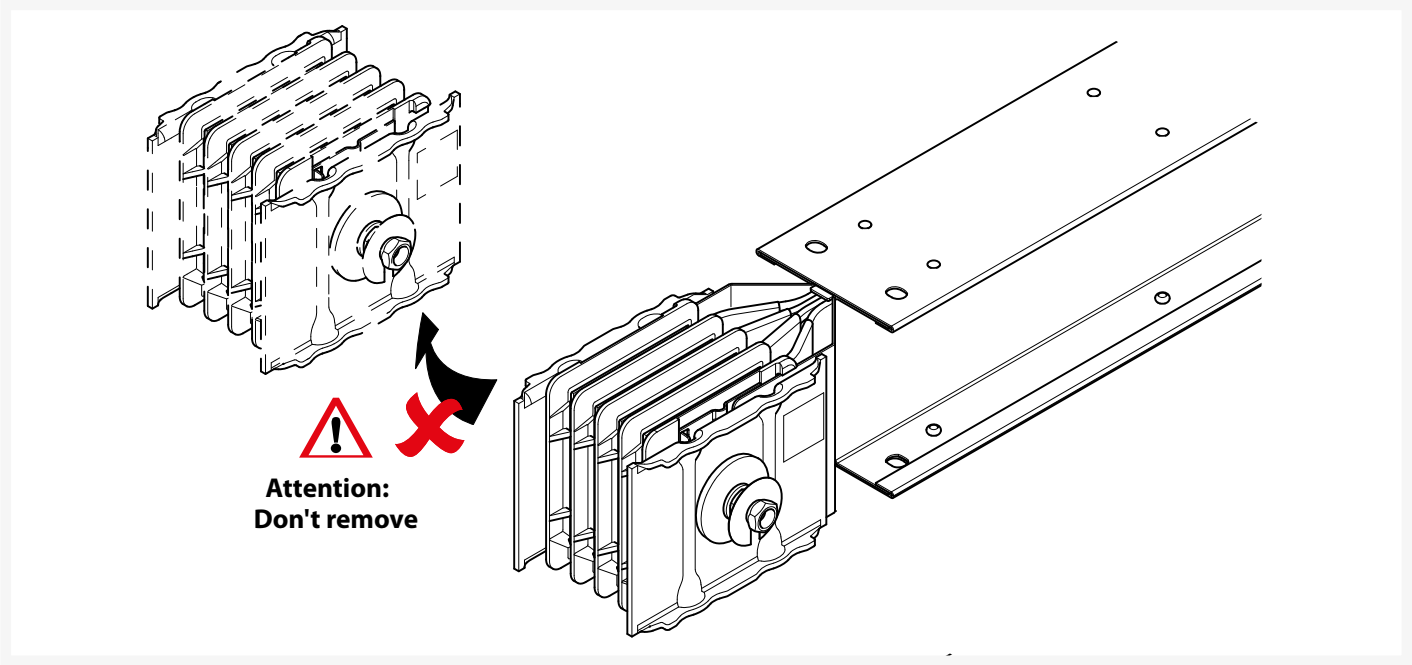
2



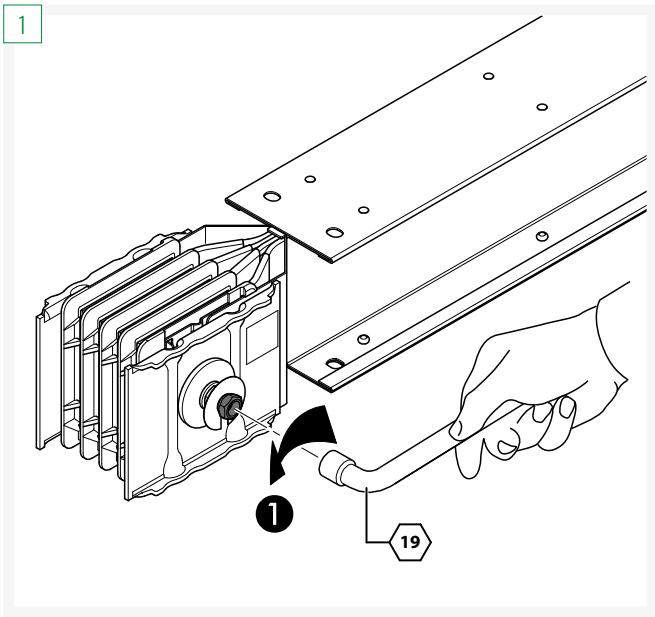
Using the screws supplied, attach the bracket to the one already attached to the support.

MOUNTING OF THE BUSBAR IN LINE

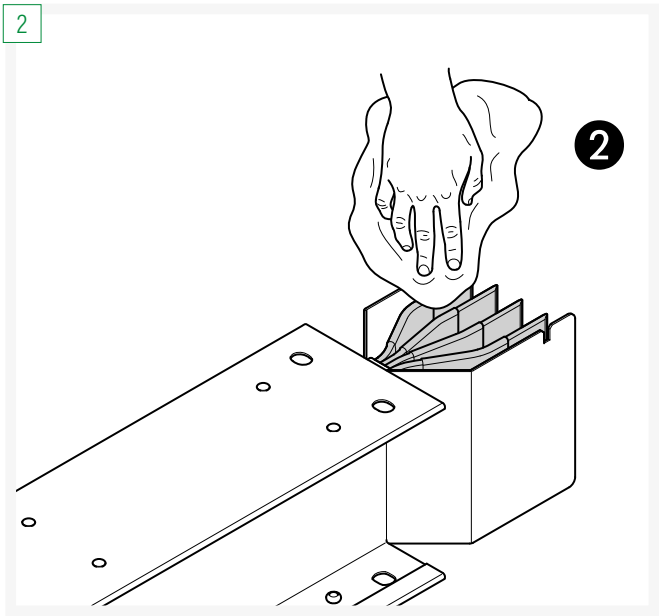
Joint installation



1



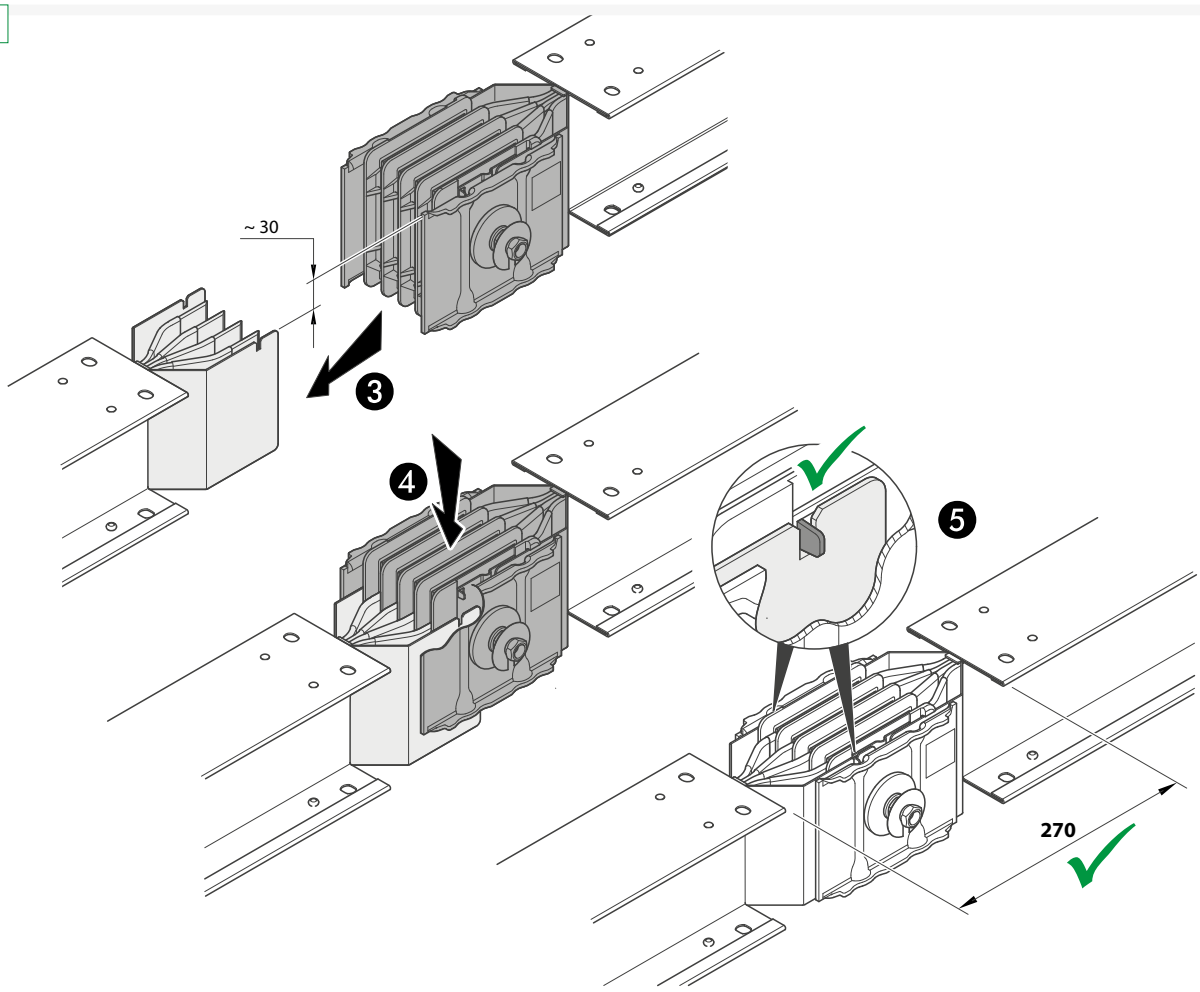
2



⚠ Remove residues with mild reagents not corroding or creating abrasion on surface treatment (zinc, tin, silver coating) or on contact surface (copper).

The following operations must be carried out with the voltage disconnected.

3 4 5



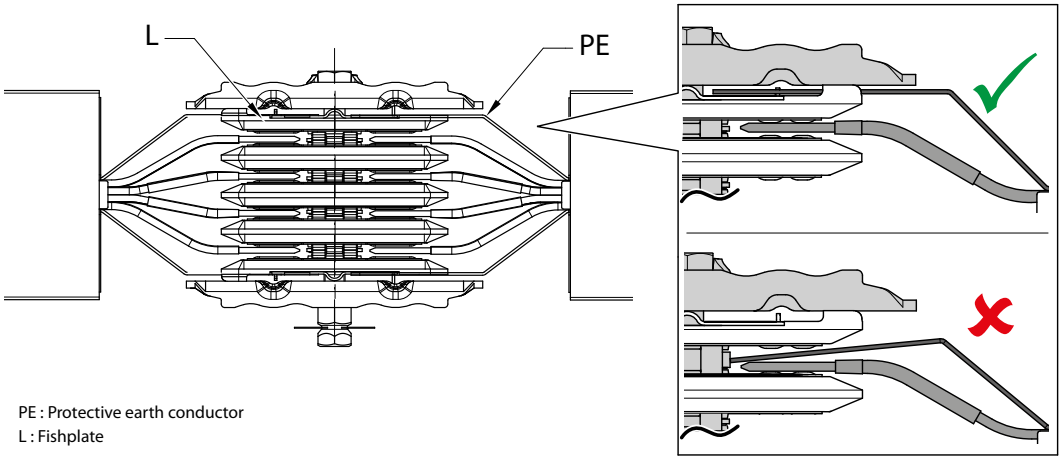
Hazard of short circuit
- **It is mandatory to correctly align all path components, joint blocks and PE conductors .**
- **It is mandatory to correctly position, between the fishplates, all path components conductors and the metallic side of the PE conductor between the fishplates.**

Failure to follow these instructions will result in death or serious injury.

MOUNTING OF THE BUSBAR IN LINE

Joint installation *(continued)*

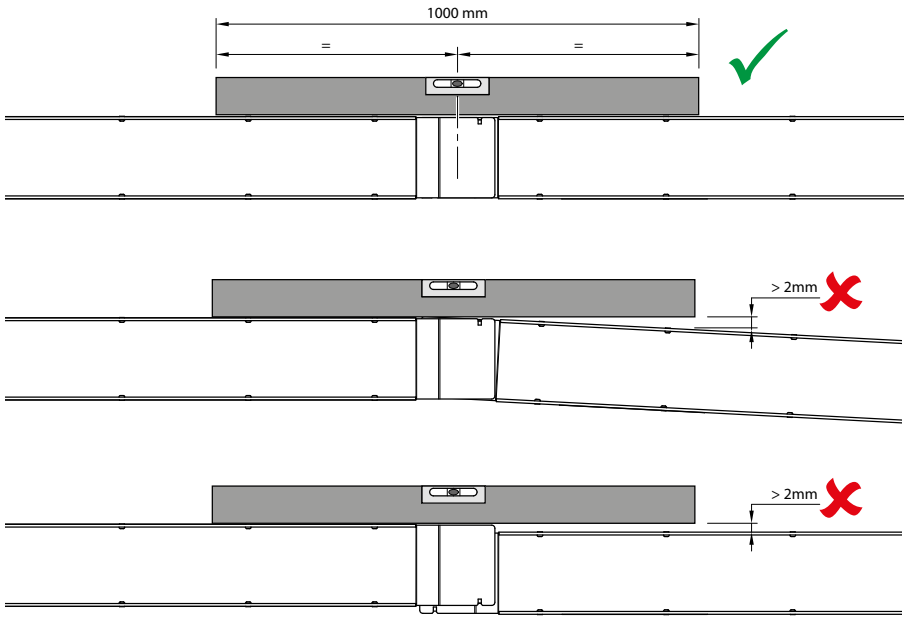
The continuity of the PE conductors is established by the enclosure of the path component. You must check the correct position of the components, joint blocks, and PE conductors and the continuity of the PE conductors through the joint block:



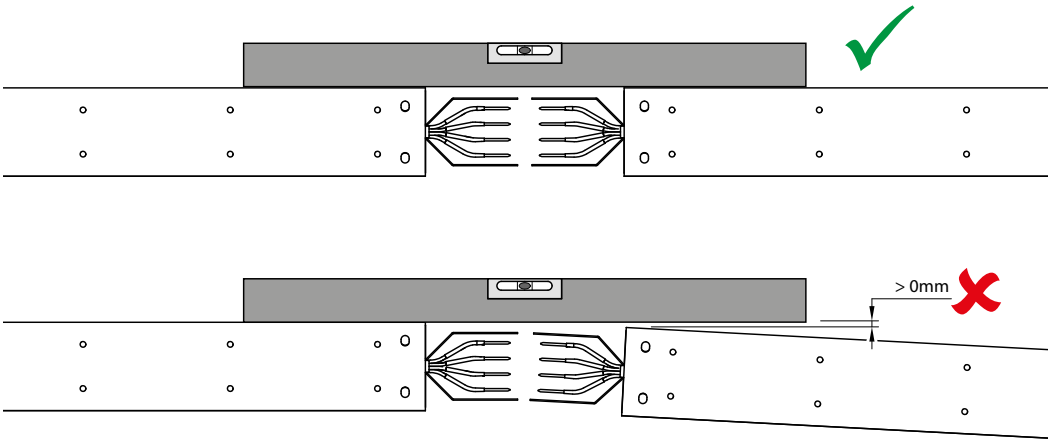
PE : Protective earth conductor
L : Fishplate

LOSS OF IP55 PROTECTION RATING
The path components must be correctly aligned.
Failure to follow these instructions can result in equipment damage.

The alignment must be checked on both sides of the path components:

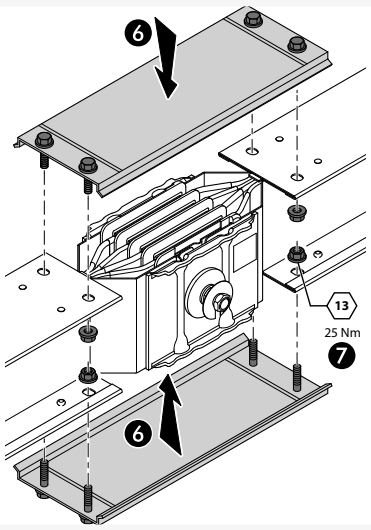


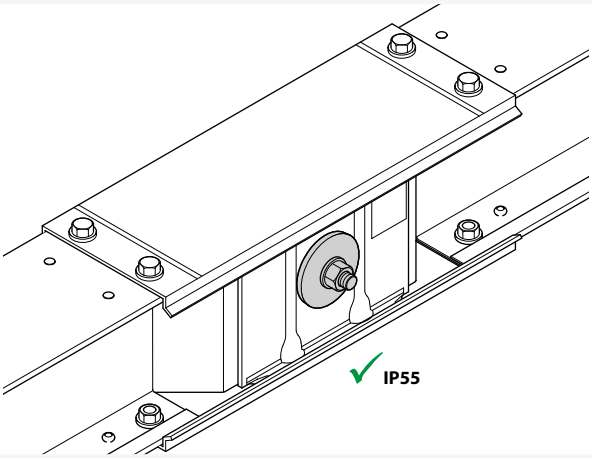
Check the alignment on the loop of the path components



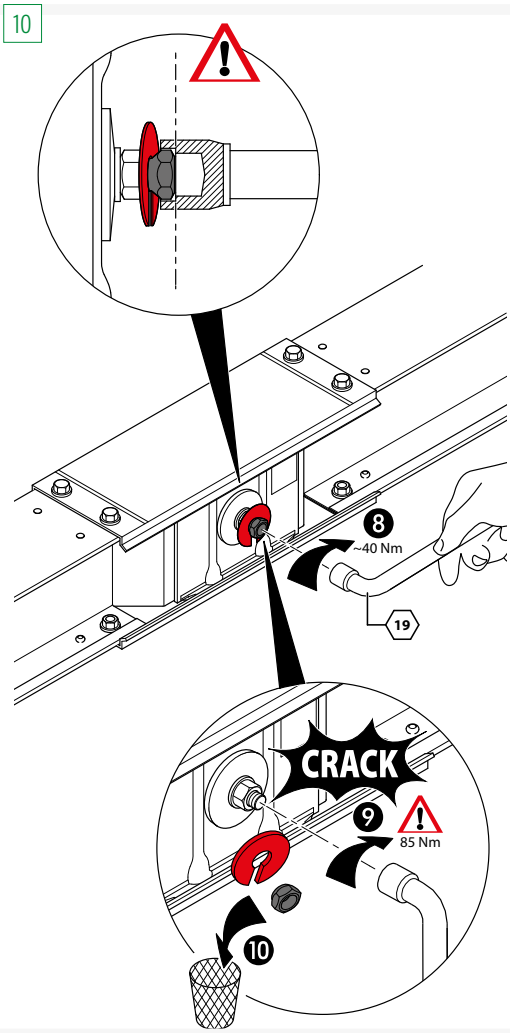
Check alignment on the side of the path components

6 7





8 9 10

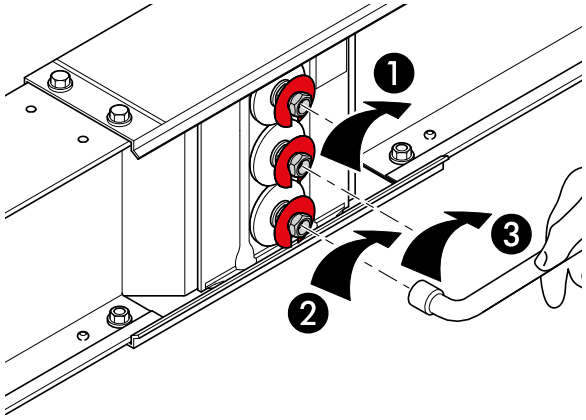


MOUNTING OF THE BUSBAR IN LINE

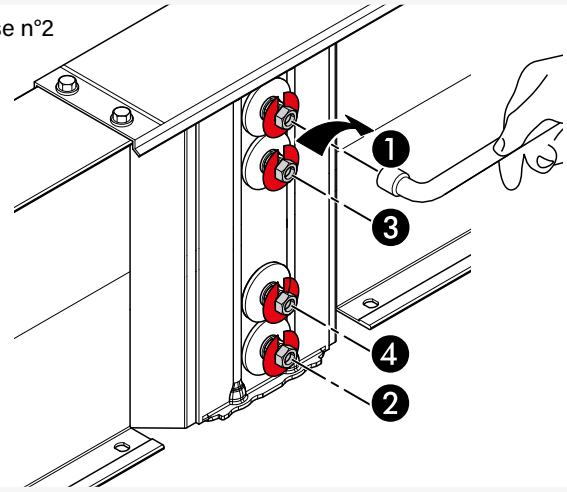
Joint installation *(continued)*

In case of multi-bolt busbars, follow the sequence below

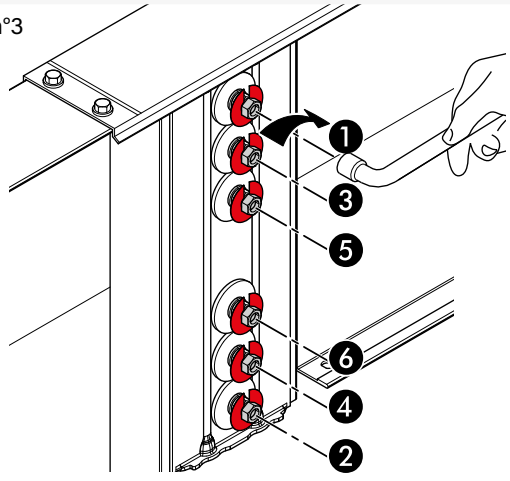
Case n°1



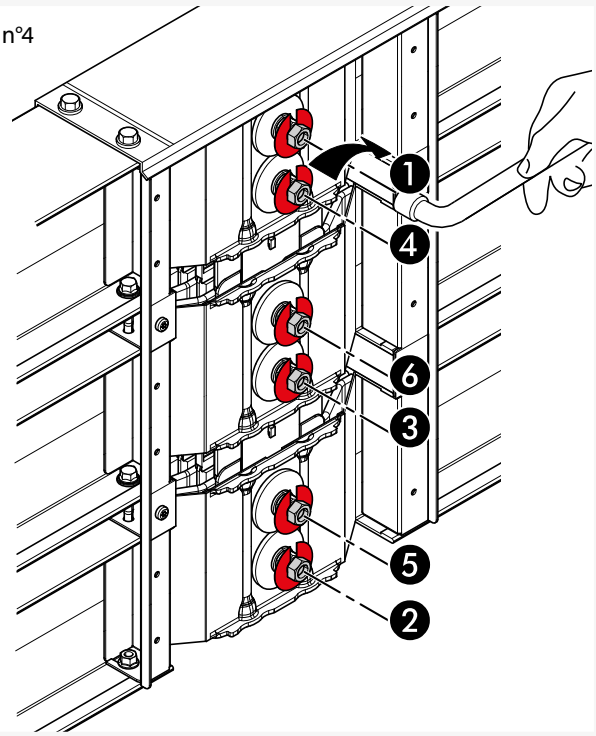
Case n°2



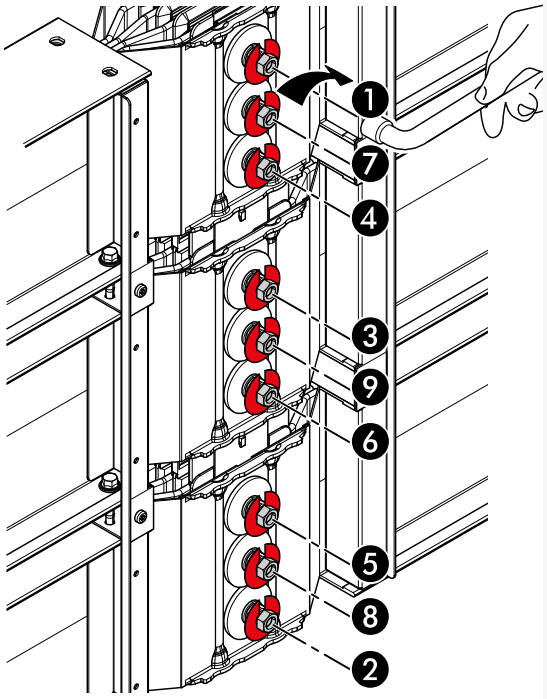
Case n°3



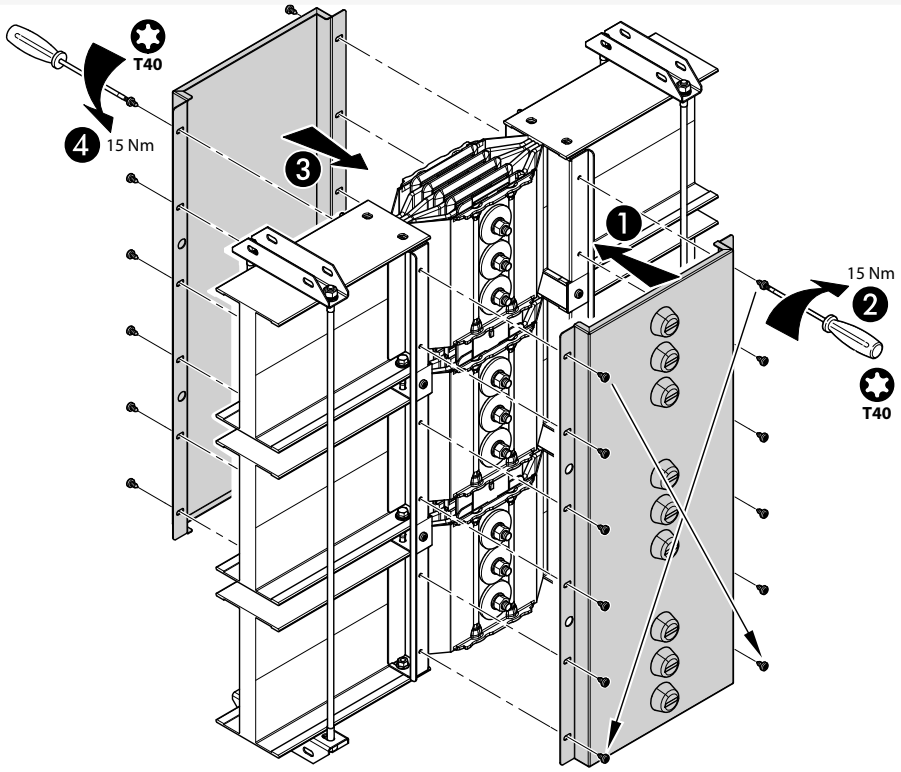
Case n°4



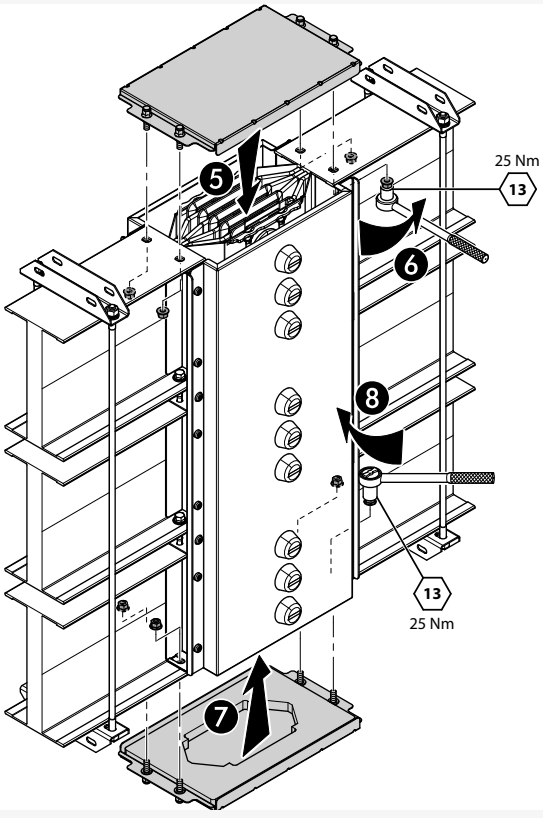
Case n°5



1 2 3 4

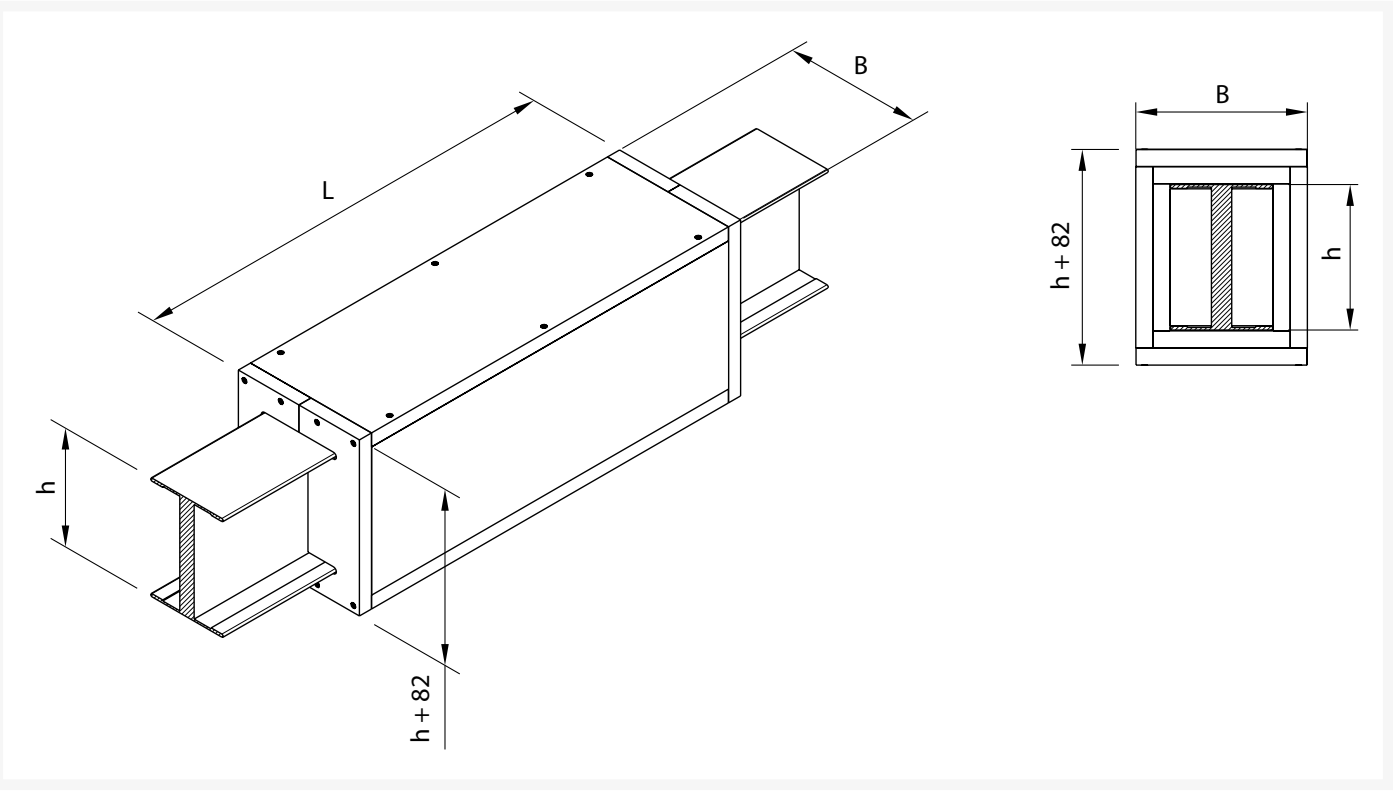


5 6 7 8



Joint installation *(continued)*

Fire barrier sizes. Dimension H changes with the rating; it is specified in the technical information.

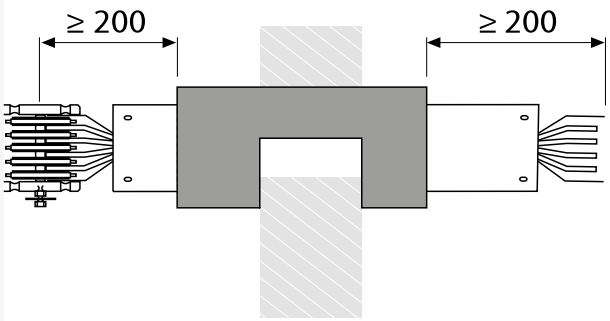


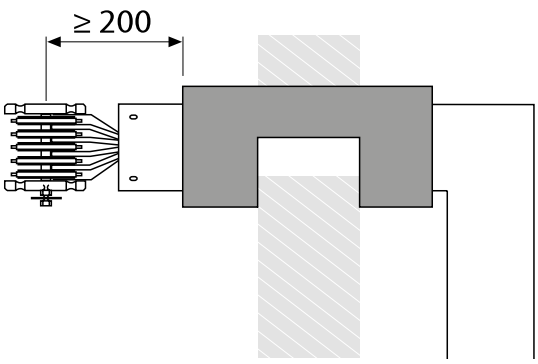
	XCP-S		XCP-HP	
	AL	CU	AL	CU
h	130	130	130	130
	130	130	130	130
	130	130	130	130
	170	170	130	170
	200	200	200	170
	220	300	220	220
	380	380	380	380
	440	440	440	440
	480	480	480	480
	590	590	740	680

MOUNTING OF THE COMPLEMENTARY ELEMENTS

In order to ensure the maximum resistance class, for some ratings it is also necessary to fit at the factory an internal fire barrier following the indications on the table.
It is therefore necessary to indicate at the order stage what elements will cross fire resistant walls or ceilings.

The external fire barrier can be used on any trunking component in compliance with the operating instructions specified in figures 1 and 2.





	USE OF INTERNAL BARRIER			
	AL		CU	
	Rating (A)	Internal	In (A)	Internal
XCP-S	630-800	√ *	800-1000	√ *
	1000-2000	–	1250-2000	–
	2500-4000	–	2500-5000	–
	5000	√ *	6300	√ *
XCP-HP	630-2000	–	800	√ *
	2500-4000	–	1000-2500	–
	5000	√ *	3200-5000	–
	–	–	6300	√ *

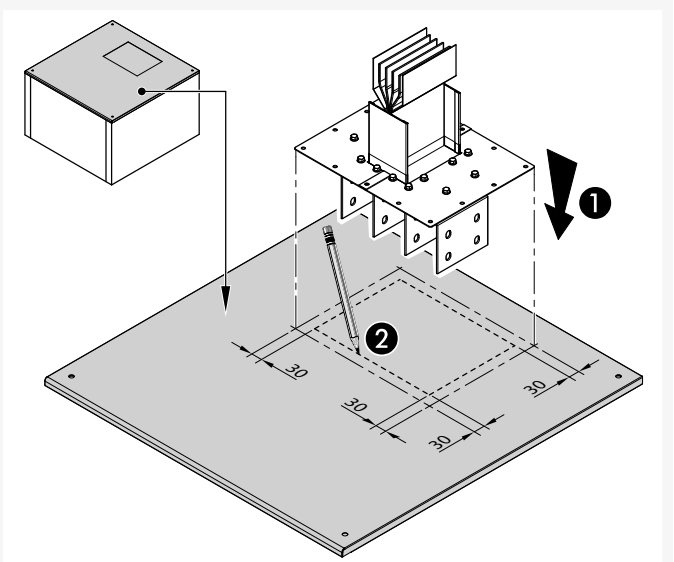
Label present on elements containing the internal fire barrier.

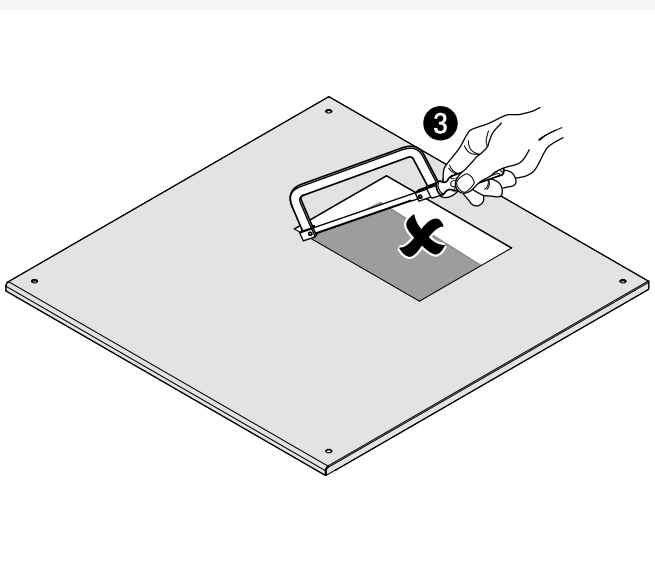
- Barriera tagliafiamma
- Brandschotte
- Coupe-feu
- Corta-flama
- Firebarrier

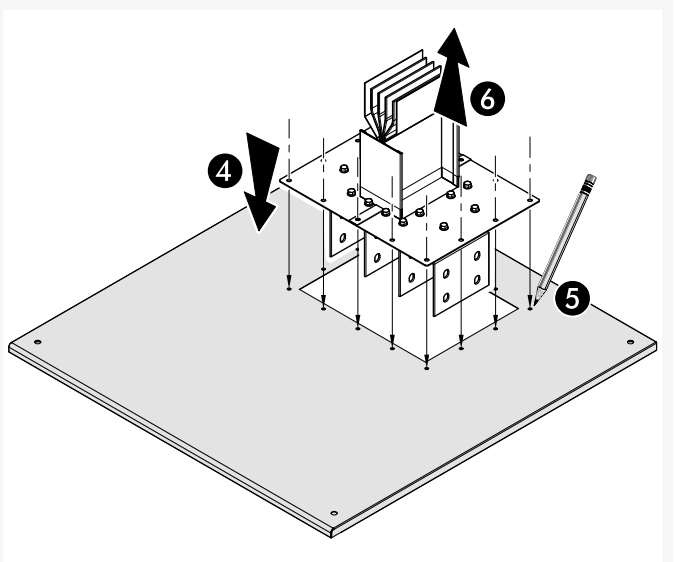
Panel end cap installation

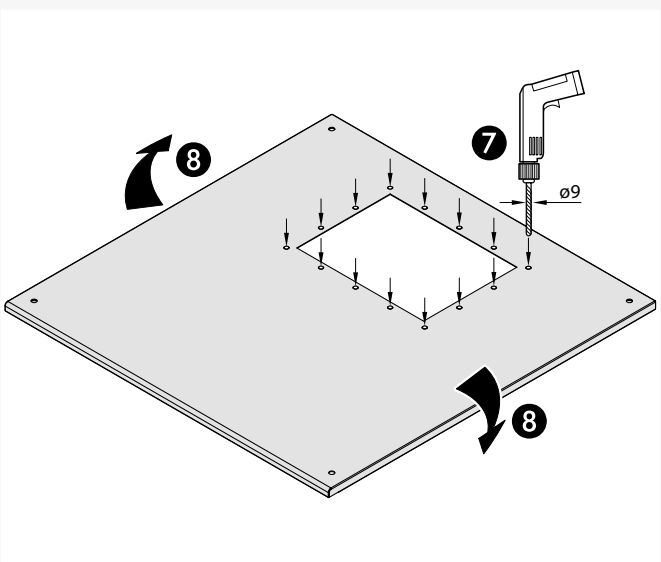
Before drilling, make sure to retrieve the dimensions of the connection flange for the UB to be installed.
Sample dimensions to be obtained prior to installation.

1



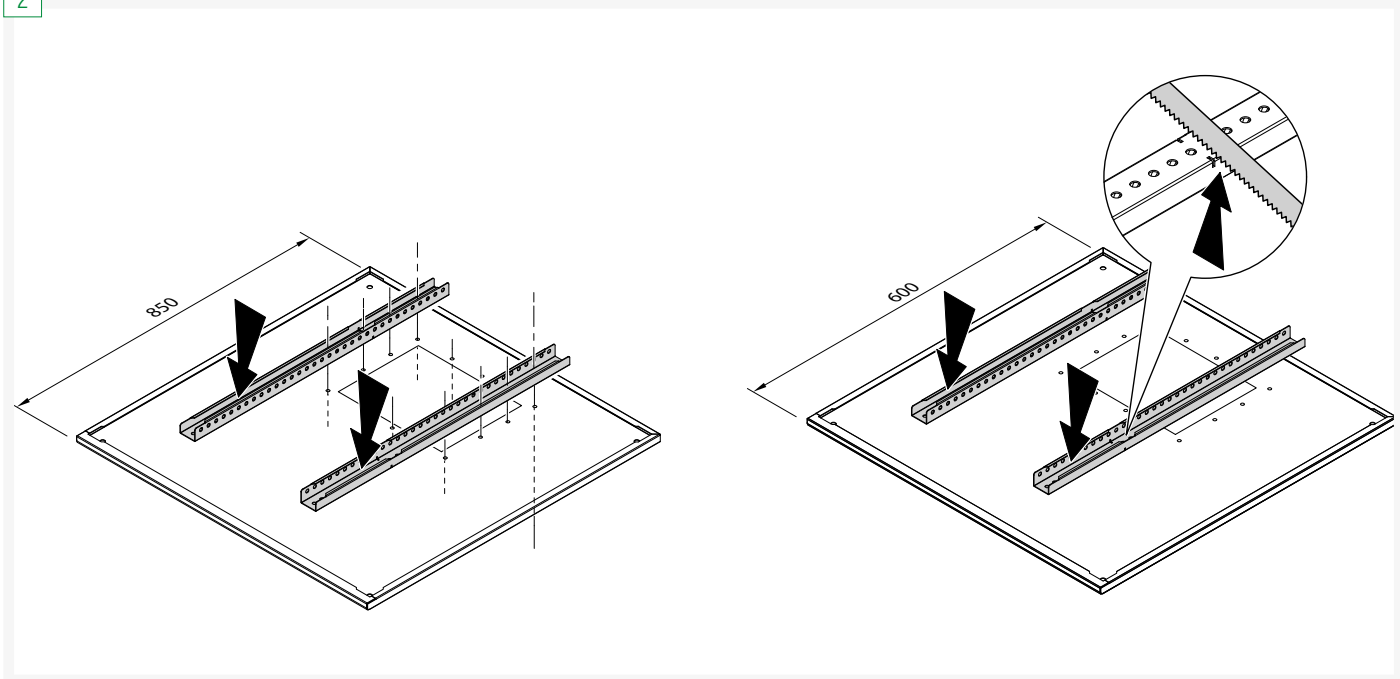




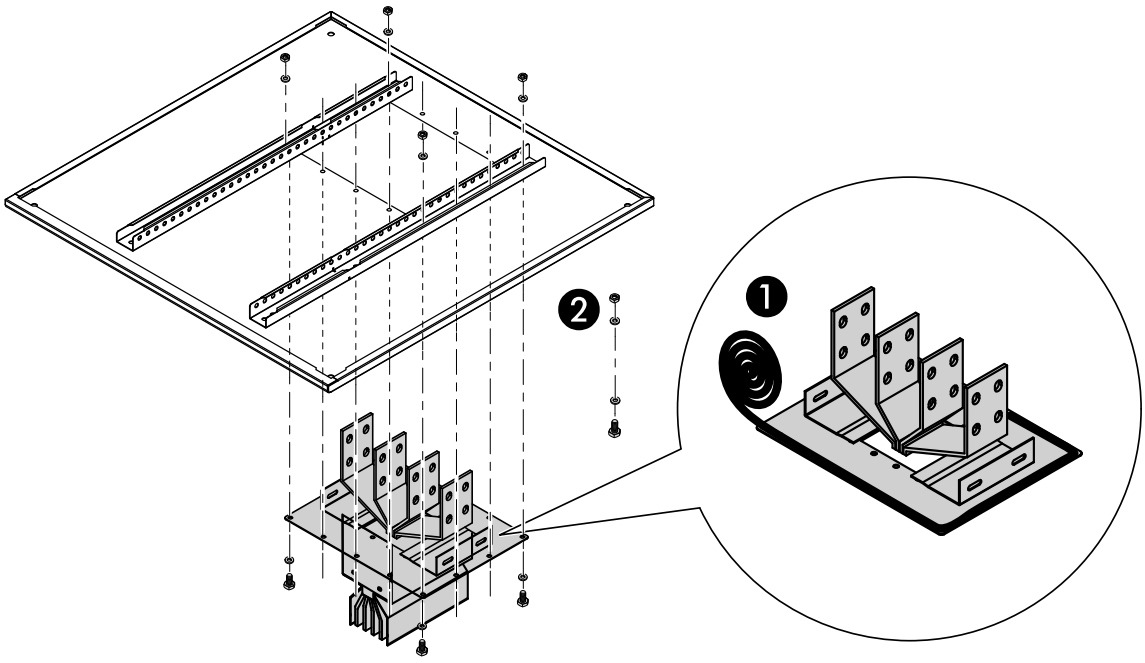


Insert reinforcements (not provided) to strengthen the structure of the electrical panel.

2

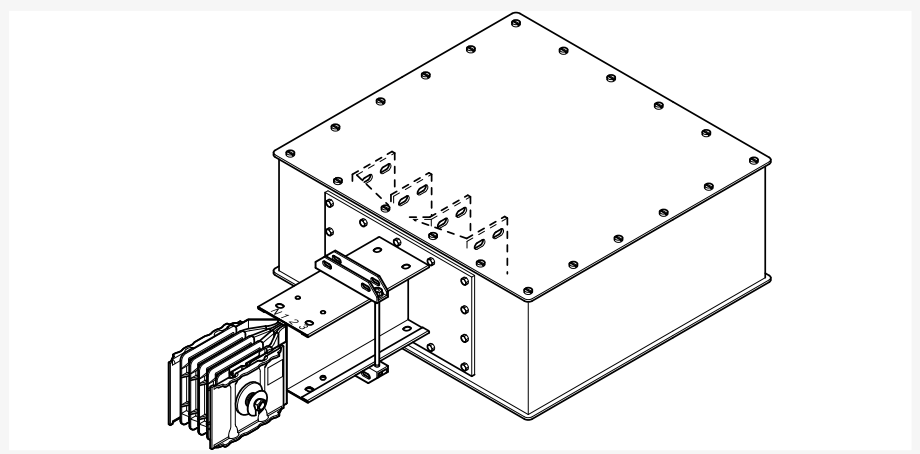


3

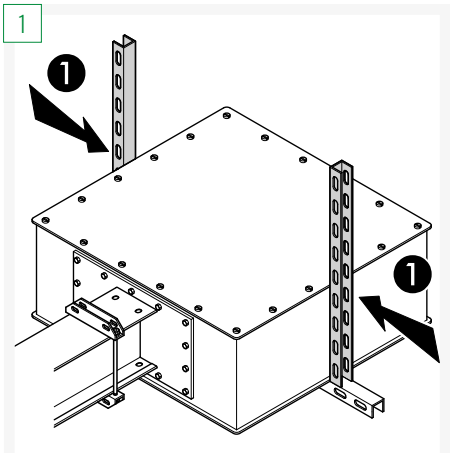


MOUNTING OF THE COMPLEMENTARY ELEMENTS

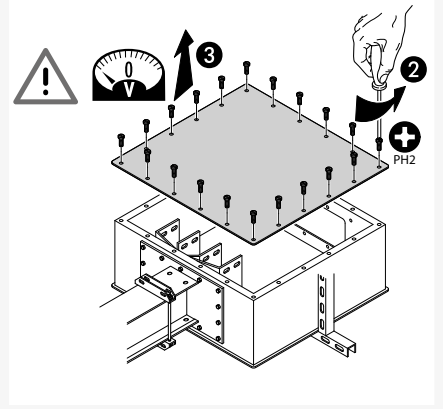
Feed unit installation



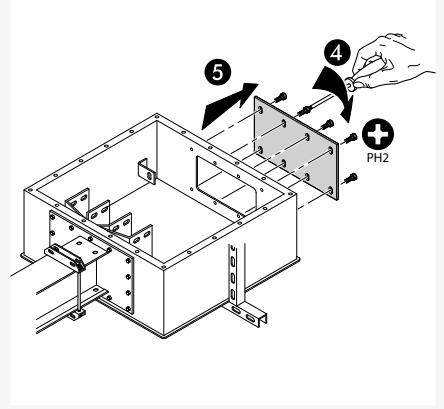
1



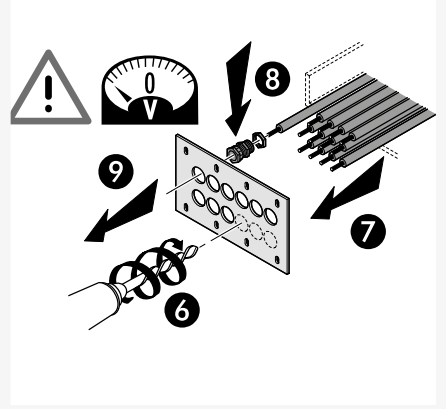
2 3



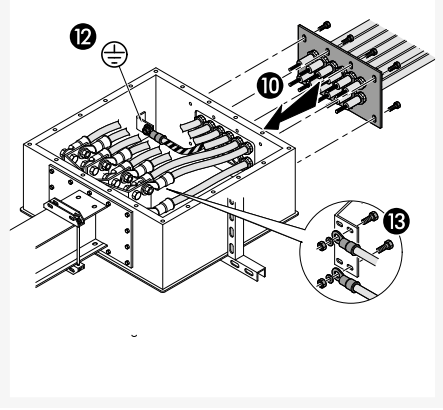
4 5



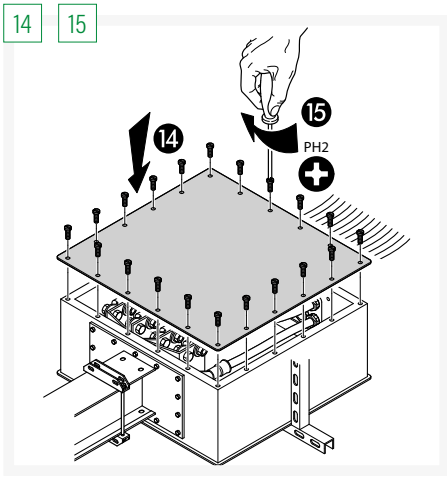
6 7 8 9



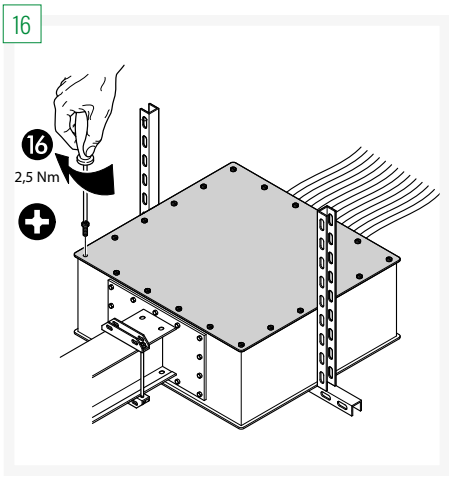
10 11 12 13



14 15

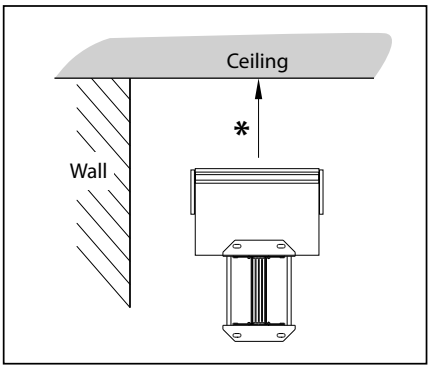


16



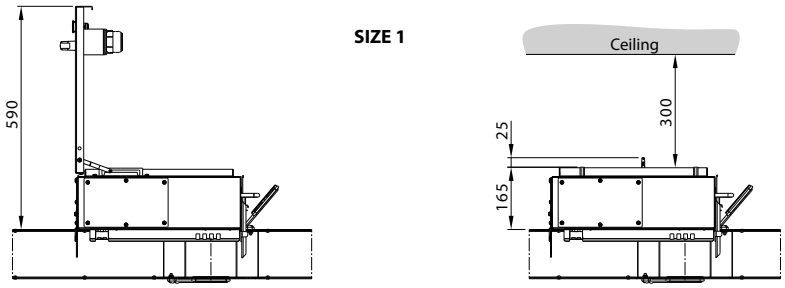
Tap-off boxes installation

Before installing the TOB on the busbar, carefully consult the installation instructions related to the TOB.
When there are tap-off units along the busbars, the minimum distances depend on the dimensions of the tap-offs selected.

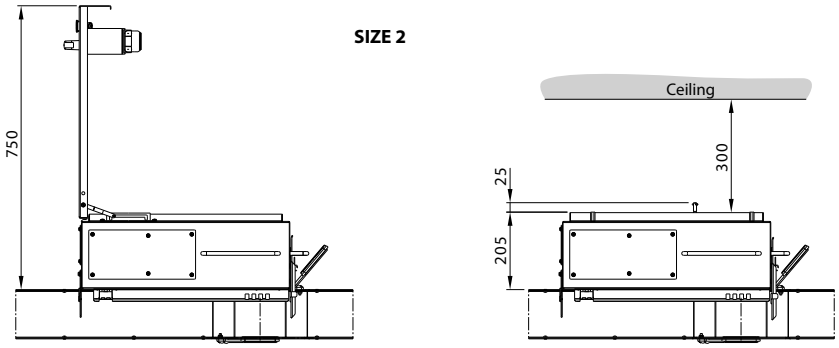


* When there is a tap-off box installed above the busbar, check the overall dimension of the open cover of the tap-off unit used in the specific section.

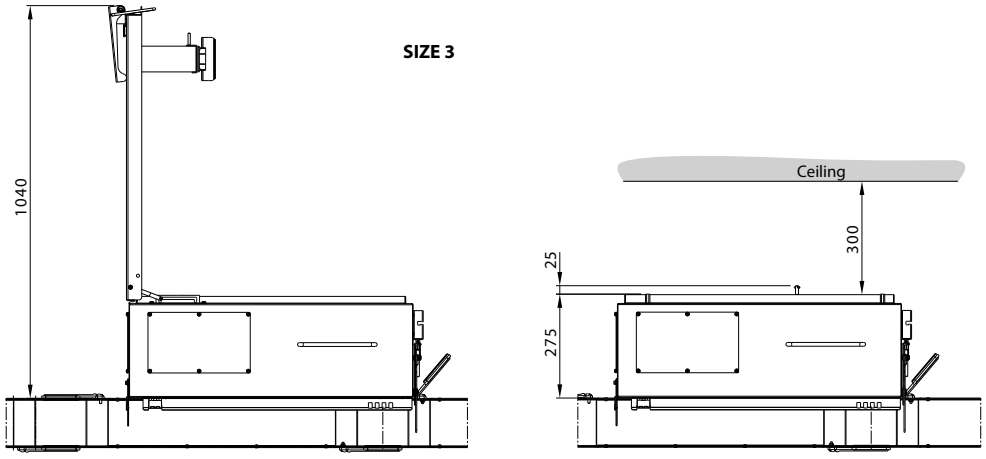
SIZE 1



SIZE 2



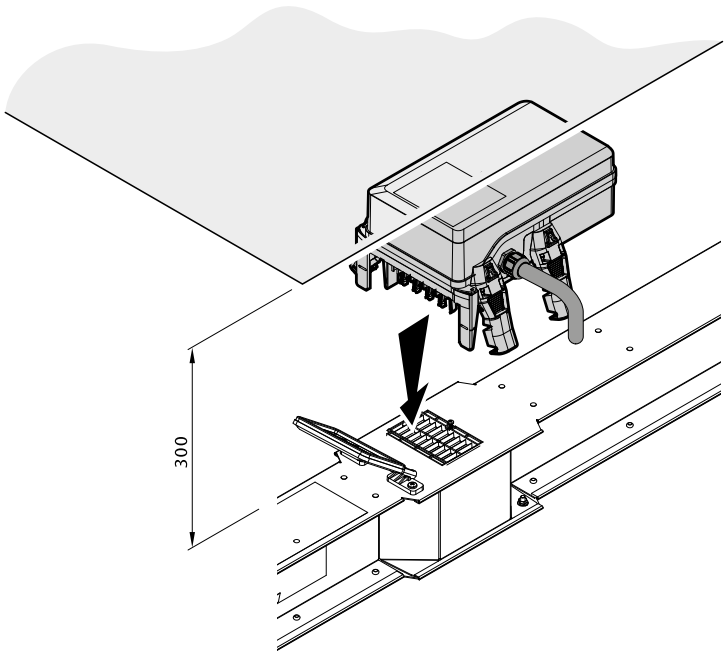
SIZE 3



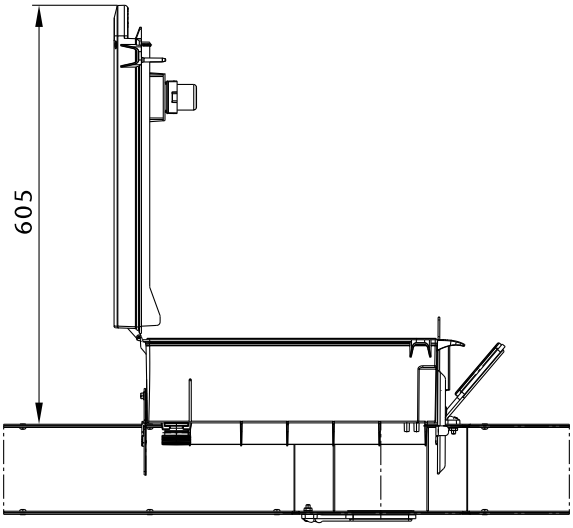
Tap-off boxes installation *(continued)*

FIBERGLASS PLASTIC TOB OVERALL DIMENSION

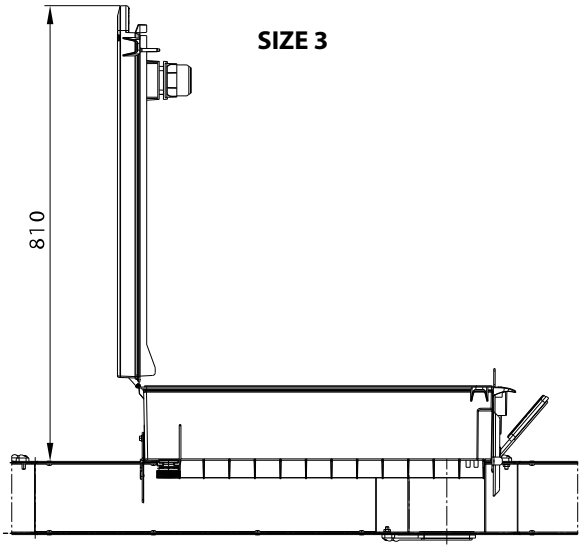
SIZE 1



SIZE 2

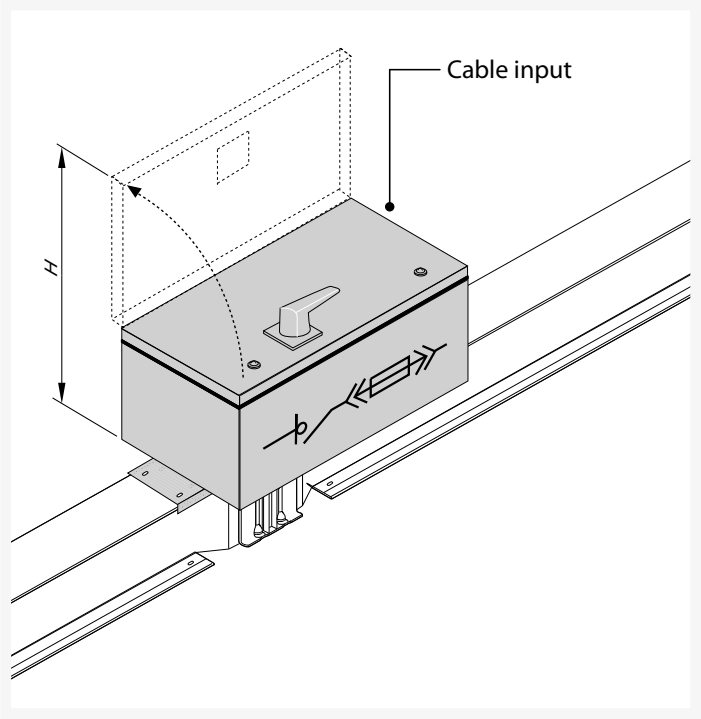


SIZE 3



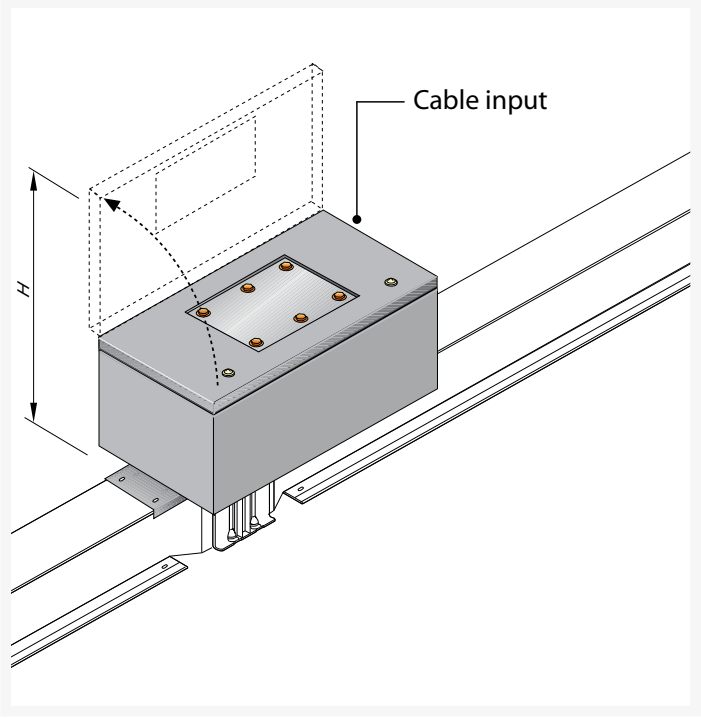
TOB ON THE JUNCTION: BOLT-ON TYPE

TYPE 4 / TYPE 5



Type	Rating (A)	H
4A	125	630
	250	
	400	
4B	630	675
4C	800	745
	1000	
	1250	

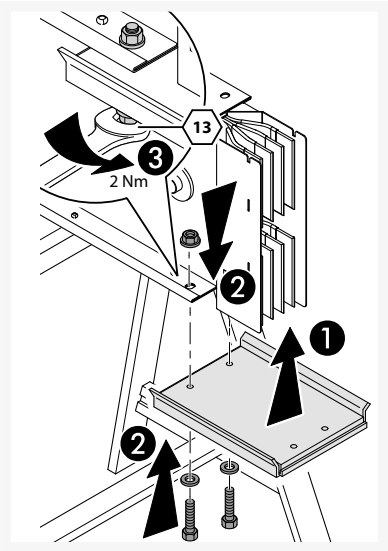
TYPE 5 - FROM 125 A TO 1250 A

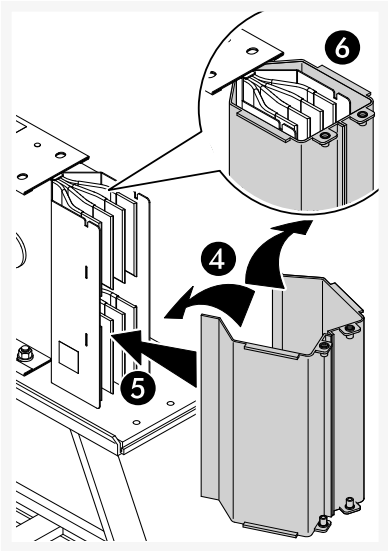


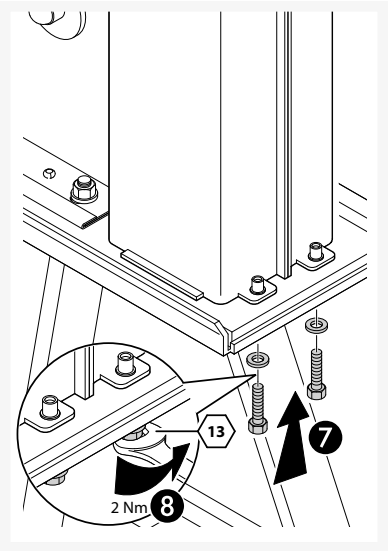
Type	Rating (A)	H
5A	125	630
	250	
	400	
5B	630	675
5C	800	745
	1000	
	1250	

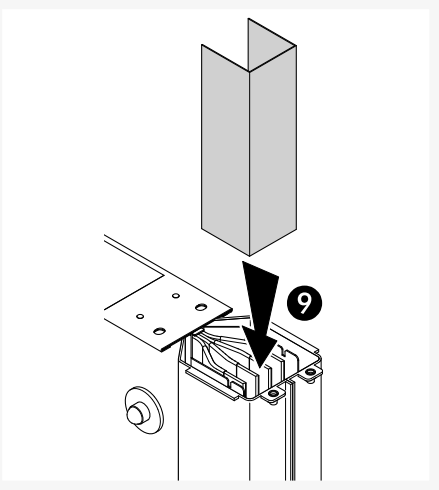
MOUNTING OF THE COMPLEMENTARY ELEMENTS

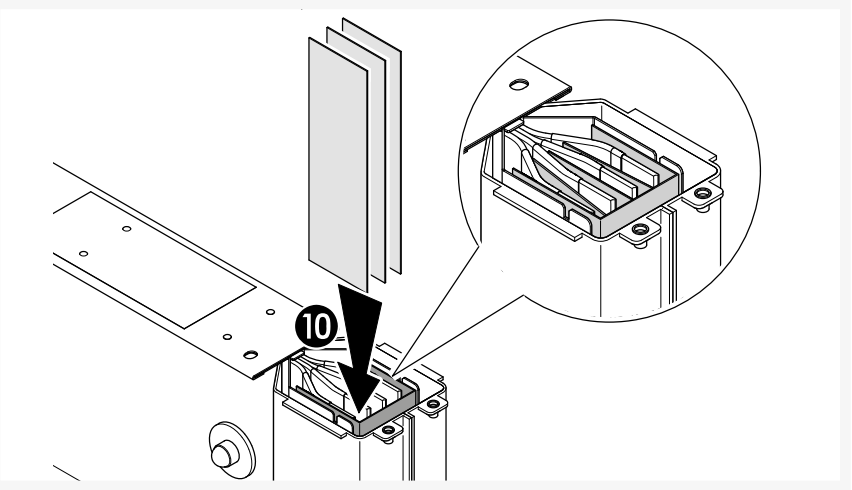
End caps

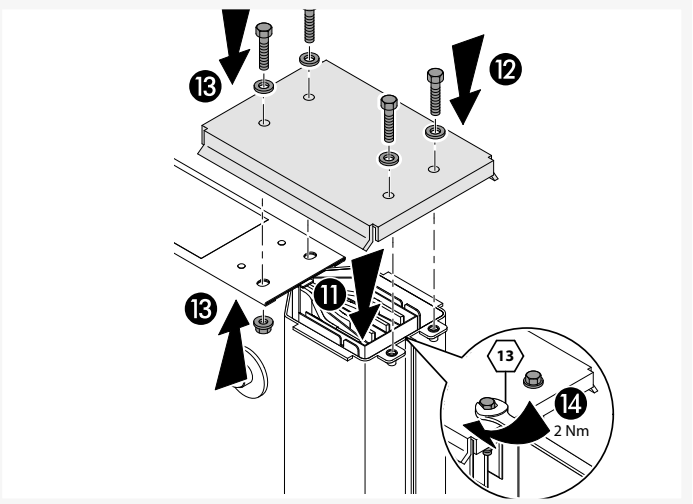


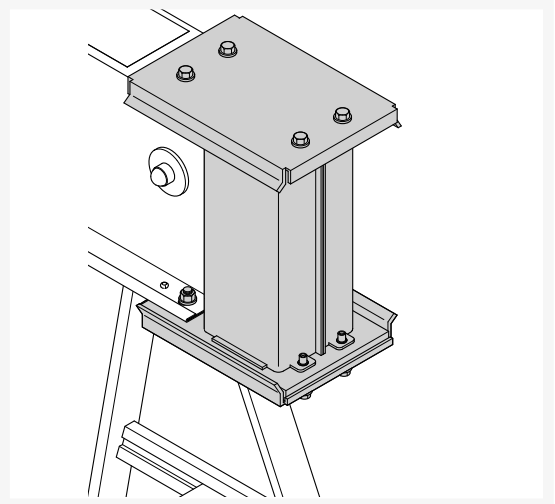












COMISSIONING

BUSBAR PRE-ENERGISING CHECKS

Busbar Installation

Once the installation is complete, verify that the neutral position and, if present, the functional earth are consistent throughout the entire length of the line (pay particular attention to distribution elements, TEE; transpositions, phase inversions, ATR).

- Check if elements are correctly aligned. If not, align them correctly.
- Use only original accessories of the same product (tap-off boxes, feed unit, etc.).
- Do not step on the busbar.
- Do not cut or drill the busbar (drilling is permitted only to fix supports).
- Do not use the busbar system as a supporting structure for other systems.
- Protect from water, malfunctioning piping, and all fluids that may come from water jets. Cover if necessary. Cap the ends of the busbar joint points that have not been installed after completion of the work.
- Ensure that the system is installed in an environment suitable for the protection degree (IP) of the busbar.
- If during the installation of the TOB, a damaged outlet is noticed, install the TOB in another outlet. If this damage could compromise the IP protection rating, contact customer care.
- It is possible to fix anomalies on painting and slight damaging which could happen during transporting and installation operation by touching up with spray paint (not supplied). We recommend cleaning the surfaces with a dry cloth in advance where the painting process will be.

SWITCHBOARD CONNECTION

On switchboard connections verify that the air distances between bars with different potentials are over 40 mm wide. If it is not the case, contact Legrand.
Use the standard torque values for the screws to ensure proper fastening.
See the following torque for 8.8 screws:

- 25 Nm for M8
- 50 Nm for M10
- 85 Nm for M12
- 100 Nm for M14
- 120 Nm for M16

BUSBAR PRE-ENERGISING CHECKS

Electrical Safety Tests

Carry out all tests described in the applicable technical installation standard, such as the insulation test between phases neutral and to earth at 1000V with a minimum value of 1MΩ, for every line stretch.
Make sure that no protective/ metering device (switch, connector, metering central, etc.) is connected to the system and that the earth-neutral line is separate.
All tap-off boxes on the line must be open, removed or with breaker in OFF position (load disconnected).
Keep in mind that the results can vary according to the busbar length, width, or number of bars. The results may also vary according to the moisture content.
If the insulation value is lower than 1MΩ, it is necessary to verify the plant completely, starting from the insulating parts of each monobloc.
If the insulation is still inadequate, divide the plant into two parts and verify the single stretch to identify the element with low insulation. Continue the splitting if the insulation keeps being inadequate.
If the insulation test is made on th single element, the minimal value is 100MΩ (to ensure an additional level of safety, we use a higher resistance value than the minimum required by the standard, which specifies 1 MΩ for a test voltage of 1000V).

Electric Checks

In case of energizing the line for the first time, it is better to have experienced personnel present.

⚠ Attention if a short circuit is detected, it is mandatory not to energize the line to avoid possible serious accidents.

In case of excessive noise and vibrations, pay attention as they may indicate installation or product issues.
If spark formation is noticed along the line, immediately shut down the line and contact support.
Do not overload the line by exceeding the nominal current.

THERMAL TEST ON THE LINE

Supply the busbar with a suitable load (suggested at least 40%) and let it work until thermal steady state is reached, then carry out a thermal test.

- Stick labels on the hottest parts and mark them with progressive numbers to identify the element. Carry out the thermal test again on the labels.
- Fill the attached form with the measured values, together with ambient temperature and working current.
- Thermal tests can be carried out with contact temperature sensors, optical pyrometers, or thermal cameras.
- The temperature-rise measured on junctions casing, once the installation is completed and working with a maximum ambient temperature of 50/55°C (for aluminium/ copper conductors respectively), must not exceed 70°K (calculated as absolute temperature minus nearby ambient temperature).

In case of problems, contact Legrand

If quality control requests a torque verification of the monobloc bolts after the thermal test, it has to be guaranteed at least 60Nm.

THERMAL TEST ON PLUG-IN

Carry out a thermal test on the cover near the lock, using contact temperature sensors, optical pyrometers, or thermal cameras. The test has to be carried out with tap-off boxes running with a suitable current (suggested at least 40%) and let it work until thermal steady state is reached.

Fill in the attached form together with ambient temperature and working current.

Busduct record form for inspections and controls

PLANT	
CLIENT	
CONFIRMATION OF ORDER N.	
MANUFACTURING YEAR	
INSTALLATION YEAR	
INSTALLING COMPANY	

Inspections after installation

PERSON IN CHARGE OF INSPECTIONS	
COMPANY (if different from installing company)	
INSPECTION DATE	
SIGNATURE	

Element alignment	YES	NO

JUNCTIONS

Checked junctions (quantity)		
Total junctions (quantity)		
Correct installation	YES	NO
Soundness of insulating parts	YES	NO
Correct centring	YES	NO
Correct coupling clamp (85 Nm) - write value		

FILLING THE CHECK FORMCHECKS

CONNECTION TO SWITCHBOARD

Correct air distance between bars	
Correct coupling clamp	

TESTS ON ELECTRICAL SAFETY

Insulating resistance between L1 and neutral (L1-N)	
Insulating resistance between L2 and neutral (L2-N)	
Insulating resistance between L3 and neutral (L3-N)	
Insulating resistance between L1 and L2 (L1-L2)	
Insulating resistance between L2 and L3 (L2-L3)	
Insulating resistance between L3 and L1 (L3-L1)	

N.B. Write the measured value of the insulating resistance.

Insulating resistance between L1 and earth (L1-PE)	
Insulating resistance between L2 and earth (L2-PE)	
Insulating resistance between L3 and earth (L3-PE)	
Insulating resistance between neutral and earth (N-PE)	
Test voltage	

THERMAL TESTS

Fill in the attached table, with reference to the inspected element.
As per the measurement point and the plate present on the measurement side, fill in the relative box with the measured temperature value.

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VERIFICATION

BUSBAR PERIODIC INSPECTIONS

Technically, busbar systems do not require maintenance. However, annual inspections are recommended to identify any conditions that might negatively affect their performance depending on the environmental conditions in which they are used.

Inspection Actions

VISUAL INSPECTION ON THE LINE

- Moisture and Liquid Leaks: Busbar systems should not be exposed to moisture, process vapours, and liquid leaks (e.g., roof leakage). In case of any dripping or moisture on the busbar pieces, take necessary precautions without delay and eliminate the causes. After relevant checks, replace the busbar piece if necessary.
- External material: Ensure there is no accumulation of dust, soil, mortar, etc., on the busbar systems. Clean any detected accumulation.
- Cleaning Agents: Avoid using cleaning aggressive agents or other materials containing hydrocarbons during installation, operation, or maintenance, as they may harm plastic components and metal casings.

VISUAL INSPECTION

- Check the alignment of the bolt marks (if any) and perform a spot check of the temperatures to ensure there are no significant deviations between adjacent junctions. If a problem is noticed with the junction, proceed to an inspection.

THERMAL INSPECTION

- Daily Line Operation Check
- Verify the line during its normal daily operation. If this is the first inspection after commissioning, proceed as follows:
- If the load conditions differ significantly from those during commissioning, check the temperatures according to the procedure defined during the commissioning phase (see section 4.1.3).
- If the operating conditions are similar to those recorded during commissioning, ensure that there is no temperature rise exceeding 15 K.
- For all inspections following the initial one, the rule remains to ensure that there is no temperature difference exceeding 15 K. Carry out the thermal test again on the labels. Fill the attached form with the measured values, together with ambient temperature and working current. Thermal tests can be carried out with contact temperature sensors, optical pyrometers, or thermal cameras. In case any anomalies occur, proceed with the following steps:
- Unload and de-energize the busbar, allowing at least 2 hours for cooling. Open the connection covers and verify that: Plastics are in good condition (no slits) and plastic colour has not changed. There is no water, or foreign materials (dust, grime, etc.). Blocks correctly adhere to bars, i.e., conducting parts fully make contact.
- Check the connection using a torque-wrench. During measurement, the line must be at ambient temperature. If the torque moment is lower than 60Nm, re-establish it.

Busbar Periodic Inspections

Busduct periodic inspections on tap-off boxes, to be carried out yearly. Legrand XCP busbar when designed and installed by Legrand group, it Is only recommended periodical yearly inspections to be carried out following these guidelines;

- Visual inspection of tap-off boxes. Checking the alignment of the fixing bolt marks (if any) and verifying that the TOB is mechanically stable without dust or water. If you notice a problem, proceed to a thermal inspection on the cover near the locks.
- Registration of temperature together with ambient temperature and working current for each TOB

In case of abnormal temperature values versus initial ones, specific actions have to be carried out by trained personnel:
- Switch off the load connected to the TOB under analysis.
- Verify the brackets screws, that fix the TOB on the busduct, are correctly tightened.
- Open the cover and verify that:
- Plastics are in good condition (no slits) and plastic colour has not changed
- There are no water, scale-marks or foreign materials (dust, grimes...)
- Insulating protections correctly cover the live parts and connection bars for clamps (if present) are in good conditions, without any signs of wear.
- Check all connections for cables using a torque-wrench.
- Verify the breaker or fuse holder (if present) don't show signs of overheating or damages.

After completing all the indicated checks and necessary restorations, proceed with energizing the line and verifying the temperature of the checked points, fill in the attached form together with ambient temperature and working current. If the measured relative temperature (ΔT) is abnormal compared to the temperature measured during installation, contact customer care.

Annual periodic inspections carried out one year after energizing and every other following year

PERSON IN CHARGE OF INSPECTIONS	
COMPANY (if different from installing company)	
INSPECTION DATE	
SIGNATURE	

JUNCTIONS

Checked junctions (quantity)		
Total junctions (quantity)		
Soundness of insulating parts	YES	NO
Absence of water, scale and dust in flanges	YES	NO
Correct centring	YES	NO
Correct coupling clamp (85 Nm) - write value		

CONNECTION TO SWITCHBOARD

Correct air distance between bars	
Correct coupling clamp	
Tests on electrical safety	
Insulating resistance between L1 and neutral (L1-N)	
Insulating resistance between L2 and neutral (L2-N)	
Insulating resistance between L3 and neutral (L3-N)	
Insulating resistance between L1 and L2 (L1-L2)	
Insulating resistance between L2 and L3 (L2-L3)	
Insulating resistance between L3 and L1 (L3-L1)	
Insulating resistance between L1 and earth (L1-PE)	
Insulating resistance between L2 and earth (L2-PE)	
Insulating resistance between L3 and earth (L3-PE)	
Insulating resistance between neutral and earth (N-PE)	

N.B. Write the measured value of the insulating resistance.

THERMAL TESTS

Fill in the attached table, with reference to the inspected element.
As per the measurement point and the plate present on the meausurement side, fill in the relative box with the measured temperature value.

Inspections after installation and yearly

PERSON IN CHARGE OF INSPECTIONS	
COMPANY (if different from installing company)	
INSPECTION DATE	
SIGNATURE	

Correct coupling clamp of connecting screws

THERMAL TESTS

Tap-off box n.	Measured T	Ambient T	Dt	Ib
Tap-off box n.	Measured T	Ambient T	Dt	Ib
Tap-off box n.	Measured T	Ambient T	Dt	Ib
Tap-off box n.	Measured T	Ambient T	Dt	Ib
Tap-off box n.	Measured T	Ambient T	Dt	Ib
Tap-off box n.	Measured T	Ambient T	Dt	Ib
Tap-off box n.	Measured T	Ambient T	Dt	Ib
Tap-off box n.	Measured T	Ambient T	Dt	Ib
Tap-off box n.	Measured T	Ambient T	Dt	Ib
Tap-off box n.	Measured T	Ambient T	Dt	Ib
Tap-off box n.	Measured T	Ambient T	Dt	Ib
Tap-off box n.	Measured T	Ambient T	Dt	Ib

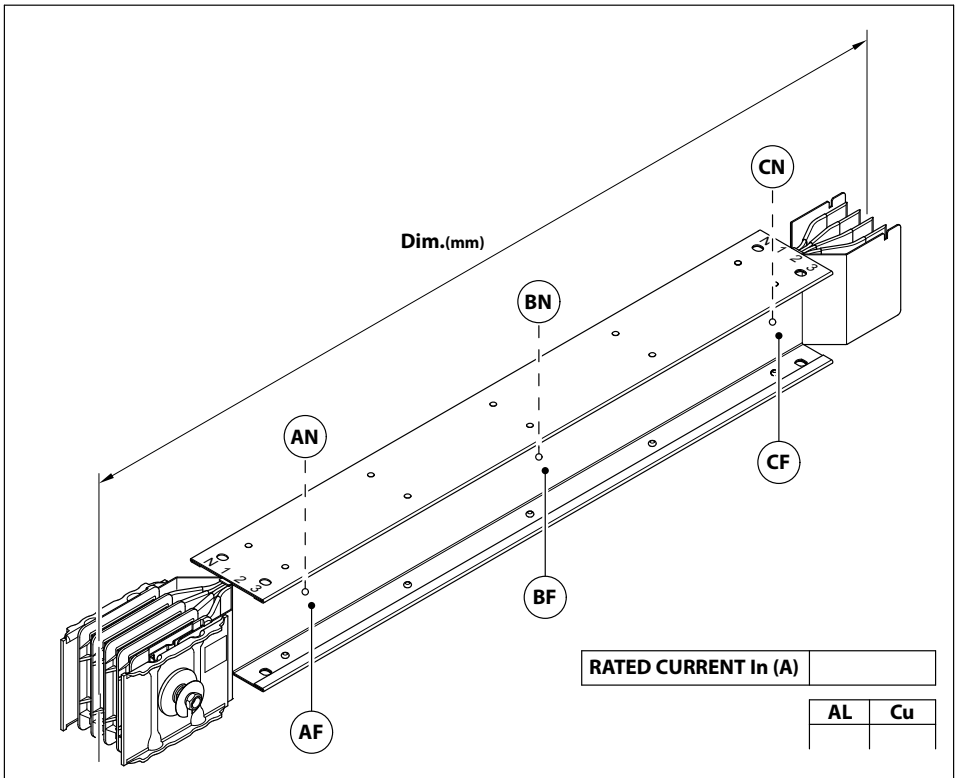
Dt = Tmeasured - Tambient
Ib = working current

THERMAL AND VISUAL INSPECTION OF TOBS

Feeder element

ELEMENT IDENTIFICATION	
PERSON IN CHARGE OF INSPECTIONS	
COMPANY (if different from installing company)	
INSPECTION DATE	
SIGNATURE	

N.B. Stick on the element a label with a progressive number for identification.



POS.	Dim.(mm)	AF	BF	CF	AN	BN	CN	Ta (°C)	I. (A)

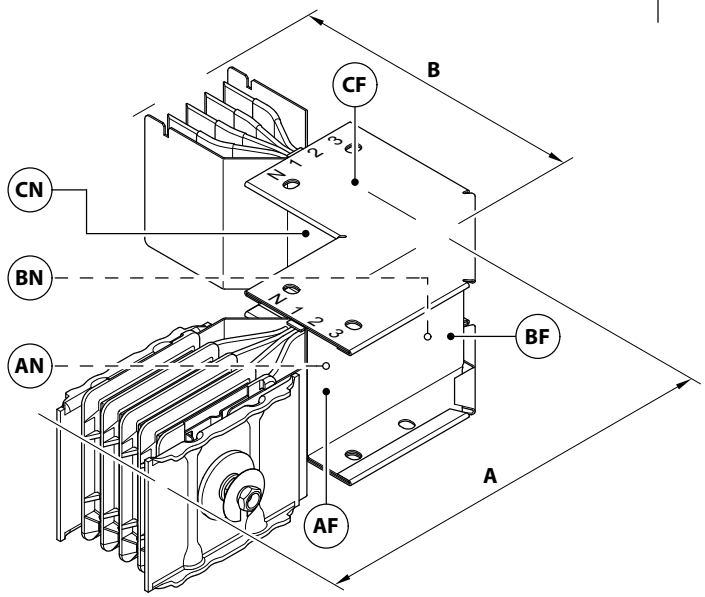
Dihedral elbow

ELEMENT IDENTIFICATION	
PERSON IN CHARGE OF INSPECTIONS	
COMPANY (if different from installing company)	
INSPECTION DATE	
SIGNATURE	

N.B. Stick on the element a label with a progressive number for identification.

RATED CURRENT In (A)	

AL	Cu



POS.	Dim.(mm) A	Dim.(mm) B	AF	BF	CF	AN	BN	CN	Ta (°C)	I. (A)

THERMAL AND VISUAL INSPECTION OF TOBS

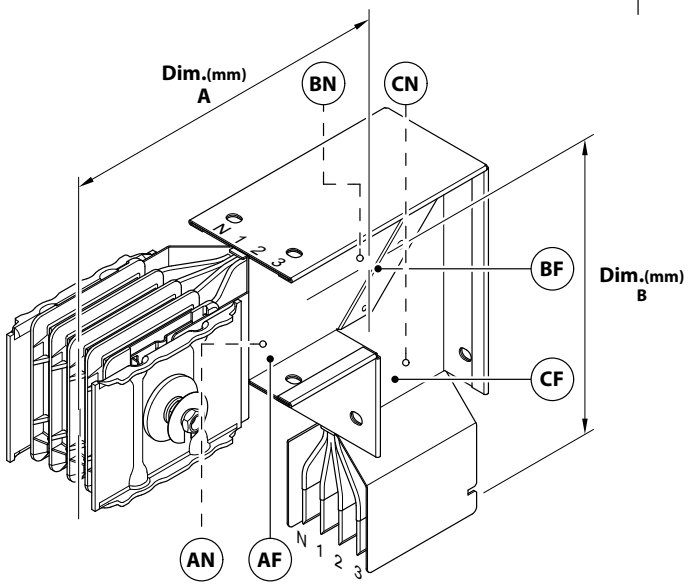
Flat elbow

ELEMENT IDENTIFICATION	
PERSON IN CHARGE OF INSPECTIONS	
COMPANY (if different from installing company)	
INSPECTION DATE	
SIGNATURE	

N.B. Stick on the element a label with a progressive number for identification.

RATED CURRENT In (A)	

AL	Cu



POS.	Dim.(mm) A	Dim.(mm) B	AF	BF	CF	AN	BN	CN	Ta (°C)	I. (A)

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Troubleshooting table

PROBLEM'S SIGNALS	WHERE?	CAUSES:	SOLUTIONS:	
			MATERIALS ARE DAMAGED:	MATERIALS ARE OK:
Abnormal heat on:	Monoblock or along busbar plant or elbow	Couple loosing Nut not broken	Request spare parts	Strength the torque
		Wrong mounting Monoblock tooth wrong		Change way to mounting
Burnished point on:	casing or insulating	broken insulating overload on the line	request spare parts	
Low insulating measure	apply "half plant" technique, to find out:	mechanical damage water inside broken insulating	request spare parts	
Mccb break on panel board, on feed unit, on TOB:	apply "half plant" technique, to find out:	• electrical overload • bad electrical contact • short circuit on load • short circuit inside TOB • broken MCCB • wrong mounting MCCB • too much hot environment • water inside		

For the identification of the materials and the disposal instructions visit www.bticino.com/disposal.

legrandgroup.com
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