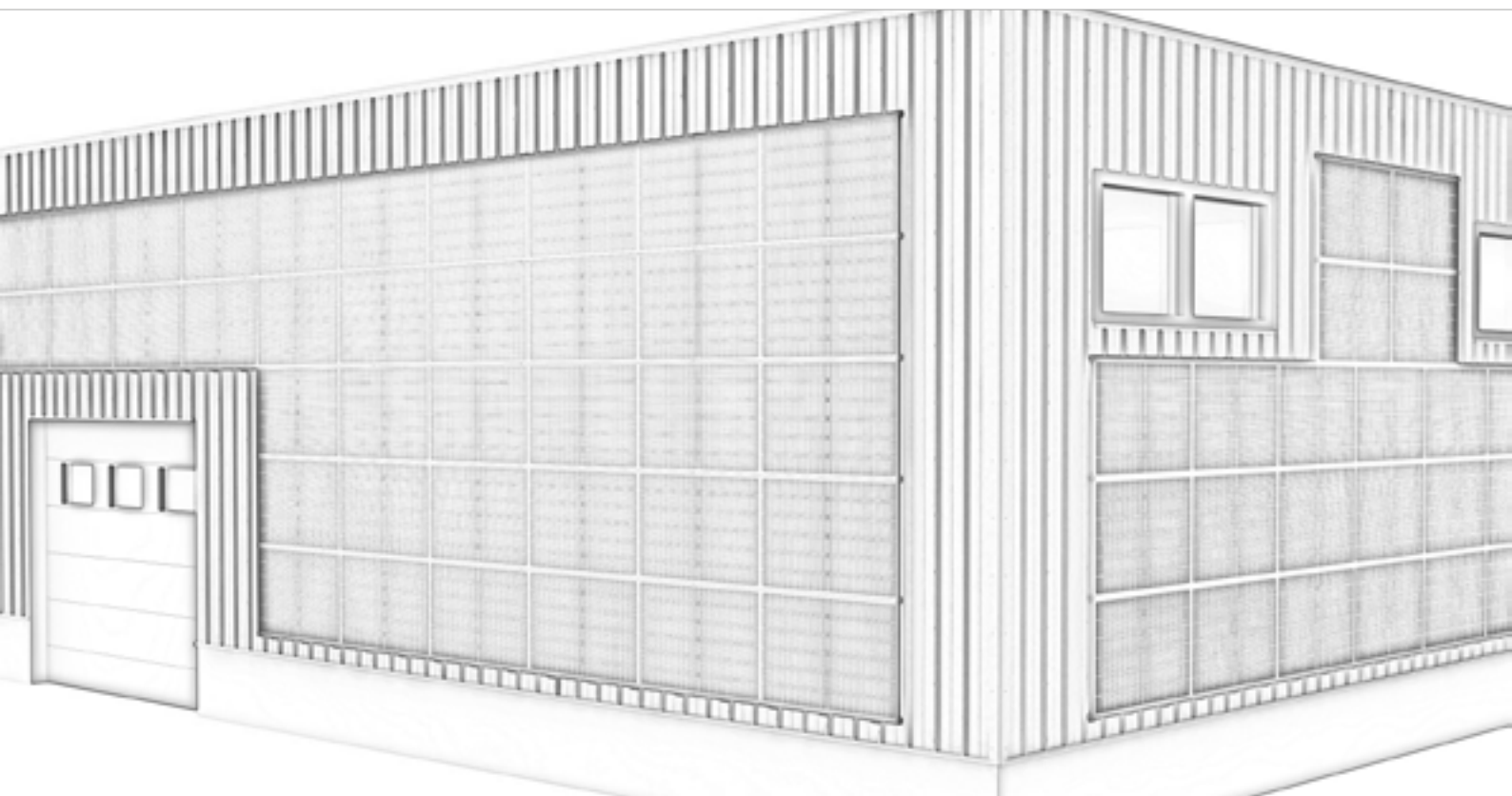


Sheet metal facade | Insertion system

Insertion system with direct fixing to sheet metal facades



Mounting instructions

- Safety instructions [2](#)
- General conditions & Notes on mounting [3](#)
- Tools, system components and optional components [4-5](#)
- Mounting the substructure [6-13](#)
- Mounting variations [14-19](#)
- Maintenance of the mounting system [20](#)



Safety instructions



The following instructions are to be understood as generally valid for our novotegra installation system and are to be applied accordingly, regardless of the particular roof type and installation system.

Systems may only be installed and commissioned by persons who are able to ensure that they are carried out in accordance with the regulations on the basis of their professional qualifications (e.g. training or activity) or experience.

All relevant national and locally applicable occupational health and safety regulations, accident prevention regulations, standards, construction regulations and environmental protection regulations as well as all regulations of the employers' liability insurance associations must be observed.

- During the work, safety clothing must be worn in accordance with the relevant national regulations and guidelines.
- The assembly must be carried out by at least two persons in order to be able to guarantee help in case of an accident.
- The national regulations for work at heights and on roofs must be observed.
- The electrical work must be carried out in compliance with the national and locally applicable standards and guidelines in compliance with the safety regulations for electrical work.

The installer is responsible for dimensioning the novotegra mounting system.

Before installation, it must be checked whether the mounting system meets the static requirements on site. For roof systems, the on-site load-bearing capacity of the roof must also be checked. Please note our instructions on static calculations, which can be viewed at novotegra.com/downloads.

The installer is responsible for connecting the interfaces between the mounting system and the building. This also includes the tightness of the building envelope. The mounting system must always be statically calculated individually for each project using the Solar-Planit design software.

The mounting system is suitable for mounting PV modules with standard market dimensions. The installation instructions of the module manufacturers must be observed and complied with.

There is no inspection by novotegra GmbH regarding constructability or mounting guidelines.

The specifications of the cable and inverter manufacturers must be observed. If there are any contradictions to these installation instructions, please be sure to consult your novotegra GmbH sales team or - in the case of components not supplied by novotegra GmbH - the manufacturer concerned before installing the novotegra mounting system.

It must be ensured that a copy of the assembly instructions is within reach in the immediate vicinity of the work on the construction site.

Since our assembly systems are constantly being further developed, assembly procedures or components may change. Therefore, please check the current status of the installation instructions on our website novotegra.com/downloads before installation. The assembly sequence of these instructions must be observed. We will also be happy to send you current versions on request.

In the event of improper use and non-compliance with our safety instructions and installation specifications, as well as non-use of associated installation components or use of third-party components that are not part of the installation system, all claims under guarantee, warranty and liability vis-à-vis novotegra GmbH shall lapse. The user is liable for damage and resulting consequential damage to other components such as PV modules or to the building itself, as well as for personal injury.

The permissible roof pitch for the use of the mounting system in accordance with these installation instructions is 0 to 60 degrees for installation parallel to the roof on a pitched roof and 0 to 5 degrees for elevated installation on a flat roof. Facade systems are to be mounted parallel to the facade.

The grounding / potential equalization of the mounting system must be carried out in accordance with the national and locally applicable standards and guidelines.

If all safety instructions are observed and the system is installed properly, there is a product warranty claim of 12 years. Please note our warranty conditions, which can be viewed at novotegra.com/downloads.

The system can be dismantled in reverse order to the steps described below.

General conditions

Location:	90° inclined facade with trapezoidal sheet metal cover
Module mounting:	portrait/landscape
Module wide :	max. 1,34m
Tensile strength Rm, min .:	Steel 360N/mm ² Aluminium 195 N/mm ²
Sheet thickness min.:	Steel 0,4 mm Aluminium 0,5 mm (recommend 0,7 mm)

General installation instructions for facadesystem

The contents of these installation instructions describe the installation of the substructure on uninsulated building facades made of trapezoidal sheet metal. The substructure is not suitable for insulated facades or for integrated system facades.

The planner/installer must ensure on site that the wall construction fulfils the requirements of the installation system in terms of load-bearing capacity, load-bearing structure and state of preservation. It must be checked that the technical specifications of the wall construction, e.g. material, wall thickness, etc., correspond to the specifications of the static calculation and the design of the planning documents.

The structural analysis of the mounting system only takes into account the fastening of the substructure to the facade. Fixing to the facade is carried out with building authority approved thin sheet metal screws for sheet thicknesses from 0.4 mm (steel sheet) or 0.5 mm (aluminium sheet). On aluminium sheet, use is recommended from a sheet thickness of 0.7 mm.

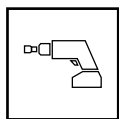
The country-specific regulations for rear ventilation of the facade must be observed. Due to the mounting system structure (insertion rail on short profile), the

distance between the facade and module frame is 64 mm for short rail C 47 and 88 mm for short rail C 71. In order to keep the facade accessible for extinguishing water in the event of a fire, this gap must not be filled or sealed. Only panelling with sufficiently permeable perforated sheets is permitted.

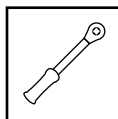
The required distance to the façade, taking into account the country-specific fire protection regulations (fire protection regulations of the responsible building authority, state building regulations, model building regulations, general DIN and VDE regulations), must be determined by the planner/installer on site.

The planner/installer must ensure on site that the intended modules are suitable and approved for this type of application on the facade. If the system is installed in Germany, a module must be used that has a building authority approval for this or a project-specific type approval must be obtained in advance. The country-specific regulations and general standards for lightning protection must be observed and, if necessary, a specialist must be consulted to draw up a lightning protection concept.

Tools and equipment



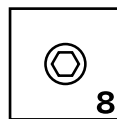
Cordless
screwdriver



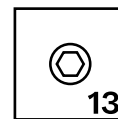
Torque spanner
Nm 20-50 Nm



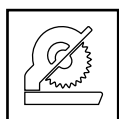
Assembling jig



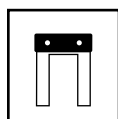
special
nut socket
8mm



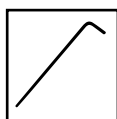
special
nut socket
13mm



Mitre saw



Mounting tool



Hexagon socket
AF 3



Torx TX bit 25
drive



Torx TX bit 30
drive

Mounting system components*



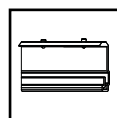
Short rail C 47
with EPDM
200 mm



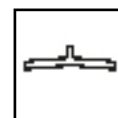
Insertion rail
30-50 mm



Edge stop set IR



Rail Connector
set IR



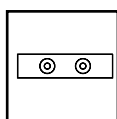
EPDM-T pro-
tection IR



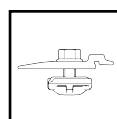
Trapez. moun-
ting screw E16



Trapez. moun-
ting screw E 11



Slip guard set
facade



Cross rail con-
nector set C IR
M8

*The components vary depending on the requirements of the roof, the structural analysis and the choice of components and may deviate from the images above.

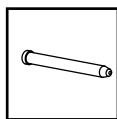
Mounting system components – variations**



Trapezoidal
sheet bracket



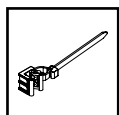
EPDM units



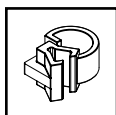
Rail Connector
IR 5 x 100 stain-
less steel

**The components vary depending on the requirements of the roof, the structural analysis and the choice of components and may deviate from the images above

Mounting system components – optional***



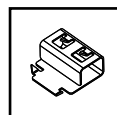
Cable-tie clip for
profile flange



Cabel-Clip
d = 10 mm



Short rail C 71
with EPDM 200
mm

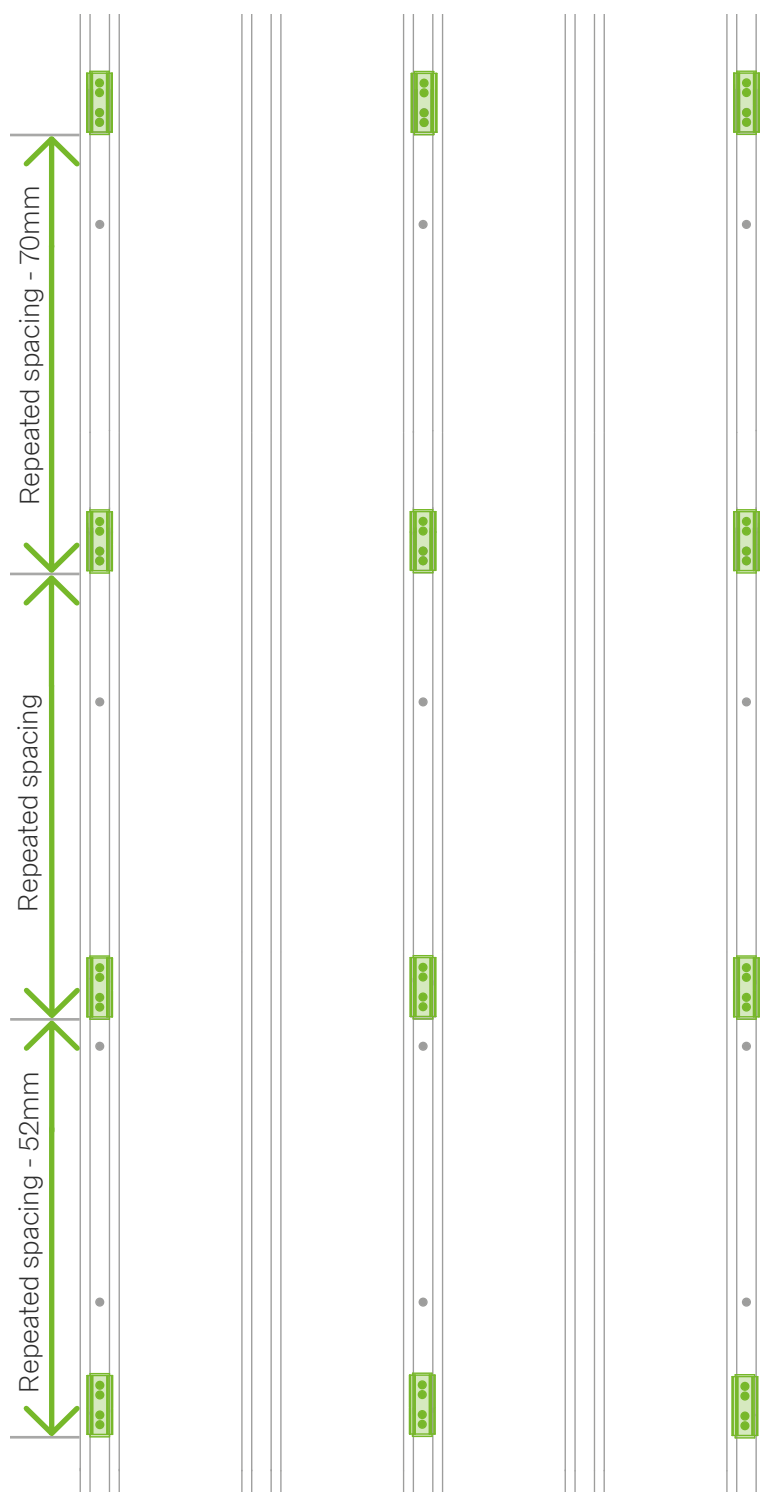


Contact latch IR

***Optionally available installation system components, e.g. for improving the aesthetics of the system, cable management or grounding of the installation system.

Mounting the substructure

1 Insertion system on short rail



Warning:

Risk of injury from working at height.

There is a risk of falling from a great height.

- erect a scaffold
- Observe accident prevention



Measuring the short rail.

The short rails must be centred under the insertion rails.

Vertical dimensions:

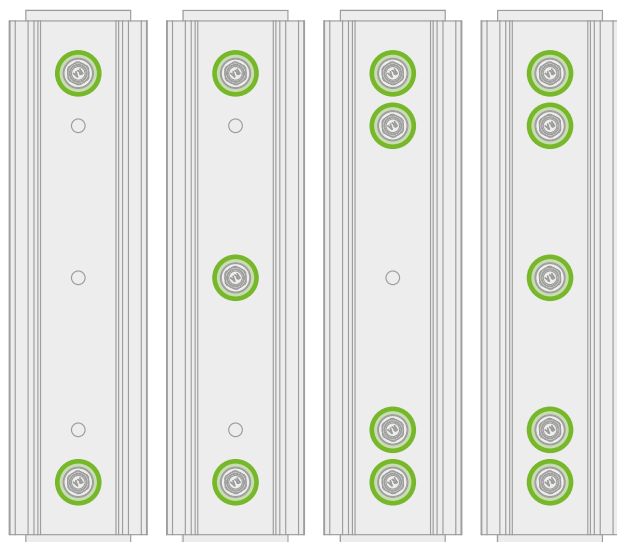
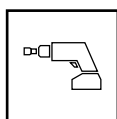
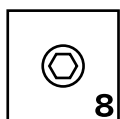
Repeated spacing = module width + 12mm

Bottom row = Repeated spacing - 52mm

Upper row = Repeated spacing - 70mm

The number of mounting screws and the distances between the insertion rails can be found in the planning documents.

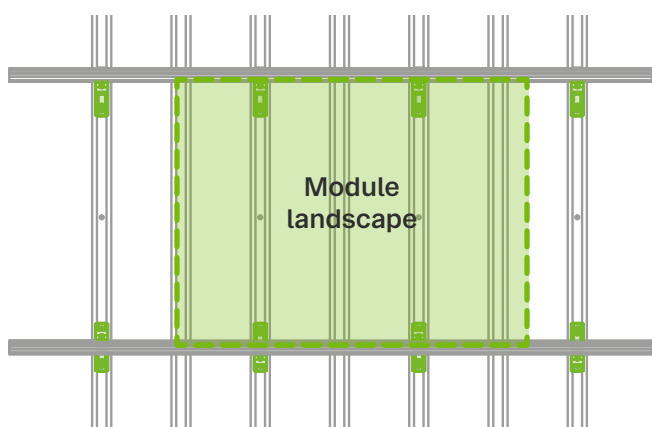
1 Insertion system on short rail



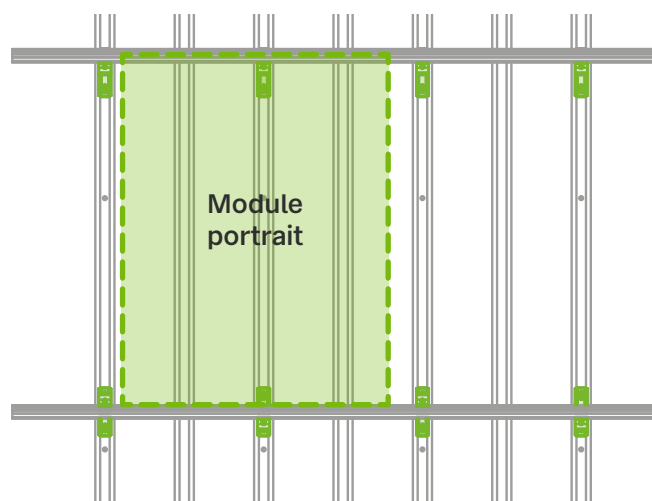
- B** The thin sheet metal screws must be screwed at right angles to the raised beads.

The fixing points shown must be used in accordance with the number specified in the planning documents.

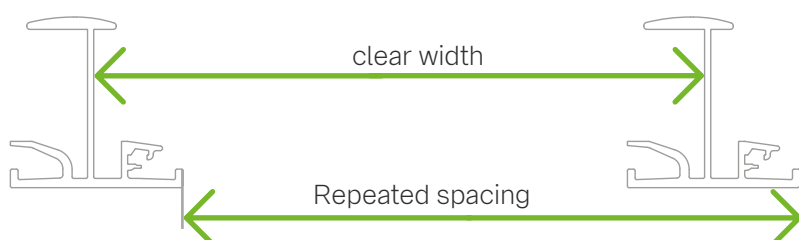
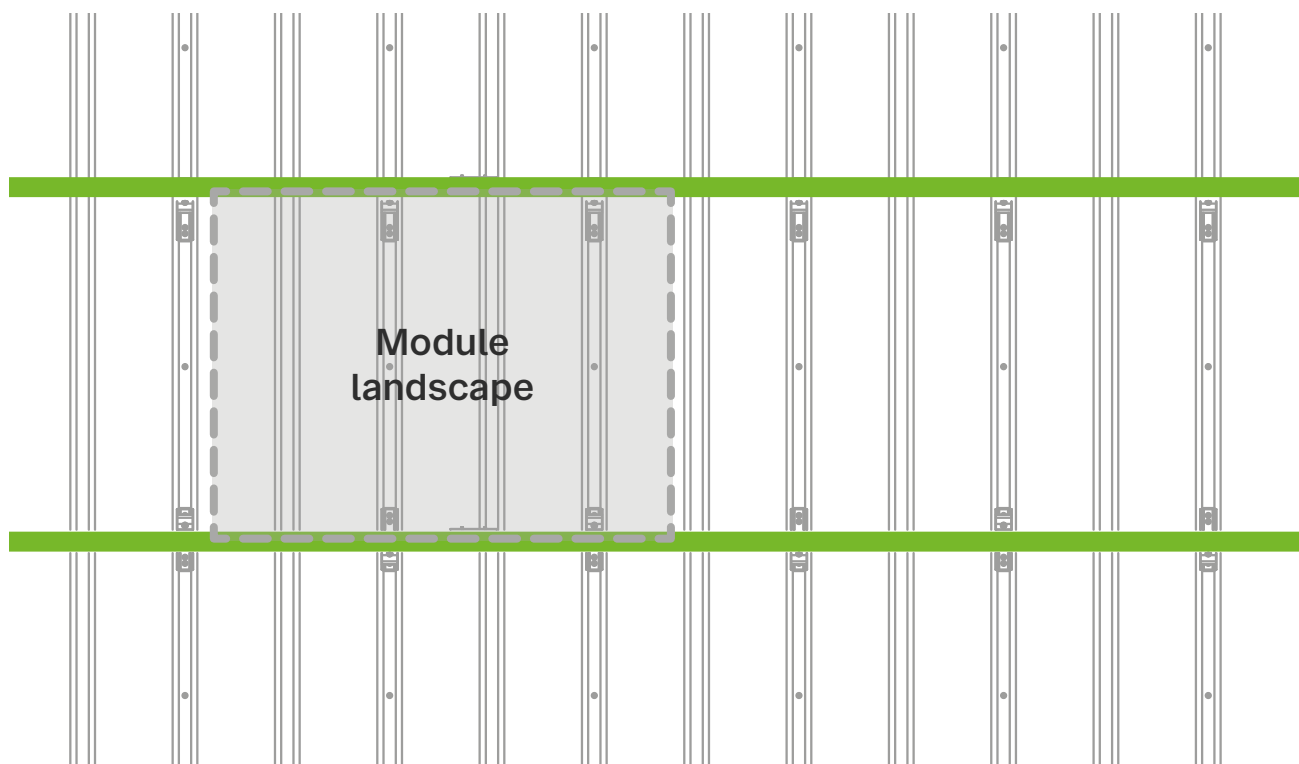
- Warning:**
The screw must not be overtightened! Do not use an impact function when tightening the screws.



- novo-tipp:**
The modules can be mounted vertically or horizontally. The modules must be arranged in the same way within a row. The alignment can change between the rows.



2 Insertion system on short rail



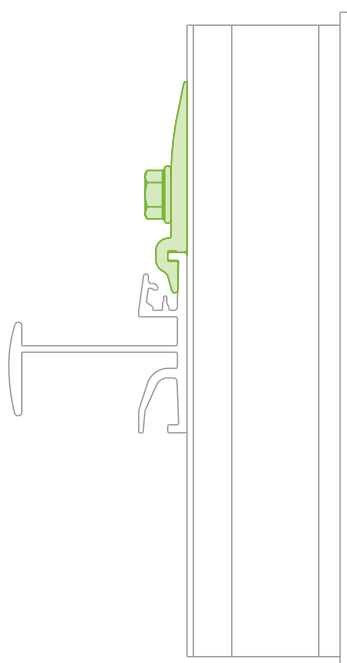
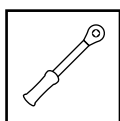
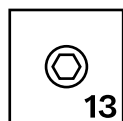
Repeated spacing = Module width W + 12 mm
 Clear width of rails = Module width W + 10 mm

A Measuring the insertion rail.

The insertion rails must be marked on the trapezoidal sheet metal raised beads dependent on the module orientation - portrait or landscape.

For module upstand installation, use the module length instead of the module width.

2 Installing insertion rail



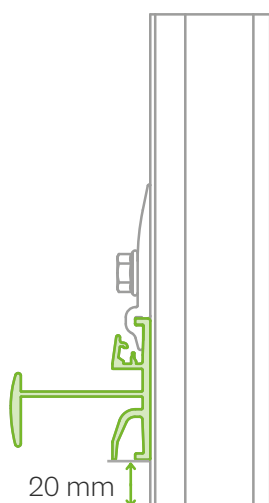
B Mounting Cross rail connector IR

Cross rail connector set C IR has to be engaged with the mounting flange.

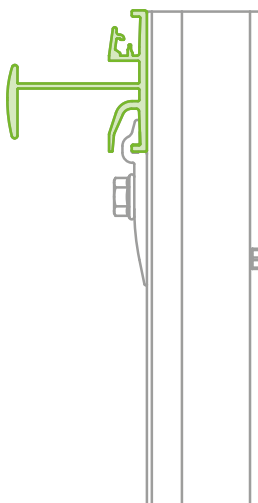
The plate of the cross-rail connector set must be in full contact with the short rail.

The tightening torque for the Cross rail connector set C IR is 25 Nm.

Bottom insertion rail



Top insertion rail



novo-tip:

The insertion rail can be fitted flush with the edge of the short rail in the top row. In the bottom row, the insertion rail can be fitted flush with the slip guard set facade.

It is possible to fit the slip guard set during this installation step, see step 5.

2 Installing insertion rail



C Position of the cross rail connector IR

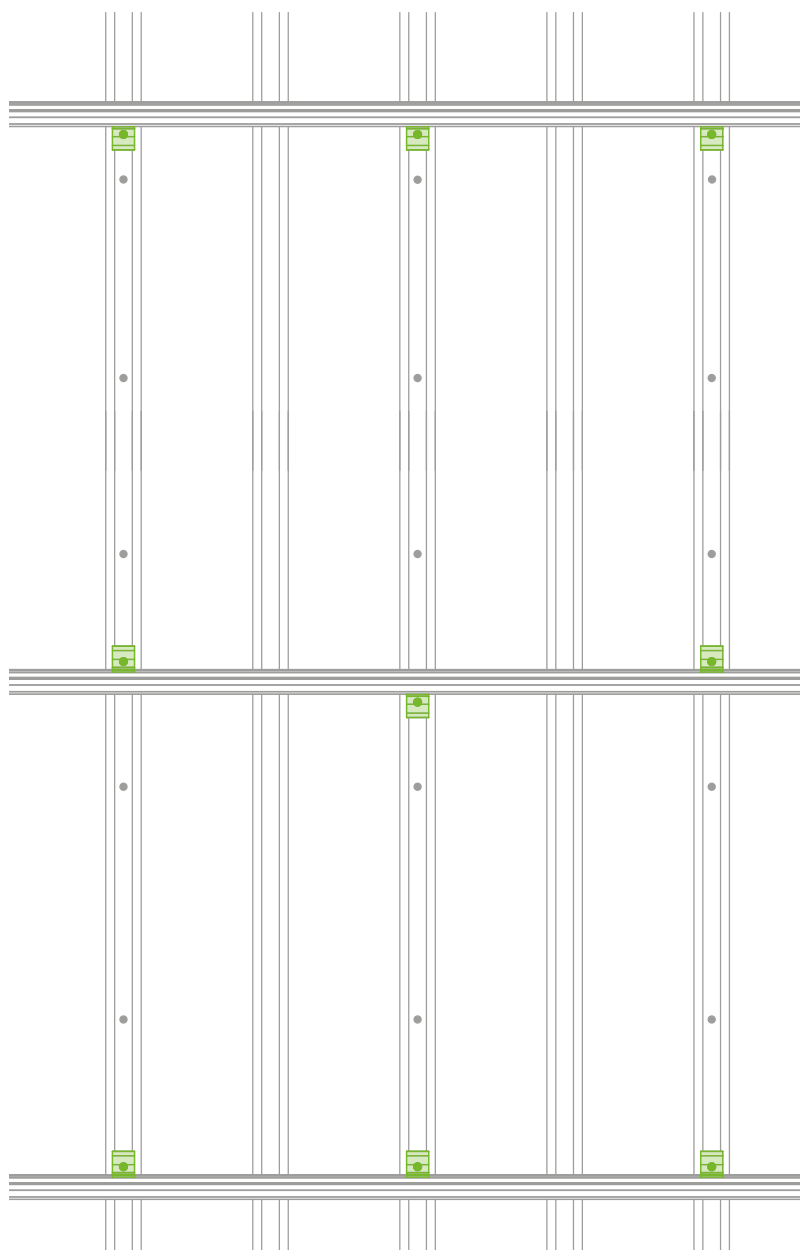
For the top and bottom insertion rail of the module field the Cross rail connector set C IR M8 is fitted on the inside in each case.

The cross rail connector set C ES must be fitted to the centre insert rails alternately at the top and bottom in a W-shape.



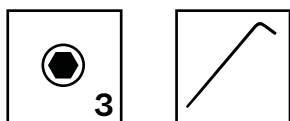
novo-tip:

The assembling jig must be set to the module dimension + 10 mm. The valid module dimension is the width or length of the module and can be found in the module manufacturer's data sheet.



Module field length = Repeated spacing x number of module fields + width of insertion rail

3 Mounting Rail connector IR



Warning:

Risk of injury when sawing the rail to size

There is a risk of cutting yourself on the sharp edges of the rail and the saw blade.

- Comply with UVV
- Wear protective gloves
- Wear safety goggles



Fitting rail connectors



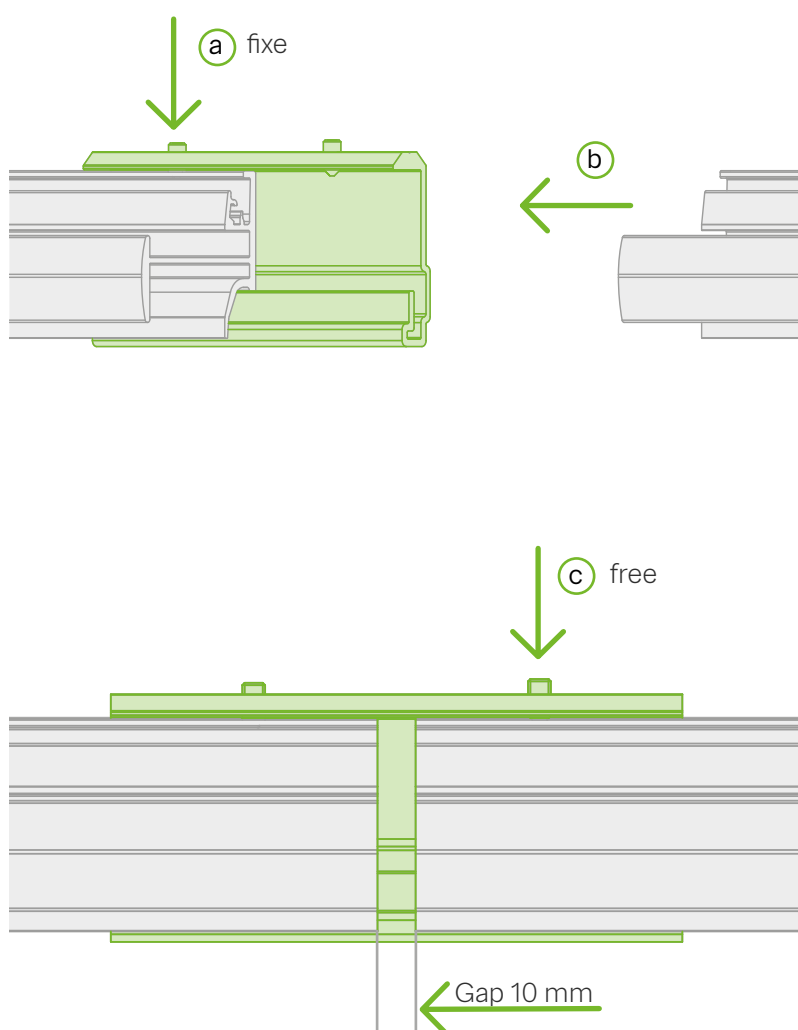
Attach the rail connector up to the centre of the connector and tighten the threaded pin.



Insert the rail to be connected into the connector. Gap between the rails 10 mm.



Tighten the threaded pin without play so that longitudinal expansion is not blocked during heating.



Max. rail length 2,70m



Warning:

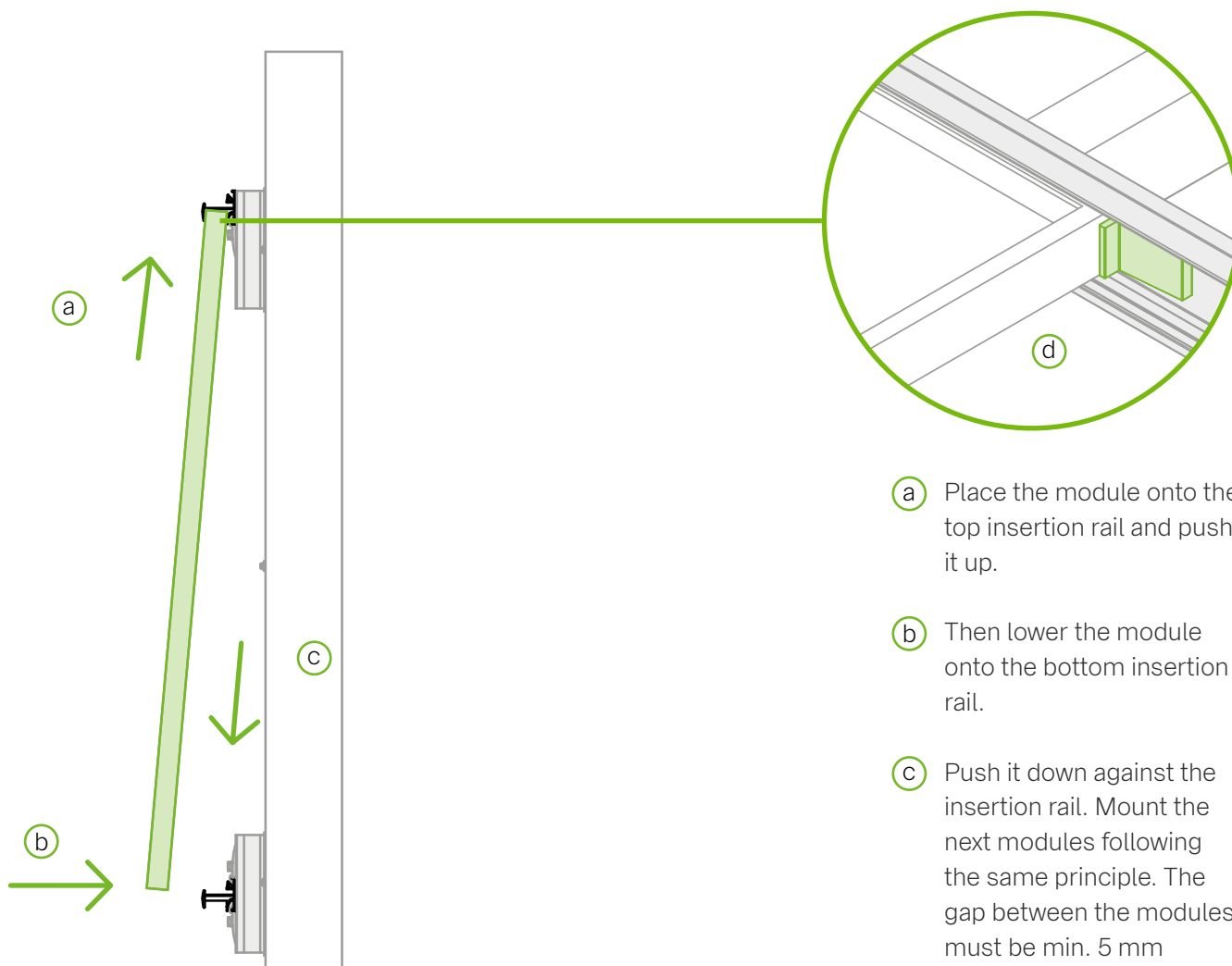
No connector may be placed outside the last support point of the rail.

Each rail section must be fastened at at least one point

The connector cannot be fitted in the area of the short rail. If this is the case, the rail cut or arrangement must be changed.

4 Module mounting insertion system

A Place module in insertion rail



a Place the module onto the top insertion rail and push it up.

b Then lower the module onto the bottom insertion rail.

c Push it down against the insertion rail. Mount the next modules following the same principle. The gap between the modules must be min. 5 mm

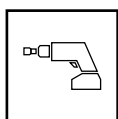
d Install the EPDM-T protection IR between each module.



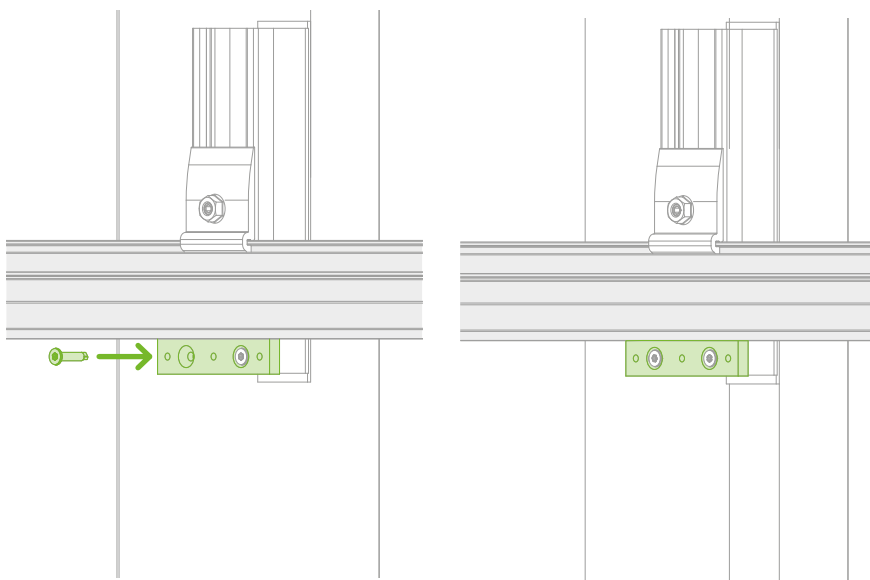
novo-tipp:

If contact latches are fitted for the insertion rail, see step page 19, these must now be inserted.

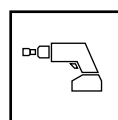
5 Installing slip guard set facade



- A** The slip guard set facade must be fitted to each short rail in the bottom row of the module field.

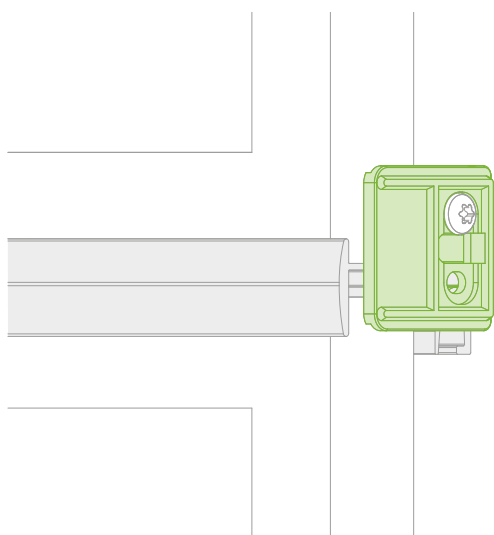


6 Edge stop mounting



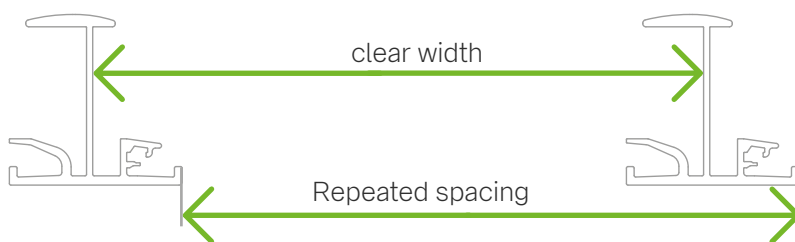
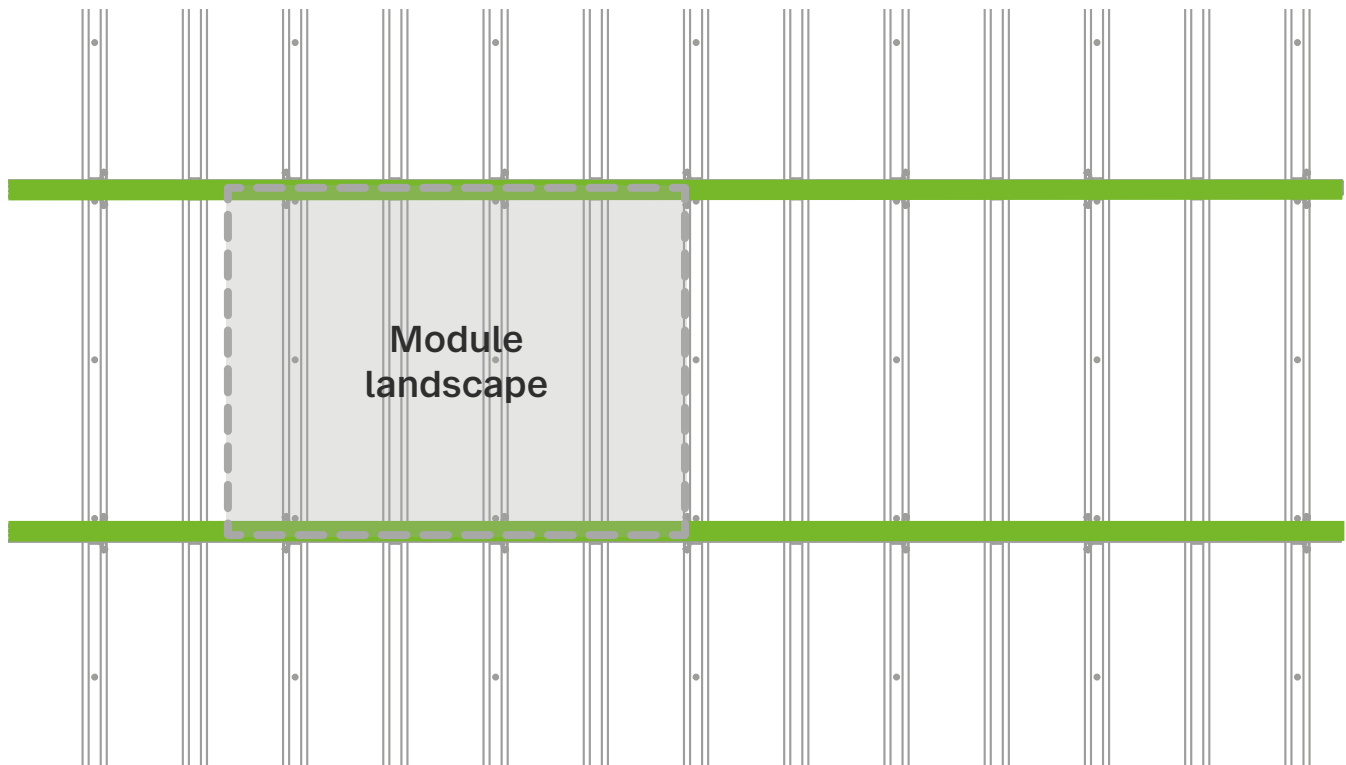
- A** Fit an edge stop set IR at the end of a module row at each insertion rail with a metal screw in the screw channel.

- ! Warning:**
The opening of the edge stop set IR must expose the drainage channel of the insertion rail.



Mounting variants trapezoidal sheet bracket

1 Fixing the trapezoidal sheet brackets



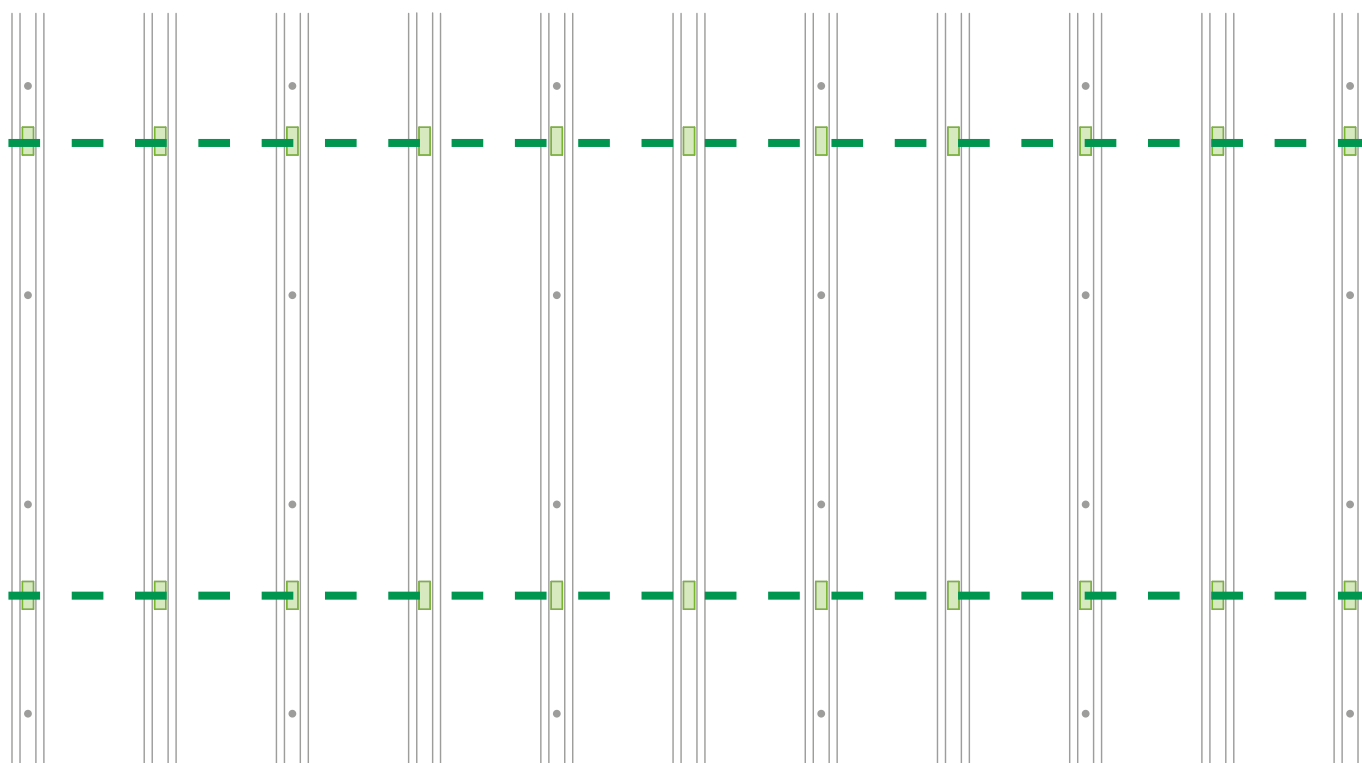
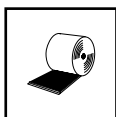
Repeated spacing = Module width W + 12 mm
 Clear width of rails = Module width W + 10 mm

A Measuring the insertion rail.

The insertion rails must be marked on the trapezoidal sheet metal raised beads dependent on the module orientation - portrait or landscape.

For module upstand installation, use the module length instead of the module width.

1 Fixing the trapezoidal sheet brackets

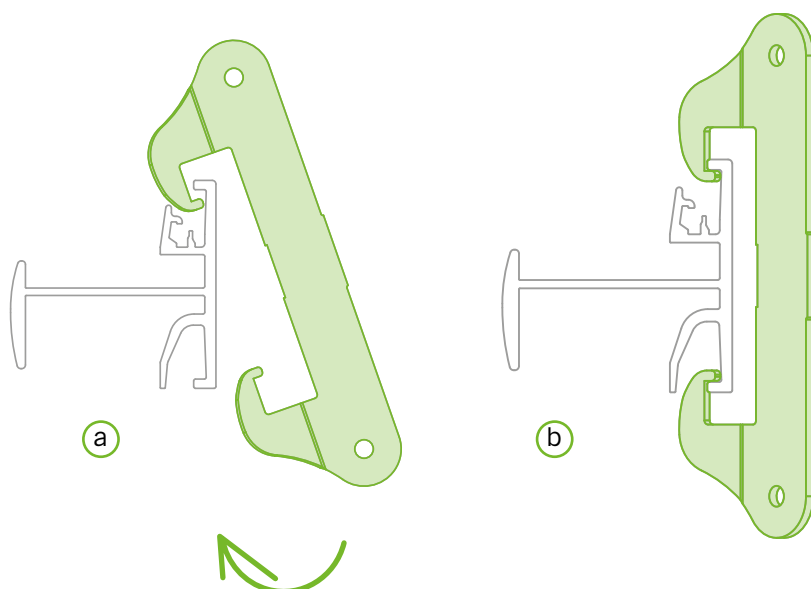
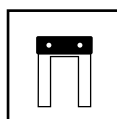
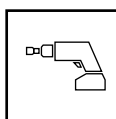
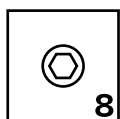


B Gluing on EPDM units.

Glue the EPDM units onto every raised bead below the insertion rails.

Alternatively, the EPDM tape can also be glued onto the insertion rail for small raised bead distances.

1 Fixing the trapezoidal sheet brackets

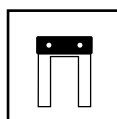
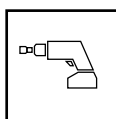
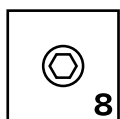


- C** Place the insertion rail onto the EPDM strips and fix it.

- a** Hook the trapezoidal sheet bracket into the rail on one side, feed it below the rail.
- b** hook it in on the other side. The trapezoidal sheet brackets must be hooked into the insertion rail on both sides.

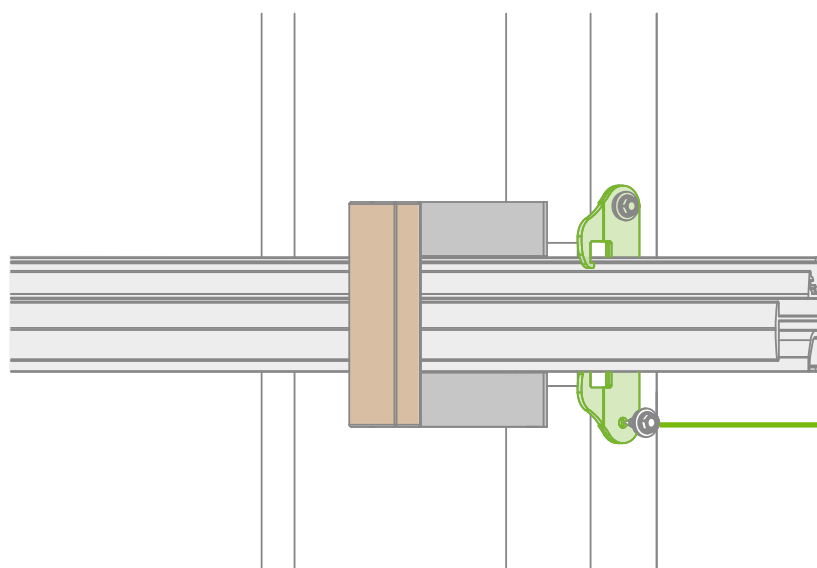
Warning:
Overhang of the insertion rail at the last trapezoidal sheet bracket ≥ 50 mm.
Bead height for trapezoidal sheet bracket ≥ 25 mm.

1 Fixing the trapezoidal sheet brackets



A Trapezklammer befestigen.

Position the trapezoidal sheet bracket with the aid of the mounting tool on the insertion rail in the inclination of the raised bead with downward pressure.

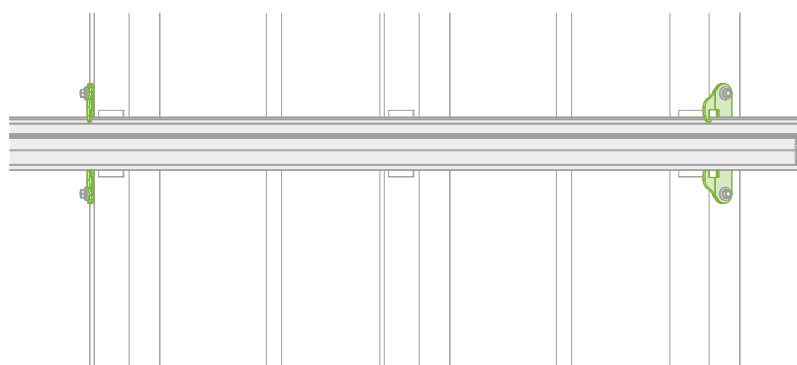


Screw the trapezoidal sheet bracket with two thin sheet metal screws into the side of the raised bead without predrilling.



Warning:

The screw must not be overtightened! Do not use an impact function when tightening the screws.



The trapezoidal sheet brackets must be fitted in an opposing pattern, i.e. alternating on the left and right side of the raised bead.

2 Connecting the insertion rails



Warning:

Risk of injury when sawing the rail to size

There is a risk of cutting yourself on the sharp edges of the rail and the saw blade.

- Comply with UVV
- Wear protective gloves
- Wear safety goggles



Fitting rail connectors

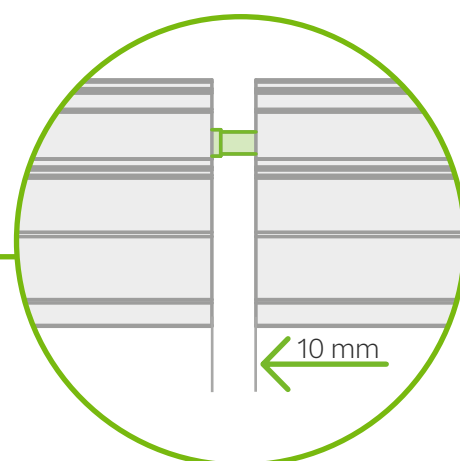
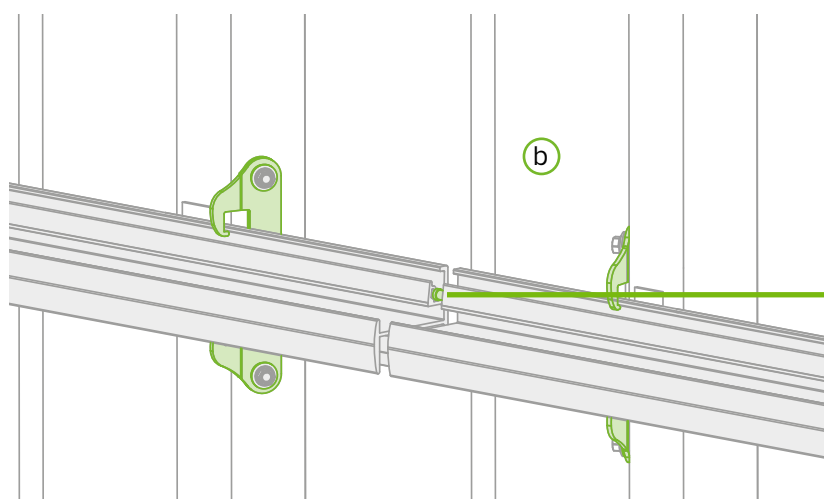
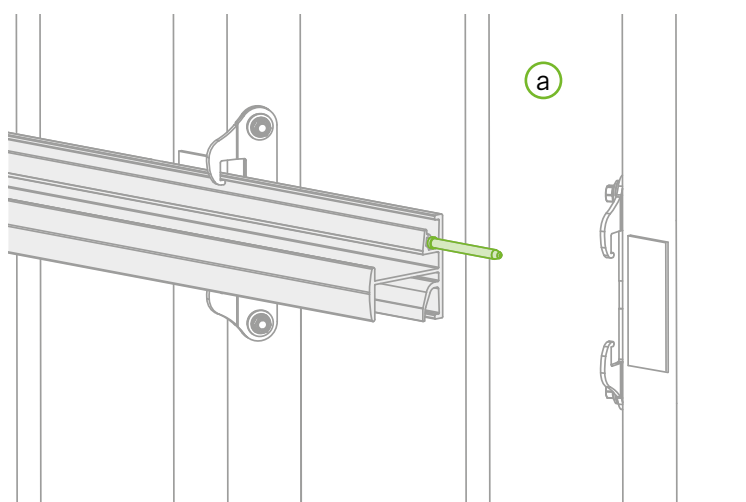


Push the connector into the secured rail piece up to half way into the screw channel.



push the loose rail piece with the screw channel onto the connector with a 10 mm gap between the rail ends, then attach the second rail piece.

Max. rail length 5,40m.



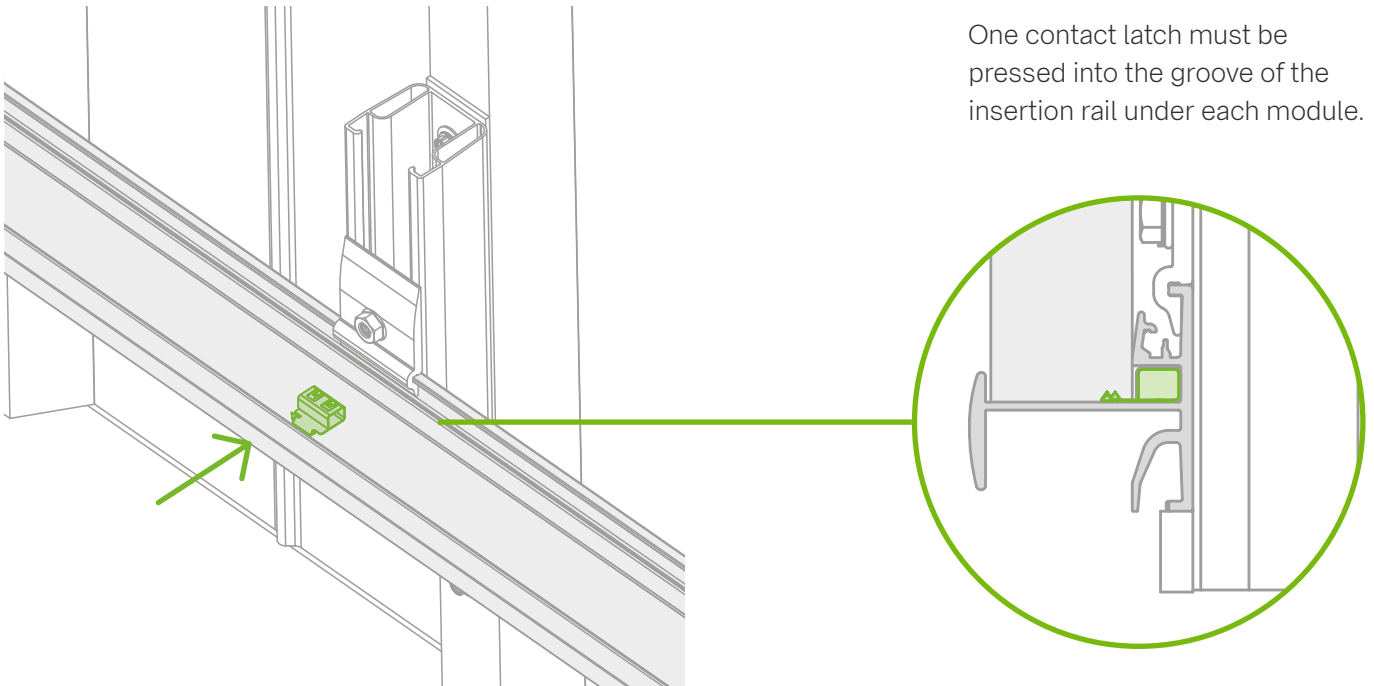
The gap between the rails must be 10 mm so that longitudinal expansion is not blocked during heating.

Mounting variation

1 Lightning protection and potential equalization

A Assembly of contact latch.

One contact latch must be pressed into the groove of the insertion rail under each module.



Warning:

The applicable standards and guidelines, e.g. lightning protection standard, must be observed.

Maintenance mounting system

The mounting system must be checked for stability and function at regular intervals during plant maintenance. We recommend an annual visual inspection.

In addition to the visual inspection of the components, we recommend a random check of the connections and the safe and correct position of the insertion rail and slip guard for facade system. The screw connections should also be checked and, if necessary, retightened in accordance with the tightening torques specified in the assembly instructions.

All system components should be checked for damage caused by, for example, weathering, animals, dirt, deposits, adhesions, fouling (especially on green roofs), roof penetration, sealing, stability and corrosion. The inspection of the system and maintenance work must be carried out by a specialist company that has experience with electrical systems and work with mounting systems, or by an expert. After unusually strong impacts (e.g. from earthquakes, heavy snowfall, storm events, etc.), an inspection of the system must always be carried out.

