Solar products

Schüco Mounting System MSE 210
Mounting on trapezoidal roofing

English

SCHÜCO

Installation instructions: Installation instructions: MSE 210 trapezoidal roof • Art. No. 259 713 • 08.2009 - 02

Introduction

Dear Customer,
Thank you for choosing Schüco solar products and placing your trust in our company.

Prior to your first installation, we recommend that you attend a training course at our training centre in Bielefeld or, if this is not possible, that you take advantage of on-site training from one of our service engineers.

Before installation, please read carefully the general information and safety guidelines contained in these instructions.

Schüco requires that installation only be carried out by technically qualified and authorised personnel with a recognised qualification (verified by a state or national body) or the appropriate expertise in the relevant technical field.

Product description:

The mounting system developed by Schüco is used to securely fix PV modules to roofs with a roof pitch of 2° to 20°.

Frameless PV modules can only be installed on horizontal mounting rails for the installation types shown here.

The structural calculation for the mounting system was based on the following parameters in accordance with DIN 1055, part 4 and 5, 2005; DIN 4113-1/A1, 2002:

Module size	$A_{module} \leq 1.60$ m²
Roof area	Areas H and I
Snow load	Characteristic snow loads on the ground (without snow drift formation) $s_{k1} \leq$ 1,10 kN/m² / $s_{k2} \leq$ 1.30 kN/m²
Taking into account possible installation locations in the area of the "North German lowlands" for snow load sk1	
Wind load	dynamic load $q \leq 0.80$ kN/m²
Dead load	$g \leq 0.20$ kN/m²

Proper use

The Schüco mounting system for framed PV modules has been developed and constructed in line with the latest technology and recognised safety regulations. The mounting systems must only be used in accordance with their stated structural capability.
An alternative use or a use beyond this remit is not in accordance with its purpose. The mounting systems are not for mobile use. Sunlight must not be directed onto the surface of the laminates by reflection or through a lens.

Incorrect use can result in the death or serious injury of the user or a third party, and may damage the appliance, the installation or other material assets. The manufacturer/supplier shall not be liable for any resulting damage. The user alone shall bear the risk.

Correct usage also includes adhering to the installation and operating instructions and installation instructions for additional materials.

Accepted practice as usually codified in standards, guidelines, specifications, general and technical regulations laid down by local and national bodies, power supply companies, trade organisations and technical committees in the relevant sector must be followed.

The installation of solar units puts an additional load on the building. Ensure that the permissible roof load of your building is not exceeded. If you have any questions, contact your architect/building contractor or a structural engineer. Under certain circumstances, the requirement for your roof to be watertight increases in terms of roof, wall and sealing technology. This must ascertained before starting work.

The product warranty and/or output guarantee will be invalidated if the claim on the guarantee can be attributed to incorrect transportation or handling. Details can be found in the product warranty and/or output guarantee. If you do not have the product warranty and/or output guarantee to hand, Schüco will be happy to send this to you on request.

Please call our technical support if you have any questions or suggestions:
Tel.: 0521 / 783 - 400
Fax.: 0521 / 783 - 7242
E-mail: Technische-Hotline-Solar@schueco.com

Disposal of the packaging

The packaging consists of cardboard, wood and labelled plastic. Dispose of the packaging in accordance with the relevant laws and with technical regulations. Observe the environmental requirements with regard to recycling, re-use and disposal of operating materials and components in accordance with the local, country-specific and international current technical regulations and official regulations.

List of contents

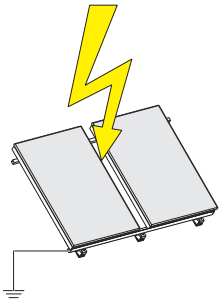
Hazard warnings and safety instructions

Risk of death or injury,
could endanger the environment
and the product

Danger!
Risk of death or injury from electric shock.

Caution
Do not damage any cables.
There is a risk of death from electric shock if cables are defective.

Wear protective headgear

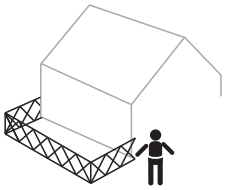


For buildings on which lightning protection is required, the module array must be integrated into the lightning conductor.

Wear protective gloves.

Important
Do not damage any cables.
Defective cables may result in death from electic shock.

Wear a safety harness.

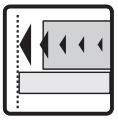


Section off the site and secure against falling objects.

Do not fix safety straps to the mounting system.

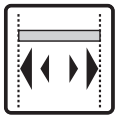
Explanation of pictograms used

Danger Risk of death or injury, could endanger the environment and the product.



Flush

Align so that it is parallel



Centre

Tighten to suit the material involved

Tighten firmly

(221 038) 6-digit numbers in brackets are always Schüco article numbers

en See page

Important note

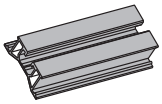
Connection - Types / - Sizes

Materials to be provided by others

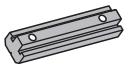
Weight/total weight (kg)

Not to be walked on

Overview: range of Schüco MSE210 articles for installation on roofs with trapezoidal corrugations

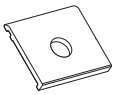



BP 030 T (259 720 - 1 PU)
L = 6 180 mm



Connector kit (257 105) including M8 x 17.5 mm punching screws


MSE 210 trapezoidal bracket (259 733 - 50 PU) with pre-applied sealing tape (double fixing)
Drill hole∅ = 6.8 mm




MSE 100 trapezoidal bracket with pre-applied adhesive sealing tape (272 140 - 10 PU / 259 930 - 50 PU); drill hole ∅ = 6.8 mm

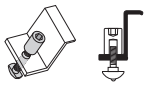
Installation instructions (259 713)

272 140 as anti-slip device when double trapezoidal brackets.

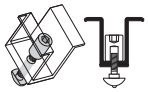
Additional material required

Only use fixing material approved by the building authorities in accordance with general building approval Z-14.1-4 “Connectors for joining building components in lightweight metal construction” (e.g. self-drilling screws or riveted joints)

Example for possible retaining clamps:



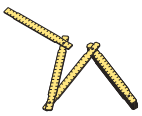
OneTurn with end retaining clamp
(For Art. No., see retaining clamps)



OneTurn with intermediate retaining clamp
(For Art. No., see retaining clamps)

Tools required

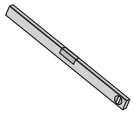
Pencil/chalk



Folding rule/tape measure

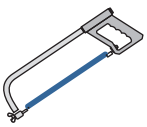
Open-ended spanner

Screwdriver (flat blade/cross-recess)

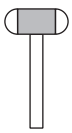


Spirit level

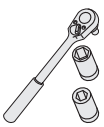
Cordless screwdriver / drill



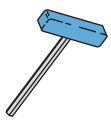
Metal saw



Rubber hammer



Socket wrench/torque wrench

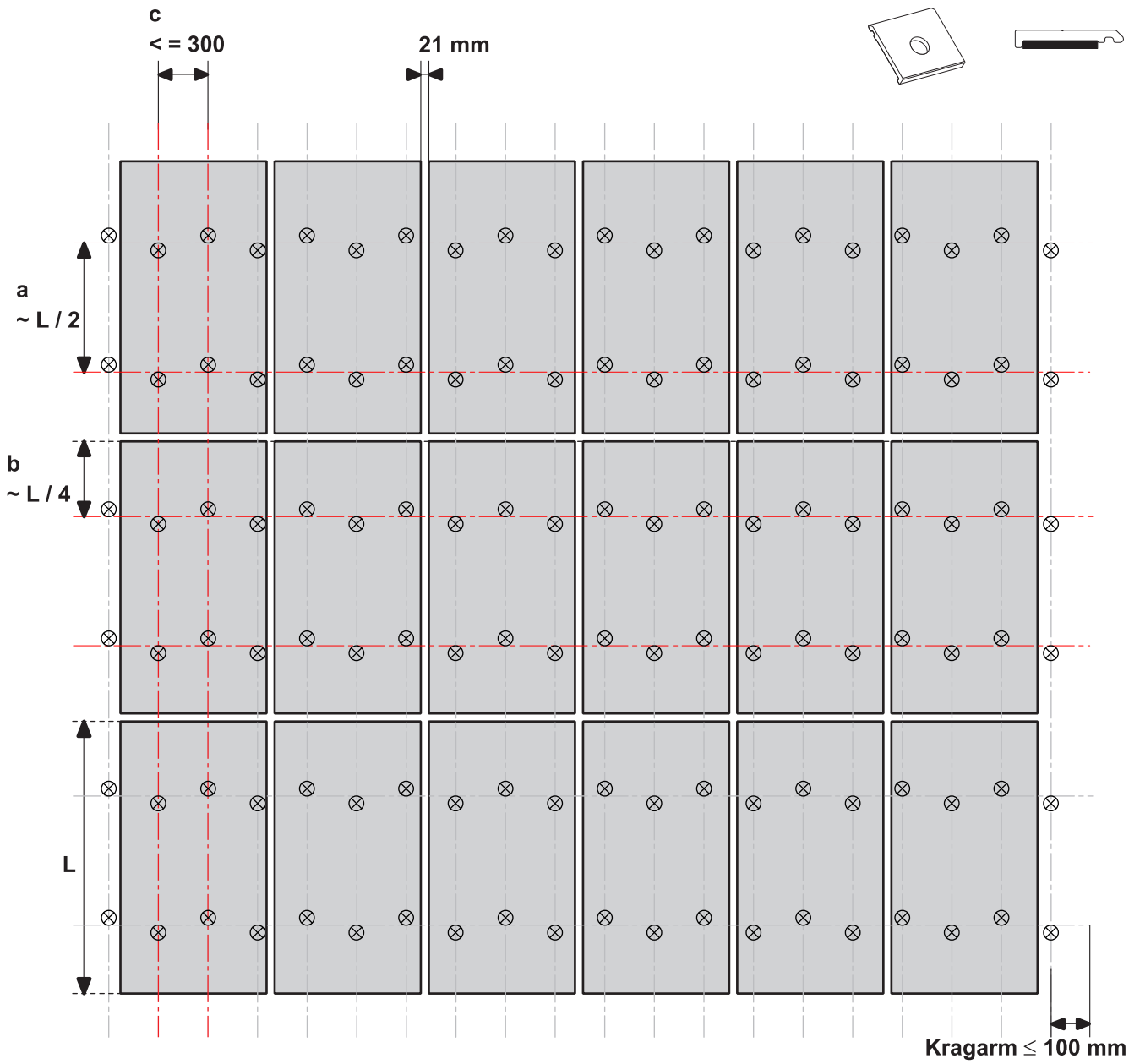


Socket wrench

Spacing and support widths for trapezoidal bracket (272 140 / 259 930)

Design 1
with single trapezoidal brackets (272 140 / 259 930)

In general, the system specifier will configure the layout in advance. The maximum distances can be derived from the location (installation location).

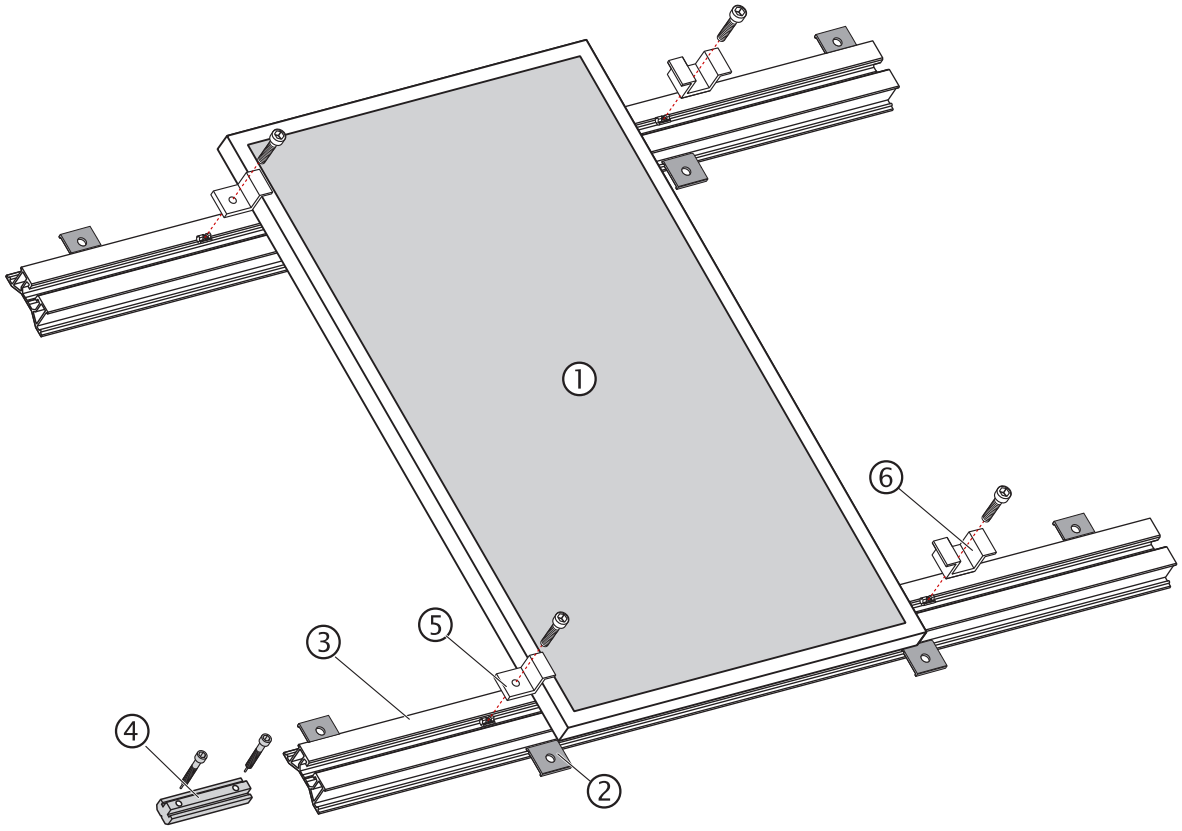


Key:

	Module
	Axis
	Trapezoidal bracket
a =	Distance BP 030 T
b =	Distance from mounting rail to PV module edge
c =	Maximum horizontal distance between trapezoidal brackets
L =	Module length

Trapezoidal brackets (272 140 / 259 930) must always be mounted alternately above and below the BP 030 T

Overview: Schüco MSE 100 trapezoidal roof mounting system



① PV module

② Trapezoidal bracket (272 140 / 259 930)

③ BP 030 T (259 720)

④ Connector kit (257 105)

⑤ Choice of end clamp brackets

⑥ Choice of intermediate retaining clamps

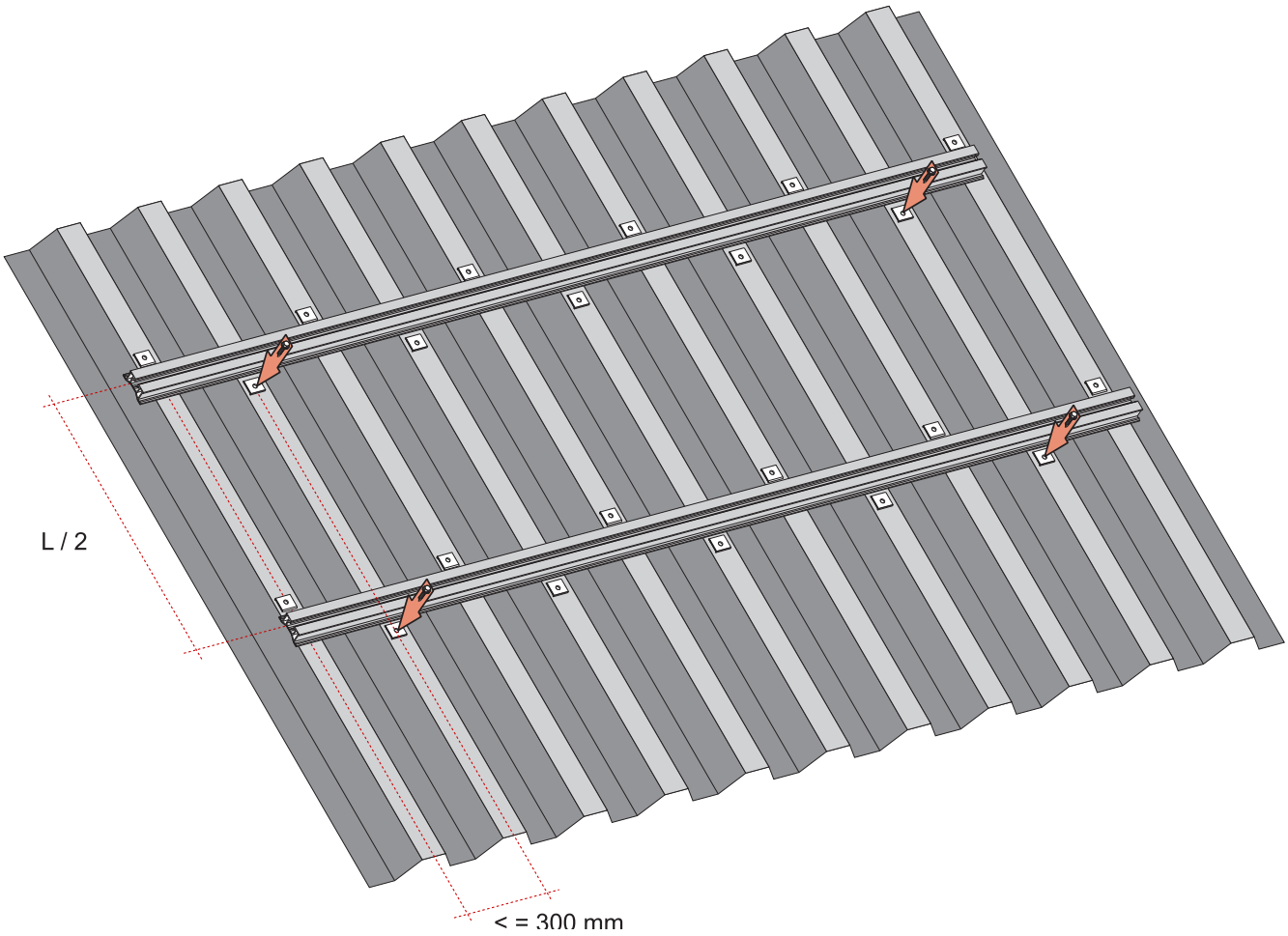
Cutting the mounting profile

The length of the mounting rails supplied is ~ 6180 mm

Mounting rail cutting (per array)	= ((Number of modules-1) x (Module width + 20 mm)) + Module width
Example:	
Number of modules:	6 modules
Arrangement:	portrait, adjacent in a single row
Module dimensions:	L = 1495 mm ; W = 1001 mm
Distance between the modules:	20 mm
Cutting length:	22 + (6 x (1001 + 21)) = 6154 mm
Number of mounting rails required per row:	2
Retaining clamps / module clips:	End retaining clamps: 4 per row of modules Intermediate retaining clamps: 2 x (no. of modules -1)

Installing the single trapezoidal brackets / BP 030 T

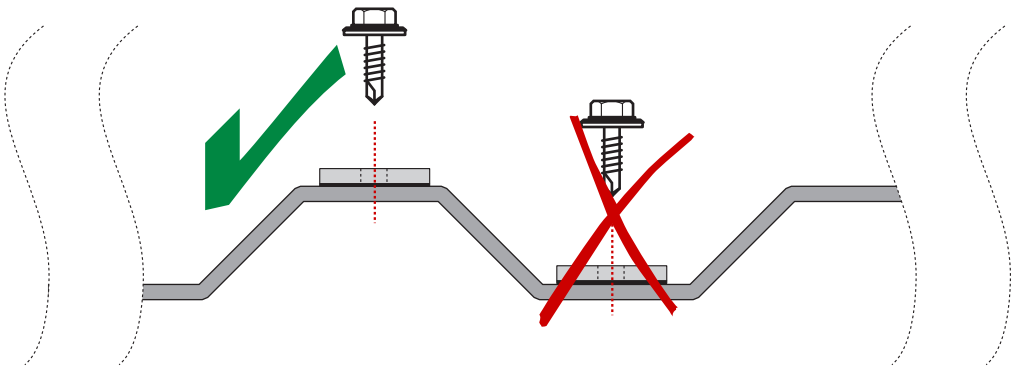
L = Module length



Only use fixing material approved by the building authorities to fix the trapezoidal brackets.

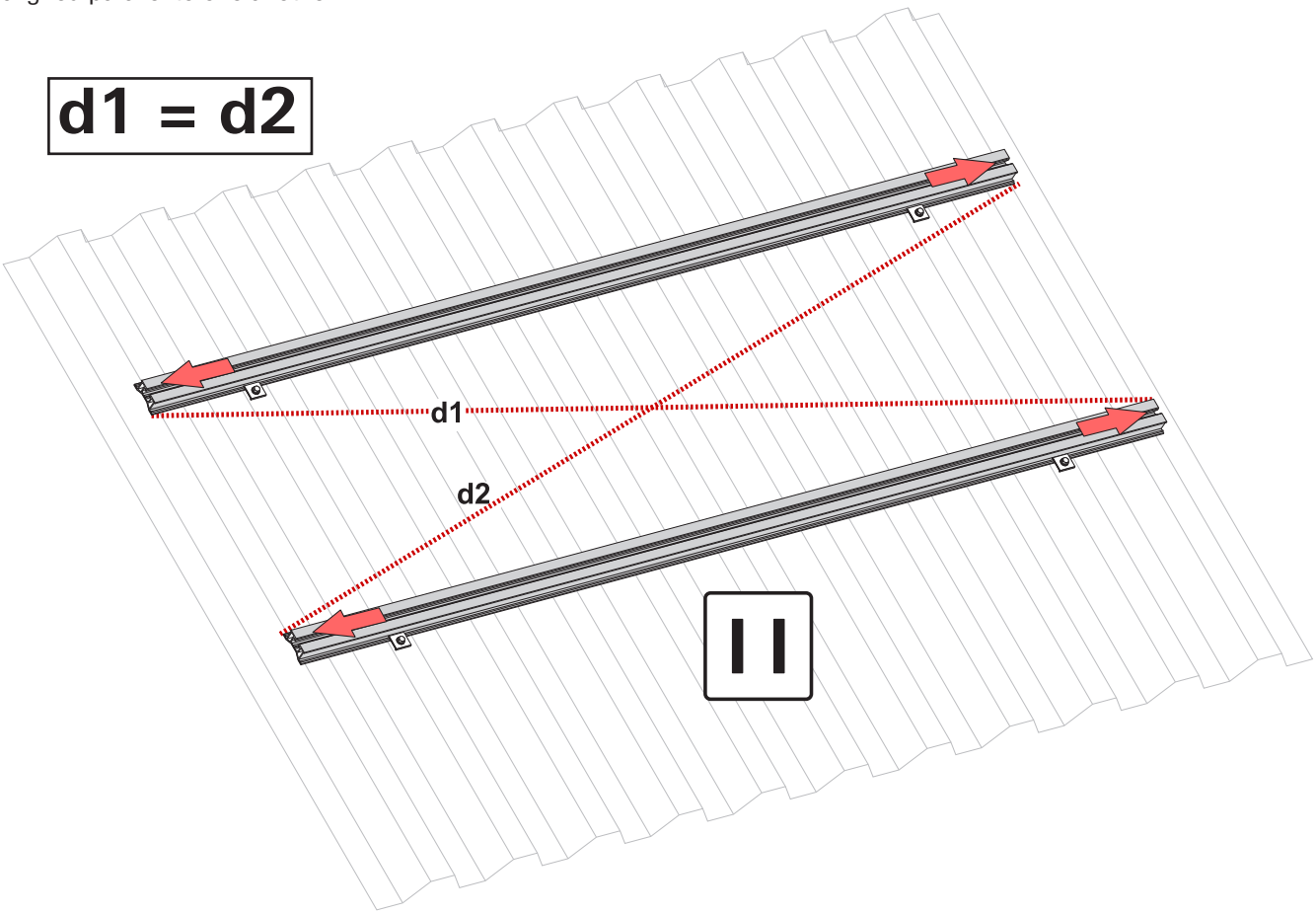
Important
Only install the trapezoidal brackets on the raised sections of corrugated sheet, never on the lower corrugations.

Please install a single trapezoidal bracket as an anti-slip device Art. No. 272 140 (10 per PU). The distance to the double trapezoidal bracket must be no more than 300 mm.

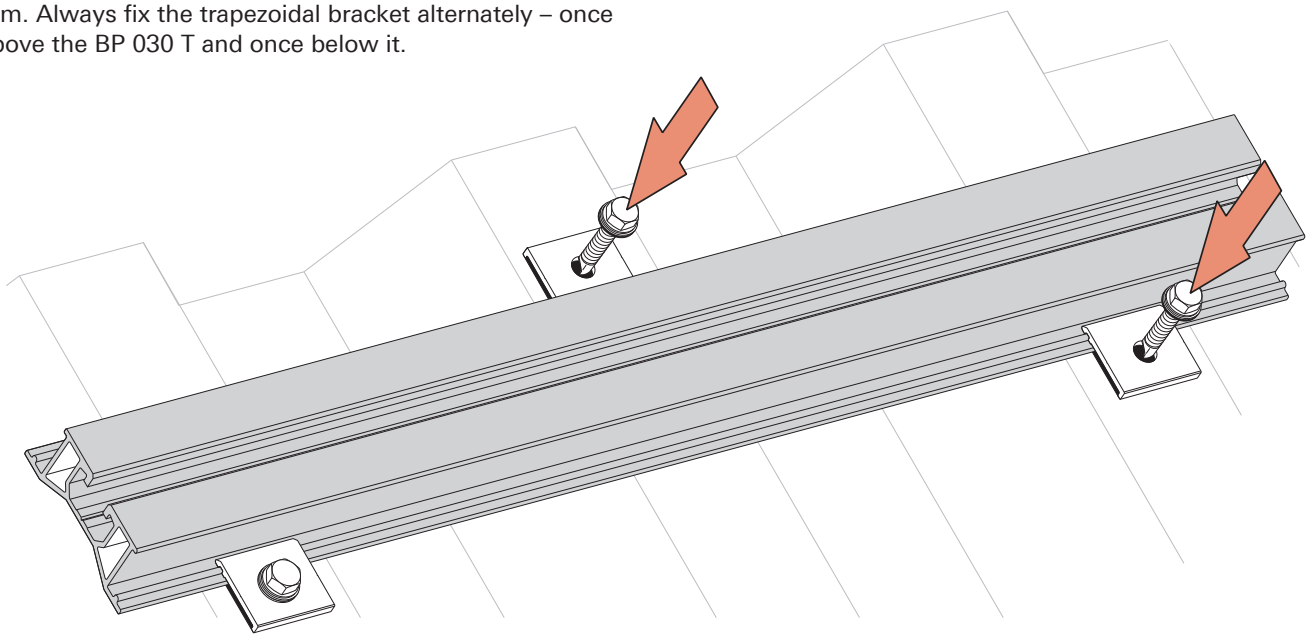


Installing the mounting rail with single trapezoidal brackets (272 140 / 259 930)

If two BP 030 T mounting rails are installed on sheet with trapezoidal corrugations, both mounting rails must be aligned parallel to one another.



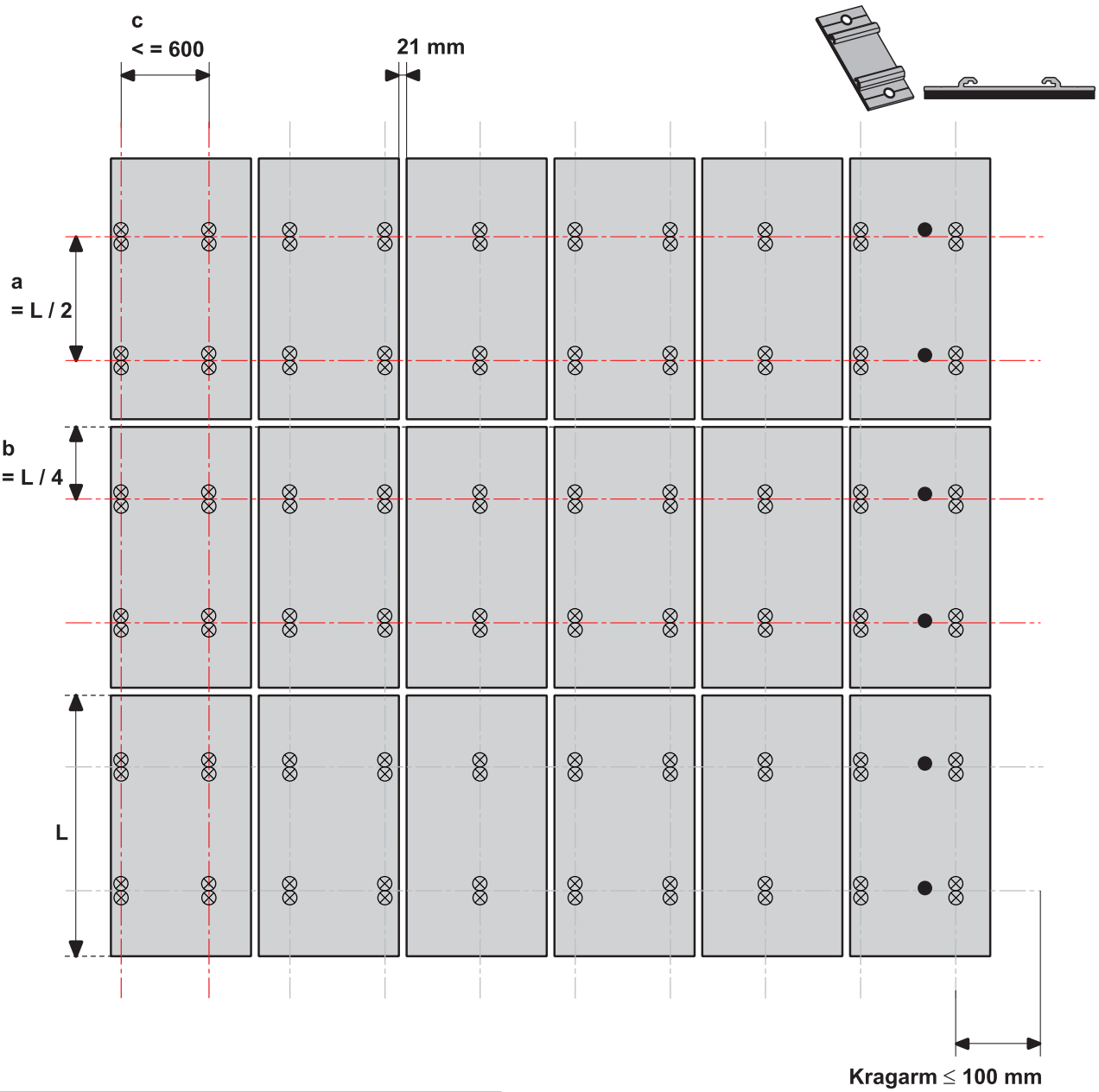
Install a trapezoidal bracket at a maximum of every 300 mm. Always fix the trapezoidal bracket alternately – once above the BP 030 T and once below it.



Spacing and span widths for trapezoidal bracket 259 733

Variant 2
with double trapezoidal brackets (259 733)

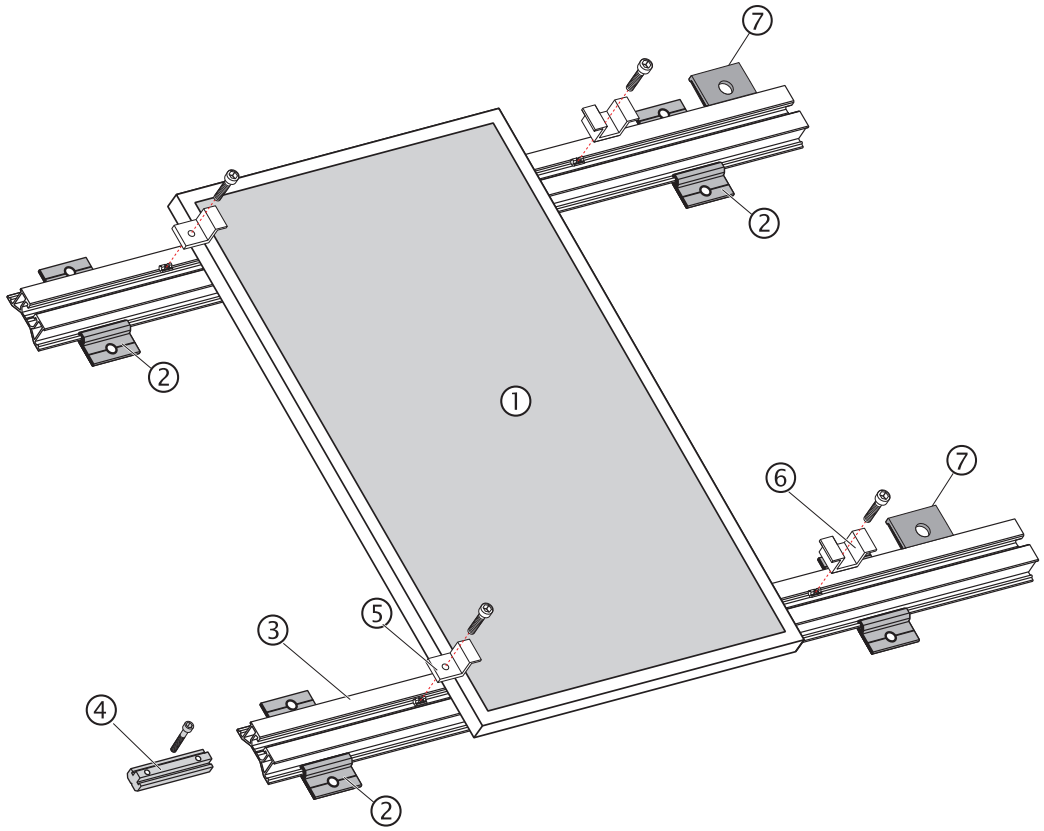
In general, the system specifier will configure the layout in advance. The maximum distances can be derived from the location (installation location).



Key:

- Module
- Axis
- Trapezoidal bracket
- Anti-slip device (272 140)
- a = Distance BP 030 T
- b = Distance from mounting rail to PV module edge
- c = Maximum horizontal distance between trapezoidal brackets
- L = Module length

Overview: Schüco MSE 100 trapezoidal roof mounting system



① PV module

② Trapezoidal bracket (259 733)

③ BP 030 T (259 720)

④ Connector kit (257 105)

⑤ Choice of end clamp brackets

⑥ Choice of intermediate retaining clamps

⑦ Single trapezoidal bracket as anti-slip device (272 140)

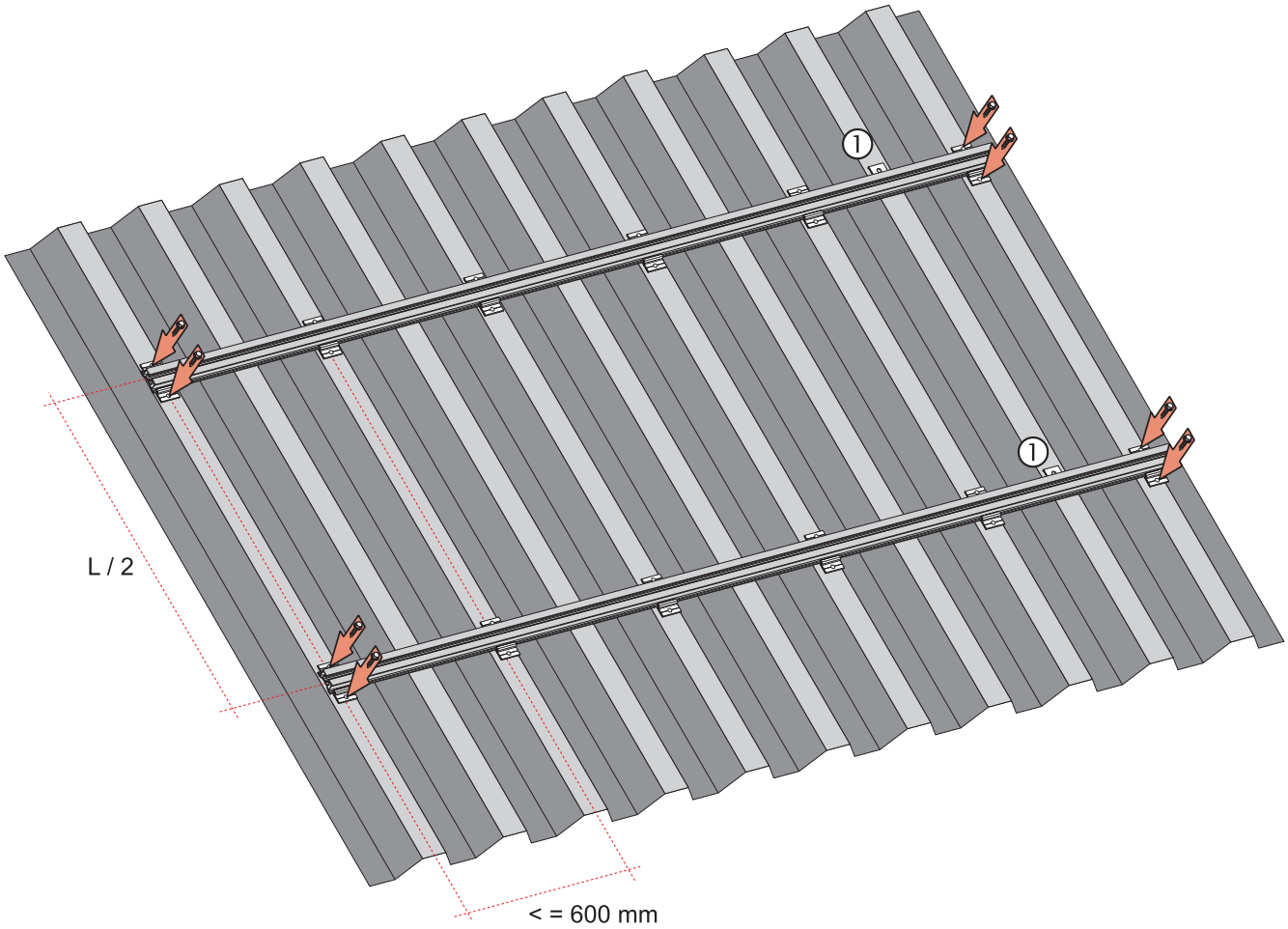
Cutting the mounting profile

The length of the mounting rails supplied is ~ 6180 mm

Mounting rail cutting (per array)	= ((Number of modules-1) x (Module width + 20 mm)) + Module width
Example:	
Number of modules:	6 modules
Arrangement:	portrait, adjacent in a single row
Module dimensions:	L = 1495 mm ; W = 1001 mm
Distance between the modules:	20 mm
Cutting length:	22 + (6 x (1001 + 21)) = 6154 mm
Number of mounting rails required per row:	2
Retaining clamps / module clips:	End retaining clamps: 4 per row of modules Intermediate retaining clamps: 2 x (no. of modules -1)

Installing the single trapezoidal brackets / BP 030 T

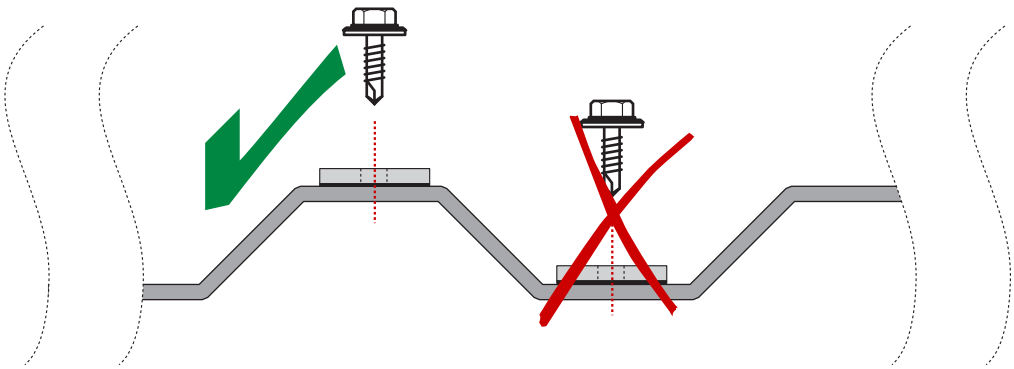
L = Module length



Only use fixing material approved by the building authorities to fix the trapezoidal brackets.

Mount a single trapezoidal bracket (272 140) on a free top corrugation.
This prevents the mounting rail from slipping sideways.

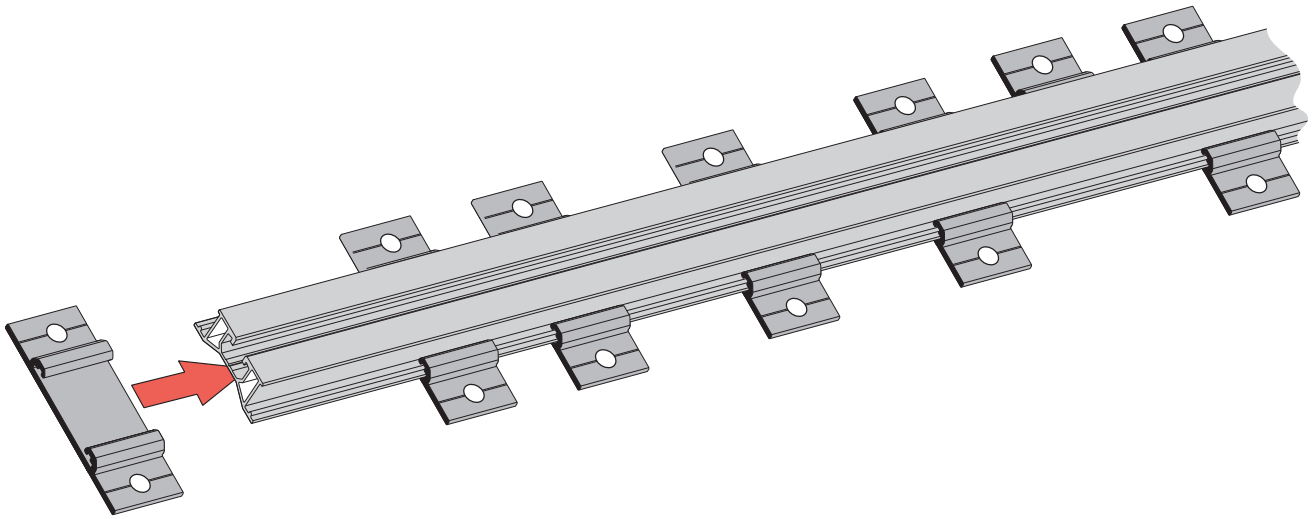
Important
Only install the trapezoidal brackets on the raised sections of corrugated sheet, never on the lower corrugations.



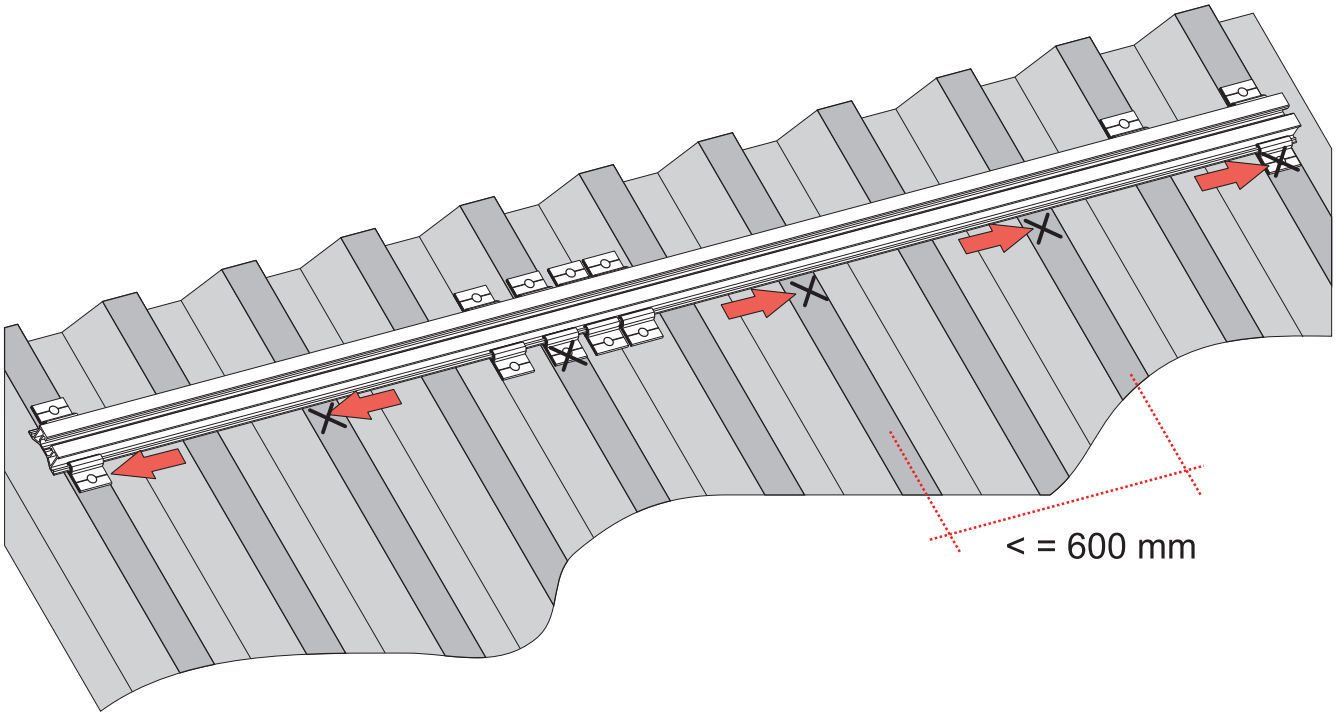
Installing the mounting rail with a doulbe trapezoidal bracket (259 733)

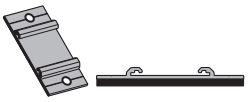
Slide the required number of trapezoidal brackets onto the mounting rail. This can be done prior to moving it onto the roof.

If required, use insulating tape to secure the outermost trapezoidal brackets against slipping down.

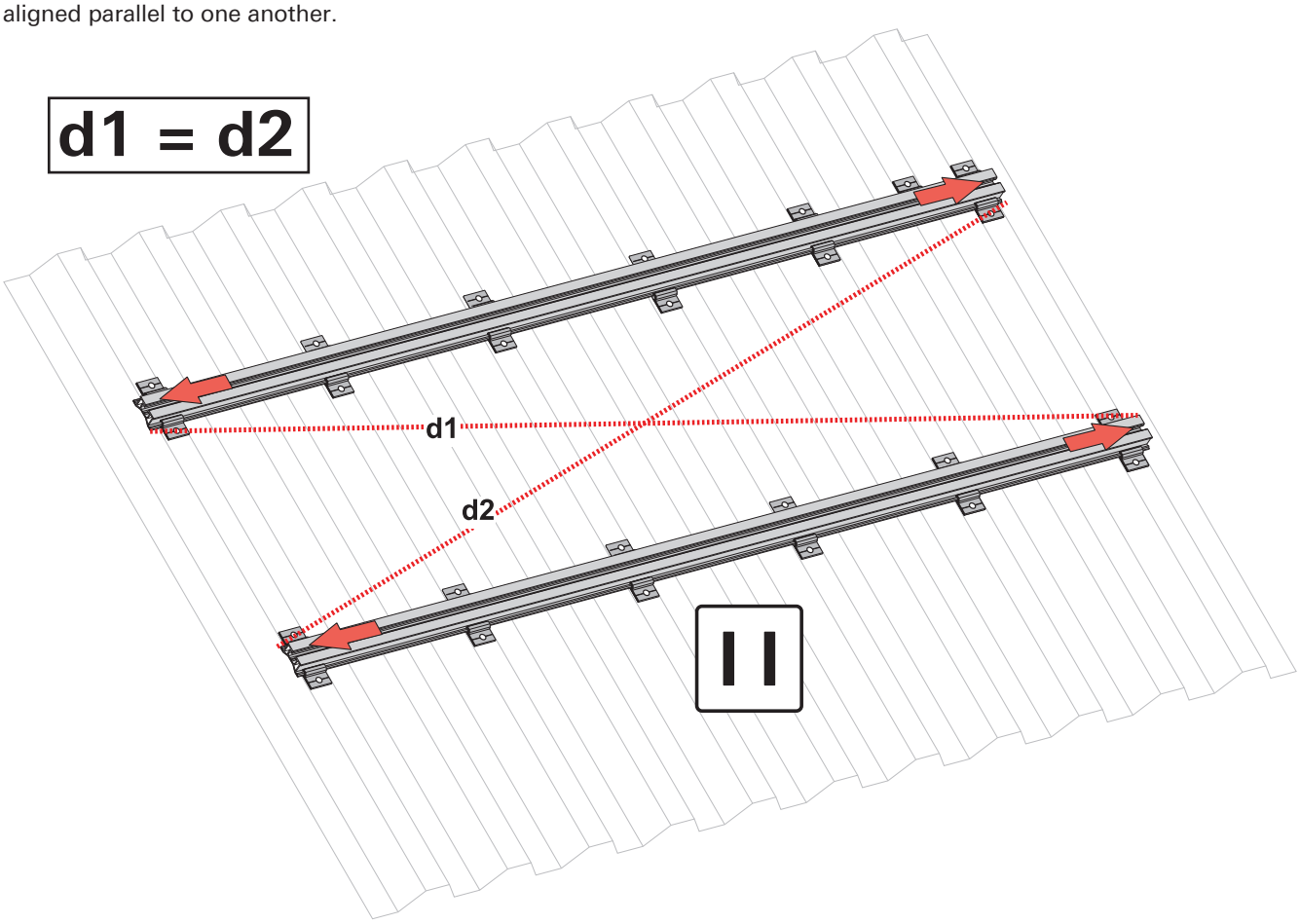


Slide the trapezoidal brackets to the correct position on the raised sections of the corrugated sheet.
Adhere to the maximum spacing of 600 mm.



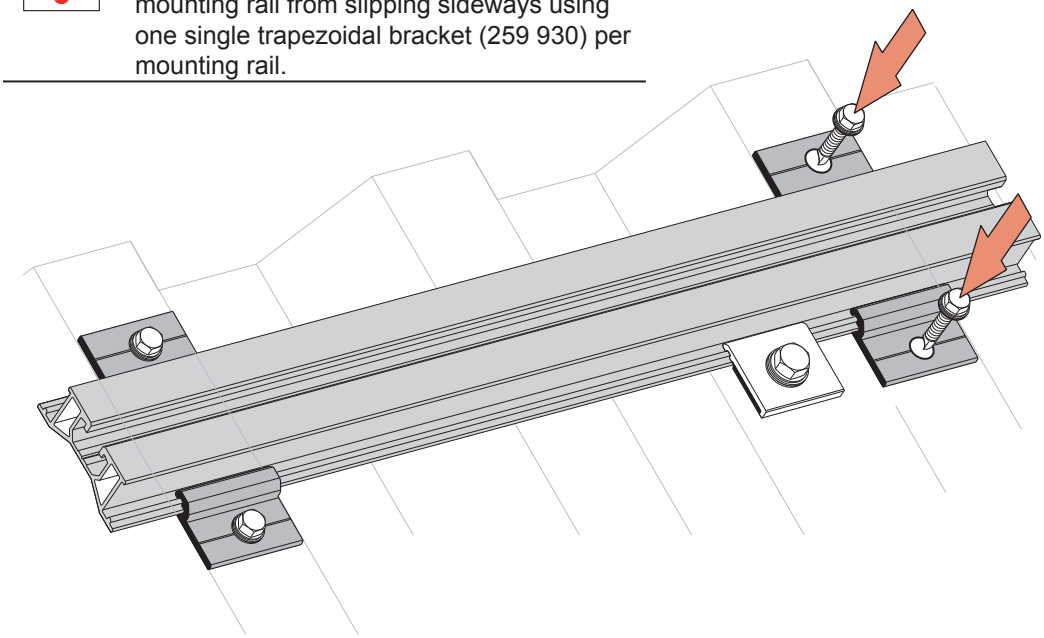


If two BP 030 T mounting rails are installed on sheet with trapezoidal corrugations, both mounting rails must be aligned parallel to one another.



After aligning the mounting rails, screw in all the trapezoidal brackets tightly. Make sure that the mounting rails do not slip.

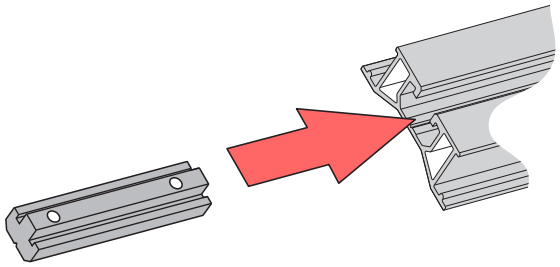
Note:
In this type of installation, prevent the mounting rail from slipping sideways using one single trapezoidal bracket (259 930) per mounting rail.



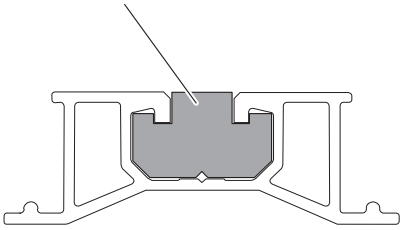
Install the connector kit (257 105)

Important
The connector kit does not fulfil any structural function.

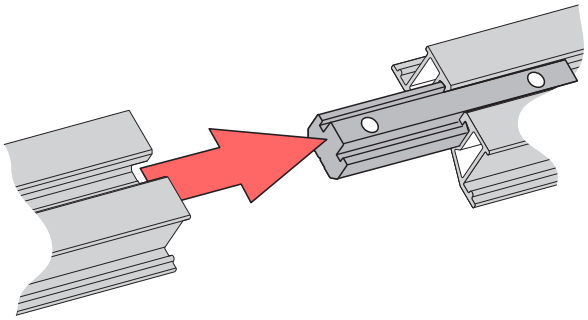
1. Slide the connector kit half into the BP 030 T screw channel.



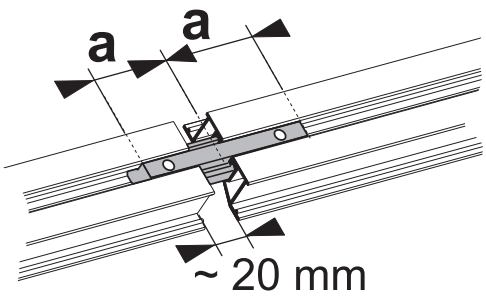
Verbindungs-Set (257 105)



2. Slide the second BP 030 T onto the connecting kit.

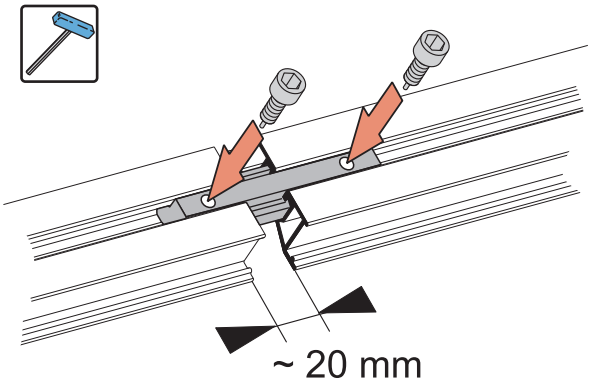


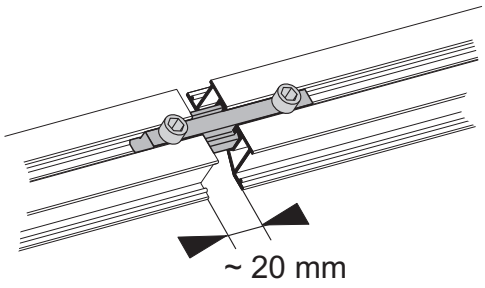
3. Ensure that the connector kit is evenly distributed on both BP 030 T



Ensure that the BP 030T mounting rails are not butt-joined. There must always be a gap of approx. 20 mm between the BP 030T mounting rails.
This will prevent any damage to the profiles in the event of temperature-induced expansion.

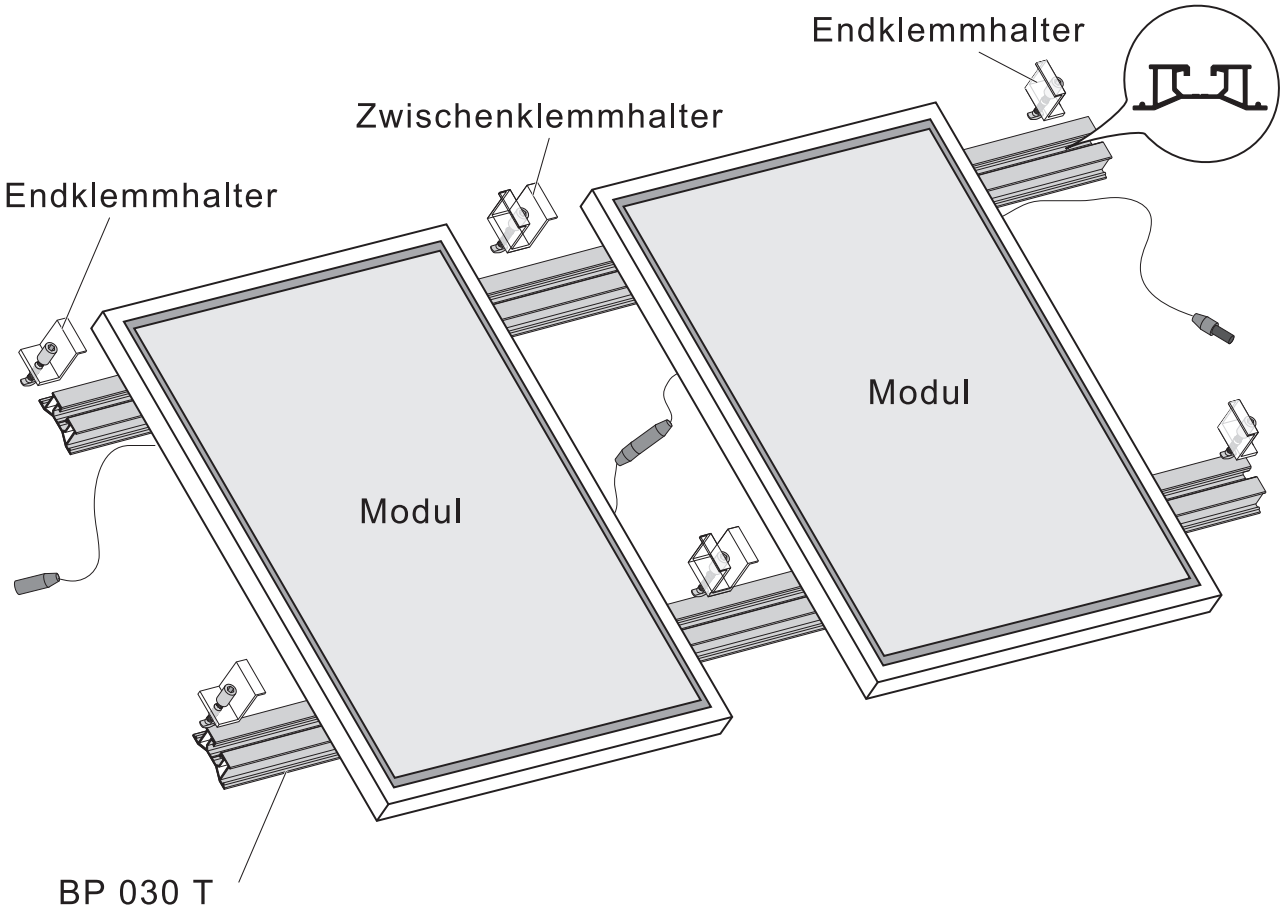
4. Tighten the punching screws of the connecting kit.





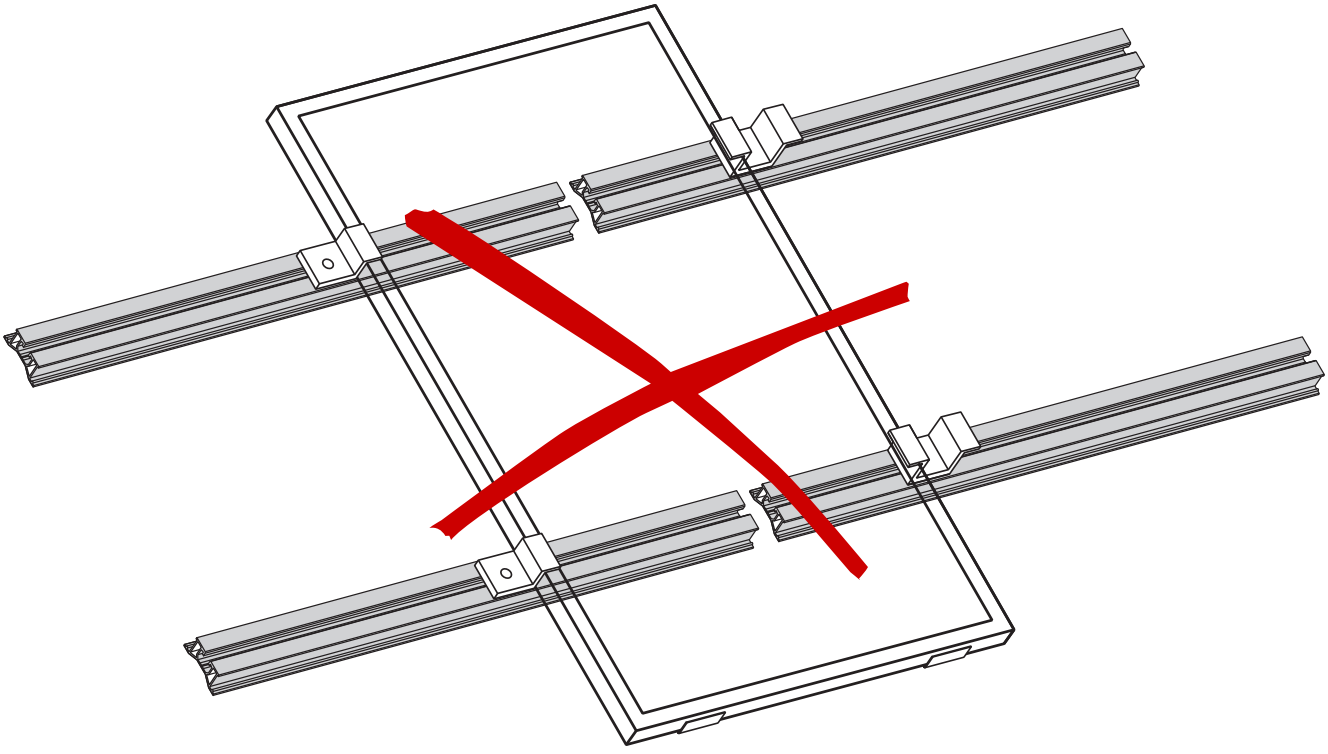
Module installation

Mounting system overview:



Install the modules as soon as you have installed all the required mounting rails and checked that the trapezoidal brackets are securely positioned.

A module must not be installed over a mounting rail connector. The connector kit does not fulfil any structural function.



Installing the first module

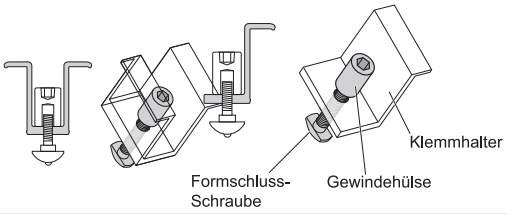
Using the OneTurn retaining clamp as an example

Schüco has developed the OneTurn fixing system to mount modules quickly and securely.

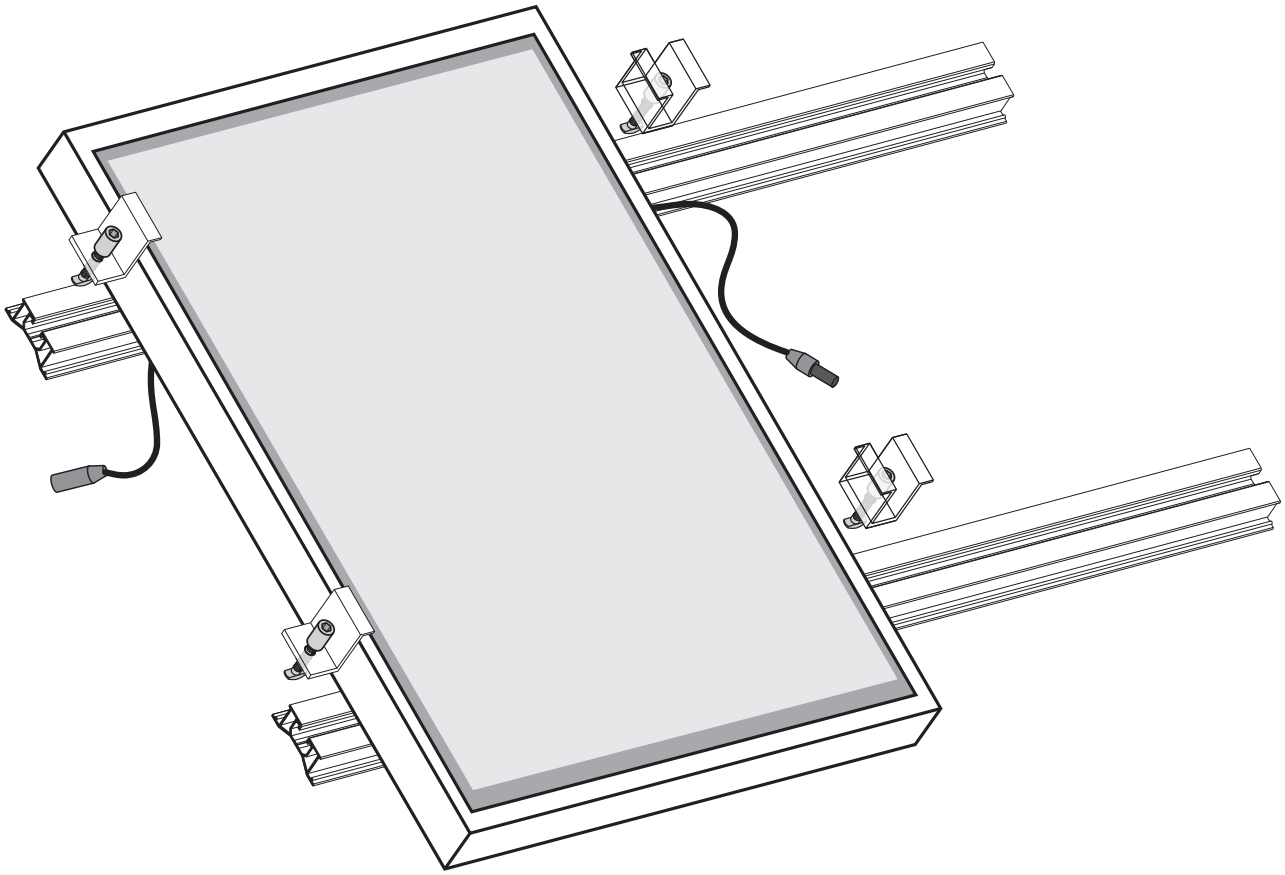
To make installation work even easier, you need the Schüco Allen key. This enables you to install all the retaining clamps with one hand.

OneTurn with intermediate retaining clamp

OneTurn with end retaining clamp

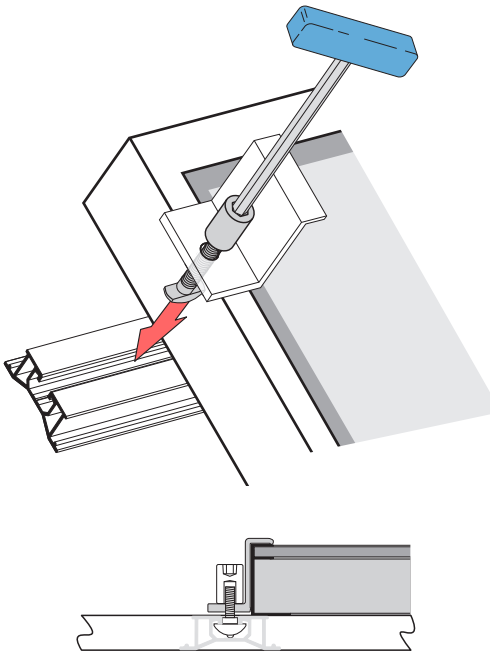


Always ensure that the module cables are guided securely to prevent the cable from becoming damaged.

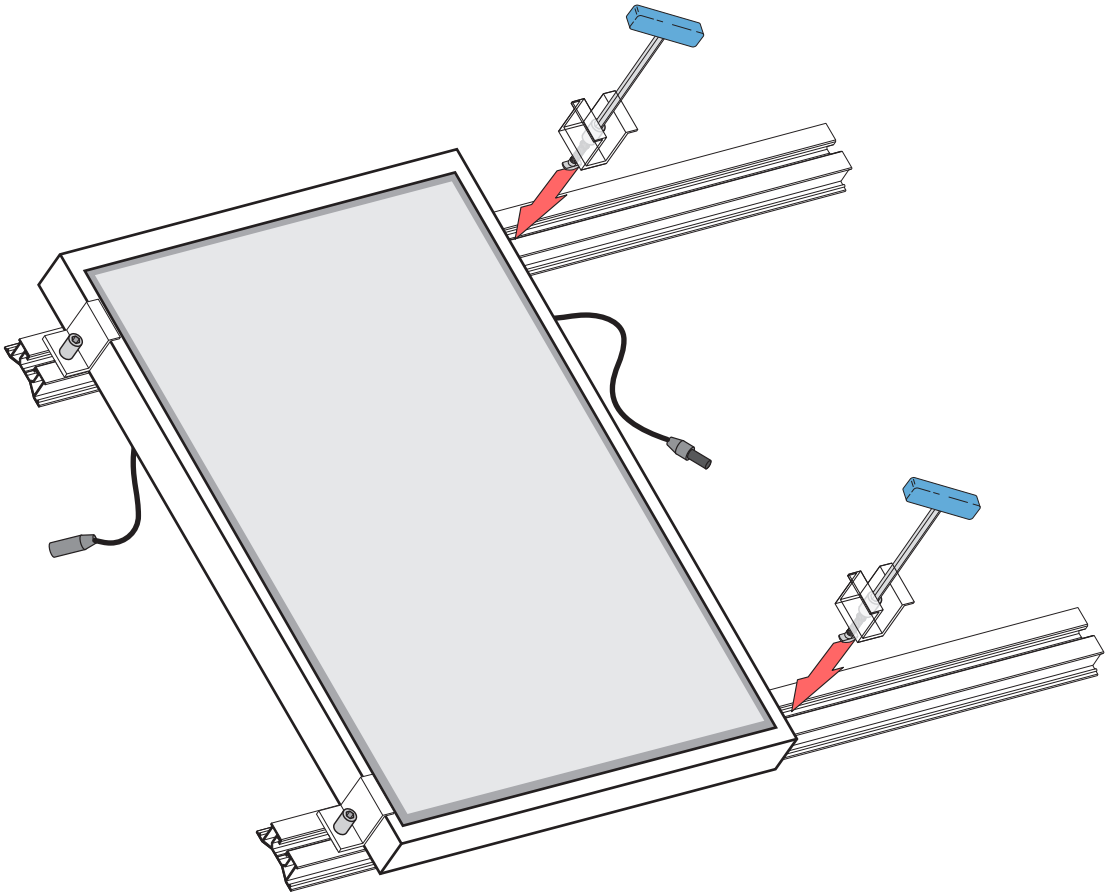


Position the end retaining clamp flush with the module frame. Lock the OneTurn in place by turning it 90° clockwise.

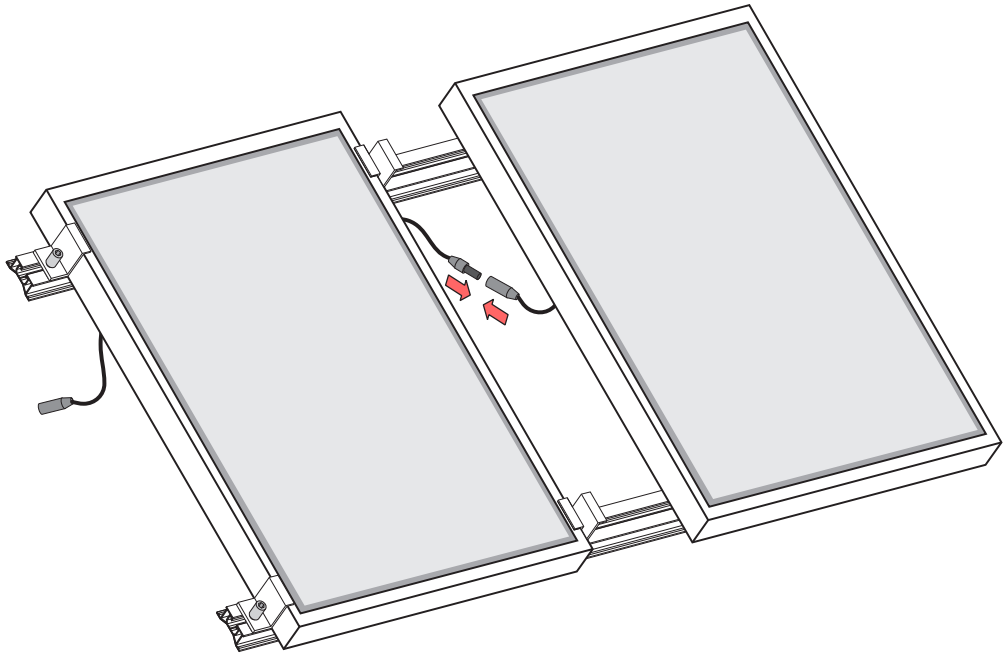
Now tighten the threaded sleeve.



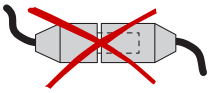
Install the second module



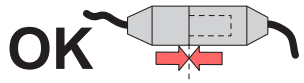
Only lock the intermediate retaining clamps in place.
Do not tighten yet

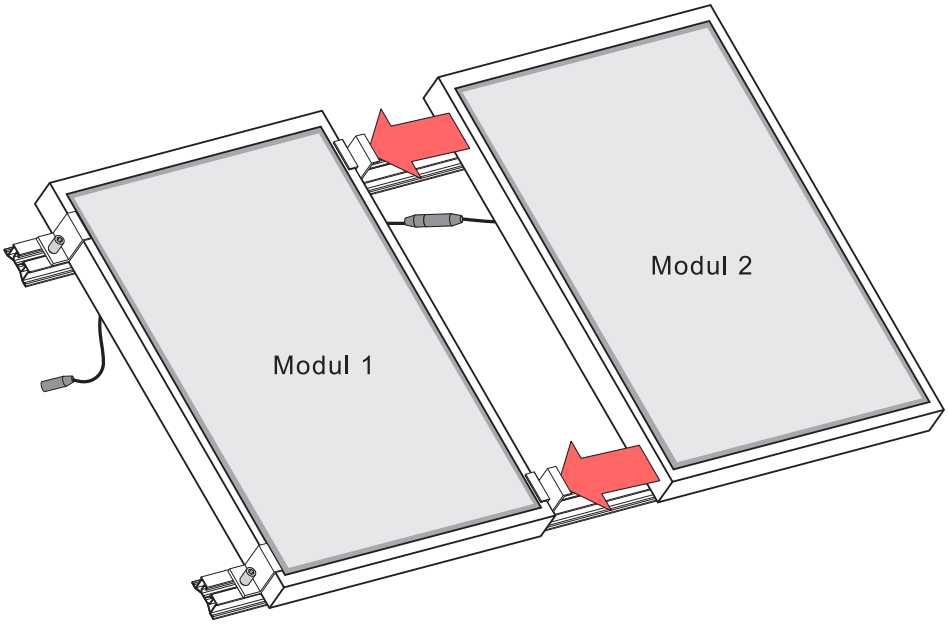


Before the second module can be pushed under the intermediate retaining clamps, the cable plug connections must be connected together correctly.

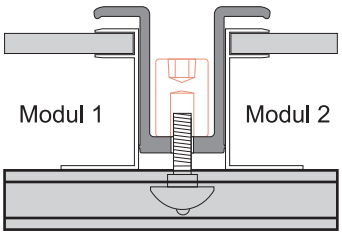


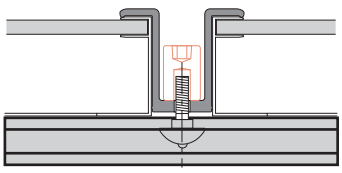
OK





Slide the second module flush below the OneTurn.





Electrical connection

Lightning protection

As a rule, no additional lightning conductor is required for photovoltaic installations, as the danger to the building is not increased.

If there is already a lightning conductor present, you must connect this into the photovoltaic installation.

Commissioning: General instructions

Handover to the operator

You must instruct the operator in how to operate and use the photovoltaic system.

- Give the operator all relevant instructions and documents for safekeeping.
- Make the operator aware that the instructions must be kept in a safe place so that they are always readily available.
- Go through the operating instructions with the operator and answer any questions.
- Point out to the operator the safety instructions, to which he or she must pay particular attention.
- Make the operator aware that regular inspection/ maintenance of the system is required and recommend an inspection and maintenance agreement.

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