



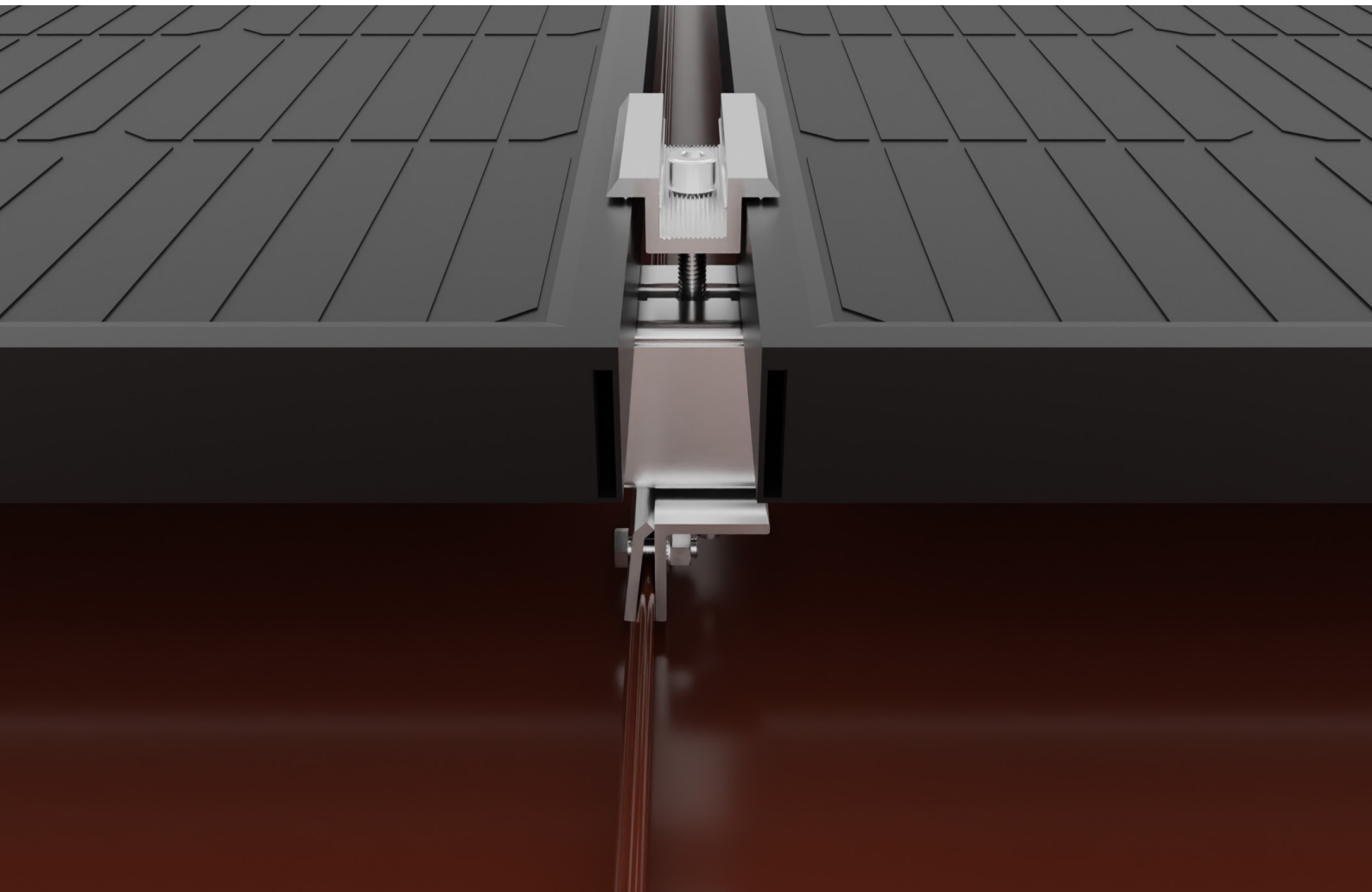
ASSEMBLY INSTRUCTIONS

Seamed roof

**VERBINDUNGEN, DIE HALTEN.
CONNECTIONS MADE OF STEEL.**

ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

General information



Simple installation and durability

Two things are decisive for us in the design and development of WASI SOLAR mounting systems: simple installation and durability that guarantees safety.

This is the basis of the WASI solar program. As the individual characteristics of each roof have to be taken into account, we ask you to obtain an expert opinion before installation.

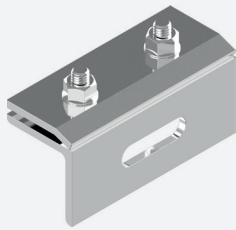
In particular, the static requirements must be taken into account and the relevant standards and accident prevention regulations must be observed when installing the system.

We would like to point out that this installation recommendation illustrates the state of the art and many years of experience in how our systems can be installed on site.

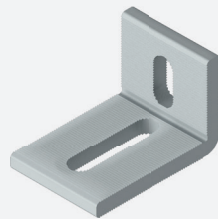
ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

Article list

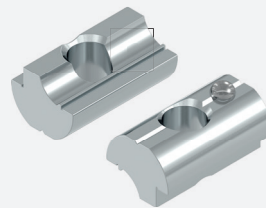
9583-Falzklebme10



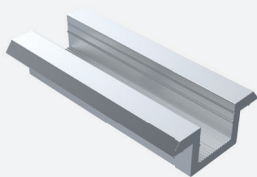
9701-WASI14



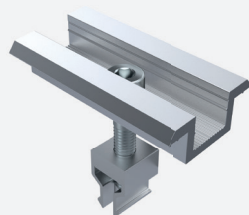
9431-120901-100



9745-WASI13



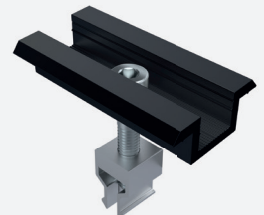
9745-WASICLIPM-(1>>5)



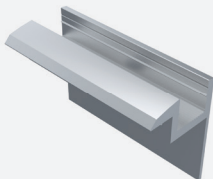
9745-WASI13SE



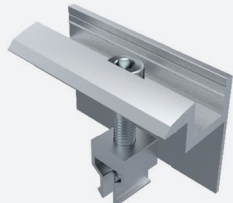
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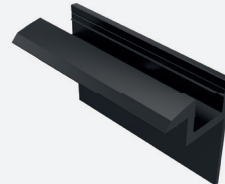
9742-WASI4-(30>>50)



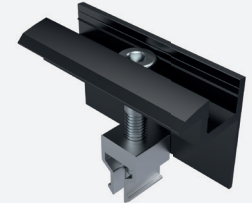
9742-WASICLIPE-(30>>50)



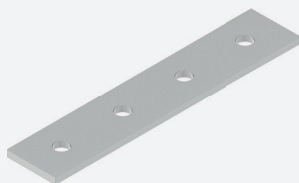
9742-wasi4-(30>>50)SE



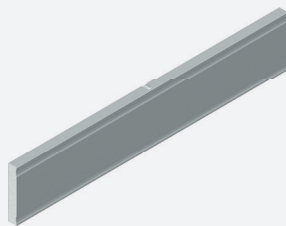
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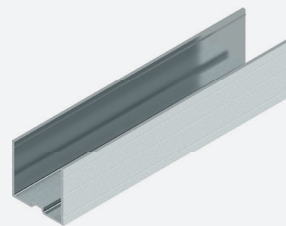
9557-2-200x40



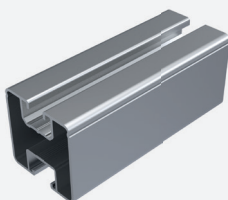
9751-WASI18



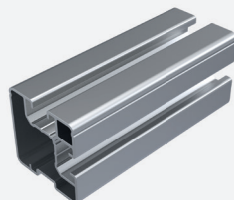
9751-WASI12



WASI 1 9664-AL-40X40x6400UL



WASI 15 9664-WASI15UL



9664-AL-40x40x6,4LSE



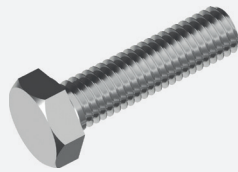
ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

Article list

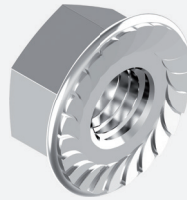
9664-2-10x25



933-2-10x25



9345-2-10



7504-2-4,8x25K



912 A2/A4 8x16



9664-Kappe 40



9664-Kappe 40 SW

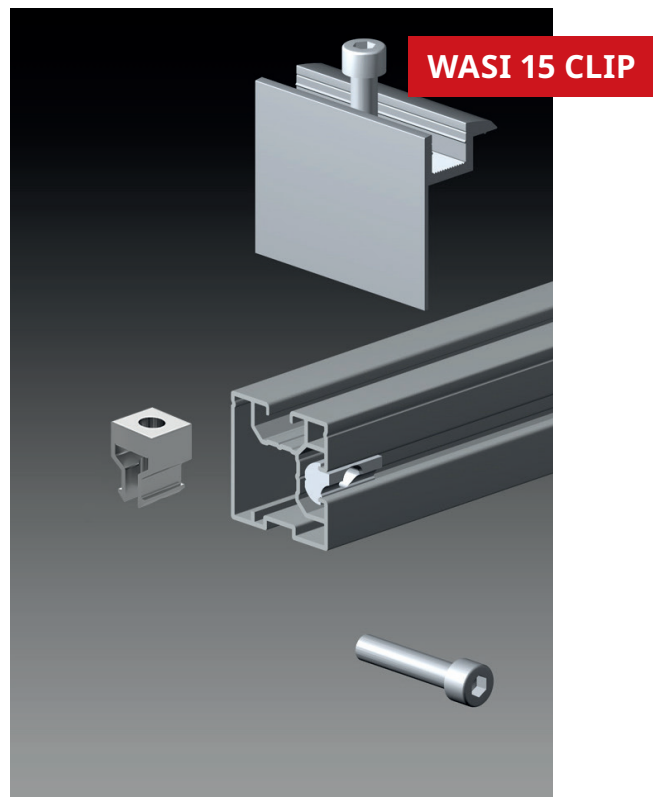
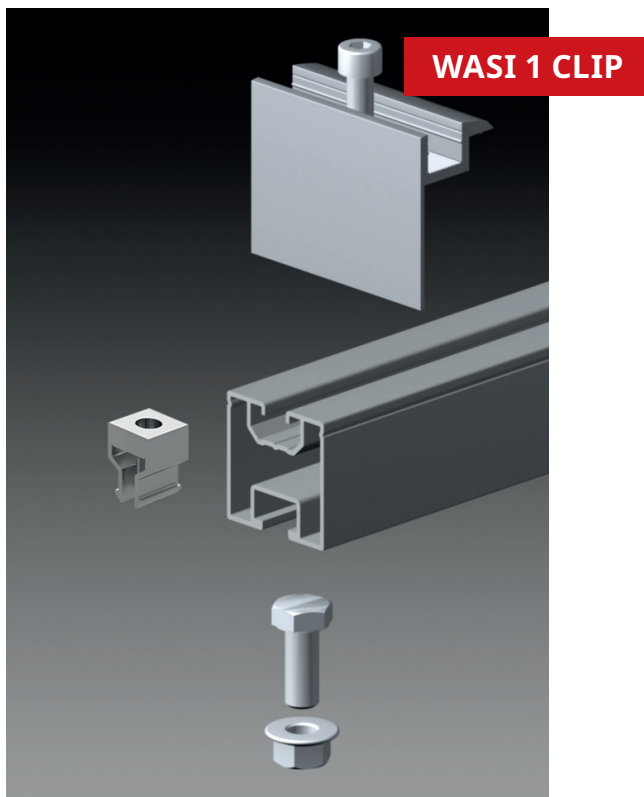
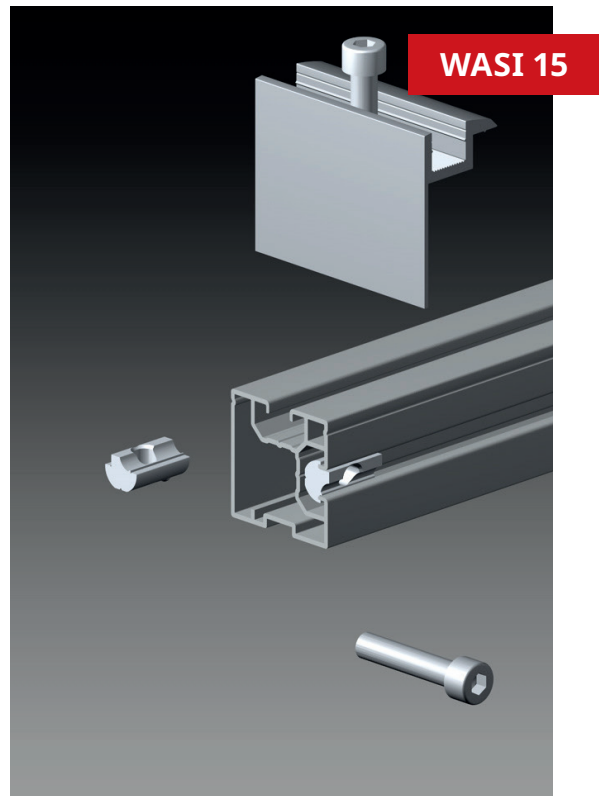
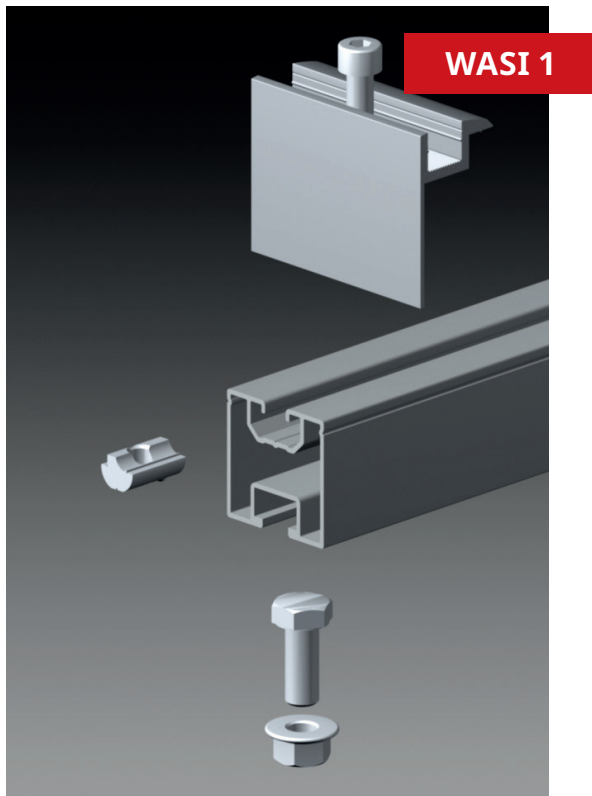


There are currently no specific test reports available for this substructure regarding its lightning current carrying capacity or equipotential bonding.

The suitability of the substructure for use in lightning protection systems and for equipotential bonding should be evaluated by a qualified planner as part of the individual planning and installation process.

ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

System overview



ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

The following instructions must be observed for planning and installation.

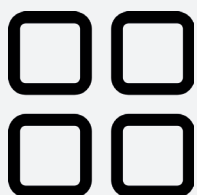
**1**

Before installation, the PV system installer must ensure that the roof substructure and the roof covering are designed for the additional loads that will occur.

The condition of the roof substructure, the quality of the roof covering and the maximum load-bearing capacity must be checked on site. The module manufacturer's installation instructions must be observed. With very few exceptions, the load-bearing capacity of each individual clamp is greater than the load-bearing capacity of the roof panels or profiled sheets and their attachment to the supporting structure.

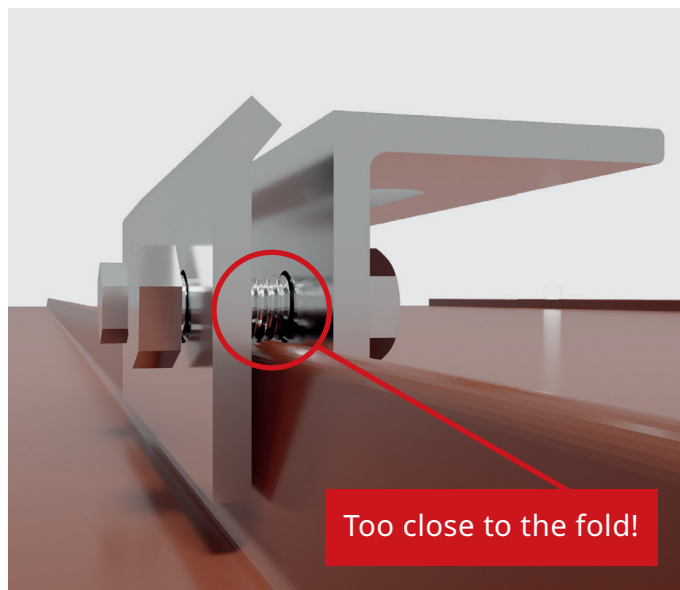
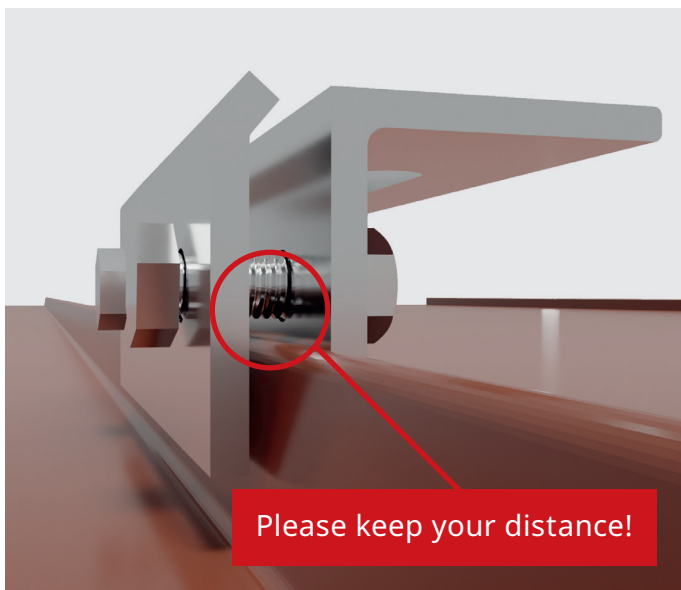
**2**

It must be ensured that the forces transferred from the clamp to the seam can be absorbed by the seam and the supporting structure. The number of fixing points of the metal cladding must be clarified. The number of clamps should not be less than this and should be increased by a safety factor if necessary. The solar system turns an area snow load into a point load. The snow load can increase up to 2.5 times the usual snow load for elevated solar installations. A sufficient number of clamp fastenings must be used to ensure that the roof cladding does not suffer under the point load; the load-bearing capacity of the flange must be verified accordingly.

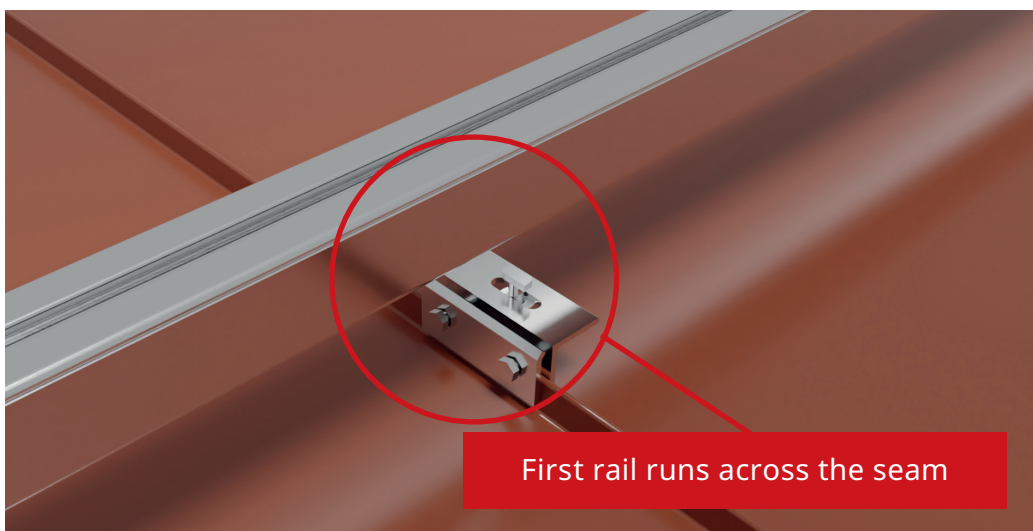
**3**

ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

Note on clamp fastening and first rail position



When installing the clamp fastening, make sure that the screws do not rest directly on the seam and that the lower edge of the clamp is not installed in the area of the slope of the standing seam sheet.



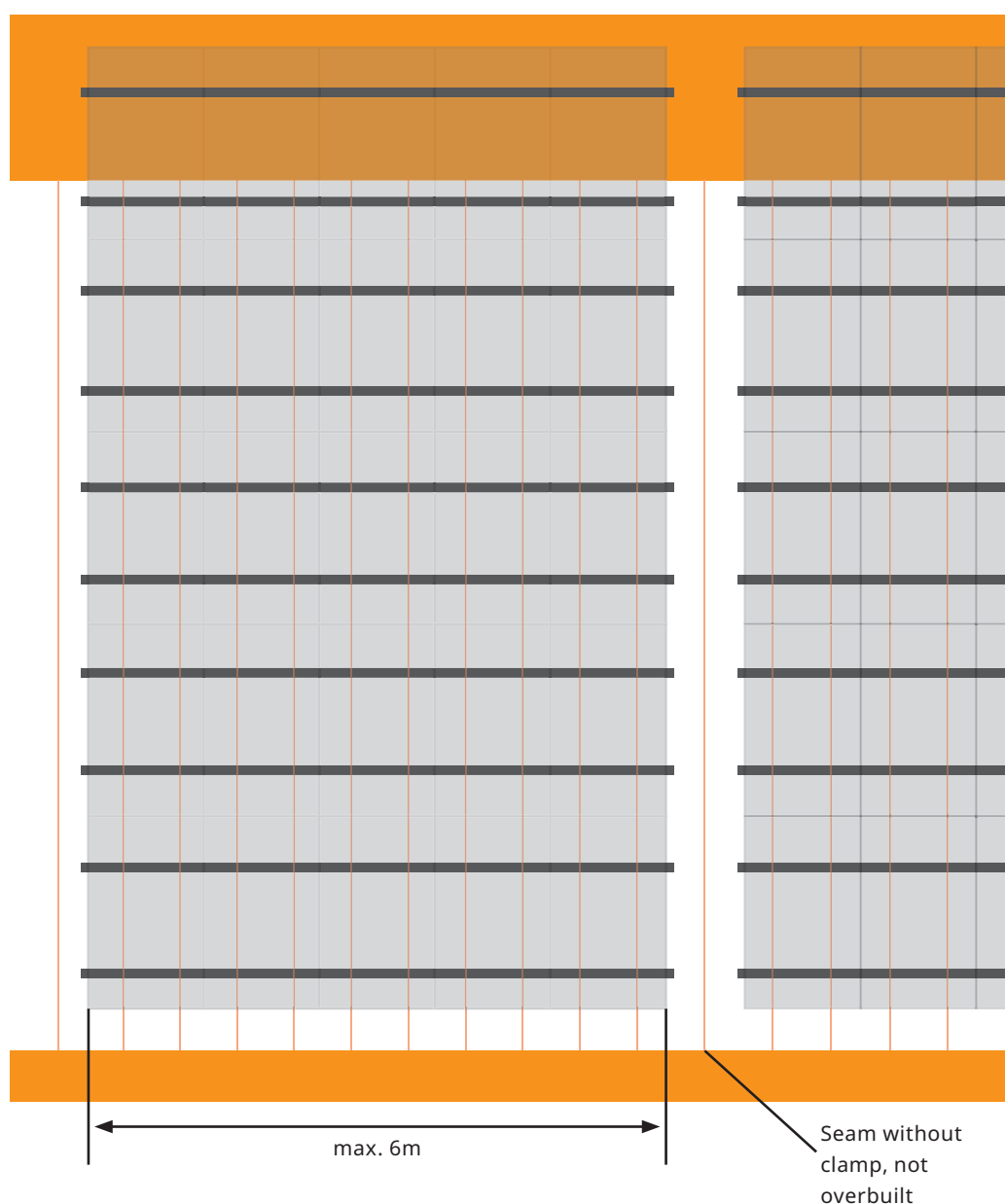
Please note:

The maximum torque for tightening is **16NM** per seam clamp.

The first rail layer should always run across the seam in order to achieve stability and prevent the seams from buckling. First, the position of the seam clamps is determined and the clamps are screwed on lightly. Then use the hammerhead screw to screw the rail to the seam clamp. Only then is the seam clamp tightened to the specified torque. The optimum seam thickness is 3.5 mm. The jaws should be almost parallel to each other. Depending on the material of the seam roof, the thickness can be greater as long as the jaws of the clamp are parallel to each other after tightening with the correct torque and thus a sufficient clamping effect is achieved.

ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

Note on the rail position



To avoid deformation due to thermal expansion, the rails must be separated after approx. 6 meters. Taking thermal expansion into account, the installation can be extended further; our rail connector 9751-WASI18 is recommended for this purpose. In the case of a larger separation without a connector, the following seam must be left free and must not be built over with modules.

We recommend attaching a clamp to each seam. After checking the statics of the roof and the spacing of the existing seam, fewer clamps can be used if necessary.

ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

Assembly sequence of the seamed roof

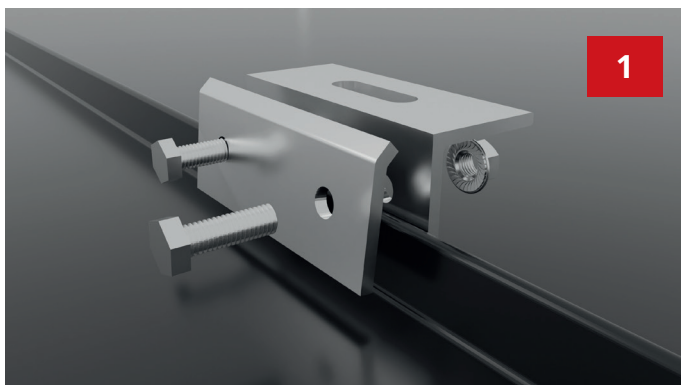


Image 1:

Mount the seam clamp on the seam. Please ensure that the screws do not rest directly on the seam and that the lower edge of the clamp is not mounted in the area of the slope of the standing seam sheet.



Image 2:

Now fit the hammerhead screw or the hexagon head screw to secure the rail.



Image 3:

Now slide the rail under the hammerhead screw and tighten it.

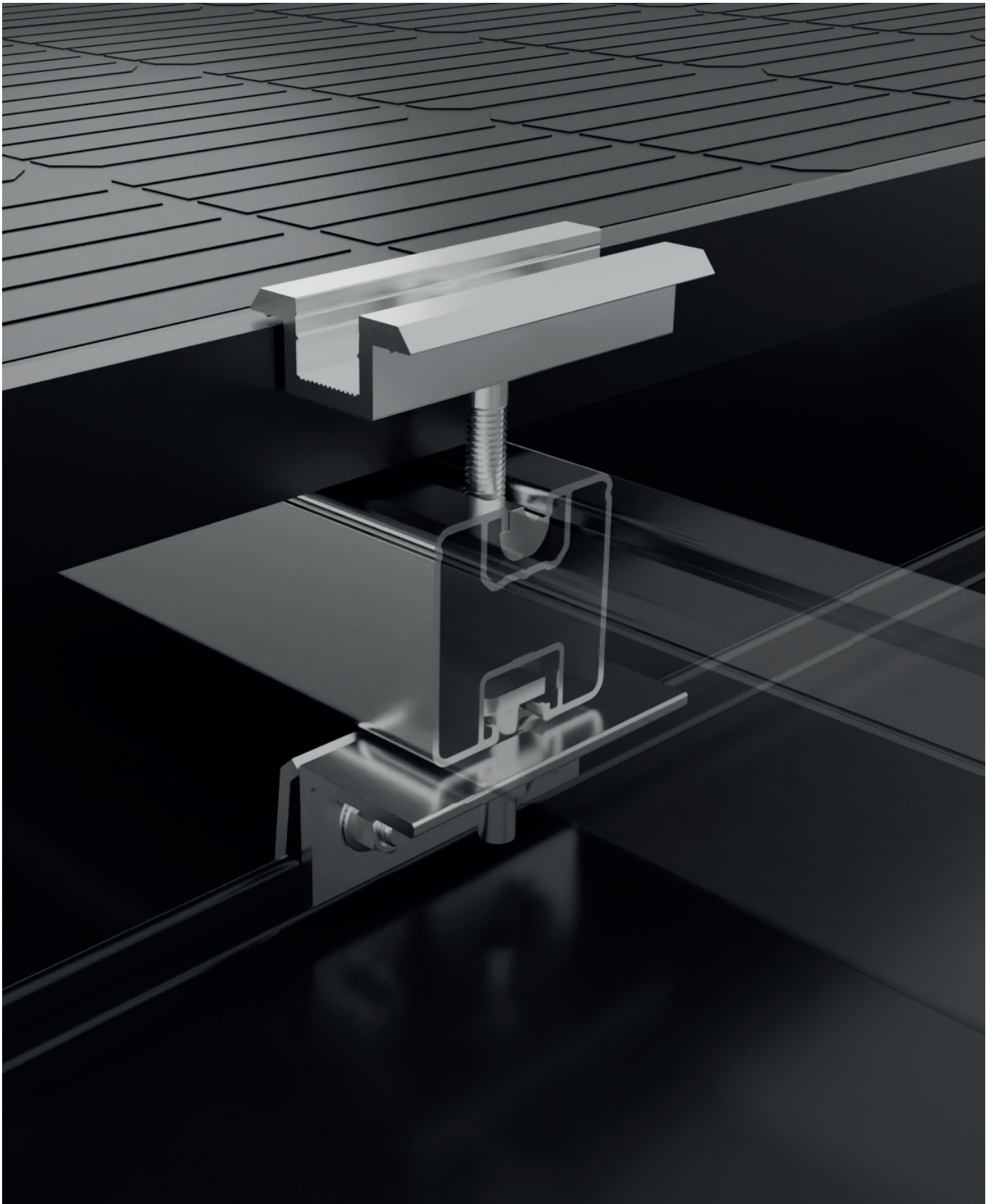


Image 4:

Slide the sliding block into the rail and screw the center clamp on slightly loosely. Now slide the solar panel under the center clamp and tighten the center clamp. Use the end clamp at the end of a rail.

ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

Fully assembled center clamp



ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

Fitting the rail connectors

Various connectors can be used to join several mounting rails together:

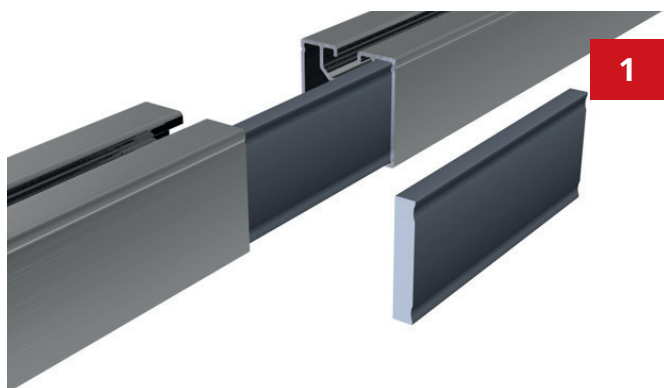


Image 1:

The connector (9751 - WASI 18) is pushed halfway into the mounting rail. Then slide the other mounting rail onto the connector. Then push the mounting rails flush together using pressure.

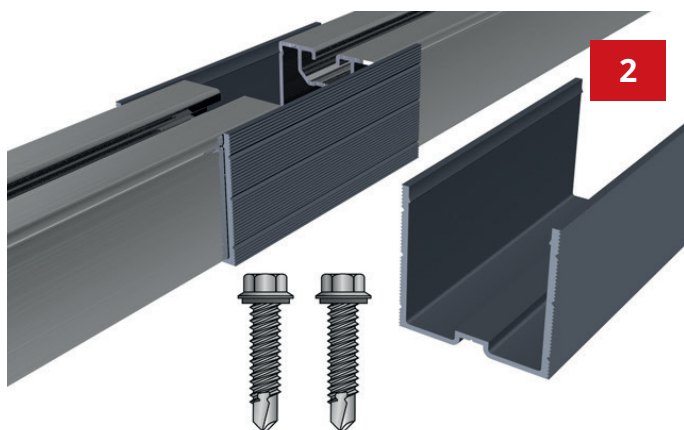


Image 2:

Place the connector (9751 - WASI 12) over the first mounting rail and click into the existing groove and press both together. Then screw this connection together crosswise with two self-tapping screws. (Tightening torque 8-12 Nm).

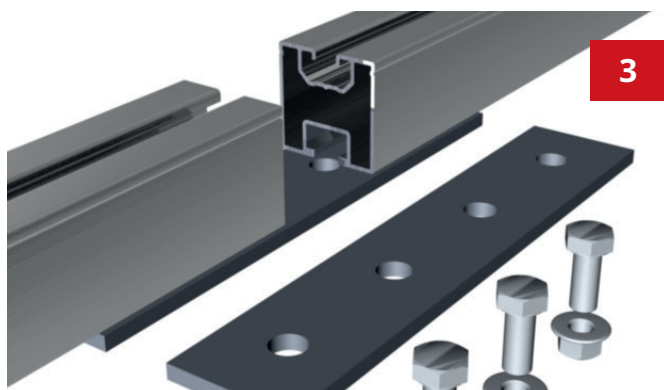


Image 3:

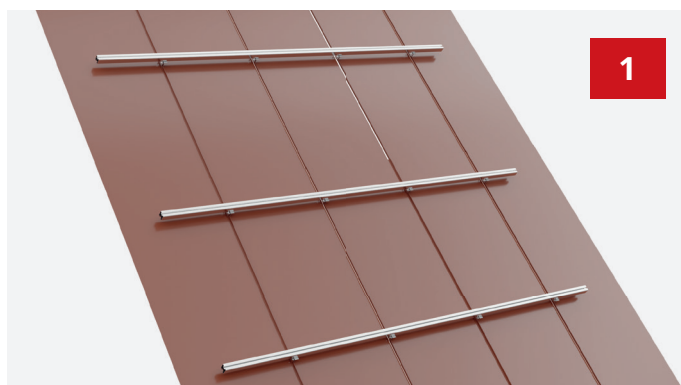
Fit the connector (4-hole) with four hexagonal screws and push the first two screw heads into the lower channel of the first mounting rail. Then slide the last two screws into the other rail. Then fasten all four screws with 4 nuts each. (Tightening torque 8-12 Nm)

4x 9345-2-10

4x 933-2x10x25

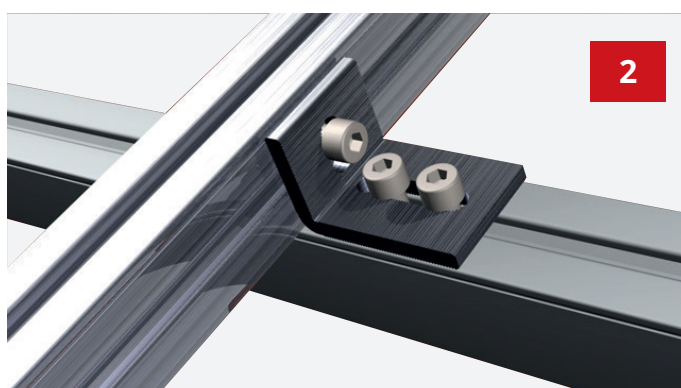
ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

Assembly sequence in the crossbar system



1

When installing unframed PV modules, cross-bracing may be required. This is a particularly stable construction. Please observe the module manufacturer's installation specifications.

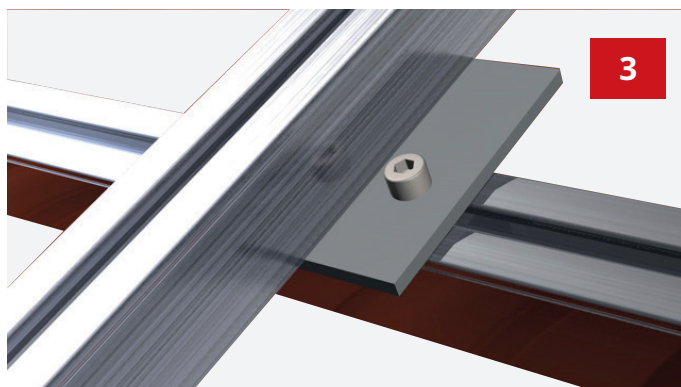


2

Connection of the two rails using a cross-brace bracket.

- 912 A2/A4 8*16 (3x) Cylinder head screw
- 9431 120901 (3x) Slot nut
- 9701 WASI 14 Angle cross bracing

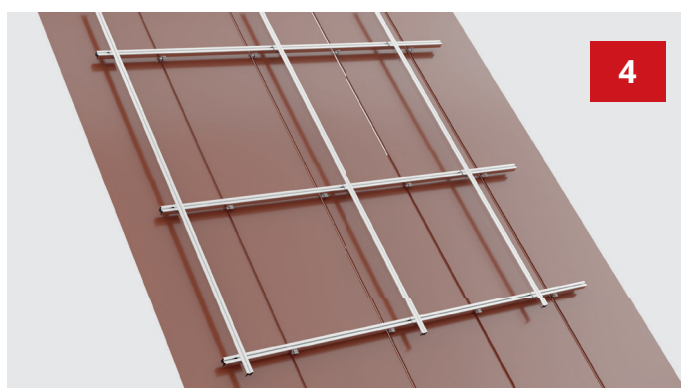
WASI1 and WASI15 are used here.



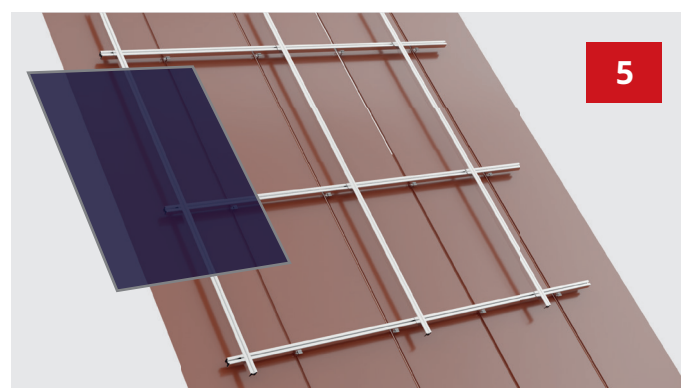
3

Connection of the two rails using a connector plate:

- 912 A2/A4 8*16 (2x) Cylinder head screw
- 9431-120901 (2x) Slot nut
- 9701 WASI 23 W Angle cross bracing
- 933-2 10x25 Hexagon head screw
- 9345-2 10 Lock nut



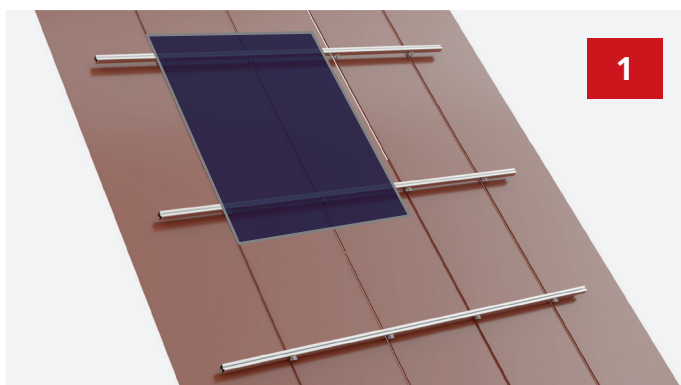
4



5

ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

Mounting sequence with framed PV modules



Fastening examples for middle and end clamps:

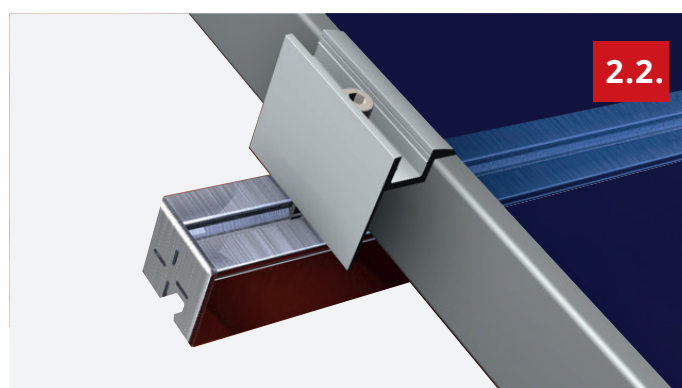
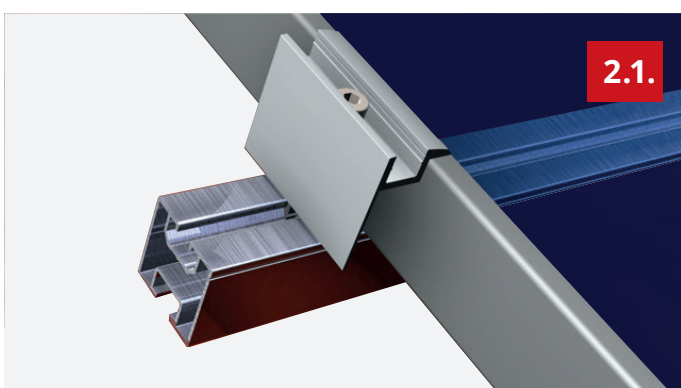
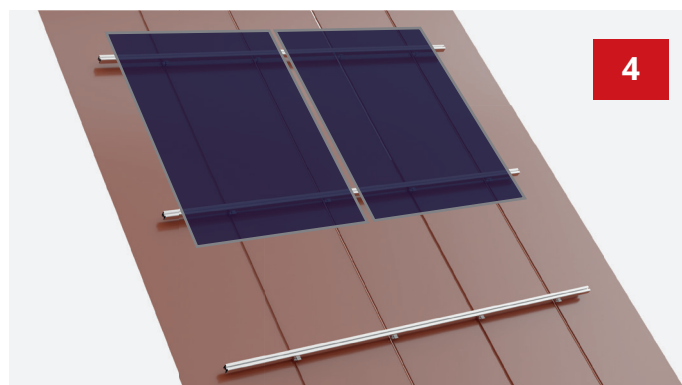
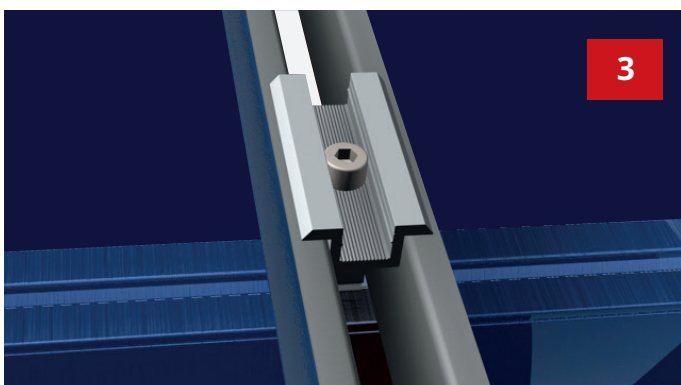


Image 2.1: Swivel the sliding block into the upper rail and click into place. Turn the end clamp with the corresponding screw (depending on the module height) into the sliding block. Alternatively, click the click kit (9742-WASICLIPE-(30>>50)) into the upper channel of the rail and tighten. (Tightening torque up to max. 18 Nm depending on module manufacturer). A cover can be used as a form closure for the rail. (Image 2.2)

Image 3: Swivel the sliding block into the upper rail and click into place. Turn the center clamp 9664-Kappe40(SE) with the corresponding screw (depending on the module height) into the sliding block. Alternatively, click the click kit into the upper channel of the rail and tighten. (Tightening torque up to max. 18 Nm depending on module manufacturer)



ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

Installation sequence of the pitched roof frame with frameless PV modules

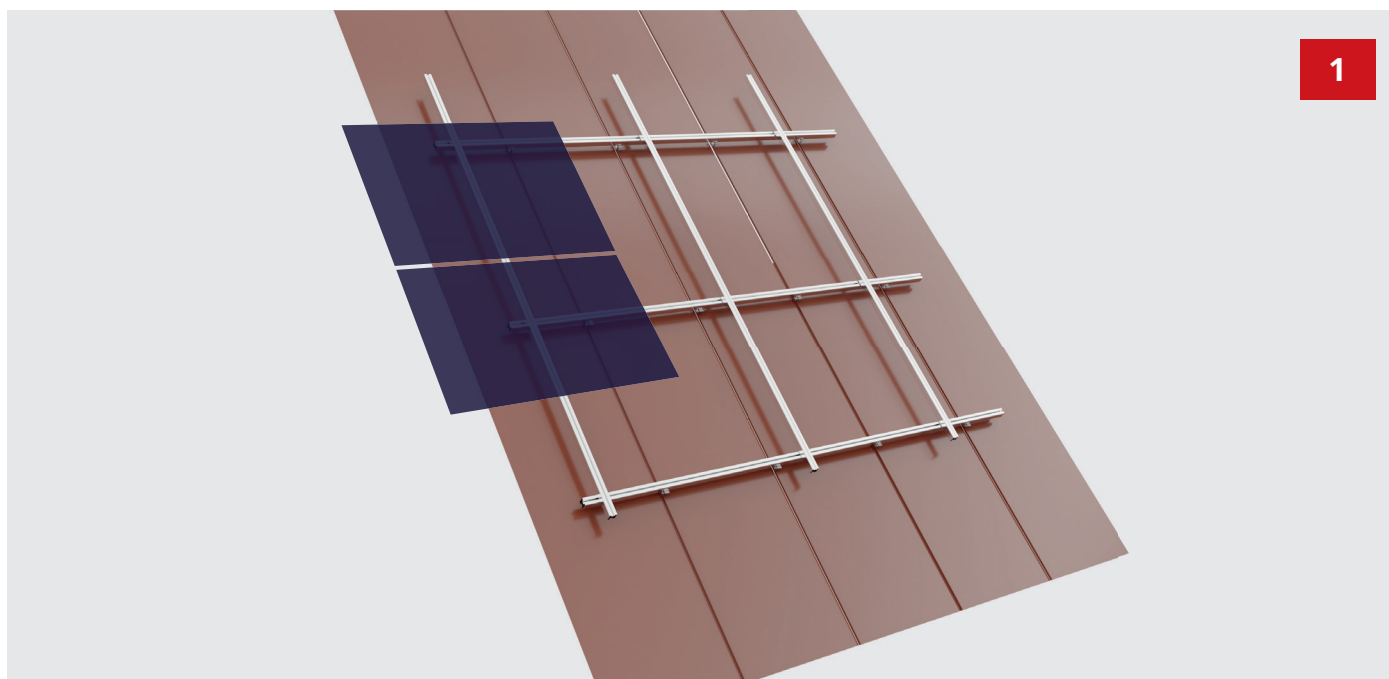
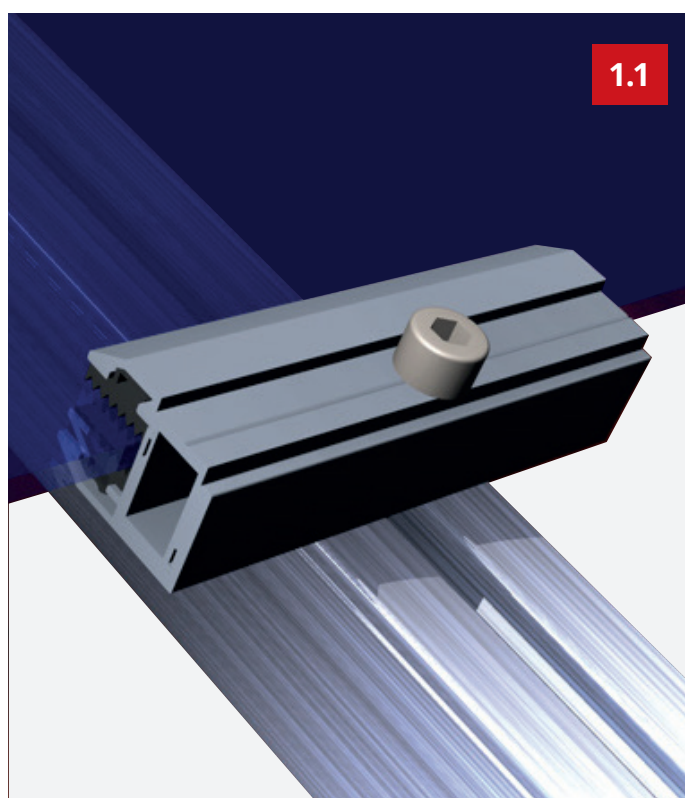


Image 1: Swivel the sliding block into the upper rail and click into place. Screw the end clamp into the sliding block using a DIN 912 A2/A4 M8*35mm screw and tighten (tightening torque up to 15 Nm).

Image 2: Swivel the sliding block into the upper rail and click into place. Screw the end clamp into the sliding block using a DIN 912 A2/A4 M8*35mm screw and tighten (tightening torque up to 15 Nm).



9745-GM L80/6-9



9742-GM L80/6-9

ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

Make a note of important things here.

[illegible]

ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

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ASSEMBLY INSTRUCTIONS FOR SEAMED ROOF

Important notes

Important standards and regulations:

BGV A2 Electrical installations and equipment

BGV C22 Construction work

BGV D35 Ladders and steps

BGV A1 Accident prevention regulations

DIN 1052-2 Timber construction: Mechanical connections

DIN 1055 Load acceptance for buildings

DIN 18299 General regulations for all types of construction work

DIN 18451 Scaffolding construction



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