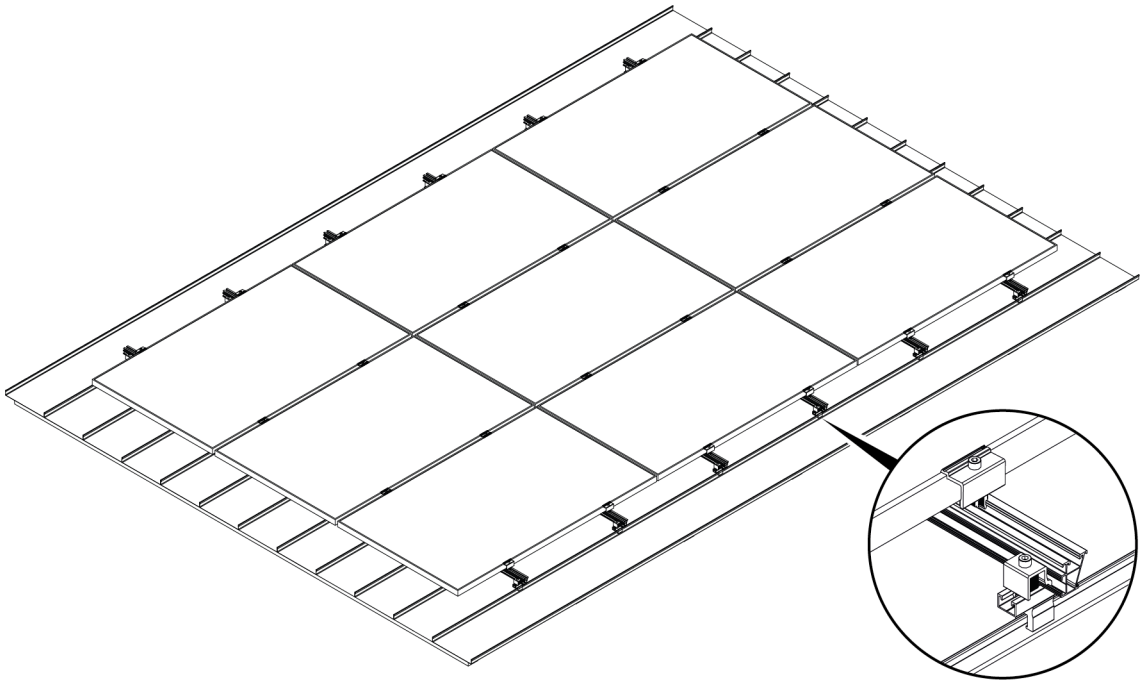
AEROCOMPACT®



CompactMETAL

Standing Seam Clamps

TMDS08 | TMM08 | TMR08 | TMK1508 | TMK2008 | TMRD08

Assembly Instructions

Version: 03
Language: English | Original language: German
Original installation instructions

Important! Read carefully before installation!

INTELLIGENT SOLAR RACKING

Notice

Subject to changes due to technical improvements. These assembly instructions correspond to the technical status of the delivered product and not to the current development status of the manufacturer.

If pages or parts of the assembly instructions are missing, please contact the manufacturer's address given below.

The original language of these assembly instructions is German. Any assembly instructions in another language are a translation of the assembly instructions in German.

Manufacturer

AEROCOMPACT® Holding
Sonnenstraße 10
A 6822 Satteins | Austria

office@aerocompact.com
www.aerocompact.com

Update

This manual is subject to change without notice. This does not represent any obligation on the part of the manufacturer.

Creation date

07/2021

TOC

Standing Seam Clamps

ABOUT THIS DOCUMENT

These installation instructions describe the procedure for installing the product. Read these assembly instructions carefully before starting the assembly. Follow the instructions carefully to ensure correct installation of the product.

Applicable Documents

The following documents are a part of these installation instructions and are absolutely necessary for the correct assembly of the system:

- Project report from AEROTOOL
- Planning documents and drawings

Explanation of Symbols

In order to make these assembly instructions easy to understand, uniform safety instructions, symbols, terms and abbreviations are used. The following symbols indicate notes which are not relevant to safety, but which make working with the assembly instructions easier.

- ✓ Requirements for an action are depicted with this symbol. Make sure that all requirements are met before you carry out the following actions.
- ▶ Action steps are depicted with this symbol. Carry out the steps in the specified order.
- ☑ The result of the action is depicted with this symbol.

ℹ This note provides useful information for a smooth assembly of the product.

Symbols in Illustrations

Activities

Certain activities are required to carry out the assembly. These activities are shown in the illustrations with the following symbols.


Check AEROTOOL planning documents


Visual inspection


Activity by hand


Observe right angle


Optional component,
optional installation method

Standing Seam Clamps

Tools

Certain tools are required to carry out the assembly. These tools are shown in the illustrations with the following symbols.


Measuring tape, measure


Pencil, mark


Chalk line


Cordless screwdriver, screwdriver


Torque wrench,
Observe torque

Target group

These installation instructions are intended for trained personnel who are familiar with the installation of photovoltaic systems. The personnel should also be familiar with working on roofs and know the local regulations regarding work safety. The personnel must also observe the instructions in the Safety chapter.

Appropriate use

The TM system is designed exclusively for mounting PV modules on standing seam metal roofs. Suitable clamps are available for the various standing seam profiles.

The system must be properly installed in accordance with these installation instructions.

For the use of the PV modules with the TM system an approval from the module manufacturer is required. AEROCOMPACT accepts no liability for loss of performance or damage of any kind to the PV modules.

Any other use of the TM system is considered as improper use.

Liability, Warranty, Guarantee

These assembly instructions and the project report supplied with the product are integral parts of the product. The information, data and instructions given in the assembly instructions were up to date at the time of printing. No claims can be made for products already delivered that deviate from the information, illustrations and descriptions.

The project report supplied with the system contains the static/ structural calculation related to the location. If the module layout on the roof changes due to local conditions, e.g. unforeseen interference areas, the structural analysis must be recalculated. The Aerocompact system is designed and planned with the Aerotool software.

Aerocompact accepts no liability for damage and malfunctions caused by:

- improper use
- use of non-certified components.
- unauthorized modifications to the product.
- improper handling of the product.

- Installation errors
- Failure to comply with the installation instructions or planning documents.

Guarantee

The warranty period for the system is 25 years. The warranty period for galvanized steel parts is 10 years. The guarantee is only valid if the installation is carried out professionally and all system components are purchased from Aerocompact. If the assembly instructions or the planning documents are disregarded, the warranty will be invalidated.

Photovoltaic racking systems are not maintenance-free. Carry out maintenance annually and immediately after unusual weather events, e.g., after heavy storms or heavy snowfall, etc. If the maintenance is not carried out at the specified interval, the warranty will become void.

General information on liability

We point out that the product is sold within the framework of a purchase agreement. Assembly/installation by the purchaser or third parties is not carried out on behalf of or for Aerocompact and must be carried out by qualified personnel strictly in accordance with the installation instructions. The Aerocompact system must be designed and planned with the AEROTOOL software. Aerocompact is not responsible for the project-related structural integrity of the roof structure, for obtaining and documenting the roof manufacturer's approval for the installation of the corresponding fasteners on the respective roof (in terms of warranties), nor for the professional execution.

Errors and damage as well as limited or insufficient functionality of the system due to incorrect installation and/or installation that deviates from the installation instructions and/or the project report (AEROTOOL) exclude any material defect for which Aerocompact is responsible. In the event of improper handling, the buyer's rights of warranty for material defects shall not longer be valid. The system warranty is only valid if all system components are purchased from Aerocompact.

Systems with clamping on the short module side

For a system with a clamp on the short side of the module, it is assumed that the module may also be used in this mounting form (clamp on the short sides of the module). This release can either be generally available as part of the module installation instructions or can be given by the module manufacturer for specific projects.

Standing Seam Clamps

SAFETY

Requirements of personnel

The person must be physically and mentally fit. Under no circumstances must the installation personnel be under the influence of medication, alcohol or drugs.
Persons who are not healthy and fit must not work on roofs.

Personnel who are in training must only carry out work under the supervision of qualified personnel who are authorized to train personnel.

Working safely

The company carrying out the installation is responsible for ensuring that the local regulations for work safety and accident prevention are observed.

Breakthrough protection

Roof windows, skylights, large ventilation flaps etc. often cannot withstand the weight or impact of a person. Such objects must be secured in a similar way as the edge of the roof.
Corrugated fibre cement roofs can be prone to breakthrough over the entire surface. Define walking routes and secure them with load distribution measures.
On roofing or roof structures that do not have sufficient load-bearing capacity (e.g. thin sheets, corrugated fibre cement), always work with load distribution aids.

Climbing aids

Only use suitable, intact and tested ladders. Set up and secure ladders according to instructions.
Separate rules apply to mechanical climbing aids (lifts, lifting platforms, ...).
Never use the PV mounting system as a climbing aid.

Weather conditions

In case of unsuitable weather conditions, work on the roof must not be continued any longer than necessary - or not started at all.

Never carry out assembly work in strong winds. Strong wind exerts enormous forces on the large-area PV modules. There is a risk that a module could be torn off the roof and people could be injured.

Never work in wet conditions or at temperatures below the freezing point. Depending on the roof pitch there is a risk of slipping.

Dangers from the environment

Keep sufficient distance from overhead electrical lines. The following distances must be observed:

1 m to 1,000 V
3 m: 1,000 to 11,000 V
4 m: 11,000 to 22,000 V
5 m: 22,000 to 38,000 V
> 5 m: if the voltage is unknown

Protection against falling objects

Areas below the roof on which work is being carried out must be protected from any falling objects. Where this does not succeed, affected areas must be closed to the public.

Persons involved in the construction project must wear safety helmets.

Personal protective equipment (PPE)

Personal protective equipment is required to prevent injuries during assembly work.


Wear protective goggles when drilling.


Wear safety boots.


Wear cut-resistant work gloves during assembly.

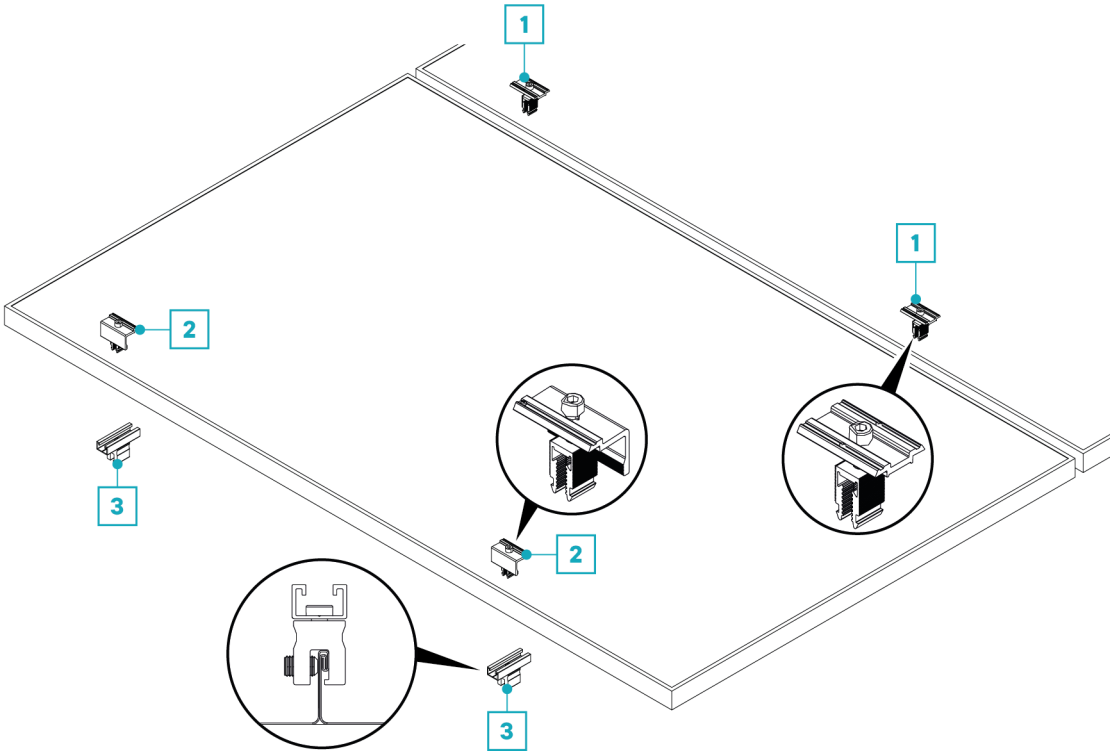

Helmets are required for all persons involved on the construction site.


Use fall protection.

Standing Seam Clamps

SYSTEM OVERVIEW

Basic Components TMDS08



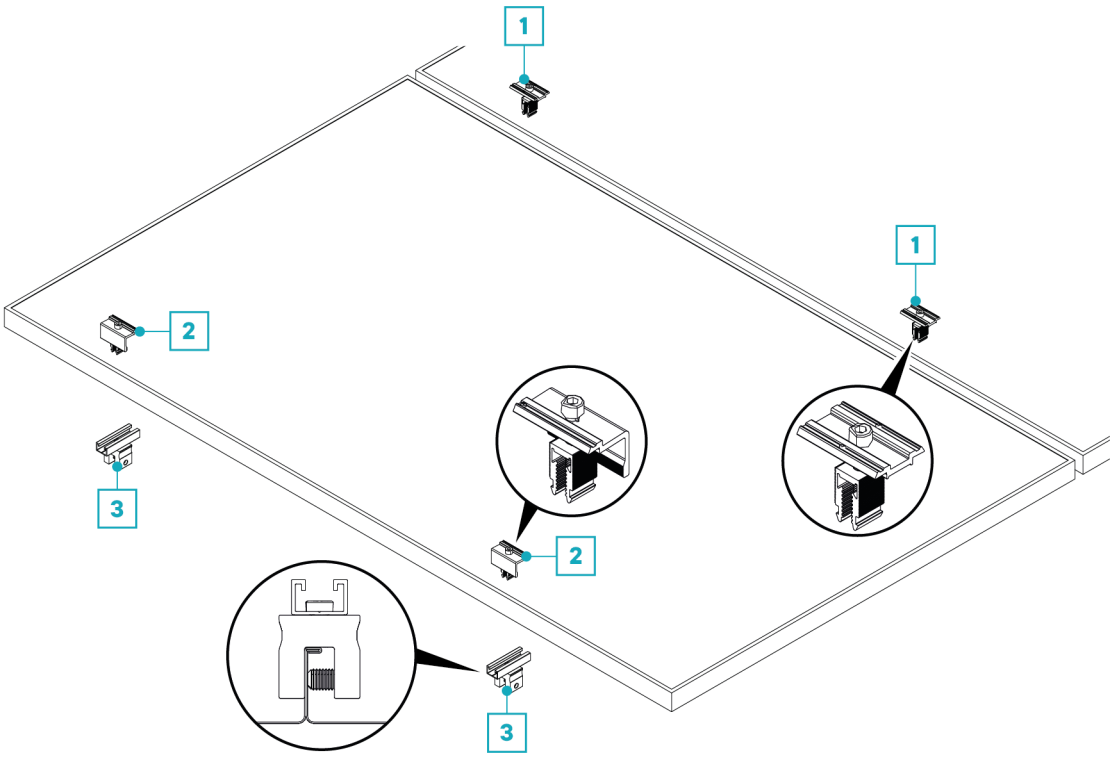
1 Mid-Clamp | CLM10

2 End-Clamp | CLE10

3 Double Fold Standing Seam Clamp with Short Rail S08 | TMDS08

Standing Seam Clamps

Basic Components TMM08



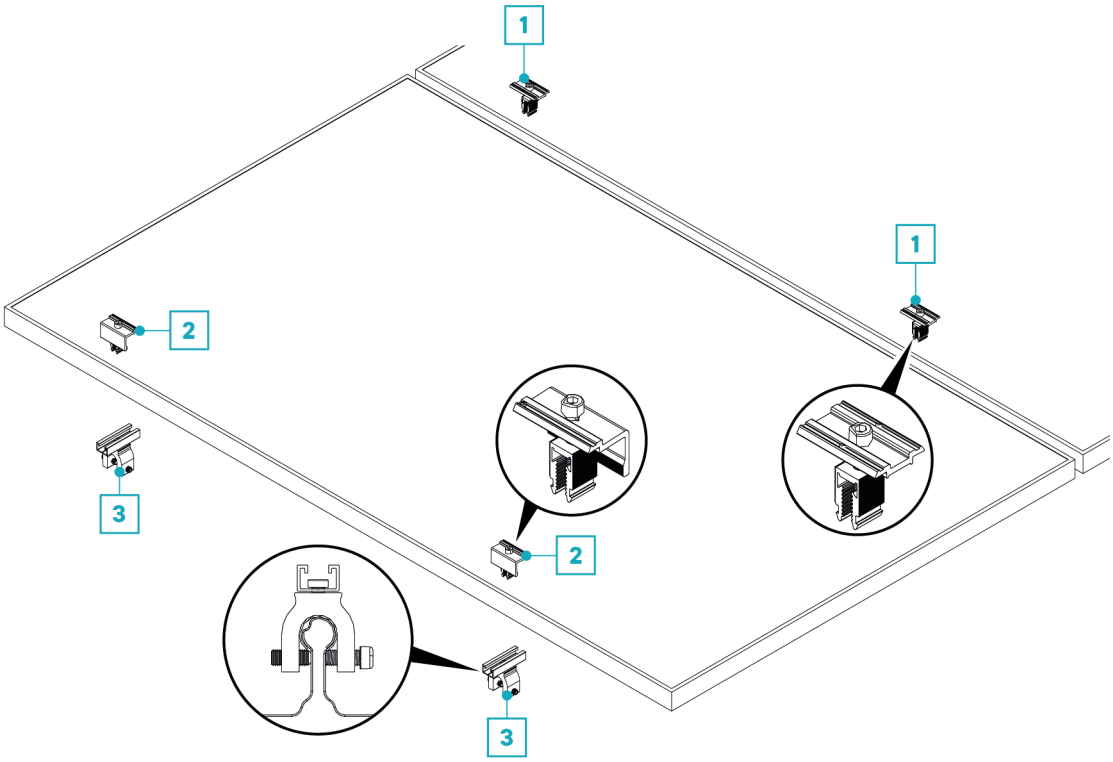
1 Mid-Clamp | CLM10

2 End-Clamp | CLE10

3 Double Fold Standing Seam Clamp with Short Rail S08 | TMM08

Standing Seam Clamps

Basic Components TMR08



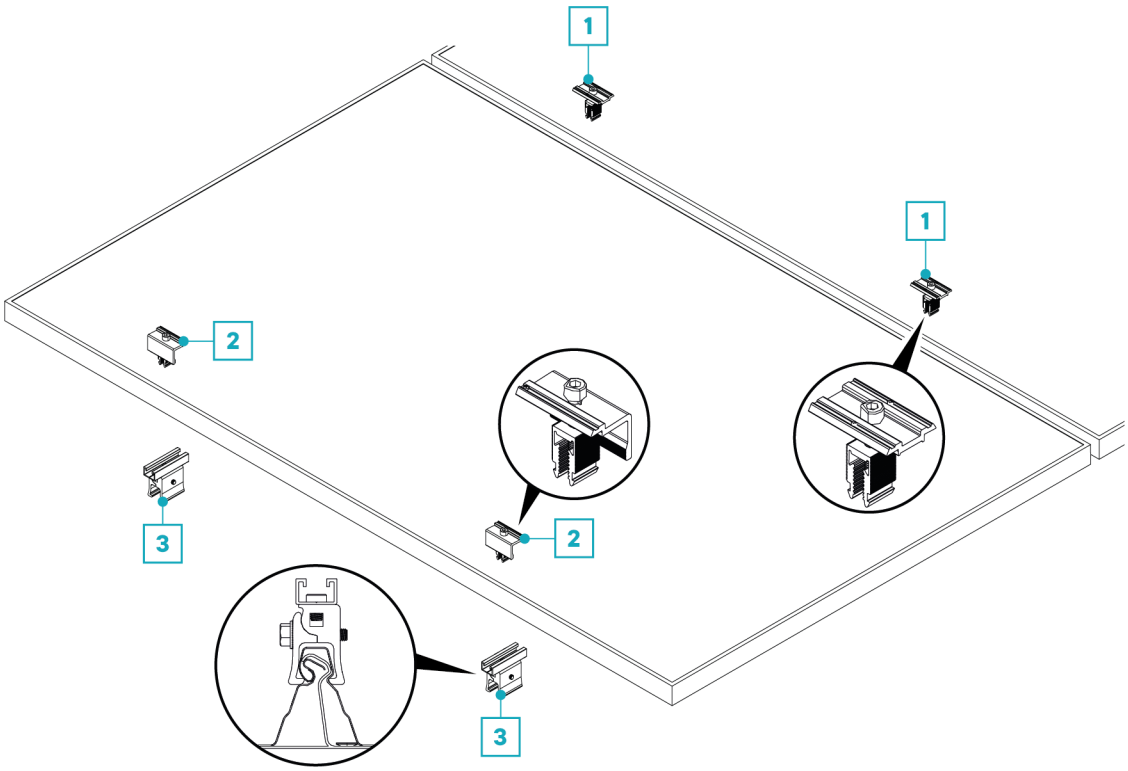
1 Mid-Clamp | CLM10

2 End-Clamp | CLE10

3 Round Standing Seam Clamp with Short Rail S08 | TMRS08

Standing Seam Clamps

Basic Components TMK1508



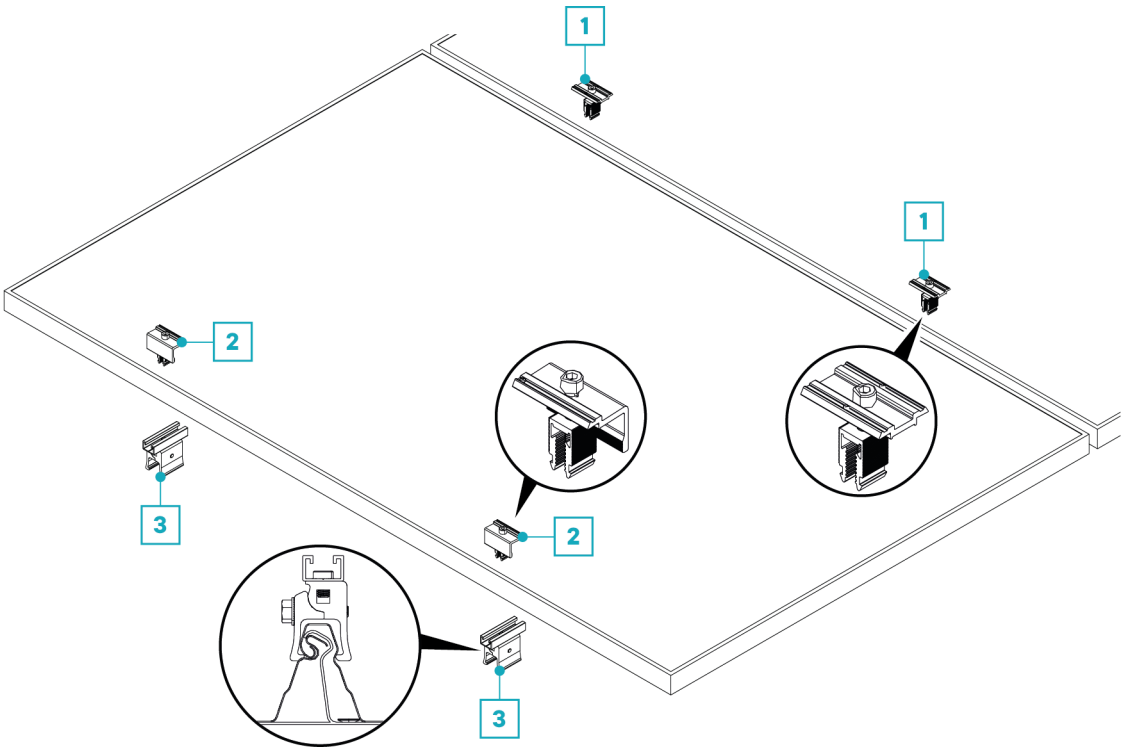
1 Mid-Clamp | CLM10

2 End-Clamp | CLE10

3 KlipLok Clamp with Short Rail S08 | TMK1508

Standing Seam Clamps

Basic Components TMK2008



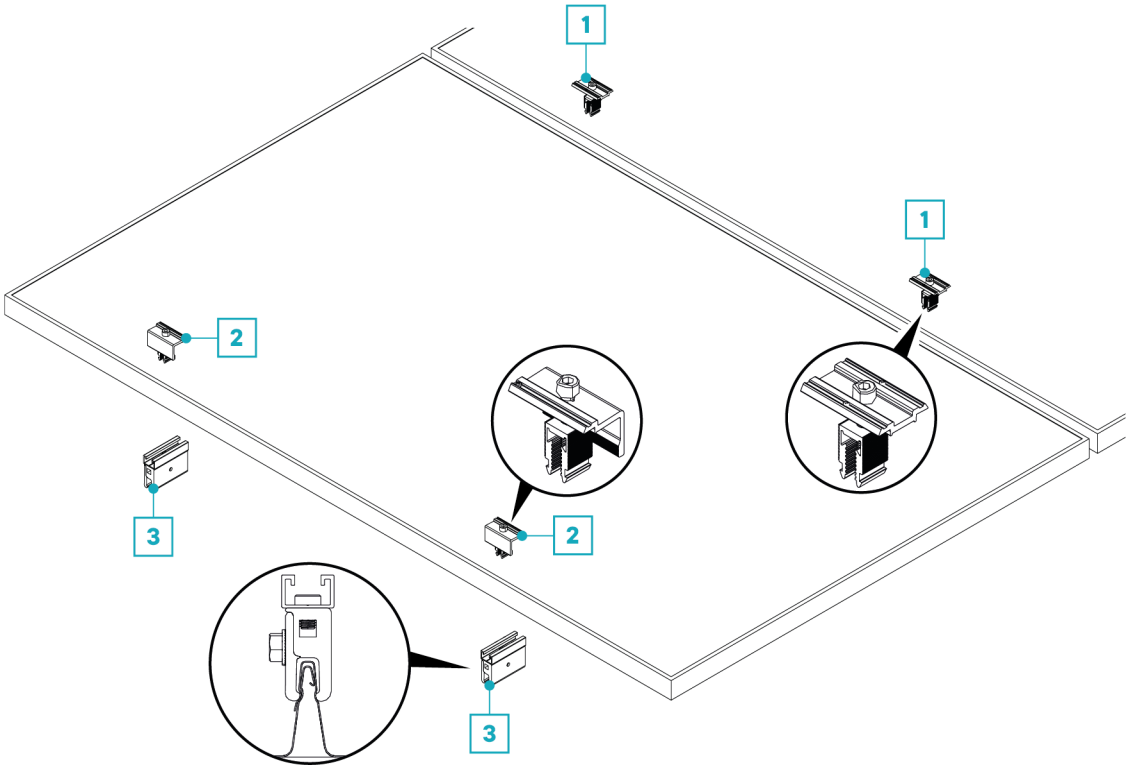
1 Mid-Clamp | CLM10

2 End-Clamp | CLE10

3 KlipLok Clamp with Short Rail S08 | TMK2008

Standing Seam Clamps

Basic Components TMRD08

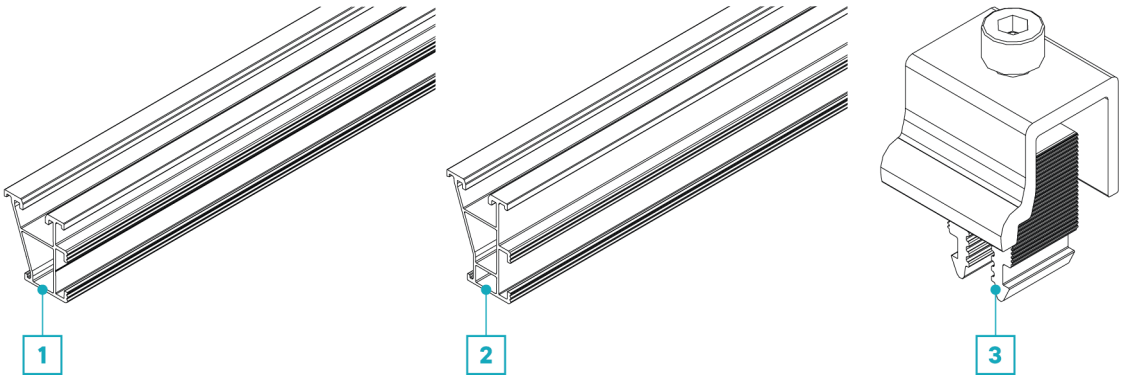


1 Mid-Clamp | CLM10

2 End-Clamp | CLE10

3 Standing Seam Clamp with Short Rail S08 | TMRD08

Installing Rails and Cross Connectors



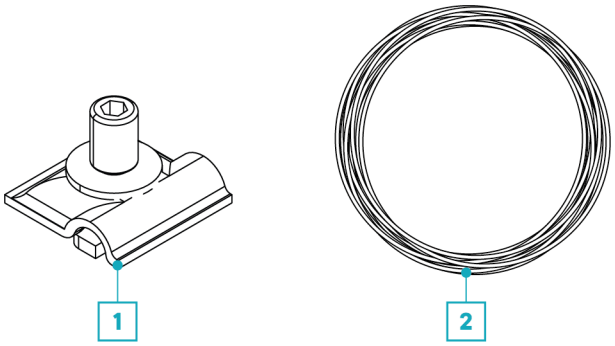
1 Rail X40, 3300 mm, 4400 mm, 5500 mm | X40-3300, X40-4400, X40-5500

2 Rail X50, 3300 mm, 4400 mm, 5500 mm | X50-3300, X50-4400, X50-5500

3 Cross Connector X40, X50 | XDL

Standing Seam Clamps

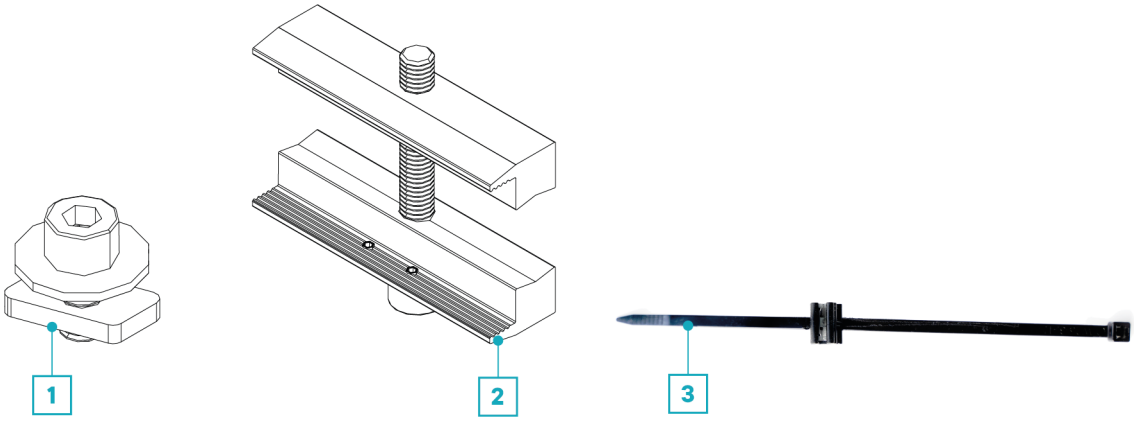
Bonding Accessories



1 Grounding Clamp 8 - 10 mm | WCL8-10 (please use a UL467 certified Grounding Lug in the USA)

2 Aluminium Wire 8 mm for Grounding | AWR8 (please use properly sized copper wire in the USA)

Module Accessories



1 Microinverter T-Bolt Assembly for Top Rail-Channel | MA-RA

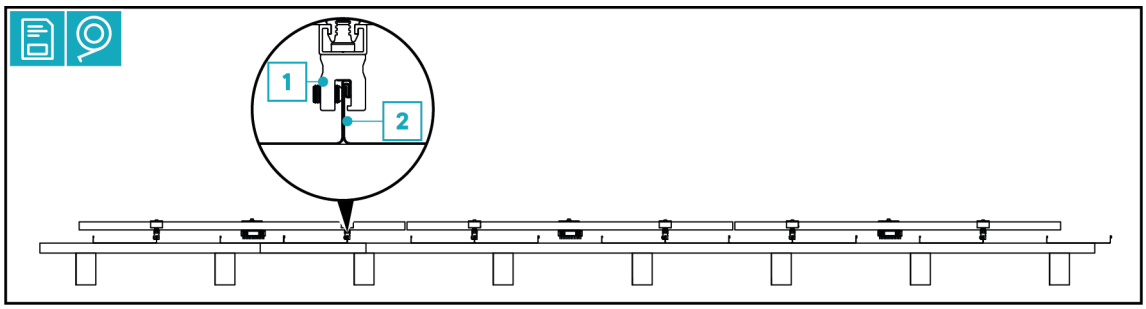
2 Microinverter Clamp for Module Frame | MA-MO

3 Cable Tie Clip for Module Frame | CLP-M

Standing seam clamps

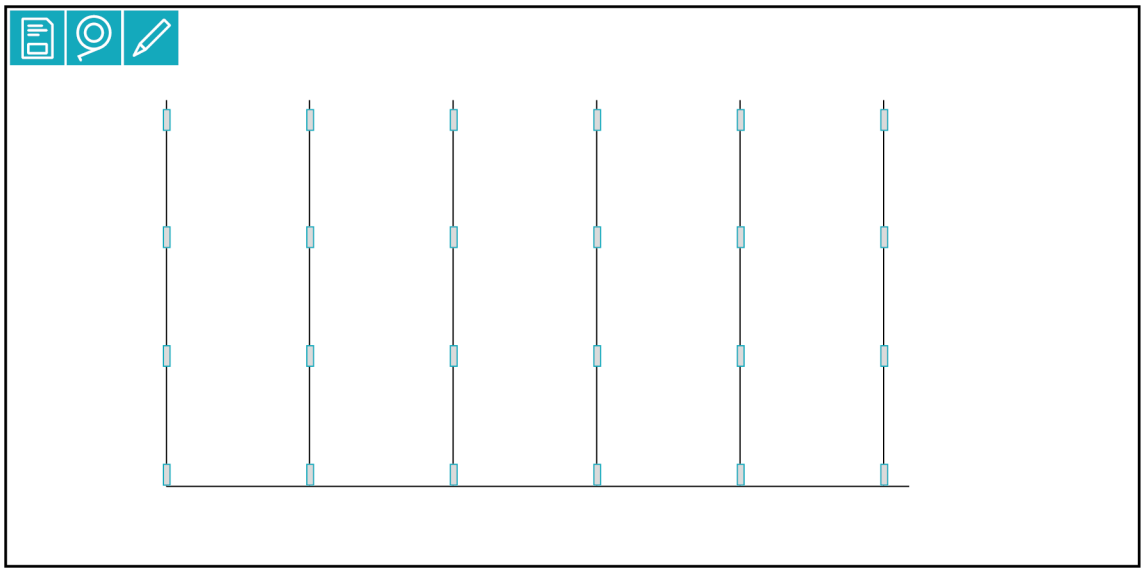
ASSEMBLY

Measure the area



The 1 seam clamp is mounted on the roof seam 2. The distance between the seam clamps depends on the width/length of the modules and the distance between the roof seams.

The folding clamps must never be attached to the sliding clamps or in the joint area of the sheets.



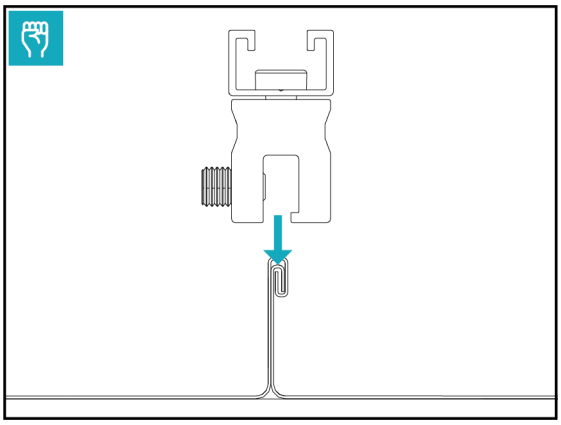
- Take the dimensions of the module field from the Aerotool planning documents.
- Determine module width.
- Determine the position of the roof seams of the metal roof.

Standing Seam Clamps

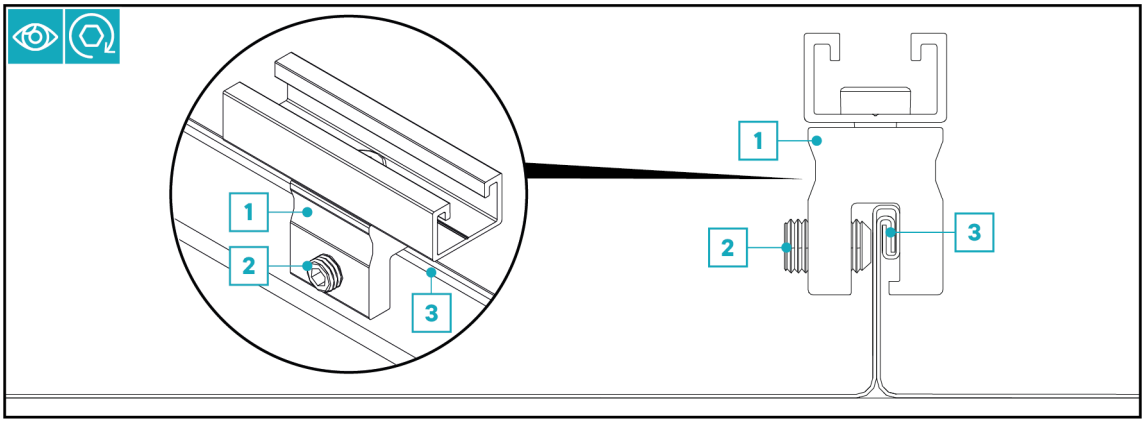
Install Standing Seam Clamps

The standing seam clamps must never be attached to the sliding clamps or in the joint area of the metal sheets.

Option TMD - Clamps for Double-Folded Standing Seam



- Attach the double-folded standing seam clamp to the roof seam.

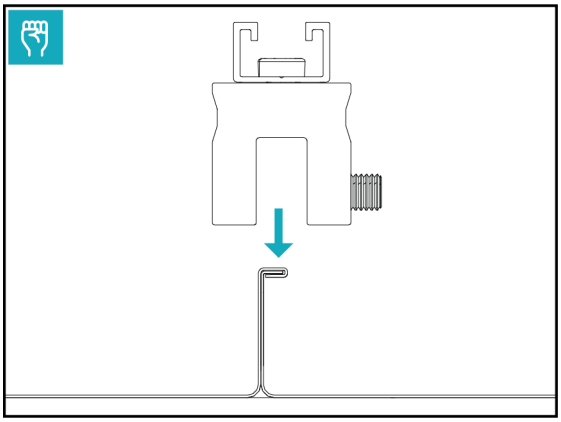


- Tighten the setscrew 2 until the double-folded seam clamp 1 is flush with the roof seam 3.
- Tighten the setscrew to 18 Nm or 13 ft-lb.
- If metal sheet is thicker than 0.7 mm (23 gauge):
  Tighten the setscrew with 18 - 20 Nm or 13 - 15 ft-lb.

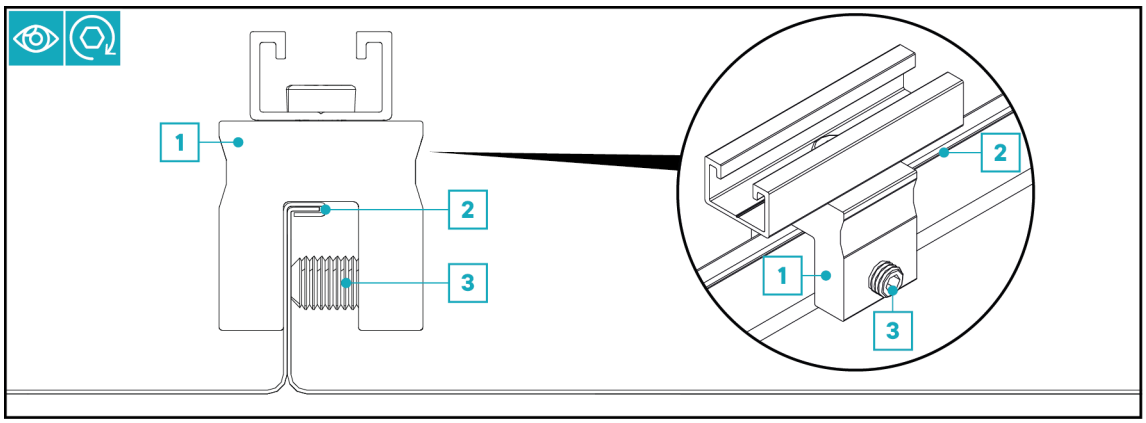
- Install double-folded seam clamps at all marked locations on the metal sheet roof.

Standing Seam Clamps

Option TMM - Single-Folded Standing Seam Clamp



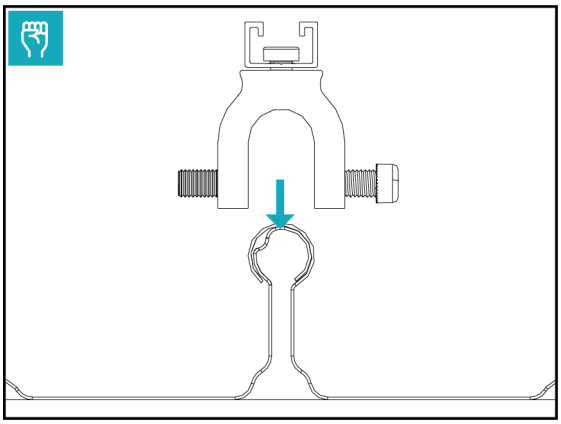
- Attach the single-folded standing seam clamp to the roof seam.



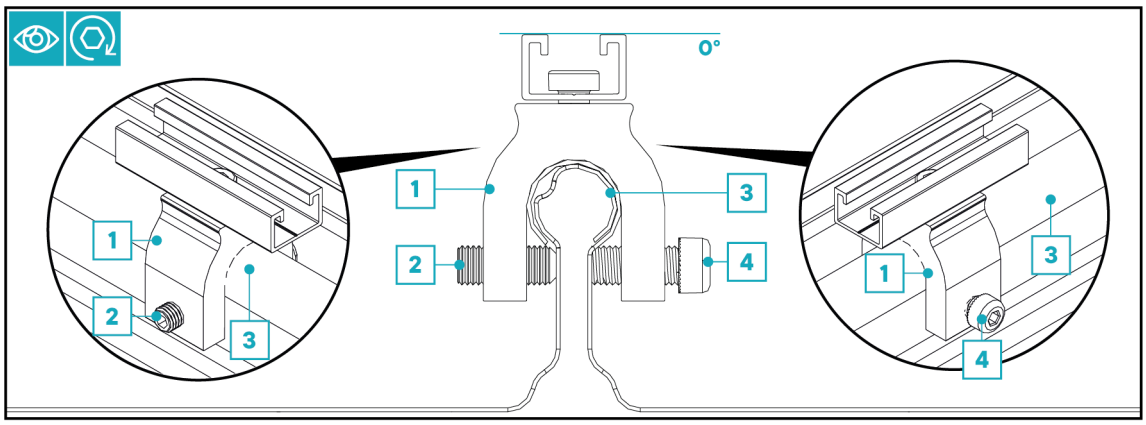
- Tighten the setscrew 3 until the single-folded seam clamp 1 is flush with the roof seam 2.
- Tighten the setscrew to 18 Nm or 13 ft-lb.
- If metal sheet is thicker than 0.7 mm (23 gauge):
  Tighten the setscrew with 18 - 20 Nm or 13 - 15 ft-lb.

- Install single-folded seam clamps at all marked locations on the metal sheet roof.

Option TMR - Round Seam Standing Seam Clamp



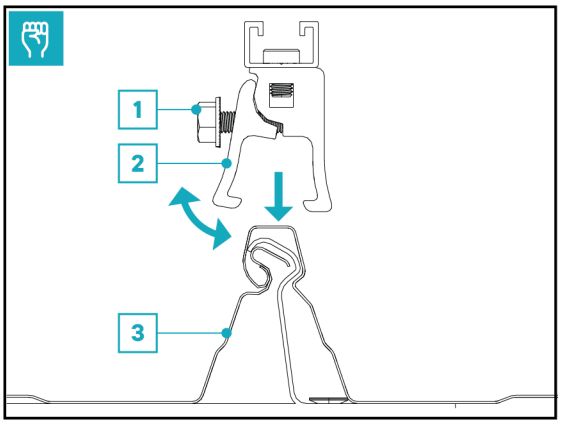
- Attach the round seam standing seam clamp to the roof seam.



- Tighten the setscrew [2] and the Allen screw [4] evenly until the round seam clamp [1] just rests on the roof seam [3].
- Tighten the screws with 18 Nm or 13 ft-lb.
- If metal sheet is thicker than 0.7 mm (23 gauge):
  Tighten the screws with 18 - 20 Nm or 13 - 15 ft-lb.

- Install round seam clamps at all marked locations on the metal sheet roof.

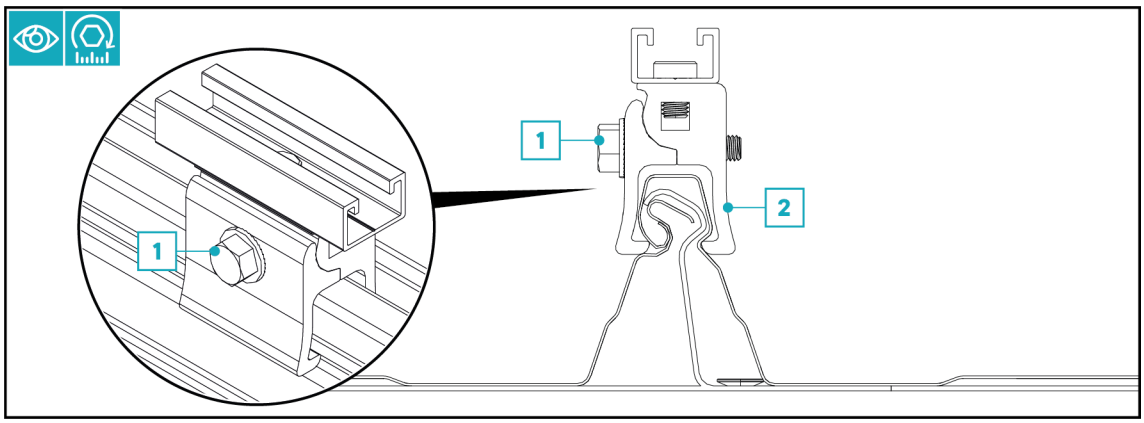
Option TMK1508, TMK2008 - KlipLok Standing Seam Clamps



- Loosen the screw [1] if necessary.

Observe the orientation of the clamp:
Align the standing seam clamp so that the bolt [1] points in the direction of the overlapping metal sheet [3].

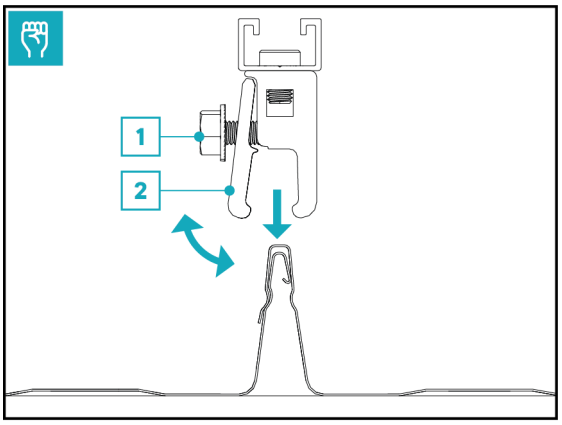
- Open clamp [2] and attach to the metal sheet seam.



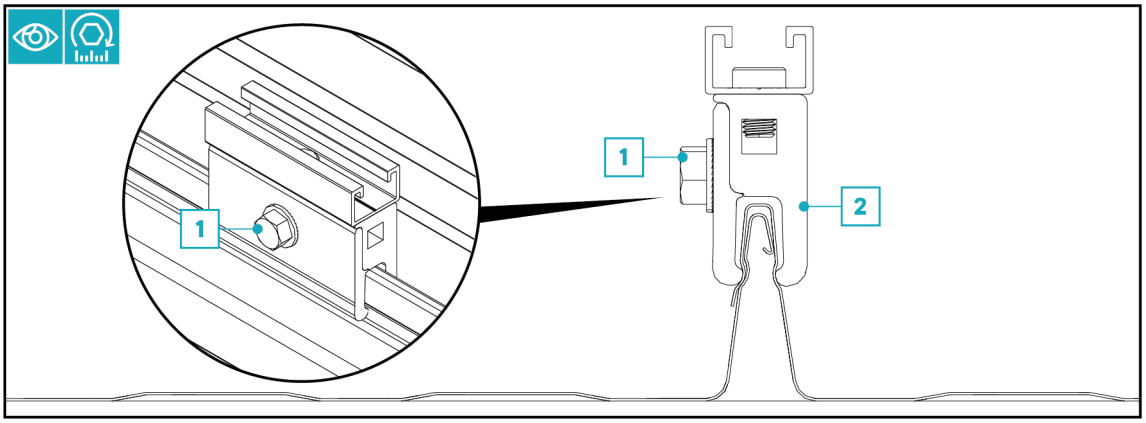
- Position the clamp so that it is firmly seated.

- Tighten the screws with 18 Nm or 13 ft-lb.
- If metal sheet is thicker than 0.7 mm (23 gauge):
  Tighten the screw with 18 - 20 Nm or 13 - 15 ft-lb.
- Install Rib Seam clamps at all marked locations on the metal sheet roof.

Option TMRD08 - Rib Seam Standing Seam Clamp



- Loosen the screw 1 if necessary.
- Open clamp 2 and attach to the metal sheet seam.



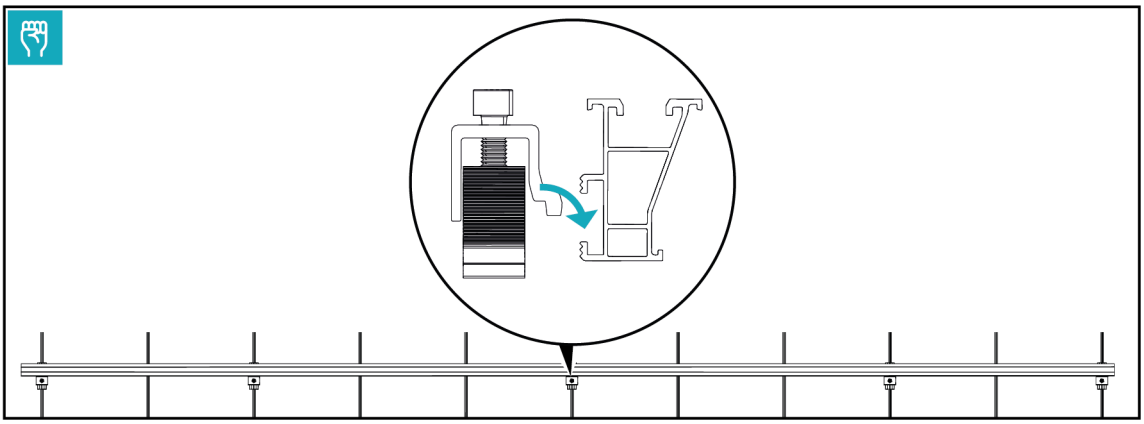
- Position the clamp so that it is firmly seated.
- Tighten the screws with 18 Nm or 13 ft-lb.
- If metal sheet is thicker than 0.7 mm (23 gauge):
  Tighten the screw with 18 - 20 Nm or 13 - 15 ft-lb.
- Install Rib Seam clamps at all marked locations on the metal sheet roof.

Standing Seam Clamps

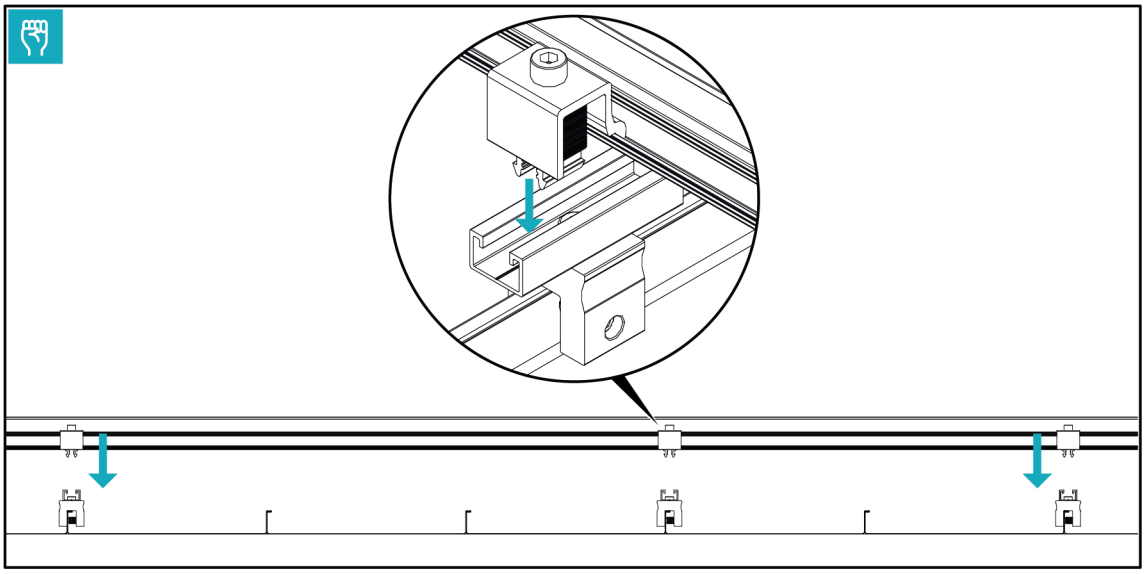
Mounting rail X40/X50 (optional)

ℹ The mounting rail is installed to the short rail with a cross connector in each case.

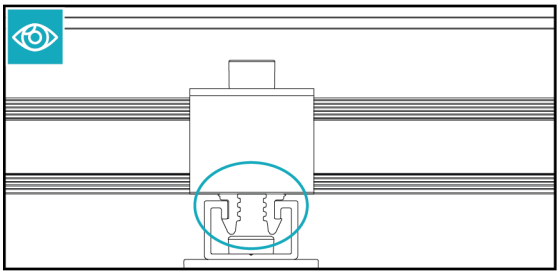
ℹ To ensure thermal separation, install the mounting rails max. 3 m in a compound.

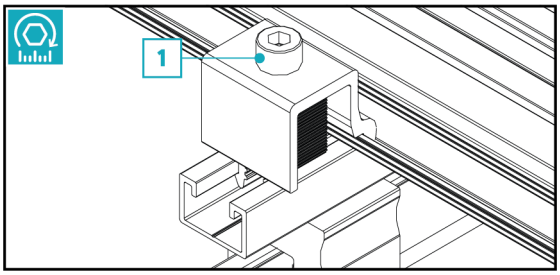


› Attach a cross connector to the mounting rail for each short rail in a row.



› Attach the cross connector to the short rail in each case.





› Make sure that the cross connector is correctly attached.

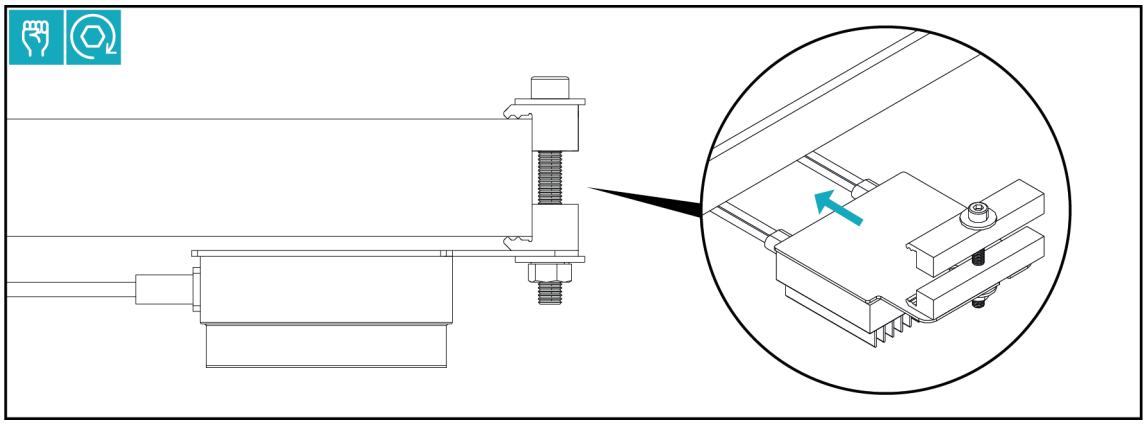
› Tighten the Allen screw 1 on each of the cross connectors to 15 Nm or 11 ft lbs.

Standing Seam Clamps

Install microinverter (optional)

Mount microinverter with the microinverter clamp (MA-MO) onto the module frame.

ℹ The microinverter is installed directly onto the module frame.

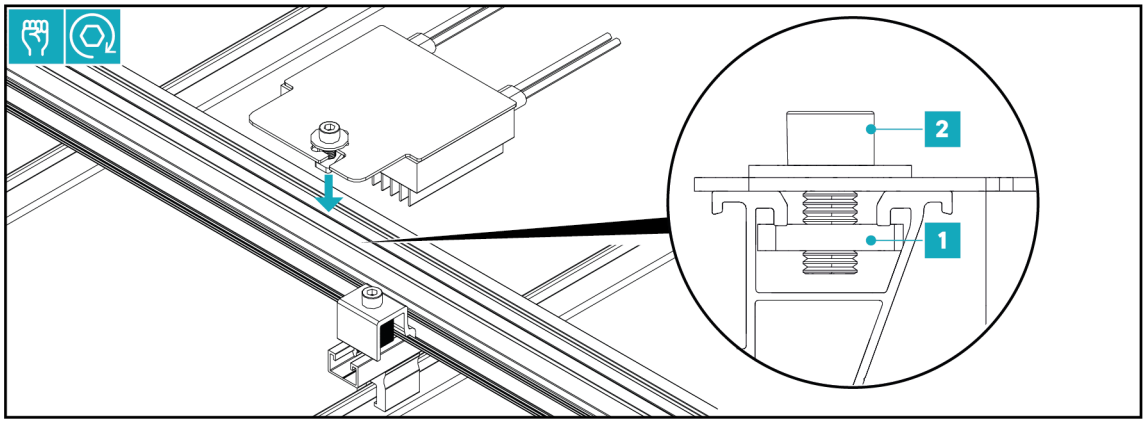


Install the microinverter onto the module according to the module manufacturer's instructions.

Installing the microinverter onto the rail

ℹ This option is only possible if a rail is used.

ℹ The microinverter is installed on the rail below the module.

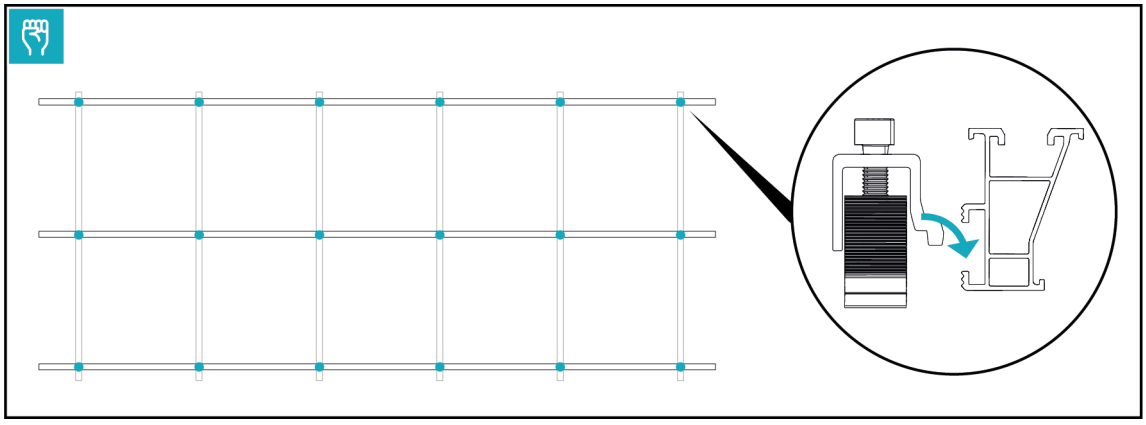


Attach the T-Bolt Assembly 1 to the rail.

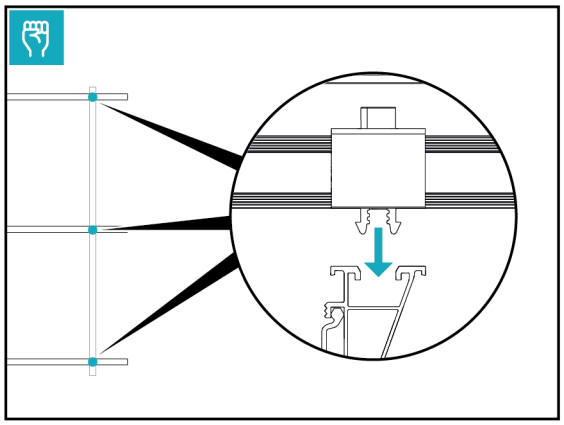
Hand-tighten the screw 2.

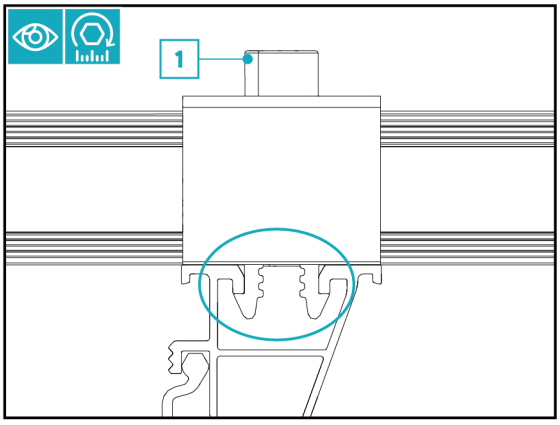
Installing the X40/X50 rail in a cross-mount (optional - not available in the USA)

ℹ At each point where the rails cross, the rails are joined together with a cross connector.



› Attach a cross connector to the upper rail for each cross connection.





› Attach each of the cross connectors with the upper rail to the lower rail.
› Make sure that the cross connector is fully clicked into place.
› Tighten the Allen screw 1 on each of the cross connectors to 15 Nm or 11 ft-lb.

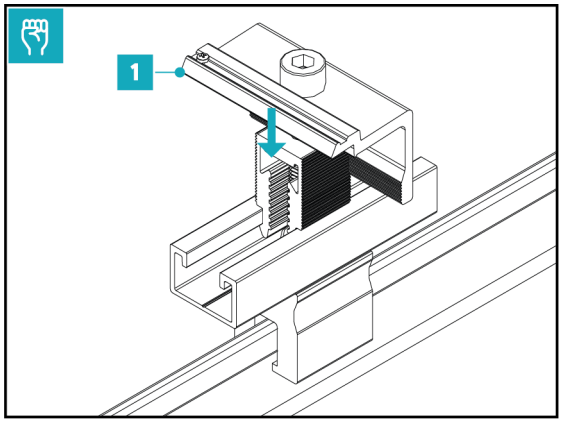
Installing modules on the short rail

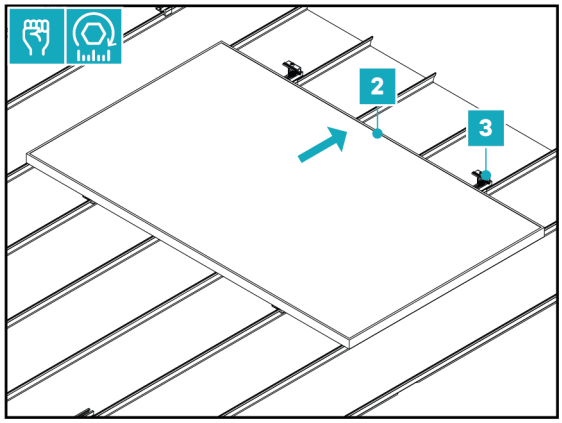
ℹ When installing the modules, make sure that the module clamps are placed as centered as possible on the short rail.

Install the first module row

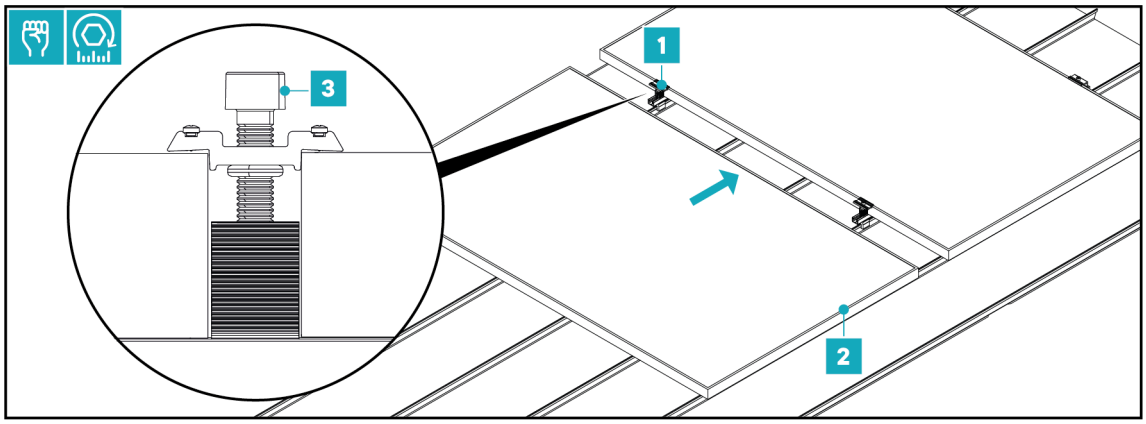
ℹ Never step on the modules when mounting them.

Standing Seam Clamps

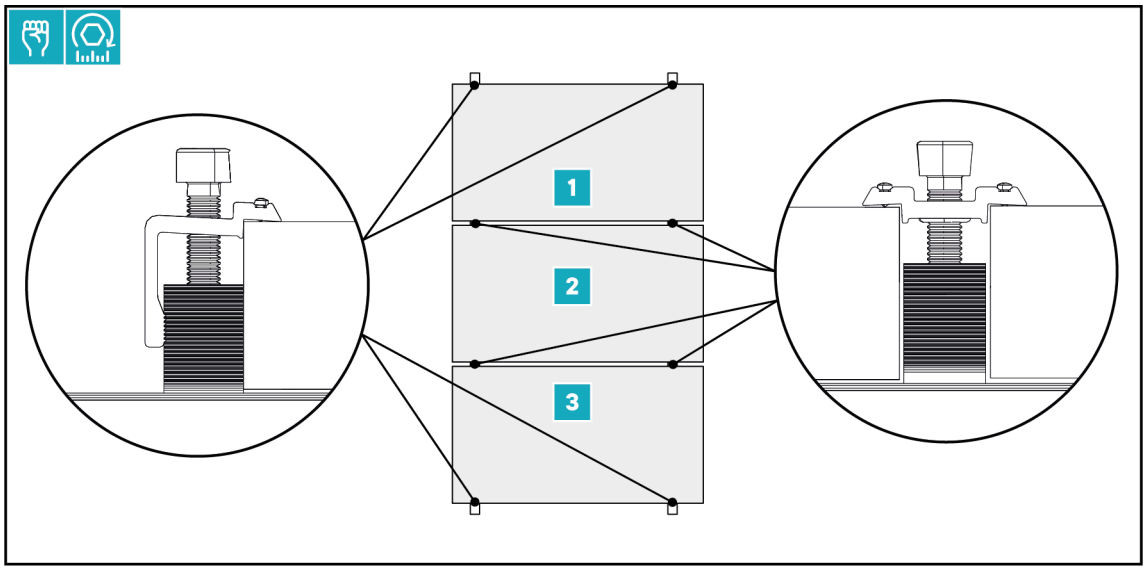




- Center the end-clamps 1 on the outermost row of short rails.
- Place the first module 2.
- Tighten the screws of the end-clamps with 15 Nm or 11 ft lbs 3.



- After the first module, attach mid-clamps 1 to the short rails.
- Place the second module 2 flush with the mid-clamps.
- Tighten the screws 3 of the mid-clamps to 15 Nm or 11 ft lbs.



- Continue placing the modules row by row.

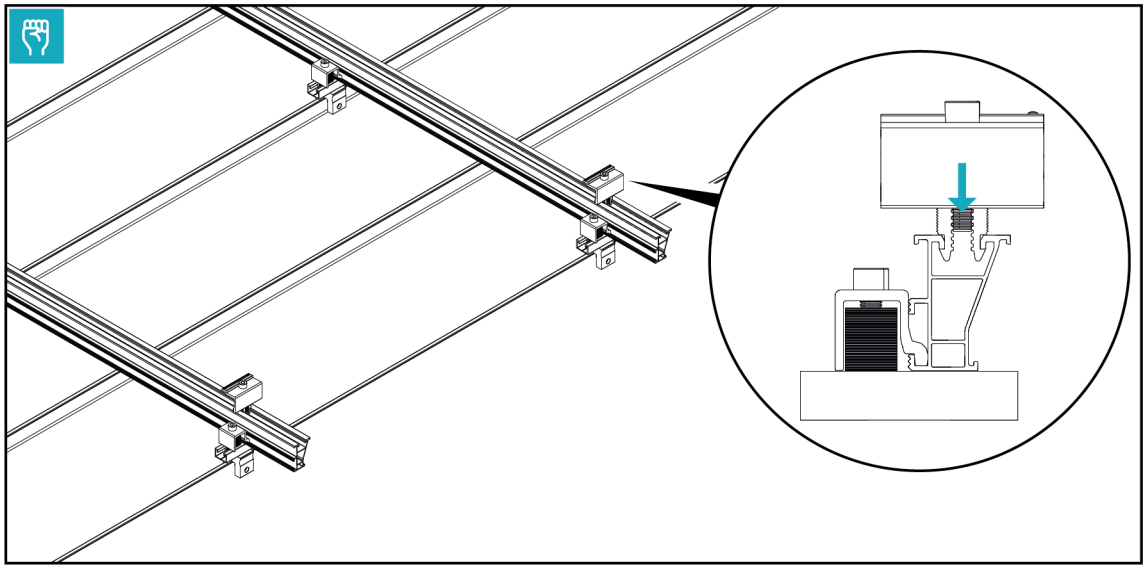
Tighten the screws of the end-clamps with 15 Nm or 11 ft lb.

Reposition / replace clamps

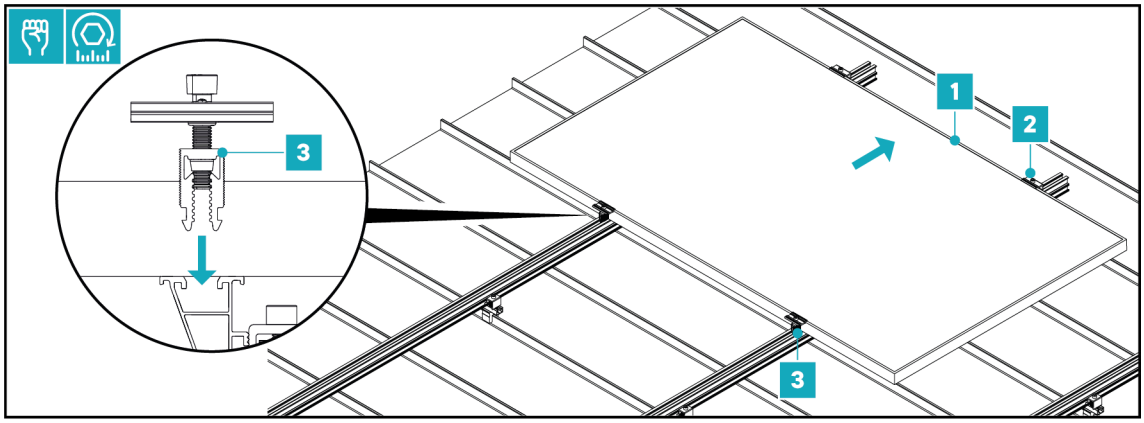
Demount clamp: Unscrew the screw at the clamp completely.
Depending on the mounting situation, squeeze the clamp laterally and pull it out or pull it laterally out of the rail.

Installing modules on rail X40/X50

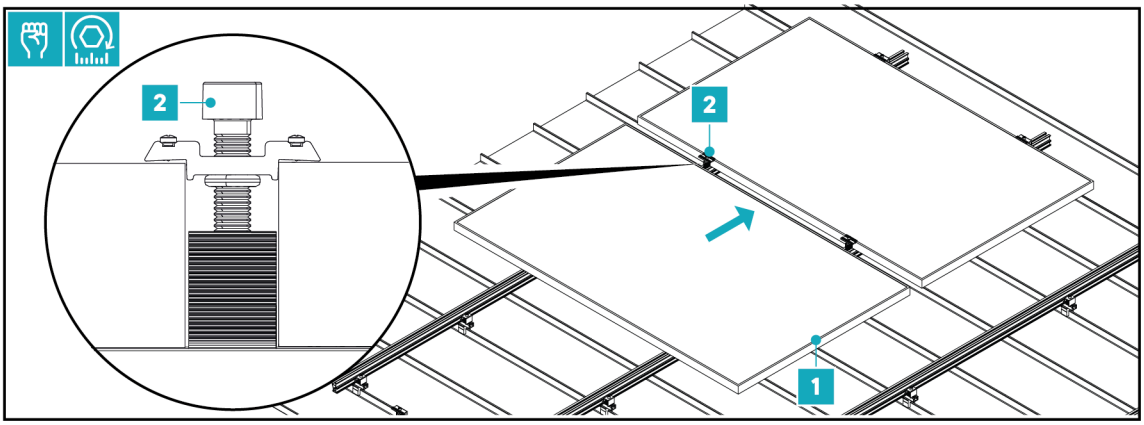
Never step on the modules when mounting them.



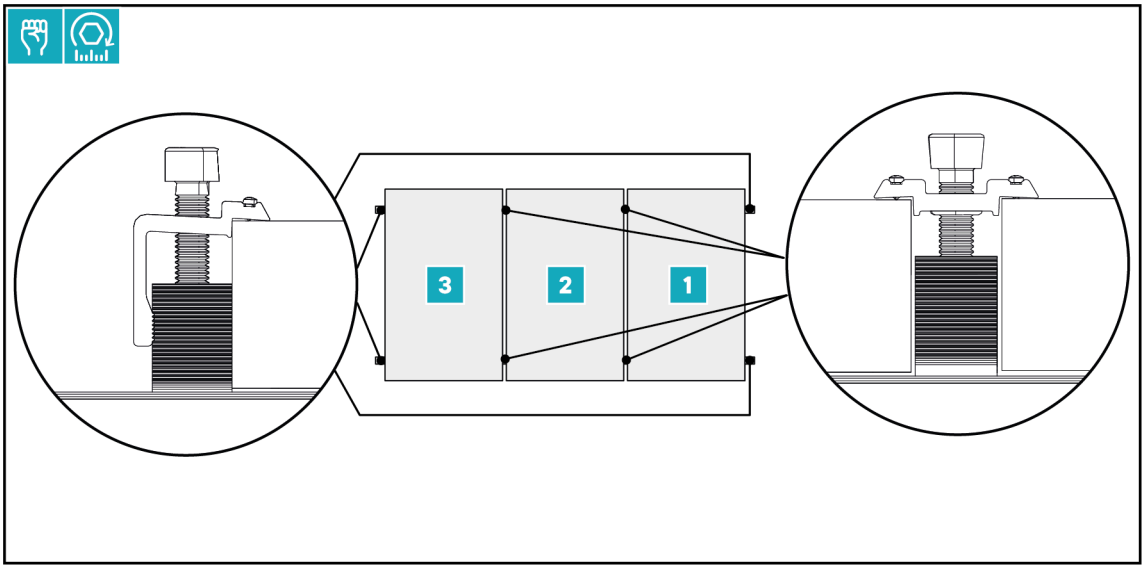
Attach the end-clamps to the edge of the module field on the mounting rails.



Place the first module 1.
Tighten the screws on the end-clamps to 15 Nm or 11 ft lb 2.
After the first module, attach the mid-clamps 3.



- Place the second module 1 flush with the mid-clamps.
- Tighten the screws on the mid-clamps 2 to 15 Nm or 11 ft lb.



- Continue placing the modules row by row.
- Make sure that the modules are installed in a line.
- Tighten the screws of the end-clamps with 15 Nm or 11 ft lb each.

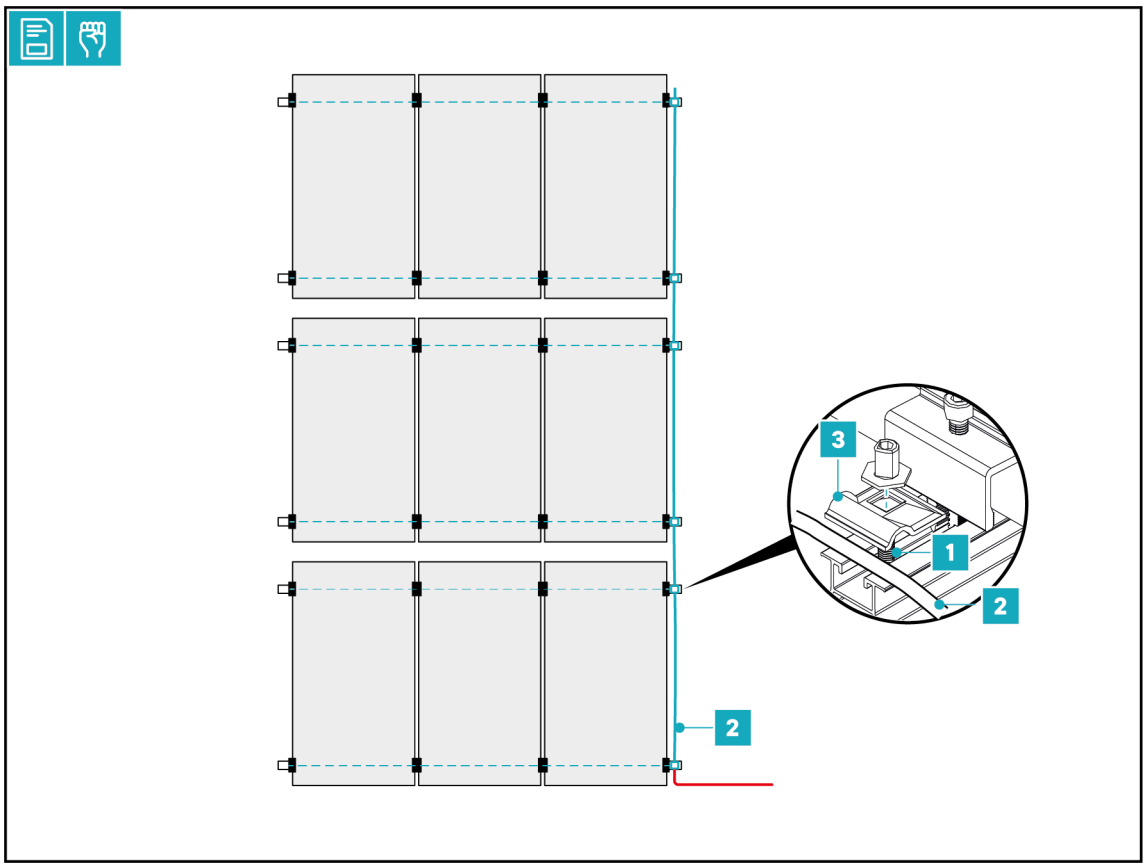
Reposition / replace clamps

- Demount clamp: Unscrew the screw at the clamp completely.
- Depending on the mounting situation, squeeze the clamp laterally and pull it out or pull it laterally out of the rail.

Bonding

For bonding, AEROCOMPACT provides the bonding wire clamp as an accessory (NOT VALID IN THE USA). These are each mounted on the support rails.

Dependent on the mounting setting, each module row is bonded by the module clamps with grounding pins.

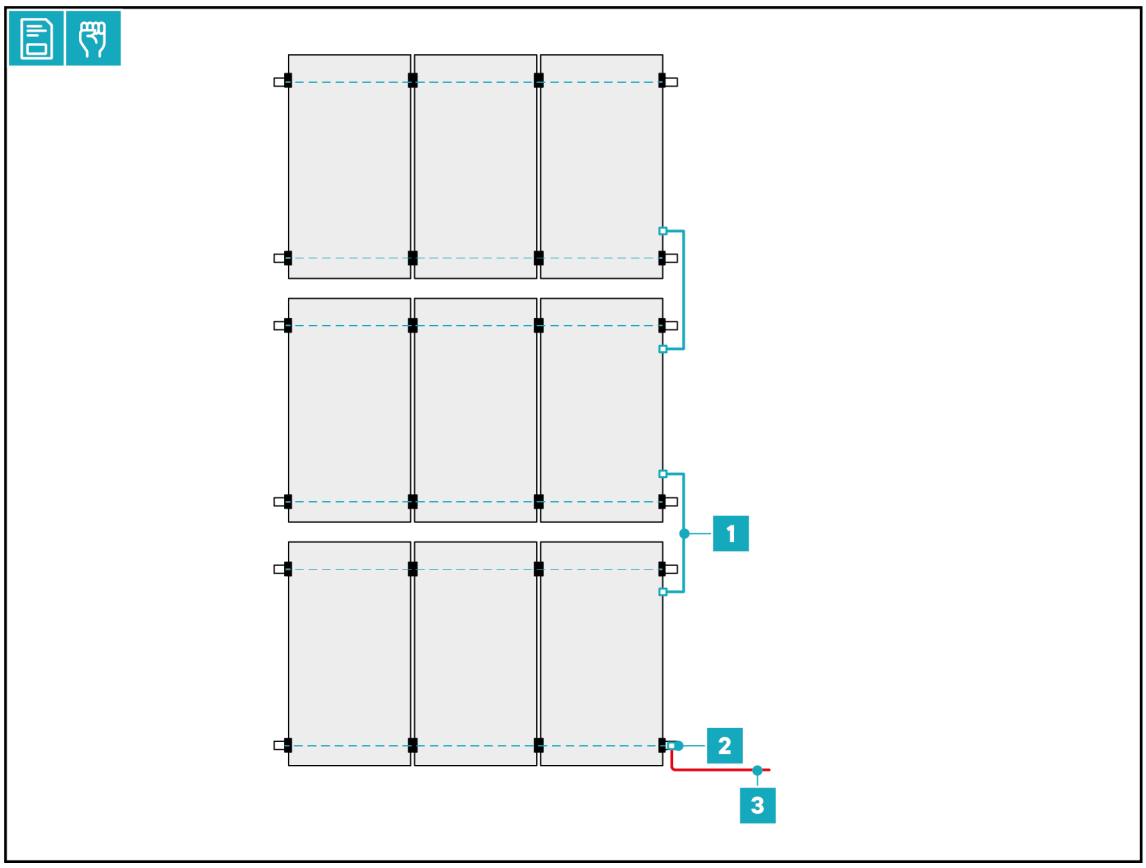


Bonding modules through module clamps
Bonding the individual module rows
Grounding the array by terminating to on-site ground

- Attach the T-Bolt Assembly 1 to the rail.
- Place the grounding wire 2 onto the rails.
- Attach the clamp 3 and tighten with the nut.
- Tighten the nut with 15 Nm or 11 ft lb.
- Connect the wire 2 to the on-site ground.

Bonding with bonding jumper (USA)

Depending on the installation, the modules per row are connected to each other by the module clamps.



Bonding modules through module clamps

Bonding the individual module rows

Grounding the array by terminating to on-site ground

For bonding and grounding always use certified UL 467 components (bonding jumper, grounding lug, copper wire).

- Bonding module rows with a bonding jumper 1.
- Grounding the array by terminating to on-site ground 3 with a suitable grounding lug 2.

MAINTENANCE

To prevent personal injury and property damage, the system must be inspected regularly by qualified personnel. The operator of the equipment must perform the following maintenance items once a year.

A test of the system is necessary after severe weather events (e.g. wind storm, snow, hail, etc.) as well as after extreme events such as a hurricane or earthquake.

Complete System

- Check all components of the system for damage.
- Replace damaged components as soon as possible.

Fittings

- Check all screw connections.
- Tighten loose screw connections. Confirm the tightening torque according to the assembly instructions.

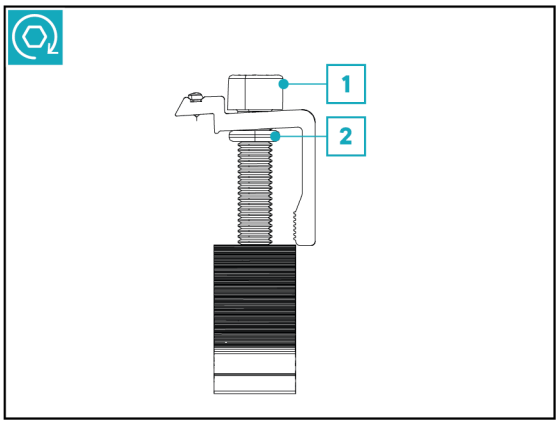
Standing Seam Clamps

DISMANTLING

Disassemble components

Disassembling the system: Carry out the assembly steps in reverse order.

Dismantle clamps



- Completely unscrew the screw 1 on the clamp.
- If clamps are re-installed:
  Make sure that the O-ring 2 is not lost.

APPENDIX

Declaration of Conformity TM

CE

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Manufacturer:	**AEROCOMPACT®**
Designation:	**CompactMETAL TM standing seam clamping system for metal roofs**
Identification code:	**TMDS08, TMR08, TMM08, TMRD08, TMK1508, TMK2008**
Applied standard:	**EN 1090**
Certification body:	**2397**

To the declaration of performance