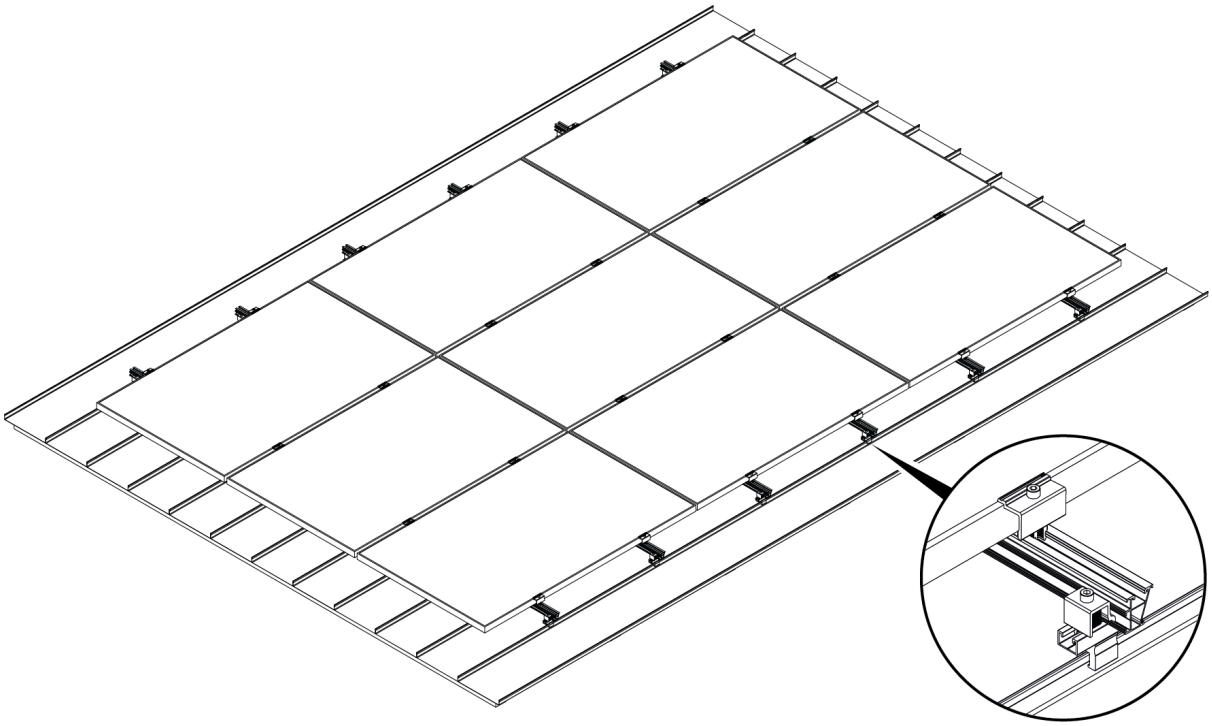
AEROCOMPACT®

ENGLISH



Assembly Instruction

COMPACT**METAL** TM

Version : 3.3
Language : English
Important! Read carefully before installation!

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Legal Notice

Subject to change due to technical modifications! These assembly instructions correspond to the technical status of the delivered product and not to the current development status at 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. Therefore, in case of doubt or contradiction, the authentic German version shall prevail. The assembly instructions are protected by copyright. The assembly instructions may not be copied, reproduced, microfilmed, translated or converted for storage and processing in EDP systems, either in part or in full, without the written permission of the company AEROCOMPACT Europe GmbH.

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TOC

General **4**
Applicable documents 4
Limitation of liability 4
Explanation of symbols 4

Safety **5**
Appropriate use 5
Personnel requirements 5
Working safely 5
Breakthrough protection 6
Personal protective equipment (PPE) 6

System Overview **7**
Basic components TM 7
System accessories 8
Mounting rails and accessories 8
Module accessories 8
Potential equalization 8

Assembly **9**
Assembly preparation 9
Required tools for assembly 9
Measure area 10
Mount seam clamps 11
TMD - Double seam clamp 11
TMM - Angle seam clamp 12
TMR - Round seam clamp 13
TMK1508 | TMK2008 - Sheet metal seam clamps 14
TMRD08 - Sheet metal seam clamp 15
Mount EL05 height adapter (optional) 16
Mount modules 17
Assemble first module row 17
Mount mounting rail (optional) 19
Mounting modules on mounting rail X40/X50 21
Assemble MLPE (module) 23
Assemble MLPE (Mounting rail) 24
Potential equalization 25

Maintenance, demounting and disposal **26**
Maintenance 26
Disassembly 26
Disposal 26

Appendix **27**
Declaration of Conformity TM 27

GENERAL

These assembly instructions describe the assembly procedure and must be strictly adhered to. Read these assembly instructions carefully before starting assembly. The basic prerequisite for safe working is compliance with all the safety and handling instructions in these assembly instructions. In addition, the local accident prevention regulations and general safety regulations for working in the area in which the product is used must be observed. Illustrations in these instructions are for basic understanding and may differ from the actual design.

APPLICABLE DOCUMENTS

In addition to this manual, you have received an AEROTOOL project report, planning documents and drawings. Always comply with the instructions and instructions contained therein.

LIMITATION OF LIABILITY

All information and instructions in these assembly instructions have been compiled taking into account the applicable standards and regulations, the state of the art and our many years of knowledge and experience. Liability provisions are stated in our **terms** and conditions and can be accessed at **www.aerocompact.com/downloads**.

EXPLANATION OF SYMBOLS

SYMBOLS FOR INSTRUCTIONS


Prerequisites for action instruction


Step by step action instruction


Results of action steps


This note provides useful information for smooth installation

SYMBOLS IN ILLUSTRATIONS - ACTIVITIES


Check AEROTOOL project report or planning documents


Visual inspection


Activity by hand


Observe right angle


Optional component,
optional mounting variation

SYMBOLS IN ILLUSTRATIONS - TOOLS


Measuring tape, measure


Cordless screwdriver, screwdriver


Pencil, mark


Use a torque wrench,
Observe torque


Chalk line


Use Allen key


Scissors, tin snips, cut to size

SAFETY

The following list serves as an indication of the most common safety hazards that can occur when installing these products. There is no liability for the completeness of the risks presented. A concrete check of the necessary safety measures is to be carried out by an entrusted specialist company prior to installation.

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.

NOTE ON THE PROCESSING OF THIN SHEET METAL SCREWS

ⓘ The attachment of thin sheet metal screws with impulse or impact screwdrivers is not permitted. The high speeds can cause damage to the screw bodies, the flashing and the sealing. Thin sheet metal screws may **only** be used **once,** as their performance is not guaranteed if they are reused.

☒ Apply pressure to the thin sheet metal screw and screw in at low speed (< 500 rpm).
☒ Then reduce the pressure and screw in the thin sheet screw at a higher speed.

PERSONNEL REQUIREMENTS

Installation may only be carried out by a specialist company and must be carried out strictly in accordance with the installation instructions, the project report and the planning documents. A specialist company is a company that is familiar with the installation and maintenance of photovoltaic systems as part of its normal business operations. National and local building regulations, standards and environmental protection must be complied with. Under no circumstances may the assembly personnel be under the influence of medication, alcohol, drugs or in any other condition that impairs consciousness (e.g. overtiredness). Trainee personnel may only carry out work under the instruction and supervision of specialist personnel who are authorized to train personnel.

WORKING SAFELY

The contractual partner shall ensure that the necessary safety measures and the relevant provisions of labor law and occupational health and safety law are observed during the assembly of products from AEROCOMPACT Europe GmbH. References by AEROCOMPACT Europe GmbH to the necessity of compliance with security measures are made without guarantee and without claim to completeness and serve only to support the contractual partner. The contractual partner is obliged to inform himself about all relevant regulations concerning occupational safety and to comply with them. AEROCOMPACT Europe GmbH expressly assumes no responsibility here and consequently no liability. Areas below the roof on which work is being carried out must be protected from any falling objects. Where this fails, the affected areas shall be closed to the public and to unauthorized personnel. 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. Only use suitable, intact and tested ladders. Set up and secure ladders according to instructions. Separate rules apply to mechanical climbing aids (elevators, cherry pickers, etc.). Never use the PV mounting system as a climbing aid. Keep sufficient distance from overhead electrical lines. Equipotential bonding between the individual system parts must be carried out in accordance with the respective country-specific regulations. When cutting materials, make sure that there are no burrs, especially at edges and corners, as there is a risk of injury.

BREAKTHROUGH PROTECTION

Skylights, skylights, large vents, etc. usually 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.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal protective equipment is used to protect people from health and safety hazards at work. Personnel must wear personal protective equipment during installation. Personal protective equipment is explained below:

Wear safety goggles when drilling and sawing.

Wear safety footwear.

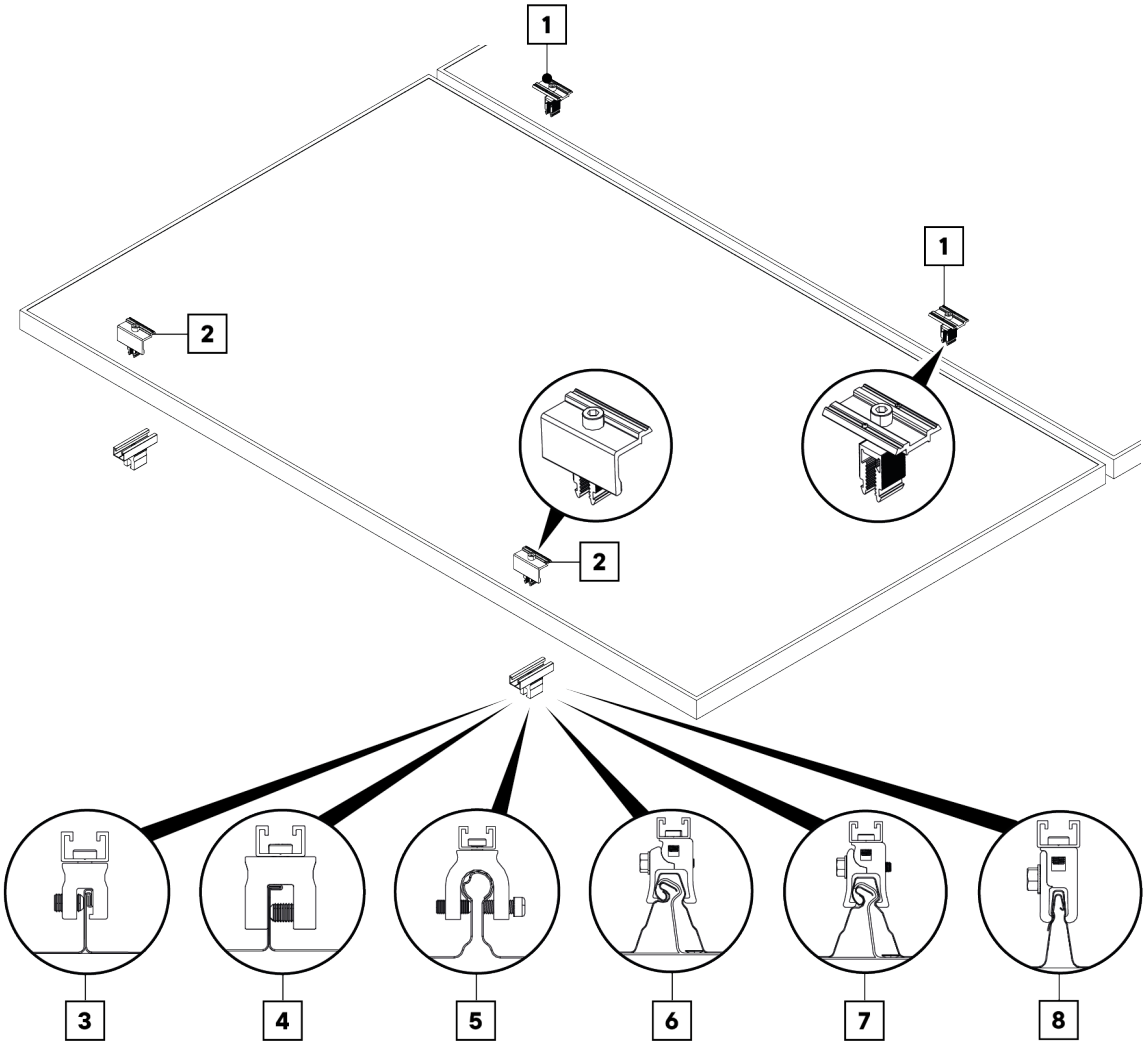
Helmets must be worn by all persons working on the construction site.

Wear cut-resistant work gloves during installation.

Use fall protection.

SYSTEM OVERVIEW

BASIC COMPONENTS TM



1 **CLM10**
Middle clamp Click 30 - 46 mm

2 **CLE10**
End clamp Click 30-46

3 **TMDS08**
Double-seam clamp with short rail

4 **TMM08**
Single-seam clamp with short rail

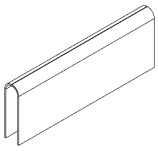
5 **TMR08**
Rounded-seam clamp with short rail

6 **TMK2008**
Sliding fold seam clamp large

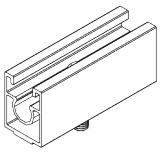
7 **TMK1508**
Sliding fold seam clamp medium

8 **TMRD08**
Sliding fold seam clamp small

SYSTEM ACCESSORIES



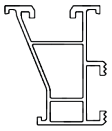
DSA10
Stainless steel saddle seam roof 55 mm (for copper roofing)



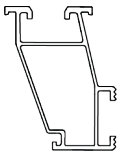
EL05
Height adapter 33 mm

MOUNTING RAILS AND ACCESSORIES

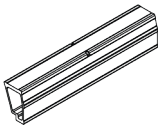
X40-XXXX
Mounting rail X40 1980 mm 3300 mm 3550 mm 4400 mm 4750 mm 5500 mm 5850 mm



X50-XXXX
Mounting rail X50 1980 mm 3300 mm 3550 mm 4400 mm 4750 mm 5500 mm 5850 mm

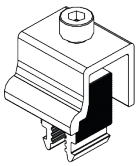


X60-XXXX
Mounting rail X60 1980 mm 3550 mm 4750 mm 5850 mm

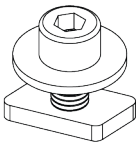


XPCN60
Rail connector X60

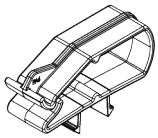
XPCN-XX
Rail connector X40, X50



XDL
Cross connector X40, X50, X60

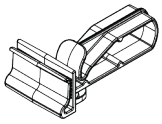


SCR-MA
Bolting set module accessories



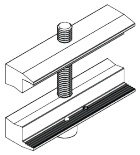
CLP-R
Cable clip rail

MODULE ACCESSORIES



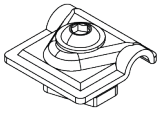
CLP-U
Cable clip universal

CLP-M
Cable tie clip module



BR-MI
Mounting bracket for MLPE

POTENTIAL EQUALIZATION



WCL8-10
Wire clamp 8 - 10 mm

ASSEMBLY

ASSEMBLY PREPARATION

Required tools for assembly

ⓘ Before starting the assembly, make sure that the assembly personnel are familiar with the proper use of the listed tools.

Bit hexagon socket 6 mm

Bit hexagon socket 5 mm

Measuring tape

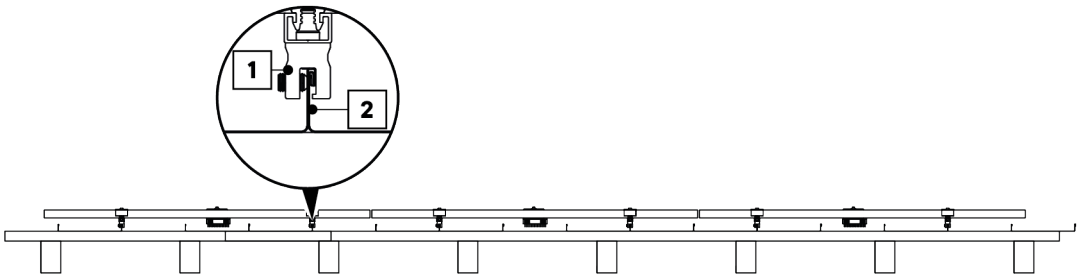
Bit TORX T40

Cordless screwdriver

Torque wrench 10 - 30 Nm with hexagon socket bit 6mm

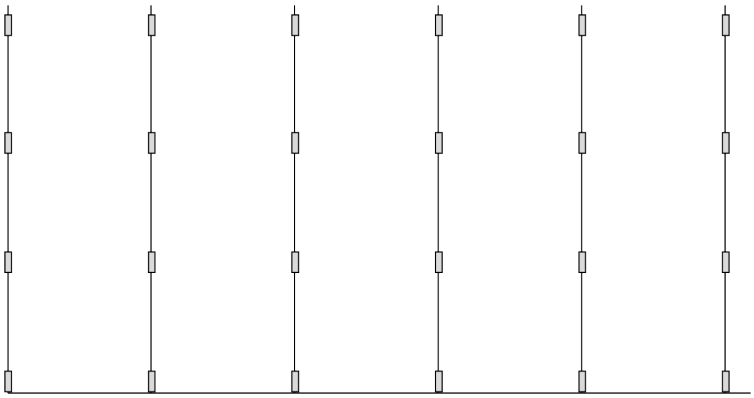
Open-end wrench SW13

MEASURE AREA



The seam clamp (1) 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 seam clamps must never be attached to the **sliding cl** amps or in the **joint area of** the sheets.



Take over the dimensions of the module field from the planning documents.

Determine module dimensions.

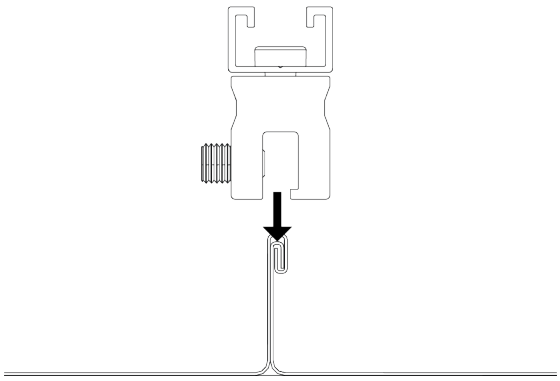
Determine the position of the roof seams of the metal roof.

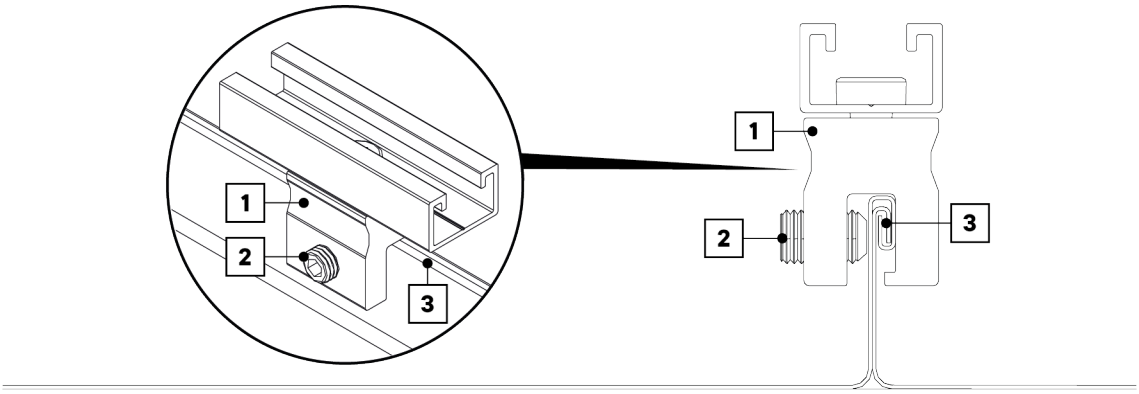
MOUNT SEAM CLAMPS

TMD - Double seam clamp

☐ Attach the double seam clamp to the roof seam.

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





☐ Tighten the grub screw (2) with a torque of 18 Nm or 13.28 lb ft until the double seam clamp (1) is flush with the roof seam (3).

☐ If the sheet thickness exceeds **0.7 mm**, the grub screw (2) must be tightened with a torque of 20 Nm or 14 lb-ft.

☐ Place the other double seam clamps at the marked points on the sheet metal roof.

ATTACH STAINLESS STEEL SADDLE

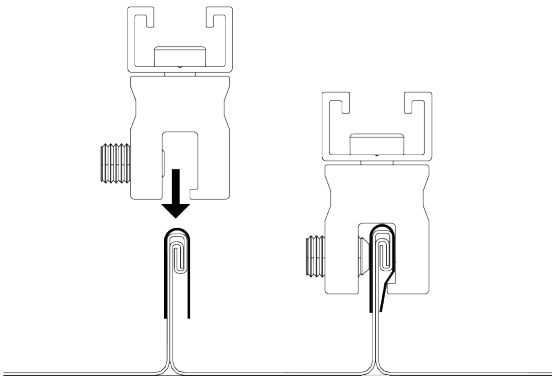
ⓘ The stainless steel saddle acts as galvanic insulation between the seam clamps and the sheet metal seam to prevent contact corrosion, especially on copper roofs.

☐ Install the stainless steel saddle flush on the roof seam.

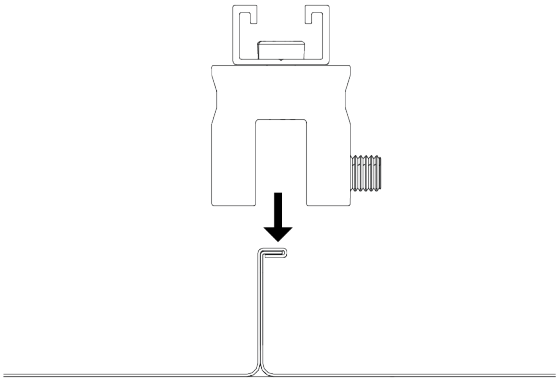
☐ Attach the double seam clamp to the roof seam.

☐ Tighten the grub screw so that the double seam clamp is flush.

☐ Then tighten the grub screw to a torque of 20 Nm or 14.75 lb ft.

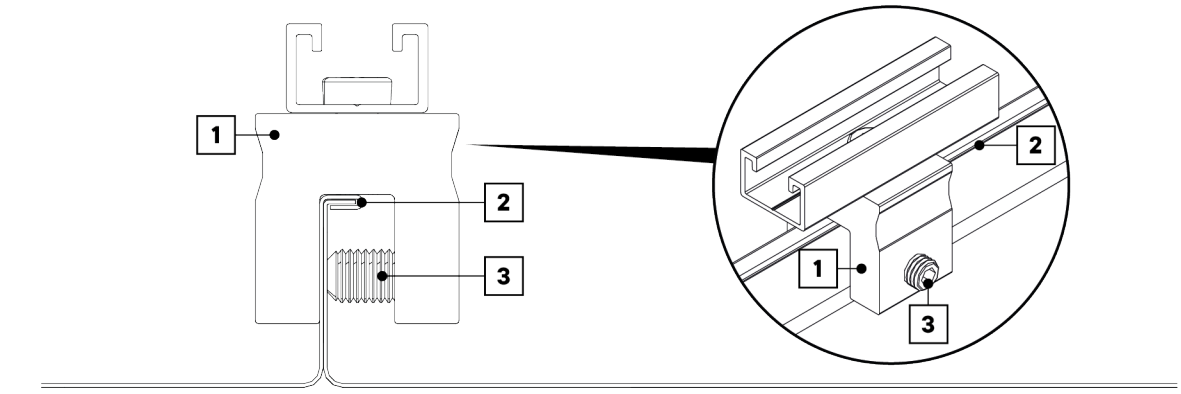


TMM - Angle seam clamp



Attach the angle seam clamp to the roof seam.

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

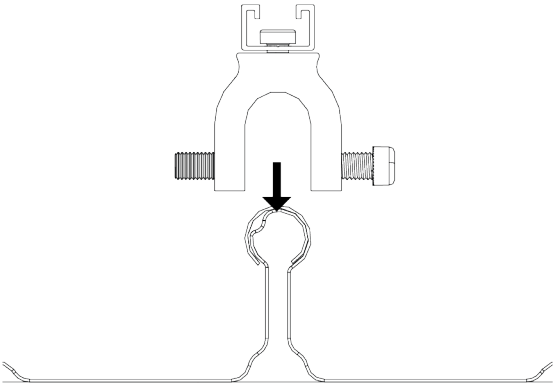


Tighten the grub screw (2) with a torque of 18 Nm or 13.28 lb ft until the angled seam clamp (1) is flush with the roof seam (3).

If the sheet thickness is more than **0.7 mm**, the grub screw (2) must be tightened to a torque of 20 Nm or 14 lb-ft.

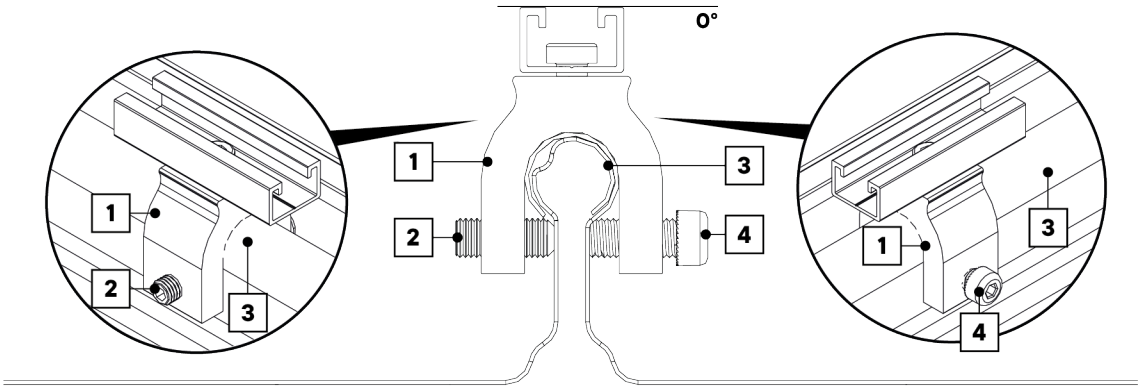
Place the other angle seam clamps at the marked points on the sheet metal roof.

TMR - Round seam clamp



☐ Attach the round seam clamp to the roof seam.

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

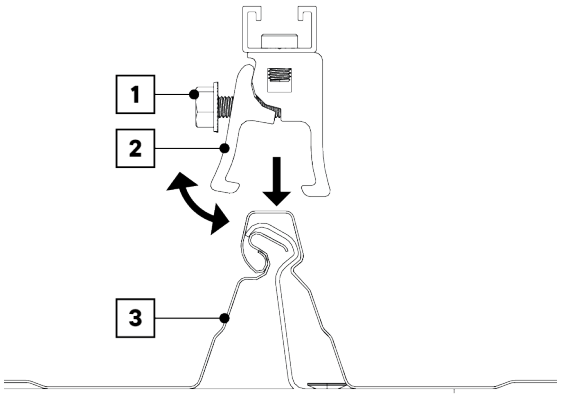


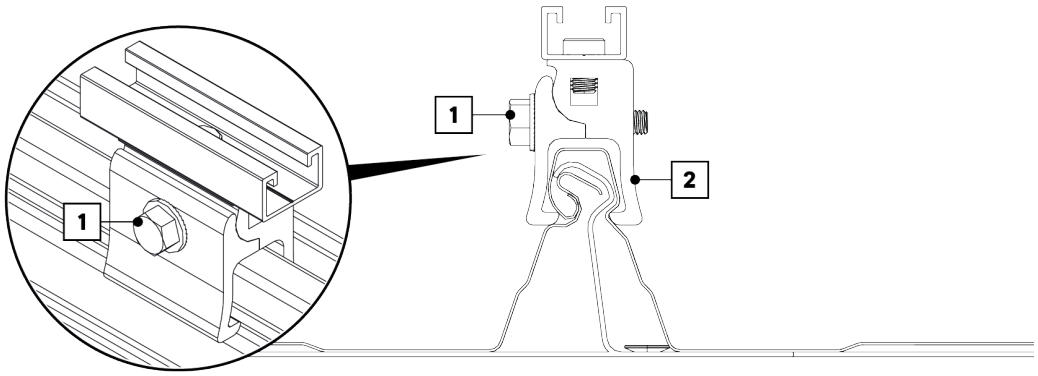
☐ Tighten the grub screw (2) and the Allen screw (4) evenly until the round seam clamp (1) just rests on the roof seam (3).
☐ Tighten both screw (2) and (4) with a torque of 18 Nm or 13.28 lb ft.
☐ If the sheet thickness exceeds **0.7 mm**, the grub screw (2) must be tightened with a torque of 20 Nm or 14 lb ft.
☐ Place the other round seam clamps at the marked points on the sheet metal roof.

TMK1508 | TMK2008 - Sheet metal seam clamps

- Loosen screw (1).
- Insert the sheet metal seam clamp (2) at the sheet metal seam (3)

Attention!
The orientation of the clamp must be observed. The sheet metal seam clamp should be positioned so that the screw (1) points in the direction of the overlapping sheet metal (3).

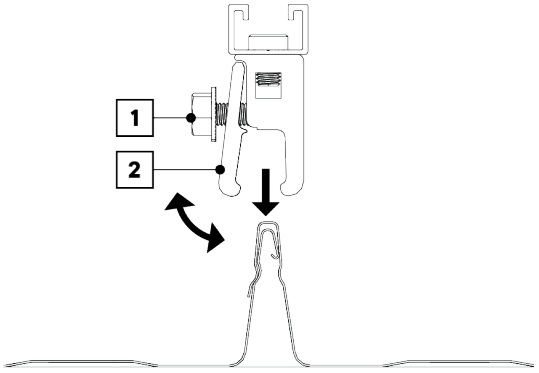


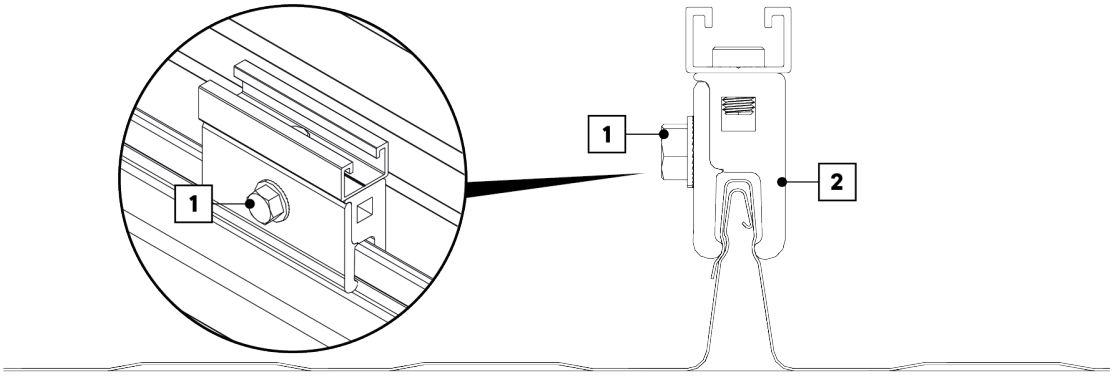


- Position the sheet metal folding clamp (2) according to the illustration and tighten the screw (1) with a torque of 18 Nm or 13.28 lb ft.
- If the sheet thickness exceeds **0.7 mm**, the grub screw (2) must be tightened with a torque of 20 Nm or 14 lb ft.
- Attach the other sheet metal seam clamps to the marked locations on the sheet metal roof.

TMRD08 - Sheet metal seam clamp

- Loosen screw (1).
- Open the sheet metal seam clamp (2) and attach it to the sheet metal seam according to the illustration.

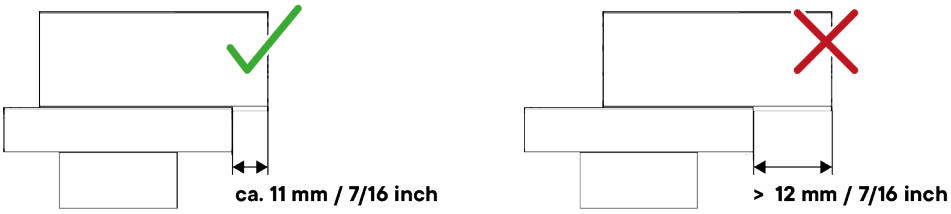




- Position the sheet metal folding clamp (2) according to the illustration and tighten the screw (1) with a torque of 18 Nm or 13.28 lb ft.
- If the sheet thickness is more than **0.7 mm**, the grub screw (2) must be tightened to a torque of 20 Nm or 14 lb-ft.
- Attach the other sheet metal seam clamps to the marked locations on the sheet metal roof.

MOUNT EL05 HEIGHT ADAPTER (OPTIONAL)

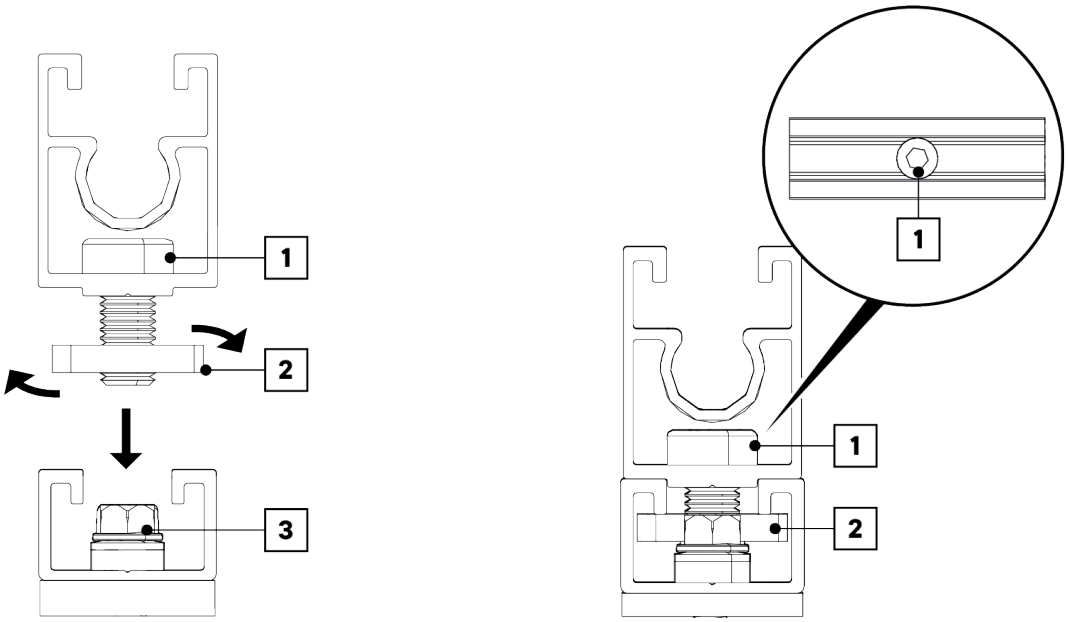
ⓘ The **EL05** height adapter is mounted to create an extended distance between the roof surface and the modules.



ⓘ The fastening screw of the short rail prevents the EL05 height adapter from being placed centrally.

- When mounting, make sure that the EL05 height adapter rests as fully as possible on the short rail.
- The maximum projection of the height adapter is 11 mm or 7/16 inch.

MOUNTING HEIGHT ADAPTER



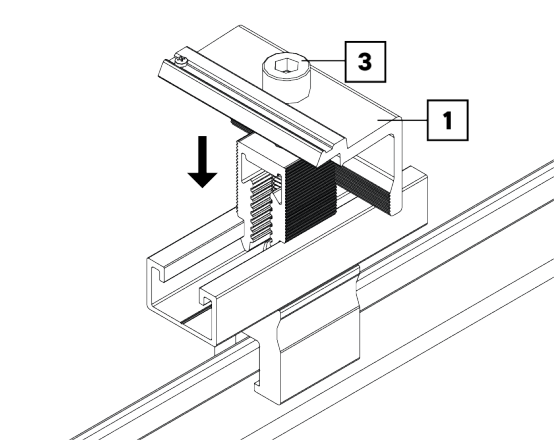
- Insert the hammerhead screw (2) in the mounting channel of the short rail.
- Make sure that the hammerhead screw is placed next to the fixing screw (3) **(ridge side)**.
- Tighten the screw (1) of the height adapter with a torque of 15 Nm or 11 ft lbs.

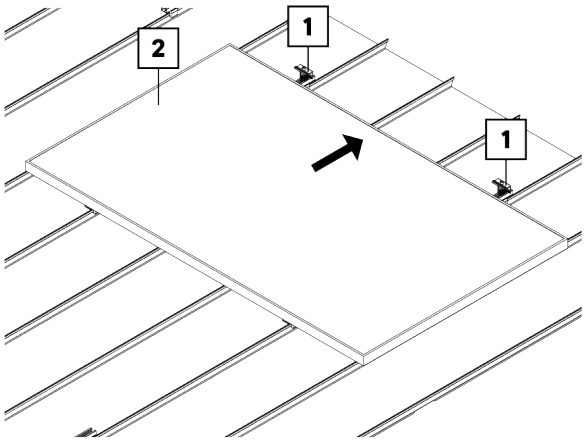
MOUNT MODULES

ⓘ When mounting the modules, make sure that the module clamps are mounted as centrally as possible on the short rail / on the height adapter. Refer to the planning documents for the exact positions of the module terminals.

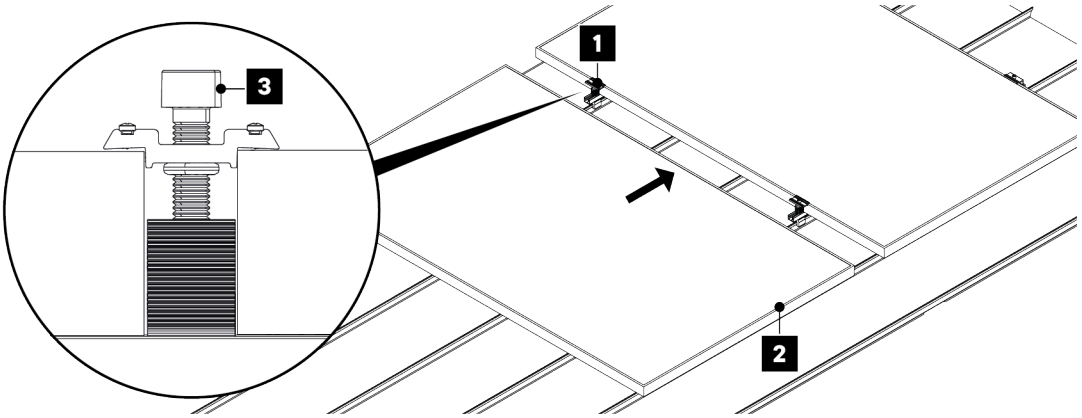
Assemble first module row

ⓘ Do not step on the modules when mounting them.

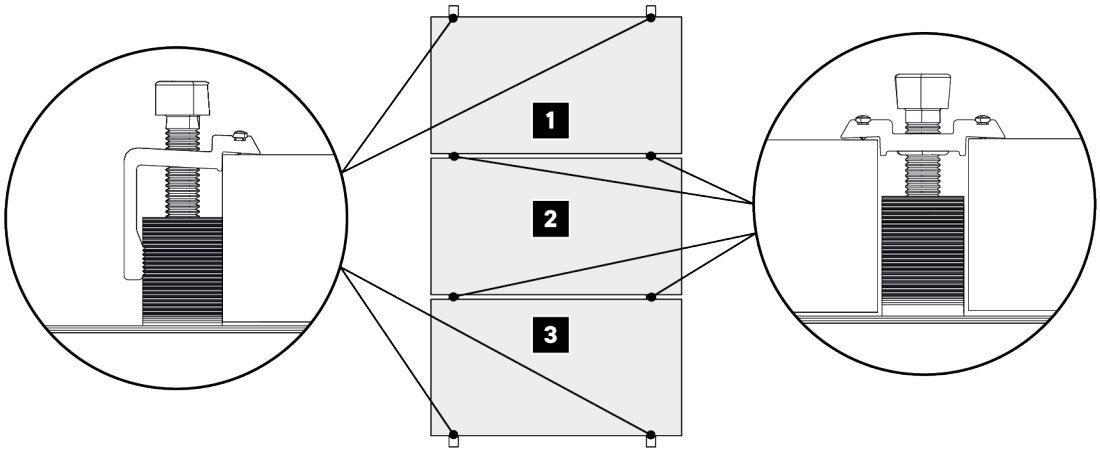




- ☐ Center the end clamps (1) on the outermost row of sheet metal seam clamps.
- ☐ Place the first module (2).
- ☐ Tighten the screws of the end clamps (3) with a torque of 15 Nm or 11 ft lbs.



- ☐ After the first module, attach middle clamps (1) to the short rails/height adapters.
- ☐ Place the second module (2) flush against the middle clamps.
- ☐ Tighten the screws (3) on the middle clamps to 15 Nm or 11 ft lbs.



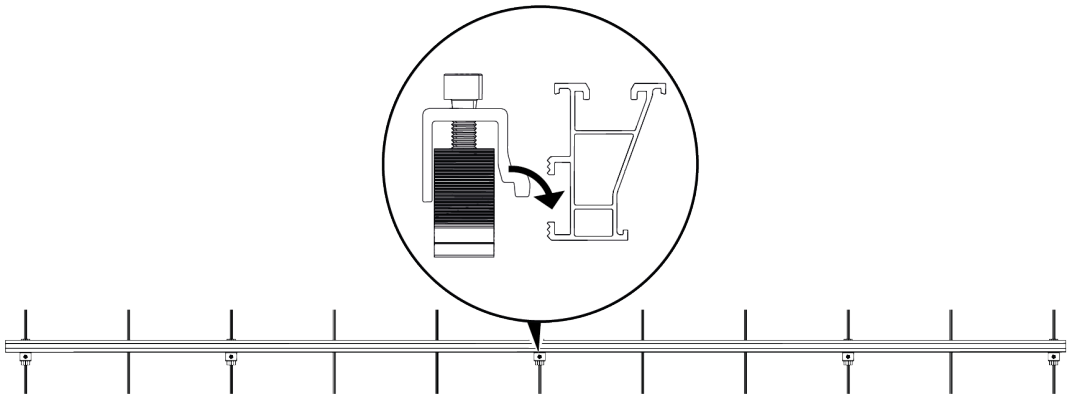
☒ Lay the modules row by row.
☒ Tighten the screws on the terminals to a torque of 15 Nm or 11 ft lbs.

REPOSITION / REPLACE CLAMPS

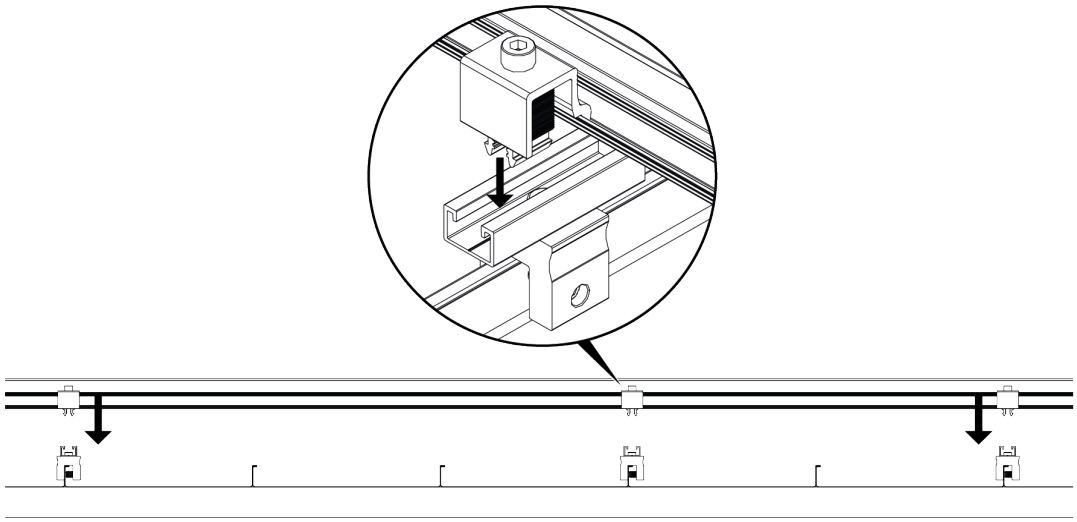
☒ Demount clamp: Unscrew the screw at the clamp completely.
☒ Depending on the mounting situation, squeeze the clamp laterally and pull it out or pull it laterally out of the rail.

MOUNT MOUNTING RAIL (OPTIONAL)

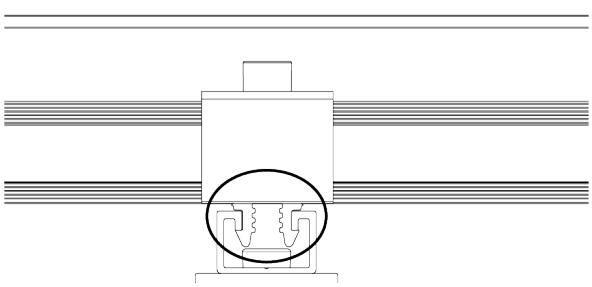
ⓘ The mounting rail is attached to the short rail with a cross connector in each case. In order to ensure safe thermal separation, the mounting rails must not be longer than **3 m** in the composite.

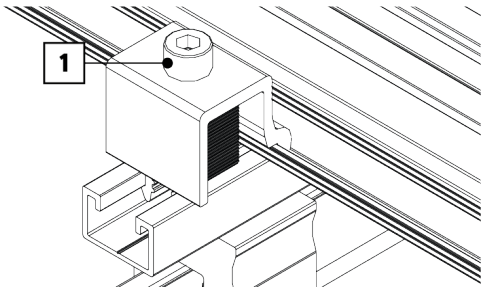


Attach a cross connector to the mounting rail for each short rail in a row.



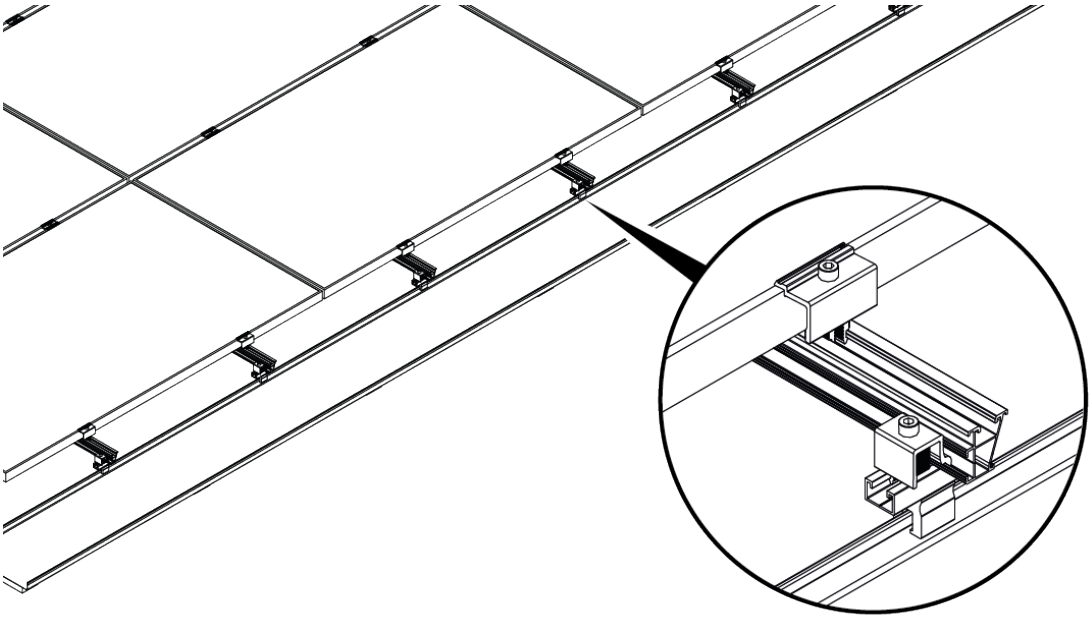
Attach the cross connector to the short rail in each case.





Make sure that the cross connector is correctly attached.

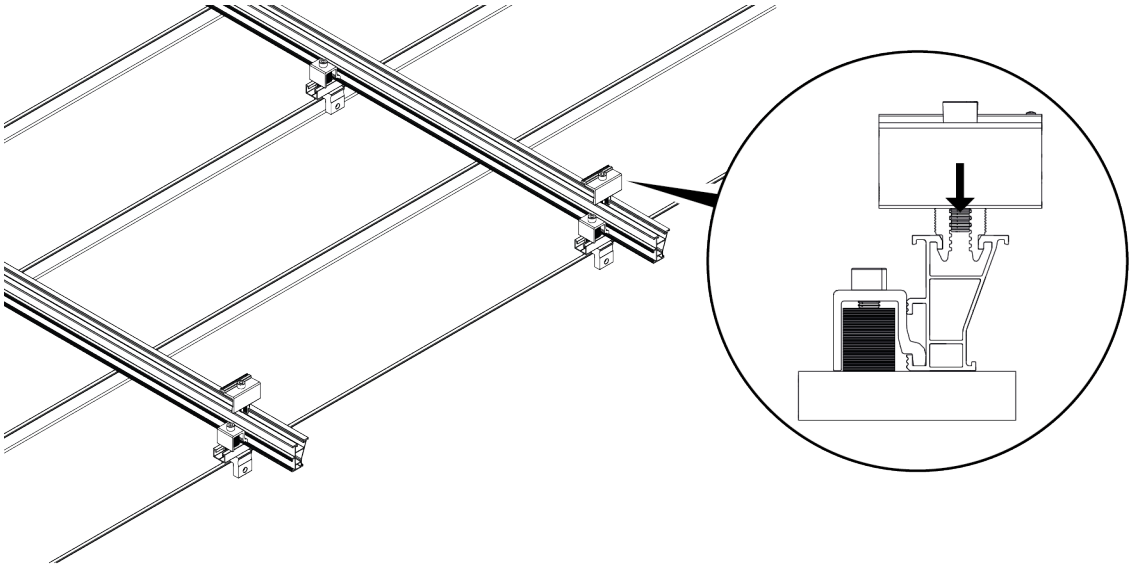
Tighten the Allen screw (1) on each of the cross connectors to 15 Nm or 11 ft lb.



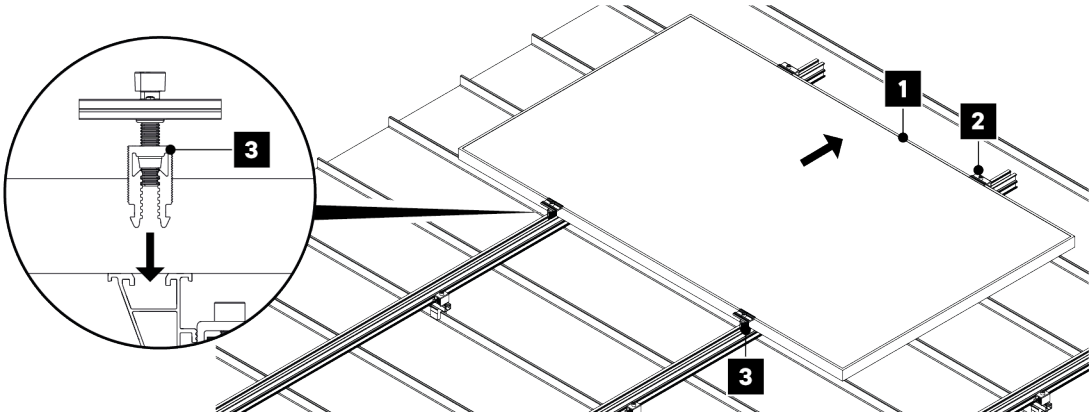
It is important to ensure that the cross connector is mounted on the downhill side.

MOUNTING MODULES ON MOUNTING RAIL X40/X50

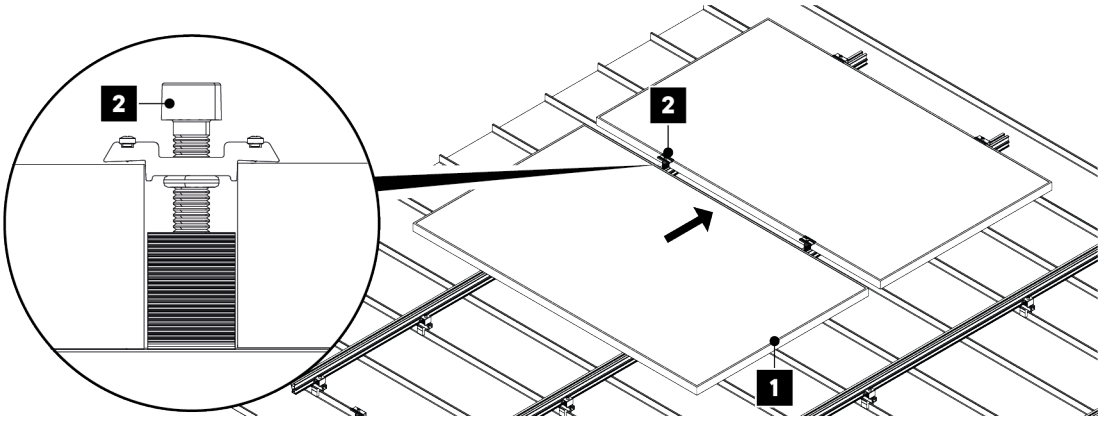
ⓘ Do not step on the modules when mounting them. Refer to the AEROTOOL report for the exact positions of the module clamps.



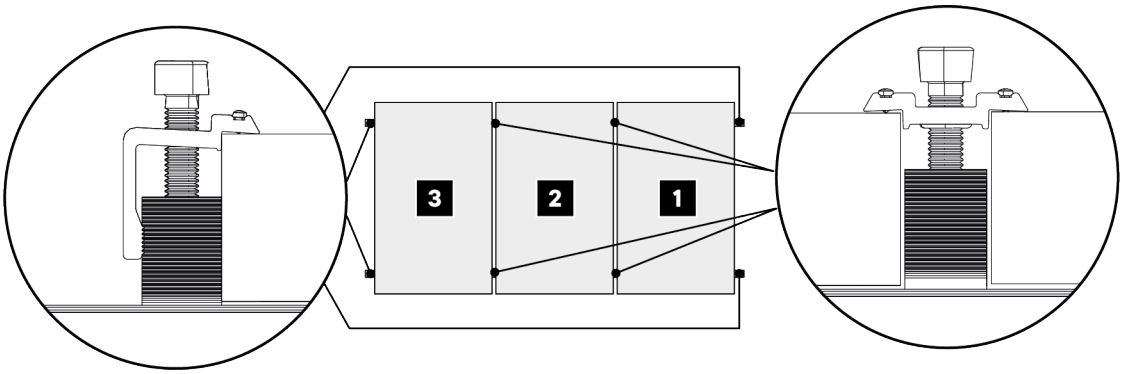
☑ Attach the end clamps to the edge of the module field on the mounting rails.



☑ Place module (1) on top.
☑ Tighten the screws (2) on the end clamps to 15 Nm or 11 ft lbs.
☑ Attach center clamps (3) after the first module.



- Place the second module (1) flush against the center clamps.
- Tighten the screws on the middle clamps (2) to 15 Nm or 11 ft lbs.



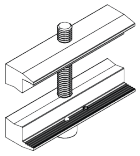
- Lay the modules row by row.
- Make sure that the modules are mounted in a line.
- Tighten the screws on the clamps to 15 Nm or 11 ft lbs each.

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.

ASSEMBLE MLPE (MODULE)

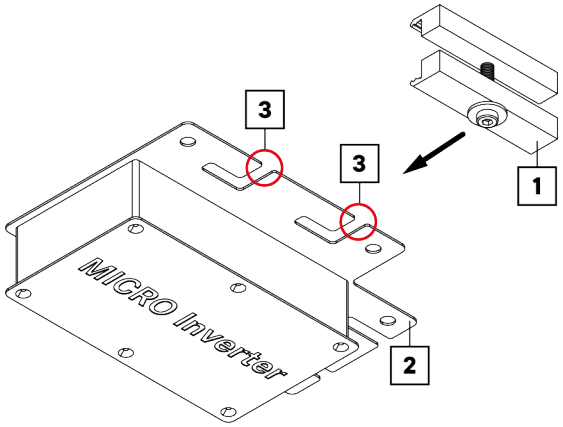
REQUIRED COMPONENTS



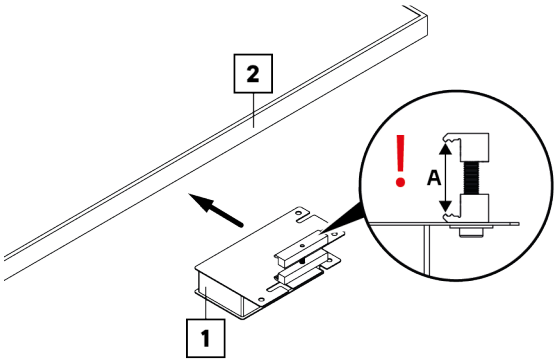
BR-MI
Mounting bracket for MLPE

ASSEMBLY

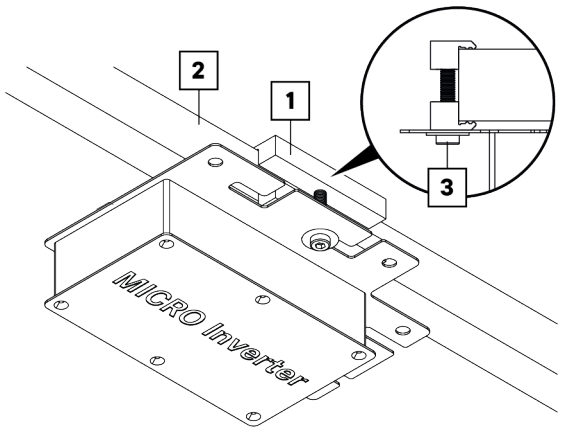
- ☐ Insert the clamp (1) into the device (3) of the MLPE (2) as shown in the illustration.



- ☐ Guide the MLPE (1) with the clamp to the underside of the module frame (2).
- ☐ The module frame height must not exceed **A = 48 mm**.



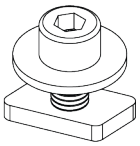
- ☐ Insert the clamp (1) so that the module frame (2) is positioned between the upper and lower attachment of the clamp and rests on it.
- ☐ Then tighten the screw (3) with a torque of 15 Nm or 11 lb-ft.
- ☑ The MLPE is now mounted.



ASSEMBLE MLPE (MOUNTING RAIL)

ⓘ The **SCR-MA** screw connection is intended for the mounting rails **X40**, **X50** and **X60**. In the following steps, the assembly is shown using an **X40** mounting rail. The procedure is identical for **X50** and **X60** mounting rails.

NECESSARY COMPONENTS

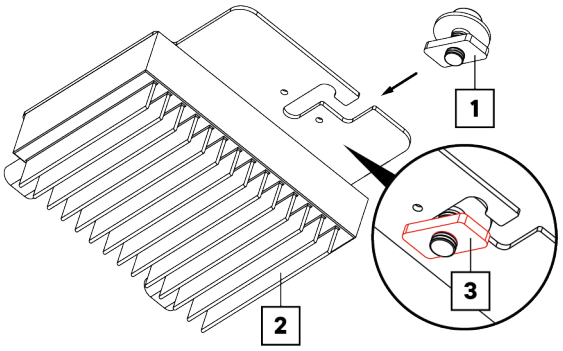


SCR-MA
Bolting set module accessories

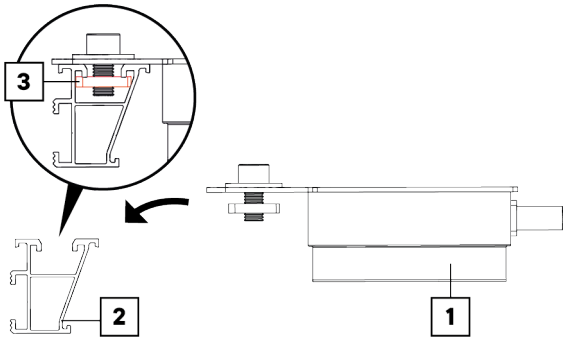
X40-XXXX
Mounting rail X40 1980 mm 3300 mm 3550 mm 4400 mm 4750 mm 5500 mm 5850 mm

ASSEMBLY (EXAMPLE MOUNTING RAIL X40)

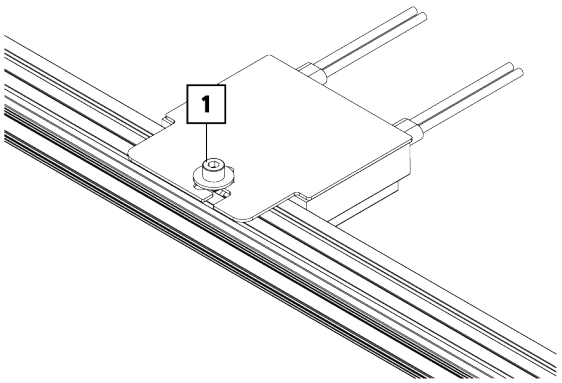
- ☐ Insert the screw connection (1) into the MLPE device (2) as shown in the illustration.
- ☐ Ensure that the plate (3) is pointing downwards.



- ☐ Guide the MLPE (1) with the screw connection to the top of the mounting rail (2).
- ☐ Insert the plate (3) as shown in the illustration.

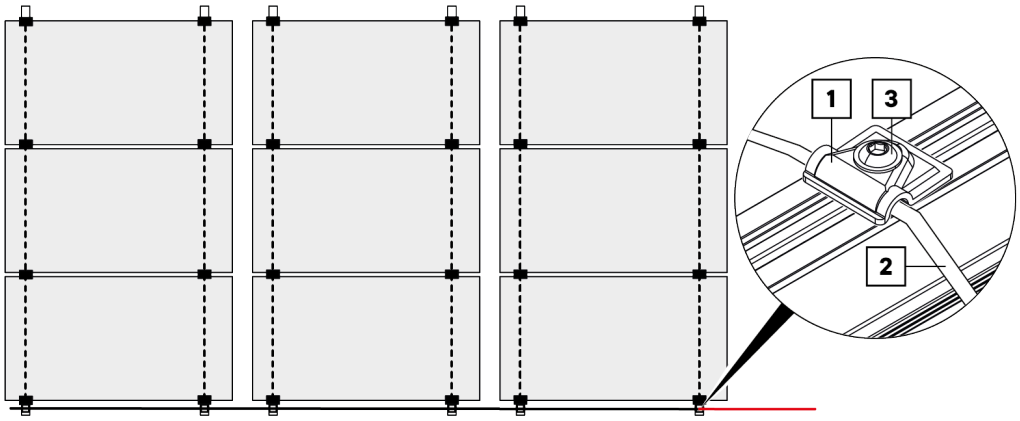


- ☐ Then tighten the Allen screw (1) with a torque of 15 Nm or 11 lb-ft.
- ☑ The MLPE is now mounted.



POTENTIAL EQUALIZATION

ⓘ For equipotential bonding, **AEROCOMPACT Europe GmbH** provides the wire clamp and aluminum wire as accessories. These are each mounted on the mounting rail, depending on the mounting situation, the module rows are connected to each other by the module clamps.



Exemplary representation

ⓘ Dotted lines - connection by module clamps
Continuous lines (black) - connection module rows
Continuous lines (red) - connection of equipotential bonding **on-site**

- Attach the wire clamp (1) to the mounting rail.
- Insert the wire (2) at the wire clamp.
- Tighten the screw (3) with a torque of 10 Nm or 7.37 ft lb.
- Connect the wire (2) to the on-site equipotential bonding.

MAINTENANCE, DEMOUNTING AND DISPOSAL

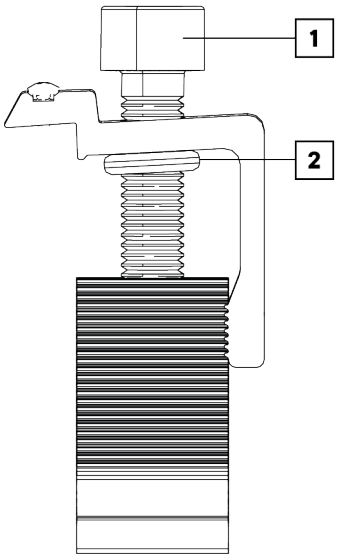
MAINTENANCE

To prevent personal injury and damage to property, the system must be checked regularly by qualified personnel and annual maintenance is required.

- Check all system components for damage. In the event of damage, replace the affected component immediately.
- Check all screw connections. Tighten loose screw connections, observing the tightening torque specified in the installation instructions.
- Checking all components for damage caused by the weather, animals, dirt, deposits, build-up, vegetation, roof penetrations, seals, stability and corrosion. In the event of damage, clean, repair or replace the affected component.

DISASSEMBLY

DISMANTLING THE CLAMPS (EXAMPLE)



ⓘ To disassemble the system, carry out the assembly steps in reverse order.

☐ Unscrew the screw (1) on the clamp.
☐ When reusing the clamp, ensure that the O-ring (2) is not lost.

ⓘ If the components are reused, it must be noted that these are wearing parts. Therefore, the AEROCOMPACT Europe GmbH cannot assume any responsibility for checking the degree of wear. For this reason, any liability or warranty of AEROCOMPACT Europe GmbH in case of reuse is excluded and reuse is at the installer's own responsibility.

DISPOSAL

Unless a take-back or disposal agreement has been made, disassembled components should be recycled:

- Give metals and plastic elements for recycling.
- Dispose of remaining components sorted according to material composition.

ⓘ Incorrect disposal may result in hazards to the environment. In case of doubt, obtain information on environmentally sound disposal from the local municipal authority or from specialized disposal companies.

APPENDIX

DECLARATION OF CONFORMITY TM

CE

Manufacturer:	**AEROCOMPACT Europe GmbH**
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**

For the declaration of performance

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