



Connecting Strength



Assembly instructions

InsertionRail System

on trapezoidal and corrugated
sheet metal with MultiRail



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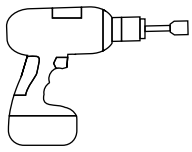
Quality tested - several certifications

K2 Systems stands for secure connections, highest quality and precision. Our customers and business partners have known that for a long time. Independent institutes have tested, confirmed and certified our capabilities and components.

Please find our quality and product certificates under:

www.k2-systems.com/en/technical-information

Tools overview



6 mm



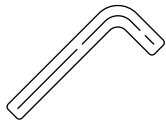
8 mm



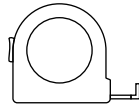
6 - 35 Nm
(4.5 - 22.2 lb-ft)



4/6 mm



4/6 mm



≥ 3.0 m



≥ 6.0 m

General safety information

Please note that our general mounting instructions must be followed at all times and can be viewed online at [k2-systems.com](https://www.k2-systems.com)

- The equipment may only be installed and operated by qualified and adequately trained installers.
- Prior to installation, ensure that the product complies with on-site static loading requirements. For roof-mounted systems, the roof load-bearing capacity must always be checked.
- National and local building regulations and environmental requirements must be adhered to.
- Compliance with health and safety regulations, accident prevention guidelines and applicable standards is required.
 - Protective equipment such as safety helmet, boots and gloves must be worn.
 - Roofing works must be in accordance with roofing regulations utilising fall protection safeguards when eaves height exceeds 3 m.
 - At least two people must be present for the duration of the installation work in order to provide rapid assistance in the event of an emergency.
- K2 mounting systems are continuously developed and improved and the installation process may thereby change at any time. Prior to installation consult our website at www.k2-systems.com/en/technical-information for up-to-date instructions. We can send you the latest version on request.
- The assembly instructions of the module manufacturer must be adhered to.
- Equipotential bonding/grounding/earthing between individual parts is to be performed according to country specific standards, as well as national laws and regulations.
- At least one copy of the assembly instructions should be available on site throughout the duration of the installation.
- Failure to adhere to our general safety and assembly instructions and not using all system components, K2 is not liable for any resulting defects or damages. We do not accept liability for any damage resulting in the use of competitor's parts. Warranty is excluded in such cases.
- K2 Systems GmbH reserves the right to exclude liability in case of disregard of our General Safety Instructions as well as in case of installation or mounting of components of a competitor.
- If all safety instructions are adhered to and the system is correctly installed, there is a product warranty entitlement of 12 years! We strongly recommend reviewing our terms of guarantee, which can be viewed at [k2-systems.com/en/warranty-terms-and-conditions](https://www.k2-systems.com/en/warranty-terms-and-conditions). We will also send this information on request.
- Dismantling of the system is performed in reverse order to the assembly.
- K2 stainless steel components are available in different corrosion resistance classes. Each structure or component must be carefully checked for possible corrosion exposure.

The following guidelines apply



This system can be used without further testing by K2 systems under the following standard conditions. It is also suitable for higher requirements, however if a value exceeds the standard conditions, please contact K2 Systems.



Planning with K2 Base

We recommend our free online software K2 Base for the planning. In five steps, you can plan the right assembly system and get a construction recommendation, parts list and the structural analysis report. Simply register and start planning:

base.k2-systems.com



Roof requirements

- Sufficient holding force of the roof covering on the supporting or substructure
- Roof pitch: 5 - 75°
- Trapezoidal sheet or corrugated sheet thickness:
≥ 0.4 mm steel or ≥ 0.5 mm aluminium
- Steel grade min. S235 according to DIN EN 10025-1
- Minimum tensile strength aluminium 165 N/mm²
- Trapezoidal sheet:
 - Minimum crest width: 22 mm
 - Plane support around the borehole:
 $\varnothing \geq 20 \text{ mm}$
- Corrugated sheet:
 - High bead radius: $r = 22 - 45 \text{ mm}$



Structural requirements

The static verification of the components is automatically calculated for the respective location by the K2 Base planning software. The design is provided by means of a project report and must be adhered to.



Important mounting instructions

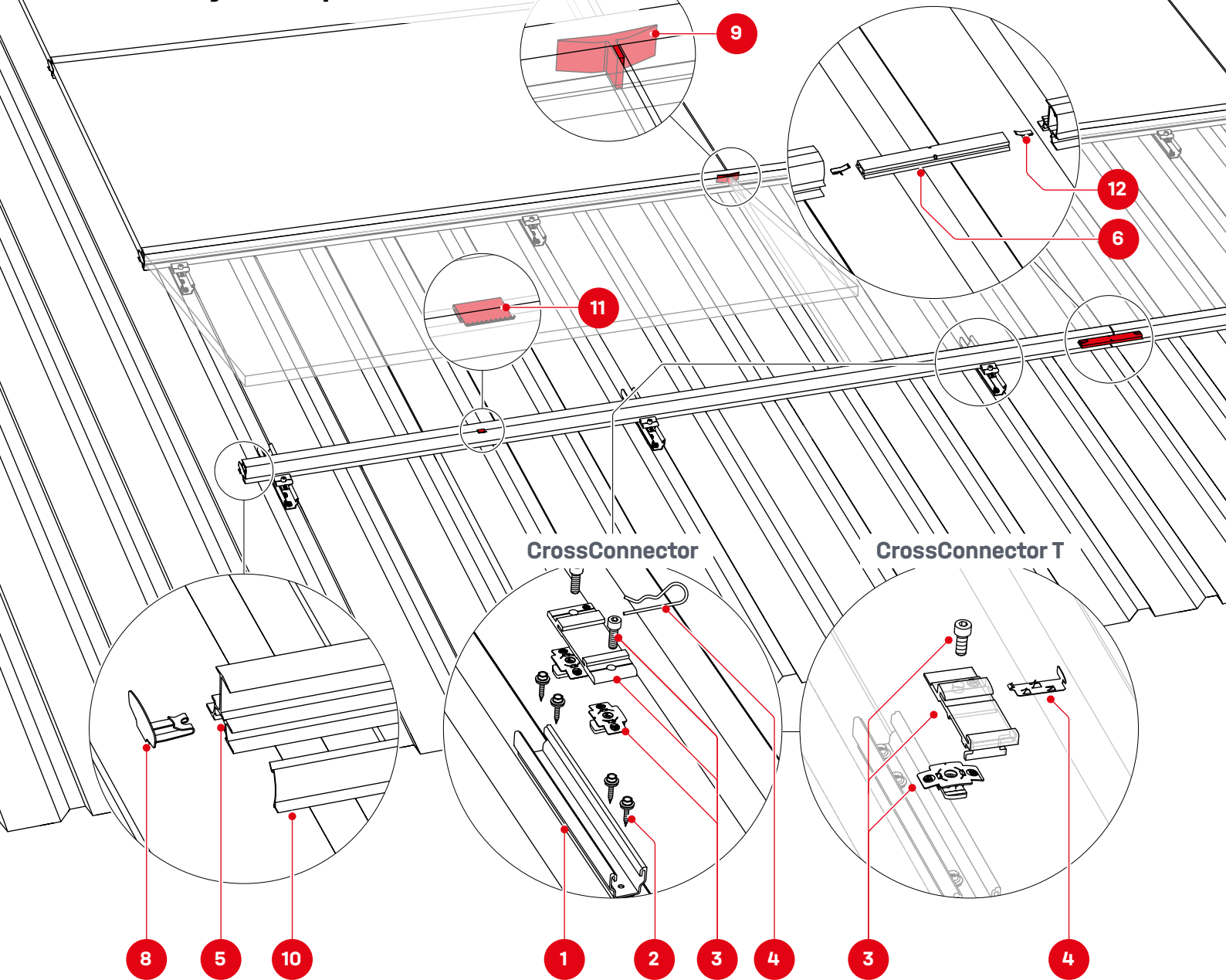
- On site, the general standards and regulations for lightning protection must be observed and, if necessary, a specialist must be called in to draw up a lightning protection concept (use lightning protection terminal if necessary). Country-specific regulations must be observed.
- If the trapezoidal sheet metal is fastened with calottes, the MultiRails must not be screwed onto them. It is absolutely necessary to measure the distances in advance.
- Fastening of the MultiRails on trapezoidal or corrugated sheet metal with building authority approved thin sheet metal screws.
- Thermal separation of module blocks:
 - MultiRail:
max. 13.6 m
 - Insertion rails / module level:
max. 21.0 m

First/last MultiRail vertical axis

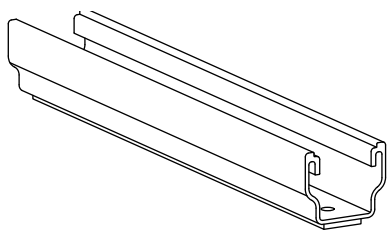
- For aesthetic reasons, the first and last MultiRail row can be moved further inwards. This makes the rail ends less visible. The distances to the next MultiRail row change in this area.
 - **Standard dimension D_R**
= Width/Length_{Module} - 236,5 mm
Please note that a minimum distance of 20 mm (standard 64 mm) must be maintained between the CrossConnector and the end of the rail, see also step 3a, page 11.
 - Calculation example for modified distance dimension with 20 mm rail projection:
 $64 \text{ mm} - 20 \text{ mm} = 44 \text{ mm}$
 $236,5 \text{ mm} - 44 \text{ mm} = 192,5 \text{ mm}$
The distance dimension D_{R1} is as follows:
 $D_{R1} = \text{Width/Length}_{\text{Module}} - 192,5 \text{ mm}$
 $D_{R2} = \text{Width/Length}_{\text{Module}} - 236,5 \text{ mm}$

Components

Assembly on trapezoidal sheet metal



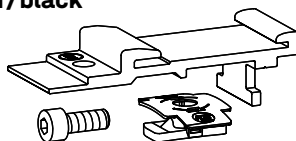
- 1** 2002793
MultiRail 25



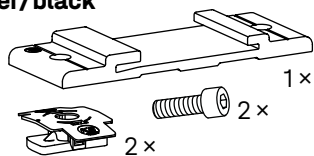
- 2** 1005207
Thread-forming metal screw 6x25



- 3** 2004812/2004813
CrossConnector-T Set silver/black



- 2004374/2004375
CrossConnector 2.0 Set silver/black

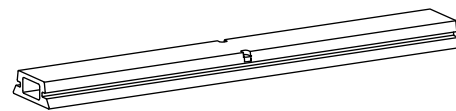
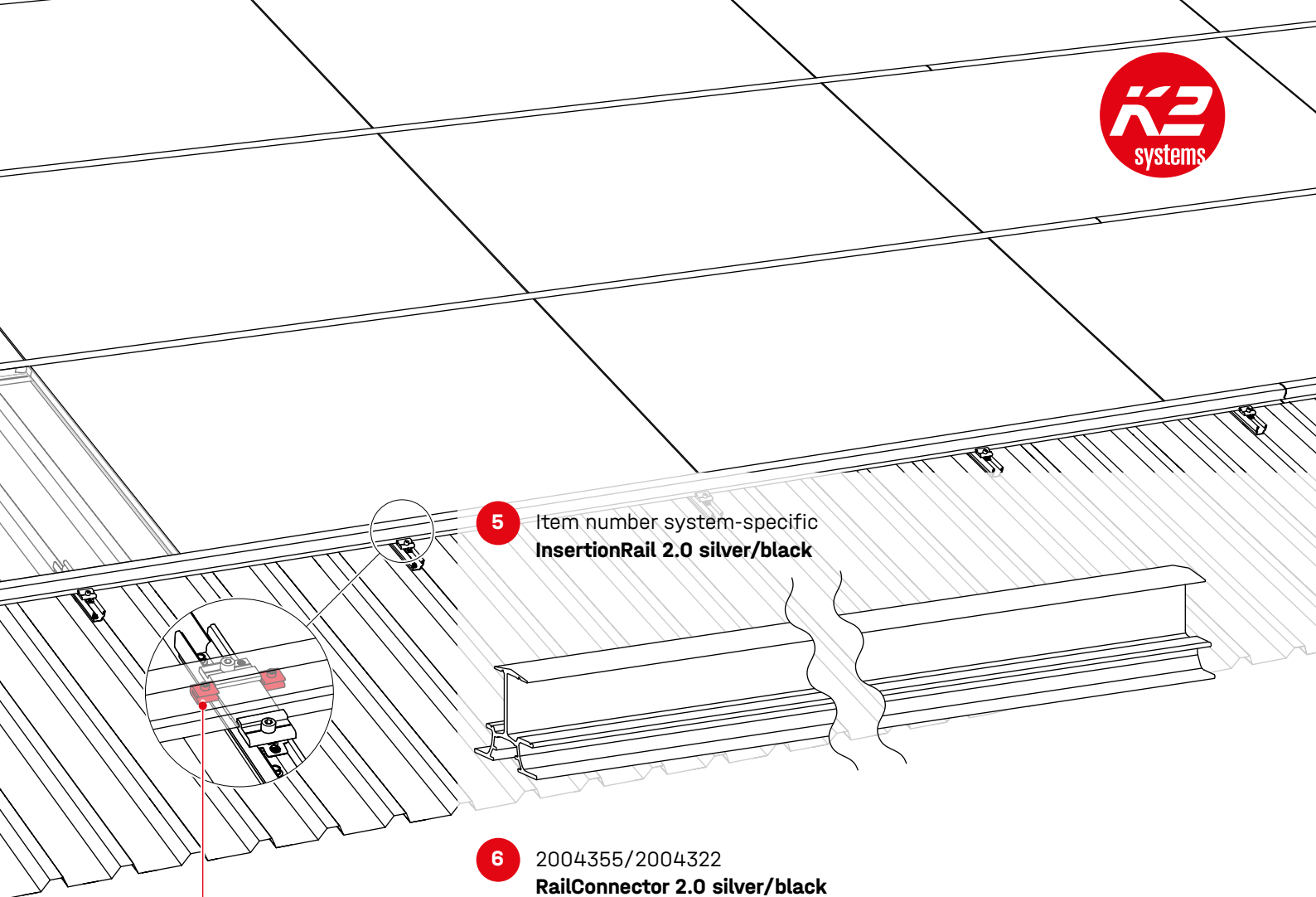


- 4** 2004916
CrossConnector Clip

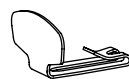


- 2001196
Spring Plug

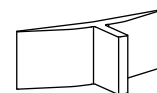




8 2004693/2004692
EndStop S silver/black

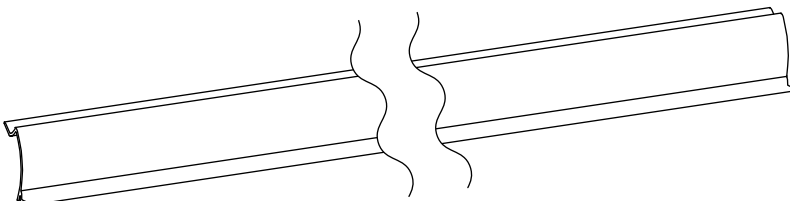


9 2004290
ModuleSafety

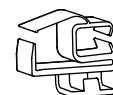


Optional

10 Item number system-specific
InsertionRail 2.0 Cover silver/black



2005041
Alpha PV-Clip



11 2000056
TerraGrif K2U17

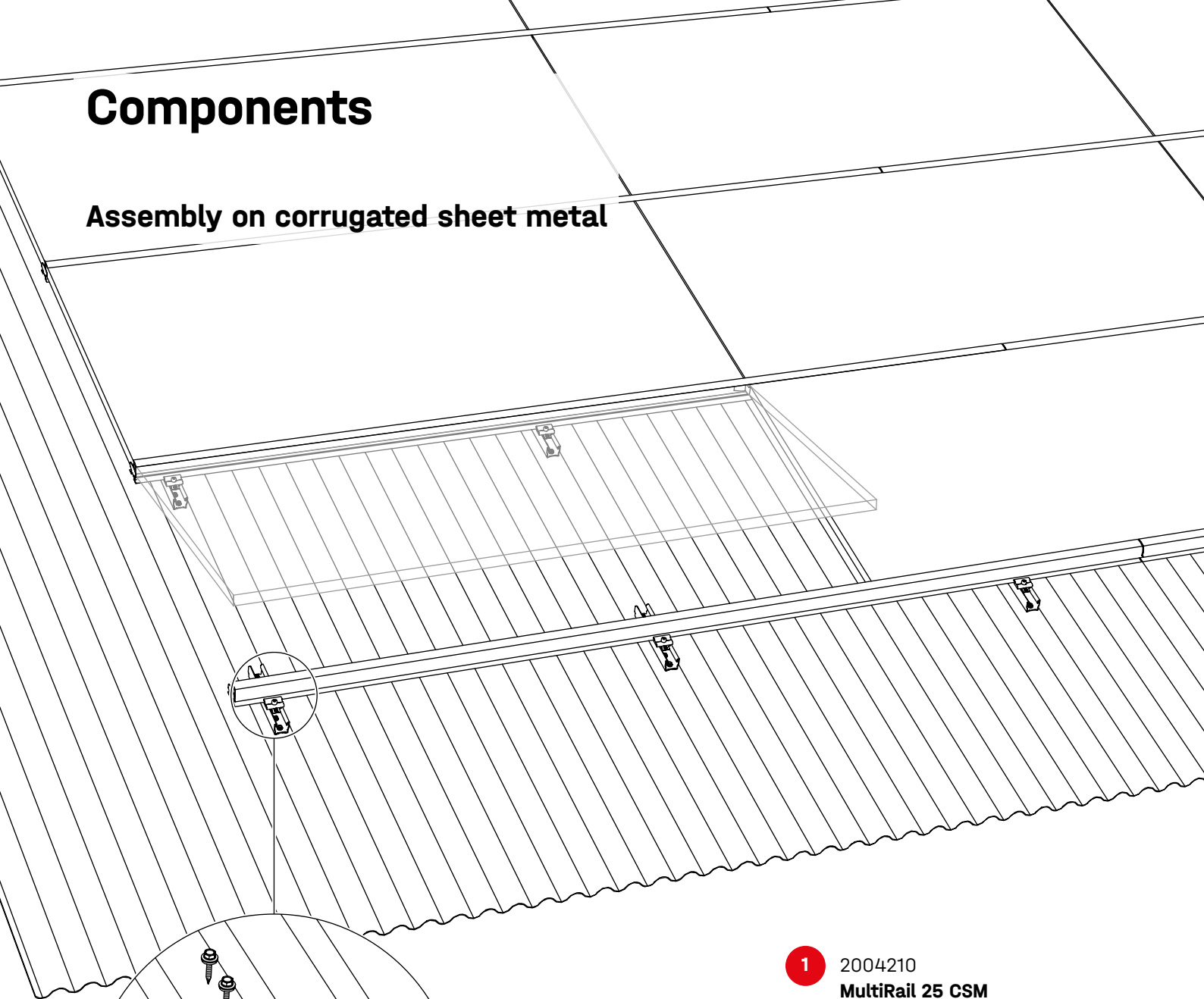


12 2004102
TerraGrif PL

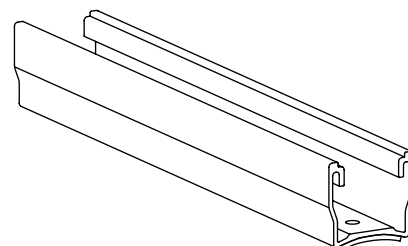


Components

Assembly on corrugated sheet metal



- 1** 2004210
MultiRail 25 CSM



- 2** 1005207
**Thread-forming metal
screw 6×25**



Diagram illustrating the layout of a solar panel array, showing dimensions and callouts for important dimensions for module arrays or blocks and thermal separations.

The main dimensions shown are:

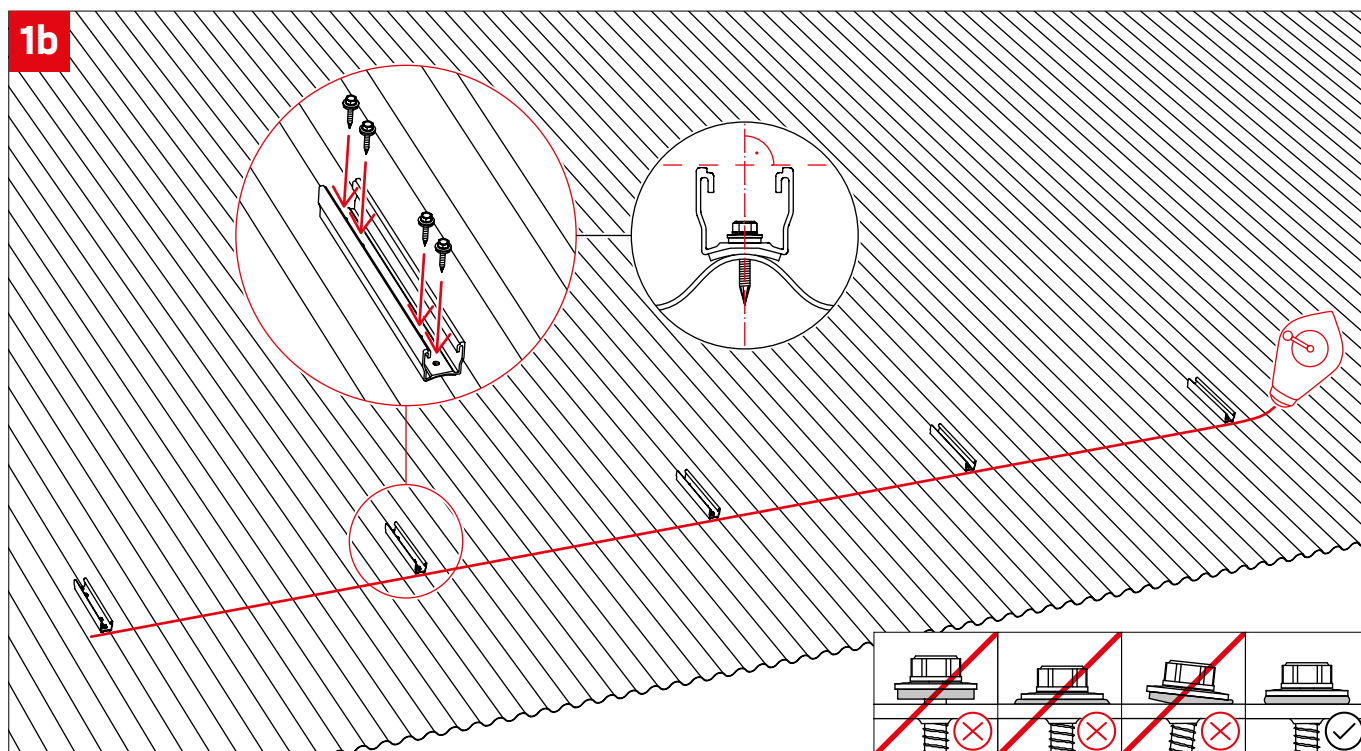
- Horizontal dimension: $\leq 21.0 \text{ m}$
- Vertical dimension: $\leq 13.6 \text{ m}$

Callouts provide details on thermal separations:

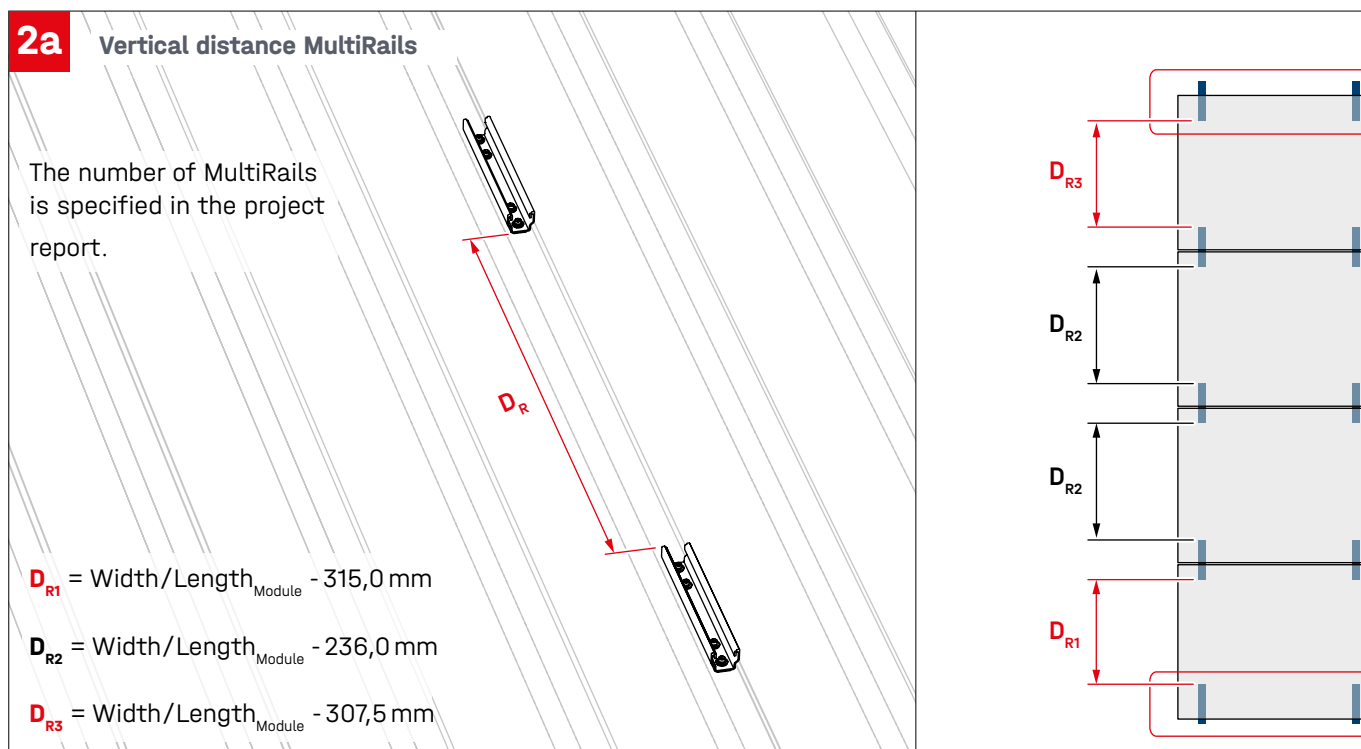
- Top right callout: $\geq 0.03 \text{ m}$
- Bottom left callout: $\geq 0.03 \text{ m}$

[illegible]

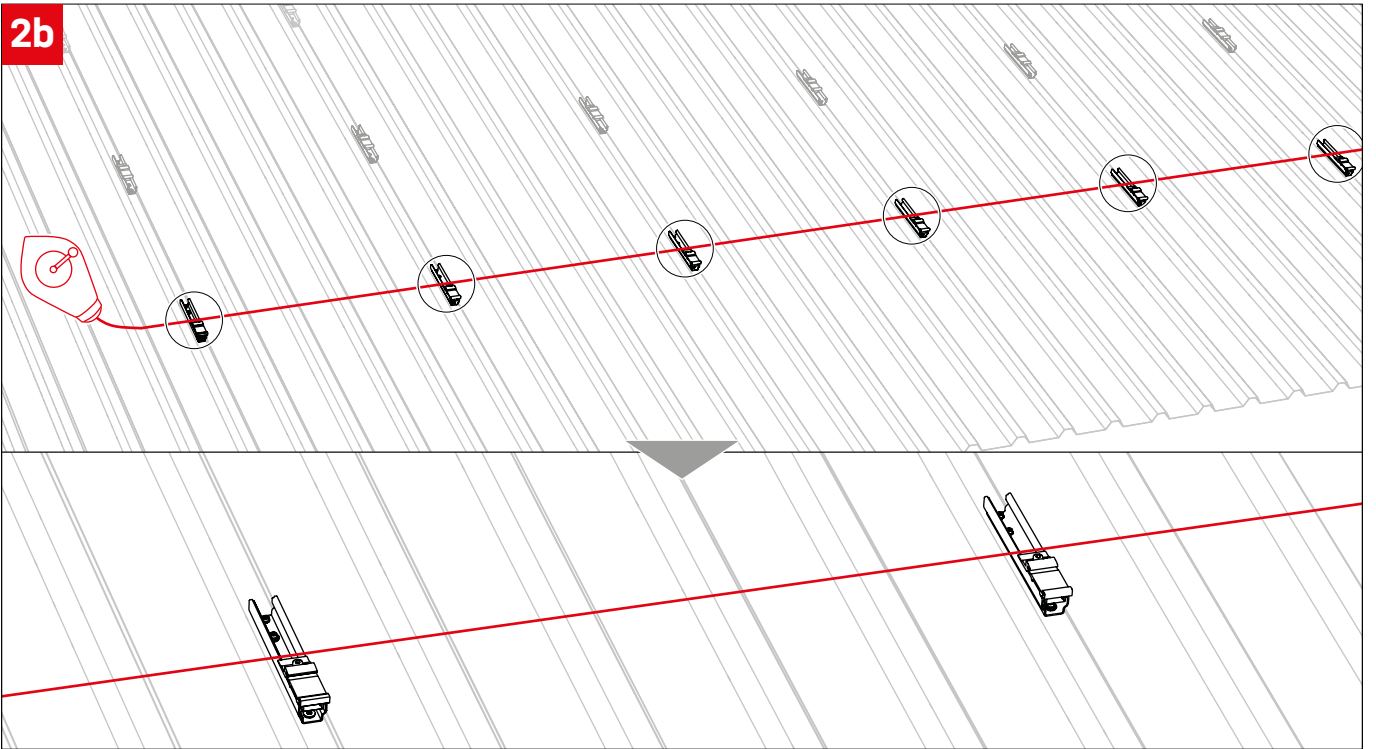
Installation MultRail 25 CSM on corrugated sheet metal



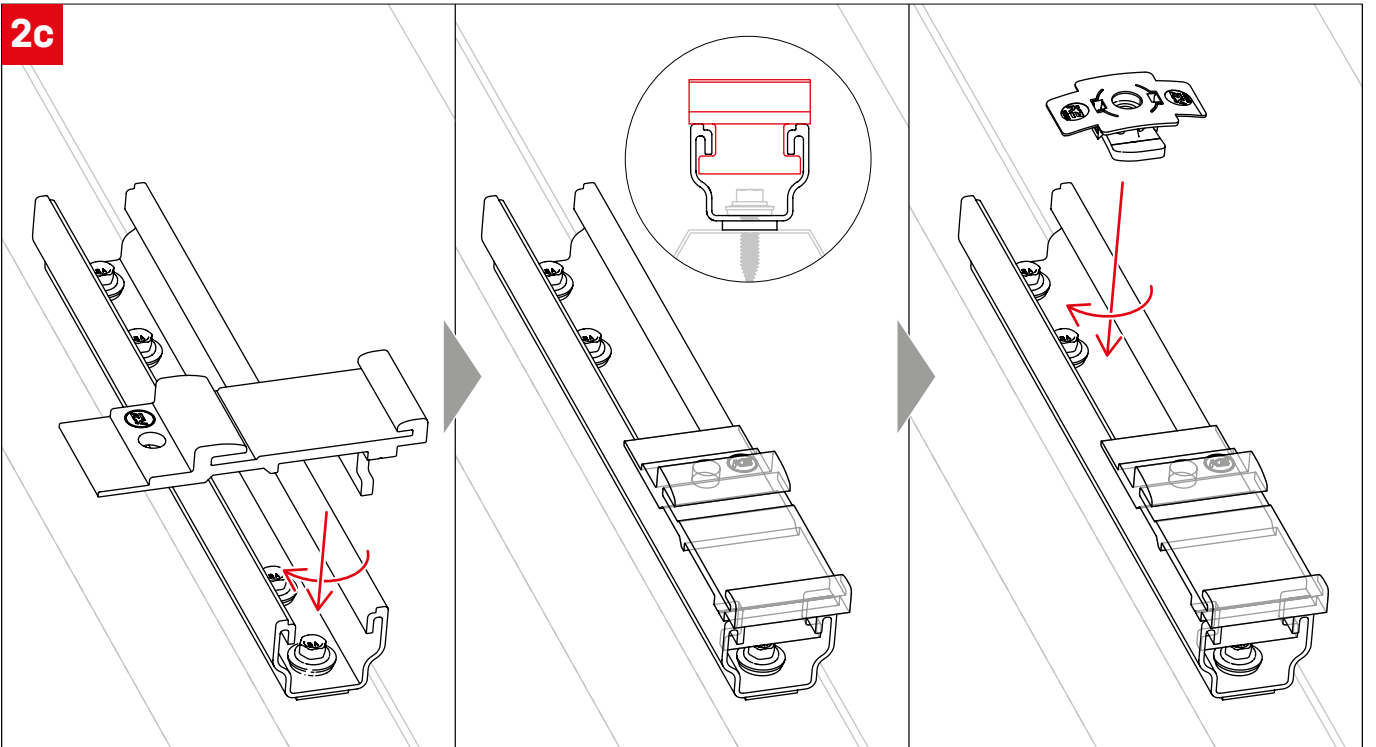
Assembly CrossConnector T

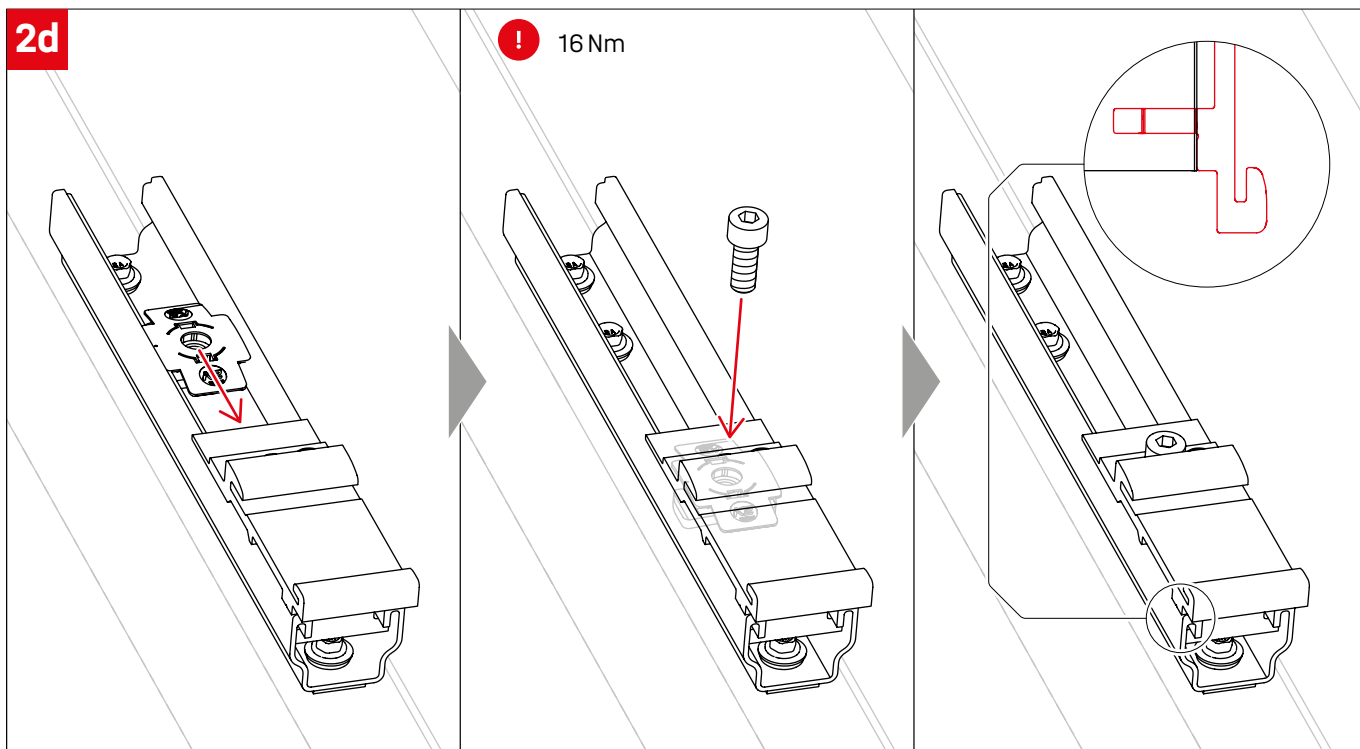
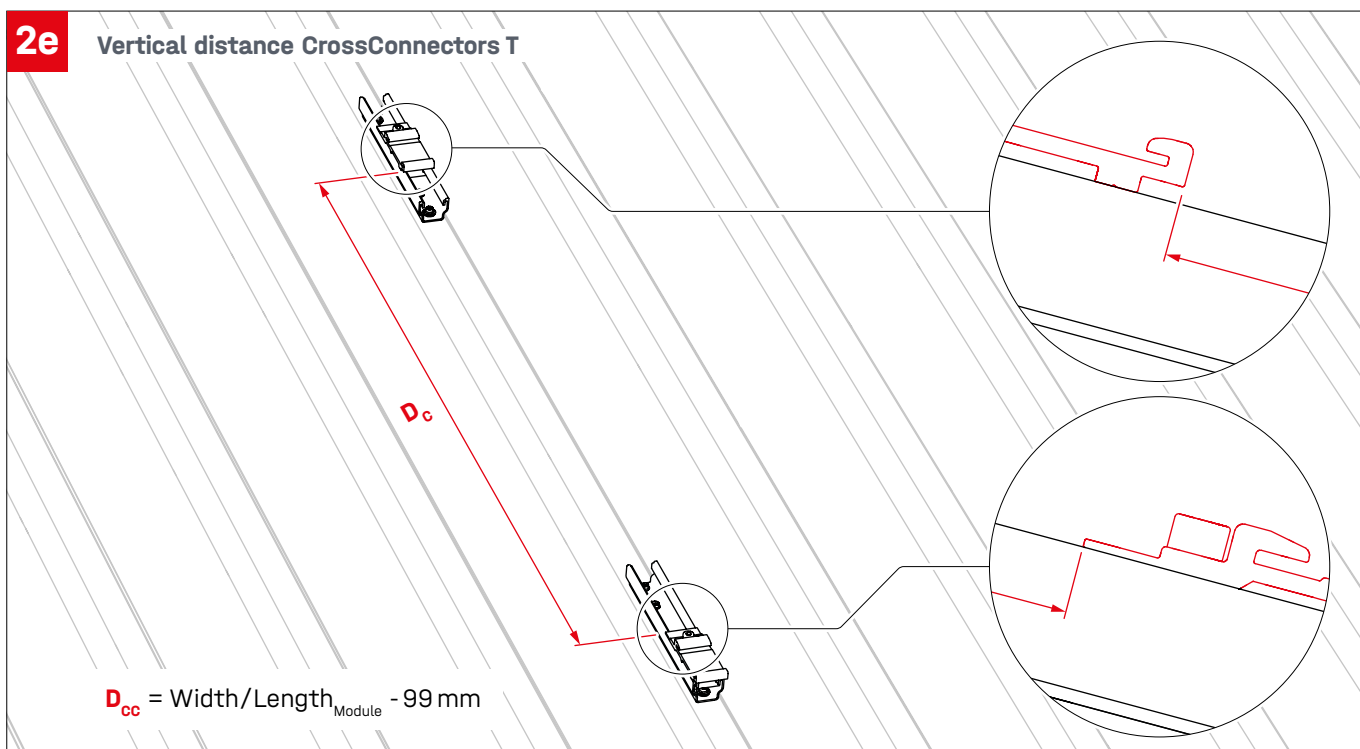


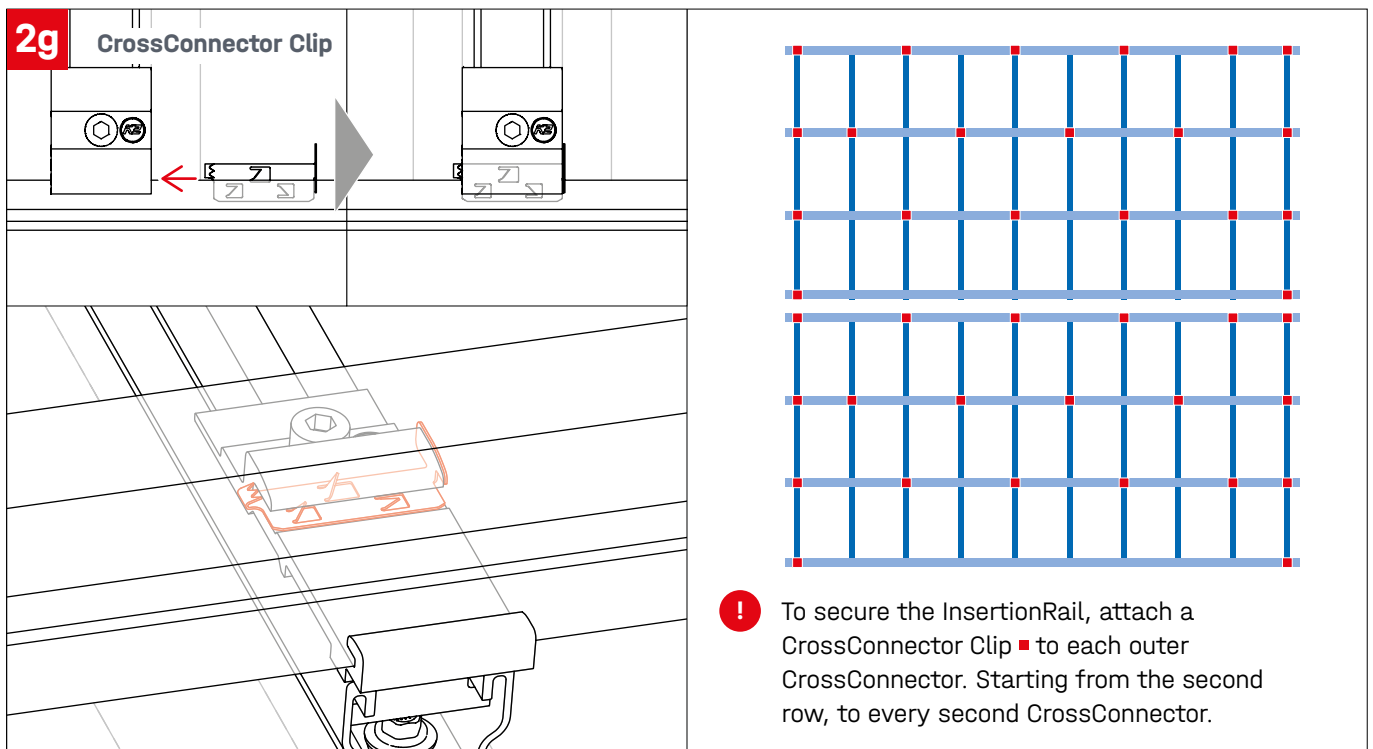
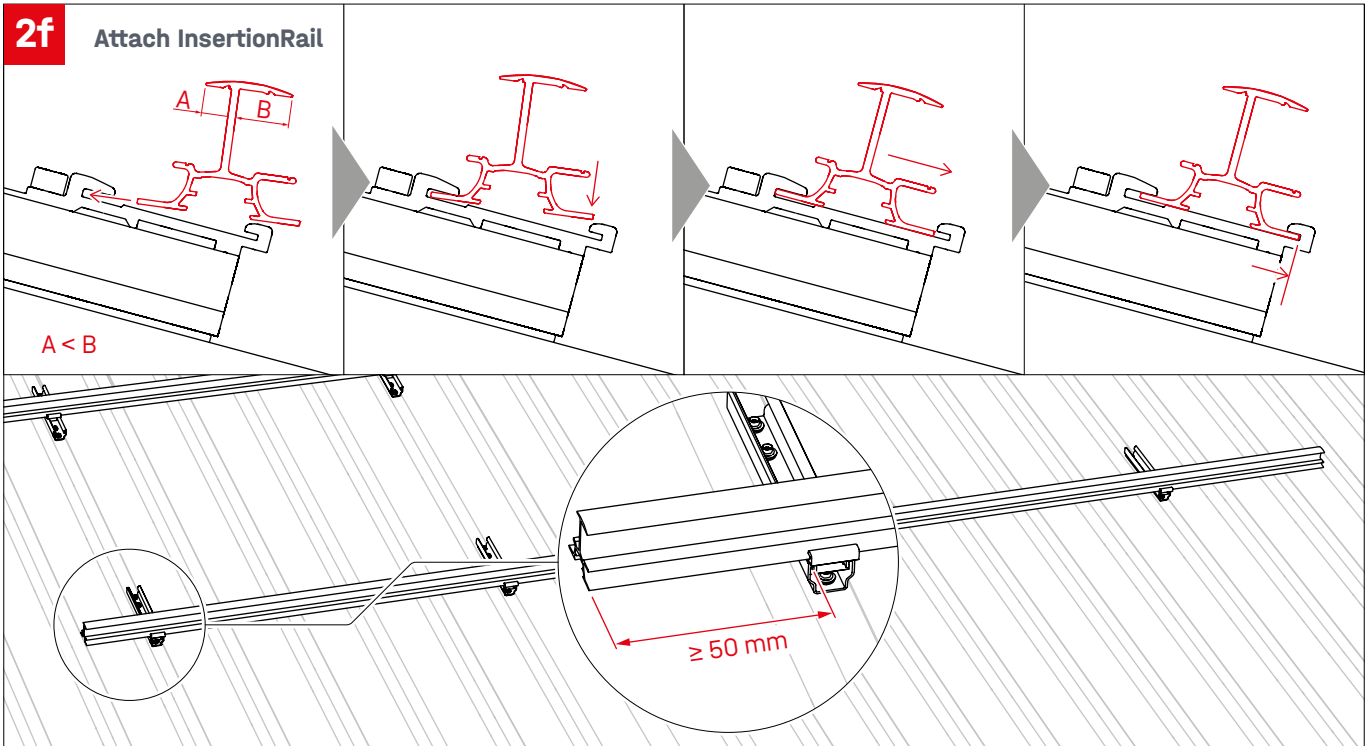
2b



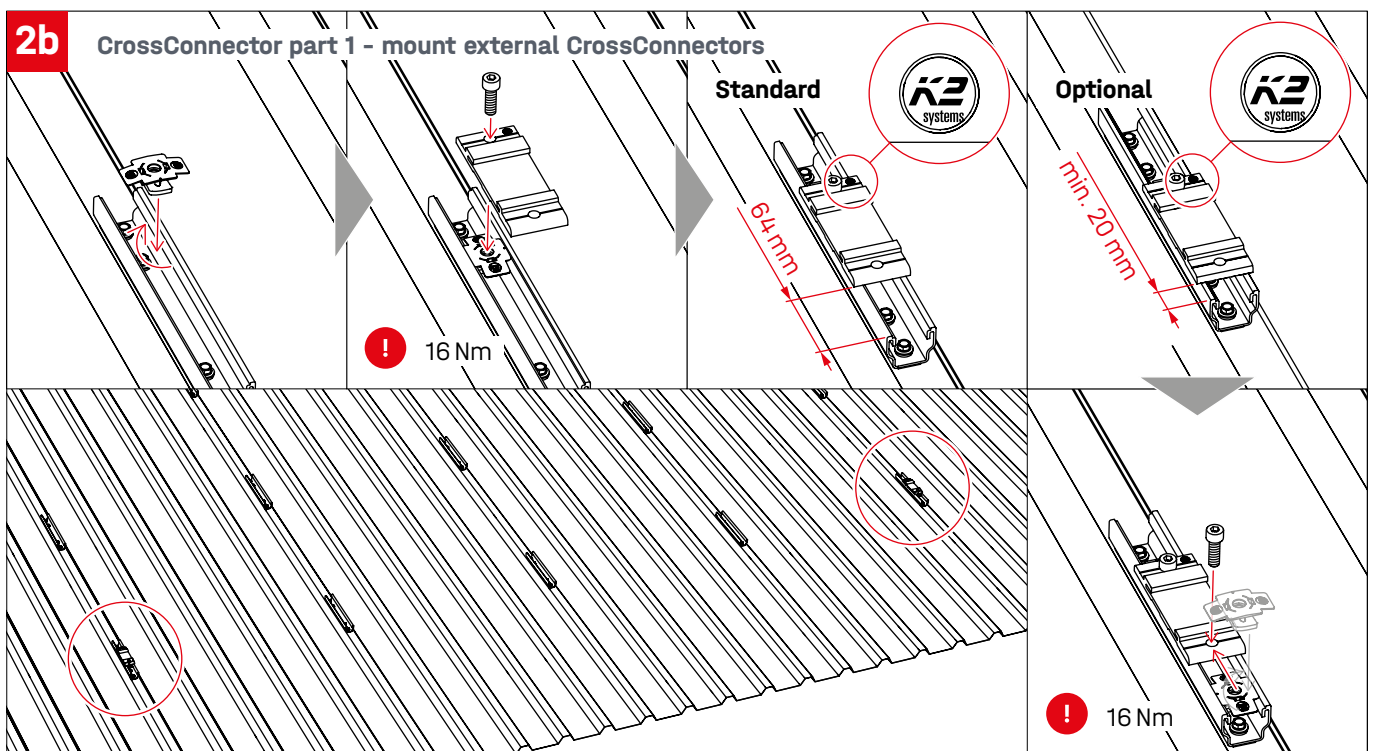
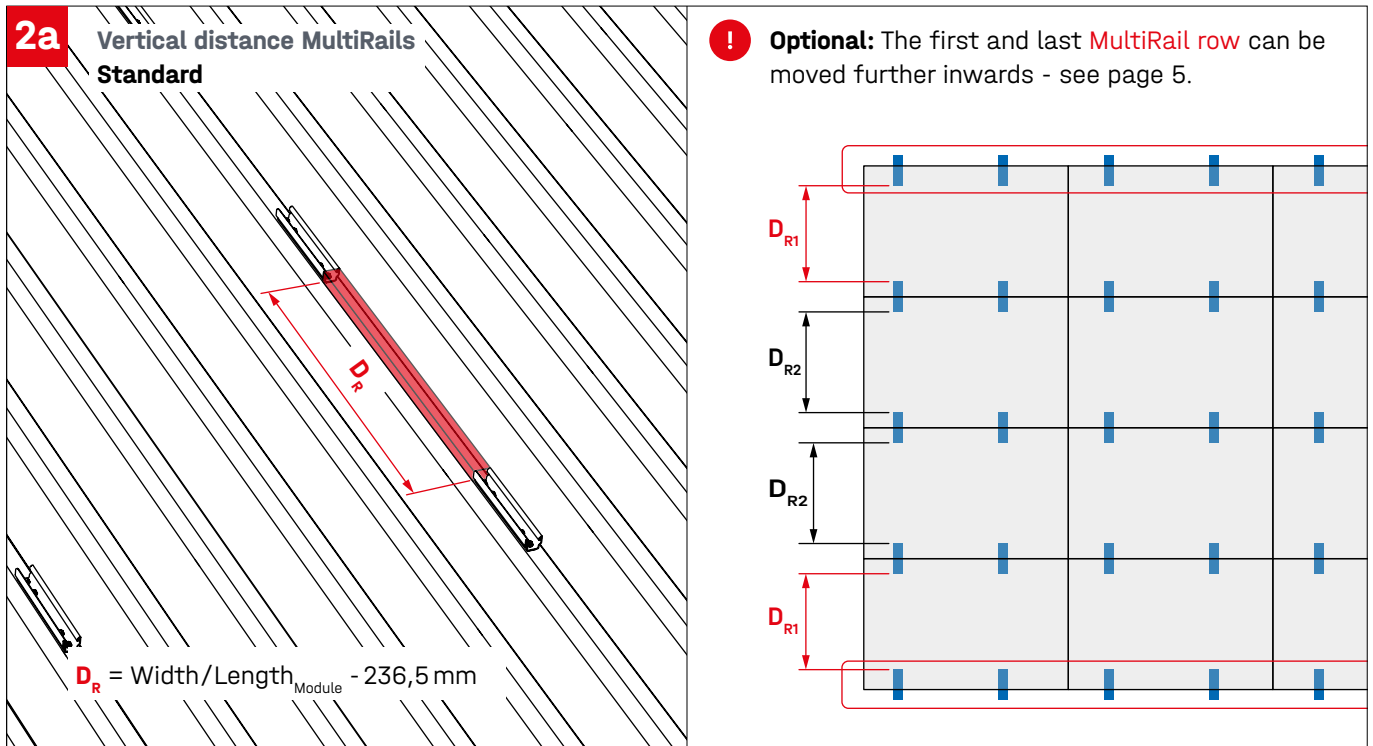
2c



2d**!** 16 Nm**2e****Vertical distance CrossConnectors T**

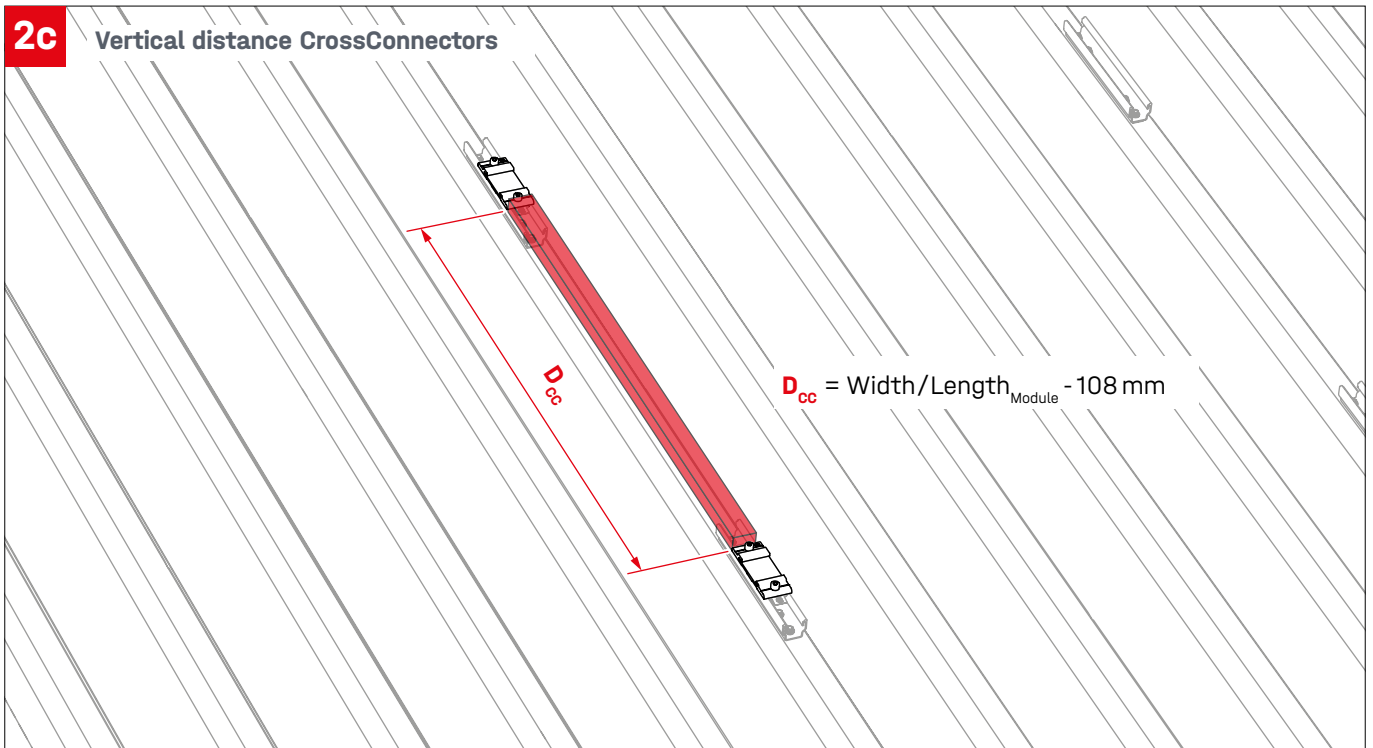


Assembly CrossConnector



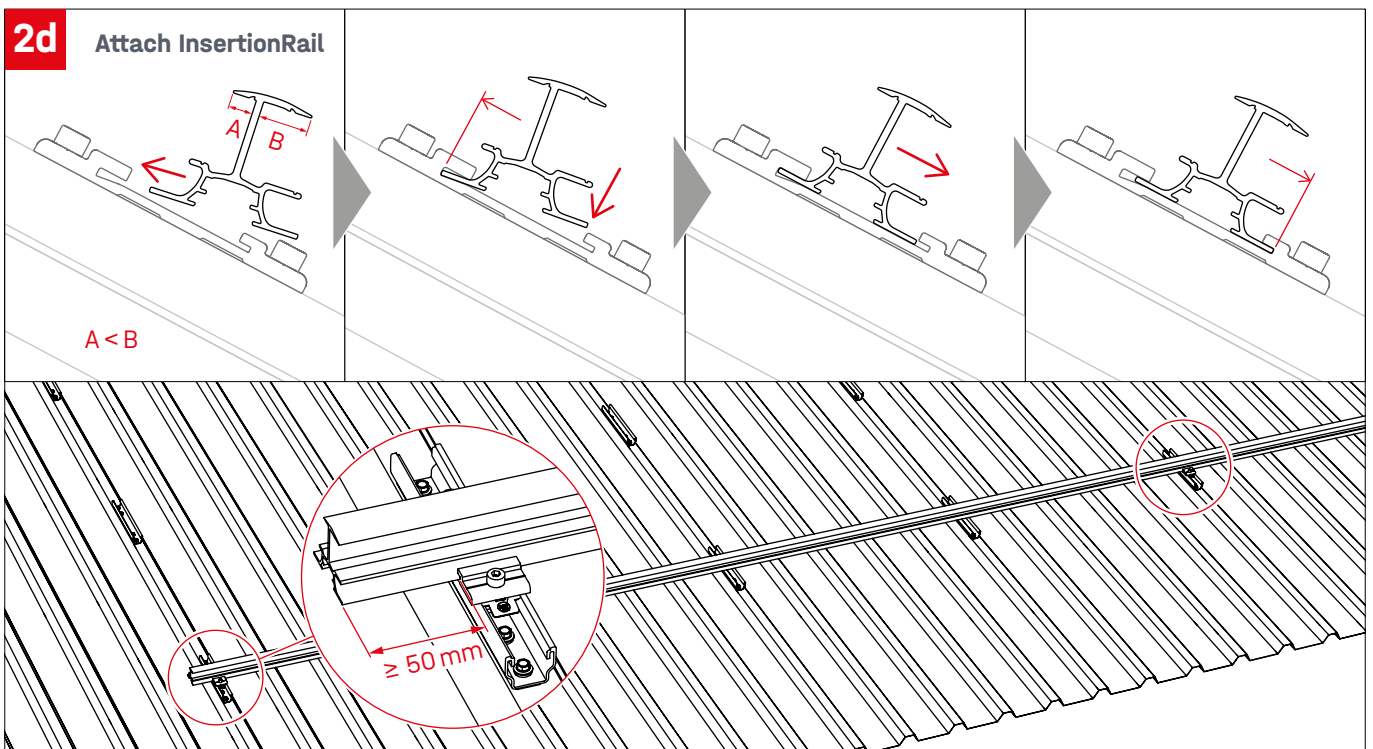
2c

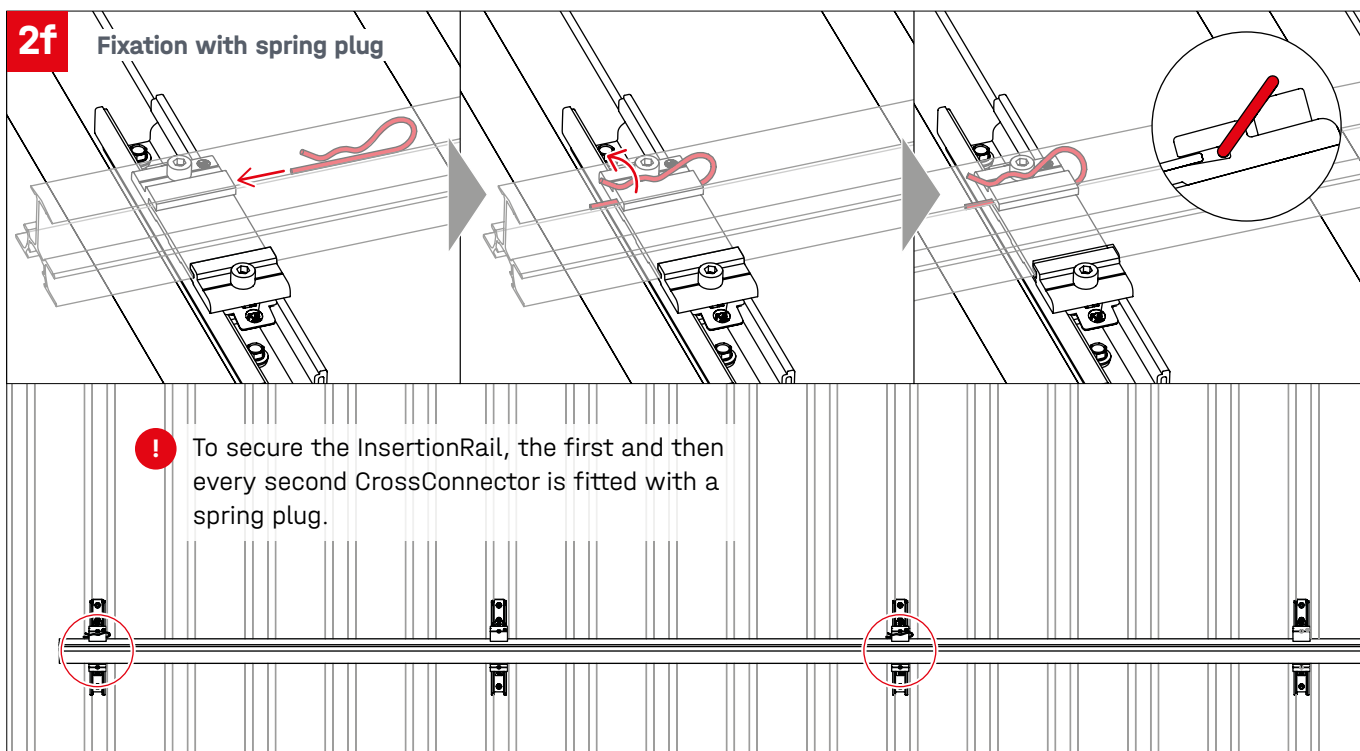
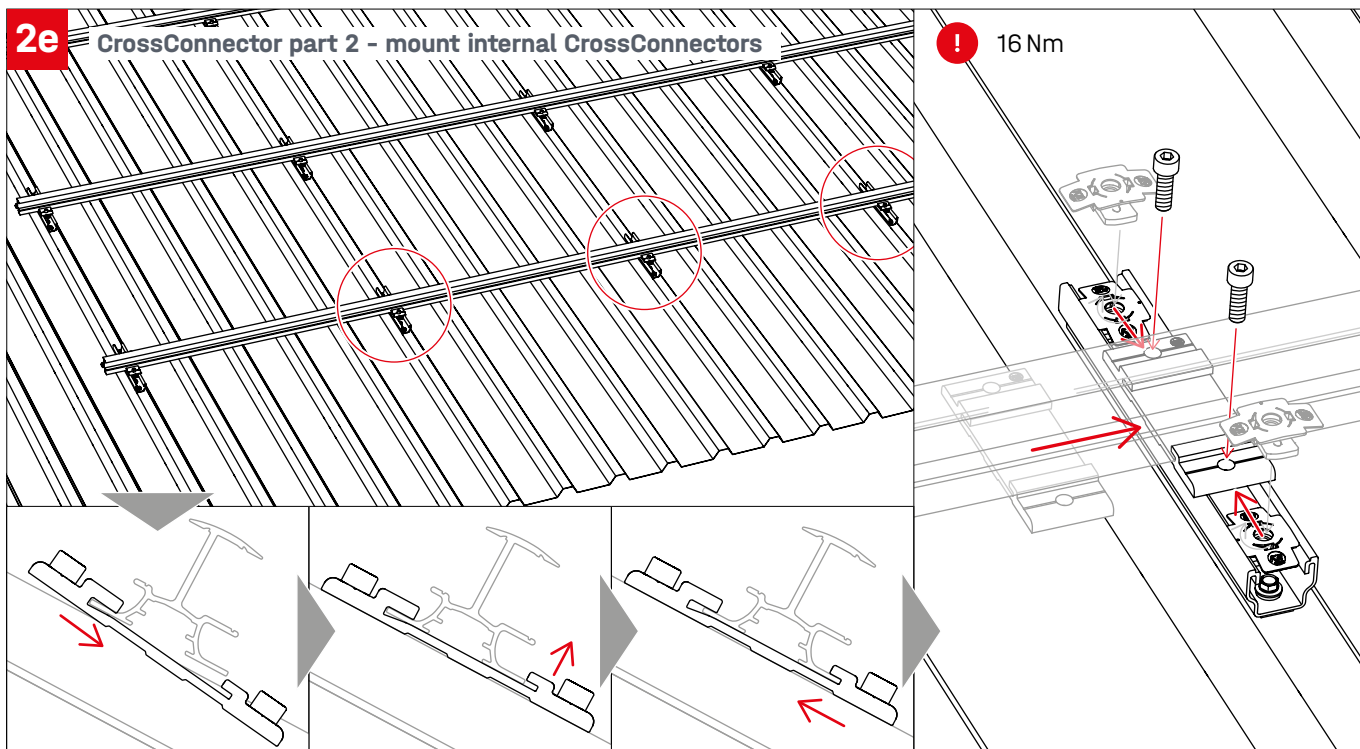
Vertical distance CrossConnectors



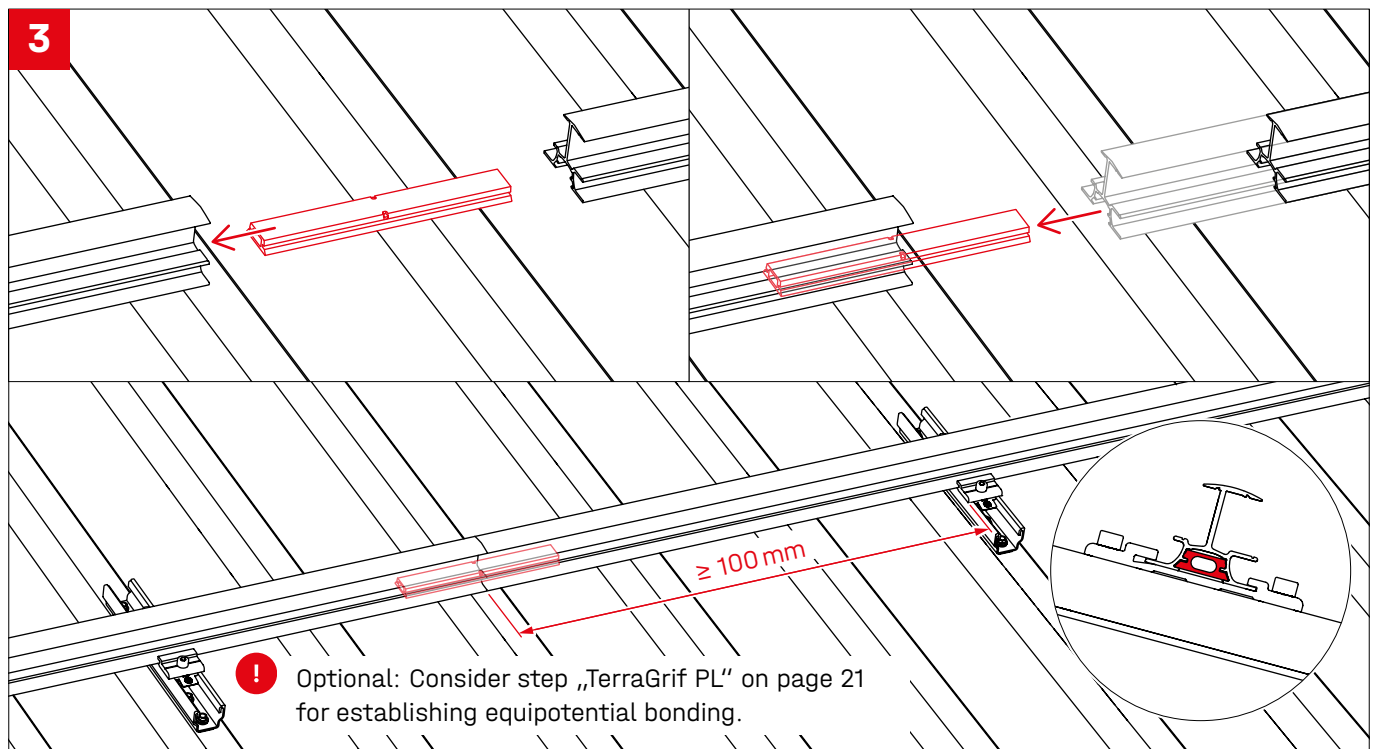
2d

Attach InsertionRail

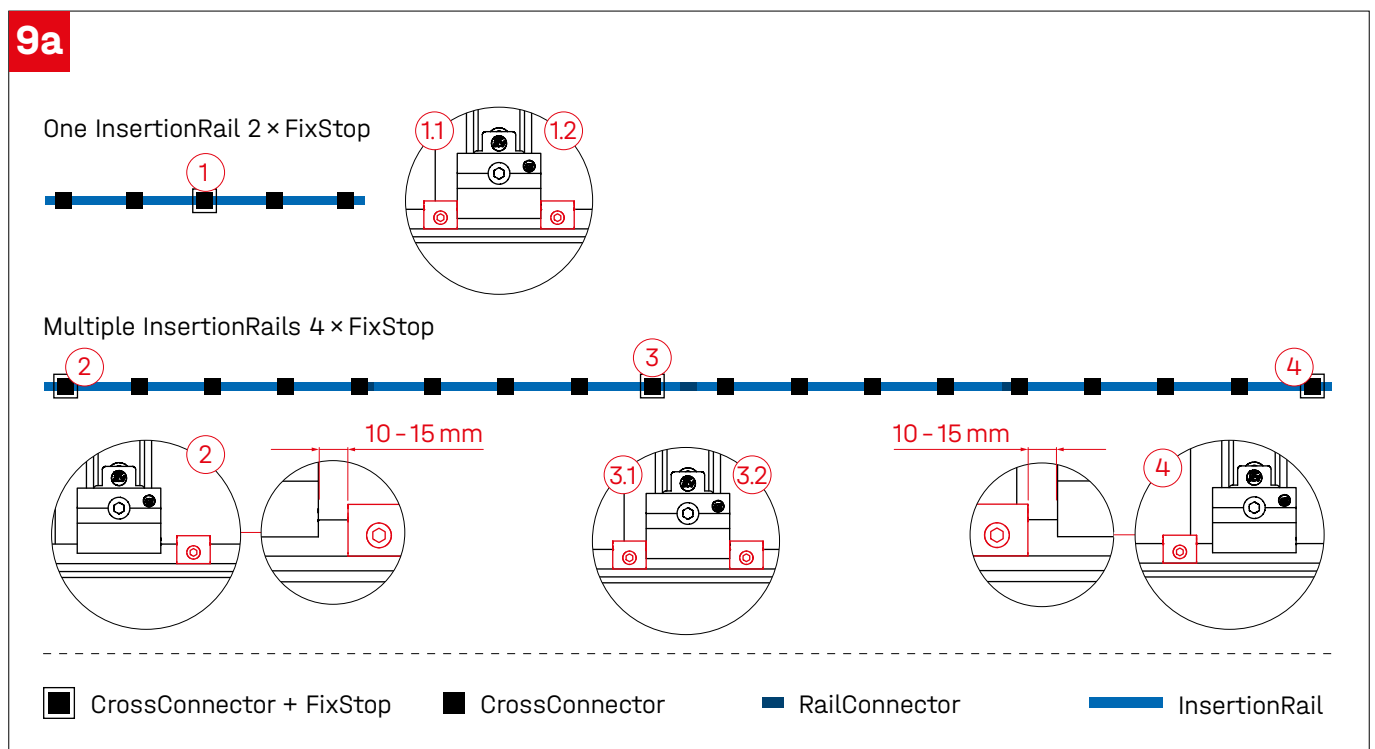




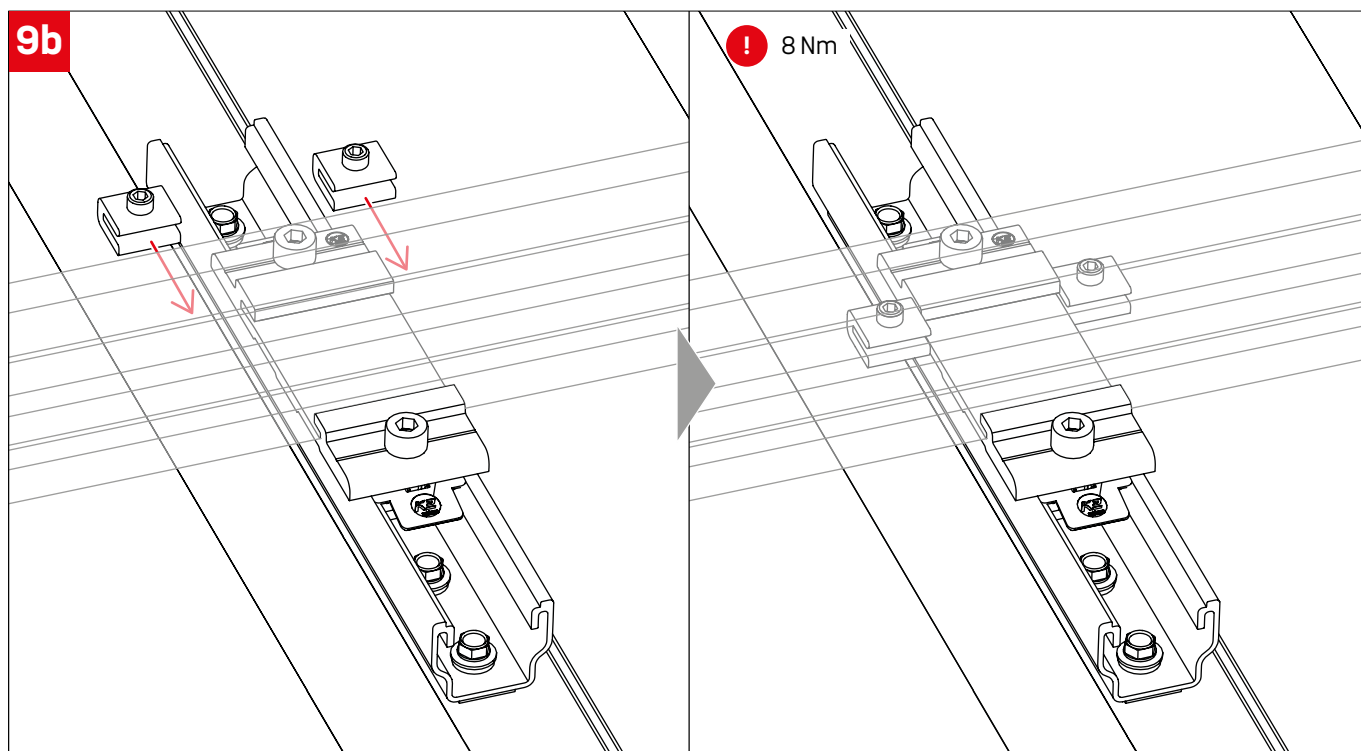
Connecting rails with RailConnector



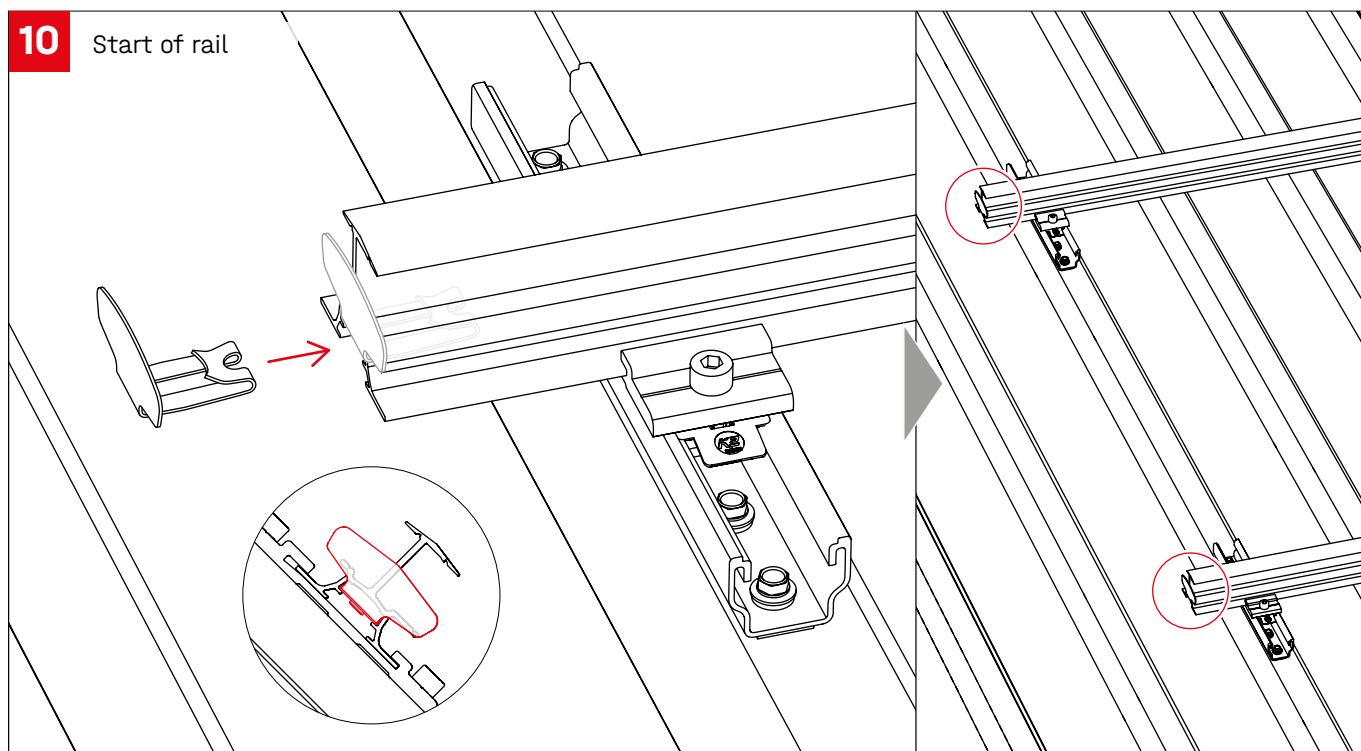
FixStop positioning



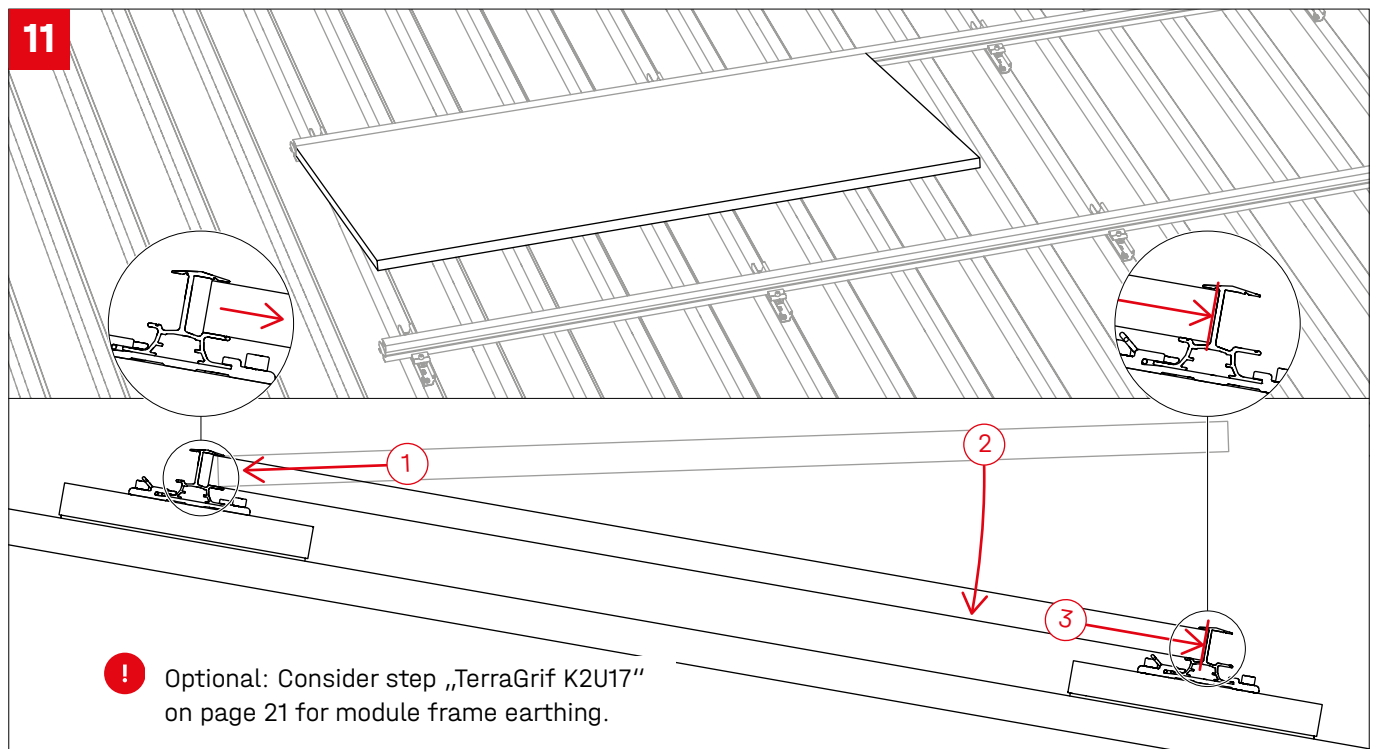
Assembly FixStop



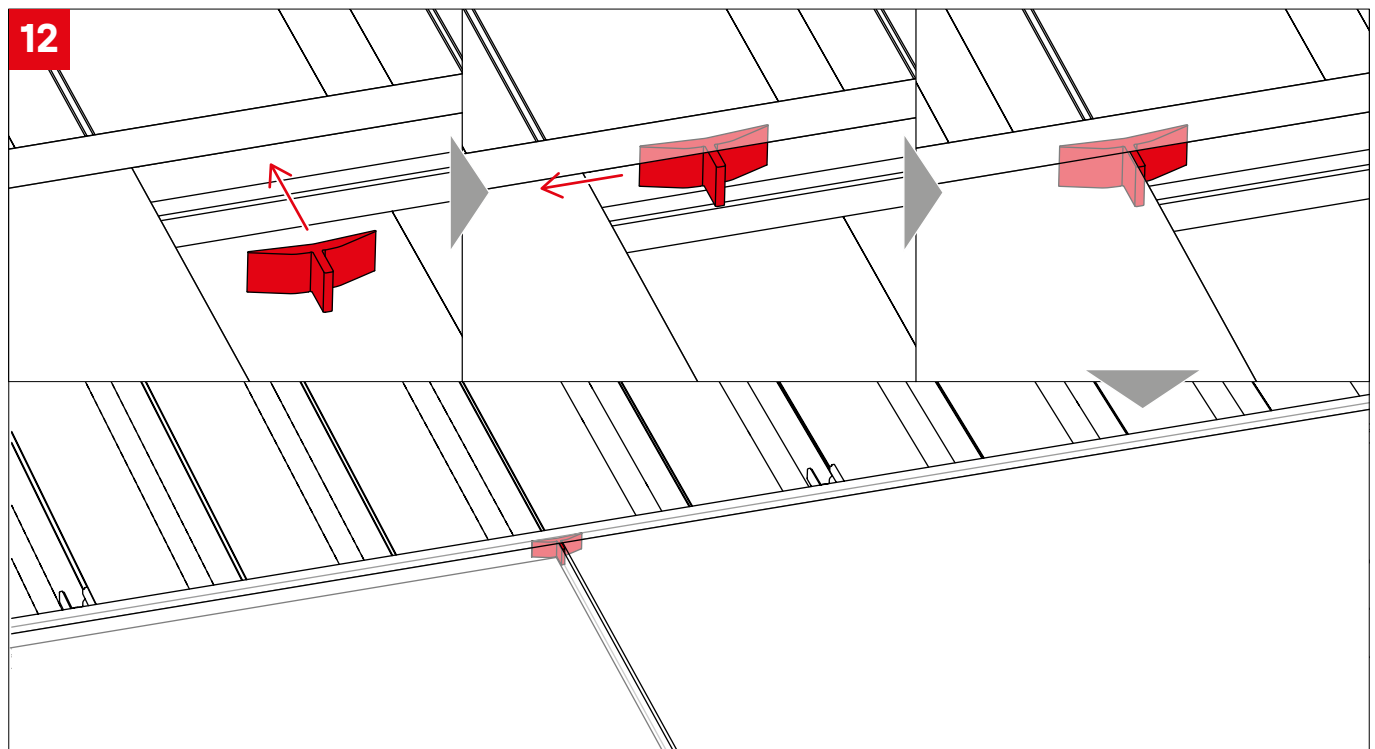
Side guarding EndStop 1



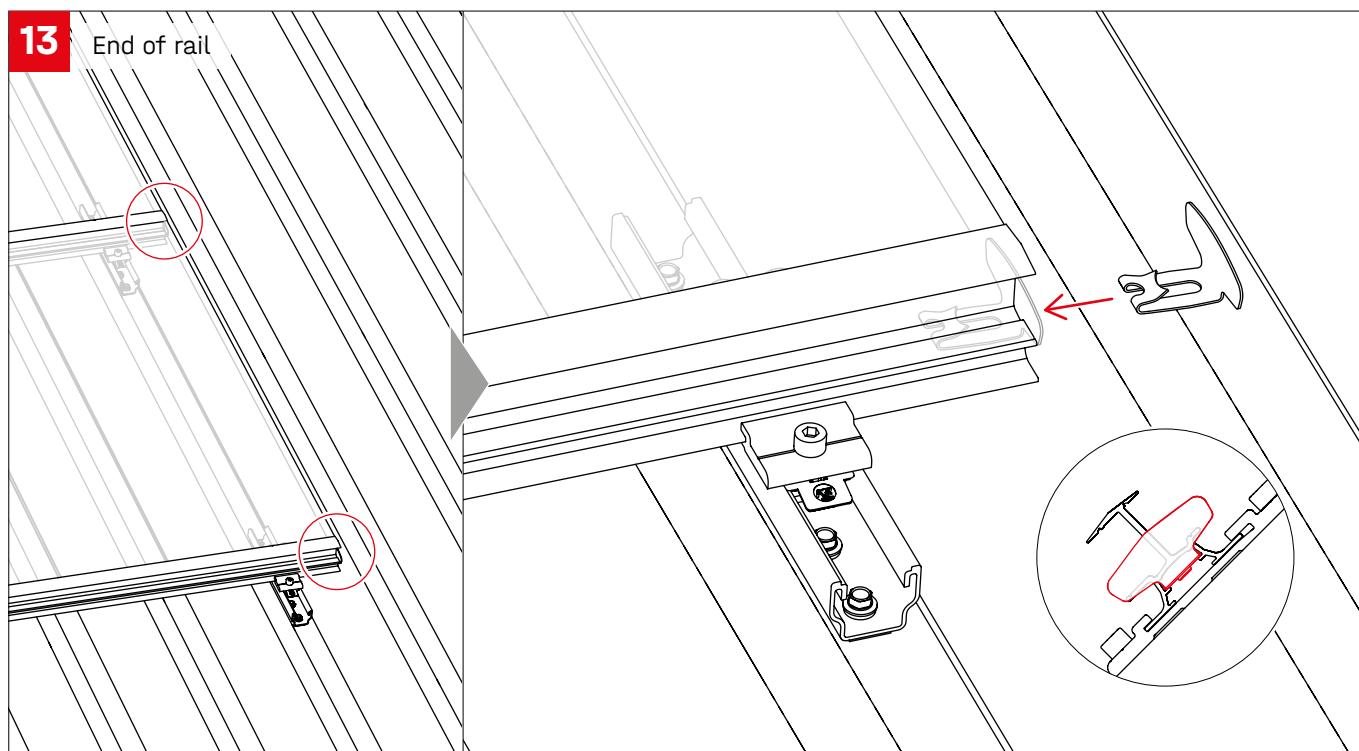
Insert modules



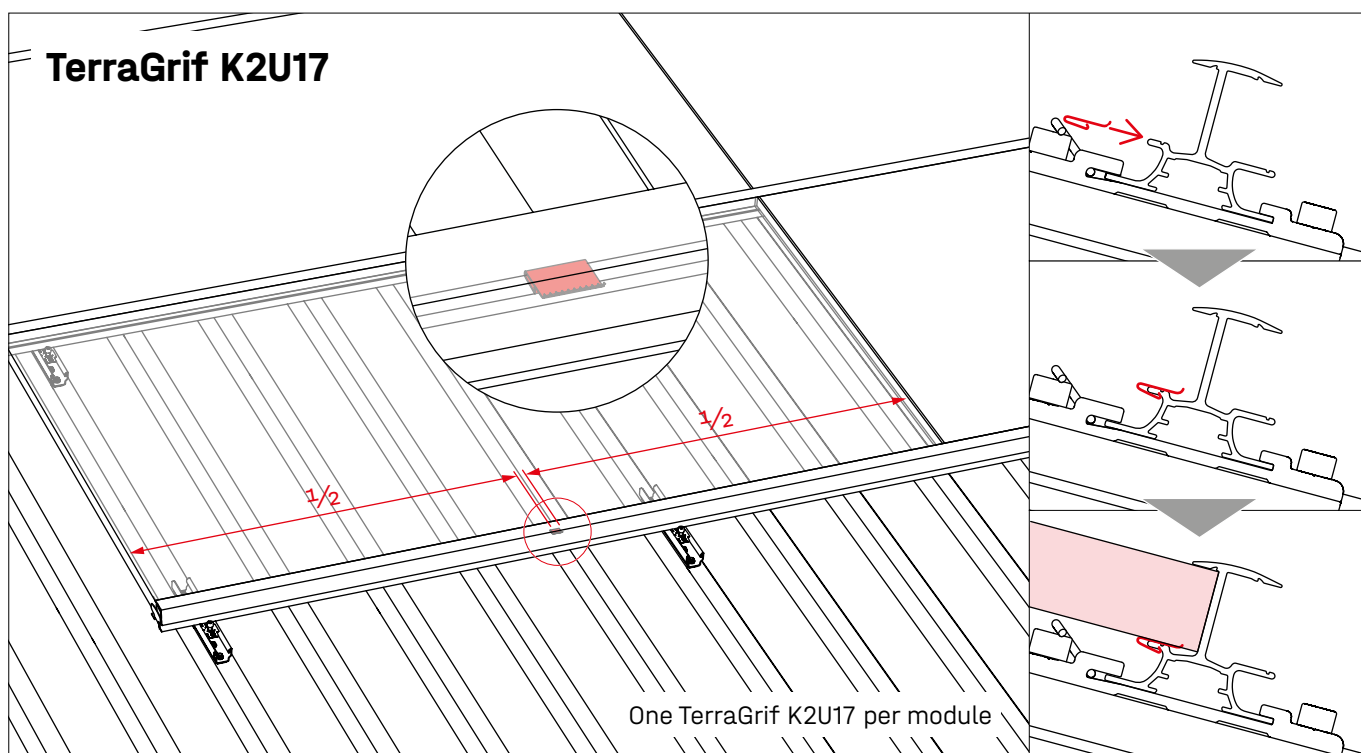
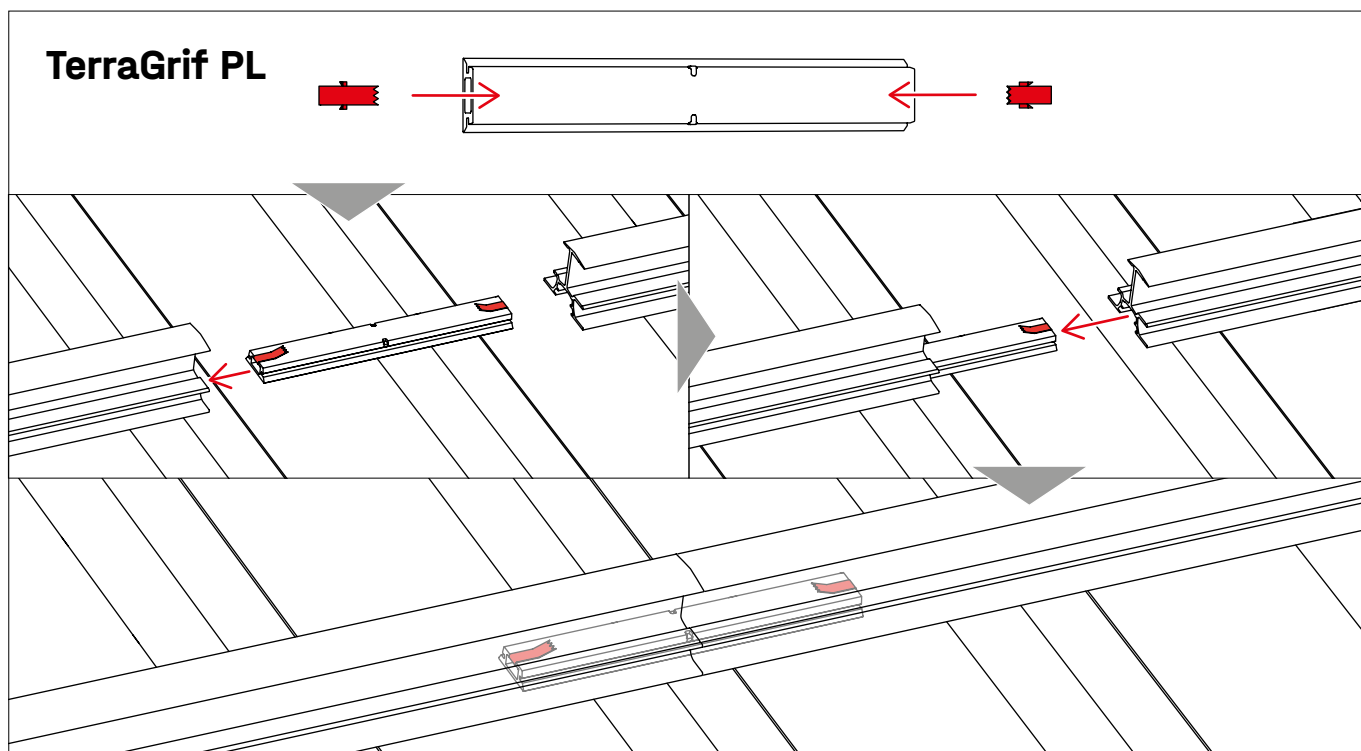
Placement of spacers ModuleSafety



Side guarding EndStop 2

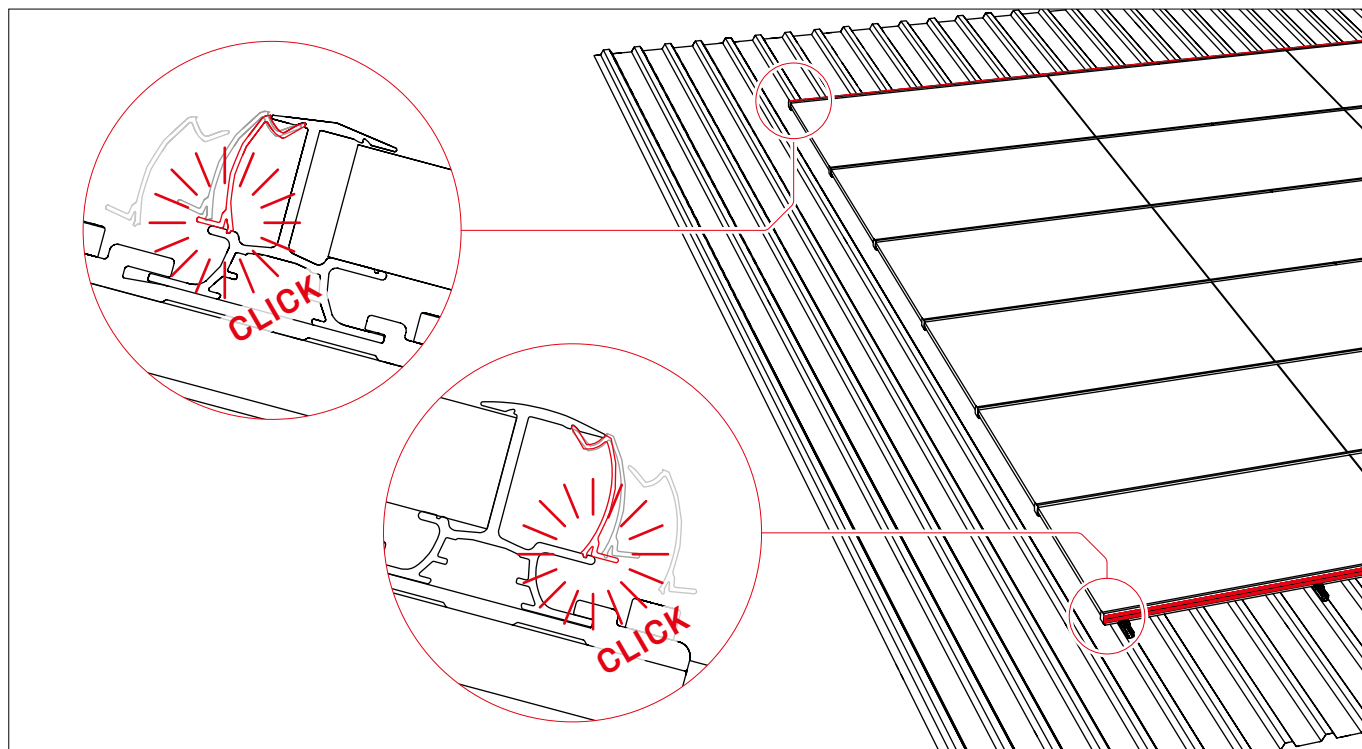


Equipotential bonding / Module frame earthing

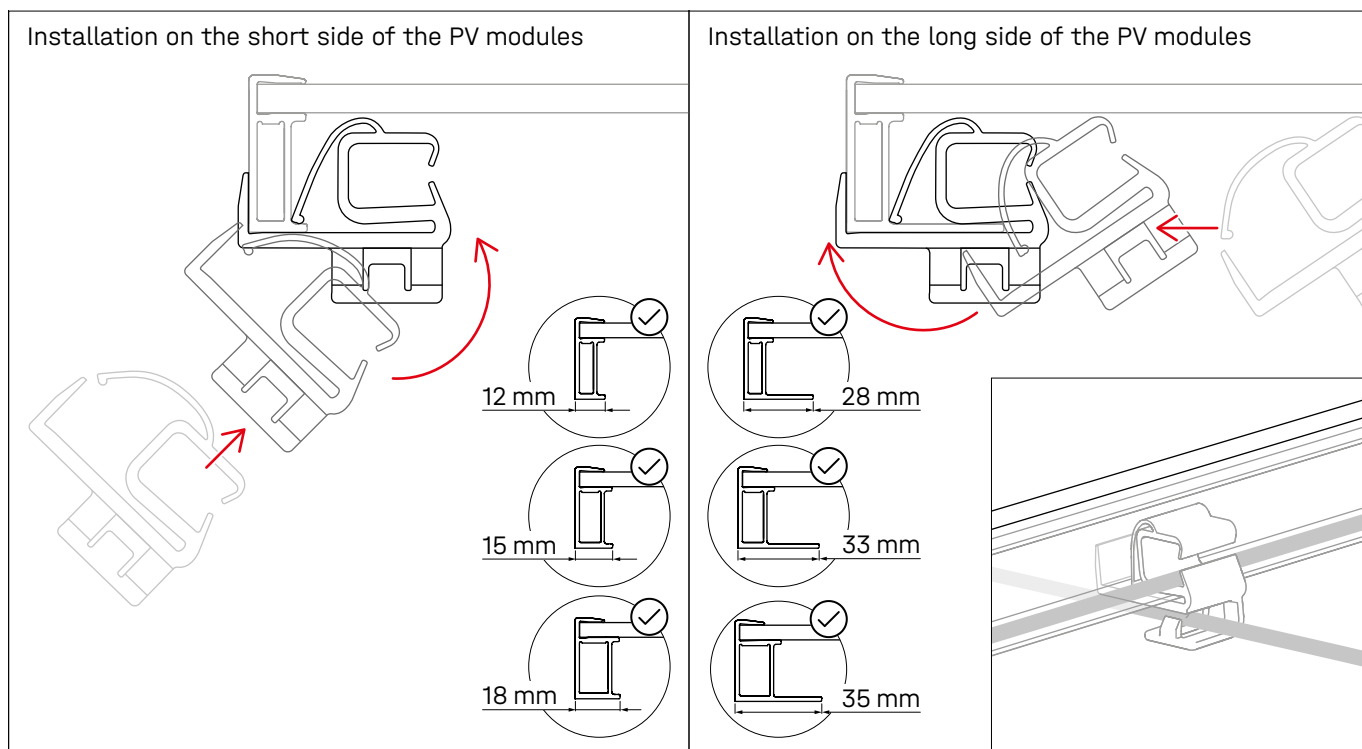


Optional

InsertionRail Cover



Cabel management with Alpha PV Clip



Notes





Connecting Strength

Thank you for choosing a K2 mounting system.

Mounting systems from K2 Systems are quick and easy to install. We hope these instructions have helped. Please contact us with any questions or suggestions for improvement. Our contact data:

- k2-systems.com/en/contact
- **Service Hotline: +49 7159 42059-0**

Our General Terms of Business apply. Please refer: k2-systems.com

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Insertion System MultiRail Assembly EN V6 | 0826 · Subject to change
Product illustrations are exemplary and may differ from the original.