Assembly Manual

InsertionRail System

on trapezoidal and corrugated sheet metal with MultiRail

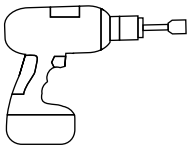
Content

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



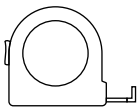
6 mm

8 mm

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

4/6 mm

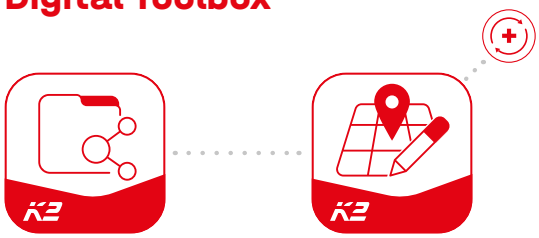
4/6 mm



≥ 3.0 m

≥ 6.0 m

Digital Toolbox



Do you already know our digital services? Use our K2 DocuApp now and record the first important data directly at the customer or project site.

Simply transfer the data to our online planning software K2 Base. Here you can plan your project easily, safely and quickly. You receive a detailed project report with assembly plan and static report.
The K2+ interface enables seamless project data transfer to the planning tools of well-known inverter manufacturers or yield planning tools.

Get started and register now:

docuapp.k2-systems.com

base.k2-systems.com

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

- 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. 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: Ø ≥ 20 mm
- Corrugated sheet:
  - High bead radius: r = 22 - 45 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

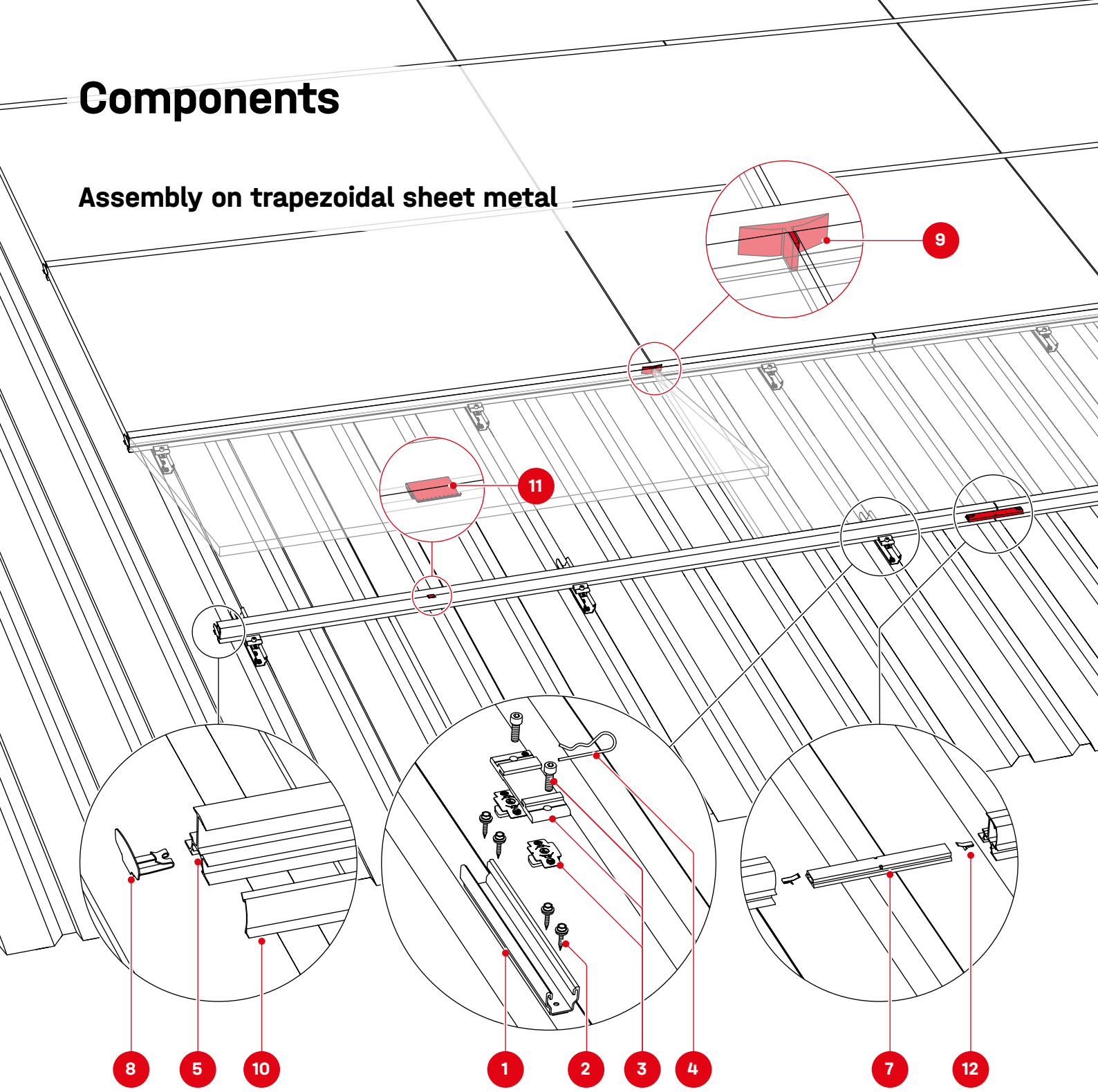
- On site, the general standards and regulations for lightning protection must be observed and, if necessary, a specialist must be called in to draw up a lightning protection concept (use lightning protection terminal if necessary). Country-specific regulations must be observed.
- If the trapezoidal 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

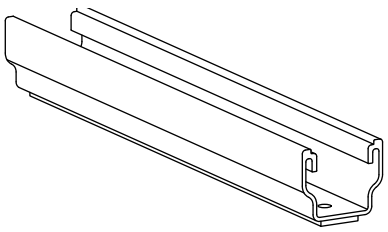
- For aesthetic reasons, the first and last MultiRail row can be moved further inwards. This makes the rail ends less visible. The distances to the next MultiRail row change in this area.
  - **Standard dimension D_R = Width/Length$_{Module}$ -236,5 mm**
    Please note that a minimum distance of 20 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 mm - 20 mm = 44 mm
    236,5 mm - 44 mm = 192,5 mm
    The distance dimension D_{R1} is as follows:
    D_{R1} = Width/Length$_{Module}$ - 192,5 mm
    D_{R2} = Width/Length$_{Module}$ - 236,5 mm

Components

Assembly on trapezoidal sheet metal

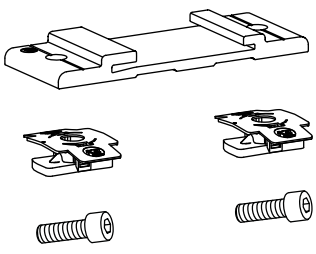


1 2002793
MultiRail 25

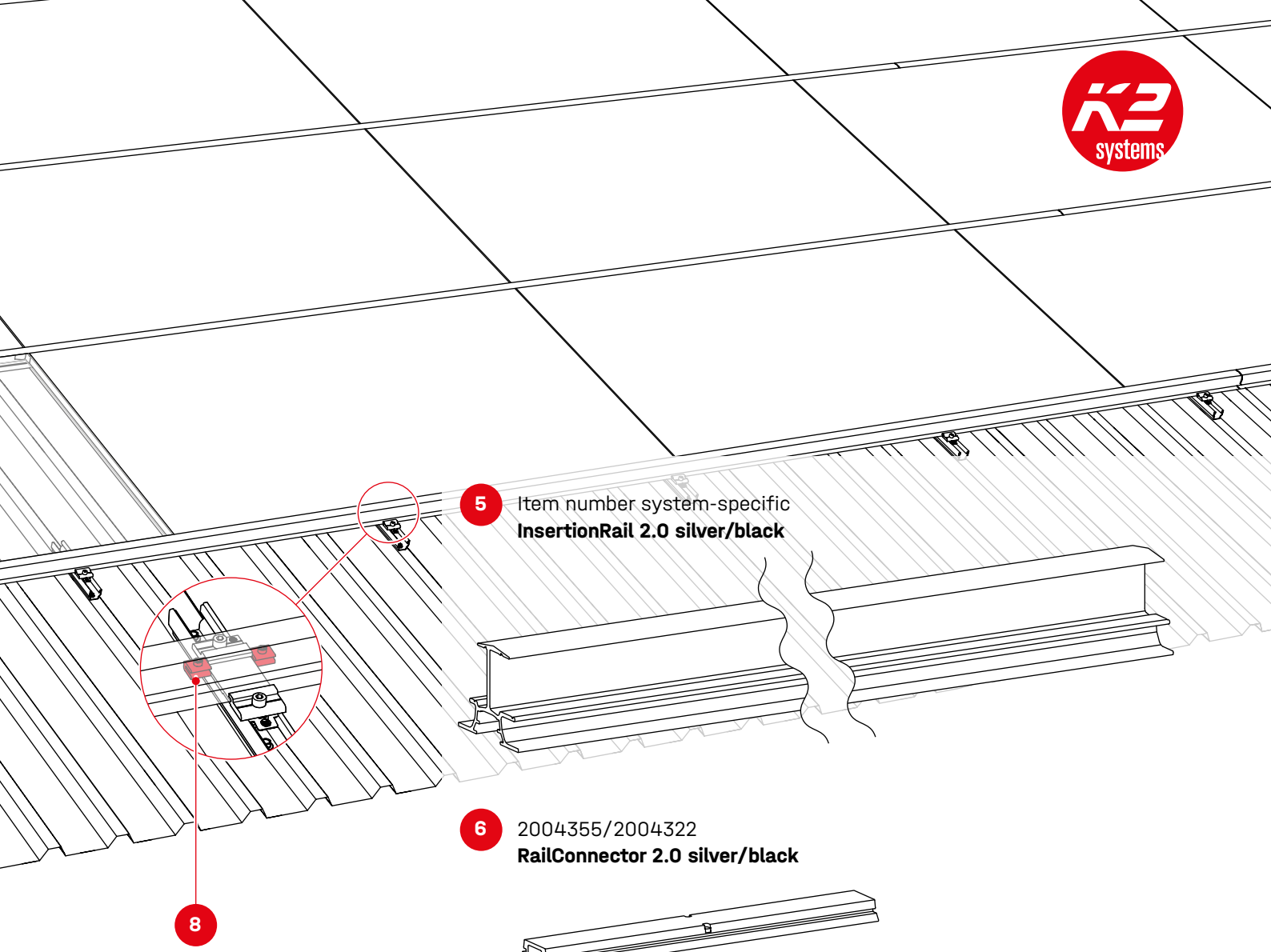


2 1005207
Thread-forming metal screw 6×25

3 2004374/2004375
CrossConnector 2.0 Set silver/black



4 2001196
Spring Plug

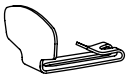


5 Item number system-specific
InsertionRail 2.0 silver/black

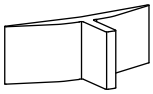
6 2004355/2004322
RailConnector 2.0 silver/black

7 2004370
FixStop 2.0

8 2004693/2004692
EndStop S silver/black

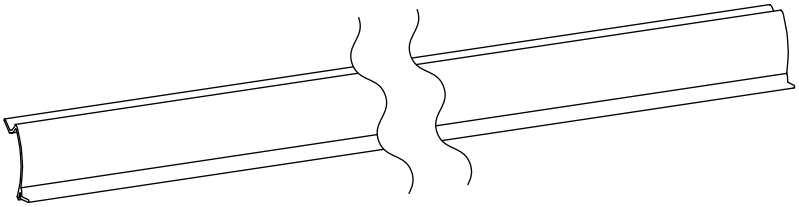


9 2004290
ModuleSafety

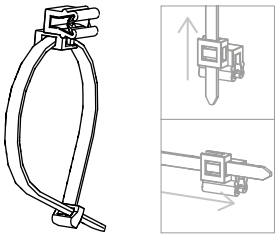


Optional

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



2002870
Cable Manager

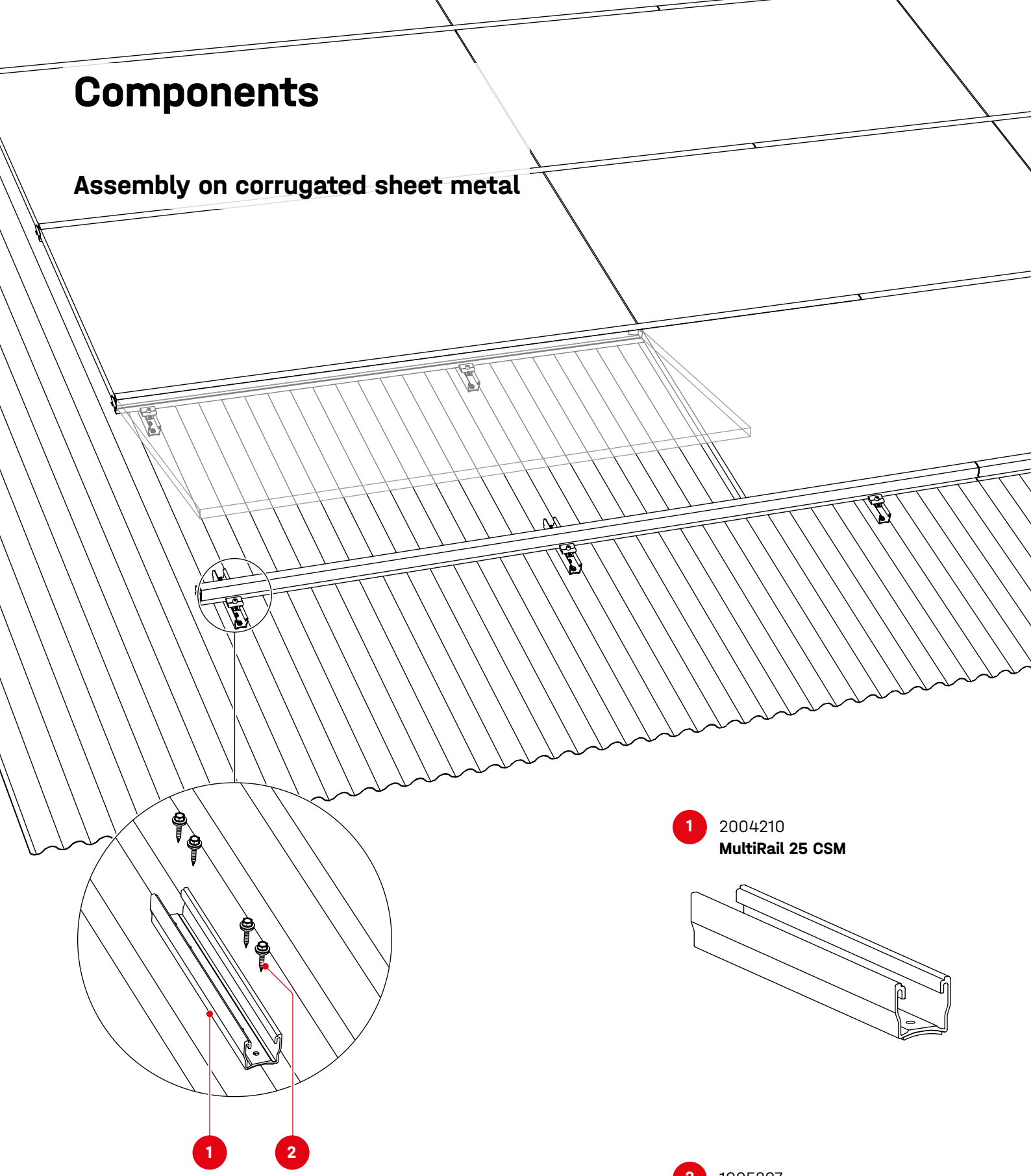


11 2000056
TerraGrif K2U17

12 2004102
TerraGrif PL

Components

Assembly on corrugated sheet metal

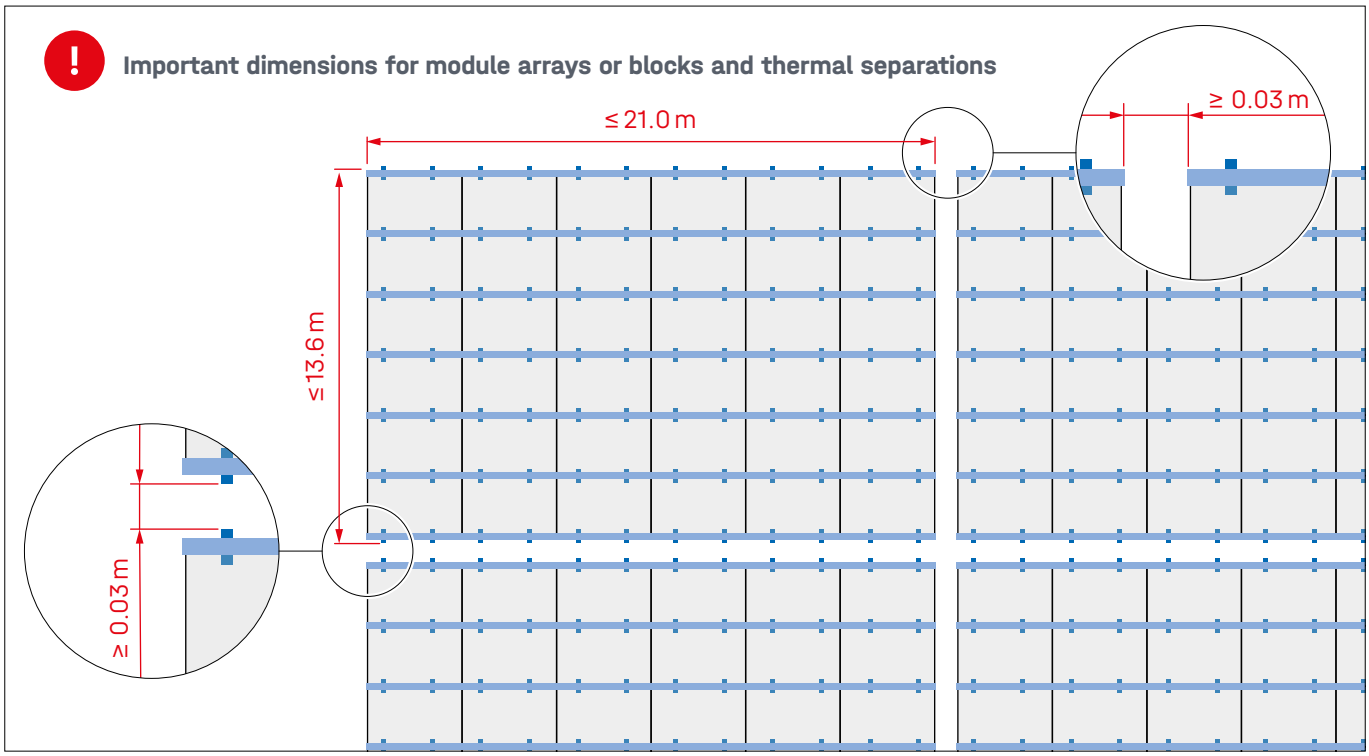


1 2004210
MultiRail 25 CSM

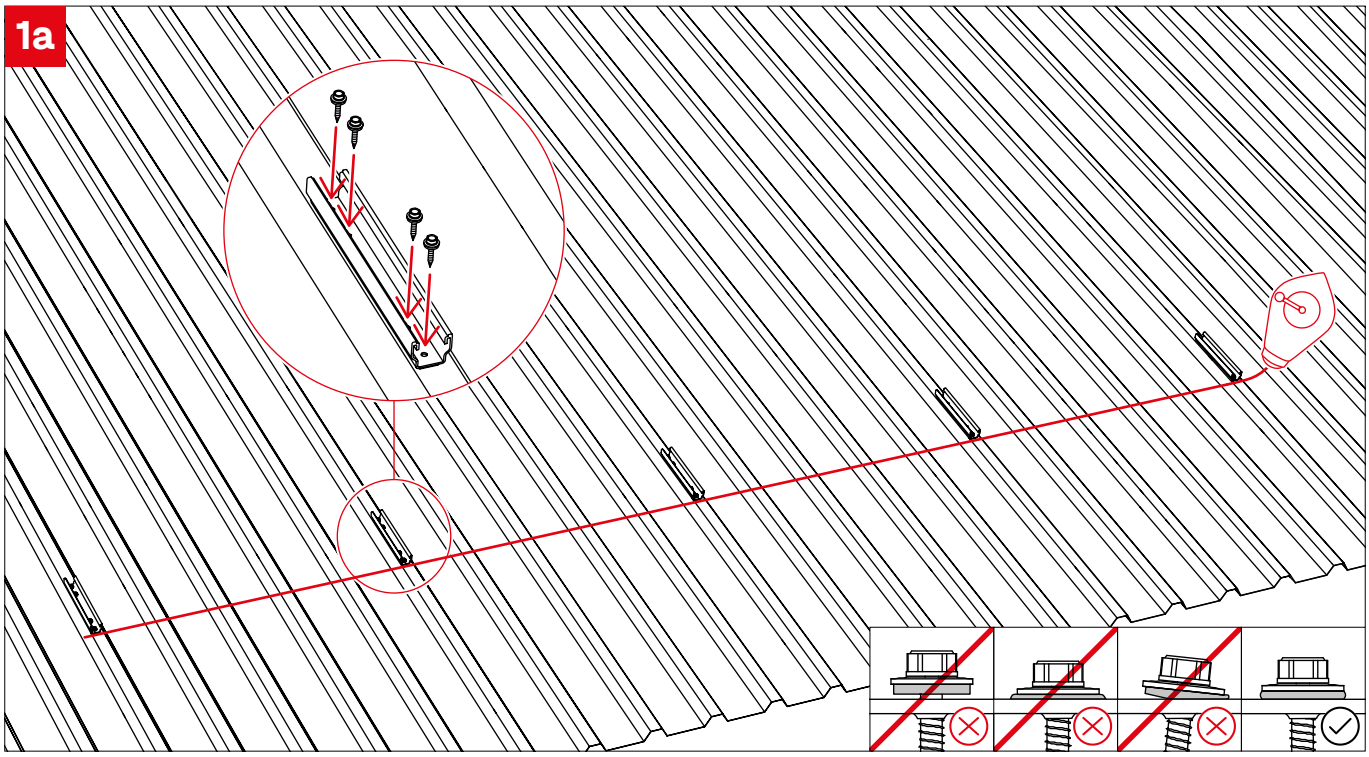
2 1005207
Thread-forming metal screw 6×25

Assembly - portrait and landscape

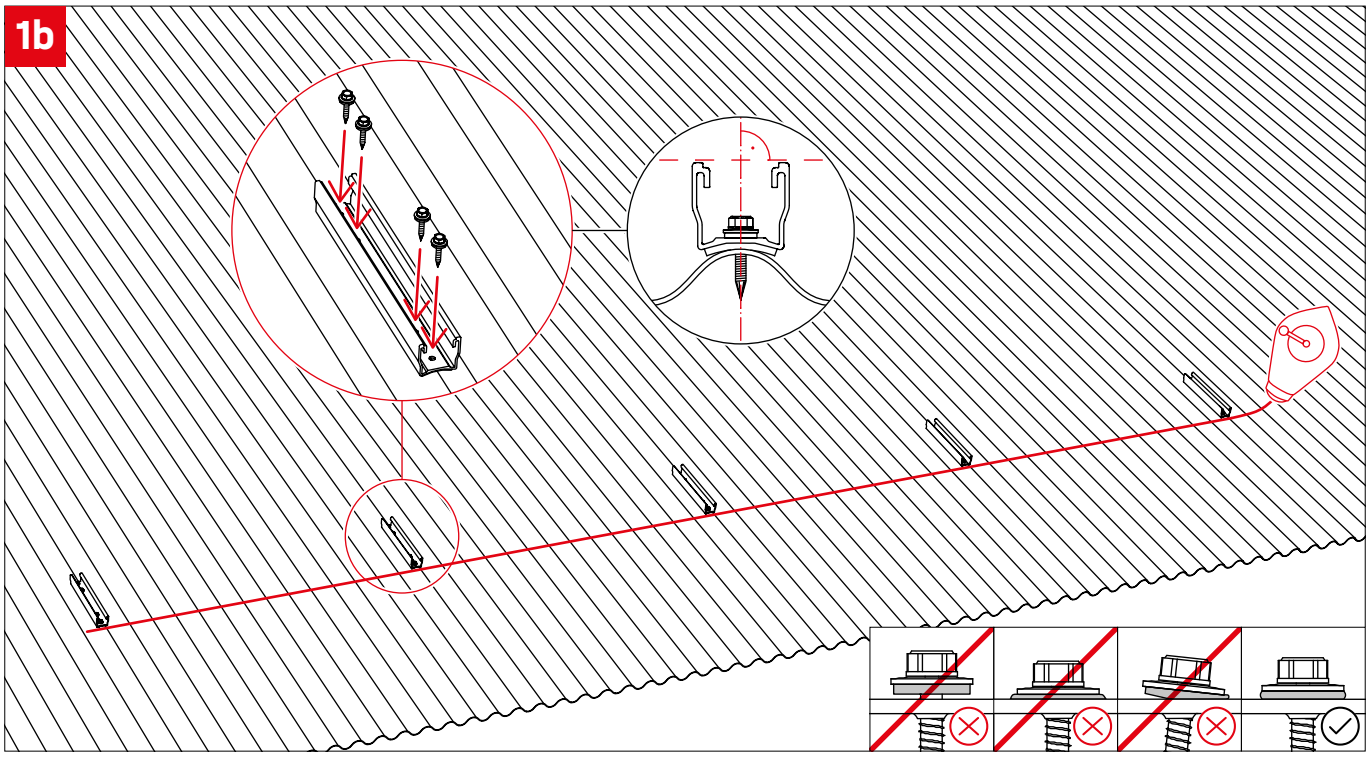
Module block structure



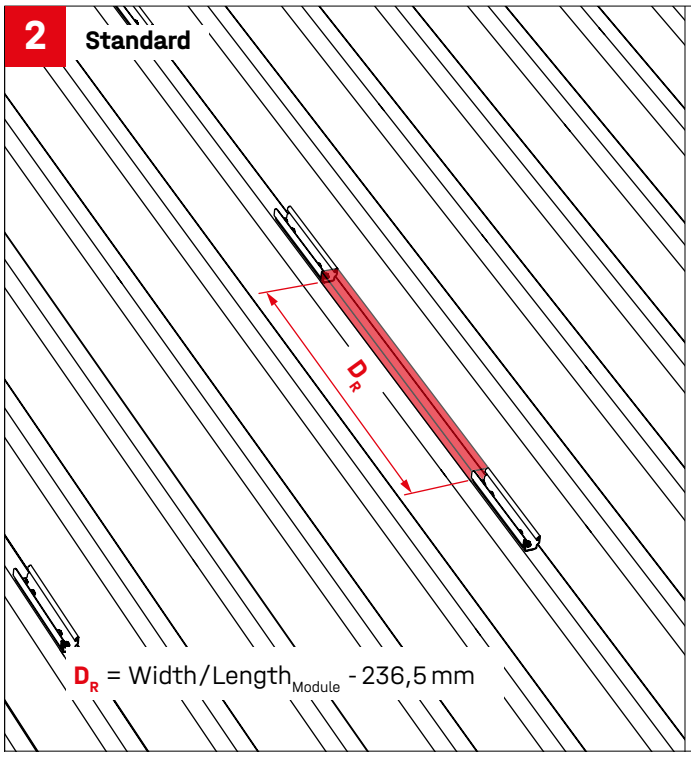
Installation MultRail 25 on trapezodial sheet metal



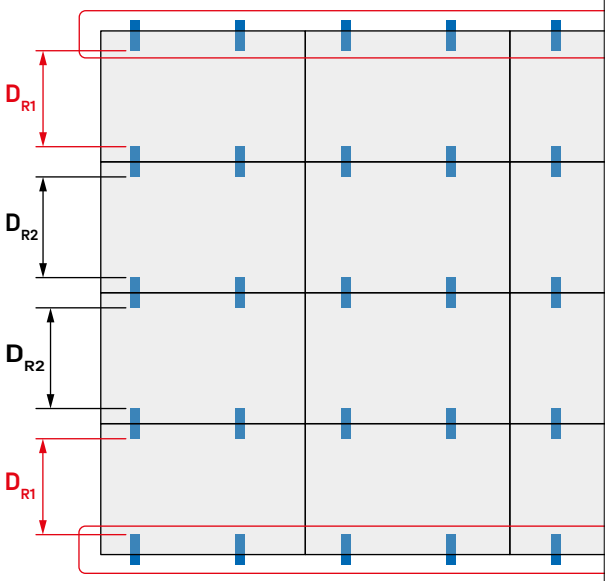
Installation MultRail 25 CSM on corrugated sheet metal



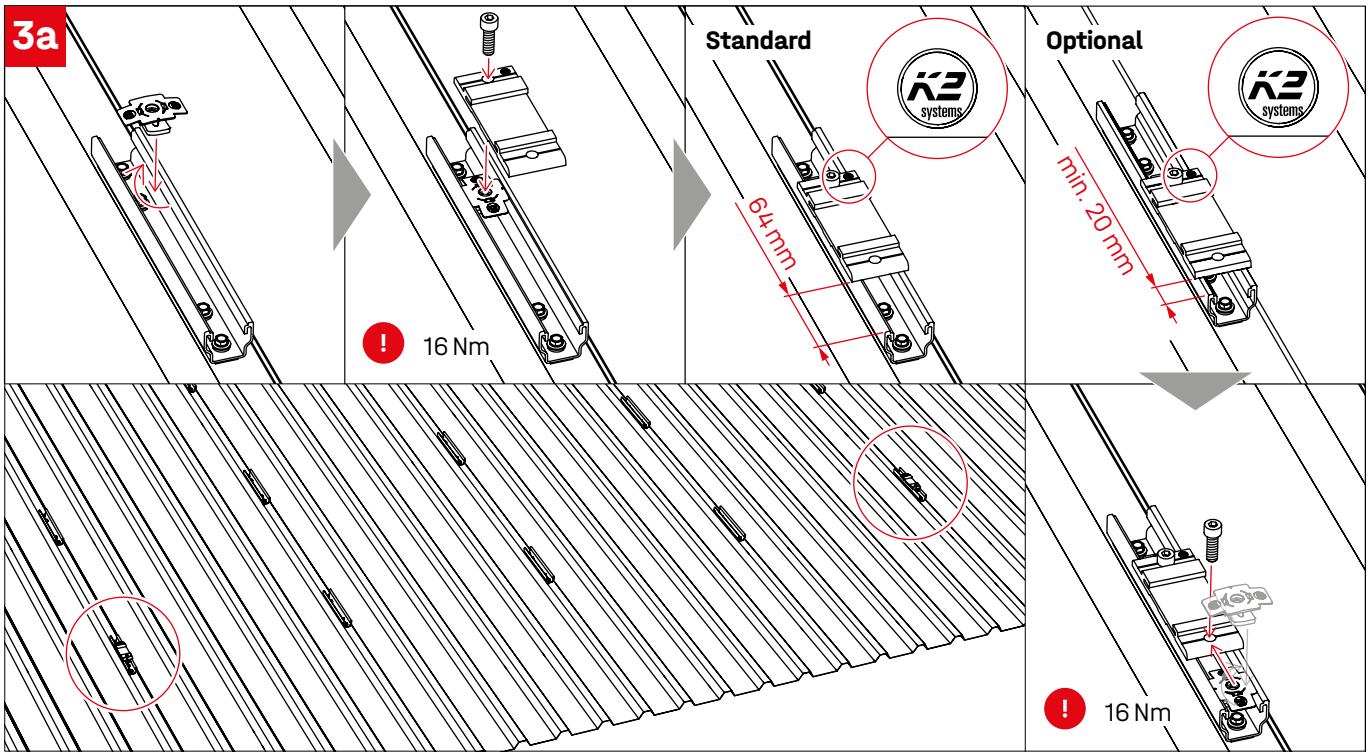
Vertical distance MultiRails



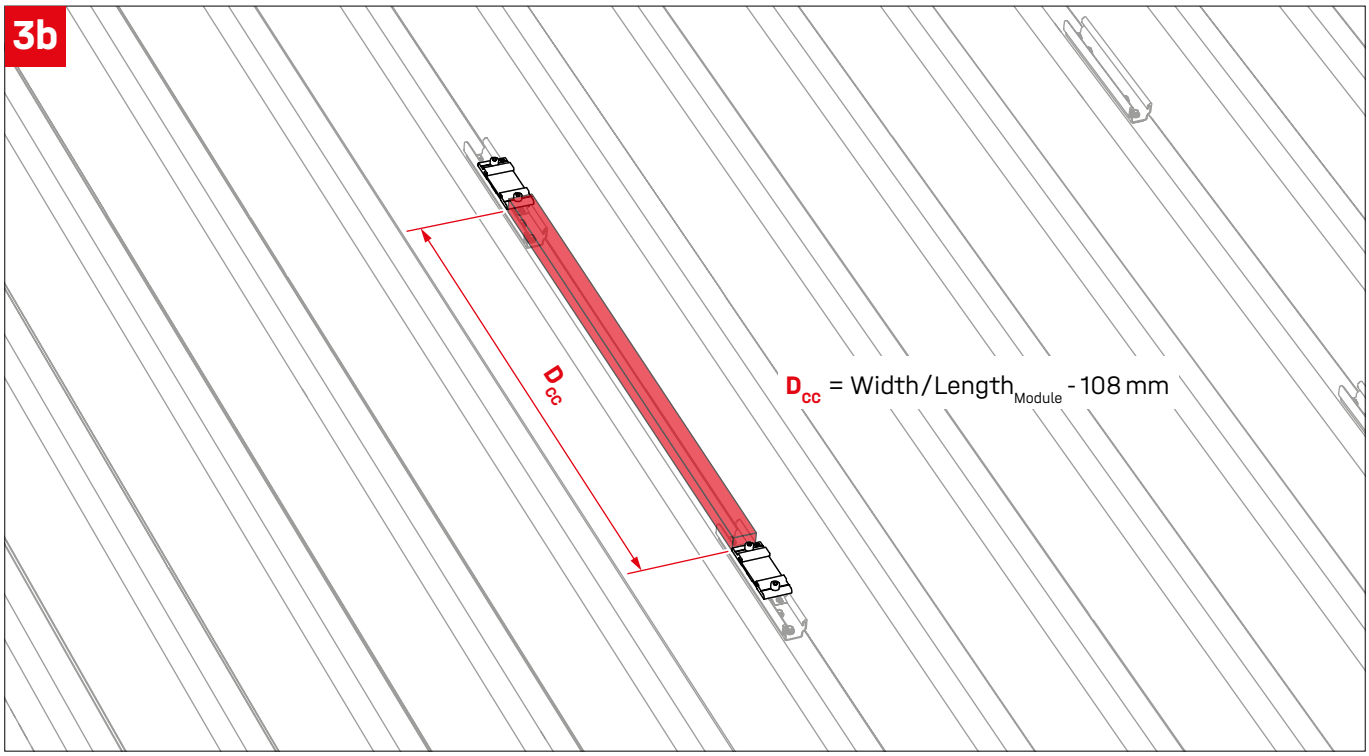
Optional: The first and last MultiRail row can be moved further inwards - see page 5.



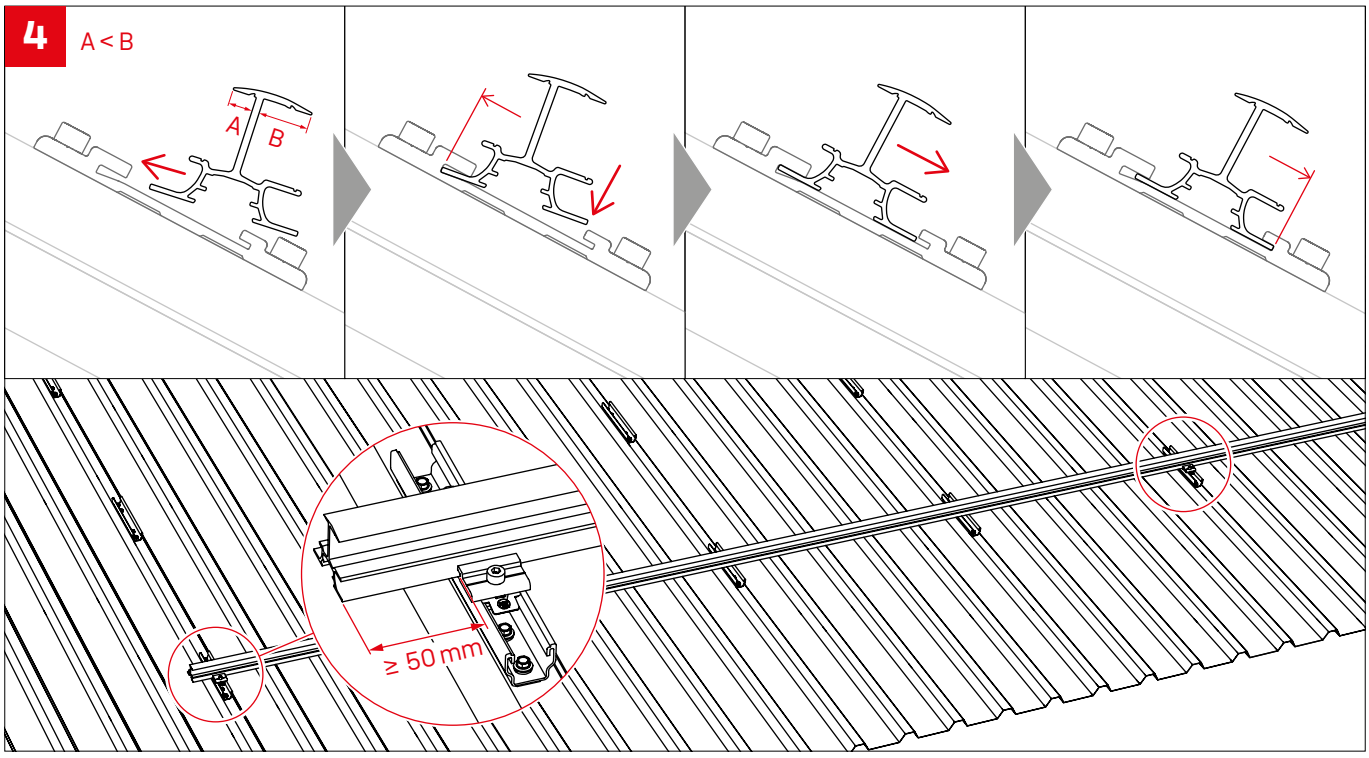
CrossConnector part 1 - mount external CrossConnectors



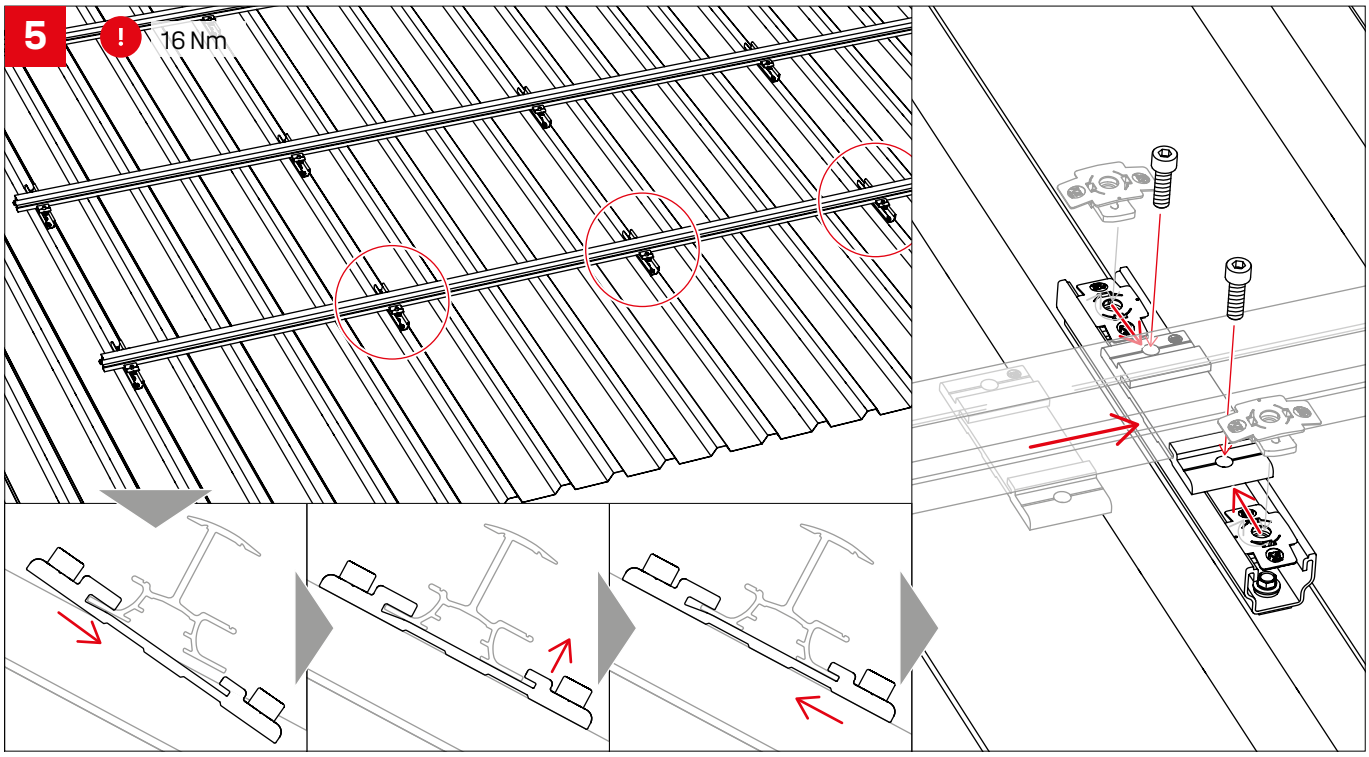
Vertical distance CrossConnectors



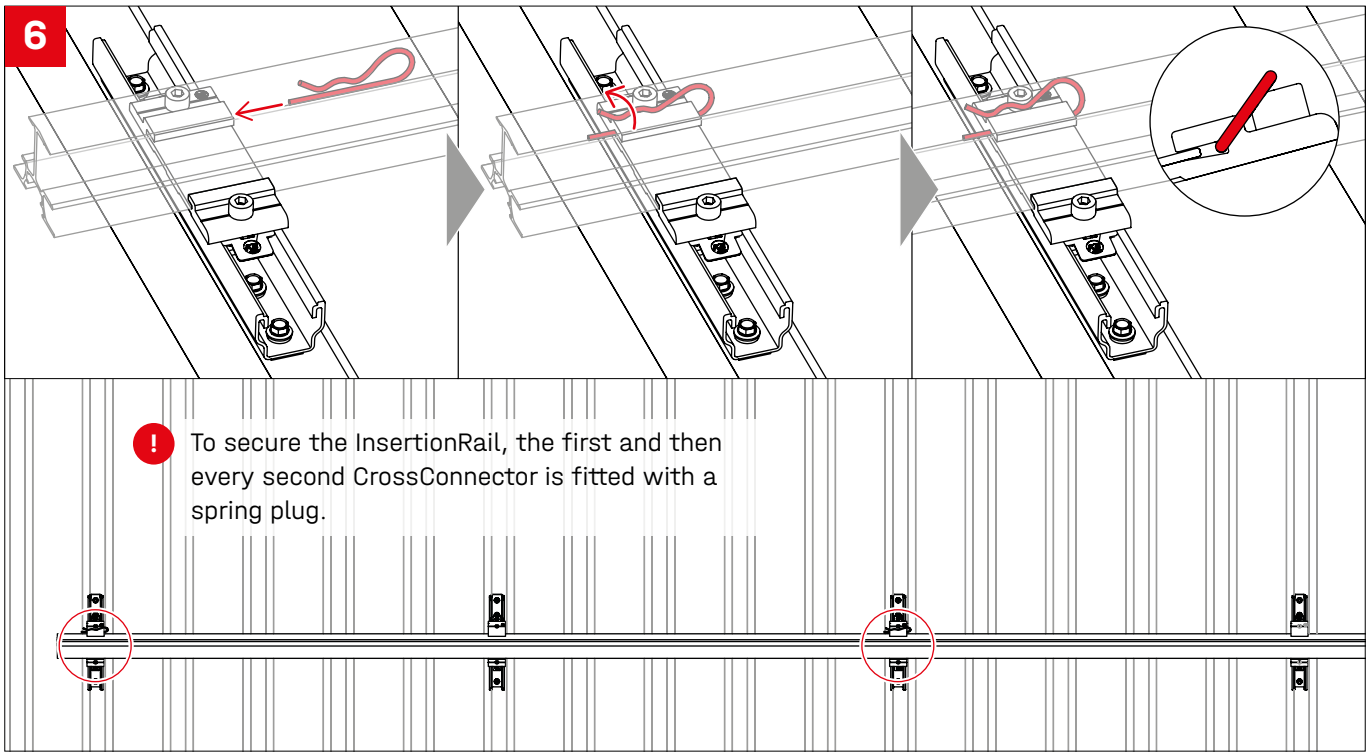
Attach InsertionRail



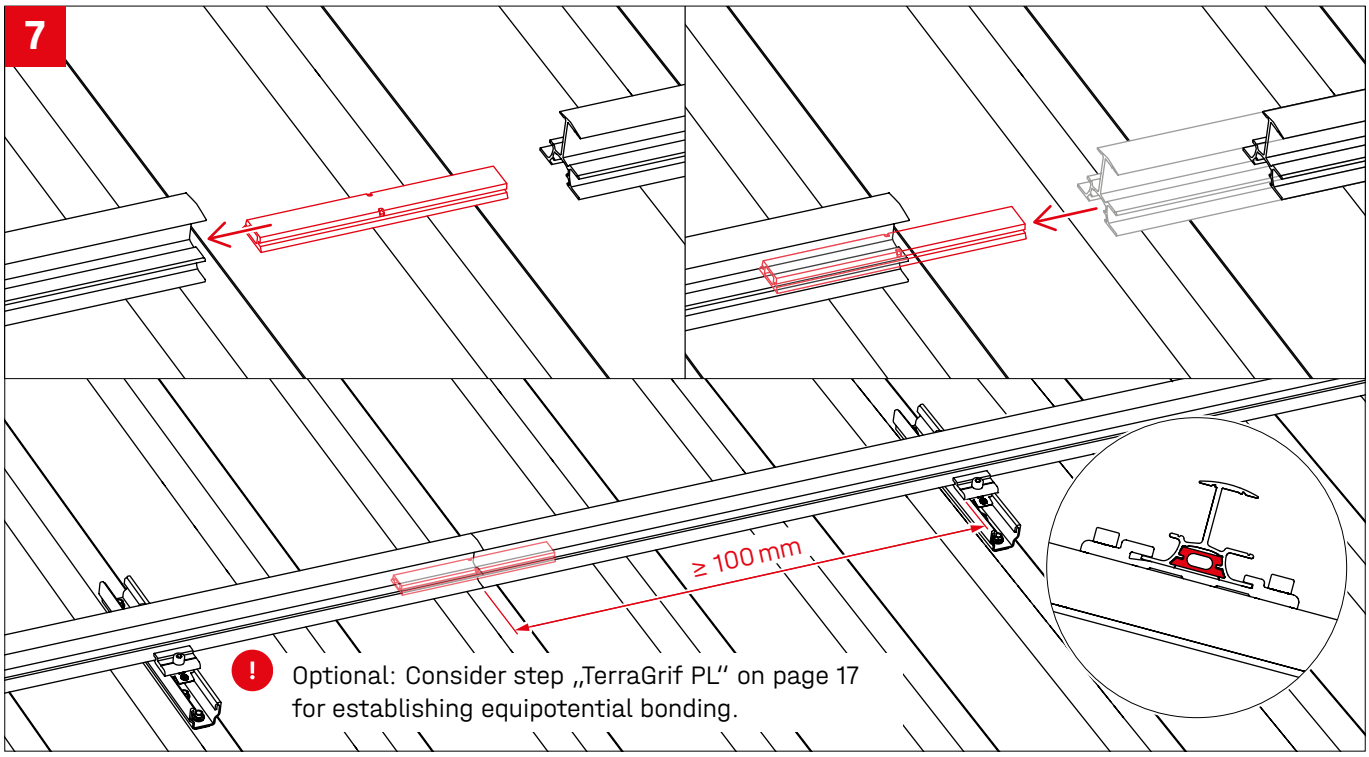
CrossConnector part 2 - mount internal CrossConnectors



Fixation with spring plug

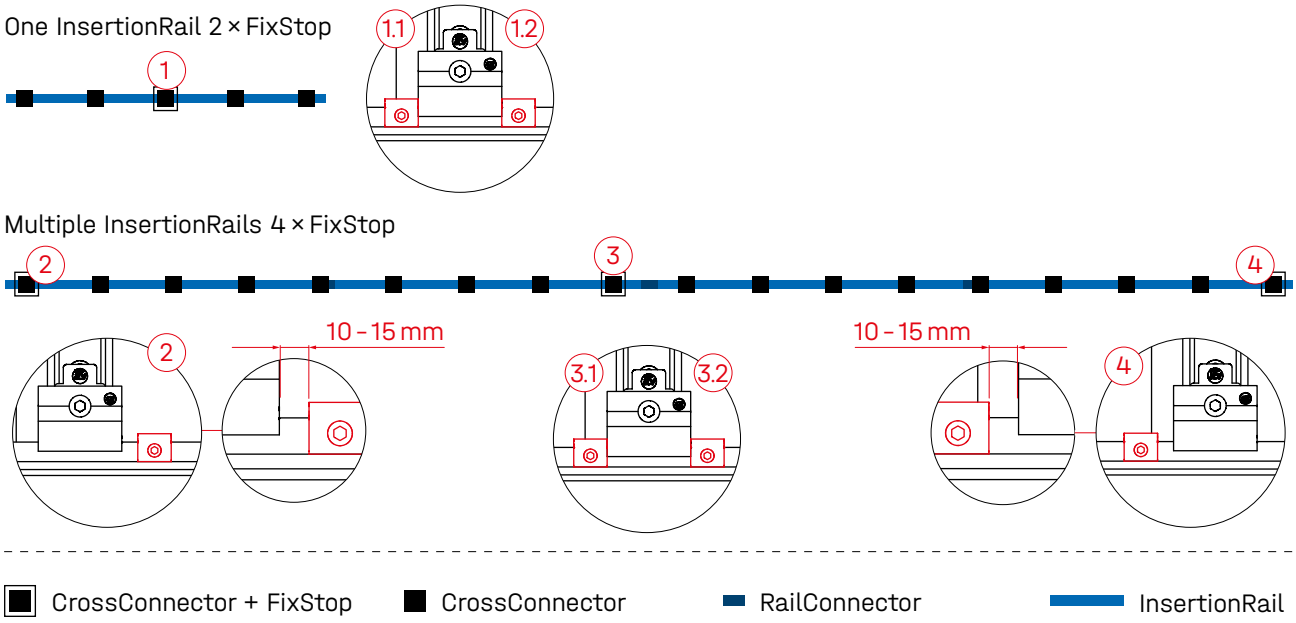


Connecting rails with RailConnector



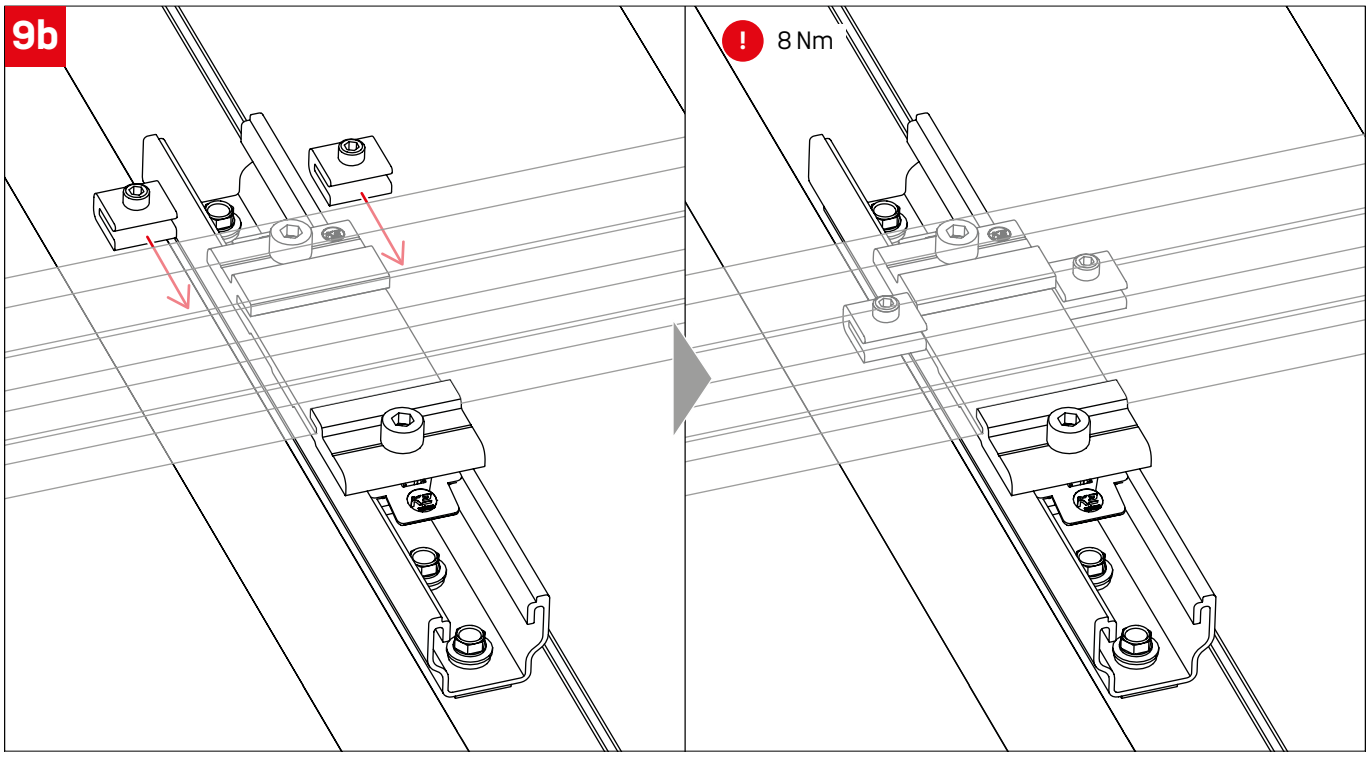
FixStop positioning

9a

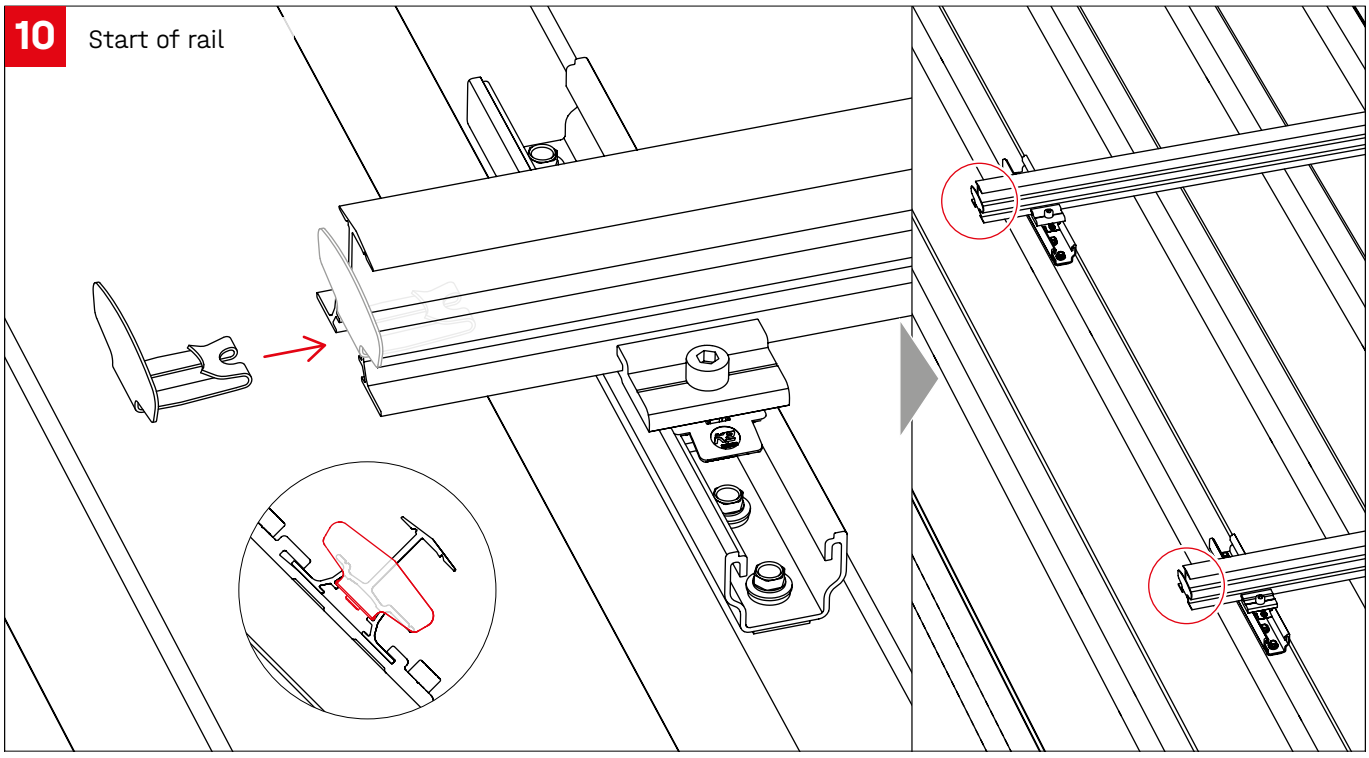


Assembly FixStop

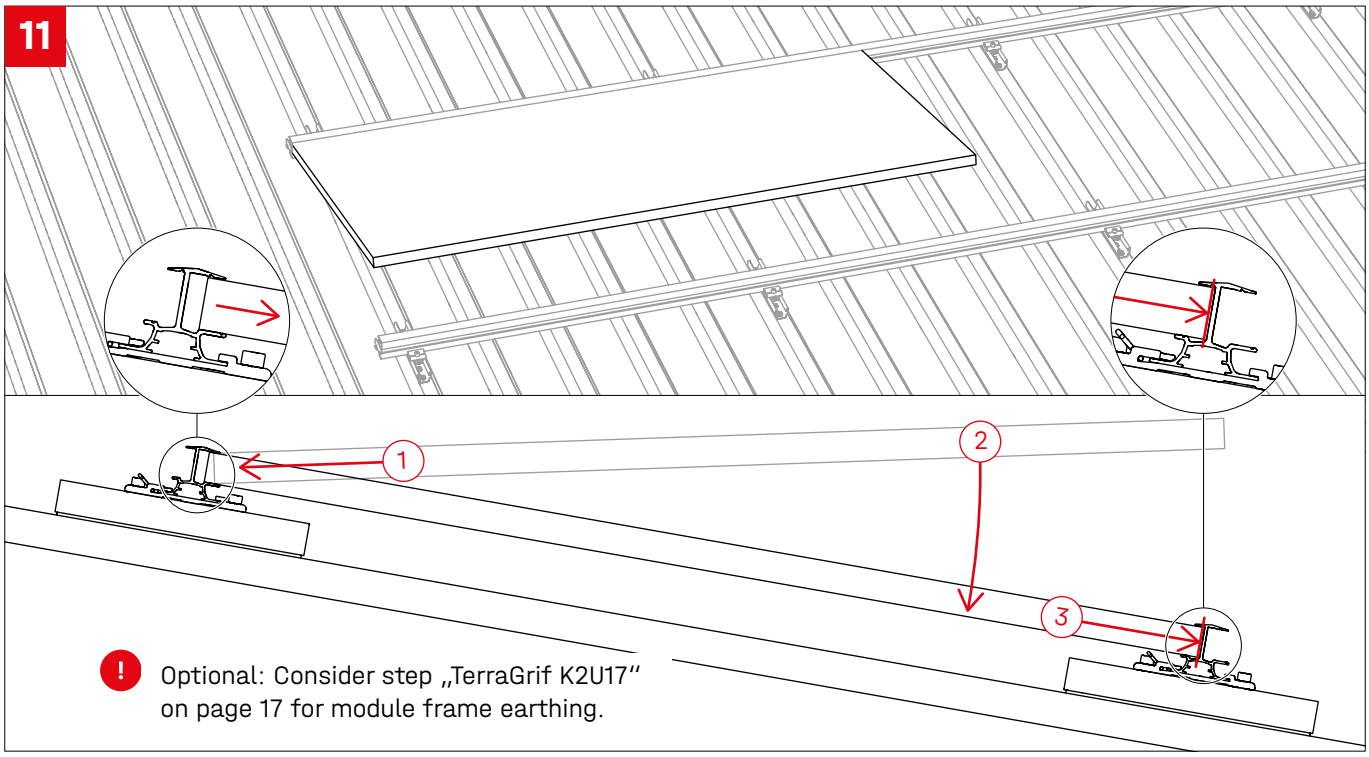
9b



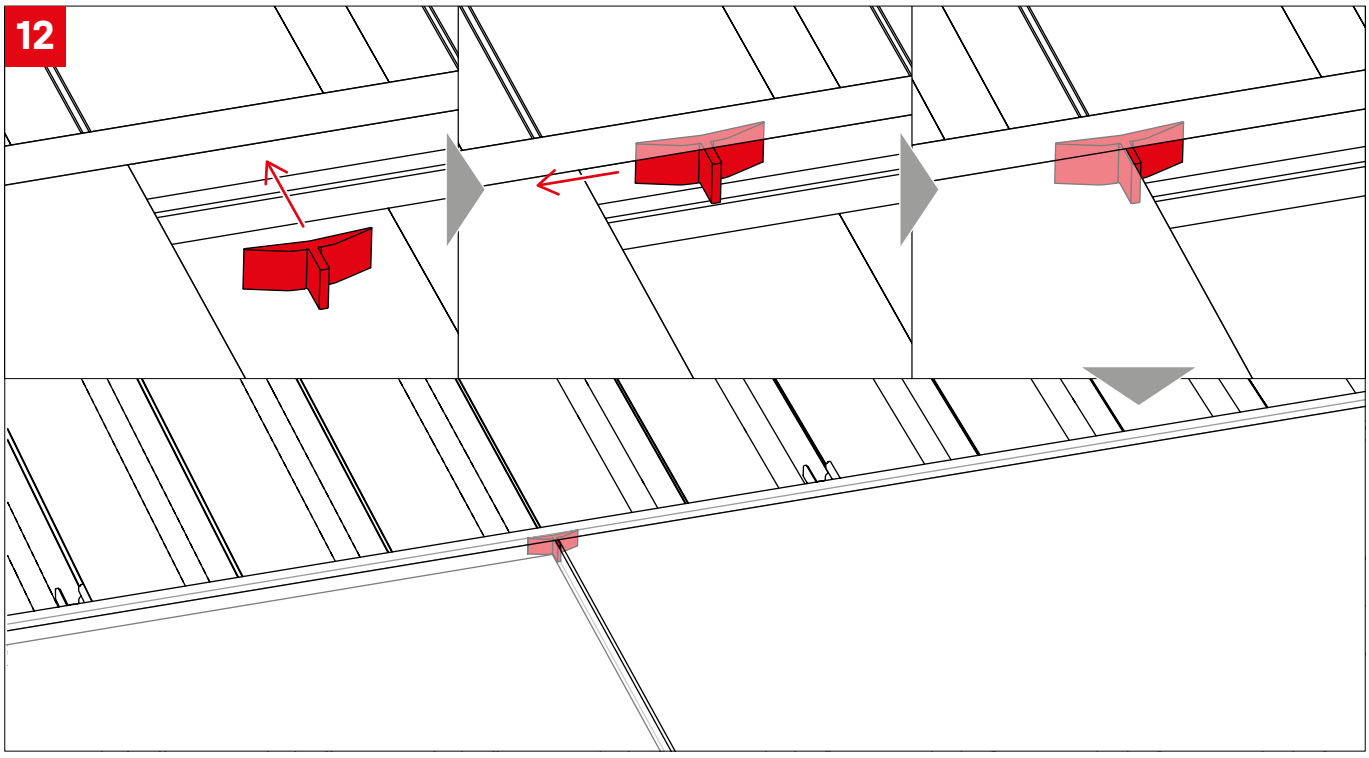
Side guarding EndStop 1



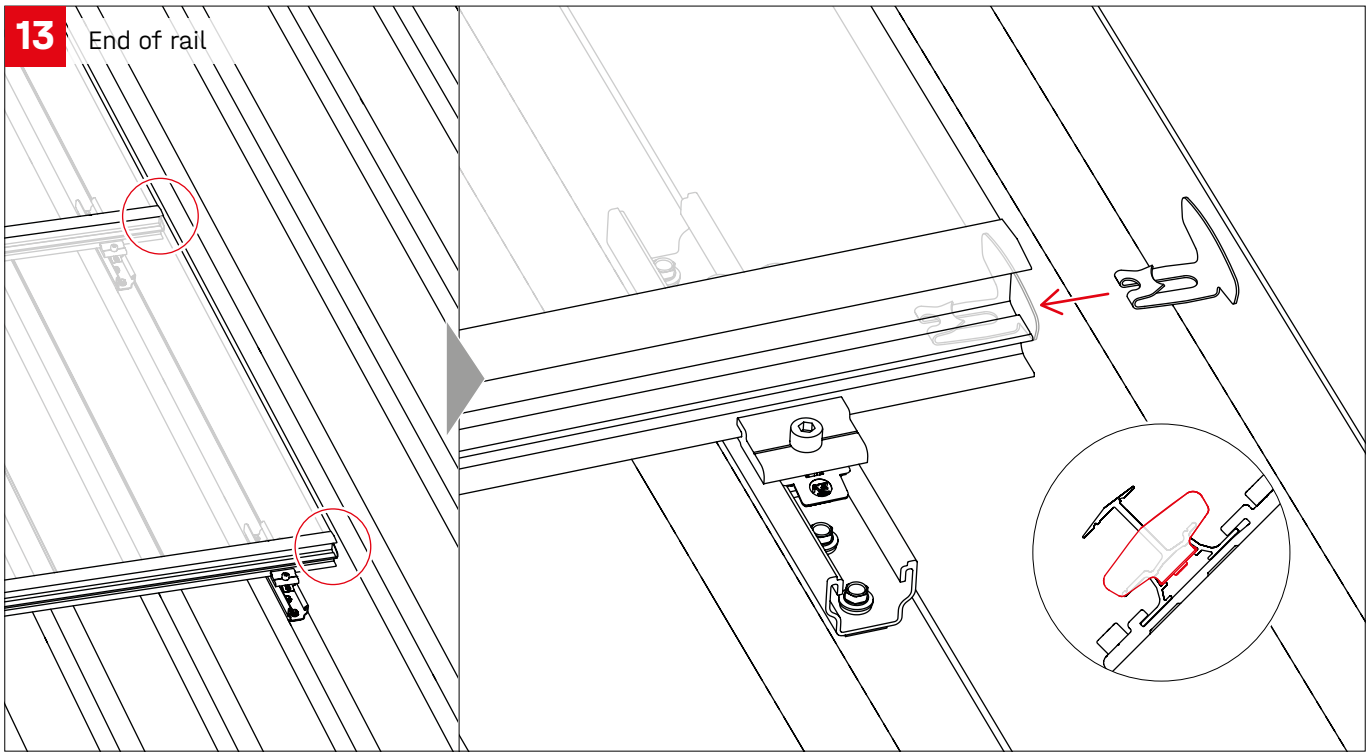
Insert modules



Placement of spacers ModuleSafety

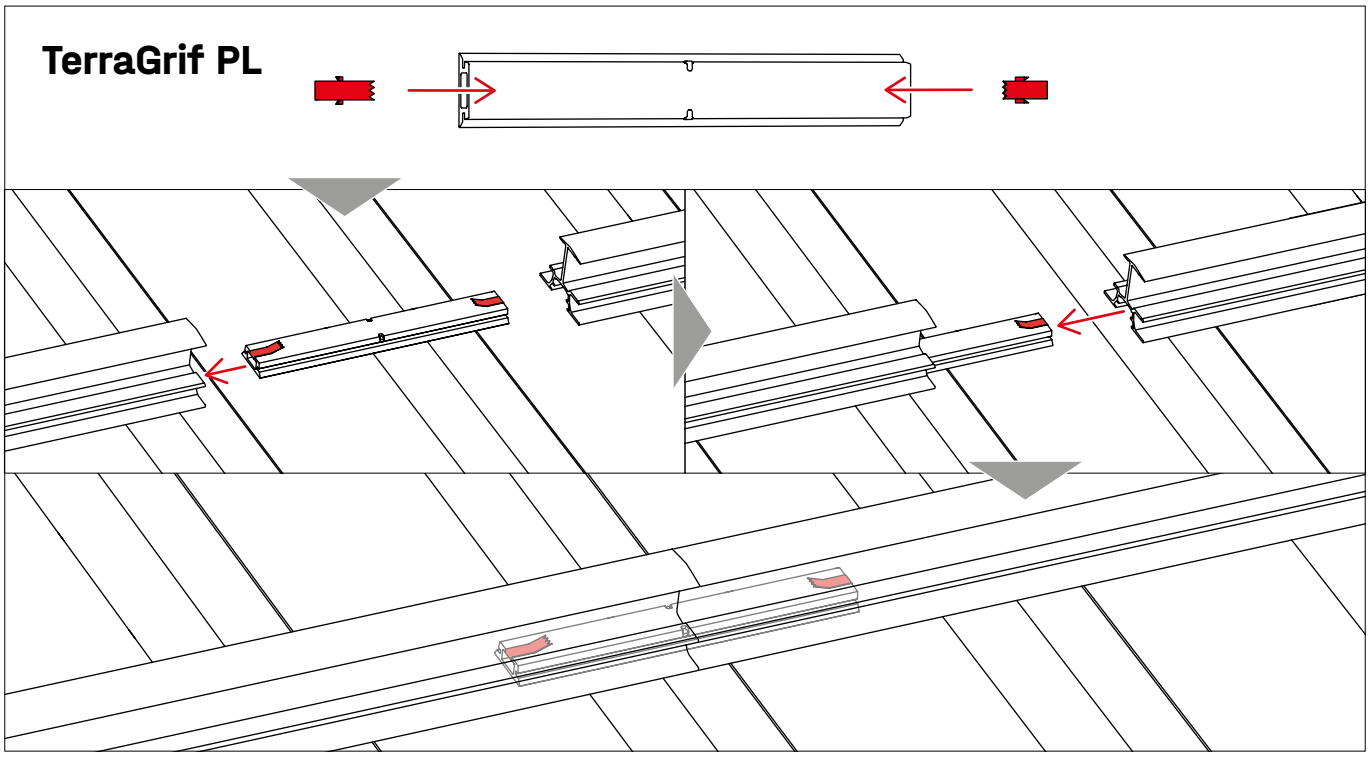


Side guarding EndStop 2

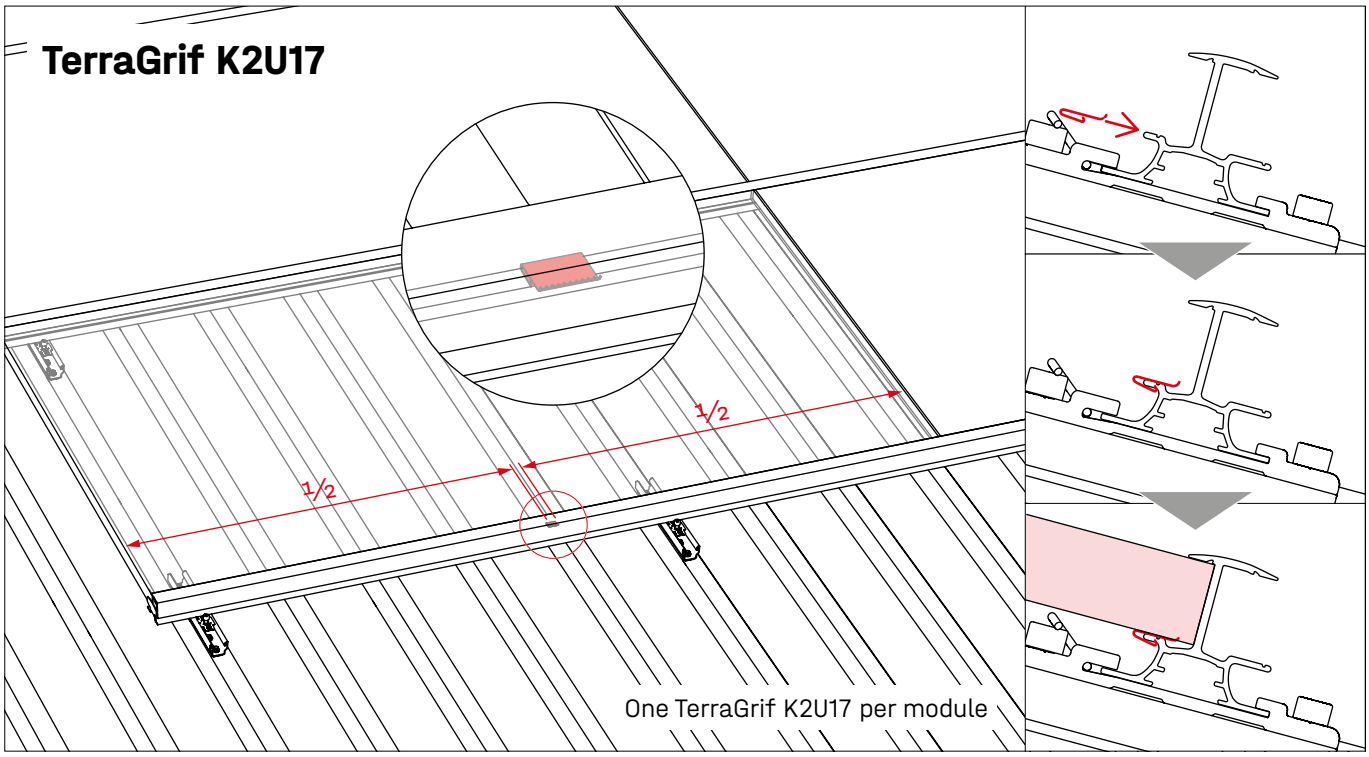


Equipotential bonding / Module frame earthing

TerraGrif PL



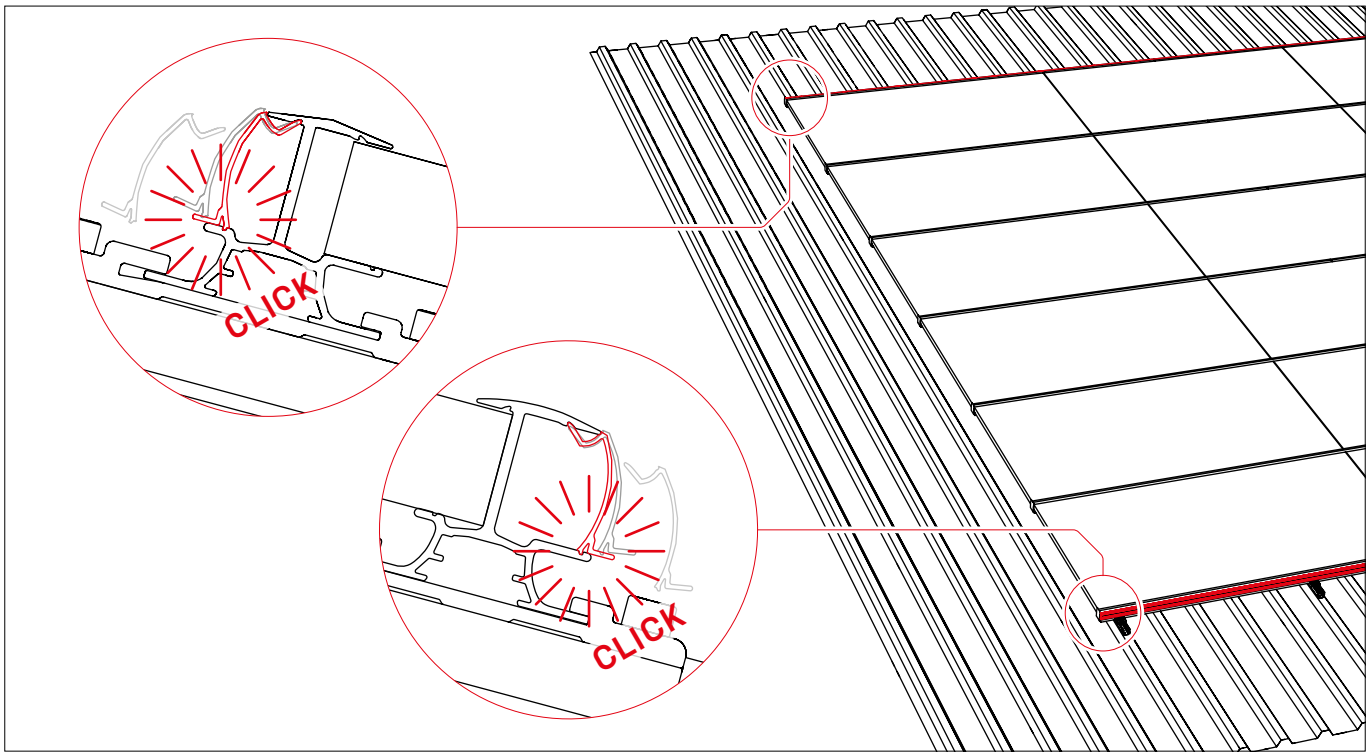
TerraGrif K2U17



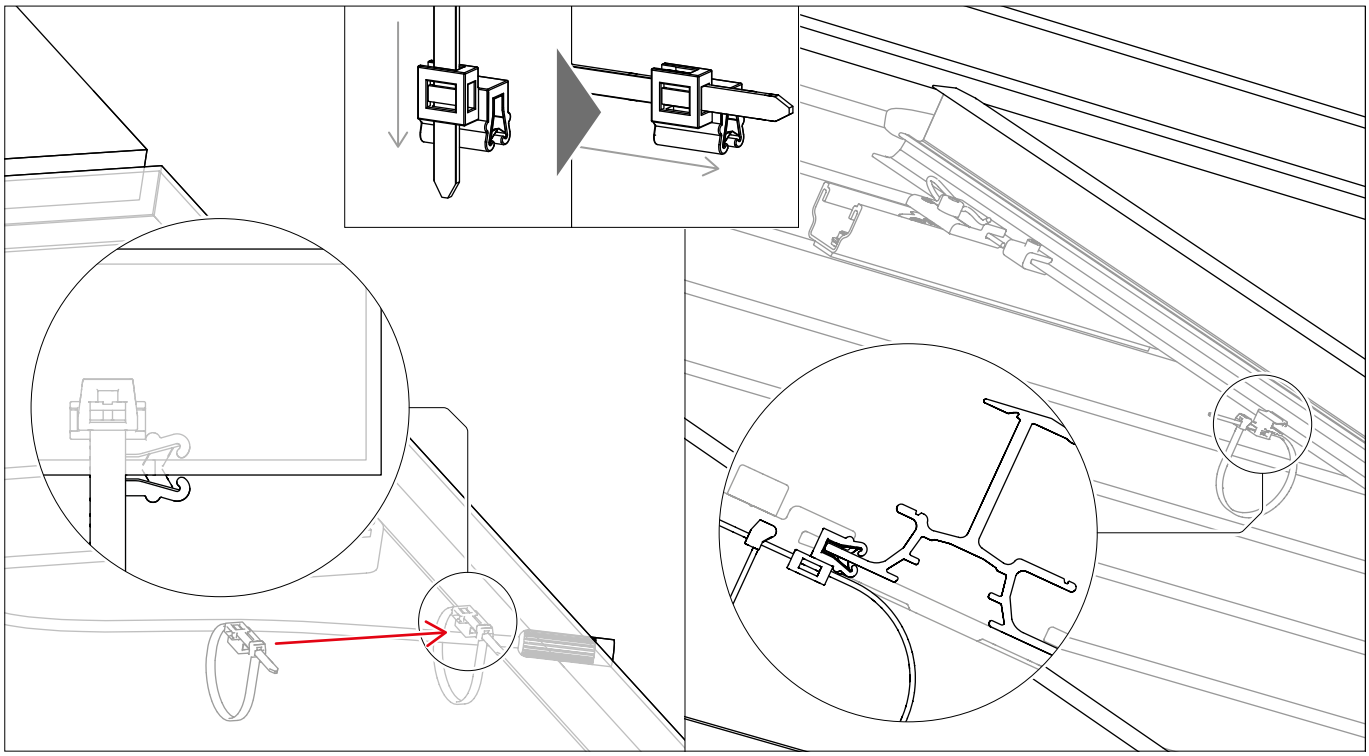
One TerraGrif K2U17 per module

Optional

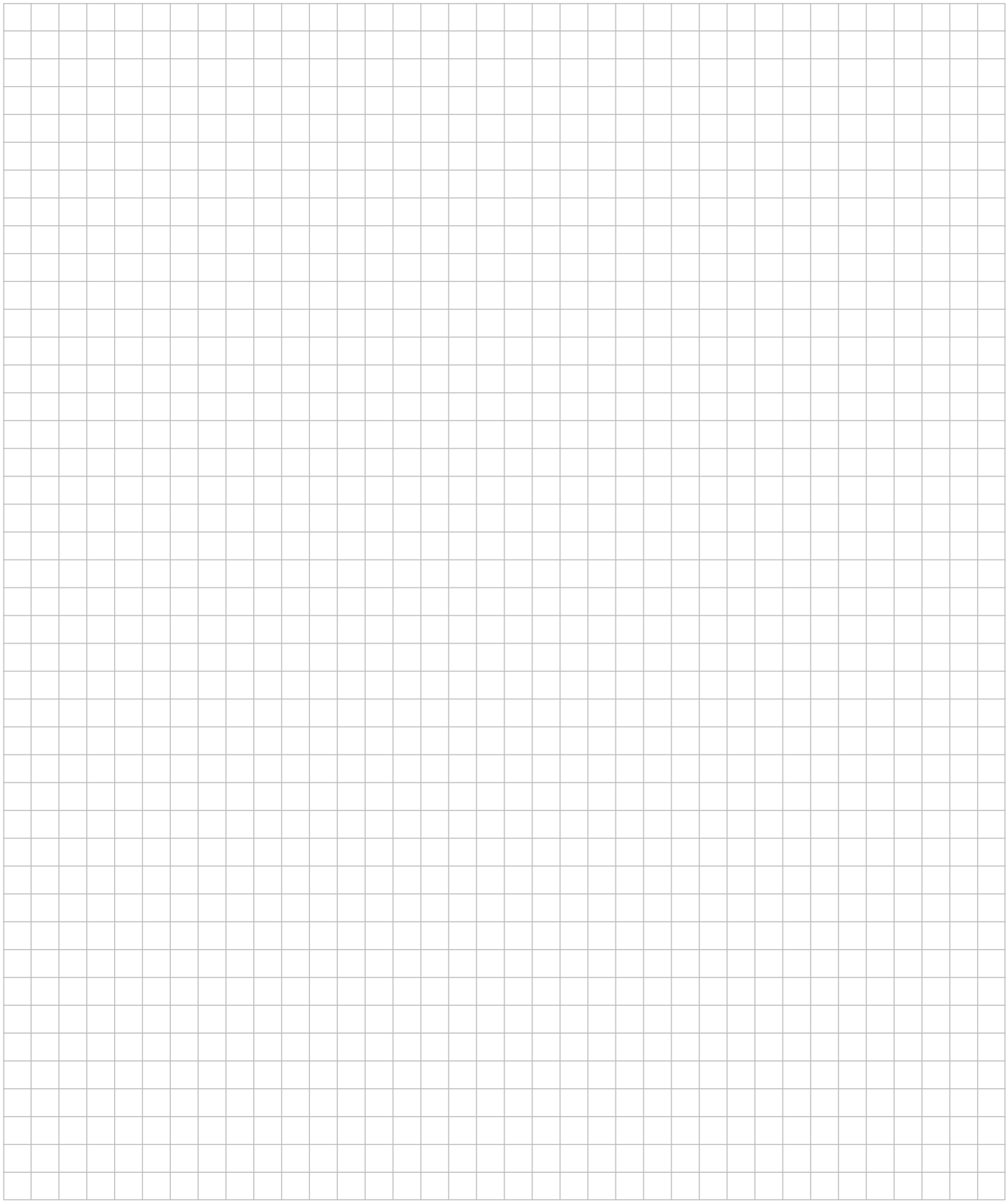
InsertionRail Cover



Cabel management with Cable Manager



Notes



Thank you for choosing a K2 mounting system.

Mounting ystems 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 V5 | 0425 · Subject to change
Product illustrations are exemplary and may differ from the original.