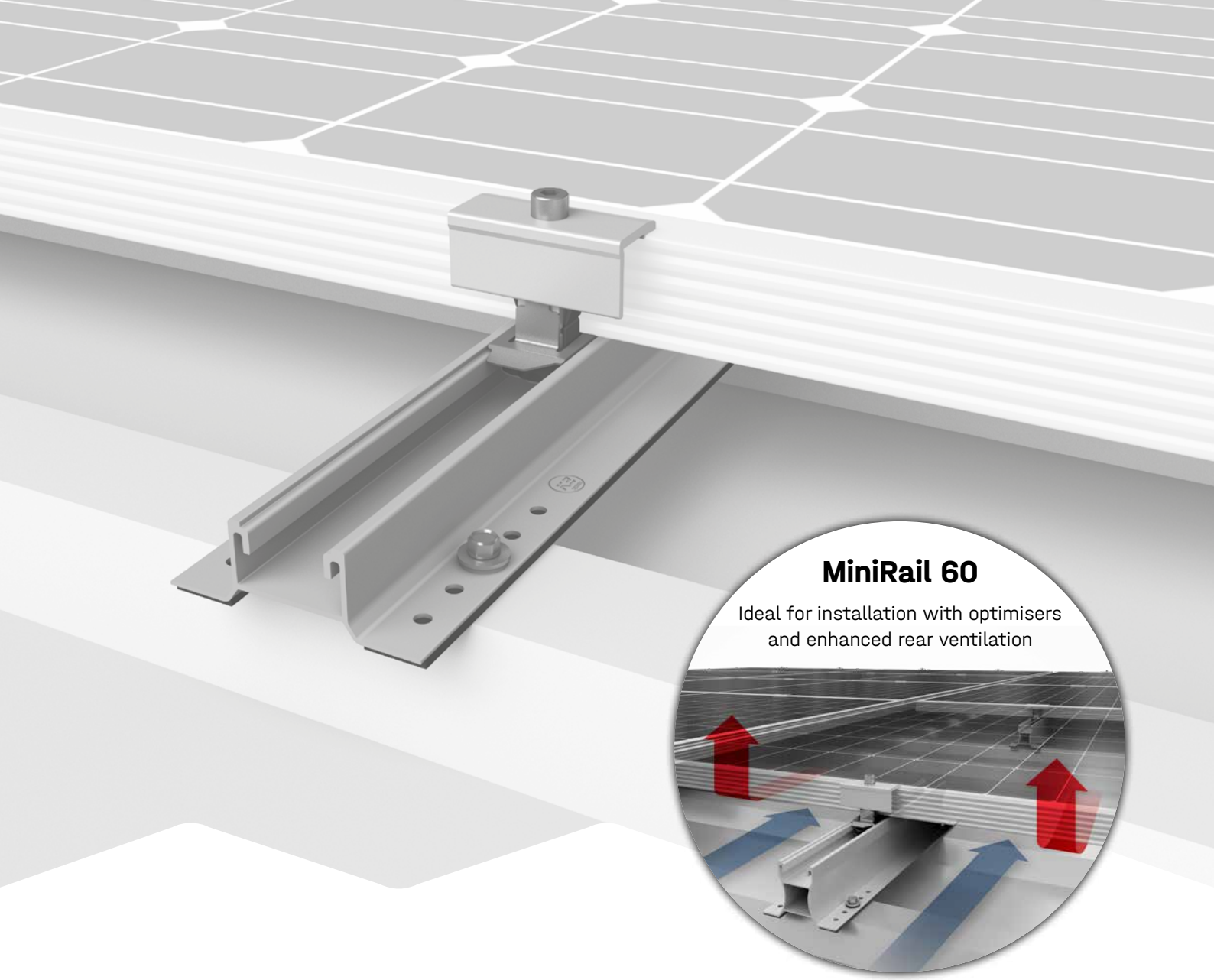

MiniRail 60

Ideal for installation with optimisers and enhanced rear ventilation

Assembly Manual

MiniRail MK2 System

Connecting Strength

k2-systems.com

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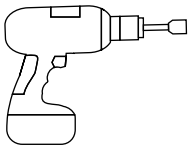
Quality tested - several certifications

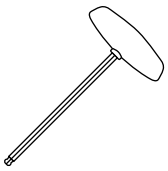
K2 Systems stands for secure connections, highest quality and precision. Our customers and business partners have known that for a long time. Independent institutes have tested, confirmed and certified our capabilities and components.

Please find our quality and product certificates under:
k2-systems.com

Tools overview



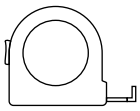
6 mm



6 mm

6 - 30 Nm
(4.5 - 22.2 lb-ft)

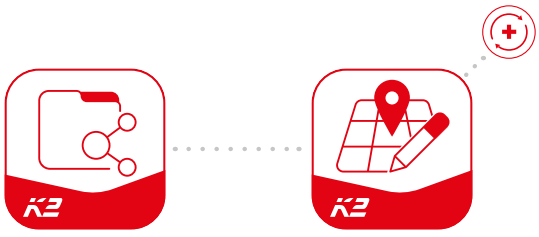
6 mm



≥ 3.0 m

≥ 6.0 m

Digitale Toolbox



Do you already know our digital services? Use our K2 Roof Check App 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 other manufacturers. With the K2 DocuApp, project documentation is done quickly and easily - without annoying paperwork.

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 k2-systems.com 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.
- German law shall apply excluding the UN Convention on CISG. Place of venue is Stuttgart. Our General Terms of Business apply.
- 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.
  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

The MiniRail MK2 system can be used without further testing by K2 Systems in the following standard conditions. The system 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

- Trapezoidal sheet metal thickness
  - Aluminium ≥ 0,5 mm (with a tensile strength of 165 N/mm²)
  - Steel ≥ 0,4 mm (S235 acc. DIN EN 10025-1)
- Min. 22 mm crest width (The project-specific minimum high crest width dimension can be found in the Base report. It depends on the crest distance.)
- High crest distance 101 - 350 mm
- Flush area surrounding the bore hole: ≥ 20 mm
- Roof pitch regularly: 5 - 75°

Structural requirements

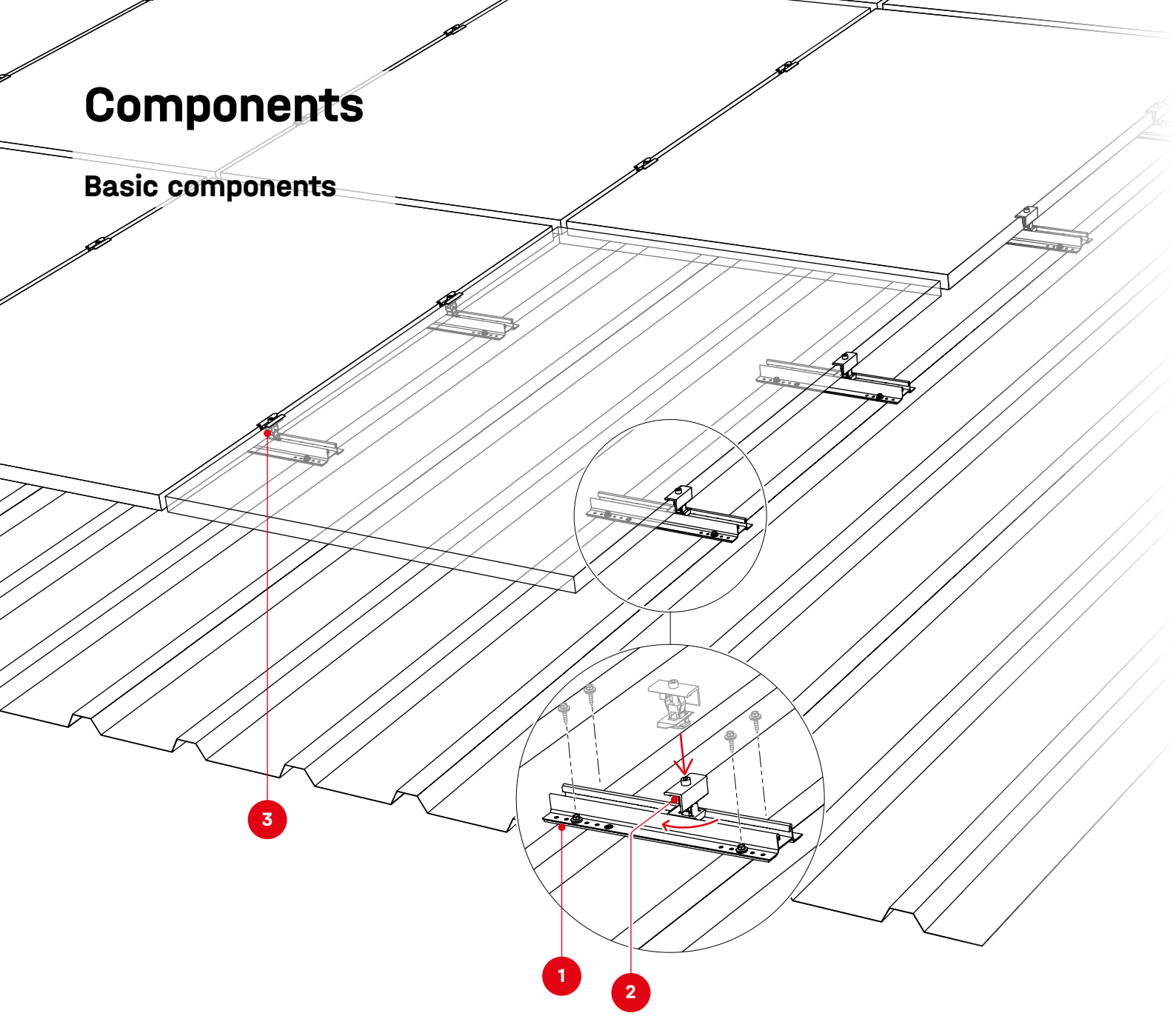
- The static verification of components is automatically calculated for each location using our Base planning software
- Sufficient holding force of the roof covering on the support or substructure

Important mounting instructions

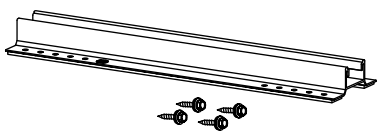
- On-site general standards and regulations for lightning protection must be observed and consultation with a specialist to create a lightning protection concept is recommended (use lightning protection clamp if necessary).
- MiniFive elevation: The exact mounting angle deviates slightly from 5° depending on the module width. This angle decreases with higher module widths.
- We recommend a thermal separation after maximum of 17.6 m.
- If the trapezoidal sheet is fastened with storm washers, please do not fasten the MiniRails on the storm washers! Spacing must be measured beforehand.
- Module frame heights
  - K2 Clamps: 25 - 40 mm
  - OneMid/OneEnd: 30 - 42 mm
- Adhere to module manufacturer recommendations for clamping area and module installation (see module manufacturer instructions) – tightening torque 16 Nm with M8 screw.
- Fasten the MiniRail to trapezoidal sheets with building approved self-tapping screws.
- No pre-drilling required! Predrill only with overlapping sheets to reduce spacing.

Components

Basic components

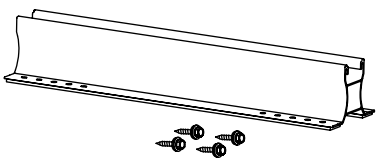


1 2004211
MiniRail MK2 Set

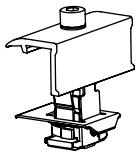


Alternatively

2004596
MiniRail 60 Set



2 Item number project specific!
Module end clamps



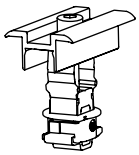
K2 Clamp EC
25 - 40

XS Clamp EC
30 / 33 / 35

OneEnd
30-42

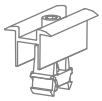
K2 Clamp EC
30 - 40, Hybrid

3 Item number project specific!
Module middle clamps



K2 Clamp MC
25 - 40

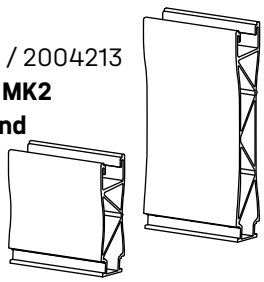
XS Clamp MC
30 / 33-35



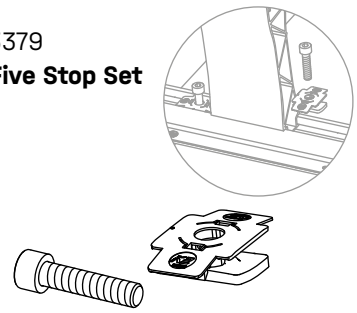
OneMid
30-42

5° elevation with MiniFive

1/2 2004212 / 2004213
MiniFive MK2
Front / End

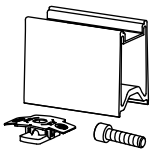


2003379
MiniFive Stop Set

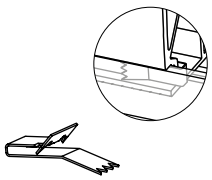


Optional

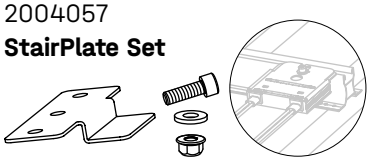
2003191
RailUp Set



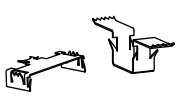
2004102
TerraGrif PL



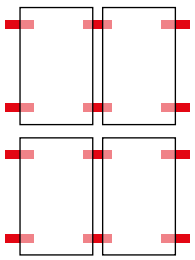
2004057
StairPlate Set



2004231 / 2001881
TerraGrif QL/K2SZ

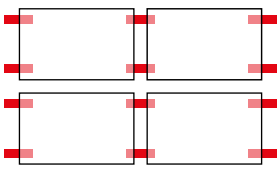


Prescribed placement of MiniRail with MiniFive Front und End



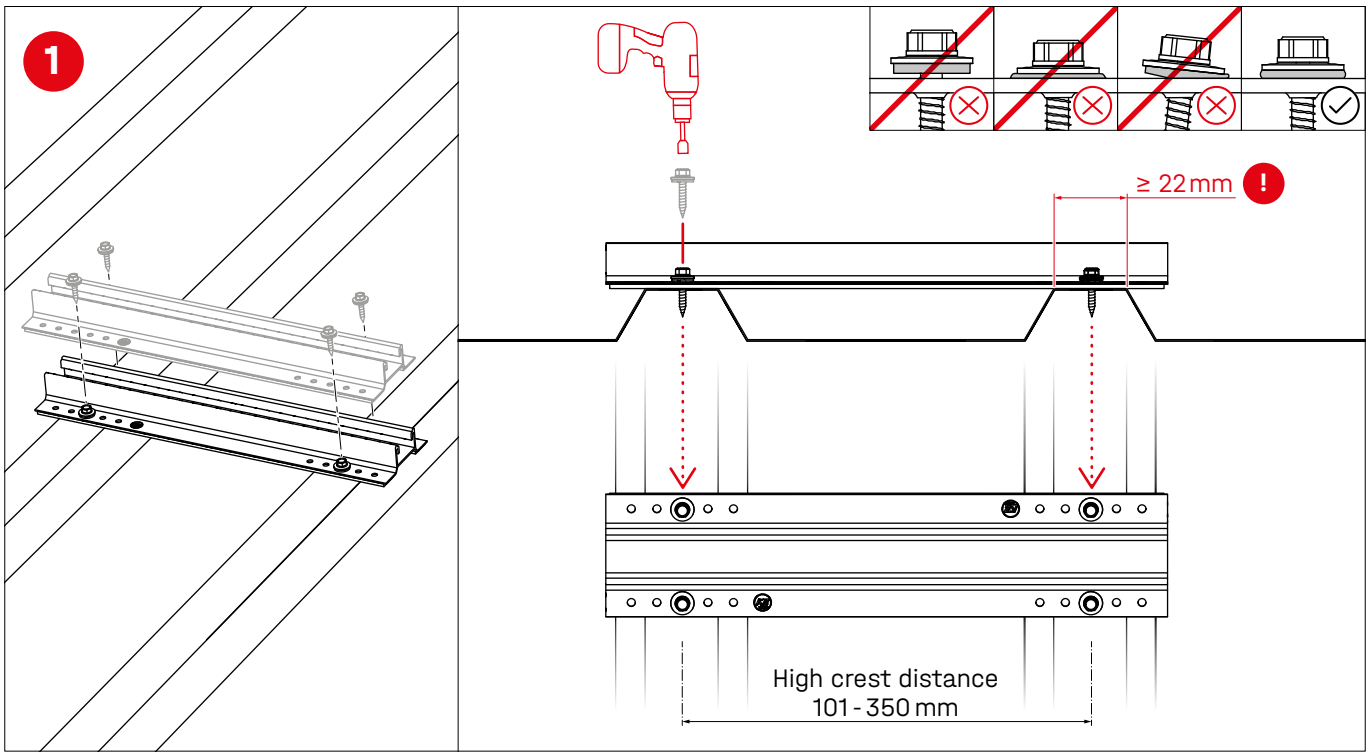
MiniRail with MiniFive Front or End

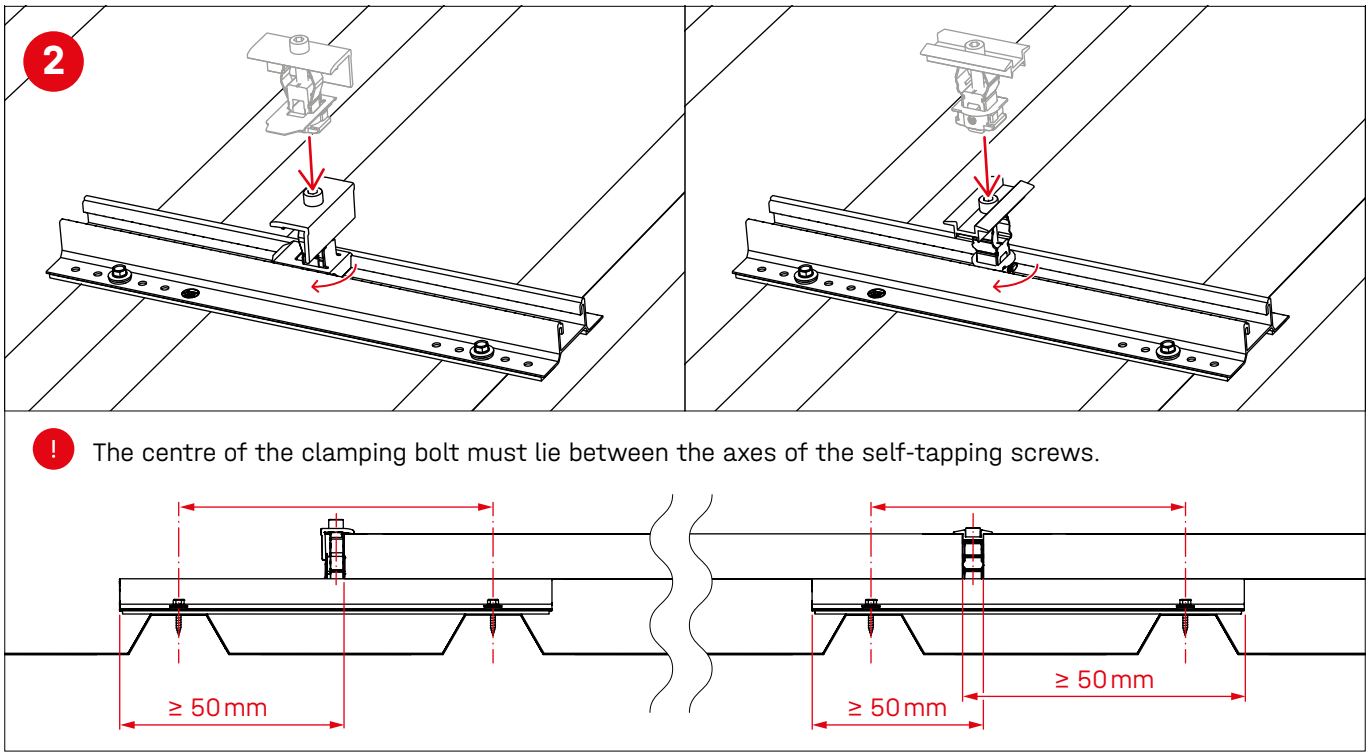
Portrait

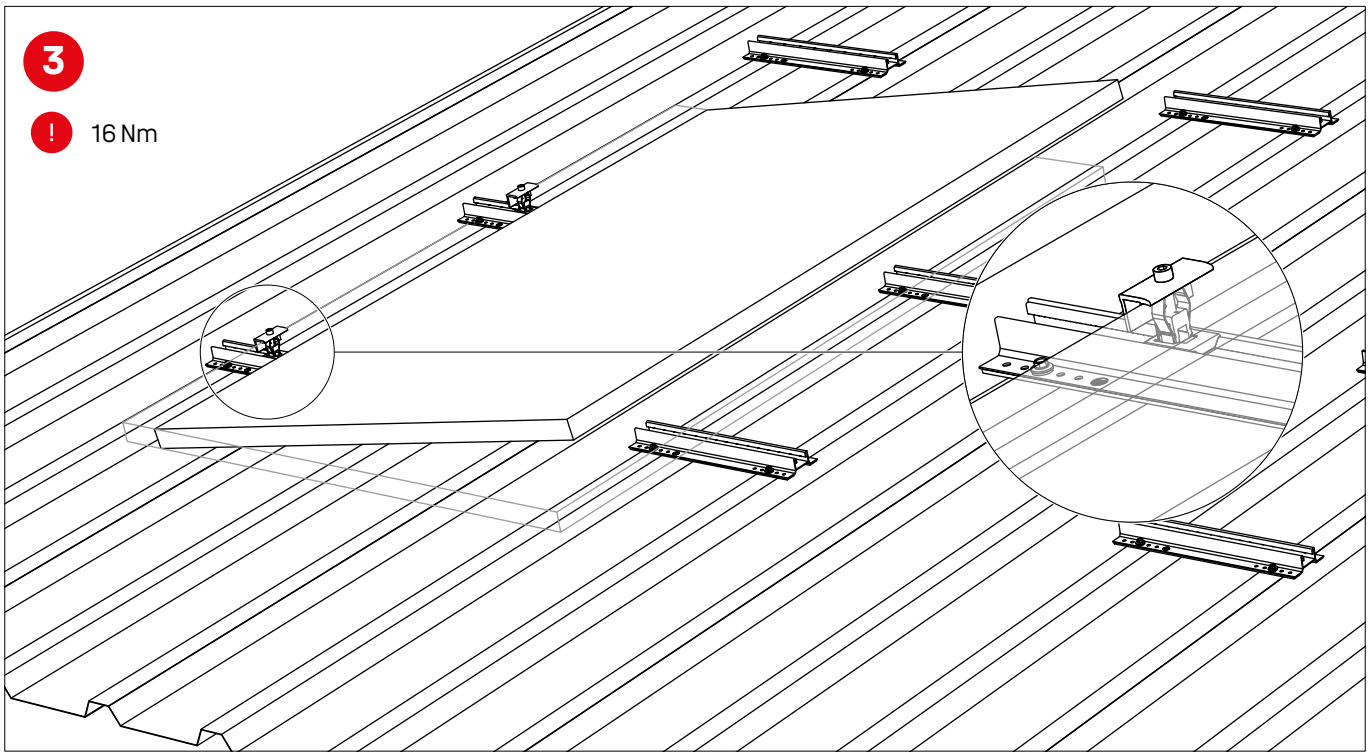


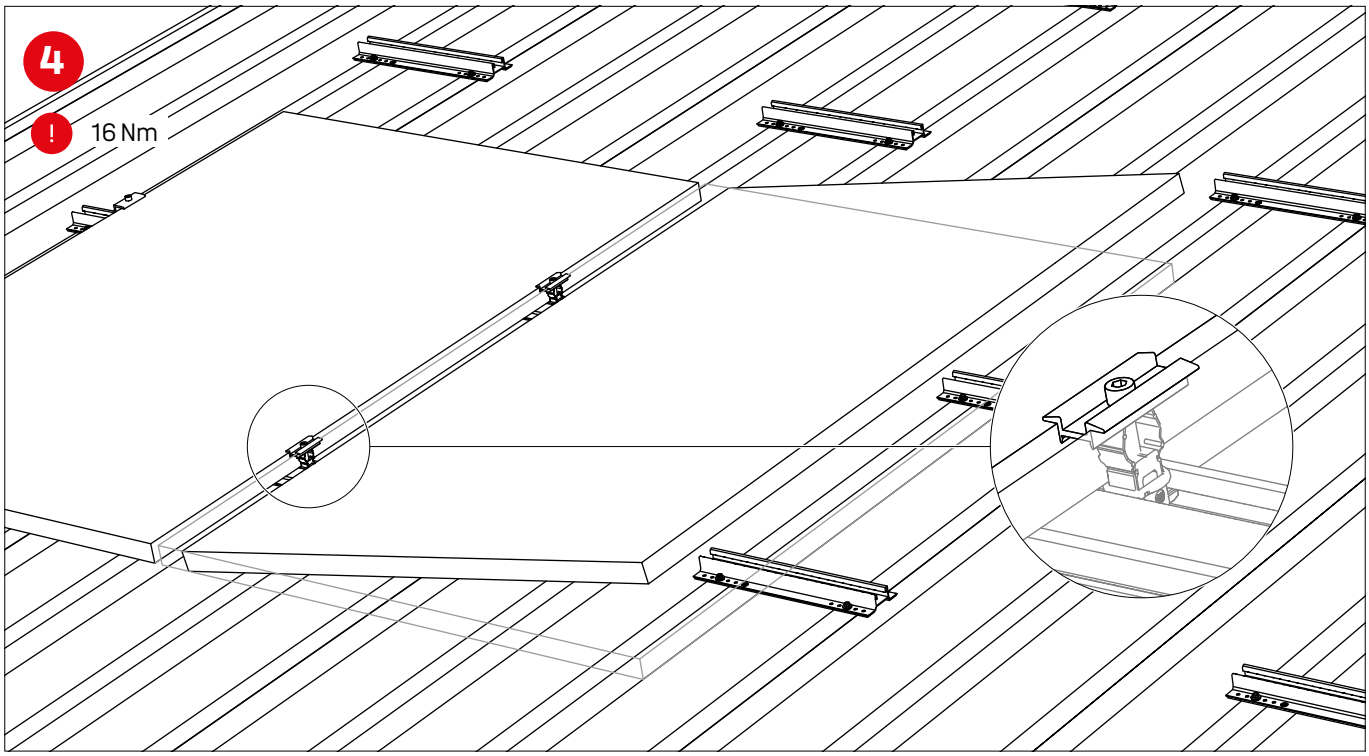
Landscape
Approval of module manufacturer required!

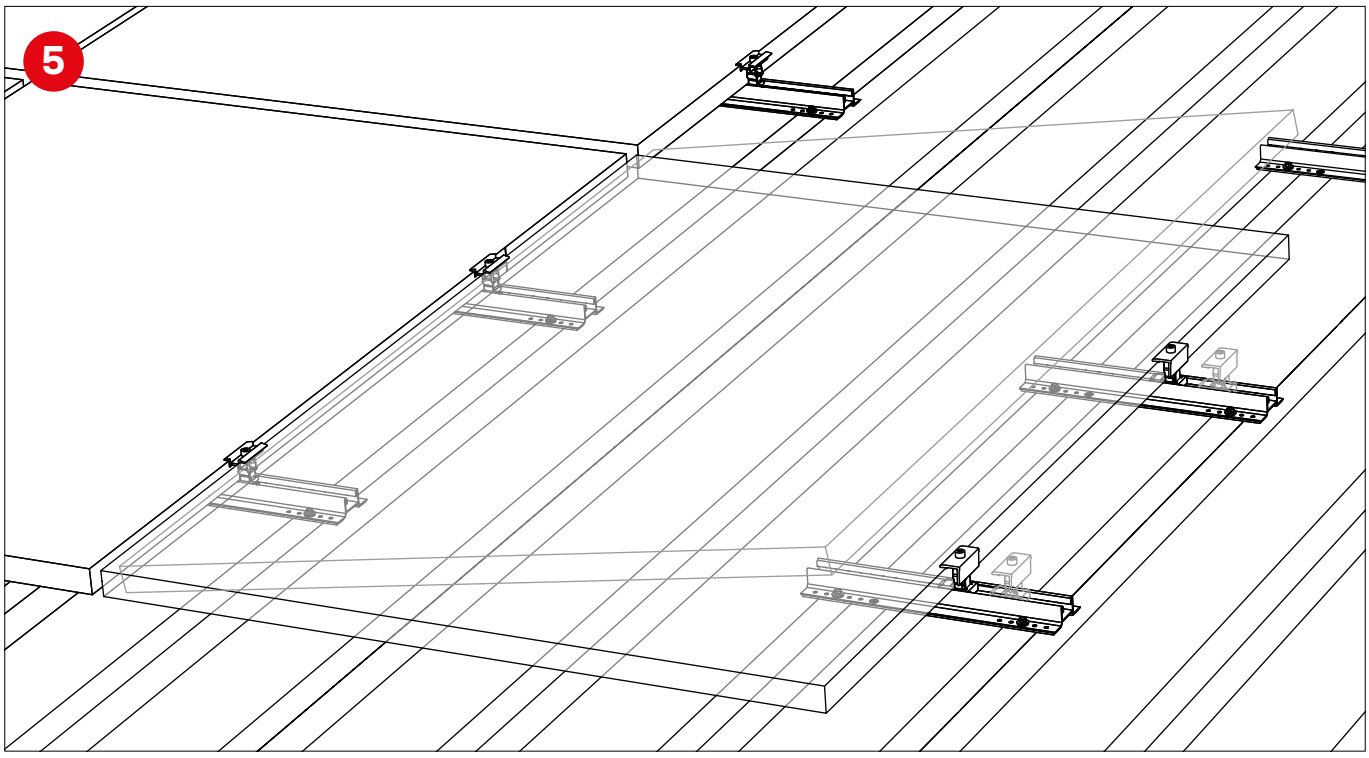
Assembly Portrait

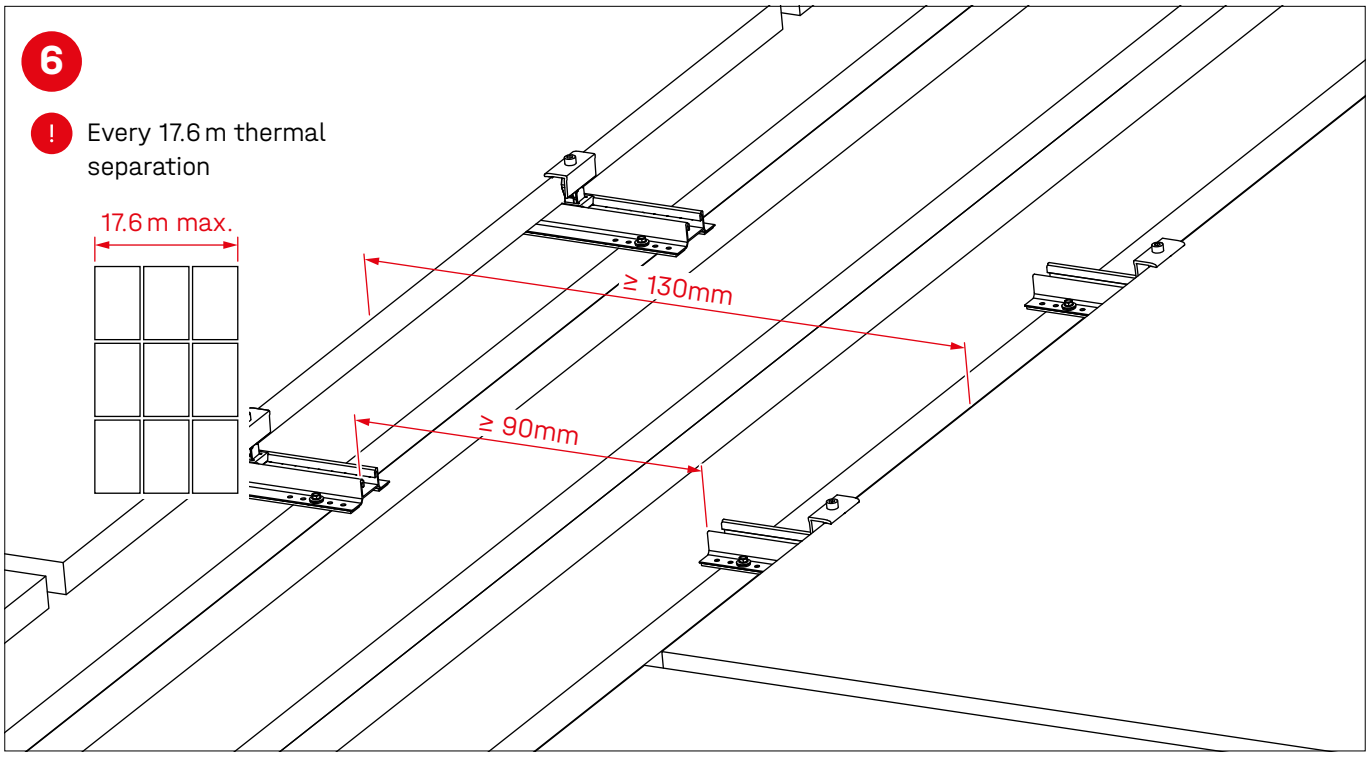




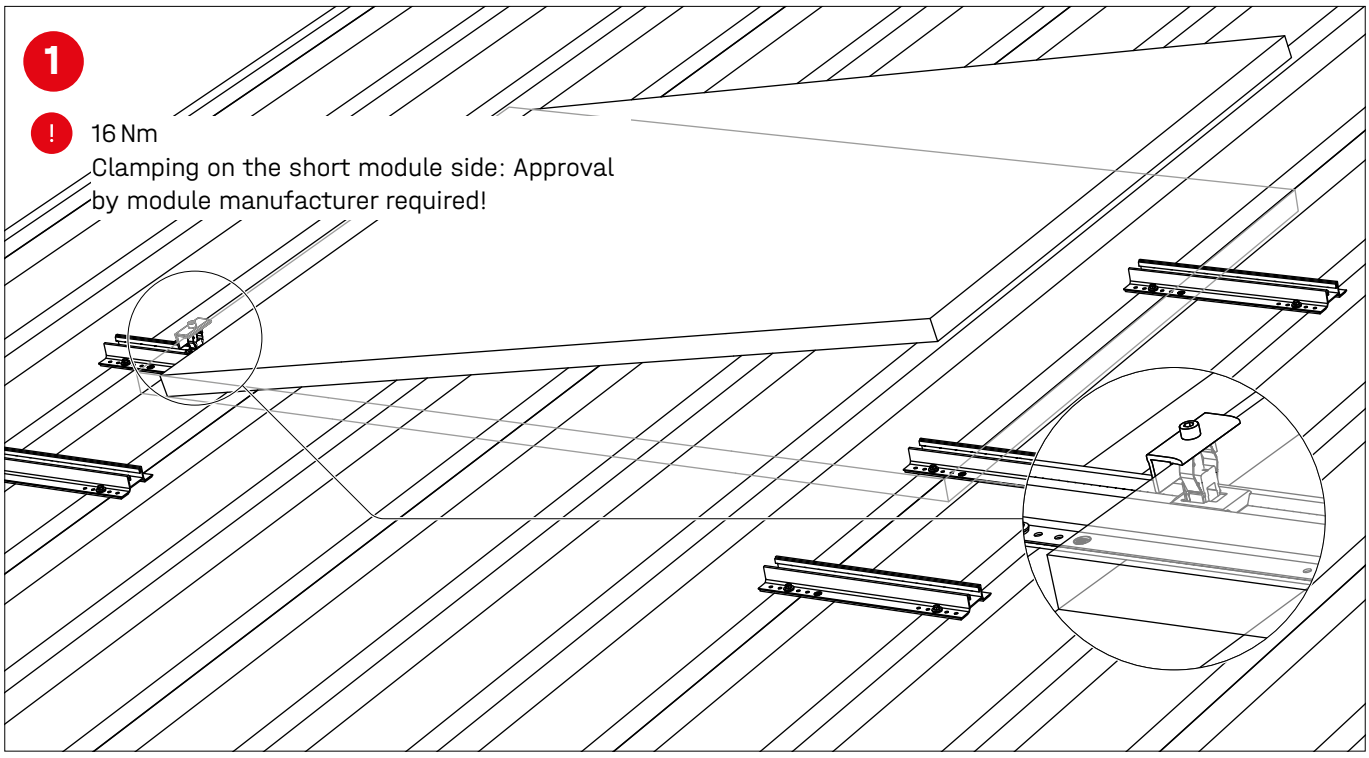

3
! 16 Nm

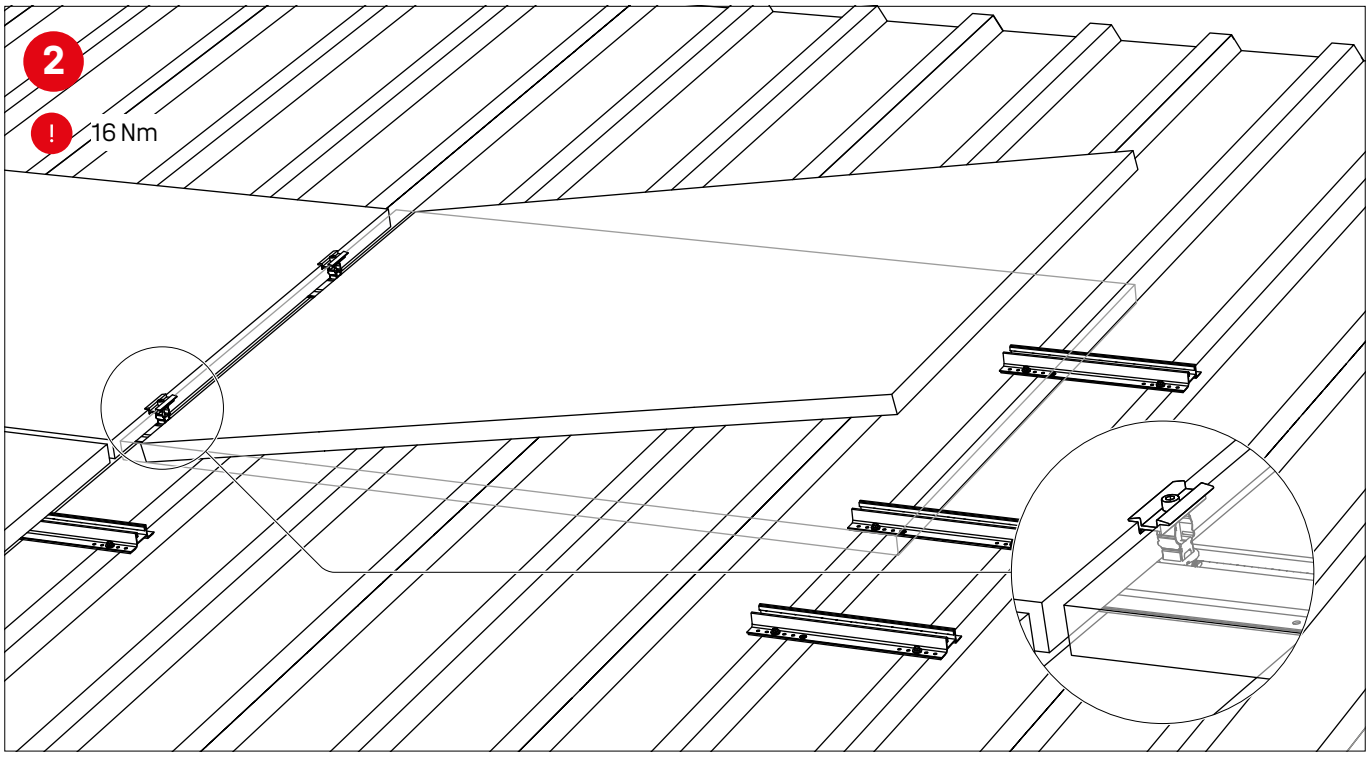

4
! 16 Nm

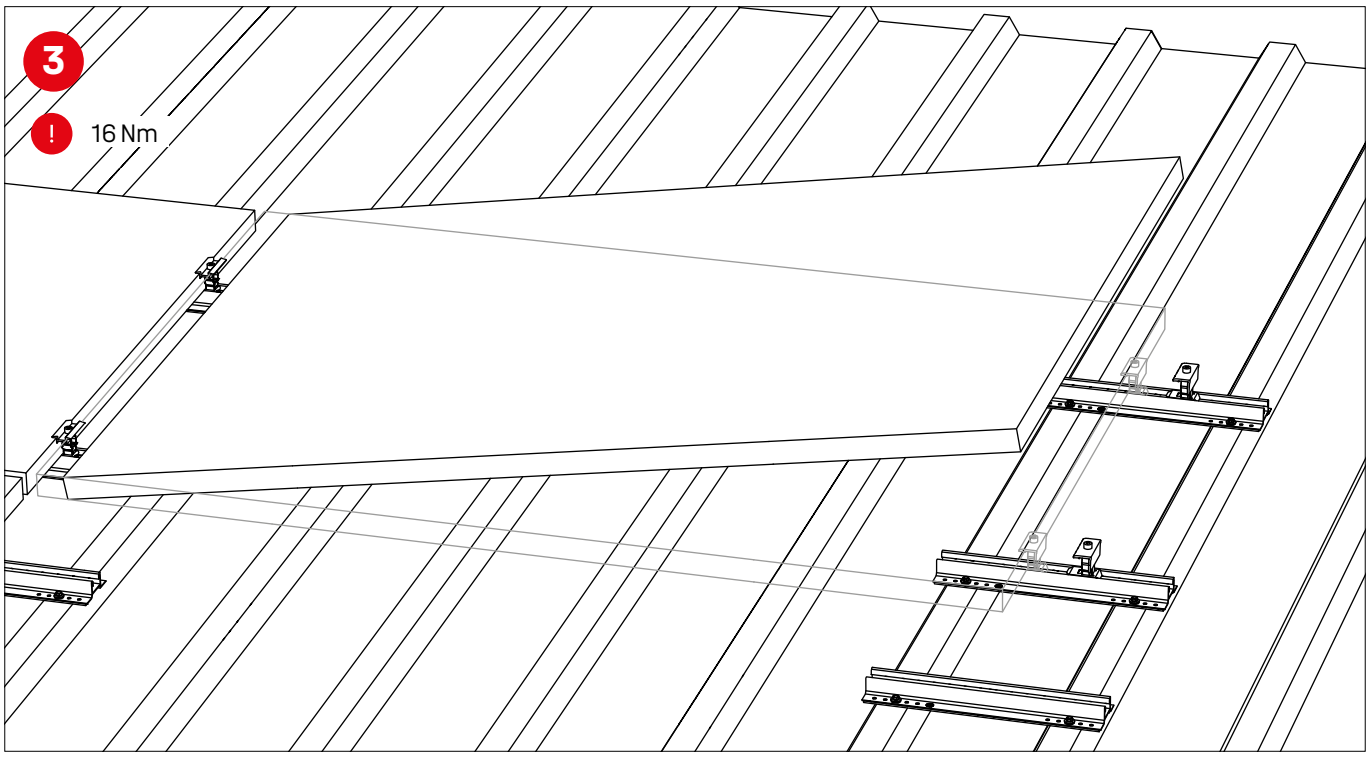

5

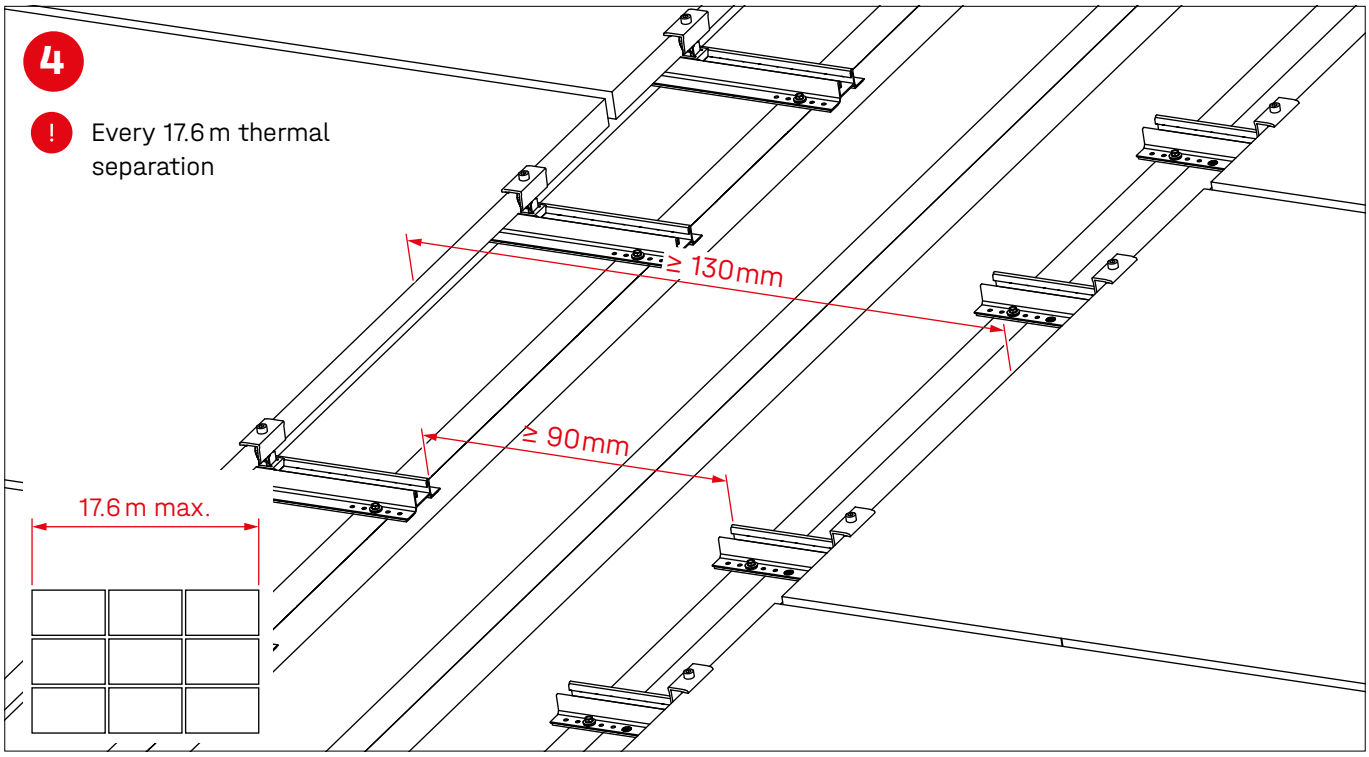

6
! Every 17.6 m thermal separation
17.6 m max.
≥ 130mm
≥ 90mm

Assembly Landscape





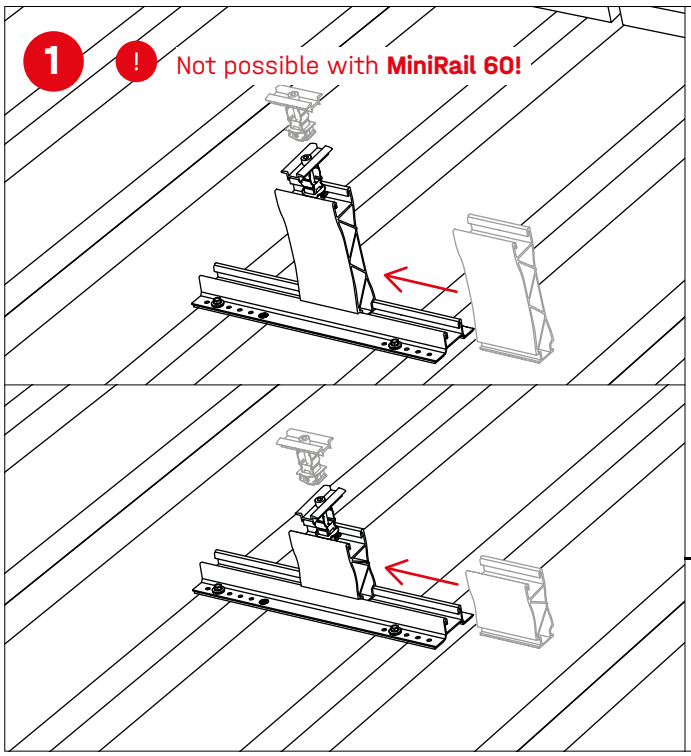

3
16 Nm

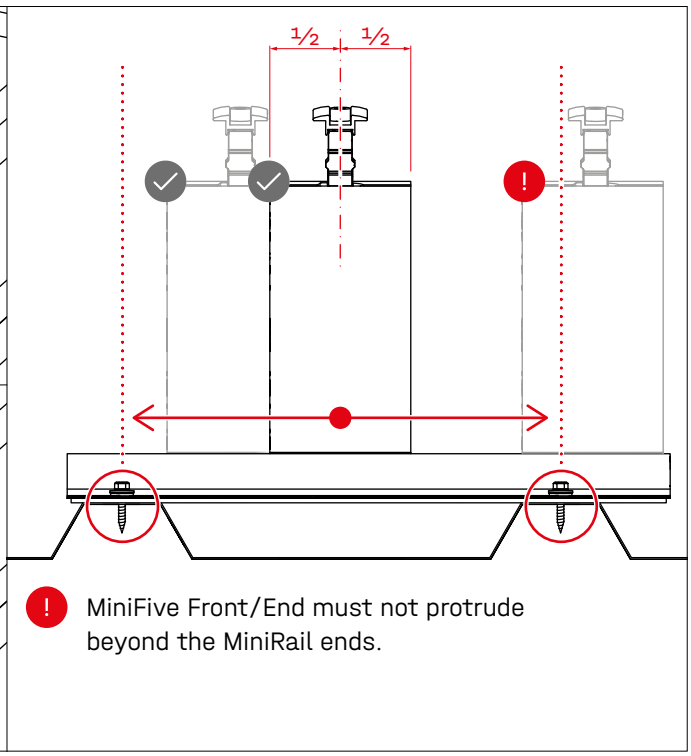

4
Every 17.6 m thermal separation
≥ 130mm
≥ 90mm
17.6 m max.

Assembly elevation

MiniFive 5°-elevation

1 ! Not possible with **MiniRail 60!**

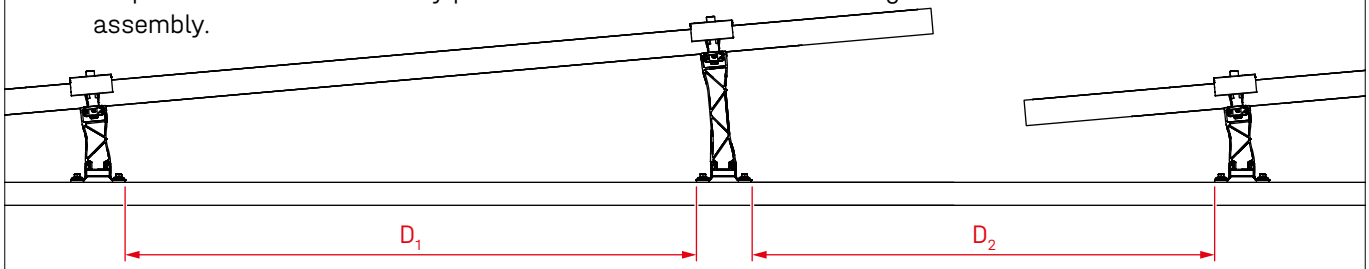




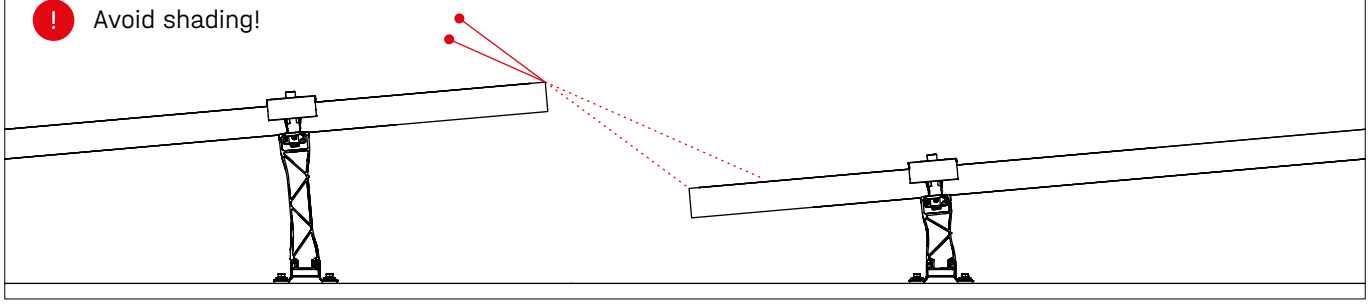
! MiniFive Front/End must not protrude beyond the MiniRail ends.

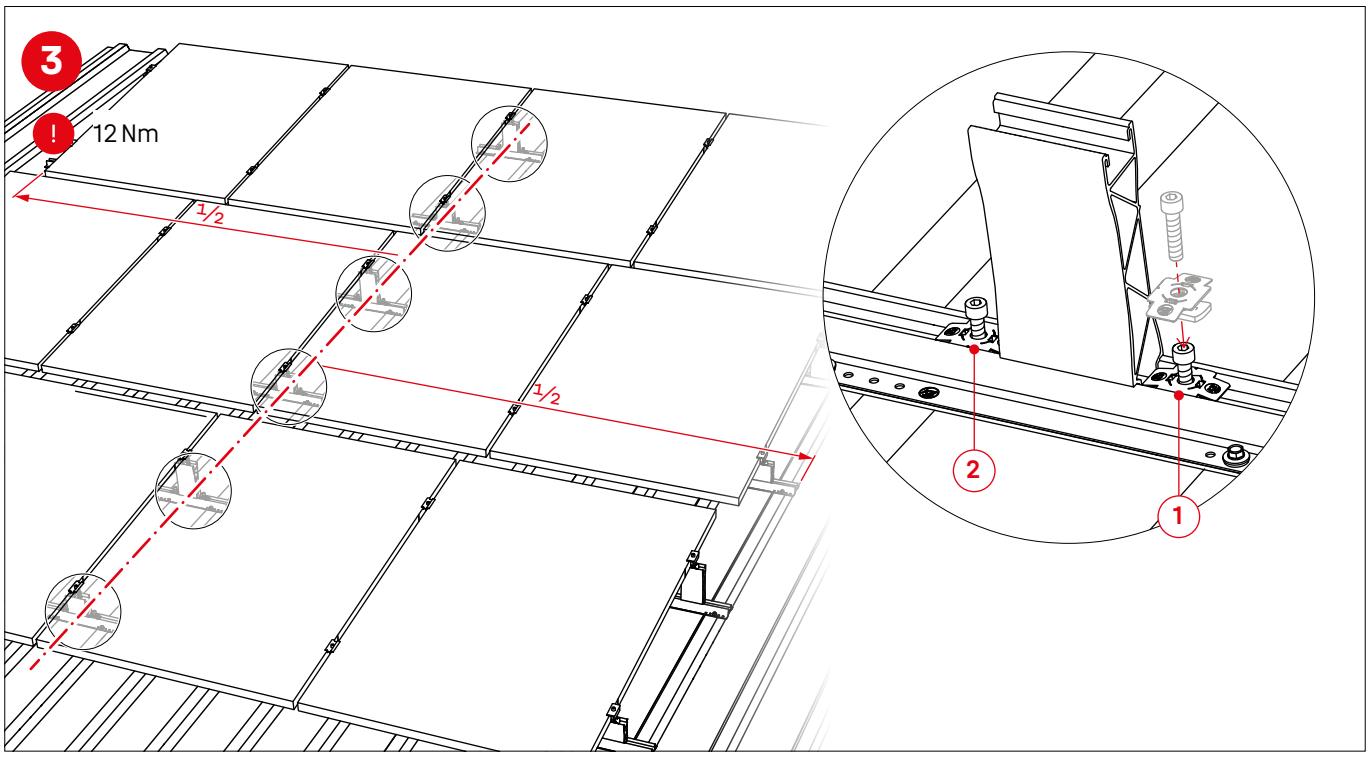
2

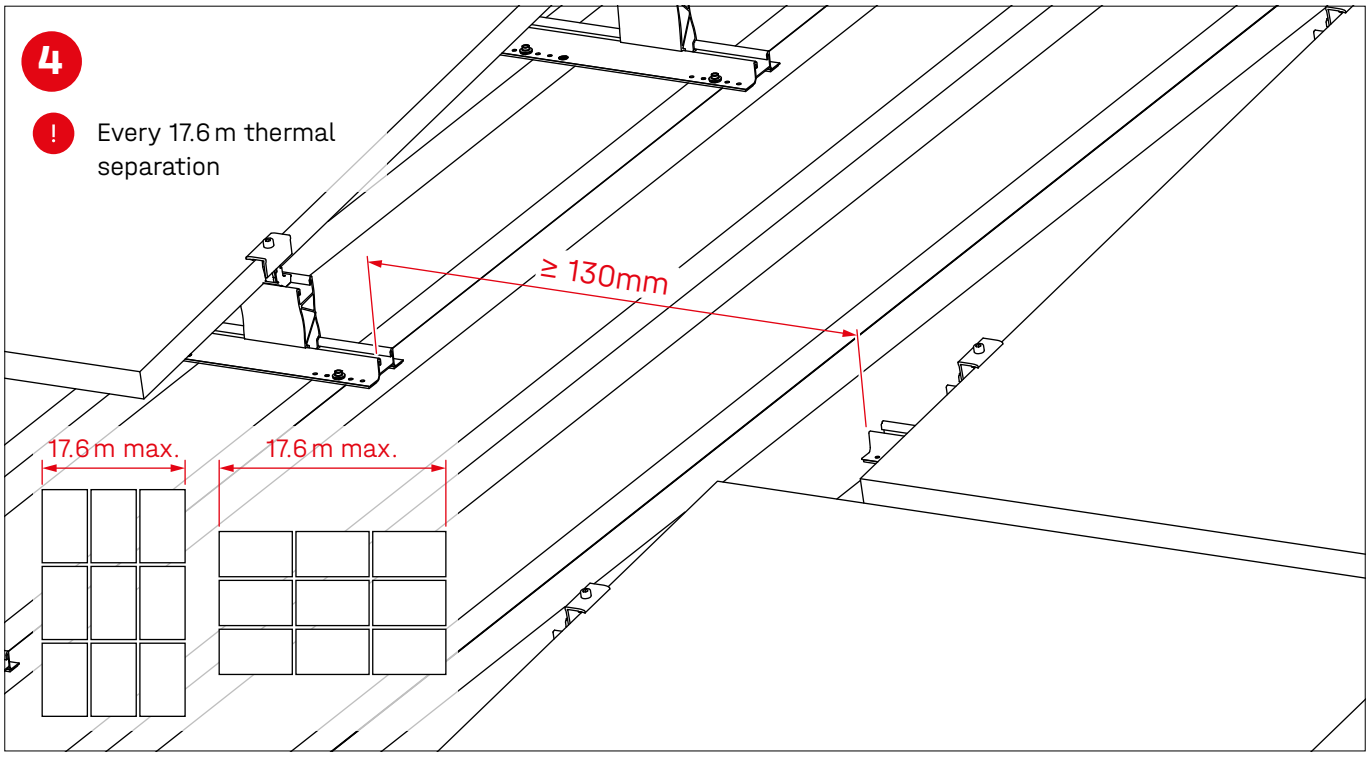
! K2 Base automatically calculates the pre-assembly dimensions $D_{1/2}$ and outputs them in the assembly plan. These must be adhered to during assembly.



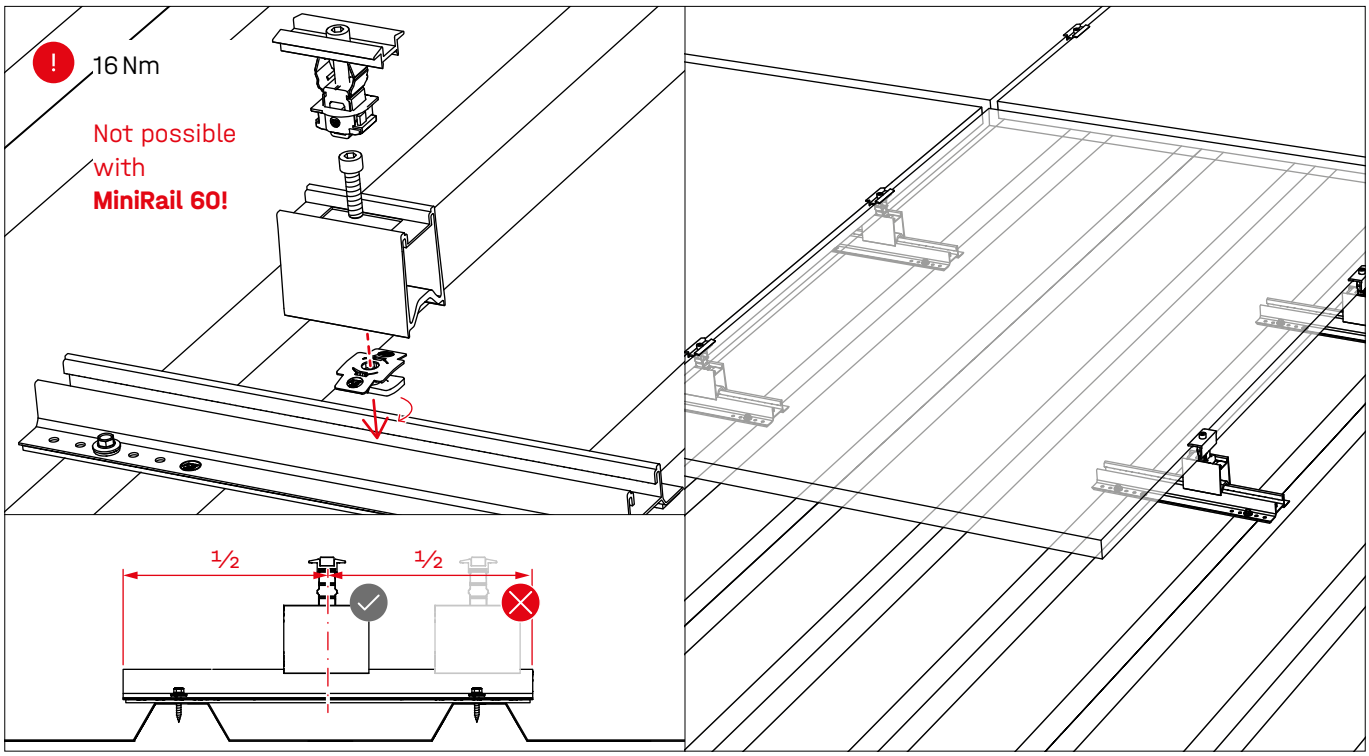
! Avoid shading!




3
12 Nm
1/2
1/2
2
1

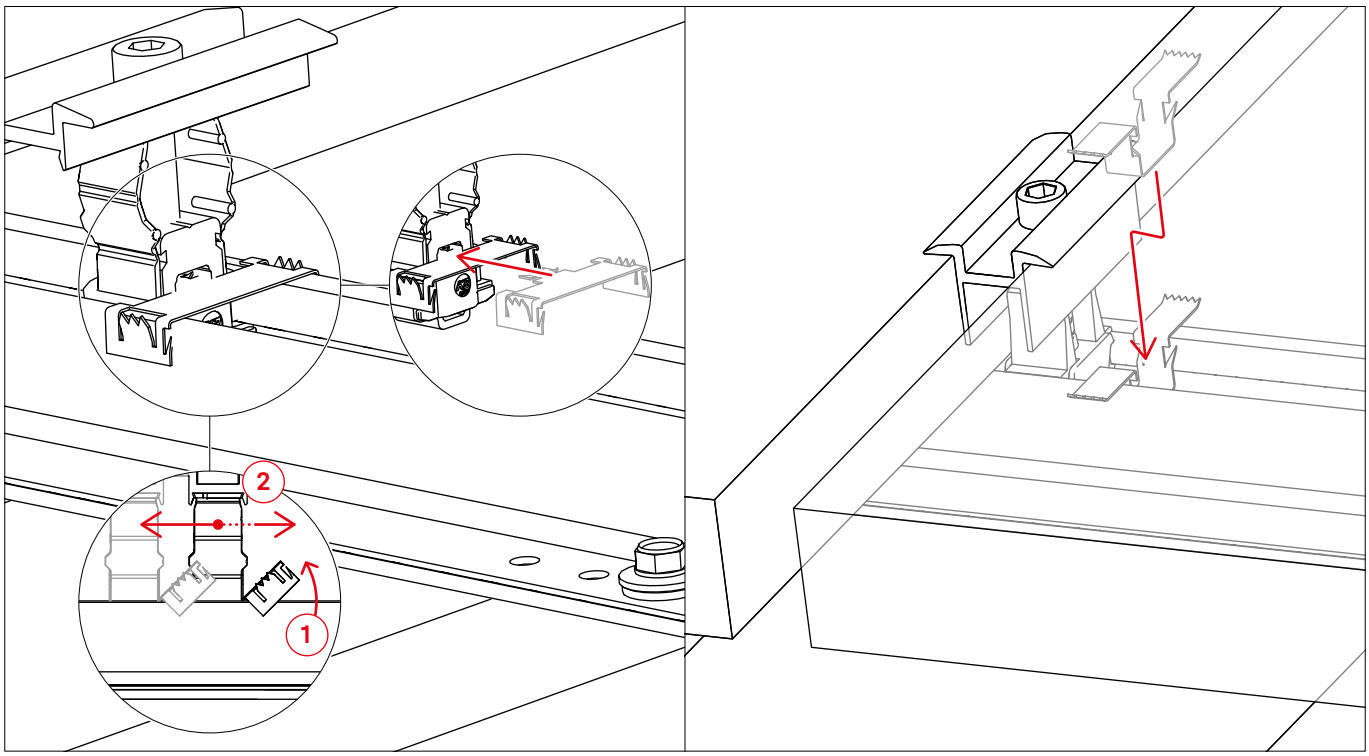

4
Every 17.6 m thermal separation
≥ 130mm
17.6 m max.
17.6 m max.

Roof-parallel elevation with RailUp

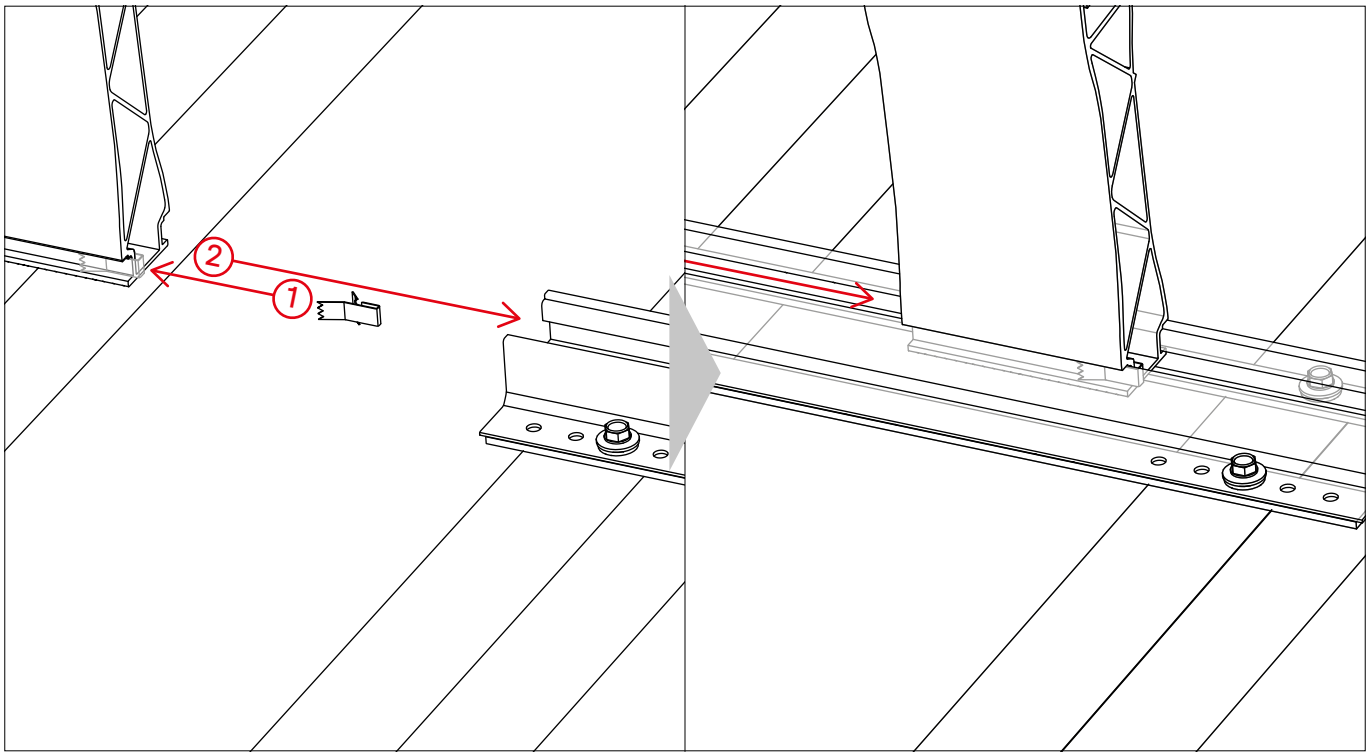


Module frame earthing with TerraGrif

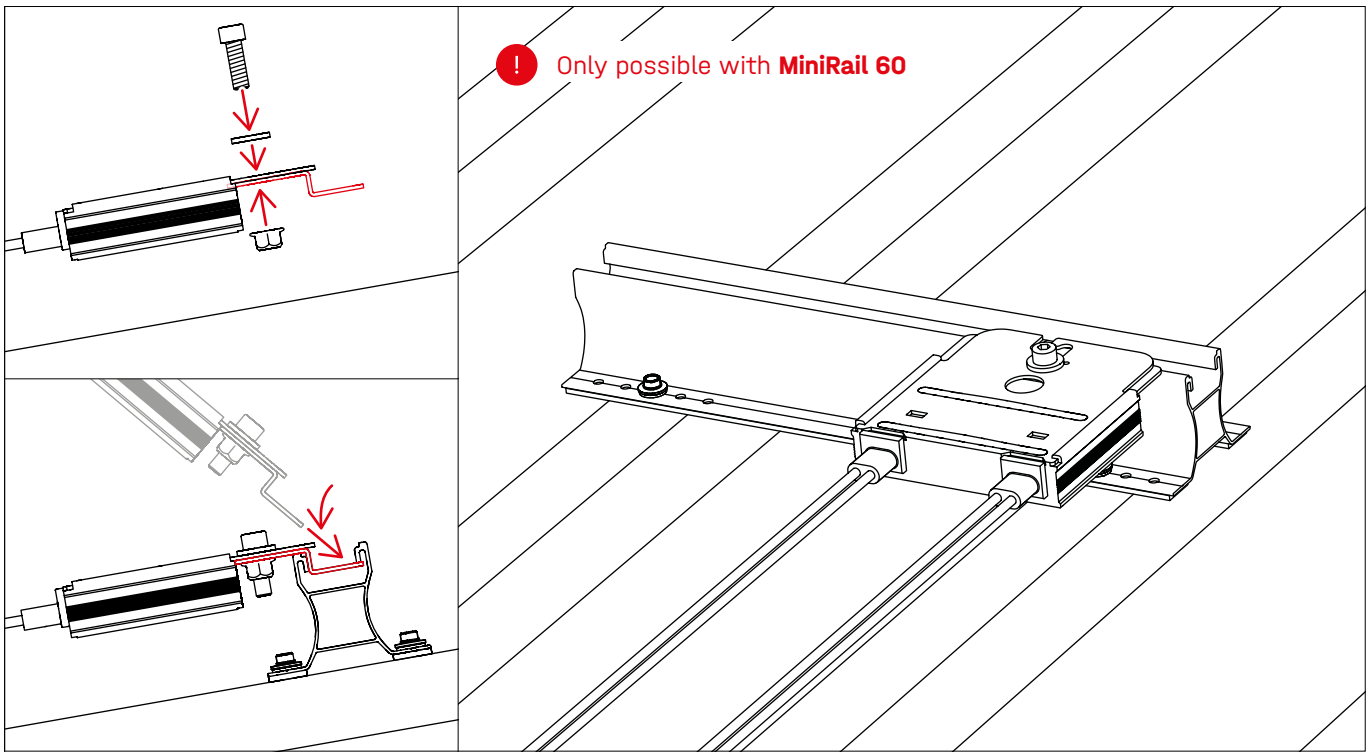
TerraGrif QL or K2SZ



TerraGrif PL for MiniFive Front/End



Installation of power optimisers or microinverters



Notes

Thank you for choosing a K2 mounting system.

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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MiniRail MK2 Assembly EN V18 | 0225 · Subject to change · Product illustrations are exemplary and may differ from the original.