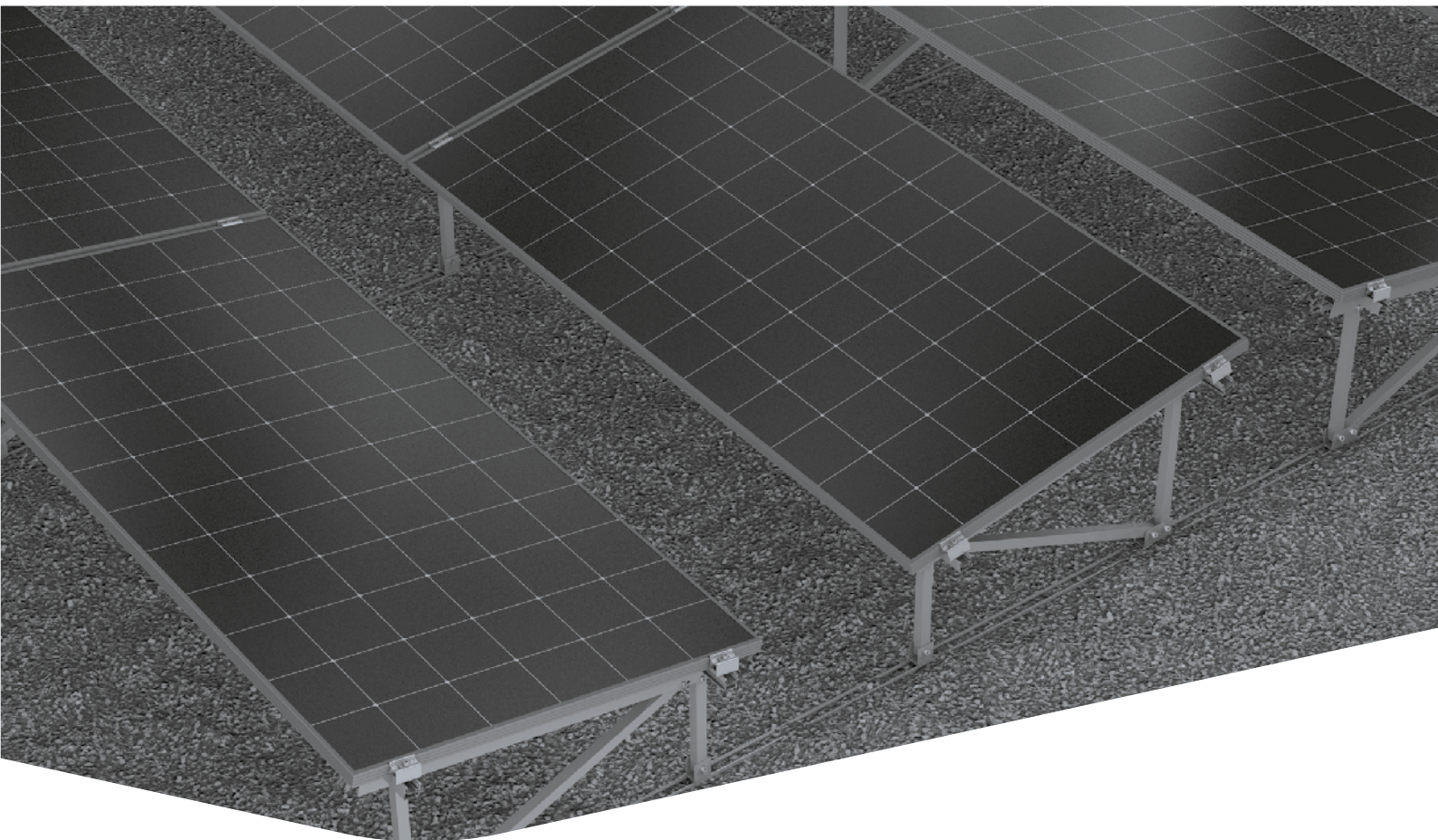




Connecting Strength



Assembly Manual

GreenRoof Vento System

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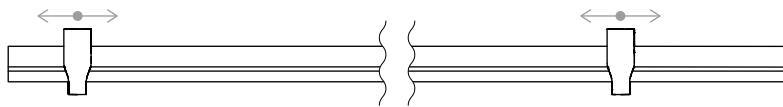
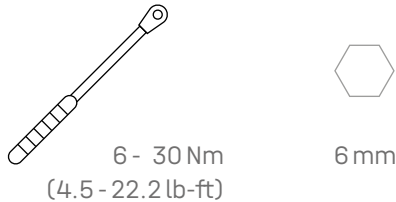
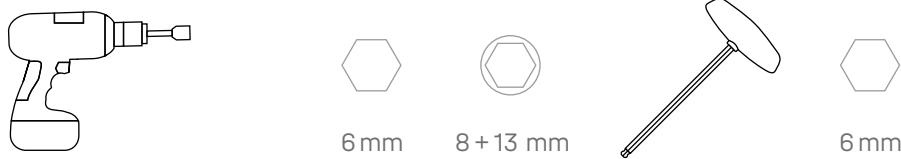
Quality tested - several certifications

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

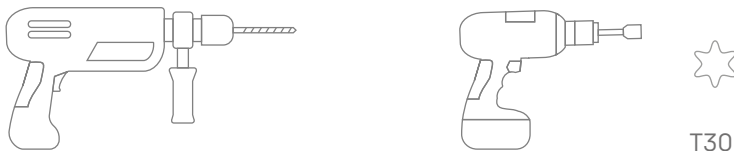
Tools overview



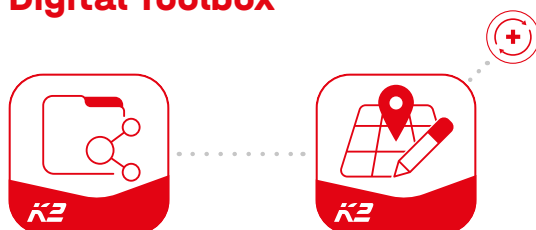
Dome Speed Spacer 2,50 2004129
Distance template for module lengths



Optional for mounting on concrete blocks



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 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.
- K2 Systems GmbH reserves the right to exclude liability if our general safety instructions are disregarded or if components of the competition are installed or attached.
- 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



This 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

- This system can be positioned on all common flat roofs with a pressure-resistant base and a roof pitch of $\leq 5^\circ$ with ballast.
- For roof pitches $> 3^\circ$, we recommend burying the stones or PE base plates used under the modules.



Static requirements

- It is essential to check that the roof structure has sufficient residual load capacity and that the pressure capacity of the roof insulation (where present) is not exceeded.
- Permissible module dimensions: length 1400 – 2400 mm, width 950 – 1350 mm



Important mounting instructions

Mounting system

- The elevation angle of the GreenRoof Vento system is either 10° or 15°
- A minimum distance to the roof edge of 600 mm must be observed. The minimum distance can be reduced for building heights of less than 5 metres.
- It can be mounted with only two elevations

- A thermal separation (distance between module blocks) must be maintained in the direction of the base rail and module rows:
 - Base rail: 17.5 m
 - Module row: 16.5 m
- In the event of exceptional circumstances (such as storms, heavy rain, earthquakes, etc.), the system should be checked by a specialist. Should an inspection find damage or plastic deformation (such as in the module clamp area) the components must be replaced.

Modules and clamping

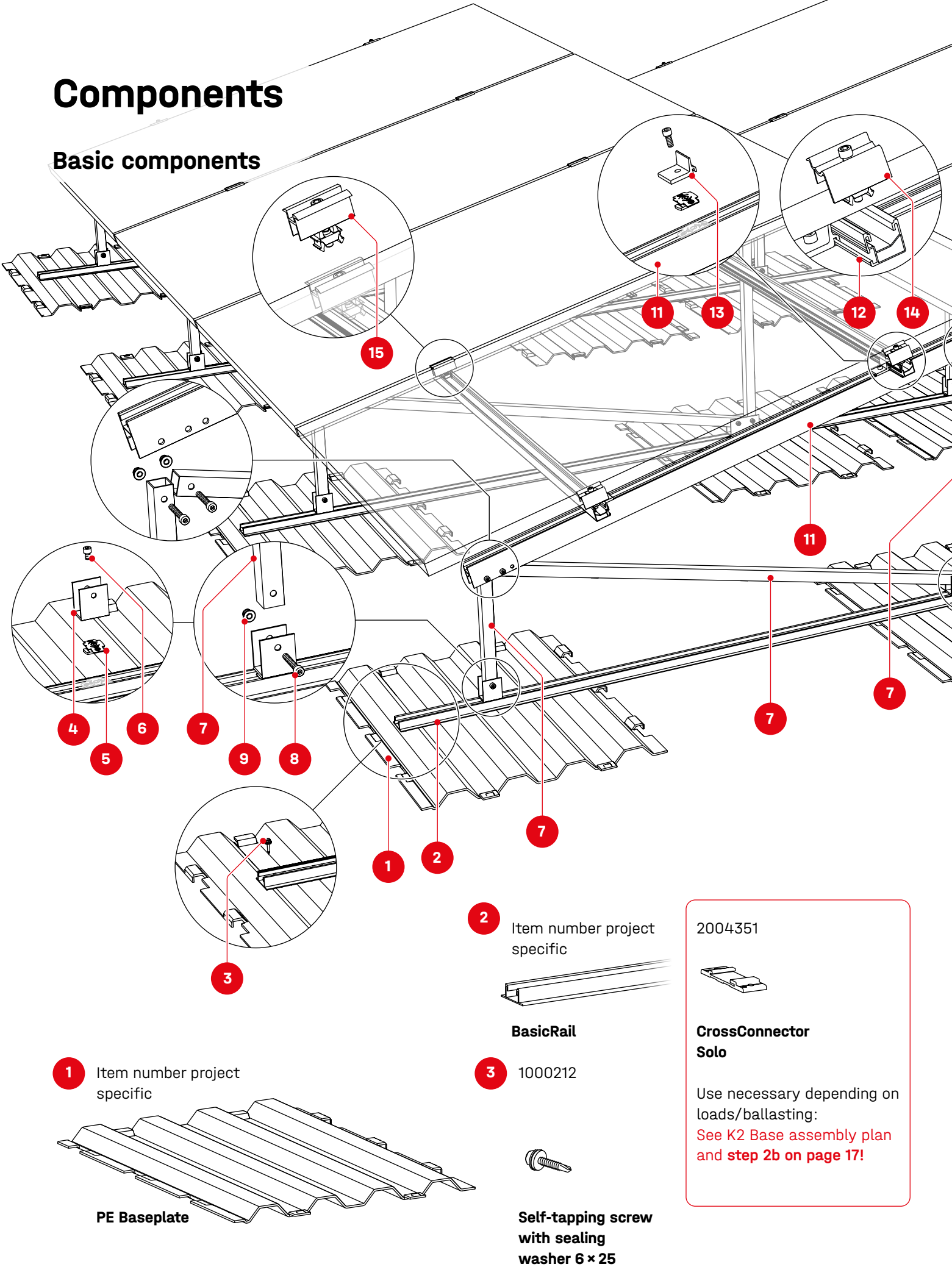
- Tightening torque of 16 Nm for all module clamps.
- Adhere to module manufacturer recommendations for clamping area and module installation (see module manufacturer instructions).

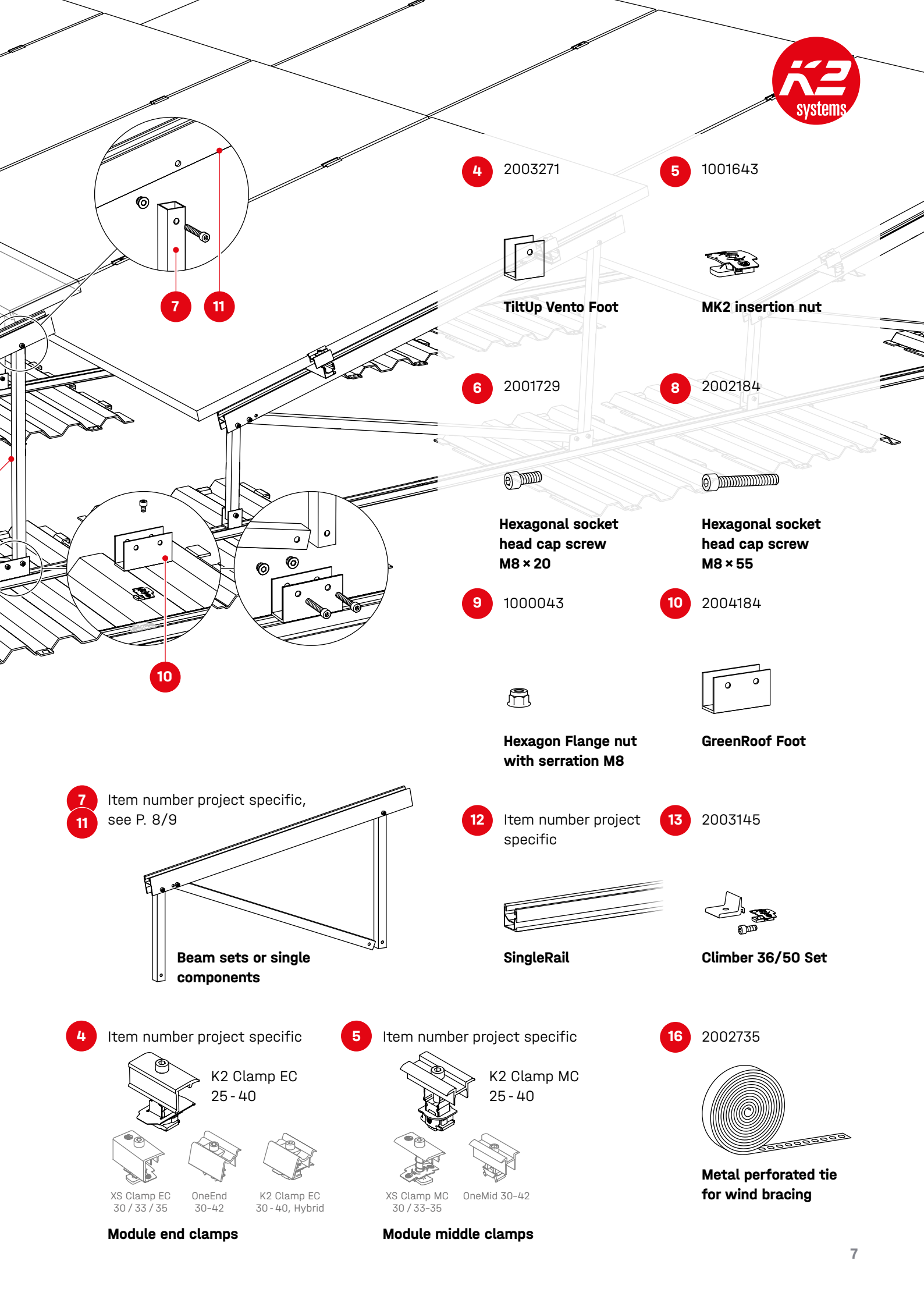
General information

- External influences that act on this system are only reflected in the design of the ballast to a limited degree. For instance, unevenness, thermal elongation, moss, water accumulation and ageing of the sheeting cannot be considered, although these factors might also precipitate system displacement under certain circumstances. We recommend you check whether the system requires additional mechanical attachment, as the impact of these influences may be greater on slanted roofs.
- It is important to ensure that the rain water flow is not hindered.
- 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).

Components

Basic components





4 2003271

5 1001643

7 **11**

TiltUp Vento Foot

MK2 insertion nut

6 2001729

8 2002184

Hexagonal socket head cap screw M8 × 20

Hexagonal socket head cap screw M8 × 55

9 1000043

10 2004184

10

Hexagon Flange nut with serration M8

GreenRoof Foot

7 **11** Item number project specific, see P. 8/9

12 Item number project specific

13 2003145

Beam sets or single components

SingleRail

Climber 36/50 Set

4 Item number project specific

5 Item number project specific

16 2002735

K2 Clamp EC 25 - 40

XS Clamp EC 30 / 33 / 35 OneEnd 30-42 K2 Clamp EC 30 - 40, Hybrid

K2 Clamp MC 25 - 40

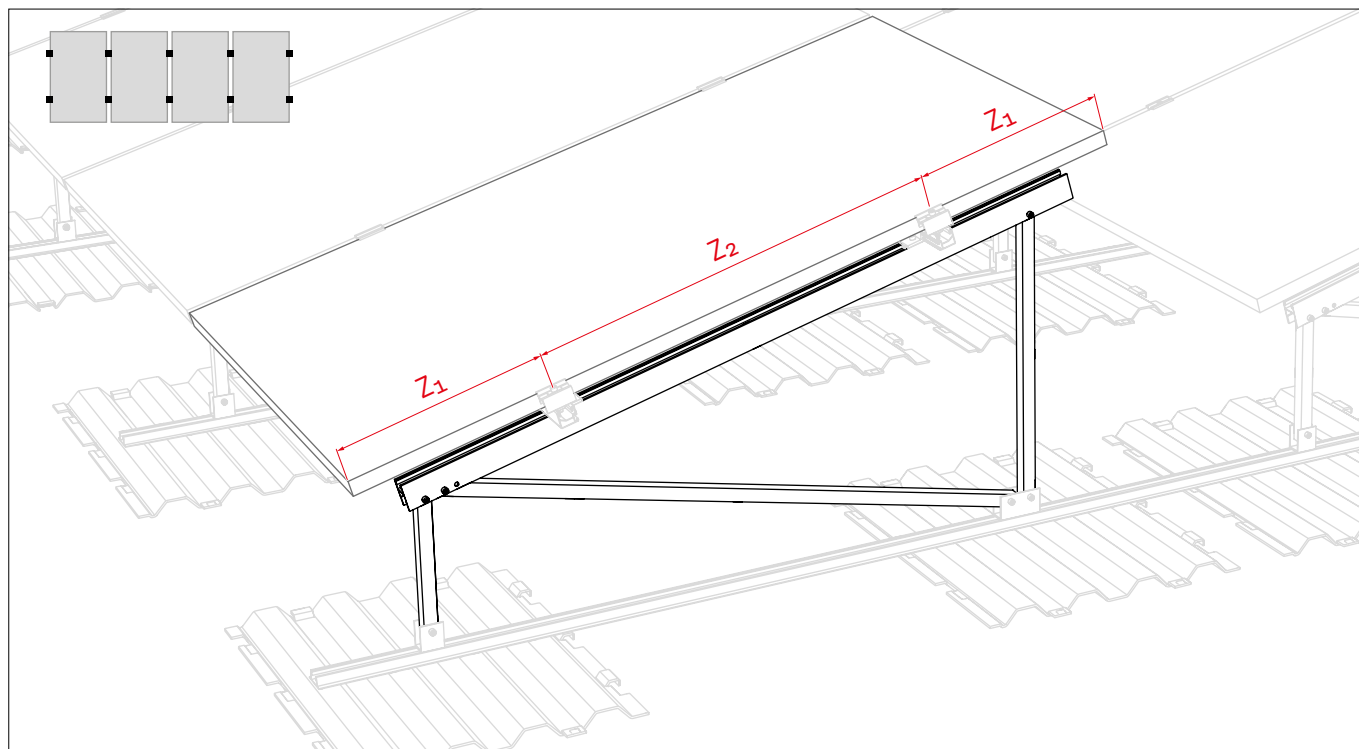
XS Clamp MC 30 / 33-35 OneMid 30-42

Metal perforated tie for wind bracing

Module end clamps

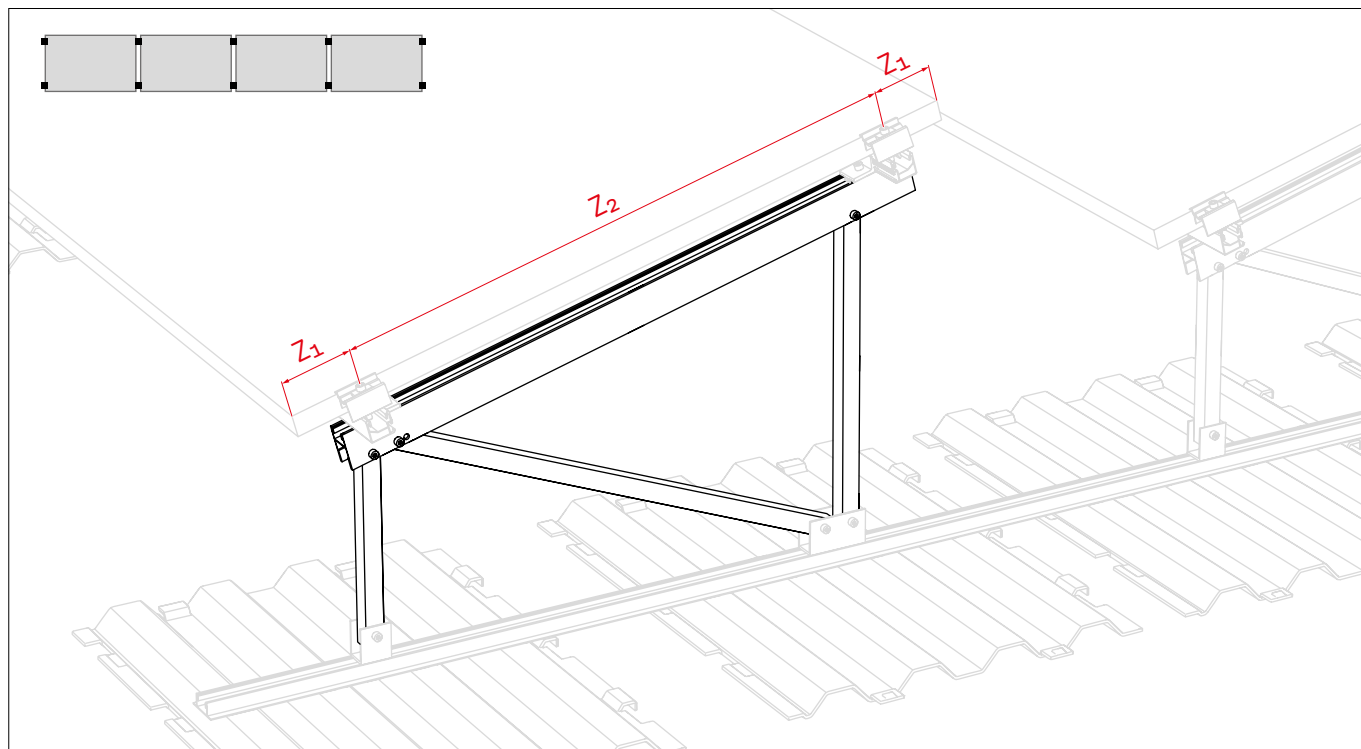
Module middle clamps

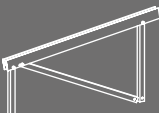

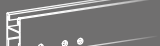
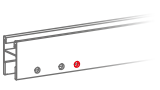

Item numbers Brace / Beam Portrait



Inclination	Z ₂	Beam Set		Single components			
				GreenRoof Brace	GreenRoof Beam		
		Length [mm]	Item No.	Length [mm]	Item No.	Length [mm]	Item No.
 10°	$Z_2 \leq 961$	1,000	2004783	332	2004185	1,000	2004194
				480	2004186		
				832	2004191		
	$Z_2 > 961$	1,600	2004784	332	2004185	1,600	2004195
				584	2004188		
				1.385	2004193		
 15°	$Z_2 \leq 961$	-	-	332	2004185	1,000	2004194
				558	2004187		
				832	2004191		
	$Z_2 > 961$	-	-	332	2004185	1,600	2004195
				708	2004189		
				1.385	2004193		

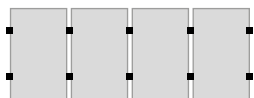
Item numbers Brace / Beam Landscape



Inclination	Z ₂	Beam Set		Single components			
				GreenRoof Brace 		GreenRoof Beam 	
	$Z_2 = \text{Module width} - 2 \times Z_1$	Length [mm]	Item No.	Length [mm]	Item No.	Length [mm]	Item No.
 10°	$Z_2 \leq 961$	1,000	2004783	332	2004185	1,000	2004194
				480	2004186		
				832	2004191		
	$Z_2 > 961$	1,600	2004784	332	2004185	1,600	2004195
				584	2004188		
				1.385	2004193		
 15°	$Z_2 \leq 961$	-	-	332	2004185	1,000	2004194
				558	2004187		
				832	2004191		
	$Z_2 > 961$	-	-	332	2004185	1,600	2004195
				708	2004189		
				1.385	2004193		

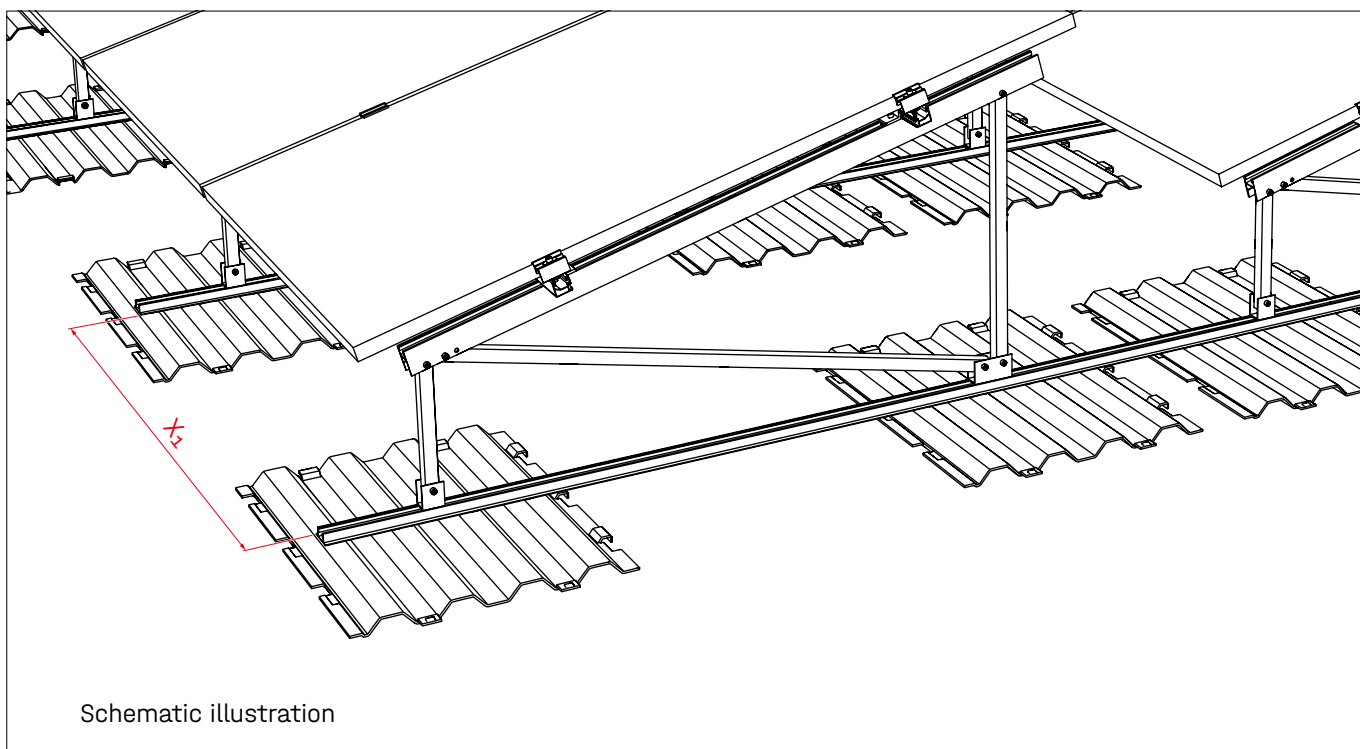
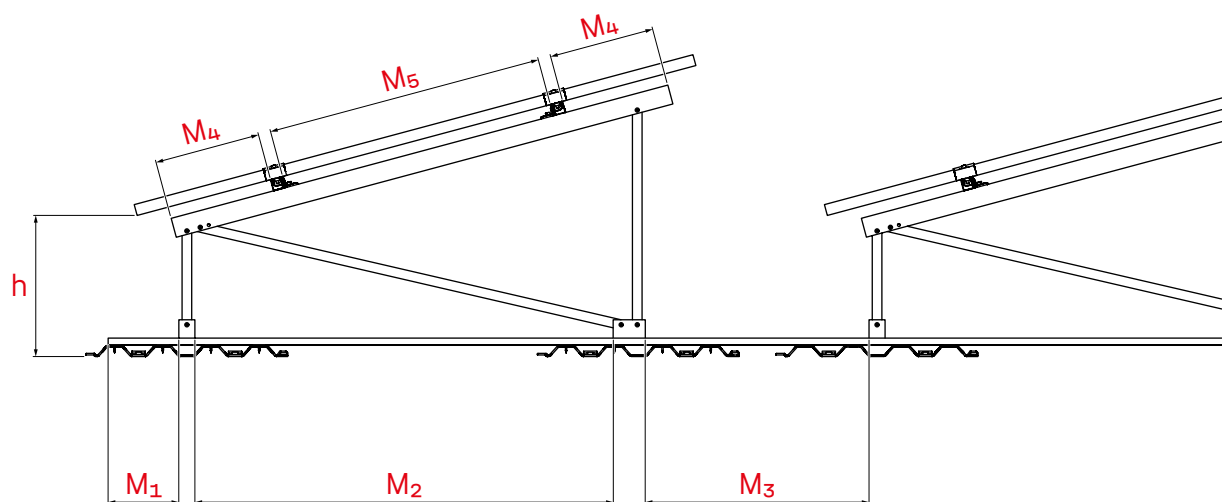
Assembly dimensions

S-Shape Portrait

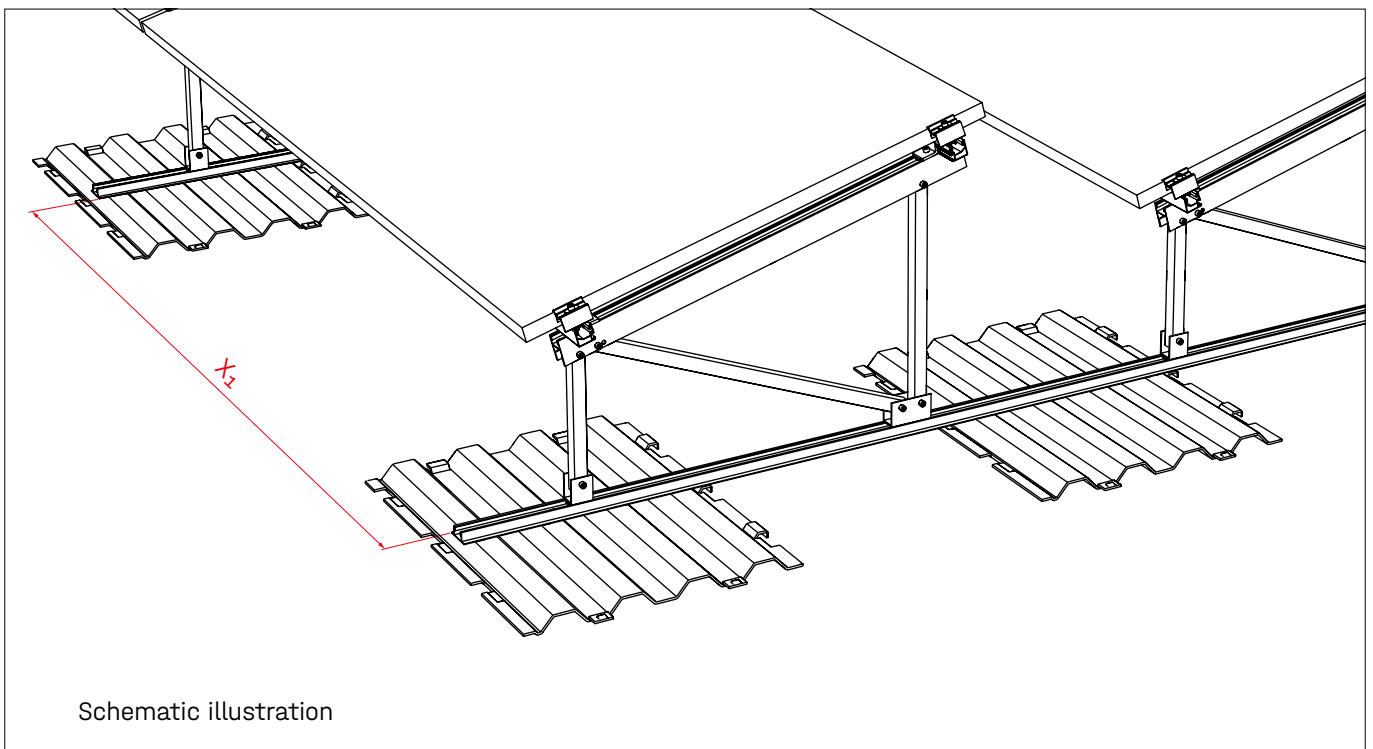
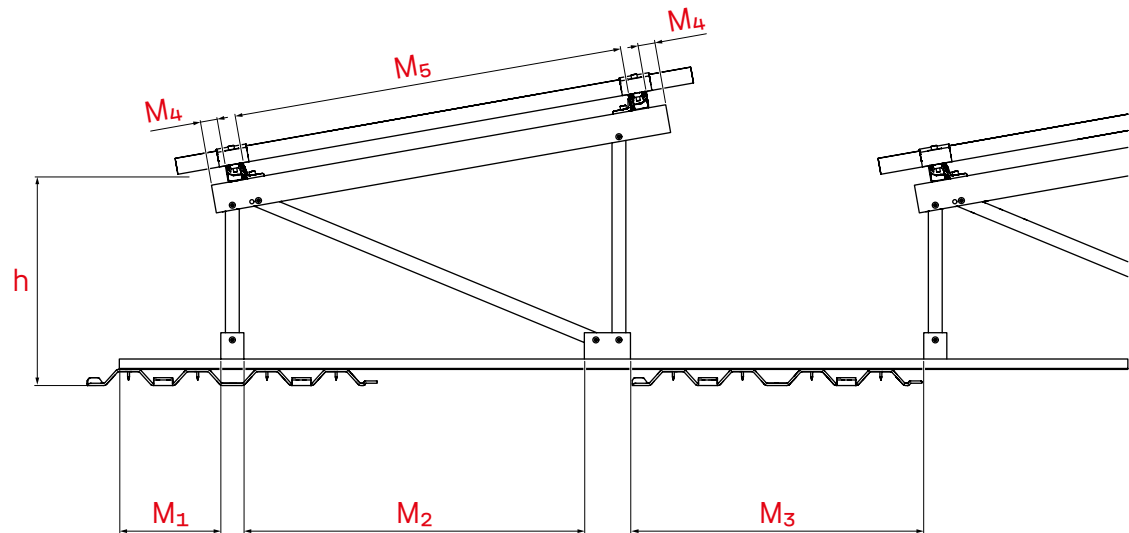


Mounting dimensions from K2 Base

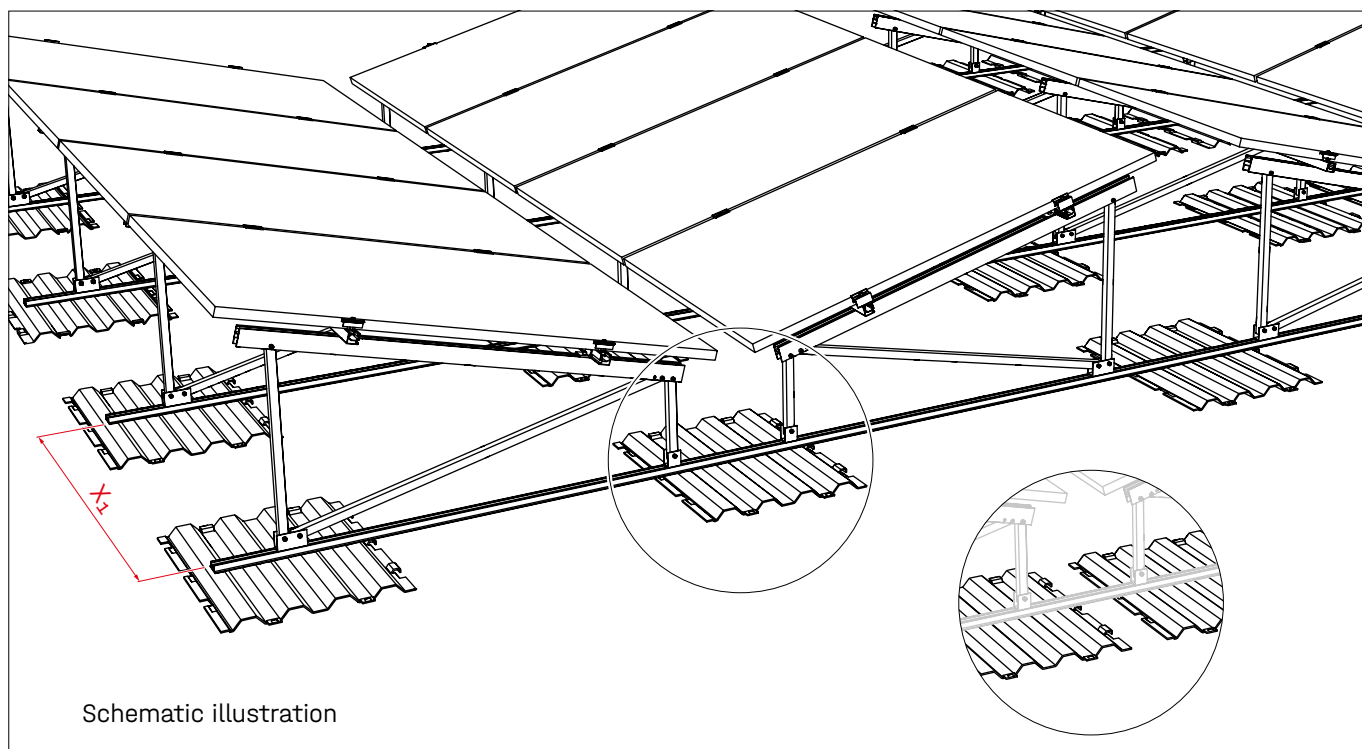
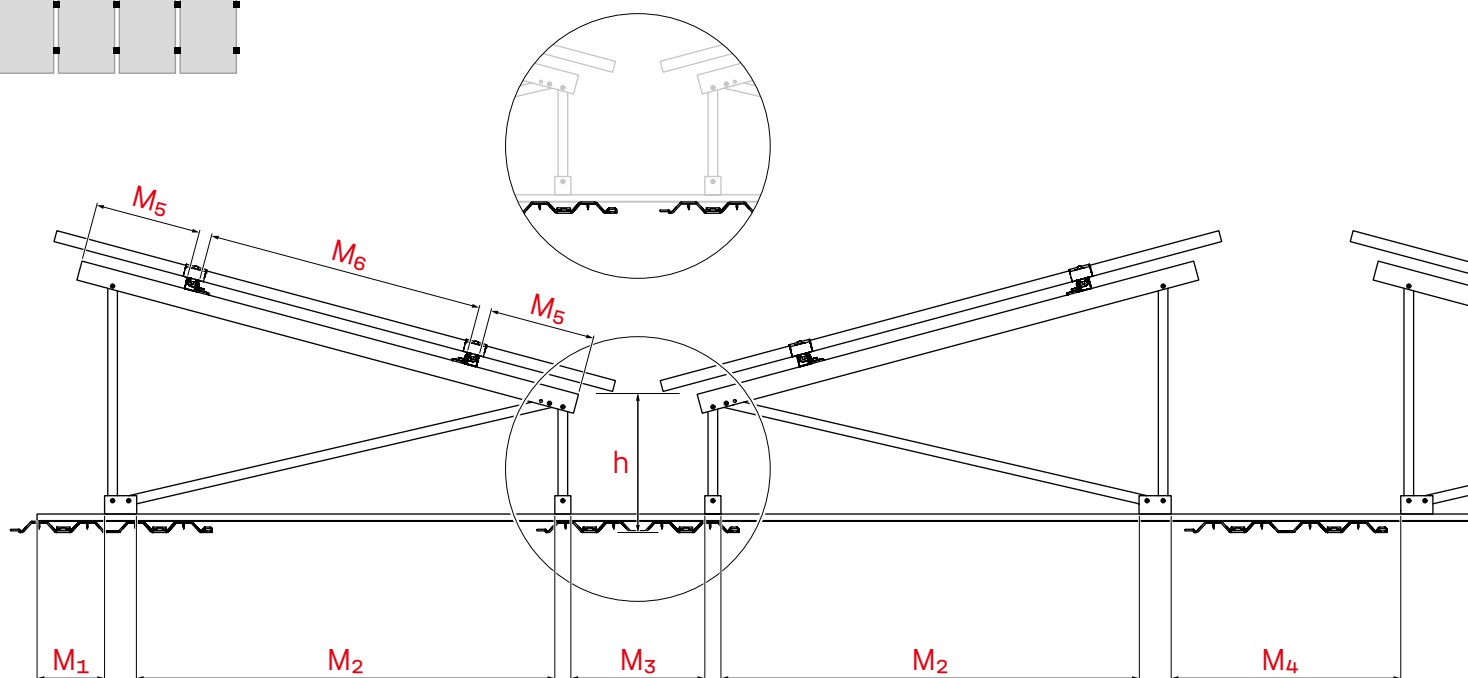
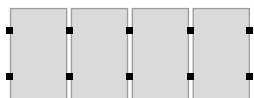
K2 Base calculates all the following dimensions automatically and outputs them in the project report. Please only use these dimensions for the assembly.



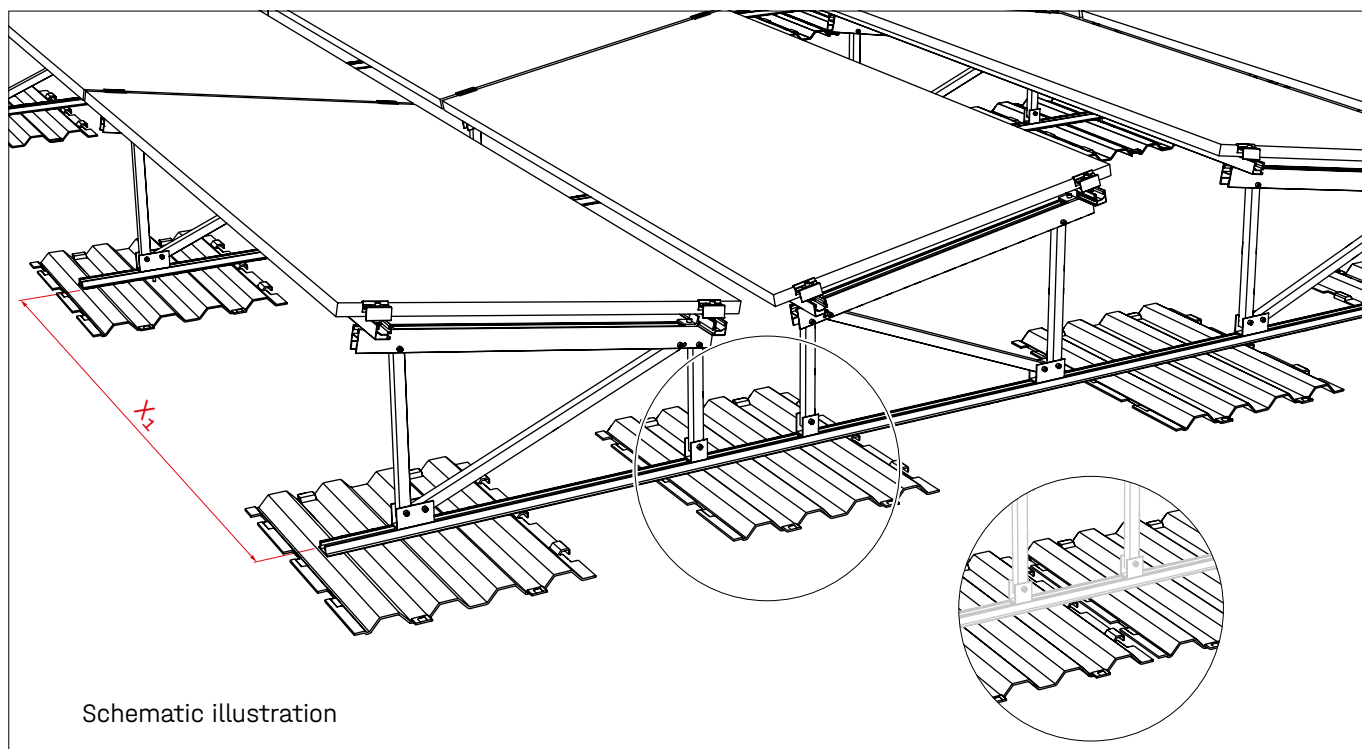
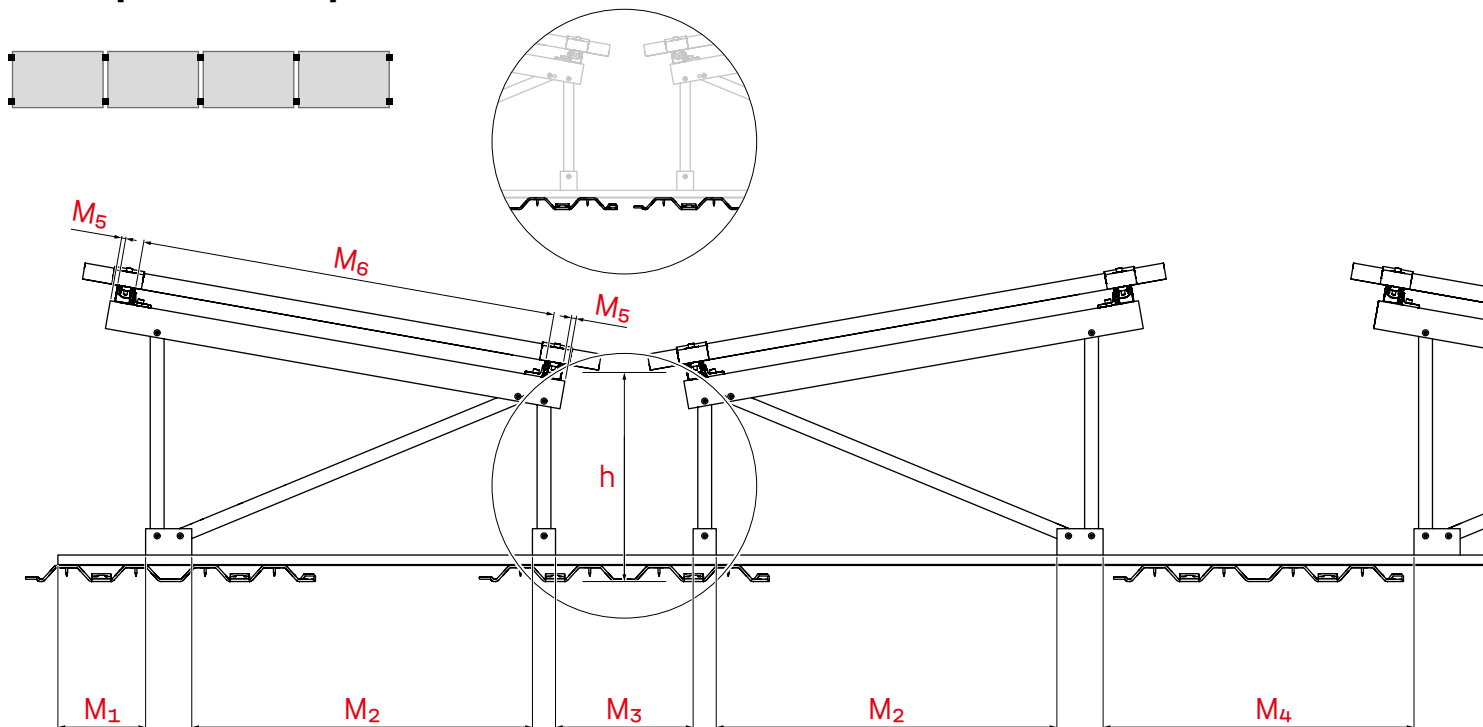
S-Shape Landscape



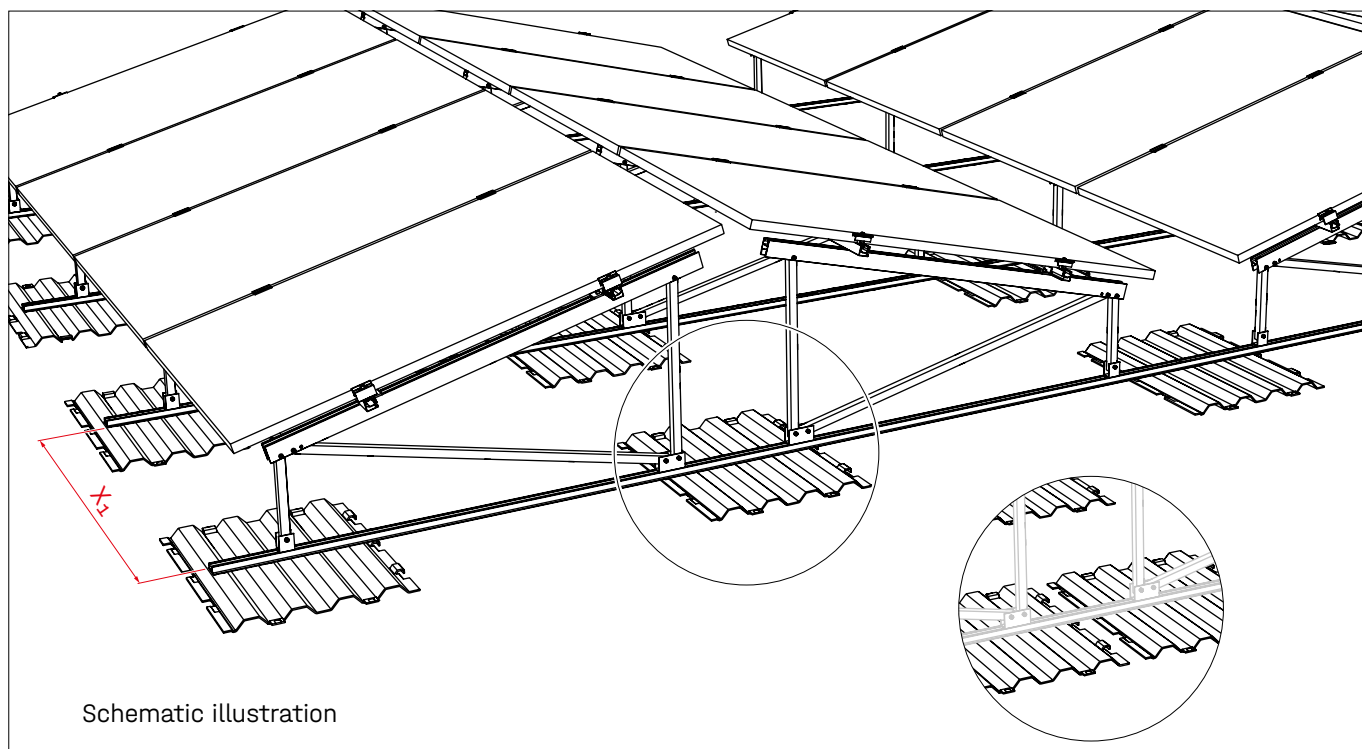
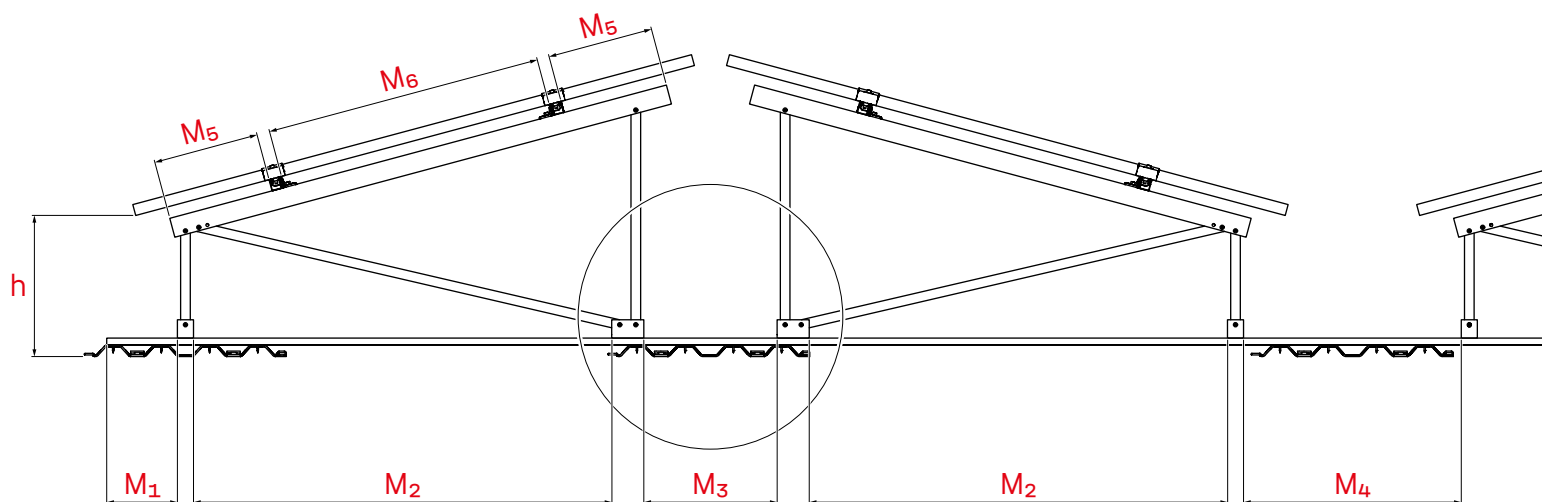
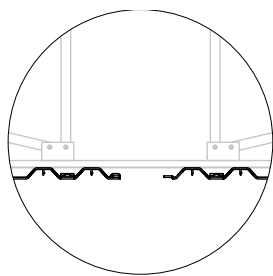
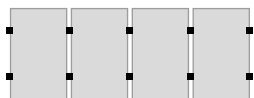
V-Shape Portrait



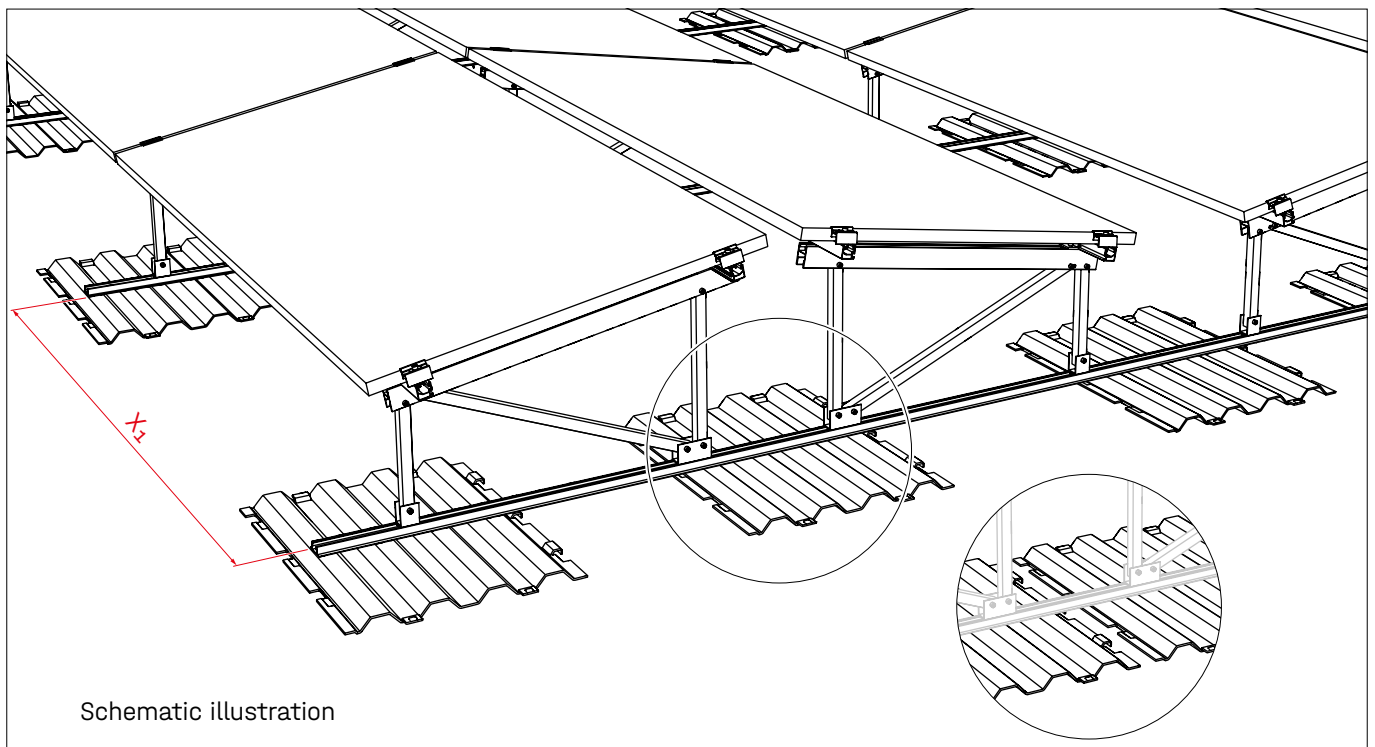
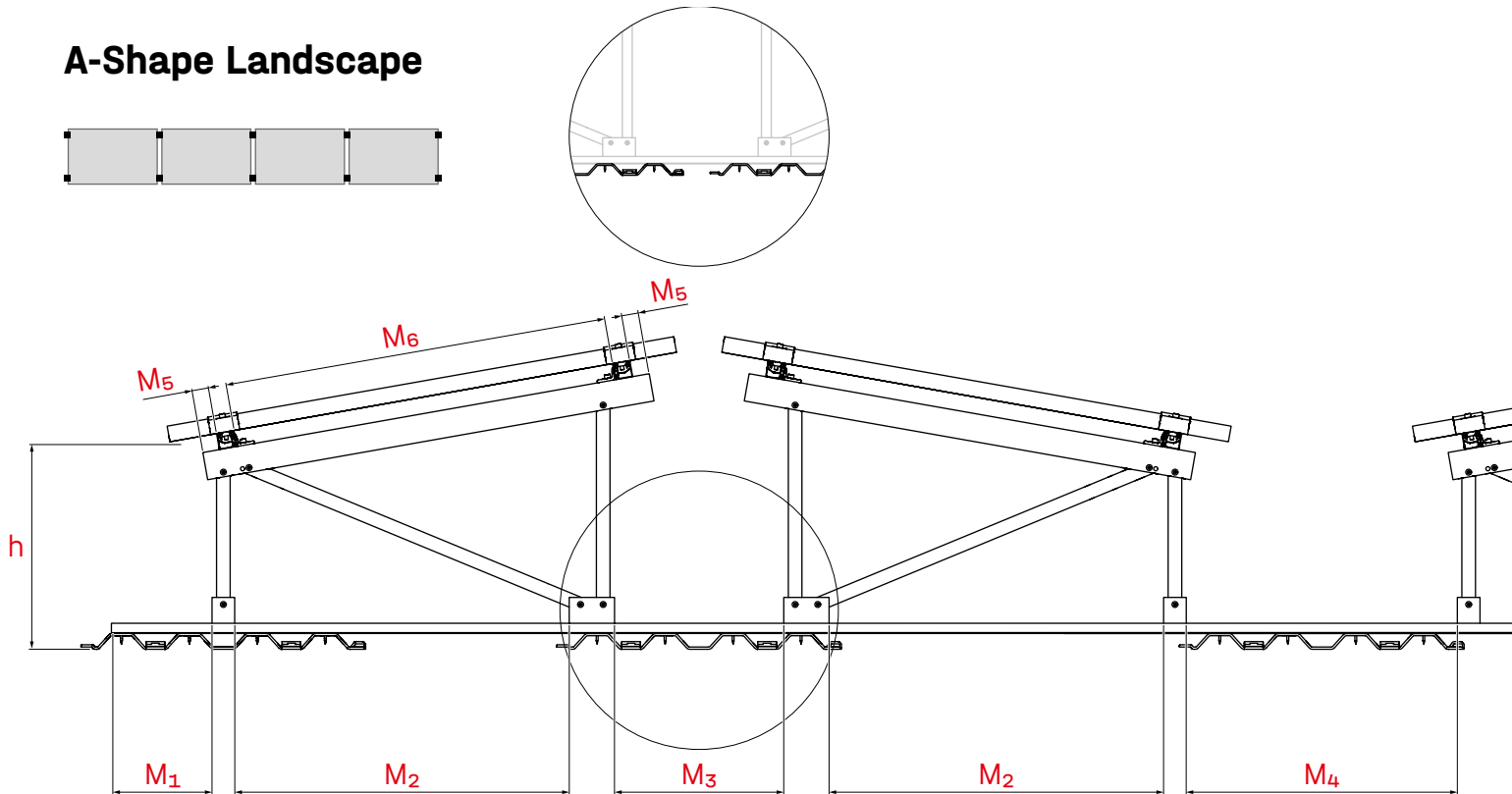
V-Shape Landscape



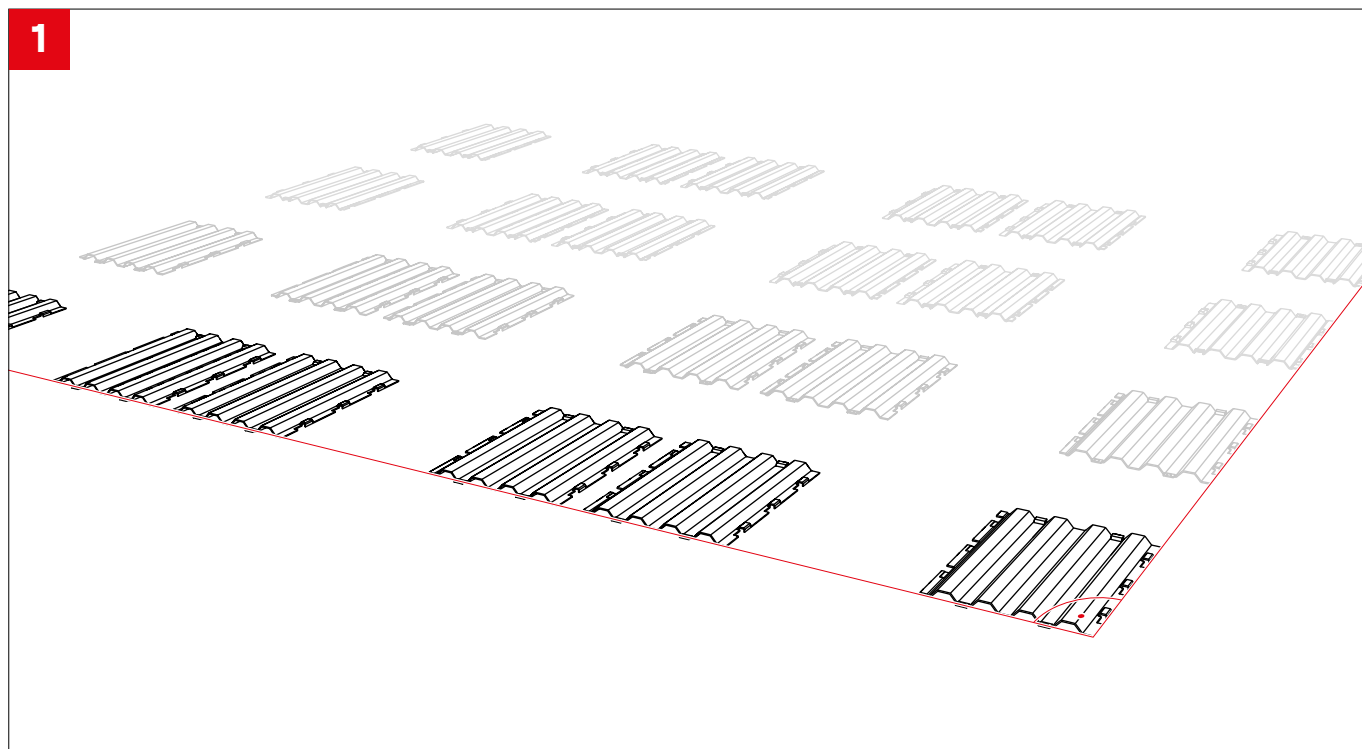
A-Shape Portrait



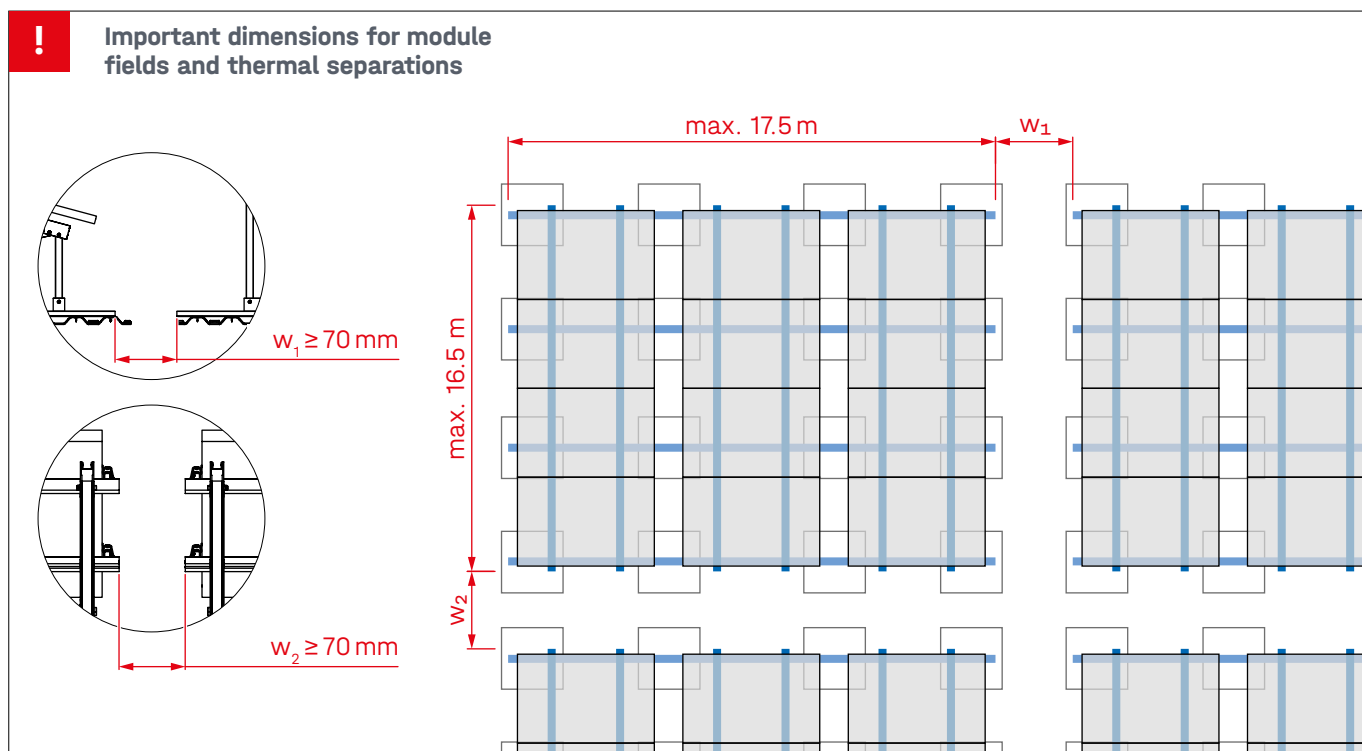
A-Shape Landscape

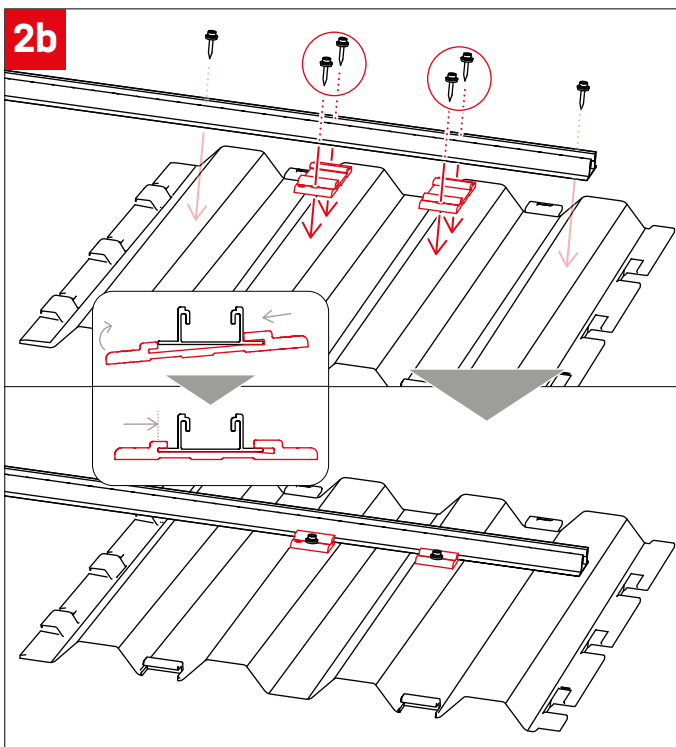
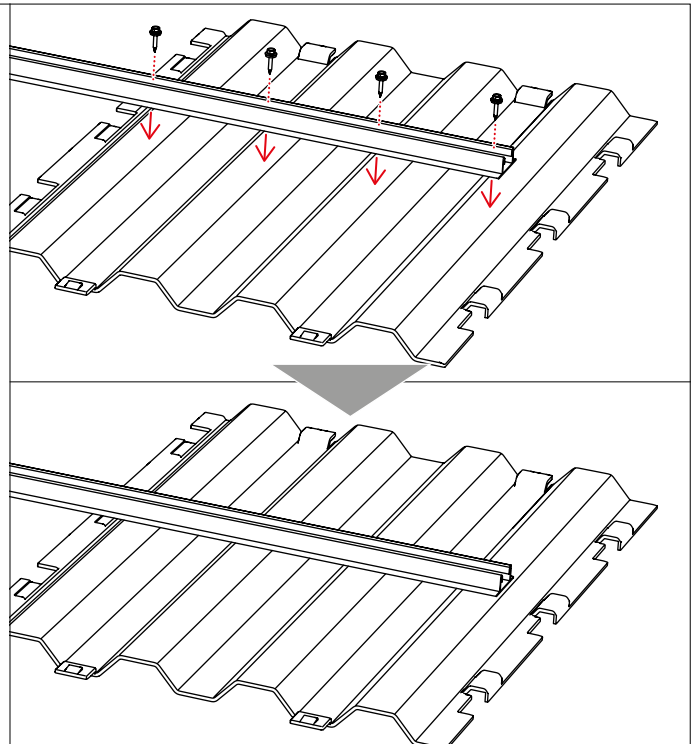
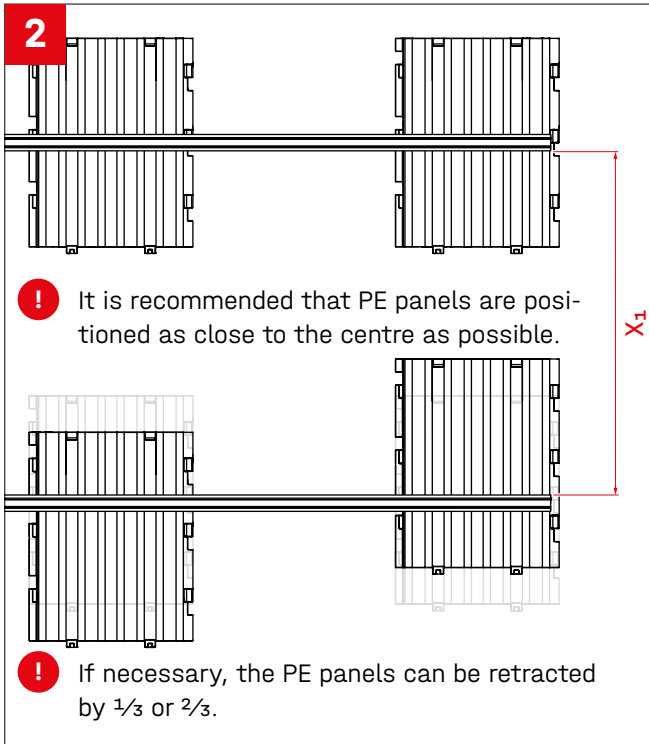


Assembly



Thermal separations



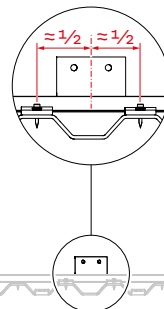


- ! For increased loads or ≥ 160 kg ballast **including fill**, additional fixing points are created using CrossConnectors.
- See also ballast equivalent in K2 Base!**

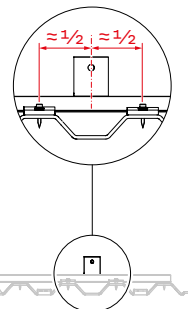
BALLAST CAPACITY

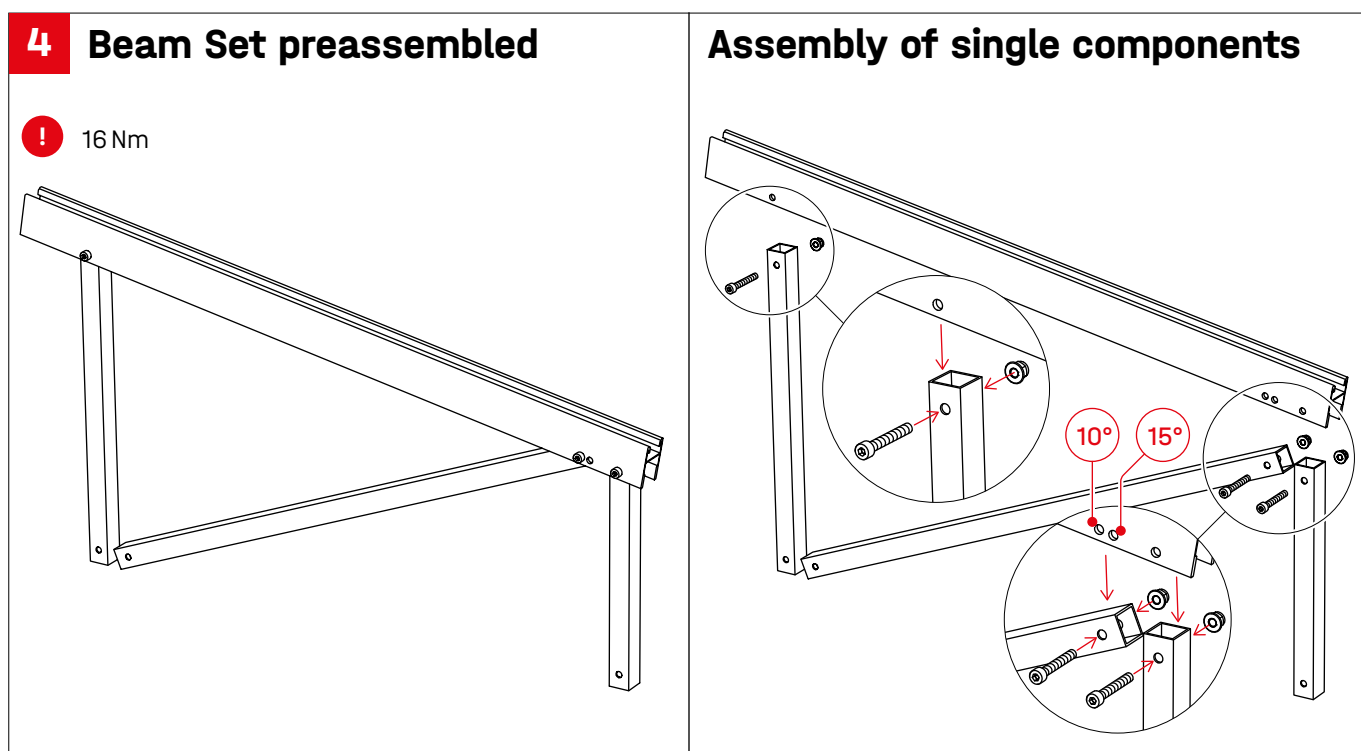
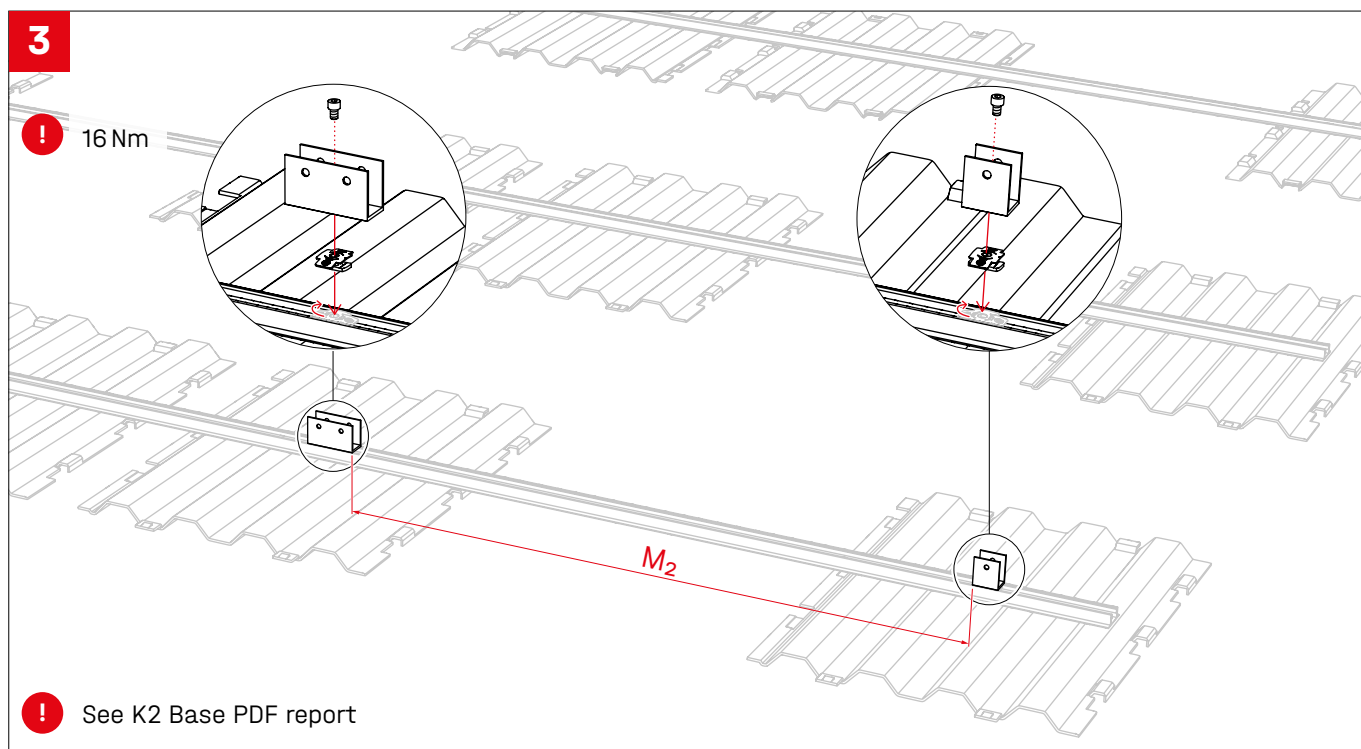
BALLAST EQUIVALENT PER PE PANEL

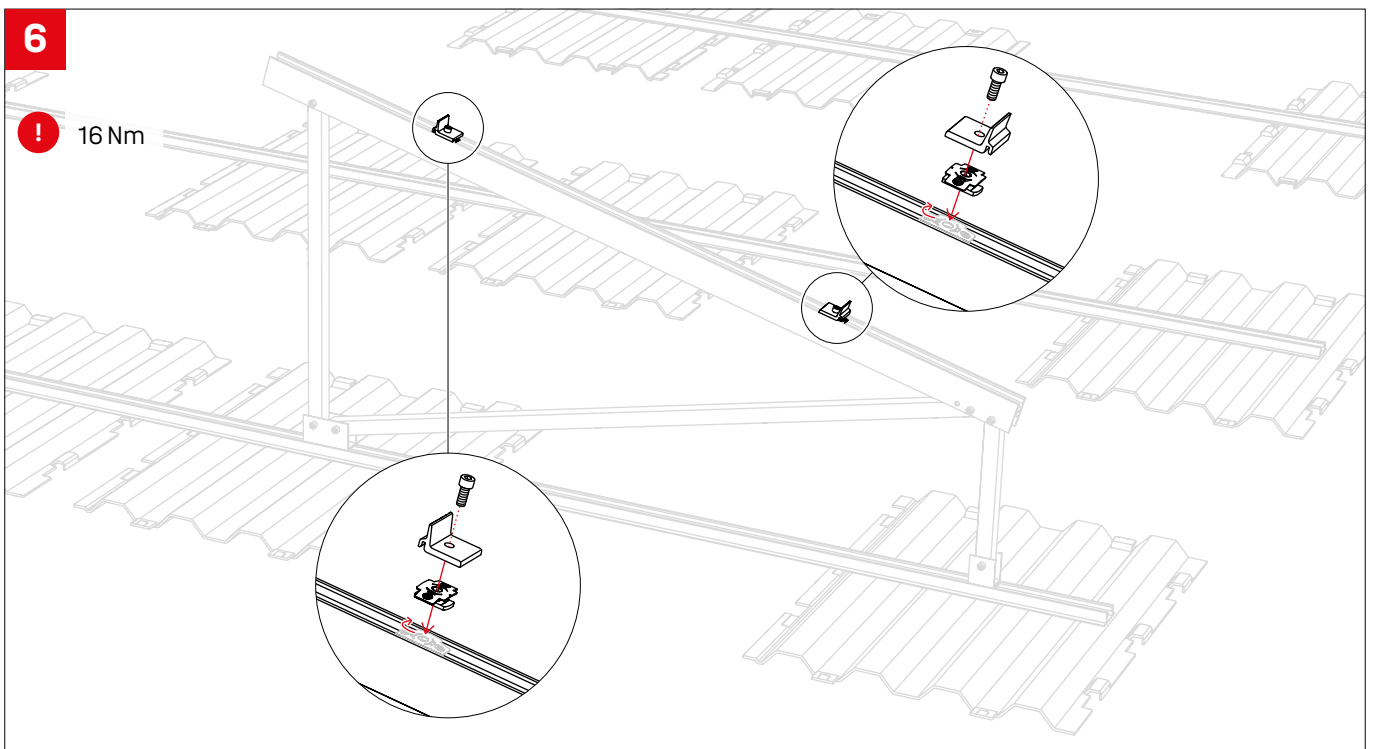
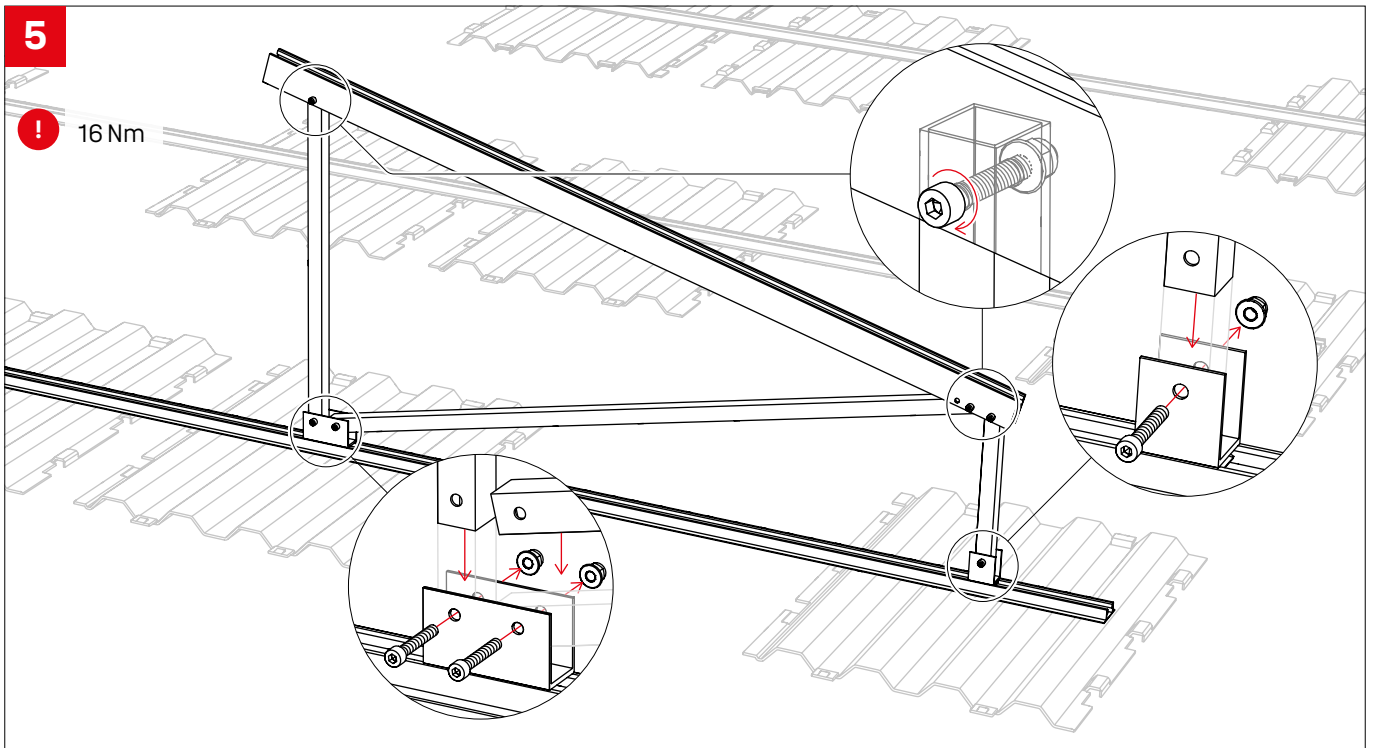
22.5 kg

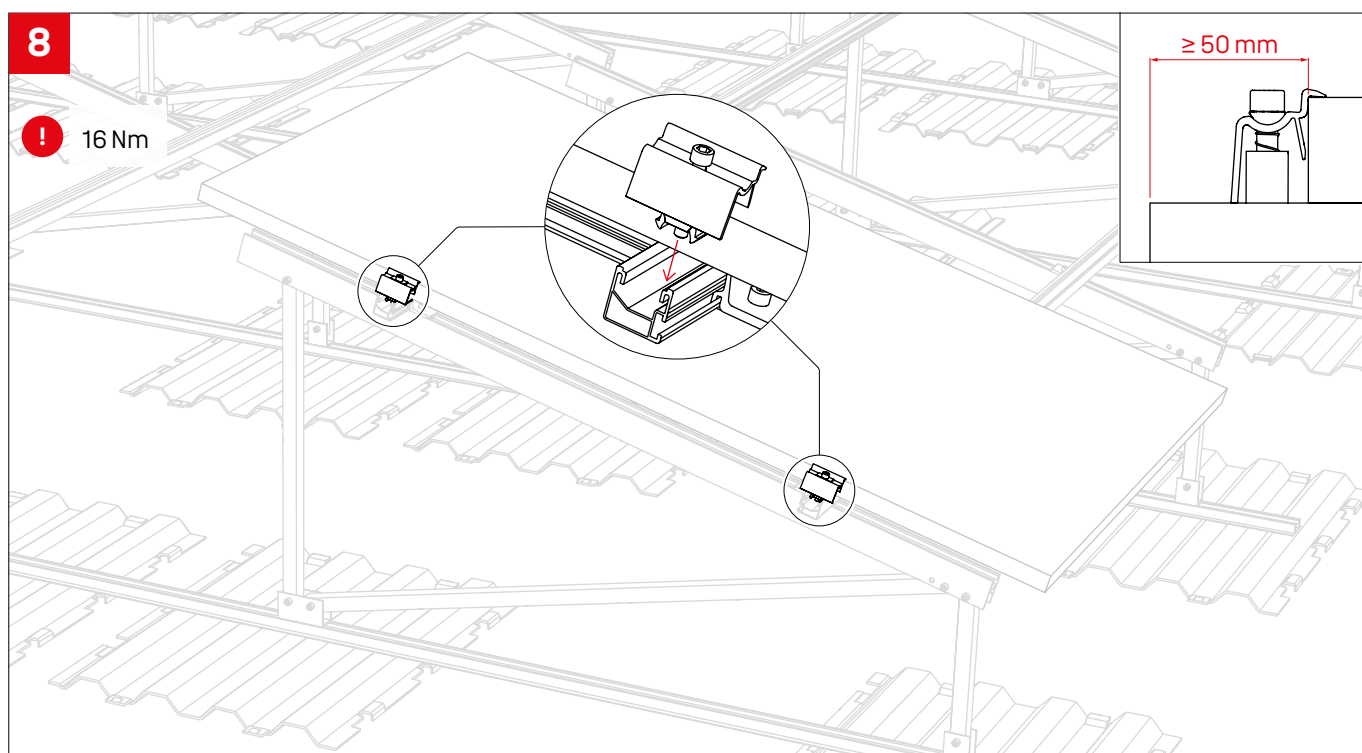
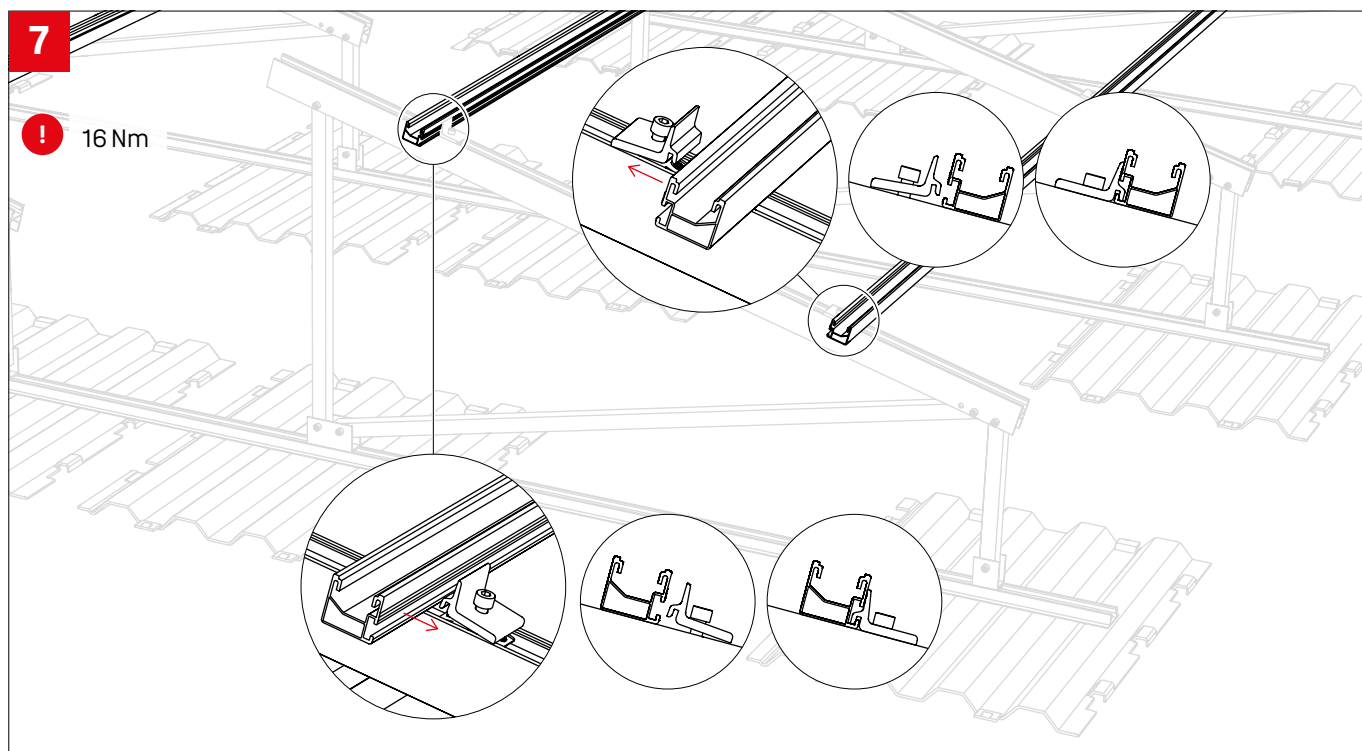


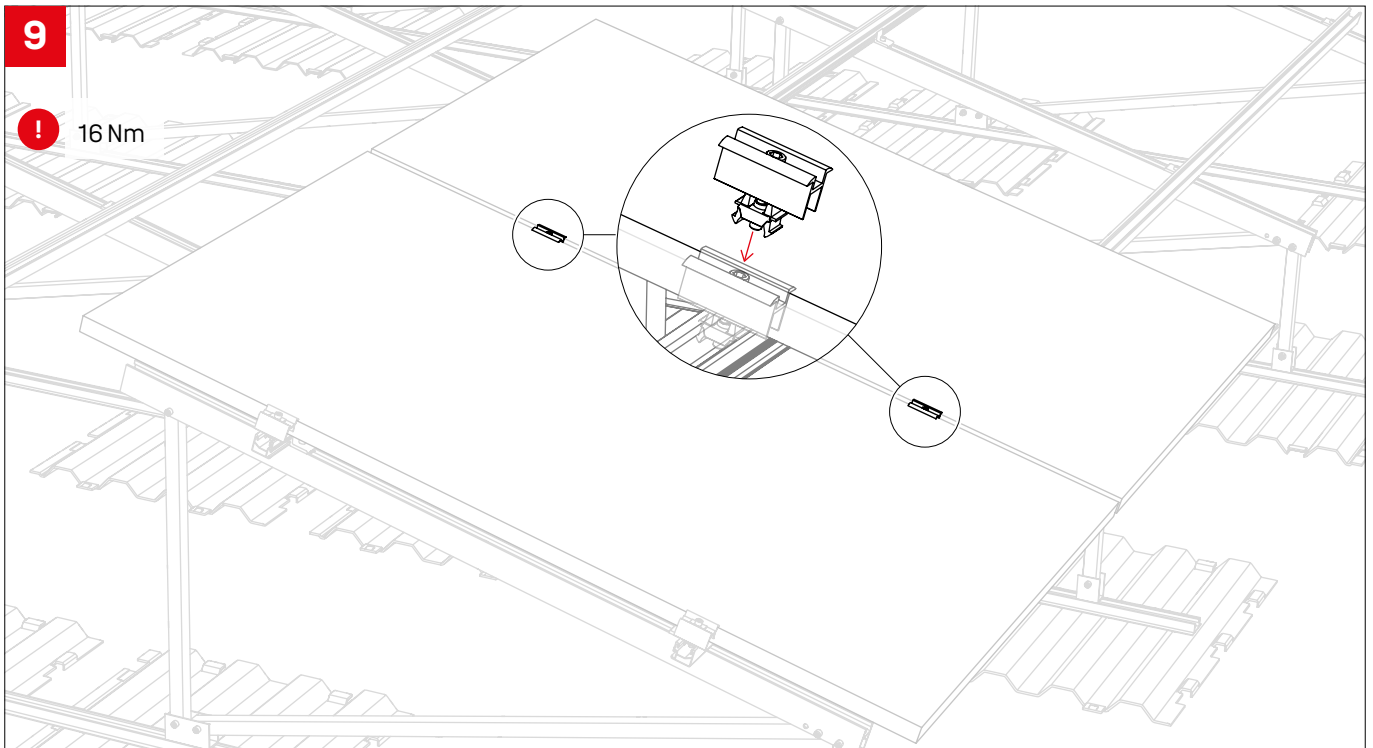
Position the mounting feet centrally between the CrossConnectors!



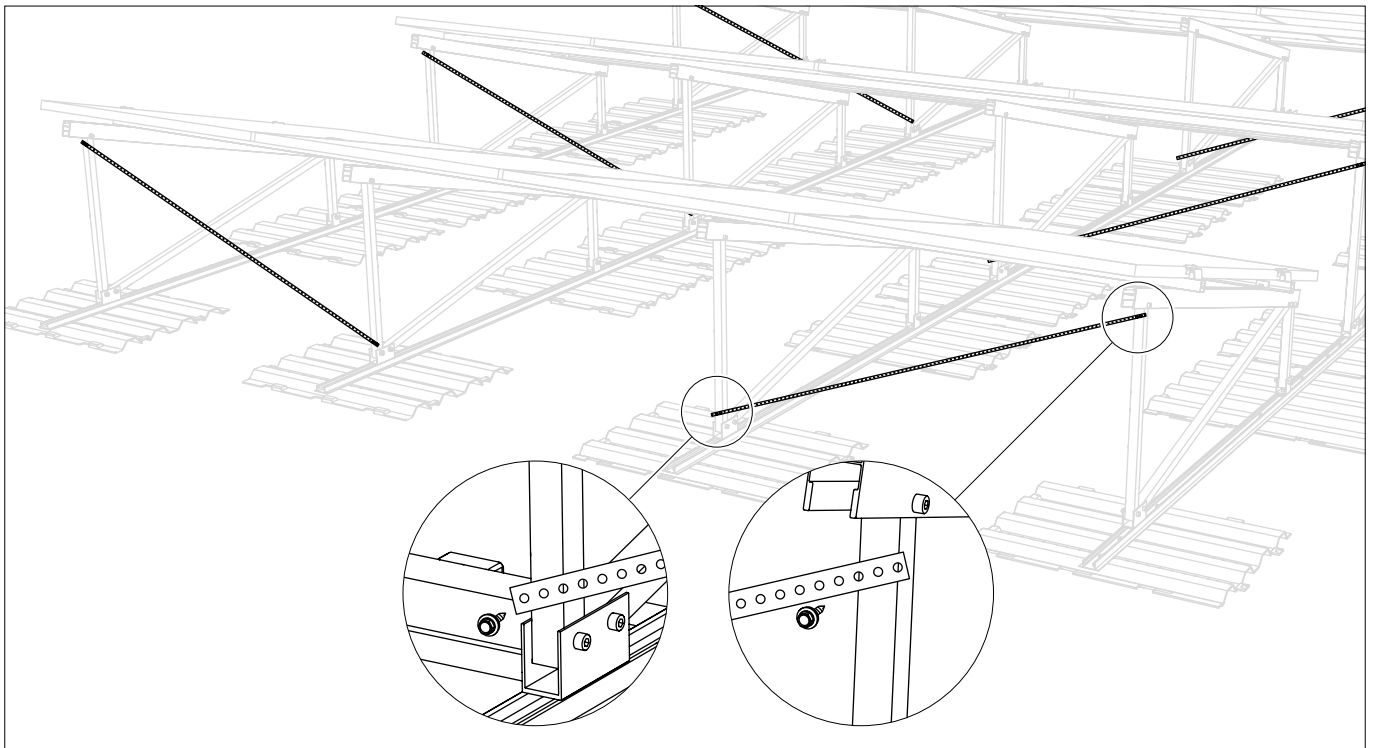




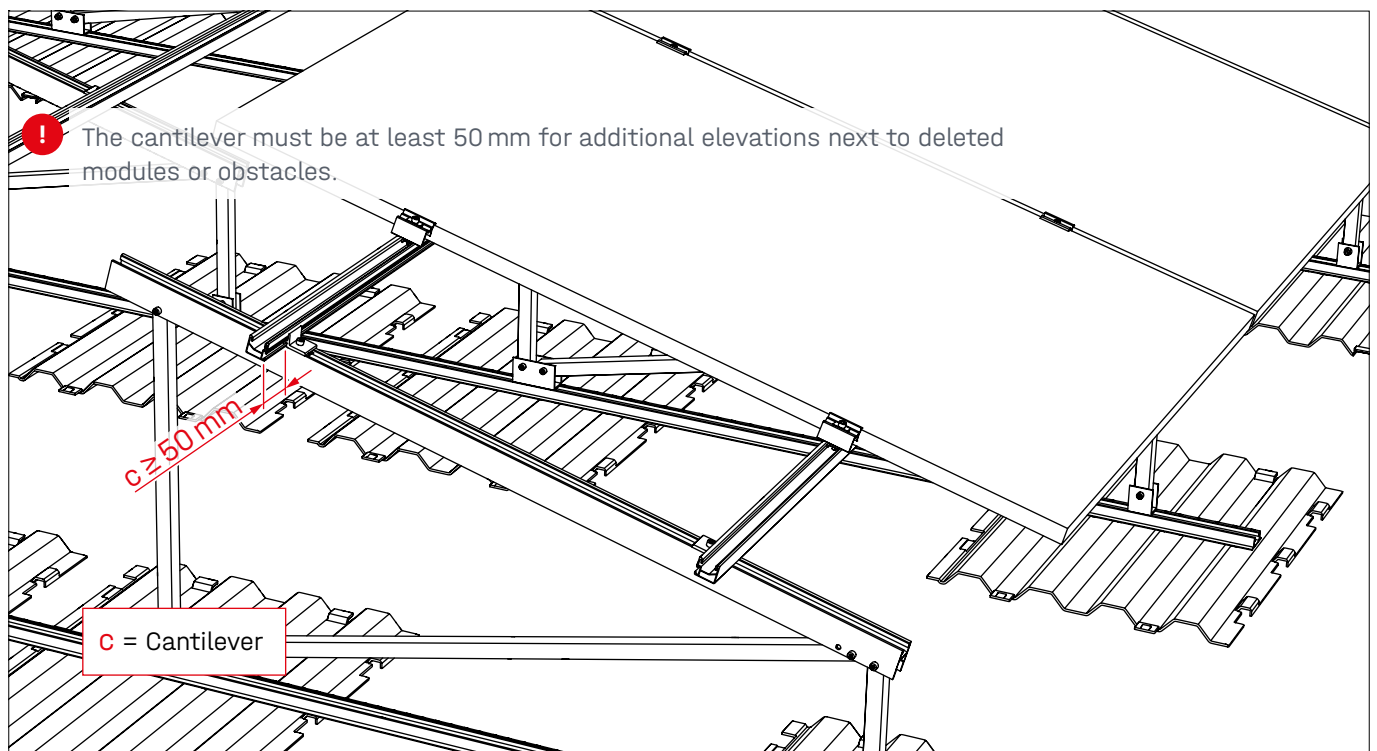




Wind bracing



Cantilever



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 (0)7159 42059-0**

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

K2 Systems GmbH

Haldenstraße 1 · 71272 Renningen · Germany
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GreenRoof Vento Assembly EN V5 | 1125 · Subject to change
Product illustrations are exemplary and may differ from the original.