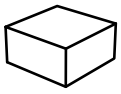


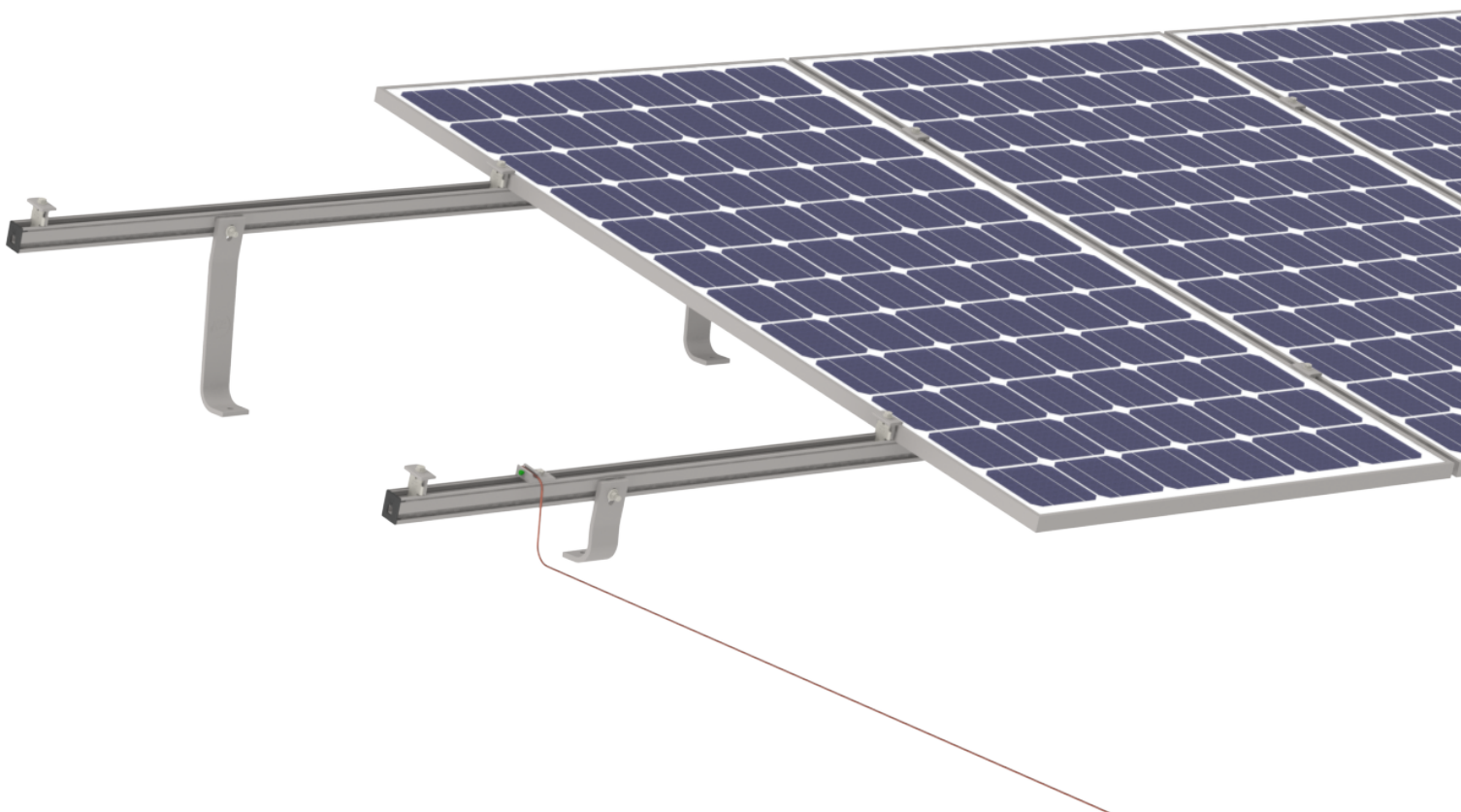


Connecting Strength

K2 Tilt 10°



ASSEMBLY INSTRUCTIONS





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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:
<https://k2-systems.com/en-us/resource-center/download-library/>

Engineering strength is at our core



With sophisticated product innovations and a deep customer focus, K2 Systems is the engineering leader for all your mounting system needs. We are a market leader with more than 32 GW installed worldwide.

We offer proven product solutions and innovative designs. Wind tunnel testing along with advanced structural and electrical validation to facilitate permitting, design and installation. Our designs result in cost competitive racking systems with dedicated support that will position you to win more projects.

We partner with our customers and suppliers for the long-term. High quality materials and cutting edge designs provide a durable, yet functional system. Our product line is comprised of a few, coordinated components that lower the cost of materials, and simplify installation, saving you time and money. All backed by German engineering, a long track record of quality and a company that is here to stay.

Thank you for choosing K2 Systems for your Solar PV Project.

General Safety Information



Please note that our general mounting instructions must be followed at all times and can be viewed online at <https://k2-systems.com/en-us/resource-center/download-library/>

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 are required.

/Protective equipment such as safety helmet, boots and gloves must be worn.

/Roofing works must be in accordance with roofing regulations utilizing fall protection safeguards when working at heights of 6 feet or more above a lower level.

/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:

<https://k2-systems.com/en-us/resource-center/download-library/>

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.

/If all safety instructions are adhered to and the system is correctly installed, there is a product warranty entitlement of 25 years! We strongly recommend reviewing our terms of guarantee, which can be viewed at <https://k2-systems.com/en-us/resource-center/download-library/>
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 CrossRail Simple Tilt system can be installed as standard under the following conditions. Even if the system is capable of meeting higher demands through the integration of safety standards, please get in touch with your contact at K2 Systems if the specified values are exceeded.



Roof requirements

/The sufficient holding force of the roof covering at the support or substructure must be ensured on site.

/Roof pitch: 0° - 7°

/Roof mean height: 0 - 60 ft

/Tilt angle of modules: 10°



Structural requirements

The static verification of the component is automatically calculated with the K2 Quote planning software for the respective location. The design provided in a project report must be followed.



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). Country-specific regulations must be observed.

/Due to thermal expansion and contraction we recommend placing a movement joint, or break, in connected rail lengths that exceed 65 feet (20 meters). Maximum allowable spacing between thermal expansion joints shall not exceed 80 feet with a minimum gap of 1.25" between rails at the joint

/ Typically, rail overhangs cannot exceed 1/3 of the maximum allowable span. See the engineering letters on the K2 website for more details on maximum spans and overhangs.

Bonding and Grounding



Appropriate means of bonding and grounding are required by regulation. The information provided in this manual shall always be verified with local and national building codes.

K2 Systems has obtained a UL 2703 system listing from Underwriter's Laboratories (UL).

A sample bonding path diagram is shown in Figure 1 below. Your specific installation may vary, based upon site conditions and your AHJ's requirements.

Each electrical connection has been evaluated to a maximum fuse rating of 30A. At least one ground lug per row of modules must be used to ground all equipment within each sub-array, although additional may be used for redundancy. When installed per these installation instructions, all connections meet the requirements of NEC 690.43.

This racking system may be used to ground and/or mount a PV module complying with UL 61730 only when the specific module has been evaluated for grounding and/or mounting in compliance with the included instructions.

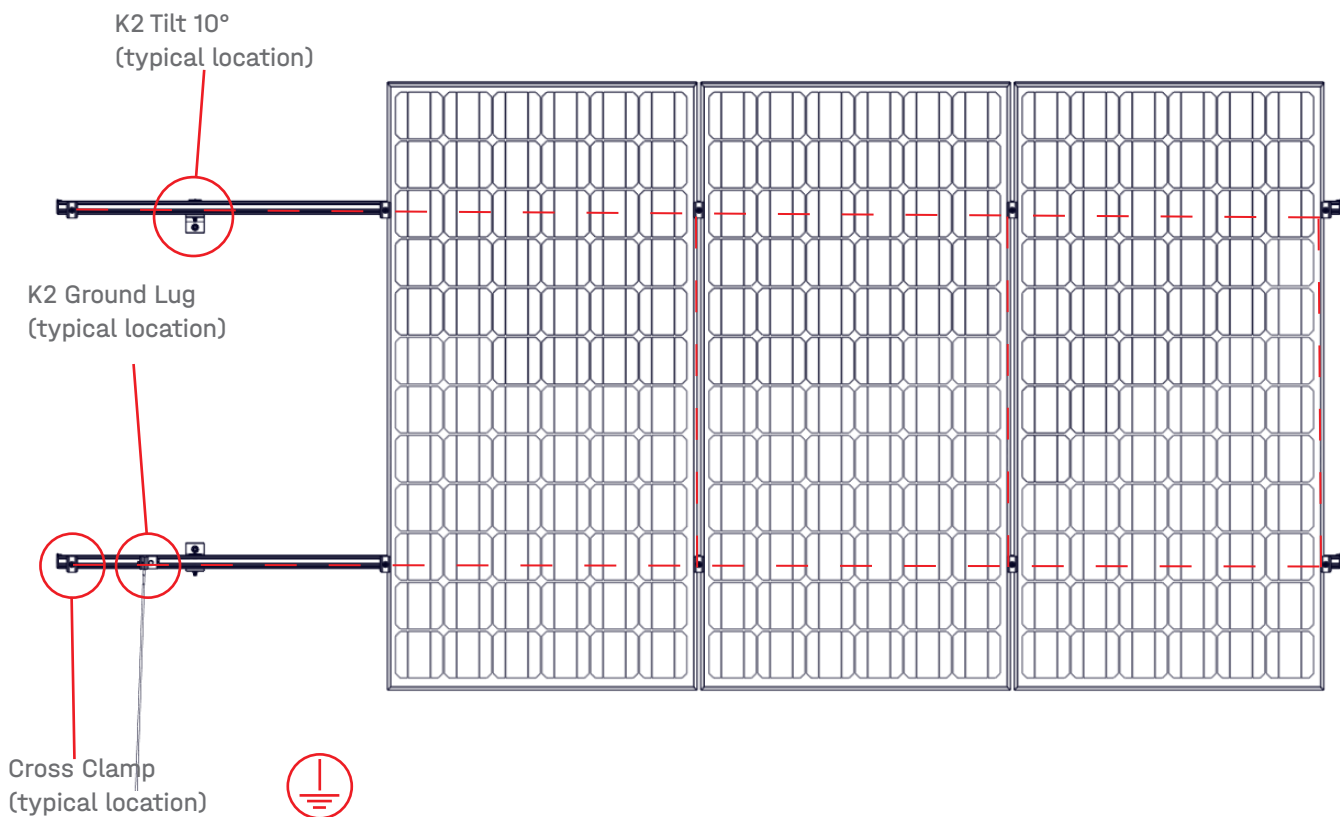


Figure 1: Bonding connections shown in red. For certain jurisdictions, bonding and grounding connections are identified in typical locations.



Fire Rating

The K2 Tilt 10° System has undergone fire performance testing in accordance with UL 2703, Fire Performance. A System Class A fire rating is achieved when using CrossRail 44-X Max/44-X/48-X/48-XL under the following conditions:

/Roof slope less than or equal to 7°

/Used in combination with a UL 61730 Listed module with a fire performance rating of Type 1, Type 2, or Type 29. Consult the module manufacturer for specific fire performance rating information.

/CrossRail may be mounted using any stand-off height to maintain the Class A fire rating. Always consult the module manufacturer's installation instructions to ensure your installation is in compliance with their UL 61730 Listing.

/The results of the racking system do not improve a roof covering Class rating.

All documentation can be found on UL's Online Database as well as K2 Systems' website.

Mechanical Rating

The K2 Tilt 10° System has been successfully evaluated for Mechanical Loading according to the requirements of UL 2703, Section 21.

/ System tested to a maximum module size of 33.47 ft² with minimum design load of 10 PSF down, 5 PSF up, and 5 PSF lateral.

/ Actual system structural capacities, such as the amount of modules intended for the system, are defined by a certified K2 Base report.

Approved Modules

To view our list of compatible modules, please click this link or scan the QR code: <https://k2-systems.com/wp-content/uploads/2025/05/ApproveModuleList05-1025.pdf>





Torque

/M10 T-Bolts and Carriage Bolts: 25.8 ft-lbs (35 Nm)

/K2 Ground Lug: M8 Hex Bolt: 10.3 ft-lbs (14 Nm), Terminal Screw: 3-5 ft-lbs (4-6.8 Nm)

/K2 Cross Clamp Hex Head M8×50mm: 12 ft-lbs (16.3 Nm)

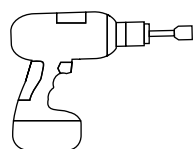
/MLPE, Module Frame Mount, Kit: 15 ft-lbs (20.3 Nm)

/Yeti Clamp 2.0: 12 ft-lbs (16.3 Nm)

/All other components: M8 Hex Bolts: 10.3 ft-lbs (14 Nm)

Tools

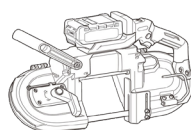
See the Roof Attachment Quick Guide for additional required tools.



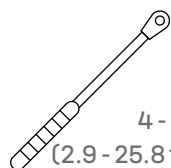
Drill



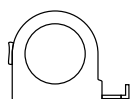
13mm
7/16"



Band Saw



4 - 35 Nm
(2.9 - 25.8 ft-lbs)

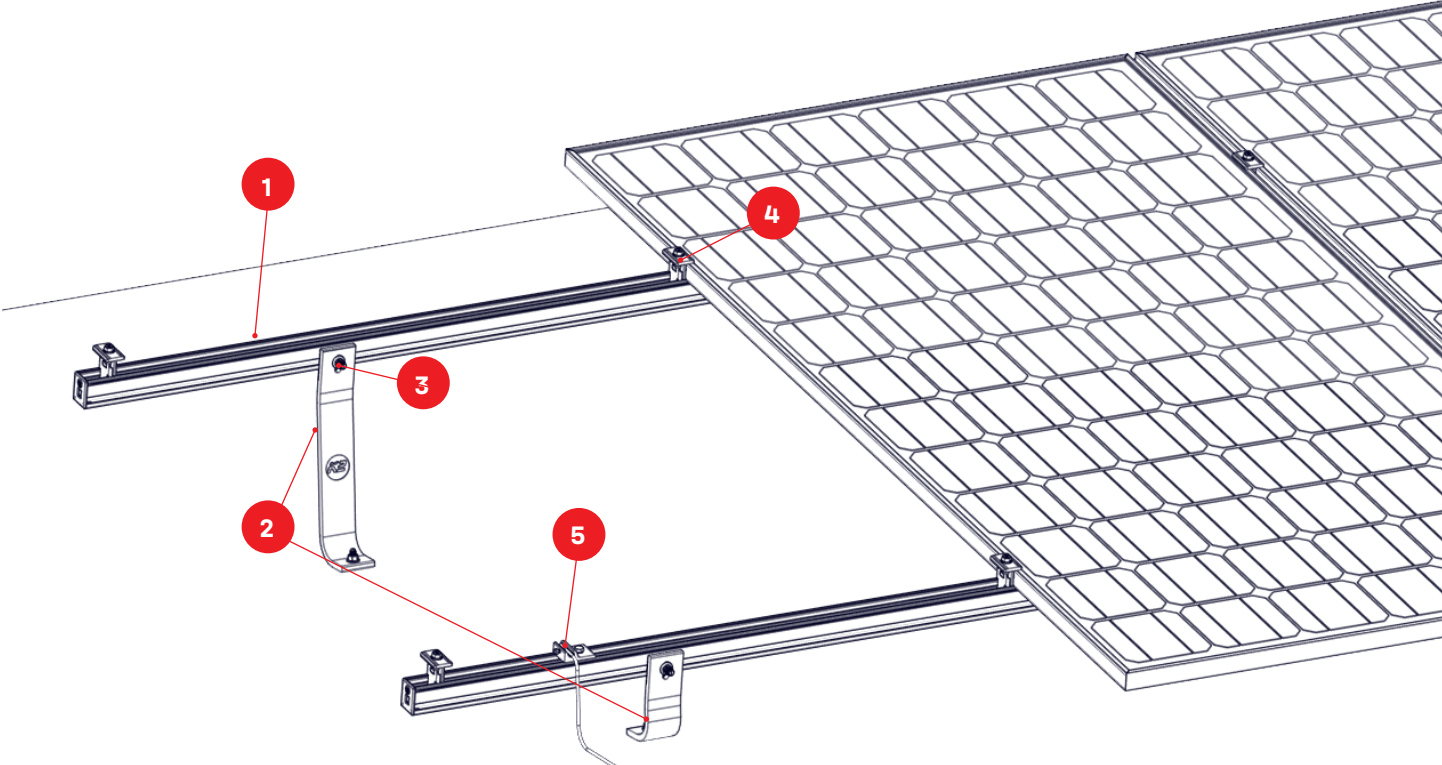


Tape Measure

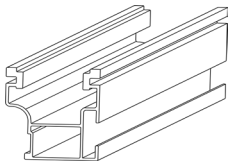


Chalk Line

Components

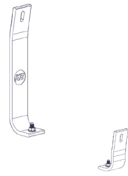


1 Multiple PNs



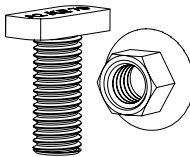
CrossRail
44-X Max, 44-X,
48-X or 48-XL

2 4000488



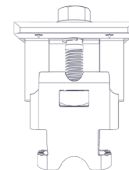
K2 Tilt 10°, Kit

3 4000048



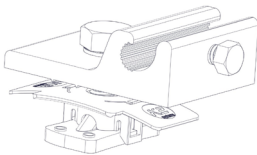
13x25mm T-bolt Kit

4 4000135-US/4000145-US



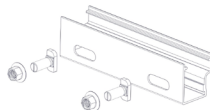
K2 Cross Clamp

5 4000006-H



K2 Ground Lug

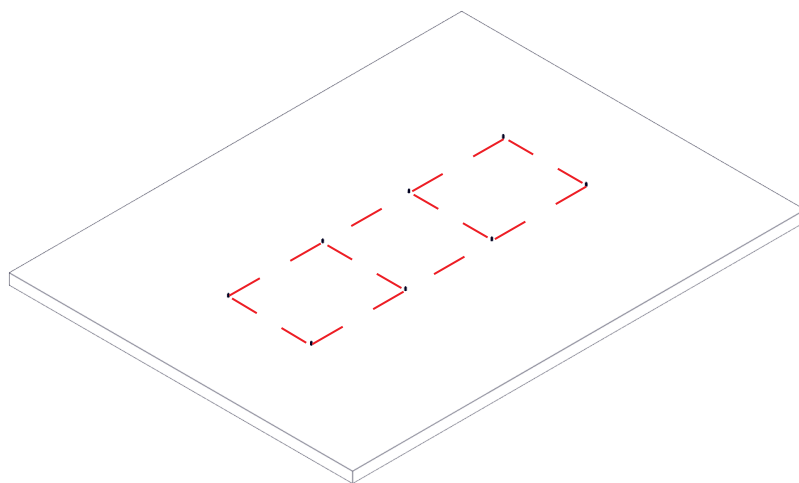
6 Multiple PNs



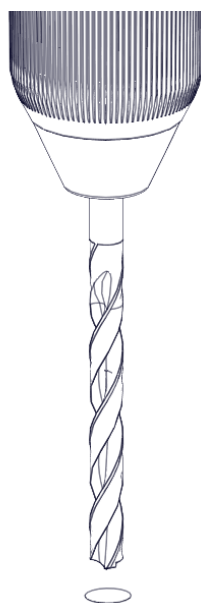
Rail Connector
CR 44-X Max/44-X or
48-X/48-XL

T-Bolt Assembly

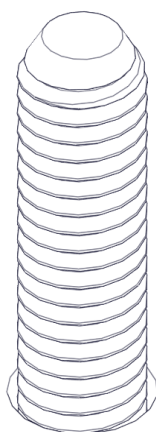
- 1** **!** Installation layout: Identify and mark the corners of the photovoltaic array on the roof surface. Use chalk lines to define the position of the mounting rails and accurately locate the anchor points. The spacing between supports in the eastwest direction must follow the design and structural engineering specifications, while the spacing in the north-south direction will depend on the dimensions of the photovoltaic module used.



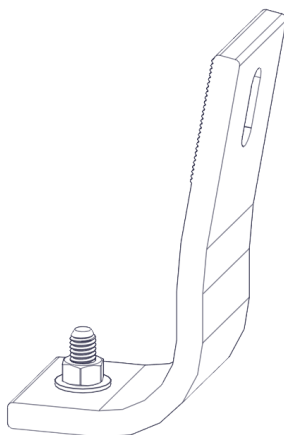
- 2** **!** Drilling holes for anchors in concrete: Drill holes according to the specifications of the anchor system manufacturer (mechanical or chemical), respecting the required diameter and depth. It is essential to completely remove dust and debris from inside the holes before proceeding with the installation of the anchor



- 3** Installing anchors: Insert the anchors into the holes and tighten them according to the manufacturer's instructions. Ensure that the thread protrudes sufficiently to accommodate the thickness of the tilt bracket and the serrated nut.
- !**



- 4** Mounting the K2 Tilt 10 Short Bracket: Align the hole in the K2 Tilt 10 Short Bracket with the exposed thread of the anchor. Secure the component using a serrated nut and apply the torque specified by the anchor manufacturer.
- !**



5

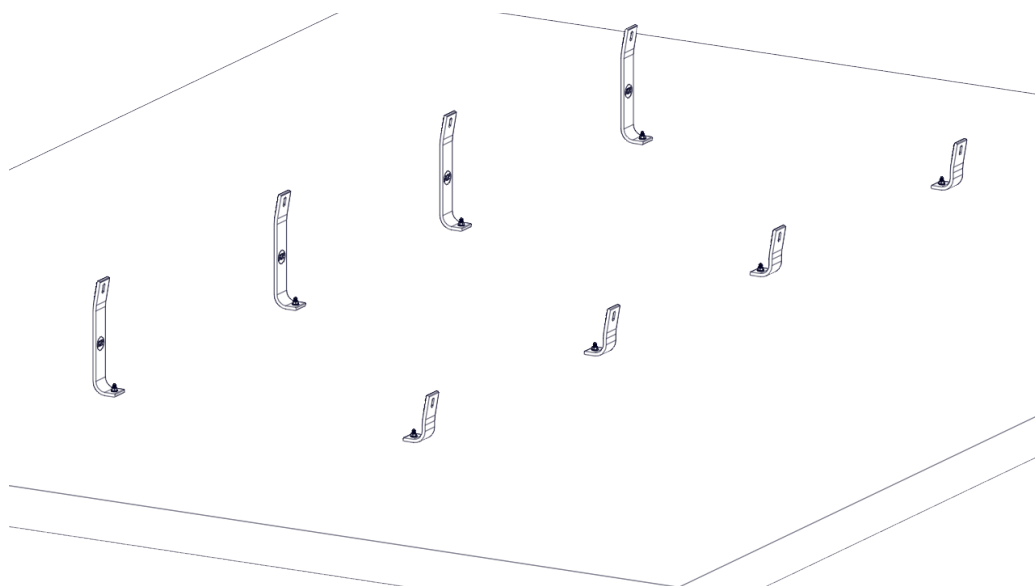
Mounting the long K2 Tilt 10 bracket: Repeat the previous procedure, aligning the hole in the long K2 Tilt 10 bracket with the exposed thread. Secure with a serrated nut and apply the recommended torque.



6



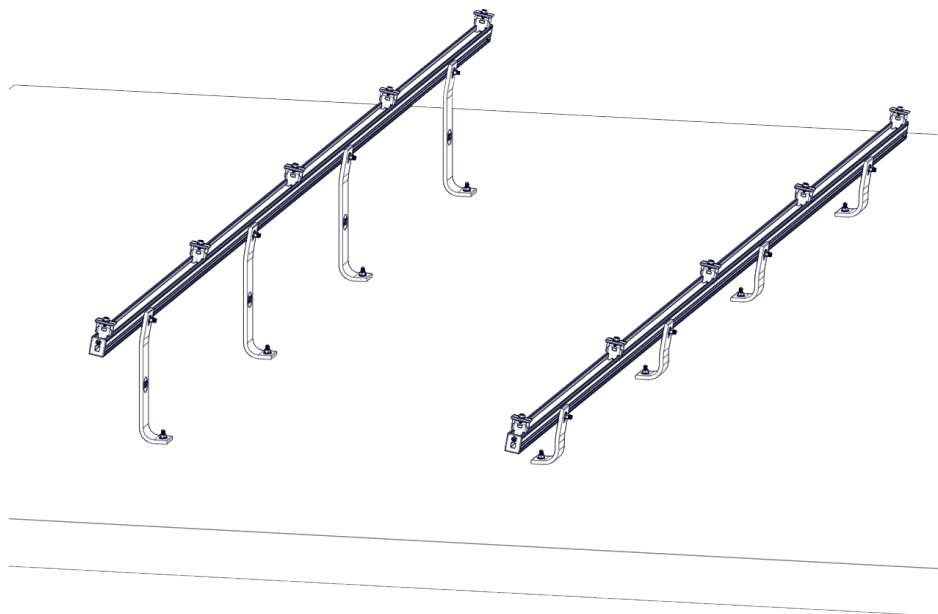
Aligning the tilt system: Ensure that the K2 Tilt 10 brackets are correctly aligned and show no visible rotation or deformation, as shown in the example in the image above.



7

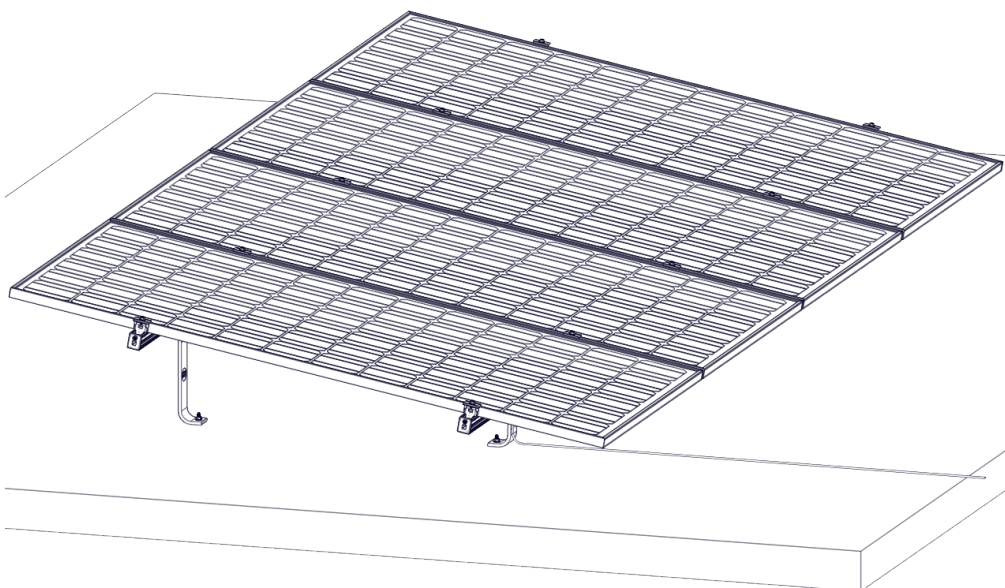
CR48-X rail installation: Place the rail on the Tilt 10 brackets using M10 T-bolts. Secure the connection by applying a torque of 7,35 Nm (25.8 ft-lbs), as specified.

!



8

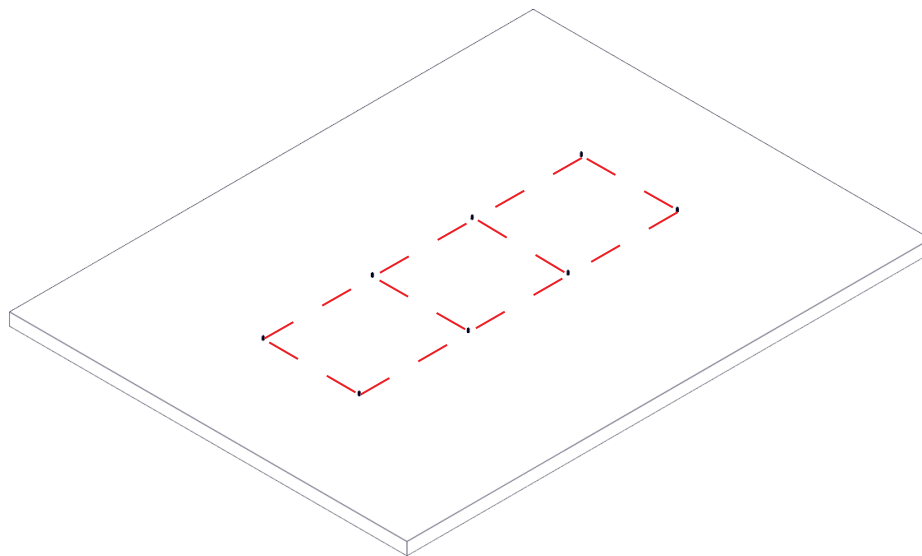
Rail orientation: Check that the rail orientation matches that indicated in the installation diagram provided above.



Runner Assembly

1 !

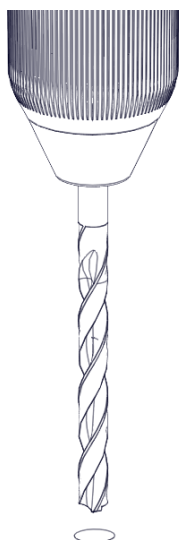
Layout of the installation matrix: Identify and mark the corners of the photovoltaic array on the roof surface. Use chalk lines to define the position of the mounting rails and accurately locate the anchor points. The spacing between supports in the east-west direction must follow the design and structural engineering specifications, while the spacing in the north-south direction will depend on the dimensions of the photovoltaic module used.



2

!

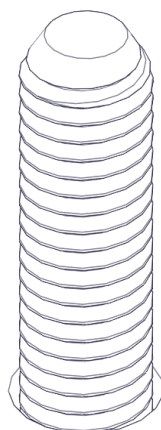
Drilling holes for anchors in concrete: Drill holes according to the specifications of the anchor system manufacturer (mechanical or chemical), respecting the required diameter and depth. It is essential to completely remove dust and debris from inside the holes before proceeding with the installation of the anchor.



3



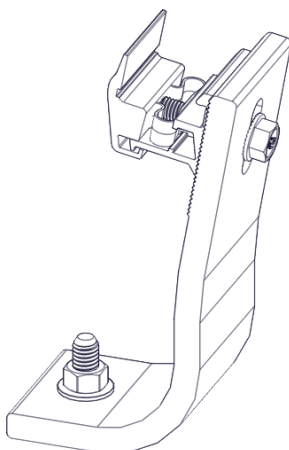
Installing anchors: Insert the anchors into the holes and tighten them according to the manufacturer's instructions. Ensure that the thread protrudes sufficiently to accommodate the thickness of the tilt bracket and the locknut.



4



Mounting the K2 Tilt 10 Short Bracket: Align the hole in the K2 Tilt 10 Short Bracket with the exposed thread of the anchor. Secure the component using a locknut and apply the torque specified by the anchor manufacturer.



5

Mounting the long K2 Tilt 10 bracket: Repeat the above procedure, aligning the hole in the long K2 Tilt 10 bracket with the exposed thread. Secure with a locknut and apply the recommended torque.

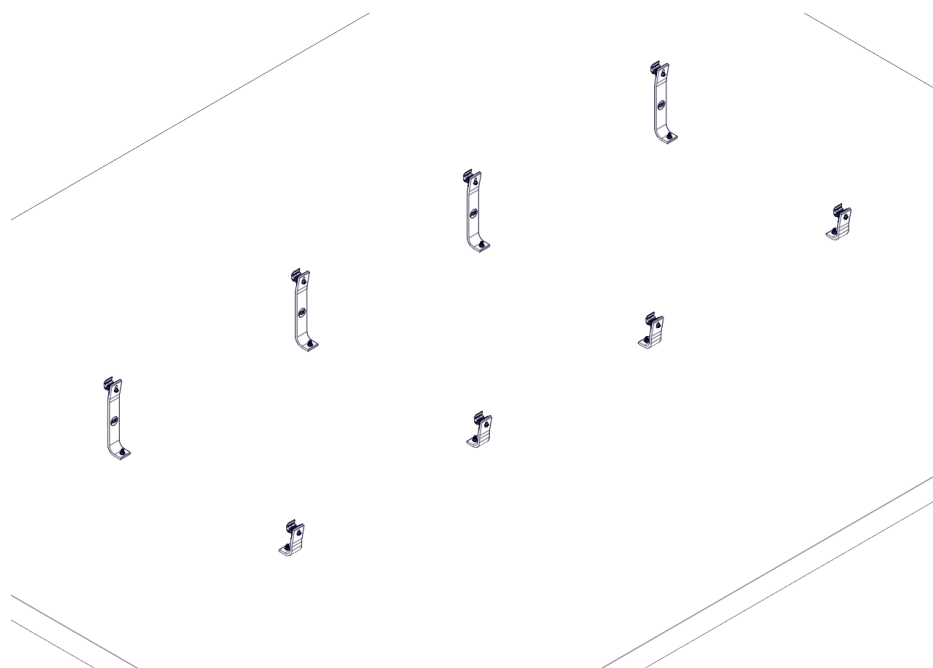
!



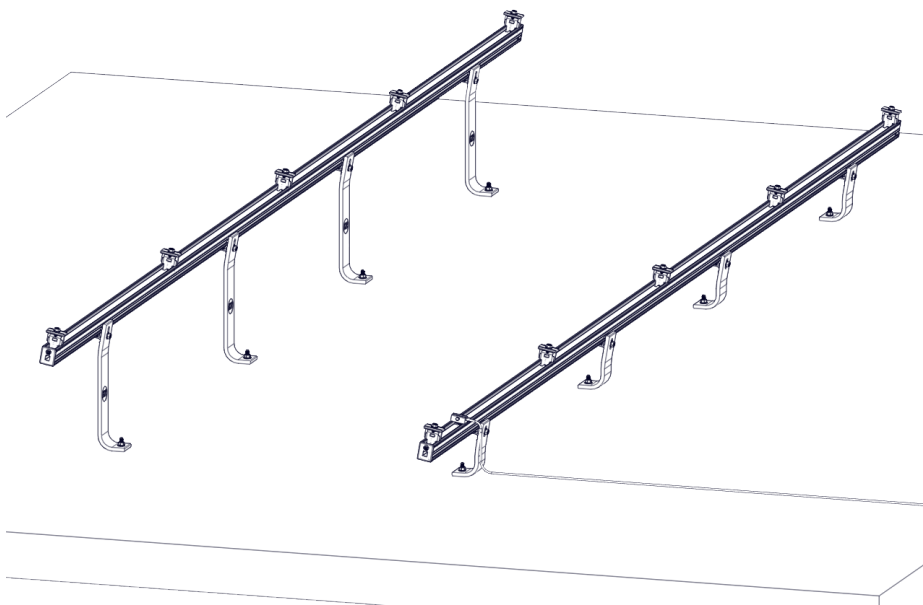
6

!

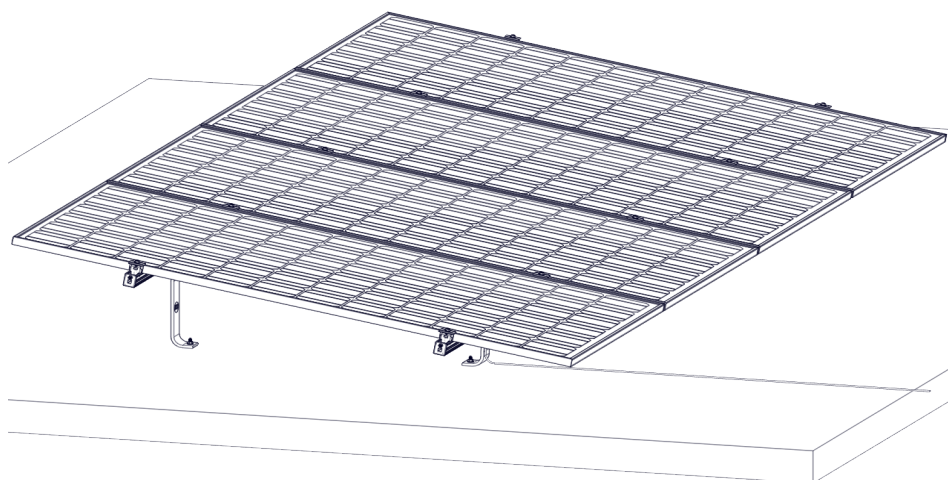
Tilt system alignment: Ensure that the K2 Tilt 10 brackets are correctly aligned and show no visible rotation or deformation, as shown in the example in the image above.



- 7** Installing the CR48-X rail: Place the rail on the K2 Tilt 10 brackets using the K2 Rail Runner, applying a torque of 12 ft-lbs, as specified.

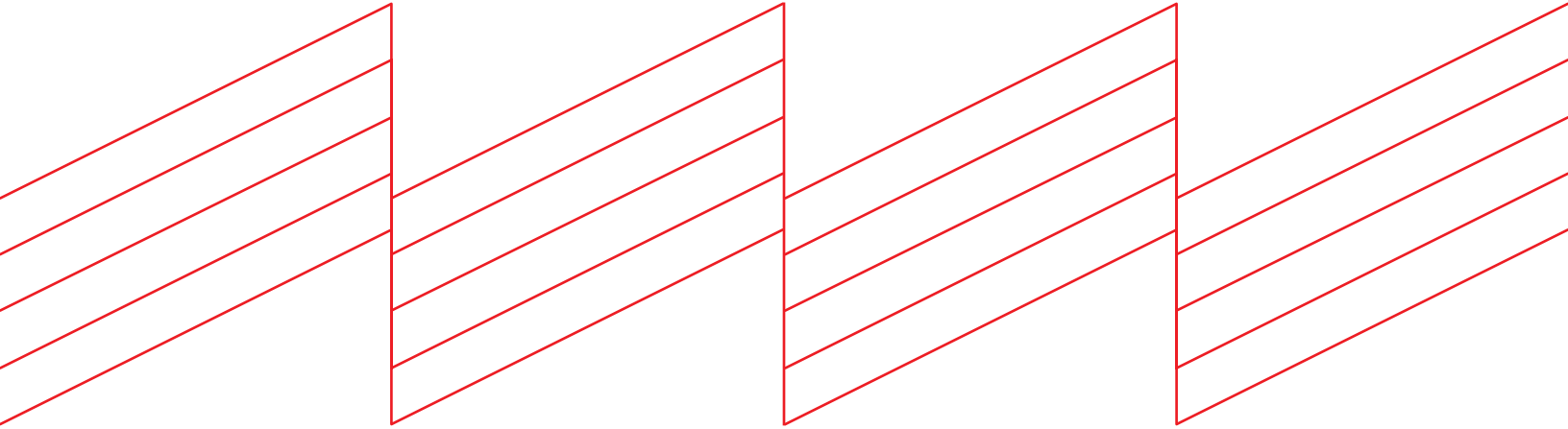


- 8** Rail orientation: Check that the rail orientation matches that indicated in the installation diagram provided above.





Connecting Strength



K2 Systems, LLC

4665 North Ave. Suite I • Oceanside, CA 92056 •
USA +1.760.301.5300 • infous@k2-systems.com
www.k2-systems.com/en-us

K2 Tilt 10° Assembly ENV1 | 0126 • Subject to change

Product illustrations are exemplary and may differ from the original.