Mounting systems for solar technology

ASSEMBLY INSTRUCTIONS
T-RACK 3.0 SYSTEM

GB

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PARTNER WITH A SYSTEM

With sophisticated, fully developed product ideas and obvious customer-orientation, K2 Systems is your friendly partner in the field of mounting systems for solar technology. International customers appreciate the tried and tested designs for use on roofs and in outdoor and individual solutions.

Mounting systems from K2 Systems impress with their attractive design and many well thought-out details. High grade materials and quality workmanship guarantee outstanding functionality and durability.

Our products consist of few yet perfectly matching components - this reduces the amount of material used, simplifies assembly while saving time and money.

As an energetic, experienced company, and in keeping with the times, we benefit from cooperation as partners in order to ensure the dynamic development of our company. The experiences from the personal dialogue with our customers forms the basis for permanent optimisation of our range of products.The team of K2 Systems looks forward to a successful cooperation with you.

TESTED QUALITY – FOUR CERTIFICATIONS

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

GENERAL SAFETY INSTRUCTIONS

Please be aware that our General Assembly Regulations must be adhered to.
They can be viewed under **www.k2-systems.com/en/downloads/product-information.html**

In general, the following applies:

- Systems may only be installed and put into use by people who can ensure the proper carrying-out of the work due to their technical suitability (e.g. training or occupation) and/or experience.
- Before assembly, it must be checked that the product meets the local static requirements. For roof systems, the load-bearing capacity of the roof has to be checked in principle.
- National and local building regulations, standards and environmental regulations are always to be adhered to.
- Work safety and accident prevention regulations and corresponding standards and regulations of occupational associations are to be adhered to! In particular, it is to be ensured that:
  - Safety clothing is worn (especially safety helmets, work shoes and gloves).
  - For work on roofs, the regulations for working on roofs are to be adhered to (e.g. use of anti-fall guards, scaffolding with arrestor equipment from an eaves height of 3m etc.)
  - Presence of two people is vital for the entire course of the assembly, so that swift help can be ensured in the case of an accident.
- K2 mounting systems are constantly being developed further. Because of this, assembly procedures can change. Therefore, before assembly, always check that the assembly instructions are up-to-date under **www.k2-systems.com/en/downloads/product-information.html**. We can also send you the latest version on request.
- The assembly instructions of the module manufacturer are to be adhered to.
- The grounding must be prepared on site (if necessary use lightning protection clamp).
- During the entire assembly time it is to be ensured that at least one copy of the assembly instructions is available on site.
- In the event of non-adherence to our General Safety Instructions and if competitor's parts are built in or attached, K2 Systems GmbH reserves the right to refuse liability.
- With disregarding our general installation and assembly instructions and not using all system components and assemblies according to these instructions as well when components are used, which were not obtained from us, K2 Systems is not liable for any resulting defects and damages. 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 12 years! In this context we strongly recommend to also read our terms of guarantee which can be viewed under www.k2-systems.com/en/downloads/product-information.html. We can also send them to you on request.
- The dismantling of the system takes place according to the assembly steps, in reverse order.
- K2 components made of stainless steels are available in different corrosion resistance classes. In every case,the expected corrosion exposure of each structure or component must be checked.

ESSENTIAL: THE MATERIALS REQUIRED

In order to assemble the K2 T-Rack System 3.0, the following listed system components are essential. The piece quantities are calculated on the basis of the respective requirements. The listed item numbers facilitate the comparison of items.

Mounting rail K2 CrossRail 63

Material: Aluminium EN AW-6063 T66

| Article number system-specific

Rail connector Set K2 CrossRail 63

Set consists of:
1 Rail connector K2 CrossRail 63 (2001297), Aluminium
2 self-drilling screws (1001051), Stainless steel A2

| Article number system-specific

Ram post IPE100 T-Rack 3.0 IPE 120

Material: galvanized steel

| Article number system-specific

K2 T-Rack Head 3.0

Material: galvanized steel

| 2001299

CrossTie 3.0

Material: galvanized steel

| Article number system-specific

K2 Crossbar 3.0

Material: Aluminium EN AW-6063 T66

| 2001333

K2 Allen bolt

M10x35 DIN EN ISO 4762
Material: galvanized steel, WS 8 mm

| 2001486

K2 Allen bolt

M10x55 DIN EN ISO 4762
Material: galvanized steel, WS 8 mm

| 2001487

K2 Self locking nut M10

| 1003790

similar ISO 4161
Material: galvanized steel, WS 16 mm

K2 Climber 3.0 Set

| Article number system-specific

Set consists of:
1 Climber 3.0 (2001334), Aluminium
1 Allen Bolt M8x30 (1000086), WS 6 mm, stainless steel A2
1 Washer S8 (1000473), stainless steel A2
1 M K2 (1001643), stainless steel A2 und PA

K2 End clamps Set Standard

| Article number system-specific

Set consists of:
1 Modul end clamp, Aluminium plate finish / black
1 Allen Bolt M8 (1000190), stainless steel A2
1 M K2 (1001643), stainless steel A2 and PA
1 Washer S8 (1000473), stainless steel A2
1 spring, stainless steel

K2 Middle clamps Standard set

| Article number system-specific

Set consists of:
1 Modul middle clamp, Aluminiumplate finish / black
1 Allen Bolt M8 (1000190), stainless steel A2
1 M K2 (1001643), stainless steel A2 and PA
1 Washer S8 (1000473), stainless steel A2
1 spring, stainless steel

Alternatively: K2 Middle Clamp Set XS

| Article number system-specific

K2 Washer 10,5x20x2 mm

| 1003791

Material: galvanized steel

AT A GLANCE: OVERVIEW OF THE TOOLS

K2 Systems mounting systems are designed to ensure effortless assembly. Only the tools that are required are not included in the scope of supply. Here we have listed them together for ease of reference.

Cordless screwdriver

With mount for WS 8
(WS=wrench size)

Torque wrench

With attachment for WS 6, WS 8
(WS=wrench size)

Leveling Device or Spirit Level

Pile-driving machine

With attachment (matrix) for Ram Post IPE 120

Chalk line or guide line

Measuring tape

IN GENERAL:

The General Installation Instructions must be adhered to. These can be found at: They can be viewed under **www.k2-systems.com/en/downloads/product-information.html**

The following especially applies to the T-Rack System:

¬ CORROSION:
The components of this system are designed for use in normal urban and rural environments and are sufficiently corrosion-resistant for these environments. For sites with salty air due to proximity to the sea, aggressive industrial atmospheres (ammonia etc.), sites close to livestock, or a combination of such boundary conditions, additional corrosion protection is required.

¬ FOUNDING:
Prior to any founding the soil parameters must be determined (e.g. via geological survey)
The responsible planner must produce and provide a foundation plan.

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RAMMING OF POSTS

At the beginning of the foundation work, the terrain to be built on must be measured off, in order to determine the correct position of the ram posts. In accordance with the foundation plan, the ram posts are rammed into the ground with suitable pile-driving equipment to the planned depth.

Additional information:
Pay attention to the upper and lower sides of the piles. The pile-driving equipment must be suitable for the conditions of the building plot and requires an adaptor/ interface in
compliance with the geometry of the post.

Required materials: Ram posts IPE 120

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INSTALLATION OF RACK HEADS

The rack heads are mounted onto the rammed posts. The asymmetrical side is to be aligned to the pile. Fasten with 2 x DIN EN ISO 4762 M12 hexagonal socket screws and self-locking nuts.

Additional information:
The washers are positioned on the screw head side.
In this installation step, the screws are not yet tightened with a final torque, but simply fixed.
Please note the upper bore hole near the curvature has to be towards the back side. In case the head was ordered pre-assembled please follow the instructions below.

Required materials: T-Rack Head 3.0, Allen bolt DIN EN ISO 4762 M12 x 30, Self-Locking Nut M10, washer

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FASTENING THE CROSSBAR TO THE HEAD

The Crossbar is fixed to the head with an Allen Bolt M10x55, washer and self-locking Nut.

Additional information:
In this installation step, the screws are not yet tightened with a final torque, but simply fixed.

Required materials: Crossbar 3.0, Allen bolt DIN EN ISO 4762 M10x55, washer and self-locking nut

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ASSEMBLY OF THE CROSSTIE 3.0

Fasten the CrossTie 3.0 to the IPE 120 with M10 hexagonal Allen Bolts and self-locking nuts.

Tightening torque: 46 Nm

Required materials: CrossTie 3.0, Allen bolt DIN EN ISO 4762 M10x55 and M10x35, Unterlegscheibe, hexagon flange

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ALIGNING THE RACKS

The racks have to be aligned. A guideline shall be used as an aiding device. Height adjustment is possible either via the bore holes in the rack head or with adjusting the embedment depth of the IPE's. Only after the alignment all bolt connections are finally tightened.

Tightening torque: 46 Nm

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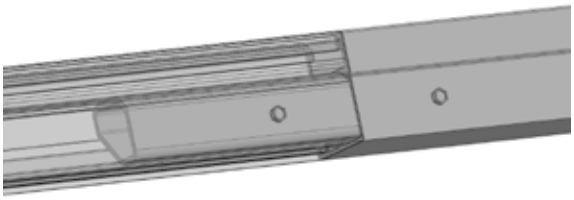
MOUNTING OF MODULE RAILS WITH CLIMBERS

The module rails are placed across the racks and each is fixed with two climbers, Allen Bolt, washer and slot nuts.

Tightening torque: 24 Nm

Additional information:
In the case of a falling ground the K2 CrossAngle (What's that?) has to be used. For the positions of the module rails please refer to the drawings of the planner.

Required materials: K2 Mounting Rail, Climber 3.0 Set



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INSTALL RAIL CONNECTORS

Fix Rail Connector sleeves for the module rails with 2 self-tapping screws on the side of the rail profile facing upwards. Allow rails to sit flush.
To connect 2 module rails insert the rail connector sleeve into the hollow profile of the first rail and fix it with two self-tapping screws until the screw heads sit flush. Afterwards impose the the second rail onto the connector sleeve until rails sit flush, then fix the second rail profile with 2 screws as before.

Every once in a while a thermal expansion cut in the module rails are necessary. Please refer to the planner's drawings. The thermal cut has to be 60 mm! With a thermal cut only one side of the connector sleeve is fixed with self-tapping screws.

Additional information:
Rail Connectors have to be mounted with torsional loading. Please liaise with the project management/engineer.

Requiered materials: Rail Connector Set

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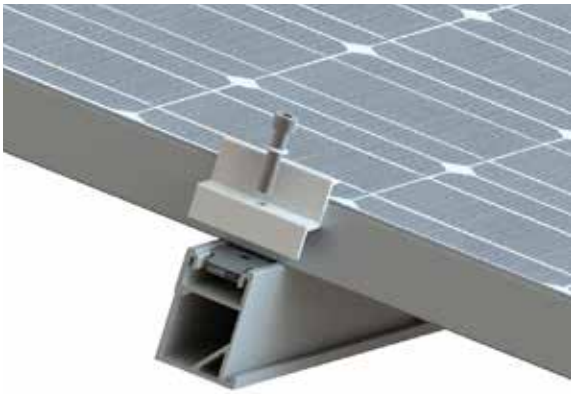
INSTALL ALL MODULE RAILS

All other rails are mounted to the racks. Rack spacing as per the planner's drawings.

Important: All racks are supposed to be vertical (90 degrees) even on falling grounds.



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ATTACH MODULES

The slot nut M K2 is first inserted into the mounting rail and rotated clockwise by 90 degrees. If the end clamps and middle clamps are delivered as a set, the entire set must be fixed to the rail in the same way. Attach module to the mounting rails according to the manufacturer's instructions. Attach module at the end of each row with end clamps and M8 DIN EN ISO 4762 as well as the slot nuts.

Tightening torque 14 Nm.

Required materials: End Clamp Set

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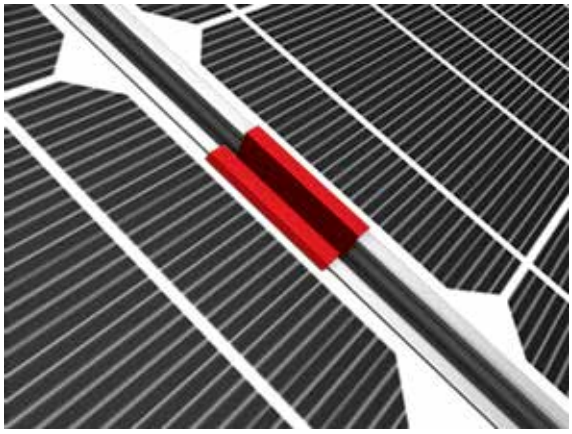
FIXING SPACING BETWEEN PANELS

Attaching with XS Middle Clamp
Use two XS middle clamps between two modules, which also need to be screwed with M8 DIN EN ISO 4762 screws in the slot nuts. The XS middle clamps will need longer screws than the standard middle clamp.

Tightening torque 14 Nm.

Required materials: Middle Clamp Set XS



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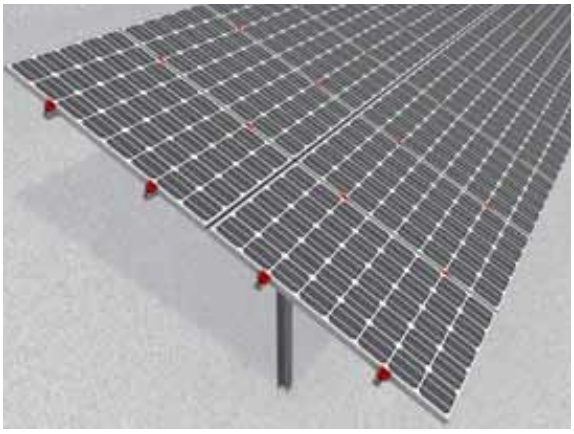
Fixing with Standard middle clamp

Use two standard middle clamps between two modules, which also need to be screwed with M8 DIN EN ISO 4762 in the slot nuts. **Pay attention to the mounting instructions of the module manufacturer!**

Tightening torque:14 Nm

Required materials: Middle Clamp Set



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SPECIAL NOTES FOR ASSEMBLY

- At all times avoid having slot nuts at rail joints
- Never mount middle or end clamps directly at rail joint or end of the rail!

Important: Thermal expansion gaps must not be superstruct by modules!

Ready!

THANK YOU FOR CHOOSING A K2 MOUNTING SYSTEM.

Systems from K2 Systems are fast and simple to install. We hope these instructions have helped you in this. Please contact us if you have any questions or suggestions for improvements.
All contact details can be found at:

http://www.k2-systems.uk.com/contact.html

Our General Terms of Business apply. Please refer to http://www.k2-systems.com/en/gsc.html. German Law shall apply excluding the UN Convention on CISG. Place of venue is Stuttgart

Mounting systems for solar technology

WE ARE HAPPY TO ASSIST YOU:
www.k2-systems.com

Montageanleitung T-Rack 3.0 | GB1 | 0214 | Subject to change.