Mounting systems for solar technology

MONTAGEANLEITUNG
ROOF TOP SYSTEMS
SOLAR FASTENERS

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 – MULTIPLE CERTIFICATIONS

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

Please refer to http://www.k2-systems.uk.com/downloads/certificates.html to download our quality and product certificates.
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](http://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](http://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](http://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

All system components listed in the following are essential for assembling the K2 Systems Roof Fastener system. The piece quantities are calculated on the basis of the respective requirements. The listed item numbers facilitate the comparison of items.

<table>
<thead>
<tr>
<th>Item</th>
<th>Item Number</th>
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<tbody>
<tr>
<td>Solar fasteners with calotte for steel</td>
<td>5</td>
</tr>
<tr>
<td>- No adapter plate; Material: stainless steel, aluminium, EPDM</td>
<td>16</td>
</tr>
<tr>
<td>- Alternative: Solar fasteners for wood or porous concrete on request</td>
<td></td>
</tr>
<tr>
<td>Stainless steel adapter plate</td>
<td>1000058</td>
</tr>
<tr>
<td>- Material: Stainless steel</td>
<td></td>
</tr>
<tr>
<td>K2 Bridge</td>
<td></td>
</tr>
<tr>
<td>- Material: Aluminium</td>
<td></td>
</tr>
<tr>
<td>Mounting Rail K2 SolidRail</td>
<td></td>
</tr>
<tr>
<td>- UltraLight, Light, Medium or Alpin</td>
<td></td>
</tr>
<tr>
<td>- Material: aluminium EN AW-6063 T66</td>
<td></td>
</tr>
<tr>
<td>K2 Module Middle Clamp Standard Set</td>
<td></td>
</tr>
<tr>
<td>- The set consists of:</td>
<td></td>
</tr>
<tr>
<td>- 1 Module Middle Clamp, Aluminium plate finished/ black anodized</td>
<td></td>
</tr>
<tr>
<td>- 1 bolt with serrated under head M8, WS 6 mm, stainless steel A2</td>
<td></td>
</tr>
<tr>
<td>- 1 M K2 Slot nut with clip (1001643), stainless steel and PA</td>
<td></td>
</tr>
<tr>
<td>- 1 spring, stainless steel</td>
<td></td>
</tr>
<tr>
<td>- Alternatively: K2 Module Middle Clamp XS Set</td>
<td></td>
</tr>
</tbody>
</table>

Alternative: Solar fasteners with sealing shim for steel

No adapter plate; Material: stainless steel, FZD

Alternative: Solar fasteners for wood or porous concrete on request
K2 Module End Clamp Standard Set
The set consists of:
¬ 1 Module End Clamp Standard, Aluminium plate finished/ black anodized
¬ 1 bolt with serrated under head M8, WS 6 mm, stainless steel A2
¬ 1 M K2 Slot nut with clip (1001643), stainless steel and PA
¬ 1 spring, stainless steel

K2 T-bolt M10x25
Material: Stainless steel A2
Head 28/15

Self-locking nut M10
Material: Stainless steel A2
drive: 15

ADDITIONAL MATERIAL FOR CROSS BRACING

Mounting Rail K2 CrossRail 36
Material: aluminium EN AW-6063 T66

M K2 slot nut with clip
Material: Stainless steel, PA
Alternatively, also slot nut made of aluminium can be used.

K2 Climber 36/48
Material: Aluminium EN AW-6063 T66

K2 Bolts with serrated under head
M8x25 according to DIN 912/ EN ISO 4762
Material: stainless steel A2, WS 6 mm
**AT A GLANCE: TOOLS OVERVIEW**

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

<table>
<thead>
<tr>
<th>Tool</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chalk line</td>
<td></td>
</tr>
<tr>
<td>Measuring tape</td>
<td></td>
</tr>
<tr>
<td>Cordless screwdriver</td>
<td>With attachment for WS 5, 6 (WS= wrench size)</td>
</tr>
<tr>
<td>Torque wrench</td>
<td>With attachment for WS 6</td>
</tr>
<tr>
<td>Wrench</td>
<td>With attachment for WS 15</td>
</tr>
<tr>
<td>Chalk line</td>
<td></td>
</tr>
<tr>
<td>Measuring tape</td>
<td></td>
</tr>
</tbody>
</table>
NOTES TO THE SYSTEM

As a general rule:

- **CORROSION**

  **Please note:** Additional corrosion protection is necessary for sites exposed to sea air due to proximity to the ocean, aggressive industrial atmosphere or close proximity to livestock or a combination of these boundary conditions.

DESCRIPTION SOLAR FASTENERS

The Solar fasteners are available for different types of sub-structure materials (steel, wood or concrete). The Solar fasteners have different threads in the sealing screw. The tightness of the roof covering is created through the use of calottes when fastening on steel / aluminium profiles and FZD seals on fiber cement profiles.

- **Set screw**: M10 x Lg A2 with hex drive HW5
- **Lock nut DIN 985 M10**
- **Lower disc M10**
- **Hex nut M10**
- **Thread M10 x 50**
- **Sealing shim**
- **Sealing shim FZD A2**
- **Calotte E16**
- **Sealing screw JZ3 - 8,0 x L**

Roof Top System Solar Fastener Assembly
PRE-DRILLED HOLE STEEL / ALUMINIUM PROFILE ON STEEL SUBSTRUCTURE

Measure the screw distances according to statics or K2 Base. Check position of purlins and pre-drill through the profile sheets into the purlins.

Metal profiles:
The pre-drilled hole diameter in the metal profiled sheet = the pre-drilled hole diameter in the substructure

PRE-DRILLED HOLE FIBRE CEMENT PROFILE ON WOOD SUBSTRATE

Measure the screw distances according to statics or K2 Base. Check position of purlins and pre-drill through the fibre cement profiles into the purlins.

Fibre cement profiles:
The pre-drilled hole diameter in the fibre cement profiles must always be greater than the diameter of the solar fasteners.

TABLE FOR DRILLING DIAMETERS

| Pre-drilled hole diameter in mm for metal profile sheets + substructure | Thickness of the substructure of |
|---|---|---|
| Material substructure | Steel | Wood |
| Thickness of the substructure in mm | 1,5...< 5,0 | 5,0...< 7,5 | 7,5...< 10 | ≥ 10 | ≥ 32 | ≥ 40 |
| Metal thickness in mm | | | | | | |
| Solar fasteners for steel Ø 8 mm | 6,8 mm | 7 mm | 7,2 mm | 7,4 mm | | |
| Solar fasteners for wood Ø 8 mm | | | | 5,5 mm | 5,5 mm |
| Pre-drilled hole in mm for fibre cement profiles | | | | | | |
| Solar fasteners for wood Ø 8 mm | | | 11 mm | 11 mm |
| In profile sheet | 11 mm | | |
| In wood substrate | 5,5 mm | 5,5 mm |
CLEAN SURFACE, LAY CALOTTES

Before mounting the solar fasteners, remove any burr from the surface of the profile sheets.

In the case of solar fasteners for metal profile sheets, lay calotte over the drilled holes. (For solar fasteners for fibre cement profiles the seal is pre-assembled on the solar fastener)

Materials required for metal profile sheet: calotte

SCREW SOLAR FASTENER (METAL PROFILES)

Insert the solar fastener into the pre-drilled hole through the calotte and screw in.

Additional information:
Do not tighten the solar fastener with the torque, the seal must be slightly compressed and rest on the entire surface.

Materials required: Solar fastener
SCREW SOLAR FASTENER (FIBRE CEMENT PROFILE)

Additional information:
Do not tighten the solar fastener with the torque, the seal must be slightly compressed and rest on the entire surface.

Materials required: Solar fastener

FROM THIS STEP THE ASSEMBLY IS IDENTICAL FOR THE DIFFERENT ROOFING TYPES

ADJUST HEX NUT

Adjust nut in height according to direction of the module carrier rails.

Materials required: Hex nut, washer

MOUNT ADAPTER PLATE

Place adapter plate, adjust and mount additional washer with locking nut.
The height of the adapter plate is determined by the two nuts. Secure solar fastener against turning with hex wrench. After correct setting of both nuts, lock and tighten.

Materials required: Adapter plate, washer, and self-locking nut
**MODULE CARRIER RAIL ASSEMBLY**

Ensure correct position of T-bolt. After inserting into the lower chamber of the rail, the T-bolt is turned 90 degrees counterclockwise. Lock the projected K2 module carrier rail Solid on the adapter plate with an M10 T-bolt and tighten. Tightening torque: 32 Nm

Materials required: K2 mounting rail Solid, M10 x 30 T-bolt, M10 self-locking nut

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**ATTACH MODULES**

The M K2 slot nut is first inserted into the K2 SolidRail and rotated clockwise by 90 degrees. If the module 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 module end clamps and allen bolt M8 as well as the M K2 slot nuts. Never mount module end clamps directly on the rail joint or end of the rail! (Spacing: min. 20 mm from module end clamp). **Pay attention to the mounting instructions by module manufacturer!**

Tightening torque 14 Nm.

Required materials: End Clamp Set

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**ATTACH MODULE GAPS**

**Attaching with Module Middle Clamp Standard**

Use two standard module middle clamps between two modules, which also need to be screwed with allen bolt M8 in the M K2 slot nuts. **Pay attention to the mounting instructions by module manufacturer!**

Tightening torque 14 Nm.

Required materials: Module Middle Clamp Set
Attaching with XS Middle Clamp

Use two XS middle clamps between two modules, which also need to be screwed with allen bolt M8 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

SPECIAL FEATURES AT ASSEMBLY

Additional Information:
- Middle or end clamps and thus slot nuts must be avoided at the rail joint or rail end!
ALTERNATIVE SYSTEM ASSEMBLY WITH K2 BRIDGE

MOUNT K2 BRIDGE

The K2 Bridge is mounted on two solar fasteners instead of the adapter plate in order to achieve greater span widths. Depending on type, the rail is fixed to the Bridge with one or two M10 T-bolts.

Materials required: 2 mounted solar fasteners, K2 Bridge, M10 x 30 T-bolt

ALTERNATIVE SYSTEM ASSEMBLY (CROSS BRACING) WITH CROSS RAIL

MOUNT RAILS BY CROSS BRACING

The top rail position in cross bracing is mounted with the M K2 and Climber in the desired location at the appropriate distance. Tightening torque 16 Nm.

Materials required: CrossRail, Climber, M K2, M8x25 cylinder head screw, locking washer
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

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