Mounting systems for solar technology

ASSEMBLY INSTRUCTIONS
D-DOME 2.0 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 froMK2 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 K2 Systems team 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 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

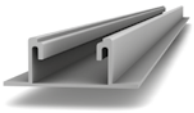
Please note that our general mounting instructions must be followed at all times and can be viewed online at **www.k2-systems.com/en/downloads/product-information.html.**

The following guidelines apply:

- ¬ 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 **www.k2-systems.com/en/downloads/product-information.html** 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.
- ¬ 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 www.k2-systems.com/en/downloads/product-information.html. 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.

REQUIRED MATERIALS

In order to assemble the K2 Systems S-Dome installation system, 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.

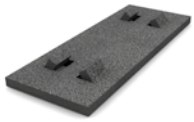


Mounting Rail K2 SpeedRail 22; 520 mm | 2001977

Material: aluminium EN AW-6063 T66

K2 Dome D1000 2.0 | 2001962

Width: 65 mm
Material: aluminium EN AW-6063 T66



K2 Building protection mat Dome Alu | 2001695

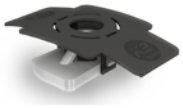
470x180x18 mm
Material: PUR-bound rubber granules with aluminium triplex foil, laminated

Alternatively: K2 Building protection mat Dome | 2001696
470x180x18 mm
Material: Unlaminated PUR-bonded rubber granulate

The respective use of a laminated or unlaminated building protection mat depends on the type of roof membrane and must be checked on site.

K2 Dome SD 2.0 | 2001968

Width: 65 mm
Material: aluminium EN AW-6063 T66



MK2 Slot nut with clip | 1001643

Material: stainless steel, PA

K2 Bolts with serrated under head

according to M8 DIN 912/EN ISO 4762

Material: stainless steel A2, WS 6 mm

| item number system-specific

K2 Module End Clamp Standard Set

| item number system-specific

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 MK2 Slot nut with clip (1001643), stainless steel and PA
¬ 1 spring, stainless steel

K2 Module Middle Clamp XS Set

| item number system-specific

The set consists of:

¬ 1 Module Middle Clamp XS, Aluminium plate finished/ black anodized
¬ 1 bolt with serrated under head M8, WS 6 mm, stainless steel A2
¬ 1 MK2 Slot nut with clip (1001643), stainless steel and PA
¬ 1 spring, stainless steel

OPTIONAL COMPONENTS FOR BALLASTING:

K2 Short Porter Set

| 2001946

Ballast support for slabs

The set consists of:

¬ 2 K2 Short Porter (2001934), aluminium EN AW-6063 T66
¬ 2 MK2 slot nut with clip (1001643), stainless steel, PA
¬ 2 DIN 7991 hexagon socket countersunk head screw M8x20, stainless steel

K2 Dome Porter 1750 mm

| 2000081

Ballast support for slabs

Pair of L-Profiles to carry required ballast as concrete slabs or similar
Material: aluminium

Alternatively: K2 Dome Porter 2050 mm | 2001140

K2 Dome Porter Screw Set

| 2000155

(optional to the K2 Dome Porter) one set per Porter

The set consists of:

¬ 2 MK2 slot nut with clip (1001643), stainless steel, PA
¬ 2 bolt with serrated under head M8x20 (2001729), WS 6 mm, stanless steel A2

AT A GLANCE: OVERVIEW OF THE TOOLS

K2 Systems mounting systems are designed to ensure effortless assembly. The following recommended tools are not included in the scope of supply:

Torque wrench

WS 5 mm and 6 mm
(WS= wrench size)

Chalk line

Tape measure

Cordless screwdriver

With mount for WS 5 mm and 6 mm

IN GENERAL:

- From the onset, it is essential to clarify, whether a module manufacturer's approval is available for clamping on the short side of D-Dome D1000 system. You can obtain the approval list from your customer consultant or at www.k2-systems.com. If no module approval is available, or if the occurring loads exceed 2,750 Pa, the alternative D-Dome mounting system with Flex Clamp and quarter clamping should be used!

- K2 components made of stainless steels are available in different corrosion resistance classes. Each structure or component must be carefully checked for possible corrosion exposure.

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

- This system can be used on all established flat roof constructions with a pressure resistant substrate and a roof pitch of up to 5°. With any roof pitch of more than 3° the system additionally has to be mechanically fastened. The inclination of the Dome 2.0 systems is 10°.

- Any structural-physical aspects must be observed. With any doubts consult an expert (i.e. structural engineer) with enquiries.

- Prior to placing down the SpeedRail as a base rail, a protection layer shall be used between the roof covering and the rail to avoid any damages to the roof covering. Place the Speedrail onto the protection layer without penetrating the roof. The installer must ensure that the building protection mat is compatible with the roofing material on site. The protection layer is not part of the mounting system, but is strongly recommended.

- Ensure that the mounting rail segments and building protection mats are clean and dry (at most slightly moist from being wiped) before installation.

- The roof covering shall be clean and level. If necessary any unevenness has to be levelled out or removed.

- The minimum distance to roof edges is 500 mm and 300 mm to all other obstructions (i.e. skylights, vents or similar).

- At least 1 row of three double elevation systems (a total of 6 modules) must be installed consecutively in order to use this system.

- The K2 D-Dome 2.0 System is suitable for modules with a frame height of 30 - 50 mm. This system is not suitable for thin-film modules.

- The system can be used for modules with widths ranging from 950 to 1,100 mm.

- A thermal separation (min. 30 mm, max. 150 mm) must be installed at least every 13.50 m in the direction of the module row and in the direction of the base rail segments. It is essential that the system and its components do not block the draining of rain water.

- Because of the different orientation of the solar modules, the string and inverter connection must be appropriately observed. It is recommended that the inverters and strings are connected separately.

INSTALLATION OF D-DOME 2.0 SYSTEM: STEP BY STEP

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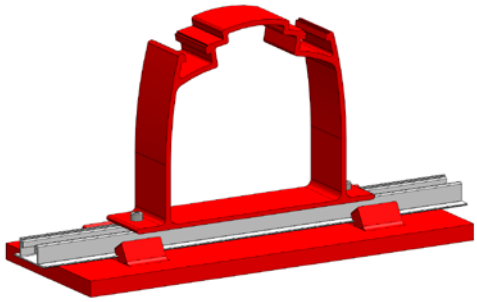
PRE-ASSEMBLING DOME SD 2.0 AND D-DOME 1000 2.0:

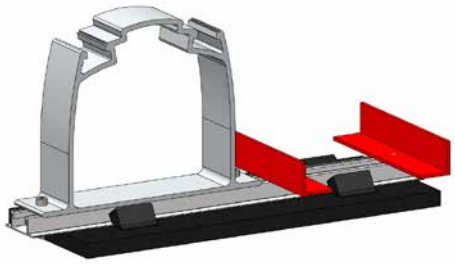


Lay the building protection mats with the aluminum-covered side (if used) facing down.

Lay the SpeedRail on top of the building protection mats and connect via snap tabs.

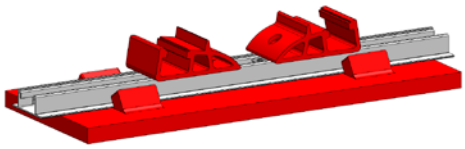
Insert the MK2 slot nuts into the rails and turn 90° clockwise to lock in place.

Fix each Dome D1000 2.0 with two allen bolts and two MK2 slot nuts on the SpeedRail.



If the K2 Short Porter will be used for ballast, the Dome D1000 2.0 must be positioned so that two Short Porters can be mounted.

Fix the Dome D1000 2.0 2 cm from the rail edge. Attach the Short Porter to the Dome D1000 2.0 with the MK2 slot nut and allen bolt. The distance between the Short Porters corresponds to the selected ballast bricks (20 cm maximum width). Tightening torque: 16 Nm

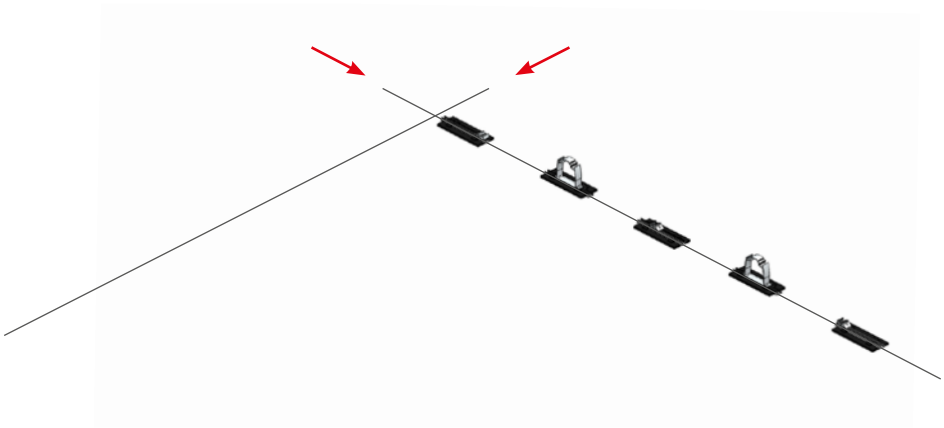


On both sides of the dome D1000 2.0 position two Dome SD and fix to the Speed Rail with allen bolts and the MK 2 slot nuts. We recommend leaving a foot-wide gap (max . 26 cm) between the Dome SDs for any potential maintenance work, however they can be fixed closely together.

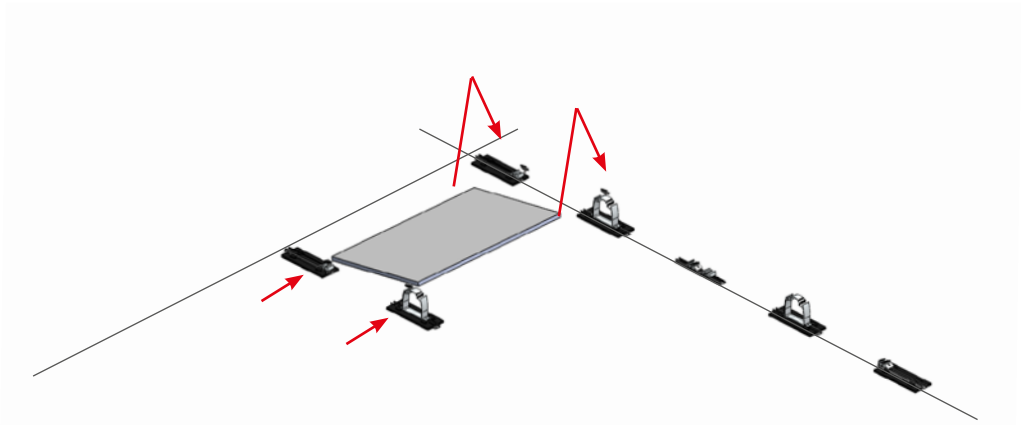
The parallel spacing between the SpeedRails is defined by the module width (950-1100 mm) and is determined by the end positions during installation.

INTERPRETATION

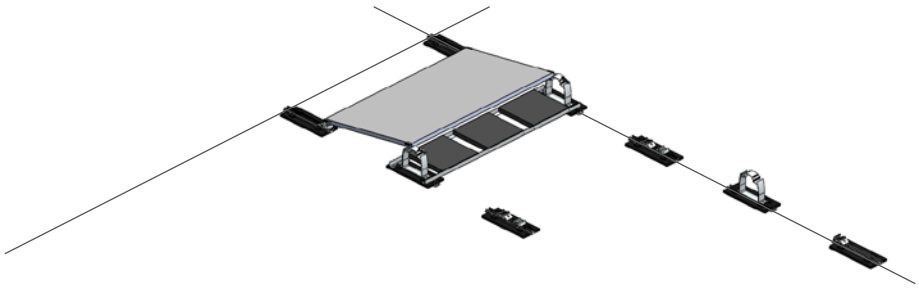
Pre-assemble all Dome components on the short rails accordingly and install on the roof according to the following scheme:



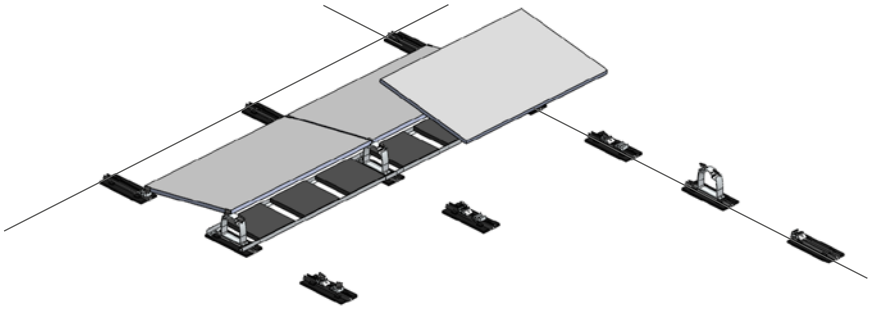
- Calibrate two side edges of the system and mark with the chalk line.
- Roughly spread out pre-assembled rail segments with Dome components over the roof
- Align first row to the line



- Start assembly on one side of the module. The spacing depends on the module dimensions and pre-assembled components.



¬ If necessary, use Short Porter / Porter for ballast.
See page 13.



¬ Mount modules on opposite sides

¬ Ensure that the clamps are securely seated

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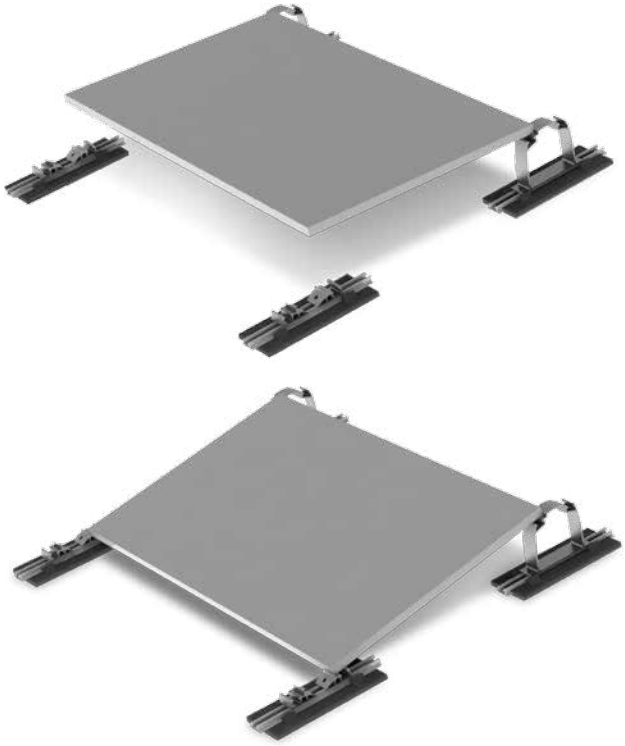
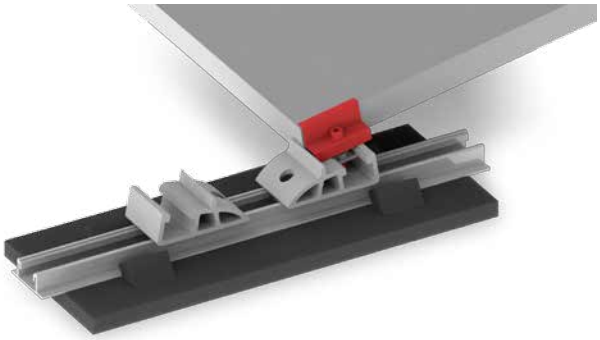
POSITION AND FASTEN MODULE



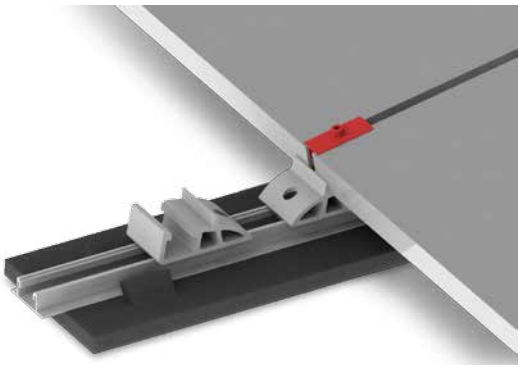
Fasten module clamps sets to the end of the row. Attach the D1000 and SD 2.0 with MK2 slot nuts and clamps and rotate 90 °. Fasten clamps to the module frame with an allen bolt.

Attention:
Only modules approved for corner clamping may be used, see point „GENERAL SAFETY INFORMATION “ on page 11. Please take care not to cover any drainage holes in modules, otherwise potential condensation cannot run off.



Fasten module clamps sets to the end of the row. Attach the D1000 and SD 2.0 with MK2 slot nuts and clamps and rotate 90 °.

Fasten clamps to the module frame with an allen bolt.
Torque: 14 Nm.



Use two XS middle clamp sets between two modules. Attach the D1000 and SD 2.0 with MK2 slot nuts and clamps and rotate 90 °. Clamp to the module frame.
Torque: 14 Nm.

BALLASTING THE SYSTEM

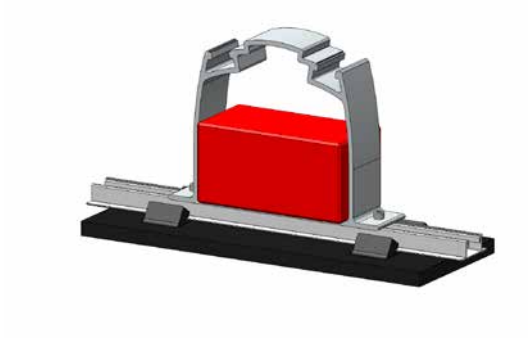
In some areas, the system may need to be outfitted with ballast.
If this needs to be done, please refer to the following ballast table.

non-binding ballast weight table

Recommended ballast weight components	brick dimensions [cm]*	Maximum number of bricks in D1000 2.0 (2001962)	Maximum number of bricks in ballast components	Brick weights [kg]*	Ballast per D-Dome 2.0 elevation [kg]
 D1000 2.0	20x10x8 20x10x10 20x20x6 20x20x8 20x20x10	2 1 2 1 1		3.5 4.5 5.4 7.2 9.0	7.0 4.5 10.8 7.2 9.0
 K2 Short Porter	20x20x6 20x20x8 20x20x10 50x20x8	2 1 1	2 2 1 2	5.4 7.2 9.0 18.0	21.6 21.6 18.0 36.0
 K2 Porter	40x40x4 40x40x5 50x50x4		6 6 6	14.0 19.0 22.0	84.0 114.0 132.0

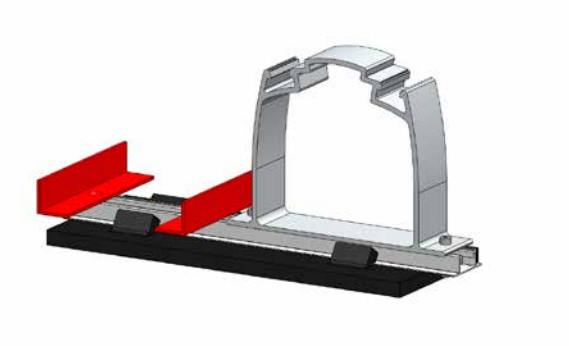
Warning: Pay attention to module inclination when using Short Porter and Porter!
For ballast weights exceeding 100 kg, please consult a K2 technician.

* recommended values



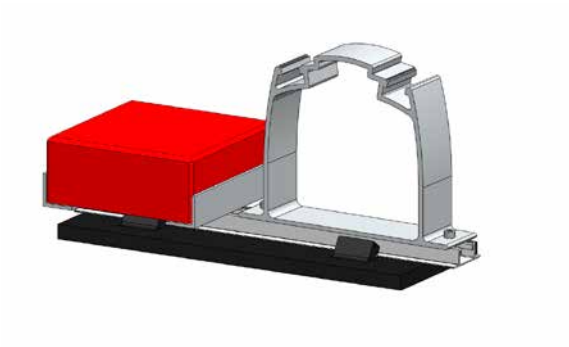
Ballasting without additional item(s):

One or two individual weight bricks can be placed in the cavity of the D1000 2.0.

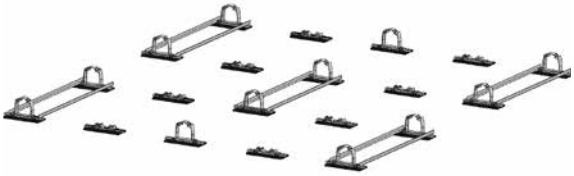


Ballasting with K2 Short Porter:

Fasten Short Porter (L - angle) to the Speed Rail next to each D1000 2.0 with a MK2 slot nut and allen bolt.

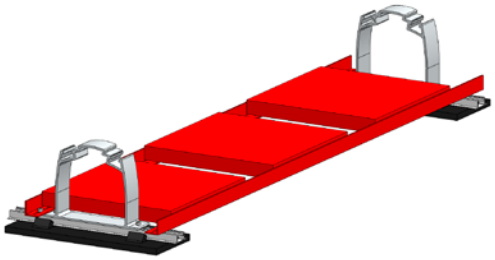


The spacing between the Short Porters depends on the size of the ballast bricks chosen; due to the length of the SpeedRail, bricks with a maximum width of 20 cm may be used.
Tightening torque: 16 Nm



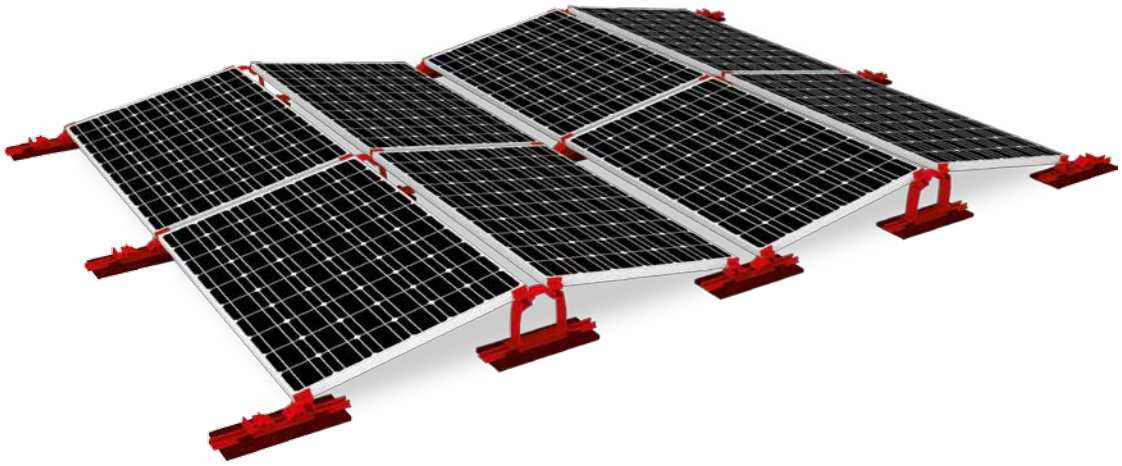
Ballasting with K2 Porter:

Mount the Porters within a module block according to the drawing in an offset fashion, and distribute the ballast evenly.



Fix Porters (L-brackets) in place on the parallel SpeedRails with MK 2 slot nuts and countersunk screws.

The distance of the Porters to each other depends on the size of the ballast stones chosen; due to the length of the SpeedRail, stones with a maximum width of 50 cm may be used.
Tightening torque: 16 Nm



Ready!

THANK YOU FOR CHOOSING A K2 MOUNTING SYSTEM.

Systems froMK2 Systems are quick and easy to install. We hope these instructions have helped. Please contact us if you have any questions or suggestions for improvements.

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.

Mounting systems for solar technology

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Installation of D-Dome 2.0 | GB3 | 1215 | Subject to change.