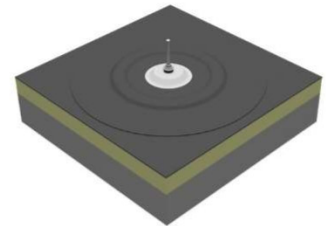


VAN DER VALK



SOLAR SYSTEMS

Installation manual



ValkSolarFix

for flat and pitched roofs

Version 1.0
November 2023

General installation guidelines

General

- During installation of the solar mounting system, the instructions and safety precautions presented in this document and the accompanying installation manual must be followed carefully. As also stated in the General terms and Conditions of sale and delivery of Van der Valk Solar Systems B.V., non-compliance with the installation guidelines in this document means that the customer can no longer invoke any warranty and Van der Valk is no longer liable for any form of damage.
- The information, comments and advice in this document are binding. Van der Valk Solar Systems reserves the right to update this document without further notice.

Safety

- The installation of the mounting system must be carried out by qualified technical personnel.
- Omitting parts may negatively affect performance and is therefore not allowed.
- Avoid carrying out installation work during bad weather conditions, especially in case of strong winds and a wet (slippery) roof surface.
- During the planning and execution of the installation, always take into account possible changing weather conditions, in particular strong winds or storms. Take the right measures and make sure that no situation can arise where solar panels have already been placed on the system, but other essential parts (such as ballast tiles, side or back plates) are still missing.
- During installation work on the roof, always use fall protection and, if necessary, work with safety nets and roof edge protection.
- Always wear appropriate protective clothing and gloves when carrying out the installation work.
- Follow the guidelines in the publication "health & safety in roof work".

Environmental factors

- High neighbouring buildings or objects, such as windmills, can affect the wind pressure. In these cases, advice should always be obtained from Van der Valk Solar Systems before installation can take place.
- If prior to, during or after the installation it is determined that the project data and/or environmental factors do not fully correspond to the project report, the project must always be re-calculated and any required adjustments need to be made.
- In coastal areas, the system should be placed at least 500 meters from open water to prevent accelerated corrosion by the action of salt water. When buildings are present between the open water and the roof, a minimum distance of 250 meters from open water may be maintained.

Standards and regulations

For correct and safe installation and use of the solar mounting system, always observe the applicable standards and regulations:

- EN 1990: Basis of structural design
- EN 1991-1-3: General actions: snow loads
- EN 1991-1-4: General actions: wind loads
- IEC 60364: Electrical Installations for Buildings
- IEC 62305: Protection against lightnings
- EN 50110: Operation of electrical installations
- Working Conditions Act and Safe Working Conditions Regulation

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Installation manual – ValkSolarFix - v1.0

Stability and condition of the roof and roof covering

- Placing a mounting system that uses ballast only, is only allowed in case the roof pitch is less than 5°. In case the roof pitch is 5° or more the mounting system always needs to be fixed mechanically to the roof.
- The condition of the roof must be checked upfront for sufficient strength to bear the weight of the mounting system including PV panels ballast and wind and snow loads. Make sure that the load reserve of the roof is not exceeded anywhere.
- Check the stability of the roof and adjust the roof/construction where necessary.
- Check prior to installation whether the roof covering and/or insulation is suitable for the pressure and thermal expansion of the solar mounting system. The maximum pressure is shown in the project report of the ValkPVplanner or can be requested at Van der Valk Solar Systems.
- Bulging of the roof membrane should be prevented. This can lift the solar mounting system and can cause displacement of the mounting system or ballast. It is the installer's responsibility to prevent the roof membrane from bulging.
- Factors such as overhead cranes, seismic activity and others that affect the stability of the roof and/or building can affect the installed solar mounting system. Van der Valk Solar Systems does not take these factors into account, unless confirmed in writing.
- The roof surface on which the solar mounting system is to be installed must be clean, dry and flat.
- The roof height may not exceed 25 meters in case the project has been calculated in the ValkPVplanner must be corresponding to the roof height in the project report. For installations on roofs higher than 25 meters, Van der Valk Solar Systems should always be contacted in advance.

Roof zones

- When installing the solar mounting system, always take the applicable roof zones according to EN1991-1-4 into account. Placing solar panels in the edge zone of the roof (the distance measured from the roof edge, which is equal to 1/5 of the building height) is only possible if this has been explicitly taken into account in the calculation.
- It is possible to position panels in the edge zone of the roof in the ValkPVplanner (calculation software), on the basis of which the required additional ballast or fixation points are automatically calculated. This can only be done using "Satellite" or "White Map" design mode. The edge zone is automatically calculated by the ValkPVplanner, based on the roof height and building circumference, in accordance with the applicable regulations. In case the design mode "Simple mode" is used, the calculation always assumes that the solar panels are in the middle zone of the roof only.
- In case solar panels on the ValkPro+ system are fully or partially placed in the edge zone of the roof, it is mandatory to use side plates.
- ValkKits (ValkBox3, ValkDouble, ValkTriple, ValkQuattro) can only be placed in the middle zone of the roof. Placing these systems in the edge zone of the roof is not allowed.

Ballast

- After installation of the solar mounting system, it must be carefully checked whether the ballast has been placed in accordance with the ballast drawing. Ballast tiles must be neatly stacked, so that they are sufficiently supported by the tile carriers, mass carriers and/or ballast wings.

Dilatations

- The maximum allowed dimensions of a coupled mounting system is a 30 meters in the aluminium direction and 60 meters in the steel direction. The maximum dimensions are based on the thermal expansion in case of a maximum temperature difference (Delta T) of 70 degrees Celsius.
- The coupled mounting system must not be placed over a gutter or ridge. In the mounting system is place over a gutter or ridge, the system must be split (dilatation), even if the change in roof pitch is minimal.
- When using the extra wide panel support feet for ValkPro+ with ballast, different dilatation rules apply: in such installations the coupled system may be a maximum of 30 meters in the steel/roof carrier direction and 15 meters in the aluminium direction.

Solar panels

- It is the responsibility of the installer to determine in advance whether the selected solar panel is suitable for the mounting system in terms of dimensions and pressure loads. The calculated loads on the solar panel are shown in the project report of the ValkPVplanner or are available on request at Van der Valk Solar Systems.

Cable management

- In order to create a sound and durable electrical connection between the solar panels, it must be ensured that the cables from the junction box have sufficient length and thus do not cause any mechanical stress on the cable glands. Take into account thermal expansion and contraction of cables and the mounting system.
- Cables and connectors must be kept away from sharp and/or abrasive parts and the roof surface by using sufficient and appropriate cable clamps and cable baskets.

Disassembly and removal

- Components of the solar mounting system can be easily and completely disassembled at the end of their service life and separated for recycling. The systems only contain nut and bolt, screw and click connections, so nothing is glued or welded. All materials are fully recyclable. Disposal of the components always in accordance with the locally applicable laws and regulations.

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Required tools for installing flat and pitched roofs [Clamp]



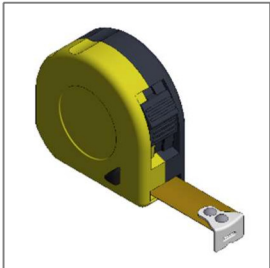
Cordless drill



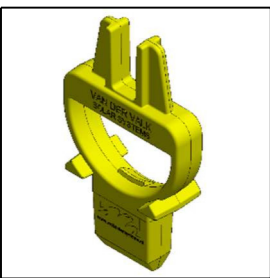
Socket 13mm
Wrench 13mm



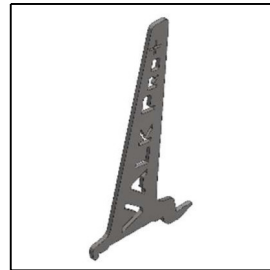
Torx bit T-30
(789530)



Measuring tape



Uitlijnsleutel dakdragers
739010



Disassembly key for feet
743000



Adjustable alignment set
for roof carriers
743220



Fixation tool 15 L = 200 mm
Fixation tool 17 L = 500 mm
747695 / 747696

Overview of different fixing options

ValkSolarfix Low & Steel various types of fixations



Installation solid concrete
or hollow concrete roof



Installation in wooden
or steel plate roof construction



Installation in aerated concrete
roof construction



Installation in wooden
or steel plate roof construction

See our [general installation manuals](#) of the ValkPro+ and Side++ for more information about the general installation.

The maximum allowable forces can be found in the application matrix of the ValkSolarFix: [Flat roofs & Pitched roofs](#)



General installation
manuals

Application matrix

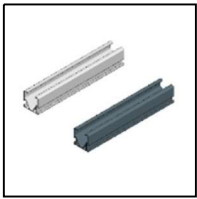


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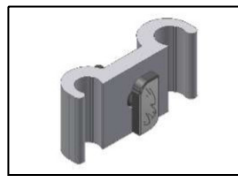


ValkSolarFix in combination with Side++ profile

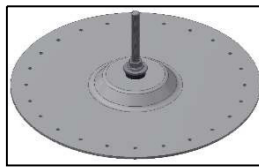
Standard parts for installation



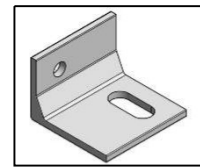
Aluminium side++ profile
(7017.....*)
*See manual for sizes



Hanger bolt clamp +
mounting set
(721100)



ValkSolarFix
(7476....)



L-adapter
(747895)

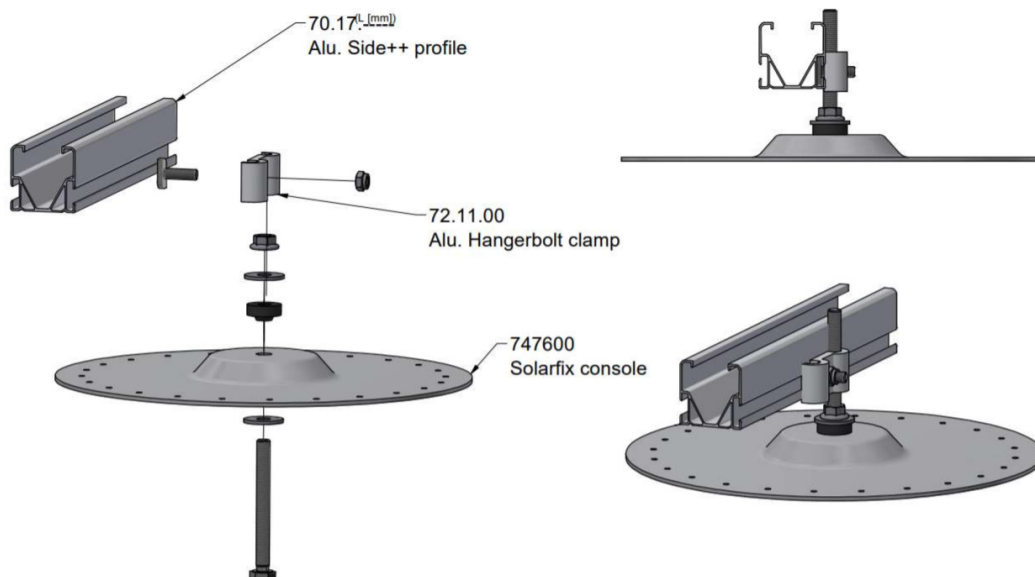
The Side++ profile can be mechanically anchored to the roof. These consoles with a special height of 20mm can be fixed by:

- Toggle anchors for wooden or steel roof structures
- Concrete anchors for fixation in concrete roof structures
- Roof screws for fixation in wooden roof structures
- Roof screws for fixation in steel plate roof structures
- Roof screws for fixation in aerated concrete



For the detailed installation manuals and videos for ValkSolarFix, please refer to our website: www.valksolarsystems.com or by scanning the QR code.

When the consoles are properly installed on the respective roof, the Side++ profile can be attached to them using the hanger bolt clamp.

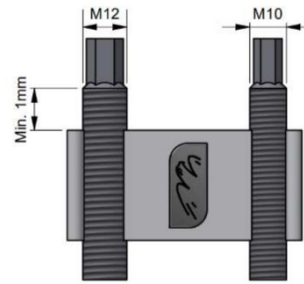


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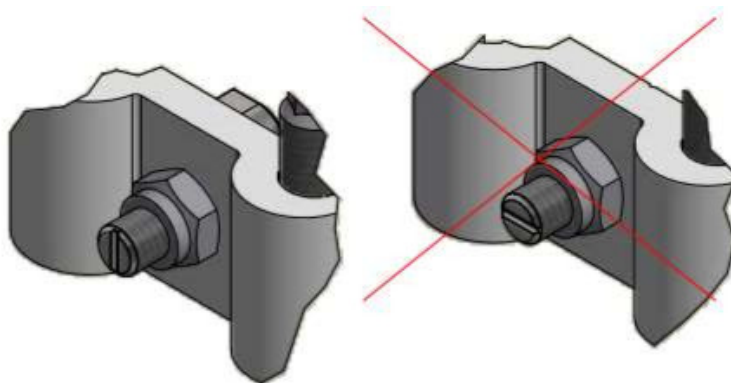
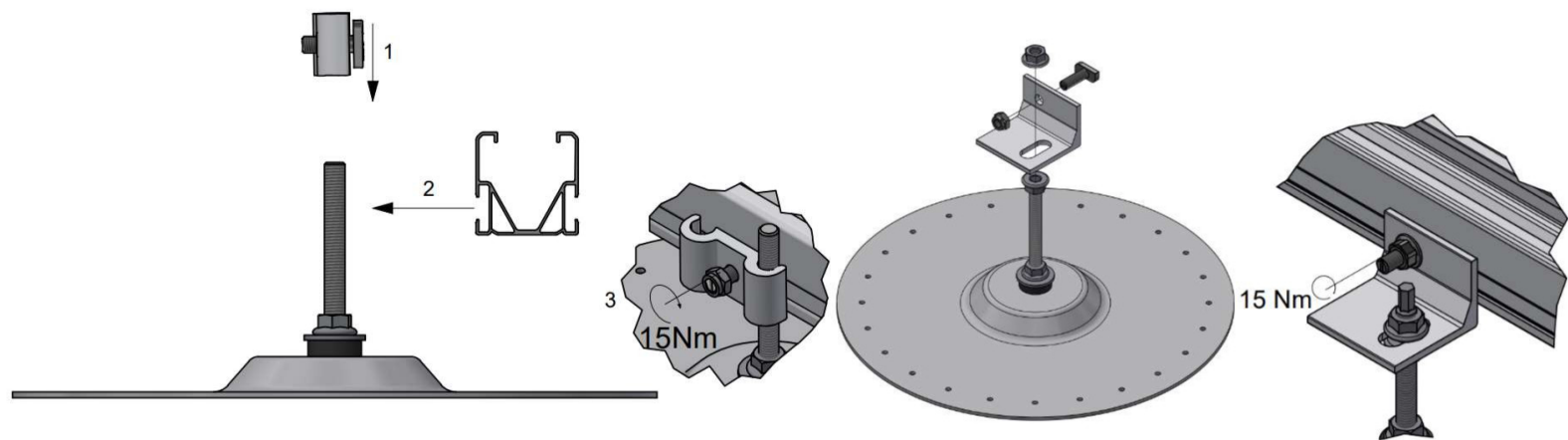
When fitting the hanger bolt clamp (721100), it is important to leave at least 1mm of thread above the clamp.

At least 1 mm thread above the clamp.



The aluminium profiles are mounted to the console with the hammerhead bolts. The hammerhead bolts are placed in the slots of the profiles. When all bolts are placed in the profile everything is fastened with the nut of the roof hook. (max. torque is 15Nm).

There are 2 options available when mounting the console to the profile, these are the 721100 and the 747895.



The groove on the hammerhead bolt corresponds with the orientation of the bolt head. Make sure the bolt is always mounted correctly.

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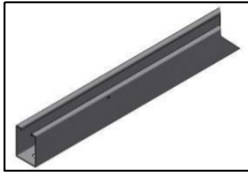
Dilatations

The coupled system has to be dilatated after certain measurements, this needs to be done because of the thermal expansion/contraction. For the aluminium profiles this measurement is 30 meters. The minimal dilatation distance between the profiles is 150 mm.

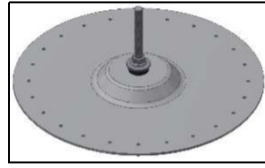


ValkSolarFix in combination with C+ profile

Standard parts for installation



C+ Profile
(740804400)



ValkSolarFix
(7476...)

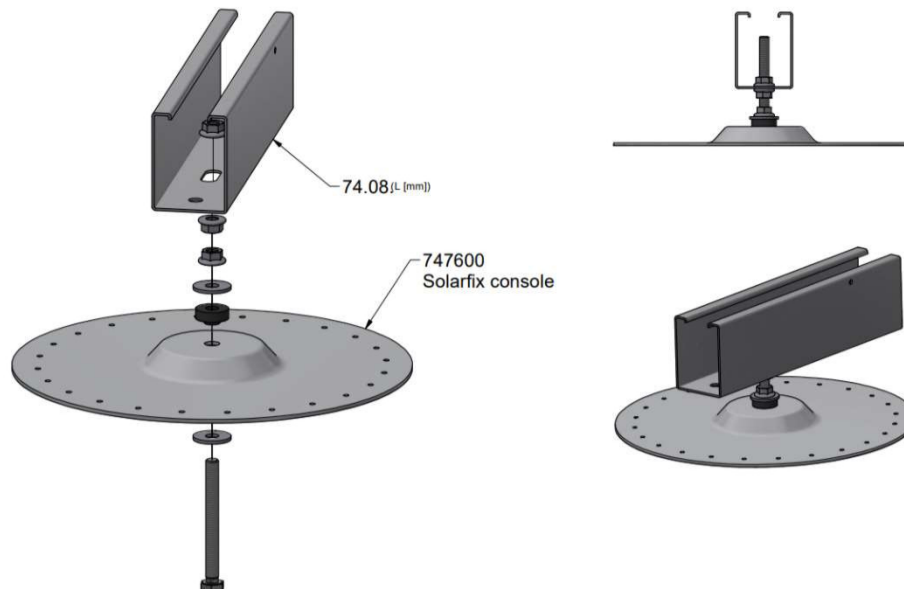
The C+ profile can be mechanically anchored to the roof. These consoles with a special height of 20mm can be fixed by:

- Toggle anchors for wooden or steel roof structures
- Concrete anchors for fixation in concrete roof structures
- Roof screws for fixation in wooden roof structures
- Roof screws for fixation in steel plate roof structures
- Roof screws for fixation in aerated concrete



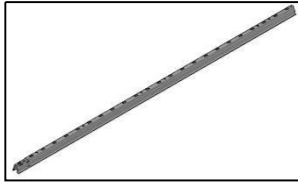
For the detailed installation manuals and videos for ValkSolarFix, please refer to our website: www.valksolarsystems.com or by scanning the QR code.

When the consoles are properly installed on the respective roof, the C+ profile can be attached to them using the mounting set.

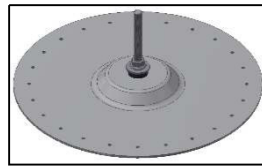


ValkSolarFix in combination with roof carrier

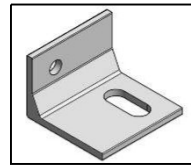
Standard parts for installation



Roof carrier profile
(74180....)



ValkSolarFix
(7476....)



L-adapter
(747895)

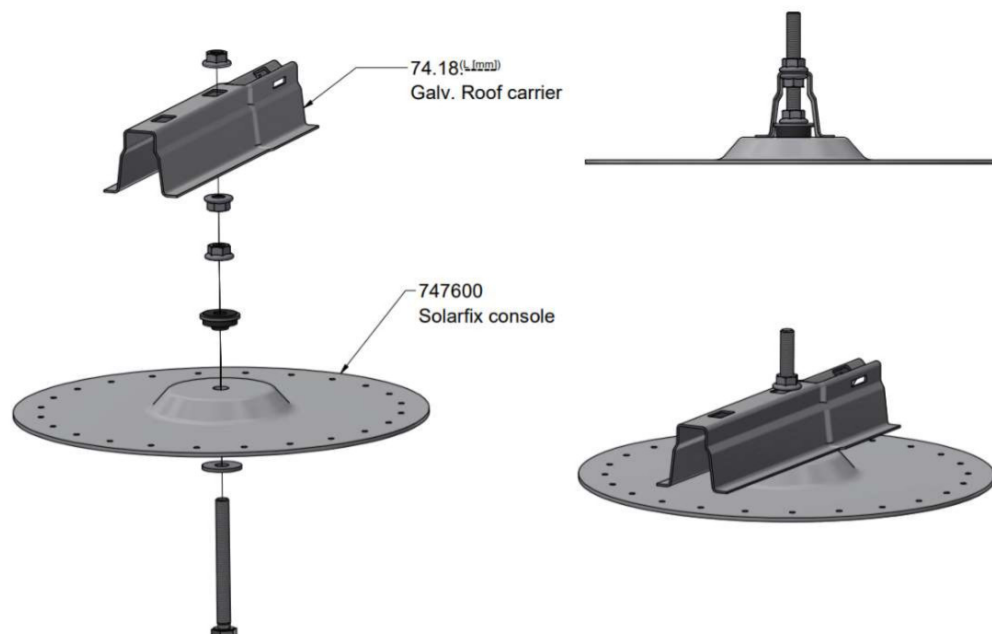
The ValkPro+ system can be mechanically anchored to the roof. These consoles with a special height of 20mm can be fixed by:

- Toggle anchors for wooden or steel roof structures
- Concrete anchors for fixation in concrete roof structures
- Roof screws for fixation in wooden roof structures
- Roof screws for fixation in steel plate roof structures
- Roof screws for fixation in aerated concrete

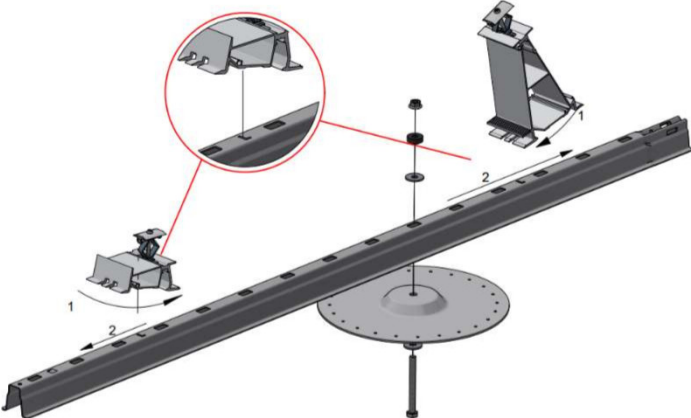


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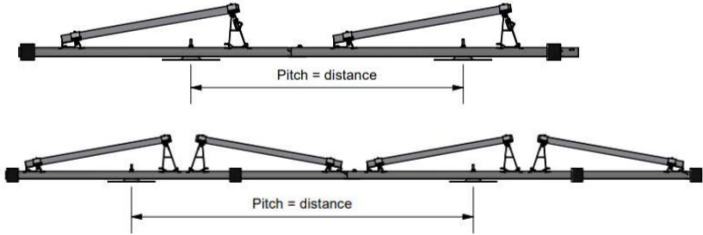
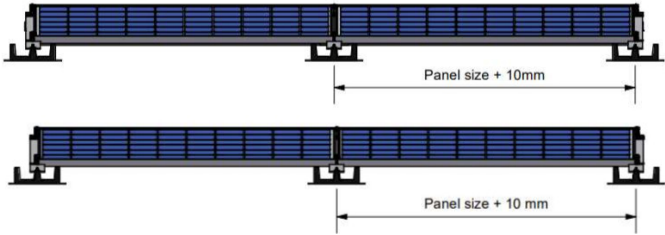
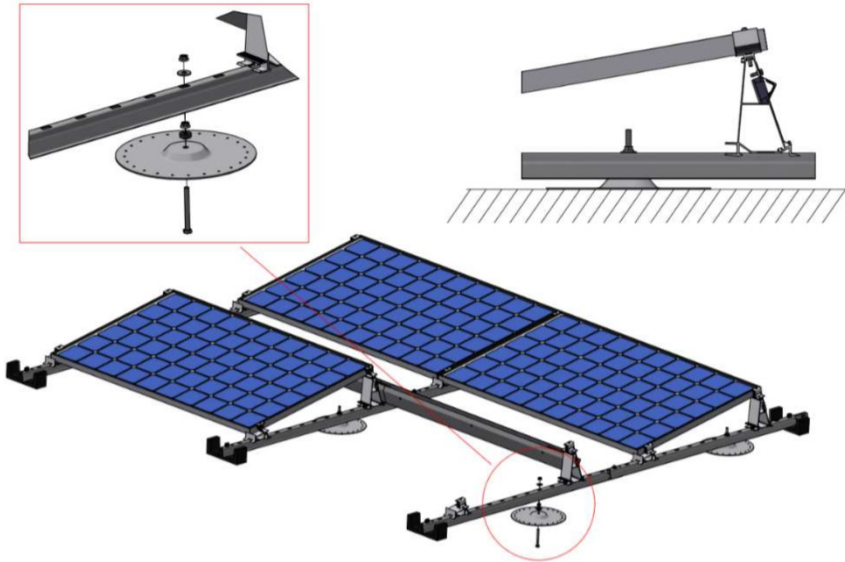
The 2nd nut on which the roof carrier rests allows you to clamp on the hanger bolt at different heights. The max allowable clamp height on the hanger bolt is 150mm



When the consoles are properly installed on the respective roof, the roof carrier profile can be installed on them. The console should be placed in the location where the tile carrier is normally installed. That is in the second slotted hole from the aluminium rear foot. In this case, the ValkSolarFix therefore replaces the tile carrier.



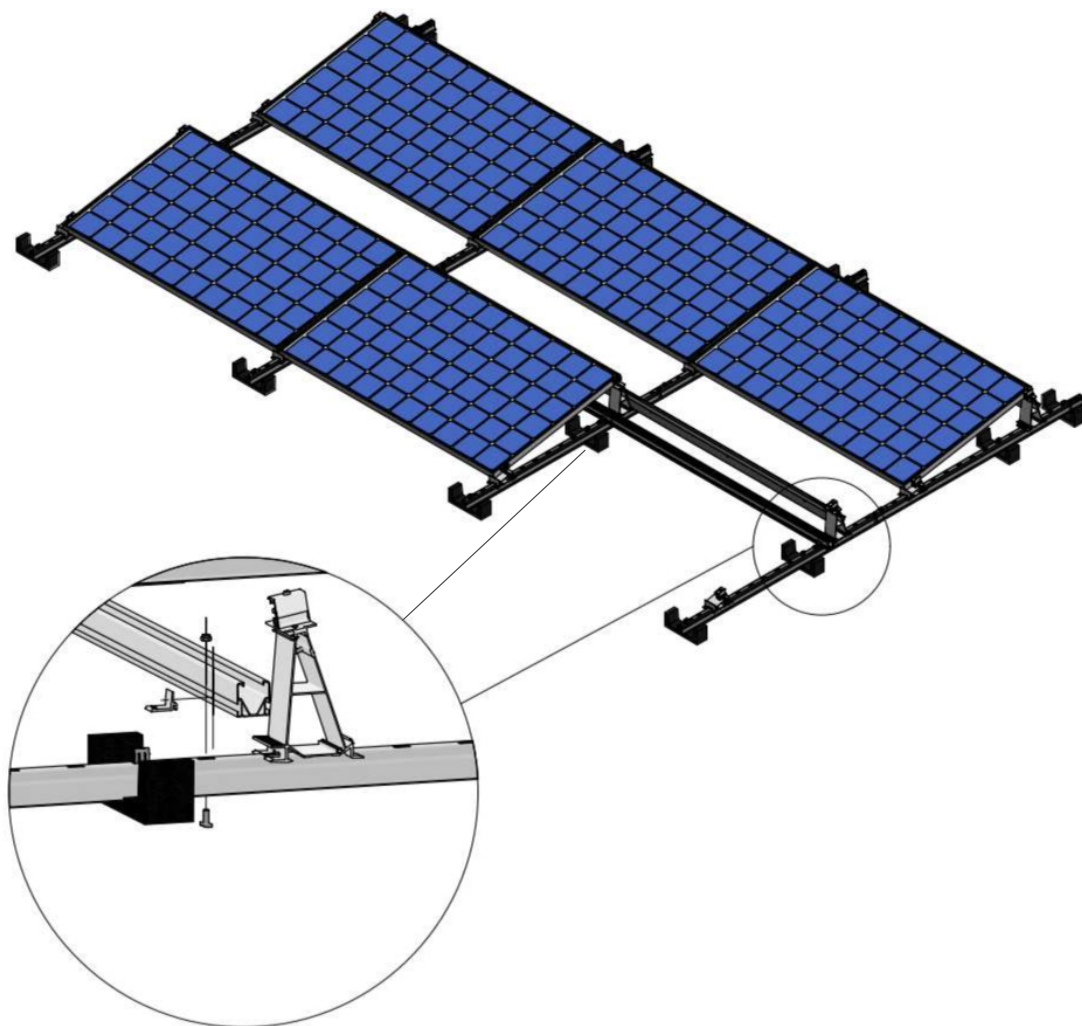
The ValkSolarFix can be mounted to the roof carrier with the mounting set (max torque = 8 – 14 Nm)



Fixation in combination with Side++ (VP+)

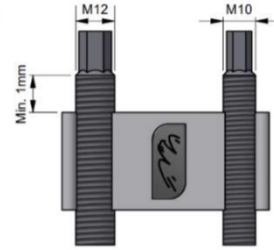
A second option for fixing the ValkPro+ to the roof is to attach the console under the panel. In this case, a Side++ profile is attached to the console, after which the Side++ profile is fixed to the roof carrier profiles on either side of the panel. The Side++ profile should be attached in front of the aluminium rear foot. This is in the first slotted hole from the aluminium rear foot.

To properly attach the Side++ profiles, the corner brackets (729521) should be fitted to the roof carriers on the side of the Side++ profile. The bracket is hooked into the hammerhead chamber of the Side++ profile creating a connection.



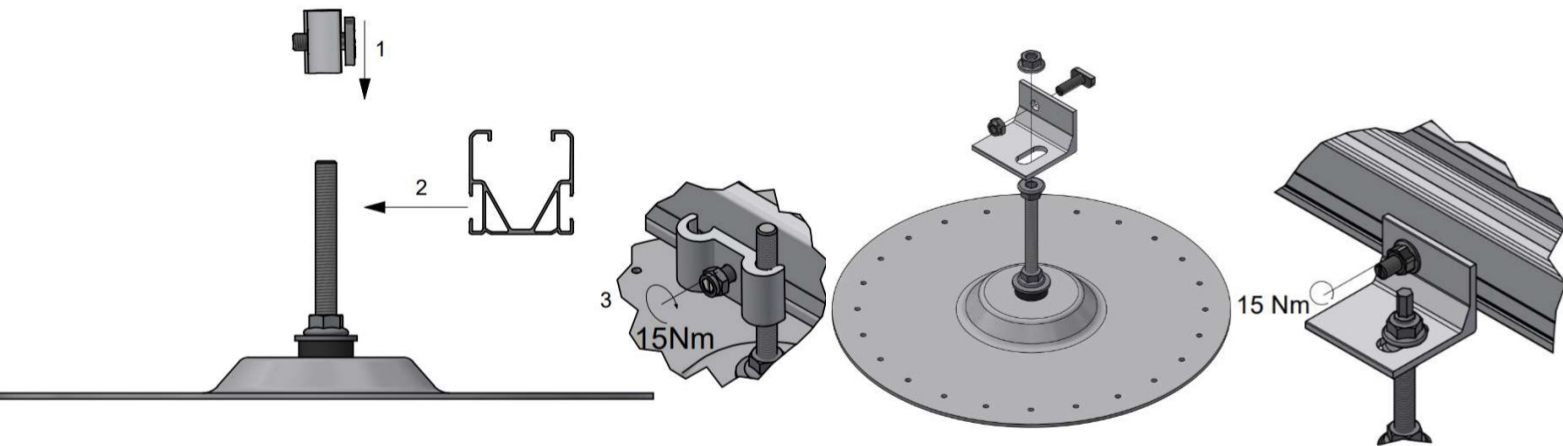
When fitting the hanger bolt clamp (721100), it is important to leave at least 1mm of thread above the clamp.

At least 1 mm thread above the clamp.

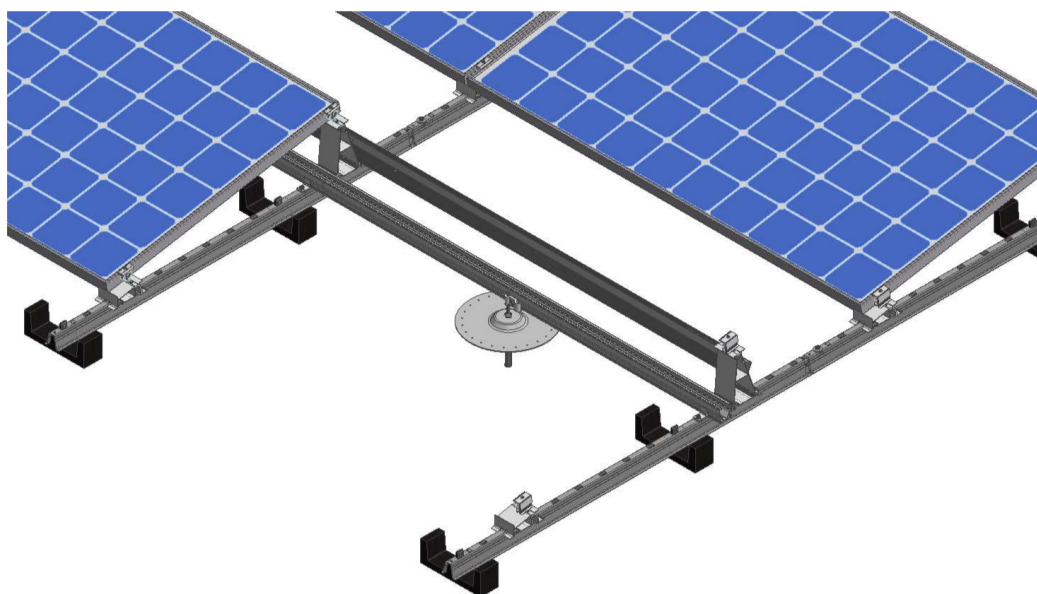


The aluminium profiles are mounted to the console with the hammerhead bolts. The hammerhead bolts are placed in the slots of the profiles. When all bolts are placed in the profile everything is fastened with the nut of the roof hook. (max. torque is 15Nm).

There are 2 options available when mounting the console to the profile, these are the 721100 and the 747895.



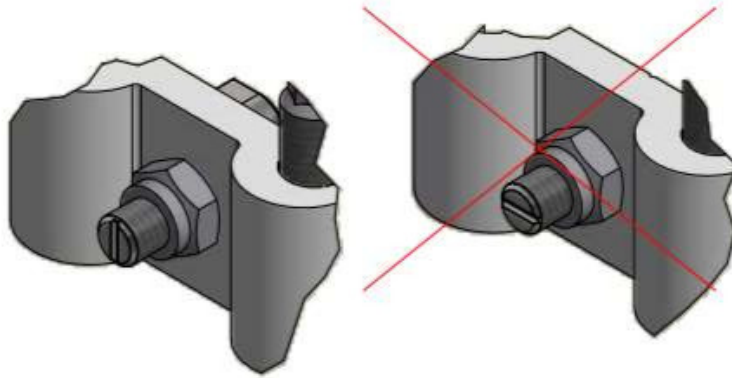
The advantage over fixation to the roof racks is that the fixation can be installed afterwards. This allows more flexibility during installation work. Please note, however, that the maximum forces of the fixation are lower.



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Installation manual – ValkSolarFix - v1.0



The groove on the hammerhead bolt corresponds with the orientation of the bolt head. Make sure the bolt is always mounted correctly.

Van der Valk Solar Systems

Van der Valk Solar Systems is since 2009 one of the fastest growing companies in the solar industry and focuses entirely on the development and production of solar mounting systems for pitched roofs, flat roofs and open fields. Van der Valk Solar Systems also has an office and warehouse in the UK, offices in Sweden and Spain and is currently active in 13 countries.

Our mounting systems are developed and produced in our own factory in the Netherlands and stand out thanks to their broad area of application, the very short time in which they can be installed, and the high quality. They are developed according to the latest Eurocodes and therefore comply with the requirements defined for solar systems by banks and insurance companies.

Van der Valk Solar Systems is part of family-owned company Van der Valk Systemen, which has been a household name in the field of moving systems and mounting components since 1963.

Our shared industrial complex in the Netherlands consists of 35.000m² of offices and factory spaces. Here we use modern machinery and the latest technologies to quickly and accurately develop, manufacture, and test products and systems.



Solar mounting systems & cable management



Flat roofs



Pitched roofs



Cable management

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