Mounting Instructions

Aluminium Frame Collector AF24VE2

Roof hook attachment parallel to roof surface

Version V.02
20.03.2009
Product Code 1000194524

Contents

General Instructions

The assembly may only be executed by competent personnel. All country-specific standards, regulations and technical guidance, and in particular all safety rules for work on roofs, on ladders and on scaffolding must be observed. The mounting personnel must use hard hats, safety shoes, safety gloves and collective or personal protection equipment such as safety catch devices or harnesses.

The safety notices indicated above do not pretend to be exhaustive.

The **Solar System Contractor** is **responsible** for:

- Installing the system according to its scope of use
- Complying with all safety regulations and using appropriate protection equipment
- Observing the labour legislation
- Observing the rules for accident prevention
- Employing fully biodegradable antifreeze mixtures

The **user of the solar system** is **responsible** for:

- Operating the system according to its scope of use
- Performing a visual control of all system parts once a year
- Performing a visual control of the safety devices once a year
- Controlling the antifreeze mixture every 2 years
- Informing the insurance company concerned of the installation of the solar system

Special safety instructions

- **Overhead lines**

Contact with overhead lines may have lethal consequences. The voltaged parts thereof must either be insulated, or de-energised for the period of work on the roof.

- **Lightning protection**

Metal piping must be connected to the equipotential bonding bar.
The collectors (flashing kit) must be connected to the lightning protection system, if any.

Required mounting tools and materials

- Measuring tape
- Chalkline
- Cordless drill, 13 mm socket key,
- Drill bit extension with torx bit size 30 and 40
- 2 open-ended spanners with 13 mm ring ratchet
- Wood drill bit Ø 30 or Ø 50 mm
- Sealing paste
- 2 pliers wrenches
- Aeration tile for pipe installation
- Angle grinder with cut-off wheel for concrete blocks

Further points to be observed

- Before the collectors are mounted on the roof it must be verified, if the load bearing capacity of the roof structure complies with the requirements of the collector assembly.

Restrictions of installation:

- Maximum wind velocity on location150 km/h
- Maximum building height 25 m above ground

  If only one of the above limit values does not comply, a **separate static proof** will be required.

- Roof pitch ranging from 20° to 70°

- All holes drilled into the roof covering/building shell in the course of the installation must be sealed water and airtight after all piping and wiring has been mounted!
- For safety reasons it is not permitted to fill the collectors during direct solar radiation!
- It is not possible to drain the solar collectors completely. For this reason, the pressure test may only be carried out with compressed air (9 bar) and using a foam generating agent (stop leak spray).

Transportation and storage

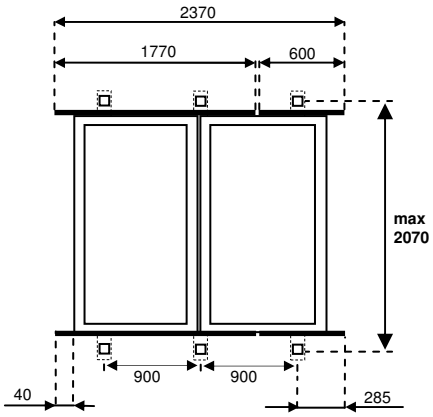
- The collectors supplied may only be stored outdoors for a short period. For storage, they must immediately be safely protected from precipitation with a tarpaulin.
- If the collectors are delivered in vertical packaging units, they must imperatively be secured against overturning!
- Each single collector may be crane-lifted to the roof by the carrying strap provided for this purpose.

  ATTENTION: Attach the collectors only one by one. In case of stronger wind the assembly must be interrupted immediately!

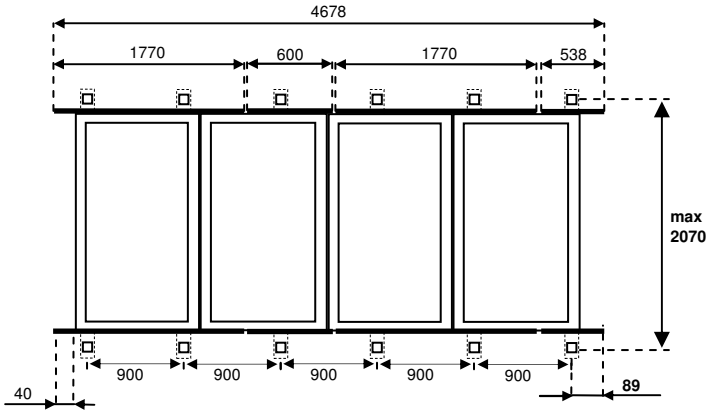
Technical alterations reserved.

Collector field dimensions (900 mm rafter interval)

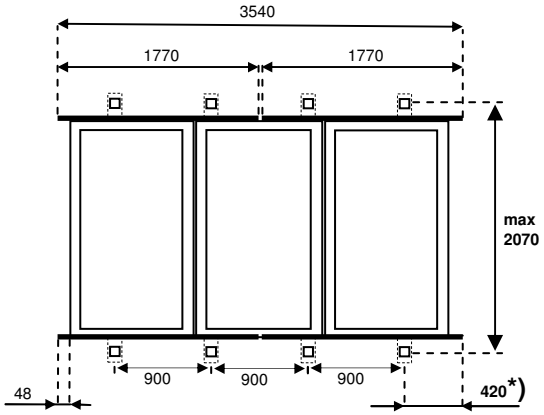
Collector dimensions: 2064 x 1154 (all indicated measures in mm)



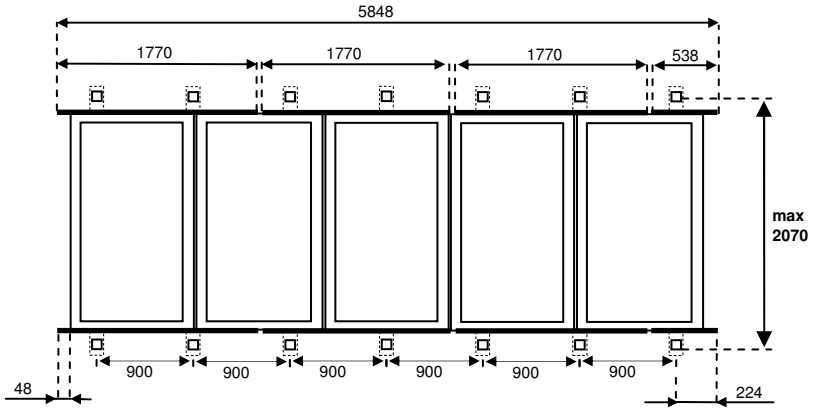
Basic set for 2 collectors	+ roof hooks for 2 coll.



Basic set for 2 collectors	+ roof hooks for 2 coll.
+ Extension set for 2 coll.	+ roof hooks for 2 coll.



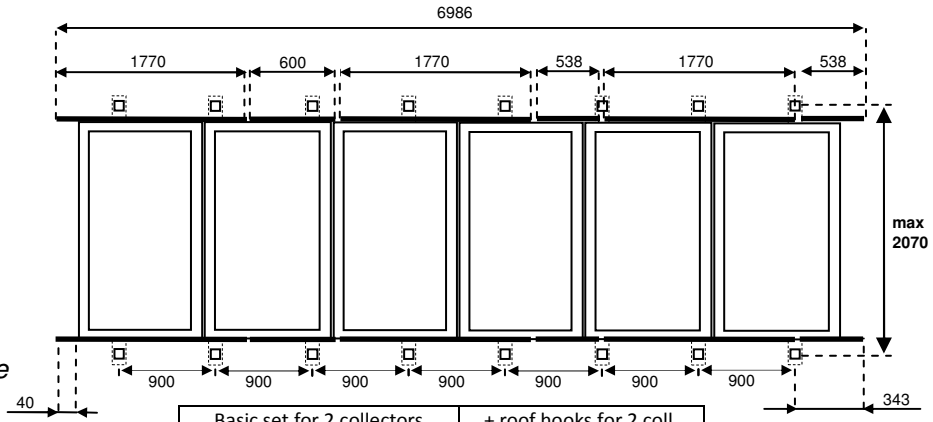
Basic set for 3 collectors	+ roof hooks for 3 coll.



Basic set for 3 collectors	+ roof hooks for 3 coll.
+ Extension set for 2 coll.	+ roof hooks for 2 coll.

	Rafter
—	Aluminium rail Horizontal rail
▫	Roof hook

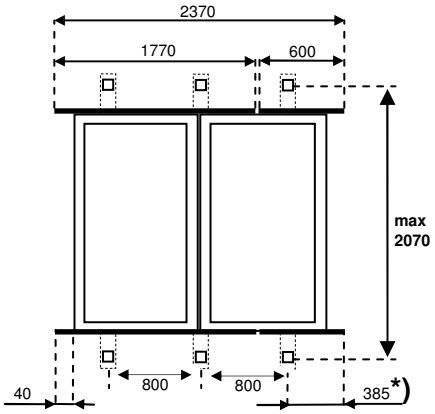
) The distance between the outside rafter and the end of the horizontal rail must not exceed a **maximum of 430 mm.*



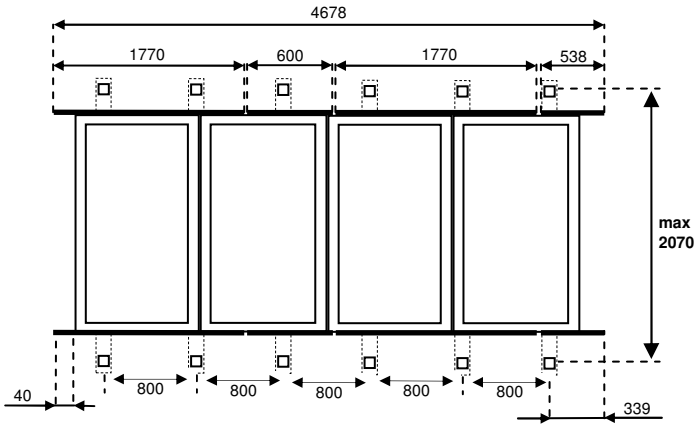
Basic set for 2 collectors	+ roof hooks for 2 coll.
+ Extension set for 2 coll.	+ roof hooks for 2 coll.
+ Extension set for 2 coll.	+ roof hooks for 2 coll.

Collector field dimensions (800 mm rafter interval)

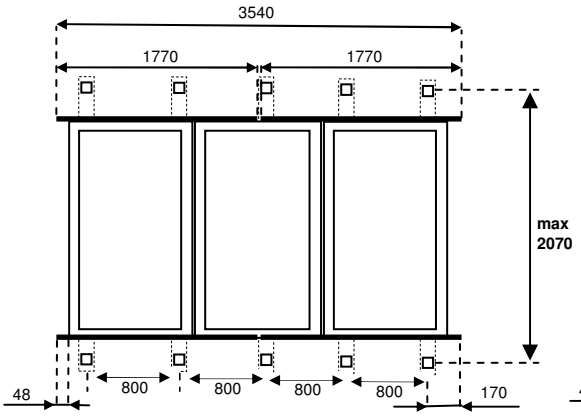
Collector dimension: 2064 x 1154 (all indicated measures in mm)



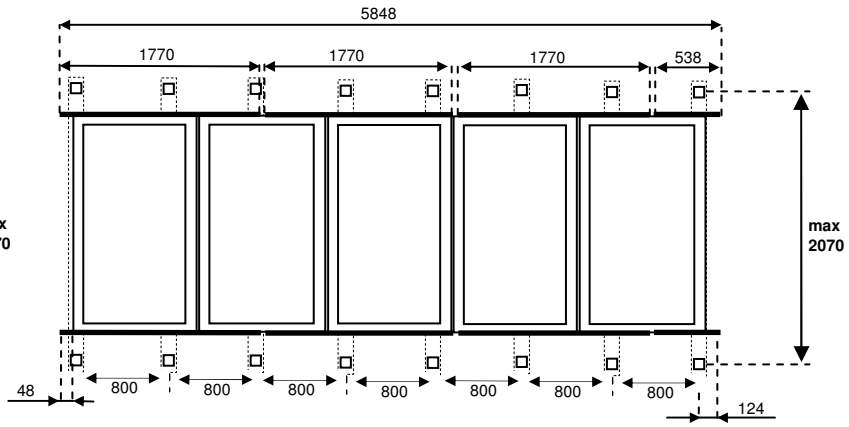
Basic set for 2 collectors	+ roof hooks for 2 coll.



Basic set for 2 collectors	+ roof hooks for 2 coll.
+ Extension set for 2 coll.	+ roof hooks for 2 coll.

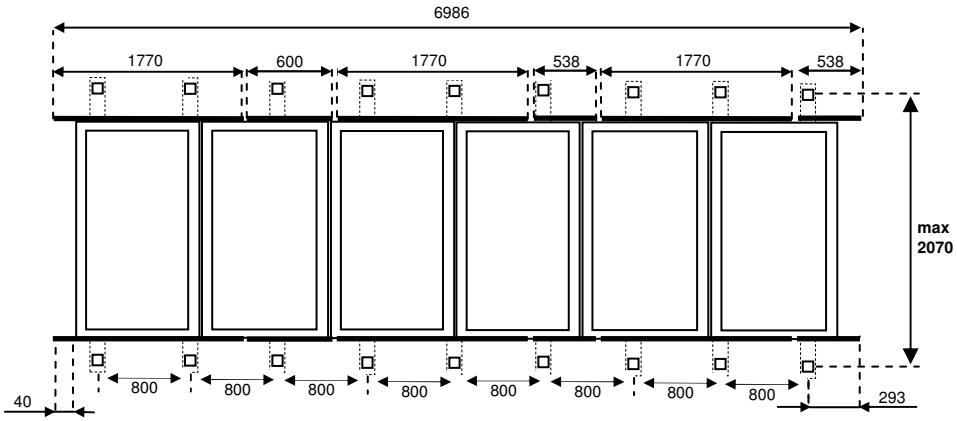


Basic set for 3 collectors	+ roof hooks for 3 coll.
+ Mounting set for 1 Rafter	+ roof hook for 1 coll.



Basic set for 3 collectors	+ roof hooks for 2 coll.
+ Extension set for 2 coll.	+ roof hooks for 2 coll.
+ Mounting set for 1 Rafter	+ roof hook for 1 coll.

	Rafter
—	Aluminium rail Horizontal rail
▫	Roof hook
must be ordered separately	



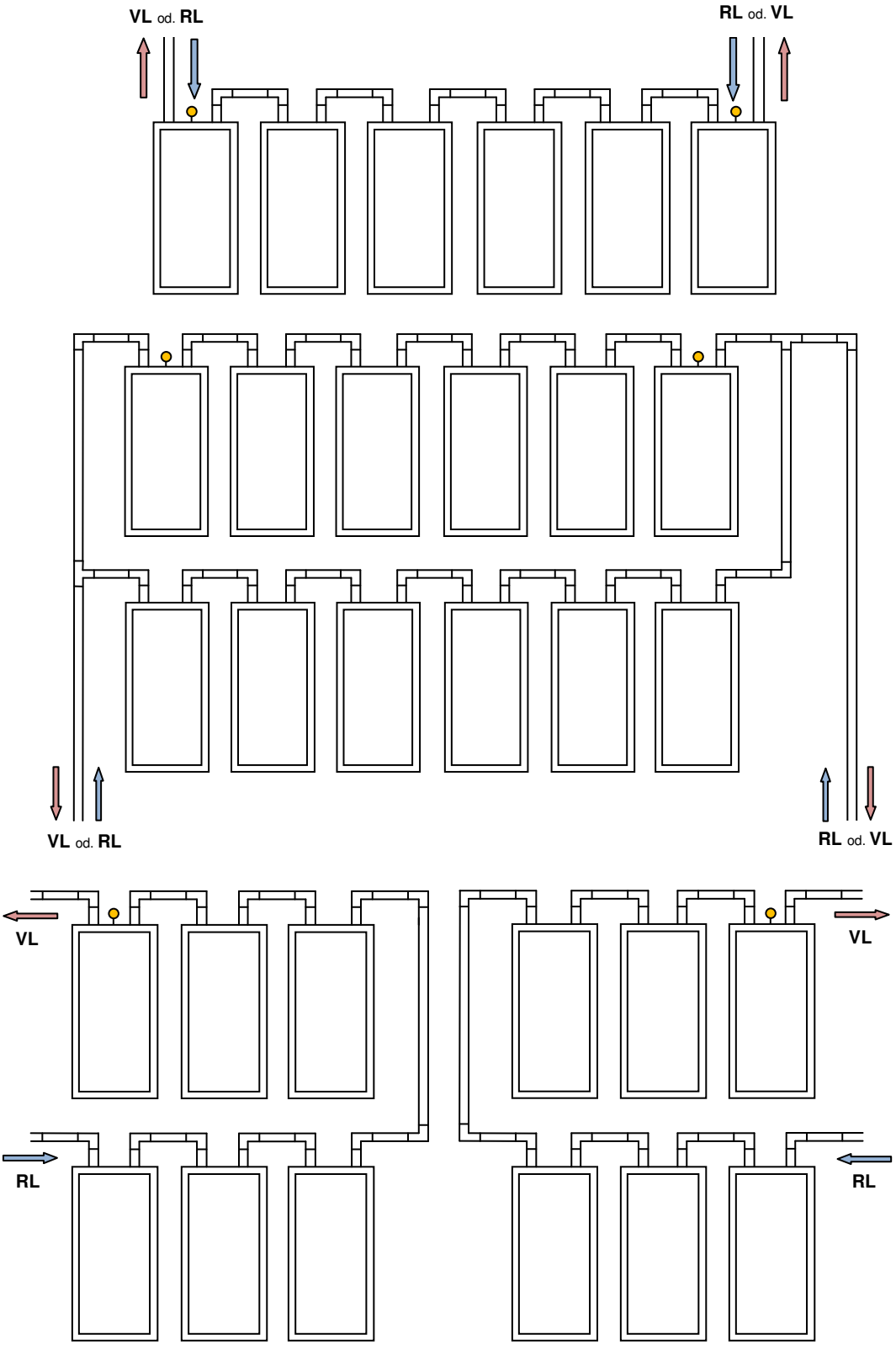
Basic set for 2 collectors	+ roof hooks for 2 coll.
+ Extension set for 2 coll.	+ roof hooks for 2 coll.
+ Extension set for 2 coll.	+ roof hooks for 2 coll.
+ Mounting set for 1 Rafter	+ roof hook for 1 coll.

) The distance between the outside rafter and the end of the horizontal rail must not exceed a **maximum of 400 mm.*

Connection variants

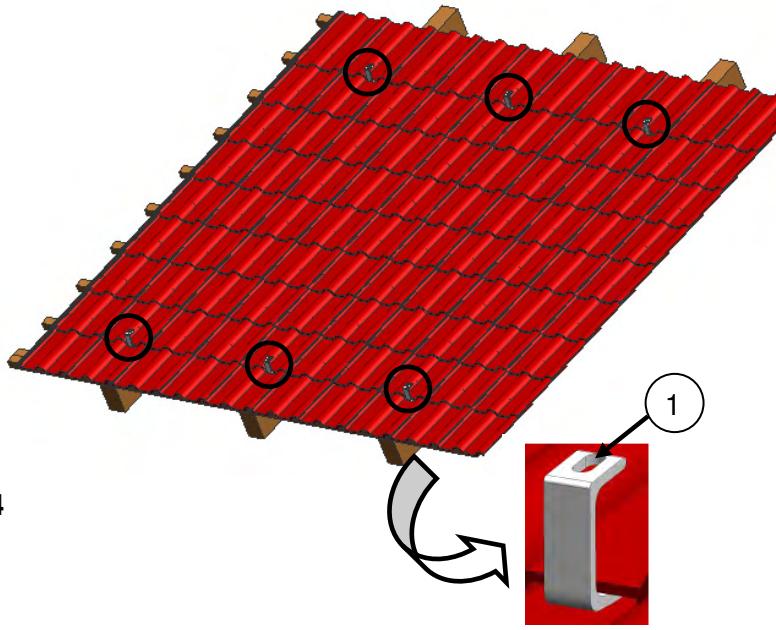
(A maximum of 6 collectors may be connected in series)

The collector probe (⚲) must be mounted to the collector with flow connection (VL). The probe cable must be sealed against water infiltration.



Mounting Instructions for Aluminium Frame Collector AF24VE2

Aluminium frame collector with roof hook attachment for 2 collectors



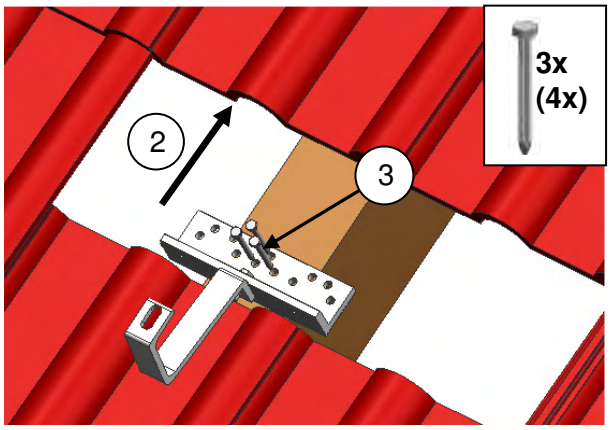
1)
Transfer the collector field dimensions to the roc
Take care of proper alignment and optimum appearance of the collector field, and avoid shading.

As for collector field dimensioning please refer to page 5-6.

IMPORTANT: The distance between the roof hooks must not exceed a maximum of **2074 mm**.

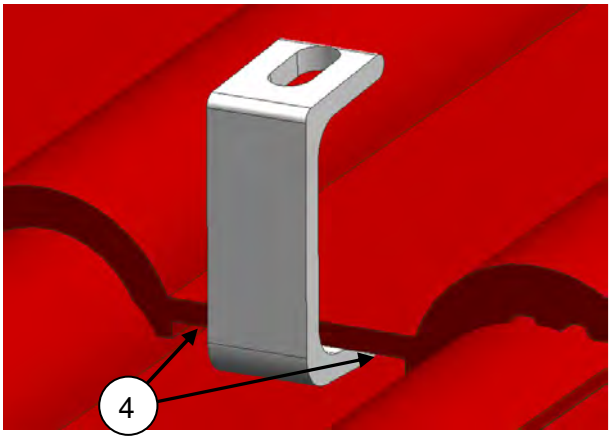
(distance as measured from the centre hole of the roof hook **(1)**)

2)
Slide up the roof tiles at the intended **lower attachment points**.



3)
<u>Aluminium roof hooks:</u> (low snow loads)
Adjust the right height (gap to roof tile) and fix with **3 off 6x60 Spax** screws.

<u>Stainless steel roof hooks:</u> (high snow loads)
Compensate the height with **wooden spacers** and fix with **4 off 8x80 Spax screws** on the rafter.

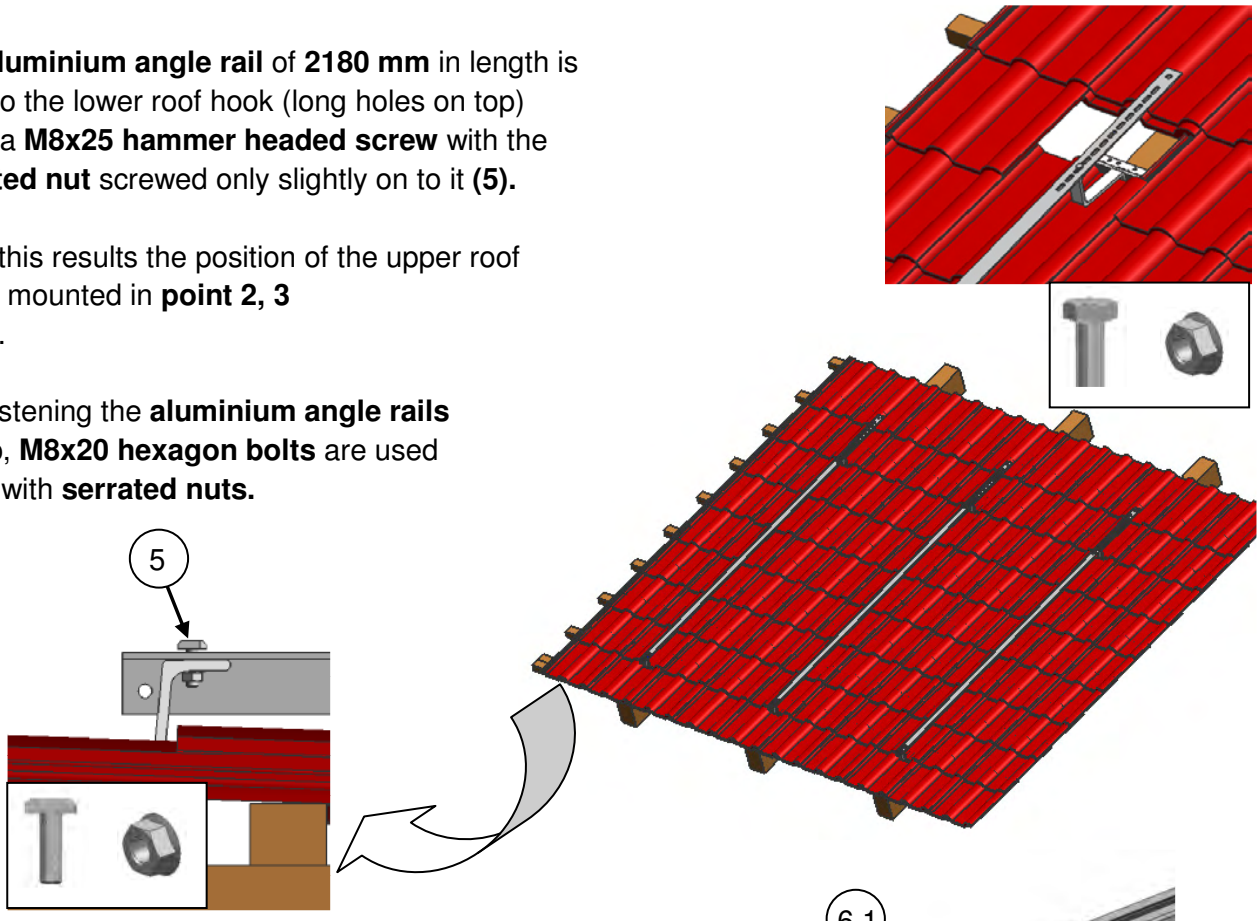


4)
Using an angle grinder, make a recess into the topmost roof tile at the place of the hook. **(4)**

5)
The **aluminium angle rail** of **2180 mm** in length is fixed to the lower roof hook (long holes on top) using a **M8x25 hammer headed screw** with the **serrated nut** screwed only slightly on to it **(5).**

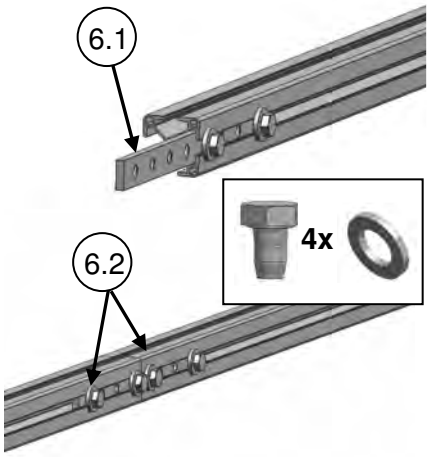
From this results the position of the upper roof hooks mounted in **point 2, 3 and 4**.

For fastening the **aluminium angle rails** on top, **M8x20 hexagon bolts** are used along with **serrated nuts.**



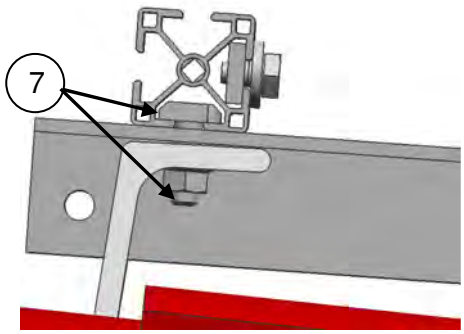
6)
The horizontal rails according to data sheet of collector field dimensions (page 5-6) are assembled with **the horizontal rail connectors (6.1)**.

4 off M8x12 hexagon bolts
4 off washers (6.2)

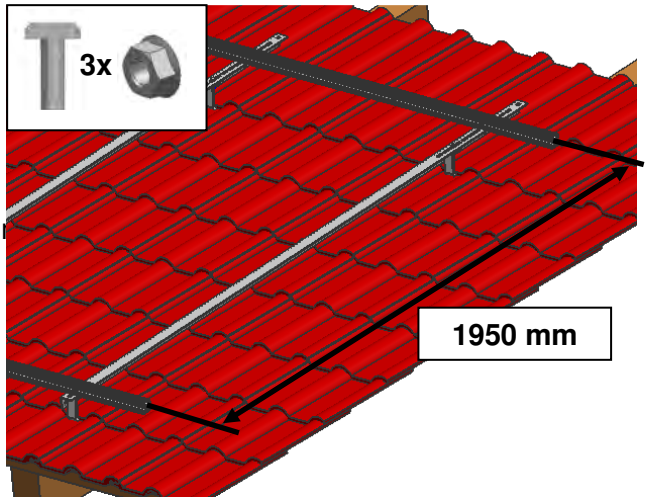


7)
Fix the **lower horizontal sheets** with **M8x25 hammer headed bolts** and **serrated nuts**.

Subsequently all **serrated nuts** are tightened firmly!

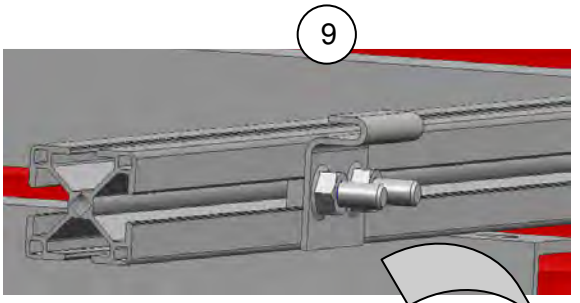


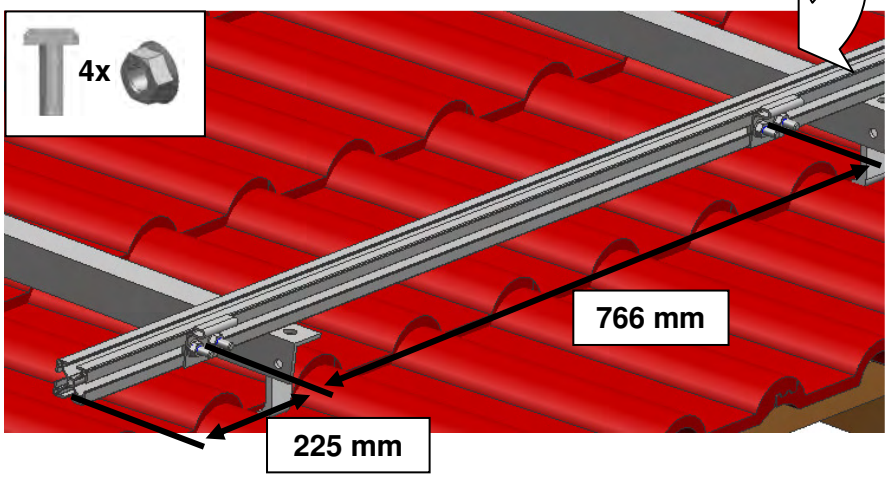
8)
Place the top **horizontal rail** at a distance of **1985 mm** to the relevant long hole of the aluminiu rail and fix with **M8x25 hammer headed screws** and **serrated nuts.**



9)
Fix the **lower fastening sheet** to the lower horizontal rail with **2 off M8x25 hammer headed screws** and **serrated nuts** each.

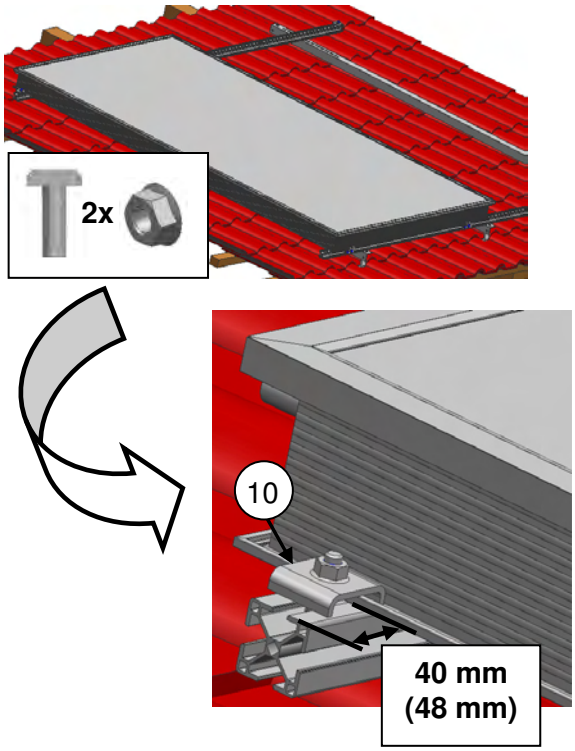
Mount **2 lower fastening sheets** at the first collector.



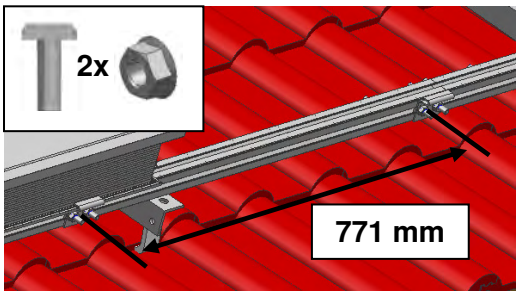


10)
Fix the first collector to the horizontal rails, fit it into the **lower fastening sheet** and fix with **2 off fastening clamps** (top and bottom).

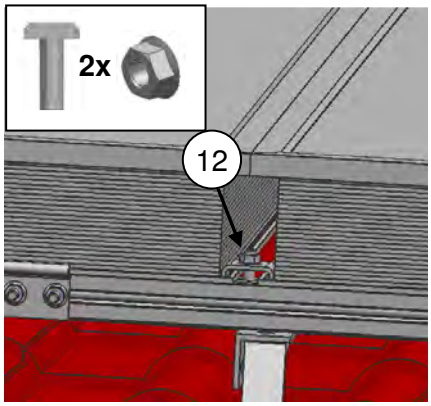
Now the **clamps** are fastened with **M8x25 hammer headed screws** and **serrated nuts**.



11)
For fixation of each further collector a **lower fastening sheet** is mounted at the appropriate distance to the horizontal rail. (1154 mm to the centre of the next collector)

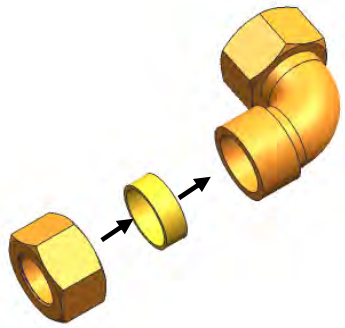


12)
All further collectors are placed flush with the first one,
and the **fastening clamps** are fixed top and bottom with **M8x25 hammer headed bolts** and **serrated nuts**.

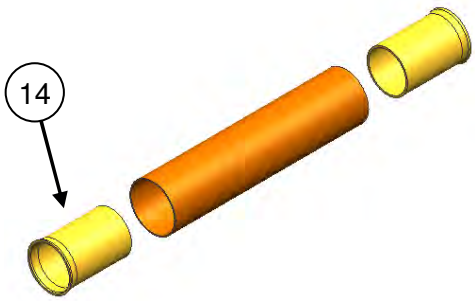


Hydraulic Connections

13)
Apply sealing paste to the **cutting ring.**

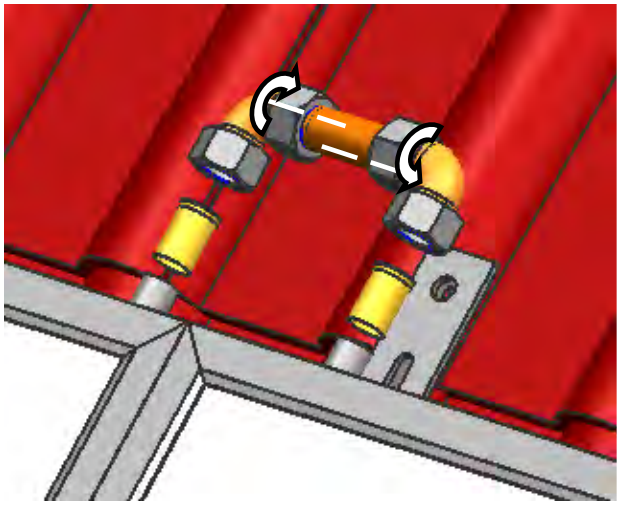


14)
Insert support sleeves into connecting pipe and collector header.



15)
Connect the collectors hydraulically. Snug-tighten the screwed connection, make a **mark** and then tighten with a complete turn.

ATTENTION: Do not tighten the clamping ring connection excessively.
Hold the pipe with a plier's wrench to prevent any twisting (damaging of header).



16)
Pass the flow and return piping of the solar system into the attic (hole Ø30 or Ø50 mm).

17)
Check the collector system for tightness with compressed air at a test pressure of **9 bar.**
All screwed connections are checked for tightness with a foam generating agent (stop leak spray).

The flow and return piping must be provided with appropriate insulation that must be protected against ultraviolet light, moisture, damaging by animals and by roof avalanches.

18)
The collector probe is slid into the probe pipe as far as the stop. Protect the probe cable from tensile loads (roof avalanches), seal it and protect it against damaging by animals.

ATTENTION: The collector probe must be slid **80 mm** into the hose. For checking, apply a mark on the probe cable.

ATTENTION: All holes drilled into the roof covering/building shell in the course of the installation must be sealed water and airtight after all piping and wiring has been mounted.

We wish you many hours of sunshine and a lot of pleasure with your new solar system!

Roof hook attachment parallel to roof surface