Mounting instructions

Wooden Frame Collector WF24

Version V 01

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.

Essential tools/material for mounting

- Measuring tape
- Hammer and hard rubber hammer
- Cordless drill, drill bit extension, torx bit size 20 and 30
- Metal drill bit Ø3.5 and Ø4.5 mm
- Wood drill bit Ø15 and Ø30 mm, or Ø50 mm
- Hand riveter
- Sealing paste
- 2 pliers wrenches
- PU foam gun and PU foam (for tile roof)
- Chalk line

Required auxiliary materials:

- 3 roof battens of the length of the collector field, and in the size of the existing battens.

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.

Wooden Frame Collector WF24 – Technical Data

Construction	wooden frame collector
Use	built into roof for roof angel: 20-70° Flashing kit standard from 27° (<27° available on request)
Type	full surface collector with semi harp
Absorber	**material:** High selective coated aluminium sheet and copper tube, welded using most up-to-date laser technology **absorber surface area:** 2.20 m², **dimensions:** 2000 mm x 1100 mm **connections:** 2x top 18 mm clamping ring screw connection
Structure	wooden frame construction
Glass	solar glass (float)
Insulation	50 mm rock wool
Total thickness	107 mm
Collector dimensions	**gross surface area:** 2,43 m², 2077 mm x 1170 mm **apertur surface area:** 2,22 m²
Weight	53 kg
Collector wiring	A max. of 6 collectors can be connected in series

Wooden Frame Collector WF24 / Collector Field Dimensions

Size of collector field – one row – vertical assemly[1)]

Number		1 x WF24	2 x WF24	3 x WF24	4 x WF24	5 x WF24	6 x WF24	7 x WF24	8 x WF24	9 x WF24	10 x WF24
With cover frame	Length [mm]	1.431	2.602	3.773	4.944	6.115	7.286	8.457	9.628	10.799	11.970
	Height[2)] [mm]	2.702	2.702	2.702	2.702	2.702	2.702	2.702	2.702	2.702	2.702
Without cover frame	Length [mm]	1.171	2.342	3.513	4.684	5.855	7.026	8.197	9.368	10.539	11.710
	Height[2)] [mm]	2.077	2.077	2.077	2.077	2.077	2.077	2.077	2.077	2.077	2.077
Gross surface area	Area [m²]	2,43	4,86	7,29	9,72	12,15	14,58	17,01	19,44	21,87	24,30

Size of collector field – double row – vertical assemly[1)]

Number		1 x WF24	2 x WF24	3 x WF24	4 x WF24	5 x WF24	6 x WF24	7 x WF24	8 x WF24	9 x WF24	10 x WF24
With cover frame	Length [mm]	1.431	2.602	3.773	4.944	6.115	7.286	8.457	9.628	10.799	11.970
	Height[2)] [mm]	4.872	4.872	4.872	4.872	4.872	4.872	4.872	4.872	4.872	4.872
Without cover frame	Length [mm]	1.171	2.342	3.513	4.684	5.855	7.026	8.197	9.368	10.539	11.710
	Height[2)] [mm]	4.247	4.247	4.247	4.247	4.247	4.247	4.247	4.247	4.247	4.247
Gross surface area	Area [m²]	4,86	9,72	14,58	19,44	24,30	29,16	34,02	38,88	43,74	48,60

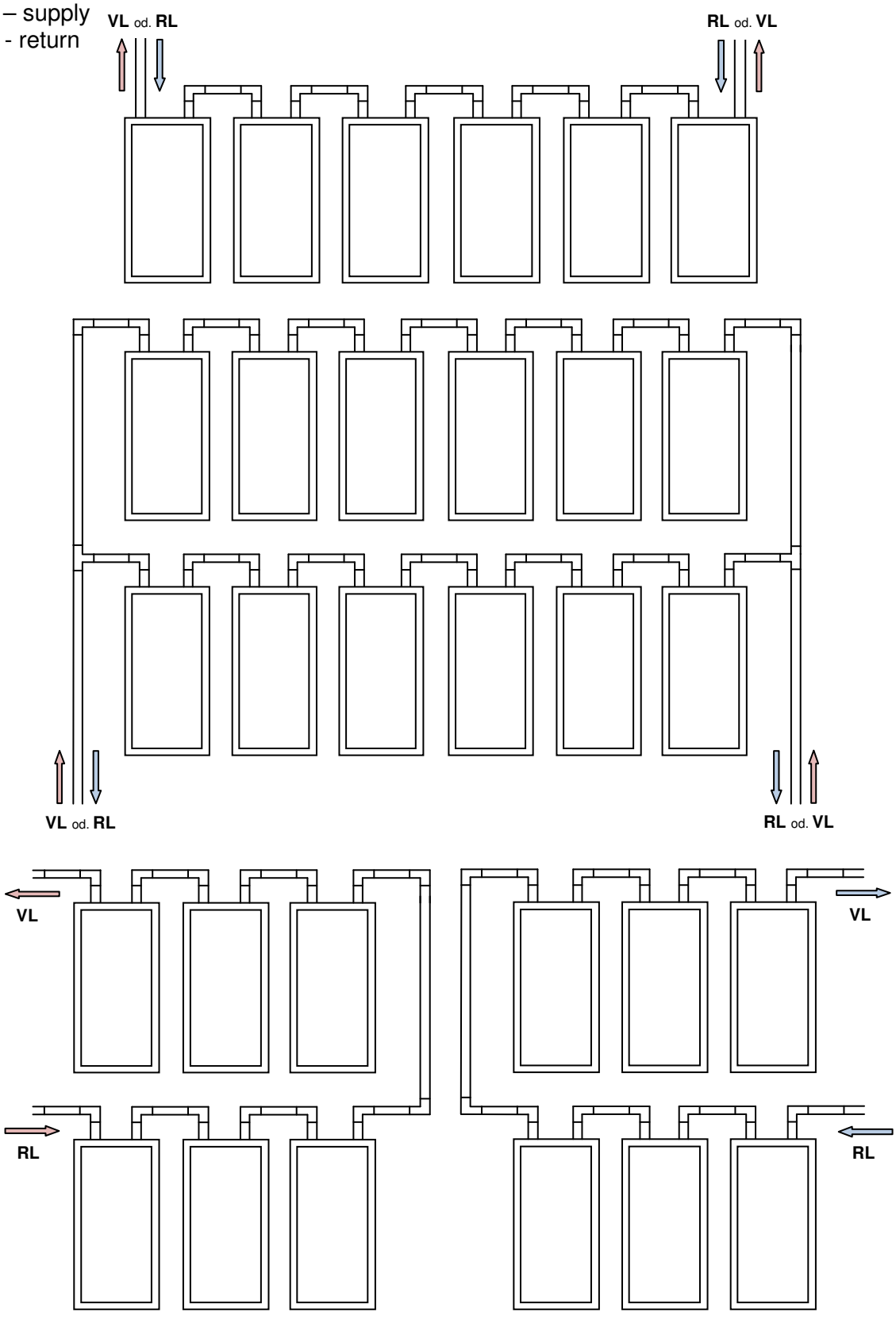
[1)] Roof area to be uncovered: Length of collector field + 1500 mm
Height of collector field + 2000 mm

[2)] In case of an Eternit/shingle covering the height of the collector field will be reduced by 100 mm!

Collector Layout Diagram

A maximum of 6 collectors are allowed to be connected in series

supply or return flow
VL – supply
RL - return



Mounting instructions wooden frame collector

wooden frame collector with flashing kit

1)
The roof area is uncovered according to the number of collectors to be mounted (see table in page 6). The alignment of the collectors on the roof must be chosen considering possible shading and optimum appearance.

AREA TO BE UNCOVERED:
Length of collector field + 1500 mm
Height of collector field + 2000 mm

2)
The first galvanized mounting angle is fixed to the left-hand rafter of the collector field. Fastening as per photo with 4 chipboard screws (Spax) 4,5 x 70 mm (Torx 20)

3)
Fix another mounting angle to the right-hand rafter of the collector field.
Pull the chalk line and fix all other mounting angles to the remaining rafters.

4)
Place the first collector to the left side on the roof and align properly.
HINT: Between the collector field and the tile there should be a distance of 3 cm. *You should bear in mind the possibility of cutting the roof tiles at either side of the collector field.*

5)
Remove the blind plugs immediately.

ATTENTION: the support sleeves must remain in the pipe!

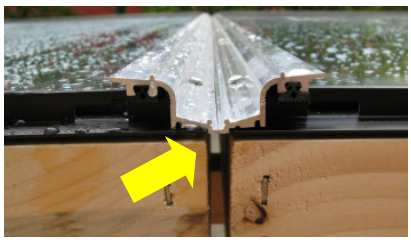
6)
Fix in place the collector on the mounting angle with 4 Spax screws 4.5 x 30 mm.

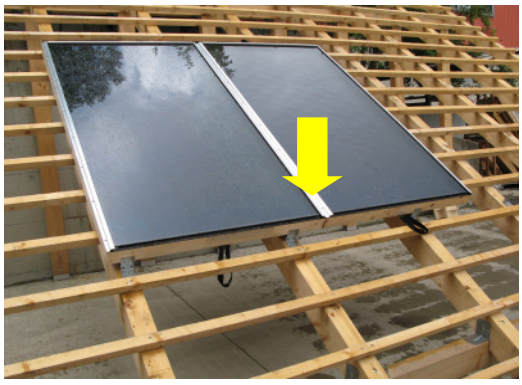
ATTENTION: Only screws not longer than 35 mm may be used!

7)
Fix the collector in place at either side with 3 Spax screws 4.5 x 70 mm.
To this end you drive the screws diagonally through the lateral square timbers of the collector into the roof batten.

8)
A new roof batten is fixed above the collector that has been fastened. Allow on top for 2 mounting angles per collector. The lateral distance between mounting angle and collector edge should be about 200 mm.
The mounting angles are fastened to the collector frame and the roof batten with 4 Spax screws 4.5 x 30 mm each.

9)
Put the second collector in place allowing him to butt against the first one (one aluminium profile touching the other one – see photo). The collectors must be properly aligned vertically.





10)
The collector is fastened to the mounting angle with 4 Spax screws 4.5 x 30 mm.

11)
The second collector is fixed at the RIGHT SIDE with 3 Spax screws 4.5 x 70 mm.
To this end you drive the screws diagonally through the lateral square timber
into the roof batten.

12)
All other collectors are mounted in the same way as described from step 8 to 11.

Hydraulic connections

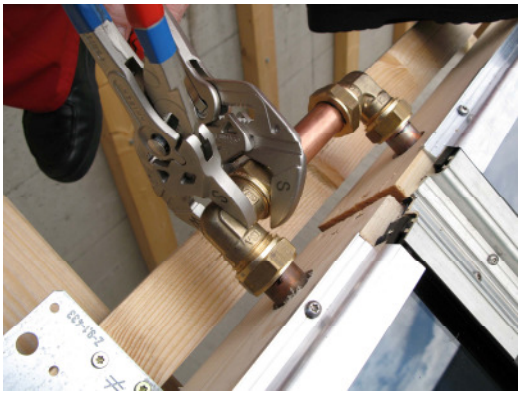
13)
Apply sealing paste to the cutting ring.

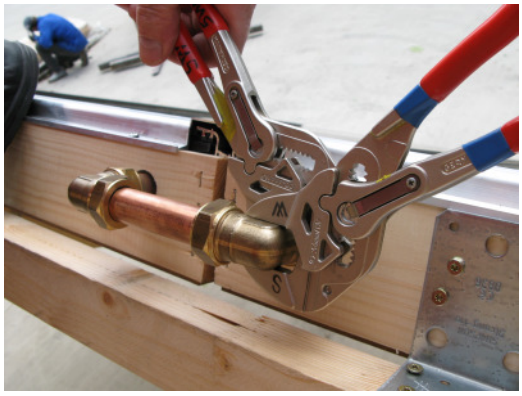
14)
Insert the support sleeves into the connecting pipe.

15)
Insert the clamping ring connections all the way to the stop. Mark on both sides for control.

16)
Connect the collectors hydraulically as per photo. Snug-tighten the screwed connection and then tighten it with a complete turn (mark nut and fitting).

ATTENTION: Do not tighten the clamping ring connection excessively!





17)
Pass the flow and return piping of the solar system into the attic (hole Ø30 or Ø50 mm).

18)
The collector system is tested for tightness with compressed air. Test pressure is 9 bar.
All screw connections are checked for tightness with a foam generating agent (stop leak spray).

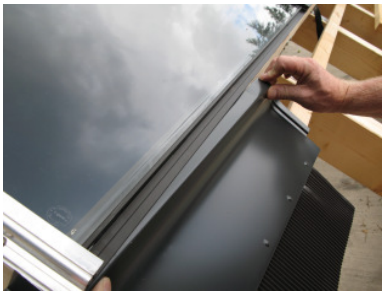
19)
On its pipe, the probe hose is slid all the way to the clamping ring, then fixed with the hose clip and subsequently passed into the attic in a large radius (hole Ø15 mm).

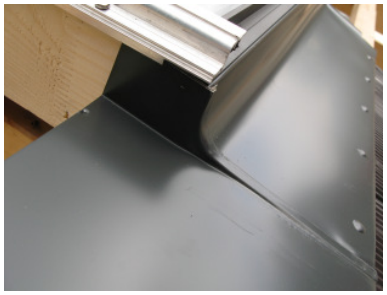
ATTENTION: The collector probe must be slid **a minimum of 550 mm** into the hose. For the purpose of checking, a mark must imperatively be applied on the probe! It is necessary to secure the probe against slipping out.

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!

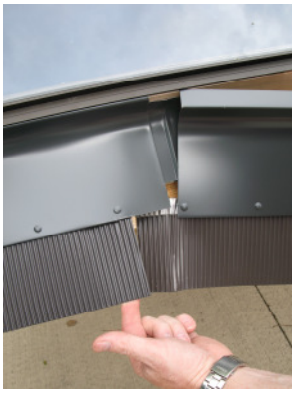
Flashing kit

20)
Engage the BOTTOM-LEFT CORNER flashing part in the groove provided to this purpose and insert it all the way to the stop.
Subsequently fix it with a wood screw 4.5 x 35 mm at about 100 mm from the collector edge.





21)
Insert the lower part of the flashing kit, observing the control measure of 500 mm. Fix both sheets with a wood screw 4.5 x 35 mm at the Pittsburgh lock joint.



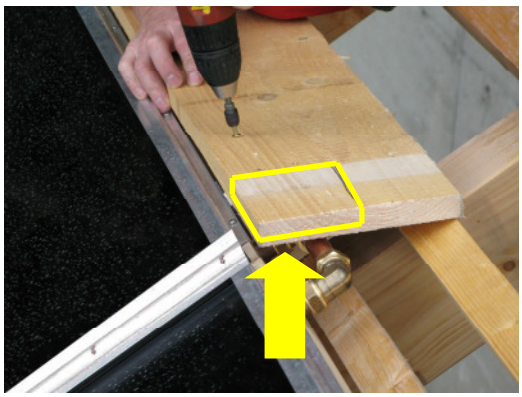
22)
Fix the lower part to the left with another wood screw 4.5 x 35 mm.
Insert the next lower part and fix it with a wood screw 4.5 x 35 mm at the Pittsburgh lock joint.

23)
Now mount the BOTTOM-RIGHT CORNER.
Engage the corner, insert it all the way upwards to the stop and fix it to the right with a wood screw 4.5 x 35 mm at about 100 mm from the collector edge.

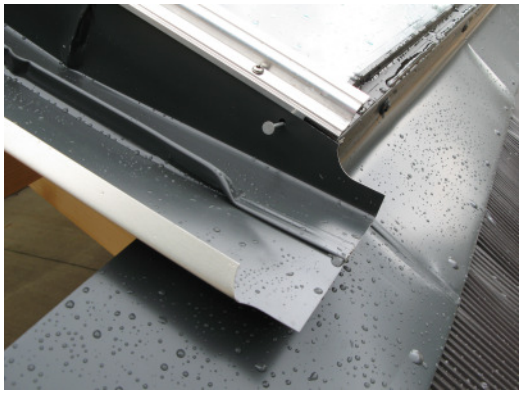
24)
Put in place the wooden support wedge. If required, mount an additional roof batten as a support.

25)
Screw all wooden support wedges with 2 Spax screws 5.0 x 120 mm and 2 Spax screws 4.5 x 70 mm each to the roof battens.

ATTENTION: Do not damage the collector connections!
Do not place any screws in the area marked in the photo!



26)
Put the side part of the flashing to the lower corner and place it parallel to the lateral squared timber of the collector.



27)
Fix the side part with 3 clout nails
2.5 x 30 mm.

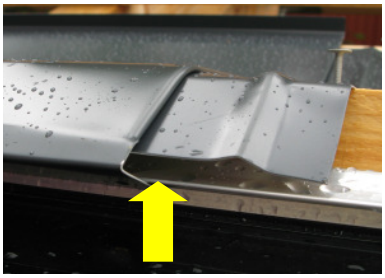
28)
Fix the side part of the flashing at the drainage groove (bottom and center) with 2 nail straps and clout nail 2.5 x 30 mm.

29)
Repeat working step 26 to 28 at the right collector side.

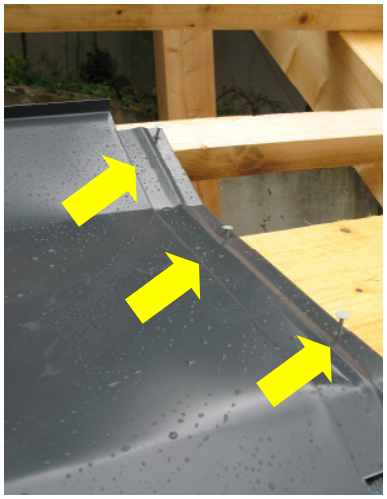
30)
Put the cover strip profile to the left collector and lock it in place by slightly knocking with the palm of your hand.

31)
Hook in the TOP-LEFT CORNER part outside at the side flashing, turn down and slide upwards.

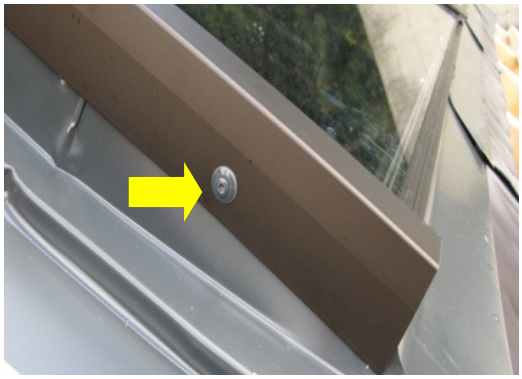
ATTENTION: The flashing must be engaged in the upper profile of the collector!



32)
Fix the TOP-LEFT CORNER at the Pittsburgh lock joint with 3 clout nails 2.5 x 30 mm, and mount the nail straps.



33)
Drill 3 holes Ø 4.5 mm at equal distance across the length on the cover strip profiles.
Fix the cover strip with 3 wood screws 4.5 x 35 mm.



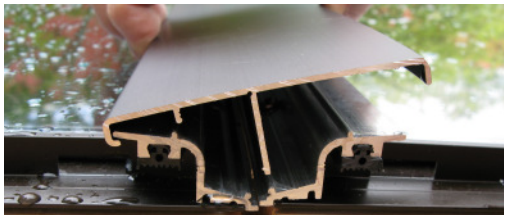
34)
Engage the upper parts of the flashing diagonally into the sheet fold in a number corresponding to the number of collectors to be mounted, and shift the flashing together (observe the control measure of 500 mm).
These upper flashing parts must also be locked carefully into the top glass clamping profile!

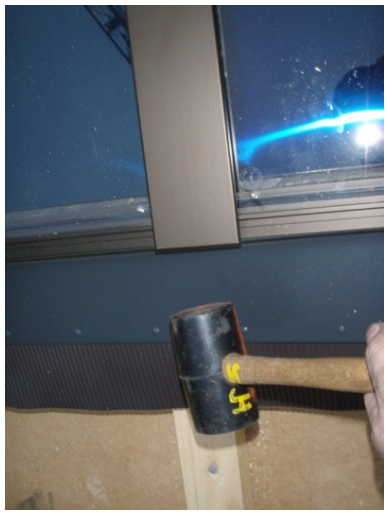
35)
Fix the upper parts in the fold area with clout nails 2.5 x 30 mm.

36)
Mount the TOP-RIGHT CORNER.

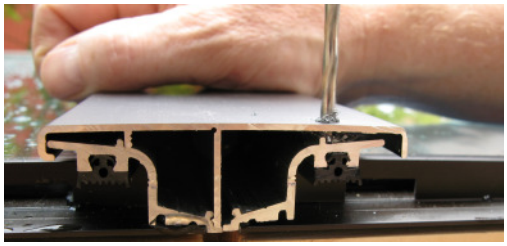
37)
Apply a seal strip all over the top side of the flashing (only with tile cover).

38)
Put the cover rail, as shown in the photo,
between the collectors and lock them
by slightly knocking with the palm of your hand.
Align the cover rail flush with the collector by means
of a hard rubber hammer.





39)
Drill a hole with a Ø 3.5mm drill bit in the cover rail
and the glass retaining rail.



40)
The cover rail must be additionally secured with a
blind rivet 3.2 x 10 mm.

41)
Stick the lead apron to the tile with PU foam (do not apply an excessive quantity of PU foam).

42)
Adapt the lead apron to the shape of the tile (press by hand).

Roof covering

43)
To provide an even rest for the roof tiles it is necessary to knock off the “nose” of the tiles that rests on the metal sheeting.

HINT: The following pictures may provide assistance when re-covering the roof.





44)
We wish you many hours of sunshine and a lot of pleasure with your new solar system!