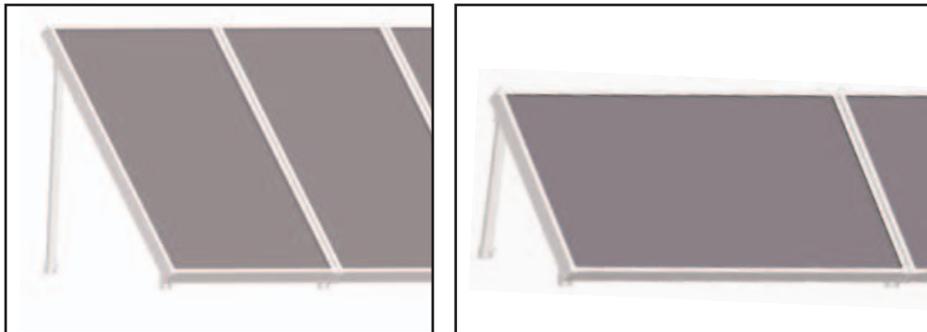


# Infinity 3

Flat plate collector 2,15 m<sup>2</sup>

Mounting instructions

vertical and horizontal ground mounting



# Contents

## Collector Infinity 3 - vertical and horizontal ground mounting

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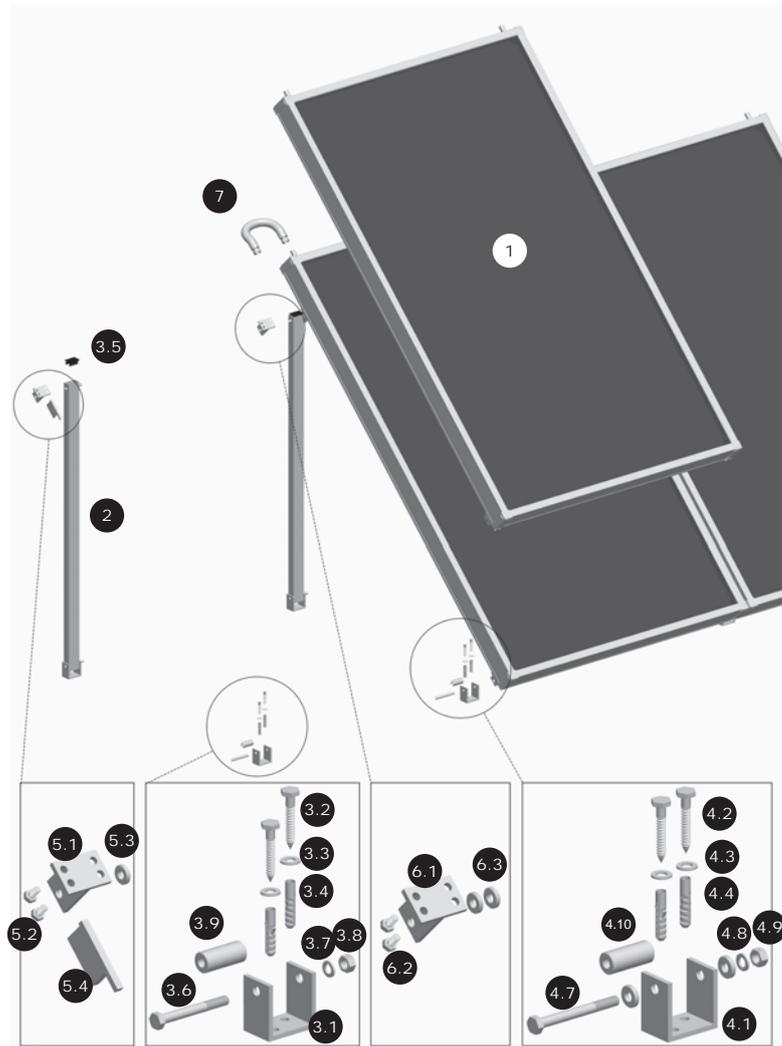
## 1. Data sheet Infinity 3

<b>Type:</b>	Infinity 3
<b>external dimensions each collector:</b>	1,87 x 1,15 x 0,095 m (height x width x depth)
<b>weight of one collector:</b>	34 kg
<b>total surface area:</b>	2,15 m <sup>2</sup>
<b>effective absorber area:</b>	2,0 m <sup>2</sup>
<b>heat carrier capacity:</b>	1,13 litre
<b>absorber:</b>	eta plus Al
<b>absorptance:</b>	95 %
<b>optical efficiency:</b>	80,1 % relating to aperture area
<b>emission ratio:</b>	5 %
<b>loss factors:</b>	$k_1$ : 3,65 W/m <sup>2</sup> K, $k_2$ : 0,0169 W/m <sup>2</sup> K <sup>2</sup>
<b>max. downtime temperature:</b>	203°C
<b>collector connexions:</b>	1/2" flat sealing
<b>collector materials:</b>	frame out of extruded aluminium sheath with heat insulation. 50mm mineral wool
<b>glass faceplate:</b>	low iron solar safety glass 3.2mm
<b>test certificates:</b>	collector test by ISFH according to EN 12975-1/2; Keymark

(subject to technical modifications)



## 2. Explosion drawing and parts list



No.	Description	Quantity basic kit	Quantity extension kit
1	Collector	0	0
2	1x supporting tube, 50 x 30 x 3 mm, L = 1180 mm (vertical) or L=740 mm (horizontal), aluminium	2	1
3	Ground fastening kit	2	0
	3.1 2x U-piece, 60 x 60 x 5 mm, aluminium		
	3.2 4x ø8 x 60 wood screw		
	3.3 4x ø8.4 mm washer		
	3.4 4x ø10 S-wall plug		
	3.5 1x protective cap, 50 x 30 mm		
	3.6 3x M10 x 85 hexagonal bolt		
	3.7 3x A10 spring washer		
	3.8 3x M10 hexagonal nut		
	3.9 1x ø22 x ø10.3 x50 mm spacer sleeve		
4	Ground fastening kit (expansion)	0	1
	4.1 2x U-piece, 60 x 60 x 5 mm, aluminium		
	4.2 4x ø8 x 60 wood screw		
	4.3 4x ø8.4 mm washer		
	4.4 4x ø10 S-wall plug		
	4.5 1x protective cap, 50 x 30 mm		
	4.6 1x M10 x 85 hexagonal bolt		
	4.7 2x M10 x 100 hexagonal bolt		
	4.8 3x A10 spring washer		
	4.9 3x M10 hexagonal nut		
	4.10 1x ø22 x ø10.3 x50 mm spacer sleeve		
5	Collector fixing kit	1	0
	5.1 4x T-piece, 60 x 40 x 6 mm, aluminium		
	5.2 8x M8 x 14 hexagonal bolt		
	5.3 2x ø22 x ø10.3 x 5 mm spacer sleeve		
	5.4 1x installation aid		
6	Collector fastening kit (expansion)	0	1
	6.1 4x T-piece, 60 x 40 x 6 mm, aluminium		
	6.2 8x M8 x 14 hexagonal bolt		
	6.3 6x ø22 x ø10.3 x 5 mm spacer sleeve		
7	Corrugated pipe, 250 mm	0	1
	7.1 1x 250 mm corrugated pipe with 1/2" union nut and insulation tube		
	7.2 3x gasket		
8	60 x 60 x 4 mm U rail, L = 1180 mm (vertical) or L=740 mm (horizontal)	2*	1*

\* optional

### 3. General

The ground mounting installation kit is for mounting the Infinity 3 type collectors vertically on a flat surface. It can also be used on roofs with a slight slope. Installation can be carried out with a variable tilt angle of between 45° and 60°. Tilt angles of between 20° and 45° are also possible using additional components. The collectors must be mounted at an angle of more than 20°. Attention should be paid to the sealing of the roof. Drilling into the roof might not be permitted. If this is the case, concrete slabs must be laid as a foundation on the roof on site. These slabs must be heavy enough to withstand the wind loads at the location. In case of an uneven surface there is the option of using a continuous U-rail as a sub-structure (see parts list).

Extra materials may be required for the roof opening for the collector array connections. This must be provided on site. In the case of a flat-roof installation, it is also necessary to plan a means of transporting the collectors onto the roof.

When connected hydraulically, up to 6 Infinity 3 collectors can be connected in series. If more than 6 collectors are connected, this must be done using a combination of series and parallel connection.

We recommend declaring the solar energy system to your insurer as added value to the building, and taking out insurance against lightning and possibly glass breakage.

### 4. Safety instructions

The installation and safety instructions must be observed and adhered to. The accident prevention regulations of the trade associations must be adhered to, particularly when working on the roof. Where there is a danger of falling, precautions must absolutely be taken.

The entire solar energy system must be installed and operated in accordance with the recognised technical regulations.

Due to snow and wind loads, extreme forces can be at work on the collector fixings. Attention should therefore be paid to carrying out the installation carefully. The roof construc-

tion must be capable of withstanding the additional load. Furthermore, care must be taken that the snow and wind loads are discharged into the roof construction at certain points. It may be necessary to consult a structural engineer.

In case of snow loads of zone 3 and above, and installation locations more than 600 m above sea level, we ask that you enquire with us about the static test.

When installing the collectors towards the edges of the roof, a minimum gap of 1.5 m must be observed. If this minimum gap cannot be observed, a structural engineer must be consulted.

## 5. Technical instructions

### Anti-freeze protection

The solar energy system may only be filled with antifreeze mixture. As it is not possible to empty the collectors completely, it is imperative that the system be filled with the antifreeze mixture, even for function tests. We recommend using premixed antifreeze mixtures; alternatively, the water and antifreeze must be mixed outside the solar energy system.

Caution! As the collector can reach temperatures of over 200°C, an antifreeze which is suitable for use in such conditions must be chosen (e.g. with a propylene glycol base).

### Bleeding

Bleeding of the solar circuit should be provided at the highest point of the hydraulic connection. If automatic bleed valves are used, it is imperative that additional ball valves be installed for manual closure of the system. These ball valves must be closed after filling the plant again. Otherwise, the antifreeze mixture might leak during high temperatures and steam build-up in the collector.

### Recycling

We guarantee that we will take back and recycle our products once they have come to the end of their life cycle. We have already ensured that our products are suitable for recycling during the development stage. This is therefore guaranteed.

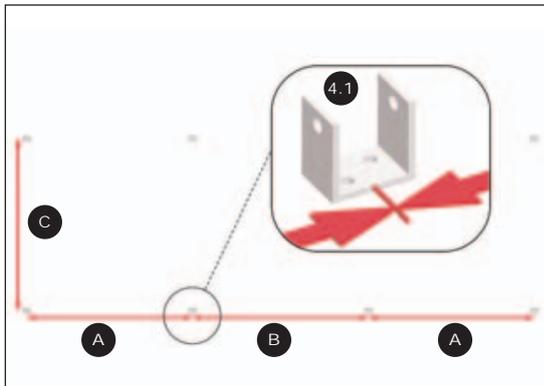
### Electrical connections

A dedicated electrical circuit/circuit breaker should be provided for the solar system.

Earthing and lightning protection

If the building already has lightning protection, the solar system's metal pipes must be connected to the lightning protection by means of a green/yellow conductor of at least 6 mm<sup>2</sup>Cu (H07 V-U or R). Otherwise it is possible to earth the system to an earth rod.

## 6. Installing the base fastening



1. Determine the dimensions of the whole collector array and mark the position of the U-pieces (3.1/4.1). Distance A always applies to the spacing between the U-pieces of the first and last collectors in a collector row. Distance B applies to the collectors in between. The measure C can be taken from the adjoining table.

There are only two U-pieces and a supporting tube between two collectors, and these support both the collectors.

At vertical collector installation:

A=1095 mm B = 1165 mm C = 1140 mm

At horizontal collector installation:

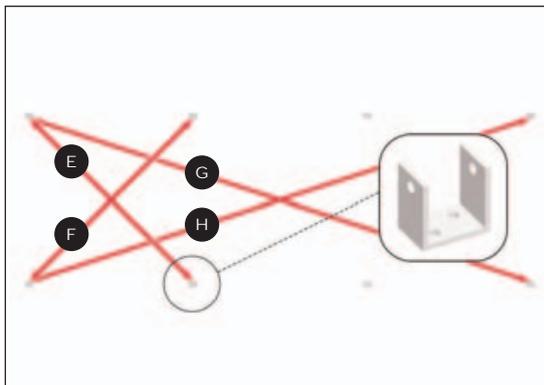
A=1815 mm B = 1885 mm C = 700 mm



The measures relate to the middle of the U-pieces.



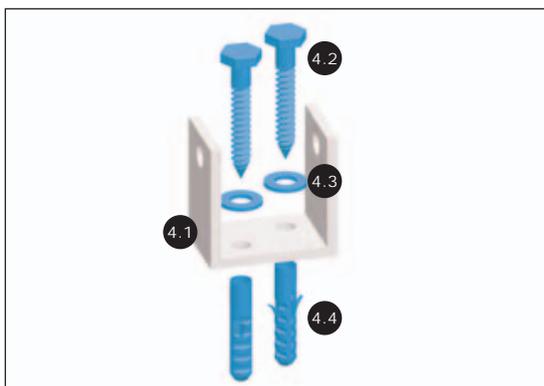
If only one collector is being mounted, distance A is 1025 mm.



2. Before drilling the holes in the surface for the U-pieces (3.1/4.1), check the spacings using the diagonals. Diagonals E and F must be of equal length, as must diagonals G and H. Next, drill with the  $\varnothing 10$  mm masonry drill bit at the marked positions.

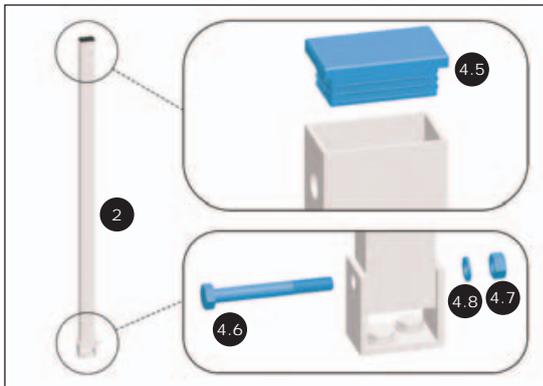


If drilling is not permitted on a flat roof due to the leak-tightness of the roof, concrete slabs or a similar material must be used as a foundation.



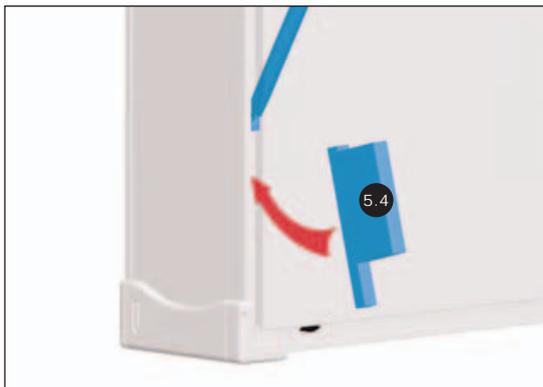
3. Use the wall plugs (3.4/ 4.4) and fasten the U-pieces (3.1/ 4.1) with washers (3.3/ 4.3) and wood screws (3.2/ 4.2).

If U-rails are being used, also fasten these with washers (3.3/ 4.3) and wood screws (3.2/ 4.2).



4. Attach the supporting tube (2) to the rear U-pieces (3.1/4.1) using a hexagonal bolt (3.6/ 4.6), spring washer (3.7/ 4.8) and hexagonal nut (3.8/ 4.9). Put the protective cap (3.5/4.5) on the supporting tube. Screw the bolt tight enough so that the supporting tubes can be mounted upright.

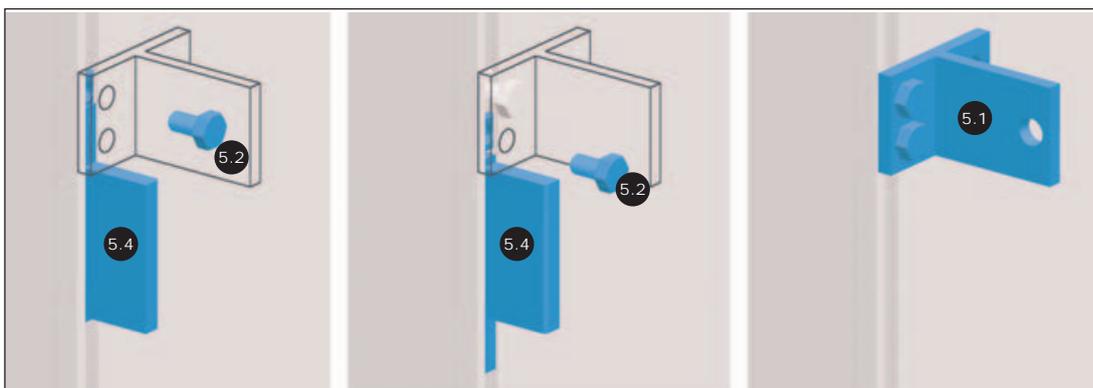
## 7. Preparing the collectors



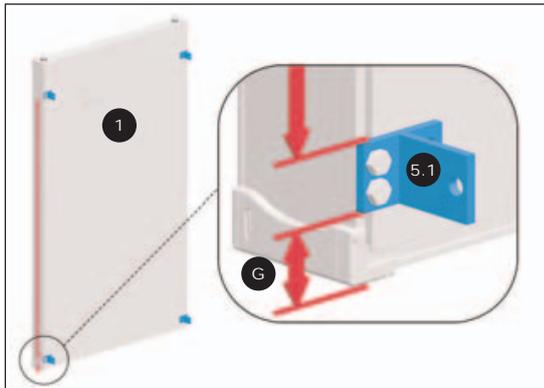
1. Position the square nuts in the slot on the back of the collector with a screwdriver and secure them with the installation aid (5.4).



Using the installation aid, the square nut can easily be positioned for further installation of the T-pieces when the collector (1) has been erected.



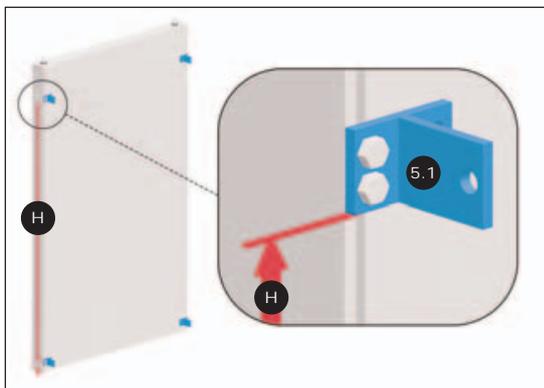
2. Preassemble four T-pieces (5.1/6.1) for each collector with M8 hexagonal bolts (5.2/6.2) on the square nuts in the slot on the rear of the collector. To do so, align the first square nut with the help of the long side of the installation aid. Attach the T-piece and screw in a hexagonal bolt. Align the second square nut by turning the installation aid and screw in another hexagonal bolt.



3. Determine the definitive lower spacing of the T-pieces (5.1/6.1) on the collector (1). As you do so, make sure you observe the spacing G of 40 mm from the bottom edge of the collector for the lower T-pieces. Screw the T-pieces tightly.



To avoid damage to the collector, the spacing G of 40 mm must be observed.



4. Determine the definitive upper spacing of the T-pieces (5.1/6.1) on the collector. The mounting angle is determined by the spacing H between the two T-pieces. Screw the T-pieces tightly.

Tilt	Spacing H (vertical)	Spacing H (horizontal)
45°	1570 mm	950 mm
50°	1425 mm	860 mm
55°	1270 mm	760 mm
60°	1100 mm	660 mm

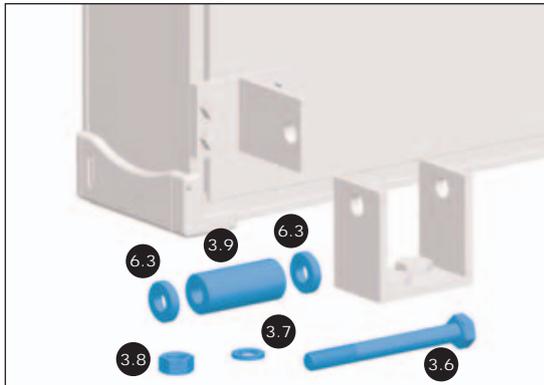


5. Punch the two drainage holes at each bottom corner of the collector, according to how it is mounted, with the aid of a slotted screwdriver. To do so, punch at the bottom edge.



To ensure that water can drain properly from the collector, it is absolutely essential that all drainage holes are punched at the bottom corners (depending on how the collector is mounted on the roof).

## 8. Installing the collectors



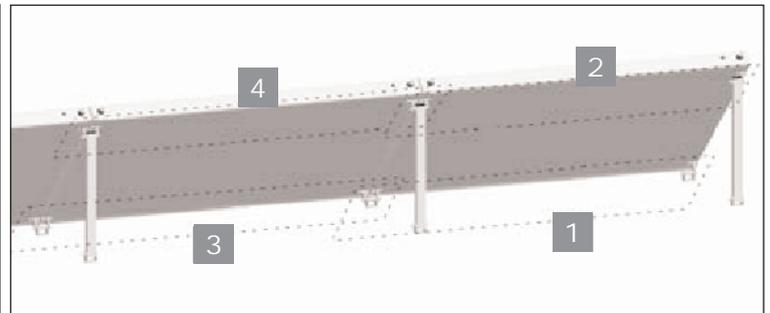
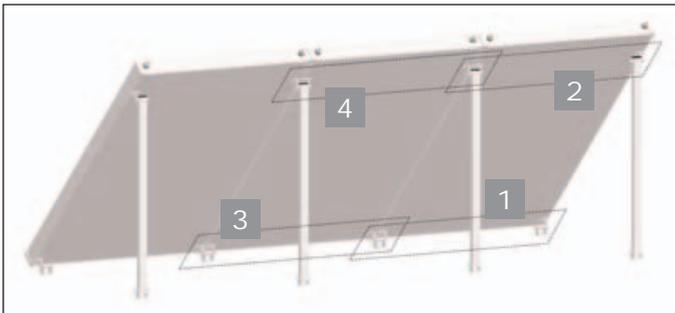
Have the M10 hexagonal bolts (3.6/ 4.7), small spacer sleeves (6.3), large spacer sleeves (3.9/ 4.10), spring washers (3.7/ 4.8) and M10 hexagonal nuts (3.8/ 4.9) ready for fastening the collector.



If you lay the collector on the surface for a short time, it may be necessary to use an underlay to avoid damage to the frame.

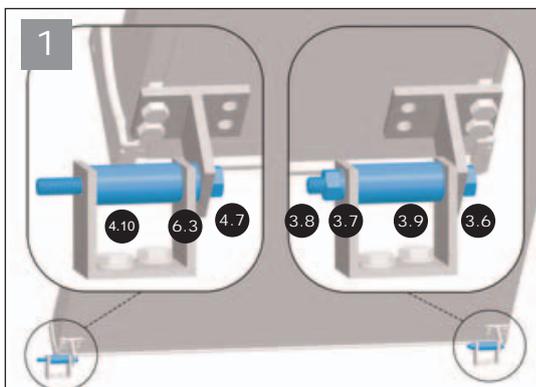


The help of a second person is required to position the collector and fix it in place.



### Installing one collector

If only one collector is being installed, the distance A between the U-pieces is 1025 mm. If this is the case, both U-pieces are positioned under the collector. The T-pieces are attached to the U-pieces or the supporting tubes according to the enlargements on the right of pictures 1 and 2.

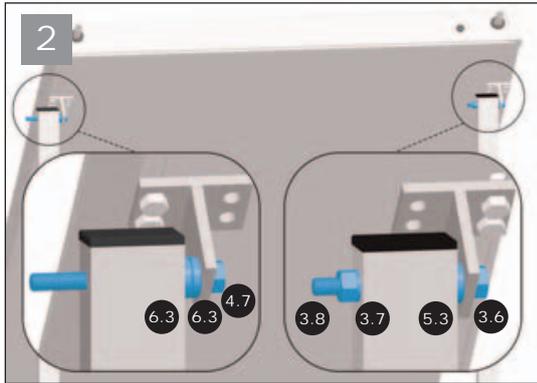


### Installing the first collector

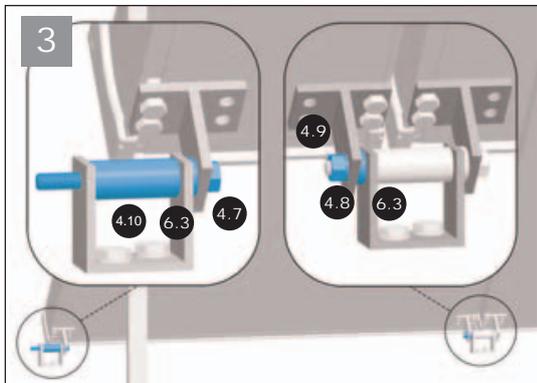
1. Attach the collector (1) to the front U-pieces (3.1/4.1). To do so, position the collector with the help of a second person. Attach the outer T-piece (5.1) to the outer U-piece (3.1) using an M10 x 85 mm hexagonal bolt (3.6), a spacer sleeve (3.9), a spring washer (3.7) and an M10 hexagonal nut (3.8). Preassemble the second T-piece (6.1) to the second U-piece (4.1) using an M10 x 100 mm hexagonal bolt (4.7), a small spacer sleeve (6.3), and a large spacer sleeve (4.10).



The M10 hexagonal bolts (4.7) between two collectors are 100 mm in length.



2. Tilt the collector towards the supporting tubes. Attach the outer T-piece (5.1) to the outer supporting tube (2) using an M10 x 85 mm hexagonal bolt (3.6), a small spacer sleeve (5.3), a spring washer (3.7) and an M10 hexagonal nut (3.8). Preassemble the second T-piece (6.1) using an M10 x 100 mm hexagonal bolt (4.7), two small spacer sleeves (6.3). Fasten both outer T-pieces in place by tightening the M10 x 85 mm hexagonal bolts (3.6).



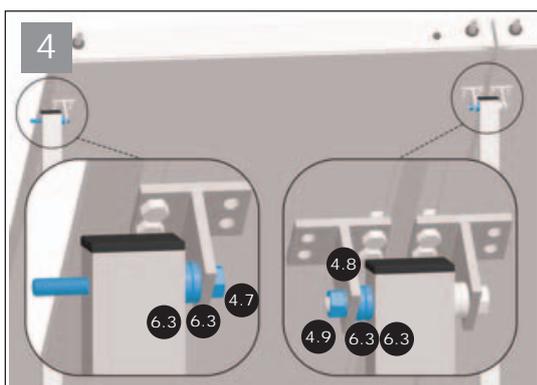
### Installing another collector



There is only one mounting frame between two collectors, which supports both collectors.

3. Attach the collector (1) to the front U-pieces. To do so, position the collector with the help of a second person. First attach a small spacer sleeve (6.3) to the preassembled M10 x 100 mm hexagonal bolt between the collectors, then attach the collector with a T-piece (6.1) and then a spring washer (4.8) and hexagonal nut (4.9).

Preassemble the second T-piece to the second U-piece using an M10 x 100 mm hexagonal bolt (4.7), a small spacer sleeve (6.3), and a large spacer sleeve (4.10).



4. Tilt the collector towards the supporting tubes. First attach two small spacer sleeves (6.3) to the preassembled M10 x 100 mm hexagonal bolt (4.7), then attach the collector with a T-piece (6.1) and then a spring washer (4.8) and hexagonal nut (4.9).

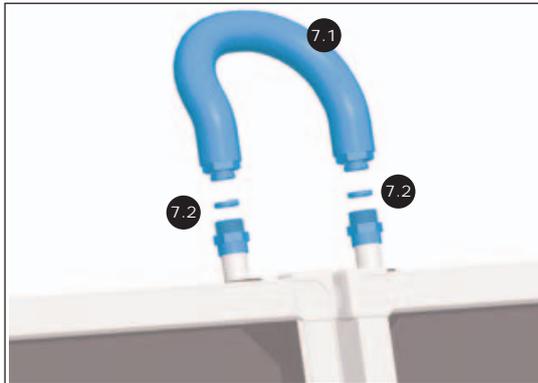
Preassemble the second T-piece using an M10 x 100 mm hexagonal bolt (4.7) and two small spacer sleeves (6.3).

Screw the M10 x 100 mm hexagonal bolts (4.7) between the collectors tightly.

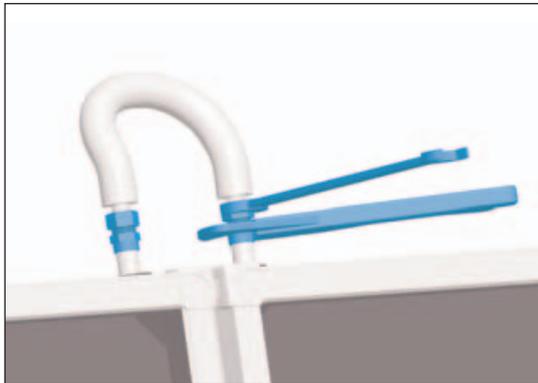
### Installing the last collector

5. The last collector in the collector array is installed in the same way as the first one. The outer T-pieces are attached to the U-piece or the supporting tube according to the enlargements on the right of pictures 1 and 2.

## 9. Hydraulic connection

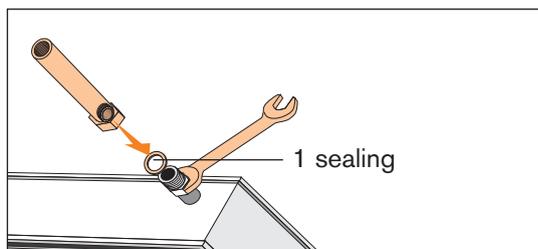


1. Connect the collectors (1) together in series. To do so, attach the connecting pipe (7.1) to the appropriate collector connection with a gasket (7.2). Ensure correct placement of the gaskets.



When tightening, make sure you keep the collector tight with a second spanner in order to prevent damage to the collector!

Push the previously pulled back insulation tubes over the connections until they meet the collector frame.

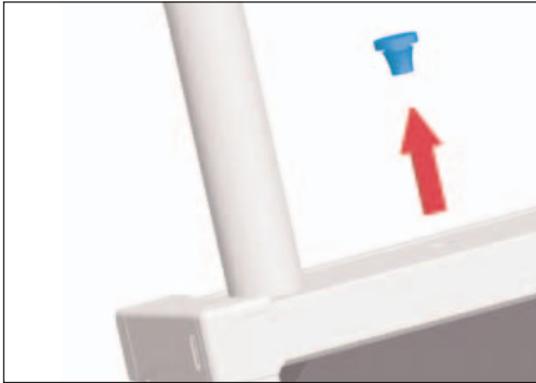


For the mounting of the vent on the roof, first the T-piece with pre-installed vent must be fastened (both at the supply and the returnline). Between collector and T-piece a sealing must be inserted.

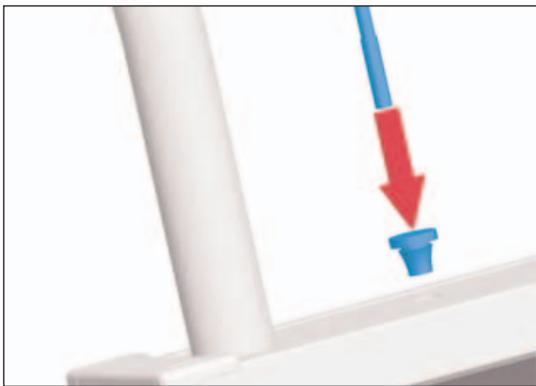


When tightening the flex-pipe, it is essential that you support it with a wrench. Otherwise the collector could be damaged, because the connections are only annealed.

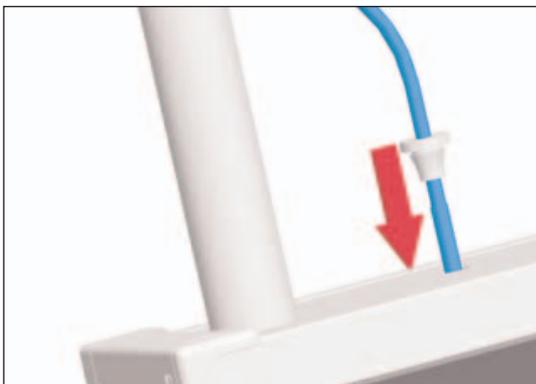
## 10. Installing the sensor



1. Carefully remove the plugs from the collector housing.



2. Slide the plugs over the temperature sensor (included with the solar controller).



4. Insert the temperature sensor fully into the immersion sleeve. Seal the collector frame using plugs. Ensure correct placement of the plugs.

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