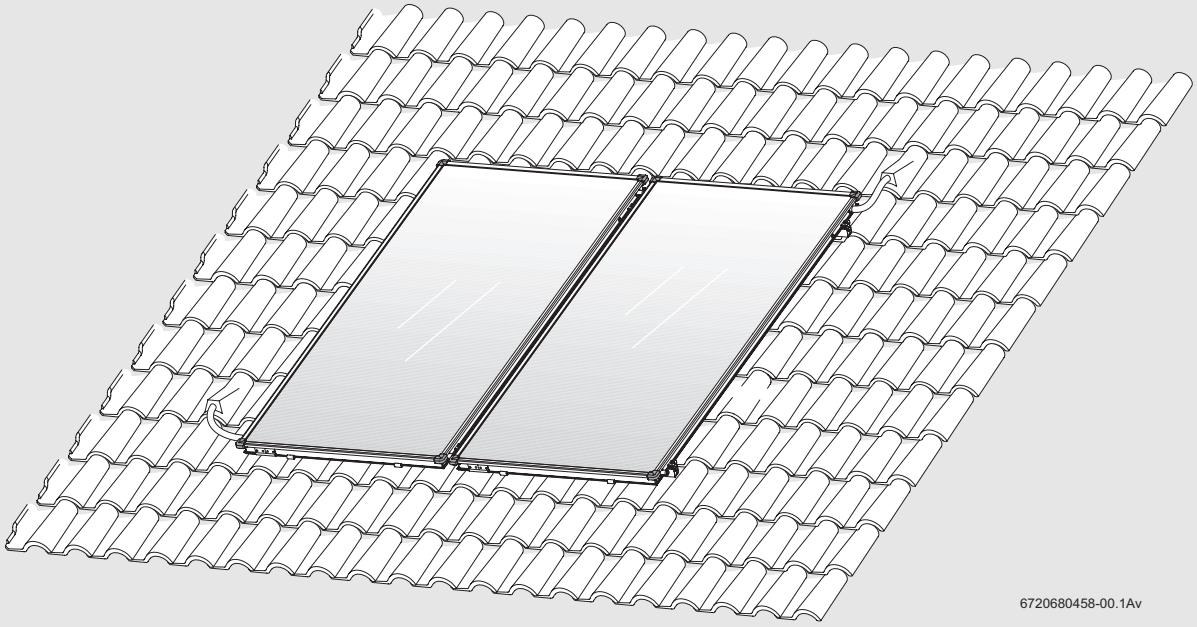


Flat panels

# FCC-1S

Roof mounting

BOSCH

Installation instructions

6 720 649 230 (2011/06) AU

# Contents


**1 Key to symbols and safety instructions . . . . . 4**
1.1 Explanation of symbols . . . . . 4
1.2 Safety instructions . . . . . 5

**2 Information about the installation set . . . . . 6**
2.1 Intended use . . . . . 6
2.2 Description of components . . . . . 7
2.2.1 Installation set for collectors . . . . . 7
2.2.2 Hydraulic connections . . . . . 8

**3 Technical specifications . . . . . 9**

**4 Transport and Storage . . . . . 10**

**5 Before installation . . . . . 11**
5.1 General recommendations . . . . . 11
5.2 Other required equipment . . . . . 12
5.3 Estimating space on the rooftop . . . . . 12

**6 Installing the roof connection and profile rails . 13**
6.1 Determining clearances . . . . . 13
6.2 Tiled roof . . . . . 14
6.2.1 Fit the roof hook in the batten . . . . . 14
6.2.2 Fixing roof hooks to rafters . . . . . 14
6.3 Flat roofs . . . . . 17
6.4 Corrugated roof . . . . . 19
6.5 Slat or batten roofs . . . . . 22
6.6 Corrugated iron roofs . . . . . 22
6.7 Installing profile rails . . . . . 23
6.7.1 Connecting profile rails . . . . . 23
6.7.2 Installing profile rails . . . . . 23
6.7.3 Aligning the profile rails . . . . . 24
6.7.4 Installation of anti-slip protection . . . . . 24

**7 Collector installation . . . . . 25**
7.1 Pressure loss . . . . . 26
7.2 Preparing to install collectors . . . . . 26
7.2.1 Hydraulic connection according to the Tichelmann principle (non-return) . . . . . 26
7.2.2 Pre-assembling the joining set . . . . . 27
7.2.3 Assembling the dummy plug . . . . . 28
7.3 Securing the collectors . . . . . 29

**8 Connecting the collector probe . . . . . 32**

**9 Connecting the collector pipes . . . . . 33**
9.1 Without purging device (Purge through filling under pressure) . . . . . 33
9.2 With purging device on rooftop (accessory) . . . . . 34
9.2.1 Mounting the purging device under the rooftop . . . . . 35
9.2.2 Mounting the purging device on the rooftop . . . . . 35

**10 Brief instructions for flat tiled rooftops without purging device . . . . . 36**

**11 Mounting the double-row connection set (accessory) . . . . . 37**

**12 Checks following commissioning and maintenance . . . . . 38**
12.1 Check-list . . . . . 38
12.2 Insulation of the connections and collector pipes . . . . . 38

**13 Maintenance . . . . . 38**

**14 Environmental protection/Recycling . . . . . 38**

**15 Warranty details . . . . . 39**

# Information about technical documentation

**About this manual**

This installation manual contains important information for the safe and appropriate installation of the set.

The illustrations in this manual show the collectors installed vertically.

**Technical documentation**

The solar heating system consists of various components (Fig. 1). Installation, operation and maintenance documentation is provided for each component. Accessories may be accompanied by a separate document.

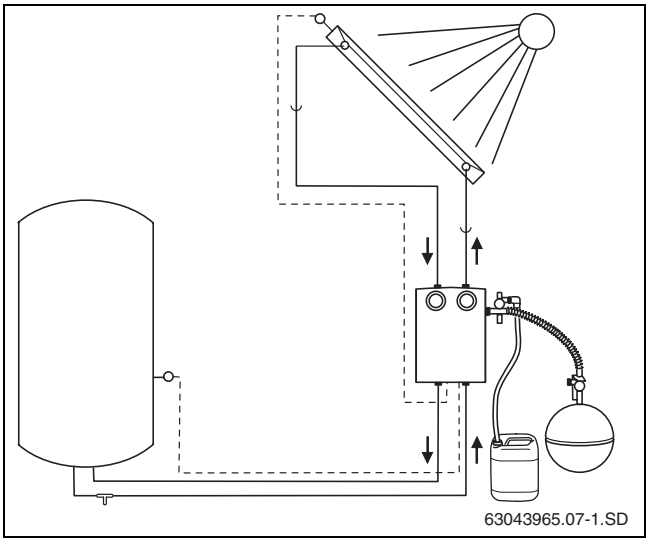


*Fig. 1 Solar heating system components and technical documentation*

# 1 Key to symbols and safety instructions

## 1.1 Explanation of symbols

**Warnings**

Warnings in this document are framed and identified by a warning triangle which is printed on a grey background.

Electrical hazards are identified by a lightning symbol surrounded by a warning triangle.

Keywords indicate the seriousness of the hazard in terms of the consequences of not following the safety instructions.

- **NOTE** indicates that material damage may occur.
- **CAUTION** indicates that minor to medium injury may occur.
- **WARNING** indicates that serious injury may occur.
- **DANGER** indicates possible risk to life.

**Important information**

Important information in cases where there is no risk of injury or material losses is identified by the symbol shown on the left. It is bordered by horizontal lines above and below the text.

**Additional symbols**

| Symbol | Meaning |
|---|---|
| ▶ | a step in an action sequence |
| → | a reference to a related part in the document or to other related documents |
| • | a list entry |
| – | a list entry (second level) |

*Tab. 1*

## 1.2 Safety instructions

This chapter explains how the information in these installation instructions is laid out, and gives general safety instructions for safe and trouble-free operation. Safety instructions and user notes relating specifically to installation are found in the installation instructions alongside the specific installation steps. Please read the safety instructions carefully before starting the installation. If safety instructions are ignored, severe or even fatal injuries may result, as well as material losses and environmental damage.

**Danger when working on roofs**

- Take appropriate action to prevent accidents during all work on roofs.
- Take precautions against a possible fall while working on roofs.
- Always wear your own protective clothing and safety equipment.
- After completing the installation, check the installation set, the collectors and the cylinder are securely positioned.

**Installation and maintenance**

- Only have the appliance installed or modified by licensed contractors.
- Only use the cylinder for heating domestic hot water.

**Risk of scalding!**

Always monitor operation if temperatures are above 60 °C.

- We recommend installing a solar tempering valve on the outlet connection.

**Risk of burns!**

If the collector and installation material have been exposed to the sun's rays for a prolonged period, touching certain components may cause burns.

- Always wear your own protective clothing and safety equipment.
- Before and during installation, cover the collector (for example with a blanket) and installation material to protect against high temperatures caused by the sun's rays. It is worth leaving the equipment covered until the system is commissioned.

**Maintenance**

- **Customer recommendation:** Bosch recommend that this appliance is serviced by a suitably qualified person at periods not exceeding 2 years.
- The user is responsible for the safety and environmental compatibility of the appliance.
- Only use genuine Bosch spare parts.

**Instructing the customer**

- Instruct the customer in the functions and operation of the appliance.
- Inform the customer that they must not carry out any modifications or repairs.

**Risk of damage due to operator error**

Operator errors can result in injury and damage to property.

- Ensure that children never operate this appliance unsupervised or play with it.
- Ensure that only personnel who can operate this appliance correctly have access to it.

# 2 Information about the installation set

## 2.1 Intended use

This installation set is designed to support vertical solar thermal collectors, which are installed on pitched roofs with at an angle of 25° to 65°. The installation on a corrugated iron roof can be done with a roof inclination of 5° to 65°.

Only fit the installation set on roofs with sufficient load bearing capacity. If necessary, request the help of a structural engineer or professional roofer for guidance.

The installation set is suitable for a maximum standard snow load of 2,0 kN/m² and and a maximum wind speed of 151 km/h.

Never use the rooftop installation set to fix any other objects to the roof. The set is designed only to enable the secure fixing of the solar collectors.

**Conditions of use**

Consult standard IE-62305 for detailed information on “Recommendations on Lightening Protection”.

All installations must be carried out in accordance with AS/NZS3500.4, NZS5261, AS/NZS3000 and all local building, plumbing and electrical regulations.

## 2.2 Description of components

### 2.2.1 Installation set for collectors

The installation sets are designed to hold and secure the collectors.

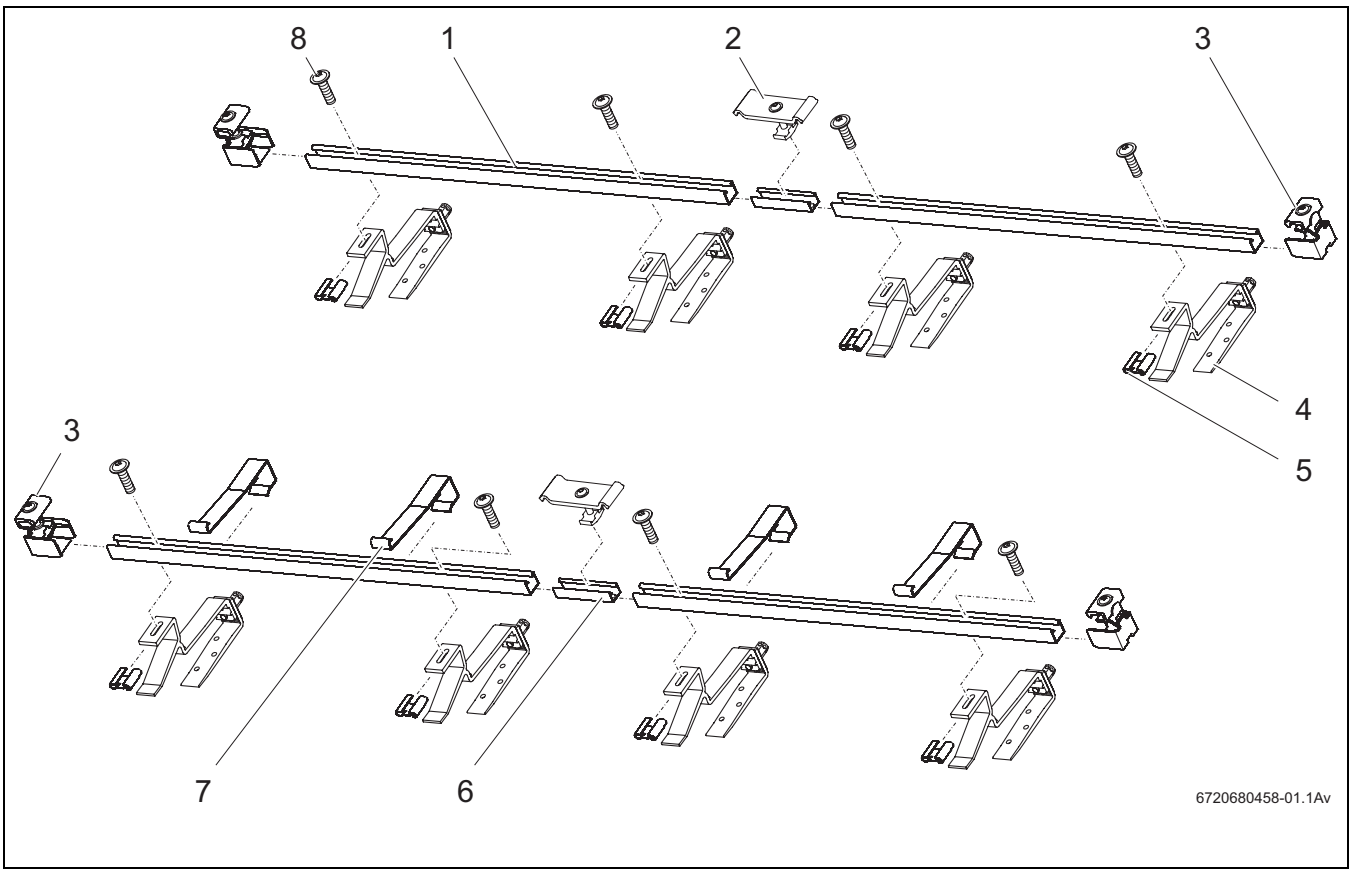


*Fig. 2 Installation set for 2 collectors – 1 standard installation set, 1 extension installation set and 2 installation sets to fix to rooftop*

**Standard installation set for each collector array and for the first collector:**

| | | |
|---|---|---|
| **1** | Profile rail | 2x |
| **3** | Side collector tensioner | 4x |
| **7** | Anti-slip bracket | 2x |
| **8** | M8 Screw | 4x |

**Connection for roofs with roof tiles, per collector:**

| | | |
|---|---|---|
| **4** | Adjustable roof bracket | 4x |
| **5** | Sliding nut | 4x |

**Set for additional collectors:**

| | | |
|---|---|---|
| **1** | Profile rail | 2x |
| **2** | Centre collector tensioner | 2x |
| **6** | TSS joiner with double ended screws | 2x |
| **7** | Anti-slip bracket | 2x |
| **8** | M8 screw | 4x |

### 2.2.2 Hydraulic connections

Each collector array requires a conection set. Collectores are connected to each other with solar hoses (connection set).

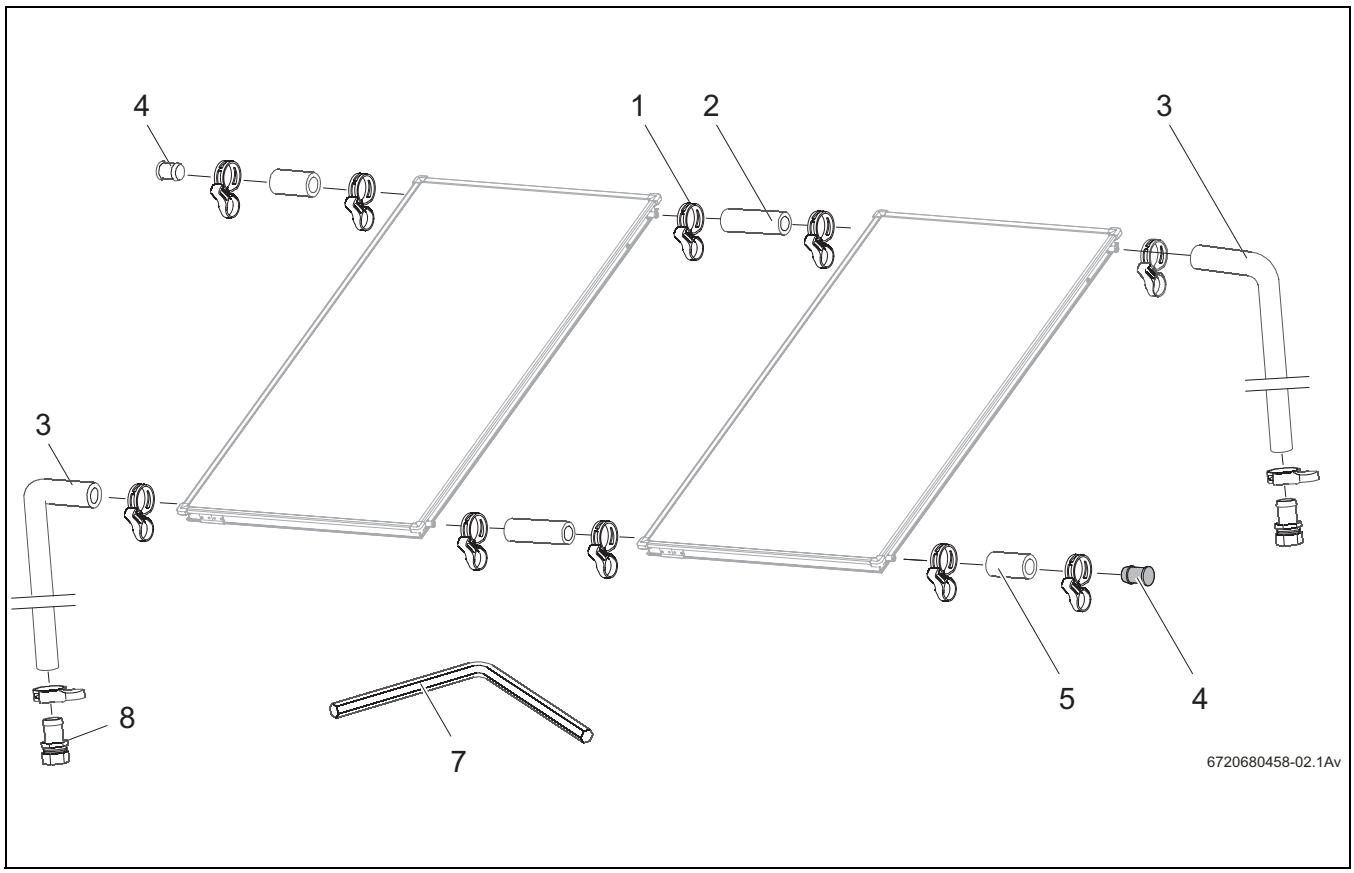


*Fig. 3 Connection set and joining set (diagram with 2 vertical collectors)*

**Connection set for each collector array::**

| | | |
|---|---|---|
| **1** | Spring U-bolt (1 spare) | 5x |
| **3** | 1000 mm solar hose | 2x |
| **4** | Dummy plug | 2x |
| **5** | 55 mm solar hose | 2x |
| **7** | Size 5 spanner | 1x |
| **8** | R¾ hose retainer with 18 mmlocking ring | 2x |
| **9** | Threaded plug of probe passage not shown | 1x |

**Joining set between collectors for each collector (in the four transport corners):**

| | | |
|---|---|---|
| **1** | Hose clip | 4x |
| **2** | Solar hose 95 | 2x |

# 3 Technical specifications

| FCB-1S / FCC-1S | | |
|---|---|---|
| Certificates | |  |
| Length | | 2026 mm |
| Width | | 1032 mm |
| Height | | 67 mm |
| Clearance between collectors | | 85 mm |
| Collector capacity, vertical version | Vf | 0,8 l |
| External surface area (gross) | AG | 2,09 m² |
| Absorber surface area (net) | | 1,92 m² |
| Net weight, vertical version | m | 30 kg |
| Permissible collector operating pressure | pmáx | 6 bar |
| **Solar Fluid** - only use the solar fluid provided by the manufacturer. | | |

*Tab. 2*

# 4 Transport and Storage

All components must be protected by transport packaging.

**Transport protection for collector connections**

The collector connections should be protected against damage with plastic caps.

**NOTICE:** System damage due to damaged sealing faces!

- Do not remove the plastic caps (Fig. 4, [1]) until immediately prior to installation.

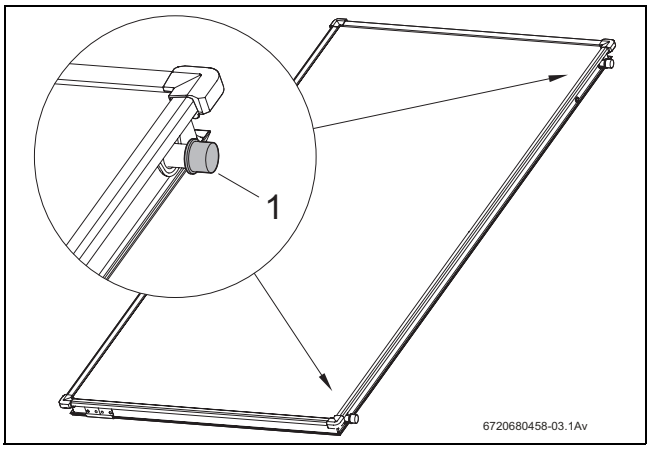


*Fig. 4 Plastic caps and collector connections*

**Storage**

Collectors must be stored in a dry location.

Do not store collectors in open air without protection against rain.

# 5 Before installation

Ensure roof bearing capacity and distance between edges before installing the subframe to the roof.
If necessary, consult a structural engineer to ensure that the structure is appropriate for the installation of solar collectors.
The collectors must be securely fixed to ensure resistance under strong wind conditions and snow load. Damaged caused by bad weather are not covered by the guarantee.

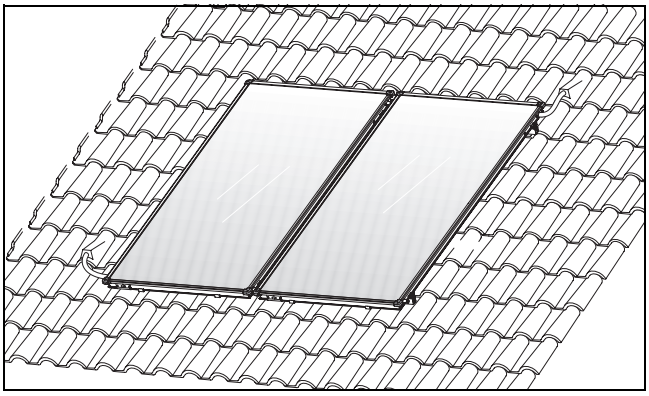

*Fig. 5 View of 2 collectors, rooftop installation*

## 5.1 General recommendations

We recommend that you engage the services of a roofing contractor, as they are experienced in working on roofs and are aware of the risks involved.

Before installation, familiarise yourself with the on-site conditions and local regulations.

**WARNING:** Risk of burning!
If the collector and installation materials are exposed to sun rays for over an extended period of time, there is risk of burning/ scalding.

- Always use personal protective clothing or equipment.
- Cover the collector and the installation material (for example with a towel) before and after installation, to protect it from high temperatures caused by sun rays. We recommend only removing the cover when system is commissioned.

Check

- That the delivered consignment is complete and undamaged.
- The optimum orientation of the solar collectors. Take into account solar radiation (bias angle, southerly orientation - align systems in the southern hemisphere to the north). Avoid shade from tall trees or similar obstructions and adapt the collector array to the shape of the building (for example, alignment with windows, doors, etc.).

Only use original spare parts from the manufacturer and replace faulty parts immediately.

Remove tiles, battens or broken slabs from the area of the collectors and replace them.

## 5.2 Other required equipment

- Spirit level
- Plumb line
- Vacuum pump
- Safety harness with safety line
- Material for pipe insulation
- Scaffolding
- Roofing ladder or equipment for sweeping chimneys
- Crane or mobile hoist

For the installation of the installation set on the rooftop and for the hydraulic connection, the only tool required is the size 5 spanner of the joining set.

## 5.3 Estimating space on the rooftop

Make sure that you have the following clearance space to install the equipment.

**Dimension A and B**

Surface area required for collectors.

**Dimension C**

At least two free rows of tiles to the roof peak or chimney. Especially in the case of wet tiles, there is risk of damaging the roof.

**Dimension D**

Prominence of the roof, including the thickness of the façade of the building.

**Dimension E**

At least 30 cm should be cleared for the installation of the connection cables in the attic, below.

**Dimension F**

At least 40 cm for the installation of the connection cables in the attic, above (when installing the retainer, make sure that there is sufficient space in the water outlet area).

**Dimension G**

At least 50 cm on the left and on the right of the collector array for the connection cables under the roof.

**Dimension H**

Dimension H corresponds to 1.900 mm and is the minimum distance from the upper corner of the collector until the lower frame, which is fixed first.

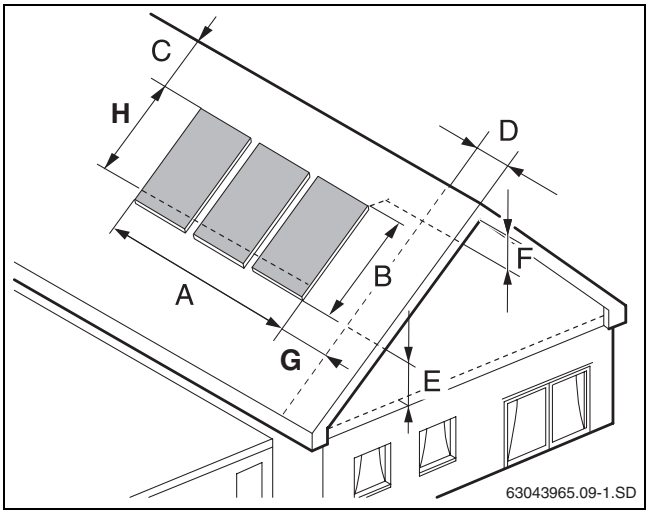


*Fig. 6 Dimensions to be maintained*

**Required distance for vertical collectors**

| Number of collectors | Dimension A | Dimension B |
|---|---|---|
| 1 | 1,095 m | 2,026 m |
| 2 | 2,196 m | 2,026 m |
| 3 | 3,296 m | 2,026 m |
| 4 | 4,397 m | 2,026 m |
| 5 | 5,497 m | 2,026 m |
| 6 | 6,598 m | 2,026 m |
| 7 | 7,698 m | 2,026 m |
| 8 | 8,799 m | 2,026 m |
| 9 | 9,899 m | 2,026 m |
| 10 | 11,000 m | 2,026 m |

*Tab. 3 Space requirements for vertical collectors*

# 6 Installing the roof connection and profile rails

**DANGER:** Risk to life due to falls or falling parts!

- Take appropriate action to prevent accidents during all work on roofs.
- Always use appropriate clothing or personal protection equipment.
- After completing installation, check the installation set, collectors and cylinder are securely positioned.

**CAUTION:** Modifications to the installation can cause injuries and/or malfunctions!

- Do not make any changes to the installation.

Use a roofing ladder to provide a better footing on roofs or slide the roof tiles up at the edge of the collector array.

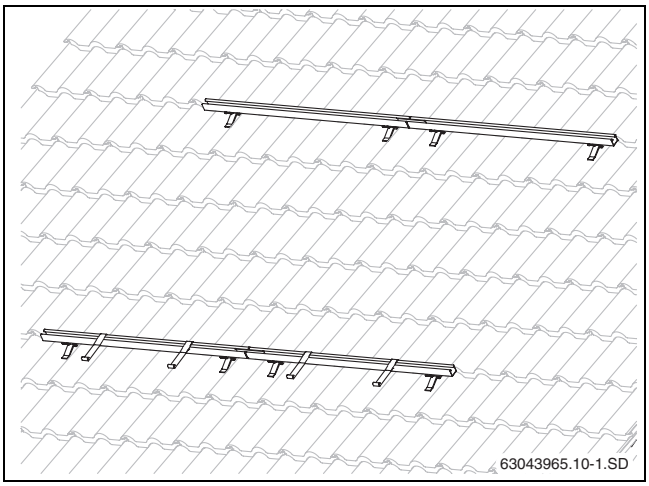


*Fig. 7 Pre-assembled profile rails for two collectors*

## 6.1 Determining clearances

The dimensions given in the tables are guide values that should be approximately maintained.

On tiled roofs, the corrugations determine the real distance between the roof hooks.

**Distance between roof hooks**

Each profile is fixed with two roof hooks (Fig. 8). The approximate distance between the roof hooks is provided in the table.

| Type of assembly | Dimension w | Dimension x | Dimension z |
|---|---|---|---|
| vertical | aprox. 1100 | 560–960 | 170–540 |

*Tab. 4 Required clearance for vertical collectors (mm)*

The dimensions X and z should always be approximately distance w.

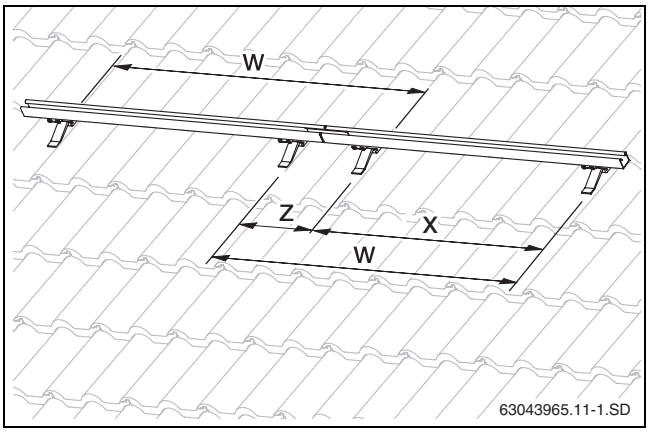


*Fig. 8 Distance between roof hooks*

**Clearance between the profile rails**

Determine the distance between the upper and lower profile rails (Fig. 9). Use the values in the table as guidance.

| Type of assembly | Dimension y | |
|---|---|---|
| | from | to |
| vertical | 1320 | 1710 |

*Tab. 5 Distance (centre-centre) between the lower and upper profile rail (mm)*

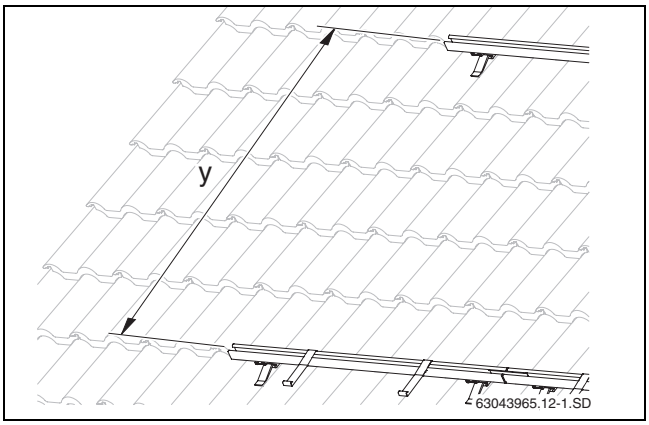


*Fig. 9 Clearance between profile rails*

## 6.2 Tiled roof

First, assemble all the roof hooks according to the reference values in Tab. 4 e Tab. 5 on page 13.

Do not make changes to the roof structure and avoid damaging the roof. In the case of wet peak tiles, only lift the tiles as of the third row.

To secure the tile to the roof hook, you should carefully cut the tile's points of support.

**NOTICE:** System damage due to loosening of the long hexagon nut on the roof hook

When the nut is tightened, a glue is activated which bonds the joint securely after an hour.

- If the nut becomes loose after an hour, the screws must be tightened on site (e.g. serrated washer).

### 6.2.1 Fit the roof hook in the batten

The lower part of the roof hooks is provided folded.

- Loosen the long hexagon nut (Fig. 11, [2]) on the roof hook and place the lower part of the hook (Fig. 11, [1]) in the correct position.
- Slide the tile up according to the positions of the roof hooks(Tab. 4 and Tab. 5, page 13).
- Fit the roof hook so that the load rests in the front in a tile hollow (Fig. 12, [4]).
- Slide the front part of the roof hook (Fig. 12, [3]) until it rests in the batten (Fig. 12, [2]).

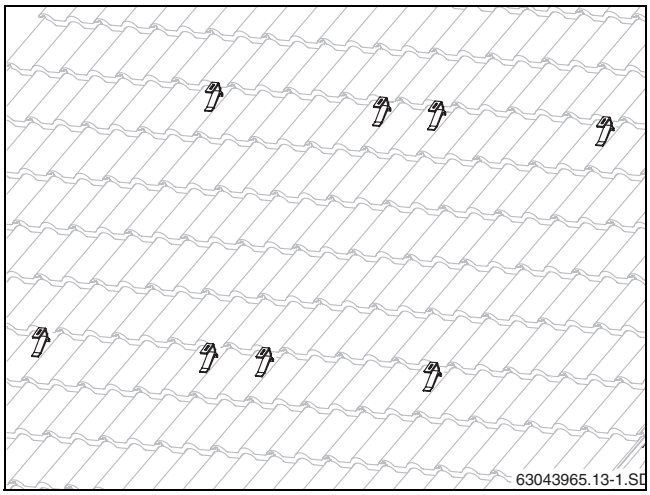


*Fig. 10 Roof hooks assembled for two collectors*

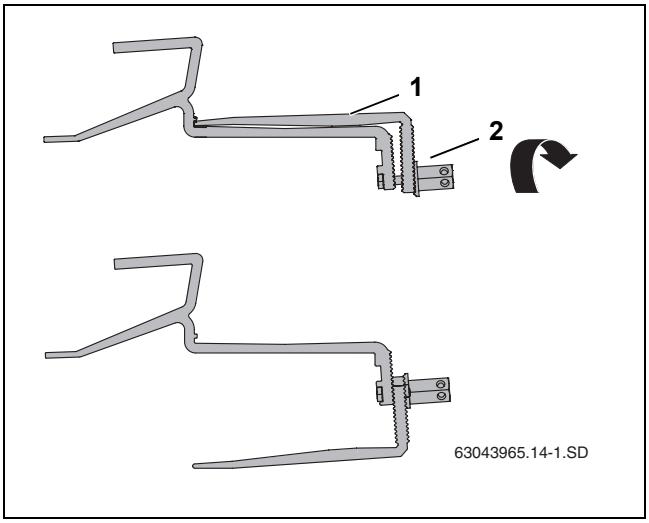


*Fig. 11 Rotate lower part of roof hook*

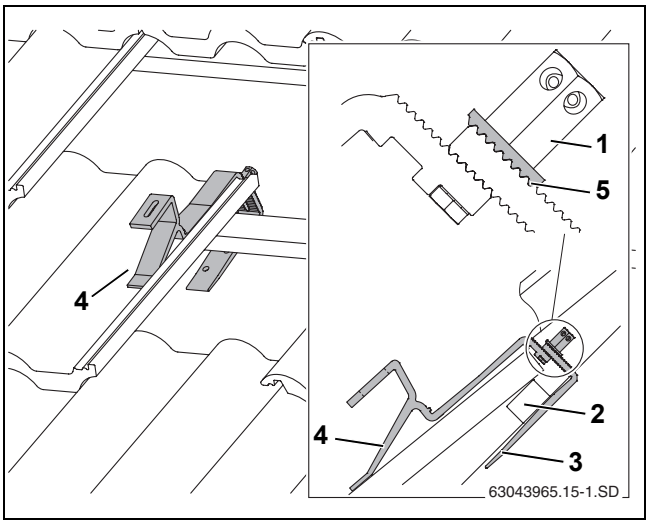


*Fig. 12 Fixed roof hook (for an improved view, some tiles have not been shown)*

- Tighten the long hexagon nut (Fig. 12, [1]). For this purpose, insert the size 5 spanner into the hole of the hexagon nut and turn.

The serrated washer (Fig. 12, [5]) must fit into the lower part of the roof hook.

### 6.2.2 Fixing roof hooks to rafters

The roof hook can be used alternatively as the rafter support for fixing to the rafter.

According to the roof hook positions (Tab. 4 e Tab. 5, page 13) it may be necessary to attach boards/planks with adequate load bearing capacity to the rafters (horizontal battens) to fit the roof hooks between the rafters.

In the case of some roof covers, it may be necessary to underlay the lower part with boards/planks (Fig. 13, [4]) for the roof hook to lie on top of the roof tile.

- Loosen the long hexagon nut (Fig. 13, [2]).
- Insert the screw in the upper hole (Fig. 13, [3]).
- Loosely fasten the lower part of the roof hook (Fig. 13, [1]). Do not tighten the connection yet.

**NOTICE:** System damage due to breaking of roof hook!

- Position the screw in the upper hole to prevent an adverse application of force.

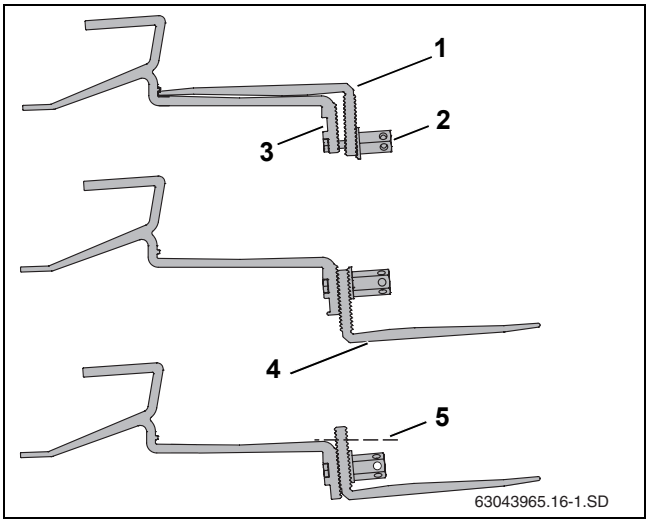


*Fig. 13 Fastening roof hooks to rafter*

**1** Lower part of roof hook
**2** Long hexagon nut
**3** Upper hole for fastening the lower part
**4** Apply covering if necessary
**5** Trim if necessary

- Lay support in front in such a way that it will lie in a tile valley when subject to a load (Fig. 14, [3]).

The roof hook must have some looseness at the upper edge of the tile (Fig. 14, [2]). Adjust the top of the tile if necessary.

- Push the roof hook down until it comes to rest on the rafter or boards/planks (Fig. 14, [6]).

The serrated washer (Fig. 14, [5]) must grip the serrations on the lower part of the roof hook.

- Tighten the long hexagon nut (Fig. 14, [1]). To do so, insert the size 5 spanner in the hexagon nut and turn.
- Secure the lower part of the roof hook to the rafter in at least the first (Fig. 14, [2]) and second holes using suitable screws.

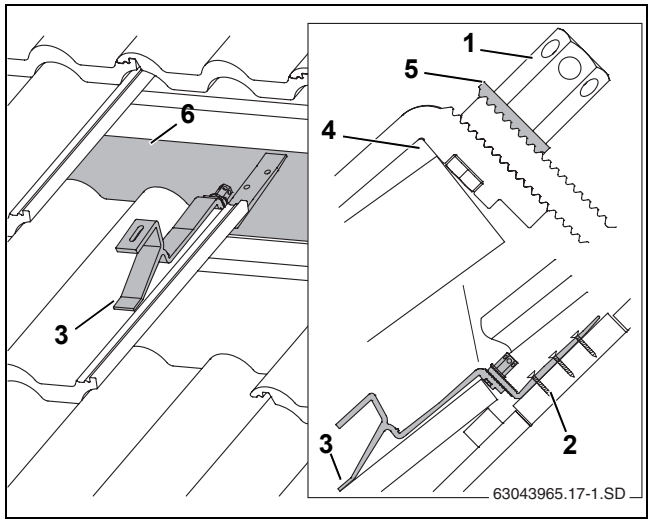


*Fig. 14 Fixed roof hook (some tiles have been removed for a better view)*

**1** Long hexagon nut
**2** Screws to secure the roof hooks
**3** Front support
**4** Adjust roof tile to roof hook if necessary
**5** Serrated washer
**6** Board/plank

## 6.3 Flat roofs

We recommend consulting a professional roofer to install a flat roof installation.

During installation, pay attention to the dimensions which need to be maintained (w, x and y) for the roof hooks (Tab. 4 and Tab. 5, page 13).

According to the roof hook positions (Tab. 4 and Tab. 5, page 13), it may be necessary to attach boards/planks with adequate load bearing capacity (Fig. 15, [1]) to the rafters (horizontal battens) in order to fit the roof hooks.

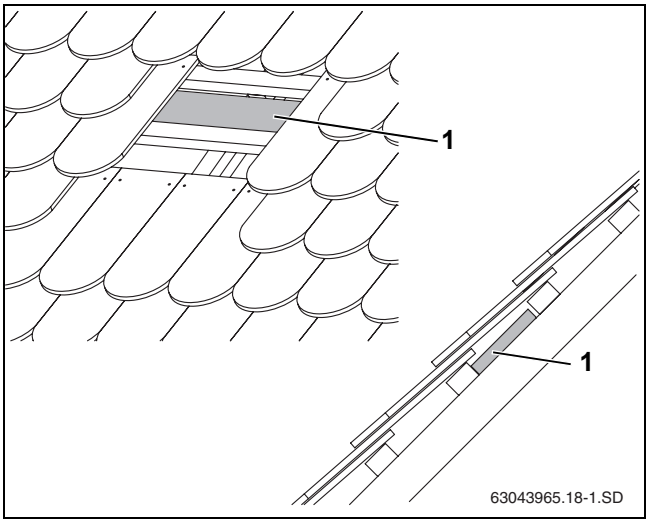


*Fig. 15 Install boards/planks if required*

When the roof is built with horizontal battens, you may also use the roof hook according to the type of flat tile applied (page 14).

**Preparing the roof hook**

Before installation, the lower part must be placed in the correct position.

- Loosen long hexagon nut (Fig. 16, [2]).
- Insert the screw in the upper hole (Fig. 16, [3]).
- Loosely fasten the lower part of the roof hook (Fig. 16, [1]). Do not tighten the connection yet.

**NOTICE:** System damage due to subsequent loosening of the hexagon nut on the roof hook!

- Position the screw in the upper hole to prevent adverse application of force.

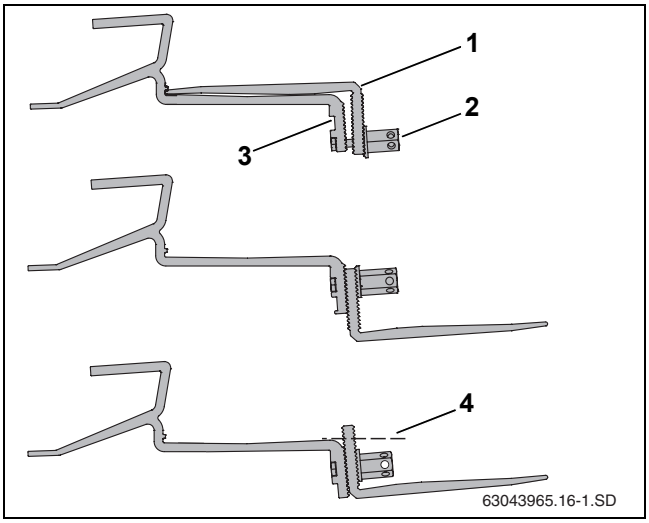


*Fig. 16 Position lower part of roof hook again*

**1** Lower part of roof hook
**2** Long hexagon nut
**3** Upper hole for fastening the lower part
**4** Separate if necessary

**Fitting the roof hook**

**NOTICE:** Building damage due to leaking roof!

- Fit each roof hook in the centre of a flat tile.

If roof hook clearance is reduced, you may trim the lower part of the roof hook between the second and third holes.

- Push down the lower part of the roof hook as much as possible until it comes to rest on the rafter or boards/ planks (Fig. 17, [1]).

The serrated washer (Fig. 18, [2]) must grip the serrations on the lower part of the roof hook.

- Tighten the long hexagon nut (Fig. 18, [1]). To do so, insert the size spanner into the hole in the hexagon nut and turn.
- Secure the lower part of the roof hook to the rafter in at least the first (Fig. 18, [3]) and second holes of the using suitable screws.

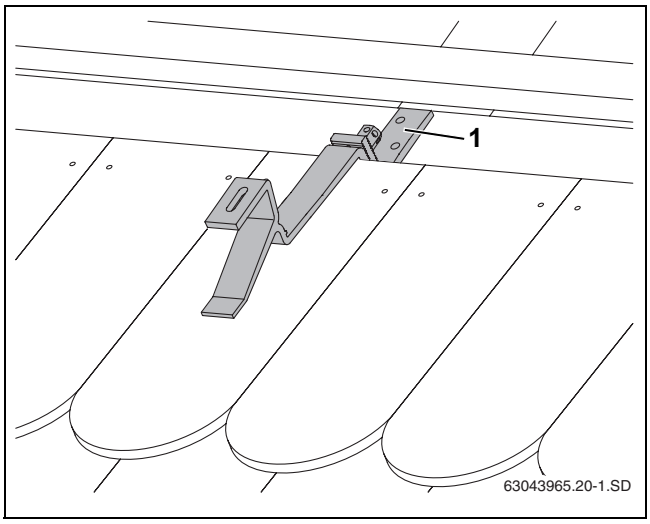


*Fig. 17 Assembled roof hook*

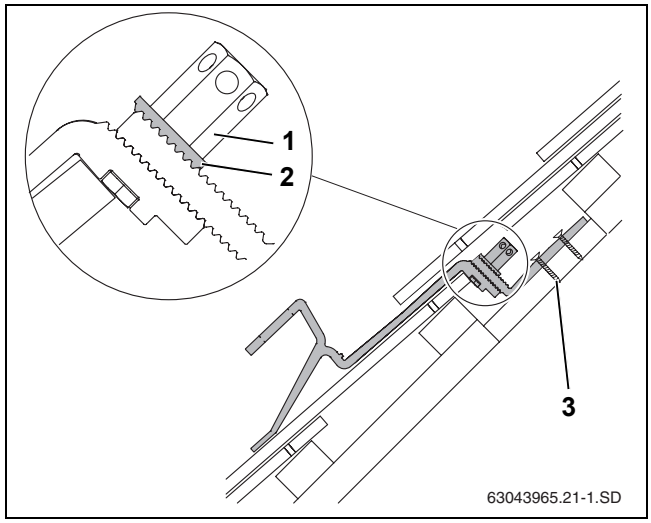


*Fig. 18 Assembled roof hook. View of section with trimmed lower part of roof hook*

**1** Long hexagon nut
**2** Serrated washer
**3** Screws for securing roof hooks

- Cut adjacent flat tiles (Fig. 19, [1]) (dotted line, Fig. 19, [2]).

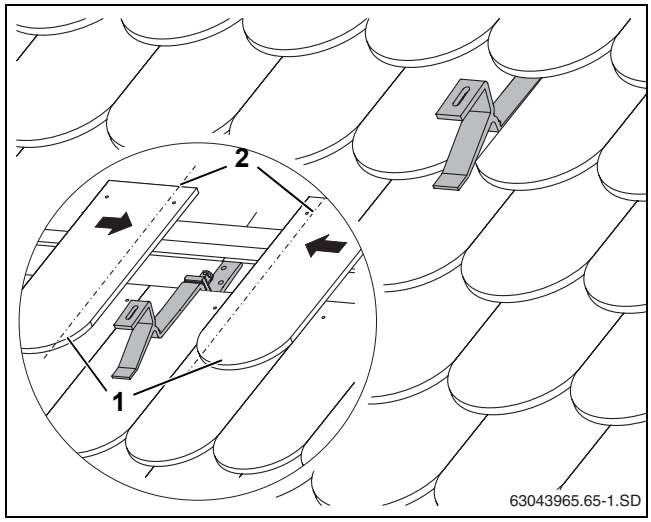


*Fig. 19 Roof hook with covered roof*

## 6.4 Corrugated roof

**DANGER:** Risk to life due to breathing in fibres containing asbestos!

- ▶ Work with materials containing asbestos must only be carried out by experts or persons who have been fully instructed on the correct procedures.
- ▶ The necessary measures laid down by TRGS 519 (Technical Regulations for Hazardous Substances) must be strictly observed.

Instead of roof hooks, fit double ended screws to secure the profile rails.

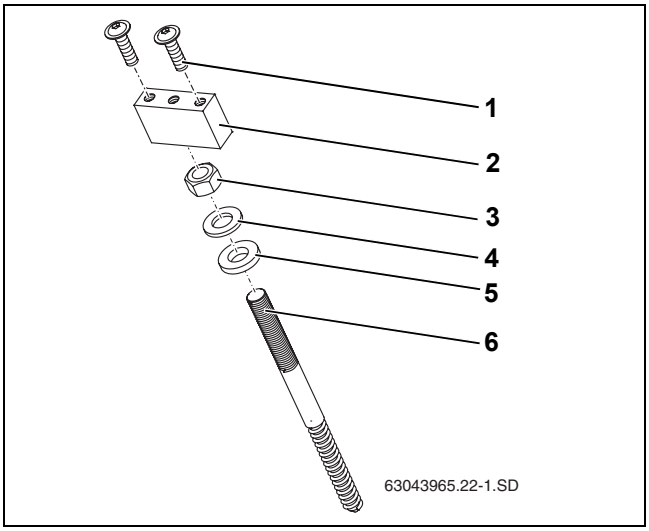


*Fig. 20 Corrugated roof connection*

**1** M8 screw (4x)
**2** Support block (4x)
**3** M12 nut (4x)
**4** Washer (4x)
**5** Sealing disc (4x)
**6** M12 double ended screw (4x)

On corrugated rooftops, the corrugations determine the distance between the double ended screws. During installation, keep in mind the dimensions of the double ended screws (Tab. 4 and Tab. 5, page 13) to be maintained (w, x and y).

**NOTICE:** subframe with inadequate load bearing capacity!

- ▶ Check that the subframe has adequate load bearing capacity. To secure the double ended screws, timber supports at least 40 x 40 mm thick are required.
- ▶ If necessary, install additional timber supports in order to comply with the measurements in Tab. 4 and Tab. 5.

**Other equipment required**

- Cordless screwdriver
- Tape measure
- Wood drill, Ø 6 mm (for length of drill, see paragraph on “Fitting double ended screws”, page 20)
- Metal drill, Ø 13 mm
- Spanner sizes 15 and 19

**Fitting the double ended screws**

Assure that there is a 90º angle when drilling the roof subframe to obtain a flat, level surface between the support block and the profile rail. To do so, we recommend creating a drilling guide or drilling template.

- Use timber support with an approximate length of 0.50 – 1.00 m. Drill a hole (Ø 6 mm) vertically right through the timber support (Fig. 21).

- Determine the length of the drill bit for the wood drill required according to the following calculations.

| | |
|---|---|
| | 90 mm |
| Height of tile peak | + |
| Height of drilling template | + |
| Required wood drill bit length from drill chuck (Ø 6 mm) | = |

*Tab. 6*

**NOTICE:** Building damage due to leaking roof!

- Never drill into a tile valley.

- Drill through the corrugated roof using a metal drill bit (Ø 13 mm), taking into account the positions of the double ended screws (see Tab. 4 and Tab. 5) . Do not drill into the wood beneath!
- Feed wood drill bit (Ø 6 mm) through the template and drill vertically into the subframe (timber support).
- When fitting the double ended screws, pay attention to the sequence of the individual parts (Fig. 22).
- Turn support block (Fig. 22, [1]) as far as it will go onto the double ended screw (Fig. 22, [5]).
- Using the size 15 spanner, turn the pre-assembled double ended screws into the roof until dimension B is achieved (Tab. 7).

When turning the double ended screws, ensure that distance B (Tab. 7 and Fig. 23) is the same for all double ended screws.

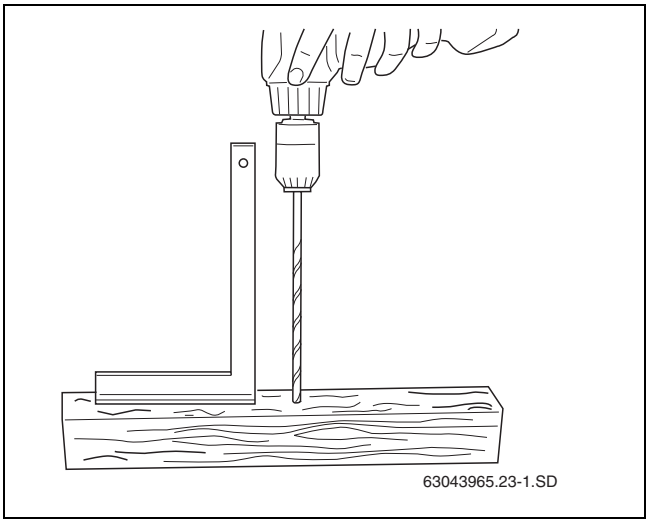


*Fig. 21 Creating a drilling template*

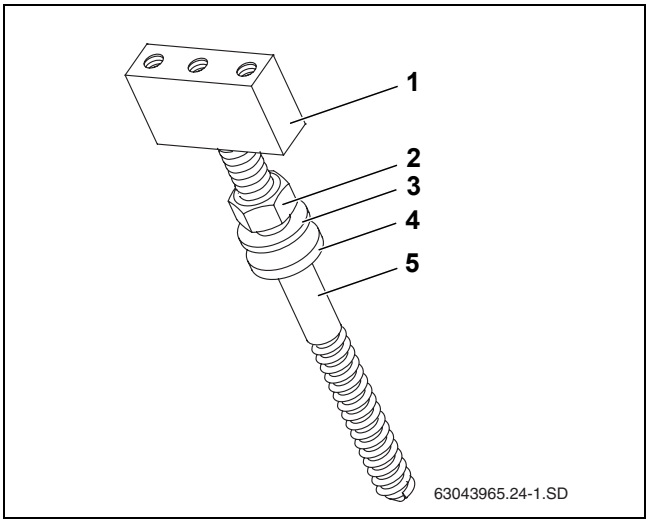


*Fig. 22 Fitting the double ended screws - sequence*

**1** Support block
**2** M12 nut
**3** Washer
**4** Sealing disc
**5** M12 double ended screw

- Tighten the nut (Fig. 23, [2]) until the sealing disc (Fig. 23, [3]) fully touches the roof.

The support block must be turned fully onto the double ended screw.

| Height of tile peak<br>Dimension A | Dimension<br>B |
|---|---|
| 35 mm | 70 mm |
| 40 mm | 65 mm |
| 45 mm | 60 mm |
| 50 mm | 55 mm |
| 55 mm | 50 mm |
| 60 mm | 45 mm |

*Tab. 7 Dimensions for corrugated rooftops. Dimensions according to the height of the corrugated tile peak.*

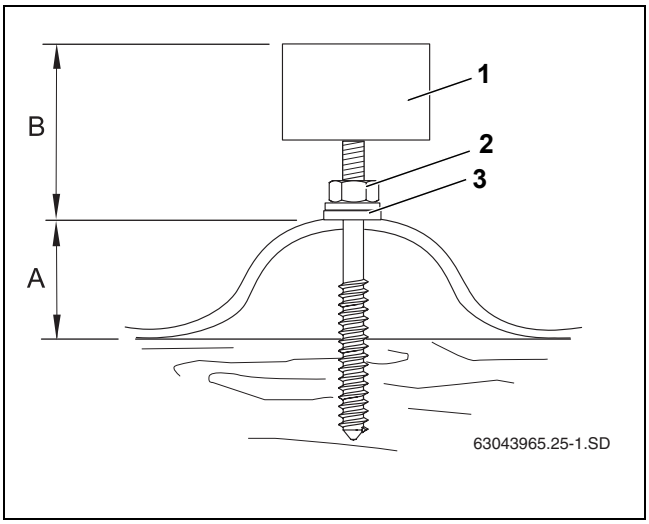


*Fig. 23 Fitting the double ended screws - sequence*

**1** Support block
**2** M12 nut
**3** Sealing disk

**Securing the rooftop profile rails**

- Secure each profile rail (Fig. 24, [2]) with two screws each (Fig. 24, [1]).

The profile rails must not sag due to differences in the rafter levels.

- Use a plumb line to check. If necessary, underlay the profile rails at the support block.

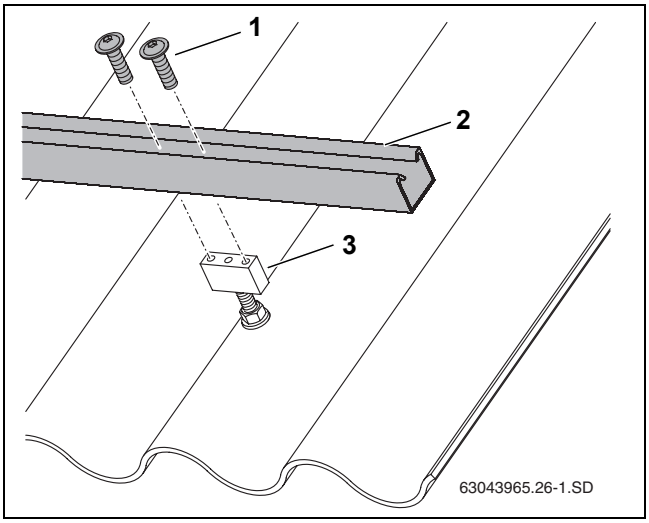


*Fig. 24 Fastening the profile rail to the support block*

**1** Screw
**2** Profile rail
**3** Support block

## 6.5 Slat or batten roofs

Assembly on slat slabs or wood should be carried out by a professional roofer.

The diagrams show the installation of a roof hook for special roofs and a sealed covering with boards to be applied by the customer (Fig. 25, [1] and [2]) on a slat or batten roof.

When installing, take into account the distances to be maintained (w, x e y) between the roof hooks with special fittings for roofs (Tab. 4 and Tab. 5, page 13).

- Secure the special roof hooks (Fig. 25, [5]) and the insulation (Fig. 25, [4]) with the screw (Fig. 25, [6]) to the slat or batten roof.
- To ensure sealed installation, the customer should underlay the special roof hooks with boards(Fig. 25, [1] and [2]).

The special roof hook must be supported by a multiple layers (Fig. 25, [3]).

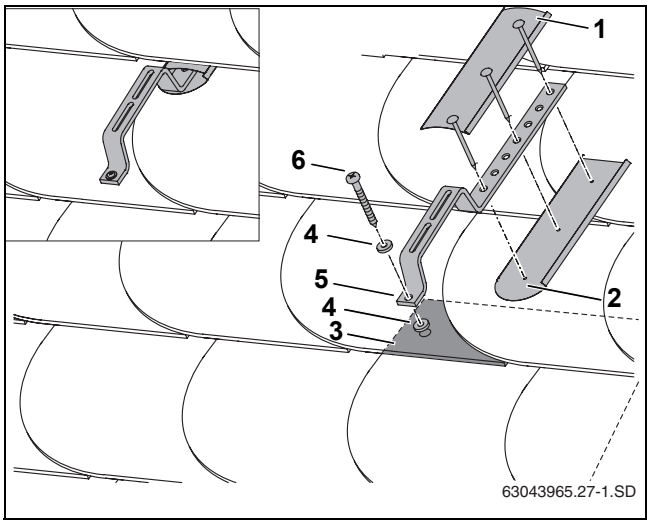


*Fig. 25 Assembly for slat or batten roofs*

**1** Board (lateral side of the building)
**2** Board (lateral side of the building)
**3** View of multiple covers/roofing
**4** Insulation (lateral side of the building)
**5** Special roof hooks
**6** Screw

## 6.6 Corrugated iron roofs

Installation on corrugated roofs should be done by a professional roofer.

Instead of roof hooks, double ended screws should be used (Fig. 26, [5]) to secure the profile rails. During installation, pay attention to the distances to be maintained (w, x and y) between the double ended screws (Tab. 4 and Tab. 5, page 13).

To guarantee that there are no leaks, you must (Fig. 26, [5]) weld sleeves (Fig. 26, [6]), provided by the customer, to the board.

You may consult the assembly sequence of the double ended screws, as well as the recommendations, in chapter 6.4 “Corrugated iron roof” 6.4.

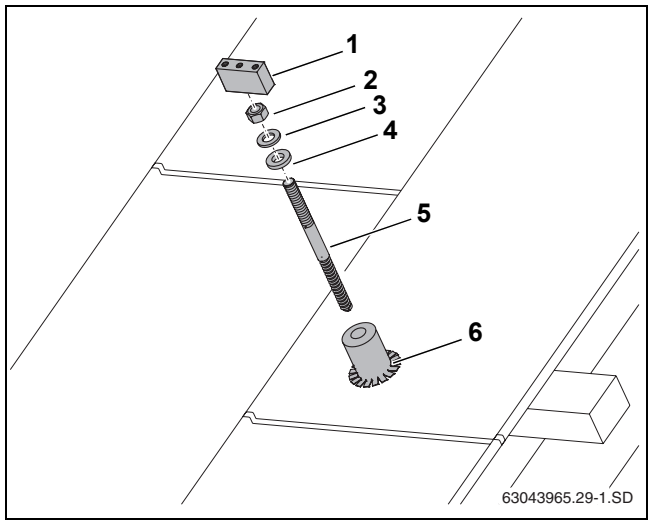


*Fig. 26 Assembly on corrugated rooftop*

**1** Support block
**2** M12 nut
**3** Washer
**4** Sealing disc
**5** M12 double ended screw
**6** Sleeve (installer)

## 6.7 Installing profile rails

The profile rails must be joined together using rail connectors. Each collector has been provided with an upper and lower profile rail.

### 6.7.1 Connecting profile rails

- Push rail connector (Fig. 27, [1]) as far as it will go into both profile rails (Fig. 27, [2]).
- To lock, tighten both fitted M10 threaded studs (Fig. 27, [3]) in the rail connector using a size 5 Allen key.

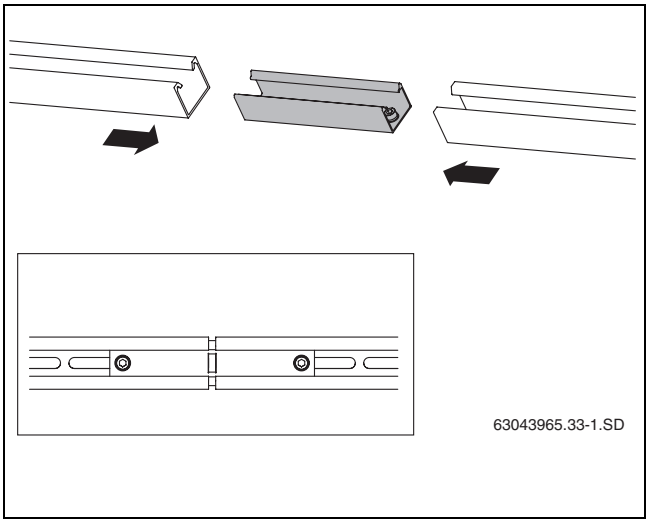


*Fig. 27 Connecting profile rails*

**1** Rail connector
**2** Profile rail
**3** M10 threaded stud

### 6.7.2 Installing profile rails

- Push sliding nut (Fig. 28, [1]) onto the roof hook in the direction of the arrow.
- Place the lower profile rails (Fig. 28, [2]) onto the roof hooks and loosely fasten M8 bolt (Fig. 28, [3]) so that the profile rails can still be aligned.
- Carry out the same procedure for the upper profile rails.

To check the distance between the profile rails, we recommend that you make a tool out of battens.

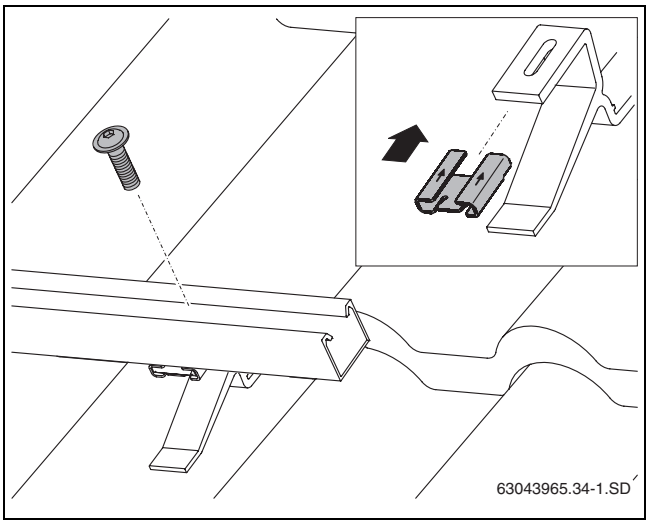


*Fig. 28 Fastening profile rails to the roof hook*

**1** Sliding nut
**2** Profile rail
**3** Bolt

### 6.7.3 Aligning the profile rails

- Align the upper and lower profile rails to the side flush with each other and level them (Fig. 29, use a spirit level).

Measure the diagonals or place a roof batten (Fig. 29, [1]), for example, at the ends of the profile rails. The angle between roof batten and profile rail must be 90°. Align the profile rails over the slotted holes.

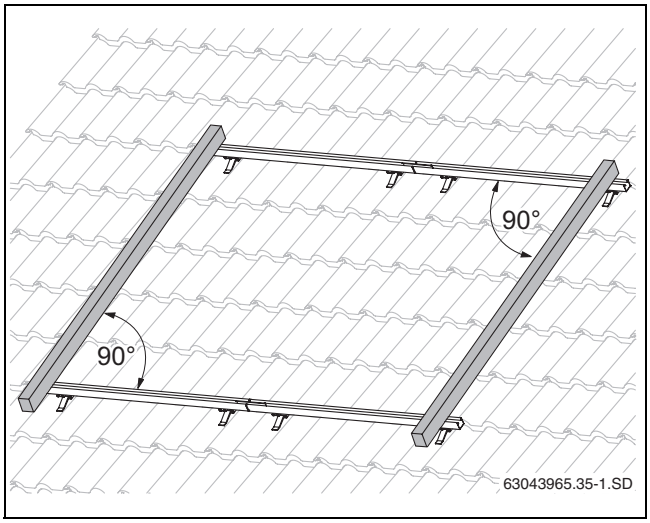


*Fig. 29 Aligning the profile rails*

- Tighten the screws.

The profile rails must not sag due to differences in level of the joists. Check using a plumb line.

### 6.7.4 Installation of anti-slip protection

To prevent the collectors from slipping, you must fasten two anti-slip protectors to the lower profile rails for each collector.

- Push each anti-slip protector (Fig. 30, [3]) into the innermost slotted holes (Fig. 30, [1]) over the profile rails until it clicks into place (Fig. 30, [2]).

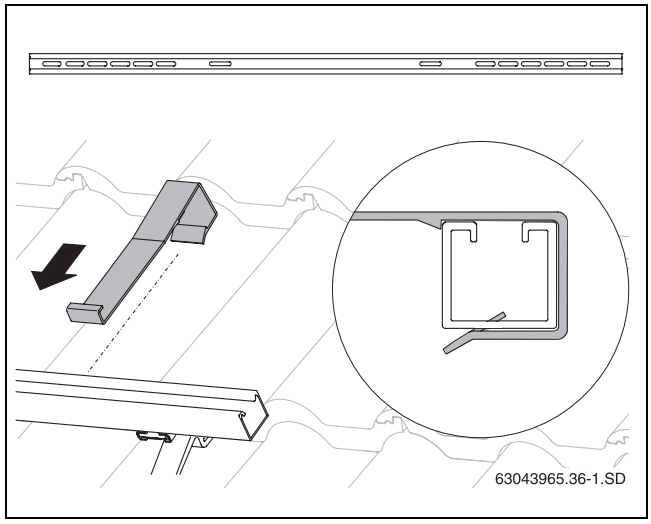


*Fig. 30 Attaching anti-slip protection*

**1** Fixing holes for the anti-slip protection
**2** Clicking the anti-slip protection into place
**3** Anti-slip protection

# 7 Collector installation

Before installing the collectors, observe the following safety instructions and installation information.

**DANGER:** Risk to life due to falling parts!
- Take appropriate action to prevent accidents during all work on roofs.
- Take precautions against possible fall while working on roofs.
- Always wear protective clothing and safety equipment.
- After completing installation, check the installation set and collectors are securely positioned.

**WARNING:** Risk of scalding!
If the collector and installation material have been exposed to sun rays over a long period of time, there is the risk of burns when touching the components.
- Always wear protective clothing and safety equipment.
- Before and during installation, cover the collector (for example with a towel) and the installation material to protect against high temperatures caused by sun rays. We recommend keeping the equipment covered until the system is commissioned.

**DANGER:** Risk of injury due to falling collectors!
- During transport and installation, secure the collectors to prevent them from falling.

**CAUTION:** Risk of injury due to contact with solar fluid!
- Always wear protective clothing when handling solar fluid (gloves and goggles).
- If solar fluid comes into contact with skin, wash skin with soap and water.
- If solar fluid comes into contact with eyes, rinse eyes thoroughly under running water.

**NOTICE:** Risk of damages to property due to the use of inappropriate solar fluid!
- Only use the solar fluid provided by the manufacturer.

**NOTICE:** Risk of system damage due to damaged sealing faces!
- Do not remove the plastic caps on the collector connections until immediately prior to installation.

**NOTICE:** Corrosion on collectors due to the use of drinking water!
Water from swimming pools or drinking water are not appropriate for the collectors' primary circuit. Damage caused by corrosion will invalidate equipment warranty.

**Filling with water**

**NOTICE:** System damage due to low temperatures!
Water can only be used as heat transfer medium, in regions where temperatures are not susceptible to be lower than 5 °C. Damage due to frost will not be covered by warranty.

**Conditions for using water**

- In a 2-circuit solar systems the heat transfer medium is in a closed circuit separated from the DHW without contact to the ambient air. Water should not be exchanged.
- The continues refill of the system should be avoided! In cases of pressure losses in the system, the reason have to be detected and resolved. Using of automatic refill systems is forbidden.

| Characteristic | Value |
|---|---|
| pH | 7.5 - 9.0 |
| Electric conductivity | 100 - 1500 µS/m |
| Chloride | max. 30 mg/l |
| Sulphate ionic concentration | < 1,5 |

*Tab. 8*

**Additional precautions to be observed during installation:**

- Avoid scratches or sudden impacts on the glass cover of the solar panel.
- Never step on the collectors.
- Never weld in the vicinity of the glass surface of the solar panel.
- Use a mobile hoist such as those used by professional roofers or three point suction handles with load bearing capacity or special grippers (facilitating elevation) which can be obtained as an additional accessory for installation.
- Check that the collector is installed with the probe positioned in the upper right corner.
- Only qualified tradespersons should install these collectors. Glazing cannot be replaced onsite.

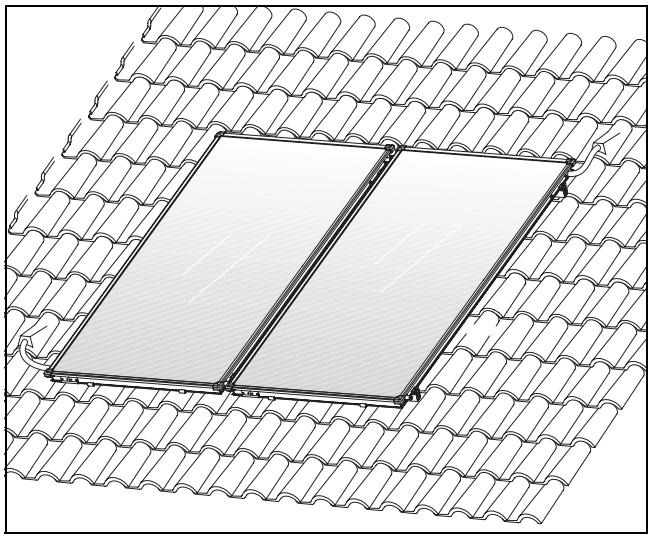

*Fig. 31 View of collectors installed on the roof*

## 7.1 Pressure loss

| Pressure loss for fluid temperatur of 20 °C ± 2K (Water) | | | | | | |
|---|---|---|---|---|---|---|
| Flow(kg/min) | 3,8 | 3,0 | 2,2 | 1,4 | 0,6 | 0,0 |
| Pressure loss (mbar) | 14,6 | 10,5 | 6,9 | 3,9 | 1,4 | 0,0 |

*Tab. 9*

## 7.2 Preparing to install collectors

Before beginning actual installation on the roof, pre-assemble the short solar hoses and dummy plugs on the ground to make work on the roof easier.

To secure the solar hoses, hose clips should be fixed with the locking ring.

**NOTICE:** System damage due to leaking solar hoses!

- It is very important that the hose clip is positioned correctly before removing the locking ring (Fig. 32, itm 1 and 2). Subsequent loosening using pliers can impair resilience.

**CAUTION:** Risk of injury!

- Only tighten the locking ring once the hose clip is positioned over the solar hose.

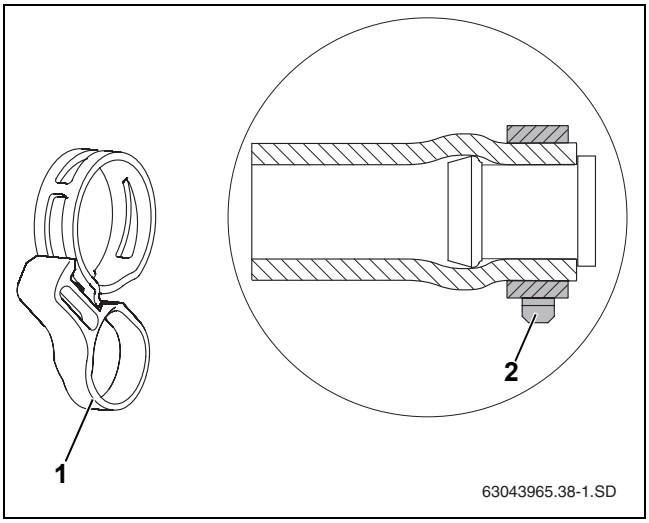


*Fig. 32 Hose clip with locking ring fixed to the pre-assembled dummy plug*

**NOTICE:** Reduction of efficiency!

Condensation on collector glass surface.

- When applying insulation to solar hoses, check that the vent openings are not obstructed.

### 7.2.1 Hydraulic connection according to the Tichelmann principle (non-return)

The pipes in the collector array should follow the Tichelmann principle (Non-return). This guarantees that each collector receives the same flow (Fig. 33).

The flow line may be placed on the right (Fig. 33). In these instructions, the flow line is represented on the right.

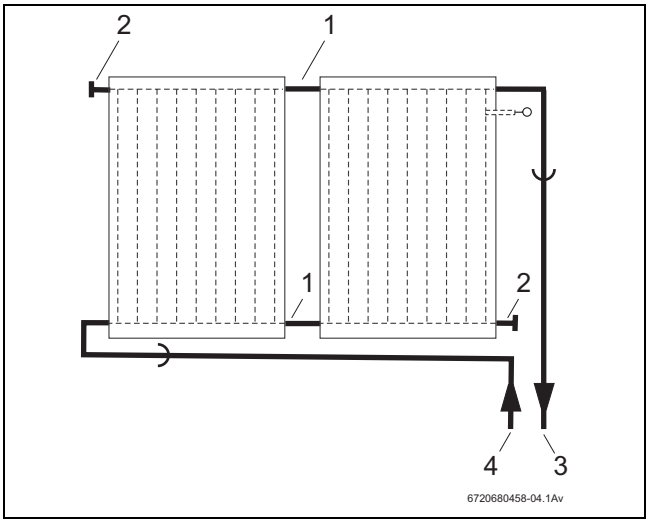


*Fig. 33 Hydraulic connection– flow line on the right*

**1** 95 mm solar hose
**2** 55 mm solar hose and dummy plug
**3** Flow line
**4** Return line

**Diameter of pipework (Fig. 33, [3] and [4]) for < 20 m length**

| No. of collectors | Diameter |
|---|---|
| up to 5 | 18 mm |
| from 6 to 10 | 22 mm |

*Tab. 10*

The collectors should be installed so that the routings of the probe for the reception of the collector probe (Fig. 33) are at the upper right.

When purging the solar installation with an automatic purge (accessory) at the highest point of the installation, you must install a flow line with an inclination which allows the purge and the return line to have an inclination in relation to the collector array.

### 7.2.2 Pre-assembling the joining set

The hydraulic connection between the two collectors is made using the joing set (95 mm solar hoses and hose clips from the transport corners).

Especially in cases of low temperatures, we recommend placing the solar hoses in warm water to facilitate assembly.

The diagrams show the joining set with the first collector being installed on the right.

- Remove plastic caps (transport protection) from the collector connections.
- Push the 95 mm solar hoses (Fig. 34, [2]) to the hoses on the right side of the second collector and then to all other following collectors.
- Push the hose clips(Fig. 34, [1]) over the solar hose (the second clip later secures the connection of the other collector).
- When the hose clip has been correctly fixed, pull the locking ring to secure the connection (Fig. 34, [3]).

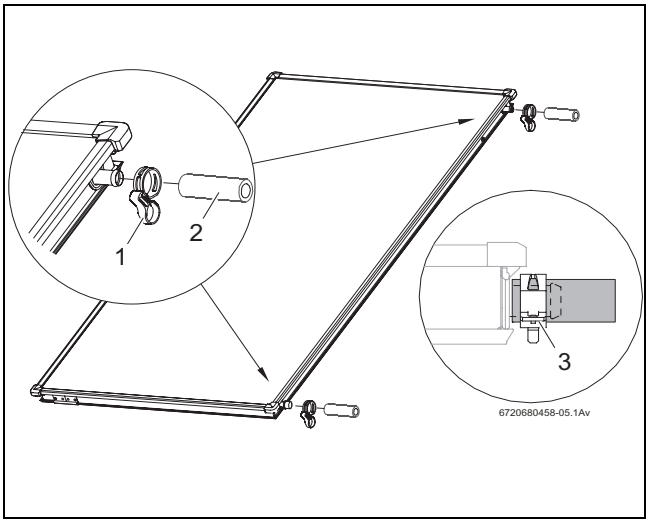


*Fig. 34 Pre-assembly of the joining set on the second collector*

### 7.2.3 Assembling the dummy plug

Not all connections are required for the assembly of the collector array and should therefore be closed.

- Remove plastic caps (transport protection) from collector connections.
- Place the 55 mm solar hoses (Fig. 35, [2]) with the pre-assembled dummy plug over the two free connections of the collector array
- When the hose clips are correctly fixed, tighten the locking ring to secure the connection.

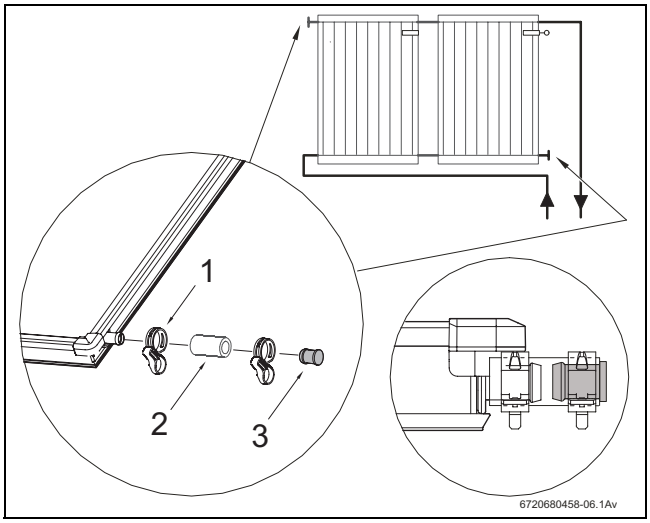


*Fig. 35 Assemble the dummy plug and the hose clip*

**1** Hose clip
**2** 55 mm solar hose
**3** Dummy plug

## 7.3 Securing the collectors

The collectors are secured to the profile rails by the side collector tensioner (Fig. 36, [2]) at the beginning and at the end of a line of collectors and the central collector tensioners (Fig. 36, [1]) between the collectors.

In addition, the anti-slip brackets prevent the collector from slipping.

The plastic parts on the collector tensioners do not have support functions. They are designed to facilitate installation.

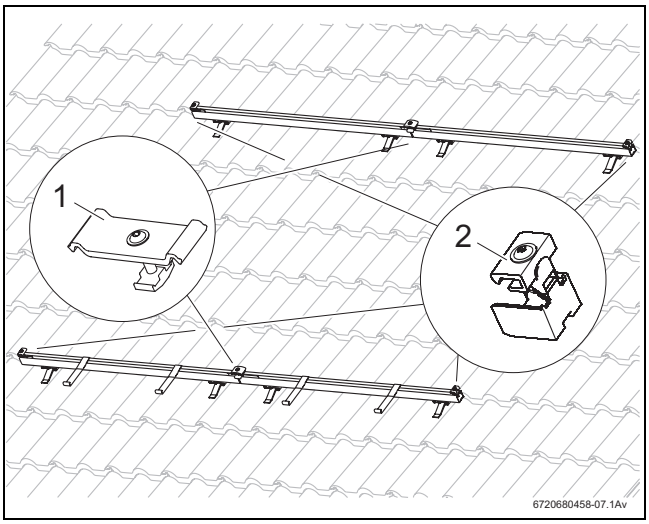


*Fig. 36 Collector fixing elements*

**Inserting the lateral collector tensioner on the right**

- Insert the side collector tensioner on the profile rails (Fig. 37, [1]) on the far right of the collector array until the profile rails fit into the first oblong hole.

Only assemble the left hand side collector tensioner to the collector array after assembling the last collector.

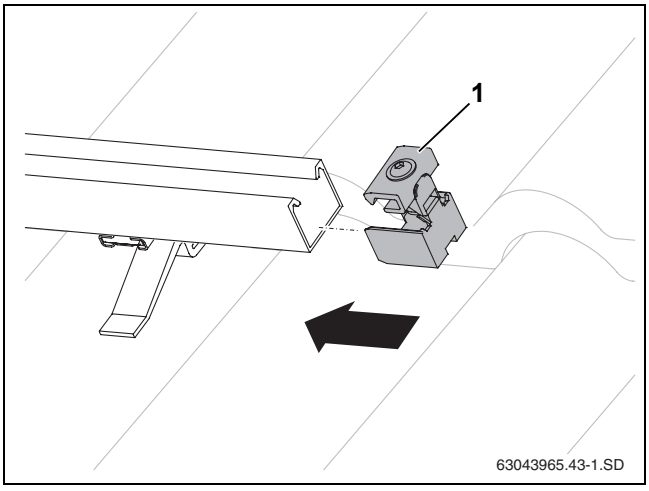


*Fig. 37 Fitting the lateral collector tensioner*

**Securing the first collector**

Secure the collector in such a way that the probe passage is above the collector probe slot. Start securing the collectors to the profile rails on the right side.

**CAUTION:** Risk of injury!

- Collectors must always be assembled by two people.

- Place the first collector on the profile rail and insert anti-slip brackets (Fig. 38).

Position the lower collector edge in the aperture of the anti-slip bracket (Fig. 38, [1]).

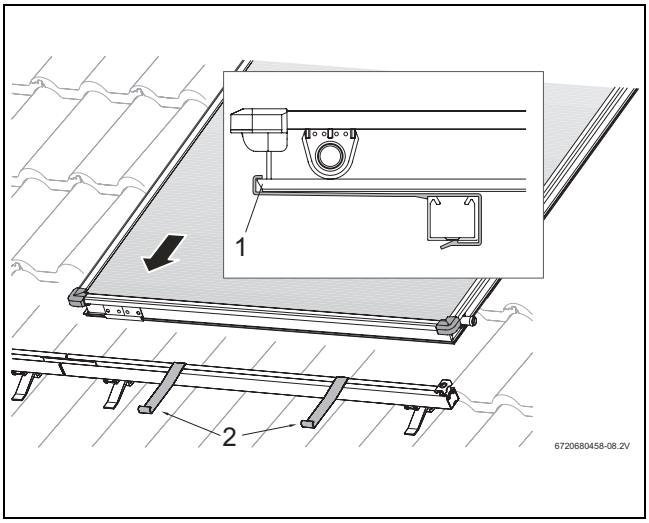


*Fig. 38 Lay the first collector on the profile rails*

- Push(Fig. 39, [1]) the collector carefully up against the side collector tensioner and align horizontally.
- Tighten the side collector tensioner with the size 5 spanner (Fig. 39, [2]).

When the screw is tightened, the plastic lugs at the pre-determined cut-off points and breaks away.

The tensioner device (Fig. 39, [2]) now secures the lower corner of the collector.

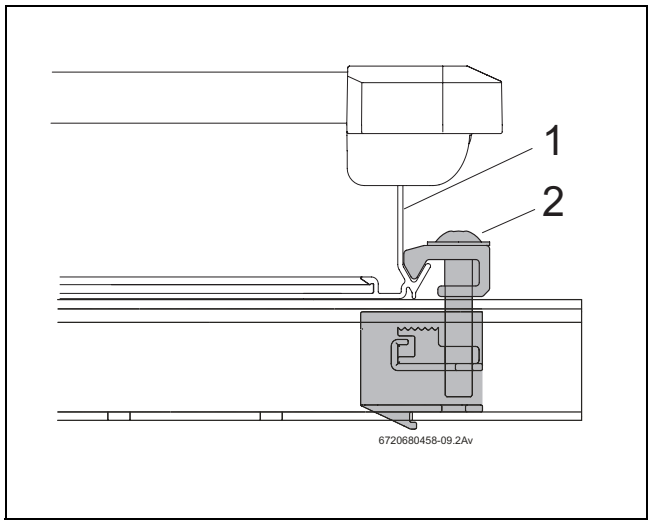


*Fig. 39 Threaded side collector tensioner*

**Setting the central collector tensioner**

- Place the collector tensioner with the attached nut in the aperture of the profile rail and joiner (Fig. 40, [1]) in such a way that it surrounds the profile rail.
- Push the collector tensioner up against the collector frame.

Do not tighten the screw until the second collector is pushed up against the central collector tensioner.

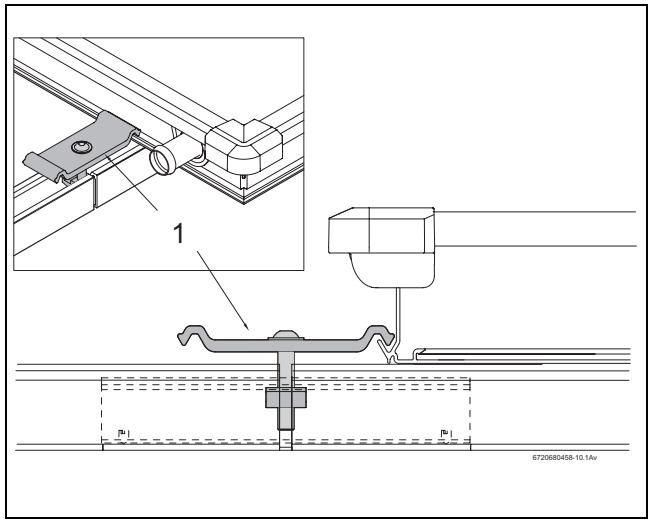


*Fig. 40 Fitting the central collector tensioner*

**Positioning the second collector**

- Place the second collector with the pre-assembled solar hoses (Fig. 41, [1]) on the profile rails and let it slide into the anti-slip brackets.
- Push the second hose clip (Fig. 41, [3]) over the solar hose.
- Push the second collector up against the first collector (Fig. 41, [2]) in such a way that the pre-assembled solar hoses are pushed onto the left hand connections of the first collector.

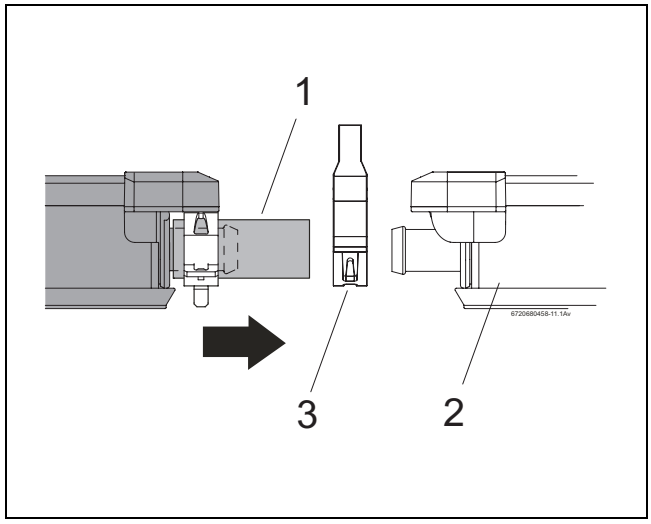


*Fig. 41 Pushing the second collector towards the first*

- Push the hose clip over the bead on the collector and tighten the locking ring.

**NOTICE:** System damage due to leaking hose connections or loose dummy plugs!

- Secure solar hoses to the collector connection with a hose clip (Fig. 42).

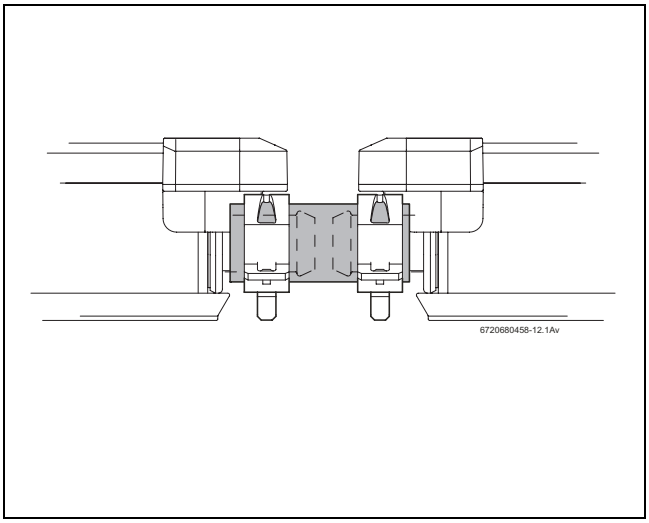


*Fig. 42 Solar hose with secured hose clips*

- Tighten the screw on the collector tensioner with a size 5 spanner.

When the screw is tightened, the plastic lugs at the pre-determined cut-off points break away.

The tensioner device (Fig. 43, [1]) now secures the lower corner of the collector.

Follow the same procedure with all other collectors.

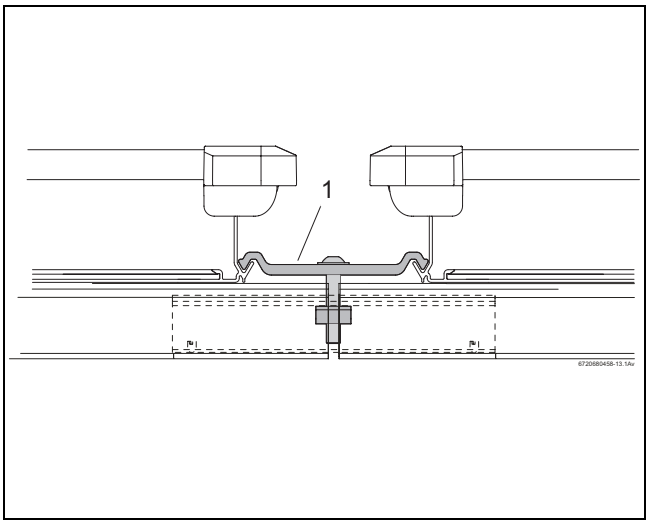


*Fig. 43 Central collector tensioner between two collectors*

**Installing the side collector tensioner on the left**

When the two collectors are installed, the other lateral collector tensioners can be secured.

- Push the side collector tensioner (Fig. 44, [1]) into the ends of the upper and lower profile rails.
- Push the collector tensioner up against the collector frame and secure in place with a size 5 spanner (Fig. 44, [2]).

When the screw is tightened, the plastic lugs at the pre-determined cut-off points and breaks away.

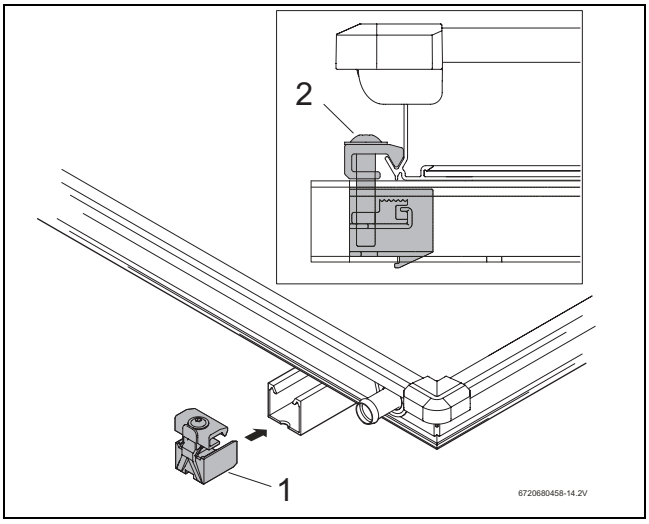


*Fig. 44 Side collector tensioner on the left*

# 8 Connecting the collector probe

The collector probe is next to the complete station, i.e. next to the regulation .

Pay attention to the mounting location of single or double row collector systems (Fig. 45, [1]).

**NOTICE:** System damage due to faulty probe cable!

- Protect the cable from possible damage (for example, rodents).

**Mounting location**

The collector probe must be mounted with flow pipework connected (Fig. 45, [2]).

- Mounting location (Fig. 45, [A]) for the side collector systems with flow pipework on the right.

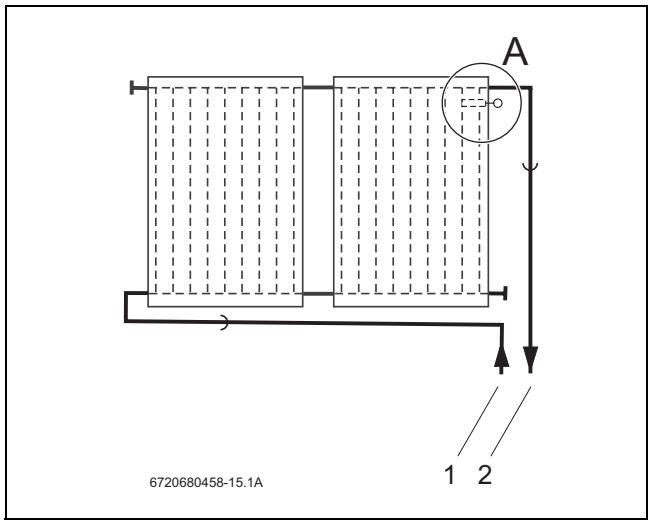


*Fig. 45 Mounting location for the collector probe (schematic view)*

**1** Return pipework
**2** Flow pipework

**Mounting the collector probe**

To guarantee optimum performance of the solar installation, the collector probe (Fig. 46, [1]) must be pushed until it fully touches the probe guide pipe (corresponding to aprox. 160 mm).

- Drill a hole in the lining layer with the probe collector or with a screwdriver (Fig. 46, [2]).
- Insert the collector probe aprox. 160 mm into the probe guide tube/pipe (as far as it can go).

If a hole has been drilled into the probe passage (Fig. 46, [2]) of a wrong collector, it should be sealed with a plug from the joining set.

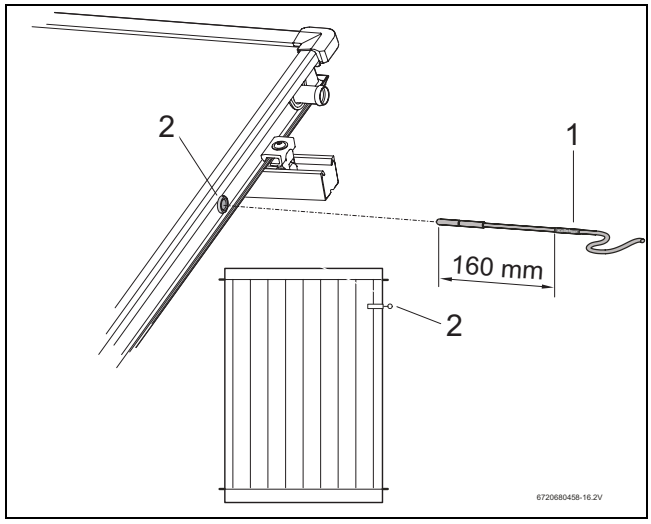


*Fig. 46 Push the collector probe into the collector*

**1** Collector probe
**2** Collector probe passage

# 9 Connecting the collector pipes

Information concerning the installation of the collector pipes can be found in the instructions of the complete station.

The hydraulic connection of the collector pipes is done through the long and flexible solar hoses. Do not directly connect a hard collector pipe to a collector.

Use the standard purging chambers or the antenna passages to run the the connection cables (solar hoses) under the roof.

We recommend using the services of experts to install the collector pipes under the roof.

Run the probe cable together with the outlet pipes through the ventilated roof toile under the rooftop.

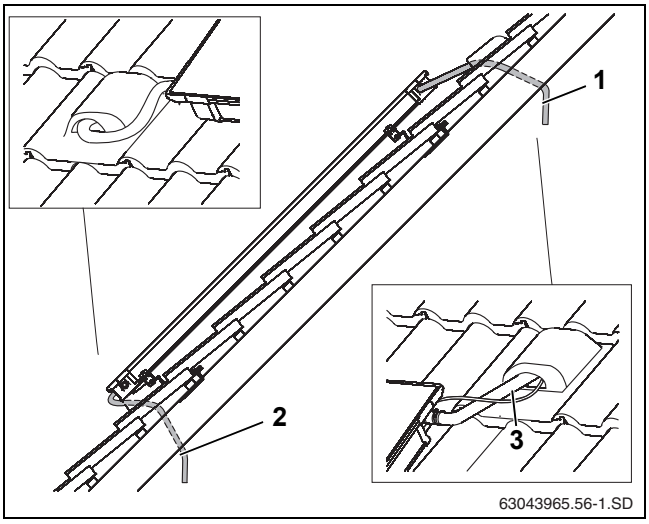


*Fig. 47 Run the cables under the rooftop*

**1** Flow pipework
**2** Return pipework
**3** Probe cable

## 9.1 Without purging device (Purge through filling under pressure)

When the solar installation purge is carried out with an air pump, a purging device on the rooftop is not required.

- Connect the solar hose (1000 mm, Fig. 48, [3]) to the collector array flow connection and secure with hose clip (Fig. 48, [4]).
- Fit the end of the hose into the solar hose with the threaded locking ring (Fig. 48, [2]) as far as it can go and secure with hose clip.
- Run the hose together with the probe cable along the ventilated tile (Fig. 47, [1]) and through the rooftop insulation.
- Connect the collector pipe to the end of hose R¾ with threaded locking ring (18 mm) (Fig. 48, [2]). Follow the same procedure for the return connection.

**NOTICE:** System damage due to leaking!
- Check sealing of all connections.

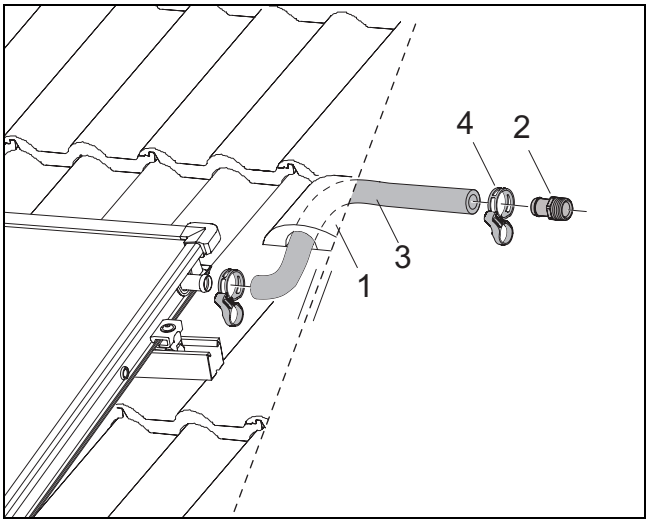


*Fig. 48 Assemble the flow pipework (without purging device on the rooftop)*

**1** Ventilated tile
**2** End of R¾ hose with threaded locking ring
**3** 1.000 mm solar hose
**4** Hose clip with locking ring

## 9.2 With purging device on rooftop (accessory)

When you wish to purge the solar installation with the automatic purging device (accessory) at the highest point of the installation, you must install the flow pipework with an inclination from the purge (Fig. 49, [2]) and the return pipework with an inclination with regards to the collector array (Fig. 49).

Avoid frequent changes of direction.

Whenever there is a change from a downward direction to an upwards direction, we recommend the installation of an additional air chamber with a purging device.

If there is not enough room to install an automatic purging device, you must install a manual purging device.

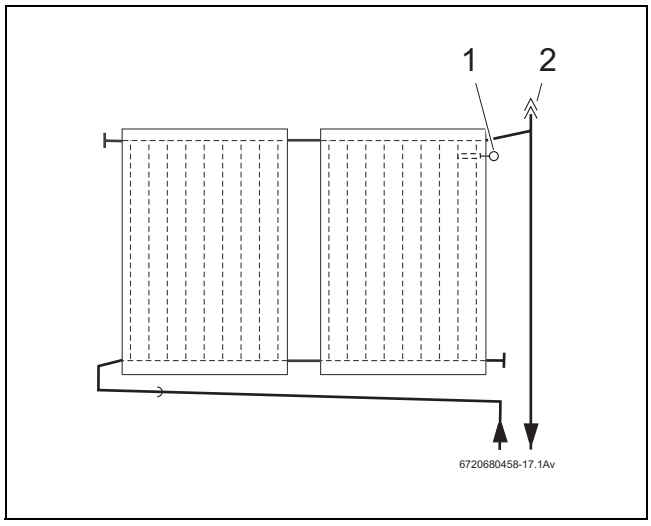


*Fig. 49 Diagram of air chamber with purging device for flow connection*

**1** Collector probe
**2** Automatic rooftop purging device

In solar installations we recommend the use of metal purges because they are resistant to temperatures.

**Function of double ended screws and protection cover of the automatic purge**

The solar installation is purged by means of the open double ended screws. When in service, and in order to prevent humidity from entering the solar installation due to the open double ended screw, the protection cover (Fig. 50, [1]) should always be placed over the double ended screw.

Open the purging device by loosening the double ended screw.

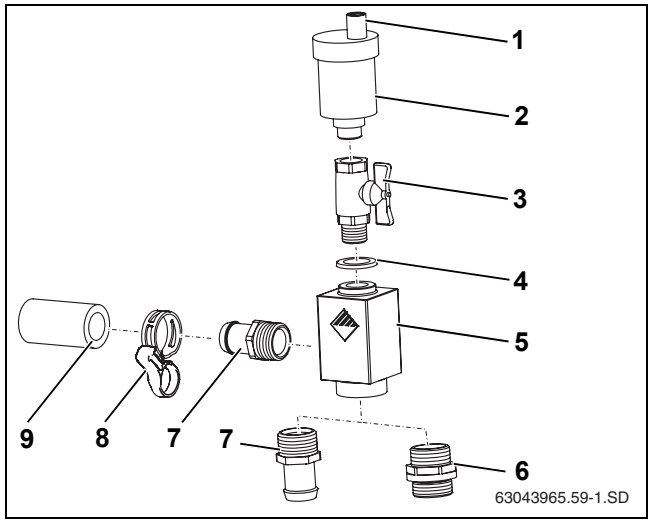


*Fig. 50 Standard purge set*

| | | |
|---|---|---|
| **1** | Protection cover against bad weather | 1x |
| **2** | Automatic purging device | 1x |
| **3** | Ball tap | 1x |
| **4** | Sealer | 1x |
| **5** | Purging chamber | 1x |
| **6** | Barrel nipple | 1x |
| **7** | Hose end with O-ring | 2x |
| **8** | Hose clip | 2x |
| **9** | 55 mm solar hose | 1x |

### 9.2.1 Mounting the purging device under the rooftop

- Fix the long solar hose (1000 mm, Fig. 51, [2]) to the flow connection of the collector array and secure with hose clip.
- Route the hose together with the probe cable along the ventilated tile (Fig. 51, [1]) and along the rooftop insulation.

Follow the same procedure for the return connection.

- Tighten the hose end reducer R¾ with the O-ring and the (Fig. 51, [5]) and the barrel nipple with the O-ring (Fig. 51, [3]) in the air chamber (Fig. 51, [4]).
- Push the hose end as far as it can go into the solar hose and fix with hose clip (Fig. 51, [6]).

The hose terminal must be mounted on the long solar hose on the return connection with the locking ring threaded connection from the joining set.

- Connect the collector pipes to the locking ring threaded connection (Fig. 51, [3]).

**NOTICE:** System damage!

- Remove the accessory pieces from the hose clip to guarantee the sealing of the connection.

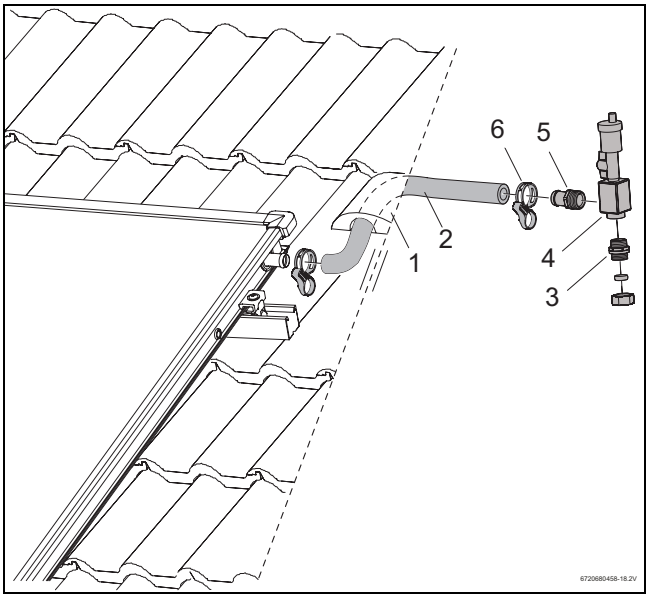


*Fig. 51 Assemble the solar hose to the flow connection*

**1** Ventilated tile
**2** 1.000 mm solar hose
**3** Barrel nipple with O-ring
**4** Air chamber
**5** R¾ hose end with O-Ring
**6** Hose clip

### 9.2.2 Mounting the purging device on the rooftop

- Fix the solar hose (55 mm, Fig. 52, [1]) to the flow connection of the collector array and fix to hose clip.
- Tighten the R¾ hose terminals with the O-rings (Fig. 52, [3]) in the air chamber (Fig. 52, [4]).
- Insert the hose ends(Fig. 52, [3]) as far as they can go into the solar hose (Fig. 52, [1] and [5]) and secure with hose clip (Fig. 52, [2]).
- Push the double ended screw of the locking ring into the solar hose (Fig. 52, [6]) until it touches the hose clip.
- Route the solar hose, together with the solar probe, along the ventilated tile (Fig. 52, [7]) and along the rooftop insulation.
- Connect the collector pipe to the hose terminal with the locking ring threaded connection (18 mm) (Fig. 52, [6]).

Mount the hose terminal on the long solar hose with the threaded locking ring of the connection set.

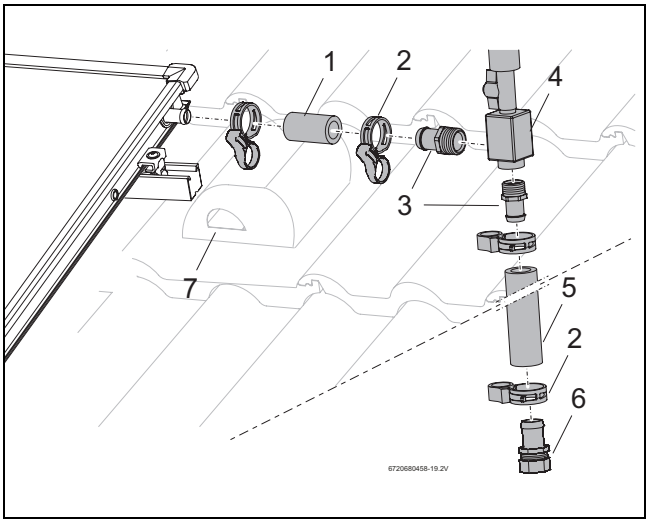


*Fig. 52 Connecting the purging device on the roof top*

**1** 55 mm solar hose
**2** Hose clip
**3** R¾ hose end with O-Ring
**4** Air chamber
**5** 1.000 mm solar hose
**6** 18 mm hose end with threaded locking ring
**7** Ventilated tile

# 10 Brief instructions for flat tiled rooftops without purging device

These instructions have the purposes of providing an overview of the work to be carried out. Please observe the description of each task in the pages indicated as well as all the safety instructions as well as those provided for the installer.

**Mounting roof hooks and profile rails**

| | | |
|---|---|---|
| 1. | Turn the lower part of the roof hook towards the roof and according to the distances defined (chapter 6.1 "Determining distances", page 13) suspend the entire roof hook in a tile valley. | pag. 13 |
| 2. | Push the lower part of the roof hook towards the roof and tighten the screw connection. | |
| 3. | Connect the rail profiles with the slot | |
| 4. | Fix the profile rails to the roof hooks. | |
| 5. | Align the profile rails horizontally andlaterally. | |
| 6. | Mount anti-slide brackets in both oblong slots/ holes inside the lower profile rails. | |

**Prepararing the installation of the collector**

| | | |
|---|---|---|
| 7. | Mount the solar hoses (95 mm) on the r.h. of the second collector and of all the following | pag. 26 |
| 8. | Place the pre-assembled dummy plugs on the unnecessary connections and fix with hose clip. | |

**Securing the collectors**

| | | |
|---|---|---|
| 9. | Push the single sided collector tensioners on the r.h. of the collectors. | pag. 29 |
| 10. | Place the first collector on the r.h. of the profile rails and push towards the collector tensioner. | |
| 11. | Tighten the r.h collector tensioner. | |
| 12. | Place the central collector tensioner on the profile rail and push the first collector. | |
| 13. | Push the second collector with the pre-assembled hoses towards the first collector and fix with the hose clip. | |
| 14. | Tighten the central collector tensioners screws. | |
| 15. | Follow the same procedure for all the other | |
| 16. | Mount the side collector tensioner on the l.h. | |

**Connecting the collector pipes**

| | | |
|---|---|---|
| 17. | Push and tighten the collector tensioner until the end in the collector with the flow pipework on. | pag. 33 |
| 18. | Push the long solar hoses until the flow and return connections and fix with hose clip. | |
| 19. | Insert double ended screws in the solar hoses and fix with hose clips. | |
| 20. | Route solar hose together with the probe cable along the ventilated tile and the roof insulation. | |
| 21. | Check the installation. | |
| 22. | Insulate the collector pipes with material resistant to UV and high temperatures. | |

*Tab. 11*

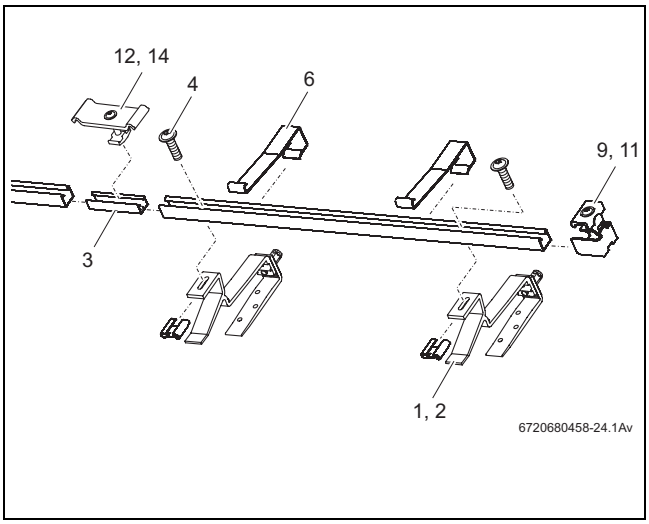


*Fig. 53 Assembly on the rooftop*

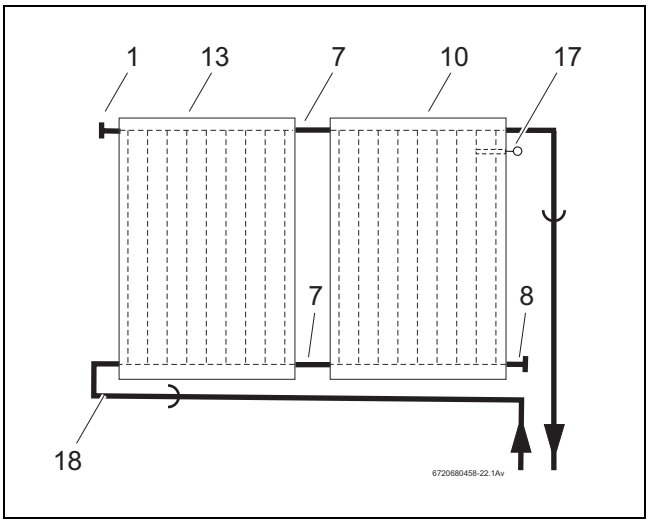


*Fig. 54 Hydraulic connection (maximum of 10 collectors)*

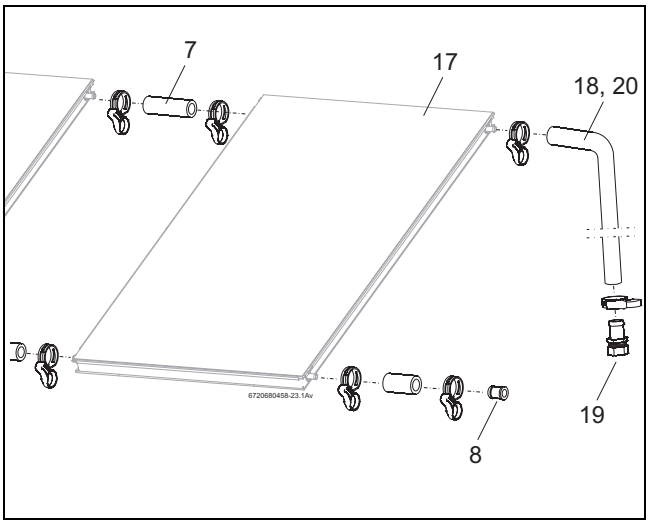


*Fig. 55 Mounting the collector probe and collector pipes*

# 11 Mounting the double-row connection set (accessory)

The connection set is available as an accessory (Fig. 56, [8]) and connects double-rows of collectors.

The diagram below is valid for a maximum of 5 collectors in each row.

Assemble all connection parts to the collectors on the ground.

**Content of supply/delivery**

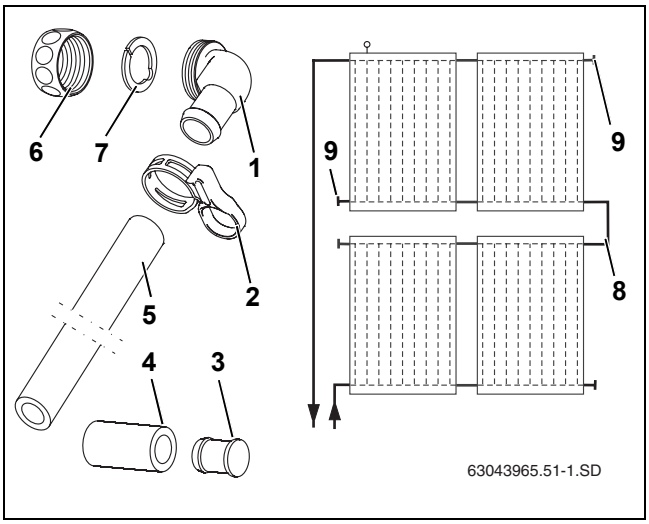


*Fig. 56 Schematic view and supply*

| | | |
|---|---|---|
| **1** | Terminal angular | 2x |
| **2** | Hose clip | 2x |
| **3** | Dummy plug | 2x |
| **4** | 55 mm solar hose | 2x |
| **5** | 1.000 mm solar hose | 1x |
| **6** | G cap nut 1 | 2x |
| **7** | Locking ring | 2x |

**Mounting the additional dummy plug**

Use a dummy plug to close the collector connections which will not be used (Fig. 57, [1]).

- Insert the 55 mm solar hoses(Fig. 57, [3]) with the pre-assembled dummy plug in the two free connections.
- When the hose clips are correctly fixed, pull the locking rings to secure the connection.

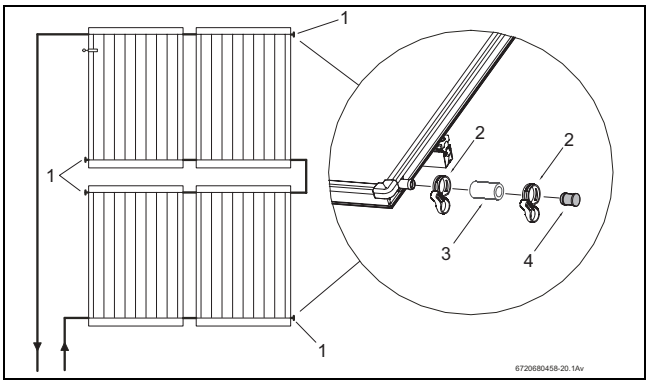


*Fig. 57 Mounting the pre-assembled dummy plugs*

**Mounting the connection set**

- Release the plastic plugs (transport protection) from the collector connections.
- Push union nut (Fig. 58, [1]) over the collector union.
- Place collector bracket (Fig. 58, [2]) behind the collector connection stiffener.
- Press collector bracket with O-ring (Fig. 58, [3]) onto the connection, align and secure with a union nut.
- Measure the distance between the angular peaks (measurement X) on the collectors and trim the hose (Fig. 58, [5]) accordingly.
- Insert solar hoses in collector brackets and secure with hose clip (Fig. 58, [4]).

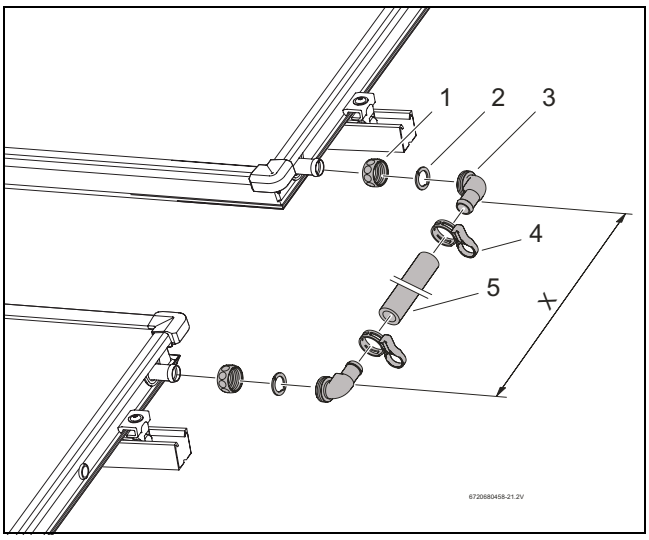


*Fig. 58 Connection set between two rows of collectors*

# 12 Checks following commissioning and maintenance

Only carry out the final insulation work when the points in the checklist have been ticked off.

## 12.1 Check-list

| | | |
|---|---|---|
| 1. | Solar hoses secured with hose clips (locking rings pulled)? | ☐ |
| 2. | Screws on the collector tensioners (side and central) tightened? | ☐ |
| 3. | Profile rails secured with roof hooks and sliding nuts? | ☐ |
| 4. | Anti-slide brackets installed and clicked into place in the profile rail? | ☐ |
| 5. | Probe inserted as far as it can go (membrane with holes)? | ☐ |
| 6. | Pressure test carried out and all connections sealed? (see complete station instructions)? | ☐ |

*Tab. 12*

When purging the solar installation with an automatic purging device (accessory), you must close the ball tap after the purging process (see complete station installation instructions).

## 12.2 Insulation of the connections and collector pipes

**Insulation of the manifolds in internal and external installations**

- When insulating external pipework, use materials that are resistant to UV and high temperatures.
- When insulating internal pipework, use materials that are resistant to high temperatures.
- Protect the insulated pipework from birds, if necessary.

# 13 Maintenance

**Solar collector glass**

Ensure the glass on your solar collectors is free of dust, salt spray or any other matter, which may reduce the effectiveness of the solar collectors. Hose or wash the collector glass with water and a soft brush when the solar collectors are cool. Outdoor window cleaning products work well on the collector glass, and may be used to clean the collectors from the ground.
Regularly trim any trees that may shade the solar collectors.

**Installation set and collector**

▸ Check all threaded connections tighten if necessary.

**Solar Fluid**

▸ Check and analyse the frost protection level.

# 14 Environmental protection/ Recycling

Environmental protection is a fundamental corporate strategy of the Bosch Group.
The quality of our products, their economy and environmental safety are all of equal importance to us and all environmental protection legislation and regulations are strictly observed.
We use the best possible technology and materials for protecting the environment taking account of economic considerations.

**Packaging**

In regard to packaging, we participate in country-specific recycling processes that ensure optimum recycling.

All packaging materials are environmentally compatible and can be reused.

**Used appliances**

Used appliances contain materials that should be recycled.

The components are easy to separate and the types of plastic are identified. This allows the various assemblies to be appropriately sorted for recycling or disposal.

# 15 Warranty details

**Your Bosch Hot Water product is guaranteed as follows**

For appliances used in domestic applications, ie. normal hot water drawn from household outlets, the warranty period is six (6) years part and one (1) year labour on the tank only, eight (8) years part and one (1) year labour on the solar collectors only, two (2) years part and one (1) year labour on all other components.

Purchased spare parts are guaranteed for 12 months, replacement only.

For appliances used in commercial applications the warranty period is Twelve (12) months parts and labour.

The warranty period commences from the purchase date. Claims for warranty will only be accepted upon suitable proof of purchase submitted to Robert Bosch (Australia) Pty. Ltd. or an approved Bosch Service Agent authorised to carry out warranty repairs.

**Purchaser‘s statutory rights**

The warranty terms set out below do not exclude any conditions or warranties which may be mandatorily implied by law, and your attention is drawn to the provisions of the Trade Practices Act, 1974, and State legislation which confers certain rights upon consumers. The Robert Bosch (Australia) Pty Ltd warranty supplements these.

**Extract of terms and of delivery and sale**

a) RBAU warrants products marketed by it as free from faults and defects and having the specified qualities according to the respective state of technology. Notwithstanding that the products may have been sold by description or sample the products shall be accepted by the Buyer even though alterations in design or construction have been generally introduced between the date of contract and the delivery of the products

b) The warranty shall be limited to the replacement or repair at the option of RBAU for any defective products and of such parts of RBAU's products as have been damaged in consequence of the defect despite proper treatment. Parts replaced will not be returned.

i) Repairs and maintenance shall not extend the warranty period of the appliance;

ii) the consumer shall be responsible for the return of the defective product to either the place of purchase or an authorised service centre and where applicable;

iii) Costs, and if necessary the expenses of freight, packing and charges of a similar nature;

**Without limiting the generality of these terms of delivery this warranty shall not apply to products sold in the following cases:**

i) if the products sold are repaired or altered by any third party without RBAU's consent;

ii) where parts not manufactured or sold by RBAU are used in and replacement or repair;

iii) if products are not used with proper care and for the purpose for which they are sold and in accordance with any specified instruction for use;

iv) if changes occur in the condition or operational qualities of the products due to incorrect storage or mounting or due to climatic or other influences;

v) in respect of faulty construction or defects due to the use of unsuitable materials if such method of construction or use of material has been specified by the Buyer;

vi) in respect of surface coating and glass damage;

vii) in respect of the replacement of parts when such replacements are part of the normal maintenance, service or normal wear and tear.

No servant or authorised service agent has authority to add to or alter the terms of this warranty.

**PLEASE NOTE:** If a service call is requested and it is found that it is not a manufacturing fault, you will be charged for the call even during the warranty period.

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