

**Vitosol-FM**

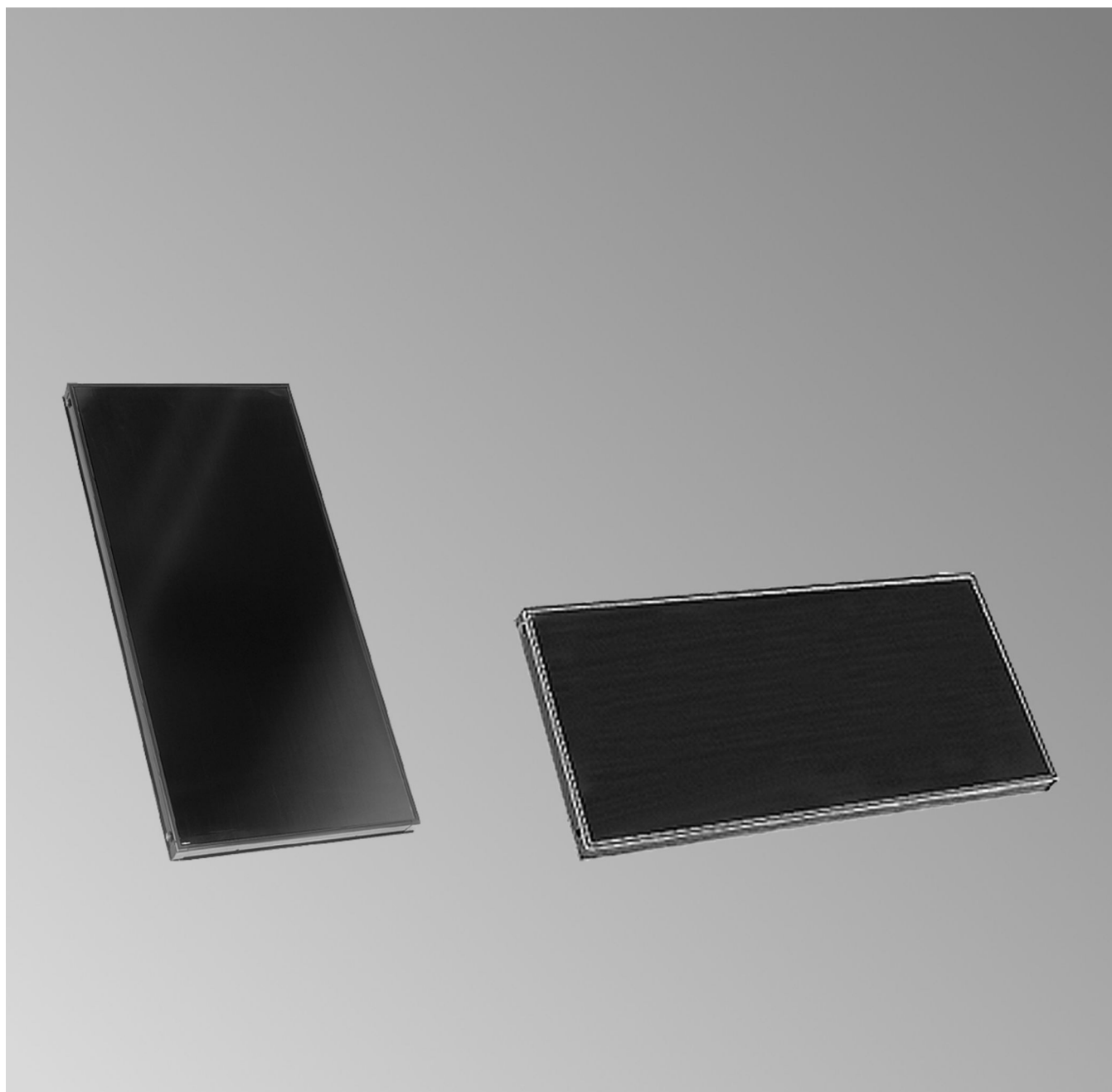
**Type SV and SH**

Flat-plate collector for pitched roofs

Above roof installation with rafter anchors or mounting brackets



**VITOSOL-FM**



## Safety instructions

-  Please follow these safety instructions closely to prevent accidents and material losses.

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### Safety instructions explained

-  **Danger**  
This symbol warns against the risk of injury.

#### **Note**

*Details identified by the word "Note" contain additional information.*

-  **Please note**  
This symbol warns against the risk of material losses and environmental pollution.

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### Target group

These instructions are exclusively intended for authorised contractors.

Work on electrical equipment may only be carried out by qualified electricians.

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### Regulations to be observed

- National installation regulations
- Statutory regulations for the prevention of accidents
- Statutory regulations for environmental protection
- Codes of practice of the relevant trade associations
- Relevant country-specific safety regulations

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### Working on the system

- Isolate the system from the power supply, e.g. by removing the separate fuse or by means of a main switch, and check that it is no longer live.
- Safeguard the system against reconnection.
- Wear suitable personal protective equipment when carrying out any work.



#### **Please note**

Electronic assemblies can be damaged by electrostatic discharge. Prior to commencing work, touch earthed objects such as heating or water pipes to discharge static loads.

-  **Danger**  
Hot surfaces and fluids can lead to burns or scalding.
- Before maintenance and service work, switch off the system and let it cool down.
  - Never touch hot surfaces on the appliance, fittings or pipework.

### Repair work



#### **Please note**

Repairing components that fulfil a safety function can compromise the safe operation of the system.

For replacements, use only original parts from the manufacturer or spare parts approved by the manufacturer.

Install the components with new gaskets.

|                                              |                                           |    |
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## Disposal of packaging

### Disposal of packaging

Please dispose of packaging waste in line with statutory regulations.

## Symbols

| Symbol                                                                              | Meaning                                                                                                                                  |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
|    | Reference to other document containing further information                                                                               |
|    | Step in a diagram:<br>The numbers correspond to the order in which the steps are carried out.                                            |
|    | Warning of personal injury                                                                                                               |
|   | Warning of material losses and environmental pollution                                                                                   |
|  | Live electrical area                                                                                                                     |
|  | Pay particular attention.                                                                                                                |
|  | <ul style="list-style-type: none"><li>▪ Component must audibly click into place.</li><li>or</li><li>▪ Acoustic signal</li></ul>          |
|  | <ul style="list-style-type: none"><li>▪ Fit new component.</li><li>or</li><li>▪ In conjunction with a tool: Clean the surface.</li></ul> |
|  | Dispose of component correctly.                                                                                                          |
|  | Dispose of component at a suitable collection point. Do <b>not</b> dispose of component in domestic waste.                               |

## Intended use

The appliance is intended to be installed and operated only in sealed unvented systems that comply with EN 12828/DIN 1988, or solar thermal systems that comply with EN 12977, with due attention paid to the associated installation, service and operating instructions. DHW cylinders are only designed to store and heat water of potable water quality. Buffer cylinders are exclusively designed to hold fill water of potable quality. Operate solar collectors only with heat transfer medium approved by the manufacturer.

Intended use presupposes that a fixed installation in conjunction with permissible, system-specific components has been carried out.

Commercial or industrial usage for a purpose other than heating the building or DHW shall be deemed inappropriate.

Any usage beyond this must be approved by the manufacturer for the individual case.

Incorrect usage or operation of the appliance (e.g. the appliance being opened by the system user) is prohibited and will result in an exclusion of liability.

Incorrect usage also occurs if the components in the system are modified from their intended use (e.g. through direct DHW heating in the collector).

Adhere to statutory regulations, especially concerning the hygiene of potable water.

## Product information

Vitosol-FM is a highly efficient flat-plate collector for above roof and flat roof installation with ThermProtect automatic temperature-dependent shutdown for a vapour-free, fail-safe solar thermal system.

Absorber designed with meander layout with integral headers. Up to 10 collectors can be linked in parallel.

## System examples

Available system examples:

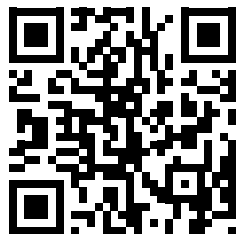
[schematics.viessmann-climatesolutions.com](https://schematics.viessmann-climatesolutions.com)

## Maintenance parts and spare parts

You can identify and order maintenance parts and spare parts directly online.

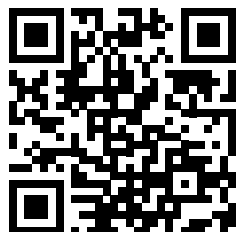
### PartnerShop

[shop.viessmann-climatesolutions.com](https://shop.viessmann-climatesolutions.com)



### ViParts web application

[viparts.viessmann-climatesolutions.com](https://viparts.viessmann-climatesolutions.com)



ViParts spare part app



## Observe prior to installation

For each number of collectors, there is a specific allocated number of rafter anchors or mounting brackets (for use on sheet steel roofs).

When selecting the number of rafters required for installation, take into account the expected snow loads and the rafter spacing.

The following tables specify which rafters the rafter anchors or mounting brackets should be secured to.

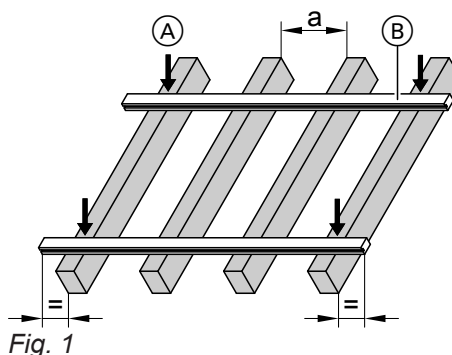
### Example:

- 2 collectors **type SV**
- Rafter spacing a **600 mm**
- Snow load **0.75 N/m<sup>2</sup>**

Combination for 2 collectors (highlighted in grey): See the table on page 8.

Of the **4** rafters, the following are used:

Rafters 1 and 4



- Ⓐ Position of rafter anchors
- Ⓑ Mounting rails

## Type SV (vertical collectors)

### 1 collector

2 rafters are required for **all** snow loads

### 2 collectors

| Rafter spacing in mm | Snow load in kN/m <sup>2</sup> |                |                |                |
|----------------------|--------------------------------|----------------|----------------|----------------|
|                      | ≤ 0.75                         | > 0.75/ ≤ 1.25 | > 1.25/ ≤ 2.55 | > 2.55/ ≤ 4.80 |
| ≤ 600                | 1, 4                           | 1, 3, 4        |                | 1, 3, 4        |
| ≤ 700                |                                | 1, 3           |                | 1, 2, 3        |
| ≤ 800                |                                | 1, 3           |                | 1, 2, 3        |
| ≤ 900                |                                |                | 1, 2, 3        |                |
| ≤ 1000               |                                |                | 1, 2, 3        |                |

### 3 collectors

| Rafter spacing in mm | Snow load in kN/m <sup>2</sup> |                |                |                |
|----------------------|--------------------------------|----------------|----------------|----------------|
|                      | ≤ 0.75                         | > 0.75/ ≤ 1.25 | > 1.25/ ≤ 2.55 | > 2.55/ ≤ 4.80 |
| ≤ 600                |                                | 1, 3, 5        |                | 1, 3, 4, 6     |
| ≤ 700                |                                |                | 1, 2, 4, 5     |                |
| ≤ 800                |                                |                | 1, 2, 4, 5     |                |
| ≤ 900                |                                |                | 1, 2, 3, 4     |                |
| ≤ 1000               |                                |                | 1, 2, 3, 4     |                |

## Observe prior to installation (cont.)

### 4 collectors

| Rafter spacing in mm | Snow load in kN/m <sup>2</sup> |               |                  |               |
|----------------------|--------------------------------|---------------|------------------|---------------|
|                      | ≤ 0.75                         | > 0.75 ≤ 1.25 | > 1.25 ≤ 2.55    | > 2.55 ≤ 4.80 |
| ≤ 600                | 1, 4, 5, 8                     |               | 1, 3, 4, 5, 6, 8 |               |
| ≤ 700                | 1, 3, 4, 6                     |               | 1, 3, 4, 5, 7    |               |
| ≤ 800                | 1, 3, 4, 6                     |               | 1, 2, 3, 4, 5, 6 |               |
| ≤ 900                | 1, 2, 3, 4, 5                  |               |                  |               |
| ≤ 1000               | 1, 2, 3, 4, 5                  |               |                  |               |

### 5 collectors

| Rafter spacing in mm | Snow load in kN/m <sup>2</sup> |                |                     |                |
|----------------------|--------------------------------|----------------|---------------------|----------------|
|                      | ≤ 0.75                         | > 0.75/ ≤ 1.25 | > 1.25/ ≤ 2.55      | > 2.55/ ≤ 4.80 |
| ≤ 600                | 1, 3, 4, 6, 7, 8, 10           |                |                     |                |
| ≤ 700                | 1, 2, 4, 5, 6, 8               |                |                     |                |
| ≤ 800                | 1, 2, 4, 5, 7                  |                | 1, 2, 3, 4, 5, 6, 7 |                |
| ≤ 900                | 1, 2, 3, 4, 5, 6, 7            |                |                     |                |
| ≤1000                | 1, 2, 3, 4, 5, 6               |                |                     |                |

### 6 collectors

| Rafter spacing in mm | Snow load in kN/m <sup>2</sup> |                |                |                |
|----------------------|--------------------------------|----------------|----------------|----------------|
|                      | ≤ 0.75                         | > 0.75/ ≤ 1.25 | > 1.25/ ≤ 2.55 | > 2.55/ ≤ 4.80 |
| ≤ 600                | 1, 3, 4, 6, 7, 9, 11           |                |                |                |
| ≤ 700                | 1, 2, 4, 5, 6, 7, 9, 10        |                |                |                |
| ≤ 800                | 1, 2, 4, 5, 6, 8, 9            |                |                |                |
| ≤ 900                | 1, 2, 3, 4, 5, 6, 7, 8         |                |                |                |
| ≤ 1000               | 1, 2, 3, 4, 5, 6, 7            |                |                |                |

### 8 collectors

| Rafter spacing in mm | Snow load in kN/m <sup>2</sup>  |                |                                   |                |
|----------------------|---------------------------------|----------------|-----------------------------------|----------------|
|                      | ≤ 0.75                          | > 0.75/ ≤ 1.25 | > 1.25/ ≤ 2.55                    | > 2.55/ ≤ 4.80 |
| ≤ 600                | 1, 2, 4, 6, 7, 9, 11, 12, 15    |                | 1, 2, 4, 6, 7, 9, 11, 12, 13, 15  |                |
| ≤ 700                | 1, 2, 4, 5, 6, 7, 9, 10, 11, 13 |                |                                   |                |
| ≤ 800                | 1, 2, 3, 4, 5, 6, 8, 9, 11      |                | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 |                |
| ≤ 900                | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10   |                |                                   |                |
| ≤1000                | 1, 2, 3, 4, 5, 6, 7, 8, 9       |                |                                   |                |

### 10 collectors

| Rafter spacing in mm | Snow load in kN/m <sup>2</sup>                   |                |                                               |                |
|----------------------|--------------------------------------------------|----------------|-----------------------------------------------|----------------|
|                      | ≤ 0.75                                           | > 0.75/ ≤ 1.25 | > 1.25/ ≤ 2.55                                | > 2.55/ ≤ 4.80 |
| ≤ 600                | 1, 3, 5, 6, 7, 8, 10, 11, 12, 14, 15, 16, 17, 19 |                |                                               |                |
| ≤ 700                | 1, 2, 4, 5, 6, 7, 9, 10, 11, 13, 14, 16          |                | 1, 2, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 16   |                |
| ≤ 800                | 1, 2, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14          |                | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 |                |
| ≤ 900                | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13        |                |                                               |                |
| ≤ 1000               | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11                |                |                                               |                |

## Observe prior to installation (cont.)

### Type SH (horizontal collectors)

With 3 collectors or more, the distribution of the rafter anchors on the upper and lower mounting rail may vary.

#### 1 collector

| Rafter spacing in mm | Snow load in kN/m <sup>2</sup> |                |
|----------------------|--------------------------------|----------------|
|                      | ≤ 1.25                         | > 1.25/ ≤ 2.55 |
| ≤ 600                |                                | 1, 4           |
| ≤ 700                |                                | 1, 4           |
| ≤ 800                |                                | 1, 3           |
| ≤ 900                |                                | 1, 3           |
| ≤ 1000               |                                | 1, 3           |

#### 2 collectors

| Rafter spacing in mm | Snow load in kN/m <sup>2</sup> |                |
|----------------------|--------------------------------|----------------|
|                      | ≤ 1.25                         | > 1.25/ ≤ 2.55 |
| ≤ 600                |                                | 1, 4, 5, 8     |
| ≤ 700                |                                | 1, 4, 7        |
| ≤ 800                |                                | 1, 3, 4, 6     |
| ≤ 900                |                                | 1, 3, 4, 6     |
| ≤ 1000               |                                | 1, 3, 5        |

#### 3 collectors

| Rafter spacing in mm | Mounting rail | Snow load in kN/m <sup>2</sup> , to |                   |
|----------------------|---------------|-------------------------------------|-------------------|
|                      |               | ≤ 1.25                              | > 1.25/ ≤ 2.55    |
| ≤ 600                |               |                                     | 1, 5, 9, 13       |
| ≤ 700                | bottom        | 1, 4, 8, 11                         | 1, 4, 5, 7, 8, 11 |
|                      | top           |                                     | 1, 4, 8, 11       |
| ≤ 800                |               |                                     | 1, 4, 7, 10       |
| ≤ 900                | bottom        | 1, 4, 6, 9                          | 1, 3, 4, 6, 7, 9  |
|                      | top           |                                     | 1, 4, 6, 9        |
| ≤ 1000               | bottom        | 1, 3, 6, 8                          | 1, 3, 4, 5, 6, 8  |
|                      | top           |                                     | 1, 3, 6, 8        |

#### 4 collectors

| Rafter spacing in mm | Mounting rail | Snow load in kN/m <sup>2</sup> |                      |
|----------------------|---------------|--------------------------------|----------------------|
|                      |               | ≤ 1.25                         | > 1.25/ ≤ 2.55       |
| ≤ 600                |               |                                | 1, 5, 9, 13, 17      |
| ≤ 700                |               |                                | 1, 4, 7, 8, 11, 14   |
| ≤ 800                |               |                                | 1, 4, 7, 10, 13      |
| ≤ 900                | bottom        | 1, 3, 6, 9, 11                 | 1, 3, 4, 6, 8, 9, 11 |
|                      | top           |                                | 1, 3, 6, 9, 11       |
| ≤ 1000               |               |                                | 1, 3, 5, 6, 8, 10    |

## Observe prior to installation (cont.)

### 5 collectors

| Rafter spacing in mm | Mounting rail | Snow load in kN/m <sup>2</sup> , to |                            |
|----------------------|---------------|-------------------------------------|----------------------------|
|                      |               | ≤ 1.25                              | > 1.25/ ≤ 2.55             |
| ≤ 600                |               | 1, 5, 9, 13, 17, 21                 |                            |
| ≤ 700                | bottom        | 1, 4, 8, 11, 15, 18                 | 1, 4, 5, 8, 11, 14, 15, 18 |
|                      | top           |                                     | 1, 4, 8, 11, 15, 18        |
| ≤ 800                |               | 1, 4, 7, 10, 13, 16                 |                            |
| ≤ 900                | bottom        | 1, 3, 6, 9, 12, 14                  | 1, 3, 4, 6, 9, 11, 12, 14  |
|                      | top           |                                     | 1, 3, 6, 9, 12, 14         |
| ≤ 1000               | bottom        | 1, 3, 6, 8, 11, 13                  | 1, 3, 4, 6, 8, 10, 11, 13  |
|                      | top           |                                     | 1, 3, 6, 8, 11, 13         |

### 6 collectors

| Rafter spacing in mm | Mounting rail | Snow load in kN/m <sup>2</sup> |                                      |
|----------------------|---------------|--------------------------------|--------------------------------------|
|                      |               | ≤ 1.25                         | > 1.25/ ≤ 2.55                       |
| ≤ 600                |               | 1, 5, 9, 13, 17, 21, 25        |                                      |
| ≤ 700                |               | 1, 4, 7, 8, 11, 14, 15, 18, 21 |                                      |
| ≤ 800                |               | 1, 4, 7, 10, 13, 16, 19        |                                      |
| ≤ 900                | bottom        | 1, 4, 6, 9, 12, 14, 17         | 1, 3, 4, 6, 7, 9, 11, 12, 14, 15, 17 |
|                      | top           |                                | 1, 4, 6, 9, 12, 14, 17               |
| ≤ 1000               |               | 1, 3, 5, 6, 8, 10, 11, 13, 15  |                                      |

### 8 collectors

| Rafter spacing in mm | Mounting rail | Snow load in kN/m <sup>2</sup>      |                                            |
|----------------------|---------------|-------------------------------------|--------------------------------------------|
|                      |               | ≤ 1.25                              | > 1.25/ ≤ 2.55                             |
| ≤ 600                |               | 1, 5, 9, 13, 17, 21, 25, 29, 33     |                                            |
| ≤ 700                | bottom        | 1, 4, 8, 11, 14, 15, 18, 21, 25, 28 | 1, 4, 7, 8, 11, 14, 15, 18, 21, 22, 25, 28 |
|                      | top           |                                     | 1, 4, 8, 11, 14, 15, 18, 21, 25, 28        |
| ≤ 800                |               | 1, 4, 7, 10, 13, 16, 19, 22, 25     |                                            |
| ≤ 900                | bottom        | 1, 3, 6, 9, 11, 12, 14, 17, 20, 22  | 1, 3, 4, 6, 9, 11, 12, 14, 17, 19, 20, 22  |
|                      | top           |                                     | 1, 3, 6, 9, 11, 12, 14, 17, 20, 22         |
| ≤ 1000               | bottom        | 1, 3, 6, 8, 10, 11, 13, 15, 18, 20  | 1, 3, 5, 6, 8, 10, 11, 13, 15, 16, 18, 20  |
|                      | top           |                                     | 1, 3, 6, 8, 10, 11, 13, 15, 18, 20         |

## Observe prior to installation (cont.)

### 10 collectors

| Rafter spacing in mm | Mounting rail | Snow load in kN/m <sup>2</sup>                 |                                                        |
|----------------------|---------------|------------------------------------------------|--------------------------------------------------------|
|                      |               | ≤ 1.25                                         | > 1.25/ ≤ 2.55                                         |
| ≤ 600                |               | 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, 41        |                                                        |
| ≤ 700                | bottom        | 1, 4, 8, 11, 15, 18, 21, 25, 28, 32, 35        | 1, 4, 5, 8, 11, 14, 15, 18, 21, 22, 25, 28, 31, 32, 35 |
|                      | top           |                                                | 1, 4, 8, 11, 15, 18, 21, 25, 28, 32, 35                |
| ≤ 800                |               | 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31        |                                                        |
| ≤ 900                | bottom        | 1, 3, 6, 9, 11, 14, 17, 19, 22, 25, 27         | 1, 3, 6, 8, 9, 11, 12, 14, 16, 17, 19, 20, 22, 25, 27  |
|                      | top           |                                                | 1, 3, 6, 9, 11, 14, 17, 19, 22, 25, 27                 |
| ≤ 1000               | bottom        | 1, 3, 6, 8, 10, 11, 13, 15, 16, 18, 20, 23, 25 | 1, 3, 4, 6, 8, 10, 11, 13, 15, 16, 18, 20, 22, 23, 25  |
|                      | top           |                                                | 1, 3, 6, 8, 10, 11, 13, 15, 16, 18, 20, 23, 25         |

## Installation with rafter anchors

### Components

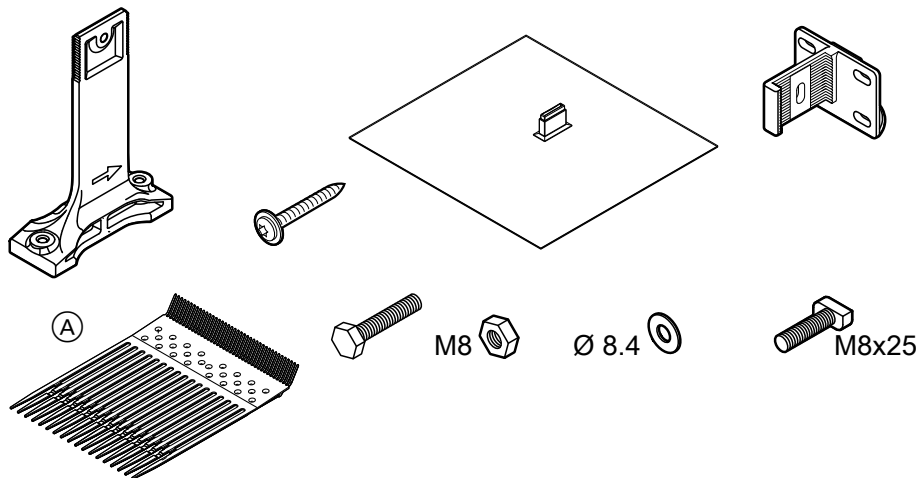


Fig. 2

- (A) Plastic replacement tile, if the existing tiles are not to be cut.  
Use only on roofs with a pitch of at least 12°.

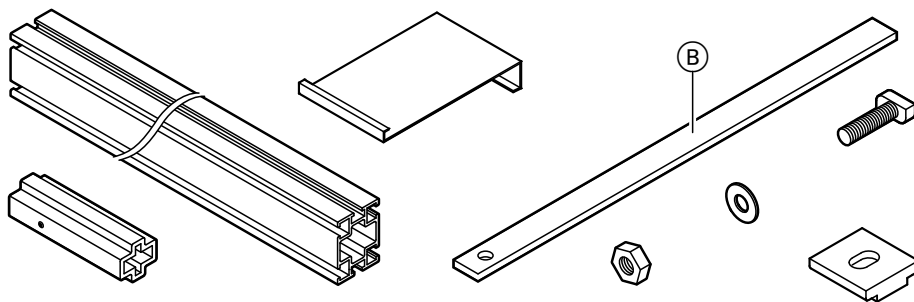


Fig. 3

- (B) Supporting rails:  
For **type SV** with snow loads of **4.80 kN/m<sup>2</sup>**

## Installation

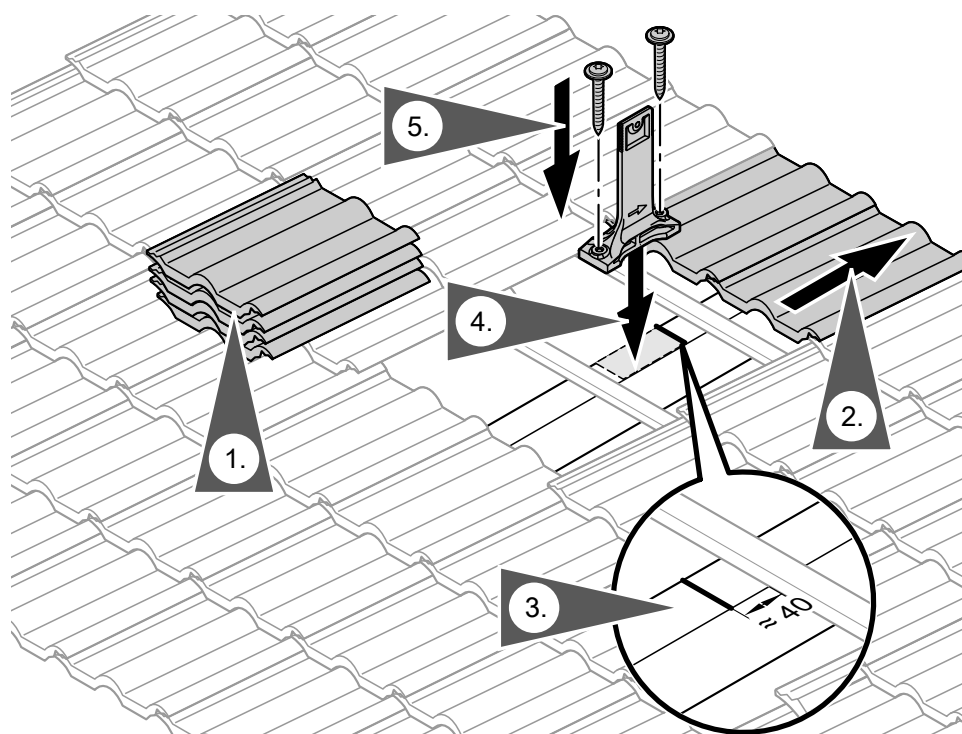


Fig. 4

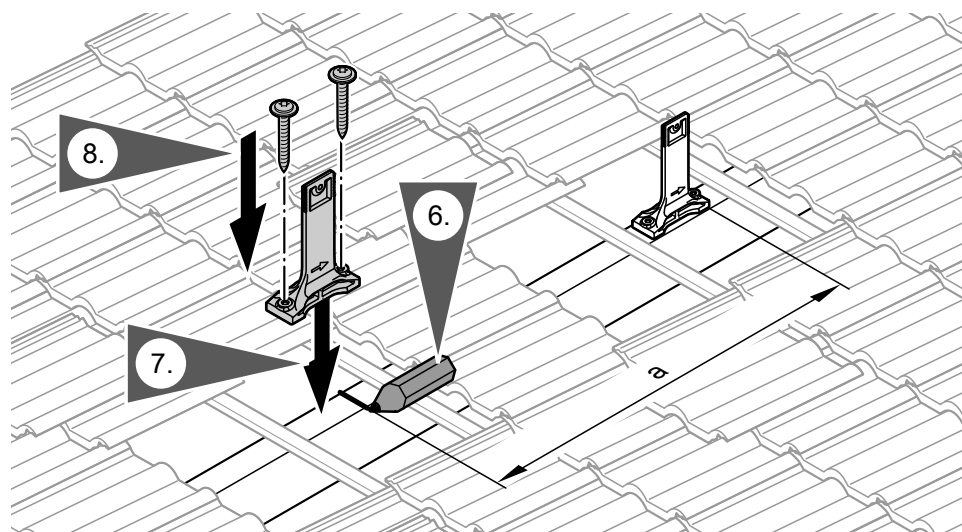


Fig. 5

| Type | a in mm      |
|------|--------------|
| SV   | 1650 to 1900 |
| SH   | 600 to 700   |

## Installation with rafter anchors (cont.)

Only for type SV with snow loads of  $4.80 \text{ kN/m}^2$

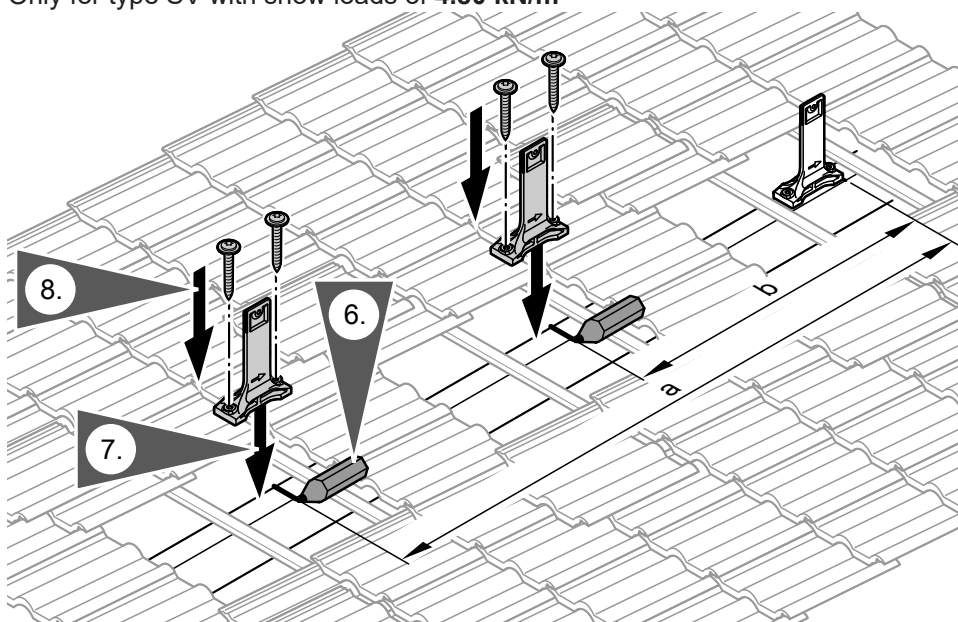


Fig. 6 Install 3 rafter anchors one above the other.  
Dimension  $b$  half of dimension  $a$ .

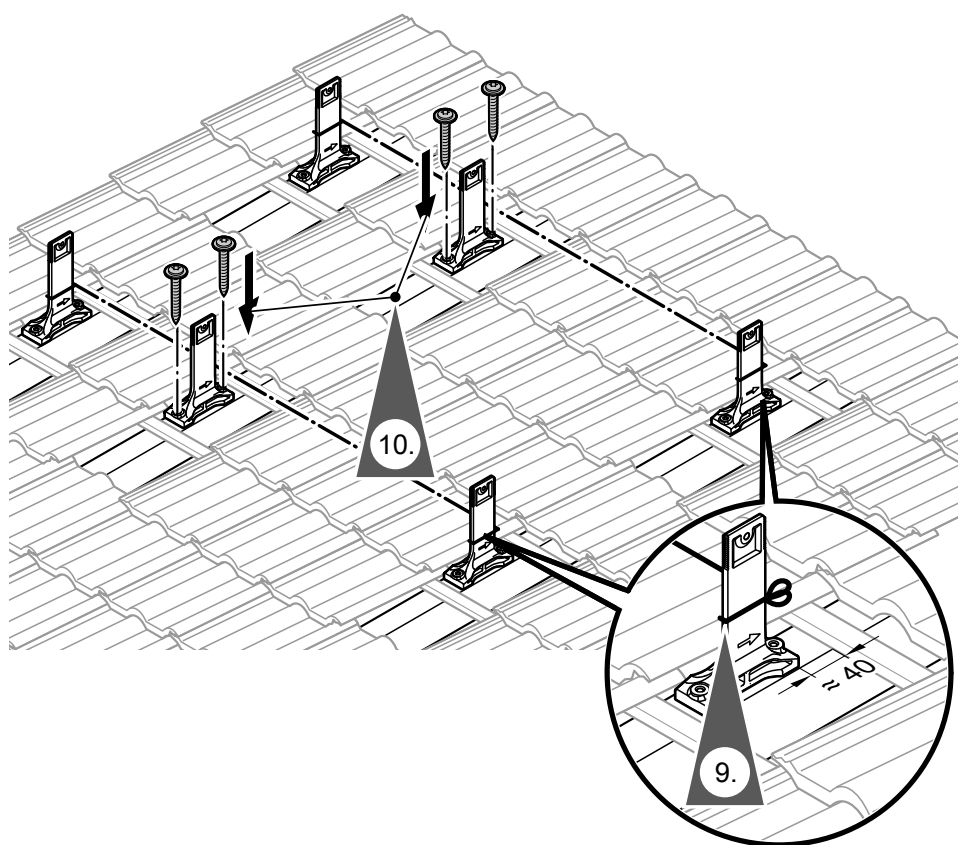


Fig. 7

Installation with trimmed tiles

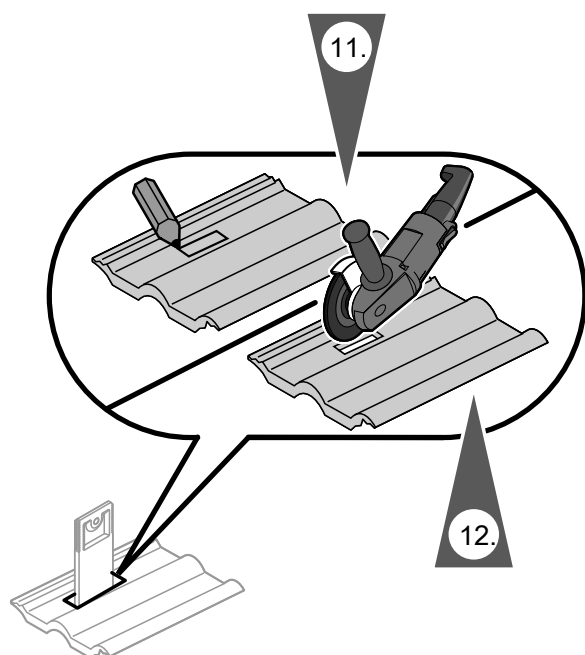


Fig. 8

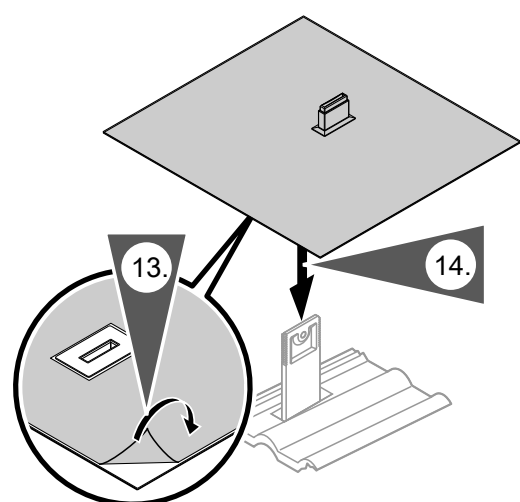


Fig. 9

Continue with step 16 on page 18.

Installation with plastic replacement tiles

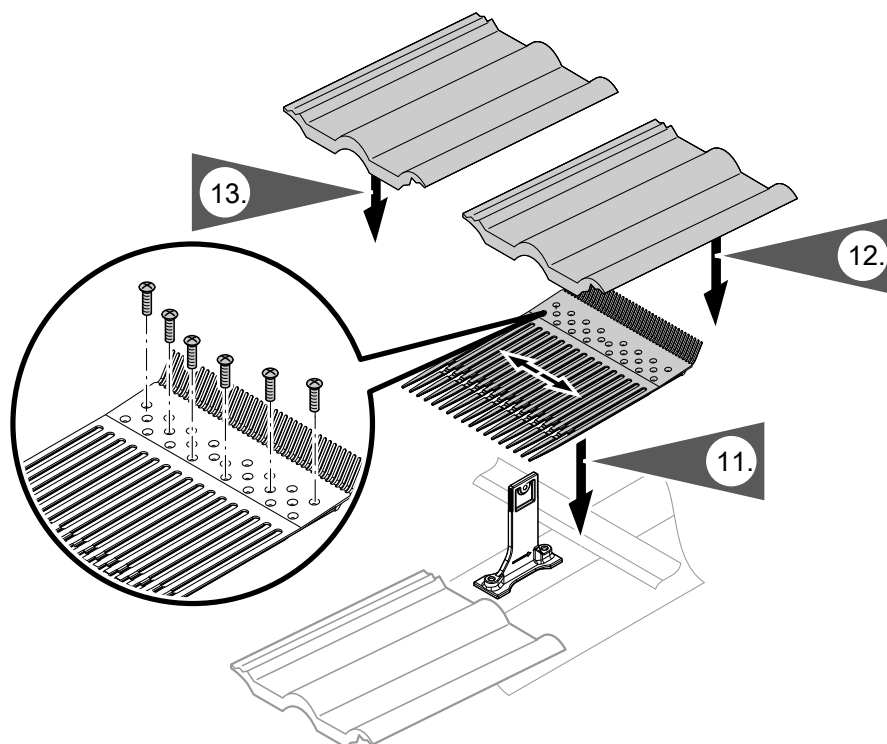


Fig. 10

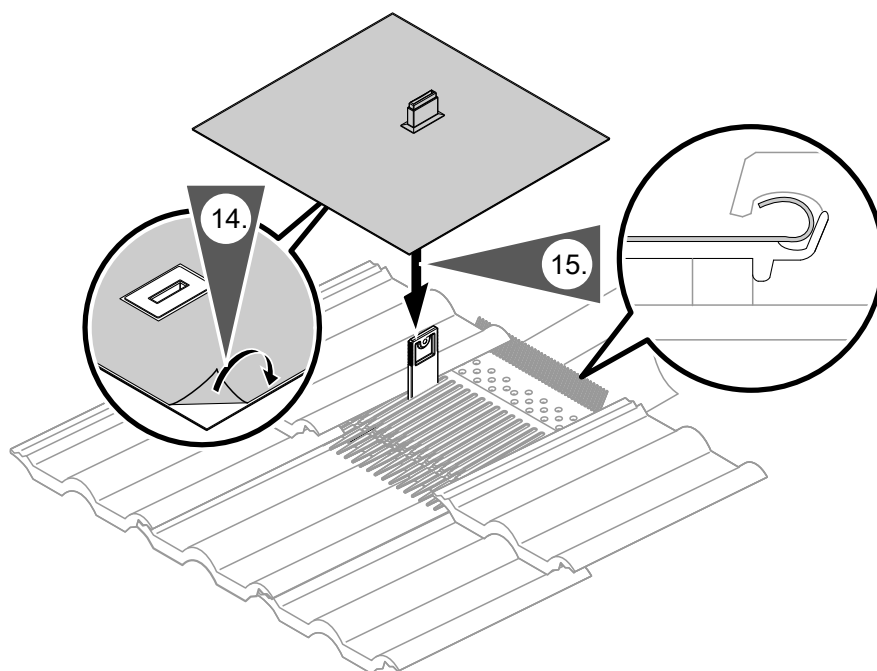


Fig. 11

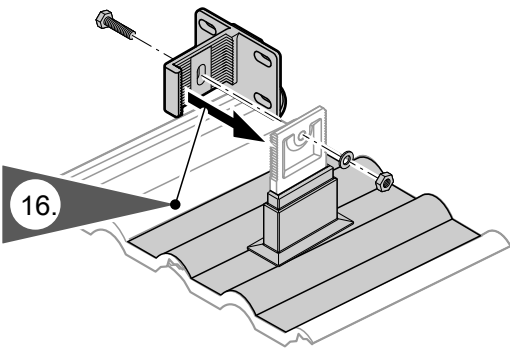


Fig. 12

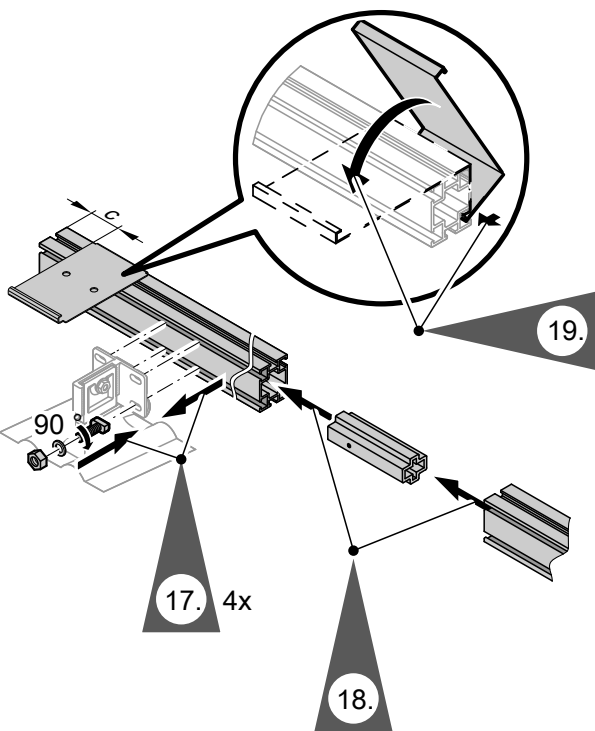


Fig. 13

| Number of collec-<br>tors | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  |
|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| c in mm                   |     |     |     |     |     |     |     |     |
| Type SV                   | 99  | 100 | 86  | 124 | 125 | 126 | 150 | 174 |
| Type SH                   | 117 | 134 | 152 | 169 | 187 | 204 | 239 | 274 |

Continue with "Installing the collectors": see page 22.

## Installation with rafter anchors (cont.)

### Note for type SV

For snow loads of  $4.80 \text{ kN/m}^2$ , fit supporting rails: see diagram below.

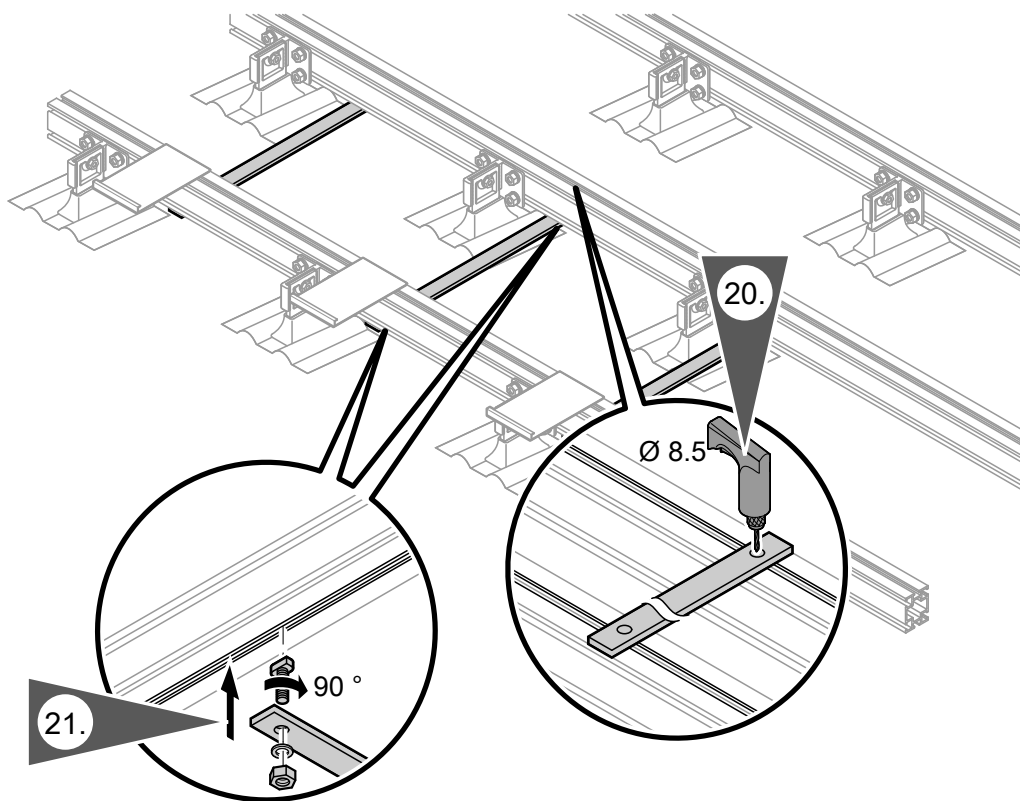


Fig. 14

Continue with "Installing the collectors": see page 22.

## Installation with mounting brackets

E.g. installation on sheet metal roofs

### Components

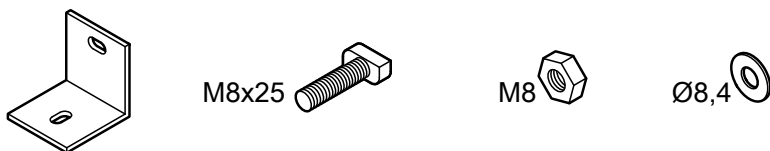


Fig. 15

## Installation with mounting brackets (cont.)

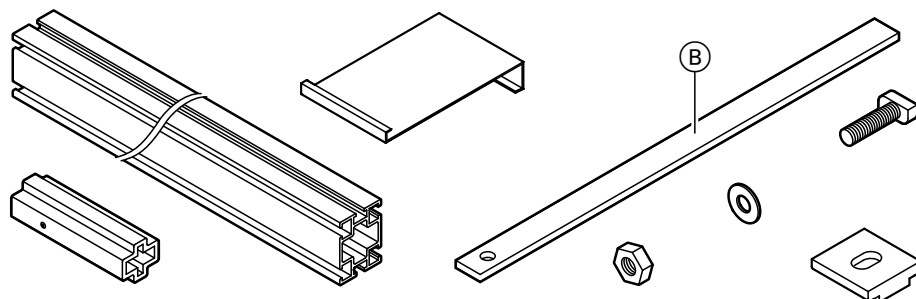


Fig. 16

- Ⓑ Supporting rails:  
For **type SV** with snow loads of **4.80 kN/m<sup>2</sup>**

### Installation

**On-site** fixings Ⓐ are required for securing the mounting brackets: see diagram below.

The installation of the mounting bracket is shown using standing seam profiles as an example.

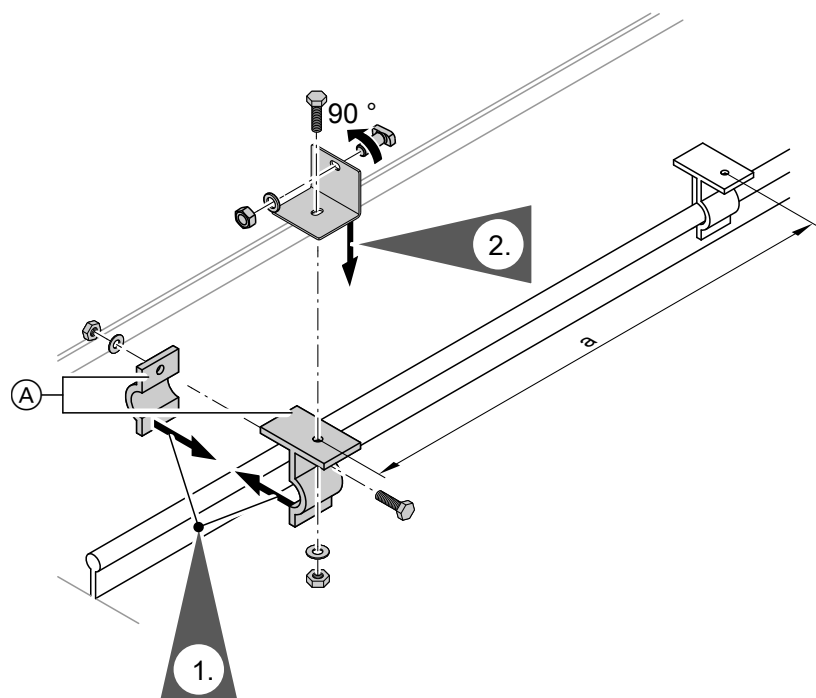


Fig. 17

- Ⓐ Fixing element, on site

| Type      | a in mm      |
|-----------|--------------|
| <b>SV</b> | 1650 to 1900 |
| <b>SH</b> | 600 to 700   |

The **horizontal arrangement** of the mounting brackets depends on the rafter spacing: see page 8 onwards. The mounting brackets between the first and last bracket must be aligned.

## Installation with mounting brackets (cont.)

### Note for type SV

For snow loads of  $4.80 \text{ kN/m}^2$ , fit 3 mounting brackets one above the other: see diagram on page 15.

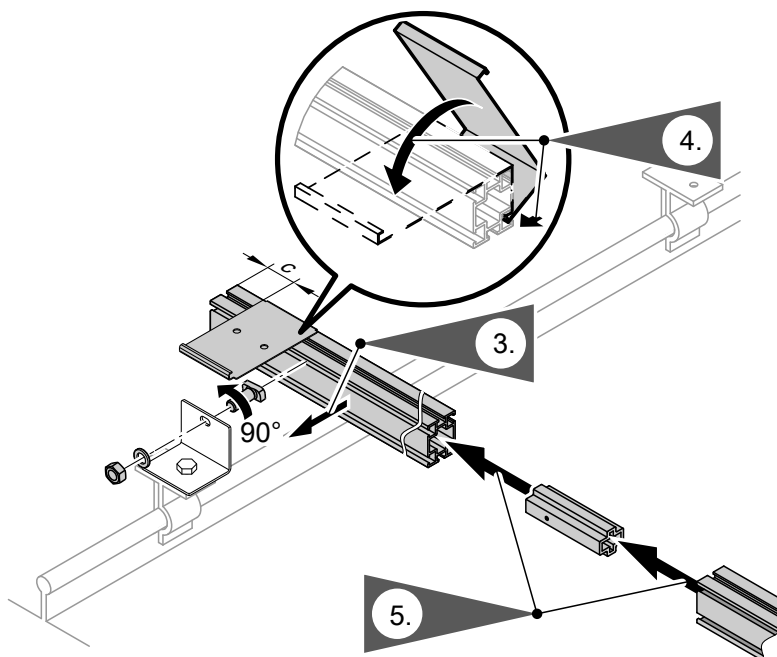


Fig. 18

| Number of collectors | 1   | 2   | 3   | 4   | 5   | 6   | 8   | 10  |
|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| c in mm              |     |     |     |     |     |     |     |     |
| Type SV              | 99  | 100 | 86  | 124 | 125 | 126 | 150 | 174 |
| Type SH              | 117 | 134 | 152 | 169 | 187 | 204 | 239 | 274 |

### Note for type SV

For snow loads of  $4.80 \text{ kN/m}^2$ , fit supporting rails: see diagram below.

## Installation with mounting brackets (cont.)

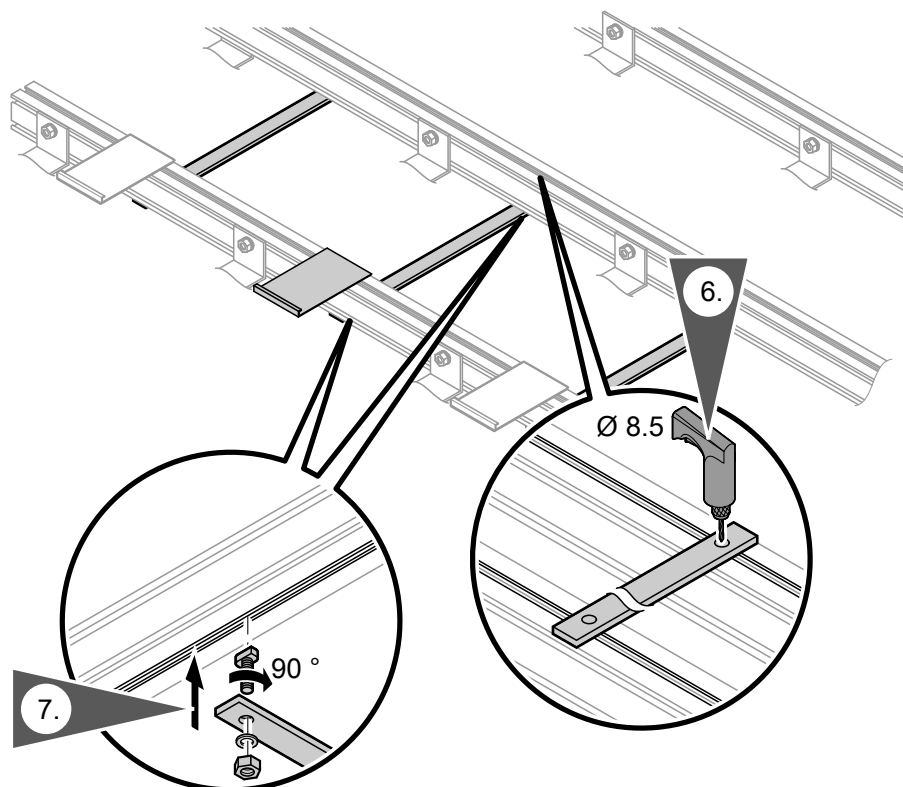


Fig. 19

### Note

Install mounting plate perpendicular to the collector.

## Installing the collectors

### Components

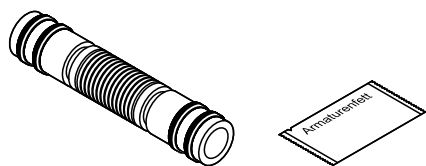


Fig. 20

### Installation information

- The side with the type plate **must** be on the **outside** of the first and last collector: observe label.
- On just one of the collectors, fit the pipework at the side **opposite** the type plate side.



### Please note

Damage to connection pipes will result in leaks. Lubricate O-ring seals **only** with the special valve grease provided.



### Please note

If clamping bracket (A) is installed using an electric screwdriver, the clamping bracket may get stuck and damaged. Do not exceed a speed of 500 rpm.

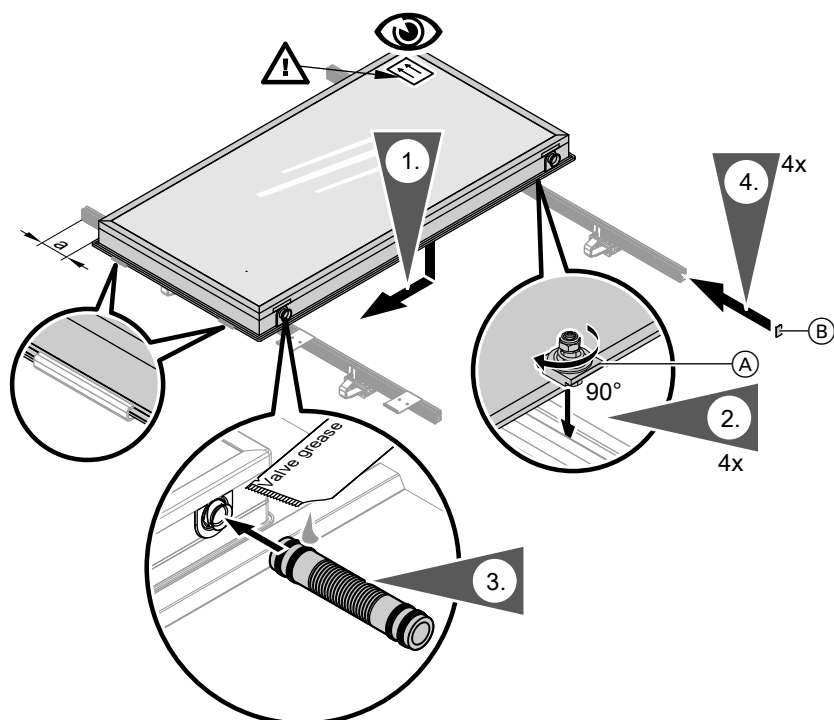


Fig. 21

- (A) Clamping bracket
- (B) Cap

## Note

Position reinforcement plate as close as possible to the mounting plate.

| Number of collectors | 1  | 2  | 3  | 4  | 5  | 6  | 8  | 10  |
|----------------------|----|----|----|----|----|----|----|-----|
| a in mm              |    |    |    |    |    |    |    |     |
| Type SV              | 21 | 21 | 32 | 32 | 42 | 42 | 53 | 63  |
| Type SH              | 21 | 32 | 42 | 53 | 63 | 74 | 95 | 116 |

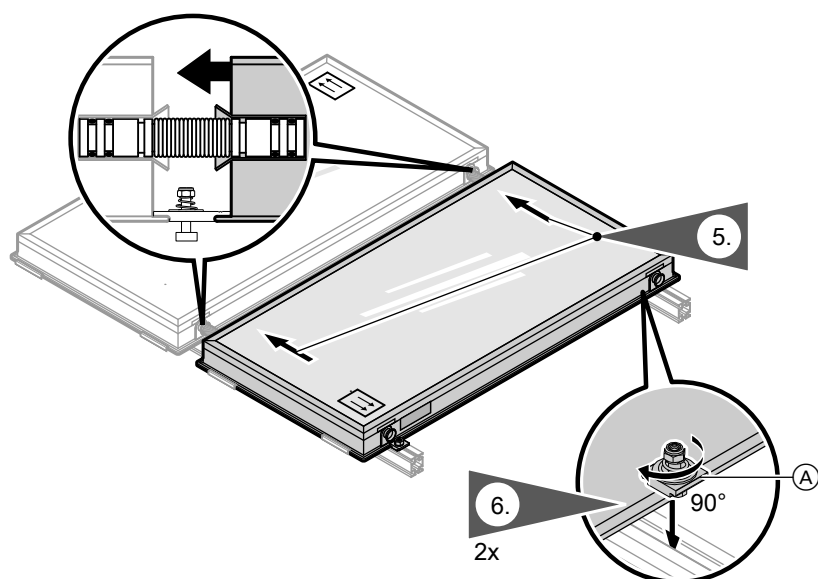


Fig. 22

- (A) Clamping bracket

## Connecting the collectors

### Components

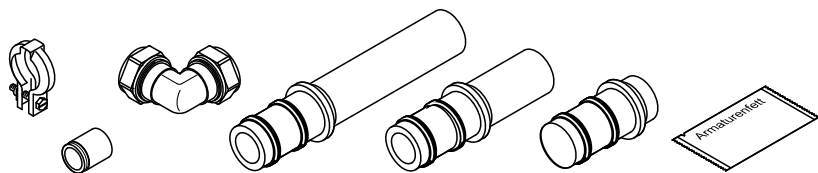


Fig. 23

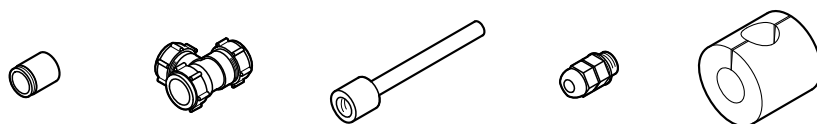


Fig. 24

### Installation information

- Lubricate O-ring seals **only** with the special valve grease provided.
- Initially tighten the union nut by hand, then tighten with an open-ended spanner by a further  $\frac{3}{4}$  turn.
- **Never** use annealed copper pipes with locking ring fittings.

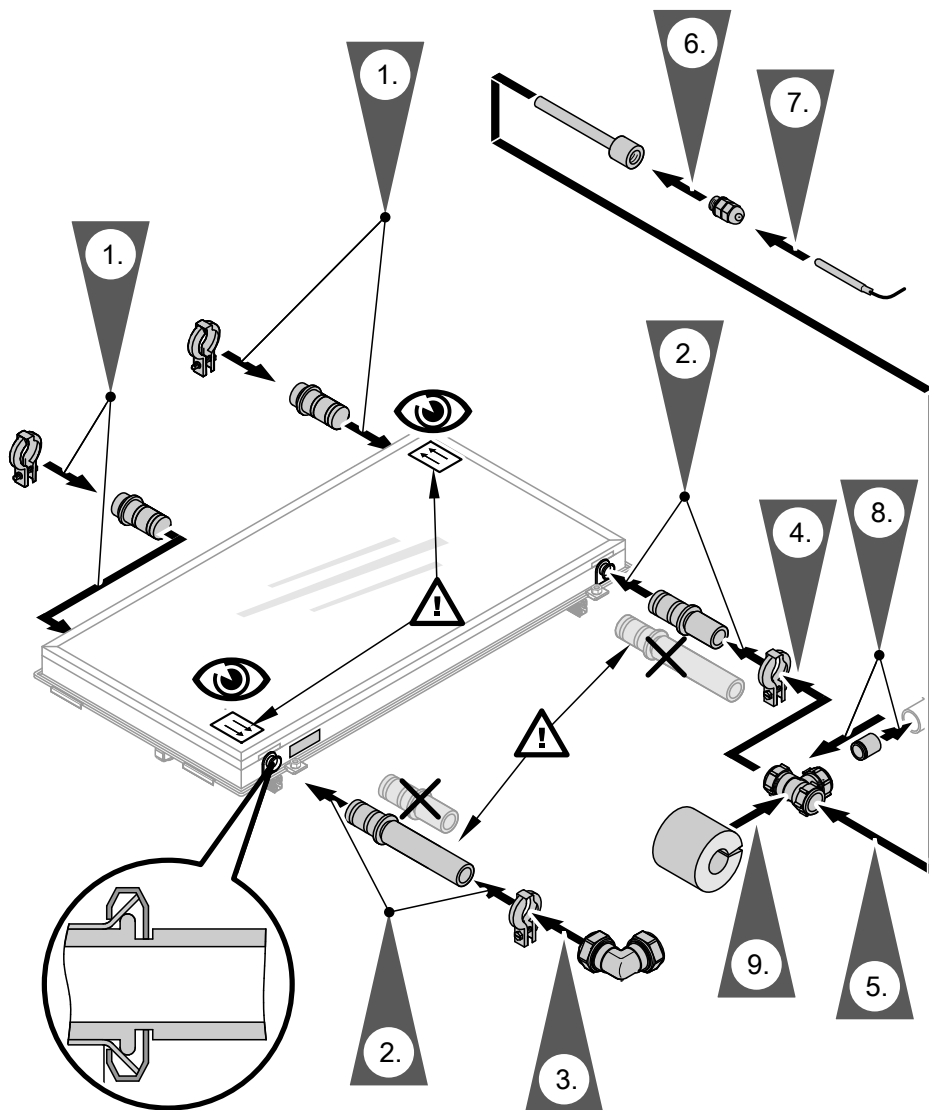


Fig. 25

## Covering the collector array

Commission the solar thermal system as quickly as possible once the collectors have been installed. To prevent steam hammer, the collectors must be cold when filled. Cover the collector arrays. In the delivered condition, the collectors are covered with a protective film for this purpose. **Remove this protective film no later than 4 weeks after the collectors are installed!**

### Note

*If commissioning takes place at a later date, cover the collector arrays.*

*Do not use the protective foil provided to cover the collectors!*

## Installation



### Please note

Incorrect installation can lead to collector damage.

Use only gunmetal or brass fittings and copper pipes for the installation.

Never step on the collectors.

**Never solder** on or near the collectors.

- Route pipes so that complete ventilation is ensured. Install an air separator in the solar flow upstream of the DHW cylinder.

### Note

*An air separator is integrated into the flow line of the Solar-Divicon: see diagram.*

- Braze or press fit the copper pipes in the solar circuit.  
Soft solder could be weakened, particularly near the collectors, due to the high temperatures. Metallic sealing connections, locking ring fittings or plug-in connections from the manufacturer with double O-rings are the most suitable.  
If other seals such as flat gaskets are used, adequate glycol, pressure and temperature stability must be guaranteed by the manufacturer.
- Make all connections pressure and temperature-resistant (observe the maximum stagnation temperature of the collector).  
Never use:
  - Teflon (inadequate glycol resistance)
  - Hemp connections (insufficiently gas-tight)

- Equip the system to EN 12975 or EN ISO 9806 with an expansion vessel, safety valve and circulation pump.

- The expansion vessel must be approved to DIN 4807.  
The diaphragms and seals of the expansion vessel and safety valve must be suitable for the heat transfer medium.



For the calculation of the pre-charge pressure: see the "Vitosol-FM" service instructions.

- For operation without a Solar-Divicon, use only safety valves that meet the following conditions:
  - Designed for 120 °C and up to 6 bar (0.6 MPa)
  - Letter ID "S" (solar) in the component identification

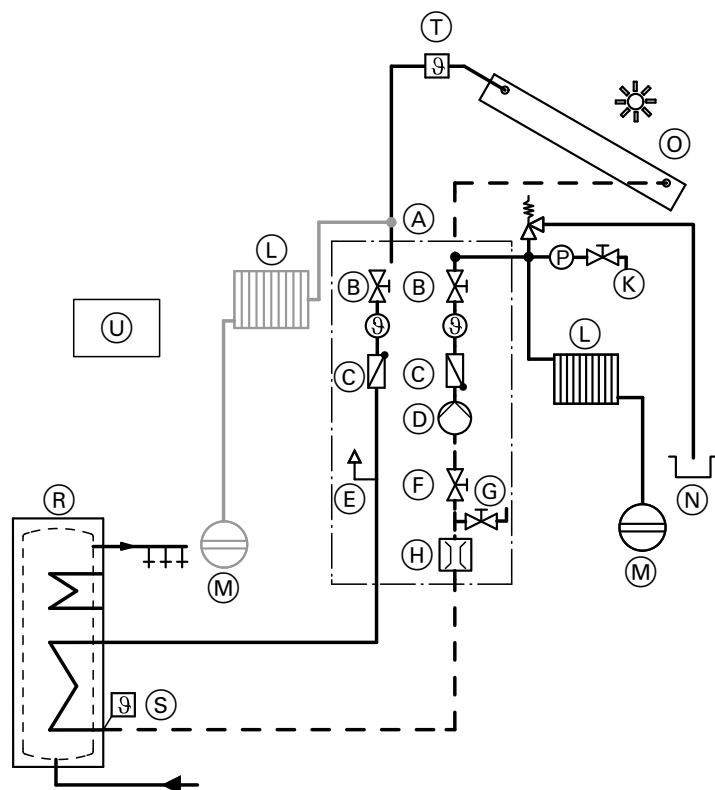


Fig. 26

- |                                                               |                                  |
|---------------------------------------------------------------|----------------------------------|
| (A) Solar-Divicon                                             | (K) Fill valve                   |
| (B) Shut-off valves                                           | (L) Stagnation heat sink         |
| (C) Non-return valves                                         | (M) Expansion vessel             |
| (D) Solar circuit pump                                        | (N) Drip pan                     |
| (E) Air separator                                             | (O) Collector                    |
| (F) Shut-off valve (adjusting screw above flow indicator (H)) | (R) DHW cylinder                 |
| (G) Drain valve                                               | (S) Cylinder temperature sensor  |
| (H) Flow indicator                                            | (T) Collector temperature sensor |
|                                                               | (U) Solar control unit           |

## Commissioning



"Vitosol-FM" service instructions.

## Final decommissioning and disposal

This product can be recycled. Components and fluids from the system do not belong in ordinary domestic waste.

For decommissioning, isolate the system from the power supply, secure against reconnection and allow components to cool down where appropriate. All components must be disposed of correctly.

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6258821 Subject to technical modifications.