

Vitosol 200-TM

Type SPEA

Vacuum tube collector based on the heat pipe principle



VITOSOL 200-TM



Safety instructions



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

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.

Target group

These instructions are exclusively intended for qualified contractors.

- Work on electrical equipment may only be carried out by a qualified electrician.

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

Working on the system

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



Danger

Hot surfaces and fluids can lead to burns or scalding.

- Before maintenance and service work, switch off the appliance and let it cool down.
- Do not touch hot surfaces on the appliance, fittings or pipework.



Please note

Electronic assemblies can be damaged by electrostatic discharge. Before starting work, touch an earthed object, e.g. a heating or water pipe to discharge static.

Repair work

- ! **Please note**
 - Repairing components that fulfil a safety function can compromise the safe operation of the system. Replace faulty components only with genuine Viessmann spare parts.

1. Information	Disposal of packaging	5
	Symbols	5
	Intended use	5
	Product information	6
	■ System examples	6
	■ Maintenance parts and spare parts	6
2. Preparing for installation	Distribution of fixings on the rafters	7
3. Installation sequence	Installation on pitched roofs with rafter flanges	10
	■ Vertical installation	10
	■ Horizontal installation	13
	Installation on pitched roofs with rafter hooks	17
	■ Fitting the rafter hooks	17
	■ Vertical installation	19
	■ Horizontal installation	21
	Installation on pitched roofs with rafter anchors	24
	■ Fitting the rafter anchors	25
	■ Vertical installation	28
	■ Horizontal installation	30
	Installation on pitched roofs with mounting brackets	33
	■ Vertical installation	33
	■ Horizontal installation	37
	Installation on collector supports	41
	Horizontal installation	45
	Hydraulic connections	48
	■ Connecting the header casings	48
	■ Fitting the connection set	48
	Fitting the vacuum tubes	50
4. Snow loads		51
5. Installation		53

Disposal of packaging

Disposal of packaging

Please dispose of waste packaging in line with statutory regulations.

Symbols

Symbol	Meaning
	Reference to other document containing further information
	Step in a diagram: The numbers correspond to the order in which the steps are carried out.
	Warning of material losses and environmental pollution
	Live electrical area
	Pay particular attention.
	▪ Component must audibly click into place. - or ▪ Acoustic signal
	▪ Fit new component. - or ▪ In conjunction with a tool: Clean the surface.
	Dispose of component correctly.
	Dispose of component at a suitable collection point. Do not dispose of component in domestic waste.

Intended use

The appliance is only intended to be installed and operated 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 quality. Heating water buffer cylinders are only designed to hold fill water of potable quality. Only operate solar collectors 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 in each individual case.

Intended use (cont.)

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

Incorrect usage also applies 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 200-TM is a highly efficient vacuum tube collector based on the heat pipe principle, with ThermProtect automatic temperature-dependent shutdown for high operational reliability.

Vitosol 200-TM vacuum tube collectors, type SPEA, are available in the following versions:

- 1.63 m² with 9 vacuum tubes
- 3.26 m² with 18 vacuum tubes

A metal absorber with highly selective coating is incorporated inside each vacuum tube. The metal absorber ensures high absorption of solar radiation and low emissions of thermal radiation.

A heat pipe filled with an evaporation liquid is fitted to the absorber. The heat pipe is connected to the condenser. The condenser is fitted inside a copper sensor well heat exchanger.

The angle of inclination must be greater than zero to guarantee circulation of the evaporator liquid in the heat exchanger.

The vacuum tubes can be rotated axially to optimally align the absorber with the sun. The vacuum tubes can be rotated through 45° with minimal shade on the absorber surfaces.

Up to 16.3 m² (5 collector modules) absorber area can be connected to form one collector array. Thermally insulated connection pipes with O-rings are supplied for this purpose.

System examples

Available system examples: See www.viessmann-schemes.com.

Maintenance parts and spare parts

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

Viessmann Partnershop

Login:

<https://shop.viessmann.com/>



Viessmann spare part app

www.viessmann.com/etapp



Distribution of fixings on the rafters

Fixings:

- Rafter flanges (page 10 onwards)
- Rafter hooks (page 17 onwards)
- Rafter anchors (page 24 onwards)

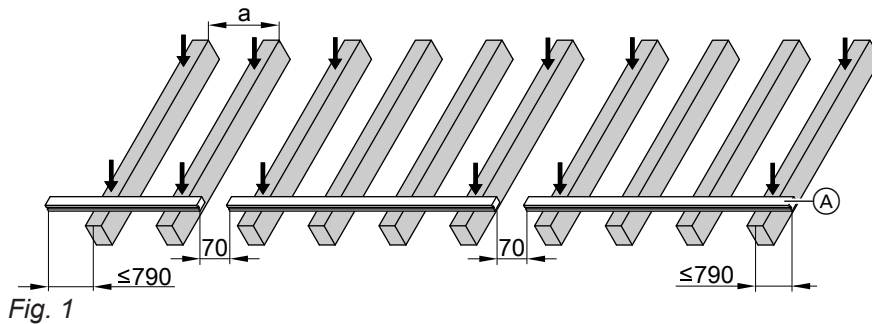
Each number of collectors and collector combination has a specific number of fixings allocated to it.
The number of rafters required for attaching the fixings depends on the spacing between the rafters.
The following tables show which rafters the fixings should be mounted on.

Example:

- 3 collectors
- Combination of 1 x 1.63 m² and 2 x 3.26 m²
- Rafter spacing 600 mm

Look up the combination in the table for 3 collectors on page 8 (highlighted in grey):

Of the 10 rafters, the following are used: Rafters 1, 2, 3, 6, 7, 10



↓ Position of fixings

Ⓐ Tube retainer

1 collector

Combination	Rafter spacing a in mm	Rafters used
1 x 1.63 m ²	≤ 600	1, 2
	≤ 700	1, 2
	≤ 800	1, 2
1 x 3.26 m ²	≤ 600	1, 4
	≤ 700	1, 4
	≤ 800	1, 3

2 collectors

Combination	Rafter spacing a in mm	Rafters used
2 x 1.63 m ²	≤ 600	1, 2, 3, 4
	≤ 700	1, 2, 3, 4
	≤ 800	—
1 x 1.63 m ² / 1 x 3.26 m ²	≤ 600	1, 2, 3, 6
	≤ 700	1, 2, 3, 5
	≤ 800	1, 2, 3, 5
2 x 3.26 m ²	≤ 600	1, 4, 5, 8
	≤ 700	1, 4, 5, 8
	≤ 800	1, 3, 4, 6

Distribution of fixings on the rafters (cont.)

3 collectors

Combination	Rafter spacing a in mm	Rafters used
3 x 1.63 m ²	≤ 600	1, 2, 3, 4, 5, 6
	≤ 700	1, 2, 3, 4, 5, 6
	≤ 800	—
2 x 1.63 m ² / 1 x 3.26 m ²	≤ 600	1, 2, 3, 4, 5, 8
	≤ 700	1, 2, 3, 4, 5, 7
	≤ 800	—
1 x 1.63 m ² / 2 x 3.26 m ²	≤ 600	1, 2, 3, 6, 7, 10
	≤ 700	1, 2, 3, 4, 5, 6, 9
	≤ 800	1, 2, 3, 5, 6, 8
3 x 3.26 m ²	≤ 600	1, 4, 5, 8, 9, 12
	≤ 700	1, 4, 5, 7, 8, 11
	≤ 800	1, 3, 5, 6, 7, 9

Note

The fields shaded grey in the table relate to the example on page 7.

4 collectors

Combination	Rafter spacing a in mm	Rafters used
4 x 1.63 m ²	≤ 600	1, 2, 3, 4, 5, 6, 7, 8
	≤ 700	—
	≤ 800	—
2 x 1.63 m ² / 2 x 3.26 m ²	≤ 600	1, 2, 3, 4, 5, 8, 9, 12
	≤ 700	1, 2, 3, 4, 5, 7, 8, 11
	≤ 800	—
3 x 1.63 m ² / 1 x 3.26 m ²	≤ 600	1, 2, 3, 4, 5, 6, 7, 10
	≤ 700	1, 2, 3, 4, 5, 6, 7, 9
	≤ 800	—
1 x 1.63 m ² / 3 x 3.26 m ²	≤ 600	1, 2, 3, 6, 7, 10, 11, 14
	≤ 700	1, 2, 3, 5, 6, 9, 10, 12
	≤ 800	1, 2, 3, 5, 6, 8, 9, 11
4 x 3.26 m ²	≤ 600	1, 4, 5, 8, 9, 12, 13, 16
	≤ 700	1, 3, 4, 7, 8, 10, 11, 14
	≤ 800	1, 3, 4, 6, 7, 9, 10, 12

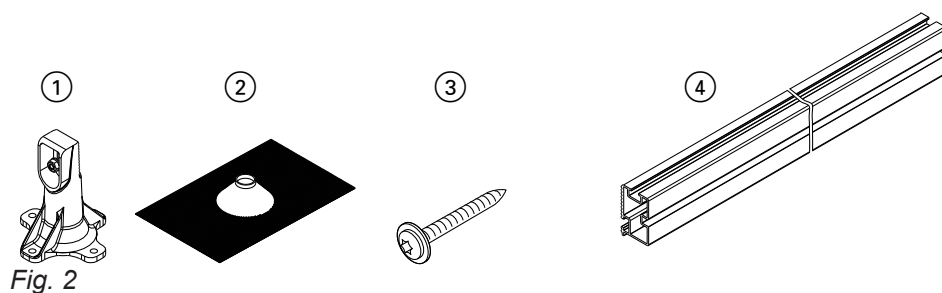
Distribution of fixings on the rafters (cont.)

5 collectors

Combination	Rafter spacing a in mm	Rafters used
5 x 1.63 m²	≤ 600	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
	≤ 700	—
	≤ 800	—
2 x 1.63 m²/ 3 x 3.26 m²	≤ 600	1, 2, 3, 4, 5, 8, 9, 12, 13, 16
	≤ 700	1, 2, 3, 4, 5, 7, 8, 11, 12, 14
	≤ 800	—
3 x 1.63 m²/ 2 x 3.26 m²	≤ 600	1, 2, 3, 4, 5, 6, 7, 10, 11, 14
	≤ 700	1, 2, 3, 4, 5, 6, 7, 9, 10, 13
	≤ 800	—
1 x 1.63 m²/ 4 x 3.26 m²	≤ 600	1, 2, 3, 6, 7, 10, 11, 14, 15, 18
	≤ 700	1, 2, 3, 5, 6, 9, 10, 12, 13, 16
	≤ 800	1, 2, 3, 5, 6, 8, 9, 11, 12, 14
4 x 1.63 m²/ 1 x 3.26 m²	≤ 600	1, 2, 3, 4, 5, 6, 7, 8, 9, 12
	≤ 700	1, 2, 3, 4, 5, 6, 7, 9, 10, 11
	≤ 800	—
5 x 3.26 m²	≤ 600	1, 4, 5, 8, 9, 12, 13, 16, 17, 20
	≤ 700	1, 4, 5, 7, 8, 11, 12, 14, 15, 18
	≤ 800	1, 3, 4, 6, 7, 9, 10, 12, 13, 15

Installation on pitched roofs with rafter flanges

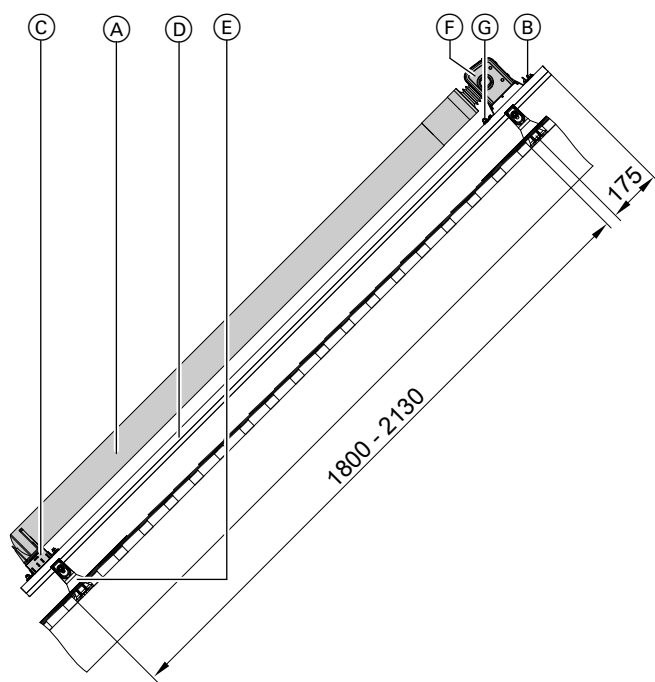
For **plain tiled** and **slate** roof covers



- ① Rafter flange
- ② Seal
- ③ Screws
- ④ Mounting rail for **vertical** and **horizontal** installation

Vertical installation

The vacuum tubes are positioned **vertically** to the roof ridge.



- Ⓐ Vacuum tube
- Ⓑ Clamping bracket
- Ⓒ Tube retainer
- Ⓓ Mounting rail
- Ⓔ Rafter anchor
- Ⓕ Header casing
- Ⓖ Retaining bracket

The tables on page 7 onwards show which rafters the rafter flanges should be mounted on.

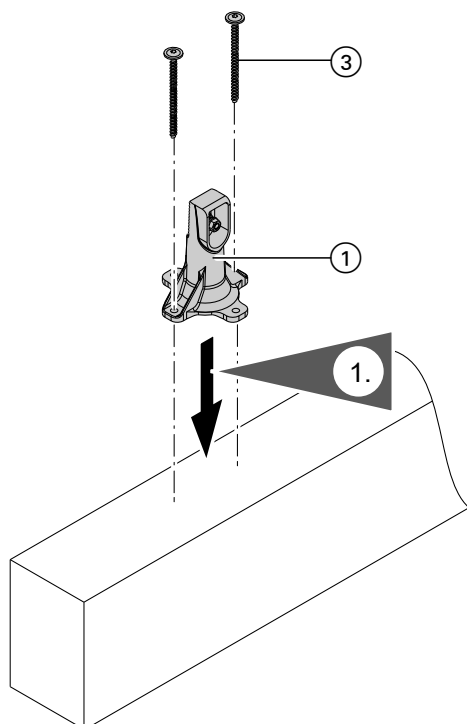


Fig. 4

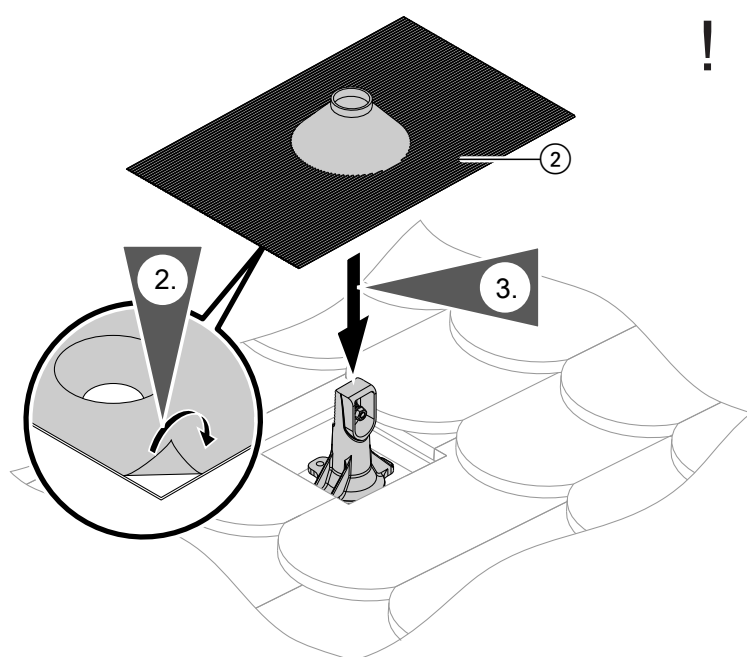


Fig. 5



Please note

Rainwater can cause building damage. To ensure good contact between the flashing and the roof surface, make the cut-out in the roof cover as small as possible. Affix flashing ② carefully.

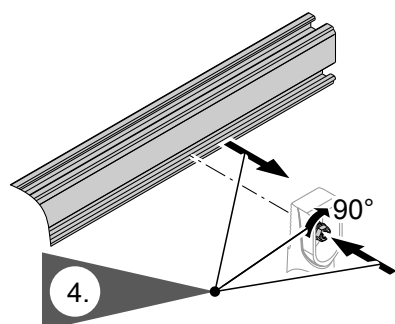


Fig. 6

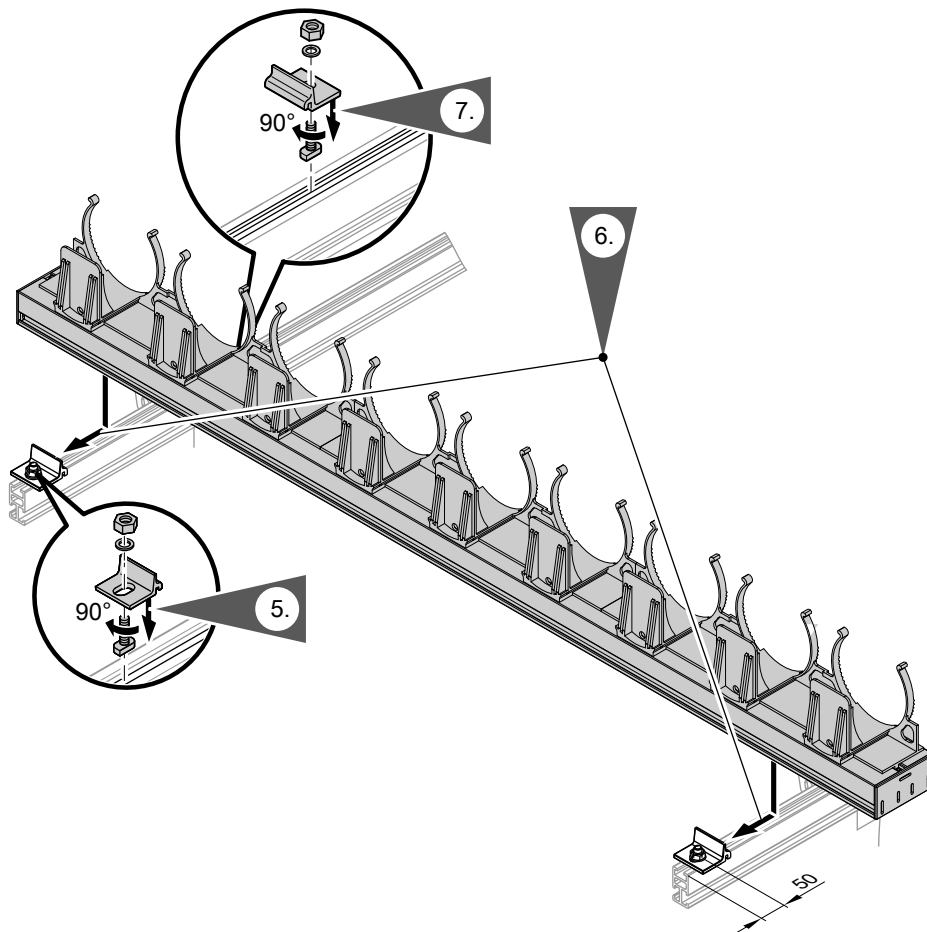


Fig. 7

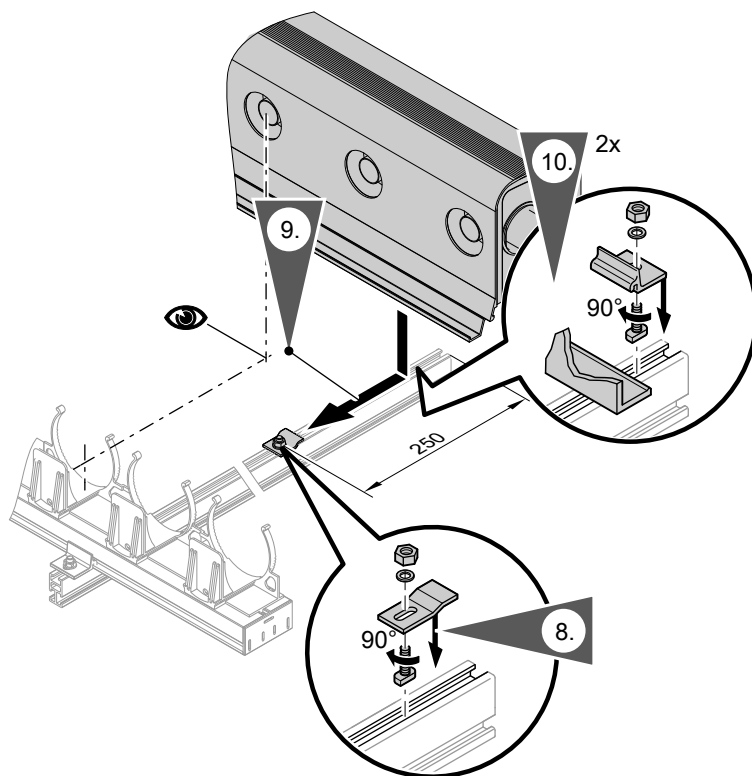


Fig. 8

Continue with chapter "Hydraulic connections" on page 48.

Horizontal installation

The vacuum tubes are positioned **parallel** to the roof ridge.

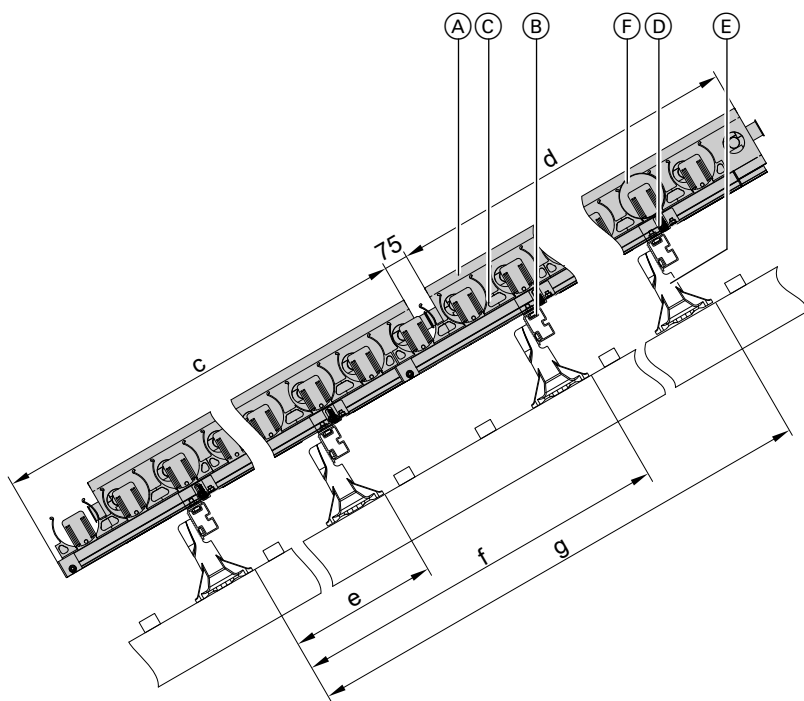


Fig. 9

- Ⓐ Header casing
- Ⓑ Mounting rail
- Ⓒ Tube retainer

- Ⓓ Mounting bracket
- Ⓔ Rafter hook
- Ⓕ Vacuum tube

Combination	c	mm	d	mm	e	mm	f	mm	g	mm
1.63 m ²		1120	—	—	640	—	—	—	—	—
3.26 m ²		2290	—	—	1240	—	—	—	—	—
1.63 m ² /1.63 m ²		1120	1120	1120	640	1190	1830			
1.63 m ² /3.26 m ²		1120	2290	2290	640	1470	2710			
3.26 m ² /1.63 m ²		2290	1120	1120	1240	2075	2710			
3.26 m ² /3.26 m ²		2290	2290	2290	1240	2370	3610			

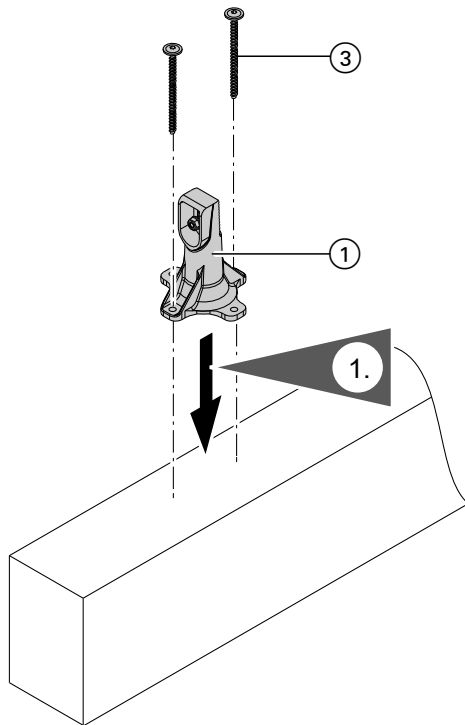


Fig. 10

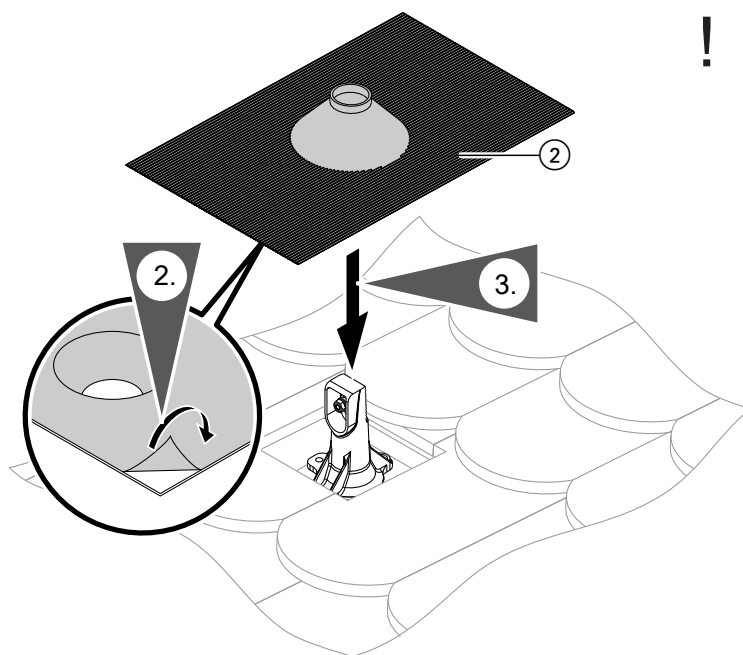


Fig. 11



Please note

Rainwater can cause building damage.

To ensure good contact between the flashing and the roof surface, make the cut-out in the roof cover as small as possible. Affix flashing ② carefully.

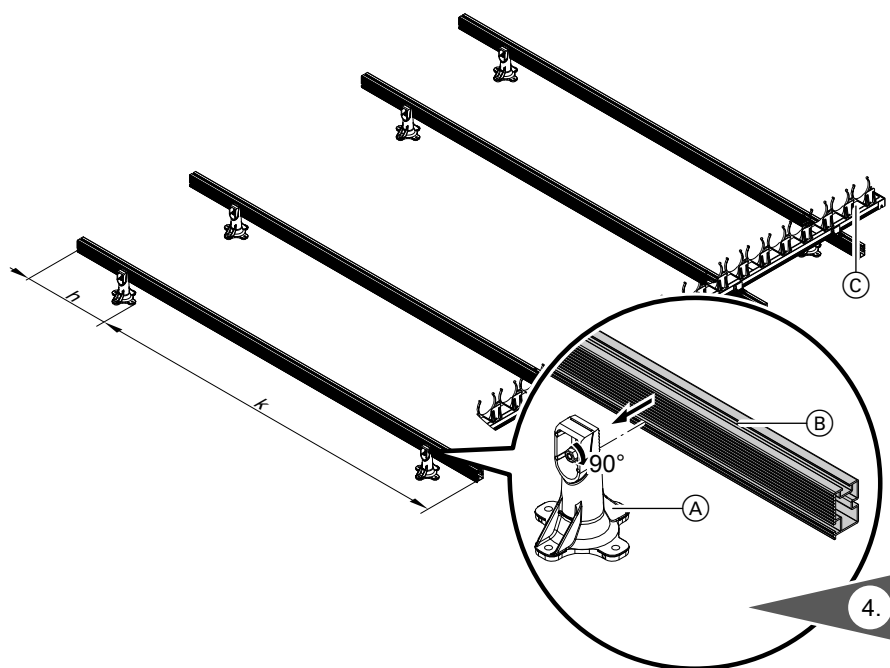


Fig. 12

- (A) Rafter flange
- (B) Mounting rail
- (C) Tube retainer

Rafter spacing k in mm	Protrusion h in mm
600	400
700	300
800	200

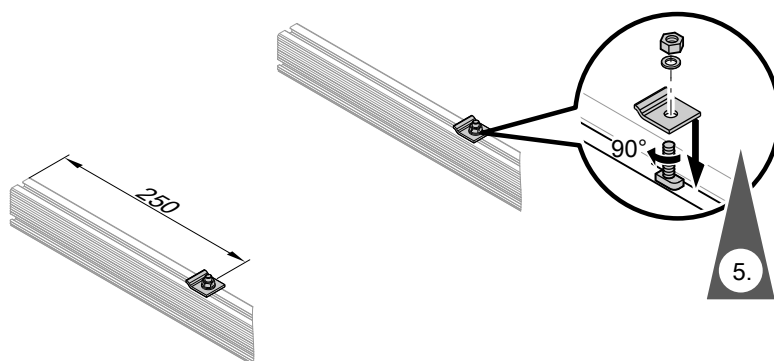


Fig. 13

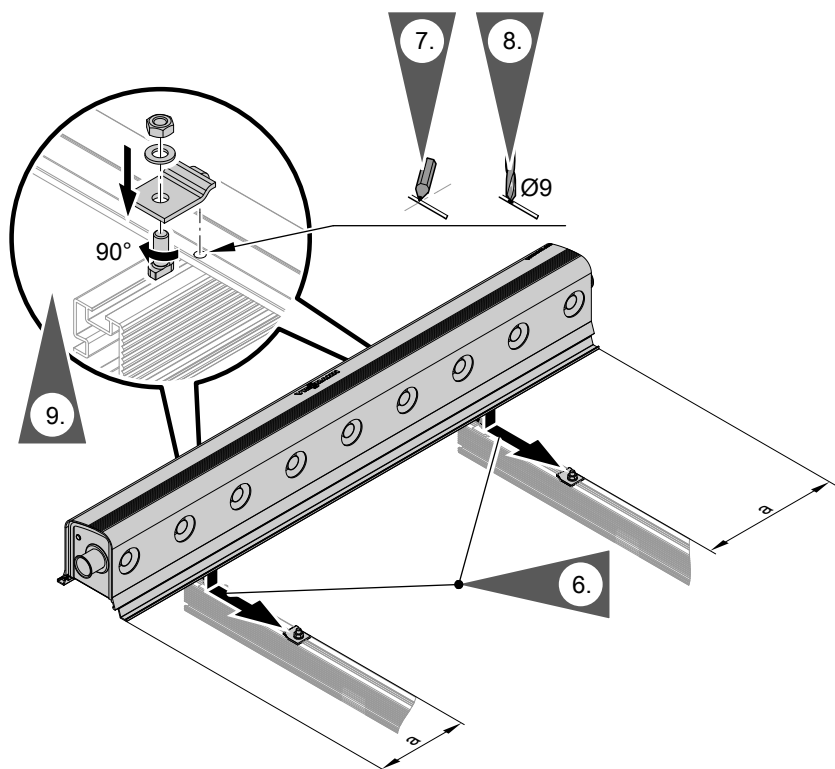


Fig. 14 Dimension *a* results once the header casing is placed on the mounting rails.

Note on step 7:

Use the centring groove on the back of the header casing as a drilling guide.

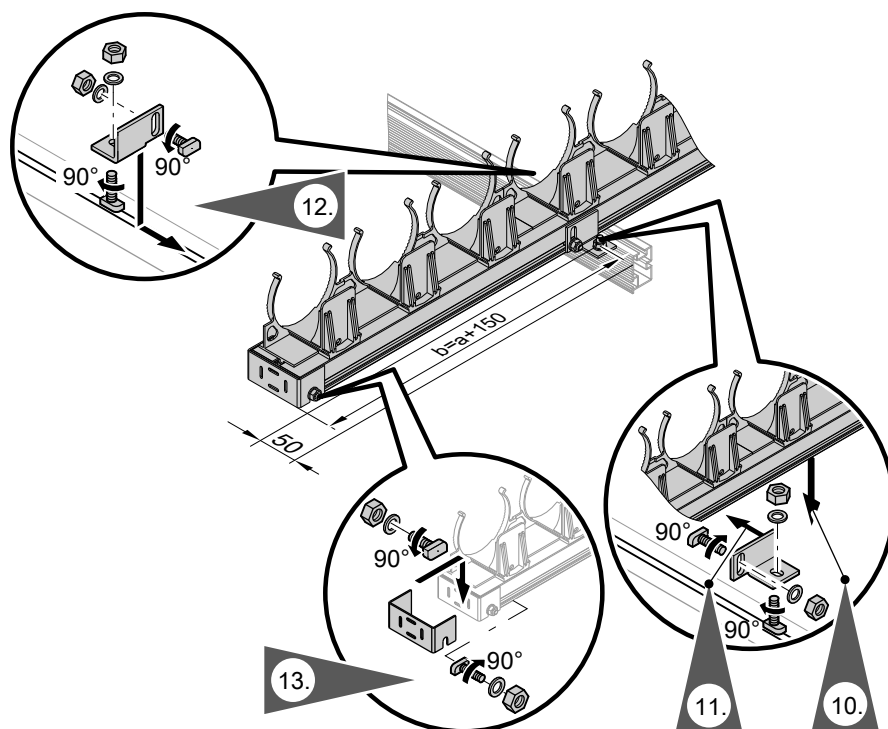


Fig. 15

Installation on pitched roofs with rafter... (cont.)

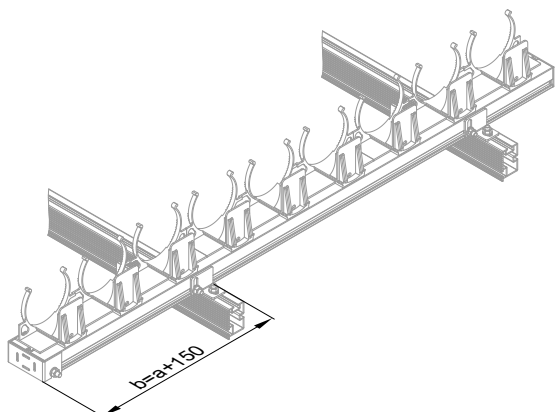


Fig. 16 Install the tube retainer at an **offset** to the header casing. This ensures that the vacuum tubes are inclined to the horizontal.

Note

Horizontal installation only possible for roof pitches $> 12^\circ$.

If the collectors are to be installed on roofs with a lower pitch, the mounting systems/rails must be aligned on site. The vacuum tubes must have a fall of at least 1° towards the centre of the earth.



Please note

If there is no incline, correct function of the collector cannot be guaranteed. Always maintain dimension b.

Continue with chapter "Hydraulic connections" on page 48.

Installation on pitched roofs with rafter hooks

For **standard tiled** roof cover

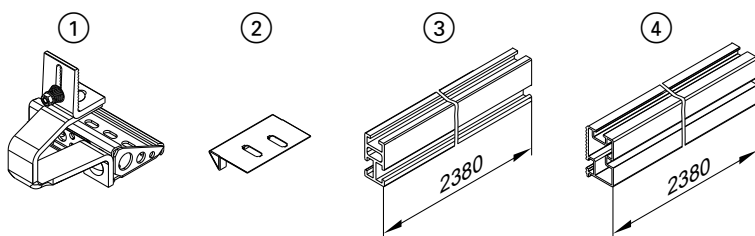


Fig. 17

- ① Rafter hook
- ② Support bracket

- ③ Mounting rail for **vertical** installation
- ④ Mounting rail for **horizontal** installation

Fitting the rafter hooks

The fitting of the rafter hooks applies to **vertical and horizontal** collector installation.

■ Version I:

Fitting rafter hook ① onto counter batten ⑥ with support bracket ②

■ Version II:

Fitting rafter hook ① directly onto rafter ①

- Trim the roof tiles with an angle grinder, for example remove the drip tabs.



Please note

Take care to avoid breaking tiles. The rafter hook must not rest on the roof tiles. Observe the dimensions.

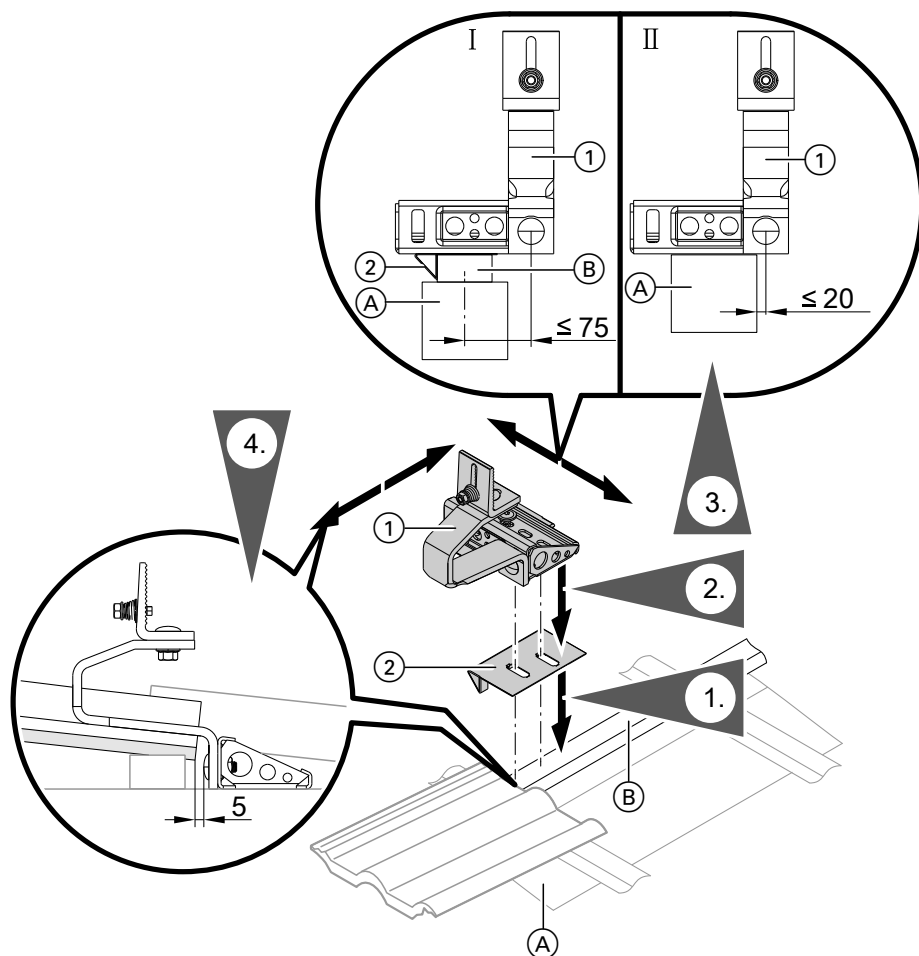


Fig. 18

Note

For the spacing between the rafter hooks, see chapter "Vertical installation", page 19 or "Horizontal installation", page 21.

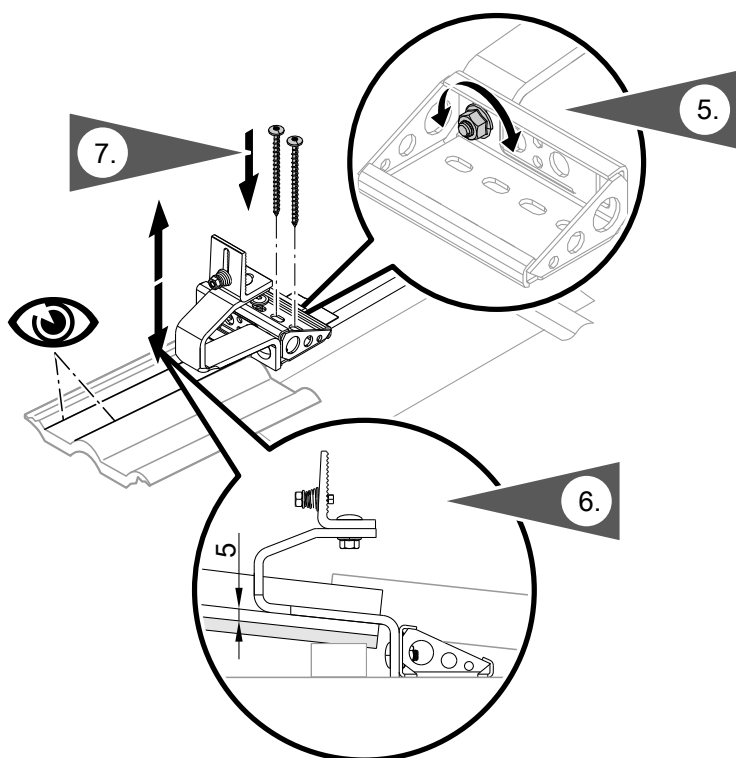


Fig. 19

For horizontal installation, continue on page 20 or page 21

Vertical installation

The vacuum tubes are positioned **vertically** to the roof ridge.

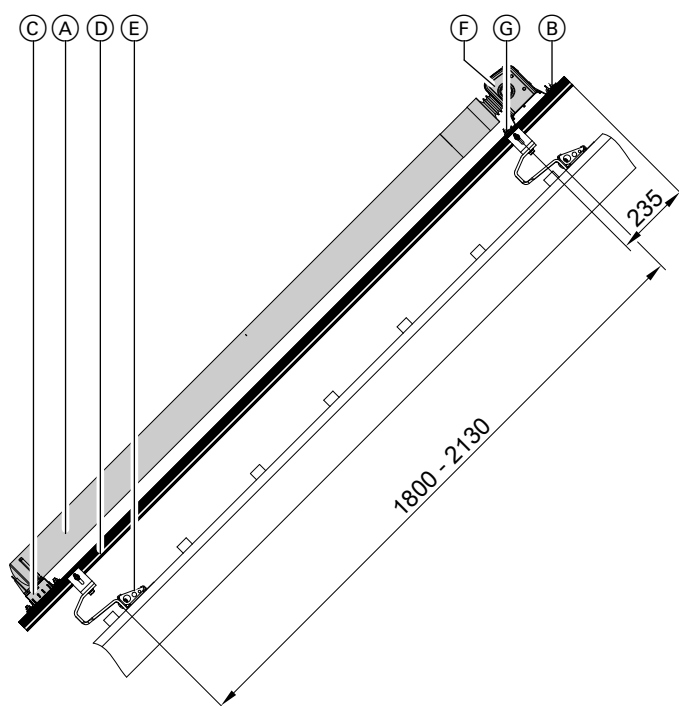


Fig. 20

(A) Vacuum tube
(B) Clamping bracket

(C) Tube retainer
(D) Mounting rail

Installation on pitched roofs with rafter hooks (cont.)

- Ⓔ Rafter hook
- Ⓕ Header casing
- Ⓖ Retaining bracket

The tables on page 7 onwards show which rafters the rafter hooks should be mounted on.

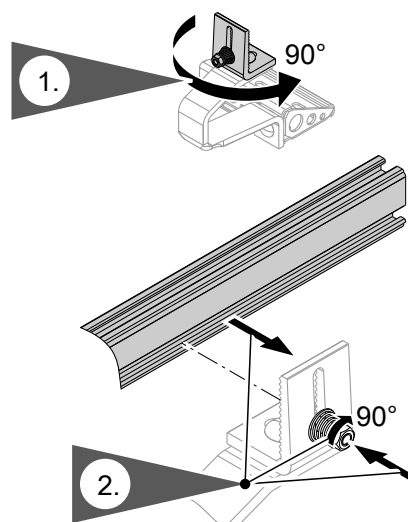


Fig. 21

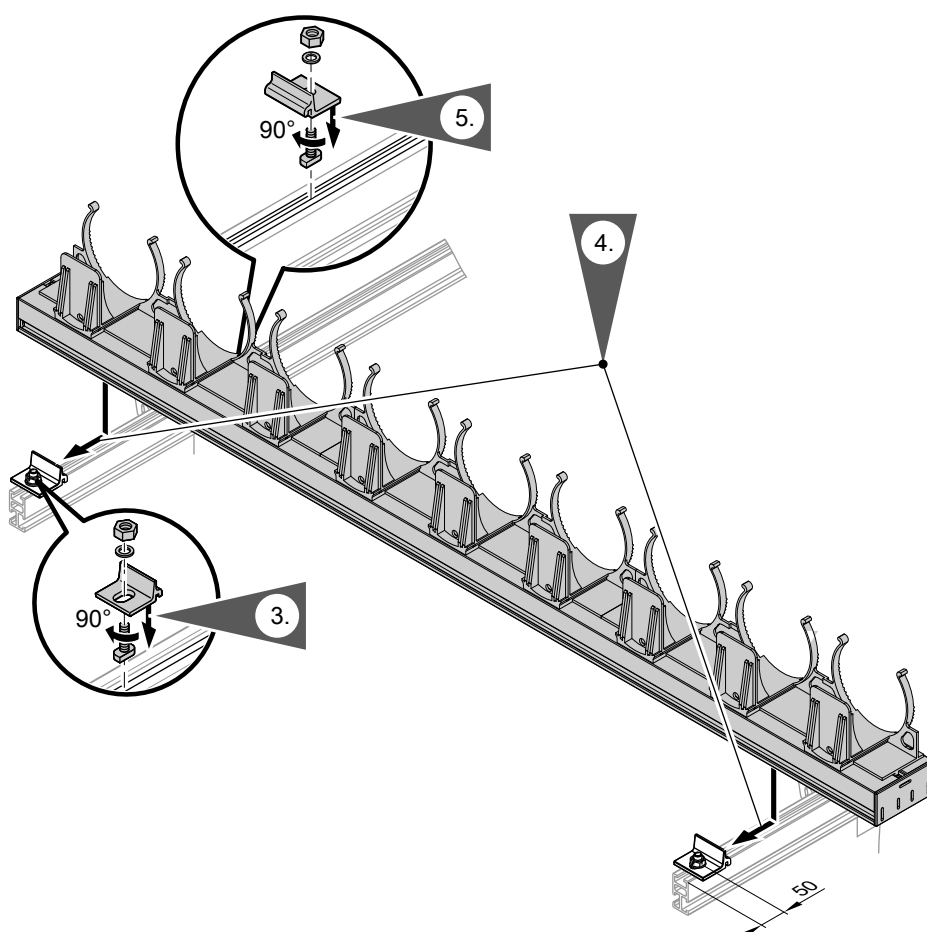


Fig. 22

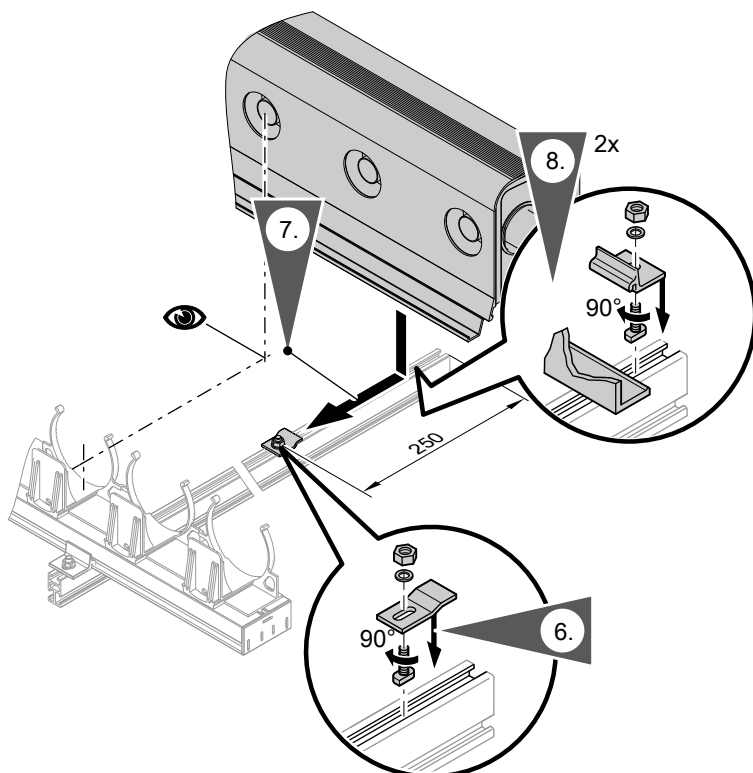


Fig. 23

Continue with chapter "Hydraulic connections" on page 48.

Horizontal installation

The vacuum tubes are positioned **parallel** to the roof ridge.

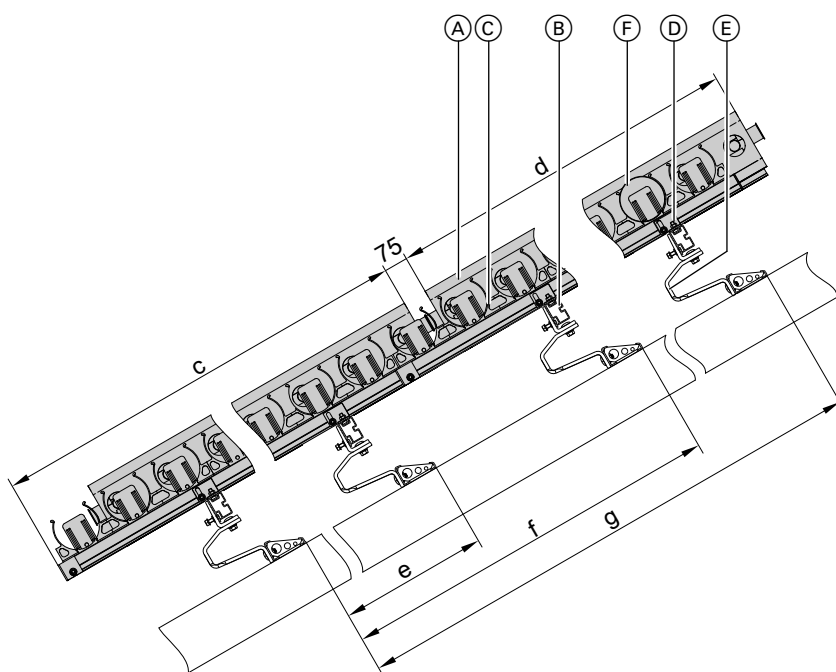


Fig. 24

- (A) Header casing
- (B) Mounting rail

- (C) Tube retainer
- (D) Mounting bracket

Installation on pitched roofs with rafter hooks (cont.)

- Ⓔ Rafter hook
- Ⓕ Vacuum tube

Combination	c	mm	d	mm	e	mm	f	mm	g	mm
1.63 m ²		1120		—		640		—		—
3.26 m ²		2290		—		1240		—		—
1.63 m ² /1.63 m ²		1120		1120		640		1190		1830
1.63 m ² /3.26 m ²		1120		2290		640		1470		2710
3.26 m ² /1.63 m ²		2290		1120		1240		2075		2710
3.26 m ² /3.26 m ²		2290		2290		1240		2370		3610

3 rafters are required for the total width. Leave the centre rafter **free**.

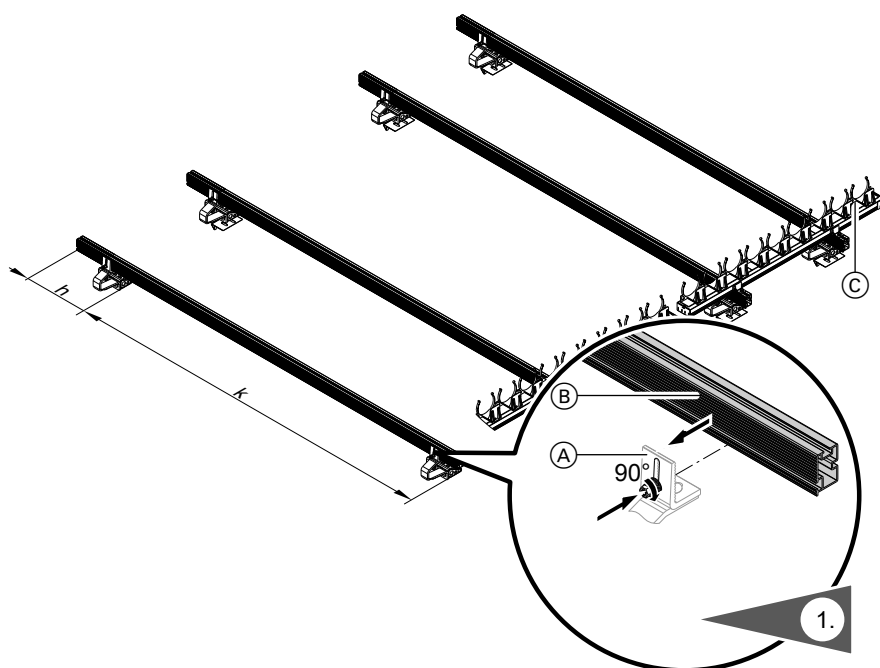


Fig. 25

- Ⓐ Rafter hook
- Ⓑ Mounting rail
- Ⓒ Tube retainer

Rafter spacing k in mm	Protrusion h in mm
600	400
700	300
800	200

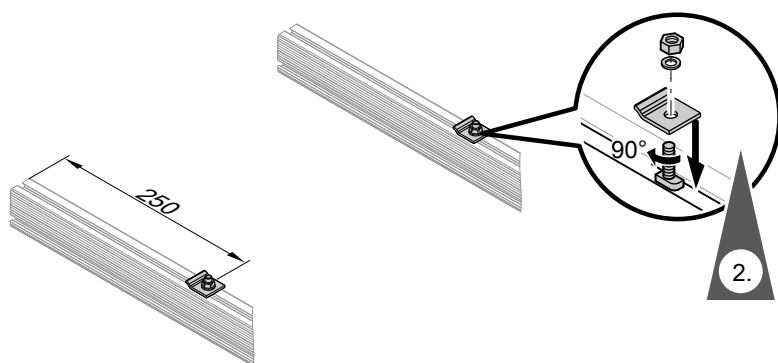


Fig. 26

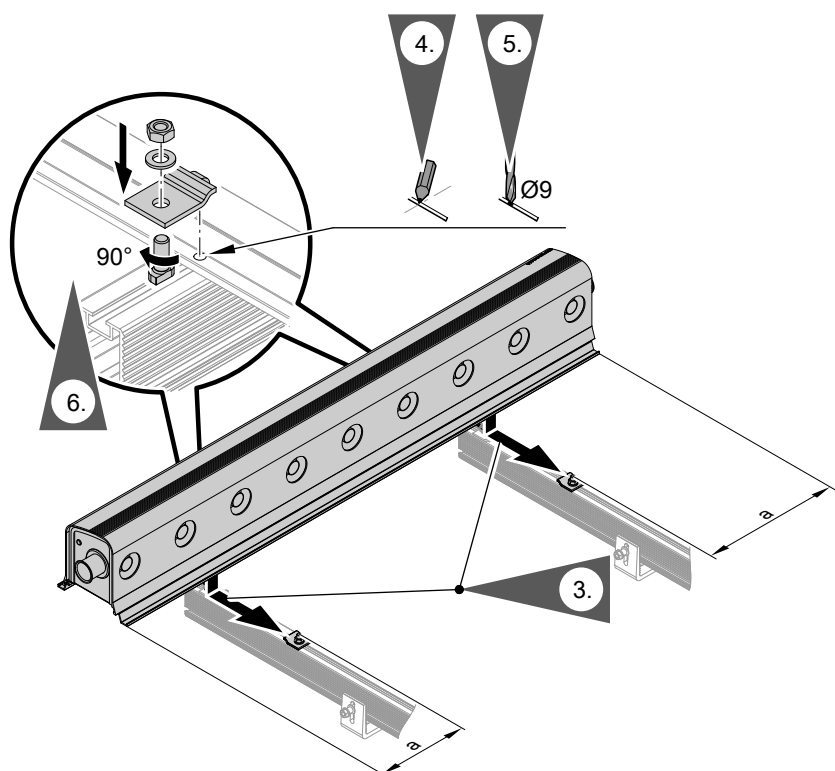


Fig. 27 Dimension a results once the header casing is placed on the mounting rails

Note on step 4:

Use the centring groove on the back of the header casing as a drilling guide.

Installation on pitched roofs with rafter hooks (cont.)

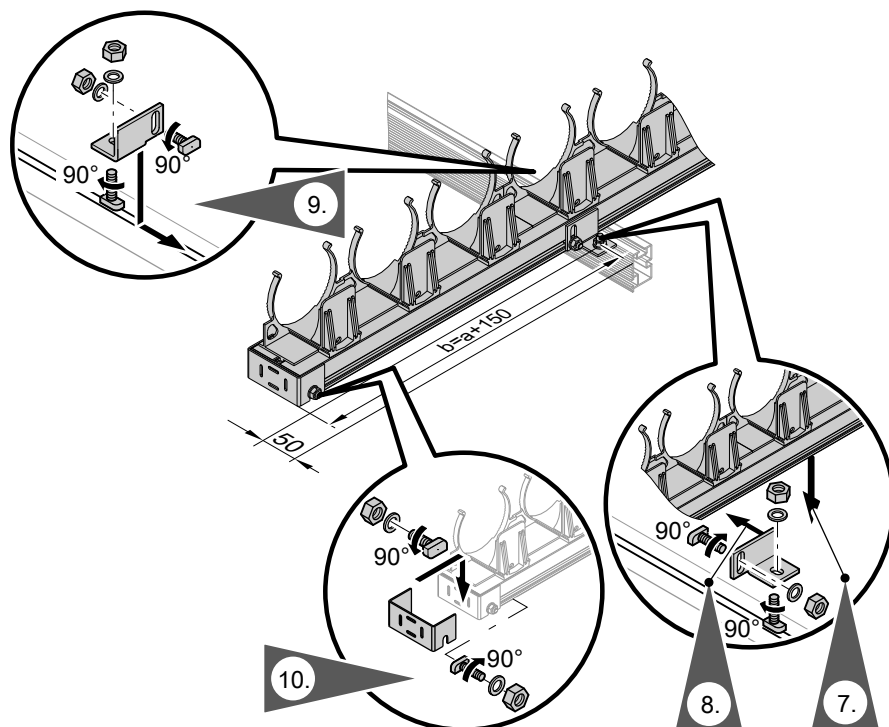


Fig. 28

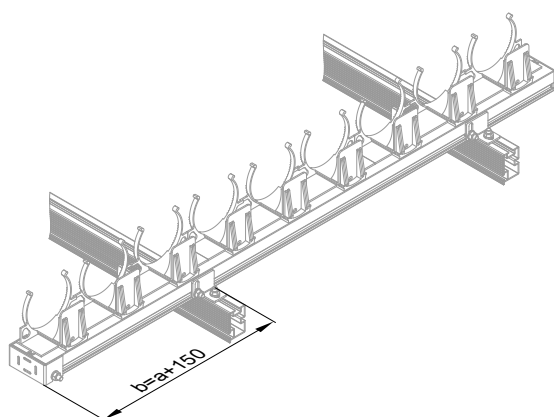


Fig. 29 Install the tube retainer at an **offset** to the header casing. This ensures that the vacuum tubes are inclined to the horizontal.

Note

Horizontal installation only possible for roof pitches $> 12^\circ$.

If the collectors are to be installed on roofs with a lower pitch, the mounting systems/rails must be aligned on site. The vacuum tubes must have a fall of at least 1° towards the centre of the earth.



Please note

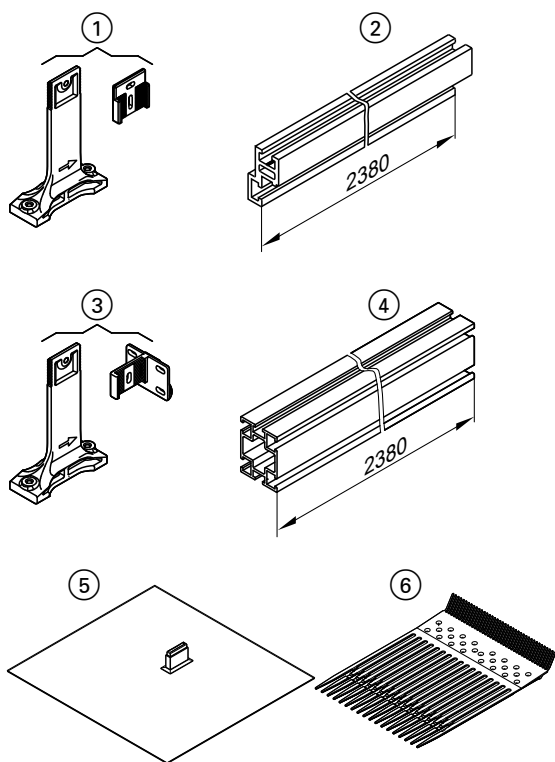
If there is no incline, correct function of the collector cannot be guaranteed. Always maintain dimension b.

Continue with chapter "Hydraulic connections" on page 48.

Installation on pitched roofs with rafter anchors

For **standard tiled** roof cover

Installation on pitched roofs with rafter... (cont.)



Vertical installation

- ① Rafter anchor
- ② Mounting rail
- ⑤ Seal
- ⑥ Plastic replacement tile, if the existing tiles are not to be cut.

Use only on roofs with a pitch of at least 12°.

Horizontal installation

- ③ Rafter anchor
- ④ Mounting rail
- ⑤ Seal
- ⑥ Plastic replacement tile, if the existing tiles are not to be cut.

Use only on roofs with a pitch of at least 12°.

Fitting the rafter anchors

The fitting of the rafter anchors applies to both **vertical** and **horizontal** collector installation.

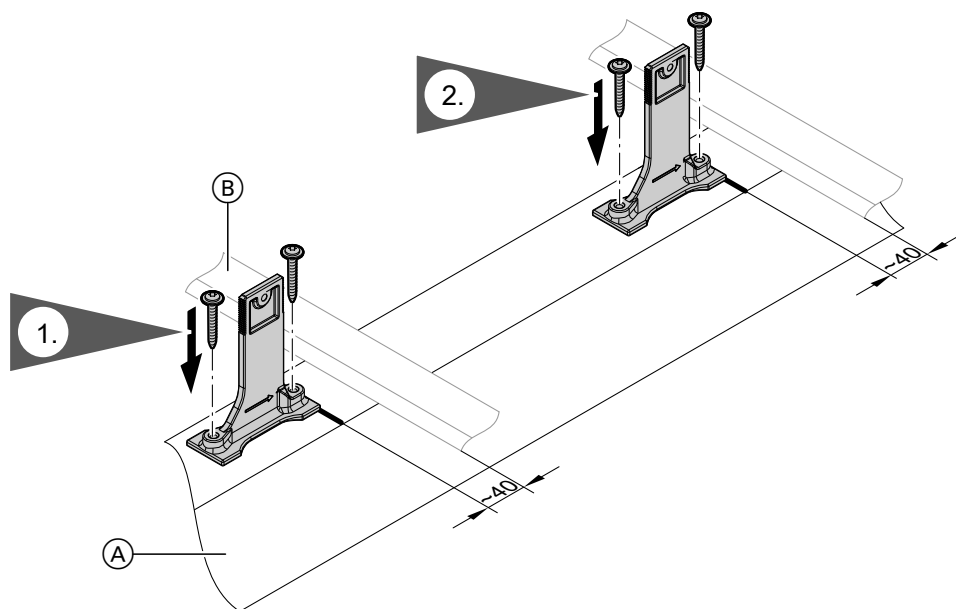


Fig. 30

Note

For the spacing between rafter anchors, see chapter "Vertical installation" or "Horizontal installation"

- Ⓐ Rafter
- Ⓑ Batten

Installation on pitched roofs with rafter... (cont.)

There are 2 installation options:

- Using plastic replacement tiles
- Cutting into the roof tile with an angle grinder

Installation with plastic replacement tiles

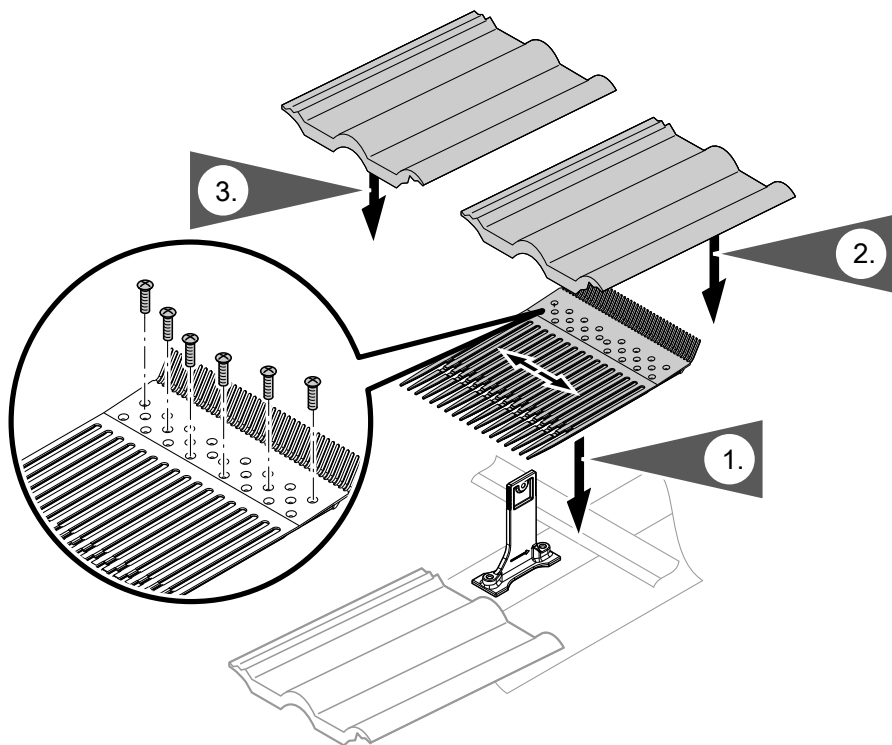


Fig. 31

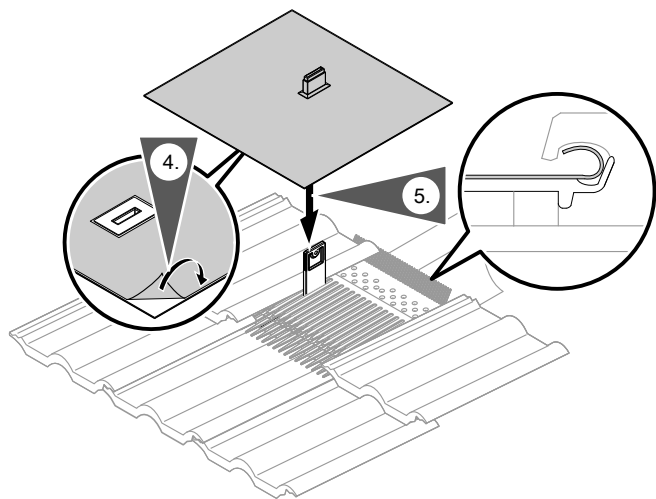


Fig. 32



Please note

Rainwater can cause building damage. To ensure good contact between the flashing and the roof surface, make the cut-out in the roof cover as small as possible. Affix the flashing carefully.

Installation involving cutting into the tiles

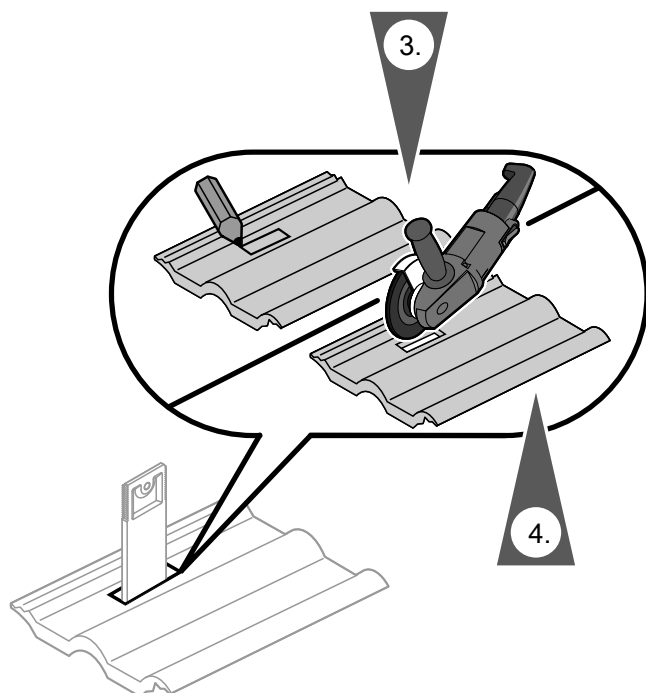


Fig. 33

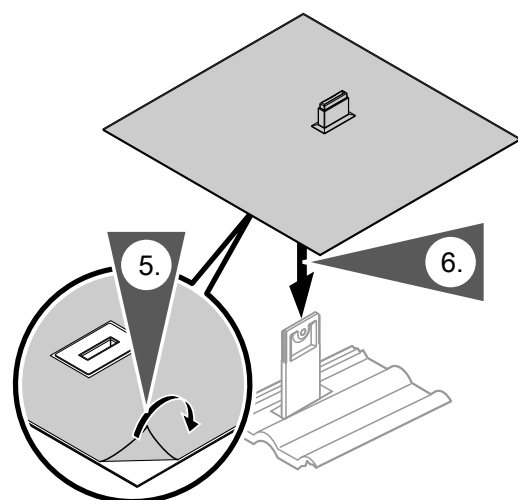


Fig. 34



Please note

Rainwater can cause building damage. To ensure good contact between the flashing and the roof surface, make the cut-out in the roof cover as small as possible. Affix the flashing carefully.

Vertical installation

The vacuum tubes are positioned **vertically** to the roof ridge.

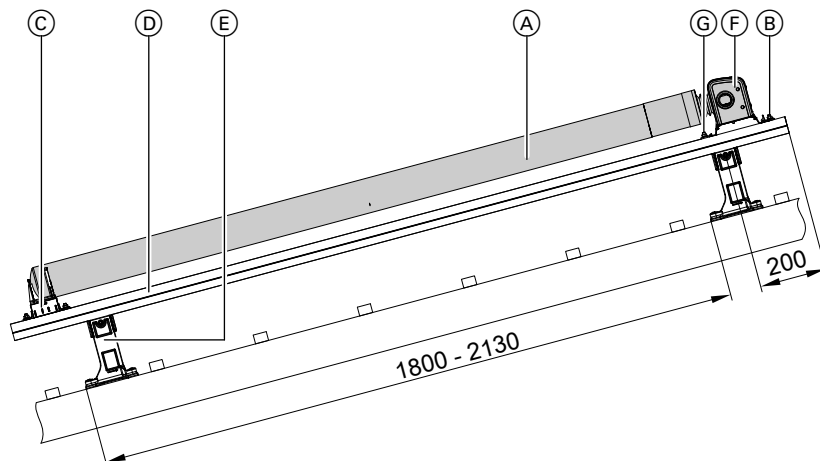


Fig. 35

- | | |
|--------------------|---------------------|
| Ⓐ Vacuum tube | Ⓔ Rafter anchor |
| Ⓑ Clamping bracket | Ⓕ Header casing |
| Ⓒ Tube retainer | Ⓖ Retaining bracket |
| Ⓓ Mounting rail | |

The tables on page 7 onwards show which rafters the rafter anchors should be mounted on.

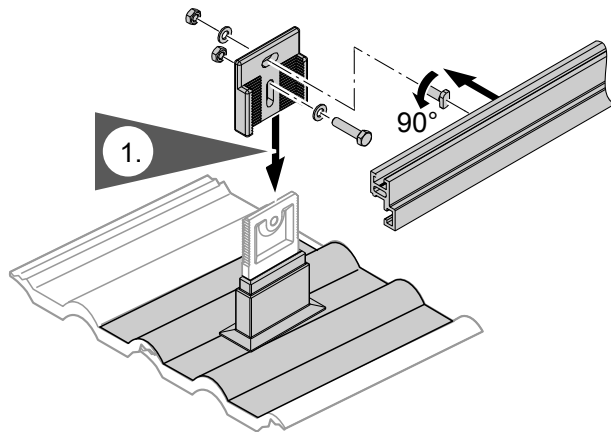


Fig. 36

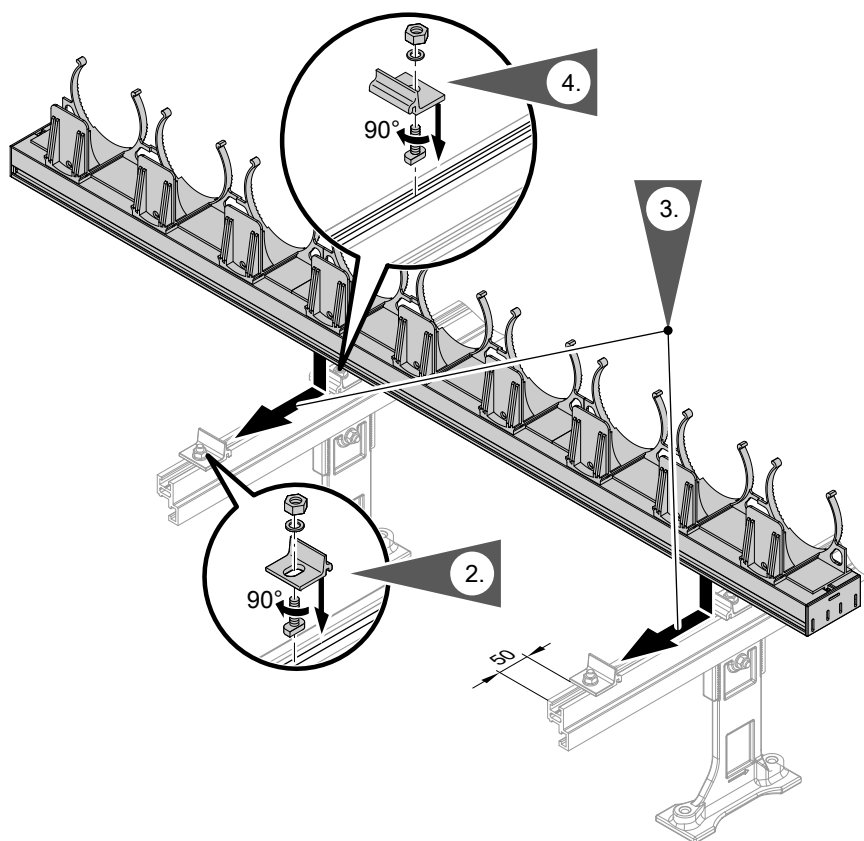


Fig. 37

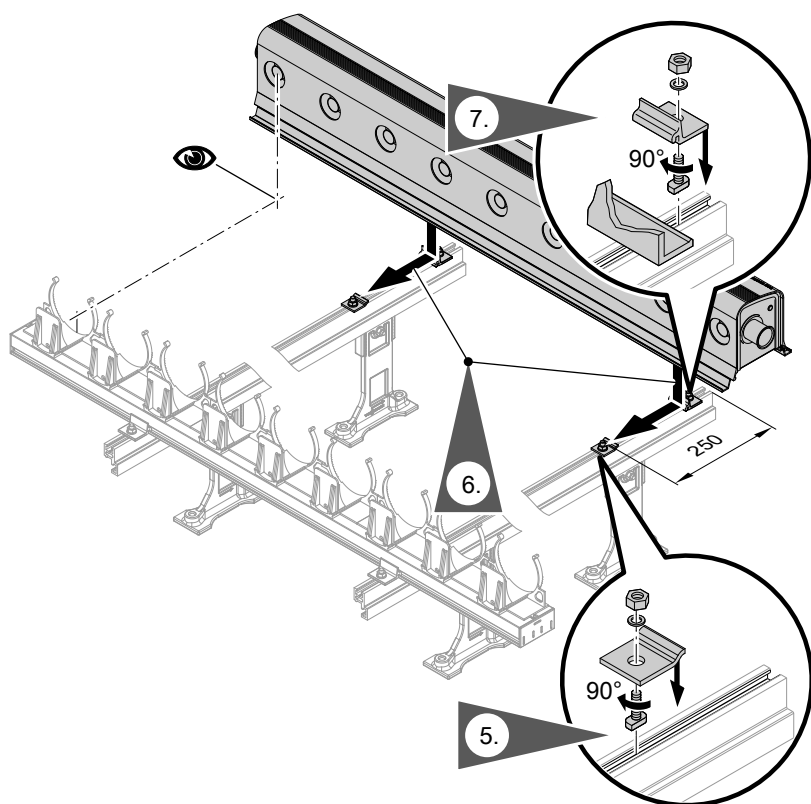


Fig. 38

Continue with chapter "Hydraulic connections" on page 48.

Horizontal installation

The vacuum tubes are positioned **parallel** to the roof ridge.

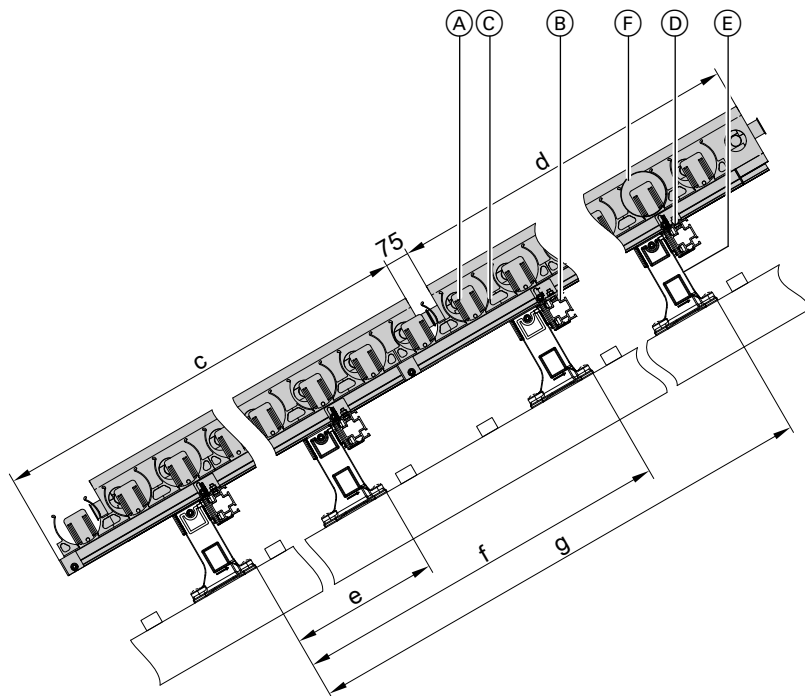


Fig. 39

- | | |
|-----------------|--------------------|
| Ⓐ Header casing | Ⓓ Clamping bracket |
| Ⓑ Mounting rail | Ⓔ Rafter anchor |
| Ⓒ Tube retainer | Ⓕ Vacuum tube |

Combination	c	mm	d	mm	e	mm	f	mm	g	mm
1.63 m ²		1120	—		640		—		—	
3.26 m ²		2290	—		1240		—		—	
1.63 m ² /1.63 m ²		1120	1120		640		1190		1830	
1.63 m ² /3.26 m ²		1120	2290		640		1470		2710	
3.26 m ² /1.63 m ²		2290	1120		1240		2075		2710	
3.26 m ² /3.26 m ²		2290	2290		1240		2370		3610	

Installation on pitched roofs with rafter... (cont.)

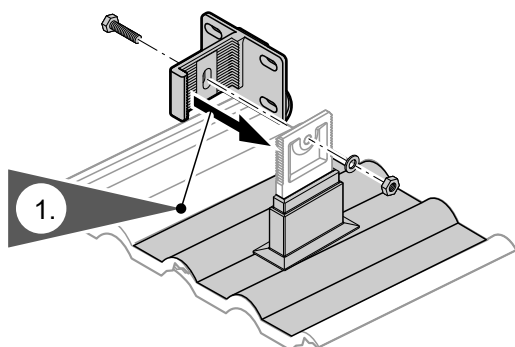


Fig. 40

3 rafters are required for the total width. Leave the centre rafter **free**.

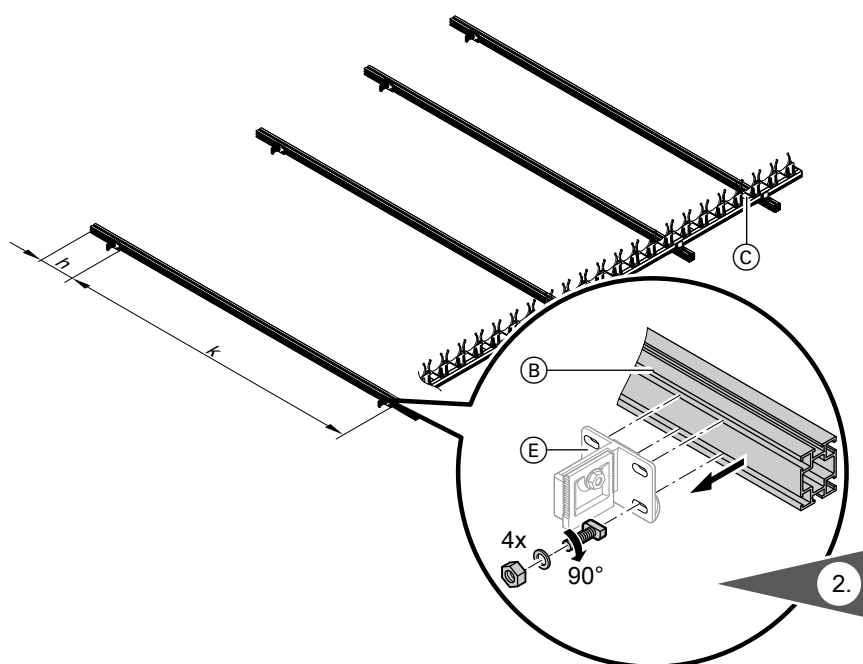


Fig. 41

- Ⓑ Mounting rail
- Ⓒ Tube retainer
- Ⓔ Rafter anchor

Rafter spacing k in mm	Protrusion h in mm
600	400
700	300
800	200

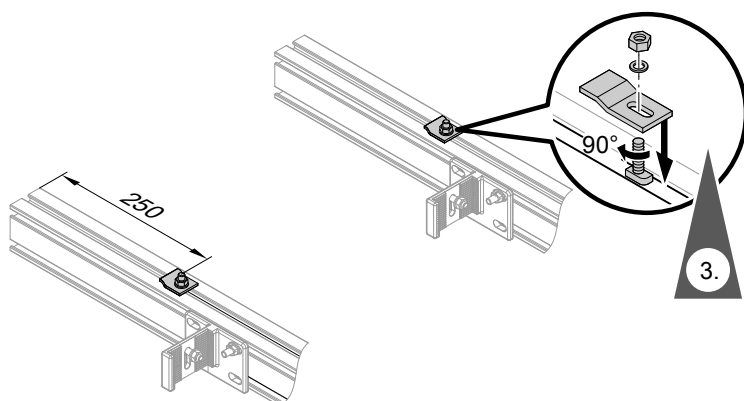


Fig. 42

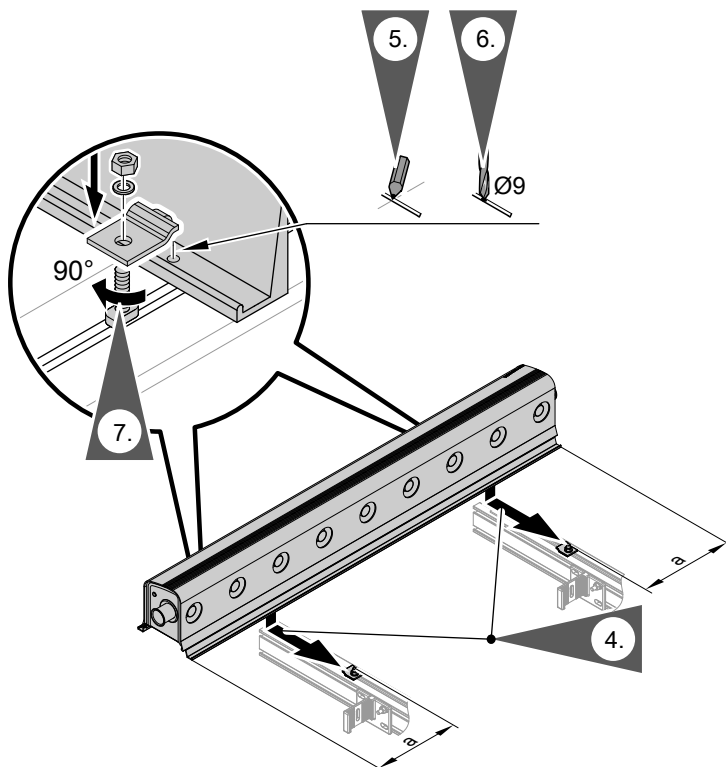


Fig. 43 Dimension *a* results once the header casing is placed on the mounting rails

Note on step 5:

Use the centring groove on the back of the header casing as a drilling guide.

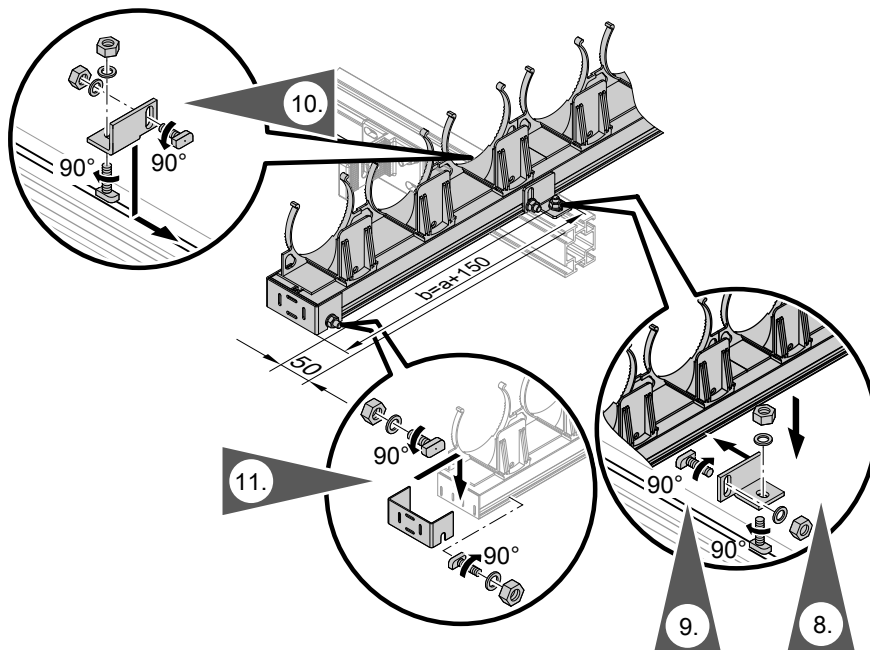


Fig. 44

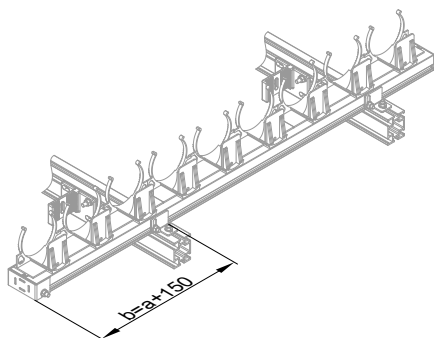


Fig. 45 Install the tube retainer at an **offset** to the header casing. This ensures that the vacuum tubes are inclined to the horizontal.



Please note

If there is no incline, correct function of the collector cannot be guaranteed.
Always maintain dimension b.

Continue with chapter "Hydraulic connections" on page 48.

Installation on pitched roofs with mounting brackets

For sheet metal roofs

Vertical installation

The vacuum tubes are positioned **vertically** to the roof ridge

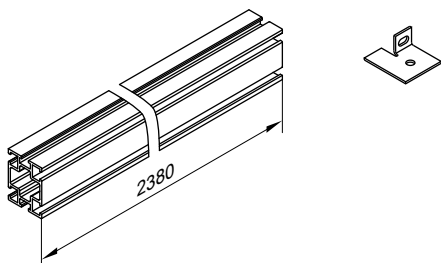


Fig. 46

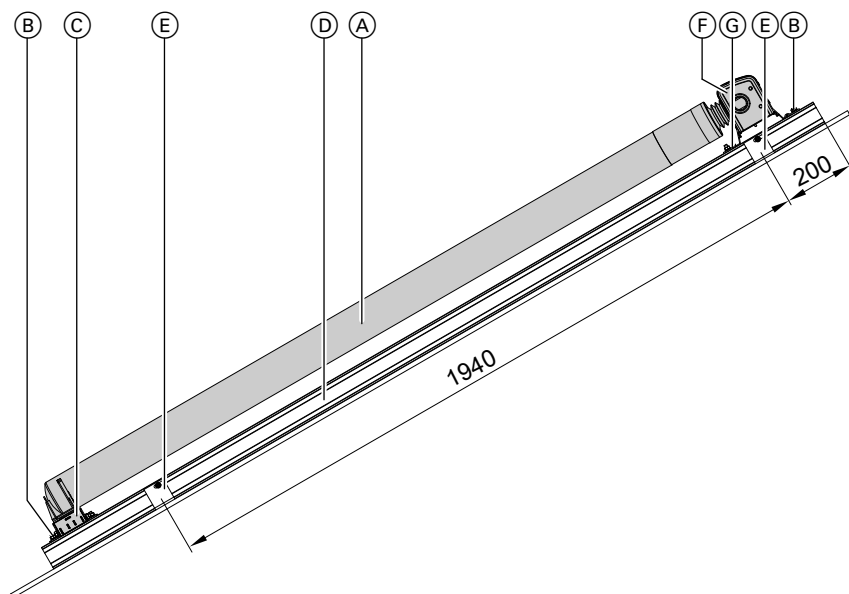


Fig. 47

- | | |
|----------------------|-----------------------|
| (A) Vacuum tube | (E) Mounting bracket |
| (B) Clamping bracket | (F) Header casing |
| (C) Tube retainer | (G) Retaining bracket |
| (D) Mounting rail | |

A distinction is made between the following two options for arranging the mounting brackets side by side:

- Installation **dependent** on rafter spacing:
The tables on page 7 onwards show which rafters the mounting brackets should be mounted on.
- Installation **independent** of rafter spacing: See the following diagram

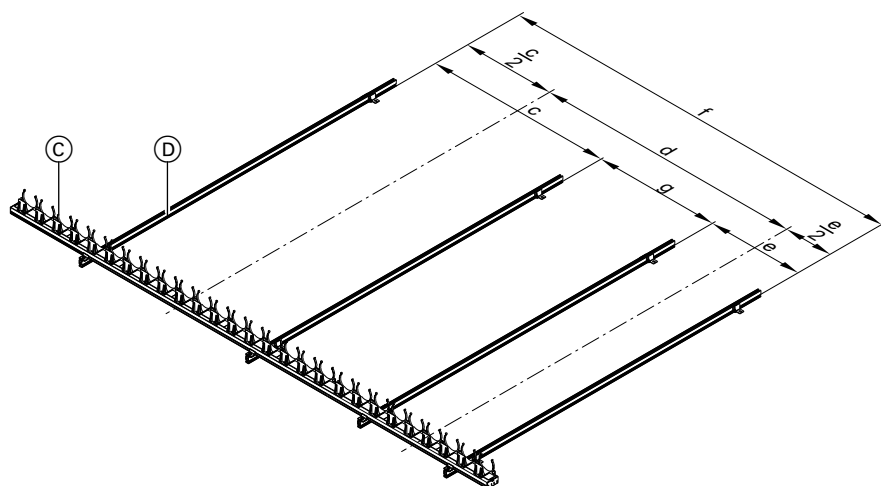


Fig. 48

- | |
|-------------------|
| (C) Tube retainer |
| (D) Mounting rail |

Installation on pitched roofs with mounting... (cont.)

Combination	c	mm	d	mm	e	mm	f	mm	g	mm
1.63 m ²		640		—		—		—		—
3.26 m ²		1240		—		—		—		—
1.63 m ² /1.63 m ²		640		1265		640		1875		625
1.63 m ² /3.26 m ²		640		1850		1240		2790		910
3.26 m ² /3.26 m ²		1240		2435		1240		3645		1165

Use **on-site** fixings to secure the mounting brackets.

The installation is shown using standing seam profiles as an example.

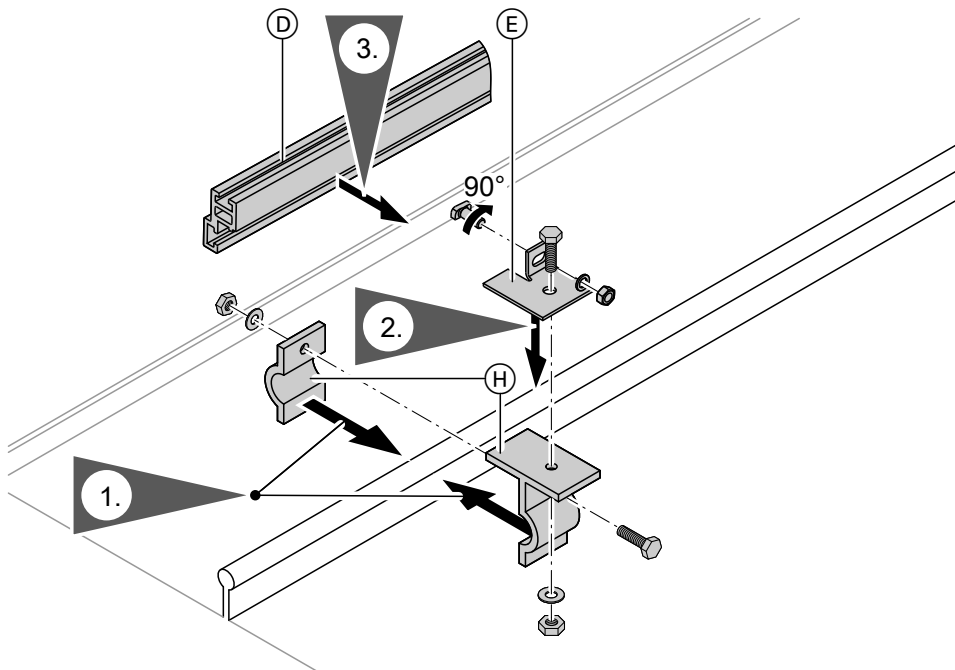


Fig. 49

- Ⓓ Mounting rail
- Ⓔ Mounting bracket
- Ⓕ Fixings and screws to be provided on site

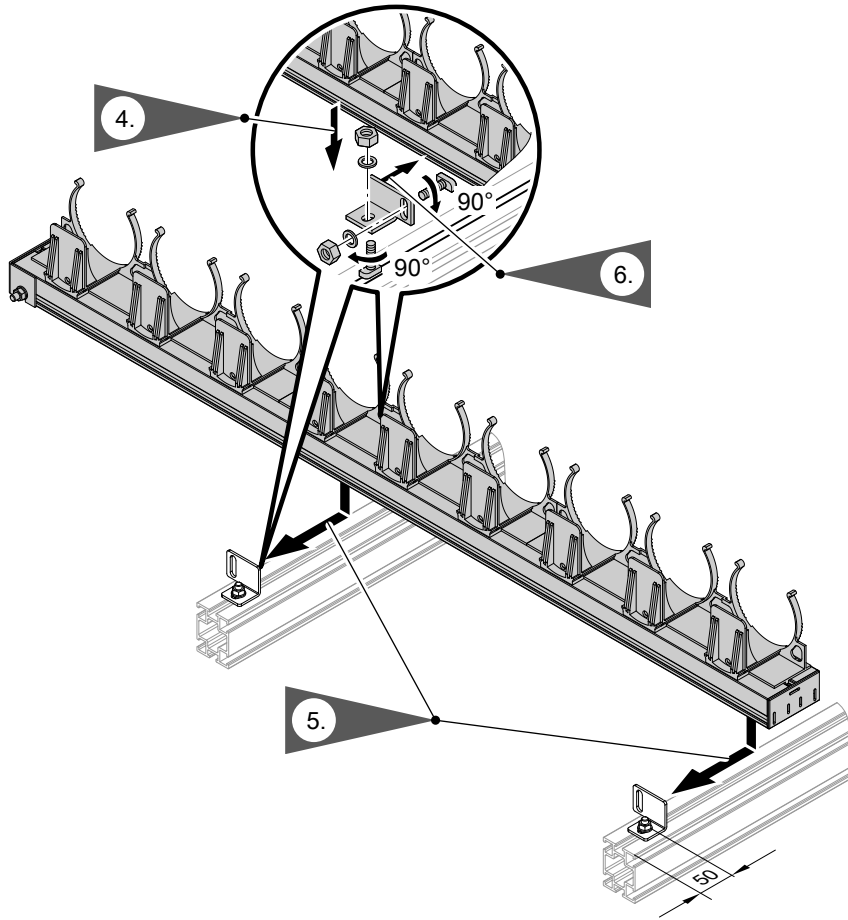


Fig. 50

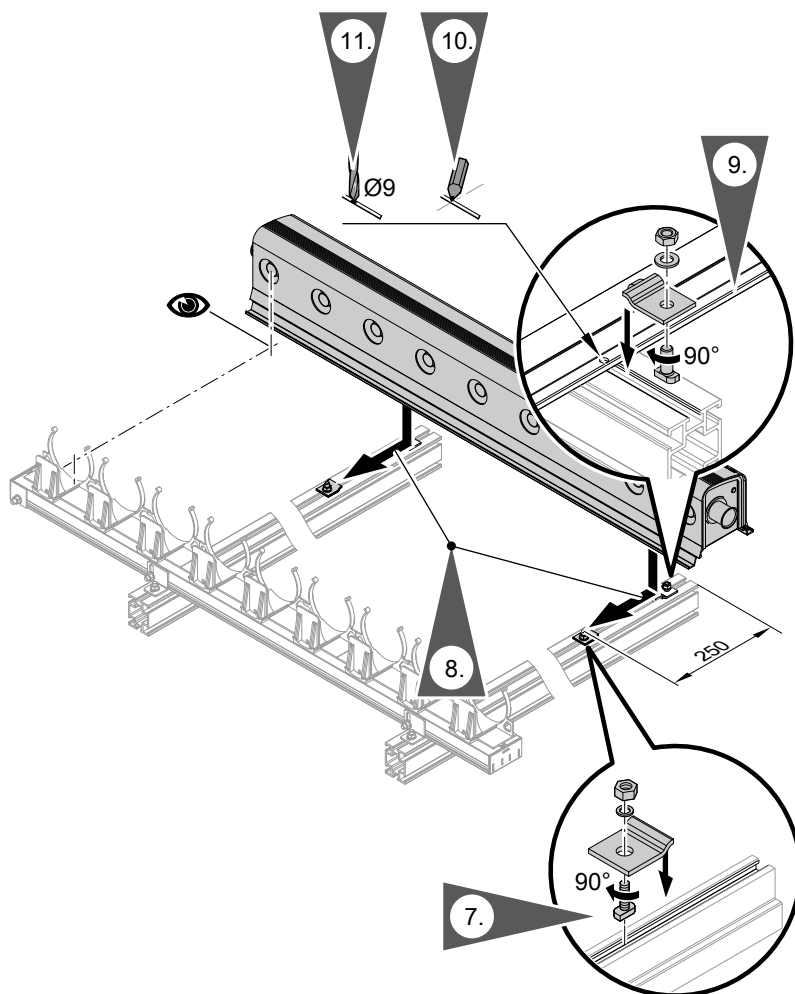


Fig. 51

10. Use the centring groove on the back of the header casing as a drilling guide.

Continue with chapter "Hydraulic connections" on page 48.

Horizontal installation

The vacuum tubes are positioned **parallel** to the roof ridge

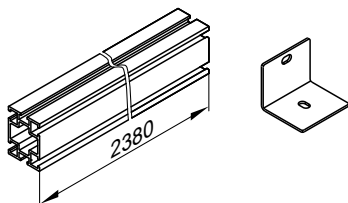


Fig. 52

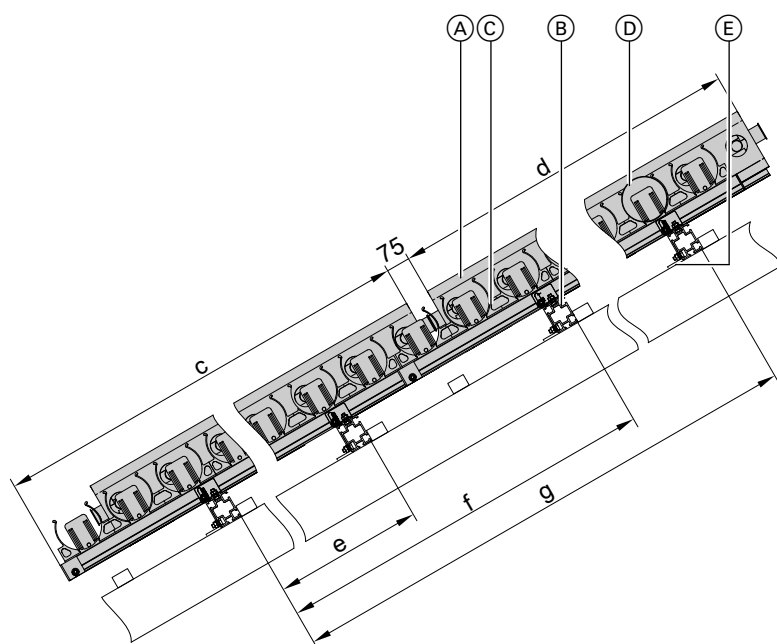


Fig. 53

- Ⓐ Header casing
- Ⓑ Mounting rail
- Ⓒ Tube retainer
- Ⓓ Vacuum tube
- Ⓔ Mounting bracket

Combination	c	mm	d	mm	e	mm	f	mm	g	mm
1.63 m ²		1120	—		640		—		—	
3.26 m ²		2290	—		1240		—		—	
1.63 m ² / 1.63 m ²		1120	1120		640		1190		1830	
1.63 m ² / 3.26 m ²		1120	2290		640		1470		2710	
3.26 m ² / 1.63 m ²		2290	1120		1240		2075		2710	
3.26 m ² / 3.26 m ²		2290	2290		1240		2370		3610	

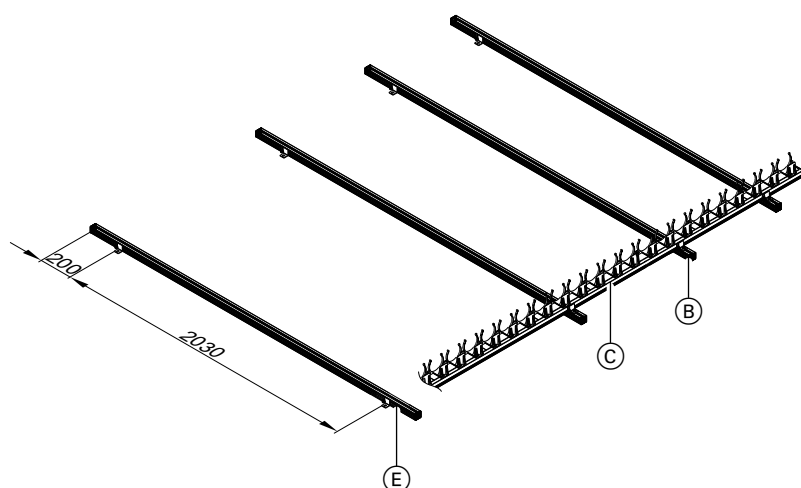


Fig. 54

- Ⓑ Mounting rail
- Ⓒ Tube retainer
- Ⓔ Mounting bracket

Use **on-site** fixings to secure the mounting brackets.

Installation on pitched roofs with mounting... (cont.)

The installation is shown using standing seam profiles as an example.

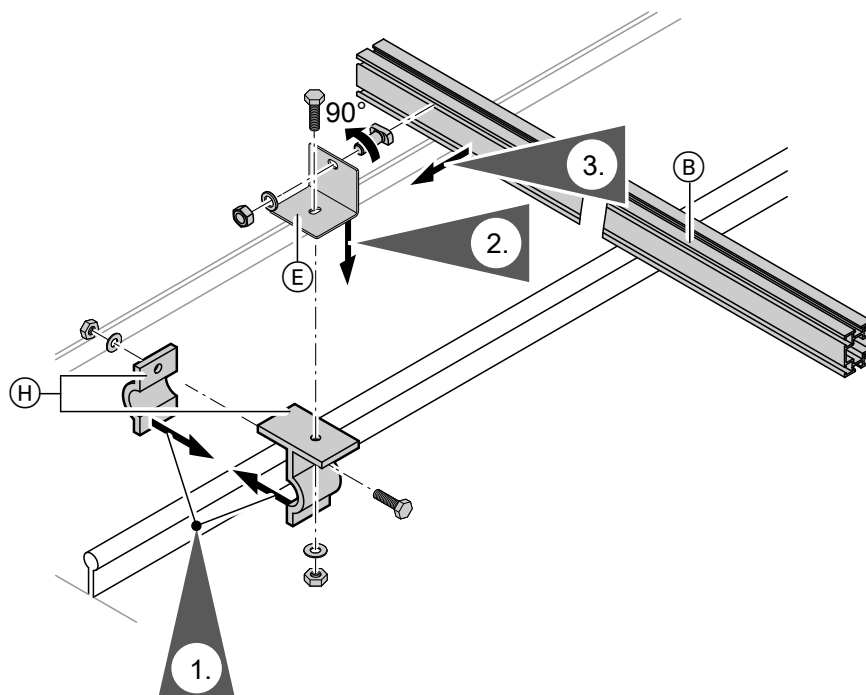


Fig. 55

- Ⓑ Mounting rail
- Ⓔ Mounting bracket
- Ⓕ Fixings and screws to be provided on site

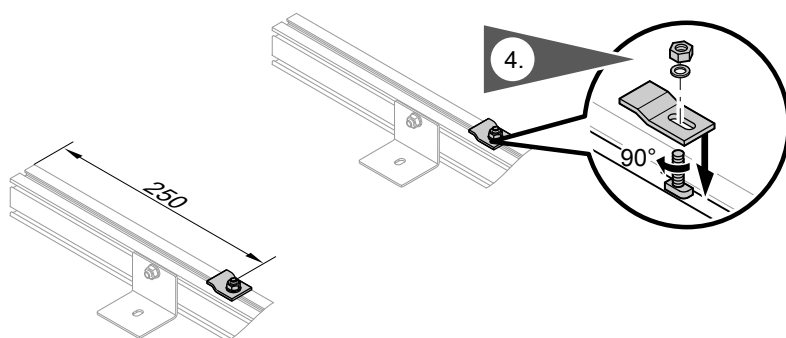


Fig. 56

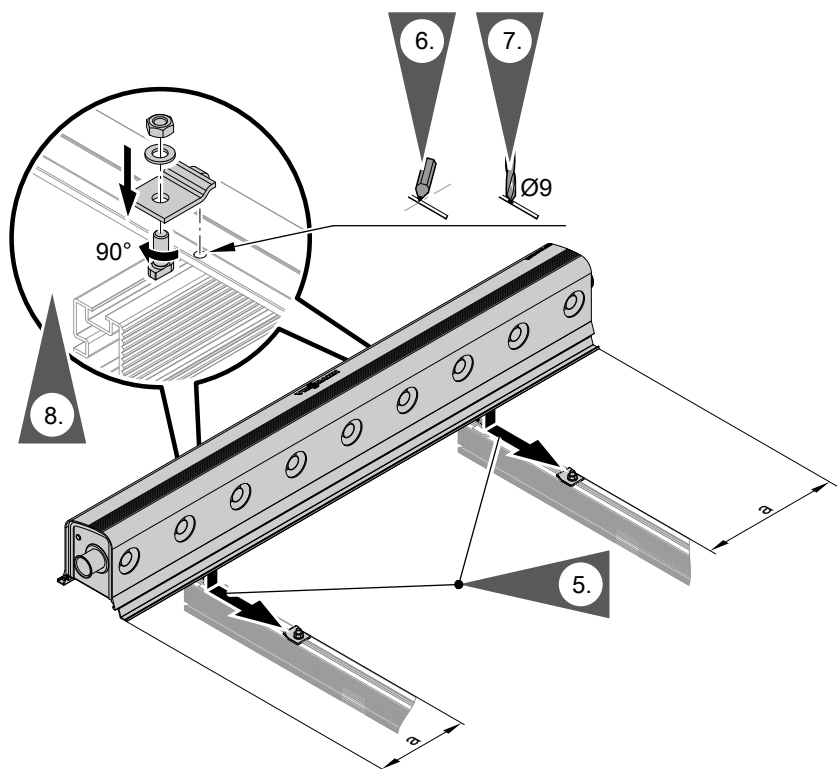


Fig. 57 Dimension *a* results once the header casing is placed on the mounting rails.

Note on step 6:

Use the centring groove on the back of the header casing as a drilling guide.

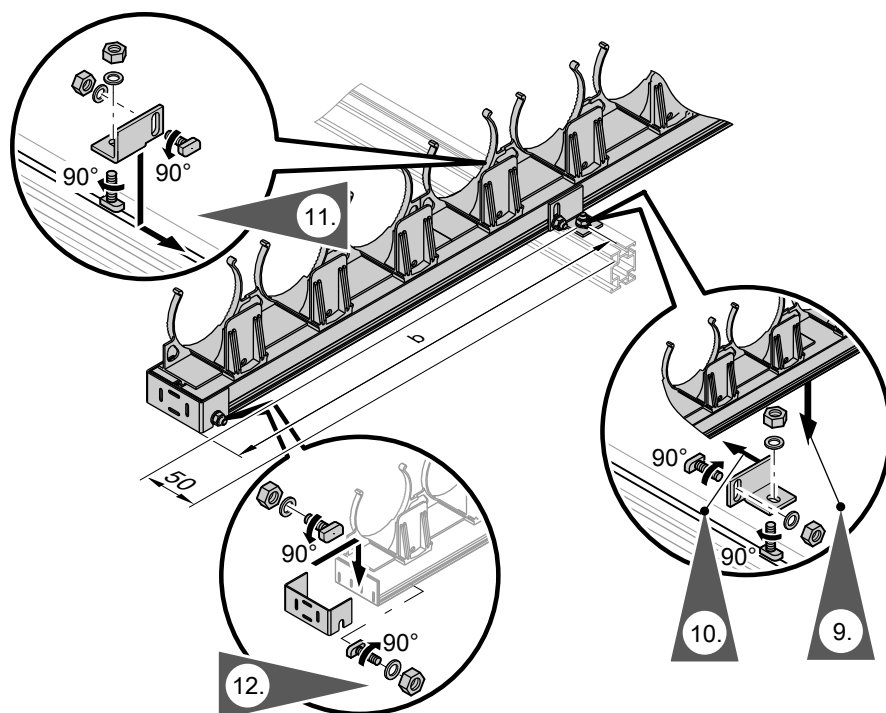


Fig. 58

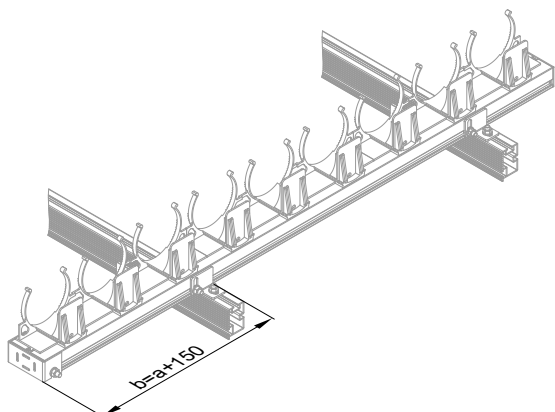


Fig. 59 Install the tube retainer at an **offset** to the header casing. This ensures that the vacuum tubes are inclined to the horizontal.

Note

Horizontal installation only possible for roof pitches $> 12^\circ$.

If the collectors are to be installed on roofs with a lower pitch, the mounting systems/rails must be aligned on site. The vacuum tubes must have a fall of at least 1° towards the centre of the earth.



Please note

If there is no incline, correct function of the collector cannot be guaranteed.

Always maintain dimension b.

Continue with chapter "Hydraulic connections" on page 48.

Installation on collector supports

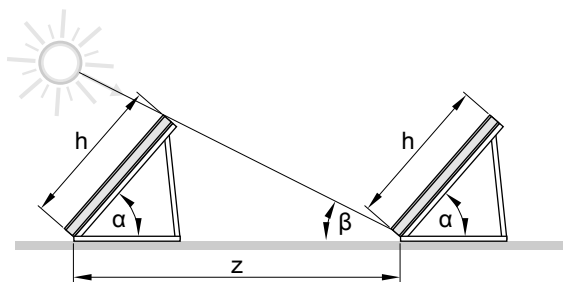
Prevent shading if several collectors are installed one behind the other. Maintain clearance z between rows.

1. Determine the angle β of the sun on 21 December (shortest day of the year) at midday.
In Germany, this angle measures between 11.5° (Flensburg) and 19.5° (Konstanz), subject to latitude.

Example:

Würzburg is located approximately at latitude 50° north. In the northern hemisphere, this value is deducted from a fixed angle of 66.5° :
 $\beta = 66.5^\circ - 50^\circ = 16.5^\circ$

2. To calculate dimension z:
 $h = 2260 \text{ mm}$
 $\alpha = 45^\circ$
 $\beta = 16.5^\circ$



$$\frac{z}{h} = \frac{\sin (180^\circ - (\alpha + \beta))}{\sin \beta}$$

$$z = \frac{2260 \text{ mm} \cdot \sin (180^\circ - 61.5^\circ)}{\sin 16.5^\circ}$$

$$z = 6993 \text{ mm}$$

Fig. 60

z Collector row spacing
h Collector height

α Angle of collector inclination
β Angle of the sun

Installation information

- The collector supports for collector angles of inclination α 25°, 45° and 60° are pre-assembled with screws, washers, nuts and clamping brackets.
- Observe the maximum load and distance from the edge of the roof for the on-site substructure to EN 1991.
- Remove any gravel or similar from the installation area. Cover the area with protective mats and position the support slabs on top of the mats (see diagram below).
- Align the collector array to face due south.
- Calculation of ballast and maximum load on the substructure according to EN 1991-1-3 and EN 1991-1-4. 2 support slabs are required for each collector. The Viessmann "SOLSTAT" calculation program is available at www.viessmann.com to assist with calculations.
- For calculating dimension z, see page 41.

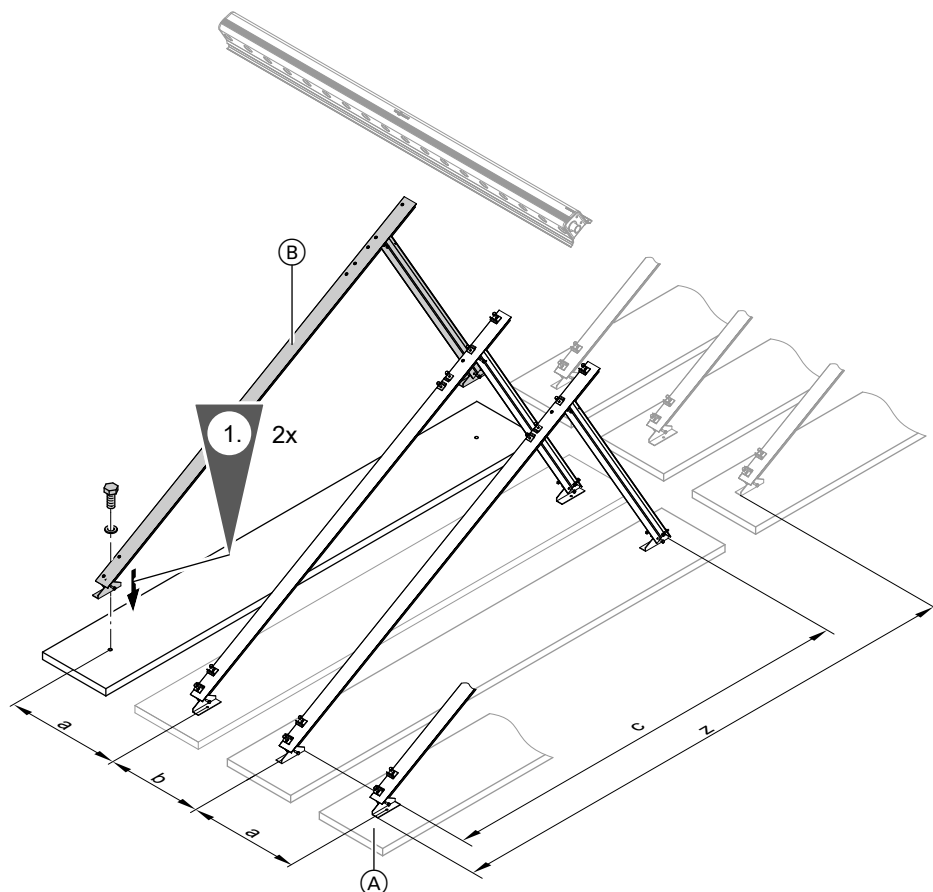


Fig. 61 Use the mounting feet as a drilling template.

- Ⓐ Support slab
- Ⓑ Collector support

For calculating dimension z, see page 41

Collector area	a	mm
1.63 m ²		640
3.26 m ²		1240

Combination	b	mm
1.63 m ² /1.63 m ²		552
1.63 m ² /3.26 m ²		832
3.26 m ² /3.26 m ²		1127

Installation angle	c	mm
30°		2413
45°		2194
60°		1818

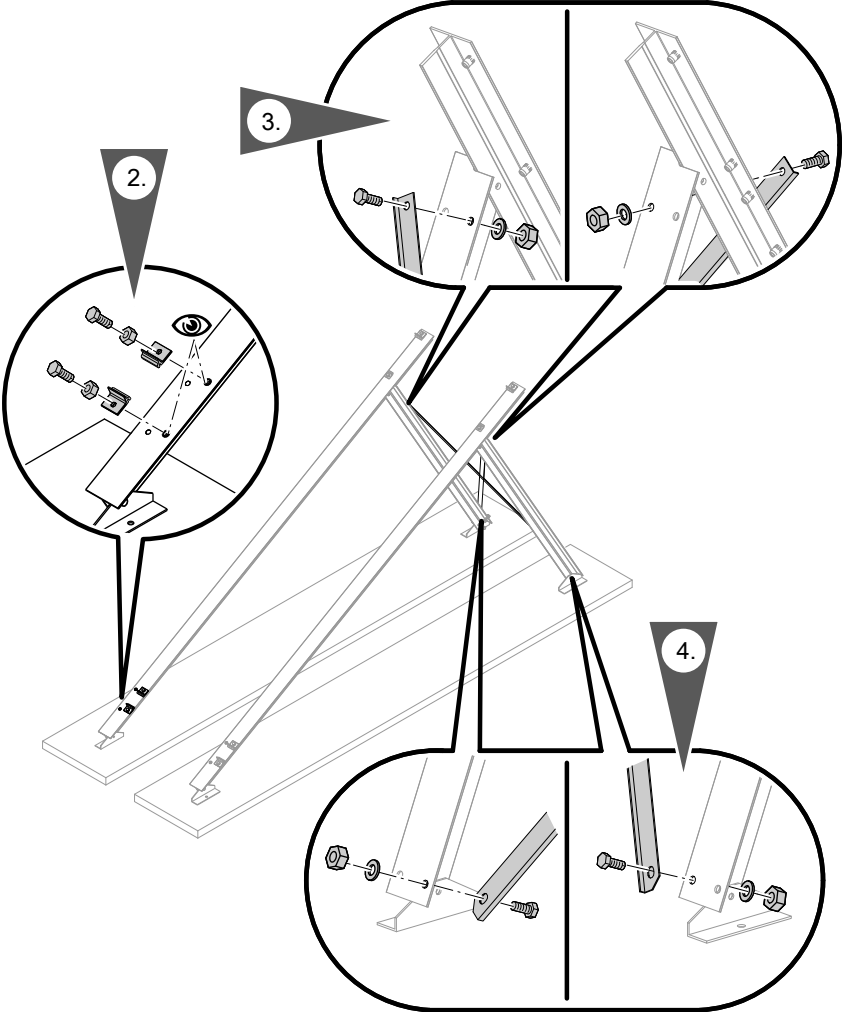


Fig. 62

Note on steps 3 and 4:

Fit the cross braces to the collector supports alternately from above and below.
If several collectors are installed side by side, fit one set of cross braces to the 1st collector array and one to the last.

The length of the braces on the cross braces depends on the installation angle of the collectors.
Shorten the braces on site.

Installation angle	Length of braces for collector area:	
	1.63 m²	3.26 m²
30°	1300 mm	1650 mm
45°	1725 mm	2000 mm
60°	2023 mm	—

Note

Shorten the cross braces on the opposite side to the slot.



Please note

If there is no incline, correct function of the collector cannot be guaranteed.
Install the collector with an incline of at least 1°.

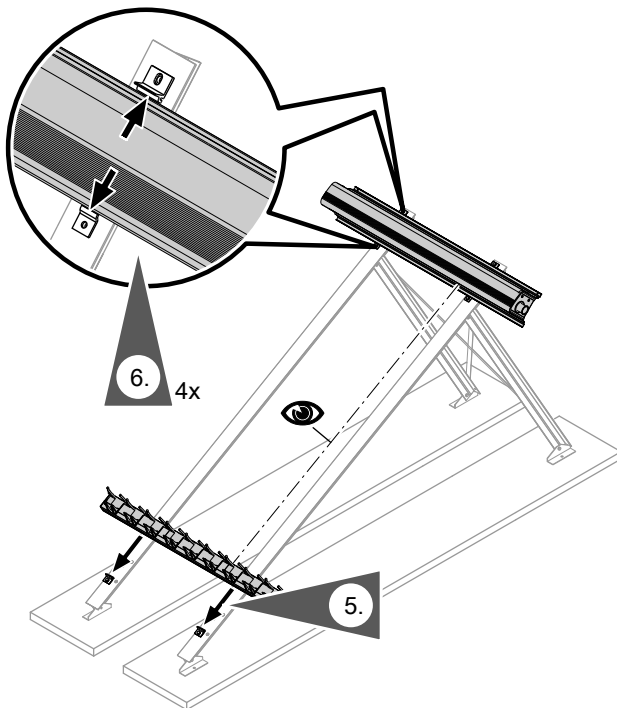


Fig. 63

Continue with chapter "Hydraulic connections" on page 48.

Horizontal installation

For flat roofs

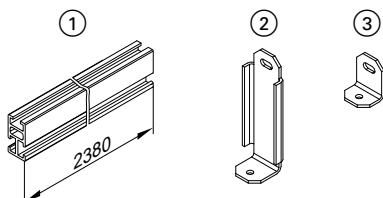


Fig. 64

- ① Mounting rail
- ② Retaining bracket, top
- ③ Retaining bracket, bottom

Installation information

- Observe the maximum load and distance from the edge of the roof for the on-site substructure to EN 1991.
- Remove any gravel or similar from the installation area. Cover the area with protective mats and position the support slabs on top of the mats (see diagram below).
- Align the collector array to face due south.
- Calculation of ballast and maximum load on the substructure according to EN 1991-1-3 and EN 1991-1-4. 4 support slabs are required for each collector. The Viessmann "SOLSTAT" calculation program is available at www.viessmann.com to assist with calculations.

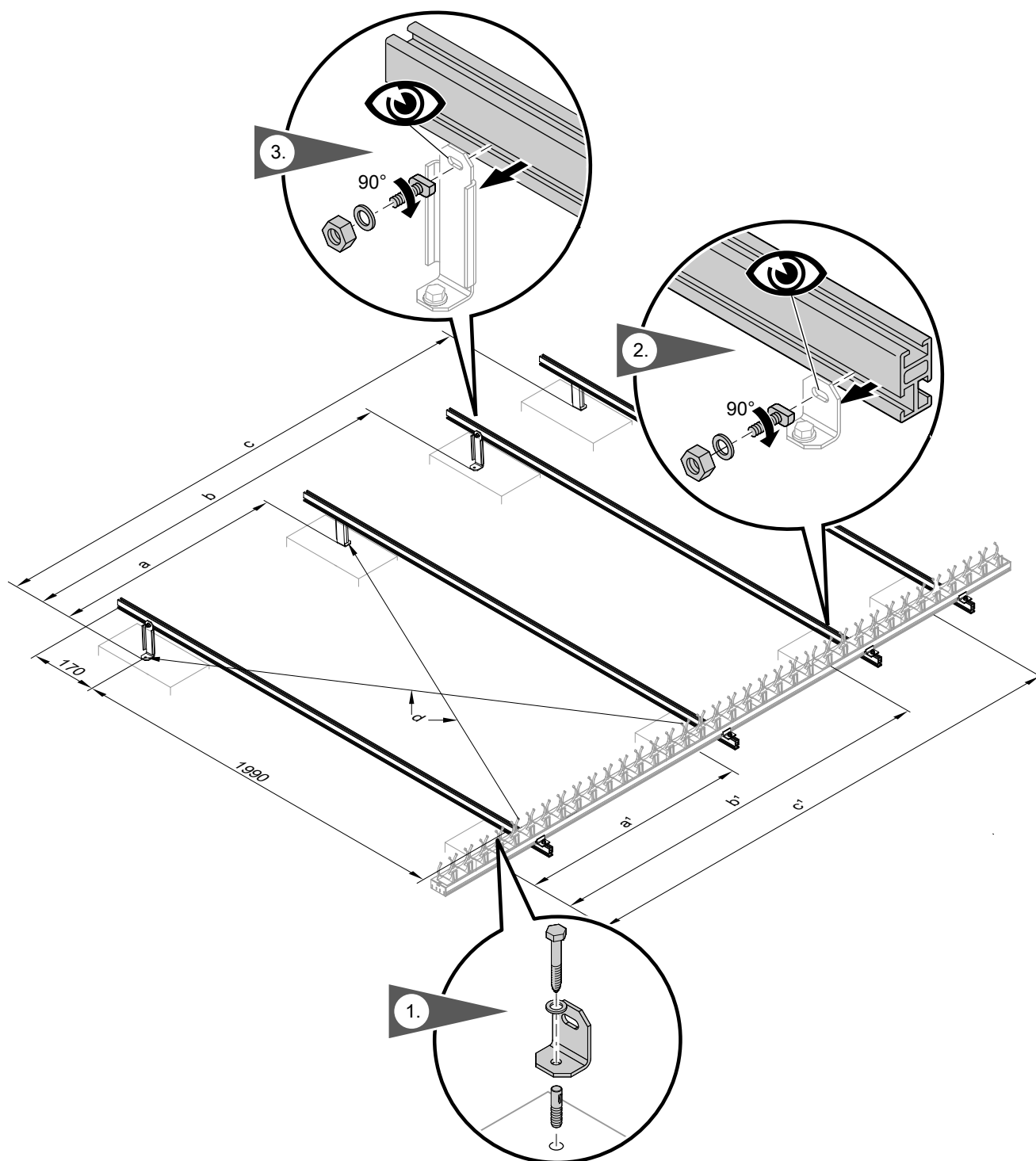


Fig. 65 Screws to be supplied on site.

Combination	a	mm	a'	mm	b = b'	mm	c	mm	c'	mm	d	mm
1.63 m ²		700		680		—		—		—		2105
3.26 m ²		1300		1280		—		—		—		2370
1.63 m ² /1.63 m ²		700		680		1195		1895		1875		—
1.63 m ² /3.26 m ²		700		680		1480		2780		2760		—
3.26 m ² /1.63 m ²		1300		1280		2080		2780		2760		—
3.26 m ² /3.26 m ²		1300		1280		2365		3665		3645		—

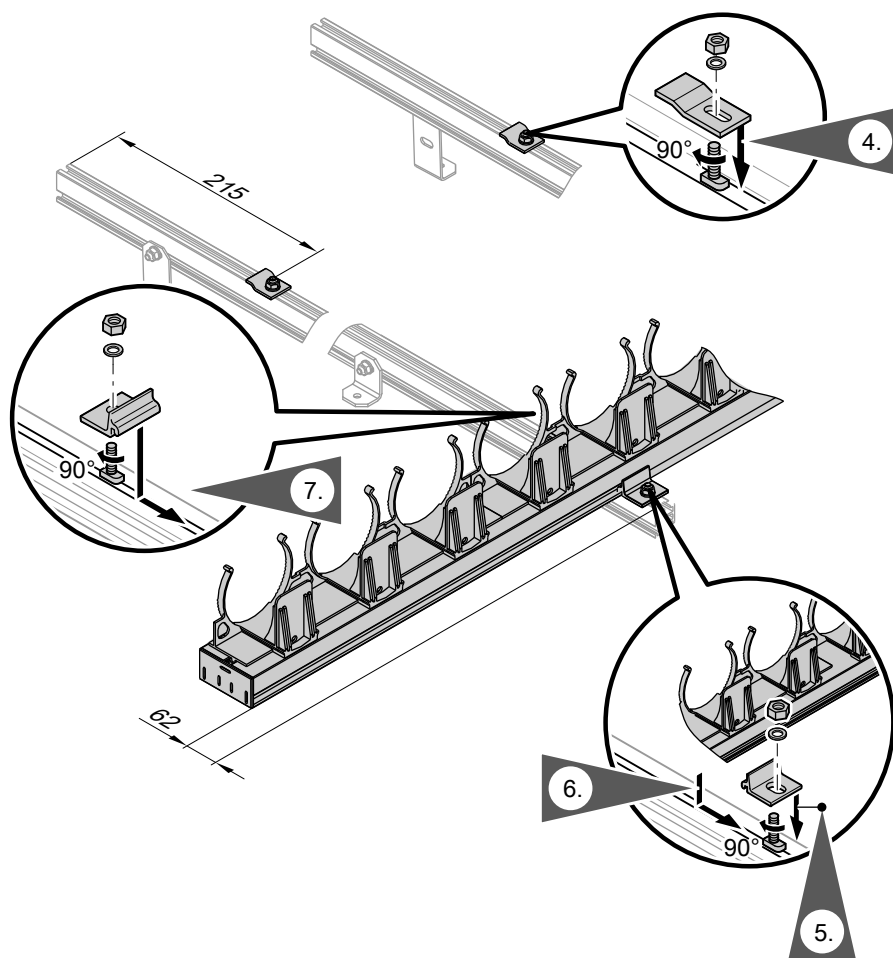


Fig. 66

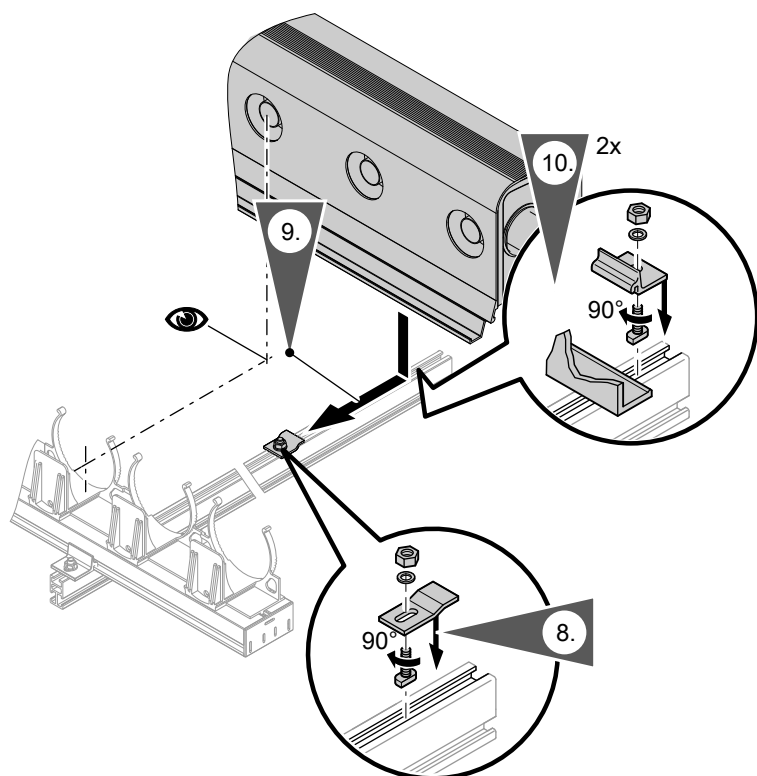


Fig. 67

Hydraulic connections

Connecting the header casings

Components



Fig. 68



Please note

The connection pipes must not show any signs of damage.

Lubricate all O-ring seals on the collectors **only** with the valve grease supplied.

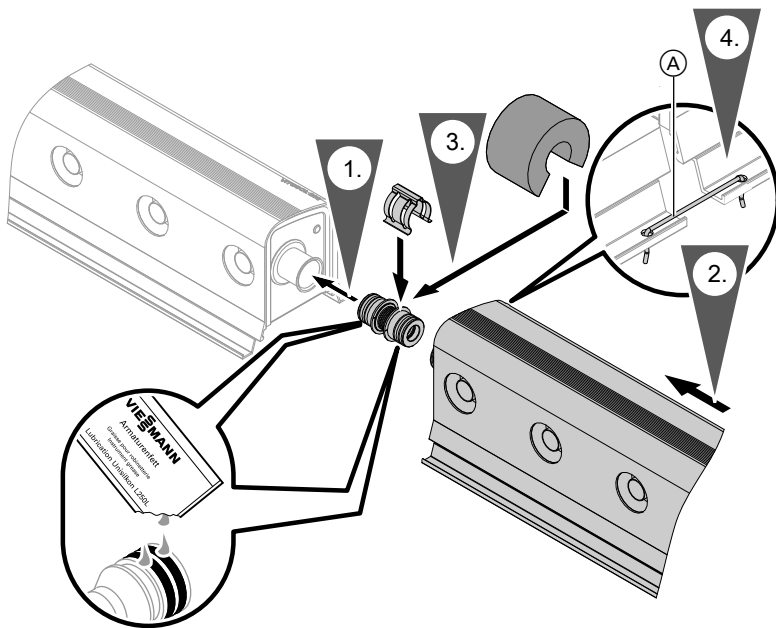


Fig. 69

Note on step 4:

Click collector fastening (A) into place through the holes in the header casing.

Fitting the connection set

Components

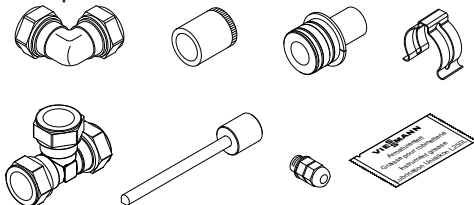


Fig. 70

Installation information

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

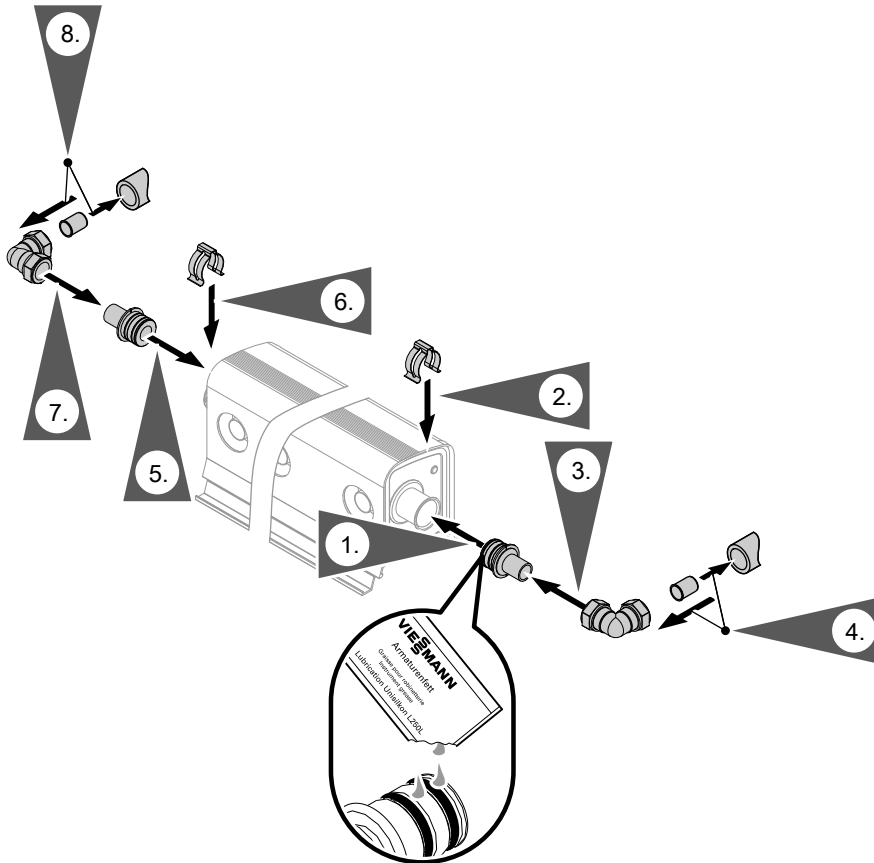


Fig. 71

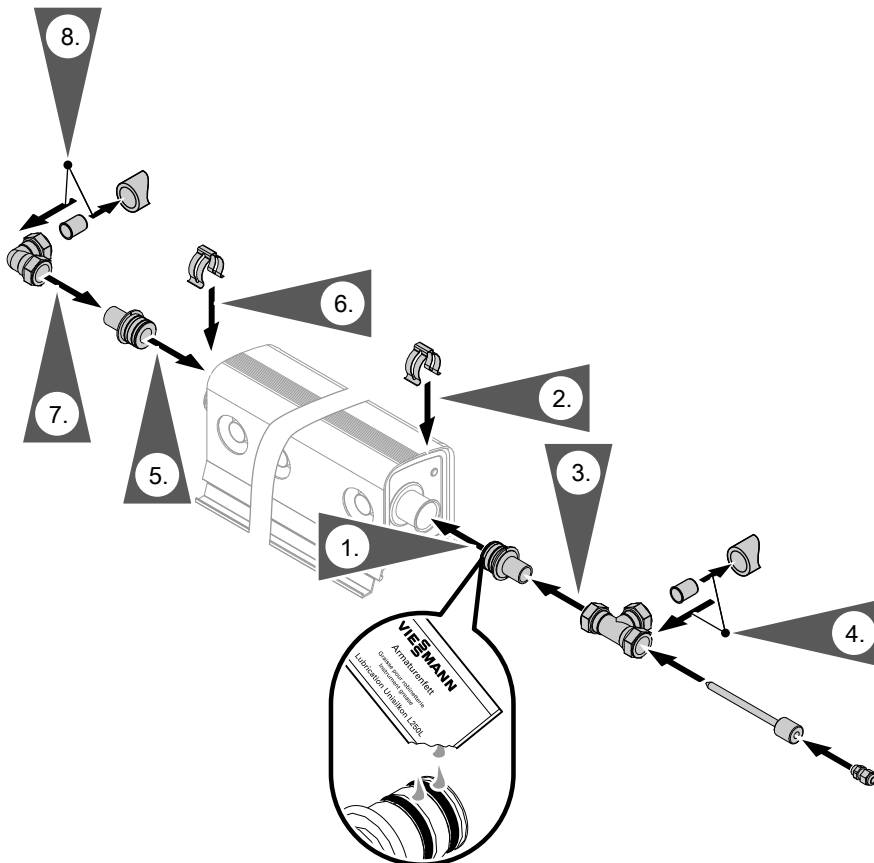


Fig. 72 Installation with sensor well

Fitting the vacuum tubes



Danger

Handle the vacuum tubes carefully. Broken vacuum tubes can cause cuts.
Wear gloves and safety goggles.



Danger

The heat pipe condenser gets very hot in the sun (risk of burns).
Wear safety gloves.

For roofs deviating from due south, adjust the collector angle of inclination. See scales in Fig. 74.

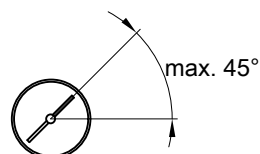


Fig. 73

Installation information

- Only pull the gasket out of the casing cover groove **at the top**.
- Align the **coated** side of the absorber to face the sun.
- Ensure that no part of the thermal insulation becomes trapped.
- The surface of the condenser must be clean.
- Position the condenser **centrally** into the fitting in the heat exchanger.



Please note

Incorrect installation can result in damage. Carefully push the vacuum tubes into the tube retainers. Ensure that tube holder brackets (A) (see diagram below) are not damaged.

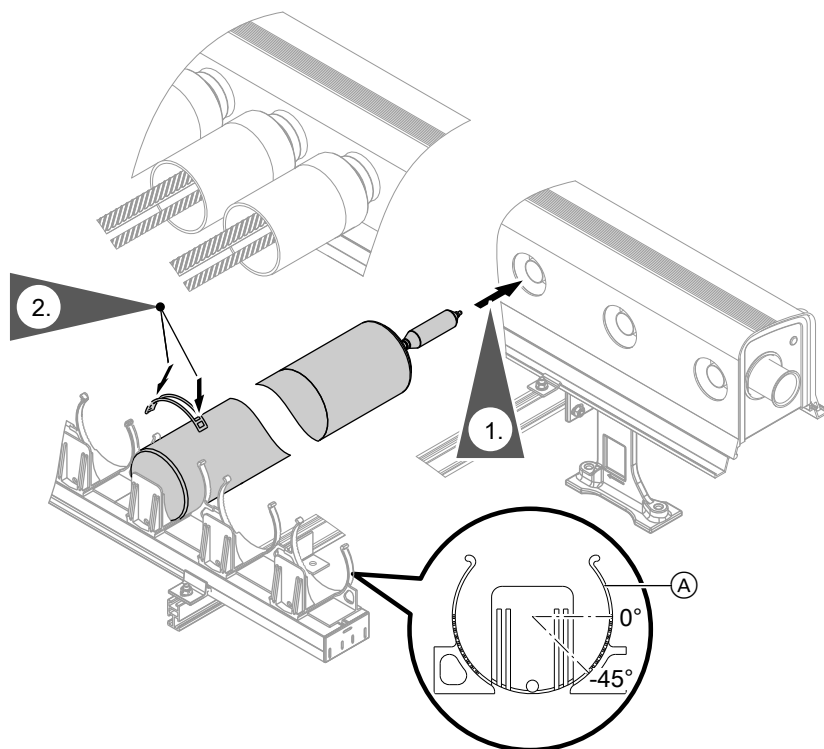


Fig. 74

Snow loads

For snow loads of 0.75 kN/m^2 to 1.5 kN/m^2 an additional rail (accessories) must be fitted.

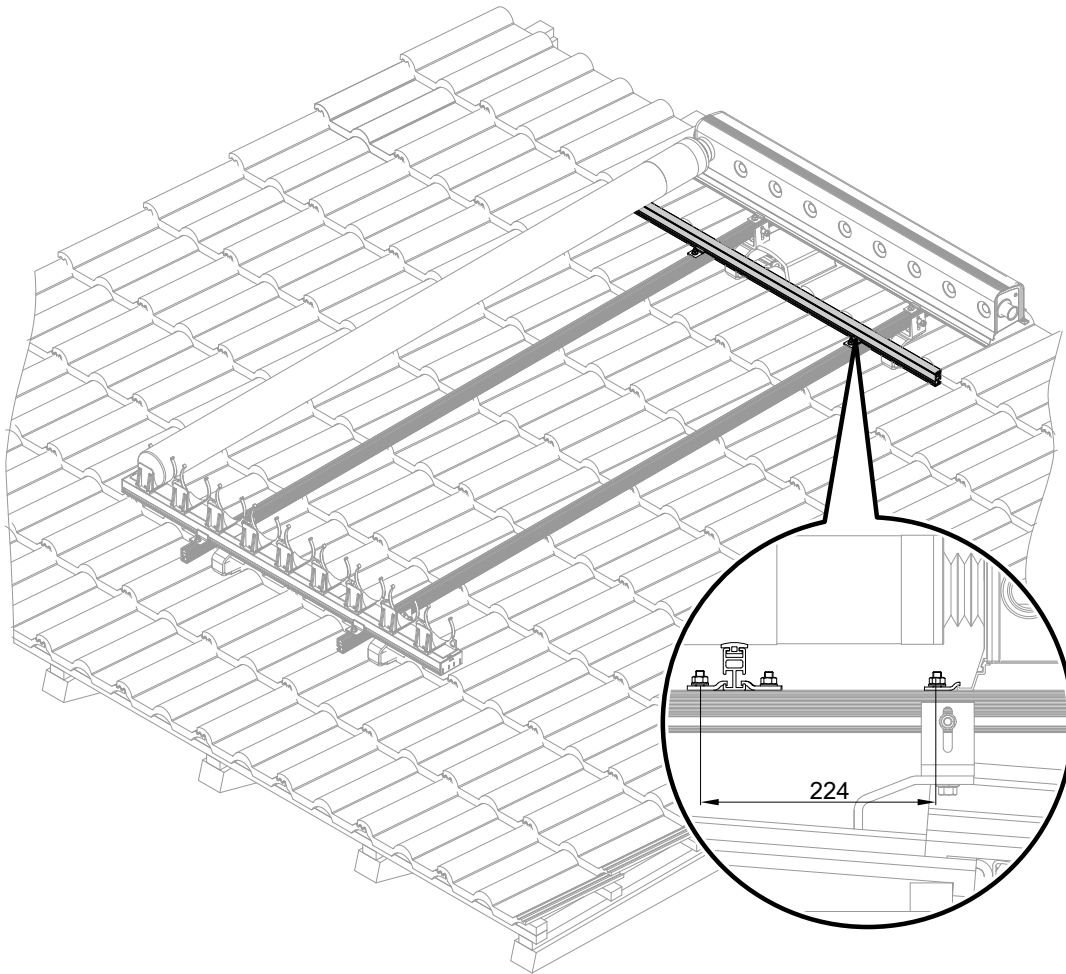


Fig. 75 Above roof installation

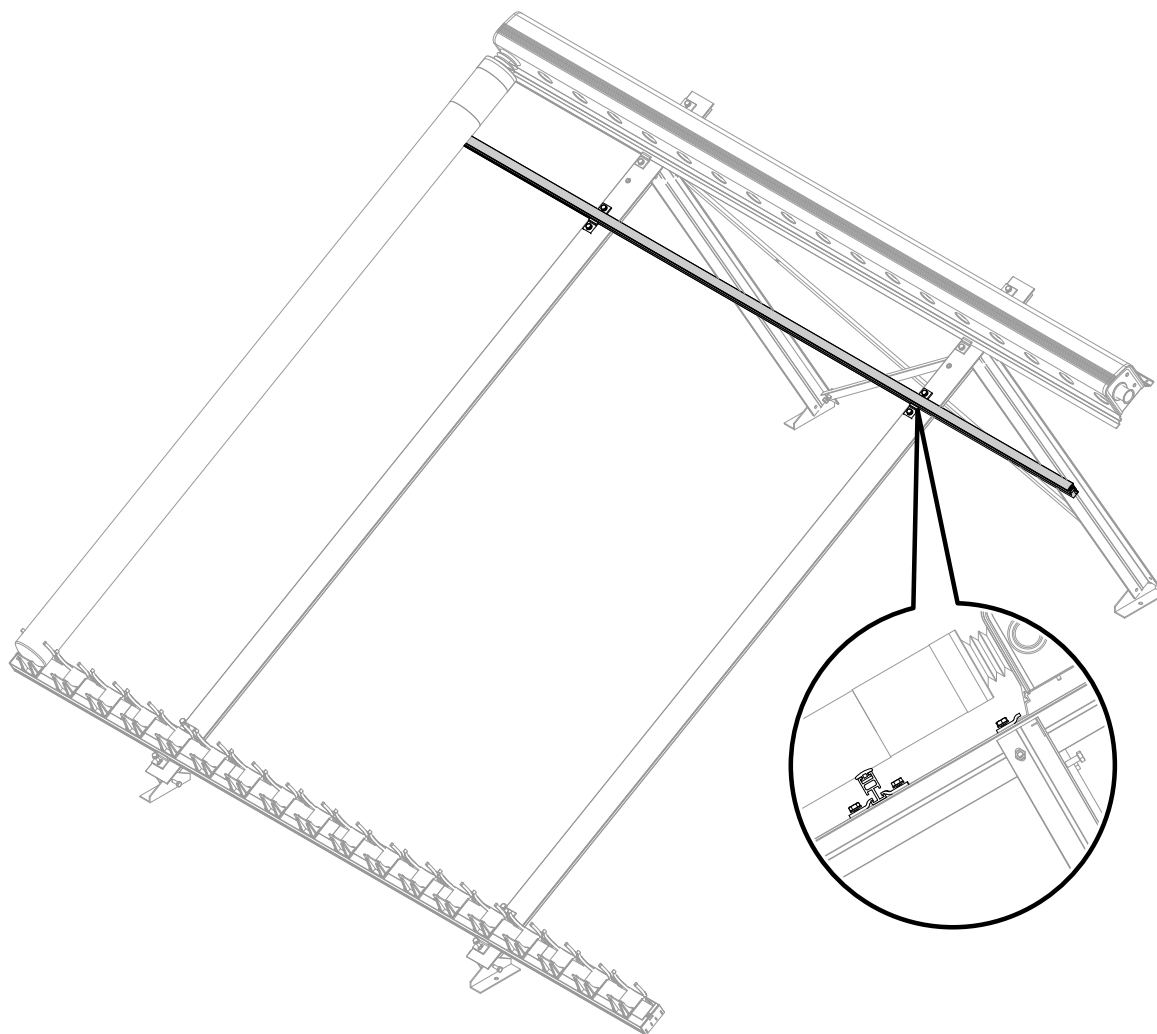


Fig. 76 Collector supports

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 that occur there. Metal seal connections, locking ring fittings or Viessmann plug-in connections 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.
- Design all connections to be resistant to pressure and temperature (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.



To calculate the pre-charge pressure, see the "Vitosol" 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

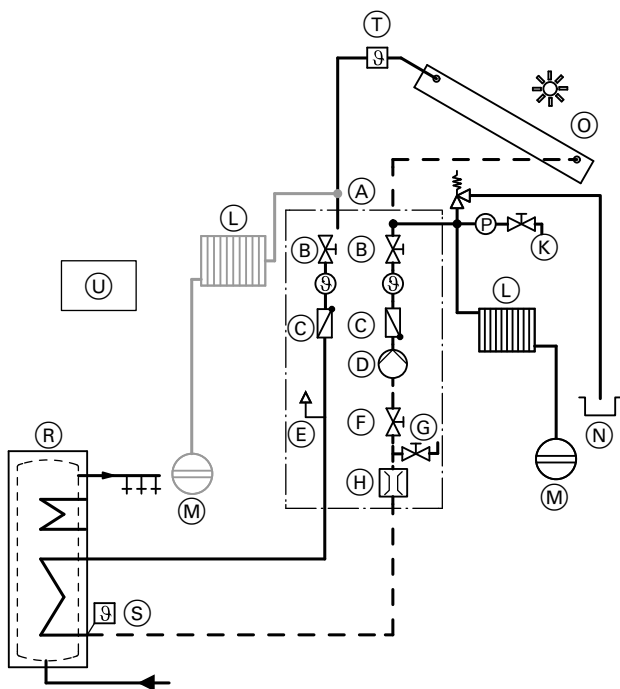


Fig. 77

- (A) Solar-Divicon
- (B) Shut-off valves
- (C) Non-return valves
- (D) Solar circuit pump
- (E) Air separator

- (F) Shut-off valve (adjusting screw above flow rate indicator (H))
- (G) Drain valve
- (H) Flow rate indicator
- (K) Fill valve

Installation (cont.)

- | | |
|------------------------|--------------------------------|
| Ⓛ Stagnation heat sink | Ⓡ DHW cylinder |
| Ⓜ Expansion vessel | Ⓢ Cylinder temperature sensor |
| Ⓝ Drip pan | Ⓣ Collector temperature sensor |
| Ⓞ Collector | Ⓤ Solar control unit |

(cont.)



For commissioning, see the "Vitosol 200-TM"
service instructions



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