

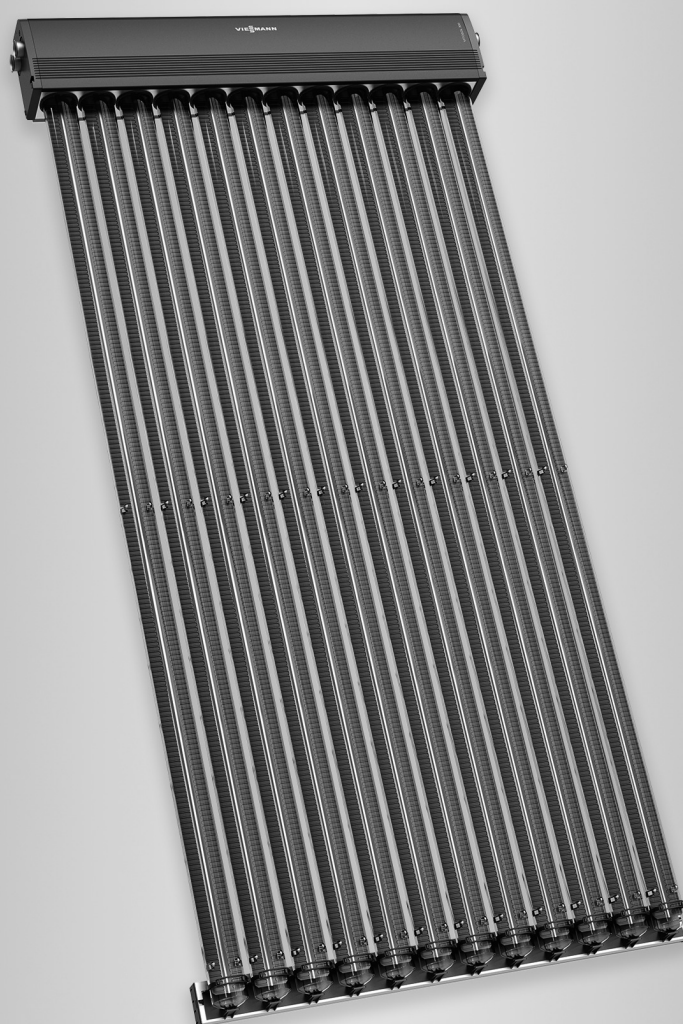
Vitosol 300-TM

Type SP3C

Vacuum tube collector based on the heat pipe principle



VITOSOL 300-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 authorised contractors.

- Work on electrical equipment must 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.
- Never touch hot surfaces on the appliance, fittings or pipework.

- ! **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.
-

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.

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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: 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.
	▪ 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 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. Heating and cooling water 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 results 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 300-TM is a highly efficient vacuum tube collector based on the heat pipe principle. For high operational reliability, the collector is equipped with ThermProtect automatic temperature-dependent shut-down.

The Vitosol 300-TM vacuum tube collector, type SP3C, is available in the following versions:

- 1.98 m²
- 2.36 m²
- 4.62 m²

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.

The vacuum tubes are rotated axially for optimal absorber alignment with the sun. The vacuum tubes can be rotated through 45° with minimal shade on the absorber surfaces.

Up to 15 m² absorber area can be connected to form one collector array. Thermally insulated flexible connection pipes with O-rings are supplied for this purpose.

System examples

Available system examples:

www.viessmann-schemes.com

Maintenance parts and spare parts

Maintenance parts and spare parts can be identified and ordered directly online.

Product information (cont.)

Viessmann Partnershop

Login:

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



Viessmann spare part app

www.viessmann.com/etapp



Distribution of fixings on the rafters

Fixings:

- Rafter flanges (from page 10)
- Rafter hooks (from page 16)
- Rafter anchors (from page 24)
- Mounting brackets (from page 33)

Each number of collectors and collector combination has a specific number of fixings allocated to it. Calculation of ballast and its distribution.

The number of rafters for attaching the fixings depends on the rafter spacing.

The following tables show which rafters the fixings should be mounted on.

Example:

- 3 collectors
- Combination comprising 1 x 1.51 m² and 2 x 3.03 m²
- Rafter spacing 600 mm

Look up the combination in the table for 3 collectors on page 9 (highlighted grey):

Of the 9 rafters, the following are used:

Rafters 1, 2, 3, 6, 7, 9

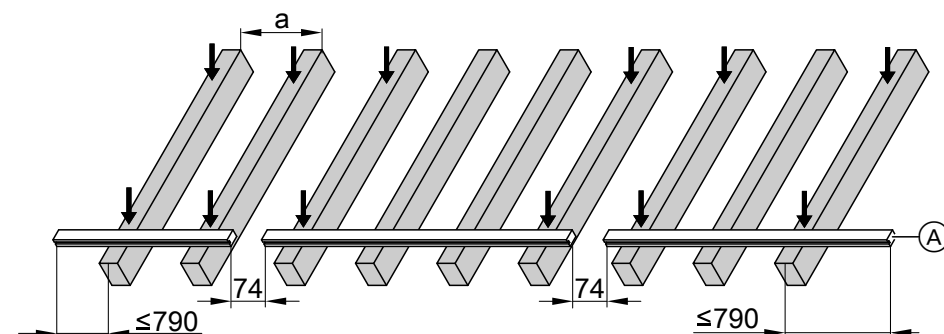


Fig. 1

↓ Position of fixings

Ⓐ Tube retainer

1 collector

Combination	Rafter spacing a in mm	Rafters used
1 x 1.51 m ²	≤ 600	1, 2
	≤ 700	1, 2
	≤ 800	1, 2
1 x 3.03 m ²	≤ 600	1, 4
	≤ 700	1, 3
	≤ 800	1, 3

2 collectors

Combination	Rafter spacing a in mm	Rafters used
1 x 1.51 m ² / 1 x 3.03 m ²	≤ 600	1, 2, 3, 5
	≤ 700	1, 2, 3, 5
	≤ 800	1, 2, 3, 4
2 x 3.03 m ²	≤ 600	1, 4, 5, 7
	≤ 700	1, 3, 4, 6
	≤ 800	1, 3, 4, 6

Distribution of fixings on the rafters (cont.)

3 collectors

Combination	Rafter spacing a in mm	Rafters used
1 x 1.51 m ² / 2 x 3.03 m ²	≤ 600	1, 2, 3, 6, 7, 9
	≤ 700	1, 2, 3, 5, 6, 8
	≤ 800	1, 2, 3, 4, 5, 7
3 x 3.03 m ²	≤ 600	1, 4, 5, 7, 8, 11
	≤ 700	1, 3, 4, 6, 7, 9
	≤ 800	1, 3, 4, 6, 7, 8

4 collectors

Combination	Rafter spacing a in mm	Rafters used
1 x 1.51 m ² / 3 x 3.03 m ²	≤ 600	1, 2, 3, 5, 6, 9, 12
	≤ 700	1, 2, 3, 5, 6, 8, 9, 11
	≤ 800	1, 2, 3, 5, 6, 8, 9, 11
4 x 3.03 m ²	≤ 600	1, 4, 5, 7, 8, 9, 11, 12, 14
	≤ 700	1, 3, 4, 6, 7, 8, 9, 10, 11, 12
	≤ 800	1, 3, 4, 6, 7, 8, 9, 11

5 collectors

Combination	Rafter spacing a in mm	Rafters used
1 x 1.51 m ² / 4 x 3.03 m ²	≤ 600	1, 2, 3, 6, 7, 9, 10, 13, 14, 16
	≤ 700	1, 2, 3, 5, 6, 9, 10, 12, 13, 16
	≤ 800	—
5 x 3.03 m ²	≤ 600	1, 4, 5, 7, 8, 11, 12, 14, 15, 18
	≤ 700	1, 3, 4, 5, 6, 7, 9, 10, 12, 13, 15
	≤ 800	1, 3, 4, 6, 7, 8, 11, 12, 13

Pitched roof installation with rafter flanges

For **plain tiled** and **slate** roofs

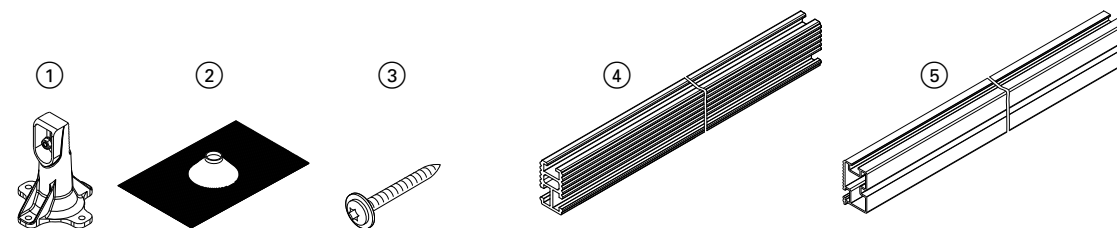


Fig. 2

- ① Rafter flange
- ② Flashing
- ③ Screws
- ④ Mounting rail for **vertical** installation
- ⑤ Mounting rail for **horizontal** installation

Vertical installation

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

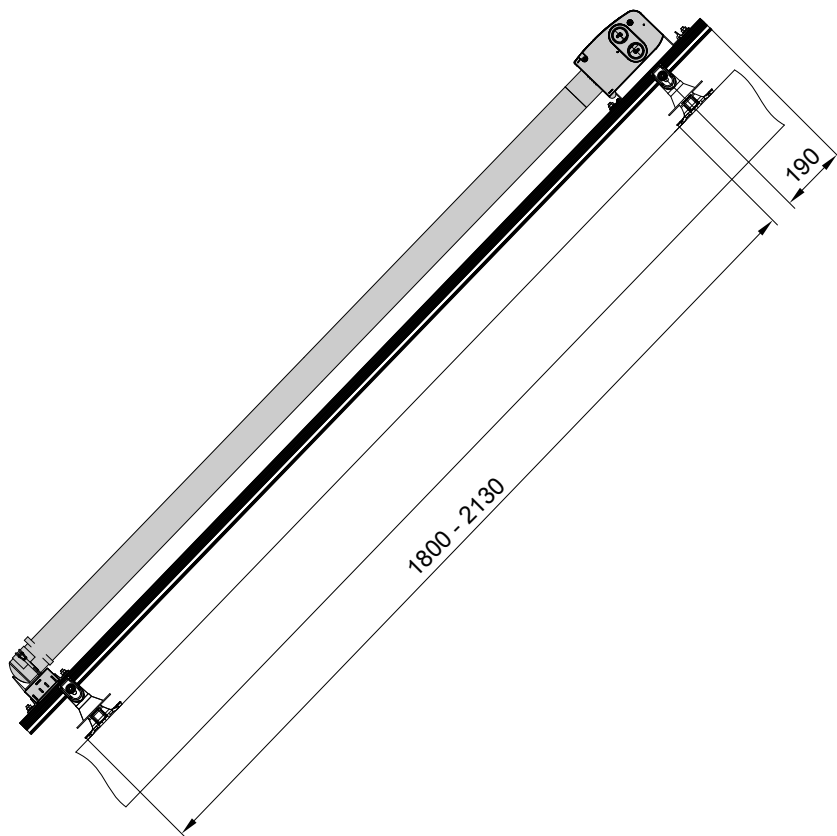


Fig. 3

The tables from page 8 detail the rafters on which the rafter flanges should be mounted.

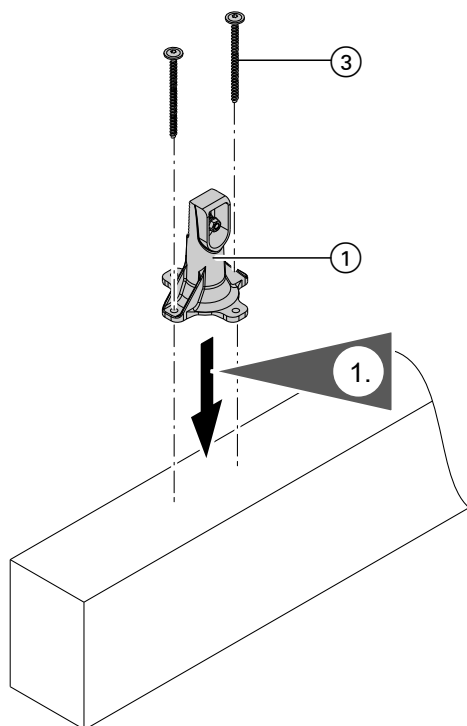


Fig. 4

! 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. Carefully affix flashing ②.

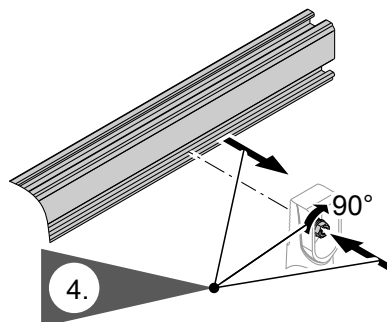


Fig. 6

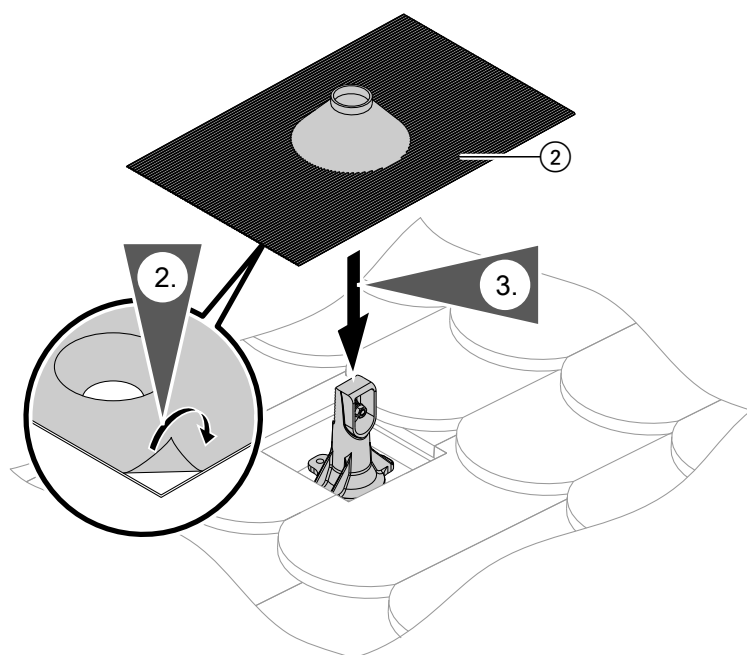


Fig. 5

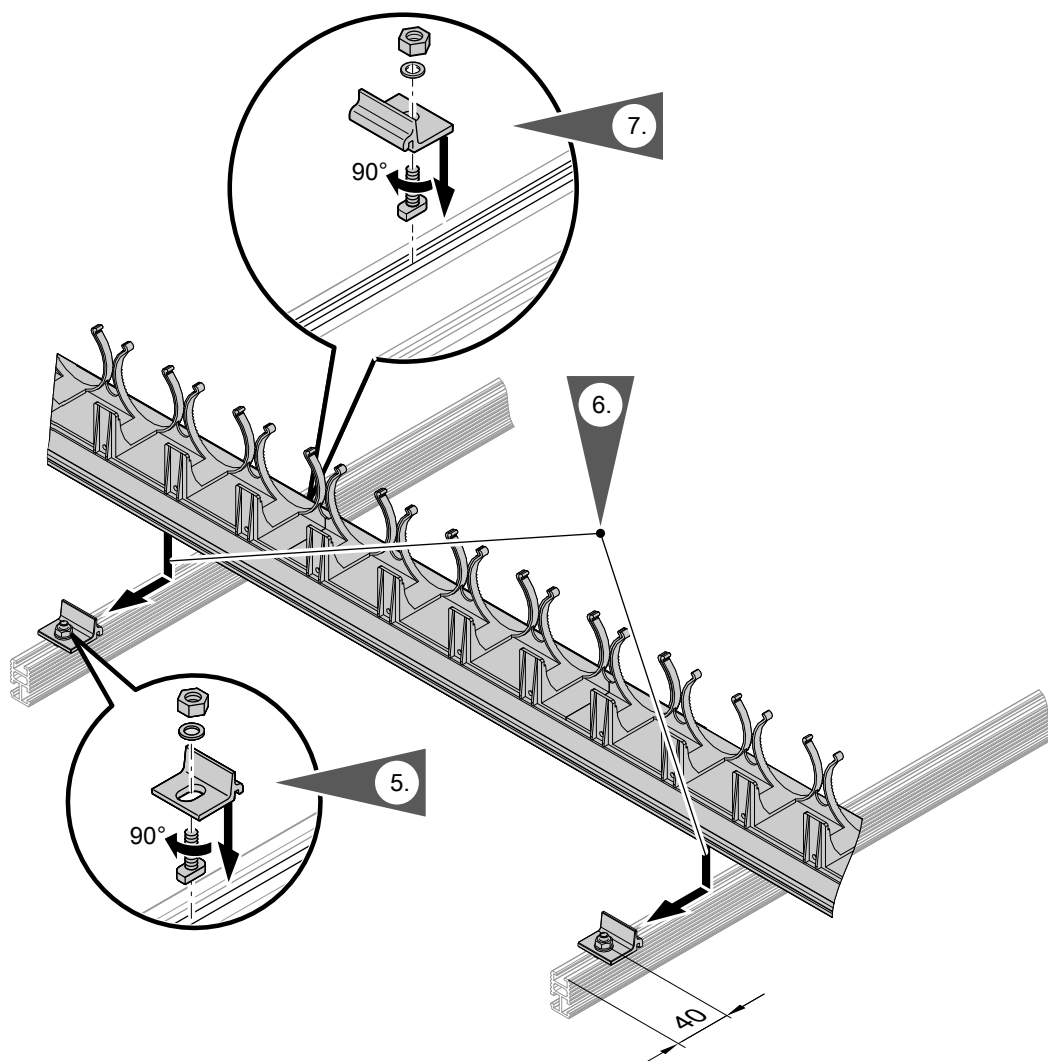


Fig. 7

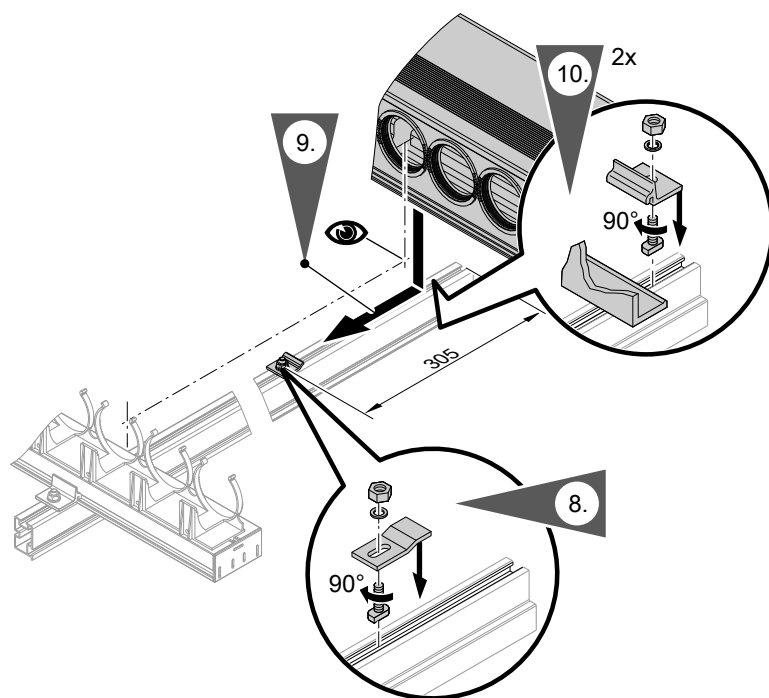


Fig. 8

Pitched roof installation with rafter flanges (cont.)

Continue with chapter "Hydraulic connections": See page 63.

Horizontal installation

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

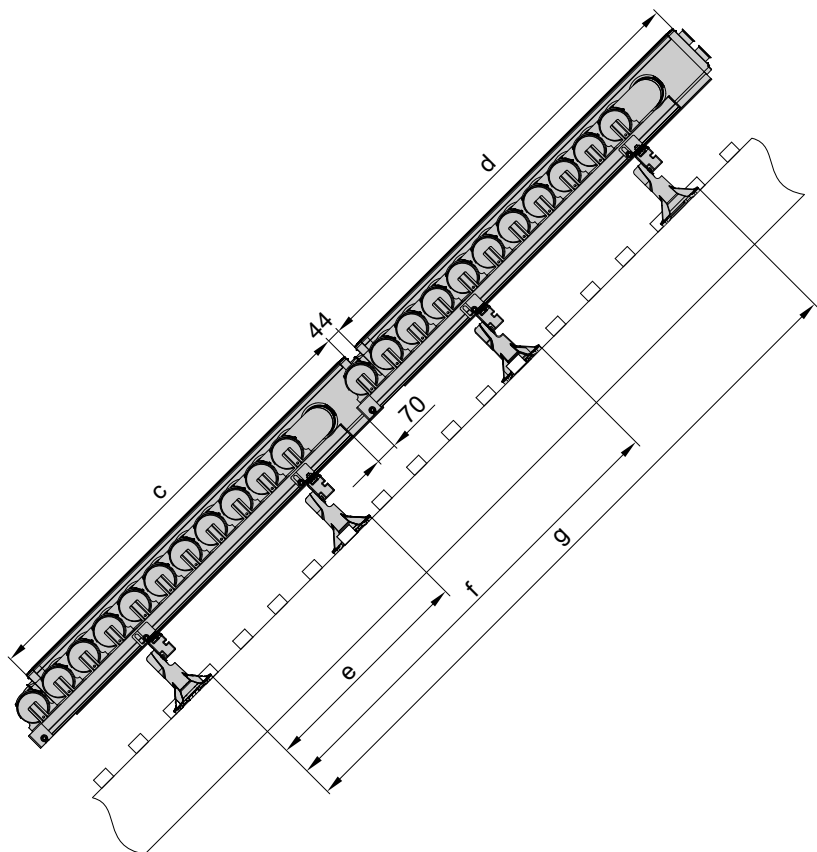


Fig. 9

Combination	c	mm	d	mm	e	mm	f	mm	g	mm
1.51 m ²		1053	—		525		—		—	
3.03 m ²		2061	—		1030		—		—	
1.51 m ² /1.51 m ²		1053	1053		525		1105		1630	
1.51 m ² /3.03 m ²		1053	2061		525		1355		2385	
3.03 m ² /1.51 m ²		2061	1053		1030		1860		2385	
3.03 m ² /3.03 m ²		2061	2061		1030		2110		3140	

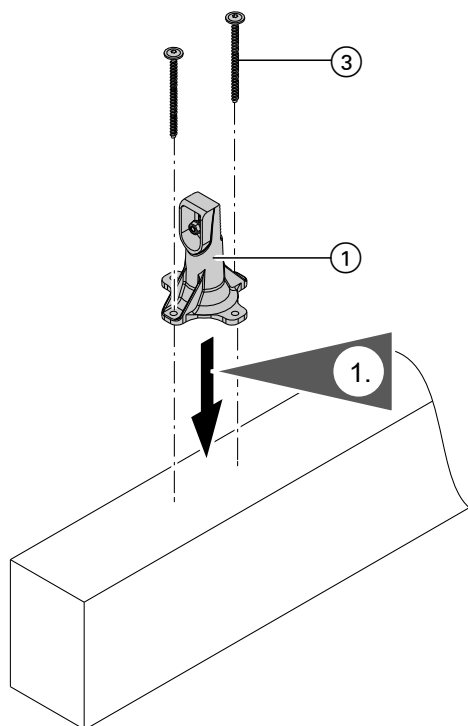


Fig. 10

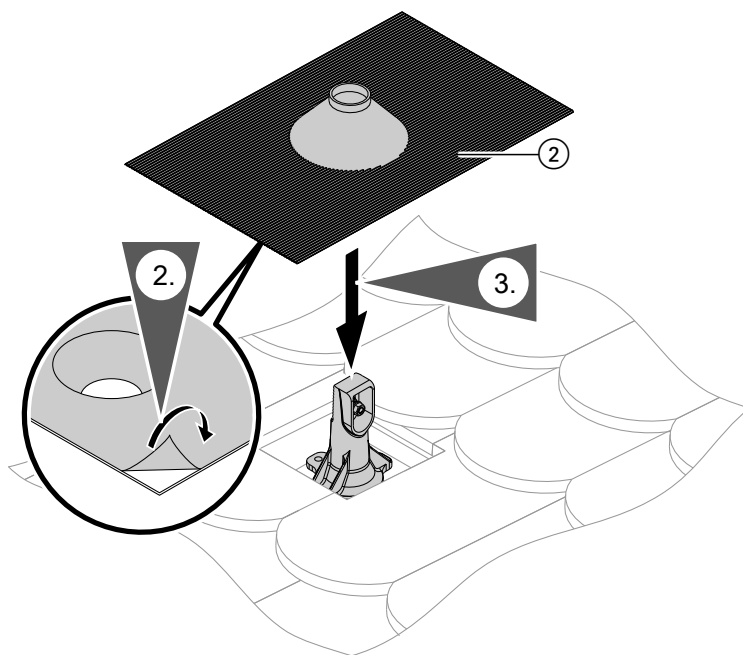


Fig. 11

! 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. Carefully affix flashing ②.

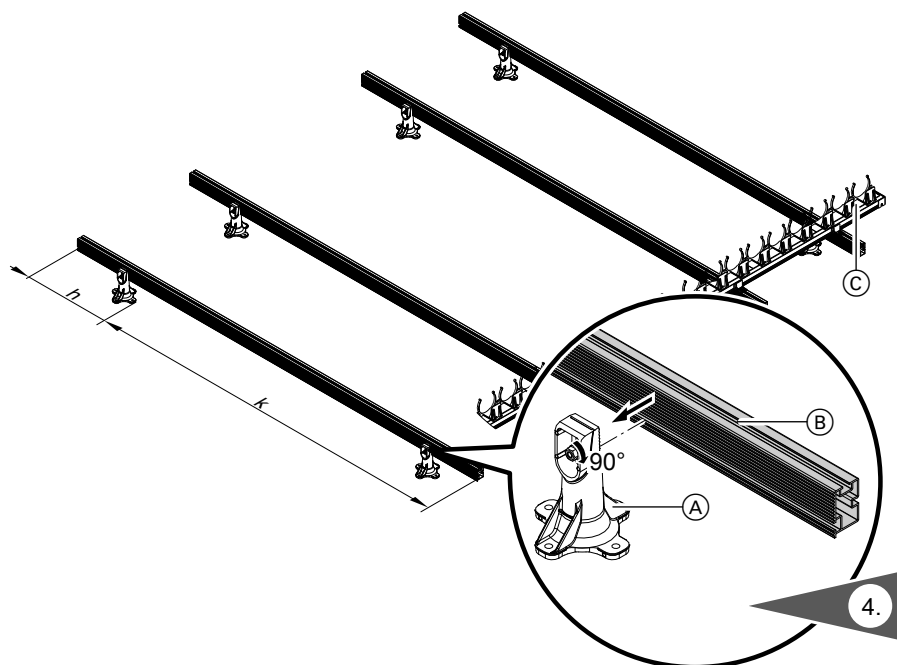


Fig. 12

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

Pitched roof installation with rafter flanges (cont.)

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

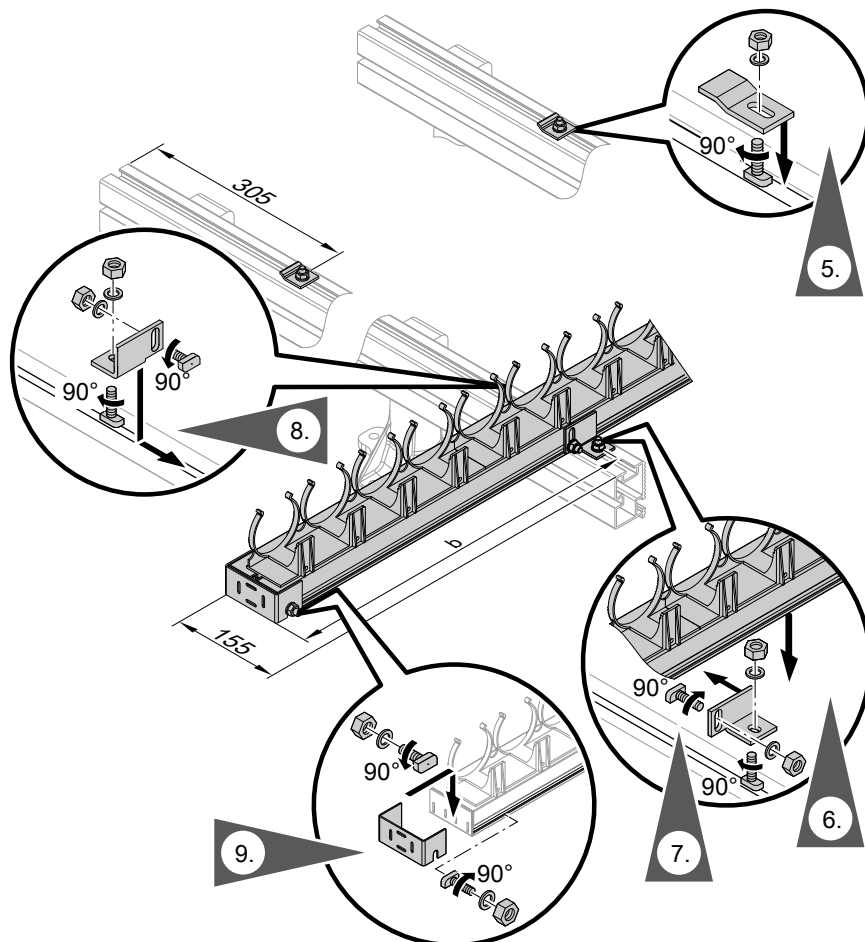


Fig. 13 For dimension b: See the following diagram

Pitched roof installation with rafter flanges (cont.)

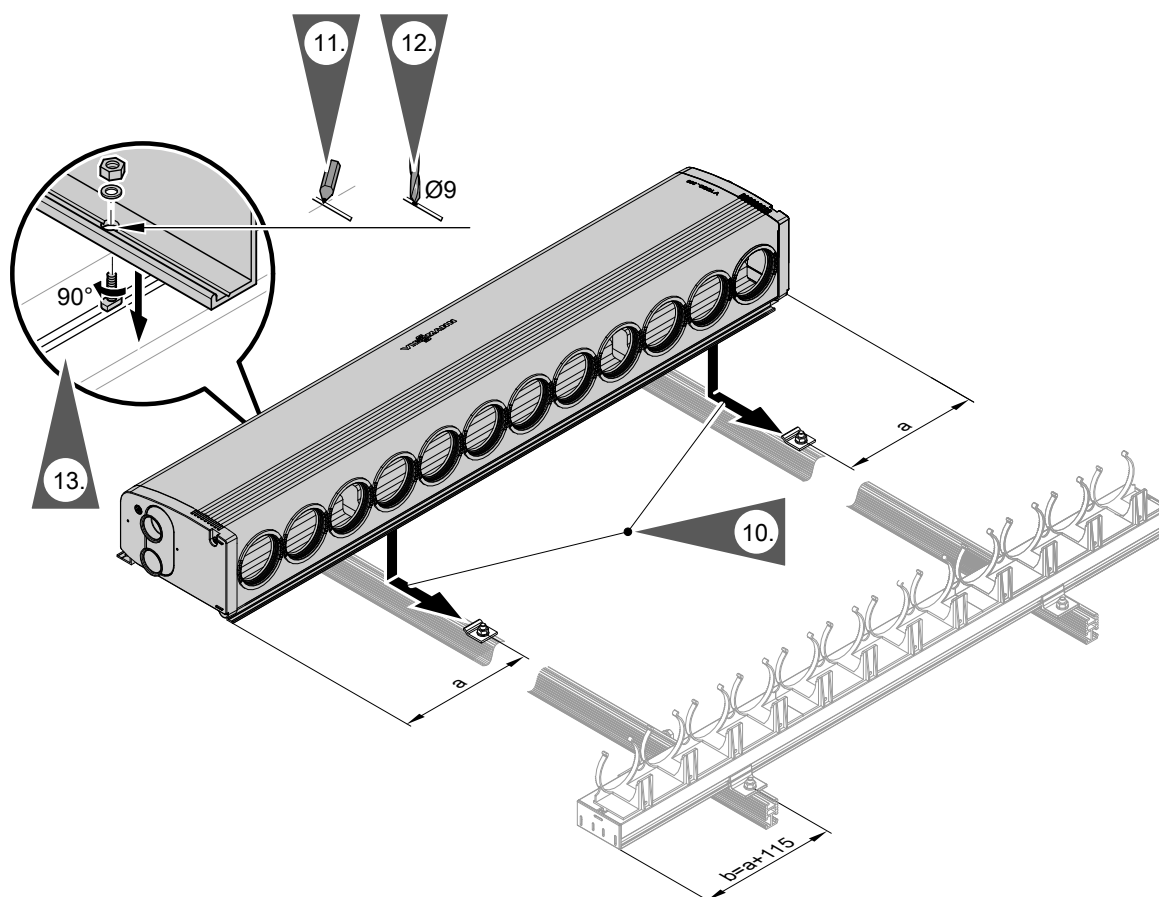


Fig. 14 Dimension *a* results once the header casing is placed on the mounting rails.

Note

- Horizontal installation only possible for roof pitches $> 19^\circ$.
- Roof pitch $< 19^\circ$: Align the mounting systems, including rails, on site such that the vacuum tubes have a fall of at least 1° towards the centre of the earth.
- 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*.

Note on step 12:

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

Continue with chapter "Hydraulic connections": See page 63.

Pitched roof installation with rafter hooks

For **tilled** roof cover

Pitched roof installation with rafter hooks (cont.)

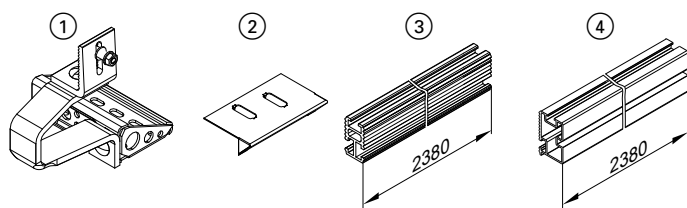


Fig. 15

- 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 ② with support bracket ②

■ Version II:

Fitting rafter hook ① directly onto rafter ①

- Trim the roof tiles with an angle grinder, for example by removing rain tabs.



Please note

Take care to avoid breaking tiles.

The rafter hook must **not** rest on the roof tiles. Observe the dimensions.

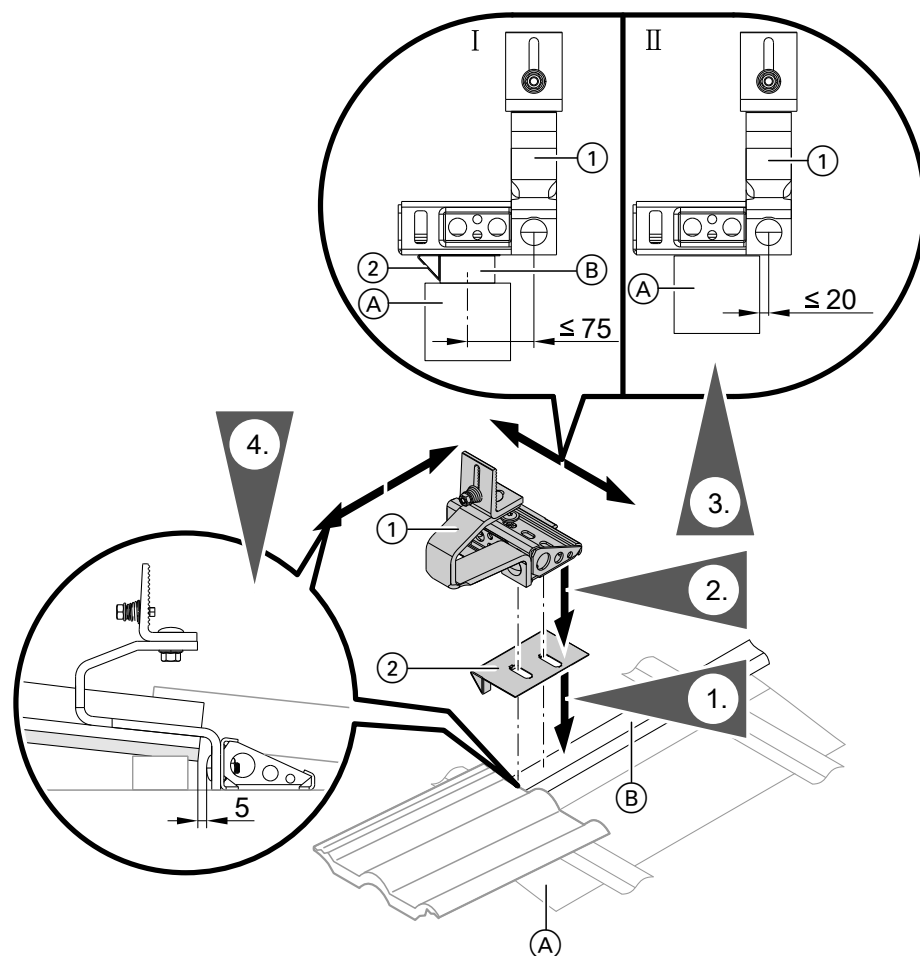


Fig. 16

Note

For the distance between rafter hooks: See chapter "Vertical installation" or "Horizontal installation".

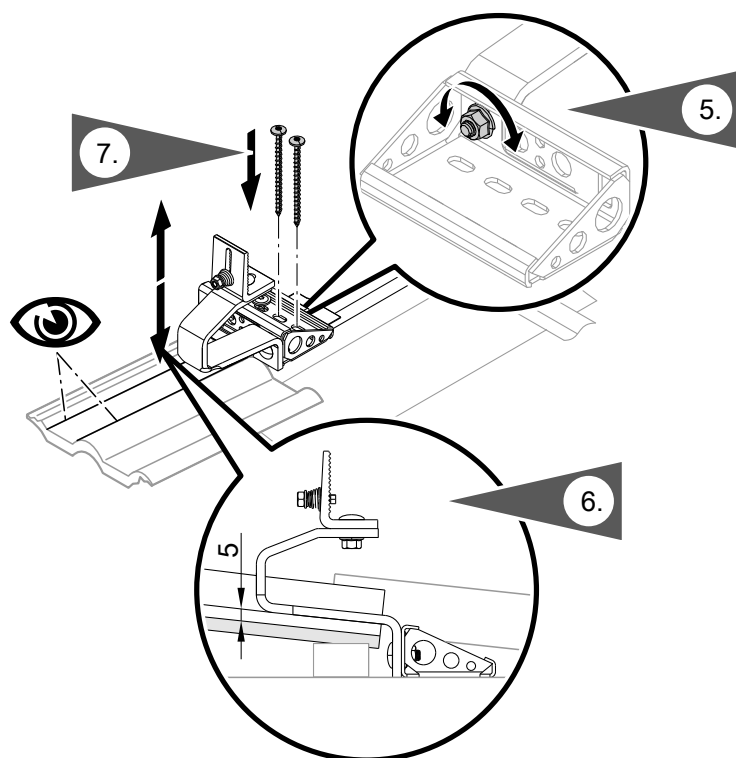


Fig. 17

Continue on page 18 or 20

Vertical installation

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

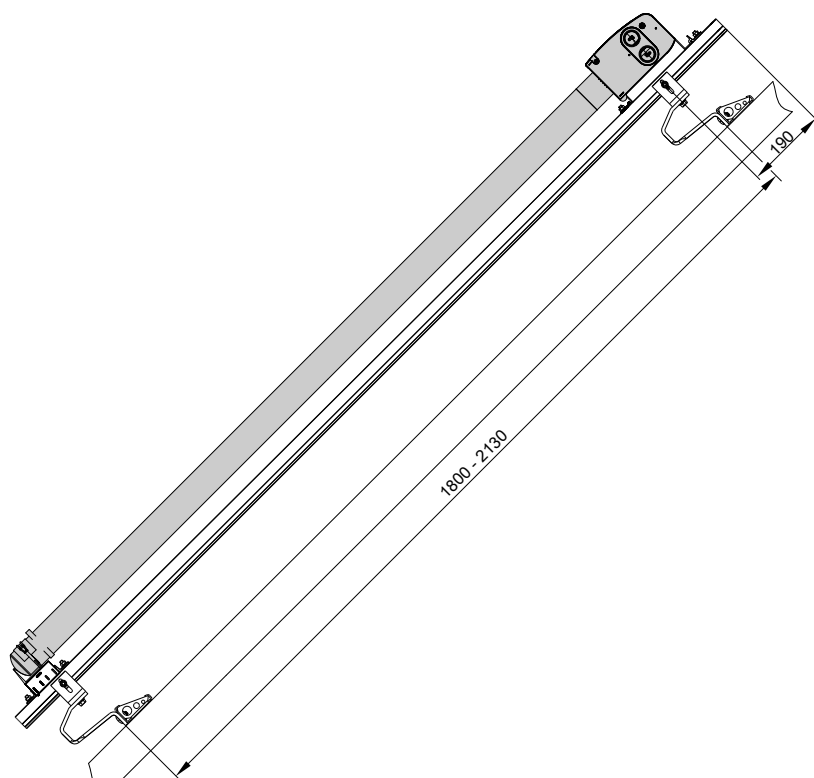


Fig. 18

Pitched roof installation with rafter hooks (cont.)

The tables from page 8 detail the rafters to which the rafter hooks should be fitted.

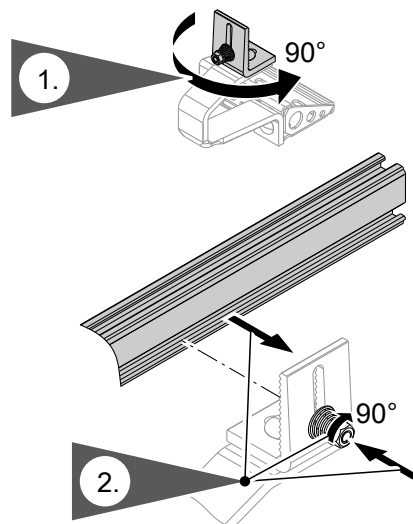


Fig. 19

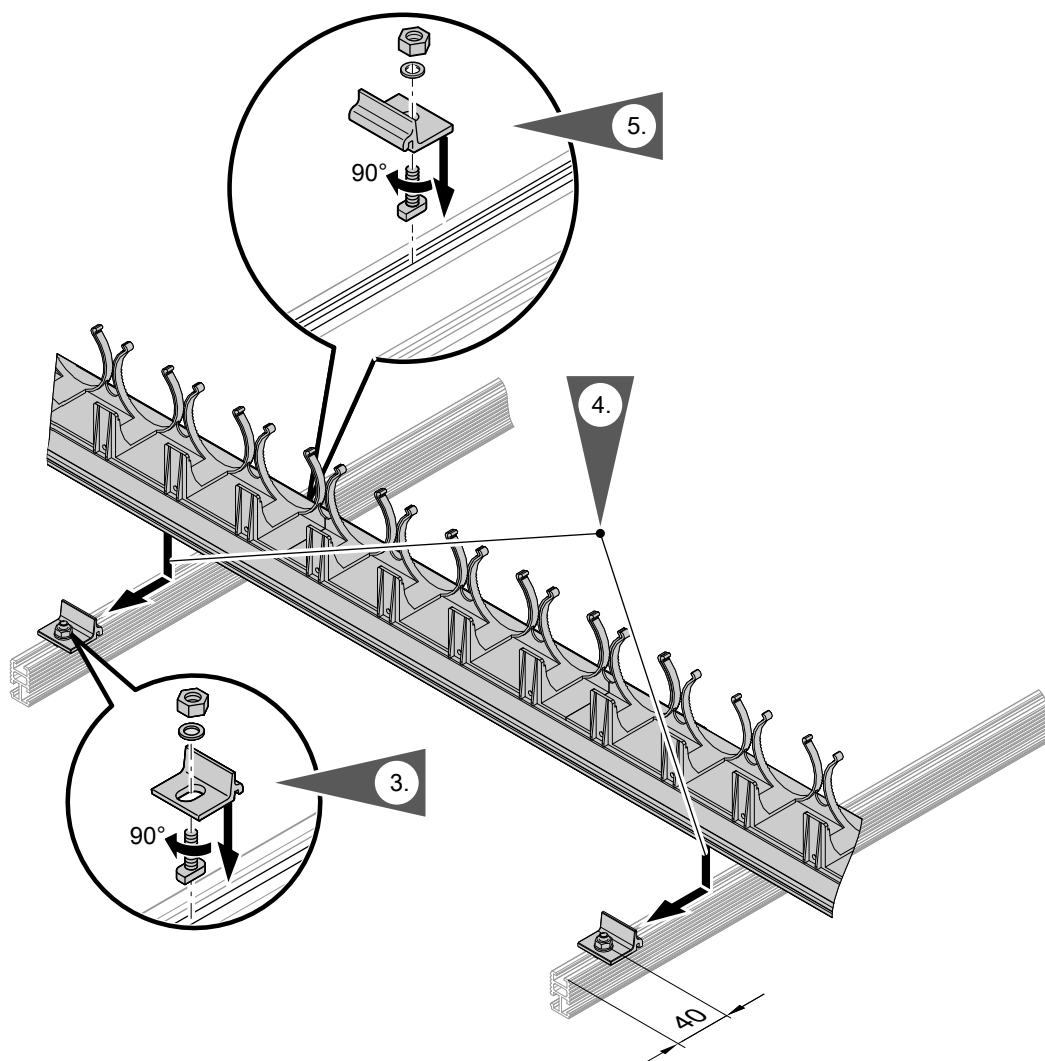


Fig. 20

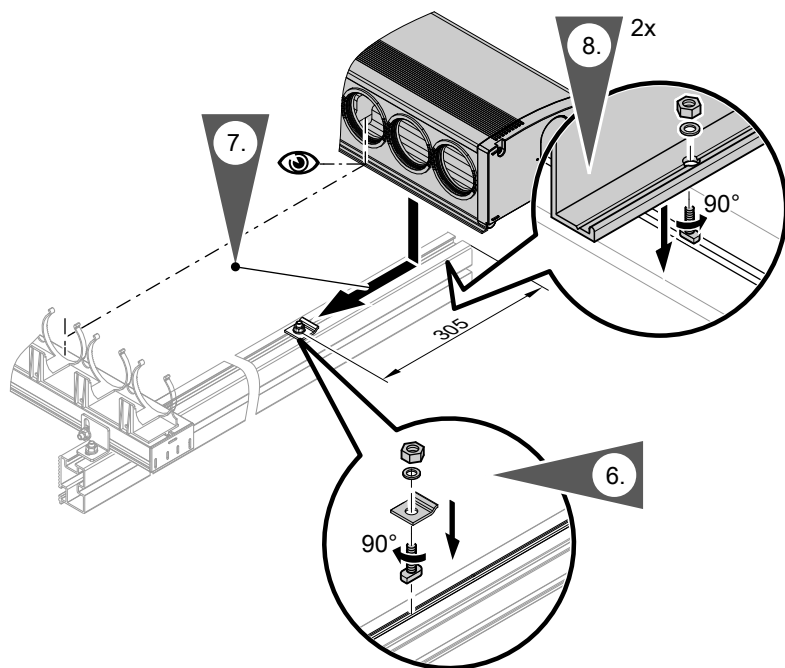


Fig. 21

Continue with chapter "Hydraulic connections": See page 63.

Horizontal installation

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

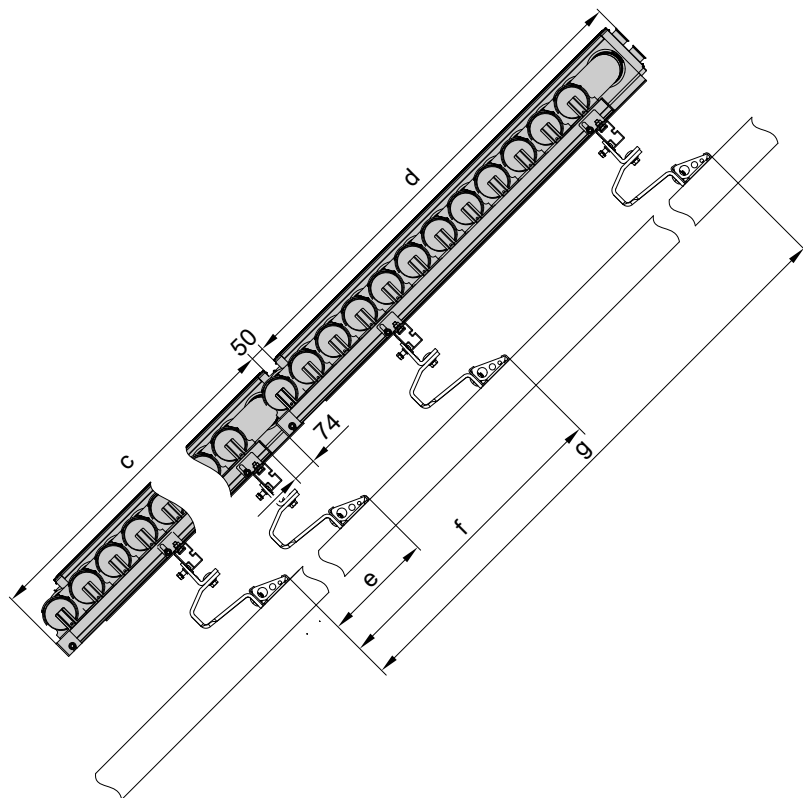


Fig. 22

Pitched roof installation with rafter hooks (cont.)

Combination	c	mm	d	mm	e	mm	f	mm	g	mm
1.51 m ²		1053		—		525		—		—
3.03 m ²		2061		—		1030		—		—
1.51 m ² /1.51 m ²		1053		1053		525		1105		1630
1.51 m ² /3.03 m ²		1053		2061		525		1355		2385
3.03 m ² /1.51 m ²		2061		1053		1030		1860		2385
3.03 m ² /3.03 m ²		2061		2061		1030		2110		3140

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

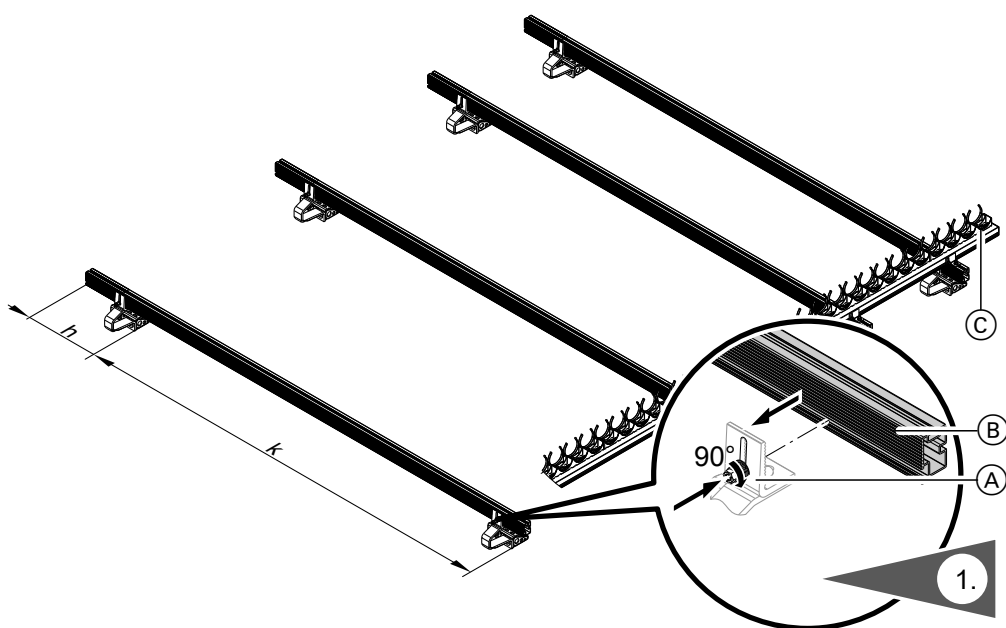


Fig. 23

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

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

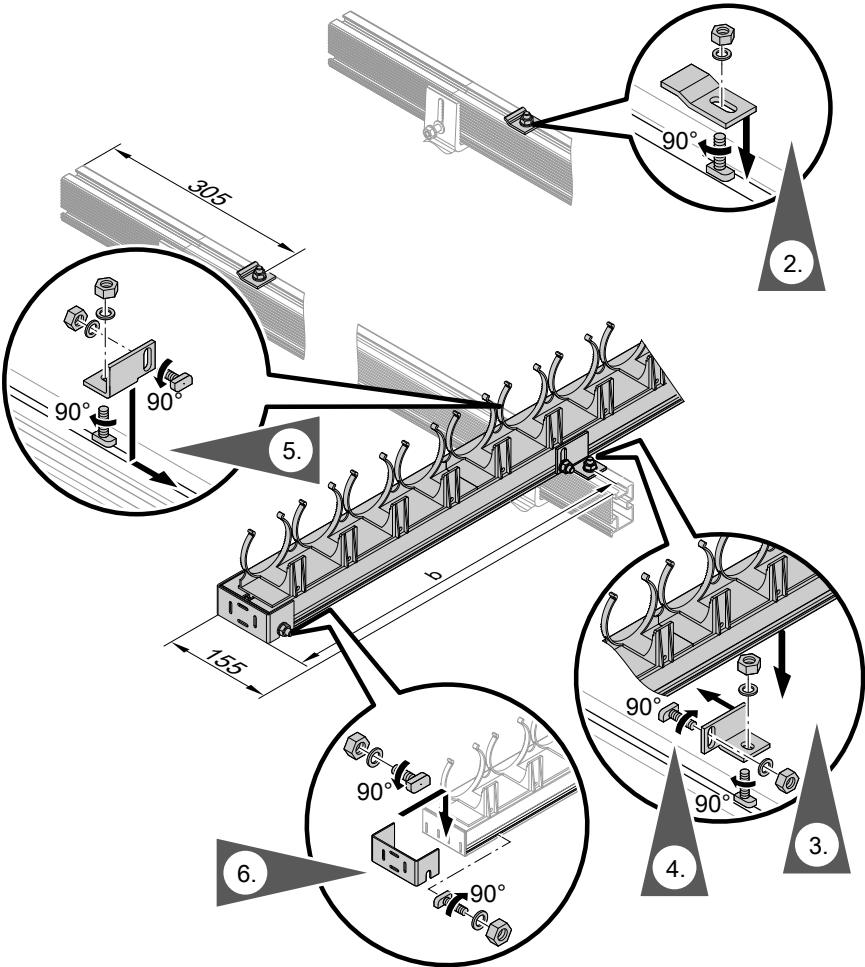


Fig. 24 For dimension b: See the following diagram

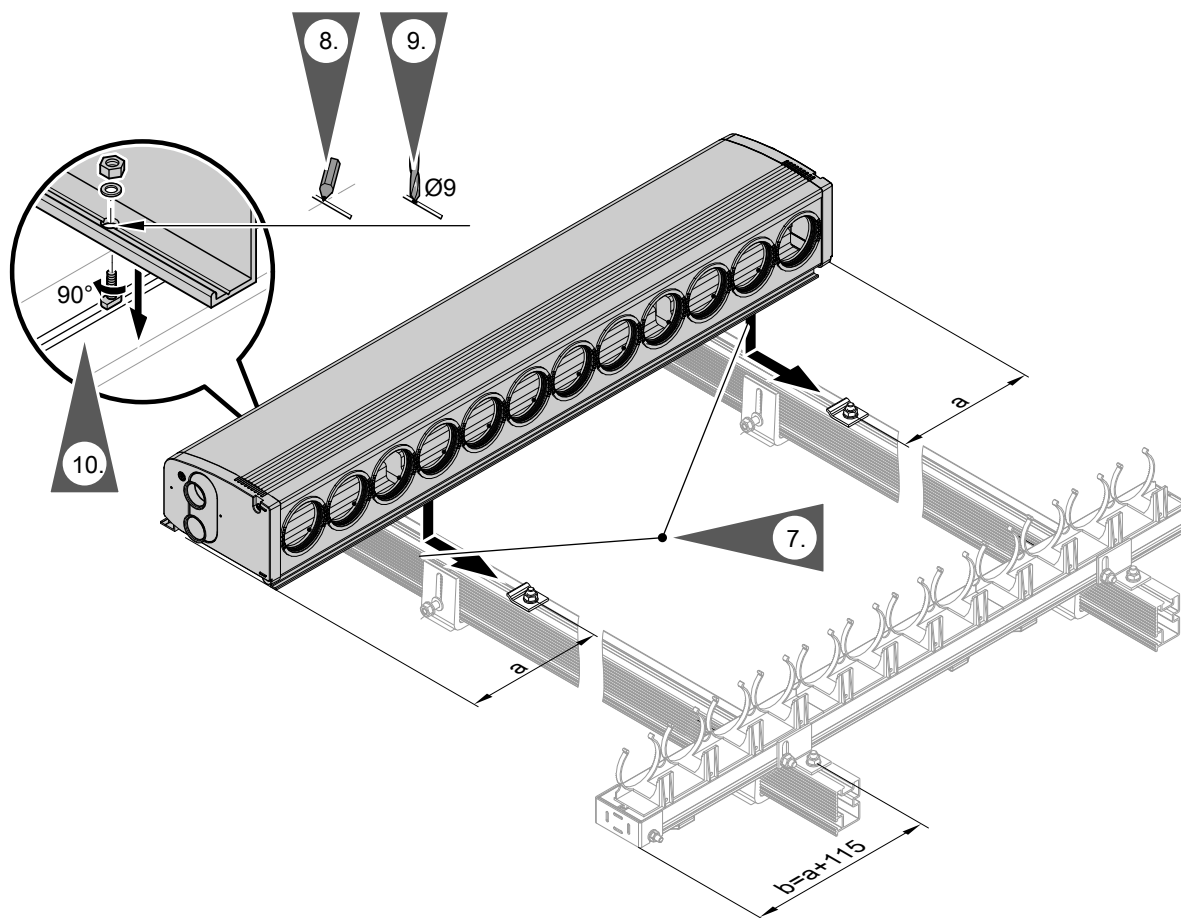


Fig. 25 Dimension a results once the header casing is placed on the mounting rails.

Note

- Horizontal installation only possible for roof pitches $> 19^\circ$.
- Roof pitch $< 19^\circ$: Align the mounting systems, including rails, on site such that the vacuum tubes have a fall of at least 1° towards the centre of the earth.

Install the tube retainer **offset** against the header casing. This ensures that the vacuum tubes are inclined against the horizontal.



Please note

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

Always maintain dimension b.

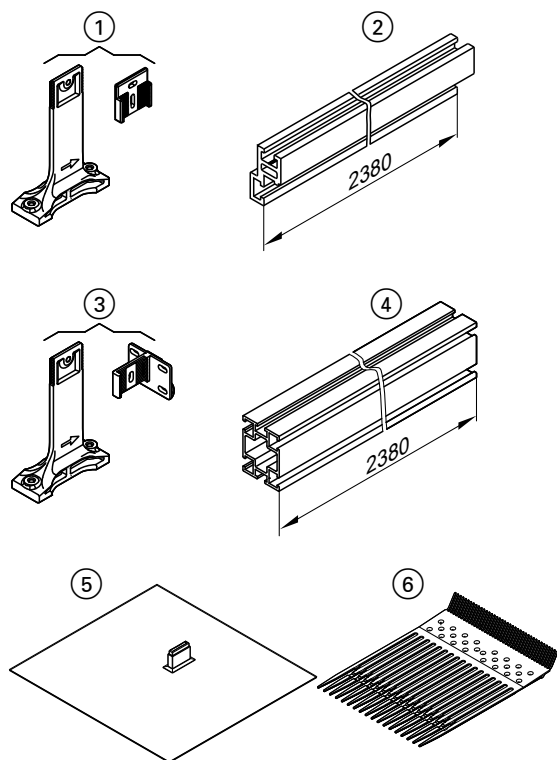
Note on step 9:

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

Continue with chapter "Hydraulic connections": See page 63.

Pitched roof installation with rafter anchors

For **tilled** roof cover



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, in case 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.

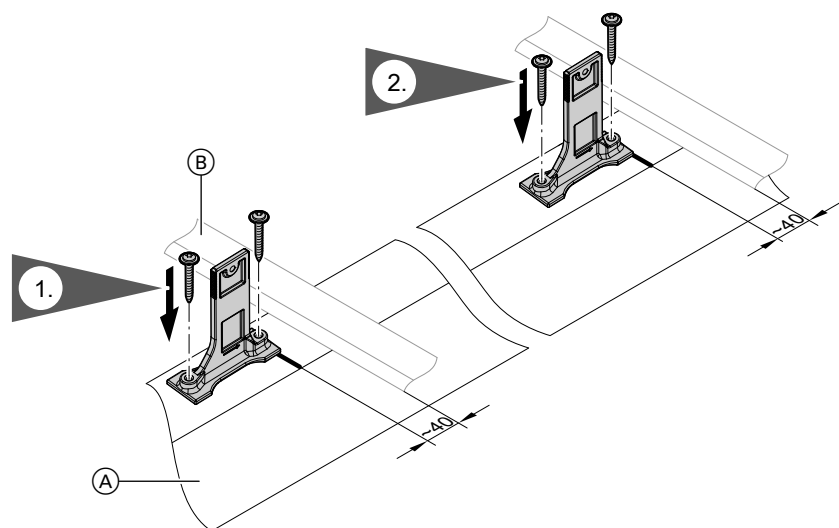


Fig. 26

Note

For the distance between rafter anchors: See chapter "Vertical installation" or "Horizontal installation".

- Ⓐ Rafter
- Ⓑ Batten

Pitched roof installation with rafter anchors (cont.)

2 installation versions:

- Using a plastic replacement tile
- Adapting the roof tile with an angle grinder

Installation with plastic replacement tiles

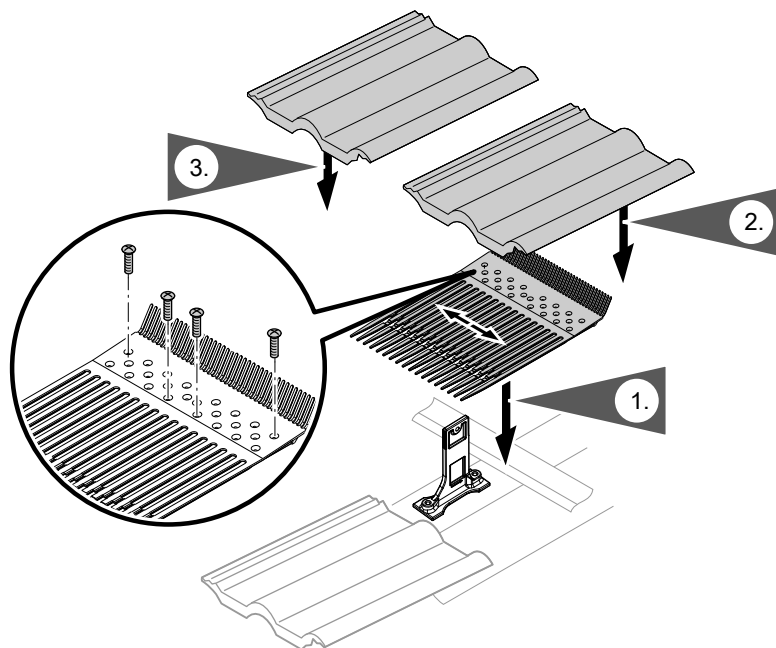


Fig. 27

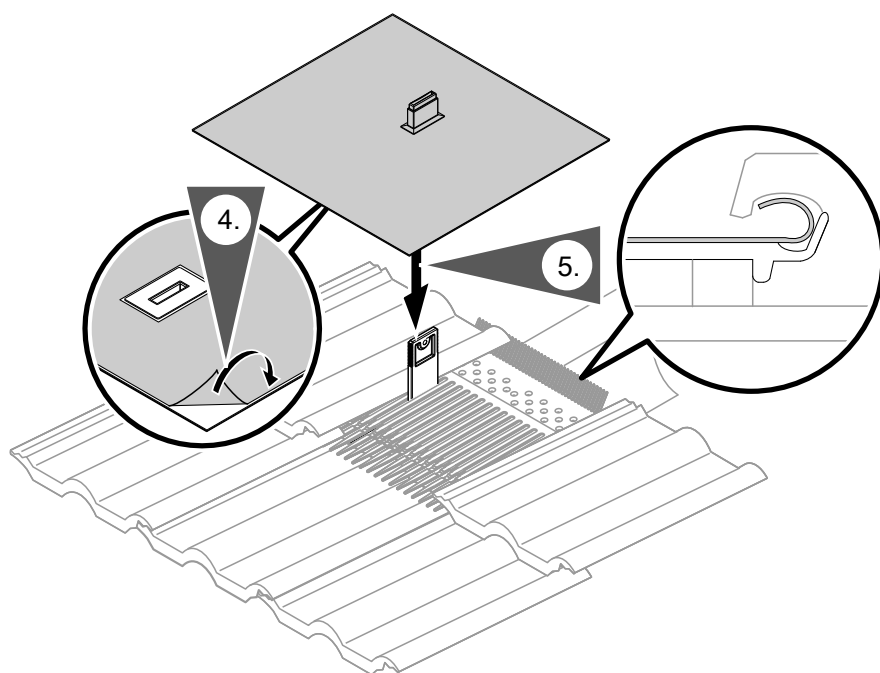


Fig. 28

Installation with trimmed tiles

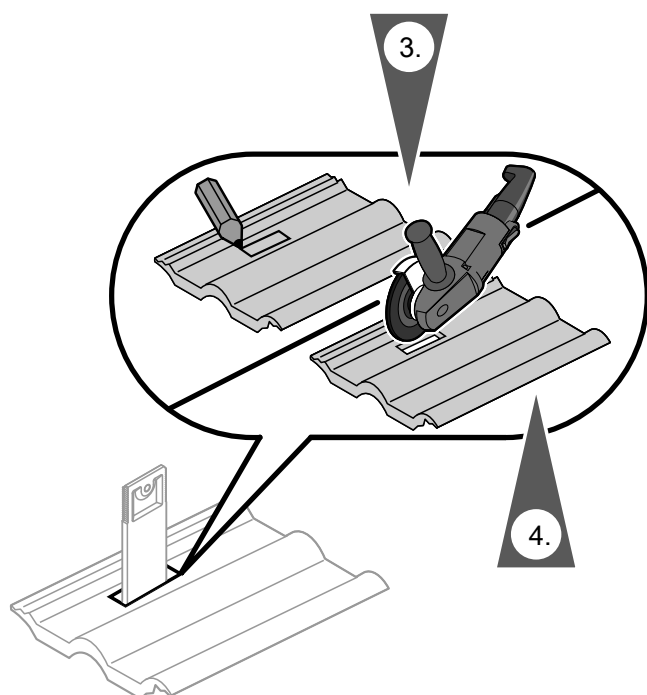


Fig. 29

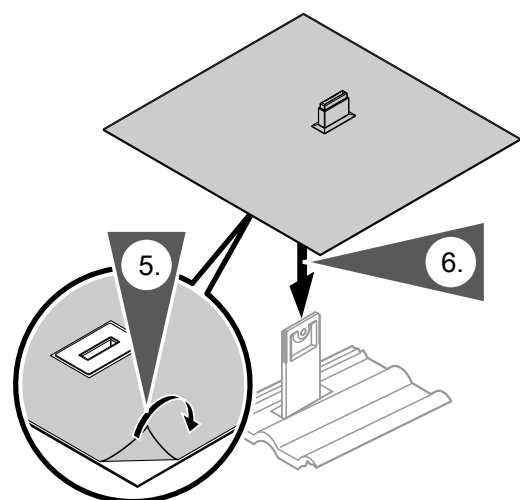


Fig. 30

Vertical installation

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

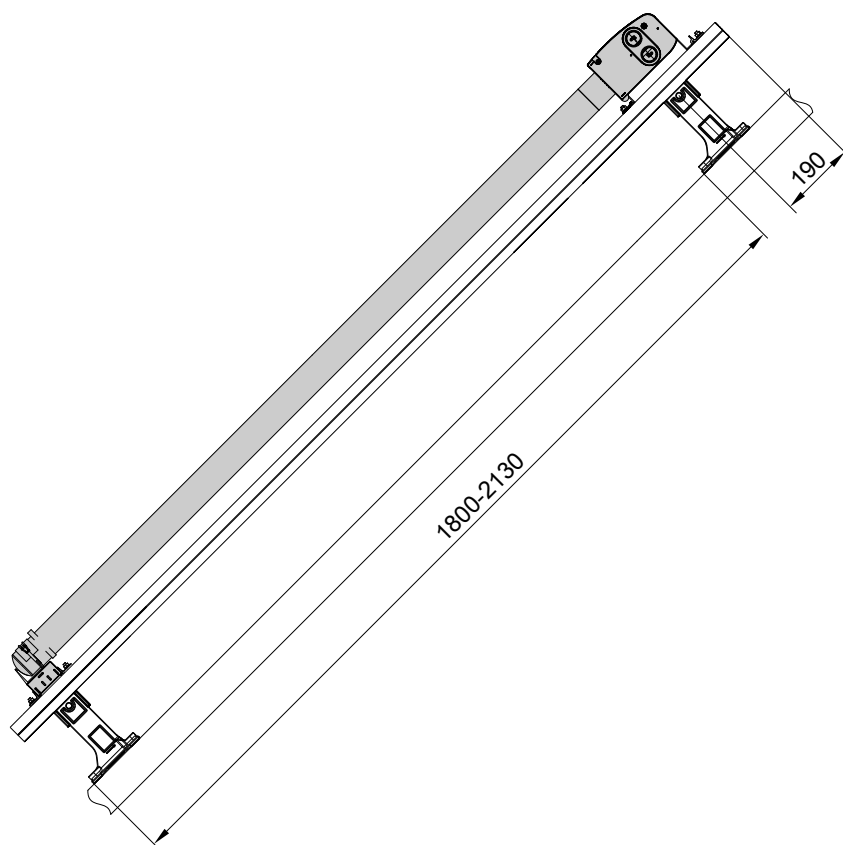


Fig. 31

The tables from page 8 detail the rafters to which the rafter anchors should be fitted.

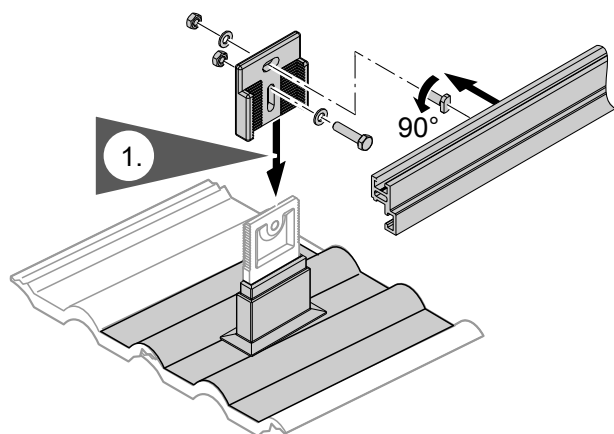


Fig. 32

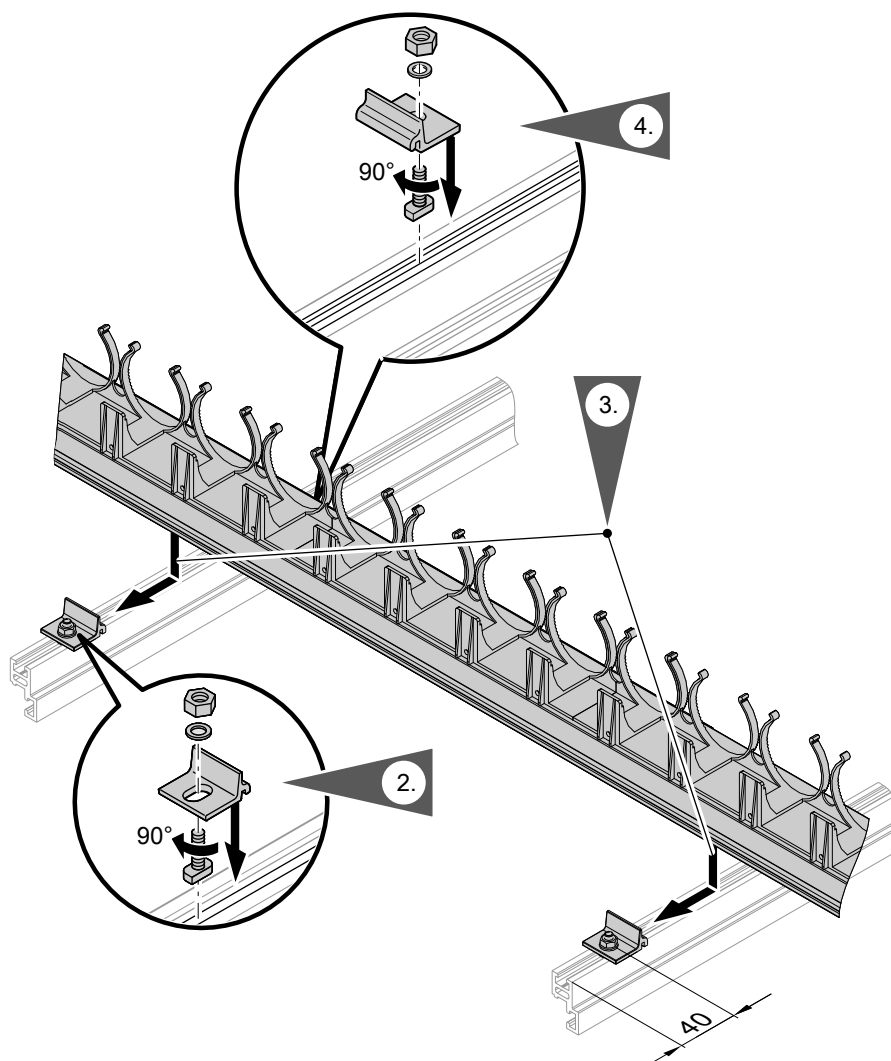


Fig. 33

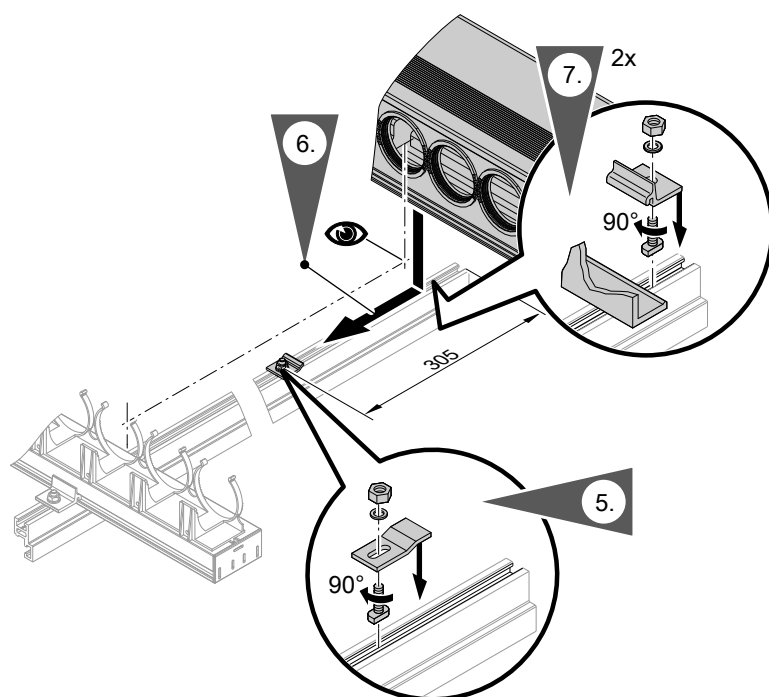


Fig. 34

Pitched roof installation with rafter anchors (cont.)

Continue with chapter "Hydraulic connections": See page 63.

Horizontal installation

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

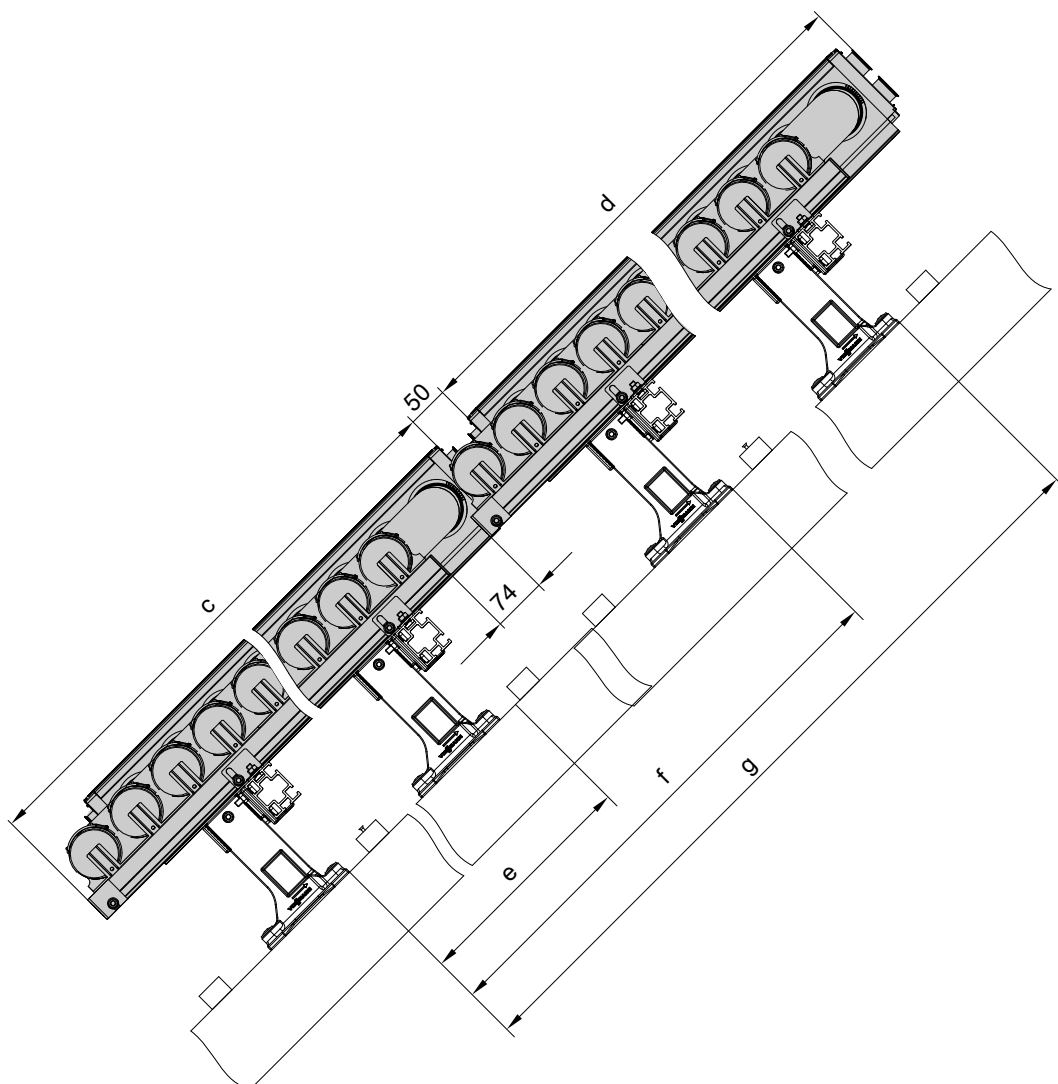


Fig. 35

Combination	c	mm	d	mm	e	mm	f	mm	g	mm
1.51 m ²		1053	—	—	525	—	—	—	—	—
3.03 m ²		2061	—	—	1030	—	—	—	—	—
1.51 m ² /1.51 m ²		1053	1053	—	525	1105	—	—	1630	—
1.51 m ² /3.03 m ²		1053	2061	—	525	1355	—	—	2385	—
3.03 m ² /1.51 m ²		2061	1053	—	1030	1860	—	—	2385	—
3.03 m ² /3.03 m ²		2061	2061	—	1030	2110	—	—	3140	—

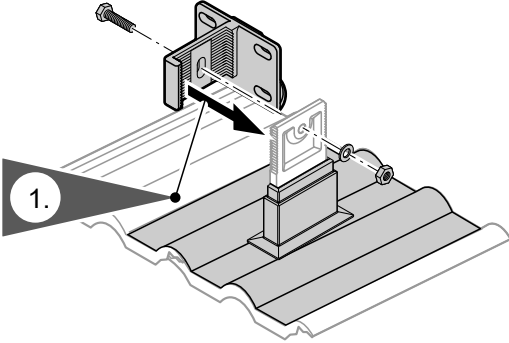


Fig. 36

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

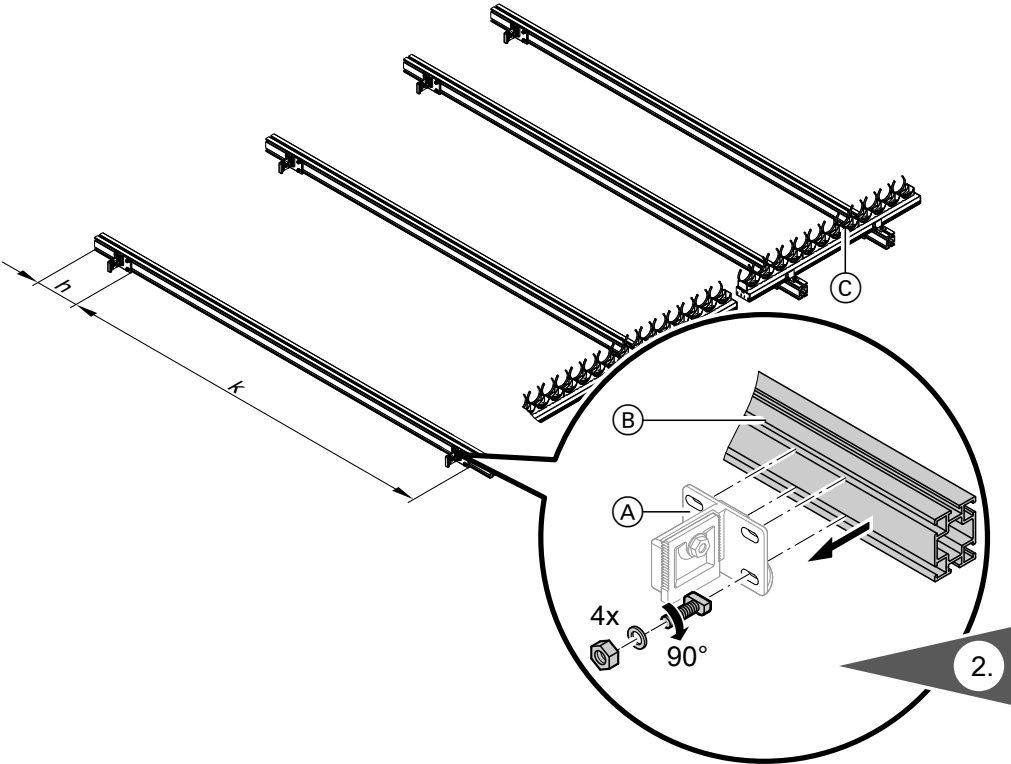


Fig. 37

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

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

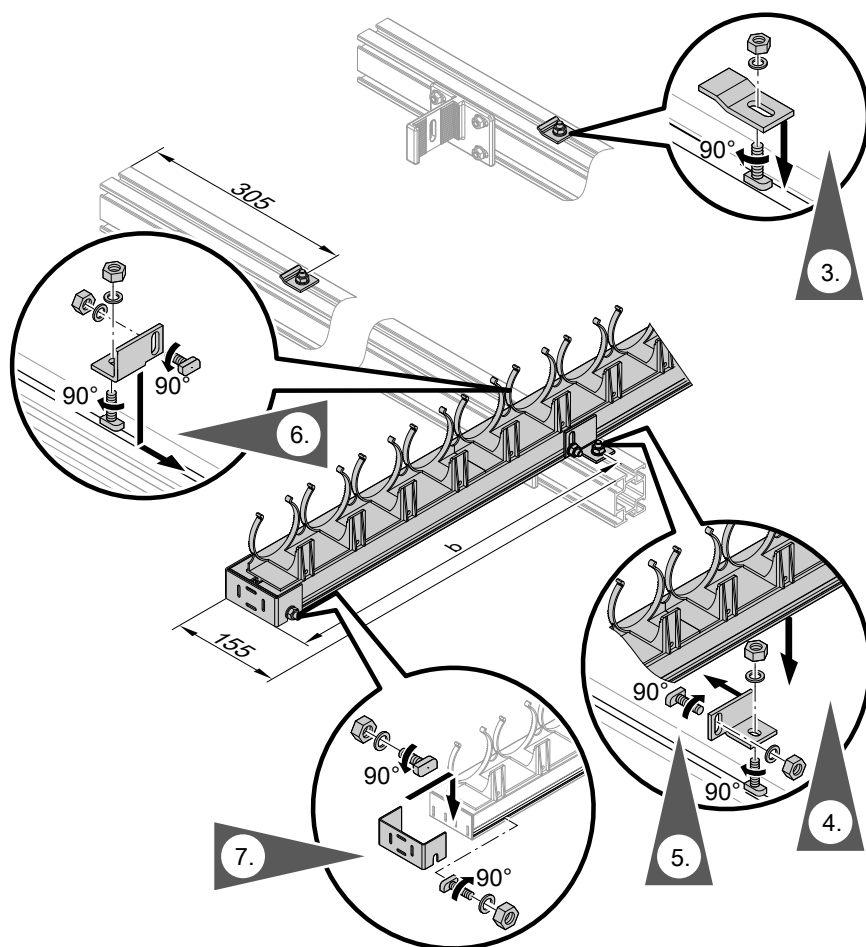


Fig. 38 For dimension *b*: See the following diagram

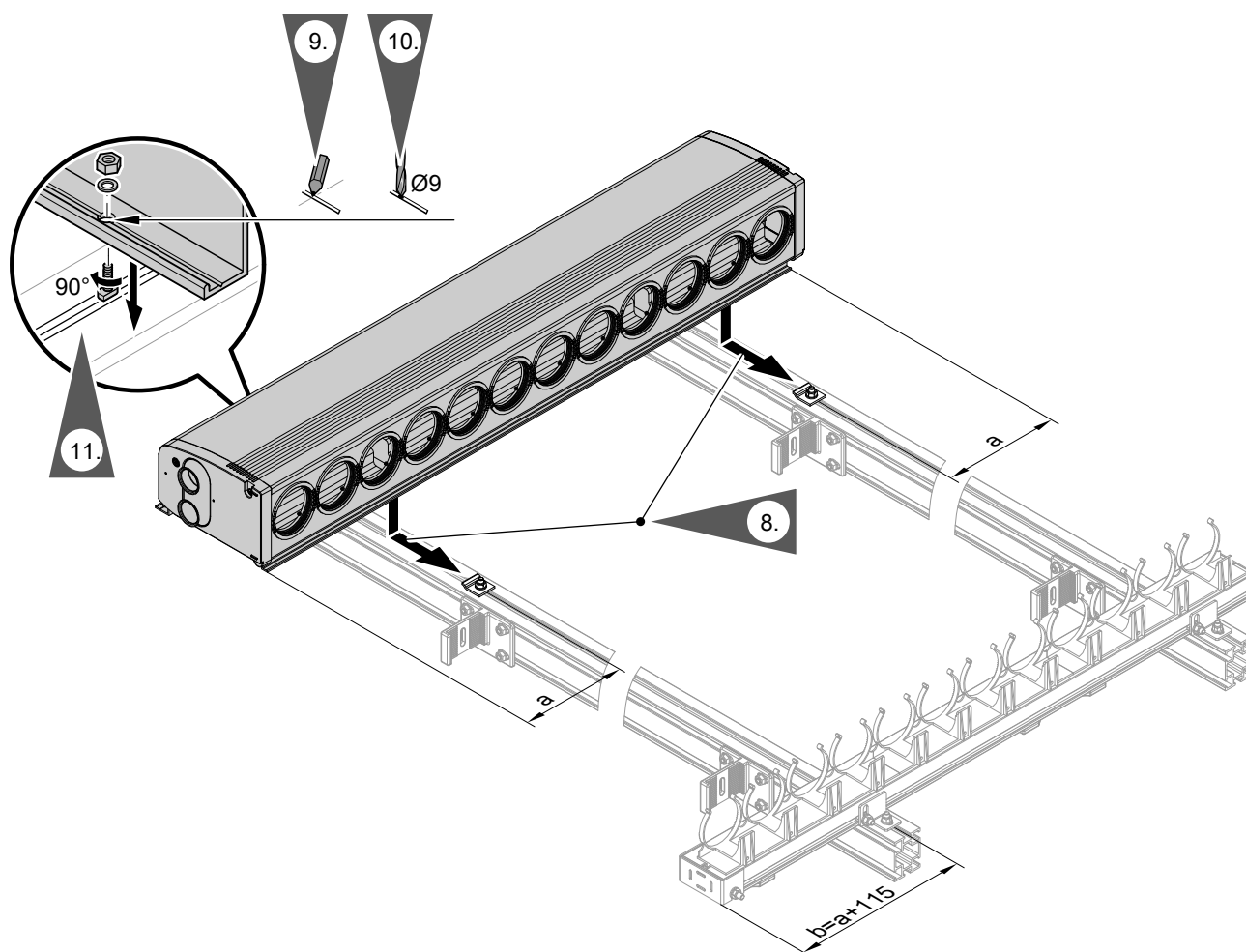


Fig. 39 Dimension a results once the header casing is placed on the mounting rails.

Note

- Horizontal installation only possible for roof pitches $> 19^\circ$.
- Roof pitch $< 19^\circ$: Align the mounting systems, including rails, on site such that the vacuum tubes have a fall of at least 1° towards the centre of the earth.

Install the tube retainer **offset** against the header casing. This ensures that the vacuum tubes are inclined against the horizontal.



Please note

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

Always maintain dimension b.

Note on step 10:

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

Continue with chapter "Hydraulic connections": See page 63.

Pitched roof installation with mounting brackets

For sheet metal roofs

Vertical installation

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

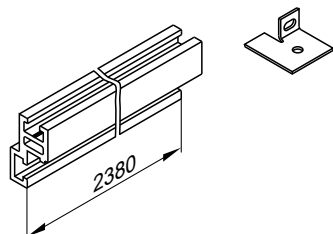


Fig. 40

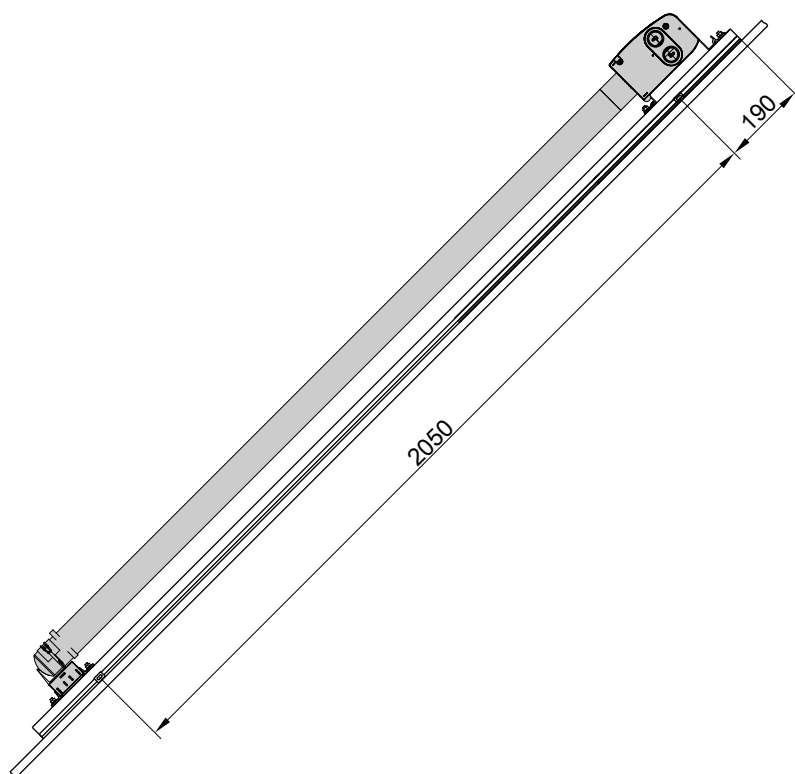


Fig. 41

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

- Installation **dependent** on rafter spacing:
The tables from page 8 detail the rafters to which the mounting brackets should be fitted.
- For installation **independent** of rafter spacing: See the following diagram

Pitched roof installation with mounting brackets (cont.)

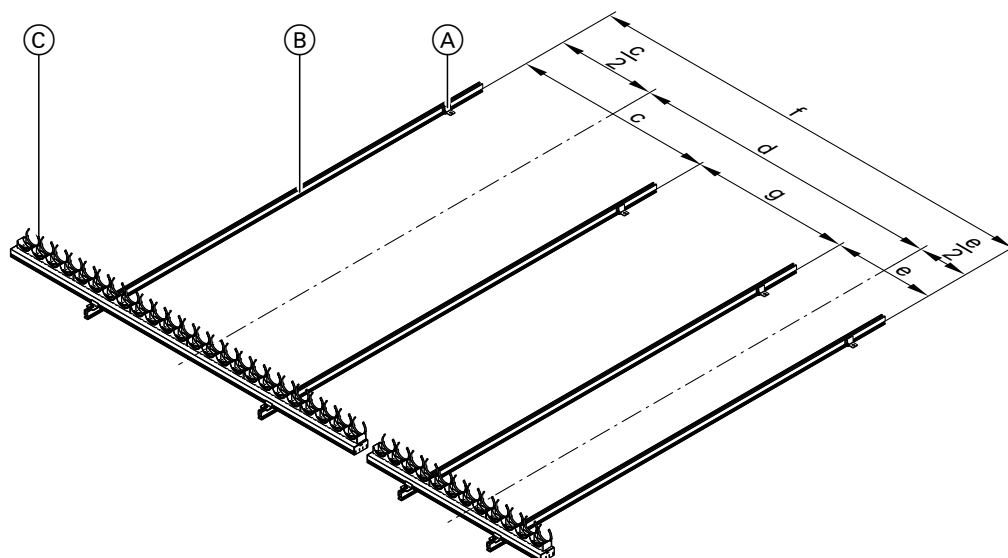


Fig. 42

- (A) Mounting bracket
- (B) Mounting rail
- (C) Tube retainer

Combination	c	mm	d	mm	e	mm	f	mm	g	mm
1.51 m ²		525	—	—	—	—	—	—	—	—
3.03 m ²		1030	—	—	—	—	—	—	—	—
1.51 m ² /1.51 m ²		525	1105	525	1630	580				
1.51 m ² /3.03 m ²		525	1610	1030	2385	830				
3.03 m ² /3.03 m ²		1030	1030	1030	3135	1075				

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

Pitched roof installation with mounting brackets (cont.)

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

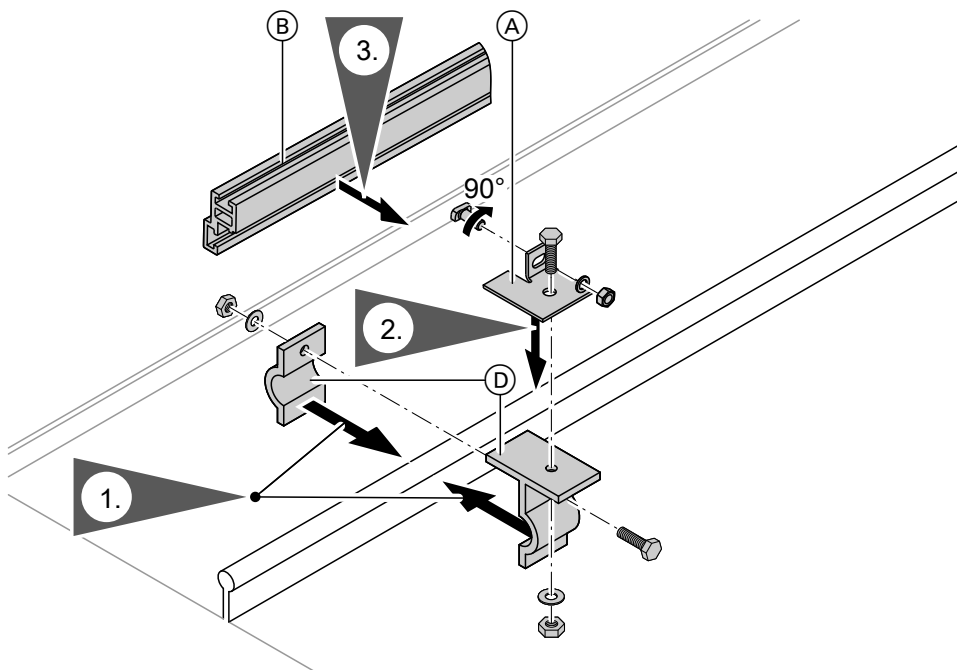


Fig. 43

- (A) Mounting bracket
- (B) Mounting rail
- (D) Fixings and screws to be provided on site

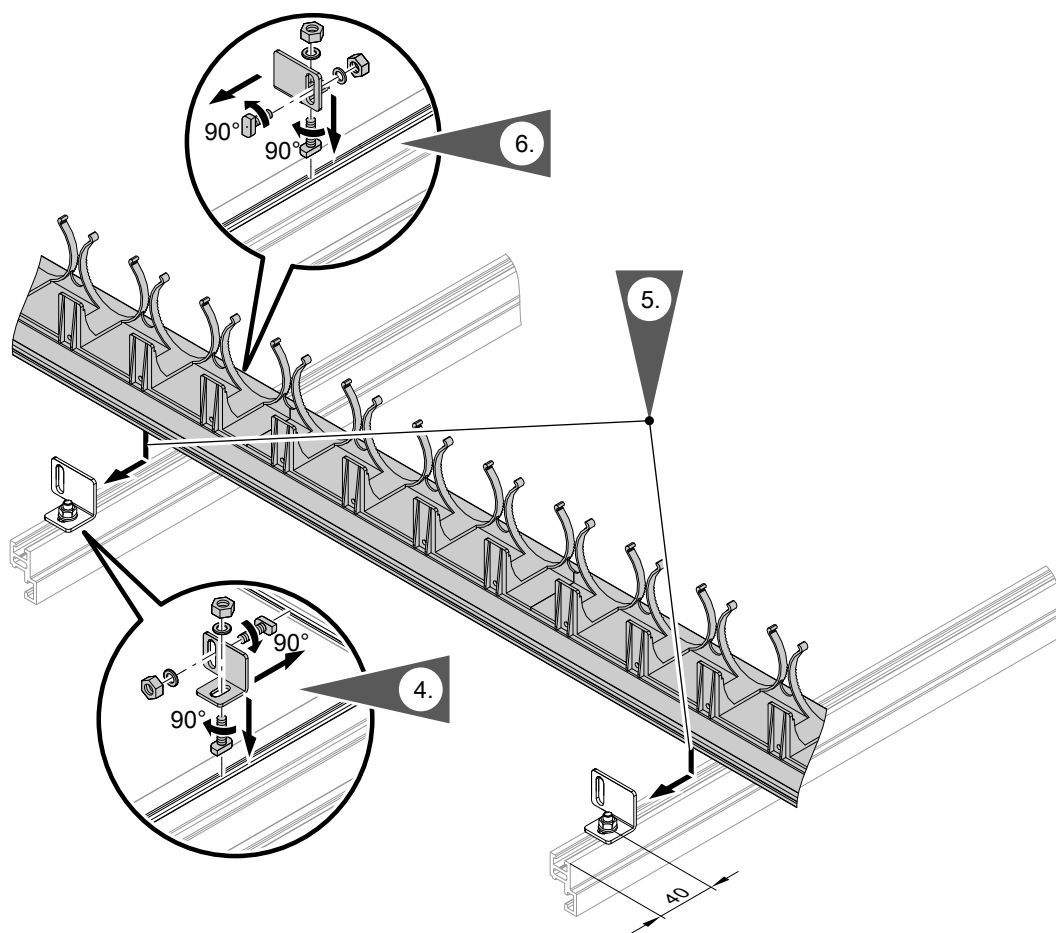


Fig. 44

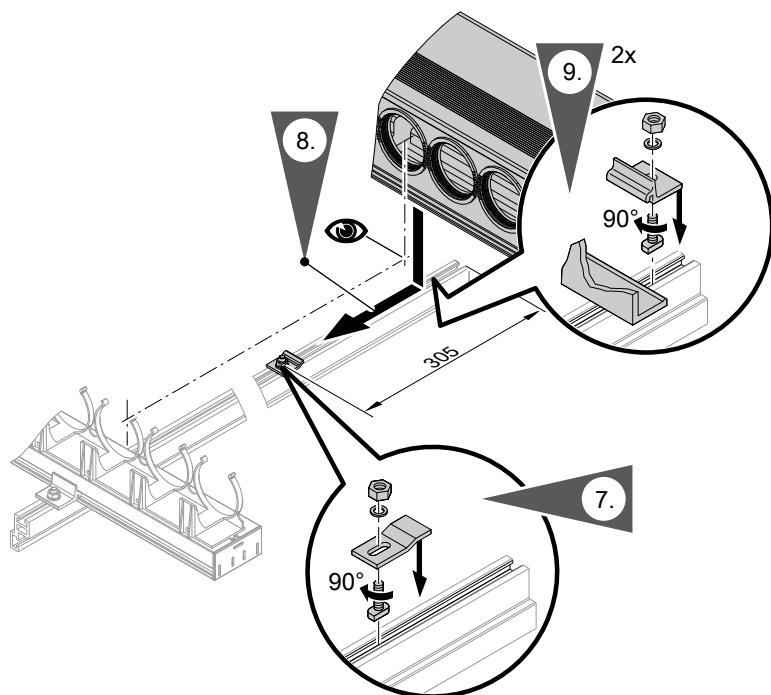


Fig. 45

Continue with chapter "Hydraulic connections": See page 63.

Horizontal installation

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

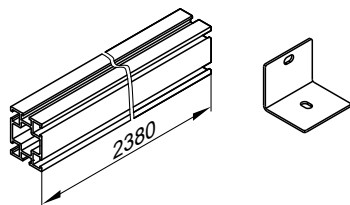


Fig. 46

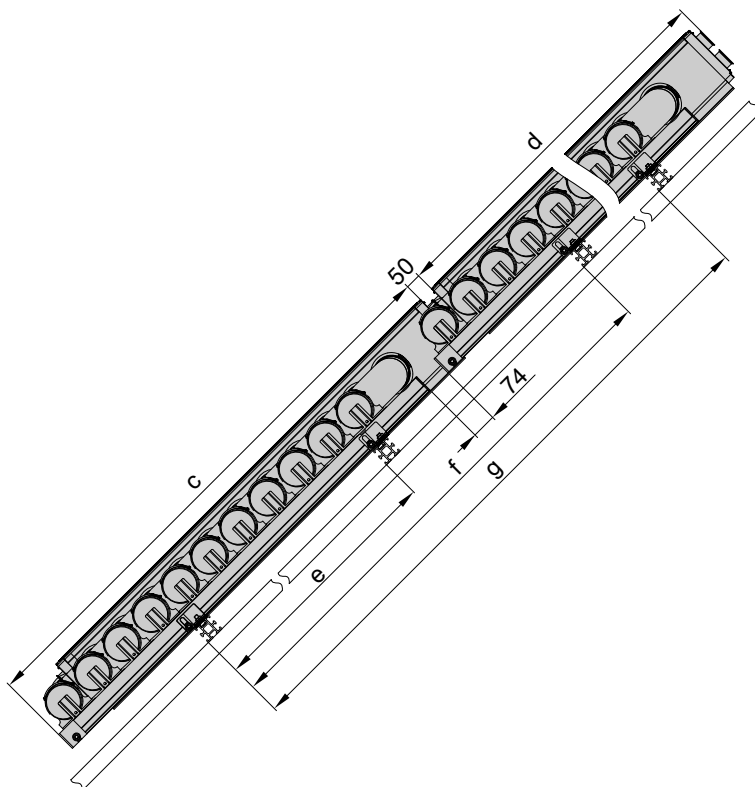


Fig. 47

Combination	c	mm	d	mm	e	mm	f	mm	g	mm
1.51 m ²		1053		—		525		—		—
3.03 m ²		2061		—		1030		—		—
1.51 m ² /1.51 m ²		1053		1053		525		1095		1610
1.51 m ² /3.03 m ²		1053		2061		525		1350		2380
3.03 m ² /1.51 m ²		2061		1053		1030		1855		2380
3.03 m ² /3.03 m ²		2061		2061		1030		2110		3140

Pitched roof installation with mounting brackets (cont.)

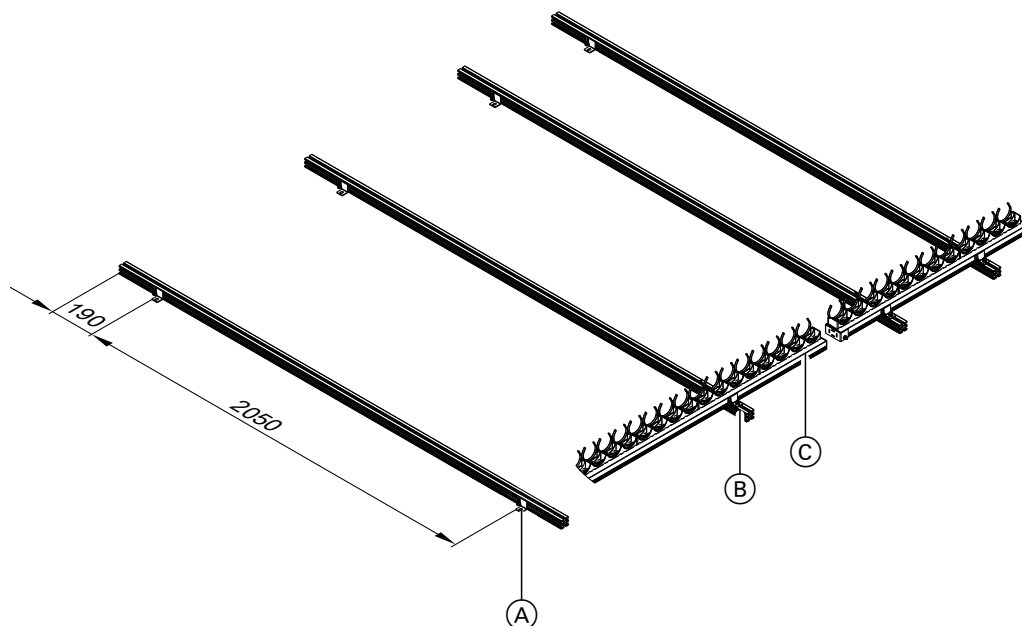


Fig. 48

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

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

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

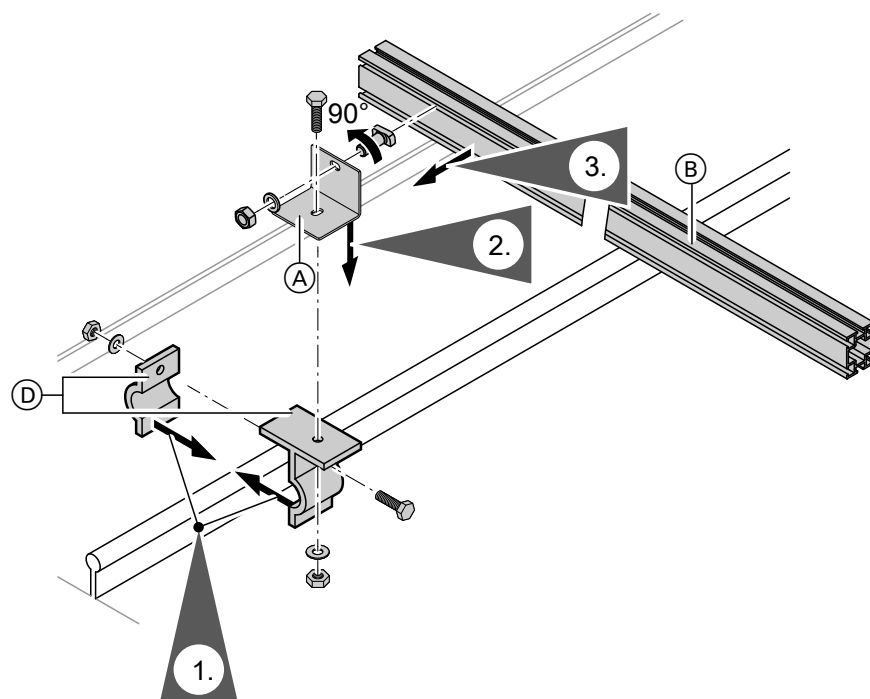


Fig. 49

- Ⓐ Mounting bracket
- Ⓑ Mounting rail
- Ⓓ Fixings and screws to be provided on site

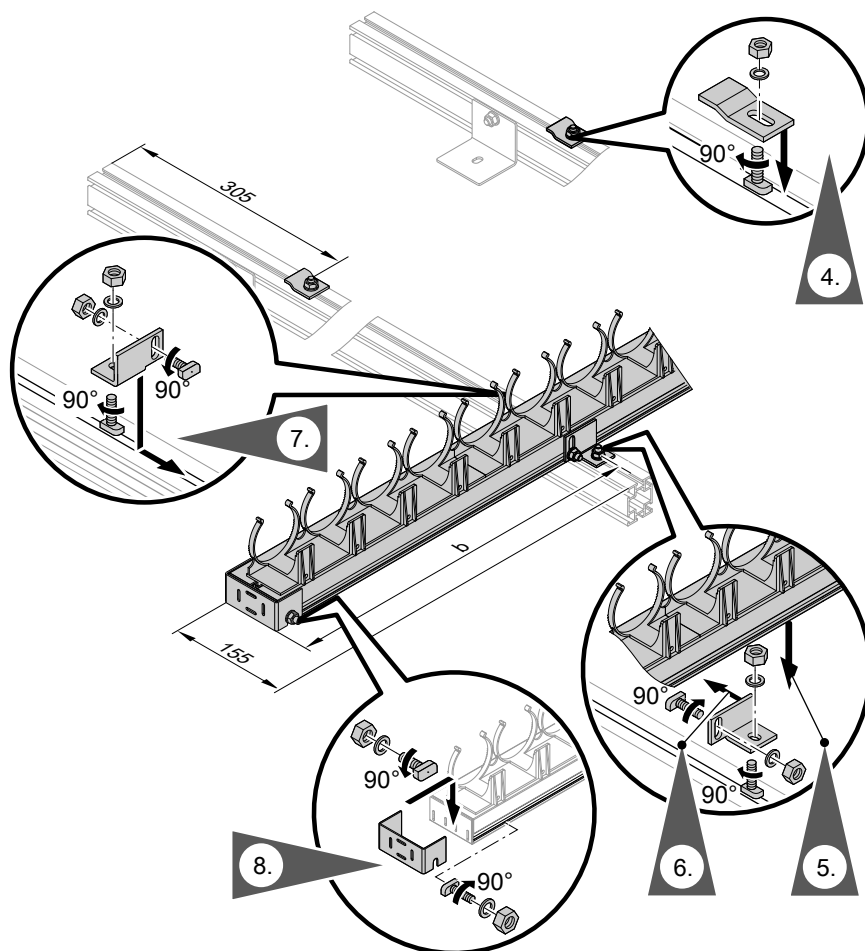


Fig. 50 For dimension b: See the following diagram

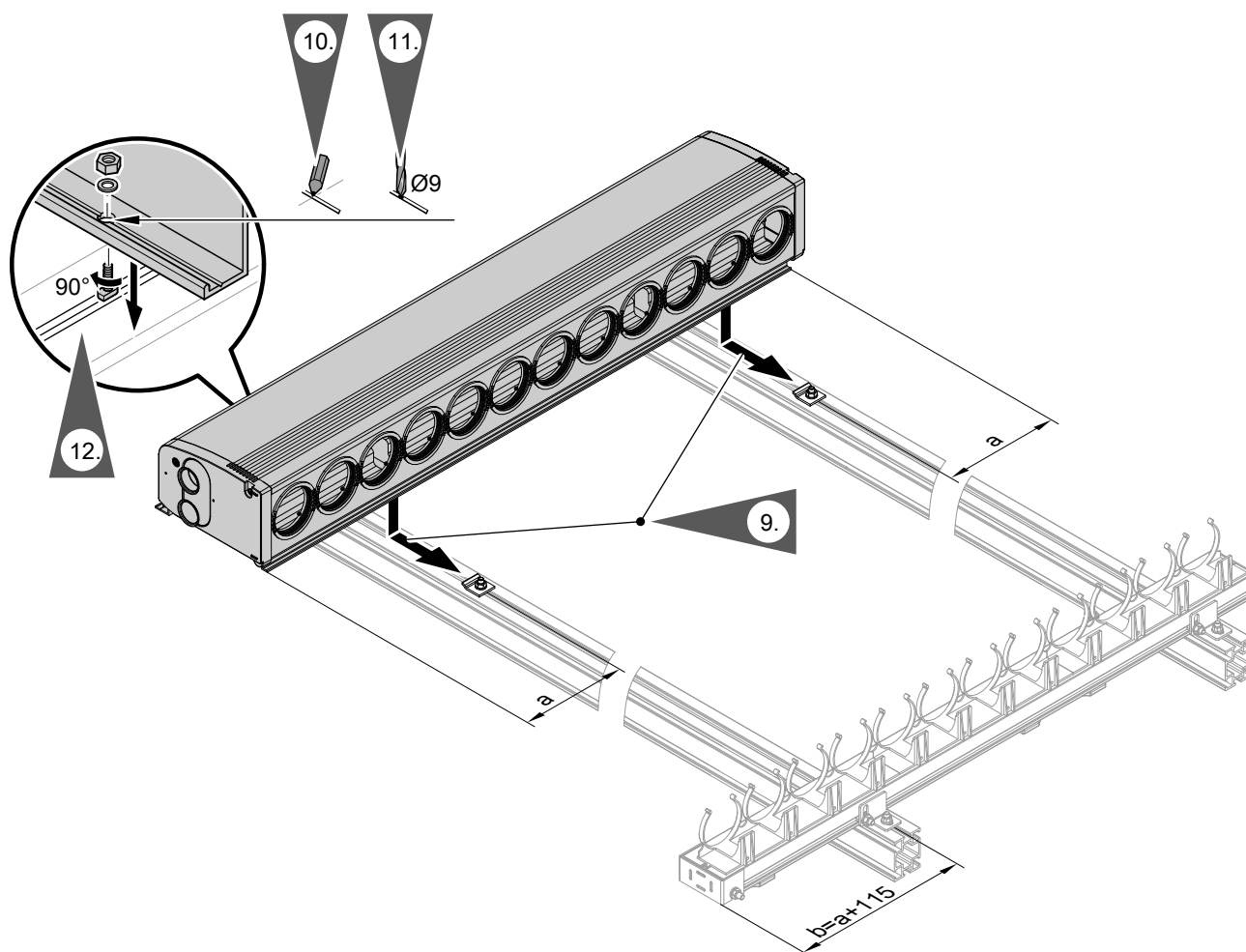


Fig. 51 Dimension a results once the header casing is placed on the mounting rails.

Note

- Horizontal installation only possible for roof pitches $> 19^\circ$.
- Roof pitch $< 19^\circ$: Align the mounting systems, including rails, on site such that the vacuum tubes have a fall of at least 1° towards the centre of the earth.

Install the tube retainer **offset** against the header casing. This ensures that the vacuum tubes are inclined against the horizontal.



Please note

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

Always maintain dimension b.

Note on step 11:

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

Continue with chapter "Hydraulic connections": See page 63.

Pitched roof installation with roof hooks

For **plain tiled**, **slate** and **corrugated sheet** roofs

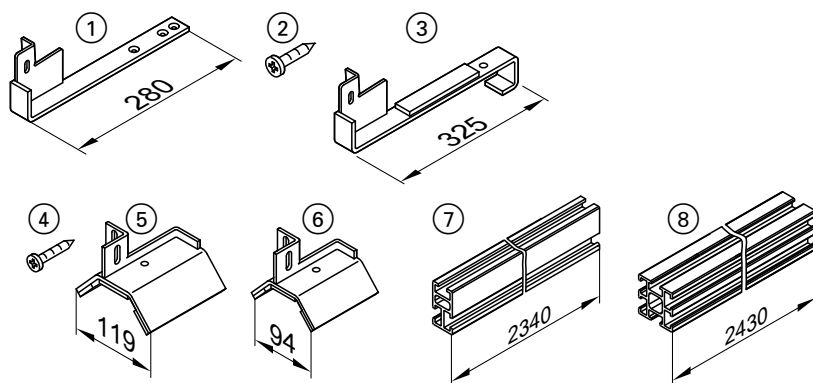


Fig. 52

- ① Roof hook for slate roofs
- ② Zinc-plated countersunk chipboard screw (Spax-S) 6 x 30 mm
- ③ Roof hook for plain tile roofs
- ④ Zinc-plated countersunk chipboard screw (Spax-S) 5 x 30 mm
- ⑤ Roof hook for corrugated sheet profiles 5 and 6
- ⑥ Roof hook for corrugated sheet profile 8
- ⑦ Mounting rail for **vertical** installation
- ⑧ Mounting rail for **horizontal** installation

Fitting the roof hooks

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

Slate roof cover

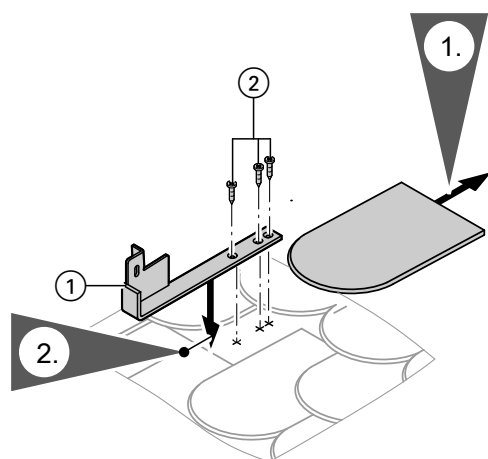


Fig. 53

For dimensions, see page 43 onwards.

Note

Fit commercially available lead flashing to protect against the ingress of moisture.

Plain tiled roof cover

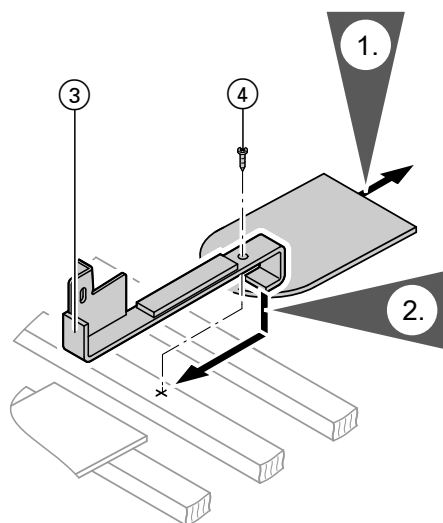


Fig. 54

For dimensions, see page 43 onwards.

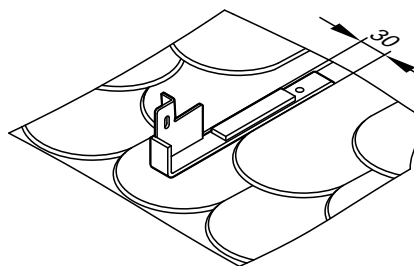


Fig. 55

Note

Trim plain tile; cut off approx. 30 mm with an angle grinder.

Corrugated sheet roof

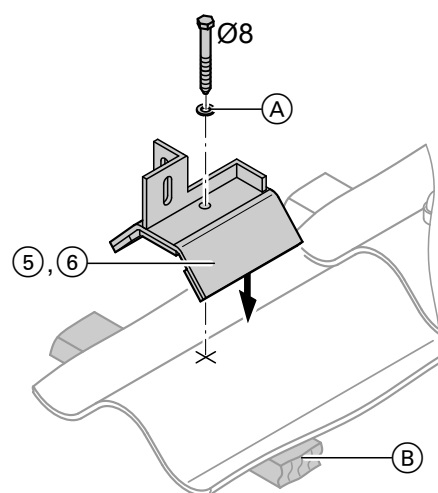


Fig. 56

- Ⓐ Sealing washer (on site)
- Ⓑ Existing roof batten

For dimensions, see page 43 onwards.

Vertical installation

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

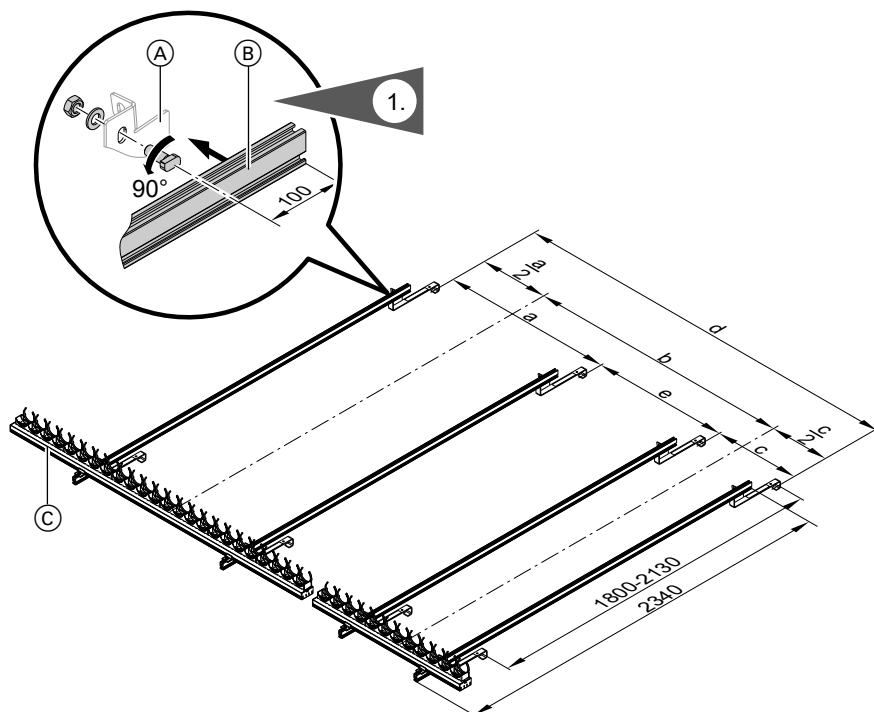


Fig. 57

- (A) Roof hook
- (B) Mounting rail
- (C) Tube retainer

Combination	a	mm	b	mm	c	mm	d	mm	e	mm
1.51 m ²		525	—	—	—	—	—	—	—	—
3.03 m ²		1030	—	—	—	—	—	—	—	—
1.51 m ² /1.51 m ²		525	1105	525	1630	580				
1.51 m ² /3.03 m ²		525	1610	1030	2385	830				
3.03 m ² /3.03 m ²		1030	2105	1030	3135	1075				

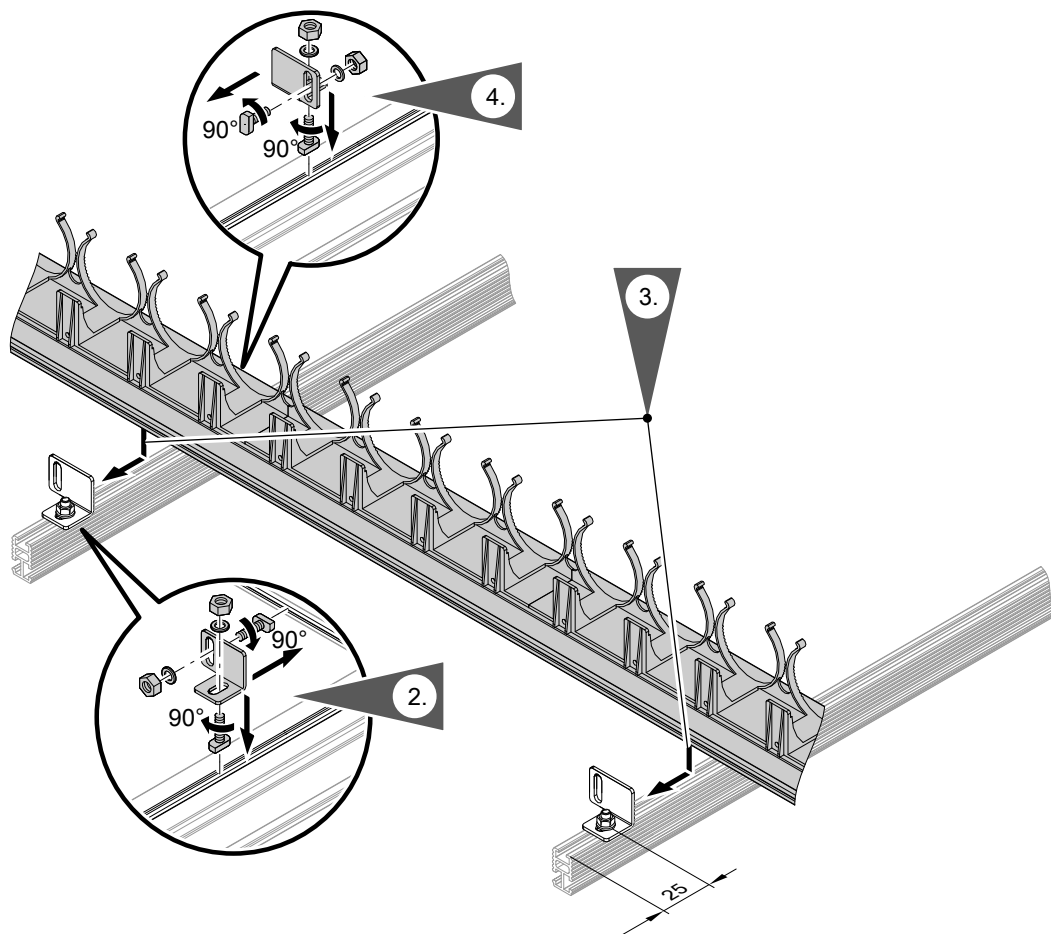


Fig. 58

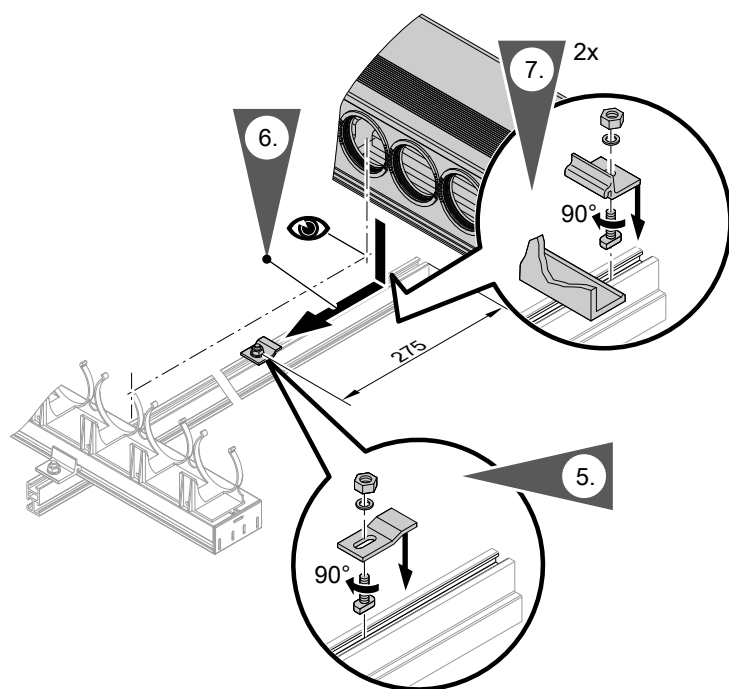


Fig. 59

Continue with chapter "Hydraulic connections": See page 63.

Horizontal installation

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

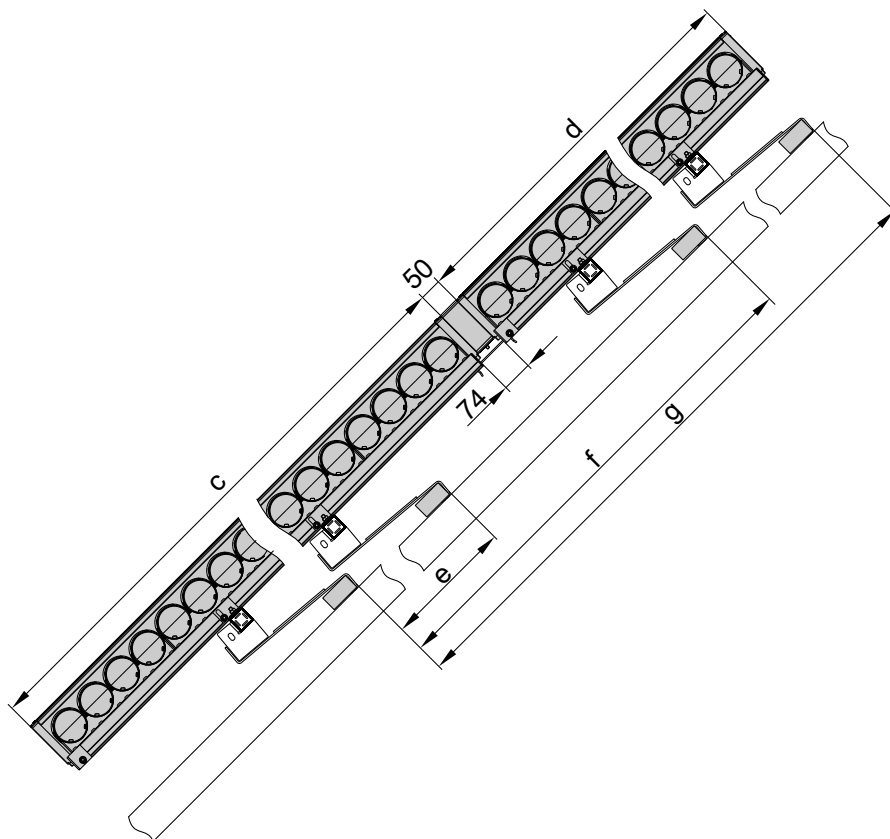


Fig. 60

Combination	c	mm	d	mm	e	mm	f	mm	g	mm
1.51 m ²		1053	—		525	—		—		
3.03 m ²		2061	—		1030	—		—		
1.51 m ² /1.51 m ²		1053	1053		525	1095			1610	
1.51 m ² /3.03 m ²		1053	2061		5025	1350			2380	
3.03 m ² /1.51 m ²		2061	1053		1030	1855			2380	
3.03 m ² /3.03 m ²		2061	2061		1030	2110			3140	

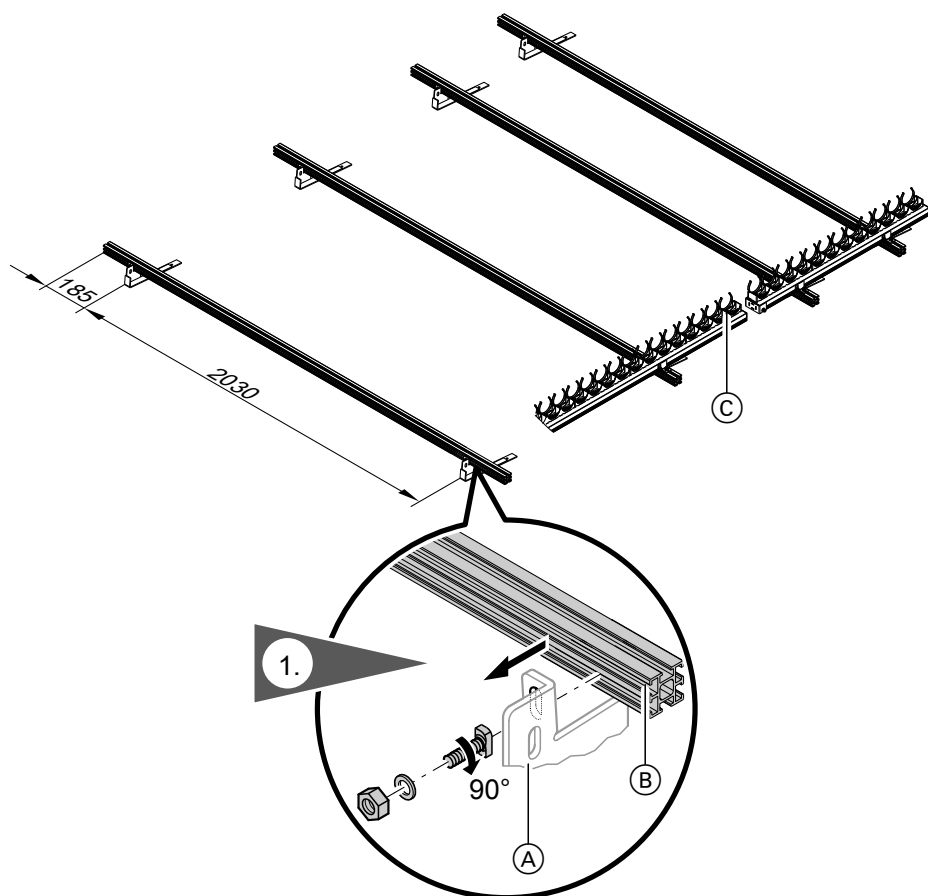


Fig. 61

- (A) Roof hook
- (B) Mounting rail
- (C) Tube retainer

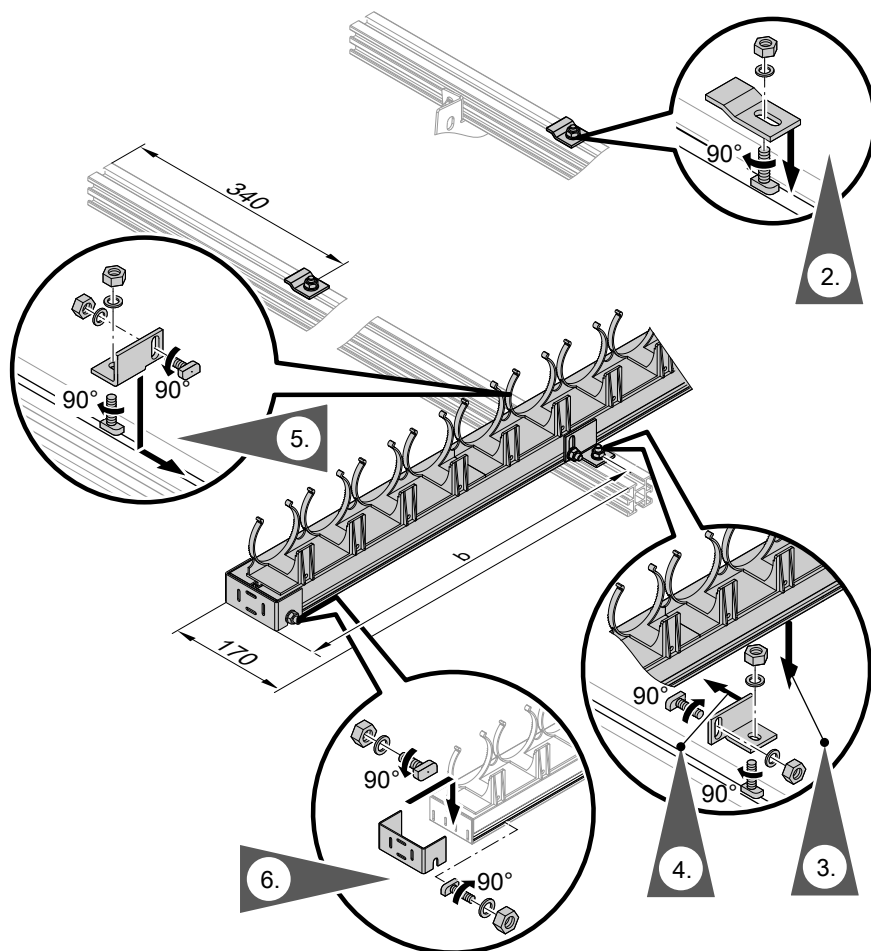


Fig. 62 For dimension *b*: See the following diagram

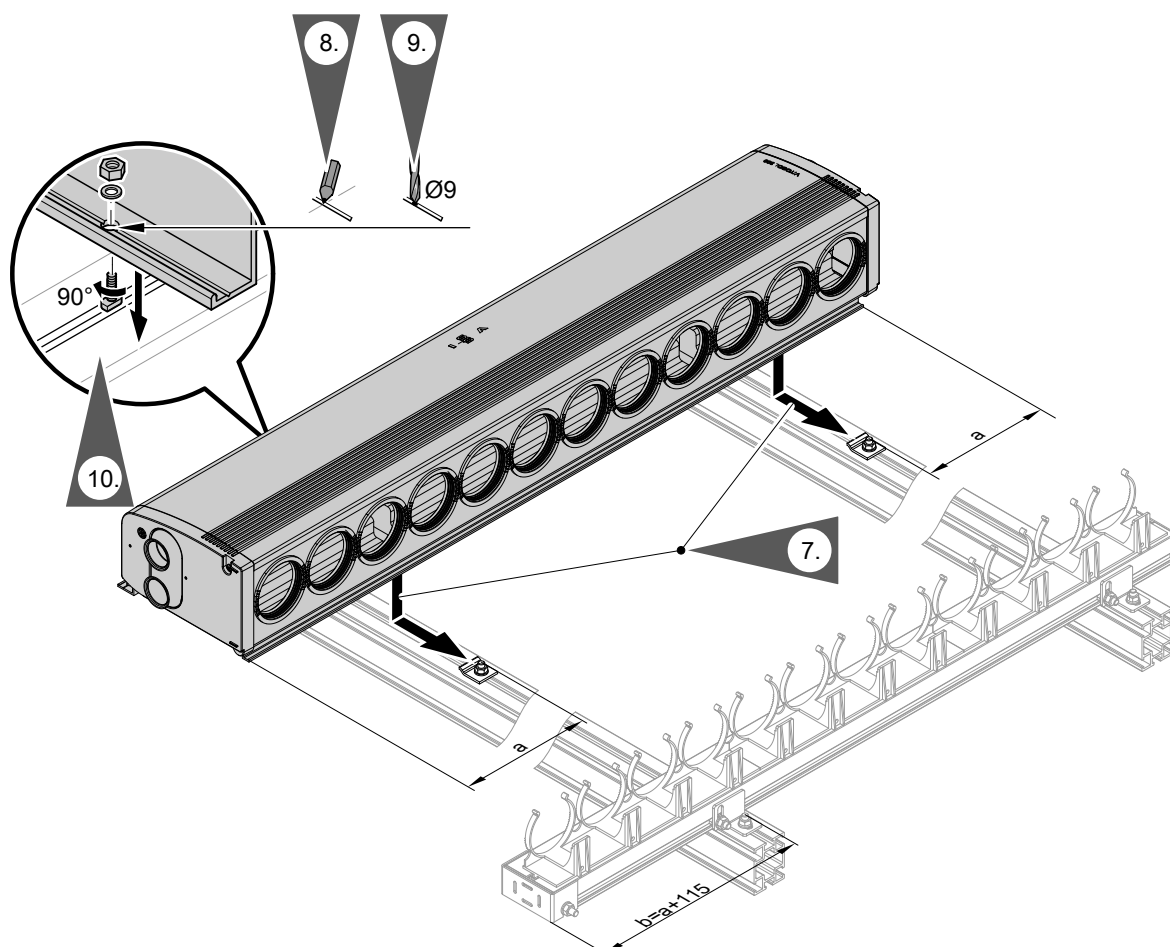


Fig. 63 Dimension *a* results once the header casing is placed on the mounting rails.

Note

- Horizontal installation only possible for roof pitches $> 19^\circ$.
- Roof pitch $< 19^\circ$: Align the mounting systems, including rails, on site such that the vacuum tubes have a fall of at least 1° towards the centre of the earth.

Install the tube retainer **offset** against the header casing. This ensures that the vacuum tubes are inclined against the horizontal.



Please note

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

Note on step 9:

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

Continue with chapter "Hydraulic connections": See page 63.

Installation on collector supports

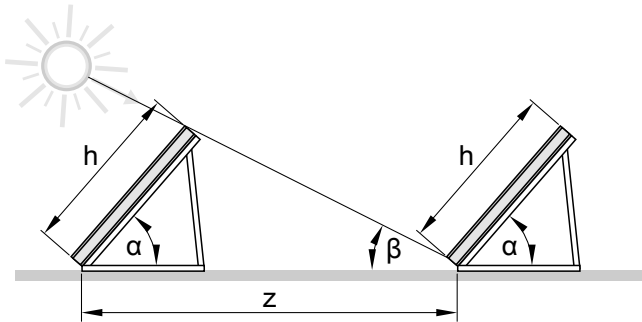
Prevent shading if several collectors are installed one behind the other. Maintain clearance *z* between the rows.

Installation on collector supports (cont.)

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.
2. To calculate dimension z :
 $h = 2241 \text{ mm}$
 $\alpha = 45^\circ$
 $\beta = 16.5^\circ$

Example:

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



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

$$z = \frac{2241 \text{ mm} \cdot \sin (180^\circ - 61.5^\circ)}{\sin 16.5^\circ}$$

$$z = 6934 \text{ mm}$$

Fig. 64

z Collector row spacing
 h Collector height

α Angle of collector inclination
 β Angle of the sun

Installation information

- The collector supports for 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 following illustrations).
- 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. The Viessmann "SOLSTAT" calculation program is available at www.viessmann.com to assist with calculations.
- For calculating dimension: See above.

Collector supports with fixed angle of inclination

The collector supports for angles of inclination α 25° , 45° and 60° are pre-assembled with screws, washers, nuts and clamping brackets.

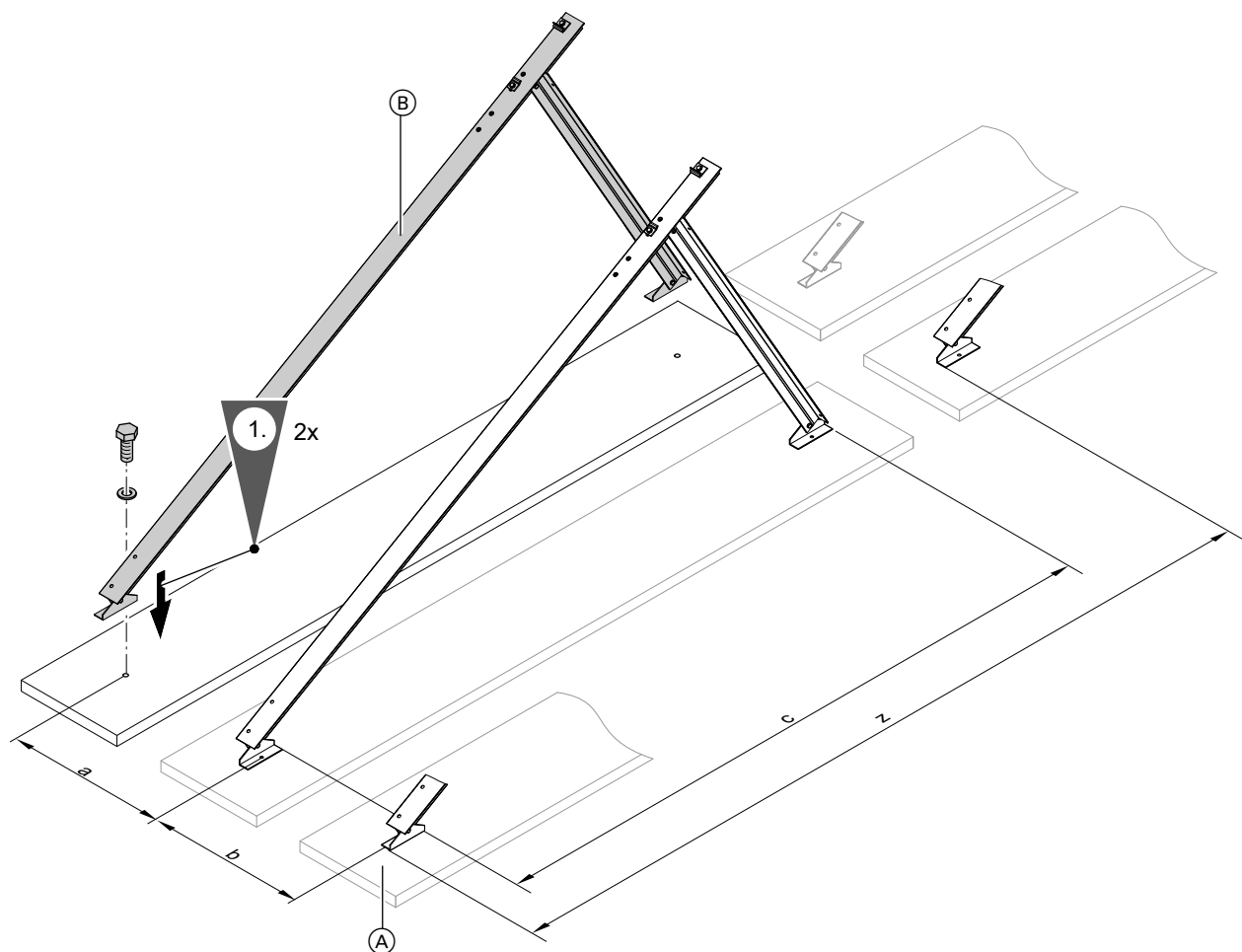


Fig. 65 Use the mounting feet as a drilling template.

- (A) Support slab
- (B) Collector support

Collector area	a	mm
1.51 m ²		640
3.03 m ²		1240
Combination	b	mm
1.51 m ² /1.51 m ²		465
1.51 m ² /3.03 m ²		660
3.03 m ² /3.03 m ²		870

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

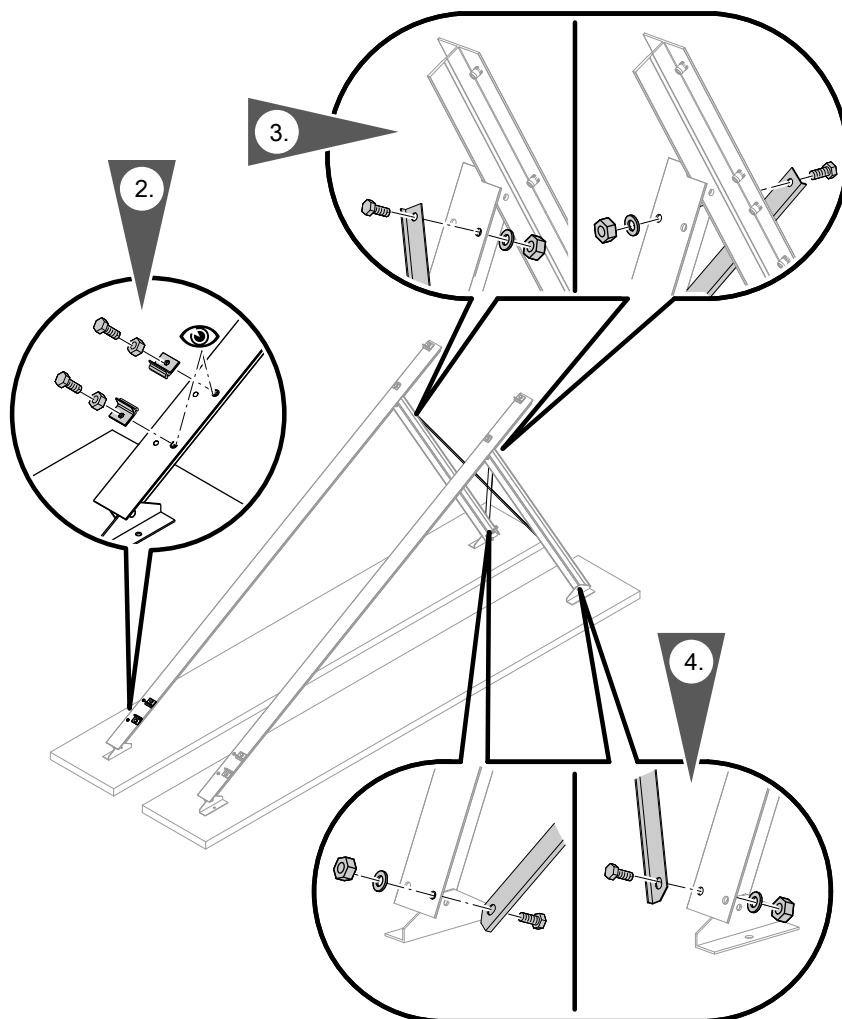


Fig. 66

Note on steps 3 and 4:

Fit the cross brace 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.

Note

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

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:	
	1.51 m ²	3.03 m ²
30°	1300 mm	1650 mm
45°	1725 mm	2000 mm
60°	2025 mm	—

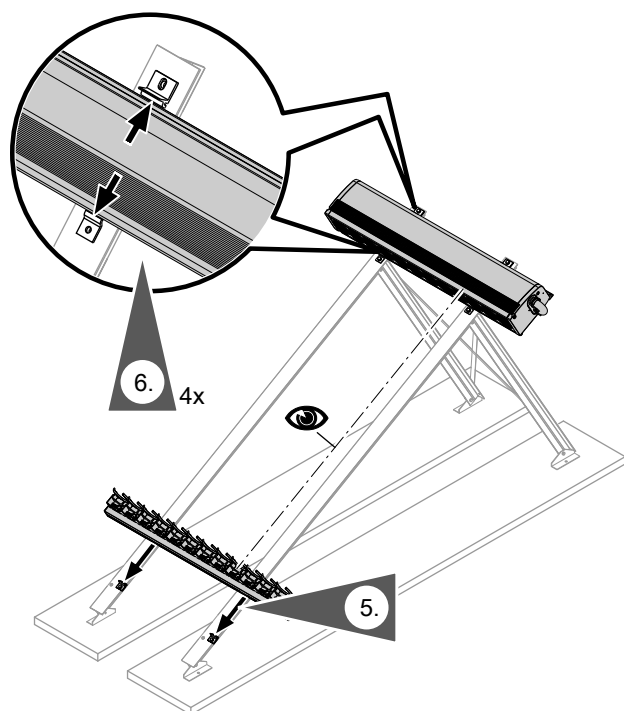


Fig. 67

Continue with chapter "Hydraulic connections": See page 63.

Collector supports with variable angle of inclination

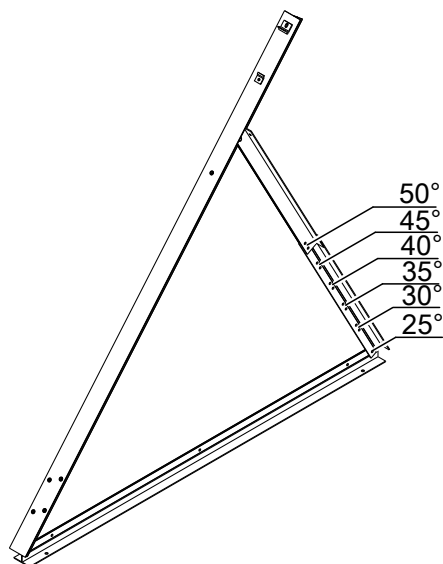


Fig. 68

Installation on collector supports (cont.)

Adjusting the angle of inclination α

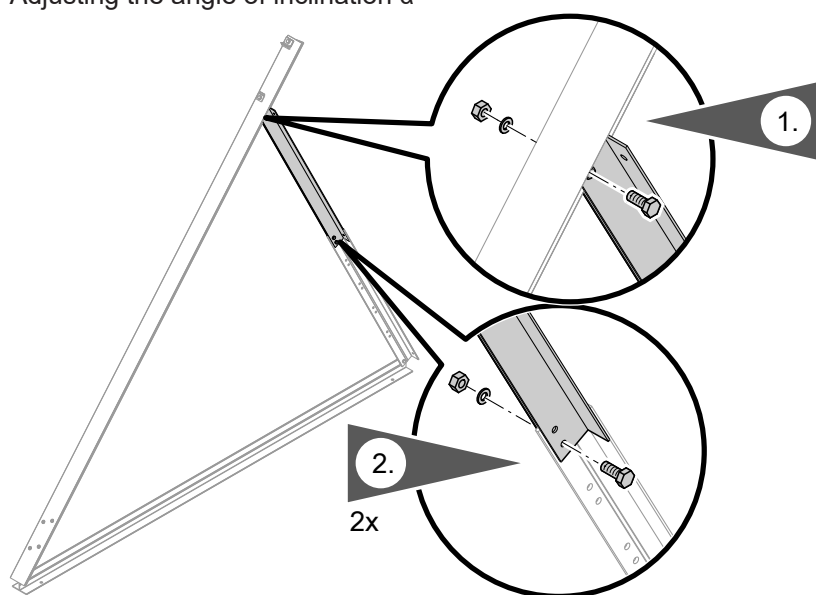


Fig. 69

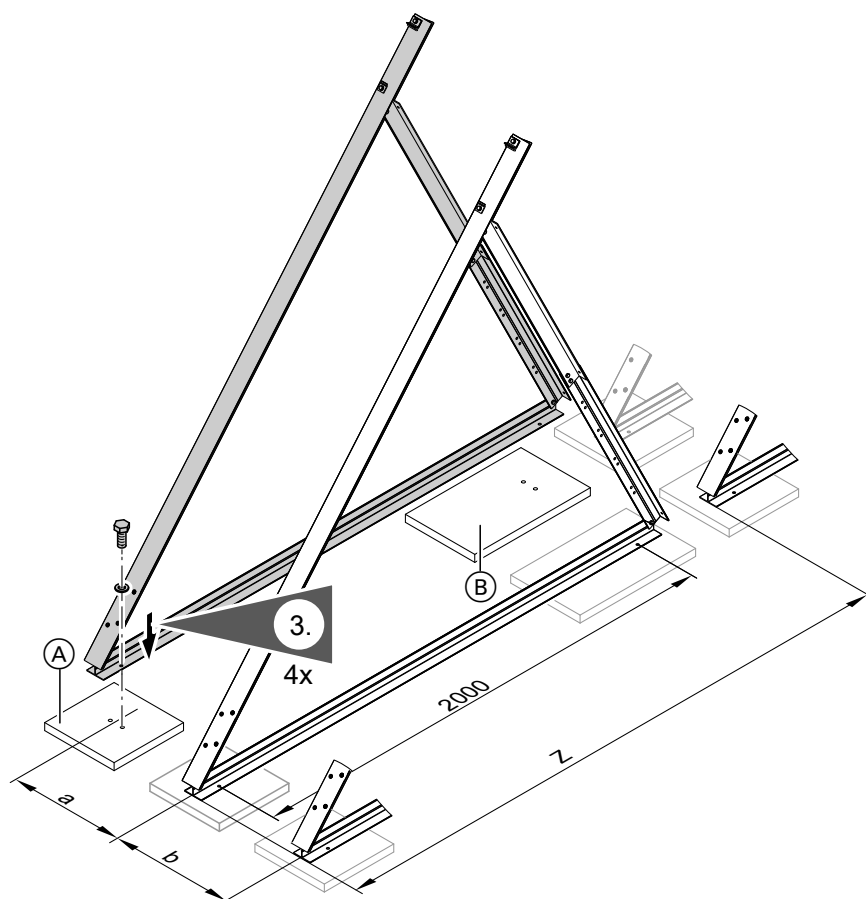


Fig. 70 Use foot braces as a drilling template.

- Ⓐ Support slab A
- Ⓑ Support slab B

Collector area	a	mm
1.51 m ²		505
3.03 m ²		1010

Combination	b	mm
1.51 m ² /1.51 m ²		595
1.51 m ² /3.03 m ²		850
3.03 m ² /3.03 m ²		1100

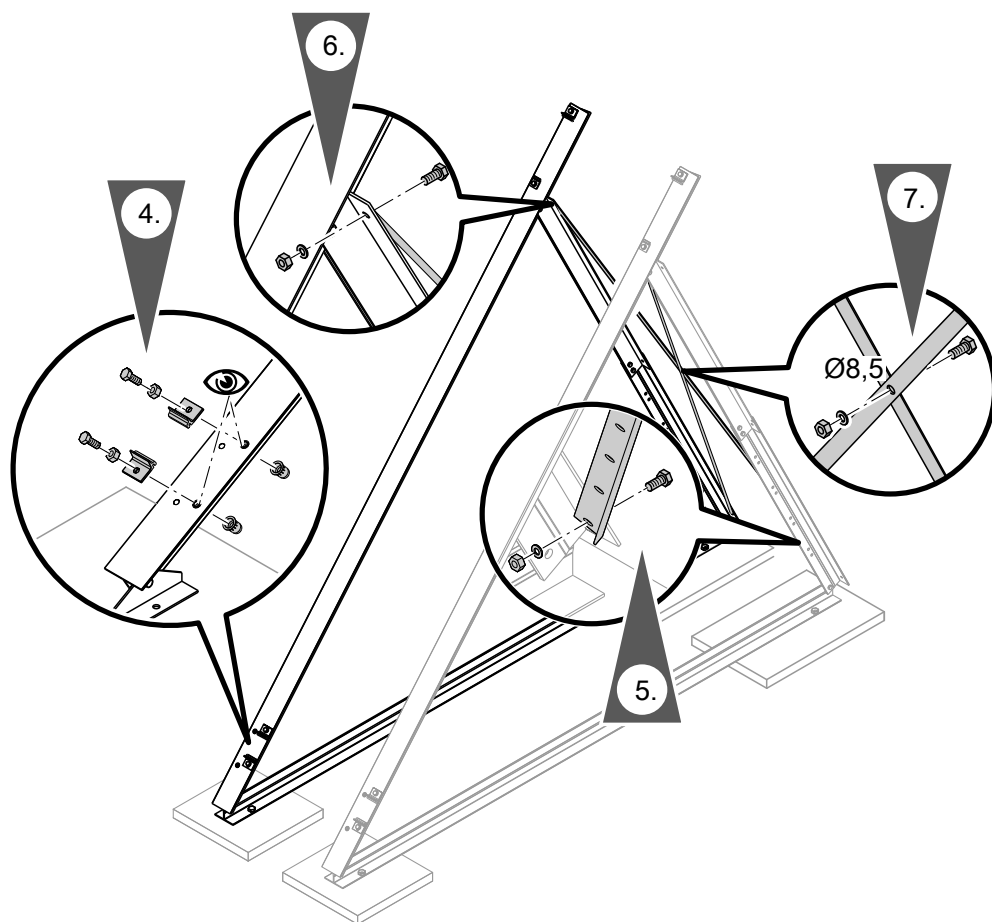


Fig. 71

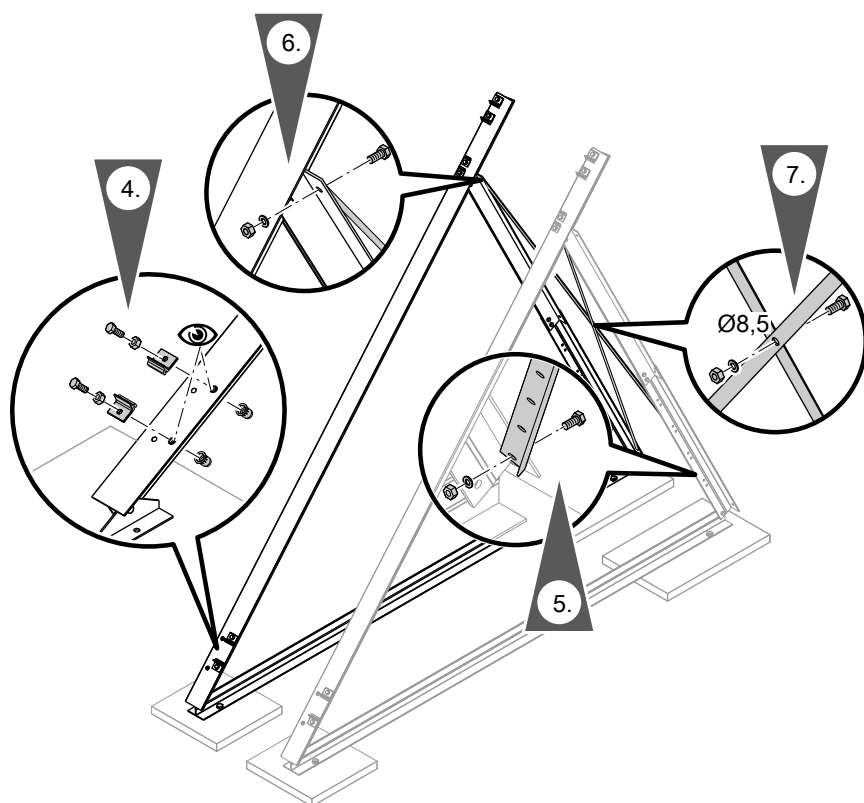


Fig. 72 View of the SPC3 support

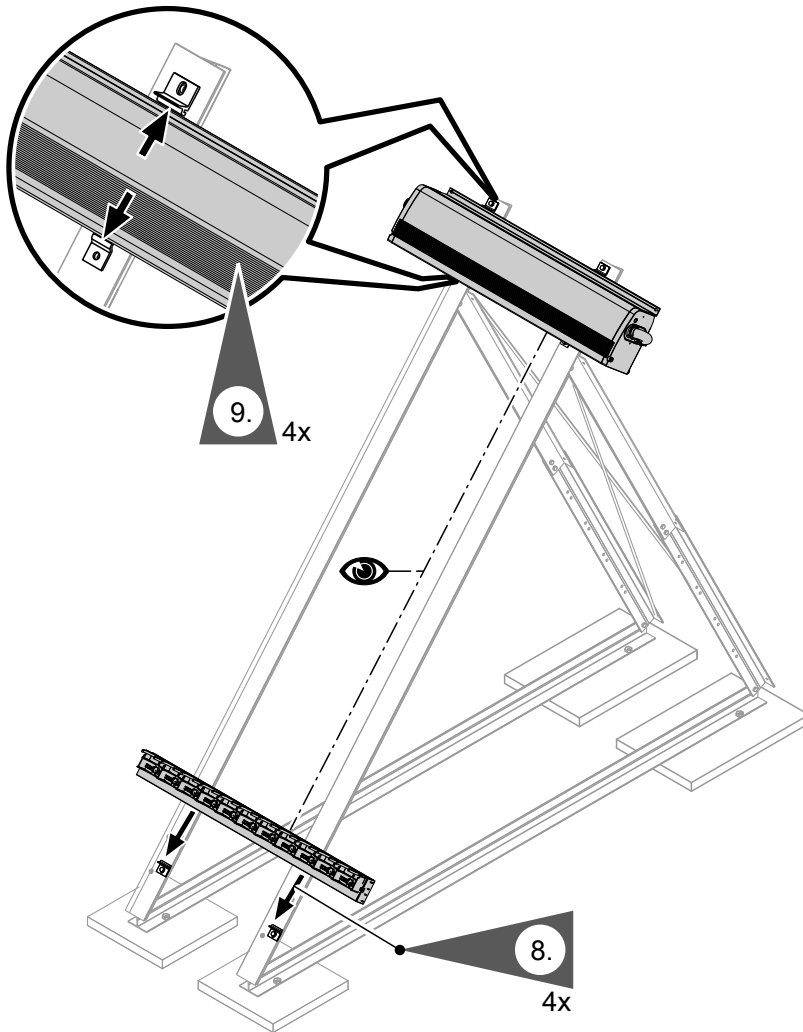


Fig. 73

Continue with chapter "Hydraulic connections": See page 63.

Horizontal installation

For flat roofs

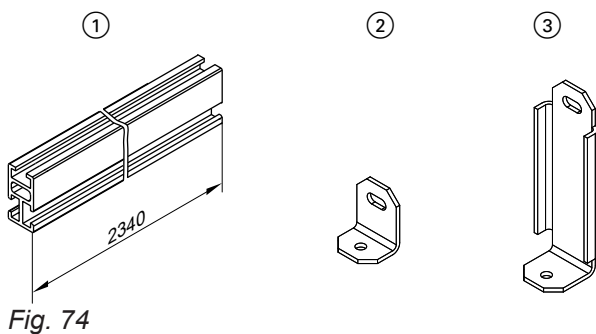


Fig. 74

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 following illustration).
 - Align the collector array to face due south.
 - Calculation of ballast and maximum load on the substructure according to DIN EN 1001-1-3 and DIN 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.

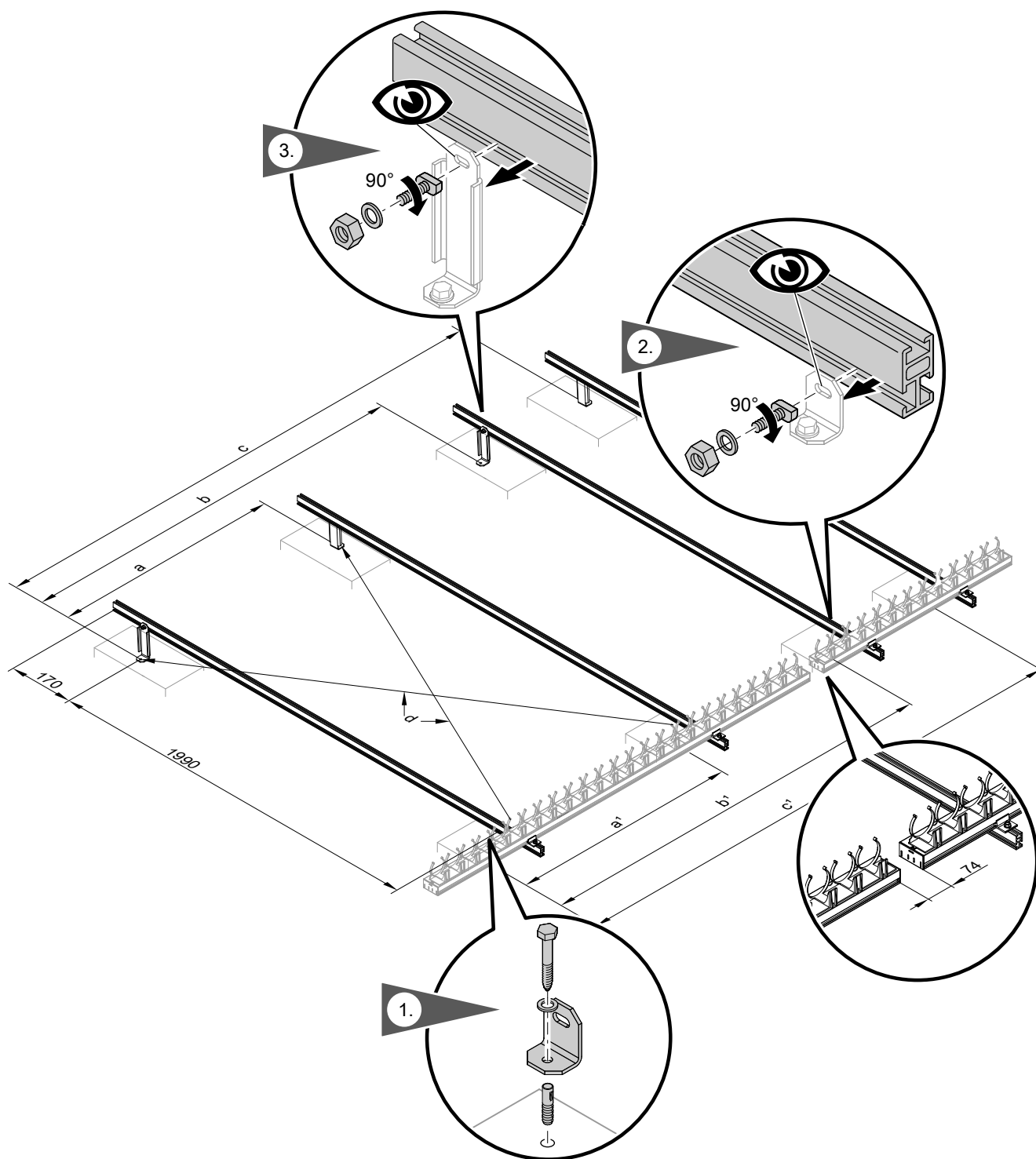


Fig. 75 Screws to be supplied on site.

- Ⓐ Support slab A
- Ⓑ Support slab B

Horizontal installation (cont.)

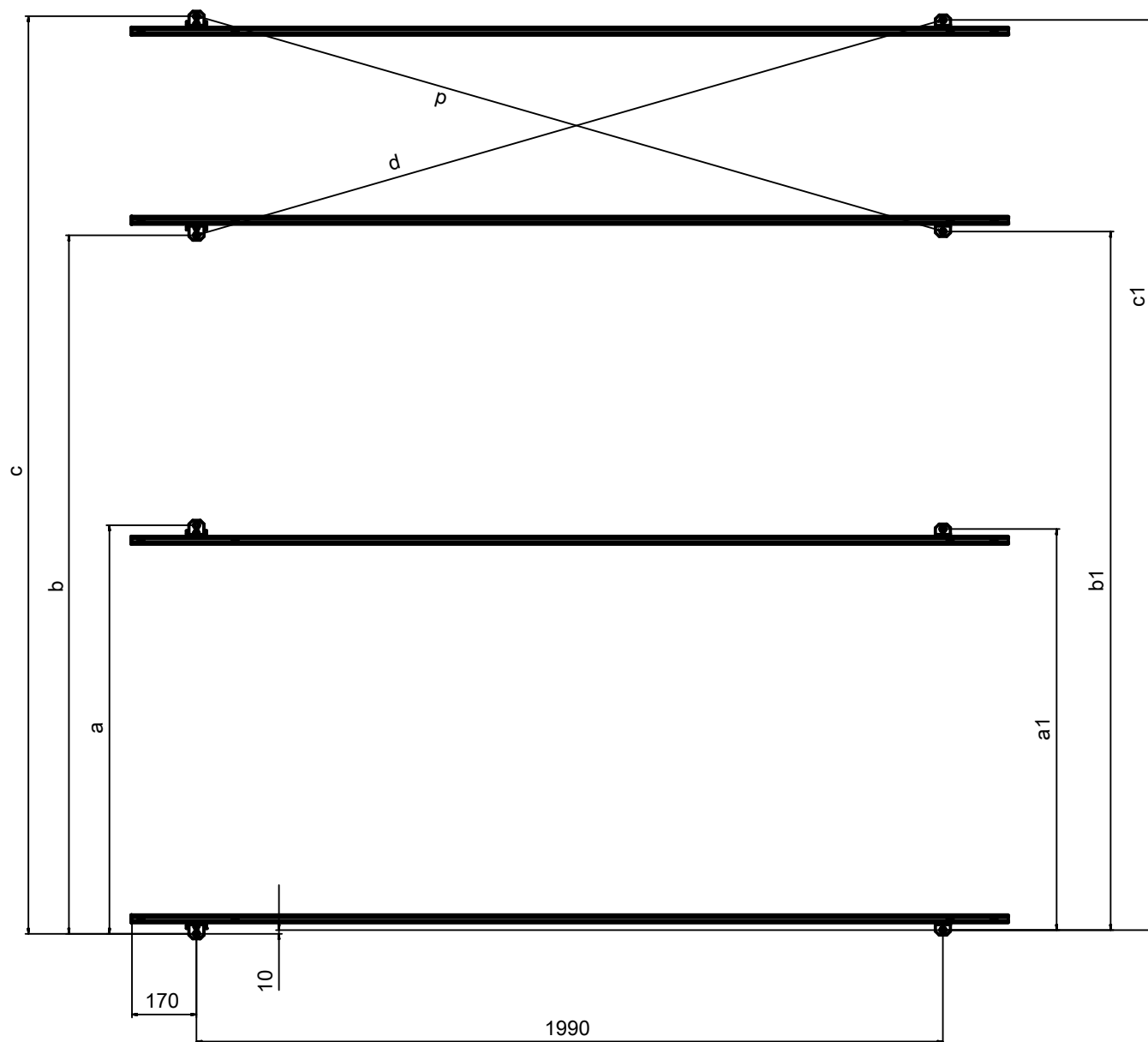


Fig. 76

Combination	a	mm	a ¹	mm	b	mm	b ¹	mm	c	mm	c ¹	mm	d	mm
1.51 m ²		585		565		—		—		—		—		2070
3.03 m ²		1090		1070		—		—		—		—		2226
1.51 m ² /1.51 m ²		585		565		1105		1105		1690		1670		—
1.51 m ² /3.03 m ²		585		565		1355		1355		2445		2425		—
3.03 m ² /1.51 m ²		1090		1070		1860		1860		2445		2425		—
3.03 m ² /3.03 m ²		1090		1070		2115		2115		3200		3180		—

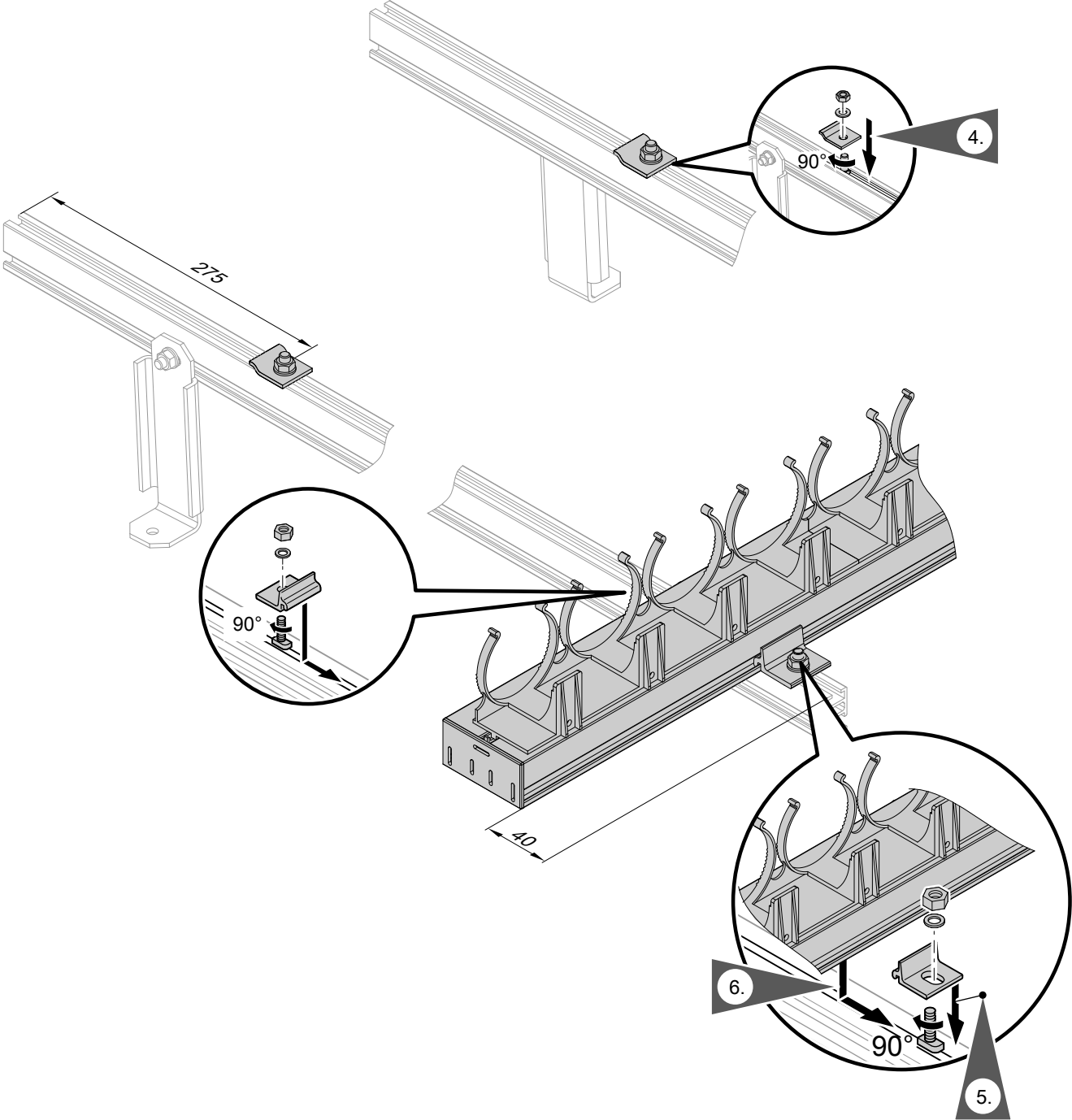


Fig. 77

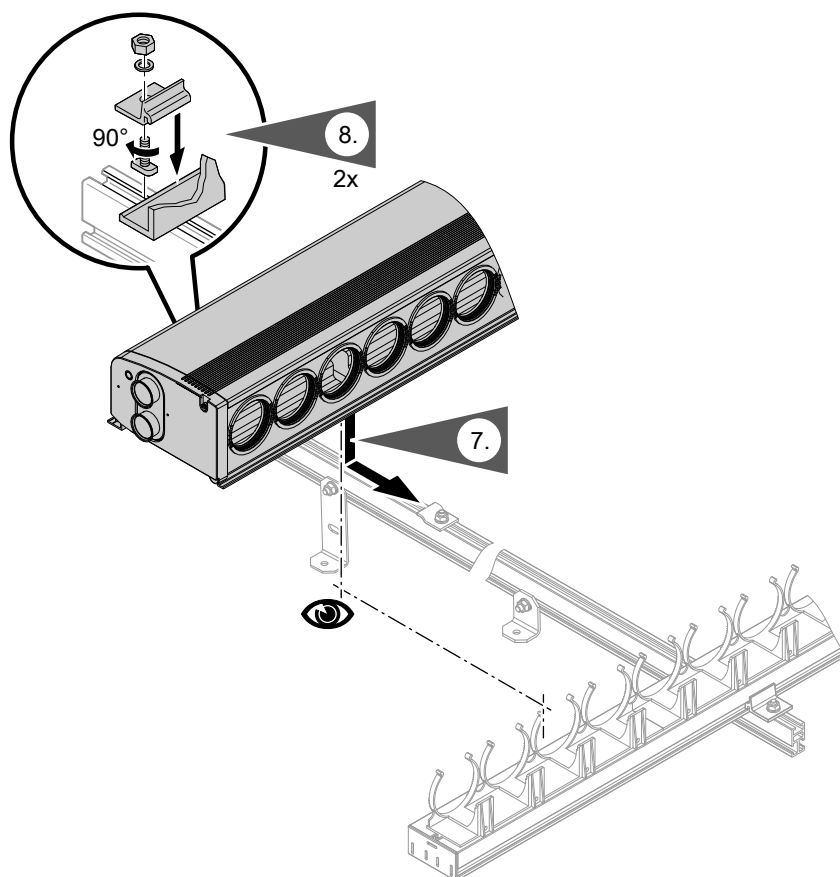


Fig. 78

Continue with chapter "Hydraulic connections": See page 63.

Installation on walls

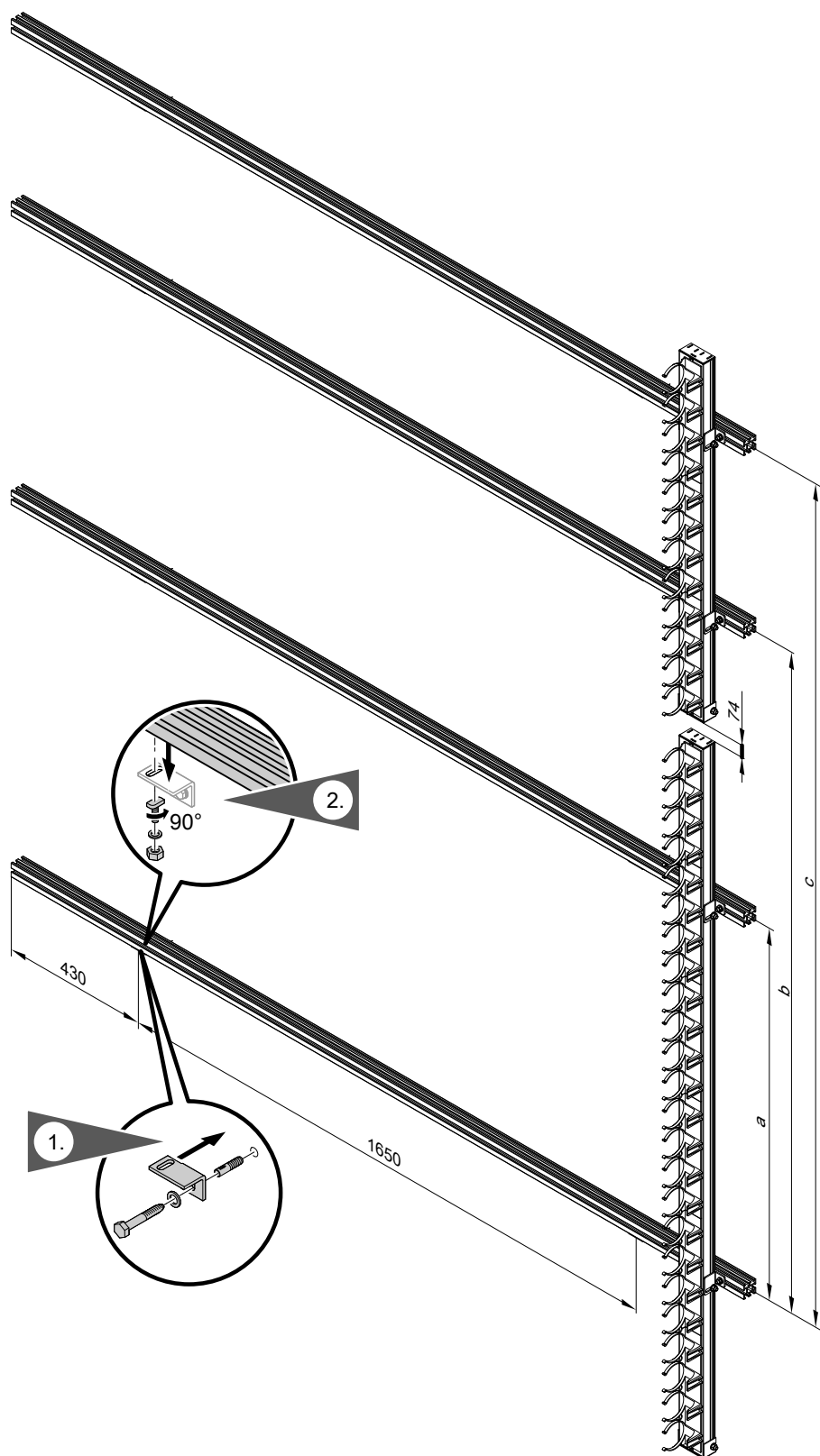


Fig. 79

Installation on walls (cont.)

Combination	a	mm	b	mm	c	mm
1.26 m ²		440		935		1375
1.51 m ²		525		—		—
3.03 m ²		1070		—		—
1.51 m ² /1.51 m ²		525		1100		1630
1.51 m ² /3.03 m ²		525		1315		2385
3.03 m ² /1.51 m ²		1070		1900		2425
3.03 m ² /3.03 m ²		1070		2110		3180

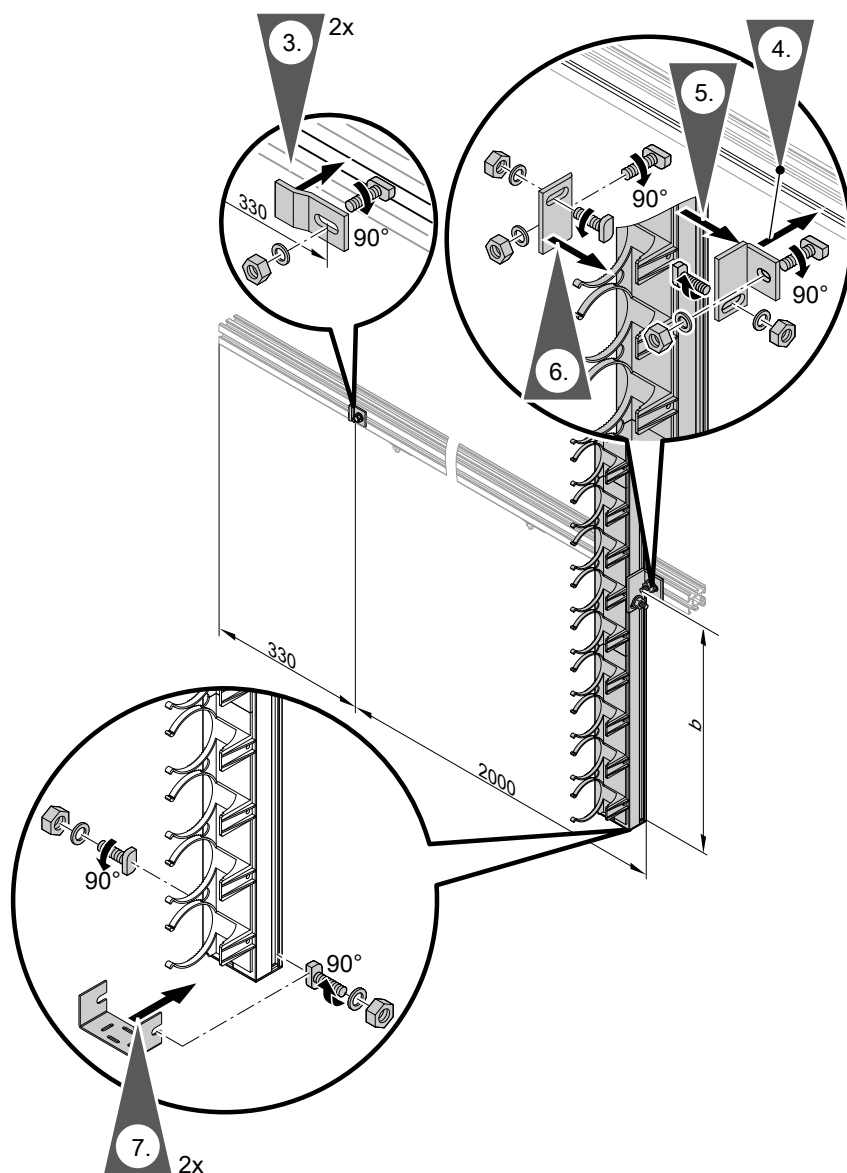


Fig. 80 For dimension b: See the following diagram

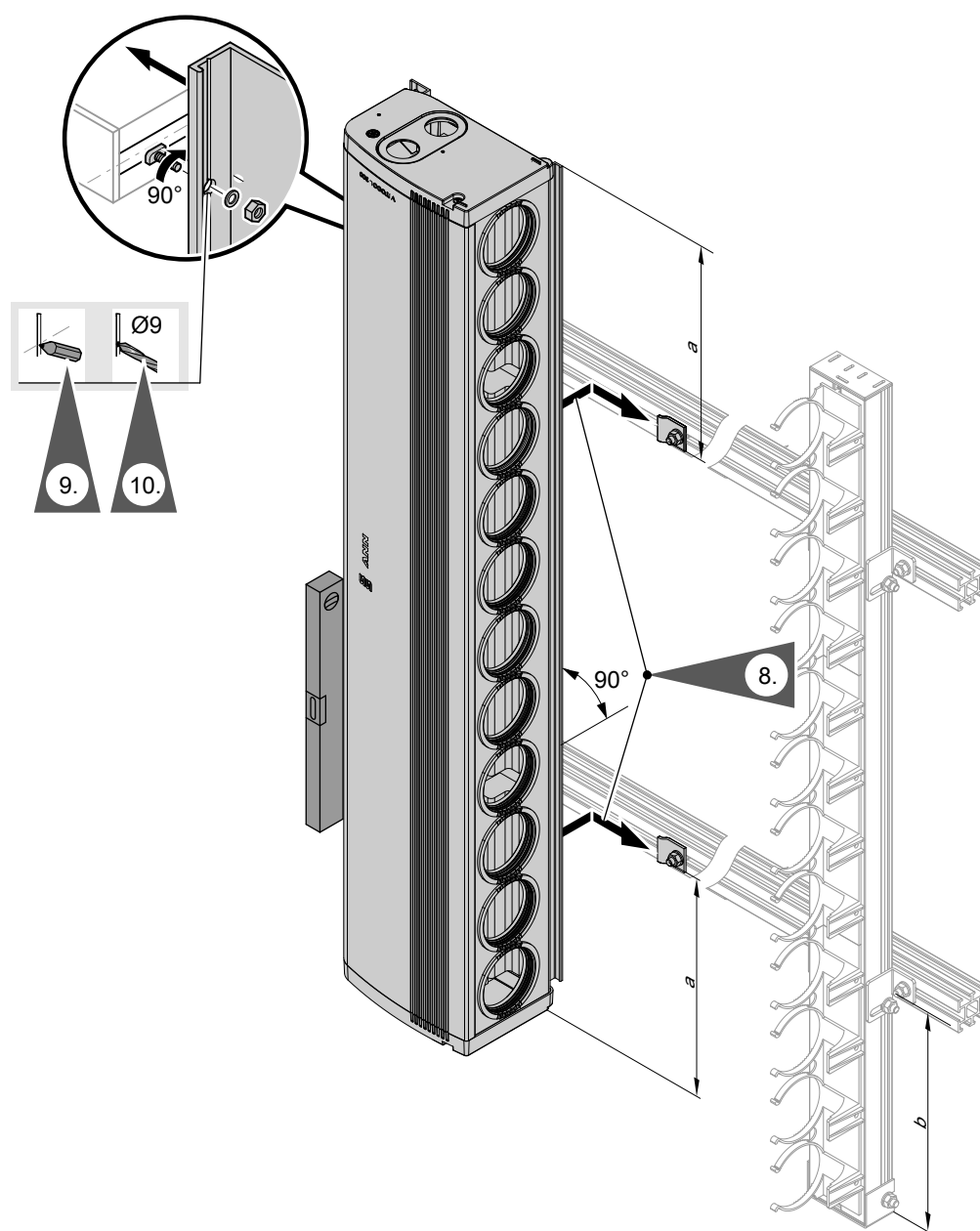


Fig. 81

Install the tube retainer **offset** against the header casing. This ensures that the vacuum tubes are inclined against the horizontal.

Collector area	a	mm	b	mm
1.26 m ²		210		260
1.51 m ²		215		265
3.03 m ²		465		515

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

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

Continue with chapter "Hydraulic connections": See page 63.

Connecting the header casings

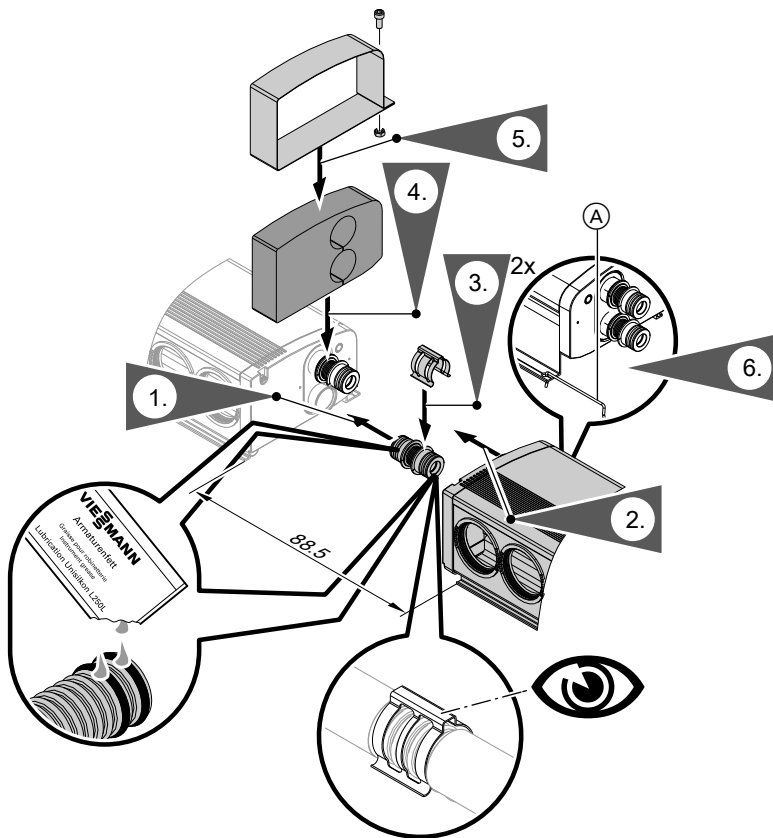
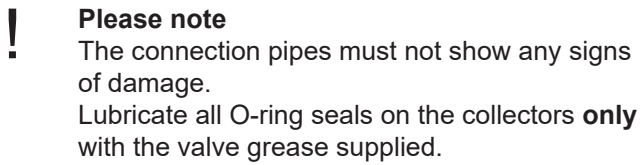


Fig. 82

Note on step 3:
Fit the spring clips straight.

Note on step 6:
Click collector fastening (A) into place through the holes in the header casing.

Fitting the connection set

Components

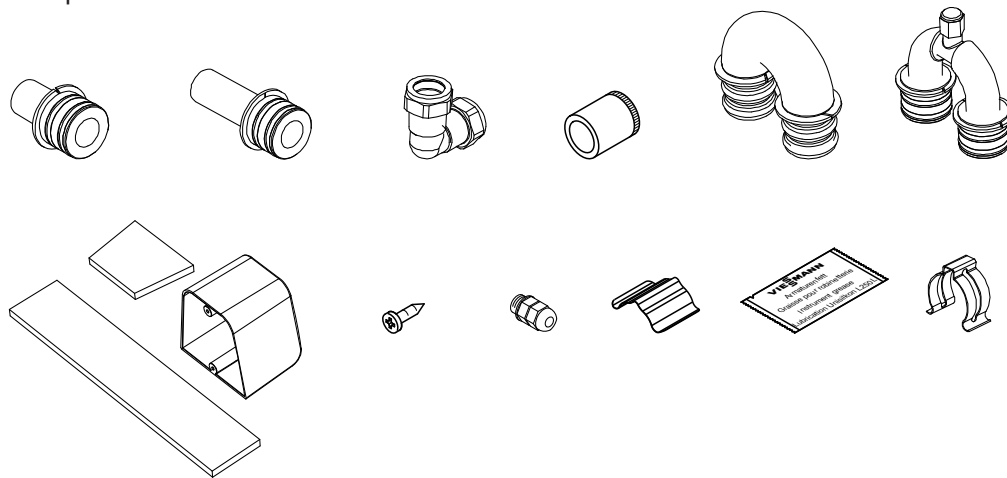


Fig. 83

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.

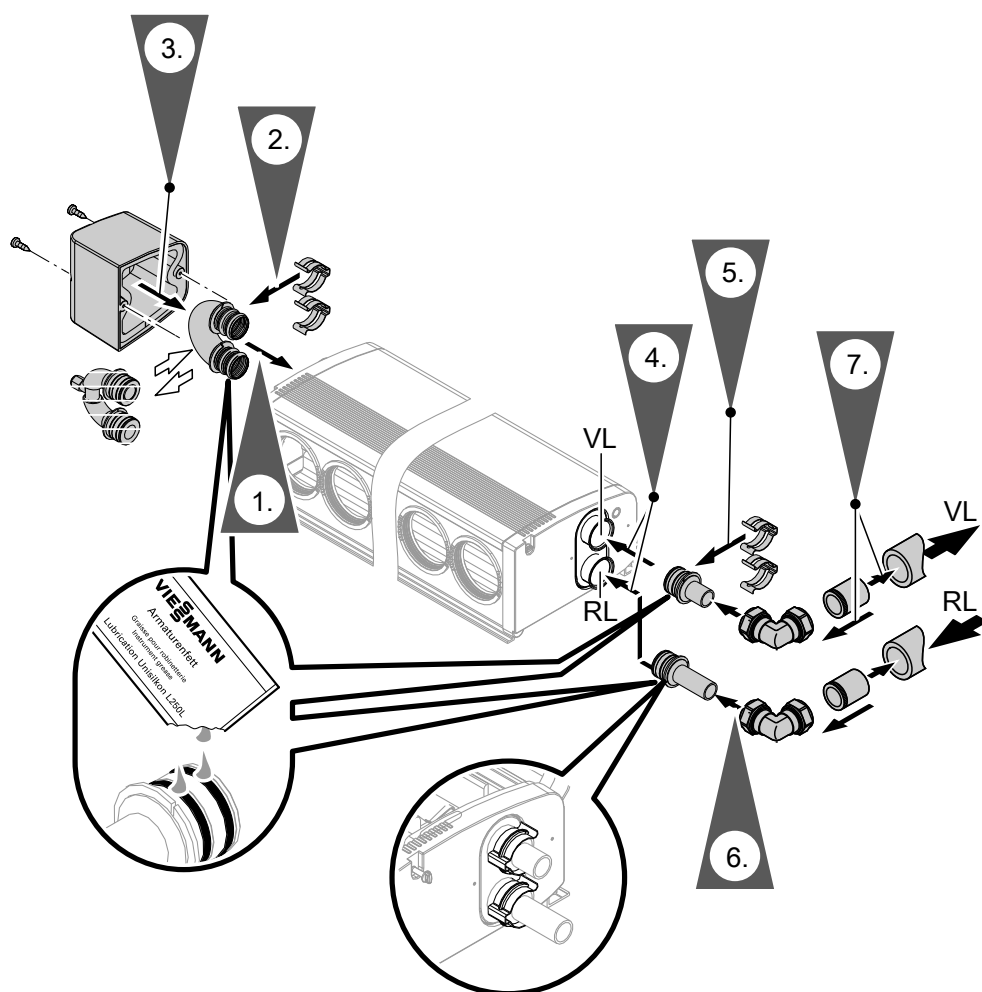


Fig. 84

RL Return
VL Flow

Note

Use the U-pipe with air vent valve for horizontal collector installations.

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 becomes very hot under insolation.
Wear safety gloves.

Installation information

- 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.
- Insert the condenser into the condenser holder in the heat exchanger.

For roofs deviating from due south, adjust the angle of inclination of the absorber: See scale in illustration on page 66.

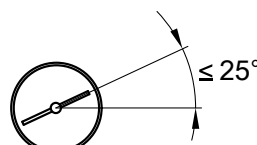


Fig. 85

Fitting the vacuum tubes (cont.)

- ! Please note**
 Damage to the vacuum tubes as a result of aligning them whilst they are locked in position.
 Never align (rotate) the vacuum tubes whilst they are locked into position.

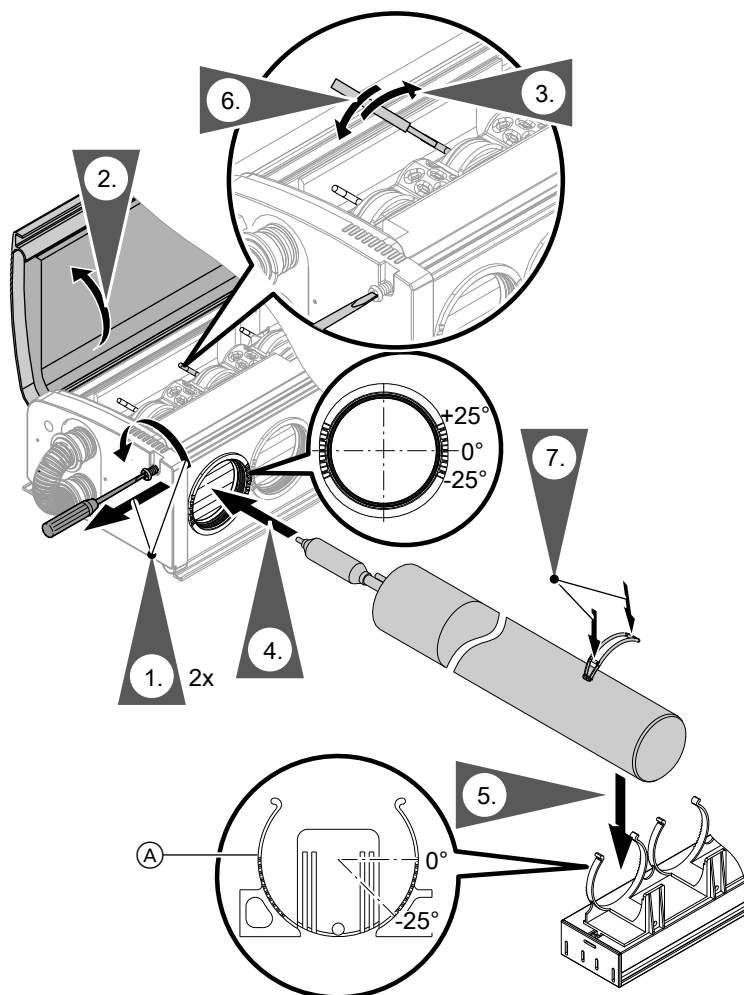


Fig. 86

Note on step 4:

If the vacuum tubes do not slide easily through the rubber seal, moisten the rubber seal with water.

Note on step 5:

Take care to ensure that tube holder brackets (A) are not damaged.

Fitting the collector temperature sensor

Installation information

- Fit the sensor near the hydraulic connection.



Please note

The sensor lead must not come into contact with the hot tubes.
 Route the lead along the slot in the thermal insulation.

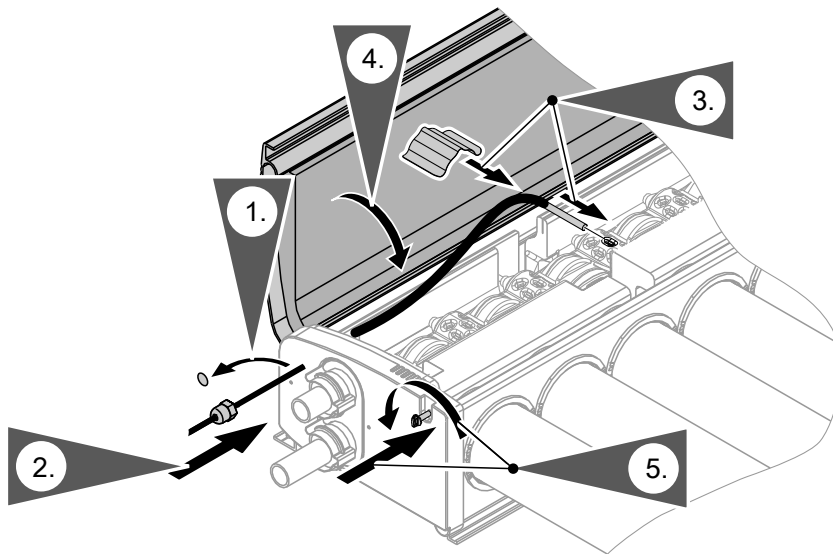


Fig. 87



Please note

The collectors may be damaged if the solar thermal system is not filled with heat transfer medium immediately after installation. Protect the collectors from solar radiation by covering them up.

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.
- 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.
-  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

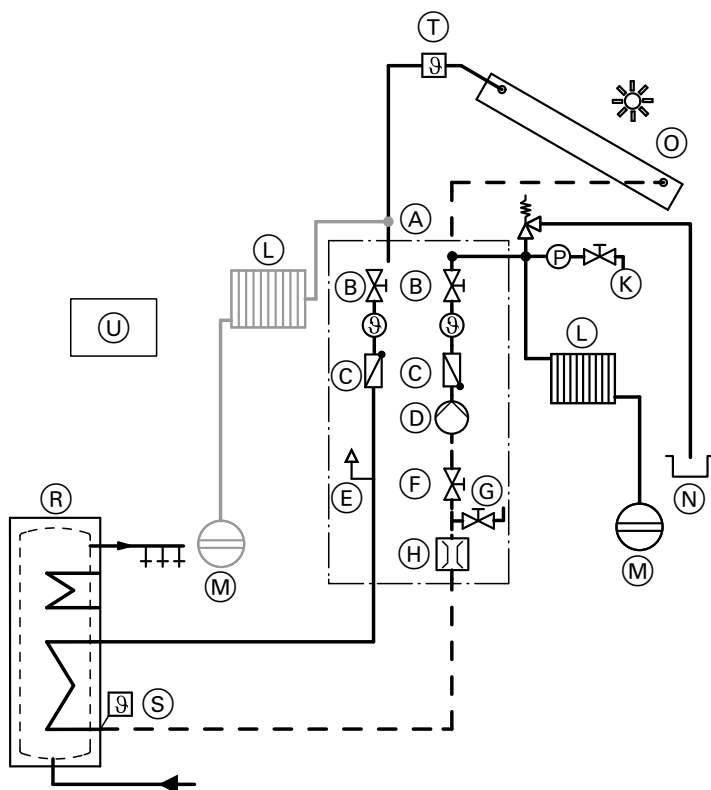


Fig. 88

- (A) Solar-Divicon
- (B) Shut-off valves

- (C) Non-return valves
- (D) Solar circuit pump

Installation (cont.)

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

Commissioning and adjustment



For commissioning of the solar thermal system,
see "Vitosol 300-TM" service instructions.



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5790785 Subject to technical modifications.