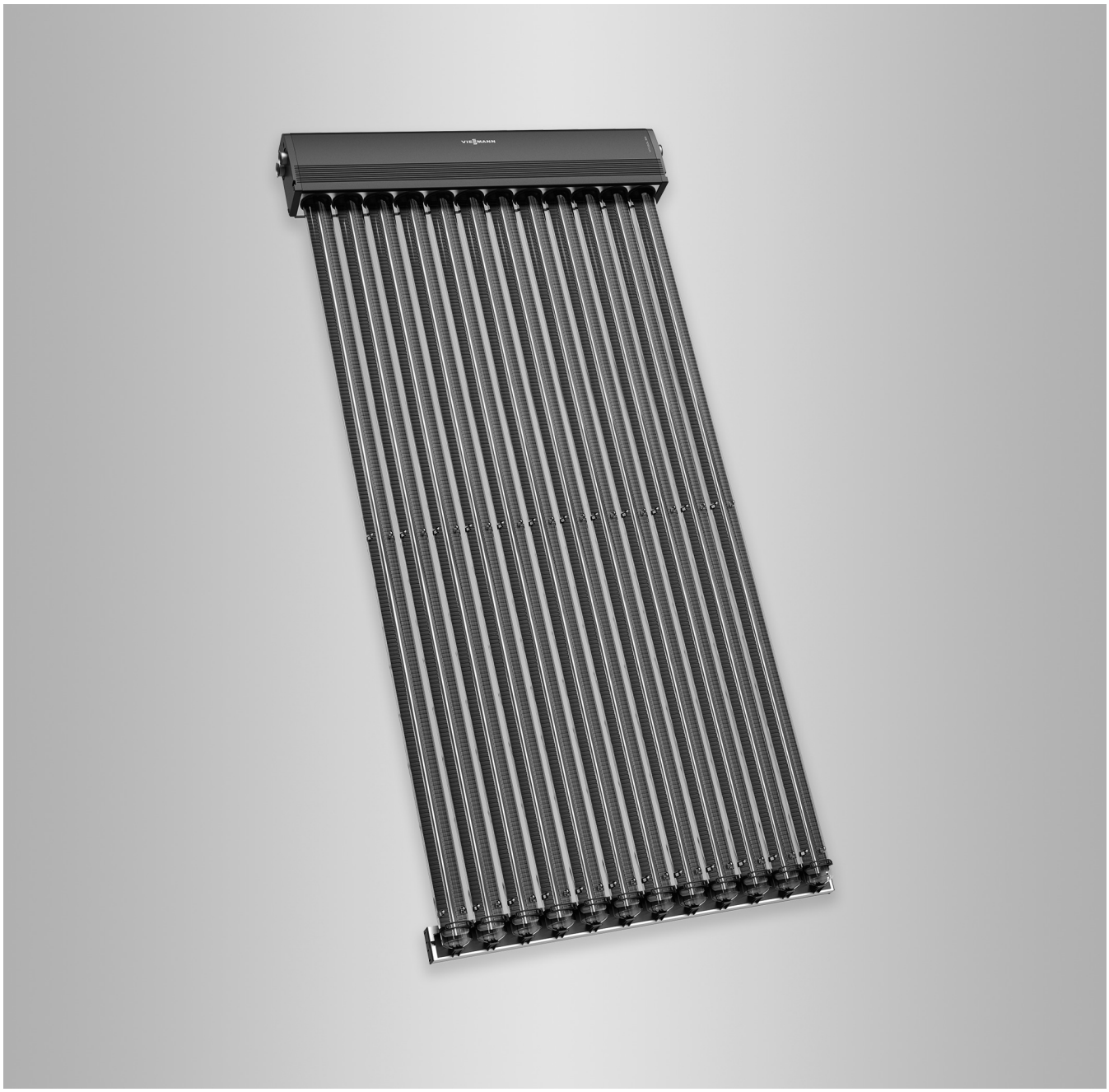
Installation instructions

for contractors

Vitosol 300-TM
Type SP3C
Vacuum tube collectors according to the heat pipe principle

VITOSOL 300-TM



5790785 GB/en 11/2017

Dispose after installation.

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.

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

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

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 the protection of the environment
- Codes of practice of the relevant trade associations
- All relevant safety regulations as defined by DIN, EN, DVGW, VDE and locally applicable standards
  (A) ÖNORM, EN and ÖVE
  (CH) SEV, SUVA, SVTI, SWKI and SVGW

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.

Index

5790785

Disposal of packaging

Disposal of packaging

Please dispose of packaging waste in line with statutory regulations.

DE: Use the disposal system organised by Viessmann.
AT: Use the ARA statutory disposal system (Altstoff Recycling Austria AG, licence number 5766).
CH: Packaging waste is disposed of by the HVAC contractor.

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 water quality. Heating water buffer cylinders are only designed to hold fill water of potable water quality. Only operate solar collectors with the 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.

Distribution of fixings on the rafters

Fixings:
- Rafter flanges (from page 8)
- Rafter hooks (from page 15)
- Rafter anchors (from page 23)
- Mounting brackets (from page 32)

Each number of collectors and collector combination has a specific number of fixings alloCalculation of ballast andcated tCalculation of ballast ando it.
Subject to the spacing between rafters, a specific number of rafters is used for attaching the fixings.
The following tables detail the rafters to which the fixings should be attached.

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 7 (highlighted grey):
Of the **9** rafters, the following are used:
Rafters 1, 2, 3, 6, 7, 9

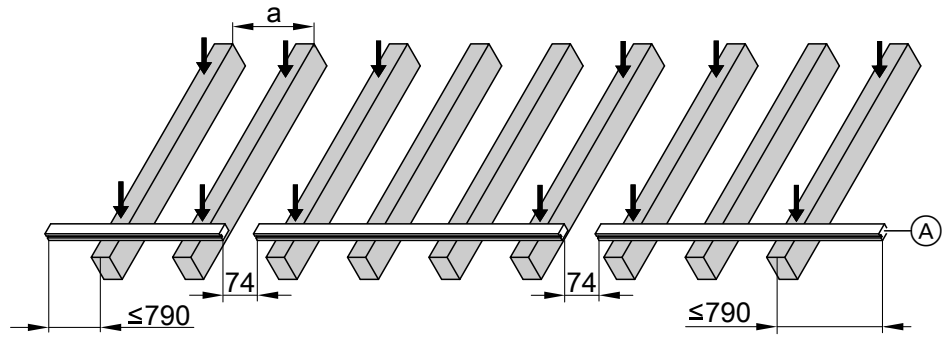


Fig. 1

↓ Position of fixings
Ⓐ Tube retainer

1 collector

Combination	Rafter spacing a in mm	Rafters used
1 x 1.51 m²	≤ 600	1, 2
	≤ 700	1, 2
	≤ 800	1, 2
1 x 3.03 m²	≤ 600	1, 4
	≤ 700	1, 3
	≤ 800	1, 3

2 collectors

Combination	Rafter spacing a in mm	Rafters used
1 x 1.51 m²/ 1 x 3.03 m²	≤ 600	1, 2, 3, 5
	≤ 700	1, 2, 3, 5
	≤ 800	1, 2, 3, 4
2 x 3.03 m²	≤ 600	1, 4, 5, 7
	≤ 700	1, 3, 4, 6
	≤ 800	1, 3, 4, 6

5790785

Distribution of fixings on the rafters (cont.)

3 collectors

Combination	Rafter spacing a in mm	Rafters used
1 x 1.51 m²/ 2 x 3.03 m²	≤ 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 m²	≤ 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 m²/ 3 x 3.03 m²	≤ 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 m²	≤ 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 m²/ 4 x 3.03 m²	≤ 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 m²	≤ 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

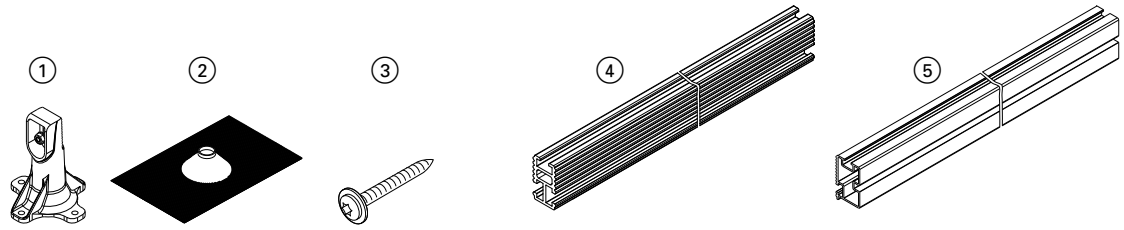


Fig. 2

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.

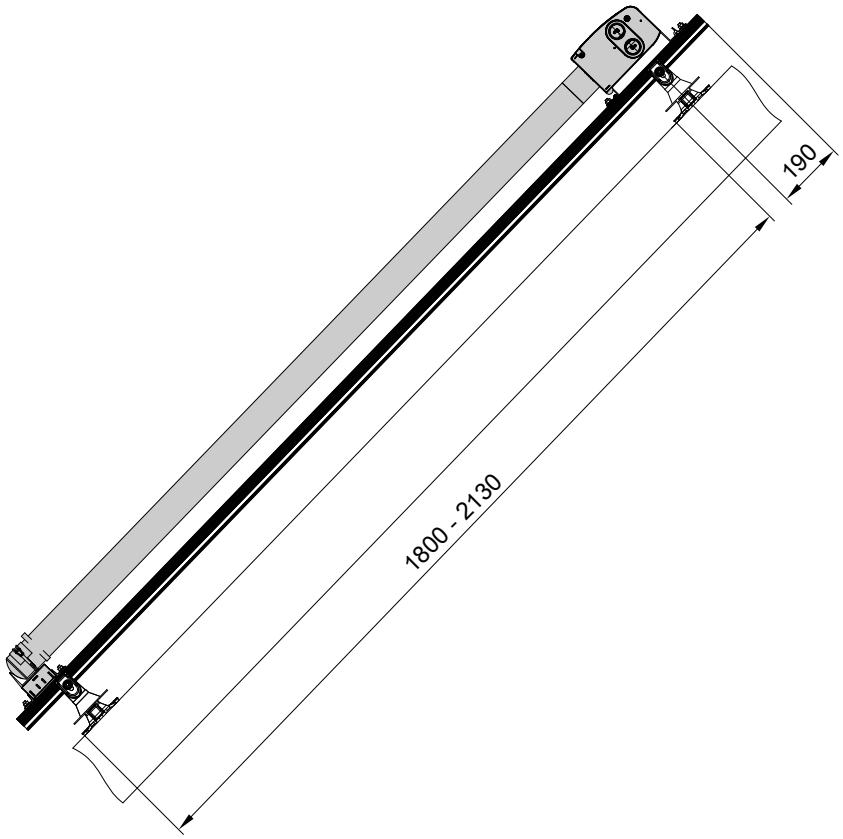


Fig. 3

The tables from page 6 detail the rafters on which the rafter flanges should be mounted.

5790785

Pitched roof installation with rafter flanges (cont.)

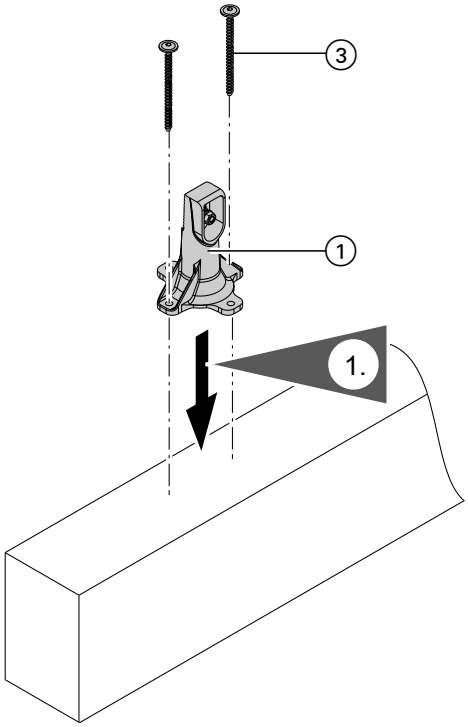


Fig. 4

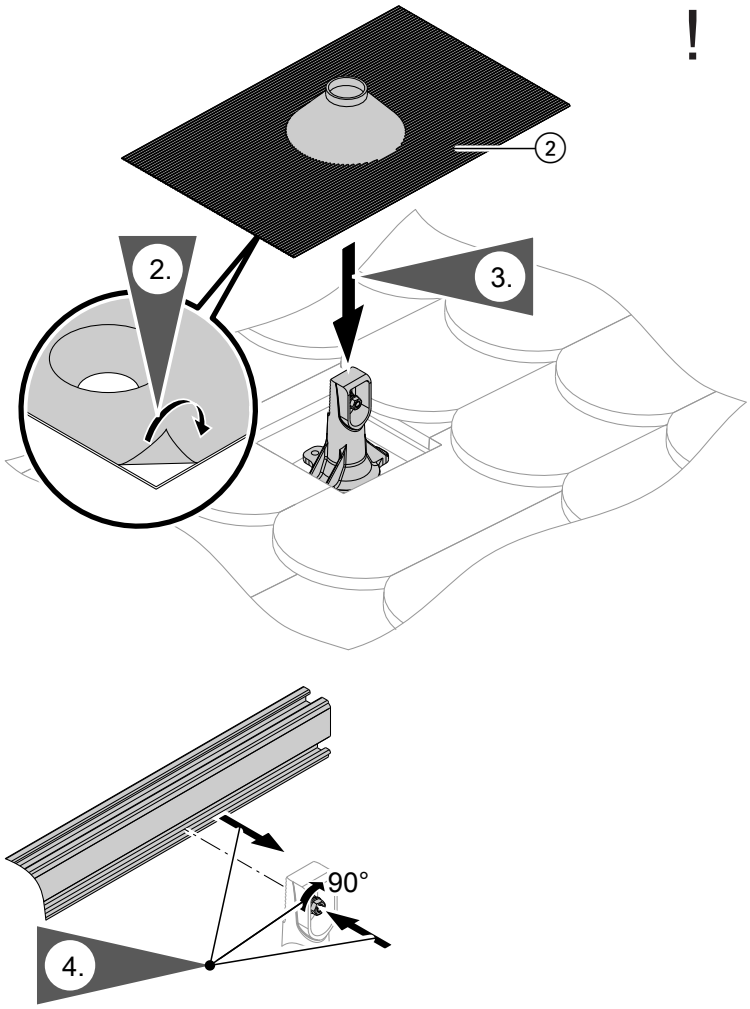


Fig. 5

! **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.

Pitched roof installation with rafter flanges (cont.)

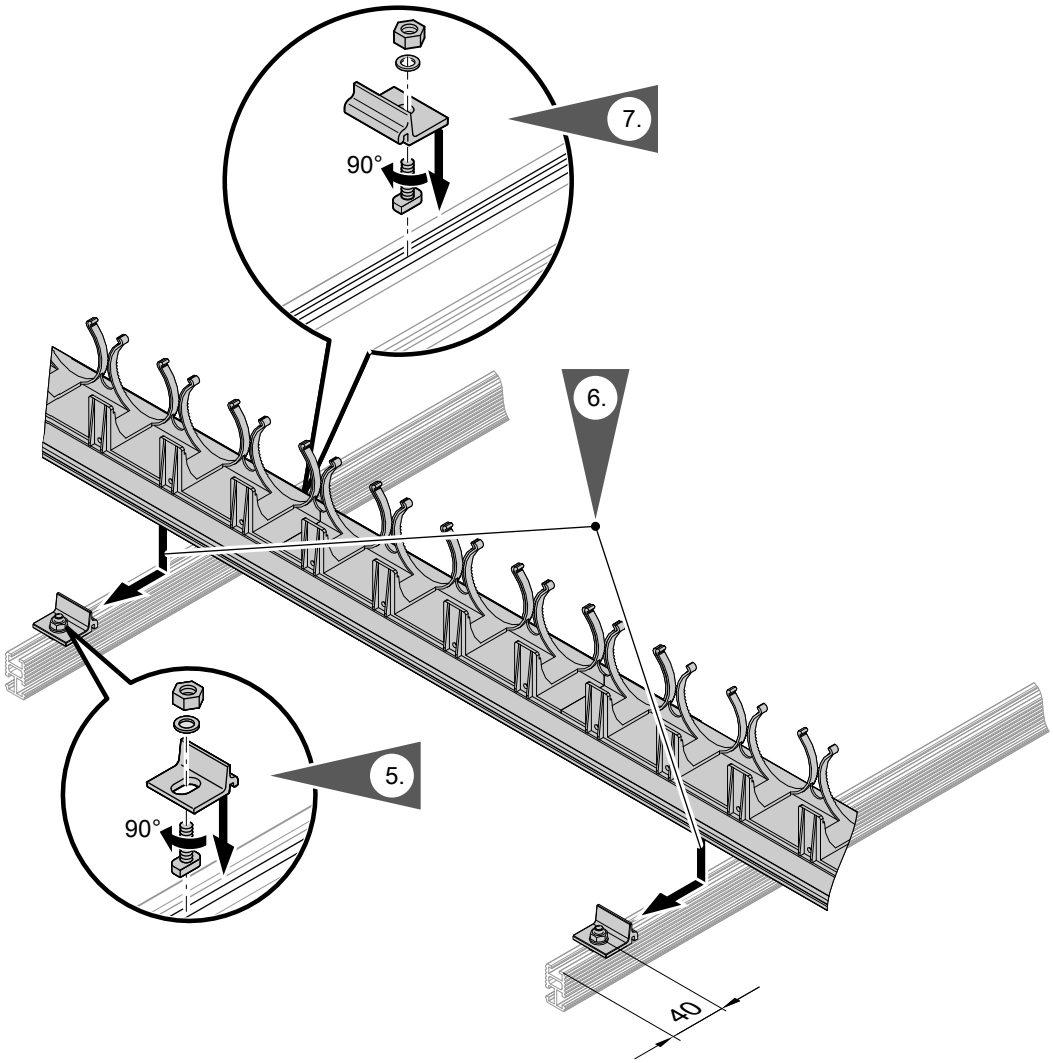


Fig. 6

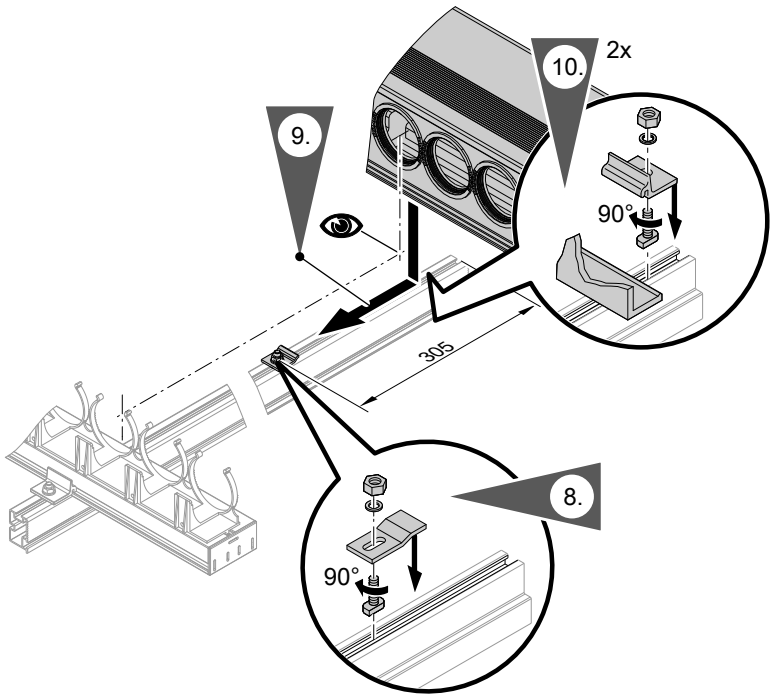


Fig. 7

5790785

Pitched roof installation with rafter flanges (cont.)

Continue with chapter "Hydraulic connections" (see page 62).

Horizontal installation

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

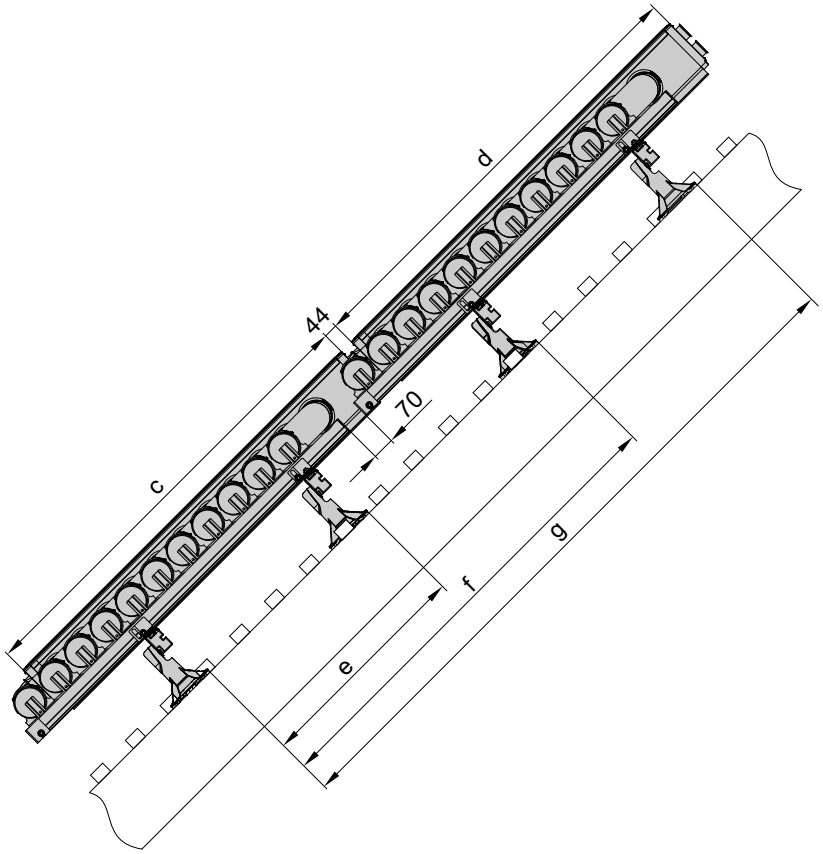


Fig. 8

Combination	c mm	d mm	e mm	f mm	g mm
1.51 m²	1053	—	525	—	—
3.03 m²	2061	—	1030	—	—
1.51 m²/1.51 m²	1053	1053	525	1105	1630
1.51 m²/3.03 m²	1053	2061	525	1355	2385
3.03 m²/1.51 m²	2061	1053	1030	1860	2385
3.03 m²/3.03 m²	2061	2061	1030	2110	3140

Pitched roof installation with rafter flanges (cont.)

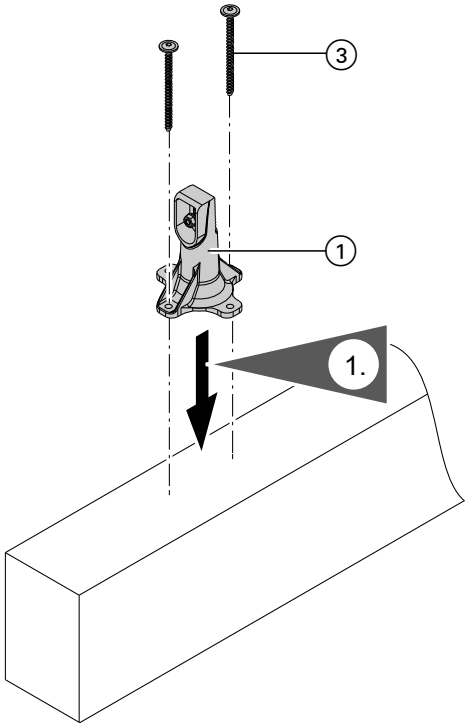
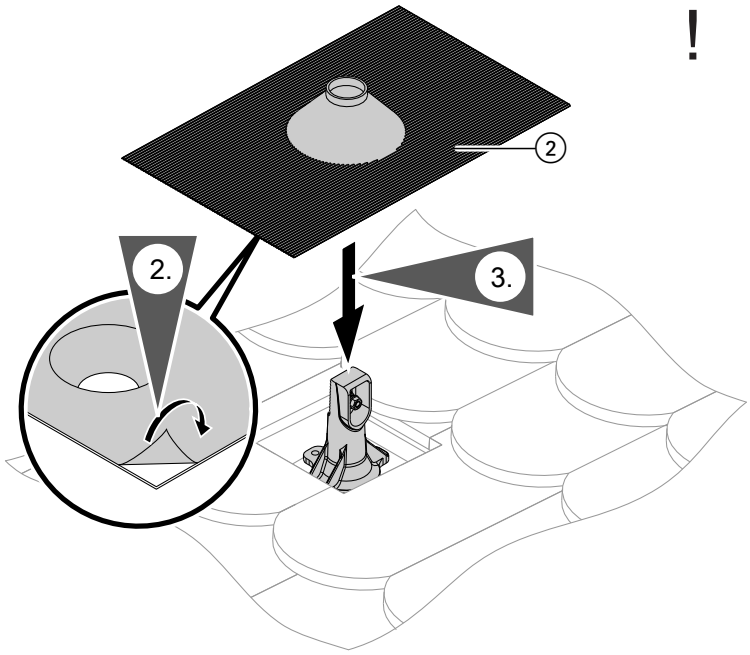


Fig. 9



! **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.

Pitched roof installation with rafter flanges (cont.)

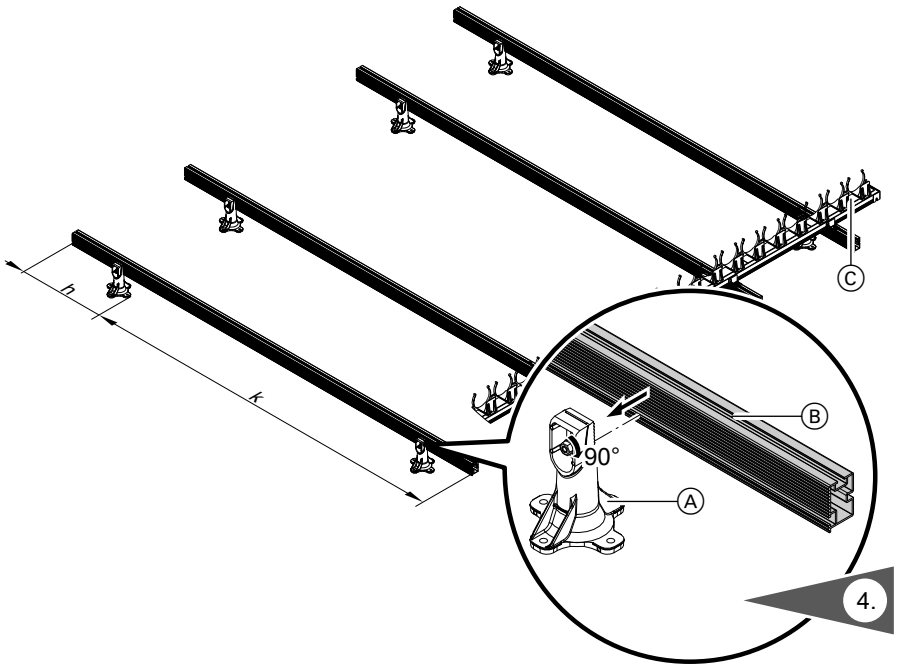


Fig. 10

Ⓐ Rafter flange
Ⓑ Mounting rail
Ⓒ Tube retainer

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

Pitched roof installation with rafter flanges (cont.)

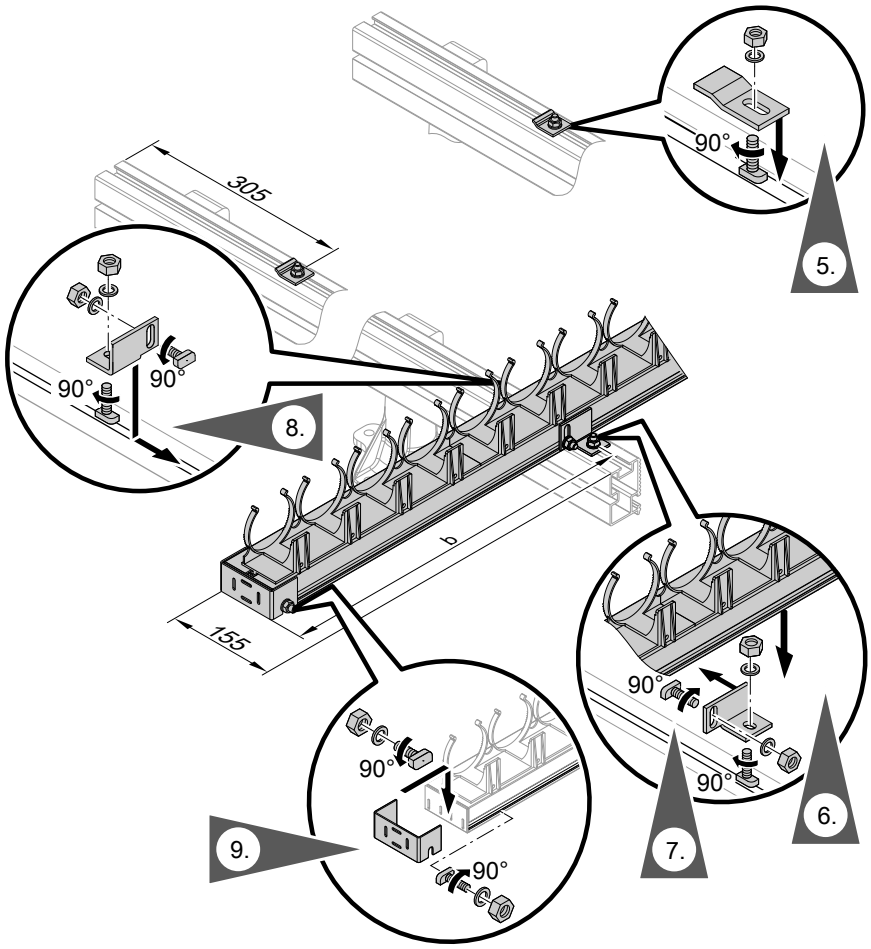


Fig. 11 For dimension b see the following diagram

5790785

Pitched roof installation with rafter flanges (cont.)

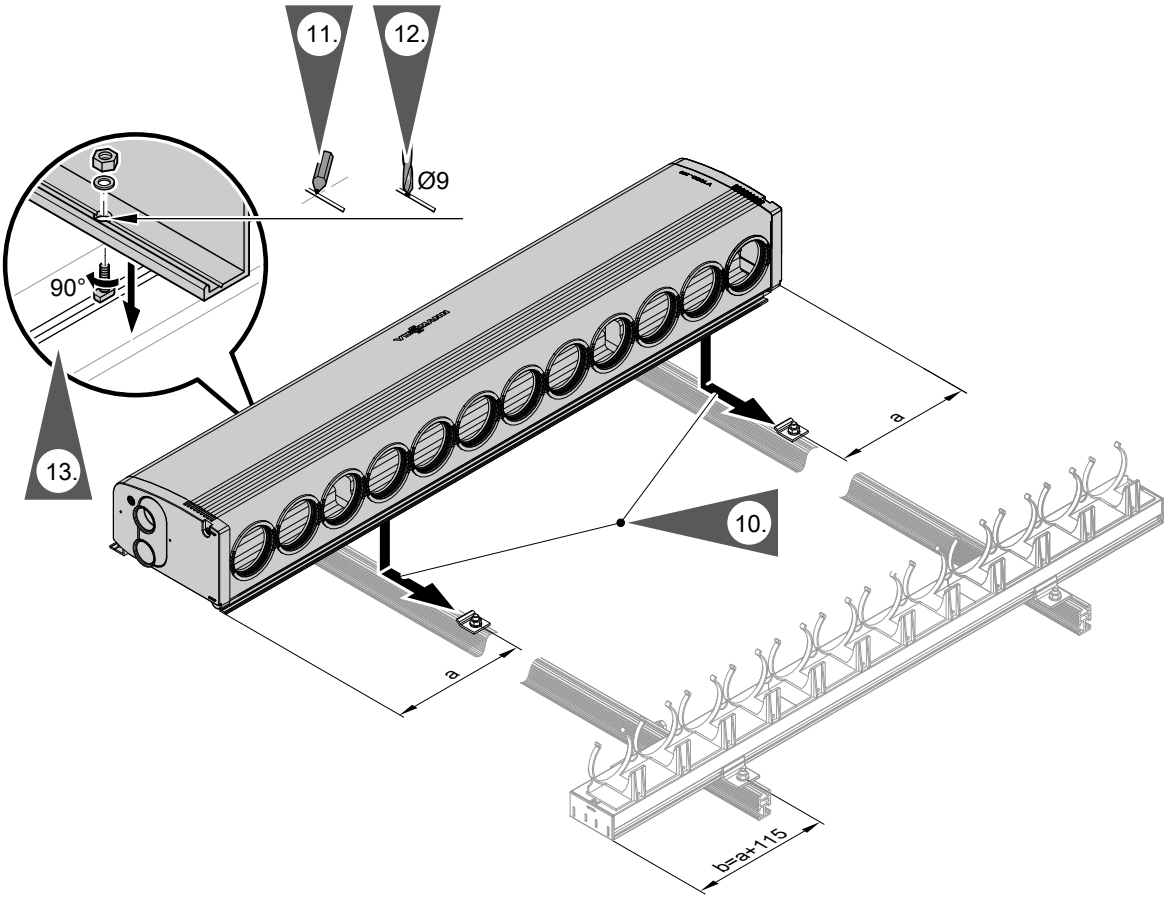


Fig. 12 Dimension a results once the header casing is placed on the mounting rails

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 12:
Use the centring groove on the back of the header casing as a drilling guide.

Continue with chapter "Hydraulic connections" (see page 62).

Pitched roof installation with rafter hooks

For **tiled** roof cover

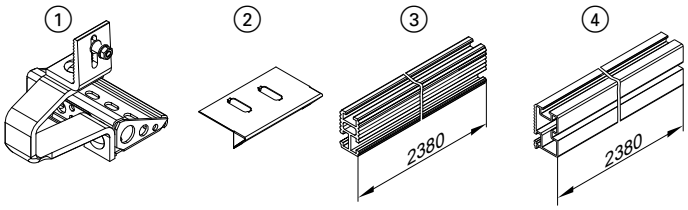


Fig. 13

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 Ⓑ with support bracket ②
- **Version II:**
  Fitting rafter hook ① directly onto rafter Ⓐ
- 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.

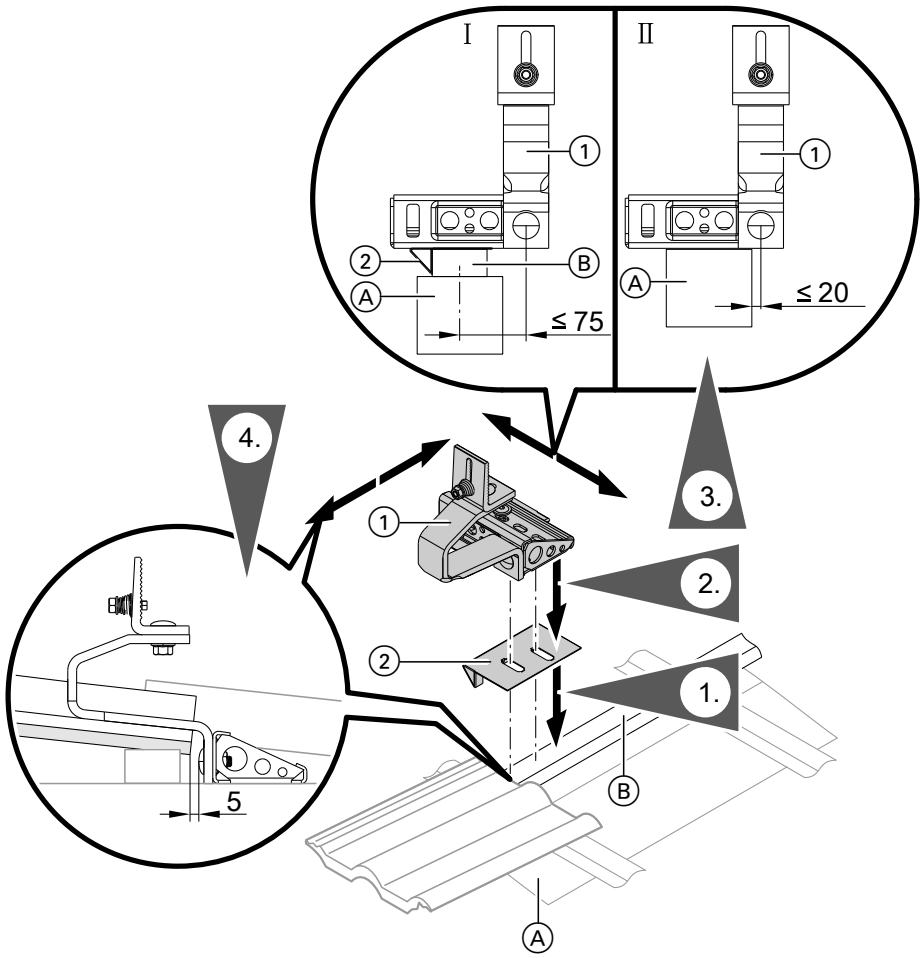


Fig. 14

Note
For spacing between rafter hooks, see chapter "Vertical installation" or "Horizontal installation"

Pitched roof installation with rafter hooks (cont.)

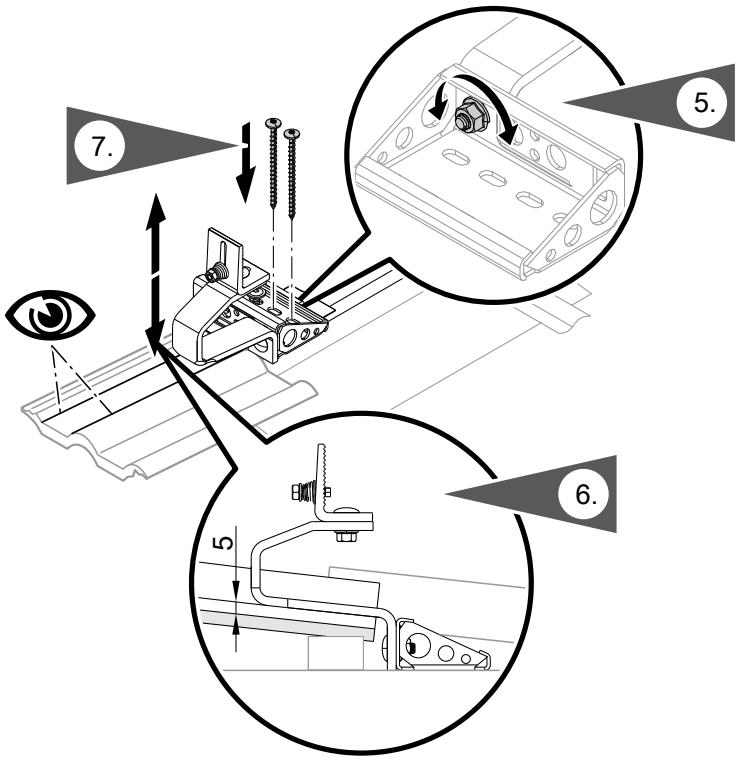


Fig. 15

Continue on page 17 or 19

Vertical installation

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

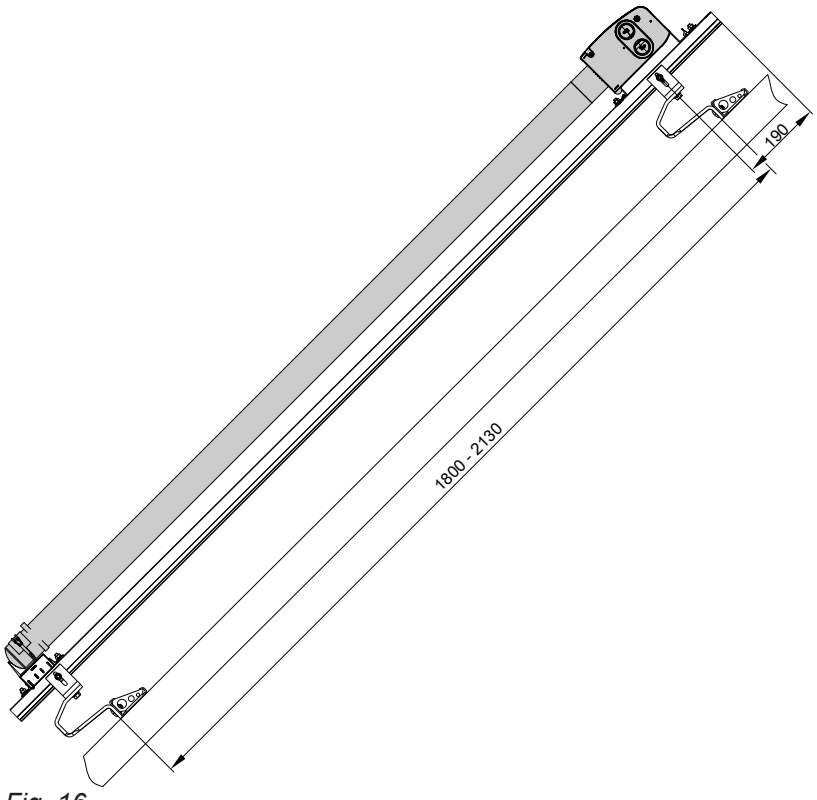


Fig. 16

5790785

Pitched roof installation with rafter hooks (cont.)

The tables from page 6 detail the rafters to which the rafter hooks should be fitted.

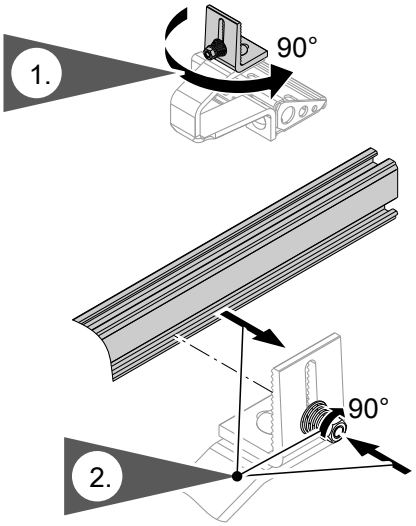


Fig. 17

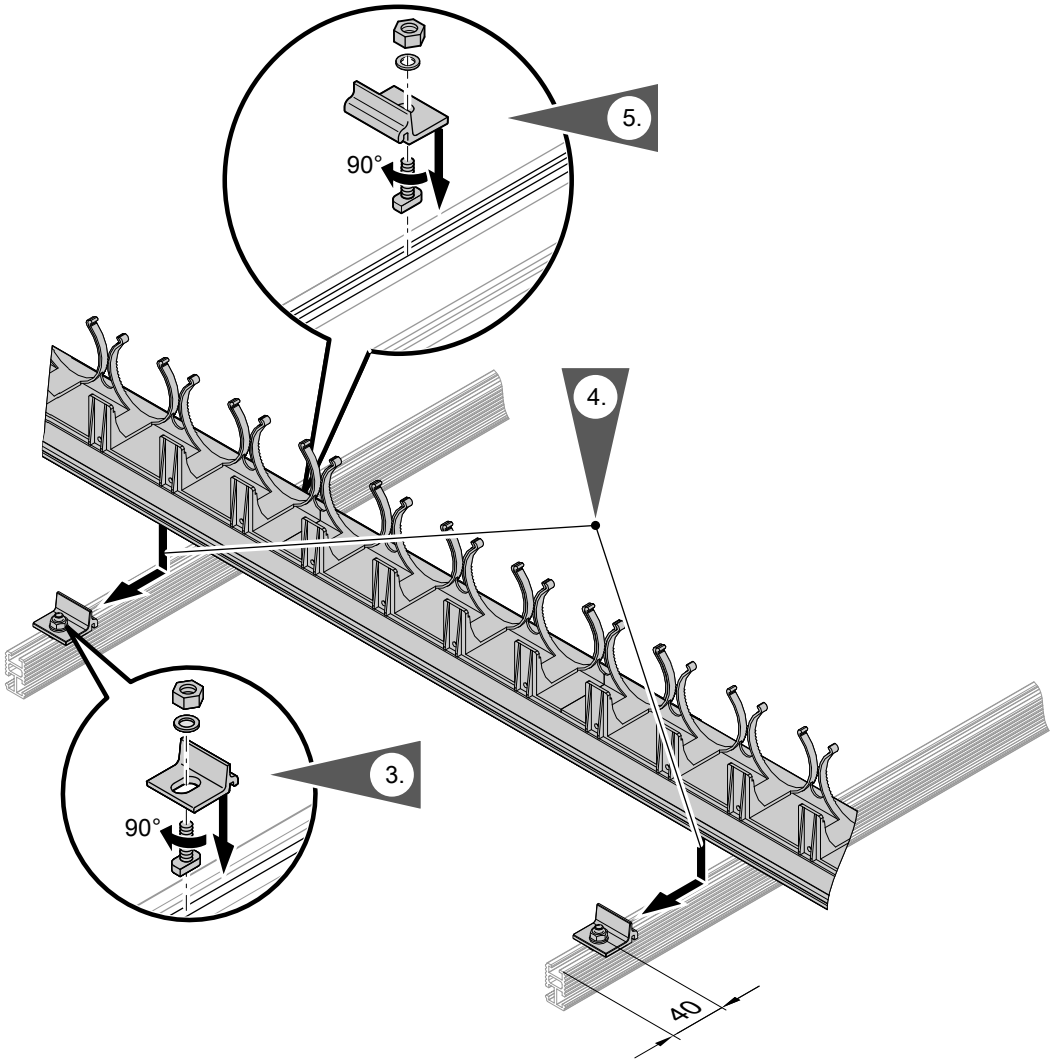


Fig. 18

5790785

Pitched roof installation with rafter hooks (cont.)

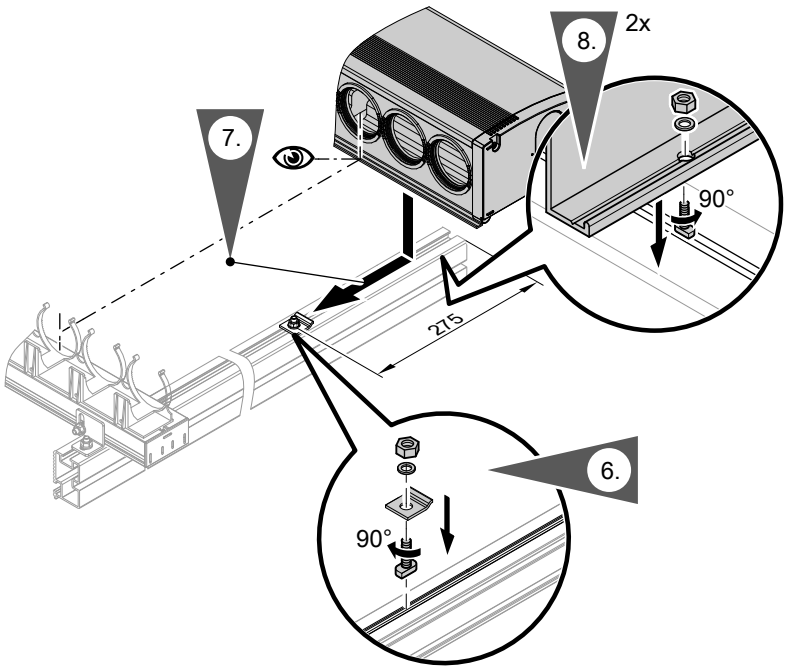


Fig. 19

Continue with chapter "Hydraulic connections" (see page 62).

Horizontal installation

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

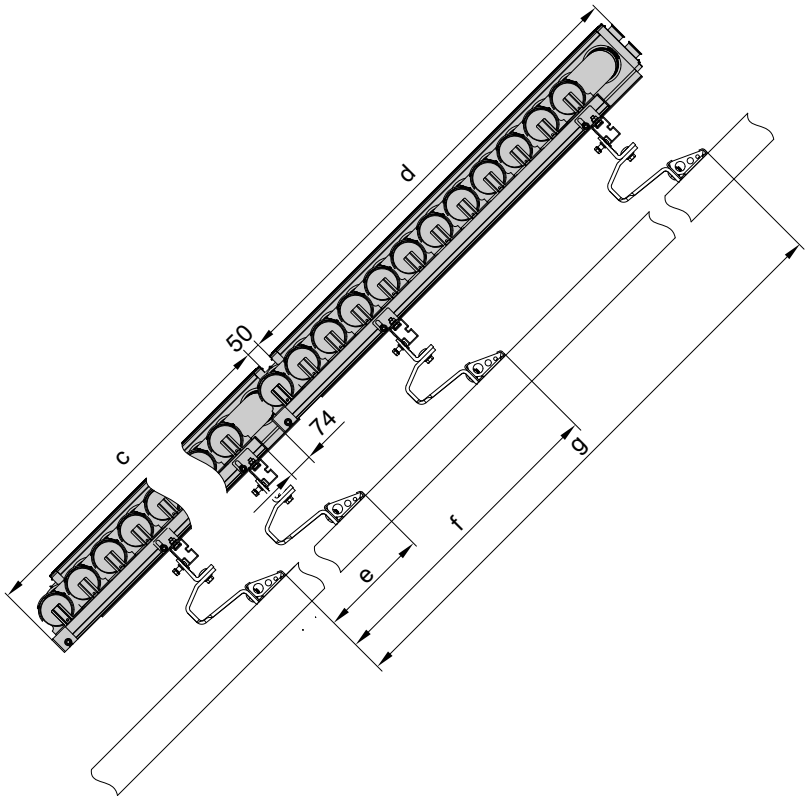


Fig. 20

Pitched roof installation with rafter hooks (cont.)

Combination	c mm	d mm	e mm	f mm	g mm
1.51 m²	1053	—	525	—	—
3.03 m²	2061	—	1030	—	—
1.51 m²/1.51 m²	1053	1053	525	1105	1630
1.51 m²/3.03 m²	1053	2061	525	1355	2385
3.03 m²/1.51 m²	2061	1053	1030	1860	2385
3.03 m²/3.03 m²	2061	2061	1030	2110	3140

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

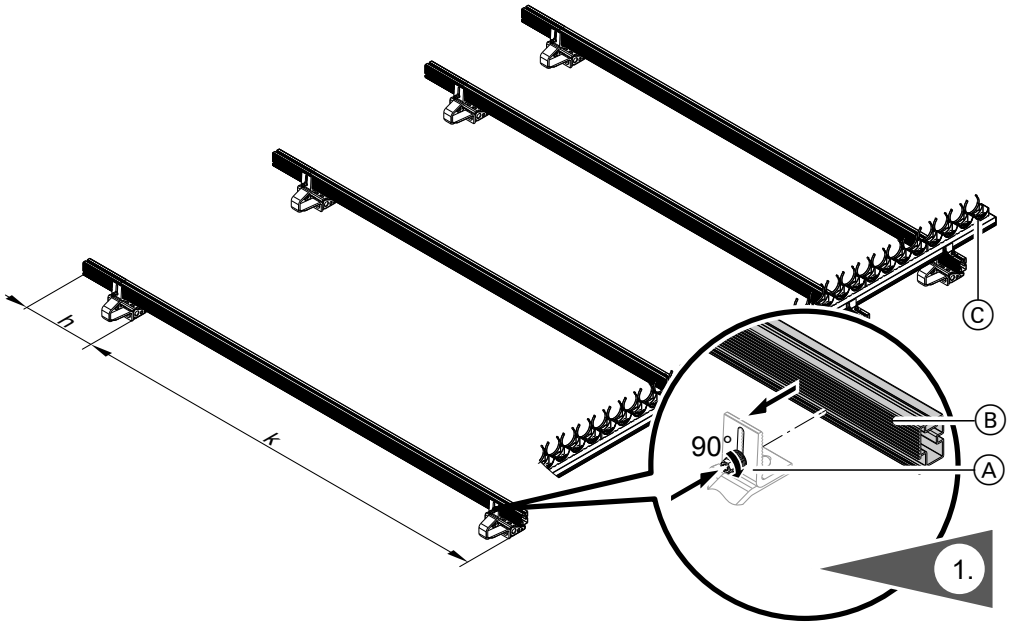


Fig. 21

Ⓐ Rafter hook
Ⓑ Mounting rail
Ⓒ Tube retainer

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

5790785

Pitched roof installation with rafter hooks (cont.)

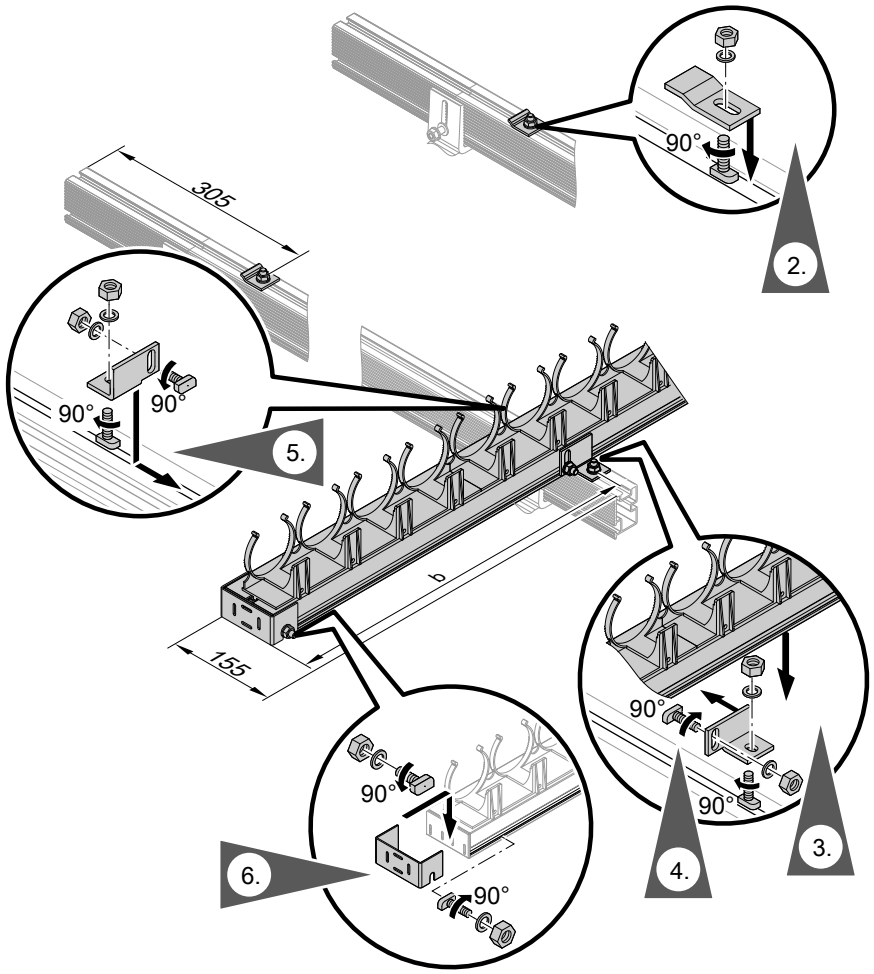


Fig. 22 For dimension b see the following diagram

Pitched roof installation with rafter hooks (cont.)

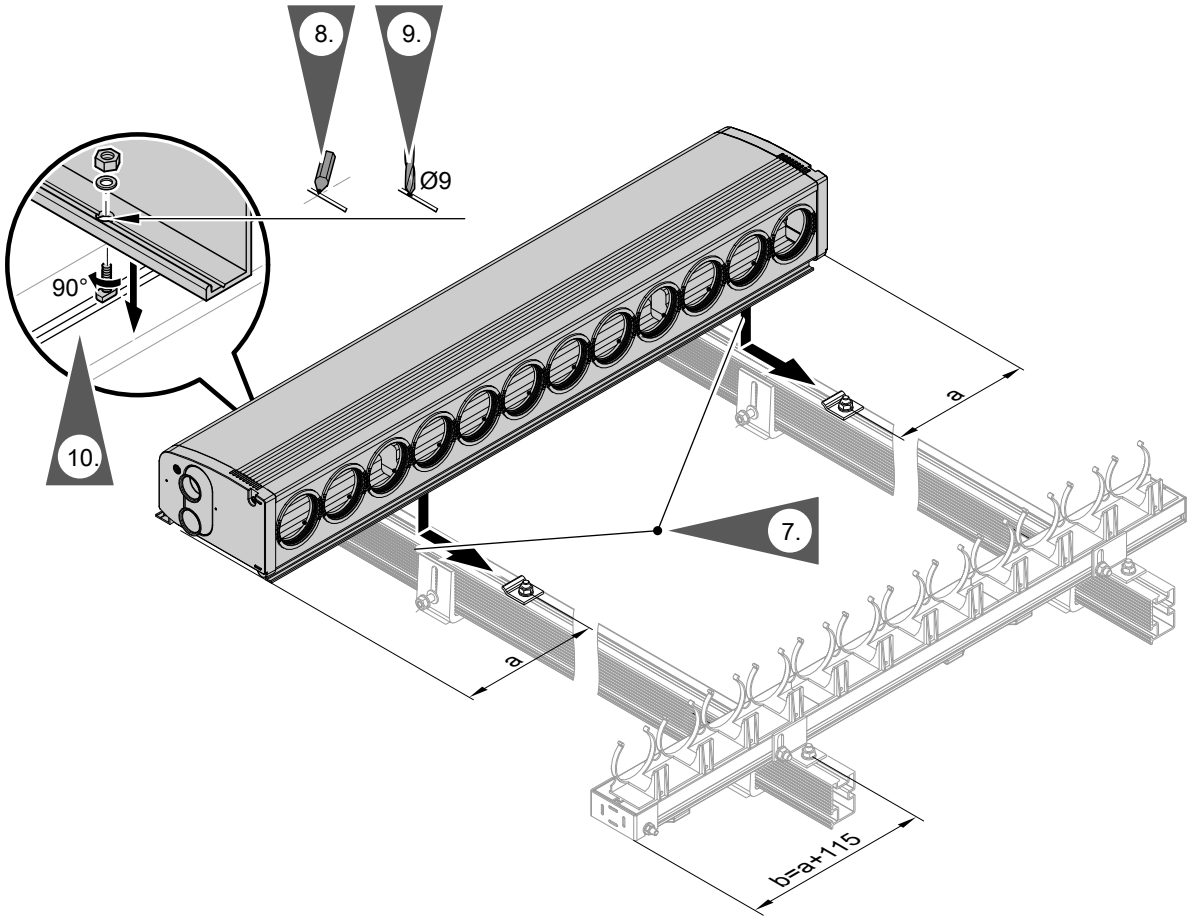


Fig. 23 Dimension a results once the header casing is placed on the mounting rails

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

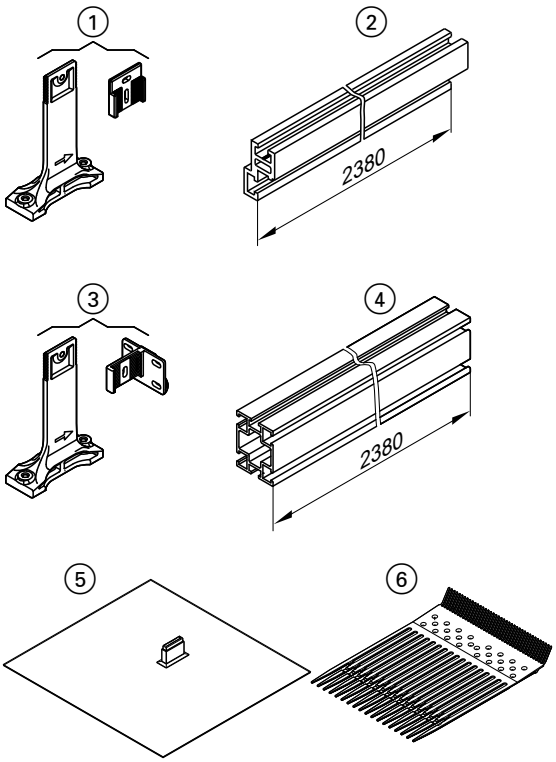
! **Please note**
If there is no incline, correct function of the collector cannot be guaranteed.
Always maintain dimension b.

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 62).

Pitched roof installation with rafter anchors

For **tiled** roof cover



Vertical installation
① Rafter anchor
② Mounting rail
⑤ Seal
⑥ Plastic replacement tile, if the existing tiles should not be trimmed to size.
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 should not be trimmed to size.
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.

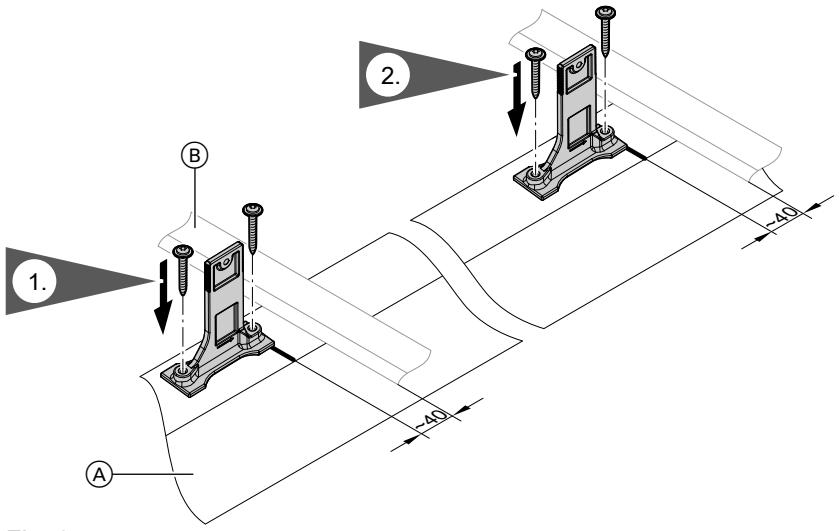


Fig. 24

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

Ⓐ Rafter
Ⓑ Batten

5790785

Pitched roof installation with rafter anchors (cont.)

There are 2 installation options:
- Using a plastic replacement tile
- Adapting the roof tile with an angle grinder

Installation with plastic replacement tiles

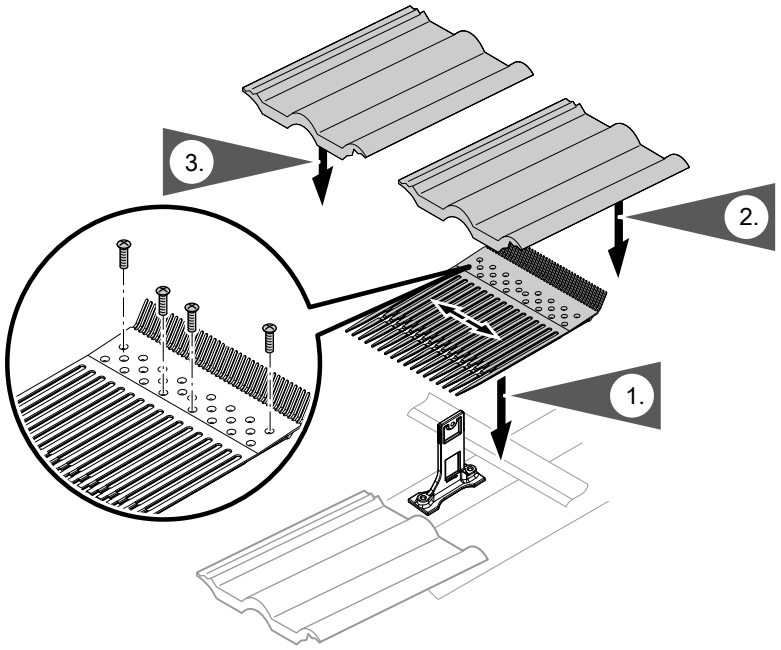


Fig. 25

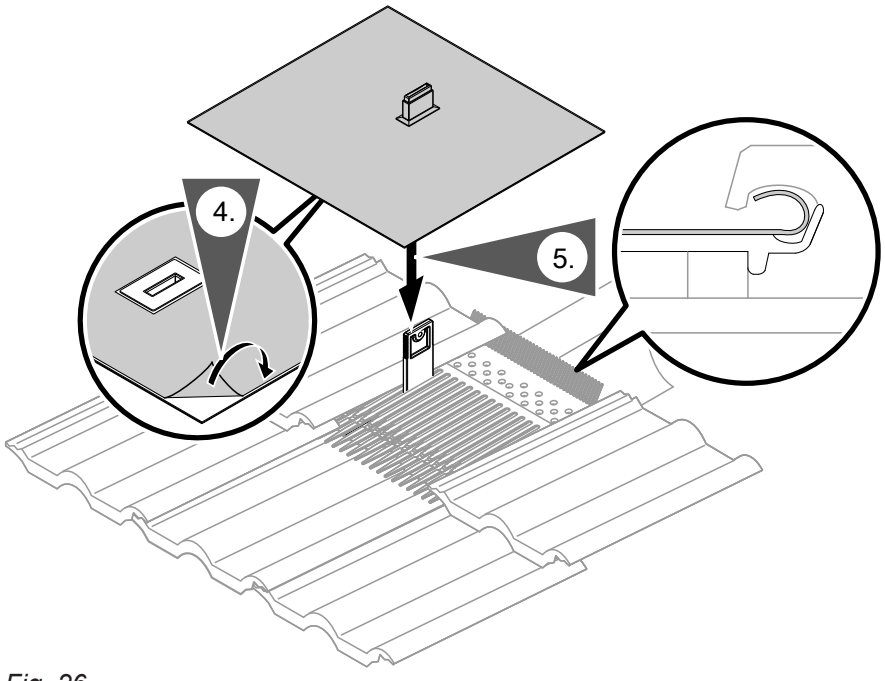


Fig. 26

Pitched roof installation with rafter anchors (cont.)

Installation with trimmed tiles

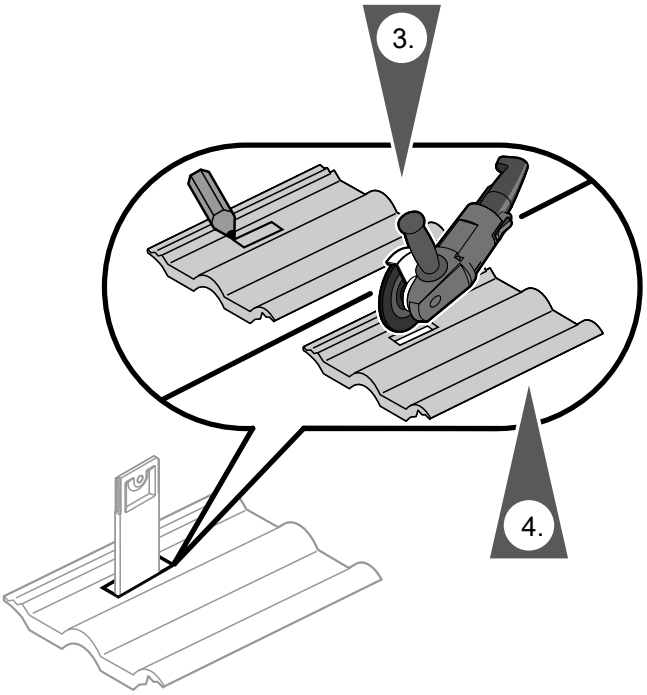


Fig. 27

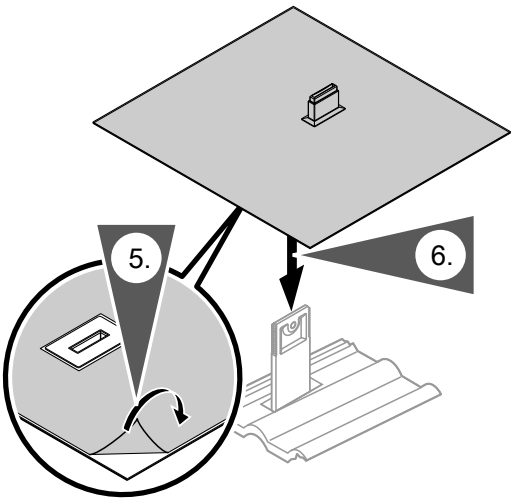


Fig. 28

Pitched roof installation with rafter anchors (cont.)

Vertical installation

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

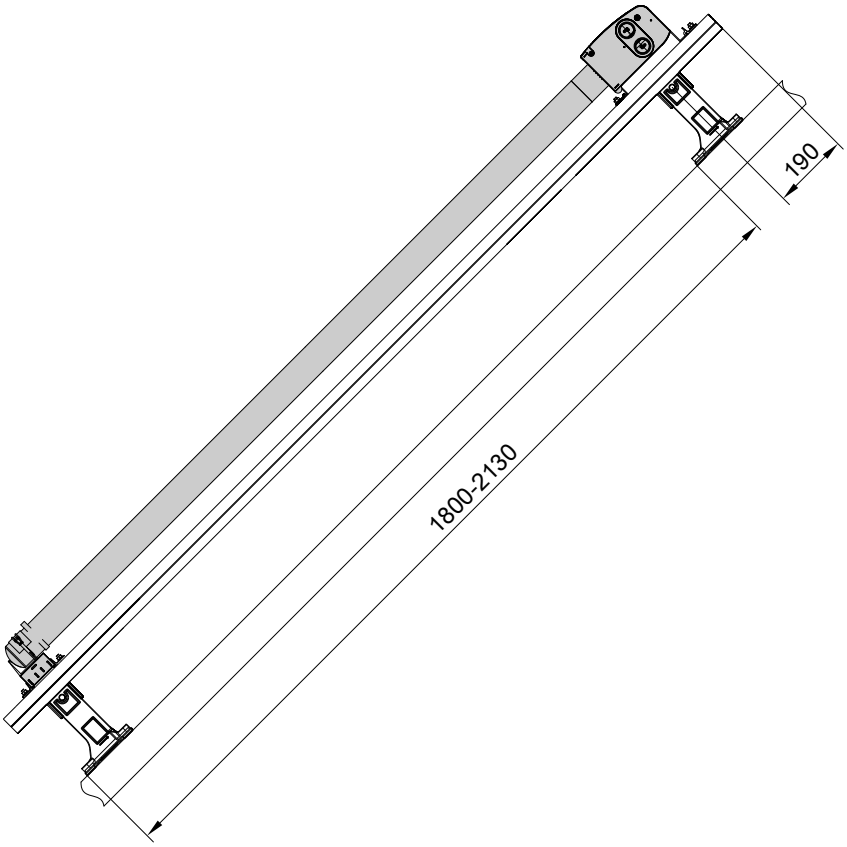


Fig. 29

The tables from page 6 detail the rafters to which the rafter anchors should be fitted.

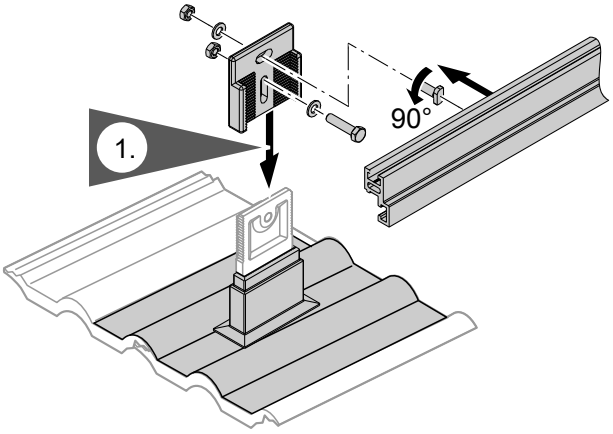


Fig. 30

Pitched roof installation with rafter anchors (cont.)

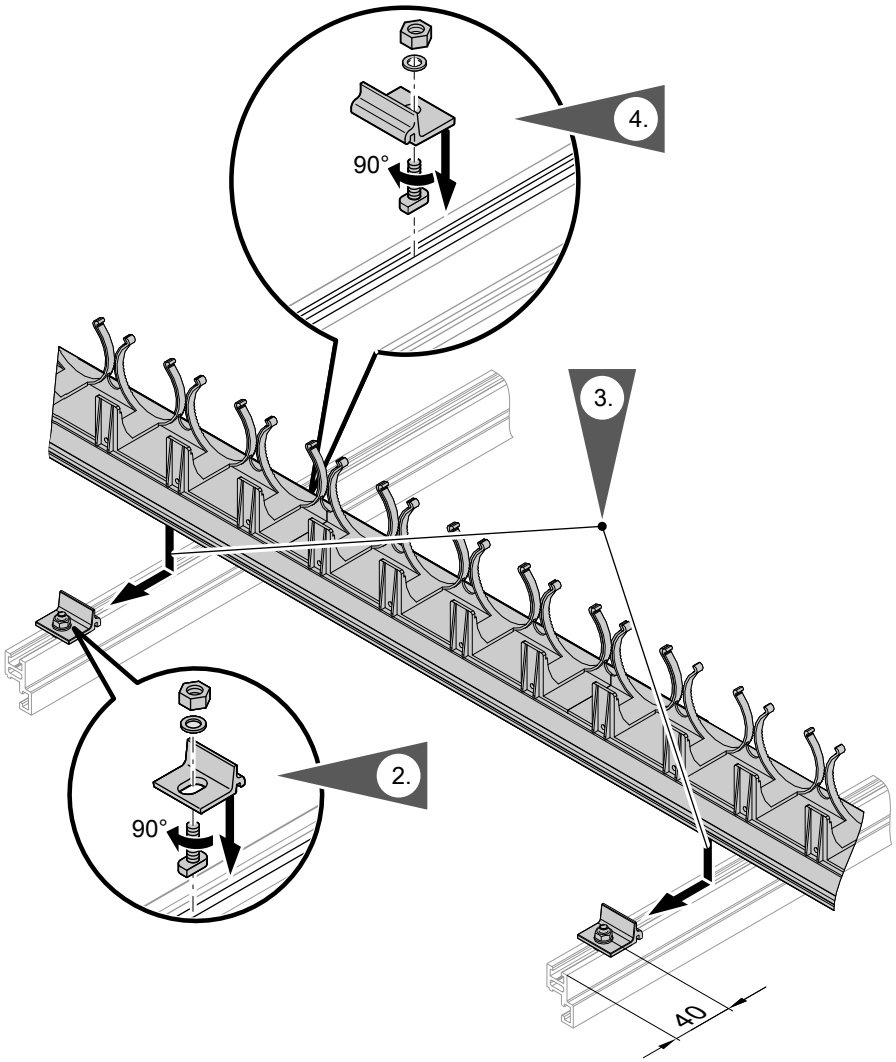


Fig. 31

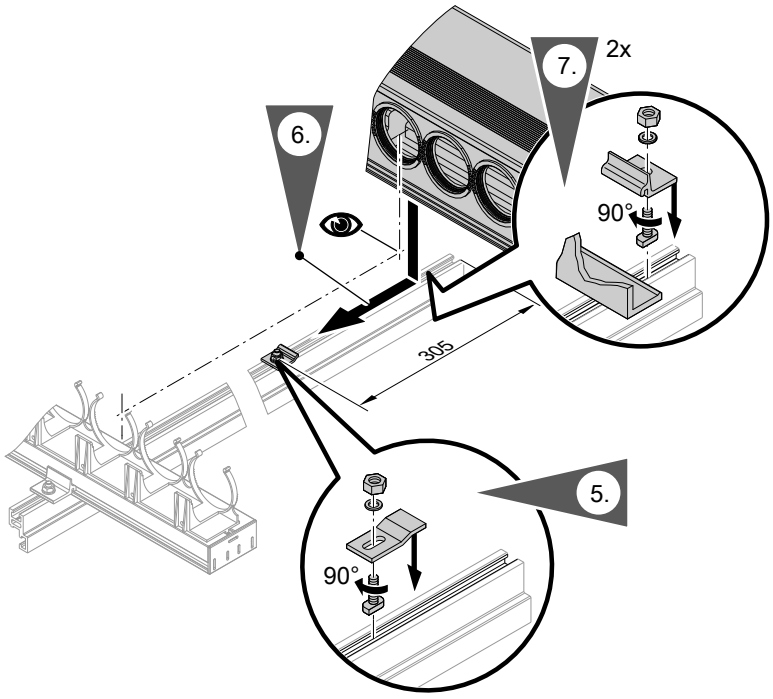


Fig. 32

5790785

Pitched roof installation with rafter anchors (cont.)

Continue with chapter "Hydraulic connections" (see page 62).

Horizontal installation

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

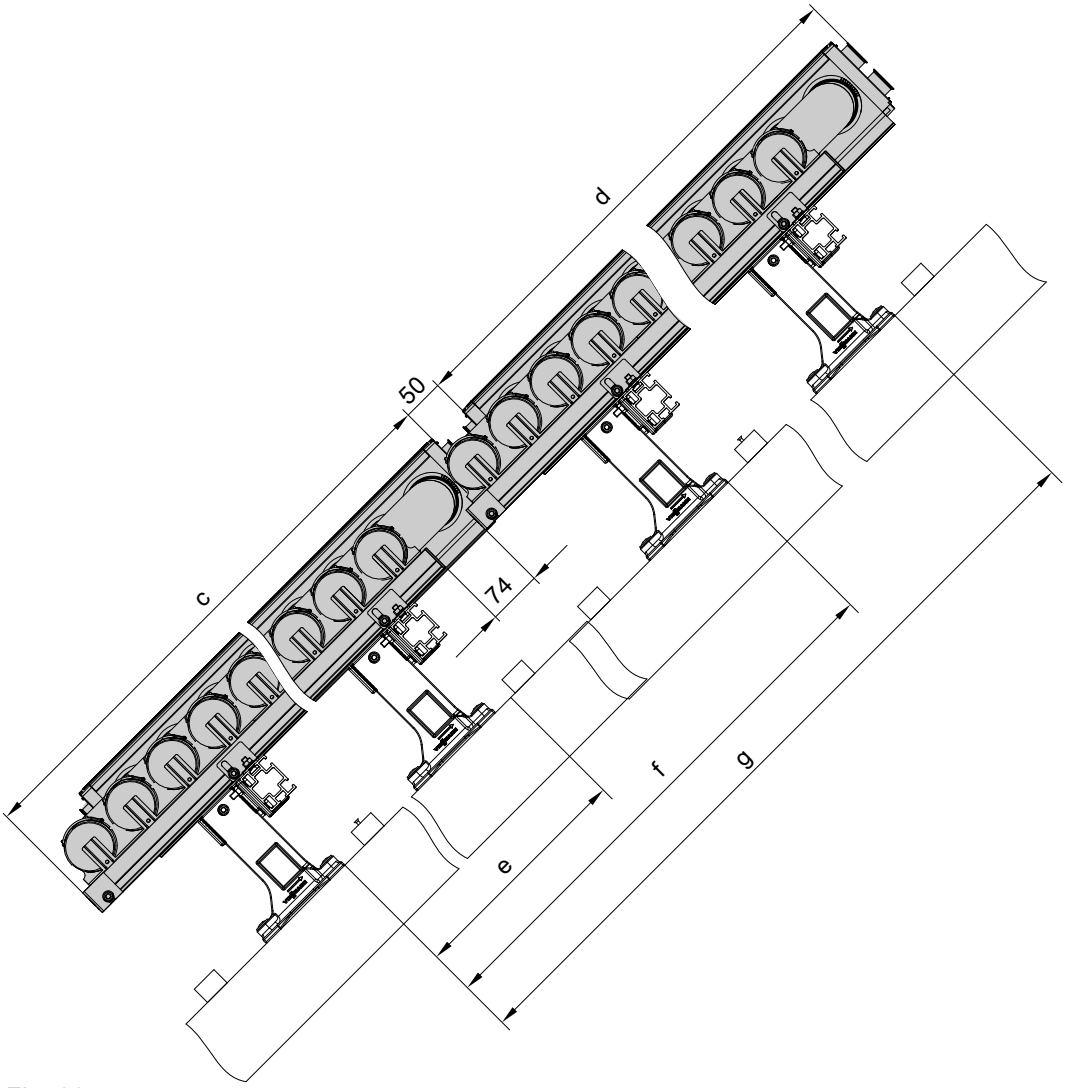


Fig. 33

Combination	c mm	d mm	e mm	f mm	g mm
1.51 m²	1053	—	525	—	—
3.03 m²	2061	—	1030	—	—
1.51 m²/1.51 m²	1053	1053	525	1105	1630
1.51 m²/3.03 m²	1053	2061	525	1355	2385
3.03 m²/1.51 m²	2061	1053	1030	1860	2385
3.03 m²/3.03 m²	2061	2061	1030	2110	3140

5790785

Pitched roof installation with rafter anchors (cont.)

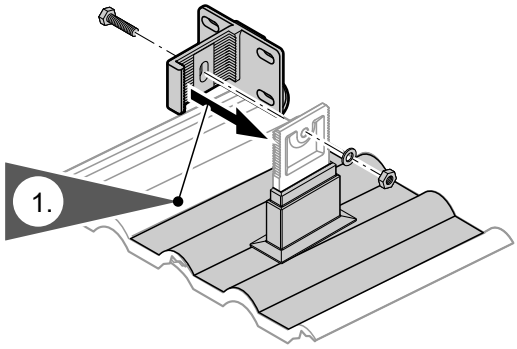


Fig. 34

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

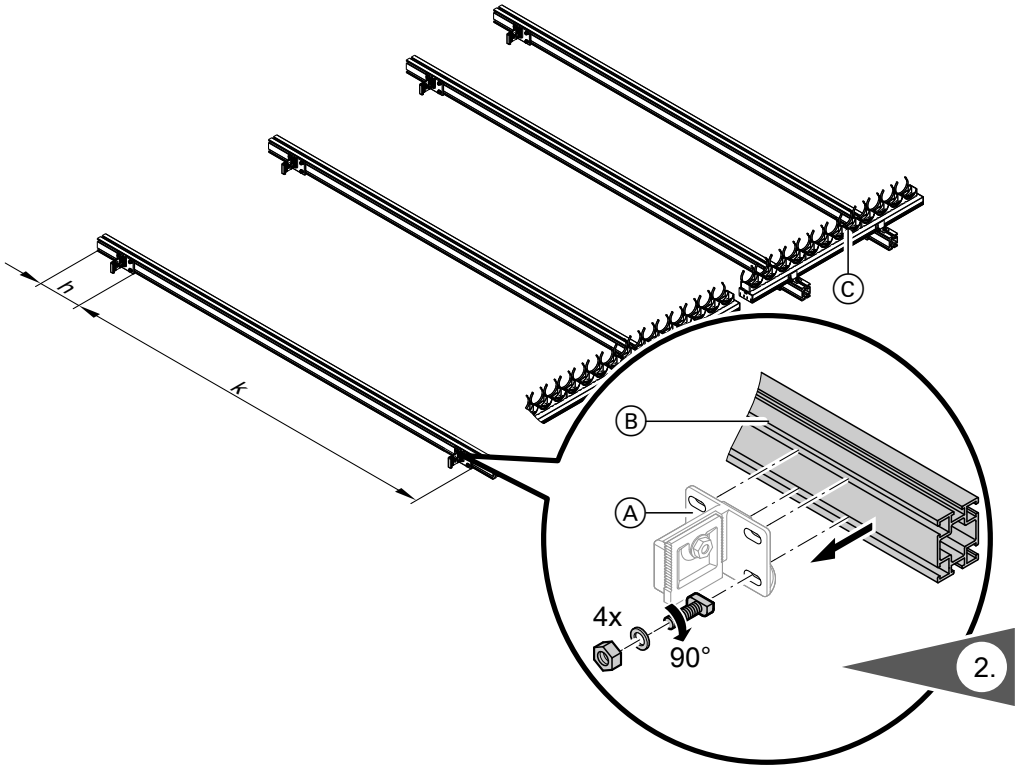


Fig. 35

Ⓐ Rafter anchor
Ⓑ Mounting rail
Ⓒ Tube retainer

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

Pitched roof installation with rafter anchors (cont.)

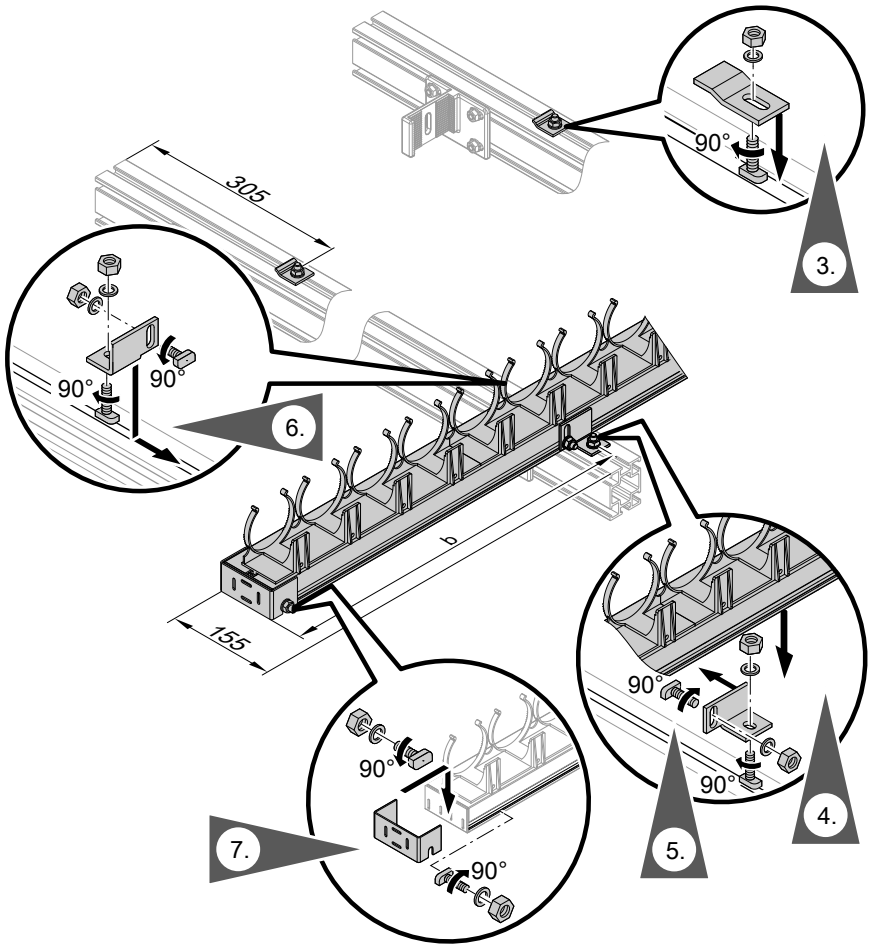


Fig. 36 For dimension b see the following diagram

5790785

Pitched roof installation with rafter anchors (cont.)

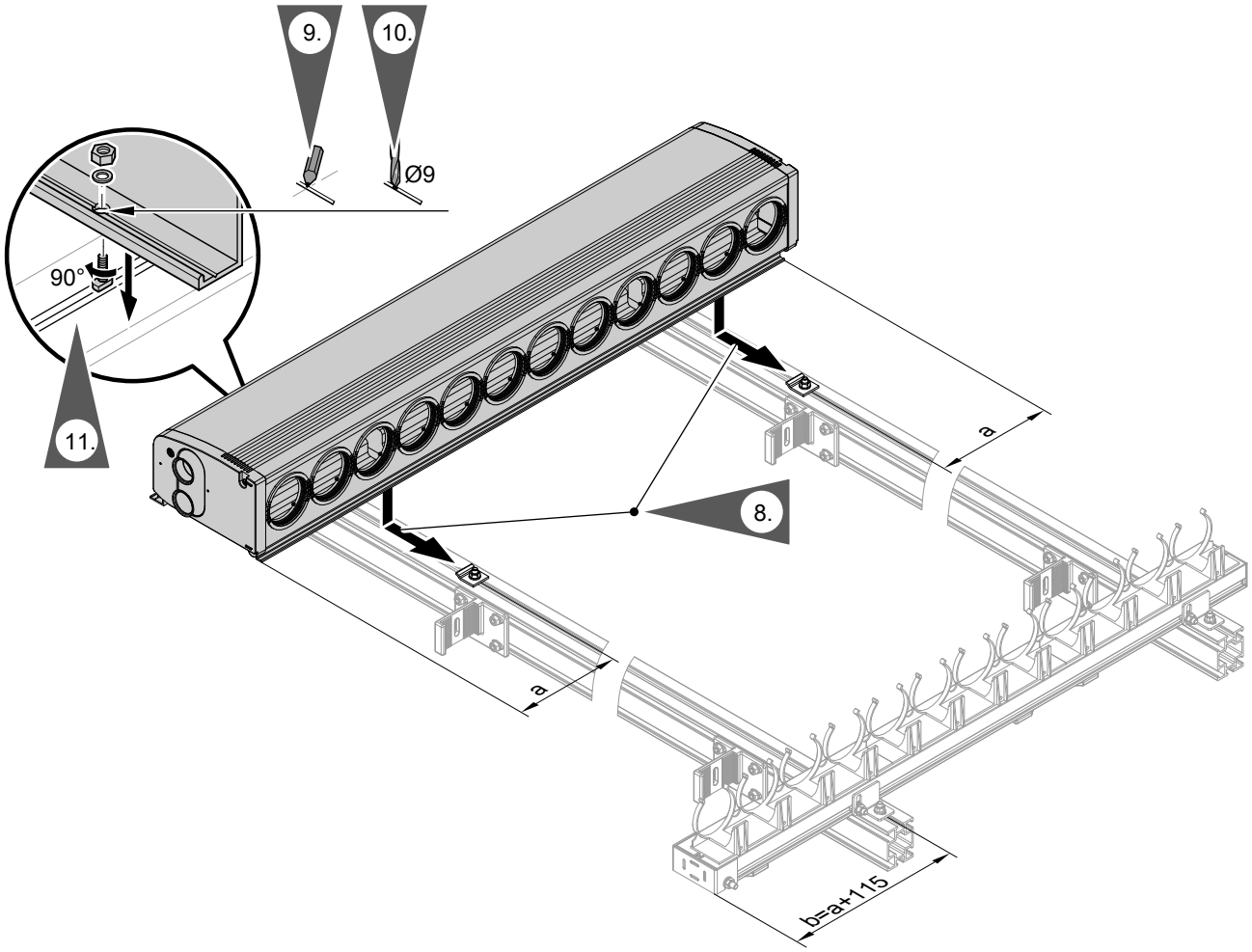


Fig. 37 Dimension a results once the header casing is placed on the mounting rails

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 62).

Pitched roof installation with mounting brackets

For sheet metal roofs

Vertical installation

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

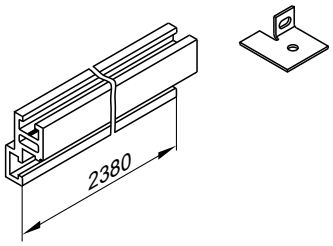


Fig. 38

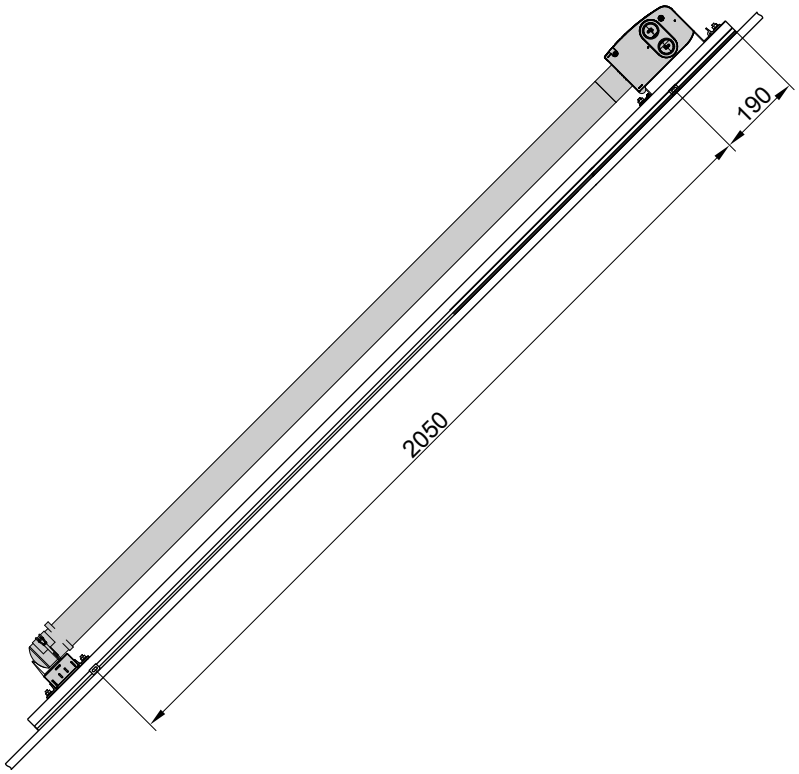


Fig. 39

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 6 detail the rafters to which the mounting brackets should be fitted.
- Installation **independent** of rafter spacing, see the following diagram.

Pitched roof installation with mounting brackets (cont.)

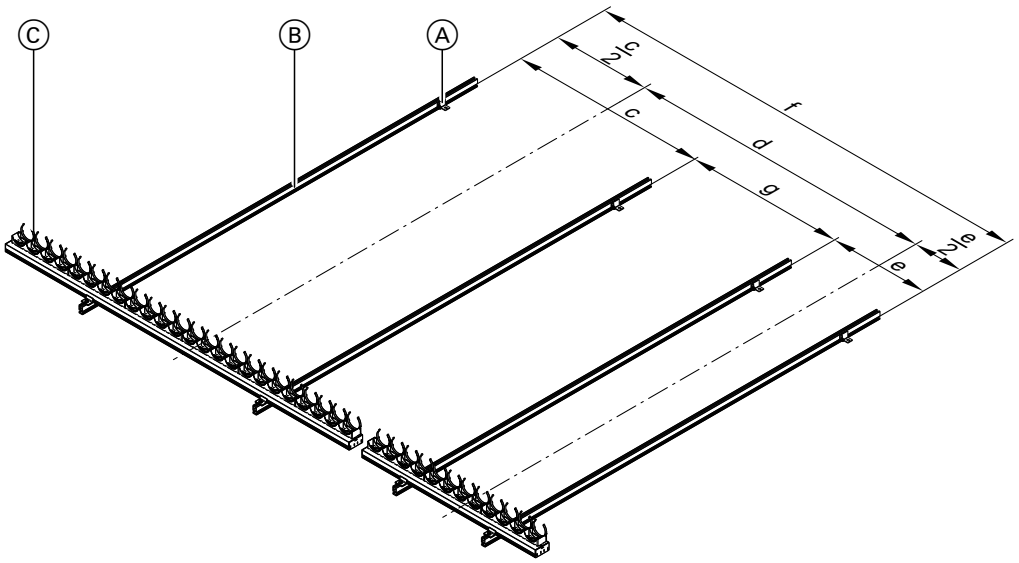


Fig. 40

Ⓐ Mounting bracket
Ⓑ Mounting rail
Ⓒ Tube retainer

Combination	c mm	d mm	e mm	f mm	g mm
1.51 m²	525	—	—	—	—
3.03 m²	1030	—	—	—	—
1.51 m²/1.51 m²	525	1105	525	1630	580
1.51 m²/3.03 m²	525	1610	1030	2385	830
3.03 m²/3.03 m²	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.

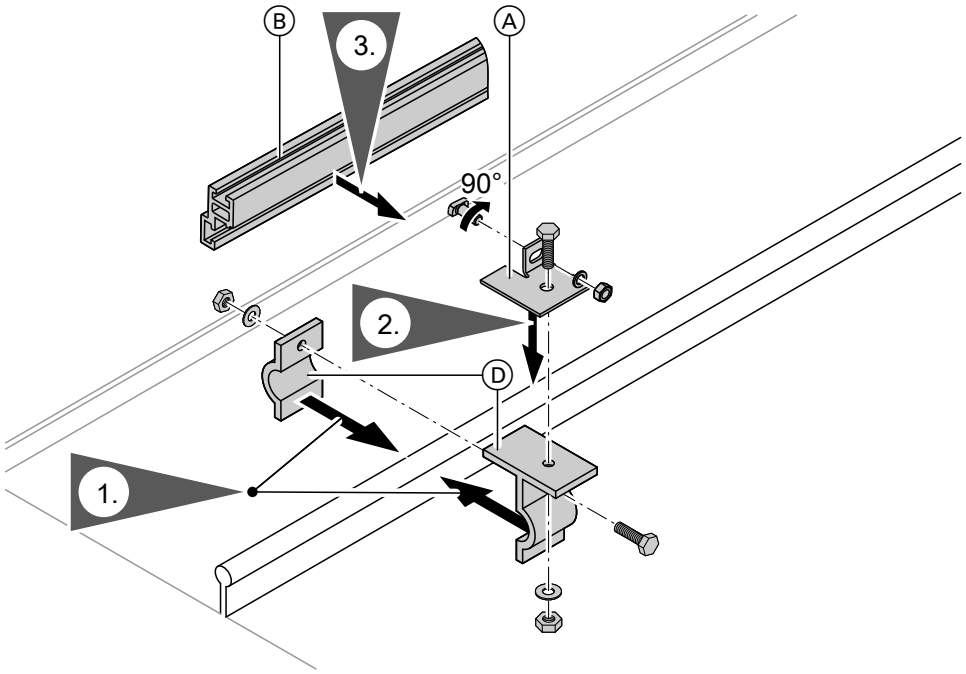


Fig. 41

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

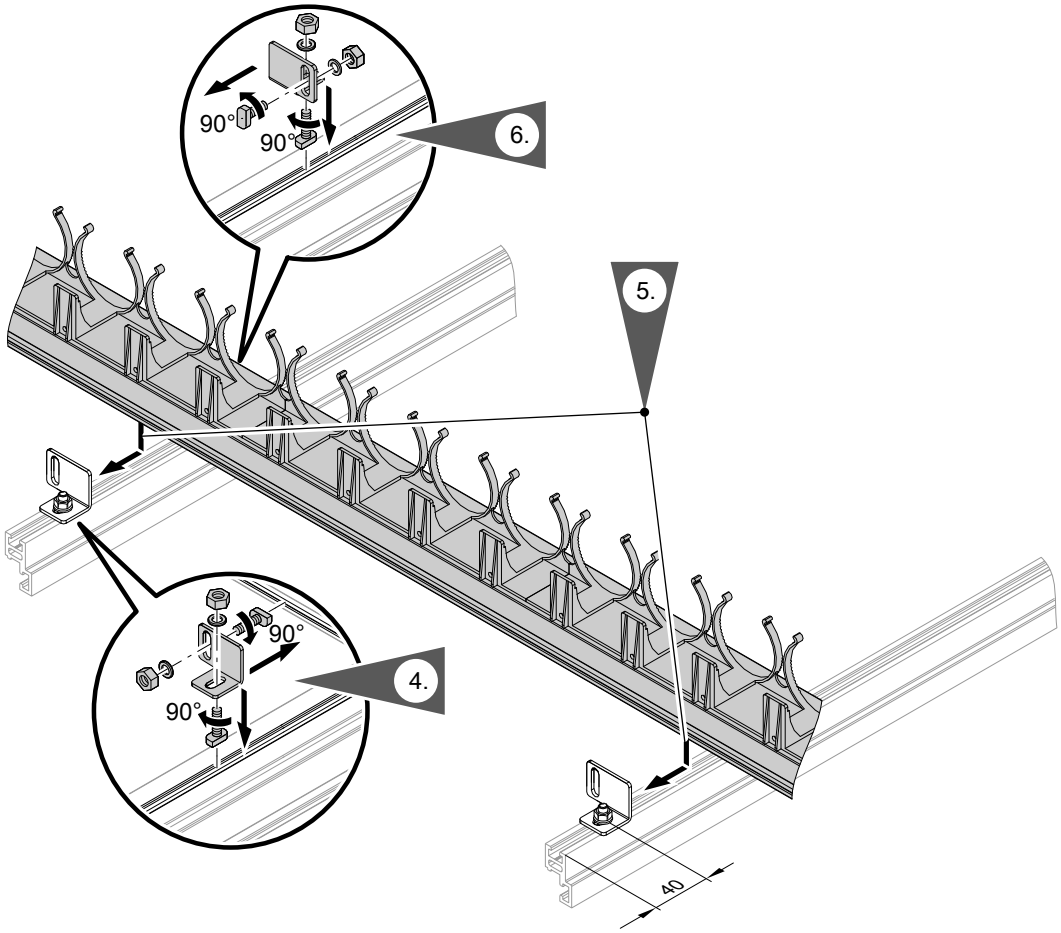


Fig. 42

5790785

Pitched roof installation with mounting brackets (cont.)

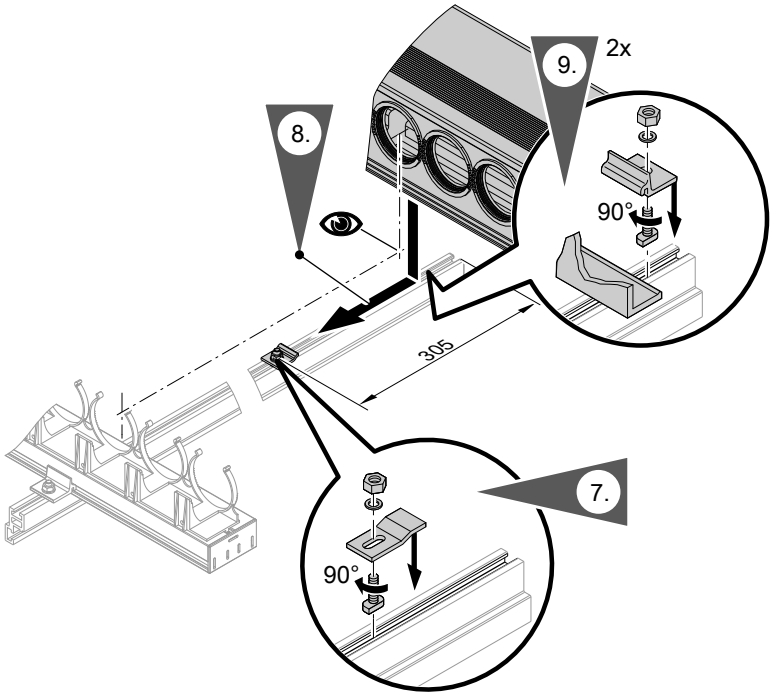


Fig. 43

Continue with chapter "Hydraulic connections" (see page 62).

Pitched roof installation with mounting brackets (cont.)

Horizontal installation

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

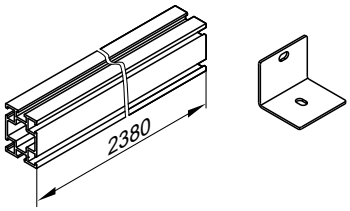


Fig. 44

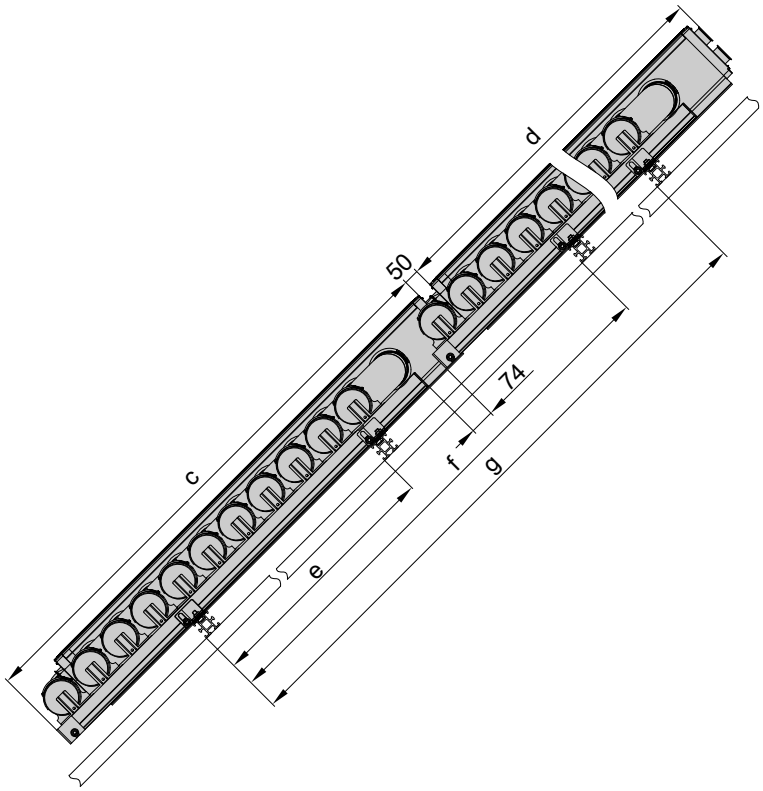


Fig. 45

Combination	c mm	d mm	e mm	f mm	g mm
1.51 m²	1053	—	525	—	—
3.03 m²	2061	—	1030	—	—
1.51 m²/1.51 m²	1053	1053	525	1095	1610
1.51 m²/3.03 m²	1053	2061	525	1350	2380
3.03 m²/1.51 m²	2061	1053	1030	1855	2380
3.03 m²/3.03 m²	2061	2061	1030	2110	3140

5790785

Pitched roof installation with mounting brackets (cont.)

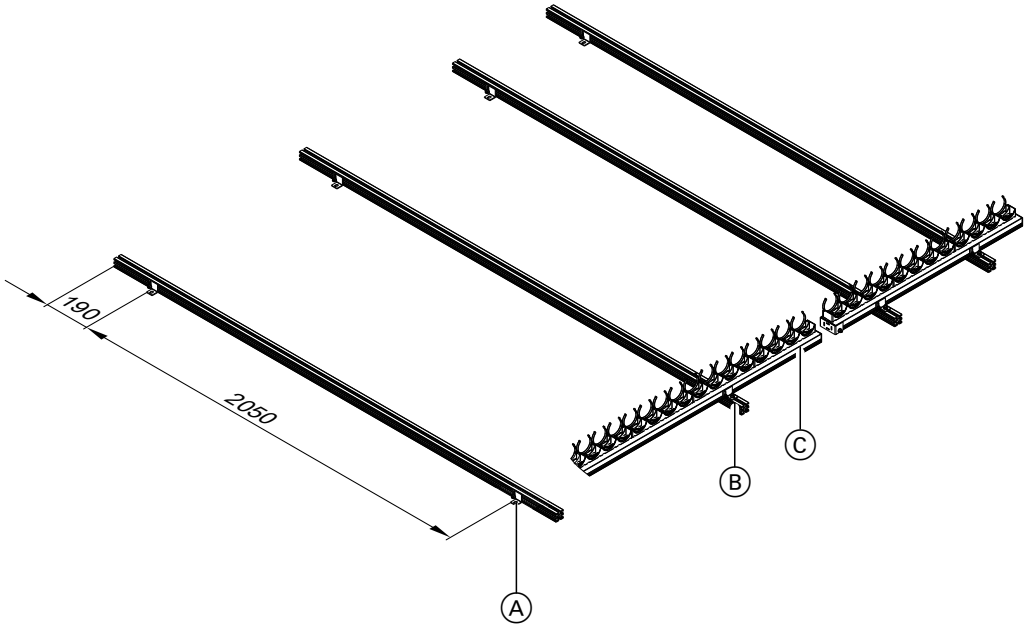


Fig. 46

Ⓐ 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.

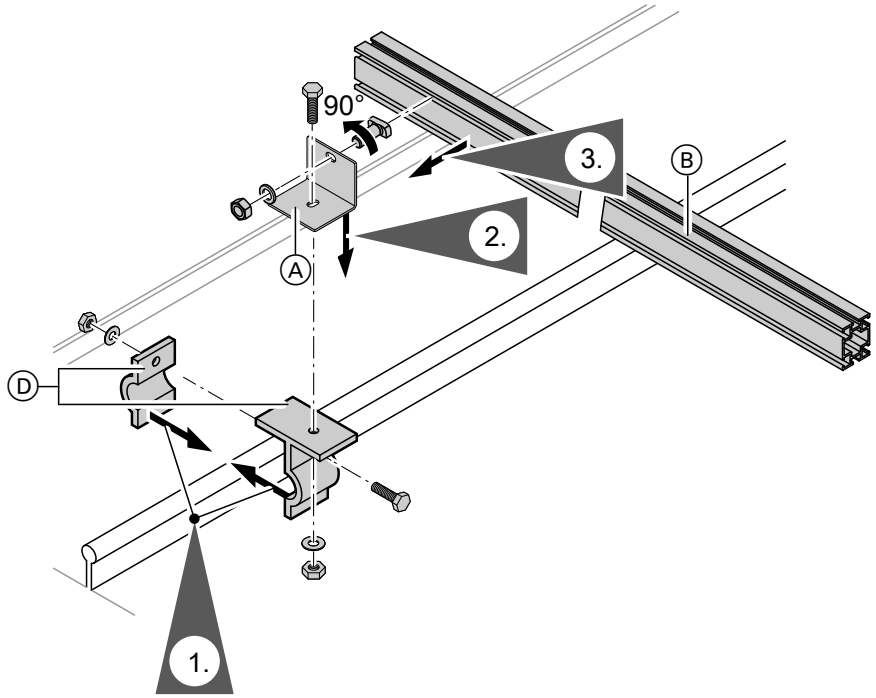


Fig. 47

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

5790785

Pitched roof installation with mounting brackets (cont.)

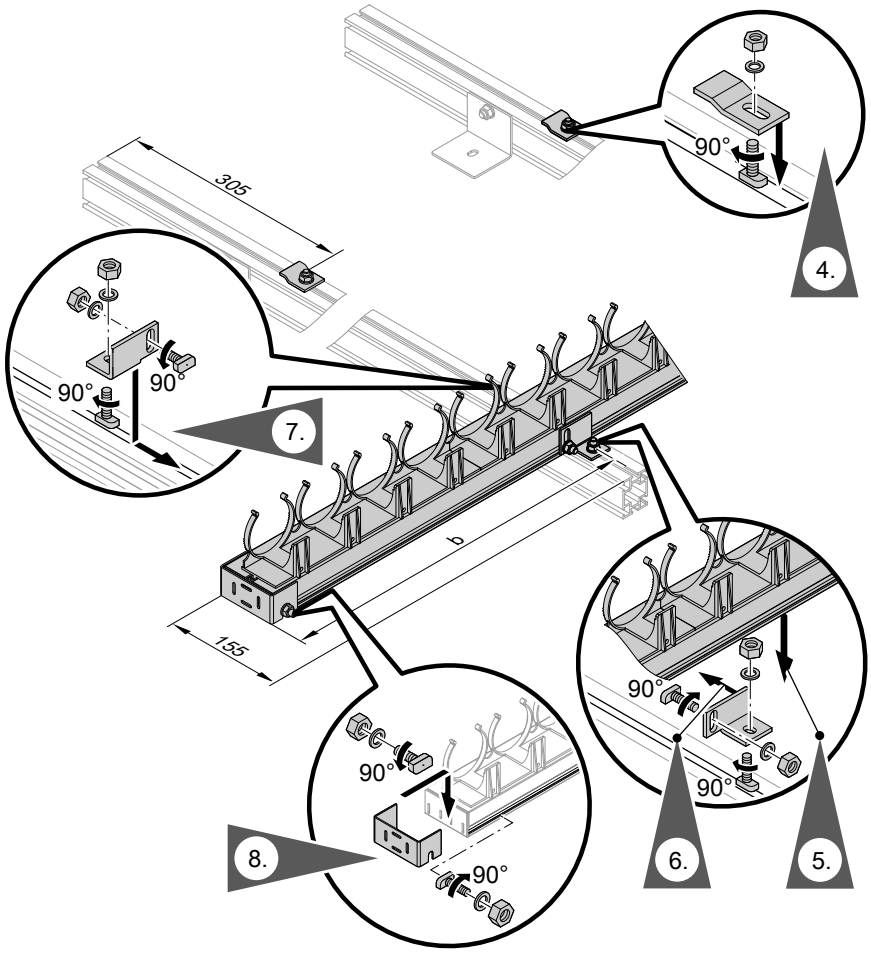


Fig. 48 For dimension b see the following diagram

5790785

Pitched roof installation with mounting brackets (cont.)

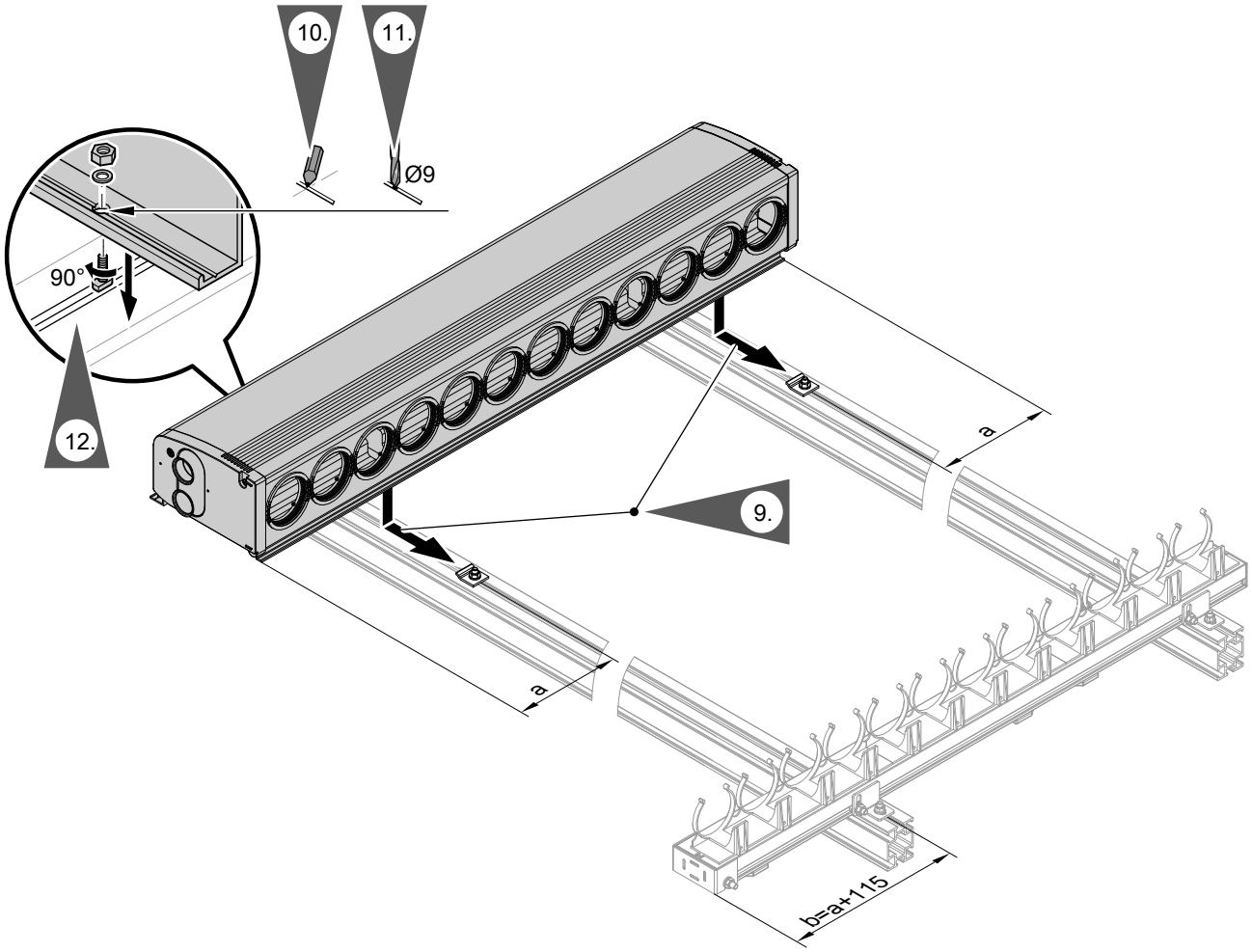


Fig. 49 Dimension a results once the header casing is placed on the mounting rails.

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 62).

Pitched roof installation with roof hooks

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

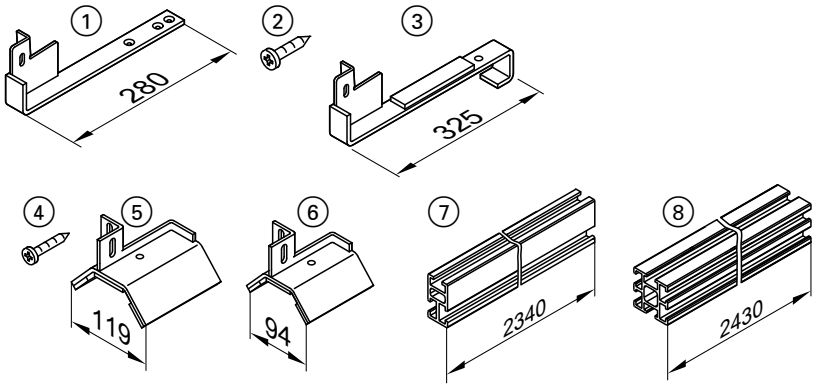


Fig. 50

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

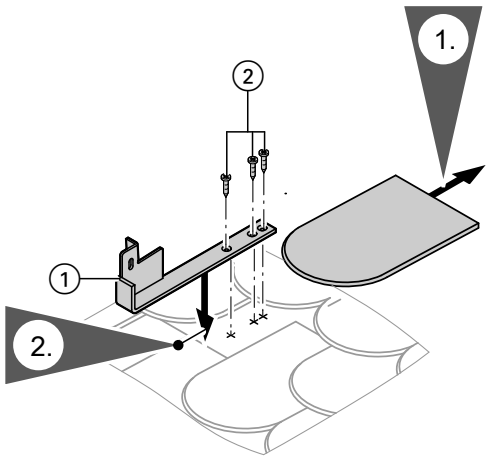


Fig. 51

For dimensions, see from page 42

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

Pitched roof installation with roof hooks (cont.)

Plain tiled roof cover

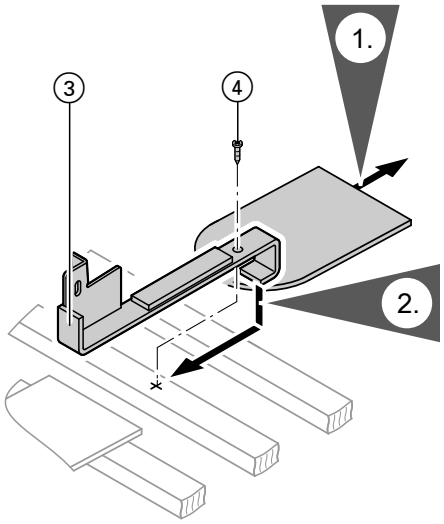


Fig. 52

For dimensions, see from page 42

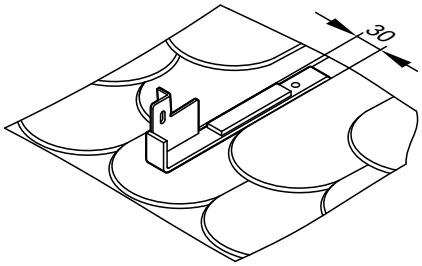


Fig. 53

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

Corrugated sheet roof

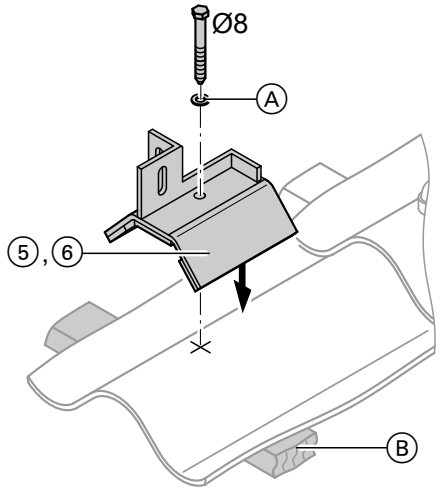


Fig. 54

Ⓐ Sealing washer (on site)
Ⓑ Existing roof batten

For dimensions, see from page 42

Pitched roof installation with roof hooks (cont.)

Vertical installation

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

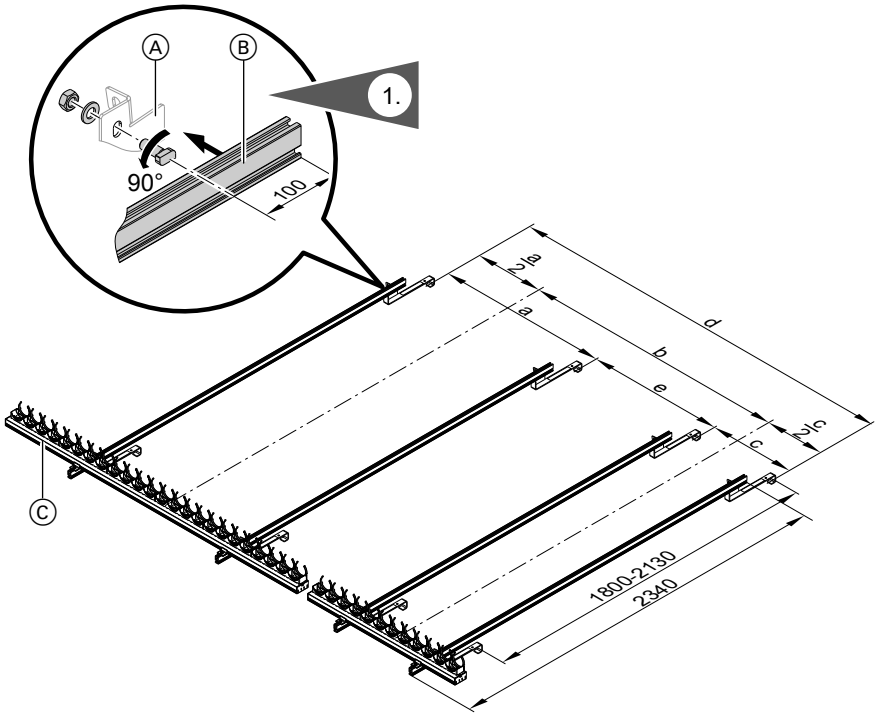


Fig. 55

Ⓐ Roof hook
Ⓑ Mounting rail
Ⓒ Tube retainer

Combination	a mm	b mm	c mm	d mm	e mm
1.51 m²	525	—	—	—	—
3.03 m²	1030	—	—	—	—
1.51 m²/1.51 m²	525	1105	525	1630	580
1.51 m²/3.03 m²	525	1610	1030	2385	830
3.03 m²/3.03 m²	1030	2105	1030	3135	1075

5790785

Pitched roof installation with roof hooks (cont.)

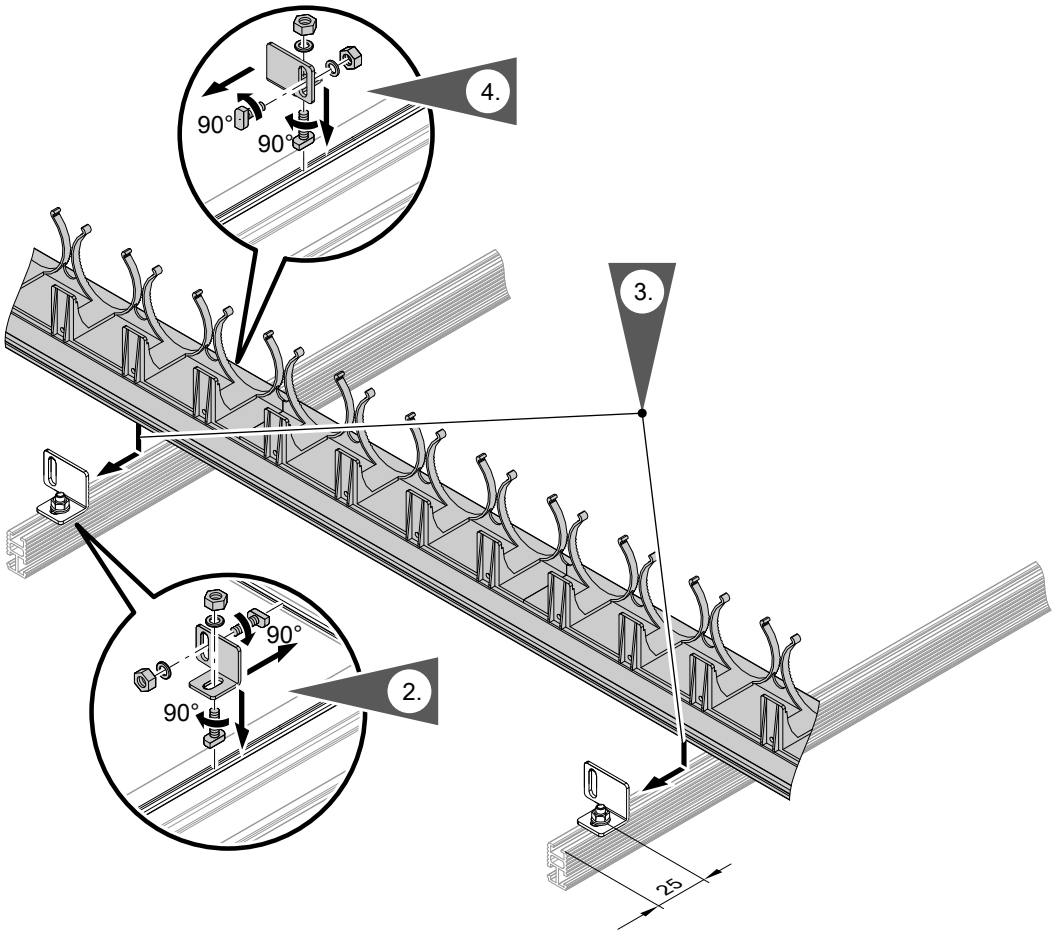


Fig. 56

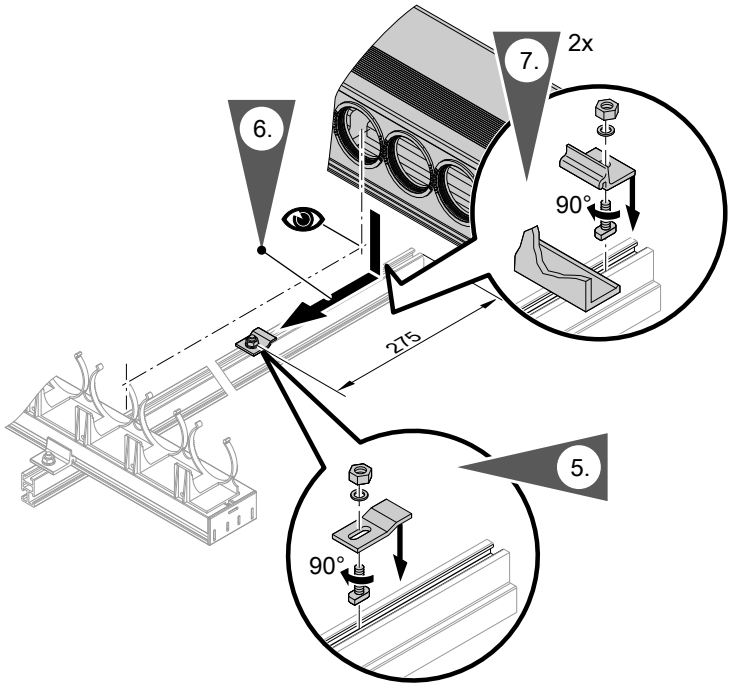


Fig. 57

Pitched roof installation with roof hooks (cont.)

Continue with chapter "Hydraulic connections" (see page 62).

Horizontal installation

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

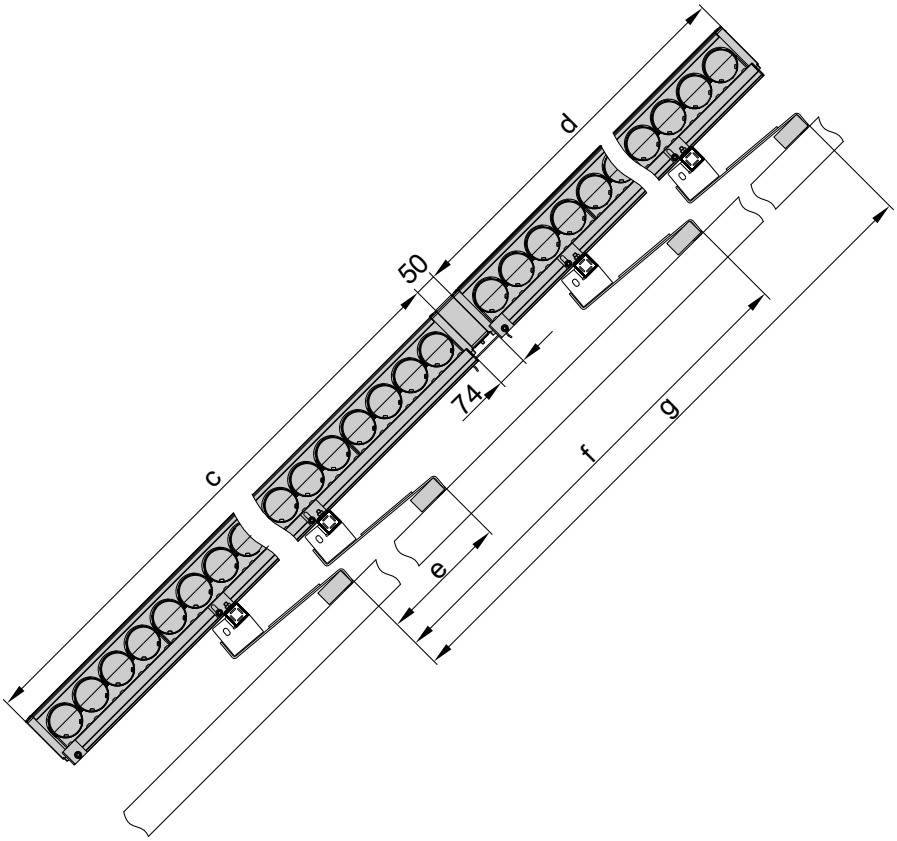


Fig. 58

Combination	c mm	d mm	e mm	f mm	g mm
1.51 m²	1053	—	525	—	—
3.03 m²	2061	—	1030	—	—
1.51 m²/1.51 m²	1053	1053	525	1095	1610
1.51 m²/3.03 m²	1053	2061	5025	1350	2380
3.03 m²/1.51 m²	2061	1053	1030	1855	2380
3.03 m²/3.03 m²	2061	2061	1030	2110	3140

5790785

Pitched roof installation with roof hooks (cont.)

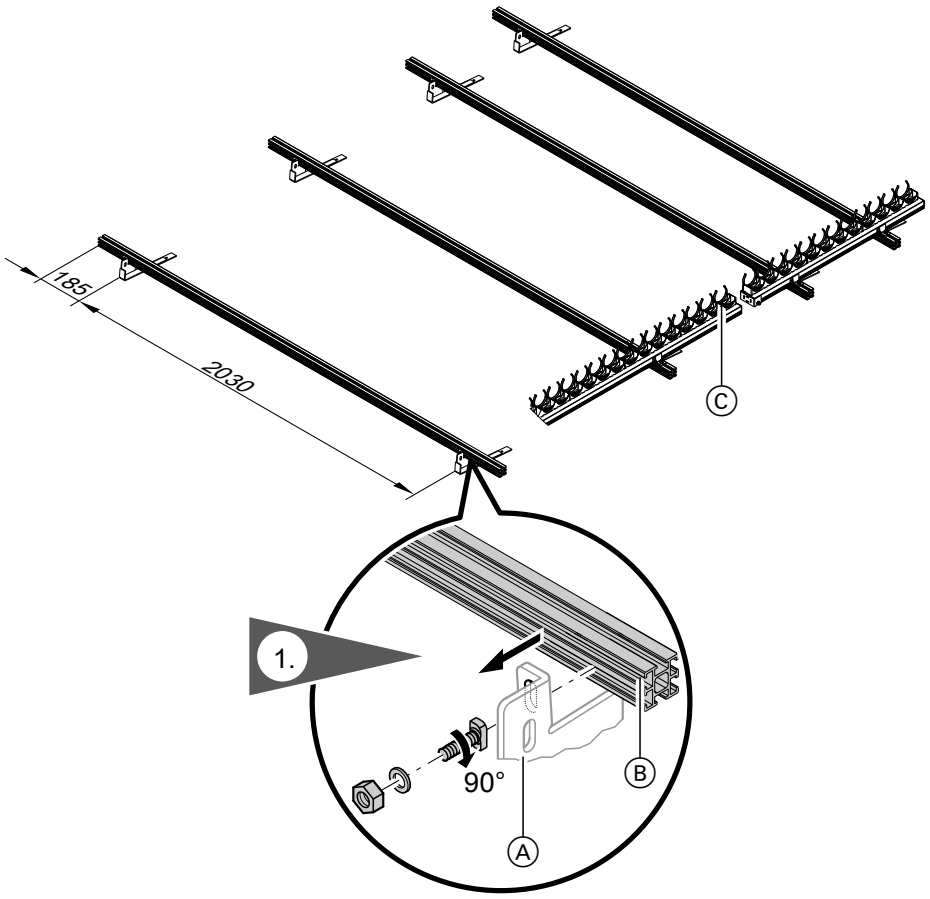


Fig. 59

Ⓐ Roof hook
Ⓑ Mounting rail
Ⓒ Tube retainer

5790785

Pitched roof installation with roof hooks (cont.)

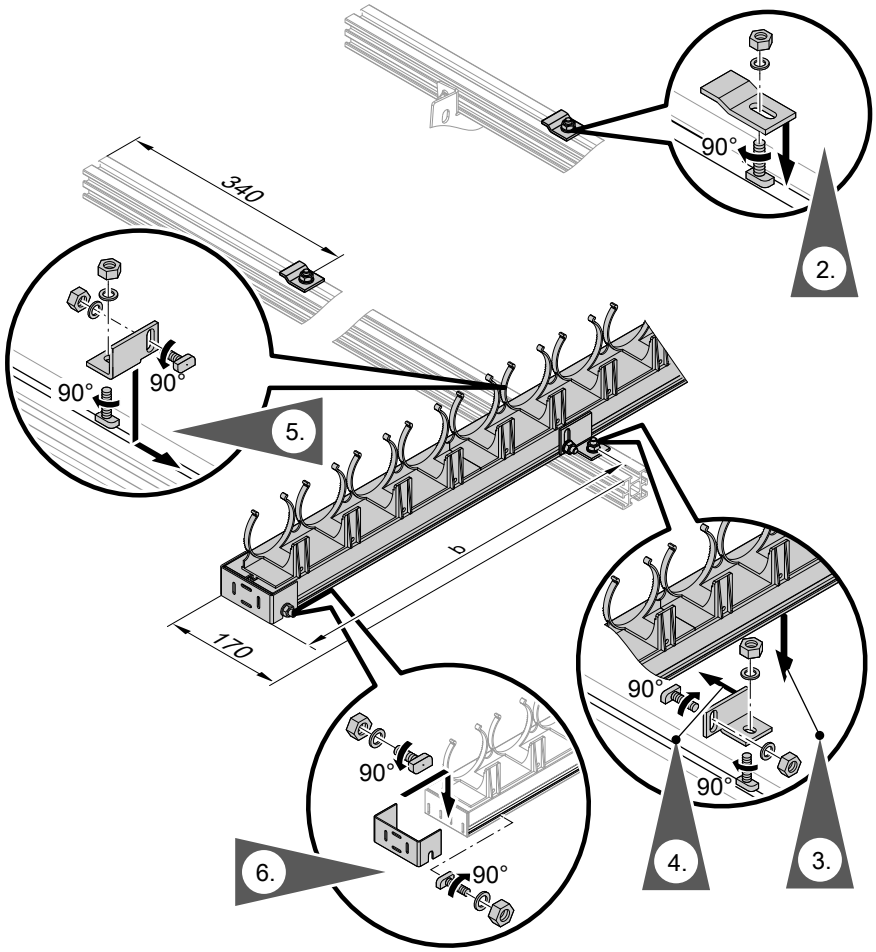


Fig. 60 For dimension b see the following diagram

5790785

Pitched roof installation with roof hooks (cont.)

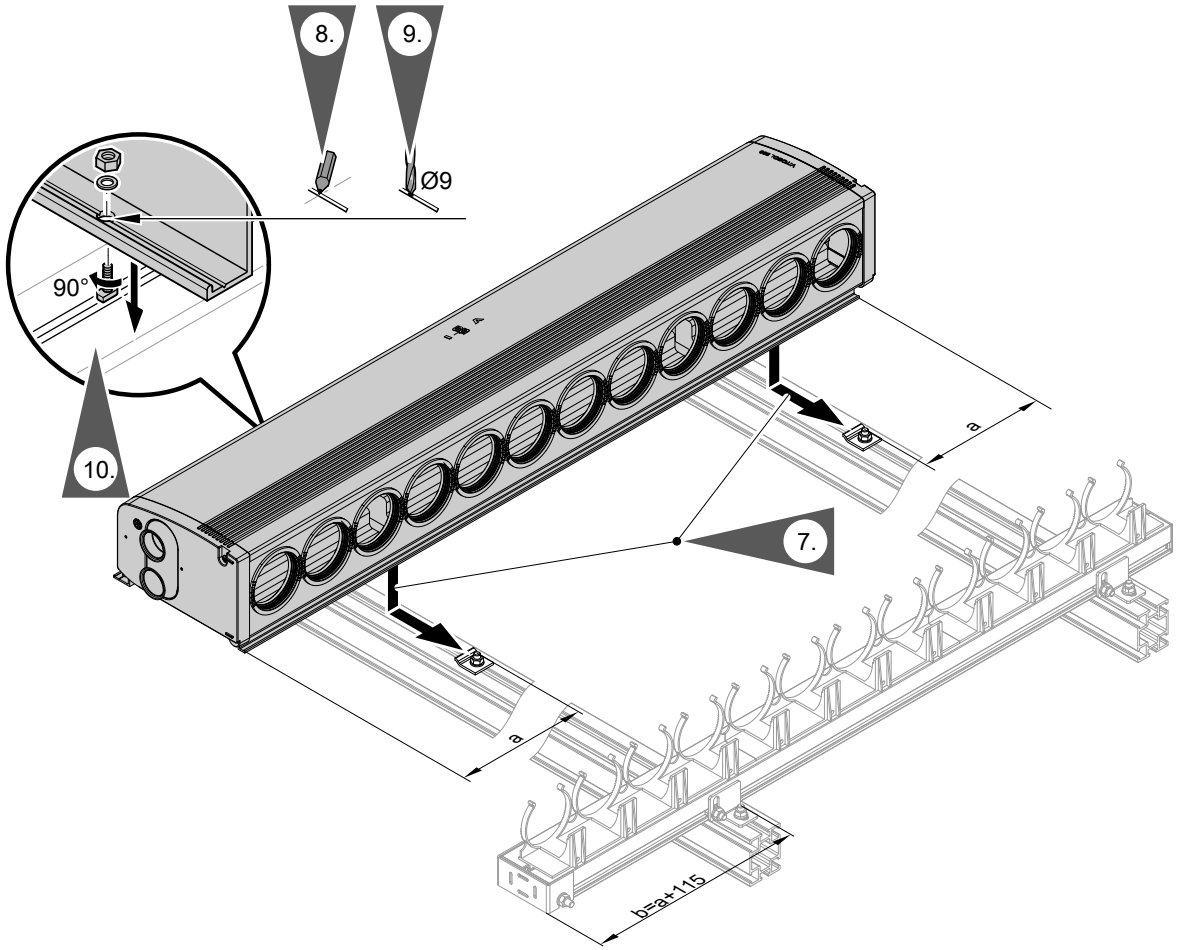


Fig. 61 Dimension a results once the header casing is placed on the mounting rails

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.

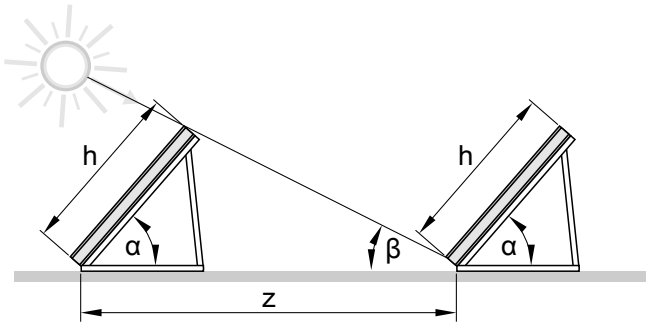
Continue with chapter "Hydraulic connections" (see page 62).

Installation on collector supports

Prevent shading if several collectors are installed behind each 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 on latitude 50° north. In the northern hemisphere, this value is deducted from a fixed angle of 66.5°:
   β = 66.5°− 50° = 16.5°



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

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

$$z = 6934\ mm$$

Fig. 62

z Collector row spacing
h Collector height
α Angle of collector inclination
β Angle of the sun

2. To calculate dimension z:
   h = 2241 mm
   α = 45°
   β = 16.5°

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 DIN EN 1001-1-3 and DIN EN 1991-1-4
  The Viessmann "SOLSTAT" calculation program is available at **www.viessmann.com** to assist with calculations.
- For calculating dimension z, see page 48.

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.

Installation on collector supports (cont.)

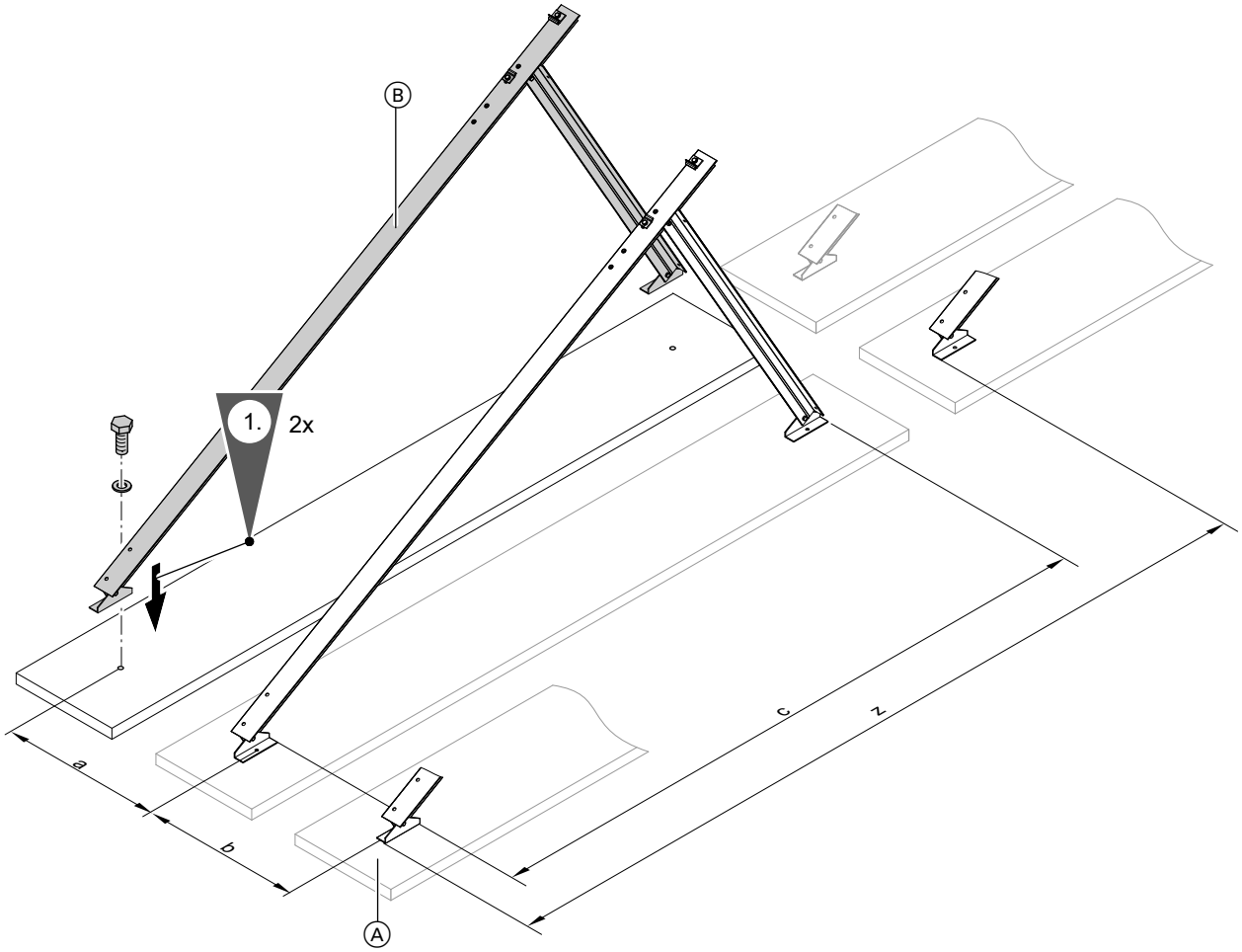


Fig. 63 Use the mounting feet as a drilling template.

Ⓐ Support slab
Ⓑ Collector support

Collector area	a	mm
1.51 m²		640
3.03 m²		1240

Combination	b	mm
1.51 m²/1.51 m²		465
1.51 m²/3.03 m²		660
3.03 m²/3.03 m²		870

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

Installation on collector supports (cont.)

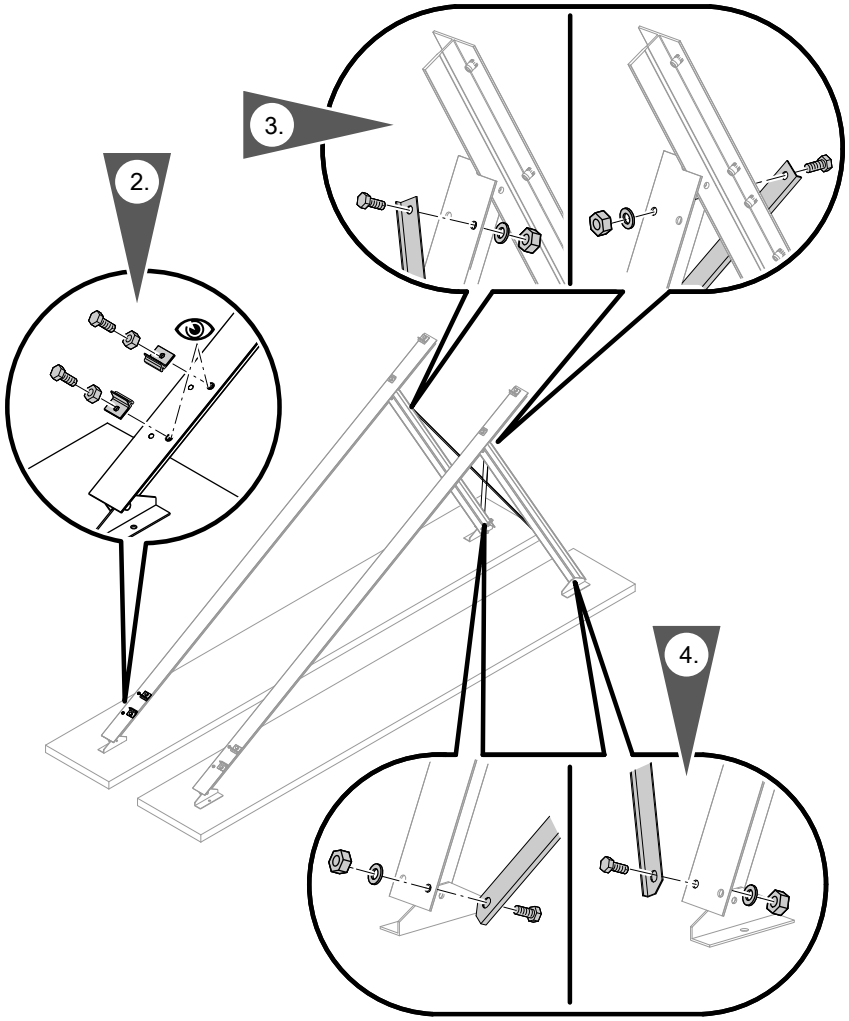


Fig. 64

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 cross brace to the first 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:	
	1.51 m²	**3.03 m²**
30°	1300 mm	1650 mm
45°	1725 mm	2000 mm
60°	2025 mm	—

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

5790785

Installation on collector supports (cont.)

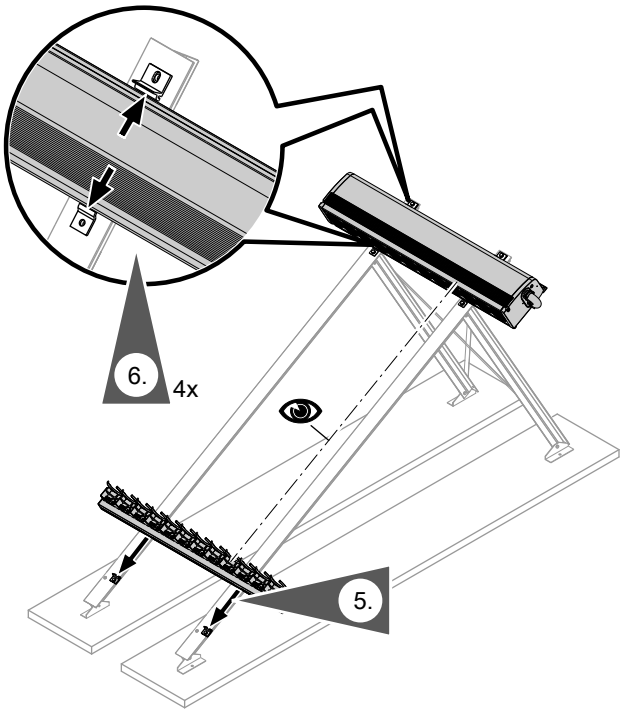


Fig. 65

Continue with chapter "Hydraulic connections" (see page 62).

Collector supports with variable angle of inclination

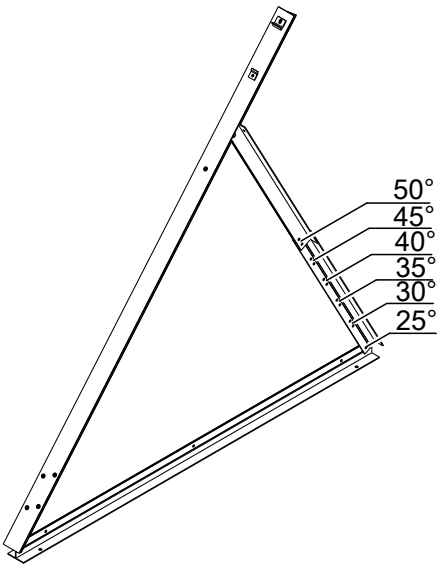


Fig. 66

Installation on collector supports (cont.)

Adjusting the angle of inclination α

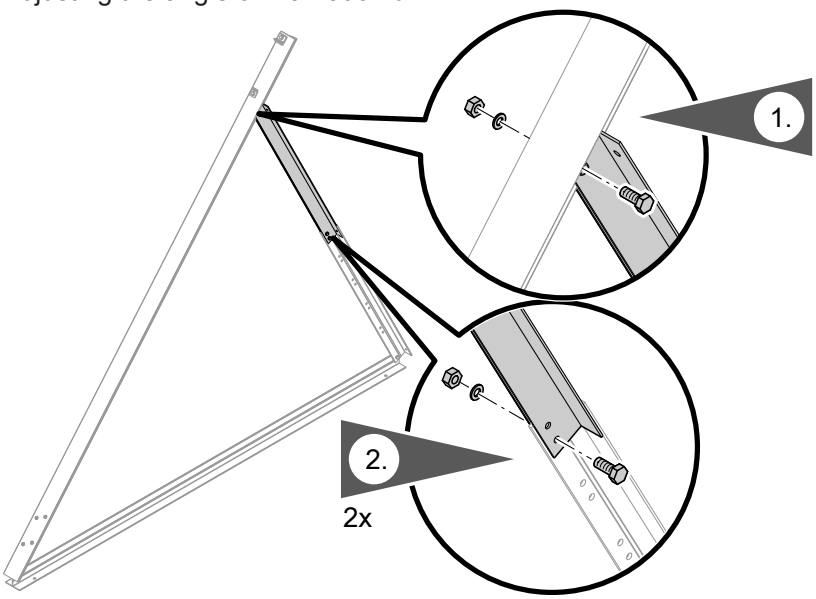


Fig. 67

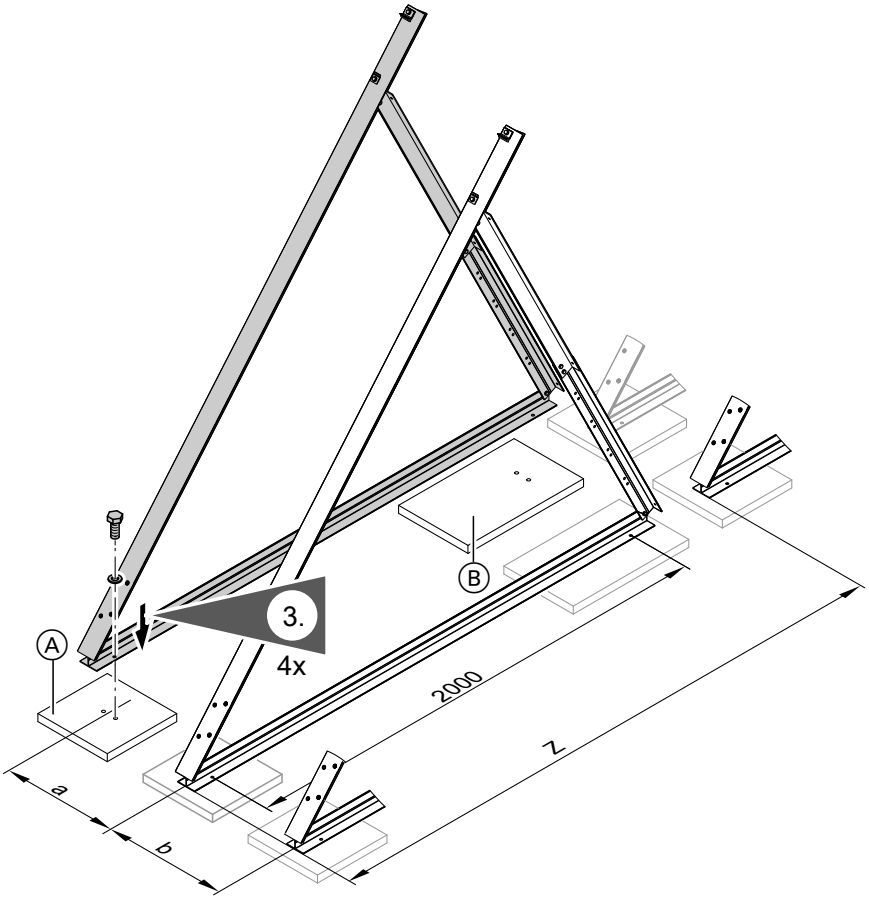


Fig. 68 Use foot braces as a drilling template.

Ⓐ Support slab A
Ⓑ Support slab B

Collector area	a	mm
1.51 m²		505
3.03 m²		1010

Combination	b	mm
1.51 m²/1.51 m²		595
1.51 m²/3.03 m²		850
3.03 m²/3.03 m²		1100

5790785

Installation on collector supports (cont.)

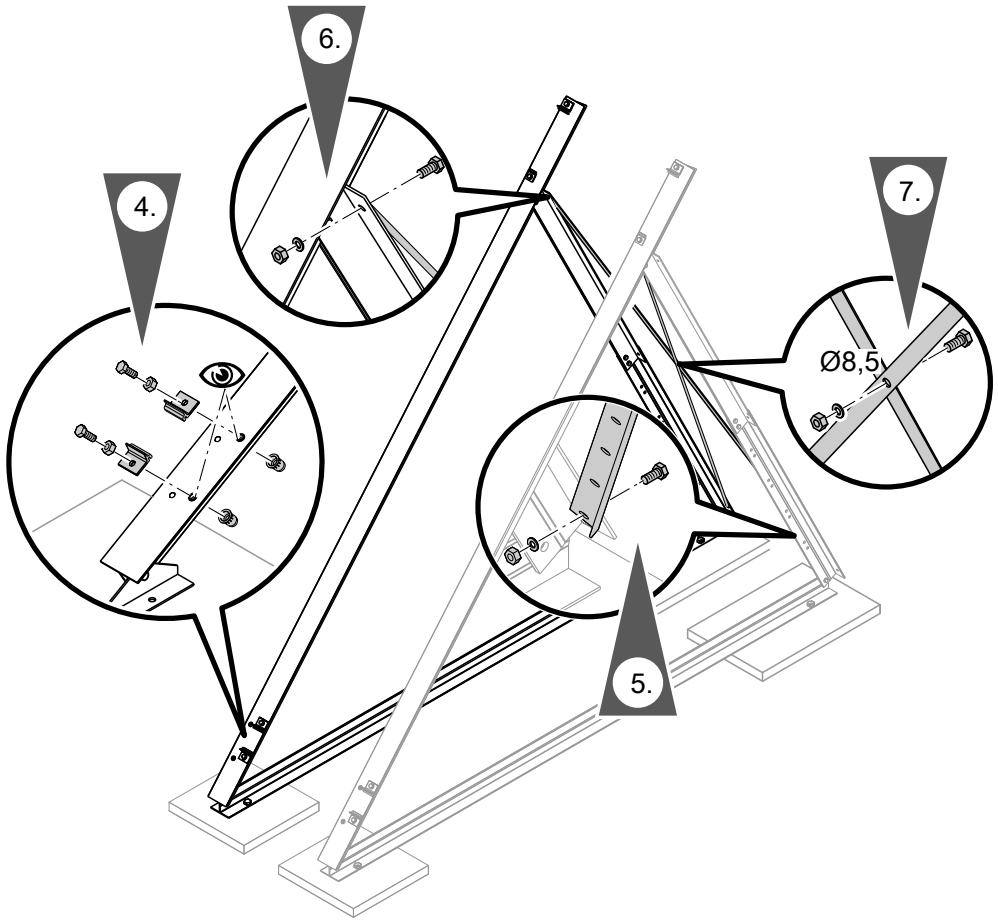


Fig. 69

Installation on collector supports (cont.)

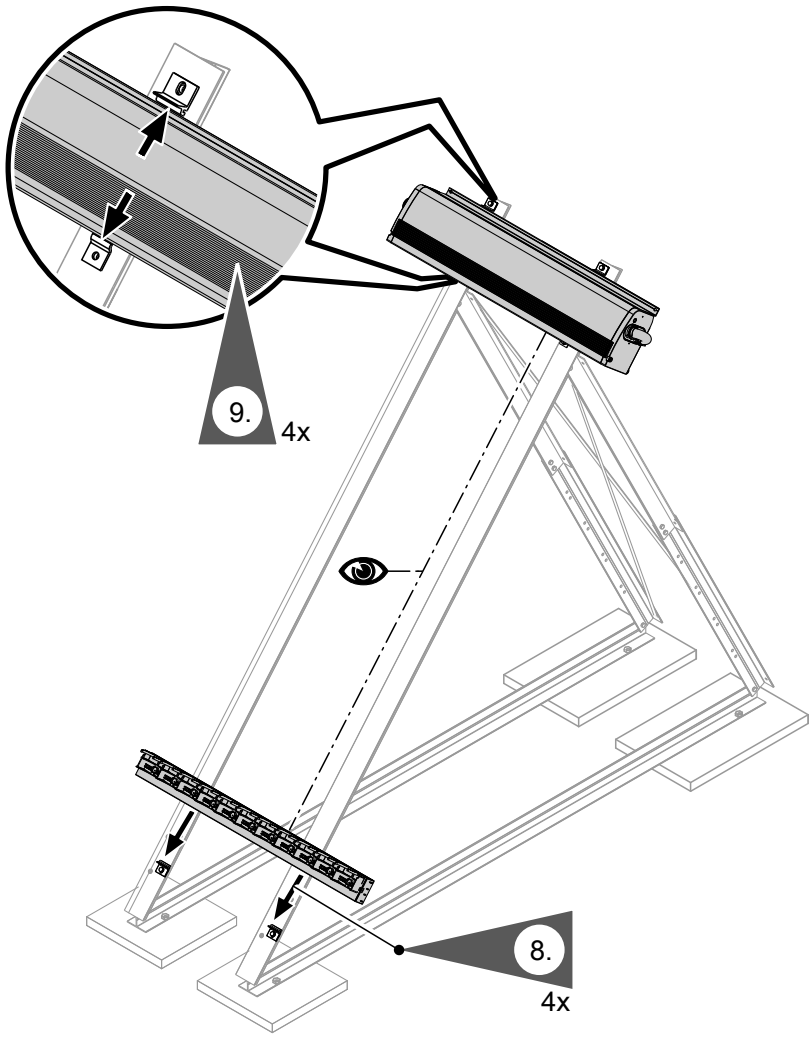


Fig. 70

Continue with chapter "Hydraulic connections" (see page 62).

Horizontal installation

For flat roofs

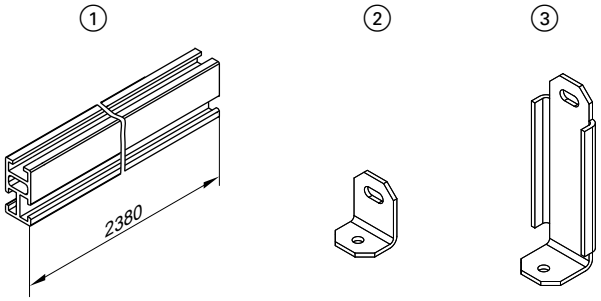


Fig. 71

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.

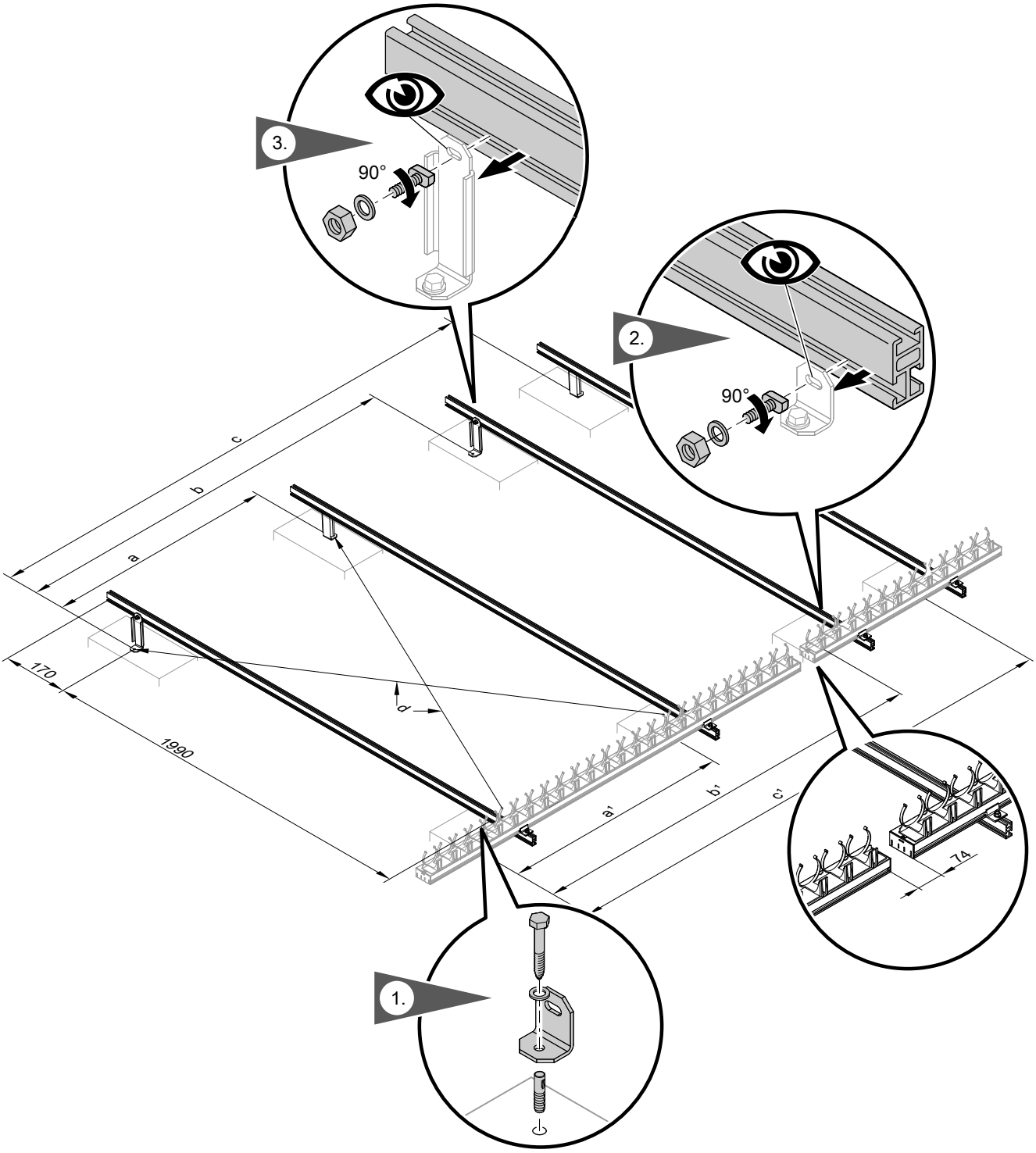


Fig. 72 Screws to be supplied on site.

Ⓐ Support slab A
Ⓑ Support slab B

5790785

Horizontal installation (cont.)

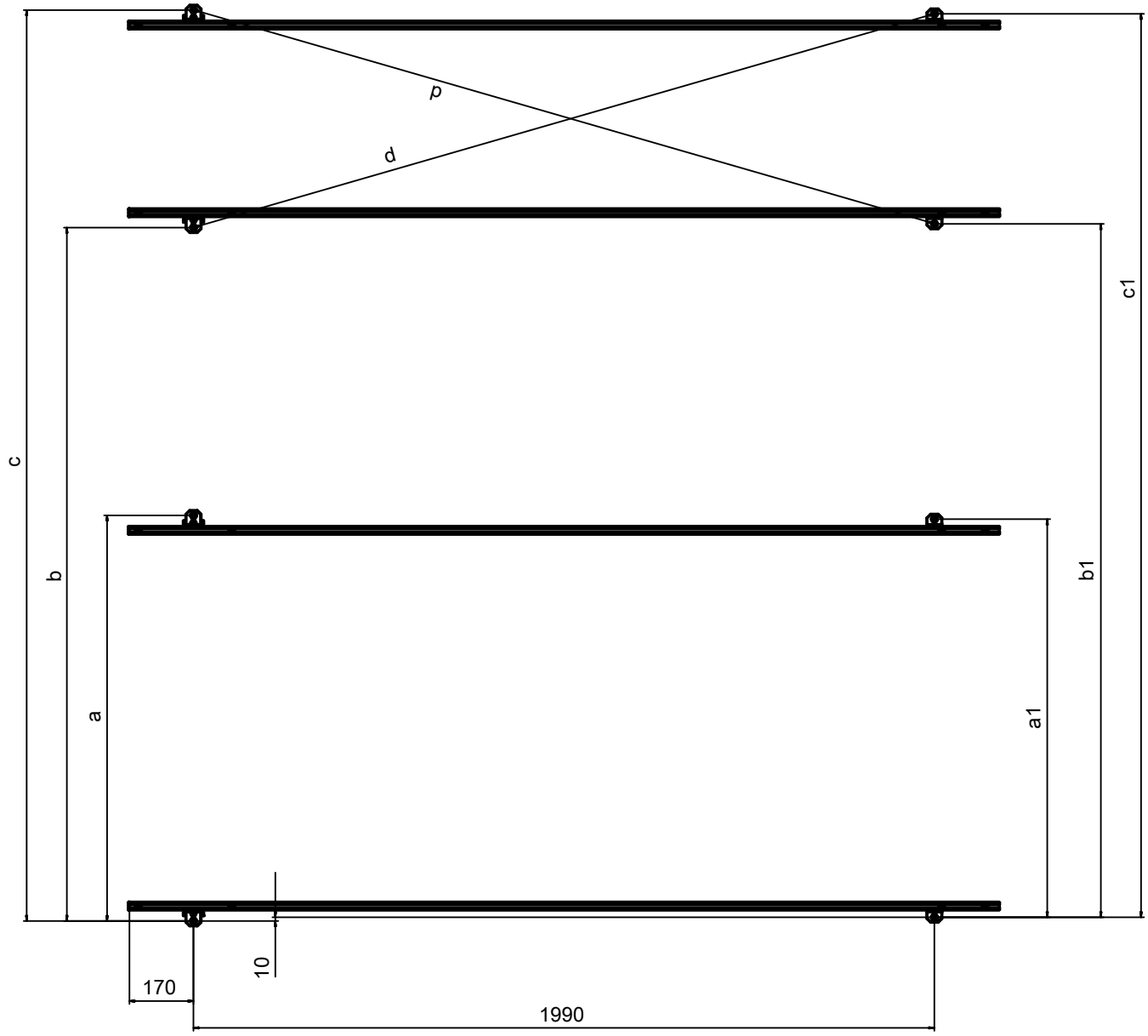


Fig. 73

Combination	a mm	a[1] mm	b mm	b[1] mm	c mm	c[1] mm	d mm
1.51 m²	585	565	—	—	—	—	2070
3.03 m²	1090	1070	—	—	—	—	2226
1.51 m²/1.51 m²	585	565	1105	1105	1690	1670	—
1.51 m²/3.03 m²	585	565	1355	1355	2445	2425	—
3.03 m²/1.51 m²	1090	1070	1860	1860	2445	2425	—
3.03 m²/3.03 m²	1090	1070	2115	2115	3200	3180	—

5790785

Horizontal installation (cont.)

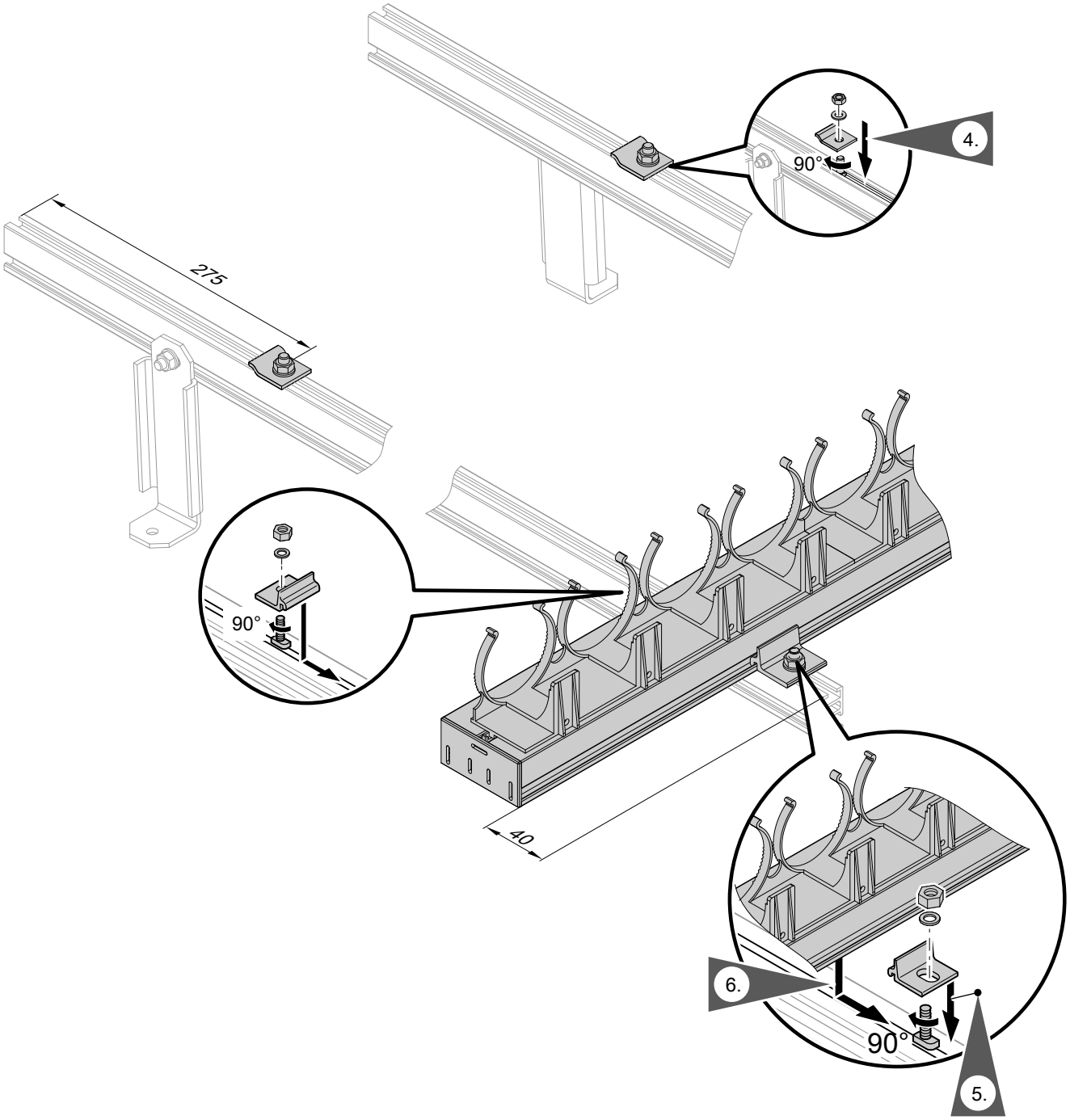


Fig. 74

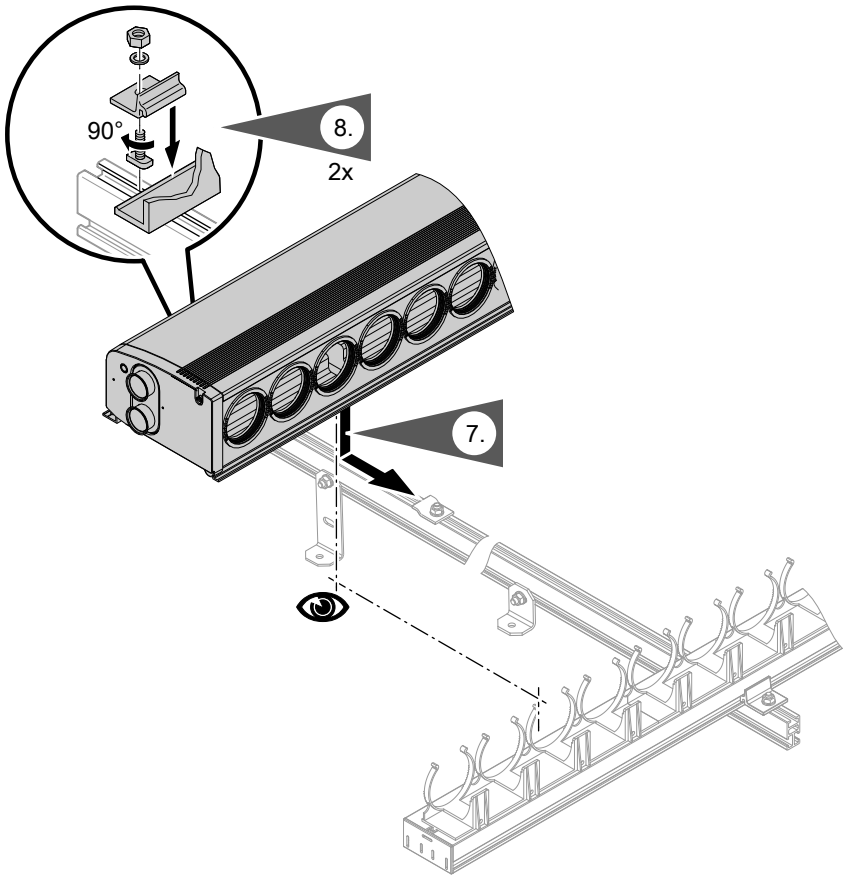


Fig. 75

Continue with chapter "Hydraulic connections" (see page 62).

Installation on walls

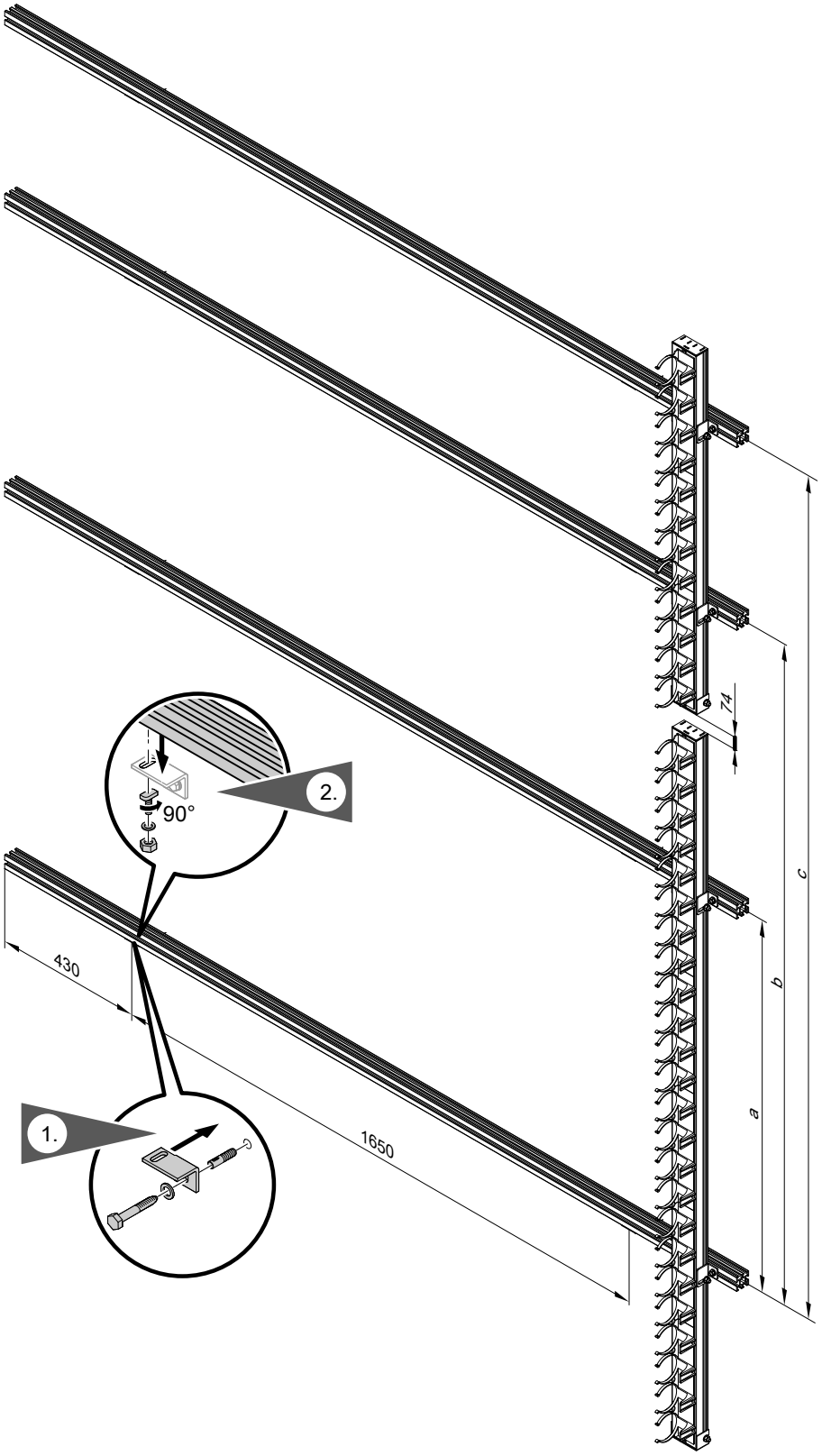


Fig. 76

Installation on walls (cont.)

Combination	a	mm	b	mm	c	mm
1.26 m²		440		935		1375
1.51 m²		525		—		—
3.03 m²		1070		—		—
1.51 m²/1.51 m²		525		1100		1630
1.51 m²/3.03 m²		525		1315		2385
3.03 m²/1.51 m²		1070		1900		2425
3.03 m²/3.03 m²		1070		2110		3180

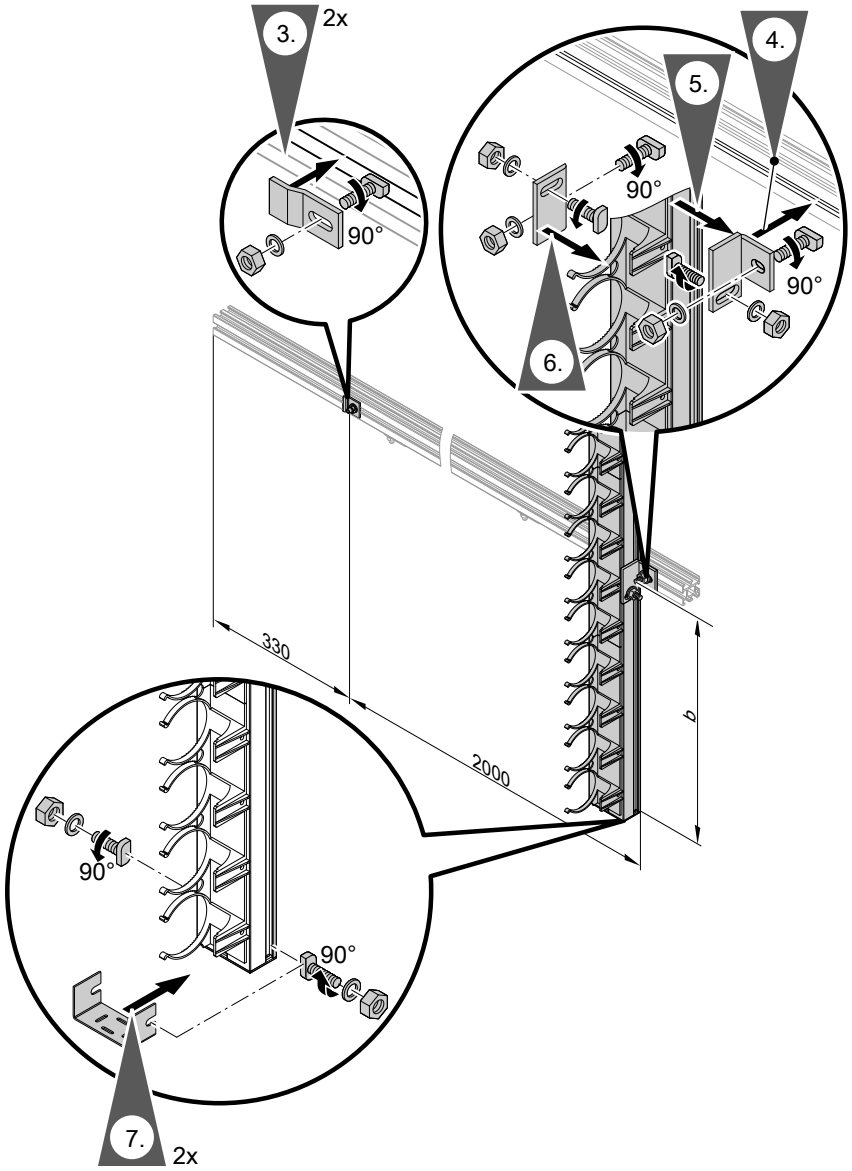


Fig. 77 For dimension b see the following diagram

Installation on walls (cont.)

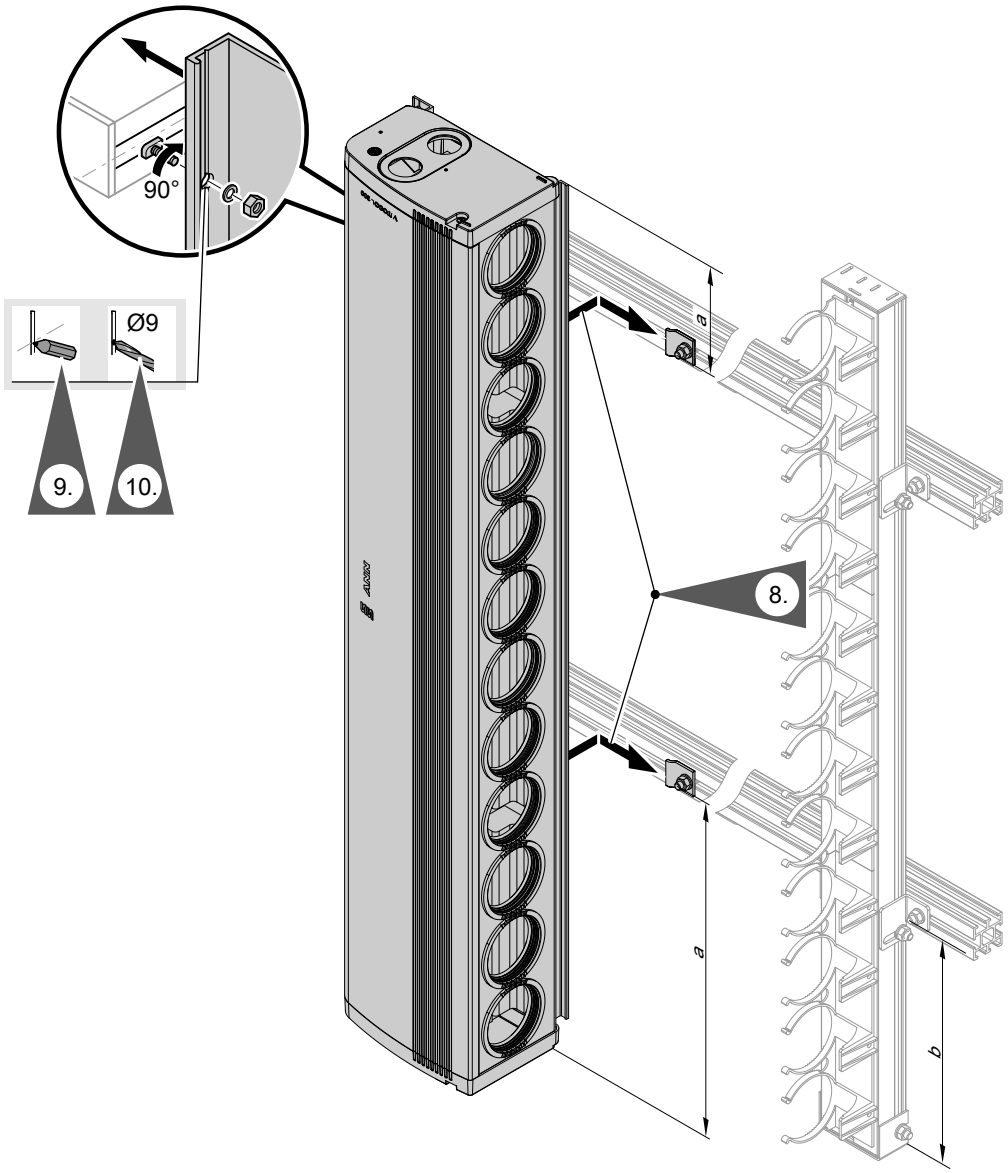


Fig. 78

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 m²	210	260
1.51 m²	215	265
3.03 m²	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 62).

5790785

Connecting the header casings

! **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.

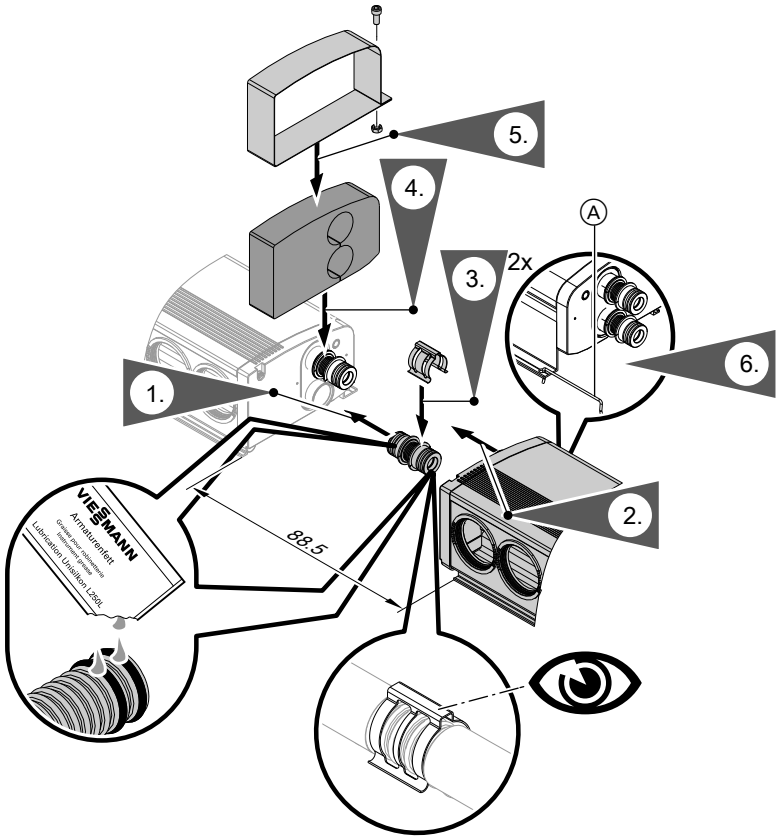


Fig. 79

Note on step 3:
Fit the spring clips straight.

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

5790785

Fitting the connection set

Components

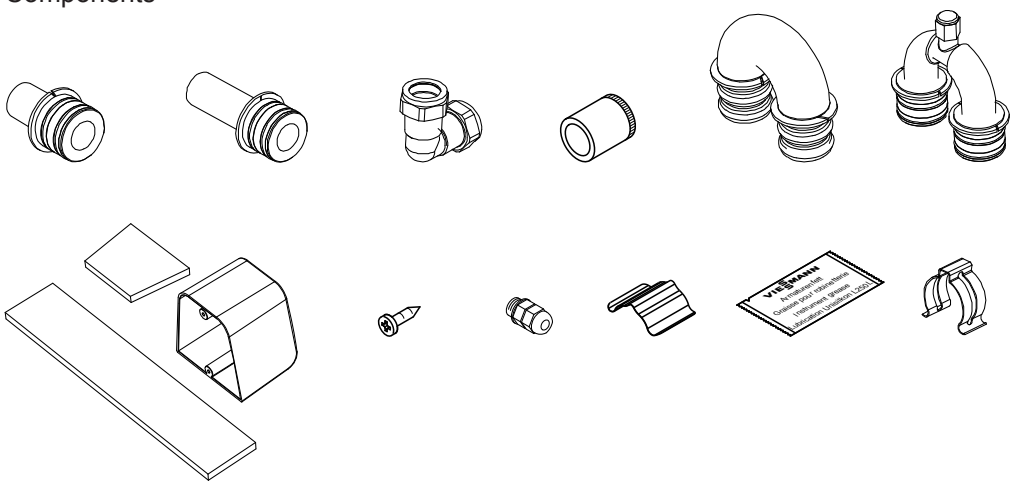


Fig. 80

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 ¾ turn.
- **Never** use annealed copper pipes with locking ring fittings.

Hydraulic connections (cont.)

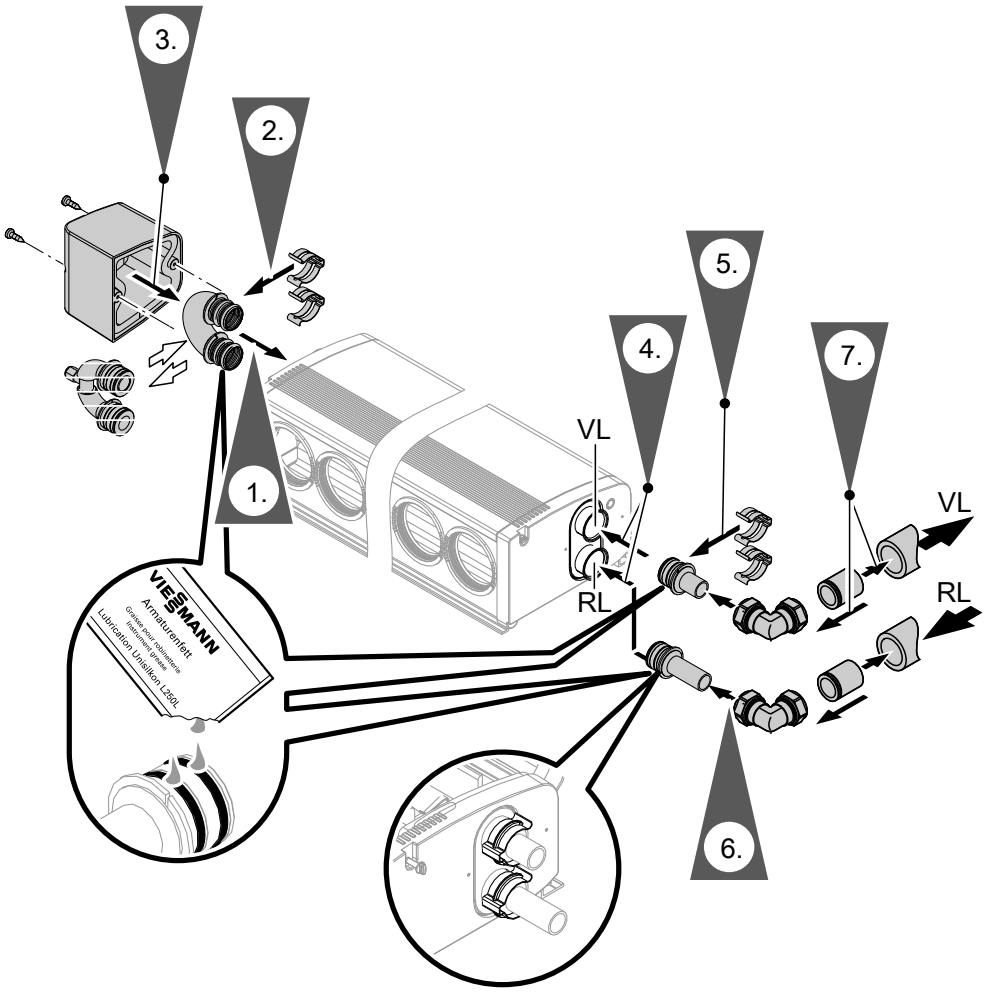


Fig. 81

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 65).

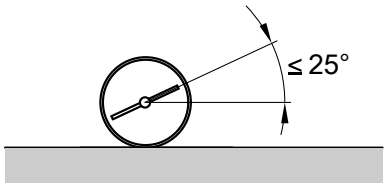


Fig. 82

Fitting the vacuum tubes (cont.)

! **Please note**
Never align (rotate) the vacuum tubes whilst they are locked into position.
This will damage the vacuum tubes.

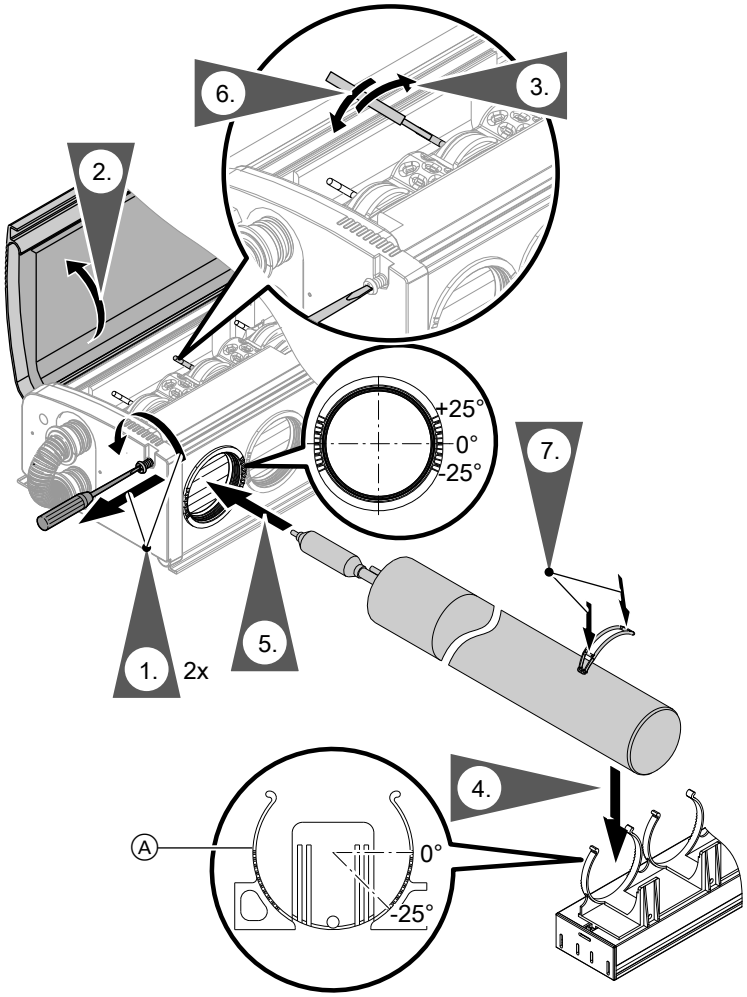


Fig. 83

Note on step 4:
Take care to ensure that tube holder brackets Ⓐ are ***not*** *damaged.*

Note on step 5:
If the vacuum tubes do not slide easily through the rubber seal, moisten the rubber seal with water.

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.

Fitting the collector temperature sensor (cont.)

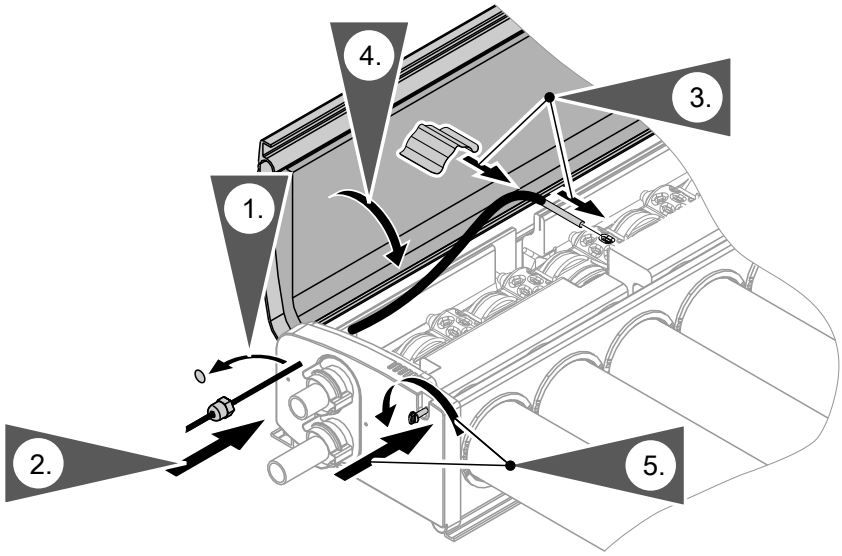


Fig. 84

! **Please note**
The collectors may be damaged if the solar thermal system is not filled with heat transfer medium immediately after installation.
Therefore, protect the collectors from insolation 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.
- 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

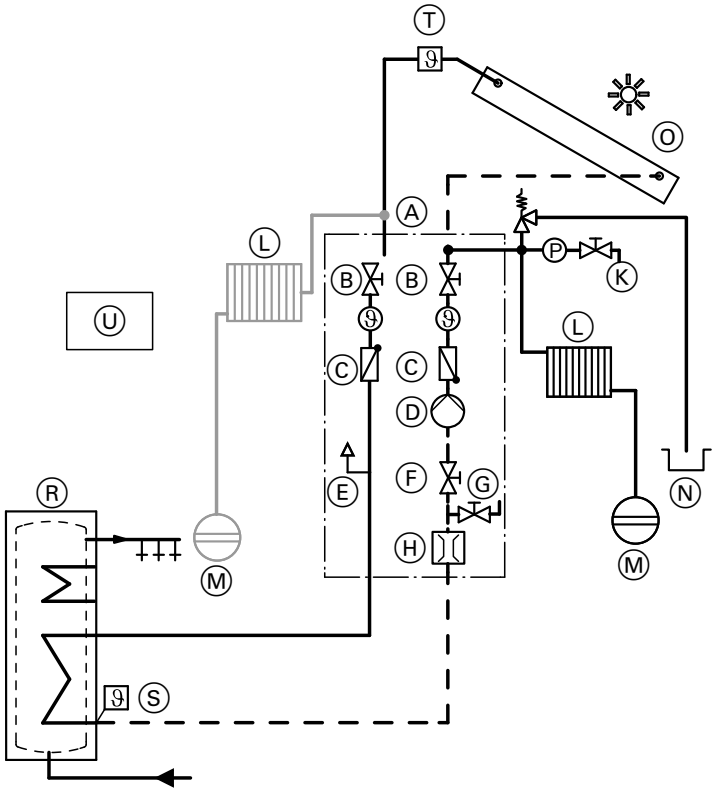


Fig. 85

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

Commissioning and adjustment

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

Viessmann Werke GmbH & Co. KG
D-35107 Allendorf
Telephone: +49 6452 70-0
Fax: +49 6452 70-2780
www.viessmann.com

Viessmann Limited
Hortonwood 30, Telford
Shropshire, TF1 7YP, GB
Telephone: +44 1952 675000
Fax: +44 1952 675040
E-mail: info-uk@viessmann.com