



## Pellet boiler **octo**<sup>plus</sup>

Installation manual for qualified personnel

Read carefully before operating.

DR-6019-EN / v29-202207

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## 1 About this manual

The language of the original manual is German. Versions of this manual in all other languages are translations of the original.

### Function of the manual

The manual is a constituent part of the product and enables safe and efficient handling of the product. Compliance with all the safety instructions specified is a basic prerequisite for safe working.

### Storing the manual

Keep the manual for the entire life of the product. You must pass the manual on to the new owner when the product is dismantled and reused. If the manual is lost or destroyed, request a copy from the manufacturer.

### Symbols and labelling

- Precondition for an action
- ▶ Instruction
- ↪ Result of an action

### Numbering of figures

The numbering can be found below the figures, for example: Fig. 6-3

6-3 stands for the unique identification of the figure and is used in the text if the figure is referenced. The number 6 stands for the main section of the manual where the figure can be found, the number 3 for the serial number of the figure within the main section of the manual.

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## 2 Safety information

### Qualification of personnel

- The work procedures described in this manual must only be carried out by qualified specialist personnel.
- Work on electrical components must be performed by trained electricians and in accordance with the relevant laws and directives.

### Installation and commissioning

- System may only be installed and brought into operation by certified qualified personnel (SOLAR-FOCUS service technician or SOLARFOCUS service partner).

### Keep unauthorized persons and children away

- Danger of burns due to hot lines and hot components, risk of injury from mechanically moving parts. Keep unauthorised persons away, do not leave children unattended, and control access to the boiler room and fuel storage room.

### Safety equipment

- Never disengage the safety equipment of the heating system. In case of failure, arrange for immediate repair.

### Maintenance and repair

- Perform maintenance activities at the specified intervals. No or incorrect maintenance leads to inefficient operation, higher failure risk of the boiler and increased potential for hazards.  
Recommendation: Conclude maintenance contract
- Have repairs done by qualified personnel only. Improper repairs can lead to risks for the user and impaired operation.
- Only store hot ashes in metal containers. Never put hot or warm ash in the dustbin. This poses a huge fire risk.
- For repairs use only original spare parts or parts approved by the manufacturer (e.g. standard parts).

### Damage to the system

- If the electrical insulation on cables, plugs or switches becomes damaged, switch off the power supply and have the insulation repaired.
- In the event of visible damage (e.g. thermal deformation, mechanical damage), operation of the system must not be continued. The system may only be operated if it is in perfect technical condition.

## 3 Technical requirements

### 3.1 Warranty, guarantee, liability

Guarantee claims can be made in accordance with a boiler maintenance agreement.

#### 3.1.1 Technical requirements for warranty and guarantee claims

The following technical requirements must be observed as a precondition for a warranty and guarantee claim.

#### Regular maintenance and cleaning

- The boiler and the heating system components must be maintained and checked regularly.
- This is the prerequisite for the following:
  - Long-term reliability of the boiler function
  - Energy-saving and environmentally friendly operation of the boiler
  - Long service life of the boiler
- Option/recommendation: Conclude maintenance contract.
- *Documentation is crucial:* When maintenance is performed by qualified personnel, the activities carried out/measures taken are documented in the maintenance log. It is advisable to keep a system book, especially when foregoing maintenance by qualified personnel (for documenting/as proof of one's own activities).

#### Fuel

- The fuel used must meet the specifications.
- Non-approved fuel may lead to inefficient combustion and cause damage to the boiler.

### Specifications for the heating system's fill-up/make-up water

- **Check pH value: this must be in the range of 8.2 to 9.5**
- Avoiding scale buildup (=limescale on heat exchanger surfaces):
  - Take the water hardness into account
  - Soften the fill-up water, or better: desalinate it.
- Avoiding water-side corrosion (is triggered by the oxygen in the water):
  - Correct system planning, correct dimensioning, take material combinations into account.
  - Repair leaks immediately.
  - Expansion tank (prevents air suction when the system cools down): Correctly set the pressure, check it regularly.
  - Existing underfloor heating: Take care with old, diffusion-open plastic pipes.

### Return temperature in the boiler

- A temperature below the dew point (leads to corrosion in the boiler) must be prevented by a sufficiently high return temperature in the boiler.
- Due to the integrated design of the **octo<sup>plus</sup>**, return flow boosting is not required.

### Supply air to the heating boiler

- The supply air in the boiler must not contain any aggressive substances. These substances can cause corrosion in the boiler and chimney.
- Aggressive substances are, for example, chlorine or fluorine compounds (used in cleaning agents, solvents, adhesives, etc.).

### 3.1.2 Conditions for claims

For warranty and guarantee claims observe the following points:

- The warranty begins at the time at the time of handover (delivery note, commissioning log).
- The warranty period is calculated from the date of initial commissioning (according to the control's operating hour counter).
- The warranty periods are based on the relevant regulations.
- We must be notified promptly and accurately of any damage incurred, so that the cause can be clarified.
- If the system has defects despite correct installation (in compliance with the technical documentation), we grant a warranty provided that the system has been examined by the plant customer service (commissioning log).
- The guarantee applies to technical, construction-related faults and faults in the manufacture of the system that prevent correct and problem-free usage.
- We are not liable for parts that were not produced by SOLARFOCUS. However, we are prepared to transfer our existing claims against the producer (relating to this defect) to the buyer.

- In fulfilling the warranty/guarantee services, we shall cover only the assembly time and the materials used, but not any travel or accommodation costs necessary for the fitters/engineers or any return transport costs.
- SOLARFOCUS GmbH assumes no liability for any consequential costs of damages.
- The repair and/or warranty replacement shall be carried out on site or in the SOLARFOCUS factory at our discretion.
- SOLARFOCUS will determine whether such work requires a repair or whether the parts are to be replaced free of charge.

### 3.1.3 Claims rendered void

The warranty and guarantee claims are rendered void if one of the following points applies:

- Non-compliance with the technical requirements → 3
- Damage during transport.
- Wilful damage.
- Damage due to force majeure (water, fire, etc.).
- Non-observance of information in the planning, installation and operation manual.
- Insufficient energy or water, fault in the hydraulics.
- Incorrect operation, failure to perform maintenance and cleaning as prescribed.
- Commissioning and maintenance carried out by non-certified companies.
- Undocumented commissioning (no commissioning log) and/or maintenance (maintenance log).
- It is almost impossible to produce flawless painted parts; for this reason, slight defects that do not adversely affect proper use shall not be deemed as grounds for complaint.
- No claims can be accepted under the warranty if unauthorised intervention (or action that has not been explicitly approved by us the manufacturer) has been carried out. In addition, the goods must be paid for within the specified payment timeframe.

### 3.1.4 Limitation of liability

SOLARFOCUS GmbH accepts no liability for injury and material damage resulting from:

- Failure to observe the instructions in this manual.
- Use of the product for any purpose other than for its intended use.
- Employment of unqualified personnel.
- Use of non-approved spare parts.
- Technical modification of the product by the system operator.

### 3.2 Standards, guidelines, regulations

The following bodies of regulations must be considered and adhered to during planning, installation and operation of the heating system:  
und eingehalten werden:

#### Standards for heating systems

- **EN 303-5** - Part 5: Heating boilers for solid fuels, manually and automatically stoked, nominal heat output of up to 500 kW
- **EN 12828** - Heating systems in buildings - Design for water-based heating systems
- **EN 13384-1** - Chimneys - Thermal and fluid dynamic calculation methods - Part 1: Chimneys serving one combustion appliance
- **ÖNORM H 5151** - Planning of central hot water heating systems with or without hot water preparation - Part 1: Building with a specific transmission conductance value above  $0.5 \text{ W}/(\text{K}\cdot\text{m}^2)$
- **ÖNORM 7510-1** - Checking of heating systems - Part 1: General requirements and inspection - national supplement to ÖNORM EN 15378
- **ÖNORM 7510-4** - Checking of heating systems, Part 4: Simple testing of combustion systems for solid fuels

#### Standards for structural setup and safety devices

- **TRVB 118 H** - Technical guidelines for preventative fire protection (Austria)
- **ÖNORM H 5170** - Heating systems - requirements for construction and safety technology as well as for fire prevention and environmental protection
- **ÖNORM M 7137** - Compressed wood in natural state - Wood pellets - Requirements for storage of pellets at the ultimate consumer

#### Standards for fuel

- **EN ISO 17225-2** - Solid biofuels - Fuel specifications and classes; Part 2: Graded wood pellets
- **1. BImSchV** - Federal Immission Control Ordinance - ordinance on small and medium solid-fuel combustion systems (Germany)

#### Standards for heating water

- **ÖNORM H 5195-1** - Heat transfer media for building services systems, Part 1: Preventing damage from corrosion and scale formation in closed hot water heating systems (Austria)
- **VDI 2035** - Prevention of damage in hot water heating systems (Germany)
- **SWKI BT 102-01** - Water quality for building systems (Switzerland)
- **UNI 8065** (Italy)

### 3.3 Installation room

#### Structural specifications

- The boiler may only be installed in a dry, frost-free room; the permissible room temperature is 5 to 30°C.
- The boiler may only be used on a non-combustible surface with sufficient load-bearing capacity.
- Observe spacing to combustible materials (regional regulations).
- Note the installation dimensions to ensure sufficient space is provided (e.g. for service and maintenance work).
- For normative requirements, see ÖNORM H 5170 and directive TRVB 118 H.

#### Fire extinguishers



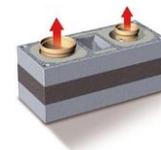
- *Austria:* A 6 kg ABC powder extinguisher is specified as the minimum requirement. Install it outside the boiler room in an easily visible and quickly accessible place.
- *Germany, Switzerland:* In private homes, no fire extinguisher is required for heating systems. However, having a fire extinguisher is recommended.

#### Keep escape routes clear



- The installation of fireplaces under staircases, on emergency exit routes and unconverted lofts is not permitted.

### 3.4 Chimney, flue gas pipe



#### Chimney cross-section and chimney height

The necessary cross-section depends on the nominal output of the heating system and the effective chimney height (at least 6.5 m). We recommend that you have the chimney calculations performed by qualified personnel.

#### Chimney execution

- The chimney must be resistant to moisture. Use fire brick or stainless steel.
- The chimney must conduct away the flue gases reliably at all times.

#### Connect the chimney condensate drain to the sewage system

- Connect the condensate drain line of the chimney to the domestic sewage system (to drain condensate, rainwater).
- Use DN 25 diameter pipe, install trap.

### Provide each boiler with its own chimney

- The boiler and the chimney must be coordinated. This is the only way to ensure the proper functioning of the heating system and the correct discharge of the flue gases.
- If there is only one chimney available for two boilers, there is a risk (considering the different operating states of the boilers - full load/partial load) of poor coordination. This can lead to problems (e.g. the flue gas has too little energy during the ascent, and does not lift off sufficiently from the chimney mouth, ...odour pollution by flue gases).
- Chimneys with just one device are more reliable and safer than chimneys with multiple devices.

### Do not connect a gas boiler and blower boiler to the same chimney

#### Do not connect a wood-burning stove and blower boiler to the same chimney

- A wood-burning stove typically requires a larger chimney diameter than the blower boiler.
- Acoustic disturbance from the blower boiler may be possible in the living room (by the wood-burning stove).
- Unnecessary risk due to gas leakage, e.g. if the blower boiler is defective.

### Execution of the flue gas pipe



- **Run the flue gas pipe towards the chimney in a short and rising direction, with as few changes of direction as possible.**
- Change direction in the form of aerodynamically favourable arcs, do not build kinks.
- The diameter of the flue gas pipe to the chimney may be enlarged if required, but may not be reduced.
- Place the inlet of the flue gas pipe in the chimney just below the ceiling.
- The flue gas pipe must be tight. Seal seal-less flue gas pipes on site with heat-resistant silicone.

### Insulate flue gas pipe

- Insulate the flue gas pipe continuously from the boiler to the chimney.
- Recommended insulation thickness: 50 mm rock-wool.
- Serves to prevent temperature loss and prevents the consequential formation of condensation.

### Cleaning opening in the flue gas pipe

- To clean the flue gas pipe (e.g. removal of accumulated flue ash) there must be an easily accessible cleaning opening.
- Recommendation: Coordinate the number and placement of the cleaning openings with the chimney sweep.

### Opening for emissions measurement in the flue gas pipe

Make an opening (hole) in the flue gas pipe to perform the prescribed emission measurement → 34

### Minimum draught requirement for boiler: 5 Pa

A draught stabiliser must be fitted if the specified draught of 15 Pa is exceeded.

### Install explosion flap



Fig. 2-1: Explosion flap integrated into draught stabiliser

- i** Before longer horizontal pipe sections ( $L > 20 \times D$ ) and at the high point before dropping down the flue gas pipe, an explosion flap must be installed, independent of the boiler output.

In the case of boiler output  $< 50$  kW, no explosion flap is required (in the case of a short and rising flue gas pipe to the chimney).

## 3.5 Supply air in the installation room

The following applies for Austria (in accordance with H 5170):

- For the supply air,  $2 \text{ cm}^2$  per kW thermal output of the fuel, but allow at least  $200 \text{ cm}^2$  free cross-section. (Thermal output of fuel = boiler output / efficiency) For the exhaust air, allow at least  $180 \text{ cm}^2$  free cross-section up to  $100 \text{ kW}$  nominal heat and an additional  $1 \text{ cm}^2$  free cross-section for every further kW.

- i** Calculate at least a further 20% for wire mesh in the aeration cross-section.

The following applies for Germany (according to specimen firing ordinance):

- For heating appliances with a nominal output of up to  $35 \text{ kW}$ , a combustion air opening of at least  $150 \text{ cm}^2$  or  $2 \times 75 \text{ cm}^2$  routed directly into the open air must be provided.
- Alternatively, a door/window leading outside and a room content of at least  $4 \text{ m}^3/\text{kW}$  nominal heat output are suitable. If the installation room does not abut onto an outside wall, combustion air supply via connecting rooms is possible. Here, the combustion air is supplied via a sufficiently dimensioned adjacent room which abuts onto an outside wall.
- From  $35$  to  $50 \text{ kW}$ , provide a free aeration cross-section of at least  $150 \text{ cm}^2$ . From  $50 \text{ kW}$  upwards, for aeration and ventilation, provide a minimum free cross-section of  $150 \text{ cm}^2$  for each, plus  $2 \text{ cm}^2$  per kW in excess of  $50 \text{ kW}$ .

**i** Calculate at least a further 20 % for wire mesh in the aeration cross-section.

Boiler output [in kW]	Minimum area [in cm <sup>2</sup> ] incl. 20%			
	Austria		Germany	Switzerland
	Supply	Ex- haust	Supply air/Ex- haust air	Supply air
20 kW	>240	>216	>180	>206
25 kW			>180	>258
35 kW			>180	>361
50 kW			>228	>515
70 kW			>228	>721
90 kW			>276	>927
130 kW	>347	>252	>372	>1339
200 kW	>533	>336	>540	>2060
400 kW	>1067	>576	>1020	>4120

### 3.6 Room sealed operation (RS)

**i** Room-sealed operation of the **octo<sup>plus</sup>** is optional.

#### Basic information

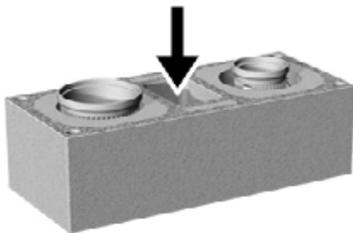
In conventional boiler installation rooms, the necessary supply air openings from outdoors lead to uncontrolled heat loss. This is prevented by room-sealed (RS) boilers, as the combustion air is drawn in from outside in closed supply air lines directly into the boiler and not in the installation room.

#### Length of the supply line

The standard intake line has a diameter of Ø80 mm and is 1 m long (can be extended to a maximum of 3 m). To extend the line further (an additional length of 8 m is possible), the diameter must be increased to Ø100 mm.

#### RS line integrated in chimney

The recommended variant: The intake air is taken in from outside of the chimney pipe down to the boiler.



#### RS line outside of the chimney

- Fire-rated insulation with rockwool required if the RS line passes through other rooms.
- Cold insulation of the RS line within building elements (wall, floor, etc.) required to avoid damage to the building from condensate.
- Further information: standard EN 15287-2

► Establishing the room-sealed connection → 33

### 3.7 Heating system fill-up water

In regard to the fill-up water quality, two key points must be observed (in accordance with Guideline VDI 2035):

- Avoiding scale buildup (limescale)
- Avoiding water-side corrosion (caused by oxygen in the heating water)

The lowest possible corrosion acceleration rate of the installed metallic materials is achieved by keeping the circulation water in the correct pH range (8.2 to 9.5) and, at the same time, having the lowest level of electrical conductivity possible (50 to 100 µS/cm).

#### 3.7.1 Avoiding scale buildup

##### What is scale buildup?

Scale buildup is the formation of firmly adhering deposits on water-contacting walls of hot water heating systems (e.g. the boiler heat exchanger surfaces). This can subsequently lead to damage (stress cracks in metal, leaks).

##### Causes of scale buildup

The cause of scaling is the presence of limestone in the water.

The following calculation/table determines the total permitted hardness of the fill-up water. If the value is exceeded, the fill-up water must be treated, e.g. softened.

##### Calculation of the total permitted hardness of the fill-up water

To use the table, the *specific system volume* for the system must be determined:

*System volume divided by total heat output results in the specific system volume*

1166 litres / 25 kW = **46.64 l/kW specific system volume**

Table: Total permitted hardness of the fill-up water

Total heat output	Specific system volume (VDI 2035)		
	< 20 l/kW	≥ 20 < 50 l/kW	≥ 50
< 50 kW	≤ 16.8°dH	≤ 11.2°dH	< 0.11°dH
50 - 200 kW	≤ 11.2°dH	≤ 8.4°dH	< 0.11°dH
20 - 600 kW	≤ 8.4°dH	< 0.11°dH	< 0.11°dH
> 600 kW	< 0.11°dH	< 0.11°dH	< 0.11°dH

In our example: if the total hardness of the fill-up water is more than 11.2 dH, then the fill-up water must be treated.

#### 3.7.2 Avoiding water-side corrosion

Corrosion is usually triggered by the available oxygen in the water. This value can be brought into a safe range with proper planning, design, installation

and maintenance of the heating system. A constant input of oxygen should be avoided.

Important in this regard:

- Expansion tank (ADG): Air must be prevented from being drawn in when the heating system is cooling down. Ensure:
  - Correct planning and implementation of the expansion tank.
  - Regular check of the system pressure, expansion tank pre-pressure.
- Immediate repair of leaks in the heating system.
- In the case of older underfloor heating, ensure pipes are diffusion resistant.

#### Check the pH of the fill-up water

- **The pH value must be between 8.2 and 9.5.**
- If this pH value does not self adjust after a week of operation, it must be raised by adding 10 g/m<sup>3</sup> trisodium phosphate (Na<sub>3</sub>PO<sub>4</sub>) or 5 g/m<sup>3</sup> sodium hydroxide (NaOH). Allow 2 to 4 weeks of operation before further corrections.
- Exception: If aluminium materials are used in the heating system, a pH from 8.2 to 8.5 must be met (pH > 8.5 increased corrosion tendency).

#### Electrical conductivity

The probability of corrosion usually decreases with decreasing electrical conductivity of the heating water.

**Low salt operation - filling with demineralised water**, see VDI 2035 sheet 2.

- ▶ Electrical conductivity at 25°C < 100 µS/cm

In the case of low-salt operation, feeding with non-demineralised water can have a significant effect on the pH value and push it into a critical range.

- ▶ Check the pH value regularly.

### 3.8 Information about the hydraulic connection

#### Return flow boosting (RFB)

- Functioning: If cold heating water (temperature < 55°C) flows from the heating circuit or the buffer tank into the hot boiler, the steam contained in the flue gas condenses on the "cool" boiler heat exchanger surfaces. In the long term this leads to corrosion and damage in the boiler. To avoid this, hot water from the boiler flow is added to the boiler return.
- Return booster modules with a motor-controlled mixer perform this task more accurately and reliably than thermally controlled modules.
- In addition, they allow the use of residual heat: If the boiler temperature rises again after the burner has stopped, then the charging pump starts, the mixer opens, and the residual heat from the boiler is transferred to the buffer tank.

 Due to the integrated design of the **octo<sup>plus</sup>**, return flow boosting is not required.

#### Provide shut-off options in the lines

- Position shut-off valves for each section (in buffer tank, etc.) in order to minimise the quantity of water that needs to be replaced in the event of repairs or system extensions (see: preventing the ingress of oxygen, heating system's fill-up/make-up water → 7).

#### Pressure equalisation through expansion tank

- The expansion tank prevents air from being drawn in when the system cools down (issue: oxygen input, heating system's fill-up water → 7)
- Dimension the expansion tank with a capacity of 12% of the total hydraulic system volume.
- Secure the expansion tank against shut-off. To do this, either use the shut-off options on the way to the expansion tank as cap valves, or unscrew the hand lever (handwheel) and attach it to the expansion tank with the wire in a clearly visible position.
- Installation of an expansion tank or a pressure maintenance system is essential. Use of open expansion tanks is not permitted.
- The pressure in the heating system (can be viewed on pressure gauge) and the set pre-pressure in the expansion tank must be checked regularly.

#### Caution with (older) diffusion-open plastic pipes, e.g. existing underfloor heating

- In the case of older underfloor heating, the diffusion-open plastic pipes can result in increased oxygen input in the heating system. This has a corrosion-inducing effect on the heating system components (see: *Avoiding water-side corrosion* → 7).
- In this case, the system must be separated (through installation of a heat exchanger).
- Newer plastic pipes (since around the mid 1980s) are diffusion resistant in line with DIN 4726.

#### Hydraulic switch

- A hydraulic switch separates the flows in the boiler and heating circuits.
- If the heating system is operated without a buffer tank, a hydraulic switch must be installed between flow and return.

## Installing the dirt and sludge trap



- The trap removes circulating, magnetic and non-magnetic free dirt and sludge particles (as of 5  $\mu\text{m}$ ) in fully-automatic continuous operation from the heating system.
- Ensures the long-term, correct functioning of heat generators, thermostatic valves, heat exchangers and lowers the risk of defects and malfunctions over the long-term.
- Helps ensure quality heating water, even in the case of existing systems, for example.

## 4 Product information

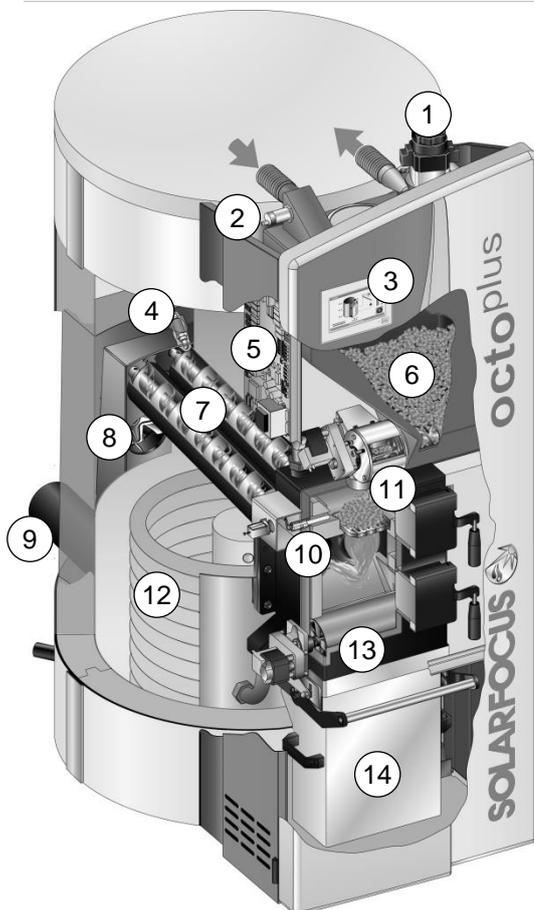
### 4.1 Scope of delivery

Pos.	Quantity	Designation
1	1	Ash container
2	1	Operating unit touch display → page 27, Fig. 5-37
3	1	Operation manual DR-6023
4	1	Transparent bag with 3 x corrugated hose connectors
5	1	Transparent bag with outside temperature sensor, boiler flow contact sensor
6	1	Transparent bag with temperature sensor, overtemperature reset OTR, flue gas temperature sensor, magnetic holder back plate
7	2	Stainless steel combustion grate
8	1	Feeder unit (including rotary valve) → page 19, Fig. 5-14
9	1	Electrical power element → page 22, Fig. 5-21
10	1	Flange gasket between burner unit and tank → page 15, Fig. 5-4
11	2	Threaded plug → page 22, Fig. 5-23
12	1	Cable duct L=1000 mm, incl. 4 x plasterboard dowels → page 22, Fig. 5-22

Pos.	Quantity	Designation
13	3	Adhesive mount cable tie → page 28, Fig. 5-39
14	6	Loose cable temperature sensor red, or with metal shield
15	1	Assembly instructions DR-6019
16	1	Leather glove
17	1	Frame parts kit
18	1	Suction turbine housing (including noise reduction) → page 30, Fig. 5-44
19	1	ID fan → page 23, Fig. 5-24
20		Fire clay bricks → page 15, Fig. 5-4
21	1	Screwdriver Torx20
22	1	Screw set
23	1	Tank insulation (two-piece jacket, cover, etc.) → page 18, Fig. 5-9
24	4	Adjustable feet → page 15, Fig. 5-3
25	1	Boiler door → page 27, Fig. 5-36
26		Various covers (sheet metal parts for cladding)

Not included in the scope of delivery: Solar pump set ♦ pellets hose ♦ flue gas pipe parts and connection materials

### 4.2 Sectional drawing



1	Suction turbine
2	Filling level sensor
3	Touch display
4	Lambda sensor
5	Electrical power element
6	Intermediate pellet store
7	Heat exchanger cleaning (auger)
8	ID fan
9	Flue gas pipe
10	Ignition device (glow pencil)
11	Feed auger with rotary valve
12	Solar coil
13	Ash roller
14	Ash container

### 4.3 Technical specifications

<b>octo<sup>plus</sup></b>		<b>15</b>	<b>15.5</b>	<b>22</b>
Output	[kW]	2.9 – 14.9	4.6 – 15.5	6.6 - 22
Energy efficiency class		A+	A+	A+
Boiler class (acc. to EN 305:5 2012)		5	5	5
Boiler efficiency - full load	[%]	93.1	92.4	91.7
Boiler efficiency - partial load	[%]	89.4	88.4	92.2
<b>Dimensions</b>				
Width	[cm]	88	97	97
Depth with fan	[cm]	146	159	159
Height	[cm]	188	188	188
Minimum room height	[cm]	201	201	201
Tank installation dimensions	[cm]	>75	>80	>80
Tilted height	[cm]	177	186	186
Tank diameter without insulation	[cm]	70	79	79
<b>Weight</b>				
Tank weight	[kg]	150	190	190
Total boiler weight (tank including attachments)	[kg]	348	377	377
<b>Water side</b>				
Tank volume	[l]	550	800	800
Max. permissible operating pressure	[bar]	3	3	3
Solar coil area	[m <sup>2</sup> ]	1.8	2.4	2.4
Solar coil content	[l]	11.9	15.9	15.9
<b>Fuel</b>				
Fuel		Wood pellets acc. to EN17225-2, ENplus-A1		
Capacity of intermediate pellet store	[l]	49	49	49
<b>Flue gas side</b>				
Flue gas pipe diameter	[cm]	13	13	13
Height to centre of flue gas pipe	[cm]	38	39	39
Flue gas mass flow full load	[g/s]	8.4	8.6	11
Flue gas mass flow partial load	[g/s]	2.5	2.6	3.8
Maximum flue gas temperature full load <sup>[1]</sup>	[°C]	140	140	140
Maximum flue gas temperature partial load <sup>[1]</sup>	[°C]	100	100	100
Minimum draught requirement <sup>[2]</sup>	[Pa]	5	5	5
<b>Emissions according to test report</b>				
Flue gas values <sup>[3]</sup> (based on 13% O <sub>2</sub> ) from test report: Test institute / test report no.		Austria /10-UWWels-EX-053-1	Austria /14-UWWels-EX-70	Austria /14-UWWels-EX-70
Date of the test report		21/06/2010	21/08/2015	10/09/2014
CO full load	[mg/m <sup>3</sup> ]	40	38	17
CO partial load	[mg/m <sup>3</sup> ]	165	161	125
NO <sub>x</sub> full load	[mg/m <sup>3</sup> ]	101	102	103
NO <sub>x</sub> partial load	[mg/m <sup>3</sup> ]	104	104	105
Org. C full load	[mg/m <sup>3</sup> ]	<1	2	3
Org. C partial load	[mg/m <sup>3</sup> ]	2.7	2.6	3
Dust content full load	[mg/m <sup>3</sup> ]	19	19	18
Dust content partial load	[mg/m <sup>3</sup> ]	15	15	20
<b>Regulation (EU) 2015/1187</b>				
Nominal heating output	[kW]	14.9	15.5	22
Energy efficiency class of the boiler		A+	A+	A+
Energy efficiency class EEI of boiler and control combined		A+	A+	A+
Energy efficiency index EEI of the boiler		114	114	119
Energy efficiency index EEI of the boiler and control combined		118	118	123

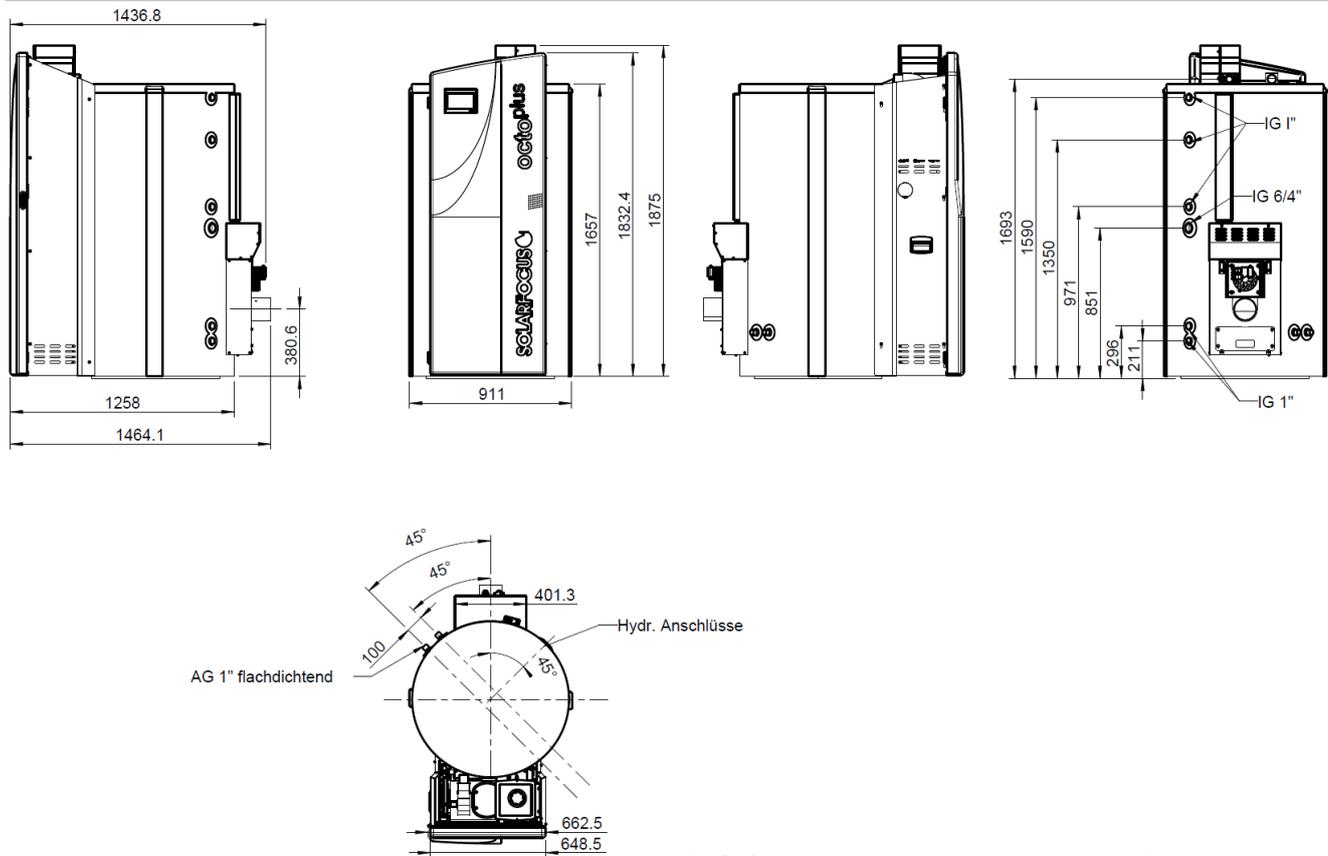
Space heating annual usage $\eta_s$		77	77	80
<b>Annual emission values</b>				
CO – carbon monoxide	[mg/m <sup>3</sup> ]	199	199	146
NOx – nitrogen oxide	[mg/m <sup>3</sup> ]	144	144	144
C – total (carbon)	[mg/m <sup>3</sup> ]	1	1	<3
Dust	[mg/m <sup>3</sup> ]	19	19	25

- [1] The maximum flue gas temperature can be adjusted electronically
- [2] A draught stabiliser must be fitted if the specified draught of 15 Pa is exceeded (attention: In the case of a boiler with room-sealed operation, use a room-sealed draught stabiliser)
- [3] Flue gas values in mg/m<sup>3</sup> are based on 13% O<sub>2</sub> of the volume flow

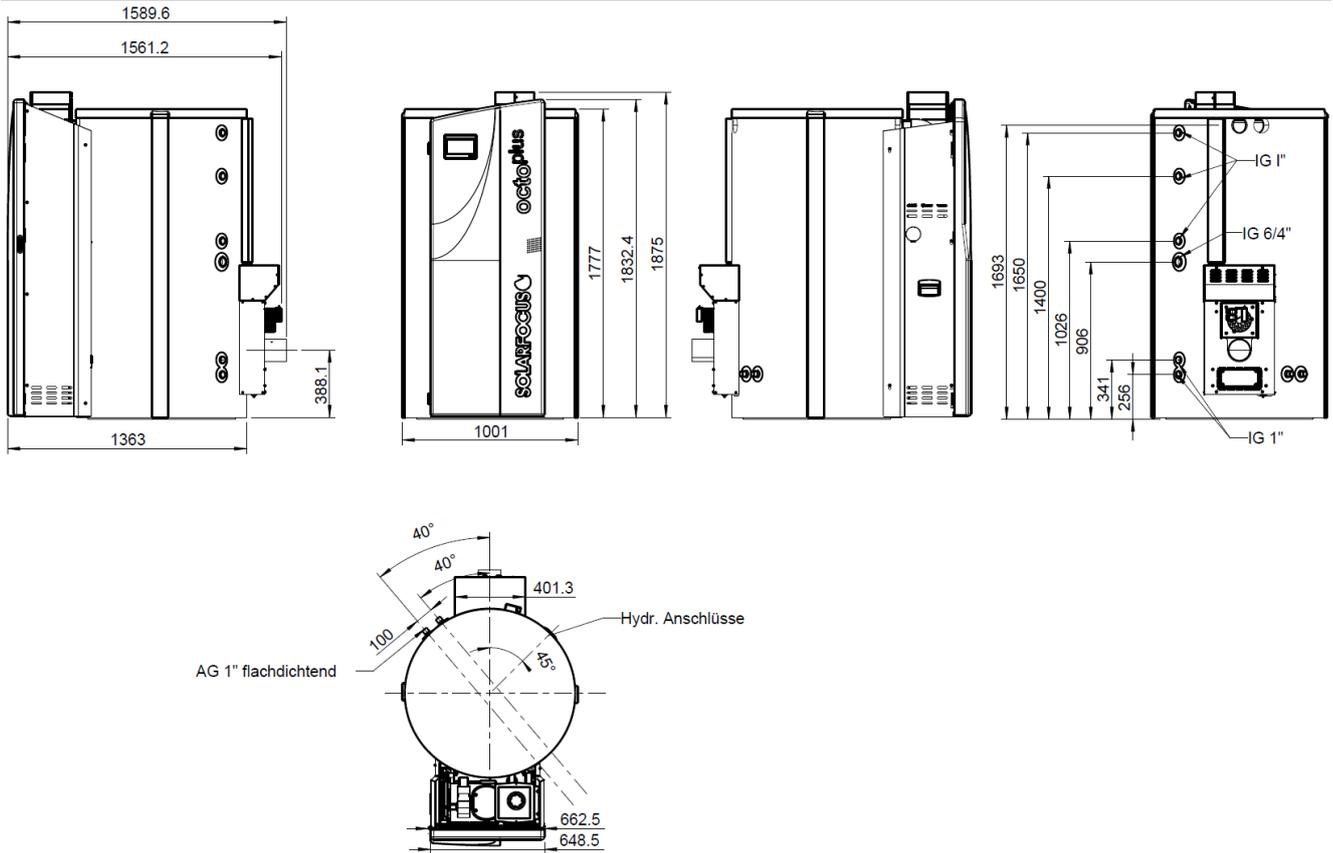
Thermal overload protection and return flow boosting are not required for the octoplus heating boilers.

### 4.4 Dimensions

#### octo<sup>plus</sup> 15

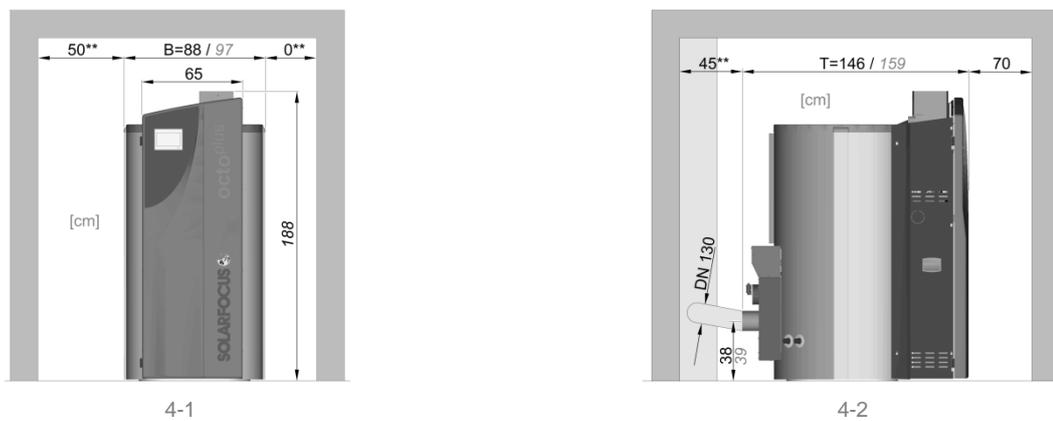


**octo<sup>plus</sup> 15.5, 22**



**4.5 Installation dimensions**

octo<sup>plus</sup> 15 / octo<sup>plus</sup> 15.5, 22



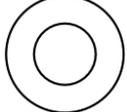
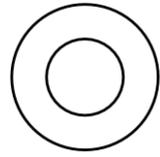
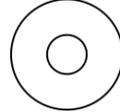
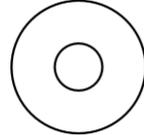
\*\* Access to the rear side of the boiler must be provided (at least 45 cm on the left or right).

\* When the solar pump assembly is fitted onto the octo<sup>plus</sup>, the distance to the wall must be made larger.

Minimum required room height: **201 cm** (valid for all octo<sup>plus</sup> sizes).

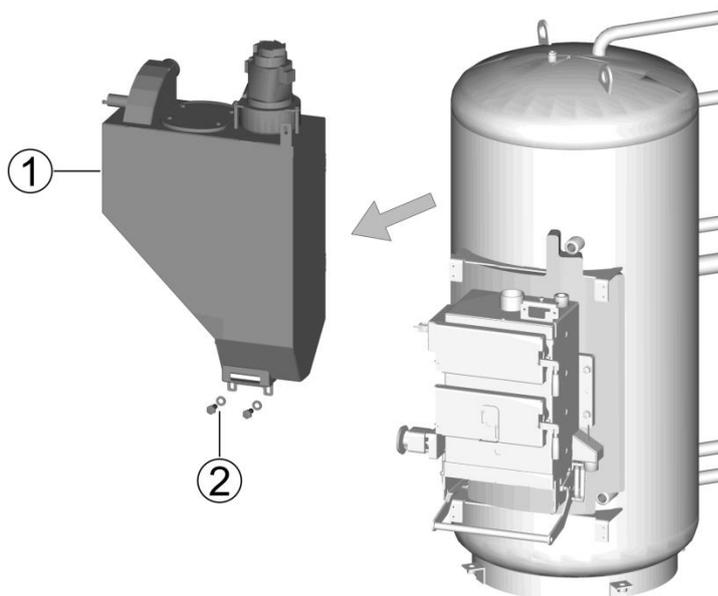
## 5 Installation

### 5.1 Washers used - overview

Designation	DIN125 A-8-VZ	DIN125 A-10-VZ	DIN9021-5-VZ	DIN9021-6-VZ	DIN 6798 Form A
interior diam. Ø (d)	8.4 mm	10.5 mm	5.3 mm	6.4 mm	4.3 mm
exterior diam. Ø (d2)	16 mm	20 mm	15 mm	18 mm	8 mm
					

### 5.2 Assemble the boiler

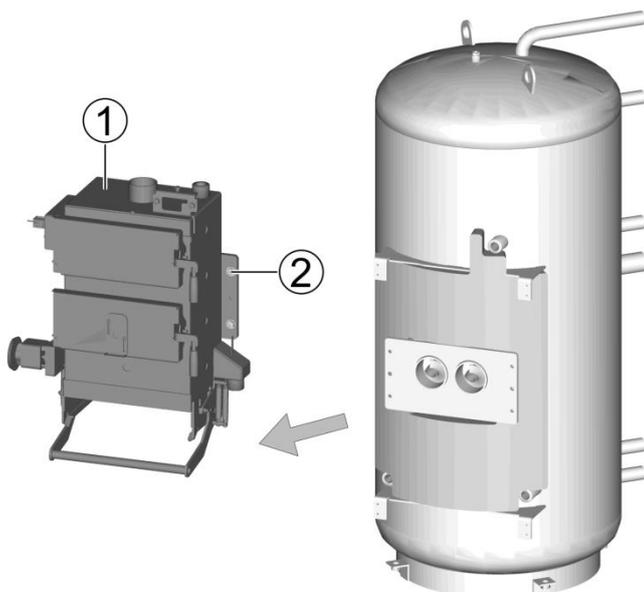
**i** Lay all cables (temperature sensor, motor, lambda sensor, ...) in such a way that they do not touch the tank raw body (where possible run above the insulation, or at a distance from the raw body).



#### Dismantling the intermediate pellet store

- Dismantle the intermediate pellet store **1** by loosening 2 x hex nuts and washers **2**.

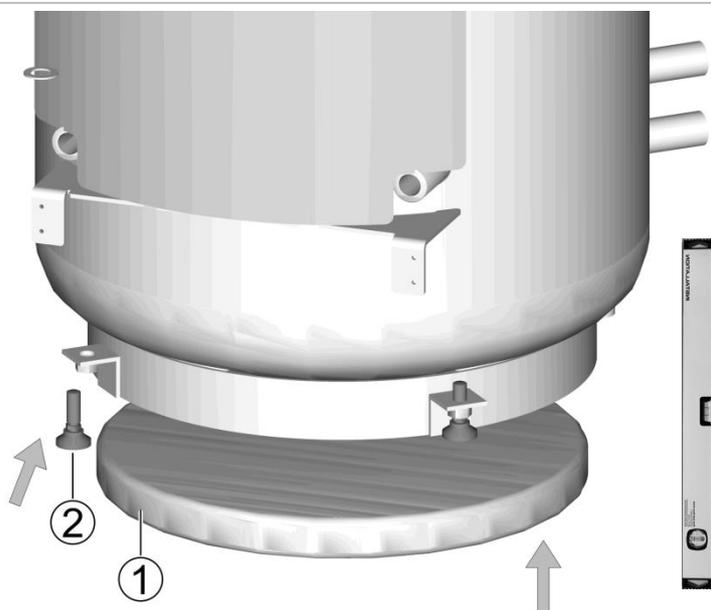
Fig. 5-1



**👤, Dismantling the burner**

- ▶ Dismantle the burner 1 by loosening 4 x hex nuts and washers 2.

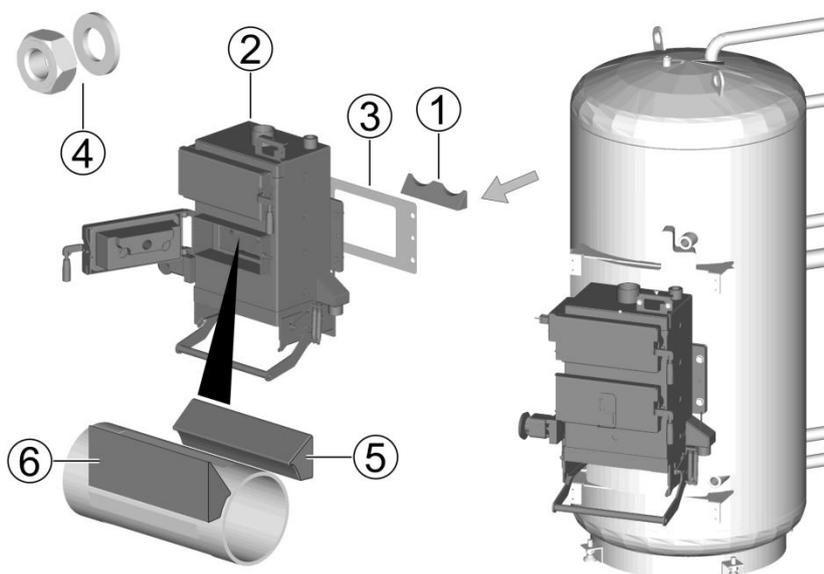
Fig. 5-2



**Screw in adjustable feet**

- ▶ Insert disk-shaped insulation 1 under the tank.
- ▶ Screw in 4 pcs adjustable feet 2 (SW24) and adjust tank level.

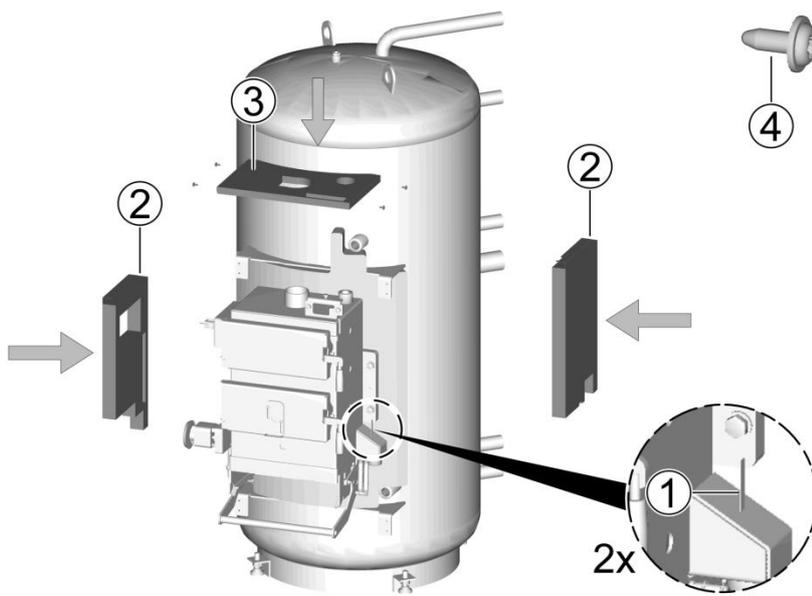
Fig. 5-3



**👤, Installing the burner**

- ▶ Position fire clay brick 1 into the back of the burner unit 2.
- ▶ Mount burner unit and flange gasket 3 onto the tank using 4 x hex nuts DIN934-VZ/M12 and washers DIN125A-12-VZ 4.
- ▶ Use fire clay bricks 5 and 6 (pay attention to different shapes)

Fig. 5-4



### Installing the burner cover

- ▶ Bend the tabs **1** in a vertical position on both sides of the burner unit.
- ▶ Mount left and right covers **2**, including insulation.
- ▶ Attach top cover **3** and secure with 4 x sheet metal screws M4x10 **4** to the side cladding.

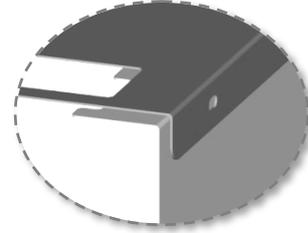
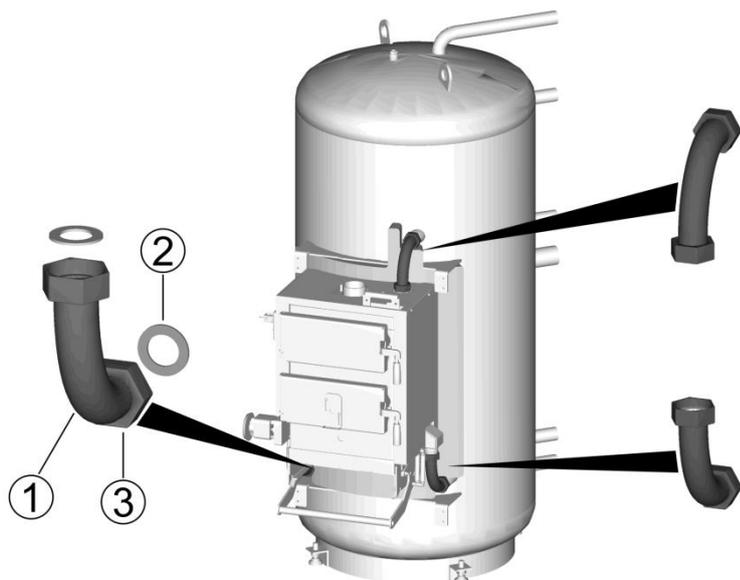


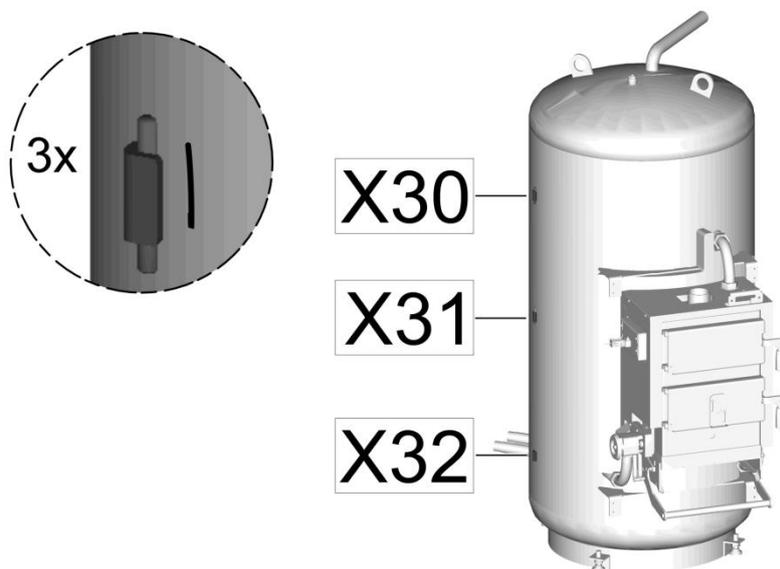
Fig. 5-5



**Installing the corrugated hose connectors**

- ▶ Mount 3 x piece corrugated hose connector 1 with gasket 2 and cap nut 3.

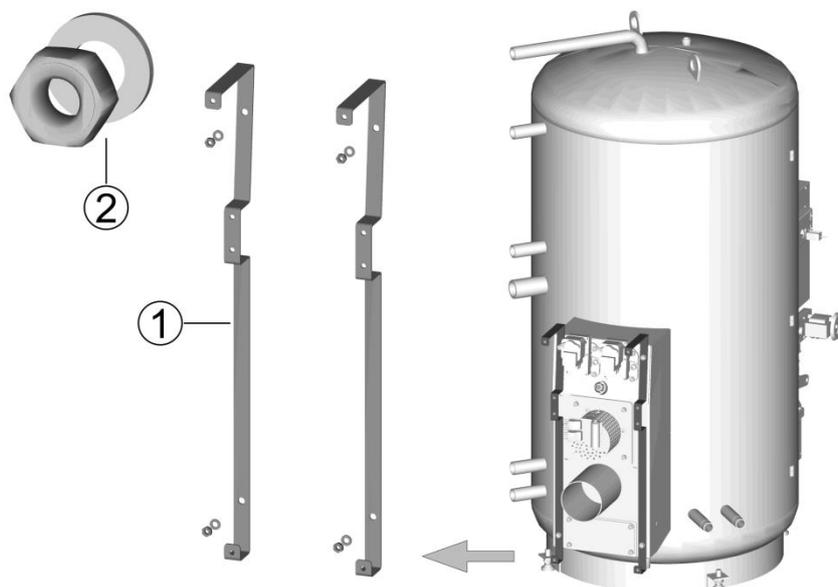
Fig. 5-6



**Mount tank temperature sensor bottom**

- ▶ Insert 3 pcs temperature sensors 4 into the bracket and secure with screw DIN7985-VZ/M4x10.
  - ▶ Lay cables for the sensors on the top of the tank.
- Top tank sensor, X30
  - Centre tank sensor, X31
  - Lower tank sensor, X32

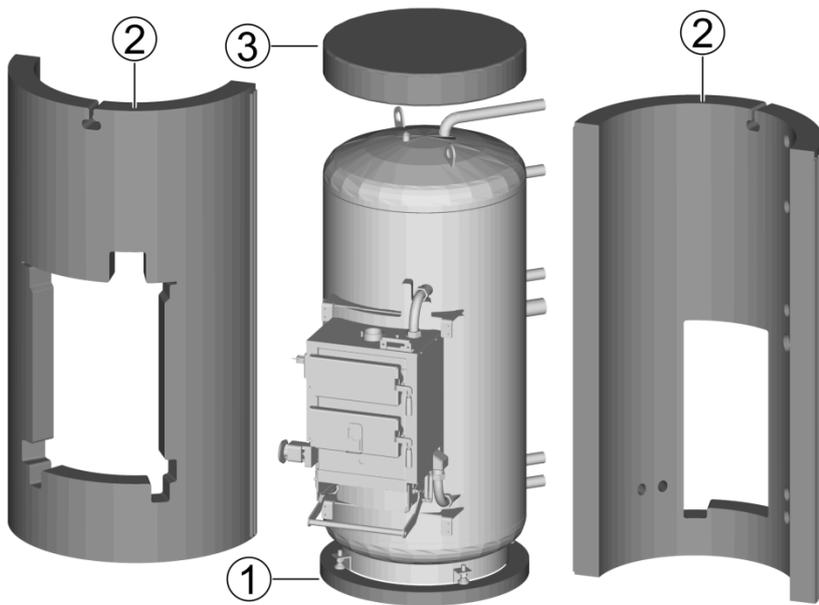
Fig. 5-7



**Dismantling retaining brackets**

- ▶ Loosen 4x hex nuts and washers 2 remove 2x retaining brackets 1.

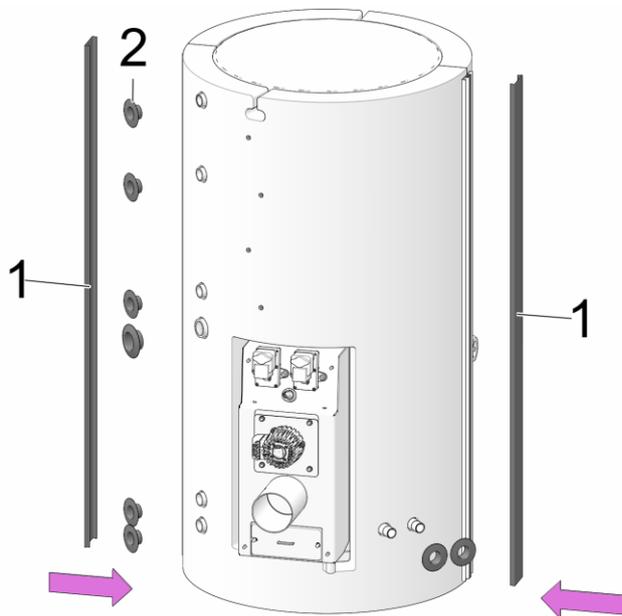
Fig. 5-8



**Mount tank insulation**

- ▶ Place insulation 1 outside of the tank base.
- ▶ Insert two-part disk-shaped insulation 2 around the tank.
- ▶ Fix insulation jacket sections by hooking the plastic strips to the tank.
- ▶ Install upper insulation 3

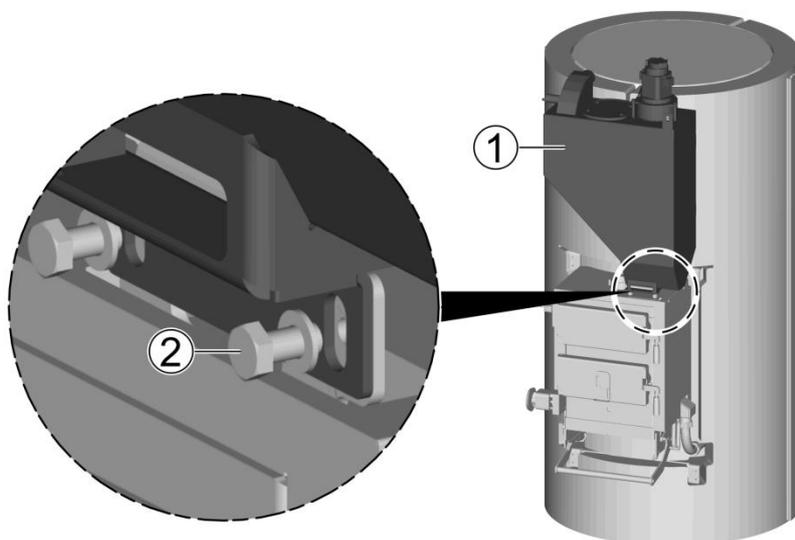
Fig. 5-9



**Mount cover strips and rosettes**

- ▶ Mount 2x cover strips 1 and 8x rosettes 2 on the tank.

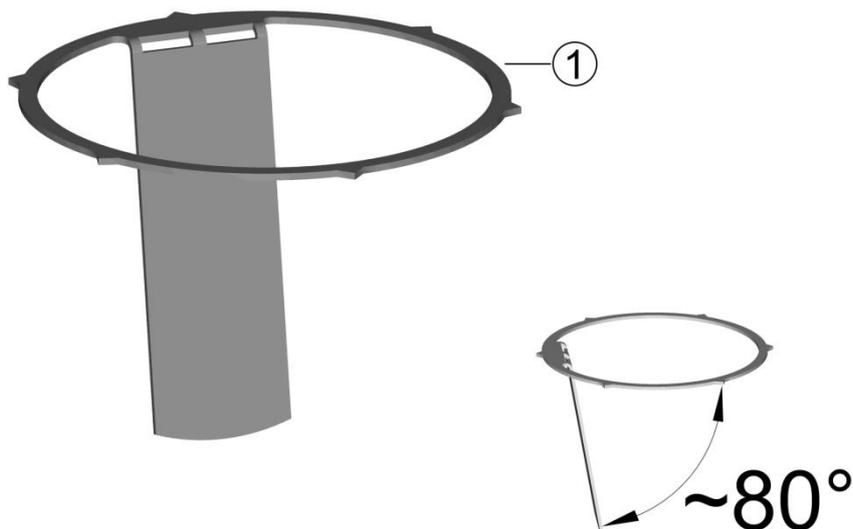
Fig. 5-10



**Installing the intermediate pellet store**

- ▶ Mount the intermediate pellet store 1 to the burner with 2 pcs hex bolts DIN933-VZ/M8x16 and washers DIN125A-8-VZ 2.

Fig. 5-11

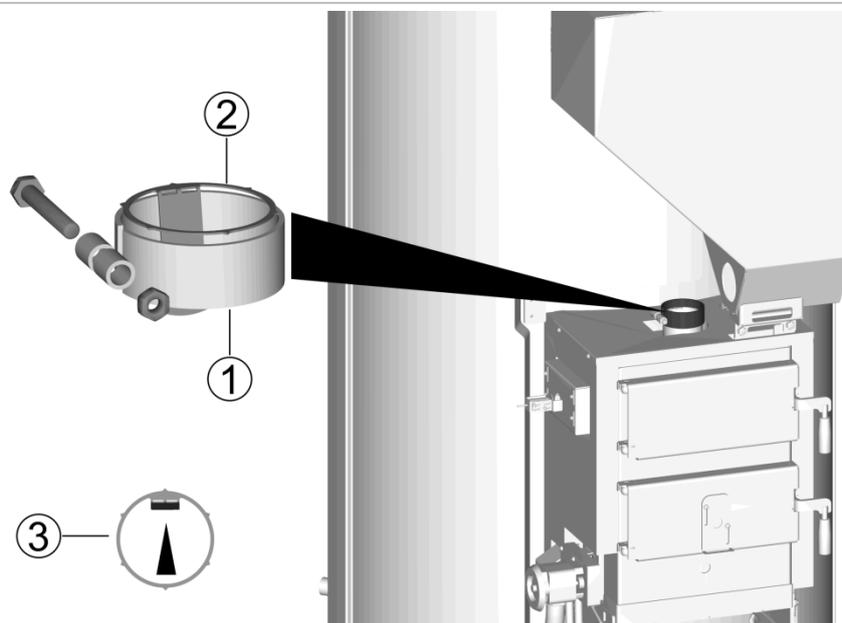


### Prepare downpipe insert

- ▶ Bend the finger of the downpipe insert **1** to an angle of  $\sim 80^\circ$ .

**i** Tip: use pliers.

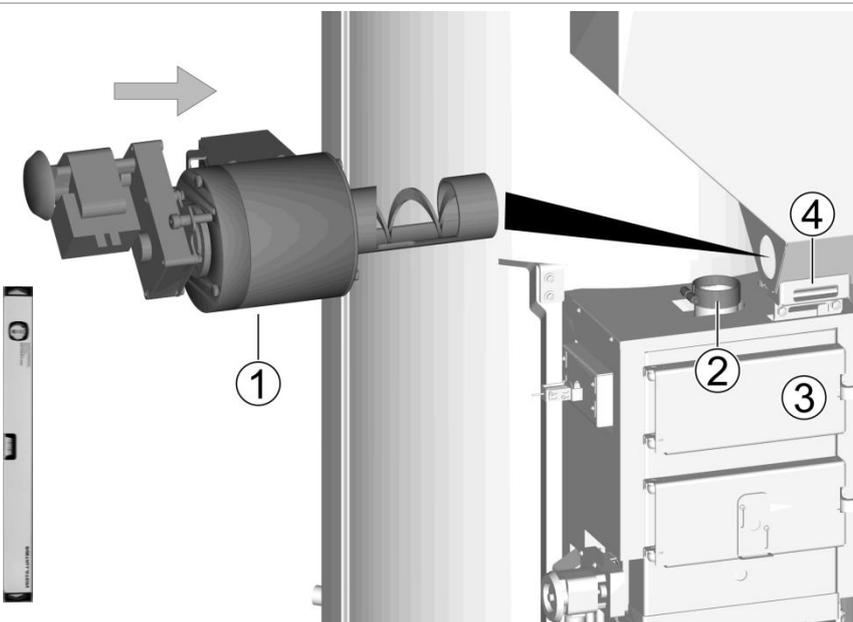
Fig. 5-12



### Install downpipe insert and pipe clamp

- ▶ Position pipe clamp **1** including downpipe insert **2** to the downpipe bracket.
- ▶ Check **3**: The finger of the downpipe insert must be aligned (in plan view) to the boiler back panel.

Fig. 5-13



### Installing the pellet feeder unit

- ▶ Slide the pellet feeder unit **1** into the intermediate pellet store.
- ▶ Connect the two connection spigots with the pipe clamp **2**.

**Attention!** Open filling chamber door **3** and reach into the downpipe from below: ▶ Check for correct seat / orientation of the downpipe insert.

- ▶ Check horizontal / vertical orientation of the intermediate pellet store, readjust if necessary.
- ▶ Tighten up screws on the intermediate pellet store console **4**.

Fig. 5-14

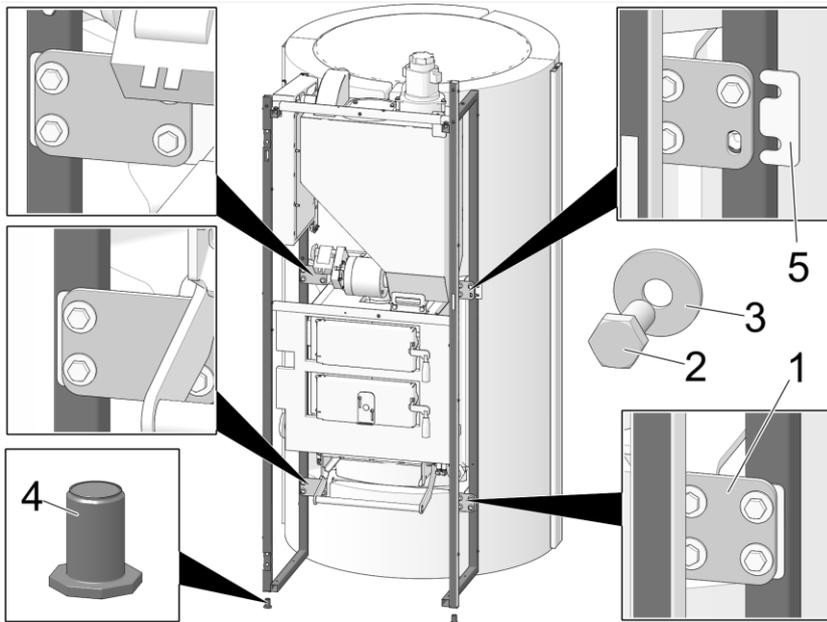


Fig. 5-15

**Mount retaining plates and frames**

- ▶ Screw 4x retaining plates **1** to the tank consoles using 2x hex bolts DIN933-VZ/M6x20 **2** and washers DIN9021-6-VZ **3**.
- ▶ Knock the adjustable feet **4** into the frame's shaped tube from below, and screw the left and right frame part to the retaining plates, using hex bolts DIN933-VZ/M6x20 and washers DIN9021-6-VZ.

**i** Use spacer plates **5** as supplementary shims for vertical orientation of the frame, if required.

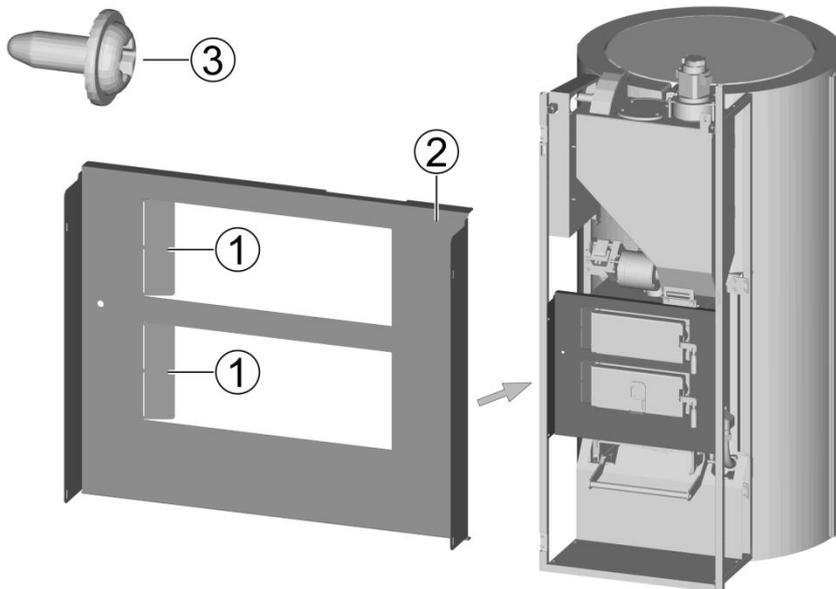


Fig. 5-16

**Installing the front burner cover**

- ▶ Bend tabs **1** backwards.
- ▶ Mount cover **2** and insulation with 4 x self-tapping screws M4x10 **3**.

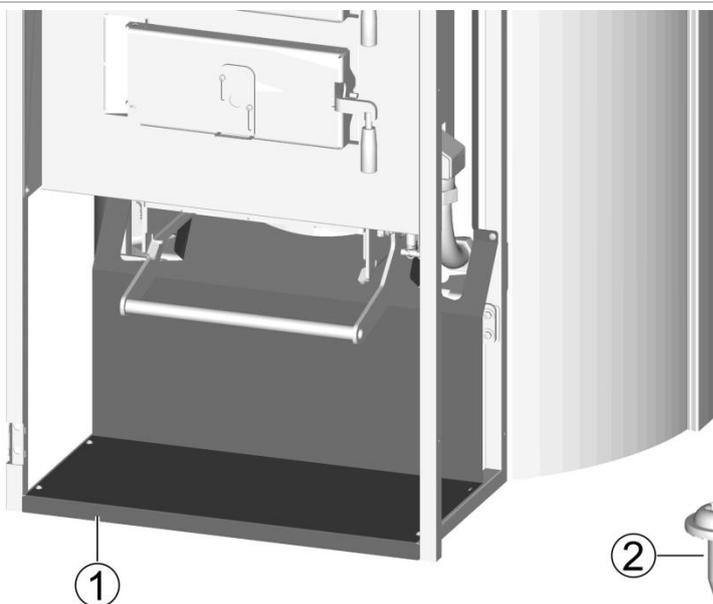
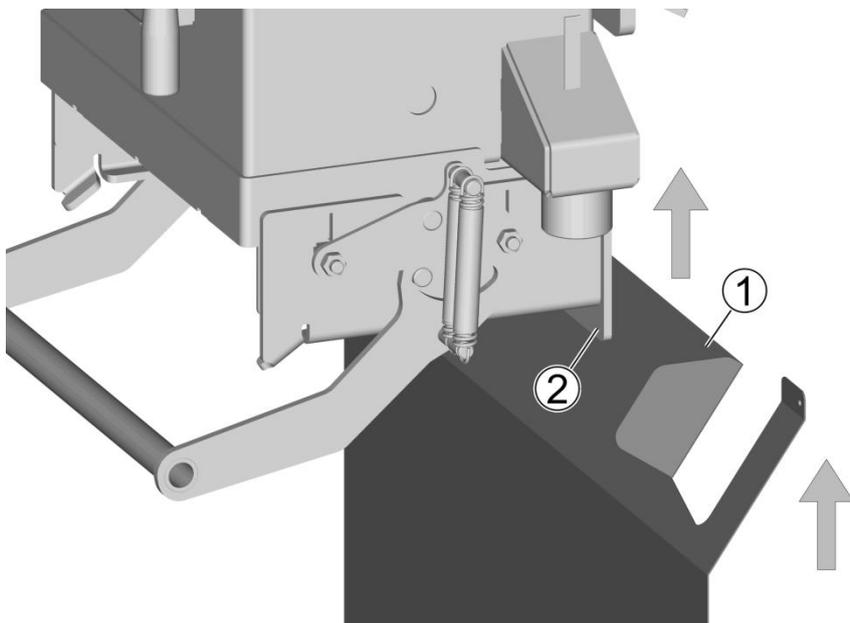


Fig. 5-17

**Mount lower cover**

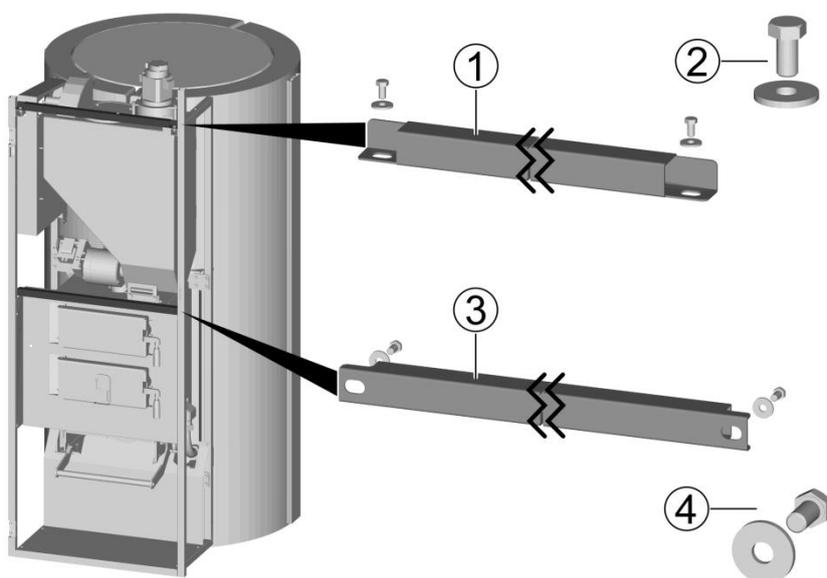
**i** Make sure that the cover is correctly positioned → Fig. 5-18

- ▶ Mount cover **1** with 6x self-tapping screws M4x10 **2**.



❗ Chamfer 1 of the cover must reach behind the flange 2 of the burner unit.

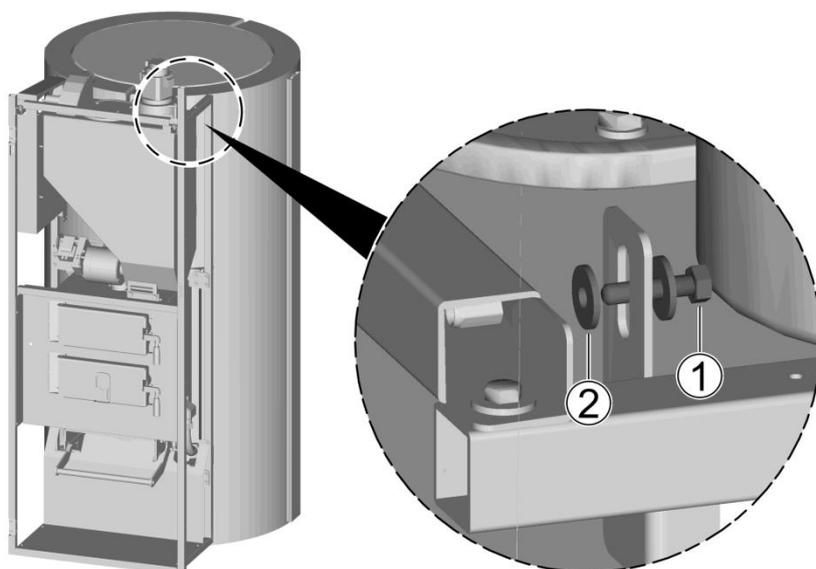
Fig. 5-18



**Mount cross braces**

- ▶ Mount the upper cross brace 1 with 2 x hex bolts DIN933-VZ/M5x12 and washers DIN9021-5-VZ 2.
- ▶ Mount the centre cross brace 3 with 2 x hex bolts DIN933-VZ/M5x12 and washers DIN9021-5-VZ 4.

Fig. 5-19



**Connect the intermediate store with the cross brace**

- ▶ Connect intermediate pellet store to the cross brace using hex bolt DIN933-VZ/M5x20 1 and 2x DIN125A-5-VZ 2.

Establishing the room-sealed connection → 33

Fig. 5-20

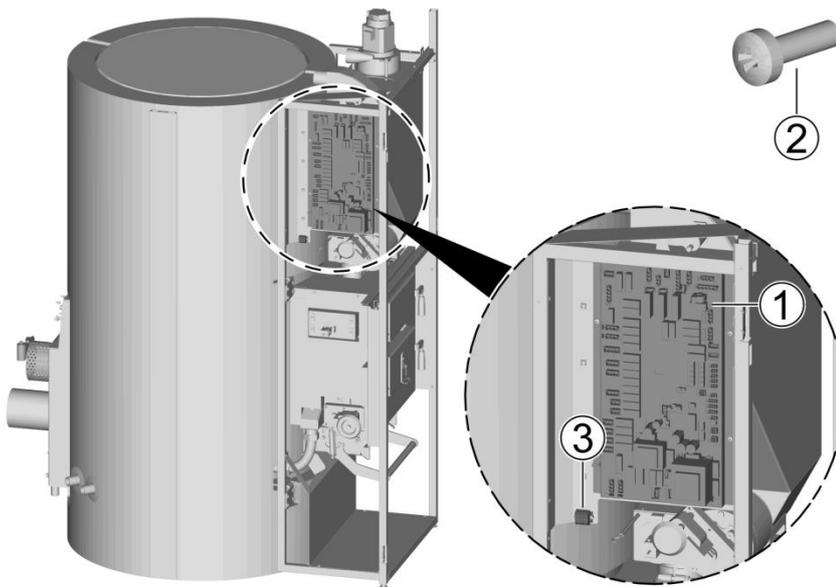


Fig. 5-21

**Mounting the electrical power element**

- ▶ Mount power element 1 with 4 x screws DIN7985-VZ/M4x10 2.
- ▶ Mount the terminal strip 3 by means of 2x screws DIN7985-VZ/M3x10 and hex nuts DIN934-VZ/M3 4.

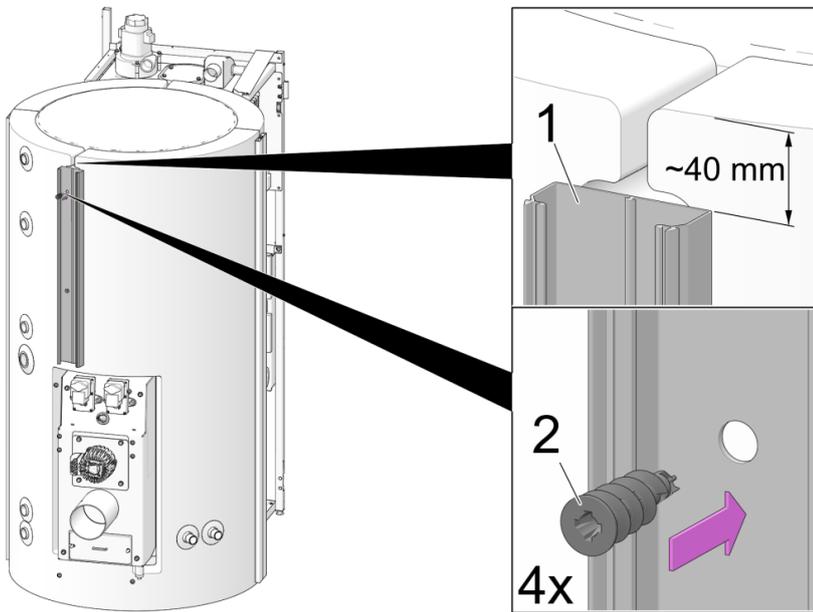
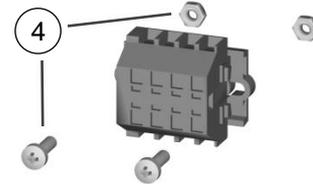


Fig. 5-22

**Mount the cable duct**

- ▶ Mount the cable duct 1 with 4 x plasterboard dowels 2.
- Distance from the upper edge of the insulation ~ 40 mm.

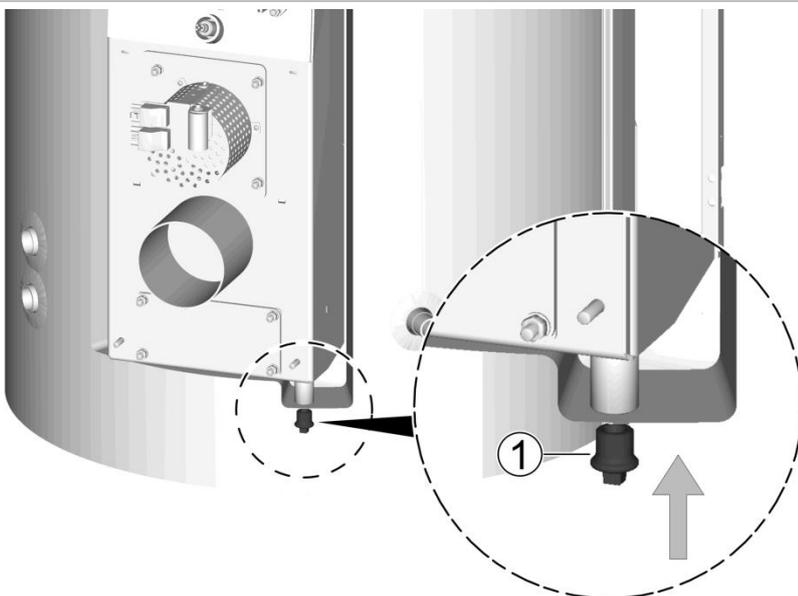


Fig. 5-23

**Seal condensate drain**

- ▶ Screw in closing plug 1.

**i** Increased condensate accumulation may arise at low return temperature, e.g. screed drying.

A fill and drain valve provided by the customer can be installed instead of the closing plug.



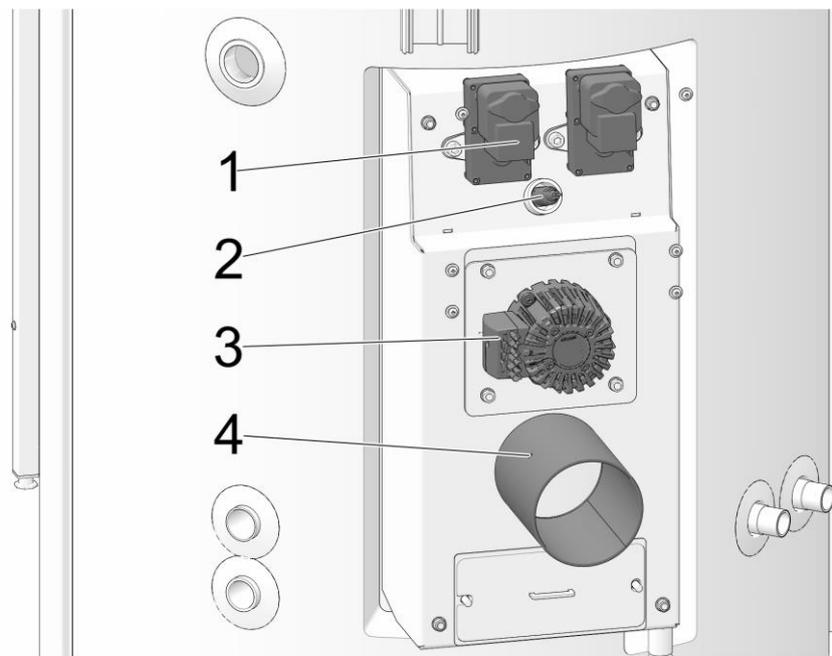


Fig. 5-24

### Connect electrical components

- ▶ Connect both motors for heat exchanger cleaning **1** to X24.
- ▶ Connect lambda sensor **2** to X45.
- ▶ Connect ID fan **3** to X19 and X47.
- ▶ Place temperature sensor **4** in the flue gas pipe, connect to X34.

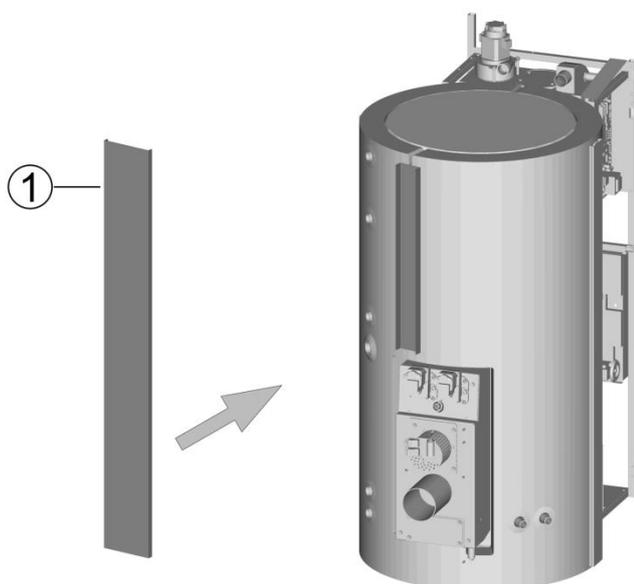


Fig. 5-25

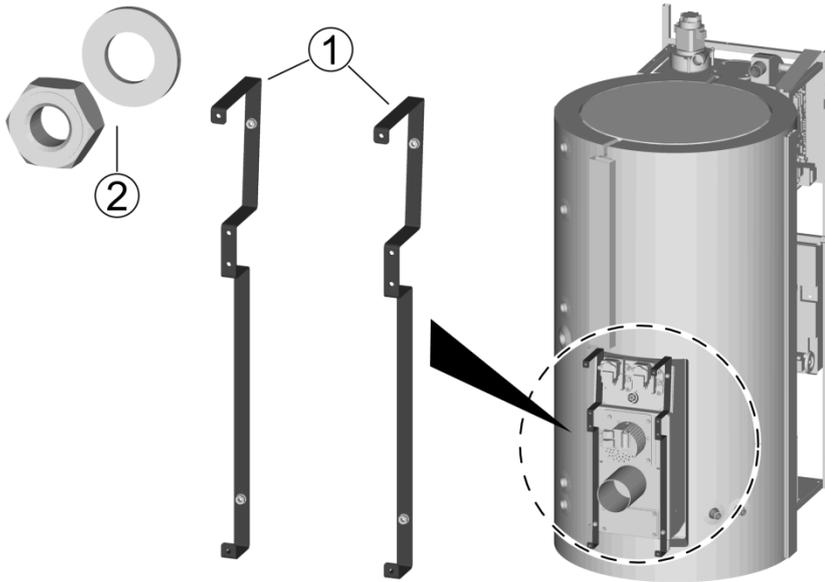
### Mount cable duct cover

- ▶ Lay connector / cable for 230 volt AC supply from X1 power element to the boiler back in cable duct.



**i** Secure cable with enclosed strain relief.

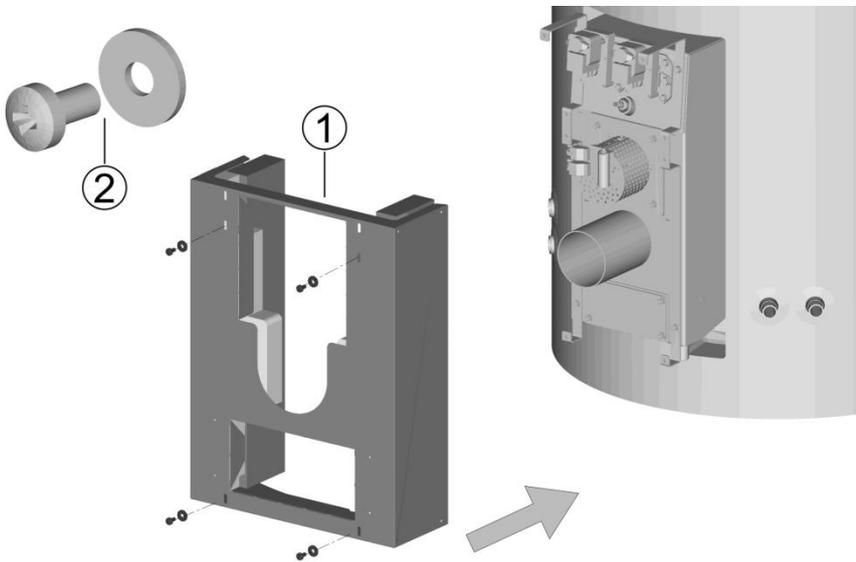
- ▶ Press cover **1** onto cable duct.



**Mount retaining brackets**

- ▶ Mount the 2 x retaining brackets 1 with 2 x hex nuts DIN934-VZ/M8 and washers DIN125A-8-VZ 2 to the threaded bolts.

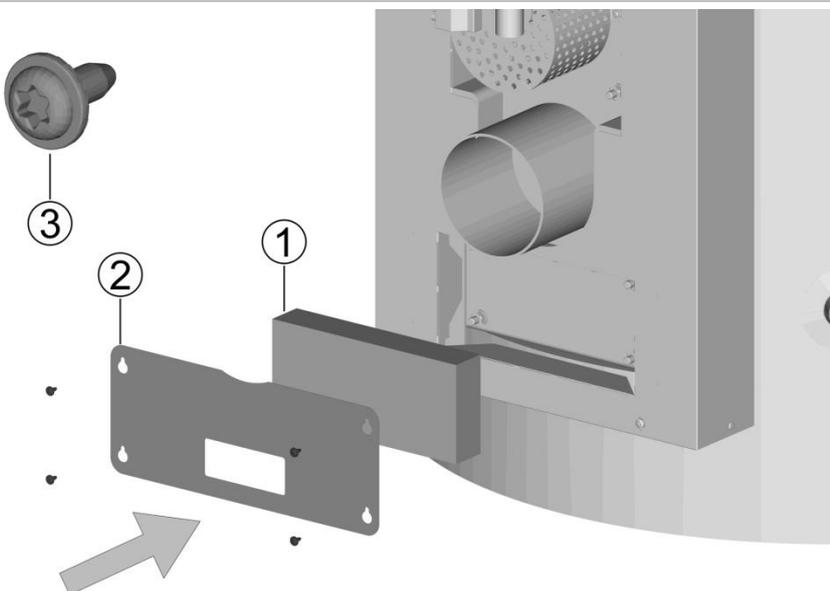
Fig. 5-26



**Flue chambers: Mount lower cover**

- ▶ Mount lower flue chamber cover 1 with the lower 4 x screws DIN7985-VZ/M5x10 and washers DIN9021-5-VZ 2.

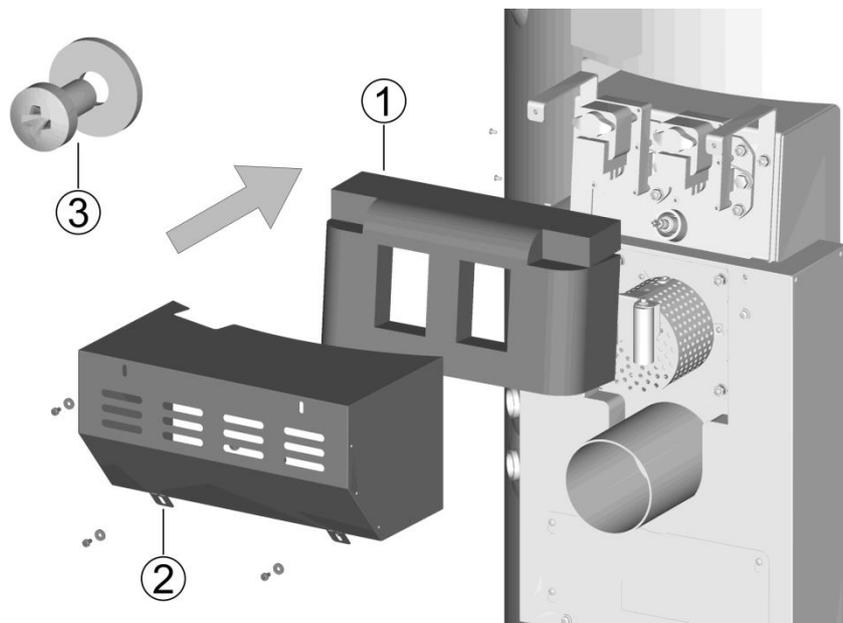
Fig. 5-27



**Mount inspection hatch covers**

- ▶ Position insulation 1.
- ▶ Mount cover 2 with 4 x self-tapping screws M4x10 3.

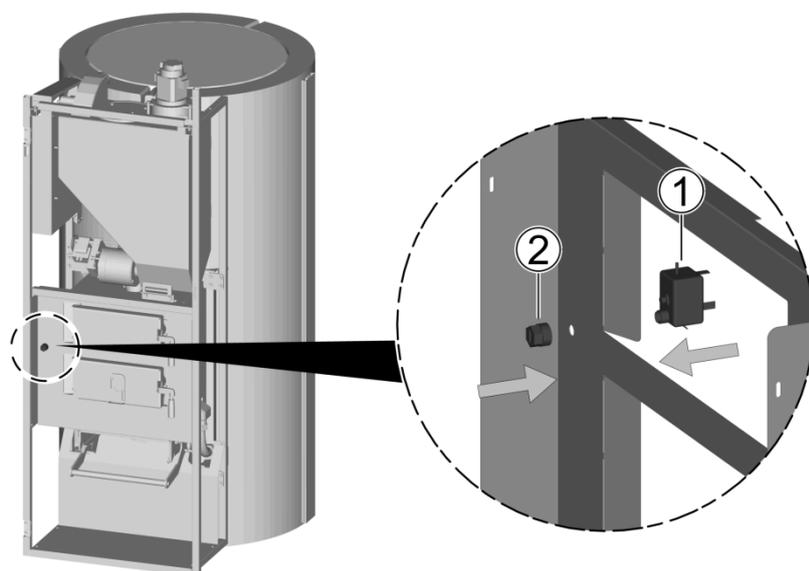
Fig. 5-28



**Flue chambers: Mount upper cover**

- ▶ Attach insulation 1
- ▶ Turn screwed tabs 2 at the bottom of the cover downwards.
- ▶ Mount cover with 4 x screws DIN7985-VZ/M5x10 and washers DIN9021-5-VZ 3.

Fig. 5-29



**Mount overtemperature reset (button)**

- ▶ Screw switching unit 1 behind the cover from the front onto the hex nut and cover cap 2.
- ▶ Connect overtemperature reset (button) to X20, attach protective earth conductor to lug on the power element.

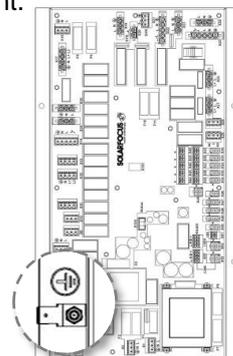
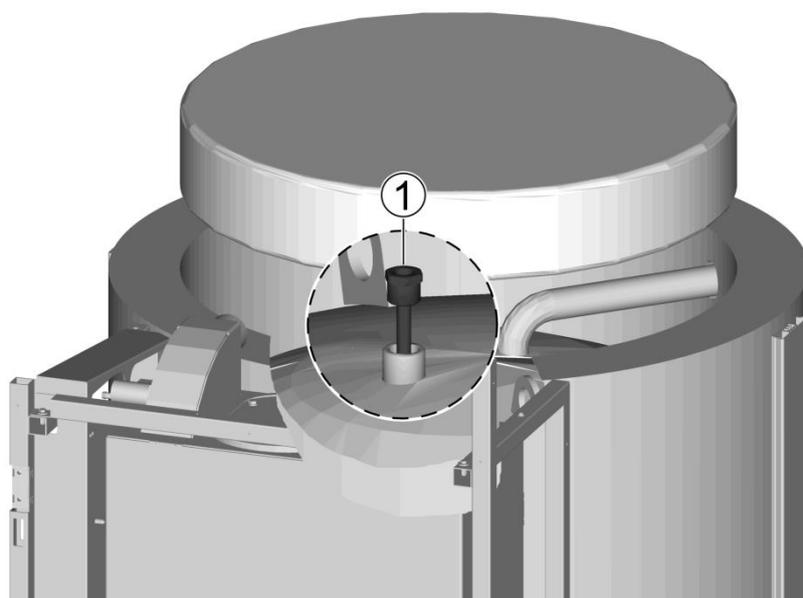


Fig. 5-30



**Mount the sensors for over-temperature reset (button)**

- ▶ Insert sensor into the immersion sleeve 1 on the upper side of the boiler.
- ▶ Connect 3 x tank temperature sensors, X30/X31/X32, ➔ 17

Fig. 5-31

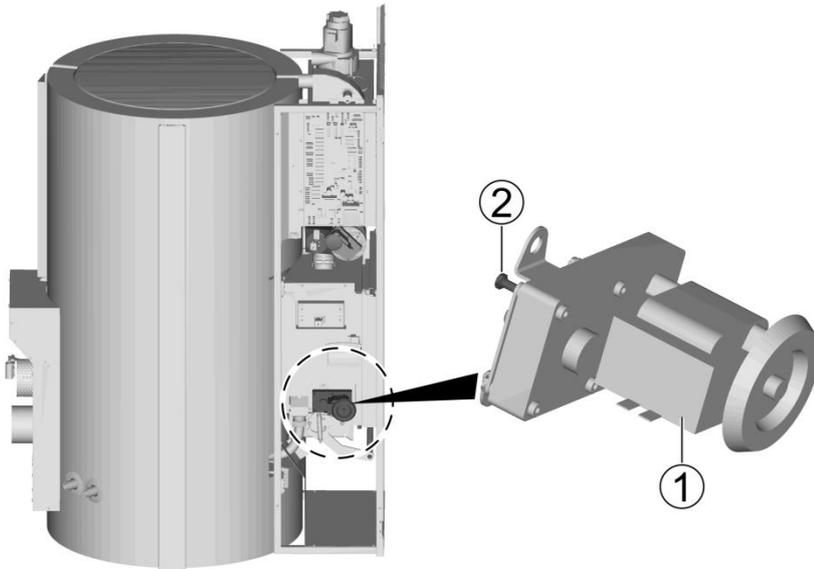


Fig. 5-32

**Connect ash roller motor**

- ▶ Connect the motor **1** for the ash roller to X16, in doing so, clamp protective earth conductor to hex bolt **2**.

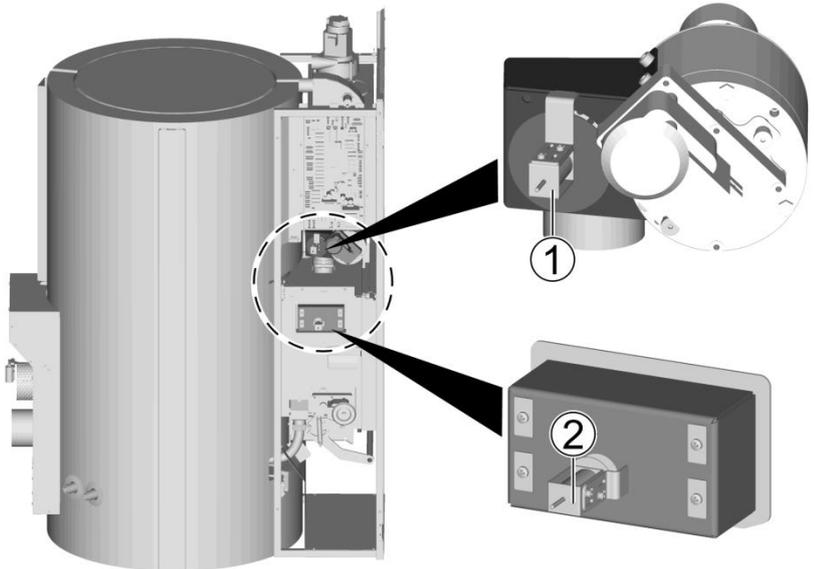


Fig. 5-33

**Connect holding magnets**

- ▶ Connect primary air-holding magnet **1** via the terminal strip **3** at X26.
- ▶ Connect ignition holding magnet **2** to the terminal strip at X27.

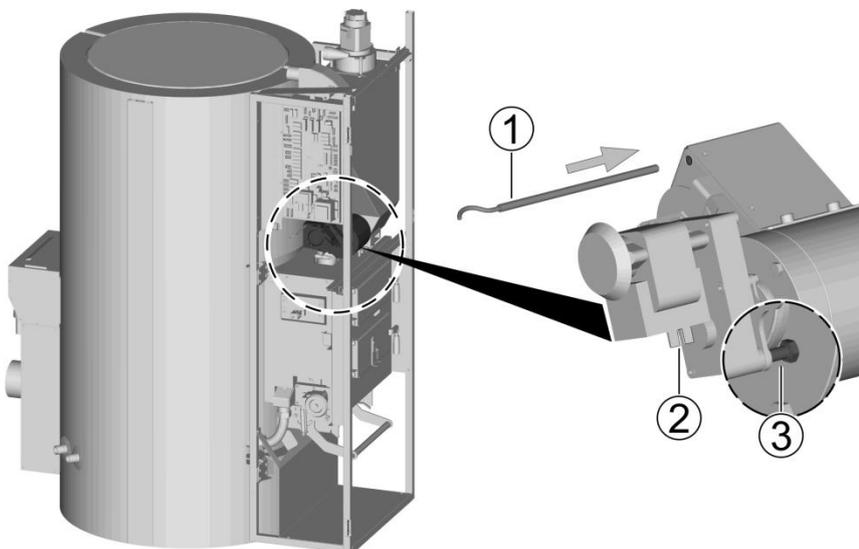
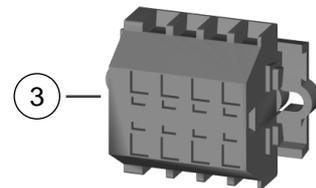


Fig. 5-34

**Position temperature sensor for pellet feeder unit**

- ▶ Place temperature sensor **1** in the hole, connect to X33.
- ▶ Connect pellet feeder unit motor **2** to X23, also screw on protective earth conductor at hex bolt **3**.

### Mount door contact switch

- ▶ Install switch **1** into the frame.
- ▶ Connect the cable to the power element X48.

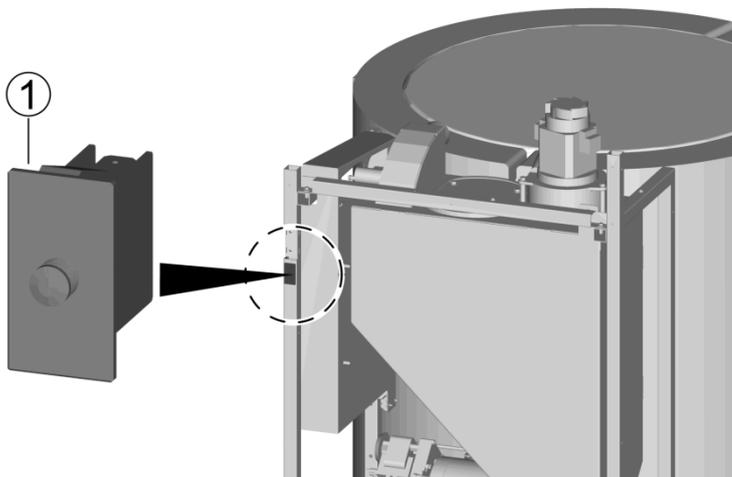


Fig. 5-35

### Mount door

- ▶ Mount door with 2 hinges **1** using 4 x screws M6x30 **2**.
- ▶ Mount counterpart **3** for magnetic latch with 2 x DIN 965 M4x10 screws **4** to the door.

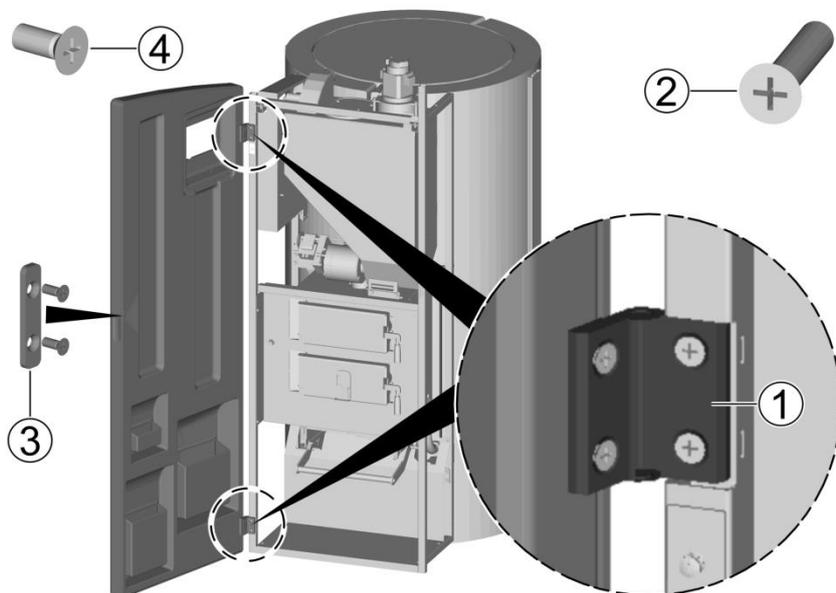


Fig. 5-36

### Mount touch display in door

- ▶ Screw touch display to the door using 4 x brackets **1**.
- ▶ When doing so, also attach protective earthing (tab on back of display) when fastening the power element.

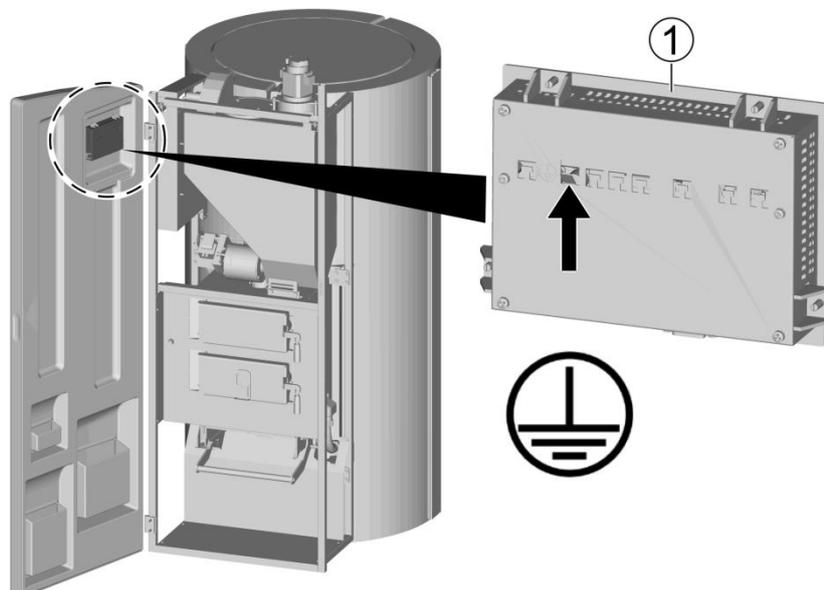


Fig. 5-37

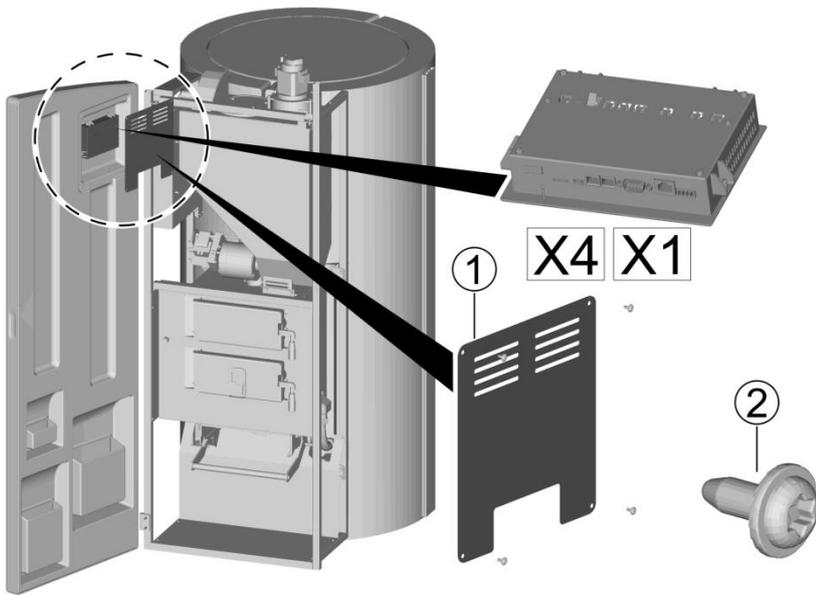


Fig. 5-38

**Connect the data cable (bus cable)**

- ▶ Connect connectors X1 and X4 of the display to the power element X53.

**X1** 24 V: black wire  
 GND: grey wire  
**X4** CAN A: brown wire  
 CAN B: blue wire

- ▶ Mount rear cover 1 of the display with 4 x self-tapping screws M4x10 2.

Optional: Connect the boiler control to the Internet → 38 (Ethernet connection X2)

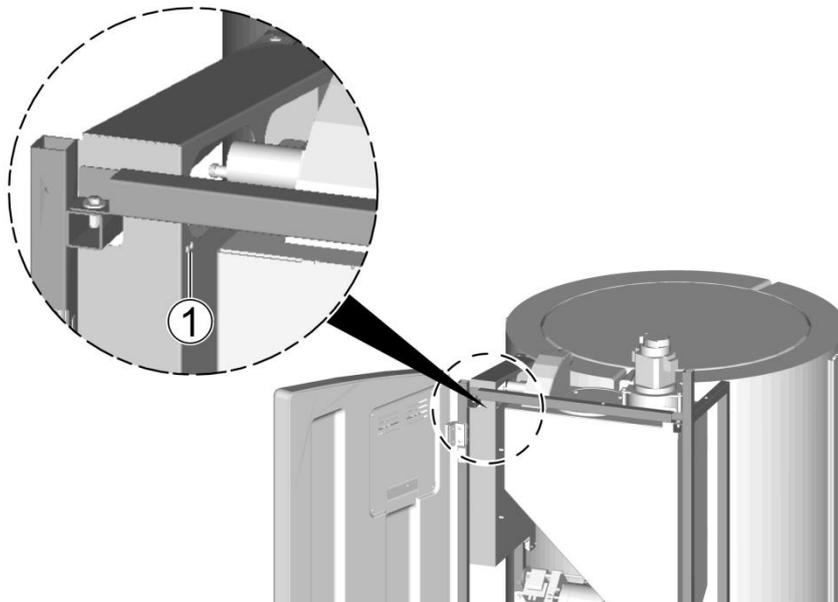


Fig. 5-39

**Attach strain relief for cable ties**

- ▶ Attach strain relief for door cables (for display) in area 1.
- ▶ Fix the cable in place with cable ties.

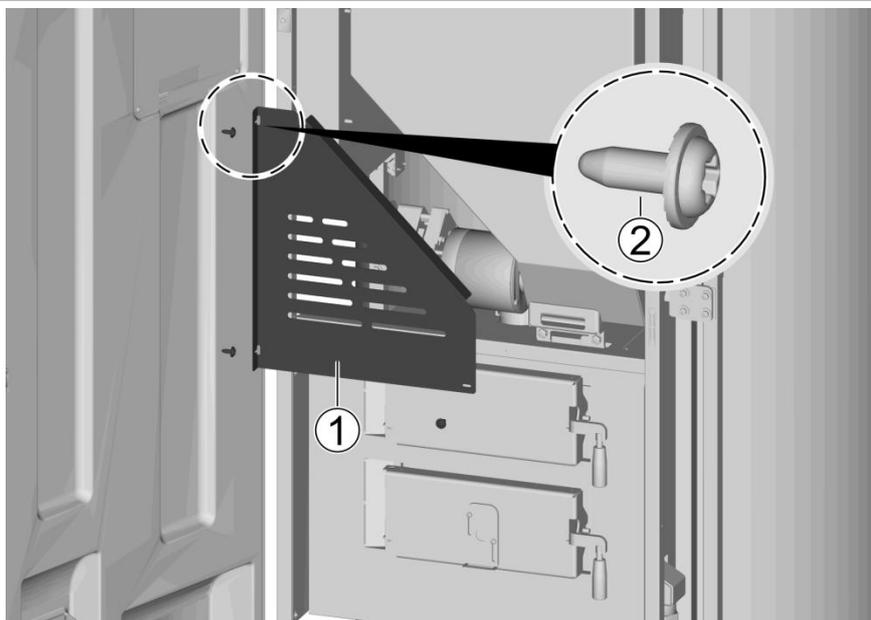


Fig. 5-40

**Assemble slide-in cover**

- ▶ Mount cover 1 with 3 x self-tapping screws M4x10 2.

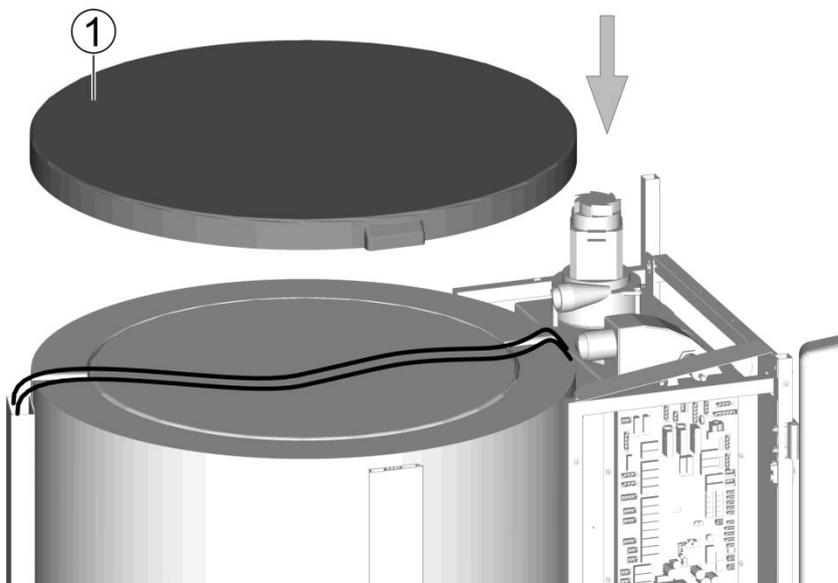


Fig. 5-41

**Install cover**

- ▶ Position cover 1.

Work step is only for the octo<sup>plus</sup> 15

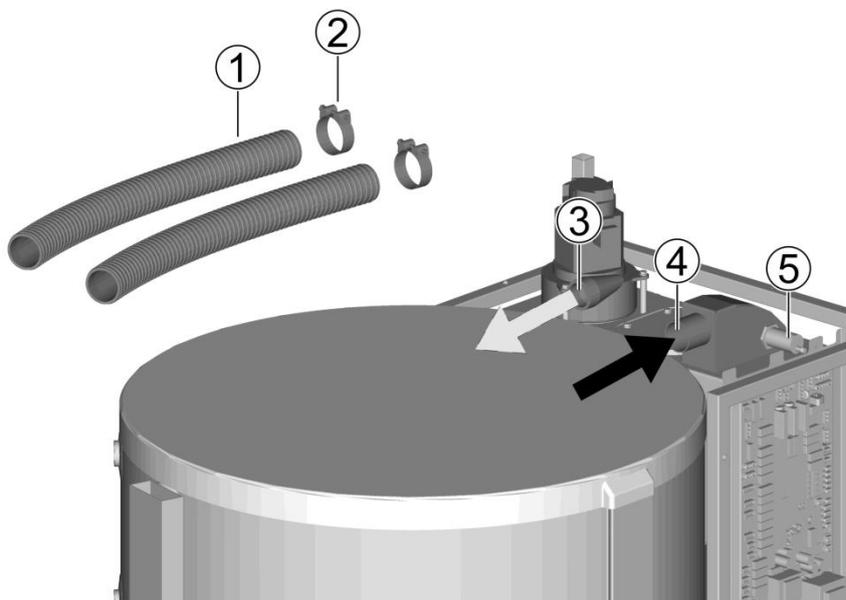


Fig. 5-42

**Connect pellet hose to boiler**

- ▶ Connect 2 x pellet hoses 1 using the hinged hose clamps 2.

3 = return air  
4 = suction (pellets)

- ▶ Observe note on installing hoses, ➔ Fehler! Textmarke nicht definiert.
- ▶ Connect suction turbine to X3.
- ▶ Connect the filling level sensor 5 (of the intermediate pellet store) to X49.

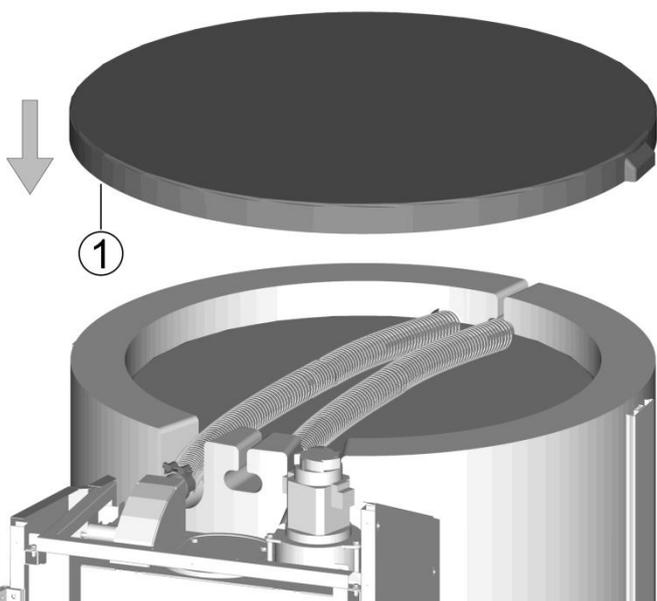


Fig. 5-43

**Position cover**

- ▶ Position cover 1.

Operation is only for the octo<sup>plus</sup> 15.5 and 22

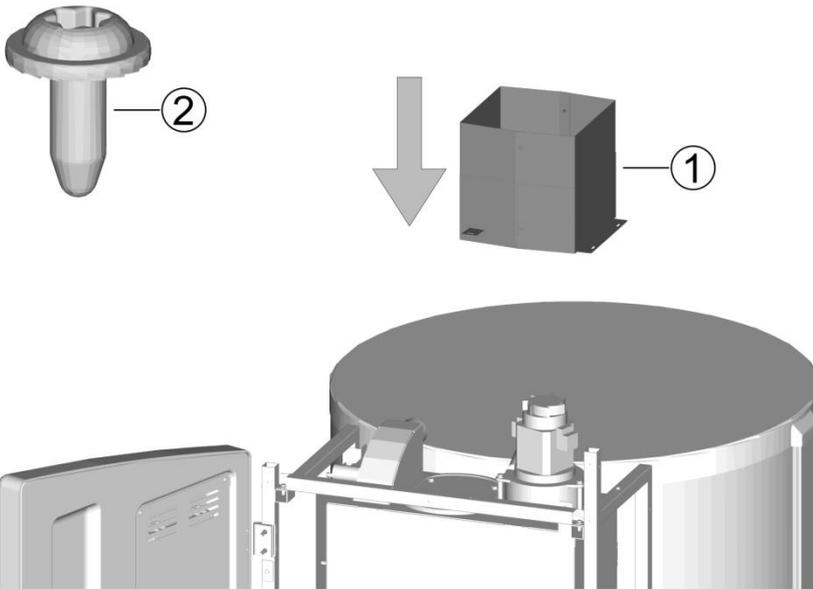


Fig. 5-44

**Mount suction turbine housing**

- ▶ Mount housing 1 with 3 x self-tapping screws M4x10 2 to the frame.

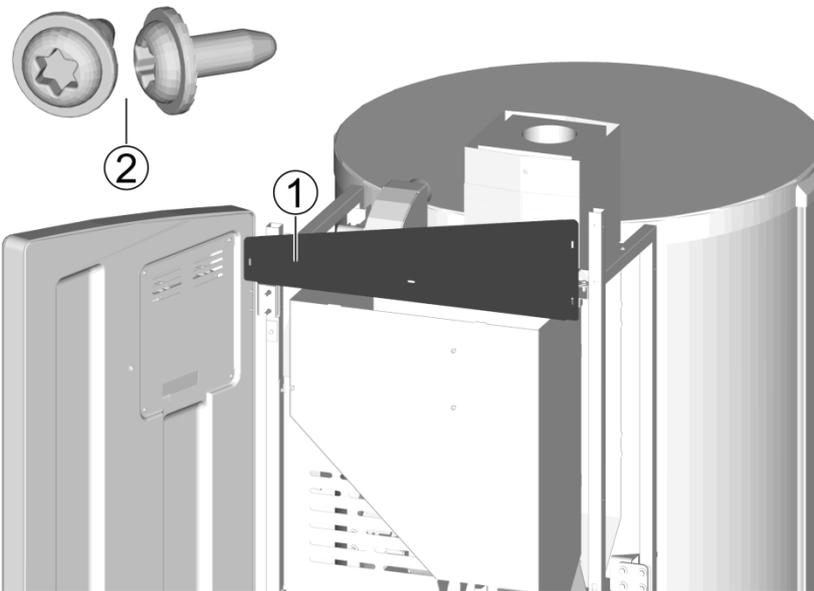


Fig. 5-45

**Mount front suction turbine cover**

- ▶ Mount cover 1 with 4 x self-tapping screws M4x10 2.

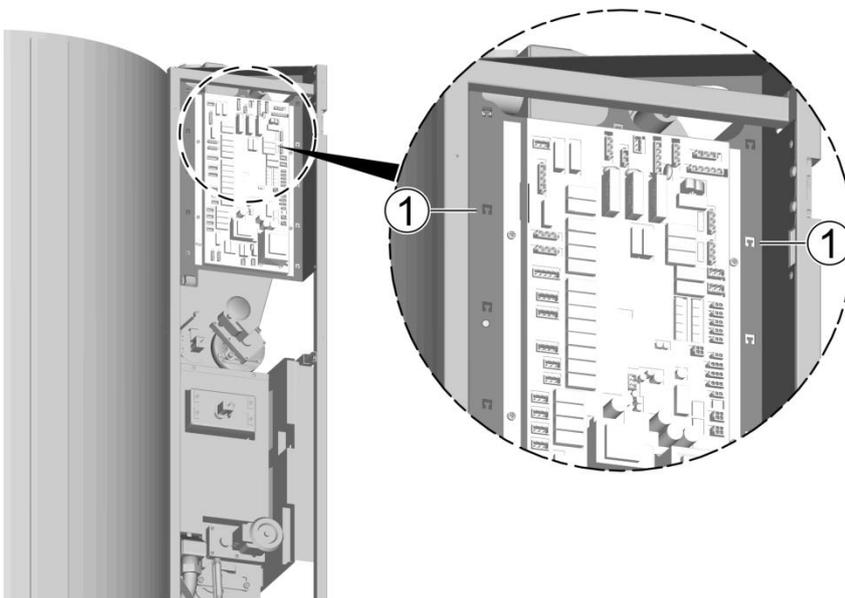


Fig. 5-46

**Fix the cable in place with cable ties**

- ▶ Fix the laid cables to the recesses with cable ties.

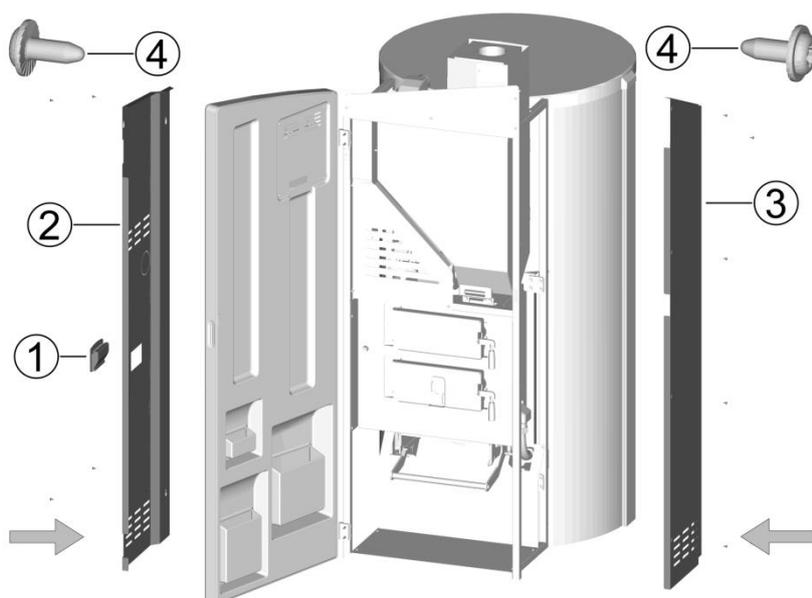


Fig. 5-47

### Mount side covers

- ▶ Insert recessed handle 1 into the left cover 2.
- ▶ Mount cover with 5 x self-tapping screws M4x10 4.
- ▶ Mount right cover 3 with 6 x self-tapping screws M4x10 4.

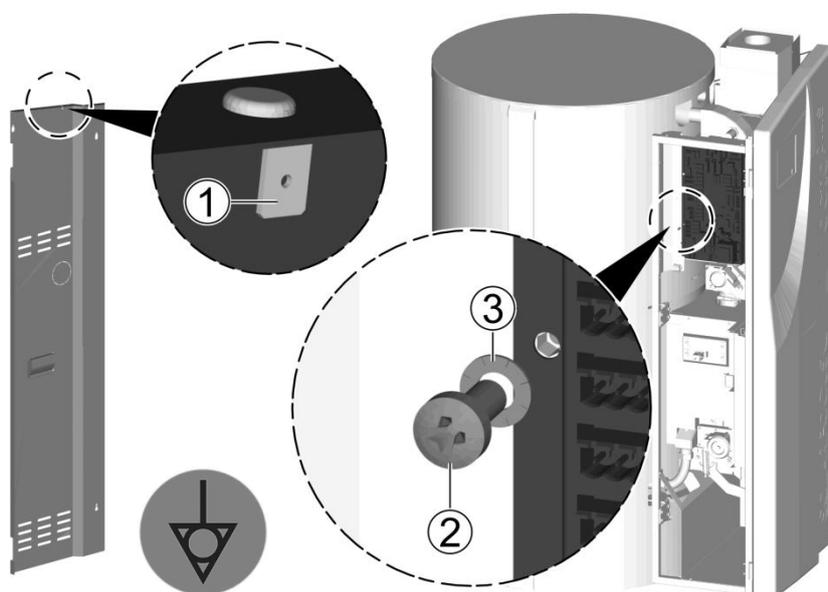


Fig. 5-48

### Create potential equalisation

- ▶ Establish connection of flat connector 1 to power element mounting screw 2.
- ▶ For screw 2 screw in further:
  - Protective conductor cable (green-yellow) of the display.
  - Connection to potential equalisation rail of the house installation.

**i** Enclose the flap washer 3.

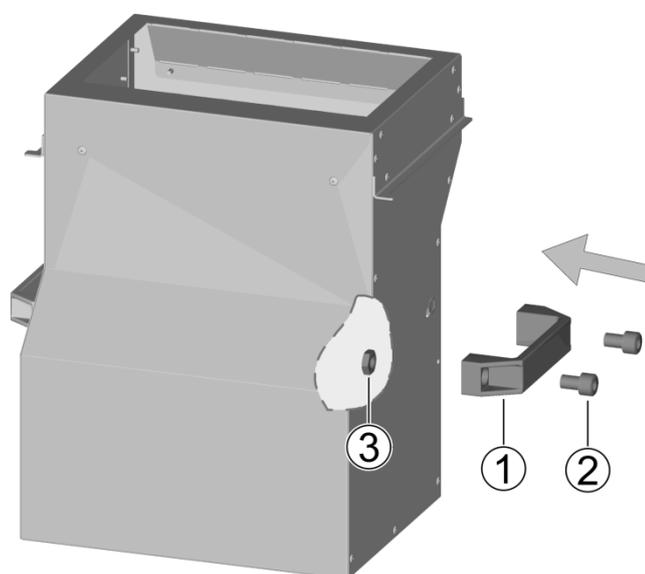
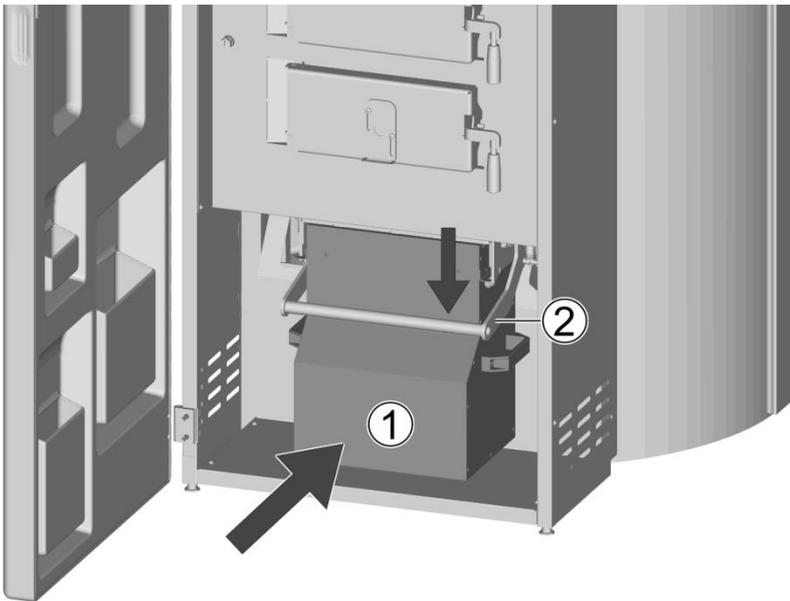


Fig. 5-49

### Mount handles on the ash container

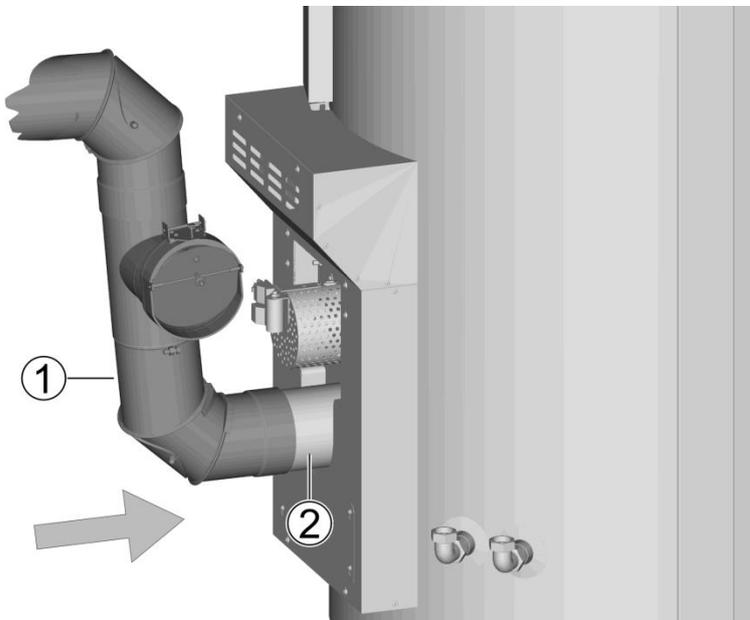
- ▶ Mount handle 1 with 2 x Allen screws DIN912-VZ/M8x12 2 and hex nuts DIN439B-VZ/M8 3 on the left and right of the ash container.



**Place ash container in the boiler**

- ▶ Slide the ash container 1 into the retainer.
- ▶ Press locking lever 2 downwards.
  - ↳ The ash container is now airtight.

Fig. 5-50

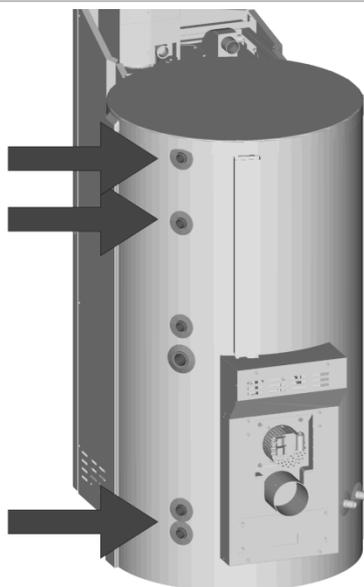


**Connect flue gas pipe**

- ▶ Insert flue gas pipe 1 onto the boiler side connection pipe 2.

**i** Flue gas pipe parts and connection materials are not included.

Fig. 5-51



**Connect boiler hydraulically**

- ▶ Connection assignments, → 35

**!** **ATTENTION** - If the solar coil is not connected, then leave the factory-fitted sealing caps (plastic) fitted to the solar flow/solar return connections. Failure to comply with this poses a risk of corrosion damage.

Fig. 5-52

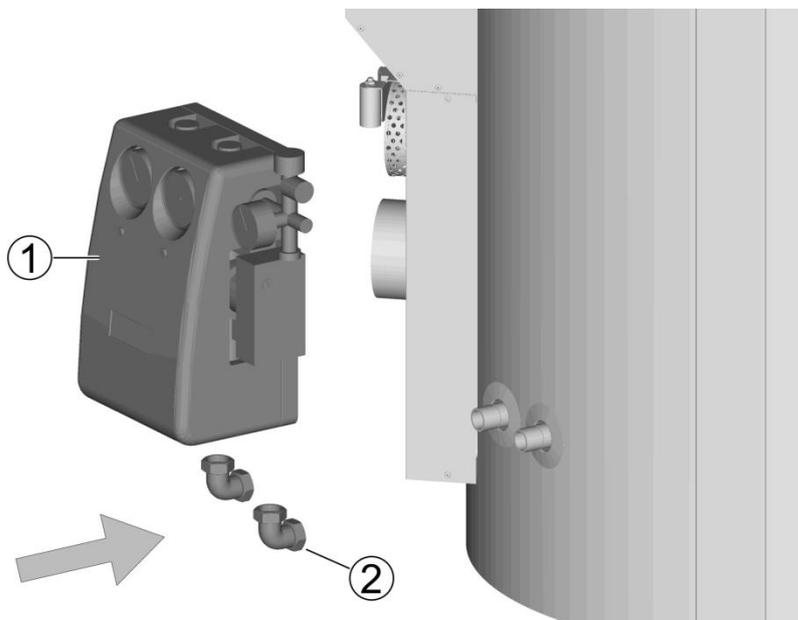


Fig. 5-53

### Mount solar pump set

- ▶ Mount pump group 1 with 2 x brackets 2 to the connections.

**i** The pump group is optional and not included in the standard delivery.

## 5.3 Mounting the room-sealed connection

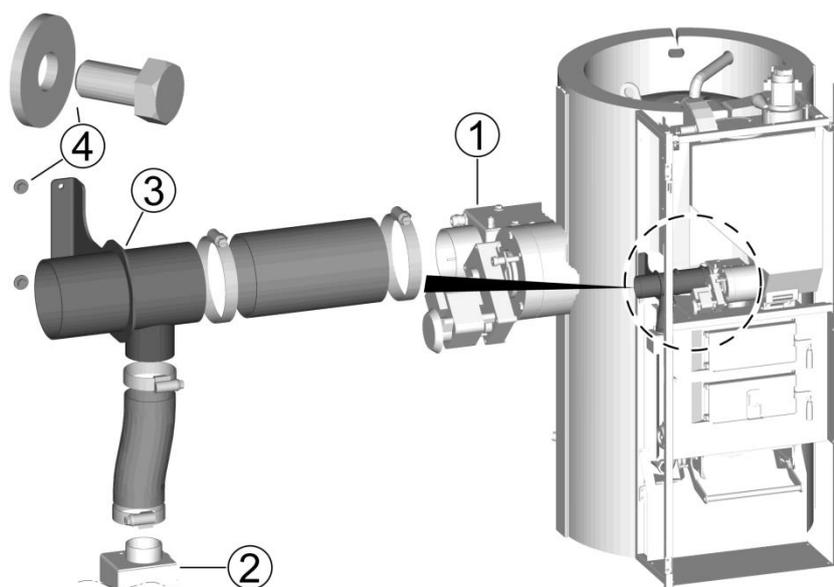


Fig. 5-54

### Mount connection pipe

- ▶ Mount hoses and hose clamps to the feeder unit 1 and air chamber 2.
- ▶ Mount the metal pipe/console 3 by means of 2 pcs hex bolts DIN933-VZ/M5x12 and washers DIN9021-5-VZ 4 to the frame.

**i** In case of exceeding the draught demand of 5 Pa, an RS draught stabiliser must be installed (e.g. from Kutzner & Weber).

...Next ▶ 22, Fig. 5-21

## 5.4 Connecting the pellet hose

### Maintain maximum hose length and delivery height

Routing	Max. hose length	Max. conveying height
Suction head to diverter for suction heads	10 m	1.0 m
Diverter for suction heads to boiler	20 m	2.5 m
Total delivery path	30 m	3.5 m

### Observe the following when installing hoses

- The hose must be attached to the floor at several points (e.g. with perforated tape) to prevent it from 'floating' upwards (in the case of floor-mounting, suction head).
- Route hose as straight as possible. To avoid sagging, use SOLARFOCUS product *support shell made of zinc plated sheet steel*.
- Do not kink the hose (observe bending radius of > 30 cm).
- The hose is not UV-resistant (routing outdoors is not permissible).
- Temperature resistance of the hose < 60°C.
- Always push the end of the hose fully onto the pipe connection as far as the stop. The hose will slide on to the connection pipe better if you apply a little water to the pipe.
- Tighten hose clamps firmly. Detachment of the hose and the intake of false air must be reliably prevented.

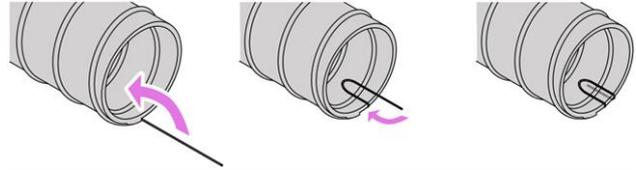
### Electrically earthing the pellet hose

**i** A metal braid is integrated into the inside of the plastic hose coil. This metal braid must be electrically connected to the connecting pipe at each hose end (for suction hose and return air hose).

**i** Earthing of the pellet hoses is also required for the manually actuated variant of the diverter for suction heads (Art. 68190).

### Expose the braid and bend it into the hose

- ▶ Expose approx. 10 cm of the metal braid at the hose end (remove any plastic sheathing on the braid with stripping pliers).
- ▶ Curve the metal braid and bend it onto the inside of the hose.
- ▶ Slide the hose onto the metal connecting pipe.



**!** **ATTENTION**– The metal braid must have permanent electrically conductive contact with the connecting pipe. Remove any adhesive tape on the connection pipes and/or scrape off the existing coating.



## 5.5 Flue gas pipe: Make a hole for emission measurement

- ▶ Make the hole for the emission measurement according to the following images (recommendation according to standard).
- ▶ If these specifications cannot be implemented, then make the measuring point after a calming section, i.e. after the longest straight section of the pipe. The tube orientation (horizontal, vertical, oblique) plays no role in this case.
- ▶ In any case, place the measuring point before any existing draught stabiliser.

You can find information about carrying out the emission measurement in the boiler operation manual, keyword: *Chimney sweep function*.

### Flue gas pipe horizontal

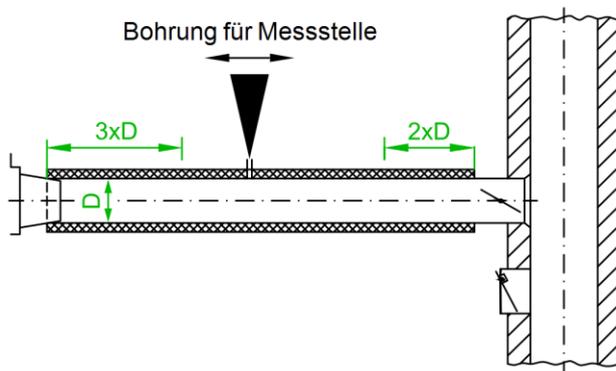


Fig. 5-55

### Flue gas pipe vertical

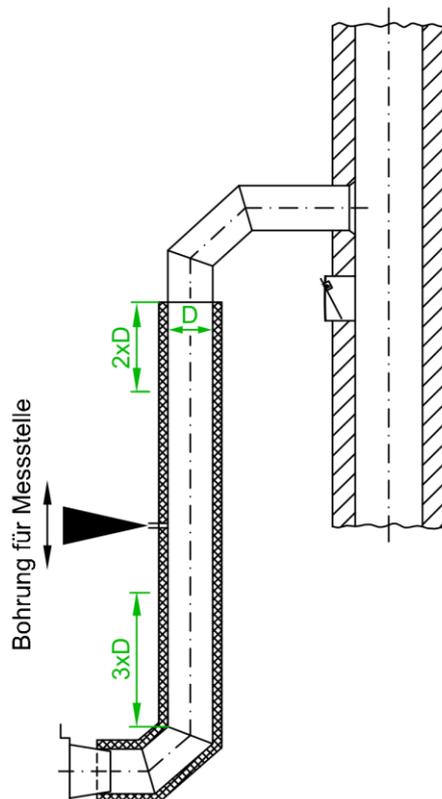


Fig. 5-56

## 6 Hydraulic connection

### 6.1 Connections - overview

octo<sup>plus</sup>10, 15 / octo<sup>plus</sup> 22

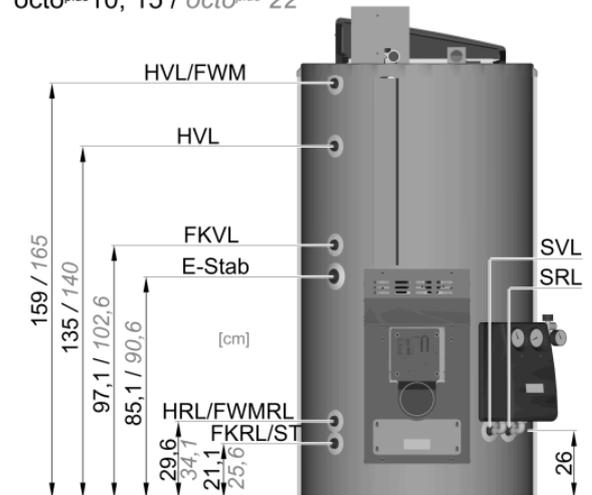


Fig. 6-1\_057

HVL/FWM	Hot water supply / fresh water module (IT 1")
HVL	Hot water supply (IT 1")
FKVL	External boiler supply (IT 1")
Electric heating element	Electric heating (IT 6/4")
HRL/FWMRL	Hot water return/fresh water module return; (stratified charging pipe IT 1")
FKRL/ST	External boiler return - firewood boiler (IT 1")
SVL	Solar flow (ET 1"-flat seal union)
SRL	Solar return (ET 1"-flat seal union)

### 6.2 Boiler safety group (BSG)



Install the BSG in the boiler supply line, at the highest point of the line, as close as possible to the boiler. Installation position: vertical, see illustration.

**!** **ATTENTION** - Do not install any barriers in the pipework that could render the boiler safety group ineffective.

### 6.3 Thermal overload protection

Is not required for the octo<sup>plus</sup> boiler.

### 6.4 Return flow boosting (RFB)

Is not required for the octo<sup>plus</sup> boiler.

### 6.5 Additional differential charging circuit Art.6152

This optional article is required for the following applications:

- Charging the **octo<sup>plus</sup>** through an additional energy source, e.g. wood burning stove
- Charging an additional tank (buffer tank, DHW tank) through the octo<sup>plus</sup>
- Connections used:
  - Temperature sensor 1 = X44
  - Temperature sensor 2 = X36
  - Switching output 230 V (circulation pump/switching valve) = X7

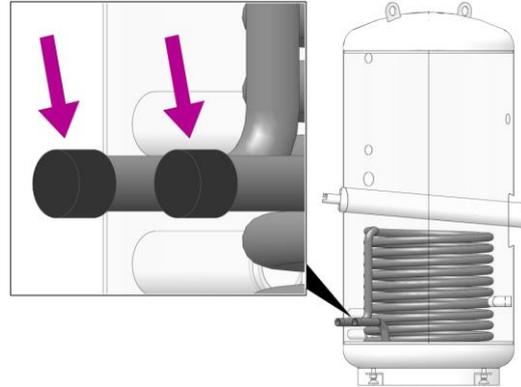
### 6.6 Operating the octo<sup>plus</sup> without a solar system



If the **octo<sup>plus</sup>** is operated without a solar system, the following two points must be observed:

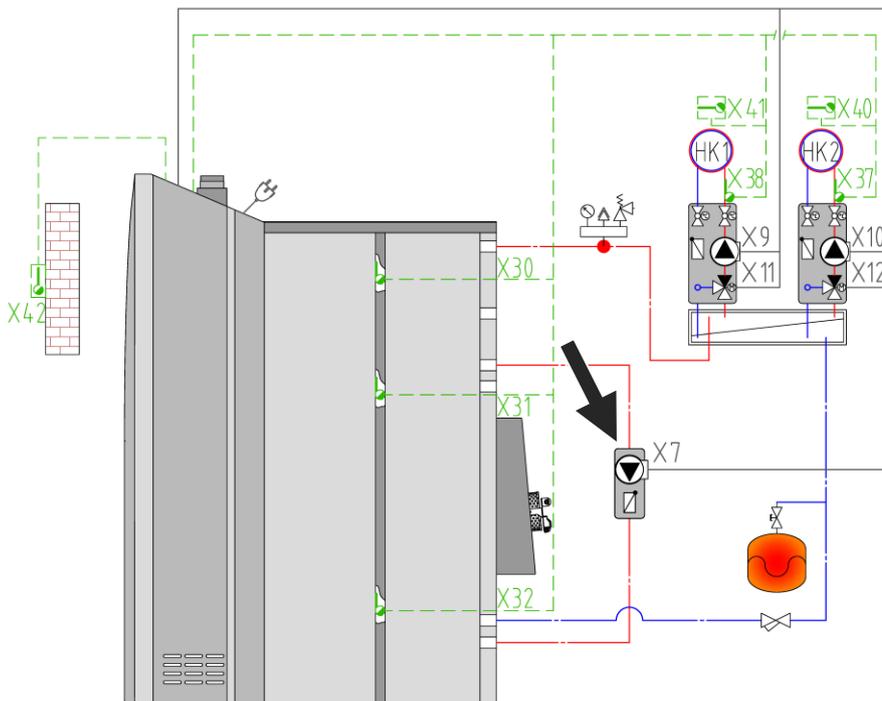
### 6.6.1 Leave the cover caps on the solar coil connections

**!** **ATTENTION** - If the solar coil is not connected, then leave the factory-fitted sealing caps (plastic) fitted to the solar flow/solar return connections. Failure to comply with this poses a risk of corrosion damage.



### 6.6.2 Circulation pump for optimum tank usage (in the case of low return temperature)

- If the **octo<sup>plus</sup>** is used with low return temperatures (e.g. only underfloor heating) and without a solar system, SOLARFOCUS recommends also installing a circulation pump between the upper and lower area of the tank.
- This allows for considerably better use of the entire buffer tank volume and reduces the start/stop intervals.



- The circulation pump is controlled by means of the differential circuit function on the power element.
- To activate this differential circuit function, the *differential charging circuit on PE* parameter must be activated in the boiler control (is activated during the commissioning routine or is activated by the plant customer service/specialist service partner).

## 7 Electrical connection

**DANGER** There is a risk of electric shocks when performing work on electrical components of the product/system! ► Before carrying out any work on electrical systems, disconnect the product/system from the power supply and secure it against being switched back on.

### 7.1 Connections to the boiler power element

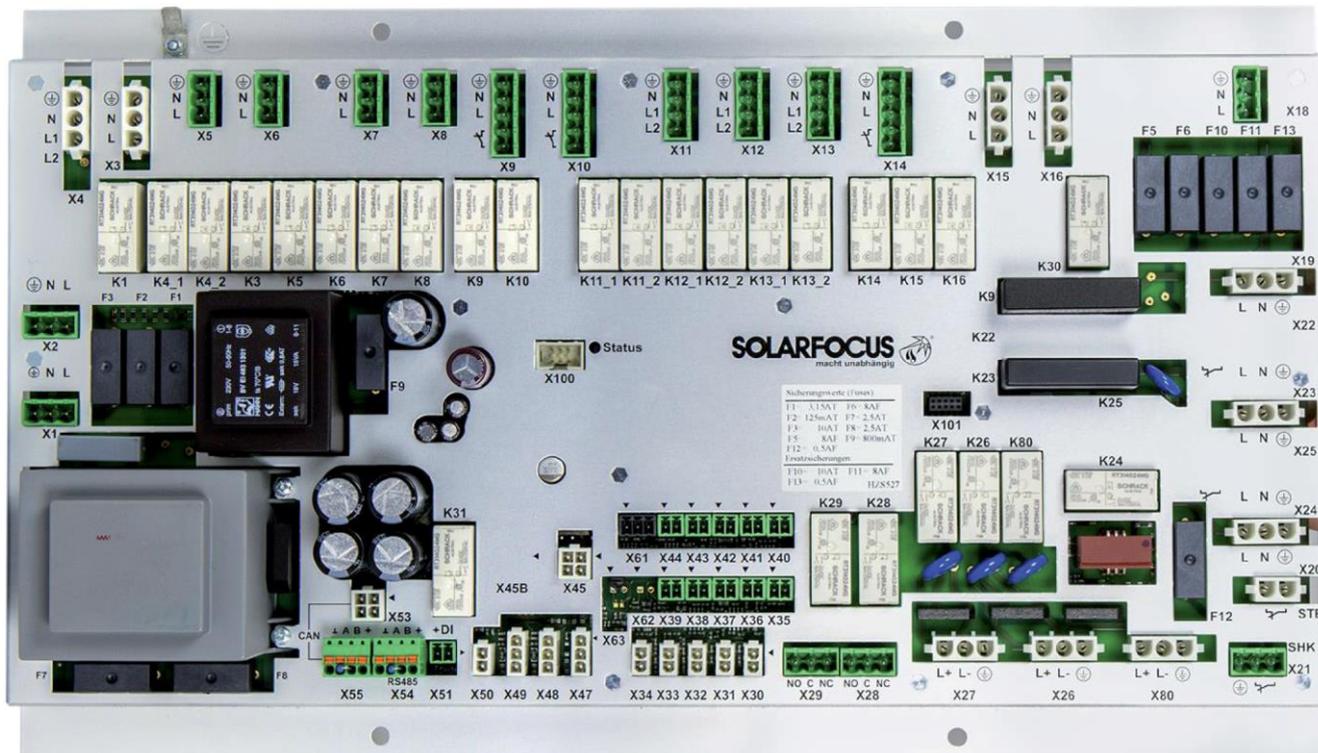


Fig. 7-1: Electrical power element

Fuel feed		Boiler		X15	Return booster pump
X3	Suction turbine	X4	Automatic ignition	X36	Buffer sensor bottom
X14	Motor of the direct extraction auger	X16	Automatic ash extraction	X44	Buffer sensor top
Bus		X19	ID fan	Power supply	
X53	CAN bus; connection to the display	X20	Overtemperature reset (OTR)	X1	230 V AC input
X54	Connection for RS-485 electronic modules	X23	Feed motor	X2	230 V AC output
X55	CAN bus; connection for CAN bus electronic modules	X24	Motors for heat exchanger cleaning	X18	230 V AC output; F8 A fuse)
Heating circuit		X26	Primary air solenoid	Other	
X9	Heating circuit pump – HC1 → 38	X27	Ignition supply air holding magnet	X6	Spare: 230 V AC output; for special functions
X10	Heating circuit pump – HC2 → 38	X30	Upper boiler temperature	X21	Safety chain 230 V AC (optional); e.g. for emergency off switch
X11	Heating circuit mixing valve - HC1	X31	Middle boiler temperature	X28	External boiler release (optional)
X12	Heating circuit mixing valve - HC2	X32	Lower boiler temperature	X29	Fault (optional)
X37	Flow temperature sensor - HC2	X33	Feeder temperature sensor	X51	External request (optional)
X38	Flow temperature sensor - HC1	X34	Flue gas temperature sensor	DHW tank	
X40	Room sensor - HC2 (optional)	X45	Lambda sensor	X8	DHW tank pump
X41	Room sensor - HC1 (optional)	X47	Speed measurement ID fan	X39	DHW tank sensor
X42	Outside temperature sensor	X48	Front door contact switch	Recirculation control	
		X49	Filling level sensor intermediate pellet store	X5	Recirculation pump
			Buffer tank	X43	Circulation sensor (optional)
		X7	additional buffer cylinder charging pump (optional)		
		X13	Return mixer		

## 7.2 Power supply

A separate power circuit is to be provided in the boiler room / boiler installation room for the heating system; mains connection: 230 V AC / 50 Hz C13 A  
 Specification for the mains connection cable (e.g. in case of replacement): cable SIHF-J 3x1.5 mm<sup>2</sup>

## 7.3 Connections required for installation

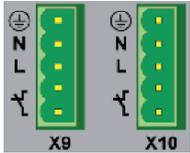
Connection	Name of the component	Connection	Name of the component
X1	230 volt boiler plug	X31	Tank temperature sensor centre
X3	Suction turbine	X32	Tank temperature sensor bottom
X4	Ignition device (glow pencil)	X33	Feeder temperature sensor
X16	Ash roller	X34	Flue gas temperature sensor
X19	ID fan	X45	Lambda sensor
X20	Overtemperature reset (OTR)	X47	Speed measurement ID fan
X23	Feed motor	X48	Door contact switch
X24	Motors for heat exchanger cleaning	X49	Filling level sensor (intermediate pellet store)
X26	Primary supply air holding magnet	X53	Touch display connection
X27	Ignition supply air holding magnet		
X30	Tank temperature sensor top		

## 7.4 Connecting the control to the internet

To connect the boiler control to the Internet, connect the Ethernet port **X2** (type RJ45) on the back of the display → 28 to a network router via cable. The connection is required in order to use the following functions:

- mySOLARFOCUS app
- Weatherman function
- IP-VNC (remote access to the boiler control)
- Sending e-mails

## 7.5 Connecting the heating circuit pump (X9, X10)



- ▶ Connect heating circuit pump 1 to power element connector X9 and heating circuit pump 2 to X10.
- ▶ If required (e.g. in the case of underfloor heating), connect a limiting thermostat.
- ▶ If a limiting thermostat is not used, the contact must be bridged.

## 7.6 Electrical fusing

### Fuses on the power element

Fuse	Rating	Size	Assignment
F1	T 3.15 A	5x20 mm	Fuse 230 V AC: Pre-fuse main transformer
F2	T 125 mA	5x20 mm	Fuse 230 V AC: Pre-fuse standby transformer
F3	T 10 A	5x20 mm	Fuse 230 V AC: Relay outputs
F5	F 8 A	5x20 mm	Fuse for X18 (power supply to external modules 230 V AC)
F6	F 8 A	5x20 mm	Fuse 230 V AC: Triac outputs
F7	T 2.5 A	5x20 mm	Fuse 12 V AC: Heating lambda sensor
F8	T 2.5 A	5x20 mm	Fuse 18 V AC: Internal electronics for main transformer
F9	T 800 mA	5x20 mm	Fuse 18 V AC: internal electronics, standby transformer; display supply
F10	T 10 A	5x20 mm	Spare fuse
F11	F 8 A	5x20 mm	Spare fuse
F12	F 0.5A	5x20 mm	230 VAC fuse: Relay outputs X26, X27 (and X80)
F13	F 0.5A	5x20 mm	Spare fuse for F12

## 7.7 Types of sensors - overview

Measuring sleeve	Colour	Cable Material / finish	Length	Sensor type	Art.No.	Use
15 cm	silver	Stainless steel braid	3 m	PT100	69688	Flue gas temperature sensor (pellet <sup>plus</sup> , octo <sup>plus</sup> , thermi <sup>nator</sup> I)
			1.6 m	PT100	69681	Flue gas temperature sensor (thermi <sup>nator</sup> II 22-30)
			2.1 m	PT100	69682	Flue gas temperature sensor (thermi <sup>nator</sup> II 36-60, pellet <sup>top</sup> , pellet <sup>plus</sup> )
			1 m	PT100	69680	Feed sensor rotary valve (pellet <sup>top</sup> , octo <sup>plus</sup> )
13 cm	grey	PVC cable	2 m	PT1000	1622	Flow sensor for fresh water module <i>fast</i>
	red	Silicone cable	2.1 m	PT100	69687	Feed sensor pellets / wood chips feed
5 cm	red	Silicone cable	3 m	KTY81-110	69686	Return sensor, boiler temperature sensor, external boiler sensor
	black	PVC cable	3 m	KTY81-110	69095	Tank sensor
		PVC cable	5 m	PT1000	69095-1000	Tank sensor
	black	PVC cable	5 m	PT1000	69098-1000	Flow sensor
		Silicone cable	5 m	KTY81-110	69689	Return sensor pellet <sup>top</sup> 70
2 cm	grey	PVC twin cable	2 m	PT1000	1621-PT	Tank sensor
	white	PVC twin cable	2 m	KTY81-210/B	1621	Tank sensor
	red	Silicone cable	2 m	KTY81-210/B	1620	Collector sensor
	black	Silicone cable	2 m	PT1000	1620-PT	Collector sensor
2 cm x 1.5 Ø Contact sensor	black	PVC cable	2 m	KTY81-110	69098	Flow sensor
-	-	to be provided on-site	-	KTY81-110	69096	Outside temperature sensor; (plastic housing 66x60x39 mm)
-	-	to be provided on-site	-	PT1000	69096-1000	Outside temperature sensor; (plastic housing 66x60x39 mm)

## 8 Initial commissioning

**i** Initial commissioning of the boiler may only be performed by qualified personnel (SOLARFOCUS service technician or SOLARFOCUS service partner) (= condition for guarantee / warranty)

Checklist for initial commissioning

- *Commissioning log* for biomass systems, ➔ 40
- *Network Scan* function in boiler control
- *Output test boiler* function
- *Output test heating circuit* function

Further information on the functions listed can be found in the boiler operation manual.

### Boiler-controlled room air flap - electrical connection

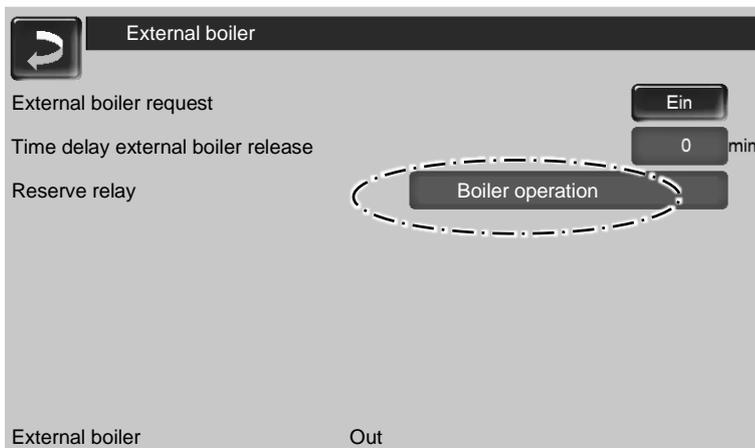


Fig. 8-1

- ▶ When using a boiler-controlled room air flap, select the *boiler operation* parameter for the *Reserve relay* parameter (the flap opens when the burner is running).
- ▶ Connect the room air flap on the boiler power element to X6 (230 V AC).

The parameter *Reserve relay* is located in the *Service menu > External boiler*.

## 8.1 Commissioning log

**SOLARFOCUS GmbH, Werkstraße 1, A-4451 St.Ulrich/Steyr**

e-mail: [office@solarfocus.at](mailto:office@solarfocus.at)  
web: [www.solarfocus.com](http://www.solarfocus.com)

Tel.: +43 (0) 7252 / 50 002 - 0  
Fax: +43 (0) 7252 / 50 002 - 10



### Commissioning log for biomass heating systems

DR-0074-EN / v15-202102

> Return by fax +43 7252 / 50002-953 or by e-mail [service@solarfocus.at](mailto:service@solarfocus.at)



#### System operator

First name / surname .....  
Street .....  
Postcode / city .....  
Phone .....  
Email .....

#### Service representative

Company .....  
Street .....  
Postcode / city .....  
Phone .....  
Email .....

#### 1. Heating system data

##### a) Boiler

Serial number: .....

- ecotop<sup>zero</sup>**       15    20    24  
**ecotop<sup>light</sup>**       15    20    24  
**octo<sup>plus</sup>**       10    15    15.5    22  
**pellet<sup>elegance</sup>**       10    15    20    24  
**pellet<sup>top</sup>**       35    45    49    70  
**thermi<sup>nator</sup> II touch**       18    22    27    30    36  
     40    45    49    60  
**maxi<sup>imus</sup>**       150    200    250    300

##### b) Pellet storage

- Storage room       Pellet box (fabric silo)  
 Intermediate store 110    Intermediate store 250  
 Underground tank

##### c) Pellet transport

- Auger extraction       Downpipe  
 Vacuum output with ...  
 Individual suction head    Suction auger  
 Automatic diverter for suction heads, with  
      max. 6 heads    max. 12 heads  
 Manual diverter for suction heads  
 Pellets-Distribution Box    Mole

##### d) Wood chip transport

- Direct extraction       Downpipe  
 Intermediate auger

##### e) Hydraulic installation acc. to...

- Schematic No. ....  
 Schematic acc. to supplementary sheet

##### f) Control

- Heating circuit       DHW tank  
 Buffer tank       Circulation control  
 Solar system

##### g) Other

- Flue gas pipe connection:  Upwards    Rearwards  
 Condensing module  
 Electrostatic dust collector  
 Room-sealed operation  
 Central control

**2. Commissioning: Activities, controls**

1. Checked for transport damage
2. Boiler assembly: Tightness, operating pressure, return flow boosting mounted
3. Assembly of the delivery system: Storage room, impact protection mat, ...
4. Mounting of the pellet hoses: correct direction, earthing, fire protection collars
5. Thermal overload protection installed
6. Flue gas pipe installation: Tightness, insulation, chimney draught stabiliser installed
7. Electrical supply line: Power connection is made directly  or by means of a Schuko plug
8. System connected to potential equalisation: Heating pipework system, electronic module, filling/intake pipe, extraction
9. Diverter for suction heads connected to potential equalisation
10. Direction of rotation: ID fan, mixer and drive motors, pumps
11. Sensor positioning: Flow, return, DHW tank, buffer tank
12. DHW tank 750 and 1000 l: Parasitic current anode connected and functional
13. Test operation: Log wood, automatic log wood function, automatic pellet or wood chip function
14. Chimney draught: cold = ..... hPa, hot = ..... hPa
15. Pellet or wood chip quality OK: Dust content, humidity, ...
16. Heating water - measured pH value: .....
17. Boiler and cleaning equipment as well as all necessary sensors supplied
18. Set parameters according to prog. Version ..... documented
19. Menus, choice of fuel and fire lighting explained (in accordance with the operation manual)
20. Cleaning intervals and activities declared (according to operation manual)
21. Walkthrough for pellet storage area according to VDI 3464 has taken place
22. Notes on safety controls (at the factory - warranty condition)
23. Error messages and troubleshooting measures explained
24. Note on extended warranty / maintenance contract is completed
25. Photo of finished installation, customer allows use as reference
26. Work report and invoice via e-mail requested

Here any additions to individual items lead

- No .....

**3. Status, conclusion**

- The system was shut down due to safety faults. The system may be put into operation only after the faults have been fully rectified. The listed deficiencies are resolved...
- by (date) .....
- by the heating engineer     by customer service  
 by the system operator
- The system operator / heating engineer hereby confirms the professional installation and functionality of the system; local installation regulations have been complied with by the system installer.
- The system operator has been instructed in terms of the operation, mode of operation, as well as maintenance and cleaning of the biomass system, and the operation manual / commissioning form was handed over to him.
- Commissioning carried out on .....
- Signature of qualified personnel .....
- Signature of system operator .....

The goods remain the property of SOLARFOCUS GmbH until full payment. Only our terms and conditions apply – available on the internet. The place of jurisdiction for disputes is 4400 Steyr. The domestic jurisdiction in Austria is agreed.

## 8.2 Customer service order form



DR-0075-EN / v15-201707

### Customer service order form for biomass heating

Return by Fax +43 7252 / 50002-953 or by e-mail [service@solarfocus.at](mailto:service@solarfocus.at)

System operator	Service representative
First name / surname .....	Company.....
Street .....	Street .....
Postcode / city .....	Postcode / city .....
Telephone .....	Telephone .....
Email .....	Email .....
Is the system operator present on the date <input type="checkbox"/> yes <input type="checkbox"/> no	

**The form sender is the**

System operator  Heating engineer  Wholesaler

**Requirement type**

Commissioning  Customer service  Recall  Other

**Desired date**

1) ..... 2) .....

**Invoice to**

System operator  Heating engineer  Wholesaler

**SOLARFOCUS representative responsible**

.....

**Wholesaler responsible / location**

.....

**Heating system data**

**Boiler**

Serial number.....

Revision number.....

octo<sup>plus</sup>

10  15  15.5  22

pellet<sup>elegance</sup>

10  15  20  24

pellet<sup>top</sup>

15  25  35  45  49

70

thermi<sup>ator</sup> II

18  22  27  30  36

40  49  60

**Pellet transport**

Pellet supply via auger

Downpipe system

Suction system with...

Individual suction head

Extraction auger for vacuum system

Automatic diverter for suction heads,  max. 6 heads,

max. 12 heads

Diverter for suction heads - manual

Pellet distribution box

Mole

**Pellet storage**

Storage area

Pellet box (fabric tank)

Intermediate store  110  250

Underground tank

**Wood chips transport**

Direct extraction

Downpipe system

Intermediate auger

**Hydraulic installation acc. to**

Schematic acc. to supplementary sheet

Schematic No. ....

**Controller**

Heating circuit

Domestic hot water tank

Buffer tank

Recirculation control

Solar system

**Other**

Room sealed appliance (RSA)

Central control

**Description** (request, service order, ...)

.....

.....

.....

Date, Signature (Form Sender)

.....

With my signature, I confirm that the information provided is correct and that installation of the system (hydraulic & electrical) will be completed by the date set for commissioning, incl. an adequate supply of fuel. Waiting times and/or additional assignments will be charged separately.

To be completed by SOLARFOCUS

Date confirmed for (date/time):	COMM ordered acc. to customer service order form	Paid <input type="checkbox"/> Yes <input type="checkbox"/> No	Processed by SOLARFOCUS	Service engineer
.....	.....	.....	.....	.....

**SOLARFOCUS GmbH, Werkstraße 1, A-4451 St. Ulrich/Steyr**

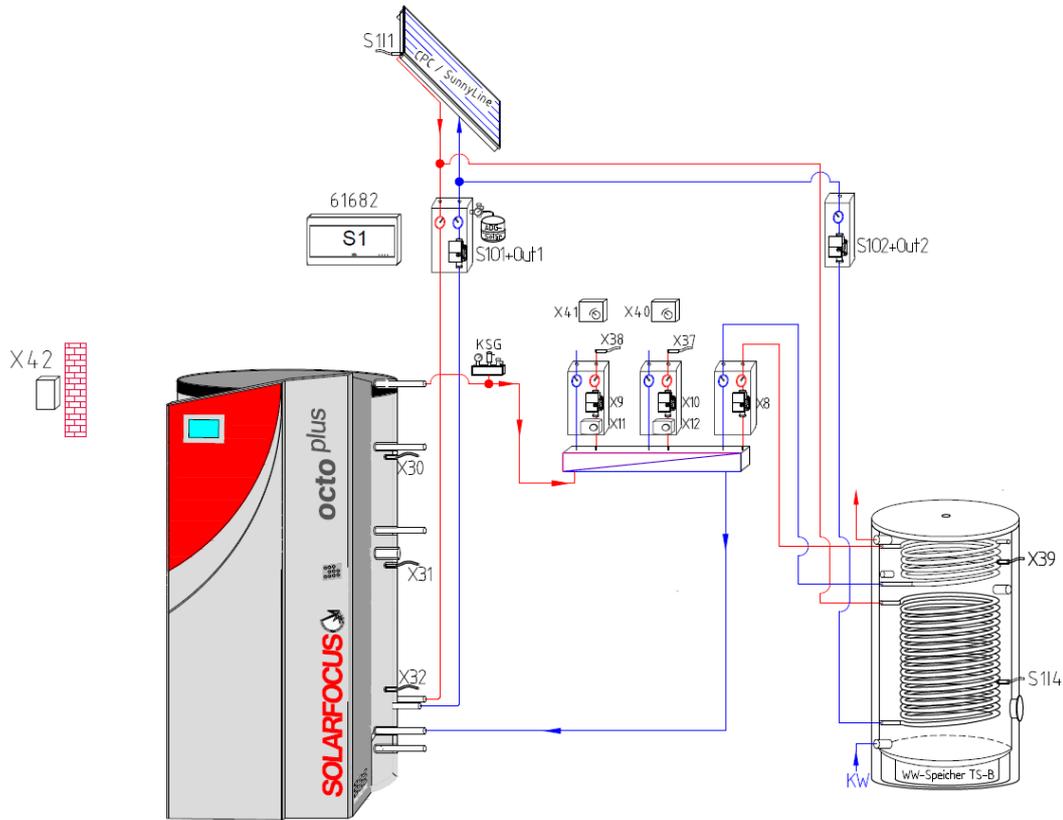
e-mail: [office@solarfocus.at](mailto:office@solarfocus.at) Tel.: +43 (0) 7252 / 50 002 - 0

web: [www.solarfocus.at](http://www.solarfocus.at) Fax: +43 (0) 7252 / 50 002 - 10

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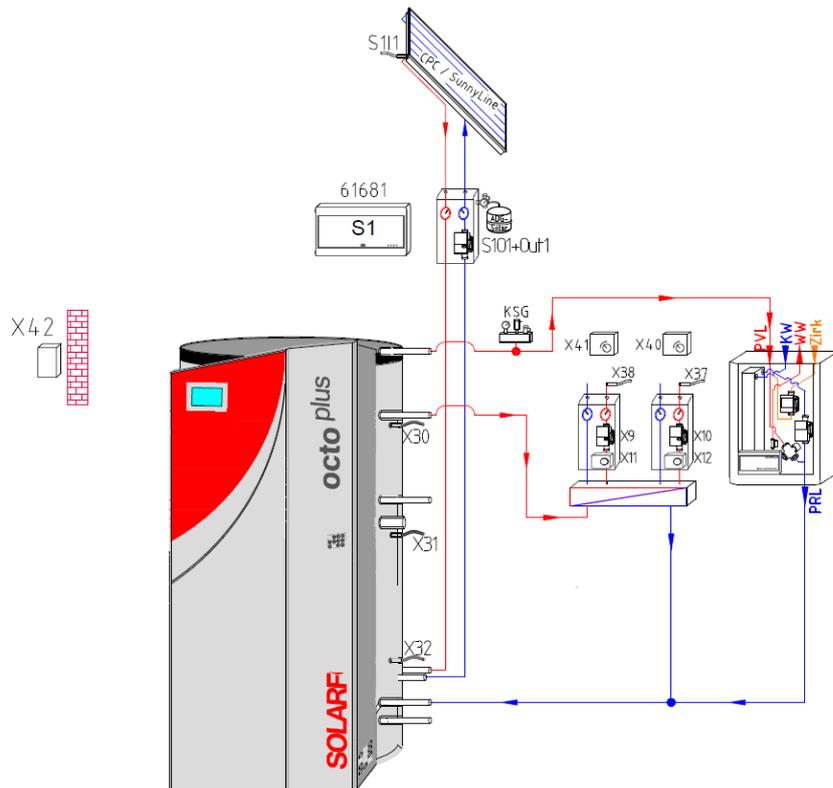
## 9 System schematic

### 9.1 octo<sup>plus</sup>, with DHW tank and solar system



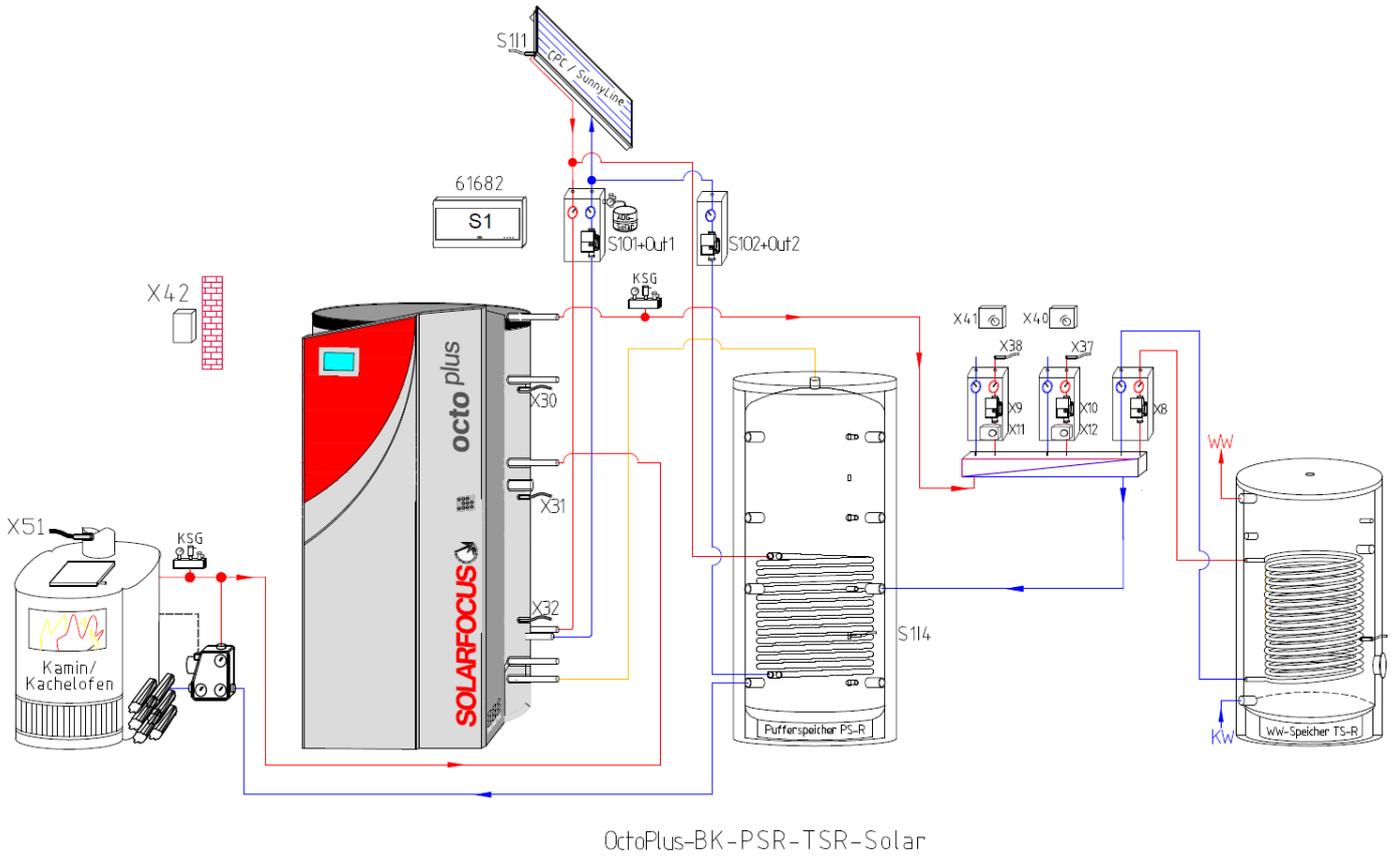
OctoPlus-TSB-Solar

### 9.2 octo<sup>plus</sup>, with fresh water module and solar system

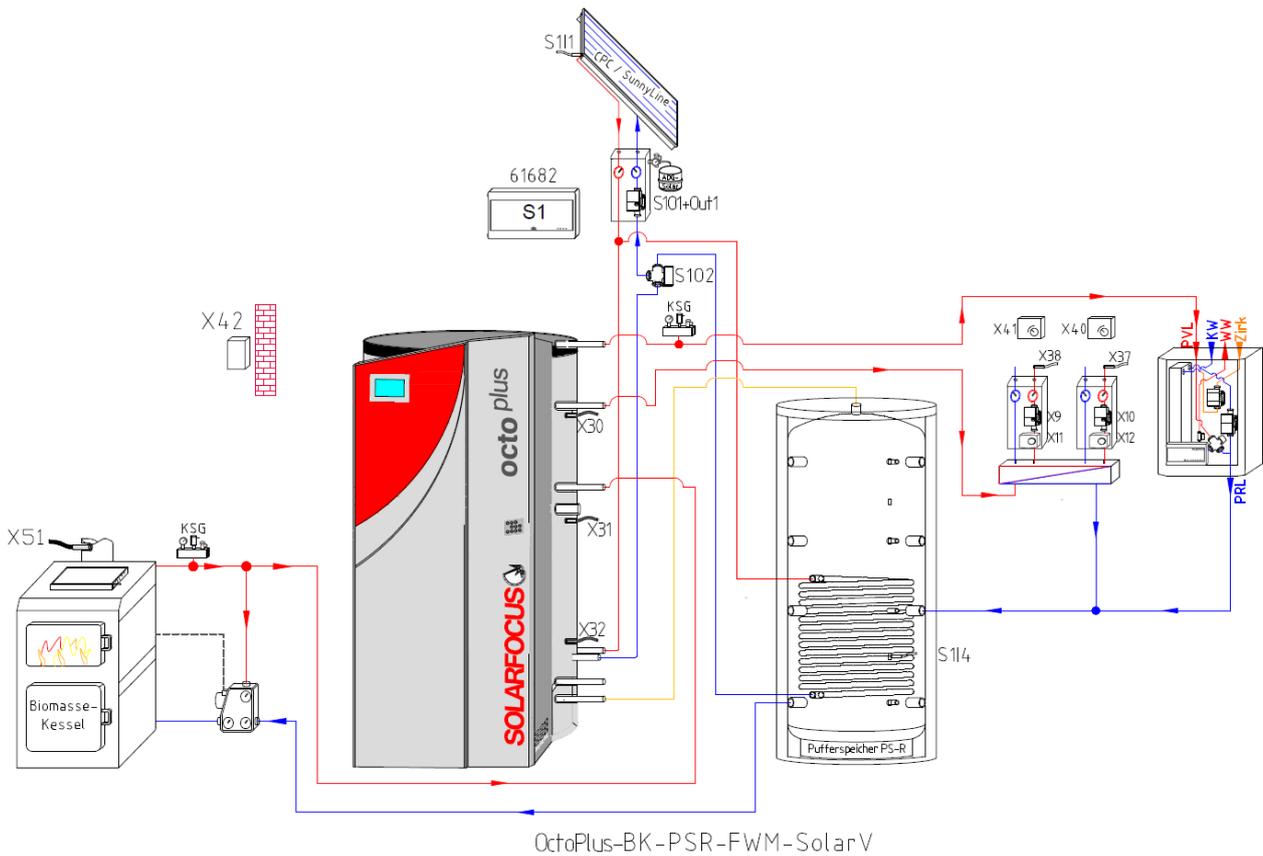


OctoPlus-FWM-Solar

### 9.3 octo<sup>plus</sup>, with biomass boiler, buffer tank, DHW tank, solar system



### 9.4 octo<sup>plus</sup>, with biomass boiler, buffer tank, fresh water module, solar system









# Innovative products that are easy on the environment and your wallet.

Everything from a single source

- ☑ Biomass heating
- ☑ Solar energy systems
- ☑ Heat pumps
- ☑ Fresh water technology



## Products for



Pellets



Log wood + pellets



Log wood



Wood chips



Solar energy



Fresh water



Heat pump

### Österreich

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