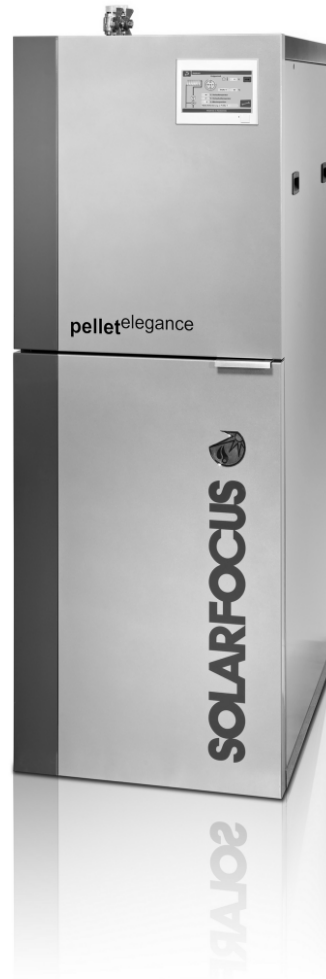


pellet^{elegance} 10/15



pellet^{elegance} 20/24



Pellet boiler pelletelegance

Installation manual for qualified personnel

Read carefully before operating.

DR-0032-EN / v35a-202109

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1 About this manual

Dear heating engineer

To ensure reliable and efficient operation of the heating system, the following points are extremely important:

- Correct installation
- Training of customers in initial commissioning
- Complying with the specifications and instructions in this manual
- Regular maintenance by the system operator
- Regular maintenance by qualified personnel

Language

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

Storage

Keep the manual for the entire service life of the product and ready to hand. The manual must be passed on to the new owner when the product is dismantled/reused. If the manual is lost or destroyed, request a new copy from the manufacturer.

Instructions and warnings

The instructions used in this manual are highlighted with symbols and signal words. The signal word indicates the level and nature of the danger.



Indicates information for correct handling of the product.



ATTENTION - Failure to comply with this instruction could result in damage to property.



DANGER - Failure to comply with this instruction poses a danger to people.

Manufacturer

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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 devices

- 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 (cables, plugs, switches) becomes damaged, switch off the power supply and have the insulation repaired.
- In the case of visible damage (e.g. thermal deformation, mechanical damage) do not continue to use the system. The system may only be operated if it is in perfect technical condition.

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 only be performed by trained electricians and in accordance with the relevant rules and directives.

Installation and commissioning

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

3 Technical requirements

3.1 Warranty, guarantee, liability

Warranty claims are valid as part of 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 permanently reliable functioning of the boiler,
 - for energy-saving and environmentally friendly operation of the boiler,
 - for a long boiler service life.
- 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 > 1 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 > 8 (limescale on heat exchanger surfaces):
 - Take the water hardness into account
 - Soften the fill-up water, or better: desalinate it.
- Avoiding water-side corrosion > 9 (is triggered by the oxygen in the water):
 - Correct system planning, correct dimensioning, take material combinations into account.
 - Repair leaks immediately.
 - Expansion tank > 9 (prevents air from being drawn in when the system cools down): Correctly set the pressure, check it regularly.
 - Existing underfloor heating: Take care with old, diffusion-open plastic pipes > 10

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.
- In the case of the **pellet** *elegance*, this is ensured by the return flow boosting which is integrated as standard.

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.
- The company 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 time-frame.

3.1.4 Limitation of liability

SOLARFOCUS GmbH accepts no liability for injury or 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.
- Deployment 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:

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 W/(K.m²)
- **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



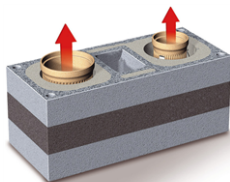
- Austria: A 6 kg ABC powder extinguisher is specified as the minimum requirement. Install it outside the boiler room in an easily visible and quickly accessible place.
- Germany, Switzerland: In private homes, no fire extinguisher is required for heating systems. However, having a fire extinguisher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

Keep escape routes clear



- Under staircases, on escape routes and in unconverted attics, the installation of fireplaces is inadmissible.

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.

As a general rule of thumb:

For nominal boiler outputs of up to 25 kW, select a chimney diameter of 13 cm.

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 > 21

Minimum draught requirement for boiler: 5 Pa

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

Recommended chimney diameter

Install explosion flap



Abb. 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

For Austria (according to standard H 5170):

- For the supply air, 2 cm² per kW thermal output of the fuel, but allow at least 200 cm² free cross-section. (Fuel heat capacity = boiler capacity / efficiency)
- For the exhaust air, allow at least 180 cm² free cross-section up to 100 kW nominal heat and an additional 1 cm² free cross-section for every further kW.

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

For Germany In accordance with the Model Firing Ordinance:

- For heating appliances with a nominal output of up to 35 kW, a combustion air opening of at least 150 cm² or 2 x 75 cm² routed directly into the open air must be provided.
- Alternatively, a door/window leading outside and a room content of at least 4 m³/kW nominal heat output are suitable. If the Aufstellraum 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 kW, provide a free aeration cross-section of at least 150 cm². From 50 kW upwards, for aeration and ventilation, provide a minimum free cross-section of 150 cm² for each, plus 2 cm² per kW in excess of 50 kW.

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

Boiler power [In kW]	Minimum space [in cm ²] including 20% surcharge for grids			
	Austria		Germany	Switzerland
	Supply air	Exhaust air	Supply air/Exhaust 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

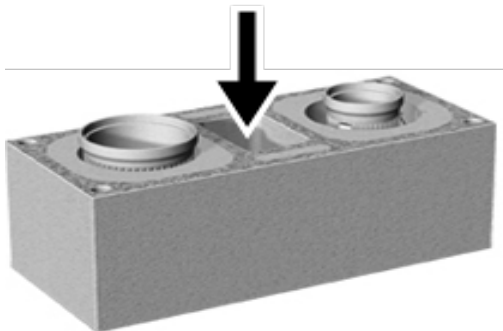
3.6 Room sealed operation (RS)

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.

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 > 17

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 rate of corrosion of the installed metal materials is primarily achieved when the circulation water is in the correct pH range (8.2 to 9.5) while at the same time, the electrical conductivity (50 to 100 µS/cm) is as low as possible.

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 calcium carbonate 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*

$$1166 \text{ litres} / 25 \text{ kW} = 46.64 \text{ l/kW specific system volume}$$

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 l/kW
< 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 > 9: 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 > 10

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/m³ tri-sodium phosphate (Na₃PO₄) or 5 g/m³ 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.

	Low salt
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.

 The **pellet elegance** has integrated return flow boosting as standard, i.e. no further measures are required in this regard.

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 > 8).

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 > 8)
- 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 read off the manometer) 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 > 9).
- 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.

Buffer tank: Use, dimensioning

Advantages of using a buffer tank:

- The boiler can always be operated in the optimum load range. This results in a longer boiler service life and reduces emissions.
- Avoids unnecessary boiler start phases, the higher fuel consumption during the start phases is significantly reduced.
- Continuously heated water is available in the buffer tank for the heating circuit. The heating circuits can therefore always be quickly supplied with heat at all times.

If the heating system is operated without a buffer tank, a hydraulic switch > 10 must be installed.

Dimensioning the buffer tank:

For pellet boilers, a buffer tank volume of at 30 litres per kW heating output is recommended.

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 separator



- The separator removes circulating, magnetic and non-magnetic free dirt and sludge particles (as of 5 µm) 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

Qty.	Designation
1	Boiler, preassembled
1	Return flow booster, integrated
2	Combustion grate
1	Bag (transparent) with outdoor temperature sensor
1	Flue pipe extension from Ø 80 to Ø 100 mm for pellet ^{elegance} 10/15 from Ø 100 to Ø 130 mm for pellet ^{elegance} 20/24 Further information > 20
1	Operation manual
1	Installation manual

Not included in the standard scope of delivery:

- Pellet hose
- Flue pipe to chimney
- Chimney connection material
- Integratable heating circuits HC1, HC2.

4.2 Accessories

Lifting aid

- Optional accessories for carrying/moving the boiler.
- Art. 6144

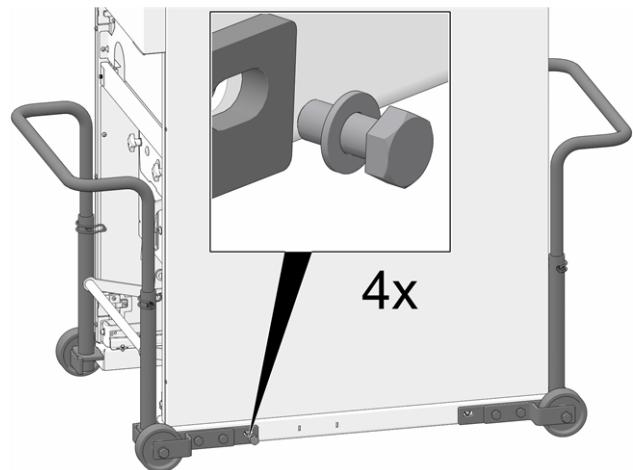


Abb. 2-2: Lifting aid mounted

Extension pack for operation as a room-sealed appliance (RS)

- Optional accessories for operation of the boiler as a room-sealed appliance.
- Item 67250
- Further information about room-sealed operation > 8

► Establish the room-sealed connection > 17

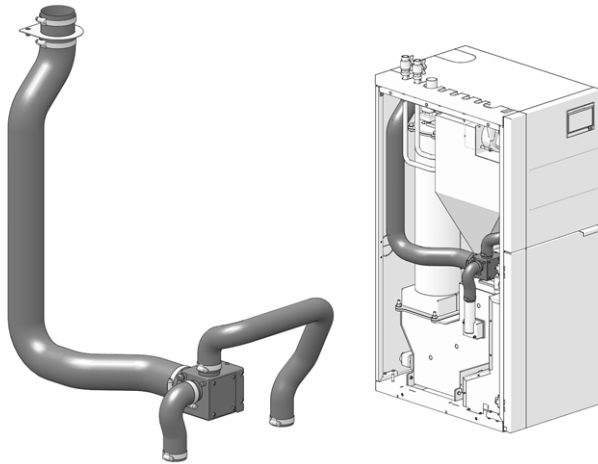


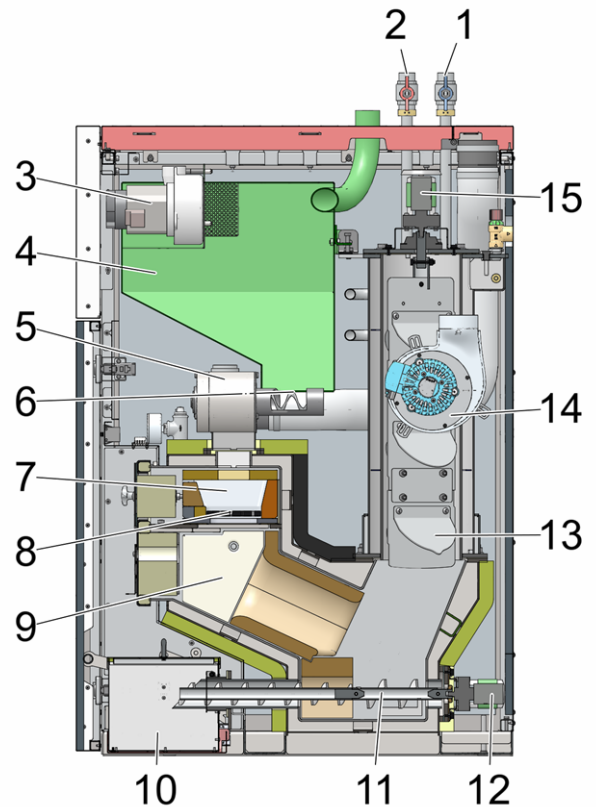
Abb. 2-3_RS Extension

Extension for flue gas pipe connection

- Optional accessories for extension of the connection to the top of the boiler.

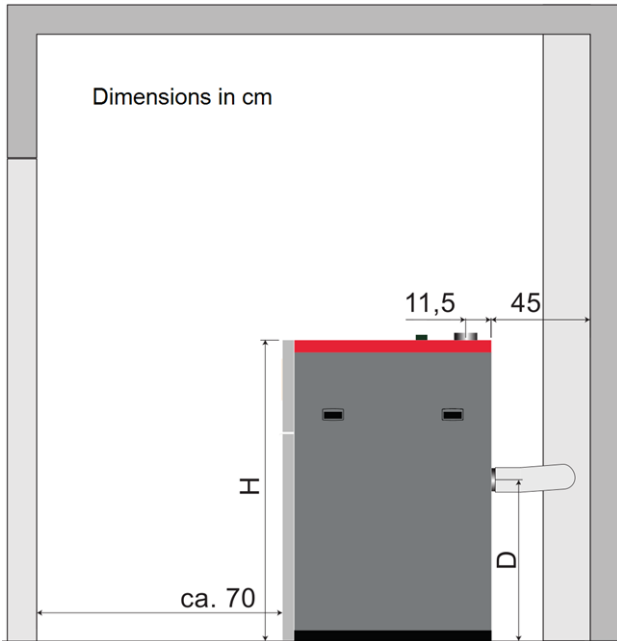
► Establish the chimney connection > 20

4.3 Functional components

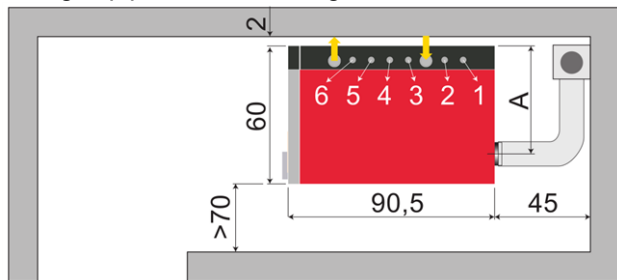


- 1 Buffer tank return / DHW tank return
- 2 Buffer tank flow / DHW tank flow
- 3 Suction turbine for pellets
- 4 Intermediate pellet store
- 5 Rotary valve
- 6 Pellet auger
- 7 Filling chamber
- 8 Combustion grate
- 9 Combustion chamber
- 10 Ash container
- 11 Ash extraction auger
- 12 Ash extraction auger motor
- 13 Heat exchanger turbulator
- 14 ID fan
- 15 Heat exchanger turbulator motor

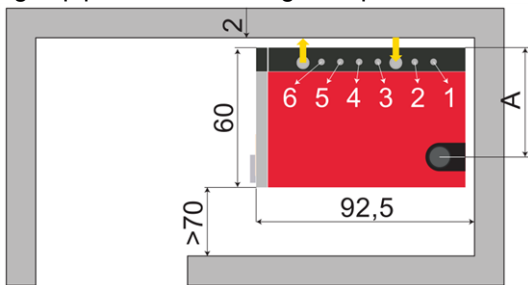
4.4 Dimensions and connections



Flue gas pipe connection aligned backwards



Flue gas pipe connection aligned upwards



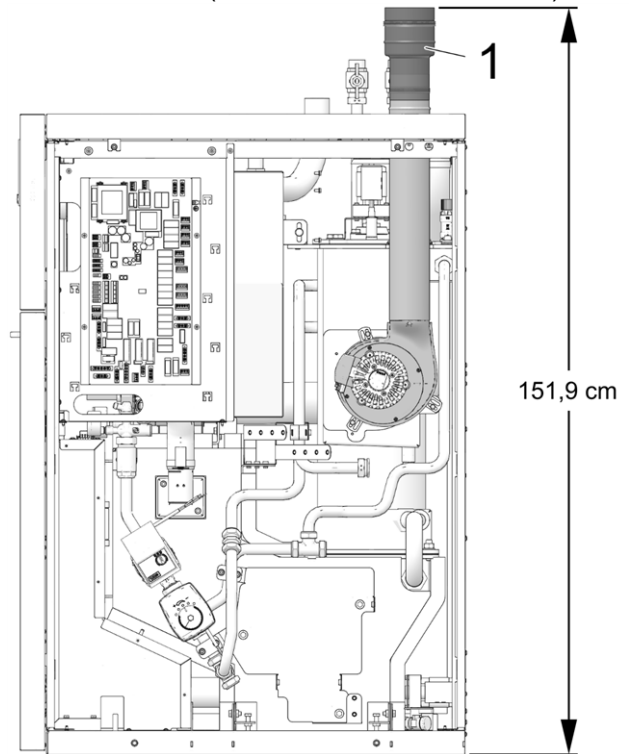
- 1 Buffer tank return / DHW tank return
- 2 Buffer tank flow / DHW tank flow
- ↓ Pellet suction
- 3 Heating circuit 1 - return
- 4 Heating circuit 1 - flow
- 5 Heating circuit 2 - return
- 6 Heating circuit 2 - flow
- ↑ Pellet return air

All hydraulic connections external thread 1" flat sealing.

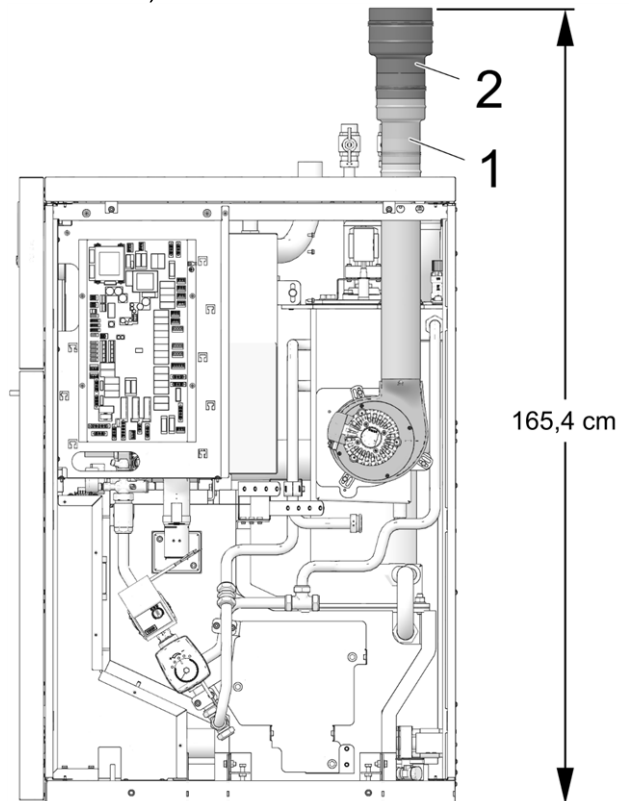
4.4.1 Flue gas pipe facing upwards - dimensions

pellet elegance 10 and 15

With extension 1 (Ø80 to Ø100 mm, Art. 97013).

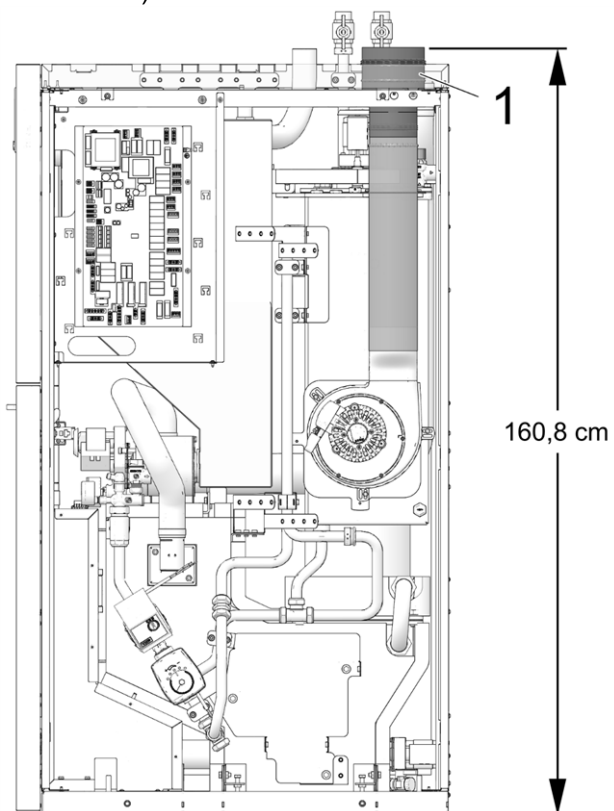


With extension 1 (Ø80 to Ø100 mm, Art. 97013), and optional extension 2 (Ø100 to Ø130 mm, Art. 66556NIRO).



pellet elegance 20 and 24

With extension 1 (Ø100 to Ø130 mm, Art. 66556NIRO).



Overview of the pellet elegance flue gas pipes > 20

4.5 Technical specifications

pellet ^{elegance}		10	15	20	24
Power range	[kW]	2.9 - 9.9	4.4 - 14.9	5.9 - 19.8	7.2 - 24
Energy efficiency class		A+			
Boiler class (acc. to EN 305:5 2012)		5			
Boiler efficiency - full load	[%]	93.80	93.90	94	94.40
Boiler efficiency - partial load	[%]	94	92.42	94.30	94.30
Dimensions					
Width	[cm]	60			
Depth	[cm]	90.5			
Height (H) - incl. adjustable feet, feet screwed in all the way - without hydraulic connections on the top of the boiler	[cm]	130		157	
Minimum room height	[cm]	180		185	
Weight					
Weight	[kg]	288		329	
Water side					
Water content	[l]	25		36	
Thermal overload protection	[°]	not required			External thread 1/2"
Drain	[°]	External thread 1/2"			
Max. permissible operating pressure	[bar]	3			
Electrical connection					
Connection, fuse		230 V AC, 50 Hz, C13 A			
Fuel					
Fuel		Wood pellets acc. to EN17225-2, ENplus-A1			
Capacity of intermediate pellet store	[l]	48		88	
Flue gas side					
Flue gas pipe diameter	[cm]	10		13	
Height to centre of flue pipe (D)	[cm]	70		72	
Flue pipe - side (A)	[cm]	44		47	
Capacity of ash container	[l]	16.3		16.3	
Flue gas mass flow full load	[g/s]	5.5	8.4	10.5	12.5
Flue gas mass flow partial load	[g/s]	2.5	3	3.5	4.1
Maximum flue gas temperature ^[1] full load	[°C]	140			
Maximum flue gas temperature ^[1] partial load	[°C]	100			
Minimum draught requirement ^[2]	[Pa]	5			
Emissions according to test report					
Flue gas values (in relation to 13% O ₂) from test report: testing institute/test report No.		TÜV Austria /14-UW-Wels-EX-425-1	TÜV Austria /14-U-023/ALN	TÜV Austria /14-UW-Wels-EX-425-2	TÜV Austria /14-UW-Wels-EX-425-3
CO full load	[mg/m ³]	30	30	30	49
CO partial load	[mg/m ³]	168	132	97	97
NOx full load	[mg/m ³]	112	112	112	111
NOx partial load	[mg/m ³]	111	108	105	105
Org. C full load	[mg/m ³]	3	3	3	3
Org. C partial load	[mg/m ³]	4	3	3	3
Dust content full load	[mg/m ³]	11	13	13	12
Dust content partial load	[mg/m ³]	12	13	14	14

Regulation (EU) 2015/1187

Nominal heating output	[kW]	9.9	14.9	15.5	22
Boiler's energy efficiency class		A+	A+	A+	A+
Energy efficiency class EEI of boiler and control combined		A+	A+	A+	A++
Energy efficiency index EEI of the heating boiler		114	119	121	122
Energy efficiency index EEI of the boiler and control combined		118	123	125	126
Space heating annual usage etaS	[%]	77	80	82	83
Annual emission values					
CO - carbon monoxide	[mg/m ³]	93	103	112	116
NO _x - nitrogen oxide	[mg/m ³]	140	143	146	145
C - Total (carbon)	[mg/m ³]	4	4	3	3
Dust	[mg/m ³]	19	19	20	20

[1] 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)

5 Installation

5.1 Prepare and position the boiler

5.1.1 Removing the ash container

- ▶ Pull the bar of the retaining device upwards and pull the ash container out toward the front.

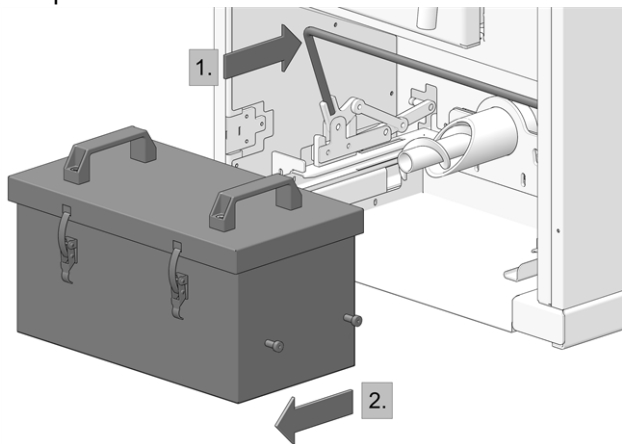
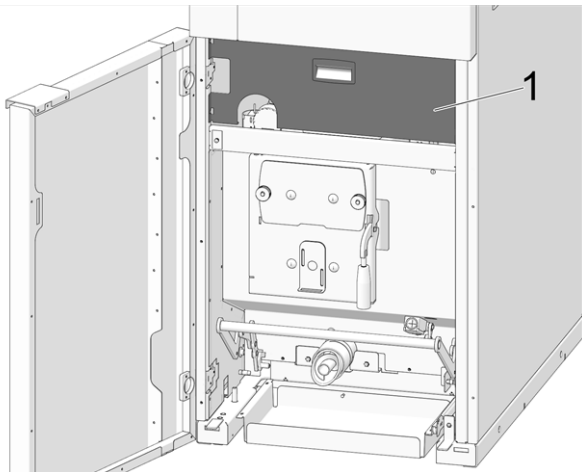


Abb. 2-4

5.1.2 Removing the cover

- ▶ Loosen the 4 screws and remove the cover 1.



5.1.3 Removing the boiler door

- ▶ Pull the small tab underneath the fitting (see fig.).
↙ The hinge is released from the fixture.

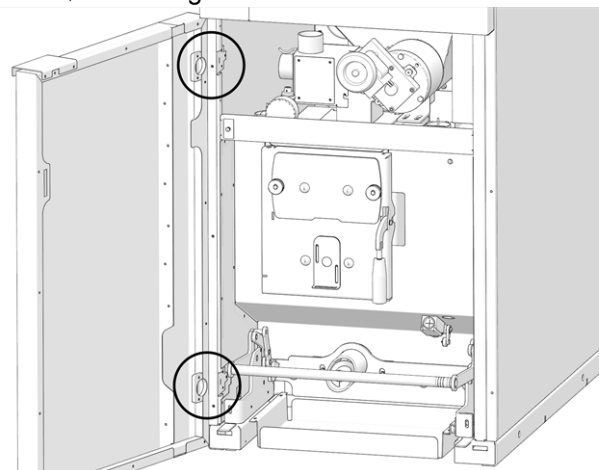
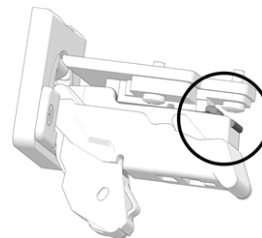


Abb. 2-5



5.1.4 Removing the disposable pallet

- ▶ Remove the 4 x mounting brackets of the boiler/pallet.
- ▶ Optional: Fit the lifting aid > 10 to the boiler.
- ▶ Lift/move the boiler from the pallet.

5.1.5 Placement of the boiler

- i** If the boiler is extended for room-sealed operation > 8, fit the required parts before positioning the boiler.
- i** During placement of the boiler, observe the required minimum distances > 12

5.1.6 Removing the top cover

- ▶ Loosen the 2 Allen screws **1** on the right side of the boiler.
- ▶ Lift the cover up and remove.

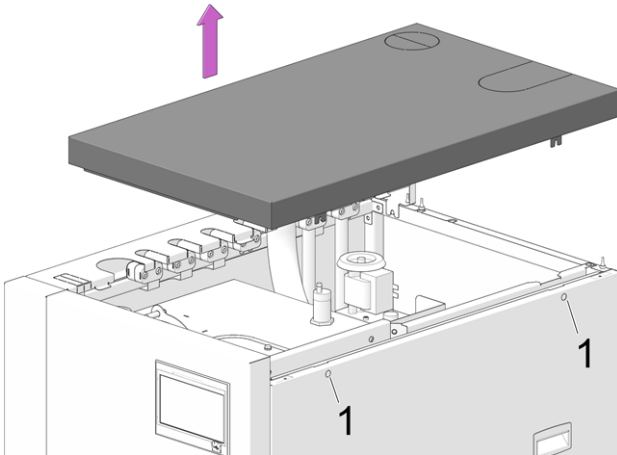


Abb. 2-6

5.1.7 Removing the right-hand side panel

- ▶ Lift the side panel and remove.

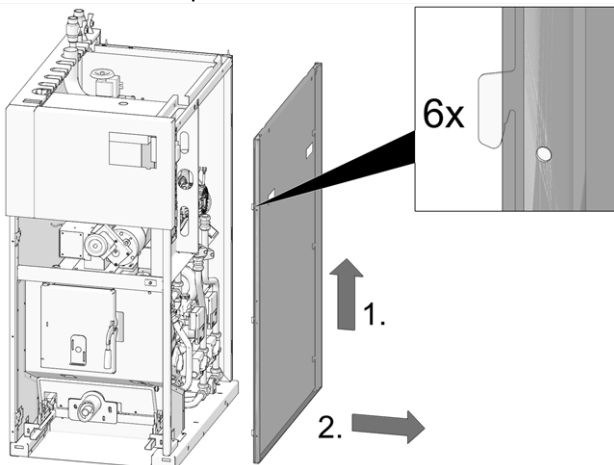


Abb. 2-7

5.1.8 Setting the adjustable feet

- ▶ Set the adjustable feet (x4) as required.

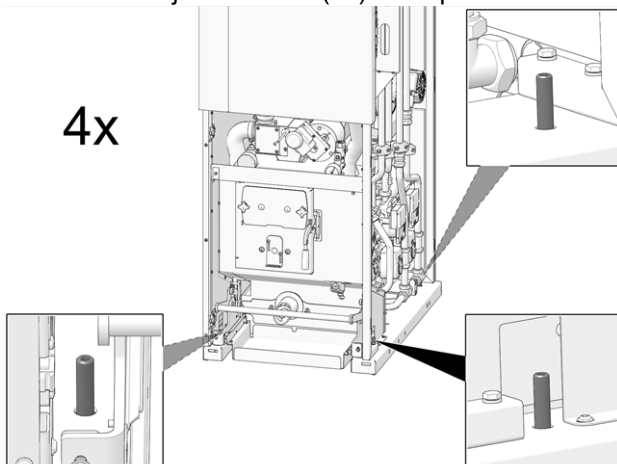
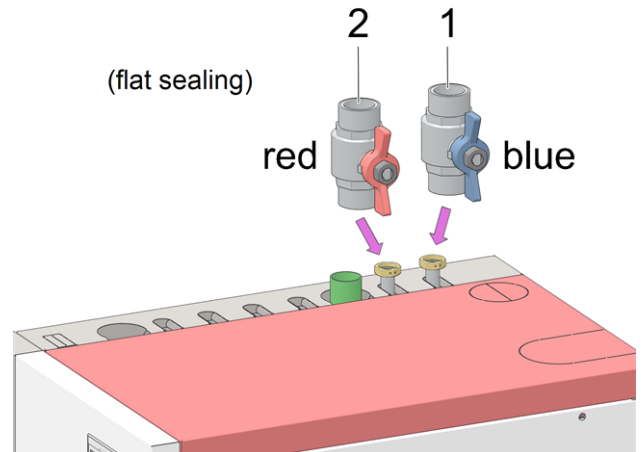


Abb. 2-8

5.1.9 Fitting the ball valve for return **1** and flow **2**

(Only applies to pellet^{elegance} 20 and 24)



5.2 Establishing the room-sealed connection (optional)

Optional extension pack for room sealed operation (Art. no. 67250)

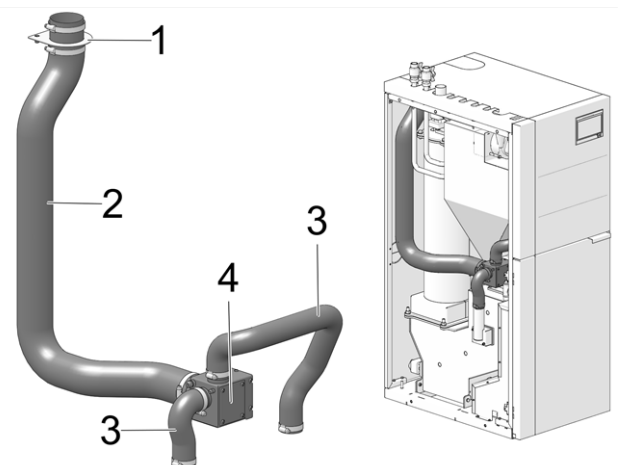


Abb. 2-9

Pos.	Qty.	Designation
1	1	Connection adapter
2	1	Aluminium hose - flexible, Ø 80 mm, length 1 m
3	1	Aluminium hose - flexible, Ø 50 mm, length 2.5 m
4	1	RS air distribution box
	3	Clamp 70 - 90 mm
	4	Clamp 40 - 60 mm

i In case of exceeding the draught demand > 14 an RS draught stabiliser must be installed (e.g. from Kutzner & Weber).

Remove boiler cladding

- ▶ Remove the top boiler cover > 17
- ▶ Remove the right-hand side panel > 17

- ▶ Release the 5 Allen screws and remove the cover **1**.

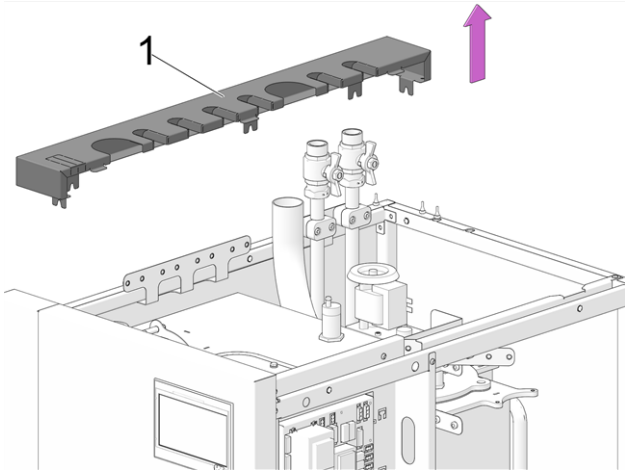


Abb. 2-10

Remove cover (including display)

- ▶ Lift the cover up and remove it by pulling it forward.

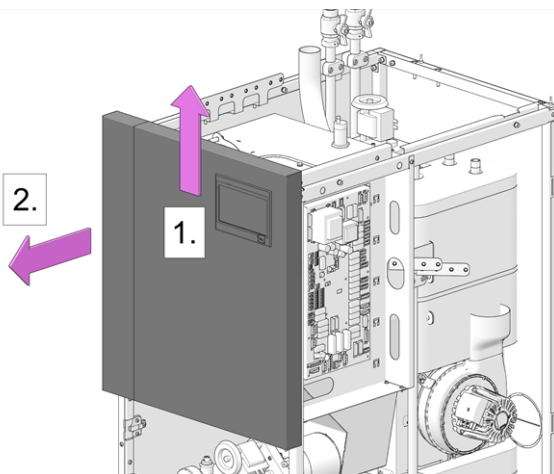


Abb. 2-11

Remove the left side panel

- ▶ Remove the 12 x self-tapping screws and remove the left side panel.

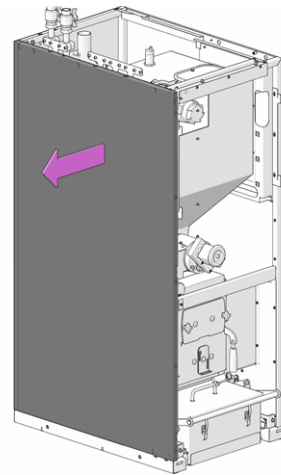


Abb. 2-12

Remove feeder sensor, disconnect cable

- ▶ Remove feeder sensor **1** from the primary air box.
- ▶ Terminate the cable of the primary air holding magnet **2** at the terminal (not at the magnet).

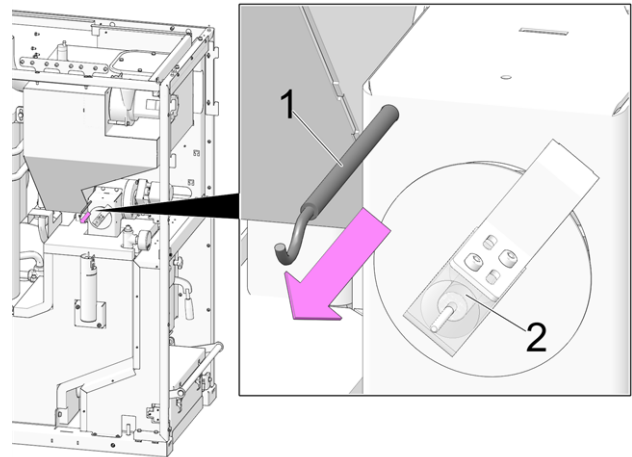


Abb. 2-13

Mount the RS air distribution box

- ▶ Route the cable of the primary air holding magnet in the feed-through **1**.
- ▶ Mount the RS air distribution box **2** with 2 x self-tapping screws **3** on the primary air box (additional sealing is not required).

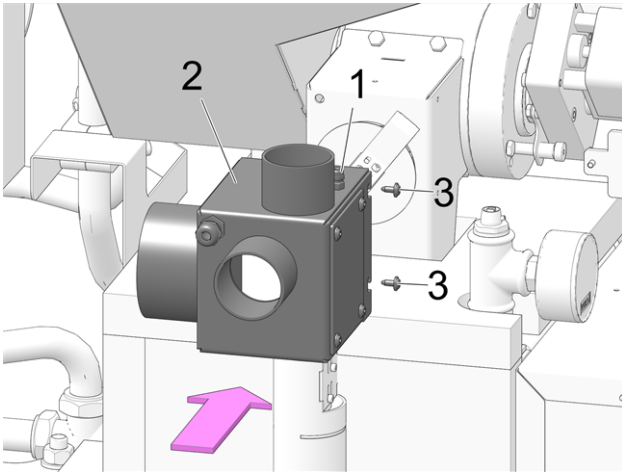


Abb. 2-14

Mount the aluminium hose, clamp the cable

- ▶ Fit the aluminium hose $\varnothing 50$ mm for secondary air **1** and ignition supply air **2** on the connection pipes; clamp the cable (see following figure) between the connection pipe and the aluminium hose).

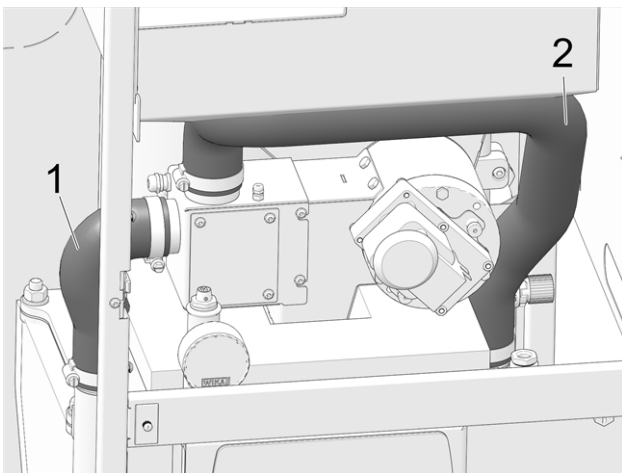


Abb. 2-15: View from the front

Clamping the cable at the hose connection

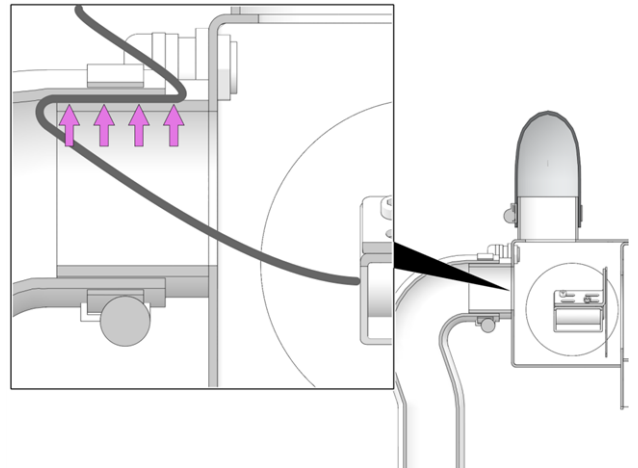


Abb. 2-16:

Mount connection adapter

The outlet for the RS intake line can be either at the rear of the boiler or on top of boiler.

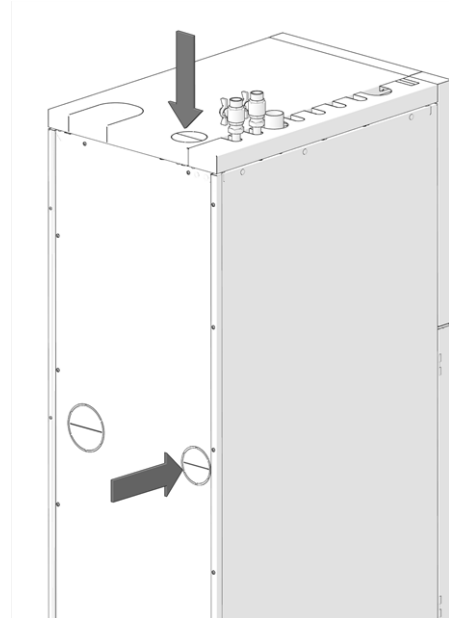


Abb. 2-17

- ▶ Mount adapter **1** with 2 x Allen screws **2**.

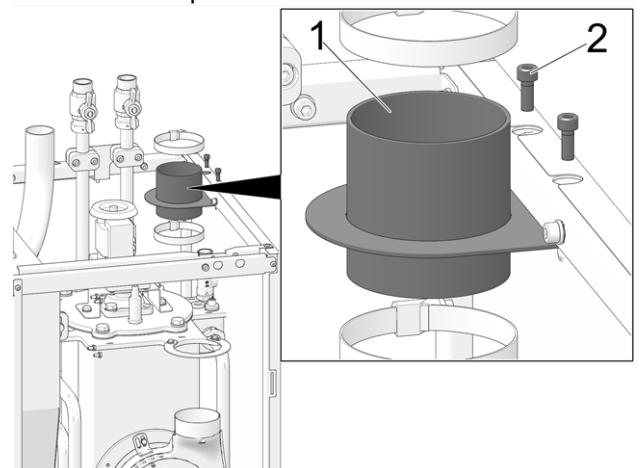


Abb. 2-18

Note: The standard intake line (scope of supply) has a diameter of 80 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 100 mm.

Mount aluminium hose and feeder sensor

- ▶ Mount aluminium hose Ø 80 mm **1** on the connecting pipes, fix with clamps.
- ▶ Insert feeder sensor **2** into the RS air distribution box as far as it will go.

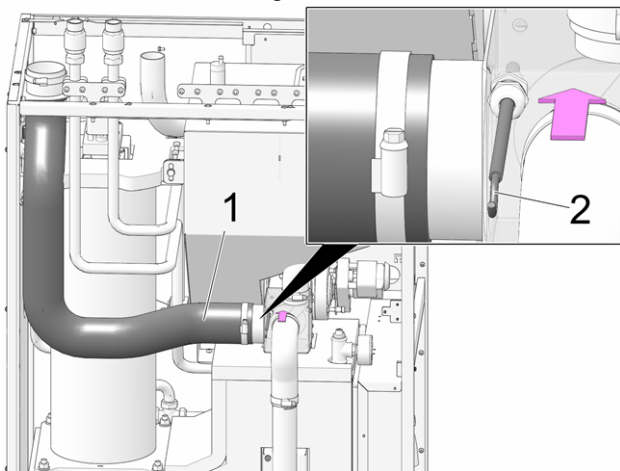


Abb. 2-19

Boiler-controlled room air damper in the RS line (optional)

Function: When the burner is switched off, the damper closes to prevent any exchange of air inside the RS line.

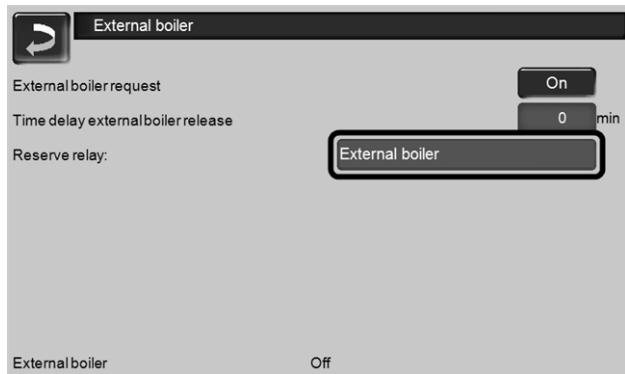


Abb. 2-20: Actuation of a room air damper

- ▶ Connect the room air damper to the boiler power element at X6 (230 V AC).
- ▶ For the parameter *Reserve relay*, select the value *External boiler*.

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

5.3 Establishing the chimney connection

See instructions for execution > 6

5.3.1 pellet elegance Flue gas pipes: Overview

pellet elegance 10 and 15

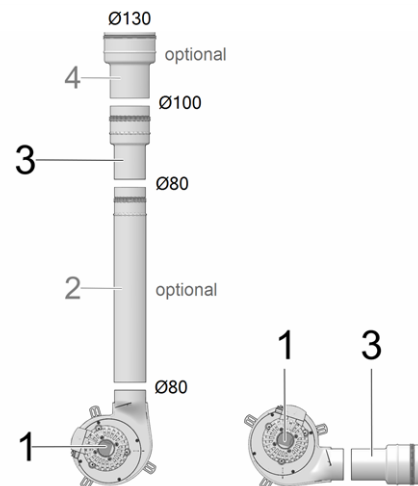


Abb. 2-21

1	ID fan
2	Pipe Ø80 mm, length = 500 mm (Art. 66552NIRO, optional accessory)
3	Extension from Ø80 mm to Ø100 mm (Art. 97013, included in the scope of delivery of the boiler)
4	Extension from Ø100 mm to Ø130 mm (Art. 66556NIRO, optional accessory)

pellet elegance 20 and 24

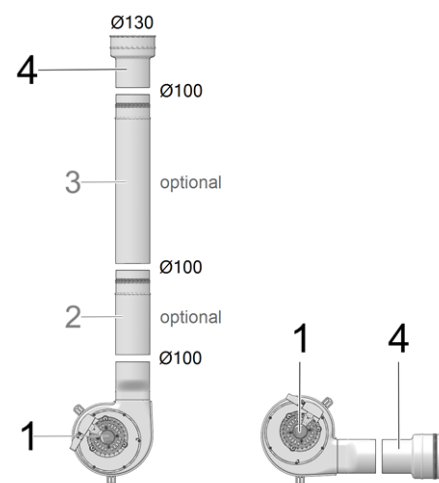
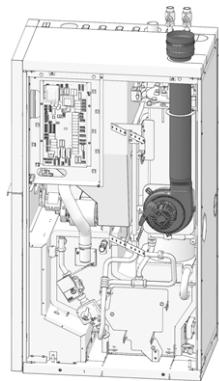


Abb. 2-22

1	ID fan
2	Pipe Ø100 mm, length = 250 mm – Art. 66574NIRO, optional accessory; – This article is included in the extension pack Art. 66553NIRO
3	Pipe Ø100 mm, length = 500 mm – Art. 66575NIRO, optional accessory – This article is included in the extension pack Art. 66553NIRO
4	Extension from Ø100 mm to Ø130 mm (Art. 66556NIRO, included in the scope of delivery of the boiler)

5.3.2 Flue gas pipe facing upwards (optional)

For dimensions see > 12



The boiler is supplied from the factory with the ID fan facing the back. To align the ID fan upwards, proceed as follows:

- ▶ Separate perforated opening from the upper cover (e.g. with wire cutters).
- ▶ Release 1 3 x hex bolts.
- ▶ Turn the housing 90 degrees to the left.
- ▶ Fasten bolts.

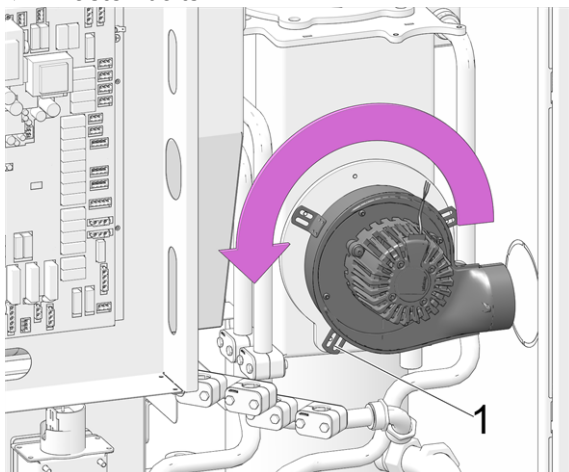


Abb. 2-23: Turn ID fan

- ▶ Fit flue gas pipe and attached extension.

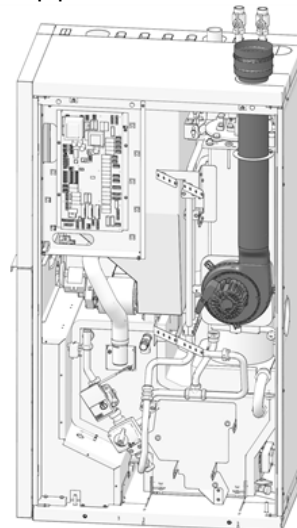


Abb. 2-24: Flue gas pipe upwards, including attached extension

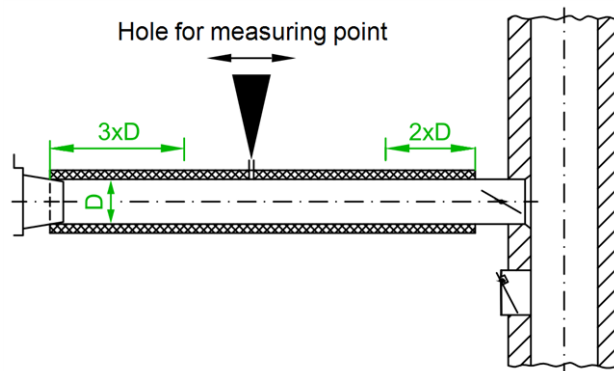
- ▶ Cut the insulation of the flue gas pipe a bit at the bottom, so that it conforms to the boiler insulation.

5.3.3 Flue gas pipe: Hole for emission measurement

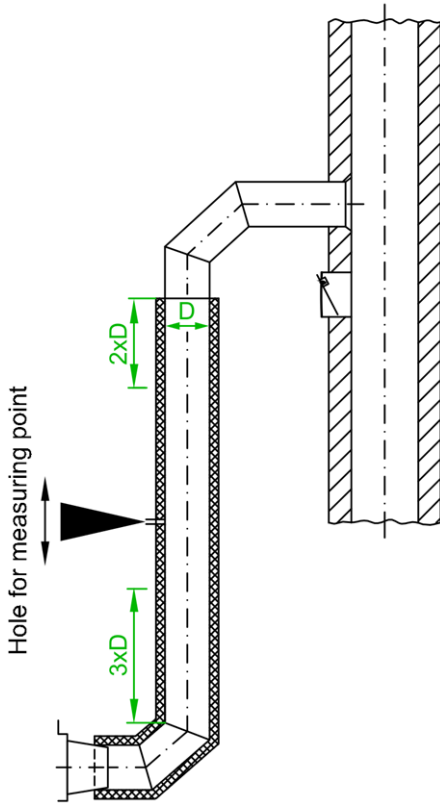
- ▶ Make the hole for the emission measurement according to the following images (recommendation according to standard).
- ▶ If these specifications cannot be implemented, then make the measuring point after a calming section, i.e. after the longest straight section of the pipe. The pipe orientation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

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

Flue gas pipe horizontal



Flue gas pipe vertical



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 article *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.

5.4 Connecting the pellet hose

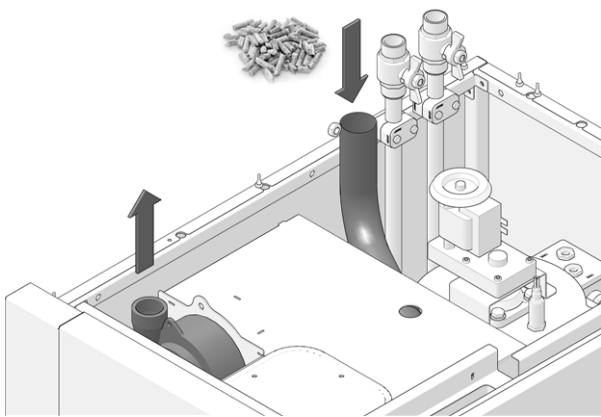


Abb. 2-25

When installing the hose, observe the maximum permissible values.

Maximum hose length and delivery height

Routing	Max. hose length	Max. delivery height
Suction head to diverter for suction heads	10 m	1 m
Diverter for suction heads to boiler	20 m	2.5 m
Total delivery path	30 m	3.5 m

5.4.1 Electrically earthing the pellet hose

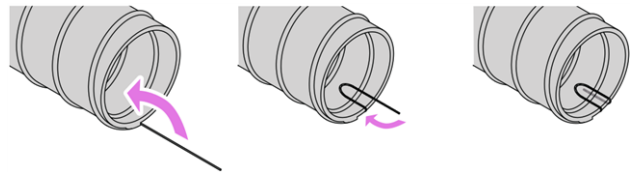


A metal braid is integrated into the inside of the plastic hose coil.

This metal braid must be electrically connected to the connecting pipe at each hose end (for suction hose and return air hose).

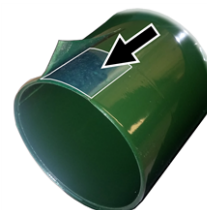
Expose the braid and bend it into the hose

- ▶ 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.



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

6 Hydraulic equipment

Various hydraulic variants are available for the **pellet^{elegance}** boiler.

Up to two heating circuits and a switching valve can be optionally integrated into the boiler for the purpose of charging the DHW tank.

The basic equipment is installed in the boiler at the factory, while the optional extras are installed on site.

i If the **pellet^{elegance}** boiler is installed with a condensing module, we recommend installing the condensing module **BEFORE** installing the hydraulic extensions (for better accessibility during installation).

6.1 Information about installing the hydraulic extensions

Preassembled pump groups

! **ATTENTION** – The pump groups in the hydraulic extension packs are factory pre-assembled, the clamping rings must be tightened on-site during assembly.

Installing the clamping ring fitting



- ▶ Push the fitting onto the pipe as far as it will go and **manually tighten** the lock nut.
- ▶ Tighten the lock nut with a suitable tool (e.g. adjustable open-ended spanner), **tighten with another $\frac{3}{4}$ turn** after manual fitting. (Value applies to pipe diameter of 22 mm and steel pipe).

i Do not use a pipe wrench to tighten the lock nut!

6.2 Position of the servomotor on the mixer

When removing and fitting the servomotor, make sure that the bevel in the metal ring **1** (on the back of the servomotor) coincides with the bevel **2** on the mixer shaft.

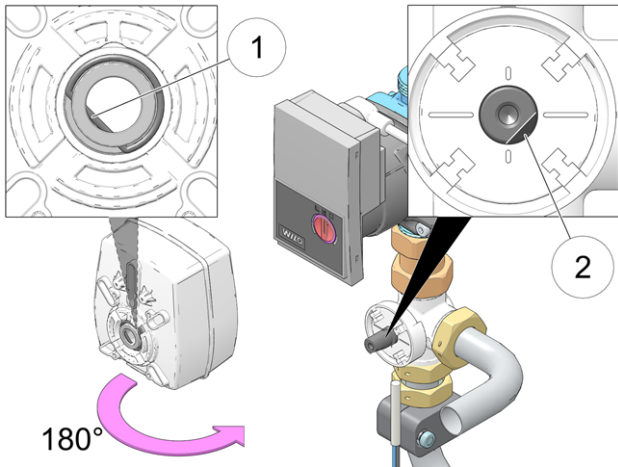


Abb. 2-26: Aligning the bevel with the bevel

Position of the mixer shaft

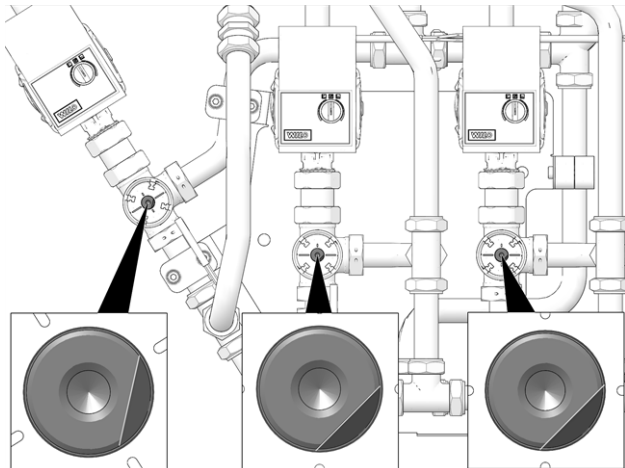


Abb. 2-27: Adjust the mixer shafts in this position

Servomotor installation position

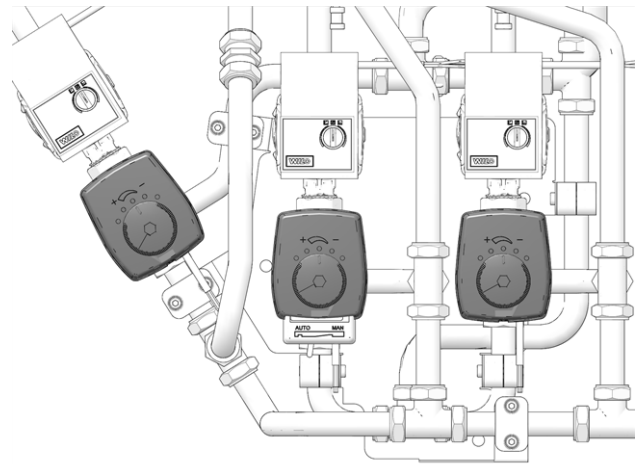


Abb. 2-28: Fit the servomotors in this position

Servomotor setting position

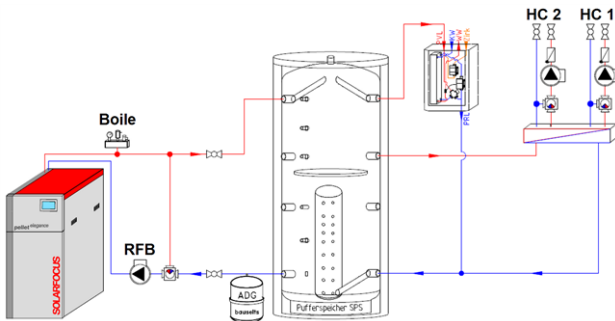


Abb. 2-29: Set the servomotor like so

6.3 Basic equipment: Buffer charging

This is the basic hydraulic equipment of the **pellet elegance** boiler (pre-assembled at the factory). Numerous heating variants can be realised with this equipment.

Schematic: Buffer charging + Heating circuit (HC) external



Hydraulic basic equipment

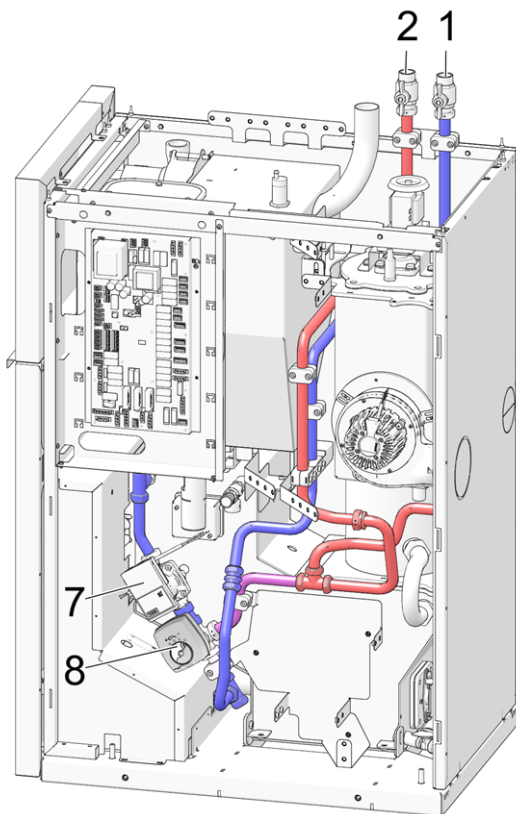


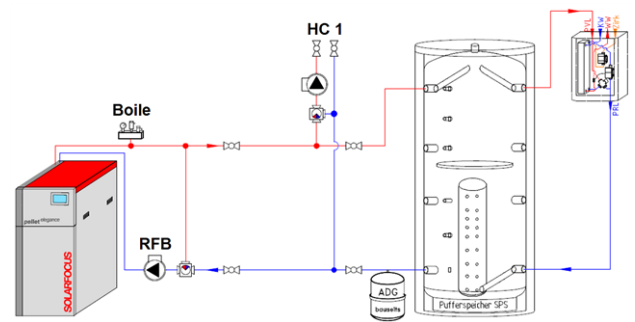
Abb. 2-30_031AI

- 1 Buffer return
- 2 Buffer flow
- 7 Return booster pump Wilo Yonos PARA RS 15/7.5 RKC
- 8 Return mixer (3-way mixing valve with servomotor)

i The factory setting of the return booster pump is setting 3. If there are flow noises, set the pump to setting 2.

6.4 Extension pack for heating circuit 1

Schematic: Buffer loading + integrated HC1



Overview

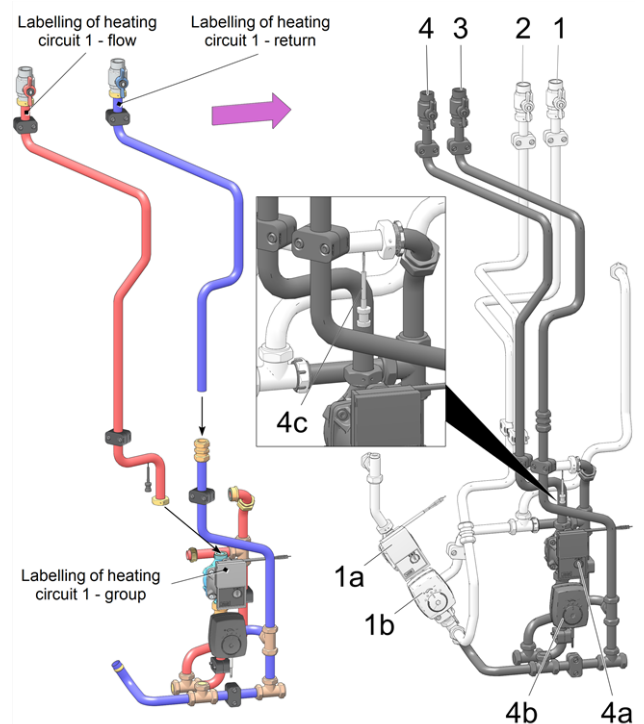


Abb. 2-31_005f

- 1 Buffer return
- 1a Return booster pump Wilo Yonos PARA RS 15/7.5 RKC
- 1b Return mixer (3-way mixing valve with servomotor)
- 2 Buffer flow
- 3 Heating circuit 1 - return
- 4 Heating circuit 1 - flow
- 4a Heating circuit 1 - Pump Wilo Yonos PARA RS 15/6 RKA
- 4b Heating circuit 1 - mixing valve (3-way mixing valve with servomotor)
- 4c Flow temperature sensor 1

Installation steps

- ▶ Remove top cover > 17
- ▶ Remove the right-hand side panel > 17
- ▶ Release the 5 Allen screws and remove the narrow cover 1.

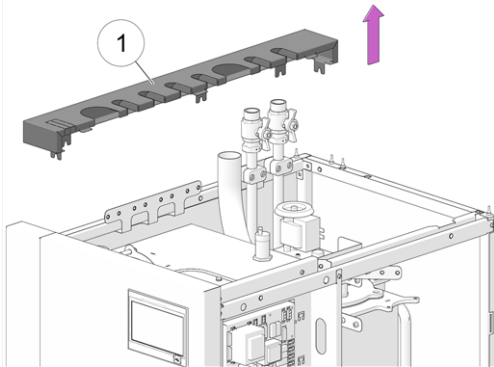


Abb. 2-32_029

- ▶ Remove the pipe bracket 1 and the closing plug in the T-piece 2.

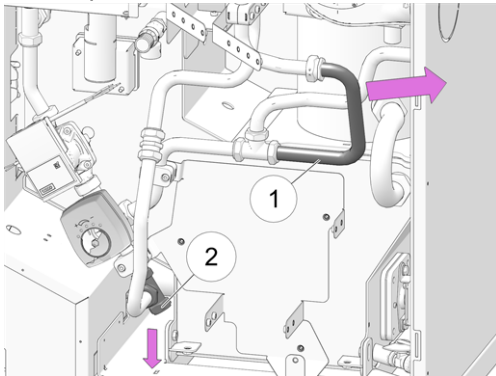


Abb. 2-33_030AI

- ▶ Install the preassembled pump group Heating circuit 1 – group.

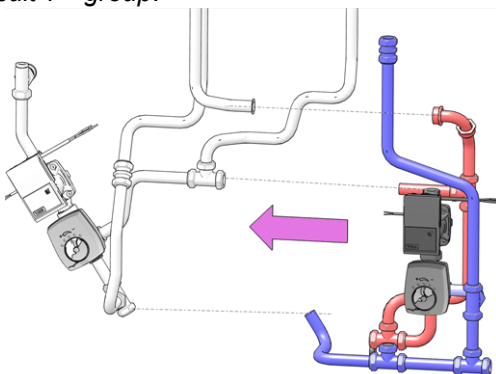


Abb. 2-34_017AB

- ▶ Bolt the (longer) flow pipe Heating circuit 1 - flow 4 to the pump housing.
- ▶ Bolt the (shorter) return pipe Heating circuit 1 - return 3 to the existing pipe.
- ▶ Fix the temperature sensor 4c to the flow pipe.

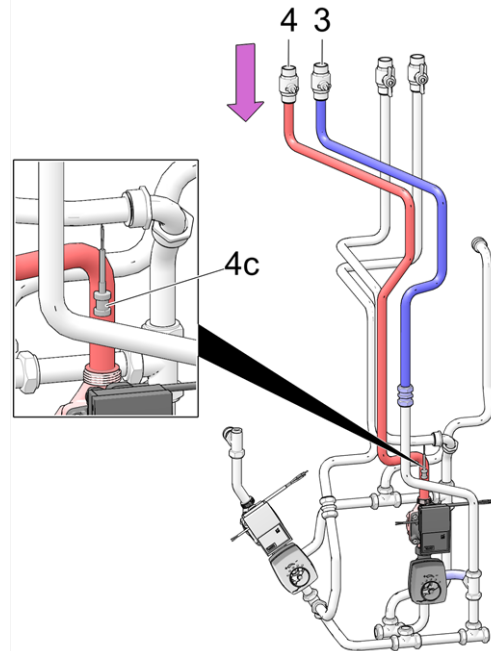


Abb. 2-35_033aAB

- ▶ Fix the pipes to the brackets with the pipe clamps. For that purpose cut the pipe insulation in the clamp area.

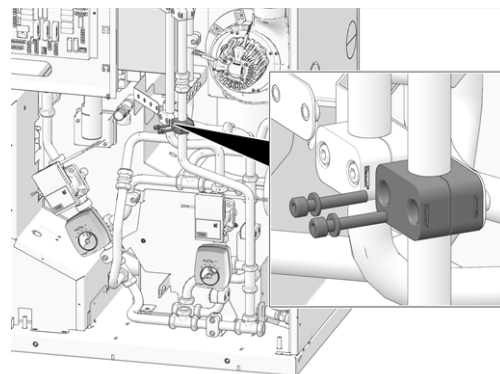


Abb. 2-36_034AI

Electrical connections

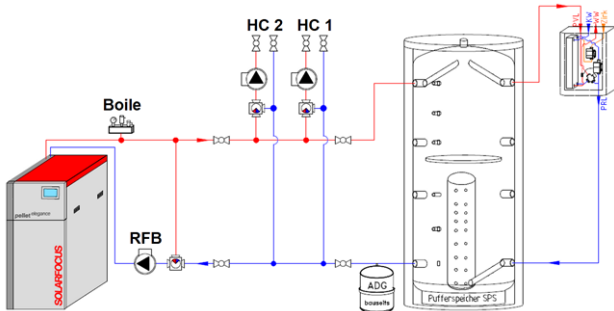
Heating circuit 1	
X9	Heating circuit 1 - pump
X11	Heating circuit 1 - mixing valve
X38	Flow temperature sensor 1
X41	optional: Room temperature sensor 1

6.5 Extension pack for heating circuit 2

Requirement for this extension

- ☑ The extension for heating circuit 1 (Art. 67261, 67271) must be installed > 25

Schematic: Buffer charging + integrated HC1 + HC2



Overview

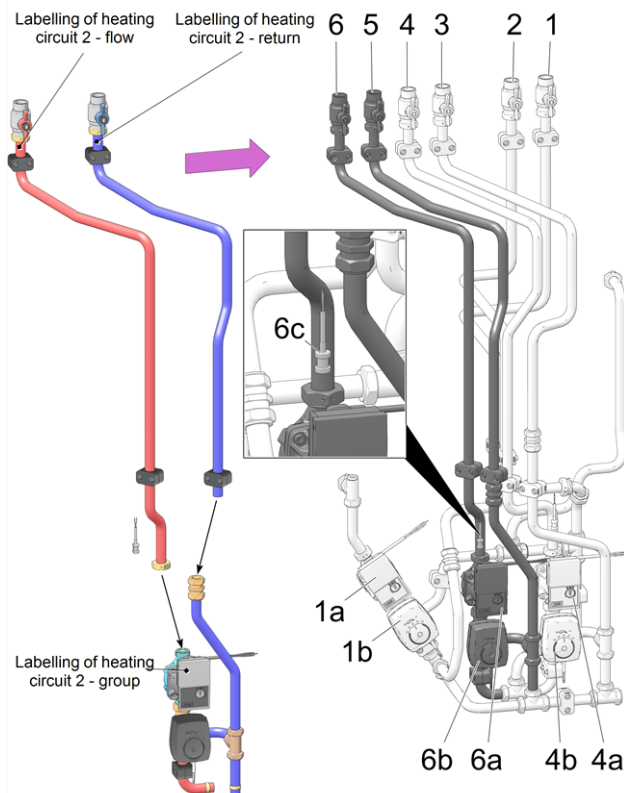


Abb. 2-37_006c

- 1 Buffer return
- 1a Return booster pump Wilo Yonos PARA RS 15/7.5 RKC
- 1b Return mixer (3-way mixing valve with servomotor)
- 2 Buffer flow
- 3 Heating circuit 1 - return
- 4 Heating circuit 1 - flow
- 4a Heating circuit 1 - Pump Wilo Yonos PARA RS 15/6 RKA

- 4b Heating circuit 1 - mixing valve (3-way mixing valve with servomotor)
- 5 Heating circuit 2 - return
- 6 Heating circuit 2 - flow
- 6a Heating circuit 2 - Pump Wilo Yonos PARA RS 15/6 RKA
- 6b Heating circuit 2 - mixing valve (3-way mixing valve with servomotor)
- 6c Flow temperature sensor

Installation steps

- ▶ Remove the closing plugs at **HC1a** and **HC1b**.
- ▶ Install the preassembled pump group *Heating circuit 2 - group*, connect **HC2a** to **HC1a** and **HC2b** to **HC1b**.

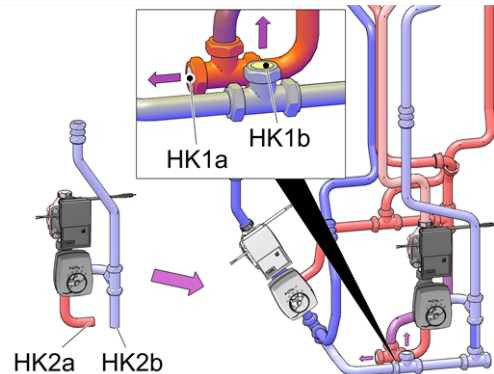


Abb. 2-38_018aAB

- ▶ Bolt the (longer) flow pipe *Heating circuit 2 - flow 6* to the pump housing.
- ▶ Bolt the (shorter) return pipe *Heating circuit 2 - return 5* to the existing pipe.
- ▶ Fix the temperature sensor **6c** to the flow pipe.

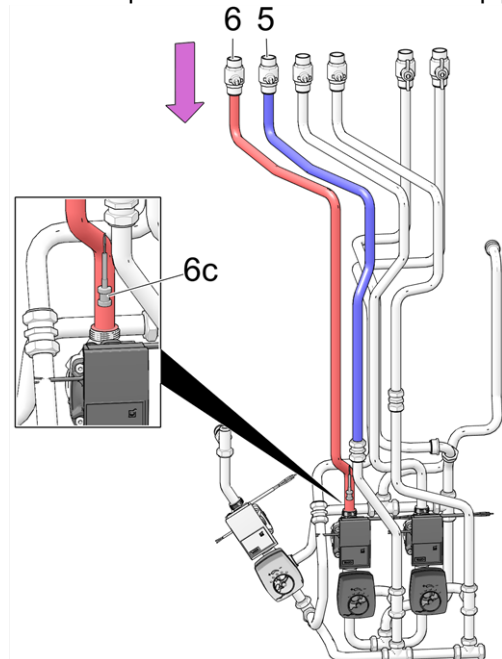


Abb. 2-39_048AB

- Fix the pipes to the brackets with the pipe clamps. For that purpose cut the pipe insulation in the clamp area.

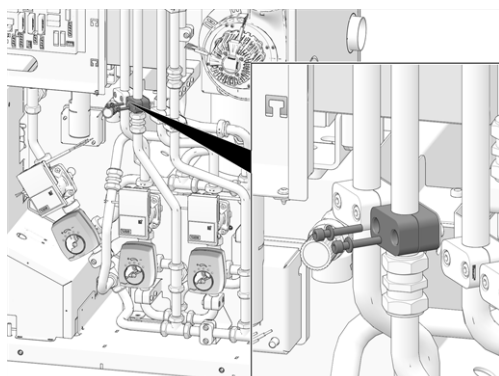


Abb. 2-40_069AI

Electrical connections

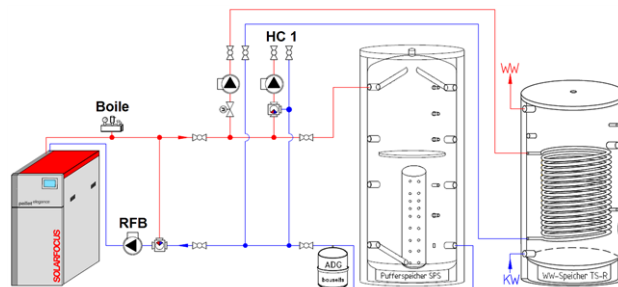
Heating circuit 2	
X10	Heating circuit 2 - Pump 2
X12	Heating circuit 2 - mixing valve
X37	Flow temperature sensor 2
X40	optional: Room temperature sensor 2

6.6 Extension pack: DHW tank charging (or unmixed heating circuit)

Requirement for this extension

- ☑ The extension for heating circuit 1 (Art. 67261, 67271) must be installed > 25

Schematic: Buffer charging + HC1 + DHW tank charging



Overview

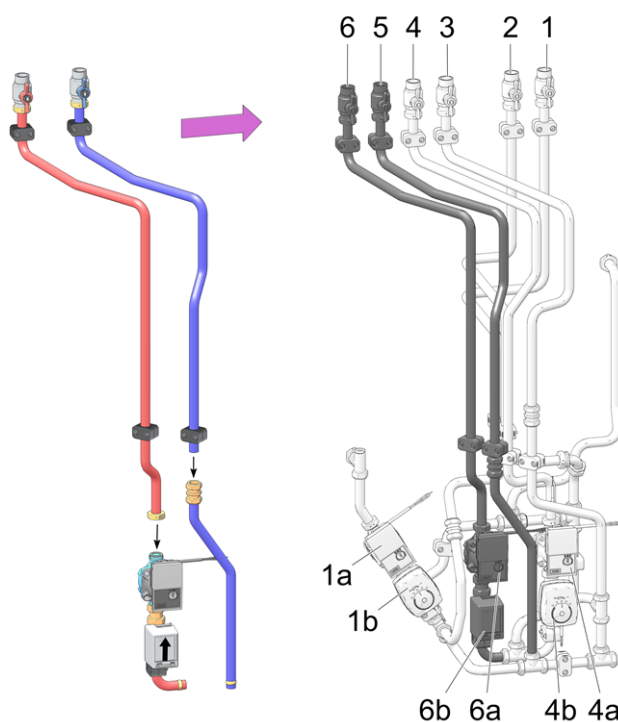


Abb. 2-41_081cAO

- 1 Buffer return
- 1a Return booster pump Wilo Yonos PARA RS 15/7.5 RKC
- 1b Return mixer (3-way mixing valve with servomotor)
- 2 Buffer flow
- 3 Heating circuit 1 - return
- 4 Heating circuit 1 - flow
- 4a Heating circuit 1 - Pump Wilo Yonos PARA RS 15/6 RKA
- 4b Heating circuit 1 - mixing valve (3-way mixing valve with servomotor)
- 5 DHW tank - return

- 6 DHW tank - flow
- 6a DHW circuit - Pump Wilo Yonos PARA RS 15/6 RKA
- 6b Zone valve

Installation steps

- ▶ Remove the closing plugs at **HC1a** and **HC1b**.
- ▶ Install the preassembled pump group **DHW circuit - group**, connect **DHWTa** to **HC1a** and **DHWTb** to **HC1b**.

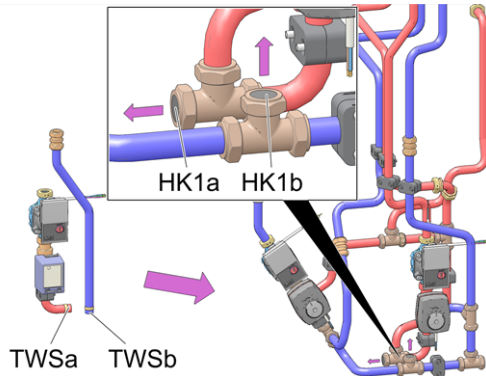


Abb. 2-42_070AO

- ▶ Bolt the (longer) flow pipe **DHW circuit flow 6** to the pump housing.
- ▶ Bolt the (shorter) return pipe **DHW circuit return 5** to the existing pipe.

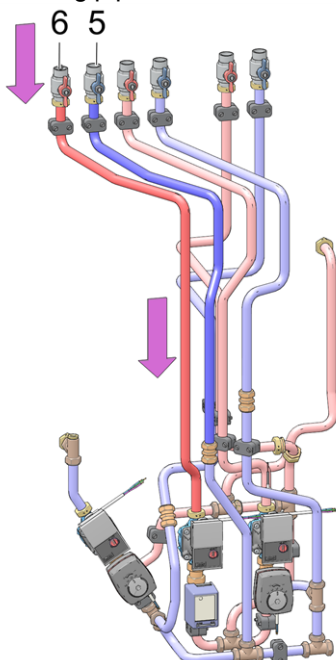


Abb. 2-43_071AO

i Consider the flow direction at the zone valve: The direction is bottom-up.

Electrical connection

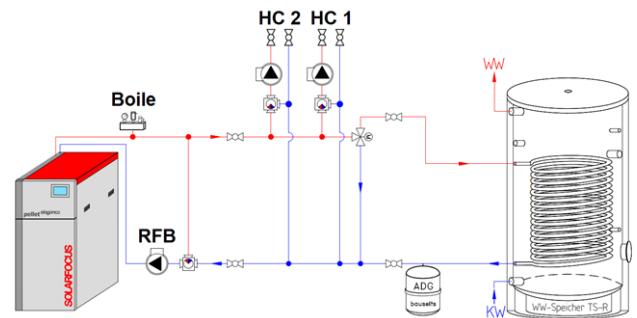
- | | |
|----|------------------------------|
| X8 | Zone valve 6b |
| X8 | DHW circuit - pump 6a |

6.7 Extension pack: DHW tank charging (without buffer tank)

Requirement for this extension

- The extension for heating circuit 1 (Art. 67261, 67271) must be installed > 25
- The extension for heating circuit 2 (Art. 67262, 67272) can be installed > 27

Schematic: HC1 + HC2 + DHW tank charging (no buffer charging)



Overview

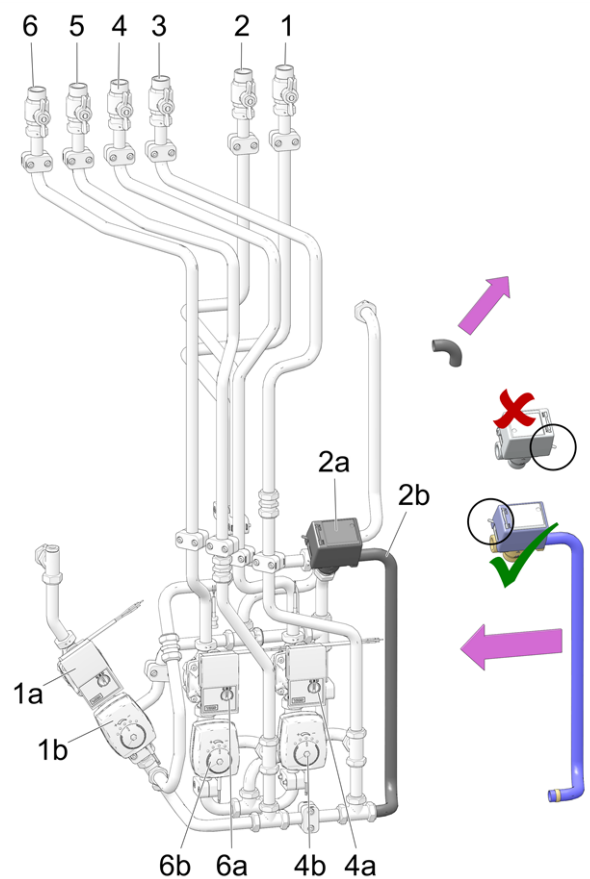


Abb. 2-44_008a

- 1 DHW tank return
- 1a Return booster pump Wilo Yonos PARA RS 15/7.5 RKC
- 1b Return mixer (3-way mixing valve with servomotor)
- 2 DHW tank flow

- 2a Switching valve
- 2b Bypass pipe
- 3 Heating circuit 1 - return
- 4 Heating circuit 1 - flow
- 4a Heating circuit 1 - Pump Wilo Yonos PARA RS 15/6 RKA
- 4b Heating circuit 1 - mixing valve (3-way mixing valve with servomotor)
- 5 Heating circuit 2 - return
- 6 Heating circuit 2 - flow
- 6a Heating circuit 2 - Pump Wilo Yonos PARA RS 15/6 RKA
- 6b Heating circuit 2 - mixing valve (3-way mixing valve with servomotor)

Installation steps

- Remove 1 bend.

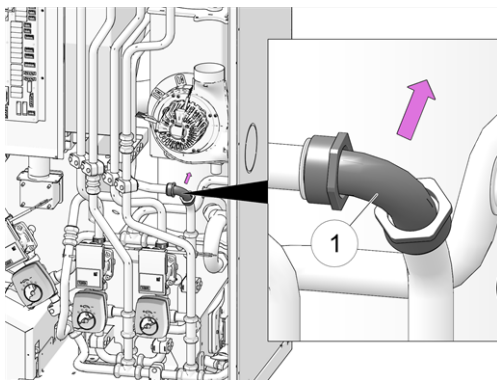


Abb. 2-45_050AB

- In its place, install the switching valve 2a and the bypass pipe 2b.

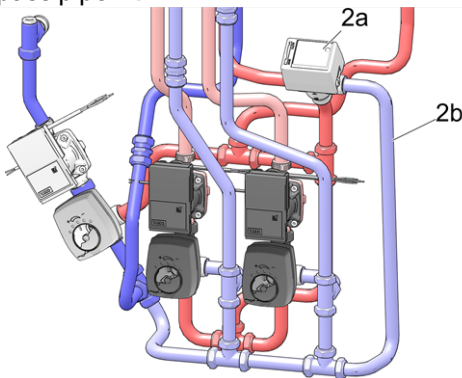


Abb. 2-46_032AB

Electrical connection

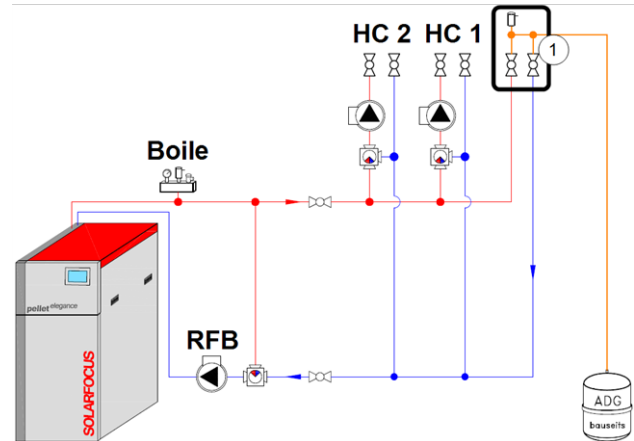
- X8 Switching valve 2a

6.8 Extension: Only heating circuit(s), without DHW tank, without buffer tank

Requirement for this extension

- ☑ The extension for heating circuit 1 (Art. 67261, 67271) must be installed > 25

Schematic: HC1 + HC2, without DHW tank, without buffer tank



i See Pos. 1: Bridge flow and return

! **ATTENTION** - Connect the expansion tank (must not be possible to shut it off > 33)

7 Hydraulic connection

7.1 Boiler connections

Flow, return, heating circuits

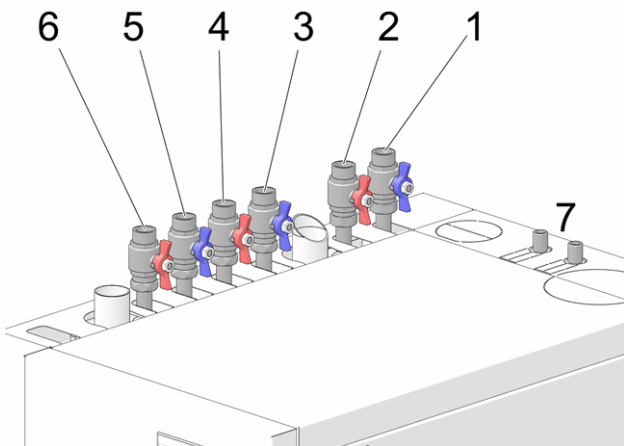


Abb. 2-47

- 1 Buffer tank return / DHW tank return
- 2 Buffer tank flow / DHW tank flow
- 3 Heating circuit 1 - return
- 4 Heating circuit 1 - flow
- 5 Heating circuit 2 - return
- 6 Heating circuit 2 - flow
- 7 Connections for the thermal overload protection – only in the case of **pellet elegance 24 > 32**

7.2 Filling the heating system

i Follow the regulations for the heating system fill-up water > 8

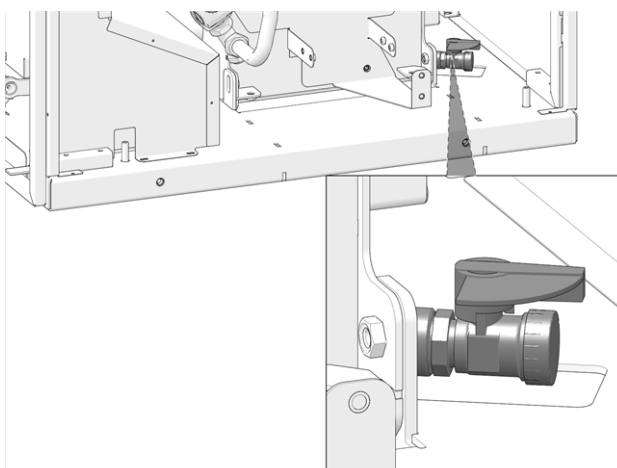


Abb. 2-48: Fill and drain valve for filling and draining the boiler

► Fill system up to a pressure of 2 bar (manometer 1)

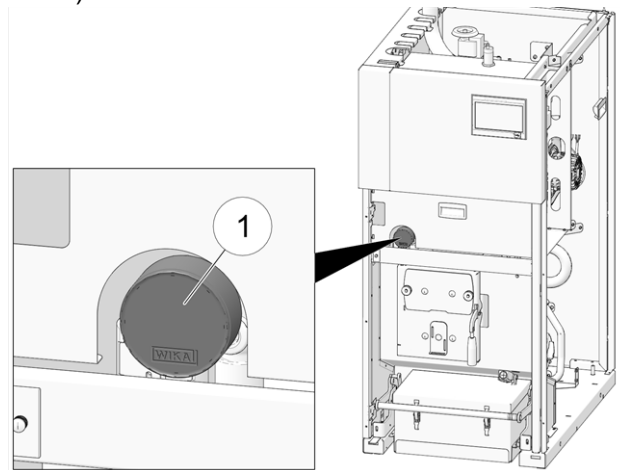


Abb. 2-49: Manometer for system pressure

7.3 Venting the heating system

! **ATTENTION** - Vent the boiler at 2 points.

► Remove the cover 1 and vent the boiler using the valve 2 on the front.

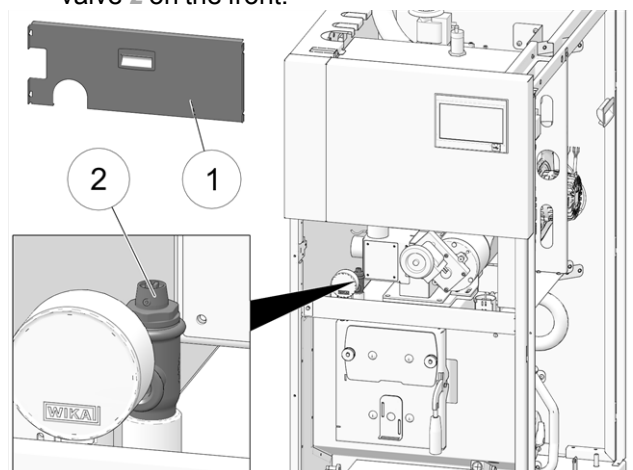


Abb. 2-50

- ▶ Vent the boiler using the valve **1** at the rear.

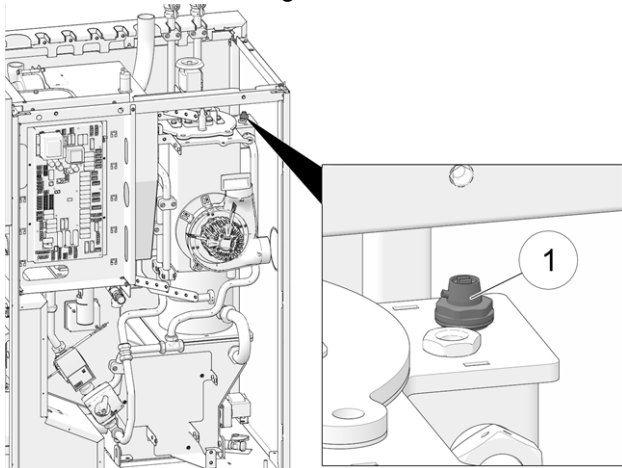


Abb. 2-51_037

- ▶ Check pipework inside and outside the boiler for leaks.

7.4 Connecting the safety valve's blow-off line

Connect the hose to the safety valve **1** and run it to the drain at the back of the boiler.

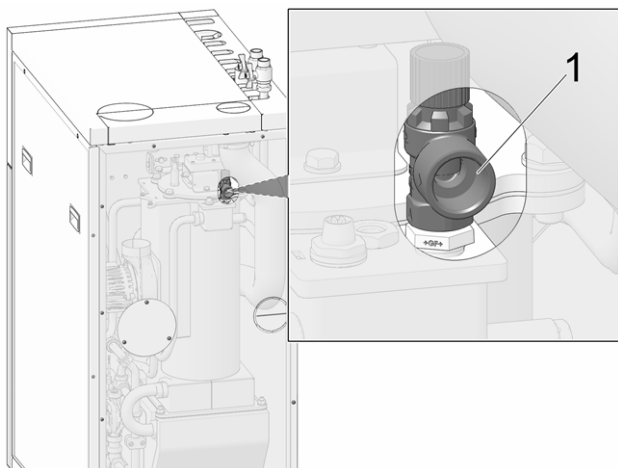


Abb. 2-52

7.5 Installing thermal overload protection

i Thermal overload protection is only required for the **pellet elegance 24**.

! ATTENTION

- Only standard-tested thermal overload protection may be installed (according to the EN 14597 standard).
- The cold water pipe must not be able to be shut off and must permanently have a minimum pressure of 2 bar; the water temperature must not exceed 15°C. A flow of 2 m³/h must be guaranteed.
- The drain line must be routed freely into an open drain funnel.

Connections, sensor

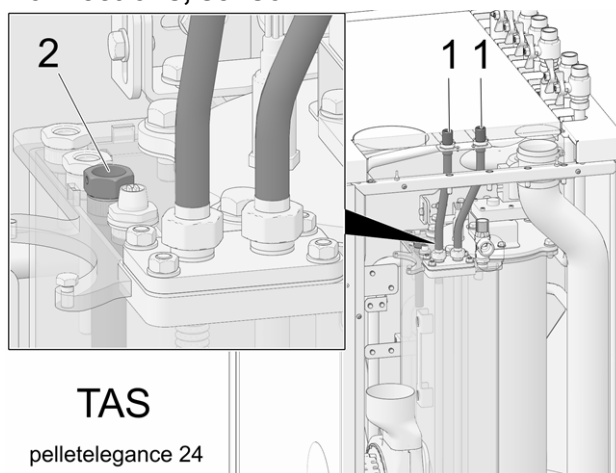


Abb. 2-53: Rear view of boiler

- 1 Connections for thermal overload protection (1/2" ET)
- 2 Sensor for thermal overload protection

i The flow of the safety heat exchanger can be in both directions.

- ▶ **Fit the thermal overload protection valve before (as seen from the direction of flow) the safety heat exchanger** (i.e. no water pressure building up in the heat exchanger).

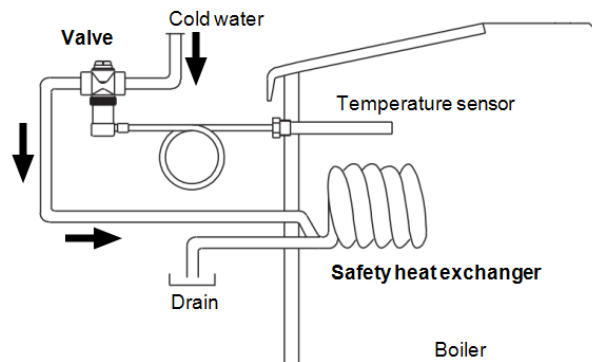


Abb. 2-54: Function of the thermal overload protection (schematic representation)

7.6 Removing the shut-off valve on the buffer return

! **ATTENTION** - Remove lever **1** on the shut-off valve in the buffer return after commissioning the boiler. Ensure that the shut-off valve cannot be closed without authorisation.

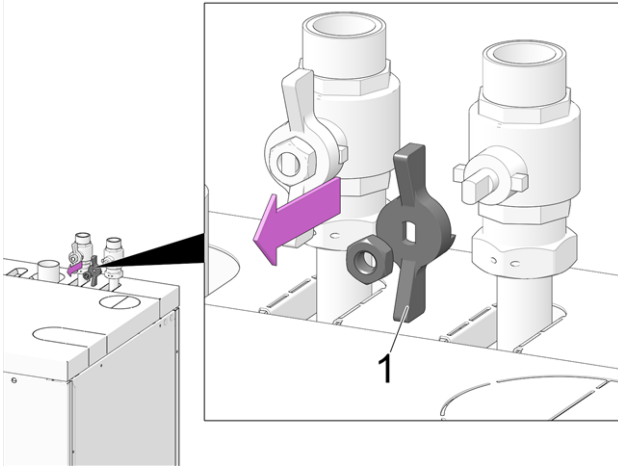


Abb. 2-55

8 Electrical connection



DANGER - There is a risk of fatal electric shocks when working on electrical components of the system

- Work may be performed only by a qualified electrician.
- Applicable standards and regulations must be observed.

8.1 Power supply for the heating system



- Provide a separate power circuit in the Aufstellraum for the heating system.
- Connection 230 V AC / 50 Hz C13 A
- Specification for the mains connection cable (e.g. observe in case of replacement): cable SIHF-J 3x1.5 mm²

8.2 Connections on the power element

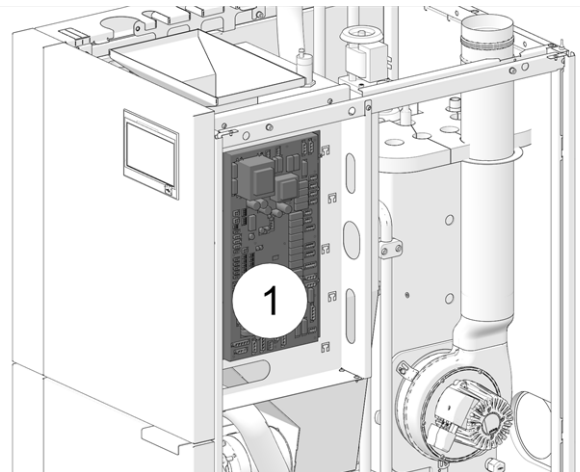
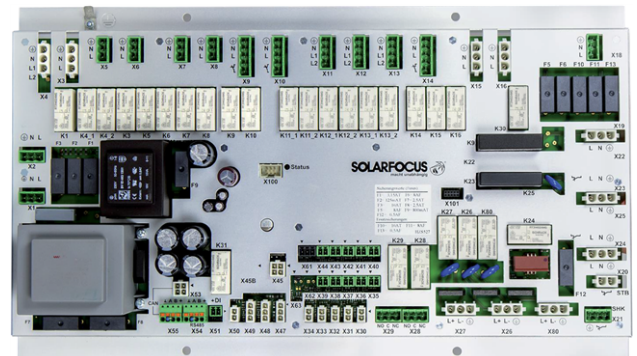


Abb. 2-56- Power element

To access the power element **1**:

- ▶ Remove the top boiler cover > 17
- ▶ Remove the right-hand side panel > 17



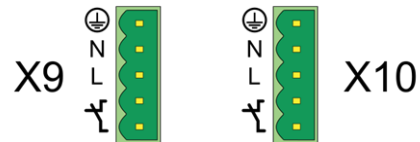
Detailed image of the power element > 38

Heating circuit 1

X9	Heating circuit pump 1 > 34
X11	Heating circuit mixing valve 1
X38	Flow temperature sensor 1
X41	optional: Room temperature sensor 1
X42	Outside temperature sensor
	Heating circuit 2
X10	Heating circuit pump 2 > 34
X12	Heating circuit mixing valve 2
X37	Flow temperature sensor 2
X40	optional: Room temperature sensor 2
	Buffer tank
X7	Special version: Buffer charging pump
X13	Return mixer
X15	Standard version: Return booster pump
X36	Buffer sensor bottom
X44	Buffer sensor top
	DHW tank
X8	DHW tank pump
X39	DHW tank sensor
	Recirculation control
X5	Recirculation pump
X43	Circulation sensor (optional)
	Display
X53	Bus line to control unit (Display)
	Mains connection
X1	Mains connection for power element, 230 V AC
X2	230 VAC output
X18	230 V AC output (F8 A fuse)
	Pellet transport
X14	Motor of the pellet auger (for <i>suction system with suction auger</i>) > 35
X14	Motor of the transfer auger (for <i>pellet box</i>)
	Boiler
X3	Suction turbine
X4	Ignition device
X16	Ash extraction motor
X19	ID fan
X20	Overtemperature reset (OTR)
X23	Feed motor
X24	Motor heat exchanger cleaning
X26	Primary air damper holding magnet > 39
X27	Ignition supply air holding magnet > 39
X31	Boiler temperature sensor
X32	Return temperature sensor
X33	Feeder temperature sensor
X34	Flue gas temperature sensor
X45	Lambda sensor
X47	Speed measurement ID fan
X48	Door contact switch / ash box safety switch
X49	Filling level sensor in intermediate pellet store

X80	Secondary air solenoid: air opening in case of power failure (on left-hand side of burner) > 39
	optional
X6	Spare
X21	Safety chain 230 V AC (connect emergency OFF switch, any pressure monitor, etc. in series, 'loop through') > 35
X28	External boiler request > 35
X29	Fault > 35
X51	External request (optional) > 35
X54	External bus line; connection for RS-485 electronic modules
X55	External bus line; connection for CAN bus electronic modules

8.2.1 Connecting the heating circuit pump (X9, X10)

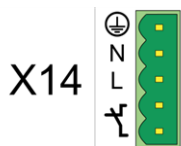
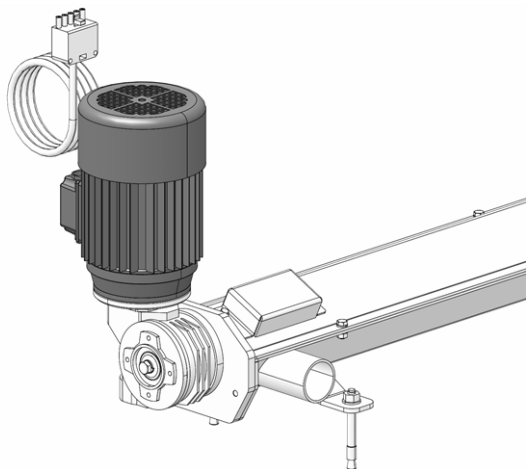


- ▶ Connect heating circuit pump 1 to power element connector X9 and heating circuit pump 2 to X10.
- ▶ If required (e.g. in the case of underfloor heating), connect a limiting thermostat (Art. 61612).
- ▶ If a limiting thermostat is not used, the contact must be bridged.

8.2.2 Pellet conveyor system (X14)

Suction system with suction auger

- ▶ Connect the auger motor to the power element X14, use cable 5x1.5 mm².

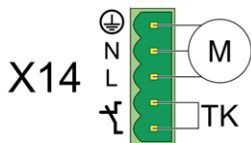


5-pin connector, direct extraction motor	Terminal X14 on the power element
PE	PE (1)
N	N (2)
L3	L (3)
L2	TC(4)
L1	TC (5)

Third-party manufacturer system

Use e.g. for pellet box transfer unit auger and for the *pellet mole* (these systems have integrated motor-thermal protection).

- ▶ Bridge the two thermal contact terminals (TC) on the power element.
- ▶ Use 3x1.5 mm² cable



8.2.3 External boiler request (X28)

Potential-free relay output for switching an external boiler, for example, an external boiler receives a release from the SOLARFOCUS boiler control.



- ! **ATTENTION** – The connection is potential-free and has a maximum load of 5A.

8.2.4 Operating fault (X29)

Potential-free relay output, for example, to switch a warning device (optical/acoustic). Triggered in the event of a operating fault on the boiler.



- ! **ATTENTION** – The connection is potential-free and has a maximum load of 5A.

8.2.5 External request (X51)

Input, i.e., the SOLARFOCUS boiler can be started by an external control.

- ! **ATTENTION** - The connection must be potential-free.

8.2.6 Installing the emergency OFF switch



Austria: Combustion systems for which a boiler room is required must be equipped with an emergency OFF switch, which must not have an effect on the room lighting. It must be situated immediately outside the access door and labelled clearly and visibly. This switch may also be located inside the boiler rooms, immediately next to the access doors, but only if the boiler rooms can be accessed from outdoors.

- ▶ Integrate the emergency OFF switch into the boiler's safety chain, connection **X21**
- ▶ Connect other components integrated in the safety chain in series ("loop through")

8.3 Sensor resistance table

Type	KTY 81-110	PT100	PT1000	KTY 81-210
Tolerance	± 3%	± 0.7%	± 1%	± 3%
°C	Ohm	Ohm	Ohm	Ohm
-20	684	92.16	922	1367
-10	747	96.09	961	1485
0	815	100	1000	1630
10	886	103.9	1039	1772
20	961	107.79	1078	1922
25	1000	109.74	1097	2000
30	1040	111.69	1117	2080
40	1122	115.54	1155	2245
50	1209	119.4	1194	2417
60	1299	123.24	1232	2597
70	1392	127.07	1271	2785
80	1490	130.8	1309	2980
100	1696	138.5	1385	3392
120	1915	146.06	1461	3617
140	2124	153.58	1536	4186
150	2211	157.31	1573	4280
160	-	161.04	-	-
170	-	164.76	-	-
180	-	168.46	-	-
190	-	172.16	-	-

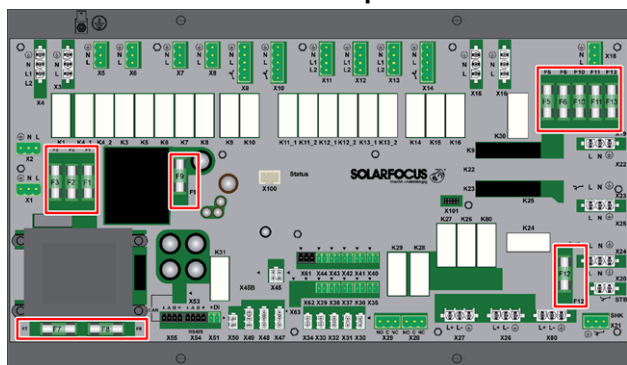
8.4 Electrical fusing



DANGER - There is a risk of fatal electric shocks when working on electrical components of the system

- Work may be performed only by a qualified electrician.
- Applicable standards and regulations must be observed.

Position of the fuses on the power element



Fuses on the power element

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

8.5 Connecting the control to the internet

To connect the **eco^{manager-touch}** boiler control to the Internet, connect the Ethernet port **X2** (type RJ45) on the bottom of the display by cable to a network router.

The connection is required in order to use the following functions:

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



Additional information on these functions can be found in the operation manual.

Display - Connections

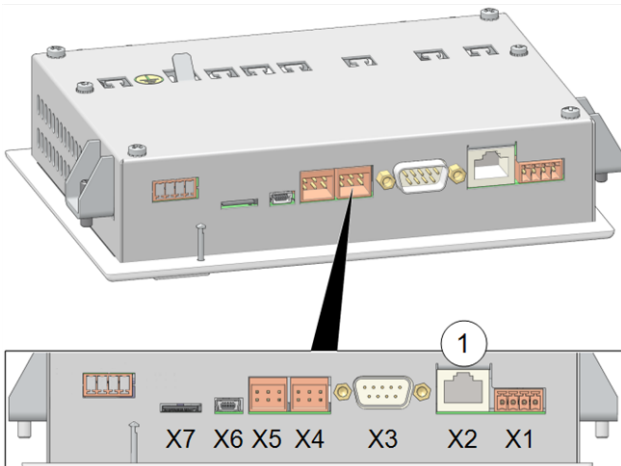


Abb. 2-57: Connections on the underside of the display

Access to the rear of the display

- ▶ Lift the cover up and remove it by pulling it forward. (Attention: cable connection present).

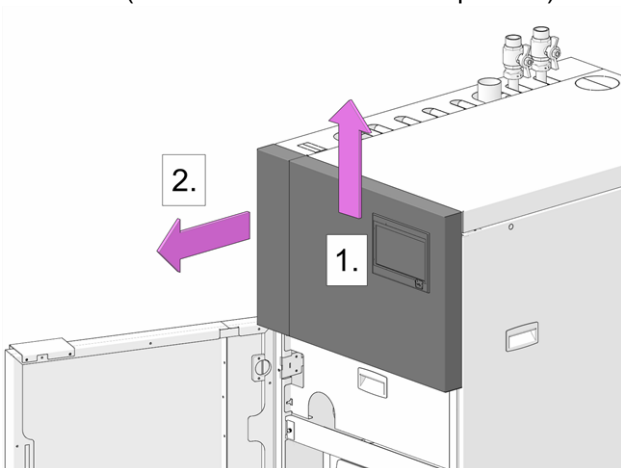


Abb. 2-58

9 Initial start-up

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

Requirements

- The boiler is hydraulically connected.
- The heating system is filled with water and has been vented.
- The boiler is electrically connected.

Commissioning

- ▶ Connect the boiler to the mains power supply.
- ▶ Carry out the *commissioning routine* in the boiler control.

Complete the commissioning log, send it

- i** Once commissioning is complete, the completed commissioning log should be sent to SOLARFOCUS. If this does not happen, then for guarantee and warranty claims of any kind the date of shipment from the manufacturer to the dealer (according to the delivery note and invoice) will be used.

Commissioning log for biomass heating (see end of this manual)



DR-0074

10 Shut-down

Disassembly

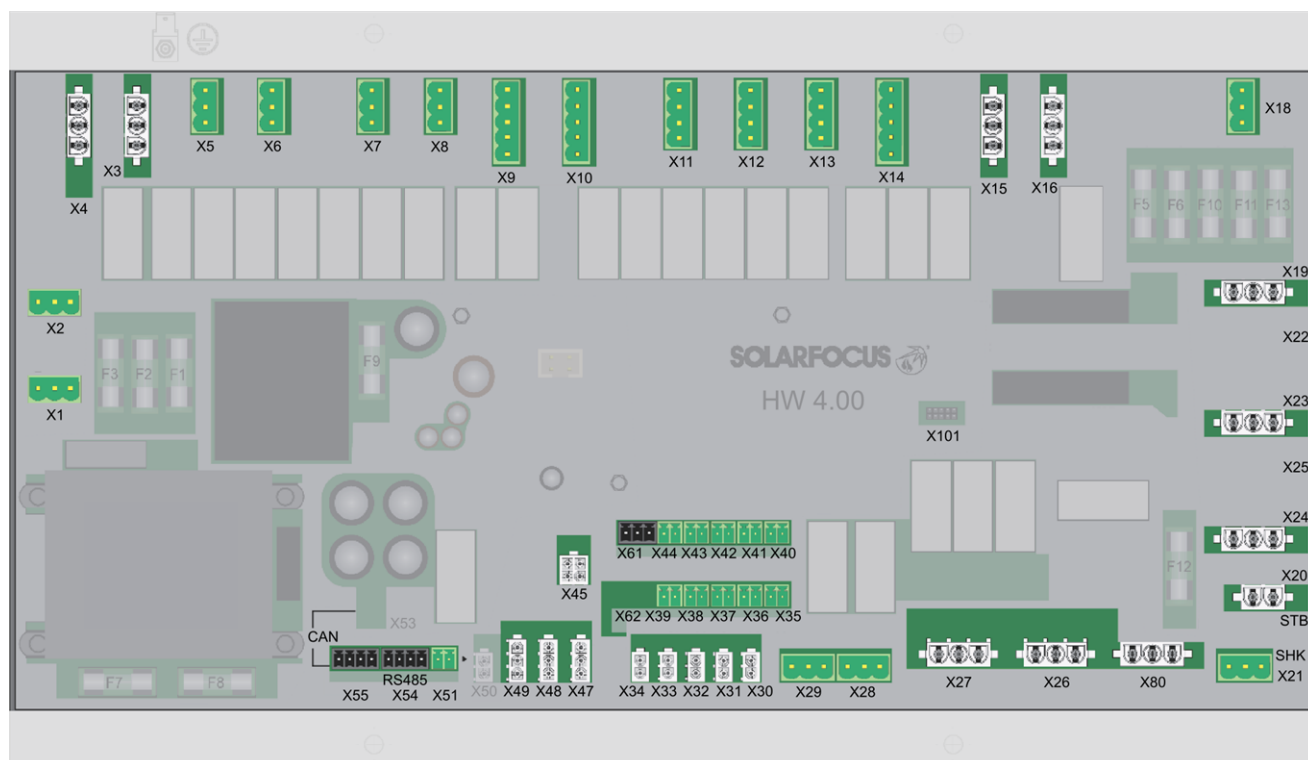
- Switch off the boiler and secure it against being switched back on again.
- Disconnect the boiler from the power supply.
- Carry out disassembly in the reverse order to the installation.

Disposal

- Observe regional regulations in regard to proper/environmentally-friendly disposal.
- Recycle the recyclable materials.

11 Annex

11.1 Power element (figure)



- Access to the power element > 33
- Electrical fuses on the power element > 36
- Connections (X..) on the power element > 33

11.2 Electrical components - overview

The components listed below are factory-installed and -connected, i.e. no assembly/installation work is required on site.

The information given here is intended to contribute to a better understanding or facilitate the locating of components in the event that they need to be replaced.

Magnets for air regulation

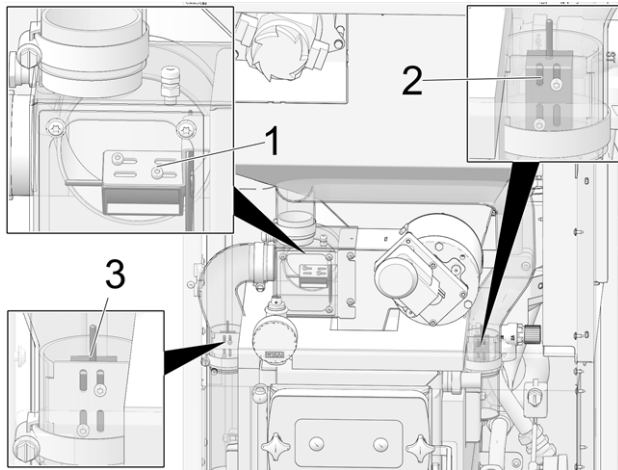


Abb. 2-59: Front view

- 1 Primary air solenoid (X26)
- 2 Ignition air supply solenoid (X27)
- 3 Secondary air solenoid (X80)

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