fröling

Installation instructions

# Pellet boiler PE1 Pellet


**PE1 Pellet 7-35**


**PE1 Pellet Unit 7-20**

**Translation of original German version of installation instructions for technicians.**

Read and follow all instructions and safety instructions.
All errors and omissions excepted.

CE

M1441624_en | Edition 12/06/2024

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# 1 General

Thank you for choosing a quality product from Froling. The product features a state-of-the-art design and conforms to all currently applicable standards and testing guidelines.

Please read and observe the documentation provided and always keep it close to the system for reference. Observing the requirements and safety information in the documentation makes a significant contribution to safe, appropriate, environmentally friendly and economical operation of the system.

The constant further development of our products means that there may be minor differences from the pictures and content. If you discover any errors, please let us know: doku@froeling.com.

Subject to technical change.

*Issuing a delivery certificate*

The EC Declaration of Conformity is only valid in conjunction with a delivery certificate, which has been filled in correctly and signed as part of the commissioning process. The original document remains at the installation site. Commissioning installers or heating engineers are requested to return a copy of the delivery certificate together with the guarantee card to Froling. On commissioning by FROLING Customer Service the validity of the delivery certificate will be noted on the customer service record.

## 1.1 About this manual

These installation instructions contain information for the following sizes of PE1 Pellet (Unit) boilers:

7 (unit), 10 (unit), 15 (unit), 20 (unit), 25, 30, 32, 35;

## 1.2 Disposal of packaging materials

All packaging materials should be disposed of in accordance with the relevant regulations. In addition, check the regulations for correct disposal applicable in your local area.

Data under the identification system of Directive 97/129/EC:

| Identification code / Material | | Disposal information |
|---|---|---|
|  | Corrugated cardboard | Paper collection |
|  | Wood | Check the regulations for correct disposal applicable in your local area |
|  | Low Density Polyethylene (LDPE) | Plastics collection |
|  | Expanded polystyrene | Plastics collection |

# 2 Safety

## 2.1 Hazard levels of warnings

This documentation uses warnings with the following hazard levels to indicate direct hazards and important safety instructions:

**⚠ DANGER**

***The dangerous situation is imminent and if measures are not observed it will lead to serious injury or death. You must follow the instructions!***

**⚠ WARNING**

***The dangerous situation may occur and if measures are not observed it will lead to serious injury or death. Work with extreme care.***

**⚠ CAUTION**

***The dangerous situation may occur and if measures are not observed it will lead to minor injuries.***

**NOTICE**

***The dangerous situation may occur and if measures are not observed it will lead to damage to property or pollution.***

## 2.2 Qualification of assembly staff

**⚠ CAUTION**

Assembly and installation by unqualified persons:

***Risk of personal injury and damage to property***

During assembly and installation:

❒ Observe the instructions and information in the manuals

❒ Only allow appropriately qualified personnel to work on the system

Assembly, installation, initial startup and servicing must only be carried out by qualified personnel:

- Heating technicians/building technicians
- Electrical installation technicians
- Froling customer services

The assembly staff must have read and understood the instructions in the documentation.

## 2.3 Personal protective equipment for assembly staff

You must ensure that staff have the protective equipment specified by accident prevention regulations!

- During transport, erection and installation:
  - wear suitable work wear
  - wear protective gloves
  - wear safety shoes (min. protection class S1P)

# 3 Design Information

## 3.1 Overview of standards

Perform installation and commissioning of the system in accordance with the local fire and building regulations. Unless contrary to other national regulations, the latest versions of the following standards and guidelines apply:

### 3.1.1 General standards for heating systems

| | |
|---|---|
| EN 303-5 | Boilers for solid fuels, manually and automatically fed combustion systems, nominal heat output up to 500 kW |
| EN 12828 | Heating systems in buildings - design of water-based heating systems |
| EN 13384-1 | Chimneys - Thermal and fluid dynamic calculation methods<br>Part 1: Chimneys serving one appliance |
| ÖNORM H 5151 | Planning of central hot water heating systems with or without hot water preparation |
| ÖNORM M 7510-1 | Guidelines for checking central heating systems<br>Part 1: General requirements and one-off inspections |
| ÖNORM M 7510-4 | Guidelines for checking central heating systems<br>Part 4: Simple check for heating plants for solid fuels |

### 3.1.2 Standards for structural and safety devices

| | |
|---|---|
| ÖNORM H 5170 | Heating installation - Requirements for construction and safety engineering, as well as fire prevention and environmental protection |
| ÖNORM EN ISO 20023 | Solid biofuels - Safety of solid biofuel pellets - Safe handling and storage of wood pellets in residential and other small-scale applications |
| TRVB H 118 | Technical directives for fire protection/prevention (Austria) |

### 3.1.3 Standards for heating water

| | |
|---|---|
| ÖNORM H 5195-1 | Prevention of damage by corrosion and scale formation in closed warm water heating systems at operating temperatures up to 100°C (Austria). |
| VDI 2035 | Prevention of damage hot water heating systems (Germany) |
| SWKI BT 102-01 | Water quality for heating, steam, cooling and air conditioning systems (Switzerland) |
| UNI 8065 | Technical standard regulating hot water preparation.<br>DM 26.06.2015 (Ministerial Decree specifying the minimum requirements)<br>Follow the instructions of this standard and any related updates.<br>(Italy) |

### 3.1.4 Regulations and standards for permitted fuels

| | |
|---|---|
| 1. BImSchV | First Order of the German Federal Government for the implementation of the Federal Law on Emission Protection (Ordinance on Small and Medium Combustion Plants) in the version published on 26 January 2010, BGBl. JG 2010 Part I No. 4. |
| EN ISO 17225-2 | Solid bio-fuel - Fuel specifications and classes Part 2: Wood pellets for use in industrial and domestic systems |

## 3.2 Installation and approval

The boiler should be operated in a closed heating system. The following standards govern the installation:

*Note on standards*

EN 12828 - Heating Systems in Buildings

**IMPORTANT: Every heating system must be officially approved.**

The appropriate supervisory authority (inspection agency) must always be informed when installing or modifying a heating system, and authorisation must be obtained from the building authorities:

**Austria:** report to the construction authorities of the community or magistrate

**Germany:** report new installations to an approved chimney sweep / the building authorities.

## 3.3 Installation site

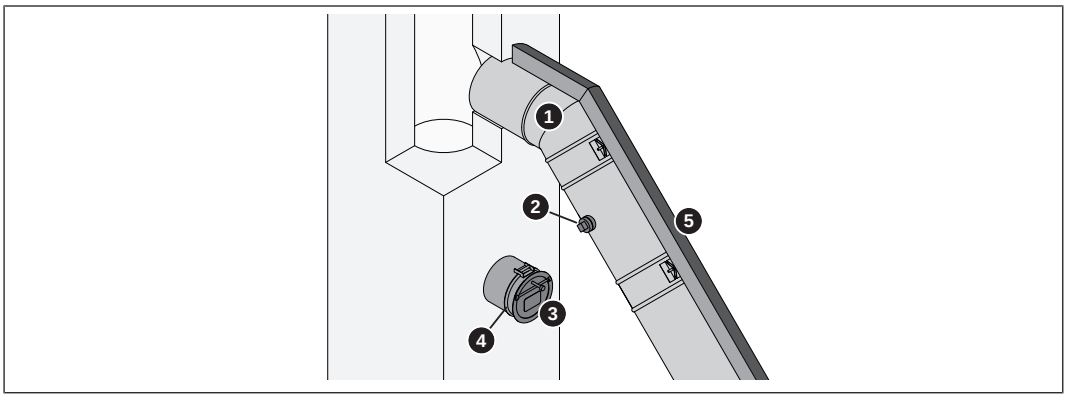
**Requirements for the load bearing substrate:**

- Flat, clean and dry
- Non-combustible and with sufficient load-bearing capacity

**Conditions at the installation site:**

- Protecting the system against frost
- Sufficiently well lit
- Free of explosive atmospheres such as flammable substances, hydrogen halides, cleaning agents and consumables
- Installation at altitude higher than 2000 metres above sea level only after consultation with the manufacturer
- The system must be protected against gnawing and nesting by animals (such as rodents)
- No flammable materials in proximity to the system
- Observe national and regional regulations regarding the installation of smoke detectors and carbon monoxide detectors

## 3.4 Chimney connection/chimney system




| | |
|---|---|
| **1** | Connection line to the chimney |
| **2** | Measuring port |
| **3** | Draught limiter |
| **4** | Explosion flap (for automatic boilers) |
| **5** | Thermal insulation |

**NOTICE! The chimney must be authorised by a smoke trap sweeper or chimney sweep.**

The entire flue gas system (chimney and connection) must be laid out as per ÖNORM / DIN EN 13384-1 or ÖNORM M 7515 / DIN 4705-1.

The flue gas temperatures (for clean systems) and additional flue gas values can be found in the table in the technical data.

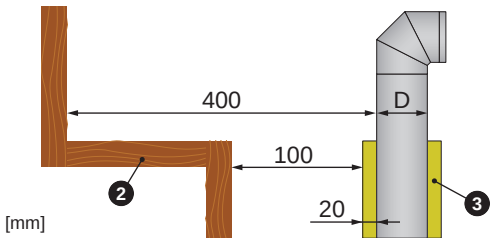
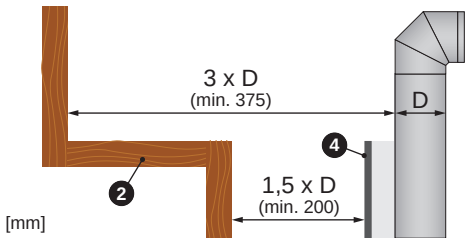
Local regulations and other statutory regulations are also applicable.

EN 303-5 specifies that the entire flue gas system must be designed to prevent, wherever possible, damage caused by seepage, insufficient feed pressure and condensation. Please note within the permissible operating range of the boiler flue gas temperatures lower than 160K above room temperature may occur.

## 3.4.1 Connection line to the chimney

**Requirements for the connection line:**

- this should be as short as possible and follow an upward incline to the chimney (30 - 45° recommended)
- thermally insulated

| MFeuV[1] (Germany) | EN 15287-1 and EN 15287-2 |
|---|---|
|  |  |

1. Observe the fire regulations of the respective federal state
2. Component made of flammable material
3. Nonflammable insulating material
4. Radiation shield with rear ventilation

**Minimum distance from flammable substances as per MFeuV[1] (Germany):**

- 400 mm excluding thermal insulation
- 100 mm if at least 20 mm thermal insulation is installed

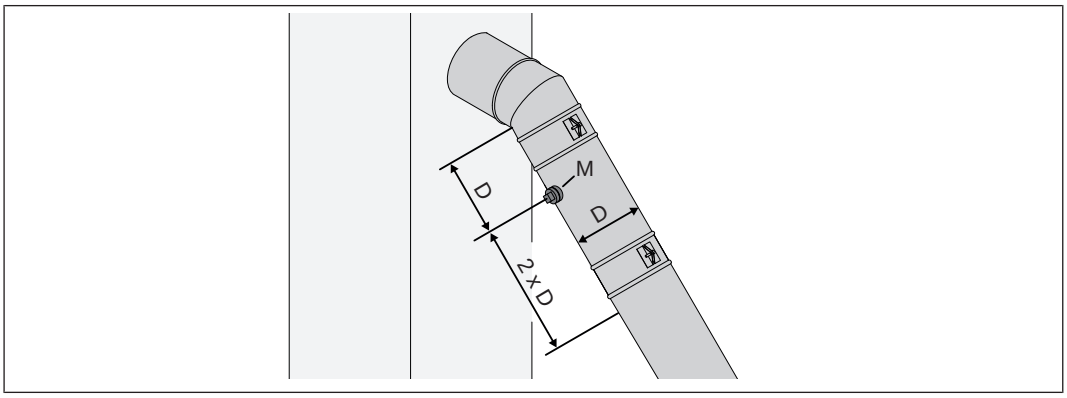
**Minimum distance from flammable materials as per EN 15287-1 and EN 15287-2:**

- 3 x nominal diameter of connection line, but at least 375 mm (NM)
- 1.5 x nominal diameter of connection line for radiation shield with rear ventilation, but at least 200 mm (NM)

**NOTICE! The minimum distances must be observed in accordance with the standards and guidelines applicable in the region**

### 3.4.2 Measuring port

For emissions measurement on the system, a suitable measuring port must be installed in the connection line between the boiler and chimney system.




Upstream of the measuring port (M) there should be a straight run-in section with a length about twice the diameter (D) of the connection line. Downstream of the measuring port (M) there should be a straight run-out section with a length about the diameter (D) of the connection line. The measuring port must remain closed whenever the system is in operation.

The diameter of the measuring probe used by Froling customer service is 14 mm. To avoid measuring errors due to the ingress of false air, the diameter of the measuring port must not exceed 21 mm.

### 3.4.3 Draught limiter

We generally recommend the installation of a draught limiter. If the values for the maximum permissible feed pressure stated in the section “Data for designing the flue gas system” are exceeded, a draught limiter must be installed.

**NOTICE! For boilers with an electrostatic particle separator, the installation of a draught limiter is mandatory.**

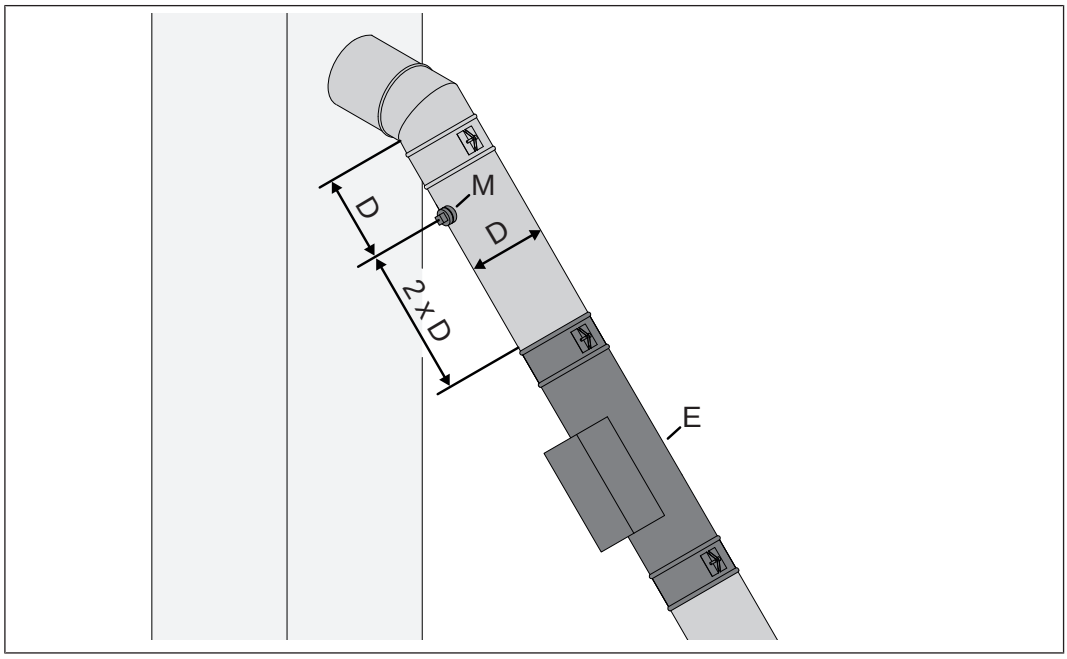
**NOTICE! Install the draught limiter directly under the mouth of the flue duct, as there is persistent under-pressure at this point, which largely prevents the escape of dust from the draught limiter.**

### 3.4.4 Explosion flap

TRVB H 118 (only Austria) stipulates that an explosion flap must be installed in the connection line to the chimney, directly next to the boiler. It should be situated in such a way that is poses no risk to persons!

### 3.4.5 Electrostatic particle separator

For reduction in the emissions an electrostatic particle separator may optionally be installed in the flue gas line.




For planning and installation, comply with the following points:

- Position the measuring port (M) downstream of the electrostatic particle separator (E) as specified in the instructions
  ➲ "Measuring port" [▸ 12]
- Locate the electrostatic particle separator in accordance with the planning for the flue gas system
- Install the electrostatic particle separator in accordance with the manufacturer's instructions supplied

# 3.5 Combustion air

## 3.5.1 General requirement

For safe operation, the boiler requires around 1.5 - 3.0 m³ of combustion air per kW nominal heat output and operating hour. The air supply can be provided by free ventilation (e.g. windows, air shaft), mechanical ventilation from outside or, if necessary, from the group of rooms.

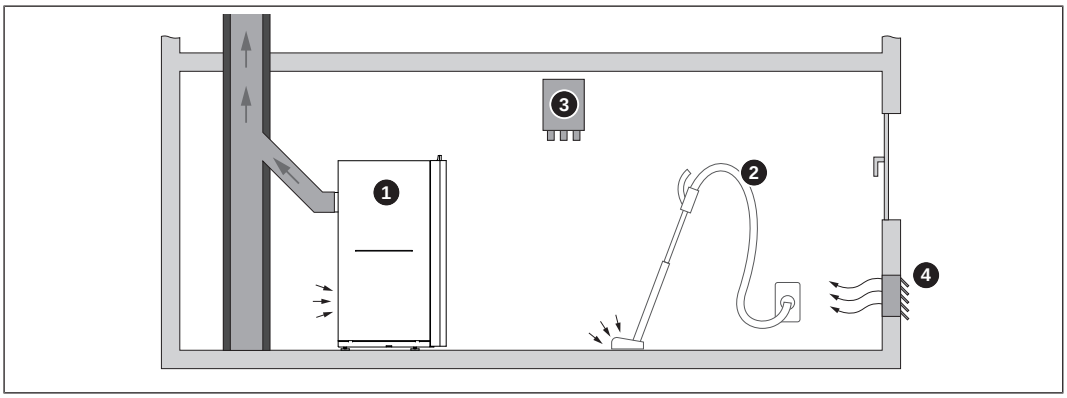
The boiler is operated either dependent on room air (combustion air is taken from the installation site) or independent of room air (direct combustion air supply via a separate pipe from outside).

A suitable air supply must ensure that no impermissible under-pressure greater than 4 Pa is created at the installation site. The use of safety devices (under-pressure monitoring system) may be necessary, particularly if the boiler is operated concurrently with air-suction systems (such as an extractor fan).

Local **NOTICE! Safety equipment and conditions for the operation of the boiler (room air-dependent / room air-independent) must be clarified with the local authority (authority, chimney sweep, ...).**

## 3.5.2 Room air-independent operation

The combustion air is taken from the installation site. The unpressurised flow of the required air quantity must be ensured accordingly.




| | |
|---|---|
| **1** | Boiler in room air-dependent operation |
| **2** | Air extraction system (such as centralised dust extraction system, room ventilation) |
| **3** | Under-pressure monitoring system |
| **4** | Combustion air supply from outside |

The minimum cross-sectional area of the supply air opening from outside depends on the nominal heat output of the boiler.

| | |
|---|---|
| Austria | 400 cm² net minimum cross-sectional area<br>plus 4 cm² for every kW of nominal heat output above 100 kW |
| Germany | 150 cm² net minimum cross-sectional area<br>plus an additional 2 cm² for every further kW of nominal heat output above 50 kW |

*Examples*

| **Minimum free cross-section [cm²]** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Nominal heat output [kW]** | **10** | **15** | **20** | **30** | **50** | **100** | **150** | **250** | **350** | **500** |
| Austria | 400 | 400 | 400 | 400 | 400 | 400 | 600 | 1000 | 1400 | 2000 |
| Germany | 150 | 150 | 150 | 150 | 150 | 250 | 350 | 550 | 750 | 1050 |

Combustion air can also be supplied from other rooms if it can be proven that sufficient combustion air can flow in whilst all mechanical and natural ventilation systems are in operation. The installation site must have a minimum volume in accordance with the applicable regional standards.

*Note on standards*

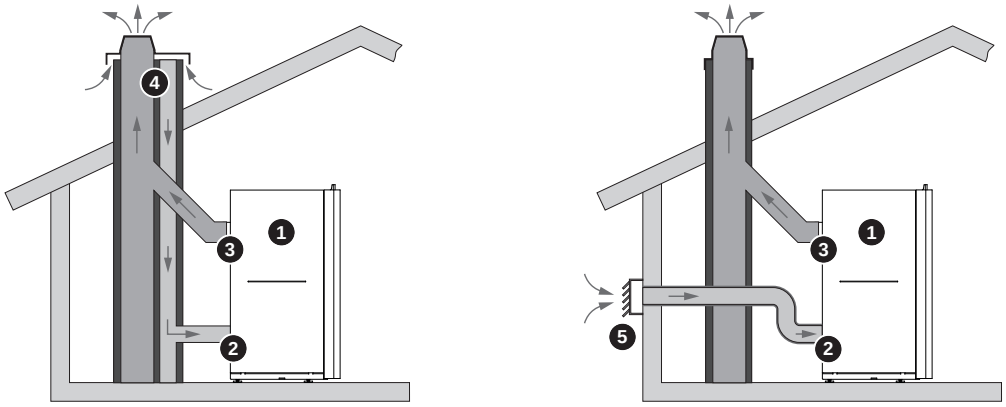
| | |
|---|---|
| Austria: | OIB Guideline 3 - Hygiene, health and environmental protection |
| Germany: | Model Firing Ordinance (MFeuV) |

## 3.5.3 Room air-independent operation (RIO)

### *General requirement*

The combustion air is supplied to the boiler via a separate duct from the outside of the building. The supply must be dimensioned so that the total pressure drop at nominal load does not exceed 20 Pa.

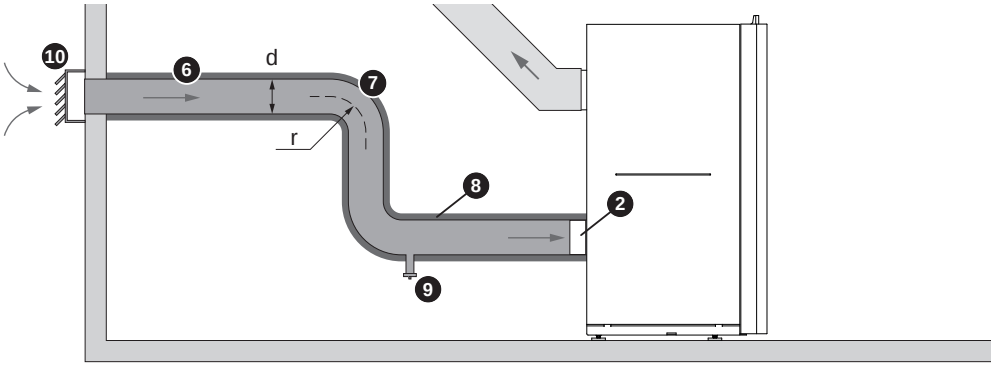
Ventilation of the installation site must be ensured by free or mechanical ventilation under the condition that no impermissible under-pressure greater than 4 Pa is created at the installation site.




| | |
|---|---|
| **1** | Boiler in room air-dependent operation |
| **2** | Combustion air connection at the boiler |
| **3** | Flue gas line connection at the boiler |
| **4** | Supply air duct via system exhaust system (LAS) |
| **5** | Supply air duct from the outside |

The boiler has a central combustion air connection (2) to which the supply air duct is connected with a leak-tight joint. The combustion air can be supplied from the draught of a system flue gas system (4) or directly from the outside of the building via a separate supply air duct (5).

### *Supply air line*




**Observe the following instructions when installing the combustion air supply (duct):**

- If necessary, have the pressure drop in the combustion air supply (6) calculated by a specialist
  (resistance in the supply air duct max. 20 Pa)

- For dimensions of the combustion air connection (2) on the boiler, see chapter "Technical data"
  IMPORTANT: Do not reduce the dimensions of the connection
- In the duct, use bends (7) with the largest possible ratio (≥1) of radius of curvature (r) to duct diameter (d)
- Use as few bends as possible (7) in the duct
  Recommendation:
  - up to 5 m duct length: max. 5 pipe bends
  - up to 10 m duct length: max. 3 pipe bends
- The supply air duct should be as straight as possible and take the shortest path
- Insulate the supply air duct with suitable thermal insulation (8) to prevent formation of condensation
- Lay the supply air duct with a gradient to the outside so that condensate can drain off. If required, install a condensate trap (9) at the lowest point
- Provide suitable protective devices (e.g. protective grille - 10) to prevent the ingress of water, foreign bodies or small animals. The cross-section must not be narrowed as a result.
- Do not close or obstruct the inlet opening
- Ensure the duct is stable at a range of temperatures (up to 120 °C)

## 3.6 Domestic hot water

Unless contrary to other national regulations, the latest versions of the following standards and guidelines apply:

| | | | |
|---|---|---|---|
| Austria: | ÖNORM H 5195 | Switzerland: | SWKI BT 102-01 |
| Germany: | VDI 2035 | Italy: | UNI 8065 |

Observe the standards and also follow the recommendations below:

- ❒ Use prepared water which complies with the standards cited above for filling and make-up water
- ❒ Avoid leaks and use a closed heating system to maintain water quality during operation
- ❒ When filling with top-up water, always vent the filling hose before connecting it, in order to prevent air being drawn into the system
- ❒ Check that the heating water is clear and free of substances that can be deposited as sediments
- ❒ Check that the pH value is between 8.2 and 10.0. If the central heating water comes into contact with aluminium, the pH value must be between 8.2 and 9.0, as specified in VDI 2035
- ❒ The use of fully demineralised filling and top-up water with an electrical conductivity not exceeding 100 µS/cm is recommended by EN 14868
- ❒ After the first 6-8 weeks, check the heating water to ensure that the specified values are being adhered to
- ❒ Unless specified otherwise by regional standards and regulations, perform an annual check on the heating water

**Filling and make-up water as well as heating water to VDI 2035 Sheet 1:2021-03:**

| Total heat output in kW | Total earth alkalis in mol/m³ (total hardness in °dH) | | |
|---|---|---|---|
| | Specific system volume in l/kW heat output[1)] | | |
| | ≤ 20 | 20 to ≤40 | > 40 |
| **≤ 50** specific water content heat generator ≥ 0.3 l/kW[2)] | none | ≤ 3.0 (16.8) | < 0.05 (0.3) |
| **≤ 50** specific water content heat generator < 0.3 l/kW[2)] (e.g. circulation water heater) and systems with electric heating elements | ≤ 3.0 (16.8) | ≤ 1.5 (8.4) | |
| **> 50 to ≤ 200** | ≤ 2.0 (11.2) | ≤ 1.0 (5.6) | |
| **> 200 to ≤ 600** | ≤ 1.5 (8.4) | < 0.05 (0.3) | |
| **> 600** | < 0.05 (0.3) | | |

1. For calculating the specific system volume, the smallest individual heating capacity is to be used for systems with several heat generators.
2. In systems with several heat generators with different specific water contents, the smallest specific water content is decisive in each case.

### Additional requirements for Switzerland

The filling and make-up water must be demineralised (fully purified)

- The water must not contain any ingredients that could settle and accumulate in the system
- This makes the water non-electroconductive, which prevents corrosion
- It also removes all the neutral salts such as chloride, sulphate and nitrate which can weaken corrosive materials in certain conditions

If some of the system water is lost, e.g. during repairs, the make-up water must also be demineralised. It is not enough to soften the water. The heating system must be professionally cleaned and rinsed before filling the units.

**Inspection:**

- After eight weeks, the pH value of the water must be between 8.2 and 10.0. If the central heating water comes into contact with aluminium, the pH value must be between 8.0 and 8.5
- Annually: values must be recorded by the owner

### Advantages of heating water treated in accordance with the standards:

- Less of a drop in output due to reduced limescale build-up
- Less corrosion due to fewer aggressive substances
- Long-term cost savings thanks to improved energy efficiency

### Frost protection

When operating the system with frost-protected heat transfer media, the following instructions and ÖNORM H 5195-2 must be observed:

- Antifreeze dosage according to the manufacturer's data sheet
  IMPORTANT: If the medium contains too much or too little antifreeze it becomes highly corrosive
- Adding antifreeze reduces the specific heat capacity of the medium; therefore design components (pumps, pipework, etc.) accordingly
- Add frost protection only to heat transfer medium in those areas that may be affected by frost (TIP: system separation)
- Check the antifreeze dosage regularly according to the manufacturer's instructions
- Dispose of frost-protected heat transfer medium at the end of its shelf life and refill the system

## 3.7 Pressure maintenance systems

Pressure maintenance systems in hot-water heating systems keep the required pressure within predefined limits and balance out volume variations caused by changes in the hot-water temperature. Two main systems are used:

### Compressor-controlled pressure maintenance

In compressor-controlled pressure maintenance units, a variable air cushion in the expansion tank is responsible for volume compensation and pressure maintenance. If the pressure is too low, the compressor pumps air into the tank. If the pressure is too high, air is released by means of a solenoid valve. The systems are built solely with closed-diaphragm expansion tanks to prevent the damaging introduction of oxygen into the heating water.

### Pump-controlled pressure maintenance

A pump-controlled pressure maintenance unit essentially consists of a pressure-maintenance pump, relief valve and an unpressurised receiving tank. The valve releases hot water into the receiving tank if the pressure is too high. If the pressure drops below a preset value, the pump draws water from the receiving tank and feeds it back into the heating system. Pump-controlled pressure maintenance systems with **open expansion tanks** (e.g. without a diaphragm) introduce ambient oxygen via the surface of the water, exposing the connected system components to the risk of corrosion. These systems offer no oxygen removal for the purposes of corrosion control as required by VDI 2035 and **in the interests of corrosion protection should not be used**.

## 3.8 Storage tank

In principle it is not necessary to use a storage tank for the system to run smoothly. However we recommend that you use the system with a storage tank, as this ensures a continuous supply of fuel in the ideal output range of the boiler.

For the correct dimensions of the storage tank and the line insulation (in accordance with ÖNORM M 7510 or guideline UZ37) please consult your installer or Fröling.

Certain subsidy guidelines prescribe compulsory requirements for the installation of storage tanks. Up-to-date information about individual subsidy guidelines can be found at www.froeling.com.

### Requirements for Switzerland in accordance with LRV Appendix 3, section 523

Automatic boilers for wood pellets with a rated thermal output of more than 70 kW must be equipped with a heat accumulator of a volume of at least 25 litres per kW rated thermal output. These dimensioning specifications apply up to 500 kW nominal heat output.

### Hot water tank in accordance with Commission Regulation (EU) 2015/ 1189 (Ecodesign Requirements)

It is recommended to operate the boiler with a hot water tank. The recommended storage volume = 20 x Pr, where Pr is the rated heat output and is indicated in kW.

## 3.9 Boiler ventilation

❒ Fit the automatic ventilating valve at the highest point on the boiler or at the ventilation connection (if present).

↳ This ensures that air in the boiler is constantly expelled, thus preventing malfunctions caused by air in the boiler

❒ Check that the boiler ventilation is working properly

↳ After installation and periodically according to manufacturer’s instructions

*Tip:*

❒ Fit a vertical pipe as a calming section in front of the automatic ventilating valve in such a way that the ventilating valve is positioned above the water level in the boiler

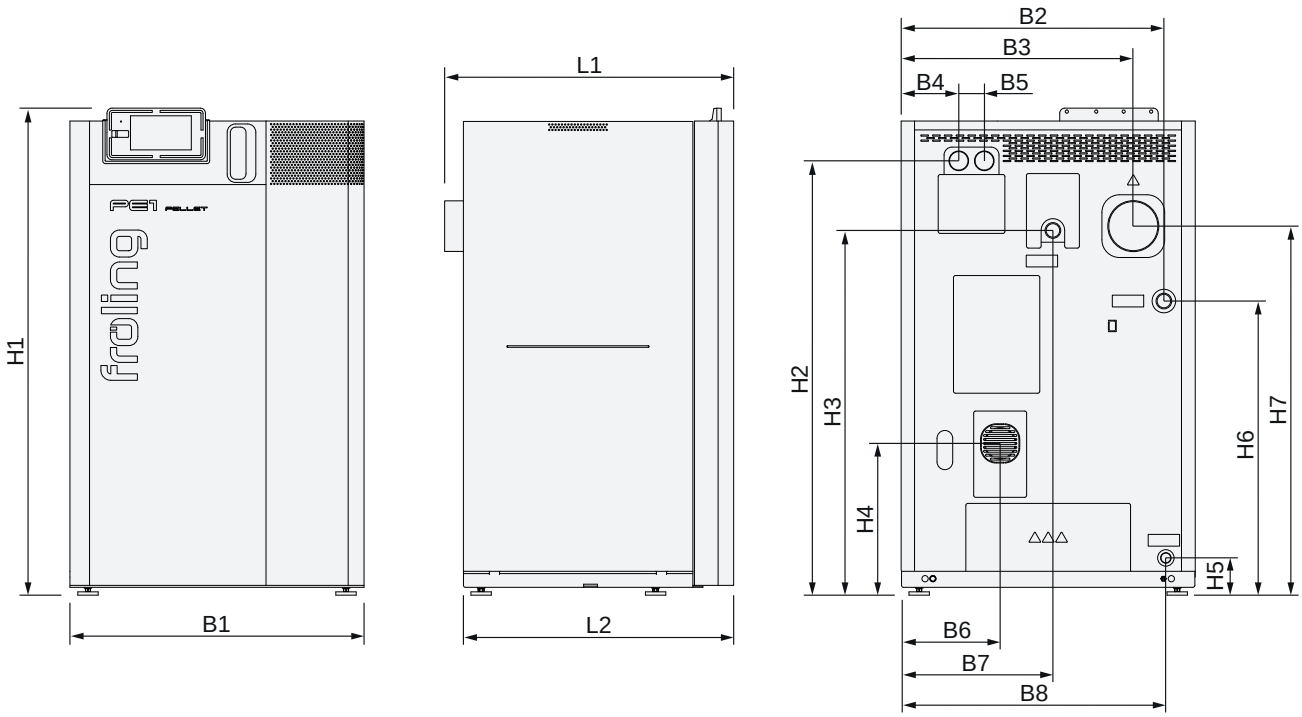
*Recommendation:*

❒ Fit a microbubble separator in the pipes to the boiler

↳ Follow the manufacturer's instructions!

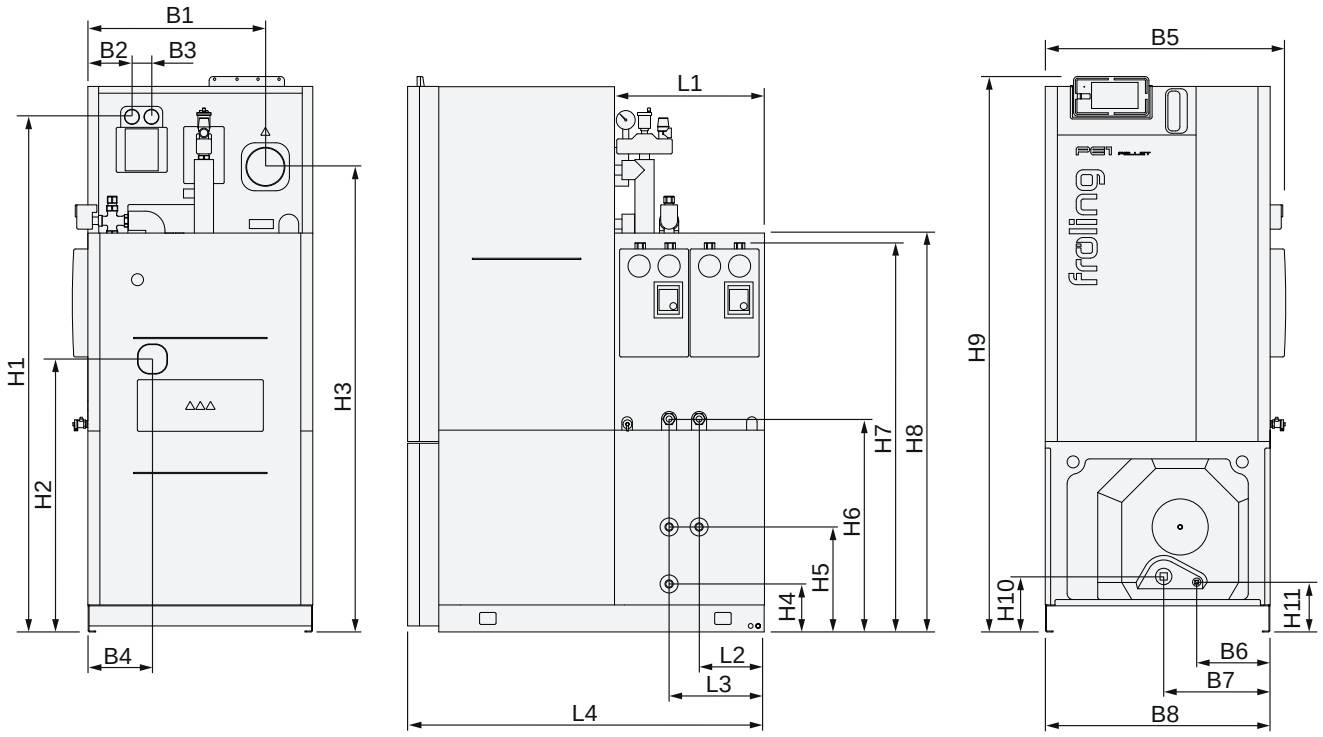
# 4 Technology

## 4.1 Dimensions - PE1 Pellet 7-35




| Dimension | Description | Unit | 7 - 10 | 15 - 20 | 25 - 35 |
|---|---|---|---|---|---|
| **L1** | Total length including flue gas pipe connection | mm | 760 | 740 | 890 |
| **L2** | Length of boiler | | 690 | 690 | 850 |
| **B1** | Overall width of boiler | | 650 | 750 | 750 |
| **B2** | Distance from drainage to side of boiler | | 575 | 670 | 670 |
| **B3** | Distance between flue gas pipe connection and side of boiler | | 540 | 590 | 580 |
| **B4** | Distance between hose line connection and side of boiler | | 110 | 145 | 150 |
| **B5** | Distance between hose line connections | | 65 | 65 | 65 |
| **B6** | Distance from connection supply air to boiler (for room air independent operation) | | 215 | 255 | 245 |
| **B7** | Distance between flow connection and side of boiler | | 350 | 390 | 390 |
| **B8** | Distance between drainage connection and side of boiler | | 575 | 675 | 675 |
| **H1** | Overall height of boiler | | 1240 | 1240 | 1480 |
| **H2** | Height of hose line connection | | 1110 | 1110 | 1380 |
| **H3** | Height, flow connection | | 935 | 930 | 1160 |
| **H4** | Height of supply air connection (for room air independent operation) | | 390 | 390 | 460 |
| **H5** | Height, drainage connection | | 95 | 95 | 175 |
| **H6** | Height, return connection | | 750 | 750 | 920 |
| **H7** | Height, flue pipe connection | | 940 | 940 | 1170 |

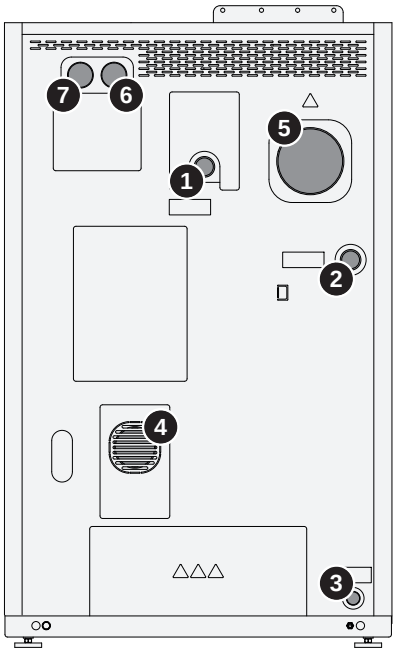
## 4.2 Dimensions - PE1 Pellet Unit 7-20




| Dimension | Description | Unit | 7 - 10 | 15 - 20 |
|---|---|---|---|---|
| **L1** | Length, hydraulic unit | mm | 500 | 500 |
| **L2** | Distance of flow/circulation pipe connection from the rear wall | | 220 | 220 |
| **L3** | Distance return/hot water connection from the rear wall | | 320 | 320 |
| **L4** | Length, PE1 Pellet Unit | | 1150 | 1190 |
| **B1** | Distance between flue gas pipe connection and side of boiler | | 540 | 590 |
| **B2** | Distance between hose line connection and side of boiler | | 110 | 145 |
| **B3** | Distance between hose line connections | | 65 | 65 |
| **B4** | Distance from supply air connection (for room air independent operation) | | 215 | 255 |
| **B5** | Total width, including heating circuit | | 710 | 800 |
| **B6** | Distance of the DHW tank drainage connection drainage from the boiler | | 245 | 245 |
| **B7** | Distance between electric heating cartridge connection and side of boiler | | 355 | 355 |
| **B8** | Width, PE1 Pellet Unit | | 650 | 750 |
| **H1** | Height of suction system connection | | 1720 | 1720 |
| **H2** | Height of supply air connection (for room air independent operation) | | 910 | 910 |
| **H3** | Height, flue pipe connection | | 1550 | 1550 |
| **H4** | Height, cold water supply of the boiler | | 160 | 160 |
| **H5** | Height, hot water/circulation connection of the boiler | | 350 | 350 |
| **H6** | Height of flow/return connection of the boiler | | 710 | 710 |
| **H7** | Height of flow/return connection of the heating circuits | | 1300 | 1300 |
| **H8** | Height, hydraulic unit | | 1330 | 1330 |

| Dimension | Description | Unit | 7 - 10 | 15 - 20 |
|---|---|---|---|---|
| **H9** | Height, PE1 Pellet Unit | | 1850 | 1850 |
| **H10** | Height, electronic heating cartridge connection | | 185 | 185 |
| **H11** | Height, drainage connection of DHW tank | | 165 | 165 |

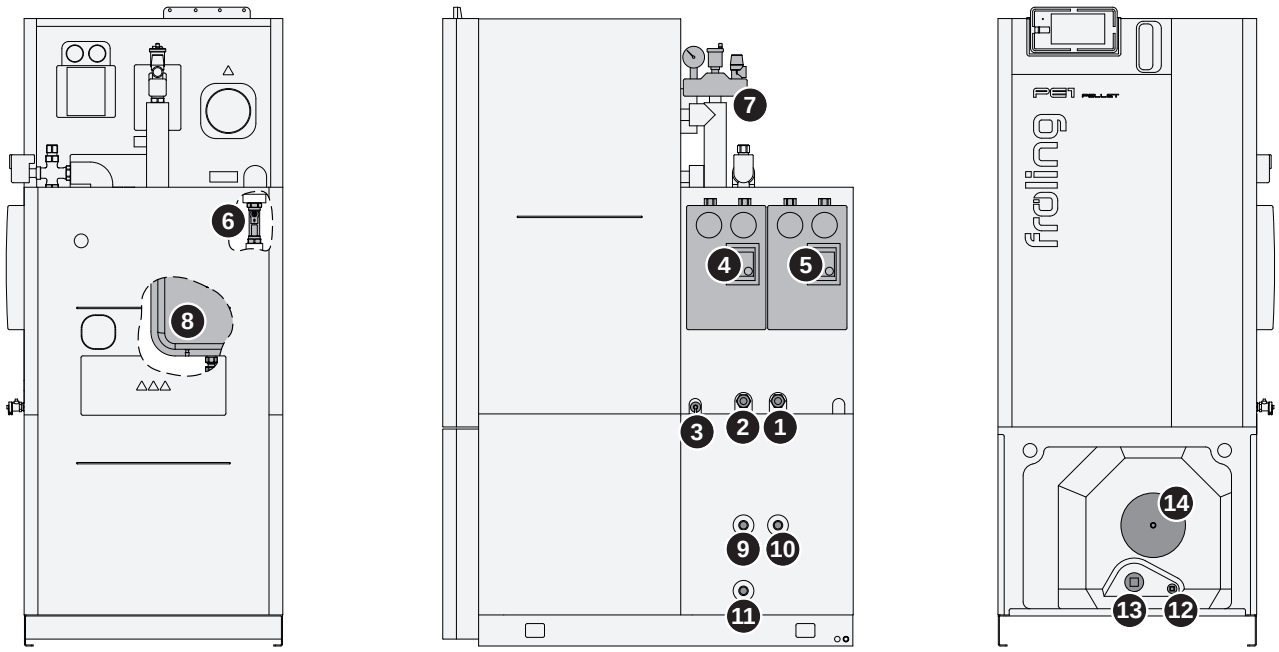
## 4.3 Components and connections - PE1 Pellet 7-35




| Item | Description | PE1 Pellet | | |
|---|---|---|---|---|
| | | 7-10 | 15-20 | 25-35 |
| 1 | Boiler flow connection | 3/4" IT | 1” IT | |
| 2 | Boiler return connection | 3/4" IT | 1” IT | |
| 3 | Drainage connection | 1/2“ IT | | |
| 4 | Supply air connection (external diameter) | 80 mm | | 100 mm |
| 5 | Flue gas pipe connection (external diameter) | 99 mm[1)] | 129 mm | 149 mm[1)] |
| 6 | Pellet suction line connection | 50 mm | | |
| 7 | Return-air line connection | 50 mm | | |

1. Optional flue gas diameter of 129 mm without additional connecting adapter possible

## 4.4 Components and connections - PE1 Pellet Unit 7-20




| Item | Description | PE1 Pellet | |
|---|---|---|---|
| | | 7-10 | 15-20 |
| 1 | System expansion flow connection | 1” IT | |
| 2 | System expansion return connection | 1” IT | |
| 3 | Drainage connection (with optional hydraulic unit designed as a boiler filling and drainage system) | 1/2“ IT | |
| 4 | Flow and return connection for heating circuit 1 (heating circuit group with high efficiency pump and mixing valve) | 1” ET | |
| 5 | Flow and return connection for additional heating circuit group | 1” IT | |
| 6 | Line regulating valve | | |
| 7 | Safety group with pressure gauge for system pressure, quick vent valve and safety valve | | |
| 8 | Expansion tank (in hydraulic block) | 18 litres | 24 litres |
| 9 | Connection, hot water for the DHW tank | 3/4" ET | |
| 10 | Connection, circulation line | 3/4" ET | |
| 11 | Cold water supply for DHW tank | 3/4" ET | |
| 12 | Drainage connection for the DHW tank (boiler filling and drainage system are not included in delivery) | 1/2“ IT | |
| 13 | Connection for E-cartridge | 6/4” IT | |
| 14 | Maintenance flange with insulated magnesium protective anode | | |

# 4.5 Technical specifications

## 4.5.1 PE1 Pellet 7-10 / PE1 Pellet Unit 7-10

| Description | | PE1 Pellet | |
|---|---|---|---|
| | | 7 | 10 |
| Nominal output | kW | 7 | 10 |
| Output range | | 2.1 - 7 | 3 - 10 |
| Boiler efficiency (NCV) at nominal/partial load | % | 94.4 / 90.9 | 95.0 / 90.9 |
| Electrical connection | | 230V / 50Hz / fused C16A | |
| Boiler weight | kg | 200 | 200 |
| Total boiler capacity (water) | l | 25 | 25 |
| Pellet container capacity | | 35 | 35 |
| Ash box capacity | | 14.5 | 14.5 |
| Water pressure drop (ΔT = 20 K) | mbar | 0.8 | 2.1 |
| Maximum boiler temperature setting | °C | 90 | |
| Minimum boiler temperature setting | | 40 | |
| Permitted operating pressure (hot water) | bar | 3 | |
| Airborne sound level | dB(A) | < 70 | |
| Boiler class as per EN 303-5:2012 | | 5 | |
| Permitted fuel as per EN ISO 17225[1)] | | Fuel as per EN ISO 17225 – Part 2: wood pellets Class A1 / D06 | |
| Test book number | | PB 071 | PB 072 |

1. Detailed information on the fuel can be found in the operating instructions in the section entitled “Permitted fuels”

| Description | | PE1 Pellet Unit | |
|---|---|---|---|
| | | 7 | 10 |
| Heat output boiler element | kW | 37.6 | 37.6 |
| Total weight | kg | 415 | 415 |
| Total moisture content | l | 37 | 37 |
| Boiler domestic hot water content | | 122 | 122 |
| Permitted operating pressure (domestic hot water) | bar | 6 | 6 |
| Test over-pressure (domestic hot water) | | 9 | 9 |
| Permitted operating temperature (domestic hot water) | °C | 110 | |
| Performance indicator as per DIN 4708 | | NL = 1.2 | |
| Standby heat loss as per EN 15332 | | $Q_B$ = 1.24 kWh / 24 h | |

## Product data in accordance with the regulations (EU) 2015/1187 and 2015/1189

| Description | | PE1 Pellet / PE1 Pellet Unit | |
|---|---|---|---|
| | | 7 | 10 |
| Heating up mode | | automatic | |
| Condensing boiler | | No | |
| Solid fuel boiler for combined heat and power | | No | |
| Combined heating system | | No | |
| Storage tank volume | | ➲ "Storage tank" [▶ 20] | |
| | | | |
| Preferred fuel | | Compressed wood in the form of pellets | |
| Useful heat delivered at rated heat output ($P_n$) | kW | 7.0 | 10.0 |
| Useful heat delivered at 30% of rated heat output ($P_p$) | | 2.1 | 3.0 |
| Fuel efficiency at rated heat output ($\eta_n$) | % | 87.6 | 88.1 |
| Fuel efficiency at 30% of rated heat output ($\eta_p$) | | 84.3 | 84.3 |
| Auxiliary current consumption at rated heat output ($el_{max}$) | kW | 0.038 | 0.044 |
| Auxiliary current consumption at 30% of rated heat output ($\eta_p$) | | 0.030 | 0.030 |
| Auxiliary current consumption in standby mode ($P_{SB}$) | | 0.010 | 0.010 |
| Energy efficiency class of the boiler | | 116 | 117 |
| Energy efficiency index (EEI) of the boiler | | A+ | A+ |
| Temperature controller used | | Lambdatronic P 3200 | |
| Class of the temperature controller | | II | II |
| Contribution of the temperature controller to the energy efficiency index of a combined system | % | 2 | 2 |
| Energy efficiency index (EEI) of the combined boiler and controller[1)] | | 118 | 119 |
| Energy efficiency class of the combined boiler and controller[1)] | | A+ | A+ |
| Heating space annual rate of use ηs | % | 77 | 78 |
| Annual space heating emissions of dust (PM)[2)] | mg/m³ | 8 | 9 |
| Annual space heating emissions of gaseous organic compounds (GOC)[2)] | mg/m³ | 2 | 2 |
| Annual space heating emissions of carbon monoxide (CO)[2)] | mg/m³ | 21 | 21 |
| Annual space heating emissions of nitrogen oxides (NOx)[2)] | mg/m³ | 150 | 150 |

1. The information on the energy efficiency index EEI of the combined boiler and controller and the energy efficiency class of the combined boiler and controller applies only if the Fröling control components supplied as standard with the respective boiler are used.
2. Specified emission values refer to dry flue gas with an oxygen content of 10 % and under standard conditions at 0°C and 1013 millibars.
   The evaluation values reported are rounded to the nearest whole number.
   Values labelled with "<" represent the relative detection limit of the measuring methods or measuring device configurations used.

## 4.5.2 PE1 Pellet 15-20 / PE1 Pellet Unit 15-20

| Description | | PE1 Pellet | |
|---|---|---|---|
| | | 15 | 20 |
| Nominal output | kW | 15 | 20 |
| Output range | | 4.5 - 15 | 6 - 20 |
| Boiler efficiency (NCV) at nominal/partial load | % | 95.8 / 93.5 | 94.6 / 93.5 |
| Electrical connection | | 230V / 50Hz / fused C16A | |
| Boiler weight | kg | 250 | 250 |
| Total boiler capacity (water) | l | 38 | 38 |
| Pellet container capacity | | 41 | 41 |
| Ash box capacity | | 20 | 20 |
| Water pressure drop (ΔT = 20 K) | mbar | 4.0 | 5.0 |
| Maximum boiler temperature setting | °C | 90 | |
| Minimum boiler temperature setting | | 40 | |
| Permitted operating pressure (hot water) | bar | 3 | |
| Airborne sound level | dB(A) | < 70 | |
| Boiler class as per EN 303-5:2012 | | 5 | |
| Permitted fuel as per EN ISO 17225[1)] | | Fuel as per EN ISO 17225 – Part 2: wood pellets Class A1 / D06 | |
| Test book number | | PB 073 | PB 074 |

1. Detailed information on the fuel can be found in the operating instructions in the section entitled “Permitted fuels”

| Description | | PE1 Pellet Unit | |
|---|---|---|---|
| | | 15 | 20 |
| Heat output boiler element | kW | 37.6 | 37.6 |
| Weight per unit | kg | 440 | 440 |
| Total boiler capacity Unit (water) | l | 50 | 50 |
| Boiler domestic hot water content | l | 122 | 122 |
| Permitted operating pressure (domestic hot water) | bar | 6 | 6 |
| Test over-pressure (domestic hot water) | bar | 9 | 9 |
| Permitted operating temperature (domestic hot water) | °C | 110 | |
| Performance indicator as per DIN 4708 | | NL = 1.6 | |
| Standby heat loss as per EN 15332 | | $Q_B$ = 1.24 kWh / 24 h | |

## Product data in accordance with the regulations (EU) 2015/1187 and 2015/1189

| Description | | PE1 Pellet / PE1 Pellet Unit | |
|---|---|---|---|
| | | 15 | 20 |
| Heating up mode | | automatic | |
| Condensing boiler | | No | |
| Solid fuel boiler for combined heat and power | | No | |
| Combined heating system | | No | |
| Storage tank volume | | ➲ "Storage tank" [▶ 20] | |
| | | | |
| Preferred fuel | | Compressed wood in the form of pellets | |
| Useful heat delivered at rated heat output ($P_n$) | kW | 15.0 | 20.0 |
| Useful heat delivered at 30% of rated heat output ($P_p$) | | 4.5 | 6.0 |
| Fuel efficiency at rated heat output ($\eta_n$) | % | 88.9 | 87.6 |
| Fuel efficiency at 30% of rated heat output ($\eta_p$) | | 86.9 | 86.9 |
| Auxiliary current consumption at rated heat output ($el_{max}$) | kW | 0.050 | 0.060 |
| Auxiliary current consumption at 30% of rated heat output ($\eta_p$) | | 0.033 | 0.033 |
| Auxiliary current consumption in standby mode ($P_{SB}$) | | 0.010 | 0.010 |
| Energy efficiency class of the boiler | | 121 | 121 |
| Energy efficiency index (EEI) of the boiler | | A+ | A+ |
| Temperature controller used | | Lambdatronic P 3200 | |
| Class of the temperature controller | | II | II |
| Contribution of the temperature controller to the energy efficiency index of a combined system | % | 2 | 2 |
| Energy efficiency index (EEI) of the combined boiler and controller[1)] | | 123 | 123 |
| Energy efficiency class of the combined boiler and controller[1)] | | A+ | A+ |
| Heating space annual rate of use ηs | % | 82 | 82 |
| Annual space heating emissions of dust (PM)[2)] | mg/m³ | 8 | 9 |
| Annual space heating emissions of gaseous organic compounds (GOC)[2)] | mg/m³ | 1 | 1 |
| Annual space heating emissions of carbon monoxide (CO)[2)] | mg/m³ | 22 | 23 |
| Annual space heating emissions of nitrogen oxides (NOx)[2)] | mg/m³ | 153 | 154 |

1. The information on the energy efficiency index EEI of the combined boiler and controller and the energy efficiency class of the combined boiler and controller applies only if the Fröling control components supplied as standard with the respective boiler are used.
2. Specified emission values refer to dry flue gas with an oxygen content of 10 % and under standard conditions at 0°C and 1013 millibars.
   The evaluation values reported are rounded to the nearest whole number.
   Values labelled with "<" represent the relative detection limit of the measuring methods or measuring device configurations used.

### 4.5.3 PE1 Pellet 25-30

| Description | | PE1 Pellet | |
|---|---|---|---|
| | | 25 | 30 |
| Nominal heat output | kW | 25 | 30 |
| Output range | | 7.5 | 9 |
| Boiler efficiency (NCV) at nominal/partial load | % | 94.2 / 94.7 | 94.2 / 94.7 |
| Electrical connection | | 230V / 50Hz / fused C16A | |
| Boiler weight | kg | 380 | 380 |
| Total boiler capacity (water) | l | 60 | 60 |
| Pellet container capacity | | 76 | 76 |
| Ash box capacity | | 23 | 23 |
| Water pressure drop (ΔT = 20K) | mbar | 7.0 | 11.0 |
| Maximum boiler temperature setting | °C | 90 | |
| Minimum boiler temperature setting | | 50 | |
| Permitted operating pressure (hot water) | bar | 3 | |
| Airborne sound level | dB(A) | < 70 | |
| Boiler class as per EN 303-5:2012 | | 5 | |
| Permitted fuel as per EN ISO 17225[1)] | | Fuel as per EN ISO 17225 – Part 2: wood pellets Class A1 / D06 | |
| Test book number | | PB 075 | PB 076 |

1. Detailed information on the fuel can be found in the operating instructions in the section entitled “Permitted fuels”

### Product data in accordance with the regulations (EU) 2015/1187 and 2015/1189

| Description | | PE1 Pellet | |
|---|---|---|---|
| | | 25 | 30 |
| Heating up mode | | automatic | |
| Condensing boiler | | No | |
| Solid fuel boiler for combined heat and power | | No | |
| Combined heating system | | No | |
| Storage tank volume | | ➲ "Storage tank" [▸ 20] | |
| | | | |
| Preferred fuel | | Compressed wood in the form of pellets | |
| Useful heat delivered at rated heat output ($P_n$) | kW | 25.0 | 30.0 |
| Useful heat delivered at 30% of rated heat output ($P_p$) | | 7.5 | 9.0 |
| Fuel efficiency at rated heat output ($\eta_n$) | % | 87.3 | 87.3 |
| Fuel efficiency at 30% of rated heat output ($\eta_p$) | | 87.6 | 87.6 |
| Auxiliary current consumption at rated heat output ($el_{max}$) | kW | 0.070 | 0.074 |
| Auxiliary current consumption at 30% of rated heat output ($\eta_p$) | | 0.038 | 0.038 |
| Auxiliary current consumption in standby mode ($P_{SB}$) | | 0.010 | 0.010 |
| Energy efficiency class of the boiler | | 123 | 123 |
| Energy efficiency index (EEI) of the boiler | | A+ | A+ |

| Description | | PE1 Pellet | |
|---|---|---|---|
| | | 25 | 30 |
| Temperature controller used | | Lambdatronic P 3200 | |
| Class of the temperature controller | | II | II |
| Contribution of the temperature controller to the energy efficiency index of a combined system | % | 2 | 2 |
| Energy efficiency index (EEI) of the combined boiler and controller[1)] | | 125 | 125 |
| Energy efficiency class of the combined boiler and controller[1)] | | A++ | A++ |
| Heating space annual rate of use ηs | % | 83 | 83 |
| Annual space heating emissions of dust (PM)[2)] | mg/m³ | 9 | 9 |
| Annual space heating emissions of gaseous organic compounds (GOC)[2)] | mg/m³ | 1 | 1 |
| Annual space heating emissions of carbon monoxide (CO)[2)] | mg/m³ | 24 | 25 |
| Annual space heating emissions of nitrogen oxides (NOx)[2)] | mg/m³ | 134 | 134 |

1. The information on the energy efficiency index EEI of the combined boiler and controller and the energy efficiency class of the combined boiler and controller applies only if the Fröling control components supplied as standard with the respective boiler are used.
2. Specified emission values refer to dry flue gas with an oxygen content of 10 % and under standard conditions at 0°C and 1013 millibars.
   The evaluation values reported are rounded to the nearest whole number.
   Values labelled with "<" represent the relative detection limit of the measuring methods or measuring device configurations used.

## 4.5.4 PE1 Pellet 32-35

| Description | | PE1 Pellet | |
|---|---|---|---|
| | | 32 | 35 |
| Nominal output | kW | 32 | 35 |
| Output range | | 9.6 – 32 | 10.5 - 35 |
| Boiler efficiency (NCV) at nominal/partial load | % | 94.2 / 94.7 | 94.3 / 94.7 |
| Electrical connection | | 230V / 50Hz / fused C16A | |
| Boiler weight | kg | 380 | 380 |
| Total boiler capacity (water) | l | 60 | 60 |
| Pellet container capacity | | 76 | 76 |
| Ash box capacity | | 23 | 23 |
| Water pressure drop (ΔT = 20K) | mbar | 12.0 | 14.0 |
| Maximum boiler temperature setting | °C | 90 | |
| Minimum boiler temperature setting | | 50 | |
| Permitted operating pressure (hot water) | bar | 3 | |
| Airborne sound level | dB(A) | < 70 | |
| Boiler class as per EN 303-5:2012 | | 5 | |
| Permitted fuel as per EN ISO 17225[1)] | | Fuel as per EN ISO 17225 – Part 2: wood pellets Class A1 / D06 | |
| Test book number | | PB 077 | PB 078 |

1. Detailed information on the fuel can be found in the operating instructions in the section entitled “Permitted fuels”

## Product data in accordance with the regulations (EU) 2015/1187 and 2015/1189

| Description | | PE1 Pellet | |
|---|---|---|---|
| | | 32 | 35 |
| Heating up mode | | automatic | |
| Condensing boiler | | No | |
| Solid fuel boiler for combined heat and power | | No | |
| Combined heating system | | No | |
| Storage tank volume | | ➲ "Storage tank" [▶ 20] | |
| | | | |
| Preferred fuel | | Compressed wood in the form of pellets | |
| Useful heat delivered at rated heat output ($P_n$) | kW | 32.0 | 35.0 |
| Useful heat delivered at 30% of rated heat output ($P_p$) | | 9.6 | 10.5 |
| Fuel efficiency at rated heat output ($\eta_n$) | % | 87.3 | 87.2 |
| Fuel efficiency at 30% of rated heat output ($\eta_p$) | | 87.6 | 87.6 |
| Auxiliary current consumption at rated heat output ($el_{max}$) | kW | 0.075 | 0.067 |
| Auxiliary current consumption at 30% of rated heat output ($\eta_p$) | | 0.038 | 0.038 |
| Auxiliary current consumption in standby mode ($P_{SB}$) | | 0.010 | 0.010 |
| Energy efficiency class of the boiler | | 123 | 123 |
| Energy efficiency index (EEI) of the boiler | | A+ | A+ |
| Temperature controller used | | Lambdatronic P 3200 | |
| Class of the temperature controller | | II | II |
| Contribution of the temperature controller to the energy efficiency index of a combined system | % | 2 | 2 |
| Energy efficiency index (EEI) of the combined boiler and controller[1)] | | 125 | 125 |
| Energy efficiency class of the combined boiler and controller[1)] | | A++ | A++ |
| Heating space annual rate of use ηs | % | 83 | 84 |
| Annual space heating emissions of dust (PM)[2)] | mg/m³ | 9 | 10 |
| Annual space heating emissions of gaseous organic compounds (GOC)[2)] | mg/m³ | 1 | 1 |
| Annual space heating emissions of carbon monoxide (CO)[2)] | mg/m³ | 26 | 25 |
| Annual space heating emissions of nitrogen oxides (NOx)[2)] | mg/m³ | 134 | 140 |

1. The information on the energy efficiency index EEI of the combined boiler and controller and the energy efficiency class of the combined boiler and controller applies only if the Fröling control components supplied as standard with the respective boiler are used.
2. Specified emission values refer to dry flue gas with an oxygen content of 10 % and under standard conditions at 0°C and 1013 millibars.
   The evaluation values reported are rounded to the nearest whole number.
   Values labelled with "<" represent the relative detection limit of the measuring methods or measuring device configurations used.

## 4.5.5 Boiler data for planning the flue gas system

The flue gas performance values listed below should be used for calculation of the fluid dynamics for flue gas systems as specified in the EN 13384 series of standards. The flue gas performance values for the respective outputs are applicable under typical operating conditions when using fuels consistent with the fuel class specified in EN ISO 17225.

| Description | | PE1 Pellet / PE1 Pellet Unit | | | |
|---|---|---|---|---|---|
| | | 7 | 10 | 15 | 20 |
| Flue gas temperature at rated heat output $T_{WN}$ / at the lowest output $T_{Wmin}$ | °C | 140 / 100 | 150 / 100 | 140 / 100 | 150 / 100 |
| Volumetric concentration of $CO_2$ in the dry flue gas $\sigma(CO_2)$ at rated heat output | % | 11 | | | |
| Flue gas mass flow at rated heat output $\dot{m}_N$ / at the lowest output $\dot{m}_{min}$ | kg/h | 17 / 7 | 25 / 7 | 36 / 16 | 52 / 20 |
| | kg/s | 0.005 / 0.002 | 0.007 / 0.002 | 0.010 / 0.004 | 0.014 / 0.006 |
| Feed pressure $P_{WN}$ required at the rated heat output / $P_{Wmin}$ required at the lowest output | Pa | 5 / 2 | | | |
| Maximum permissible feed pressure $P_{Wmax}$ | Pa | 30 | | | |
| Feed pressure $P_{WO}$ (blower feed pressure) available at the appliance | Pa | - | | | |
| Flue spigot diameter D | mm | 99 [1)] | | 129 | |
| Data to be used when for operation independent of the room air | | | | | |
| Supply air connection diameter | mm | 80 | | | |
| Maximum permissible pressure drop $P_{Bmax}$ in the supply air duct | Pa | 20 | | | |
| Combustion air volume at rated heat output | m³/h | 14 | 20 | 29 | 39 |
| 1. Optional flue gas diameter of 129 mm without additional connecting adapter possible | | | | | |

| Description | | PE1 Pellet | | | |
|---|---|---|---|---|---|
| | | 25 | 30 | 32 | 35 |
| Flue gas temperature at rated heat output $T_{WN}$ / at the lowest output $T_{Wmin}$ | °C | 140 / 100 | 150 / 100 | 160 / 100 | 160 / 100 |
| Volumetric concentration of $CO_2$ in the dry flue gas $\sigma(CO_2)$ at rated heat output | % | 11 | | | |
| Flue gas mass flow at rated heat output $\dot{m}_N$ / at the lowest output $\dot{m}_{min}$ | kg/h | 65 / 25 | 72 / 30 | 75 / 32 | 90 / 40 |
| | kg/s | 0.018 / 0.007 | 0.020 / 0.008 | 0.022 / 0.009 | 0.025 / 0.011 |
| Feed pressure $P_{WN}$ required at the rated heat output / $P_{Wmin}$ required at the lowest output | Pa | 5 / 2 | | | |
| Maximum permissible feed pressure $P_{Wmax}$ | Pa | 30 | | | |
| Feed pressure $P_{WO}$ (blower feed pressure) available at the appliance | Pa | - | | | |
| Flue spigot diameter D | mm | 149 | | | |
| Data to be used when for operation independent of the room air | | | | | |
| Supply air connection diameter | mm | 100 | | | |
| Maximum permissible pressure drop $P_{Bmax}$ in the supply air duct | Pa | 20 | | | |
| Combustion air volume at rated heat output | m³/h | 49 | 58 | 62 | 68 |

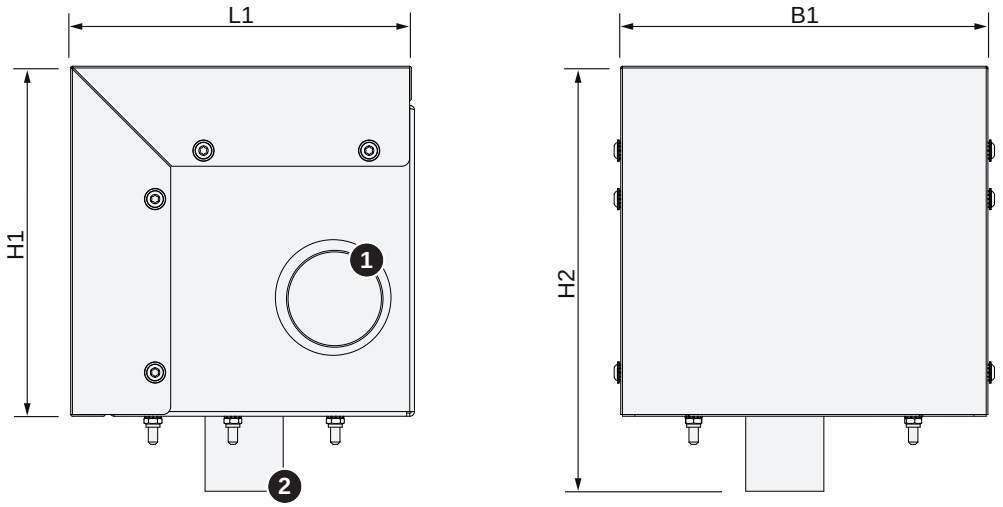
**In Germany, the following are applicable:**

When using a buffer storage tank with a minimum volume according to 1st BimSchV (Federal Emissions Regulation), continuous supply can be achieved in the ideal output range of the boiler. In this case, no verification calculation for the flue gas system in partial load operation is performed!

### 4.5.6 Data for planning a backup power supply

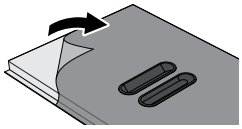
| Description | | Value |
|---|---|---|
| Continuous output (single phase) | VA | 3680 |
| Nominal voltage | VAC | 230 ± 6% |
| Frequency | Hz | 50 ± 2% |

## 4.6 External suction module




| Dimension | Description | Unit | Size 1 | Size 2 |
|---|---|---|---|---|
| **L1** | Length of suction module | mm | 220 | 265 |
| **B1** | Width of suction module | | 235 | 290 |
| **H1** | Height of suction module | | 225 | 235 |
| **H2** | Total height incl. hose connection | | 275 | 285 |
| | | | | |
| **1** | Return air line connection<br>(line to suction point) | mm | 50 | |
| **2** | Connection return air line<br>(line from boiler) | | 50 | |

# 5 Assembly



**IMPORTANT: The individual parts of the boiler insulation covered with a protective film. The protective film must be removed before proceeding with the installation!**

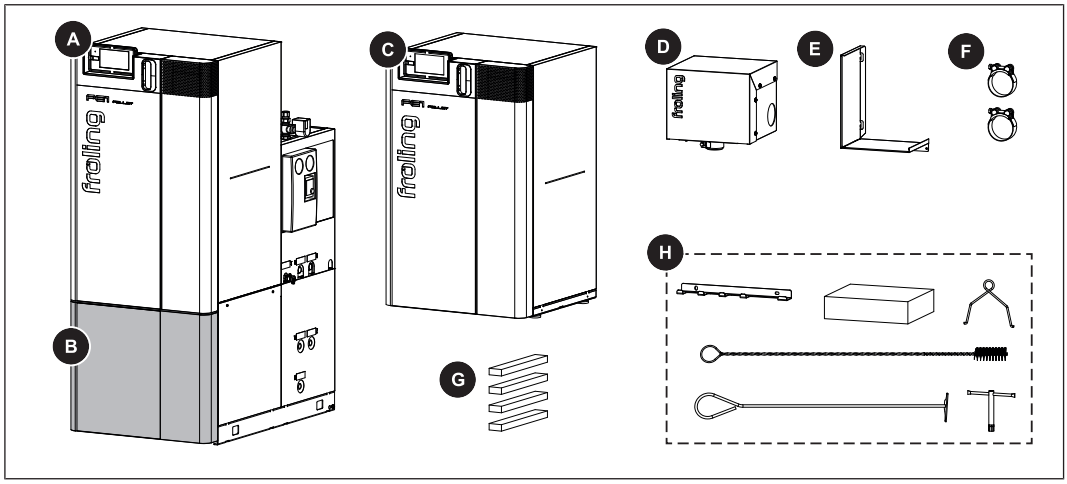
## 5.1 Tools required

The following tools are required for assembling the boiler and suction module:

- Spanner or box wrench set
- Set of Allen keys
- Flat head and cross-head screwdrivers
- Pipe wrench or water pump pliers (1")
  - We recommend the use of a plier wrench for the flat sealing joints.
- Cordless screwdriver and set of Torx bits (T20, T25, T30)
- Power drill with masonry drill bit Ø12 mm

## 5.2 Included in delivery

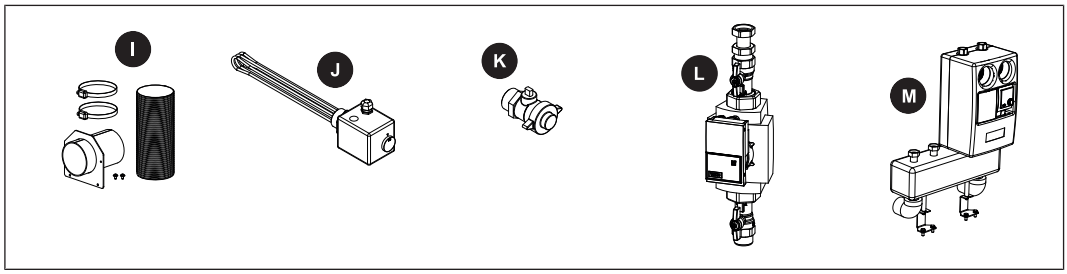
The boiler comes on a pallet together with the suction module and accessories. Some of the components come in cardboard packaging.




| | | | |
|---|---|---|---|
| **A** | Boiler PE1 Pellet Unit<br>➲ "Install the PE1 Pellet Unit" [▸ 47] | **E** | Protective plate for flue pipe<br>➲ "Installing the protective plate for the connection line to the chimney" [▸ 61] |
| **W** | Cover (for PE1 Pellet Unit)<br>➲ "Fit the front cover" [▸ 54] | **F** | Hose clamps<br>➲ "Connect the suction hoses to the boiler" [▸ 59] |
| **C** | Boiler PE1 Pellet Unit<br>➲ "Install PE1 Pellet" [▸ 41] | **G** | Boiler underlays (for PE1 Pellet Unit)<br>➲ "Align the boiler with the floor" [▸ 48] |
| **D** | External suction module<br>➲ "Installing the external suction module" [▸ 57] | **H** | Accessories (cleaning equipment, socket wrench, mounting bracket (for PE1 Pellet 25-35), controller accessories included in ash container (sensor, immersion sleeve etc.)) |

Not pictured: installation and operating instructions, guarantee certificate, identification plate

### Optionally available for PE1 Pellet Unit:




| | | | |
|---|---|---|---|
| **I** | Connection set for operation independent of room air<br>➲ "Install the connection set for room air-independent operation (optional)" [▸ 49] | **L** | Pipe assembly for storage tank loading<br>➲ "Expansion with pipe assembly for storage loading (optional)" [▸ 51] |
| **J** | Electric heating cartridge<br>➲ "Expansion with electronic heating cartridge (optional)" [▸ 49] | **M** | Pump assembly for second heating circuit<br>➲ "Expansion with pump assembly for second heating circuit (optional)" [▸ 52] |

| | |
|---|---|
| **K** | Boiler filling and drainage system<br>➲ "Install boiler filling and drainage system" [▶ 48] |

## 5.3 Transport

The product is delivered on pallet(s) in cardboard packaging.

**NOTICE**

Possibility of damage to components if handled incorrectly

- ❒ Follow the transport instructions on the packaging
- ❒ Transport components with care to avoid damage
- ❒ Protect components against damp
- ❒ Pay attention to the pallet's centre of gravity when lifting

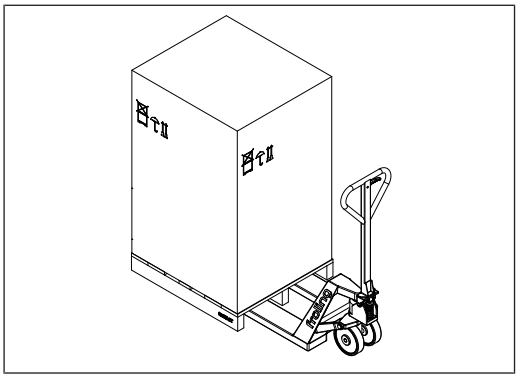
## 5.4 Positioning

If the height of the PE1 Pellet Unit prevents it from being transported as a single unit:

❒ ➲ "Disassembling to make transporting the PE1 Pellet Unit easier" [▶ 55]

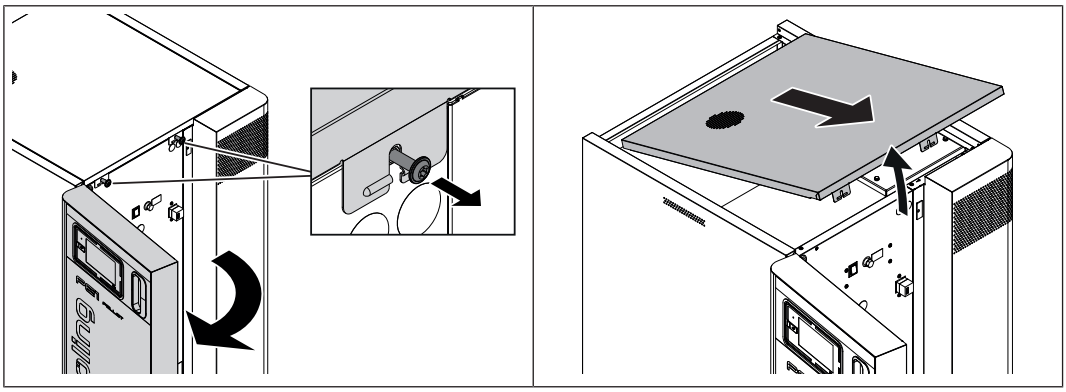
**NOTICE! Only remove the PE1 Pellet Unit as a last resort if it connot be transported as a single unit!**

### Positioning using forklift or similar lifting device



❒ Position a fork-lift or similar lifting device at the pallet and bring in the components

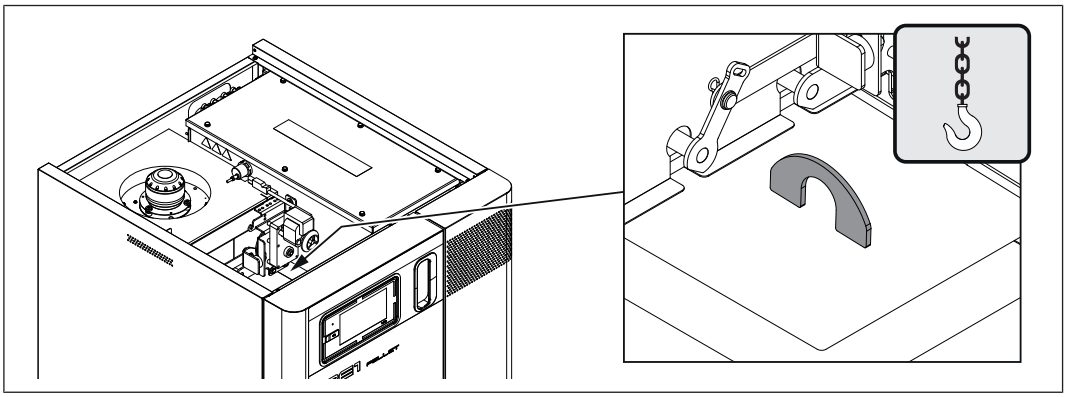
**Positioning using a crane:**



❒ Open the insulated door

❒ Unlock the cover by undoing the retaining screws

❒ Lift the cover on the front edge slightly and remove it towards the front



❒ Transport the boiler using a crane hook

**NOTICE! The PE1 Pellet Unit can also be transported on the crane hook. However, it is then imperative to check that all of the pre-installed pipe connections are properly in position and leak-tight!**

## 5.5 Temporary storage

If the system is to be assembled at a later stage:

❒ Store components at a protected location, which is dry and free from dust

↳ Damp conditions and frost can damage components, particularly electric ones!

# 5.6 Positioning at the installation site

## 5.6.1 Moving the boiler in the boiler room

❒ Position a forklift or similar lifting device with a suitable load-bearing capacity at the base frame

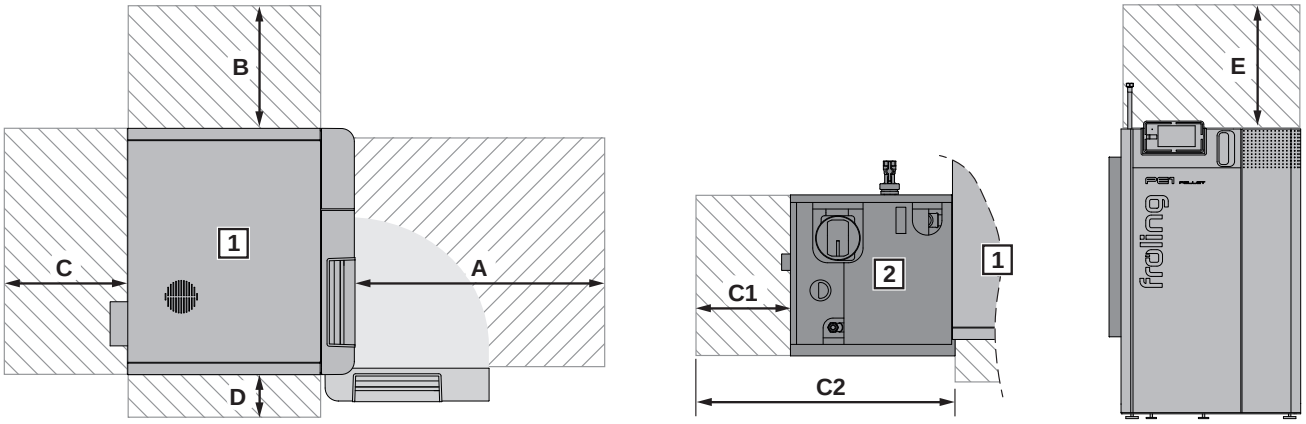
❒ Lift and transport to the intended position in the installation room.

↳ Pay attention to the operating and maintenance areas of the equipment in the process!

## 5.6.2 Operating and maintenance areas of the equipment

- The system should generally be set up so that it is accessible from all sides to allow quick and easy maintenance!
- Regional regulations regarding necessary maintenance areas for inspecting the chimney should be observed in addition to the specified distances!
- Observe the applicable standards and regulations when setting up the system!
- Comply with additional standards for noise protection!
  (ÖNORM H 5190 - Noise protection measures)

### Operating and maintenance areas of the PE1 Pellet

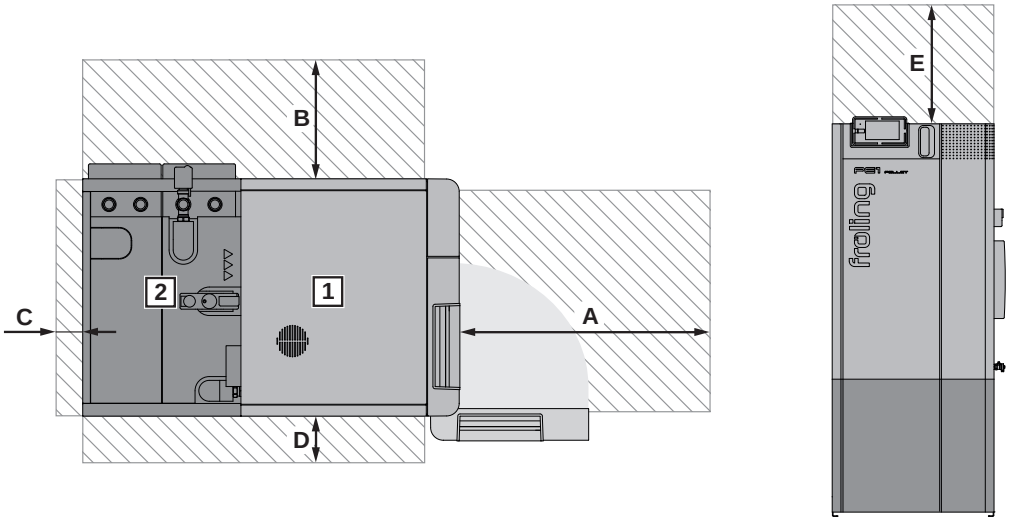



1 ... PE1 Pellet pellet boiler | 2 ... Condensing boiler heat exchanger

| | PE1 Pellet 7-20 | PE1 Pellet 25-35 |
|---|---|---|
| **A** | 600 mm | |
| **W** | 300 mm | |
| **C** | 300 mm | |
| **C1** | 250 mm | |
| **C2** | 750 mm | 790 mm |
| **D** | 100 mm | |
| **E** | 500 mm[1)] | |

1. Maintenance area to expand the WOS springs upwards

### Operating and maintenance areas of the PE1 Pellet Unit



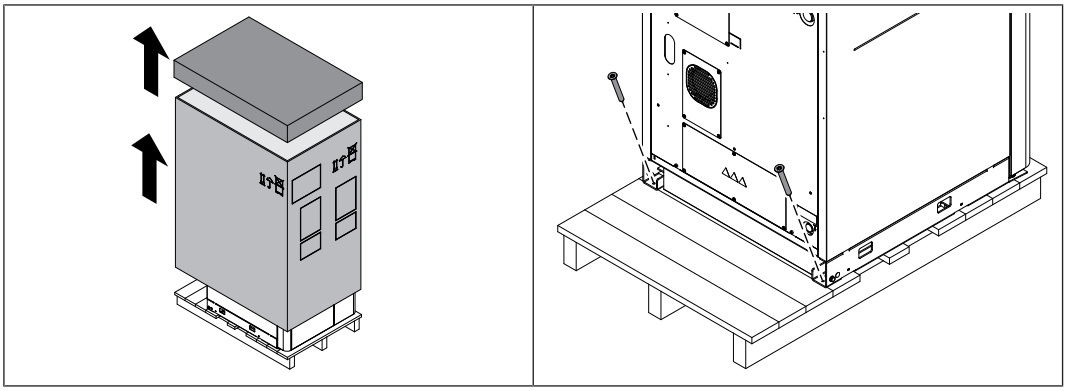

1 ... PE1 Pellet Unit pellet boiler | 2 ... Condensing boiler heat exchanger

| | |
|---|---|
| **A** | 600 mm |
| **W** | 300 mm |
| **C** | 30 mm |
| **D** | 100 mm |
| **E** | 500 mm[1)] |

1. Maintenance area to expand the WOS springs upwards

## 5.7 Install PE1 Pellet

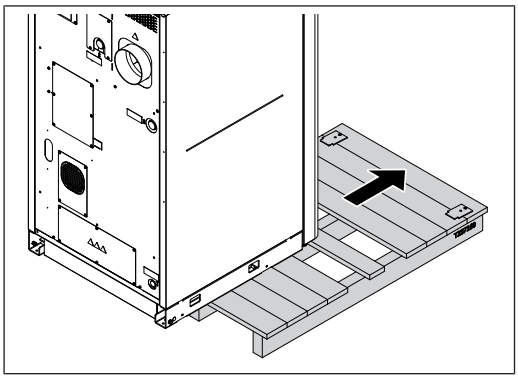
### 5.7.1 Remove boiler from pallet



❒ Cut through the reinforcing tape and lift off the cardboard box

❒ Take the componenets behind the boiler (suction module, furnace tool,…) off the pallet

❒ Remove the transport lock at the back of the boiler

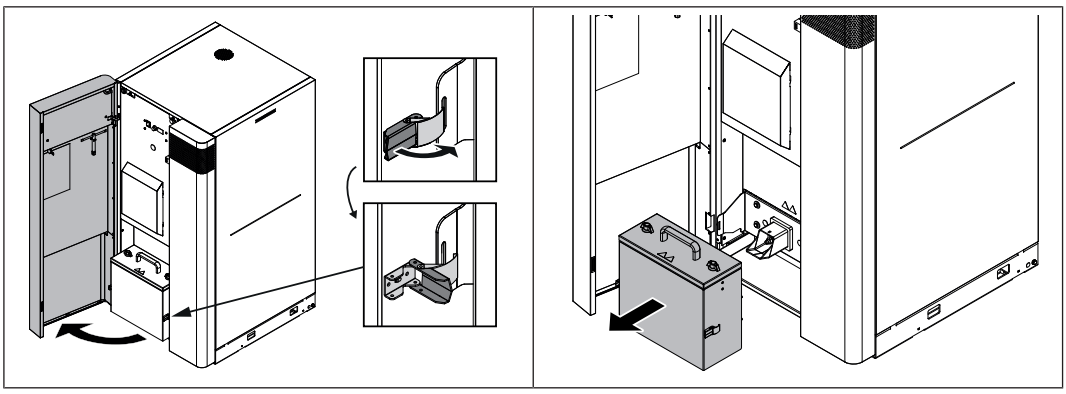


❒ Lift the boiler and pull the pallet out the front

TIP: We recommend using Froling’s KHV 1400 boiler lifting system to make pallet removal easier

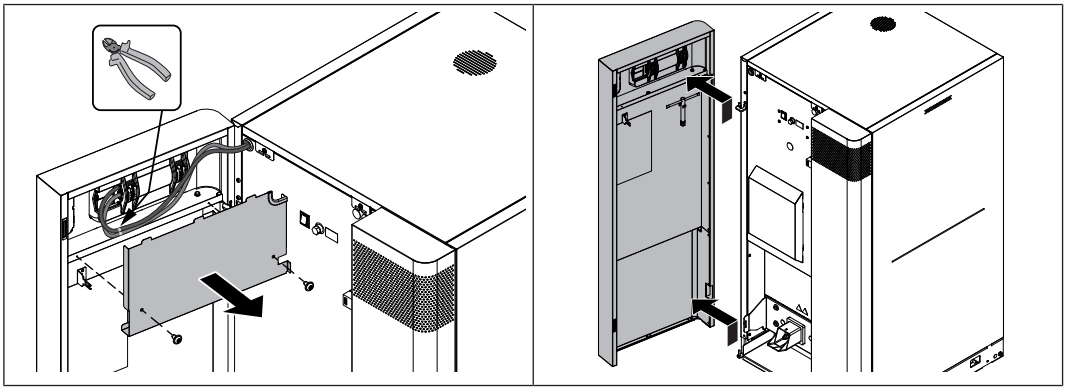
### 5.7.2 PE1 Pellet 25-35 – Prepare the boiler for transport and setup

The following preparations are necessary in order to remove the PE1 Pellet 25-35 from the pallet using the Fröling KHV 1400 boiler lifting system or similar hoisting equipment and transporting it.



❒ Open the insulated door

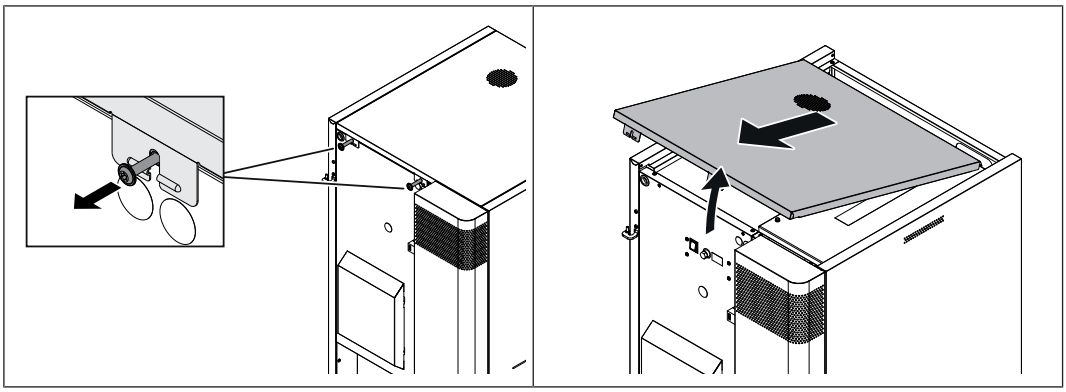
❒ Release the clamps and remove from the ash container from the boiler



❒ Remove the cover plate on the inside of the insulated door

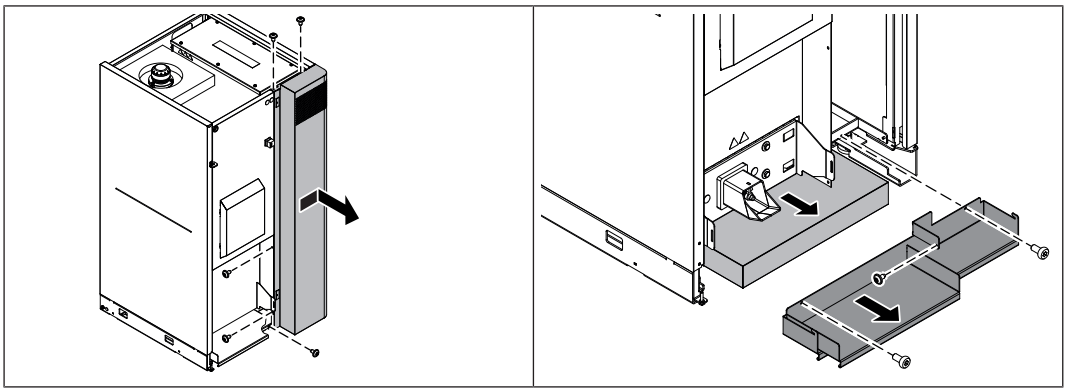
❒ Remove cable ties and unplug both display cables
**TIP:** Uniquely identify the cables (top bushing: BUS, bottom bushing: ETHERNET)

❒ Remove insulated door



❒ Unlock the cover by undoing the retaining screws

❒ Lift the cover on the front edge slightly and remove it towards the front



❒ Undo the screws on the front cover plate

❒ Unlock cover plate to the right and lift off to the front

❒ Remove the protective plate from the bottom of the boiler

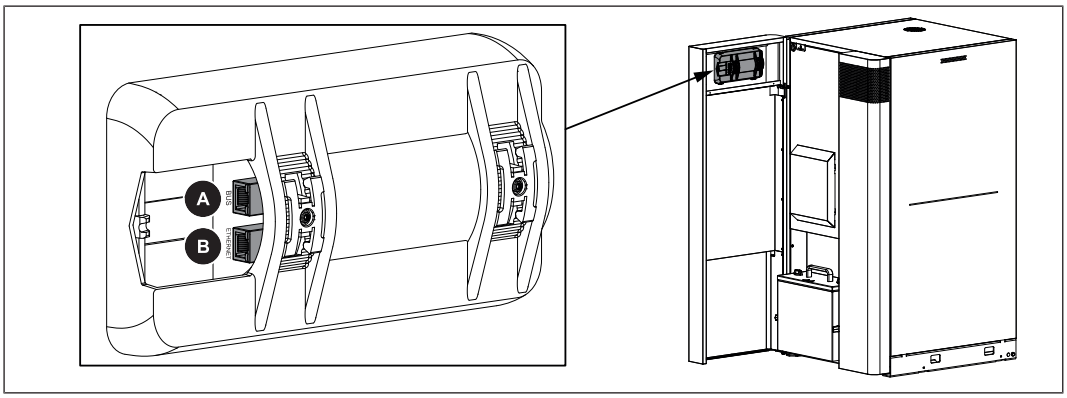
❒ Pull out floor insulation

The Fröling KHV 1400 boiler lifting system can now be used to lift the boiler off the pallet and the boiler can be transported using a forklift or similar lifting device.

Assemble all components in reverse order.

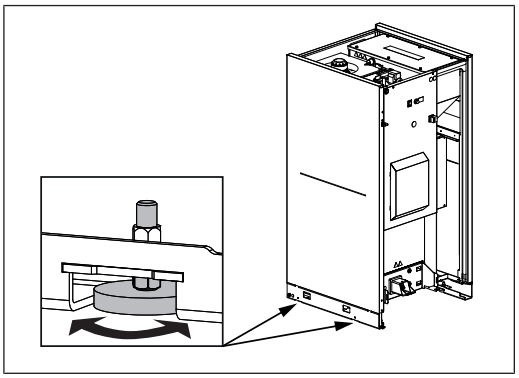
**IMPORTANT: Plug the display cable into the right bushing:**

- Bushing A: BUS
- Bushing B: ETHERNET



### 5.7.3 Aligning the boiler on the floor

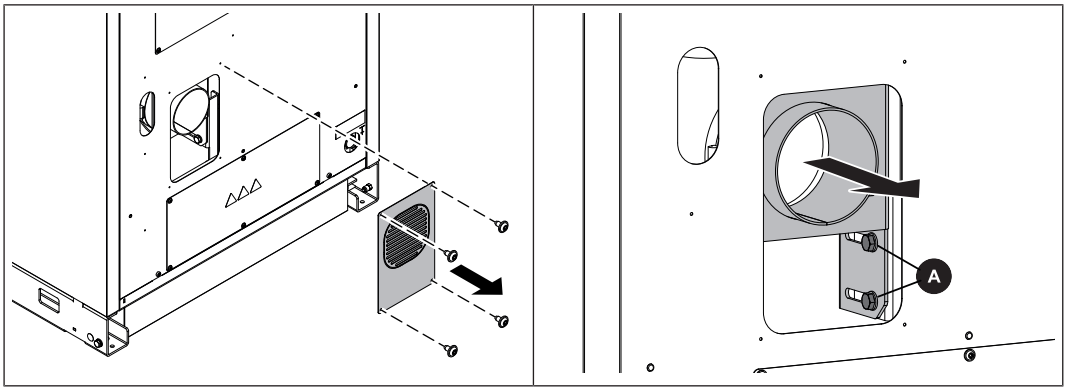
For the PE1 Pellet 7-20 the adjustable feet are adjusted from the outside. The adjustable feet of the PE1 Pellet 25-35 are accessible only by removing the front protective plate, ➲ "PE1 Pellet 25-35 – Prepare the boiler for transport and setup" [▸ 43].



❒ Lift the boiler off the floor and use the adjustable feet to level it the boiler

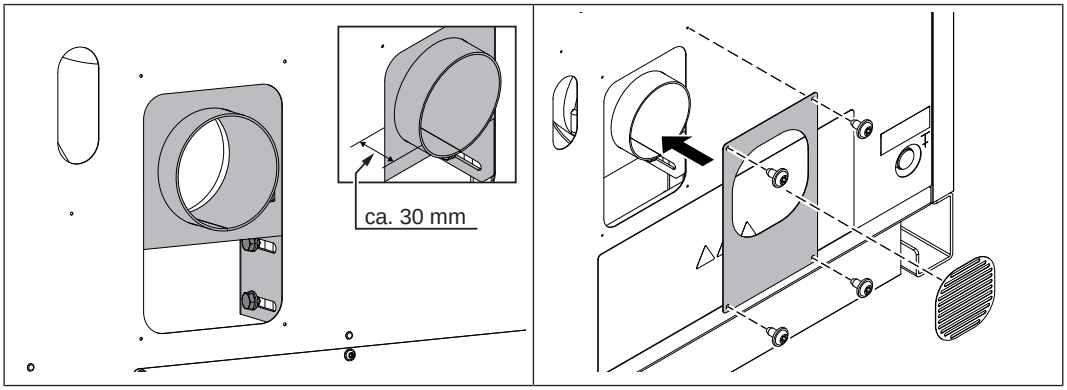
↳ To avoid structure-born sound transmission, the bottom of the boiler must not rest on the floor

## 5.7.4 Prepare for room air-independent operation




❒ Remove the covering grid plate on the rear of the boiler

❒ Loosen both screws (A) on the supply air connection




❒ Pull back the bracket for the supply air connection until approx. 30 mm of pipe is protruding

❒ Secure both screws

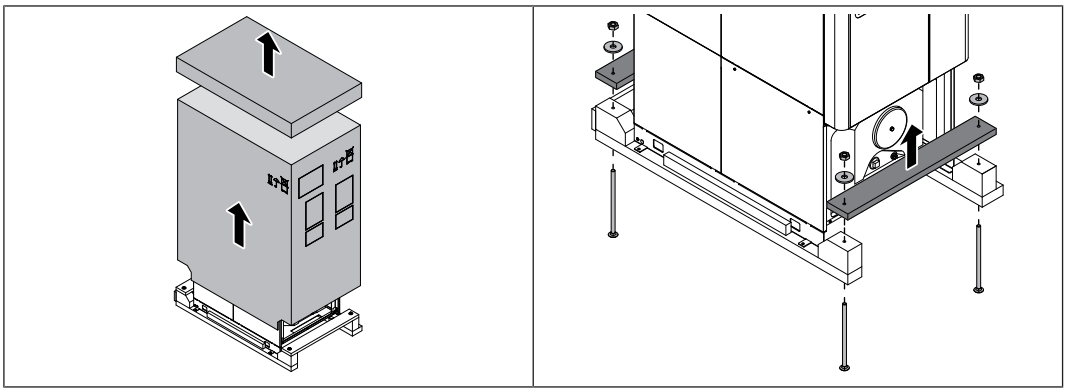
❒ Remove the grill from the cover plate

❒ Remove the burrs with a half-round file

❒ Fit the cover plate to the supply air connection

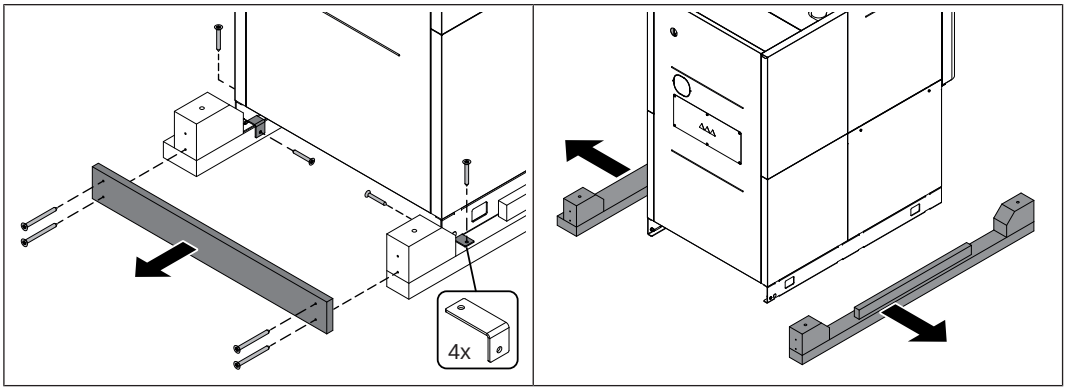
# 5.8 Install the PE1 Pellet Unit

## 5.8.1 Remove boiler from pallet



❒ Cut through the strapping and lift off the cardboard

❒ Loosen the nuts and washers on the top of the pallet and remove the crosspieces




❒ Remove the rear crosspiece

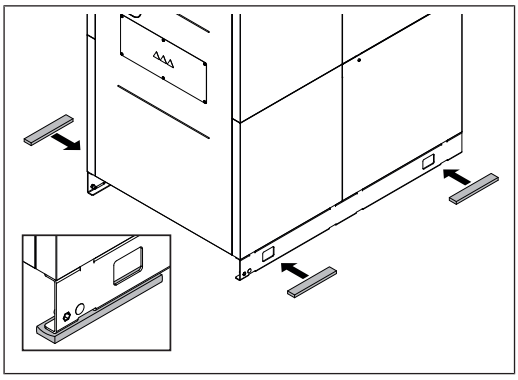
❒ Loosen the screws and remove the clamping angles

❒ Lift the boiler using a forklift or similar lifting device with the appropriate load-bearing capacity and remove the bottom supports of the pallet

❒ Transport boiler to the intended position in the installation room

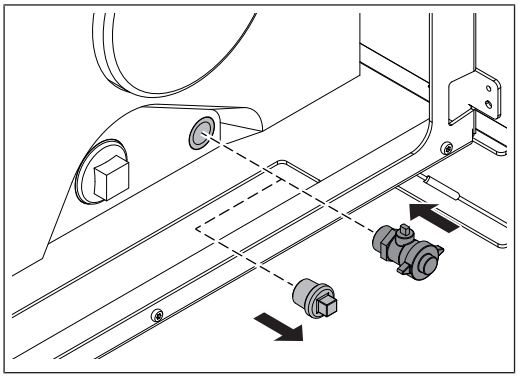
↳ Observe the operating and maintenance areas of the equipment in the process!

### 5.8.2 Align the boiler with the floor



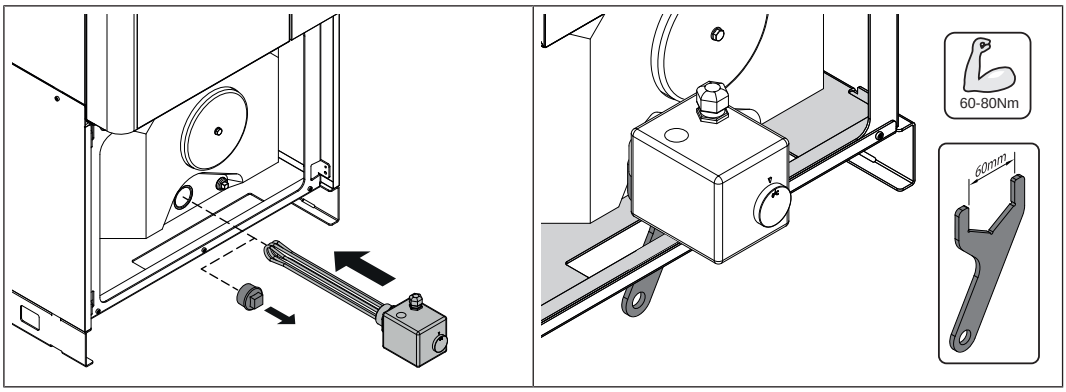
❒ Lift the boiler using a forklift or similar lifting device with the appropriate load-bearing capacity and position the boiler underlays

### 5.8.3 Install boiler filling and drainage system



❒ Remove the right blanking plug from the DHW tank and seal the boiler filling and drainage system in the sleeve instead

## 5.8.4 Expansion with electronic heating cartridge (optional)

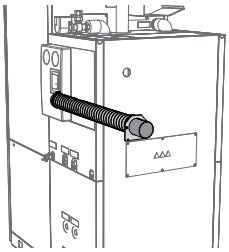


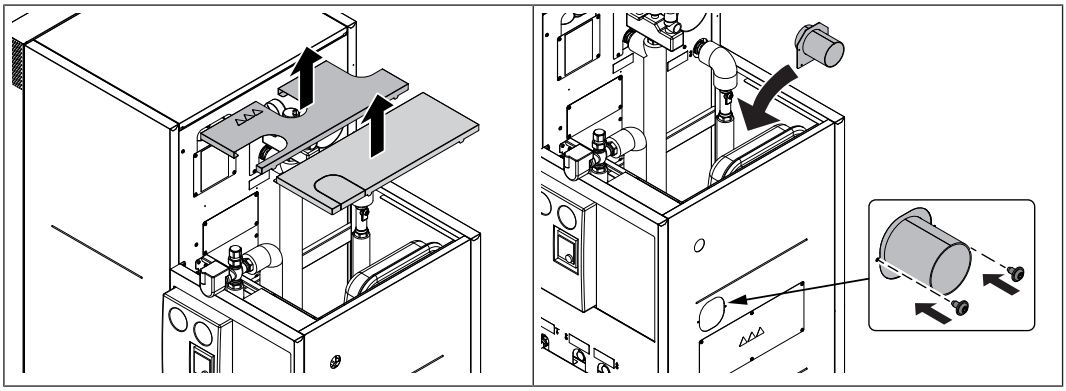

- ❒ Remove the left blanking plug from the DHW tank and seal the electric heating cartridge in the sleeve instead
- ❒ Tighten the electric heating cartridge with the included spanner (60-80 Nm)
- ❒ Run the cable up to the boiler controller

## 5.8.5 Install the connection set for room air-independent operation (optional)

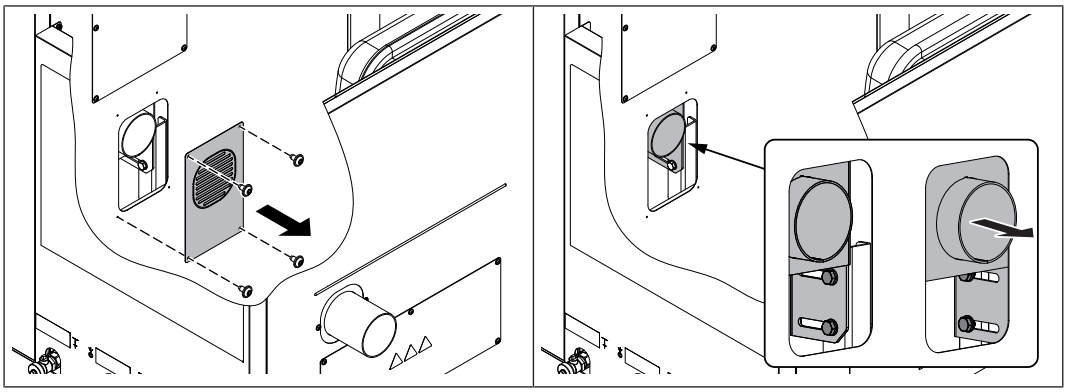
Depending on how the system is set up, the air connection for room air-independent operation can be installed from the back or the top.

**Variant 1: Air connection at the rear**





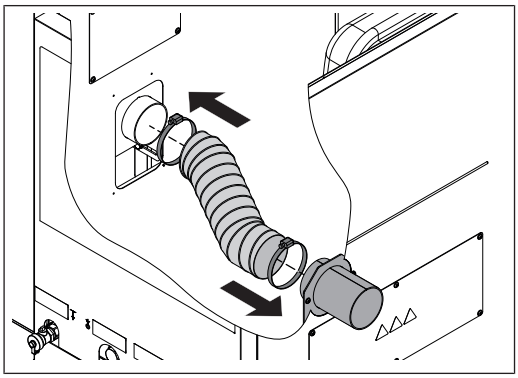
- ❒ Lift off both covers
- ❒ Take out the perforation on the back panel and remove the burrs using a half-round file
- ❒ Push the included bracket for the air connection through the hole from the inside
- ❒ Secure the bracket to the back panel
  - ↳ The long pipe points to the rear



❒ Remove the cover plate and grill from the back panel of the boiler

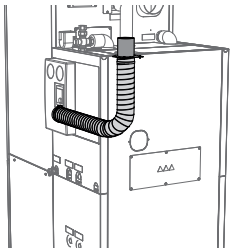
❒ Loosen both screws on the air connection

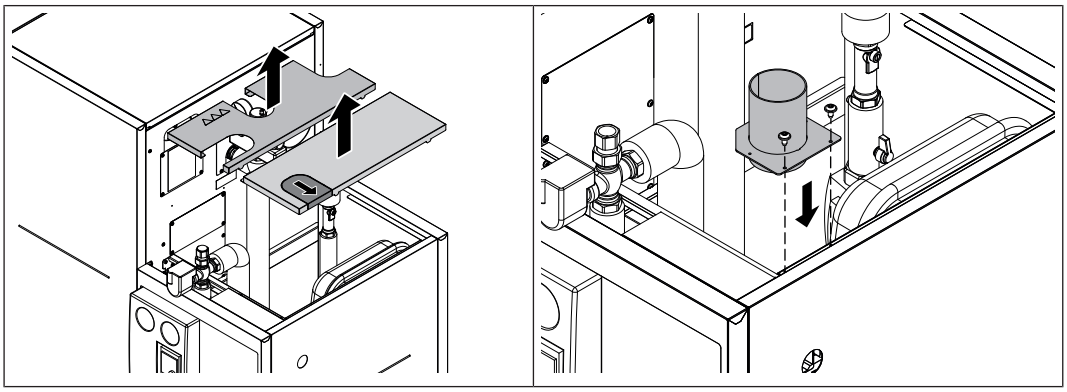
❒ Pull the bracket out until it stops and secure using screws



❒ Slide the air hose onto both pipes and secure with pipe clamps

**Variant 2: Top air connection**



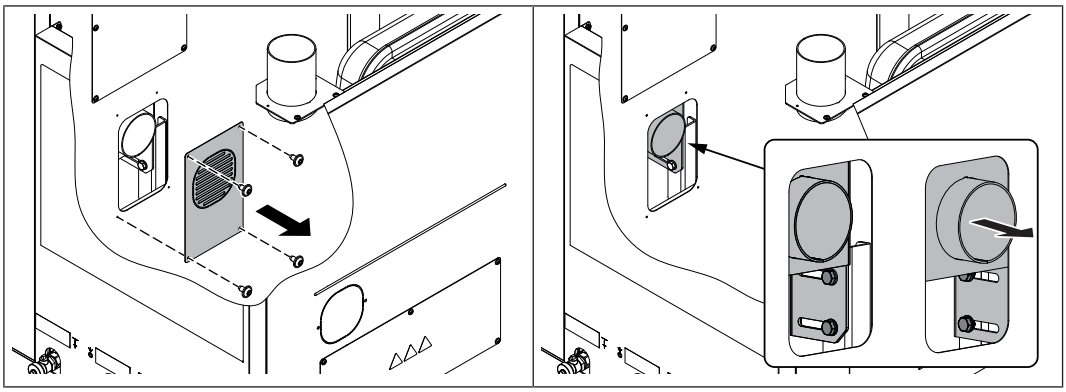


❒ Lift off both rear covers

❒ Push out the perforation on the cover and remove the burrs using a half-round file

❒ Secure the air connection bracket to the upper side of the frame

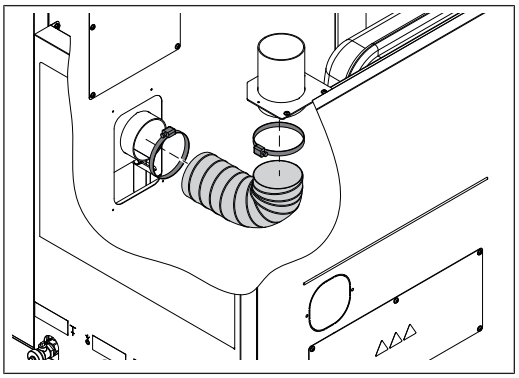
↳ The long pipe section points up



❒ Remove the cover plate and grill from the back panel of the boiler

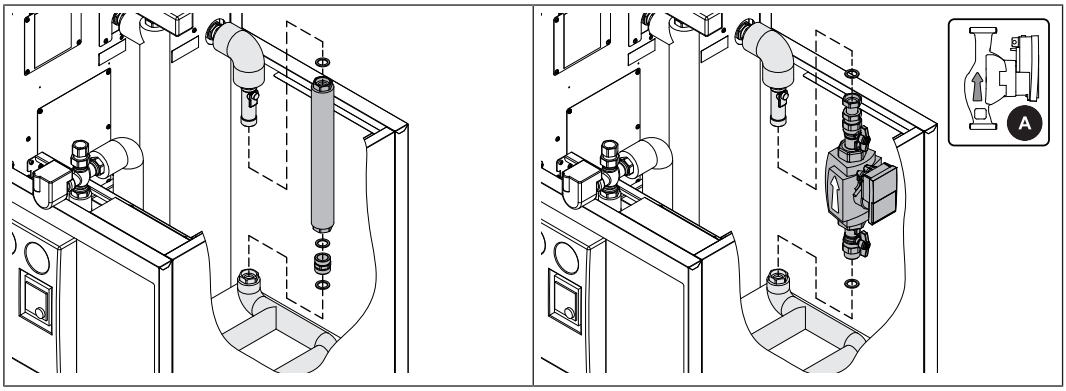
❒ Loosen both screws on the air connection

❒ Pull the bracket out until it stops and secure using screws



❒ Slide the air hose onto both pipes and secure with pipe clamps

### 5.8.6 Expansion with pipe assembly for storage loading (optional)

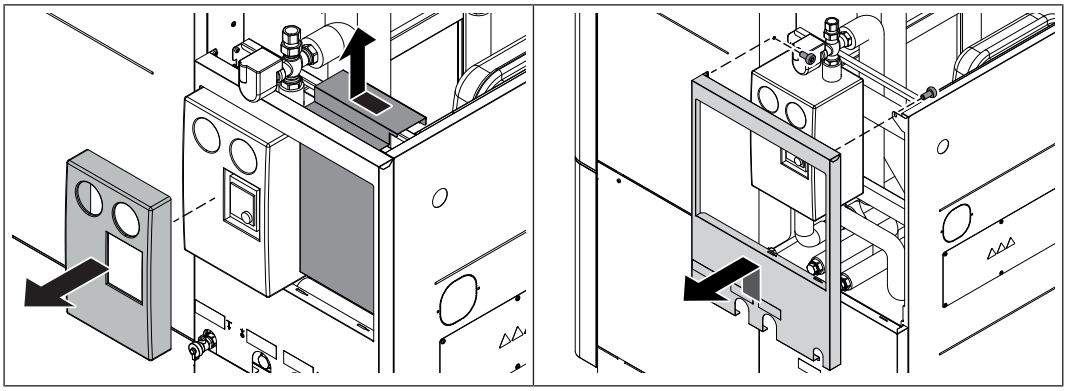



❒ Remove the pipe connecting piece from the boiler return

❒ Instead, fit the included pipe assembly for storage loading including seals

↳ **CAUTION:** Direction of feed (A) of pump to return connection of boiler

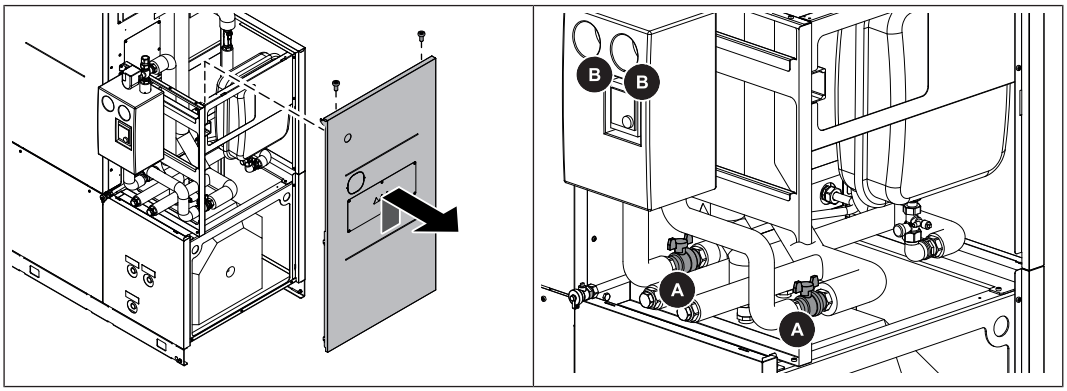
## 5.8.7 Expansion with pump assembly for second heating circuit (optional)



❒ Remove thermal insulation from pump assembly

❒ Push the cover plate next to the pump assembly slightly forward and unhinge

❒ Loosen both screws on the inside of the frame and unhook the right side panel

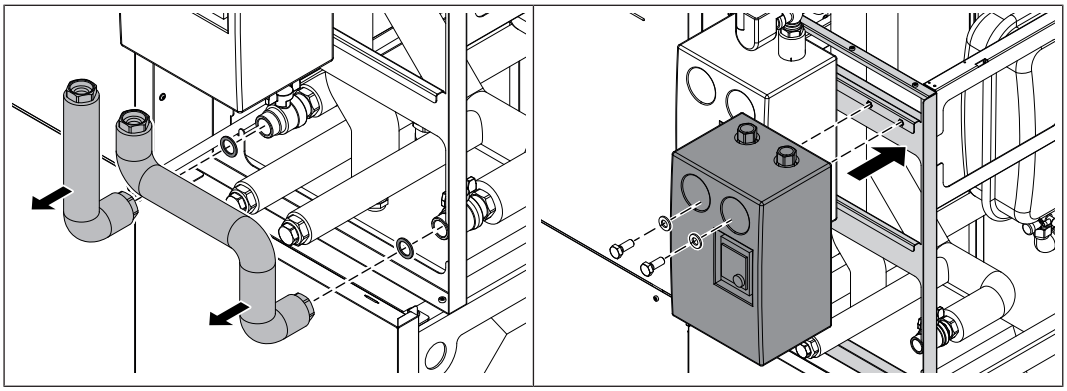



❒ Undo both screws on the top and unhook the back panel

❒ Shut off the ball valves (A) on the piping to the pump assembly

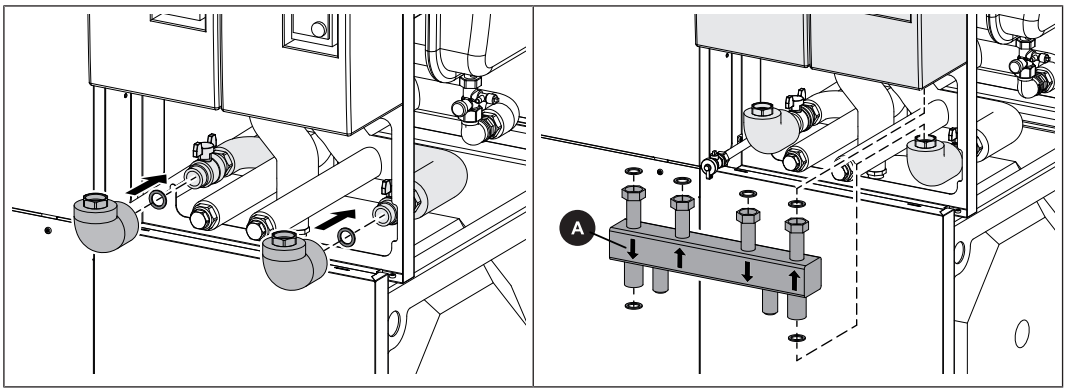
❒ Shut off the flow to the pump assembly by turning the thermometer (B)

↳ Direction of rotation - clockwise



❒ Remove the piping between the pump assembly and the ball valves

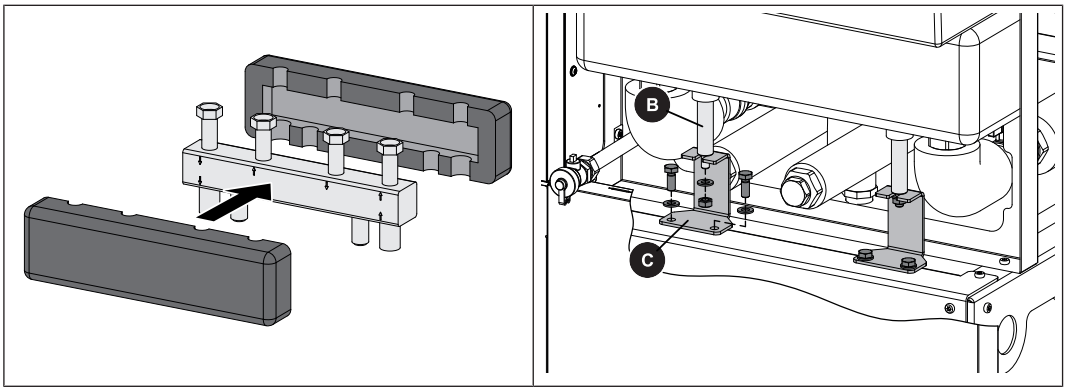
❒ Remove the anterior thermal insulation from the second pump assembly and secure the pump assembly to the frame




❒ Fit the elbows, including seals, to the ball valves

❒ Fit the distributor, including seals, to the bottom of the pump assembly and to the elbows

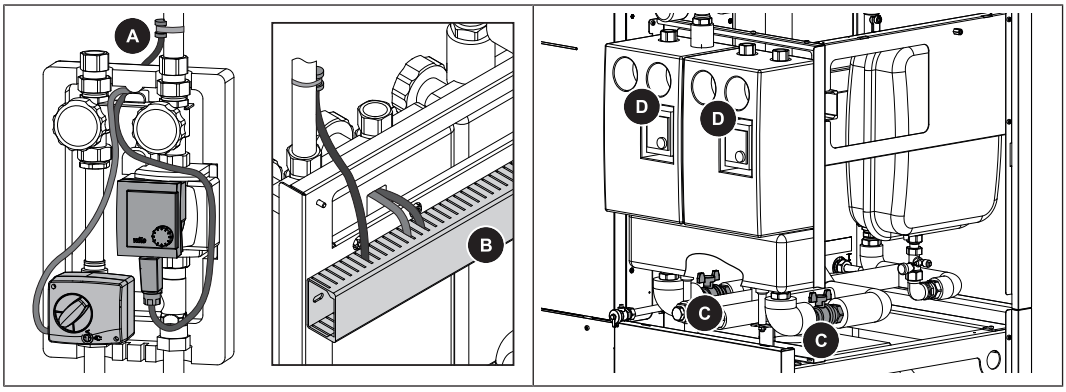
↳ CAUTION: Pay attention to the directions of flow (A)!




❒ Attach the thermal insulation to the distributor

❒ Slide the support (B), thread facing down, into the distributor bar

❒ Attach the retaining plates to the frame and to the supports



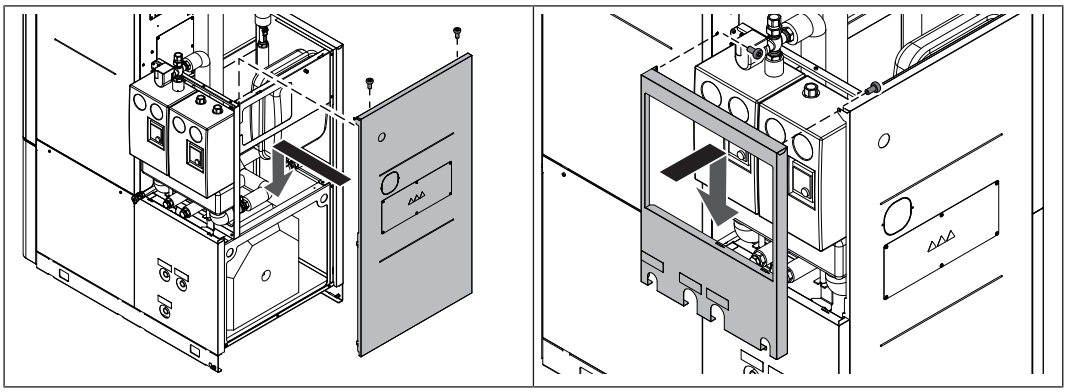

❒ Fit the contact sensor (A) to the appropriate position on the flow

❒ Run the cable for the contact sensor, the heating ciruit pump and the mixer to the cable duct (B) behind the pump assembly

❒ Open the ball valves (C) on the piping to the pump assembly

❒ Release the flow to the pump assembly by turning the thermometer (D)

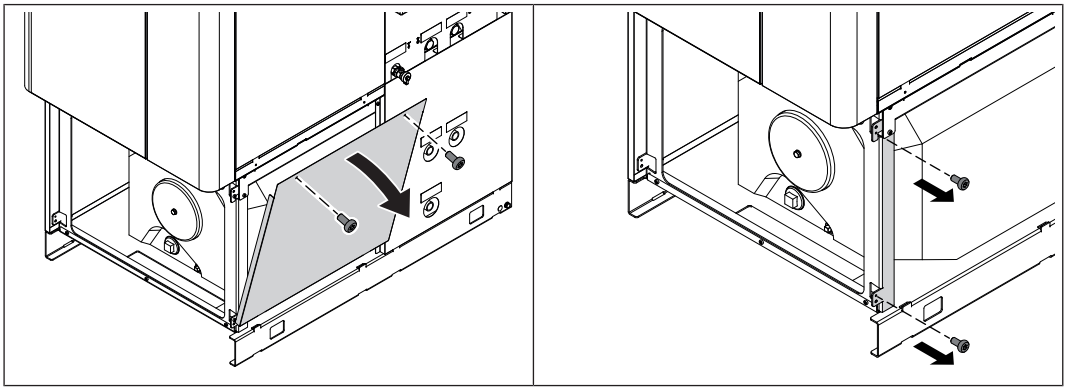
↳ Direction of rotation - anti-clockwise



❒ Fit the rear panel to the frame and use two screws to secure it on the top

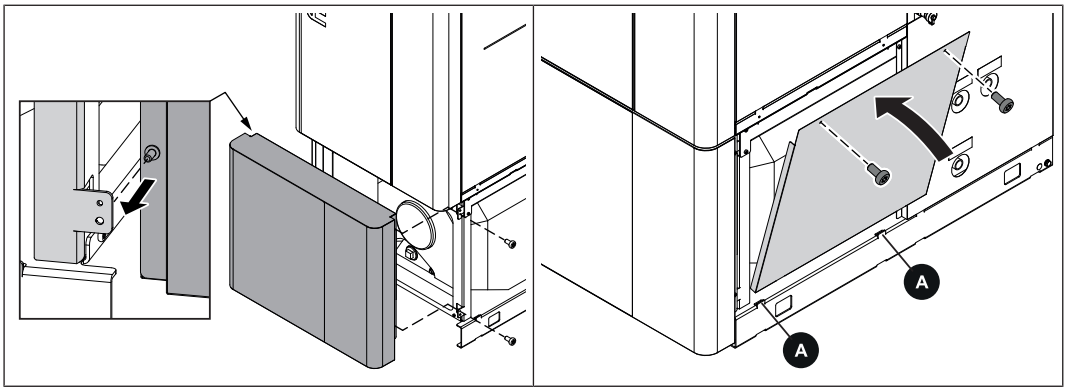
❒ Fit the side panel and use two screws to secure it to the frame

### 5.8.8 Fit the front cover



❒ Undo the screws on the right side panel and remove the side panel

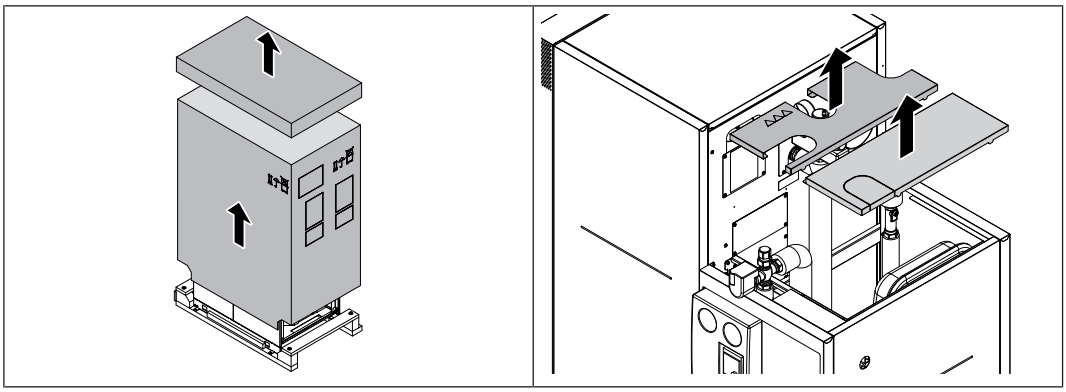
❒ Remove the screws from the frame behind




❒ Insert the bolts on the included cover on the left frame and use the previously removed screws to attach to the right frame

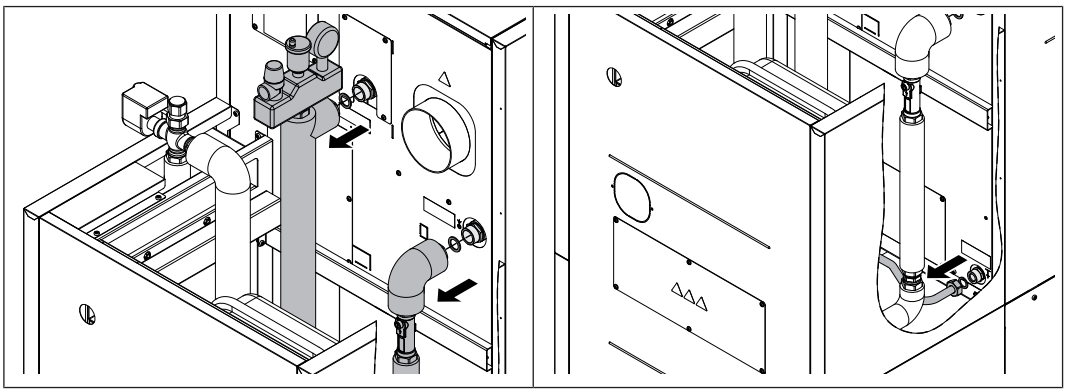
❒ Insert the right side panel into the lugs (A) on the bottom of the boiler and secure it with screws at the top

## 5.8.9 Disassembling to make transporting the PE1 Pellet Unit easier



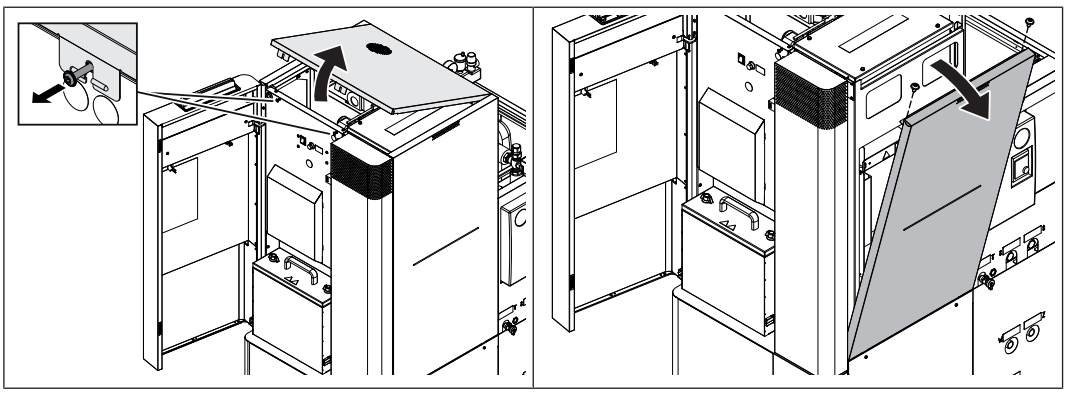
❒ Lift box off pallet

❒ Lift off both rear covers



❒ Undo the piping for the boiler's flow and return

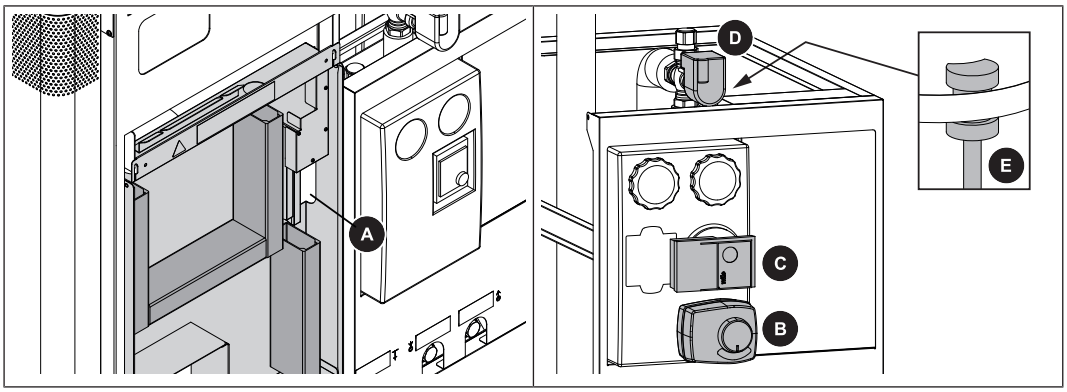
❒ Undo the piping for boiler drainage



❒ Open the insulated door and slightly loosen the retaining screws behind it

❒ Lift the top cover slightly at the front and unhook

❒ Undo both screws at the top of the right side panel and unhook the side panel



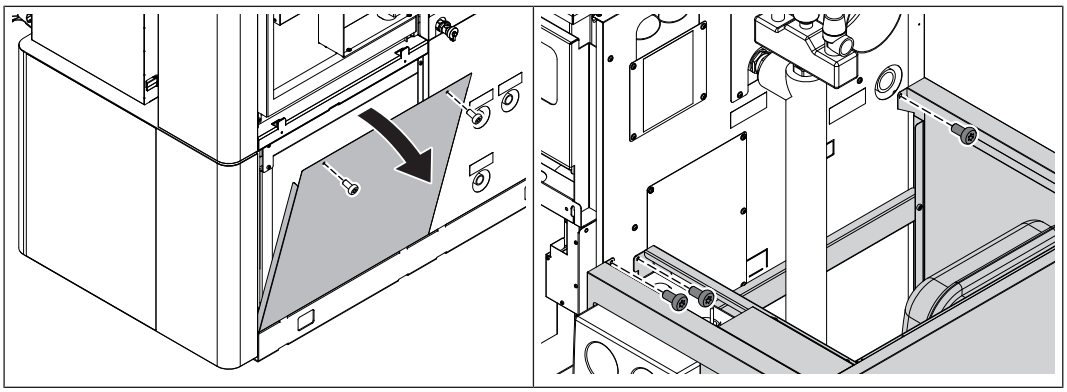

❒ Unplug the connectors for the following components in the controller box and pull the cable from opening (A) on the controller box:

↳ B – mixing valve for the first heating circuit on the core module

↳ C – heating circuit pump for the first heating circuit on the core module

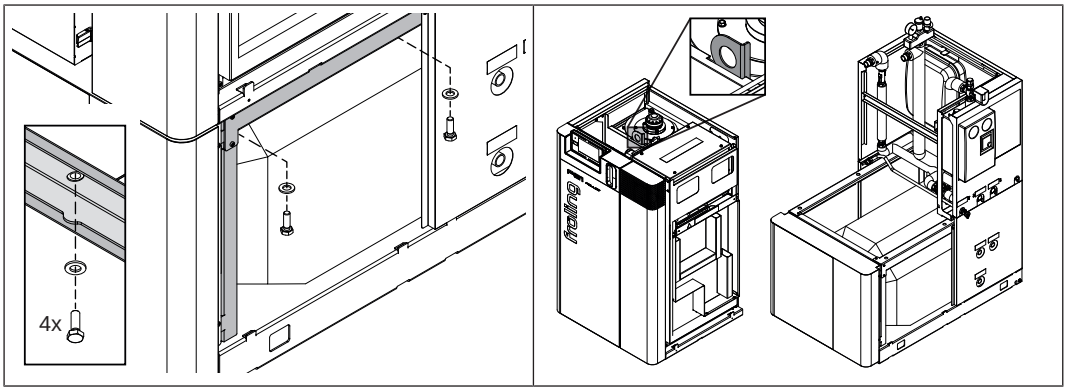
↳ D – isolating valve for the flow on the hydraulic module

↳ E – flow temperature sensor for the first heating circuit on the core module



❒ Remove left and right side panels

❒ Undo three screws on the frame of the rear panel of the boiler




❒ Undo the four screws on the frame above the DHW tank and lift the boiler down

↳ To do so, use a crane hook

↳ CAUTION: Using forklift forks may damage the boiler

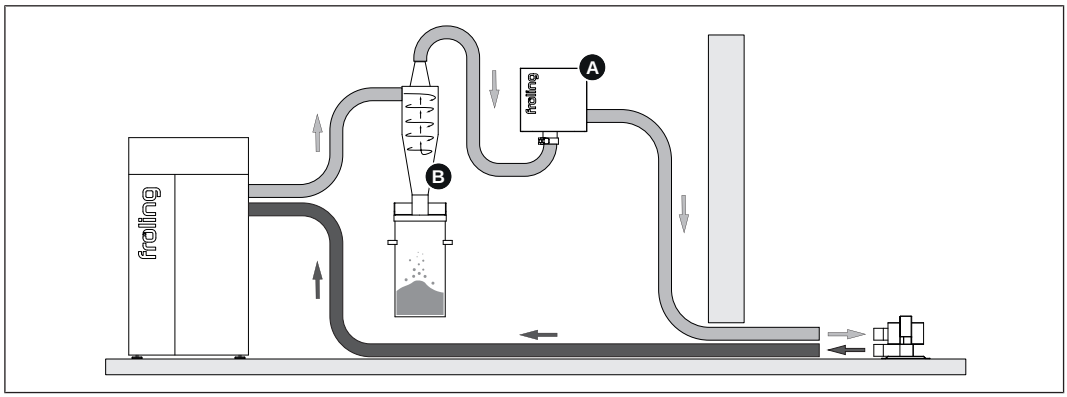
❒ Transport the components to the installation site and reassemble them in the reverse order

## 5.9 Installing the discharge system

Once the discharge system has been assembled in accordance with the assembly instructions enclosed, the suction and return air line needs to be connected to the boiler and the external suction module connected as well.

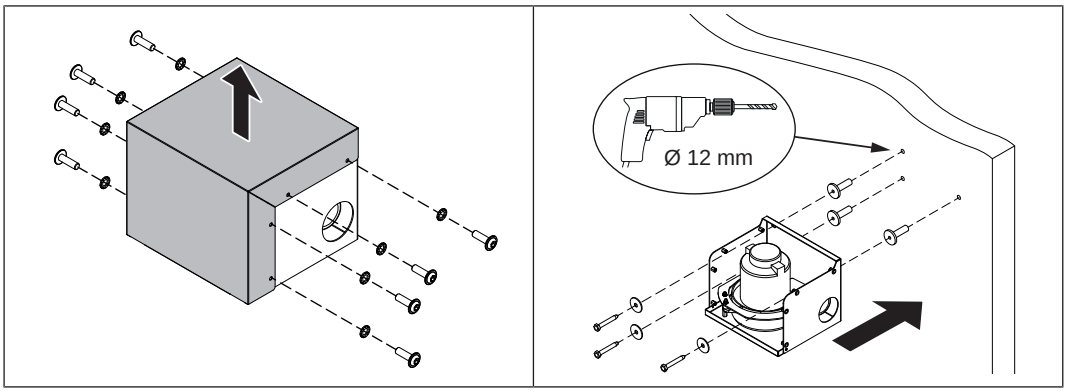
### 5.9.1 Installing the external suction module

The pellets are loaded using an external suction module built into the return air line between the boiler and the suction point.




Observe the following points when installing the device:

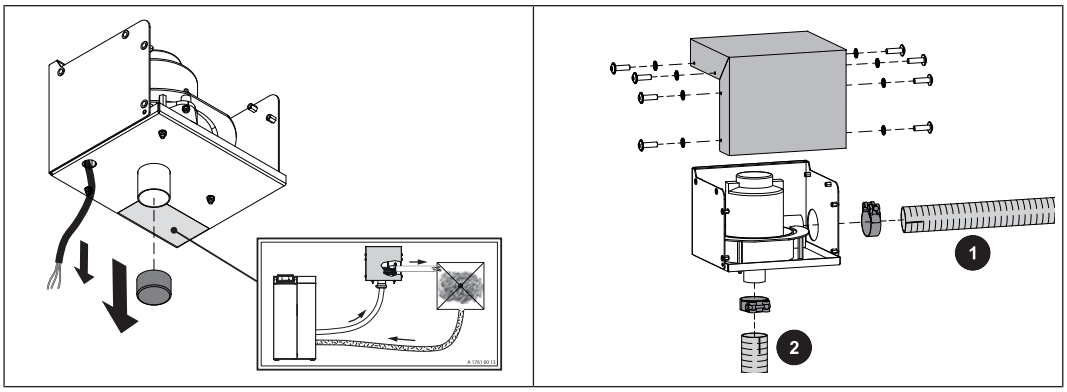
- The external suction module (A) can be positioned anywhere in the return air line. If using an optional PST pellet deduster (B), install the external suction module between the pellet deduster and fuel store.
- Ensure the assembly materials are suitable before starting installation. Where required, replace by material suitable for the base.
- No specific installation position is required for the suction turbine to operate smoothly. Preferably, the suction module should be installed so that existing openings in the housing are not on the upper side and the suction turbine is protected against external influences.
- Do not switch on the power supply or start up the device until the hose lines have been connected




❒ Undo the screws on the suction module and remove the cover hood

❒ Install the bottom panel including the supplied dowels and screws at any desired position in the return air line

↳ If the suction module is positioned at a maximum distance of 2 m to the boiler, the power supply line can be plugged in as is. When distances are greater the power supply line must be lengthened accordingly on-site




❒ Run the cable for the suction turbine through the opening on the bottom and remove the protective cap

❒ Fix the hose lines to the connections using hose clamps

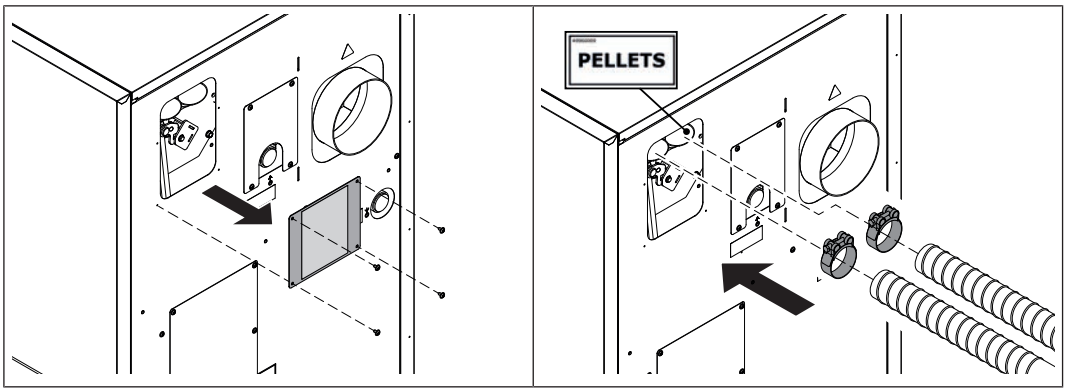
↳ Return air line (1) from the suction point to the suction module

↳ Return air line (2) from the suction module to the boiler

↳ **NOTICE! In the process, pay attention to the potential equalisation,** ➲ "Assembly information for hose lines" [▸ 60]

❒ Install the cover hood on the suction module

## 5.9.2 Connect the suction hoses to the boiler



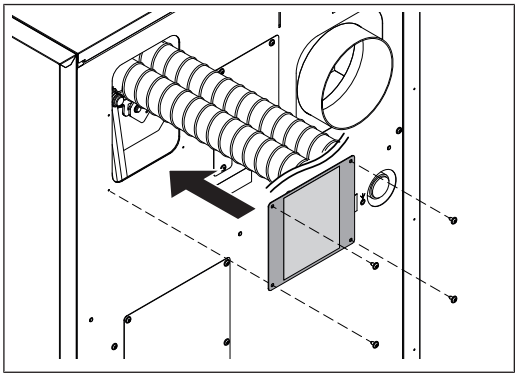

❒ Dismantle the cover plate on the connections

❒ Use hose clamps to secure suction hoses to the connections

↳ Left-hand connection: Return-air line

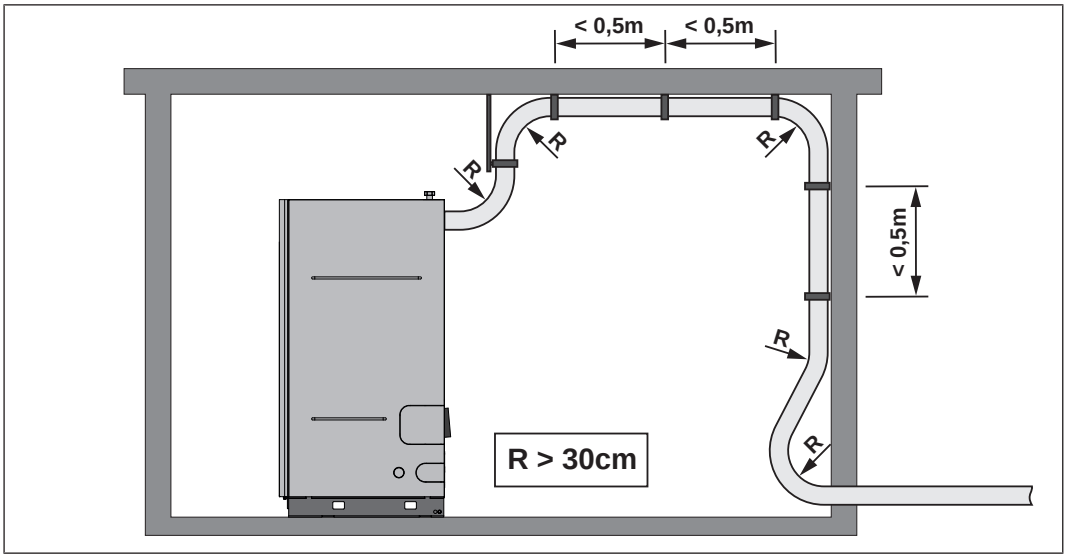
↳ Right-hand connection: Suction hose (sticker PELLETS)

**NOTICE! When connecting the lines, pay attention to equipotential bonding,** ➲ "Assembly information for hose lines" [▸ 60]



❒ Install the cover plate under the suction hoses

## 5.9.3 Assembly information for hose lines

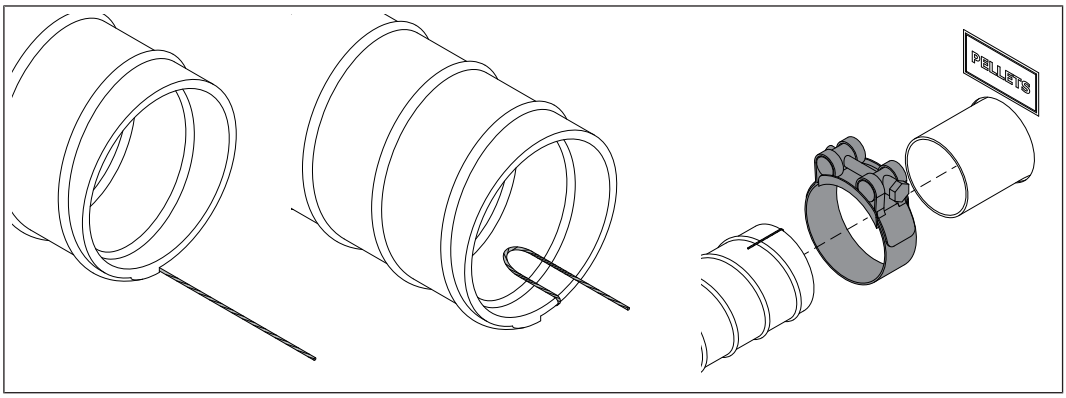



Please note the following:

- Do not kink the hose lines! Minimum bending radius = 30cm
- Lay the hose lines as straight as possible! Sagging lines can lead to so-called “pockets”, which may cause problems with the pellet feed.
- Lay the hose lines in short sections away from walking areas.
- Hose lines are not UV-proof. Therefore: Do not install the hose lines outdoors.
- Hose lines are suitable for temperatures up to 60°C. Therefore: Hose lines must not come into contact with flue gas pipes or uninsulated heating pipes.
- Hose lines must be earthed on both sides to ensure that no static charge builds up as a result of transporting the pellets.
- The suction hose to the boiler must be in a single section.
- The return-air line can be made up of several sections, but consistent potential equalisation must be established throughout the line.
- For systems over 35 kW, only hose lines with PU inlet are recommended due to the increased load

### *Potential equalisation*

**NOTICE! Ensure consistent potential equalisation when connecting the hose lines!**




❒ Expose the earth wire of the hose line to approx. 8 cm

↳ **TIP:** Slit the insulation open along the wire with a knife

❒ Bend the earth wire inwards in a loop

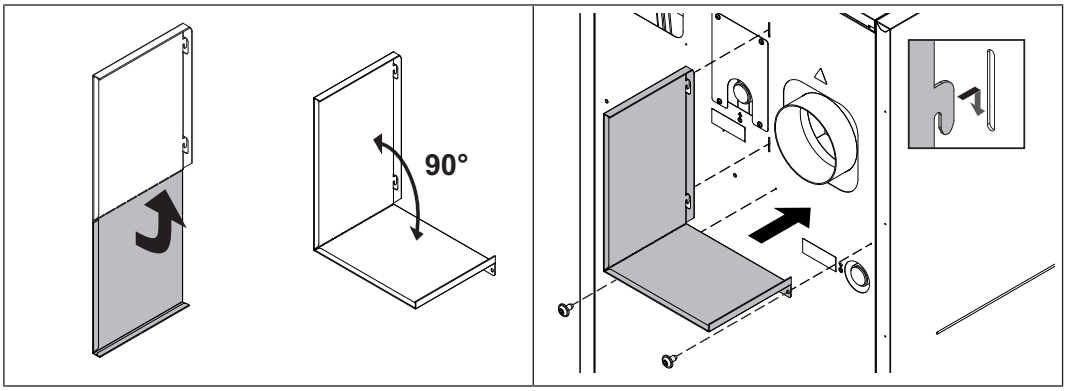
↳ This prevents the earth wire from being damaged by the pellet movement

❒ Slide the hose clamp onto the hose line and secure to connector

↳ Ensure that contact is established between the earth wire and the connector. Remove paint from the affected area if necessary

↳ **TIP:** If stiffness occurs when trying to attach the hoses to the connectors, pour a few drops of water onto the pipe (do not use lubrication grease!)

## 5.10 Installing the protective plate for the connection line to the chimney




❒ Bend the protective plate at the punched edge 90°

❒ Hang the protective plate onto the back of the boiler and fix the plate using the screws

↳ The protective plate is designed to shield the boiler components from the hot connection line to the chimney

## 5.11 Power connection and wiring

**⚠ DANGER**

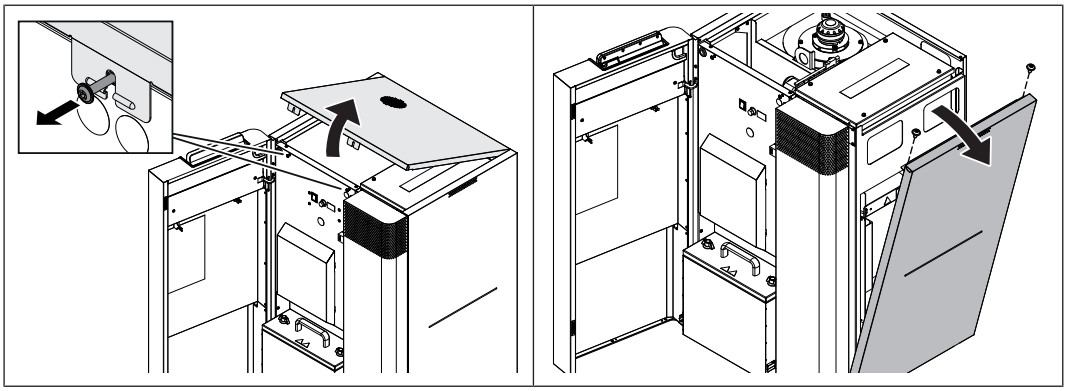
When working on electrical components:

***Risk of electrocution!***

When work is carried out on electrical components:

- ❒ Always have work carried out by a qualified electrician
- ❒ Observe the applicable standards and regulations
  - ↳ Work must not be carried out on electrical components by unauthorised persons

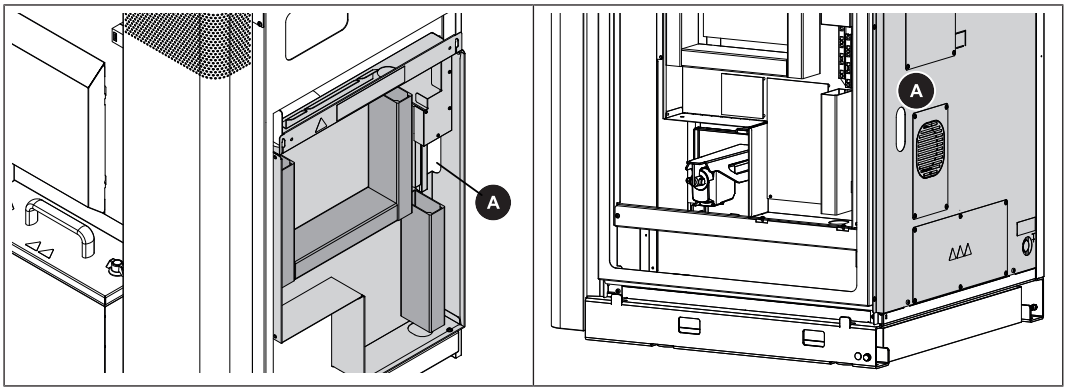
❒ Flexible sheathed cable must be used for the wiring; this must be of the correct size to comply with applicable regional standards and regulations



❒ Unlock the cover by undoing the retaining screws

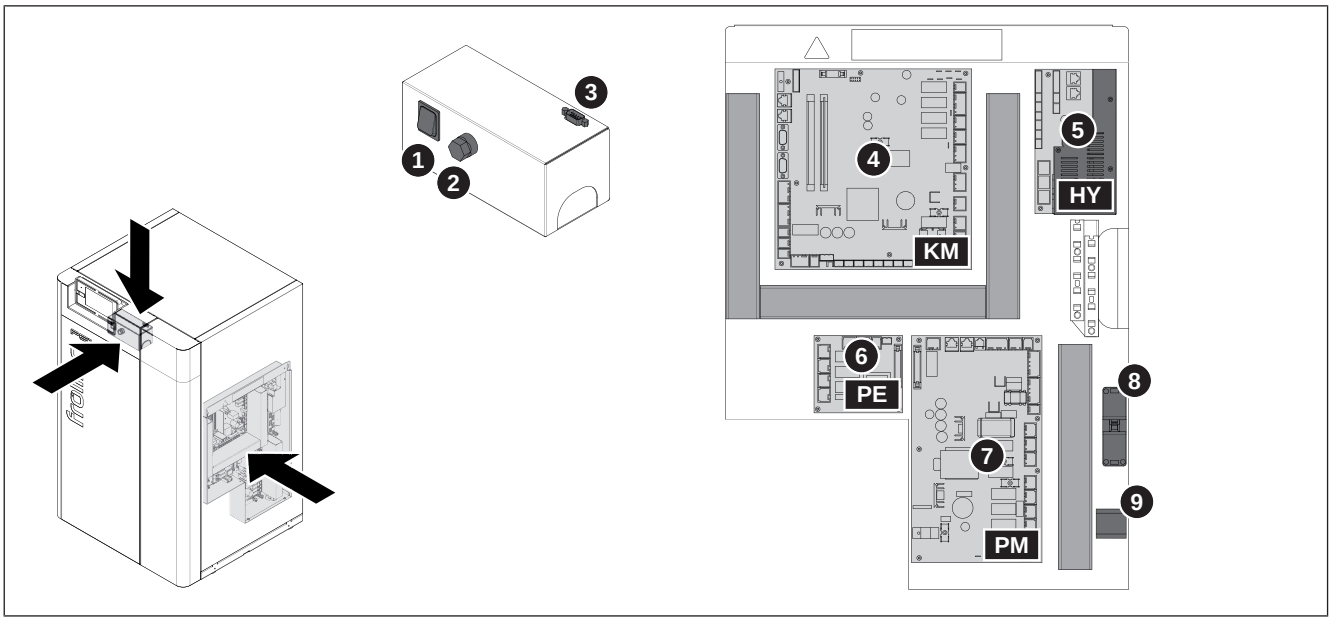
❒ Lift the cover on the front edge slightly and remove it towards the front

❒ Undo the screws on the top and remove the side panel



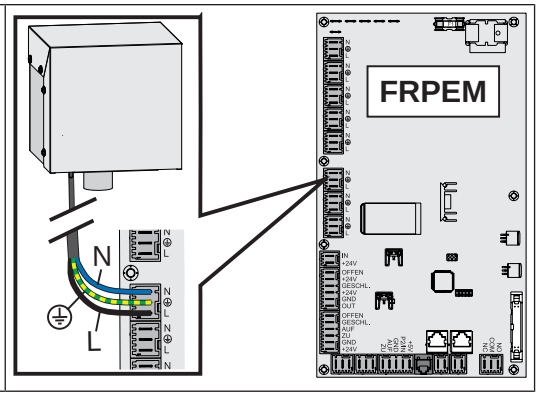

❒ Run the cables of all components through cut-out (A) in the back panel to the controller and plug in to the following boards

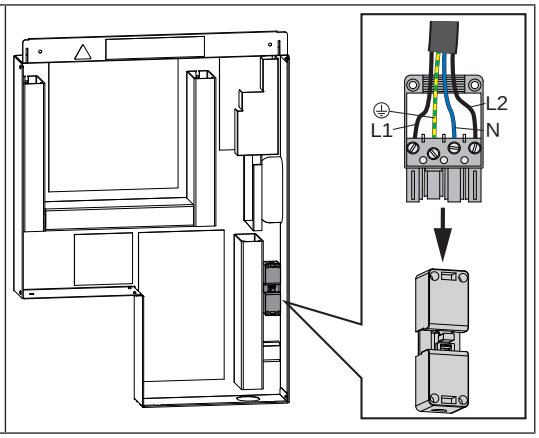
## 5.11.1 Board overview



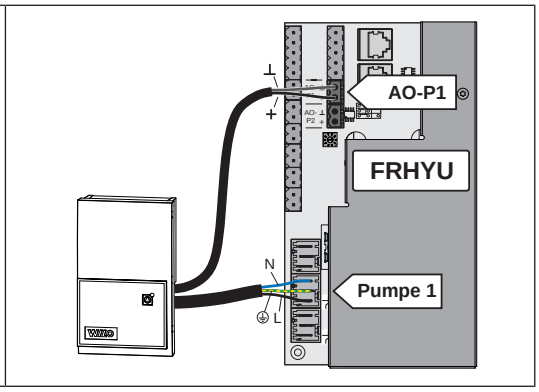

| Item | Description | Item | Description |
|---|---|---|---|
| **1** | Main switch | **6** | Pellet module expansion (optional) |
| **2** | High-limit thermostat STL | **7** | Pellet module |
| **3** | Service interface | **8** | Mains connection plug |
| **4** | Core module | **9** | Device connection terminal |
| **5** | Hydraulic module | | |

## 5.11.2 Connecting components

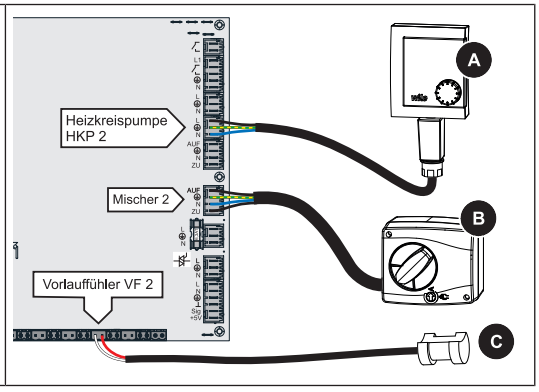
| | |
|---|---|
| Suction module on the pellet module |  |

| | |
|---|---|
| Power supply at connector in controller |  |

## For pipe assembly for storage tank loading

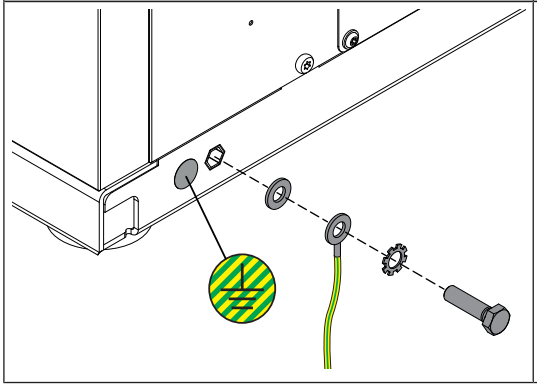
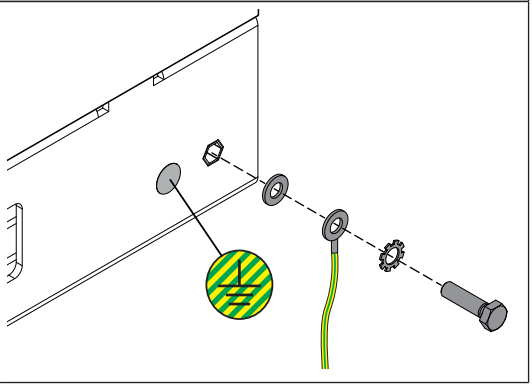
| | |
|---|---|
| Storage tank loading pump on the hydraulic module |  |

## For pump assembly for second heating circuit

| | |
|---|---|
| Pump (A), mixing valve (B) and contact sensor (C) on the core module |  |

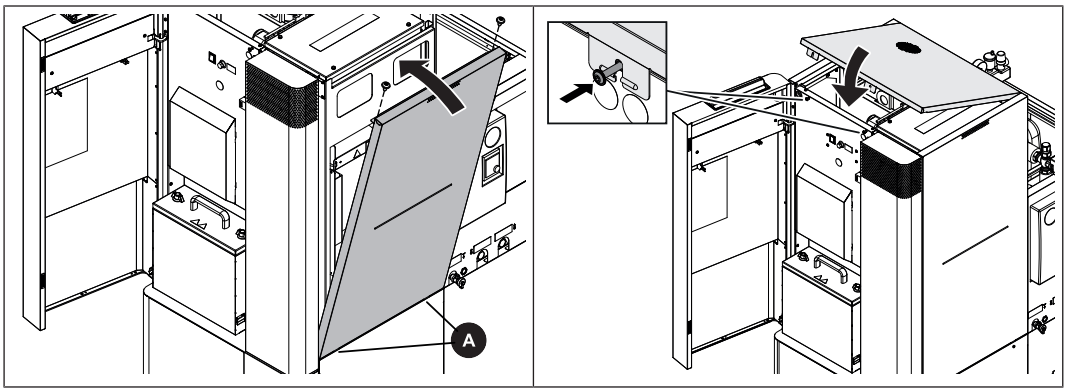
**NOTICE! Compliance with additional information in the relevant boiler controller documentation is mandatory!**

### 5.11.3 Potential equalisation

| PE1 Pellet 7-20 | PE1 Pellet 25-35<br>PE1 Pellet Unit 7-20 |
|---|---|
|  |  |

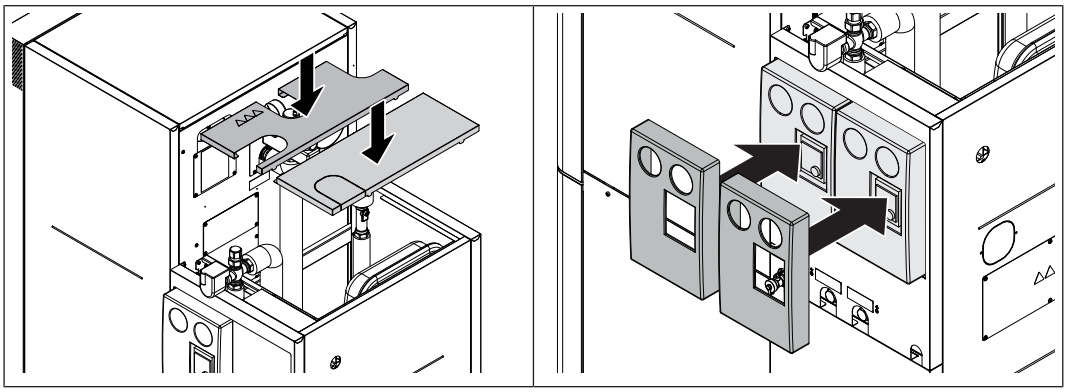
❒ The potential equalisation on the boiler base must comply with current directives, regulations and standards.

## 5.12 Final installation steps




❒ Insert side panel into lugs (A) and attach at the top

❒ Insert the cover at the rear and attach it with a retaining screw

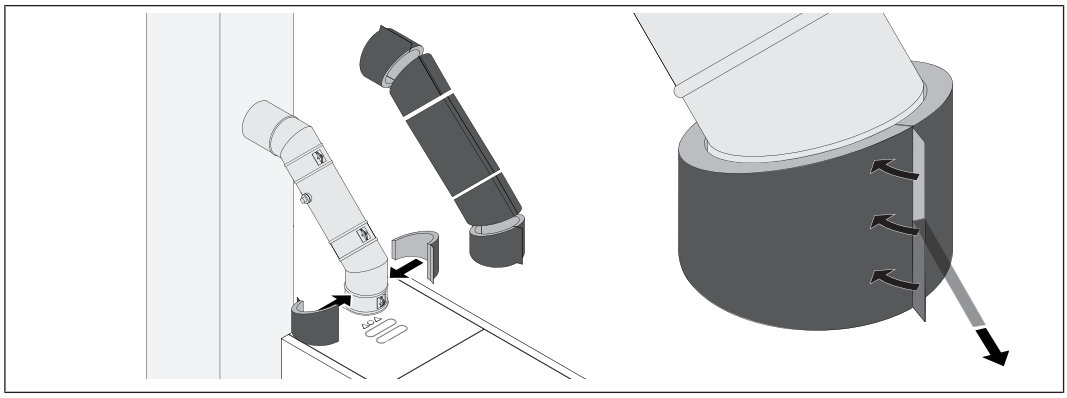


❒ Place both covers on the back

❒ Place thermal insulation on the pump assembly

### 5.12.1 Insulate the connection line

When using the optionally available thermal insulation supplied by Fröling GesmbH, perform the following steps:



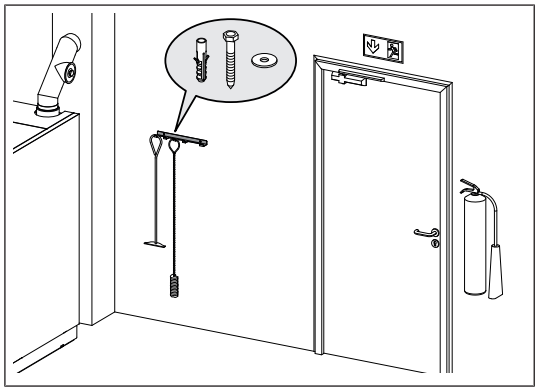
❒ Cut the half shells of thermal insulation to length and lay them on the connection line

❒ Create an opening for access to the measuring port

❒ Apply protective foil at the projecting lugs

❒ Glue the half shells to each other

### 5.12.2 Install the brackets for accessories



❒ Using appropriate fasteners, attach the brackets to the wall on the boiler

❒ Attach the accessories to the brackets

# 6 Start-up

## 6.1 Filling the system with drinking water

When using optional boiler blocks (PE1 Pellet Unit), the system must be filled with drinking water before the first start.

**NOTICE**

Damage to the electric heating element as a result of incorrect start-up

***The electric heating element can be destroyed if installed (electrically isolated) in a system which is not completely filled before start-up***

Therefore:

❒ Only start up the system once it is completely filled

❒ Ensure that all necessary discharge taps are fitted and turned off

❒ Open at least one of the valves in the drinking water supply system to ensure that it is vented while it is being filled

❒ Fill the domestic water tank with cold drinking water

❒ Check that all connections on the drinking water side are tight

❒ Check the safety valve on the cold water supply line is in good working order

↳ the safety valve must trip at max. 6 bar

**NOTICE**

Damage to the system caused by excess pressure

***The system will suffer damage if the pressure in the cold water supply line exceeds 6 bar***

Therefore:

❒ Install a safety valve in the supply line to the domestic water tank

↳ We also recommend installing an additional pressure relief valve

❒ Bleed all the drinking water supply valves connected to the heating system in order until water starts to come out

↳ This ensures there is no air in the drinking water pipe system

## 6.2 Before commissioning / configuring the boiler

The boiler must be configured to the heating system during initial start-up!

**NOTICE**

Optimum efficiency and efficient, low-emission operation can only be guaranteed if the system is set up by trained professionals and the standard factory settings are observed.

Take the following precautions:

❒ Initial startup should be carried out with an authorised installer or with Froling customer services

**NOTICE**

***Foreign bodies in the heating system impair its operational safety and can result in damage to property.***

As a result:

❒ The whole system should be rinsed out before initial start-up in accordance with EN 14336.

❒ Recommendation: Make sure the hose diameter of the flush nozzles in the flow and return complies with ÖNORM H 5195 and is the same as the hose diameter in the heating system, however not more than DN 50.

❒ Turn on the main switch

❒ Set the boiler controller to the system type.

❒ Load the boiler default values.

**NOTICE! For the keypad layout and instructions for modifying the parameters, see the instruction manual for the boiler controller.**

❒ Check the system pressure of the heating system.

❒ Check that the heating system is fully ventilated

❒ Check all quick vent valves of the entire heating system for leaks

❒ Check that all water connections are tightly sealed

↳ Pay particular attention to those connections from which plugs were removed during assembly.

❒ Check that all necessary safety devices are in place

❒ Check that there is sufficient ventilation in the boiler room.

❒ Check the seal of the boiler.

↳ All doors and inspection openings must be tightly sealed.

❒ Check all blanking plugs (e.g. drainage) for tightness

❒ Check that the drives and servo motors are working and turning in the right direction

❒ Check that the door contact switch is working efficiently.

**NOTICE! Check the digital and analogue inputs and outputs - See the instruction manual for the boiler controller.**

## 6.3 Initial startup

### 6.3.1 Permitted fuels

#### *Wood pellets*

Wood pellets made from natural wood with a diameter of 6 mm

*Note on standards*

| | |
|---|---|
| EU: | Fuel acc. to EN ISO 17225 - Part 2: Wood pellets class A1 / D06 |
| and/or: | EN*plus* / DIN*plus* certification scheme |

**General note:**

Before refilling the store, check for pellet dust and clean if necessary.

**TIP:** Fit the Froling PST pellet deduster for separating the dust particles contained in the return air

### 6.3.2 Non-permitted fuels

The use of fuels other than those defined in the "Permitted fuels" section, and particularly the burning of refuse, is not permitted

**NOTICE**

In case of use of non-permitted fuels:

***Burning non-permitted fuels increases the cleaning requirements and leads to a build-up of aggressive sedimentation and condensation, which can damage the boiler and also invalidates the guarantee! Using non-standard fuels can also lead to serious problems with combustion!***

For this reason, when operating the boiler:

❒ Use only the permitted fuels

### 6.3.3 Heating up for the first time

**NOTICE**

If condensation escapes during the initial heat-up phase, this does not indicate a fault.

❒ Tip: If this occurs, clean up using a cleaning rag.

**NOTICE! See boiler controller instruction manual for all the steps necessary to start up for the first time.**

# 7 Decommissioning

## 7.1 Mothballing

The following measures should be taken if the boiler is to remain out of service for several weeks (e.g. during the summer):

❒ Clean the boiler thoroughly and close the doors fully

If the boiler is to remain out of service during the winter:

❒ Have the system completely drained by a qualified technician

↳ Protection against frost

## 7.2 Disassembly

To disassemble the system, follow the steps for assembly in reverse order.

## 7.3 Disposal

❒ Ensure that they are disposed of in an environmentally friendly way in accordance with waste management regulations in the country (e.g. AWG in Austria)

❒ You can separate and clean recyclable materials and send them to a recycling centre.

## Manufacturer's address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## Installer's address

Stamp

## Froling customer services

| | |
|---|---|
| **Austria** | **0043 (0) 7248 606 7000** |
| **Germany** | **0049 (0) 89 927 926 400** |
| **Worldwide** | **0043 (0) 7248 606 0** |

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