

Installation Instructions
Pellet Boiler P4 Pellet 15 - 105



Translation of the original German installation instructions for technicians

Read and follow the instructions and safety information!

Technical changes, typographical errors and omissions reserved!

M0931317_en | Edition 24/03/2017



Table of Contents

1	General	4
1.1	About this manual	4
2	Safety	5
2.1	Hazard levels of warnings	5
2.2	Qualification of assembly staff	6
2.3	Personal protective equipment for assembly staff	6
2.4	Design Information	7
2.4.1	Notes on standards	7
	<i>General standards for heating systems</i>	7
	<i>Standards for structural and safety devices</i>	7
	<i>Standards for heating water</i>	7
	<i>Regulations and standards for permitted fuels</i>	8
2.4.2	Installation and approval of the heating system	8
2.4.3	General information for installation room (boiler room)	8
2.4.4	Requirements for central heating water	9
2.4.5	Notes for using pressure maintenance systems	10
2.4.6	Use with storage tank	11
2.4.7	Chimney connection/chimney system	12
	<i>Draught limiter</i>	12
	<i>Measuring port</i>	12
	<i>Boiler data for planning the flue gas system</i>	13
2.4.8	Room air-independent operation	15
2.4.9	Air supply in the installation room	16
2.4.10	Note on installing an external combustion air supply	16
2.4.11	Simultaneous operation with other air-drawing systems (room ventilation, cooker hood, centralised dust extraction system, etc.)	17
	<i>Room air-independent appliance</i>	18
	<i>Room air-dependent appliance</i>	18
	<i>Requirements for operating the room air-dependent appliance simultaneously with an air-drawing system (e.g. with a room ventilation system, centralised dust extraction system, etc.)</i>	19
2.4.12	Boiler ventilation	19
3	Technology	20
3.1	Dimensions P4 Pellet 15-38	20
3.2	Dimensions P4 Pellet 45-105	21
3.3	Supply air connections for room air-independent operation	22
3.4	Flue gas pipe position	22
3.5	Components and connections	23
3.5.1	P4 Pellet 15-38	23
3.5.2	P4 Pellet 45-105	24
3.6	Technical specifications	25
3.6.1	P4 Pellet 15 – 25	25
3.6.2	P4 Pellet 32 – 60	27
3.6.3	P4 Pellet 70 – 105	29
3.6.4	Airborne sound level	31
4	Assembly	32
4.1	Materials supplied	32

4.1.1	Tools required	32
4.2	Positioning	33
4.3	Temporary storage	34
4.4	Setting up in the boiler room	34
4.4.1	Remove boiler from pallet	34
4.4.2	Moving the boiler in the boiler room	35
4.4.3	Recommended clearances in the boiler room	36
4.5	Dismantling for location where positioning is difficult	37
4.5.1	Removing the stoker assembly and insulation	37
4.5.2	Removing the door and ash drawer (P4 Pellet 15 - 25)	38
4.5.3	Dismantling the suction cyclone cover	39
4.5.4	Dismantling the stoker unit	40
4.5.5	Positioning dimensions after dismantling	43
4.5.6	Notes for reassembly	45
4.6	Assembling the pellet boiler	46
4.6.1	Before Installation	46
	<i>Checking the seal of the ash doors</i>	46
	<i>Adjusting the doors</i>	46
4.6.2	Fitting the induced draught fan	49
4.6.3	Fitting the ash container and doors (P4 Pellet 32 - 105)	50
4.7	Connecting the discharge system	51
4.8	Power connection	52
4.8.1	Information on circulating pumps	53
5	Start-up	54
5.1	Before commissioning / configuring the boiler	54
5.2	Initial startup	55
5.2.1	Permitted fuels	55
	<i>Wood pellets</i>	55
5.2.2	Non-permitted fuels	55
5.2.3	Heating up for the first time	55
6	Decommissioning	56
6.1	Mothballing	56
6.2	Disassembly	56
6.3	Disposal	56
7	Appendix	57
7.1	Addresses	57
7.1.1	Address of manufacturer	57
7.1.2	Address of the installer	57

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

This manual contains information about the following sizes of the pellet boiler P4:
P4 Pellet 15, P4 Pellet 20, P4 Pellet 25, P4 Pellet 32, P4 Pellet 38,
P4 Pellet 45¹⁾, P4 Pellet 48, P4 Pellet 60, P4 Pellet 70²⁾, P4 Pellet 80,
P4 Pellet 100 (99kW)³⁾, P4 Pellet 100, P4 Pellet 105⁴⁾

1) P4 Pellet 45 is only available in the UK; 2) P4 Pellet 70 is only available in France;

3) P4 Pellet 100 with nominal heat output of 99kW is only available in the UK; 4) P4 Pellet 105 is only available in Germany

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 or damage to property.

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 always be carried out by qualified personnel:

- Heating technician / building technician
- Electrical installation technician
- 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.



- For transportation, setup and assembly:
 - suitable work wear
 - protective gloves
 - sturdy shoes (min. protection class S1P)

2.4 Design Information

2.4.1 Notes on standards

The system must be installed and commissioned 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:

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 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 Part 1: General requirements and one-off inspections
ÖNORM M 7510-4	Guidelines for checking central heating systems Part 4: Simple check for heating plants for solid fuels

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 M 7137	Compressed untreated wood – Requirements for storing pellets at the end customer's site
TRVB H 118	Technical directives for fire protection/prevention (Austria)

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. DM 26.06.2015 (Ministerial Decree specifying the minimum requirements) Follow the instructions of this standard and any related updates.

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

2.4.2 Installation and approval of the heating system

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

NOTICE! Each 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.

2.4.3 General information for installation room (boiler room)

Boiler room characteristics

- The floor must be even, clean and dry and have an adequate load-bearing capacity.
- There must not be a potentially explosive atmosphere in the boiler room as the boiler is not suitable for use in potentially explosive environments.
- The boiler room must be frost-free.
- The boiler does not provide any light, so the customer must ensure sufficient lighting in the boiler room in accordance with national workplace design regulations.
- When using the boiler above 2000 metres above sea level you should consult the manufacturer.
- Danger of fire due to flammable materials.
The floor of the boiler room must not be flammable. No flammable materials should be stored near the boiler. Flammable objects (e.g. clothing) must not be put on the boiler to dry.

- Damage due to impurities in combustion air.
Do not use any solvents or cleaning agents containing chlorine and hydrogen halides in the room where the boiler is installed (e.g. chlorination units for swimming pools).
- Keep the air suction opening of the boiler free of dust.
- The system must be protected against the chewing or nesting of animals (e.g. rodents etc.).

Ventilation of the boiler room

Ventilation air for the boiler room should be taken from and expelled directly outside, and the openings and air ducts should be designed to prevent weather conditions (foliage, snowdrifts, etc.) from obstructing the air flow.

Unless otherwise specified in the applicable building regulations for the boiler room, the following standards apply to the design and dimensions of the air ducts:

Note on standards

ÖNORM H 5170 - Construction and fire protection requirements
TRVB H118 - Technical directives on fire protection/prevention

2.4.4 Requirements for central heating 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:

- Aim for a pH value of 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
- Use prepared water which complies with the standards cited above for filling and makeup water
- Avoid leaks and use a closed heating system to maintain water quality during operation
- When filling with make-up water, always bleed the filling hose before connecting, in order to prevent air from entering the system

Advantages of prepared water:

- Complies with the applicable 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

Limit values for filling and make-up water:

	Austria	Germany	Switzerland
Total hardness	≤ 1.0 mmol/L	≤ 2.0 mmol/L	< 0.1 mmol/L
Conductivity	-	< 100µS/cm	< 100 µS/cm
pH value	6.0 – 8.5	6.5 – 8.5	6.0 – 8.5
Chloride	< 30 mg/L	< 30 mg/L	< 30 mg/L

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
- Yearly. Values must be recorded by the owner

2.4.5 Notes for using 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.**

2.4.6 Use with storage tank

NOTICE

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 Froling.

⇒ See "Addresses" [page 57]

2.4.7 Chimney connection/chimney system



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 in this respect that flue gas temperatures lower than 160K above room temperature can occur in the permitted operating range of the boiler.

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

The connection between the boiler and the chimney system should be as short as possible. The upward angle of the connection should not exceed 30 - 45°. Insulate the connection. The entire flue gas system - chimney and connection - should be calculated in accordance with EN 13384-1.

Local regulations and other statutory regulations also apply.

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

NOTICE! TRVB H 118 (Austria only) stipulates that an explosion flap must be installed in the connecting piece (flue pipe) directly next to the boiler. It should be situated in such a way that it poses no risk to persons!

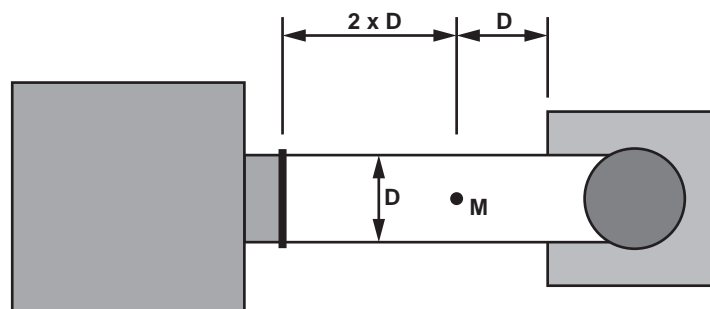
Draught limiter

We generally recommend the installation of a draught limiter. A draught limiter must be installed if the maximum permissible feed pressure as given in the boiler data for planning the flue gas system is exceeded.

NOTICE! Install the draught limiter directly under the mouth of the flue line, as the pressure is constantly low at this point.

Measuring port

For measuring the emissions of the system, a suitable measuring port must be installed in the connecting piece between the boiler and chimney system.



In front of the measuring port (M) a straight inlet section should be located at a distance corresponding to about twice the diameter (D) of the connecting piece. A straight outlet section at a distance corresponding to about the single diameter of the connecting piece should be provided after the measuring port. The measuring port must remain closed whenever the system is in operation.

Ensure that the outside diameter of the sampling probes in the measuring port can accommodate up to 13 mm. To avoid the ingress of false air, the diameter of the measuring port must not exceed 21 mm.

Boiler data for planning the flue gas system

Description		P4 Pellet			
		15	20	25	
Flue gas temperature at nominal load	°C	150	150	150	
Flue gas temperature at partial load		100	100	100	
Flue gas mass flow at nominal load	kg/h	36	50	65	
	kg/s	0.010	0.014	0.018	
Flue gas mass flow at partial load	kg/h	14	22	25	
	kg/s	0.004	0.006	0.007	
Required feed pressure at nominal load	Pa	8			
	mbar	0.8			
Required feed pressure at partial load	Pa	6			
	mbar	0.6			
Maximum permissible feed pressure	Pa	30			
	mbar	0.3			
Flue pipe diameter	mm	129			
Combustion air volume at nominal load	m³/h	20	29	39	49

Description		P4 Pellet			
		32	38	45 ¹⁾	48
Flue gas temperature at nominal load	°C	160	160	160	160
Flue gas temperature at partial load		100	100	100	100
Flue gas mass flow at nominal load	kg/h	79	90	126	140
	kg/s	0.022	0.025	0.035	0.039
Flue gas mass flow at partial load	kg/h	32	40	58	61
	kg/s	0.009	0.011	0.016	0.017
Required feed pressure at nominal load	Pa	8			
	mbar	0.8			
Required feed pressure at partial load	Pa	6			
	mbar	0.6			
Maximum permissible feed pressure	Pa	30			
	mbar	0.3			
Flue pipe diameter	mm	149			
Combustion air volume at nominal load	m³/h	62	69	80	85
1. P4 Pellet 45 is only available in Great Britain.					

Description		P4 Pellet				
		60	70 ¹⁾	80	100	105 ²⁾
Flue gas temperature at nominal load	°C	170	160	160	170	170
Flue gas temperature at partial load		100	100	100	100	100
Flue gas mass flow at nominal load	kg/h	155	198	216	274	284
	kg/s	0.043	0.055	0.060	0.076	0.079
Flue gas mass flow at partial load	kg/h	68	72	76	94	101
	kg/s	0.019	0.020	0.021	0.026	0.028
Required feed pressure at nominal load	Pa	8				
	mbar	0.08				
Required feed pressure at partial load	Pa	6				
	mbar	0.06				
Maximum permissible feed pressure	Pa	30				
	mbar	0.3				
Flue pipe diameter	mm	149	199			
Combustion air volume at nominal load	m ³ /h	104	123	141	177	178
<small>1. P4 Pellet 70 is only available in France. 2. P4 Pellet 105 is only available in Germany.</small>						

NOTICE

In Germany, the following applies:

- Continuous supply of fuel in the boiler's ideal output range can be achieved by using a storage tank with a minimum volume in accordance with 1. BImSchV. In this case, no chimney calculations are required in partial load.

2.4.8 Room air-independent operation

The P4 Pellet has a central air connection on the back of the boiler. If appropriate supply air and flue gas connections are installed, the boiler can be classified according to EN 15035 as a type C₄₂ / type C₈₂ or according to DIBt as a type FC_{42x} / type FC_{52x}.

The conditions for room air-independent operation of the boiler at the installation site must be clarified with the local authority responsible (authority, chimney sweep, ...).

Definitions as per EN 15035

Type C₄ Boiler that is connected via its combustion air supply and flue gas outlet, with a connecting piece that may be supplied, to a shared chimney with a shaft for combustion air supply and a shaft for flue gas outlet. The mouths of the air and flue gas chimney are either concentric or so close to each other that similar wind conditions apply.

NOTICE! Air is supplied by an air and flue gas system!

Type C₈ A boiler that is connected via its combustion air supply and flue gas outlet, with a connecting piece, to a wind protection device and a single or shared chimney.

NOTICE! Air supply via an air supply line that is independent from the chimney system!

NOTICE! This design requires a wind protection device. If a protective grating is fitted, you must ensure that the mesh size is sufficiently large to prevent a significant loss of pressure and/or seal from dirt!

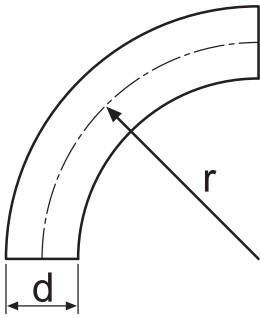
The second index "2" (C₄₂ / C₈₂) indicates type C boilers with a blower fan downstream of the combustion chamber or the heat exchanger.

Definitions as per DIBt

Type FC_{42x} One appliance with flue gas fan for connection to an air/flue system. The combustion air line from the air shaft and the connecting piece to the chimney are part of the appliance.

Type FC_{52x} One appliance with flue gas fan for connection to a chimney. The combustion air line from the air shaft and the connecting piece to the chimney are part of the appliance.

When dimensioning pipe bends in the supply air line you should note that:



The ratio of the radius of curvature (r) to pipe diameter (d) should be greater than 1

$$r:d \geq 1$$

For example:

- Diameter of supply air connection = 80 mm
- Minimum radius of pipe bends = 80 mm

Install the supply air line in as straight a line as possible and over the shortest path. Keep the number of pipe bends to a minimum (ideally a maximum of 4 bends)!

In addition, the following applies: The maximum resistance of the supply air line is 20 Pa!

You can find the necessary dimensions of the supply air connections in the boiler in the technical data sheets.

2.4.9 Air supply in the installation room

The system is operated in open flue mode, i.e. the combustion air required to operate the pellet boiler is drawn from the installation room.

Requirements for the supply of combustion air to the installation room:

- Observe the following at the combustion air opening leading outside:
 - Weather conditions must not affect the air flow in any way (e.g. snow and foliage)
 - The free cross-sectional area must be maintained taking into account e.g. covering grid plates, slats, etc.
- If air lines exceed 2 m or if the combustion air is discharged mechanically, the flow rate must be calculated (maximum flow rate = 1 m/s)

NOTICE! Observe the standards cited in these instructions as well as other national and local regulations!

⇒ See "Note on standards" [page 7]

2.4.10 Note on installing an external combustion air supply

NOTICE! Install the combustion air supply (piping) in accordance with the applicable standards

⇒ See "Notes on standards" [page 7]

- Connect supply air duct to the connection provided (external combustion air) on the pellet boiler and make sure that it is properly sealed.

Condensation

Supply air ducts are normally led along cellar ceilings to the appliance. The temperature difference between the cold air drawn from outside and the room temperature inside the building shell inevitably results in condensation, usually at the unprotected metal air lines.

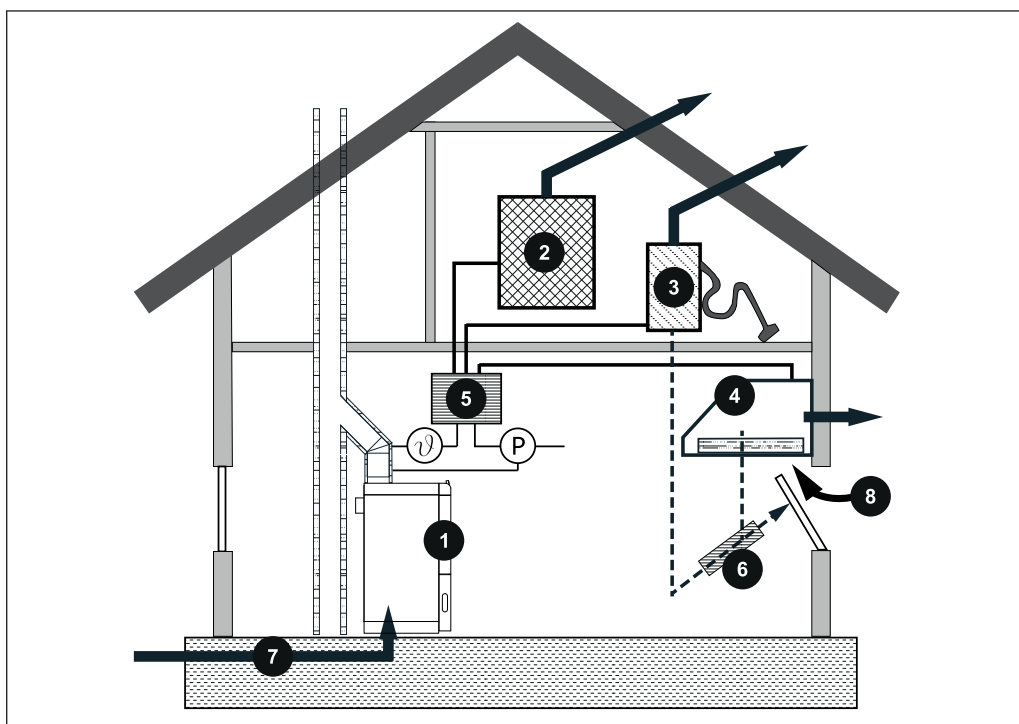
NOTICE! The greater the temperature difference between the outside air temperature and room temperature, the greater the risk of condensation

In Germany, the following additional requirement must be observed: The lines must be installed with an incline making sure that any condensation water can drain away and the outside air can be drawn in without allowing water or animals from entering the building.

To avoid condensation:

- ☐ Line the supply air duct with sufficient heat insulation
 - Depends on the average room temperature and the temperature of the outside air, as well as the local conditions
 - The surface temperature must be higher than the room temperature's dew point even in unfavourable weather conditions (cold winters)

2.4.11 Simultaneous operation with other air-drawing systems (room ventilation, cooker hood, centralised dust extraction system, etc.)



1 P4 Pellet	5 Under-pressure monitoring system ¹⁾
2 Room ventilation	6 Window-tilting switch/drive system ²⁾ (installed by customer)
3 Centralised dust extraction system	7 Combustion air supply from outside

4 Cooker hood with extraction mode	8 Outside air
------------------------------------	---------------

1. An under-pressure monitoring system switches air-drawing systems (e.g. room ventilation, etc.) off when the under-pressure in the installation room exceeds a certain limit. This prevents a reversal of the combustion gas flow in the chimney and thus smoke from being sucked back into the installation room.
2. A window-tilting switch prevents major air-drawing systems (e.g. 3 or 4) from operating with the window closed. A drive system tilts the window open when air-drawing systems (e.g. 3 or 4) are in operation. This prevents a reversal of the combustion gas flow in the chimney and thus smoke from being sucked back into the installation room.

The following applies if the appliance is to be operated in conjunction with other air-drawing systems:

- The possibility of simultaneous operation of appliance and other air-drawing systems (e.g. room ventilation) must be clarified in advance with the responsible chimney sweep
- Observe the chimney sweep's assessment criteria
 - These apply until an appropriate regulation has been published
- Only use approved safety equipment (e.g. under-pressure monitoring system and/or window-tilting switch with DIBt certification [DE])
- Make sure that the combustion air supply line and the connecting piece are properly sealed at the chimney

Room air-independent appliance

The pellet boiler is suitable for room air-independent operation up to a maximum permissible room-side under-pressure of 8 Pa. Provided the permissible room-side under-pressure limit is not exceeded, there are no restrictions regarding simultaneous operation of air-drawing systems (e.g. with a room ventilation system). If the under-pressure in the installation room is higher than the permissible under-pressure limit, the appliance is classified as room air-dependent and must be equipped with a safety systems (under-pressure monitoring system).

In Germany, the following additional requirement must be observed: Only use DIBt-certified components for supply air lines and the flue gas system. Flexible aluminium pipes must be protected against mechanical loads.

Room air-dependent appliance

In the case of room air-dependent appliances, some restrictions apply regarding simultaneous operation of air-drawing systems (e.g. with a room ventilation system, etc.). Safety equipment is required in these cases.

As a basic rule:

- When operating air-drawing systems (e.g. room ventilation, etc.) simultaneously with a room air-dependent appliance, the room-side under-pressure must not exceed 4 Pa.

In addition, at least one of the following three requirements must be met:

(Source: Section 4 MFeuV 2007 / 2010)

- Use safety equipment that prevents simultaneous operation of appliance and other air-drawing systems

OR

- Monitor the extraction of the flue gas using special safety equipment

OR

- Make sure that the outside air lines required for the appliance are isolated from the outside air lines required for the ventilation system. This ensures that no dangerous under-pressure can develop while operating the appliance.

Simultaneous operation

A safety system must ensure that no dangerous under-pressure can develop when the systems are operated simultaneously. In the event of a fault, the safety system will switch off one of the air-drawing systems (e.g. the room ventilation system, etc.).

Alternating operation

An approved safety system (e.g. based on under-pressure or temperature readings) must ensure that the air-drawing system and the appliance cannot be operated at the same time. Any further processing of the signals must also comply with this safety philosophy. Shutting down the power supply is permitted and sufficient.

Requirements for operating the room air-dependent appliance simultaneously with an air-drawing system (e.g. with a room ventilation system, centralised dust extraction system, etc.)

- Ensure there is a sufficient supply of combustion air
 - Install external combustion air supply
- Use safety systems, e.g. an under-pressure monitoring system, window-tilting drive system or window-tilting switch, etc.

Recommendation for room ventilation systems:

- Use fail-safe room ventilation systems with F classification

NOTICE! Cooker hoods with recirculation mode do not need to meet any special requirements

2.4.12 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

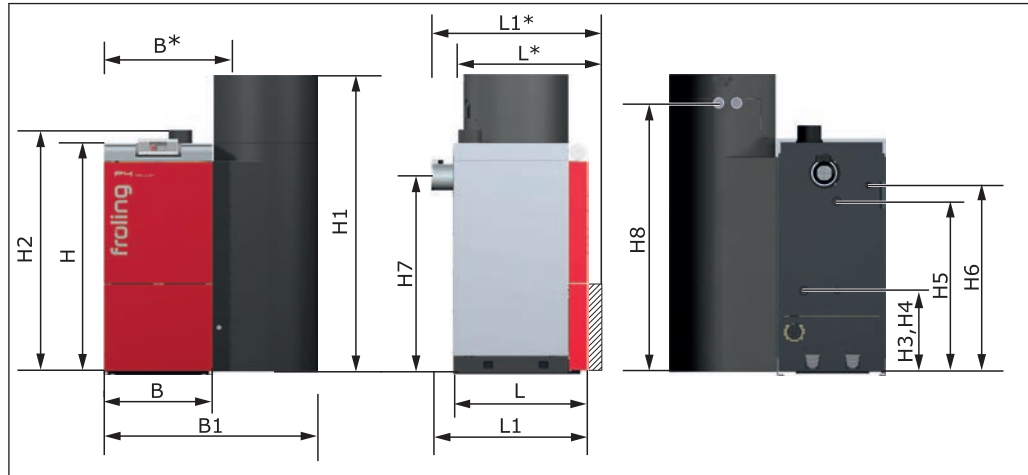
Tip: Fit a vertical pipe as a calming section in front of the automatic ventilating valve in such a way that the ventilating valve is positioned above the water level in the boiler

Recommendation: Fit a microbubble separator in the pipes to the boiler
 ➤ Follow the manufacturer's instructions!

3 Technology

NOTICE! Some sizes of the boiler P4 Pellet are not available in every country

3.1 Dimensions P4 Pellet 15-38



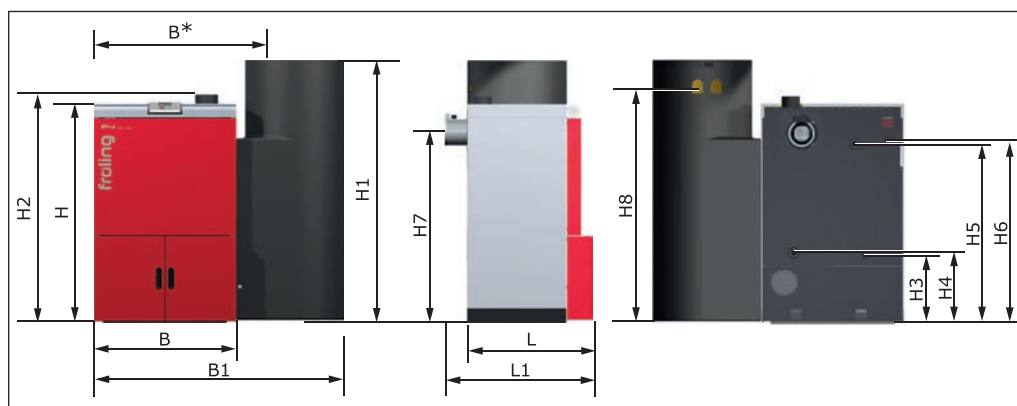
Item	Description	Unit	15	20 - 25	32 - 38
L	Length, boiler	mm	740	740	-
L*	Length, boiler	mm	-	-	820
L1	Total length incl. induced draught fan	mm	940	940	-
L1*	Total length incl. induced draught fan	mm	-	-	1020
B	Width, boiler	mm	600	770	860
B*	Width, boiler, incl. support for positioning unit ¹⁾	mm	705	875	965
B1	Total width including suction cyclone	mm	1185	1355	1445
H	Height, boiler ²⁾	mm	1280	1280	1430
H1	Total height incl. suction cyclone	mm	1660	1660	1900
H2	Height, flue gas pipe connection	mm	1350	1350	1530
H3	Height, drainage connection	mm	460	460	460
H4	Height, flow connection	mm	460	460	460
H5	Height, return connection	mm	940	955	1085
H6	Height, ventilation connection	mm	1030	1030	1155
H7	Height, induced draught fan connection	mm	1090	1090	1215
H8	Height, suction system connection	mm	1480	1480	1720

1. Corresponds to the minimum positioning width after removing the stoker assembly, suction cyclone and positioning unit
2. Corresponds to the minimum positioning height after removing the stoker assembly, suction cyclone and positioning unit

3.2 Dimensions P4 Pellet 45-105

NOTICE

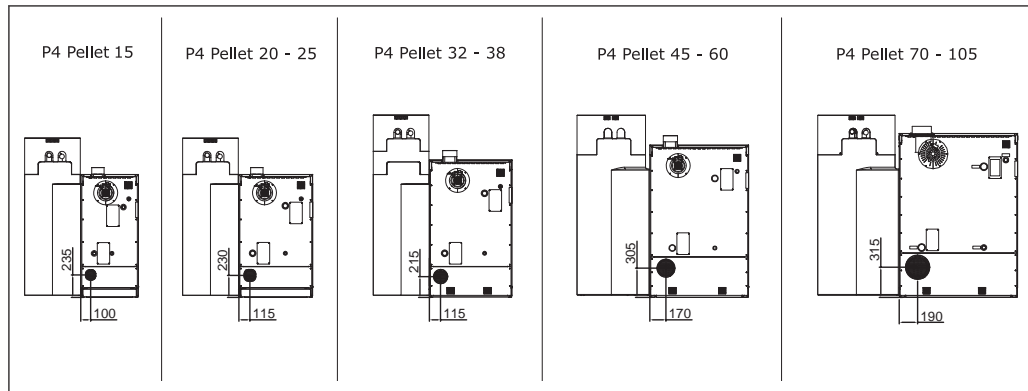
Attention: Observe revised flow and return connection from P4 45 up to P4 105!



Item	Description	Unit	45 - 60	70 - 105
L	Length, boiler	mm	900	1000
L1	Total length incl. induced draught fan	mm	1100	1070
B	Width, boiler	mm	1030	1235
B*	Width, boiler, incl. support for positioning unit ¹⁾	mm	1275	1480
B1	Total width including suction cyclone	mm	1790	2085
H	Height, boiler ²⁾	mm	1585	1710
H1	Total height incl. suction cyclone	mm	1900	1900
H2	Height, flue gas pipe connection	mm	1685	1785
H3	Height, drainage connection	mm	490	500
H4	Height, return connection	mm	515	520
H5	Height, flow connection	mm	1290	1410
H6	Height, ventilation connection	mm	1310	1430
H7	Height, induced draught fan connection	mm	1375	1495
H8	Height, suction system connection	mm	1720	1720

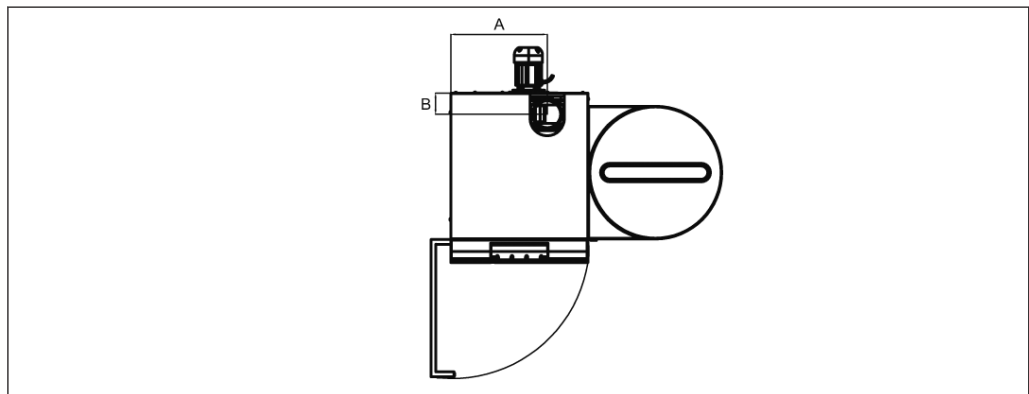
1. Corresponds to the minimum positioning width after removing the stoker assembly, suction cyclone and positioning unit
2. Corresponds to the minimum positioning height after removing the stoker assembly, suction cyclone and positioning unit

3.3 Supply air connections for room air-independent operation



Description	Unit	15	20 - 25	32 - 38	45 - 60	70 - 105
Supply air connection pipe (external diameter)	mm	80	100	125	160	200

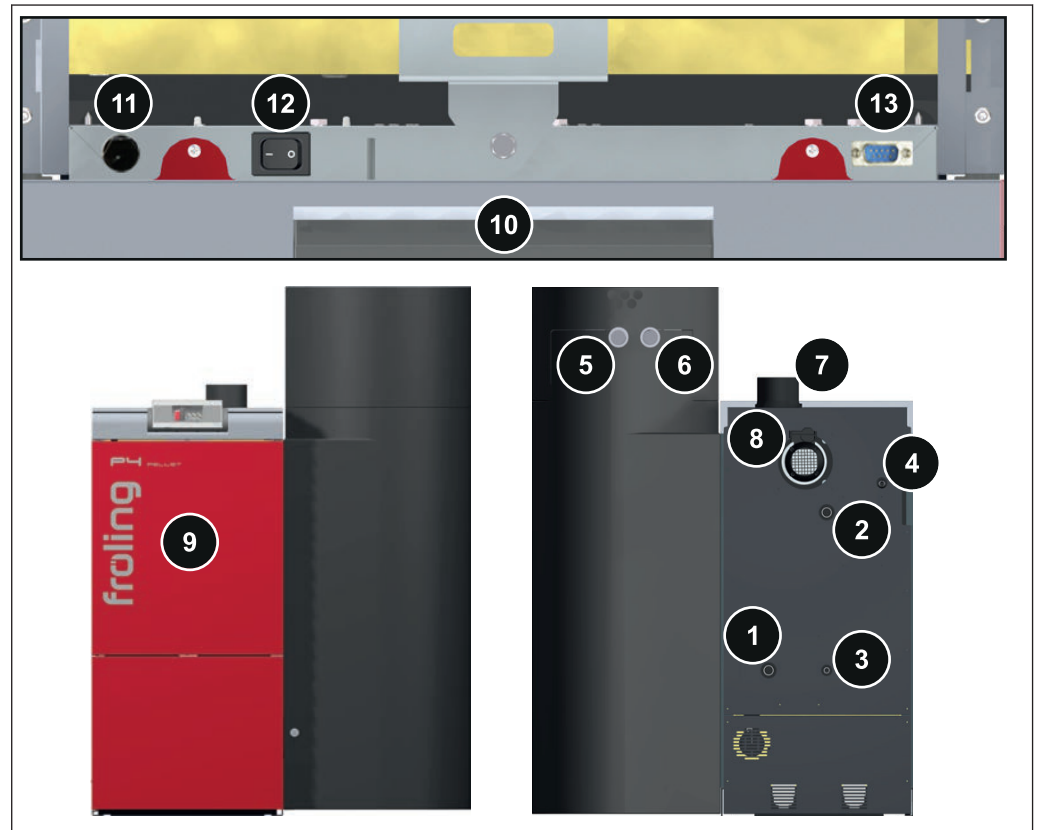
3.4 Flue gas pipe position



Description	Unit	15	20 - 25	32 - 38	45 - 60	70 - 105
A – Lateral distance	mm	420	585	650	815	1000
B – Depth distance	mm	90	90	85	90	80

3.5 Components and connections

3.5.1 P4 Pellet 15-38

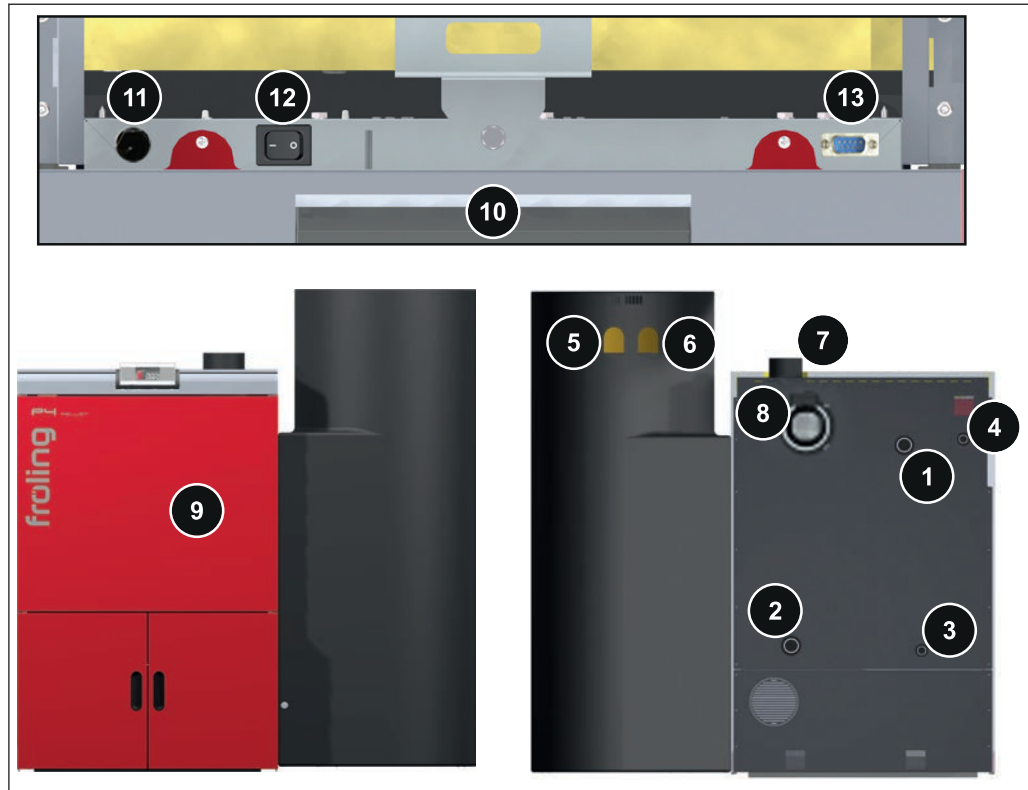


Item	Description	Unit	15	20 - 25	32 - 38
1	Boiler flow connection	inches	1	6/4	6/4
2	Boiler return connection	inches	1	6/4	6/4
3	Drainage connection	inches	1/2	1/2	1/2
4	Air vent connection	inches	1/2	1/2	1/2
5	Pellet suction line	mm	DA 60	DA 60	DA 60
6	Pellet return air line	mm	DA 60	DA 60	DA 60
7	Flue gas pipe connection (DM)	mm	129	129	129
8	Induced draught fan				
9	Controller box				
10	Lambdatronic P 3200 control				
11	High-limit thermostat (STL)				
12	Main switch				
13	Service interface				

3.5.2 P4 Pellet 45-105

NOTICE

Attention: Observe revised flow and return connection from P4 45 up to P4 105!



Item	Description	Unit	45 - 60	70 - 105
1	Boiler flow connection	inches	6/4	2
2	Boiler return connection	inches	6/4	2
3	Drainage connection	inches	1/2	1
4	Air vent connection	inches	1	1
5	Pellet suction line	mm	DA 60	DA 60
6	Pellet return air line	mm	DA 60	DA 60
7	Flue gas pipe connection (DM)	mm	150	200
8	Induced draught fan			
9	Controller box			
10	Lambdatronic P 3200 control			
11	High-limit thermostat (STL)			
12	Main switch			
13	Service interface			

3.6 Technical specifications

3.6.1 P4 Pellet 15 – 25

Description		P4 Pellet		
		15	20	25
Nominal heat output	kW	14.9	20.0	25.0
Output range		4.5-14.9	6.0-20.0	7.5-25.0
Electrical connection	230V / 50Hz / C16A			
Electrical power consumption NL / PL	W	55 / 34	71 / 49	87 / 63
Boiler weight	kg	350	430	430
Boiler capacity (water)	l	70	80	80
Capacity, ash drawer heat exchanger/combustion chamber	l	13 / 13	25 / 15	25 / 15
Water pressure drop ($\Delta T = 20K / 10K$)	mbar	6.1 / 24.4	4.5 / 17.9	2.8 / 11.5
Min. boiler return temperature	°C	Not applicable due to internal return temperature control		
Max. permitted operating temperature	°C	80		
Min. operating temperature setting	°C	40		
Permitted operating pressure	bar	3		
Boiler class as per EN 303-5:2012		5		
Airborne sound level	dB(A)	< 70		
Permitted fuel ¹⁾		Fuel acc. to EN ISO 17225 - part 2: wood pellets Class A1 / D06		

Regulation (EU) 2015/1187				
Energy efficiency		A+	A+	A+
Rated heat output	kW	15	20	25
Energy efficiency index of the boiler model		118	120	122
Seasonal space heating energy efficiency	%	80	81	82
Energy efficiency index of the boiler in package with temperature control		120	122	126
Energy efficiency class of the boiler in package with temperature control		A+	A+	A++

Test report data

Description		P4 Pellet		
		15	20	25
Testing institute		TÜV Süd ²⁾		
Test report no.		2211099-2	2213065-1 ³⁾	2213065-2 ³⁾
Date of issue		12.2.2011	30.4.2013	30.4.2013
Boiler efficiency NL / PL	%	93.3 / 92.2	93.5 / 93.4	93.6 / 94.6
<p>1. Detailed information on the fuel can be found in the operating instructions in the section entitled "Permitted fuels"</p> <p>2. TÜV SÜD, Landesgesellschaft Österreich GmbH, Grazer Straße 18, A – 8600 Bruck an der Mur</p> <p>3. As per ÖNORM / DIN EN 303-5, Section 5.1.3 type test: For a boiler from a range with the same constructional characteristics it is sufficient, if the ratio of nominal heat output from the largest to the smallest boiler is $\leq 2:1$, to perform the tests with the smallest and the largest boilers. The boiler manufacturer must ensure that all boilers, including those that have not been tested in the range, whose values have been determined depending on the nominal heat output by interpolation, fulfil the requirements of the norm.</p>				

Test data – Emissions in [mg/MJ] ¹⁾ (nominal load/partial load)				
Carbon monoxide (CO)	mg/MJ	8 / 15	14 / 31	20 / 46
Nitrous oxide (NOx)	mg/MJ	76 / 58	77 / 64	79 / 70
Organic hydrocarbons (OGC)	mg/MJ	1.0 / 1.0	1.0 / 1.0	1.0 / 1.0
Dust	mg/MJ	12.2 / 1.3	11.4 / 4.3	10.7 / 7.2
<p>1. The pollutant concentration is specified as a mass based on the energy content of the fuel fed to the combustion system in mg/MJ</p>				

Test data – Emissions in [mg/m ³] ¹⁾ (nominal load/partial load)				
Carbon monoxide (CO)	mg/m ³	12 / 23	22 / 48	31 / 72
Nitrous oxide (NOx)	mg/m ³	117 / 89	119 / 98	121 / 107
Organic hydrocarbons (OGC)	mg/m ³	1.0 / 1.0	1.0 / 1.3	1.0 / 1.7
Dust	mg/m ³	18.7 / 2.0	17.8 / 7.1	16.9 / 12.2
<p>1. Emissions values based on dry flue gas at standard temperature and pressure (0°C, 1013 mbar) with a volume content of oxygen of 13%</p>				

3.6.2 P4 Pellet 32 – 60

Description		P4 Pellet				
		32	38	45 ¹⁾	48	60
Nominal heat output	kW	32.0	38.0	45.0	48.0	58.5
Output range		9.6-32.0	11.4-38.0	13.5-45.0	14.4-48.0	17.6-58.5
Electrical connection		230V / 50Hz / C16A				
Electrical power consumption NL/PL	W	104 / 78	110 / 78	113 / 78	114 / 45	119 / 80
Boiler weight	kg	530	530	760	760	760
Boiler capacity (water)	l	125	125	170	170	170
Capacity, ash container heat exchanger/ combustion chamber	l	33 / 19	33 / 19	33 / 33	33 / 33	33 / 33
Water pressure drop ($\Delta T = 20K / 10K$)	mbar	1.5 / 6.2	2.1 / 8.7	3.2 / 9.9	3.7 / 10.5	5.3 / 12.3
Min. boiler return temperature	°C	Not applicable due to internal return temperature control				
Max. permitted operating temperature		80		90		
Min. operating temperature setting		40				
Permitted operating pressure	bar	3				
Boiler class as per EN 303-5:2012		5				
Airborne sound level	dB(A)	< 70				
Permitted fuel ²⁾		Fuel acc. to EN ISO 17225 - part 2: wood pellets Class A1 / D06				
Regulation (EU) 2015/1187						
Energy efficiency		A+	A+	A+	A+	A+
Rated heat output	kW	32	38	45	48	59
Energy efficiency index of the boiler model		123	123	122	119	119
Seasonal space heating energy efficiency	%	83	83	83	81	81
Energy efficiency index of the boiler in package with temperature control		127	127	126	121	121
Energy efficiency class of the boiler in package with temperature control		A++	A++	A++	A+	A+

Test report data

Description	P4 Pellet					
	32	38	45 ¹⁾	48	60	
Testing institute	TÜV SÜD SZA ³⁾		TÜV Austria ⁴⁾			
Test report no.	K44302/6 ⁵⁾	K44302/4 ⁵⁾	13-U-584/ SD; 10- UW/Wels- EX-242 ⁵⁾	10-UW/ Wels- EX-242/3	08-UW/ Wels- EX-337	
Date of issue	28.6.2007	28.6.2007	20.9.2013	10.5.2011	27.12.2008	
Boiler efficiency NL/PL	%	93.5 / 95.7	92.6 / 95.7	92.4 / 94.5	92.4 / 92.3	92.1 / 92.3
<p>1. P4 Pellet 45 is only available in Great Britain.</p> <p>2. Detailed information on the fuel can be found in the operating instructions in the section entitled "Permitted fuels"</p> <p>3. TÜV SÜD SZA Austria, Technische Prüf-GmbH, accredited initial and boiler inspection body in accordance with BGBl. no. 211/92 Arsenal, Object 207, A-1030 Wien</p> <p>4. TÜV Austria Services GmbH, Geschäftsbereich Umweltschutz, Am Thalbach 15, A-4600 Thalheim/Wels</p> <p>5. As per ÖNORM / DIN EN 303-5, Section 5.1.3 type test: For a boiler from a range with the same constructional characteristics it is sufficient, if the ratio of nominal heat output from the largest to the smallest boiler is $\leq 2:1$, to perform the tests with the smallest and the largest boilers. The boiler manufacturer must ensure that all boilers, including those that have not been tested in the range, whose values have been determined depending on the nominal heat output by interpolation, fulfill the requirements of the norm.</p>						

Test data – Emissions in [mg/MJ] ¹⁾ (nominal load/partial load)

		32	38	45 ¹⁾	48	60
Carbon monoxide (CO)	mg/MJ	31 / 61	45 / 61	31 / 44	25 / 11	5 / 10
Nitrous oxide (NO _x)	mg/MJ	79 / 75	77 / 75	77 / 72	77 / 60	77 / 66
Organic hydrocarbons (OGC)	mg/MJ	1.0 / 1.0	1.0 / 1.0	<2.0 / <2.0	<2.0 / <1.0	<2.0 / <2.0
Dust	mg/MJ	10.0 / 10.0	9.0 / 10.0	9.7 / 10.0	10.0 / 6.0	11.0 / 10.0
1. The pollutant concentration is specified as a mass based on the energy content of the fuel fed to the combustion system in mg/MJ						

Test data – Emissions in [mg/m³] ¹⁾ (nominal load/partial load)

		32	38	45 ¹⁾	48	60
Carbon monoxide (CO)	mg/m ³	48 / 95	70 / 95	46 / 68	39 / 17	7 / 15
Nitrous oxide (NO _x)	mg/m ³	122 / 116	119 / 116	117 / 110	117 / 88	114 / 97
Organic hydrocarbons (OGC)	mg/m ³	1.0 / 2.0	1.0 / 2.0	<2.0 / <3.0	<2.0 / <2.0	<2.0 / <3.0
Dust	mg/m ³	15.5 / 17.0	14.0 / 17.0	15.0 / 16.0	15.5 / 9.0	17.0 / 14.0
1. Emissions values based on dry flue gas at standard temperature and pressure (0°C, 1013 mbar) with a volume content of oxygen of 13%						

3.6.3 P4 Pellet 70 – 105

Description		P4 Pellet				
		70 ¹⁾	80	100	100 ²⁾	105 ³⁾
Nominal heat output	kW	69.0	80.0	100.0	99.0	105.0
Output range		20.7-69	24-80	30-100	29.7-99	31.5-105
Electrical connection		230V / 50Hz / C16A				
Electrical power consumption NL/PL	W	117 / 72	115 / 49	112 / 49	112 / 49	112 / 49
Boiler weight	kg	1090	1090	1100	1100	1100
Boiler capacity (water)	l	280	280	280	280	280
Capacity, ash container heat exchanger/combustion chamber	l	33 / 33	33 / 33	33 / 33	33 / 33	33 / 33
Water pressure drop ($\Delta T = 20K / 10K$)	mbar	5.0 / 12.8	4.8 / 14.3	4.3 / 14.3	4.3 / 14.3	4.3 / 14.3
Min. boiler return temperature	°C	Not applicable due to internal return temperature control				
Max. permitted operating temperature		90				
Min. operating temperature setting		40				
Permitted operating pressure	bar	3				
Boiler class as per EN 303-5:2012		5				
Airborne sound level	dB(A)	< 70				
Permitted fuel ⁴⁾		Fuel acc. to EN ISO 17225 - part 2: wood pellets Class A1 / D06				
Regulation (EU) 2015/1187						
Energy efficiency		A+	-			
Rated heat output	kW	69	-			
Energy efficiency index of the boiler model		120	-			
Seasonal space heating energy efficiency	%	82	-			
Energy efficiency index of the boiler in package with temperature control		122	-			
Energy efficiency class of the boiler in package with temperature control		A+	-			

Test report data

Description		P4 Pellet				
		70 ¹⁾	80	100	100 ²⁾	105 ³⁾
Testing institute		TÜV Austria ⁵⁾				
Test report no.		14-U-188/ SD; 14- UW/Wels- EX-024	10-UW/ Wels- EX242/4 ⁶⁾	10-UW/ Wels- EX-242/1	10-UW/ Wels- EX-242/5 ⁶⁾	10-UW/ Wels- EX-242/2
Date of issue		2.4.2014	27.11.2011	9.5.2011	14.3.2012	11.5.2011
Boiler efficiency NL/PL	%	92.7 / 92.7	93.2 / 93.7	94.3 / 93.7	94.3 / 93.7	94.3 / 93.7
<p>1. P4 Pellet 70 is only available in France.</p> <p>2. P4 Pellet 100 (99 kW) is only available in Great Britain.</p> <p>3. P4 Pellet 105 is only available in Germany.</p> <p>4. Detailed information on the fuel can be found in the operating instructions in the section entitled "Permitted fuels"</p> <p>5. TÜV Austria Services GmbH, Geschäftsbereich Umweltschutz, Am Thalbach 15, A-4600 Thalheim/Wels</p> <p>6. As per ÖNORM / DIN EN 303-5, Section 5.1.3 type test: For a boiler from a range with the same constructional characteristics it is sufficient, if the ratio of nominal heat output from the largest to the smallest boiler is $\leq 2:1$, to perform the tests with the smallest and the largest boilers. The boiler manufacturer must ensure that all boilers, including those that have not been tested in the range, whose values have been determined depending on the nominal heat output by interpolation, fulfil the requirements of the norm.</p>						

Test data – Emissions in [mg/MJ] ¹⁾ (nominal load/partial load)

Carbon monoxide (CO)	mg/MJ	5 / 15	6 / 29	6 / 29	6 / 29	6 / 29
Nitrous oxide (NOx)	mg/MJ	79 / 65	80 / 62	83 / 62	83 / 62	83 / 62
Organic hydrocarbons (OGC)	mg/MJ	<2 / <2	<2 / <1	<1 / <1	<1 / <1	<1 / <1
Dust	mg/MJ	12 / 10	12 / 10	13 / 10	13 / 10	13 / 10
1. The pollutant concentration is specified as a mass based on the energy content of the fuel fed to the combustion system in mg/MJ						

Test data – Emissions in [mg/m³] ¹⁾ (nominal load/partial load)

Carbon monoxide (CO)	mg/m ³	7 / 22	8 / 43	8 / 43	8 / 43	8 / 43
Nitrous oxide (NOx)	mg/m ³	116 / 95	118 / 91	122 / 91	122 / 91	122 / 91
Organic hydrocarbons (OGC)	mg/m ³	<2 / <3	<2 / <2	<1 / <2	<1 / <2	<1 / <2
Dust	mg/m ³	17 / 14	18 / 15	18 / 15	18 / 15	18 / 15
1. Emissions values based on dry flue gas at standard temperature and pressure (0°C, 1013 mbar) with a volume content of oxygen of 13%						

3.6.4 Airborne sound level

The sound levels specified in the following table are based on a sound measurement on a P4 Pellet 15. (measuring device: Omega HHSL 1)

The sound level of the individual units was plotted at a distance of 1 m from the sound source.

Ambient level for measurement: 32 dBA

Unit	Measurement
Units in continuous operation:	
Induced draught fan (activation: 50%)	41 dBA
Induced draught fan (activation: 65%)	44 dBA
Induced draught fan (activation: 90%)	50 dBA
Units in non-continuous operation:	
Suction turbine	68 dBA
Grate motor	42 dBA
Stoker motor / Stoker screw	33 dBA
Ignition fan	53 dBA
WOS motor / WOS system	60 dBA
Burn back slide valve actuator (open)	34 dBA
Burn back slide valve actuator (close)	50 dBA

Please note that all the measurements were taken in-house and do not come from a certified test centre. This data should, therefore, be viewed as individual guideline measurements.

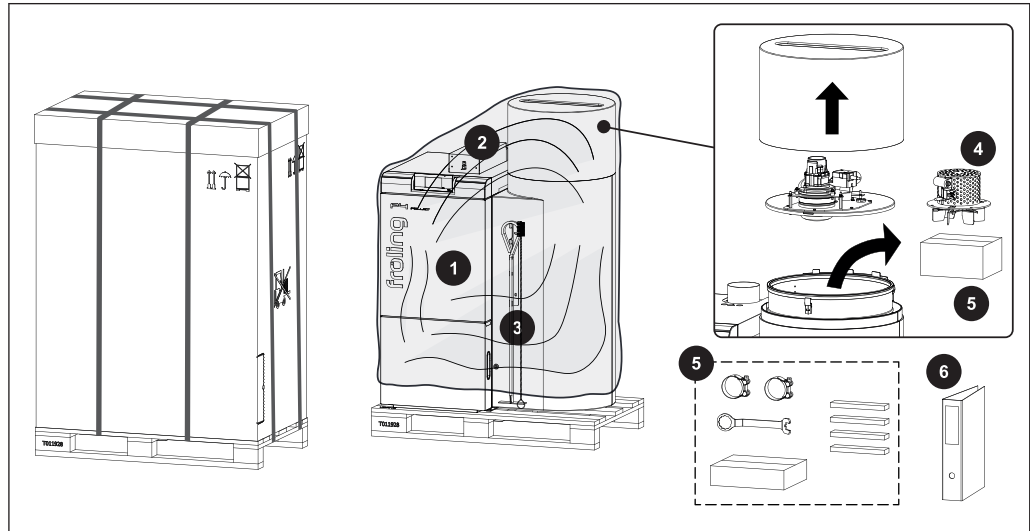
Please also note the sound levels required in the standards listed below, which must be fulfilled by planning and construction measures:

ÖNORM B 8115-2	Sound insulation and room acoustics in building construction - Requirements for sound insulation
ÖNORM H 5190	Heating systems - Acoustic insulation

4 Assembly

4.1 Materials supplied

The boiler comes pre-assembled on a pallet in cardboard packaging.



1	Pre-assembled boiler	4	ID fan (in the cyclone container)
2	P4 Pellet 15-25: Transport covers of ashcans P4 Pellet 32-105: Insulated door(s) and ash container	5	Accessories package (in the cyclone container): adjusting spanner, heating circuit controller, DHW tank sensor boiler underlay, 2x hose clamps
3	Cleaning devices	6	Installation and operating instructions, guarantee certificate, identification plate

4.1.1 Tools required

The following tools are required for assembling the boiler:

- Socket set
- Spanner or box wrench set
- Set of Torx bits (T20, T25, T30)
 - Using a cordless screwdriver is recommended
- Diagonal cutting pliers
- Flat head and cross-head screwdrivers
- Hammer

4.2 Positioning

NOTICE



Damage to components if handled incorrectly

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

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

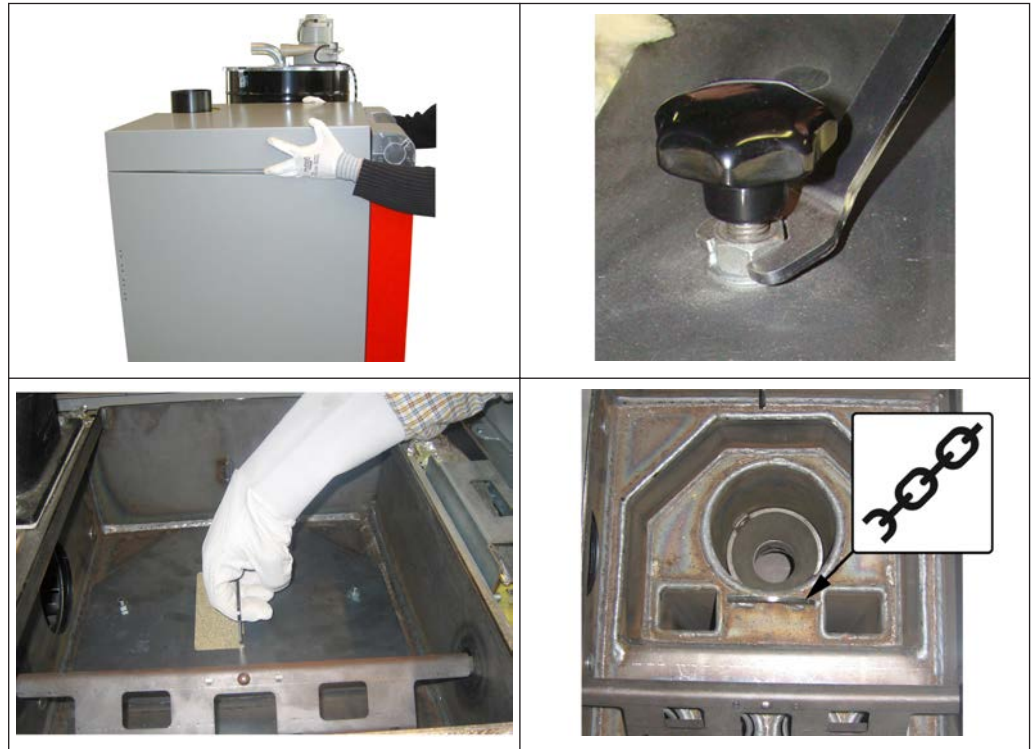
If the boiler cannot be brought in on the pallet:

- Remove the cardboard and remove the boiler from the pallet
⇒ See "Remove boiler from pallet" [page 34]

If you need to dismantle the boiler to bring it in:

- Dismantle the components of the boiler until it can be brought in
⇒ See "Dismantling for location where positioning is difficult" [page 37]

Positioning using a crane:



- Remove the insulating cover, heat exchanger cover and combustion chamber cover
- Correctly attach the crane hook to the attachment point for lifting eye bolt (underneath the cover) and position the boiler

4.3 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!

4.4 Setting up in the boiler room

4.4.1 Remove boiler from pallet



- Remove packing bands with suitable tools
- Lift off the cardboard



- Remove the transport covers (1) from the ashcan (P4 Pellet 15 – 25) / insulated door(s) and ash container (P4 Pellet 32 – 105) as well as the cleaning devices (2)
- Remove the protective casing

On the front of the boiler (P4 Pellet 15 - 25):

- Open the insulated door
- Remove securing devices used during transportation on the left and right side of the base
- Tilt the lock bolt for the door hinges forwards
- Lift the insulated door out of the hinges and remove
- Pull out floor insulation



On the front of the boiler (P4 Pellet 32 - 105):



- Remove securing devices used during transportation on the left and right side of the base
- Remove two screws each on the left and right of the ash collecting plate and remove the collecting plate
- Pull out the floor insulation behind

At the back of the boiler:



- Remove securing devices used during transportation on the left and right side of the base

- Lift boiler off pallet

TIP: Use Froling's KHV 1400 boiler lifting system to help remove the pallet!

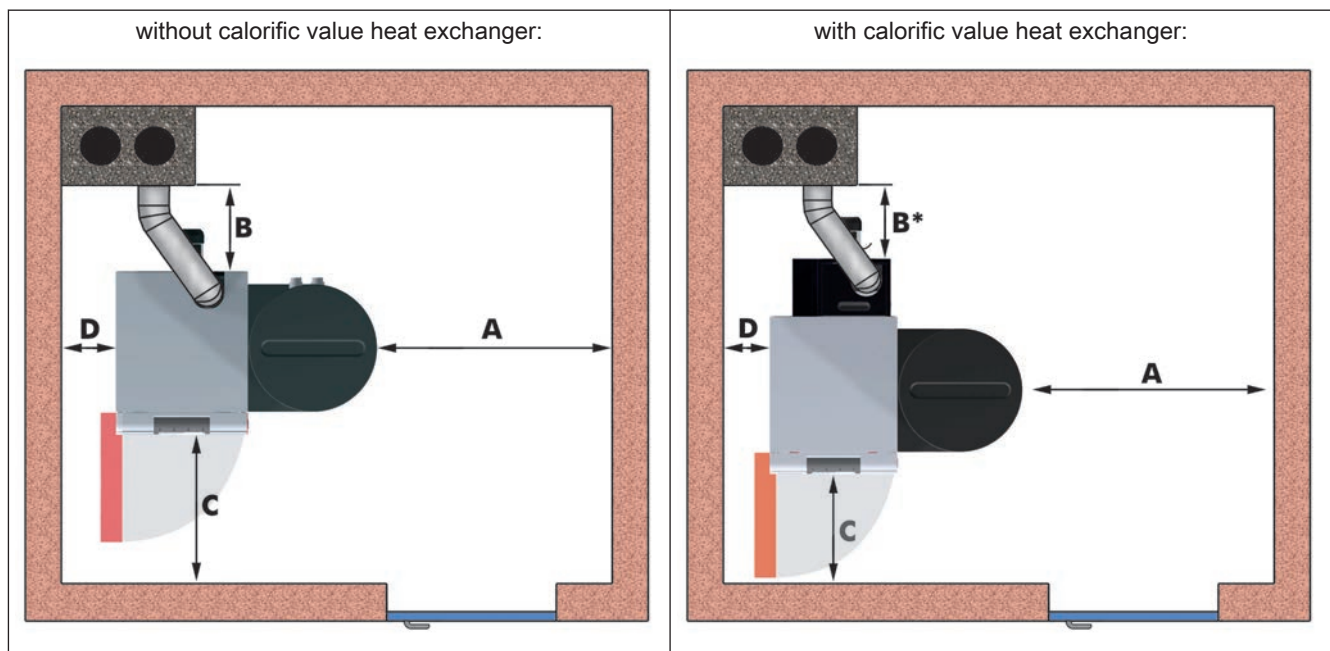


4.4.2 Moving the boiler in the boiler room

- Position a fork-lift 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
 - Observe the minimum distances in the boiler room.

4.4.3 Recommended clearances in the boiler room

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



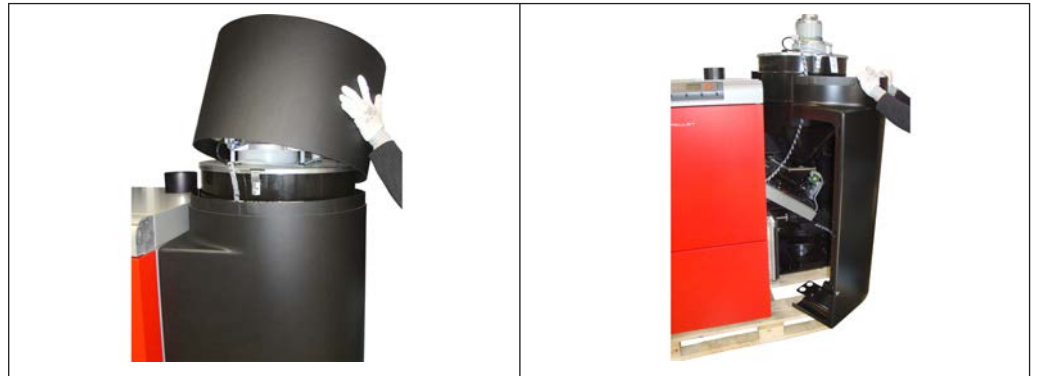
			P4 Pellet				
	Description	Unit	15	20 - 25	32 - 38	45 - 60	70 - 105
A	Minimum distance to stoker assembly	mm	300	300	300	300	300
B	Induced draught fan maintenance area		300	300	300	300	300
B*	Space required incl. maintenance area for induced draught fan with calorific value heat exchanger		300	350	450	450	-
C	Space for insulated door		550	720	830	490	590
	Space requirement with plug-in insulated door		400	400	300	-	-
D	Minimum distance to side of boiler	200	200	200	200	200	

4.5 Dismantling for location where positioning is difficult

If there is not enough room to bring in the pre-assembled boiler, certain components can be dismantled.

This section shows the maximum possible disassembly. Only dismantle the parts absolutely necessary to bring in the boiler.

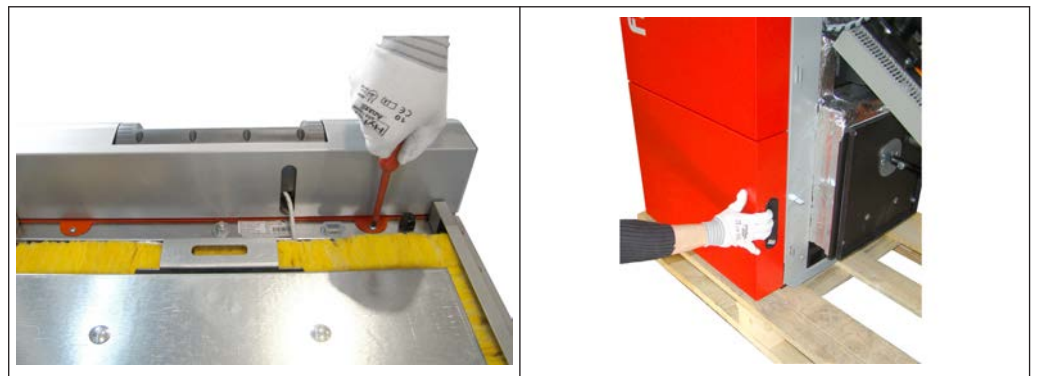
4.5.1 Removing the stoker assembly and insulation



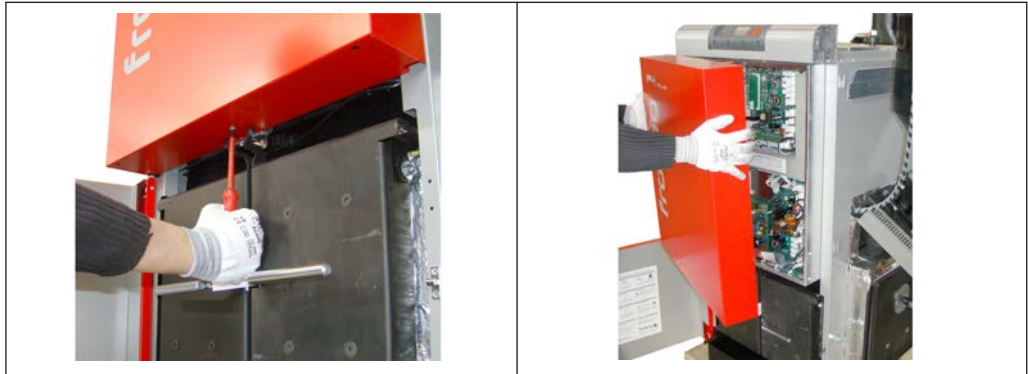
- Remove the locking screws on the sound insulation hood of the stoker assembly and remove the sound insulation hood
- Lift the front part of the stoker assembly up and remove



- Lift the back part of the stoker assembly up and remove
- Remove the insulating cover



- Remove the two screws and contact washers from the flaps of the controller cover
 - Caution: Do not lose the contact washers!
- Open the insulated door (P4 Pellet 15/20/25)

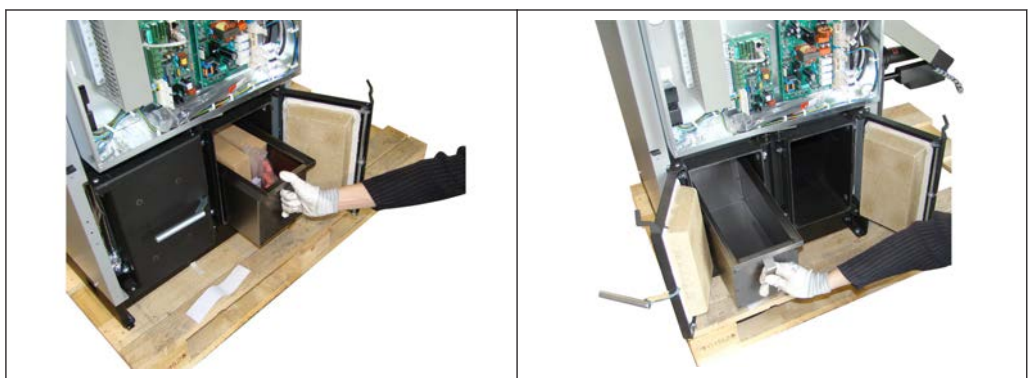


- Remove the screw and contact washer on the bottom of the controller cover
- Remove the controller cover

4.5.2 Removing the door and ash drawer (P4 Pellet 15 - 25)

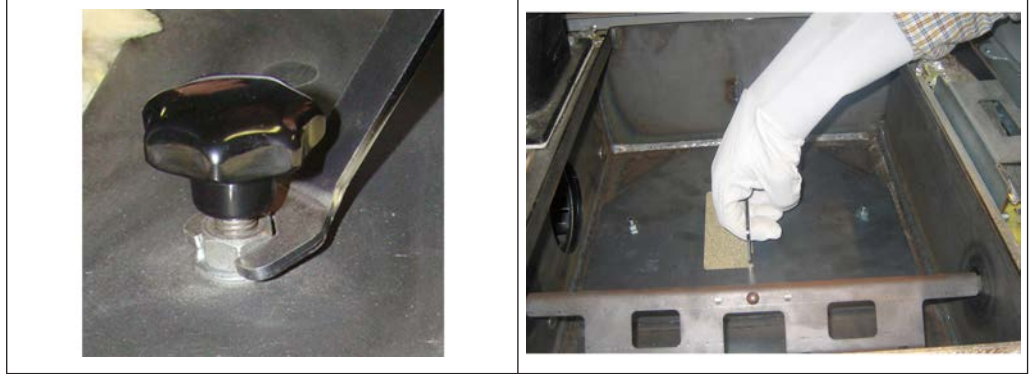


- Tilt the lock bolt for the door hinges forwards
- Lift the insulated door out of the hinges and remove




- Open both ash doors and remove the ash drawer

Optional:



- Remove the heat exchanger cover and combustion chamber cover to further reduce the weight

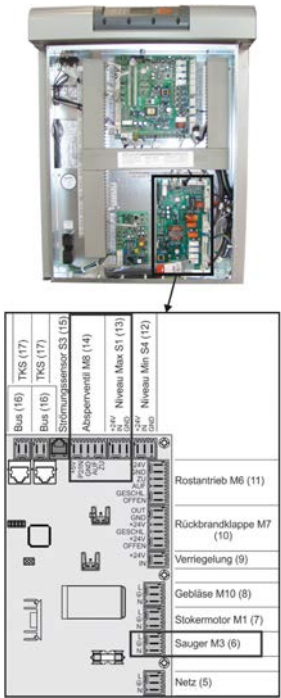
4.5.3 Dismantling the suction cyclone cover




- Remove the covering of the middle cable duct


At the pellet module:

- Unplug the units:
 - "Suction unit M3"
 - "Max level S1"
 - "Gate valve M8"



Bus (16)	TKS (17)	TKS (17)	Stromsensors S3 (15)	Rostantrieb M6 (11)
Bus (16)	TKS (17)	TKS (17)	Absperrventil M8 (14)	Rückbrandklappe M7 (10)
			Niveau Max S1 (13)	Verriegelung (9)
			Niveau Min S4 (12)	Gebälse M10 (8)
				Stokermotor M1 (7)
				Sauger M3 (6)
				Netz (5)






- Undo the cable ties at the cable leadthrough
- Pull out the cables of the unplugged units



- Wind up the unplugged cables on the units
- Open the clamps and take off the cover


4.5.4 Dismantling the stoker unit




- Remove the covering of the cable duct

At the pellet module:

- Unplug the units:
 - "Grate drive M6"
 - "Burn back flap M7"
 - "Stoker motor M1"
 - "Ignition E1"





PZIN	+24V	Rostantrieb M6 (11)
GND	ZU	
AUF	GESCHL.	
OFFEN	OUT	
	GND	Rückbrandklappe M7 (10)
	+24V	
	GESCHL.	
	+24V	
	OFFEN	
	+24V	Verriegelung (9)
	N	
	N	Gebälse M10 (8)
	N	
	N	Stokermotor M1 (7)
	N	
	N	Sauger M3 (6)
	N	
	N	Netz (5)
	N	
	N	Ascheschnecke M9 (4)
	N	
	N	Ascheschnecke M9 (3)
	N	
	N	WOS-Antrieb M4 (2)
	N	
	N	Zündung E1 (1)
	N	

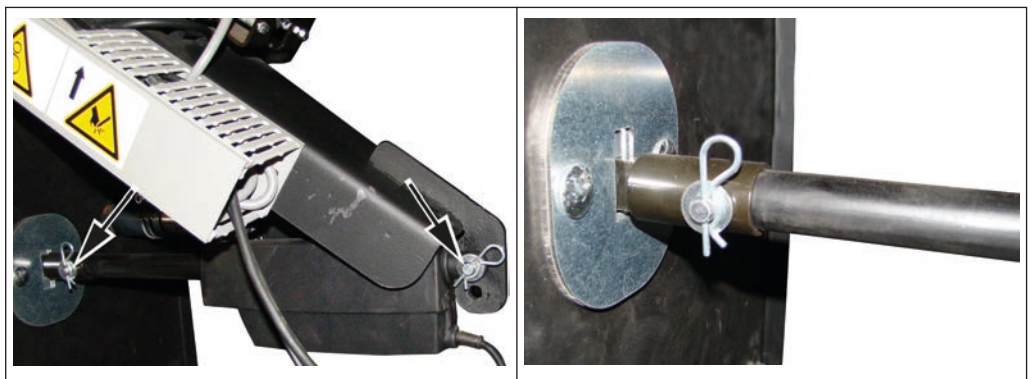
- Pull out the cables of the unplugged units

40

Froling GesmbH | A-4710 Grieskirchen, Industriestraße 12 | www.froeling.com



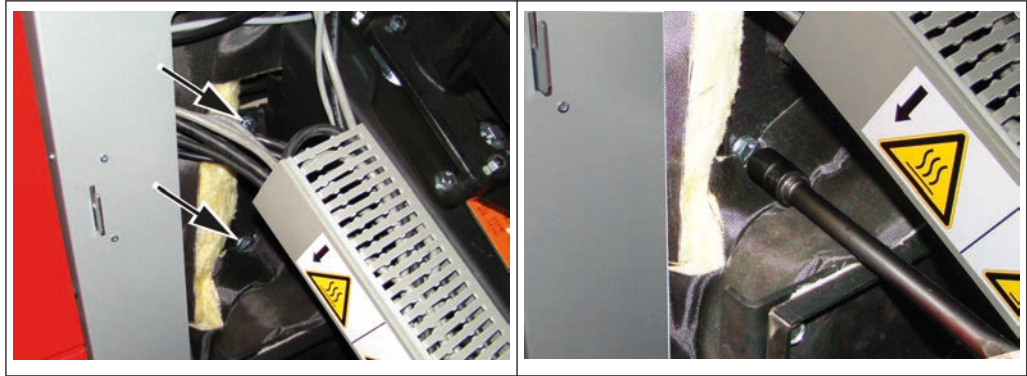
- Undo the screw and remove the clamp on the ignition blower fan
- Remove the ignition fan



- Remove the spring cotter at the front and back of the grate drive and remove the bolts
- CAUTION: Secure the grate motor so that it does not fall!



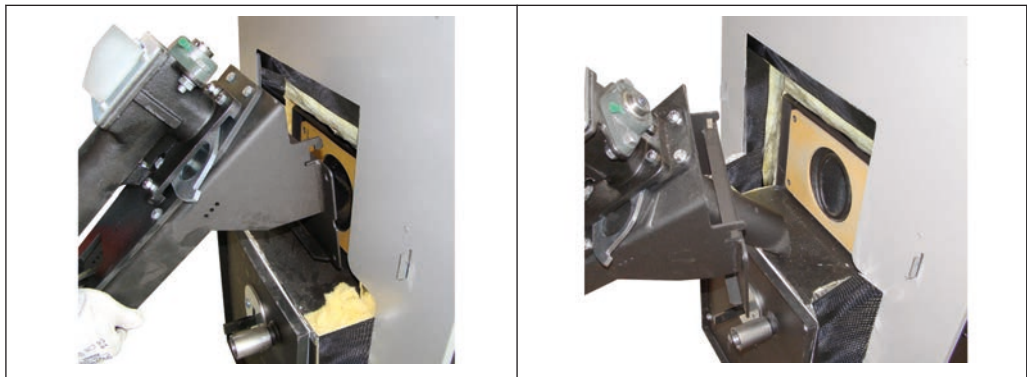
- Push the sleeve on the grate rod back
- Remove the grate motor



- Push the heat insulation mat aside slightly and remove two screws each from the right and left of the flange of the stoker unit
 - You can remove the screws completely as the stoker unit is secured to the boiler with two hooks

The following steps require two people **NOTICE! !**

- Weight of stoker unit P4 Pellet 15 – 25: approx. 32kg
- Weight of stoker unit P4 Pellet 32 – 38: approx. 36 kg
- Weight of stoker unit P4 Pellet 45 – 60: approx. 46 kg
- Weight of stoker unit P4 Pellet 70 –105: approx. 68 kg



- Pull the stoker unit up slightly until the hooks come out of the stoker flange
- Tip the unit back slightly and lift away

The P4 is now fully dismantled and can be brought in.

4.5.5 Positioning dimensions after dismantling

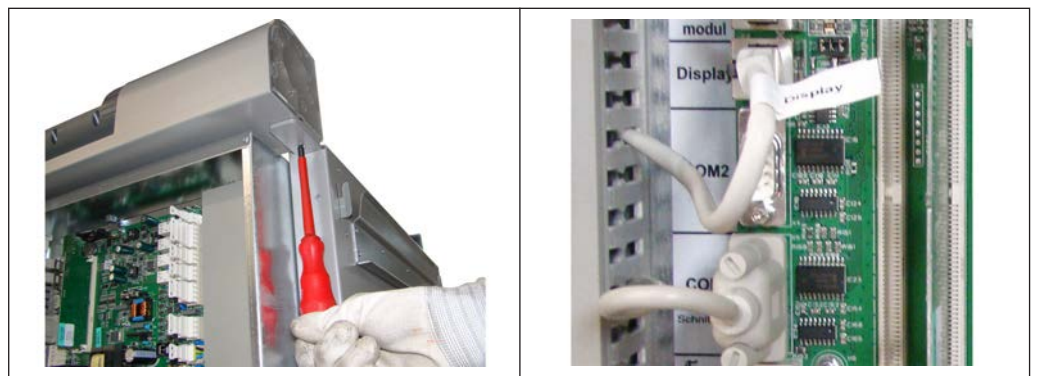


			P4 Pellet				
Dimension	Description	mm	15	20 - 25	32 - 38	45 - 60	70 - 105
L	Length, boiler		740	740	740	820 ¹⁾	910 ²⁾
B	Width, boiler		705	875	965	1275	1480
H	Height, boiler		1350	1350	1530	1685	1785 ³⁾

1. You can reduce the size to 780 mm by removing the control (e.g. to fit through a door with a clearance of 800 mm)
 2. You can reduce the size to 880 mm by removing the control (e.g. to fit through a door with a clearance of 900 mm)
 3. You can reduce the size to 1685 mm by removing the control and flue gas pipe nozzle (P4 Pellet 70-105)

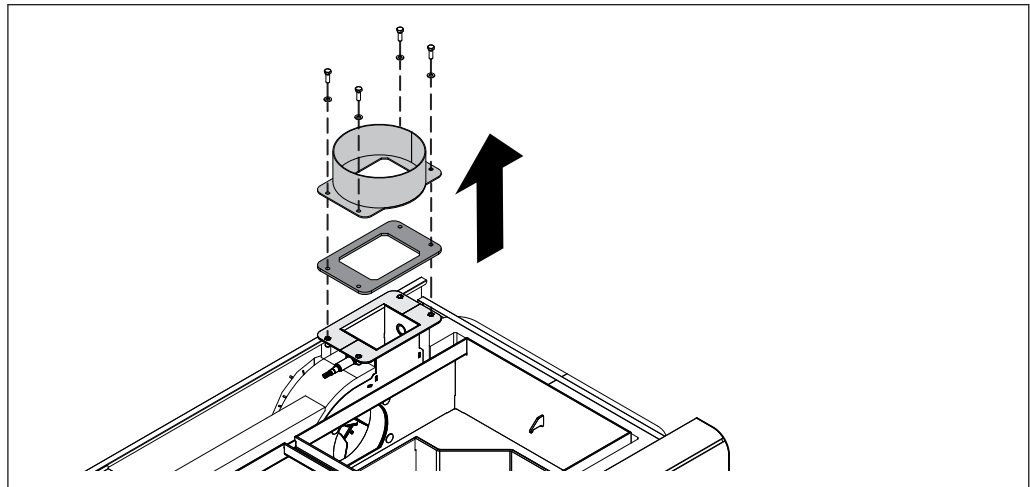
Removing the control

- Remove the left and right end caps



- Secure the bottom nuts to the bracket of the control
- Remove the screws on the right and left of the control
- Unplug the cable marked "Display" and pull up out of the controller
- Remove the control

Additionally possible with P4 Pellet 70-105



- Unscrew the four hexagon bolts and remove the flue gas pipe nozzle with the seal

4.5.6 Notes for reassembly

- After positioning, reassemble the boiler in the reverse order

It is particularly important to carry out the following steps during assembly:

Assembling the grate motor:

P4 Pellet 15-38:

- Correct position at back support:
 - P4 Pellet 15: top position
 - P4 Pellet 20 - 38: bottom position



- Check that the housing is in the right position at the grate rod (see figure)



Ignition fan

- Fit the clamp to the igniter tube using screws
 - Fix the cable with the cable ties supplied.
 - There must not be any loose cables in the area of the igniter.
 - Only connect the power supply after completing assembly.



NOTICE! The individual units should be checked by a qualified technician and adjusted if necessary during initial start-up.

4.6 Assembling the pellet boiler

4.6.1 Before Installation

Checking the seal of the ash doors

- Open the door



- Insert a sheet of paper at the top between the door and boiler
- Close the door
- Try to pull the sheet of paper out
 - If the paper cannot be removed:
The door seal is OK and the settings are correct
 - If the paper can be removed:
The door is not sealed properly and must be adjusted!
- Check the seal again after positioning the doors
- Repeat the procedure at the bottom of the ash door and on the side of the door handle above and below the door handle as well as at the same positions on the other ash door

Adjusting the doors

P4 Pellet 15 – 25:



- Using an Allen key (13 mm), loosen the lock nuts on the locking cams at the top and bottom
- Close the door
 - With a gap of approx. 2 to 3 cm there should be a noticeable resistance



- If the resistance is too low or too high, move the locking cams backwards or forwards using an Allen key (32 mm)
 - The movement of the locking cams causes the hinged plate to move, allowing the contact pressure to be adjusted
 - Caution: The two locking cams (top and bottom) must be aligned
- Close the door
- If the door will not close, move the locking cams forward slightly
 - Caution: The two locking cams (top and bottom) must be aligned
- Secure the lock nuts again

The locking plate can be moved in the same way using the locking cam at the side of the door handle, allowing the contact pressure to be adjusted on this side

P4 Pellet 32 – 105: On the side with the door stop:

- Adjust the doors with the locking cam as explained above

On the side with the door handle:



- Loosen the lock nuts at the top and bottom of the locking plate using an Allen key (13 mm)
- Close the door
 - With a gap of approx. 2 to 3 cm there should be a noticeable resistance



- If the resistance is too low or too high, move the locking plate backwards or forwards using appropriate tools (e.g. screwdriver and hammer)
 - Caution: The locking plate must be aligned at the top and bottom.
- Close the door
- If the door will not close, move the locking plate forward slightly
 - Caution: The locking plate must be aligned at the top and bottom.

- Secure the lock nuts again

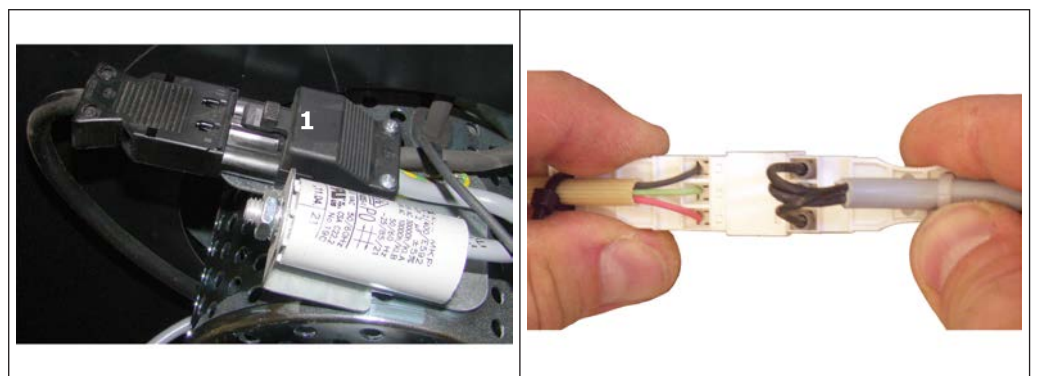
4.6.2 Fitting the induced draught fan



- Remove the locking screws on the sound insulation hood of the stoker assembly and remove the sound insulation hood
- Open the clamps on the suction cyclone container and remove the cover
- Remove the cardboard containing the induced draught fan and accessories package from the suction cyclone container

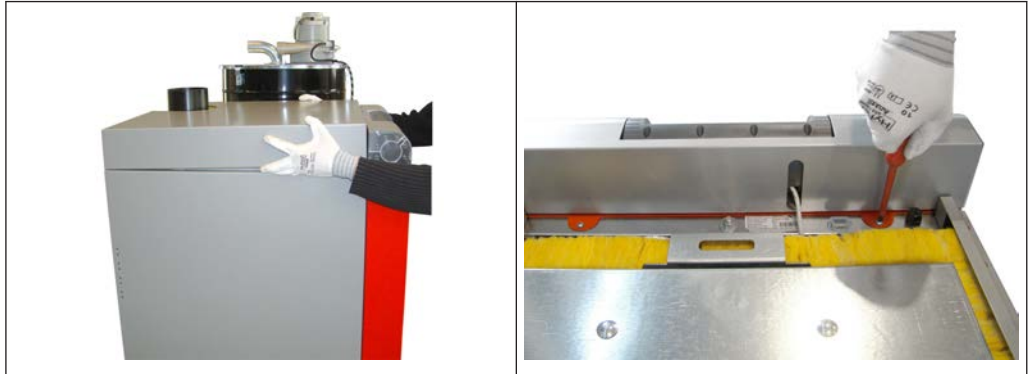


- Remove the pre-assembled induced draught cover plates
- Remove the pre-assembled nuts and spacer washers for induced draught
- Attach and fit the ID fan as illustrated

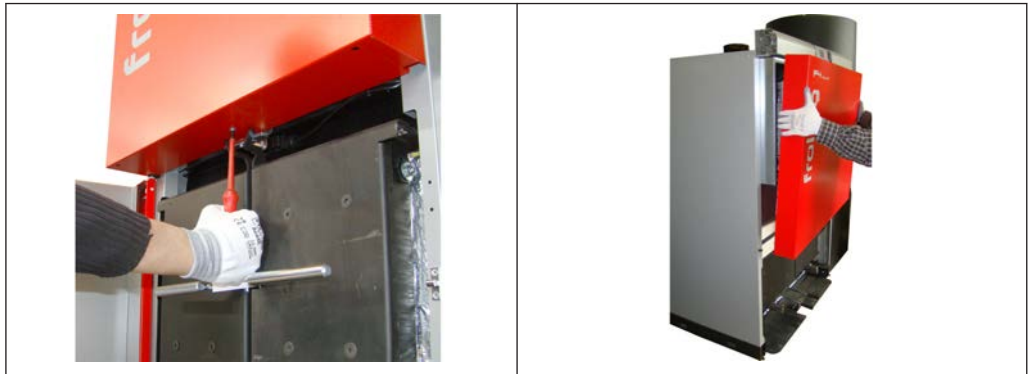


- Join the two cables of the ID fan with the pre-installed cables
 - The locking device (1) must click into place.
- Push the cable behind the cladding and replace the induced draught cover plates.

4.6.3 Fitting the ash container and doors (P4 Pellet 32 - 105)



- Remove the insulating cover
- Remove the two screws and contact washers from the flaps of the controller cover
 - ↳ Caution: Do not lose the contact washers!



- Remove the screw and contact washer on the bottom of the controller cover
- Remove the controller cover



- Hang the insulated door to the boiler base and secure with lock bolt



- Take the two covers for the ash containers out of the ash containers, position and secure with clamps
- Put the left and right ash containers onto the ash screws and secure with lever

- Replace the controller cover after connecting to the power supply

4.7 Connecting the discharge system

- Fit the discharge system according to the installation instructions enclosed



- Connect the suction hose and return air line at the back of the boiler:
 - Left port (1) = suction hose (Pellets sticker)
 - Right port (2) = return air line

NOTICE! Ensure the potential equalisation matches the discharge system assembly instructions when connecting the lines!

4.8 Power connection

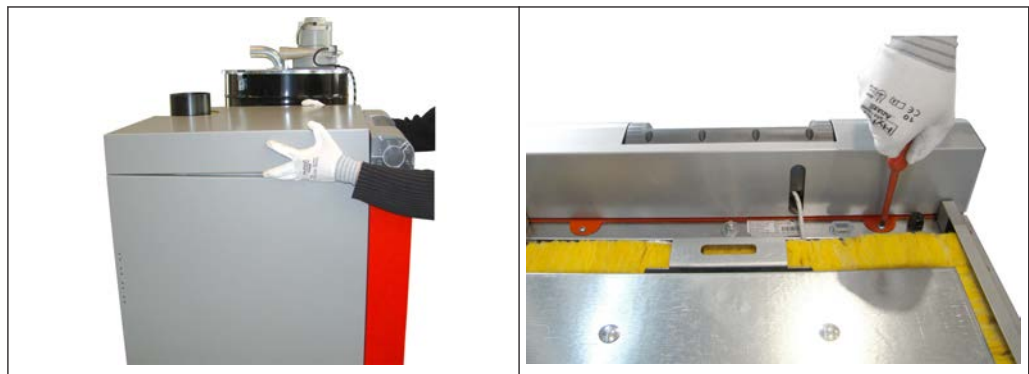
 **DANGER**

When working on electrical components:

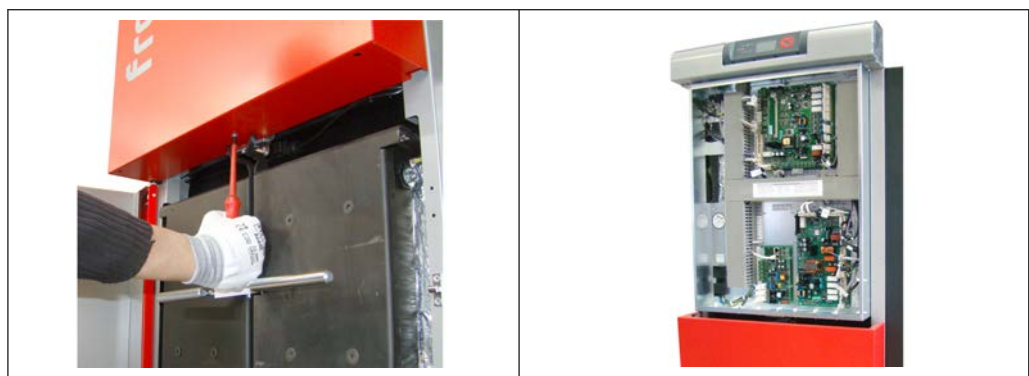
Risk of electrocution!

When work is carried out on electrical components:

- Only 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.
 - The power supply line (mains connection) must be fitted with a C16A fuse by the customer.



- Remove the insulating cover
- Remove the two screws and contact washers from the flaps of the controller cover
 - Caution: Do not lose the contact washers!
- Open the insulated door (P4 Pellet 15/20/25)



- Remove the screw and contact washer on the bottom of the controller cover
- Remove the controller cover

- Wire the connections in accordance with the circuit diagram
 - For circuit diagrams see operating instructions for "Lambdatronic P 3200"

- To reassemble the controller cover and insulating cover, perform the disassembly steps in the reverse order

4.8.1 Information on circulating pumps

NOTICE

According to 2012/622/EU external, wet running circulating pumps must comply with the following limit values of the Energy Efficiency Index (EEI):

- Effective from 01/01/2013: Wet running circulating pumps with $EEI \leq 0.27$
- Effective from 08/01/2015: Wet running circulating pumps with $EEI \leq 0.23$

Only high efficiency pumps with a connection option for a control signal (PDM / 0-10V) should be connected to speed-controlled pump outputs (pump 1 on the core module and pump outputs on the hydraulic module). In this case, the control line is connected to the corresponding PDM outputs of the boards. Observe the connection instructions in the boiler controller documentation!

CAUTION



When using high efficiency pumps without an additional control line at speed-controlled pump outputs:

Malfunctions of the boiler, the pump and the hydraulic system may occur!

Therefore:

- Do not connect EC motor pumps without a control line to the speed-controlled pump outputs of the boards.
 - Only use special high efficiency pumps with a connection option for a control line (PDM/0-10V)!
 - Observe the additional instructions and information on board outputs in the operation instructions for the boiler controller.

5 Start-up

5.1 Before commissioning / configuring the boiler

The boiler must be configured to the heating system on 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 vented.
- Check that all water connections are tightly sealed
 - Pay particular attention to those connections from which plugs were removed during assembly.
- Check that the safety devices are present and working efficiently.
- 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 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 analog inputs and outputs - See the instruction manual for the boiler controller.

5.2 Initial startup

5.2.1 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 <i>plus</i> / DIN <i>plus</i> certification scheme

General note:

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

5.2.2 Non-permitted fuels

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

CAUTION

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:

- Only use permitted fuels

5.2.3 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 operating instructions for all the steps necessary to start up for the first time Lambdatronic P 3200

6 Decommissioning

6.1 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

6.2 Disassembly

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

6.3 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.

7 Appendix

7.1 Addresses

7.1.1 Address of manufacturer

FRÖLING
Heizkessel- und Behälterbau GesmbH

Industriestraße 12
A-4710 Grieskirchen
AUSTRIA

TEL 0043 (0)7248 606 0
FAX 0043 (0)7248 606 600
INTERNET www.froeling.com

7.1.2 Address of the installer

Stamp