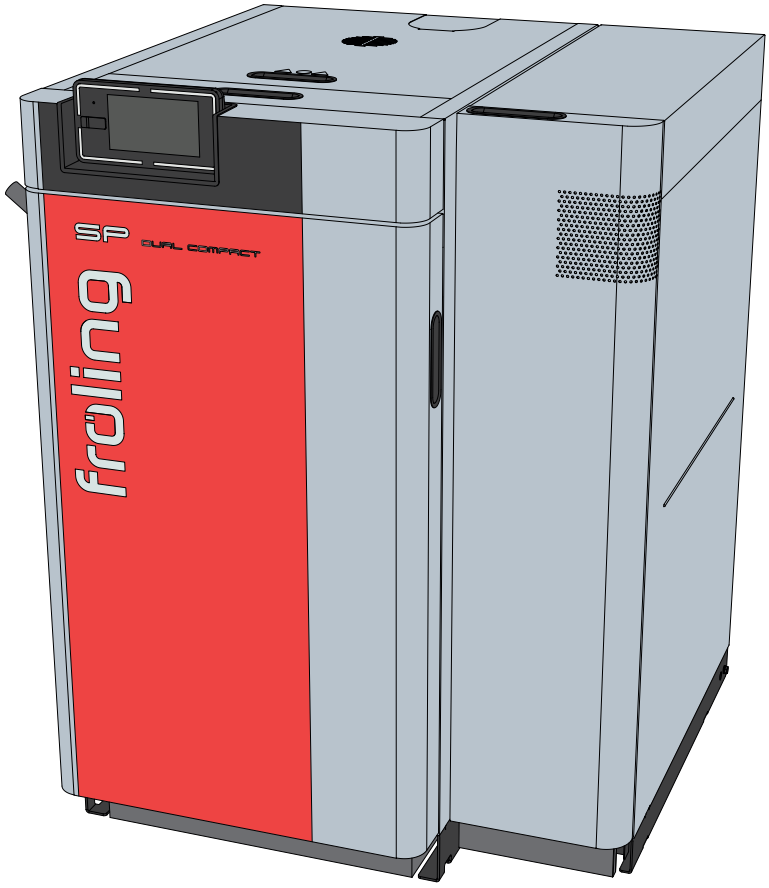
Installation instructions

Dual fuel boiler SP Dual compact (ESP)



Translation of original German version of installation instructions for technicians!

Read and follow all instructions and safety instructions!
Errors and omissions excepted!

CE

M1821425_en | Edition 21/03/2025

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 SP Dual compact (ESP) boilers:

15, 20;

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.

IMPORTANT

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

If assembly and installation are performed by unqualified persons:

Risk of personal injury and damage to property!

During assembly and installation:

❒ Observe the instructions and information in the manuals

❒ Allow only 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)

2.4 Residual risks for installation personnel

⚠ DANGER

Installation and commissioning of systems with electrostatic particle separators by personnel with pacemakers:

Electromagnetic fields may interfere with operation of the pacemaker when the system is switched on!

The following instruction applies to personnel with pacemakers:

❒ Perform installation and commissioning work only after appropriate medical assessment

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 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

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. DM 26.06.2015 (Ministerial Decree specifying the minimum requirements) Follow the instructions of this standard and any related updates. (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
EN ISO 17225-3	Solid bio-fuel - Fuel specifications and classes Part 3: Wood briquettes for non-industrial use
EN ISO 17225-5	Solid bio-fuel - Fuel specifications and classes Part 5: Firewood for non-industrial use

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

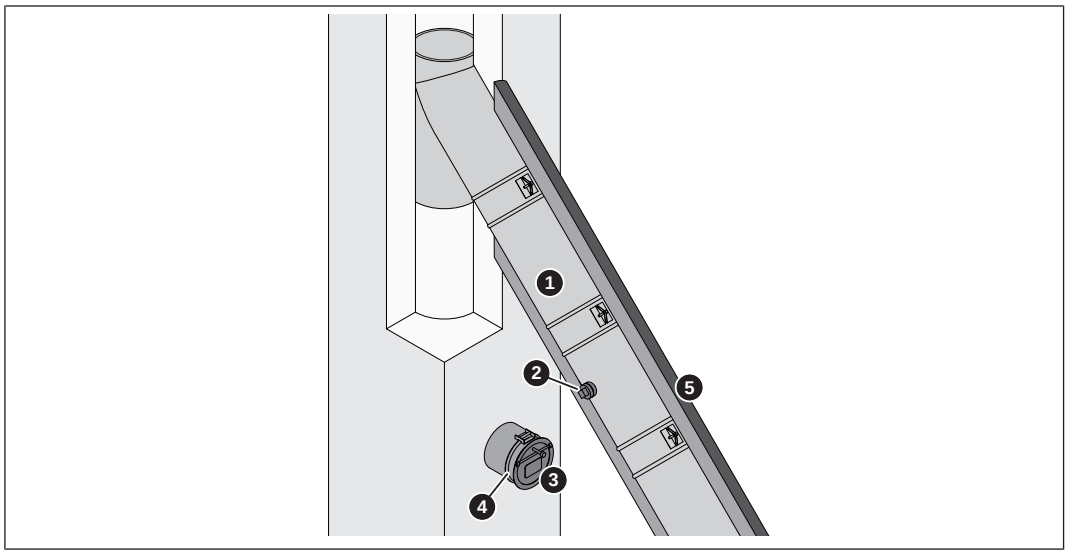
Requirements for the load bearing substrate:

- 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

IMPORTANT! 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.

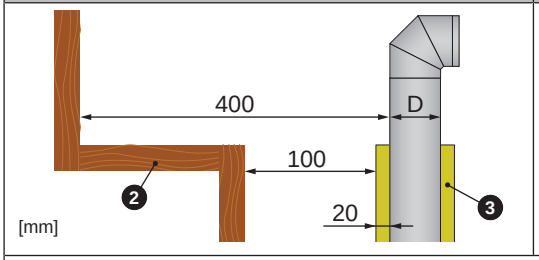
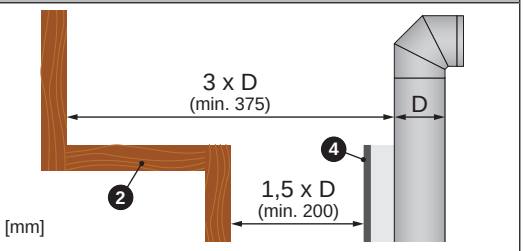
Local regulations and other statutory regulations are also applicable.

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)

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

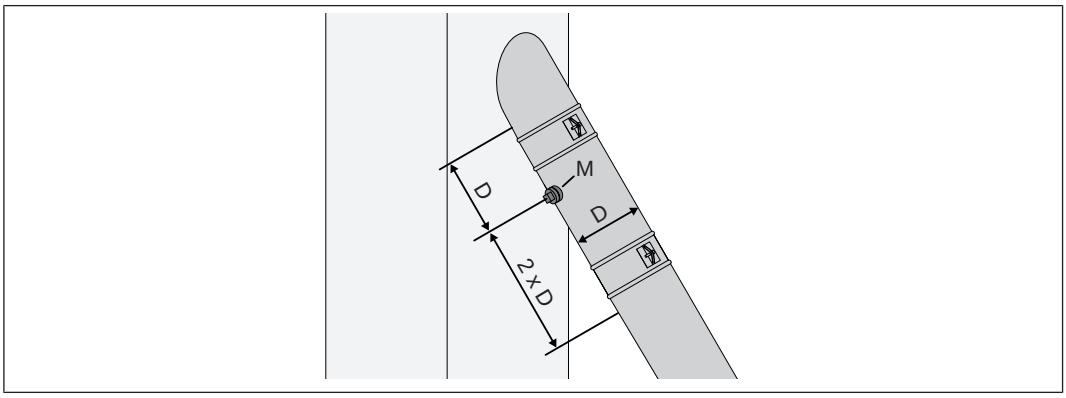
3.4.2 Draught limiter

We generally recommend 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.

Install the draught limiter directly under the discharge of the flue duct into the chimney, as at this point there is constant under-pressure which largely prevents the escape of dust from the draught limiter. If installation within the chimney is not practical, the draught limiter must be installed in the connection line to the chimney.

3.4.3 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.

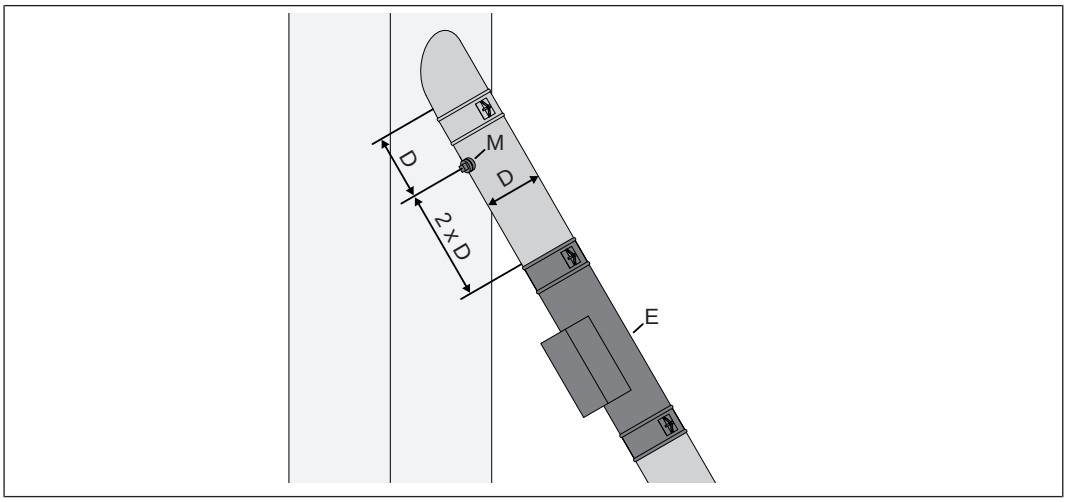
The diameter of the measuring probe used by Froling customer service is 14 mm. To avoid measuring errors due to the ingress of false air, the diameter of the measuring port must not exceed 21 mm.

3.4.4 Explosion flap

A deflagration damper must be installed in the immediate vicinity of the boiler. It should be situated so that when in operation it 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" [▸ 13]
- 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.

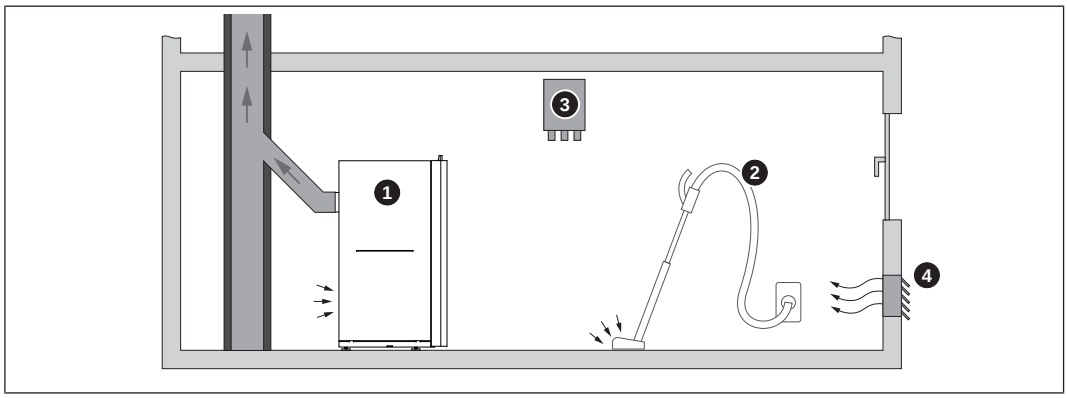
The boiler is operated depending on the room air, whereby the combustion air is taken from the installation site.

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 **IMPORTANT! 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 plus 4 cm² for every kW of nominal heat output above 100 kW
Germany	150 cm² net minimum cross-sectional area 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)

3.6 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 Return lift

If the hot water return temperature is below the minimum return temperature, some of the hot water outfeed will be mixed in.

IMPORTANT

Risk of dropping below dew point/condensation formation if operated without return temperature control.

Condensation water forms an aggressive condensate when combined with combustion residue, leading to damage to the boiler.

Take the following precautions:

❒ Regulations stipulate the use of a return temperature control.

↳ The minimum return temperature is 60 °C. We recommend fitting some kind of control device (e.g. thermometer).

3.9 Storage tank

Observe the regional regulations for using a storage tank!

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.

Channelling the heat generated by the Dual fuel boiler to a storage tank can bring major advantages, such as

- better utilisation of fuel
- more user-friendly operation in terms of reloading intervals
- maximum independence from instantaneous heating requirements
- minimal dirt in boiler and flue gas system

As the minimum continuous heat output of the boiler is 30% greater than the rated heat output, we as the boiler manufacturer are obliged under EN 303-5:2021, Section 4.4.6 to advise that the Dual fuel boiler SP Dual compact must always be connected to a storage tank with adequate storage capacity.

The storage tank capacity can be calculated according to EN 303-5:2021 using the following formula:

$$V_{Sp} = 15 T_B \times P_N (1 - 0.3 \times P_H / P_{min})$$

V_{Sp}	Storage tank volume in litres
P_N	Rated output of the boiler in kW
T_B	Combustion period of the boiler in [1]
P_H	Heating load of the building in kW
P_{min}	Minimum output of the boiler in kW[2]

1. Sample combustion times for various fuels are provided in the technical data
2. The boiler's minimum output is the lowest value of the output range in the technical data. If there is no minimum heat output specified, use the nominal heat output ($P_{min} = P_N$)

For the correct dimensions of the storage tank and the line insulation (for instance to ÖNORM M 7510 or guideline UZ37) please consult your installer or Froling.

Recommended storage tank capacity:

	Unit	SP Dual compact 15	SP Dual compact 20
Recommended storage tank capacity[1]	[l]	1000	1250

1. Values for calculating the capacity can be found in the technical data or the technical data with partial load inspection (if available)

Certain countries have recommended storage capacities; these are listed below. The specified values apply when the nominal heat output of the boiler corresponds to the heating requirements of the building and a maximum of 50% of the nominal heat output can be dissipated to the building being heated under partial load conditions.

The exact design of the storage tank capacity is in accordance with the locally applicable guidelines and regulations:

Austria Because of the relevant Austrian energy technology laws, based on Art. 15a B-VG "Agreement on protective measures for small combustion plants" (2012) the requirement is:

No storage tank is required on manually fed biomass boilers that have been positively tested at both nominal load and partial load (below 50% of nominal load) to ensure they adhere to the emissions limits specified in that agreement.

Germany The first BImSchV (Ordinance on small and medium-sized heating plants of 26 January 2010, BGBl. I P. 38) stipulates a minimum water heat storage tank volume of 55 litres per kilowatt of rated heat output; a water heat storage tank with a volume of 12 litres per litre of fuel loading chamber is recommended.

Switzerland In accordance with the Swiss Federal Ordinance on Air Pollution Control (LRV 2018), Appendix 3, Paragraph 523 “Special requirements for boilers”, hand-fed boilers up to 500 kW rated heat output must be fitted with a minimum heat storage tank volume of 12 litres per litre of fuel loading chamber. The volume must not be less than 55 litres per kW rated heat output.

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

The boiler should be operated with a hot water tank. The storage capacity = 45 x P_r x (1-2.7/P_r) or 300 litres, whichever is greater, where the rated heat output of P_r is given in kW. The resulting storage capacity is less than the above-mentioned recommended storage tank capacity.

3.10 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

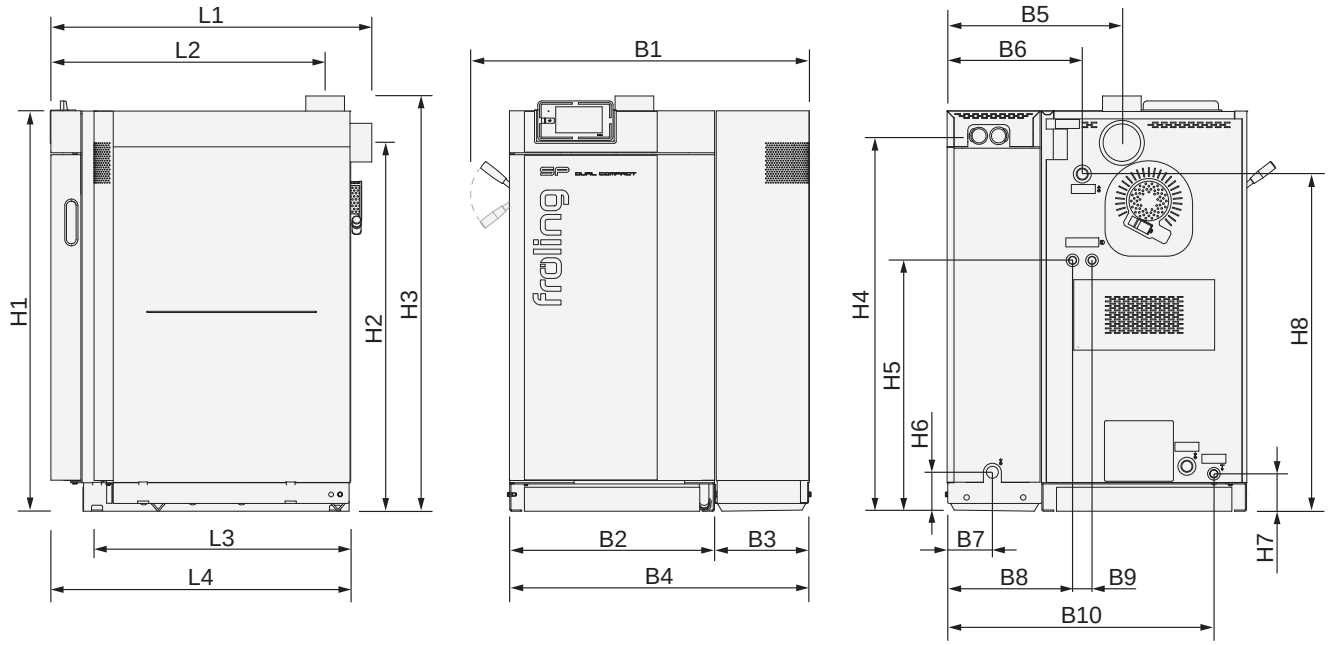
Tip: ❒ Fit a vertical pipe as a calming section in front of the automatic ventilating valve in such a way that the ventilating valve is positioned above the water level in the boiler

Recommendation: ❒ Fit a microbubble separator in the pipes to the boiler

↳ Follow the manufacturer's instructions!

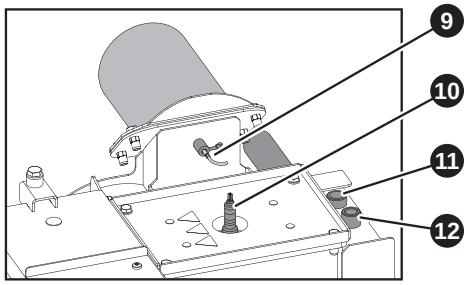
4 Technical information

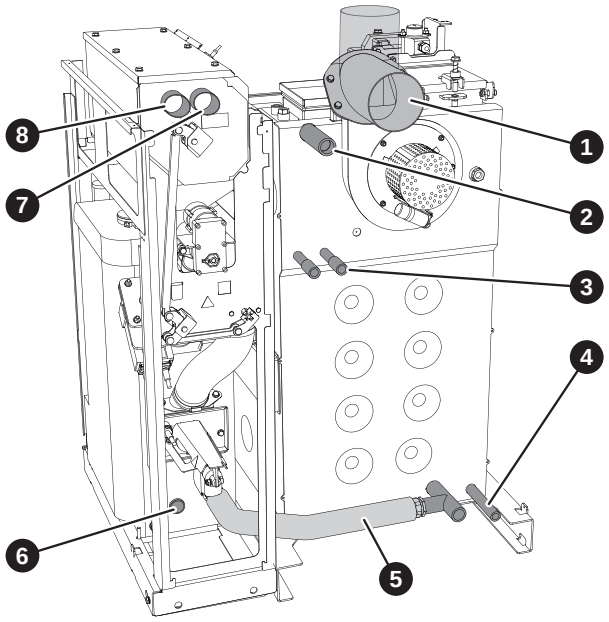
4.1 Dimensions SP Dual compact



Size	Name		15-20
L1	Length of the boiler (flue gas pipe rear connection)	mm	1070
L2	Distance from the flue gas pipe top connection to the front face of the boiler		915
L3	Length, pellet unit		860
L4	Length, firewood boiler		1000
B1	Total width including WOS lever		1150
B2	Width, firewood boiler		685
B3	Width, pellet unit		315
B4	Width, boiler		1000
B5	Distance between flue gas pipe connection and side of boiler		585
B6	Distance between flow connection and side of boiler		450
B7	Distance between return connection and side of boiler		150
B8	Distance between safety heat exchanger connection and side of boiler		420
B9	Distance between safety heat exchanger connections		65
B10	Distance between drainage connection and side of boiler		890
H1	Height, boiler		1335
H2	Height of rear connection for the flue gas pipe		1230
H3	Height of the flue gas pipe top connection		1385
H4	Height of hose line connection		1255
H5	Height, safety heat exchanger connection		840
H6	Height of return connection		130
H7	Height, drainage connection		125
H8	Height of connection for flow		1125

4.2 Components and connections





Item	Description	SP Dual compact 15-20
1	Flue gas pipe connection (external diameter)	129 mm
2	Boiler flow connection	1” IT
3	Safety heat exchanger connection	1/2“ IT
4	Drainage connection	1/2“ IT
5	Pipe union [1)] - Pellet unit outfeed to firewood boiler return	1“
6	Boiler return connection	1” IT
7	Pellet feed line connection (line to the extraction point)	DA 50 m
8	Return air line connection (line to the external suction module)	DA 50 m
9	Position for the flue gas temperature sensor	-
10	Position for Lambda probe	M18 x 1.5
11	Immersion sleeve sensor connection for thermal discharge valve (installed by the customer)	1/2“ IT
12	Position for boiler sensor and STL capillary (internal diameter)	16 mm

1. Included in delivery

4.3 Technical specifications

4.3.1 SP Dual compact 15/20

Technical specifications of the firewood boiler

Refer to the technical data of the firewood boiler for technical specifications and information regarding efficiency and emissions in firewood operation.

Technical specifications of the pellet unit

Description		SP Dual compact	
		15	20
Nominal output	kW	15	20
Boiler efficiency (NCV) with wood pellets at nominal load/partial load	%	95.0 / 92.3	94.1 / 92.3
Electrical connection		230V / 50Hz / fused C16A	
Boiler weight incl. pellet unit	kg	645	655
Weight of pellet unit		190	
Total boiler capacity (water)	l	105	
Pellet container capacity		40	
Water pressure drop (ΔT = 10 / 20 K)	mbar	4.5	
At least boiler return temperature	°C	60	
Max. permitted operating temperature	°C	90	
Permitted operating pressure	bar	3	
Boiler class as per EN 303-5:2012		5	
Permitted fuel as per EN ISO 17225		Part 2: Wood pellets class A1 / D06	
Airborne sound level	dB(A)	<70	
Test book number		PB 082	PB 083

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

Description		SP Dual compact	
		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" [▸ 19]	
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 (η_n)	%	88.1	87.3
Fuel efficiency at 30% of rated heat output (η_p)		85.7	85.7

Description		SP Dual compact	
		15	20
Auxiliary current consumption at rated heat output (el_{max})	kW	0.056	0.063
Auxiliary current consumption at 30% of rated heat output (η_p)		0.037	0.037
Auxiliary current consumption in standby mode (P_{SB})		0.012	0.012
Energy efficiency class of the boiler		A+	A+
Energy efficiency index (EEI) of boiler		120	120
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)]		122	122
Energy efficiency class of the combined boiler and controller[1)]		A+	A+
Heating space annual rate of use ηs	%	81	81
Annual space heating emissions of dust (PM)[2)]	mg/m³	18	19
Annual space heating emissions of gaseous organic compounds (GOC)[2)]	mg/m³	2	3
Annual space heating emissions of carbon monoxide (CO)[2)]	mg/m³	64	67
Annual space heating emissions of nitrogen oxides (NOx)[2)]	mg/m³	162	162

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.

4.3.2 Boiler data for planning the flue gas system

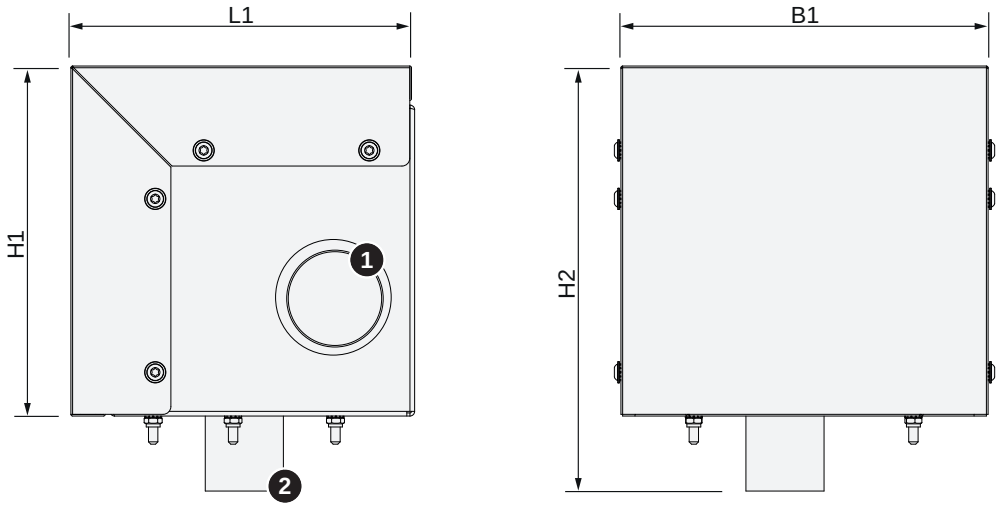
The flue gas performance values listed below should be used for calculation of the fluid dynamics for flue gas systems as specified in the EN 13384 series of standards. The flue gas performance values for the respective outputs are applicable under typical operating conditions when using fuels consistent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

Description		S1 Turbo (F) / SP Dual compact	
		15	20
Flue gas temperature at rated heat output T_{WN} / at the lowest output T_{Wmin}	°C	150 / -	170 / 130
Volumetric concentration of CO_2 in the dry flue gas $\sigma(CO_2)$ at rated heat output	%	12.3	
Flue gas mass flow at rated heat output $\dot{m}_N$ / at the lowest output $\dot{m}_{min}$	kg/h	36 / -	47 / 25
	kg/s	0.010 / -	0.013 / 0.007
Feed pressure P_{WN} required at the rated heat output / P_{Wmin} required at the lowest output	Pa	8 / -	8 / 8
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	129	129
Data to be used when for operation independent of the room air			
Supply air connection diameter	mm	-	
Maximum permissible pressure drop P_{Bmax} in the supply air duct	Pa	-	
Combustion air volume at rated heat output	m³/h	-	-

4.3.3 Data for planning a backup power supply

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

4.4 External suction module

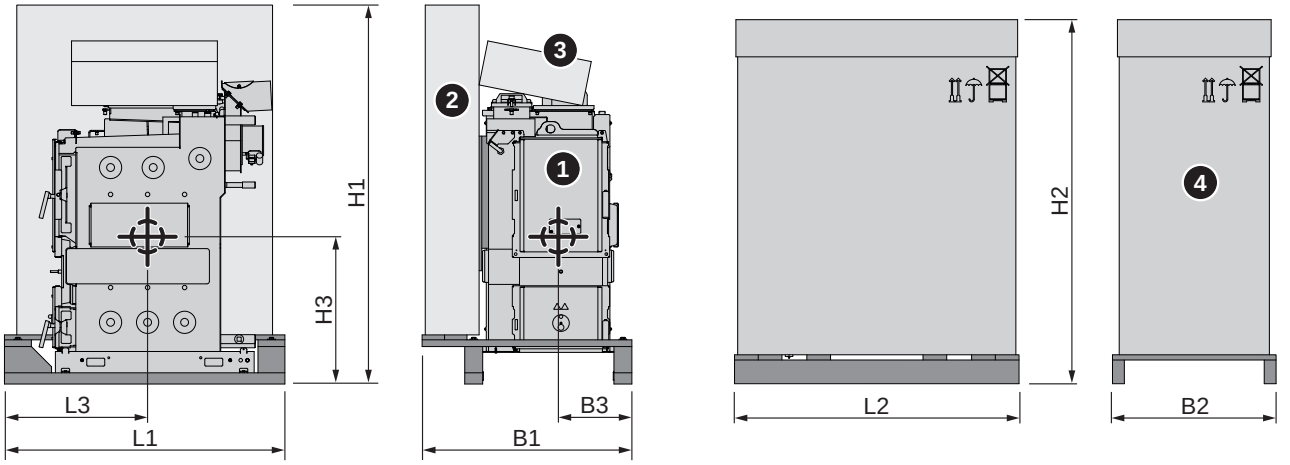


Dimension	Description	Unit	Size 1	Size 2
L1	Length of suction module	mm	220	265
B1	Width of suction module		235	290
H1	Height of suction module		225	235
H2	Total height incl. hose connection		275	285
1	Return air line connection (line to suction point)	mm	50	
2	Connection return air line (line from boiler)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

5 Transport and storage

5.1 Delivery configuration

The firewood boiler comes packed in protective casing on a pallet. The pellet unit is delivered on a pallet in cardboard packaging.



Size	Name		SP Dual compact 15-20
L1	Length, firewood boiler	mm	1250
L2	Length, pellet unit		1200
B1	Width, firewood boiler		935
B2	Width, pellet unit		690
H1	Height, firewood boiler		1690
H2	Height, pellet unit		1540
-	Weight of firewood boiler	kg	500
	Weight, pellet unit		200
Centre of gravity			
L3	Length	mm	610
B3	Width		410
H3	Height		690
Components			
1	S1 Turbo F (ESP) boiler		
2	Insulation		
3	Controller and accessories package		
4	Pellet unit		

5.2 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!

5.3 Positioning

IMPORTANT

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 firewood boiler cannot be brought in on the pallet:

❒ remove the cardboard and take the boiler off the pallet

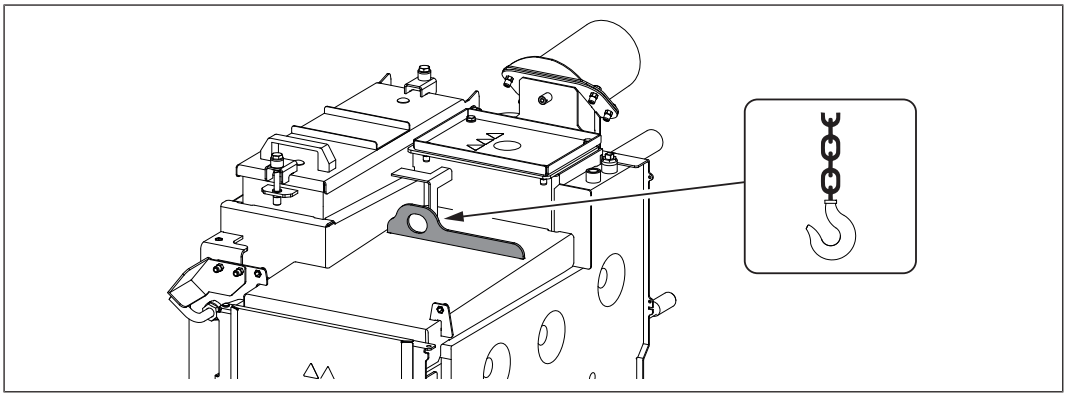
➲ "Removing boiler from pallet" [▶ 29]

If the pellet unit cannot be brought in on the pallet:

❒ Remove the cardboard and take the pellet unit off the pallet

➲ "Removing the pellet unit from the pallet" [▶ 30]

Positioning using a crane

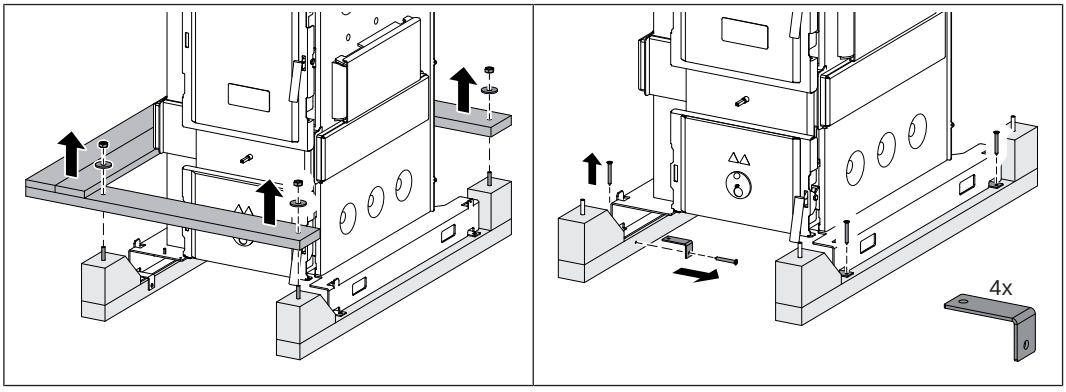


❒ Attach the crane hook to the attachment point correctly and position the boiler

5.4 Positioning at the installation site

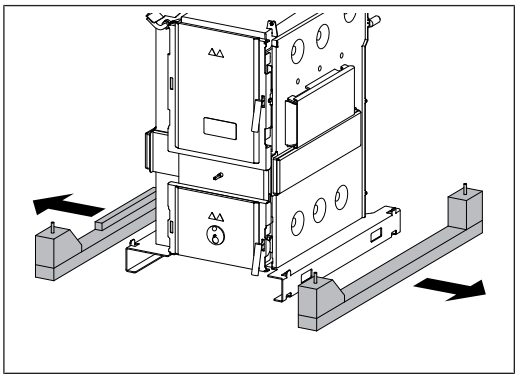
5.4.1 Removing boiler from pallet

❒ Remove the protective casing and lift the packages off the pallet



❒ Remove the upper frame of the pallet
- 4x M10 hexagon nuts

❒ Remove the clamping brackets
- 2x Ø6 x 50 raised-head screws per clamping bracket



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

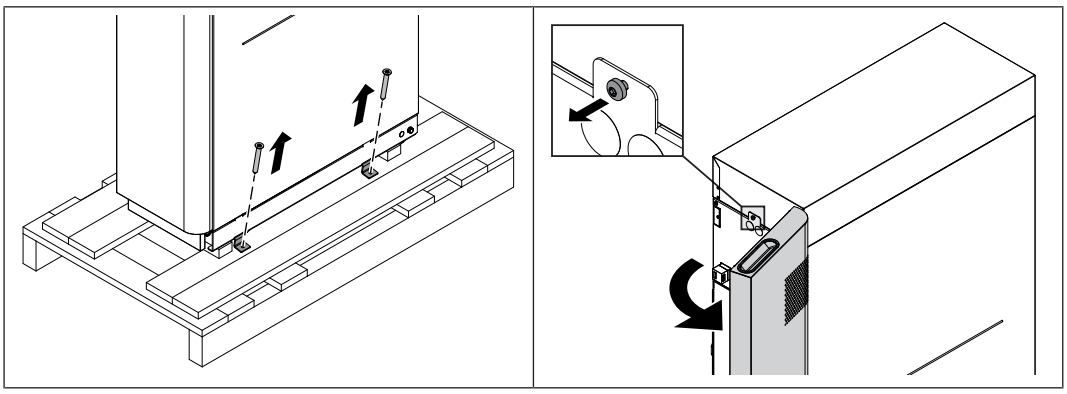
❒ Transport boiler to the intended position at the installation location

↳ Positioning at the installation site

TIP: To make it easier to fit the cladding, position the boiler in free space in the installation room and only move it to its final position just before connecting it hydraulically.

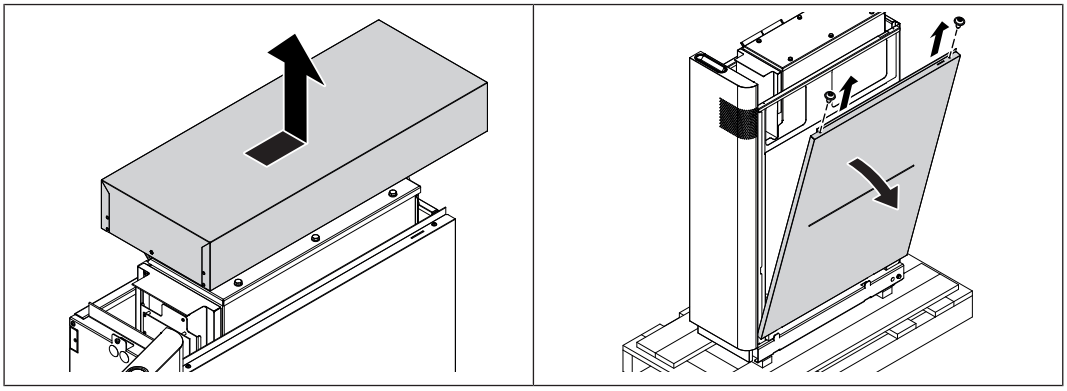
5.4.2 Removing the pellet unit from the pallet

All insulation components are to be removed before dismantling the pellet unit to avoid damage and reduce weight. Keep these components in a protected area that is dry and free of dust until they are reinstalled.



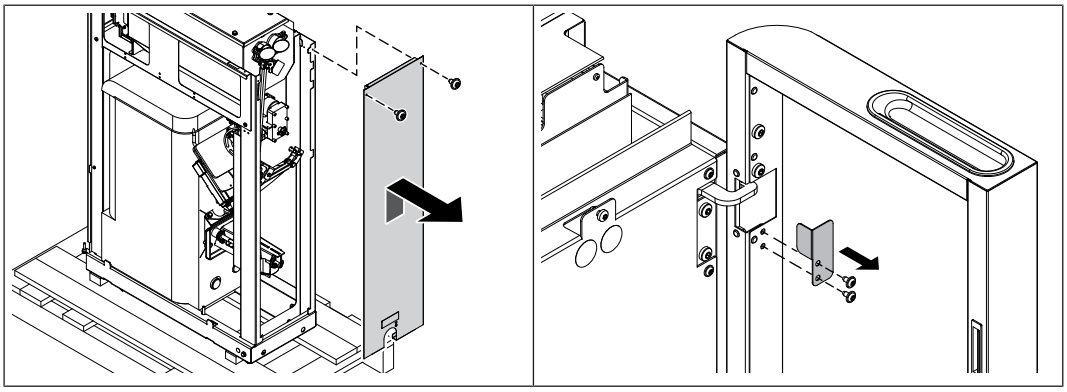
❒ Remove the wood screws and clamping angles on the pallet

❒ Open the insulated door and remove the retaining screw on the cover



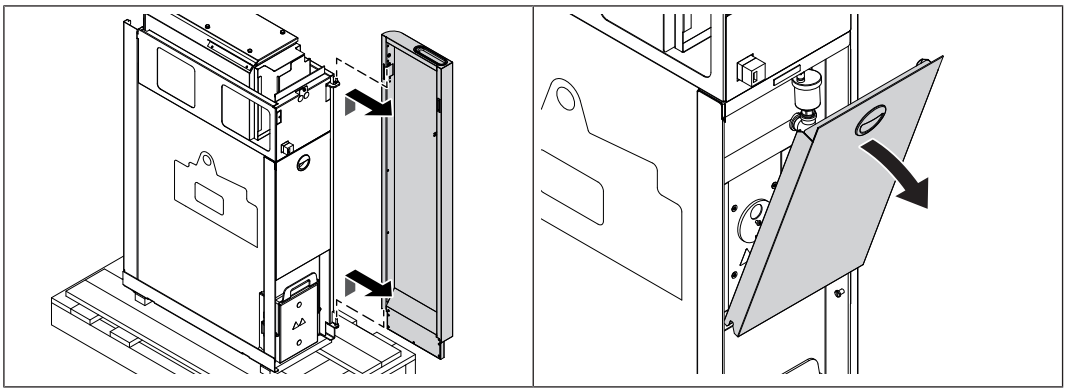
❒ Slide the cover back slightly and lift off

❒ Undo the screws on the top of the side panel and lift off the side panel



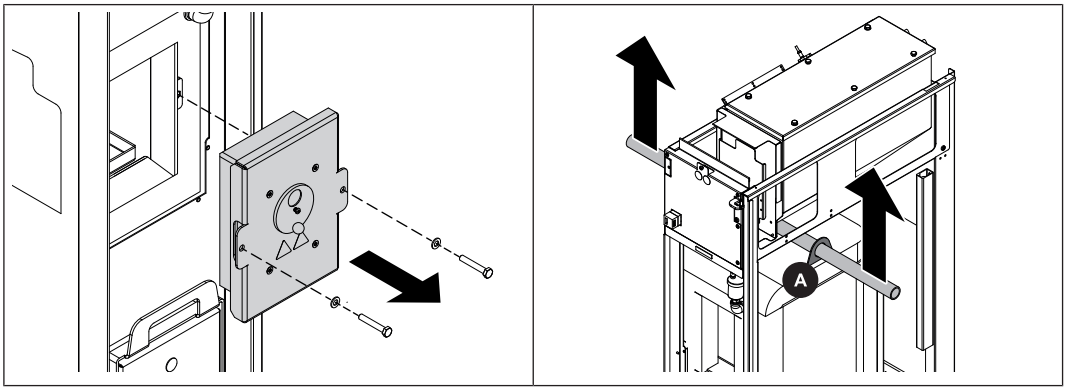
❒ Undo the screws on the top of the rear panel and lift off the rear panel

❒ Open the insulated door and remove the cover plate from the top hinge



❒ Remove insulated door

❒ Fold the cover plate of the combustion chamber door forward and pull up to unhook



❒ Remove the combustion chamber door

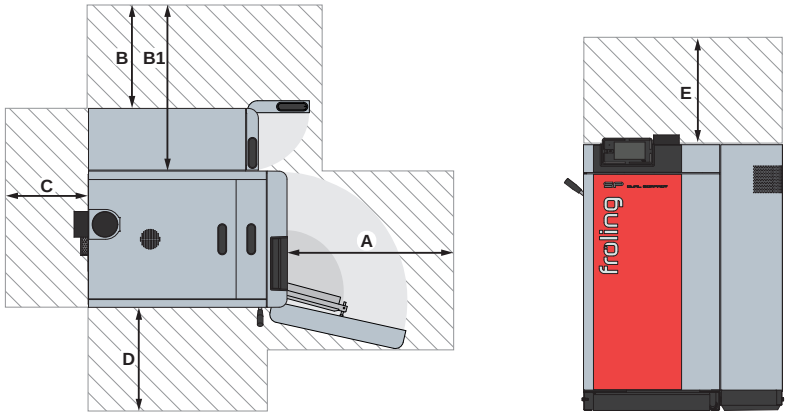
↳ Use the supplied AF 13 socket wrentch to undo the screws

❒ Feed the appropriate pipe (e.g. 1” pipe) through both eyelets (A) and lift the pellet unit off the pallet

5.4.3 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 SP Dual compact



A	800 mm
B	500 mm
B1	815 mm
C	400 mm
D	500 mm / 200[1)] mm
E	500[2)] mm

1. Maintenance work to boiler's heat exchanger only possible from front
2. Maintenance area to expand the WOS springs upwards

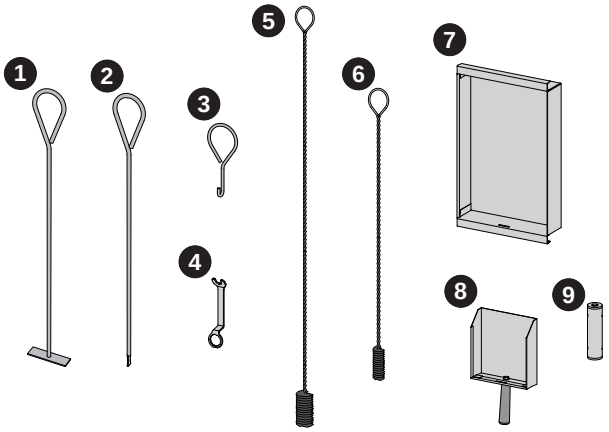
6 Installation

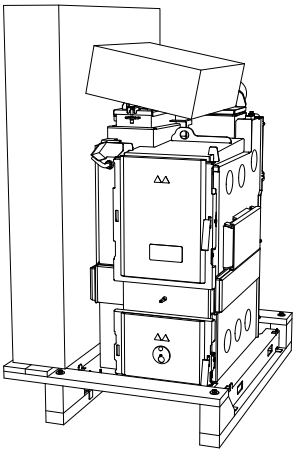
6.1 Required tools and equipment

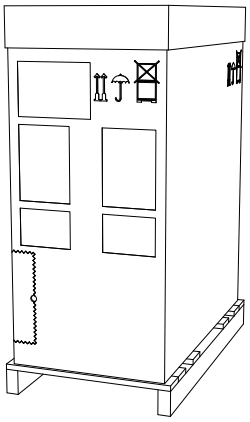
The following tools and resources are required for assembly:

- ❒ Spanner or box wrench set (widths across flats 8 - 32 mm)
- ❒ Set of Allen keys
- ❒ Flat head and cross-head screwdrivers
- ❒ Hammer
- ❒ Diagonal cutting pliers
- ❒ Half-round file
- ❒ Power drill or cordless screwdriver with Torx bit insert
- ❒ Stepladder

6.2 Accessories supplied

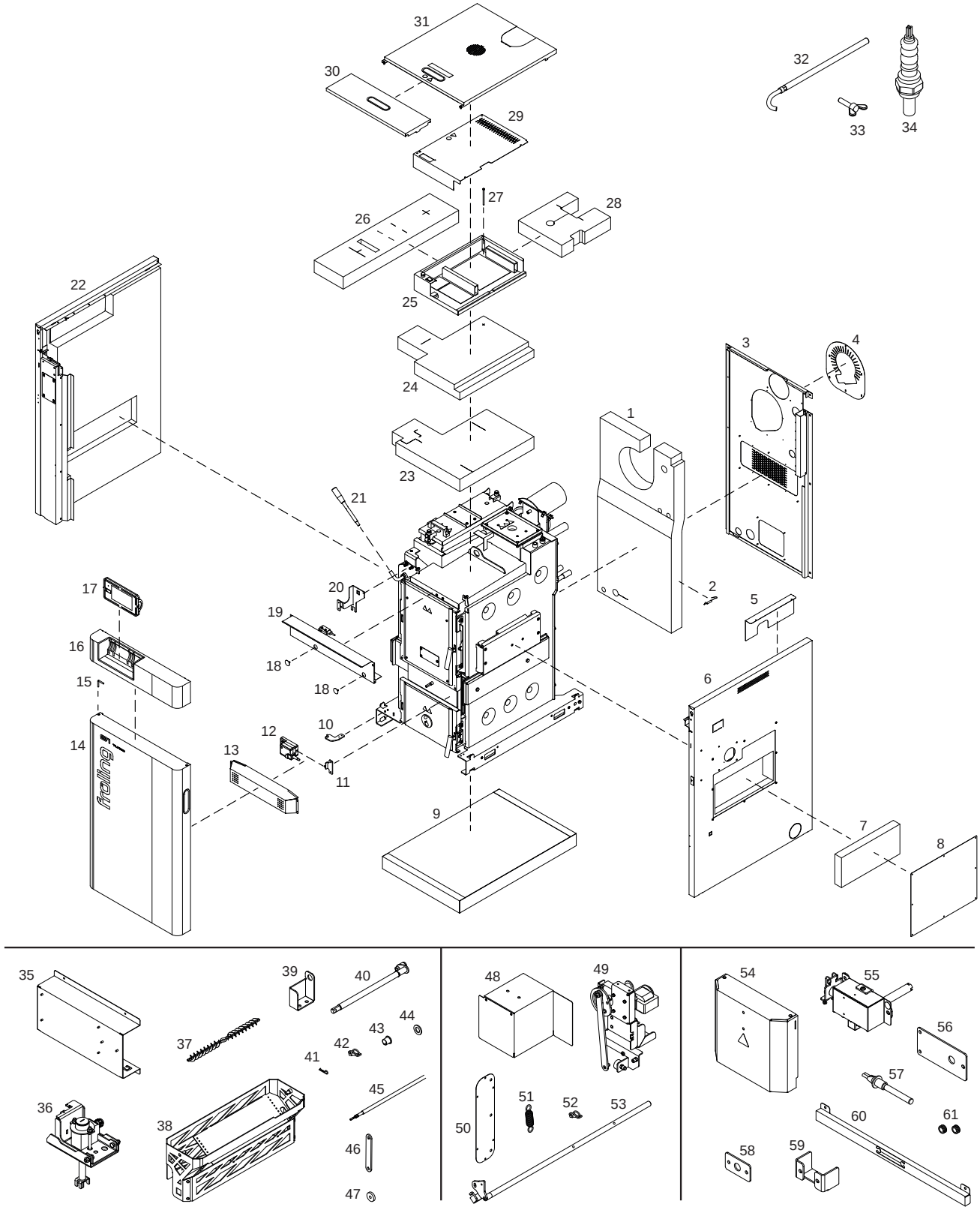






1	Flat scraper	**6**	Cleaning brush 30 x 20 x 90
2	Stoking rod	**7**	Ash drawer with bracket
3	Hook	**8**	Ash shovel
4	Spanner for door mountings	**9**	Socket wrench for Lambda probe and heat exchanger cover
5	Cleaning brush Ø 54 x 1350		

6.3 Assembly overview S1 Turbo F (ESP)



Item	Qty.	Description	Item	Qty.	Description
1	1	Thermal insulation for back panel	**18**	2	Plastic plugs for the cover plate
2	7	Tension spring	**19**	1	Cover plate with door contact switch
3	1	Back panel	**20**	1	Bracket
4	1	Cover plate for ID fan	**21**	1	WOS lever
5	1	Cable duct cover	**22**	1	Side panel, left
6	1	Side panel, right	**23**	1	Thermal insulation for top of boiler
7	1	Pellet flange thermal insulation	**24**	1	Controller box thermal insulation
8	1	Cover plate for pellet flange	**25**	1	Controller box
9	1	Floor insulation	**26**	1	Thermal insulation for cleaning cover
10	1	Door bearing, bottom	**27**	1	M6 x 100 support bolt
11	1	Torque support for actuators	**28**	1	Thermal insulation for reversing chamber cover
12	1	Servo-motor	**29**	1	Controller cover
13	1	Cover plate for air control	**30**	1	Cover, front
14	1	Insulated door	**31**	1	Cover, rear
15	1	Door pin	**32**	1	Flue gas temperature sensor
16	1	Bracket, control unit	**33**	1	Wing screw for flue gas temperature sensor
17	1	7” Touch control	**34**	1	Lambda probe

Electrostatic particle separator (optional – only in combination with automatic WOS)

Item	Qty.	Description	Item	Qty.	Description
35	1	Controller box	**42**	1	Pipe locking pin
36	1	Electrode unit	**43**	1	Plain bearing
37	1	Spray electrode	**44**	1	M16 washer
38	1	Cleaning basket	**45**	1	High-voltage cable 1.1 m
39	1	Bearing bracket	**46**	1	Lever plate
40	1	Drive shaft	**47**	1	Ø28 x 6 washer
41	2	Spring cotter			

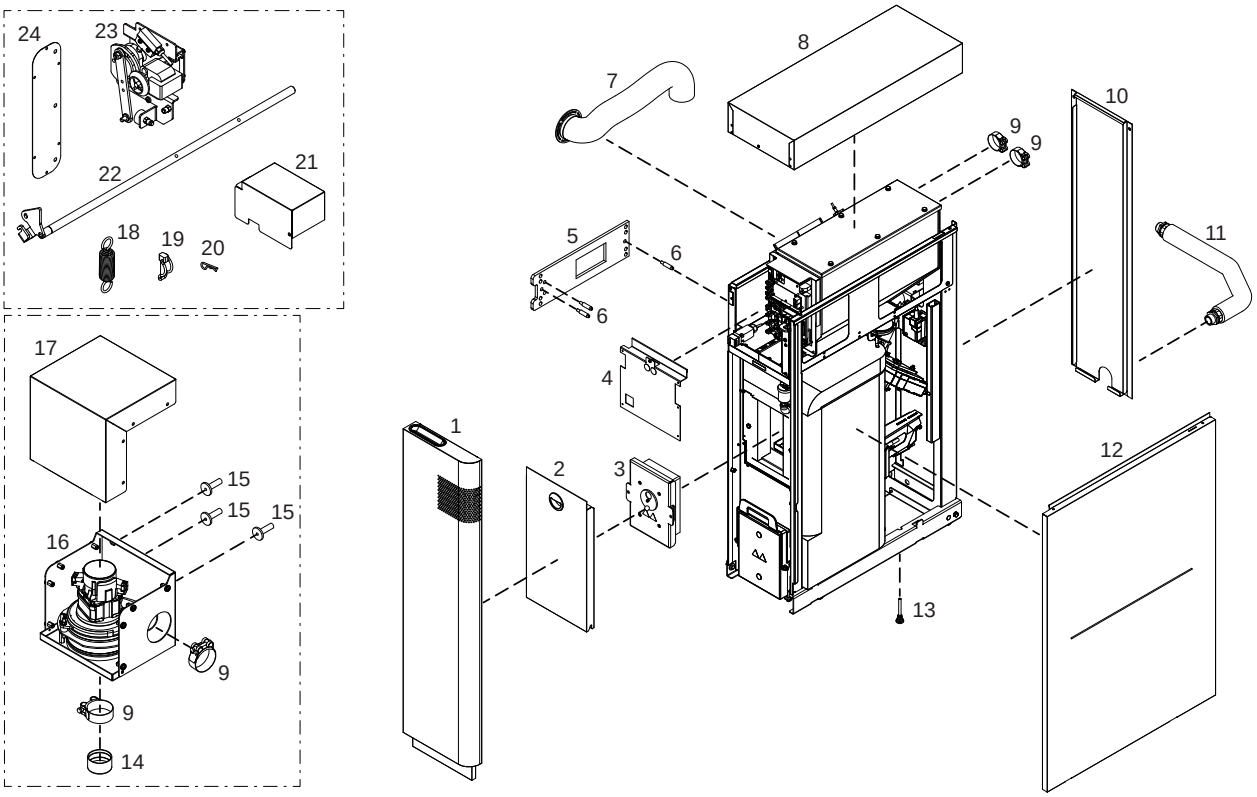
Automatic WOS (optional)

Item	Qty.	Description	Item	Qty.	Description
48	1	Drive unit cover	**51**	1	Ø22 extension spring
49	1	Drive unit	**52**	2	Pipe locking pin
50	1	Side panel cover	**53**	1	WOS lever

Automatic ignition (optional)

Item	Qty.	Description	Item	Qty.	Description
54	1	Cover plate	**58**	1	Gasket for basket plate
55	1	Ignition unit	**59**	1	Basket plate
56	1	Gasket for the ignition unit	**60**	1	Cable duct
57	1	Glow igniters	**61**	2	Rubber grommet

6.4 Assembly overview pellet unit

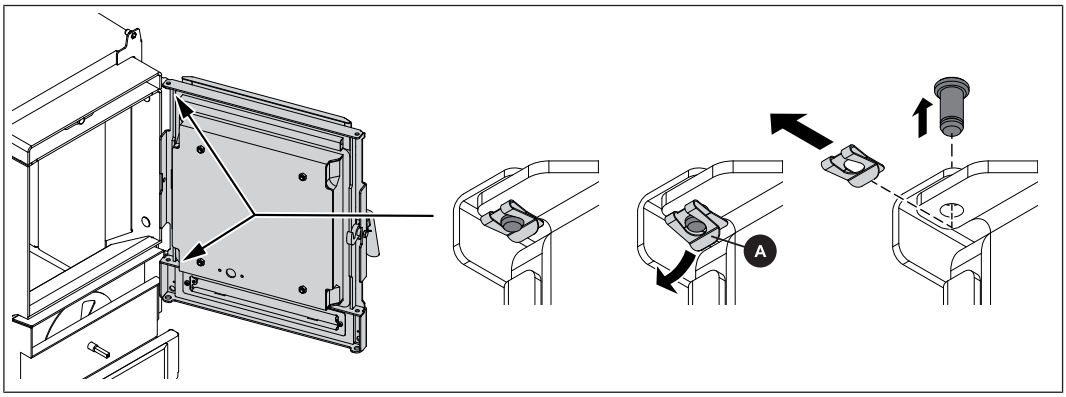


Item	Quantity	Description	Item	Quantity	Description
1	1	Insulated door	**8**	1	Cover
2	1	Combustion chamber lid cover plate	**9**	4	Hinge pin clamp
3	1	Combustion chamber lid	**10**	1	Back panel
4	1	Cover plate for controller box	**11**	1	Pipe union
5	1	Flange seal	**12**	1	Side panel, right
6	3	Lock bolt M8	**13**	1	Adjustable foot
7	1	Air suction hose			
Suction module					
14	1	Protective cap	**16**	1	Suction module bottom panel incl. suction turbine
15	3	Sound insulation dowel Ø 12 x 45	**17**	1	Suction module cover
WOS drive (optional)					
18	1	Spring	**22**	1	WOS shaft
19	2	Pipe locking pin	**23**	1	Bracket with WOS drive
20	1	Spring cotter Ø 1.6 mm	**24**	1	WOS cover plate
21	1	WOS drive cover			

6.5 Before Installation

6.5.1 Changing door stops (as needed)

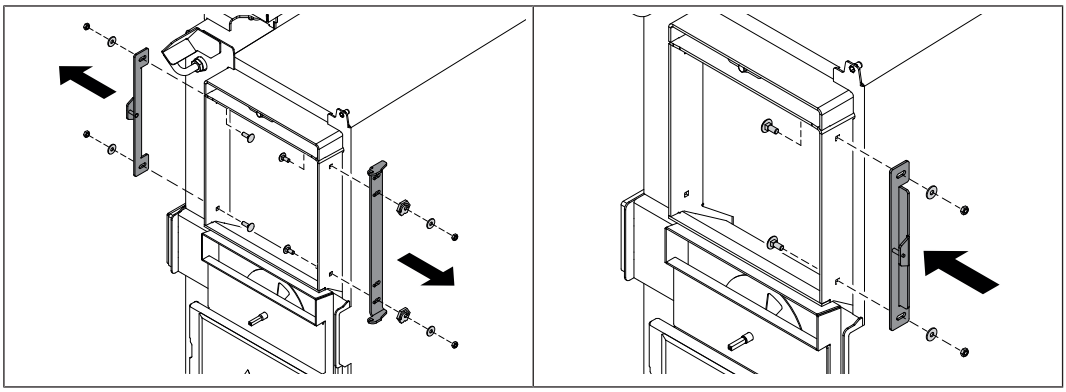
The following steps are illustrated based on changing the fuel loading door from right-hand mounting to left-hand mounting. Perform these steps in the same way for the door of the combustion chamber.



❒ Open the fuel loading door

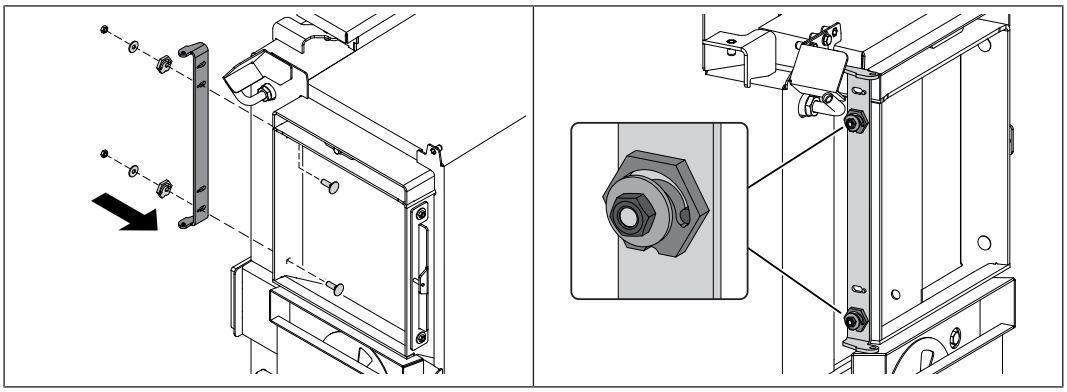
❒ Lift the clip (A) slightly and pull out the shaft retainer

❒ Take out the top and bottom hinge pins and take off the fuel loading door



❒ Dismantle the hinge and locking plate

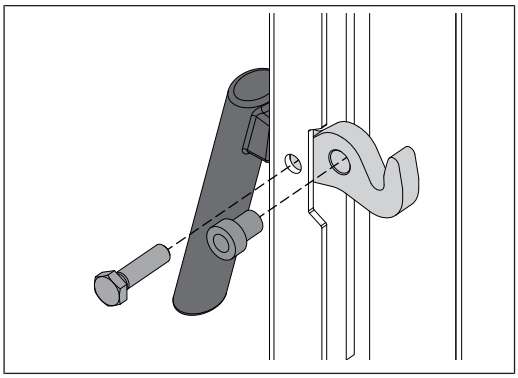
❒ Mount the locking plate on the opposite side



❒ Mount the hinge on the opposite side

↳ Position the locking cam on the hinge as shown

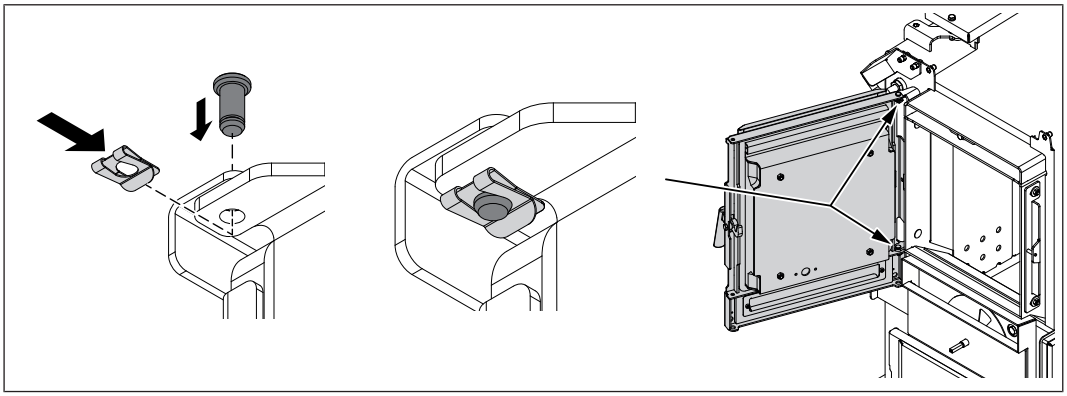
↳ Set both locking cams in the same way



❒ Undo the hexagon head screw on the fuel loading door and remove the door handle and flange sleeve

❒ Slide the door handle in on the other side and insert the flange sleeve

❒ Attach the door handle using a hexagon head screw



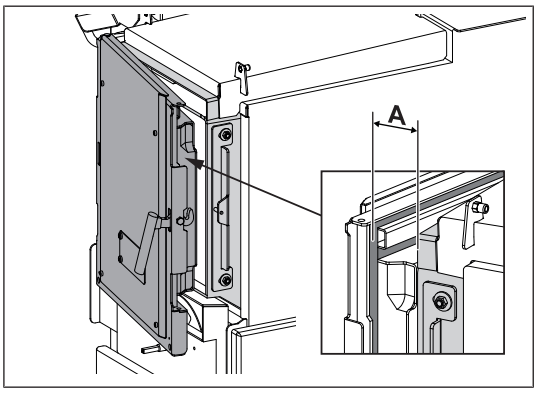
❒ Position the fuel loading door on the hinge and secure it with the top and bottom hinge pins

❒ Slide the shaft retainers on to the hinge pins

IMPORTANT! After changing over the door stops, check the seal and adjust it as necessary.

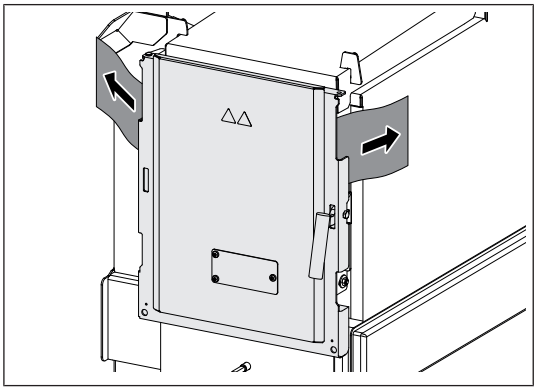
6.5.2 Checking the seal on the doors

The following steps are illustrated based on the fuel loading door. Perform these steps in the same way for the door of the combustion chamber.



❒ Close the door

- Slight resistance noticeable at a door gap (A) of 2-3 cm:
  It is acceptable to make an adjustment at the hinge side
- No perceptible resistance:
  Move the hinge backwards
  ➲ "Adjusting the doors" [▸ 40]
- If a resistance is felt when there is a gap of 3 cm:
  Move the hinge plate forwards
  ➲ "Adjusting the doors" [▸ 40]



❒ Open the door

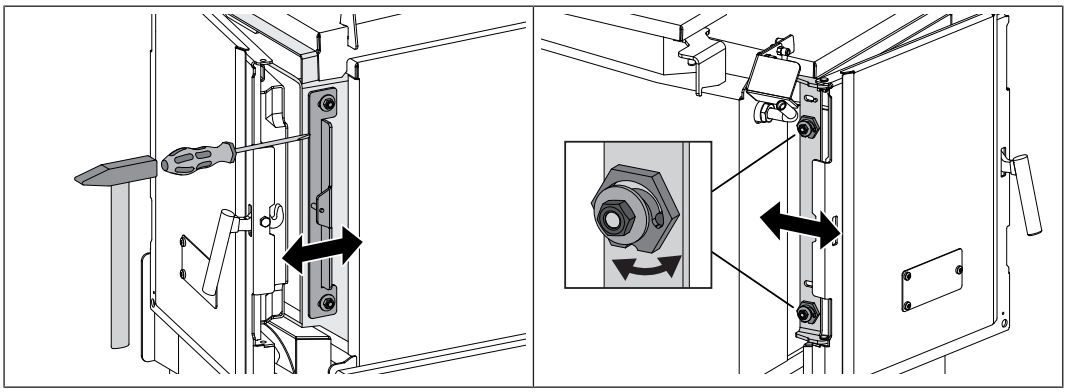
❒ Place a sheet of paper on both sides of the door and close the door

❒ Try to pull out the sheet of paper

- If the paper cannot be pulled out:
  the door is tightly sealed
- If the paper can be pulled out:
  the door is not sealed properly – move the hinge or the locking plate backwards slightly
  ➲ "Adjusting the doors" [▸ 40]

6.5.3 Adjusting the doors

The following steps are illustrated based on the fuel loading door. Perform these steps in the same way for the door of the combustion chamber.



❒ Loosen the nuts on the locking plate

❒ Use a suitable tool, to move the locking plate forwards or backwards

❒ Tighten the nuts on the locking plate

❒ Loosen the nuts on the door hinge

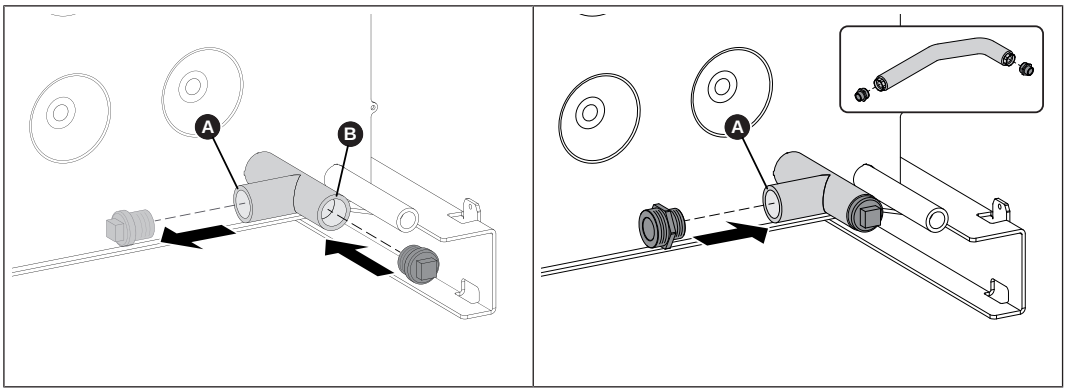
❒ Use a hexagonal wrench (width across flats 32 mm) to move the locking cam (B) forwards or backwards

❒ Tighten the nuts on the hinge

IMPORTANT: Align the locking plate and hinge identically at the top and bottom

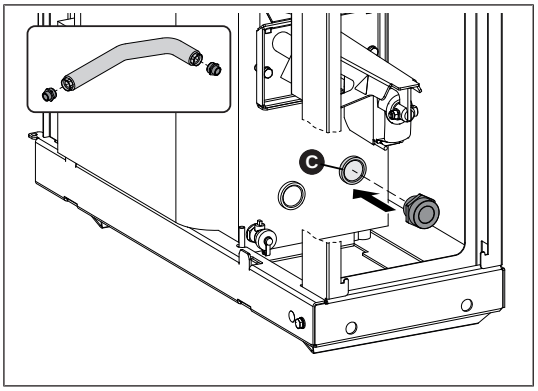
❒ Once the doors have been adjusted, check them again for leaks, ➲ "Checking the seal on the doors" [▸ 39]

6.5.4 Preparing the hydraulic connection



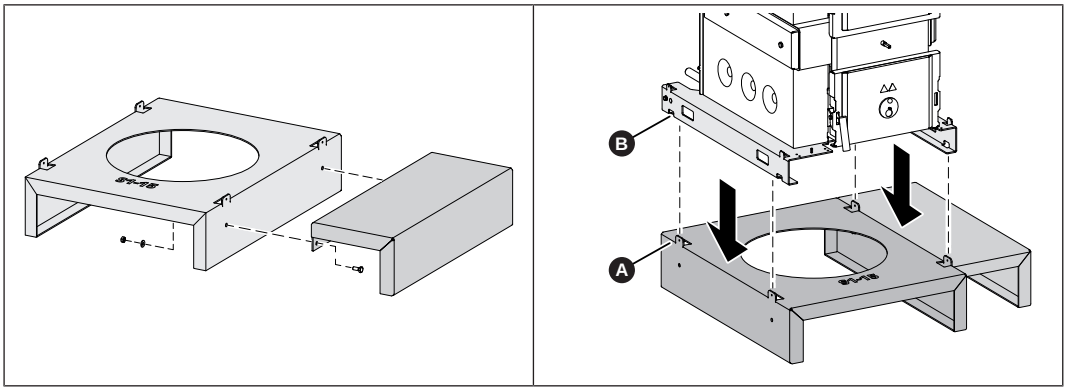
❒ Undo the plug on the left outflow (A) of the return and screw it onto the rear outflow (B) so that it is sealed tight

❒ Undo the threaded socket from the pipe union provided and screw into the left outflow (A) so that it is sealed tight



❒ Undo the threaded socket from the pipe union provided and screw into the outfeed of the pellet unit (C) so that it is sealed tight

6.5.5 Positioning the boiler on the boiler base frame (optional)



❒ Mount the frame for the pellets on the side of the frame of the firewood boiler
- 2x M10 x 25 hexagon head screws

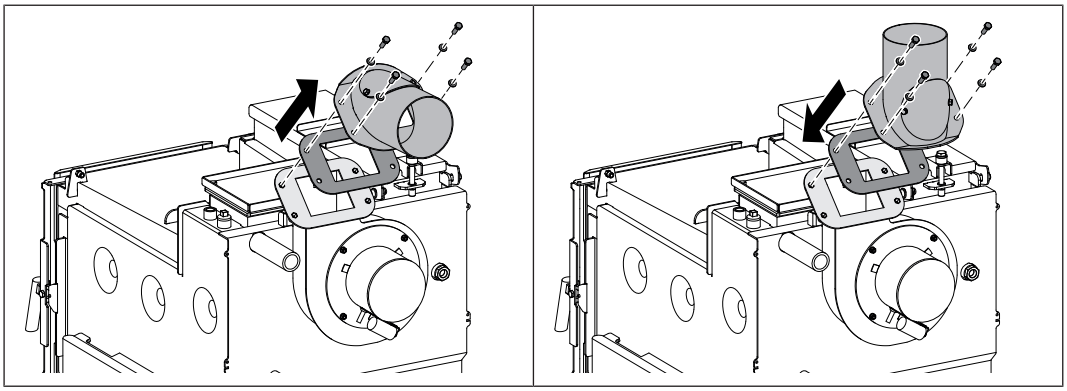
❒ Lift the boiler and position it on the boiler base frame

↳ When doing so, thread the lugs on the boiler base frame (A) into the recesses in the boiler base (B)

↳ The boiler is now raised by 200 mm

6.5.6 Changing over the flue gas pipe connection to the top

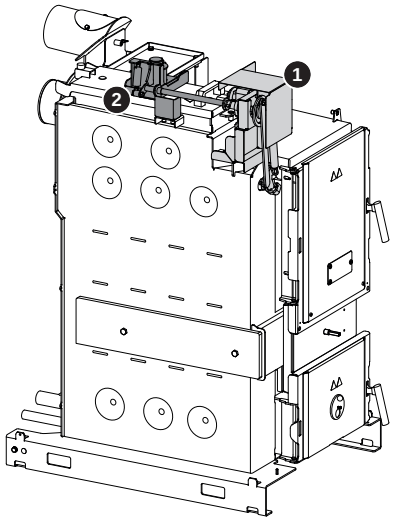
The standard arrangement is for the boiler flue gas pipe connection to be at the rear. Where required the flue gas pipe connection can be changed to the top



❒ Remove the connecting piece

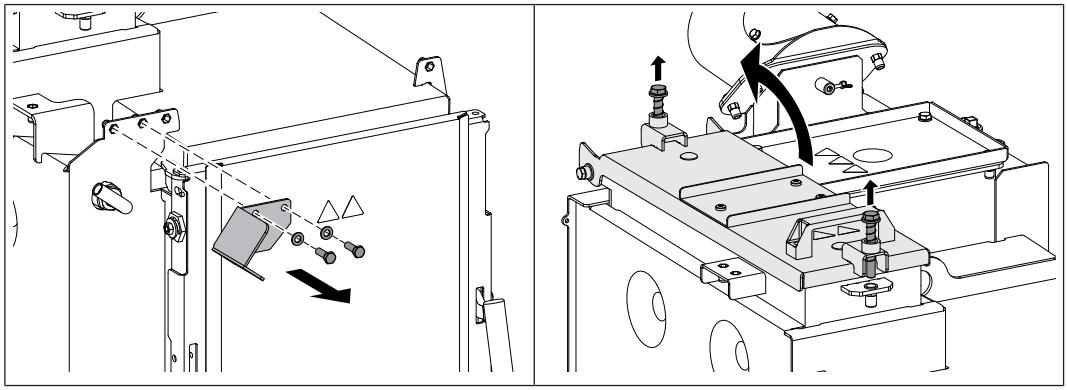
❒ Turn the flue gas pipe connection to the top and refit the connection piece including the gasket
- 4x M8 x 25 hexagon head screws

6.6 Retrofit accessories



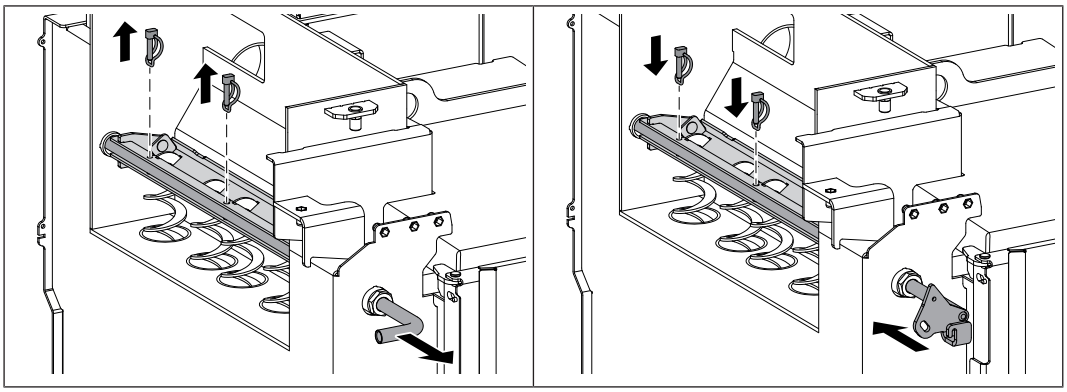
1	➲ "Automatic WOS" [▶ 43]
2	➲ "Electrostatic particle separator (ESP)" [▶ 45]

6.6.1 Automatic WOS



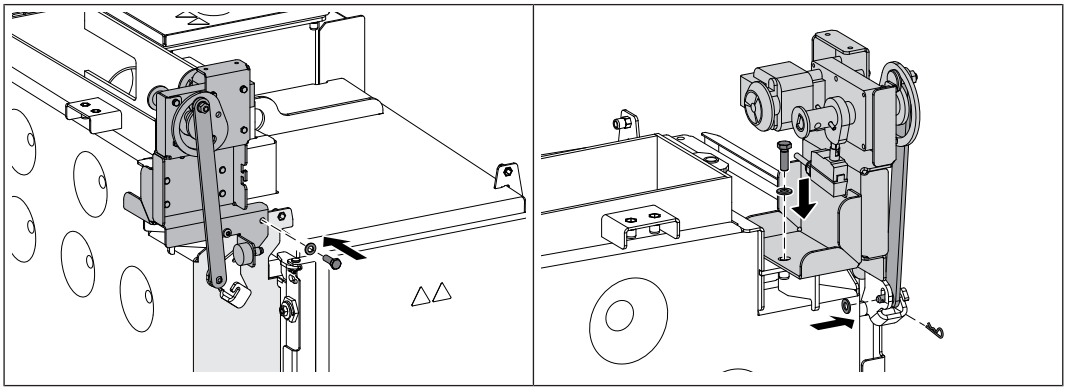
❒ Remove the stop of the WOS lever
- 2x M8 x 25 hexagon head screws

❒ Undo the screws on the heat exchanger cover and open the heat exchanger cover towards the rear
- 2x M10 x >75 hexagon head screws



❒ Remove the pipe locking pin from the WOS rod and pull the WOS lever out the front

❒ Insert the WOS lever and secure with the pipe locking pins

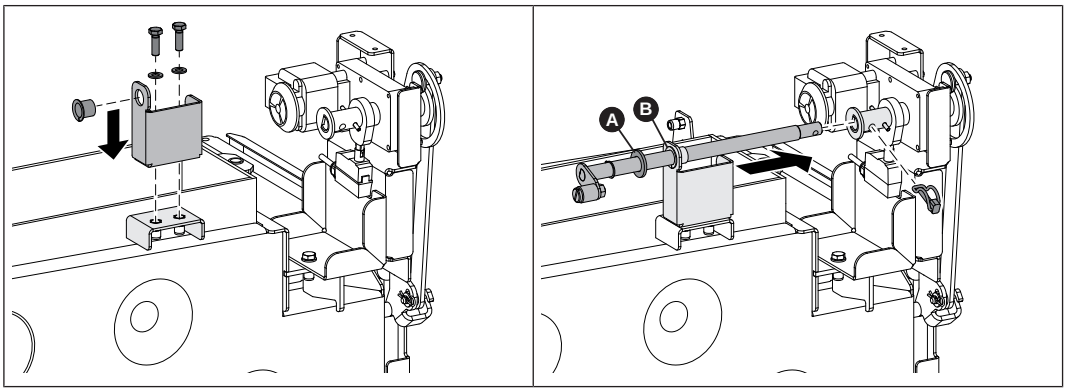


❒ Mount the drive unit on the front face and rear face
- 2x M8 x 25 hexagon head screws

❒ Slide the pins of the drive lever into the recess on the WOS lever and secure it with a spring cotter pin

6.6.2 Electrostatic particle separator (ESP)

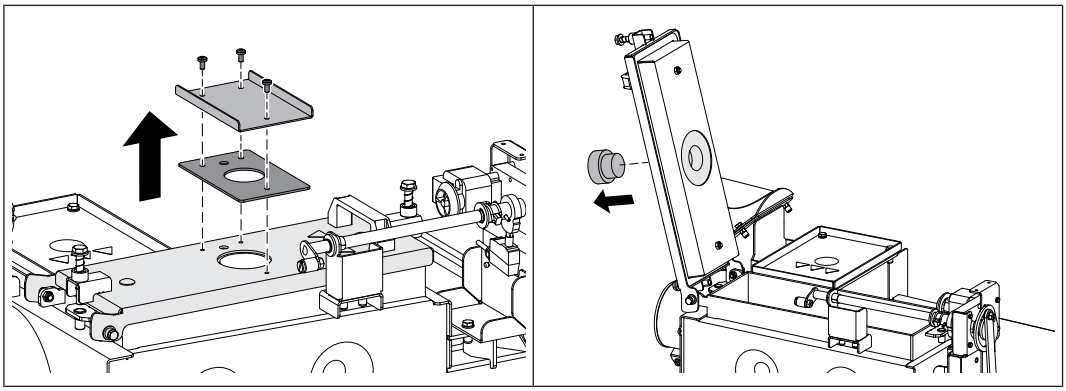
IMPORTANT! Electrostatic particle separators (ESP) can be used only in combination with automatic WOS.



❒ Mount the bearing bracket on the body of the boiler and slide in the Ø16 x 17 plain bearings from the rear
- 2x M8 x 25 hexagon head screws

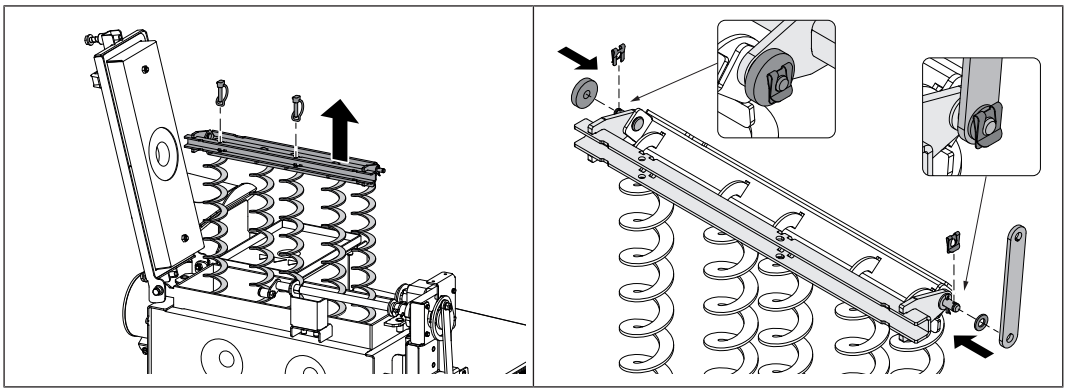
❒ Slide the M16 (A) washer on to the drive shaft and slide the drive shaft from the rear into the plain bearing (B)

❒ Slide the drive shaft into the drive bracket and secure it with pipe locking pins



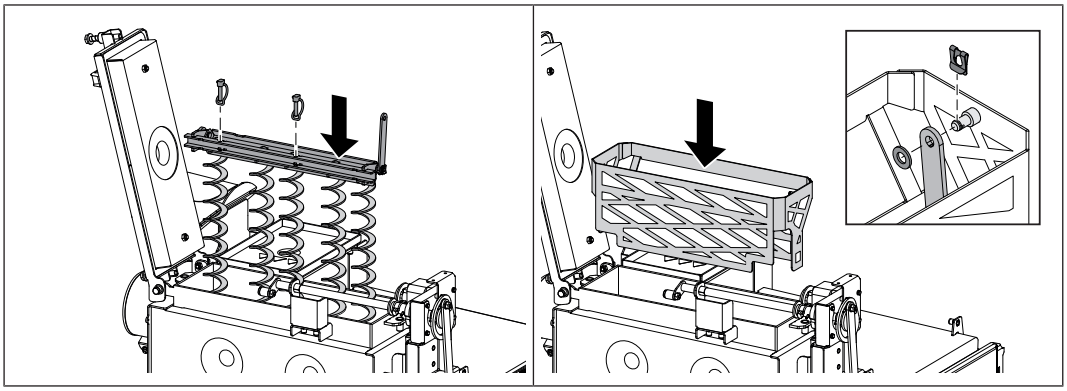
❒ Remove the cover and the seal on the heat exchanger cover
- 3x lens-head screws M6 x 12

❒ Open the heat exchanger cover from the rear and push the round thermal insulation on to it



❒ Remove the pipe locking pins and pull the WOS suspension link including the WOS springs out upwards

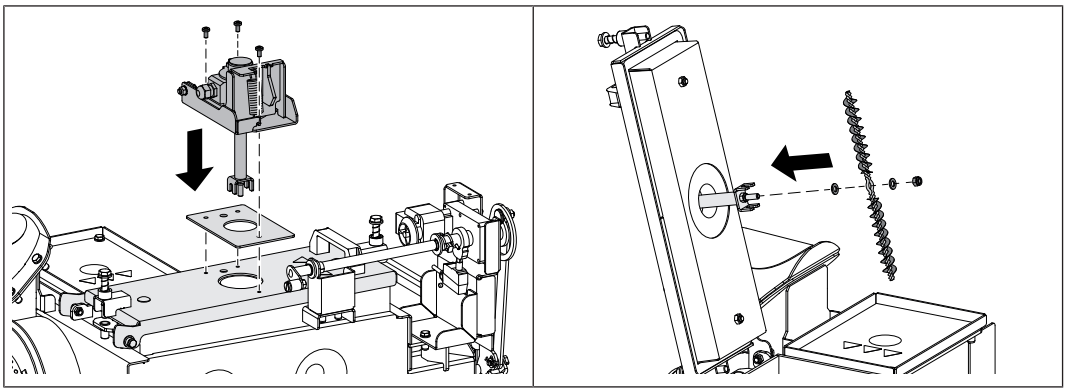
❒ Slide a Ø28 x 6 washer on to the rear pin; slide the lever plate on to the front pin and secure it with a shaft retainer



❒ Slide the WOS suspension link including the WOS springs into the heat exchanger and secure them with pipe locking pins

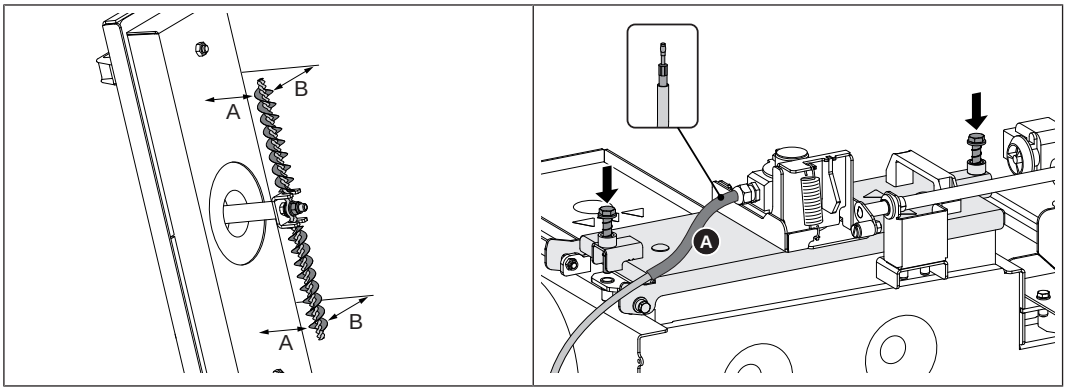
❒ Working from above, insert the cleaning basket into the heat exchanger

❒ Slide the lever p[late on to the cleaning basket and secure it with the shaft retainer



❒ Mount the electrode unit including the seal on the heat exchanger cover
- 3x lens-head screws M6 x 12

❒ Mount the spray electrode at the end of the insulator
- 1x hexagon nut M8 (copper)



❒ Align the spray electrode parallel to the heat exchanger cover

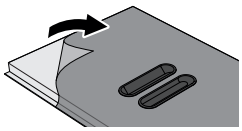
❒ Close and secure the heat exchanger cover
- 2x hexagon head screws M10 x 75

❒ Connect the HV cable with the protective hose (A) to the electrode unit

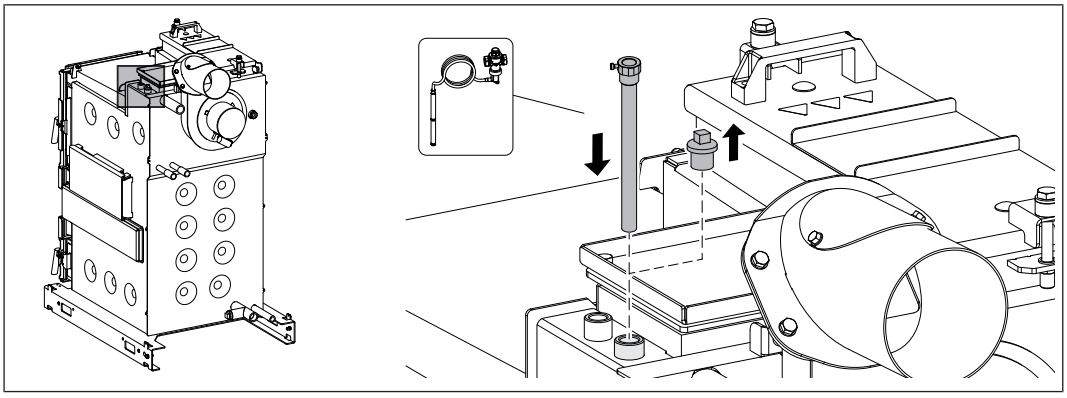
↳ The connector must click perceptibly into place

6.7 Install firewood boiler

6.7.1 Installing the cladding



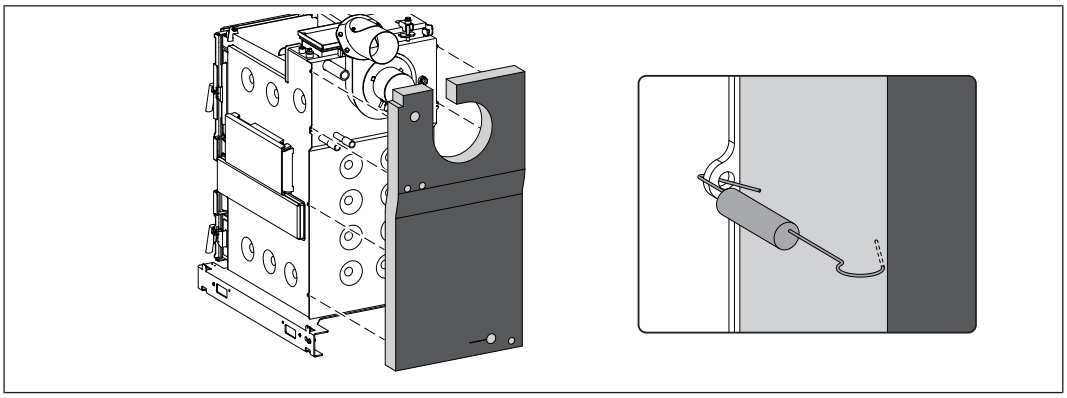
IMPORTANT: The individual parts of the boiler insulation covered with a protective film. The protective film must be removed before proceeding with the installation!



❒ Remove the 1/2“ blanking plug alongside the reversing chamber cover

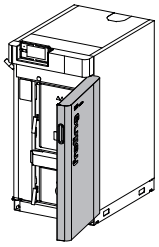
❒ Seal the immersion sleeve of the thermal discharge safety device in the sleeve

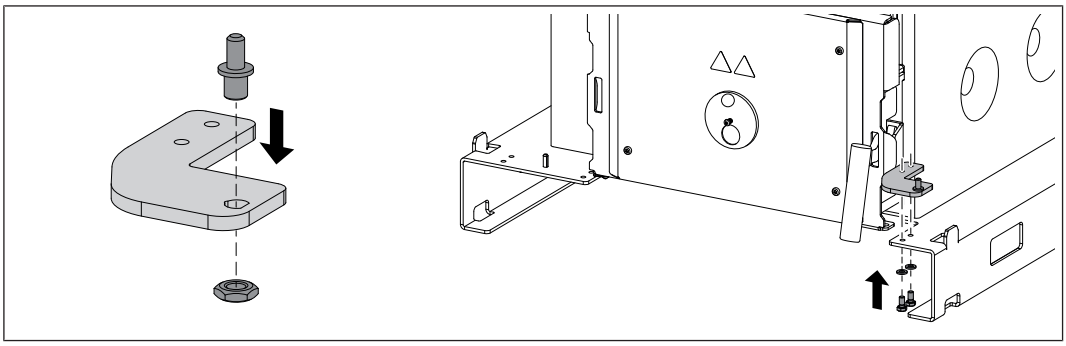
IMPORTANT! Thermal discharge valve not included in the scope of supply



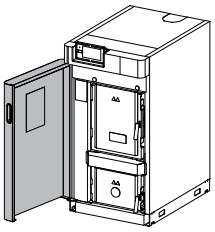
❒ Position the rear thermal insulation on the back wall and attach to the boiler using 7 tension springs

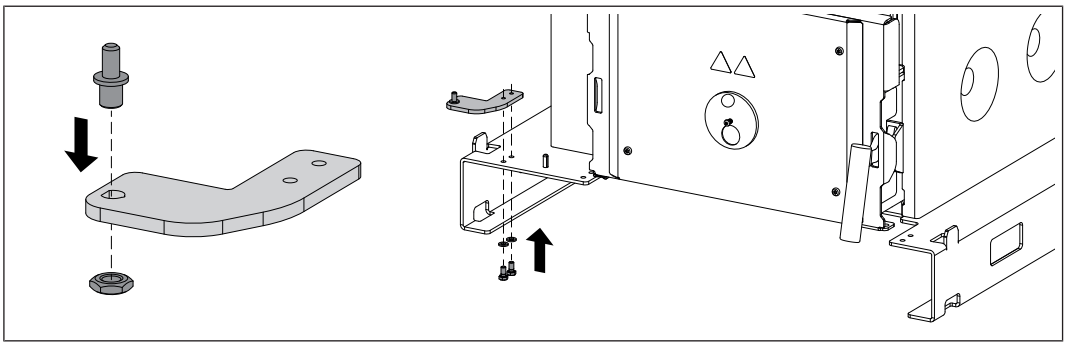
Right door stop





Left door stop

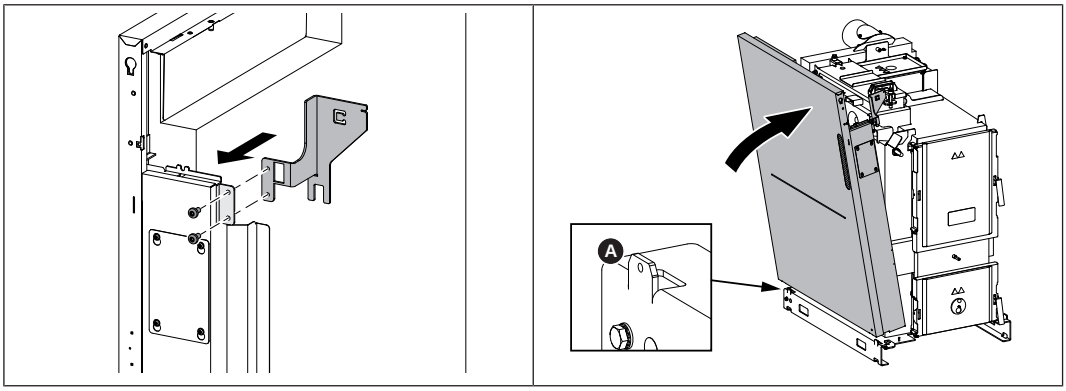




❒ Screw the pins and M8 nuts on to the supplied door bearing mounting plate as shown

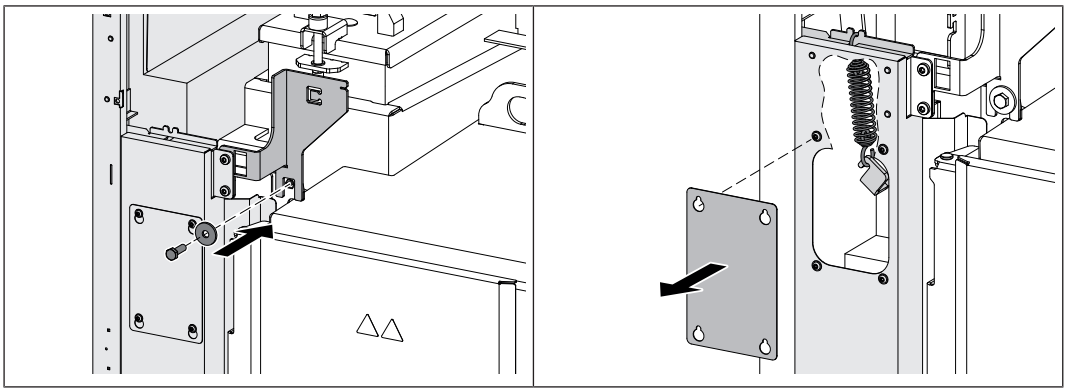
❒ Place the complete door bearing on the boiler base and fix it from below
- 2x M6 x 12 hexagon head screws

TIP! If the boiler has a pellet flange, we recommend fitting the door stop on the left!



❒ Fix the retaining bracket to the left-hand side panel
- 2x M6 x 12 lens-head screws

❒ Fit the left side panel to the side lug (A) and the front safety bolt (B) on the boiler base



❒ Attach the side panel and bracket to the boiler
- 1x hexagon head screw M8 x 25

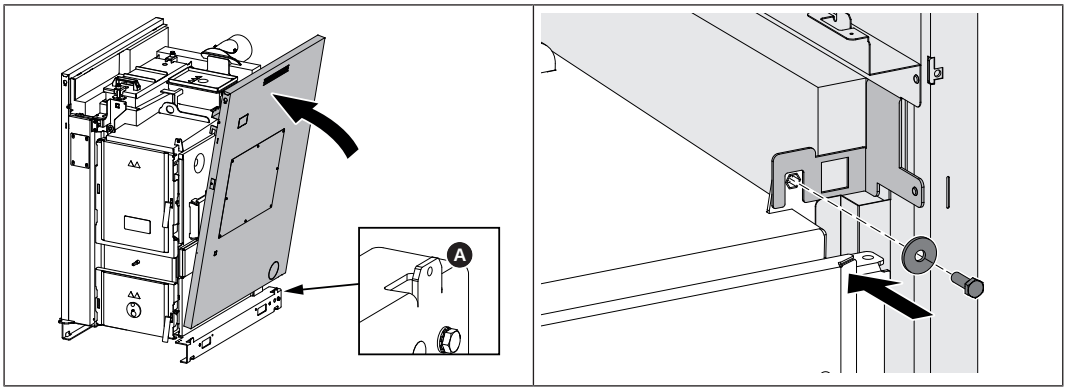
↳ Tighten the screws only lightly, so that the side panel can be aligned later

For an automatic WOS:

❒ Loosen the screws slightly and unhook the cover plate from the left side panel

❒ Hang the spring am on the hook of the WOS lever and the left hand side panel

❒ Thread the cover plate back on to the screw heads and tighten the screws

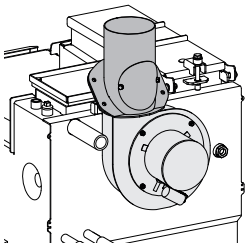


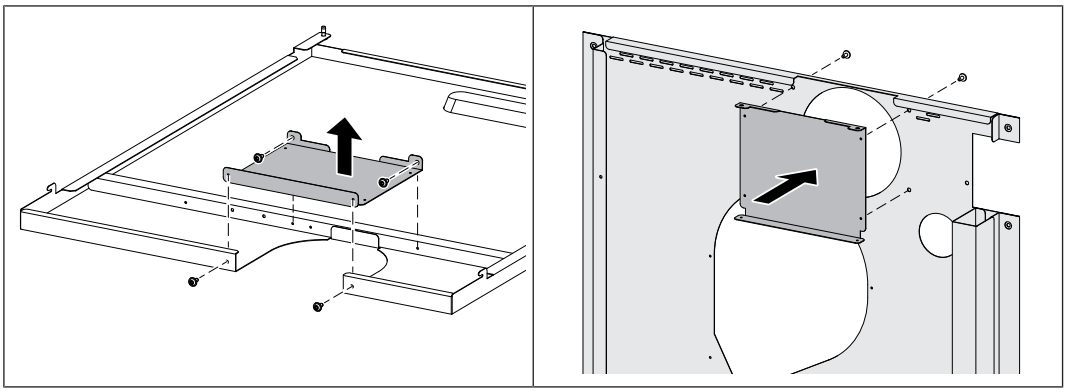
❒ Fit the right side panel to the side lugs (B) on the boiler base

❒ Attach the side panel and bracket to the boiler
- 1x hexagon head screw M8 x 25

↳ Tighten the screws only lightly, so that the side panel can be aligned later

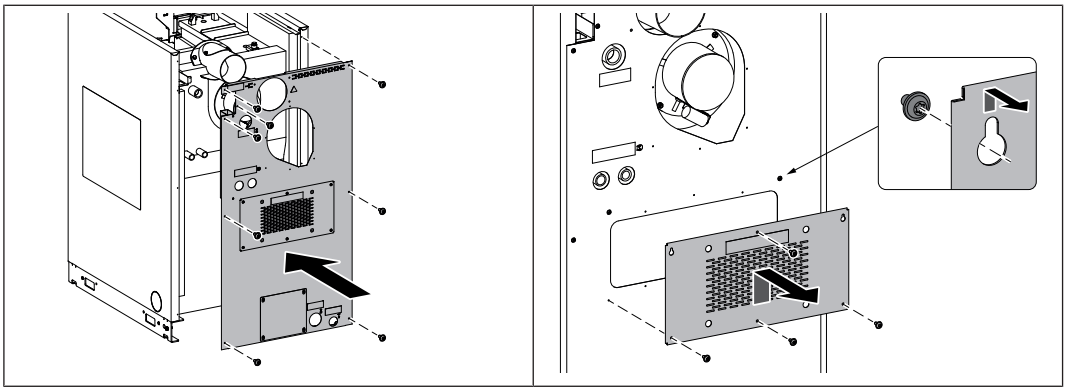
If the flue gas pipe connection is at the top





❒ Remove the cover plate from the upper cover

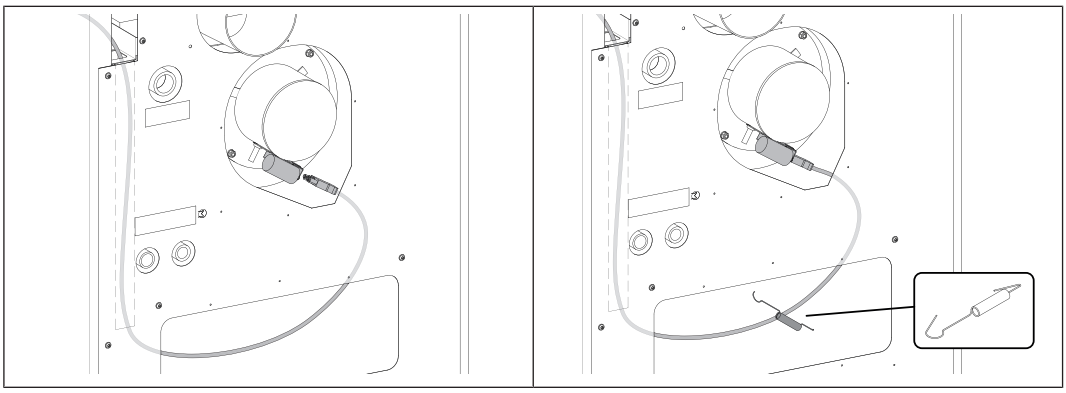
❒ Fit the cover plate on the back panel with the cut-out for the flue gas pipe as shown
- 4x M4 x 10 lens-head screws



❒ Attach the back panel to the side panels
- 8x M4 x 10 lens-head screws

❒ Remove the cover plate from the back panel
- 6x M4 x 10 lens-head screws

For boilers without an electrostatic particle separator

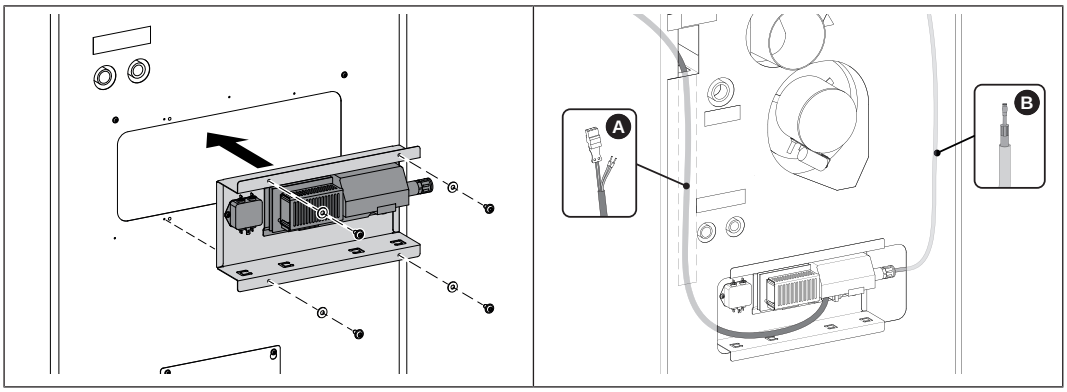


❒ Connect the induced draught cable to the induced draught fan

❒ Route the induced draught cable upwards via the cable duct in the back panel to the side cable duct

❒ Fix the induced draught cable with a tension spring

For boilers with an electrostatic particle separator



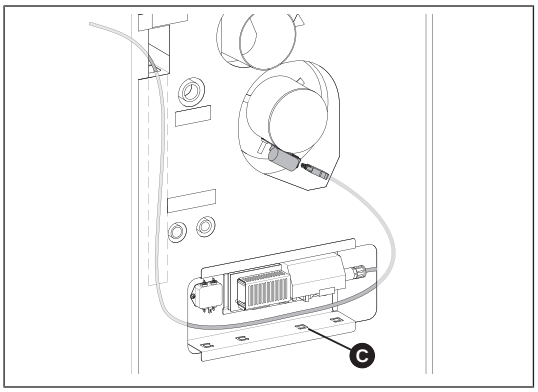
❒ Fit the controller box to the back panel
- 4x M4 x 10 lens-head screws incl. contact washers

❒ Lay the supply cable (A) behind the back panel to the upper cable duct

❒ Lay the HV cable (B) behind the back panel from the electrode unit to the HV module, and connect it

↳ The connector must click perceptibly into place

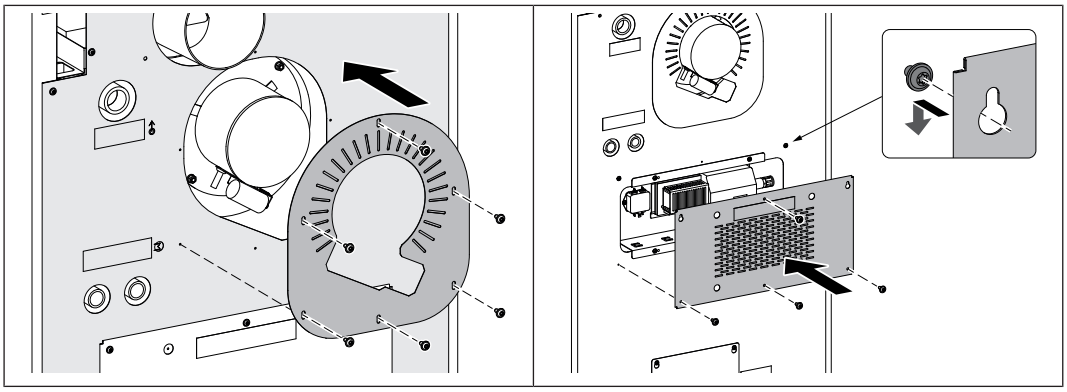
For boilers with an electrostatic particle separator



❒ Connect the induced draught cable to the induced draught fan

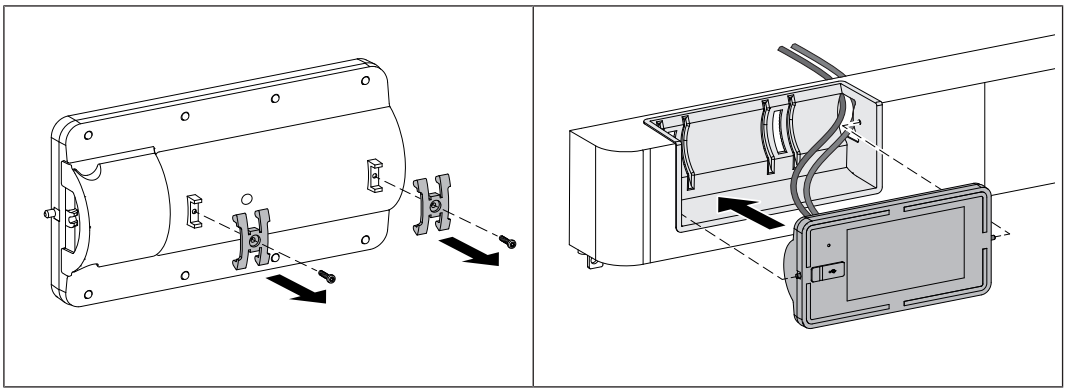
❒ Route the induced draught cable over the controller box and upwards via the cable duct in the back panel to the side cable duct

❒ Secure the induced draught cable with a cable tie (C)



❒ Fit the cover plate for the ID fan to the back panel
- 6x M4 x 10 lens-head screws

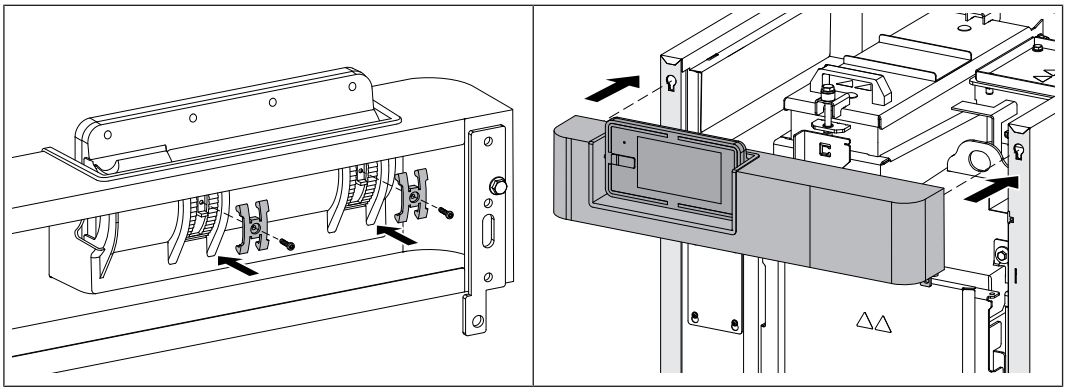
❒ Fit the cover plate to the back panel
- 6x M4 x 10 lens-head screws



❒ Remove the retaining clips on the back of the display
- 2x M3 x 10 lens-head screws

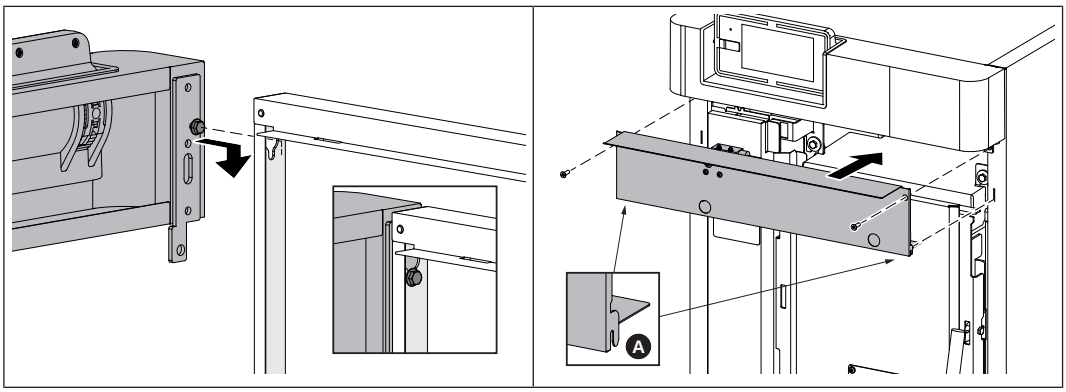
❒ Pass through the cable of the touchscreen by taking it out of the bracket

❒ Click both pins of the touchscreen into the bracket



❒ Fix the display to the bracket with retaining clips
- 2x M3 x 10 lens-head screws

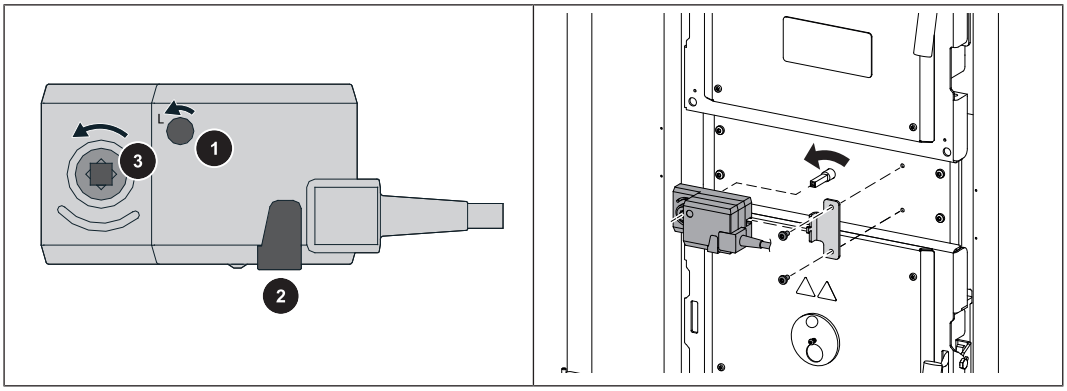
❒ Insert the control with screw heads into the cutouts on the side panels
- 2x M6 x 10 locking screws



❒ Tighten the inserted screws from the inside

❒ Hook the spacer plate under the control panel (A) and secure it together with the control panel
- 2x M6 x 20 countersunk head screws

6.7.2 Fitting the air control

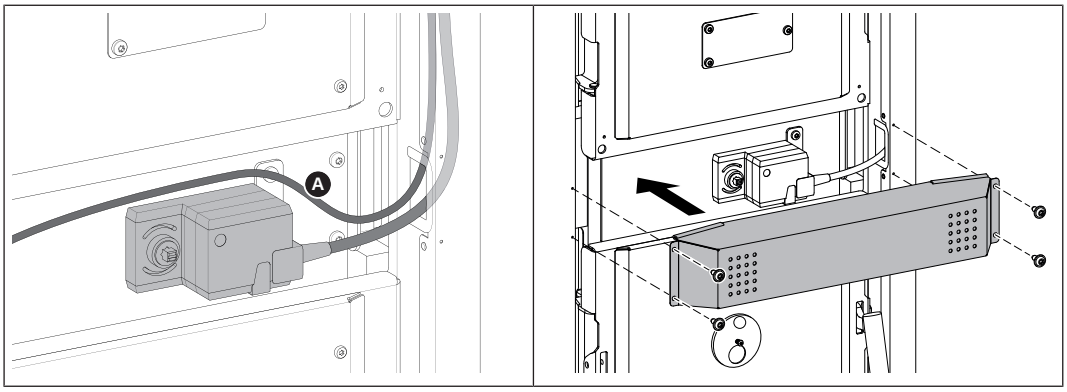


❒ Set the direction of rotation of the servo-motor (1) to left (L)

❒ Press the release button (2) and turn the shaft receptacle (3) to the left until it stops

❒ Turn the sliding valve for air duct anti-clockwise until it reaches the stop

❒ Place the servo-motor on the shaft and secure it with a torque support
- 2x M6 x 12 lens-head screws

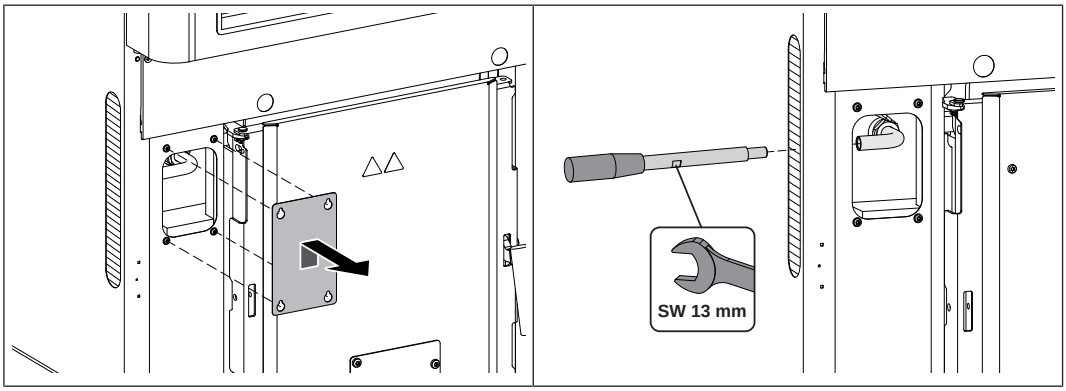


❒ Lay the cable of the servo-motor and the supply cable of the glow igniter (if an automatic ignition is fitted) upwards via the cable duct in the right hand side panel

❒ Fit the cover plate for the air control
- 4x M4 x 10 lens-head screws

6.7.3 Installing the WOS lever

IMPORTANT! When using the automatic WOS there is no need to install the WOS lever!



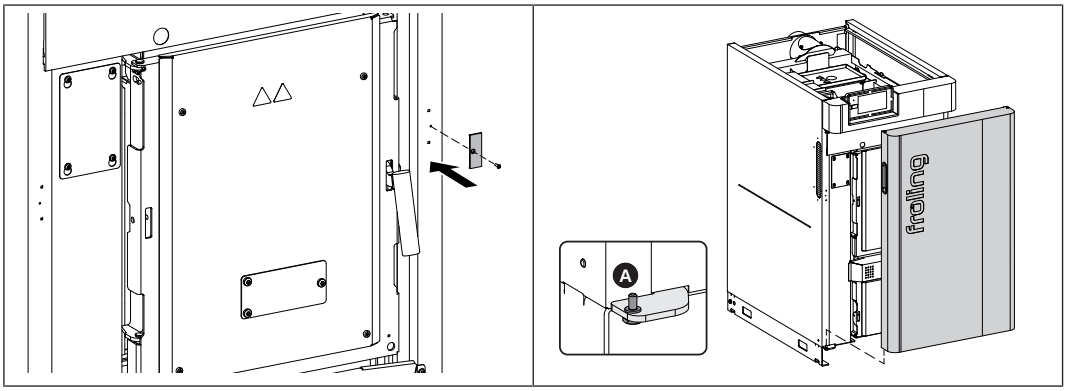
❒ Loosen the screws slightly and unhook the cover plate from the left side panel

❒ Screw the WOS lever into the shaft and apply a wrench (13 mm AF) at the flattened area to tighten it

❒ Hang the cover plate back on to the screw heads and tighten the screws

6.7.4 Installing the insulated door

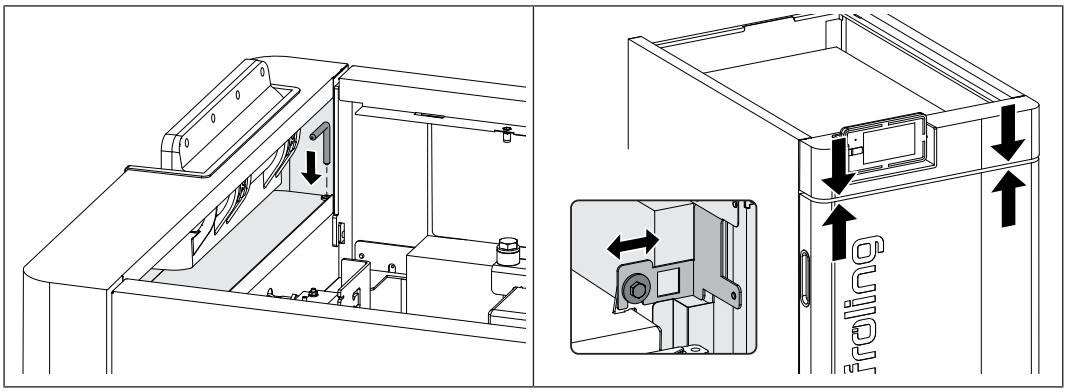
Installation of the insulated door is explained below using the example of the door stop on the left. To mount the insulated door with the door stop on the right, invert and follow the same steps!



❒ Mount the counter plate for the magnetic latches on the side panel on the opposite side of the door stop
- 1x M3 x 10 countersunk-head screw

↳ **NOTE**: counter plate may already be mounted on one side

❒ Attach the bottom of the insulated door the half-length taper grooved pin (A)

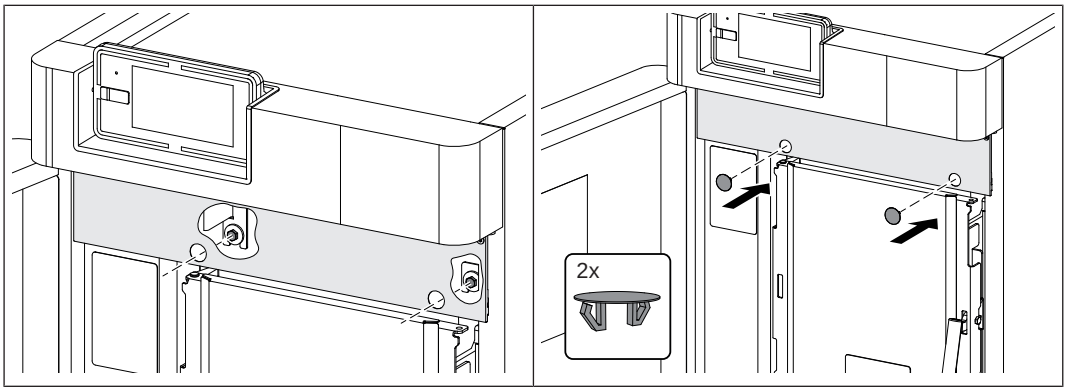


❒ Secure the insulated door using the door pin

❒ When insulated door is closed:
Measure the distance to the left and right between the insulated door and the control

↳ The two distances must be equal!

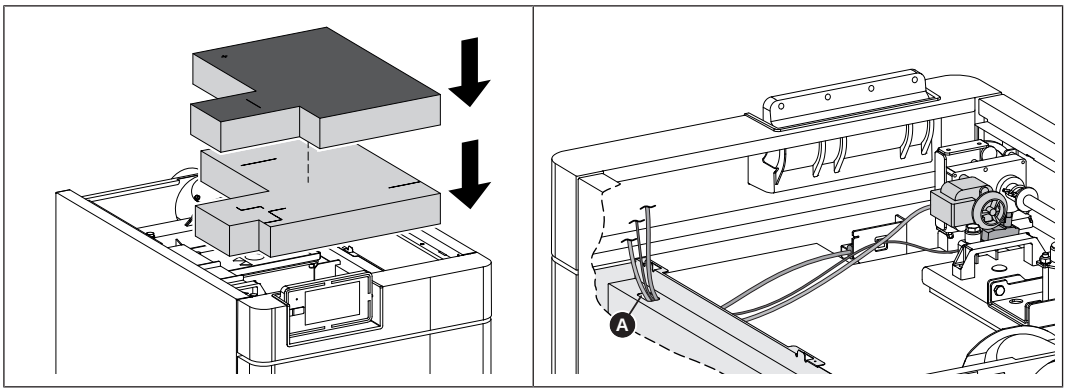
↳ If necessary adjust the side panels at the brackets



❒ When the positioning is correct, tighten the screws in the brackets

❒ Close the round cutouts in the front cover plate using plastic plugs

6.7.5 Fitting the controller box



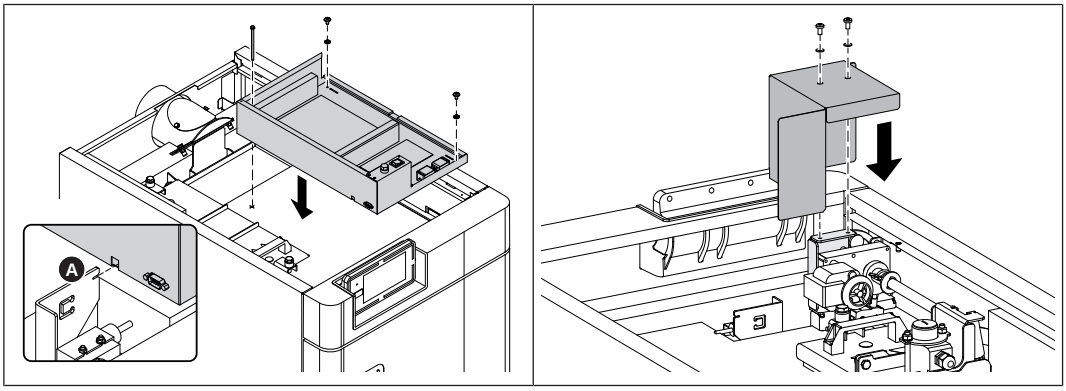
❒ Place the thermal insulation on the boiler

↳ Thermal insulation with black fabric facing upwards

❒ Thread the door contact switch cable through the cut-out (A) from below into the right-hand cable duct

For boilers with automatic WOS:

❒ Thread the cable of the WOS drive and WOS monitor through the cut-out (A) from below into the right-hand cable duct



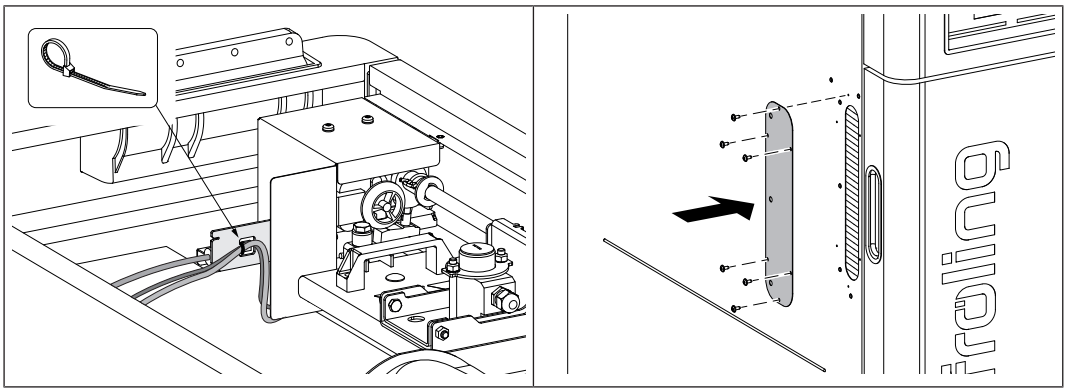
❒ Place the controller box on the boiler

↳ Insert it into the slot in the bracket (A)

❒ Align and fix the controller box horizontally using the M6 x 100 adjusting screw (A)
- 2x M4 x 10 lens-head screws incl. contact washers

For boilers with automatic WOS:

❒ Fit the cover to the drive unit
- 2x M6 x 12 lens-head screws



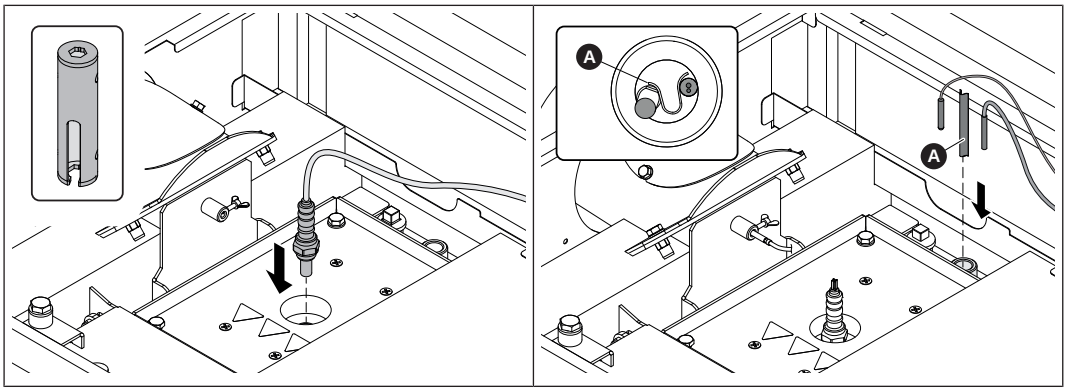
For boilers with automatic WOS:

❒ Fix the WOS drive and WOS monitor in position on the bracket using a cable tie

For boilers with automatic WOS:

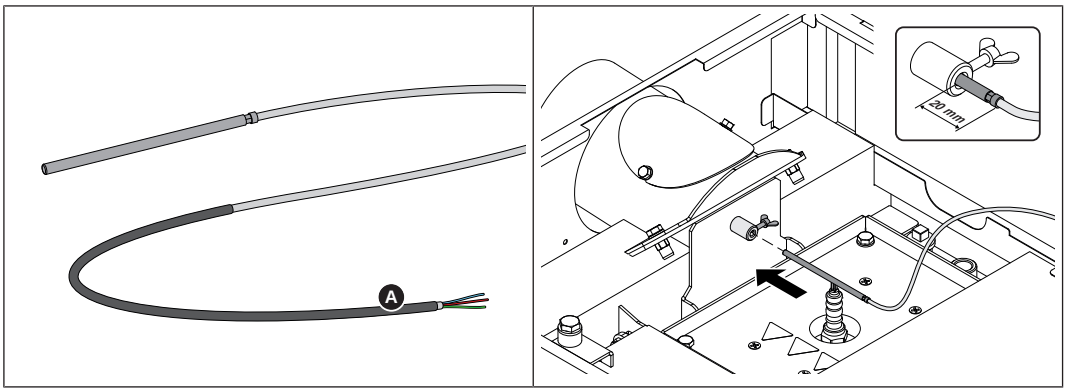
❒ Fit the cover on the left-hand side panel
- 6x M4 x 100 lens-head screws

6.7.6 Installing the Lambda probe, sensor and thermal discharge valve



❒ Screw the Lambda probe into the reversing chamber cover and gently tighten is using the socket wrench supplied

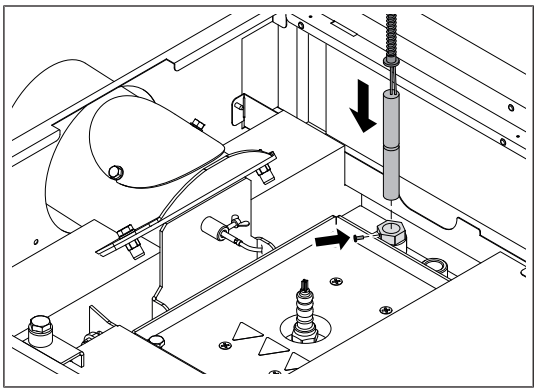
❒ Push the boiler temperature sensor and the STL capillary carrying the contact pressure spring (A) into the welded-in immersion sleeve



❒ Push the protective tube (A) of the flue gas temperature sensor on to the loose end of the cable

↳ The protective hose (A) serves as insulation within the boiler controller

❒ Push the flue gas temperature sensor into the bushing so that it protrudes approx. 20 mm from the housing and secure it in position with the wing screw

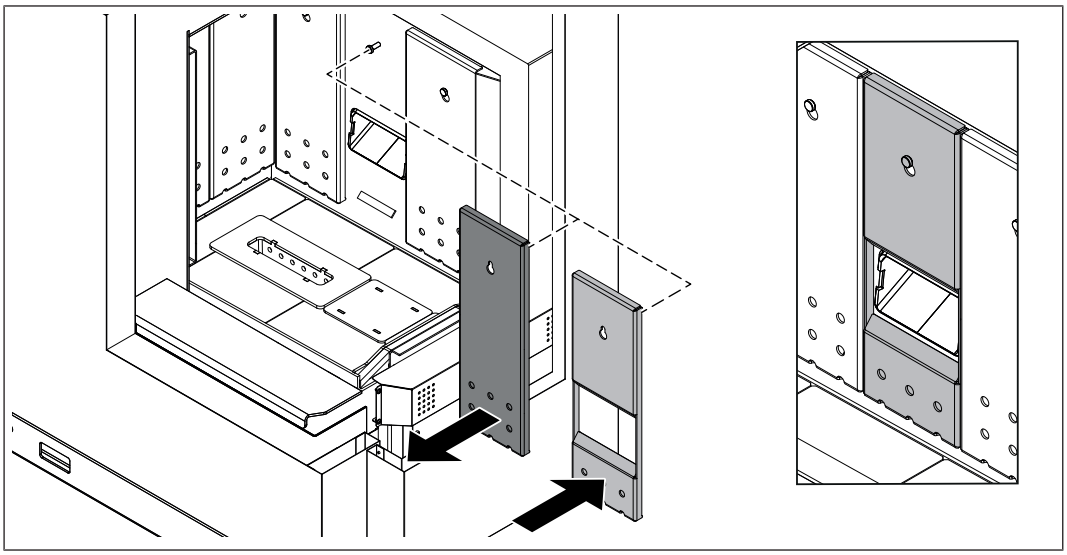


❒ Slide the sensor and metal tube insulation of the thermal discharge valve into the immersion sleeve and secure it with a slot-head screw

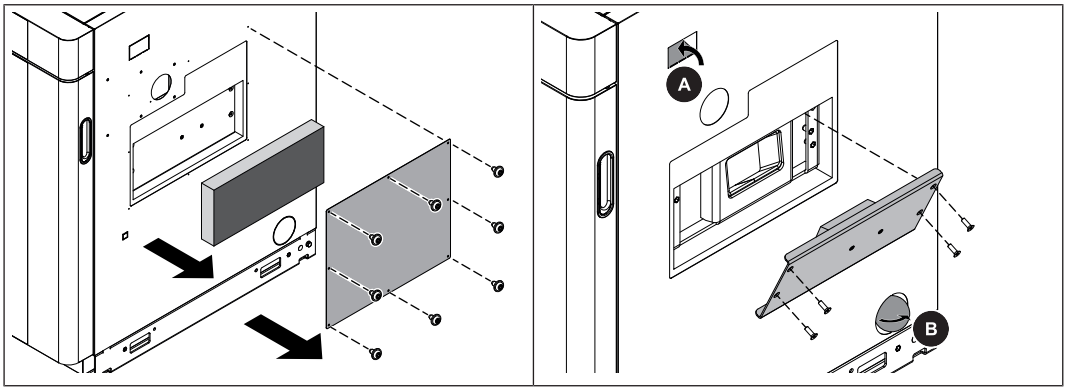
IMPORTANT! The thermal discharge valve is not included in the scope of supply

6.8 Fitting the pellet unit

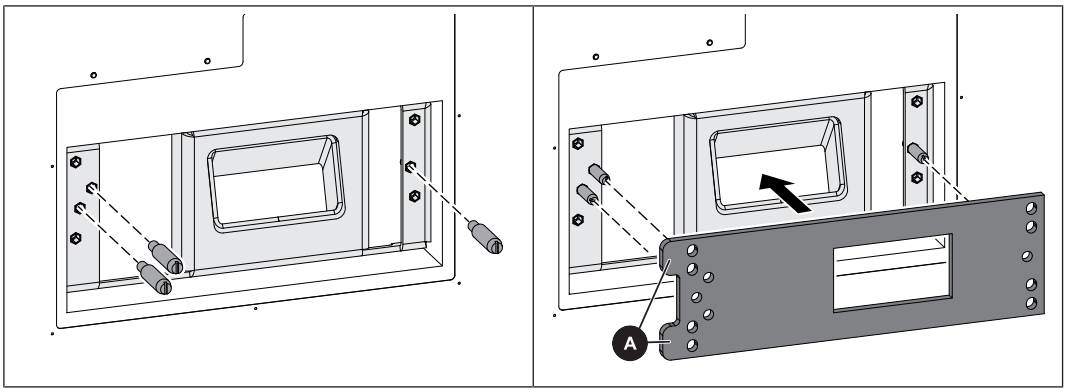
6.8.1 Screw the pellet unit to the firewood boiler



❒ Open the insulating door and the fuel loading door of the firewood boiler
❒ Remove the middle linking plate on the flange side
❒ Fit the linking plate provided to the flange cutout as shown



❒ Remove the cover plate and thermal insulation from the firewood boiler flange
❒ Completely press in and remove the perforations (A and B) on the side panel
❒ Remove the blanking plate of the flange



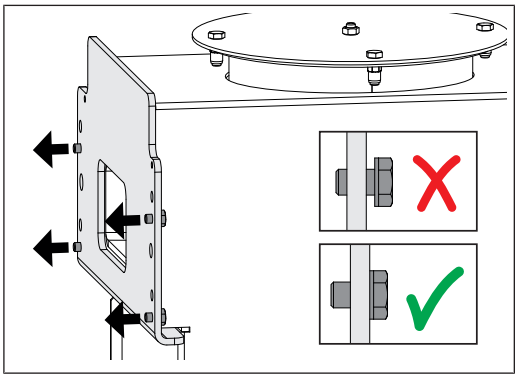
❒ Remove the lock bolts from the ashcan of the pellet unit and install them on the flange of the firewood boiler
- 2 bolts to the left of the burn-through duct
- 1 bolt to the right of the burn-through duct

❒ Slide the flange seal supplied over the lock bolts

↳ Projecting lugs (A) must face the front of the boiler

↳ The seal must slide smoothly over the three lock bolts

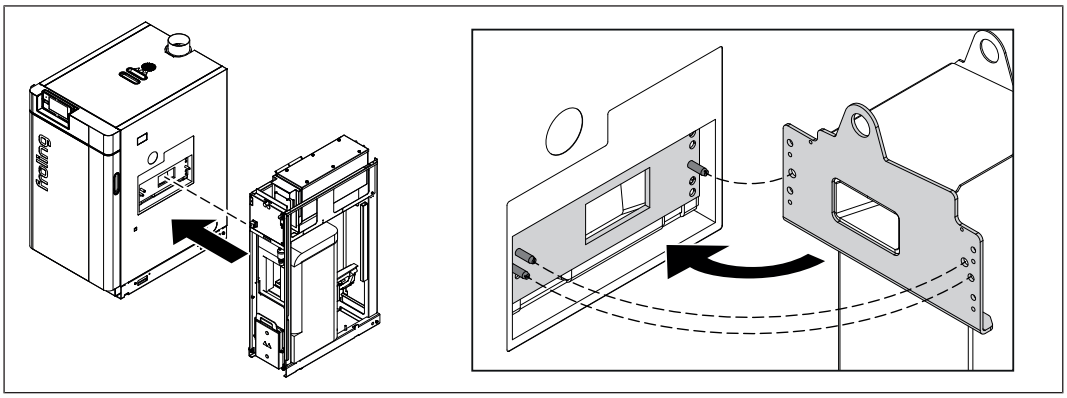
↳ The seal must not be laid so as to obstruct the cross-section of the burn-through duct



❒ Completely screw in four adjusting screws (galvanized, yellow) on the flange

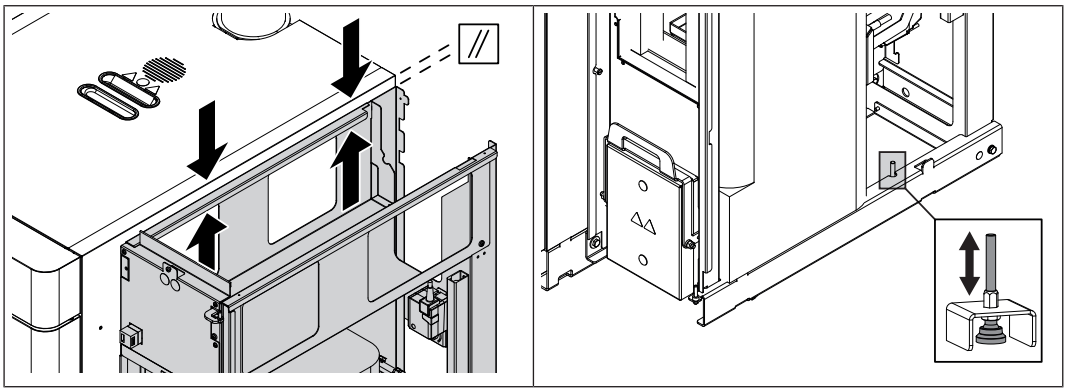
↳ Adjusting screws function afterwards as the stop when setting the gap size

IMPORTANT: Despite the aforementioned adjusting screws the flange seal is sufficiently compressed!

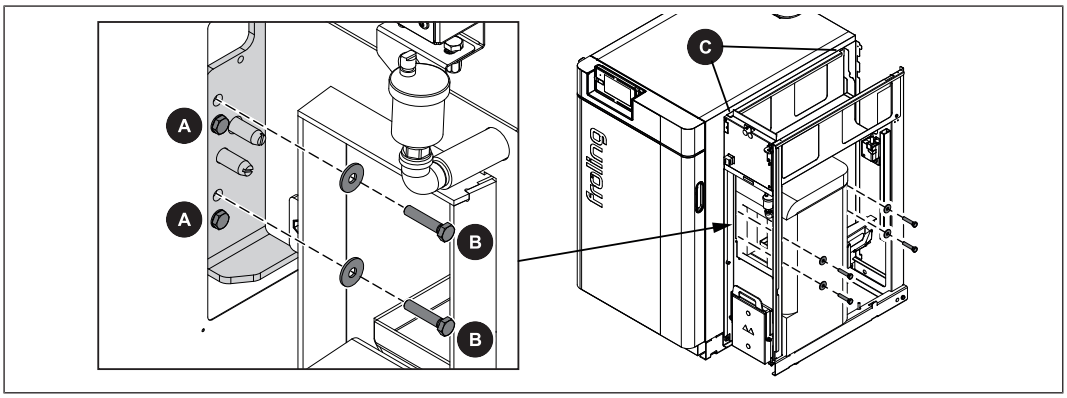


❒ Position the pellet unit alongside the firewood boiler so that the flange holes on the pellet unit are aligned with the previously fitted lock bolts on the flange of the firewood boiler

❒ Thread the pellet unit into the lock bolts and push towards the firewood boiler



❒ Adjust the height of the pellet unit using the adjustable feet so that the top edge of the pellet unit is parallel with the edge on the insulating cover of the firewood boiler

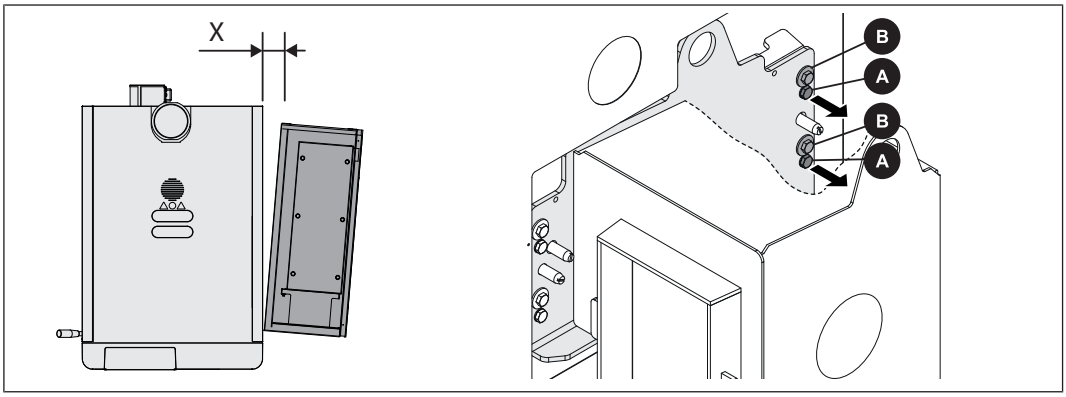


❒ Screw the pellet unit to the flange of the firewood boiler using four M8 x 40 (B) hexagonal screws

❒ Once you have done this, check that the clearance (C) between the firewood boiler insulation and the pellet unit is consistent

If the firewood boiler and the pellet unit are not parallel, the gap (X) can be adjusted using the adjusting screws (A - galvanized yellow – AF 13 mm):

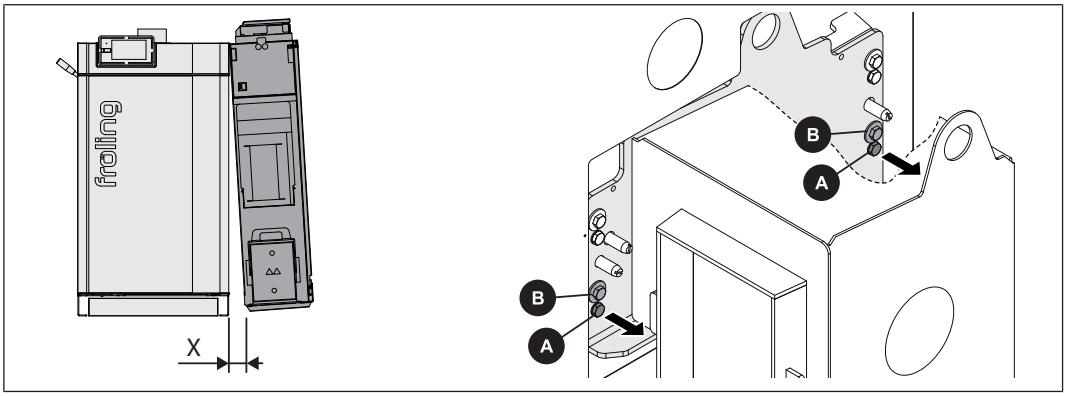
Example 1 – Large gap (X) at the back



❒ Loosen the adjusting screw at the back (A) and tighten the flange screw connections (B) until the size of the gap is the same, both front and back

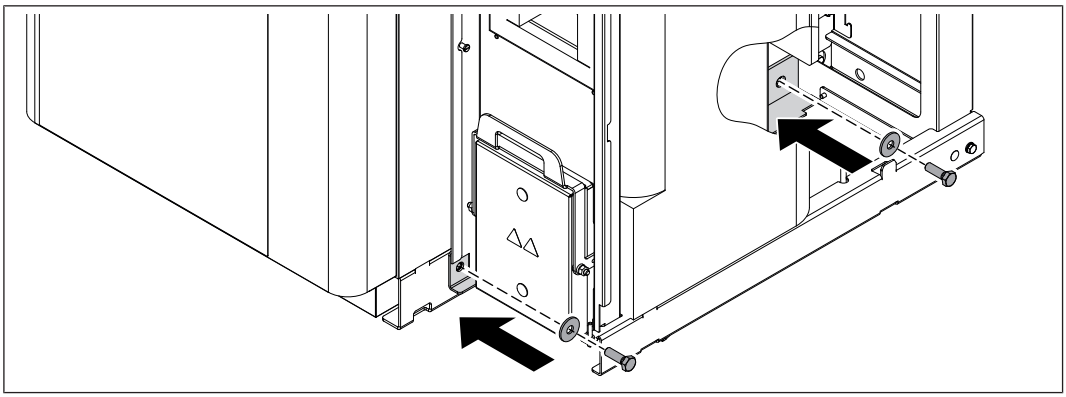
❒ Tighten all of the screw connections (A and B) once again

Example 2 – Large gap (X) on the bottom



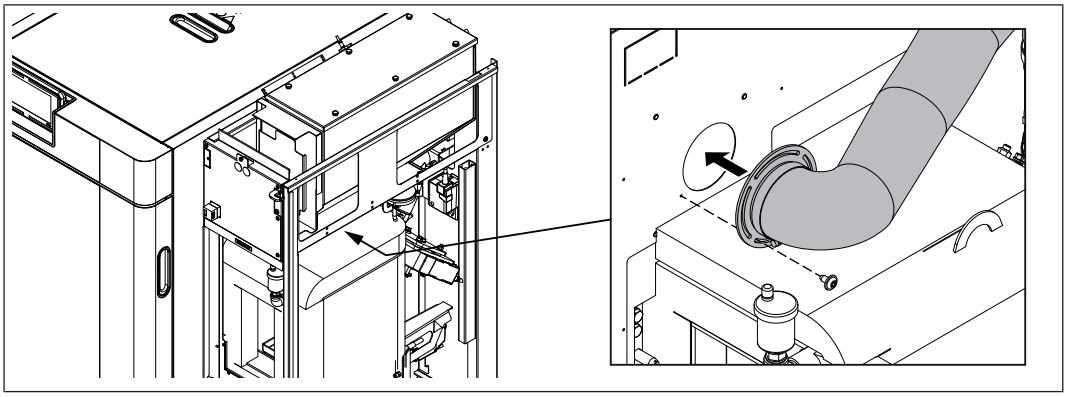
❒ Loosen the bottom adjusting screws (A) and tighten the flange screw connections (B) until the size of the gap is the same, both top and bottom

❒ Tighten all of the screw connections (A and B) once again



❒ Attach the base frame of the pellet unit both front and back to the firewood boiler using two screws and spacer washers

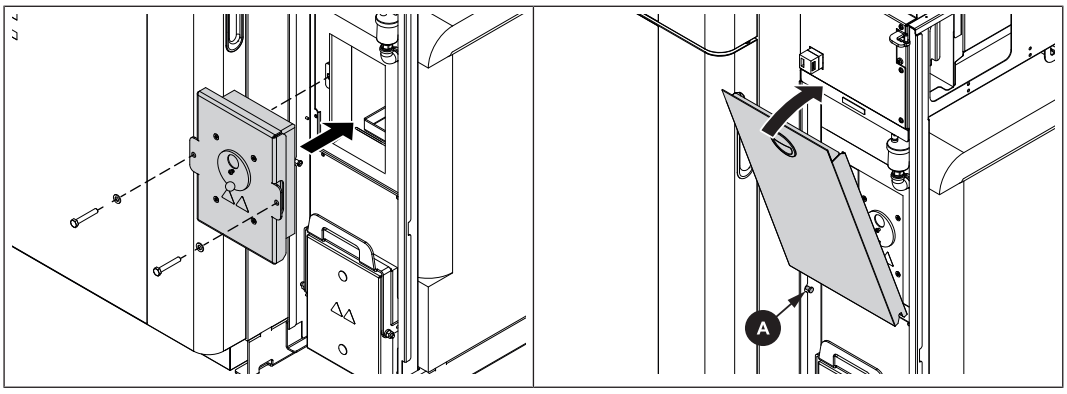
6.8.2 Fitting the air connection



❒ Run the air hose to the opening on the side panel of the firewood boiler and connect

❒ Attach the air hose using lens-head screw

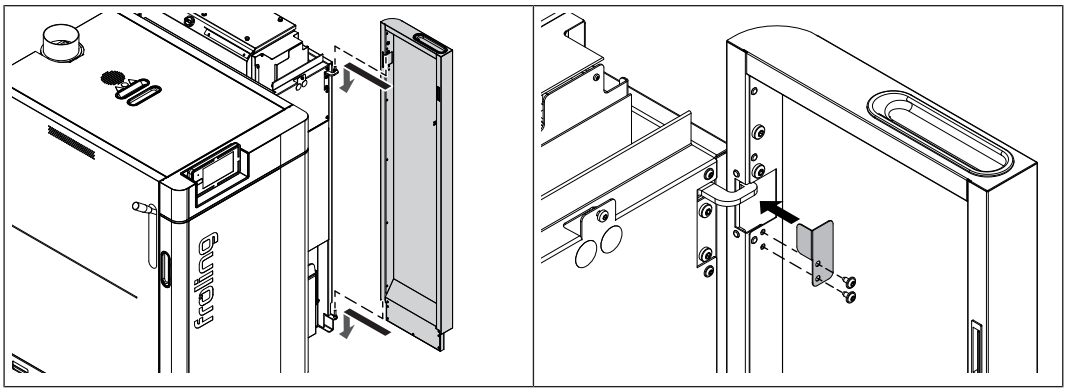
6.8.3 Fitting the cladding to the pellet unit



❒ Install combustion chamber cover

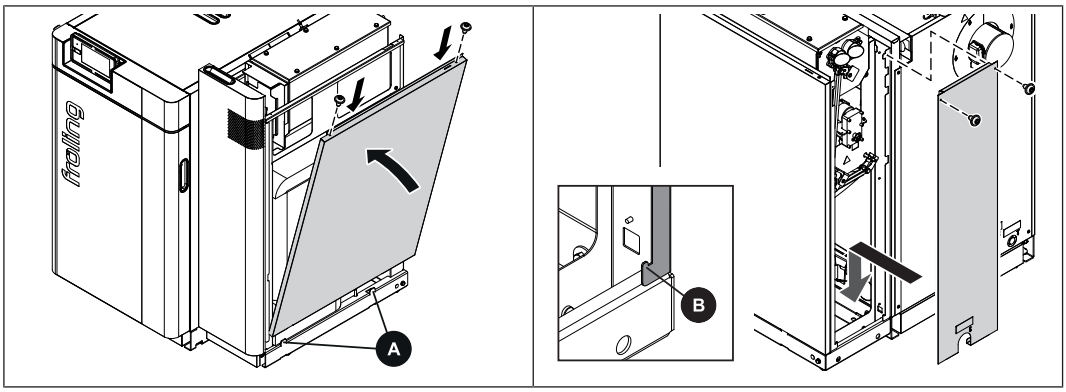
↳ Use the socket wrench provided

❒ Attach the cover plate of the combustion chamber cover to the bolts (A) and flip the cover plate up



❒ Fit the insulated door on the bolts

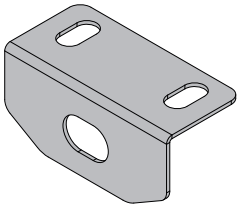
❒ Install cover plate on the top hinge

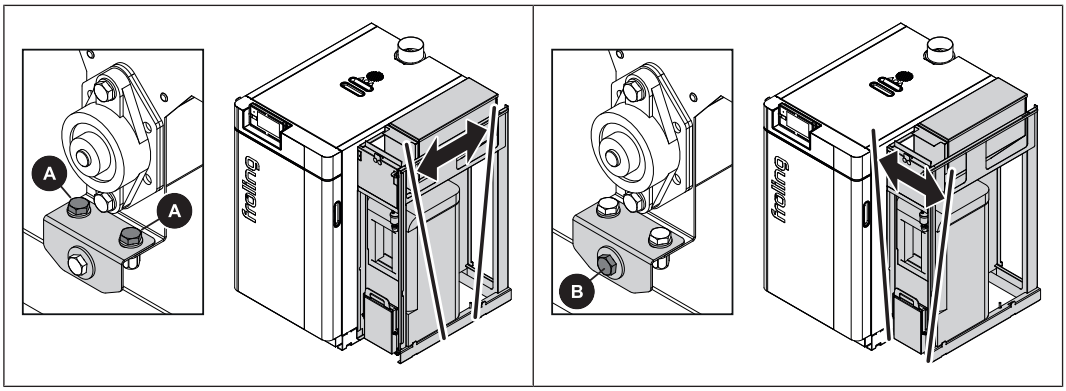


❒ Insert side panel into lugs (A) and attach at the top

❒ Insert the rear panel on the bottom (B) and attach at the top

In the case of minor deviations in the gap around the unit, the cladding of the pellet unit can be adjusted to some extent:





❒ Open the insulated door and fold forward the cover plate behind it

  ↳ When opening the cover plate, use enough force to overcome the force of the magnet

❒ Loosen the screwed connection on the adjustment angle and correct the gap

  ↳ Use the top screws (A) to adjust the gap from side to side

  ↳ Use the front screw (B) to adjust the gap at the top

6.9 Connecting 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.

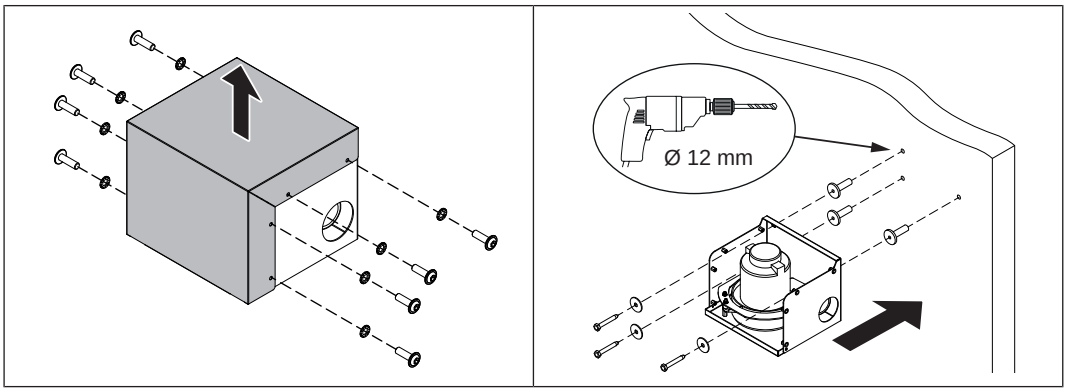
6.9.1 Installing the external suction module

The pellets are loaded using an external suction module. The suction module is installed in the return-air line between the boiler and the suction point.

The following points should be noted for assembly:

- The position in the return air line can be chosen freely.
  When using an optional PST pellet dust extractor, it is recommended that the suction module be installed in the return air line between the pellet dust extractor and the store to protect the turbine from pellet dust
- Before assembly, check whether the supplied assembly material is suitable and, if required, needs to be replaced by suitable material for the base.
- No specific installation position is required for the suction turbine to operate smoothly. Preferably, the suction module should be mounted so that existing openings in the housing are not on the upper side and the suction turbine is protected against external influences.
- To prevent interference with moving parts, the electrical connection and the setup of the external suction module should be carried out only after connecting the hose lines.

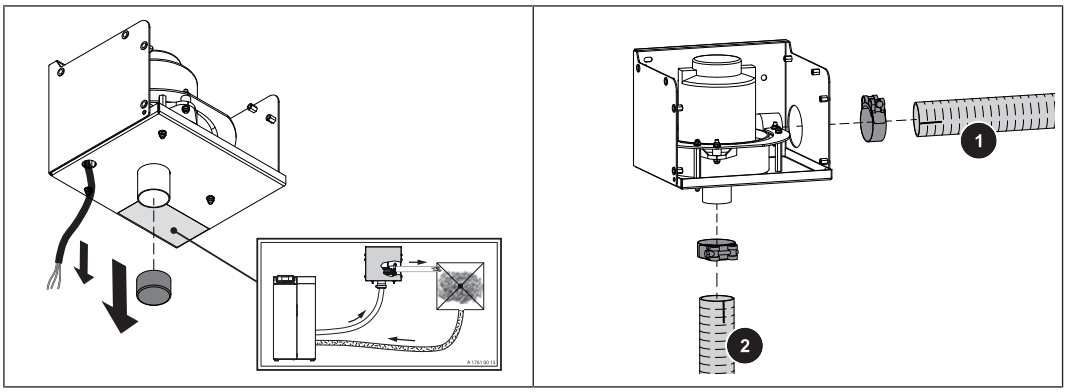
Depending on the boiler type, two different sized suction modules are used. The installation itself is the same for both sizes.



❒ Unscrew the screws on the side of the suction module and remove the cover hood

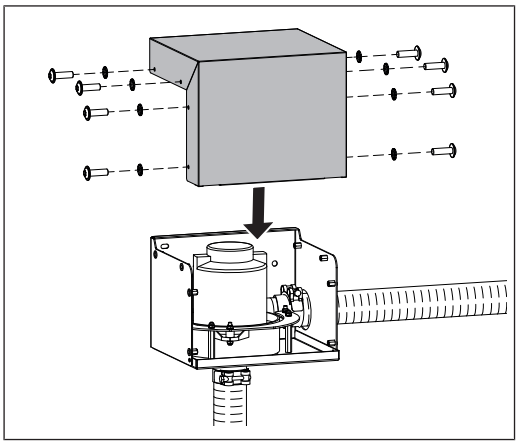
❒ Install the bottom panel including the supplied dowels and screws at any desired position in the return air line

↳ 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



- ❒ Unwind the cable of the suction turbine and feed it through the opening of the housing underside
- ❒ Remove the protective cap on the underside of the suction module
- ❒ Lay the return air line from the suction point to the suction module and fix it to the pressure side (position 1) with a hose clamp
- ❒ Fix the second part of the return-air line to the under-pressure side (position 2) with a hose clamp and lay the line to the boiler

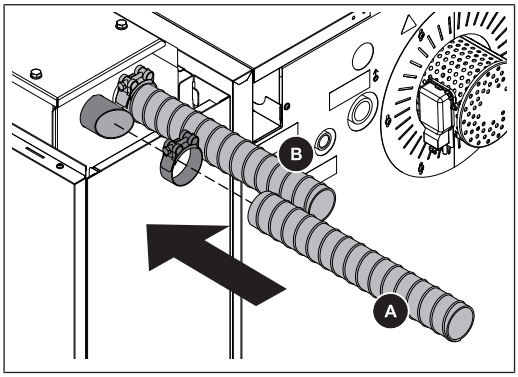
IMPORTANT! When connecting the lines, pay attention to equipotential bonding, ➲ "Assembly information for hose lines" [▸ 69]



❒ Secure the cover hood with the previously removed screws

6.9.2 Connecting the hose lines

Once the discharge system has been assembled in accordance with the assembly instructions enclosed, the suction and return air line need to be connected to the pellet unit



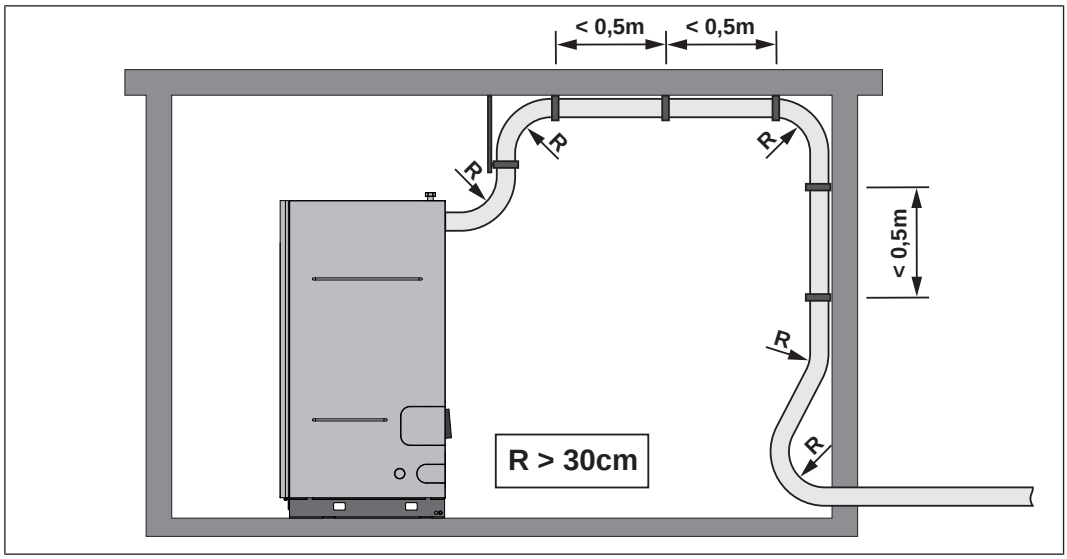
On the back of the pellet unit:

❒ Run the return air line (A) to the left connection

❒ Run the suction hose (B) to the right connection

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

6.9.3 Assembly information for hose lines

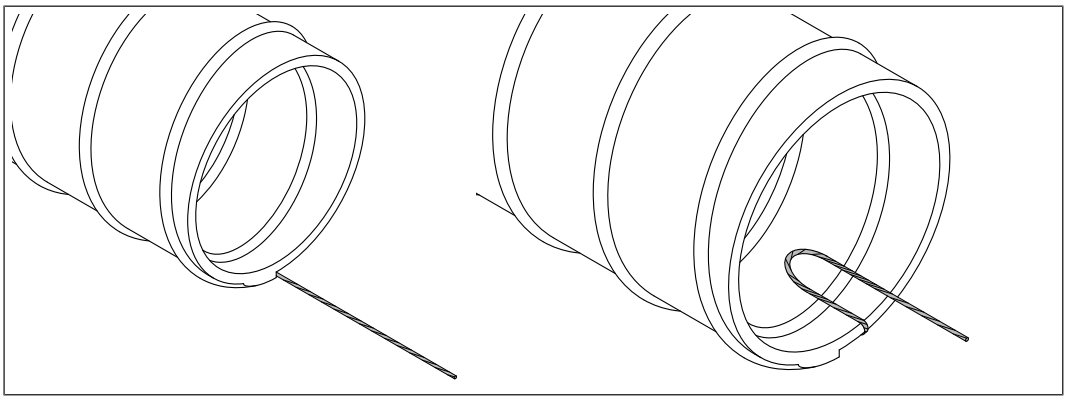


Please note the following with regard to the hose lines used in Froling vacuum discharge systems:

- 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 lay 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 suction hoses with PU inlet are recommended due to the increased load

Potential equalisation

When connecting the hose lines to the individual connections, ensure there is consistent potential equalisation throughout the line.

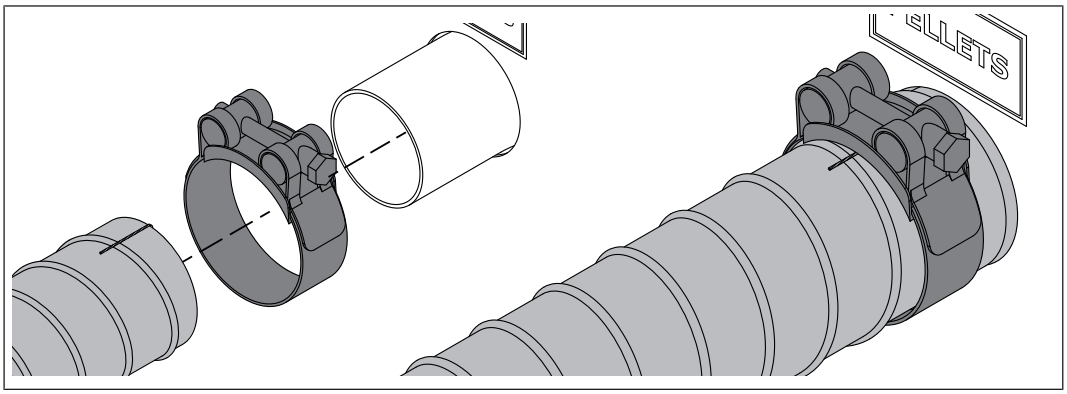


❒ Expose approximately 8 cm of the earth wire at the end of the hose line

↳ **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

❒ Attach the hose line to the 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!)

❒ Secure the hose line with a hose clamp

6.10 Electrical connection

⚠ DANGER

When working on electrical components:

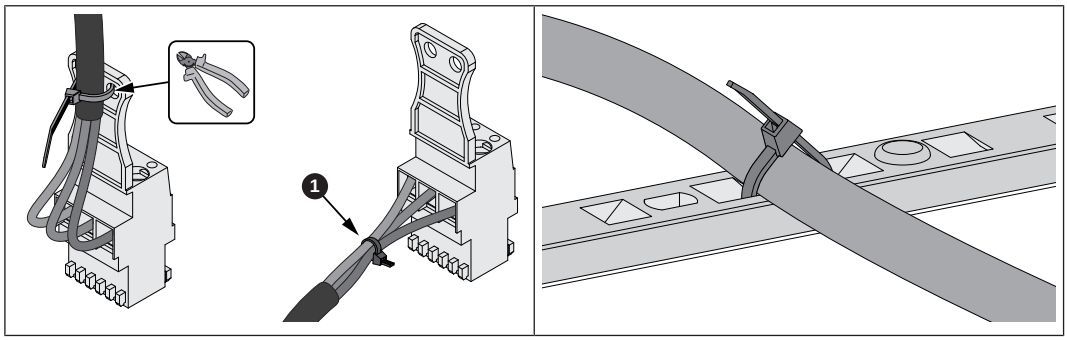
Risk of electrocution!

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

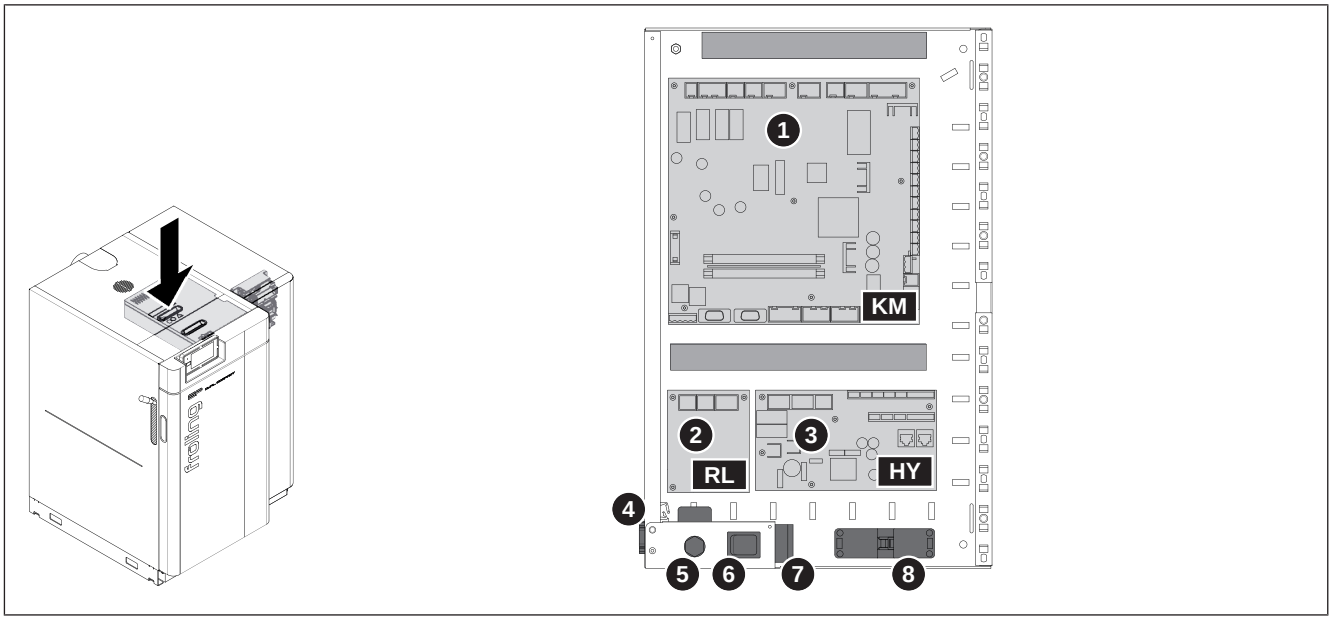
Prepare the plug

some components come ready to connect with the cable fixed to the tag connector with cable tie.

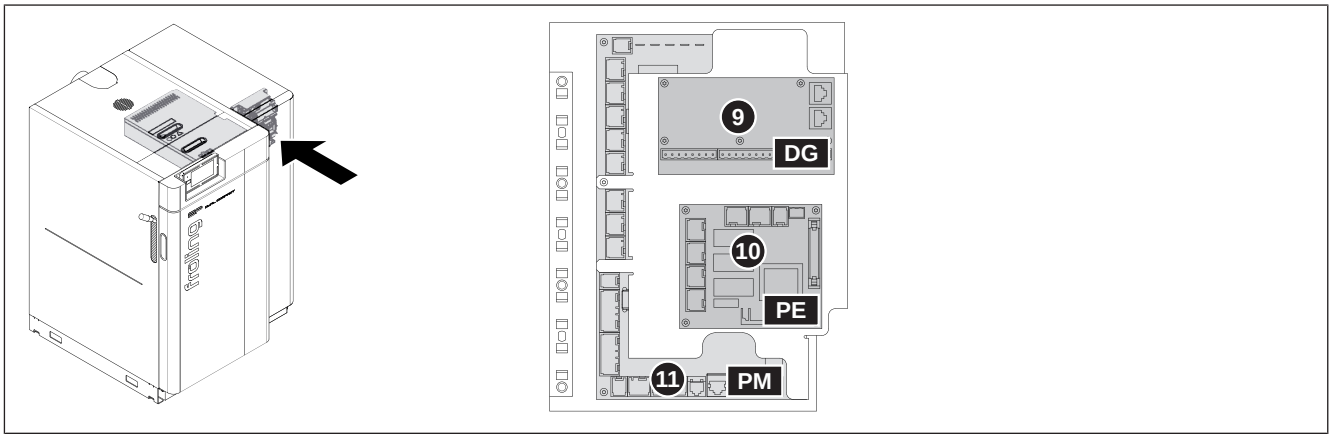


- ❒ Remove the cable ties from the tag connector
- ❒ Bind the individual cores together with cable ties (1)
- ❒ Attach cables and cable ties to the strain reliefs on the boiler

6.10.1 Board overview



Item	Designation	Item	Designation
1	Core module	**5**	High-limit thermostat STB
2	Return mixer module (optional)	**6**	Main switch
3	Hydraulic module	**7**	Device connection terminal
4	Service interface	**8**	Mains connection plug



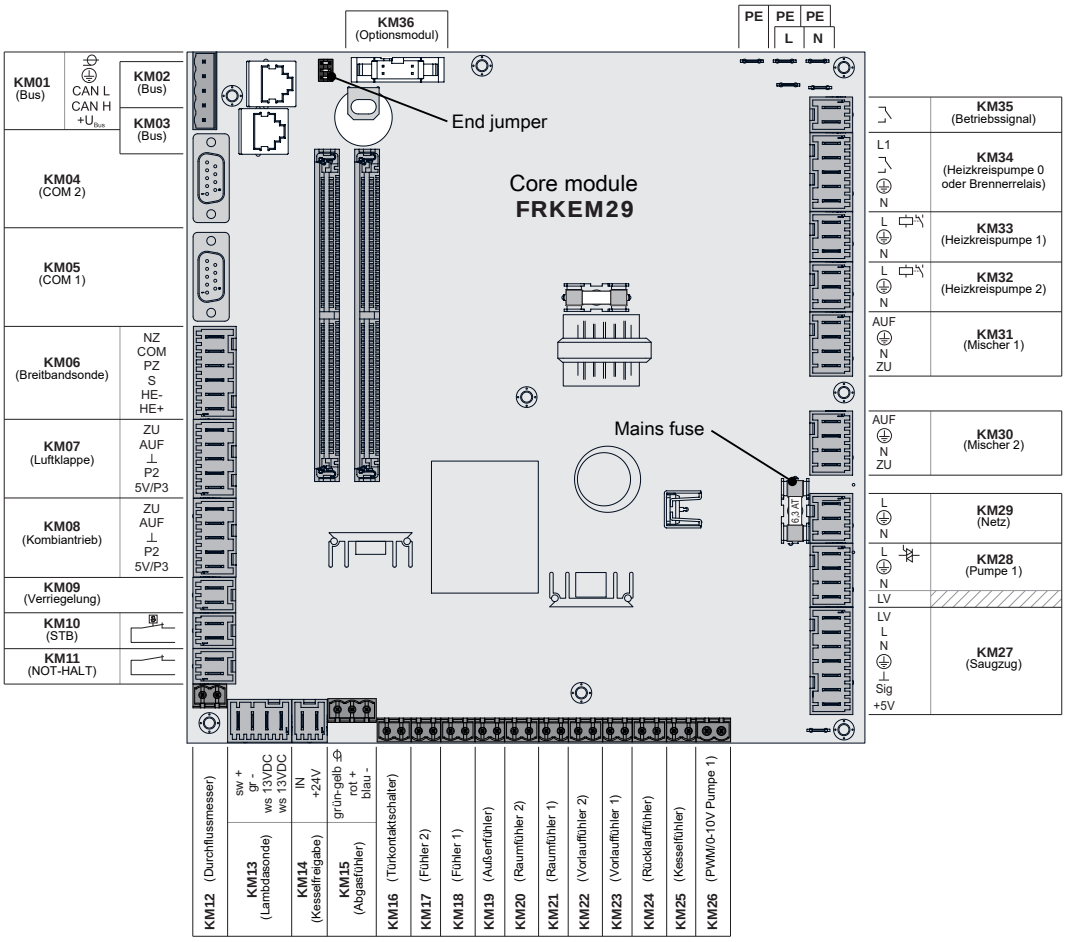
Item	Designation	Item	Designation
9	Digital module	**11**	Pellet module
10	Pellet module expansion		

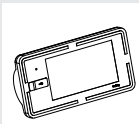
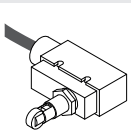
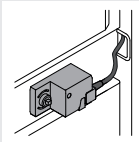
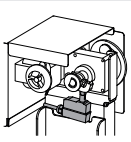
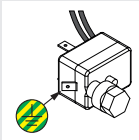
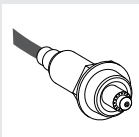
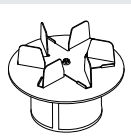
6.10.2 Connect the firewood boiler components

❒ Run the cables of the following components to the boiler controller and connect them to the boards in the controller box

↳ Tuck any extra cable into the cable duct

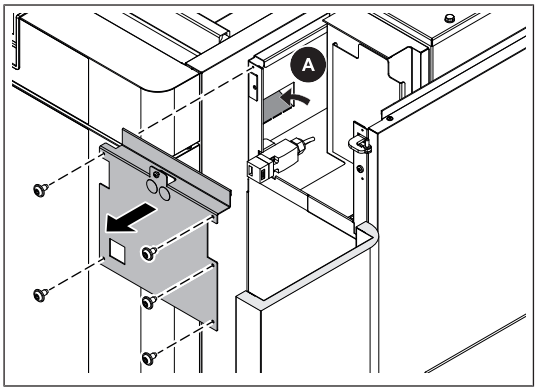
Core module:



KM-02		Boiler display	**KM-16**		Door switch
KM-07		Servo-motor	**KM-17**		WOS monitoring (for automatic WOS)
KM-10		High-limit thermostat	**KM-25**		Boiler sensor
KM-13		Lambda probe	**KM-27**		Induced draught fan

KM-15		Flue gas temperature sensor

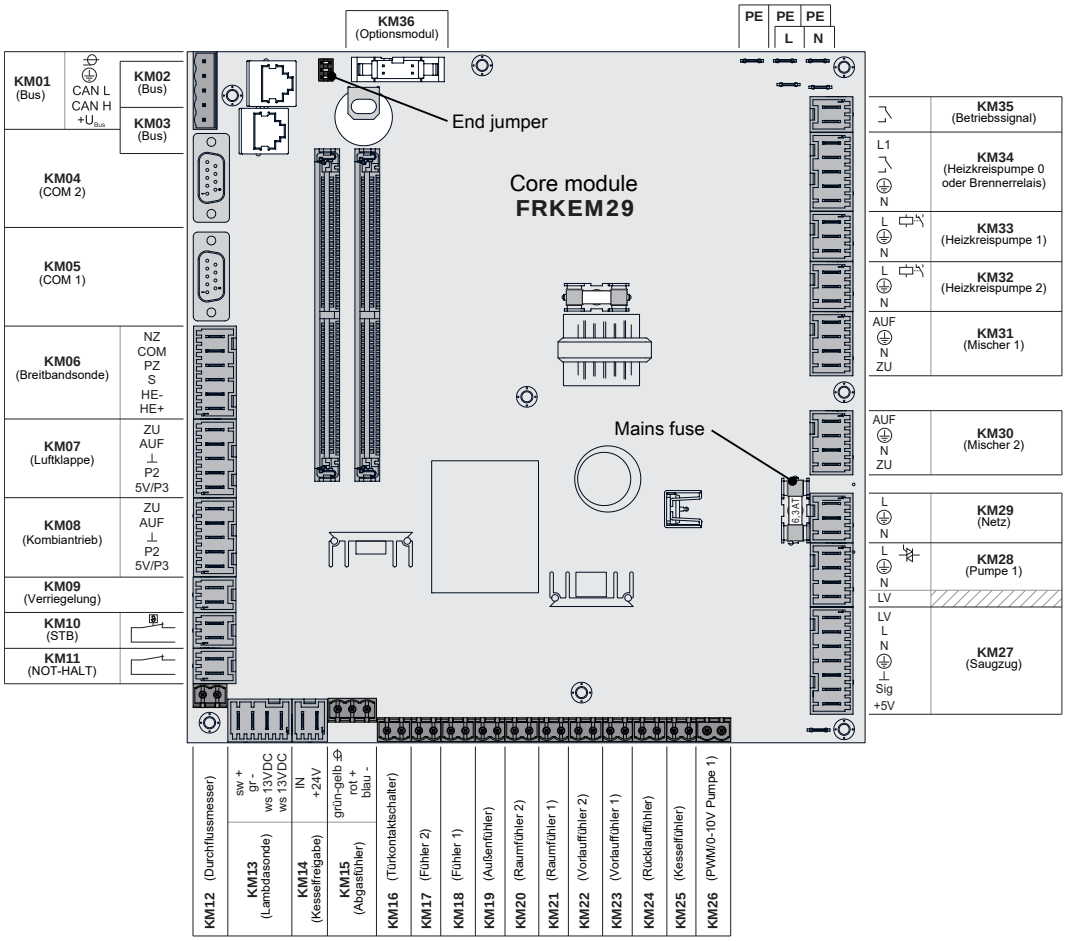
6.10.3 Connect the components of the pellet unit

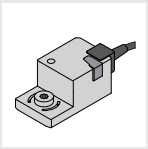
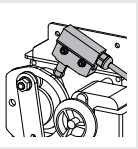
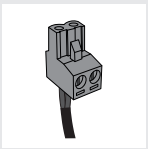


❒ Open the insulated door of the pellet unit and remove the cover plate behind the door

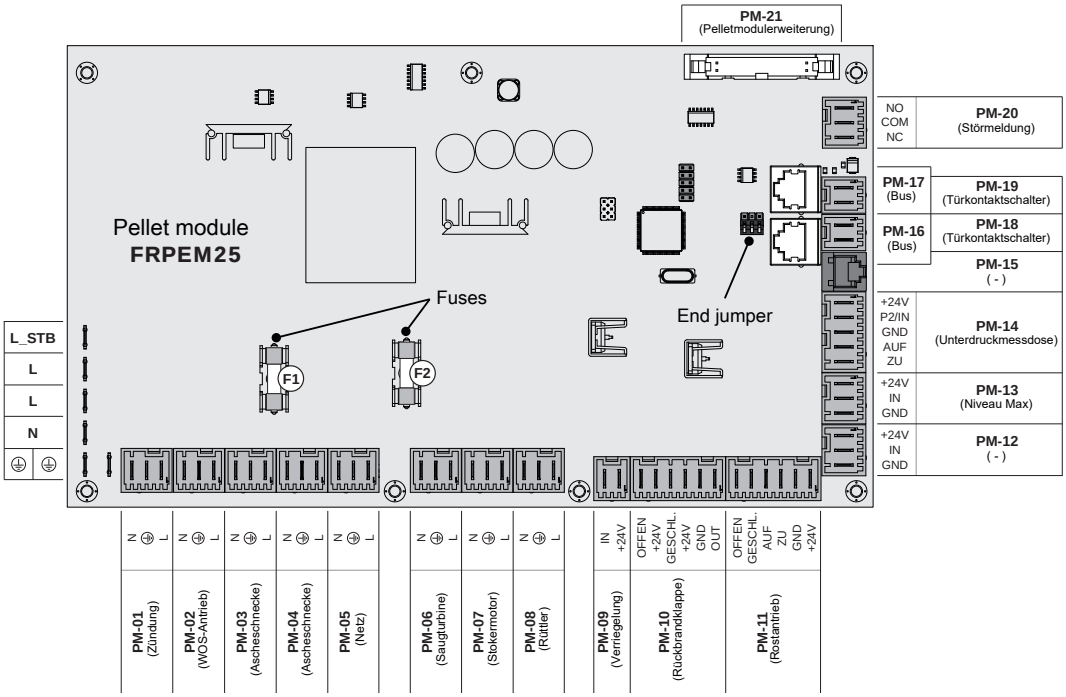
❒ Run the cable through the perforated opening (A) to the firewood boiler controller box and plug into the boards:

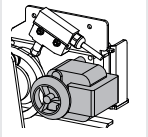
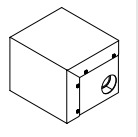
Core module:



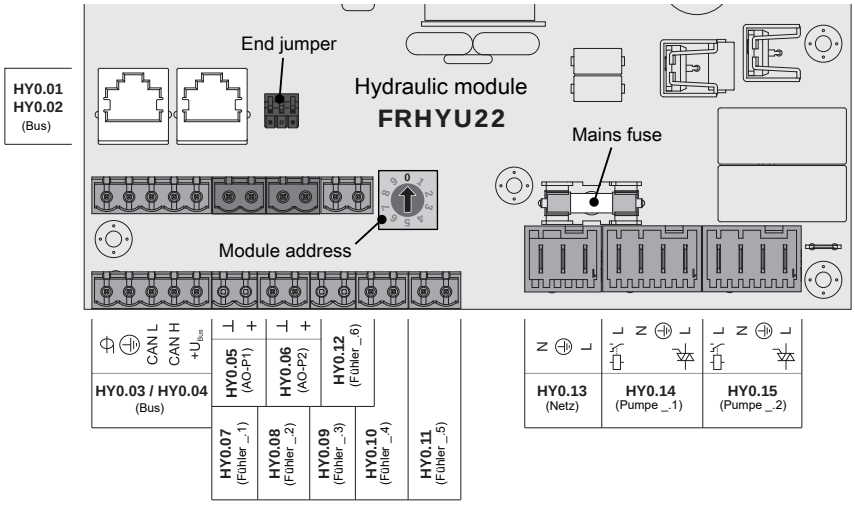
KM-08		Primary air	**KM-17**		WOS monitoring (for automatic WOS)
KM-09		Lock	**KM-18**		temperature sensor

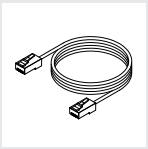
Pellet module:



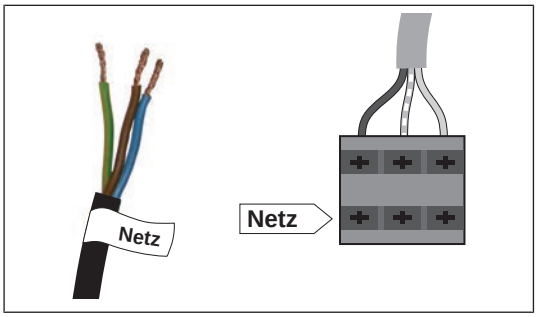
PM-02		WOS drive (for automatic WOS)	**PM-06**		Power supply line for the external suction module

Hydraulic module:



HY-01 or HY-02		Bus connection (alternatively on the return mixer module)

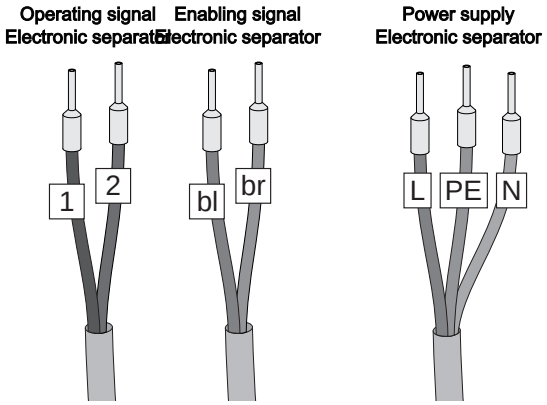
Power supply:



❒ Connect the power supply for the pellet unit to the terminal block of the firewood boiler

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

6.10.4 Connecting the electrostatic particle separator

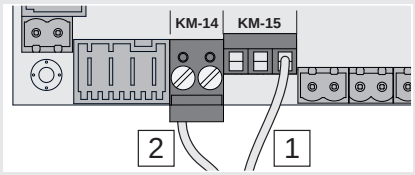


S1 Turbo / S5 Turbo

Operating signal for the electronic separator:

Wire "1" (earth) to terminal KM-15 on the core module (double assignment with flue gas temperature sensor, use double wire end ferrules)

Wire “2” (feedback) to terminal KM-14 on the core module



Enabling signal for the electronic separator:

Connect the brown and blue wires to terminal KM-35 on the core module (no polarity to be observed)

Power supply to the electronic separator:

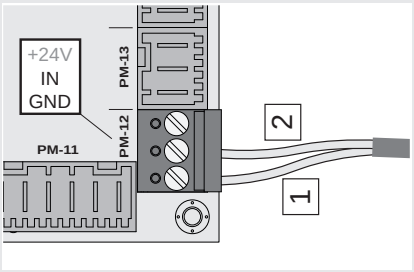
Connect the 230 VAC power supply line to the appliance connection terminal in the boiler controller

SP Dual / SP Dual compact

Operating signal for the electronic separator:

Wire "1" (earth) to terminal PM-12 on the pellet module

Core "2" (feedback) to terminal PM-12 on the pellet module



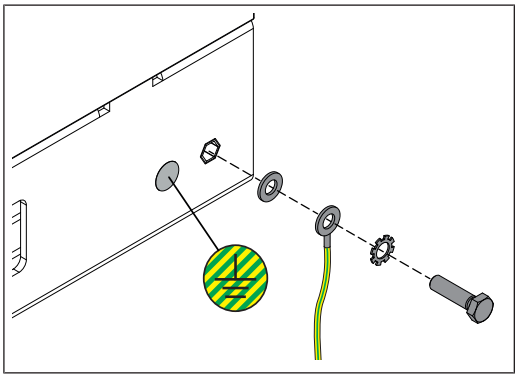
Enabling signal for the electronic separator:

Connect the brown and blue wires to terminal KM-35 on the core module (no polarity to be observed)

Power supply to the electronic separator:

Connect the 230 VAC power supply line to the appliance connection terminal in the boiler controller

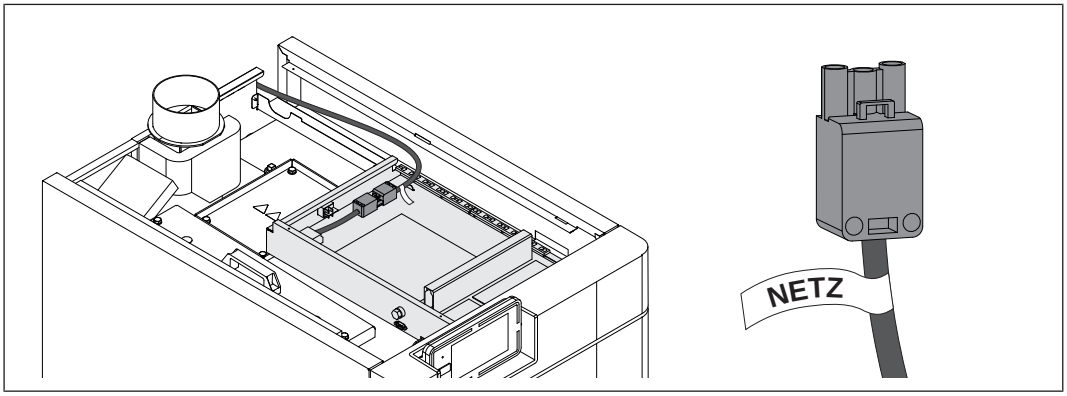
6.10.5 Potential equalisation



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

6.10.6 Mains connection

Once the individual components have been wired:



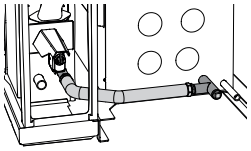
❒ Providing network connection

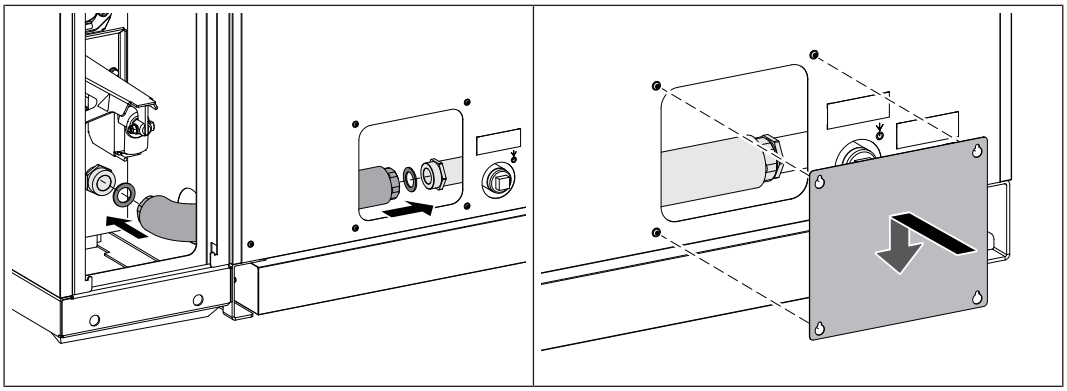
↳ The power supply cable (mains connection) must be fitted with a C16A fuse by the customer.

↳ Observe the circuit diagrams in the boiler controller operating instructions.

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

6.11 Hydraulic connection

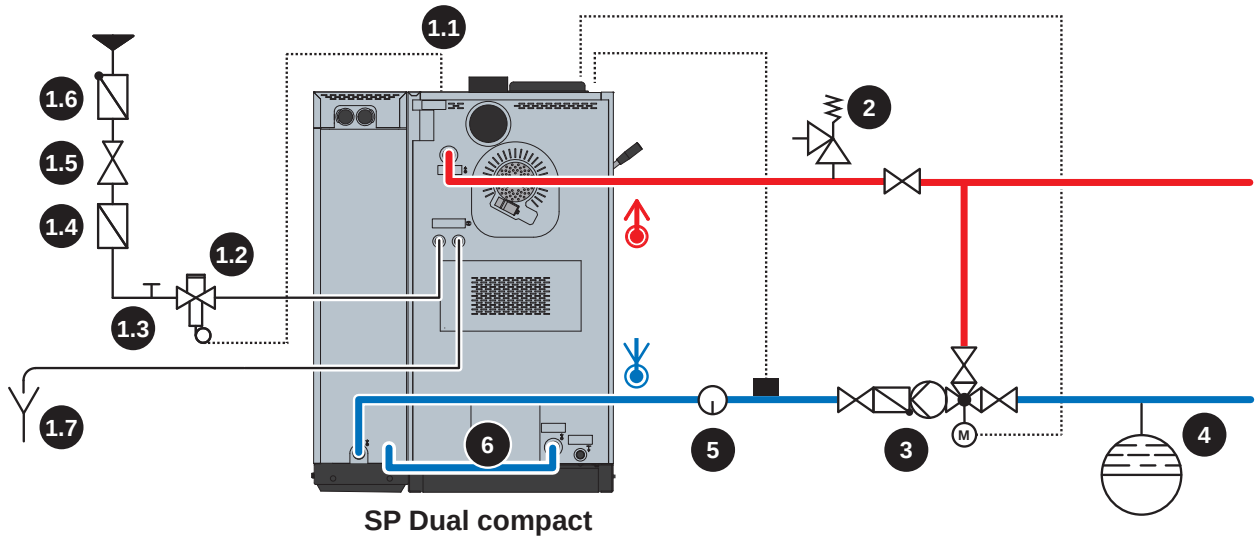




❒ Insert the pipe union as shown and fit to the screw connections

↳ Do not forget to fit the seals provided!

❒ Hang the cover plate on the screw heads and secure it with screws



SP Dual compact

1 Thermal discharge valve

- The thermal discharge safety device must be connected in accordance with ÖNORM/DIN EN 303-5 and as shown in the diagram above
- The discharge safety sensor must be connected to a pressurised cold water mains supply (temperature ≤ 15°C) in such a way that it cannot be shut off
- If the cold water pressure is ≥ 6 bar, a pressure reducing valve (1.5) is required
  Minimum cold water pressure = 2 bar

1.1 Sensor for the thermal discharge valve
1.2 Thermal discharge valve (opens at approx. 95°C)
1.3 Cleaning valve (T-piece)
1.4 Dirt trap
1.5 Pressure reducing valve
1.6 Backflow preventer to prevent stagnation of water in the drinking water network
1.7 Free outlet without back pressure with observable flow path (e.g. discharge funnel)

2 Safety valve

- Requirements for safety valves as specified by DIN EN ISO 4126-1
- Minimum diameter for the inlet to the safety valve as specified by EN 12828:
  DN15 (≤ 50 kW), DN20 (> 50 to ≤ 100 kW), DN25 (> 100 to ≤ 200 kW), DN32 (> 200 to ≤ 300 kW), DN40 (> 300 to ≤ 600 kW), DN50 (> 600 to ≤ 900 kW)
- Maximum pressure setting in terms of the permissible operating pressure of the boiler, see the section “Technical Data”
- The safety valve must be installed in an accessible place on the boiler or in direct proximity in the flow pipe in such a way that it cannot be shut off
- Unhindered and safe escape of the steam or water that is released must be ensured

3 Return temperature control

4 Diaphragm expansion tank

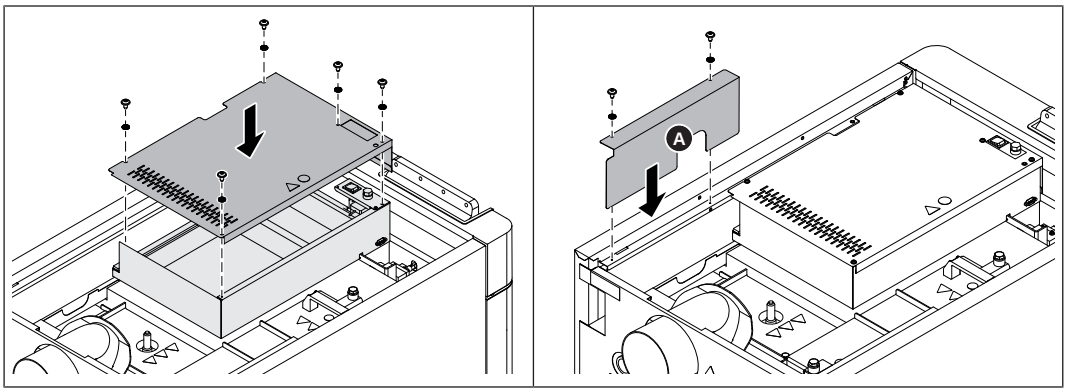
- The diaphragm pressurised expansion tank must conform to EN 13831 and hold at least the maximum expansion volume of the heated water in the system, including a water seal
- Its size must comply with the design information in EN 12828 - Appendix D
- Ideally it should be installed in the return line. Follow the manufacturer’s installation instructions

5 We recommend installing some sort of monitoring device (such as a thermometer)

6 Internal pipe connection

- Pellet unit outfeed to return firewood boiler (included in the scope of supply)

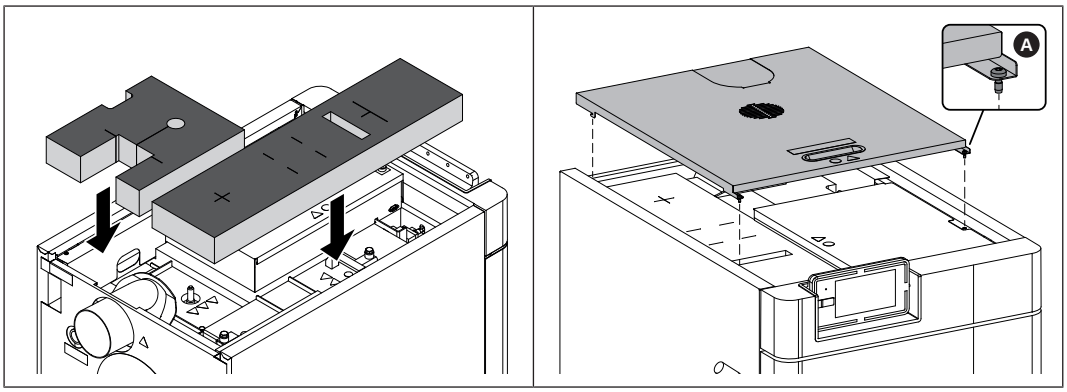
6.12 Final installation steps



❒ Install the controller cover
- 5x M4 x 10 raised-head screws incl. contact washer

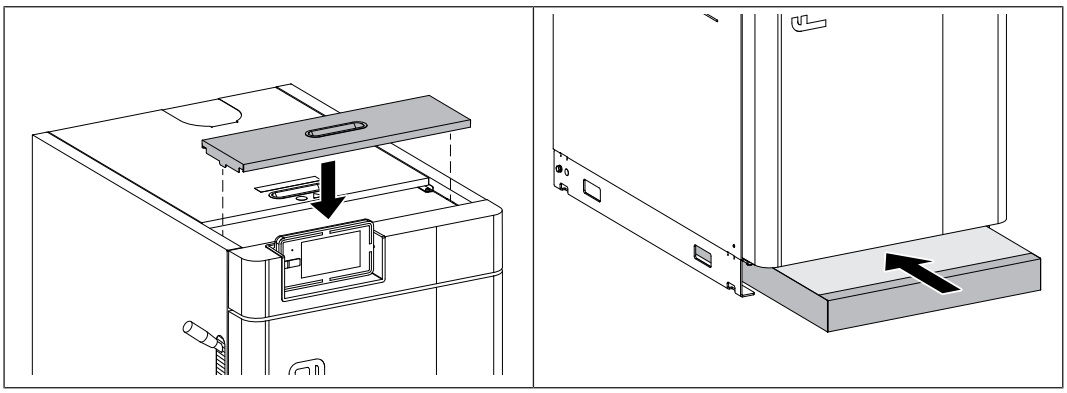
❒ Install the cable duct cover
- 2x M4 x 10 raised-head screws incl. contact washer

↳ In so doing, position the cable in the cut-out (A) of the cover



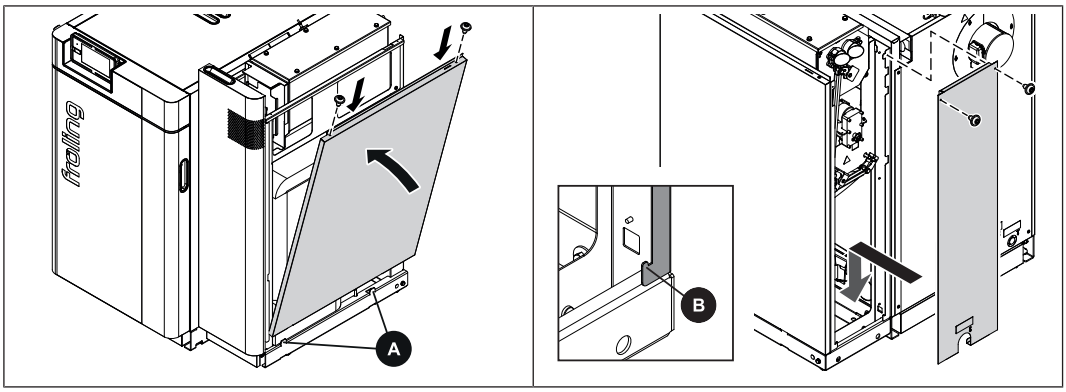
❒ Put thermal insulation on the reversing chamber cover and heat exchanger cover

❒ Thread the cover through at the rear and fix it at the front with two M5 x 12 screws (A)



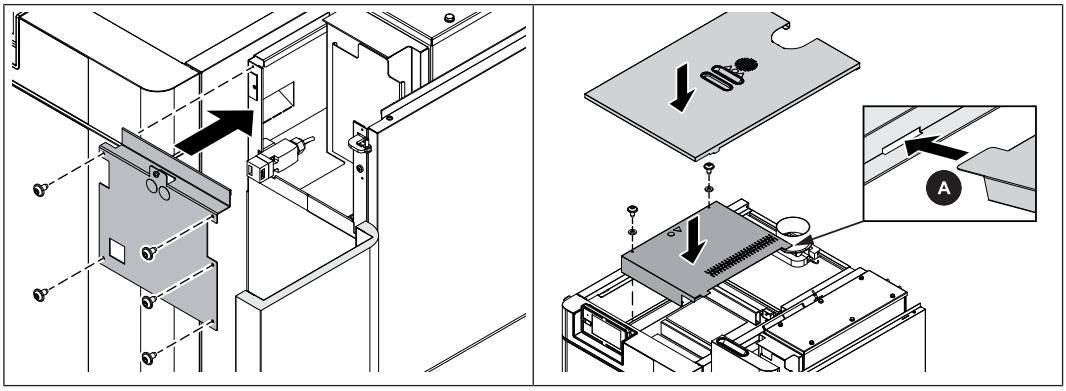
❒ Place the front cover on the boiler

❒ Slide the floor insulation underneath the boiler from the front



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

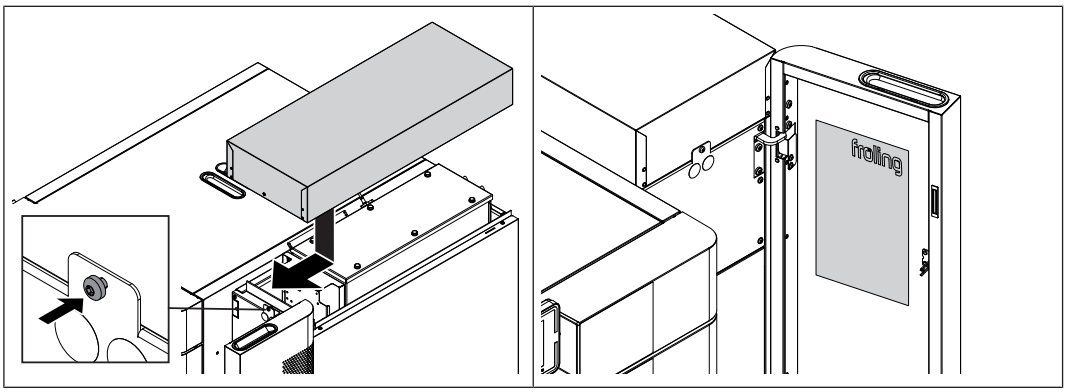
❒ Insert the rear panel on the bottom (B) and attach at the top



❒ Install the controller cover on the front of the pellet unit

❒ Fit the tabs (A) on the controller cover into the slots on the side panel

❒ Secure the controller cover in place using two screws and contact washers



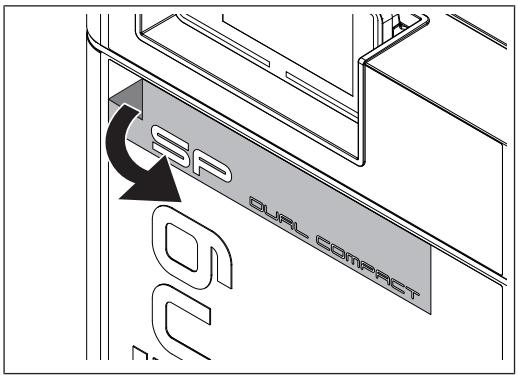
❒ Insert the cover into the cutouts on the side panel and slide it forward

❒ Secure the cover with a retaining screw

❒ Stick the supplied quick reference guide to the insulated door of the pellet unit in a visible location

❒ Close the insulated door

6.12.1 Positioning the boiler stickers



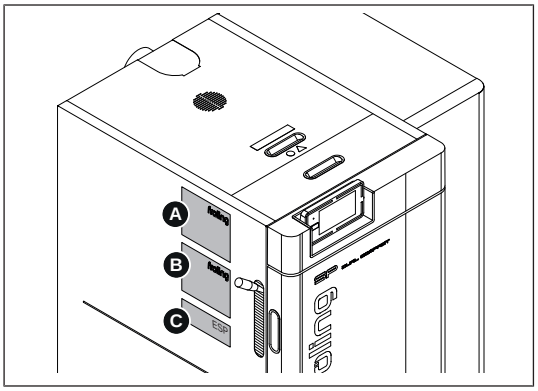
❒ Remove the protective film from the sticker

❒ Position the backing film featuring “SP DUAL COMPACT” in the upper left corner of the insulated door, ensuring all of the air bubbles have been removed

❒ Make several passes over the sticker so the writing adheres to the insulated door

❒ Carefully pull off the transparent backing film

6.12.2 Affixing the identification plate



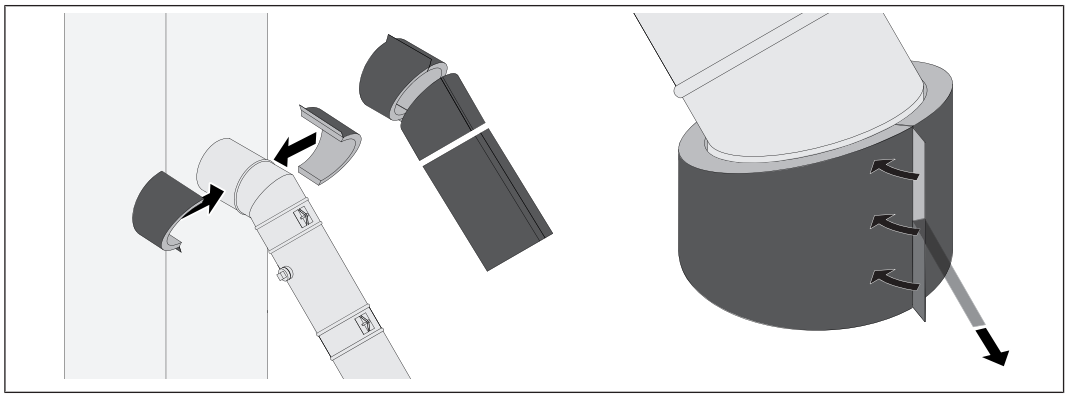
❒ Stick the supplied identification plates for the firewood boiler (A) and the pellets unit (B) to the side panel of boiler so that they are clearly visible

For the SP Dual compact ESP:

❒ Stick the additional identification plate (C) below the boiler identification plate

6.12.3 Insulate the connection line

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



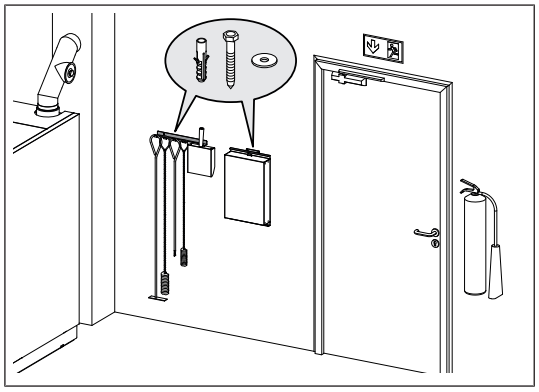
❒ Cut the half shells of thermal insulation to length and lay them on the connection line

❒ Create an opening for access to the measuring port

❒ Apply protective foil at the projecting lugs

❒ Glue the half shells to each other

6.12.4 Install the brackets for accessories



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

❒ Attach the accessories to the brackets

7 Start-up

7.1 Before commissioning / configuring the boiler

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

IMPORTANT

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

IMPORTANT

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.

❒ Switch on the main switch and configure the boiler controller to the type of system

❒ 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

IMPORTANT! The factory-fitted quick vent valve of the pellet unit is located behind the front insulated door

❒ Check that all screw connections at water-bearing joints are tightly sealed

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

❒ Check the entire hydraulic pipework for leaks

❒ Check that all necessary safety devices are in place

❒ Check that there is sufficient ventilation in the boiler room

❒ Check the leaktightness 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.

IMPORTANT! Check the digital and analogue inputs and outputs - See the operating instructions for the boiler controller!

7.2 Initial startup

7.2.1 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*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

Firewood

Firewood up to max. 55 cm long.

Water content

Water content (w) greater than 15% (equivalent to wood moisture u > 17%)

Water content (w) less than 25% (equivalent to wood moisture u < 33%)

Note on standards

EU:	Fuel as per EN ISO 17225 – Part 5: Firewood class A2 / D15 L50
Additional for Germany:	Fuel class 4 (§3 of the First Federal Emissions Protection Ordinance (BimSchV) in the last amended version)

Tips for storing wood

- Use wind-exposed areas where possible for storage (e.g. store at edge of forest instead of in forest)
- Walls of buildings facing the sun are ideal
- Create a dry underlay, where possible with air access (line with round timber, pallets, etc.)
- stack split wood and store in such a way that it is protected from the elements
- If possible, stock fuel for the day in a warm place (e.g. in boiler room) (pre-heats the fuel!)

Storage time dependent upon water content

	Wood type	Water content	
		15 – 25%	less than 15 %
Storage in heated and ventilated room (approx. 20°C)	Soft wood (e.g. spruce)	approx. 6 months	from 1 year
	Hardwood (e.g. beech)	1 – 1.5 years	from 2 years
Outdoor storage (protected from elements, exposed to wind)	Soft wood (e.g. spruce)	2 summers	from 2 years
	Hardwood (e.g. beech)	3 summers	from 3 years

Freshly cut wood has an approximate water content of 50 to 60% depending on when it was harvested. As the above table shows, the water content of the firewood decreases the longer the wood is stored depending on how dry and warm the storage location is. The ideal water content of firewood is between 15 and 25%. If the water content falls below 15%, we recommend you adjust the combustion control to the fuel.

7.2.2 Fuels permitted under certain conditions

Wood briquettes

Wood briquettes for non-industrial use with a diameter of 5-10 cm and 5-50 cm long.

Note on standards

EU:	Fuel as per EN ISO 17225 - Part 3: wood briquettes class B / D100 L500 Form 1 - 3
Additional for Germany:	Fuel class 5a (§3 of the First Federal Emissions Protection Ordinance (BImSchV) - applicable version)

Notes on use

- When burning wood briquettes use the settings for extremely dry fuel
- Wood briquettes must be heated up with firewood as per EN ISO 17225-5 (at least two layers of firewood under the wood briquettes)
- The fuel loading chamber must not be filled more than 3/4 full, as the wood briquettes expand during combustion
- Even when using the settings for dry fuel, burning wood briquettes can cause combustion problems. In such cases, repairs must be carried out by qualified staff. Please contact Froling customer services or your installer.

7.2.3 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

IMPORTANT

In the event that non-permitted fuels are used:

Burning non-permitted fuels increases the amount of cleaning required and leads to a build-up of aggressive deposits and condensation which can damage the boiler. Consequently this invalidates the warranty! Using non-standard fuels can also lead to serious faults in combustion!

For this reason, when operating the boiler:

❒ Use only the permitted fuels

7.2.4 Heating up for the first time

IMPORTANT

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.

⚠ CAUTION

If the boiler heats up too quickly on initial start-up:

If the output during the heating-up process is too great, cracks in the combustion chamber may appear as a result of drying out too rapidly!

For this reason the following applies the first time you heat up the boiler:

❒ Carry out initial start-up of the firewood boiler with less amount of fuel

8 Decommissioning

8.1 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

8.2 Disassembly

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

8.3 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.

❒ The combustion chamber must be disposed of as builders' waste.

9 Appendix

9.1 Pressure equipment regulation

TÜV AUSTRIA

EG-Entwurfsprüfbescheinigung
EC design-examination certificate

EG-Entwurfsprüfung (Modul B1) nach Richtlinie 97/23/EG
EC design-examination (module B1) according to Directive 97/23/EC

Bescheinigung Nr.: 2015-HST-0059
Certificate No.:

Hersteller / *manufacturer:*

FRÖLING Heizkessel- und Behälterbau GesmbH
A 4710 Grieskirchen

Hiermit wird bescheinigt, dass die Ergebnisse der an dem unten genannten Druckgerät vorgenommenen Prüfungen die Anforderungen der Richtlinie 97/23/EG erfüllen.
This is to certify that the results of the examination of the pressure equipment mentioned below meet the requirements of the directive 97/23/EC.

Objekt: *object:* Baugruppe / *assembly*

Benennung: *description:* Baugruppe zur Erzeugung von Warmwasser gemäß § 7 (2) Druckgeräteverordnung

Inspektionsbericht Nr.: *inspection report no.:* 2015-HA-026 Rev. 0

TÜV AUSTRIA SERVICES GMBH TÜV AUSTRIA

Dipl.-Ing. Dr. Sebastian Schindler
Qualifizierte digitale Signatur
Verifikation der Echtheit unter
https://pruefung.signatur.rtr.at

Wien	05.03.2015	
Ort *place:*	**Datum** *date:*	**Freigegeben durch** *approved by*

QFM-DG-KB-DGVO-004_
Prüfbescheinigung PED
Revision: 03 vom 19.01.2015
Seite 1/1

TÜV AUSTRIA SERVICES GMBH
Benannte Stelle 0408
Auszugsweise Vervielfältigung nur mit Genehmigung der TÜV AUSTRIA SERVICES GMBH gestattet.
Alle Prüf- Inspektions- und Überwachungstätigkeiten erfolgten gemäß QM System der TÜV AUSTRIA SERVICES GMBH

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Installer's address

Stamp

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