fröling

Installation instructions

Dual fuel boiler SP Dual

Translation of original German version of installation instructions for technicians.

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

CE

M1301424_en | Edition 12/06/2024

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 boilers:

22, 28, 32[1)], 34, 40;

1) SP Dual 32 is available only in Italy;

1.2 Disposal of packaging materials

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

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

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

2 Safety

2.1 Hazard levels of warnings

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

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

NOTICE

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

2.2 Qualification of assembly staff

⚠ CAUTION

Assembly and installation by unqualified persons:

Risk of personal injury and damage to property

During assembly and installation:

❒ Observe the instructions and information in the manuals

❒ Only allow appropriately qualified personnel to work on the system

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

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

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

2.3 Personal protective equipment for assembly staff

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

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

3 Design Information

3.1 Overview of standards

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

3.1.1 General standards for heating systems

EN 303-5	Boilers for solid fuels, manually and automatically fed combustion systems, nominal heat output up to 500 kW
EN 12828	Heating systems in buildings - design of water-based heating systems
EN 13384-1	Chimneys - Thermal and fluid dynamic calculation methods 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

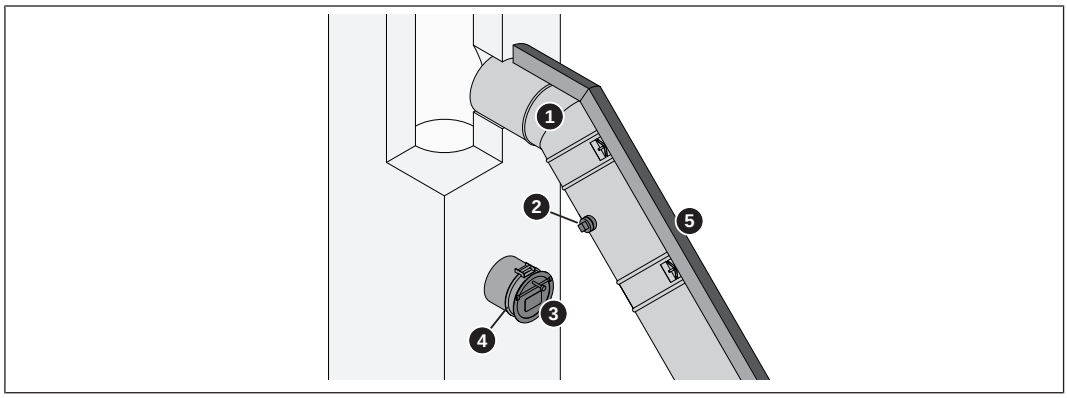
Requirements for the load bearing substrate:

- 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

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

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

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

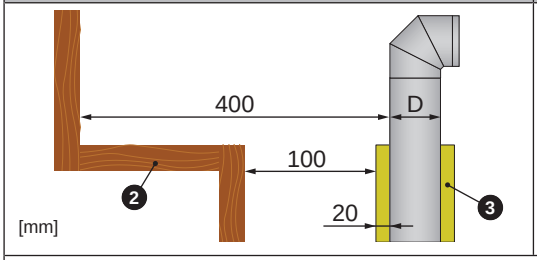
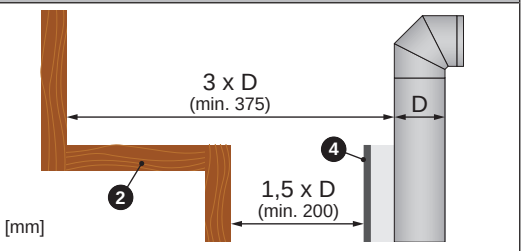
Local regulations and other statutory regulations are also applicable.

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

3.4.1 Connection line to the chimney

Requirements for the connection line:

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

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

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

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

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

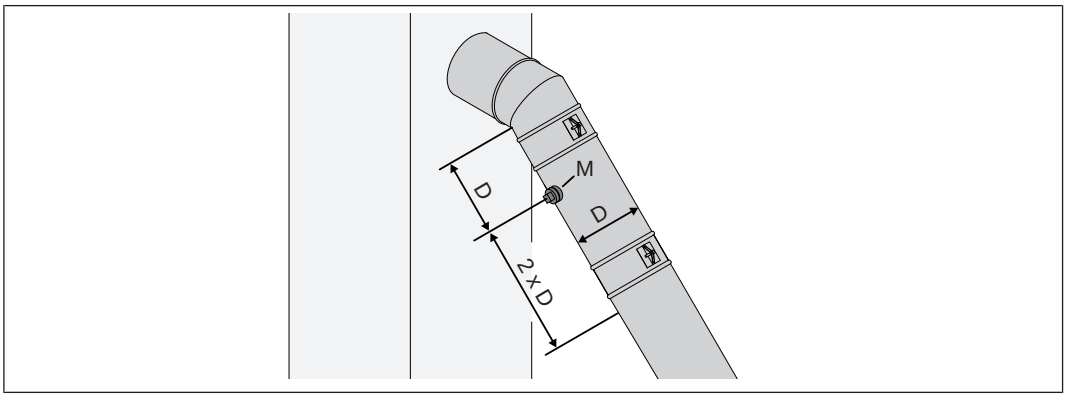
Minimum distance from flammable materials as per EN 15287-1 and EN 15287-2:

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

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

3.4.2 Measuring port

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



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

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

3.4.3 Draught limiter

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

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

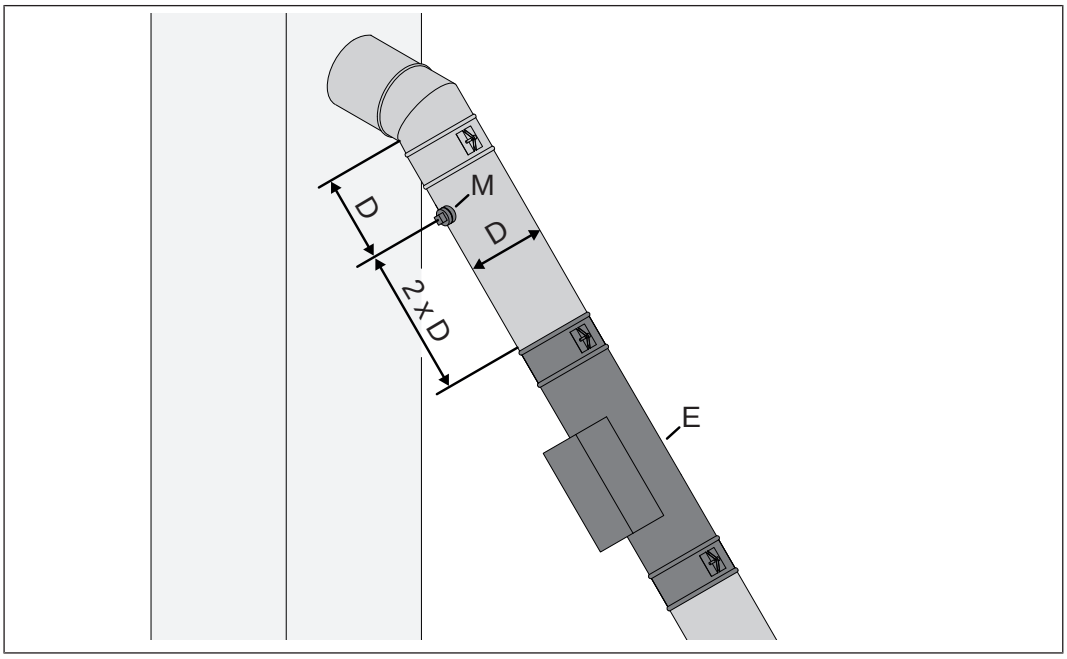
NOTICE! Install the draught limiter directly under the mouth of the flue duct, as there is persistent under-pressure at this point, which largely prevents the escape of dust from the draught limiter.

3.4.4 Explosion flap

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

3.4.5 Electrostatic particle separator

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



For planning and installation, comply with the following points:

- Position the measuring port (M) downstream of the electrostatic particle separator (E) as specified in the instructions
  ➲ "Measuring port" [▶ 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.

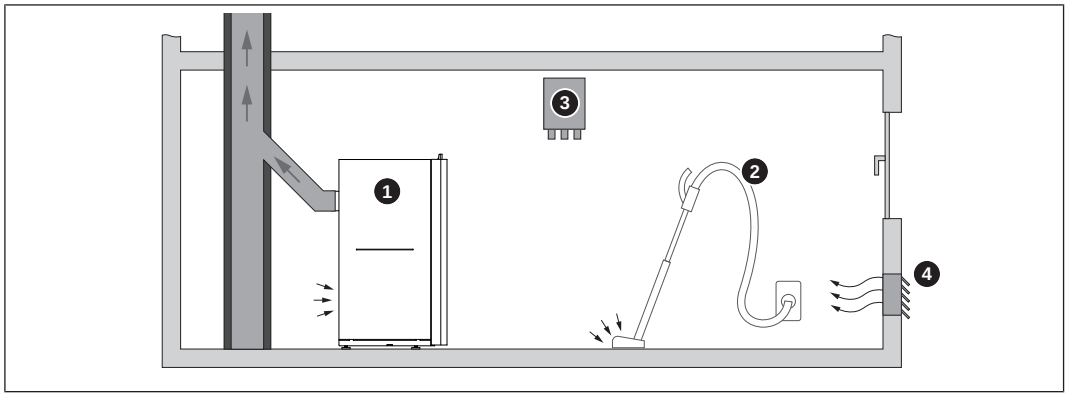
The boiler is operated depending on the room air, whereby the combustion air is taken from the installation site.

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

3.5.2 Room air-independent operation

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



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

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

Austria	400 cm² net minimum cross-sectional area 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 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 boiler's minimum continuous heat output is 30% above the nominal heat output, we as boiler manufacturer are obliged under EN 303-5:2021, Section 4.4.6 to advise that the Dual fuel boiler SP Dual must always be connected to a storage tank with adequate storage capacity.

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

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

V_{Sp}	Storage tank capacity in litres
P_N	Nominal heat output of boiler in kW
T_B	Burn-off period of boiler in hours[1)]
P_H	Heating load of building in kW
P_{min}	Minimum heat output of 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 Fröling.

Recommended storage tank capacity:

	Unit	SP Dual 22-28	SP Dual 32-40
Recommended storage tank capacity[1)]	[l]	2000	2500

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 According to the relevant Austrian laws governing energy technology, which are based on Art. 15a B-VG "Agreement on protective measures for small furnaces" (2012):

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 may not fall below 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 below the abovementioned recommended storage tank capacity.

3.9 Return lift

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

NOTICE

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).

3.10 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

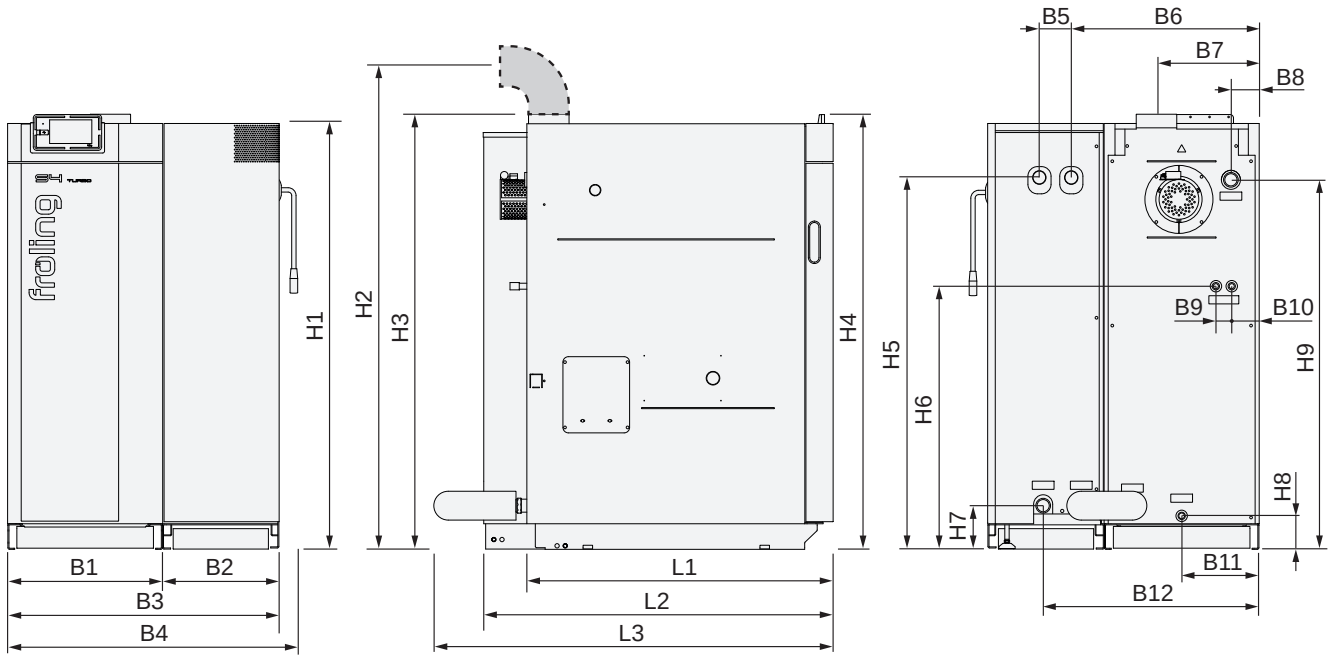
Tip: ❒ Fit a vertical pipe as a calming section in front of the automatic ventilating valve in such a way that the ventilating valve is positioned above the water level in the boiler

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

↳ Follow the manufacturer's instructions!

4 Technology

4.1 SP Dual measurements

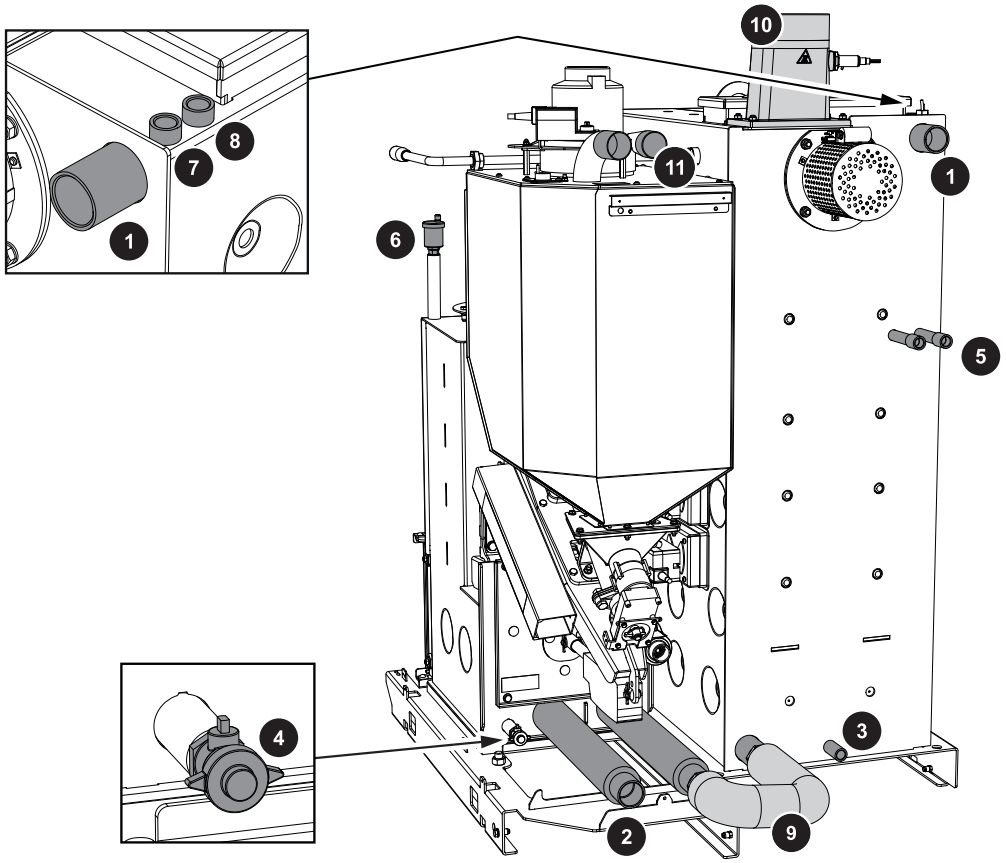


Dimension	Description	Unit	22-28	32-40
L1	Length, firewood boiler	mm	1125	1215
L2	Length, pellet unit		1285	1375
L3	Total length including pipe bend		1470	1560
B1	Width, firewood boiler		570	670
B2	Width, pellet unit		430	430
B3	SP Dual width		1000	1100
B4	Total width including WOS lever		1065	1165
B5	Distance between hose line connections		125	115
B6	Distance between hose line connection and side of boiler		685	790
B7	Distance between flue gas pipe connection and side of boiler		380	430
B8	Distance between flow connection and side of boiler		105	105
B9	Distance between safety heat exchanger connections		60	80
B10	Distance between safety heat exchanger connection and side of boiler		100	115
B11	Distance between drainage connection and side of boiler		285	335
B12	Distance between return connection and side of boiler		795	895
H1	Height, pellet unit		1565	1565
H2	Height of flue gas pipe connection[1)]		1705	1705
H3	Total height incl. flue gas nozzle		1600	1600
H4	Height, firewood boiler		1600	1600
H5	Height of hose line connection		1360	1360
H6	Height, safety heat exchanger connection		970	970

Dimension	Description	Unit	22-28	32-40
H7	Height, return connection		160	160
H8	Height, drainage connection		125	125
H9	Height, flow connection		1360	1360

1. When using the optional flue pipe nozzle for low chimney connections

4.2 Components and connections



Item	Description	22-40
1	Boiler flow connection	6/4” IT
2	Boiler return connection	6/4” IT
3	Firewood boiler drainage connection	1/2“ IT
4	Pellet unit drainage	1/2“ IT
5	Safety heat exchanger connection	1/2“ IT
6	Pellet unit venting	1/2“ IT
7	Position for boiler sensor and STL capillary (internal diameter)	16 mm
8	Immersion sleeve sensor connection for thermal discharge valve (customer supply)	1/2“ IT
9	Pipe union [1)] - Pellet unit outfeed to firewood boiler return	6/4” IT
10	Flue gas pipe connection (external diameter)	149 mm
11	Hose lines connection (external diameter)	50 mm

1. Included in delivery

4.3 Technical specifications

4.3.1 SP Dual 22/28

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	
		22	28
Rated heat output	kW	22	25
Boiler efficiency (NCV) with wood pellets at nominal load/partial load	%	93.8 / 93.0	93.9 / 93.0
Electrical connection		230 V / 50 Hz / C16A	
Boiler weight incl. pellet unit	kg	955	965
Weight of pellet unit	kg	310	315
Total boiler capacity (water)	L	157	
Pellet container capacity	l	90	
Water pressure drop (ΔT = 10 / 20 K)	mbar	14.5 / 7.5	18.5 / 5.9
Min. 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 041	PB 042

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

Description		SP Dual	
		22	28
Heating up mode		automatic	
Condensing boiler		No	
Solid fuel boiler for combined heat and power		No	
Combined heating system		No	
Storage tank volume		➲ "Storage tank" [▶ 20]	
Preferred fuel		Compressed wood in the form of pellets	
Useful heat delivered at rated heat output (P_n)	kW	22.0	25.0
Useful heat delivered at 30% of rated heat output (P_p)		6.6	7.5
Fuel efficiency at rated heat output (η_n)	%	87.6	87.7

Description		SP Dual	
		22	28
Fuel efficiency at 30% of rated heat output (η_p)		85.8	85.8
Auxiliary current consumption at rated heat output (el_{max})	kW	0.041	0.045
Auxiliary current consumption at 30% of rated heat output (η_p)		0.039	0.039
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	122
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	124
Energy efficiency class of the combined boiler and controller[1)]		A+	A+
Heating space annual rate of use ηs	%	81	83
Annual space heating emissions of dust (PM)[2)]	mg/m³	7	8
Annual space heating emissions of gaseous organic compounds (GOC)[2)]	mg/m³	4	4
Annual space heating emissions of carbon monoxide (CO)[2)]	mg/m³	15	15
Annual space heating emissions of nitrogen oxides (NOx)[2)]	mg/m³	139	141
Other permitted fuels		Firewood, moisture content ≤ 25 %	
The applicable product data can be found in the technical data for the firewood boiler.			

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 SP Dual 32/34/40

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		
		32[1)]	**34**	**40**
Rated heat output	kW	32	34	38
Boiler efficiency (NCV) with wood pellets at nominal load/partial load	%	94.1 / 92.4	93.9 / 92.9	93.9 / 92.9
Electrical connection		230 V / 50 Hz / C16A		
Boiler weight incl. pellet unit	kg	1055	1065	1075
Weight of pellet unit	kg	320	325	330
Total boiler capacity (water)	L	220		
Pellet container capacity	l	103		
Water pressure drop (ΔT = 10 / 20 K)	mbar	37.0 / 8.2	37.0 / 8.2	37.0[2)] / 15
Min. 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 108	PB 053	PB 052

1. SP Dual 32 only available in Italy
2. Water pressure drop at ΔT = 12K

Additional data for regulation (EU) 2015/1189

Description		Pellet unit, SP Dual		
		32	34	40
Heating up mode		automatic		
Condensing boiler		No		
Solid fuel boiler for combined heat and power		No		
Combined heating system		No		
Storage tank volume		➲ "Storage tank" [▶ 20]		
Preferred fuel		Compressed wood in the form of pellets		
Useful heat delivered at rated heat output (P_n)	kW	32.0	34.0	38.0
Useful heat delivered at 30% of rated heat output (P_p)		9.6	10.2	11.4
Fuel efficiency at rated heat output (η_n)	%	86.6	86.4	86.4
Fuel efficiency at 30% of rated heat output (η_p)		85.0	85.5	85.5
Auxiliary current consumption at rated heat output (el_{max})	kW	0.072	0.094	0.094
Auxiliary current consumption at 30% of rated heat output (η_p)		0.040	0.041	0.041
Auxiliary current consumption in standby mode (P_{SB})		0.011	0.011	0.011
Energy efficiency class of the boiler		A+	A+	A+
Energy efficiency index (EEI) of boiler		119	120	120
Temperature controller used		Lambdatronic P 3200		
Class of the temperature controller		II	II	II
Contribution of the temperature controller to the energy efficiency index of a combined system	%	2	2	2
Energy efficiency index (EEI) of the combined boiler and controller[1)]		121	122	122
Energy efficiency class of the combined boiler and controller[1)]		A+	A+	A+
Heating space annual rate of use ηs	%	81	81	82
Annual space heating emissions of dust (PM)[2)]	mg/m³	18	14	14
Annual space heating emissions of gaseous organic compounds (GOC)[2)]	mg/m³	4	4	4
Annual space heating emissions of carbon monoxide (CO)[2)]	mg/m³	33	23	23
Annual space heating emissions of nitrogen oxides (NOx)[2)]	mg/m³	140	146	146
Other permitted fuels		Firewood, moisture content ≤ 25 %		
The applicable product data can be found in the technical data for the firewood boiler.				

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.

4.3.3 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		S4 Turbo / SP Dual			
		22	28	32[1] / 34	40
Flue gas temperature at rated heat output T_{WN} / at the lowest output T_{Wmin}	°C	160 / 110	180 / 130	140 / 110	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	58 / 25	76 / 36	90 / 43	108 / 54
	kg/s	0.016 / 0.007	0.021 / 0.010	0.025 / 0.012	0.030 / 0.015
Feed pressure P_{WN} required at the rated heat output / P_{Wmin} required at the lowest output	Pa	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	149			
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	-	-	-	-

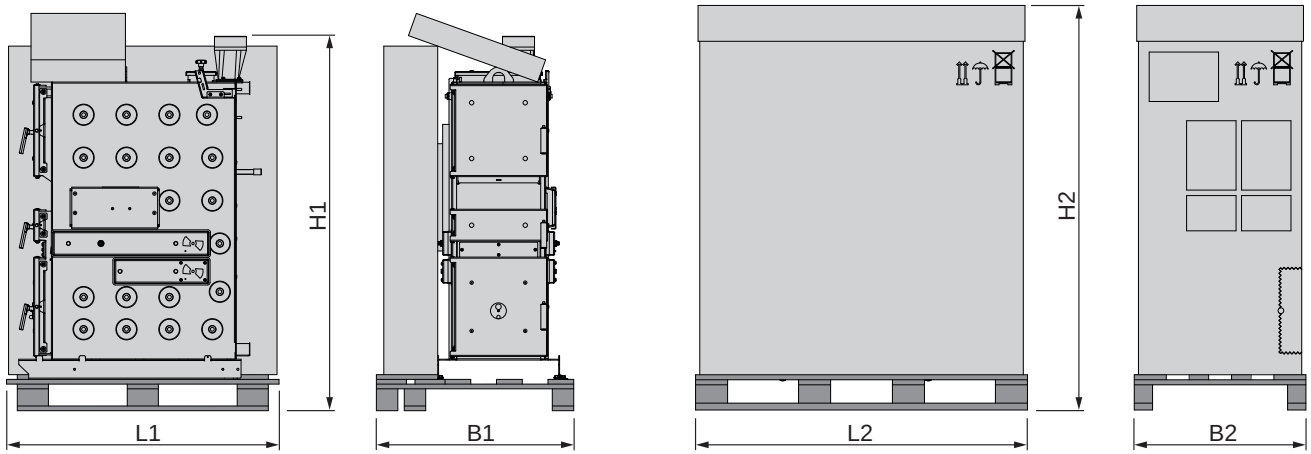
1. S4 Turbo 32 only available in Italy

4.3.4 Data for planning a backup power supply

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

5 Transport and storage

5.1 Delivery configuration



Item	Description	Unit	Pellet unit, SP Dual	
			22-28	32-40
L1	Length, firewood boiler	mm	1270	
L2	Length, pellet unit		1450	
B1	Width, firewood boiler		920	
B2	Width, pellet unit		750	
H1	Height, firewood boiler		1750	
H2	Height, pellet unit		1770	
-	Weight of firewood boiler	kg	665	755
	Weight, pellet unit		320	330

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

NOTICE

Damage to components if handled incorrectly

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

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

If the firewood boiler cannot be brought in on the pallet:

❒ remove the cardboard and take the boiler off the pallet

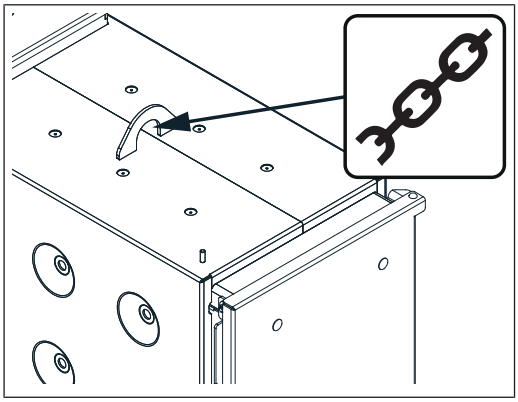
➲ "Remove boiler from pallet" [▸ 31]

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" [▸ 32]

Positioning using a crane



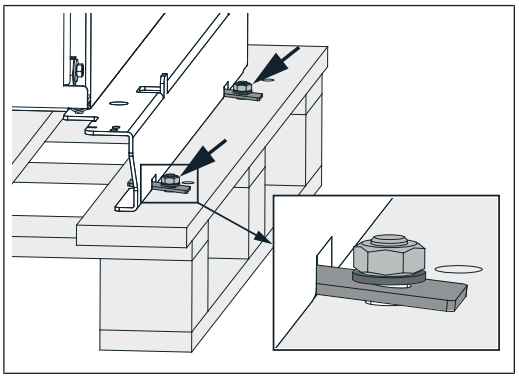
❒ Attach the crane hook to the attachment point correctly and position the boiler

5.4 Positioning at the installation site

5.4.1 Remove boiler from pallet

❒ Remove the cardboard with the controller from the boiler and put in a safe place

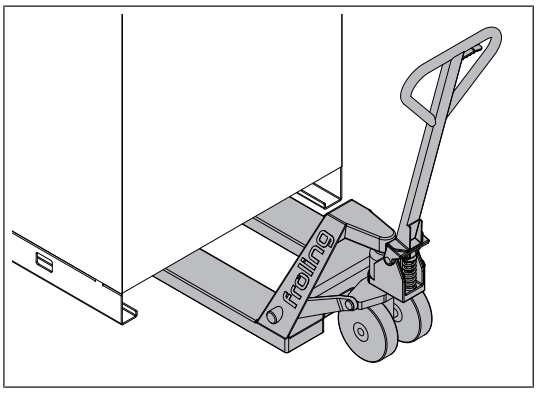
❒ Lift the cardboard box with the insulation from the pallet



❒ Remove the transport locks on both sides

❒ Lift boiler from pallet

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



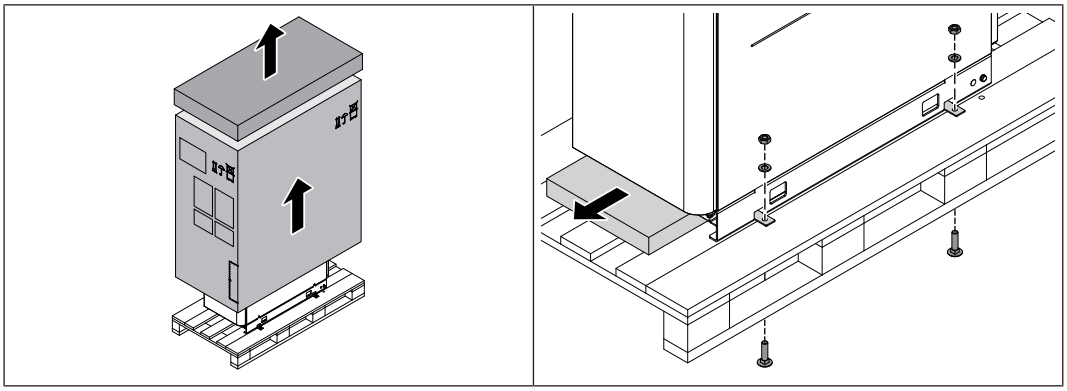
❒ Position a fork-lift or similar lifting device with a suitable load-bearing capacity at the base frame

❒ Lift it and transport it to the intended position

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

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.

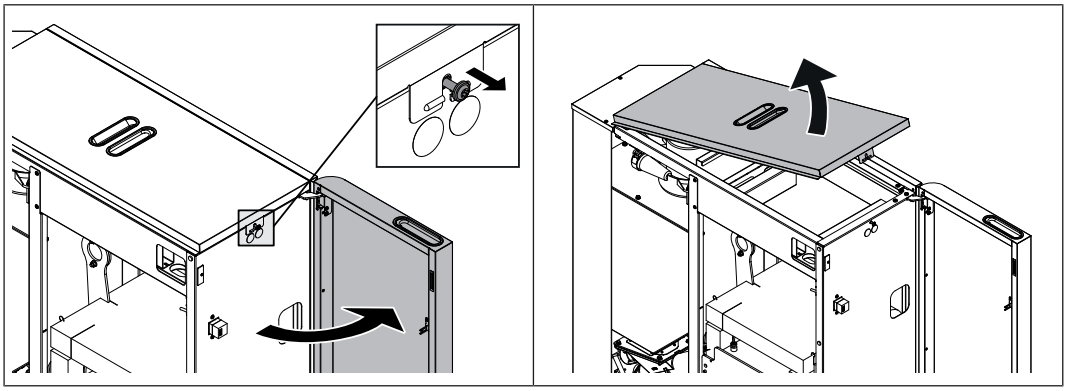
5.4.2 Removing the pellet unit from the pallet



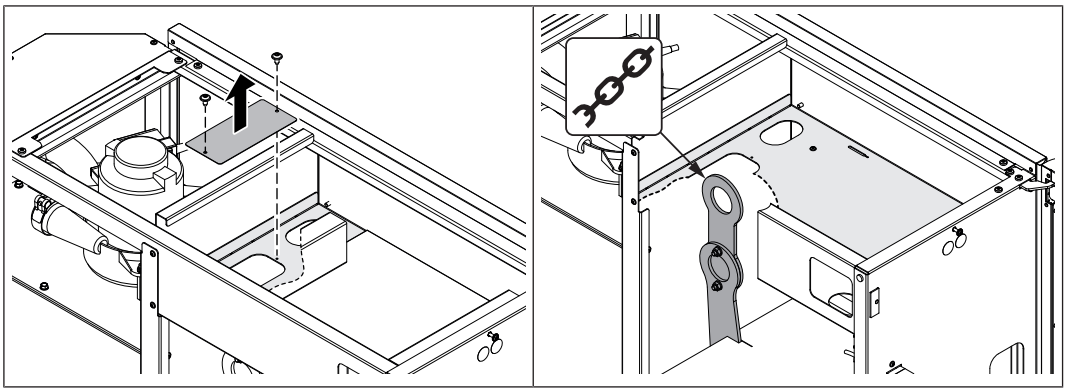
❒ Lift off the cardboard box
❒ Remove the transport restraints from the pallet
❒ Pull out floor insulation
❒ Remove the pellet unit from the pallet

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

For lifting with a crane:

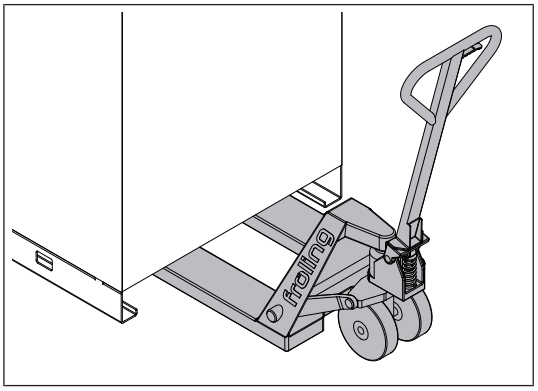


❒ Open the insulated door and undo the safety screws located behind it
❒ Lift the cover slightly and remove it from the front



❒ Remove the cover behind the controller box

❒ Secure the crane hook to the crane eye below and lift the pellet unit



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

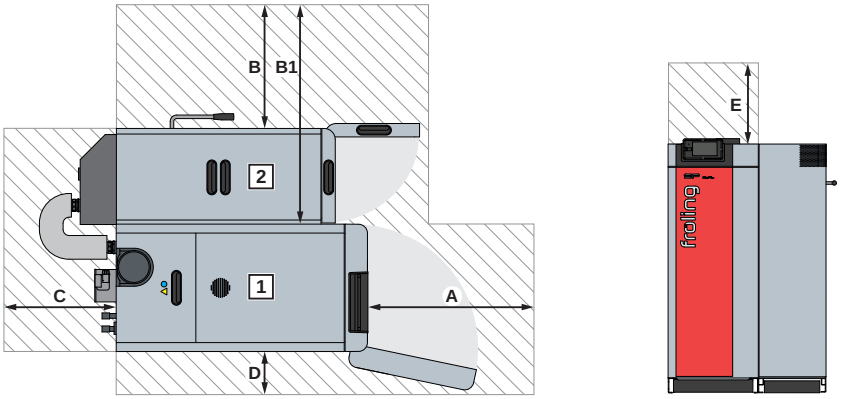
❒ Lift it and transport it to the intended position

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

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



1… Firewood boiler S4 Turbo F | 2… Pellet unit

	SP Dual 22-28	SP Dual 32-40
A	800 mm	
W	600 / 300 mm[1)]	700 / 400 mm[1)]
B1	1030 / 730 mm[1)]	1130 / 830 mm[1)]
C	500 mm	
D	200 / 800 mm[2)]	
E	500 mm[3)]	

1. When using the optional WOS drive or WOS lever on the left-hand side
2. When using the WOS lever on the left-hand side
3. Maintenance area to expand the WOS springs upwards

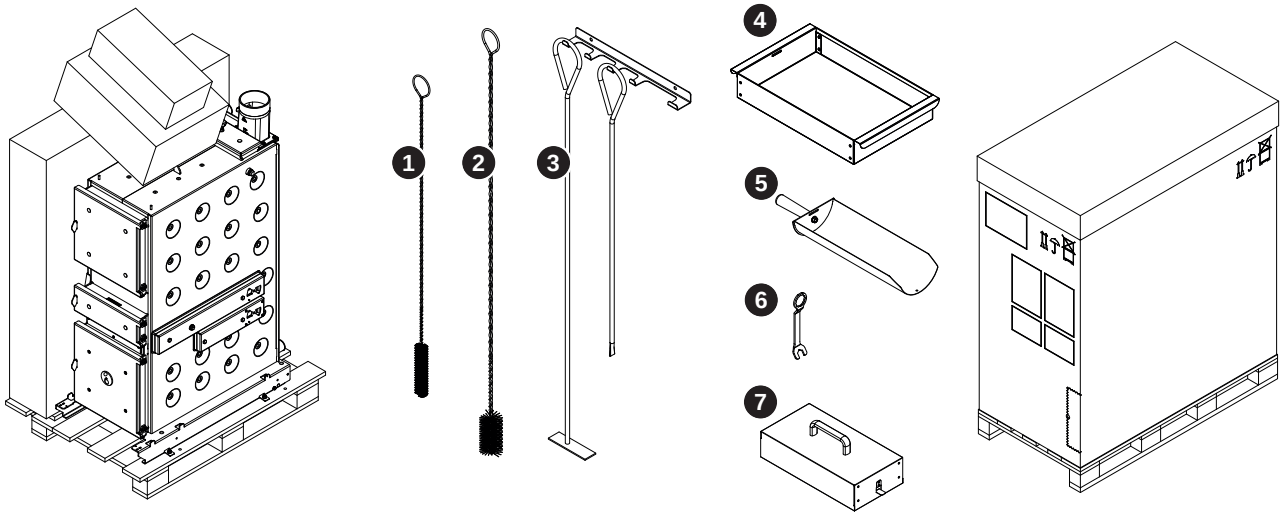
6 Installation

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

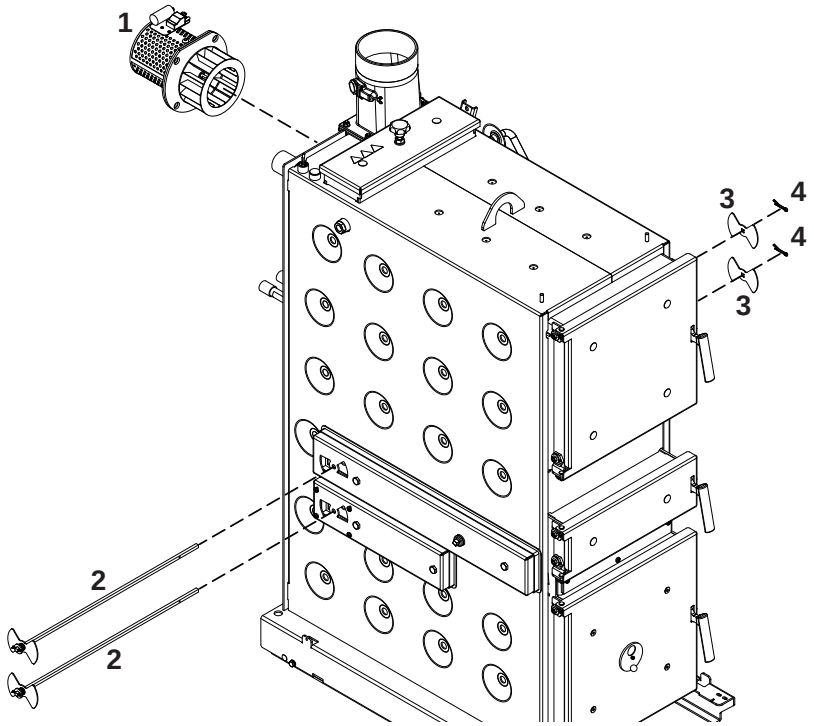
6.2 Accessories supplied



1	Cleaning brush 30 x 20 x 90	**5**	Ash shovel
2	Cleaning brush Ø 54 x 1350	**6**	Spanner for door mountings
3	Furnace tool with bracket	**7**	Transport cover for ash drawer
4	Ash drawer with bracket	**8**	

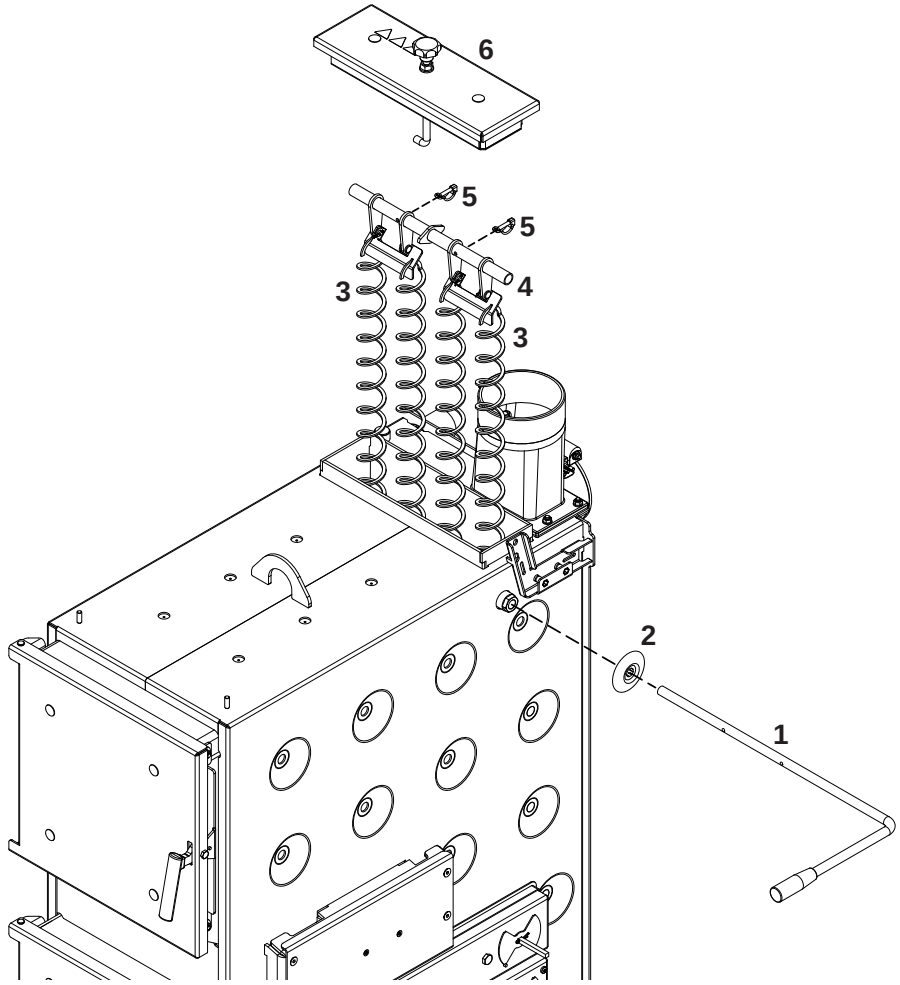
6.3 Assembly overview S4 Turbo F

6.3.1 Air duct system



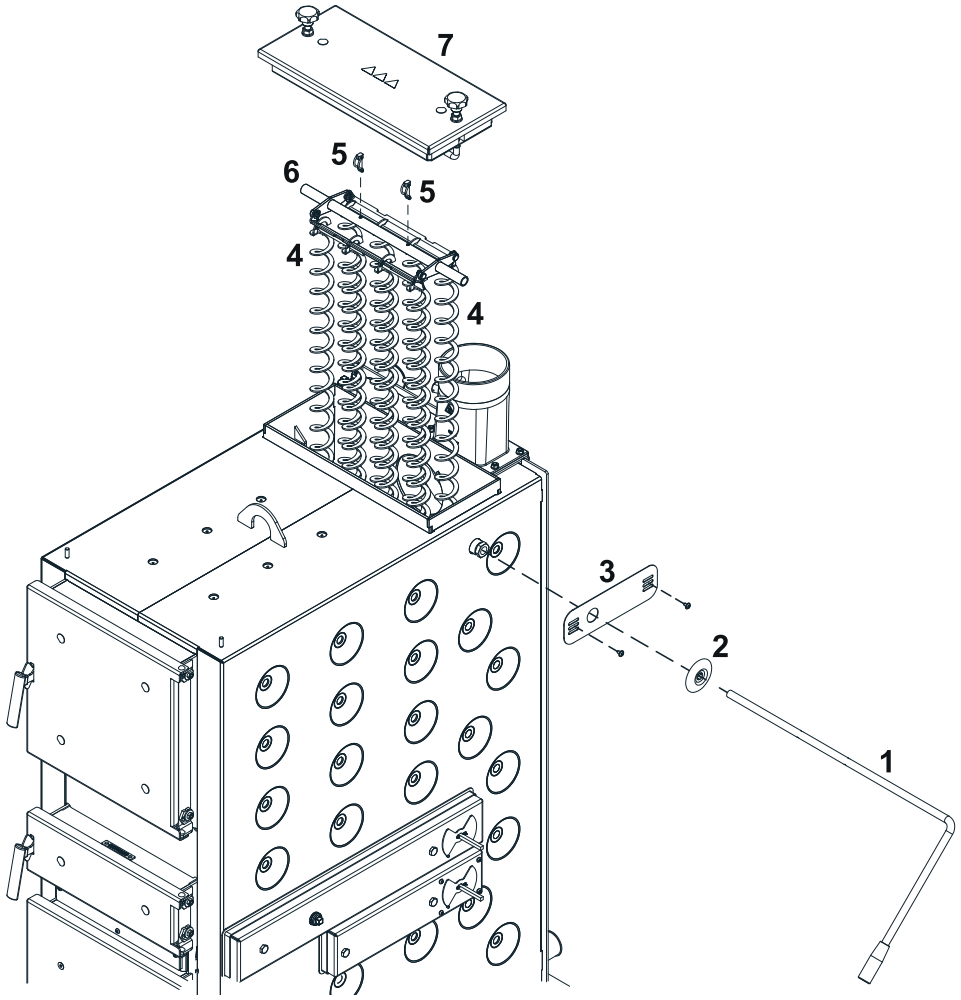
Item	Quantity	Description
1	1	Induced draught fan
2	2	Pneumatic rods with air flap and springs
3	2	Air flap
4	2	Split pin

6.3.2 S4 Turbo 22-28 WOS system



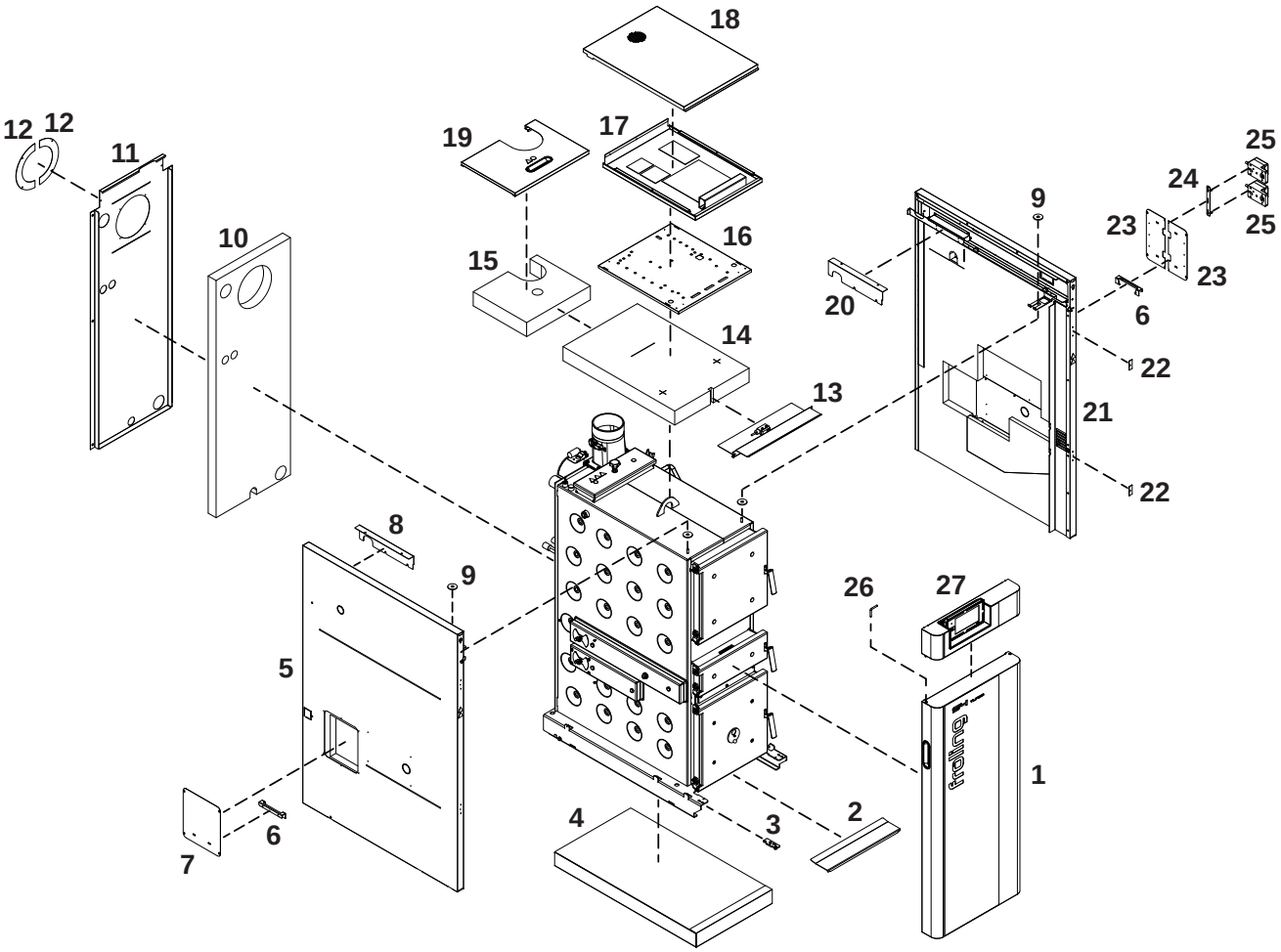
Item	Quantity	Description
1	1	WOS lever
2	1	Plastic cover
3	4	EOS turbulator
4	1	Stay tube EOS, simple
5	2	Pipe locking pin
6	1	Heat exchanger cover

6.3.3 S4 Turbo 32-40 EOS system



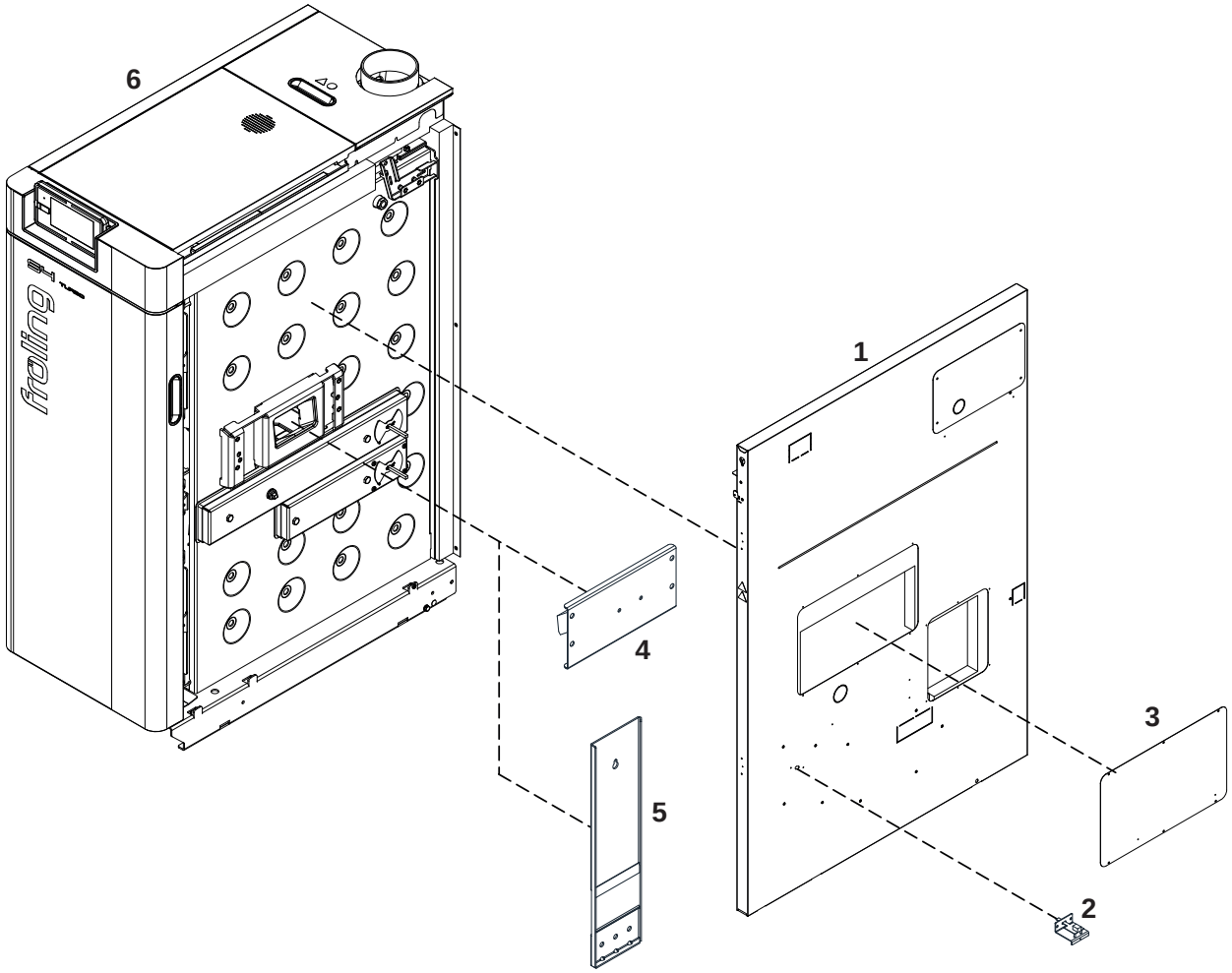
Item	Quantity	Description
1	1	WOS lever
2	1	Plastic cover
3	1	Cover plate
4	8	EOS turbulator
5	2	Pipe locking pin
6	1	Stay tube EOS, double
7	1	Heat exchanger cover

6.3.4 Insulation



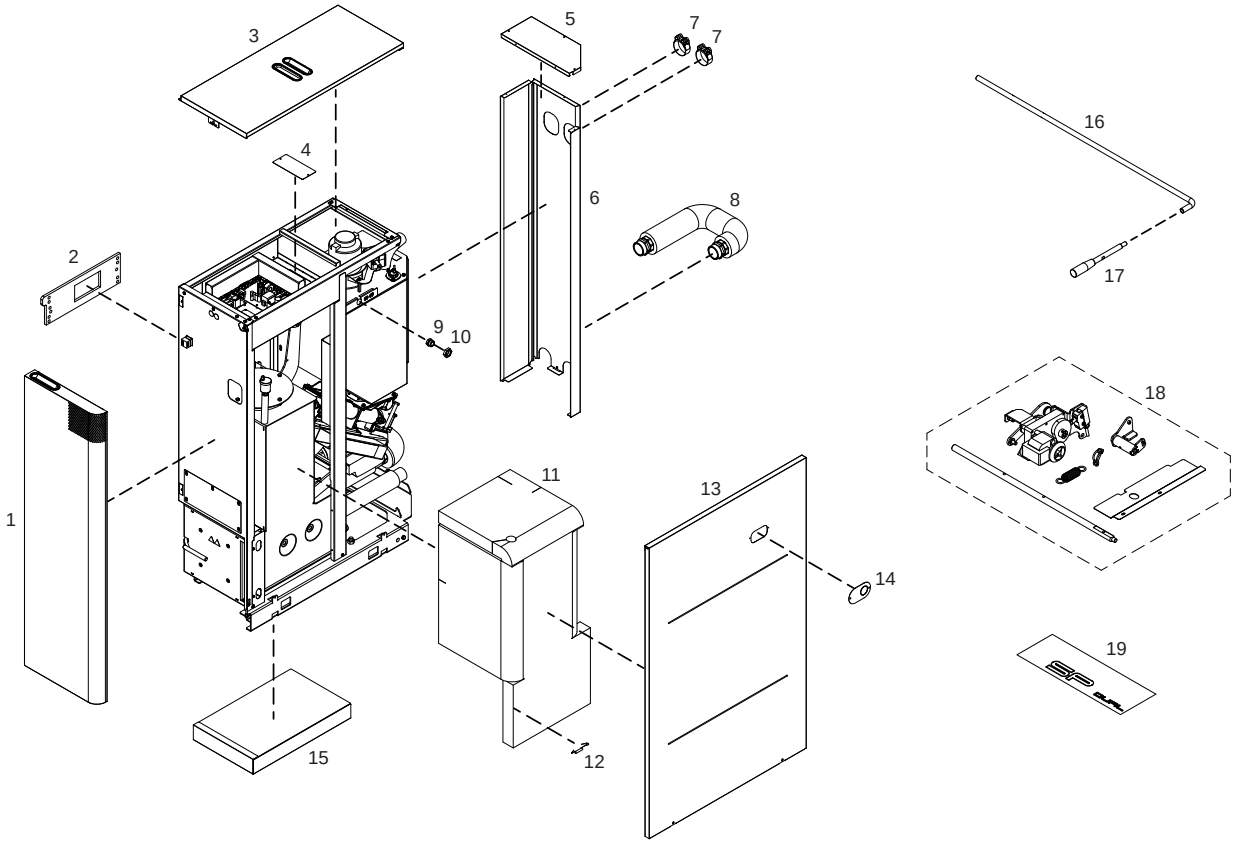
Item	units	Description	Item	units	Description
1	1	Insulated door	**15**	1	Thermal insulation of heat exchanger cover
2	1	Bottom cover plate	**16**	1	Securing plate (S4 Turbo 32-40)
3	1	Door mount	**17**	1	Controller box
4	1	Floor insulation	**18**	1	Controller cover
5	1	Side panel, left	**19**	1	Heat exchanger cover
6	2	Bracket	**20**	1	Cable duct cover, right-hand side
7	1	Cover plate	**21**	1	Side panel, right
8	1	Cable duct cover, left-hand side	**22**	2	Counter plate, magnetic latches
9	4	Spacer washer Ø44x4	**23**	2	Servo-motor cover plate
10	1	Rear thermal insulation	**24**	1	Torque support for actuators
11	1	Back panel	**25**	2	Servo-motor
12	2	Cover plate for ID fan	**26**	1	Door hinge
13	1	Top spacer plate	**27**	1	Control
14	1	Top thermal insulation			

6.3.5 Boiler with pellet flange



Item	Quantity	Description
1	1	Right hand side panel with the flange cut-out
2	1	LTC 2004 flow sensor for air mass measurement
3	1	Cover plate
4	1	Blanking plate, complete
5	1	Linking plate with flange cutout
6	1	S4 Turbo F boiler body with pellet flange

6.4 Assembly overview pellet unit

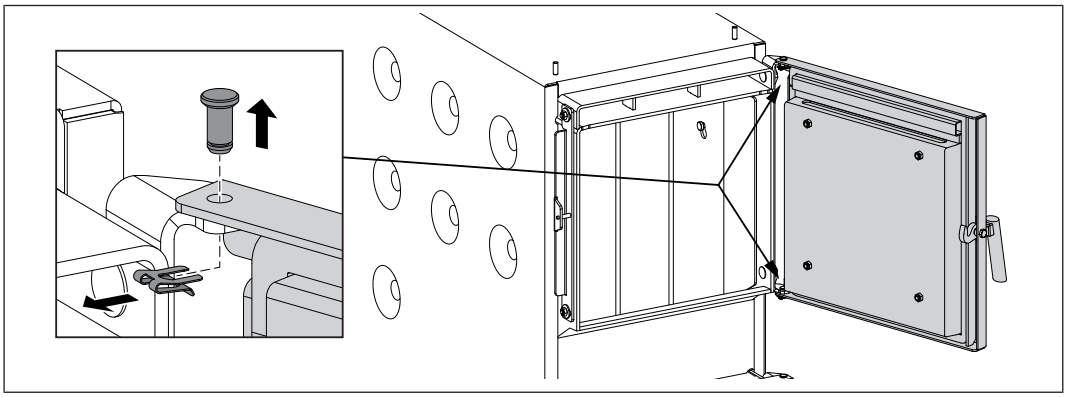


Item	Quantity	Description	Item	Quantity	Description
1	1	Insulated door	**11**	1	Thermal insulation
2	1	Pellet flange seal	**12**	6	Tension spring
3	1	Cover, top	**13**	1	Side panel
4	1	Cover plate	**14**	6	Cover plate WOS lever
5	1	Cover, back panel	**15**	1	Floor insulation
6	1	Back panel	**16**	1	WOS lever
7	2	Hinge pin clamp	**17**	1	WOS handle
8	1	Pipe union for hydraulic connection	**18**	1	WOS drive (optional)
9	1	Grey cast iron bushing	**19**	1	Sticker, “SP Dual”
10	1	Counter nut			

6.5 Before Installation

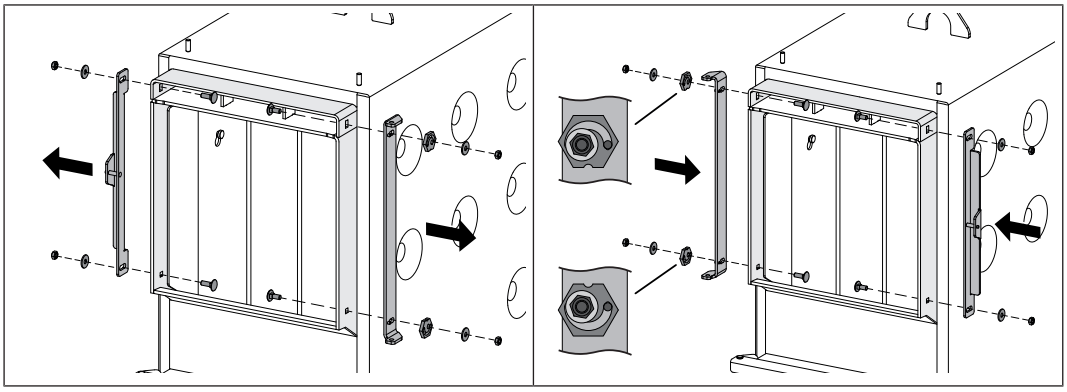
6.5.1 Changing door stops (as needed)

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 pre-heating and combustion chamber.



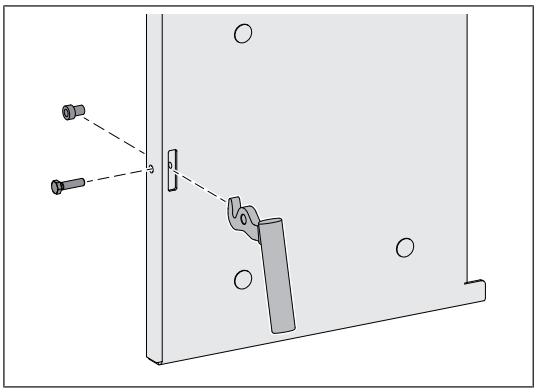
❒ Open the fuel loading door

❒ Remove the shaft retainers, pull out the hinge pins and take off the fuel loading door



❒ Remove the hinge and locking plate and reinstall them on the opposite side

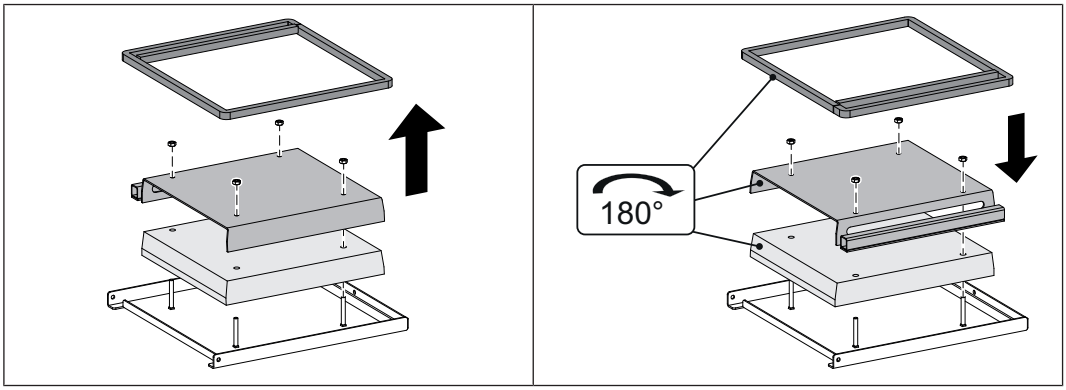
↳ Position the locking cam on the hinge as shown



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

❒ Turn the door handle through 180°, insert the flange bushing and attach the door handle using a hexagon head screw

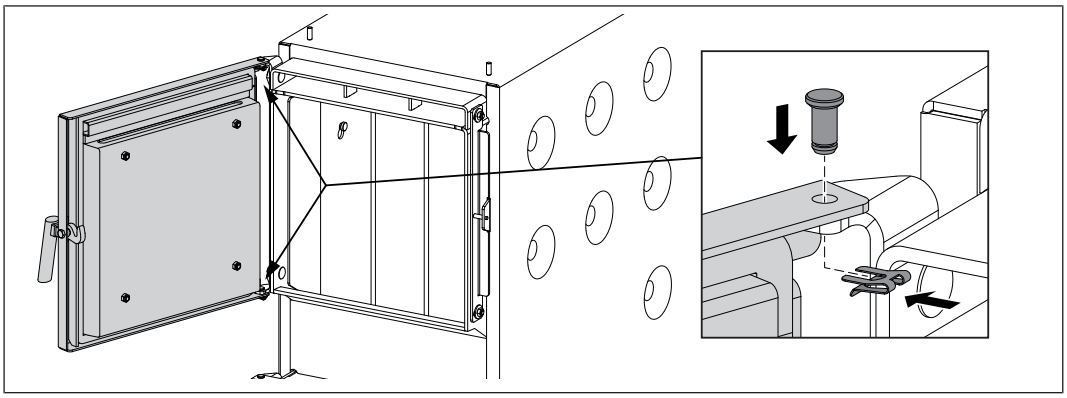
For the fuel loading door



❒ Cautiously remove the seal, protective plate and insulating panel

❒ Turn the components through 180° and reinstall them on the door plate

❒ When doing so, use contact adhesive to fix the seal in place



❒ 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

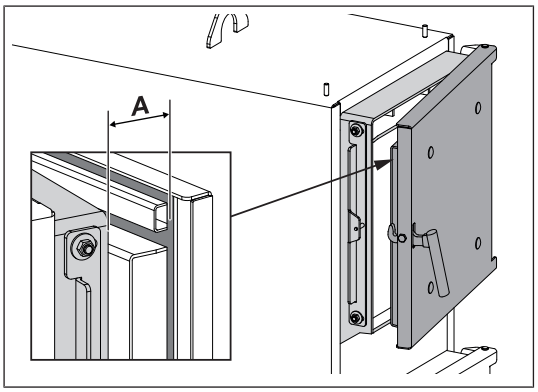
NOTICE! After changing over the door stops, check the seal and adjust it as necessary.

➲ "Checking the seal on the doors" [▸ 44]

➲ "Adjusting the doors" [▸ 45]

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 pre-heating and combustion chamber.

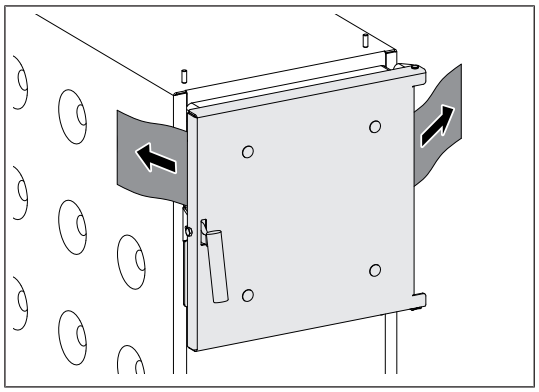


❒ Close the door

↳ 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" [▸ 45]

↳ If a resistance is felt when there is a gap of 3 cm:
Move the hinge plate forwards
➲ "Adjusting the doors" [▸ 45]



❒ Open the door

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

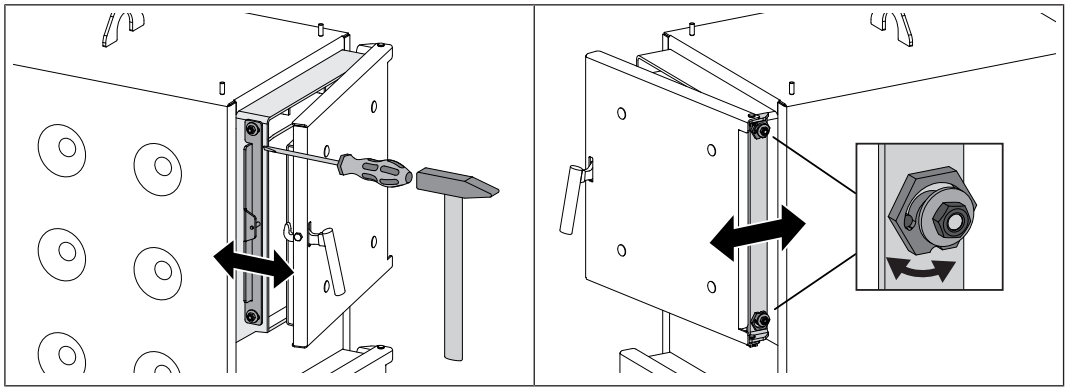
❒ Try to pull out the sheet of paper

↳ 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" [▸ 45]

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 pre-heating and 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

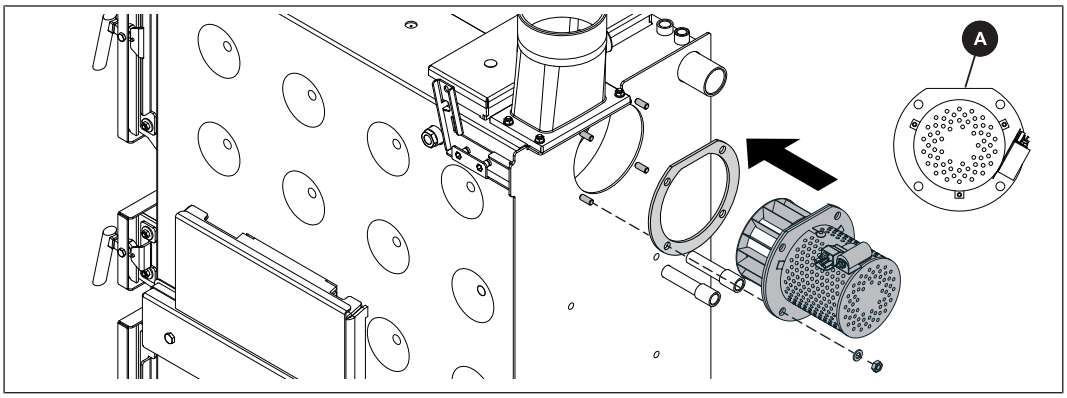
❒ Tighten the nuts on the hinge

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" [▸ 44]

6.6 Install firewood boiler

6.6.1 Fit the induced draught fan



❒ Install induced draught fan and silicone seal on the back of the boiler

↳ Straight edge (A) up

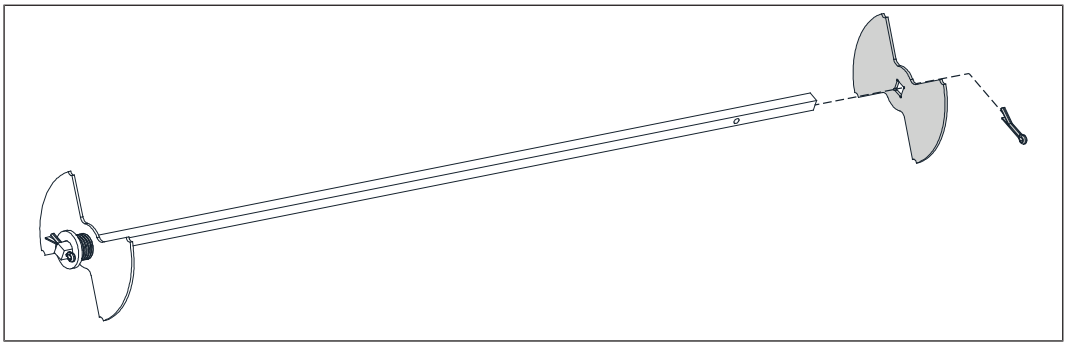
↳ Caution: do not overstress the flange!

6.6.2 Installing the pneumatic rods for the primary and secondary air

The air control servo-motors can be mounted on either the left- or right-hand side of the boiler. Delivery configuration: servo-motors on the right

NOTICE! If the servo-motors are to be assembled on the left, the air ducts must be changed on both sides!

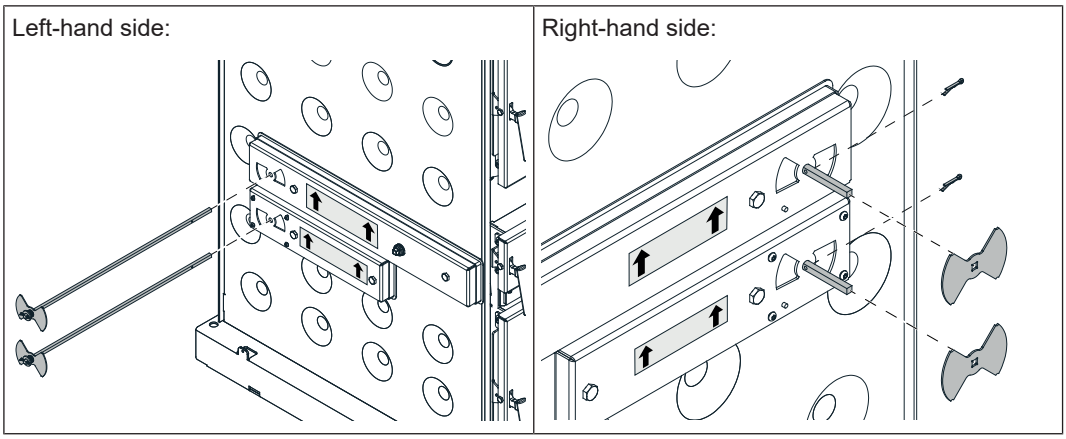
NOTICE! Unless otherwise indicated, “right” and “left” refer to the side of the boiler when standing in front of it.



❒ Remove the split pin on both pneumatic rods opposite the spring and pull one of the air flaps off of each

↳ The pneumatic rods are packed along with the insulation

servo-motors on the right

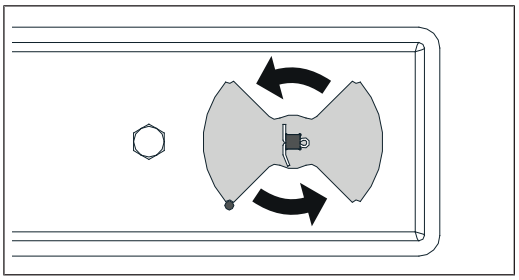


❒ Insert both pneumatic rods into the left-hand side of the boiler

↳ The air flaps with springs lie flat on the left-hand air ducts!

❒ Insert the air flaps on the pneumatic rods on the right-hand side and secure them with split pins

↳ IMPORTANT: the air flaps must be in the same position as those on the opposite side!

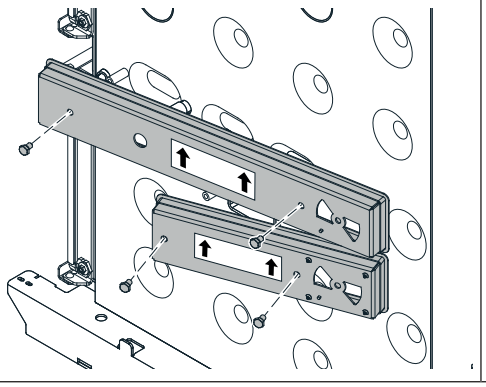


❒ Turn both pneumatic rods anti-clockwise as far as the stop

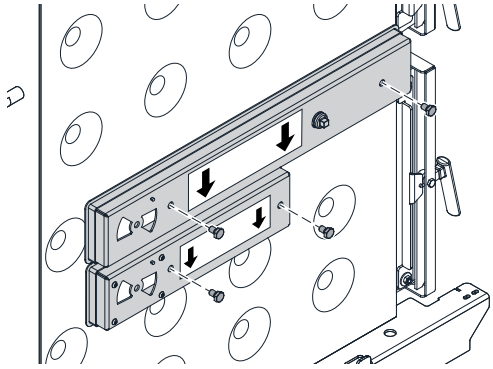
↳ Check the pneumatic rods can move freely

servo-motors on the left

Disassembly on right-hand side:



Assembly on left-hand side:



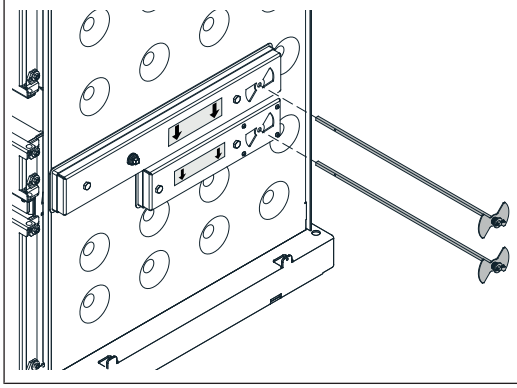
❒ Remove both air ducts on the left and right-hand sides

❒ Fit the air ducts back onto the other side

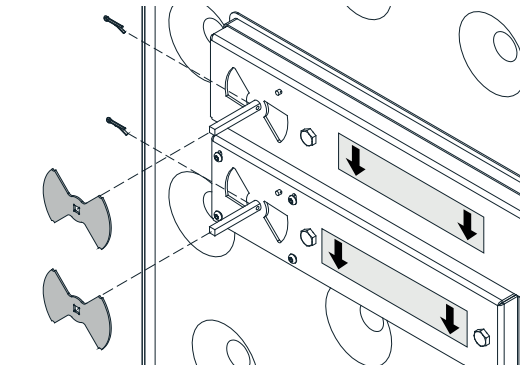
↳ The arrow on the air duct sticker should now point downwards!

↳ Only partially tighten the screws!

Right-hand side:



Left-hand side:

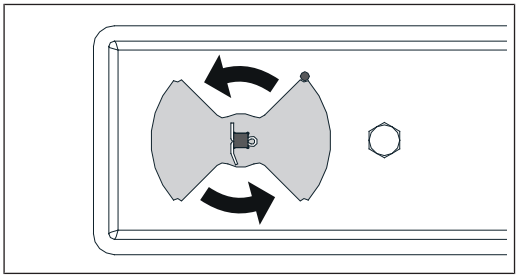


❒ Insert both pneumatic rods into the right-hand side of the boiler

↳ The air flaps with springs lie flat on the right-hand air ducts!

❒ Insert the air flaps on the pneumatic rods on the left-hand side and secure them with split pins

↳ IMPORTANT: the air flaps must be in the same position as those on the opposite side!

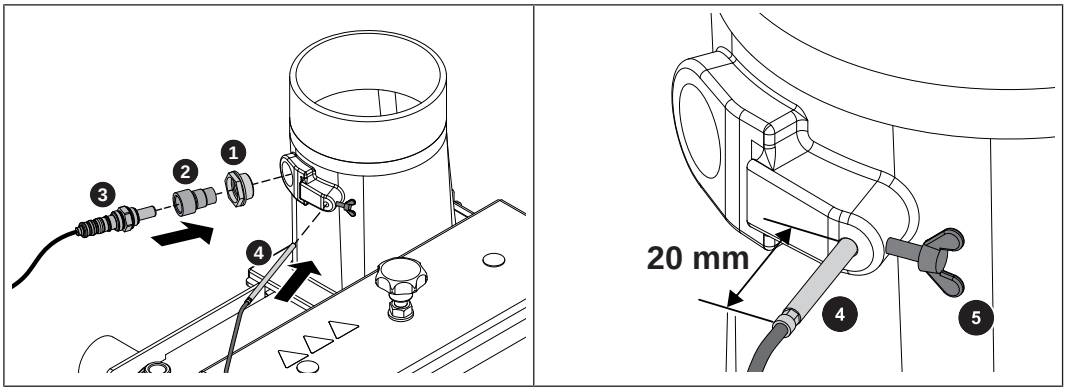


❒ Turn both pneumatic rods anti-clockwise as far as the stop

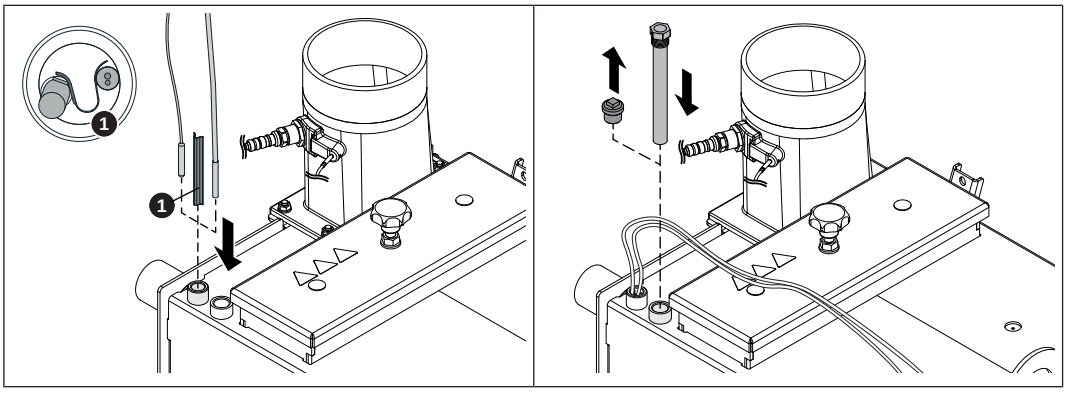
↳ Check the pneumatic rods can move freely

❒ Tighten the screws on the air flaps

6.6.3 Installing the Lambda probe, flue gas temperature sensor and immersion sleeve



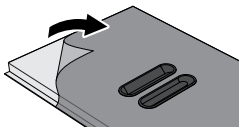
- ❒ Screw the bushing (1) into the flue gas nozzle and gently tighten
- ❒ Screw the adapter (2) into the bushing (only Lambda probe NTK OZA685 – article number 69400)
- ❒ Screw the Lambda probe (3) in and tighten slightly using an Allen key (22 mm)
- ❒ Push the flue gas temperature sensor (4) in so that it protrudes approx. 20 mm from the housing and secure the position with the wing screw (5)
- ❒ Plug in the extension cable for the Lambda probe



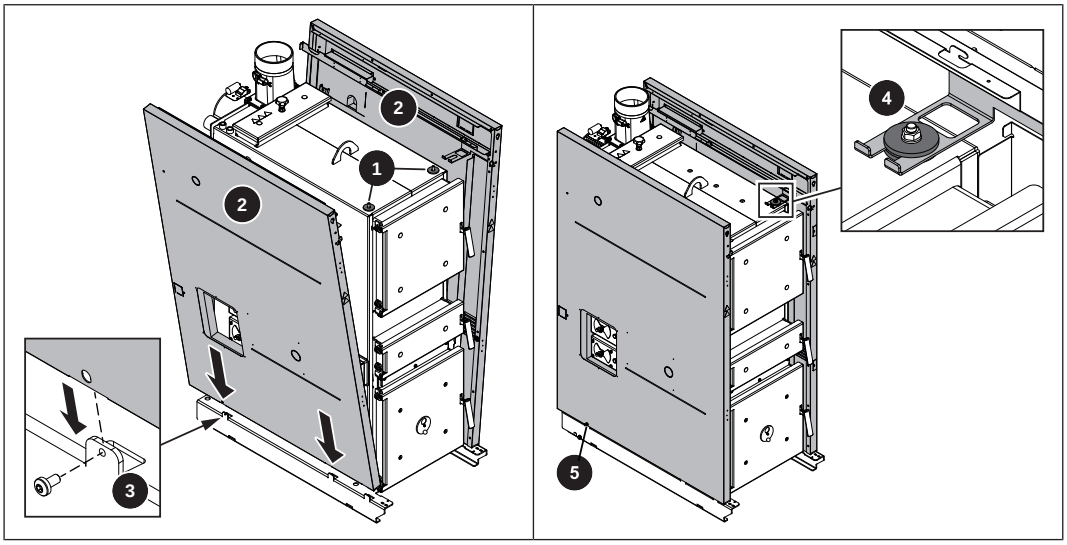
- ❒ Slide the boiler sensor (cable length 2 m) and the STL capillary with the contact spring (1) into the immersion sleeve of the boiler flow
- ❒ Remove the pre-installed blanking plug from the sleeve next to the immersion sleeve and then seal the supplied immersion sleeve on the thermal discharge valve

  ↳ Thermal discharge valve not included!

6.6.4 Installing the insulation

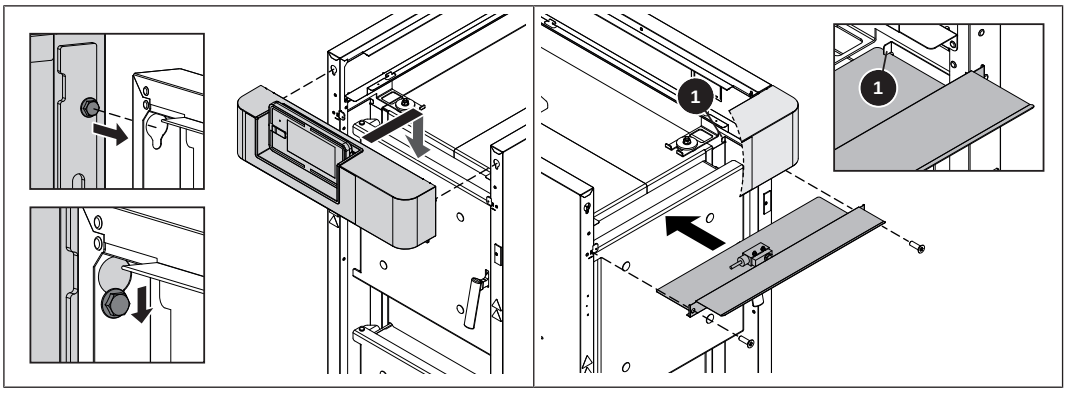


IMPORTANT: The individual parts of the boiler insulation covered with a protective film. The protective film must be removed before proceeding with the installation!



- ❒ Place one large spacer washer (1) on each of the threaded bolts to the right and the left above on the boiler
- ❒ Insert the side panels (2) into the base of the boiler at the lug (3) and push onto the boiler
  - ↳ The holes in the side panel must line up with the holes in the flap (3)
- ❒ Position the brackets on the side panels (2) onto the threaded bolts and secure lightly with a large and a small spacer washer and nut (4)
- ❒ Secure the side panels (2) on the right and left at the flap on the boiler base with thread forming screws (5)

6.6.5 Installing the control



❒ Fit the control screw heads into the cutouts on the side panels

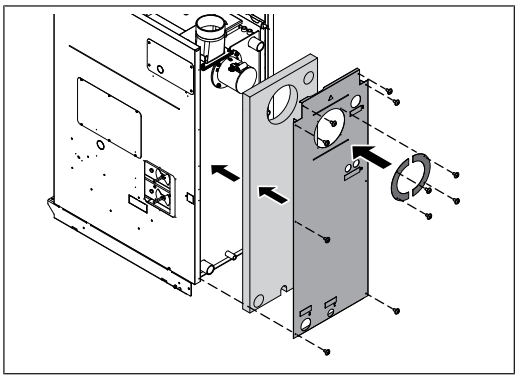
❒ Insert the spacer plate beneath the control

↳ Ensure the spacer plate is positioned below the flap (1)

❒ Attach the spacer plate and control to the side panel using two screws

❒ Tighten both screws on the cutouts

6.6.6 Installing the back panel



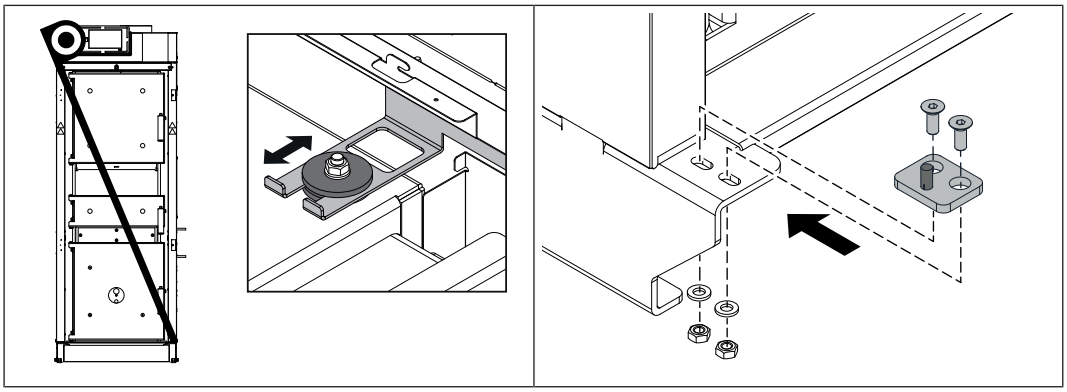
❒ Position the rear thermal insulation on the rear side of the boiler

❒ Attach the back panel to the side panel

❒ Install the ID fan cover plate on the back panel

6.6.7 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!



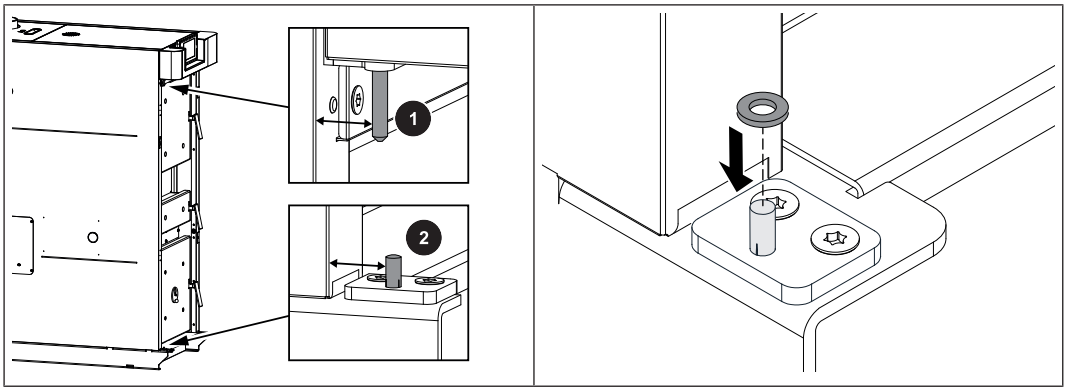
❒ Measure both diagonals and align the side panels so that the two diagonals are the same

↳ Adjust the side panels if necessary

❒ Tighten the nuts on both brackets

❒ Mount the lower door bracket onto the boiler base with the half-length taper grooved pin facing outwards

↳ Tighten M6 x 20 screws just slightly



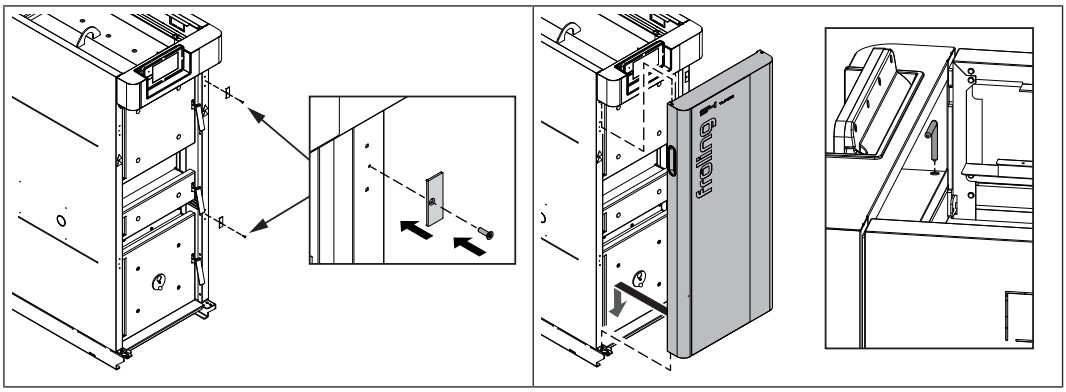
❒ Measure the distance from the side panel to the hinge pins on the upper bracket (1)

❒ Measure the distance from the side panel to the half-length taper grooved pin on the lower door bracket (2)

↳ The two distances must be equal!

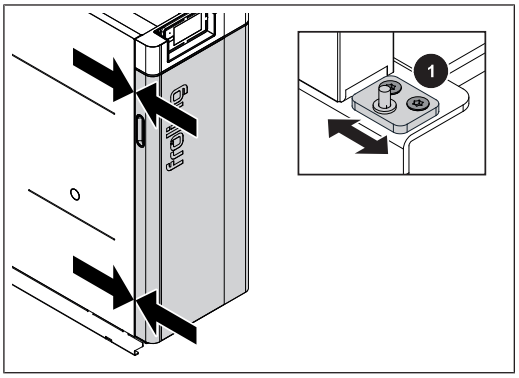
↳ If necessary, correct the position of the lower door bracket and tighten in place

❒ Place the spacer washer on the half-length taper grooved pin



❒ Mount counter plates for magnetic latches on the side panel on the opposite side of the door stop

❒ Hang the insulated door at the bottom onto the half-length taper grooved pin and secure at the top with a door pin

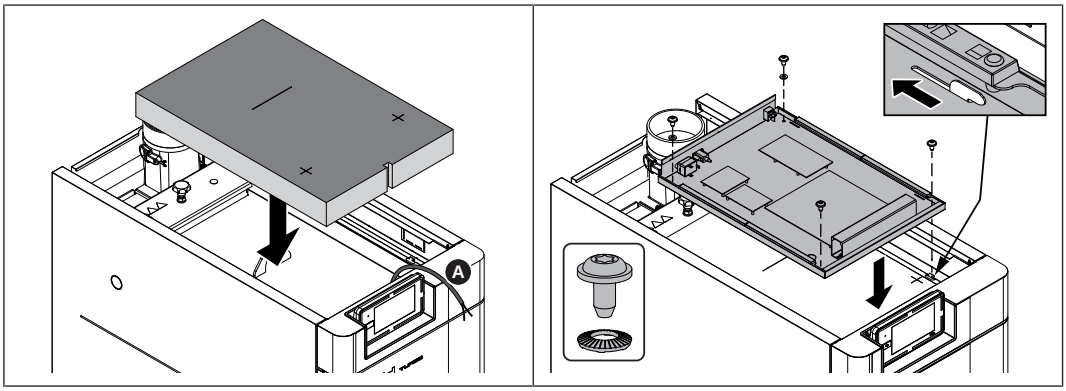


❒ Check to see if the gap between the side panel and the insulated door is the same along the entire height of the boiler

↳ If necessary, adjust the position of the lower door bracket (1)

6.6.8 Attaching the controller

S4 Turbo 22-28:



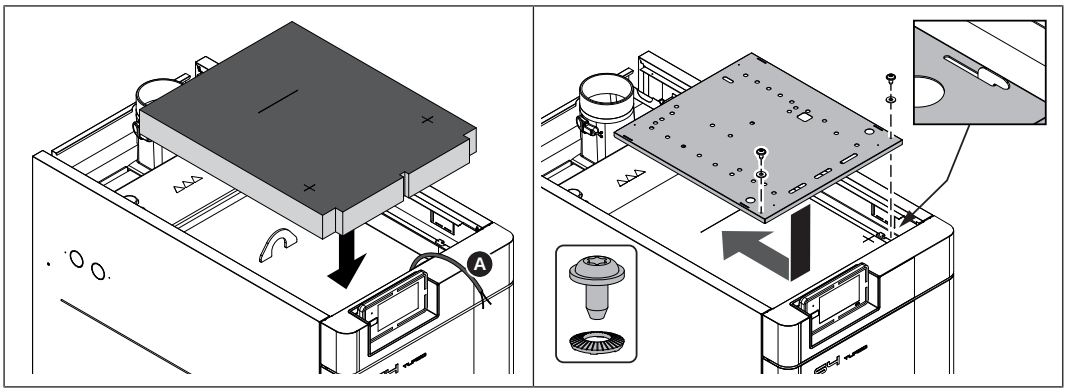
❒ Place the thermal insulation on the boiler

↳ Take care not to damage the cable of the door contact switch (A)

❒ Thread the controller box on the lugs and push the box to the back

❒ Use four screws incl. contact washers and mount controller box

S4 Turbo 32-40:

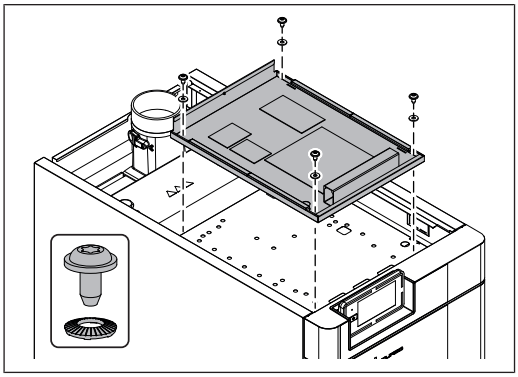


❒ Place the thermal insulation on the boiler

↳ Take care not to damage the cable of the door contact switch (A)

❒ Thread the securing plate on the lugs and push the box to the back

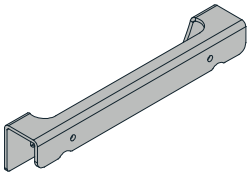
❒ Use two screws and contact washers to attach the securing plate

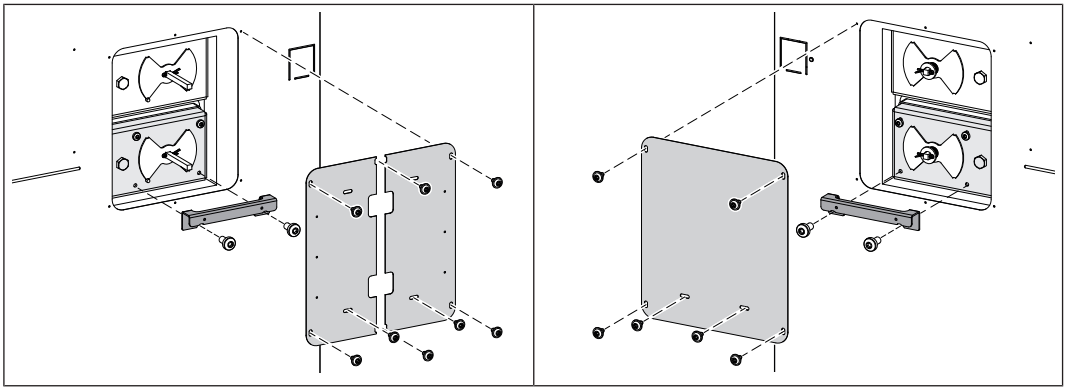


❒ Use four screws incl. contact washers and mount controller box onto the securing plate

6.6.9 Installing the servo-motors

NOTICE! The images show a boiler with the servo-motors installed in the right



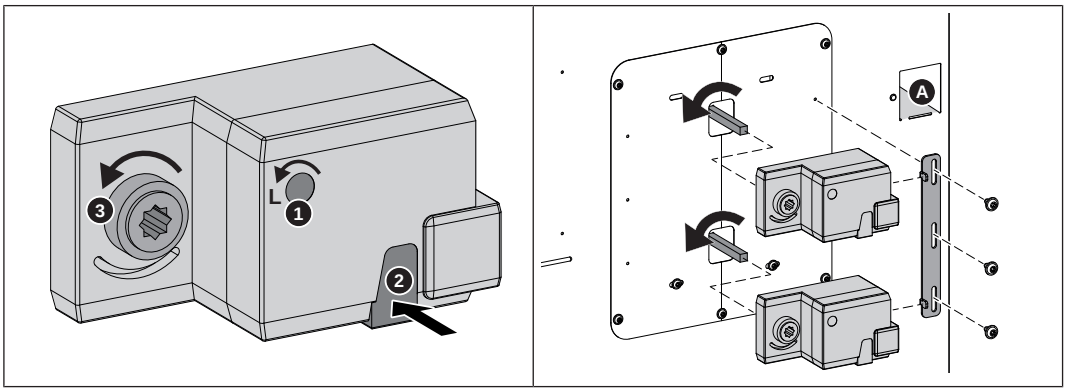


At the servo-motor end:

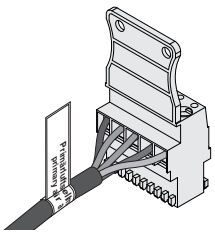
- ❒ Undo both the bottom screws on the bottom air duct and fit the bracket
- ❒ Fit cover plates over the side panel and bracket

At the other end:

- ❒ Undo both the bottom screws on the bottom air duct and fit the bracket
- ❒ Fit a cover plate over the side panel and bracket



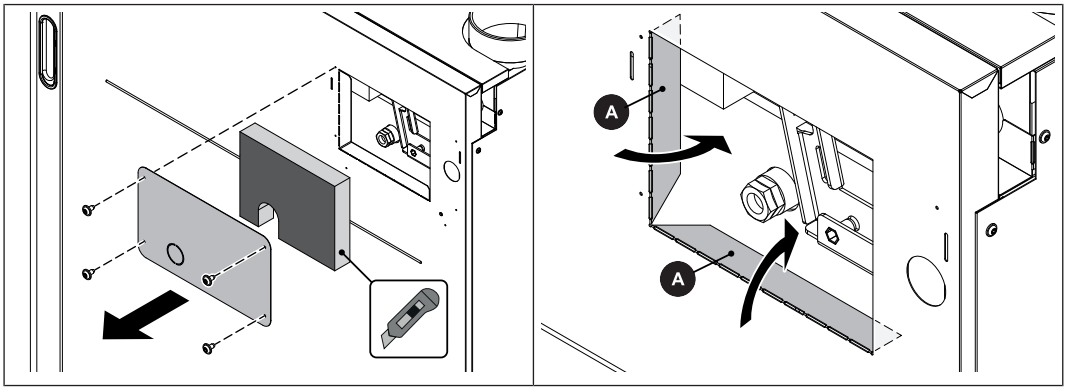
- ❒ Set the direction of rotation of the servo-motor (1) to anticlockwise (L)
- ❒ Press the unlock fitted key (2) and turn the drive for the shaft to the air duct (3) in the anti-clockwise direction as far as the stop
- ❒ Turn the square shafts of the air flaps anti-clockwise to the stop
- ❒ Attach the servo-motors to the square shafts and secure them together with the torque supports
- ❒ Push in the pre-punched opening in the insulation to admit the cable duct



- ❒ Apply a sticker to the servo-motor cable, close to the plug
  - ↳ Primary air = upper servo-motor / secondary air = lower servo-motor
- ❒ Run the cables for the two servo-motors through the cable duct upwards to the boiler controller

6.7 Install the drive for the automatic WOS (optional)

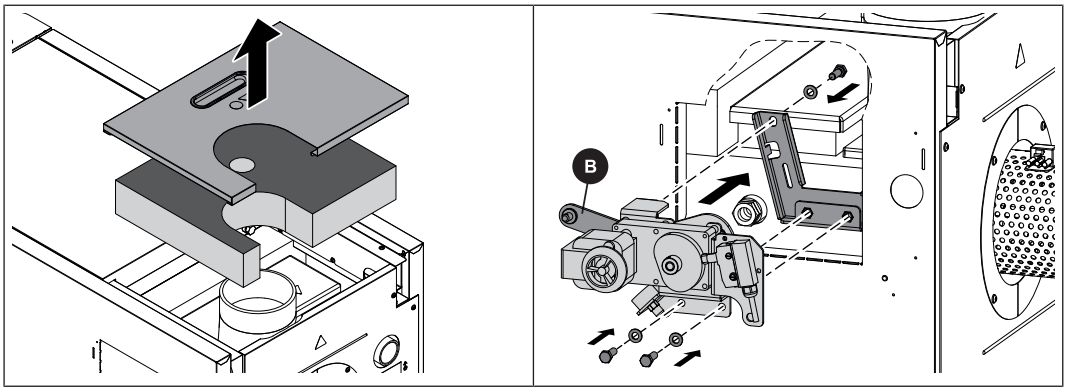
Prior to installing the pellet unit, install the bracket and drive on the firewood boiler:



❒ Remove the blanking plate from the side of the firewood boiler

❒ Remove thermal insulation

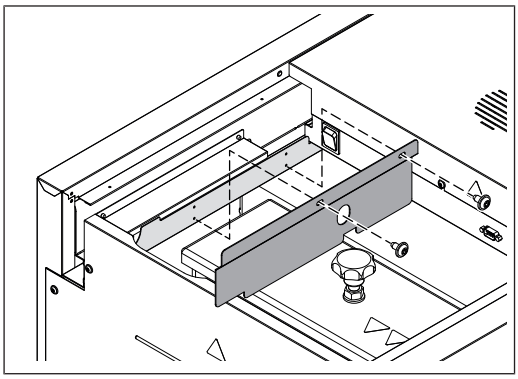
❒ Bend in the pre-punched lugs (A) by 90°



❒ Remove the back insulating cover and thermal insulation from the firewood boiler

❒ Secure the bracket with drive to the bracket on the boiler body

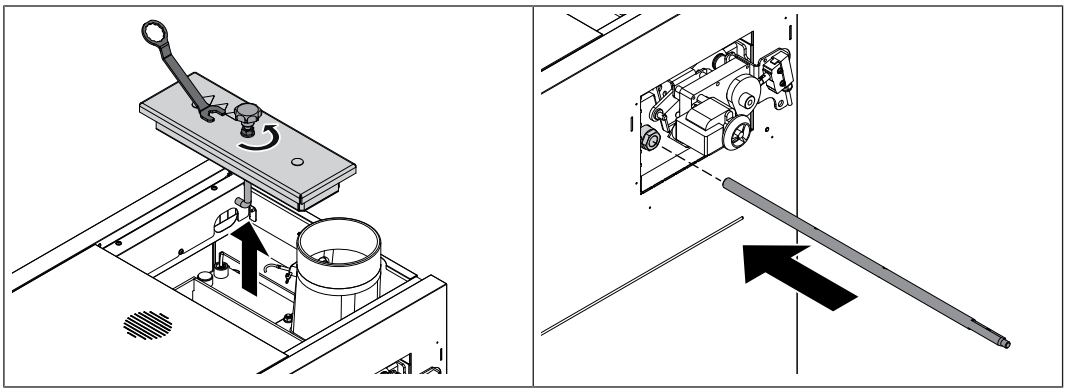
↳ The carrier plate (B) must point towards the front of the boiler



❒ Lay the cable for the WOS drive and WOS monitor via the cable duct to the boiler controller

❒ Secure the protective plate to the cable tray with two screws

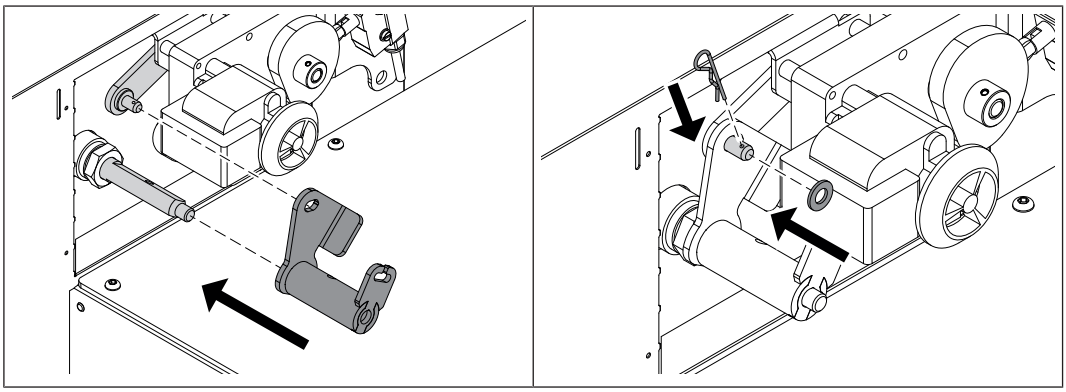
6.8 Install the shaft for the automatic WOS (optional)



❒ Loosen the lock nut on the heat exchanger cover, turn the star-shaped screw and remove the heat exchanger cover

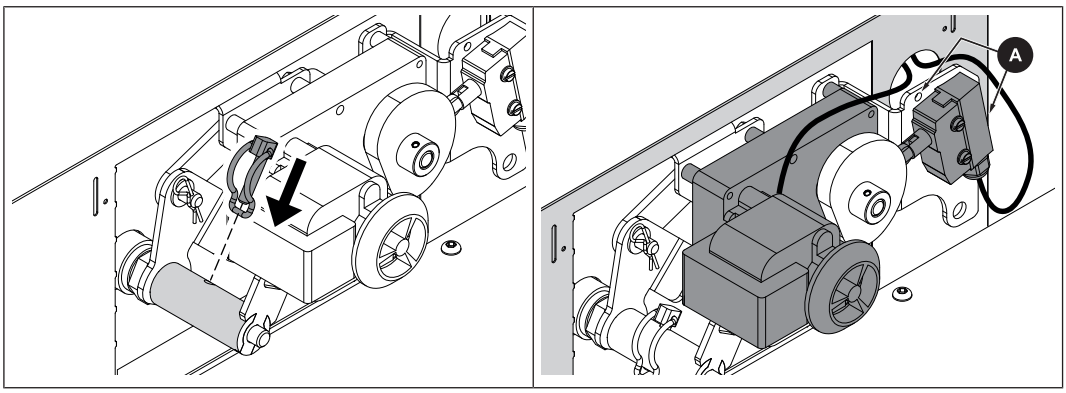
❒ Lift the linking plate and WOS springs and insert the shaft

❒ Push the shaft all the way in and insert into the opposite side with the bushing already fitted



❒ Slide the operating lever onto the shaft and insert the eyebolt onto the catch above

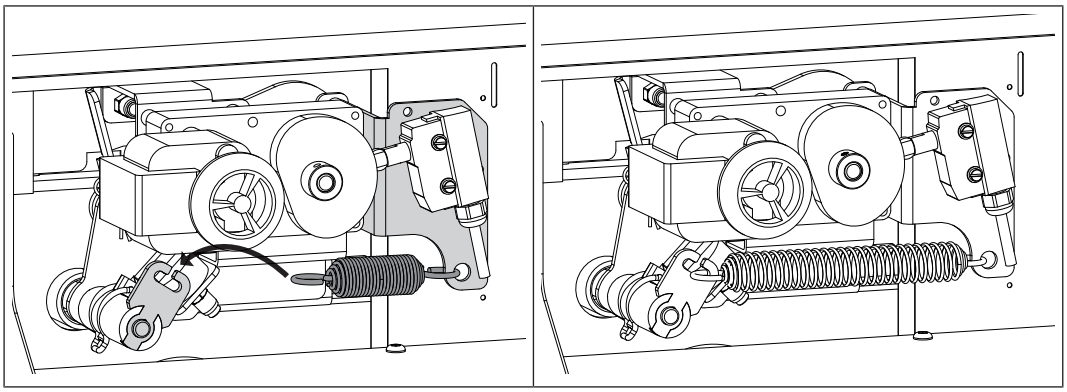
❒ Secure eyebolt with spacer washer and spring cotter



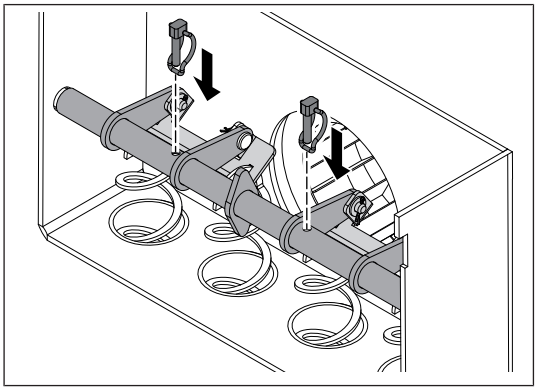
❒ Secure operating lever to shaft with pipe locking pin

❒ Run the cable for the drive and the limit switch through the cable tray and to the controller

❒ Relieve the tension at the positions provided (A)



❒ Put the tension springs onto the bracket and operating lever



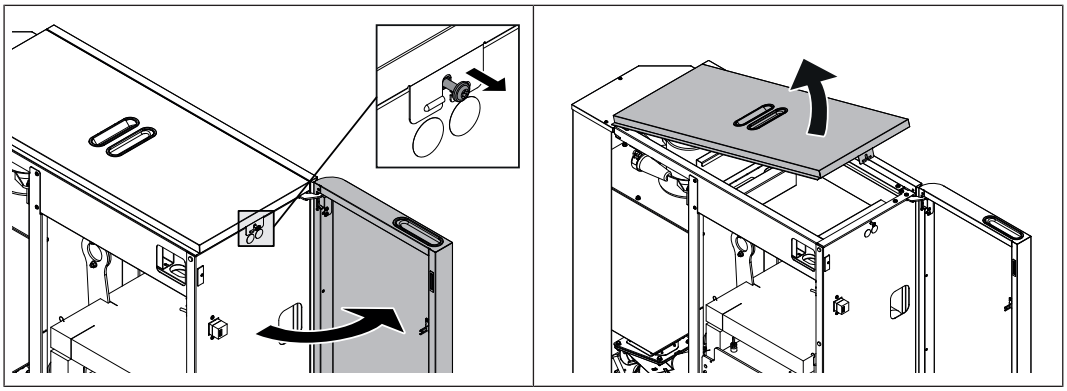
❒ Raise or lower the WOS springs until the holes in the shaft and linking plate are aligned

❒ Secure the linking plate with two pipe locking pins

6.9 Fitting the pellet unit

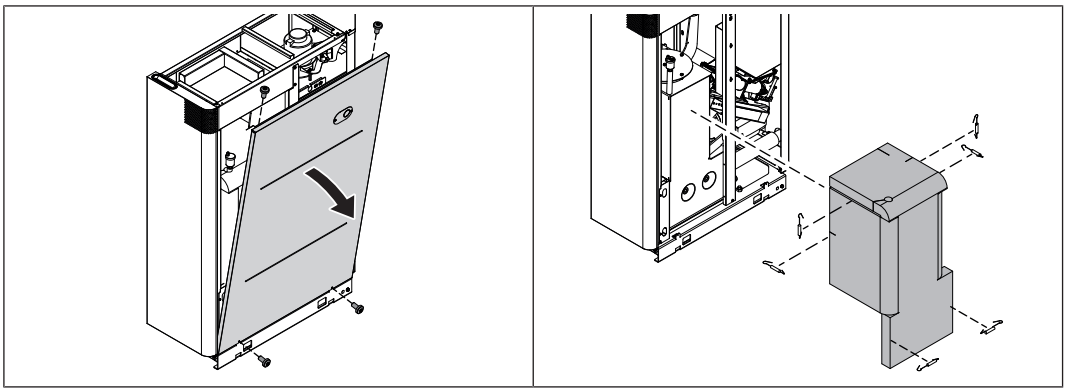
6.9.1 Removing the cladding from the pellet unit

Components removed in the following steps must be kept in a dry, dust-free protected location until being refitted.



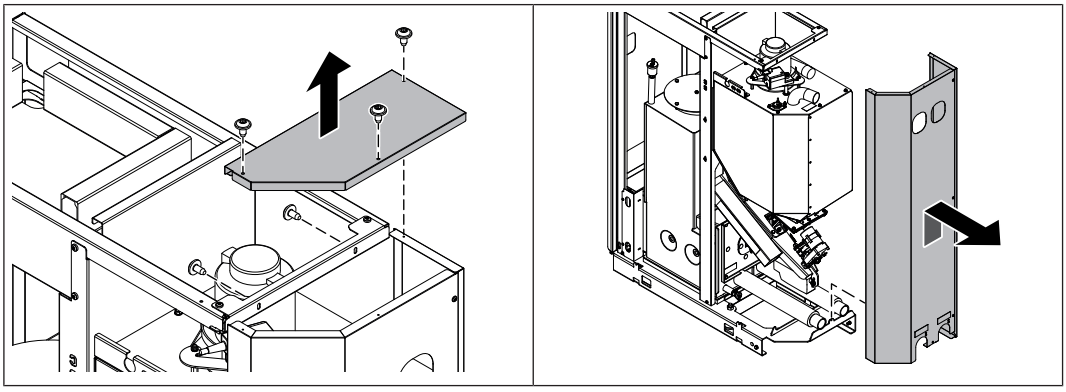
❒ Open the insulated door and undo the safety screws located behind it

❒ Lift the cover slightly and remove it from the front



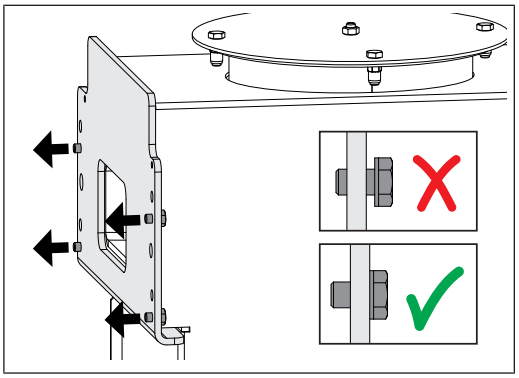
❒ Undo the screw connection on the side panel and remove it to the side

❒ Unhook the tension springs and remove the thermal insulation



❒ Take out the screws from the back cover and remove the cover

❒ Unhook the rear panel on the bottom of the pellet unit

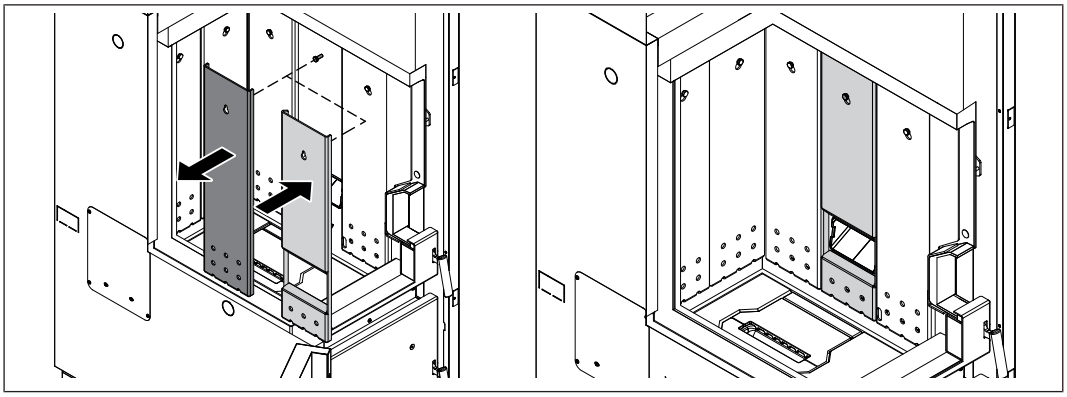


❒ Completely screw in four adjusting screws (galvanized, yellow) on the flange

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

NOTICE! Despite the aforementioned adjusting screws the flange seal is sufficiently compressed!

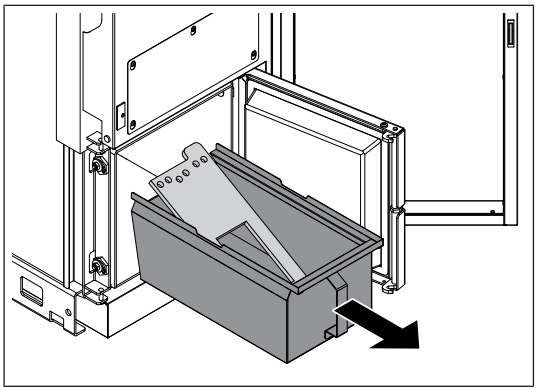
6.9.2 Screwing the pellet unit to the firewood boiler



❒ Open the insulating door and the fuel loading door of the firewood boiler

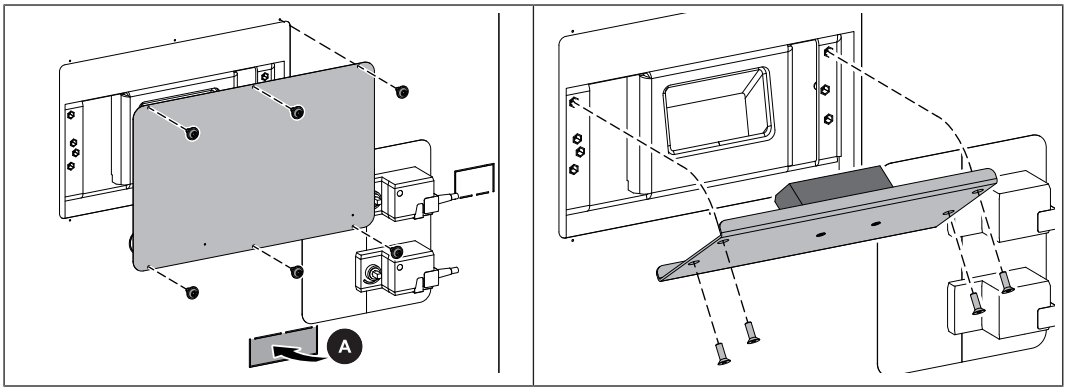
❒ Remove the middle linking plate on the flange side

❒ Fit the linking plate provided to the flange cutout as shown



❒ Open the insulated door and ash door on the pellet unit

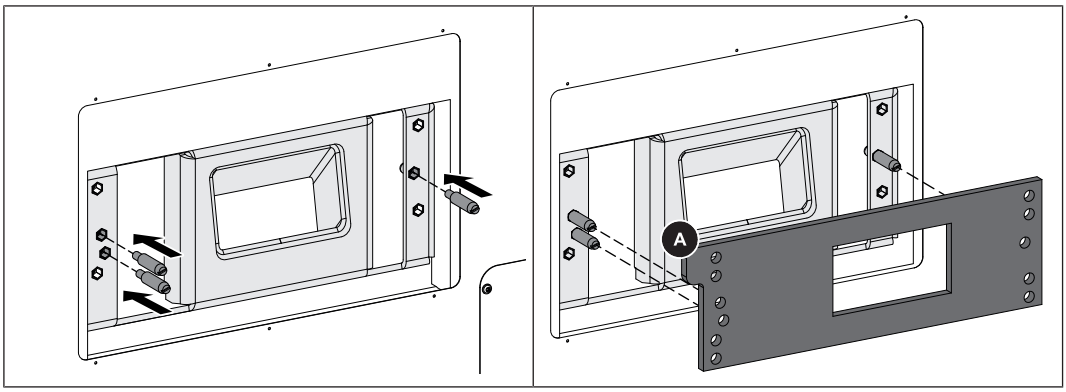
❒ Pull out the ashcan and remove the flange seal



❒ Remove the cover plate on the firewood boiler flange

❒ Press the pre-punched cover (A) of the air intake duct all the way in

❒ Remove the blanking plate



❒ Take the flange seal and lock bolts from the ashcan of the pellet unit

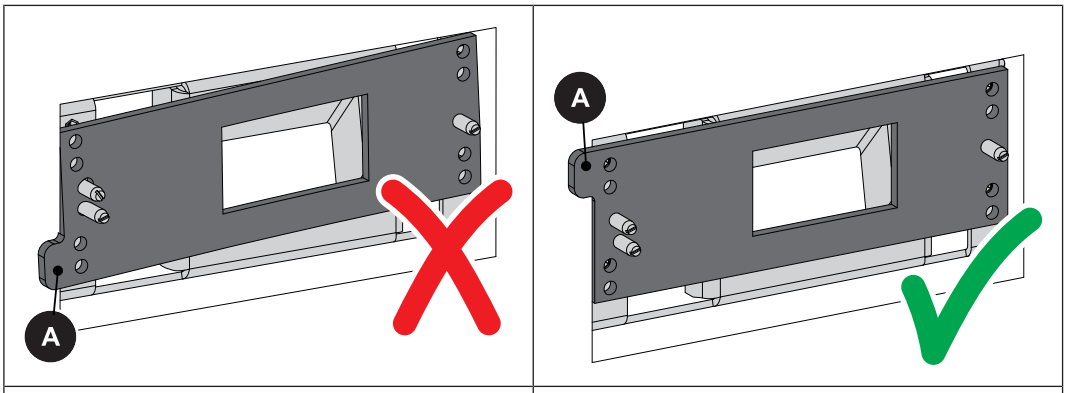
❒ Install the lock bolts for the firewood boiler
- 2 bolts to the left of the burn-through duct
- 1 bolt to the right of the burn-through duct

❒ Slide the flange seal over the lock bolts

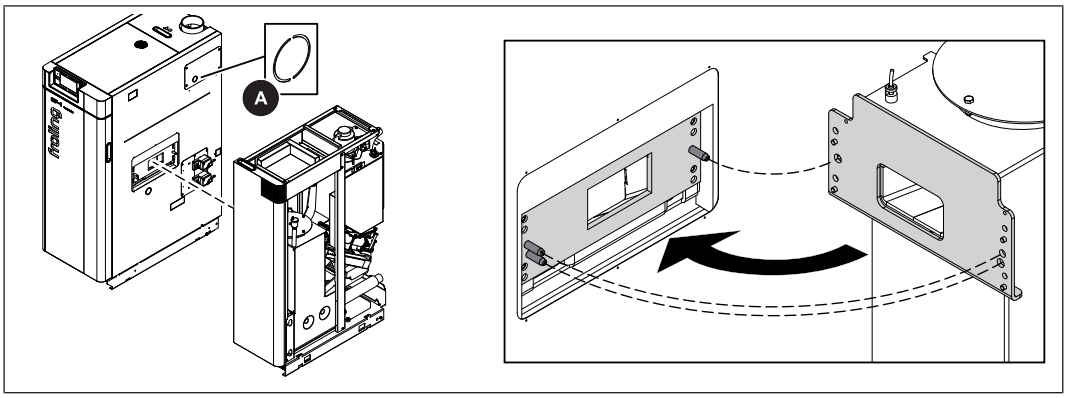
↳ The projecting lug (A) must be located at the top, facing towards the front of the boiler

↳ 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



WRONG	RIGHT

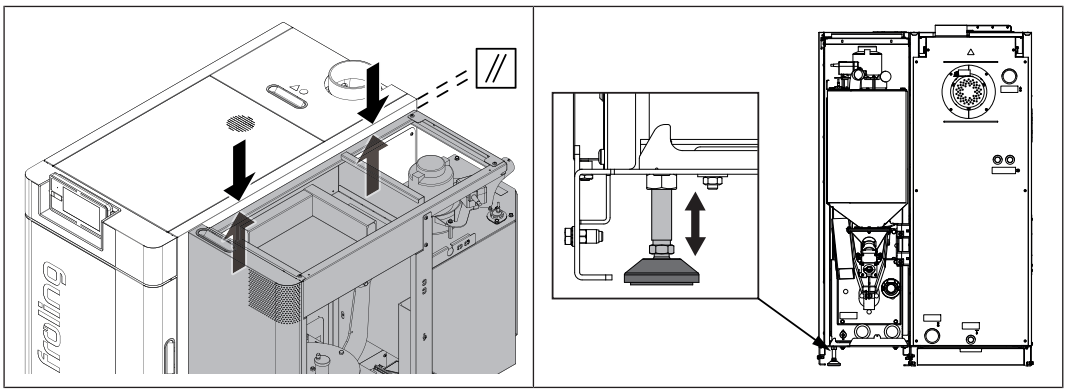


❒ Press the piece out of the pre-punched hole (A) for the WOS lever on the firewood boiler

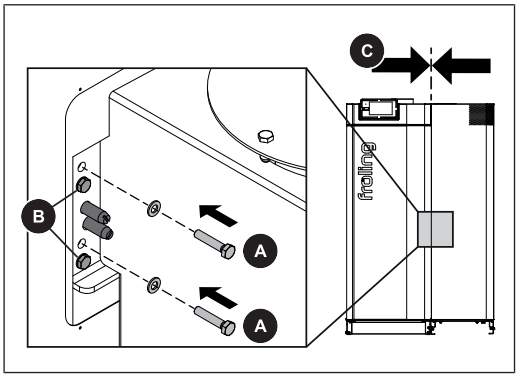
↳ Use a half-round file to file down any protruding pieces

❒ 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

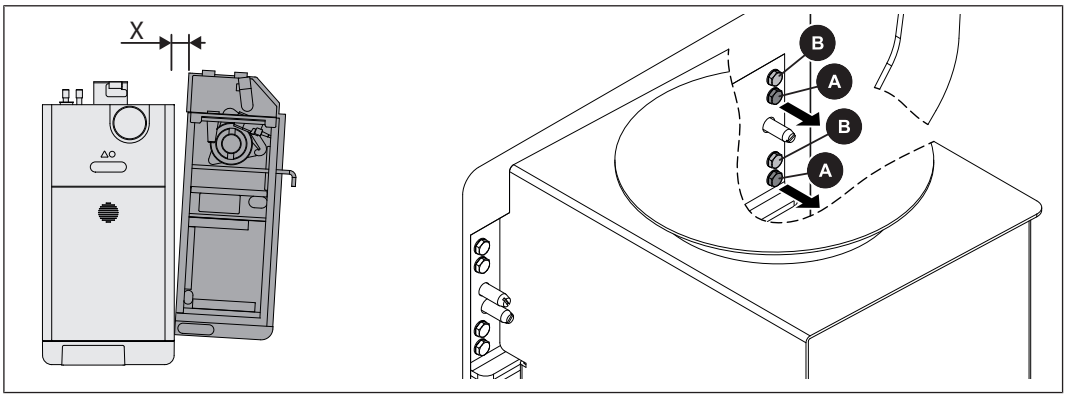


❒ Affix the pellet unit to the flange of the firewood boiler using 4 hexagon bolts M8 x 40 (A)

❒ 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):

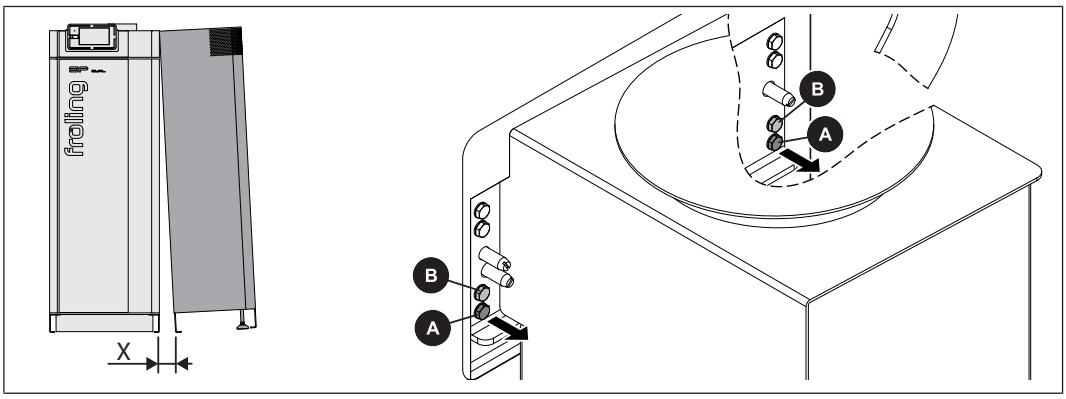
Example 1 – Large gap (X) at the back



❒ 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

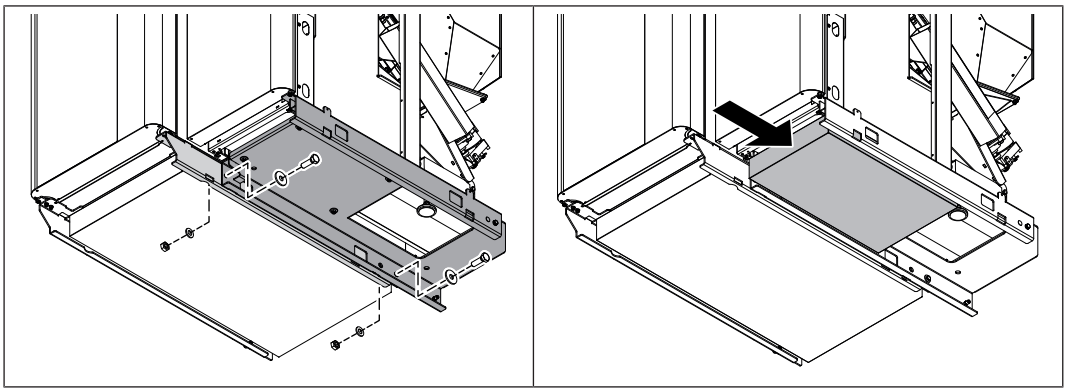
❒ Tighten all of the screw connections (A and B) once again

Example 2 – Large gap (X) on the bottom



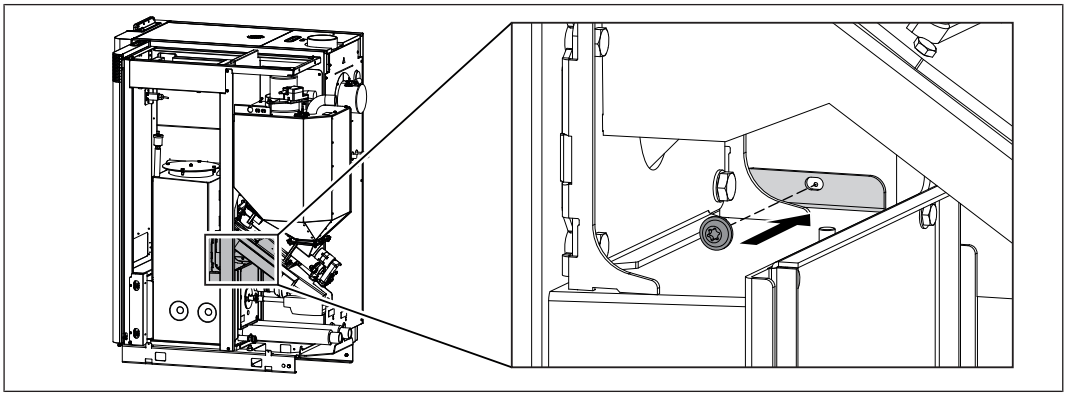
❒ Loosen the bottom adjusting screws (A) and tighten the flange screw connections (B) until the size of the gap is the same, both top and bottom

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



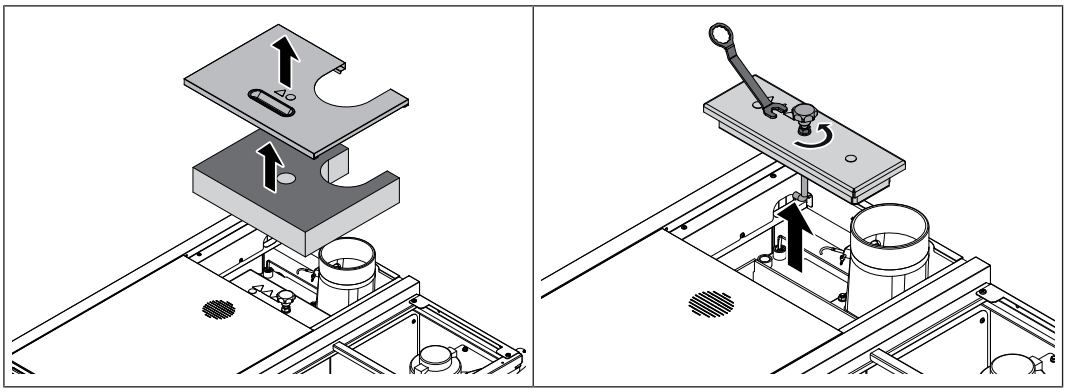
❒ Screw the base frame of the two units from the front and back

❒ Slide the floor insulation under the pellet unit from the front



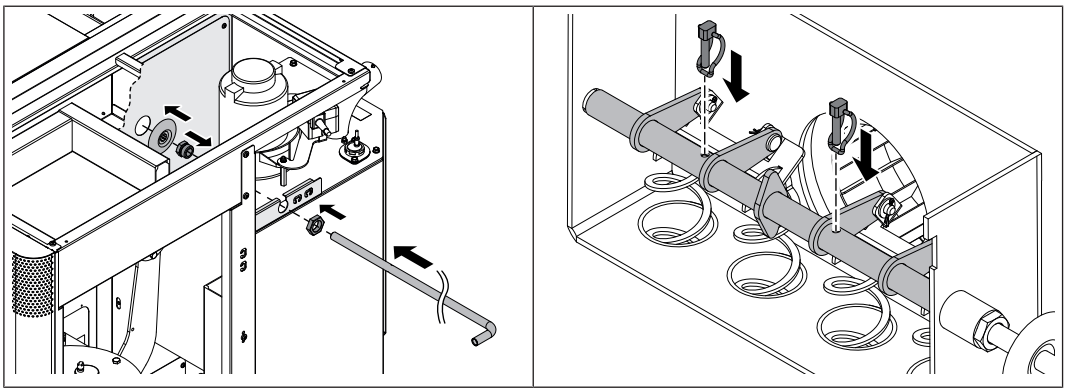
❒ Attach the air intake of the boiler body to the insulated side panel of the firewood boiler using one screw

6.9.3 Installing the WOS lever



❒ Remove the back insulating cover and thermal insulation from the firewood boiler

❒ Loosen the lock nut on the heat exchanger cover, turn the star-shaped screw and remove the heat exchanger cover

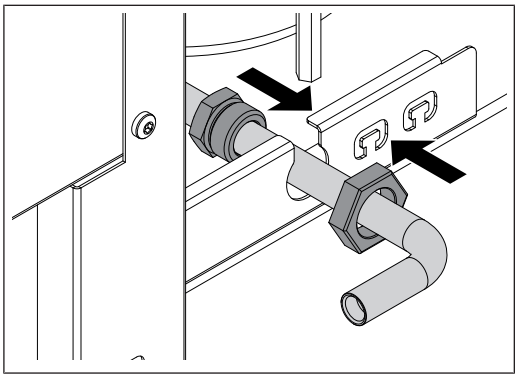


❒ Fit the plastic cover, brass bushing and counter nut to the WOS lever

❒ Lift the linking plate and WOS springs and insert the WOS lever

❒ Push the WOS lever all the way in and thread into the opposite side with the grey cast iron bushing already fitted

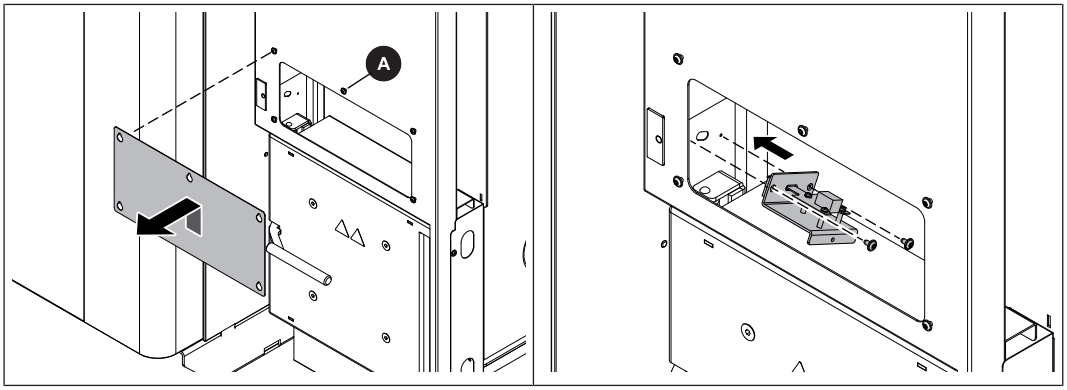
❒ Turn the WOS lever until the holes in the shaft and linking plate are aligned and secure with pipe locking pin

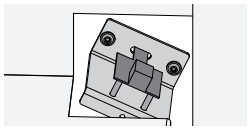


❒ Secure the WOS lever to the pellet unit with grey cast iron bushing and counter nut

6.9.4 Install the flow sensor

❒ Flow sensor is supplied packed in the controller box





❒ Open the insulated door to the pellet unit

❒ Loosen the screws (A) on the cover plate above the ash door and unhook the cover

❒ Fix the flow sensor with 2x self-tapping screws to the side plate of the firewood boiler

↳ The cutout is at the front of the pellet unit between the pellet heat exchanger and inside panel

↳ Pay attention to the installation position – see diagram

❒ Run the flow sensor cable upwards to the controller box of the pellet unit

❒ Put the cover plate back on the screw heads and tighten the screws (A)

❒ Close the insulated door on the pellet unit

6.10 Electrical connection

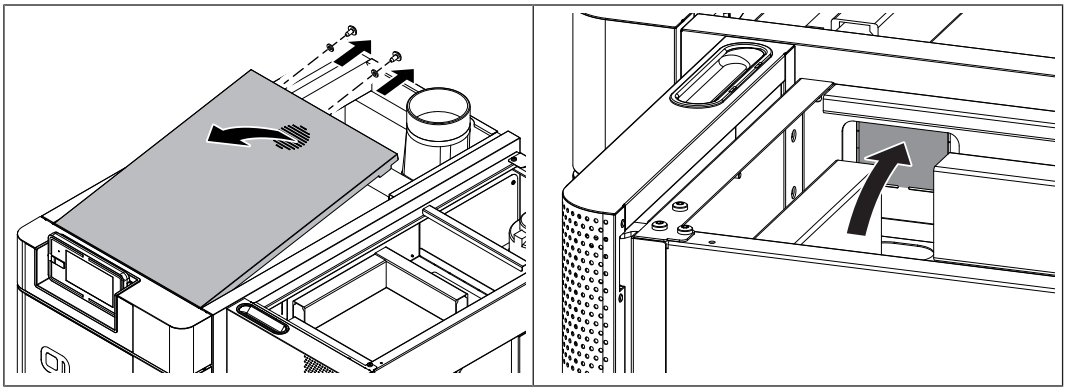
⚠ DANGER

When working on electrical components:

Risk of electrocution!

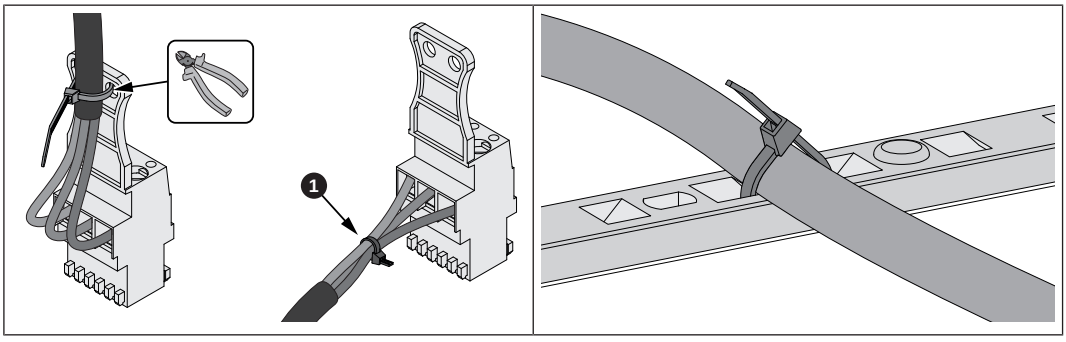
When work is carried out on electrical components:

- ❒ 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



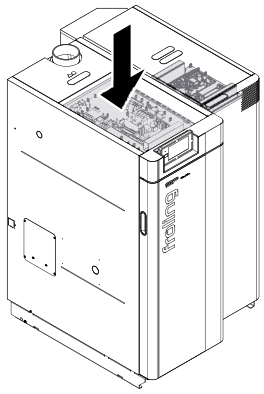
- ❒ Undo the retaining screw and contact disc on the back of the controller cover
- ❒ Lift off the controller cover
- ❒ Press the piece out of the pre-punched opening between the firewood boiler and pellet unit for cable feedthrough at a later time

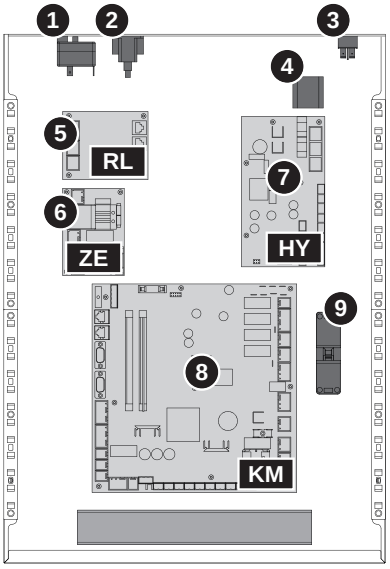
Prepare the plug some components come ready to connect with the cable fixed to the tag connector with cable tie.



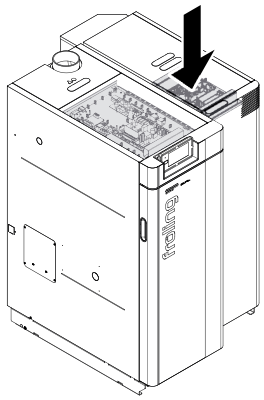
- ❒ Remove the cable ties from the tag connector
- ❒ Bind the individual cores together with cable ties (A)
- ❒ Attach cable and cable ties to the strain reliefs on the boiler

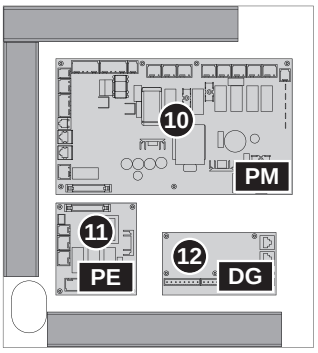
6.10.1 Board overview





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





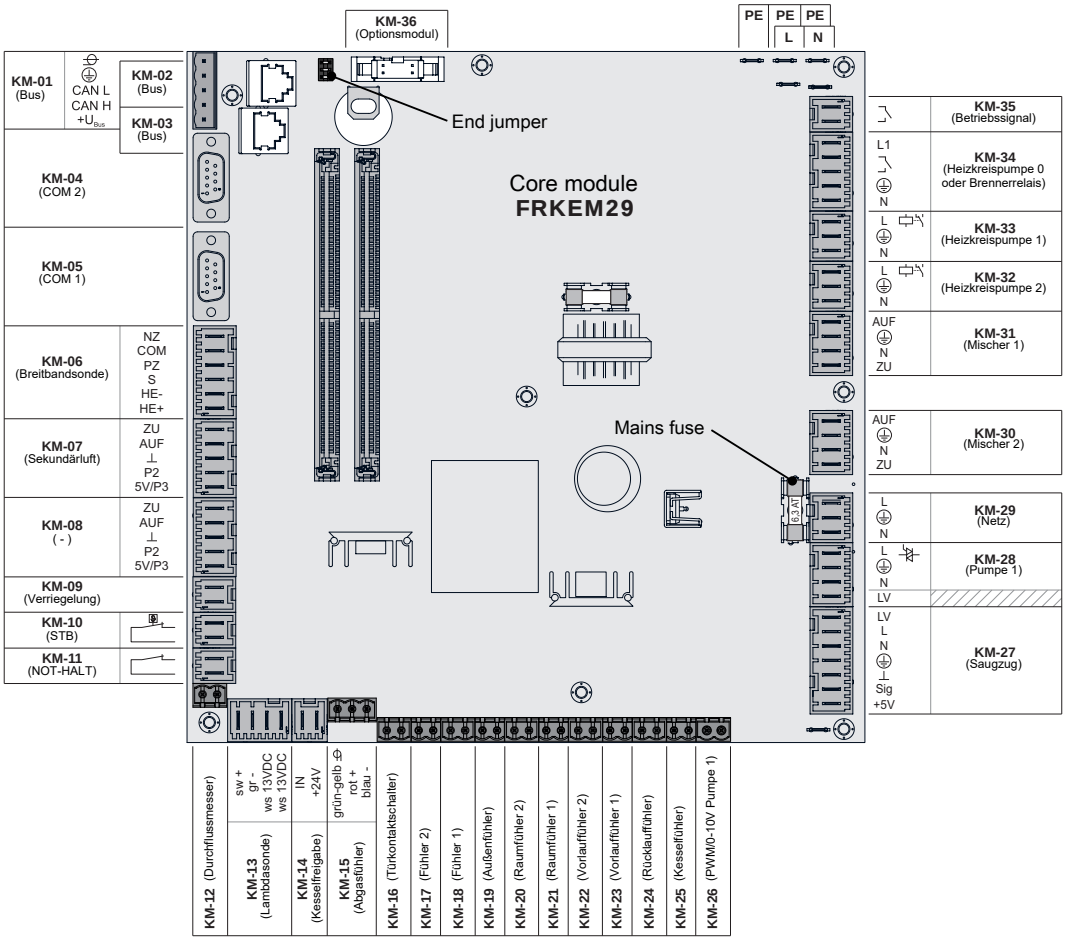
Item	Designation	Item	Designation
10	Pellet module	**12**	Digital module (optional)
11	Pellet module expansion (optional)		

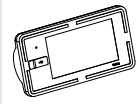
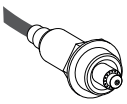
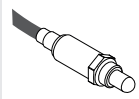
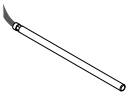
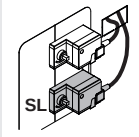
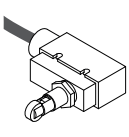
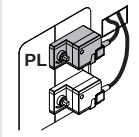
6.10.2 Connect the firewood boiler components

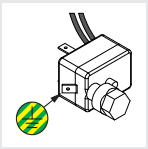
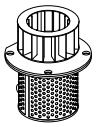
❒ Run the cables of the following components to the boiler controller and connect them to the boards in the controller box

↳ Tuck any extra cable into the cable duct

Core module:

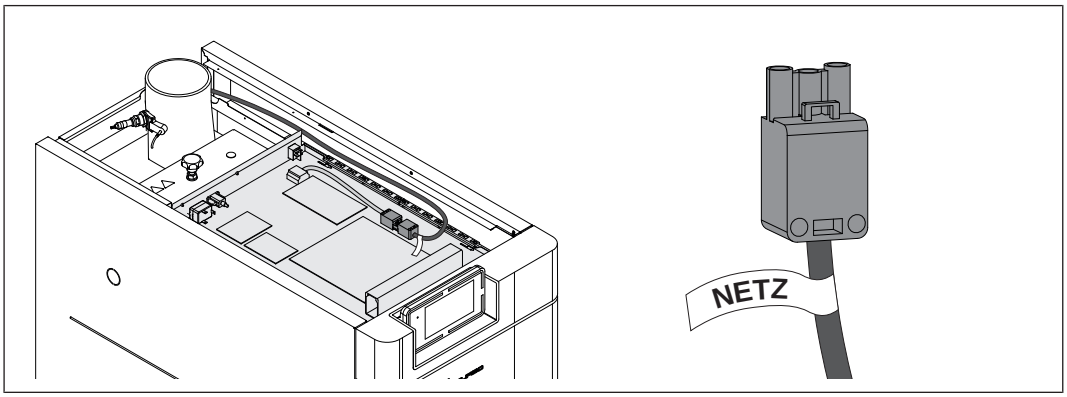


KM-02		Boiler display	**KM-13**		Lambda probe
KM-06		Broadband probe (alternative to the Lambda probe)	**KM-15**		Flue gas temperature sensor
KM-07		Secondary air servo-motor	**KM-16**		Door switch
KM-08		Primary air servo-motor	**KM-25**		Boiler sensor

KM-10		High-limit thermostat	**KM-27**		Induced draught fan

Once the individual components have been wired:

Mains connection:

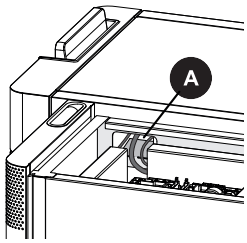


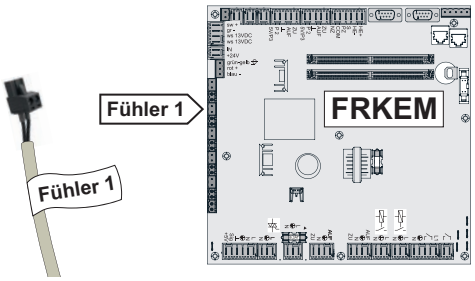
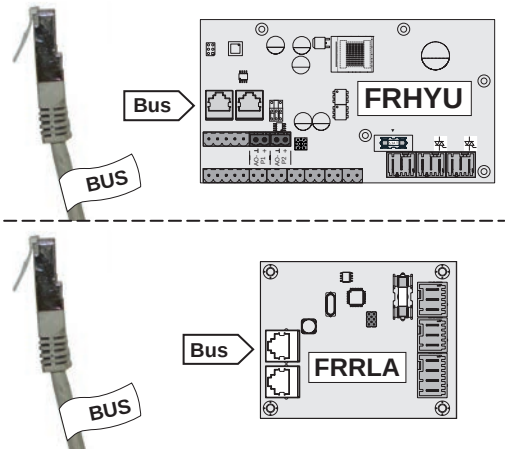
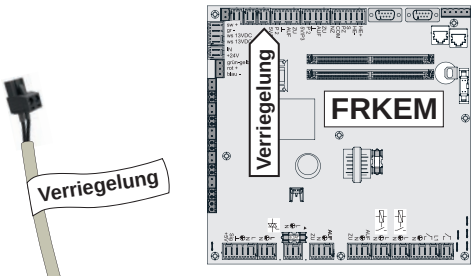
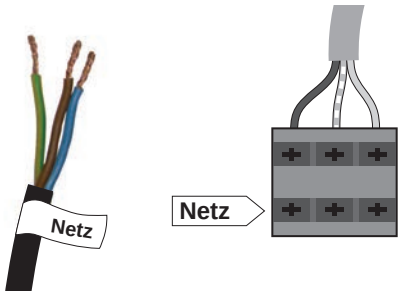
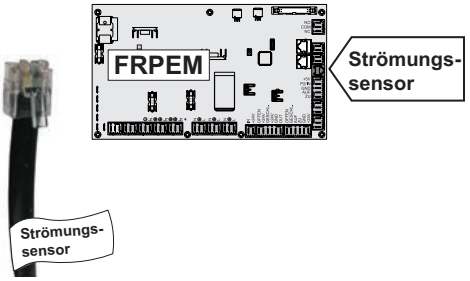
❒ Create a mains connection for the mains plug in the boiler controller

- ↳ The power supply line (network connection) must be fitted with a max. 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

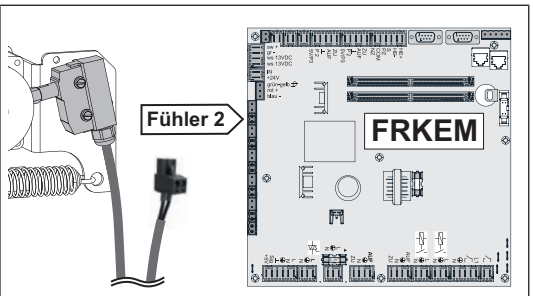
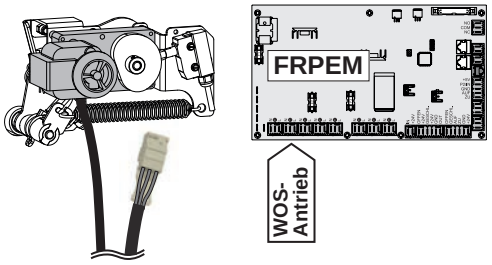
6.10.3 Connect the components of the pellet unit

❒ Run the cables through the top cable duct to the firewood boiler controller and plug into the boards:



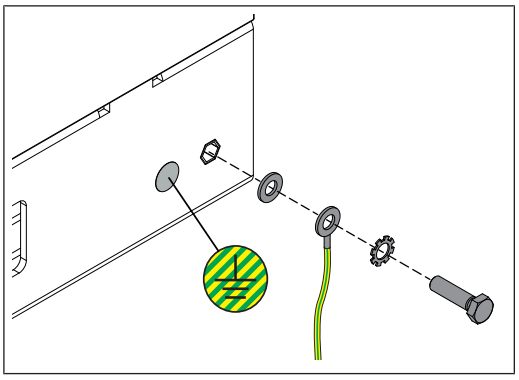
temperature sensor of the pellet unit to the core module	
bus cable of the pellet unit to the hydraulic or return feed mixer module	
latch of the pellet unit to the core module	
Power supply on terminal block ▪ Boiler protection in accordance with the section entitled “Technical specifications”	
Flow sensor for the pellet unit on the pellet module	

Also for WOS drive:

WOS monitor to the core module	
WOS drive to the pellet module	

NOTICE! Observe additional information in the relevant boiler controller documentation!

6.10.4 Potential equalisation

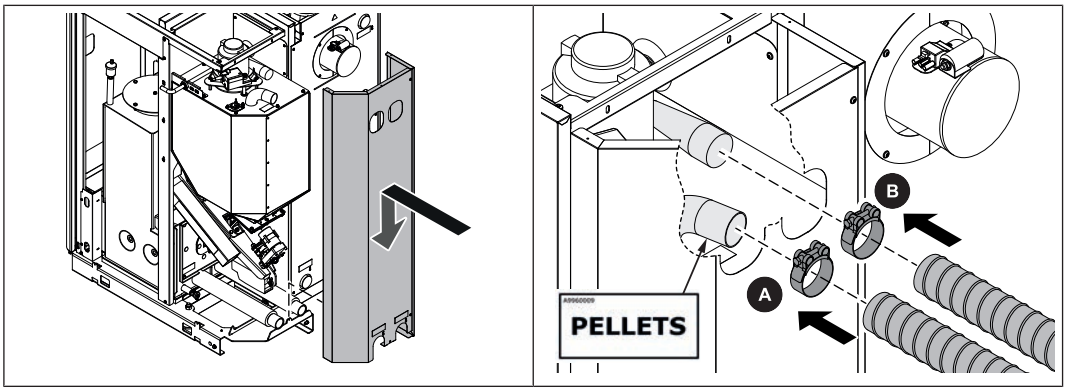


❒ The potential equalisation on the boiler base must comply with current directives, regulations and standards.

6.11 Connecting the discharge system

6.11.1 Install suction hoses

After installing the discharge system in accordance with the included installation manual, connect the suction and return air lines to the pellet unit.



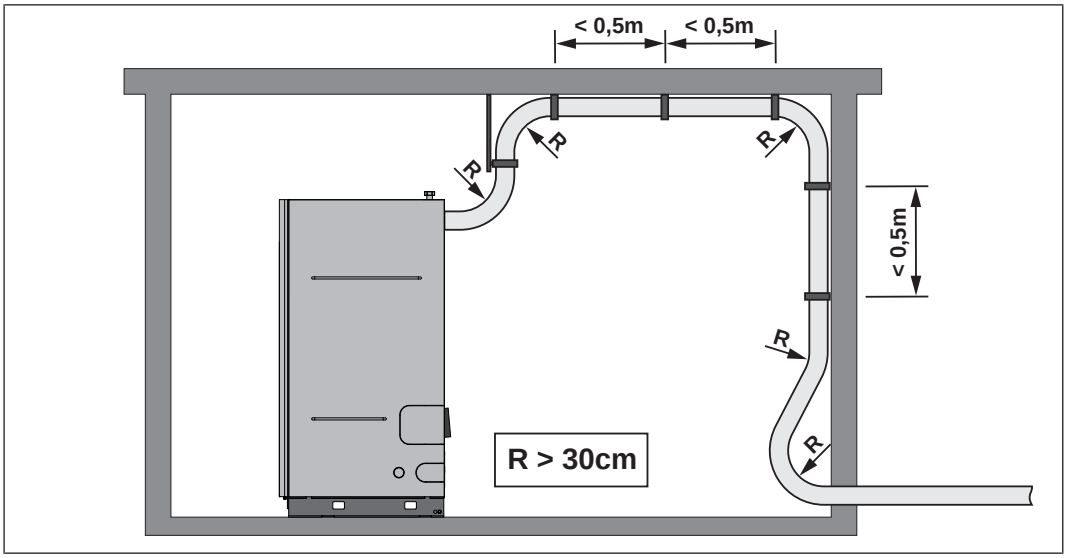
❒ Insert the rear panel into the lug on the bottom of the boiler

❒ Run the suction hose (A) to the left-hand connection (pellet sticker)

❒ Run the return-air line (B) to the right-hand connection

NOTICE! When connecting the hose lines, pay attention to the equipotential bonding as per the installation instructions for the discharge system ➲ "Potential equalisation" [▸ 75]

6.11.2 Assembly information for hose lines

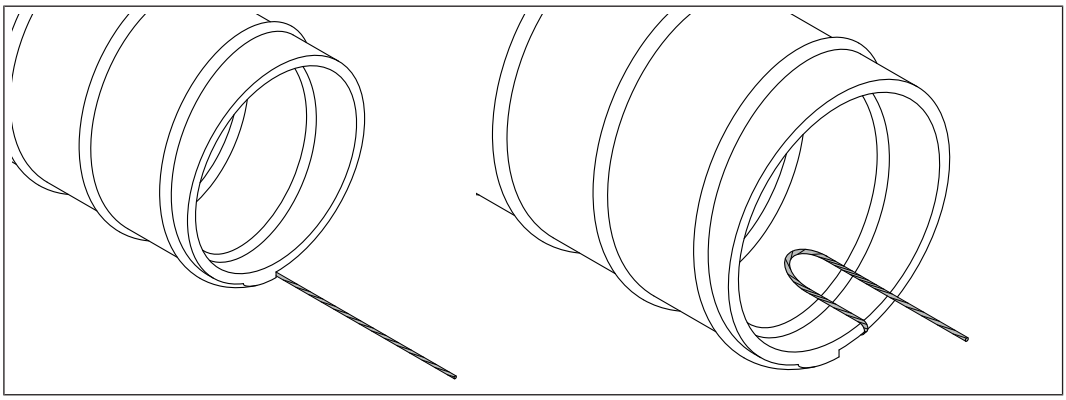


Please note the following with regard to the hose lines used in Froling vacuum discharge systems:

- 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.

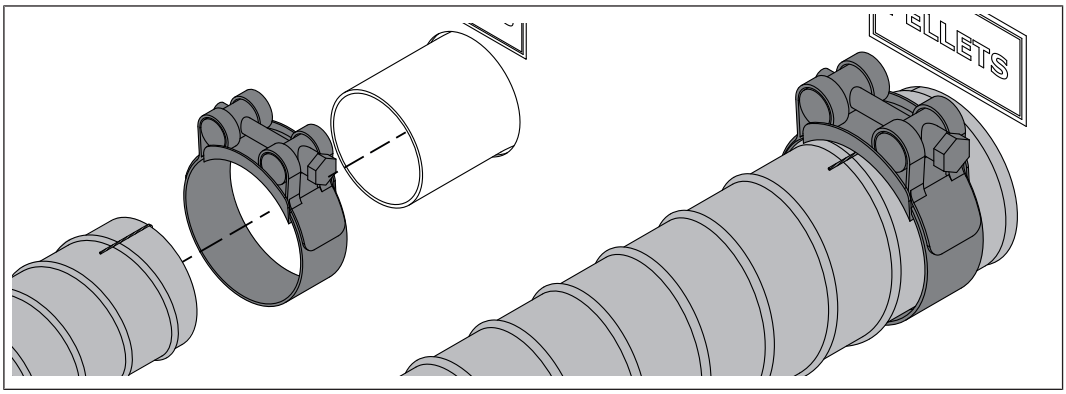


❒ Expose approximately 8 cm of the earth wire at the end of the hose line

↳ **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

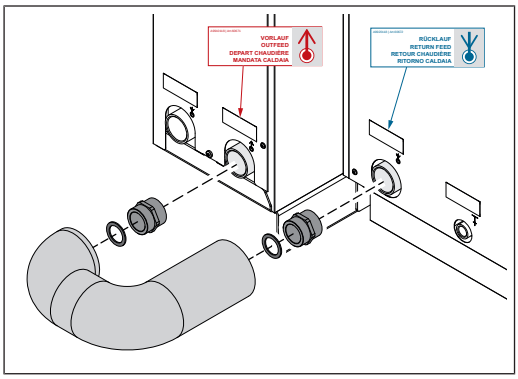
❒ Attach the hose line to the connector

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

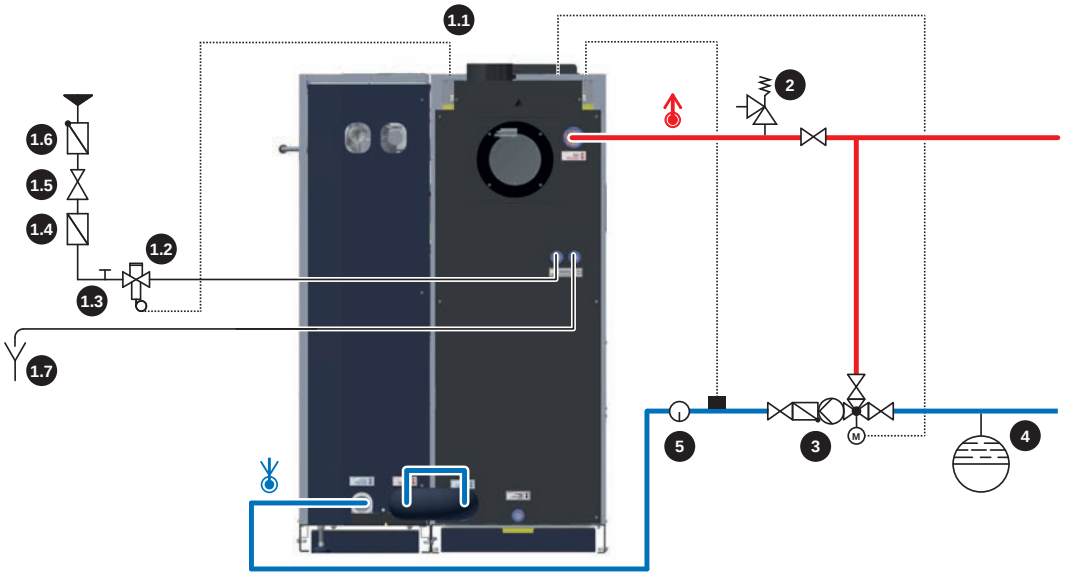
↳ **TIP:** If stiffness occurs when trying to attach the hoses to the connectors, pour a few drops of water onto the pipe (do not use lubrication grease!)

❒ Secure the hose line with a hose clamp

6.12 Hydraulic connection



- ❒ Remove the protective cap from the pellet unit flow connection
- ❒ Fit the screw connection to the flow connection as shown
- ❒ Fit the second screw connection to the firewood boiler's return feed connection
- ❒ Fit the pipe union to the screw connections as shown
  - ↳ Do not forget to fit the seals provided!



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
- A pressure reducing valve (1.5) is required for a cold water pressure of ≥ 6 bar Minimum cold water pressure = 2 bar

1.1 Sensor of thermal discharge safety device
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 water from entering the drinking water network
1.7 Free outlet without counter pressure with observable flow path (e.g. discharge funnel)

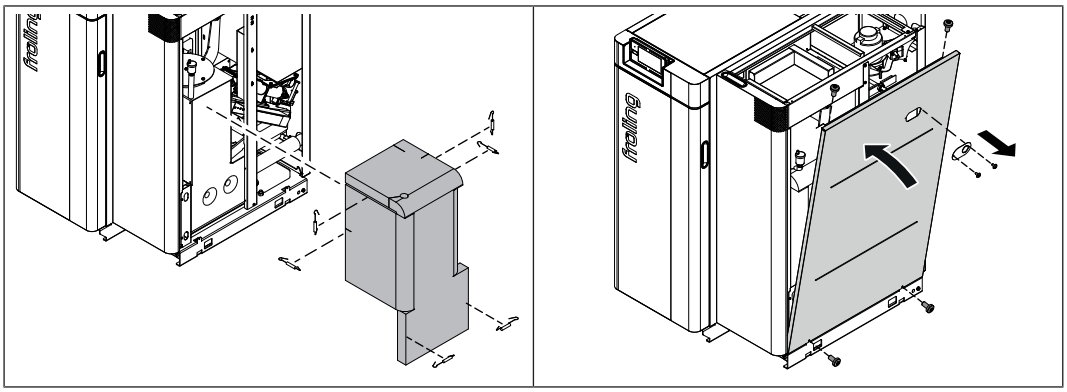
2 Safety valve

- 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)**

6.13 Concluding work

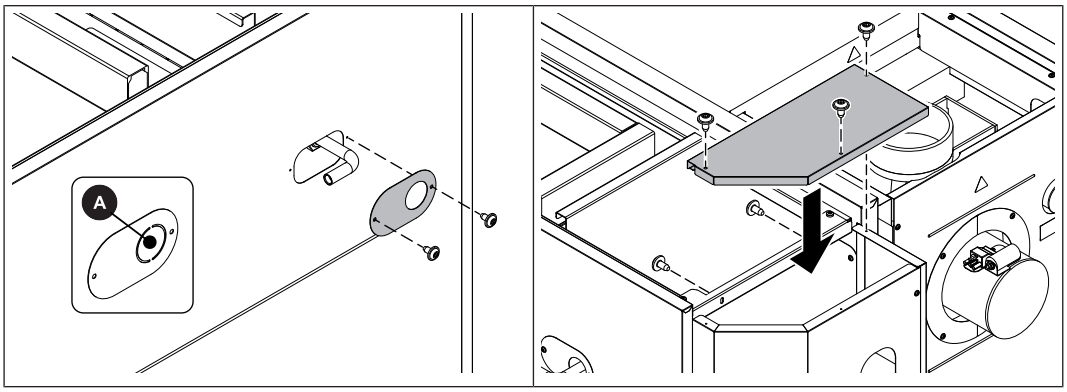
6.13.1 Fitting the cladding to the pellet unit



❒ Attach the thermal insulation to the pellet unit and fix in place using tension springs

❒ Remove the cover plate of the WOS lever from side panel

❒ Insert the side panel into the lug on the bottom of the boiler and fix in place

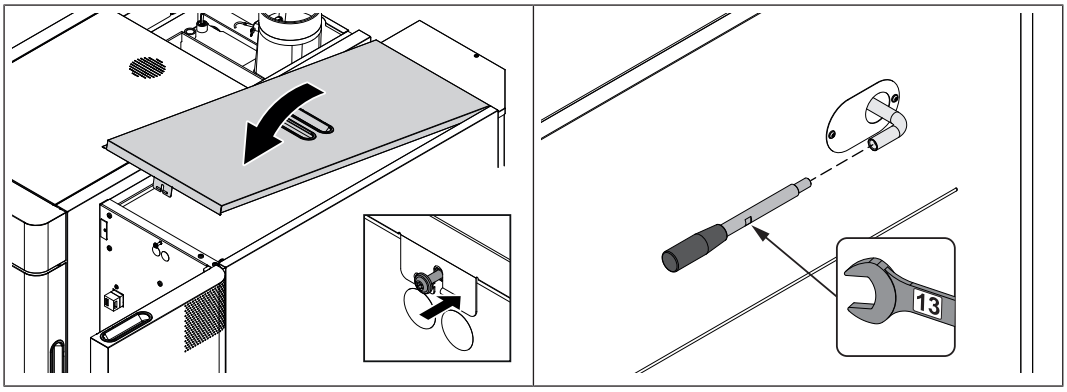


❒ Remove the piece from the pre-punched hole (A) for the WOS lever from the cover plate

↳ Use a half-round file to file down any protruding pieces

❒ Slide the cover plate onto the WOS lever and attach to the side panel

❒ Install the cover on the rear panel of the pellet unit

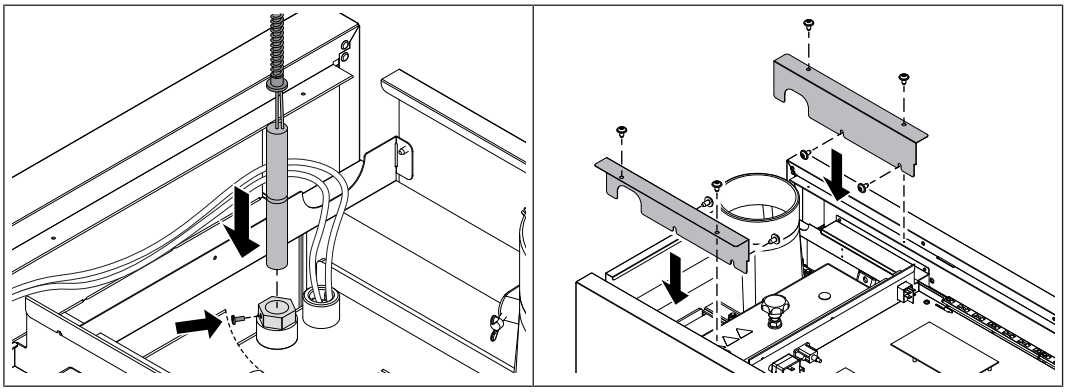


❒ Insert the top cover at the rear and attach it at the front with a retaining screw

❒ Screw the WOS handle into the lever

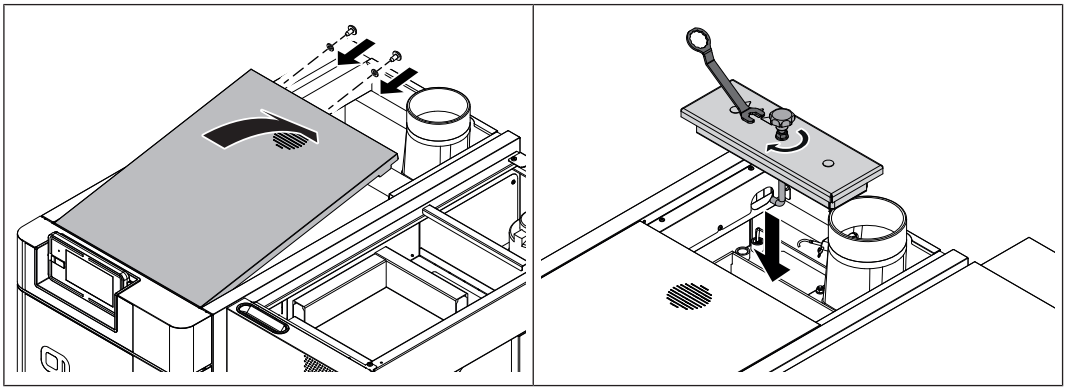
❒ Close the insulated door on the pellet unit

6.13.2 Install the cladding on the firewood boiler



❒ Slide the sensor and metal tube insulation of the thermal discharge safety valve into the immersion sleeve and secure with slotted screw

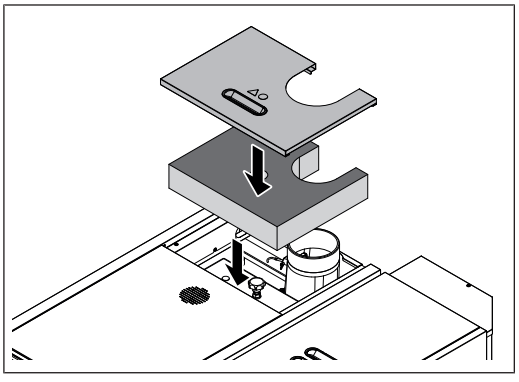
❒ Attach the left and right cover plates to the cable ducts



❒ Insert the cover behind the control and use screws and contact discs to attach at the back of the cover

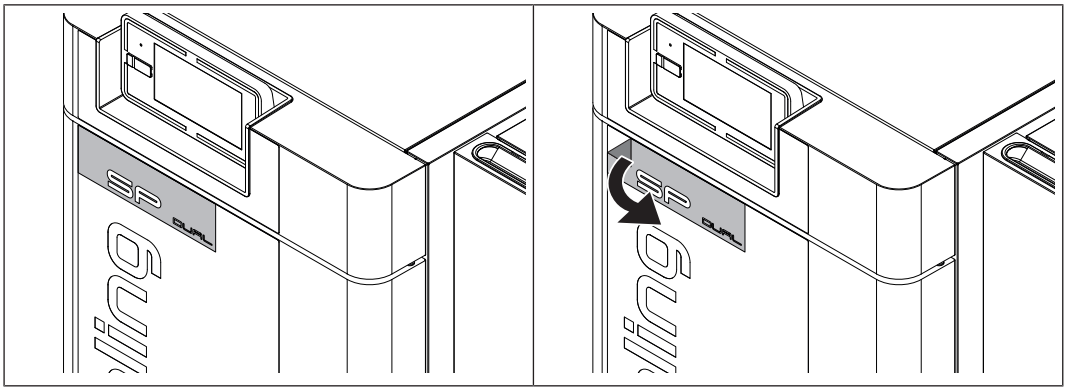
❒ Put the heat exchanger cover on and fix it in place by turning the star knob screw

❒ Tighten the lock nut using a wrench



❒ Place the thermal insulation and the rear cover on the heat exchanger cover

6.13.3 Positioning the boiler stickers



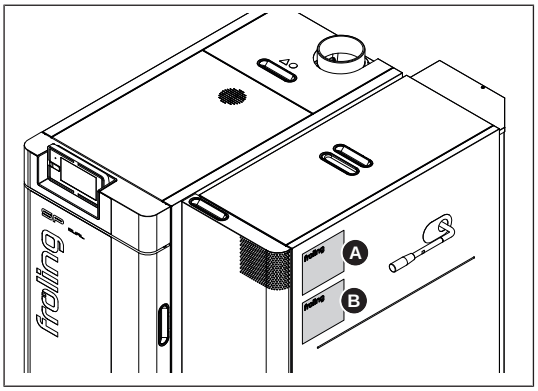
❒ Remove the protective film from the sticker

❒ Position the backing film featuring “SP Dual” 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

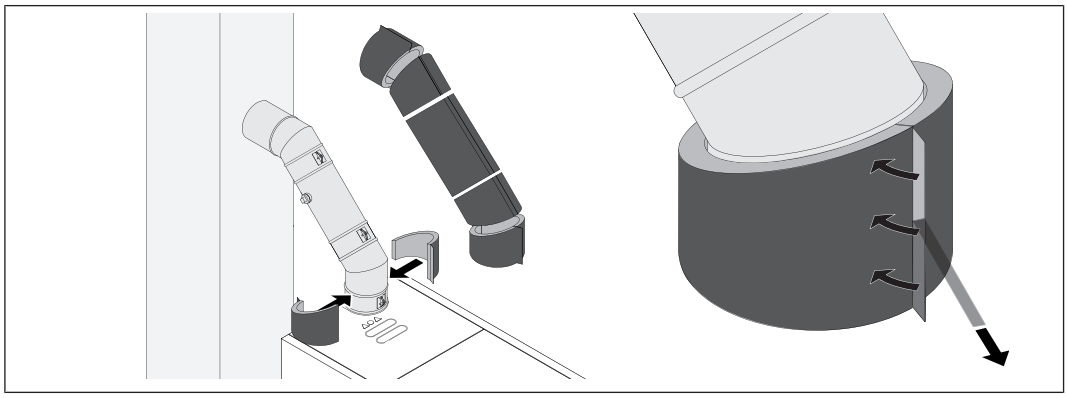
6.13.4 Affixing the identification plate



❒ Affix the supplied identification plates for the firewood boiler (A) and pellet unit (B) in a free space on the boiler

6.13.5 Insulate the connection line

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



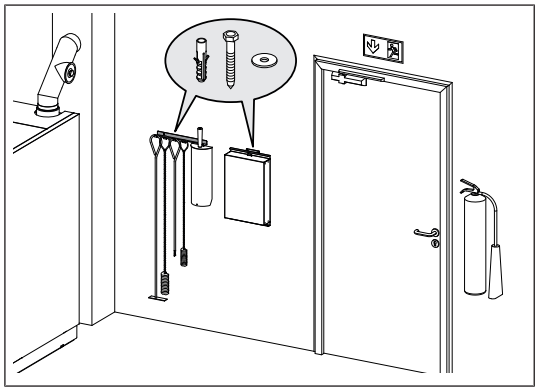
❒ Cut the half shells of thermal insulation to length and lay them on the connection line

❒ Create an opening for access to the measuring port

❒ Apply protective foil at the projecting lugs

❒ Glue the half shells to each other

6.13.6 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!

NOTICE

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

Take the following precautions:

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

NOTICE

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

As a result:

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

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

❒ Turn on the main switch

❒ Set the boiler controller to the system type.

❒ Load the boiler default values.

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

❒ Check the system pressure of the heating system.

❒ Check that the heating system is fully ventilated

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

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

❒ Check that all water connections are tightly sealed

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

❒ Check that all necessary safety devices are in place

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

❒ Check the seal of the boiler.

↳ All doors and inspection openings must be tightly sealed.

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

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

❒ Check that the door contact switch is working efficiently.

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

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

NOTICE

In case of use of non-permitted fuels:

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

For this reason, when operating the boiler:

❒ Use only the permitted fuels

7.2.4 Heating up for the first time

Follow the relevant assembly instructions for the firewood boiler when heating up in firewood mode for the first time or when screed drying the combustion chamber.

NOTICE

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

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

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

7.2.5 Heating up for the first time

NOTICE

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

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

⚠ 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

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Akkreditierung Austria 0311 ISO/IEC 17020

TÜV SÜD Landesgesellschaft Österreich

EU-Entwurfsmusterprüfbescheinigung
Certificate

EU-Entwurfsmusterprüfung (Modul B 3.2) nach Richtlinie 2014/68/EU
EU-Design-examination (Module B 3.2) according to directive 2014/68/EU

Zertifikat-Nr.: *Certificate-No.:* **0531-PED-725108377-2**

Zeichen des Auftraggebers: *Reference of Applicant:*

Auftragsdatum: *Date of Application:* **19.09.2018**

Inspektionsbericht-Nr. *Inspection report Nr.:* **VE725108377-2-JKo**

Hersteller: *Manufacturer:* **Fröling GmbH**

In/ *of* **Industriestraße 12**
A- 4710 Grieskirchen

Hiermit wird bestätigt, dass das hier genannte EG-Entwurfsmuster die Anforderungen der Richtlinie 2014/68/EU erfüllt.

We herewith certify that the design-examination mentioned meets the requirements of the Directive 2014/68/EU.

Fertigungsstätte:
Manufacturing Plant:

Geprüft nach: *Tested in accordance with:* **Richtlinie 2014/68/EU, Artikel 4(2)**

Beschreibung des Produktes: *Description of product:*
Scheitholzkessel S4 Turbo 15, 15F, 22, 22F, 28, 28F, 32, 32F, 34, 34F, 40, 40F, 50, 50F, 60 und 60F
Bedienungsanleitung Scheitholzkessel S4 Turbo Dokument B1510318_de Ausgabe 05.10.2018, Montageanleitung Scheitholzkesse S4 Turbo Dokument M0971318_de Ausgabe 16.11.2018

Gültig bis: *Valid to:* **27.11.2028**

TÜV SÜD Landesgesellschaft Österreich GmbH

Wien, den 27.11.2018

Notifizierte Stelle, Kennnummer 0531
Notified Body, identification number 0531
(DI (FH) Josef Kogler)

Bitte beachten Sie die Hinweise auf der zweiten Seite.
Please note the remarks on the second page.

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TÜV®

01.Dgr.152 Zertifikat B 05.11.2018 Rev.01

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