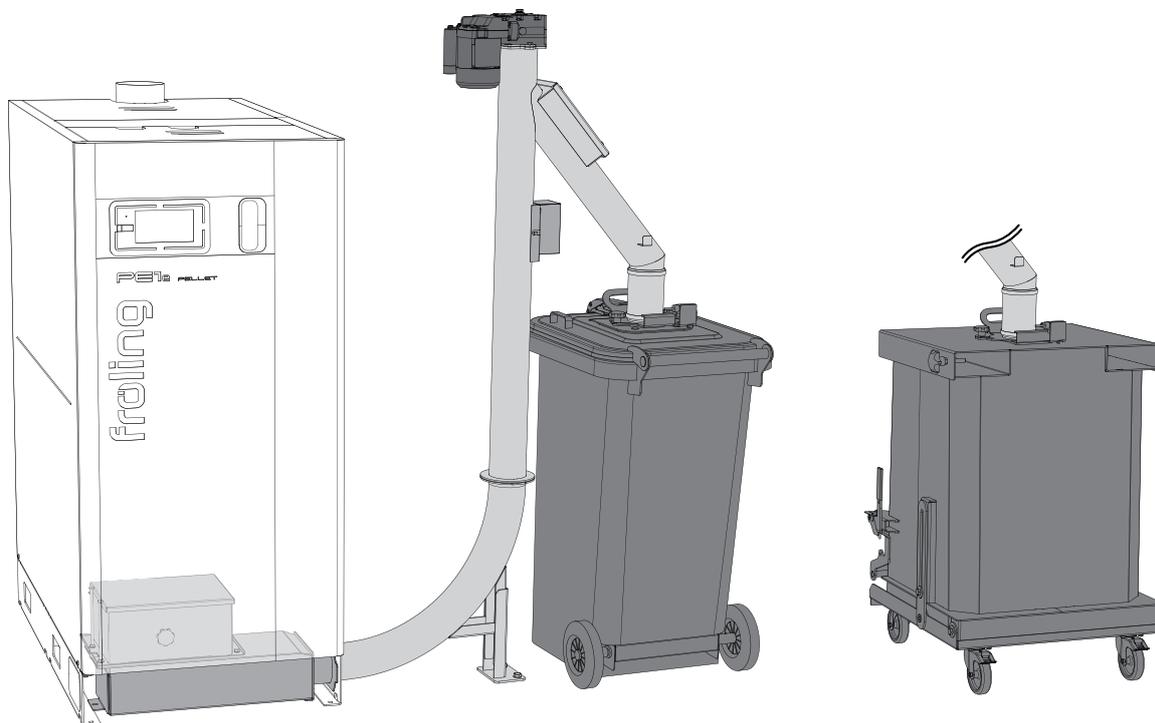


froling

Installation instructions

External ash removal

for PE1e Pellet 45-60



Translation of original German version of installation instructions for technicians.

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

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1 General

Thank you for choosing a quality product from Froeling. 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

This is an incomplete machine as defined by the Machinery Directive. The incomplete machine must only be started up when it has been confirmed that the machine, in which the incomplete machine has been installed, conforms to the provisions of Directive 2006/42/EC.

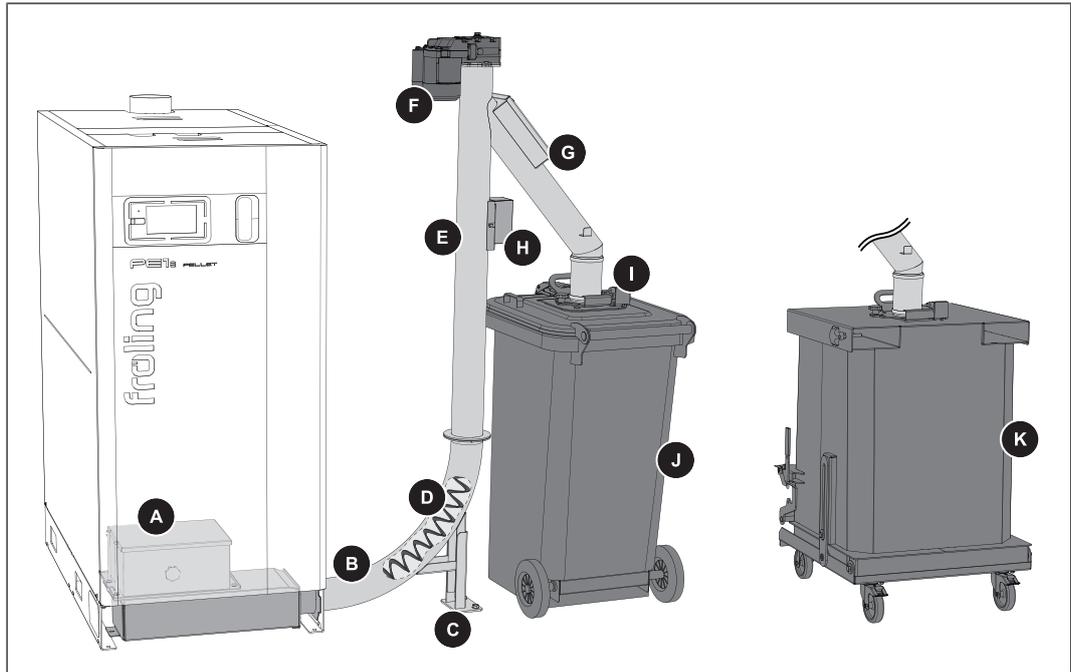
Compliance with the open provisions and verification of the correct installation must be confirmed in the delivery certificate of the declaration of installation (included in documentation).

Warranty and Guarantee Conditions

Our sale and delivery conditions will be applicable. These conditions have been made available to customers, and customers have been made aware of them at the time of order completion.

You can also find the guarantee conditions on the enclosed guarantee certificate.

1.1 Product overview



A	Ash transfer box	G	Downpipe with inspection opening
W	Pipe bend 90°	H	Connection box
C	Supporting post	I	Roller limit switch
D	Coreless screw Ø 70 mm	J	Standard waste bin 240 litres
E	Riser	K	Flap-bottomed container 330 Litres
F	Coreless screw geared motor		

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 Permitted uses

The external ash removal for PE1e Pellet is intended solely for the removal of combustion residue in the form of ash from the Fröling boilers listed in the section entitled “Area of application”. The ash is discharged into the standard waste bin, flap-bottomed container or other suitable container provided.

The unit should only be operated when it is in full working order. It must be operated in accordance with the instructions, observing safety precautions, and you should ensure you are aware of the potential hazards. The inspection and cleaning intervals in the operating instructions must be observed. Ensure that any faults which might impair safety are rectified immediately.

The manufacturer or supplier is not liable for any damage resulting from non-permitted uses.

Only original spare parts or specific alternative spare parts authorised by the manufacturer may be used. Any kind of change or modification made to the product will invalidate the manufacturer’s conformity with the applicable guideline(s). In such cases, the product will need to undergo new hazard evaluation procedures by the operator. The operator will then be fully responsible for the declaration of conformity according to the valid guideline(s) for the product and will need to issue a corresponding declaration for the device. This person will then assume all of the rights and responsibilities of a manufacturer.

2.2.1 Area of Application

External ash removal can be used in conjunction with the following Fröling boilers:

- Pellet boiler PE1e Pellet 45-60

2.2.2 Permitted fuels

Only use the fuels permitted in the boiler. Please refer to the section entitled “Permitted fuels” in the boiler’s assembly and operating instructions.

2.3 General safety information

- ❑ Refer to the safety information, information on residual risks and design information in the installation and operating instructions for the boiler in question.

NOTICE



In addition to these instructions, please also note all specifications, safety information and standards in the installation and operating instructions for the boiler in question.

2.4 Qualification of staff

2.4.1 Qualification of assembly staff

CAUTION



Assembly and installation by unqualified persons:

Risk of personal injury and damage to property

During assembly and installation:

- ❑ Observe the instructions and information in the manuals
- ❑ Only allow appropriately qualified personnel to work on the system

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

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

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

2.4.2 Personal protective equipment for assembly staff

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

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

2.4.3 Qualification of operating staff

CAUTION



If unauthorised persons enter the Installation room:

Risk of personal injury and damage to property

- The operator is responsible for keeping unauthorised persons, in particular children, away from the system.

Only trained operators are permitted to operate the unit. The operator must also have read and understood the instructions in the documentation.

2.4.4 Protective equipment for operating staff

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



- For operation, inspection and cleaning:
 - suitable work wear
 - protective gloves
 - sturdy shoes
 - dust mask

2.5 Design information

Carrying out modifications to the system and changing or disabling safety equipment is prohibited.

Always comply with all fire, building and electrical regulations when installing or operating the system, in addition to following the operating instructions and mandatory regulations that apply in the country in which the tank is operated.

NOTICE! All design information such as installation and approval of the system, chimney connection/chimney system etc., see installation instructions for the boiler.

2.5.1 Standards

The system must be installed and commissioned in accordance with the local fire and building regulations. The following standards and regulations should always be observed:

ÖNORM / DIN EN 60204	Safety of machines; Electrical equipment of machines, Part 1: General requirements
TRVB H 118	Technical directives for fire protection/prevention (Austria)
ÖNORM H 5170	Construction and fire protection requirements (Austria)
ÖNORM H 5190	Heating systems - Acoustic insulation
EN ISO 13857	Safety of machines; Safety distances for maintaining a safe distance from hazardous areas
EN 13501	Fire classification of construction products and building elements

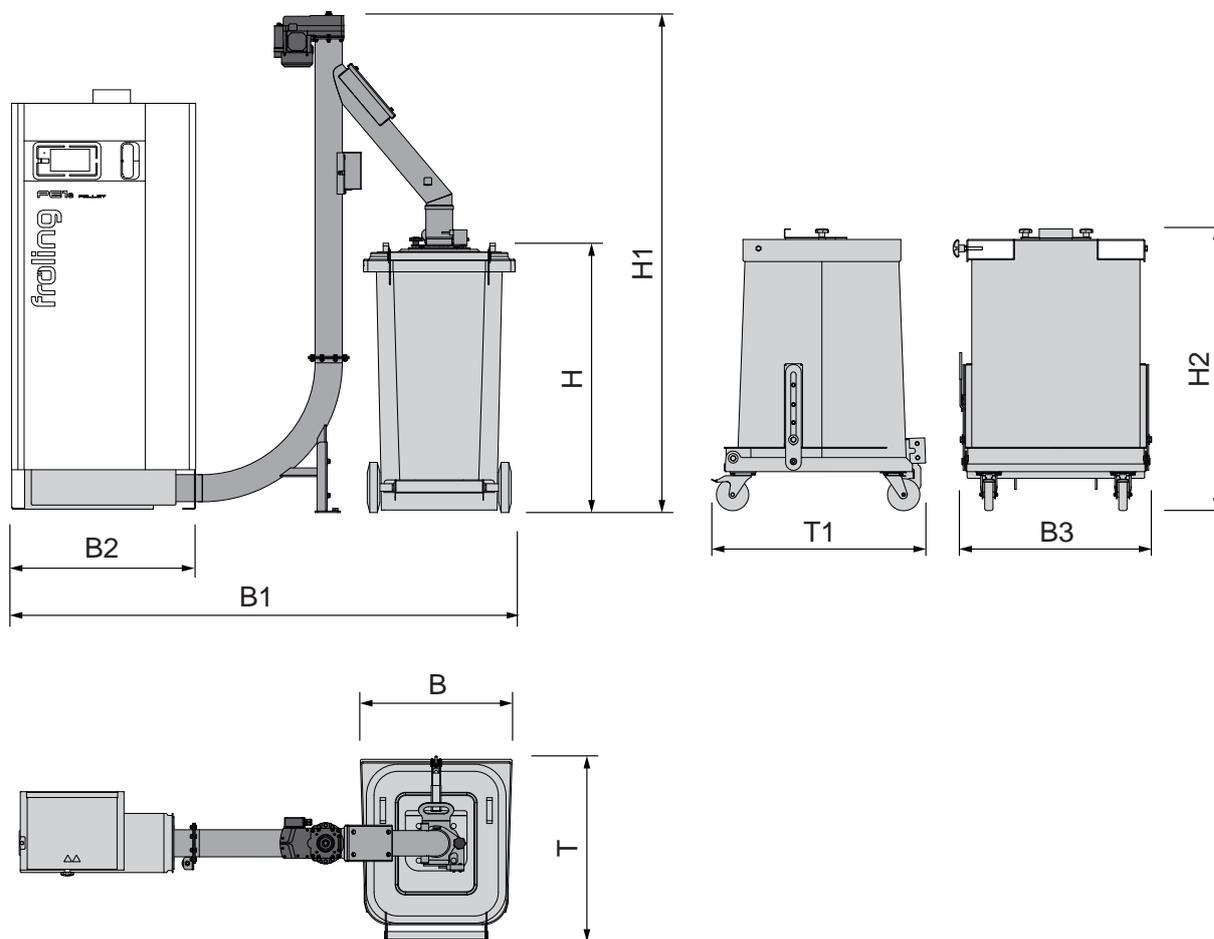
2.5.2 Notes on the installation location

- Danger of fire due to flammable materials
 - Do not store any flammable materials near the external ash removal
 - Flammable objects (e.g. clothing) must not be put on the system to dry
 - The floor under the system must be level, dry, sufficiently load-bearing and fire-resistant
- There is a possibility of dust near the system

NOTICE! Comply with additional information in the operating/installation manual of the boiler

3 Technology

3.1 Dimensions



Item	Description	Unit	Value
W	Width of standard waste bin	mm	600
B1	With of ash discharge system		2050
B2	Width, boiler		730
B3	Width of flap-bottomed container		770
T	Depth of standard waste bin		745
T1	Depth of flap-bottomed container		780
H	Height of standard waste bin		1065
H1	Height of ash discharge system		2000
H2	Height of flap-bottomed container		1100

3.2 Technical data

Description	Unit	Value
Power supply to geared motor		230 V / 50 Hz
Power consumption of geared motor	W	180 (ABM) 250 (STM)
Speed of coreless screw	rpm	30.6
Weight of standard waste bin (empty)	kg	40
Weight of standard waste bin (filled with ash)		approx. 200
Capacity of standard waste bin	l	240
Weight of flap-bottomed container (empty)	kg	100
Weight of flap-bottomed container (filled with ash)		approx. 320
Flap-bottomed container capacity	l	330

4 Assembly

CAUTION



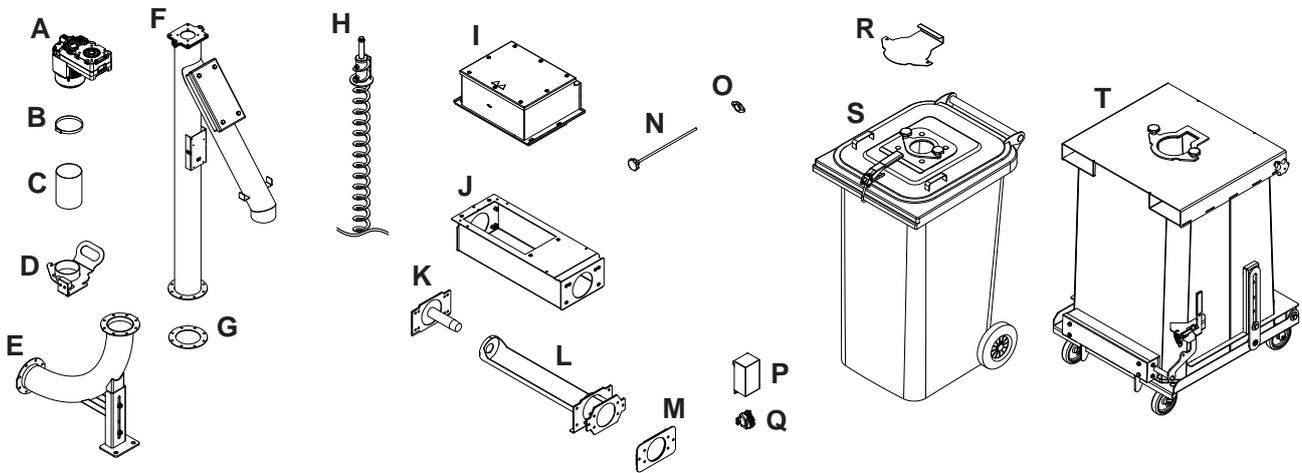
Assembly and installation by unqualified persons:

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

4.1 Materials supplied



A	Geared motor	K	Screw bearing
W	Hose clip	L	Screw guide
C	Connecting hose	M	Adapter flange
D	Connecting piece	N	Star grip screw
E	Pipe bend 90°	O	Flange bush
F	Riser	P	Connection box cover
G	Seal	Q	Terminal block connection box
H	Coreless screw	R	Locking plate
I	Upper part of ash transfer box	S	Standard waste bin (depending on model)
J	Lower part of ash transfer box	T	Flap-bottomed container (depending on model)

4.2 Required tools

The following tools are required for assembly:

- Spirit level
- Power drill with Ø 14 mm (surface) drill bit
- Phillips screwdriver
- Spanner or box wrench set (widths across flats 8–32 mm)
- Torx screwdriver
- Marker
- Angle grinder with metal cutting disc
- Copper paste and brush
- Tool for electrical installation
- Half-round file

4.3 Transport

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

NOTICE



Possibility of damage to components if handled incorrectly

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

4.4 Temporary storage

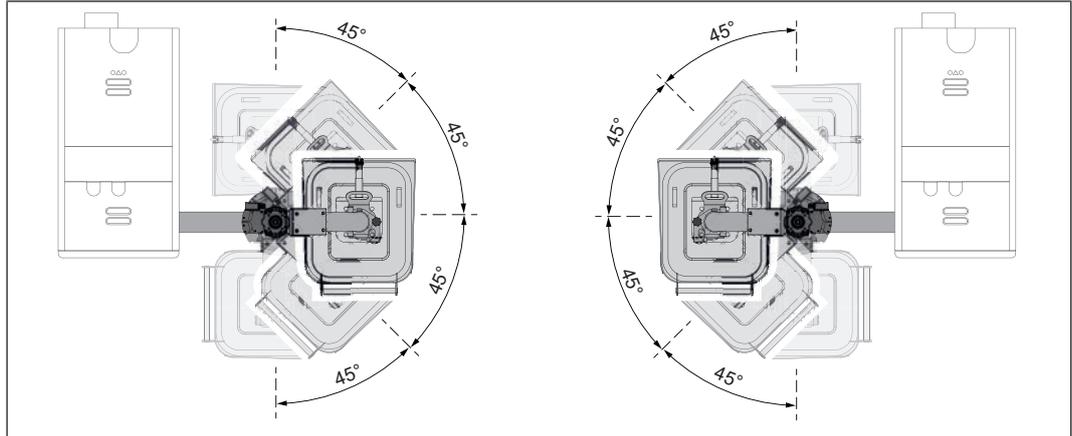
If the system is to be assembled at a later stage:

- Store components at a protected location, which is dry and free from dust
 - ↳ Damp conditions and frost can damage components, particularly electric ones!

4.5 Installation site

- To make it easier to transport the ash container for emptying, the emptying point and the ash discharge system should be located at the same level.
- The door opening at the installation site should be large enough for the ash container to pass through easily
- If a forklift is needed to move the ash container to the emptying point, ensure that the forklift can easily access the installation site.

4.5.1 Installation position



The pipe bend can be fitted to the right or left-hand side of the boiler. Furthermore, the riser can be installed on the pipe bend in 45° increments.

4.6 Installing external ash removal

WARNING



Working on a system which is operational/hot:

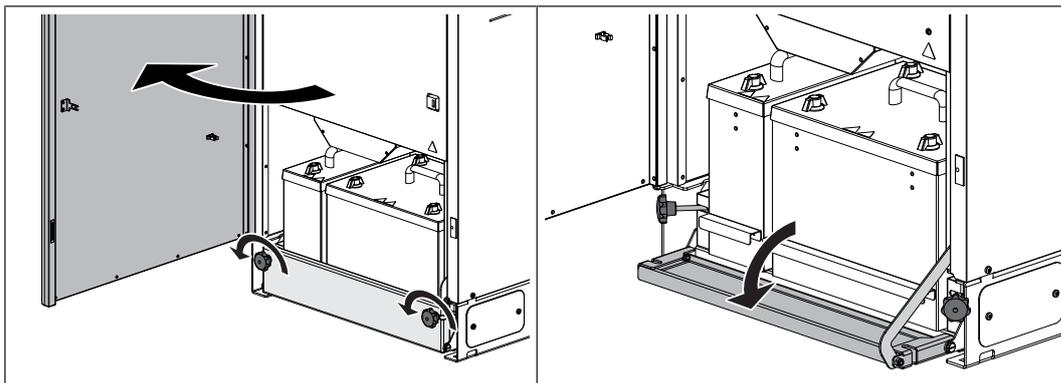
Risk of serious injuries from automatic start-up of the system and severe burns from hot parts and the flue gas pipe!



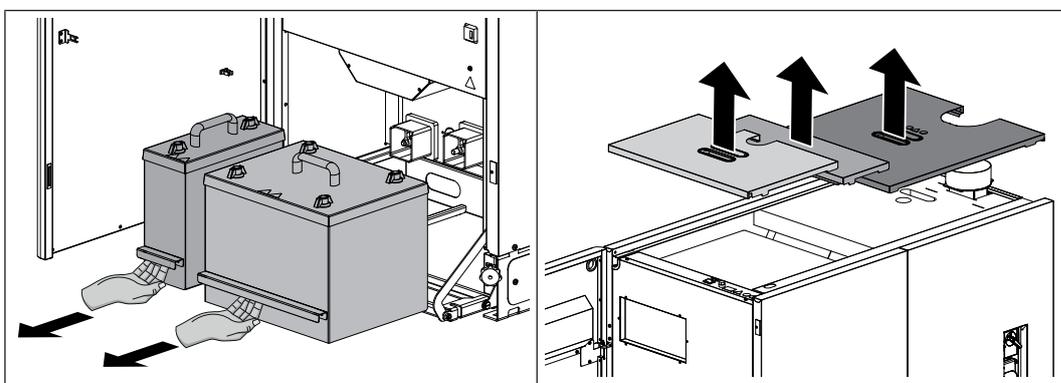
When working on the system:

- always wear protective gloves
- only operate the boiler using the handles provided
- switch off the boiler by tapping “Boiler off” at the mode icon
 - ↳ The boiler follows the shutdown procedure and switches to “Boiler off” status
- switch off the main switch and take precautions to prevent accidental switching on
- allow the boiler to cool off for at least 1 hour
- once all of the tasks have been completed, turn the main switch back on and switch the boiler on in the desired mode

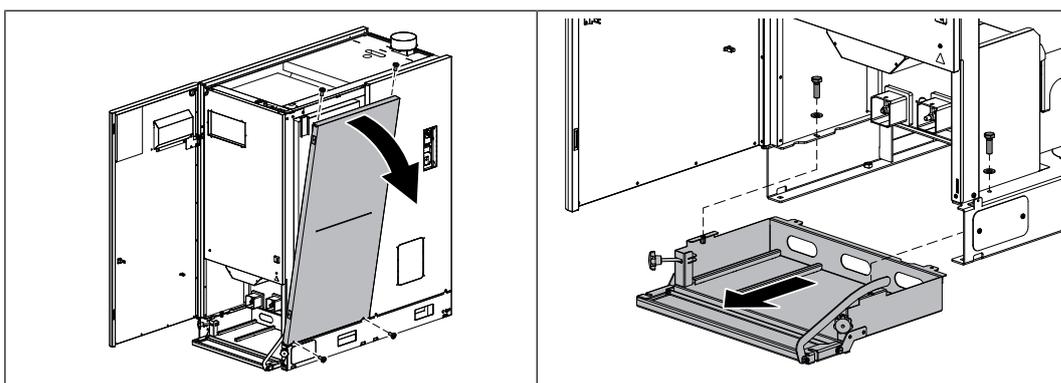
4.6.1 Boiler preparation



- Open the front insulating door
- Loosen the star-shaped knobs and swivel to one side
- Fold the cover plate forward

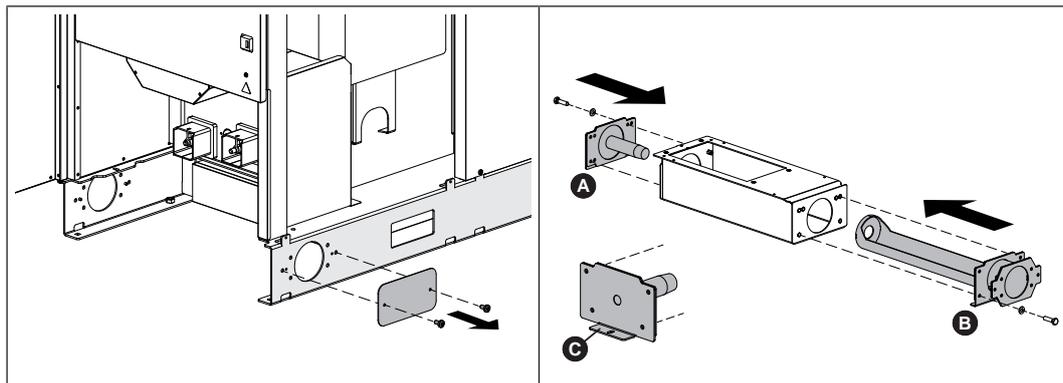
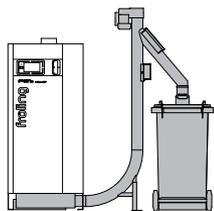


- Pull out both ash containers
- Remove upper cover

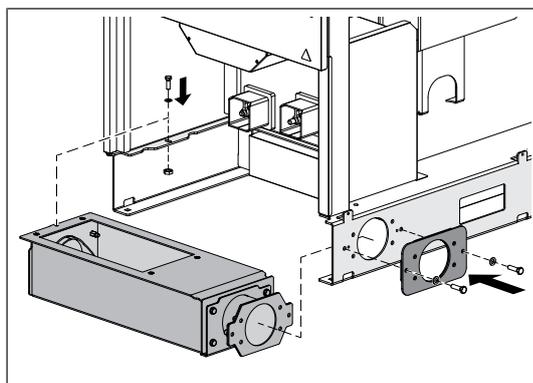


- Remove front side panel
 - 4x fillister head screw M6 x 12
- Undo two screws and pull the bracket out to the front
 - 2x hexagon screw M8 x 25

4.6.2 Mount the lower part of the ash transfer box (ash removal right)

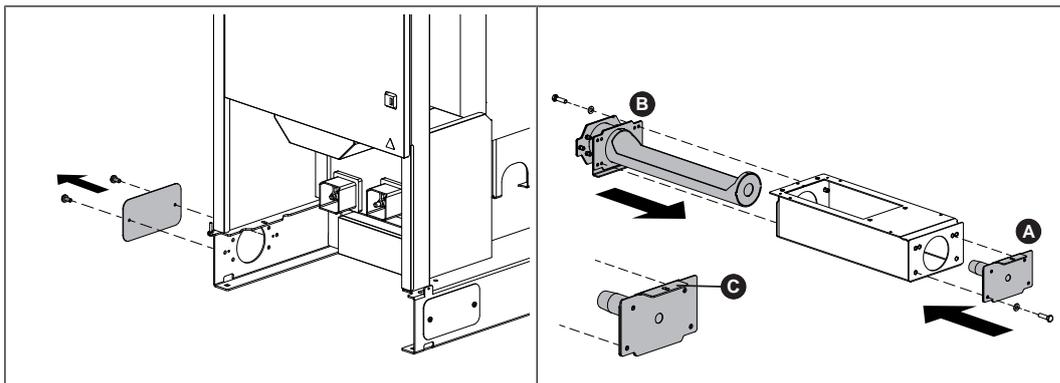
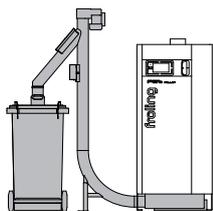


- Remove the blanking plate on the right side of the boiler base
 - 2x fillister head screw M6 x 12
- Push the screw bearing (A) and screw guide (B) into the ash transfer box and mount it
 - 4x hexagon screw M8 x 30 per side
 - ↳ Position the tab (C) of the screw bearing at the bottom

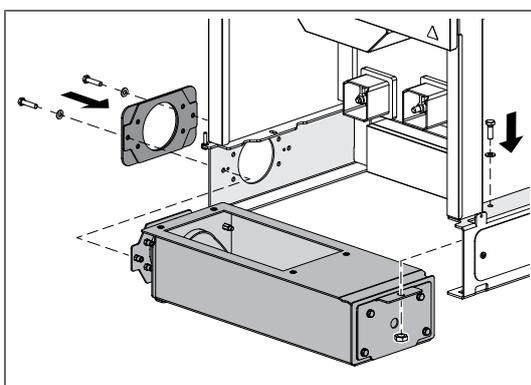


- Mount ash transfer box and intermediate flange on the boiler base
 - 3x hexagonal screw M8 x 30

4.6.3 Mount bottom part of the ash transfer box (ash removal left)

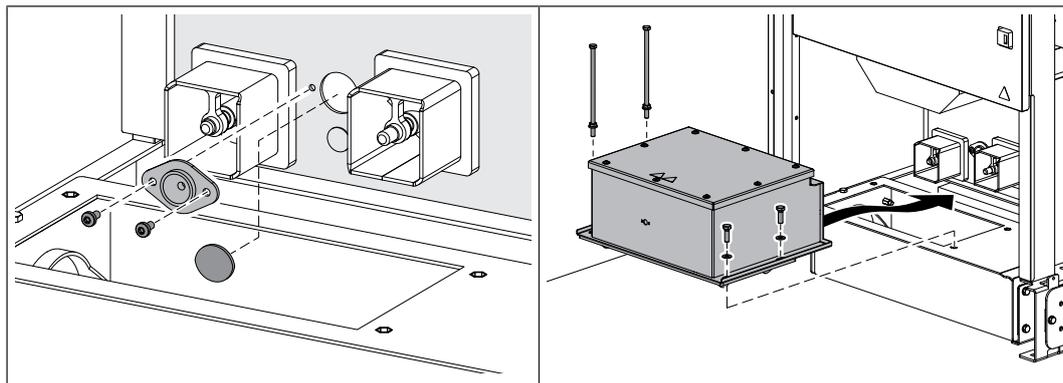


- ❑ Remove the blanking plate on the left side of the boiler base
- 2x fillister head screw M6 x 12
- ❑ Push the screw bearing (A) and screw guide (B) into the ash transfer box and mount it
- 4x hexagon screw M8 x 30 per side
 - ↪ Position the tab (C) of the screw bearing at the top

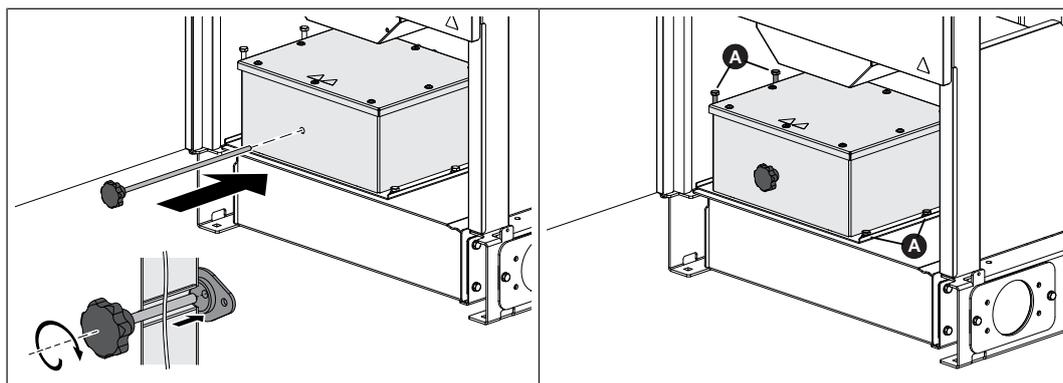


- ❑ Mount ash transfer box and intermediate flange on the boiler base
- 3x hexagonal screw M8 x 30

4.6.4 Mount upper part of ash transfer box

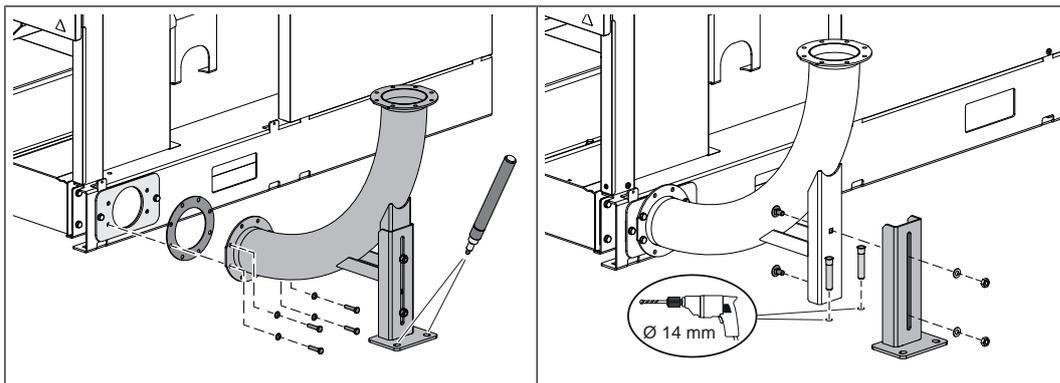


- Break out the round perforation between the ash removal ducts and remove burrs using a half-round file
- Insert flange bush into recess and mount it
 - 2x fillister head screw M6 x 12
- Push top part onto the ash removal ducts and mount on the bottom part
 - 2x hexagonal screw M8 x 30
 - 2x hexagonal screw M8 x 190
- ↳ Do not fully tighten the screws yet

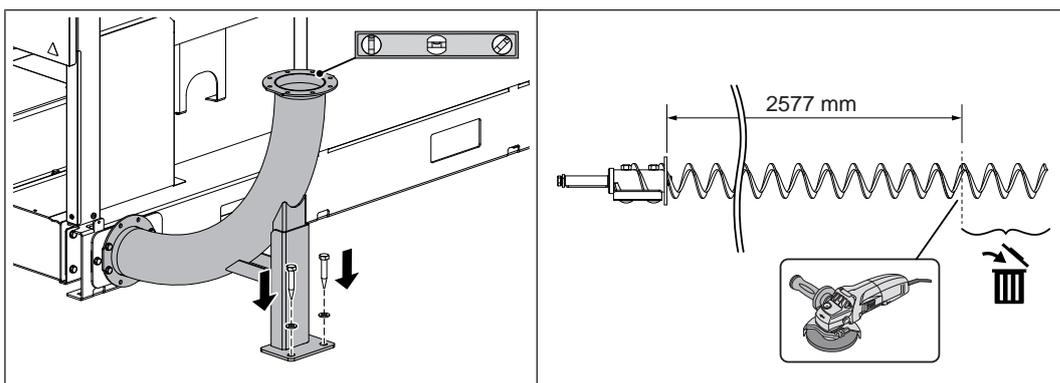


- Fix the upper part airtight by screwing the star grip screw into the flange bushing behind it.
- Tighten screws (A) on the top part

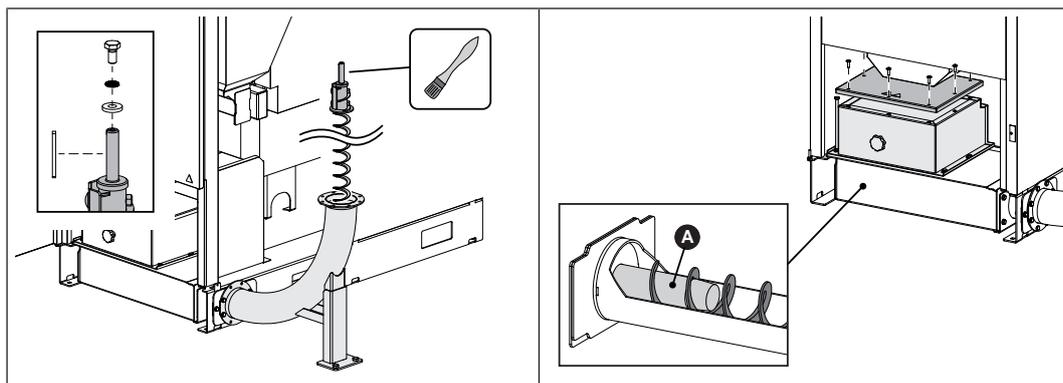
4.6.5 Installing the ash duct



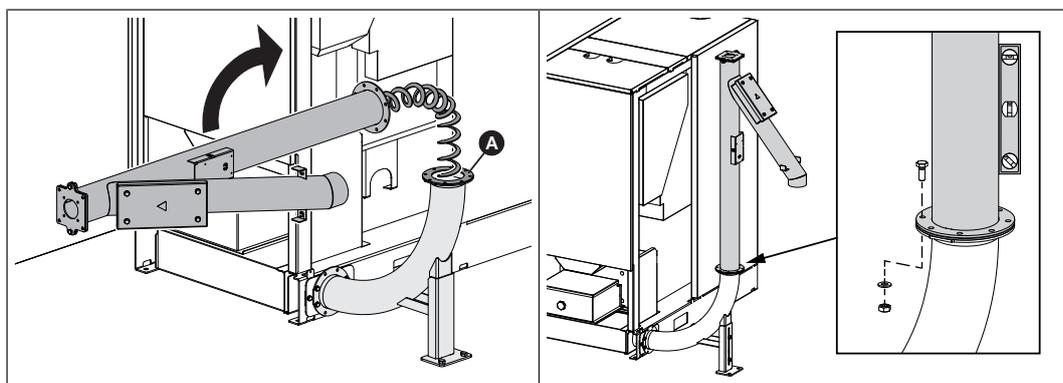
- ❑ Mount pipe bend and seal on the intermediate flange
 - 4x hexagonal screw M8 x 35
- ❑ Transfer the holes on the adjustable foot to the ground and dismantle the adjustable foot
 - 2x round-head screw M10 x 20
- ❑ Drill two fastening holes and knock in dowel \varnothing 14
 - Drill diameter 14 mm
 - Drilling depth min. 95 mm



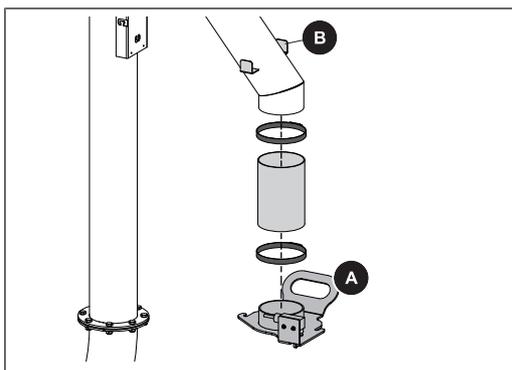
- ❑ Mount the adjustable foot on the pipe bend and align the connection flange horizontally.
- ❑ Anchor the pipe bend on the floor using frame screws \varnothing 12 x 80
- ❑ Shorten the coreless screw to a length of 2577 mm
 - ↪ The cut-off end will not be needed any longer



- Remove the key and shaft retainer from the shaft stub of the coreless screw
- Lubricate the shaft stub with copper paste
- Push coreless screw into pipe bend
- Dismantle the cover on the upper part and ensure that the coreless screw is positioned on the screw bearing (A)
 - 8x fillister head screw M6 x 20



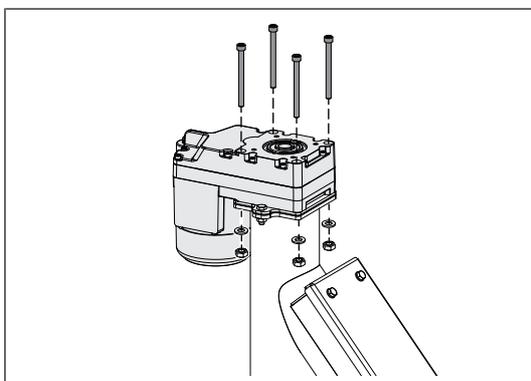
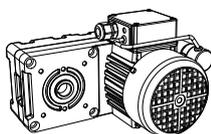
- Place seal (A) on the pipe bend
 - Carefully bend coreless screw forwards and push on riser
 - Align riser and mount on the pipe bend
 - 8x hexagonal screw M8 x 20
- ↳ The downpipe can be aligned in 45° increments, ➔ ["Installation position" \[14\]](#)



- Use hose clamps to secure the connecting hose and connecting piece (A) to the downpipe of the riser
 - ↪ Ensure that handle can be hung on the downpipe hook (B)

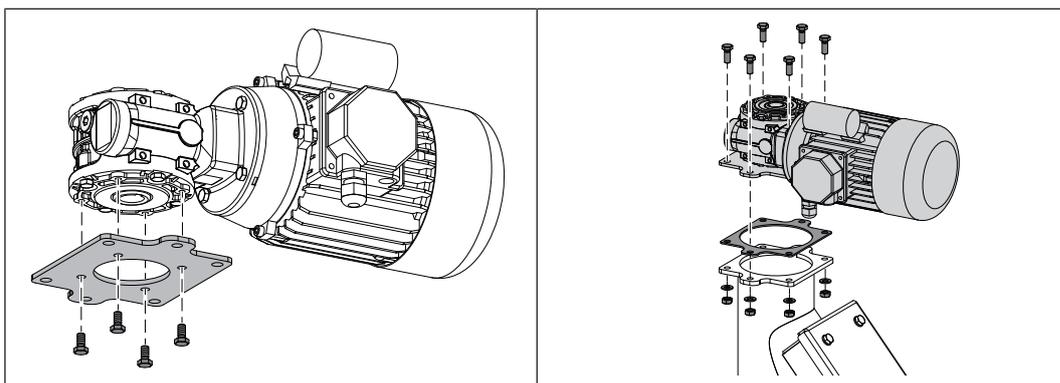
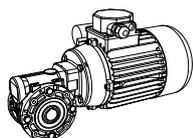
4.6.6 Assembly of the geared motor

ABM geared motor:



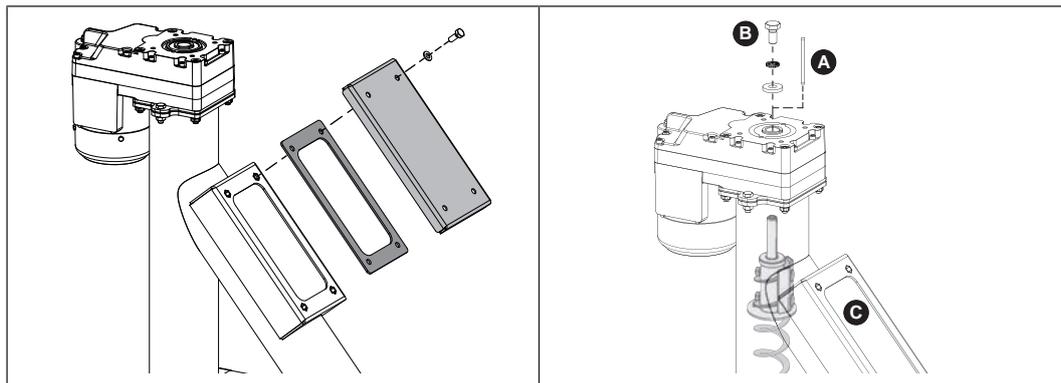
- Install the geared motor on the connection flange of the upper part
 - 4x cylinder head screw M8 x 95

STM geared motor:



- Mount the intermediate flange on the geared motor
 - 4x hexagonal screw M6 x 12
- Install the geared motor including the seal on the connection flange of the upper part
 - 6x hexagonal screw M8 x 20

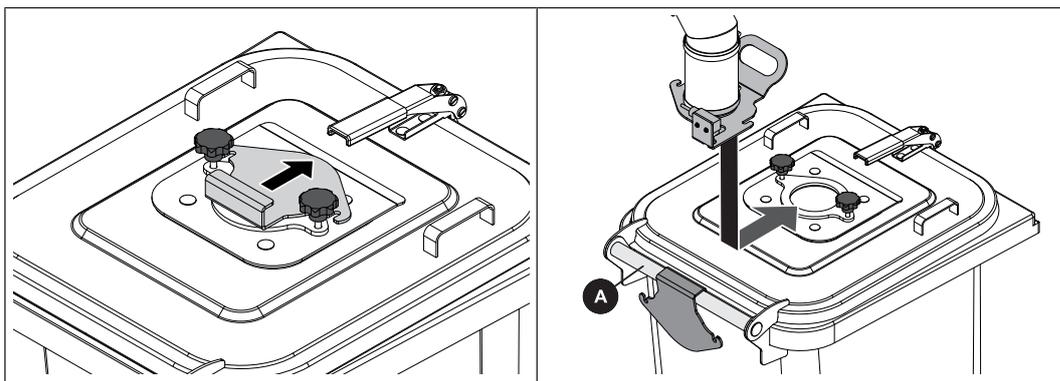
4.6.7 Installing the coreless screw



- Remove the inspection cover from the downpipe
 - 4x hexagonal screw M8 x 20
- Slide the screw end into the gear motor
 - ↳ **TIP:** Guide the coreless screw into the inspection opening (C) by reaching in
- Push the key (A) into the groove and secure the screw with the shaft lock (B)
 - 1x hexagonal screw M10 x 20 with wedge locking disk

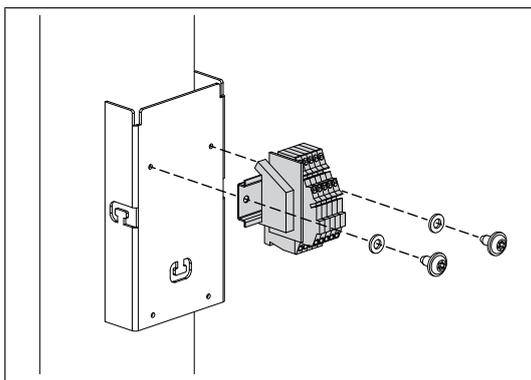
4.6.8 Positioning standard waste bin / flap-bottomed container

The following steps illustrate the positioning of the standard waste bin. Proceed in the same way for the flap-bottomed container.



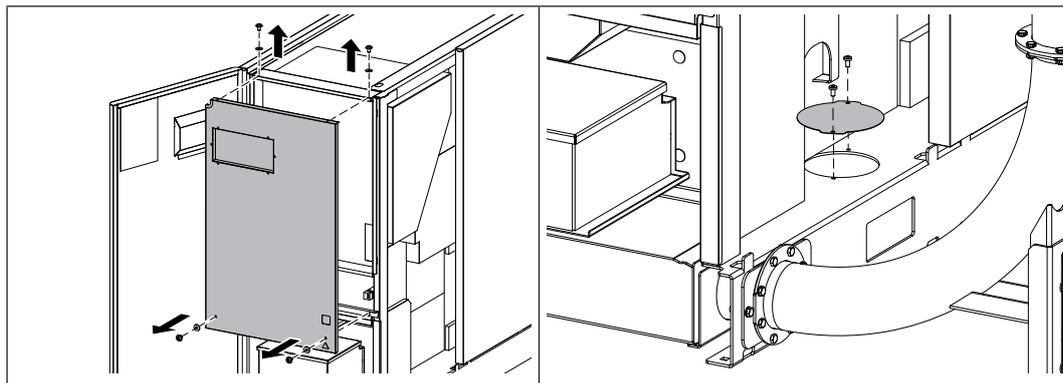
- Loosen the star-shaped knobs on the cover and remove the locking plate
 - ↪ Keep the locking plate in a safe place, e.g. hook on the handle bar (A) of a standard waste bin
- Position the standard waste bin / flap-bottomed container under the connection flange and attach connection flange using star-shaped knobs
 - ↪ Ensure that there is a roller limit switch on the cover

4.6.9 Installing the connection box

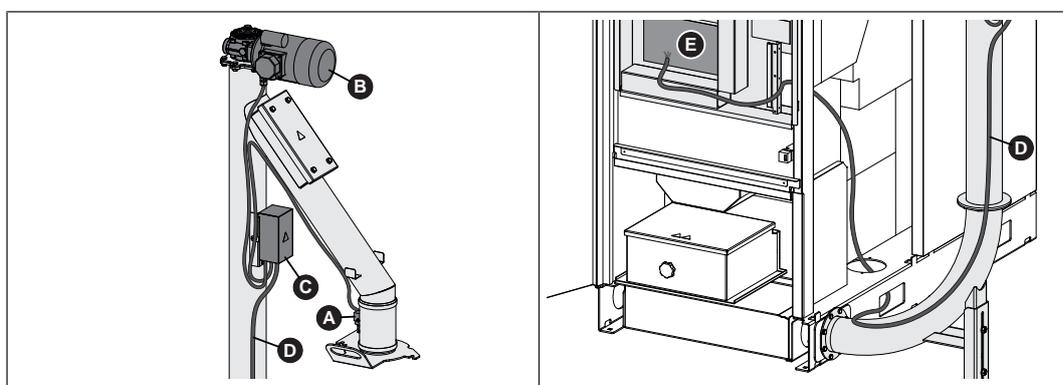


- Install top hat rail and terminal blocks on the upper part console
 - 2x fillister head screw M4 x 8

4.6.10 Laying cables



- Open the insulated door and remove the controller cover
 - 4x fillister head screw M4 x 8
- Remove the cover plate from the boiler base
 - 2x fillister head screw M6 x 12



- Route the cable of the roller limit switch (A) and the geared motor (B) to the connection box (C)
- Route connection line (D) of connection box (C) to the pellet module (E) as shown
 - ↳ Fix the cable with cable tie in such a way that contact with hot or moving parts is prevented.
 - ↳ Lay any extra cable from the cable duct in the boiler controller

4.7 Electrical connection

DANGER

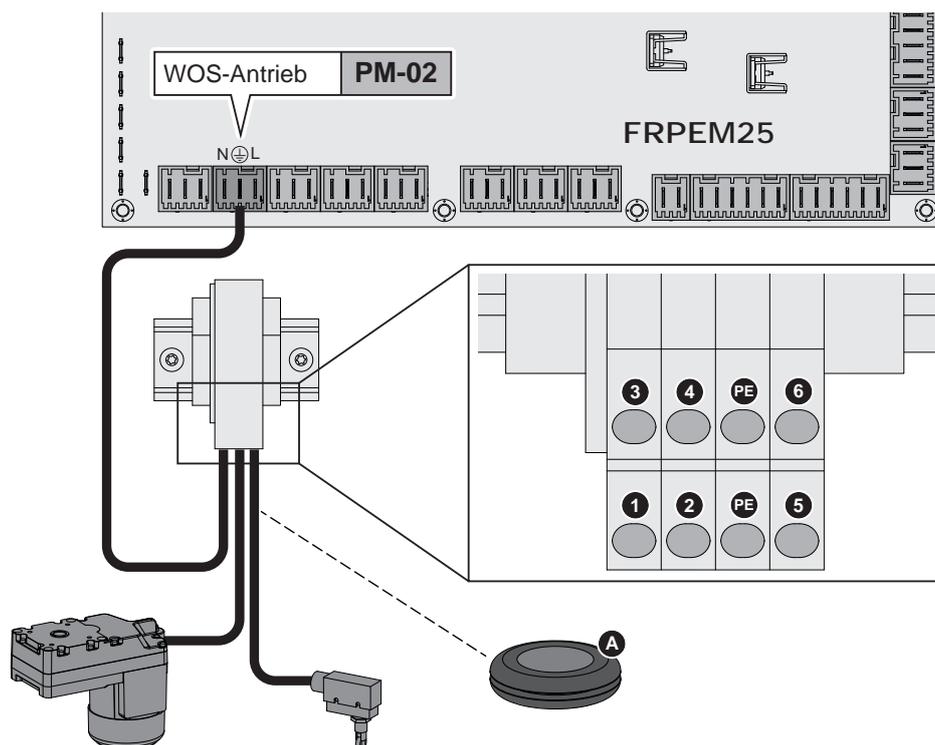


When working on electrical components:

Risk of electrocution!

When work is carried out on electrical components:

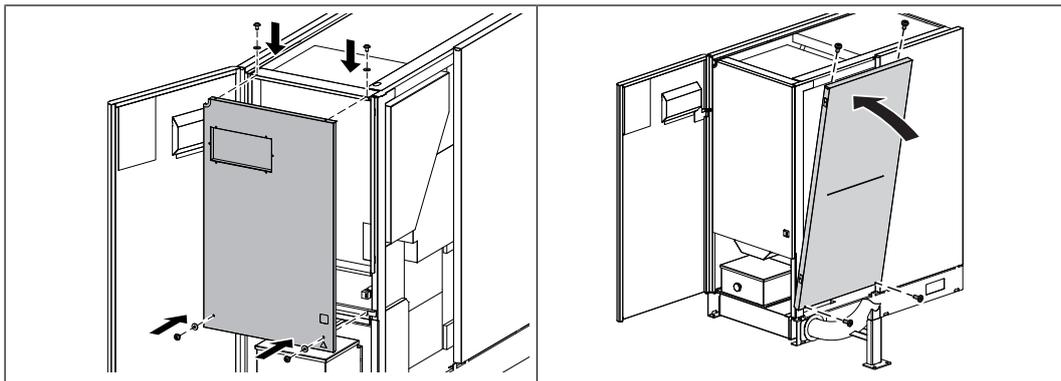
- Always have work carried out by a qualified electrician
- Observe the applicable standards and regulations
 - ↳ Work must not be carried out on electrical components by unauthorised persons



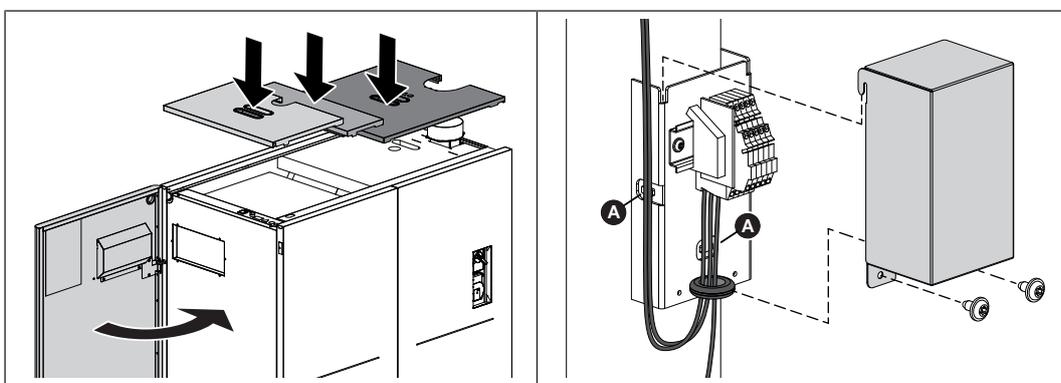
1	Phase controller (L)	5	Roller limit switch
2	Neutral conductor controller (N)	6	Roller limit switch
3	Phase geared motor (L)	PE	Earth controller / geared motor
4	Neutral conductor geared motor (N)		

- Connect the geared motor and roller limit switch cable, as well as the connection line, to the modular terminal blocks as shown
 - ↳ Route the cable on the connection box through the supplies rubber grommet (A)
- Connect the cable to the “WOS drive” output on the pellet module in addition to the unit that is already connected

4.8 Final installation steps



- Mount controller
 - 4x fillister head screw M4 x 8 incl. contact disk
- Thread in front side panel at the tabs on the boiler base and secure
 - 4x fillister head screw M6 x 12



- Place the upper cover on the boiler and close the insulated door
- Secure the cable with cable tie at the intended positions (A)
- Slide rubber grommet into the bottom cut-out of the cover and attach the cover
 - 2x fillister head screw M4 x 8

5 Operation

WARNING



Inspection and cleaning work on a system which is operational:

Risk of serious injuries from automatic startup of the system and severe burns from hot parts and the flue gas pipe!



When working on the system:

- always wear protective gloves
- only operate the boiler using the handles provided
- switch off the boiler by tapping “Boiler off” at the mode icon
 - ↳ The boiler follows the shutdown procedure and switches to “Boiler off” status
- switch off the main switch and take precautions to prevent accidental switching on
- allow the boiler to cool off for at least 1 hour
- once all of the tasks have been completed, turn the main switch back on and switch the boiler on in the desired mode

WARNING



Incorrect inspection and cleaning:

Incorrect or insufficient inspection and cleaning of the boiler can cause serious faults in combustion (e.g. spontaneous combustion of carbonisation gases / flash fires) and this can lead to serious accidents and damage!

Take the following precautions:

- Clean the boiler following the instructions in the instruction manual. Follow the boiler operating instructions.

5.1 Check the fill level of the container and empty if required

The ash container has no system for measuring the fill level. For this reason, check the fill level at appropriate intervals based on energy requirements, fuel quality and the number of operating hours.

WARNING

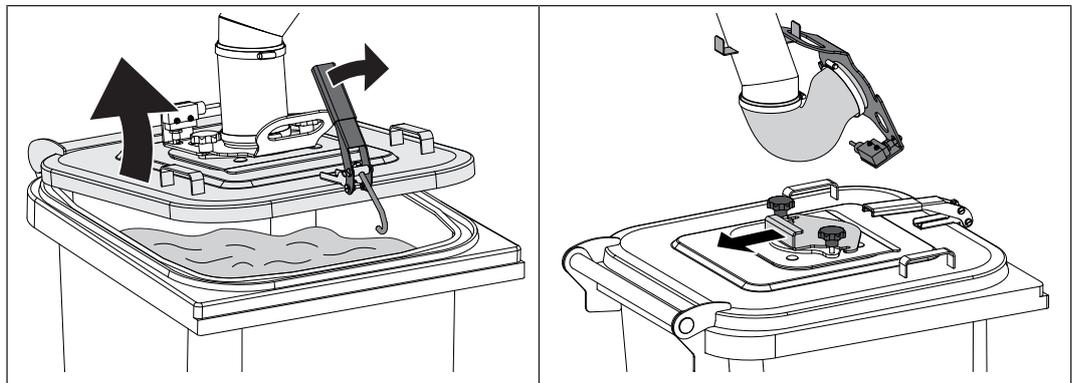
When removing the connecting piece / opening the cover during operation:

False air infiltration via the ash screw duct can lead to uncontrolled combustion and the risk of accidents.

Before checking the ash level / emptying the ash container:

- Switch off the boiler by tapping “Boiler off”
 - ↳ The boiler follows the shutdown procedure and switches to “Boiler off” status.

Standard waste bin:

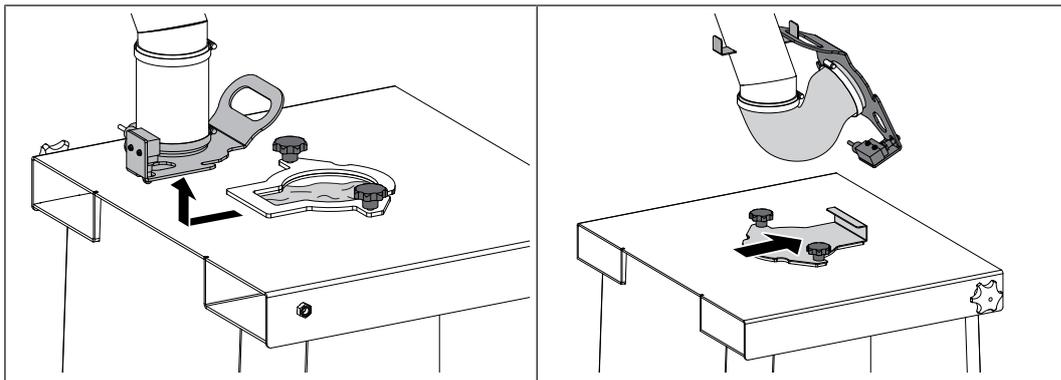


- Undo the quick lock
- Carefully open the cover and check the fill level
- Secure the cover using the quick lock

Emptying the standard waste bin:

- Loosen the star-shaped knobs and remove the connecting piece
- Hang the connecting piece on the downpipe hook
- Instead attach the locking plate using the star-shaped knobs
- Take the standard waste bin to the emptying point
 - ↳ Pay attention to the weight of the filled standard waste bin, ➔ ["Technical data"](#) [▶ 11](#)

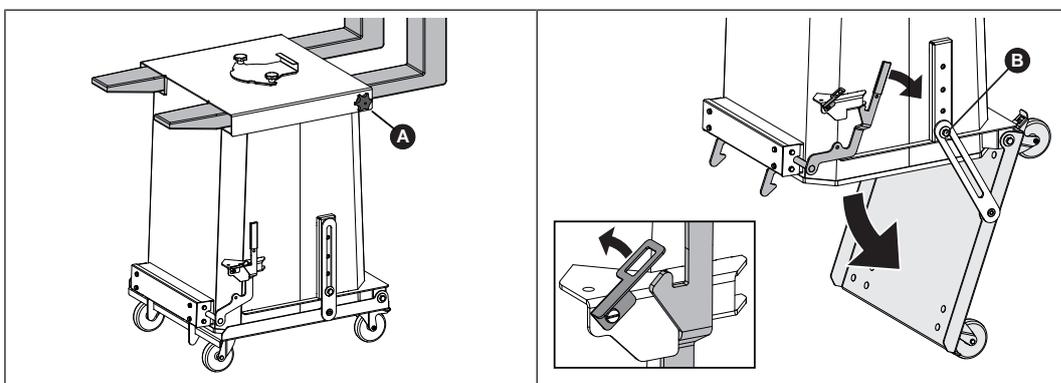
Flap-bottomed container:



- Loosen star-shaped knobs
- Remove connecting piece and check fill level

Emptying flap-bottomed container:

- Hang the connecting piece on the downpipe hook
- Instead attach the locking plate using the star-shaped knobs



- Use star-shaped knob (A) to secure flap-bottomed container to the forks of the forklift and transport to the unloading point
 - ↪ Pay attention to the weight of the filled flap-bottomed container, ➔ ["Technical data" \[11\]](#)
 - Release the locking plate and pull the locking lever to empty
- TIP:** Limit the opening angle of the flap bottom with screw (B)

5.2 Checking the geared motors

- Carry out a visual inspection of the seal on all the geared motors in the system
 - ↪ There should be no significant leakage of lubricant.

NOTICE! If a few drops of lubricant are coming out, this can be normal. If there is significant loss of lubricant, inform your installer or Froling customer services.

6 Troubleshooting

NOTICE

For more information on dealing with error messages, refer to the operating instructions for the boiler and boiler controller.

WARNING



Working on a system which is operational/hot:
Risk of serious injuries from automatic start-up of the system and severe burns from hot parts and the flue gas pipe!

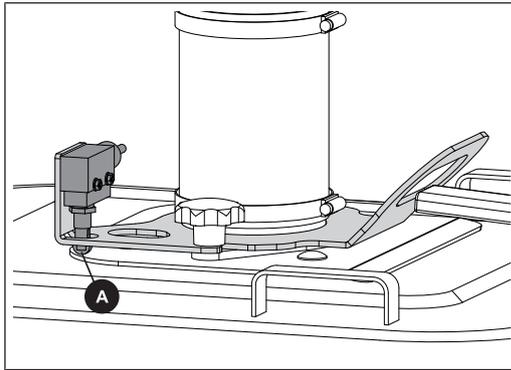


- When working on the system:
- always wear protective gloves
 - only operate the boiler using the handles provided
 - switch off the boiler by tapping “Boiler off” at the mode icon
 - ↳ The boiler follows the shutdown procedure and switches to “Boiler off” status
 - switch off the main switch and take precautions to prevent accidental switching on
 - allow the boiler to cool off for at least 1 hour
 - once all of the tasks have been completed, turn the main switch back on and switch the boiler on in the desired mode

Fault	Possible cause	Error resolution
“Ash box full, please empty” message on boiler display	Ash jammed in ash transfer box	<ul style="list-style-type: none"> ▪ Remove ash from ash transfer box ▪ Check that the roller limit switch is on the correct setting and adjust if necessary, “Checking the roller limit switch” ▶ 31]

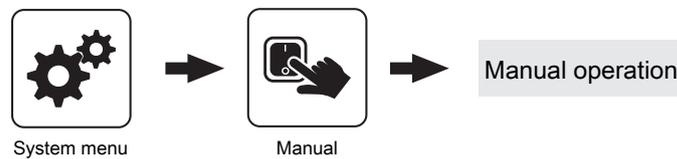
6.1 Checking the roller limit switch

Roller (A) on the roller limit switch must be pressed down when the connecting piece is installed (there is an audible click when it is installed correctly)



- Adjust the distance of the roller limit switch (A)

Checking the function:



- Go to the “Manual operation” menu and set the “ash screw” parameter to “YES”
 - ↳ The boiler ash screw and the coreless screw for the external ash removal system start when the roller limit switch has been set correctly

Manufacturer's address

Fröling Heizkessel- und Behälterbau GesmbH

Industriestraße 12
A-4710 Grieskirchen
+43 (0) 7248 606 0
info@froeling.com

Zweigniederlassung Aschheim

Max-Planck-Straße 6
85609 Aschheim
+49 (0) 89 927 926 0
info@froeling.com

Froling srl

Via J. Ressel 2H
I-39100 Bolzano (BZ)
+39 (0) 471 060460
info@froeling.it

Froling SARL

1, rue Kellermann
F-67450 Mundolsheim
+33 (0) 388 193 269
froling@froeling.com

Installer's address

Stamp

Froling customer services

Austria
Germany
Worldwide

0043 (0) 7248 606 7000
0049 (0) 89 927 926 400
0043 (0) 7248 606 0



www.froeling.com

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