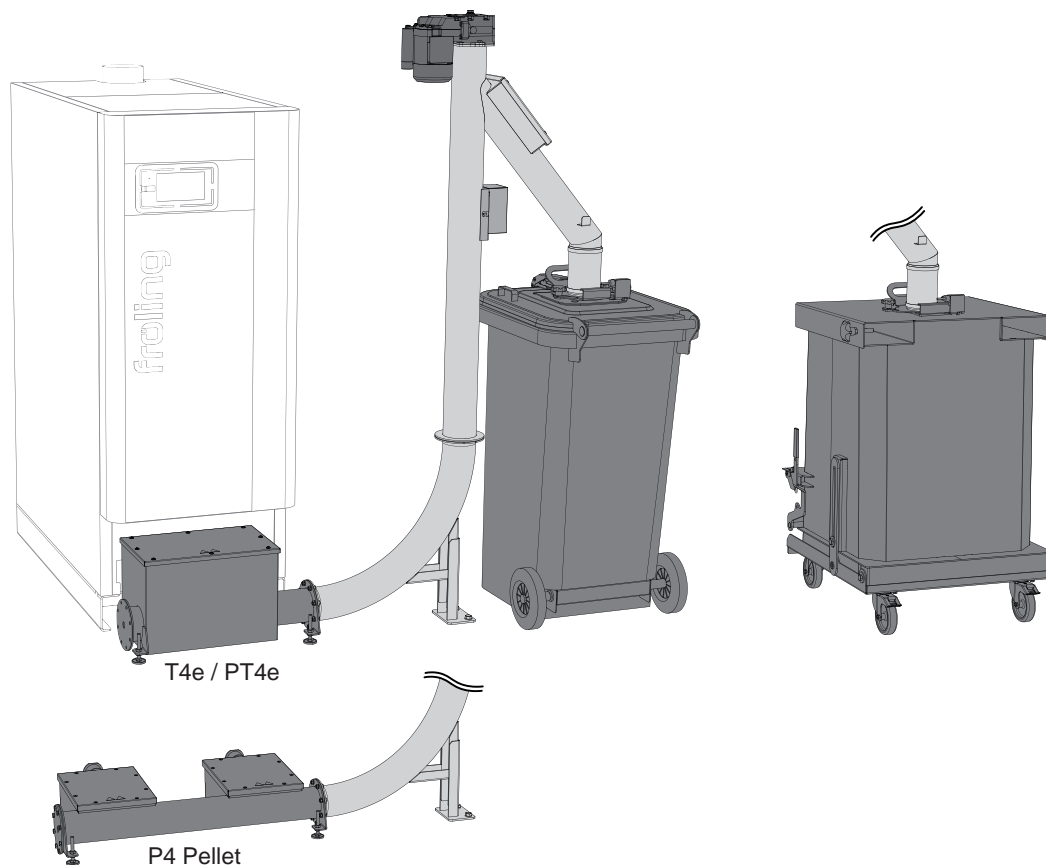


## External ash removal

for T4e / PT4e / P4 Pellet



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 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](mailto: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.

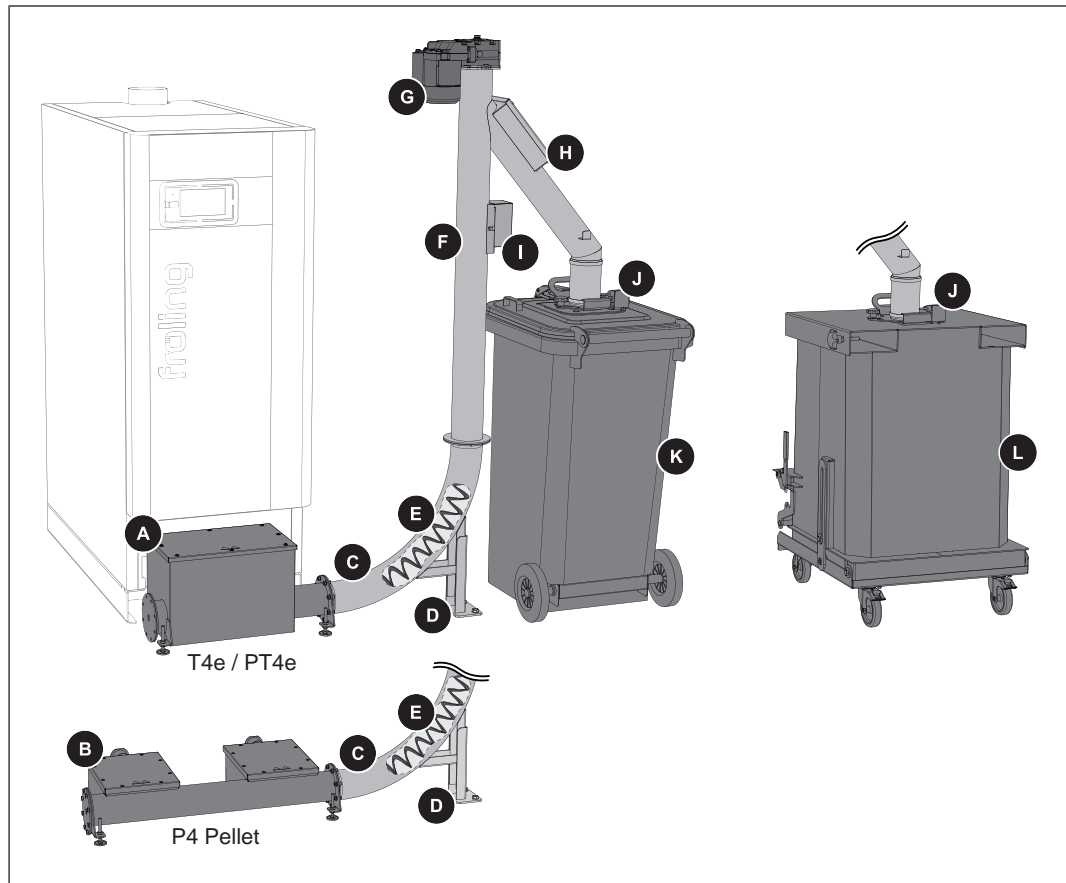
Compliance with the open provisions and verification of the correct installation must be confirmed in the delivery certificate of the declaration of installation (included in documentation).

## 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



<b>A</b>	Ash transfer box T4e / PT4e <sup>1)</sup>	<b>G</b>	Coreless screw geared motor
<b>W</b>	Ash transfer box P4 Pellet <sup>1)</sup>	<b>H</b>	Downpipe with inspection opening
<b>C</b>	Pipe bend 90°	<b>I</b>	Connection box
<b>D</b>	Supporting post	<b>J</b>	Roller limit switch
<b>E</b>	Coreless screw Ø 70 mm	<b>K</b>	Standard waste bin 240 litres
<b>O</b>	Upper part with riser and downpipe	<b>L</b>	Flap-bottomed container 330 Litres

1. Size varies depending on the output of the boiler

## 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 T4e / PT4e / P4 Pellet is intended solely for the removal of combustion residue in the form of ash from the Froling 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 Froling boilers:

- T4e 20-350 wood chip boiler
- PT4e 80-250 pellet boiler
- P4 Pellet 45-105 pellet boiler

### 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 / boiler 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:

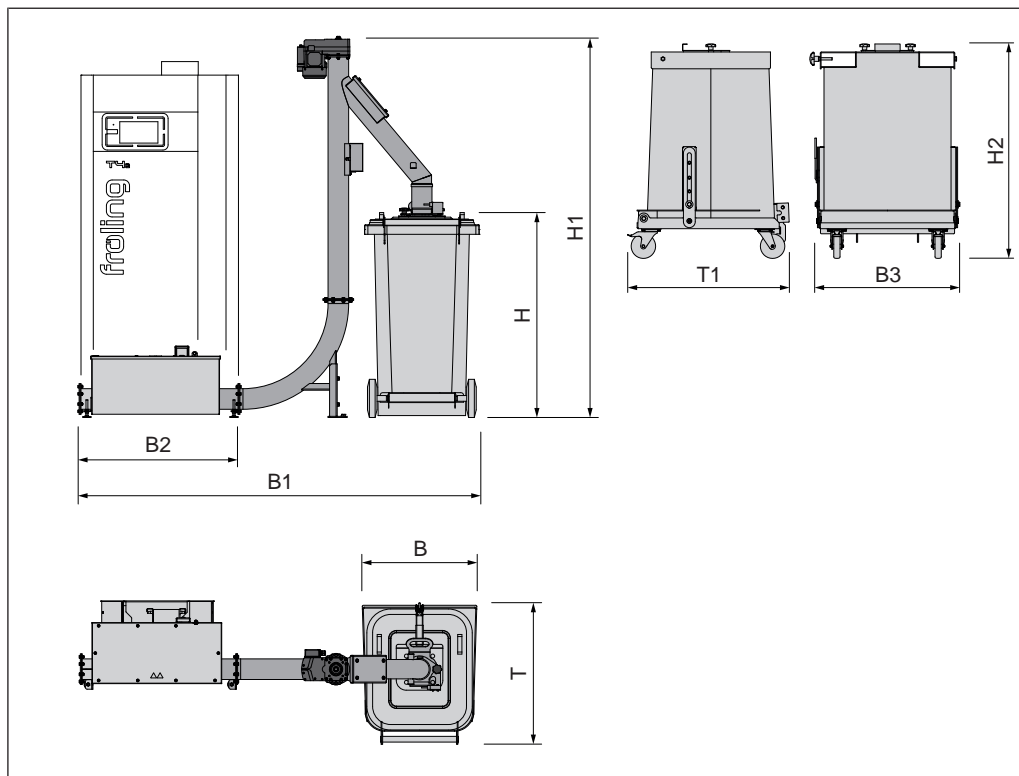
ÖNORM / DIN EN 60204	Safety of machines; Electrical equipment of machines, Part 1: General requirements
TRVB H 118	Technical directives for fire protection/prevention (Austria)
ÖNORM H 5170	Construction and fire protection requirements (Austria)
ÖNORM H 5190	Heating systems - Acoustic insulation
EN ISO 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 General information for installation room

- 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 fire-resistant.
- There is a possibility of dust near the system.

## 3 Technology

### 3.1 Dimensions



Item	Description	Unit	Value
<b>W</b>	Width of standard waste bin	mm	600
<b>B1</b>	<b>Width of ash discharge system</b>	mm	
	- T4e 20-60		1,885
	- T4e 80-180		2030
	- T4e 200-250		2305
	- T4e 300-350		2525
	- PT4e 80-180		2030
	- PT4e 200-250		2305
	- P4 Pellet 45-60		2175
	- P4 Pellet 80-105		2235
<b>W2</b>	<b>Width of ash transfer box</b>	mm	
	- T4e 20-60		620
	- T4e 80-180		765
	- T4e 200-250		1040
	- T4e 300-350		1260
	- PT4e 80-180		765
	- PT4e 200-250		1040
	- P4 Pellet 45-60		910
	- P4 Pellet 80-105		970

Item	Description	Unit	Value
<b>W3</b>	Width of flap-bottomed container	mm	770
<b>T</b>	Depth of standard waste bin	mm	745
<b>T1</b>	Depth of flap-bottomed container	mm	780
<b>H</b>	Height of standard waste bin	mm	1065
<b>H1</b>	Height of ash discharge system	mm	2000
<b>H2</b>	Height of flap-bottomed container	mm	1100

## 3.2 Technical data

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

## 4 Assembly

### CAUTION



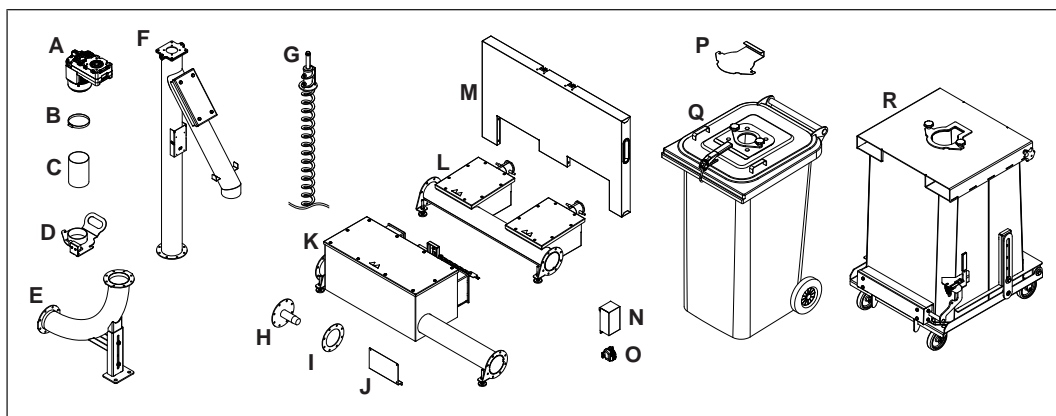
Assembly and installation by unqualified persons:

***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



<b>A</b>	Geared motor	<b>J</b>	Cover plate (starting from T4e / PT4e 200)
<b>W</b>	Hose clip	<b>K</b>	Ash transfer box for T4e / PT4e
<b>C</b>	Connecting hose	<b>L</b>	Ash transfer box for P4 Pellet
<b>D</b>	Connecting piece	<b>M</b>	Cladding for P4 Pellet
<b>E</b>	Pipe bend 90°	<b>N</b>	Connection box cover
<b>F</b>	Upper part	<b>O</b>	Terminal block connection box
<b>G</b>	Coreless screw	<b>P</b>	Locking plate
<b>H</b>	Screw bearing	<b>Q</b>	Standard waste bin (depending on model)
<b>I</b>	Seal	<b>R</b>	Flap-bottomed container (depending on model)

## 4.2 Required tools

The following tools are required for assembly:

- Spirit level
- Power drill with Ø 3 mm (metal) drill bit and Ø 14 mm (surface) drill bit
- Riveting pliers for Ø 4 mm blind rivets
- 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

## 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

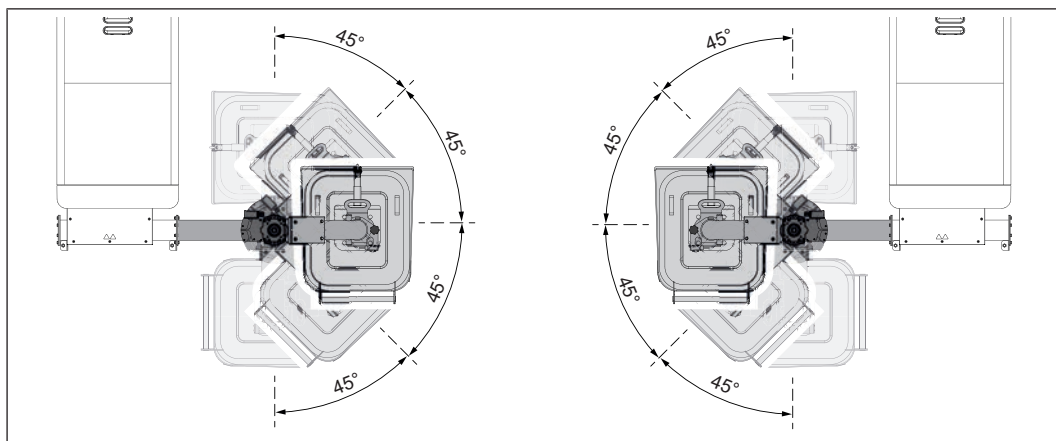
If the system is to be assembled at a later stage:

- ☐ 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, ➔ ["Dimensions" \[► 10\]](#)
- 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 installed on the left or right connection of the ash transfer box. The upper part can also be installed on the pipe bend in 45° increments.

**IMPORTANT! Pay attention to the position of the stoker when planning!**

## 4.6 Installing external ash removal

### **WARNING**

Working on a system which is operational/hot:



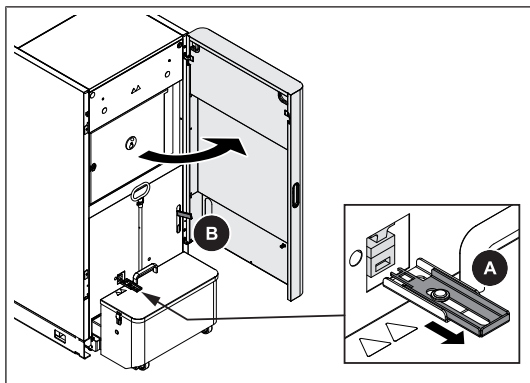
***Risk of serious injuries from automatic start-up of the system and severe burns from hot parts and the flue gas pipe!***



When working on the system:

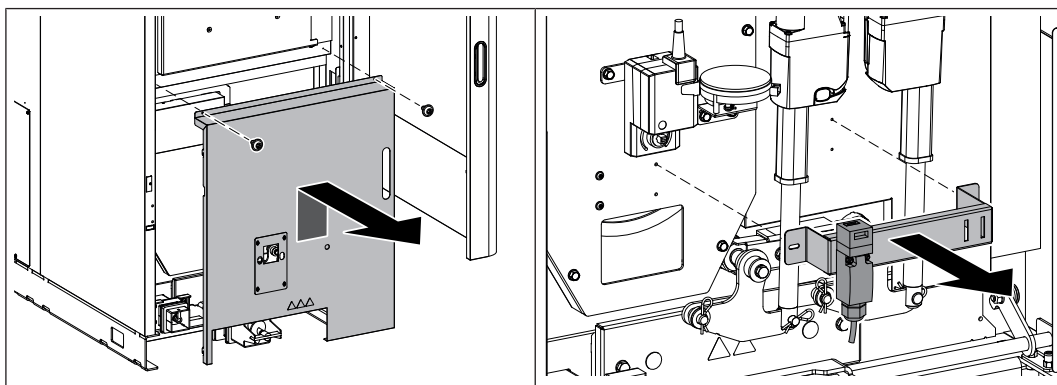
- ☐ always wear protective gloves
- ☐ only operate the boiler using the handles provided
- ☐ switch off the boiler by tapping “Boiler off” at the mode icon
  - ↳ The boiler follows the shutdown procedure and switches to “Boiler off” status
- ☐ switch off the main switch and take precautions to prevent 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 Installing ash transfer box (T4e 20–180 / PT4e 80-180)



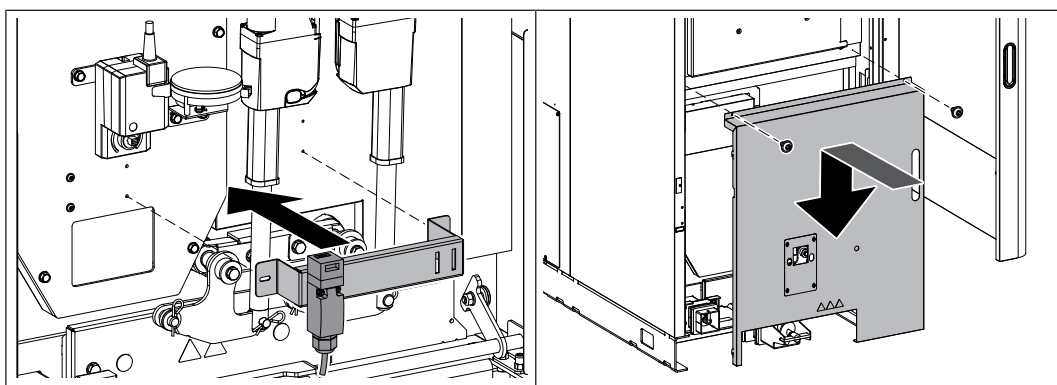
- ☐ Open the insulated door of the boiler
- ☐ Remove the key plate (A) from the safety limit switch
- ☐ Pull the locking lever (B) up and remove the ash container

Also for T4e 130-180 /  
PT4e 140-180:

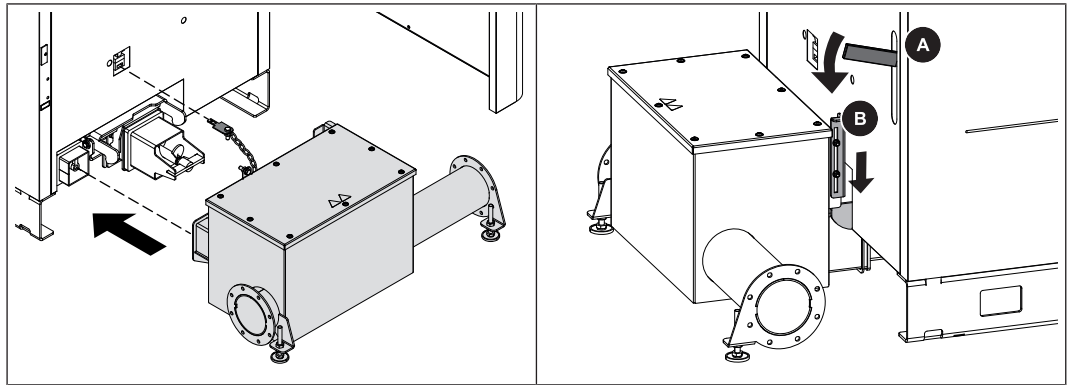


- ☐ Undo two screws on the cover plate
- ☐ Swing the cover plate upwards
- ☐ Remove the bracket for the safety limit switch

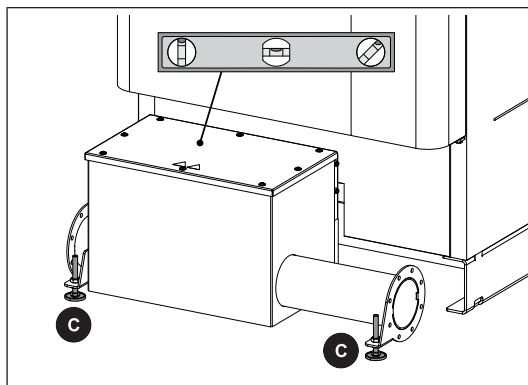
Also for T4e 130-180 /  
PT4e 140-180:



- ☐ Install the bracket for the safety limit switch on to the holes underneath
- ☐ Attach the cover plate and secure it with two screws



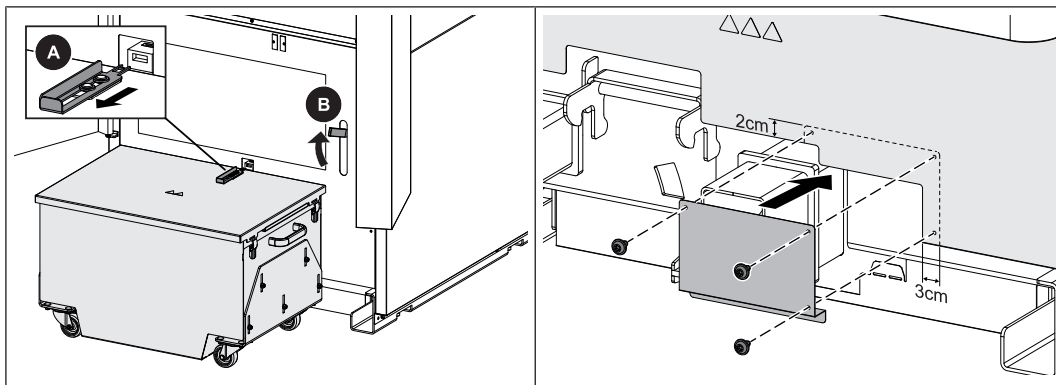
- ☐ Slide the included ash transfer box on to the ash duct
- ☐ Insert the key plate into the safety limit switch
- ☐ Press down the locking lever (A)
- ☐ Push down the securing plate (B) on the ash transfer box and tighten the screws



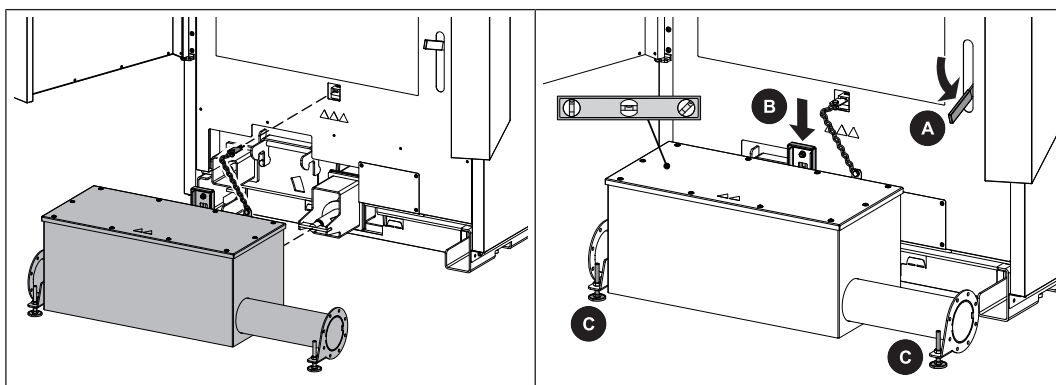
- ☐ Ensure the ash transfer box is level by adjusting the feet (C)



## 4.6.2 Installing the ash transfer box (T4e 200-350 / PT4e 200-250)

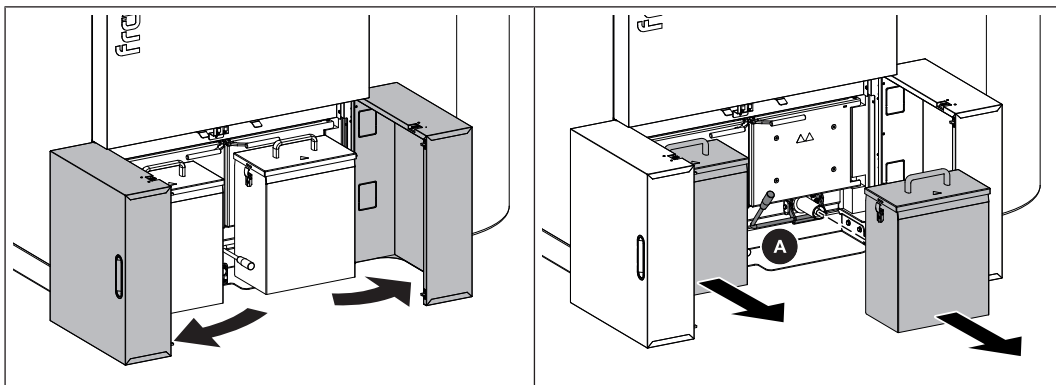


- ☐ Open the insulated doors on the boiler
- ☐ Remove the key plate (A) from the safety limit switch
- ☐ Pull the locking lever (B) up and remove the ash container
- ☐ Position the included cover plate on the cladding as shown
- ☐ Drill three Ø 3 mm holes and install the cover plate

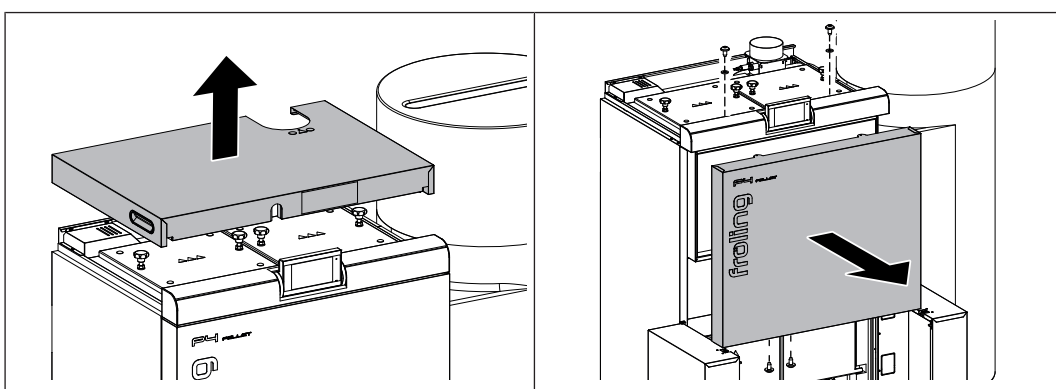


- ☐ Slide the included ash transfer box on to the ash duct
- ☐ Insert the key plate into the safety limit switch
- ☐ Press down the locking lever (A)
- ☐ Push down the securing plate (B) on the ash transfer box and tighten the screw
- ☐ Ensure the ash transfer box is level by adjusting the feet (C)

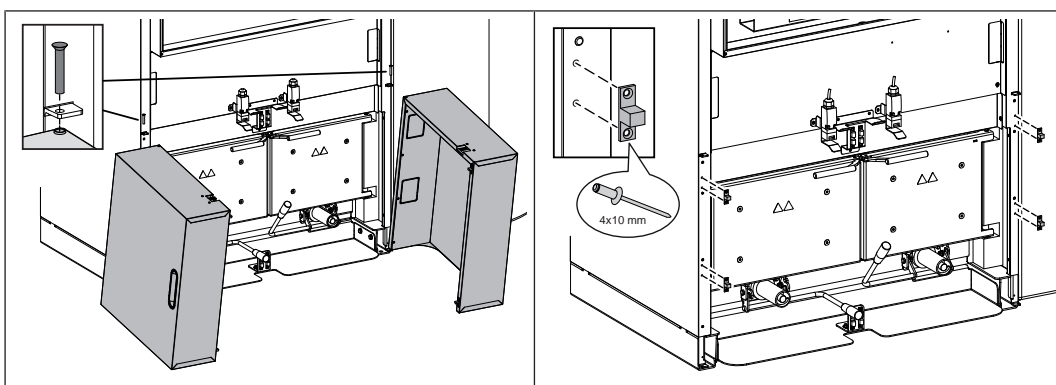
### 4.6.3 Installing the ash transfer box (P4 Pellet)



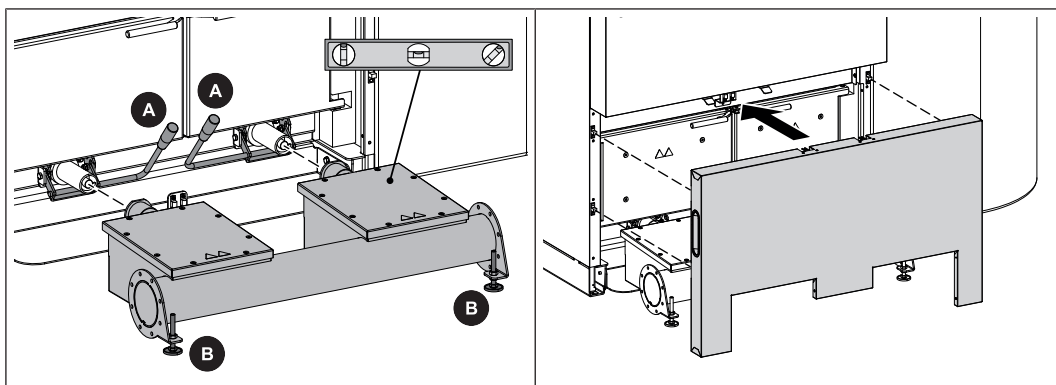
- ☐ Open the lower doors
- ☐ Pull both locking levers (B) up and remove the ash container



- ☐ Remove the cover at the top of the boiler
- ☐ Undo the top and bottom screws on the cladding and pull the cladding forward to remove it

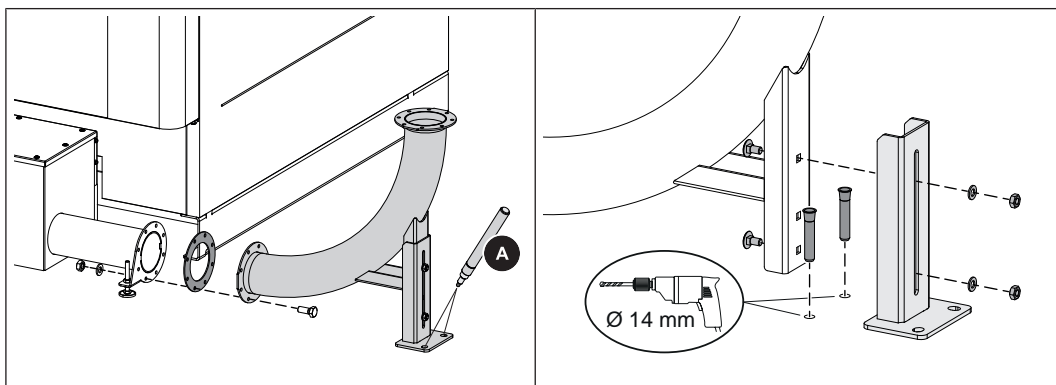


- ☐ Pull out the hinge pins and remove the doors
- ☐ Use blind rivets to mount the counterparts for the double ball catches in the pre-drilled holes on the side panels

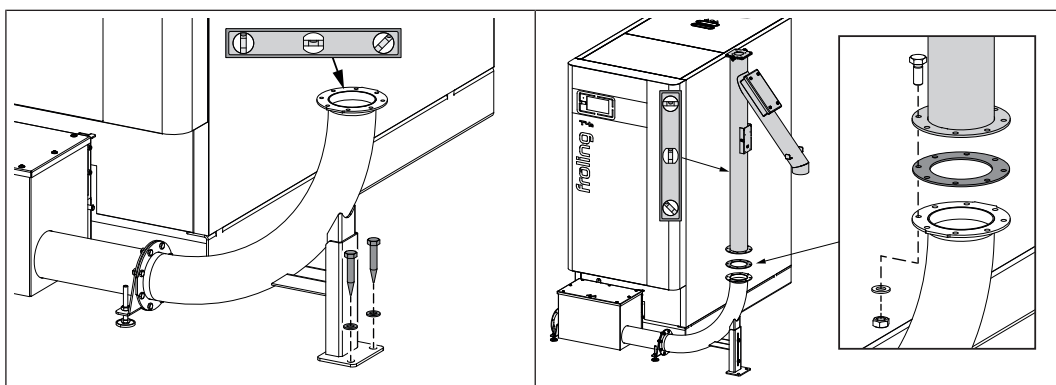


- ☐ Slide the included ash transfer box onto the ash ducts
- ☐ Press down the locking lever (A)
- ☐ Ensure the ash transfer box is level by adjusting the feet (B)
- ☐ Attach the provided cladding to the boiler

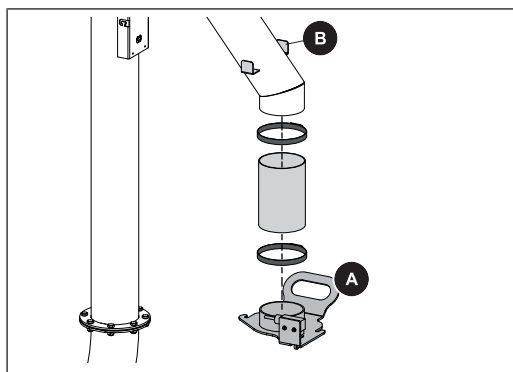
#### 4.6.4 Installing the ash duct



- ☐ Attach the pipe bend and seal to the ash transfer box
- ☐ Mark the holes for the adjustable foot on the floor (A) and remove the adjustable foot
- ☐ Drill fastening holes and hammer in dowels



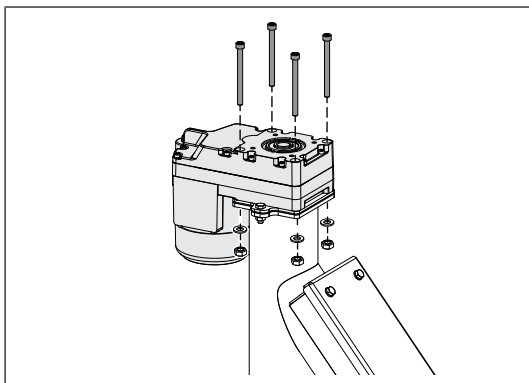
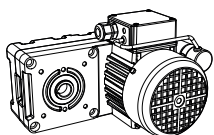
- ☐ Level the connection flange and attach the adjustable foot to the pipe bend
- ☐ Use frame screws to secure the pipe bend to the ground
- ☐ Connect the upper part and seal to the connection flange
  - ↳ The downpipe can be aligned in 45° increments, ➔ ["Installation position" \[p 14\]](#)



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

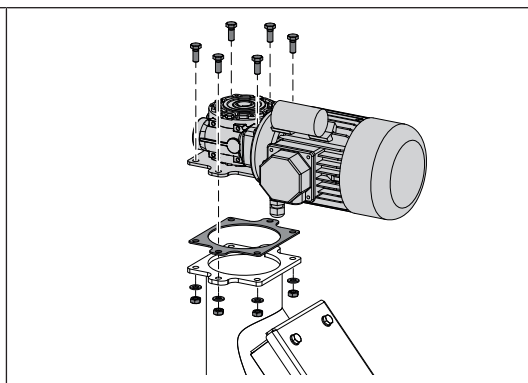
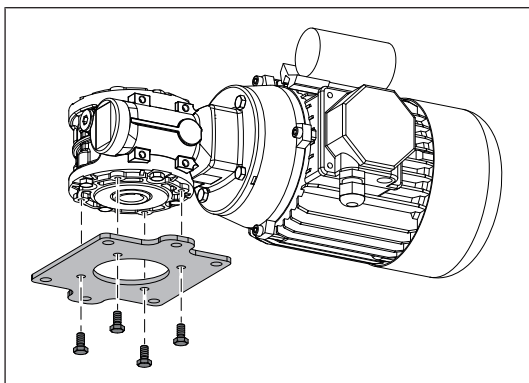
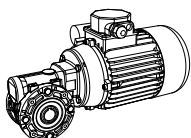
#### 4.6.5 Assembly of the geared motor

*ABM geared motor:*



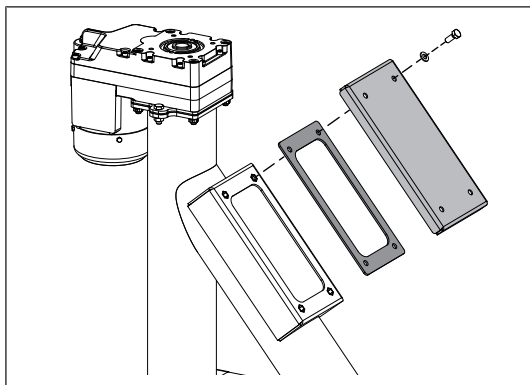
- Install the geared motor on the connection flange of the upper part

*STM geared motor:*

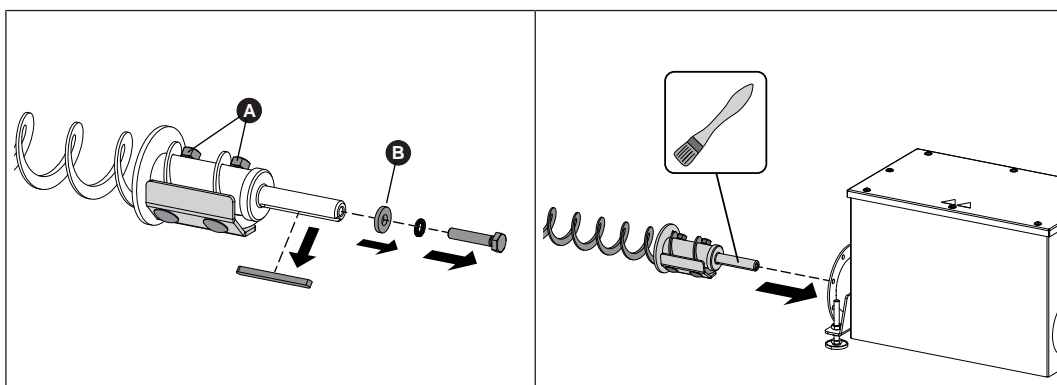


- Install the adapter flange on the geared motor
- Install the geared motor including the gasket on the connection flange of the upper part

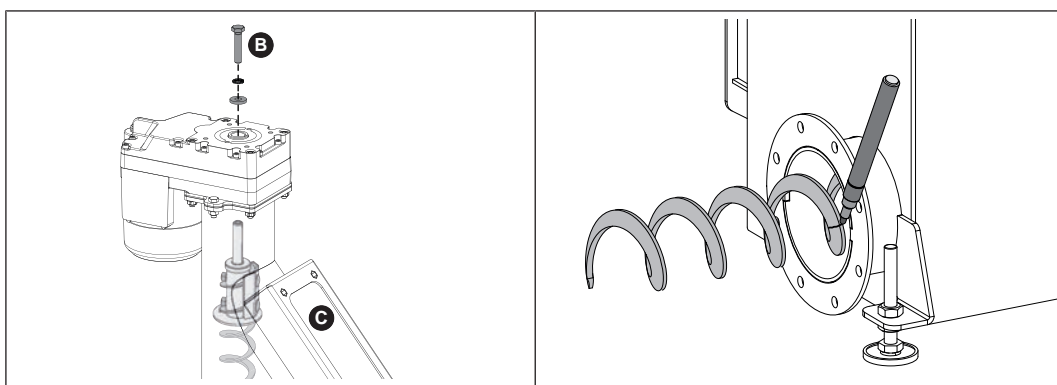
## 4.6.6 Installing the coreless screw



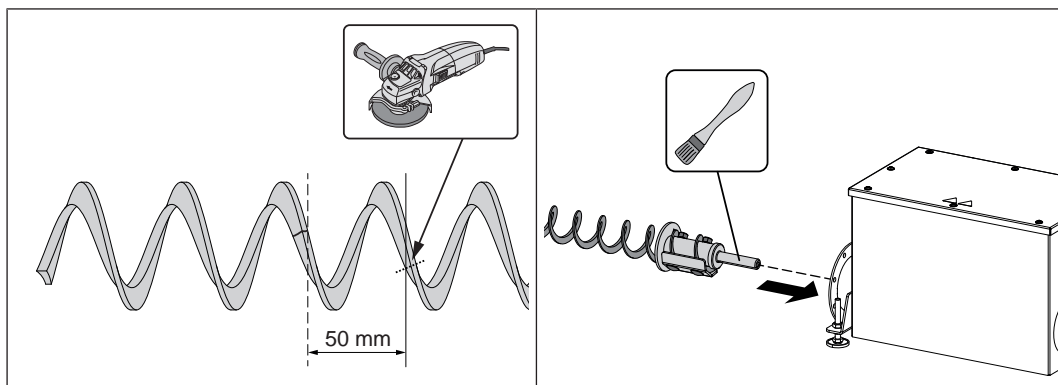
- ☐ Remove the inspection cover from the downpipe



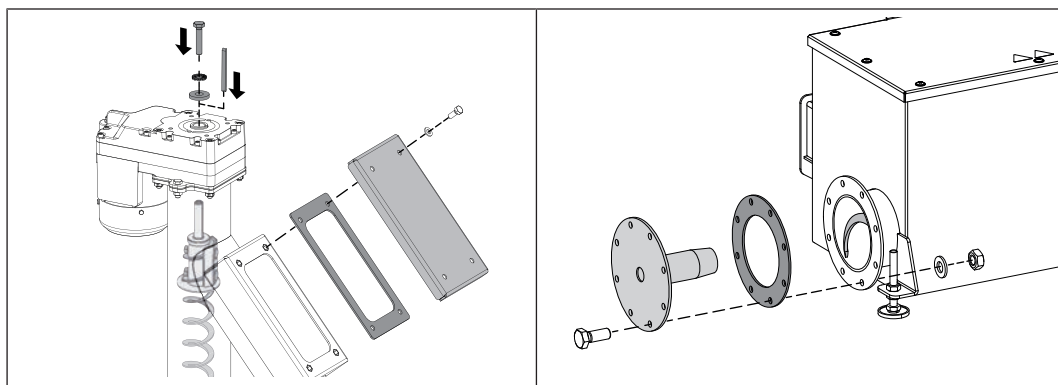
- ☐ Tighten the screw connection (A) on the screw spiral
- ☐ Remove the screw and washer (B) from the screw end and remove the key
- ☐ Lubricate the screw end using copper paste and slide the coreless screw into the ash transfer box



- ☐ Insert the screw end into the geared motor and secure with shaft retainer (B)
  - ↳ **TIP:** Guide the coreless screw into the inspection opening (C) by reaching in
- ☐ Mark the coreless screw at the point that it protrudes beyond the flange of the ash transfer box
- ☐ Release the shaft retainer (B) and pull the coreless screw out of the ash transfer box



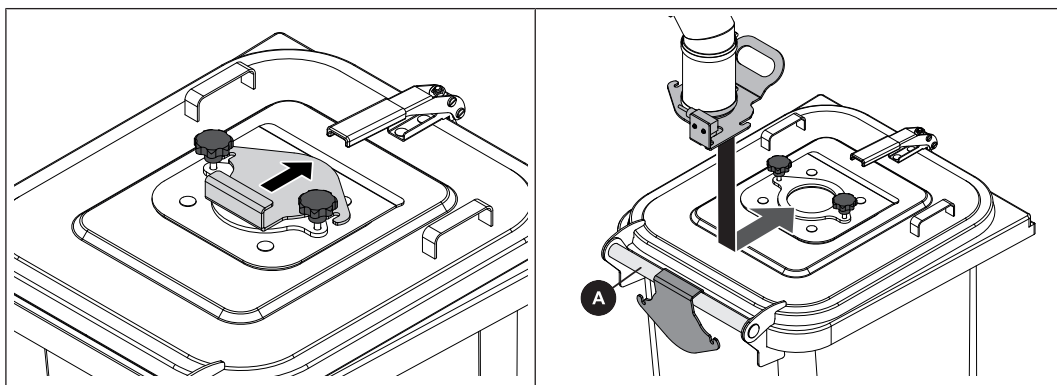
- ☐ From the mark, measure 50 mm towards the screw end and cut the coreless screw at this point
  - ↳ **IMPORTANT:** Remove burrs from the cut surface
- ☐ Lubricate the screw end using copper paste and slide the coreless screw into the ash transfer box



- ☐ Slide the screw end into the geared motor
- ☐ Slide the key into the key groove from above
- ☐ Secure the coreless screw using shaft retainer
- ☐ Install inspection cover and seal
- ☐ Install screw bearing and seal on the ash transfer box

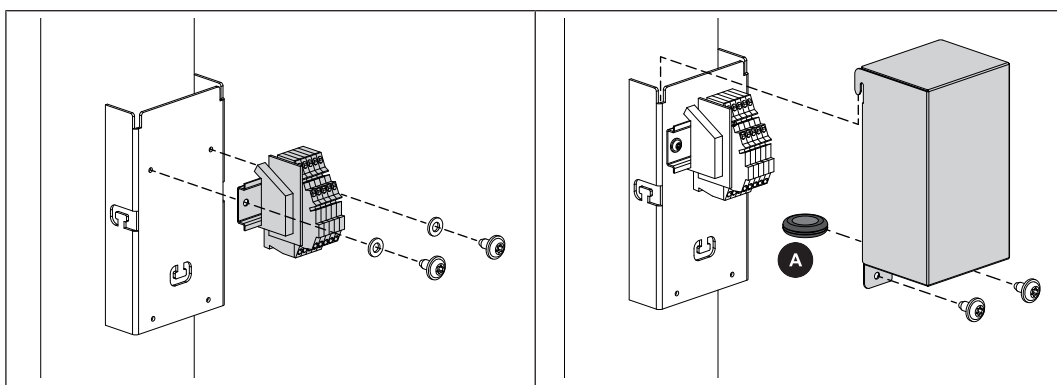
### 4.6.7 Positioning standard waste bin / flap-bottomed container

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
  - Store the locking plate in a suitable location - it will be needed again when disposing of the ash!
  - TIP: Hang the locking plate on the handle bar (A) on standard waste bins
- ❑ 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

### 4.6.8 Installing the connection box



- ❑ Install top hat rail and terminal blocks on the upper part console
- ❑ Run the cable through the rubber grommet (A) and connect to the terminal blocks, ➡ ["Electrical connection" | ► 24](#)
- ❑ Slide rubber grommet into the bottom cut-out of the cover and attach the cover

## 4.7 Electrical connection

### **DANGER**



When working on electrical components:

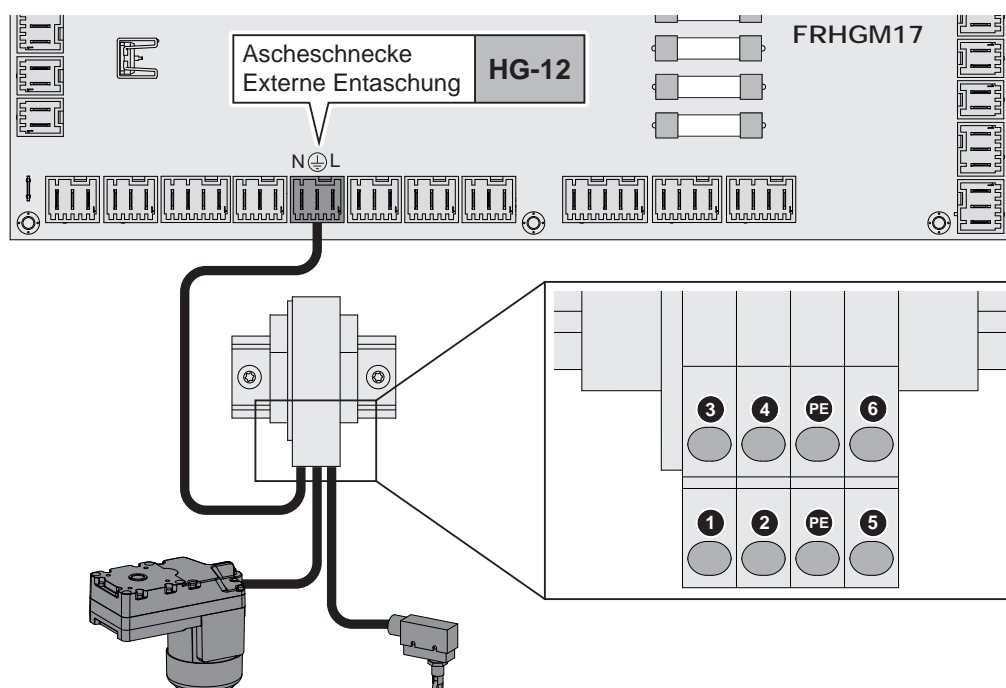
#### **Risk of electrocution!**

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

- ☐ Run the geared motor and roller limit switch cable through the connection box to the boiler controller

T4e / PT4e

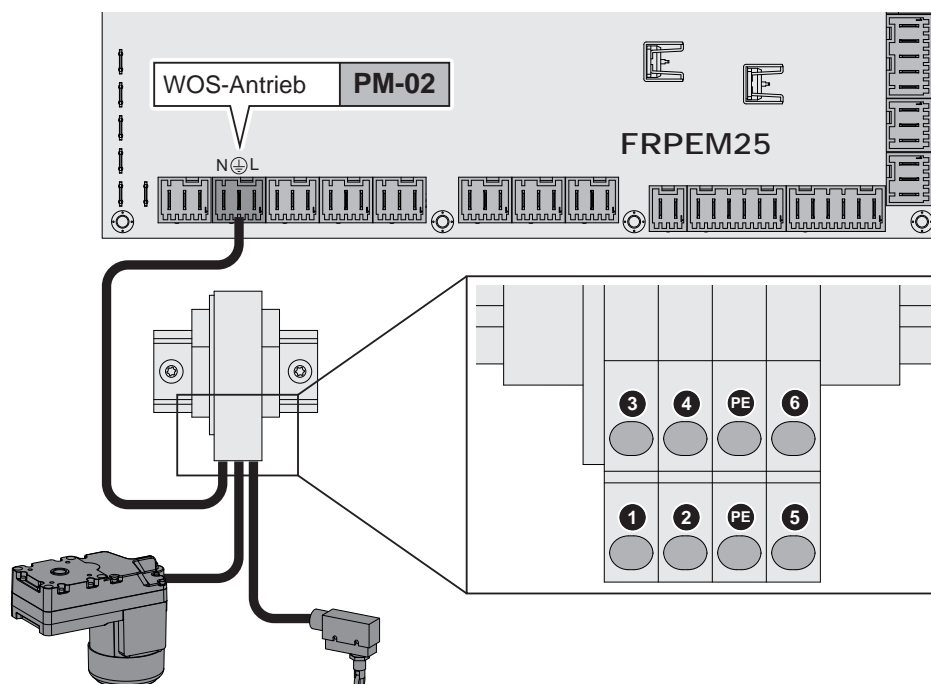


- ☐ Connect the cable to the “ash screw / external ash removal” output on the wood chip module

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



P4 Pellet

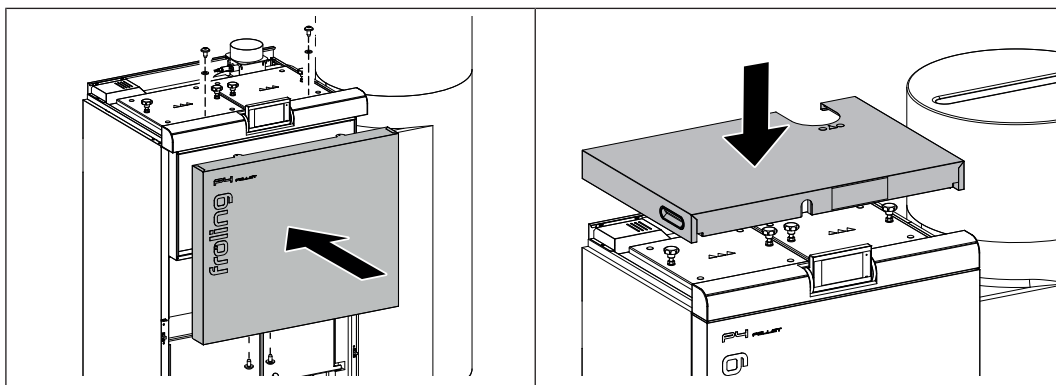


- ☐ Connect the cable to the “WOS drive” output on the pellet module in addition to the unit that is already connected

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

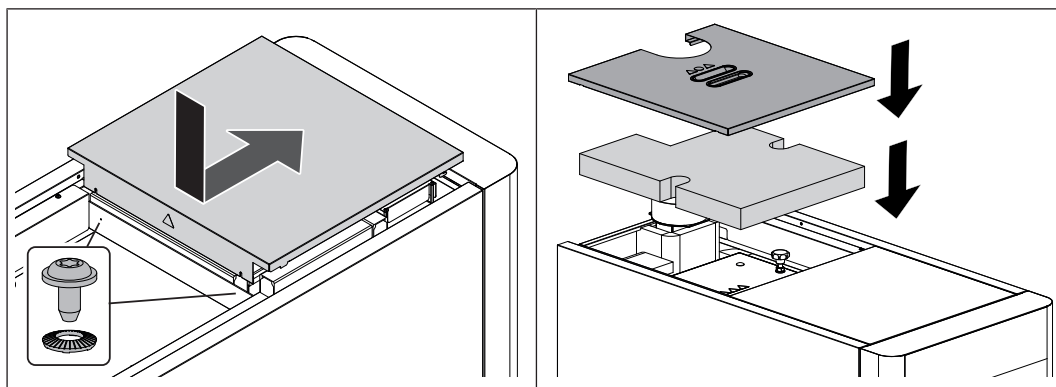
## 4.8 Final installation steps

### 4.8.1 P4 Pellet 45-105



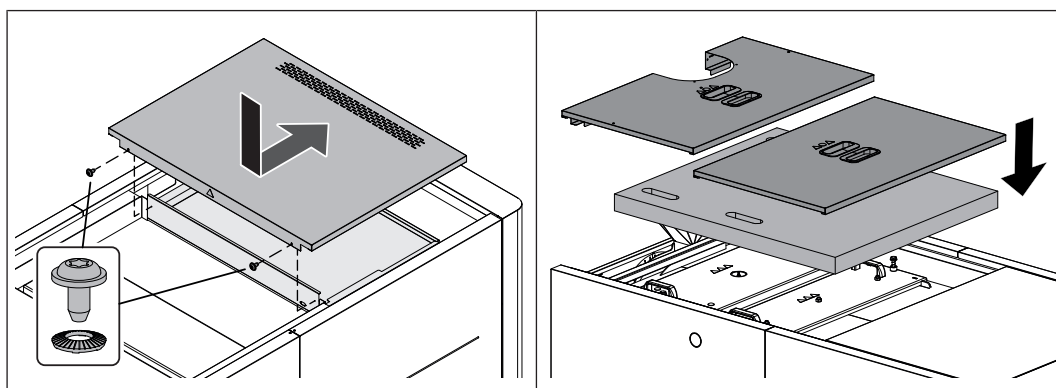
- ☐ Position the front cladding and use screws to secure it at the top and bottom
- ☐ Place the cover on the top of the boiler

### 4.8.2 T4e 20-180 / PT4e 80-180



- ☐ Place the controller cover on the controller box and slide forward
- ☐ Attach the controller cover with retaining screw and contact washers
- ☐ Put on the insulating cover and thermal insulation
  - ↳ T4e 20-110 / PT4e 80-120: one insulating cover
  - ↳ T4e 130-180 / PT4e 140-180: two insulating covers

### 4.8.3 T4e 200-350 / PT4e 200-350



- ☐ Place the controller cover on the controller box and slide forward
- ☐ Attach the controller cover with retaining screw and contact washers
- ☐ Put on the thermal insulation and insulating cover
  - ↳ T4e 200-250: two insulated covers
  - ↳ T4e 300-350: three insulated covers

## 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**

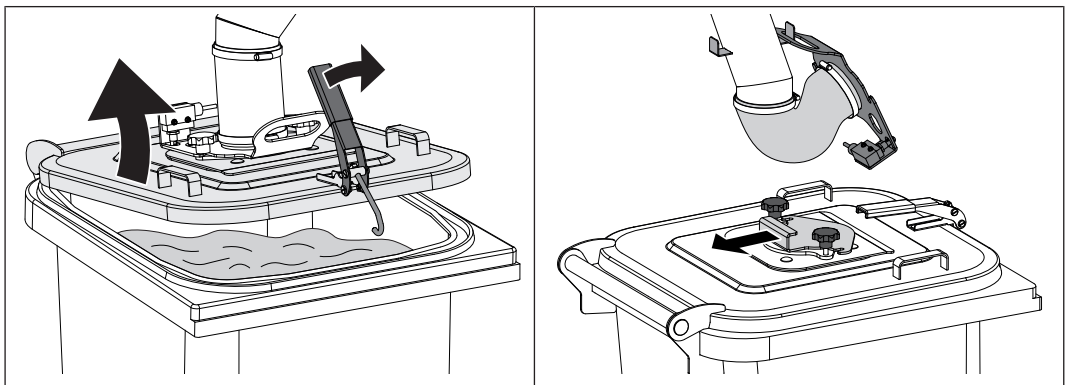
When removing the connecting piece / opening the cover during operation:

***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:*

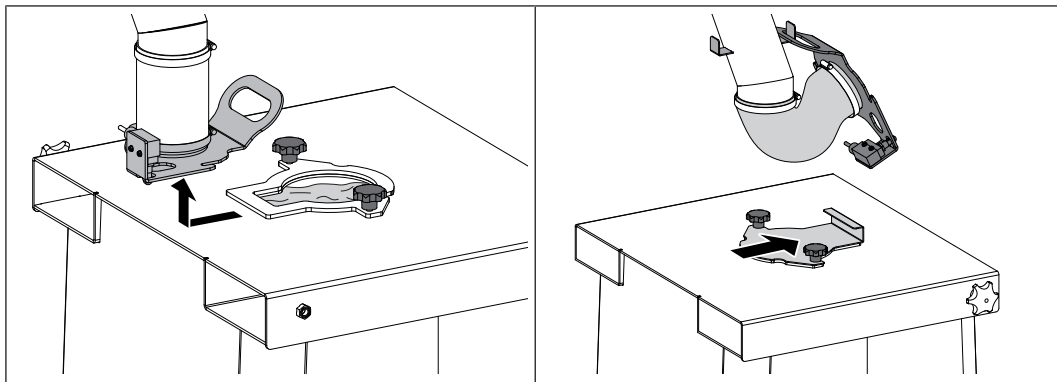


- ☐ Undo the quick lock
- ☐ Carefully open the cover and check the fill level
- ☐ Secure the cover using the quick lock

### **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

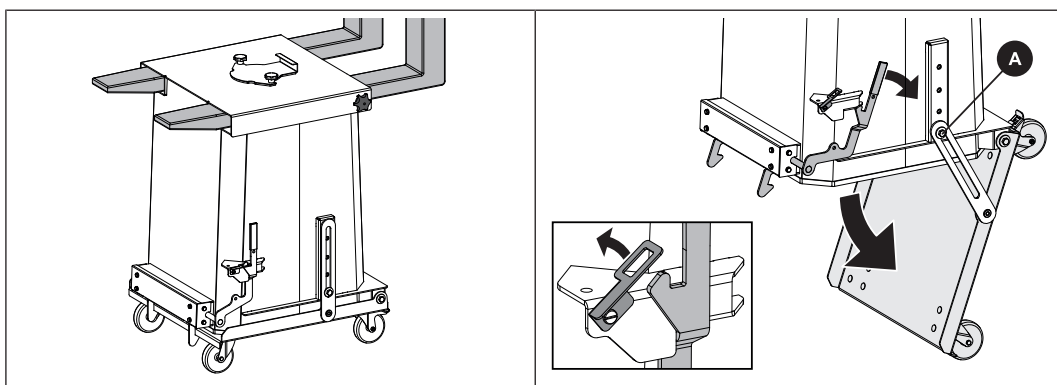
Flap-bottomed container:



- ☐ 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 knobs to secure flap-bottomed container to the forks of the forklift
- ☐ Release the locking plate and pull the locking lever to empty

**TIP:** Restrict the opening angle of the flap-bottom using screw (A)

## 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!** The presence of a few drops of lubricant may 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!***



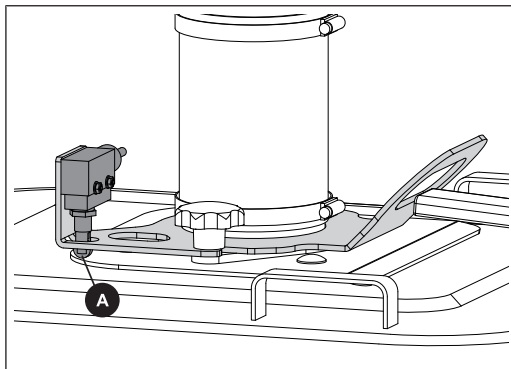
When working on the system:

- ☐ 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"> <li>▪ Remove ash from ash transfer box</li> <li>▪ Check that the roller limit switch is on the correct setting and adjust if necessary,  "Checking the roller limit switch" [▶ 31]</li> </ul>

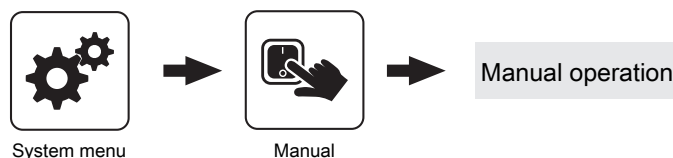
## 6.1 Checking the roller limit switch

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

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