Please read carefully prior
to installing and servicing.

SAVE THESE INSTRUCTIONS

Installation Manual

Pellet heating with vacuum suction system, type

AutoPellet®
PES 10 — 32

FA_V2.03

AutoPelletTOUCH

USA

Title: Installation Manual AutoPellet® PES 10 — 32
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1 Dear Customer

Maine Energy Systems specializes in wood pellet heating, our company enjoys an exclusive license from ÖkoFEN to manufacture AutoPellet boilers here in the USA. We represent expertise, innovation and quality. We are delighted that you have decided to purchase our product.

- This instruction manual is intended to help you operate the product safely, properly and economically.
- Please read this instruction manual completely and take note of the safety warnings.
- Keep all documentation supplied with this unit in a safe place for future reference.
  Please pass on the documentation to the new user if you decide to part with the unit at a later date.
- Installation and first start up must be carried out by an installer certified by Maine Energy Systems.
- Please contact your authorised dealer if you have any questions.

We place great importance on the development of new products. Our R&D department continues to question accepted solutions and works continually on new improvements. That is how we maintain our technological lead. We have already received several awards for our products in Austria and abroad. Our products fulfil European and USA requirements regarding quality, efficiency and emissions.

Tested & Listed By O-T L Portland Oregon USA
C US
OMNI-Test Laboratories, Inc.
Report No. 0444PB004S

2 Use only for the purpose intended

The pellet boiler is designed to heat water for central or other indirect heating systems and hot water supply for buildings. It is not permissible to use the pellet boiler for any other purpose. Reasonable foreseeable inadvertent uses for the pellet boiler are not known.

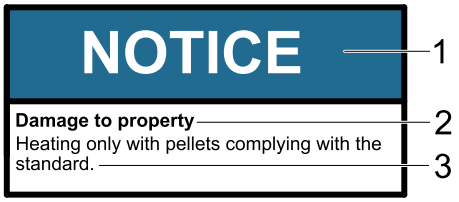
The boiler fulfils the requirements of UL 2523-2013 and CSA B366.1–2011.

3 Types of safety warning sign

The warning signs use the following symbols and text.

Types of safety warning sign

1. Risk of injury
2. Consequences of risk
3. Avoiding risk



1. Risk of injury:

Danger - indicates a situation that could lead to death or life-threatning injury.

Warning - indicates a situation that could lead life-threatning or serious injury.

Caution - indicates a situation that could lead to injury.

Note - indicates a situation that could lead to property damage.

2. Consequences of risk

Effects and consequences resulting from incorrect operation.

3. Avoiding risk

Observing safety instructions ensures that the heating system is operated safely.

4 Warnings and safety instructions

Observing safety instructions ensures that the heating system is operated safely.

4.1 Basic safety instructions

- Never get yourself into danger; give your own safety the utmost priority.
- Keep children away from the boiler room and storage room.
- Observe all safety warnings on the boiler and in this user manual.
- Observe all instructions relating to maintenance, servicing and cleaning.
- The pellet heating system may only be installed and started up for the first time by an authorised installer. Professional installation and start up is the prerequisite for safe and economical operation.
- Never make any changes to the heating system or flue gas system.
- Never close or remove safety valves.

4.2 Warning signs

DANGER

Risk of poisoning
Make sure that the pellet boiler is supplied with sufficient combustion air.
The openings in the combustion air inlet must never be partially or completely closed.
Ventilation systems, central vacuum cleaning systems, extractor fans, air conditioning systems, flue gas blowers, dryers, fuel storage ventilation fans or similar equipment must never be allowed to draw air from the boiler room and cause a drop in pressure.
The boiler must be connected tight to the chimney using a flue gas tube.
Clean the chimney and the flue gas tube at regular intervals.
The boiler room and pellet storage room must be sufficiently supplied with air and ventilated.
Before entering the storage room it must be ventilated with sufficient air and the heating system switched off

DANGER

Risk of electric shock
Only an authorised installer may connect the pellet boiler to the power supply.
Always disconnect / de-energize the power supply before working on the boiler.

DANGER

Risk of explosion
DO NOT BURN GARBAGE, GASOLINE, NAPHTHA, ENGINE OIL, OR OTHER INAPPROPRIATE MATERIALS.
DO NOT USE CHEMICALS OR FLUIDS TO START THE FIRE.
Switch off the heating system before filling the storage room.

DANGER

Risk of fire
Do not store any flammable materials in the boiler room.
Do not hang out any washing in the boiler room.
Do not operate with fuel loading or ash removal doors open.

WARNING

Risk of burns
Do not touch the flue gas connector or flue gas pipe.
Do not reach into the ash chamber.
Use gloves to empty ash box if boiler not equipped with automatic ash compression
Do not clean the boiler until it has been allowed to cool down.

CAUTION

HOT SURFACES
Keep children away.
Do not touch during operation.
Do not operate if maximum draft as listed on boiler nameplate is exceeded.
Doing so can allow non-controlled combustion.

CAUTION

Risk of cut injuries due to sharp edges.
Use gloves for performing all work on the boiler.

NOTICE

Damage to property
The pellet boiler is suitable only for pellets which comply with PFI premium or EnPlus -A1 pellets specifications.
The use of any other fuel voids your warranty and can cause damage to the pellet boiler and chimney.

NOTICE

Damage to property
Do not use the heating system if it, or any of its components, come into contact with water.
If water damage occurs, check the heating system by an authorized service technician and replace damaged parts.

WARNING

All cover plates, enclosures, and guards must be maintained in place at all times, except during maintenance and servicing.

4.3 What to do in an emergency

DANGER

Risk to life
Never get yourself into danger; give your own safety the utmost priority.

What to do in the event of a fire

- Switch off the heating system.
- Call your local fire department and or 911.
- Use approved fire extinguishers (fire protection class ABC).

What to do if you smell smoke

- Switch off the heating system.
- Close the doors leading to living areas.
- Ventilate the central heating room.

5 Prerequisites for installing a pellet boiler

You must fulfil the following conditions before operating a fully automatic pellet boiler.

5.1 Guidelines and standards for installing a pellet boiler

Overview of standards and guidelines applying to the installation of a pellet boiler.

Check whether you need to obtain planning permission or approval from the authorities for installing a new heating system or changing your existing system. Installation must meet all requirements for pellet fired heating systems in your specific location.

5.2 Boiler room

The pellet boiler is installed in the boiler room.

1. **Safety instructions for the boiler room**

   DANGER

   Risk of fire
   Do not store flammable materials or liquids in the vicinity of the pellet boiler.
   Do not permit unauthorised persons to enter the boiler room - Keep children away.
   Do not operate with fuel loading or ash removal doors open.

2. **Air supply and ventilation of boiler room**

   The boiler room must be fitted with air supply and ventilation openings (at least 31 inch^2/200cm^2).In any case you must comply with the state and local regulations

3. **Combustion air supply**

   The pellet boiler needs a supply of combustion air. The supply of combustion air can:

   a. take place using one or more air supply and ventilation openings in total min. 31 inch^2.

   b. or through a special air supply line directly from outside, where the diameter of the air supply line must be at least 4 inch/ 100mm in for type PE(S) 12 – PE(S) 32. Ambient air independent operation of PES 36-56 types is also available on request. In any case, properly sized room ventilation is still required to allow your barometric draft controller to function properly.

   Never operate the pellet boiler if the air intake openings are partially or completely closed.

   Contaminated combustion air can cause damage to the pellet boiler. Never store of use cleaning detergents containing chlorine, nitrobenzene or halogen in the room where the heating system is installed, if combustion air is drawn directly from the room. It is recommended that no washing or drying of laundry is done in the boiler room or where the boiler may draw air from.

   Do not hang out washing in the boiler room.

   Prevent dust from collecting at the combustion air intake to the pellet boiler.

4. **Damage due to frost and humid air**

   The boiler room must be frost-proof to ensure trouble-free operation of the heating system. The temperature of the boiler room must not fall below 37°F and must not exceed 90°F. The air humidity in the boiler room must not exceed 70%.

5. **Danger for animals**

   Make sure that household pets and other small animals cannot enter the boiler room. Fit mesh over any openings.

6. **Flooding**

If there is a risk of flooding, switch off the pellet boiler and disconnect from the power supply before water enters the boiler room. You must have all components that come into contact with water replaced, before you start up the pellet boiler again.

5.3 Flue gas system

The flue gas system consists of a chimney and a flue gas tube. The flue gas tube connects the pellet heating system to the chimney. The chimney leads the flue gas from the pellet heating system out into the open.

1. **Design of the chimney**

   The dimensions and design of the chimney is very important. The chimney must be able to ensure sufficient draft to safely draw away the flue gas regardless of the status of the boiler. Low flue gas temperatures can cause sooting and moisture damage on chimneys that are not insulated. For this reason **moisture-resistant chimneys** (stainless steel or ceramic) should be used. An existing chimney that is not damp-resistant needs to be rennovated before use. Follow guidelines below:

Boiler size		**PE(S) 12 – 20**	**PE(S) 25 – 32**	**PE(S) 36 – 56**
Flue gas tube diameter (at boiler)	inch/mm	5/130 or 6/150	6/150	7/180
Flue gas temp. / rated power	°F	320	320	360
Flue gas temp. / partial load	°F	212	212	230
Min. draft – full load/part load	in/wc	-0.04 / -0.02		

Chimney size	**Min. Height**
6in x 6in	17ft
7in x 7in	16ft
8in x 8in	16ft
6in round	19ft
7in round	17ft

Recommended and UL-103HT approved chimney materials are:

a. Selkirk sure temp

b. Supervent (JSC)

c. Security chimneys (secure temp ASHT)

Use flue gas pipe from chimney to boiler as required by your local code.

CAUTION

Unregulated combustion
Please observe that combustion air openings and flue pipes are not reduced in size or closed. Make end user aware of these guidelines and their potential danger.
Clean the chimney and the flue gas tube at regular intervals.
Check if the draft inducer is clean and in a good condition.

2. **Flue gas temperature**

   The flue gas temperatures are approximately the same for all Autopellet boilers covered in this manual.

   The dewpoint of flue gas with wood pellets (max. 10% water content) is approx. 120°F.

It is possible to increase the flue gas temperature to prevent condensation inside the chimney and avoid damage due to damp. Only authorised installers may increase the flue gas temperature.

Note:
The increase in flue gas temperature results in reduced efficiency and thus increases fuel consumption.

3. **Negative pressure of the chimney**

The boiler must be connected to a chimney or a vertical venting system that is capable of handling and producing a negative breeching pressure of –0.4 "WC. Use a draft gauge to verify the indicated draft value, adjust barometric damper as required. Drill a small hole in the connection pipe at about 2in/ 50mm from the boiler flue outlet and use this hole as your measuring point.

Chimney draft

The suction effect of the chimney draft must extend all the way to the boiler flue pipe connection. The maximum flow rate that can be drawn through the chimney limits the maximum performance of the chimney connection. The boiler performance must be reduced if the chimney does not possess the necessary cross-section. This may only be performend by authorised personnel.

4. **Power venter**

AutoPellet boilers are approved by the manufacturer for installation with the Field Controls SWGAF power venter which is approved for wood pellet burning appliances.
Boilers installed with SWGAF power venters must follow all manufacturer´s installations and must comply with all applicable codes from agencies having authority over the installation.

5. **Cleaning**

Clean the flue gas tube and chimney regularly. Solid fuel burning appliances need to be cleaned frequently because soot, creosote, and ash may accumulate. The hotter the fire, the less creosote is deposited. Cleaning intervals can vary in warm periods due to this and become more frequent.

DANGER

Risk of chimney fire
Creosote-formation and need for removal:Low flue gas temperature can cause creosote. Creosote can condense in a relatively cool chimney. As a result, creosote residue accumulates on the flue lining. If ignited, this creosote will create an extremely hot fire. The chimney and the chimney connector should be inspected at least twice monthly during the heating season to determine if a creosote buildup has occurred. If creosote has accumulated it should be removed to reduce the risk of a chimney fire.

NOTICE

Oxidation of chimney
Do not use metal brushes to clean chimneys made of stainless steel.
Your state and local regulations must be observed.

5.4 Safety systems

The following safety measures are the prerequisite for safe operation of your system.

Emergency stop switch

Every heating system must be able to be switched off with an Emergency Stop switch. The Emergency Stop switch must be outside of the boiler room.

Safety valve

The hydronic system must be equipped with a safety valve. This valve opens before the pressure inside the heating system increases to max. 43 P.S.I.. The safety valve must be installed at the highest point of the boiler, must not be locked and must be within 3.28 ft / 39.37 inch/ 1m of the boiler. A 30 lb/sq in relief value is supplied with each boiler.

Safety temperature sensor

The pellet boiler is equipped with a safety temperature sensor. This is located on the pellet boiler. If the boiler temperature exceeds 230°F then the heating system switches off.

Low water cut off

The hydronic system must be equipped with a low water cut off. If the water level falls below a certain level, the low water cut off switches off the heating system.

NOTICE

Initial start-up
The initial start-up of each AutoPellet boiler must be performed by an authorized installer.

5.5 Installation with an existing boiler

Autopellet boilers are not to be connected to a chimney flue serving another appliance. However, when all State and local codes allow for the sharing of chimney flues, the Autopellet boilers and another appliance burning pellets or a different fuel can be operated simultaneously while connected to a single existing chimney or flue gas system providing the following conditions are met:

- All state and local codes permit the specific installation
- All appliances are installed in accordance with the manufacturer's installation specifications or if lacking manufacturers specifications, the appliance in question is installed in a manner commonly recognized as safe and correct for the application and circumstances
- The chimney or flue gas system must be able to handle the combustion products of either appliance and both appliances when operated simultaneously

NOTICE

Avoid clearance issues that can make servicing difficult:
Be sure to follow suggested clearances when installing the Autopellet boiler with an existing boiler to be sure that service and cleaning can be performed adequately.

CAUTION

Avoid code violations:
When connecting to or with an existing boiler, contact the authority having jurisdiction to be sure the type of installation planned is allowed.
Document the type of boiler that the Autopellet is connected to or with.
Pellet boiler: Make and Model number:_____
Existing boiler: Make and Model number:
_____

DANGER

Possible escape of flue gas:
Do not connect this unit to a chimney flue serving another appliance unless multiple appliances into a single flue is authorized by all authorities having jurisdiction.

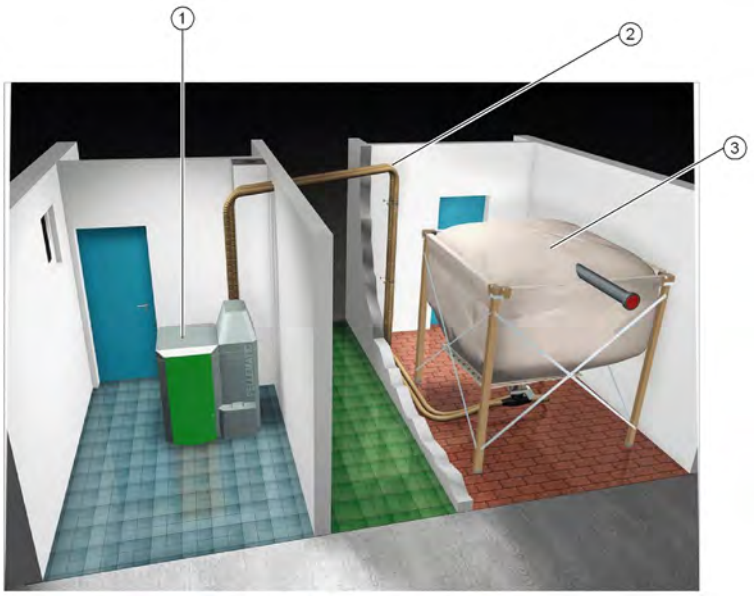
6 Product description

The description of the product is intended to provide an overview of the components that make up a pellet heating system, the parts of the pellet boiler and advice on where you can find more information.

The pellet heating system consists of 3 components

1	Pellet boiler
2	Conveyor system
3	Storage system – textile tank

Pellet boiler with textile tank



The concept features different sizes of design and type for each component. These are compatible and designed to match.

6.1 The pellet boiler

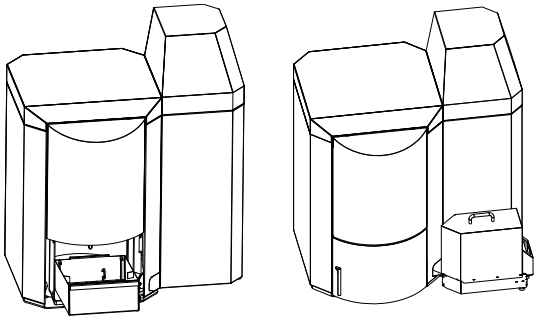
The pellet boiler is equipped with an automatic cleaning system, an ash box with ash compression system and an integrated return water temperature control. The installed programmable logic controller system enables fully automatic operation and highest efficiency. We offer an optional automatic de-ashing system for the highest level of cleanliness and comfort.

Pellematic types and power ratings

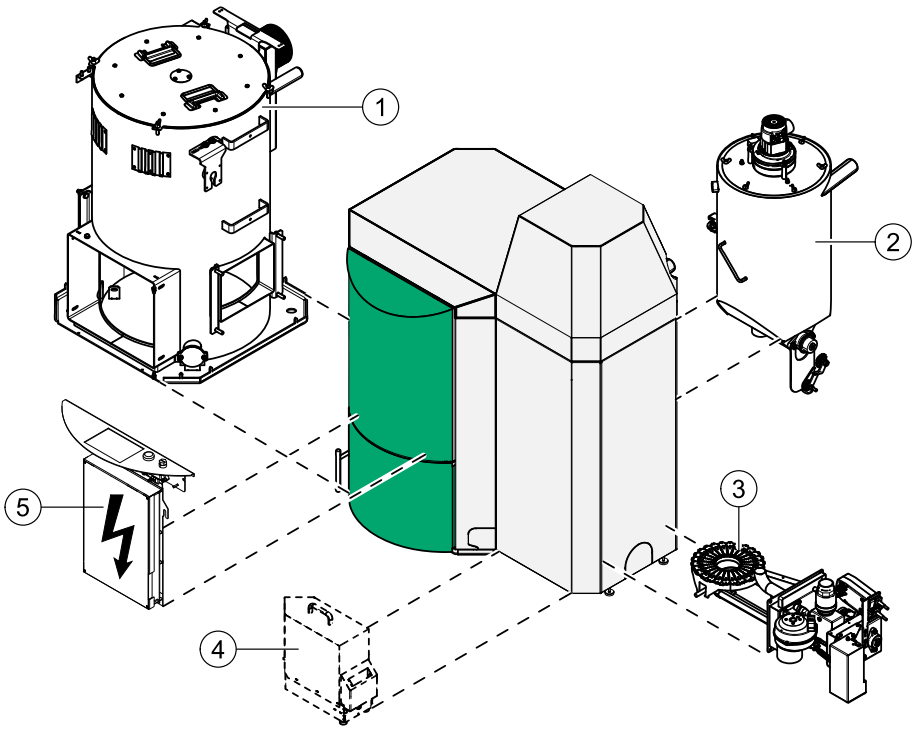
We offer the Pellet boiler with the following power ratings:
Suction-feed systems: 41,000; 51,000; 68,300; 85,300; 109,500; 123,000; 164,000 and 191,000 BTU/hr

All sizes / outputs of the Autopellet boiler are available with external automatic ash compression system.

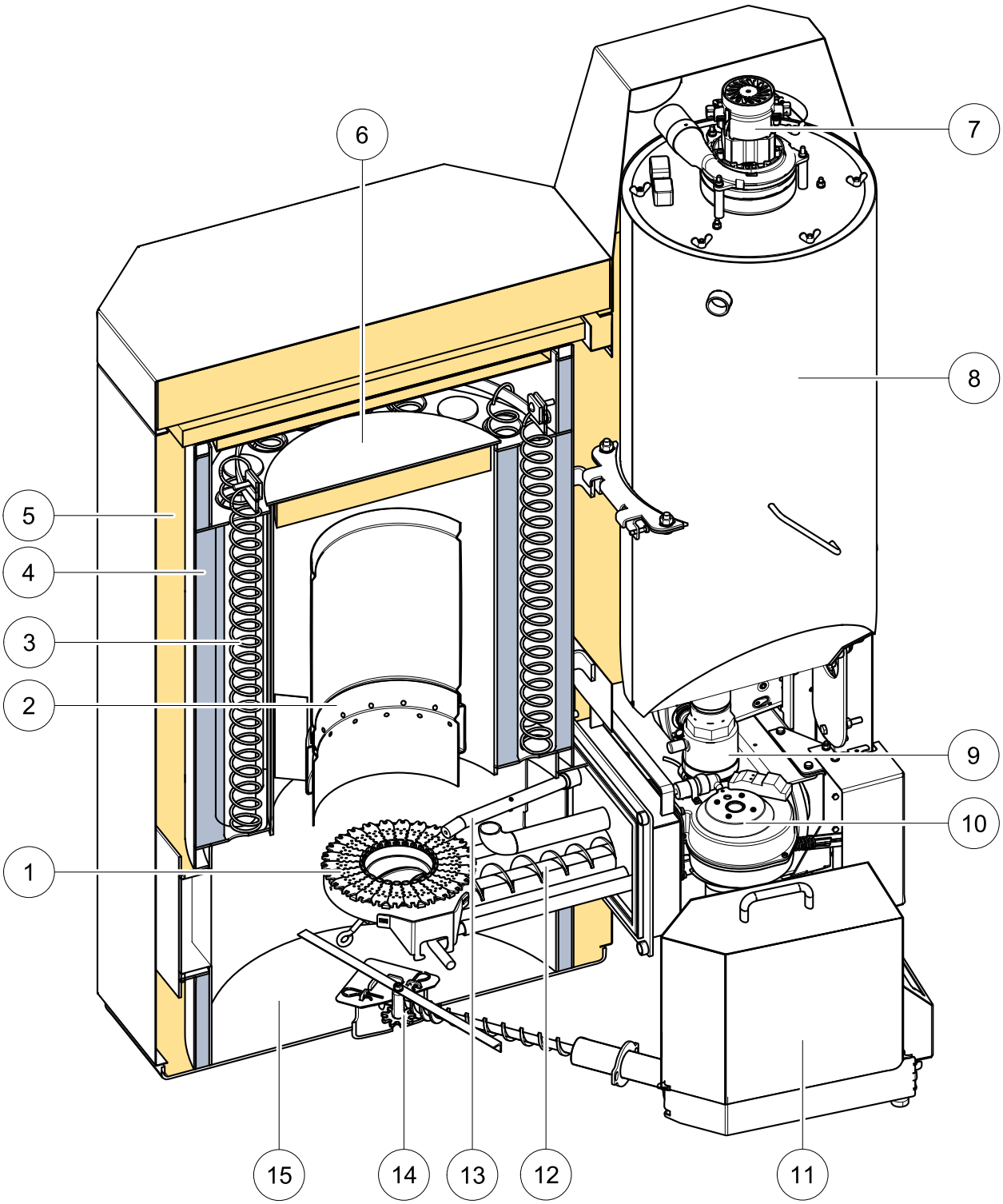
Note:
Refer to the data plate for the power rating of your Pellematic. The data plate is located on the rear side of the Pellematic. Here you will find the type designation, manufacturer's serial number and year of build.



Key components of the Pellematic



1	Boiler (heat exchanger)
2	Vac Hopper / Day tank
3	Burner
4	External automatic ash compression system
5	Boiler controller



1	Burner plate	9	Fire protection – ball valve
2	Flame tube	10	Burner fan
3	Heat exchanger	11	External ash box
4	Boiler water	12	Burner auger
5	Boiler insulation	13	Electronic ignition
6	Combustion chamber cover	14	De-ashing system
7	Suction turbine	15	Ash chamber / Fire chamber
8	Vac hopper / Day tank		

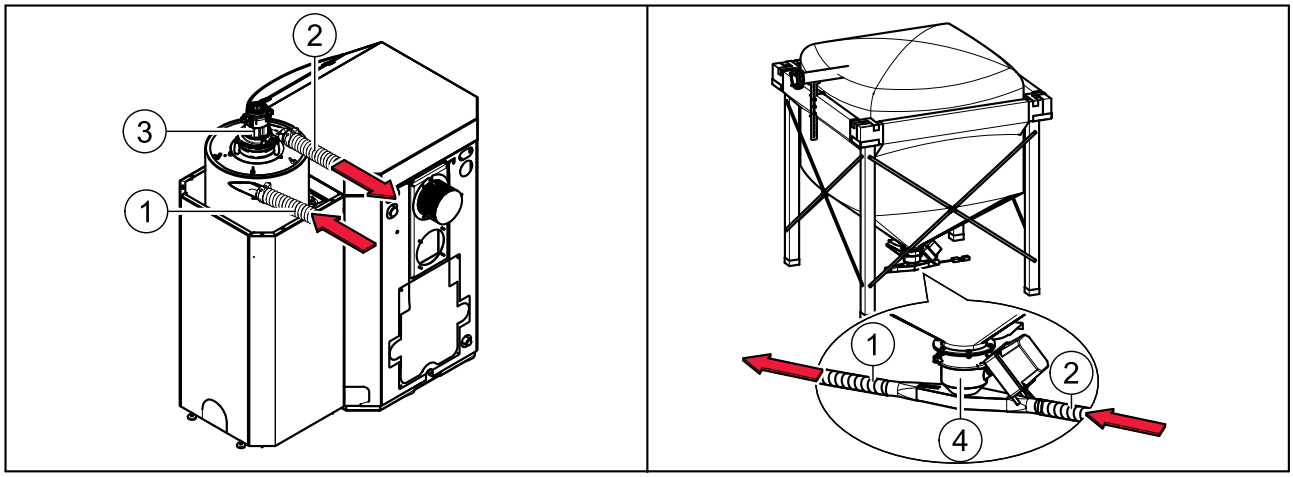
6.2 Pellet suction system

The pellet suction system consists of a pellet line, an air line and a suction turbine. The suction turbine in the hopper conveys pellets in the pellet line from the storage room or textile tank to the hopper.

Key components of pellet suction system

1	Pellet hose	Hose from textile tank to the hopper.
2	Air hose	Hosee from the suction turbine to the textile tank.
3	Suction turbine	Located above the hopper underneath the AutoPellet burner casing.
4	Suction switch	Located underneath the textile tank.

Pellet boiler **FleXILO textile tank**



6.2.1 Assembly of the vacuumsystem

The pellet hose and the air hose are flexible spiral hoses made out of plastic. A copper braid avoids the static loading of the spiral hose.

To avoid damage to the spiral hose, you must observe the following assembly guidelines:

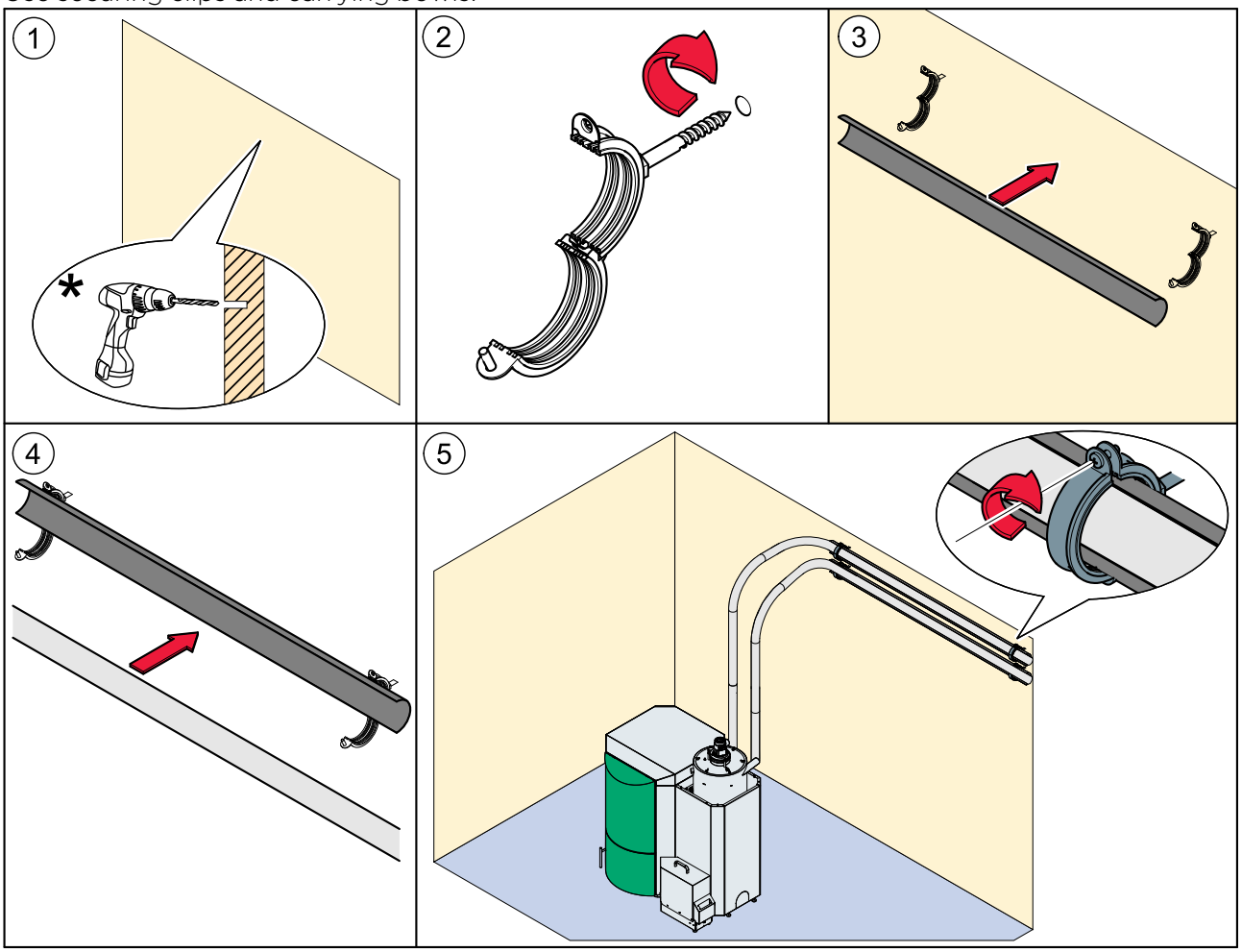
Bending radius	The hose should be led as briefly as possible and with a few curves as necessarily. Bending radius may never be smaller than **12inch**.
Upward gradients	Max difference in height = **236inch** **Note:** A difference in height of up to 118inch can be overcome at one time. Larger differences in height must by interrupted with a 4 foot horizontal run of the pellet hose.
Impact protection	The spiral hose can be mounted up to 236inch exactly straight. In such cases however, it is very important to create a slight "S" in the pellet piping before a sharp curve to slow down the pellets to prevent hose damage.
Installation in the soil and openings:	When installing pellet lines underground remember! The pellet lines are not designed for direct burial and require protection from being crushed or chewed by varmints. Protective piping should be minimum 4 inch and sealed at each end. There should be no bends greater than 15 degrees in the underground sections of the pellet hose.
Tightness	To avoid problems with your pellet lines, it is important to have all hose connections secured completely air tight with hose clamps.
Static neutralization	The hoses are provided with a copper braid, those the hose keeps antistatic. In order to ensure the function of the anti-statics, those copper braid must be attached at each end to the existing grounding become.
Fire protection	At a wall break-through to the heating room must be installed a fire protection seal in the pellet- and the air hose.

Crossing The pellet hose and the air hose should cross each other as few times as possible.

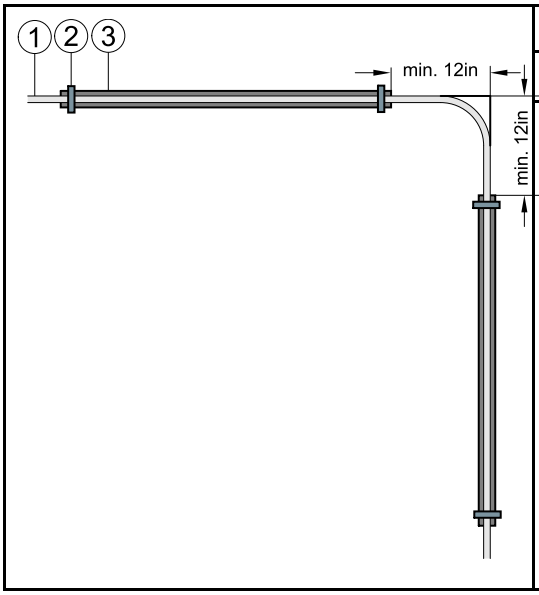
Length of the spiral hose The maximum total length of the spiral hose is 130 feet.
The maximum for pellet hose and air hose are each 60 feet.

Assembly

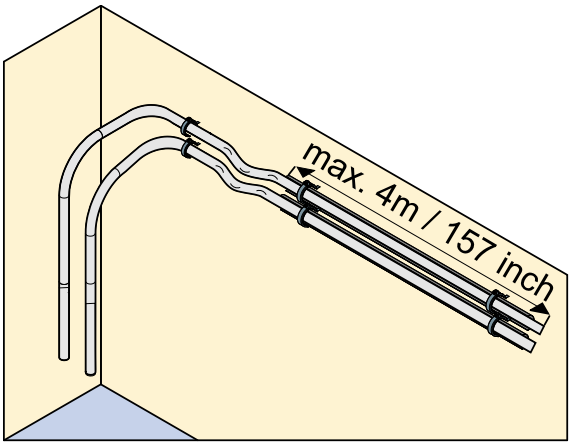
Use securing clips and carrying bowls.



*Pay attention to the defined distances!

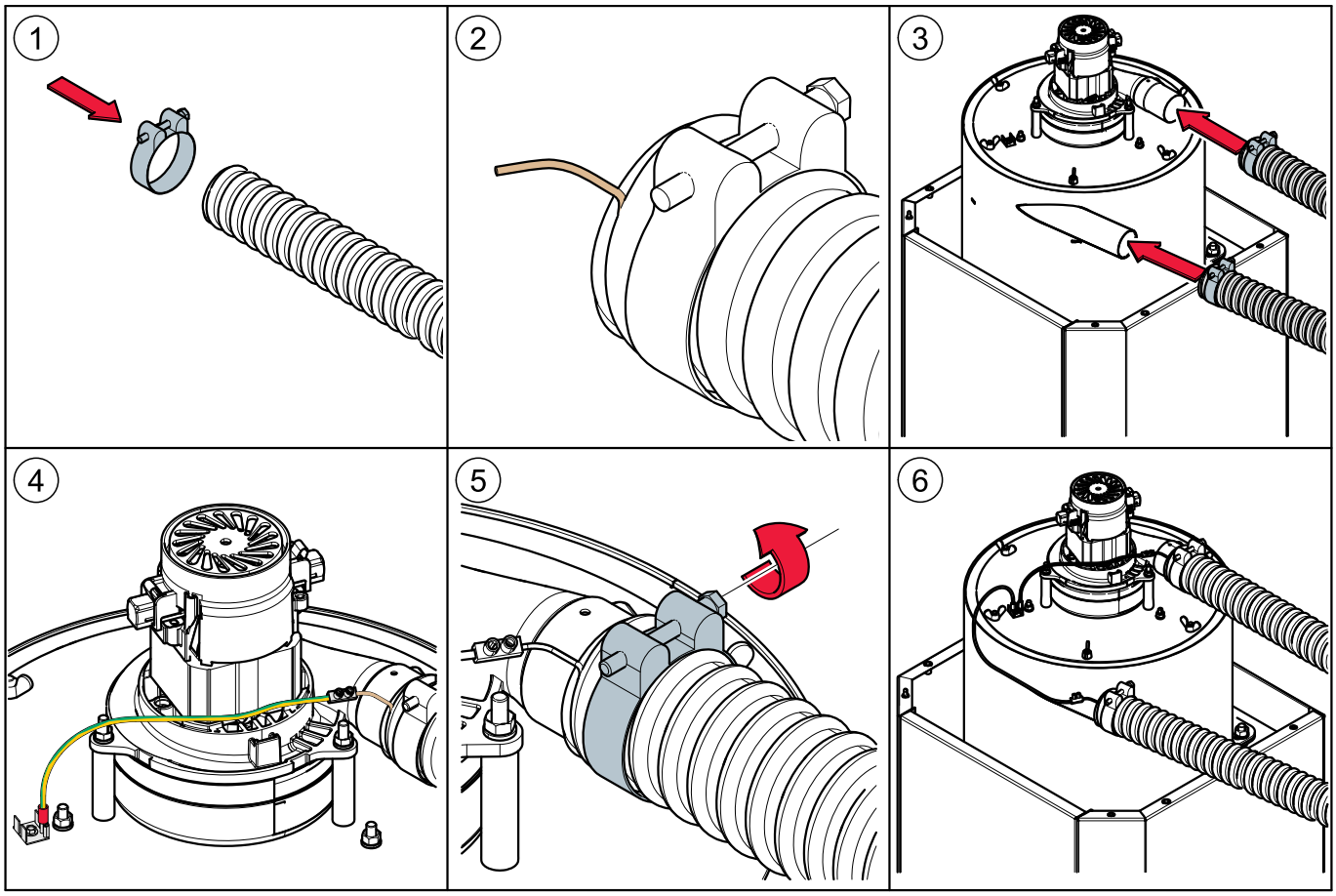


1	Hose
2	Clip
3	Carrying bowl



Note:
Impact protection by swirling of the pellets.

Connection of the pellet and air hose to the suction turbine



6.3 Storage systems

For storing pellets we offer a FleXILO textile tank. FleXILO textile tanks can be located inside the boiler room, storage room or protected from wet and sun outside.

NOTICE

Damage to property and loss of warranty
The use of an AutoPellet boiler with a storage or conveyor system from another manufacturer is not permissible and will result in voiding your warranty along with undependable operation.

6.3.1 Flexilo textile tank

Maine Energy Systems offers various sizes and types of fabric tanks. The fabric tank supplied may vary from the example shown above.

Please refer to the installation instructions supplied for the fabric tank. Note also the instructions on setting up and filling.

7 Bringing the pellet boiler into the boiler room

This section describes the prerequisites as well as the working sequence required.

1. Transport
2. Notes on bringing the unit into the building
3. Casing parts
4. Dismantling the casing parts

7.1 Transport

We supply the pellet boiler on a pallet. The pellet boiler is ready to be connected.
The control unit for the boiler controller and the operating drvice is integrated into the control panel.

If it is not possible to bring the boiler into the building at ground level, then you can remove the casing, the burner, the hopper and the boiler controller. This will reduce the weight of the unit and make it easier to carry.

NOTICE

Contamination and corrosion
Make sure that the pellet boiler is located under a roof if it needs to be stored outside before it is transported/ brought into the building. It is also necessary to transport the boiler in a closed in truck or trailer. Boilers transported otherwise will lose their warranty.

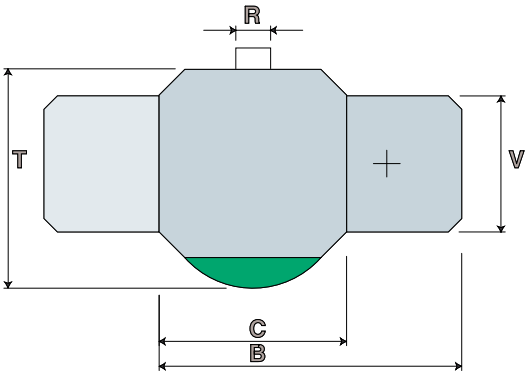
7.2 Notes on bringing the unit into the building

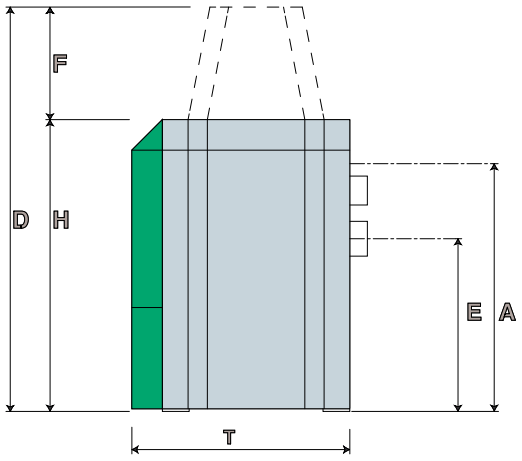
Before bringing the unit into the building, check the dimensions of all doors to ensure that the boiler has sufficient clearance and can be set up properly.

Minimum door width – max. unit dimension

PE, PES	10, 12, 15, 20	27,5 inch
PE, PES	25, 32	29,75 inch
PES	36, 48, 56	31,2 inch

Boiler dimensions





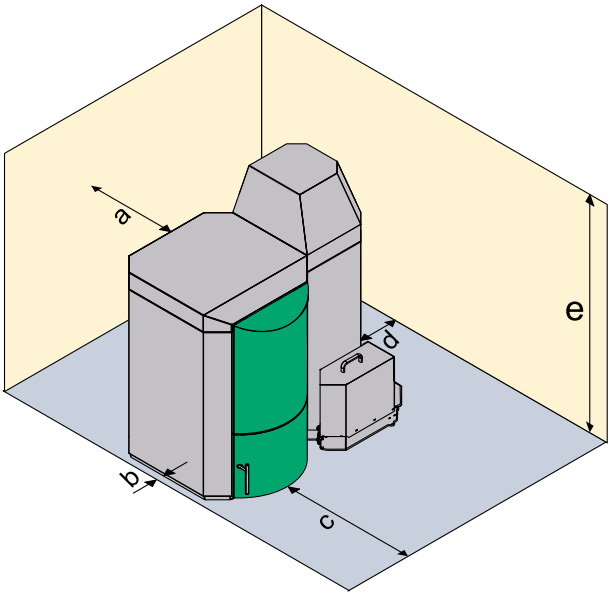
Boiler size		PE(S) 12	PE(S) 15	PE(S) 20	PE(S) 25	PE(S) 32	PE(S) 36	PE(S) 48	PE(S) 56
B – Overall width of pellet boiler	inch	44 1/2	44 1/2	44 1/2	46 3/4	46 3/4	51	51	51
C – Width of boiler casing	inch	27 1/2	27 1/2	27 1/2	29 3/4	29 3/4	34	34	34
H – Height of boiler casing	inch	43	43	43	51	51	61	61	61
D – Height of pellet suction system	inch	55	55	55	63	63	73	73	73
F – Height of suction filling unit	inch	12	12	12	12	12	12	12	12
T – Depth of boiler casing	inch	32	32	32	34 1/4	34 1/4	39	39	39
V – Depth of burner casing	inch	20	20	20	20	20	20	20	20
E – Flue gas tube connection height	inch	25 1/2	25 1/2	25 1/2	33 1/4	33 1/4	41	41	41
A – Height of su-ply/return	inch	35 3/4	35 3/4	35 3/4	43 3/4	43 3/4	52	52	52
R – Diameter of flue gas tube	inch	5 or 6	5 or 6	5 or 6	6	6	7	7	7

Approximate boiler Weight

Boiler size		PE(S) 12	PE(S) 15	PE(S) 20	PE(S) 25	PE(S) 32	PE(S) 36	PE(S) 48	PE(S) 56
Weight of boiler packaged on pallet with wooden frame	Lb	858	858	858	1003	1003	1430	1430	1430
Weight of boiler with casing, hopper and burner	Lb	533	542	551	696	705	1327	1336	1344
Weight of boiler without casing, hopper and burner	Lb	529	529	529	664	664	930	930	930

Minimum clearances suggested for proper cleaning and maintenance

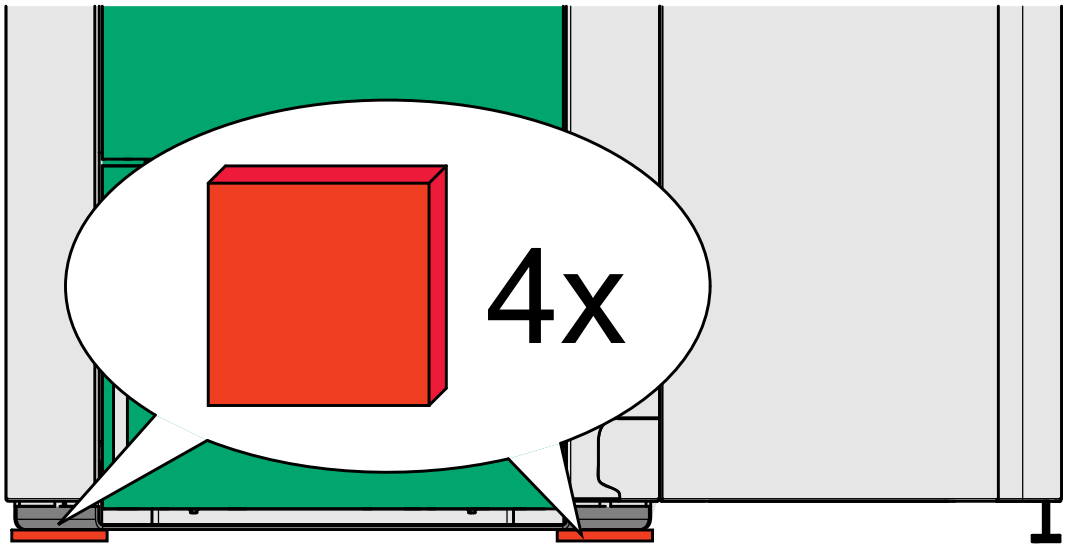
Note:
To install the heating system properly and ensure economical operation, you need to make sure that minimum clearance dimensions indicated below are observed when setting up the boiler. **In addition, make sure that all code requirements at the installation location are complied with relating to the minimum clearances.**



a	Minimum clearance to the edge of removable top cover of the boiler. For flue pipe clearance, refer to applicable codes.	inch	18
b	Min. clearance of side of boiler	inch	3
c	Min. clearance of front of boiler	inch	28
d	Min. clearance to housing - burner side.	inch	12
e	Min. ceiling height And the distance from ceiling to top of boiler must be enough to remove all covers.	inch	73

Note:
Place the boiler according to the minimum clearances to the flue pipe connection point as defined in NFPA 31, or if NFPA is not recognized, then the code pertinent to the installation location.
Make sure that you also comply with local legal regulations.
For clearances required for floor protection, see following page.

Placement of rubber plates



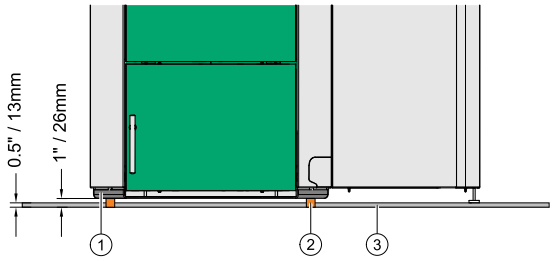
NOTICE

Loss of warranty!
The boiler must be placed on the supplied rubber plates.
Failure to do this may allow corrosion and will void the warranty of the boiler vessel.

7.3 Flooring

The boiler room floor must be flat and level and must be able to support boiler gross weight. The floor must comply with the requirements of NFPA 31.

Generally the boiler should be placed on non-combustible floors. However, a shielding material can be placed underneath the boiler and the chimney connector in the case of a combustible floor like shown on the following drawing.

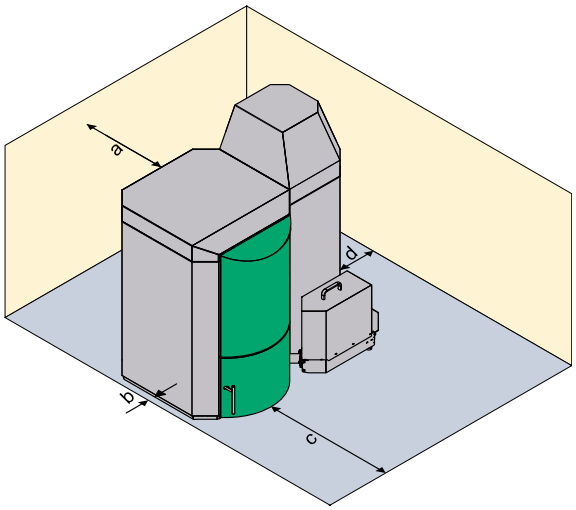


1	Boiler base plate
2	Spacer
3	Shielding material

The spacer must be able to support the weight of the boiler and has to be non combustable. The shielding material must be equivalent to a ½in / 13mm micro board with a K-value of 0.49 (W/m K) (R-value of 1.02 Km2/W) or greater. For more information contact Maine Energy Systems.

DANGER

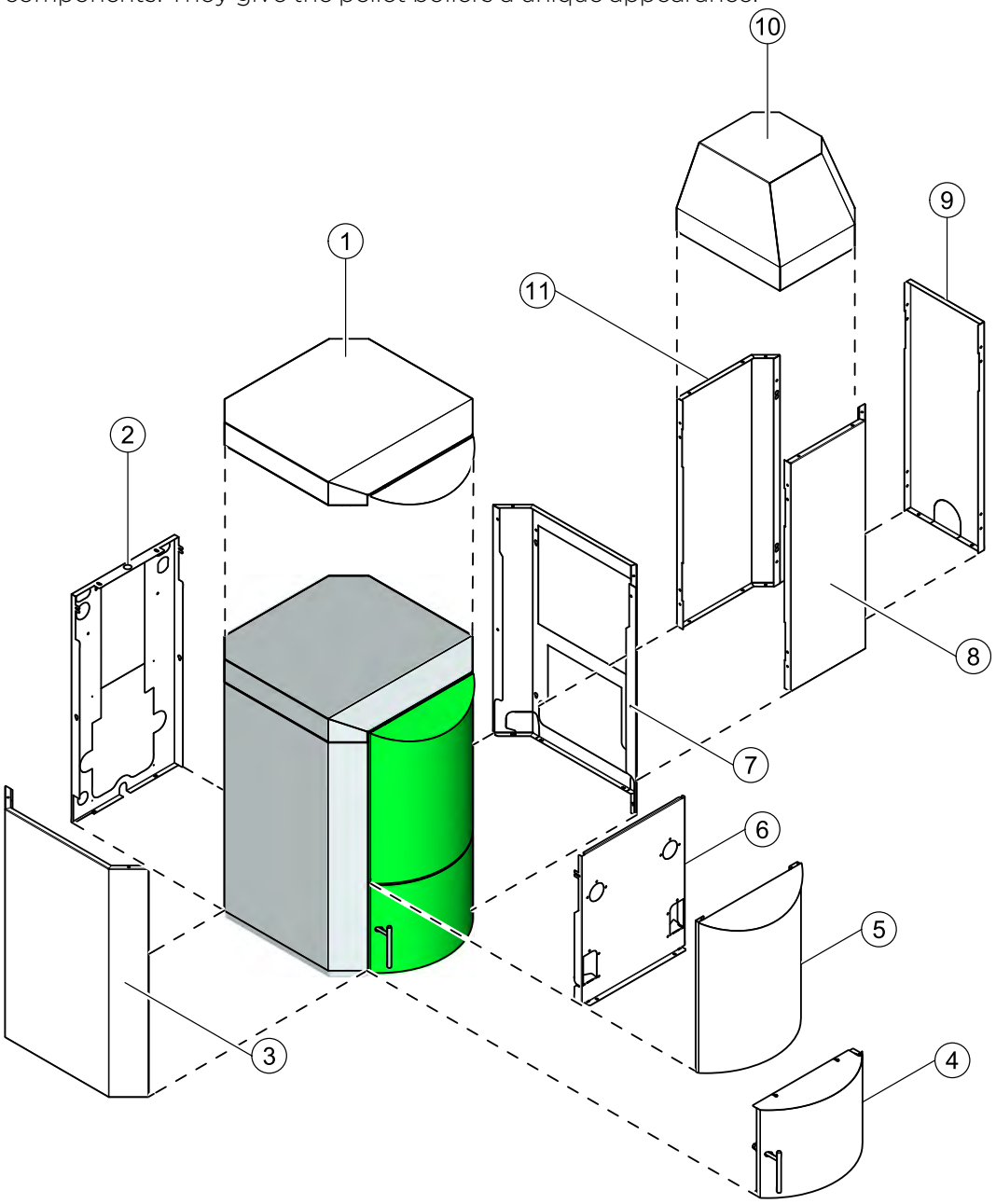
Risk of fire:
The non-combustible flooring needs to extend out to the clearances shown on the chart below.



Minimum clearances of shielding material required for floor protection		
Min. clearance of the shielding material from the boiler back – Note also the local restrictions in your area (a)	inch	17
Min. clearance of the shielding material from the boilers left side panel (b)	inch	8
Min. clearance of the shielding material from the boilers front panel (c)	inch	27
Min. clearance of the shielding material from the boilers right side panel (d)	inch	12

7.4 Casing parts

The boiler is protected by a casing on all sides. The casing parts prevent contact with hot, moving and live components. They give the pellet boilers a unique appearance.



1	Boiler casing cover	7	Boiler side panel with opening
2	Boiler rear panel	8	Burner side panel (same as 11)
3	Boiler side panel without opening	9	Burner lug without opening
4	Boiler door panel (semi-circle)	10	Burner cover suction system
5	Boiler front panel (semi-circle)	11	Burner side panel (same as 8)
6	Boiler front panel (straight)		

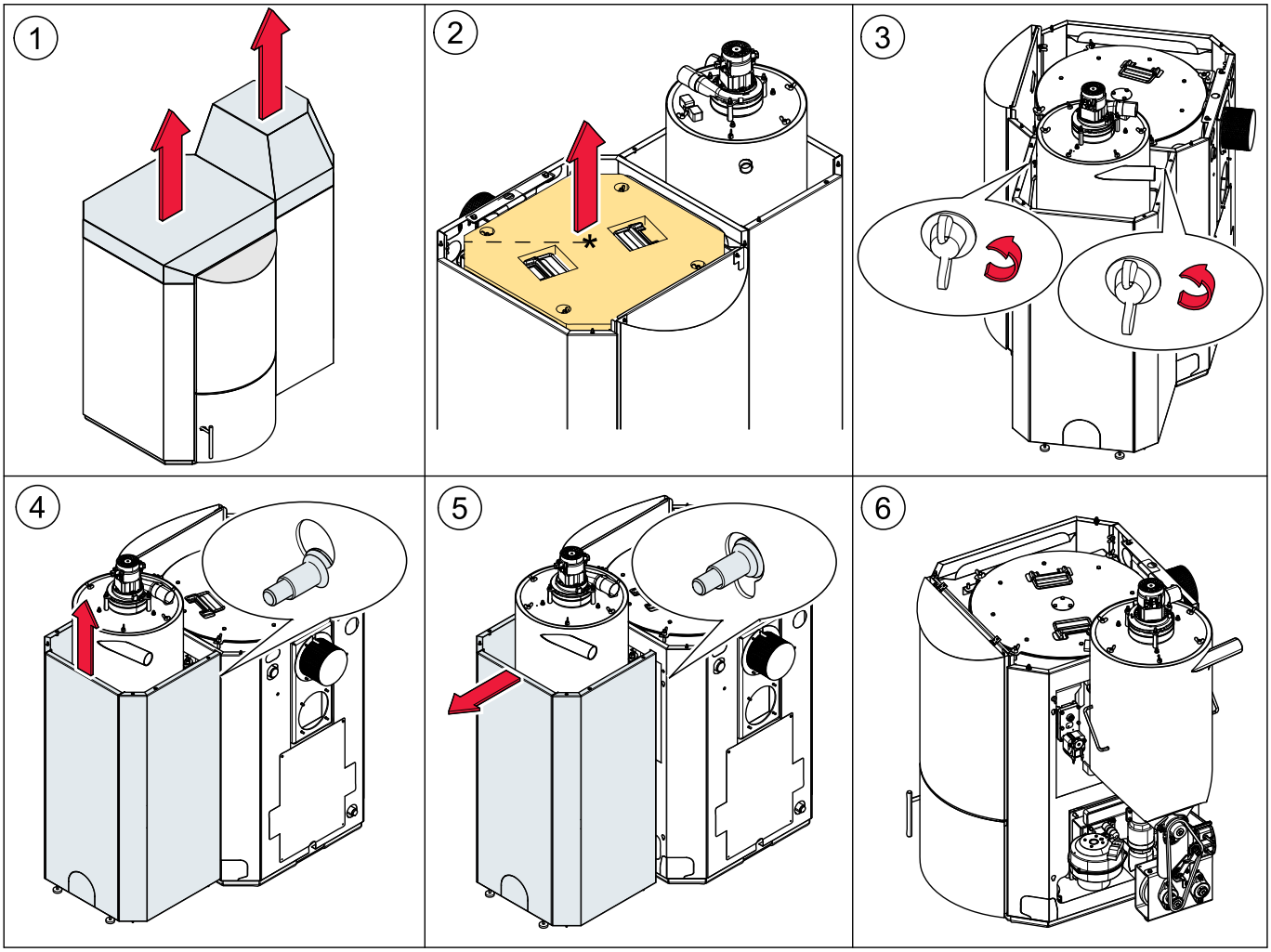
7.5 Removing the casing, the hopper and the burner

Dismantle the pellet boiler as far as necessary if site conditions require, so that the unit can be brought safely into the building.

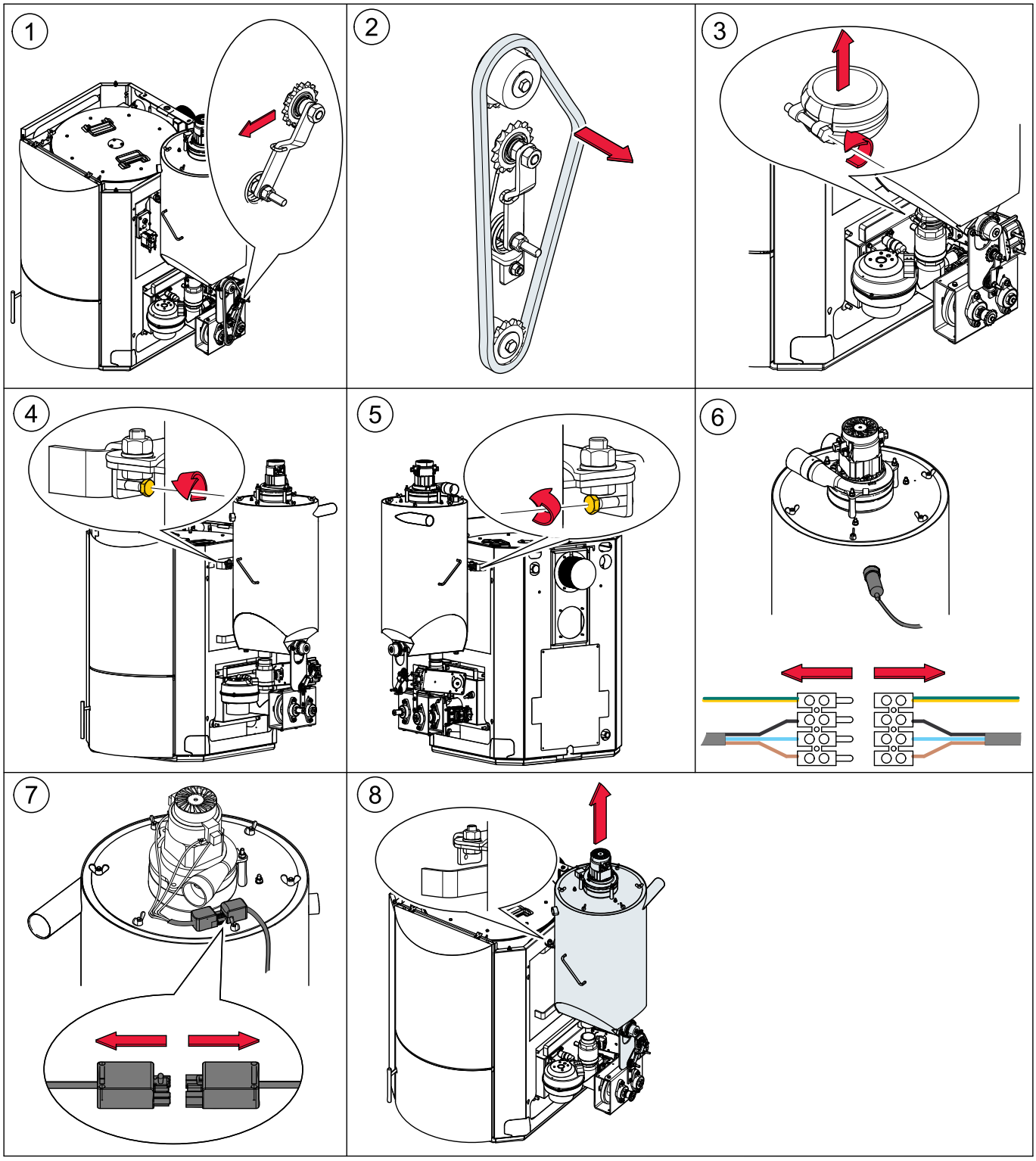
The complete dismantling of all components described here is divided into the following sections:

1. Dismantling the burner casing
2. Dismantling the hopper
3. Dismantling the burner
4. Dismantling the boiler door
5. Dismantling the boiler casing

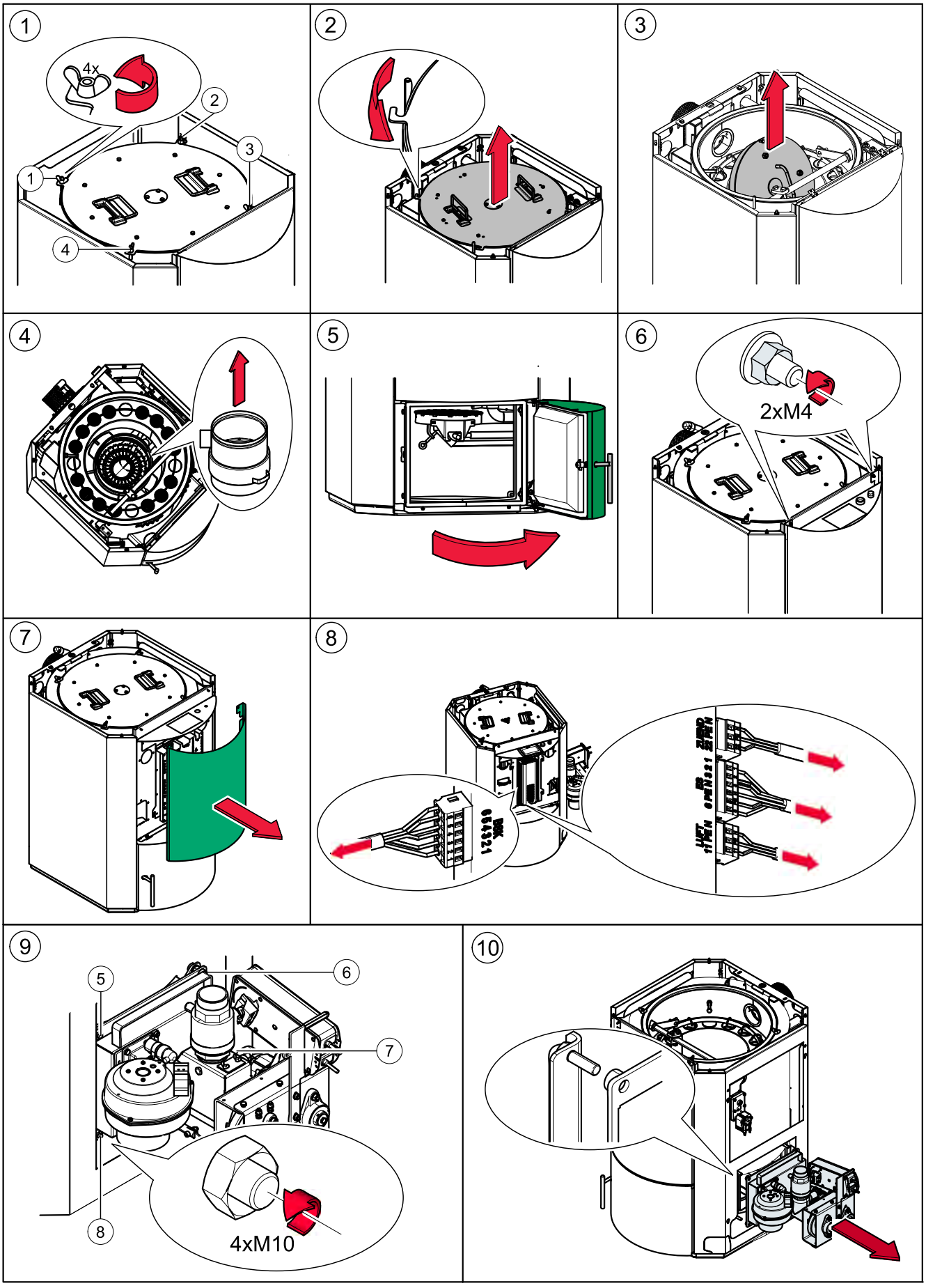
7.5.1 Dismantling the burner casing



7.5.2 Dismantling the hopper



7.5.3 Dismantling the burner



DANGER

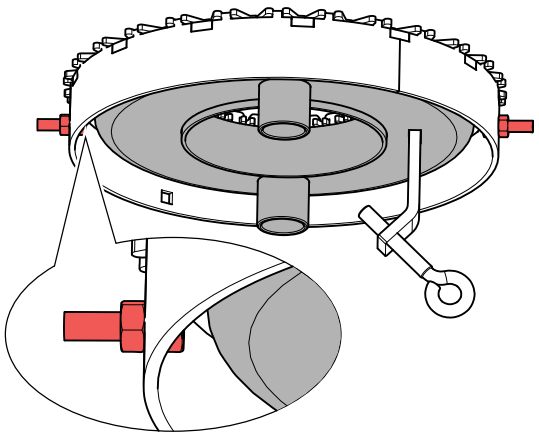
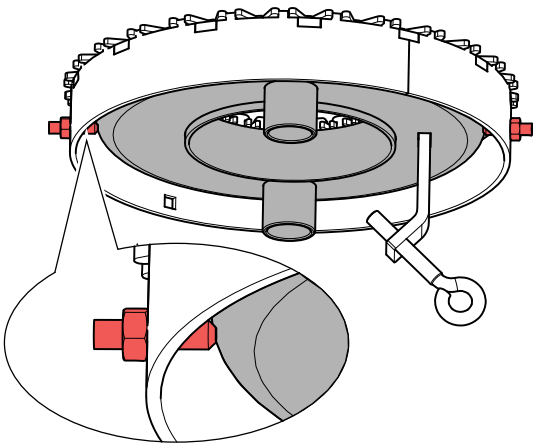
Risk of electric shock
Behind the boiler front panel is the energized control unit. Disconnect main power before removing the front panel.

NOTICE

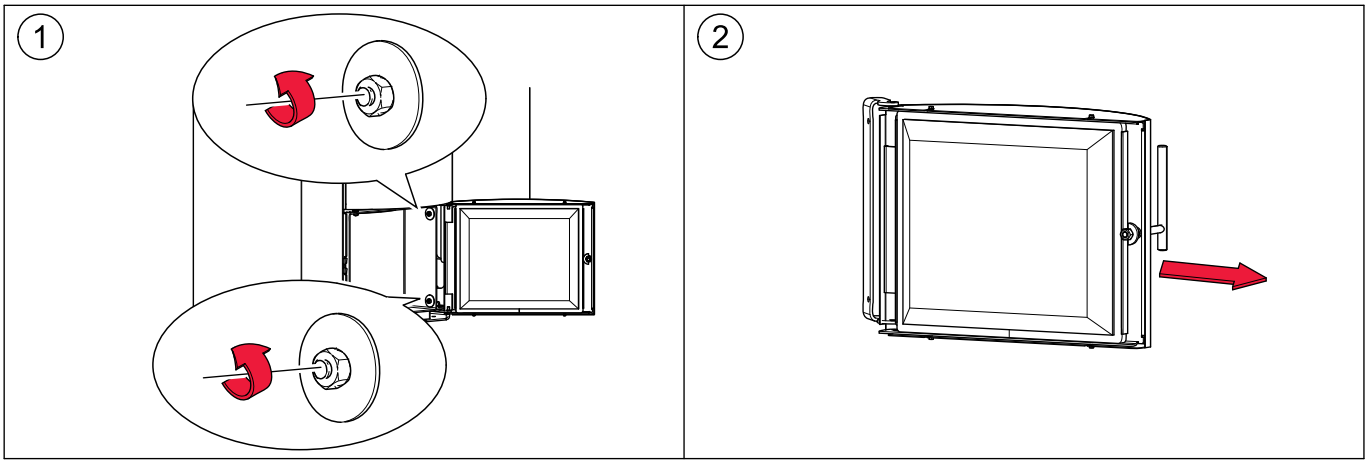
Damage of property
Remove disconnect all of the electric cables that connect the burner assembly to the controller (at the controller end) before removing the burner.

Multi segmented burner plate

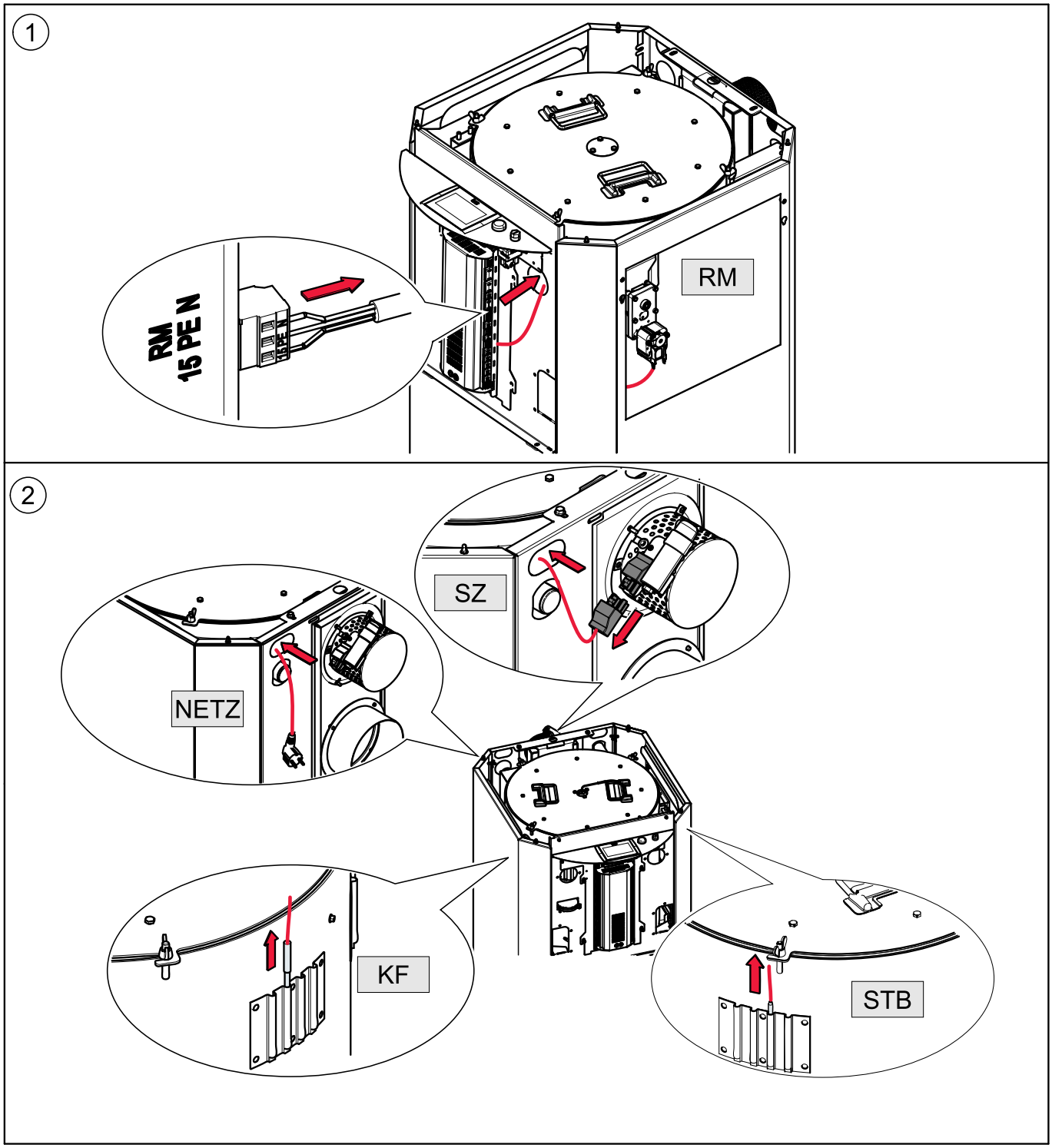
There are 2 mounting variations:

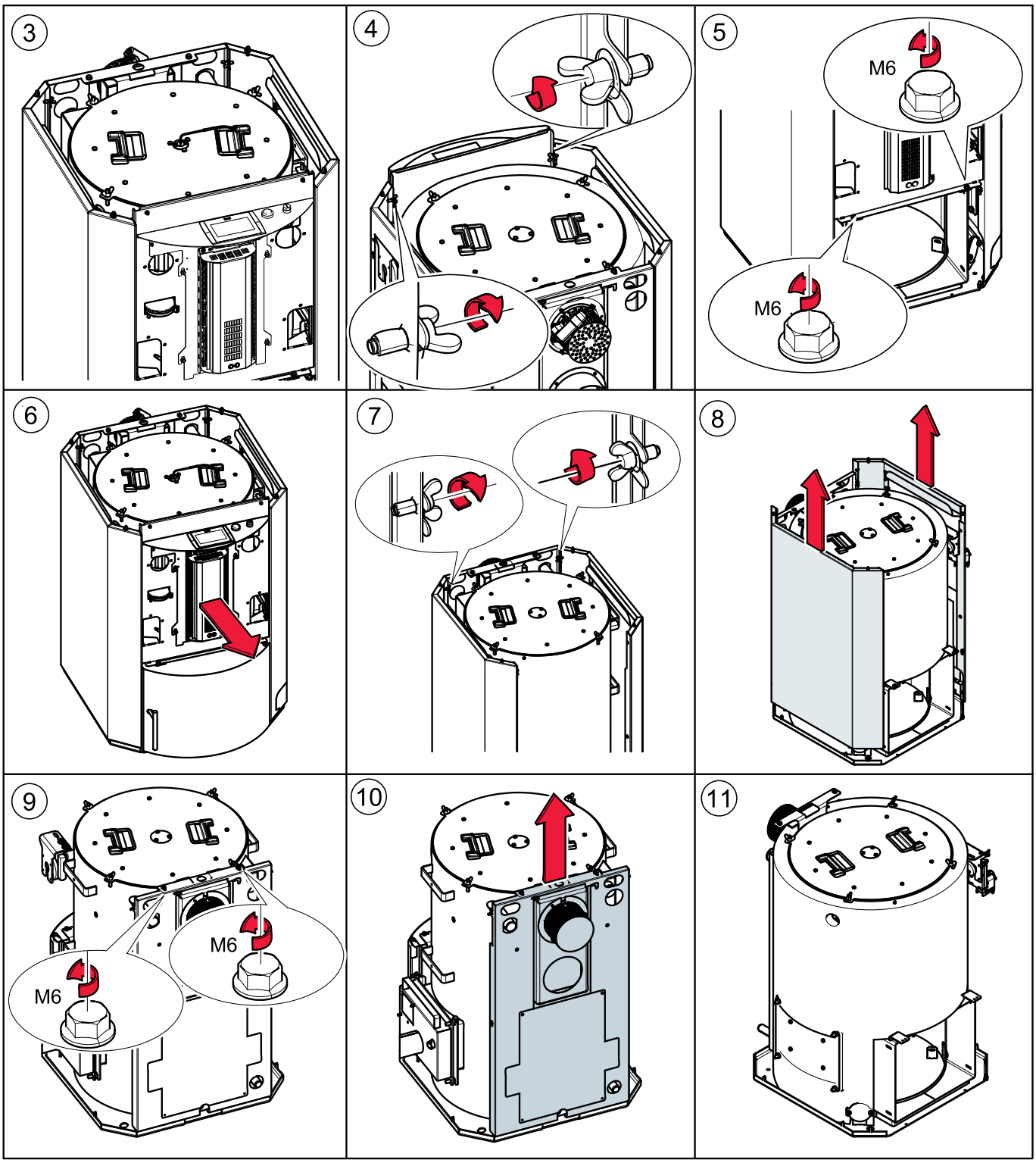
With burner plate cleaning system: Bolts loosened	**Without Burner plate cleaning system**: Bolts tightened
	
NOTICE Damage to property The **safety screws** for rotating the Multi segmented burner plate must be loosened/removed when exchanging the Multi segmented burner plate.	**NOTICE** Damage to property The **safety screws** for rotating the Multi segmented burner plate may not be loosened/removed when mounting.

7.5.4 Dismantling the boiler door



7.5.5 Dismantling the boiler casing




3
4
5
M6
M6
6
7
8
9
M6
M6
10
11

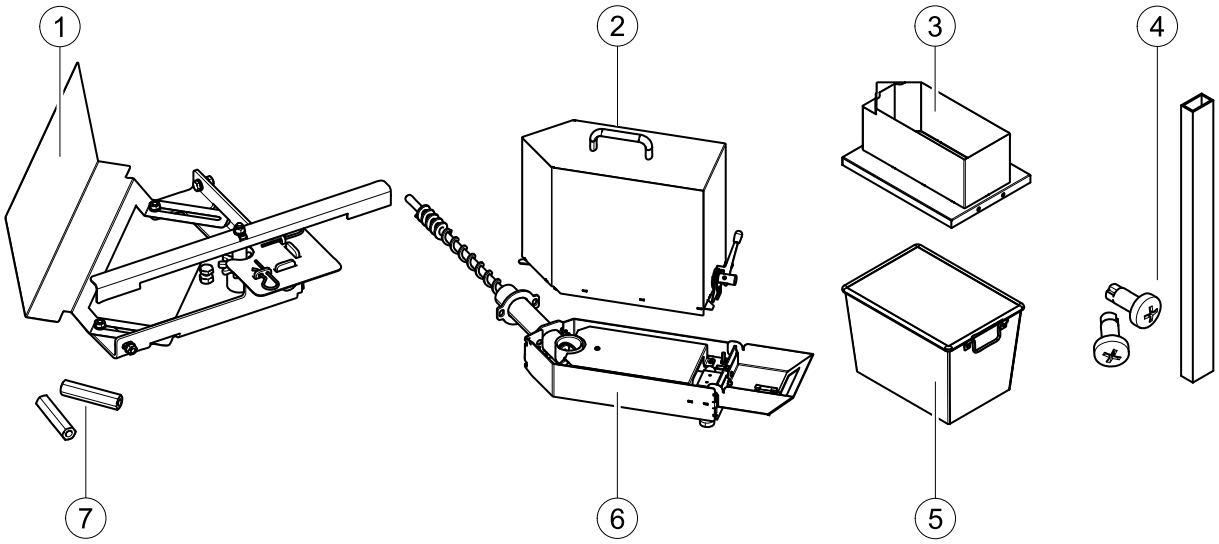
8 External de-ashing / automatic ash compaction system

We offer an automatic external de-ashing system.

1. Description of de-ashing system
2. How the de-ashing system works
3. Installating the de-ashing system
4. Emptying the de-ashing system

8.1 Description of de-ashing system

The de-ashing system compresses the ash and conveys it from the ash chamber into the ash box. The ash box enables the ash to be easily disposed off without creating dust.



1	Turnstile with agitator, door plate and mounting bolts	5	Ash container
2	Ash box with single-hand lever	6	Sub-assembly with extractor auger and cable
3	Mounting frame	7	Extended nuts to secure the sub-assembly
4	Cable duct with mounting bolts	8	1 pack of bio-bags

Note:
All components for the de-ashing system are packaged in a separate box which is shipped together with the boiler. Open the box and check that all parts are available before starting work.

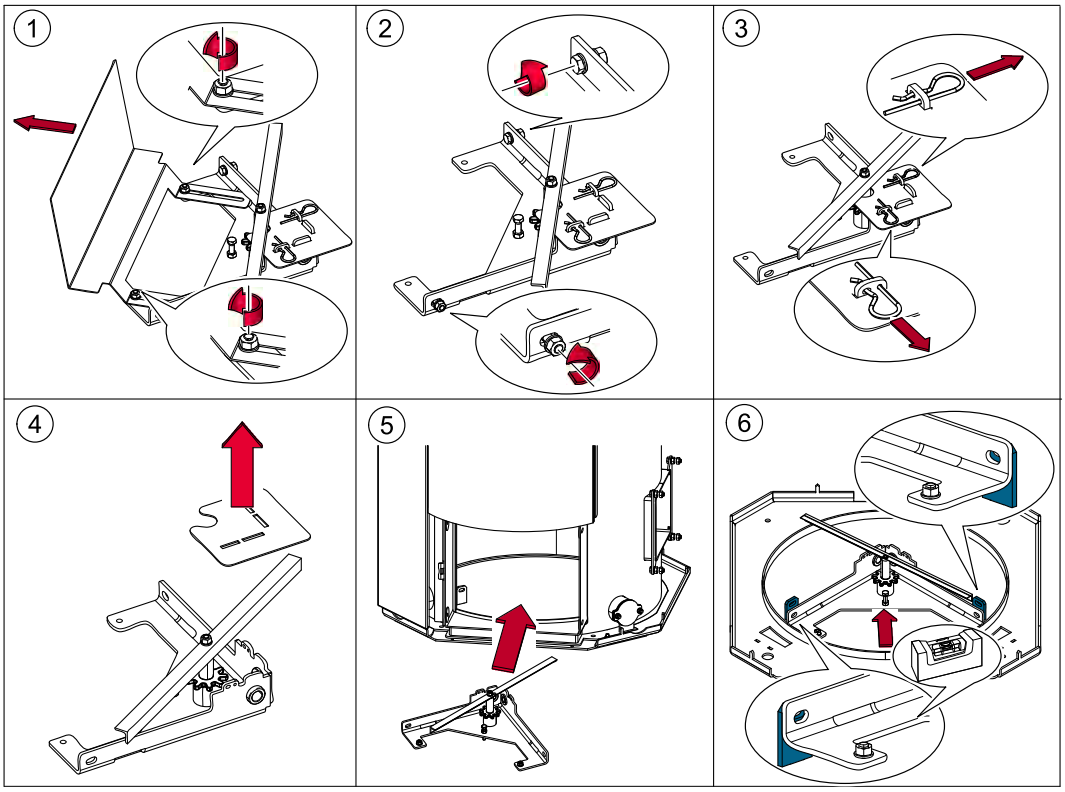
8.2 Installing the de-ashing system

We recommend installing the de-ashing system after the boiler has been brought in, but before the boiler casing is fitted. The de-ashing system has to be installed before the burner casing is assembled.

Installation of the de-ashing system is divided into the following steps:

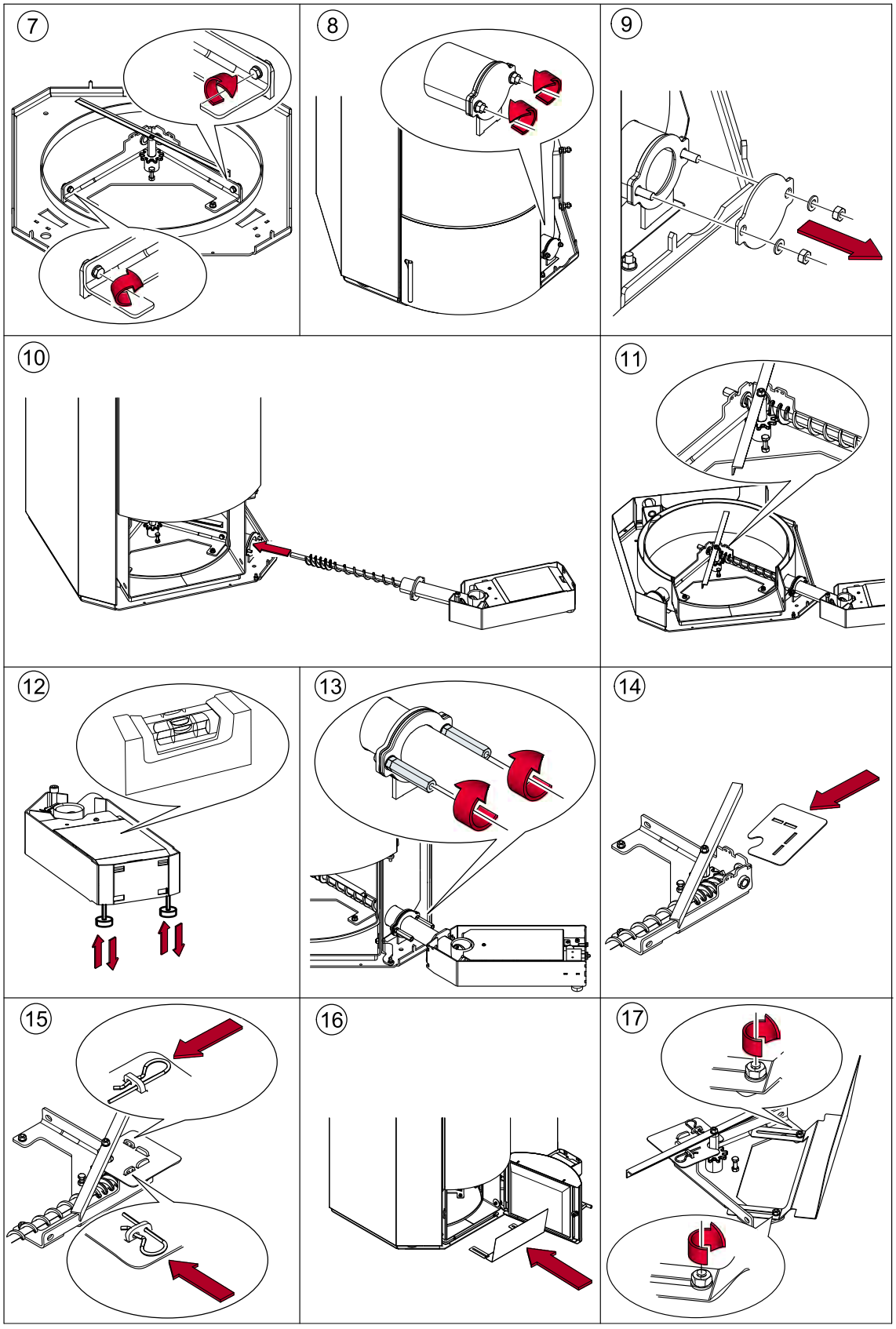
1. Bringing in and installing the de–ashing system on the base plate
2. Installing the de-ashing auger, fitting the sub-assembly and mounting the door plate
3. Installing the burner side casing with cut-out and electrical connection
4. Assembling the pellet boiler and activating the ash box

8.2.1 Bringing in and installing de–ashing system on the base plate



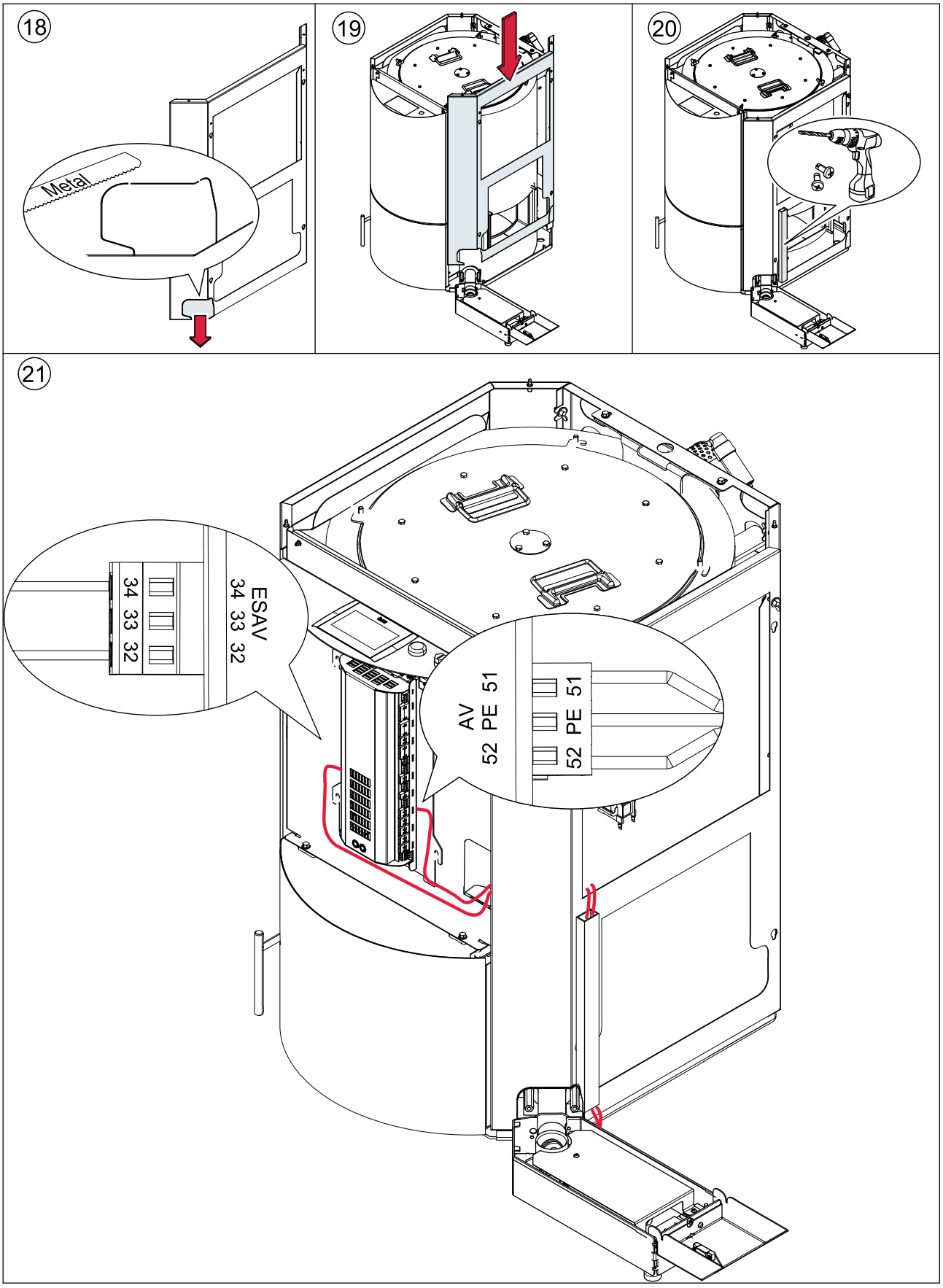
Note:
5: Replace the screw with the base in a horizontal position.

8.2.2 Installing the ash auger, fitting the sub-assembly and mounting the door plate

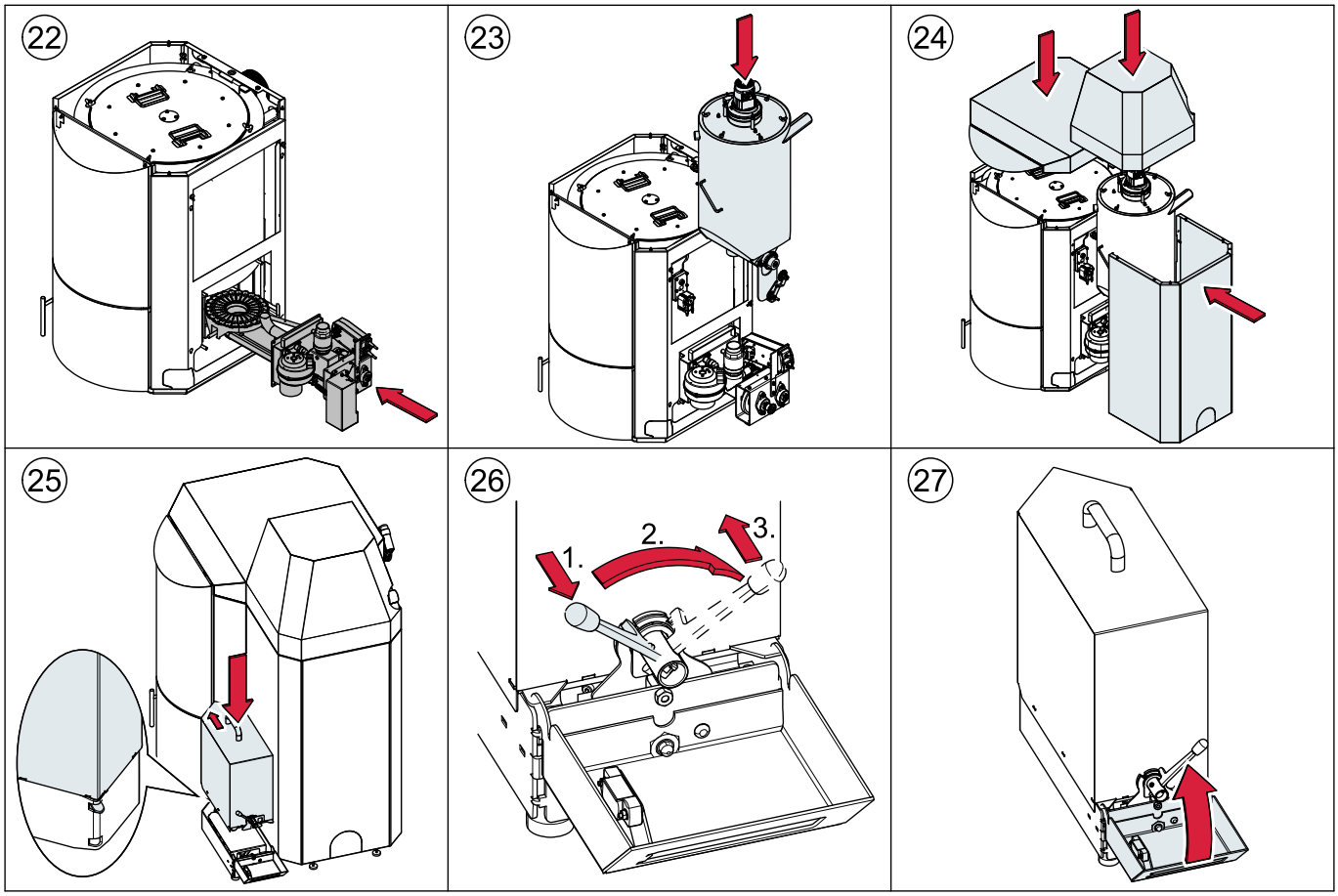


Note:
Do not tighten the screws firmly (picture 7). Tighten the screws firmly only after working step in picture 11. The ash auger engage with the gear must be so that the agitator moves freely.

8.2.3 Installing the burner side casing with cut-out and electrical connection



8.2.4 Assembling the pellet boiler and activating the ash box



Note:
Refer to the section on bringing the pellet boiler into the boiler room for detailed instructions on assembling the hopper, burner and casing components.

Activating the ash box

1. Switch the boiler ON
2. In the menu Pellematic, after entering the code, you can activate the function **Ashbox**.
3. Set up the number from **0** to **1**
4. Ash box is now active

9 Connecting up the hydronics

The hydronic connections are located on the rear side of the boiler.

DANGER

Risk of explosion
The boiler can only be connected and operated after the hydronic system is complete, with all safeties and purged of air.

NOTICE

Water damage, damage to pellet boiler
The hydronic system can only be installed by an experienced heating professional. Check the entire installation for leaks before firing the boiler.

1. **Return water temperature control**

   The device to increase the return temperature is already integrated into the boiler. You do not need to make any adjustments to this.

2. **Hydronic schematics**

   If you have questions about piping a heating system, refer to the our hydronic schematics when connecting the boiler.

   Our hydronic schematics are available from your sales partner or from our website.

3. **Connections**

   The connections between the pellet boiler and the hydronic system must be disconnectable.

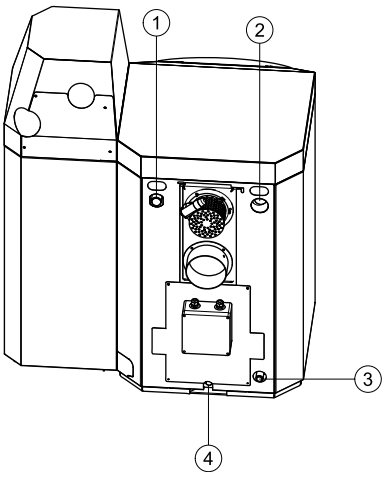
4. **Drain connection**

   When you install the pellet boiler, remove the plug from the drain connection (4) and fit a 1/2" diameter shut-off valve.

5. **Thermometer connection**

   Installing a thermometer at location (3) (submersion sleeve 3.94 in long) enables you to measure the temperature of the return water after the return water temperature control.

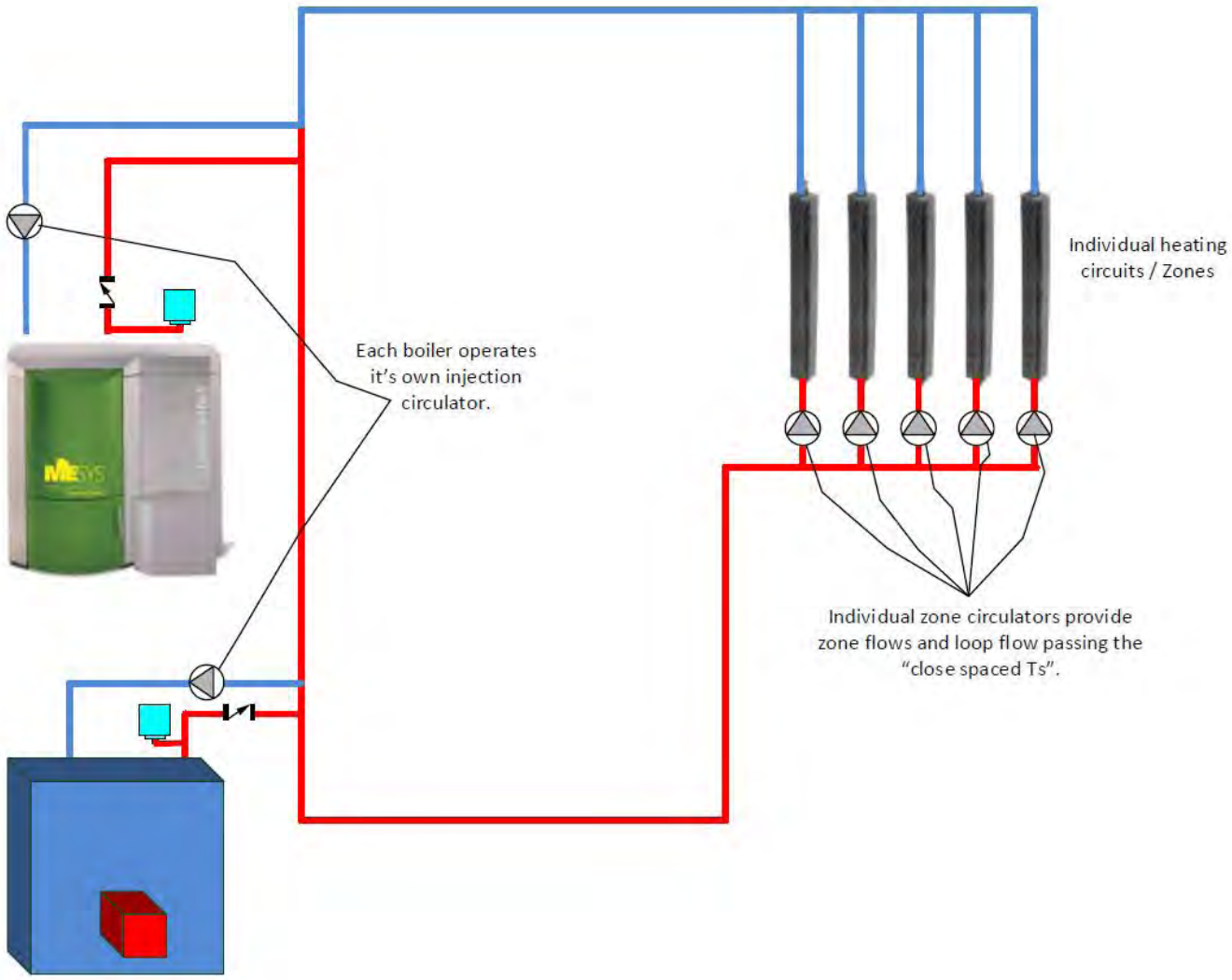
   Whether this is installed or not, after setting up the pellet boiler you need to remove the cap and fit a 1/2" diameter closure plug at location (3).



1	Flow out	3	Thermometer connection
2	Flow return	4	Drain connection

9.1 Hydronic connecting diagrams

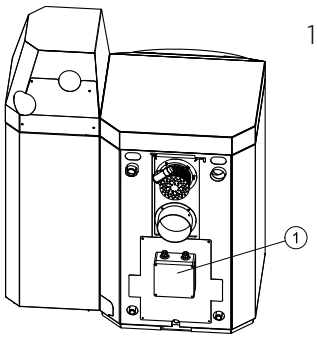
AutoPellet and existing gas or oil fired boiler, modified "primary - secondary" allows heat to come from either source without external changes.



10 Connecting to the power supply

10.1 Terminal box

The terminal box serves as the connection point for the power supply, low water cut off, circulator pump, cold start contacts, bus connection, power vent, and outdoor sensor if used. There is also a low power 220 volt connection point.



1..... Terminal box

10.1.1 Wiring diagram - terminal box

The wiring diagrams for the terminal box provide detailed technical information for professionals and are packed within the terminal box along with other helpful schematics for interconnecting the boiler with circulator controls.

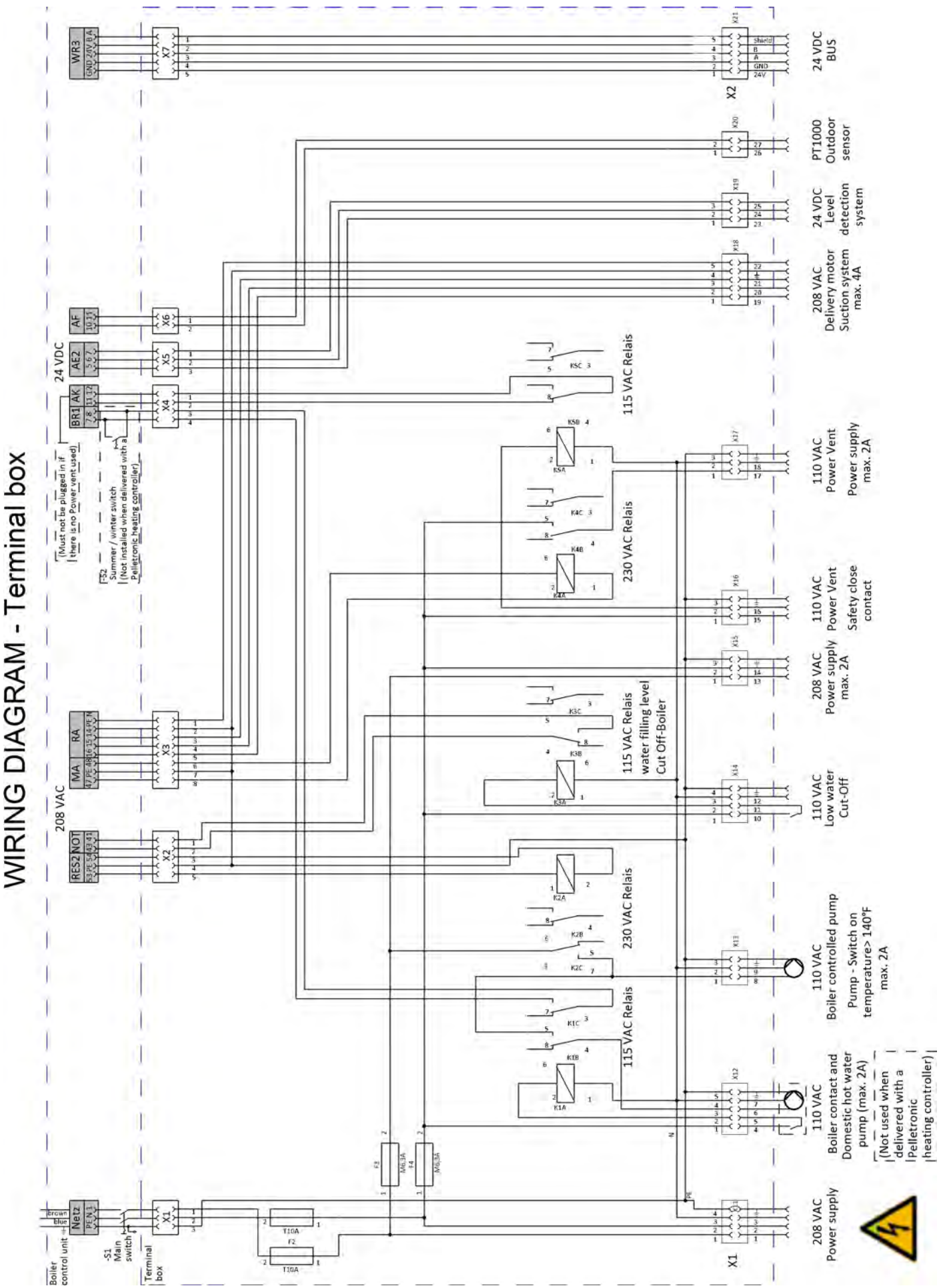
DANGER

Risk of electric shock
Only an authorised installer may connect the pellet boiler to the power supply.
Always disconnect / de-energize the power supply before working on the boiler.

General information for the electrician

- USA and Canada 208 to 240 VAC, single phase, 60 Hz, 15 amp dedicated circuit. To operate the boiler during prolonged power failures, the heating system, including controls and circulators, must be conected to a generator which produces clean, true 60 cycle power. Minimum suggested generator size, 2500W.
- **Lightening protection:** As there is no possible complete protection against lightening, we suggest installing a voltage spike suppression system for the building where the boiler is located or in the same panel as the boiler is powered from.
- **Electrical connection:**
  USA and Canada 208 to 240 VAC, single phase, 60 Hz, 15 amp dedicated circuit.

	Wiring Plan
Terminal	Specification
1	Hot wire L1 - Power supply 208 VAC
2	Hot wire L2 - Power supply 208 VAC
3	Neutral wire - Power supply 208 VAC
⏚	Ground wire - Power supply
4	Hot wire - Boiler contact
5	Hot wire - Boiler contact
6	Hot wire - Domestic hot water pump
7	Neutral wire - Domestic hot water pump
⏚	Ground wire - Domestic hot water pump
8	Hot wire - Boiler controlled pump
9	Neutral wire - Boiler controlled pump
⏚	Ground wire - Boiler controlled pump
10	Hot wire - Power supply - Low water Cut-Off
11	Hot wire - Burner circuit - Low water Cut-Off
12	Neutral wire - Low water Cut-Off
⏚	Ground wire - Low water Cut-Off
13	Hot wire L1 - Power supply
14	Hot wire L2 - Power supply
⏚	Ground wire - Power supply
15	Hot wire - Power vent - Safety close contact
16	Hot wire - Power vent - Safety close contact
⏚	Ground wire - Power vent
17	Hot wire - Power vent - Power supply 110VAC
18	Neutral wire - Power vent - Power supply 110VAC
⏚	Ground wire - Power vent - Power supply 110VAC
19	Hot wire L1 - Delivery motor
20	Hot wire L2 - Delivery motor - Suction system
21	Hot wire L3 - Delivery motor - Suction system
⏚	Ground wire - Delivery motor - Suction system
22	Neutral wire - Delivery motor - Suction system
23	Hot wire - Level detection system
24	Hot wire - Level detection system
25	Hot wire - Level detection system
26	Hot wire - Outdoor sensor
27	Hot wire - Outdoor sensor
24V	24V
GND	GND
A	A
B	B
Shield	Shield


WIRING DIAGRAM - Terminal box
Boiler control unit
Terminal box
Netz
PE N L
brown
blue
-S1 Main switch
X1
T10A F2
T10A
F3 M6.3A
F4 M6.3A
208 VAC
RES2 NOT
MA RA
X2
X3
24 VDC
AF AE2 BR1 AK
X6 X5 X4
(Must not be plugged in if there is no Power vent used)
F52 Summer / winter switch (Not installed when delivered with a Pelletronic heating controller)
WR3
X7
X21
X2
24 VDC BUS
X20
PT1000 Outdoor sensor
X19
24 VDC Level detection system
X18
208 VAC Delivery motor Suction system max. 4A
K5C
K5B
K5A
115 VAC Relais
X17
110 VAC Power Vent Power supply max. 2A
K4C
K4B
K4A
230 VAC Relais
X16
110 VAC Power Vent Safety close contact
X15
208 VAC Power supply max. 2A
K3C
K3B
K3A
115 VAC Relais water filling level Cut Off-Boiler
X14
110 VAC Low water Cut-Off
K2A
K2B
K2C
230 VAC Relais
X13
110 VAC Boiler controlled pump
Pump - Switch on temperature> 140°F max. 2A
K1C
K1B
K1A
115 VAC Relais
X12
110 VAC Boiler contact and Domestic hot water pump (max. 2A)
(Not used when delivered with a Pelletronic heating controller)
X11
X1
208 VAC Power supply

10.2 Plugs on the boiler control unit

The designation of the plugs must correspond with the labeling of plug-in positions.

Designation of plug-in position		Voltage	Name of sensors, motors and pumps
X1A	3 2 GND 1	24 Volt	Operating display
X1B	3 2 GND 1	24 Volt	Heating / zone controller
X2	5 4	24 Volt	Power supply display
R1	46 45	24 Volt	Not used
R2	44 43	24 Volt	Not used
AF	42 41	24 Volt	Not used
KF	8 9	24 Volt	Boiler sensor
UP	2 3 4	24 Volt	Negative draft measuring
AE2	5 6 7	24 Volt	Level detection system
AE1	10 9 8	24 Volt	Not used
FRT	12 13	24 Volt	Combustion chamber temperature sensor
RGF	14 15	24 Volt	Flue gas temperature sensor (optional)
PWM	16 17	24 Volt	PWM for speed controlled high-efficiency pump
Analog IN	18 19	24 Volt	Not used
BR1	7 8	24 Volt	Burner / "cold start" contact
AK	11 12	24 Volt	Existing boiler (optional)
ESAV	32 33 34	24 Volt	Ash box RPM feedback
DE 1	37 36 35	24 Volt	Not used
DE 2	40 39 38	24 Volt	Not used
KAPZW	26 25 24	24 Volt	Capacitive sensor – hopper
KAPRA	5 4 3	24 Volt	Capacitive sensor – burner
BSK	6 5 4 3 2 1	24 Volt	Ball valve / Flame return gate
X21	PE L N	230 Volt	Power supply
VAK	50 PE 49	230 Volt	Vacuum turbine
ZUEND	N PE 22	230 Volt	Ignition
AV	52 PE 51	230 Volt	Motor ashbox
RES 2	53 PE 54	230 Volt	Not used
MA	48 PE 47	230 Volt	Magnetic valve (Cleaning nozzle, heat exchanger)
RM	15 PE N	230 Volt	Motor for boiler flame tube cleaning device
SM	19 20	230 Volt	Relay fault signal (optional)
SZ	17 PE N	230 Volt	Flue gas fan
UW	13 PE N	230 Volt	Boiler controlled pump
STB	17 PE 19	230 Volt	Safety temperature / Over-temp sensor
NOT	43 41	230 Volt	Connection to low water protection / Emergency stop heating
RA1	N PE 14 15 16	230 Volt	Fuel transport system
RES1	50 PE 49	230 Volt	Motor hopper – PES 36–56 only

ZW	N PE 26 25 24	230 Volt	Vibration motor
ES	1 2 3 N PE 6	230 Volt	Burner motor
LUFT	N PE 11	230 Volt	Burner fan

10.3 Cable routing

Reroute cables after dismantling the casing or other system components.

DANGER

Risk of electric shock
Switch off the system before performing work on the boiler.

Note the following points to ensure the cables are routed securely:

Cables must not be routed:

- over moving parts
- over hot parts
- over sharp edges

Cables must be:

- routed in the cable ducts provided
- through cable leadthroughs
- tied together
- secured with cable ties at the points provided
- Power cables must be routed in the right-hand duct and sensor cables must be routed in the left-hand duct.

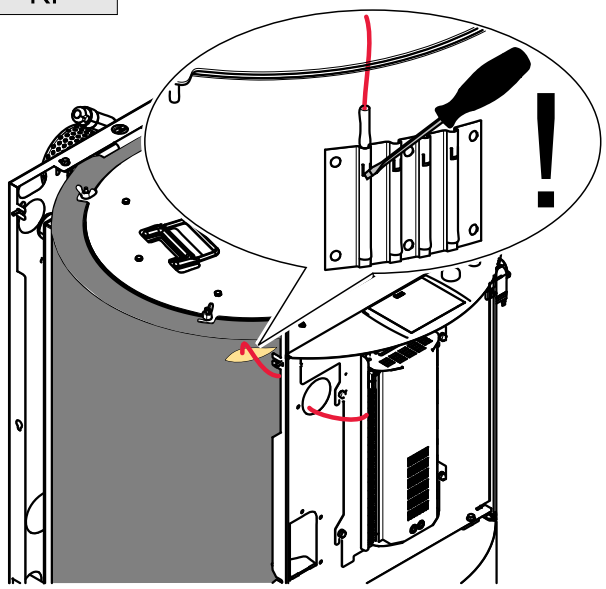
DANGER

Risk of electric shock
Check cables for damage..
Replace any cables that are damaged.

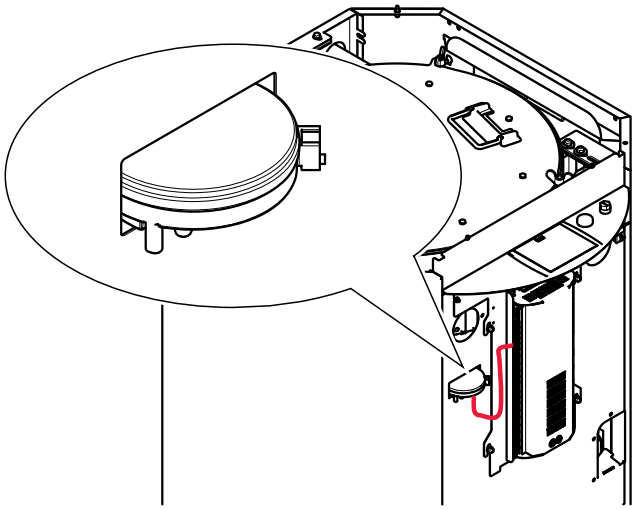
NOTICE

Damage to the boiler controller
Before fitting the casing components, make sure that all cables are connected to the correct points on the controller! Failure to do so can lead to damage to the controller, and such damage is not covered by warranty!

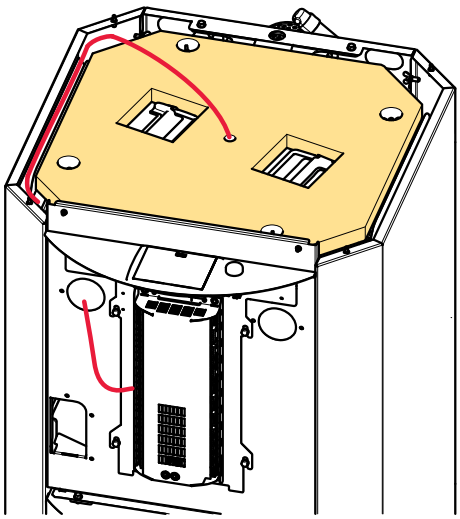
KF



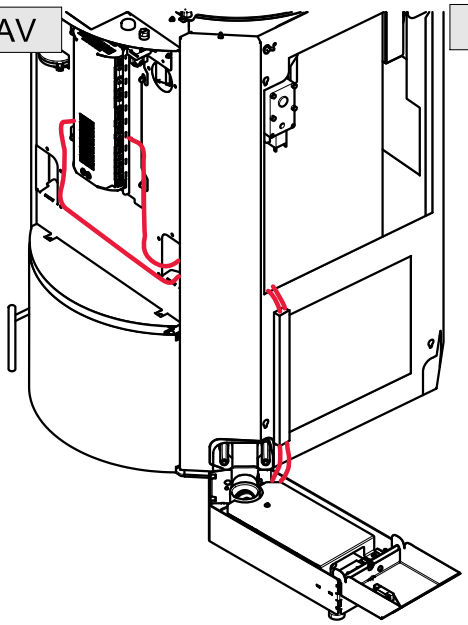
UP



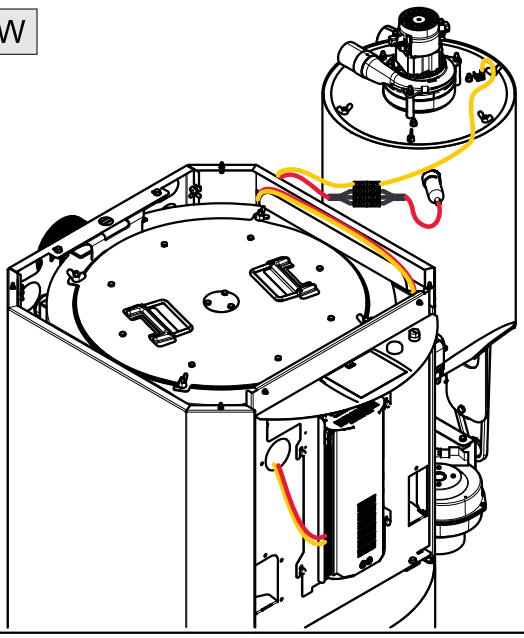
FRT

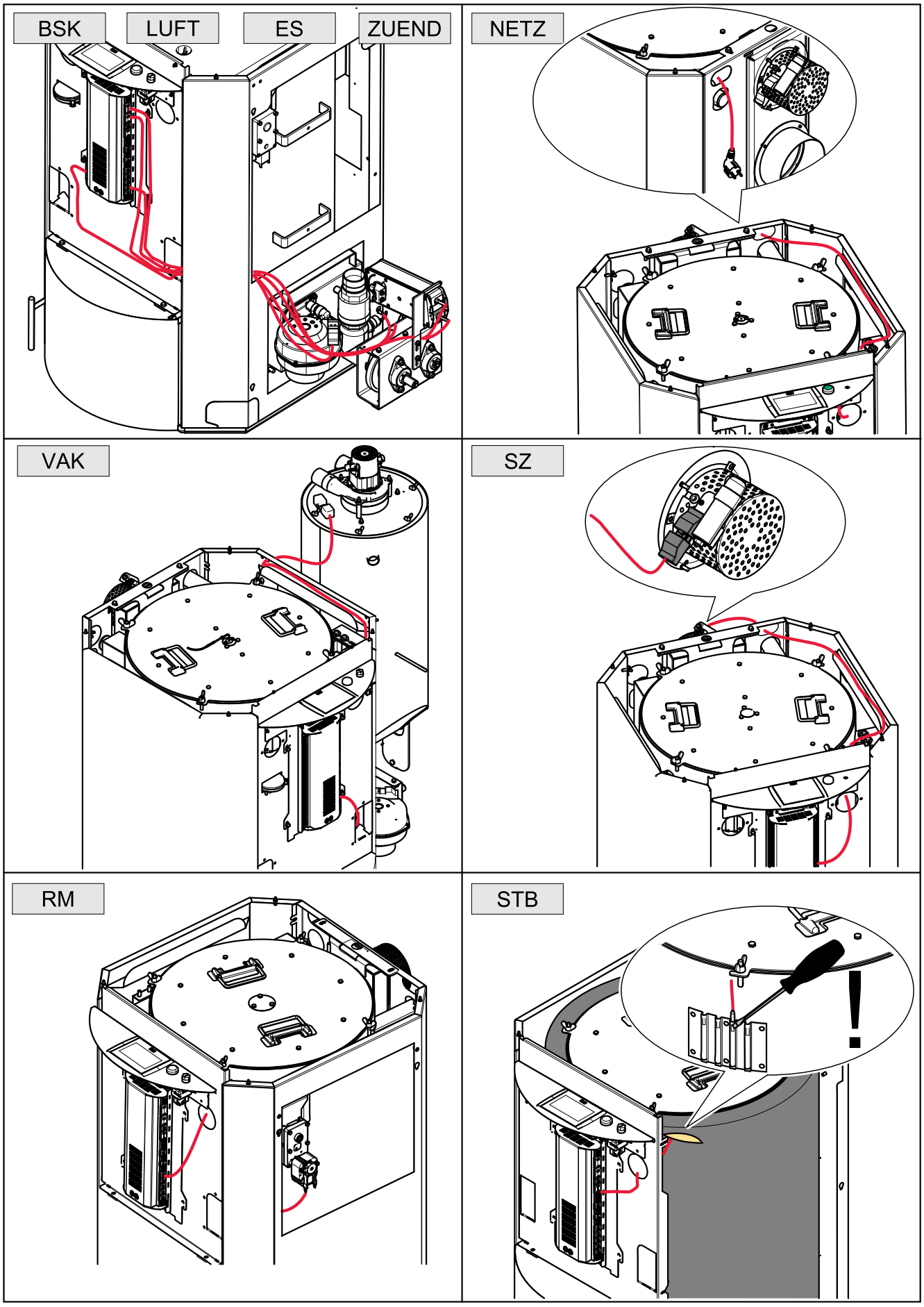


ESAV AV



KAPZW



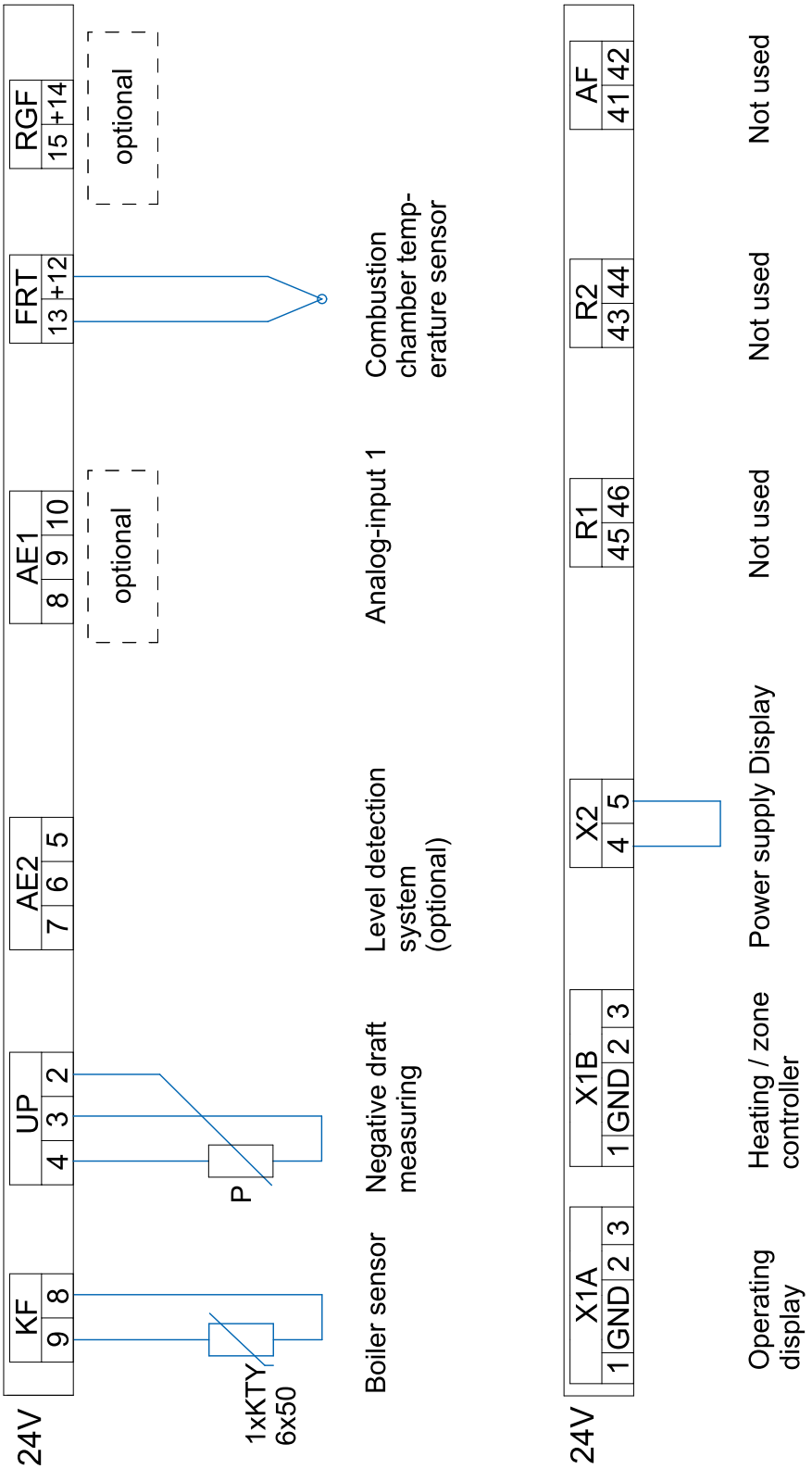

BSK
LUFT
ES
ZUEND
NETZ
VAK
SZ
RM
STB

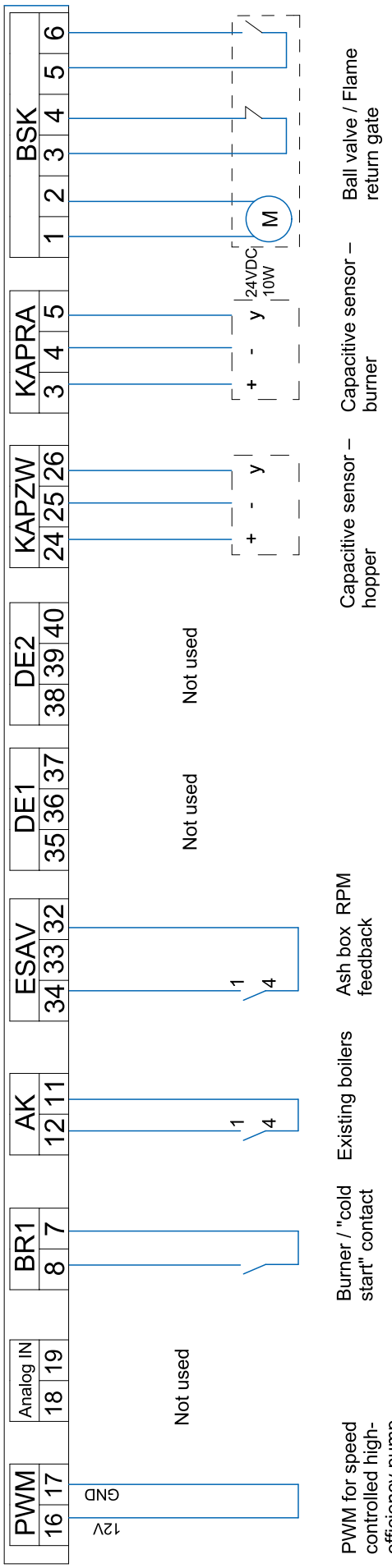
10.4 Wiring diagrams

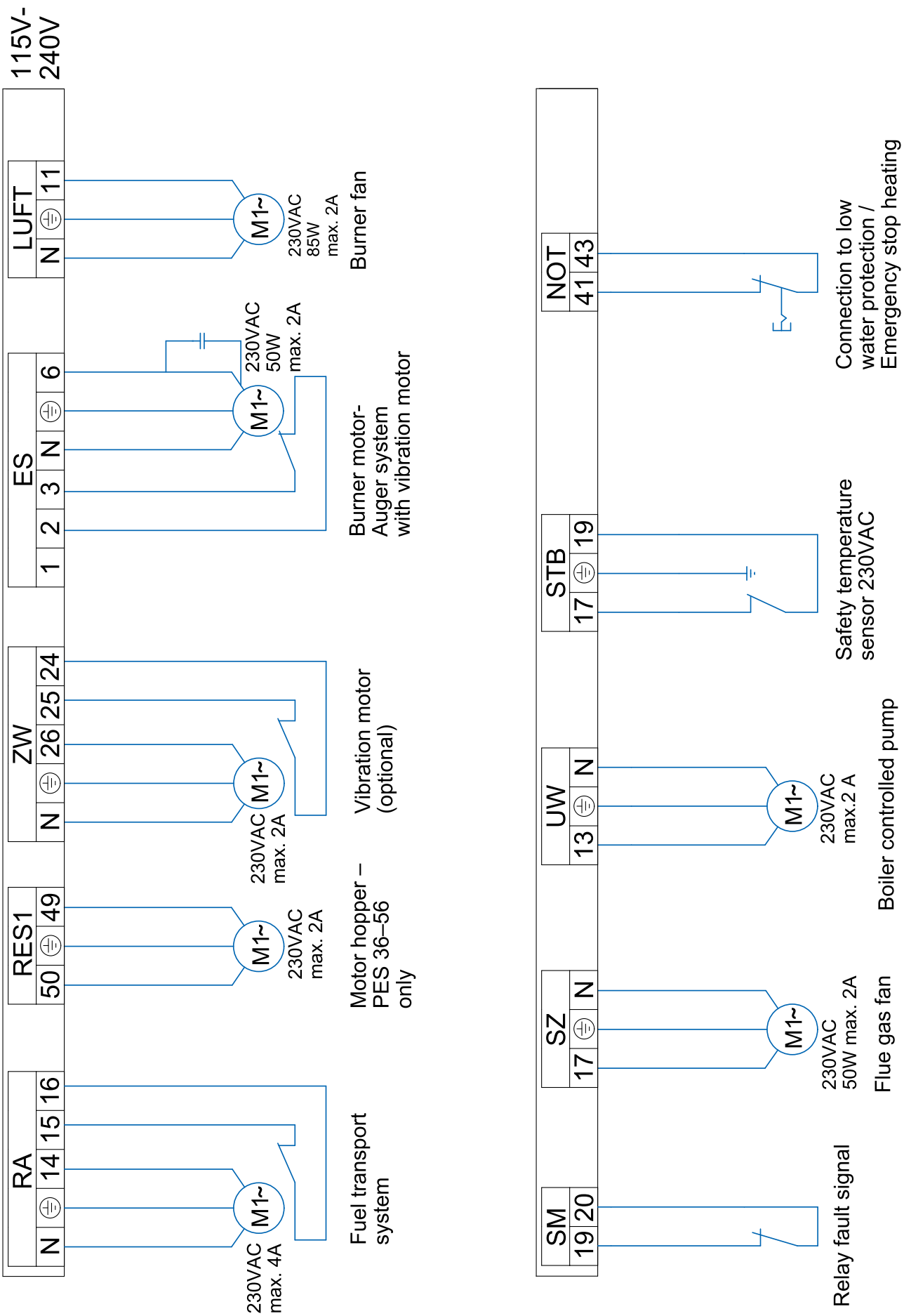
The wiring diagrams for the boiler control unit provide detailed technical information for electricians.

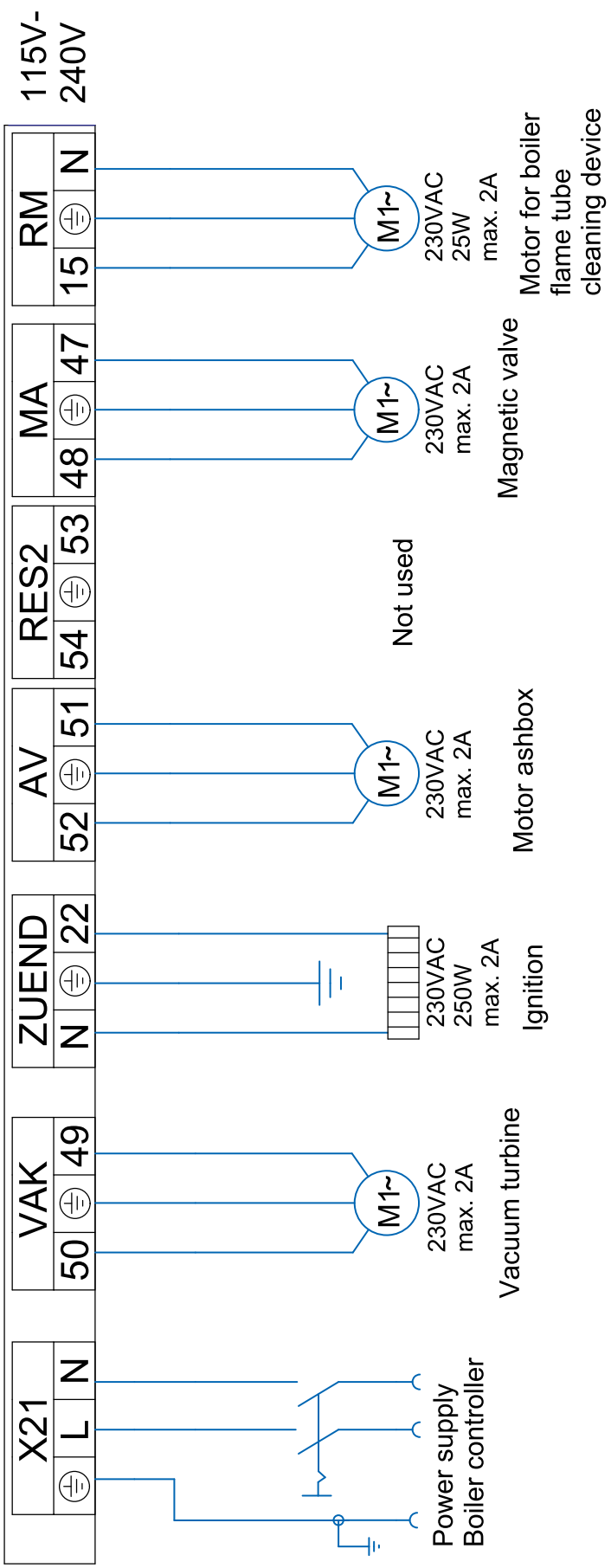
DANGER

Electric shock
Only an authorised installer may connect the pellet boiler to the power supply.
Isolate the entire heating system from the power supply before starting work on the pellet boiler.




24V
PWM
16 17
Analog IN
18 19
BR1
8 7
AK
12 11
ESAV
34 33 32
DE1
35 36 37
DE2
38 39 40
KAPZW
24 25 26
KAPRA
3 4 5
BSK
1 2 3 4 5 6
12V
GND
Not used
Not used
Not used
+ - y
+ - y
24VDC
10W
M
1
4
1
4
PWM for speed controlled high-efficiency pump
Burner / "cold start" contact
Existing boilers
Ash box RPM feedback
Capacitive sensor – hopper
Capacitive sensor – burner
Ball valve / Flame return gate


115V-
240V
LUFT
N ⏚ 11
ES
1 2 3 N ⏚ 6
ZW
N ⏚ 26 25 24
RES1
50 ⏚ 49
RA
N ⏚ 14 15 16
SM
19 20
SZ
17 ⏚ N
UW
13 ⏚ N
STB
17 ⏚ 19
NOT
41 43
M1~
230VAC
85W
max. 2A
Burner fan
230VAC
50W
max. 2A
Burner motor-
Auger system
with vibration motor
230VAC
max. 2A
Vibration motor
(optional)
230VAC
max. 2A
Motor hopper –
PES 36–56
only
230VAC
max. 4A
Fuel transport
system
Connection to low
water protection /
Emergency stop heating
Safety temperature
sensor 230VAC
230VAC
max.2 A
Boiler controlled pump
230VAC
50W max. 2A
Flue gas fan
Relay fault signal

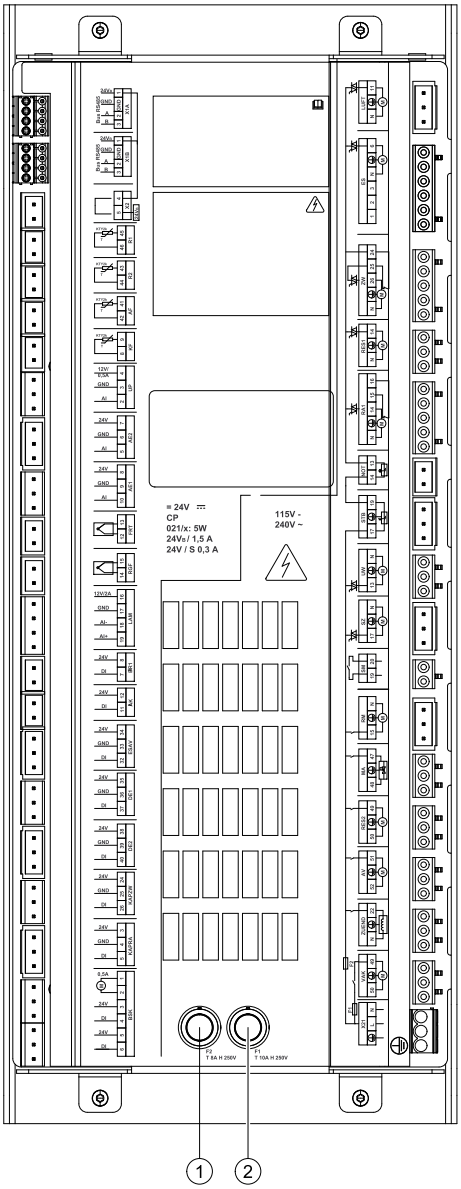

115V-
240V
X21
L
N
VAK
50
49
ZUEND
N
22
AV
52
51
RES2
54
53
MA
48
47
RM
15
N
Power supply
Boiler controller
M1~
230VAC
max. 2A
Vacuum turbine
230VAC
250W
max. 2A
Ignition
M1~
230VAC
max. 2A
Motor ashbox
Not used
M1~
230VAC
max. 2A
Magnetic valve
M1~
230VAC
25W
max. 2A
Motor for boiler
flame tube
cleaning device

10.5 Fuses - boiler controller

The control unit is protected against short circuits by fuses which are in the control panel (under the front boiler panel). There are also fuses in the terminal box at the rear of the boiler. At the rear panel, there are 4 fuses. Two 6.3 amp for outputs there, and two 10 amp also for the main controller.

NOTICE

Damage of property
Should it become necessary to replace a fuse, it is critically important to replace the fuse only with a fuse having the same exact ratings.



1	F1: Fuse T8A
2	F2: Fuse T10A

10.6 Operating the AutoPellet

The operation of the system is described in the **manual for the End User**.

11 Starting up for the first time

After bringing in the boiler, connecting up the hydronics and power supply, the unit can be started up for the first time.

NOTICE

Air tight property of combustion chamber
To ensure correct combustion and overall operation, all fittings to the combustion chamber must be correctly assembled to be completely air-tight.

Note:
The boiler may only be commissioned (first start-up) by an authorized installer.

Before starting up the pellet boiler, the following settings must be made in the sequence specified below:

1. Adjust power rating
2. Settings in the boiler control unit
3. Output test - test all motors
4. Settings in heating controller (if installed)
5. Start the pellet boiler

Use the checklist enclosed to document the start-up procedure.

NOTICE

Property damage
The allowed temperature of the boiler controller is 40 to 122°F.

11.1 Adjusting power rating

On Autopellet boilers the effective heat exchanger area can be changed within a finite range. This involves opening or closing the heat exchanger tubes. The output power of the boiler is adjusted with this change in conjunction with a parameter change within the controller. If the condition as shipped is different from the power rating required, then the service technician must adjust the power rating, including the correct setting of the heat exchanger area, before starting up for the first time.

11.1.1 Installing the turbulators and closure plugs

The heat exchanger in the pellet boiler has between 12 and 36 heat exchanger tubes, depending on the size of the boiler. Springs are installed inside the heat exchanger tubes to clean the tubes as well as act as turbulators.

Increasing the boiler power rating

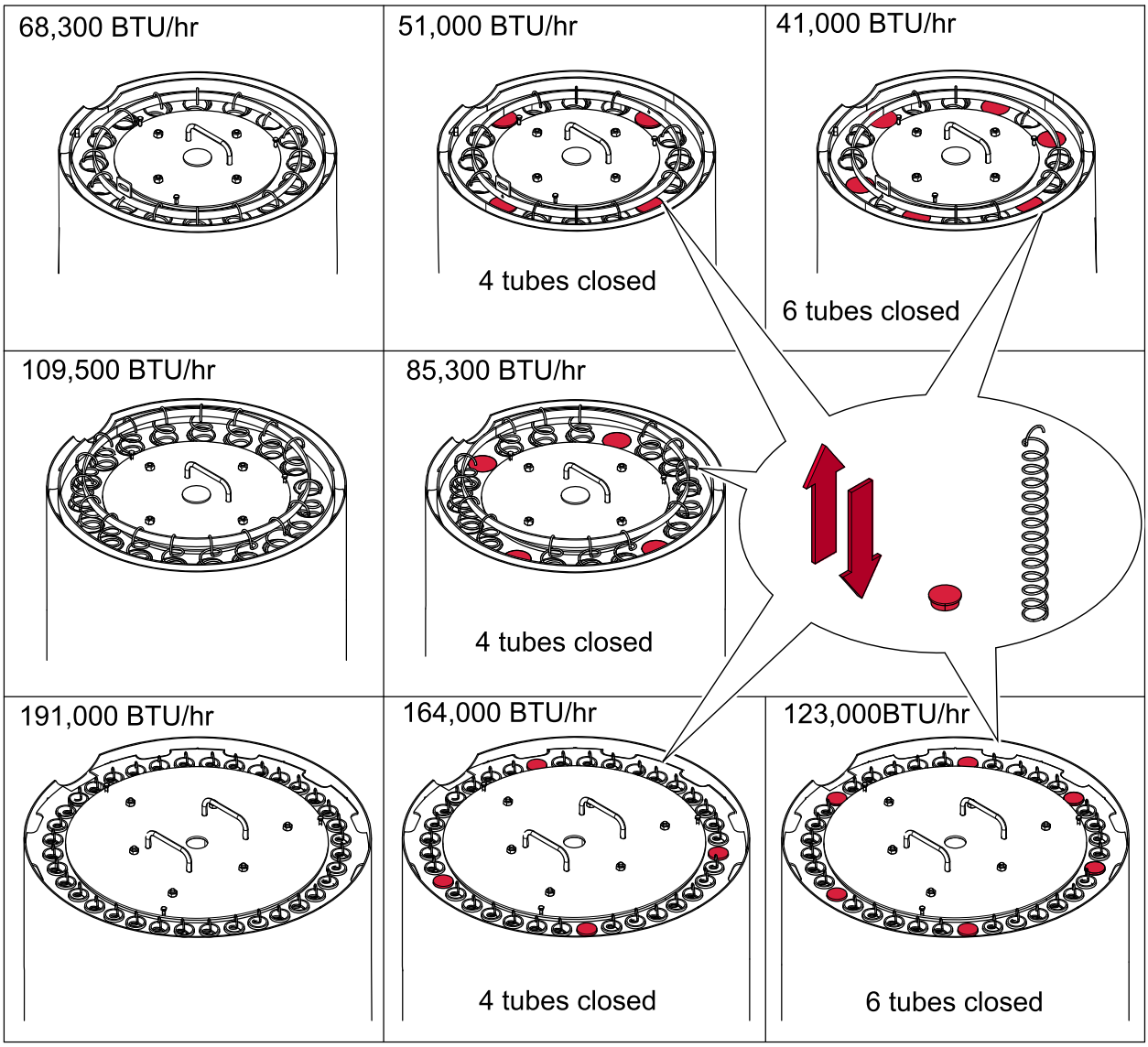
1. Remove the closure plugs from the ends of the heat exchanger tubes.
2. Insert the turbulators supplied into the heat exchanger tubes.
3. Hook the turbulators onto the ring of the cleaning system.

Reducing the boiler power rating

1. Unhook the turbulators from the ring of the cleaning system.
2. Remove the cleaning springs/turbulators from the heat exchanger tubes.
3. Close off the heat exchanger tubes using the closure plugs supplied.

Number of cleaning springs (tubulators) to be removed/installed:

Final boiler power setting	No. of springs	**Full power setting of boiler**	No. of springs	
41,000 BTU/h	10	68,300 BTU/h	16	Remove 6 turbulators
51,000 BTU/h	12	68,300 BTU/h	16	Remove 4 turbulators
68,300 BTU/h	16	68,300 BTU/h	16	No adjustment required
85,300 BTU/h	16	109,500 BTU/h	20	Remove 4 turbulators
109,500 BTU/h	20	109,500 BTU/h	20	No adjustment required
123,000 BTU/h	30	191,000 BTU/h	36	Remove 6 turbulators
164,000 BTU/h	32	191,000 BTU/h	36	Remove 2 turbulators
191,000 BTU/h	36	191,000 BTU/h	36	No adjustment required



12 Appendix

12.1 Checklist for checking the heating system

The checklist is intended to help authorised specialists perform and document a comprehensive check on the heating system.

Name and adress of the customer	**Heating device**
Name:	Type of boiler:
Street:	Rated power:
Place:	Year of build:
Name and adress of installer	Manufacturer`s serial number:
Name:	Type of heating controller:
Street:	Type of accumulator:
Place:	Solar device:

NOTICE

Damage to property
Use the checklist to check the heating system before starting up for the first time.

CHECKLIST		Yes	Comment
Textile tank			
Textile tank	Are the tie members installed?		
	Are all legs straightened vertical?		
Delivery unit	Is the slot for the emercency gate valve closed with an adhesive tape?		
Filling coupling	Are the filling couplings correctly installed?		
	Are the plugs at the filling couplings?		
	Are the safety labels placed? (Caution – Switch off the heating systembefore entering)		
	Are the couplings correctly grounded?		
Ventilation	Is the storage room / building properly ventilated with minimum 27 square inches to the outside?		
Caution label	Is the label "Wood pellets storage room" placed on the door to the storage room?		
Vibration plate	Check the electrical connection of the vibration motor and the capacitive sensor		
If auger delivery system is installed			
Drive unit	Is the direction of rotation correct?		
	Is a demounting possible?		
Spiral hose	Is the pitch to the burner > 45°?		
Sound insulation	Is the rock wool insulation fix at the wall pass through?		
Pellet boiler			

Adjusting power rating	Is the power rating corrrectly adjusted?		
Burner plate	Is the screw fixing the burner plate, tightened?		
Flame tube	Is the flame tube placed correctly?		
Combustion chamber cover	Are the adjusting screws for the increasing of the flue gas temperature adjusted correctly?		
Flue gas connection	Is a chimney draft regulator, barometric damper implemented?		
Make-up air / ventilation	Does the boiler room have required make-up air?		
Nameplate	Is the nameplate placed on the boiler?		
Electric installation and regulation			
Power supply	Check the electrical connection? (terminal box)		
	Check the ratings of the fuses.		
Settings-Boiler control unit	Are the settings of the boiler control unit according to the installation manual?		
Settings-Heating controller (if used)	Set the parameters, the heating circuit program and domestic hot water program.		
Boiler sensor	Securing location and connection		
Hydronic Connection			
Circuit pumps	Check the switch on temperature (min. 140°F) for boiler controlled pump (Parameter P 281).		
Low Water Cut Off	Is a low water cut off installed? (terminal box)		
	Test low water device		
Boiler connection	Is the pellet boiler correctly connected		
	Is the hydronic system free of air?		
	Is the system filled up with water? Check the pressure.		
Safety systems			
Fire protection - ball valve	Check the function?		
Safety temp. sensor	Check the installation and explain the function. Securing location and connection		
Negativ draft control	Check the function.		
Safety valve	Is a safety valve installed?		
Emergency stop switch	Is there an emergency stop switch?		
Fire extinguisher	Is there a fire extinguisher?		
Instruction			
Heating-up	Explanation of functions, malfunctions and maintenance to the customer.		
Heating controller	Explanation of the heating controller.		

Operating manual	Explanation of the operating and maintenance regulations to the customer.		
Maintenance contract	Notice to the legal regulations;		

Date:_____

Signature authorizied installer: **Signature customer:**

_____ _____

The customer confirmes that the installer has shown how to operate the boiler, empty the ash box and how to tell if the storage room or FleXILO is requiring more pellets as well as the need to empty the storage unit yearly.

12.2 Appendix G of CAN/CSA-B365–M91

Functioning of safety and operating controls
This Annex is not a mandatory part of this Standard, but is written in mandatory language to accommodate its adaption by anyone wishing to do so.

The safety and operating controls shall function within the limits specified by the manufacturer for the type of equipment. The following test shall be performed:

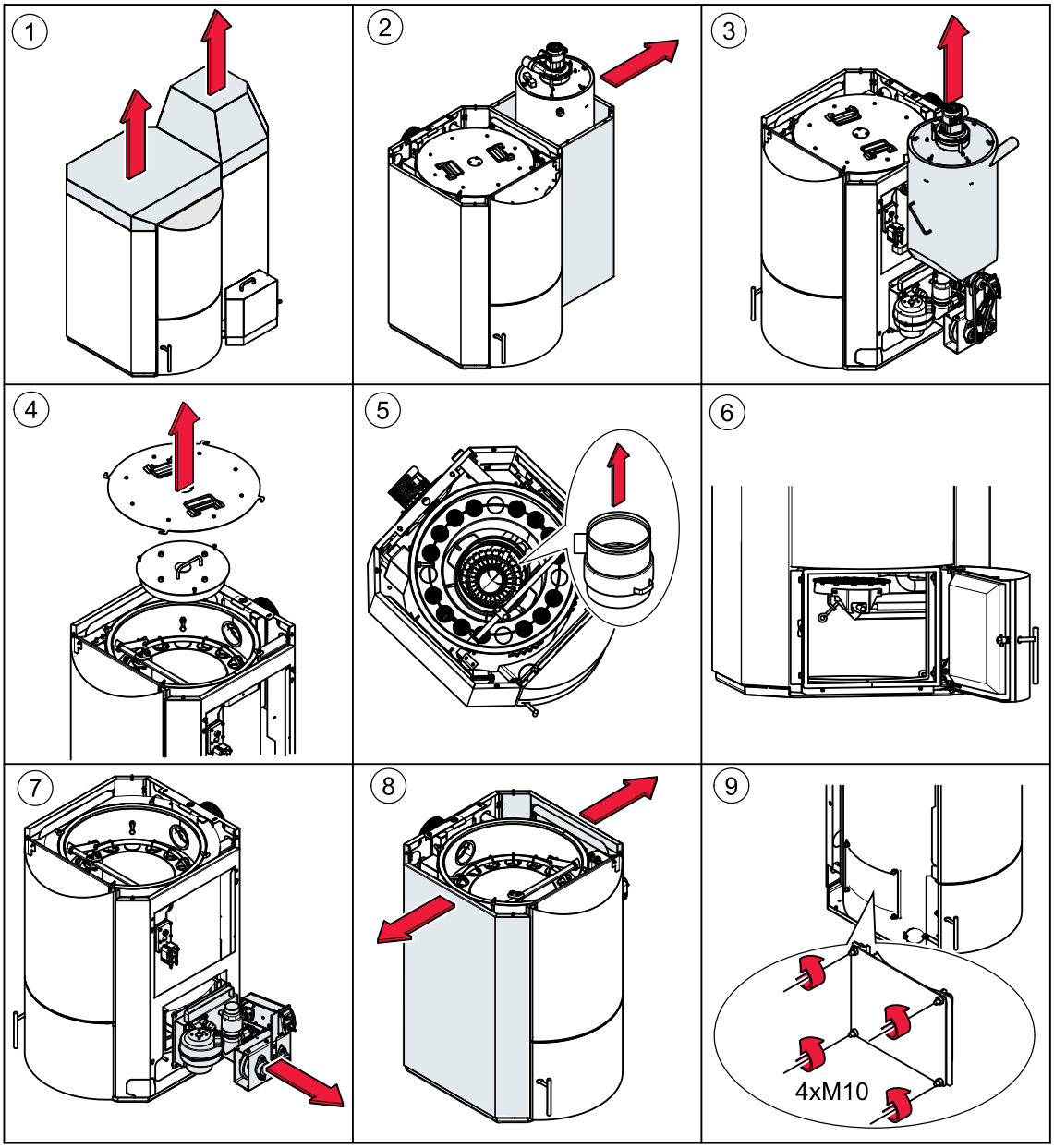
1. Check the operation of the automatic fuel_feeding interrupt device at each entrance to the floor space within which the fuel-feeding device is installed.
2. Check that when the low water level control on steam and hot water boilers is operated to indicate a low water level, the automatic fuel-feed is interrupted.
3. Check that when the excessive pressure control on steam and hot water boilers is operated as in an excessive pressure situation, the automatic fuel-feed is interrupted.
4. Check that when the excessive water temperature control on steam and hot water boilers is operated to indicate excessive water temperature, the automatic fuel-feed is interrupted and, if appropiate, that one or more zone control valves open.
5. Check that if the temperature exceeds 200°F in a furnace supply plenum on hot air furnaces, the automatic fuel-feed is interrupted.
6. Check that if there is a failure of the fan providing combustion air, the automatic fuel-feed is interrupted.
7. Check that if there is a failure of the combustion air supply control mechanism to remain fully open, the automatic fuel-feed is interrupted.
8. Check that when the hot water circulating pump manual disconnect switch is opened, the automatic fuel-feed is interrupted.
9. Check that if there is a shutdown or failure of the mechanical flue-gas exhauster, the automatic fuel-feed is interrupted.
10. Check that if there is a failure in the flue gas flow, the automatic fuel-feed is interrupted, or the combustion air supply is shut off in manually fuelled appliances.
11. Check for the proper operation of the minimum fire maintenance controls and system or, if applicable, of the automatic ignition system.
12. Check for the proper operation of the controls used for normal automatic fuel-feeding.
13. Check the operation of any other controls supplied on the appliance by the manufacturer, or required by the authority having jurisdiction.

12.3 Modifying the burner

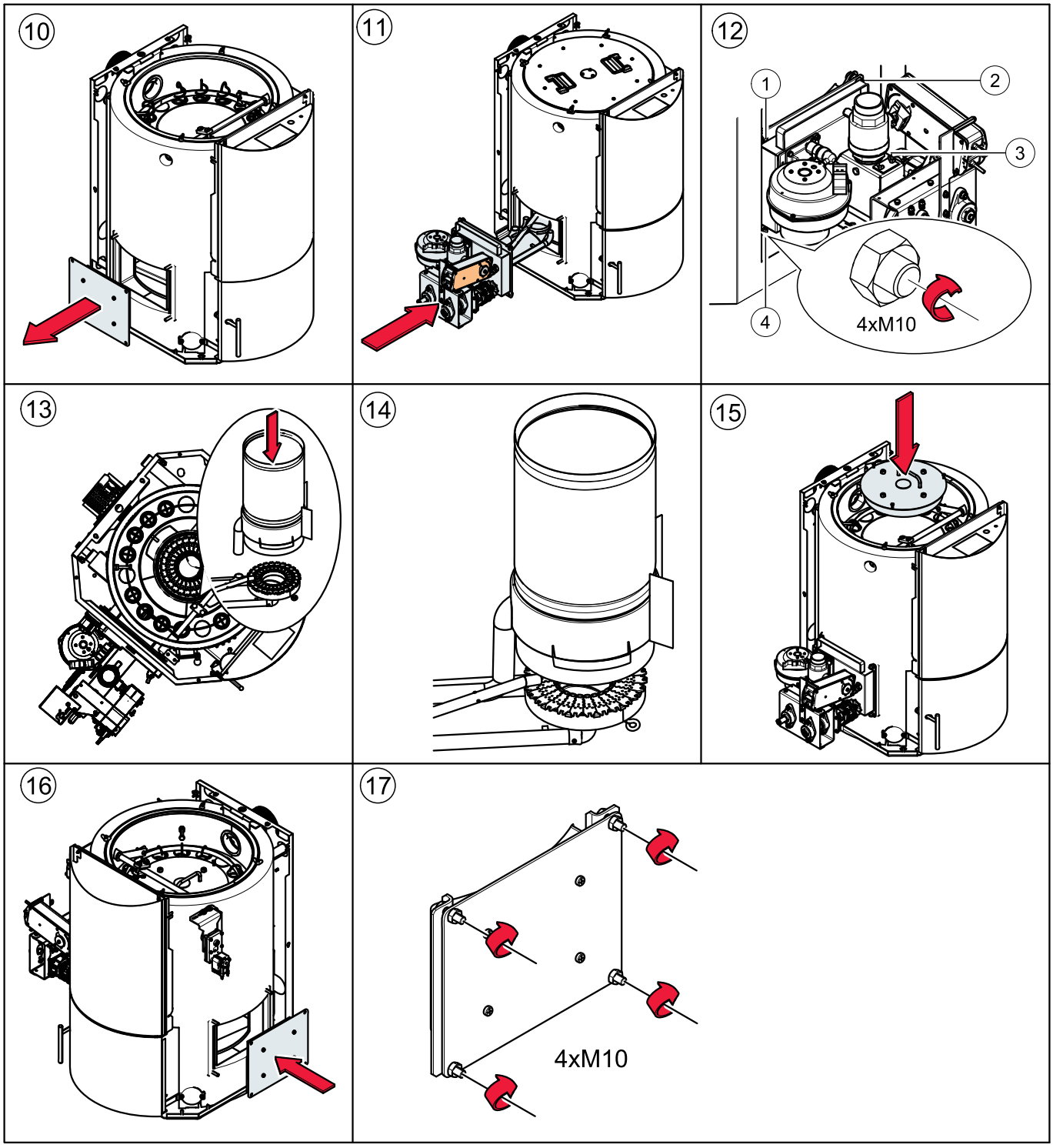
The pellet boiler is configured symmetrically. If required, you can remove the burner from the right-hand side (as shipped) and reinstall it on the left.

1. Dismantle the casing, hopper, combustion chamber lid, flame tube, burner and burner plug.
2. Modify the burner on the left.
3. Modify the cleaning system motor and off-set disc.
4. Change the direction of rotation of the cleaning motor.
5. Modify and re-assemble the cleaning system.
6. Route cables through cutouts to the boiler controller and connect up the plug.

12.3.1 Dismantling the casing, hopper, combustion chamber lid, flame tube, and burner

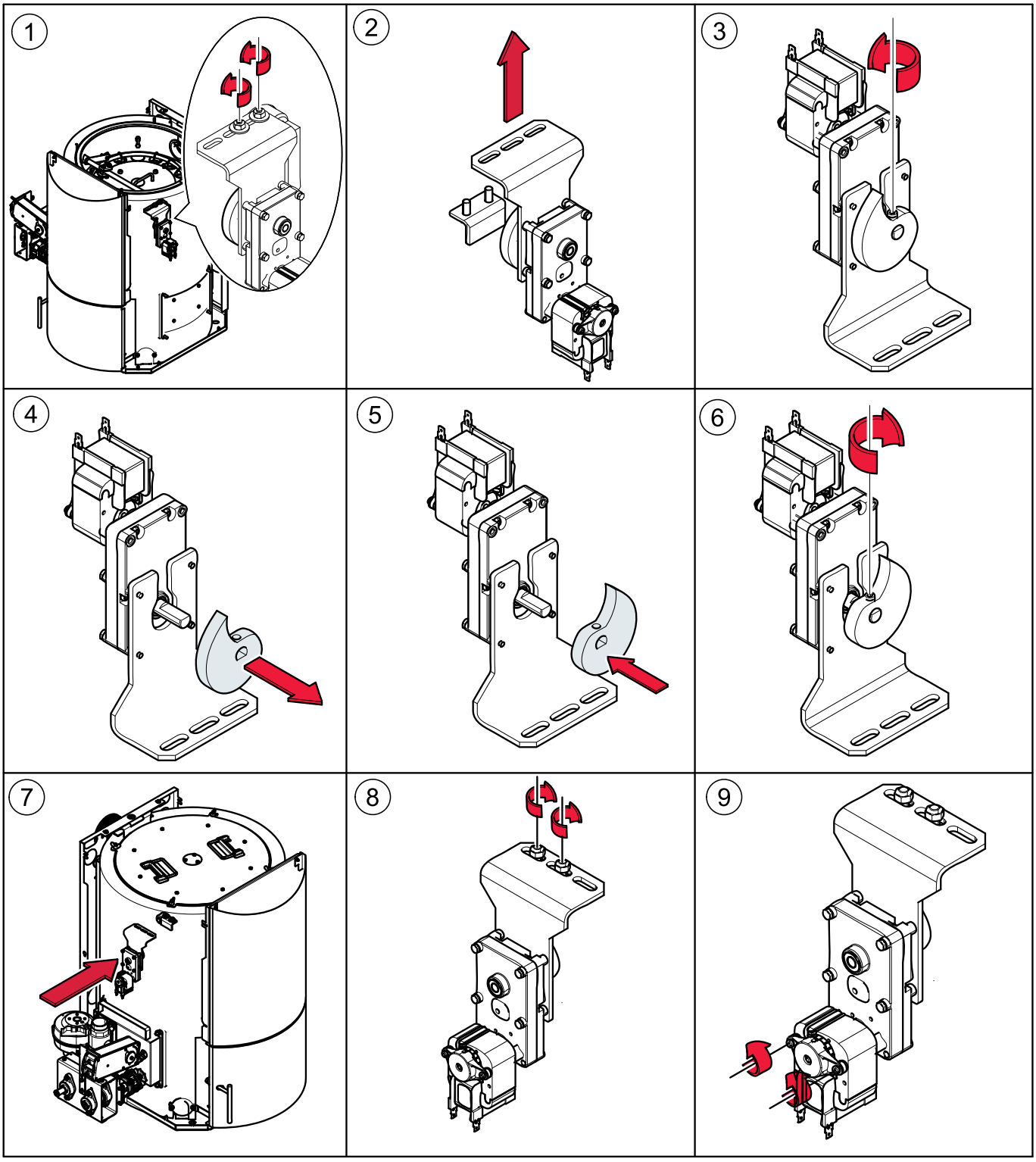


12.3.2 Modify the burner on the left



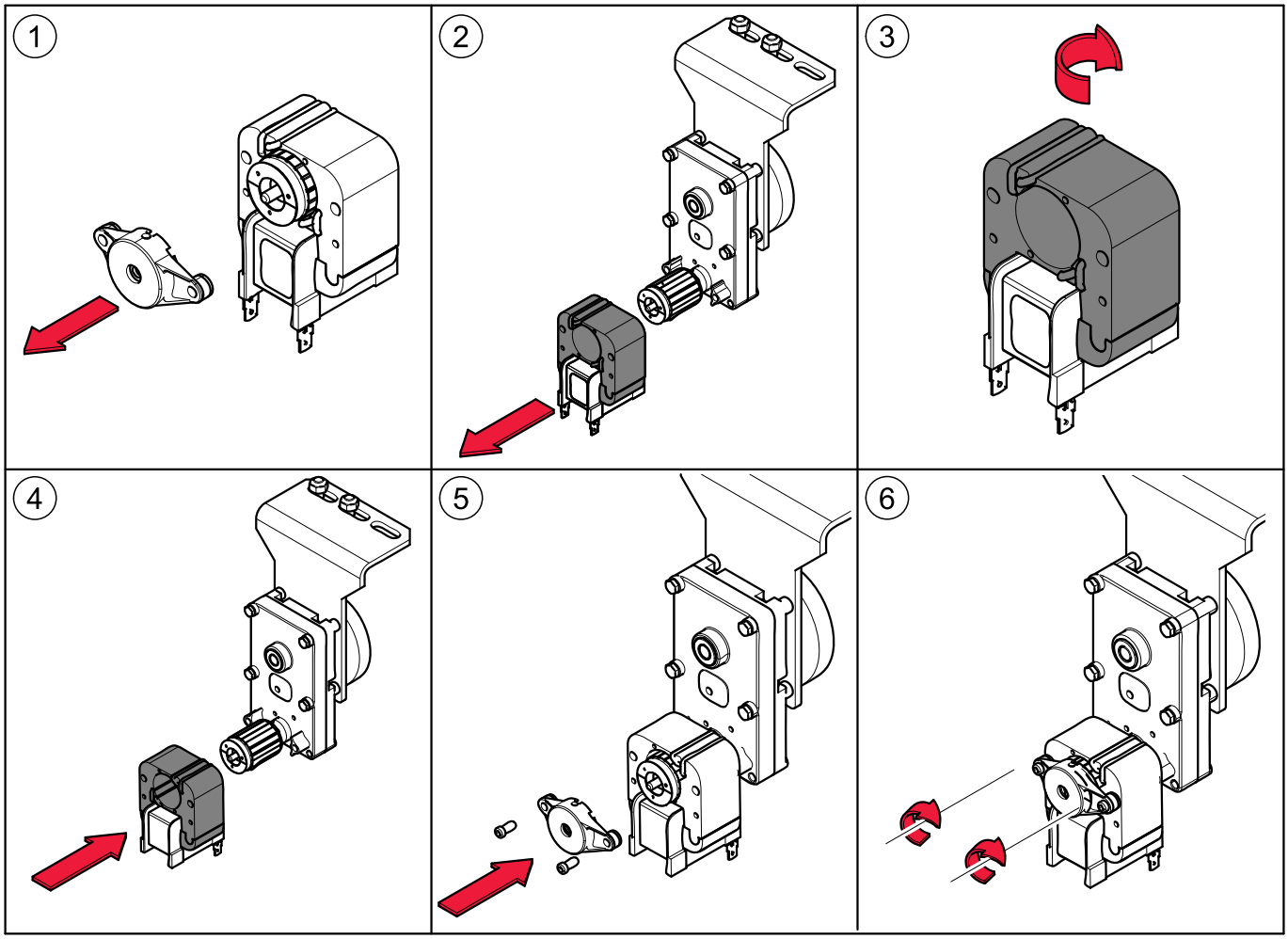
Note:
Do not tighten too firm, otherwise the dummy cover could become leakly.

12.3.3 Modifying the cleaning system motor and off-set disc



Note:
Figure 6: **Glue and tighten** the hex-socket nut to secure the off-set disc.

12.3.4 Changing the direction of rotation of the cleaning motor



12.3.5 Modifying and re-assembling the cleaning system

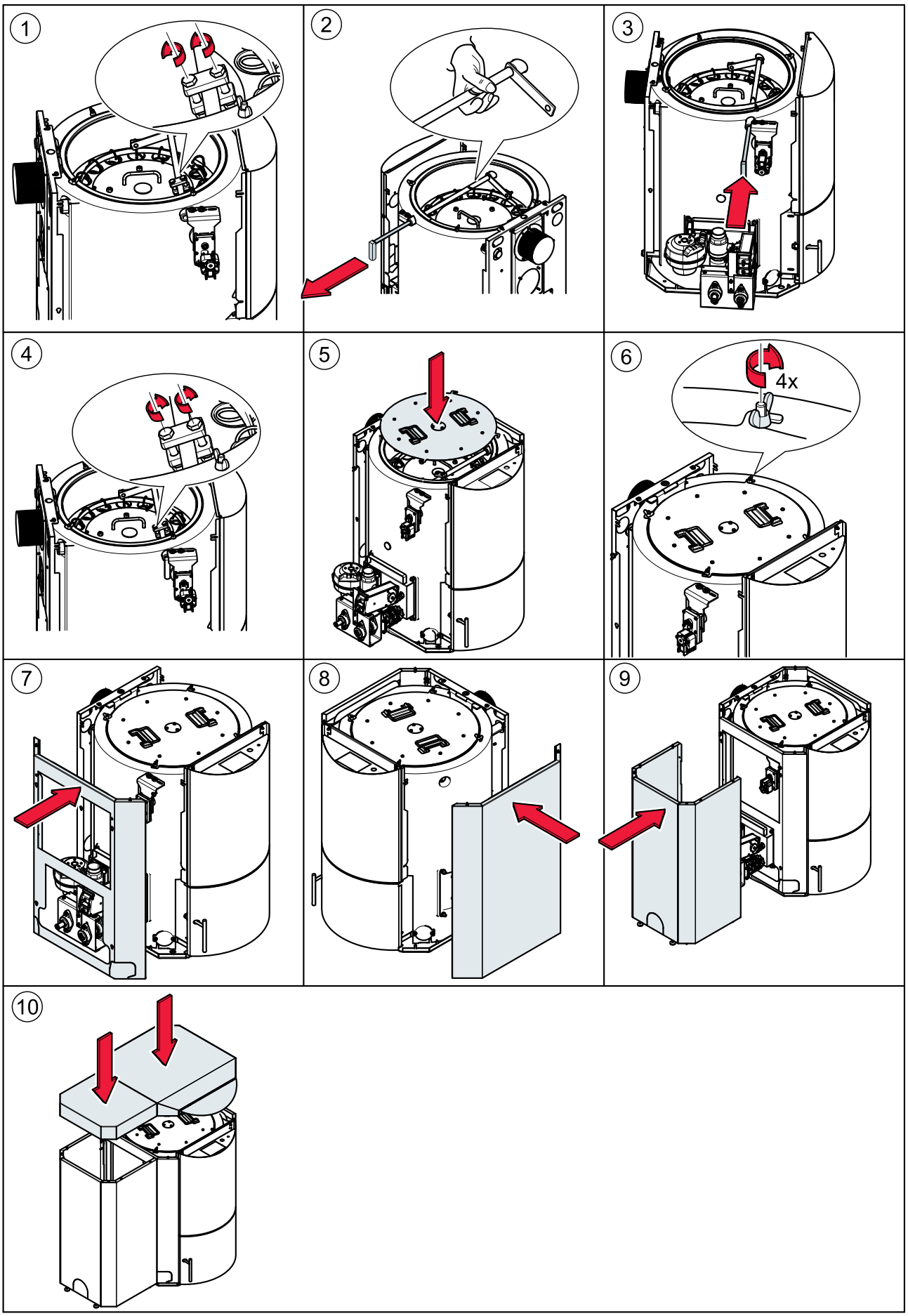
Setting up the cleaning system:

- Switch on the pellet boiler.
- Select "Output test" of the boiler controller for the **boiler cleaning motor**.
- Push the lever mechanism of the cleaning system against the cleaning shaft.
- Press the clip on the cleaning shaft against the off-set disc and switch on the cleaning motor.
- As soon as the off-set disc causes the clip to spring back, switch off the motor and tighten the shaft clamp as tight as possible.
- Use a lock nut to secure the shaft mounting.

Fine adjustment:

- If the cleaning system does not lift high enough: loosen the mounting angle, push forward in the slots and tighten again.
- If the cleaning system stops at the limit bolt: loosen the mounting angle, push back in the slots and tighten again.

Note:
The motor mounting must not be able to move and the motor must rotate easily.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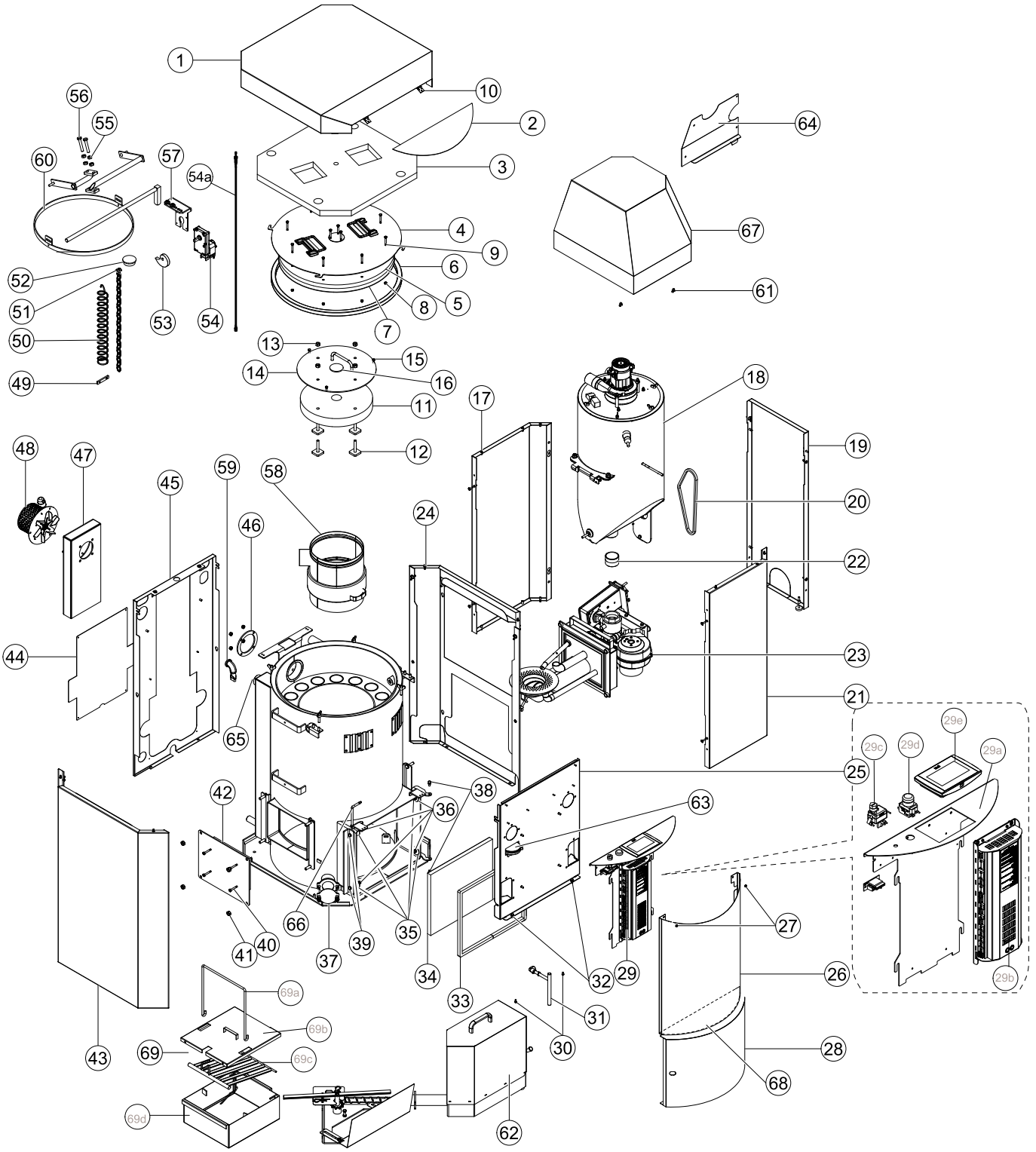
12.4 Parts list

12.4.1 Pellematic PES 10 - 20 34,000 - 68,300 BTU/hr

Pos.	Article number	Pos.	Article number	Pos.	Article number
1	PE114	26	PE120 (B, G, R)	49	PE143
2	PE119	27	121159	50	PE129
2	PE119B	28	PE121 (B, G, R)	51	121049 / 121126
2	PE119G	29	E1412	52	PE103
2	PE119R	29a	PE564	53	PE142
3	PE200	29b	E1411	54	E1054
4	PE156	29c	E1330	54a	E1186
5	PE289	29d	E1238	55	121169
6	PE215	29e	E1073	56	121168
7	121259	30	on request	57	PE281
8	PE429	31	PE191	58	B103
9	121347	32	on request	58a	PE277S
10	121082 / 121037	33	PE160	59	PE133
11	PE131	34	PE176	60	PE475
12	PE212	35	on request	61	121380
13	PE174	36	121039	62	PEASCH RE – LI
14	121373	37	PE416 / PE413	63	24155 / 24157 / 121198 / 24315
15	on request	38	121410	64	PE 467 / 121327
16	121034	39	121042	65	PE 192
17	121381	40	121379	66	24169
18	041876	41	121083 / 121029	67	PE260
19	PE185	42	PE188	68	PE419
20	121109 / 121255	43	PE115	69	PE330
21	PE123	44	PE117.1	69a	PE135
22	121123	45	PE117	69b	PE139
23	B0020 / B0020BR	46	PE209	69c	PE136
24	PE116	47	PE258	69d	PE134
25	PE118	48	E1001A		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69c
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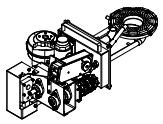
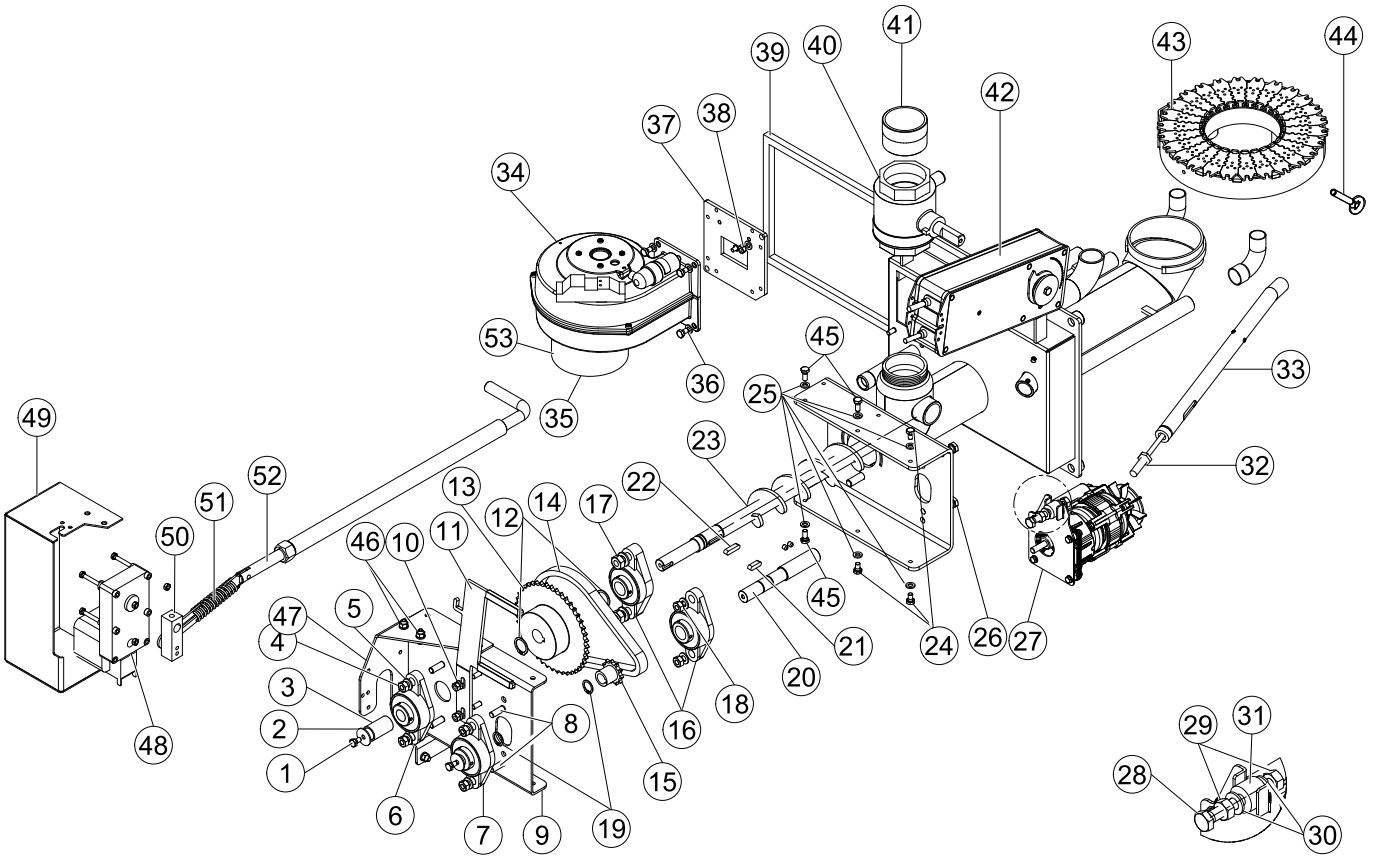
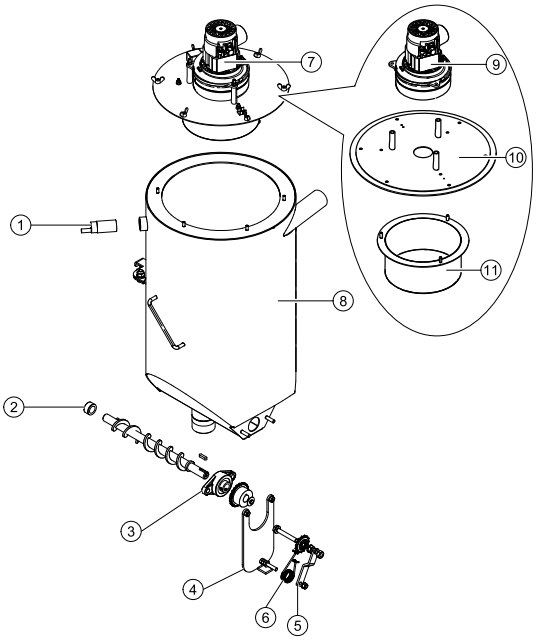
B0020 / B0020 BRE

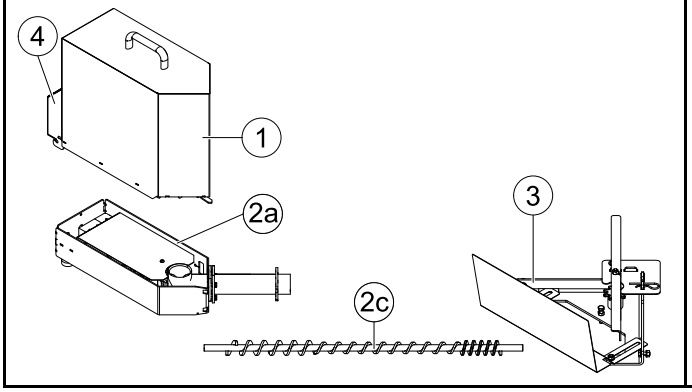
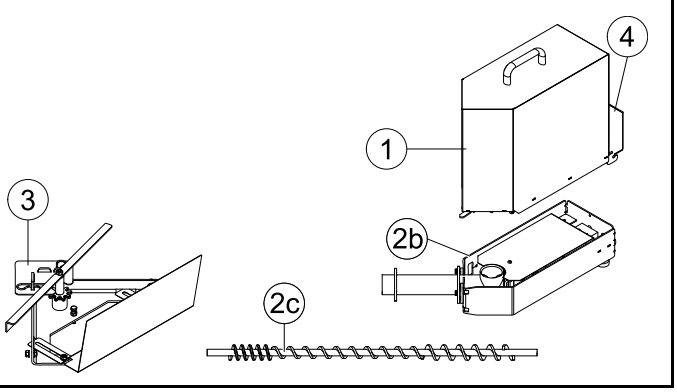
	B0020	Burner without capacitive sensor, WITHOUT Burner plate cleaning system
	B0020BR-E	Burner without capacitive sensor, WITH Burner plate cleaning system

1	121041	19	121196	37	121041
2	121058	20	B172	38	B147
3	B150	21	121197	39	121082
4	121039	22	121023	40	B152
5	121038	23	B130	41	B144
6	121011	24	121041	42	B136
7	121195	25	121037	43	E1413E
8	121051	26	121079	44	B225
9	B179	27	E1030 / E1002.1	44a	B101
10	121082 / 121037	28	121166	45	121034 / 121082
11	B129	29	121039	46	121034 /121037 / 121082
12	121075	30	121038	47	B181
13	121193	31	B113	48	E1204 / E1002.1
14	121194	32	E1059	49	B182
15	121192	33	E1004	50	B183
16	121010	34	B105	51	B184
17	121083 / 121029	35	E1005	52	B196
18	121039 / 121038	36	B202	53	121361



041876 – Hopper			
1	E1138	7	E1368
2	121114	8	041870
3	121010	9	E1205
4	041070	10	041869
5	041071	11	041868
6	121122		

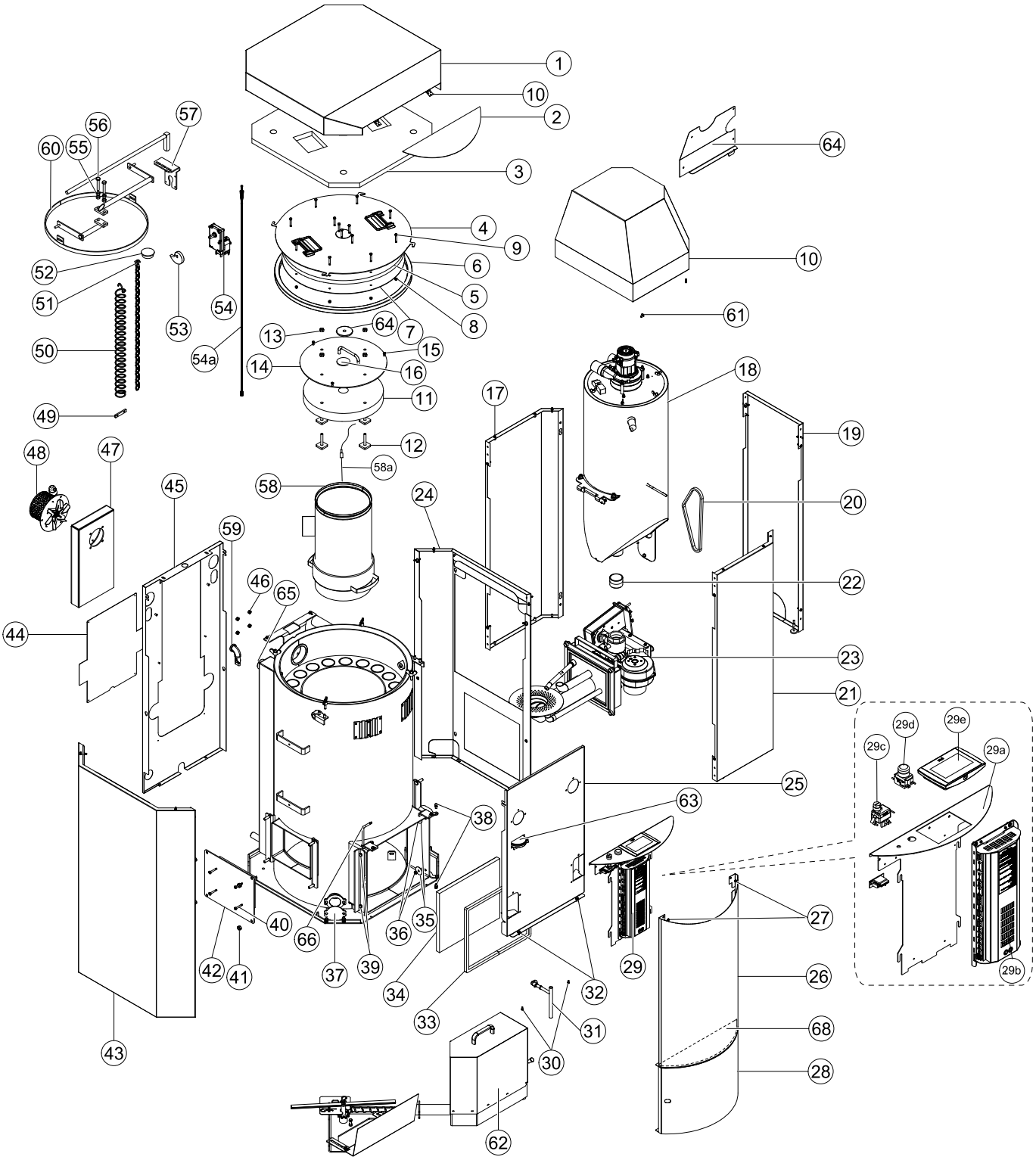


PEASCHLI – Ash box	PEASCHRE– Ash box
	

1	PE442	3	PE373		PE436
2a	PE440	4	PE453		121296
2b	PE439		PE347		PE292

12.4.2 Pellematic PES 25 - 32 / Boiler 85,300 – 109,500 BTU/hr

Pos.	Article number	Pos.	Article number	Pos.	Article number
1	PE166	26	PE173B	46	PE209
2	PE119	26	PE173G	47	PE406
2	PE119B	26	PE173R	48	E1001A
2	PE119G	27	121159	49	PE143
2	PE119R	28	PE121	50	PE130
3	PE205	28	PE121B	51	121050 / 121126
4	PE157	28	PE121G	52	PE103
5	PE290	28	PE121R	53	PE142
6	PE215	29	E1412	54	E1054
7	121259	29a	PE564	54a	E1186
8	PE430	29b	E1411	55	121169
9	121347	29c	E1330	56	121168
10	PE244	29d	E1238	57	PE281
11	PE131	29e	E1073	58	B104
12	PE213	30	on request	58a	PE277S
13	PE174	31	PE191	59	PE207
14	121373	32	121378	60	PE476
15	PE244.1	33	PE160	61	121380
16	121034	34	PE176	62	PEASCH RE – LI
17	121381	35	on request	63	24155 / 24157 / 121198 / 24315
18	041886	36	121039	64	PE 467 / 121327
19	PE186	37	PE416 / PE413	65	PE192
20	121109	38	121410	66	24169
20	121255	39	121042	67	PE260
21	PE183	40	121379	68	PE419
22	121123	41	121083 / 121029	69	PE331
23	B0030/B0030BR	42	PE188	69a	PE135
24	PE172	43	PE171	69b	PE140
25	PE181	44	PE117.1	69c	PE138
26	PE173	45	PE182	69d	PE137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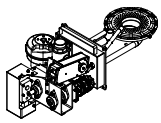
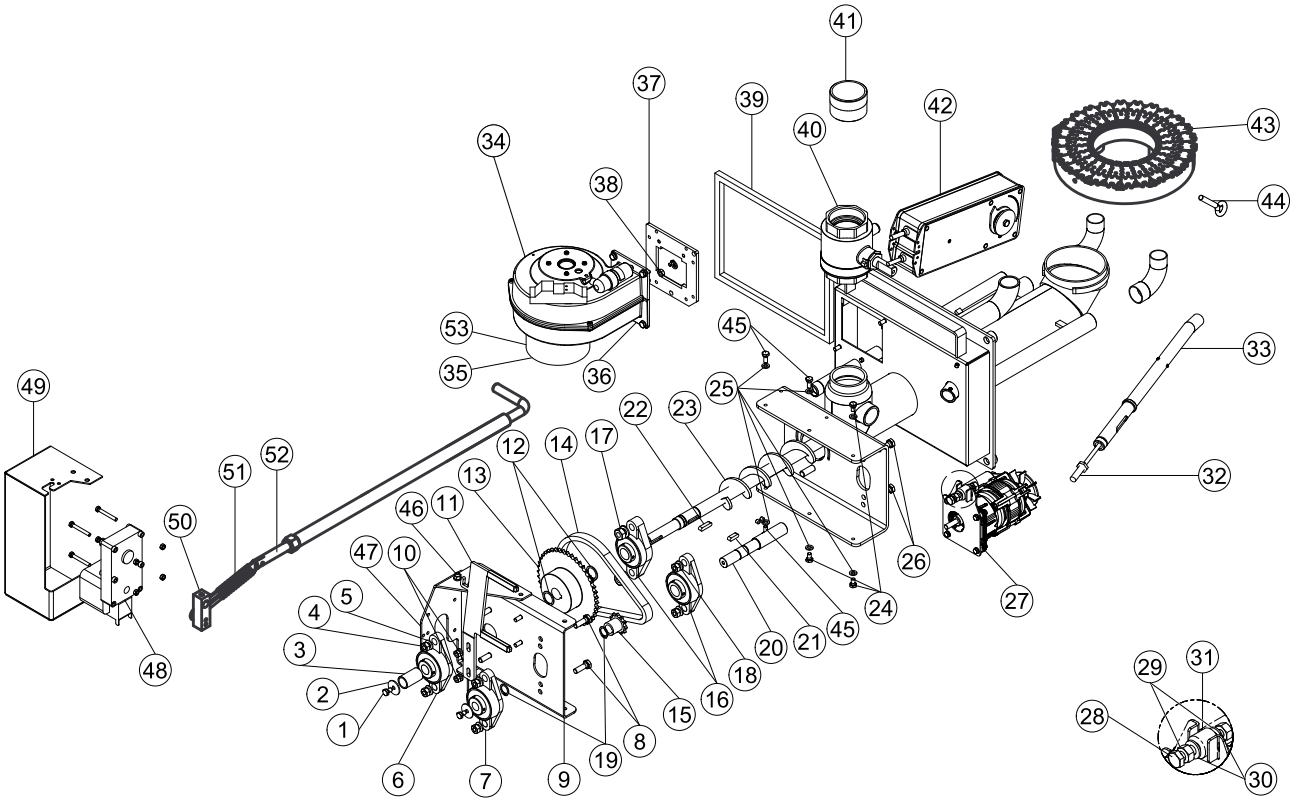
54
54a
57
56
60
55
29c
29d
29e
29a
29b

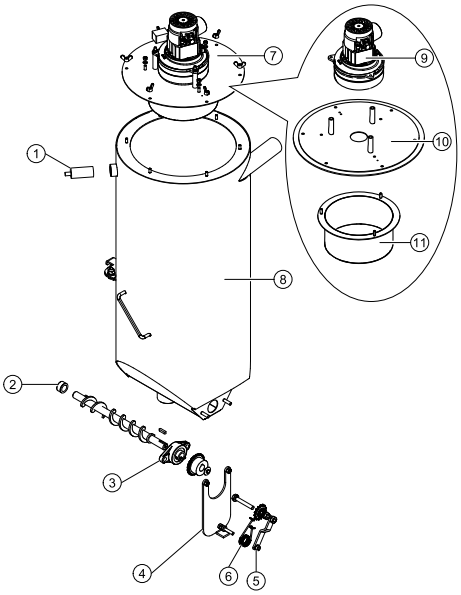
B0030 / B0030 BRE

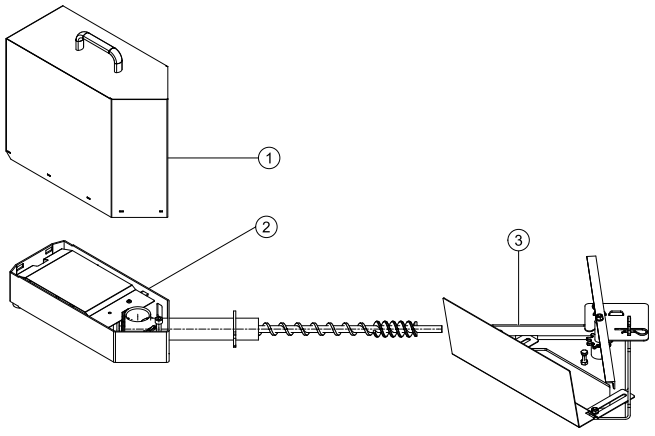
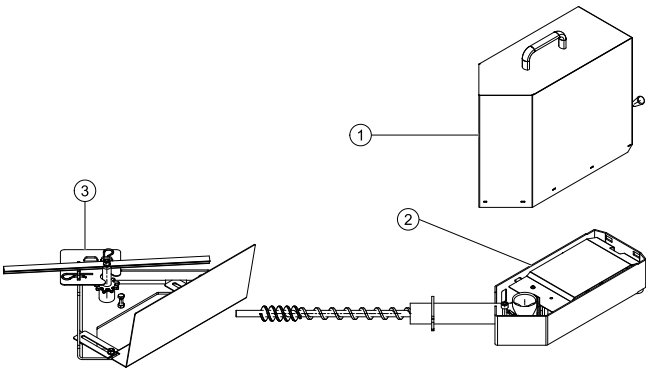
	B0030	Burner without capacitive sensor, WITHOUT burner plate cleaning system
	B0030BRE	Burner without capacitive sensor, WITH burner plate cleaning system

1	121041	19	121196	37	B148
2	121058	20	B172	38	121082
3	B150	21	121197	39	B152
4	121039	22	121023	40	B144
5	121038	23	B131	41	B132
6	121011	24	121041	42	E1413E
7	121195	25	121037	43	B226E
8	121051	26	121079	44	121284
9	B179	27	E1030 / E1002.1	45	121034 / 121082
10	121082 / 121037	28	121166	46	121034 /121037 / 121082
11	B129	29	121039	47	B181
12	121075	30	121038	48	E1204 / E 1304
13	121193	31	B113	49	B182
14	121194	32	E1004	50	B183
15	121192	33	B105	51	B184
16	121010	34	E1005	52	B197
17	121083 / 121029	35	B202	53	121361
18	121039 / 121038	36	121041		



041886 – Hopper			
1	E1138	7	E1368
2	121114	8	041600
3	121010	9	E1205
4	041070	10	041869
5	041071	11	041868
6	121122		



PEASCHLI	PEASCHRE
	

1	PE442	3	PE373		PE436
2a	PE440	4	PE453		121296
2b	PE439		PE347		PE292

12.5 Technical data

Boiler – Type		PE(S) 12	PE(S) 15	PE(S) 20	PE(S) 25	PE(S) 32	PES 36	PES 48	PES 56
Boiler-rated power	BTU/hr	41,000	51,000	68,300	85,300	109,500	123,000	164,000	191,000
	kW	12	15	20	25	32	36	48	56
Boiler-partial load	BTU/hr	11.601	17.061	20.473	27.297	34.121	37.534	51.182	58.006
	kW	3,4	5	6	8	10	11	15	17
Measurements									
Width - total (B)	**Inch**	44 1/2	44 1/2	44 1/2	46 3/4	46 3/4	51	51	51
	mm	1.130	1.130	1.130	1.186	1.186	1.297	1.297	1.297
Width - boiler (C)	**Inch**	27 1/2	27 1/2	27 1/2	29 3/4	29 3/4	34	34	34
	mm	700	700	700	756	756	862	862	862
Height - boiler (H)	**Inch**	43	43	43	51	51	61	61	61
	mm	1.100	1.100	1.100	1.300	1.300	1.555	1.555	1.555
Height - vacuum system execu-tion (D)	**Inch**	55	55	55	63	63	73	73	73
	mm	1.400	1.400	1.400	1.600	1.600	1.855	1.855	1.855
Height - filling unit (F)	**Inch**	12	12	12	12	12	12	12	12
	mm	300	300	300	300	300	300	300	300
Depth - boiler (T)	**Inch**	32	32	32	34 1/4	34 1/4	39	39	39
	mm	814	814	814	870	870	990	990	990
Depth - burner casing (V)	**Inch**	20	20	20	20	20	20	20	20
	mm	508	508	508	508	508	508	508	508
Flow/return - dimensions	**Inch**	1	1	1	5/4	5/4	2	2	2
Flow/return - height of con-nection (A)	**Inch**	35 3/4	35 3/4	35 3/4	43 3/4	43 3/4	52	52	52
	mm	905	905	905	1.110	1.110	1.320	1.320	1.320
Flue size - diameter	**Inch**	5	5	5	6	6	7	7	7
	mm	130	130	130	150	150	180	180	180
Flue - height of connection (E)	**Inch**	25 1/2	25 1/2	25 1/2	33 1/4	33 1/4	41	41	41
	mm	645	645	645	844	844	1.040	1.040	1.040
Overall Weight	**Lb**	631	631	631	756	756	1.120	1.120	1.120
	kg	286	286	286	343	343	508	508	508
Boiler Body Weight	**Lb**	529	529	529	664	664	930	930	930
	kg	240	240	240	301	301	422	422	422
Efficiency rated power	**%**	85,4	85,6	85,5	84,9	84,5	85,3	85,4	85,9
Efficiency partial power	**%**	85,1	84,3	84,2	84,2	84,3	84,1	84,1	84,1
Water capacity	**Gal**	15,0	15,0	15,0	23,6	23,6	30,6	30,6	30,6
	l	66,0	66,0	66,0	104,0	104,0	135,0	135,0	135,0
Flue gas area									

Boiler – Type		PE(S) 12	PE(S) 15	PE(S) 20	PE(S) 25	PE(S) 32	PES 36	PES 48	PES 56
Fire vault temperature	°F	1652 - 2012							
	°C	900 - 1100							
Fire vault pressure	Inch WC	-0.14							
	mbar	-.35							
Flue gas temperature rated power (Flue gas temperature can be adjusted)	°F	320							
	°C	160							
Flue gas temperature partial load (Flue gas temperature can be adjusted)	°F	212							
	°C	100							
Flue gas inertia current rated power	Lb/hr	49,60	62,17	82,89	99,43	115,96	149,25	198,85	231,92
	kg/h	22,50	28,20	37,60	45,10	52,60	67,70	90,20	105,20
Flue gas inertia current partial load	Lb/hr	14,11	20,72	24,91	29,76	35,71	45,64	62,17	70,33
	kg/h	6,40	9,40	11,30	13,50	16,20	20,70	28,20	31,90
Flue gas volume rated power	Cft/hr	918	1.232	1.642	1.971	2.627	2.956	3.941	4.598
	m^3/h	26	35	47	56	74	84	112	130
Flue gas volume partial load at flue gas temperature	Cft/hr	240	353	424	509	607	777	1.059	1.204
	m^3/h	7	10	12	14	17	22	30	34
Chimney diameter	according to chimney calculation								
Chimney construction	steel or ceramic lined, withstand humidity								
Electrical connection	USA and Canada	208 to 240 VAC, single phase, 60 Hz, 15 amp dedicated circuit.							
Water area									
Water resistance at 10K	In WC	38,22	60,22	88,32	114,02	150,95	15,62	20,84	24,29
	mbar	95,20	150,00	220,00	284,00	376,00	38,90	51,90	60,50
Water resistance at 20K	In WC	9,72	15,26	22,08	28,91	38,14	4,18	5,58	6,50
	mbar	24,20	38,00	55,00	72,00	95,00	10,40	13,90	16,20
Boiler temperature	°F	149 - 194							
	°C	65 - 90							
Boiler input temperature minimum	°F	131							
	°C	55							
Operating pressure maximum	psi	50							
	bar	3							
Test pressure	psi	67							
	bar	4,60							

Boiler – Type		**PE(S) 12**	**PE(S) 15**	**PE(S) 20**	**PE(S) 25**	**PE(S) 32**	**PES 36**	**PES 48**	**PES 56**
Flue gas volume rated power at flue gas temperature	**Cft/hr**	1.010,0	1.327,8	1.772,8	2.231,9	2.874,6	3.217,2	4.262,5	4.944,1
	m^3/h	28,6	37,6	50,2	63,2	81,4	91,1	120,7	140,0
Flue gas volume partial load at flue gas temperature	**Cft/hr**	243,7	384,9	459,1	614,5	769,9	847,6	1.165,4	1.313,7
	m^3/h	6,9	10,9	13,0	17,4	21,8	24,0	33,0	37,2
Fuel	**USA**	According to PFI Premium Standards or EnPlus -A1 pellets							
	Europe	According to EN14961–2 Standards (A1 Class)							
Colorific value	**BTU/lbs**	> 7.200							
	MJ/kg	>16,5							
Bulk density	**Lb/cft**	> 40,00							
	kg/m^3	>600							
Water content	**Mass%**	<10							
Ash content	**Mass%**	<1							
Lenght	**Inch**	1 1/4 – 1 1/2							
	mm	3,15 – 40							
Diameter	**Inch**	1/4 – 5/16							
	mm	6,00 – 8,00							
Fine material	**Mass%**	<0.5							
	Mass%	<1%							
Ash melting point	**°F**	> 2.200							
	°C	> 1.200							
Contents	**USA**	untreated wood							
	Europe	stemwood or chemically untreated wood							
Components									
Internal ash pan volume	**Gal**	5,68			6,81		-		
	lb	25			30		-		
External ash box volume	**Gal**	4,54					5,675		
	lb	20					25		
Main Drive	**W**	40							
Drive Motor	**W**	250/370							
Suction Turbine	**W**	1200							
Combustion Air Blower	**W**	83							
Suction Fan Blower	**W**	32							
Electrical Ignition	**W**	250							
Cleaning Motor	**W**	40							

Boiler – Type		PE(S) 12	PE(S) 15	PE(S) 20	PE(S) 25	PE(S) 32	PES 36	PES 48	PES 56
Motor External Ash Box	**W**	40							
Fire protection motor	**W**	5							

The data are values of the test measurement and can vary from locally measured values

WB Federal Institute of Agricultural Engineering Wieselburg
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Note:
Test reports are available

12.6 Pellet boiler cautionary markings

Labeling 60x30

 BEFORE OPENING TURN OFF THE MAIN SWITCH	TO START THE SYSTEM PRESS THE GREEN ON/OFF BUTTON	THE CONTAINER CAN BE TAKEN DOWN ONLY BY LOOSENING **THE YELLOW LOCKING SCREW**
CAUTION DO NOT ALTER THIS EQUIPMENT IN ANY WAY LOSS OF WARRANTY	**CAUTION** POWER SOURCE NOT CONTROLLED BY SUCTION TURBINES MAIN DISCONNECT	**CAUTION** POWER ORGINATED FROM A SOURCE OF POWER OTHER THAN THIS MOTOR
CAUTION DO NOT REMOVE THE SNAP RING! LOSS OF WARRANTY	**CAUTION** FOR USE WITH WOOD PELLET FUEL ONLY LOSS OF WARRANTY	**CAUTION** VACUUM SUCTION SYSTEMS: REMOVE THE PROTECTIVE CAP FROM THE BALL VALVE

Labeling 99x34

DANGER TO AVOID INJURY FROM MOVING PARTS, SHUT OFF THE MAIN CONTROLLER BEFORE REMOVING THIS COVER	**CONTACT** LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION IN YOUR AREA
DANGER **KEEP** VIEWING AND ASH REMOVAL DOORS TIGHTLY CLOSED DURING OPERATION!	**CAUTION** DO NOT CONNECT THIS UNIT TO A CHIMNEY FUEL SERVING ANOTHER APPLIANCE. **SEE LOCAL RESTRICTIONS!**
CAUTION INSTALL AND USE ONLY IN ACCORDANCE WITH INSTALLATION- AND OPERATING INSTRUCTIONS! REFER TO OWNERS MANUAL	**FORWARD** **WATER QUALITY ACC. TO VDI 2035 STANDARD** (THE MEDIUM HAS TO BE FREE FROM AIR AND MUD)
DANGER **MOVING PARTS CAUSE INJURY! DO NOT OPERATE WITH REMOVED COVERING!**	**RETURN** **WATER QUALITY ACC. TO VDI 2035 STANDARD** (THE MEDIUM HAS TO BE FREE FROM AIR AND MUD)

Labeling 105x74

IN THE CASE OF A“RUN-AWAY” FIRE:

- NEVER PUT YOUR SELF AT RISK OF FATAL INJURY. YOUR SAFETY MUST ALWAYS TAKE HIGHEST PRIORITY!
- SWITCH OFF THE HEATING SYSTEM
- EXIT THE BUILDING AND CALL YOUR SERVICE CONTRACTOR AND LOCAL FIRE DEPARTMENT

⚠ CAUTION

HOT SURFACES

- DO NOT TOUCH DURING OPERATION!
- KEEP CHILDREN AWAY
- KEEP CLOTHING AND COMBUSTIBLE MATERIALS AWAY FROM MARKED CLEARANCES.
- MAXIMUM DRAFT MARKED ON NAMEPLATE

⚠ CAUTION

IN THE CASE OF A CONNECTING BOILER CONTACT A SERVICE TECHNICIAN FOR COMPLIANCE INFORMATION BEFORE CONNECTING!
MAY BE CONNECTED TO AN EXISTING BOILER SYSTEM

THE FOLLOWING UNIT IS APPROVED FOR CONNECTING WITH THE AUTOPELLET SYSTEM:

MODEL NUMBER CONNECTED UNIT: _____
ITEM NUMBER CONNECTED UNIT:_____

⚠ WARNING

RISK OF FIRE!

- DO NOT OPERATE WHILE FLUE DRAFT EXCEEDS -.11 INCHES WC!
- DO NOT OPERATE WITH DOORS OPEN!
- DO NOT STORE FUEL OR OTHER COMBUSTIBLE MATERIAL WITHIN MARKED INSTALLATION CLEARANCES!
- INSPECT AND CLEAN FLUE AND CHIMNEY REGULARLY!
- DO NOT USE CHEMICALS TO START UNIT FIRING
- DO NOT BURN GARBAGE, GASOLINE, FUEL OILS OR OTHER FLAMMABLE LIQUIDS OR MATERIALS

⚠ DANGER

HOT SURFACES AND MOVING PARTS MAY CAUSE INJURY!

RISK OF FIRE OR EXPLOSION – DO NOT BURN GARBAGE, GASOLINE, FUEL OILS OR OTHER FLAMMABLE LIQUIDS OR MATERIALS

⚠ CAUTION

UNSAFE TO ADJUST FLUE DRAFT HIGHER THAN .11 INCHES WATER COLUMN

- MIN DRAFT @ LOW FIRE -.02 INCHES WC
- MIN DRAFT @ HIGH FIRE -.04 INCHES WC
- MAX DRAFT -.11 INCHES WC

⚠ CAUTION

THE HEAT EXCHANGER, FLUE PIPE AND CHIMNEY MUST BE CLEANED REGURARLY TO REMOVE ACCUMULATED CREOSOTE AND ASH, ENSURE THAT THE HEAT EXCHANGER, FLUE PIPE, AND CHIMNEY ARE CLEANED AT THE END OF THE HEATING SEASON TO MINIMIZE CORROSION DURING THE SUMMER MONTHS, THE APPLIANCE FLUE PIPE AND CHIMNEY MUST BE IN GOOD CONDITION.
THESE INSTRUCTIONS ALSO APPLY TO A DRAFT INDUCER IF USED.

LOSS OF ELECTRICAL POWER

NO DANGER
PELLET BOILER COOLS DOWN AUTOMATICALLY

INSPECT AND **CLEAN**
EXHAUST VENTING SYSTEM FREQUENTLY

Author & Manufacturer

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