Please read carefully prior
to installing and servicing.

SAVE THESE INSTRUCTIONS

Installation Manual

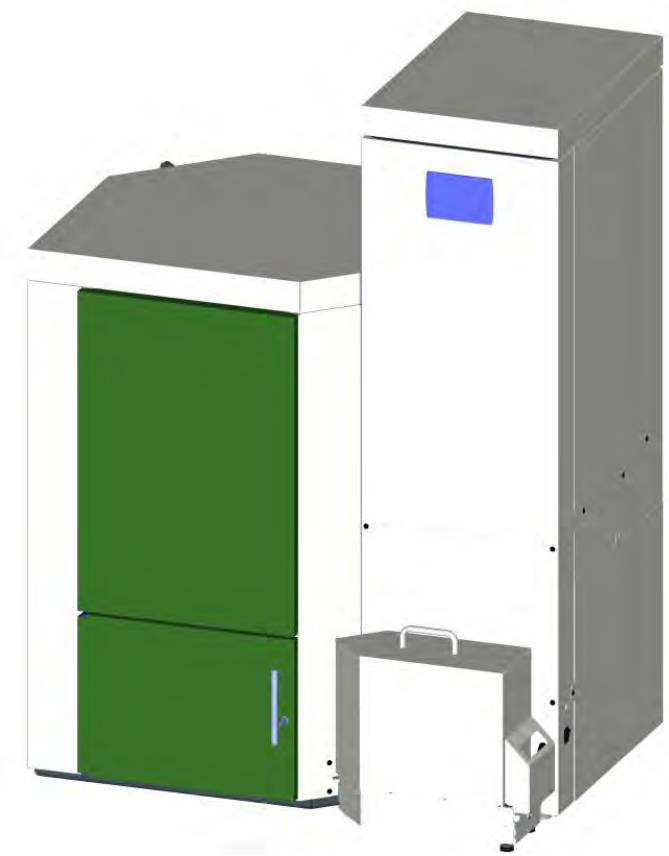
Pellet heating with vacuum suction system, type

AutoPellet Air Furnace 17 — 28

FA_V2.05

AutoPellet Air TOUCH

USA



Title:	Installation Manual AutoPellet Air Furnace 17 — 28
Article number:	PE 603 USA_FA 1.0
Version valid from:	07/2015
Approved:	Wohlinger Christian

Author & Manufacturer

MAINE ENERGY SYSTEMS LLC
8 Airport Road — P.O. Box 547 Bethel
Maine 04217

E-Mail: info@maineenergysystems.com
www.maineenergysystems.com

1 Dear Customer

Maine Energy Systems specializes in wood pellet heating, our company enjoys an exclusive license from ÖkoFEN to manufacture AutoPellet Air 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. 0444PH005S

2 Use only for the purpose intended

The pellet furnace is designed heat air to provide heat for buildings. It is not permissible to use the furnace for any other purpose.

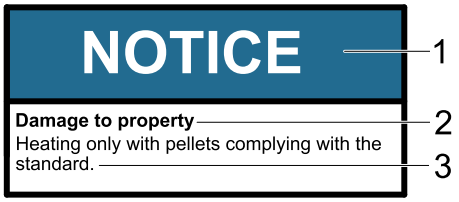
The pellet furnace fulfils the requirements of UL 391-2010 and CSA B366.1–2011.

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 Furnace room and storage room.
- Observe all safety warnings on the Furnace and in this user manual.
- Observe all instructions relating to maintenance, servicing and cleaning.
- 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 Furnace 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 Furnace room and cause a drop in pressure.
The Furnace must be connected tight to the chimney using a flue gas tube.
Clean the chimney and the flue gas tube at regular intervals.
The Furnace 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
Always disconnect / de-energize the power supply before working on the Furnace.

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 Furnace room.
Do not hang out any washing in the Furnace 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 Furnace not equipped with automatic ash compression
Do not clean the Furnace 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 Furnace 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 Furnace.

NOTICE

Damage to property
The pellet Furnace 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 Furnace 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 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 Furnace

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

5.1 Guidelines and standards for installing a pellet Furnace

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

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.

All equipment shall be installed in accordance with the instructions of the manufacturer and in a manner acceptable to the authority having jurisdiction by experienced personnel. When required by the authority having jurisdiction, such personnel shall be licensed to perform this service.
In Canada, the installation of the solid fuel furnace shall comply with the applicable requirements of CSA B365, and if changes are made to the installation of the oil furnace, these shall comply with CSA B139.
If changes are made to an electric furnace during the installation, the changes shall comply with the Canadian Electric Code. Part 1.

5.2 Furnace room circulating air

The pellet Furnace is installed in the Furnace room.

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

   DANGER

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

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

   The Furnace 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. **Damage due to frost and humid air**

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

4. **Danger for animals**

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

5. **Flooding**

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

5.3 Furnace room supply air

The pellet Furnace is installed in the Furnace room.

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

DANGER

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

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

   The Furnace room must be fitted with air supply and ventilation openings (at least 31 inch²/200cm²).In any case you must comply with the state and local regulations

3. **Combustion air supply**

   The pellet Furnace 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 inch².

   b. The air must not be used directly from the outside without preheating (background: This could lead to a condensation of the boiler.

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

   Contaminated combustion air can cause damage to the pellet Furnace. 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 Furnace room or where the Furnace may draw air from.

   Do not hang out washing in the Furnace room.

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

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

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

5. **Danger for animals**

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

6. **Flooding**

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

5.4 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 Furnace. 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:

Furnace size		**Furnace**
Flue gas tube diameter (at Furnace)	inch/mm	6.3/160
Flue gas temp. / rated power	°F	
Flue gas temp. / partial load	°F	
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

NOTICE

Person(s) operating a pellet fired furnace is/are responsible for operation in a manner that does not create a public or private nuisance condition. The manufacturer's distance and stack height recommendations and the requirements in any applicable laws or other requirements may not always be adequate to prevent nuisance conditions due to terrain or other factors.

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 Furnace 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 Air 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 Furnace 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 Furnace 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 Furnace flue pipe connection. The maximum flow rate that can be drawn through the chimney limits the maximum performance of the chimney connection. The Furnace 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 Air are approved by the manufacturer for installation with the Field Controls SWGAF power venter which is approved for wood pellet burning appliances. Furnaces 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.

5.5 Safety systems

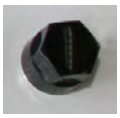
The following safety measures are the prerequisite for safe operation of your system.

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 Furnace room.

Safety temperature sensor

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



5.6 Installation with an existing Furnace

AutoPellet Air Furnaces 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 Air Furnaces 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 Air Furnaces with an existing Furnace to be sure that service and cleaning can be performed adequately.

CAUTION

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

_____
Existing Furnace: 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.

5.7 Additional CSA-B366.1 1-11 Requirements for Add-Ons to Gas-Fired Furnaces

There are additional requirements in Canada for adding a solid fuel fired furnace to operate when connected to a gas fired furnace.

5.7.1 Operation Verified

Each gas furnace must be verified for acceptable operation BEFORE and AFTER being connected to an add-on appliance by a gas fitter who is recognized by the authority having jurisdiction.

5.7.2 Existing Gas-Fired Certification Requirement

Do not connect to any furnace that has not been certified initially as complying with ANSI Z21.47/CSA2.3 or its precedents.

5.7.3 Blower requirement

Do not connect to any furnace that is not equipped with an air circulation blower.

5.7.4 Chimney

Do not connect, under any circumstances, to the chimney or vent serving a gas furnace or gas appliance.

5.7.5 Ductwork

Do not connect ductwork so that a reverse flow is possible.

5.7.6 Periodic Operation

Operate the gas-fired unit periodically to ensure that it will operate satisfactorily when needed.

5.7.7 Safety Controls

Do not relocate or bypass any of the safety controls in the original furnace installation.

5.7.8 Gas furnace further compliance

The gas furnace installation shall comply with the applicable requirements of CSA B365, and if changes are made to the gas furnace, including clearances for servicing, these shall comply with CSA B149.1 or CSA B149.2.

6 The pellet Furnace

The pellet Furnace is equipped with an automatic cleaning system and an ash box with ash compression system. 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.

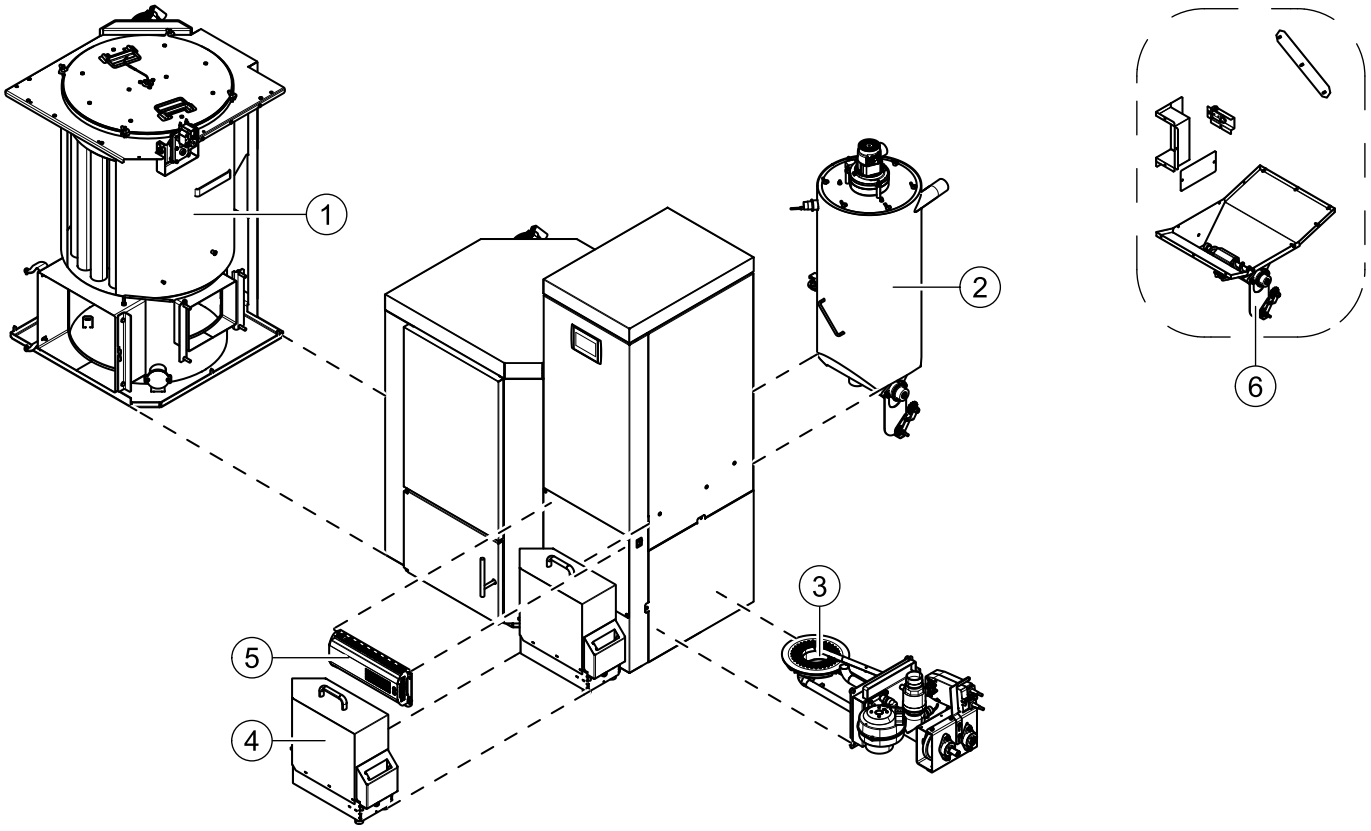
AutoPellet Air types and power ratings

We offer the Pellet Furnace with the following power ratings:
Suction-feed systems: 58,000 to 95,000 BTU/hr

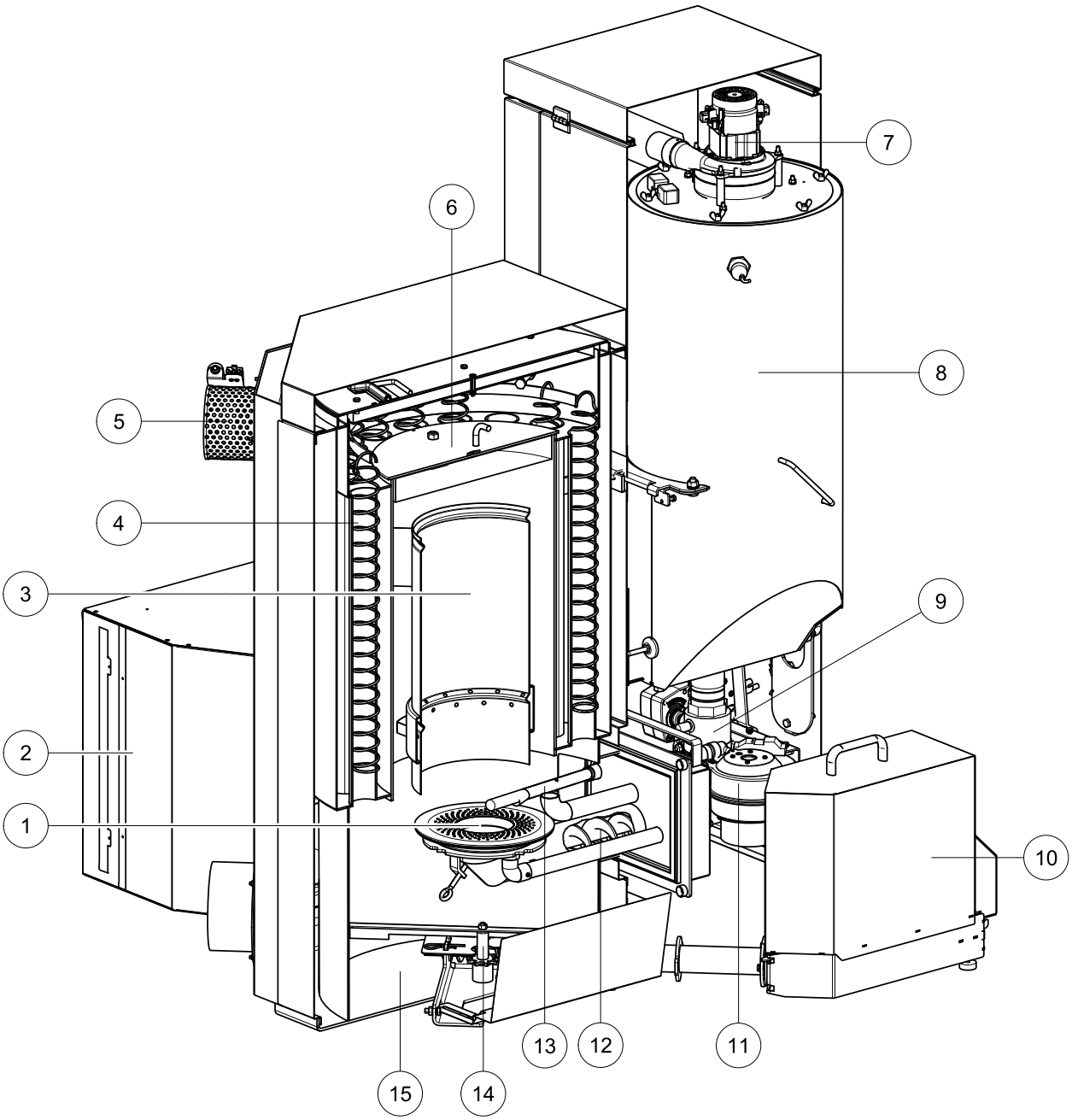
All sizes / outputs of the AutoPellet Air Furnace are available with external automatic ash compression system.

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

Key components of the AutoPellet Air



1	Furnace (heat exchanger)
2	Vac Hopper / Day tank
3	Burner
4	External automatic ash compression system
5	Furnace controller
6	Additional parts hand filling



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

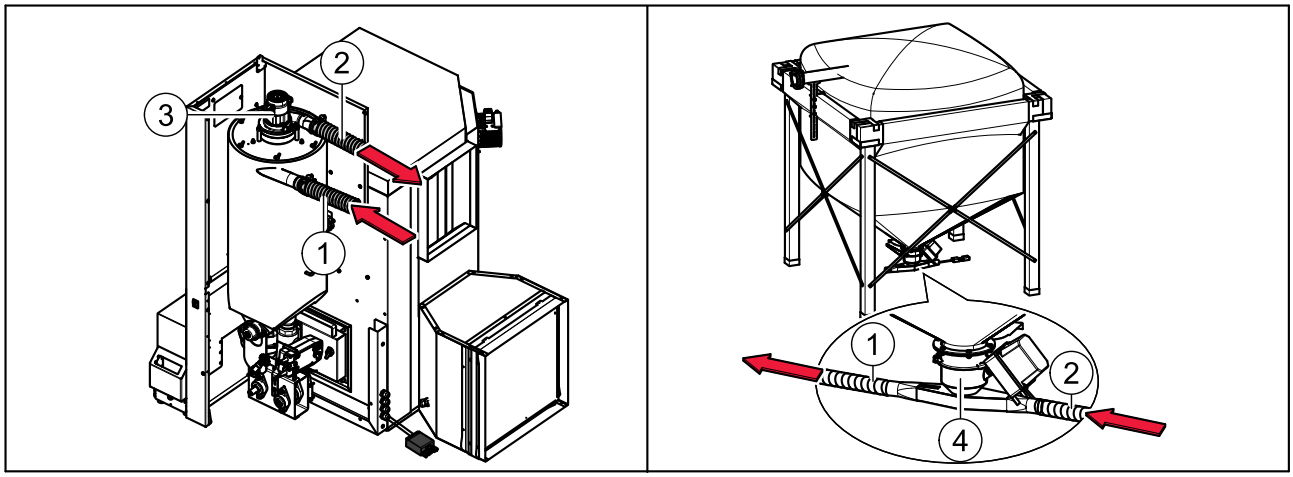
6.1 Pellet suction system

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 Air burner casing.
4	Suction switch	Located underneath the textile tank.

Pellet Furnace **FleXILO textile tank**



6.1.1 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:

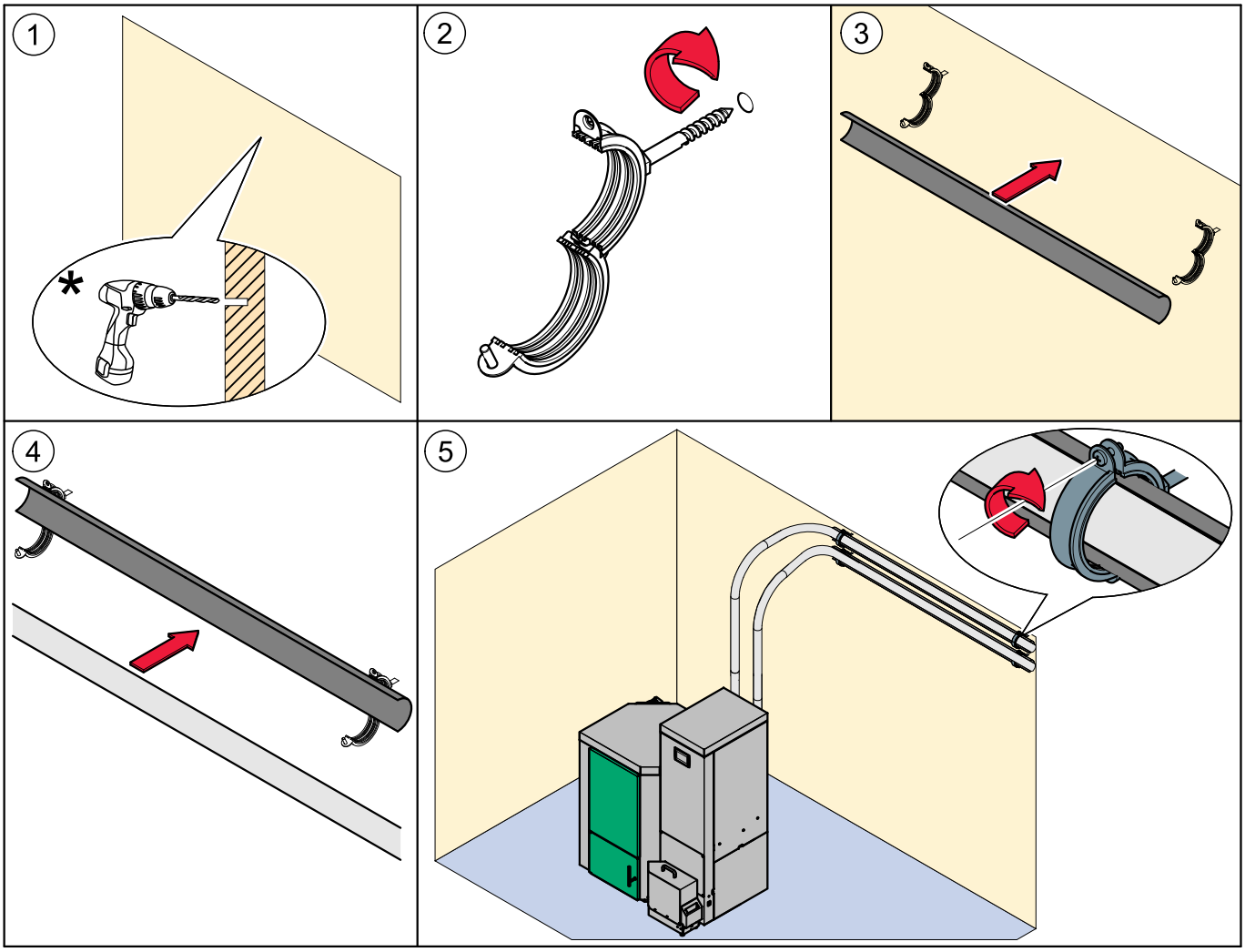
Bending radius	The hose should be led as briefly as possible and with a few curves as necessarily. Bending radius may never be smaller than **12 inch**.
Upward gradients	Max difference in height = **19 feet** **Note:** A difference in height of up to 10 feet can be overcome at one time. Larger differences 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 19 feet 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.

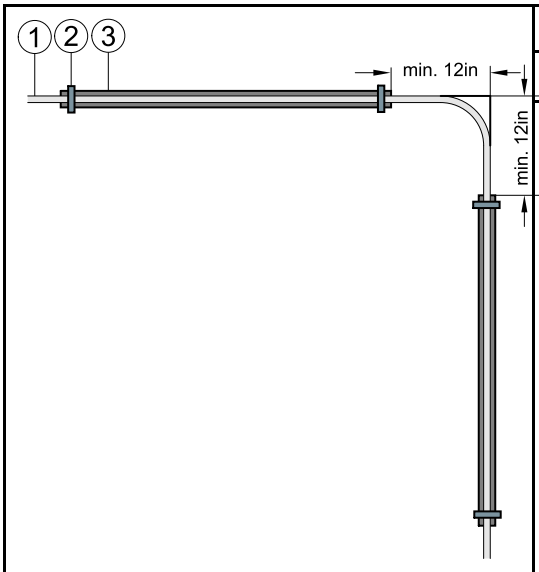
Length of the spiral hose The maximum total length of the spiral hose is 130 feet.
The maximum for pellet hose and air hose are each 60 feet.

Assembly

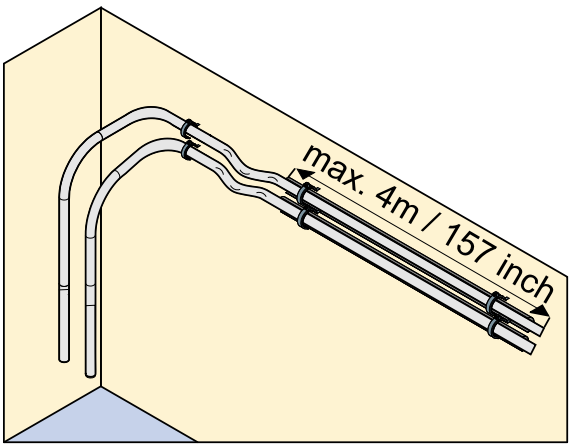
Use securing clips and carrying bowls.



*Pay attention to the defined distances!

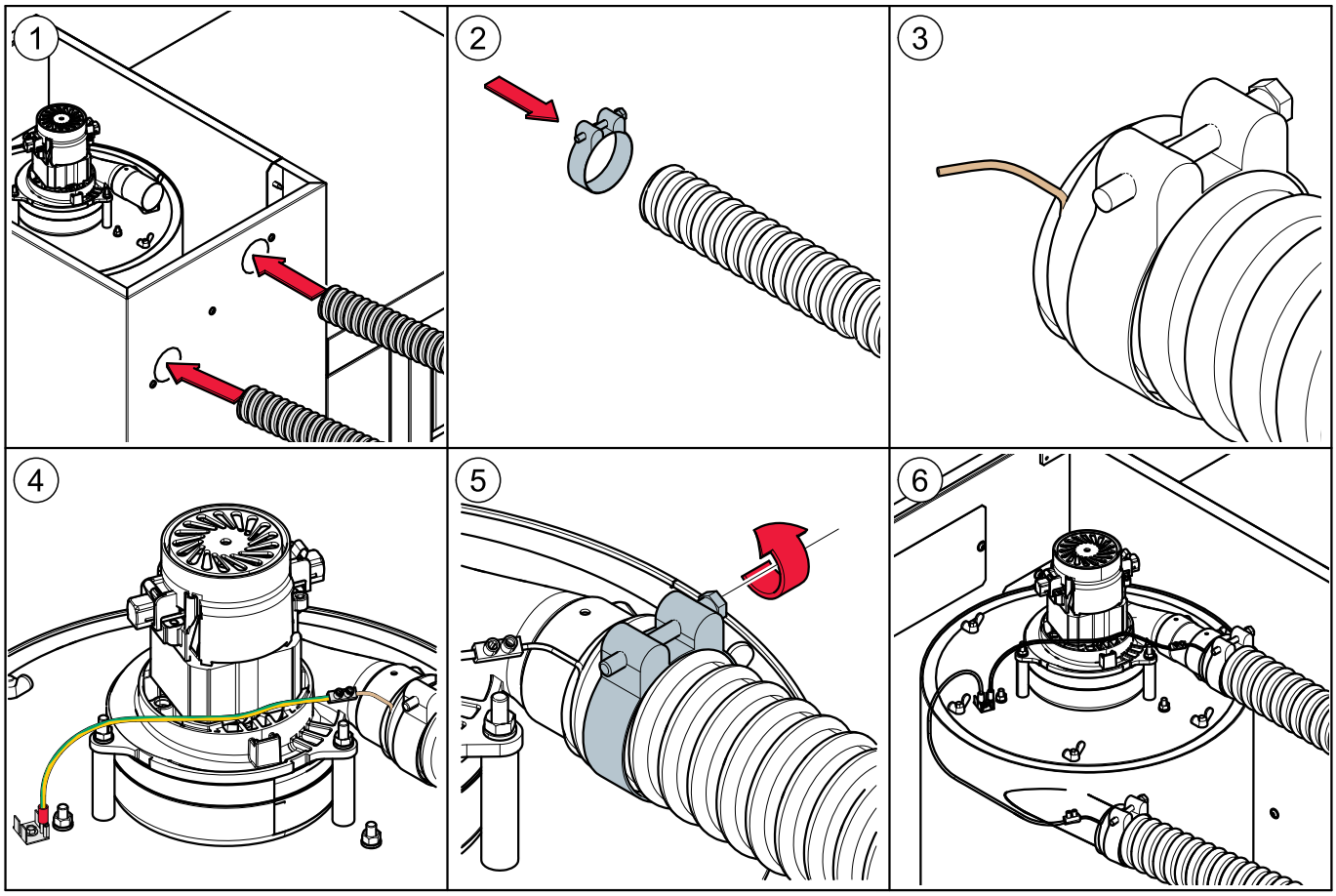


1	Hose
2	Clip
3	Carrying bowl



Note:
Impact protection by swirling of the pellets.

Connection of the pellet and air hose to the suction turbine



6.2 Storage systems

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

NOTICE

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

6.2.1 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.

Data motor:

Voltage	Amps	Wire size
230 volt	max. 4 amps	#14 or larger

7 Bringing the pellet Furnace into the Furnace 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 Furnace on a pallet. The pellet Furnace is ready to be connected.
The control unit for the Furnace controller and the operating drvice is integrated into the control panel.

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

NOTICE

Contamination and corrosion
Make sure that the pellet Furnace 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 Furnace in a closed in truck or trailer. Furnaces transported otherwise will lose their warranty.

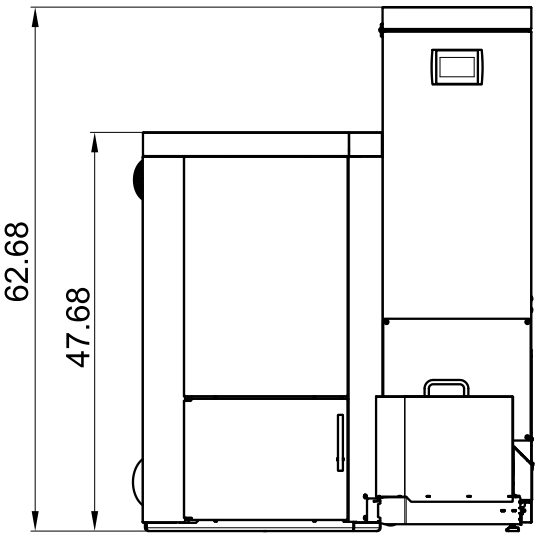
7.2 Notes on bringing the unit into the building

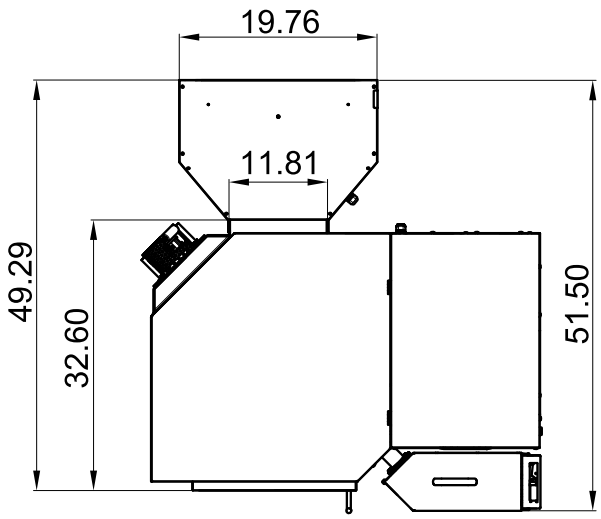
Before bringing the unit into the building, check the dimensions of all doors to ensure that the Furnace has sufficient clearance and can be set up properly.

Minimum door width – max. unit dimension

Furnace	25, 32 kW	29.53 inch

Furnace dimensions



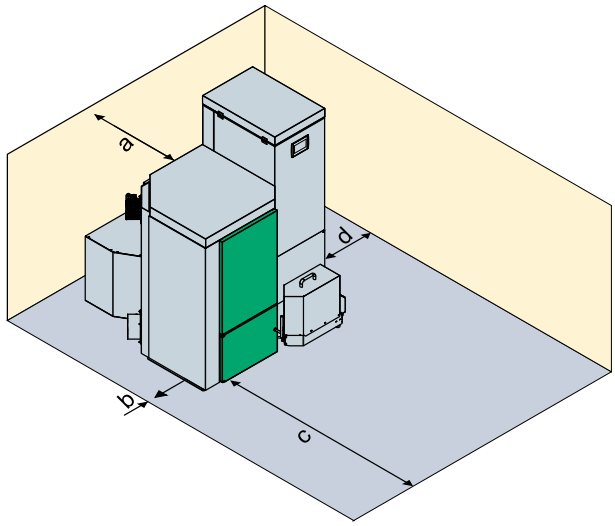


Approximate Furnace Weight

Furnace size	Furnace
Weight of Furnace with fan	509 lb

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 Furnace. **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 Furnace. For flue pipe clearance, refer to applicable codes.	inch	12
b	Min. clearance of side of Furnace	inch	12
c	Min. clearance of front of Furnace	inch	20
d	Min. clearance to housing - burner side.	inch	10

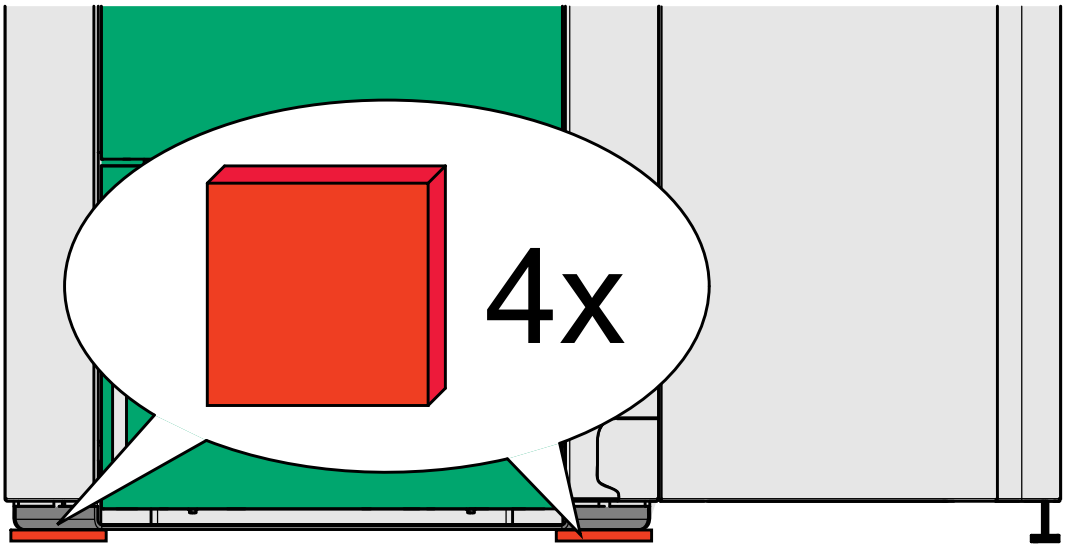
Note:
Place the Furnace according to the minimum clearances to the flue pipe connection point as defined in NFPA 31, or if NFPA is not recognized, then the code pertinent to the installation location.
Make sure that you also comply with local legal regulations.
For clearances required for floor protection,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

*) Distance should be clarified with ventilation fitter. Recommendation Maine Energy Systems: 18 inch.

NOTICE

The furnace must be attached to the floor if installed in mobile housing.

Placement of rubber plates



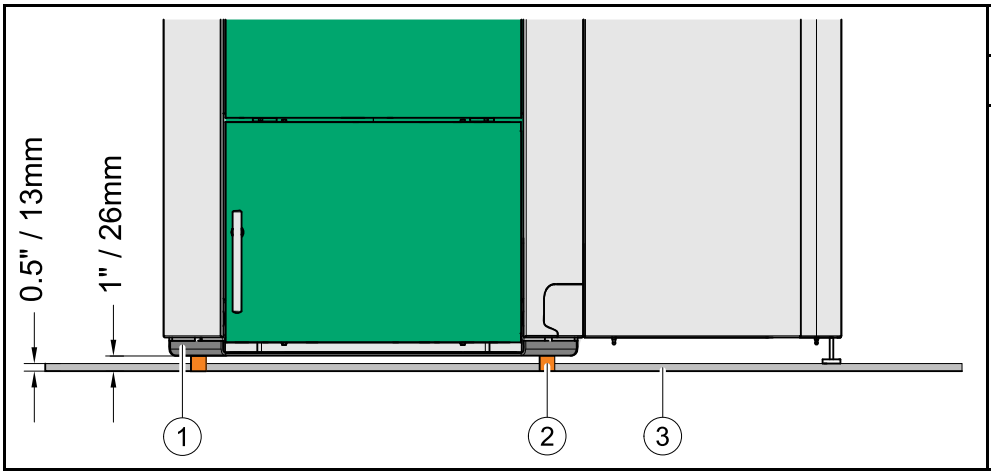
NOTICE

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

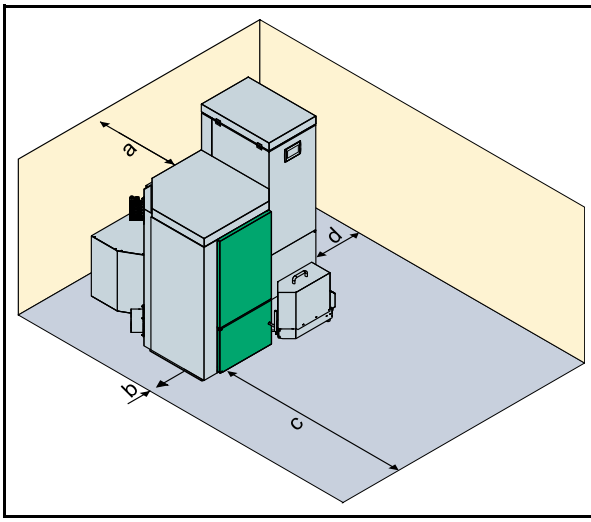


1	Boiler base plate
2	Spacer
3	Shielding material

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 R-value of 0.3 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.

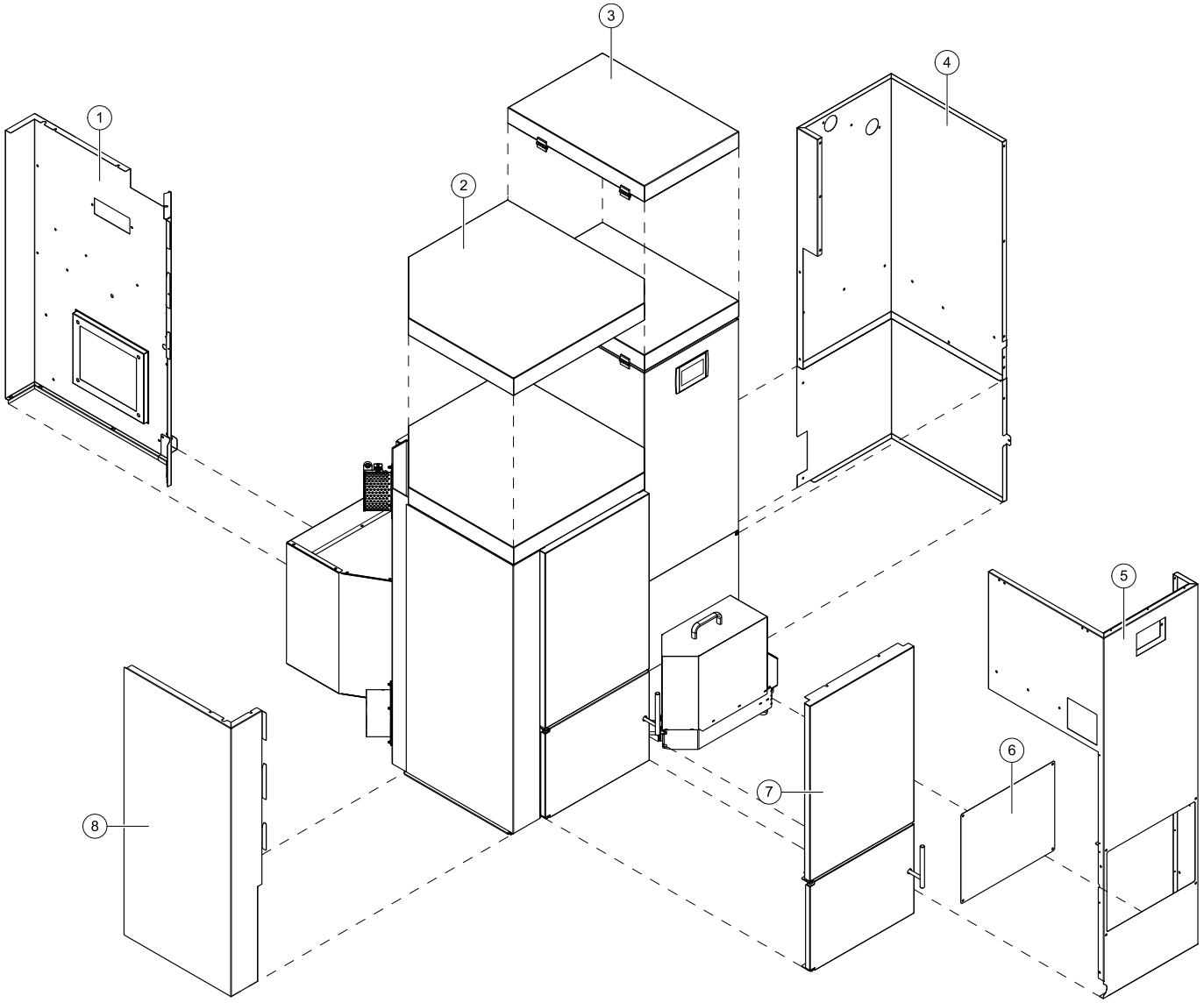


Minimum clearances of shielding material required for floor protection		
Min. clearance of the shielding material from the boiler back – Note also the local restrictions in your area (a)	inch	17
Min. clearance of the shielding material from the boilers left side panel (b)	inch	8
Min. clearance of the shielding material from the boilers front panel (c)	inch	20
Min. clearance of the shielding material from the boilers right side panel (d)	inch	12

Note:
The floor protection must extend under the chimney connector, at least 2 inches on either side.

7.4 Casing parts

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



1	Furnace side panel with opening	6	Burner front cover
2	Furnace cover	7	Service cover
3	Burner cover	8	Furnace front panel
4	Furnace side panel	9	Furnace door
5	Right service cover	10	Furnace side panel without opening

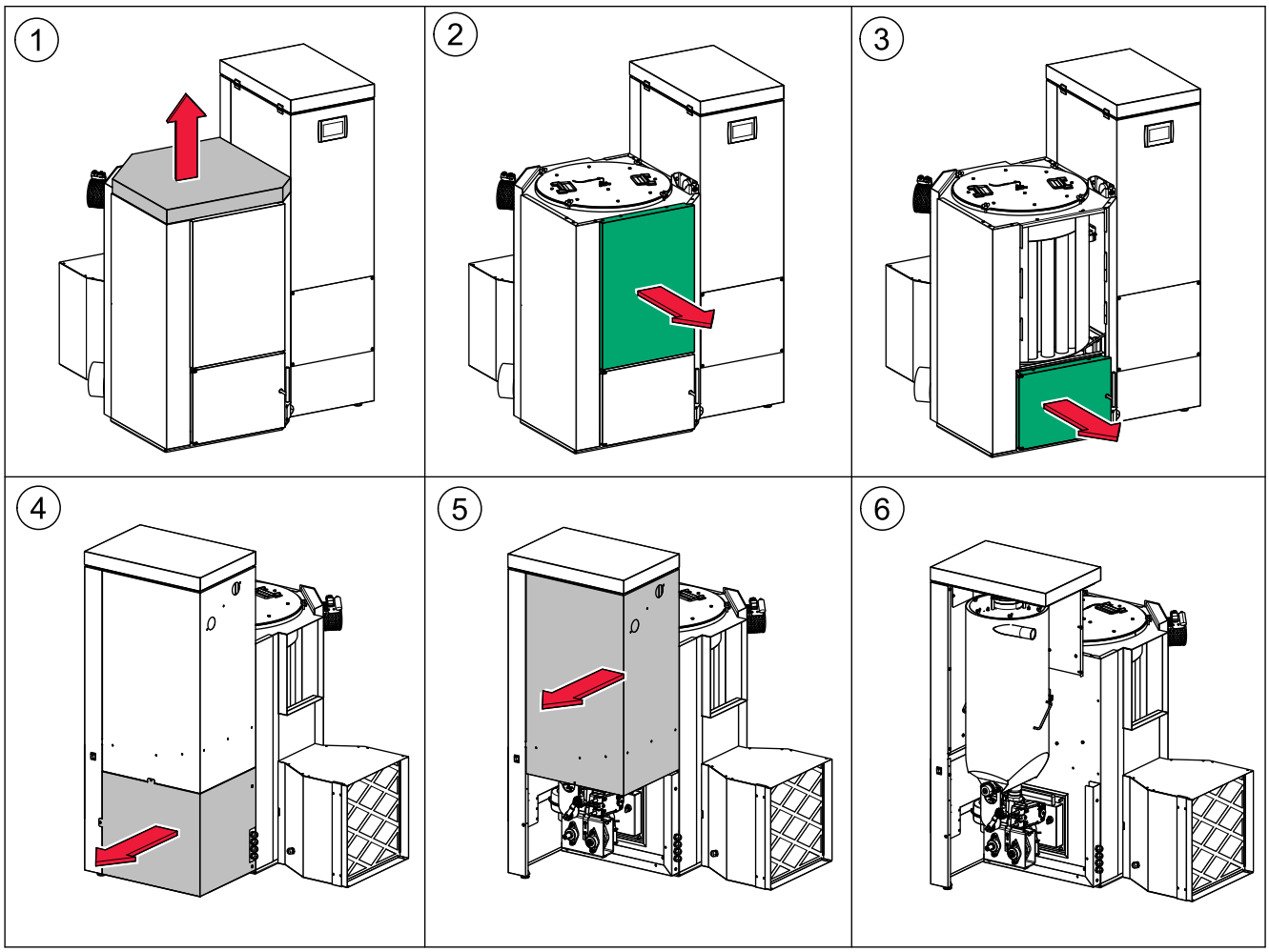
7.5 Removing the casing, the hopper and the burner

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

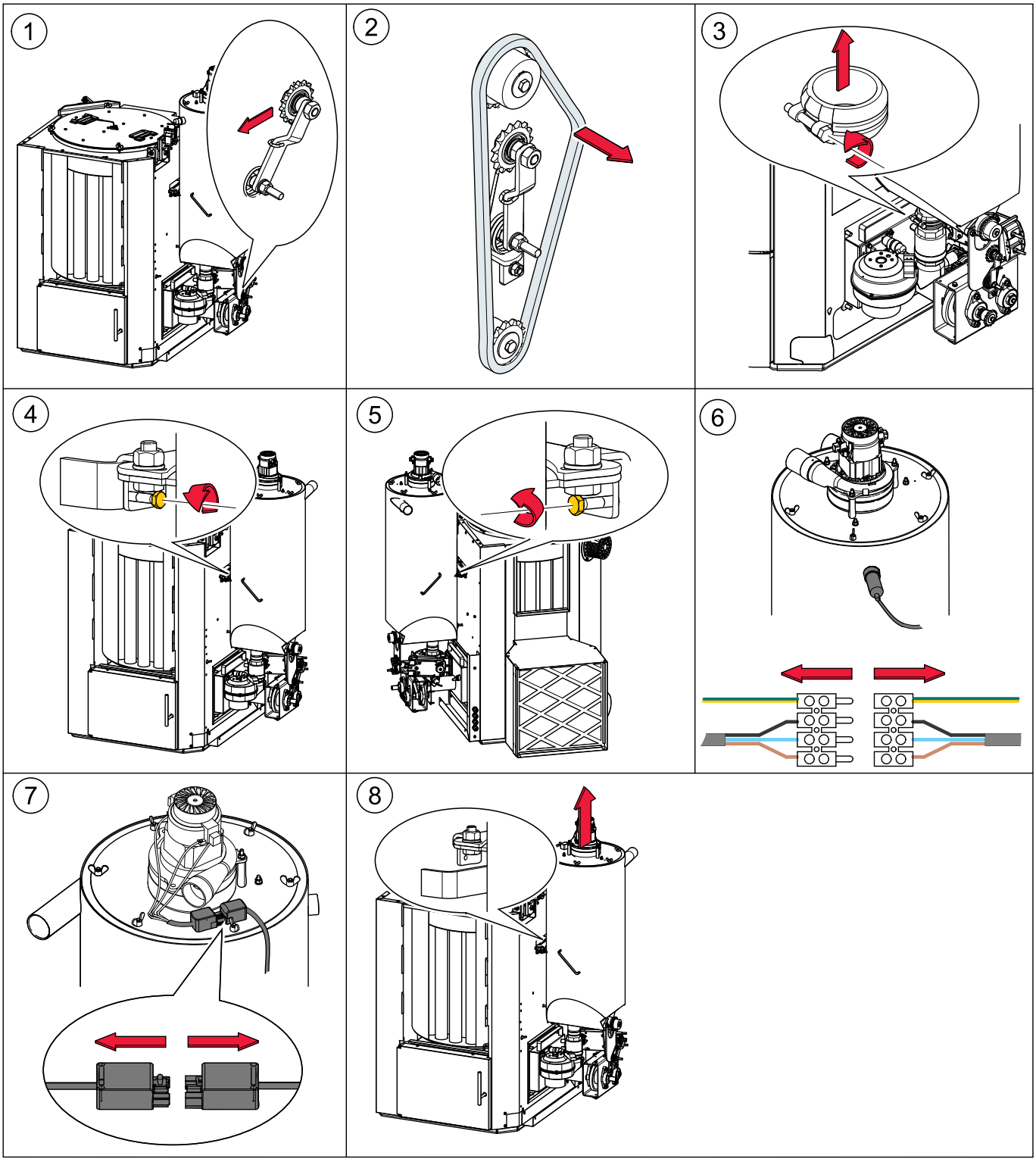
The complete dismantling of all components described here is divided into the following sections:

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

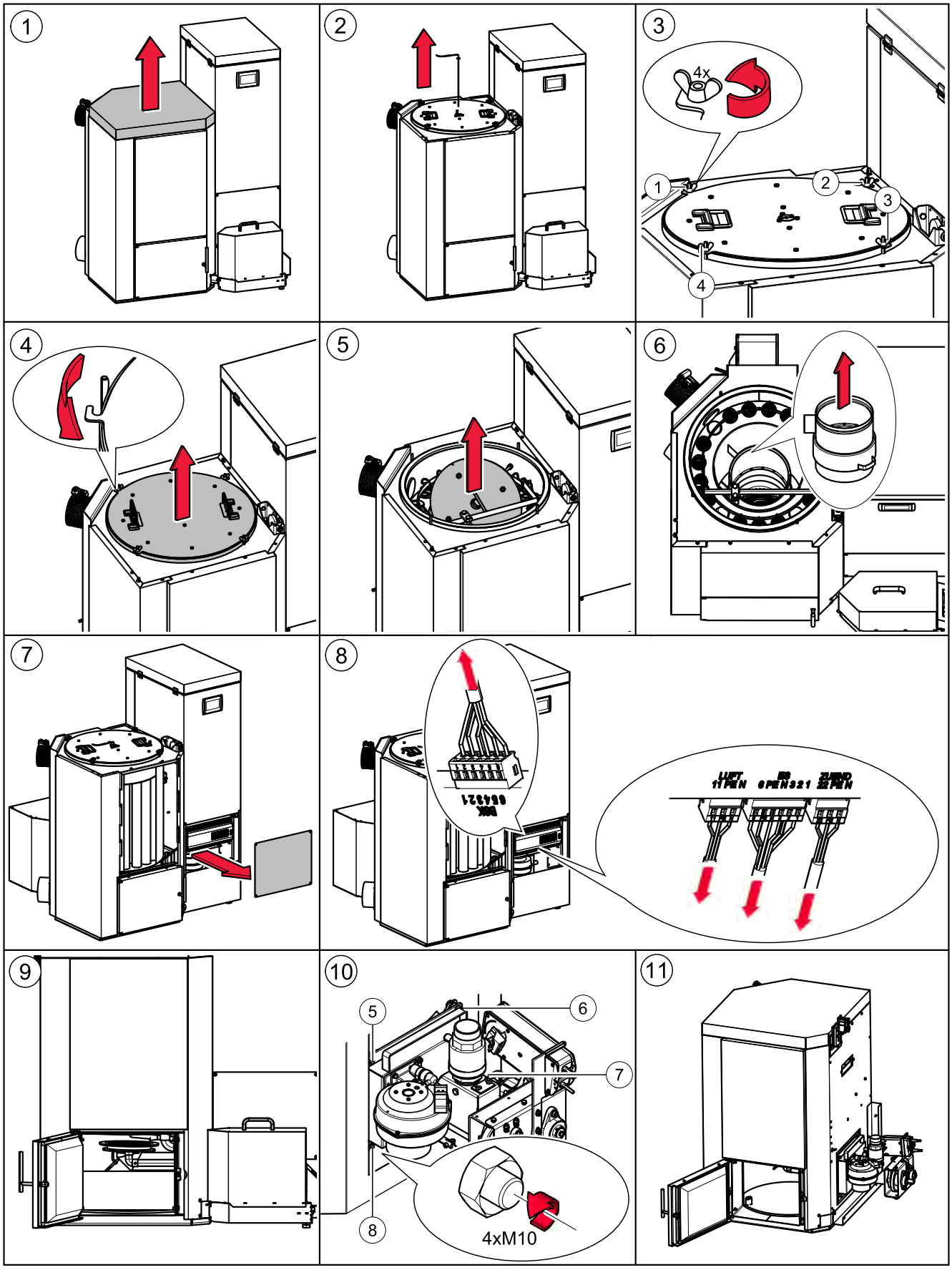
7.5.1 Dismantling the burner casing



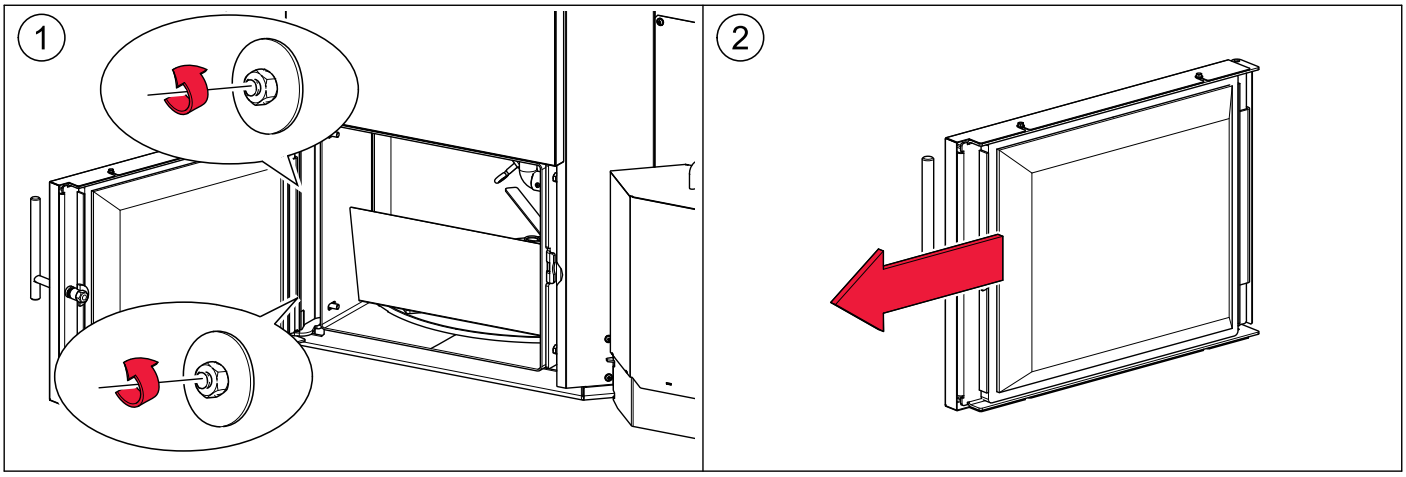
7.5.2 Dismantling the hopper



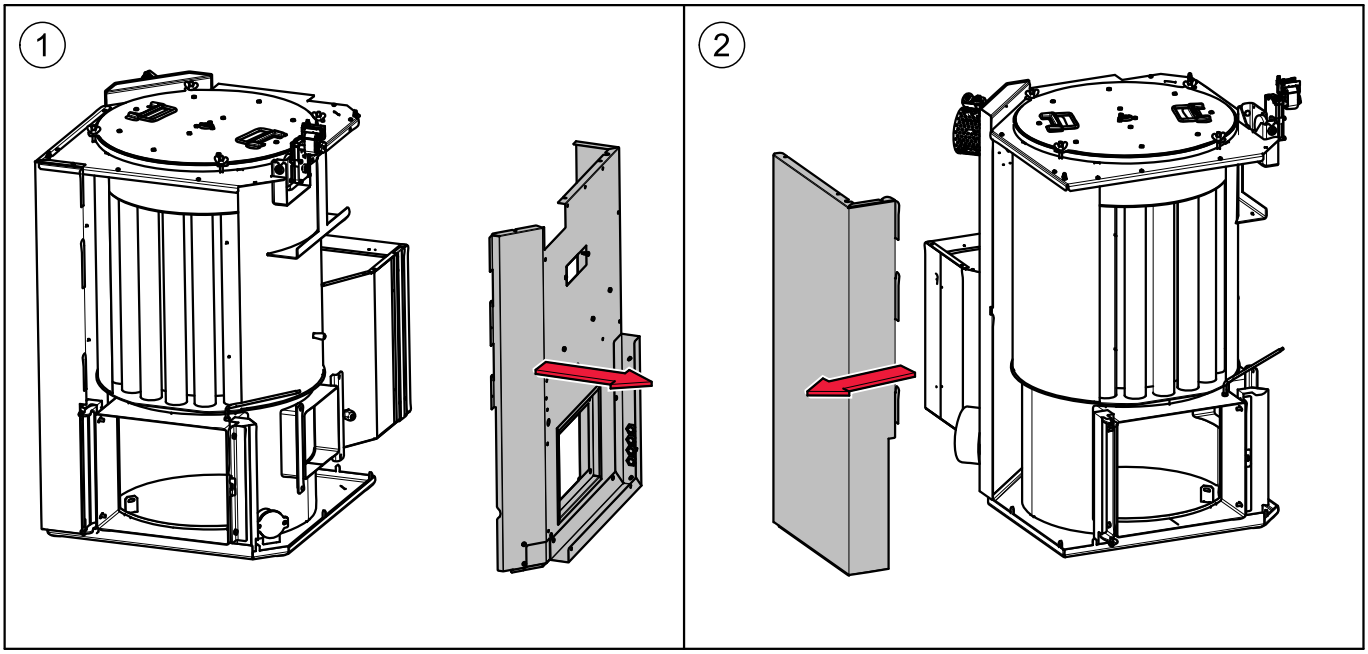
7.5.3 Dismantling the burner



7.5.4 Dismantling the Furnace door

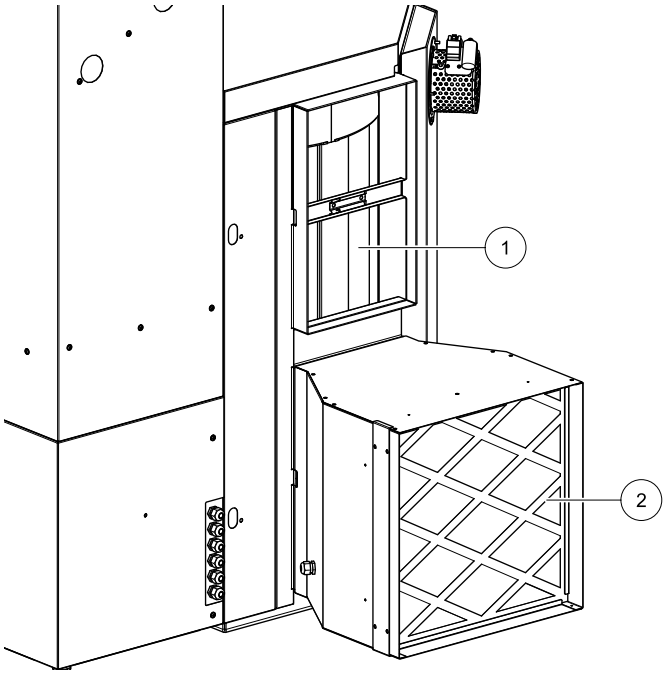


7.5.5 Dismantling the Furnace casing



7.6 Plenum / Warm air delivery and Return air

7.6.1 Plenum / Warm Air Delivery and Return Air connection locations



1	The warm air outlet is the upper opening at the rear of the furnace. The opening size is 12 x 20 inches.
2	The return air is connected to the blower assembly. Normally this is done after the blower assembly is connected to the furnace itself, at the lower opening at the rear of the furnace.

7.6.2 Minimum size of Warm Air Delivery Plenum

From the rear of the furnace, and for the first 43 inches of the warm air plenum, the minimum clearance to combustibles is 2 inches.

After 43 inches, as measured from the attachment point on the rear of the furnace, the warm air plenum no longer is required to have any clearance to combustibles.

NOTICE

THE MAIN WARM AIR PLENUM COMING FROM THE FURNACE SHALL BE NO SMALLER THAN 12 BY 20 INCHES.

NOTICE

ONLY INSTALL THIS FURNACE AS AN ADD-ON IF ALL DUCT WORK IS IN GOOD CONDITION AND MEETS ALL REQUIREMENTS OF BOTH FURNACES AND THE CHIMNEY IS IN GOOD OPERATING CONDITION.

NOTICE

DO NOT USE DUCT ELBOWS HAVING AN INSIDE RADIUS OF LESS THAN 6 INCHES.

Note:
It is important for efficient and successful home heating that the air delivery piping is correctly sized for the home / building. Depending on the size and length of the air delivery pipes, the minimum and maximum fan speeds as well as the warm air temperature set-point or "control temp" will likely require adjustment beyond the default settings of the furnace.

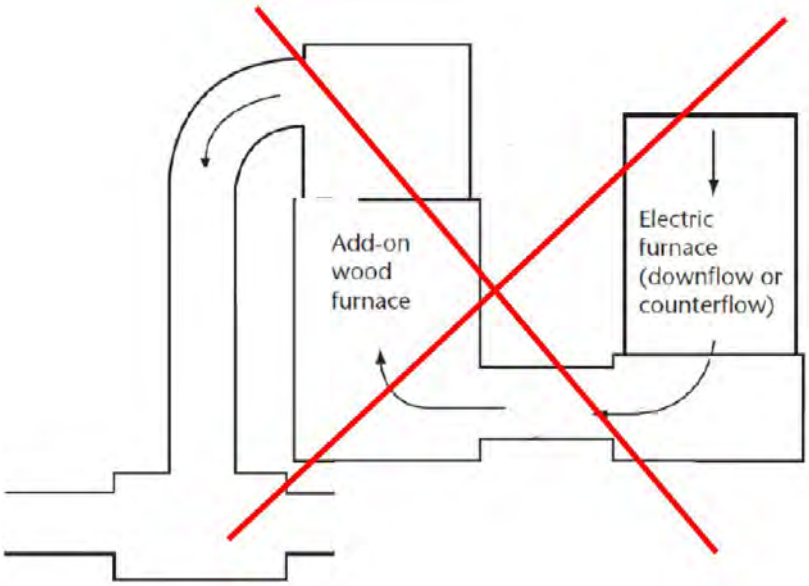
7.6.3 Plenum / Warm Air Delivery and Return Air

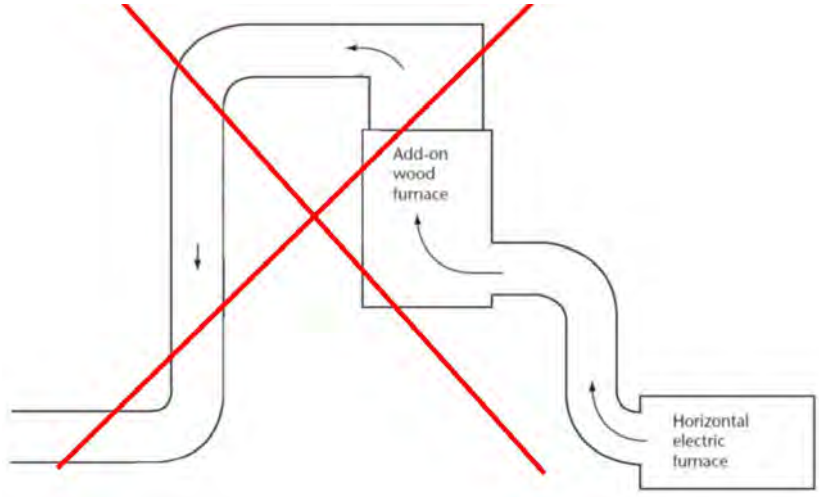
NOTICE

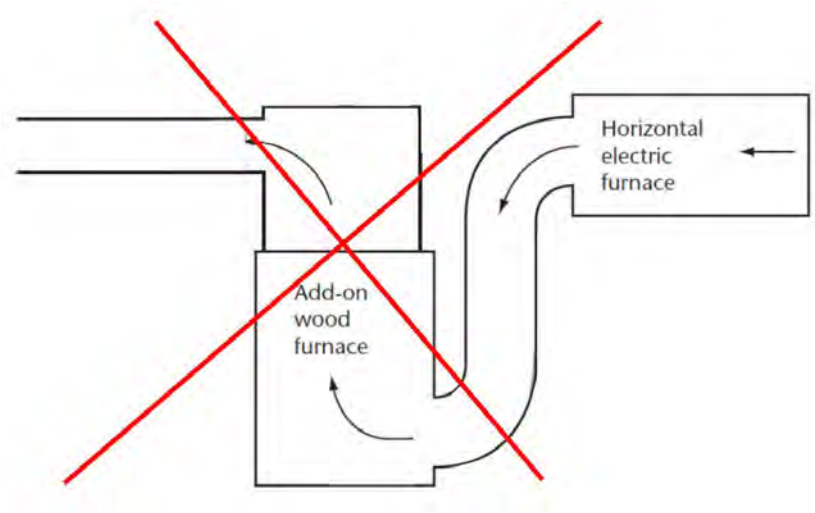
DO NOT CONNECT DUCT WORK SO THAT A REVERSE FLOW IS POSSIBLE.

NOTICE

UNDER NO CIRCUMSTANCES SHOULD THE WARM AIR OUTLET OF THE ADD-ON FURNACE BE CONNECTED TO THE COLD-AIR RETURN OF THE CENTRAL FURNACE AS OVERHEATING CAN RESULT.





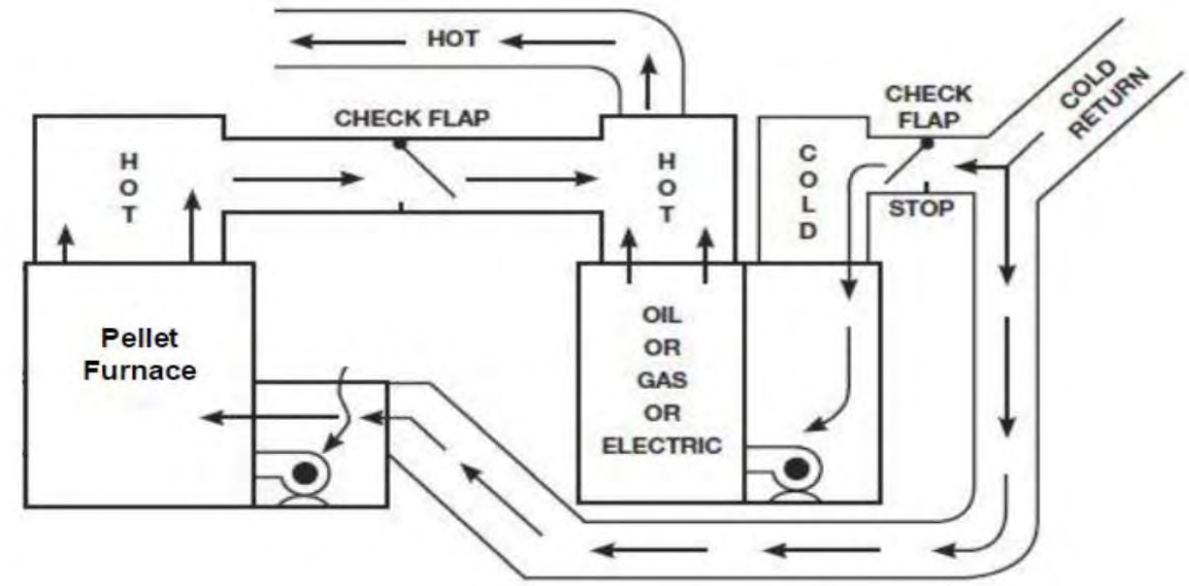


Note:
It is important that the Oil, Gas or Electric furnace be operated periodically to ensure that they will operate satisfactorily when needed.

NOTICE

CERTIFIED FOR INSTALLATION WITH THE FOLLOWING DUCTWORK CONFIGURATION ONLY AS IN FIGURE 7.6.3 – 1 WHEN INSTALLED AS AN ADD-ON OR SUPPLEMENTAL FURNACE.

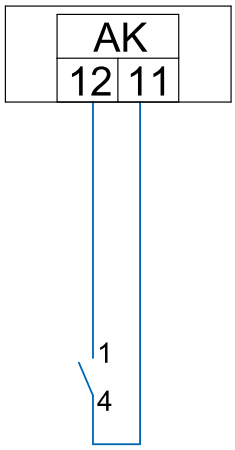
Figure 7.6.3–1



Note:
Check flaps in Figure 7.6.3-1 must have end switches to only allow operation of the appropriate furnace depending on position. See wiring example in section.

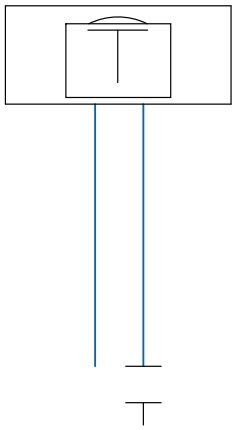
7.6.4 Interconnecting of furnaces to prevent simultaneous firing

To prevent pellet-fired furnace operation when air flaps are in the "central furnace" position, the end switch should close the AK input to the pellet-fired furnace. The AK connection point is at the FA / furnace controller.



Connections 1 and 4 would be to the air flap end switch as above.
Closed contacts here prevent firing of the pellet-fired furnace.

Similarly, the start contact wiring (TT) of the oil, gas, electric furnace should be held open when the flaps are in the pellet-fired furnace operation position.



Wiring from thermostat to be controlled by the air flap end switch as above.
Open contacts here prevent firing of the oil, gas, or electric furnace.

Note:
Use different contacts for the pellet-fired furnace and the gas, oil, or electric furnace to avoid control circuit damage.

7.6.5 Construction Material for Plenums

The plenums installed to the furnaces shall be constructed of metal in accordance with NFPA 90B, 2-1.3.

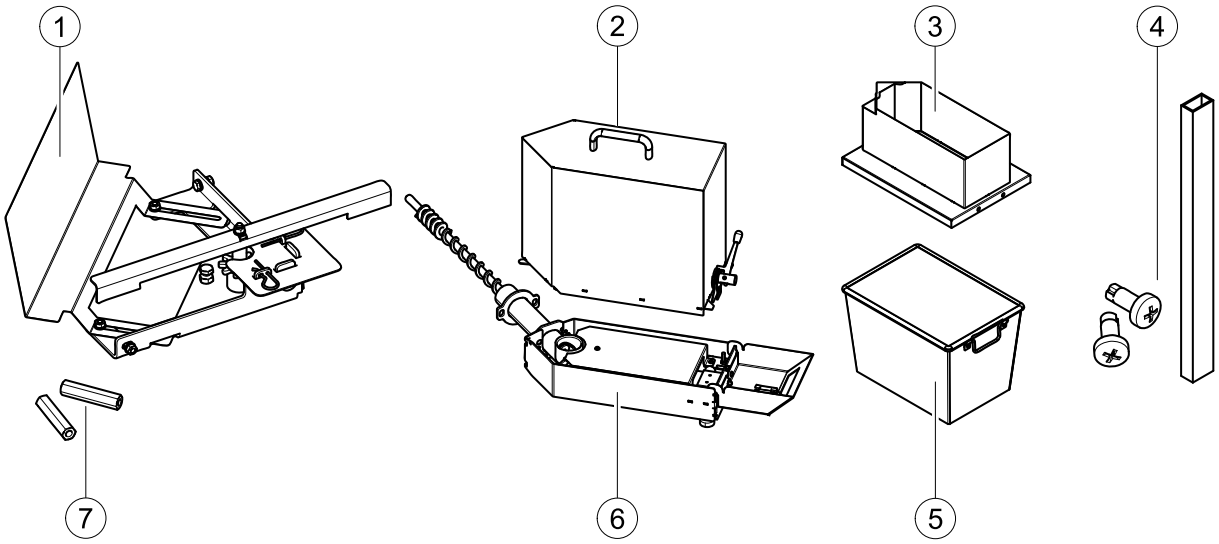
8 External de-ashing / automatic ash compaction system

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 Furnace. Open the box and check that all parts are available before starting work.

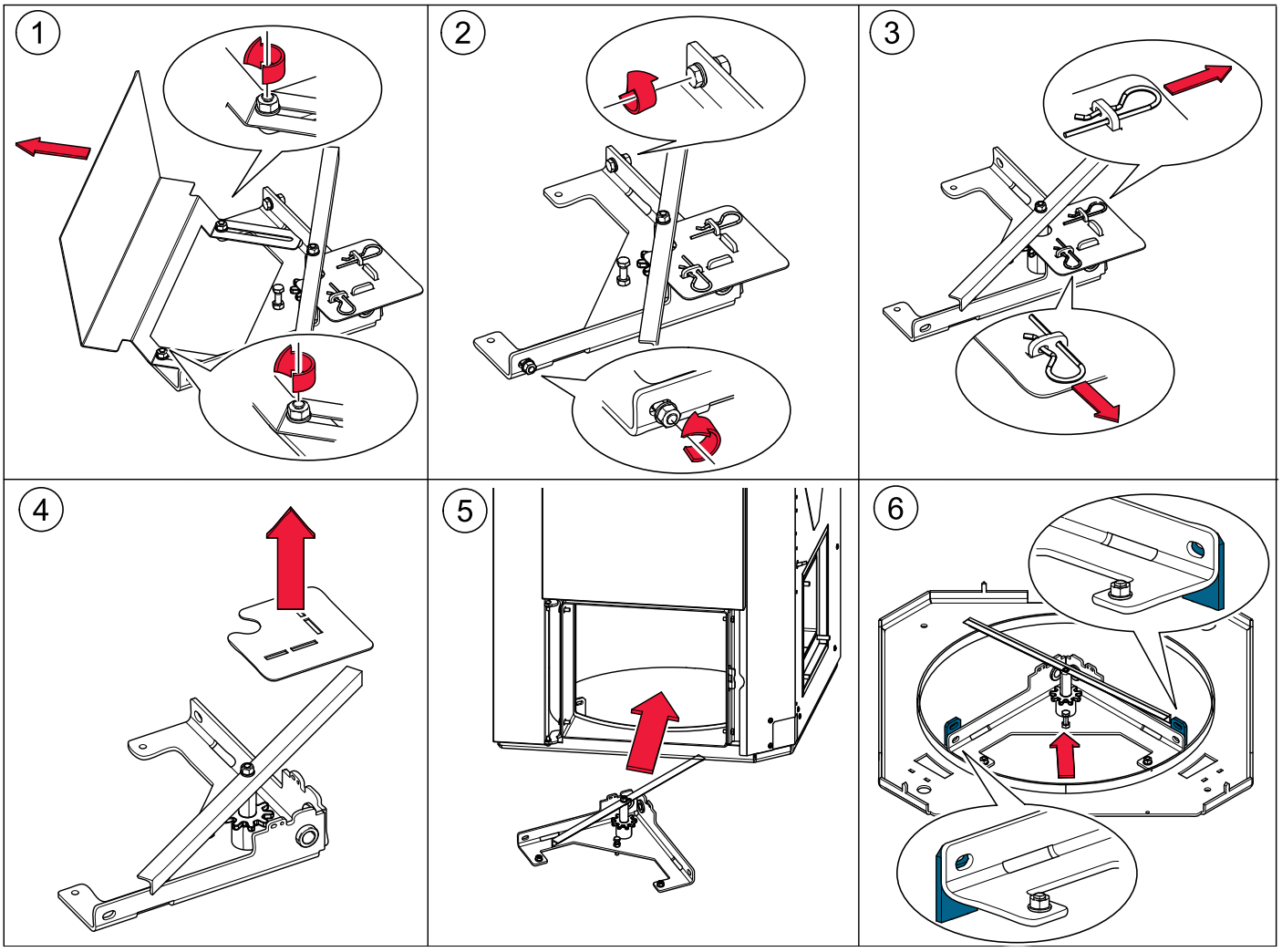
8.2 Installing the de-ashing system

We recommend installing the de-ashing system after the Furnace has been brought in, but before the Furnace 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:

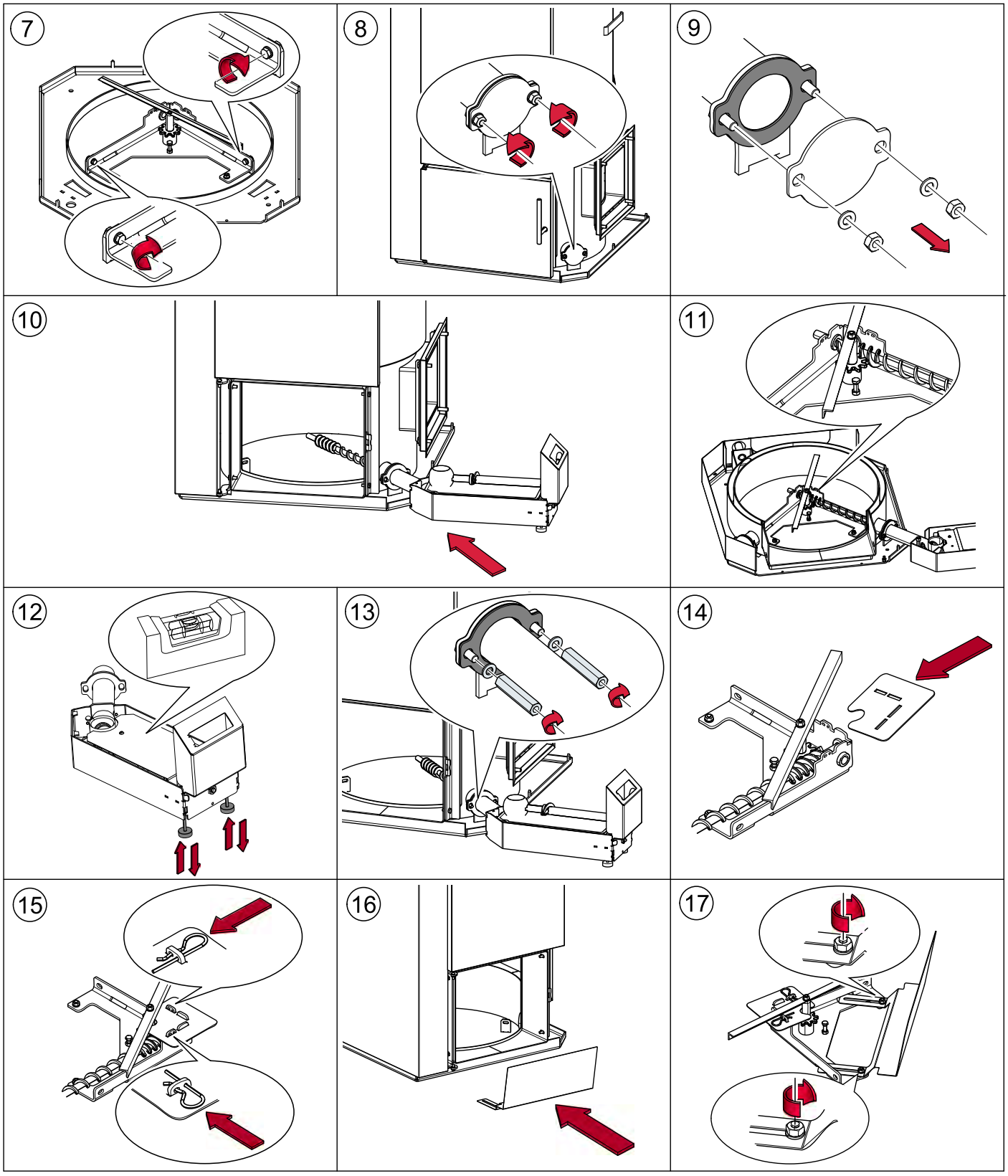
1. Bringing in and installing the de–ashing system on the base plate
2. Installing the de-ashing auger, fitting the sub-assembly and mounting the door plate
3. Installing the burner side casing with cut-out and electrical connection
4. Assembling the pellet Furnace and activating the ash box

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

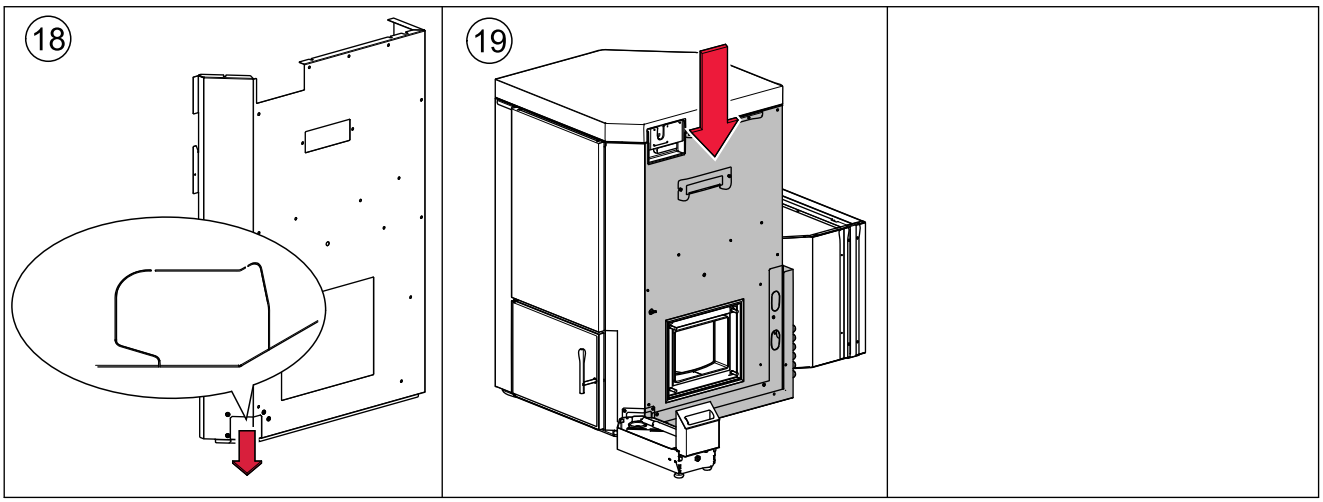


Note:
5: Replace the screw with the base in a horizontal position.

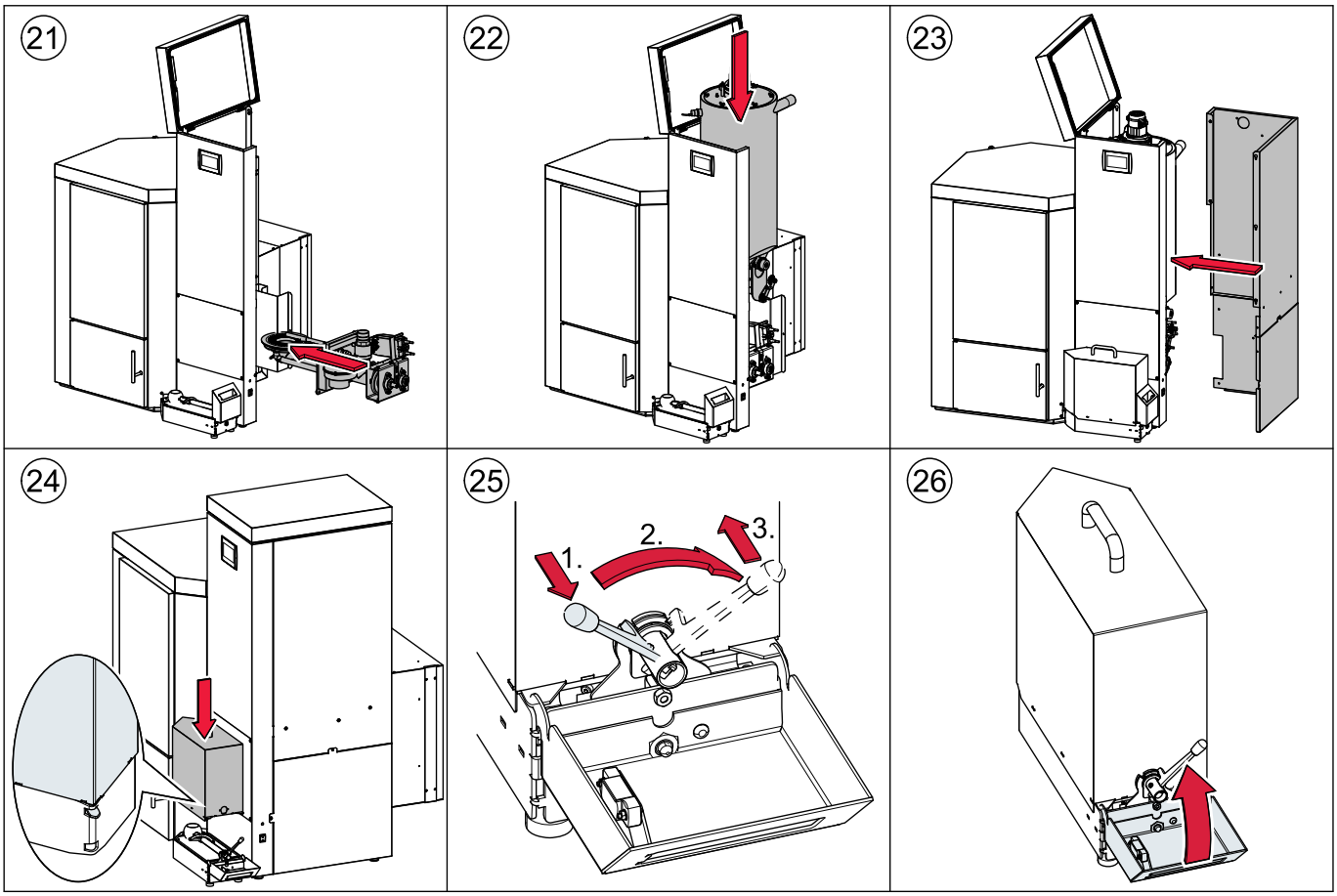
8.2.2 Installing the ash auger, fitting the sub-assembly and mounting the door plate



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 Assembling the pellet Furnace and activating the ash box



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

Activating the ash box

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

9 Connecting to the power supply

9.1 Plugs on the Furnace 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	Not used
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	Temperature sensor supply air / exhaust air
UP	2 3 4	24 Volt	Negative draft measuring
AE2	5 6 7	24 Volt	Level detection system (optional)
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	Not used
BSK	6 5 4 3 2 1	24 Volt	Ball valve / Flame return gate
X21	PE L N	230 Volt	Power supply
VAK	56 PE 55	230 Volt	Vacuum turbine
ZUEND	N PE 22	230 Volt	Ignition
AV	52 PE 51	230 Volt	Motor ashbox
RES 2	54 PE 53	230 Volt	Not used
MA	48 PE 47	230 Volt	Not used
RM	15 PE N	230 Volt	Motor for Furnace 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	Fan
STB	17 PE 19	230 Volt	Safety temperature / Over-temp sensor
NOT	41 43	230 Volt	Emergency stop heating
RA	N PE 14 15 16	230 Volt	Fuel transport system

RES1	50 PE 49	230 Volt	Not used
ZW	N PE 26 25 24	230 Volt	Not used
ES	1 2 3 N PE 6	230 Volt	Burner motor
LUFT	N PE 11	230 Volt	Burner fan

NOTICE

For supply connections to the Furnace use 14 AWG or larger wires acceptable for at least 75° C.

9.2 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 Furnace.

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:

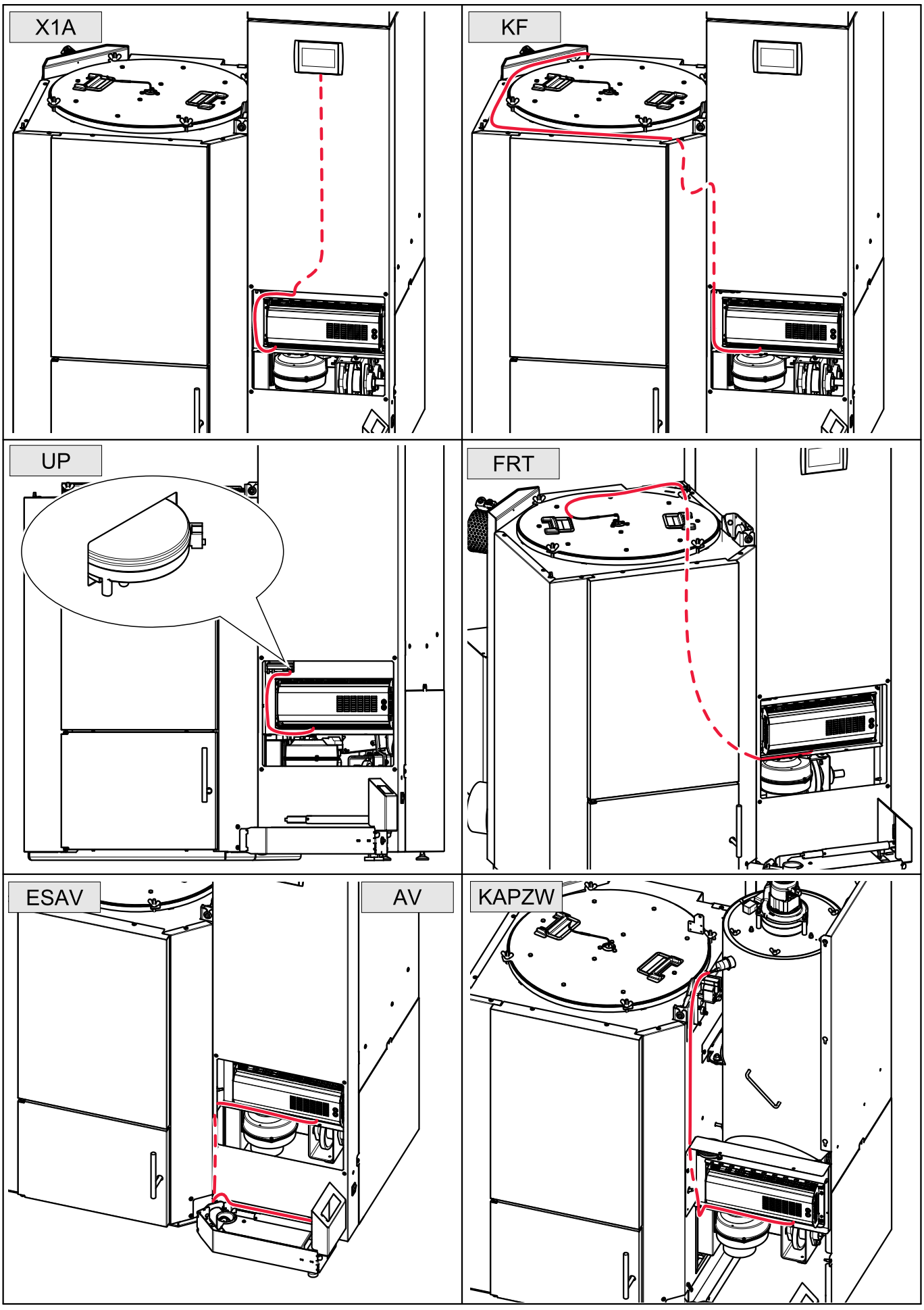
- routed in the cable ducts provided
- through cable leadthroughs
- tied together
- secured with cable ties at the points provided
- Power cables must be routed in the right-hand duct and sensor cables must be routed in the left-hand duct.

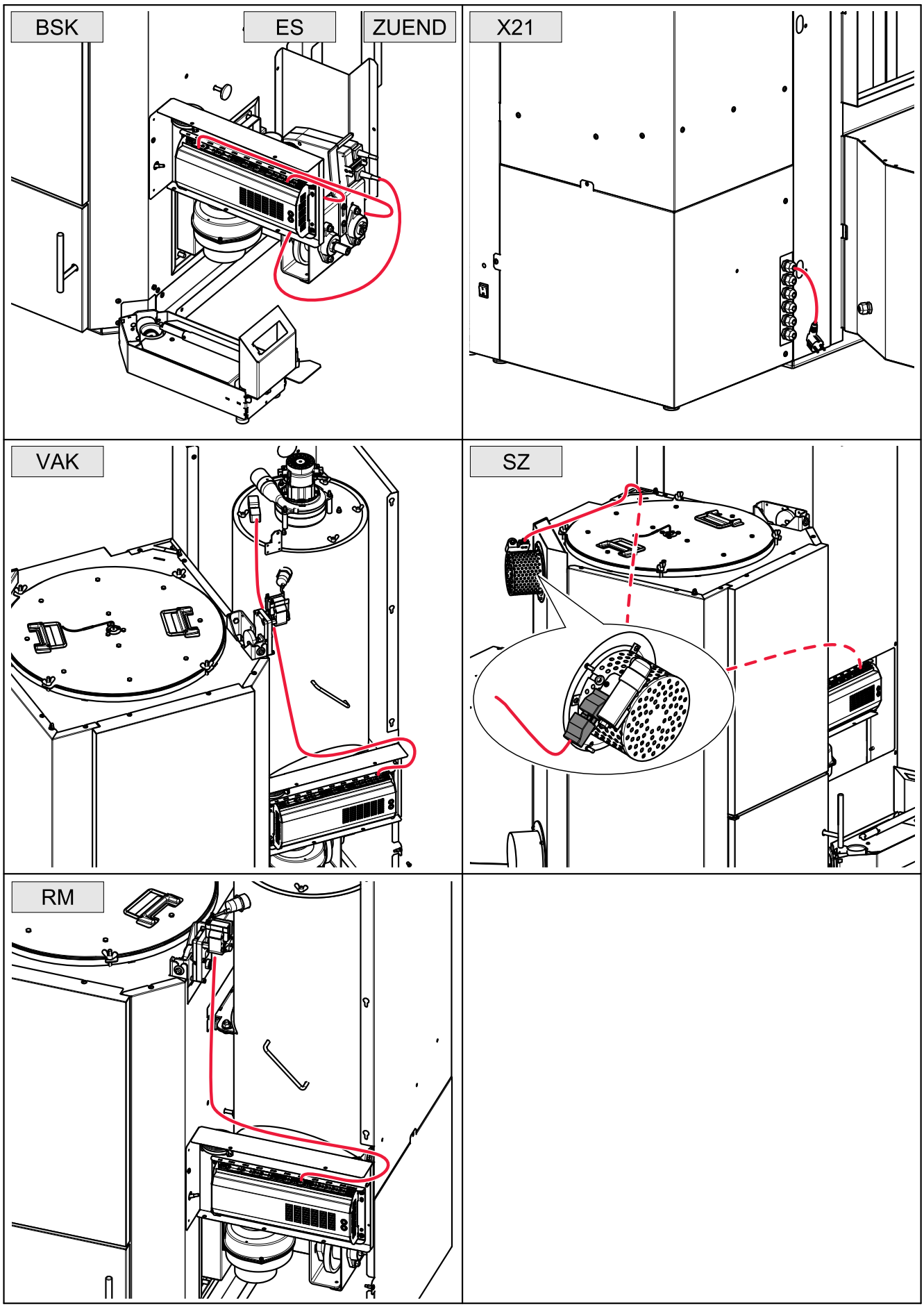
DANGER

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

NOTICE

Damage to the Furnace 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!


X1A
KF
UP
FRT
ESAV
AV
KAPZW

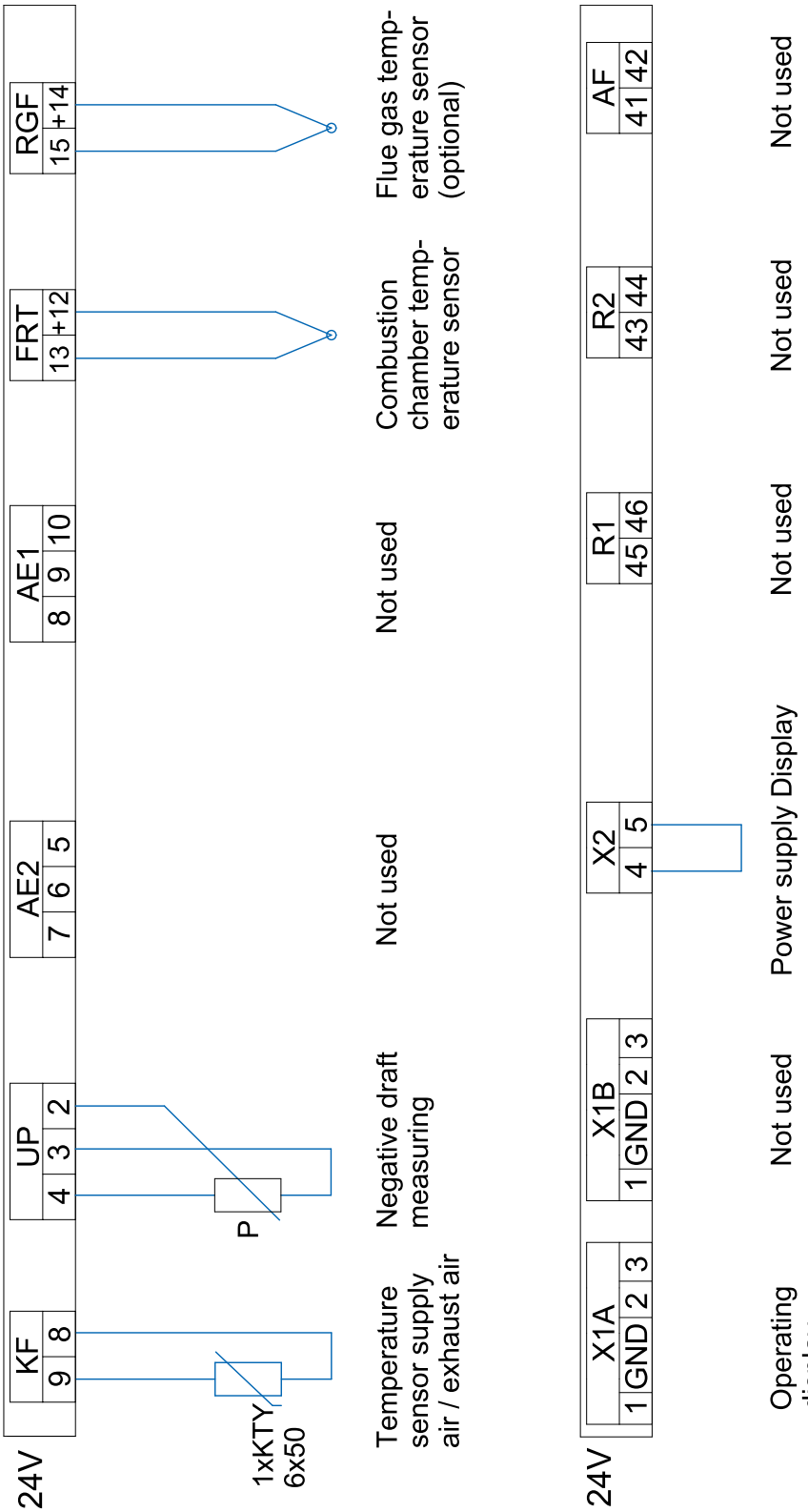

BSK
ES
ZUEND
X21
VAK
SZ
RM

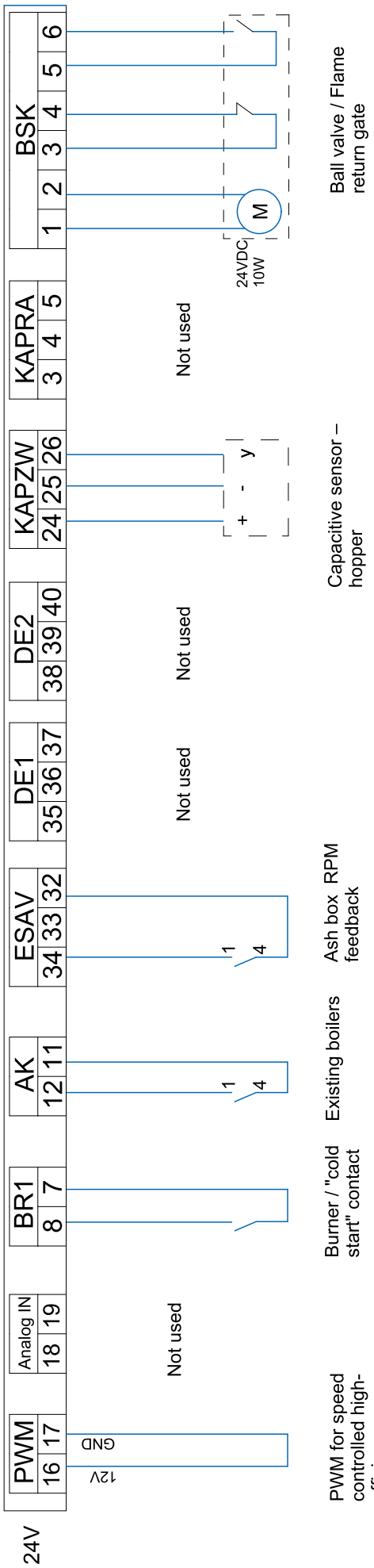
9.3 Wiring diagrams

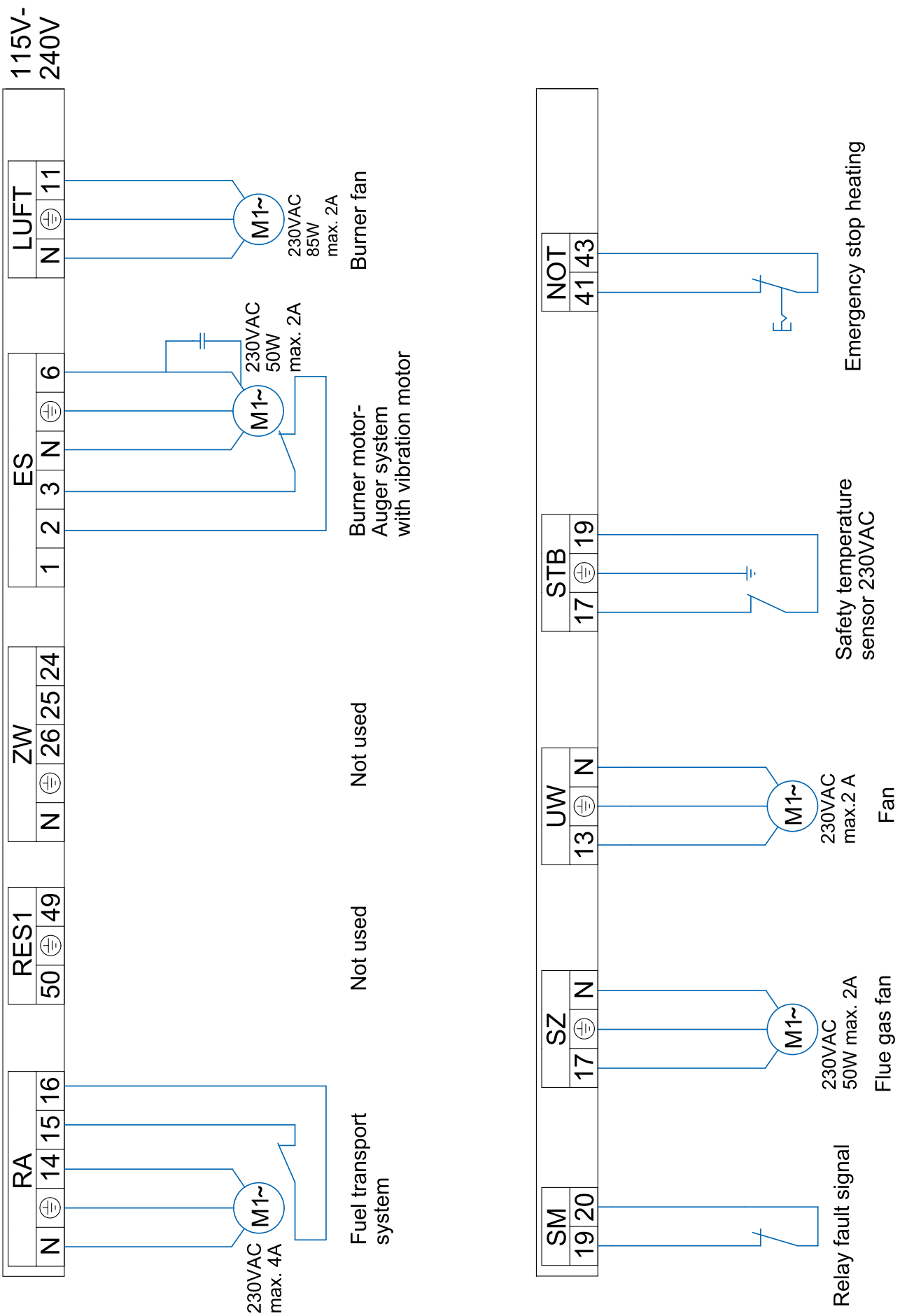
The wiring diagrams for the Furnace control unit provide detailed technical information for electricians.

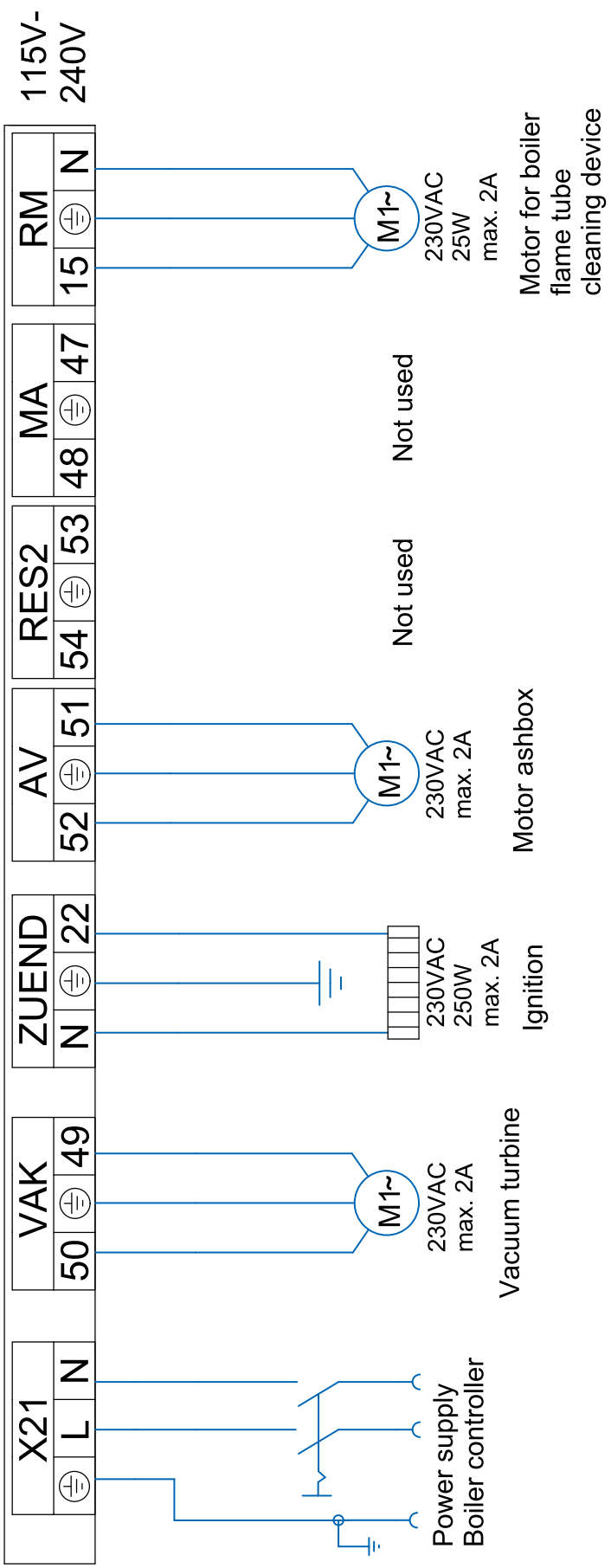
DANGER

Electric shock
Isolate the entire heating system from the power supply before starting work on the pellet Furnace.




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
Burner / "cold start" contact
Existing boilers
Ash box RPM feedback
Not used
Not used
Not used
Capacitive sensor – hopper
Ball valve / Flame return gate
24VDC 10W
M
+ - y
PWM for speed controlled high-efficiency pump


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
Not used
Not used
230VAC max. 4A
Fuel transport system
Safety temperature sensor 230VAC
Emergency stop heating
230VAC max.2 A
Fan
230VAC 50W max. 2A
Flue gas fan
Relay fault signal

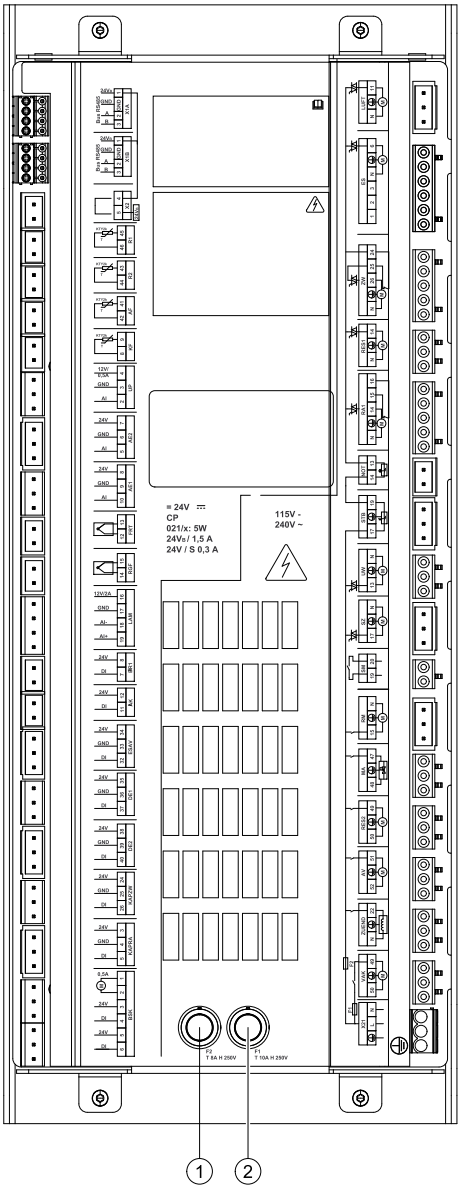

115V-240V
X21
L
N
VAK
50
49
ZUEND
N
22
AV
52
51
RES2
54
53
MA
48
47
RM
15
N
Power supply Boiler controller
Vacuum turbine
230VAC max. 2A
Ignition
230VAC 250W max. 2A
Motor ashbox
M1~
230VAC max. 2A
Not used
Not used
M1~
230VAC 25W max. 2A
Motor for boiler flame tube cleaning device

9.4 Fuses - Furnace controller

The control unit is protected against short circuits by fuses which are in the control panel (under the front Furnace panel). There are also fuses in the terminal box at the rear of the Furnace. 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

9.5 Operating the AutoPellet

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

10 Starting up for the first time

After bringing in the Furnace, 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 Furnace may only be commissioned (first start-up) by an authorized installer.

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

1. Adjust power rating
2. Settings in the Furnace control unit
3. Output test - test all motors
4. Start the pellet Furnace

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

NOTICE

Property damage
The allowable limits of temperature for the controller on the furnace are 40° F to 122° F. It is therefore necessary that the furnace room be no hotter than 90° F to avoid damage to the controller!

11 Malfunctions

11.1 Malfunctions - what to do

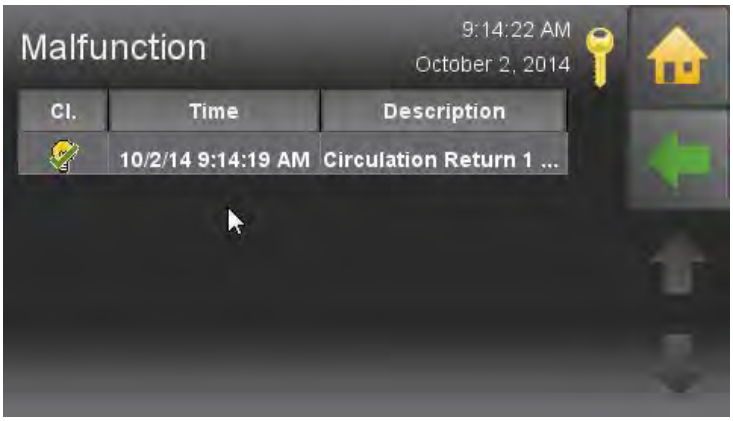
Follow the sequence described for handling malfunctions.

- The heating system switches off automatically if a malfunction occurs.
- The control unit display shows a malfunction alarm text.
- You have to rectify the cause of the malfunction.
- After rectifying the malfunction, you have to reset the fault text by pressing ✔ before starting the heating system again.

11.2 Fault texts

The fault text displayed on the screen provides information on the type, time and status of the malfunction as well as help for troubleshooting.

The menu item **malfunction** saves errors as long as they are not solved.
The chronological order of the errors helps to find the reason of the malfunction.



There are 3 different status of Malfunction messages

1. **C** – New fault: when the fault occurs
2. **G** – Rectified fault: when the fault has been rectified
3. **Q** – Reset fault: when the fault has been reset by pressing ✔

In the menu point **information**, all malfunctions are listetd chronological.

11.3 Malfunction report

This is a list of all malfunction reports on the display.

Code	Display	Input / Output		Affected element	Solution table
4005	BUS HCR 1	X1A or X1B		BUS-Network RS485	13.3
4006	BUS PE 1	X1A or X1B			
4007	BUS Remote 1	X1A or X1B			
4015	BUS Remote Touch 1	X1A or X1B			
4016	BUS Master	X1A or X1B			
4021	BUS Radio Remote 1	X1A or X1B			
5000	PE1 Reserve sensor1 BS	R1		Furnace Controller	13.1a
5001	PE1 Reserve sensor1 SC	R1		Furnace Controller	13.1b
5002	PE1 Reserve sensor2 BS	R2		Furnace Controller	13.1a
5003	PE1 Reserve sensor2 SC	R2		Furnace Controller	13.1b
5004	PE1 Outside sensor BS	AF		Furnace Controller	13.1a
5005	PE1 Outside sensor SC	AF		Furnace Controller	13.1b
5006	PE1 Furnace sensor BS	KF		Furnace Controller	13.1a
5007	PE1 Furnace sensor SC	KF		Furnace Controller	13.1b
5008	PE1 Fluegas sensor BS	RGF		Furnace Controller	13.4
5009	PE1 Fluegas sensor SC	RGF			
5010	PE1 Combustion sensor BS	FRT			
5011	PE1 Combustion sensor SC	FRT			
5012	PE1 Underpressure box BS	UP		Furnace Controller	13.5
5013	PE1 Underpressure box SC	UP			
5014	PE1 Analog input1 BS	AE1		Furnace Controller	13.6
5015	PE1 Analog input1 SC	AE1			
5016	PE1 Analog input2 BS	AE2			
5017	PE1 Analog input2 SC	AE2			
5018	PE1 Motor turbine	VAK		Furnace Controller	13.7
5019	PE1 Ignition	ZUEND		Furnace Controller	13.8
5020	PE1 Motor ashbox	AV		Furnace Controller	13.9
5021	PE1 Motor res 1	RES1		Furnace Controller	13.10
5022	PE1 Magnetic valve	MA		Furnace Controller	13.8
5023	PE1 Motor cleaning	RM			
5024	PE1 Flue gas fan	SZ		Furnace Controller	13.9
5025	PE1 Cirkulationspump	UW			
5026	PE1 Motor ext auger1	RA		Furnace Controller	13.11
5027	PE1 Motor ext auger2	ZW		Furnace Controller	13.9

Code	Display	Input / Output		Affected element	Solution table
5028	PE1 Motor between	RES1		Furnace Controller	13.12
5029	PE1 Motor Furnace auger	ES		Furnace Controller	13.9
5030	PE1 Combustion Fan	LUFT			
5032	PE1 Emergency stop	NOT		Furnace Controller	13.13
5033	PE1 Max temp sensor	STB			
5034	PE1 Ignition fault	generic		Furnace Controller	13.14
5036	PE1 Low flame temp				
5038	PE1 Firedamper open	BSK 1 2		Furnace Controller	13.15
5039	PE1 Firedamper closed	BSK 3 4			
5040	PE1 Firedamper end switch	BSK 1 2 3 4			
5041	PE1 Low underpressure	UP, SZ, LUFT		Furnace Controller	13.5
5042	PE1 Low underpressure	UP, SZ, LUFT			
5043	PE1 Vacuum system	KAPZW, RA		Furnace Controller	13.16
5044	PE1 Ashbox full	ESAV, AV		Furnace Controller	13.17
5045	PE1 Ball lock	DE1		Furnace Controller	13.18
5047	PE1 Burner Motor	ES		Furnace Controller	13.19
5048	PE1 Burner gas open-circuit	RGF		Furnace Controller	13.4
5049	PE1 Burner gas short-circuit				
5052	PE1 Container cover open	AK		Furnace Controller	13.20
5053	PE1 ash warning	ESAV, AV		Furnace Controller	13.17
5054	PE1 pellets warning	AE1		Furnace Controller	13.21

13.2 Collektor sensor (Fault 1010, 2010, 3010)

Display:	**[1010] Collektor BC**		
Description:	Collector sensor fracture, measuring circuit of collector sensor (X15) is open		
Cause and Remedy:	Sensor not connected	►	Check and correct wiring
	Sensor defect	►	Measure sensor (approx. 1,1kΩ at 77 °F), replace if required
	Sensor cable defect	►	Replace sensor
Display:	**[2010] Collektor SC**		
Description:	Measuring circuit of collector sensor (X15) is shorted out		
Cause and Remedy:	Sensor defect	►	Measure sensor (approx. 1,1kΩ at 77 °F), replace if required
	Sensor cable defect	►	Replace sensor
Display:	**[3010] Collektor**		
Description:	Other fault at input X15		
Cause and Remedy:	Sensor defect	►	Replace sensor
	Sensor cable defect	►	Replace sensor
	Input on heating controller defect	►	Replace input on heating controller

13.3 Bus (Fault 4005, 4006, 4007, 4015, 4016)

Display:	**[4005] BUS HCR**		
Description:	Time-Out of BUS-connection from touch operating device to heating controller		
Cause and Remedy:	Wrong cable connection	►	Check cable connection
	No power supply available	►	Connect heating controller to BUS
	Fuse in heating controller defect	►	Replace fuse
Display:	**[4006] BUS PE**		
Description:	Time-Out of BUS-connection from touch operating device to Furnace controller		
Cause and Remedy:	Wrong cable connection	►	Check cable connection
	No power supply available	►	Connect heating controller to power supply (X21)
	Fuse in heating F2 defect	►	Replace fuse F2
Display:	**[4007] BUS Remote**		
Description:	Time-Out of BUS-connection of remote control		
Cause and Remedy:	Wrong cable connection	►	Check cable connection
	Remote controll defect	►	Replace remote controll
Display:	**[4015] BUS Remote Touch**		
Description:	Time-Out of BUS-Connection from remote controll to Touch operating device		
Cause and Remedy:	Wrong cable connection	►	Check cable connection
	Wrong softwareversion	►	Check version of software
Display:	**[4016] BUS Master**		
Description:	Missing BUS connection to master-operating device		
Cause and Remedy:	Wrong cable connection	►	Check cable connection

13.4 Combustion chamber sensor (Fault 5010, 5011, 5048, 5049)

Display:	**[5010] PE Combustion sensor BS**		
Description:	Combustion chamber sensor fracture, measuring circuit from combustion chamber sensor is open – Input FRT		
Cause and Remedy:	Sensor not connected	►	Connect sensor at input
	Sensor defect	►	Measure sensor (approx. 5 mV at 257 °F) replace if required
	Sensor cable defect	►	Replace sensor
	Sensor temperature too high	►	Sensor temperature above measuring range (2012 °F)
Display:	**[5011] PE Combustion sensor SC**		

Description:	Combustion chamber sensor short circuit, measuring circuit from combustion chamber sensor short circuit – Input FRT		
Cause and Remedy:	Sensor defect	►	Measure sensor (approx. 5 mV at 257 °F) replace if required
	Sensor cable defect	►	Replace sensor
	Sensor temperature too low	►	Sensor temperature below measuring range (14 °F)
	Sensor polarity reversed	►	Change sensor connection + and –

13.5 Underpressure box (Fault 5012, 5013, 5041, 5042)

Display:	**[5012] PE Underpressure box BS**		
Description:	Negative draft input open, measuring circuit from negative draft measurement open – Input UP		
Cause and Remedy:	Signal incorrect	►	Check poarity and signal (0-10V)
	Signal cable defect	►	Replace sensor
	No signal	►	Replace underpressure box
	Combustion chamber leak	►	Check total closure of Furnace door

Display:	**[5013] PE Underpressure box SC**		
Description:	Negative draft input short-circuit, measuring circuit from negative draft measurement is shorted out – Input UP		
Cause and Remedy:	Signal incorrect	►	Check poarity and signal (0-10V)
	Signal cable defect	►	Replace sensor
	Signal too high	►	Signal above 10V
Display:	**[5041] [5042] PE Low underpressure**		
Description:	Negative draft pressure in Furnace is not achieved [5041] or is too high [5042] – Exit LUFT (SMART + Condens) / Output SZ (PE+PEK)		
Cause and Remedy:	Negative draft tube disconnected	►	Connect up negative draft tube
	Negative draft does not change	►	Check negative draft tube for leaks. Check flue gas tube for blockage.
	Negative draft pressure too low	►	Close Furnace door, check tube to negative draft sensor, check whether Furnace flue gas outlet is clear, check whether condensation heat exchanger is clear. Make sure flue gas fan is running.
	Negative draft pressure too high	►	Check induced draft blower

13.6 Analog input (Fault 5014, 5015, 5016, 5017)

Display:	**[5014] / [5016] PE Analog input 1/2 BS**		
Description:	Analog input 1/ 2 sensor fracture, measuring circuit of Analog input sensor open – Output AE1 / AE2		
Cause and Remedy:	Signal incorrect	►	Check poarity and signal (0-10V)
	Signal cable defect	►	Replace sensor
	Level detection system activated (valid for AE2)	►	Check settings
Display:	**[5015] / [5017] PE Analog input 1 /2 SC**		
Description:	Analog input 1 / 2 sensor short circuit, measuring circuit of Analog input sensor is shorted out – Input AE1/AE2		
Cause and Remedy:	Signal incorrect	►	Check poarity and signal (0-10V)
	Signal cable defect	►	Replace sensor
	Signal too high	►	Signal above 10V

13.7 Motor turbine (Fault 5018)

Display:	**[5018] PE Motor Turbine**		
Description:	Vaccuum turbine not running (Exit VAK)		
Cause and Remedy:	Motor unplugged	►	Plug in motor, check cable connections
	Motor defect	►	Replace motor
	Fuse F1, suction circuit board defective	►	Replace fuse

13.8 Output 230V (Fault 5019, 5022, 5023)

Display:	**[5019] PE Ignition** **[5022] PE Magnetic valve** **[5023] PE Motor cleaning**		
Description:	No function of output ZUEND (Ignition)/MA (Magnetic valve)/ RM (Motor cleaning)		
Cause and Remedy:	Output unplugged	►	Connect plug, check cable wiring
	Current value above the maximal Limit	►	Check limits
	Current value under the minimal Limit	►	Check limits

13.9 Output 230V-2 (Fault 5020, 5024, 5025, 5027, 5029, 5030)

Display:	**[5020] PE Motor ashbox (Output AV)** **[5024] PE Flue gas fan (Output SZ)** **[5025] PE Cirkulationspump (Output UW)** **[5027] PE Motor ext auger2 (Output RES2)** **[5029] PE Motor Furnace auger (Output ES)** **[5030] PE Combustion Fan (Output LUFT)**		
Description:	No function of the respective motor/pump/fan		
Cause and Remedy:	Motor/pump/fan unplugged	►	Connect plug, check cable wiring
	Motor/pump/fan defect	►	Replace motor/pump/fan

13.10 Zwischenbehälter leer - Motor res 1 (Fault 5021)

Display:	**[5021] PE Hopper empty / Motor RES1 (for 36-56 kW, Pellematic Condens or PEB)**		
Description:	No function of PE motor res 1		
Cause and Remedy:	Motor unplugged	►	Plug in motor, check cable connections
	Motor defect	►	Replace motor
	No pellets available	►	Refill storage-Room / supply tank

13.11 Motor extraction auger 1 - RA (Fault 5026)

Display:	**[5026] Motor ext auger1**		
Description:	Storage room auger 1 motor defect – Output RA		
Cause and Remedy:	Motor unplugged	►	Plug in motor, check cable connections
	motor is jammed	►	Remove pellets and dust from auger and make sure auger rotates freely
	Motor defect	►	Replace motor
	Thermic contact triggered	►	Let motor cool down
	Motor not running	►	Check thermic contact

13.12 Hopper motor (Fault 5028)

Display:	**[5028] Hopper motor**		
Description:	Hopper suction fan fault. Output ZW.		
Cause and Remedy:	Motor unplugged	►	Plug in motor, check cable connections
	Motor defect	►	Replace motor

13.13 Emergeny OFF/ Safety temperature (Fault 5032, 5033)

Display:	**[5032] Emergeny OFF – NOT AUS**		
Description:	Emergency OFF has been actuated – Input NOT-AUS		
Cause and Remedy:	Emergency OFF unplugged	►	Connect up Emergency OFF and check cable connections
	Emergency OFF button has been pressed	►	Reset Emergency OFF switch
	Emergency OFF defect	►	Replace Emergency OFF switch
Display:	[5033] Safety temperature - STB		
Description:	Safety temperature limiter has tripped – Input STB		
Cause and Remedy:	Safety temperature limiter unplugged	►	Connect up safety temperature limiter and check cable connections
	Safety temperature limiter has tripped	►	Let Furnace cool down and reset safety temperature limiter
	Safety temperature limiter defect	►	Replace safety temperature limiter
	A 230V Output is defect	►	Check 230V Outputs

13.14 Temperature Combustion chamber sensor/Flue gas sensor (Fault 5034, 5036)

Display:	**[5034] PE Ignition fault / Pellets available?**		
Description:	Minimum temperature Combustion chamber sensor/Flue gas sensor not reached durring the ignition phase		
Cause and Remedy:	No pellets available	►	Fill up with pellets
	Ignition electrode defect	►	Check ignition electrode (approx. 200Ω) replace if required
	Ignition nozzle blocked	►	Clean burner plate and ignition tube

	Not enough draught	►	Check ventilation flap, funktion radial fan, draught free
	Flue gas sensor or flamm-roomtemperature-sensor soiled	►	Check Flue gas sensor or flammroom-tem-perature-sensor
Display:	**[5036] PE Flame supervision fault**		
Description:	Flame supervision fault, minimum flue gas temperature not reached during heating up at full power – Input FRT		
Cause and Remedy:	No pellets available	►	Fill up with pellets

13.15 Flame return gate BSK (5038, 5039, 5040)

Display:	**[5038] PE Flame return gate open**		
Description:	Flame return gate open fault (BSK - 1 2)		
Cause and Remedy:	Flame return gate unplugged	►	Connect up flame return gate and check cable connections
	Flame return gate does not reach OPEN limit switch	►	Check ball valve to see if it is jammed
	No signal although open	►	Check cables and flame return gate
Display:	**[5039] PE Flame return gate closed**		
Description:	Flame return gate open fault		
Cause and Remedy:	Flame return gate unplugged	►	Connect up flame return gate and check cable connections
	Flame return gate does not reach CLOSE limit switch	►	Check whether ball valve is jammed, check ball valve throughway to see if foreign ob-jects are preventing it from closing
	No signal although closed	►	Check cables and flame return gate
Display:	**[5040] PE Flame return gate limit switch**		
Description:	Both flame return gate limit switches (BSK 1-2 and BSK 3-4) are closed at the same time		
Cause and Remedy:	Both limit switches activated	►	Check flame return gate, check cables, check connectors

13.16 Suction system (Fault 5043)

Display:	**Suction system**		
Description:	Hopper cannot be filled up even after 3 suction cycles		
Cause and Remedy:	Storage room empty	►	Fill up with pellets
	Extraction system is blocked	►	Clear extraction system
	Extraction system not con-veying pellets	►	Pellet bridge - destroy bridge and make sure material flows properly

	Suction fan unplugged	►	Connect up suction fan
	Storage room auger motor unplugged	►	Connect up storage room motor

13.17 Ashbox full (Fault 5044) – Ash Warning (Fault 5053)

Display:	**[5044] PE Ashbox full**		
Description:	Moter doesn't reach the normal speed after 3 attempts.		
Display:	**[5053] PE Ash Warning**		
Description:	Ash-box nearly full		
Cause and Remedy:	Ash-box full	►	Clear ash-box
	Ash-box not completely closed	►	Close ash-box
	End-switch defect	►	Replace end-switch

13.18 Ball lock (Smart and Condens only – Fault 5045)

Display:	**[5045] PE Ball lock** – Smart and Condens only		
Description:	No pellets detected from capacitive sensor (KAP RA)		
Cause and Remedy:	Pellet reserves depleted	►	Refill storage-Room / supply tank
	Capacitve sensor RA defect	►	Replace Capacitve sensor RA

13.21 Pellets Warning (Fault 5054)

Display:	**[5054] PE 1 Pellets Warning**		
Description:	Measured pellets capacity (AE2) is below the threshold		
Cause and Remedy:	Pellets nearly empty or empty	►	Fill up with pellets
	Sensor unpuged (AE2)	►	Connect plug
	Parameter set incorrectly	►	Check settings in menu Level detection system (protected access)

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 Furnace:
Street:	Rated power:
Place:	Year of build:
Name and adress of installer	Manufacturer`s serial number:
Name:	Type of accumulator:
Street:	Solar device:
Place:	

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		
Pellet Furnace			
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 Furnace room have required make-up air?		
Nameplate	Is the nameplate placed on the Furnace?		
Electric installation and regulation			
Power supply	Check the electrical connection? (terminal box)		
	Check the ratings of the fuses.		
Settings-Furnace control unit	Are the settings of the Furnace control unit according to the installation manual?		
Temperature sensor supply air / exhaust air	Securing location and connection		
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.		
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.		
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:**

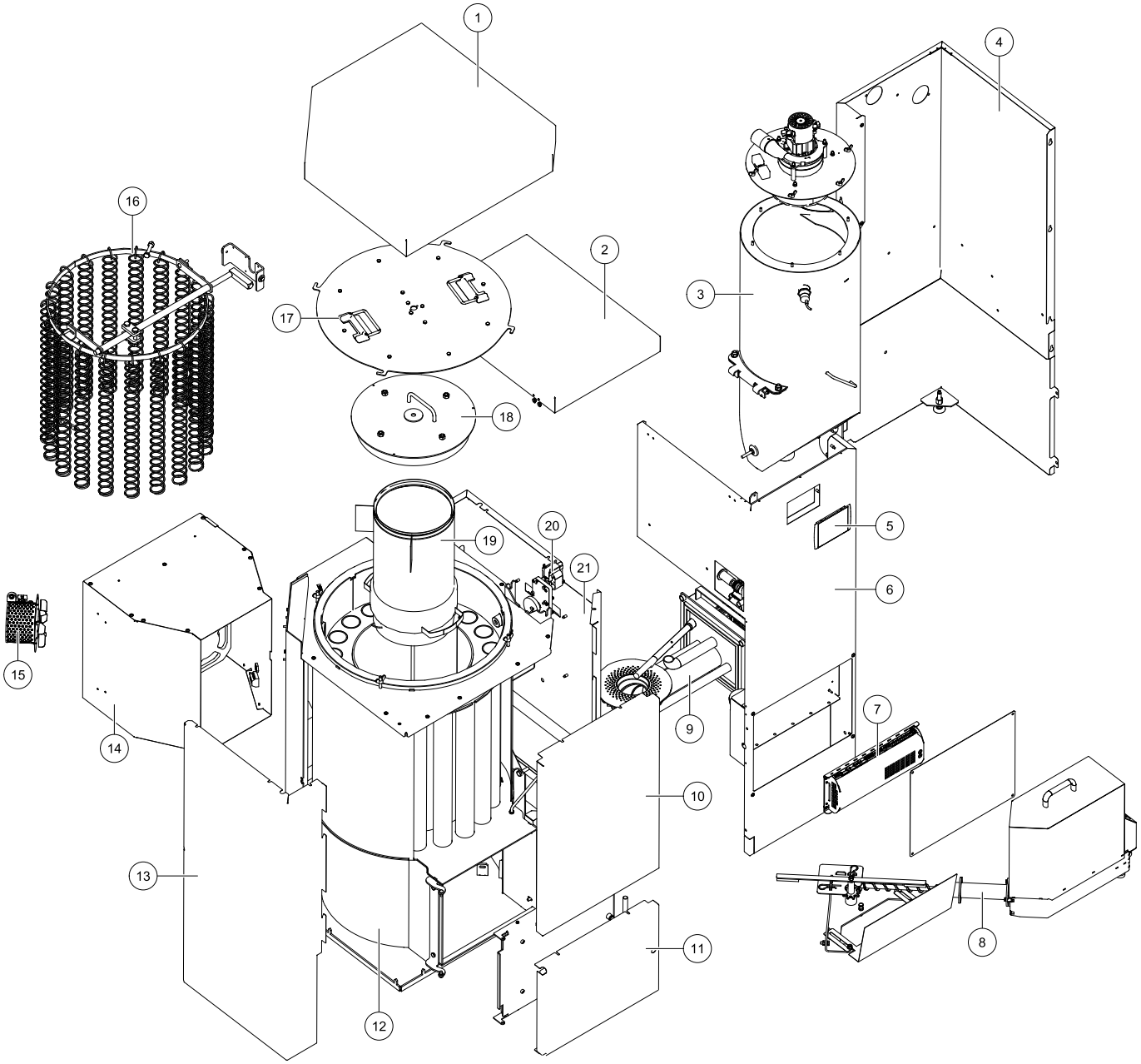
_____ _____

The customer confirmes that the installer has shown how to operate the Furnace, 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 Parts list

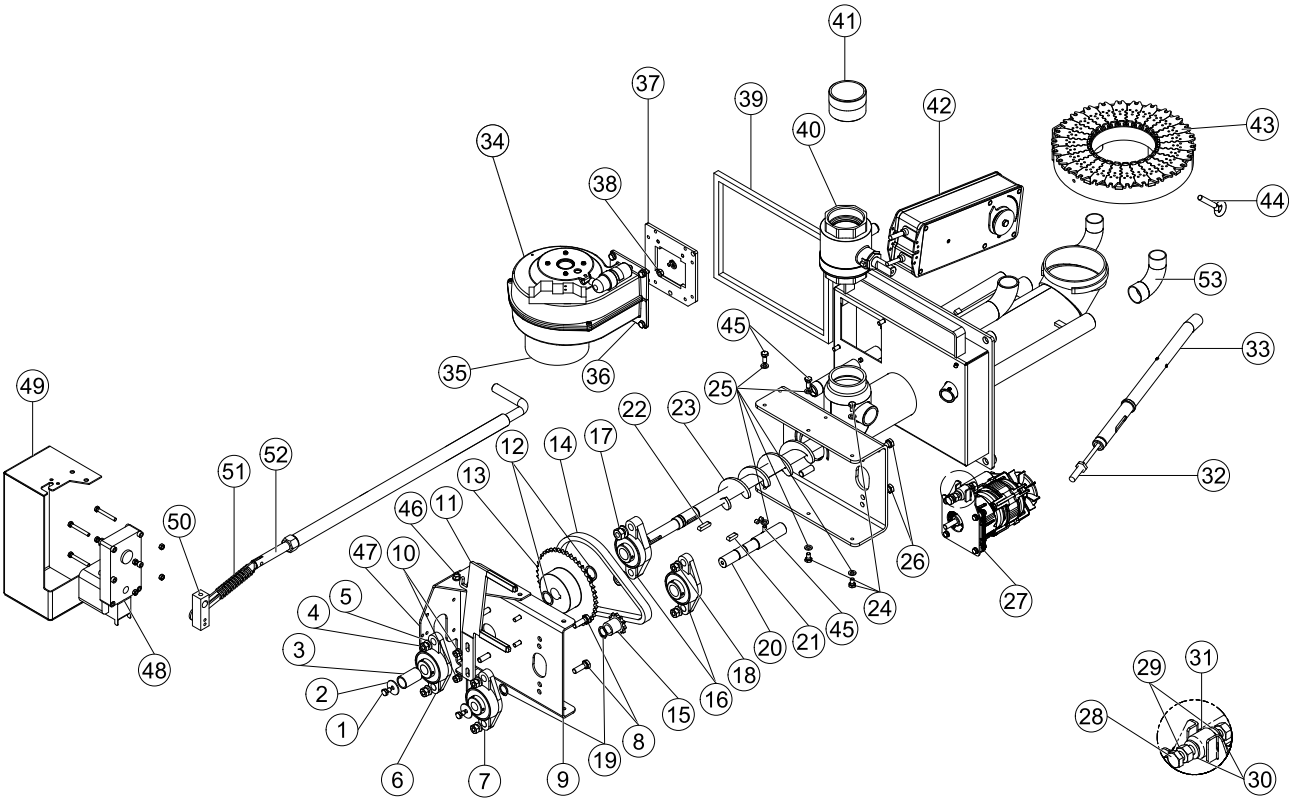
12.2.1 Furnace 10-32

1	109760	9	1039449	17	101669
2	110280	10	110233	18	101665
3	103235	11	110688	19	103098
4	109785	12	109708	20	107217
5	107272	13	109775	21	109778
6	109748	14	110706		
7	106684	15	105833		
8	103930	16	110682		

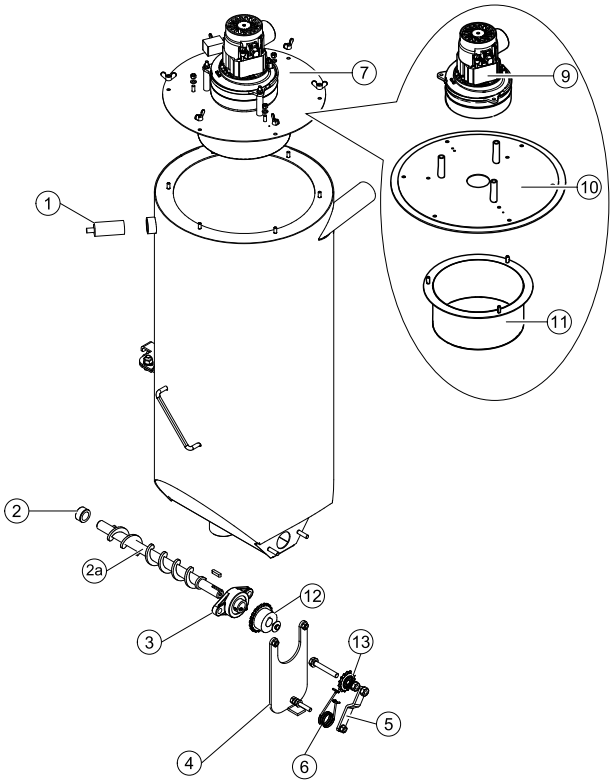


B0030 / B0030 BRE

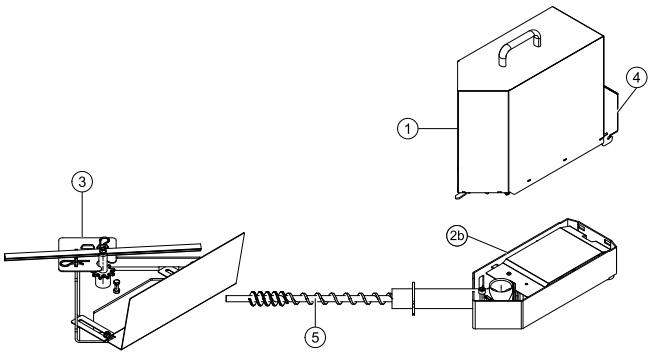
1	121041	19	121196	37	B148
2	121058	20	B172	38	121082
3	B150	21	121197	39	B152
4	121039	22	121023	40	B144
5	121038	23	B131	41	B132
6	121011	24	121041	42	E1413E
7	121195	25	121037	43	B226E
8	121051	26	121079	44	121284
9	B179	27	E1030 / E1002-1	45	121034 / 121082
10	121082 / 121037	28	121166	46	121034 /121037 / 121082
11	B129P	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	B202
18	121039 / 121038	36	121041		



041886 – Hopper					
1	E1138	5	041071	11	041868
2	121114	6	121122	12	121250
2a	SZB	7	E1368	13	121253
3	121010	9	E1205		
4	041070	10	041869		



PEASCHRE Ashbox



1	PE442	2b	PE439	4	PE453
2a	PE440	3	PE373	5	PE462

12.3 Technical data

Furnace – Type									
Furnace-rated power	BTU/hr								
	kW								
Furnace-partial load	BTU/hr								
	kW								
Measurements									
Width - total (B)	**Inch**								
	mm								
Width - Furnace (C)	**Inch**								
	mm								
Height - Furnace (H)	**Inch**								
	mm								
Height - vacuum system execu-tion (D)	**Inch**								
	mm								
Height - filling unit (F)	**Inch**								
	mm								
Depth - Furnace (T)	**Inch**								
	mm								
Depth - burner casing (V)	**Inch**								
	mm								
Flow/return - dimensions	**Inch**								
Flow/return - height of con-nection (A)	**Inch**								
	mm								
Flue size - diameter	**Inch**								
	mm								
Flue - height of connection (E)	**Inch**								
	mm								
Overall Weight	**Lb**								
	kg								
Furnace Body Weight	**Lb**								
	kg								
Efficiency rated power	**%**								
Efficiency partial power	**%**								
Flue gas area									
Fire vault temperature	**°F**								
	°C								
Fire vault pressure	**Inch WC**								
	mbar								

Furnace – Type									
Flue gas temperature rated power (Flue gas temperature can be adjusted)	**°F**								
	°C								
Flue gas temperature partial load (Flue gas temperature can be adjusted)	**°F**								
	°C								
Flue gas inertia current rated power	**Lb/hr**								
	kg/h								
Flue gas inertia current partial load	**Lb/hr**								
	kg/h								
Flue gas volume rated power	**Cft/hr**								
	m³/h								
Flue gas volume partial load at flue gas temperature	**Cft/hr**								
	m³/h								
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.							
Fuel	**USA**	According to PFI Premium Standards or EnPlus -A1 pellets							
	Europe	According to EN14961–2 Standards (A1 Class)							
Colorific value	**BTU/lbs**								
	MJ/kg								
Bulk density	**Lb/cft**								
	kg/m³								
Water content	**Mass%**								
Ash content	**Mass%**								
Lenght	**Inch**								
	mm								
Diameter	**Inch**								
	mm								
Fine material	**Mass%**								
	Mass%								
Ash melting point	**°F**								
	°C								
Contents	**USA**	untreated wood							
	Europe	stemwood or chemically untreated wood							

Furnace – Type									
Components									
Internal ash pan volume	**Gal**								
	lb								
External ash box volume	**Gal**								
	lb								
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							
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
Address: A-3250 Wieselburg, Rottenhauserstraße 1; Tel.: +43-7416-52175-0

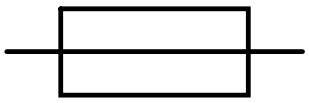
Note:
Test reports are available

12.4 Pellet Furnace 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** 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	COPPER CONDUCTORS ONLY!

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 **FOR SAFETY KEEP FIRING AND ASHPIT DOORS TIGHTLY CLOSED.**	**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	**FUSE**  **T 8A**
DANGER **MOVING PARTS CAUSE INJURY! DO NOT OPERATE WITH REMOVED COVERING!**	**BLOWER FILTER TYPE** **25 kW:** AERO20x20x1 - CLASS EN7799:2012 **32 kW:** AERO24x24x1 - CLASS EN7799:2012

NOTICE MAY BE CONNECTED TO DUCTWORK THAT IS STILL CONNECTED TO ANOTHER FURNACE	**NOTICE** THERE SHALL BE NO OPENINGS MADE IN THE FURNACE CASING OTHER THAN THOSE MADE DURING MANUFACTURING
NOTICE DO NOT CONNECT DUCTWORK SO THAT A REVERSE FLOW IS POSSIBLE	**NOTICE** OPERATE THE OIL –FIRED UNIT PERIODICALLY TO ENSURE THAT IT WILL OPERATE SATISFACTORILY WHEN NEEDED
NOTICE DO NOT RELOCATE OR BYPASS ANY OF THE SAFETY CONTROLS IN THE ORIGINAL FURNACE INSTALLATION	**⚠ CAUTION** MAINTAIN COMBUSTION-AIR SUPPLY TO BOTH FURNACES. AIR STARVATION IS DANGEROUS
NOTICE REFER TO MANUFACTURER'S INSTRUCTIONS	**NOTICE** THE MAIN WARM AIR PLENUM COMING FROM THE FURNACE SHALL BE NO SMALLER THAN 12 BY 20 INCHES

Identity of Installer _____ Installer's address _____ Date of Installation _____ It is the recommendation of the manufacturer that this system be inspected yearly by a qualified person	**⚠ CAUTION** DISCONNECT POWER FROM BOTH ELECTRIC FURNACE AND PELLET FURNACE BEFORE SERVICING
⚠ CAUTION THIS EQUIPMENT MAY ONLY BE INSTALLED AND TESTED BY QUALIFIED PERSONNEL	**NOTICE** THE FLUE PIPE MUST BE A MINIMUM OF 12 INCHES FROM THE ELECTRIC FURNACE CASING AND POWER SUPPLY AND ANY OTHER ELECTRICAL WIRING
NOTICE THIS FURNACE CERTIFIED IN SEPTEMBER OF THE YEAR 2015	**NOTICE** DO NOT CONNECT THIS FURNACE TO A CHIMNEY SERVING A GAS APPLIANCE
NOTICE A FRESH AIR OPENING OF AT LEAST 32 SQUARE INCHES SHALL BE PROVIDED	Identity of gas fitter performing before inspection of gas furnace _____ Address_____ Date _____ Identity of gas fitter performing after inspection of gas furnace_____ Address_____ Date_____

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

⚠ DANGER

HOT SURFACES AND MOVING PARTS MAY CAUSE INJURY!

RISK OF FIRE OR EXPLOSION – DO NOT BURN GARBAGE, GASOLINE, DRAIN OIL OR OTHER FLAMMABLE LIQUIDS

⚠ 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 OR FLUIDS TO START THE FIRE
- DO NOT BURN GARBAGE, GASOLINE, NAPHTHA, ENGINE OIL, OR OTHER INAPROPRIATE MATERIALS.

⚠ 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.

⚠ 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

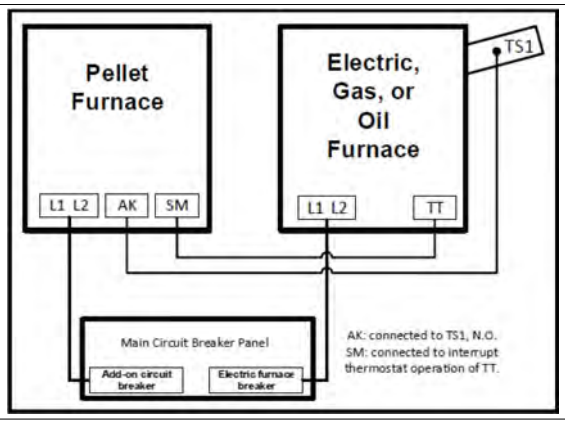
LOSS OF ELECTRICAL POWER

NO DANGER
PELLET FURNACE COOLS DOWN AUTOMATICALLY

INSPECT AND **CLEAN** EXHAUST VENTING SYSTEM FREQUENTLY

NOTICE

Appliance clearances:
Top @ tallest point: 1" Front: 20"
Rear: 12" Right side: 10"
Left side: 12"
Plenum clearance for the first 43" shall be no less than 2 inches. After 43" away from the furnace, there is no required clearance.


Pellet Furnace
L1 L2
AK
SM
Electric, Gas, or Oil Furnace
L1 L2
TT
TS1
Main Circuit Breaker Panel
Add-on circuit breaker
Electric furnace breaker
AK: connected to TS1, N.O.
SM: connected to interrupt thermostat operation of TT.

Author & Manufacturer

MAINE ENERGY SYSTEMS LLC
8 Airport Road — P.O. Box 547 Bethel
Maine 04217

E-Mail: info@maineenergysystems.com
www.maineenergysystems.com