Installation, operation and care



Burner not included

Pellmax UB

VÄRMEBARONEN

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ver: Pellmax UB
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To be completed when the Pellmax UB is installed

Serial number: .....

Installation date: .....

Installer: .....

Tel: .....

Other: .....

.....

.....

.....

.....

.....

Read this document carefully before carrying out any installation, adjustment or service – and follow the instructions.

Keep these instructions close to the boiler!
The boiler must not be modified, changed or rebuilt.
To guarantee high reliability, all installation, adjustment and ongoing service must be carried out correctly.
The correct settings are important for economical heating.
The type and serial number of the boiler must be quoted whenever you contact your retailer, see the rating plate.
For service issues, contact your installer.
Värmebaronen AB retains the right to change the specification without prior notice, as part of its policy of continuous improvement and development.

You may see the following symbols in these instructions and on the product:

Information that is important for optimum function.

Tells you what you must – or must not – do in order to avoid personal injury.

Tells you what you must – or must not – do in order to prevent damage or disturbance to the component, the burner, the process or the surroundings.

For further details, see the documentation supplied with the product.

Function

Applications

The Pellmax UB is a pellet burner designed to be used as part of a system including an Elomax 250/450 or Aqualux accumulator tank. The boiler can also be used with other compatible accumulator tanks or a tank-in-tank water heater. Minimum volume 300 litres.

The system is environmentally friendly, economical and easy to manage, and requires minimal care.

Compact and effective

The Pellmax UB is compact and easy to find space for. It is only 95 cm tall, and easy to look after. Its high efficiency guarantees good fuel economy.

Large ash bin

The large ash bin means that you only need to empty the ash a few times a year.

Easy to clean

The boiler pipes are round, with no corners where soot and ash can collect. Use the supplied pipe brush to clean the pipes from the same hatch on the front of the boiler.

Testing

The Pellmax UB has been tested, with the Viking Bio pellet burner, by SP, Technical Research Institute of Sweden, and meets the requirements of the EN 303-5 standard.

Product contents

Angled flue pipe with lockable draught regulator.

Cleaning tool with bracket hanger.

Drain valve.

Accessories

Upwards flue pipe.

Round flue pipe.

Attachment for external control.

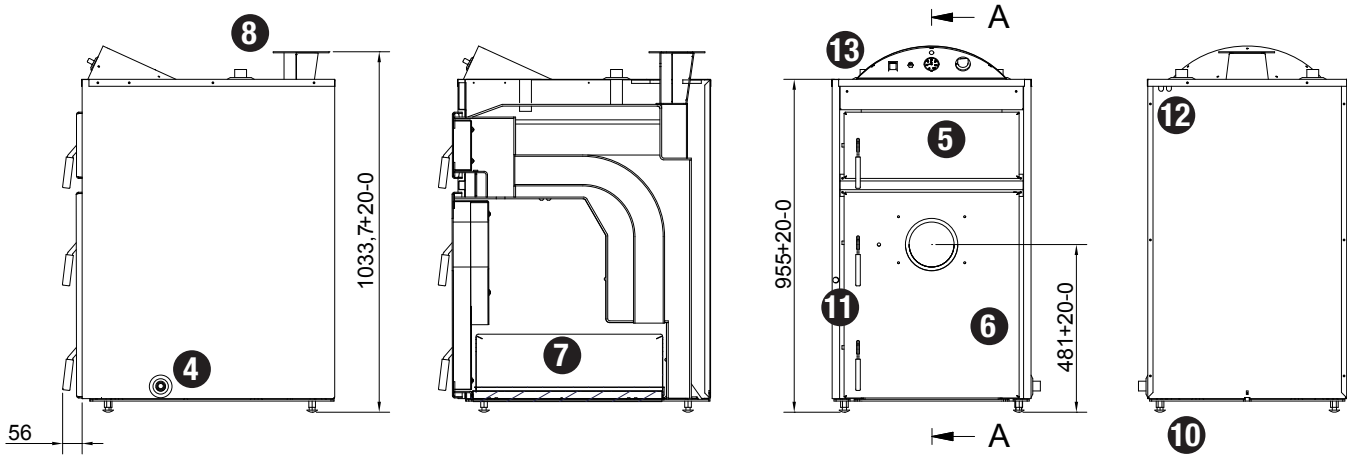
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Technical data

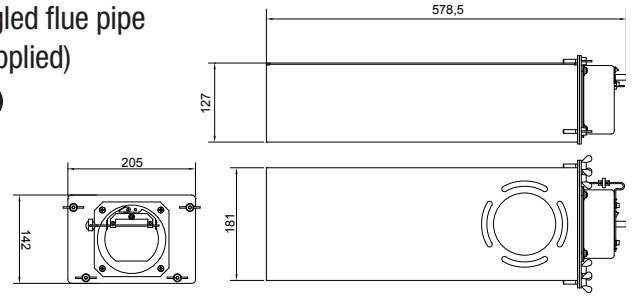
Weight: empty:	210	kg
filled with water:	300	kg
Volume:	80	litre
Design pressure:	3	bar
Test pressure:	4.3	bar
Design temperature:	110	°C
Operating temperature	30-90	°C
Power:	20	kW
Flue gas flow:	11.9	g/s
Volume of ash bin:	24	litre
Voltage:	230 V~, 50 Hz	
Fuse:	10	A
Protection class:	IP21	
Manufactured to:	AFS 1999:4, §8, 97/23 EG Article 3.3	

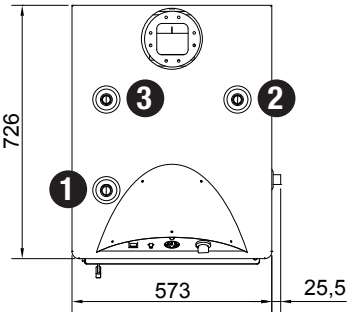
Legend

1. Flow pipe R 20 int.
2. Return pipe R 20 int.
3. Safety valve / Venting / Expansion vessel R 20 int.
4. Drain valve / Expansion vessel, R 15 int.
5. Cleaning hatch.
6. Pellet burner hatch.
7. Ash bin.
8. Flue pipe connection.
9. Flue pipe with draught regulator.
10. Adjustable base bolts.
11. Cable tray for burner cable.
12. Cable trays for circulation pump and power supply.
13. Control panel.

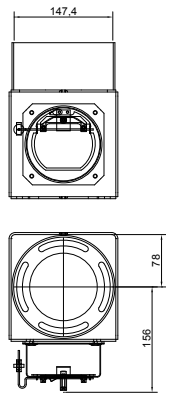


Angled flue pipe (supplied) 9

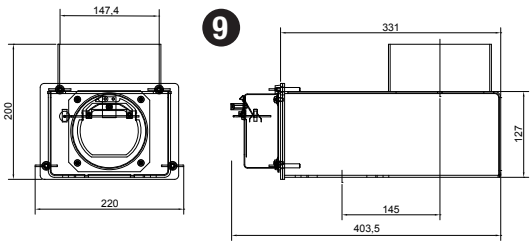


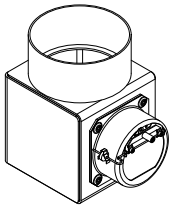


Flue pipe up (accessory) 9

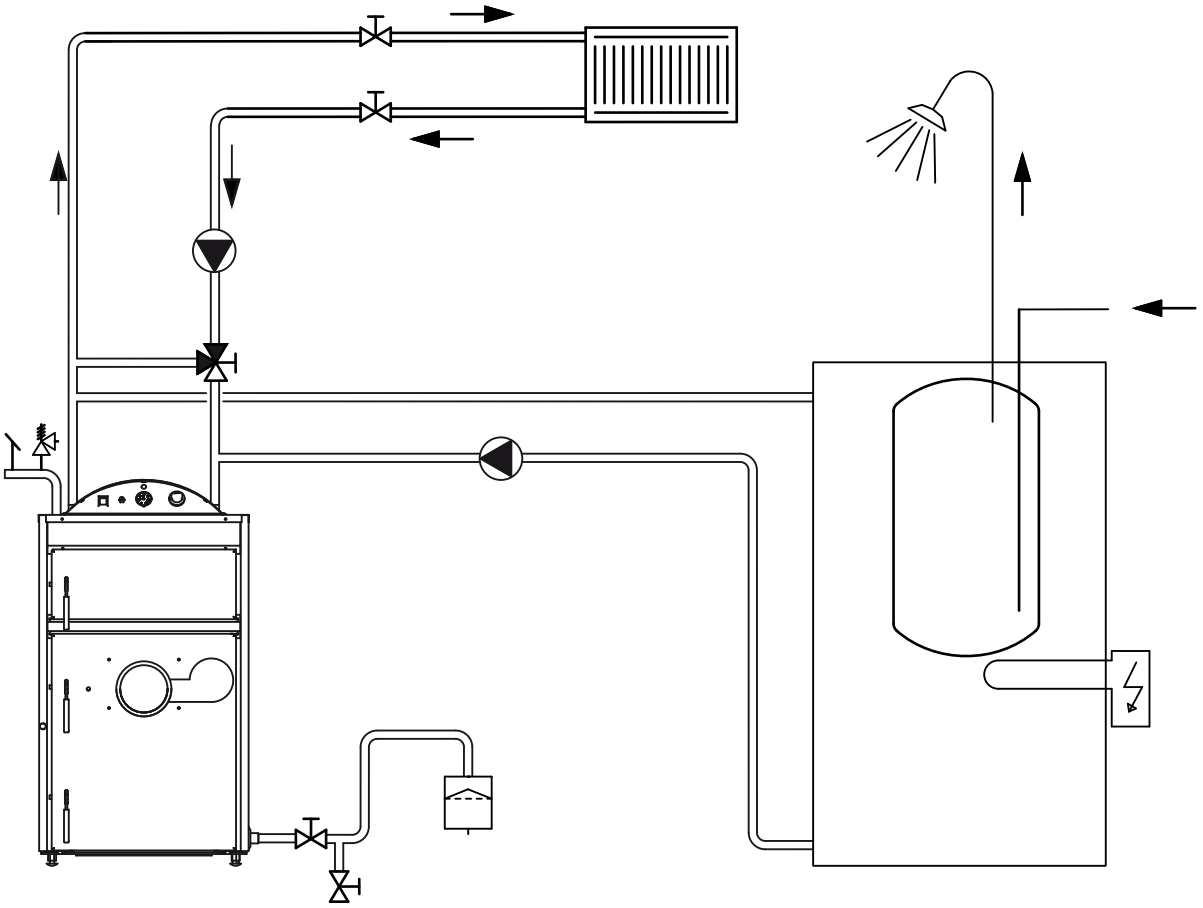


Flue pipe back then up (accessory)





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PELLMAX UB

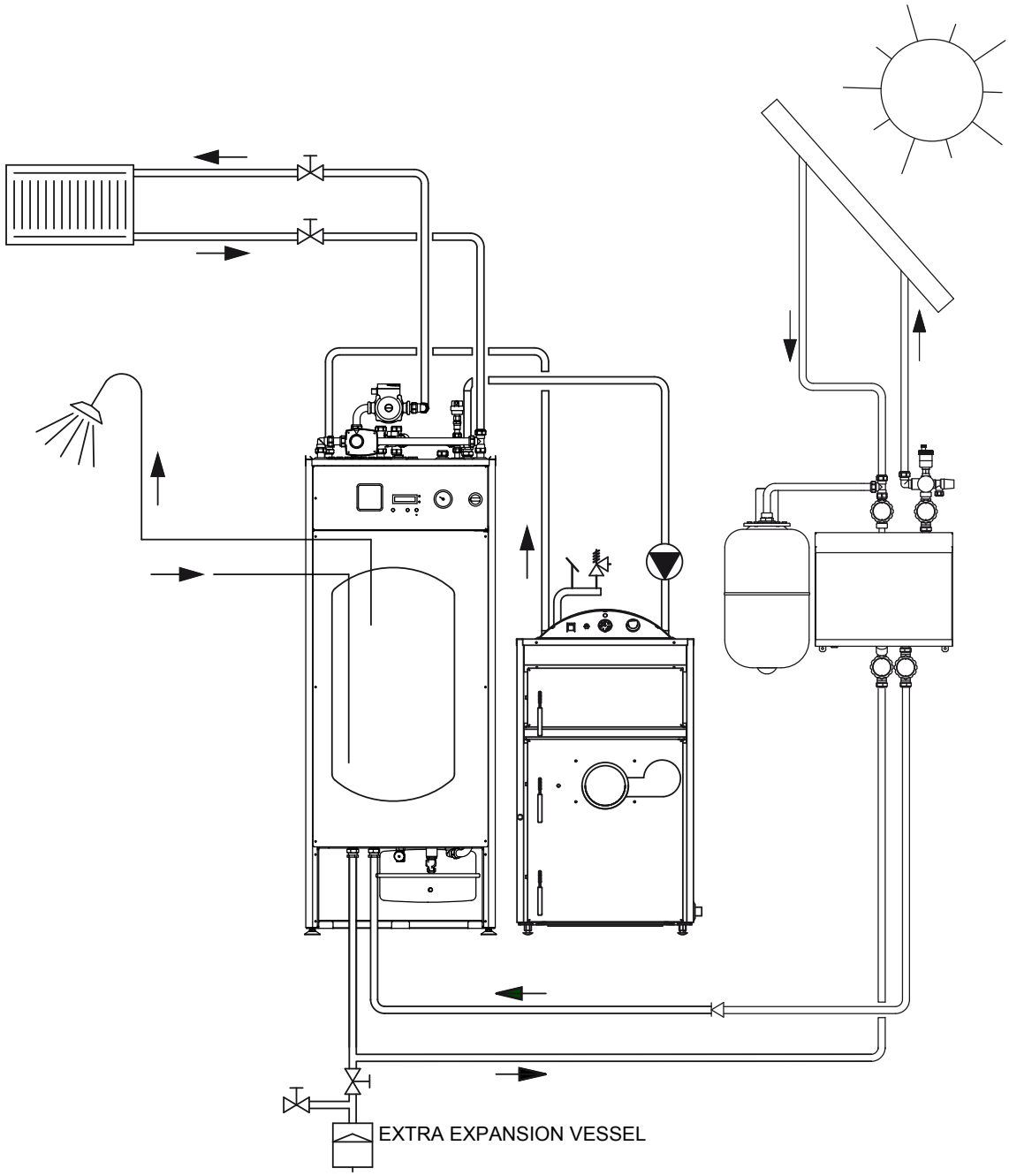
WATER HEATER /
ACCUMULATOR TANK

	EXPANSION VESSEL
	CIRCULATION PUMP
	VALVE
	SAFETY VALVE
	BLEED VALVE
	SHUNT
	ELECTRIC BOOST
	VIKING BIO PELLET BURNER

Minimum volume 300 litres.

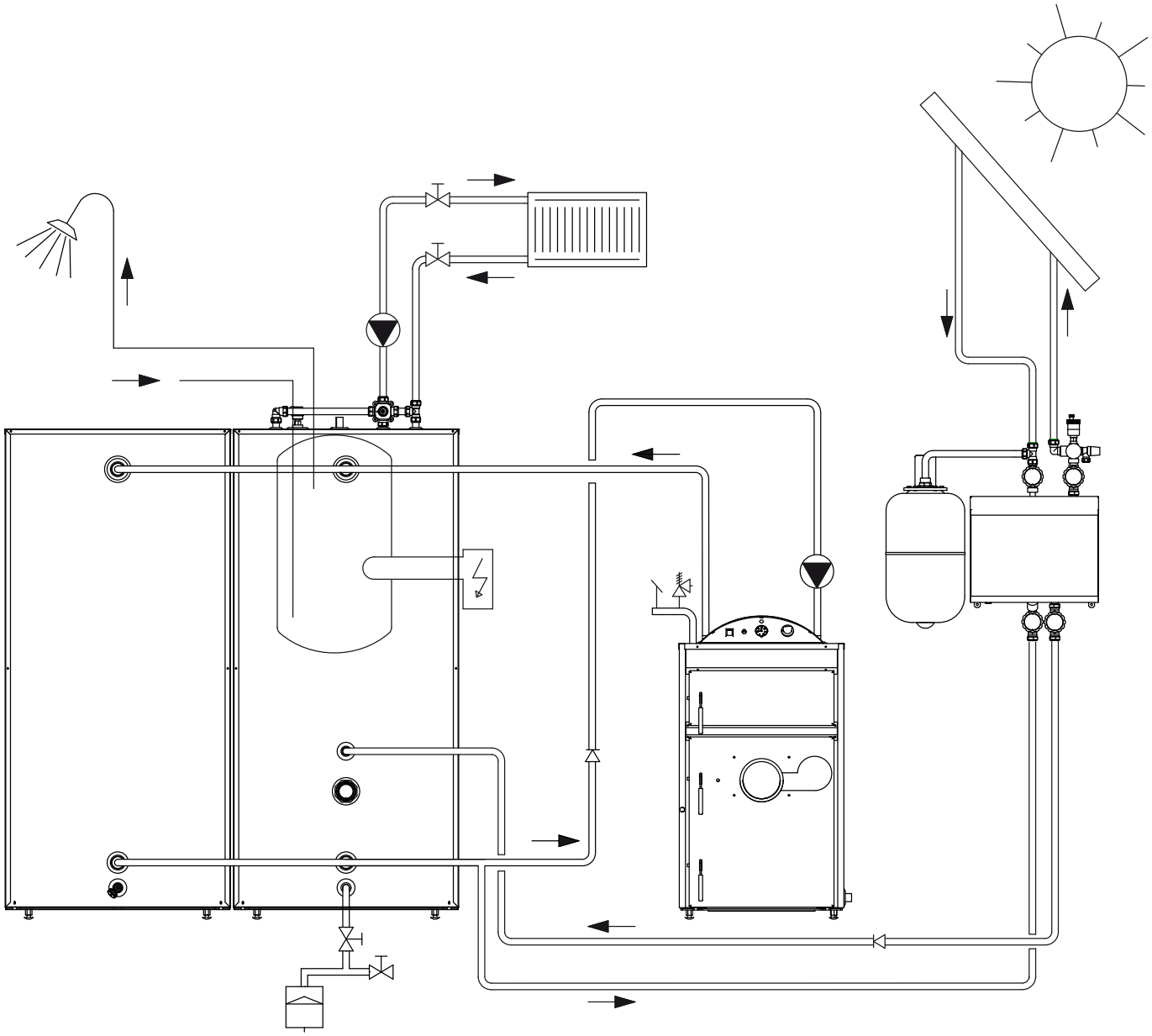
This diagram illustrates the system principle. The actual system will be designed according to the applicable standards and the manufacturers' instructions for their products.

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Allowing for printing errors and errors on proofs



	ELOMAX	PELLMAX UB	SOLOMAX VX
EXPANSION VESSEL			
CIRCULATION PUMP			
VALVE			
SAFETY VALVE			
BLEED VALVE			
NON-RETURN VALVE			
VIKING BIO PELLET BURNER			

This diagram illustrates the system principle. The actual system will be designed according to the applicable standards and the manufacturers' instructions for their products.



AQUALUX SOL PELLMAX UB SOLOMAX VX

EXPANSION VESSEL

CIRCULATION PUMP

VALVE

SAFETY VALVE

BLEED VALVE

NON-RETURN VALVE

ELECTRIC BOOST

VIKING BIO PELLET BURNER

This diagram illustrates the system principle. The actual system will be designed according to the applicable standards and the manufacturers' instructions for their products.

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The installation must comply with the applicable regulations.

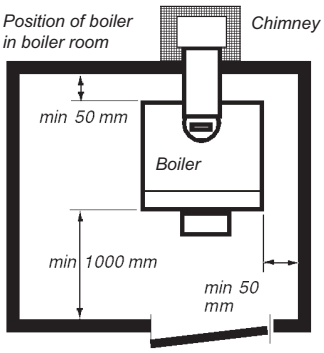
Contact the chimney-sweep before changing fuel. Contact your municipality to find out about restrictions on the use of solid fuels in built-up areas.

The boiler room must comply with the applicable building standards.

The boiler must be installed indoors in a cellar or on the ground floor. The installation site must be designed for the total boiler weight of 300 kg including water.

Make sure that the flue pipe cleaning arrangements meet the applicable regulations.

The boiler can support up to 300 kg of the weight of the chimney, but only 150 kg if the flue pipe is directed backwards and then upwards. The installation site must be able to support this additional weight.



The boiler room must have a fresh air intake with at least the same cross sectional area as the flue duct.

Expansion system

The boiler must be connected to a vented or unvented expansion system.

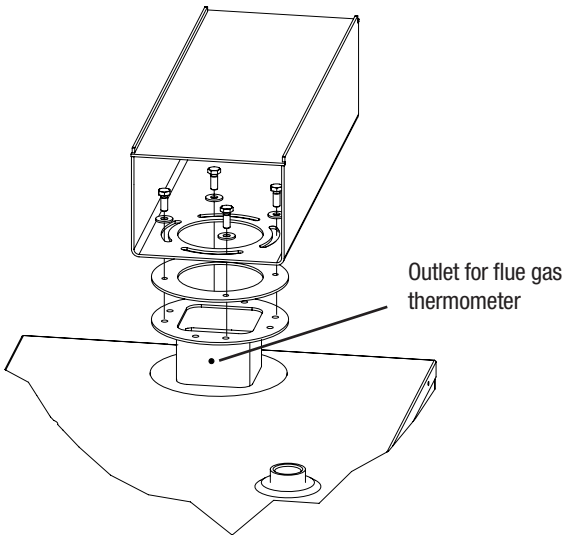
The volume of the expansion vessel is dimensioned according to the circumstances. The guideline values for volume are approx. 5 % of the total system volume for vented systems, or 7-15 % for unvented systems.

Vented: The distance between the top of the highest radiator and the expansion vessel must be at least 2.5 metres in order to prevent oxygen saturation of the water in the heating system.
The expansion vessel is connected in a continuous and unisolatable rise from the boiler's expansion connection at the top.
To prevent damage occurring if the expansion system fails, for example because of freezing, the boiler should be fitted with a type approved safety valve.

Unvented: In unvented systems, the boiler must be fitted with a type approved safety valve connected using an unisolatable pipe from the connection at the top of the boiler, as well as a bleed valve.
The overflow pipe from the safety valve must be laid to a floor drain so that no splashes of hot water can occur. The opening must be visible

The opening pressure of the safety valve is based on the lowest maximum pressure that any system component can withstand.

Fitting the flue pipe



Filling

The best way to fill the boiler is to use a permanent filling pipe to the expansion fitting or a hose to the drain valve

Chimney

The chimney must produce a draught strong enough to overcome resistance in the flue duct. The flue duct should be at least Ø 90 mm or equivalent. Combustion produces water vapour, which rises with the flue gases into the chimney, where it can condense and form water, potentially damaging the inside of the chimney. A low flue gas temperature does improve efficiency, but this must be balanced against the risk of condensation.

Steps to reduce the risk of condensation:

- Check and adjust the operation of the draught regulator.
- Insulate the chimney in cold spaces.
- Remove any turbulators.
- Increase the burner capacity.
- Install a flue liner.

The flue gas temperature must be checked at all times to prevent condensation forming in the chimney.

Turbulators

The boiler is supplied with turbulators, designed to introduce turbulence to the flue gases, thereby increasing efficiency. The turbulators increase the flue gas resistance in the boiler.

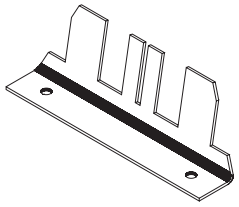
Burner hatch

The boiler is supplied with a hatch designed for a Viking Bio pellet burner.

If the hatch can be opened without removing the pellet feed tube or disconnecting the electricity supply to the burner, a safety switch must be fitted to the hatch.

Bracket for cleaning tool

The bracket for the cleaning tool can be fitted to either side of the boiler or any suitable place close to the boiler.



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Draught regulator

The chimney draught is influenced by the temperature and by weather and wind conditions, and because the efficiency of combustion depends on the draught, the aim is to achieve a stable draught.

The draught regulator is used to allow ambient air from the boiler room into the flue duct, which has the following benefits:

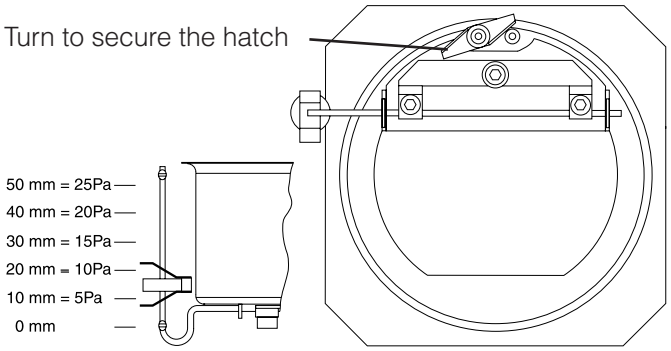
- More stable draught and flue gas temperature.
- Reduced downtime losses.
- Flue duct ventilation.
- Drier flue gases, reducing the risk of condensation.

Adjusting the underpressure

For optimum function, the right amount of air must pass through the draught regulator. If the chimney is tall or has a large cross section, an additional draught regulator may need to be installed.

To adjust the underpressure when the hatch is opened, squeeze the clips holding the weight and move it along the shaft. The underpressure changes by around 0.5 Pa/mm as shown in the figure. This is an approximate value, and a draught meter must be used if you want to set the underpressure more precisely.

For the Viking Bio, the draught should be 5-10 Pa.

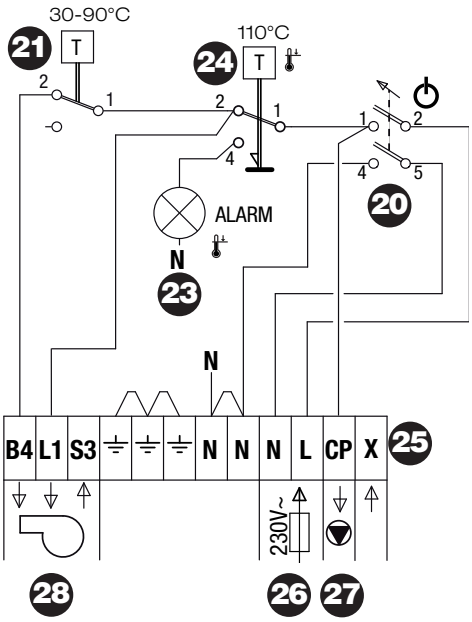


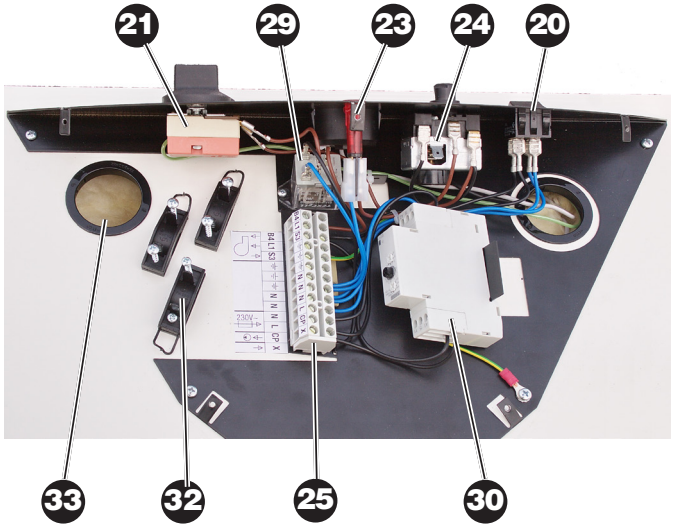
Electrical installation work must be carried out under the supervision of an authorised electrical installer.

The work must comply with the applicable regulations.

The main switch (20) must not be set to position "1" before the boiler has been filled with water.

Wiring diagram

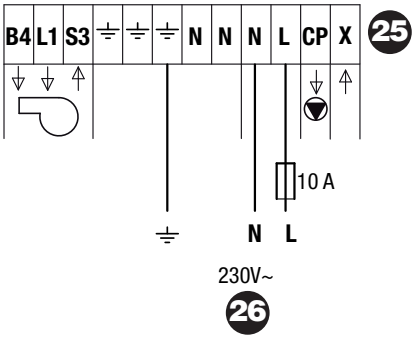




20. Main switch.
21. Thermostat (temperature setting).
23. Indicator showing triggered overheating protection.
24. Overheating protection.
25. Terminal block.
26. Power supply connection.
27. Circulation pump connection.
28. Viking Bio pellet burner connection.
29. Relay for external control (accessory).
30. Delayed start for circulation pump.
32. Strain relief.
33. Opening for cable trays for supply, burner and circulation pump cable. See numbers 11 and 12 in Technical Data.

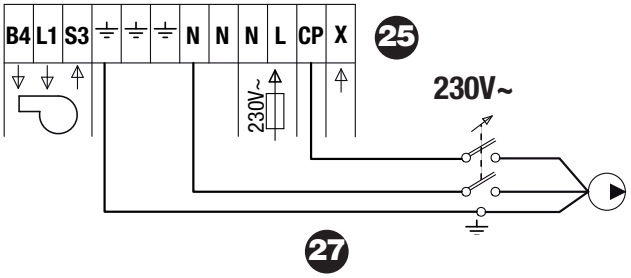
Power supply connection

230V~, with max. 10A fuse.

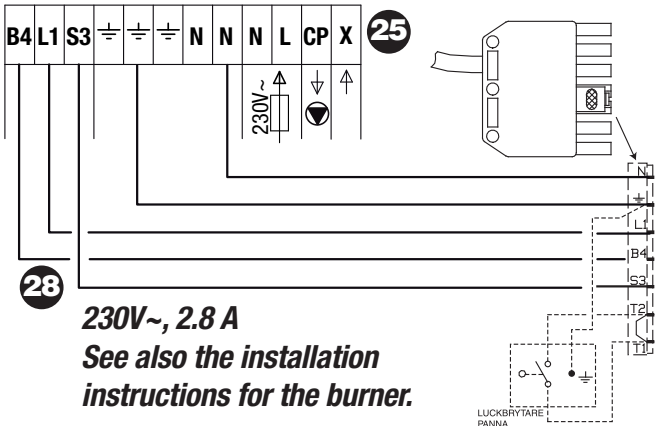


Power supply to circulation pump

An all-pole circuit breaker must be installed ahead of the pump.



Power supply to Viking Bio pellet burner



230V~, 2.8 A
See also the installation instructions for the burner.

N: Blue, neutral.
⏚: Yellow/green, earth.
L1: Black.
B4: Brown.
S3: Grey.
T1, T2: Safety switch on combustion chamber hatch.

If the comustion chamber hatch can be opened without removing the pellet feed tube or disconnecting the electricity supply to the burner, a safety switch must be fitted to the hatch.

STOP **The boiler fuse must be removed/disconnected during installation or service.**

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External control/block

If the boiler is being used for additional heating, and controlled by an external source such as a heat pump or solar panel system, the boiler is fitted with an external control attachment. The controlling unit may have a temperature control function, or a block function without temperature control. If there is no temperature control, set the thermostat, 21, to a suitable value. If the controlling unit has a temperature control function, set the thermostat, 21, to its maximum value.

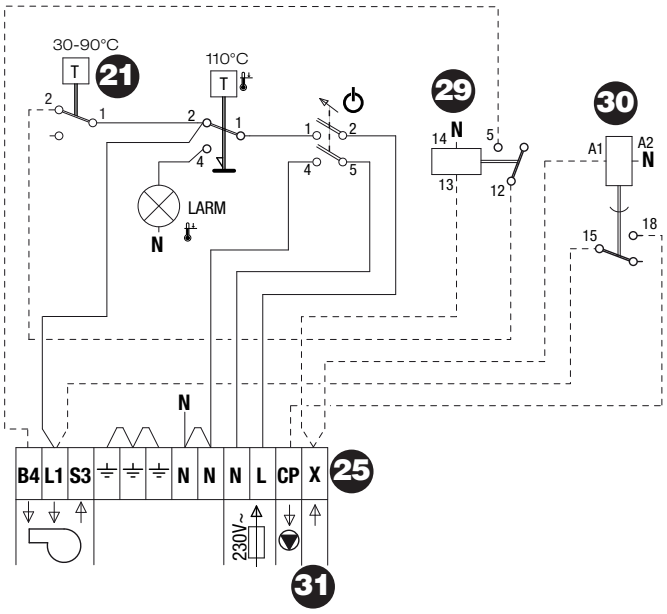
The attachment contains a time relay to delay the start of the circulation pump and a relay to connect the control source.

Follow the dotted lines in the wiring diagram below to connect the attachment.

Before connecting the attachment:

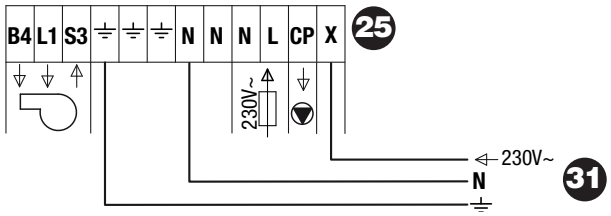
Remove the existing cable between connection 2 on the thermostat, 21, and terminal B4 on the terminal block, 25.

Remove the existing connection between terminals L and CP on the terminal block, 25. See the wiring diagram on the previous page.



21. Thermostat (temperature setting).
25. Terminal block.
29. Intermediate relay for external control.
30. Delayed start for circulation pump.
31. Connection for external control.

Connection for external control/block



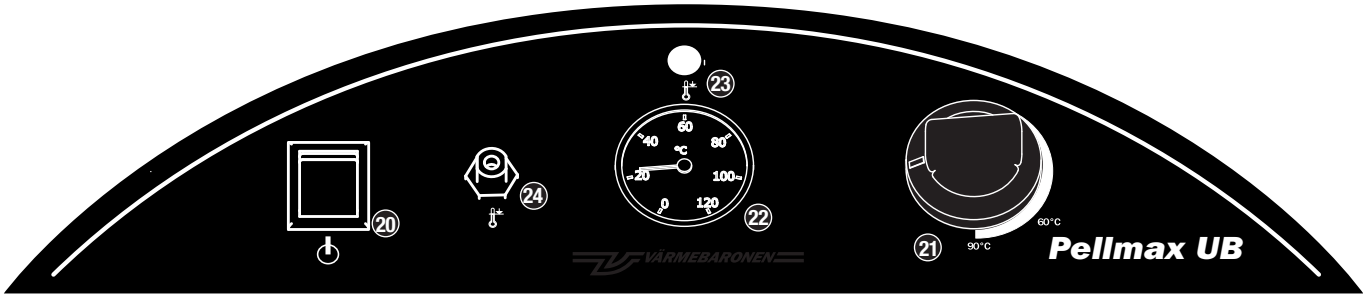
For other connections follow the instructions on the previous page.

Function

When the controlling unit calls for heat, it produces a 230V~ signal to activate the relay, 29, so that the burner receives the start state. The delayed start, 30, for the circulation pump is also activated. At the end of the delay, the circulation pump starts.

The delayed start ensures that the boiler is not placed under load until it has reached a suitable temperature.

STOP **The boiler fuse must be removed/disconnected during installation or service.**



20. Main switch.
21. Temperature setting, thermostat.
22. Thermometer, boiler temperature.
23. Overheating indicator.
24. Overheating protection reset.

Commissioning and checks

A boiler system fitted with an unvented expansion vessel must undergo an installation inspection before being put into operation. The inspection must be carried out by a person qualified for the task. The installation inspection must be documented. A further inspection is required if the boiler or the expansion vessel is replaced.

After installation, check with the installer that the system is in perfect condition.

Ask the installer to demonstrate the settings and functions so you know how to operate and care for the system.

- the system is filled with water.
- all connections are watertight.
- flue gas connections to the boiler and to the chimney are tight.
- the filling/drain valve has been closed properly.
- the safety valves are working properly.
- the necessary valves are open.
- the circulation pump is working and the direction of flow is correct.
- the thermostat is correctly adjusted.

The pressure in a heating system varies with the temperature, so only add water if it is necessary.

Always disconnect the power supply to the boiler before:
· opening the burner hatch
· draining the boiler water

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Bleeding/topping up

Regularly check that there is enough water in the heating system.

Air may remain in the heating system for a while after installation, so bleeding should be repeated a few times. After bleeding, check the pressure and add water if necessary.

The volume of water changes with the temperature, affecting the pressure in the heating system. Higher temperatures increase the volume and pressure. The expansion vessel takes up the changes in volume in the system. Only add water if it is necessary.

The pressure in a heating system varies with the temperature, so only add water if it is necessary.

Draining

To drain the system, connect a hose to the drain valve, 4, on the side of the boiler.

Safety valves

The safety valves in the installation must be exercised regularly in order to maintain the safety function.

If there is a risk of freezing

In severe cold weather, no part of the heating system should be turned off as this would involve a risk of burst pipes. The boiler must not be put into operation if any part of the heating system is suspected of being frozen. Call the installer.

If the water boils

Disconnect the power supply to the burner, then fully open the nearest hot water tap. Call the installer.

Overheating protection

The overheating protection in the boiler is triggered when the boiler temperature exceeds 110°C. It is reset from the control panel. You can only reset once the boiler temperature has dropped to below 80°C.

Always check the reason for overheating!

Boiler temperature

The boiler temperature must not be allowed to fall below 60°C.

Pellet operation

For reliability and efficiency, it is important to check and adjust the burner regularly. For the Viking Bio pellet burner, the draught must be -5 to -10 Pa.

Cleaning the boiler

Risk of burns.
Always leave the burner to stop burning before you start cleaning. Leave the boiler to cool down.

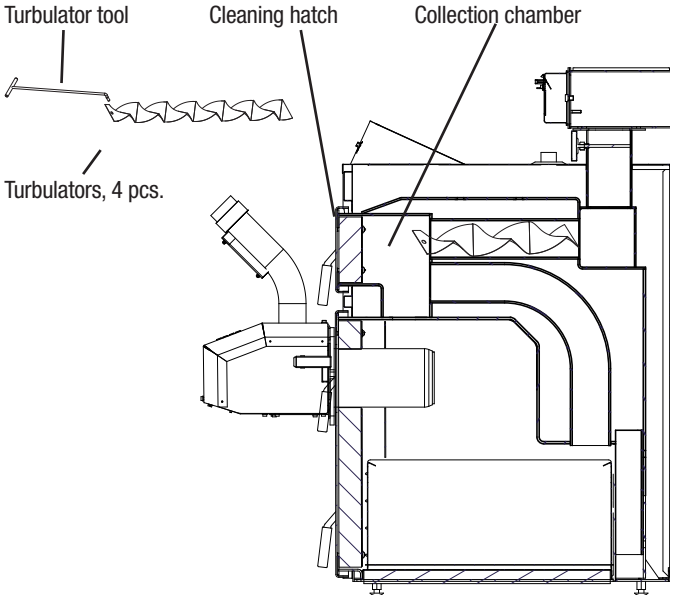
Ash and soot are formed in pellet operation, so the boiler must be regularly cleaned, if possible when the flue gas temperature has risen by around 50 °C compared to when the boiler is clean. The ash bin only needs to be emptied a few times a year.

All boiler cleaning takes place from the front.

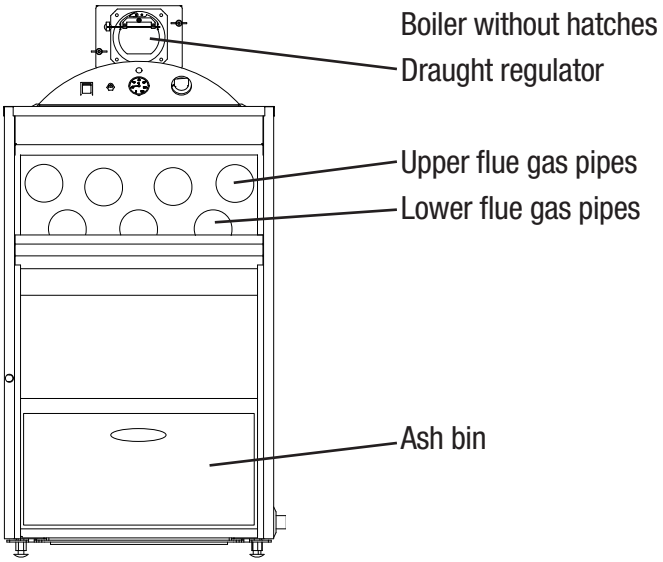
Ashes may contain embers for a long time after the burning cycle, so keep them in a non-flammable container with a cover. The container must be placed on non-flammable material.

Whenever you clean the pellet burner, check the amount of ash in the ash bin. When the pan is full, remove it from the boiler and empty it. This is also a good time to clean the combustion chamber.

Ash attachments are available for vacuum cleaners, making it easier to clean ash from the boiler and burner.



Always be careful with ash, as it may contain hot embers.



- Disconnect the power to the boiler.
- Secure the draught regulator in the closed position.
- Open the boiler hatches.
- Use the tool to remove the turbulators.
- Clean the flue gas pipes with the pipe brush.
- Vacuum the collection chamber.
- Replace the turbulators.
- Close the hatches.
- Release the draught regulator.
- Switch on the power to the boiler.

Chimney sweeping

Secure the draught regulator in the closed position to prevent soot escaping into the boiler room.

After cleaning the chimney, the draught regulator is removed to allow soot and ash to be removed. The best way to remove ash and soot that has fallen into the boiler is to use a vacuum cleaner through the upper flue gas pipes in the boiler.

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Low room temperature

Overheating protection triggered.	Check the reason. Reset the overheating protection. This is a warning – if it happens repeatedly, call the service engineer.
Boiler temperature too low.	Check the thermostat setting, adjust.
Burner not working properly.	Check, correct.
Air in boiler or heating system or not enough water in the heating system.	Check, bleed and top up the heating system as necessary.
Thermostatic valves in heating system set too low.	Check, adjust.
Shunt control incorrectly set.	Check, adjust.
Circulation pump switched off.	Start the circulation pump.
Fuse tripped.	Check the reason and correct it. Change/reset the fuse.

High room temperature

Thermostatic valves in heating system set too high.	Check, adjust.
Shunt control incorrectly set.	Check, adjust.

Components

ref.	item no.	name	qty.
21	120006	Thermostat 30- 93°C	1
	120009	Thermostat knob	1
24	120022	Overheating protection	1
20	130032	Switch	1
23	190006	Indicator	1
32	140042	Strain relief	3
25	160003	Terminal block	1
	160006	End plate for terminal block	1
	390255	Protective hose (m)	2.7
	720200	Scoop	1
	92131	Panel	1
	720203	Holder for cable tray, top	1
	720194	Holder for cable tray	1
22	380022	Thermometer 0-120°C	1
4	240350	Drain valve R15ext	1
	232253	Turbulators	4
	440002	Pipe cleaner 89 mm	1
	440012	Spring steel shaft 1000 mm	1
	700170	Gasket for flue pipe flange	1
	700256	Cleaning tool bracket	1
	700297	Flue pipe insulation	1
	710260	Turbulator tool	1
7	710822	Ash bin	1
	370021	Cover plate 25.4 x 65	1
	370022	Cover plate 32.5 x 77	3
	700299	Base insulation	1
	710508	Lock ring	3
	710799	Insulating plate for base	1
	710833	Bypass retainer	1
	710834	Bypass cover plate	1
	720193	Rear side	1
	720195	Cover plate, lower	1
	720196	Cover plate	1
	720197	Left side	1
	720198	Right side	1
	720199	Cover	1
5	710813	Cleaning hatch compl.	1
	100953	Handle	1
	700292	Hatch gasket small	1
	700296	Hatch insulation	1
	710803	Combustion plate	1
	710815	Cleaning hatch	1
6	710812	Lower hatch compl.	1
	100953	Handle	2
	700293	Hatch gasket large	1
	700294	Hatch insulation	1
	700295	Hatch insulation	1
	710805	Combustion plate lower, inner	1
	710811	Lower combustion plate compl.	1
	710814	Large hatch	1
9	710830	Angled flue pipe compl.	1
	100115	Wingnut	4
	100322	Cross screw	4
	440081	Draught hatch	1
	710695	Gasket for flue pipe	1
	710829	Front flue pipe	1

Illustrations may differ from the actual product
Allowing for printing errors and errors on proofs

Värmebaronen AB retains the right to change the specification of included components without prior notice, as part of its policy of continuous improvement and development.

Värmebaronen AB
Arkelstorpsvägen 88
291 94 Kristianstad
Sweden

T +4644-226320
F +4644-226358
www.varmebaronen.se
info@varmebaronen.se

VÄRMEBARONEN