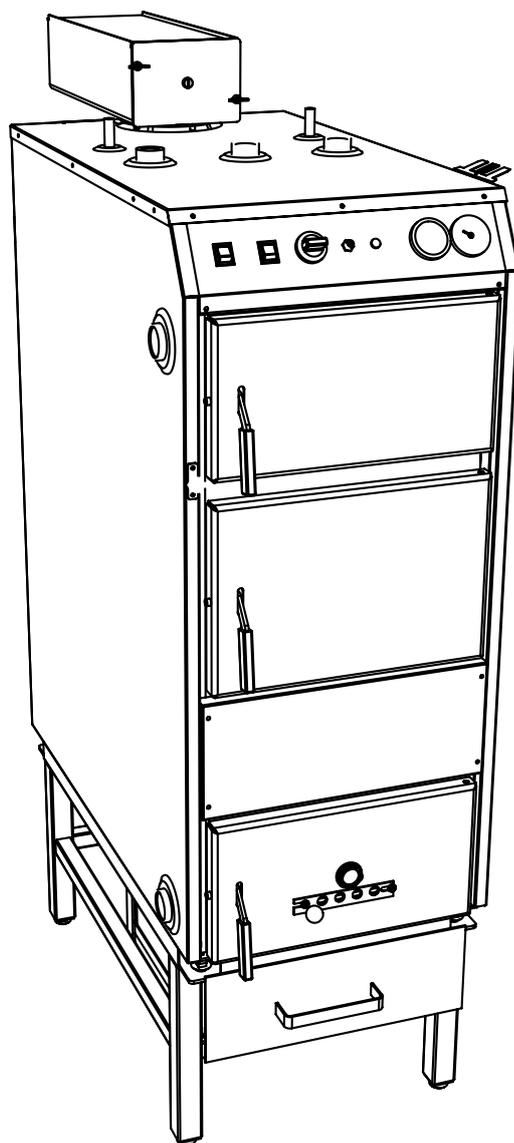


Vedolux 30



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General

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.

To be completed when the Vedolux 30 is installed!

Serial number:

Installation date:

Installer:

Tel:

Other:
.....
.....
.....
.....
.....

Vedolux 30

- is a firewood boiler with a suction fan, designed for heating houses and smaller properties.
- is environmentally-approved for firewood burning with an accumulator tank.
- is designed for 20 in. firewood.
- is designed to be connected to an external water heater.
- is primarily designed to be fired by firewood, but can also be modified for use with a pellet burner.
- has an output of 113 kBTU when burning firewood and capable of 137 kBTU when burning pellets.

Ceramic combustion chamber

The combustion chamber is designed for reverse combustion. The depth of the combustion chamber is 21.7 in. A bypass damper prevents smoke entering the room when firewood is added.

Flue cleaning

All flue ducts in the boiler are cleaned from the same hatch at the front of the boiler. The hatch is hinged and is opened with a single operation. The flue ducts are round, which means there are no awkward corners when flue cleaning.

Chimney

The Vedolux 30 has a suction fan minimizing the chimney requirements of the boiler.

Accumulator tank

To optimise combustion and efficiency, and to meet environmental requirements relating to firewood burning, the boiler must be connected to an accumulator tank. The accumulator tank is dimensioned according to the requirements of the building.

Delivery

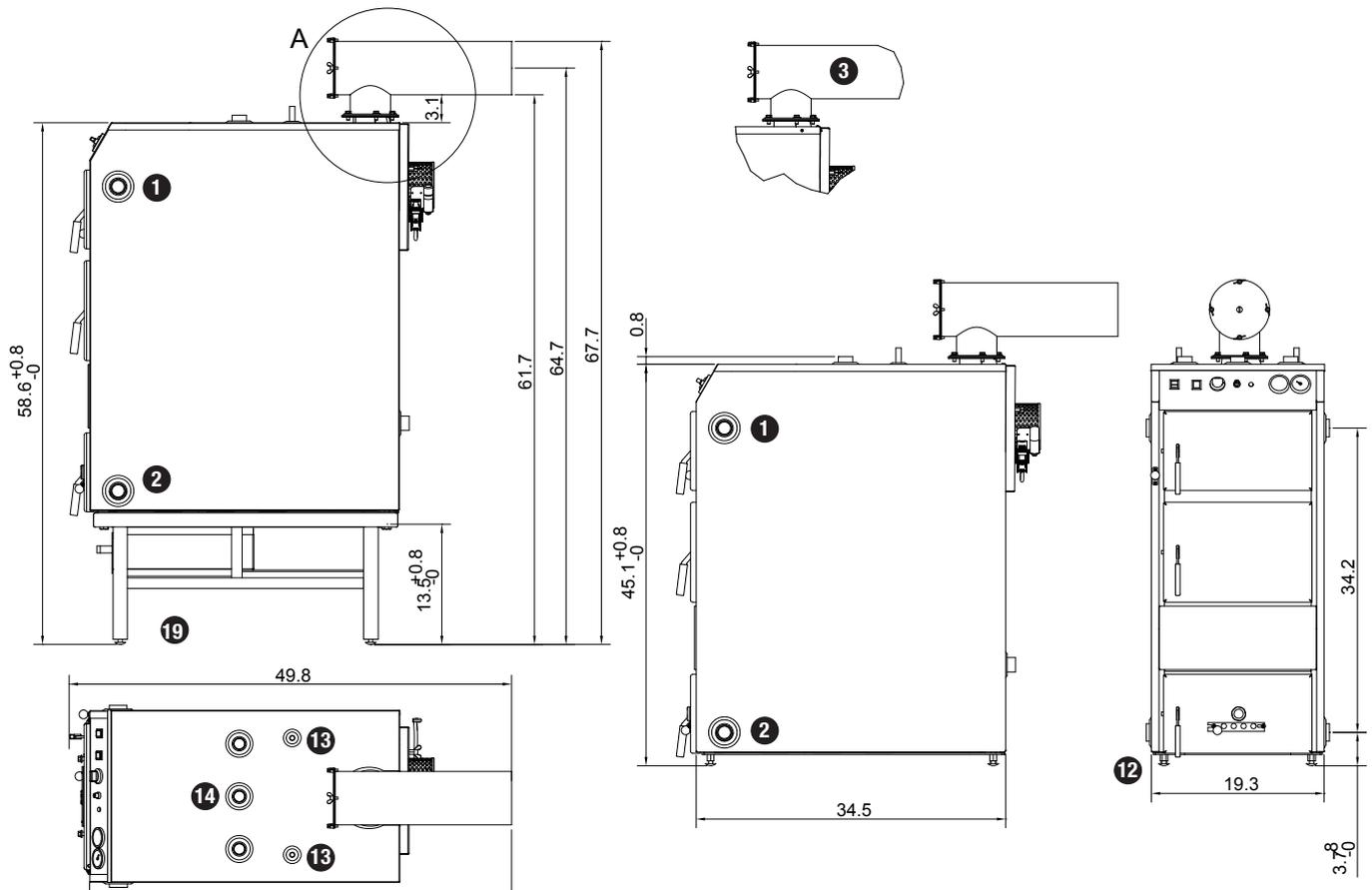
The product is delivered with the following components:

- flue pipe.
- flue cleaning tool with bracket.
- flue gas thermometer.
- gas lighter.
- 1.5 bar pressure relief valve.
- NPT adapters: NPT G15 (1/2") x 1 pcs.
NPT G25 (1") x 2 pcs.
NPT G32 (1 1/4") x 2 pcs.

Accessories

- Stand to make firewood burning more convenient.
- Accumulator Control 3.
- Hatch set for pellet burner

Weight	empty	639 lb	Firewood hatch	w x h 11.8 x 9.7 in
	filled with water	860 lb	Chimney requirement	height 11.5 ft
Volume		26 gal	flue duct recommended	Ø 5.71 in
Design pressure		22 psi		25.6 in ²
Test pressure		31 psi	flue duct	Ø 4 in
Pressure drop	water flow 0.14 gal/s	0.145 psi		12,6 in ²
Design temperature		220 °F	draught	-10 / -20 Pa
Max operating temperature		220 °F	Flue gas temperature	355 °F
Output	wood, moisture content 17 ±3 %	113 kBTU	Voltage	115 V, 60 Hz
	pellets	137 kBTU	Current	0.3 A
Combustion chamber	volume	23.8 gal	Protection class	IP21
	depth	21.65 in	Boiler group as per EN 303-5	Class 3
Length of wood		20 in	UL391, CSA-B366.1, ETLM78-1	
Burning cycle	moisture content 17 ±3%	3-3.5 h	Certified by Gardien Fire Test Labs	



1. Hot water outlet, riser, 1¼" BPT*.
2. Hot water outlet, return, 1¼" BPT*.
3. Flue pipe, standard.
- 12 Base bolts, adjustable.
13. Connections for cooling coil, 0.6 in Cu.
14. Expansion connection, 1" BPT*.
19. Base frame, accessory.

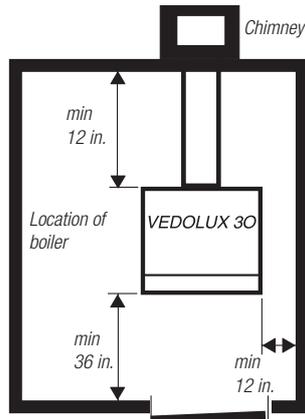
*Use the delivered NPT adapters for these connections.
The NPT adapter builds 2.2".

 **Clearance to combustibles.**
12" sides and rear, 18" top and 36" front.



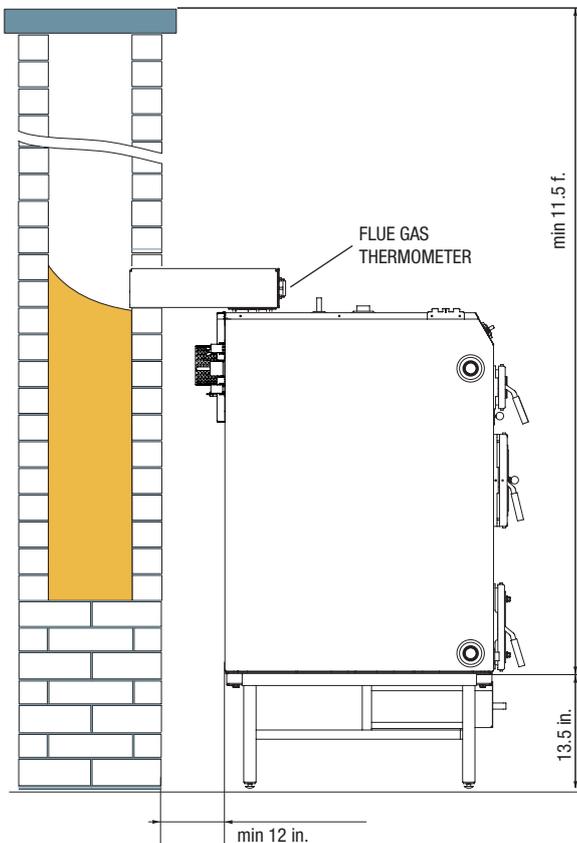
The installation must comply with the applicable regulations and standards.

- The boiler must be installed indoors in a cellar or on the ground floor. The installation site must be able to support the combined weight of the boiler, the accumulator tank and any chimney.
- The boiler can support up to 330 lbs of the weight of the chimney.
- Adjust the base bolts to make the boiler level.
- A temperature limiter must always be installed with the boiler.
- The boiler must be connected to an accumulator tank, and the installation must include an accumulator control.
- You must contact the chimney sweep before changing to a different form of energy.
- Contact the municipality to find out about restrictions on the use of solid fuels in built-up areas.
- The fresh air intake of the boiler room must have at least the same cross sectional area as the chimney, and it must be designed so it is impossible to close it by mistake.



Chimney

The Vedolux 30 has a suction fan minimizing the chimney requirements.

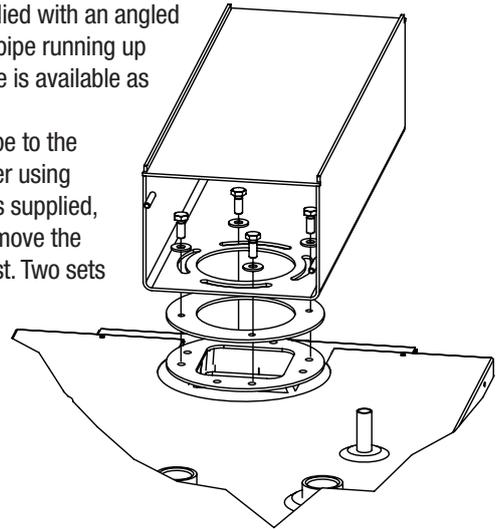


Clearance to combustibles.
12" sides and rear, 18" top and 36" front.

Flue pipe

The boiler is supplied with an angled flue pipe – a pipe running up from the steel pipe is available as an accessory.

Fasten the flue pipe to the flange on the boiler using the 4 x M8 screws supplied, with washers. Remove the cleaning hatch first. Two sets of holes are provided to cover the 360° angle of rotation.



Flue gas thermometer

Install the supplied flue gas thermometer in the outlet of the flue pipe, see the illustration above.

Connection to accumulator system

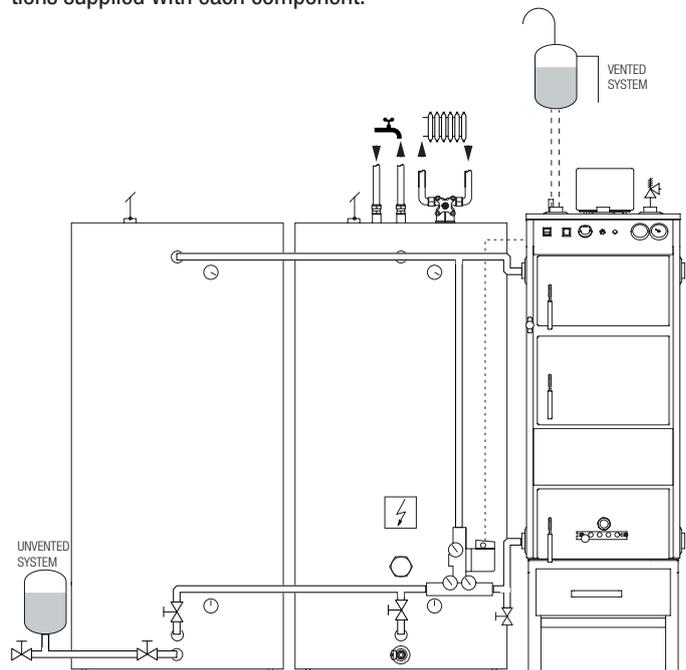
The boiler must always be connected to an accumulator tank with an accumulator control.

The accumulator volume is dimensioned according to the surface area to be heated. Allow for 2 – 3 gal of tank volume per 10 ft² of heated surface area.

The schematic diagram below shows the Vedolux 30 with the Aqualux CU and Aqualux UB accumulator tanks plus Accumulator Control 3. For more details, refer to the documentation supplied with the relevant product. Follow the installation instructions in the documentation.

The pipe dimension between the boiler and the tank should be 1" to 1¼" for copper pipe or equivalent.

This diagram illustrates the system principle – the actual system will be designed according to the applicable standards and the instructions supplied with each component.



Function of accumulator control

The accumulator control ensures that the boiler reaches a high working temperature before it starts charging the accumulator tank. It also prevents the return temperature to the boiler falling too low, helping to minimise the risk of condensation in the combustion chamber.

The charging pump of the accumulator system is controlled by a flue gas thermostat.

Expansion system

The boiler is 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 13- 15 % for unvented systems.

Vented The distance between the top of the highest radiator and the expansion vessel must be at least 8.2 ft 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. 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, 21.8 psi.

Unvented In unvented systems, the boiler must be fitted with a type approved safety valve, 21.8 psi, connected using an unisolatable pipe from the connection at the top of the boiler, as well as a bleed valve.

The expansion vessel is best connected using ½" copper-pipe, as shown in the diagram on the previous page.



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

Cooling coil - temperature limiter

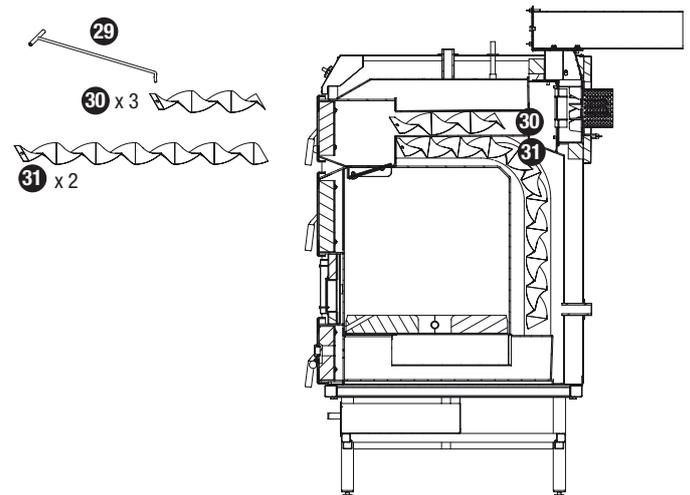
The boiler system must be equipped with a temperature limiter in accordance with the applicable regulations.

The boiler has a cooling coil which, combined with a suitable thermal valve, is used to prevent the boiler temperature exceeding 230°F if the water boils. Follow the instructions of the valve manufacturer.

Turbulators

The five turbulators are installed in the flue gas pipes as shown in the diagram. The purpose of the turbulators is to introduce turbulence to the flue gases, causing more heat to be transferred to the boiler water.

If the flue gas temperature falls too low (with a wide and long chimney), there is a risk of condensation in the flue duct. To increase the temperature, the three upper turbulators can be removed, or cut to a length that produces a suitable flue gas temperature. The draught hatch is another way of reducing condensation problems.



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.

Draught hatch

An extremely high chimney and/or strong winds can create a draught that is strong enough to allow combustion with the fan turned off. The solution is to install a draught hatch, which can reduce the draught to 0.04 - 0.06 in. water.

Pellet burner/oil burner

The Vedolux 30 is primarily designed to be fired by firewood, but can also be modified for pellets using a pellet burner.

When the pellet burner is used, the accessories supplied with the pellet hatch set must be installed:

- Hatch, designed for the Viking Bio pellet burner.
- Cover plate with draught hatch, instead of the fan on the rear of the boiler.
- Cover plates for the primary damper behind the plate on the front of the boiler.
- Cover plate for the secondary damper.

It is possible to install an oil burner in the pellet hatch set. Fittings are available.

Because of the risk of condensation you should monitor the flue gas temperature. Check that the flue gas temperature is appropriate for the chimney type.

Otherwise, follow the instructions of the burner manufacturer.



Electrical installation must be in accordance with the applicable regulations, under the supervision of an authorised installer.

Electrical connection

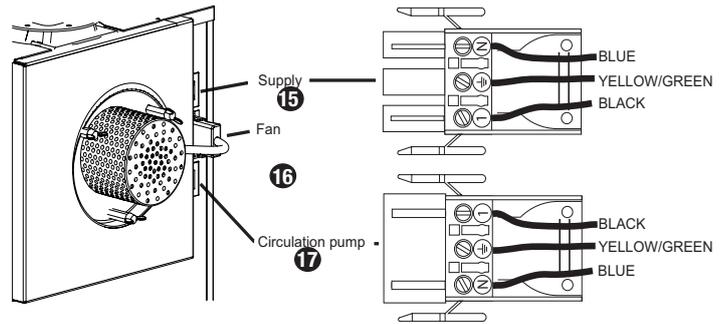
The boiler is connected directly to the mains.

The electrical connections are at the rear of the boiler, in the form of three quick connectors:

15. Mains connection, 115 V~, cable with quick connectors supplied.

16. Fan.

17. Circulation pump, for charging the accumulator system.



Wiring diagram and control panel

15. Supply connection, 3-pole connector.

a. cable part, socket.

b. chassis part, plug.

16. Fan connection,

5-pole connector.

a. cable part, plug.

b. chassis part, socket.

17. Connection for charging pump,

3-pole connector.

a. cable part, plug.

b. chassis part, socket.

18. Terminal block for internal earth connections.

19. Start capacitor for fan motor.

20. Main switch.

21. Thermostat for fan and charging pump.

22. Fan start when the boiler is cold.

23. Relay.

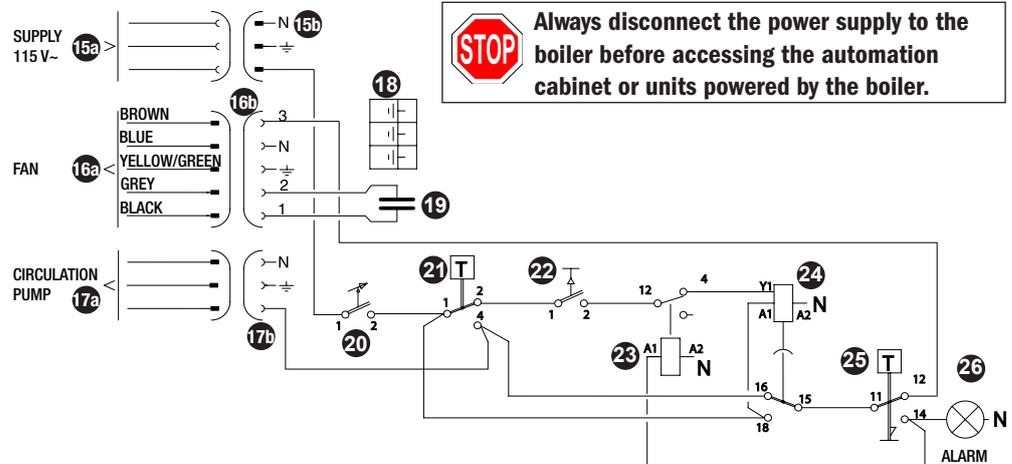
24. Time relay, delayed cutoff.

25. Overheating protection.

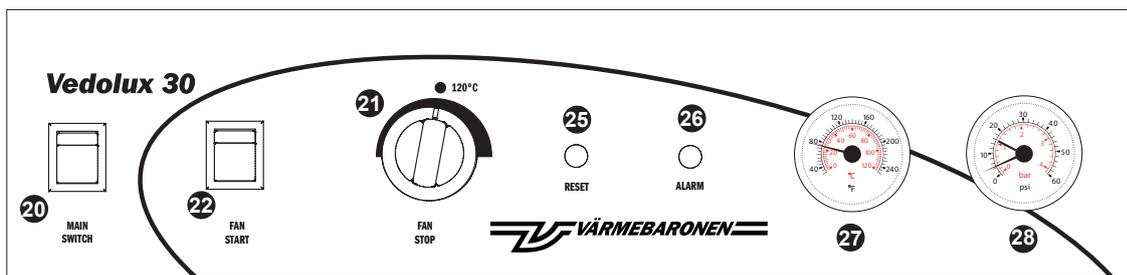
26. Indicator showing triggered overheating protection.

27. Thermometer, displays the boiler temperature.

28. Pressure gauge showing the water pressure in the heating system.



Always disconnect the power supply to the boiler before accessing the automation cabinet or units powered by the boiler.



Function

Start with the boiler cold.

Set the main switch, 20, to the ON-position – the green area must be visible.

Set the thermostat, “FAN STOP”, 21, to 120° (250°F). The thermostat detects the flue gas temperature.

Press “FAN START”, 22, the time relay, 24, is activated and the fan starts.

When the time set for the time relay, 30 minutes, is reached, the contact changes, which means that the fan and the charging pump for the accumulator system are controlled by the thermostat, 21.

When the firewood is burnt out and the flue gas temperature falls below the value set for the thermostat, 21, the fan and charging pump stop running.

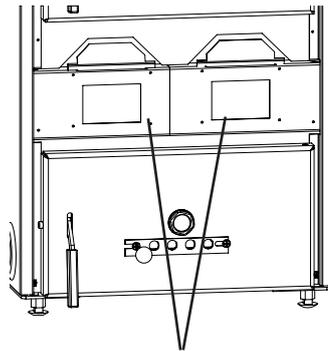
If the boiler temperature exceeds 220°F, the overheating protection is triggered. The fan stops running and the charging pump continues to operate.

If the overheating protection, 25, is triggered, the “ALARM” indicator, 26, is lit. The relay, 23, prevents the time relay activating when the overheating protection is triggered.

To reset the overheating protection, press “RESET”, 25, on the boiler control panel. Note that it is not possible to reset the system until the boiler temperature has dropped below 200°F.

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.



Loosen the plate, dampers at the rear.

Checks

Before putting the system into operation, check that:

- 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 primary damper is in position (may become detached during transport)
- the safety valves are working correctly
- the necessary valves are open
- the circulation pump is working and the direction of flow is correct
- the correct temperature has been set on the charge thermostat

Firewood

Firewood as a fuel

Vedolux 30 has a ceramic grate and an afterburning chamber made of high-temperature resistant stainless steel. The boiler works on the principle of reverse combustion. If the boiler is correctly operated, it burns firewood and gases very effectively, with high efficiency and low environmental impact.

Using firewood as a fuel is not simply about burning the wood – the techniques used have a decisive effect on the result.

Firewood

Hardwoods generally have a higher energy content than conifers. However, the most important thing is that the wood must be dry – moisture content 12-25 %.

If the wood is damp, much of the energy is wasted on drying it out, combustion is impaired and the risk of tarring increases.

Oak should be well dried, for more than three years, and or mixed with other wood types to avoid the negative factors of high acidity.

The blocks of wood must be the correct size for the combustion chamber, around 20 in. long and around 6 in. wide, allowing three blocks to fit the width of the grate.

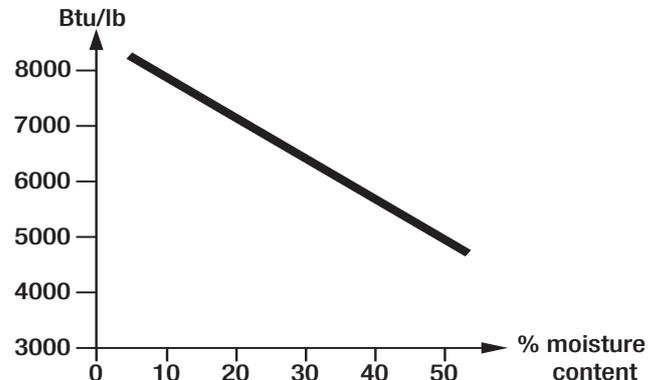
To allow the wood to dry out, the tree should be felled at least one season in advance. An alternative method is to fell the tree in spring just after the leaves have come out, then wait a few weeks before trimming and splitting the wood. During these weeks, the leaves wilt and draw out the moisture. After another few weeks of drying, the wood has 25-30 % moisture content.

After cutting, the wood must be split. The more it is split, the faster and easier it will dry. If logs are difficult to split, the bark can be stripped to speed up drying. Fresh wood is easiest to split.

The wood should not be in direct contact with the ground, as this causes the wood to take on moisture instead of drying out. Ideally the wood should be kept under a roof but in a place where the sun and wind can help dry it. The best place for final drying is the boiler room, for 2-3 weeks before the wood is used. The moisture content after drying is around 20 %.

Heat content

The heat content is the amount of heat that can be extracted by the boiler and transferred to the boiler water. Heat content should not be confused with energy content, which increases with the size of the block of wood. The heat content increases with the dryness of the block of wood, because less heat is wasted on drying the wood. Newly cut wood has a moisture content of around 55 %. Firewood that has been dried out following our instructions has around 20 % moisture.

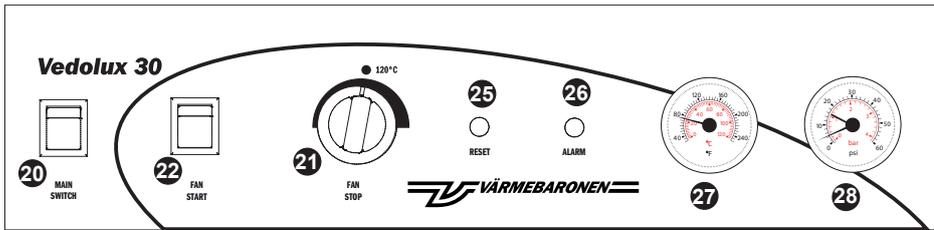


The chart illustrates how the heat content changes.

If a building uses 880 ft³ of newly cut firewood (55 % moisture), around 495 ft³ of water needs to be dried through the chimney. In other words, the energy needed to vaporize 3700 gal is wasted. Other problems using damp wood include poor combustion and dirty emissions, which in turn impair efficiency.

First burning cycle

In the first burning cycle, or if the boiler has not been used for a while, it is important to just light a small fire. The ceramic parts of the boiler may contain moisture, which must be vaporized slowly so as not to crack the ceramic. Once the ceramic parts are dry, you can light a full-size fire. The ceramic does not take on moisture when the boiler is being used. See "Operation and care".



20. Main switch.
 21. Thermostat for fan and charging pump.
 22. Fan start when the boiler is cold.
 25. Overheating protection.
 26. Indicator showing triggered overheating protection.
 27. Thermometer, displays the boiler temperature.
 28. Pressure gauge showing the water pressure in the heating system.

First burning cycle

First check that the combustion tunnel is firmly seated and that the air control pipe, 34a, has not moved during transport. The first fire to be lit should be started carefully so that any remaining moisture in the ceramic can vaporise slowly. Lighting a fierce fire may crack the ceramic. Only light a small fire the first time. Once the ceramic parts are dry, you can light a full-size fire. The ceramic does not take on moisture when the boiler is being used.

Lighting a fire without gas

- Move the main switch to the green position. Set the thermostat to 250°F (120°C).
- Arrange kindling on top of crumpled newspaper. Push some of the paper down into the hole in the ceramic. Close the firewood hatch.
- Press "FAN START", the fan starts. Open the bypass damper. Open the ash hatch and light the paper.
- The wood must be properly ignited (flue gas temperature approx. 250°F). Leave it to burn until there is a layer of vigorous embers. Open the ash hatch and the bypass damper.

Lighting a fire with the gas lighter

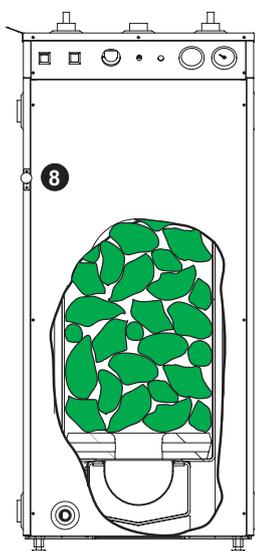
- Move the main switch to the green position. Set the thermostat to 250°F (120°C).
- Arrange medium size blocks of wood over a layer of kindling, then fill the rest of the combustion chamber with firewood.
- Press "FAN START", the fan starts.
- Open the bypass damper and ash hatch. You can leave the firewood hatch open until you can see the flames.
- Ignite the gas lighter and insert it into the nozzle in the opening (see the diagram below). After around 1-2 minutes the firewood should be lit.
- Remove the gas lighter, close the ash hatch, close the firewood hatch, close the bypass damper. Check that you can see flames in the inspection glass.

Adding wood

To prevent smoke and flames entering the room when adding wood, you must open the bypass damper before opening the firewood hatch.

Only add more firewood when all that is left of the previous load is a layer of embers.

Constantly "topping up" with the occasional log reduces efficiency significantly. Even out the layer of embers. Add more firewood. The amount of firewood depends on the temperature in the accumula-



RISK OF BURNS

Do not open the boiler hatches if the fan is not running and a fire is burning in the boiler. If you are not sure whether a fire is burning in the boiler, first open the bypass damper then open the firewood hatch a couple of centimetres very carefully.

There is a risk of flames exiting through the hatch, so take the greatest possible care!

tor – do not allow the temperature to get too high. Filling the boiler with firewood increases the temperature of the boiler and a 400 gal. accumulator by 110- 120°F. Stack the wood carefully.

Close the firewood hatch and then the bypass damper. If the flue gas temperature increases, you know that the firewood has ignited.

When the firewood has burnt and the flue gas temperature has fallen to below 250°F, the fan and charging pump to the accumulator stop running.

Bypass damper

The boiler's bypass damper must only be used for adding wood during a burning cycle, in order to prevent smoke entering the room.

When the bypass damper is open, the boiler works like an updraught burner with shorter flue gas paths. This increases the flue gas temperature and reduces efficiency.

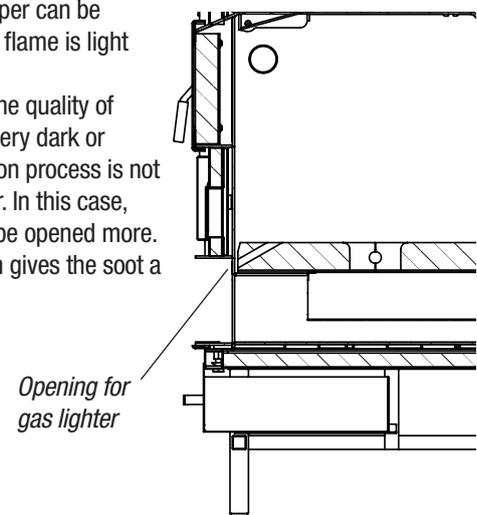
Do not forget to close the damper after adding firewood.

Controlling combustion

Air is supplied to the boiler partly through the primary damper, which is hidden behind the cover plate on the front, and partly through the secondary damper in the lower ash hatch. Combustion is controlled by the draught created by the fan, and by the addition of oxygen through these dampers. To optimise combustion and efficiency, the flue gas temperature should be 350- 400°F.

The secondary damper can be adjusted so that the flame is light yellow.

The soot indicates the quality of combustion. If it is very dark or black, the combustion process is not receiving enough air. In this case, the damper should be opened more. Efficient combustion gives the soot a grey-brown colour.





**When cleaning, the boiler must be completely cool and all embers must have died.
Disconnect the power supply to the boiler before cleaning.**



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

3. Flue pipe, standard.

4. Fan motor.

a. long nuts, x 3.

7. Cleaning hatch.

8. Control for bypass damper.

9. Firewood hatch.

10. Ash hatch.

19. Base frame with ash pan (accessory).

29. Tool for removing turbulators.

30. Short turbulators, x 3, in upper pipes.

31. Long turbulators, x 2, in lower pipes.

34. Ceramic grate, x 2, front and rear with

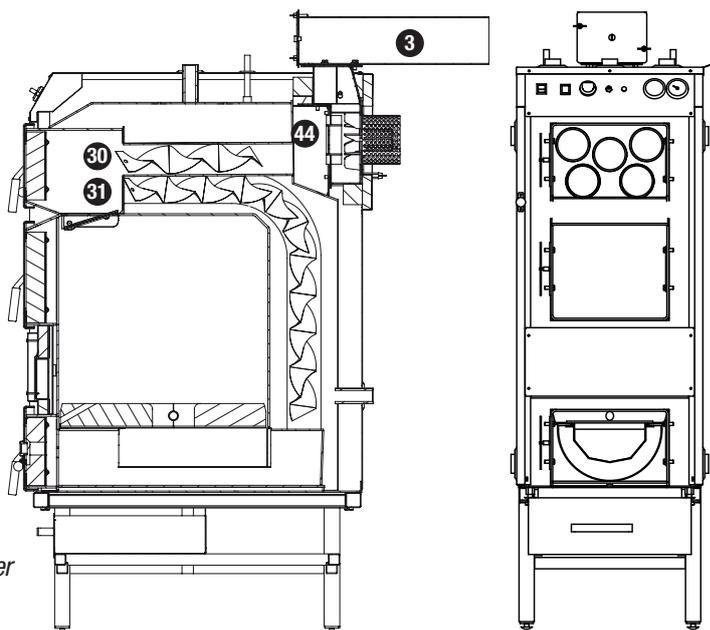
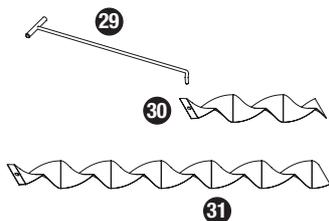
a. air control pipe.

b. glass fibre packing between ceramic and combustion chamber walls

35. Combustion tunnel.

43. Protective grating for fan.

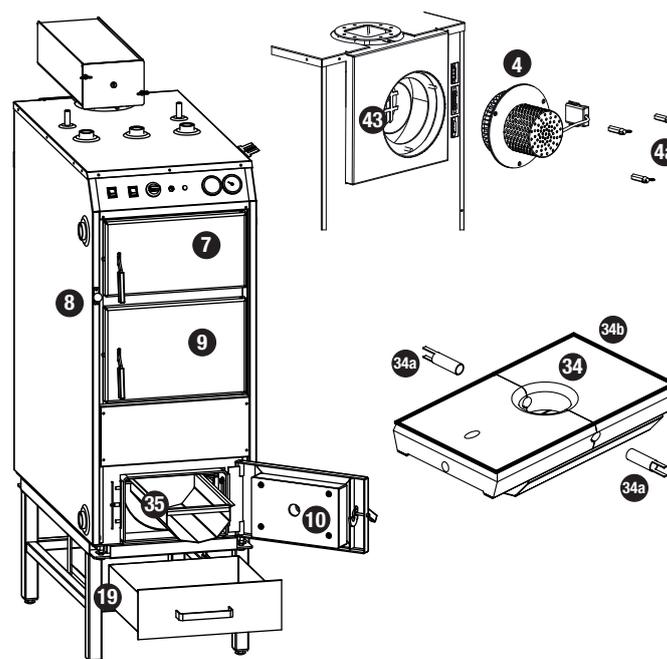
44. Collection chamber.



Cleaning the boiler

Rake the ashes from the combustion tunnel before each burning cycle, but always leave a couple of centimetres as a protective layer. It is normal for tar to form on the walls of the combustion chamber. The tar does not need to be removed because it will burn off once the layer has reached a certain thickness. The tar does not affect the efficiency of the boiler, and the output of the boiler is calculated and dimensioned on the basis of the heat conversion surface area in the flue ducts. The flue ducts must be kept clean at all times. In a cleaned boiler, less of the heat escapes with the flue gases. One way of telling whether it is time for cleaning is to check the flue gas thermostat. It is a good idea to clean the boiler if the flue gas temperature is approx. 80°F higher than the temperature in a clean boiler.

- Open the cleaning hatch, 7.
- Pull out the three upper, 30, and the two lower, 31, turbulators, using tool 29.
Clean the pipes with the pipe cleaner/brush. When cleaning the three upper pipes, be careful not to push the pipe cleaner through the grating, damaging the fan. You must not push the pipe cleaner further than the end of the pipe - you can feel the difference in the amount of force needed to push the cleaner.
Replace the turbulators.
- Open the firewood hatch, 9, and the bypass damper, 8.
Remove the ash on the plate in the upper front edge of the combustion chamber, 32.
There should always be a small quantity of ash on the ceramic grate, 34, in order to extend the service life of the grate.
- Open the ash hatch, 10. Rake out the ash from the combustion tunnel, 35, but leaving a protective layer of a couple of centimetres.
Clean the chamber around the combustion tunnel.
Close all hatches and dampers.



Chimney sweeping

After the chimney has been swept, unscrew the wingnuts on the front of the flue pipe, 3 and 18, and remove the cover. Remove soot and ash. Before restarting the boiler, remove any soot and ash that has fallen onto the fan and into the collection chamber 44.

Cleaning the fan

If necessary the fan can be removed and cleaned. You should handle the fan with care.

- Remove the fan connector, 16, from the boiler plug.
- Unscrew the long nuts, 4a, securing the fan.
- Clean the fan blades carefully so they keep their shape. You are recommended to use a paintbrush.
- Replace the fan and connect the cables.

Ceramic - combustion tunnel

The ceramic grate and combustion tunnel are wearing parts that will have to be replaced over time. Wearing parts are not covered by any guarantee. Small cracks in the ceramic are not abnormal and no action is necessary.

To increase the service life of these parts, follow these instructions:

- Do not remove the ceramic when cleaning the boiler combustion chamber.
- Scrape the ceramic gently and carefully when removing ash from the boiler.
- Leave a couple of centimetres of ash as a protective layer on the grate and the combustion tunnel.
Pieces of charcoal from the previous burning cycle can be left for the next cycle.
- Only use "real" wood, avoiding plastic, treated timber, refuse, etc.
- Place the wood in the boiler, do not throw it in.
- If the boiler/ceramic is new or if the boiler has not been used for a while, light a small fire to heat the ceramic and remove any moisture.

Safety valves

In order to preserve the safety function, the safety valves for the domestic hot water system and the heating system must be operated regularly, around four times a year.

Open and close the safety valve manually around four times a year, checking that a small amount of water escapes and that the valve closes again properly.

Also check that there is sufficient pressure in the system. If necessary, add more water.

Venting

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

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

Water pressure in the system

The pressure required in the heating system depends on the height difference between the lowest and highest points in the system, the static head. If the difference is 16.4 ft., the pressure is 7.3 psi, if it is 32.8 ft., the pressure is 14.5 psi.

The necessary pressure in the heating system depends on the height difference between the highest and lowest points in the system, the static head.



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

The volume of water changes with the temperature, and the change in volume affects the pressure in the system. The higher the temperature the greater the volume and the higher the pressure. The expansion vessel takes up the changes in volume. The flow temperature – and therefore also the pressure – is higher in the summer than the winter.

Unvented expansion system

The pressure in the unvented expansion vessel should be checked at intervals of several years. The vessel must not be exposed to any pressure from the heating system.

Overheating protection

The overheating protection, which stops the fan if the boiler temperature is too high, is reset on the boiler control panel. It is not possible to reset until the boiler temperature has dropped below 200°F.

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.

Never start a burning cycle if you suspect that any part of the heating system might be frozen. Call the installer.

If the heating system will be turned off for an extended period, the water should be drained.

Draining the boiler

The boiler must not be running while it is being drained.

Close the valves to the heating system.

Run the water to a floor drain via a hose connected to the boiler drain valve.

Allow air into the system by opening the boiler safety valve.

The drain valve for the heating system must be located in a convenient place.

Boiler cleaning

Keep the boiler clean and tidy.

Alkaline cleaning agents are useful for removing soot marks from the boiler. Do not use strong solvents.

Pellet burner

For optimum reliability and efficiency, it is essential to check and adjust the burner regularly.

Power failure

If there is a power failure, the fan will stop and the output of the boiler will fall. In around 20 minutes, the output drops from 100% to approximately 10%. If Värmebaronen's instructions were followed when the accumulator tanks were connected, this output can circulate naturally to the accumulator tanks.



RISK OF BURNS

Do not open the boiler hatches if the fan is not running and a fire is burning in the boiler. If you are not sure whether a fire is burning in the boiler, first open the bypass damper then open the firewood hatch a couple of centimetres very carefully.

There is a risk of flames exiting through the hatch, so take the greatest possible care!

The most common problems that occur when burning firewood are usually the result of the boiler failing to reach a high enough temperature so that the boiler never really gets going. Another common problem is that the heat is not transferred to the accumulator tanks even though the wood is burning well in the boiler.

Poor combustion.	Damp wood.	A ceramic boiler requires a high combustion temperature. To achieve this, the wood must be dry, moisture content 12- 25%.
	Incorrect handling.	Read the instructions.
	The wood is not suitable for the boiler.	The firewood should be approx. 20 in. long, with a width allowing three blocks to fit the width of the grate.
	Constant "topping up"	Constant "topping up" lowers the combustion temperature and reduces the boiler output.
	Shaped wood, rectangular wood.	If uniform blocks of wood are stacked on each other, a solid mass of wood is created with limited surface area for the fire to act on. Arrange the wood so there are gaps between the blocks.
	Fails to burn.	The wood is bent and/or not suitable for the boiler. This is not the same thing as the firewood burning to a different extent in different parts of the boiler, which is normal.
	Not enough air.	Check that the air valve is open. The fresh air intake of the boiler room must have at least the same cross sectional area as the flue duct.
	Damper too open.	If the damper is too open, the air will not be correctly distributed in the boiler. Start with the damper fully closed.
	The chimney runs downwards from the boiler connection.	The turbulence created takes away some of the draught. Fill the lower part with sand or similar material.
	No accumulator control.	A ceramic boiler is at its most efficient when the ceramic is hot. The temperature in the boiler therefore needs to be increased quickly before charging begins. The service life of the boiler is shortened if there is no control system. Add a control system.
Ceramic not correctly positioned.	If the boiler is new, check that the ceramic has not moved during transport. Also check the seal with the combustion chamber walls.	

High flue gas temperature.	Tar and soot in the pipes.	Incorrect combustion. Check the firewood, the draught, the air intake and the handling. Clean the boiler.
	Bypass damper open.	Close the damper. The bypass damper must only be opened for adding wood.
	Combustion tunnel in wrong position.	The combustion tunnel must be inserted fully.
	Faulty flue gas thermometer.	The thermometer may have been damaged by cleaning or by long periods of up draught burning.

Tar and soot in the pipes.	Incorrect combustion.	See the section about high flue gas temperature.
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Heat is not transferred from the boiler to the accumulator.	Wrong connections.	Check.
	Circulation pump in accumulation control.	Check that the pump is operational. Most pumps have a speed control – check that the speed is not too low.
	Air.	Vent. Check the installation. If installation is carried out according to "Connection to accumulator system", the system will not be sensitive to air problems.
	Wrong connection of accumulator.	See the points above.

Boiling noises.	Low pressure head.	Check the pressure, which should be about 14.5 psi. The expansion vessel must be dimensioned for the volume and for the temperature variations that occur.
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Fan fails to start.	Main switch in position 0.	Set the main switches to position I.
	Forgotten to connect the instant connector.	Connect the instant connector.
	Overheating protection triggered.	Reset the overheating protection.

The safety valve opens when the system is warm.	Expansion vessel too small.	See the section about the "Expansion system" on page 5.
	Initial pressure in the expansion vessel too high/low.	Check the pressure in the vessel, see the section about the "Expansion system".

item	prod.no.	name	qty.
25	12 00 17	Overheating protection 1-pole, alt. 110°C	1
21	12 00 53	Thermostat 1-pole 100-500°C	1
	12 00 09	Handle thermostat	1
22	13 00 31	Switch 2-pole, auto-return	1
20	13 00 32	Switch 2-pole	1
18	16 00 01	Terminal block 3-pole	1
	16 00 06	End plate	1
23	17 00 07	Relay 1-pole	1
24	17 00 21	Time relay MER 1.	1
26	19 00 06	LED 230 V, red, pin	1
	23 00 75	Damper arm	1
	23 00 76	Damper arm lock	1
31	23 22 52	Turbulator 1000 mm	2
30	23 22 53	Turbulator 436 mm	3
	24 00 10	NPT G15 (½")	1
	24 00 11	NPT G25 (1")	2
	24 00 12	NPT G32 (1¼")	2
	24 40 25	Bushing, brass, G25/20	1
	24 55 05	Safety valve, 1,5 bar (21.76 psi)	1
5	29 50 05	Cleaning tool bracket	1
	30 00 11	Glass fibre cord 10mm (m)	1.7
	30 00 30	Ceramic fibre paper 1x25mm (m)	1,1
34	31 04 02	Grate front, V-30	1
34	31 04 03	Grate rear, V-30	1
9	71 05 06	Firewood hatch	1
10	71 04 94	Draught hatch, V-30	1
	37 00 60	Handle knob 25 mm	2
28	38 00 11	Manometer 0-4 bar	1
27	38 00 10	Thermometer. 0-120°C	1
	38 00 30	Flue gas thermometer 50-500°C	1
	44 00 02	Pipe cleaner 89 mm	2
	44 00 05	Pipe cleaner 595x80x60/30mm	1
	44 00 11	Spring steel shaft 1500 mm	2
15b	44 01 53	Inlet 3-pole female	1
	44 01 54	Panel fixing 3-pole	2
17a	44 01 59	Plug 3-pole	1
16b	44 01 66	Outlet 5-pole for panel	1
16a	44 01 67	Plug-on contact 5-pole	1
17b	44 01 68	Inlet 3-pole male	1
15a	44 01 69	Plug 3-pole	1
	44 02 25	PowerJet gas lighter	1
4	50 00 11	Fan V-37F	1
	70 02 05	Insulation for cover of flue gas fan	1
	70 00 86	Fan gasket	1
35	71 04 53	Combustion tunnel	1
	71 06 69	Bypass damper	1
	71 05 21	Damper arm	1
29	71 02 60	Turbulator tool	1
	71 05 62	Ash rake	1
7	71 04 82	Cleaning hatch	1
3	71 11 33	Flue pipe	1

The item numbers refer to the number of the component in the descriptions in this document.

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.

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