ACV

EXCELLENCE IN HOT WATER

N2

Condens

21.8 kW

INSTALLATION, OPERATION & MAINTENANCE

Instructions for the User and the Installer

664Y5000 • E

NOTE

This manual contains important information with respect to the installation, the starting up and the maintenance of the appliance.

This manual must be provided to the user, who will read it carefully and keep it in a safe place.

We accept no liability should any damage result from the failure to comply with the instructions contained in this technical manual.

Essential recommendations for safety

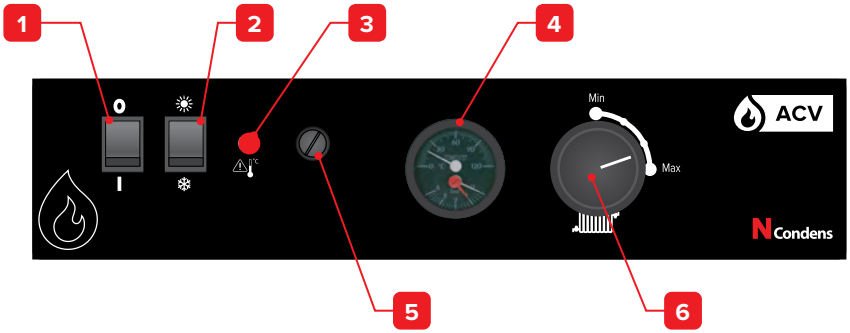
- **It is prohibited to carry out any modifications to the appliance without the manufacturer's prior and written agreement.**
- **The product must be installed by a qualified engineer, in accordance with applicable local standards and regulations.**
- **The installation must comply with the instructions contained in this manual and with the standards and regulations applicable to heating systems.**
- **Failure to comply with the instructions in this manual could result in personal injury or a risk of environmental pollution.**
- **The manufacturer declines all liability for any damage caused as a result of incorrect installation or in the event of the use of appliances or accessories that are not specified by the manufacturer.**

Essential recommendations for the correct operation of the appliance

- **In order to ensure that the appliance operates correctly, it is essential to have it serviced by a certified installer or maintenance contractor every year.**
- **In case of anomaly, please call your service engineer.**
- **Faulty parts may only be replaced by genuine factory parts.**

General remarks

- **The availability of certain models as well as their accessories may vary according to markets.**
- **The manufacturer reserves the right to change the technical characteristics and features of its products without prior notice. Please check for an updated version of this manual in the documentation page on the website www.acv.com.**
- **In spite of the strict quality standards that ACV applies to its appliances during production, inspection and transport, faults may occur. Please immediately notify your approved installer of any faults.**



1. **Boiler on/off switch**

2. **Summer/winter switch (**is used to turn the heating circulator on and off).

3. **Safety warning indicator (**lights up when the temperature of the flue gas or water of the primary system is too high).

4. **Thermo-pressure gauge (**displays the boiler temperature and the pressure within the primary system).

5. **Manual reset safety thermostat** (enables the boiler to be reset after overheating of the primary water system).

6. **Thermostat control** (allows the boiler temperature to be set between 60°C for the minimum position and 90°C for the maximum position).

Important recommendations for the correct operation of the appliance

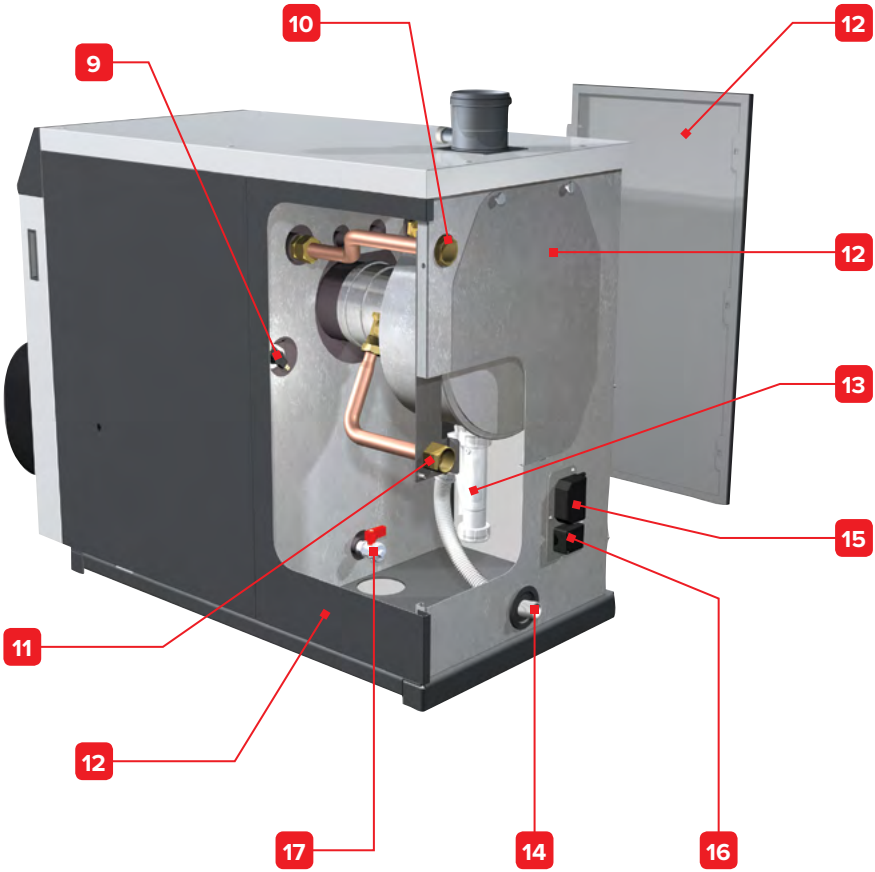
- **If the boiler switches frequently to safety, contact your installer.**
- **If your boiler is connected to a Domestic Hot Water (DHW) heating tank, make sure that the temperature of the heating thermostat is higher than that of the DHW thermostat in order to guarantee optimal operating conditions.**

The **N2 Condens** condensing fuel oil boiler is a heat generator that enables the water for the central heating and DHW heater to be reheated (if the latter is connected to the boiler).

Key

1. Condenser
2. Flue outlet
3. Vent for measuring flue gas temperatures
4. Turbulators (6 parts)
5. Blue flame oil burner
6. Burner chamber plate with insulation brick
7. Boiler body
8. Thermal insulation

9. Minimum thermostat
10. Heating flow
11. Heating return
12. Removable panels
13. Condensate trap
14. Condensate exhaust hose
15. Electrical connection socket of the boiler
16. Connection socket of flue gas safety thermostat (optional)
17. Drain valve



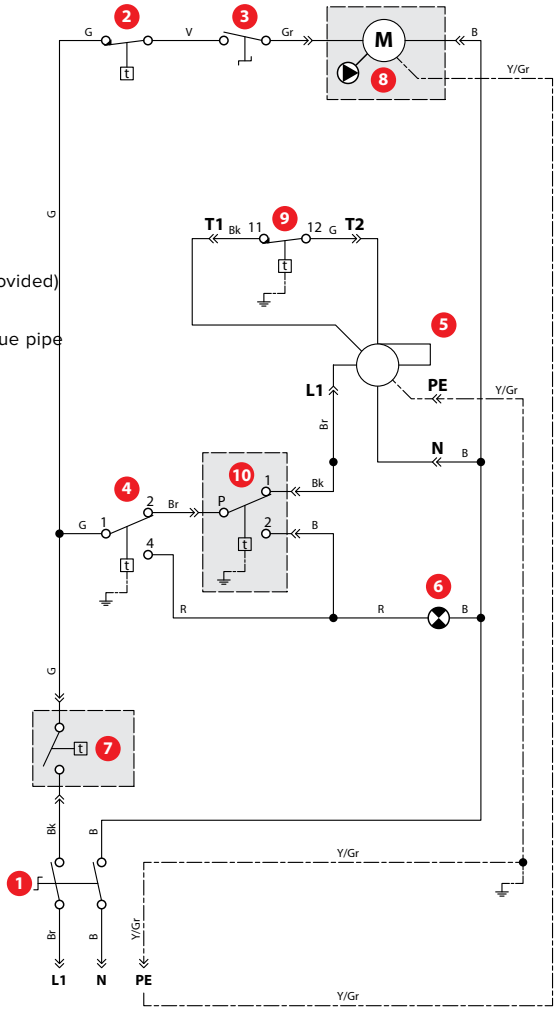
ELECTRICAL CHARACTERISTICS

Main electrical characteristics		N2 Condens
Nominal voltage	V~	230
Nominal frequency	Hz	50
Nominal intensity	A	6

Wiring diagram

Key

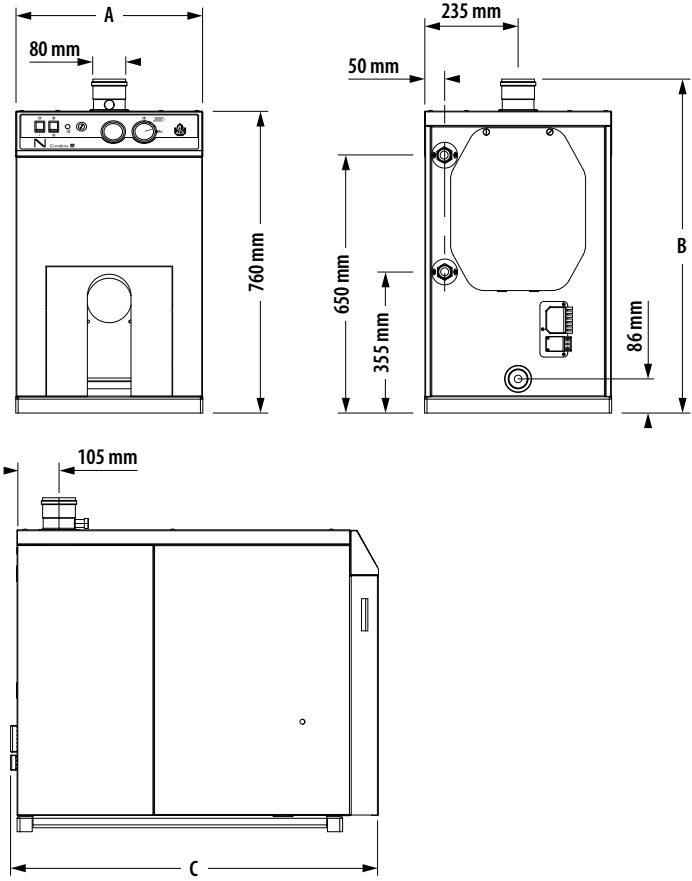
1. On/Off switch
2. Minimum thermostat 45 °C
3. Summer/winter switch
4. Safety thermostat
5. Burner
6. Safety warning indicator
7. Room thermostat (optional)
8. Installation heating pump (not provided)
9. Control thermostat of the boiler
10. Flue gas safety thermostat for flue pipe (optional)



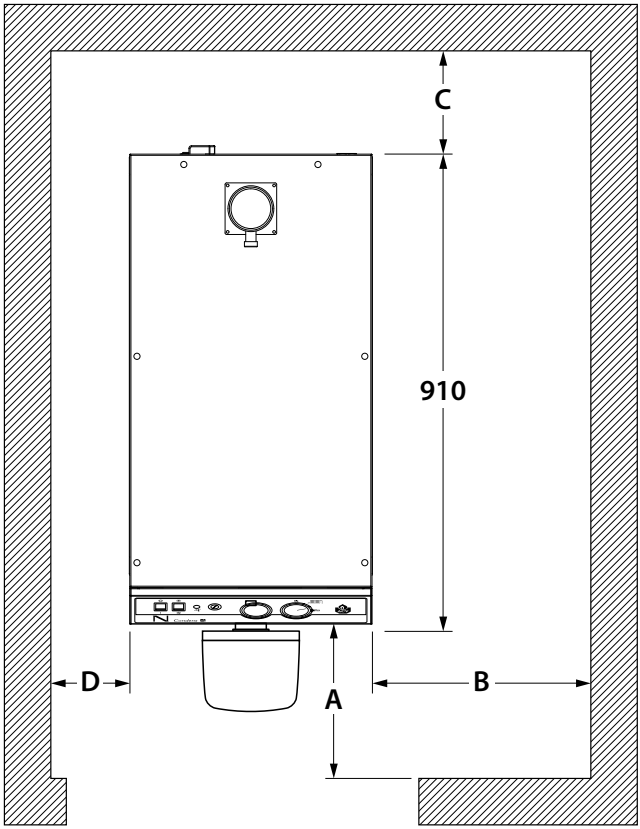
B : Blue
Bk : Black
Br : Brown
G : Grey
Gr : Green
R : Red
V : Violet
Y : Yellow
Y/Gr : Yellow/Green

DIMENSIONAL CHARACTERISTICS

Boiler dimensions			N2 Condens
A = Width		mm	470
B = Height		mm	840
C = Depth		mm	925
Volume of the combustion chamber		dm^3	42.3
Combustion chamber	Height	mm	295
	Width	mm	330
	Depth	mm	435
Empty weight		kg	155



Overall dimensions of boiler	N2 Condens	
	Recommended	Minimum
A (mm)	800	650
B (mm)	1000	900
C (mm)	600	400
D (mm)	150	100

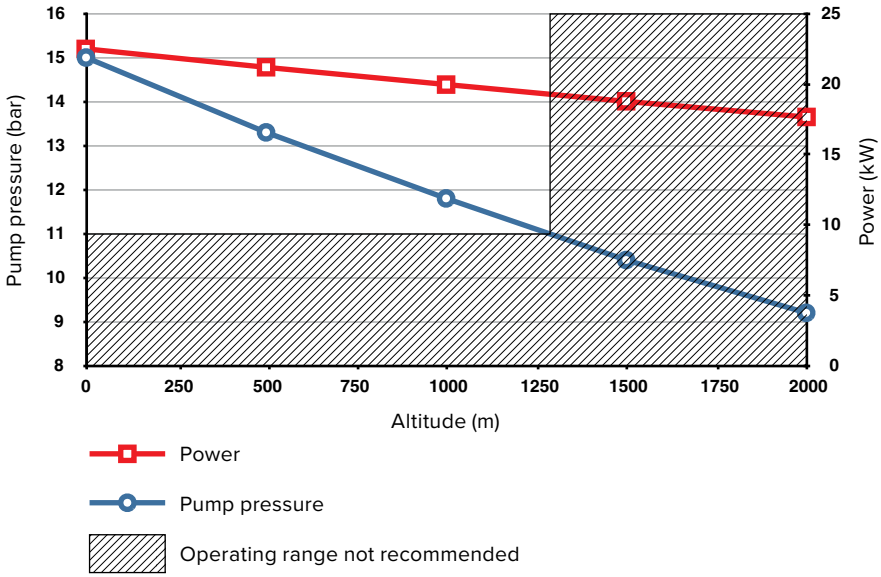


The two lateral rear panels allow access to the components inside the boiler from the left or right hand side.

COMBUSTION CHARACTERISTICS

Main characteristics		N2 Condens
Fuel type		EL fuel oil
Heat flow (input - NCV)	kW	22.4
Output rate (80/60°C)	kW	21.8
Output rate (50/30°C)	kW	23.3
Efficiency at 30% load *(EN 677)*	%	104
Efficiency at 100% load (80/60°C)	%	97.5
Efficiency at 100% load (50/30°C)	%	103.5
Combustion efficiency at 100% load (80/60°C)	%	98.2
Combustion efficiency at 100% load (50/30°C)	%	99
Flue gas temperature (return 30°C)	°C	48.5
Flue gas temperature (return 60°C)	°C	66.7
NOx	mg/kWh	87
CO	mg/kWh	4
Drop when off	W	87

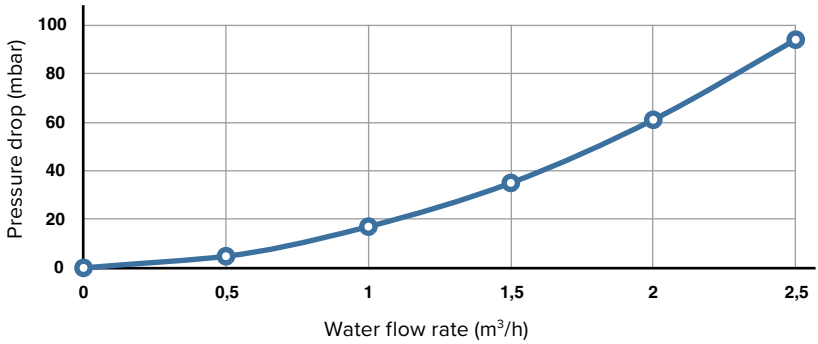
Burner operating limit at altitude



HYDRAULIC CHARACTERISTICS

Main hydraulic characteristics		N2 Condens
Boiler water capacity	L	37
Heating flow connection (female)	Ø	1"
Heating return connection (female)	Ø	1"
Max operating pressure of the heating circuit	Bar	3
Heating exchanger pressure drop (Δt = 20°C)	mbar	18

Curve for drop in hydraulic pressure

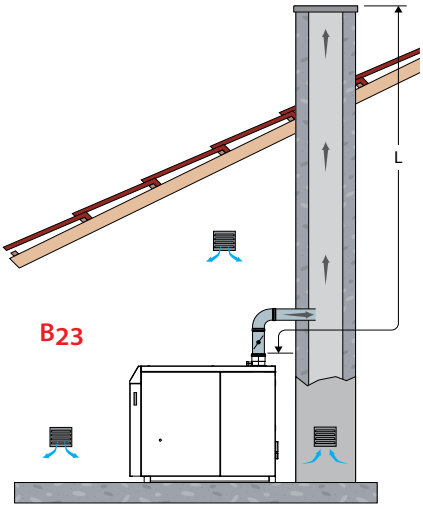


CHARACTERISTICS OF FLUE CONNECTION

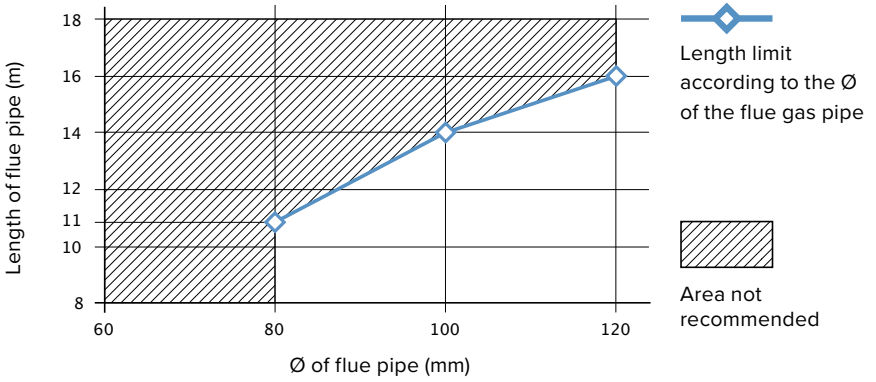
Flue characteristics		N2 Condens
Connection type		B23
Ø of boiler connection to flue	mm	80
Ø of minimum flue pipe	mm	80
L = Maximum length of Ø 80 mm flue pipe	m	10
Maximum flue gas T°	°C	120
Flue gas temperature - Max. ouput power 80/60°C	°C	67
Flue pressure drop	Pa	20
Mass flow of flue gas	g/s	9.5

Flue connection diagram

1 45° pipe bend ≈ 1 m straight pipe
1 90° pipe bend ≈ 1.5 m straight pipe



Curve of flue pipe lengths



OPERATING LIMITS

Maximum service pressure
- Primary circuit : ..... 3 bar

Operating temperature
- Maximum temperature of the primary circuit : ..... 90°C

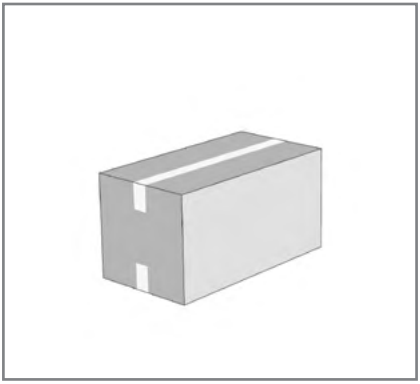
Water quality
See Recommendations for the prevention of corrosion and scaling

Fuel oil quality
• Low sulphur fuel oil (50 ppm)
• Standard fuel oil (2000 ppm)
• Biofuel oil 0 to 7% of fatty acid methyl esters

PACKAGE CONTENTS

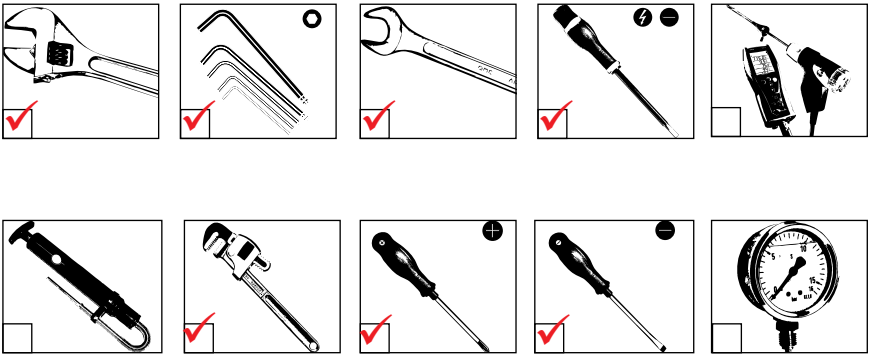
The appliances are delivered assembled, tested and packaged separately.

Contents of package No. 1
- N2 Condens boiler.
- Multilingual installation, operating and maintenance instructions.
- A stainless steel flue outlet with measuring vent.



Contents of package No. 2
- A blue flame fuel oil burner BMR 33.
- Multilingual installation, operating and maintenance instructions.

TOOLS REQUIRED FOR THE INSTALLATION

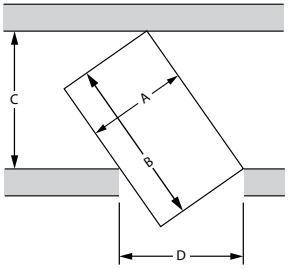


HOW TO MOVE THE BOILER

Move using a hand truck

Use a hand truck suitable for the weight of the boiler.

Minimum door and hall width required to pass the boiler through



A = maximum boiler width
B = maximum boiler length
C = hall width
D = door width

Hall width: $C = \frac{A}{D} \times B$

Example of calculation in order to determine the minimum hall width with a door width of D = 800 mm

$C = \frac{540}{800} \times 1000$ = Hall width ≥ 675 mm

Door width: $D = \frac{A}{C} \times B$

Example of calculation in order to determine the minimum door width with a hall width of C = 900 mm

$D = \frac{540}{900} \times 1000$ = Hall width ≥ 600 mm

SAFETY INSTRUCTIONS FOR THE INSTALLATION

Essential recommendations for safety

- Install the boiler on a level base or vertically plumb support made of non-combustible materials and of sufficient strength to support the boiler weight.
- Use extreme care not to drop the boiler or cause bodily injury while lifting or mounting the boiler onto the wall bracket or base. Once mounted, verify that the boiler is securely attached to the bracket and wall or safely set on its base.
- Do not use or store any flammable, explosive or corrosive products, such as paint, solvents, salts, chloride products and other detergent products near the appliance.
- Make sure that the condensate outlet is never obstructed and that a condensate neutralisation system is installed if required.
- Make sure that all air vents are unobstructed at all times.

Essential recommendations for the electrical safety

- Only an approved installer is authorized to carry out the electrical connections.
- Make sure that the appliance is connected to the earth.
- Install a 2-way switch and a fuse or circuit breaker of the recommended rating outside the appliance, so as to be able to shut power down when servicing the appliance or before performing any operation on it.
- Isolate the external electrical supply of the appliance before performing any operation on the electrical circuit.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless supervised or unless they have been given instruction concerning the use of the appliance by a person responsible for their safety.

Essential recommendations for the correct operation of the appliance

- All connections (electrical, flue pipe, hydraulic, gas/fuel) must be carried out in accordance with current standards and regulations in force.
- The boiler must be installed in a dry and protected area, with an ambient temperature comprised between 0 and 45°C.
- Install the appliance to ensure easy access at all times.
- Make sure that the mains water used to fill the boiler has a minimum pressure of 1.2 bar.
- Make sure to install a pressure reducing valve set at 4.5 bar if the mains supply pressure is in excess of 6 bar.
- If works need to be performed (in the boiler room or close to the air vents), make sure to turn off the boiler to prevent dust from entering and accumulating in the boiler heating system.

RECOMMENDATIONS FOR THE PREVENTION OF CORROSION AND SCALING IN HEATING SYSTEMS

How oxygen and carbonates can affect the heating system
Oxygen and dissolved gasses in the water of the primary circuit contribute to the oxidation and the corrosion of the system components that are made of ordinary steel (radiators, ...). The resulting sludge is then deposited in the appliance exchanger.

The combination of carbonates and carbon dioxide in the water results in the formation of scale on the hot surfaces of the installation, including those of the appliance exchanger.

These deposits in the heat exchanger reduce the water flow rate and thermally insulate the exchange surfaces, which is likely to damage them.

Sources of oxygen and carbonates in the heating circuit
The primary circuit is a closed circuit; the water it contains is therefore isolated from the mains water. When maintaining the system or filling up the circuit, water renewal results in the addition of oxygen and carbonates in the primary circuit. The larger the water volume in the system, the larger the addition.

Hydraulic components without an oxygen barrier (PE pipes and connections) admit oxygen into the system.

Prevention Principles

1. **Clean the existing system before installing a new appliance**
   - Before the system is filled, it must be cleaned in accordance with standard EN14336. Chemical cleaning agents can be used.
   - If the circuit is in bad condition, or the cleaning operation was not efficient, or the volume of water in the installation is substantial (e.g. cascade system), it is recommended to separate the appliance from the heating circuit using a plate-to-plate exchanger or equivalent. In that case, it is recommended to install a hydrocyclone or magnetic filter on the installation side.

2. **Limit the fill frequency**
   - Limit fill operations. In order to check the quantity of water that has been added into the system, a water meter can be installed on the filling line of the primary circuit.
   - Automatic filling systems are not recommended unless the fill frequency is monitored and the scale and corrosion inhibitor remain at the correct levels.
   - If your installation requires frequent water refilling, make sure your system is free of water leaks.
   - Inhibitors may be used in accordance with standard EN 14868.

3. **Limit the presence of oxygen and sludge in the water**
   - A deaerator (on the appliance flow line) combined with a dirt separator (upstream of the appliance) must be installed according to the manufacturer's instructions.
   - ACV recommends using additives that keep the oxygen in solution in the water, such as Fernox (www.fernox.com) and Sentinel (www.sentinel-solutions.net) products.
   - The additives must be used in accordance with the instructions issued by the manufacturer of the water treatment product.

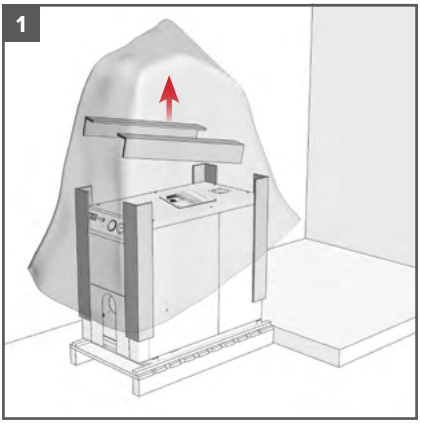
4. **Limit the carbonate concentration in the water**
   - The fill water must be softened if its hardness is higher than 20° fH (11,2° dH).
   - Check regularly the water hardness and enter the values in the service log.
   - Water hardness table :

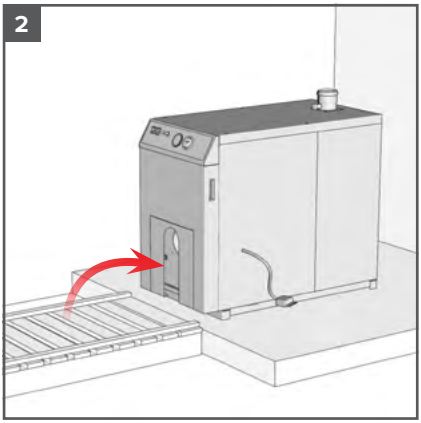
Water hardness	**°fH**	**°dH**	**mmolCa(HCO3)2 / l**
Very soft	0 - 7	0 - 3.9	0 - 0.7
Soft	7 - 15	3.9 - 8.4	0.7 - 1.5
Fairly hard	15 - 25	8.4 - 14	1.5 - 2.5
Hard	25 - 42	14 - 23.5	2.5 - 4.2
Very hard	> 42	> 23.5	> 4.2

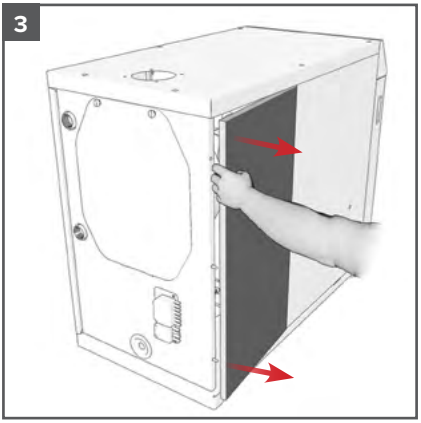
5. **Control the water parameters**
   - In addition to the oxygen and the water hardness, other parameters of the water must be checked.
   - Treat the water if the measured values are outside the range.

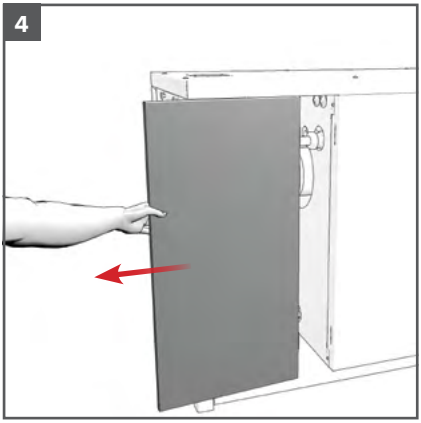
Acidity	6,6 < pH < 8,5
Conductivity	< 400 µS/cm (at 25°C)
Chlorides	< 125 mg/l
Iron	< 0,5 mg/l
Copper	< 0,1 mg/l

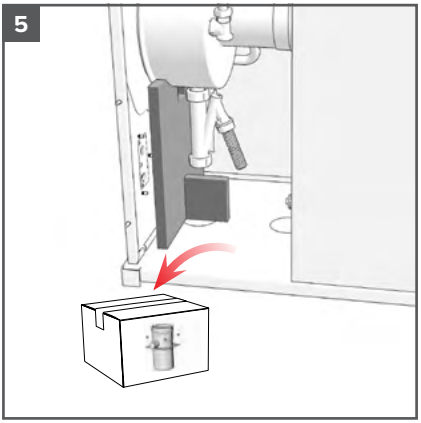
BOILER PREPARATION

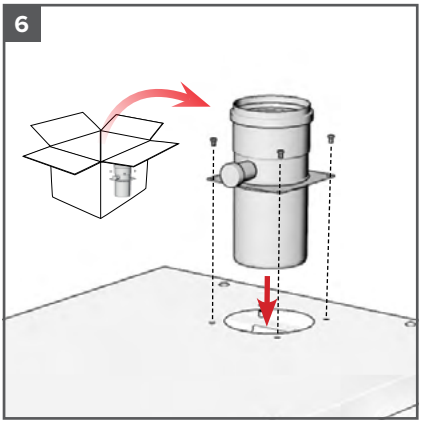












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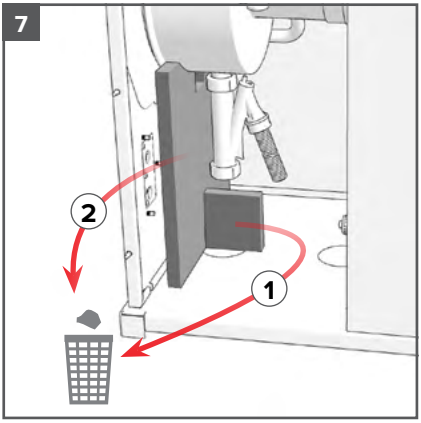

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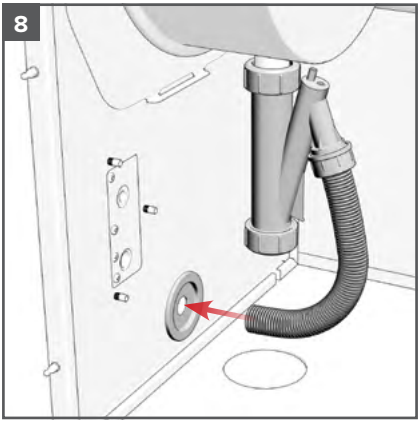

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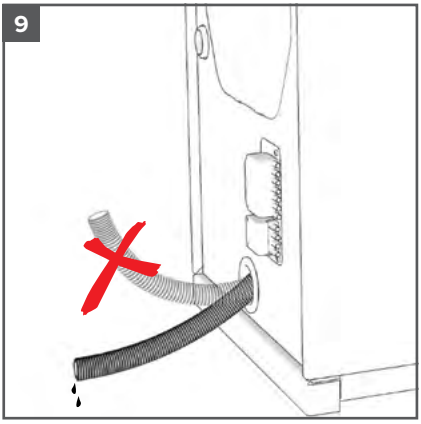

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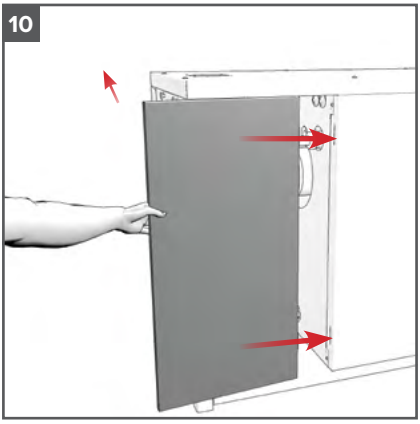

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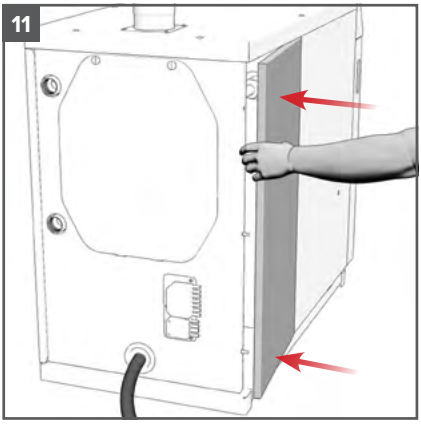
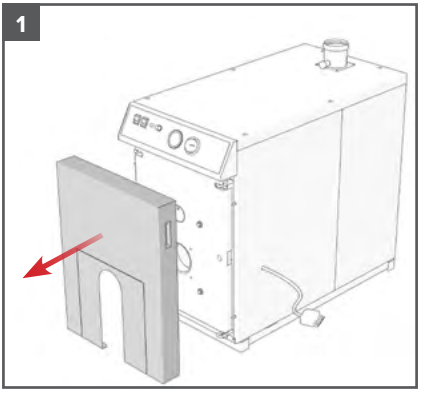


FITTING THE BURNER

1



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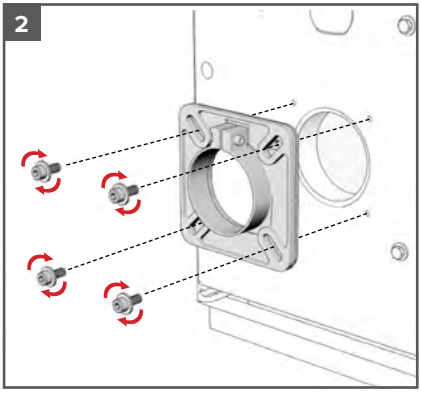

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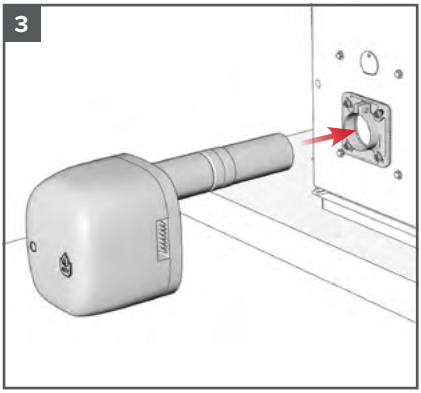

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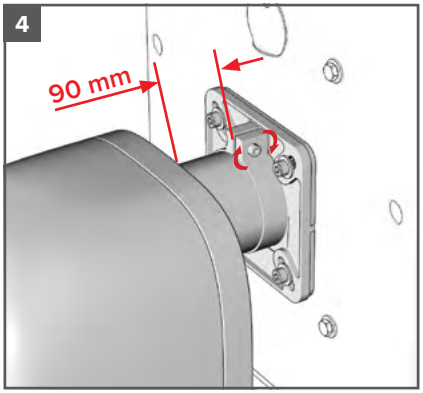

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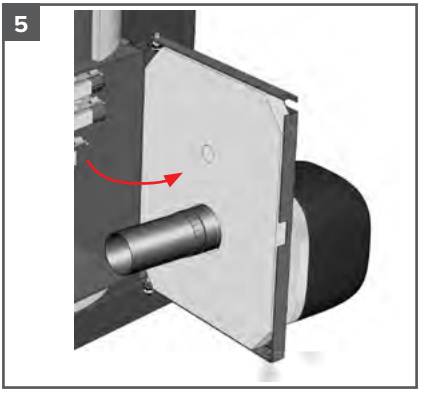

Make sure to insert insulation stuffing around the burner tube after burner installation.

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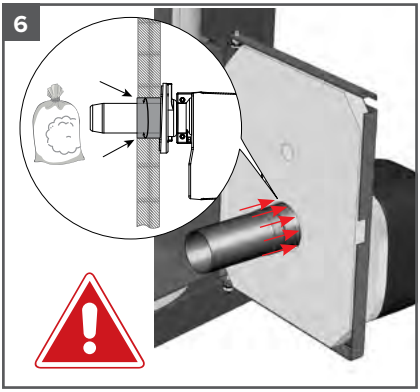

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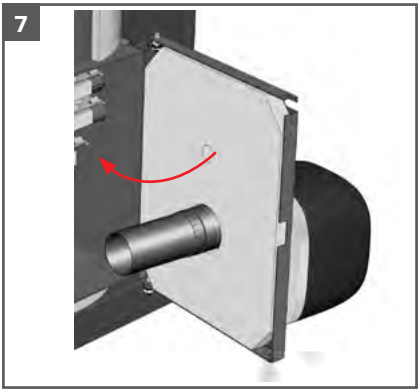

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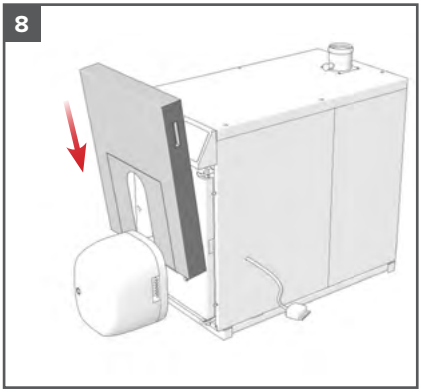

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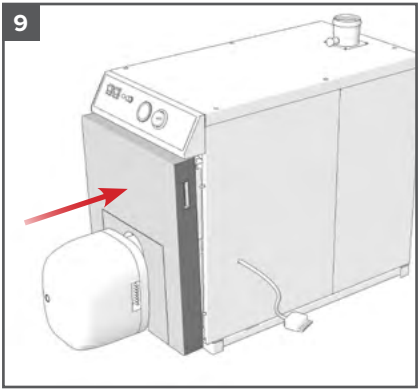

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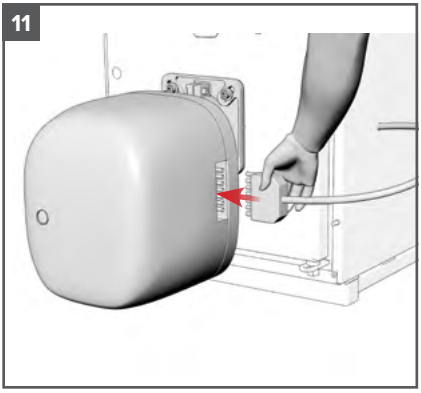
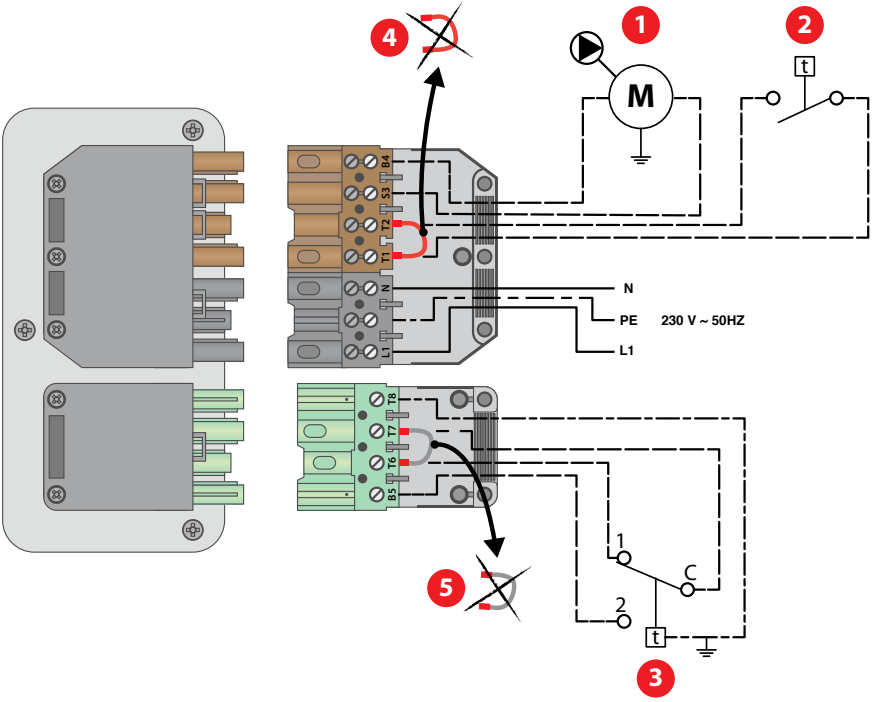


ELECTRICAL CONNECTION

Key

1. Installation heating pump
2. Room thermostat
3. Flue gas safety thermostat for synthetic flue pipe
4. Link (to be removed before connecting the room thermostat ❷)
5. Link (to be removed before connecting the flue gas safety thermostat ❸)



Make sure that the appliance is connected to the earth

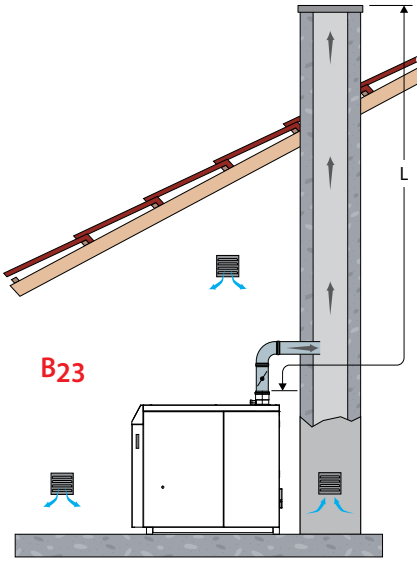
FLUE CONNECTION

Operation dependent on ambient air

(B23 installation)
To ventilate the installation room, it is necessary to provide – in accordance with the regulation on combustion – a vent to the open air from the room with a minimum cross-section of 150 cm^2 or to make a connection with other rooms in order to release the combustion air.

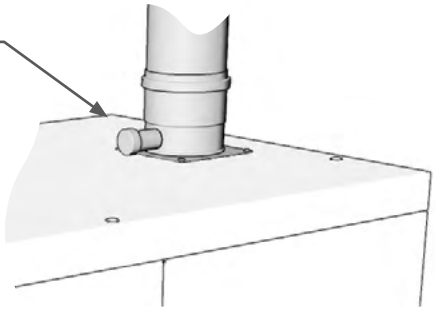
To ensure maximum acoustic comfort is obtained, it is recommended:

- To install the boiler on a solid base (e.g. concrete slab), rather than a hollow base (e.g. block) that could create a resonance volume.
- To disconnect the boiler from the installation hydraulic system by inserting a hose connector on the flow and return circuit, and by ensuring that these hose connectors are not taut or twisted.
- Not to hesitate to increase the diameter of the flue gas exhaust pipes (minimum diameter 80 mm).
- To disconnect the flue gas exhaust system from the flue pipe walls, by adding soft insulation between pipe and wall, in order to prevent the transmission of unavoidable vibrations in the building's walls caused by the flame when the boiler is operational.



Measuring vent
The flue gas measurements are only carried out at the measuring vent.

Under normal operation of the boiler, this vent must always be closed.

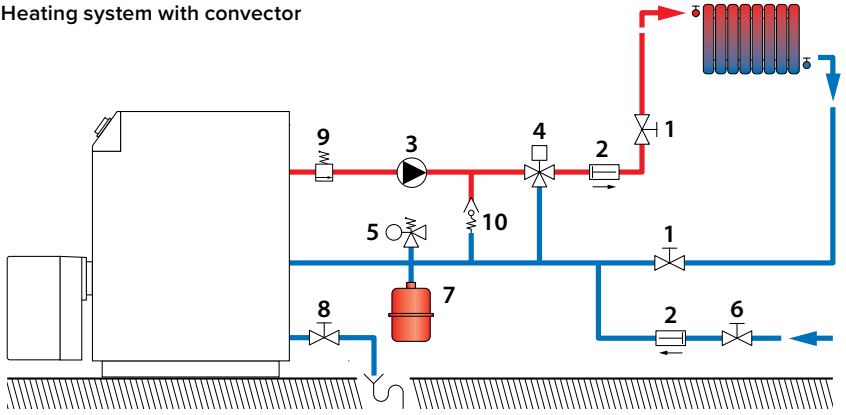


HYDRAULIC CONNECTIONS

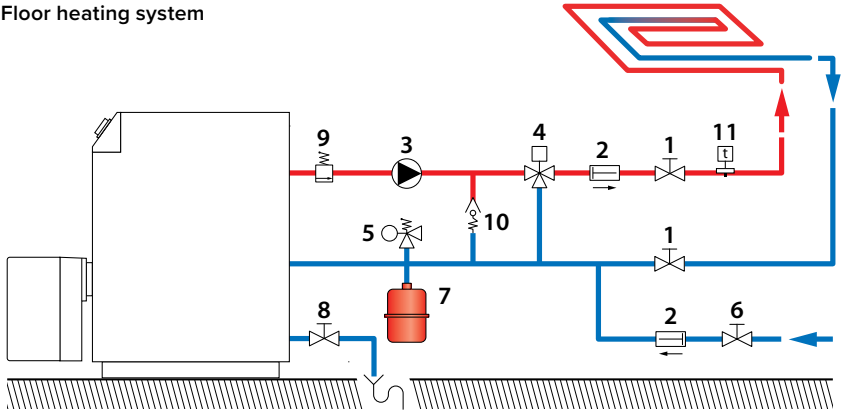
1. Heating isolating valve
2. Check valve
3. Installation heating pump
4. Mixing valve
5. Safety group
6. Primary circuit filling valve
7. Heating expansion vessel
8. Drain valve
9. Automatic air vent
10. By-pass
11. Safety thermostat for floor heating

Do not fit a thermostatic valve on radiators located in rooms equipped with room thermostats.

Heating system with convector



Floor heating system

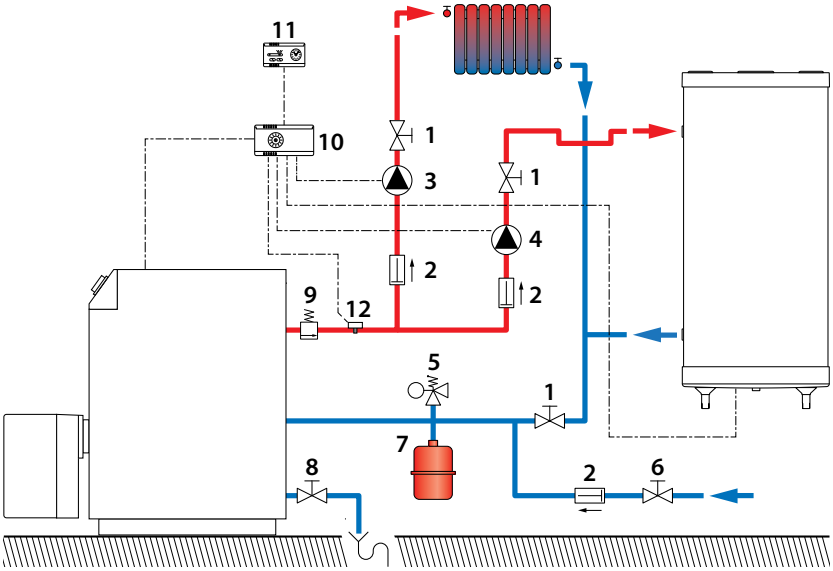


CONNECTION TO A HOT WATER TANK.

All the accessories for the types of installations described below are available from ACV. Please contact your dealer for further information.

System with 2 circulators and a regulator ensuring the DHW yield

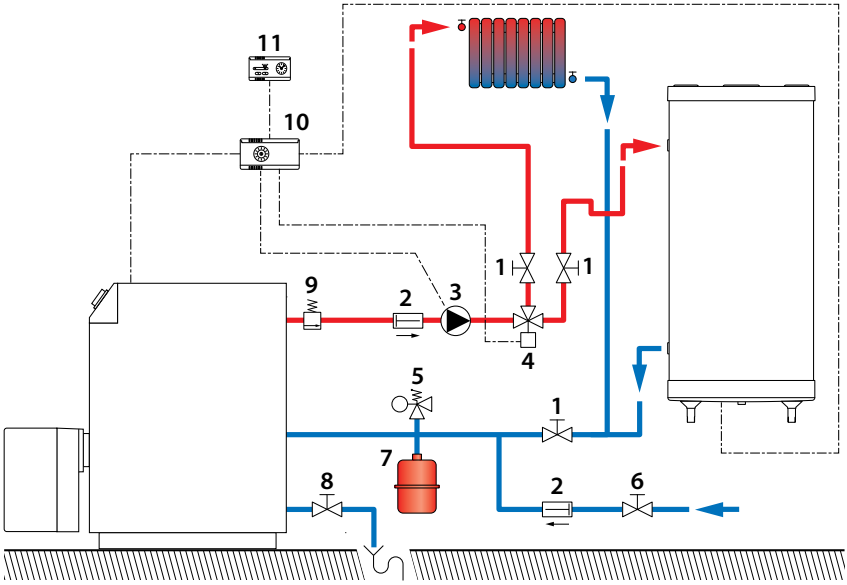
1. Heating isolating valve
2. Check valve
3. Installation heating pump
4. Hot water tank charging pump
5. Safety group
6. Primary circuit filling valve
7. Heating expansion vessel
8. Drain valve
9. Automatic air vent
10. DHW yield regulator
11. Room thermostat
12. Contact sensor



When you use an ACV control or a control of a different make, please assure that you have adjusted the starting temperature of the heating pump (3) above 43°C.

System with circulator, mixing valve and regulator ensuring the DHW yield

1. Heating isolating valve
2. Check valve
3. Installation heating pump
4. Motorised mixing valve
5. 3 bar safety group
6. Primary circuit filling valve
7. Heating expansion vessel
8. Drain valve
9. Auto-air vent
10. DHW yield regulator
11. Room thermostat



When you use an ACV control or a control of a different make, please make sure that you have adjusted the starting temperature of the heating pump (3) above 43°C.

OIL CONNECTION

General remark

- The oil connection must comply with all applicable standards.

Essential recommendation for safety

- Refer to the technical characteristics and safety instructions of the burner technical manual. Failure to comply with the instructions could result in damage to the material, personal injury or death.

Essential recommendations for the correct operation of the appliance

- Bleed the oil duct and check thoroughly if all the boiler tubes, both internal and external, are tight.
- Control the oil supply connection and tightness.

COMMISSIONING SAFETY INSTRUCTIONS

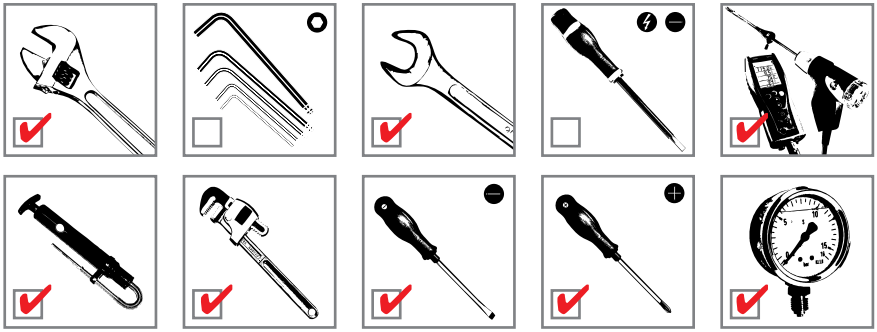
General Remark

- In normal operation, the burner starts automatically when the boiler temperature is lower than that of the setpoint.

Important safety recommendations

- Only an approved installer is authorized to access the components inside the control panel.
- Adjust the water temperature in accordance with usage and plumbing regulations.

TOOLS REQUIRED FOR COMMISSIONING



CHECKS BEFORE COMMISSIONNING

Important safety recommendations

- Check the tightness of the flue gas pipe connectors.
- Check the tightness at the burner door: the inner door insulation should be in contact with the boiler body to prevent any leaks. Retighten insulation bolts as required.

Important recommendations for the correct operation of the appliance

- Check the tightness of the hydraulic system connectors

PRELIMINARY FILLING OF THE HEATING SYSTEM

- Fill the primary system with water from the mains supply until a pressure of approx. 1.5 bar is obtained in the system.
- Bleed the whole system.

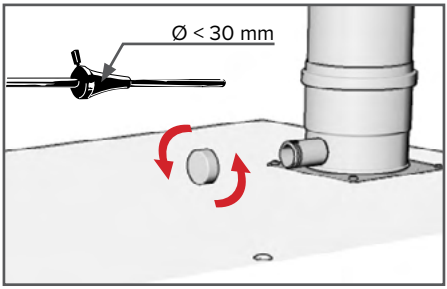
STARTING THE BOILER

Starting the burner

- Switch the boiler's on/off switch to " **I** "
- Turn the boiler's control thermostat to the right to create a heat demand.
- Increase the set point of the room thermostat if there is any.

Adjust the combustion

- Refer to the commissioning instructions detailed in the burner technical manual.
- Adjust the CO_2 in a 13 to 14% setting range y adjusting the fuel oil pressure as well as the air flap as detailed in the paragraph commissioning the burner (refer to burner technical manual).
- Check the temperatures and the CO at the measuring vent (see below)
- Put the cap back on the measuring vent after checking.



Measuring vent for flue gas.

FULL BLEED OF HEATING SYSTEM

- Bleed the heating system again and restore a pressure of 1.5 bar.
- Repeat the process until all the air in the heating system has been evacuated.

RECOMMENDATIONS FOR THE BOILER MAINTENANCE

Essential recommendations for the electrical safety

- **Before opening the boiler for maintenance, turn off the boiler by pushing on the ON/OFF master switch.**
- **Isolate the external power supply of the appliance before performing any operation, unless it is required to take measurements or perform system setup.**

Essential recommendations for safety

- **Water flowing out of the drain valve may be extremely hot and could cause severe scalding.**
- **Do not use solvents to clean any of the burner components. The components could be damaged, resulting in unreliable or unsafe operation.**
- **Check the tightness of the flue pipe connections.**

Essential recommendations for the correct operation of the appliance

- **It is recommended to have the boiler and the burner serviced at least once a year or every 1,500 hours by a qualified technician, preferably at the start of the heating season. More frequent servicing may be required depending on boiler use. Please consult your installer for advice.**
- **The boiler and burner maintenance will be carried out by a qualified engineer, and the defective parts may only be replaced by genuine factory parts.**
- **Make sure to replace any gaskets or seals on the removed components before reinstalling them.**
- **To ensure maximum efficiency and reliability of the unit, it is recommended that the end-user perform the periodic checks mentioned in the Safety section of this manual.**
- **Control the tightness of the hydraulic circuit connections.**

REGULAR CHECK

Water supply check

1. Check that the installation water pressure is at least 1 bar when cold.
2. Make sure that the installation system has been correctly bled and is free of air. If it is necessary to regularly fill the installation to maintain the recommended minimum water pressure, check for leaks on the installation.
3. When necessary, only add cold water in small amounts. Adding a large quantity of cold water to a hot boiler can permanently damage the boiler.

Fuel oil supply check

1. Check the presence of fuel oil in the supply system.
2. Check that the hoses are not pinched and that there is no air intake.
3. Make sure that the flame is visible (through the flame sight glass).

Condensate exhaust check

1. Check the tightness of the condensate recovery trap.
2. Check the condensates are flowing correctly to prevent them from entering the combustion chamber and the formation of corrosion.

ANNUAL MAINTENANCE

It is recommended to clean the boiler on a warm day as it will be switched off for a few hours.

Cleaning the burner

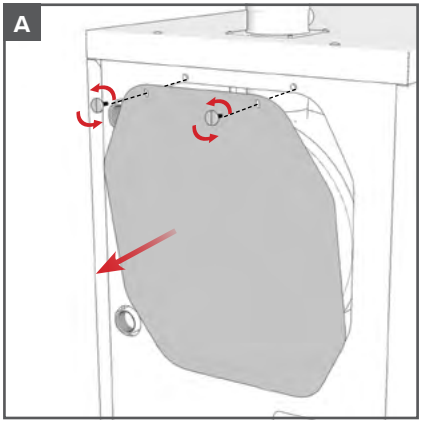
1. Open the front panel.
2. Loosen the burner flange and put the burner in the maintenance position (see burner instructions).
3. Carry out the cleaning (see burner instructions).

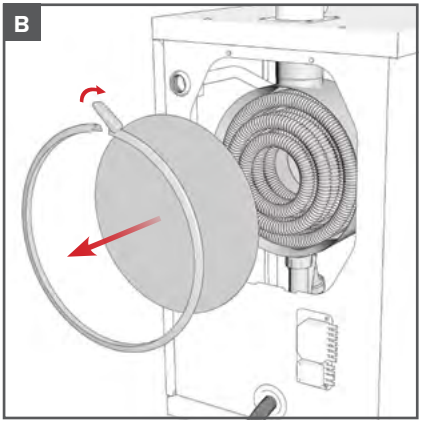
Cleaning the heating unit

1. Open the front panel.
2. Disconnect the burner.
3. Loosen the burner flange and remove the burner.
4. Open the heating unit door.
5. Using a brush, remove any accumulated soot from the heating unit and turbulators.
6. Check the braid is correctly positioned.
7. Close the door.
8. Reinstall the burner flange and the burner.
9. Open the heating body door and check the correct installation of the insulation stuffing around the burner flange.
10. Check the general condition of the inner door insulation. Replace if cracked or broken, as tightness will not be ensured any longer.
11. Close the door and tighten with sufficient torque to ensure it is sealed against combustion products
12. Close the front panel.

Cleaning the condenser

1. Disconnect the flue pipe at the flue outlet fitting.
2. Inspect the inside and clean if required:
   - If the condenser is slightly clogged, pour in a mixture of water and liquid soap (of the washing-up liquid type).
   - If the condenser is considerably clogged, open the rear lateral panel, or the rear panel (**A**), in order to get to the condenser. Open the condenser (**B**) and clean it using a synthetic brush. Do not use the same brush as that used to clean the heating unit, so as to prevent the risk of corrosion.
3. Close the condenser, the rear panels and reconnect the flue pipe.





Cleaning the trap

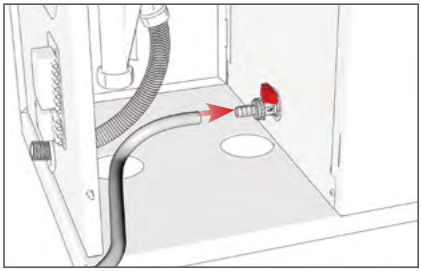
1. Loosen the trap ring.
2. Check that the condensate exhaust pipe is not blocked.
3. Clean the trap with soap and water.
4. Make sure to leave enough water in the trap before reassembly, or pour 20 cl of water in the condenser before reassembly.
5. Insert the trap in the condenser outlet. Replace the O-ring if necessary.
6. Hold the trap in position by re-tightening the ring. Pull the trap downwards to check it is secured.
7. Make sure to reinstall the condensate exhaust pipe so that there is a sufficient gradient for the condensate drainage.

INSPECTION OF SAFETY DEVICES

Check that all thermostats and safety devices are working properly: boiler thermostat, safety thermostat, safety valves, etc.

DRAINING OF THE BOILER

1. Switch the boiler off.
2. Connect a flexible pipe between the boiler drain valve and the drain outlet.
3. Open the automatic air vent and the drain valve.
4. Allow the water to flow to the drain.



RESTARTING AFTER MAINTENANCE

See chapter “Commissioning”

ACV EXCELLENCE IN HOT WATER A BRAND OF GROUPE ATLANTIC

CE

EU DECLARATION OF CONFORMITY

Product type:	Condensing boiler
Name and address of manufacturer:	**Groupe Atlantic Manufacturing Belgium SA** **Rue Henry Becquerel, 1** **B-7180 Seneffe** **Belgium**

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Model: **N2 Condens**

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation and the relevant harmonised standards:

APPLICABLE DIRECTIVES AND REGULATIONS:

- Efficiency Requirements - 92/42/EEC
- Low Voltage - 2006/95/EC
- ElectroMagnetic Compatibility - 2004/108/EC

RELATED STANDARDS:

- EN 267
- EN 303-1
- EN 303-2
- EN 15034
- EN 60335-2-102
- EN 55014-1
- EN 55014-2
- EN 61000-3-2
- EN 61000-3-3

- The notified body: **Technigas** **256 Chaussée de Vilvorde, 1120 Brussels - Belgium**

Code: **0461**

performed a Type Examination and issued the certificate(s) Nb: **EF1138/5549 Rev. 3**

ID #: **0461BU0936**

Signed for and on behalf of
Groupe Atlantic Manufacturing Belgium

Seneffe, 01.01.2024

R&D Director
Céline Coupain

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