ACV

EXCELLENCE IN HOT WATER

BNe 2

Condens

21.8 kW



Installation, Operation & Maintenance

Instructions for the User and the Installer

664Y5900 • F

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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.**

INSTRUCTIONS FOR THE END-USER

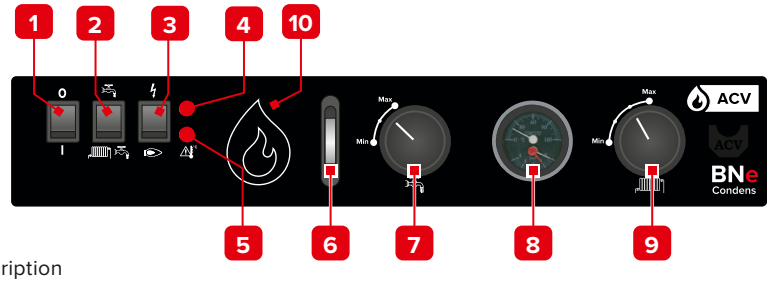
Essential recommendations for safety

- Do not store any flammable or corrosive products, paint, solvents, salts, chloride products and other detergent products near the appliance.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge, only if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- Children shall not play with the appliance.
- Cleaning and user maintenance shall not be made by children unless they are aged from 8 years and above and supervised.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, unless used under the supervision of a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.

PERIODIC CHECKS

Essential recommendations for the correct operation of the appliance

- Check regularly that the system water pressure is at least 1 bar when cold.
- If it is required to top up the system to maintain the minimum recommended water pressure, only add small amounts of water at a time. If a large amount of cold water is added in a hot boiler, the boiler can be damaged definitively.
- If the boiler safety cutout system is frequently activated, contact your installer.
- If the system needs to be refilled repeatedly with water, please contact your installer.
- Regularly check that there is no water on the floor in front of the boiler. If there is, please call your installer.

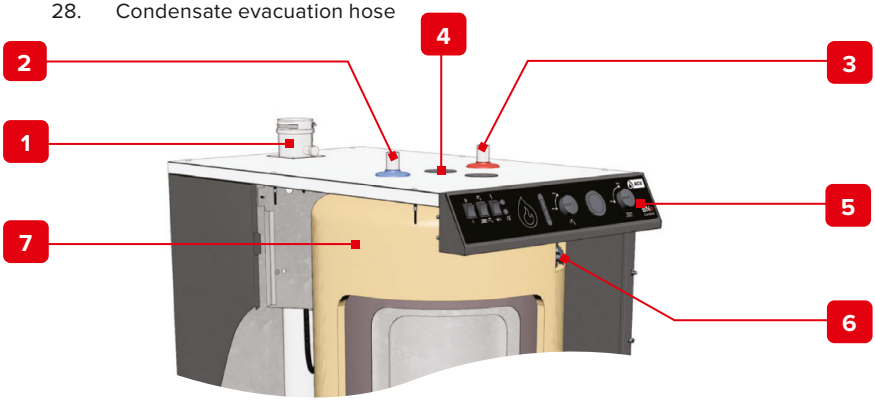


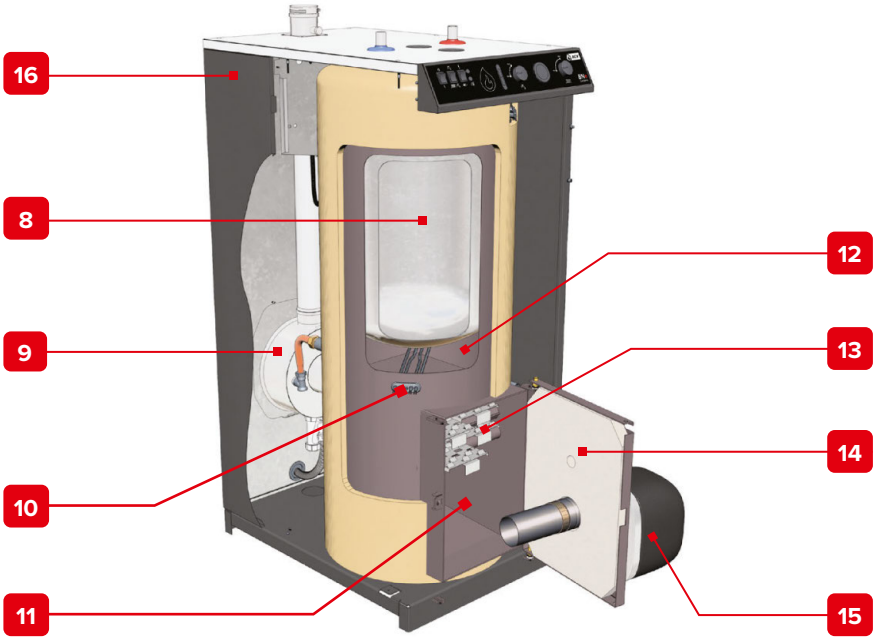
Description

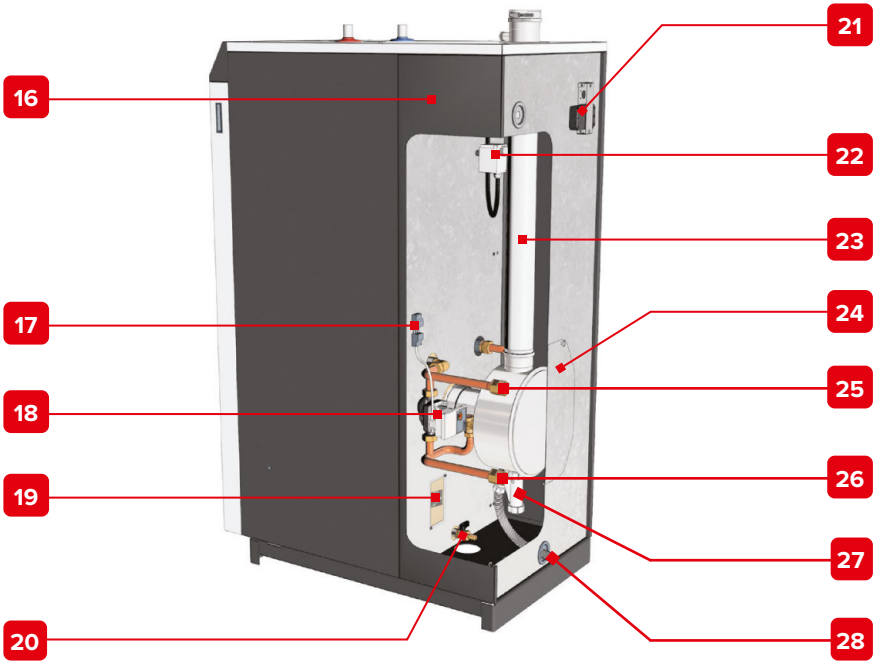
1. **ON/OFF master switch of the boiler** - To turn the boiler on and off.
2. **Summer-winter switch** - To activate or deactivate the heating pump.
3. **Energy source selector switch** - To activate or deactivate the heating pump and the burner, and turn on or off a 2.4 kW heating element to meet the need in domestic hot water.
4. **Heating element indicator** - The built-in indicator lights when the heating element is activated.
5. **Safety cutout warning indicator** - The built-in indicator lights when the flue gas or primary circuit water temperature is too high.
6. **DHW Thermometer -** Shows the temperature of the domestic hot water.
7. **Domestic hot water temperature adjustment thermostat** - In DHW mode, the domestic hot water temperature can be set from 60 to 80°C.
8. **Temperature and pressure gauge** - Indicates the boiler temperature and the primary circuit pressure.
9. **Heating temperature adjustment thermostat** - Allows to set the boiler between 60 and 90°C. It is recommended to set the thermostat 10°C above the set point of the domestic hot water adjustment thermostat.
10. **Pre-cut area for timer (option)** - The timer allows to enable/disable the domestic hot water production according to time (24 h sequence). By pushing the white tabs located around the dial, the timer can be set (1 tab = 15 min.) for a specific operation period.

The **BNE 2 Condens** condensation fuel boiler is a heat generator for central heating, with a a built-in domestic hot water preparation tank. The DHW preparation tank can operate independently from the boiler thanks to a built-in heating element (2,4 kW).

Detail of components	
1.	A chimney connection with measuring port.
2.	Cold water inlet
3.	Domestic hot water outlet
4.	Manual air bleed valve
5.	Control panel
6.	Safety thermostat
7.	Hard expanded polyurethane foam insulation
8.	Stainless steel "Tank in Tank" hot water production tank
9.	Condenser
10.	2.4 kW electric heating element
11.	Combustion chamber
12.	Heating circuit
13.	Turbulators (6 pieces)
14.	Burner chamber plate with insulation block
15.	Blue flame oil burner
16.	Removable panels
17.	Charging pump connection
18.	High-efficiency charging pump
19.	Minimum thermostat 45°
20.	Drain valve
21.	Electrical plug of the boiler
22.	Flue gases safety thermostat
23.	Exhaust flue duct
24.	Condenser access door
25.	Heating circuit outlet
26.	Auxiliary heating circulation loop
27.	Condensate trap
28.	Condensate evacuation hose




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ELECTRICAL CHARACTERISTICS

Main electrical characteristics		BNE 2 Condens
Rated voltage	V~	230
Rated frequency	Hz	50
Rated current with oil burner	A	2.2
Rated current with electrical heating element	A	20
Electrical consumption with oil burner	W	276
Electrical consumption with electrical heating element	W	2496
IP Class		IP30

Wiring diagram caption

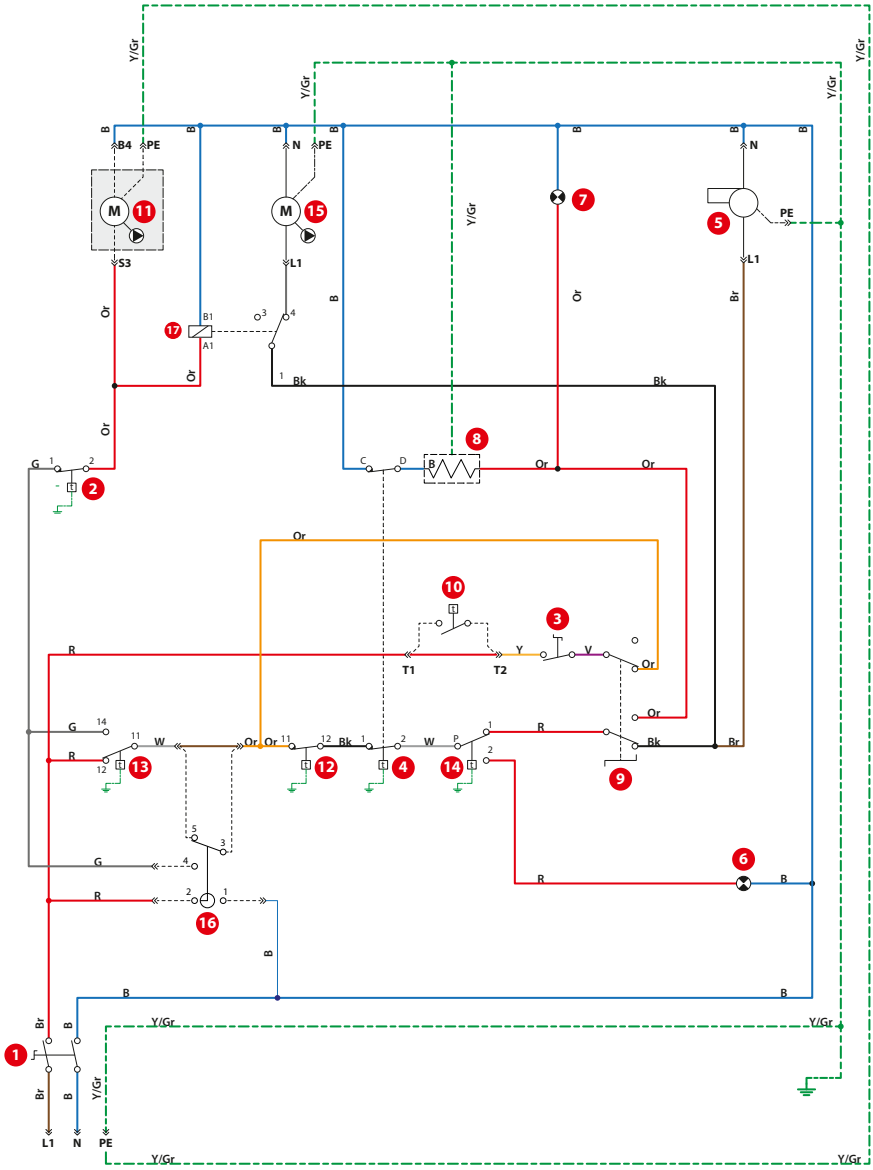
1. ON/OFF master switch
2. Minimum thermostat 45°
3. Summer/winter switch
4. Safety thermostat
5. Oil burner
6. Safety cutout indicator
7. Heating element indicator
8. 2.4 kW electric heating element
9. Energy source selector switch
10. Room thermostat (option)
11. Heating pump of the system (optional)
12. Heating temp. adjustment thermostat
13. DHW temp. adjustment thermostat
14. Flue gas safety thermostat for flue pipe
15. Charging pump
16. Daily timer (optional)
17. Relay

Make sure that the appliance is connected to the earth.

The heating element is composed of two 2.4 kW resistances.

One of the resistances is connected through a cable and used as the main heating element, while the second one is a back-up that is used in case the main one fails.

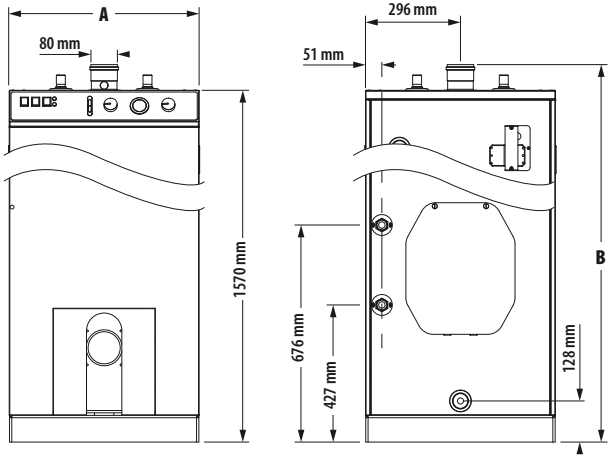
Never connect both resistances simultaneously or the internal cables of the boiler will be damaged.

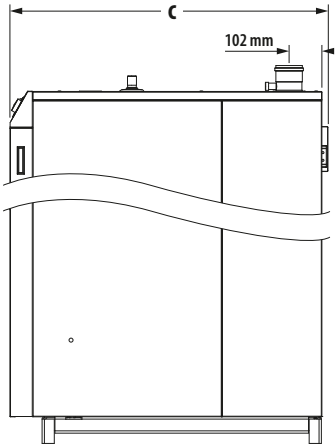


B : Blue	R : Red
Bk : Black	V : Violet
Br : Brown	W : White
G : Grey	Y : Yellow
Or : Orange	Y/Gr : Yellow/Green

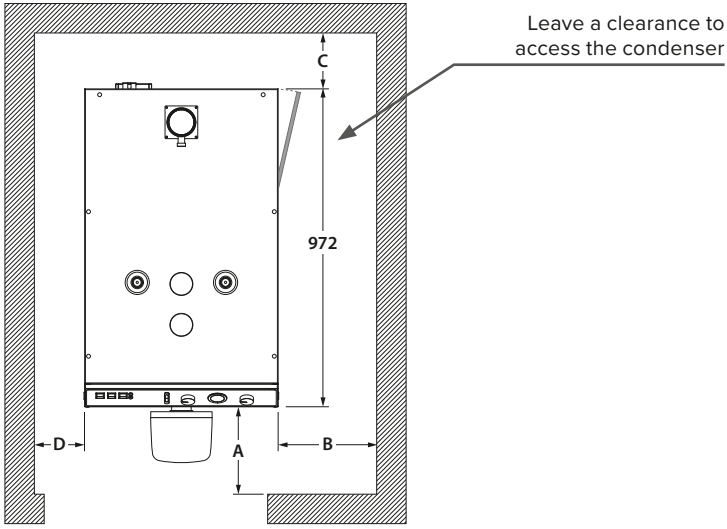
DIMENSIONS

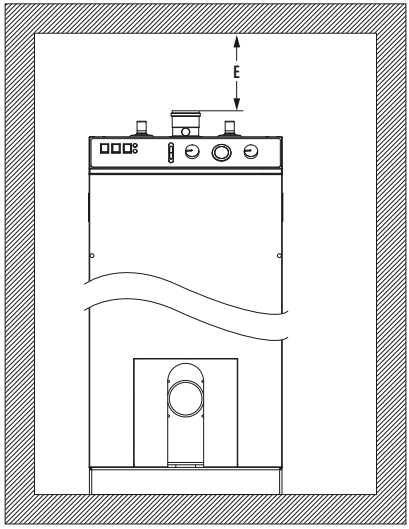
Boiler Dimensions			BNE 2 Condens
A = Width		mm	590
B = Height		mm	1650
C = Depth		mm	990
Volume of the combustion chamber		dm^3	42.3
Combustion chamber	Height	mm	295
	Width	mm	330
	Depth	mm	435
Drained weight		Kg	215





Boiler Clearance	BNE 2 Condens	
	Recommended	Minimum
A (mm)	800	650
B (mm)	1000	900
C (mm)	600	400
D (mm)	150	100
E (mm)	400	300

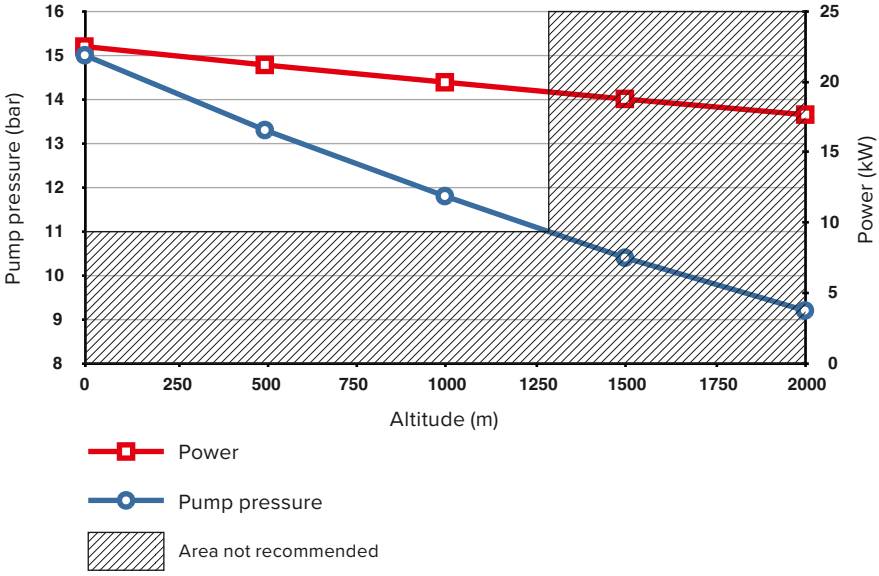




COMBUSTION CHARACTERISTICS

Main Characteristics			BNE 2 Condens
Fuel type			EL fuel
Max. input (PCI)		kW	22.4
Output at 100%	(80/60°C)	kW	21.8
	(50/30°C)	kW	23.5
Efficiency at 30% load (*EN 677*)		%	104
Efficiency at 100%	(80/60°C)	%	97.5
	(50/30°C)	%	103.5
Combustion efficiency	at 100%	%	98.2
Flue gas temp. at water temp.	(80/60°C)	°C	67
	(50/30°C)	°C	48.5
NOx (Class 5)	Max. output	mg/kWh	87
CO	Max. output	mg/kWh	4
CO_2	Max. output	$\%CO_2$	13.1
Standby loss	ΔT = 45 K	W	144
	ΔT = 30 K	W	87

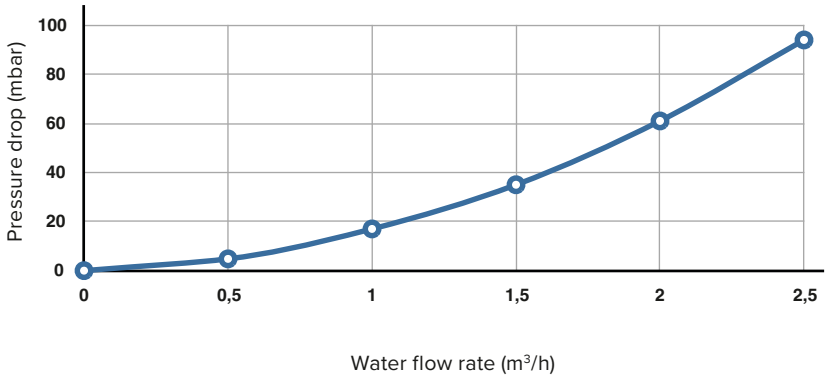
Maximum operating conditions of the burner in altitude



HYDRAULIC CHARACTERISTICS

Main hydraulic characteristics		BNE 2 Condens
Water content of the boiler	L	184
Primary circuit capacity	L	67
Heating inlet/outlet connection (F)	Ø	1”
DHW inlet/outlet connection (M)	Ø	3/4”
Max. service pressure of DHW circuit	bar	7
Max. service pressure of heating circuit	bar	3
Primary circuit water pressure drop (ΔT = 20 K)	mbar	20

Hydraulic pressure drop curve

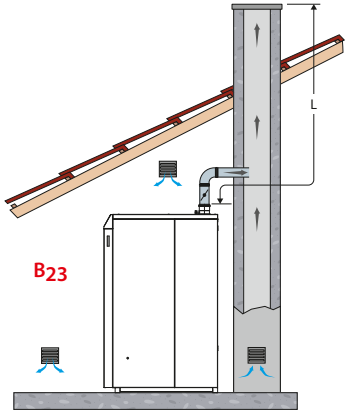


CHIMNEY CONNECTION CHARACTERISTICS

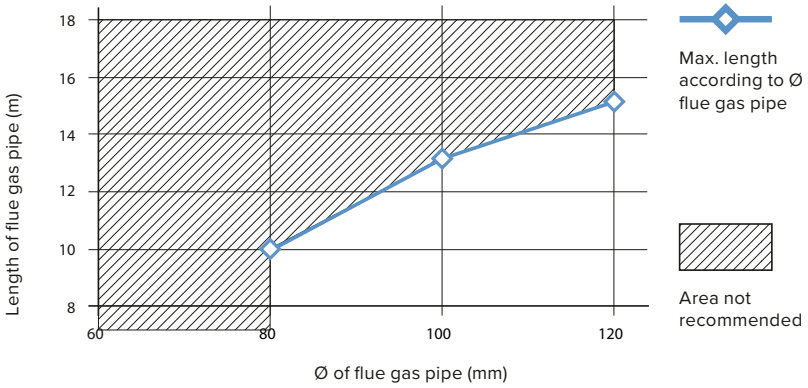
Chimney characteristics		BNE 2 Condens
Connection type		B23
Ø of boiler connection to the chimney	mm	80
min. Ø of flue pipe	mm	80
L = maximum length of flue pipe (Ø 80 mm)	m	9
Max. temp of flue gases	°C	80
Flue pipe pressure drop	Pa	20

Chimney connection diagram

1 x 45° elbow ≈ 1 m straight pipe
1 x 90° elbow ≈ 1.5 m straight pipe



Flue pipe length curve



DHW PERFORMANCE

Operating conditions at 80°C		BNE 2 Condens
Peak flow at 40 °C [ΔT = 30 K]	L/10'	395
Peak flow at 50 °C [ΔT = 40 K]	L/10'	293
Peak flow at 40 °C [ΔT = 30 K]	L/60'	935
Peak flow at 50 °C [ΔT = 40 K]	L/60'	689
Constant flow at 40 °C [ΔT = 30 K]	L/h	616
Constant flow at 50 °C [ΔT = 40 K]	L/h	475
Reheat time from 10°C to 80°C	minutes	17

MAXIMUM OPERATING CONDITIONS

Maximum Service Pressure [DHW tank full of water]
- Primary circuit : ..... 3 bar
- DHW circuit : ..... 8,6 bar
- Recommended safety valve (central heating) : ..... 3 bar
- Recommended safety valve (DHW) : ..... 7 bar

Mains supply pressure
- Max 6 bar, without a pressure reducing valve being required (to avoid discharge of the safety pressure valve)

Maximum Operating Conditions
- Maximum temperature (central heating) : ..... 90°C
- Maximum temperature (DHW) : ..... from 60°C to 80°C

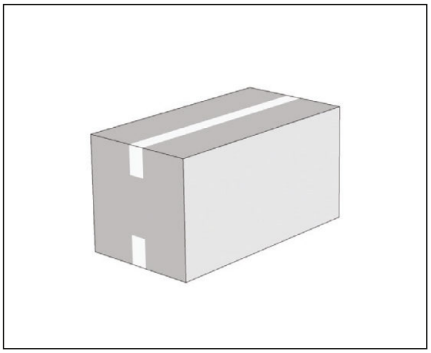
Water Quality
See "Recommendations for the Prevention of Corrosion and Scaling".

Oil quality
- Low sulfur oil (50 ppm)
- Standard oil (2000 ppm)
- Bio-oil 0 at 7% methyl esters of fatty acids

PACKAGE CONTENTS

The appliances are delivered assembled, tested and packaged separately.





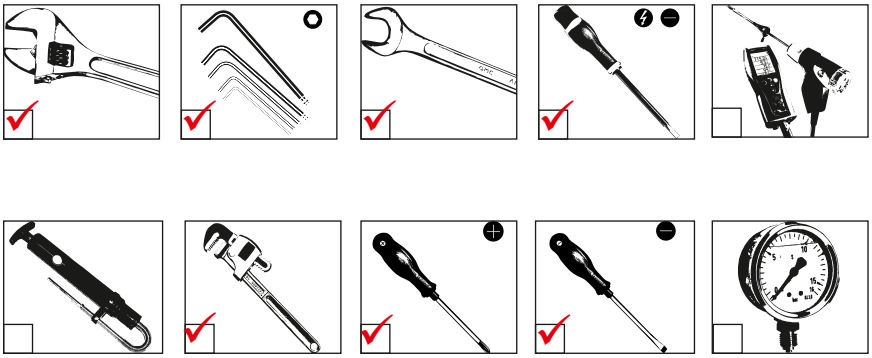
Package 1 contents

- One BNE 2 Condens boiler.
- Installation, Operation and Maintenance Instructions
- A stainless steel chimney connection with measuring element.

Package 2 contents

- A BMR 33 blue flame oil burner.
- Installation, Operation and Maintenance Instructions

TOOLS REQUIRED FOR THE INSTALLATION



HOW TO MOVE THE BOILER

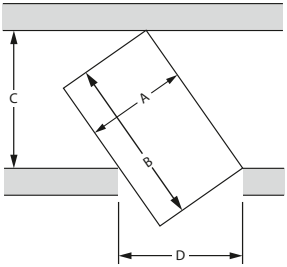
Using a hand truck





Use a means of transport adapted to the boiler weight.

Minimum width of the door and the hall necessary to pass the boiler



A = maximum boiler width

B = maximum boiler length

C = Hall width

D = Door width

Door height = std

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

Example of calculation to determine the minimum hall width, with adoor width: D = 800 mm

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

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

Example of calculation to determine the minimum door width, with ahall width: D = 900 mm

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

SAFETY INSTRUCTIONS FOR THE INSTALLATION

Essential recommendations for safety

- Install the boiler on level base or vertically plumb support made of non-combustible materials and of sufficient strength to support its 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 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.
- In the event of small amounts of hot water repeatedly being drawn off, a stratification effect can develop in the tank. The upper hot water layer may then reach very high temperatures.
- Hot water can cause scalding! The temperature of the domestic hot water can be adjusted up to 75 °C in the boiler. However, the temperature of the domestic hot water at the drawing off point must comply with local regulations.
- The risk of developing bacteria exists, including “Legionella pneumophila”, if a minimum temperature of 60°C is not maintained in both the DHW tank and the hot water distribution network.
- In order to avoid exposure to extremely hot water that can cause serious burns, never leave children, old people, disabled or handicapped people in the bath or shower alone. Never allow young children to turn on the hot water or fill their own bath.
- ACV recommends using a pre-set thermostatic mixing valve in order to provide hot water at a maximum of 60°C.

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

- The connections (electrical, flue pipe, hydraulic) must be carried out in accordance with local 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.
- To avoid any risk of corrosion, connect the stainless steel DHW production tank directly to the earth.
- 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.
- The DHW circuit must be fitted with an approved safety group, comprised of a 7 bar safety valve, a check valve and a shut-off valve.
- 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.

General remark

- If the water drawing off point is far from the tank, installing an auxiliary DHW loop can allow to get hot water more quickly at all times.

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.

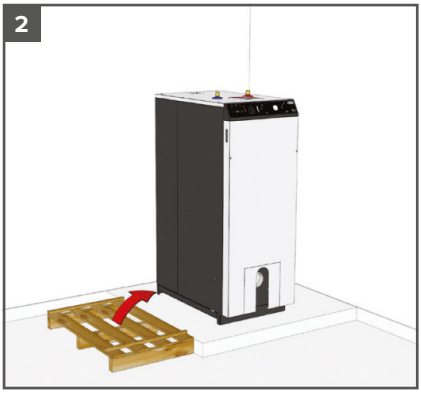
Acidity	6,6 < pH < 8,5
Conductivity	< 400 µS/cm (at 25°C)
Chlorides	< 125 mg/l
Iron	< 0,5 mg/l
Copper	< 0,1 mg/l

BOILER PREPARATION

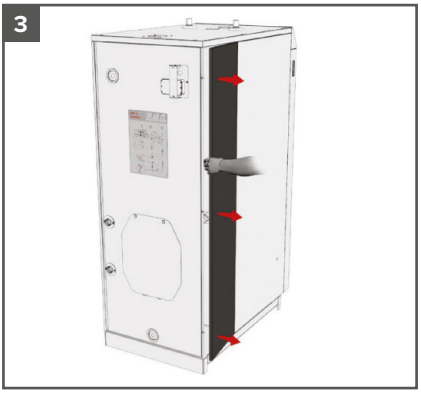
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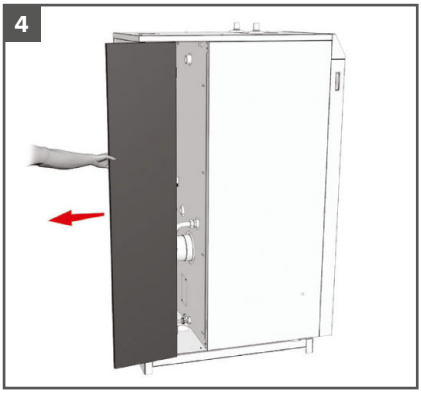
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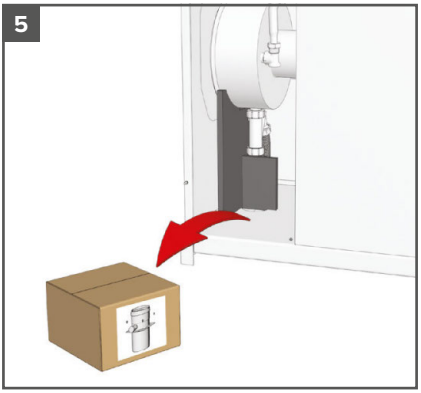
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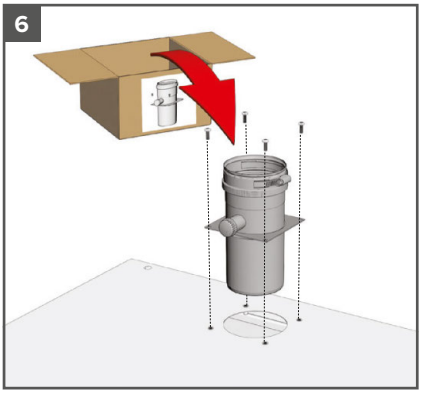
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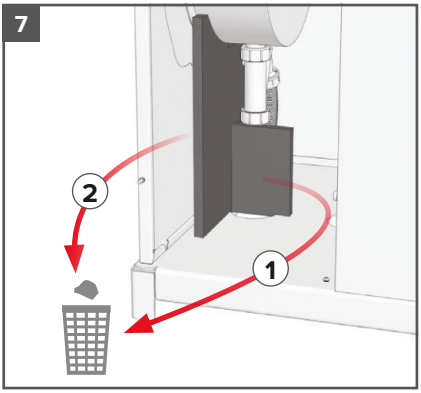
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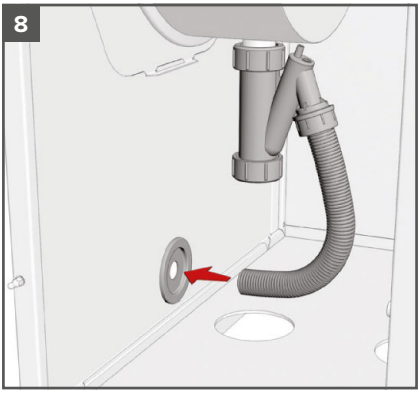
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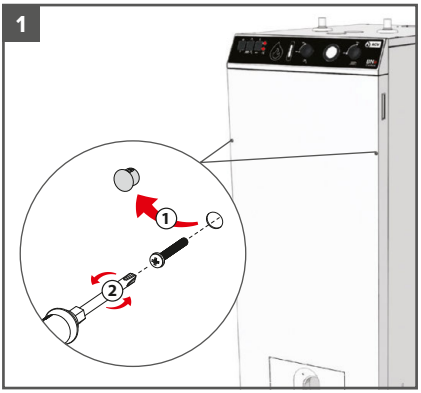


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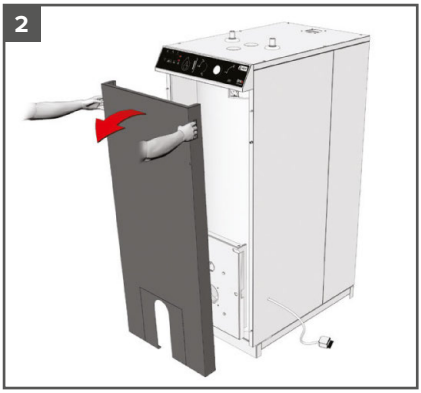


BURNER INSTALLATION

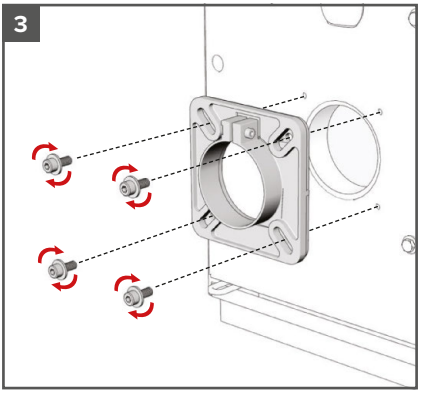
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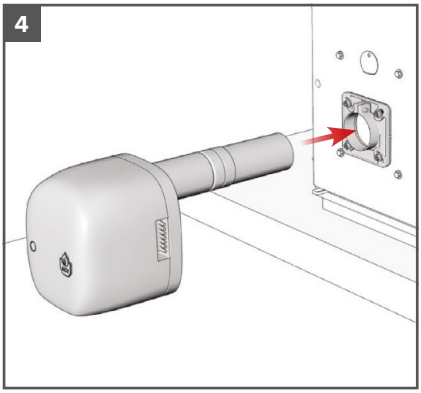
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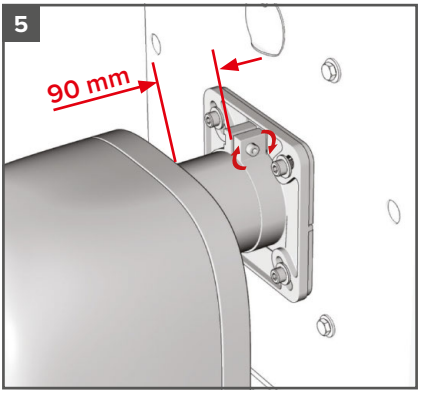
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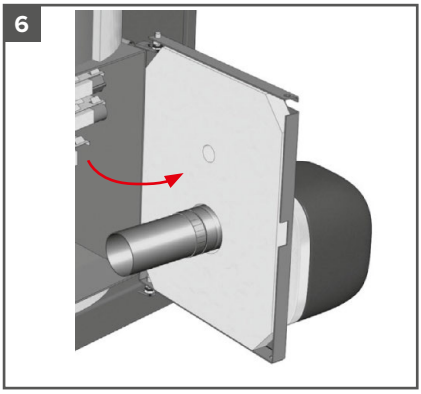
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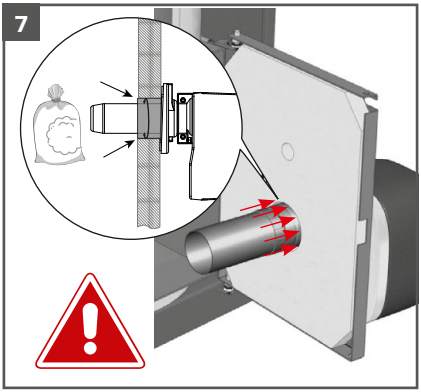


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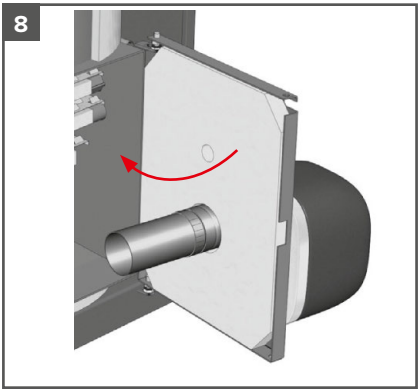


Make sure to insert insulation stuffing around the burner tube after burner installation.

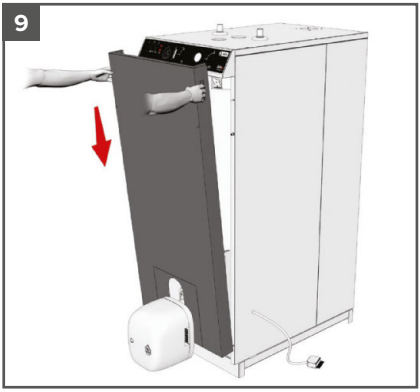
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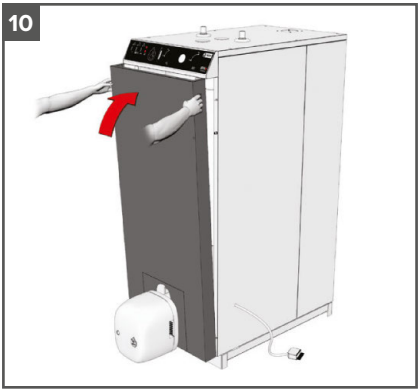
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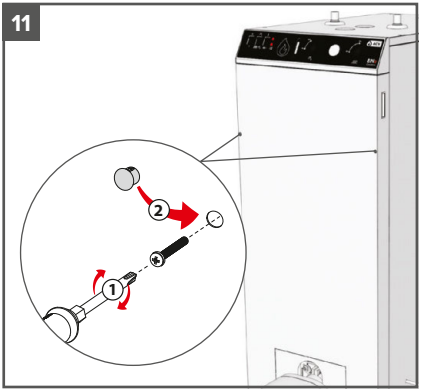
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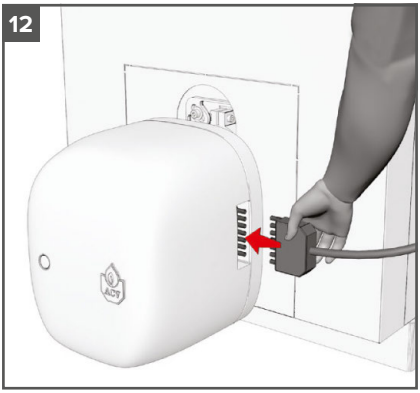
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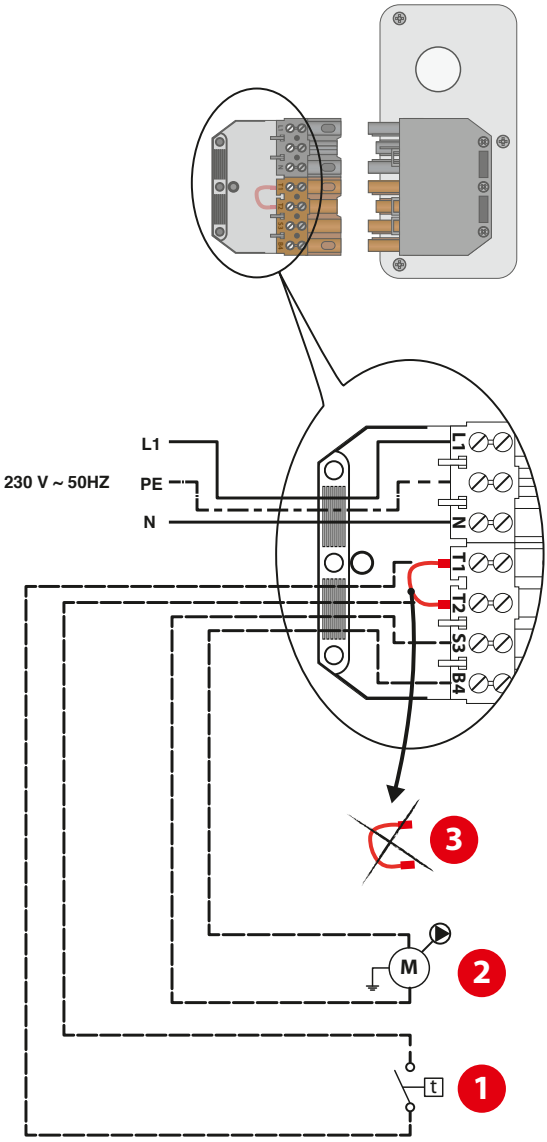
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ELECTRICAL CONNECTIONS

Description

1. Room thermostat
2. Heating pump of the system
3. Bridge (to be removed before connecting the room thermostat)



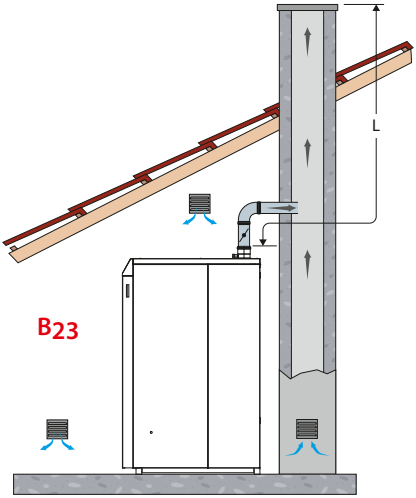
FLUE CONNECTION

Operation related to the ambient air

(Type B23 Installation)
To ventilate the boiler room, it is required to install- in accordance with combustion regulations - a fresh air inlet of at least 150 cm² or to provide a connection with other rooms to ensure a fresh air supply.

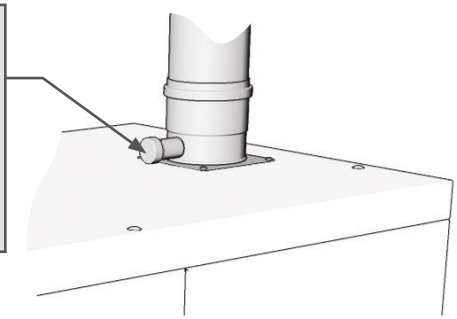
To get optimum sound comfort, it is recommended to:

- install the boiler on a solid base (eg. concrete support) instead of a hollow base (eg. concrete blocks), which could create a resonance volume.
- uncouple the boiler from the system hydraulic circuit by installing a hose connection on the inlet and outlet circuits and make sure that the hose connections are not taut or twisted.
- increase the gas exhaust duct diameter if required (min 80 mm diameter).
- uncouple the gas exhaust circuit from the flue pipe wall, adding soft insulation between the pipe and the wall, so that the vibrations from the operating boiler are not transferred to the building walls.



Measuring port
Measurements of the flue gases can only be taken at the measuring port.

In normal operation of the boiler, the port must be closed at all times.



RECOMMENDATIONS FOR DHW CONNECTIONS

Essential recommendations for safety

- The hot water output may reach temperatures in excess of 60°C, which can cause scalding! It is therefore necessary to install a thermostatic mixing valve after the appliance.
- The system must be fitted with an approved safety group, comprised of a 7 bar safety valve, a check valve and a shut-off valve.*

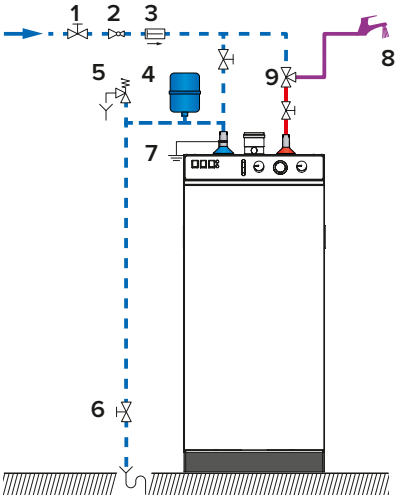
Essential recommendations for the correct operation of the appliance

- Flush the system before connecting the domestic hot water circuit. Refer to the installation instructions.
- Make sure to install a pressure reducing valve set at 4.5 bar if the mains supply pressure is in excess of 6 bar.
- It is recommended to install an expansion vessel in the DHW circuit to prevent the safety valve from opening constantly and reduce the water hammer effect in the system.
- If the appliance is used as a domestic hot water preparation tank, a primary expansion vessel adapted to the boiler power/size and to the type of system must be fitted in the heating circuit (if there is no built-in expansion vessel, or if the built-in expansion vessel size is not sufficient).

Typical installation with internal DHW tank

Description

1. Isolating valve
2. Pressure reducing valve
3. Check valve
4. DHW expansion vessel
5. Safety valve
6. Drain valve
7. Grounding
8. Draw-off tap
9. Thermostatic mixing valve



Cold water

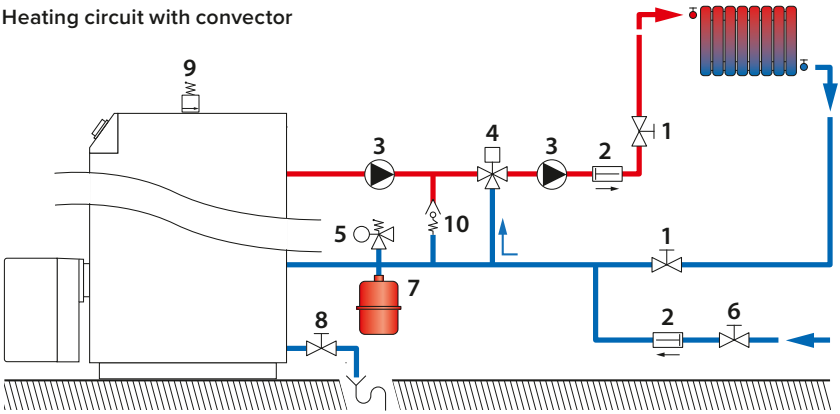
Hot water

HEATING CIRCUIT CONNECTION

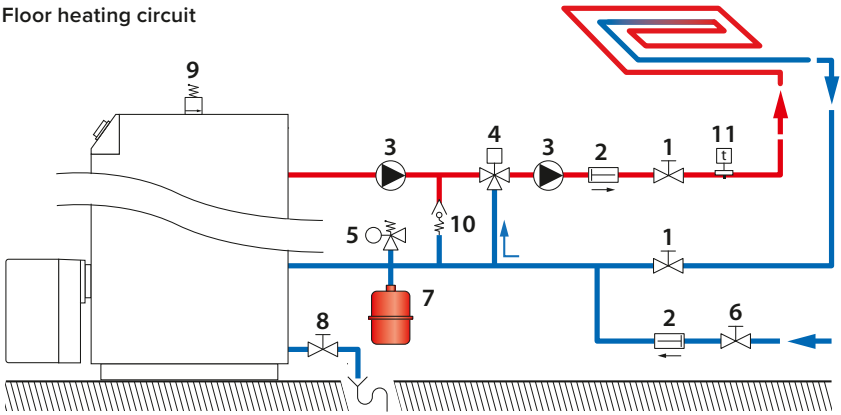
1. Heating circuit isolating valve
2. Check valve
3. Heating pump of the system
4. Mixing valve
5. Safety group
6. Primary circuit filling valve
7. Heating circuit expansion vessel
8. Drain valve
9. Automatic air bleed valve
10. Bypass
11. Safety thermostat for floor heating circuit

Do not install thermostatic valves on the radiators located in rooms fitted with a room thermostat.

Heating circuit with convector



Floor heating circuit



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.

SAFETY INSTRUCTIONS FOR STARTING UP

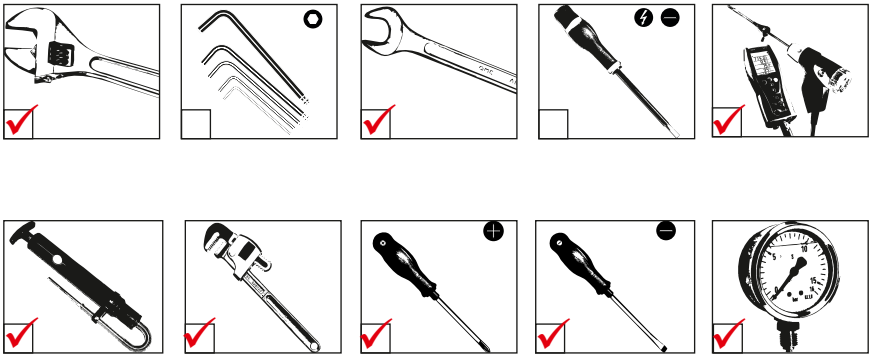
Essential recommendations for safety

- The components inside the control panel may only be accessed by an approved installer.
- Set the water temperature in accordance with usage and local plumbing codes.
- Make sure that the heating circuit filling valve is closed once the starting up process is complete.
- If there is a drain assembly, make sure that the condensate drain assembly is filled with water before starting up the boiler. Fill with water as necessary.
- Make sure that all connections are made and tight.

General remark

- In normal operation, the burner starts automatically as soon as the boiler temperature drops below the preset temperature.

TOOLS REQUIRED FOR STARTING UP



FILLING THE SYSTEM

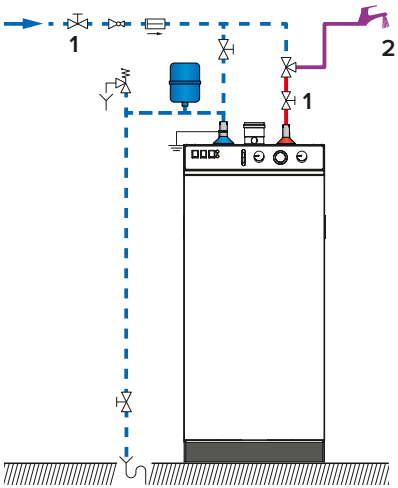
Put the DHW tank under pressure before pressurizing the heating (primary) circuit.

Set-up conditions

- External power supply isolated

DHW circuit filling procedure

1. Open the isolating valves (**1**) and the draw-off tap (**2**).
2. Once the water flow rate has stabilized and the air is totally evacuated from the system, close the draw-off tap (**2**).
3. Check all the connections for leaks.



Cold water

Hot water

Preliminary filling of the heating circuit

- Fill the primary circuit with mains water until you reach an approximate pressure of 1,5 bar in the system.
- Bleed the whole system.

CHECKS BEFORE STARTING UP

Essential recommendation for safety

- Check the tightness of the flue pipe connections.
- 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.

Essential recommendation for the correct operation of the appliance

- Control the tightness of the hydraulic circuit connections.

STARTING UP THE BOILER

Set-up conditions

- All connections made
- External power supply enabled
- Oil supply open
- DHW and heating circuits full of water

Procedure

1. Put the ON/OFF master switch to ON
2. Rotate the boiler control thermostat clockwise to generate a heat demand.
3. Possibly increase the set temperature of the room thermostat, if installed.

If the boiler charging pump does not work, the boiler can be damaged and its life reduced.

4. Check with your hand (motor vibrations) that the charging pump is not blocked and unblock it if required.

Follow-on tasks

- Adjust the combustion,see paragraph below.

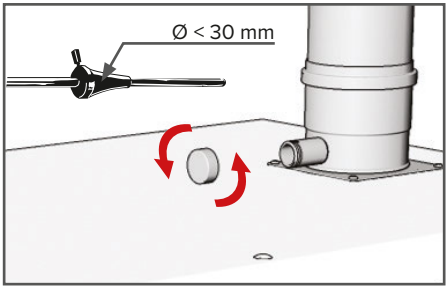
COMBUSTION ADJUSTMENT

Set-up conditions

- Operating boiler

Procedure

1. Refer to the starting up instructions detailed in the technical manual. of your burner
2. Adjust CO_2 in a range of 13 to 14 % by setting the oil pressure as well as the shutter as described in the Starting up paragraph of the boiler (see the burner manual).
3. Check the flue temperature and CO contents at the measuring port (see below).



Flue gas temperature measurement port

Follow-on tasks

- Reinstall the measuring port plug after the check.
- Bleed the heating circuit again to restore a 1.5 bar pressure.
- Repeat the sequence until complete evacuation of the air contained in the circuit.

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.

PERIODIC BOILER MAINTENANCE TASKS

	Tasks	Frequency		
		Periodic inspection	1 year	2 years
		End-user	Professional	
1.	Make sure that the system water pressure is at least 1 bar when cold. Top up the system if necessary, adding small quantities of water at a time. In case of repeated fills, call your installer.	X	X	
2.	Check that there is no water on the floor in front of the boiler. Call your installer if there is.	X	X	
3.	Check the presence of a flame through the flame sight glass. If there is no flame, see the burner manual.	X	X	
4.	Check that the charging pump is running by placing a hand on it.		X	
5.	Check the correct operation of all thermostats and safety devices: boiler thermostat, safety thermostat, safety valves, etc.		X	
6.	Check that the the oil connections are tight and there is no leak, that the hoses are not kinked and that there is not entrance of air in the circuit.		X	
7.	Check that all hydraulic and electrical connections are correctly fastened and tight.		X	
8.	Check the flue gas exhaust: correct fastening, correct installation, no leaks or clogging.		X	
9.	Check the combustion parameters (CO and CO2), see "Combustion adjustment", page 33		X	
10.	Clean the burner and the heating body, see "Cleaning the burner and the heating body", page 36 and the burner manual.			X
11.	Check the cleanliness of the condensate trap. If it is very dirty, first clean the condenser, see "Cleaning the condenser", page 36, then the condensate trap, see "Cleaning the condensate trap", page 37.		X	
12.	Clean the condenser, see "Cleaning the condenser", page 36.			X
13.	Clean the condensate trap, see "Cleaning the condensate trap", page 37.			X

It is recommended to stop the boiler and have it serviced during good weather conditions.

CLEANING THE BURNER AND THE HEATING BODY

Set-up conditions

- Boiler shut-down
- External power supply isolated
- Oil supply closed

Procedure

1. Open the front panel.
2. Release the burner flange and place the burner in the maintenance position to clean it (see the burner manual).
3. Remove the burner
4. Open the heating body door.
5. Using a brush, clean the soot that may be present in the heating body and on the turbulators.
6. Check the correct position of the braid.

Follow-on tasks

1. Close the door.
2. Reinstall the burner flange and the burner.
3. Open the heating body door and check the correct installation of the insulation stuffing around the burner flange.
4. Check the general condition of the inner door insulation. Replace if cracked or broken, as tightness will not be ensured any longer.
5. Close the front panel.

CLEANING THE CONDENSER

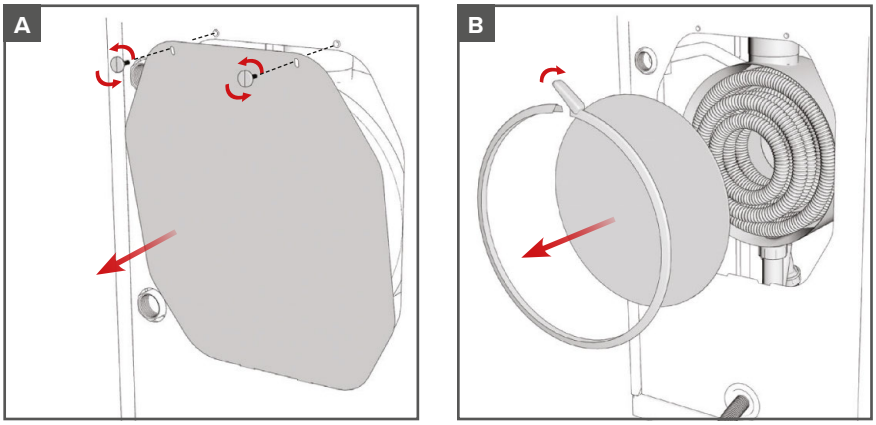
Set-up conditions

- Boiler shut-down
- External power supply isolated
- Oil supply closed

Procedure

1. Disconnect the flue pipe at the flue exhaust duct connection.
2. Inspect the inside and clean as required:
   - If the condenser is moderately dirty, pour a mixture of water and liquid soap (dish-washing type).
   - If the condenser is very dirty, open the rear side panel, or the rear panel (**A**), to access the condenser. Open the condenser (**B**) and clean it using a synthetic bristle brush.

Do not use the same brush as the one used to clean the heating body to prevent any risks of corrosion.



Follow-on tasks

1. Close the condenser and the rear panels, and reconnect the flue pipe.

CLEANING THE CONDENSATE TRAP

Set-up conditions

- Boiler shut-down
- External power supply isolated
- Oil supply closed

Procedure

1. Release the condensate trap ring.
2. Make sure that the condensate outlet pipe is not clogged
3. Clean the condensate trap with water and soap.
4. Make sure to leave enough water in the condensate trap before reinstallation or pour 20 cl water in the condenser after reinstallation.
5. Insert the condensate trap into the condenser outlet. Replace O-ring as required.
6. Maintain the condensate trap in position while tightening the ring. Pull the condensate trap downwards to check it is firmly set.

Follow-on tasks

- Make sure to reinstall the condensate outlet pipe with a sufficient slope to allow the condensates to flow down..
- Put the boiler back into service, see “Restart after maintenance”, page 39.

DRAINING THE BOILER

Essential recommendations for safety

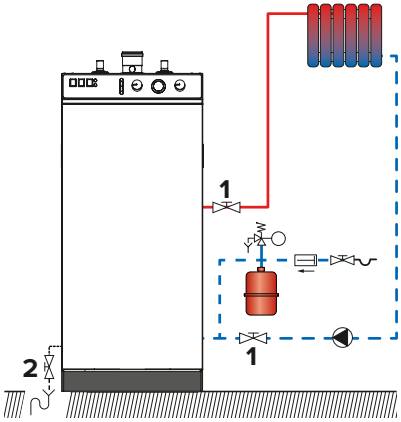
- **Before draining the DHW tank, drain the heating (primary) circuit or bring its pressure to 0 bar.**
- **Water flowing out of the drain valve may be extremely hot and could cause severe scalding. Keep people away from the hot water discharge.**

Set-up conditions

- Boiler switched off using the ON/OFF master switch
- External power supply isolated
- Fuel/gas supply closed

Heating circuit draining procedure

1. Close the isolating valves (**1**).
2. Connect the drain valve (**2**) to the sewer with a hose.
3. Open the drain valve (**2**) to empty the heating circuit of the boiler.
4. Close the drain valve (**2**) once the heating circuit of the boiler is empty.



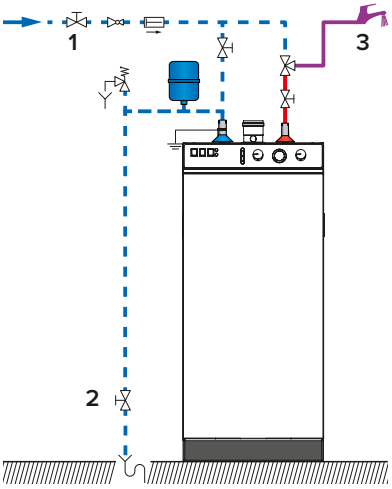
Cold water

Hot water

DHW circuit draining procedure

Before draining the DHW tank, make sure that the heating (primary) circuit pressure is null.

1. Open fully a draw-off tap (**3**) for about 60 minutes to make sure that the DHW tank has cooled down.
2. Close the isolating valves (**1**).
3. Connect the drain valve (**2**) to the sewer with a hose.
4. Open the drain valve (**2**) and drain the DHW tank water to the sewer.
5. Open the draw-off tap (**3**) to accelerate the draining process. If it is located lower than the tank connection, open a draw-off tap located higher in the system.
6. Close the drain valve (**2**) and the draw-off tap (**3**) once the DHW tank of the boiler is empty.



RESTART AFTER MAINTENANCE

Set-up conditions

- All removed components reinstalled
- All connections made
- Oil supply open
- DHW and heating circuits full of water

Procedure

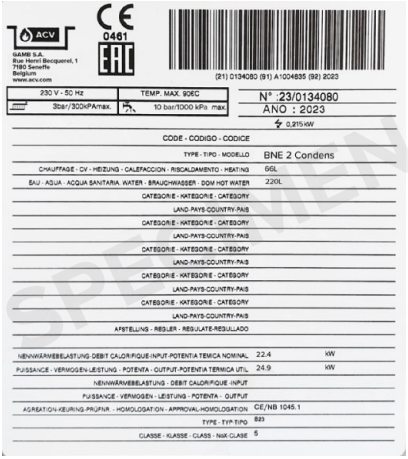
1. Energize the appliance and switch it on.
2. Set the appliance at maximum power and check the absence of burned gas leaks.
3. Check the correct operation of the charging pump.
4. Check the oil pressure and CO_2 adjustment in accordance with procedure "Combustion adjustment", page 33.

IN CASE OF PROBLEM...

In case of problem, please contact you ACV representative and provide the appliance part number and serial number, written on the type plate.

Boiler Marking

Location: at the back of the appliance.



The part number (Code) and serial number (N°) of the appliance are written on the type plate and must be provided to ACV in the case of a warranty claim.. If they are not provided, the warranty claim shall be void.

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: BNE 2 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 Villvorde, 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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Groupe Atlantic Manufacturing Belgium
Rue Henry Becquerel, 1
7180 Seneffe
Belgium