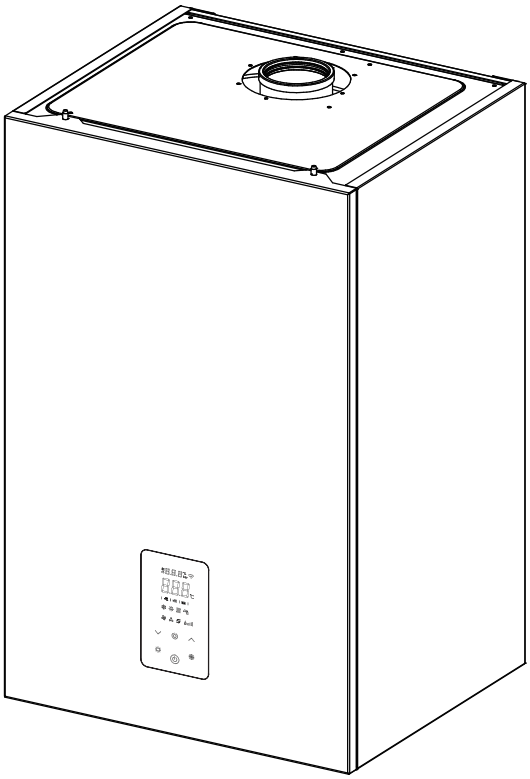
Wall-hung gas condensing boilers – heating only

Installation and Operating Instructions



46 kW / 50 kW / 60 kW (P1)

Dynasty SL-QL series

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Important Safety Instructions

Dear customer:

Thank you for choosing this wall-hung gas boiler, a latest-generation appliance with elegant styling and advanced technology.

The premix condensing series is a high-efficiency boiler for central heating and, in combination models, for domestic hot water (D.H.W.) production. Depending on the version, it runs on natural gas, LPG or manufactured gas; the gas type of each boiler is stated on its nameplate.

The boiler has a stainless steel burner and a condensing heat exchanger; combination models also have a D.H.W. plate heat exchanger. The combustion chamber is room-sealed, so the boiler can be installed in an enclosed room.

The boiler is controlled by a printed circuit board (PCB) and runs automatically once the temperature has been set. A self-diagnosis function displays fault codes to assist after-sales service. An outdoor temperature sensor or a room thermostat can be connected, and the boiler can be controlled remotely through the OpenTherm protocol.

Warning:

- The boiler is microprocessor-controlled and most components operate automatically. A self-diagnosis function helps to identify faults.
- The flue must be installed correctly. A faulty flue may cause flue gas downdraught, incomplete combustion, carbon monoxide (CO) poisoning or even an explosion. After installation, check that the flue gases are fully discharged outdoors, and do not change the flue position.
- The boiler has a heating safety valve and a D.H.W. pressure relief valve. If the system or supply pressure exceeds the limit, water is discharged through the relief outlet; connect a drain pipe to this outlet to protect your home.
- If there is a risk of freezing and the boiler will not be used or cannot be repaired in time, drain all the water from the system (a drain valve should be fitted at the lowest point of the pipework).
- If the power cord is damaged, it must be replaced only by the manufacturer, its after-sales service or a similarly qualified technician, to avoid a hazard.
- Leave at least the minimum service clearances around the boiler.
- Check the system water pressure periodically; it must be between 1.0 and 1.5 bar.
- Do not install the boiler in bedrooms, living rooms or bathrooms.

Brief Introduction

Two advantages

- **Comfortable heating.** The burner output modulates according to the demand, which makes heating more comfortable. Besides radiators, the boiler can supply fan-coil units and underfloor heating.
- **Excellent domestic hot water supply** (combination models only). High D.H.W. capacity for daily needs. The intelligent temperature control keeps the water temperature stable even with frequent changes in water pressure or at low pressure.

Main features

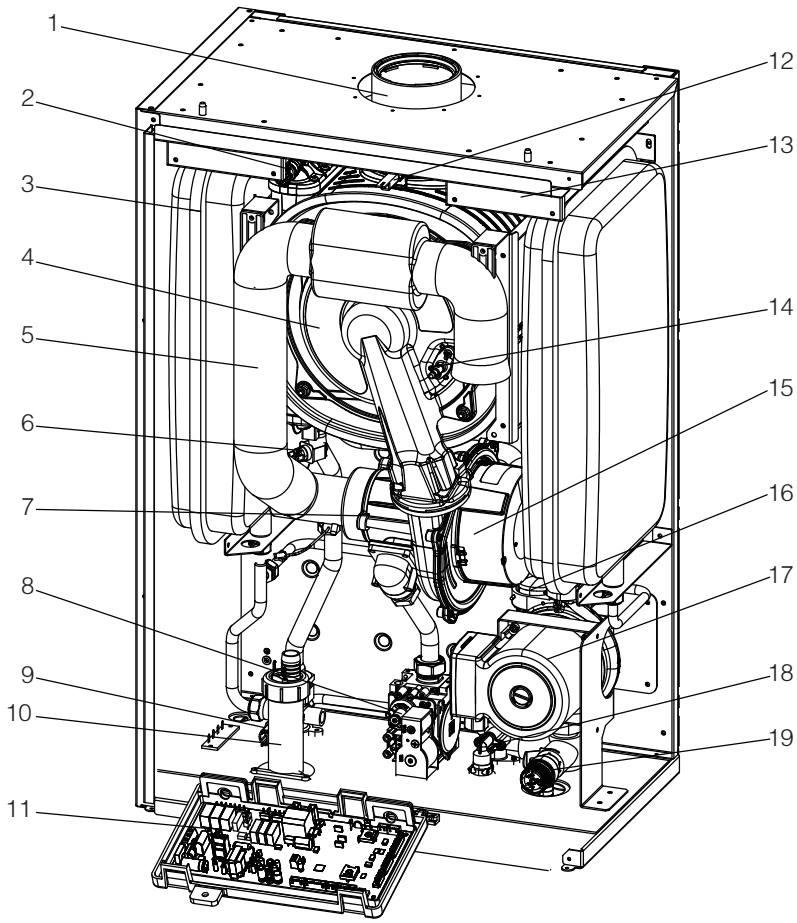
- Low noise, quick installation and easy operation.
- Winter and summer mode buttons; heating and D.H.W. temperatures adjustable as required.
- The modulating gas valve adjusts the burner output to control the water temperature in heating and D.H.W. modes.
- Display of water temperature and fault codes.
- The safety valve opens automatically to release pressure and protect the boiler when the water pressure reaches 0.3 MPa (3 bar).
- Overtemperature protection: the boiler stops if it overheats or if a temperature sensor fails.
- The fan draws combustion air from outside the building, so the boiler does not use indoor air.
- The boiler stops automatically if the flow or return pipe is blocked, and can only be restarted once the fault has been cleared.
- Ionization flame monitoring shuts the boiler down if ignition fails at start-up or the flame goes out during operation.
- Frost protection: if the heating water temperature falls below 8 °C, the circulation pump starts and runs until the water reaches 10 °C. If it falls to 5 °C, the burner starts and heats the water up to 30 °C. Frost protection may not be effective if the temperature difference between the pipework and its surroundings is very large.

Technical Parameters

Model		46kW	50kW	60kW
Suitable gas		Natural Gas(12T)		
NOx emission class		5(＜70mg/kWh)		
HEATING SYSTEM				
Nominal heat input (min/max)	kW	9.2/46.0	10.0/50.0	12.0/60.0
Nominal heat output at 80/60 °C (min/max)	kW	9.1/44.6	9.7/48.5	11.7/58.7
Nominal heat output at 50/30 °C (min/max)	kW	9.7/48.3	10.5/52.5	12.6/63.0
HEATING EFFICIENCY				
Efficiency at 80/60 °C	%	97.0	97.0	97.0
Efficiency at 50/30 °C	%	105.0	105.0	105.0
D.H.W. SYSTEM (combination models only)				
Nominal D.H.W. heat input (min/max)	kW	-	-	-
Continuous D.H.W. flow rate (30 K rise)	kg/min	-	-	-
Continuous D.H.W. flow rate (25 K / 35 K rise)	kg/min	-	-	-
Minimum D.H.W. flow rate	L/min	-	-	-
D.H.W. pressure (min/max)	bar	-	-	-
	MPa	-	-	-
ELECTRICAL DATA				
Power supply		220V~ 50Hz		
Power consumption	W	245	250	300
Electrical protection rating	IP	X5D	X5D	X5D
COMBUSTION DATA				
Flue gas temperature at max. output (80/60 °C)	℃	80	80	80
Flue gas temperature at max. output (50/30 °C)	℃	63	63	63
Number of gas injectors		1	1	1
Injector diameter (natural gas)	mm	5.0		
Gas consumption, min/max (natural gas)	m^3/h	0.9/4.6	1.0/5.0	1.2/6.0
Gas supply pressure (natural gas)	mbar	20		
	kPa	2		
TEMPERATURE AND PRESSURE				
Heating temperature setting range	℃	30-80		
D.H.W. temperature setting range	℃	-		
Max. heating circuit pressure	bar	3		
	MPa	0.3		
Water content of the boiler	L	5.83	5.83	6.94
Coaxial flue pipe (air inlet / flue outlet)	mm	Φ80/125		

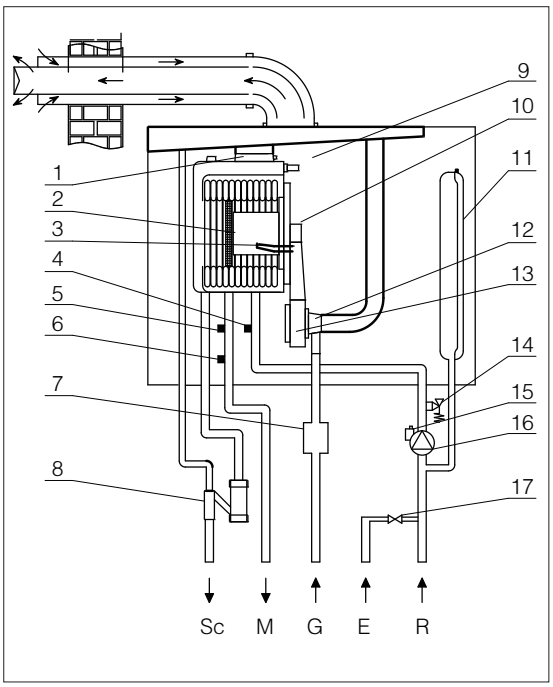
Note: The above parameters are for reference only; always refer to the boiler nameplate.

Internal Structure



1. Condensate trap (siphon)
2. Primary heat exchanger air vent
3. Expansion tank
4. Primary heat exchanger
5. Ignition and flame detection electrode
6. Overheat safety thermostat
7. Air/gas mixer (venturi)
8. Gas valve
9. Water pressure switch
10. Condensate collector
11. Control board (PCB)
12. Flue gas temperature sensor
13. Air filter
14. Ignition/flame detection electrode
15. Inverter fan
16. Automatic air vent
17. Circulation pump
18. Filling valve
19. Safety (pressure relief) valve

Functional Diagram



Connections

M. Heating flow (outlet)
R. Heating return (inlet)
E. Cold water inlet (combination models only)
S. Safety valve discharge
G. Gas inlet
Sc. Condensate drain

1. Flue gas temperature sensor
2. Primary heat exchanger
3. Ignition/flame detection electrode
4. Heating flow temperature sensor
5. Overheat safety thermostat
6. Heating return temperature sensor
7. Gas valve
8. Condensate collector
9. Dry-fire protection device
10. Burner
11. Expansion tank
12. Air/gas mixer (venturi)
13. Inverter fan
14. Safety valve
15. Automatic air vent
16. Circulation pump
17. Filling valve

Expansion Tank

Expansion tank specifications:

Model	46kW	50kW	60kW
Total capacity (L)	2×8.0	2×8.0	2×10.0
Pre-charge (kPa)	100	100	100
Pre-charge (bar)	1.0	1.0	1.0
Effective capacity (L)	2×5.83	2×5.83	2×6.94
Max. system water volume (L)	124	124	164

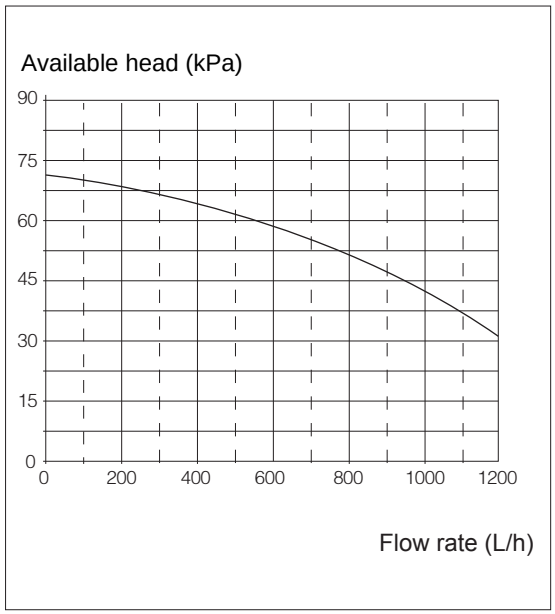
Warning

An additional expansion tank is required if the water volume of the system exceeds the maximum value shown in the table.

The height difference between the safety valve and the highest point of the system must not exceed 6 m. If it is greater, increase the expansion tank pre-charge pressure by 10 kPa (0.1 bar) for each additional metre.

Circulation Pump

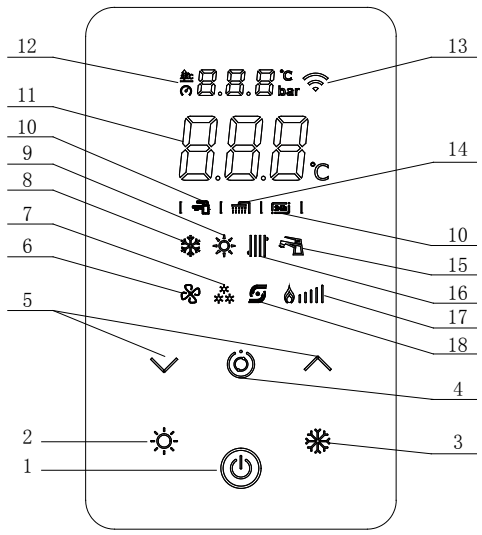
The chart below shows the available pump head versus the flow rate of the heating circuit.



Warning

The boiler has an automatic bypass valve. When taps or radiator valves are closed, make sure that water can still circulate through the system.

Control Panel



Control Panel

1. Power on/off button
2. Summer mode button
3. Winter mode button
4. Instant hot water button*
5. Heating temperature –/+ buttons
6. Fan running
7. Frost protection active
8. Winter mode
9. Summer mode
10. Instant hot water active*
11. Temperature / fault code
12. Water pressure / outdoor temperature*
13. Wi-Fi mode*
14. Shower (boost) mode on*
15. D.H.W. mode
16. Heating mode
17. Flame on
18. Main pump / instant hot water pump running

* Note: these icons are not always displayed.

Operating instructions

1. Before ignition, check that the system is filled with water and that the pressure is between 1.0 and 1.5 bar.
2. Open the gas valve.
3. Press the power button.
4. Select winter or summer mode with the corresponding button.

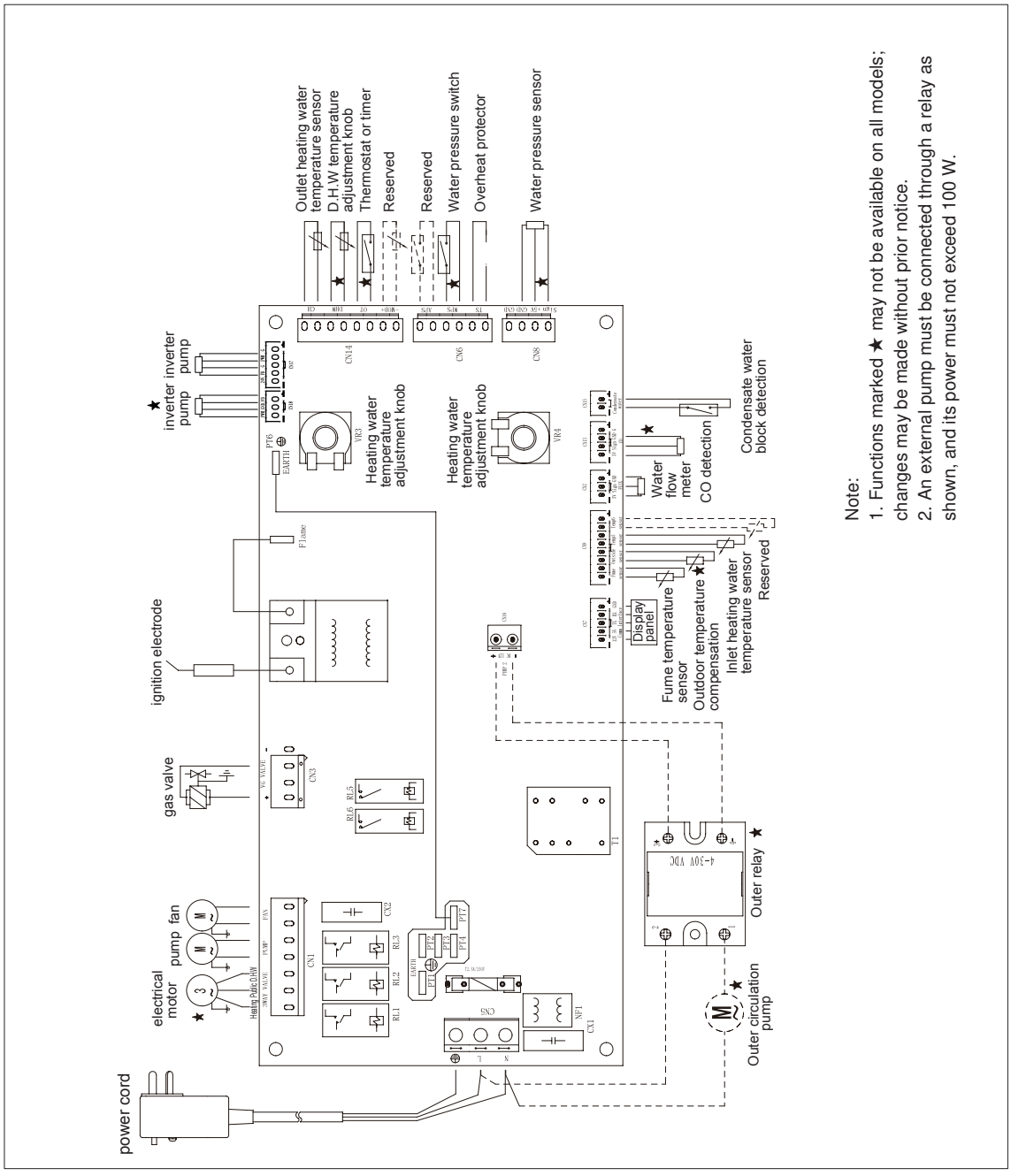
Attention

Release the button after each setting before going to the next step. After selecting winter or summer mode, set the temperature with the temperature buttons.

Attention

The D.H.W. outlet temperature depends on the D.H.W. flow rate and the cold water inlet temperature, so it may differ slightly from the set temperature. Once set, the boiler runs automatically. When there is no heating or D.H.W. demand, the boiler goes into standby (REST): it remains powered but the burner is off. The flame icon is displayed while the burner is on.

Electrical Diagram



Warning

Must

1. Use residual-current (earth-leakage) protection and circuit breakers that comply with national standards.
2. The building wiring must have a protective earth conductor, and the boiler must be firmly and reliably earthed. The switch supplying the boiler must not be installed in a room with a bathtub or shower. Use certified plugs and sockets.
3. If the power cord is damaged, it must be replaced by a qualified technician to avoid a hazard.

Prohibited

Never use water pipes to earth the boiler.

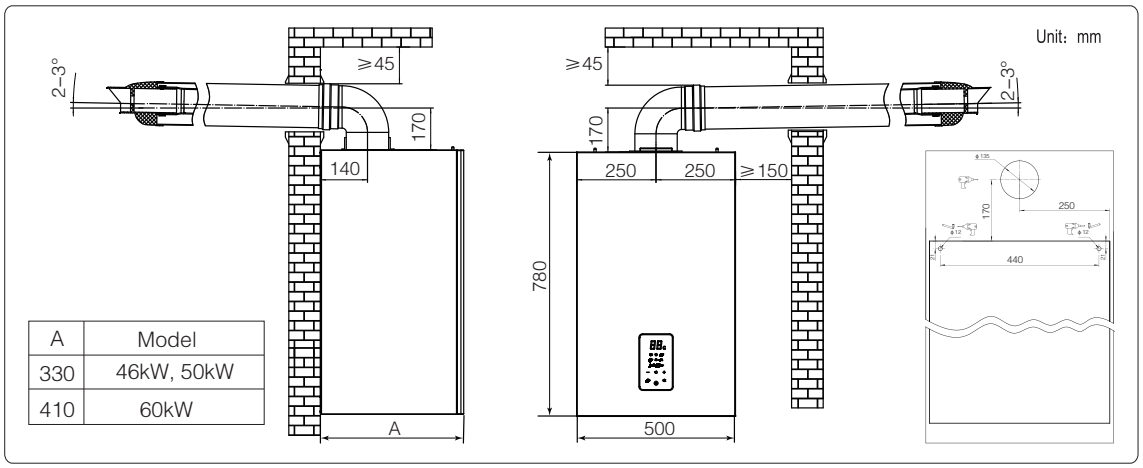
Installation and Water Connections

Boiler installation

A paper installation template is supplied with the boiler to mark its position and the fixing points. Proceed as follows:

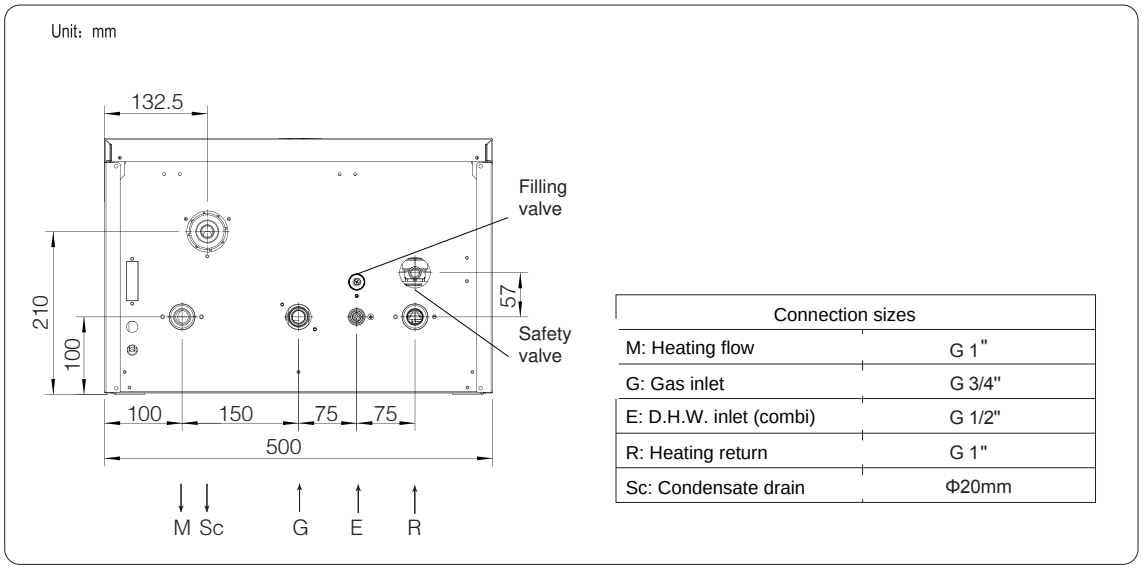
1. Place the paper template (1) on the wall (2) to mark the boiler position.
2. Drill the holes in the wall and fit the expansion bolts.
3. Hang the boiler on the bolts.

Warning: when choosing the mounting height, leave enough space for maintenance and disassembly.



A	Model
330	46kW, 50kW
410	60kW

Water connections



Connection sizes	
M: Heating flow	G 1"
G: Gas inlet	G 3/4"
E: D.H.W. inlet (combi)	G 1/2"
R: Heating return	G 1"
Sc: Condensate drain	Φ20mm

Warning:

1. The condensate drain pipe must be leak-proof, include a siphon (trap) and be of adequate size.
2. The condensate drain must be made in accordance with local regulations.
3. The condensate trap must be filled with water before the boiler is used for the first time.

Gas supply

The boiler is factory-set for natural gas. The gas connection must comply with the applicable regulations. Before connecting, make sure that:

1. The gas supplied matches the gas type stated on the boiler nameplate.
2. The gas pipes have been completely purged.
3. The gas supply pipe is not smaller than the boiler gas connection (G 3/4") and the pressure drop in the supply line does not exceed the permitted value.

Danger:

After installation, check that all connections are leak-tight and comply with the installation requirements.

Installation Requirements

Installation with old and/or renewable-energy systems

- The circulation pump head and flow must match the requirements of the heating system.
- The whole system must be clean, free of sediment and rust, and leak-free.
- A water treatment device must be fitted for filling and topping up the system.

The manufacturer is not responsible for damage caused by incorrect installation of the air-venting devices of the system.

Requirements for Suitable Water	
PH value	6~8
Electric conductivity	<200
SO_4^{2-}	<50ppm
Cl^-	<50ppm
Total content of iron(Fe)	<50ppm
Total hardness	<35
Content of alkali	<0.3ppm
S^{2-}	Nil
NH_4^+	Nil
Si^{2+}	<20ppm

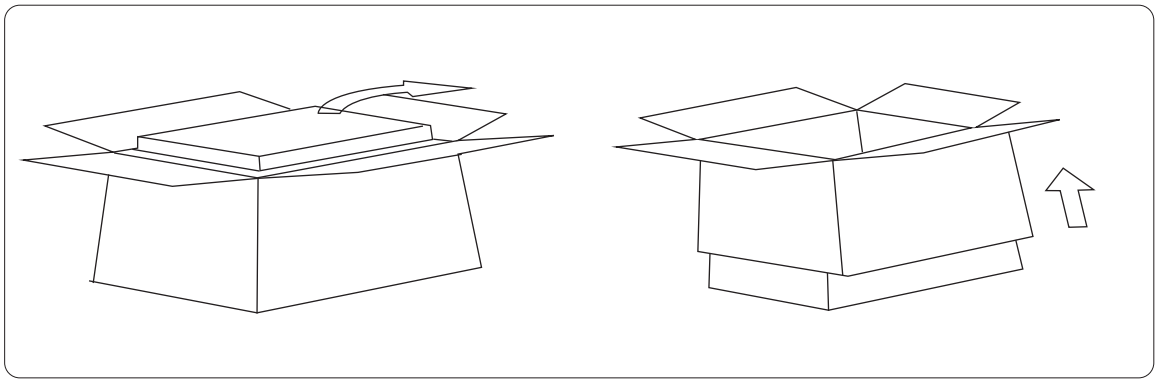
- Do not install the boiler near combustible materials.
- The wall must be able to support the weight of the boiler filled with water (approx. 65 kg for the 46–60 kW models). If the wall is made of combustible material, cover it with a non-combustible layer at least 3 mm thick.
- Never install the boiler where flammable or volatile substances are stored or used.
- Do not install the boiler under shelves or objects that could fall on it.
- Do not install the boiler above other gas appliances.
- The flue terminal must be located in a well-ventilated outdoor area.
- For natural gas and LPG, a DN15 gas pipe may be used; however, DN20 is recommended, and the reducer at the gas meter must not be smaller than DN15.
- Keep the supply voltage stable at 220 V; use a voltage stabiliser if necessary.
- Do not use hemp to seal threaded joints; use PTFE (thread-sealing) tape. If hemp must be used, clean the pipes thoroughly with compressed air at 8 bar afterwards.
- When the radiators serve an area of about 150 m² or more, fit a Y-strainer on the heating return pipe.
- The safety valve outlet must be connected to a floor drain, with no valve on the discharge pipe.
- In systems with cast-iron radiators, flush the pipes and radiators thoroughly with high-pressure water or compressed air at 8 bar. Where water quality is poor, flush the system several times. Fill the system with softened water.

Unpacking and Inspection

Unpacking

The boiler is packed in a cardboard box. Unpack it as follows:

- Lay the package on the floor on its long side, as shown below.
- Remove the adhesive tapes.
- Open the box and lift it off the boiler, as shown below.



Inspection on delivery

The following main accessories are supplied with the boiler:

- Installation and operating instructions
- Wall-mounting bracket and screws
- Connection fittings and washers for the water circuit

Please refer to the packing list for details.

These installation and operating instructions are essential for correct installation and maintenance. Read them carefully and keep them in good condition.

Safety Instructions

Warning

- The water heated by the boiler is not drinking water: do not use it for drinking or cooking.
- The gas type must match the type stated on the nameplate.
- Use a 220 V AC / 50 Hz supply with the plug provided. For safety, the boiler must be earthed.
- Have the boiler serviced by a qualified, authorised technician.
- Keep the boiler room well ventilated.
- If the boiler malfunctions, switch off the power and close the gas valve; then check this manual or call a qualified technician.
- Check the pressure gauge regularly. If the pressure is too low, the boiler stops and displays a fault code; top up the water to keep the pressure between 1.0 and 1.5 bar.
- To protect against frost in cold weather, keep the boiler switched on and the gas supply open.
- If the boiler will not be used for a long time, switch off the power, close the gas and drain the boiler completely to prevent frost damage.
- The boiler must be connected to the heating system, to the gas pipe and to an electrical outlet.
- The boiler and flue must be installed and serviced only by a qualified heating installer or service technician. Failure to follow this manual may result in serious injury or damage to property.
- Do not modify the safety and automatic control devices of the boiler.
- Do not clean the boiler with corrosive detergents.
- The condensate drain must not be blocked, and the neutralisation device (if fitted) must not be damaged.
- The flue gas temperature limit is 95 °C.

Safety instructions

- Do not install the boiler outdoors.
- Switch off the power and gas supply before cleaning the boiler.
- Keep combustible materials, especially plastics, away from the boiler.
- Do not block the flue outlet or the air inlet with cloths, paper or other objects.
- If you smell gas or combustion products, do not operate any electrical device (switches, telephone, etc.) and proceed as follows:
  - open the windows;
  - close the gas supply;
  - call a technician.
- Do not wet the electrical sockets or the boiler.
- Children and persons with disabilities must not be allowed to operate the boiler.
- Keep the packaging out of the reach of children; it could be dangerous.
- Do not pull, cut or bend the power cord.

Before using the boiler for the first time, carry out the following checks:

1. Check that the gas pipe is leak-tight with the gas valve both closed and open.
2. Check that the gas supplied is suitable for the boiler.
3. Check the electrical connections, especially the earth wire, and make sure the supply is 220 V / 50 Hz.
4. Ignite the burner and check the flame.
5. Check the gas flow rate and pressure at maximum, medium and minimum output, and compare them with the technical data.
6. Check that the safety shut-off operates when the gas supply is cut off.
7. Check that the flue is not obstructed.
8. Check that the water pipes are leak-tight.
9. Check the ventilation of the boiler room.

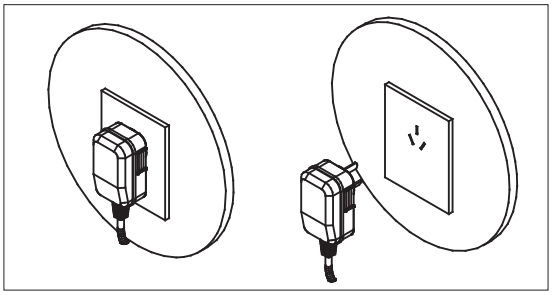
Warning:

Do not use the boiler if any of the above checks fails.

Filling, Topping Up and Draining

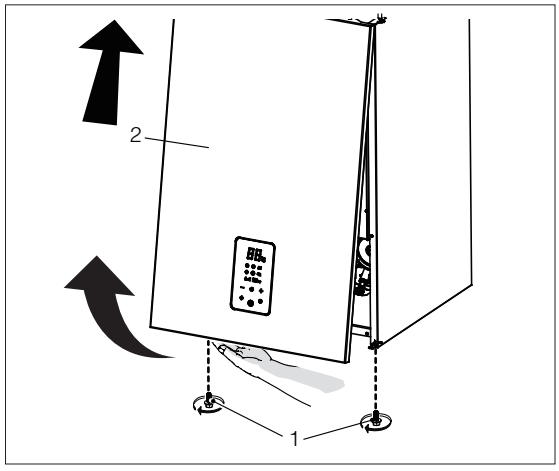
Power connection

The boiler is supplied with a power plug. Connect it to a 220 V / 50 Hz socket, and unplug it when the boiler is not in use (see figure).



Removing the front panel

Undo the two screws (1), pull the front panel forward (2), then lift it off.

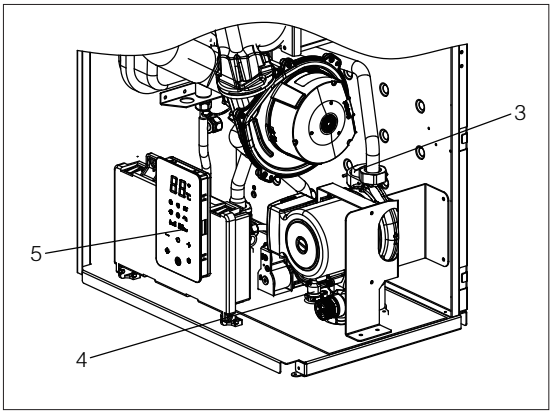


D.H.W. circuit (combination models only)

– Open the stop valve on the D.H.W. inlet (if fitted).
– Open one or more hot water taps to fill the D.H.W. circuit and release the air. Close the taps once the air has been released.

Heating circuit

– Open the stop valves and the air vent at the highest point of the system.
– Loosen the cap of the automatic air vent (3).
– Open the stop valve (if fitted).
– Open the filling valve (4) and fill until the pressure gauge (5) reads 1.0–1.5 bar.
– Close the filling valve (4).
– Run the boiler with the gas valve closed, so that only the pump operates; switch the boiler off when the pressure drops to 0.5 bar.
– Top up with softened water to 1.0–1.5 bar. Run the boiler again (gas valve closed): the pump starts and the pressure drops again. Switch the boiler off and top up again to 1.0–1.5 bar. Repeat until the pressure remains stable between 1.0 and 1.5 bar.
– Release all the air from the system and the radiators, then close the air vents.



Attention:

After the first filling and start-up, not all the air can be removed from the system. The remaining air mixes with the water and can trigger the low water pressure protection. In this case, top up the water to 1.0–1.5 bar, press the RESET button and restart the boiler. Repeat several times until the system operates stably.

Topping up the water

The boiler has a manual filling valve. Top up the water when the system pressure falls below 1.0 bar in heating mode.
– First switch off the boiler and disconnect the power supply.
– Check the heating system for leaks to make sure it is watertight.
– Turn the filling valve 360° anticlockwise and add water.

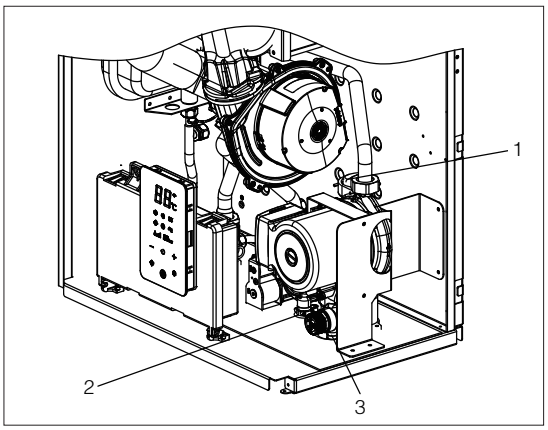
– Watch the pressure gauge and turn the valve clockwise to close it when the pressure reaches 1.0–1.5 bar.

Restoring the heating system pressure

– Check the system pressure regularly to make sure it stays between 1.0 and 1.5 bar. If it falls below 0.5 bar, top up the water through the filling valve.

Attention:

Close the filling valve after topping up. The safety valve releases air and water if the pressure exceeds 3.0 bar; the boiler resumes normal operation once the pressure returns to 1.0–1.5 bar. If the pressure drops frequently, have a technician check the system for leaks.



Water quality requirements

Do not add antifreeze or anti-corrosion additives to the water: they can damage the seals and cause noise in heating mode. Soften the water if its hardness exceeds 360 mg/L.

Draining the water

D.H.W. circuit (combination models only)

– Close the stop valve (if fitted) to prevent D.H.W. from flowing back into the boiler.
– Open two or more hot water taps to drain the circuit.

Boiler

– Loosen the cap of the automatic air vent (1).
– Close the heating circuit stop valves (if fitted).
– Make sure the filling valve (2) is closed.
– Connect a hose to the drain valve (3) and open it.
– When the water has drained completely, close the drain valve (3).
– Close the automatic air vent (1).

First start-up

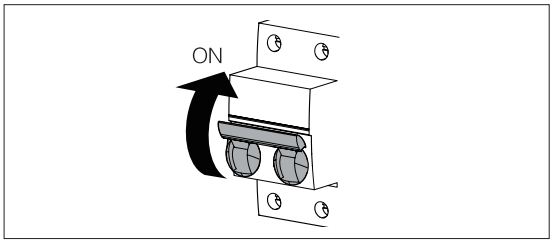
– Connect the power cord and open the manual gas shut-off valve.
– Press the ON/OFF button and select the operating mode: winter mode for heating (on combination models, summer mode with a hot water tap open; the D.H.W. flow must exceed 2.5 L/min). When there is demand, the display shows the pump and fan icons and the air pressure switch closes; the gas valve opens, the ignition electrode lights the burner and the boiler runs normally.
– Set the temperature to maximum and check that the gas pressure is correct at maximum output.
– Select winter mode, set the temperature and check that the boiler operates normally.

Maintenance

Have the boiler serviced once a year by a qualified technician to keep it working efficiently.

Warning

– The following operations must be carried out only by a qualified technician.
– Make sure the power supply switch is in the OFF position.
– Close the gas valve and do not touch any hot parts inside the boiler.

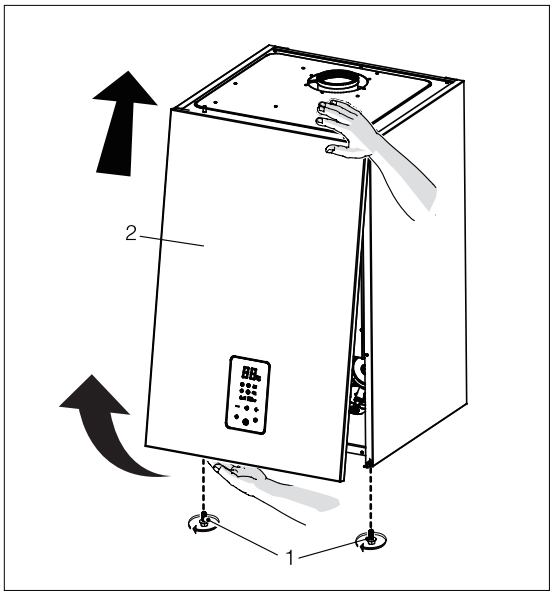


Cleaning the casing

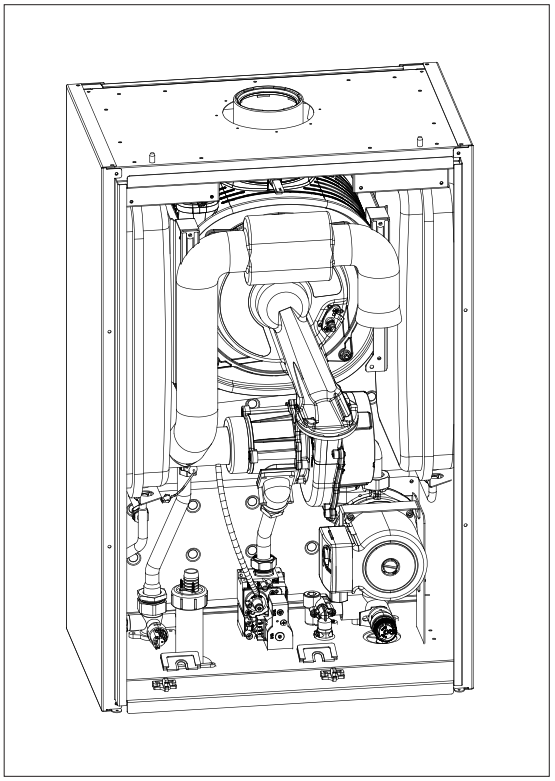
– Clean the outer surface with a damp cloth and soapy water or ethyl alcohol.

Cleaning the inside

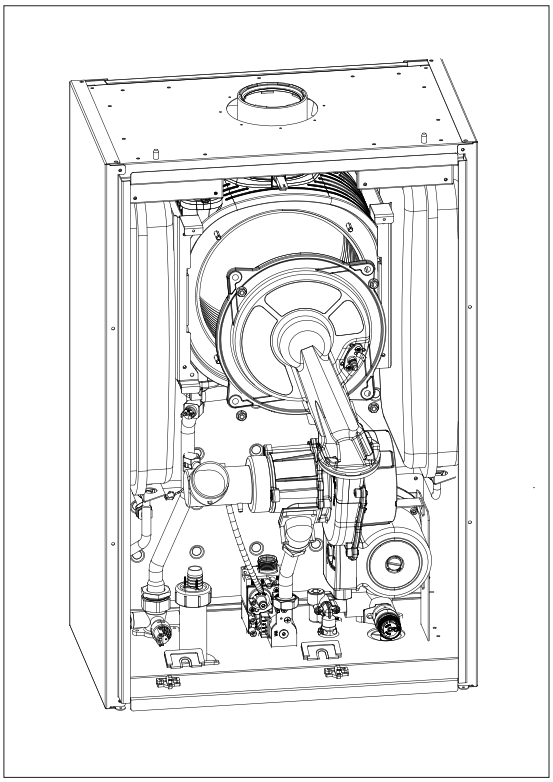
– Heat exchanger: undo the two screws (1) at the bottom of the boiler, pull the front panel (2) forward, lift it and remove it.



– Remove the control panel and take off the cover panel.
– Undo the four screws of the combustion chamber door and open it. Work carefully to avoid damaging the door seal and the insulation.
– If the heat exchanger is dirty, first protect the burner by covering it with a cloth or paper, then clean the heat exchanger with a bristle brush.
– Burner and combustion chamber: the burner needs no special maintenance; simply remove the dust with a bristle brush.



Maintenance



Final steps

After cleaning the heat exchanger and burner:
– Remove any remaining dust with a vacuum cleaner.
– Check that the electrode is centred on the burner.
– Check the seals and insulation of the cover panel and combustion chamber door, and replace them if damaged.
– Tighten the combustion chamber door screws and refit the cover panel and front panel.

Operation

Frost protection

Keep the boiler switched on (summer or winter mode) with the power and gas supply connected. If the heating water temperature falls below 8 °C, the pump starts; if it falls to 5 °C, the burner also starts and heats the water up to 30 °C. To prevent the pump from running dry, make sure the system is filled and free of air.

If there is a risk of frost and the boiler cannot be kept in operation, drain the water from the heating system. When refilling, use treated (softened) water to reduce hardness and prevent scale deposits.

Inspection

– Check the flue for damage and leaks.
– Check the expansion tank: release the water pressure on the tank side and check the pre-charge pressure, which must be at least 0.1 MPa (1 bar).

After inspection

1. Refill the system with water.
2. Refit the front panel.
3. Switch on the boiler and check the combustion efficiency with a flue gas analyser.

Fault Codes

Fault code list

Fault codes, possible causes and solutions				
Code	Status	Fault	Possible cause	Solution
E1	Lockout	Water pressure malfunction	1.Water pressure below 0.5 bar	1.Top up water to 1.0·1.5 bar
			2.Water pressure switch problem	2.Check the water pressure switch
			3.PCB or connection wire problem	3.Check PCB or connection wire
E2	Lockout	Ignition malfunction	1.Unsuitable gas type	1.Check the gas type
			2.No gas supply	2.Check the gas supply
			3.Flue gas recirculation	3.Check the flue system
			4.Gas valve problem	4.Check the gas valve
			5.Gas pressure too high or too low	5.Check with the gas supplier
			6.Ignition and flame detection problem	6.Check ignition and flame detection electrode
			7.PCB or connection wire problem	7.Check PCB or connection wire
E3	Automatic reset	Outlet heating water temperature sensor malfunction	1.Outlet heating water temperature sensor malfunction	1.Check the heating water temperature sensor
			2.The water temperature is lower than 3°C	2. Increase the temperature to more than 3°C
			3.PCB or connection wire problem	3.Check PCB or connection wire
E4	Automatic reset	D.H.W temperature sensor malfunction	1.D.H.W temperature sensor malfunction	1.Check the D.H.W temperature sensor
			2.PCB or connection wire problem	2.Check PCB or connection wire
E5	Automatic reset	Flame malfunction	1.Flame detection electrode malfunction	1.Check the flame detection electrode
			2.PCB malfunction	2.Check the PCB
E6	Automatic reset	Air pressure malfunction	1.Silicone tube blocked	1.Clean the silicone tube
			2.Venturi blocked	2.Clean the venturi
			3.Air pressure switch malfunction	3.Check the air pressure switch
			4.Water flow sensor malfunction	4.Check water flow sensor
			5.Fan malfunction	5.Check fan
			6.PCB or connection wire problem	6.Check PCB or connection wire
E7	Lockout	Overheat malfunction	1.Pump blocked	1.Check pump
			2.Heating circuit blocked	2.Clean the circulation system
			3.Air inside the system	3.Exhaust air inside the system
			4.Overheat protector malfunction	4.Check the overheat protector
			5.PCB or connection wire problem	5.Check the PCB and connection wires
E8	Automatic reset	Inlet heating water temperature sensor malfunction	1.Inlet heating water temperature sensor malfunction	1.Check inlet heating water temperature sensor
			2.PCB or connection wire problem	2.Check the PCB and connection wire
E9	Lockout	PCB storage malfunction	1.PCB storage chip malfunction	1.Check the PCB
			2.Voltage is lower than 165V (some models)	2.Check the voltage supply
EA	Lockout	Condensate water drain problem	1.Condensate water cannot be drained normally	1.Clean the condensate water drain pipe
Eb	Lockout	Flue gas temperature sensor malfunction	1.No water in the system	1.Check the pump or exhaust the air inside the system
			2.Flue gas temperature too high	2.Check the burning system
			3.Flue gas temp. sensor fault	3.Check the flue gas temp. sensor
EC	Lockout	Connection malfunction	1.PCB or display panel malfunction	1.Check the PCB or display panel
EF	Automatic reset	Outdoor temperature sensor malfunction	1.Outdoor temp. sensor fault	1.Check outdoor temp. sensor
			2.PCB or connection wire problem	2.Check PCB or connection wire

Note: If the temperature sensor detects a heating water temperature below 3 °C, the boiler displays code E3. The heating circuit may be frozen and the burner will not ignite. The boiler resumes normal operation once the temperature rises above 3 °C.

Other Faults and Solutions

- **Gas smell:** there may be a gas leak. Check that the gas pipes and connections are tight.
- **The fan runs but the burner does not light.** Check whether: the flue is too long (exceeds the maximum length); part of the flue is blocked (exhaust or air intake); the flue restrictor ring matches the flue length; the combustion chamber is properly sealed; the supply voltage is below 187 V.
- **Poor combustion (red or yellow flame):** the burner or heat exchanger is dirty, or the flue is incorrectly installed. Clean the burner and heat exchanger and make sure the flue is correctly installed.
- **The overheat thermostat trips frequently:** there is not enough water in the heating circuit or the pump is blocked. Check that the system pressure is between 1.0 and 1.5 bar, that all radiator valves are open and that the pump works normally.
- **Air in the system:** check that the air vent is open and that the system and expansion tank pressures are correct (expansion tank pre-charge 1.0 bar; system 1.0–1.5 bar).
- **Pump seized:** the pump may seize after a long period of inactivity. Carefully turn the motor shaft with a screwdriver.
- **Explosive ignition noise:** the gas type is not suitable for the boiler. Contact the service technician.
- **Water pressure drops frequently:** there is a leak in the heating circuit. Locate and repair it.
- **Noise:** unstable gas pressure (contact the gas supplier); flame noise (check the fan); noise from the fan or dust on the blower (clean the blower); pump noise (check the pump); dust on the burner (clean the burner).
- **D.H.W. does not reach the set temperature** (combination models only): the D.H.W. pipe or filter is blocked, there is no water supply or the flow switch is faulty. Clean the pipe and filter, and check the water supply and the flow switch.
- **Pump fault:** check the pump.
- **PCB fault or poor wiring connections:** check the PCB and the wiring.
- **Heating water does not reach the set temperature:** heating circuit valves closed or blocked (open the valves and remove the blockage); air in the system (release the air); excessive system resistance (improve the system, use a higher-capacity pump or add an external circulation pump); water leak in the system (locate and repair it); insufficient radiator output (add radiators to the system).