



ELECTRIC COMBI BOILER



OMEGA

6 kW - 100 kW

INSTALLATION AND SERVICE MANUAL



rev.no:02
23.08.2019

TS EN ISO 9001:2015


Read carefully
Keep for reference

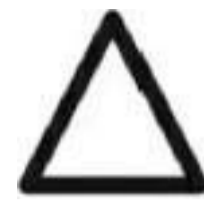
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1. SAFETY

1.1 SYMBOL KEY


 This symbol expresses the risk of serious personnel injury or death unless taking care of warnings.

 This symbol expresses the risks which can cause minor injuries or harms to the environment and goods.

1.2 SAFETY PRECAUTIONS

Do not open the protective cover of the device.

 Electric shock as a result of the contact with electrical items.

 Personnel injury like burnt as a result of contact with overheated surfaces or cut as a result of contact with sharp surfaces.

 **Do not remove the device from the place of mounting, do not disconnect the electrical or water connections. (Get in contact with authorized service)**

 Electric shock as a result of the contact with electrical items.

Flood as a result of demounted water installation.

 **Protect the main energy cable against damages.**

Electric shock danger as a result of contact with not isolated open wires.

 **Do not leave tools or other objects on the device.**

 Injury resulted from falling objects from device because of vibration.


Damage to the furniture or floor or animals resulted from falling objects from device because of vibration.

Do not climb on the device.

 Personnel injury as a result of falling down with device or falling down of the device itself.

 Damage risk under device as a result of fall down from the place installed.

 **Do not climb on unsteady objects like stool, chair or ladders for cleaning or maintenance.**

 Personnel injury resulted from falling down from height or cuts which can be caused from a rapid closing of the ladder.

 **Do not clean the device without switching it to off position and cutting of the main energy supply.**

 Electric shock as a result of the contact with electrical items.

Use the device for only heating the house and getting hot water.

 Explosion and damage risk resulted from inappropriate using and overloading.

 Damage risk to the environment resulted from inappropriate using.

Do not allow children or adults who have limited physical or mental competence, or People lacking the knowledge about the operating instructions of the boiler to intervene with the device.

 Risk of damage to device resulted from misuse.

 Personal injury from burns, breathing smoke or poisoning.

Pay attention to not damaging the electric cables and water pipes inside the wall while making holes on wall for boiler mounting plate.



Electric shock as a result of the contact with electrical items.



Flood risk results from water pipe puncture.

Suitable profiled cables must be used in all electric connections.



Fire risk results from overheated low profiled cables.

1.3 GENERAL EXPLANATIONS

MAKTEK Electric Boiler provides the heating by central boiler heating system and with radiators connected to the system and provides hot water by heat exchanger.

Installation and services must be in accordance with recent standards and announced directives. Our company is not responsible for damages caused from wrong installation and usage.

Make sure the boiler is operated only to comply the intended use of the boiler. Any usage which does not comply with the boiler's intended use may cause serious injury, death or harms to the environment and goods.

ATTENTION ; Only Authorised Services and Manufacturer are responsible for the boiler. Do not allow other people to interfere with the settings of the boiler.

1.4 C.O.S.H.H

Materials used in the manufacture of this appliance are non-hazardous and no special precautions are required when fitting or servicing this appliance.

1.5 PREPARATION

1.5.1 Load Check

A load check should be taken into consideration when installing high output boilers.

1.5.2 Boiler Location

The boiler must be installed on a wall that will provide an adequate fixing, and should be installed in a location that the boiler and pipe-work are not subject to frost and damp conditions.

1.5.3 Central Heating Installation

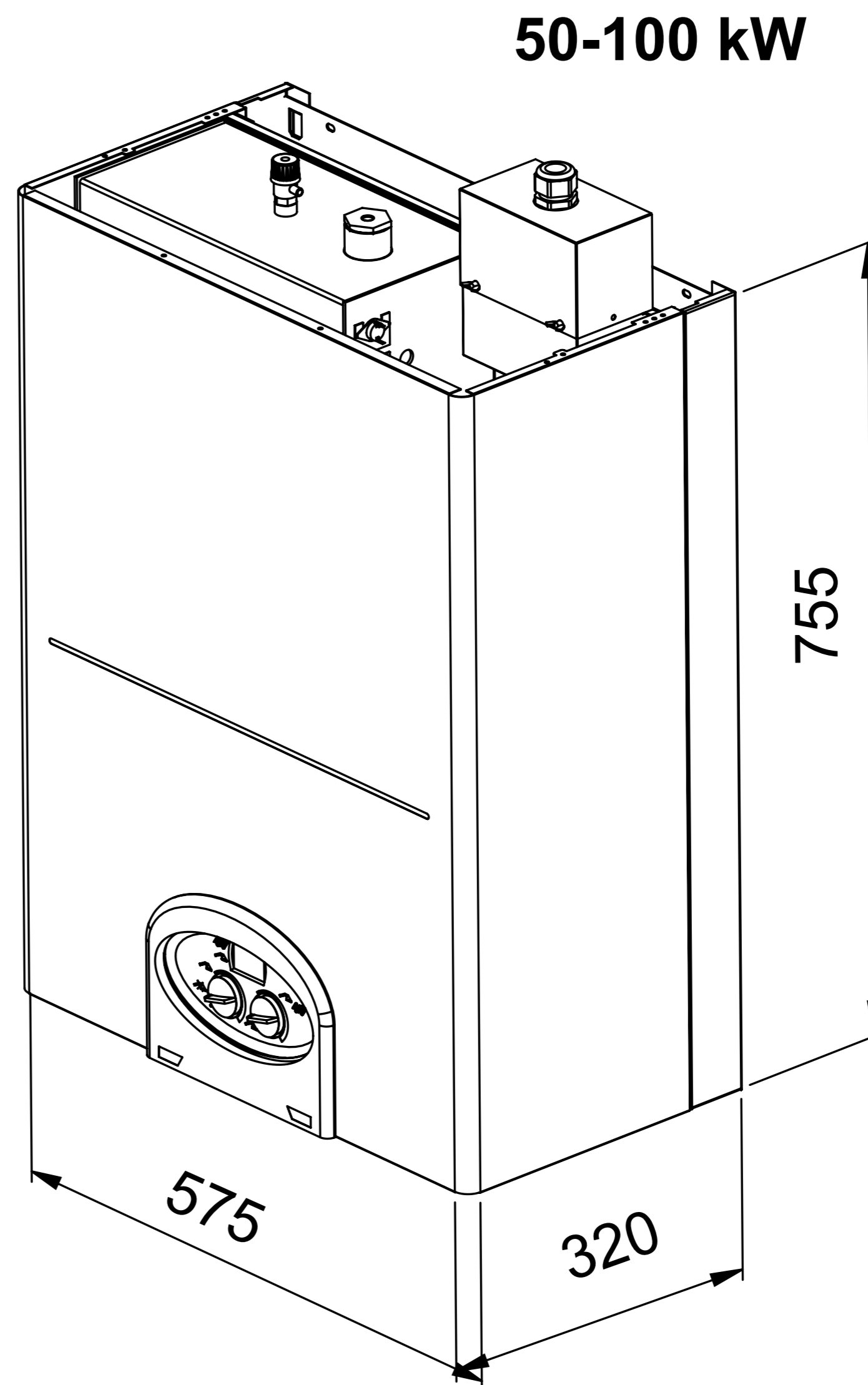
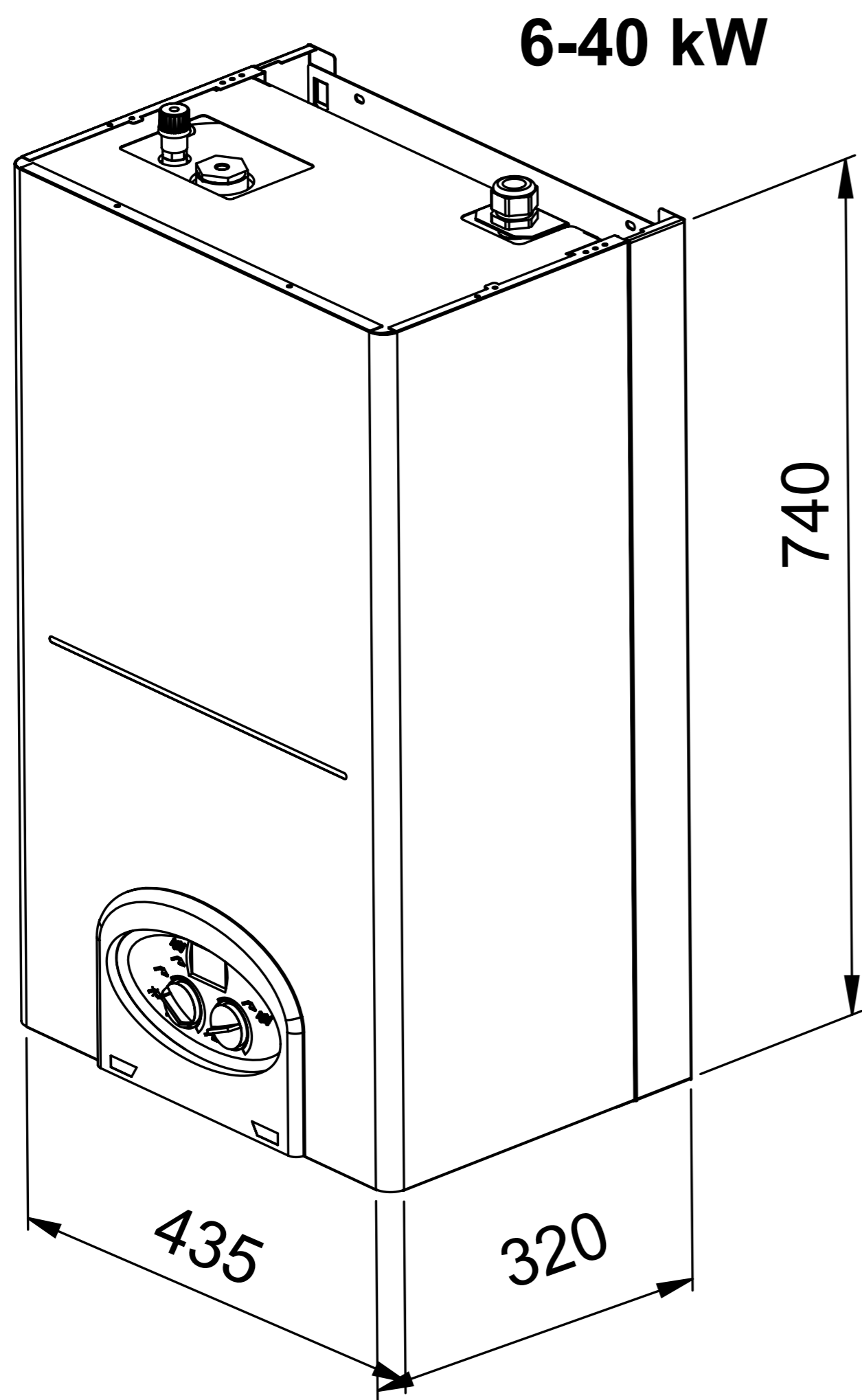
Detailed recommendations are given in EN 12828.

Pipes forming part of the useful heating surface should be insulated to prevent any potential heat loss or frost damage.

Drain valves should be fitted at the lowest point of the system pipe work in an accessible position.

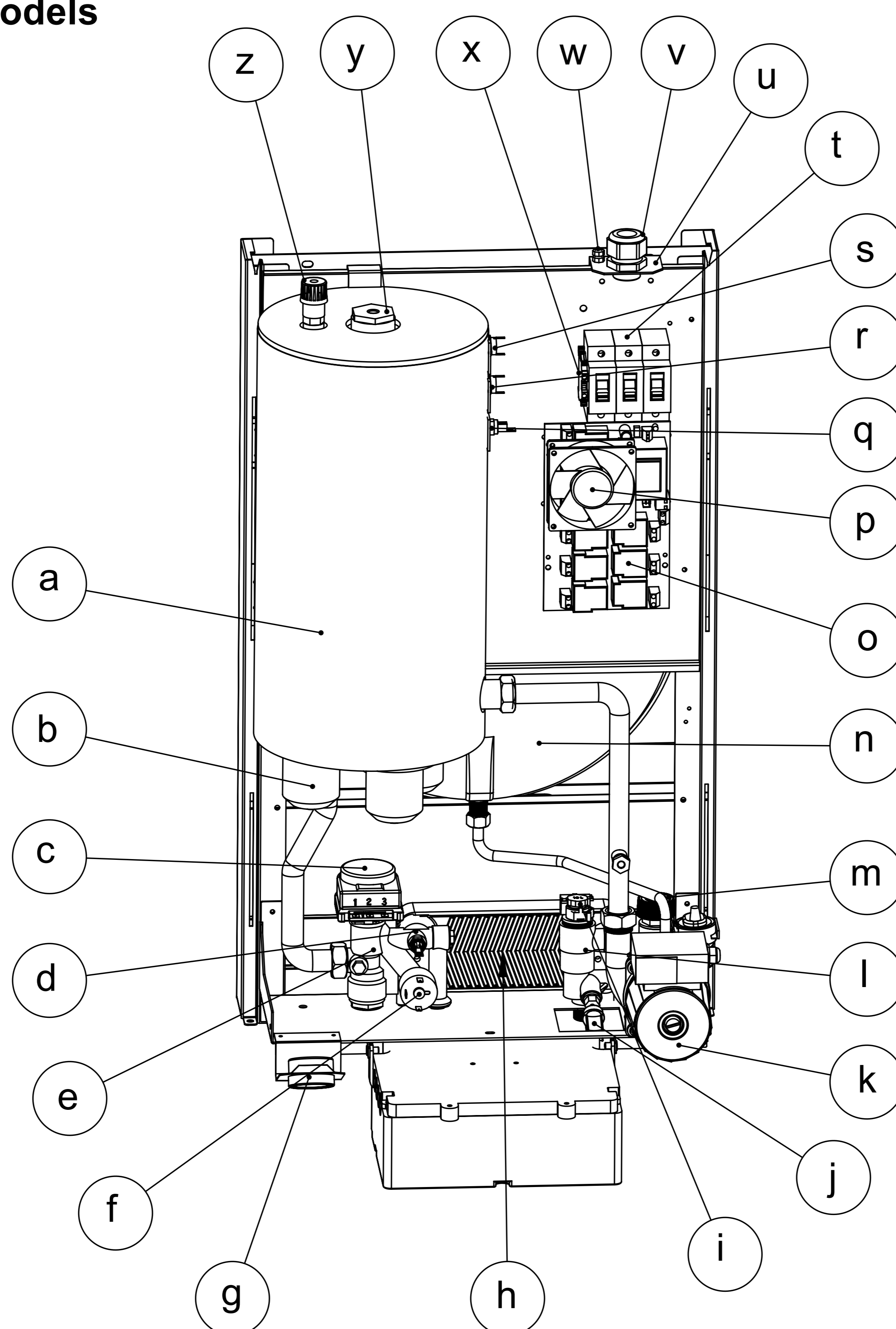
2. INTRODUCTION OF THE DEVICE

2.1 APPEARANCE AND EXTERNAL DIMENSIONS



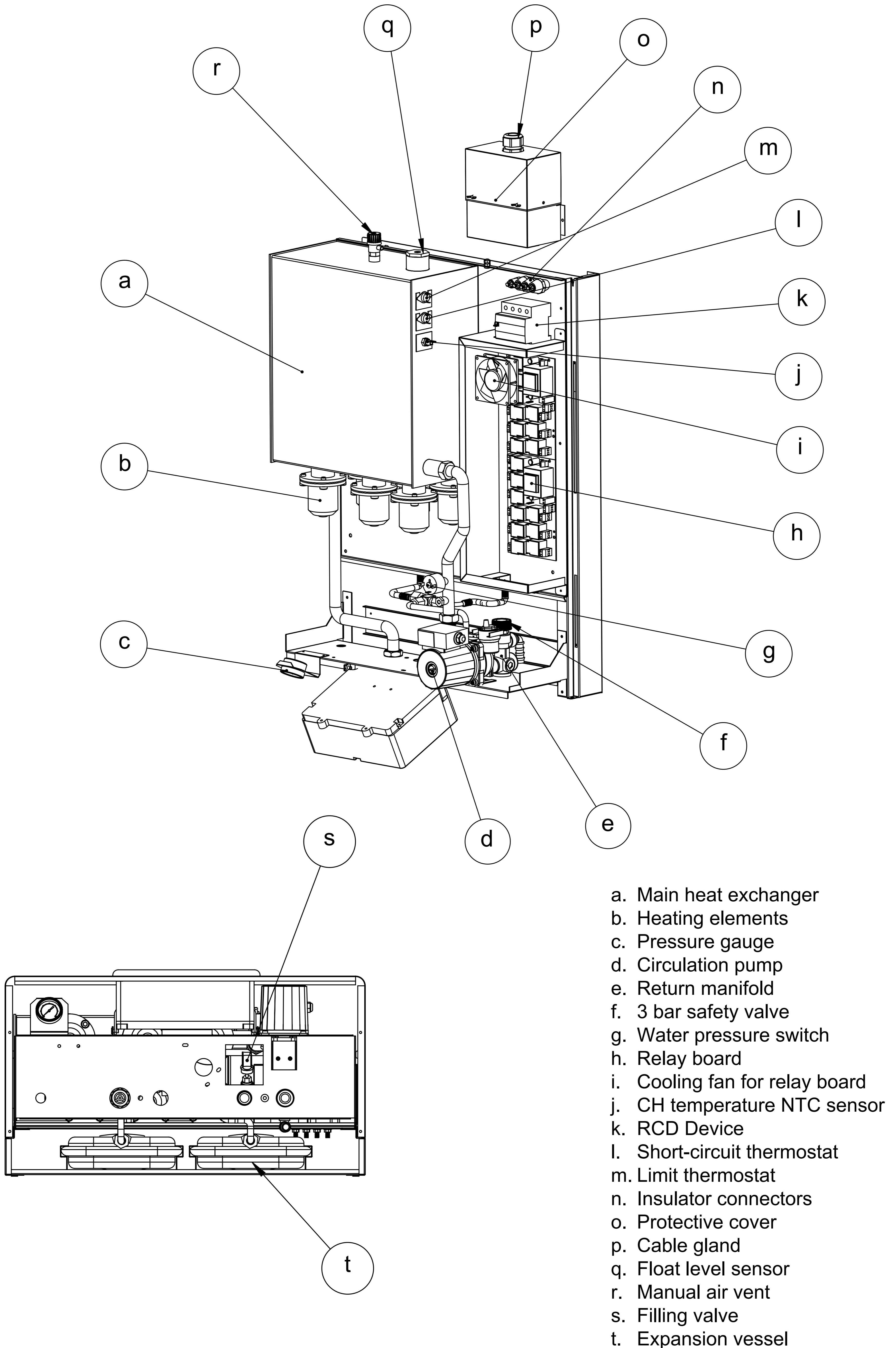
2.2 COMPONENTS OF THE BOILER

2.2.1 6-40 kW Models



- | | |
|-------------------------------|--------------------------------|
| a. Main heat exchanger | n. Expansion vessel |
| b. Heating elements | o. Relay board |
| c. 3-way valve actuator motor | p. Cooling fan for relay board |
| d. DHW temperature NTC sensor | q. CH temperature NTC sensor |
| e. Flow manifold | r. Short-circuit thermostat |
| f. Water pressure switch | s. Limit thermostat |
| g. Pressure gauge | t. Circuit breaker |
| h. Plate heat exchanger | u. Cable gland fixing plate |
| i. Electronic flow sensor | v. Cable gland |
| j. Filling valve | w. Earth connection |
| k. Circulation pump | x. Rail terminal block |
| l. Return manifold | y. Float level sensor |
| m. 3 bar safety valve | z. Manual air vent |

2.2.2 50-100 kW Models



2.3 OPERATION PRINCIPLE OF THE DEVICE

MAKTEK Omega electric combi boiler provides central heating with the use of panel radiators or underfloor heating pipes. The primary heating circuit water is heated in the main heat exchanger with the heating elements. The hot water circulates the installation with the help of the circulation pump, delivering hot water to the radiators or underfloor heating pipes.

The boiler also produces domestic hot water to be used in sinks and showers in the house. The DHW is generated by the plate heat exchanger located inside the boiler.

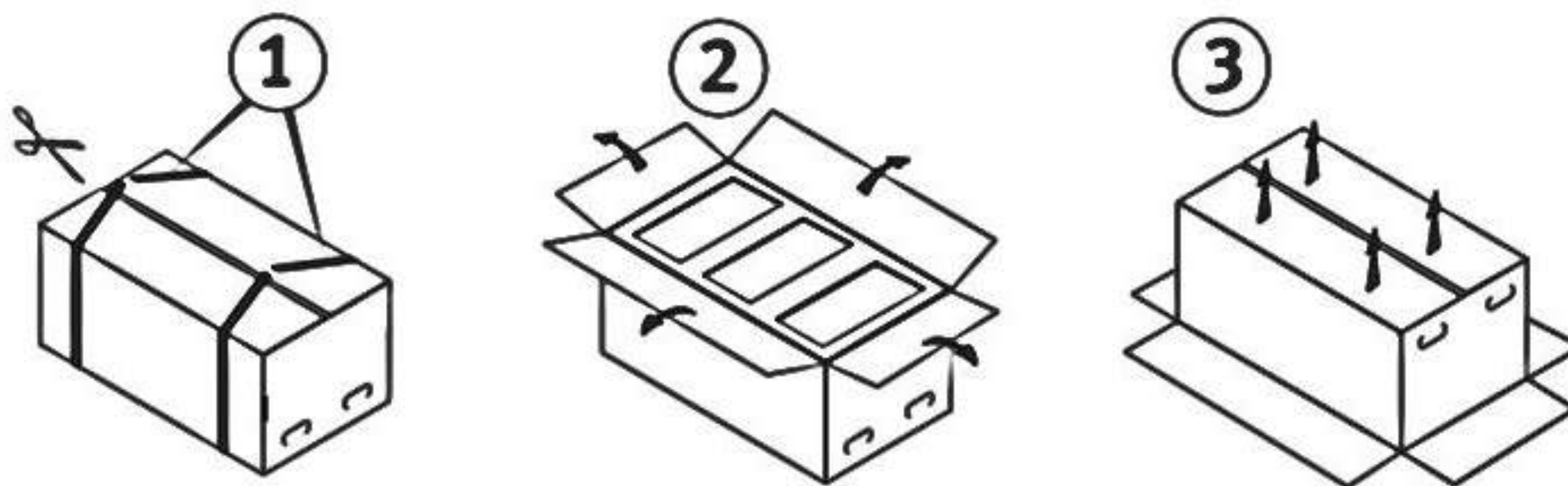
Electric combi boiler senses the DHW demand when the water tap is opened and the 3-way valve actuator motor changes position to divert the hot water to the plate heat exchanger automatically in order to produce DHW. In winter mode operation, DHW supply is always prioritized.

2.4 MAIN FEATURES OF THE BOILER

- MAKTEK Omega electric combi boiler uses ONLY electricity as fuel.
- The device is equipped with many safety functions to provide risk free operation.
- Operates with 99% efficiency.
- Eco-friendly, 0 emissions.
- Due to its quiet operation and lack of connections like chimneys, it can be mounted in living areas easily.
- It offers an aesthetic look with its minimized dimensions and exterior design. Running costs are 32 lower than diesel boilers and 25 lower than LPG boilers. Provides hot water in constant temperature at set value.
- Heating system can quickly enter the regime and heat the house.
- Protection against high pressures with 3 bar safety valve.
- Manometer
- Energy efficient circulation pump.
- 1 bar set safety switch.(protection againsts running without water)
- Built-in RCD (short circuit relay) provides electrical protection and safe operation.
- Automatic by-pass system.
- Modulation according to room temperature (with optional room thermostat)
- Electronic water temperature control with NTC system.
- Electronic temperature adjustment thermostat.
- Limit thermostat against overheating.
- Short-circuit thermostat for increased protection.
- Anti-jamming system. Operating in every 24 hours to prevent pump jamming.
- Frost protection system.
- Wide capacity range, from 6 kW upto 100 kW. Meets a wide range of heating requirements.

3.MOUNTING AND INSTALLATION

3.1 UNPACKING



Open the box as seen in the above sketch. Place the box on the ground, arrows on the box pointing to the ground. Cut the cords or remove the staples, fold the lids of the box on each side and turn the box upside down. Pull the box upwards and remove it.

3.1.1 Delivery Content

6-40 kW	
QTY	DESCRIPTION
1	Electrical Combi Boiler
1	Wall Mounting Plate
1	Documents Pack
4	10x50 Wall Plug
4	M7x50 Screw
1	RCD Device
1	RCD Device Box
2	4x30 Wood Screw
2	6 mm Wall Plug

50-100 kW	
QTY	DESCRIPTION
1	Electrical Combi Boiler
1	Wall Mounting Plate
1	Documents Pack
4	10x50 Wall Plug
4	M7x50 Screw

3.2 INSTRUCTIONS FOR MOUNTING

Boiler should not be installed in humid places such as bathrooms and areas that may be affected by rain water.

The boiler should be installed on strong walls that can carry it and perpendicular to the ground.

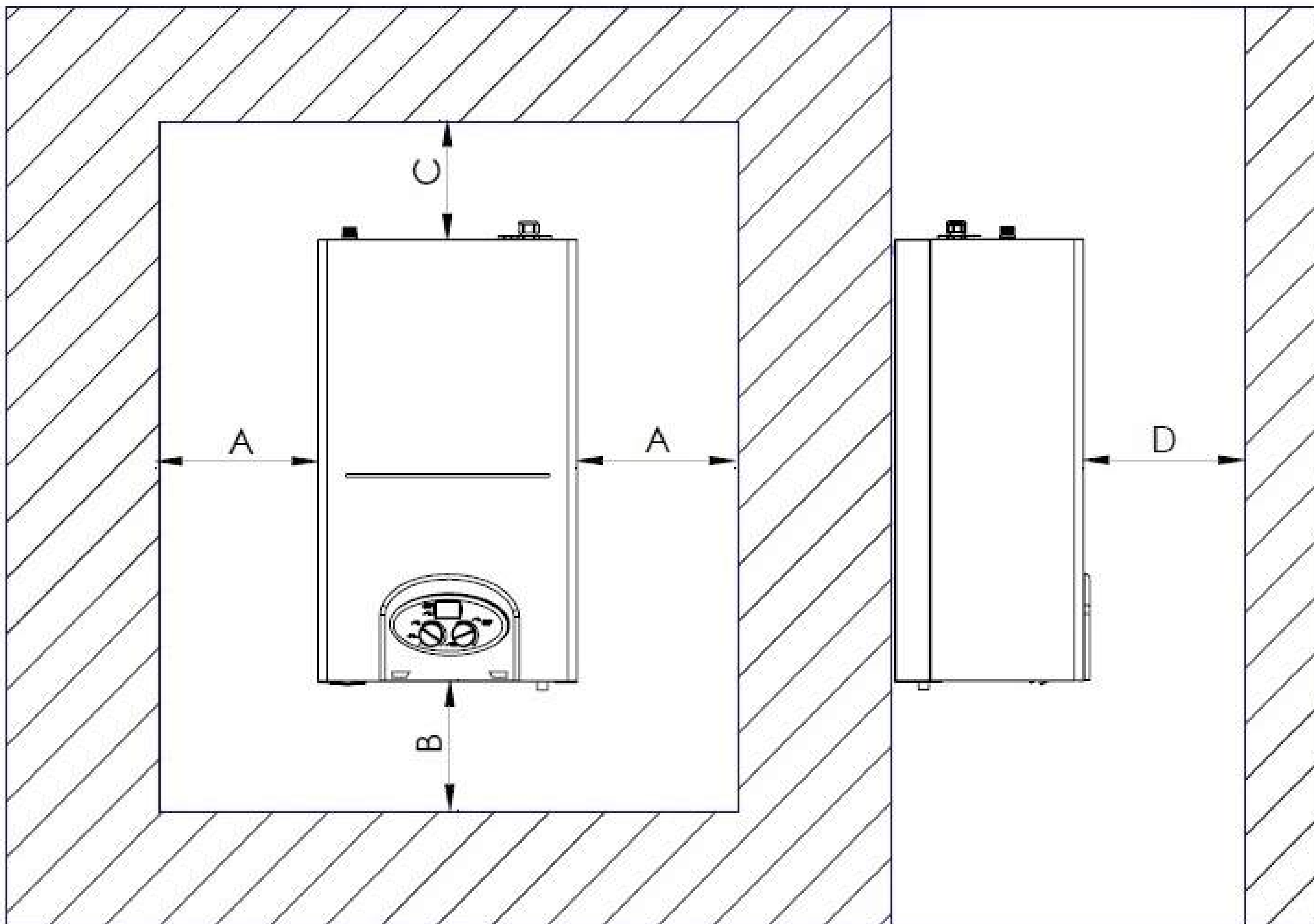
Specific space must be left around the for the authorized service to intervene in the event of a technical breakdown or maintenance. You can find the minimum spaces required for installation in the below diagram.

Only use the wall plugs, screws and wall mounting plate supplied with the device during installation. The boiler must be installed vertically (upright position) and checked with a spirit level so that it can work properly after installation. Failure to do so will invalidate the warranty.

3.3 MINIMUM SPACES FOR INSTALLATION

At least the following space must be left in order to reach the internal parts of the device easily when a failure occurs or when maintenance is carried out.

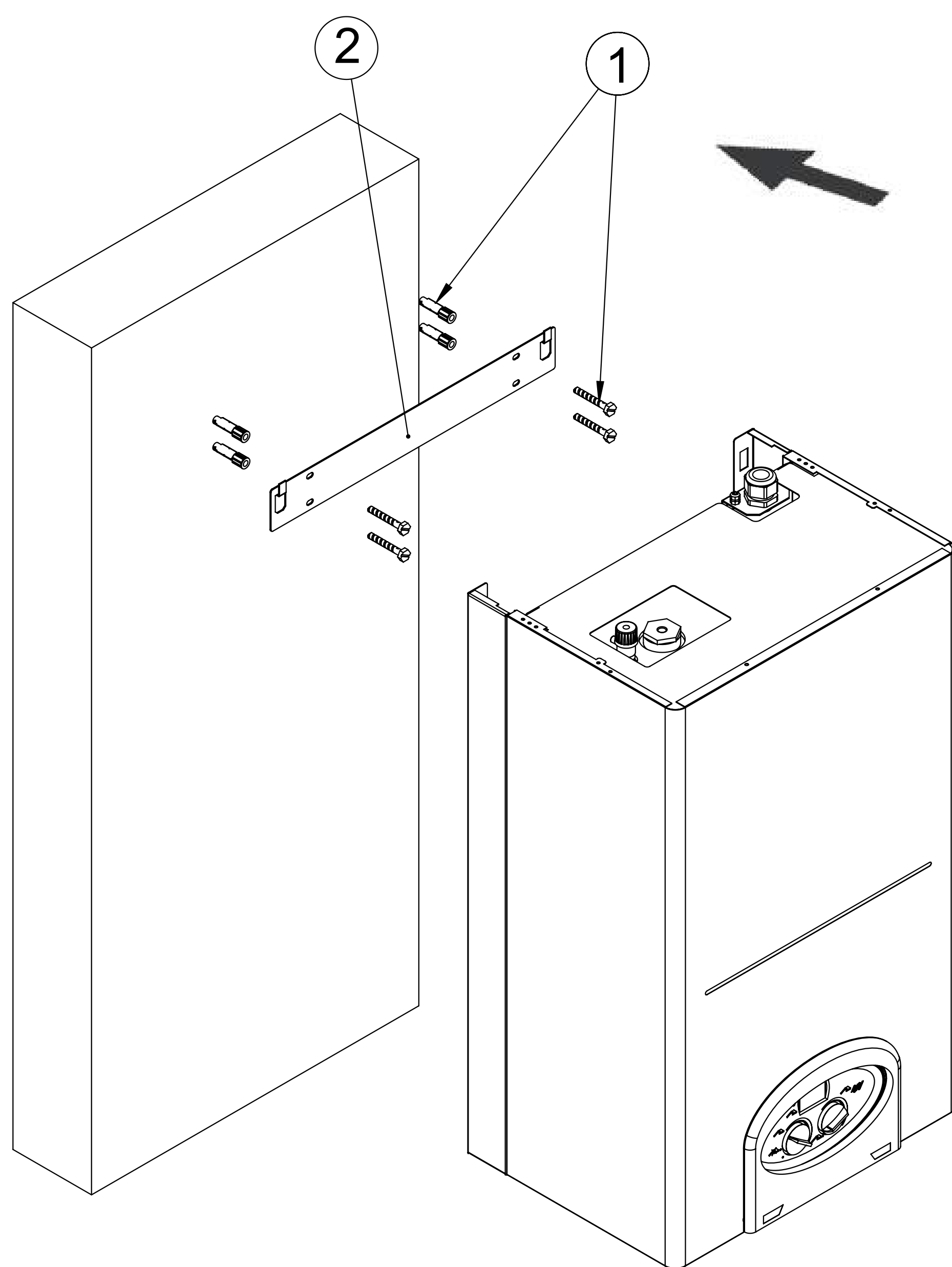
Suggested space is the minimum space and it is favorable to leave more space depending on the situation.



A : 150 mm
B : 300 mm

C : 400 mm
D : 450 mm

3.4 WALL MOUNTING



- Place the mounting plate parallel to the floor. (Check with spirit level).
- Mark the holes on the wall.
- Drill on the marked spots and insert the wall plugs.
- Place the wall mounting plate and fix it on the wall using the screws.
- Hang the boiler on the mounting plate.

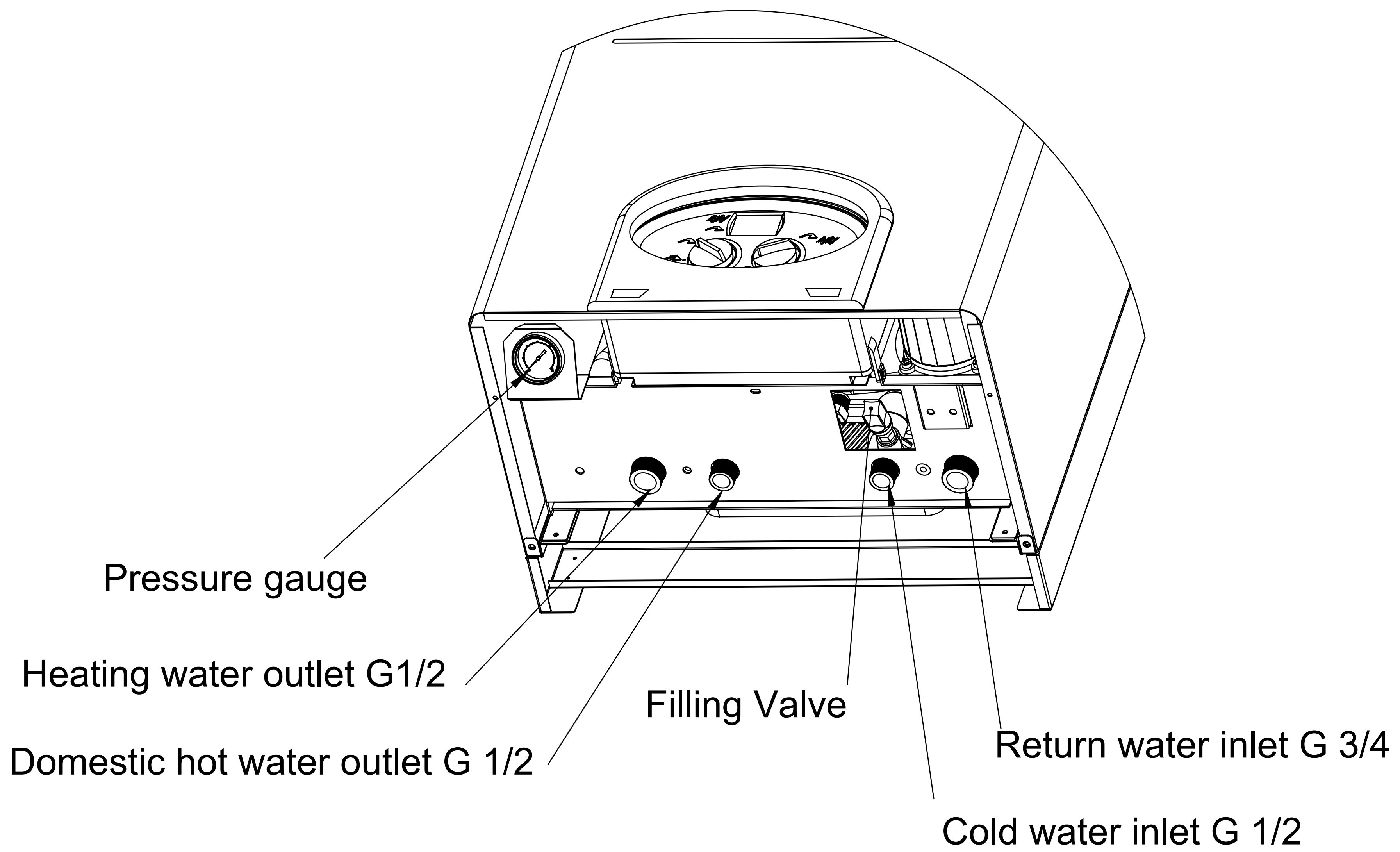
3.5 HEATING AND HOT WATER SYSTEM INSTALLATION CONNECTIONS

- At DHW function, please make sure that the pressure of the city water network on cold water inlet side is not more than 6 Bars. If the network pressure is more than 6 Bars, a pressure regulator must be added. In order for the DHW system to run, the minimum pressure level of the network must be 0,8 Bar.
- In order to provide a good circulation at heating function, installation pipe diameters must be selected properly and diameter restrictions should not be allowed at elbow passage. When selecting the pipe diameter, pipe resistance above the capacity of the pump must be avoided. You can see the pump capacities from the pump pressure curve.
- When there is a pressure increase at heating system, the security ventile operates in order to discharge water to decrease pressure.
- When radiator thermostatic valves are installed in the heating system and when the heat balance is provided at all isolated departments, if the thermostatic valves turns off the system, automatic by-pass system immediately runs in order to provide the minimum circulation in heat exchanger and provides the safety of device.
- Insulation : We recommend that all pipe-work is insulated where practical. Especially the primary pipe-work with in a boiler cupboard. This will reduce heat loss and protect the cupboard from high temperatures.

CAUTION ! : During installation ; on the return water inlet pipe , usage of 3/4" particule filter and 2 valves on both sides of the filter is advised. On the cold water inlet pipe 1/2" particule filter and valve must installed.

CAUTION ! : The primary circuit must be flushed to ensure that no debris is trapped in the system. Failure to do so may lead to boiler failure which will not be covered by manufacturer's warranty. Where existing radiators and pipe-work is used, a power flush must be carried out to remove debris.

- Central heating and domestic hot water pipe connections must be made according to the below figure. Make sure to remove the plastic taps before making the pipe connections. Inlets and outlets are clearly marked with blue and red colors on the bottom of the boiler.



3.6 CIRCULATION PUMP INFORMATION

3.6.1 Energy Efficient Pump (Optional)

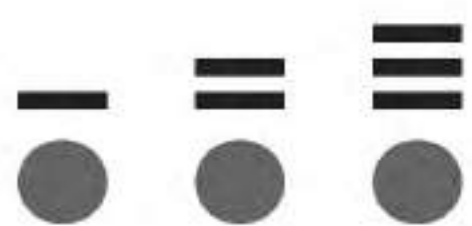
Indicator Lights (Leds)



- Signal display
- LED is lit up in green in normal operation
- LED lights up/flashes in case of fault



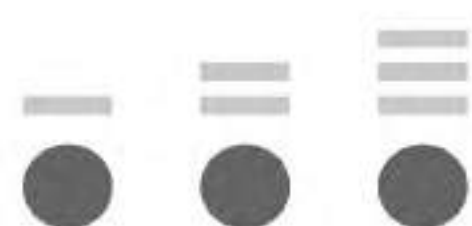
- Display of selected control mode Δp -v, Δp -c and con-stant speed



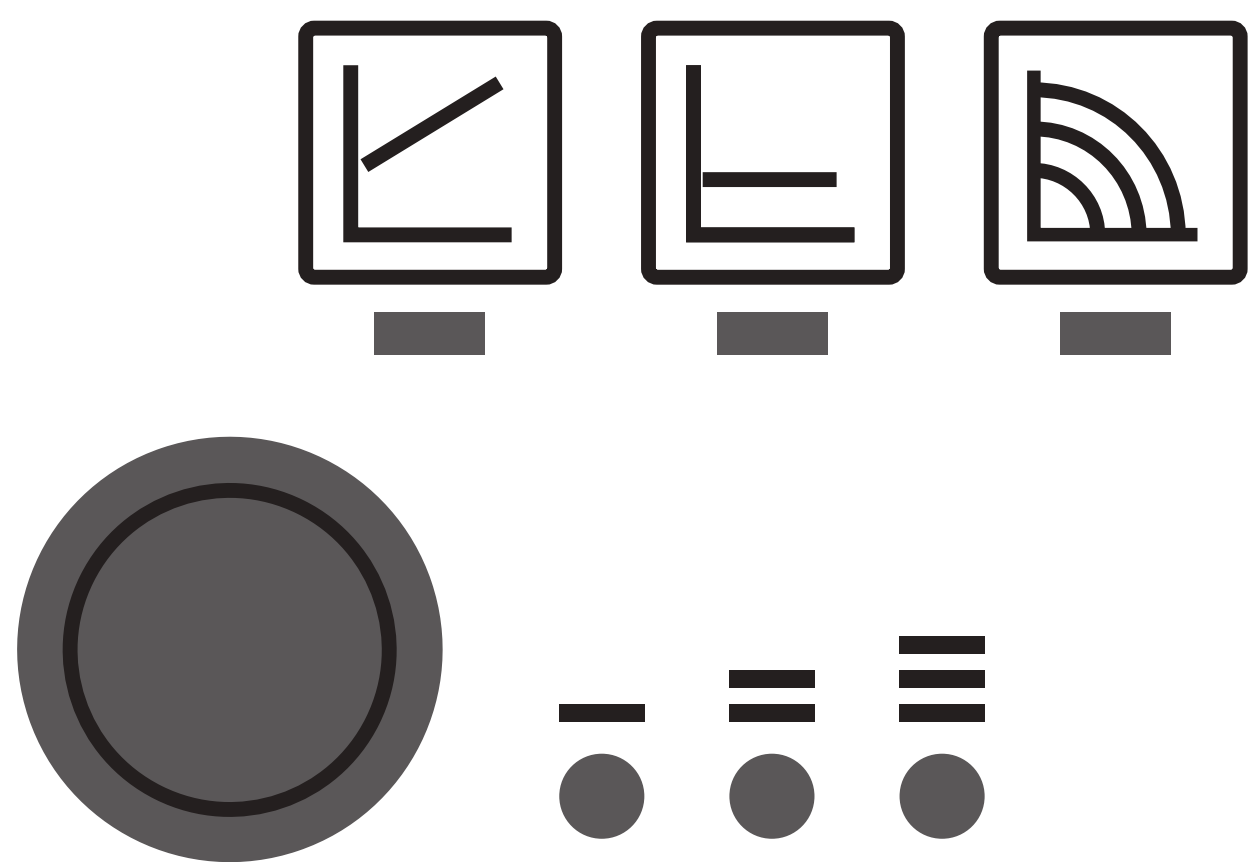
- Display of selected pump curve (I, II, III) within the control mode



- LED indicator combinations during pump venting function, manual restart and key lock



Operating button



Press

Select control mode

- Select pump curve (I, II, III) within the control mode
- Press and hold
- Activate the pump venting function (press for 3 seconds)
 - Activate manual restart (press for 5 seconds)
 - Lock/unlock button (press for 8 seconds)

Control modes and functions

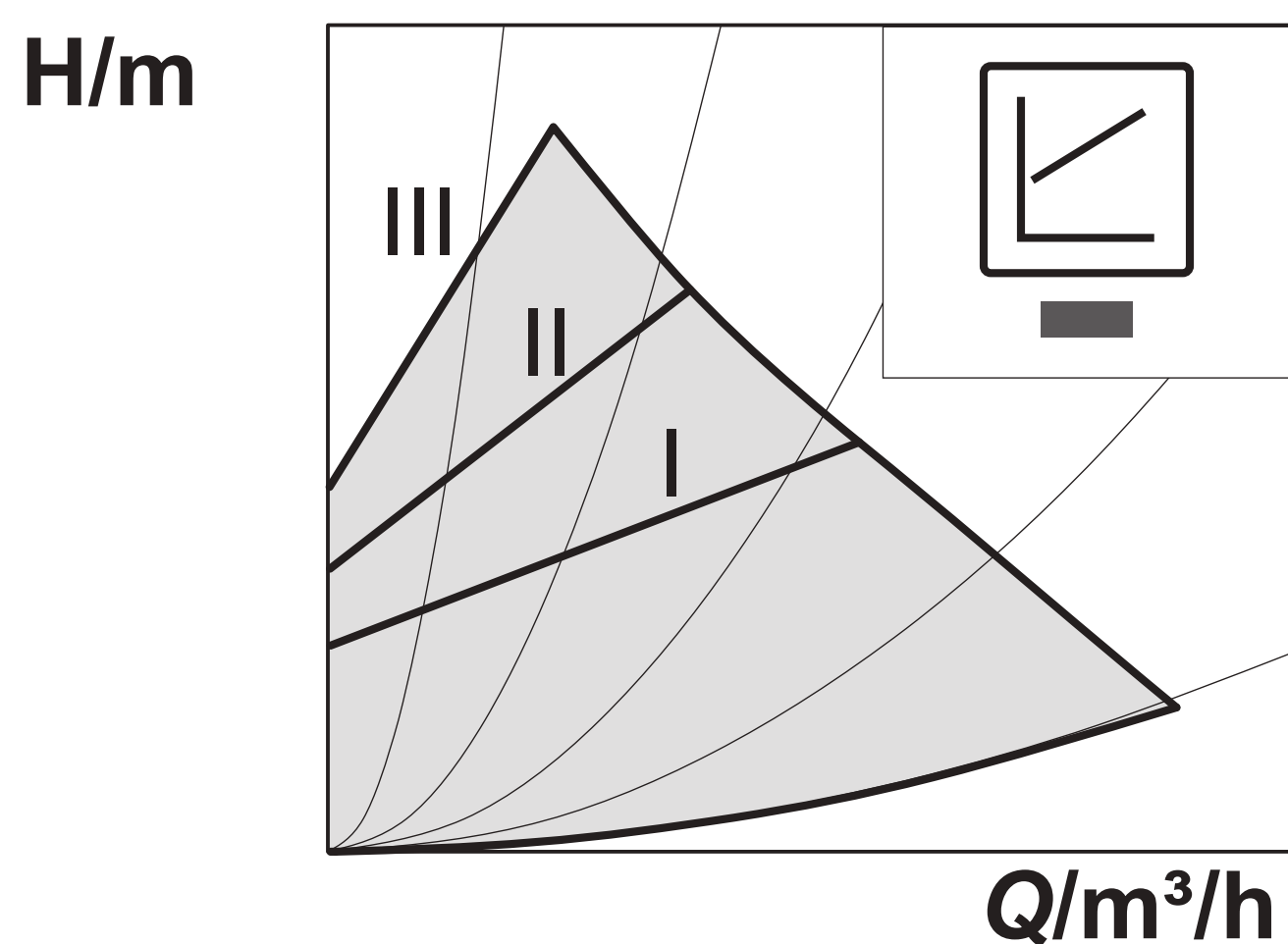
Variable differential pressure $\Delta p-v$ (I, II, III)

Recommended for two-pipe heating systems with radiators to reduce the flow noise at thermostatic valves.

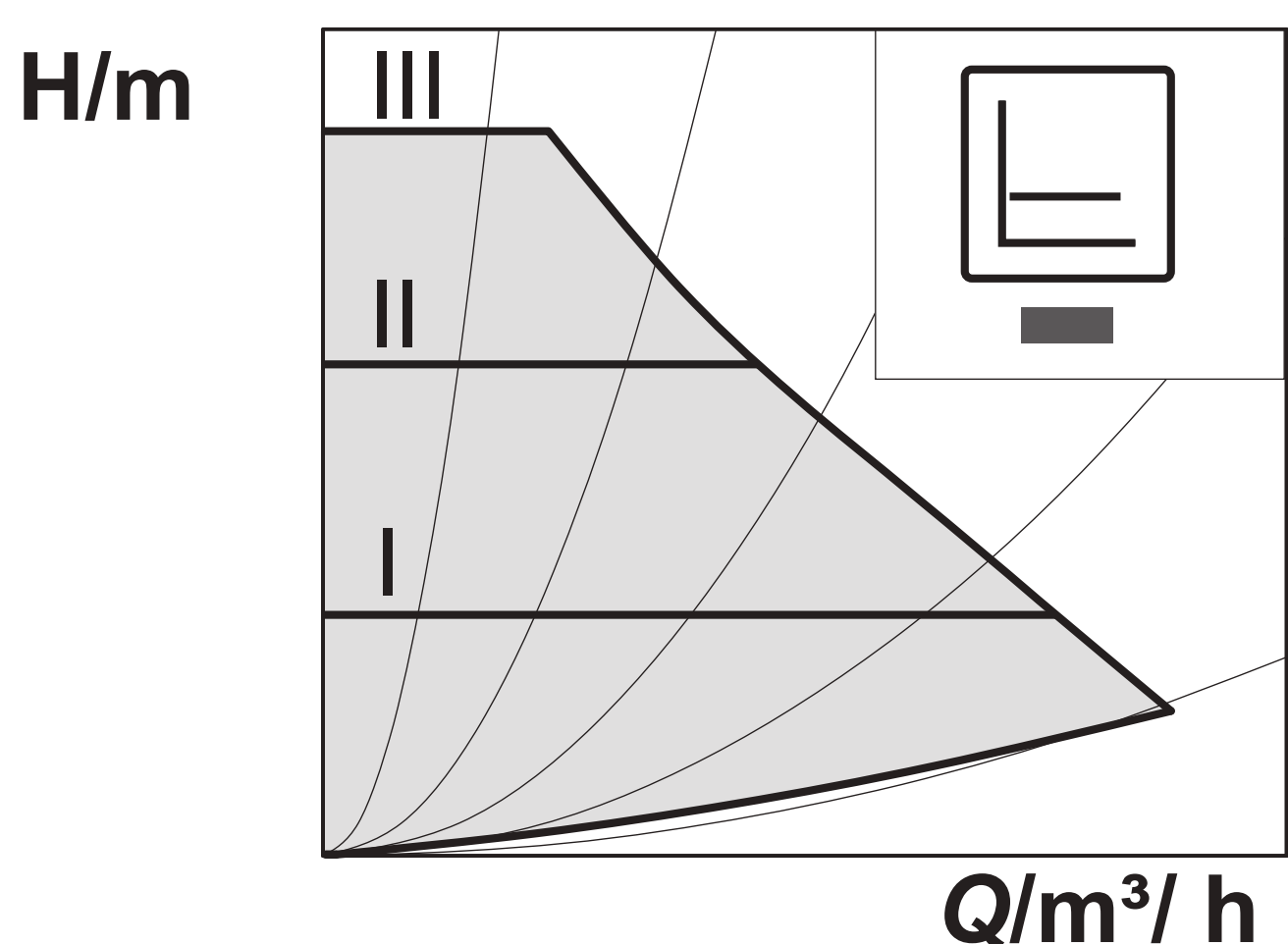
The pump reduces the delivery head to half in the case of decreasing volume flow in the pipe network. Electrical energy saving by adjusting the delivery head to the volume flow requirement and lower flow rates. There are three pre-defined pump curves (I, II, III) to choose from.

Recommended for underfloor heating or for large-sized pipes, applications without a variable pipe network curve (e.g. storage charge pumps) or single-pipe heating systems with radiators.

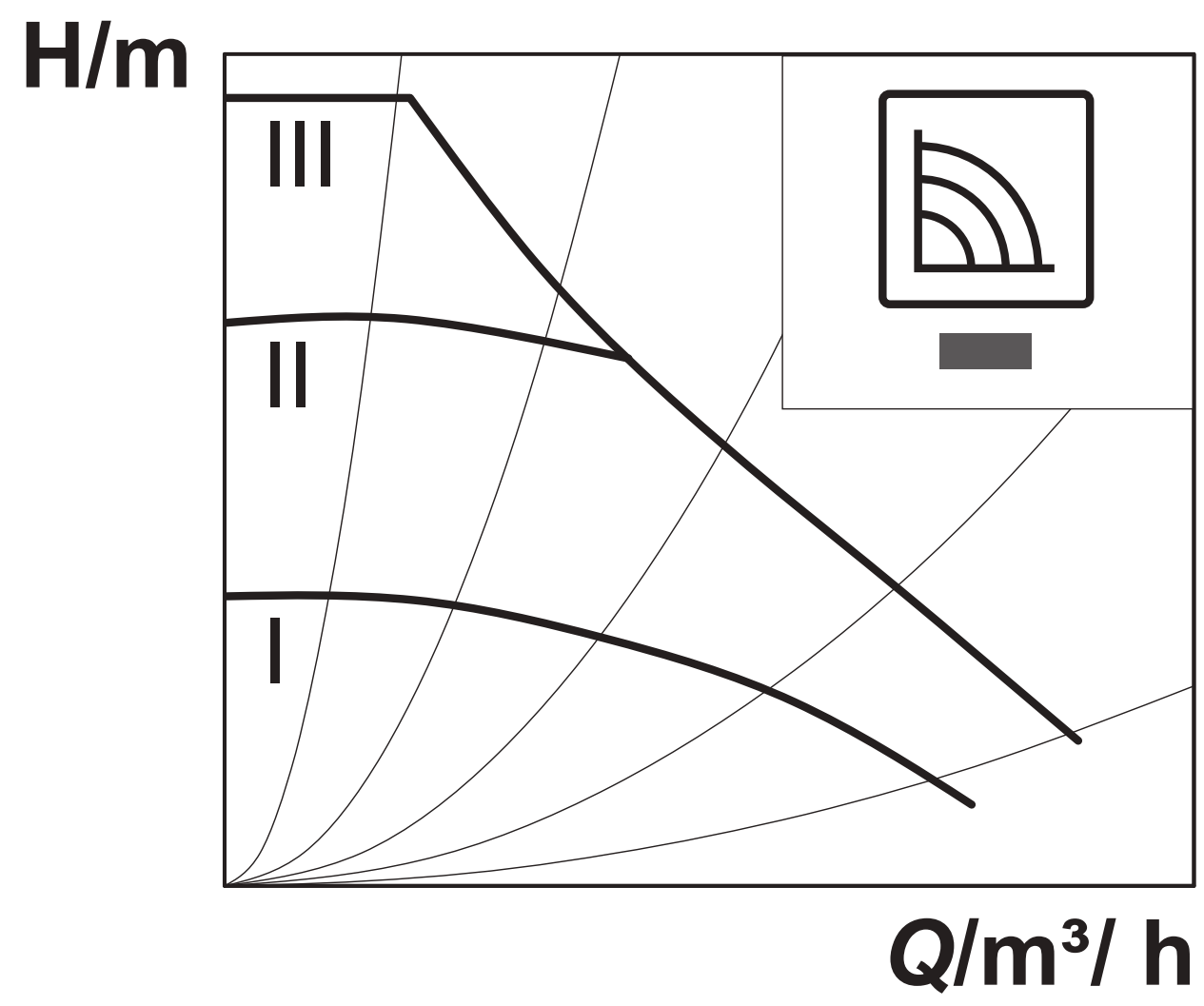
The control keeps the set delivery head constant irrespective of the pumped volume flow. There are three pre-defined pump curves (I, II, III) to choose from.



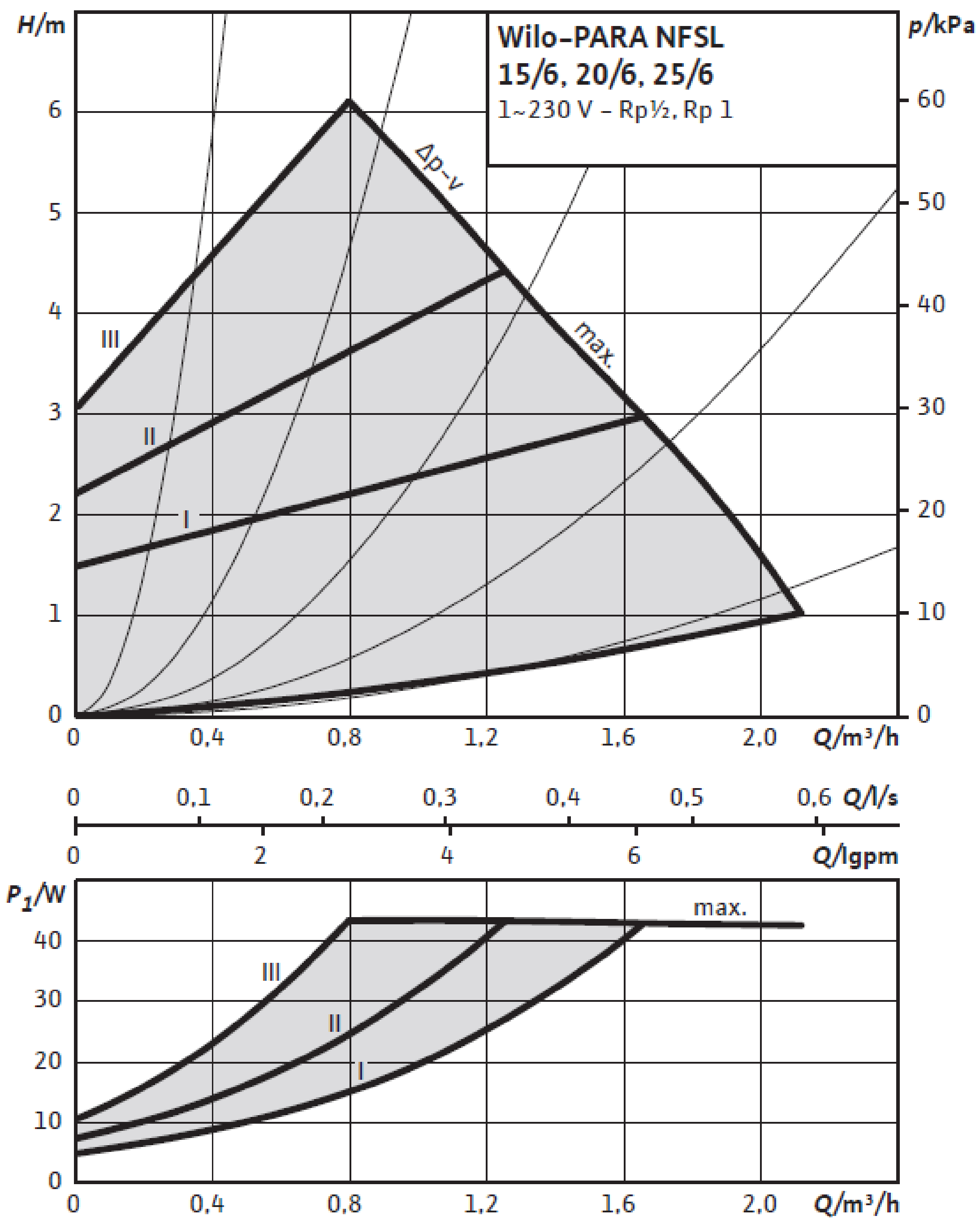
Constant differential pressure $\Delta p-c$ (I, II, III)

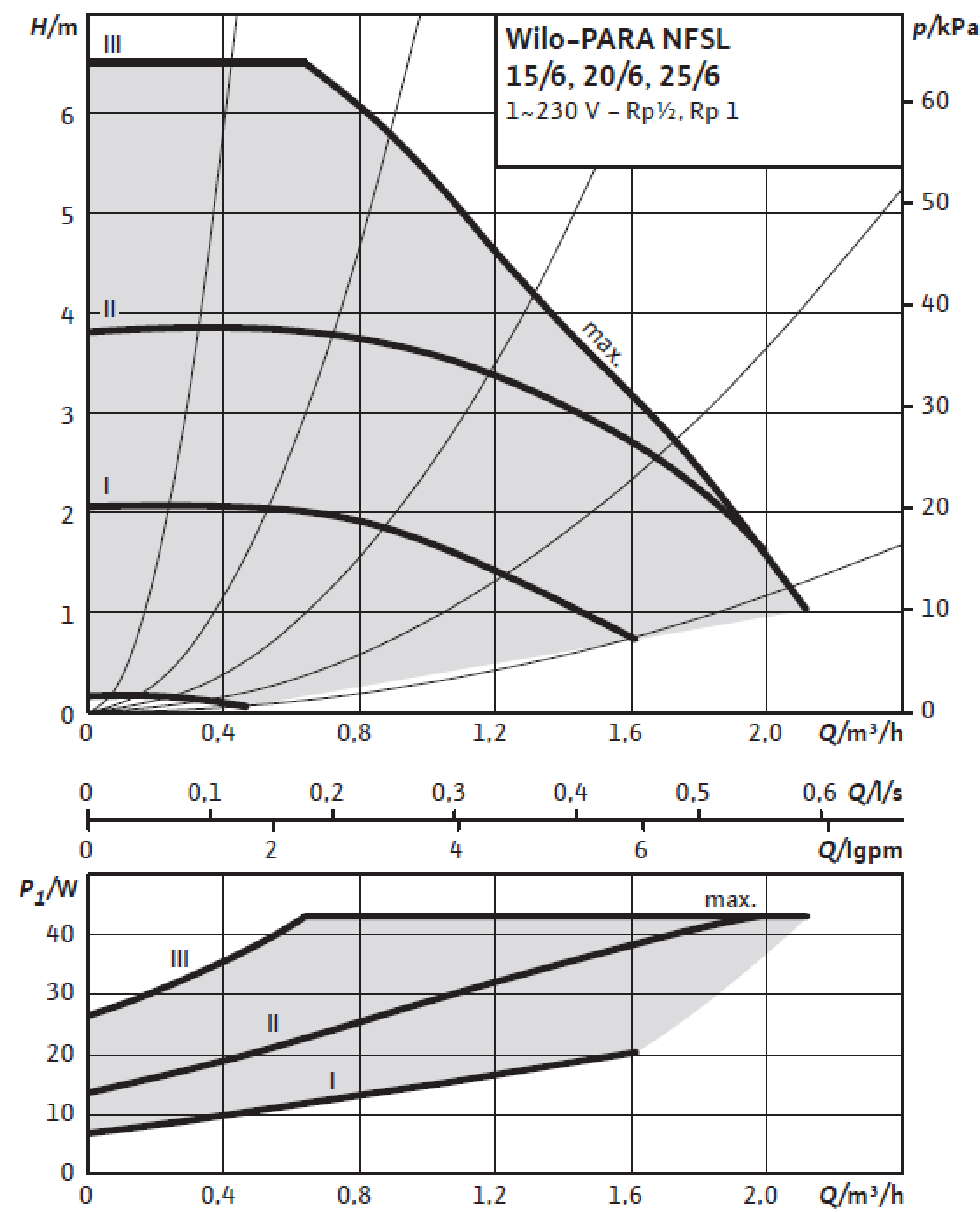
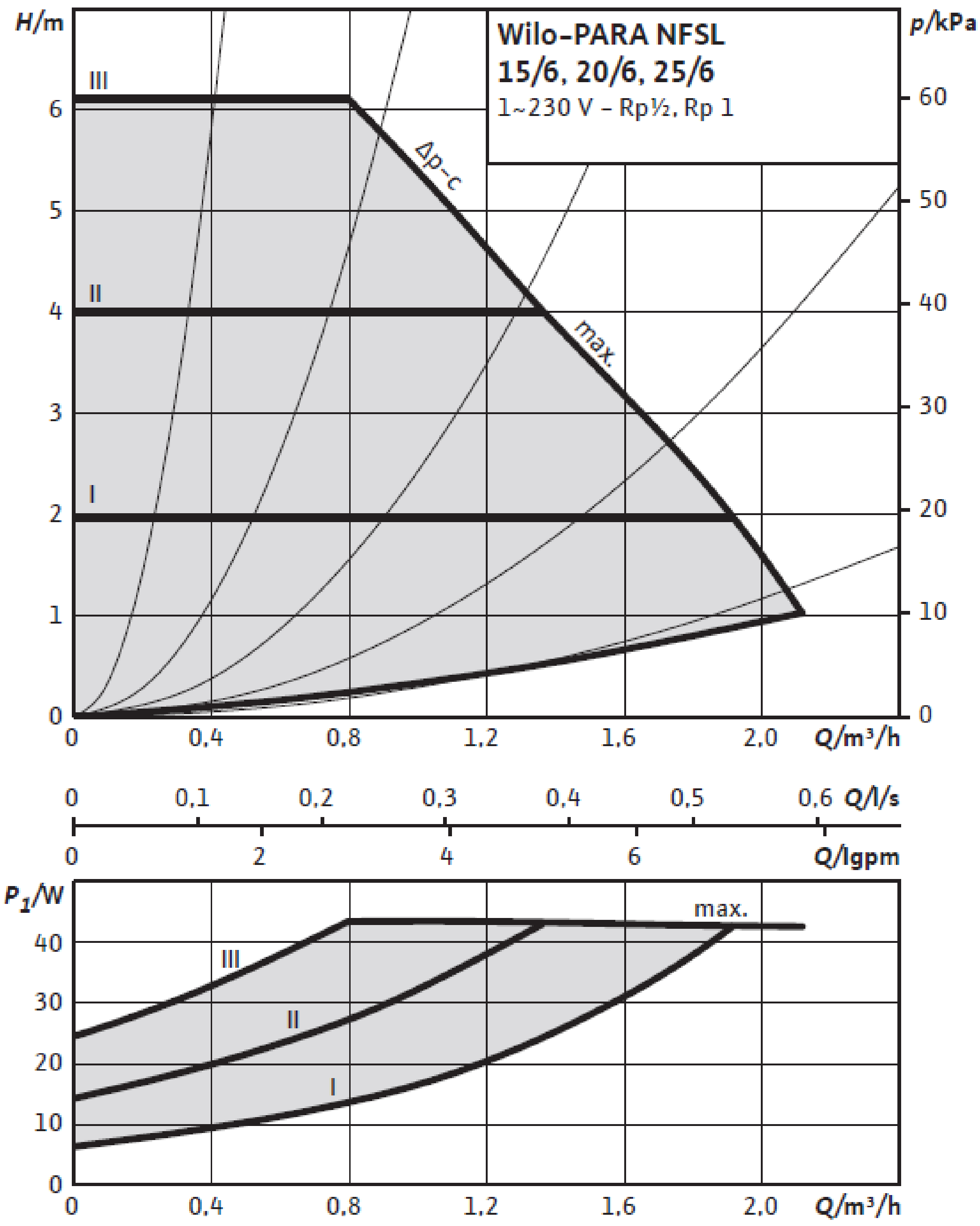


**Constant speed
(I, II, III)**



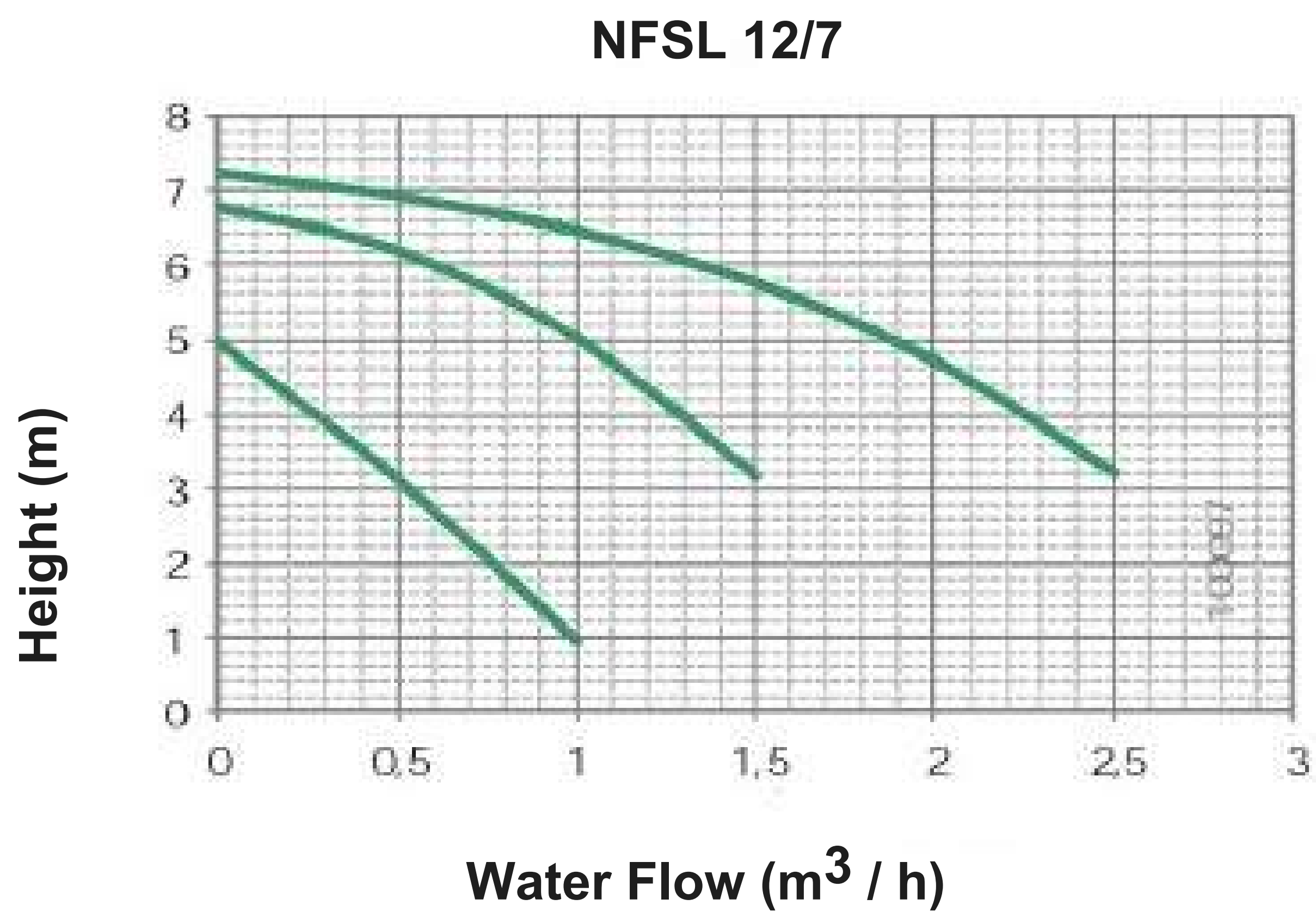
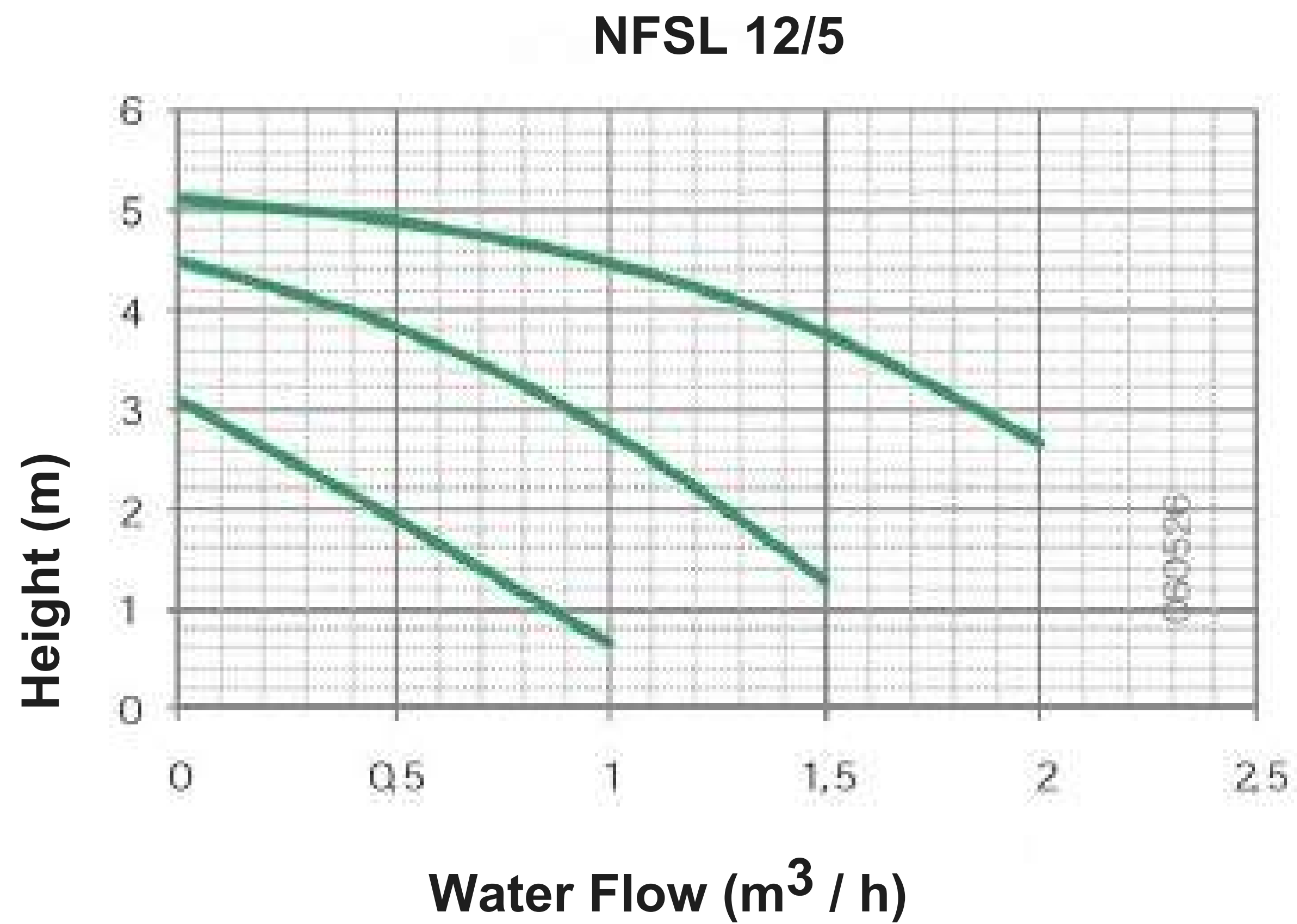
Recommended for systems with fixed system resistance requiring a constant volume flow.
The pump runs in three prescribed fixed speed stages (I, II, III).





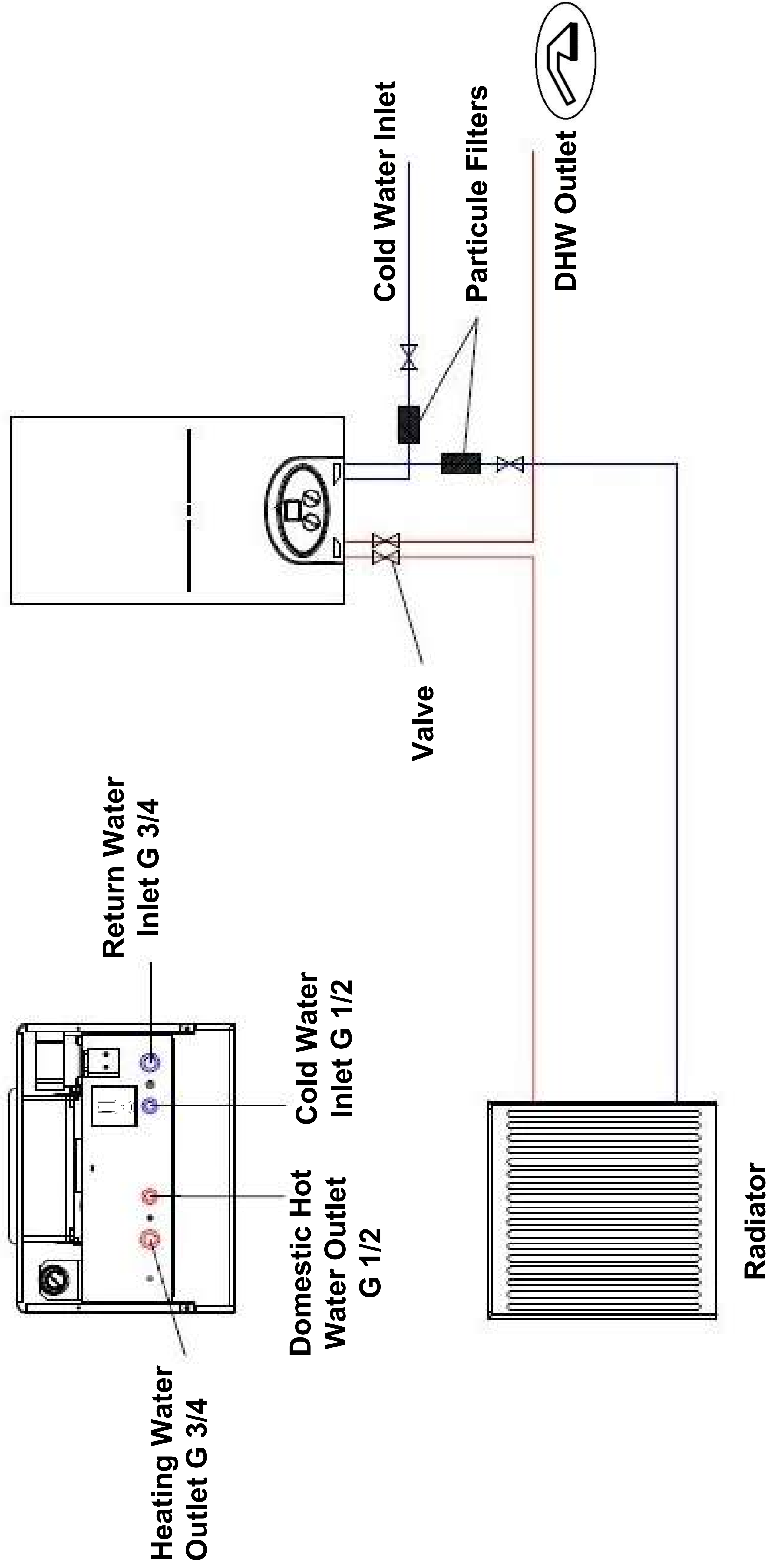
3.6.2 3-Speed Circulation Pump

MAKTEK Omega Boiler is supplied with a 3-speed circulation pump in standard. You can choose the required pump speed according to the resistance of your installation. You can use the below diagram for deciding the pump speed.

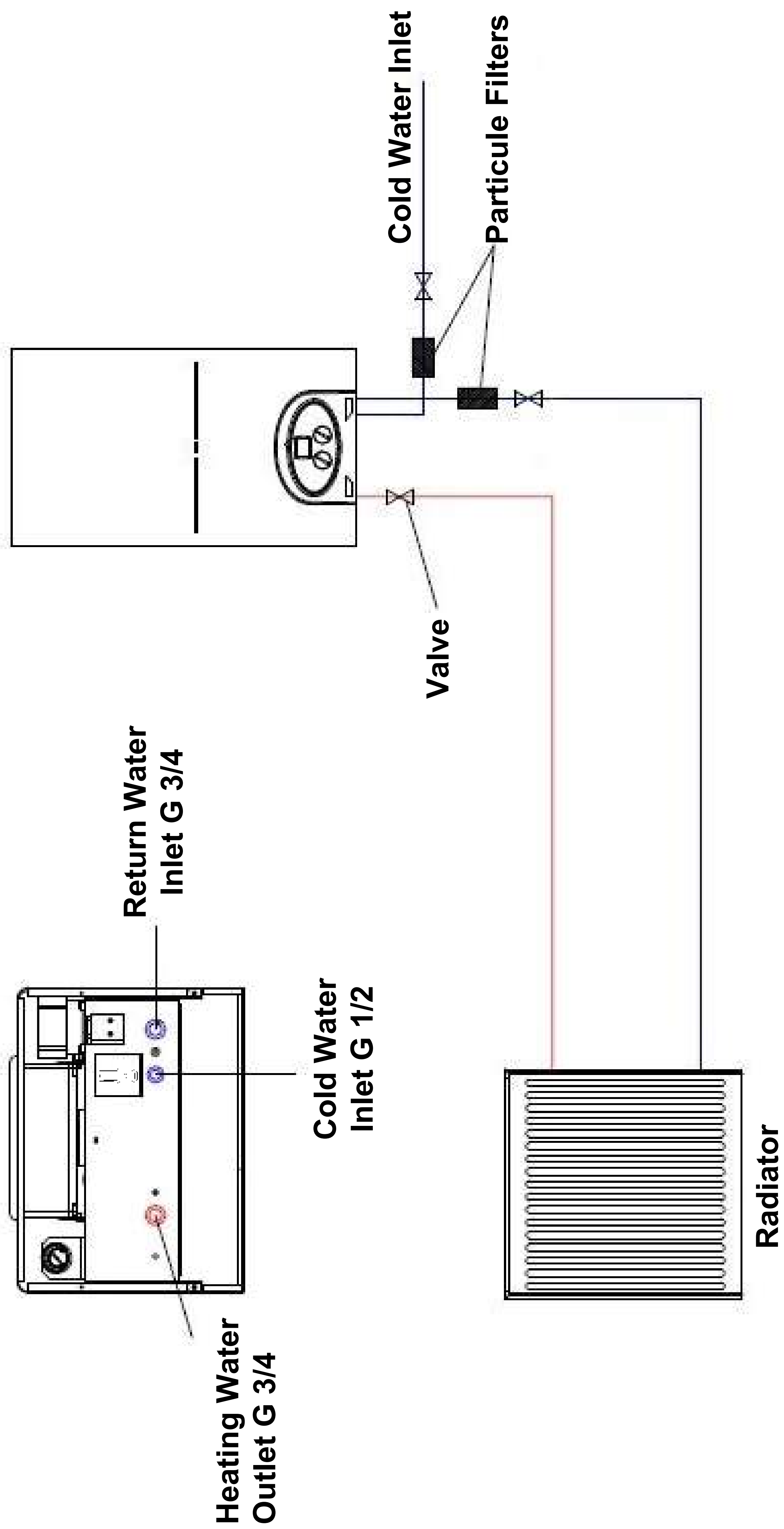


3.7 BOILER INSTALLATION DIAGRAMS

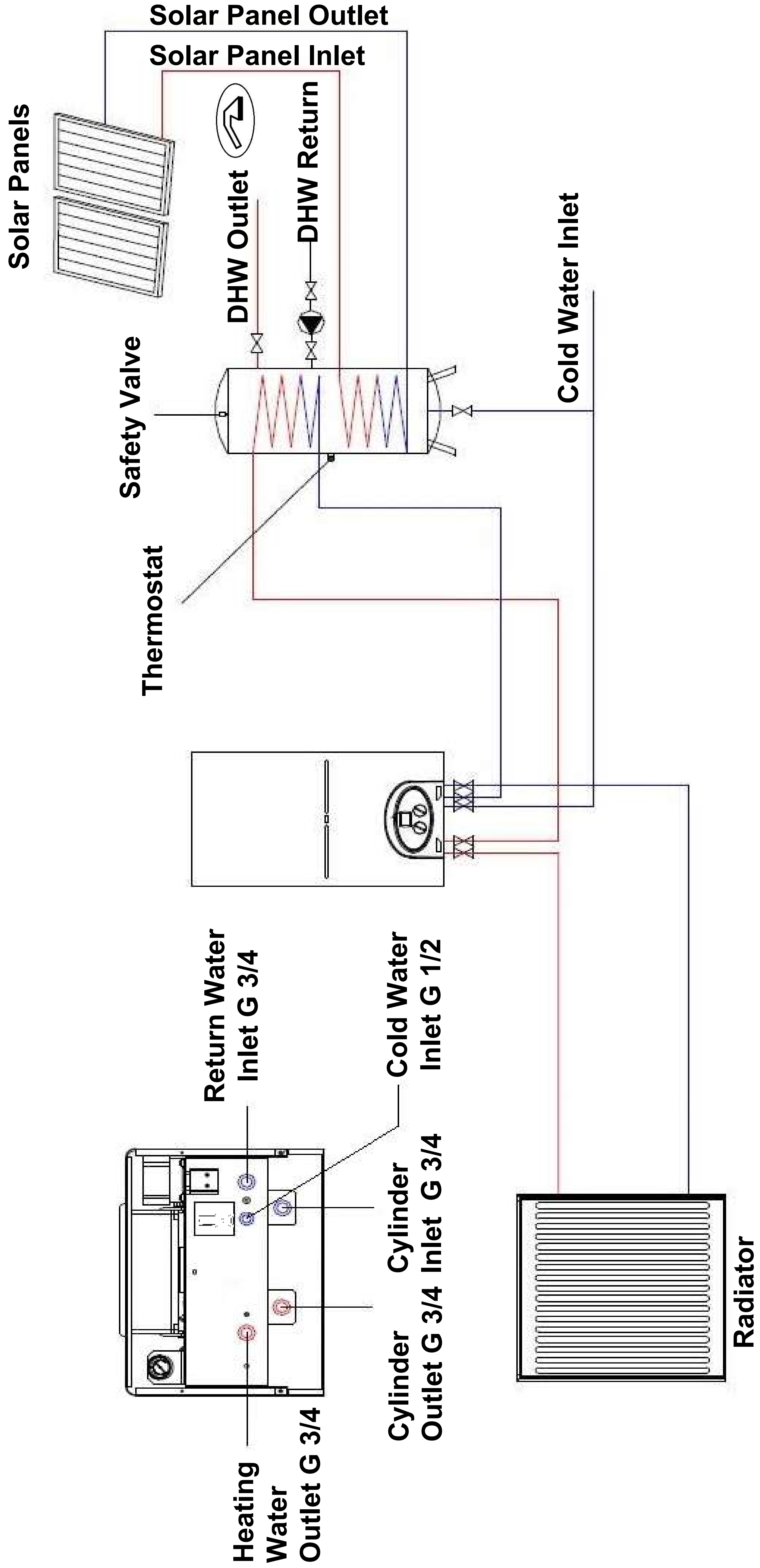
3.7.1 With DHW (Plate Heat Exchanger)



3.7.2 Only Heating

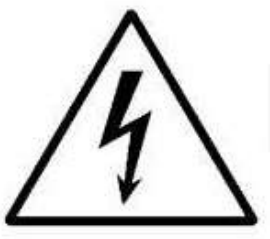


3.7.3 Installation With Hot Water Cylinder



3.8 ELECTRIC CONNECTION

The electricity connection of the boiler must be made by a qualified electrician. Improper electric connections made by unqualified people may cause failure of critical components of the boiler and will invalidate the warranty.



DANGER ! Electric Shock Risk

- Make sure to cut off main energy supply before starting to work on the boiler.
- Secure the main energy supply to prevent from turning on while working on the boiler.

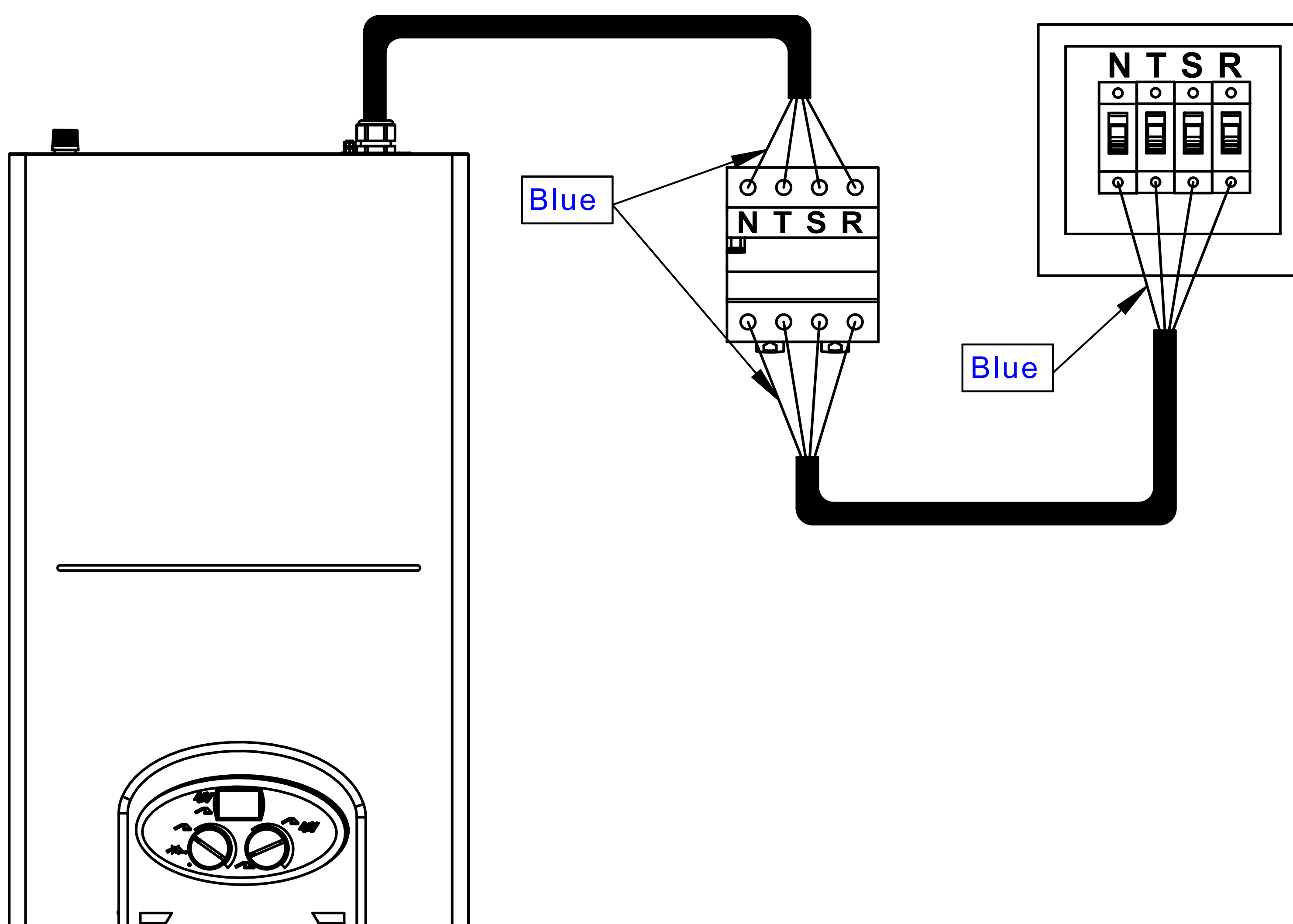
3.8.1 Electricity Connection Precautions

- All wiring must be carried out in accordance with current wiring regulations.
- All electrical connections must be made by a qualified electrician.
- We recommend that a load check is carried out when installing high power boilers. This must be done by a qualified electrician. Upgrading the main fuse of the property may be required.
- A proper earth connection must be made before operating the boiler.

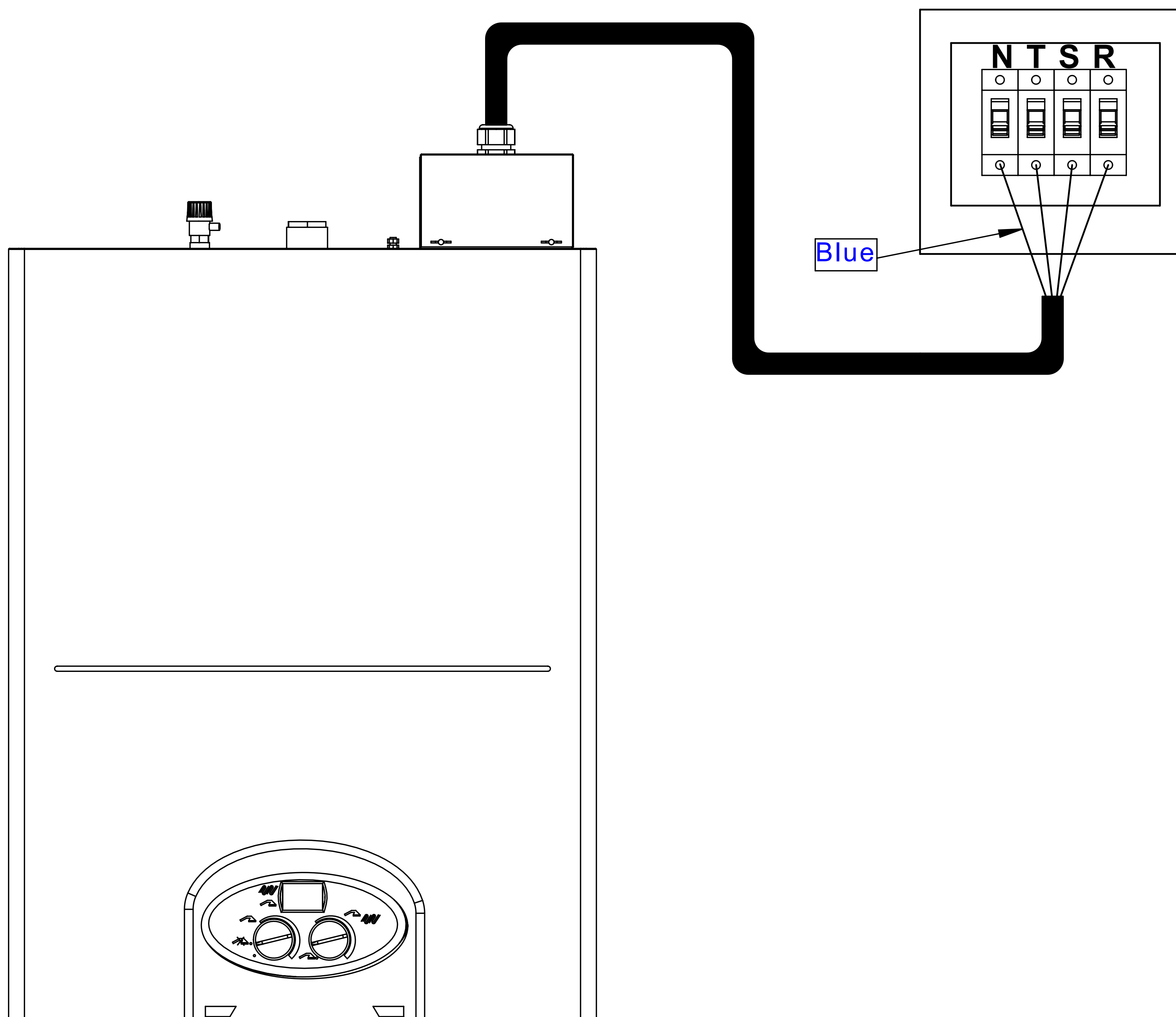
3.8.2 Electricity Supply Connection

- The main electricity cable of the boiler should be connected to the RCD device and main circuit breaker according to the below diagrams.
- Electricity supply connection must be made according to the cable sizes indicated on the boiler technical label.

6-40kW



50-100kW



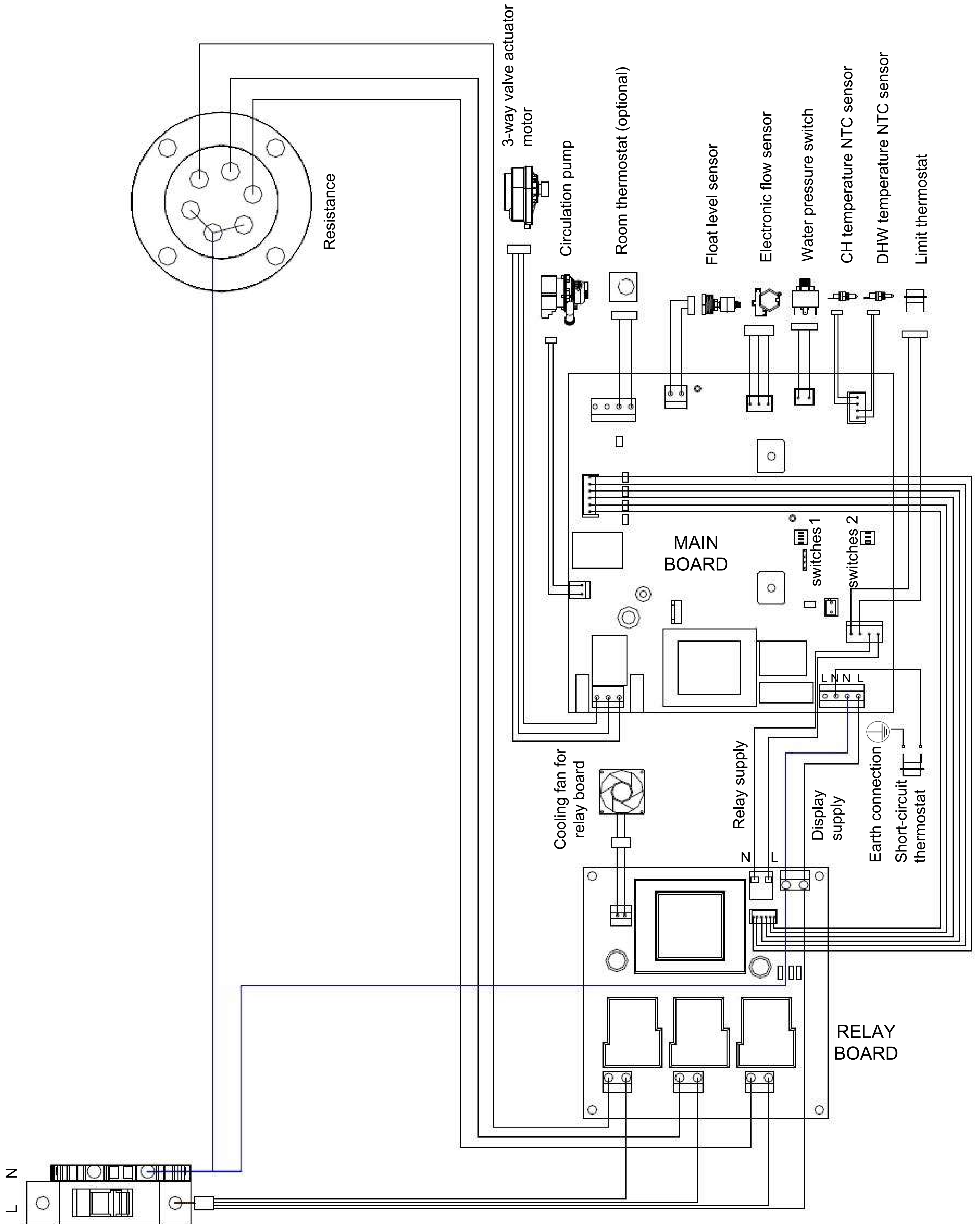
The cable connections are clearly marked on the cables to be connected to the RCD device.

- Monophase L N
- 3-phase R S T N
- Earth connection is marked with 

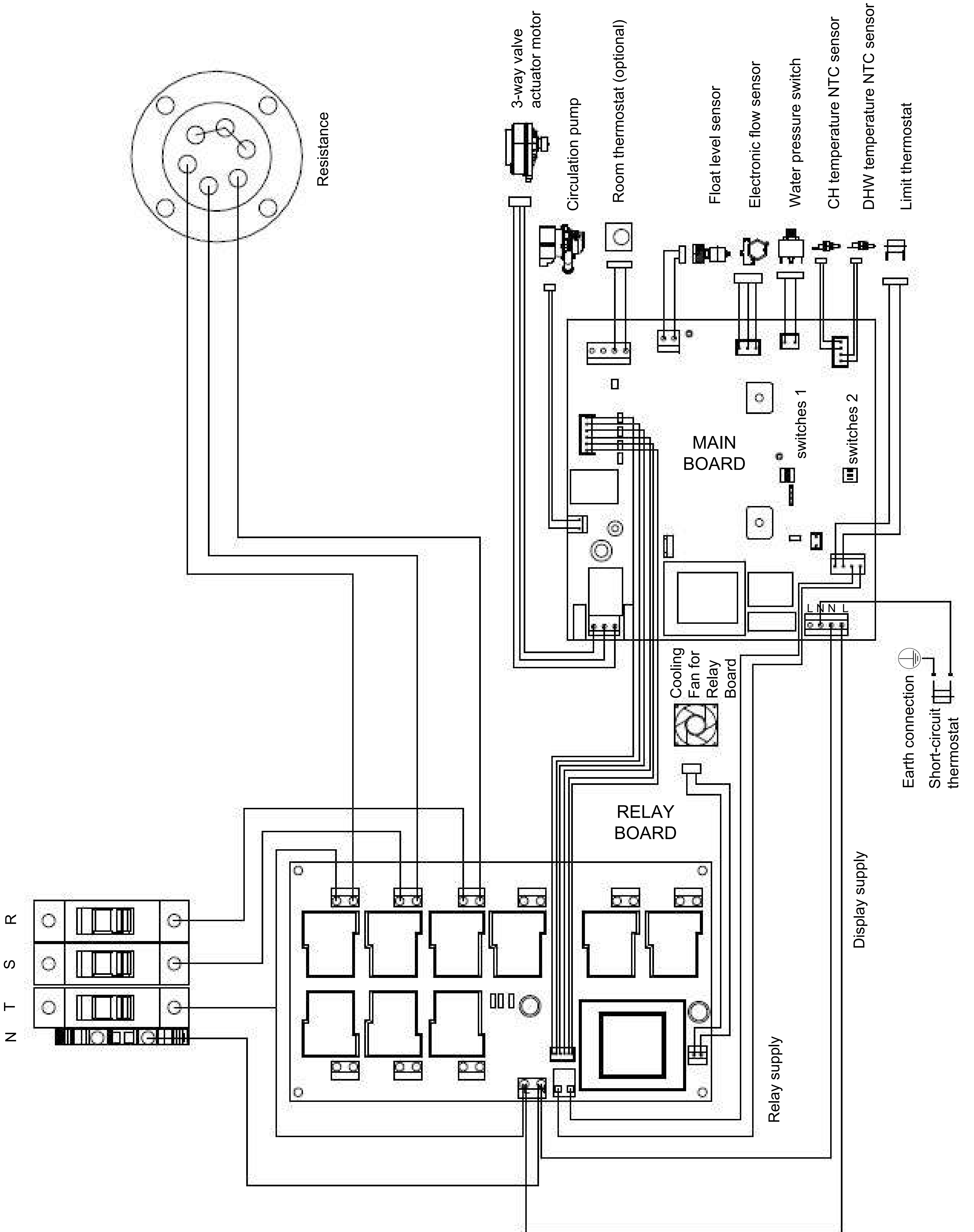
WARNING

- Make sure that the energy cables are fixed tightly (with 2.8 -3.5 Nm torque) onto the RCD device. Loose connections may generate sparks and may cause fire risk.
- Do not operate the boiler without proper earth connection. Fix a proper size earth cable tightly to the ring cable clip and tighten the screw to the boiler chassis.
- Use the cable glands provided on the boiler to secure the energy and earth cables.

3.8.3 Electrical Connection Diagram 220V (Monophase)



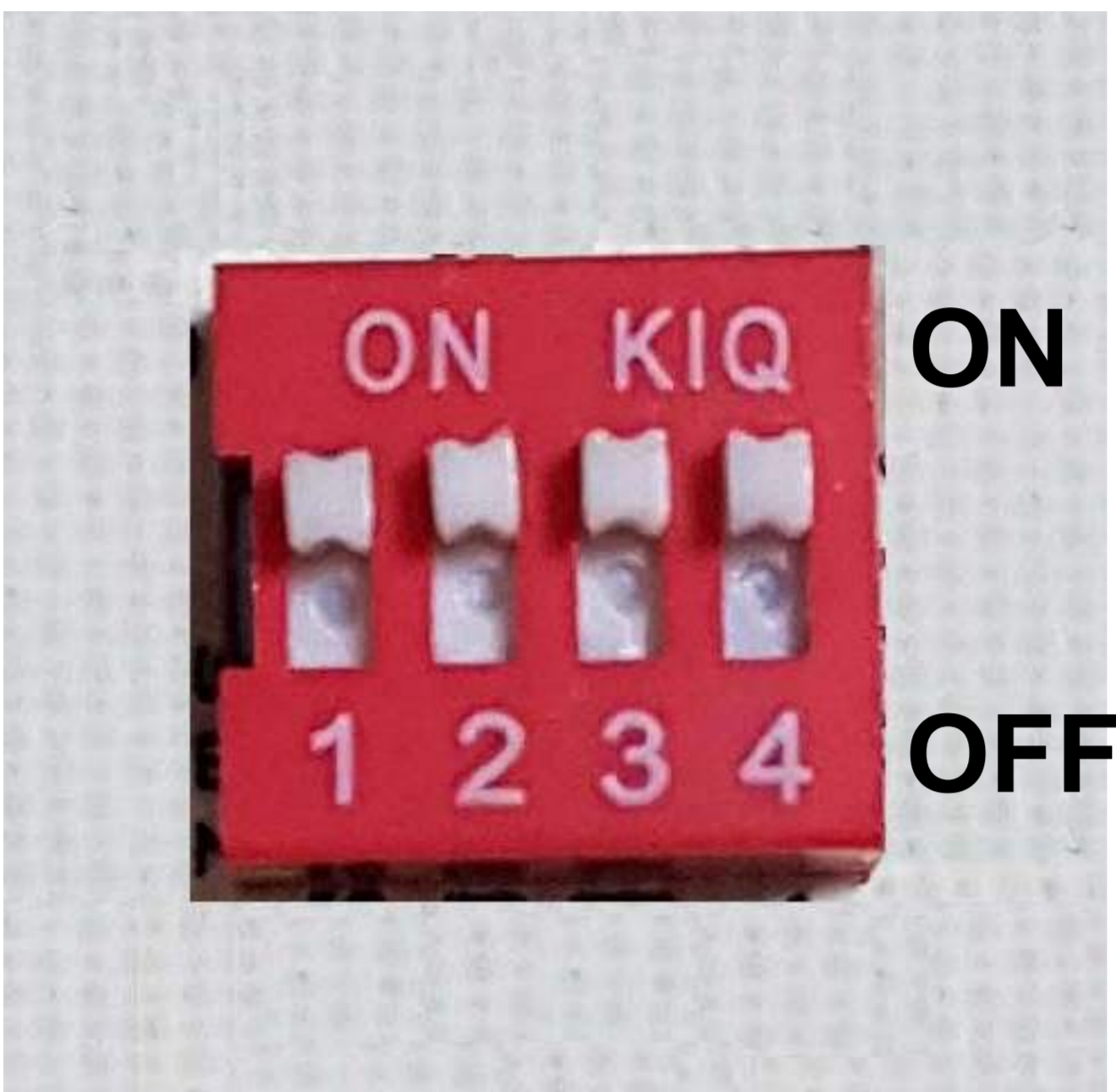
3.8.4 Electrical Connection Diagram 380V (3-phase)



3.9 MAIN BOARD SWITCHES

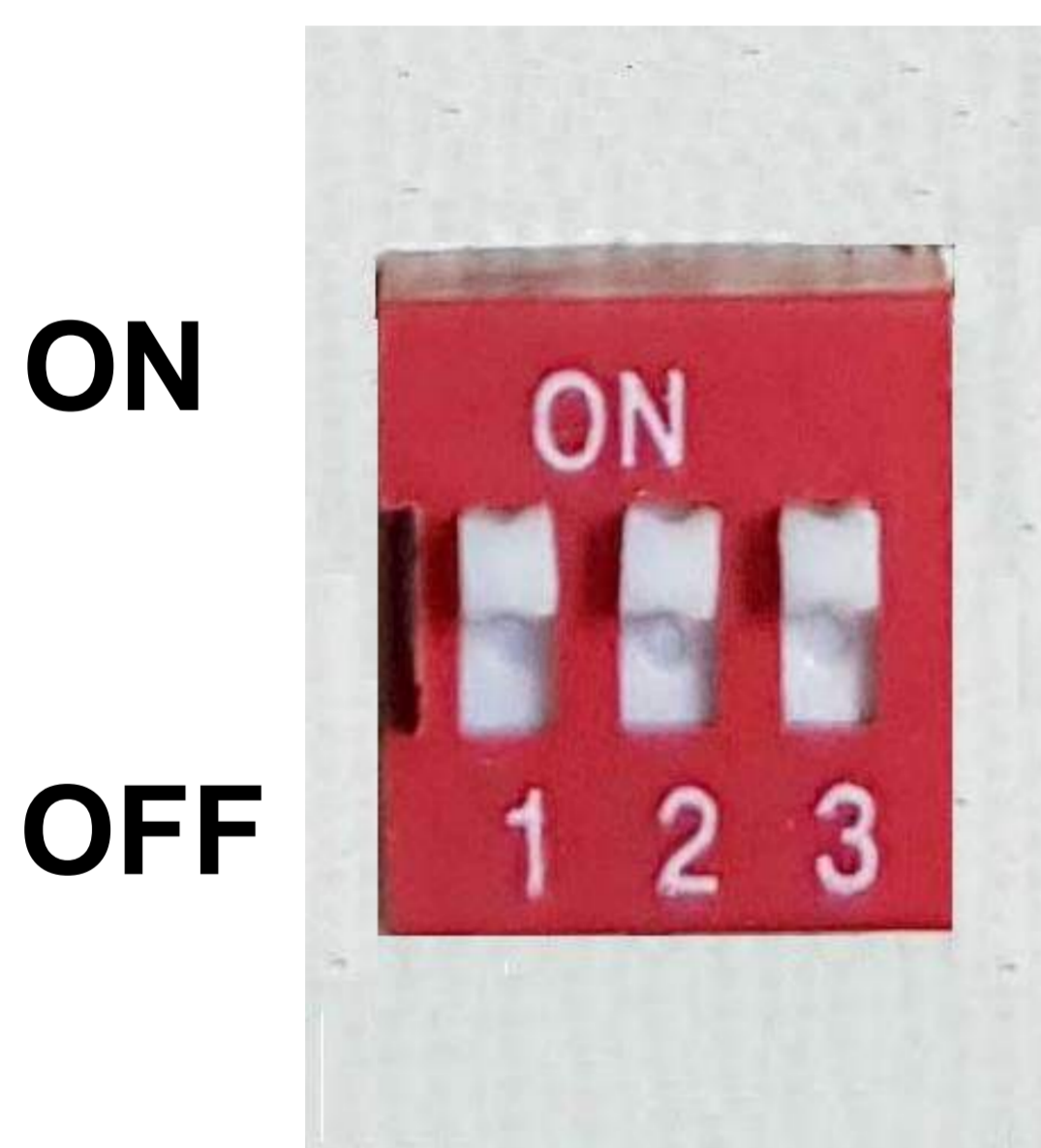
The universal main board of the boiler is designed to be suitable for all types of Maktek Omega boilers. Make sure to adjust the switch positions on the main board according to the boiler type while replacing the mainboard in case of a failure. The switch positions are explained below.

3.9.1 Switches 1



- 1) On: Heating elements operate in a mixed working cycle for equal aging.
Off: Heating elements operate in constant order
- 2) On: Instantaneous DHW supply with plate heat exchanger
Off: DHW supply with reserve hot water cylinder
- 3) On: With DHW
Off: Only heating (without DHW)
- 4) On: Heating with panel radiators
Off: Underfloor heating

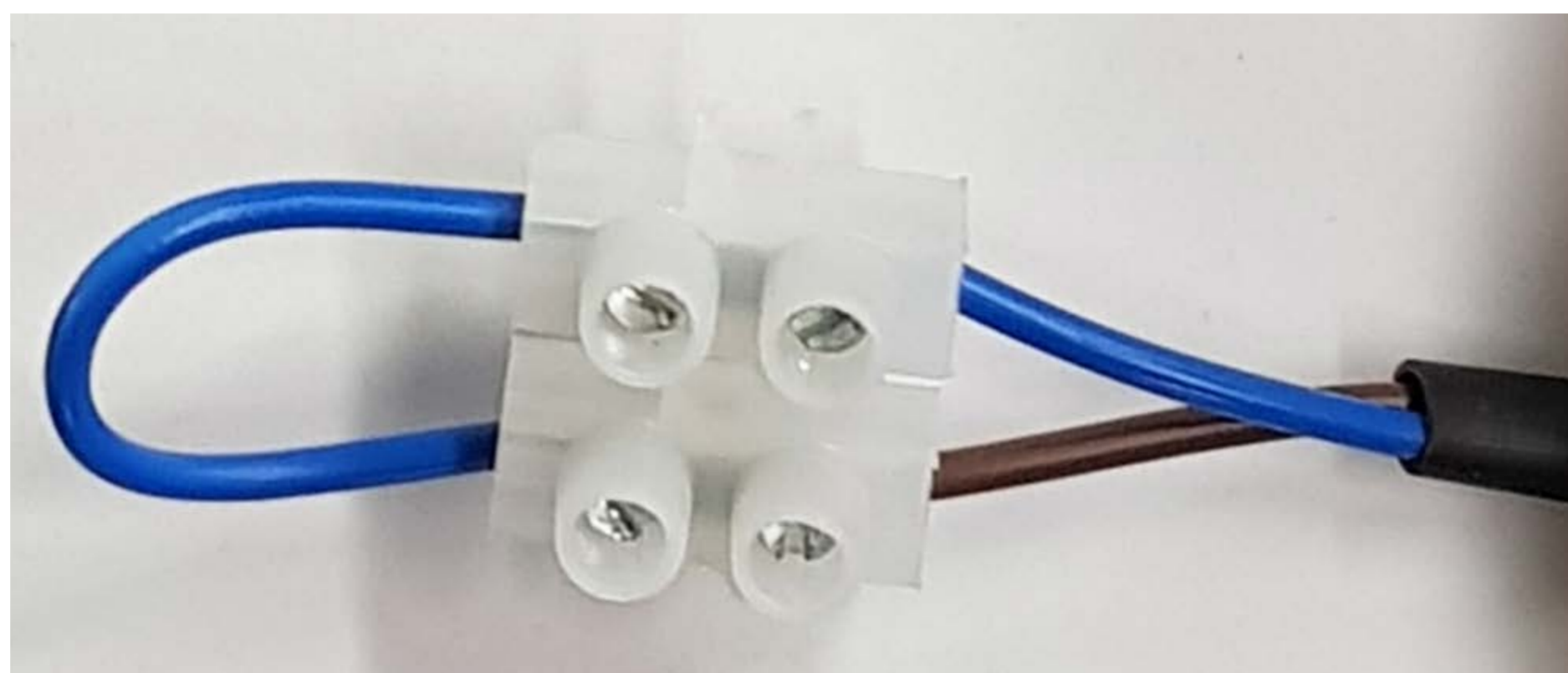
3.9.2 Switches 2



- 1) Empty (no function)
- 2) On: 3 and 9 relay boards.
Off: 12 relay boards.
- 3) On: 3 and 9 relay boards.
Off: 6 relay boards.

3.10 ROOM THERMOSTAT CONNECTION

An electric terminal is left outside the control panel plastic box so that the control panel is not opened while connecting an optional room thermostat. You can see this terminal in the below picture. Remove the jumper cable and connect the room thermostat volt free cables.



WARNING!

- Do not connect any voltage to this terminal as this will damage the boiler and invalidate the warranty.
- In cases where a wireless room thermostat requires a line (220V) connection, a separate electricity cable must be connected to the thermostat. Do not make a connection from the boiler's electricity supply. This may damage the boiler and invalidate the warranty.

3.11 ELECTRICITY CONNECTION PARAMETERS

Heating Power	kW	6-10-12	15	18-24
Electric Connection Cable 1 Phase	ad./mm2	2 x 10	...	...
Electric Connection Cable 3 Phase	ad./mm2	4 x 4	4 x 4	4 x 6
RCD 1 Phase	A/mA	63 / 30	...	...
RCD 3 Phase	A/mA	25 / 30	25 / 30	40 / 30
Main Breaker 1 Phase	A	63	...	...
Main Breaker 3 Phase	A	25	25	40
Electric Isolation Degree	IP	X4D	X4D	X4D

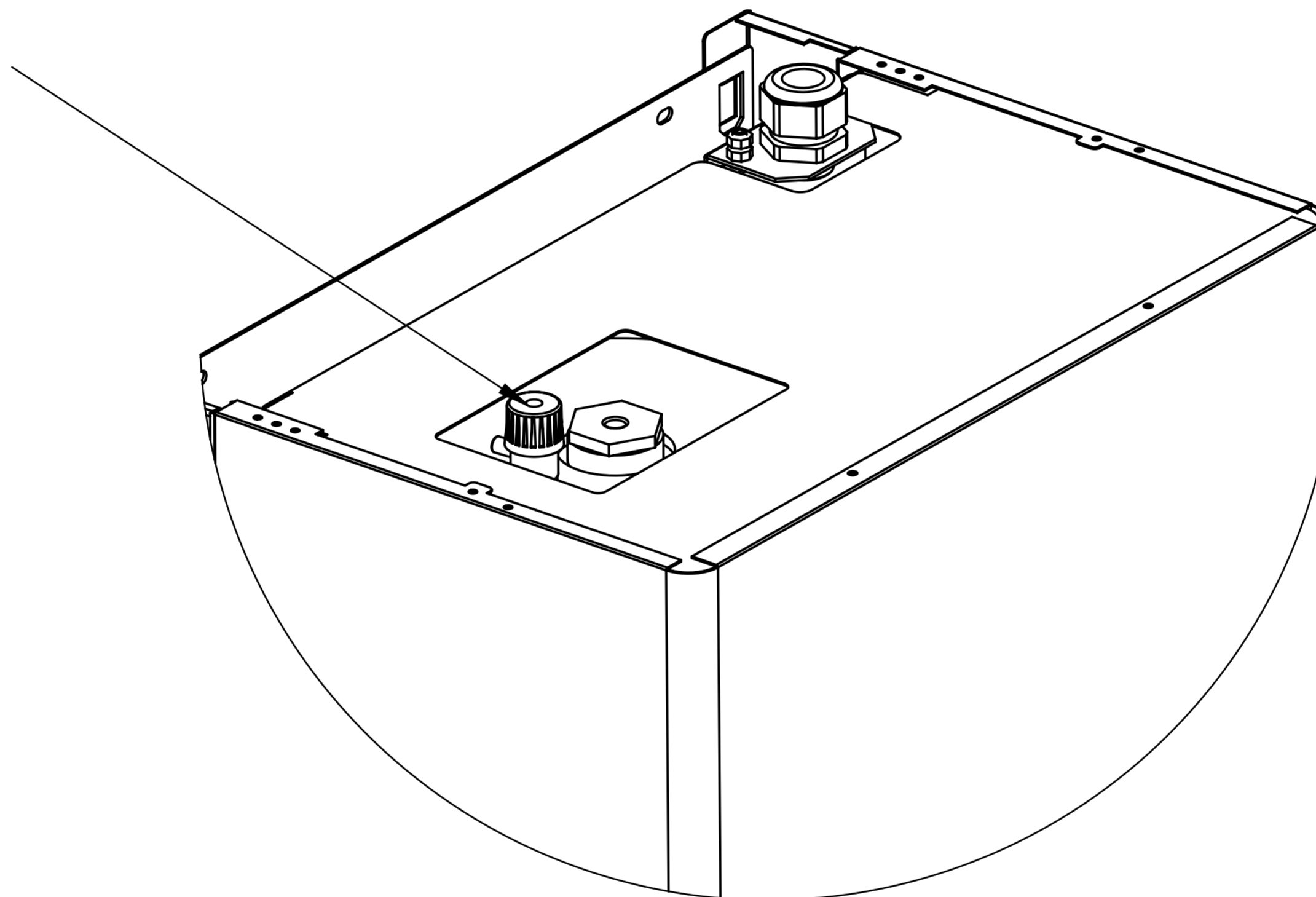
Heating Power	30-35-40	50 - 60	80	100
Electric Connection Cable 1 Phase	...	...	...	...
Electric Connection Cable 3 Phase	4 x 10	4 x 16	3 x 25+16	3 x 35+16
RCD 1 Phase	...	...	...	...
RCD 3 Phase	63 / 30	80/30 100/30	2x63/30	2x80/30
Main Breaker 1 Phase	...	...	...	...
Main Breaker 3 Phase	63	80-100	125	160
Electric Isolation Degree	X4D	X4D	X4D	X4D

4. COMMISSIONING

4.1 FILLING WATER TO THE SYSTEM

- a) Make sure that the automatic air vent on the circulation pump is loose.
- b) Turn on the filling valve and fill water until the pressure reaches 1.5 bars by checking the manometer. Close the filling valve.
- c) Use the manual air vent on top of the boiler to extract the air trapped inside the heat exchanger. Close the manual air vent when bubble free water comes out of the drain hose.
- d) Vent the air inside each radiator until bubble free water comes out, using the air vents on the radiators.
- e) Check the water pressure on the manometer. If it decreased, turn on the filling valve to reach 1.5bars.
- f) Repeat steps c,d and e until there is no air left in the system and the manometer showing 1.5 bars.

Manual air vent



CAUTION!

Before making the primary circuit connections to the boiler, make sure that the primary circuit is clean. The primary circuit must be flushed and and particules inside the installation must be cleaned so that these particules do not damage the boiler during operation. This is especially important when using an old existing primary circuit installation. Any failures and damages to the boiler cuased by dirty primary circuit installiation is out of manufacturer's warranty.

4.2 STARTING UP

First time operation of the boiler must be done by authorised service personnel in order to validate the guarantee of the boiler and to ensure the boiler runs efficiently and safely for many years.

Authorized service personnel will check all requirements in the startup request form, which must be filled by the installer before the service comes to validate the boiler for first time operation.

If any of the requirements are not met, the service will not put the boiler into operation and will ask the user to complete installation requirements. The user then should contact the installer and make sure that all the conditions of the startup request form are met.

When the installation meets all the requirements, the service personnel will put the boiler into operation and manufacturer's warranty will be validated. The manufacturer is not responsible for any failures or damages on boilers which are not validated by authorized service.

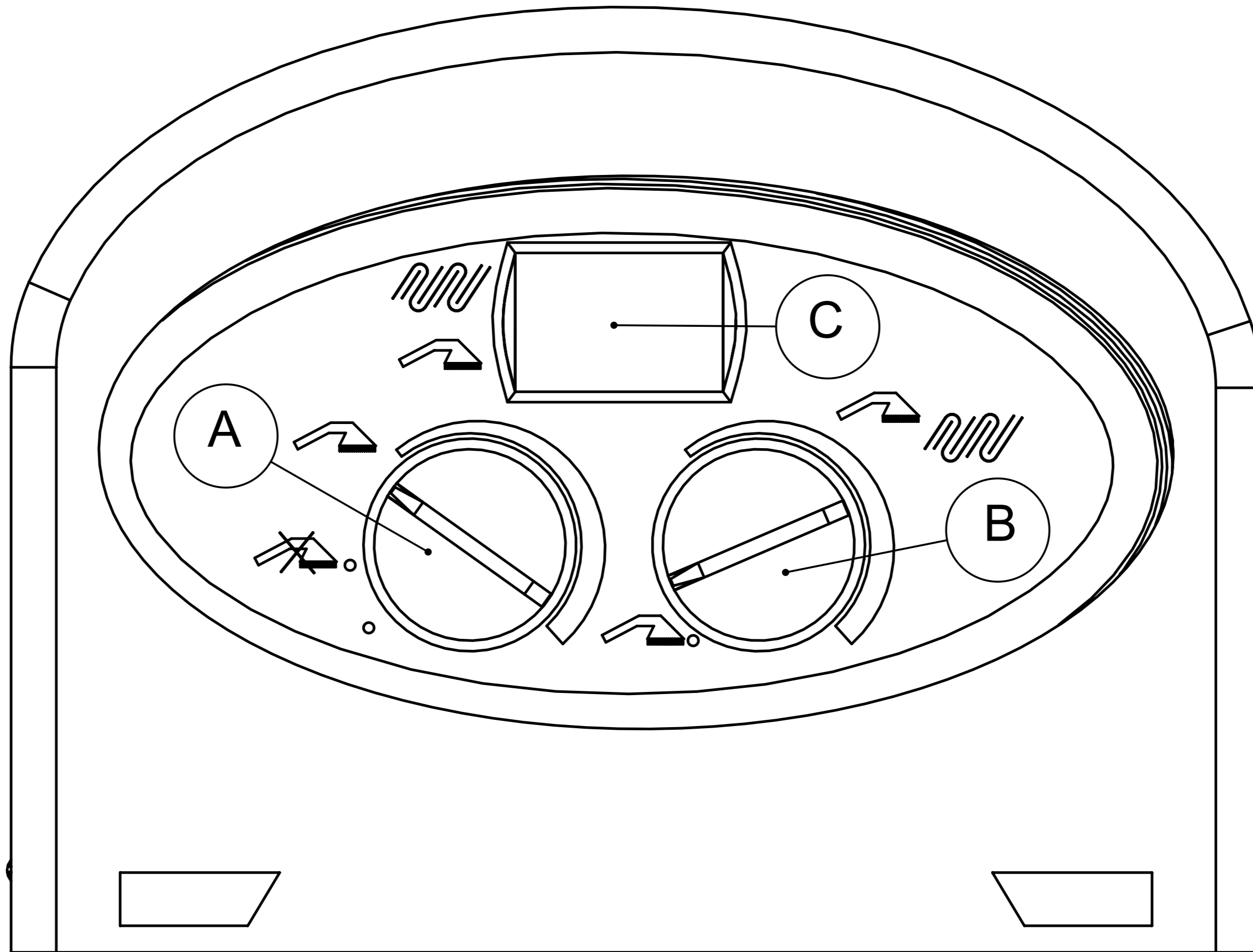
The following steps will be taken to put the boiler into operation:

- a) Check that the main circuit breaker and RCD device switches are on.
- b) Check that the valves of the heating circuit and DHW installation are open.
- c) Set the P2 key to the desired position from the OFF position and set the desired water temperature by following the thermometer reading on the display.
- d) You can set the DHW temperature using the P1 key. The adjusted temperature is shown on the display.

The boiler will start operation automatically according to the adjustments made on the control panel. Detailed explanation about making operation adjustments are given in section 5, user instructions.

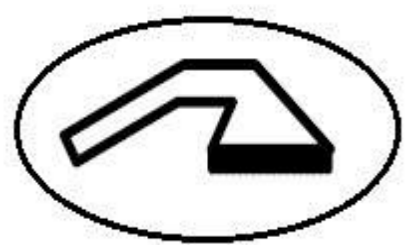
5. USER INSTRUCTIONS

5.1 CONTROL PANEL



All functions required to run the boiler is done via two buttons on control panel. These functions can be followed on LCD screen. All failure reportings can be seen on screen via specific codes.

A. P1 KEY



This position is where the device is used for hot water usage. The desired domestic hot water temperature is adjusted by turning the P1 key to the right. The set temperature value flashes on the display. The steady numbers show the current hot water temperature.



Domestic hot water function is OFF. In this position there is no hot water production even when the hot water tap is opened.

TEST : Mode of adjustment by AUTHORISED SERVICE during first installation or maintenance. Users should not use this position during operation.

B. P2 KEY

OFF-RESET : The boiler is functionally switched off in this position. At failure times, it is used as reset. Security measures such as anti-frost and jamming protection are active in this position swueeze.



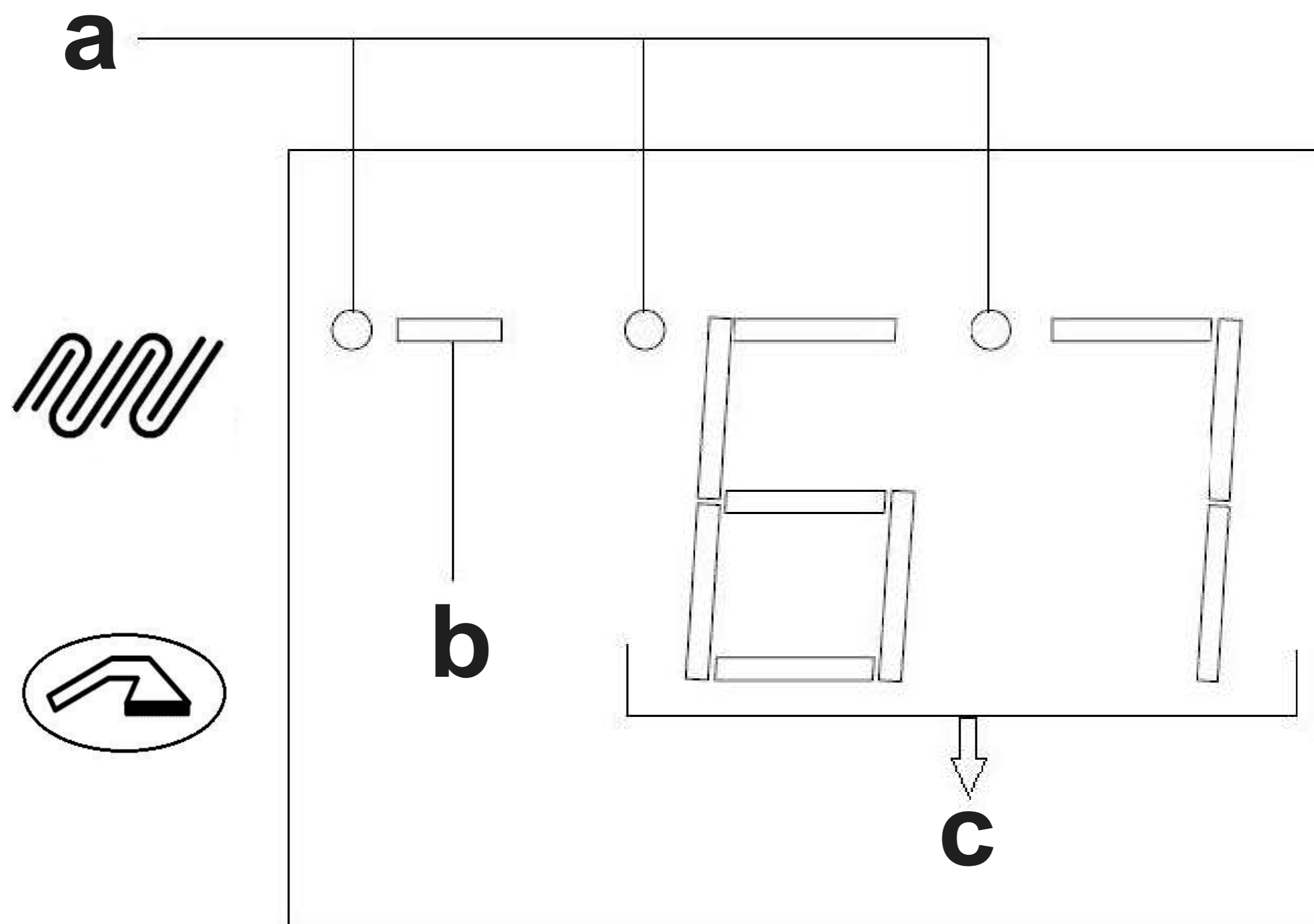
Winter Mode : Both DHW and heating function is on. Heating system adjustments are made from P2 key. Desired temperature flashes on the screen as you adjust with P2 key. The steady numbers show the current heating water temperature. Primarily DHW is supplied.



Summer Mode : Only DHW function is on. You can set this mode from P2 key when you do not need central heating. You can adjust the desired DHW temperature by P1 key.

C. DIGITAL SCREEN

Shows operating parameters and errors occurring during operation with the warning codes on the screen.



- a) Heating Capacity Indicators: Shows which heating elements are in operation, indicating the modulation level of the boiler.
- b) Heating Mode Indicator: The dash position on the display shows whether the boiler is operating in heating or in DHW supply mode.
- c) Digital Units: Adjusted temperature, current boiler temperature and error codes are shown in this section of the display.

5.2 ERROR CODES

CODE ON DISPLAY

EXPLANATION

H 1	Central Heating Sensor Error
H 2	DHW Sensor Error
H 3	Central Heating Circuit Low Water Pressure Error
H 4	High Temperature Measurement Error $\geq 95^{\circ}\text{C}$
H 5	Limit Thermostat Error
H 6	Main Heat Exchanger Water Level Error

5.3 TROUBLESHOOTING

ERROR CODES			
Error Code	Explanation	Reason	Solution
H1	Central Heating Sensor Error	a) Disconnected sensor cable b) Failure in NTC sensor c) Mainboard failure	a) Check the cable and socket b) Replace NTC sensor c) Replace the mainboard
H2	DHW Sensor Error	a) Disconnected sensor cable b) Failure in NTC sensor c) Mainboard failure	a) Check the cable and socket b) Replace NTC sensor c) Replace the mainboard
H3	Central Heating Circuit Low Water Pressure Error	a) Air trapped in the system b) Water leakage on the boiler or installation c) Expansion tank failure	a) Vent the air from the boiler and radiators. Afterwards fill the system upto 1.5 bar b) Check all piping and connections for leakage c) Check the counter pressure of the expansion tank. Pressurize the tank upto 1.1 bar with nitrogen. If the membrane is damaged replace the expansion tank.
H4	High Temperature Measurement Error > = 95°C	a) Air trapped in the system b) Valves on the installation may be closed. c) Particulate filters may be clogged d) Circulation pump failure e) Mainboard failure	a) Vent the air from the boiler and radiators. Afterwards fill the system upto 1.5 bar b) Check that all the valves are open c) Clean the filters d) Check the pump and turn the rotor manually to overcome jamming. Replace the pump if neccessary. e) Replace the mainboard
H5	Limit Thermostat Error	a) Air trapped in the system b) Valves on the installation may be closed. c) Particulate filters may be clogged d) Limit thermostat failure e) Circulation pump failure f) Mainboard failure	a) Vent the air from the boiler and radiators. Afterwards fill the system upto 1.5 bar b) Check that all the valves are open c) Clean the filters d) Check the electric connection of the thermostat. Replace the thermostat if neccessary. e) Check the pump and turn the rotor manually to overcome jamming. Replace the pump if neccessary. f) Replace the mainboard
H6	Main Heat Exchanger Water Level Error	a) Air trapped in main heat exchanger. b) Float level sensor failure	a) Vent the air inside the main heat exchanger using the manual air vent. Fill the system upto 1.5 bar. b) Check the cable connection of the float level sensor. c) Check if the floater is stuck. Clean the float level sensor so that the floater moves freely. Replace the float level sensor if neccessary.

6. SAFETY SYSTEM OF THE DEVICE

MAKTEK Omega Electric Combi Boiler has the following safety features in order to ensure the highest level of safety and highest technology.

6.1 RCD DEVICE (SHORT CIRCUIT RELAY)

In case of short circuit, the relay shuts off the electricity connection and prevents any possibility of electruction and prevents any harm to people or the device.

6.2 HEATING TANK FLOAT LEVEL SENSOR (H6)

This sensor prevents the boiler from running without sufficient water inside the heating tank therefore avoids any damage to the resistances. In case of low water level, H06 is displayed on the device's screen. The air trapped must be completely removed from the air vent valve which is placed on top of the device. If the water pressure drops after the air is taken, the display shows H03. In this case, water should be added from the filling valve.

6.3 LOW WATER PRESSURE

If the pressure at the heating circuit is below 0.7 bar, the boiler will not operate and the H3 warning code will appear on the digital display, preventing damage which causes from running without water.

What to Do: The heating system pressure is increased by adding water up to the desired level by the filling valve. You can view the pressure of the water filled from the manometer.

6.4 OVERHEAT LIMIT THERMOSTAT

If the water temperature at the heating system is above 93°C, the system energy is cut off by the card and the H5 warning code is shown on the digital screen.

What to Do: When the water temperature of heating system drops down to 60°C, the boiler will start working again. If this failure occurs two times consequently, please call an authorized service.

6.5 SHORT CIRCUIT THERMOSTAT

This is a secondary safety measure to prevent overheat in the boiler. If the overheat thermostat does not function and the boiler temperature reaches 96°C, short circuit thermostat conducts neutral to the boiler chasis and the RCD device shuts off the electricity supply.

6.6 FROST PROTECTION

When the temperature in the heating system drops down to 5°C, there is security system that automatically activates the resistances. When the water temperature reaches 40°C, activation of resistances are stopped.

In order for this system to work, the main switch to which the device is connected must be switched on and the heating and hot water selector switches must be set to the minimum setting.

6.7 DOMESTIC HOT WATER NTC SENSOR

When a sensor failure occurs in hot water system, H2 warning code appears on LCD screen.

6.8 CENTRAL HEATING NTC SENSOR

When a sensor failure occurs in central heating system, H1 warning code appears on the LCD screen

6.9 HIGH WATER PRESSURE PROTECTION

When there is over pressure in the heating system, the 3 bar safety valve discharges water and decreases the pressure.

6.10 PRECAUTION AGAINST PUMP LOCK

When the boiler is in the OFF position, the pump is operated in every 24 hours by the control card for a certain period of time to prevent locking and jamming of the pump.

6.11 3-WAY VALVE ACTUATOR MOTOR SAFETY

When the boiler is in the OFF position, the 3-way valve is operated in every 24 hours by the control card for a certain period of time. The motorized valve returns to its previous position after a certain period of time after changing the position.

6.12 AUTOMATIC BY-PASS

If there is thermostatic valve one each radiator, even when all thermostatic valves are switched off, there is an automatic by-pass system in order to provide the passing of minimum water flow in order to prevent rapid over heating of the boiler.



CAUTION!

- The stand-by safety systems of the boiler; such as frost protection, pump lock protection and 3-way valve actuator motor safety are only active if the electricity and gas connections of the boiler are on. The valves on the installation should not be closed.
- Especially during winter, when the ambient temperature decreases below 0°C there is a risk of freezing and the system water must be drained if the electrical connection of the device is interrupted during these periods.

7. TECHNICAL TABLE

CAPACITY															
	kW	6	10	12	15	18	24	30	32	35	40	50	60	80	100
Heating Power															
Capacity	kcal/h	5160	8600	10320	12900	15480	20640	25800	27520	30100	34400	43000	51600	68800	86000
Maximum Working Pressure (Heating Circuit)	Bar	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Maximum Working Pressure (Hot Water Circuit)	Bar	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Heating Circuit Temperature Setting Range (min)	°C	30-80	30-80	30-80	30-80	30-80	30-80	30-80	30-80	30-80	30-80	30-80	30-80	30-80	30-80
Hot Water Setting Range (min-max)	°C	-	-	30-55	30-55	30-55	30-55	30-55	30-55	30-55	30-55	-	-	-	-
Domestic Hot Water Output	lt/dk	-	-	5	6	9	11	13	13	13	13	-	-	-	-
SIZES															
Height	mm	740	740	740	740	740	740	740	740	740	740	740	755	755	755
Width	mm	435	435	435	435	435	435	435	435	435	435	571	571	571	571
Depth	mm	320	320	320	320	320	320	320	320	320	320	320	320	320	320
ELECTRICITY															
Electricity Connection Cable (3-Phase)	piece/mm ²	-	4x4	4x4	4x4	4x6	4x6	4x10	4x10	4x10	4x10	4x16	4x16	3x25+16	3x35+16
Electricity Connection Cable (Monophase)	piece/mm ²	2x6	2x10	2x10	-	-	-	-	-	-	-	-	-	-	-
Residual Current Relay	A/mA	40-25/30	25/30	25/30	25/30	40/30	40/30	63/30	63/30	63/30	63/30	80/30	100/30	2x63/30	2x80/30
Voltage/Frequency	V~Hz	230/380/50	230/380/50	230/380/50	380/50	380/50	380/50	380/50	380/50	380/50	380/50	380/50	380/50	380/50	380/50
Maximum Current	A	26/9	43/15	52/18	22	27	36	46	48	53	61	75	90	120	152
Getting Maximum Power	W	6098	10098	12098	15098	18098	24098	30098	32140	35140	40140	50140	60140	80140	100140
Electricity Isolation Degree	IP	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D
INSTALLATION															
Heating Installation Pipe Diameter	inch	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"	1"
Cold Water Inlet Pipe Diameter	inch	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Hot Water Installation Pipe Diameter	inch	-	-	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	-	-	-	-

8. MAINTENANCE

We recommend that the following controls are made by authorised service once a year.

- 1- Check for leaks in the water circuit and, if necessary, replace the joints to ensure water tightness.
- 2- Check the status of the device visually.
- 3- Check the safety system of the heating system if it is working properly. Heat limit and safety thermostats artificially and check that they are functioning.
- 4- Check all electricity connections of the device. Fasten any loosened cables.
- 5- Check the operation of resistances with required measurement equipment.
- 6- Check the hot water production efficiency as flow and temperature.
- 7- Check the general operation of the device.

9. GUARANTEE CONDITIONS

This guarantee starts from the date of the boiler's first operation and continues to the period of time stated in guarantee certificate. In order for this guarantee to be valid, first operation and periodical maintenance must be performed by an authorized service in your area.

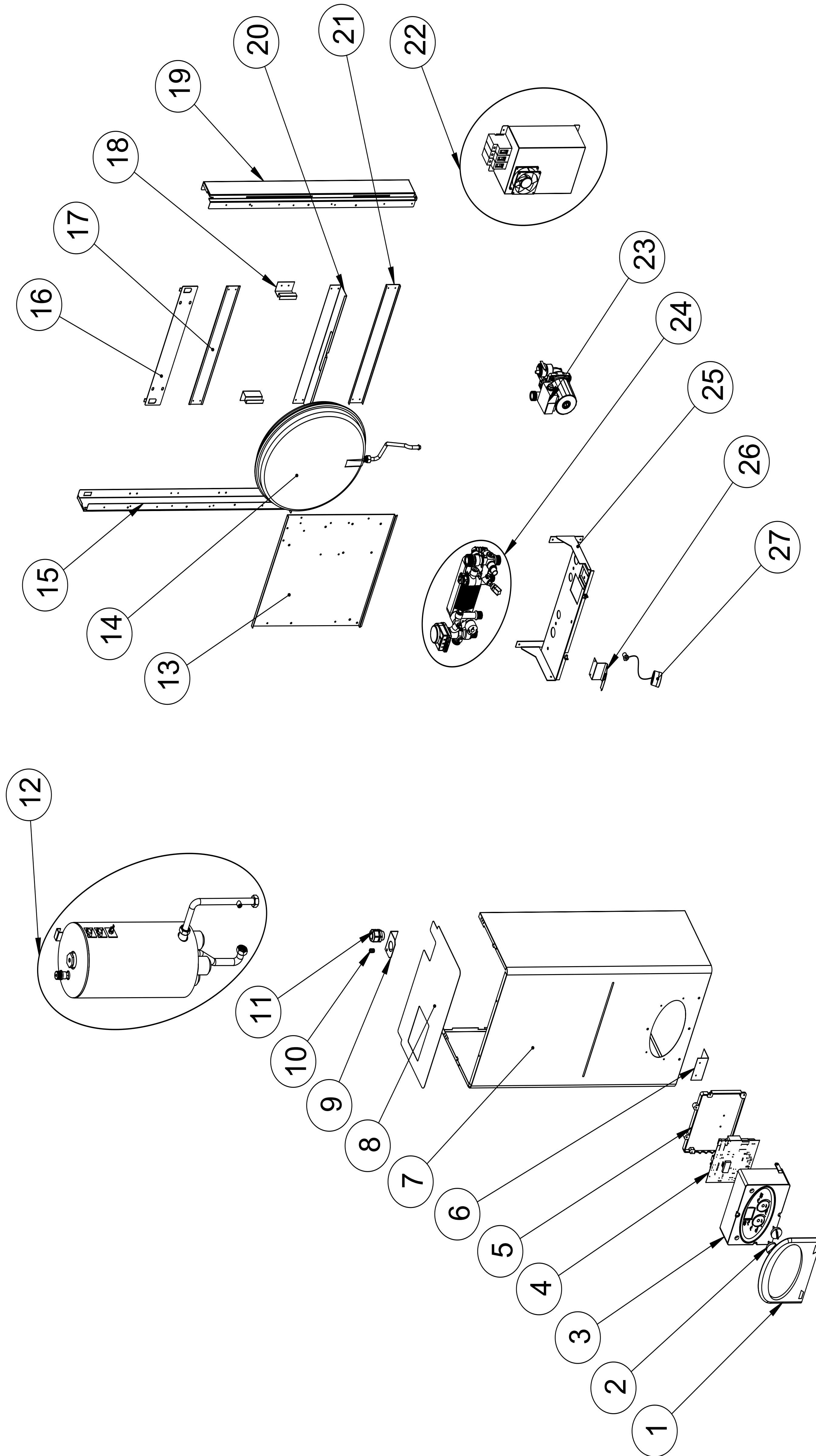
ATTENTION!: The selection of the area where the boiler is installed, must be in conformity with all relevant directives and laws of the country.

Manufacturer company cannot be held liable for any adverse situation as a result of non conformance.

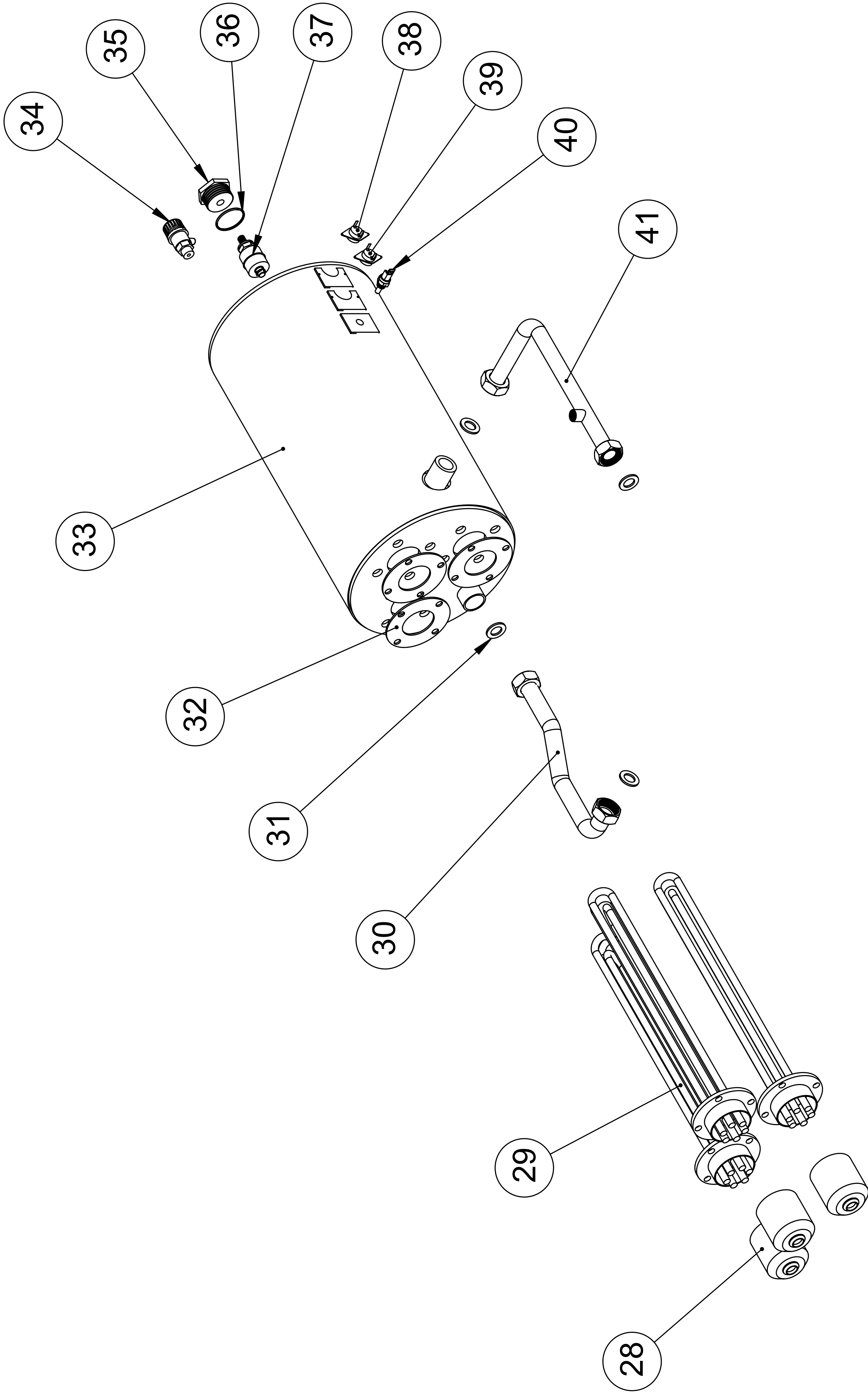
The guarantee of the boiler is not valid under these circumstances:

- 1- Improper installation, improper electricity connection.
- 2- Damages arising from the installation of the device in places with humidity or water contact.
- 3- The assembling of non authentic and non approved parts to the boiler.
- 4- Extreme high or low temperature of the working environment.
- 5- Damages that occur as a result of inappropriate storing.
- 6- Damages which are results of damaged parts during transport.
- 7- Damages caused by the use of lime water in hot water circulation (ideal water hardness will be 15-20 French hardness)
- 8- First operation and interventions by people other than the authorized service.
- 9- Damages as a result of installation and maintenance that are not in conformance with relevant directives and rules.
- 10- Using of the boiler for purposes other than the device is designed for.
- 11- Boilers that are kept inappropriately, as showroom items for a long time.
- 12- Unavailability of the documents that the authorized service issues after the first operation. The user must keep these documents at all times.
- 13- Boilers whose serial number is modified or damaged.
- 14- When the temperature of the water below 0°C there is a risk of freezing and the system water must be drained if the electrical connection of the device is not connected. Otherwise damages that occur because of freezing are not covered by the warranty.
- 15- Damages to the relay board or the main board because of high voltage from the electric grid.
- 16- Damages caused by dirty closed circuit water in old installations. The installation must be cleaned and flushed before installing the boiler and operating on the closed circuit.

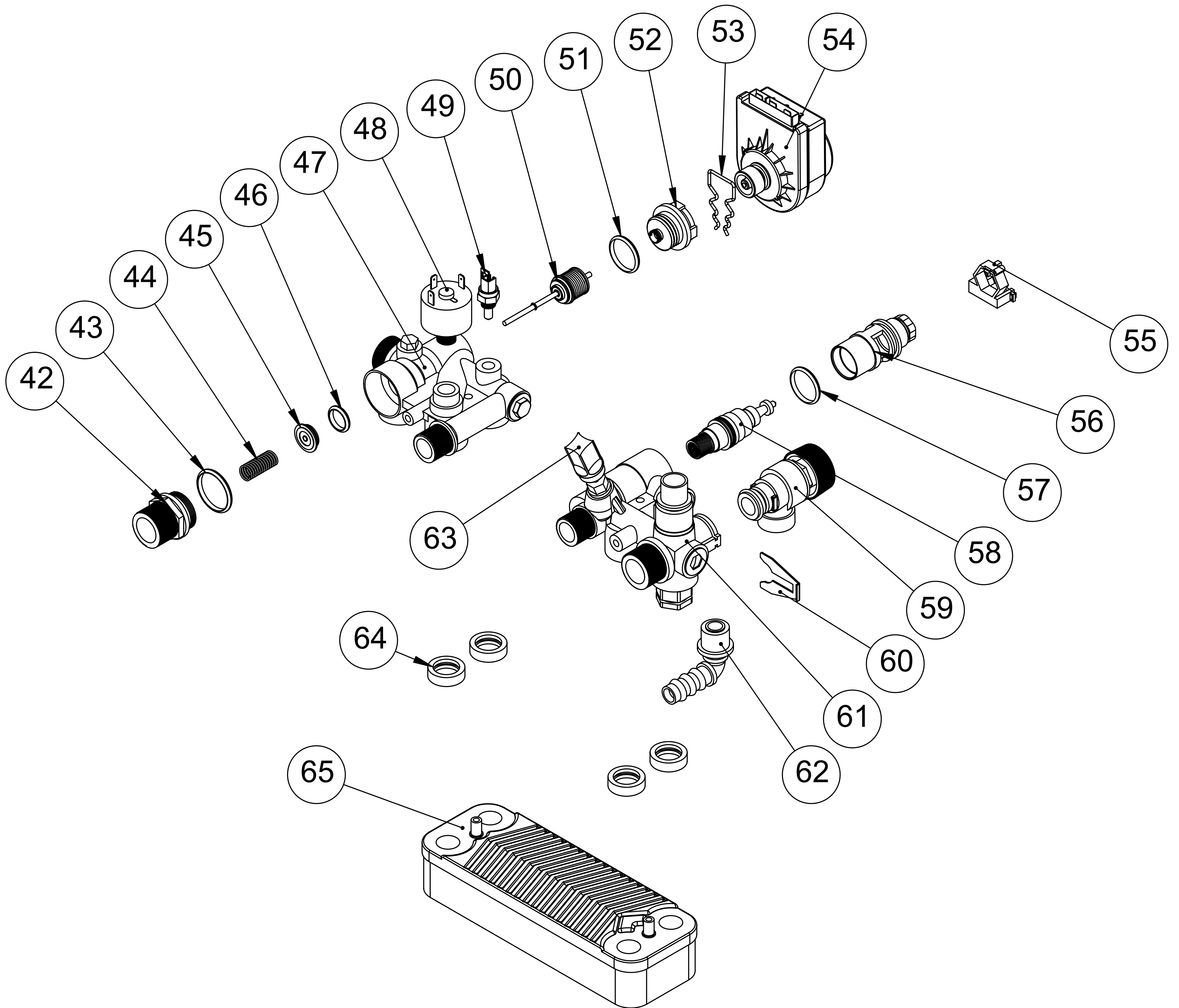
10. EXPLODED VIEW 6 - 40kW MODELS



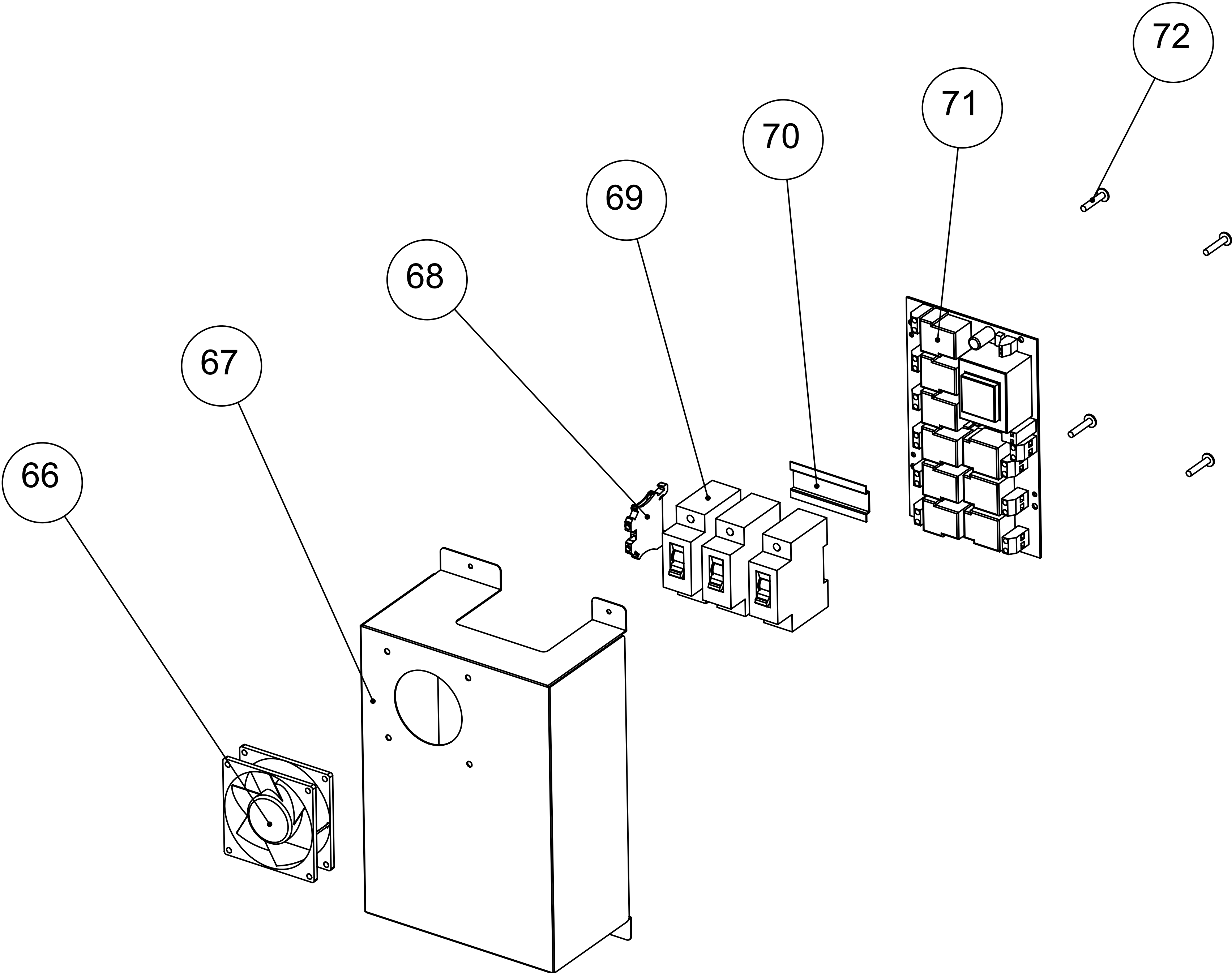
10.1 MAIN HEAT EXCHANGER GROUP DETAIL



10.2 HYDROLIC GROUP DETAIL



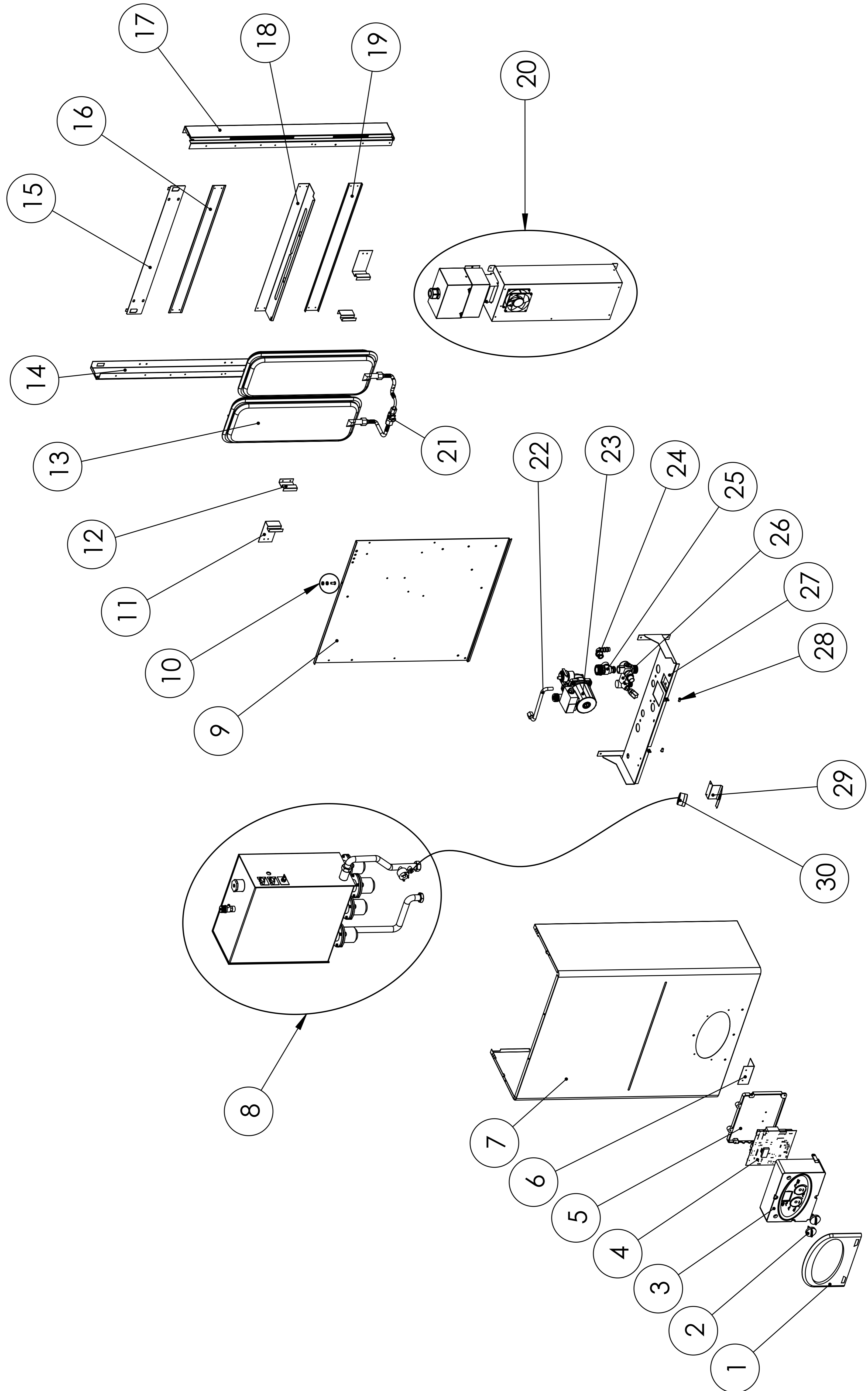
10.3 RELAY BOARD GROUP DETAIL



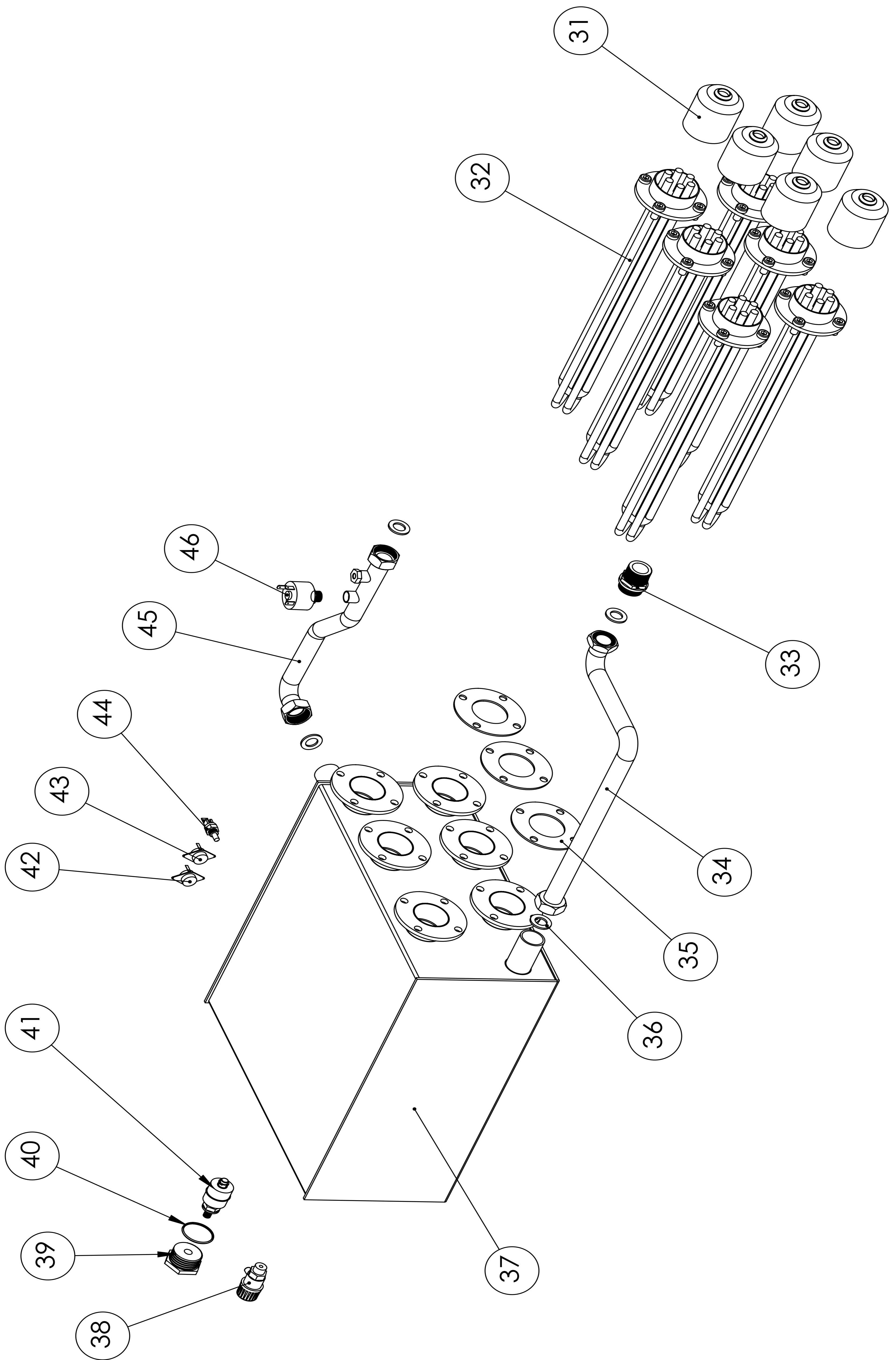
10.4 EXPLODED VIEW PARTS LIST

1. Plastic frame
2. Control buttons
3. Control panel
4. Mainboard
5. Control panel rear cover
6. Panel fixing plate
7. Front boiler cover
8. Top boiler cover
9. RCD protective cover
10. Earth connection
11. Cable glands
12. Main heat exchanger group
13. Boiler main chassis
14. Expansion vessel
15. Left chassis
16. Wall mounting plate
17. Upper support plate
18. Expansion vessel fixers
19. Right chassis
20. Expansion vessel support plate
21. Lower support plate
22. Relay board group
23. Circulation pump
24. Hydrolic group
25. Hydrolic group mounting plate
26. Pressure gauge steel frame
27. Pressure gauge
28. Insulator caps
29. Heating elements
30. Copper flow pipe
31. 3/4" gasket
32. Heating element gasket
33. Main heat exchanger
34. Manual air vent
35. Float sensor connector
36. Float sensor o-ring
37. Float level sensor
38. Limit thermostat
39. Short-circuit thermostat
40. CH temperature NTC sensor
41. Copper return pipe
42. R 3/4" flow outlet
43. Flow manifold outlet o-ring
44. Flow manifold pressure spring
45. Pressure spring retainer
46. Pressure spring retainer o-ring
47. Flow manifold
48. Water pressure switch
49. DHW temperature NTC sensor
50. 3-way valve spring rod
51. 3-way valve seat o-ring
52. 3-way valve seat
53. 3-way valve clips
54. 3-way valve actuator motor
55. Electronic flow sensor
56. Flow sensor housing
57. Flow sensor o-ring
58. Flow sensor interior set
59. 3bar safety valve
60. Safety valve clips
61. Return manifold
62. Safety valve outlet copper pipe
63. Filling valve
64. Plate heat exchanger o-ring
65. Plate heat exchanger
66. Cooling fan for relay board
67. Relay board cover
68. Rail terminal block
69. Electrical fuse
70. Fixing rail
71. Relay board
72. Plastic spacers

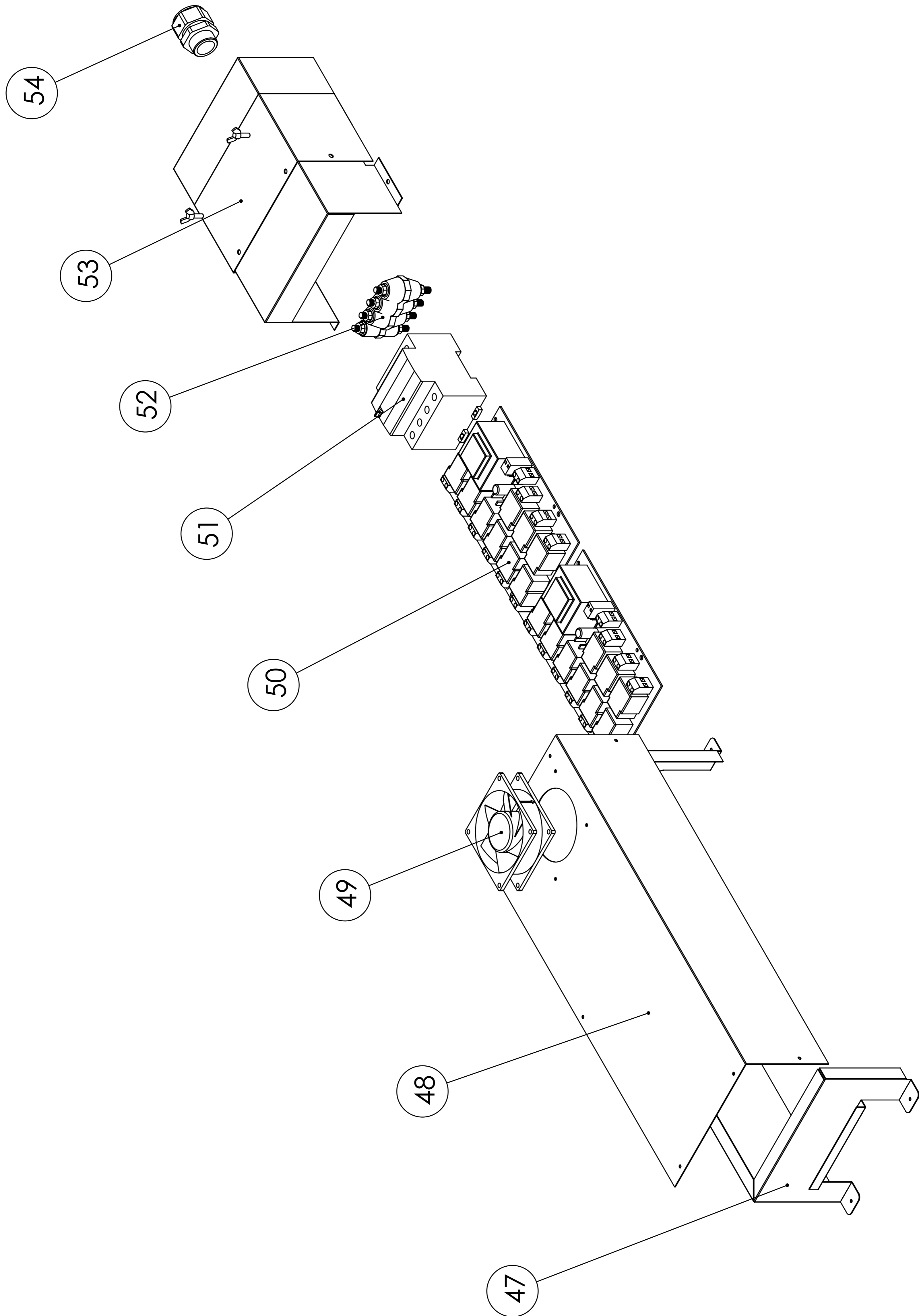
11. EXPLODED VIEW 50 - 100kW MODELS



11.1 MAIN HEAT EXCHANGER GROUP DETAIL



11.2 RELAY BOARD GROUP DETAIL



11.3 EXPLODED VIEW PARTS LIST

- | | |
|------------------------------------|---------------------------------|
| 1. Plastic frame | 29. Pressure gauge steel frame |
| 2. Control buttons | 30. Pressure gauge |
| 3. Control panel | 31. Insulator caps |
| 4. Mainboard | 32. Heating elements |
| 5. Control panel rear cover | 33. Flow pipe outlet |
| 6. Panel fixing plate | 34. Copper flow pipe |
| 7. Front boiler cover | 35. Heating element gasket |
| 8. Main heat exchanger group | 36. 3/4" gasket |
| 9. Boiler main chasis | 37. Main heat exchanger |
| 10. Earth connection | 38. Manual air vent |
| 11. Expansion vessel fixer 1 | 39. Float sensor connector |
| 12. Expansion vessel fixer 2 | 40. Float sensor o-ring |
| 13. Expansion vessel | 41. Float level sensor |
| 14. Left chassis | 42. Limit thermostat |
| 15. Wall mounting plate | 43. Short-circuit thermostat |
| 16. Upper support plate | 44. CH temperature NTC sensor |
| 17. Right chassis | 45. Copper return pipe |
| 18. Expansion vessel support plate | 46. Water pressure switch |
| 19. Lower support plate | 47. Relay board bottom cover |
| 20. Relay board group | 48. Relay board upper cover |
| 21. Expansion vessel dual pipes | 49. Cooling fan for relay board |
| 22. Expansion vessel copper pipe | 50. Relay board |
| 23. Circulation pump | 51. RCD device |
| 24. Safety valve outlet pipe | 52. Insulator group |
| 25. 3-bar safety valve | 53. RCD protective cover |
| 26. Return manifold | 54. Cable gland |
| 27. Hydrolic group mounting plate | |
| 28. Plastic panel fixer | |



Seller:

10013 Street. No. 14 A.O.S.B. iđli - IZMIR / TURKEY

Customer care: sales@maktek.com.tr

Customer Hot Line: +902323280365

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