



**OMEGA LCD  
6 kW - 100 kW**

**INSTALLATION AND SERVICE MANUAL**

**EN ISO 9001:2015  
EN ISO 14001:2015**



**Read carefully  
Keep for reference**


<b>CONTENTS</b>	<b>Page</b>
<b>1. SAFETY</b>	<b>1</b>
1.1 SYMBOL KEY	1
1.2 SAFETY PRECAUTIONS	1
1.3 GENERAL EXPLANATIONS	2
1.4 C.O.S.H.H	2
1.5 PREPARATION	2
1.5.1 Load Check	2
1.5.2 Boiler Location	2
1.5.3 Central Heating Installation	2
<b>2. INTRODUCTION OF THE DEVICE</b>	<b>3</b>
2.1 APPEARANCE AND EXTERNAL DIMENSIONS	3
2.2 COMPONENTS OF THE BOILER	4
2.2.1 6-30 kW Models	4
2.2.2 32-40 kW Models	5
2.2.3 50-80 kW Models	6
2.2.4 100 kW Model	7
2.3 OPERATION PRINCIPLE OF THE DEVICE	8
2.4 MAIN FEATURES OF THE BOILER	9
<b>3. MOUNTING AND INSTALLATION</b>	<b>10</b>
3.1 UNPACKING	10
3.1.1 Delivery Content	10
3.2 INSTRUCTIONS FOR MOUNTING	10
3.3 MINIMUM SPACES FOR INSTALLATION	10
3.4 WALL MOUNTING	11
3.5 HEATING AND HOT WATER SYSTEM INSTALLATION CONNECTIONS	12
3.6 CIRCULATION PUMP INFORMATION	13
3.6.1 Energy Efficient Pump	13
3.6.2 3-Speed Circulation Pump	17
3.7 BOILER INSTALLATION DIAGRAMS	18
3.7.1 With DHW (Plate Heat Exchanger)	18
3.7.2 Only Heating	19
3.7.3 Installation With Hot Water Cylinder	20
3.8 ELECTRIC CONNECTION	21


3.8.1 Electricity Connection Precautions	21
3.8.2 Electricity Supply Connection	21
3.8.3 Electrical Connection Diagram 220V (Monophase) (6kW-12kW Models)	23
3.8.4 Electrical Connection Diagram 380V (3-phase) (15-40kW Models)	24
3.8.5 Electrical Connection Diagram 380V (3-phase) (50-60kW Models)	25
3.8.6 Electrical Connection Diagram 380V (3-phase) (80kW Model)	26
3.8.7 Electrical Connection Diagram 380V (3-Phase) (100 kW Model)	27
3.9 ROOM THERMOSTAT CONNECTION	28
3.10 ELECTRICITY CONNECTION PARAMETERS	28
<b>4.COMMISSIONING</b>	<b>29</b>
4.1 FILLING WATER TO THE SYSTEM	29
4.2 STARTING UP	30
<b>5.USER INSTRUCTIONS</b>	<b>31</b>
5.1 CONTROL PANEL	31
5.2 OPERATION INSTRUCTIONS	34
5.2.1 TURNING ON THE BOILER	34
5.2.2 BOILER OPERATION MODE SELECTION	34
5.2.3 SYSTEM SETTINGS	35
5.2.3.1 Date - Time Setting	36
5.2.3.2 Language Selection	36
5.2.3.3 Service Settings Menu	36
5.2.3.4 Weather Compensation	37
5.2.4 WEEKLY TIMER	39
5.3. ERROR CODES AND TROUBLESHOOTING	40
<b>6.SAFETY SYSTEM OF THE DEVICE</b>	<b>41</b>
6.1 RCD DEVICE (SHORT CIRCUIT RELAY)	41
6.2 HEATING TANK FLOAT WATER LEVEL SENSOR (H6)	41
6.3 LOW / HIGH WATER PRESSURE	41
6.4 OVERHEAT LIMIT THERMOSTAT	41
6.5 SAFETY THERMOSTAT	41
6.6 FROST PROTECTION	42
6.7 DOMESTIC HOT WATER NTC SENSOR	42
6.8 CENTRAL HEATING NTC SENSOR	42
6.9 HIGH WATER PRESSURE PROTECTION	42
6.10 CIRCULATION PUMP ANTI-JAMMING SYSTEM	42
6.11 3-WAY VALVE ACTUATOR MOTOR SAFETY	42

6.12 AUTOMATIC BY-PASS	42
<b>7. TECHNICAL TABLE</b>	<b>43</b>
<b>8. MAINTENANCE</b>	<b>44</b>
<b>9. GUARANTEE CONDITIONS</b>	<b>44</b>
<b>10. EXPLODED VIEW (6-30 kW MODELS)</b>	<b>46</b>
10.1 MAIN HEAT EXCHANGER GROUP DETAIL (6-30 kW MODELS)	47
10.2 HYDROLIC GROUP DETAIL (6-30 kW MODELS)	48
10.3 RELAY BOARD GROUP DETAIL (6-30 kW MODELS)	49
10.4 EXPLODED VIEW PARTS LIST (6-30 kW MODELS)	50
<b>11. EXPLODED VIEW (32-40kW MODELS)</b>	<b>51</b>
11.1 MAIN HEAT EXCHANGER GROUP DETAIL (32-40 kW MODELS)	52
11.2 HYDROLIC GROUP (32-40 kW MODELS)	53
11.3 RELAY BOARD GROUP DETAIL (32-40 kW MODELS)	54
11.4 EXPLODED VIEW PARTS LIST (32-40 kW MODELS)	55
<b>12. EXPLODED VIEW (50-80 kW MODELS)</b>	<b>56</b>
12.1 MAIN HEAT EXCHANGER GROUP DETAIL (50-80 kW MODELS)	57
12.2 RELAY BOARD GROUP DETAIL (50-80 kW MODELS)	58
12.3 EXPLODED VIEW PARTS LIST (50-80 kW MODELS)	59
<b>13. EXPLODED VIEW (100 kW MODEL)</b>	<b>60</b>
13.1 MAIN HEAT EXCHANGER GROUP DETAIL (100 kW MODEL)	61
13.2 RELAY BOARD GROUP DETAIL (100 kW MODEL)	62
13.3 EXPLODED VIEW PARTS LIST (100 kW MODEL)	63
<b>14. ECOMISSIONING</b>	<b>64</b>
<b>15. DISPOSAL</b>	<b>64</b>
<b>16. ERP PRODUCT FISCHER</b>	<b>64</b>
16.1 ERP PRODUCT INFORMATION	65

## 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.

**Note:** Maktek Omega LCD boiler is manufactured in 3 different specs for variety of user demands such as; heating and domestic hot water (combi), only heating and heating + external hot water boiler model. Please discuss with our sales representatives for the best suitable model for your requirements.

**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**

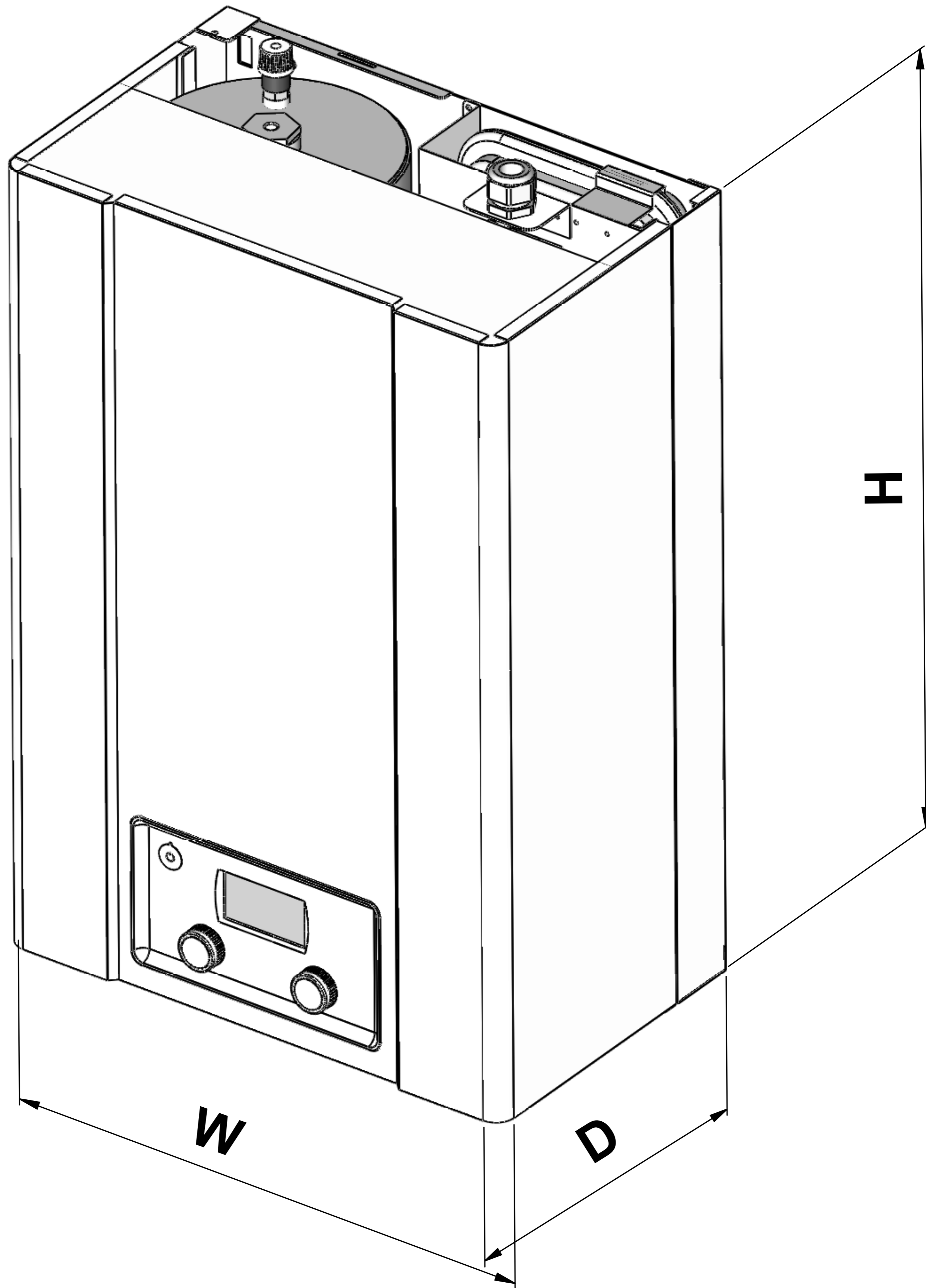
Detailed recommendations are given in EN 12828.

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

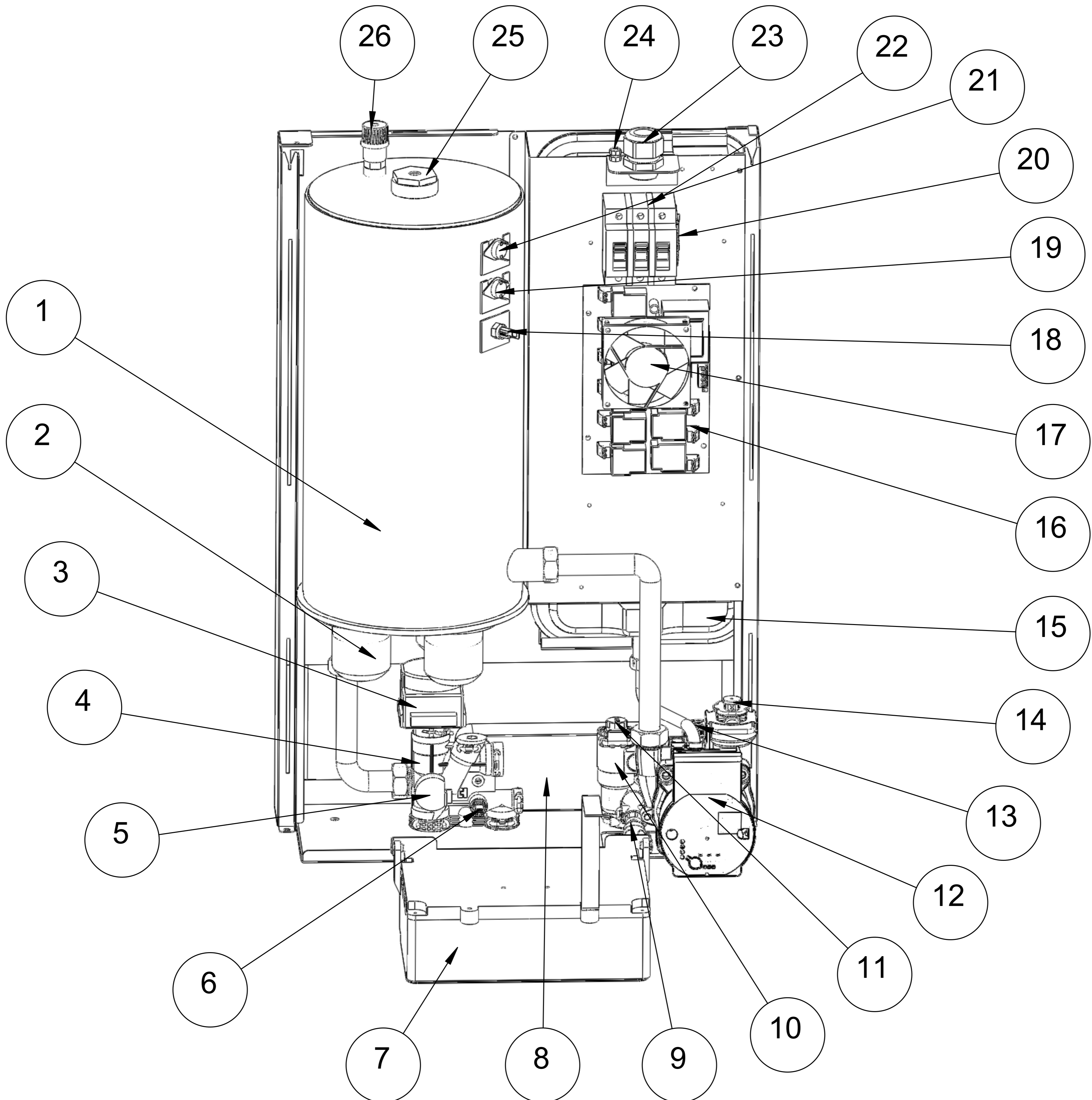
### 2.1 APPERANCE AND EXTERNAL DIMENSIONS



Model	W	D	H
6-30 kW	440	274	650
32-40 kW	435	320	740
50-100 kW	571	320	755

## 2.2 COMPONENTS OF THE BOILER

### 2.2.1 6-30 kW Models



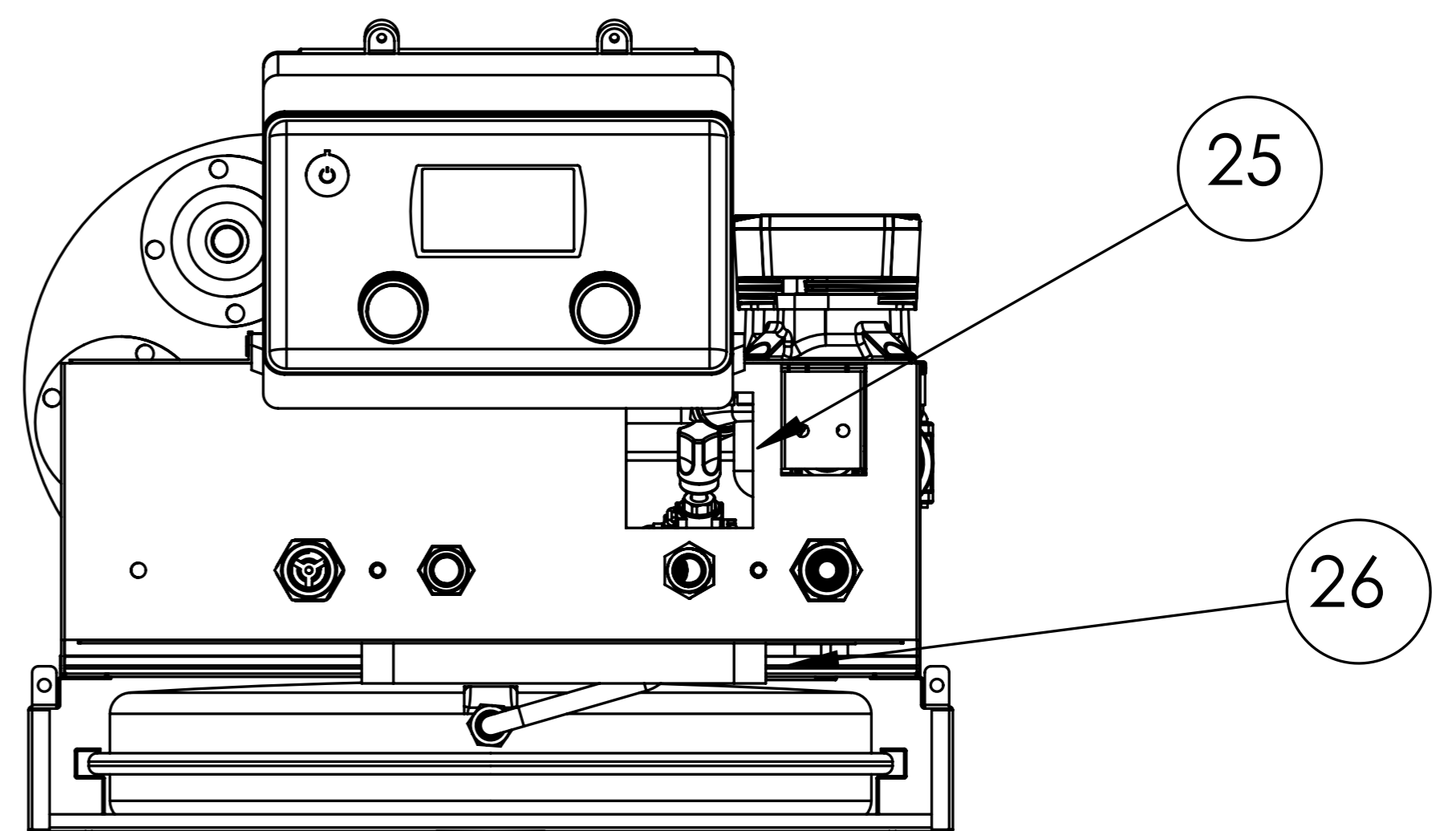
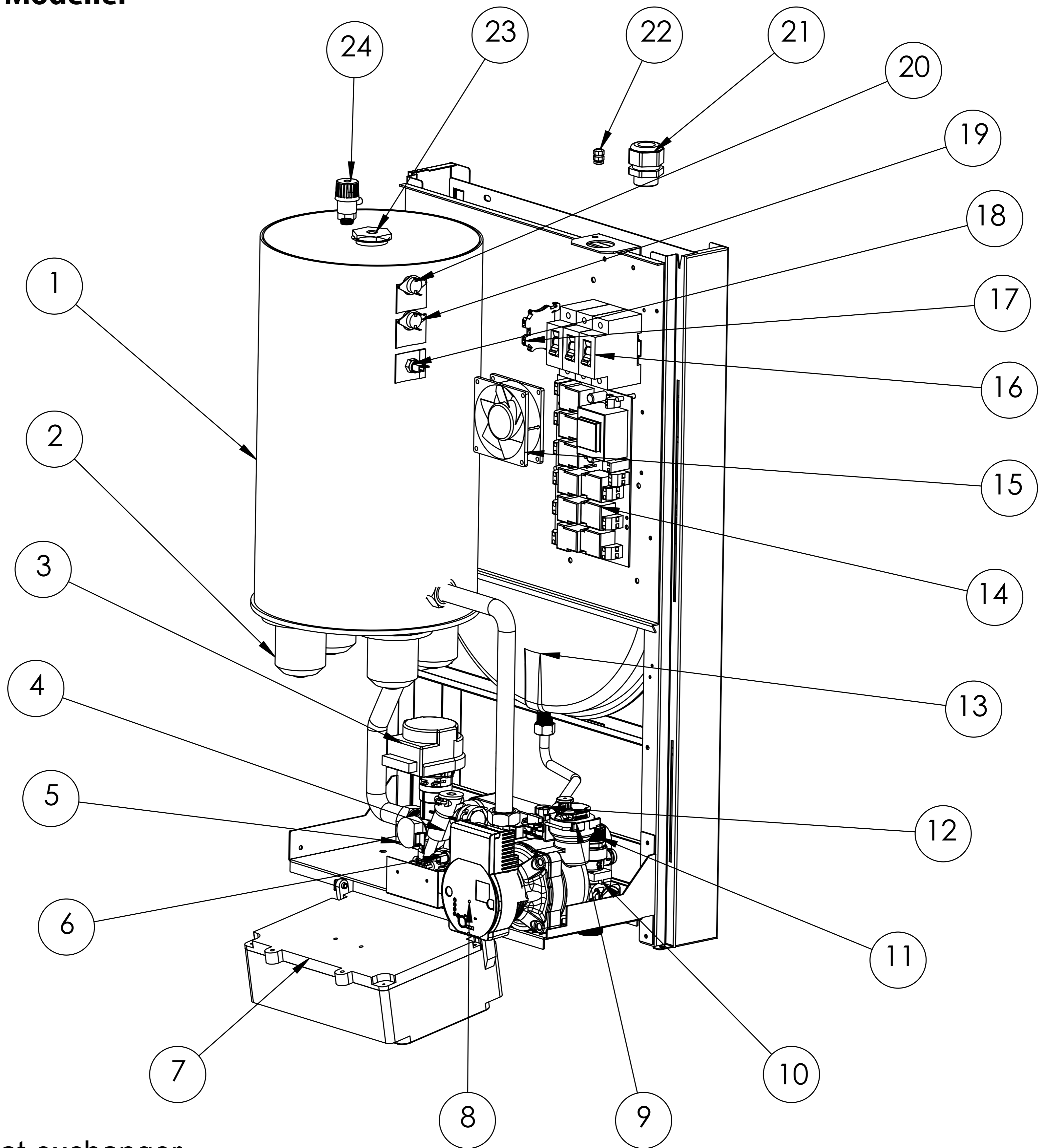
- |                                  |                                 |
|----------------------------------|---------------------------------|
| 1. Main heat exchanger           | 14. Automatic air vent          |
| 2. Heating elements              | 15. Expansion tank              |
| 3. 3-way valve actuator motor    | 16. Relay board                 |
| 4. Flow manifold                 | 17. Cooling fan for relay board |
| 5. Water pressure sensor         | 18. CH temperature NTC sensor   |
| 6. DHW temperature NTC sensor    | 19. Safety thermostat           |
| 7. Control Panel and Mainboard   | 20. Neutral cable terminal      |
| 8. Plate heat exchanger          | 21. Limit thermostat            |
| 9. Filling valve                 | 22. Circuit breaker             |
| 10. Return manifold              | 23. Cable gland                 |
| 11. Electronic water flow sensor | 24. Earth connection            |
| 12. Circulation pump             | 25. Float water level sensor    |
| 13. 3 bar safety valve           | 26. Manual air vent             |

➤ Drawings are for illustration purposes. Number of heating elements and some components may vary in different capacities of boilers.

➤ The manufacturer reserves the right to make changes to the parts used in the boilers.



## 2.2.2 32-40 kW Modeller

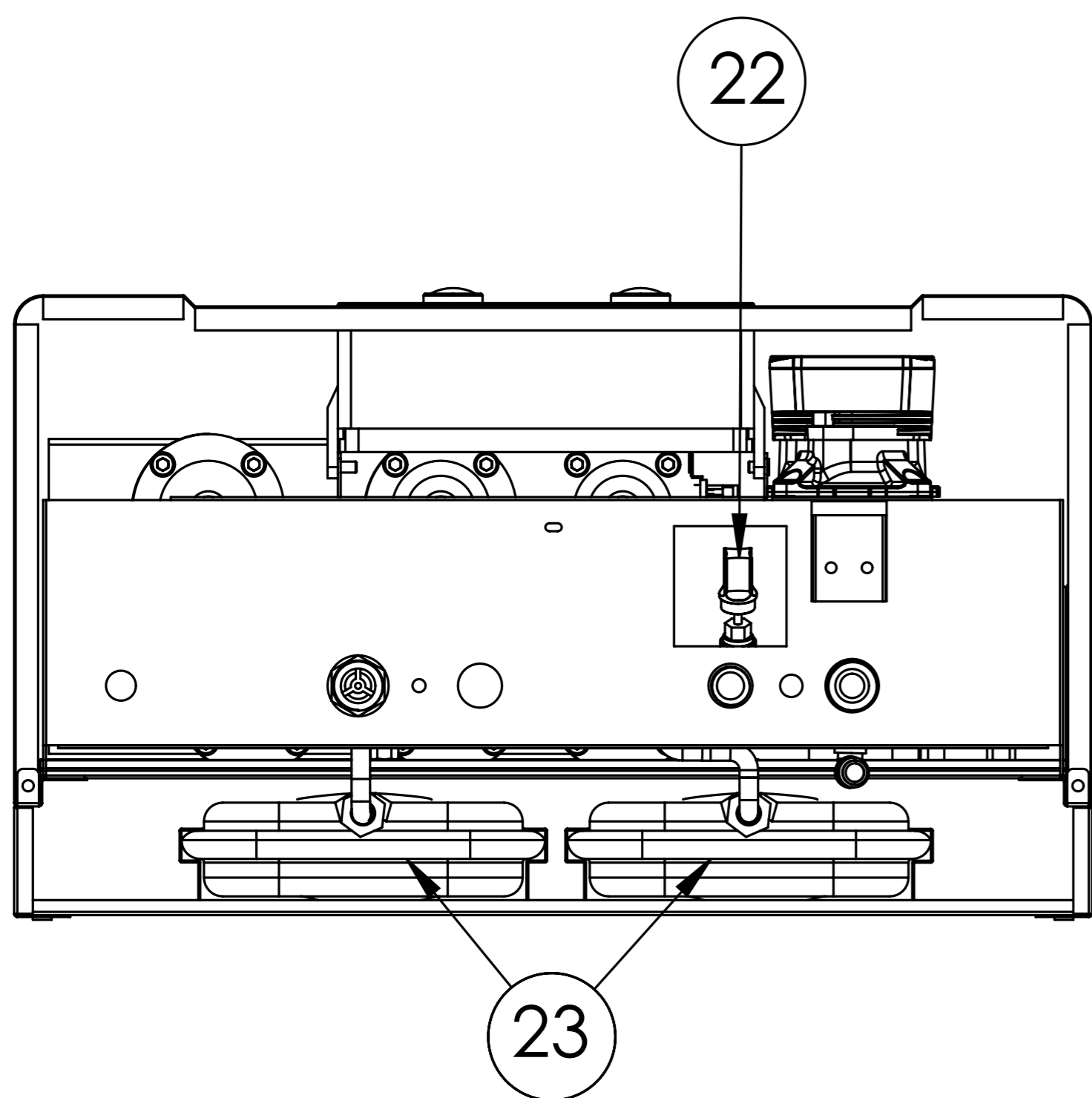
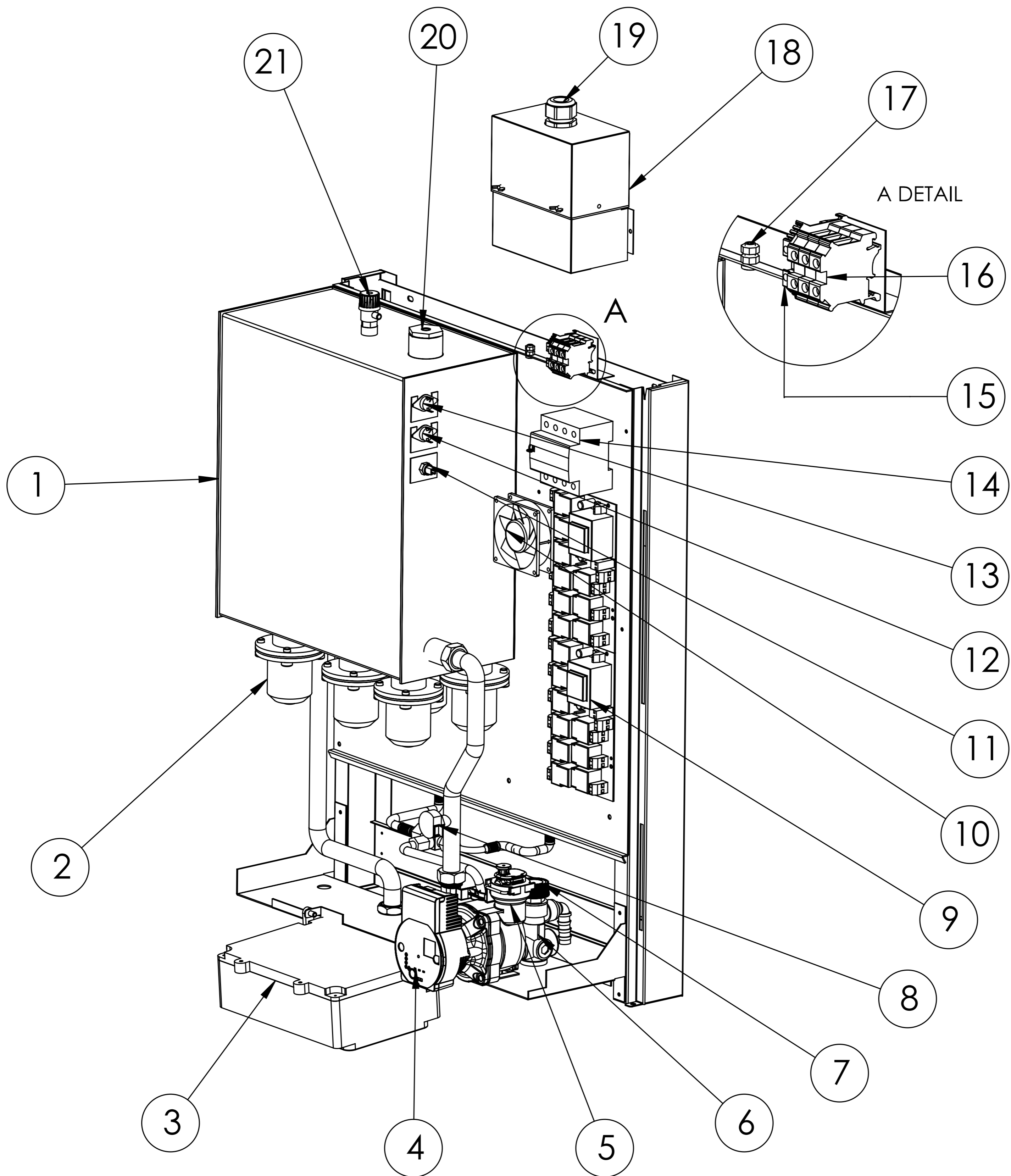


1. Main heat exchanger
2. Heating elements
3. 3 Way valve actuator motor
4. Flow manifold
5. Water pressure sensor
6. DHW temperature NTC sensor
7. Control panel and Maniboard
8. Circulation pump
9. Automatic air vent
10. Return manifold
11. 3 bar Safety valve
12. Electronic water flow sensor
13. Expansion tank
14. Relay board
15. Relay board cooling fan
16. Circuit breaker

17. Neutral cable terminal
18. CH temperature NTC sensor
19. Safety thermostat
20. Limit thermostat
21. Cable gland
22. Earth connection
23. Float water level sensor
24. Manuel air vent
25. Filling valve
26. Plate heat exchanger

- Drawings are for illustration purposes. Number of heating elements and some components may vary in different capacities of boilers.
- The manufacturer reserves the right to make changes to the parts used in the boilers.

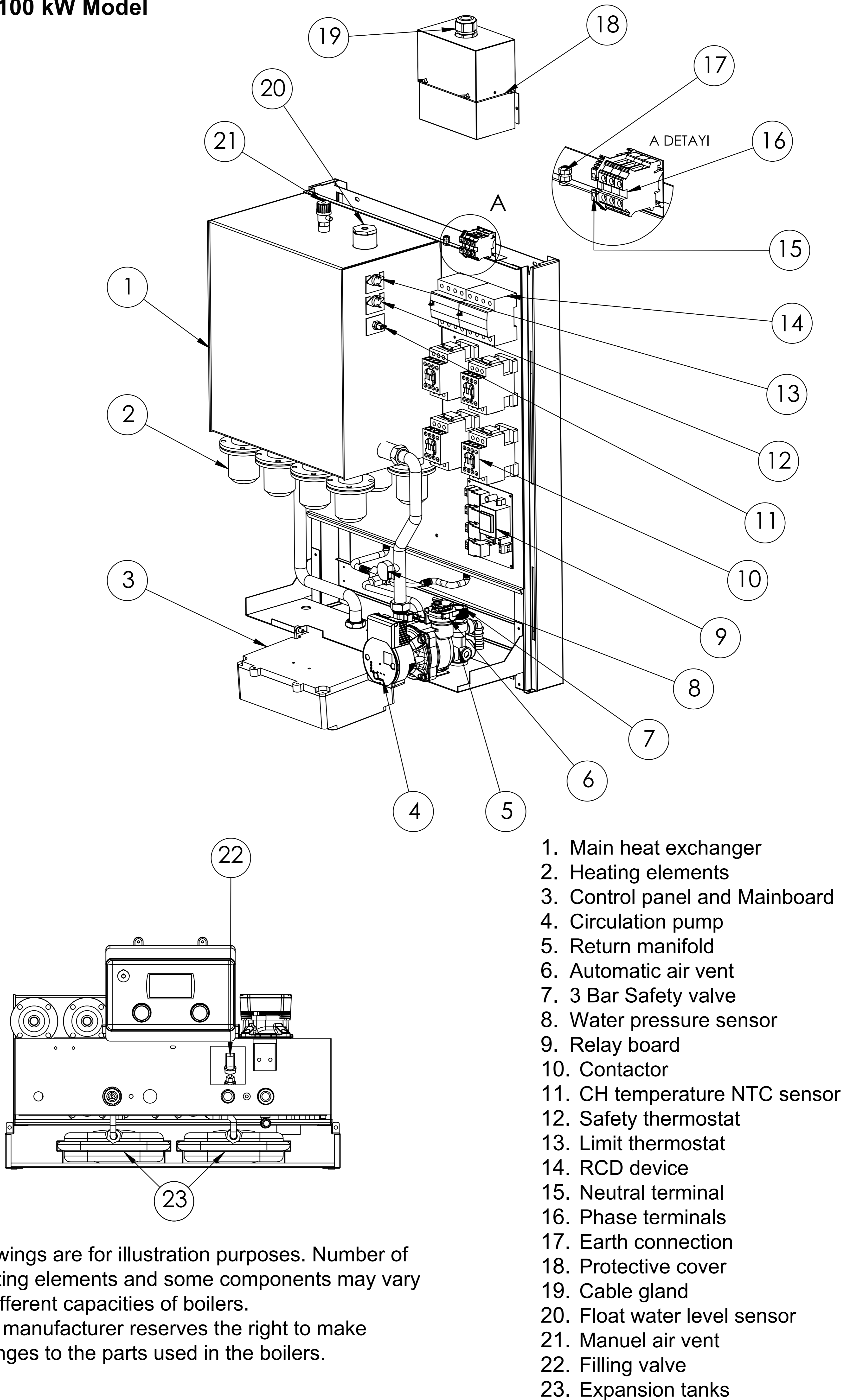
## 2.2.3 50-80 kW Models



1. Main heat exchanger
2. Heating elements
3. Control panel and Mainboard
4. Circulation pump
5. Return manifold
6. Automatic air vent
7. 3 bar Safety valve
8. Water pressure switch
9. Relay board
10. Cooling fan for relay board
11. CH temperature NTC sensor
12. Safety thermostat
13. Limit thermostat
14. RCD device
15. Neutral cable terminal
16. Phase cable terminals
17. Earth connection
18. Protective cover
19. Cable gland
20. Float water level sensor
21. Manuel air vent
22. Filling valve
23. Expansion tanks

- Drawings are for illustration purposes. Number of heating elements and some components may vary in different capacities of boilers.
- The manufacturer reserves the right to make changes to the parts used in the boilers.

## 2.2.4 100 kW Model



1. Main heat exchanger
2. Heating elements
3. Control panel and Mainboard
4. Circulation pump
5. Return manifold
6. Automatic air vent
7. 3 Bar Safety valve
8. Water pressure sensor
9. Relay board
10. Contactor
11. CH temperature NTC sensor
12. Safety thermostat
13. Limit thermostat
14. RCD device
15. Neutral terminal
16. Phase terminals
17. Earth connection
18. Protective cover
19. Cable gland
20. Float water level sensor
21. Manuel air vent
22. Filling valve
23. Expansion tanks

➤ Drawings are for illustration purposes. Number of heating elements and some components may vary in different capacities of boilers.

➤ The manufacturer reserves the right to make changes to the parts used in the boilers.

## 2.3 OPERATION PRINCIPLE OF THE DEVICE

MAKTEK Omega LCD 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.

The above mentioned combi model (heating + domestic hot water) is the standard production. Besides this model, Maktek Omega LCD boiler is manufactured in different configurations depending on capacity and customer requirements.

Boilers manufactured for only heating (in standard 50-100kW models) do not provide domestic hot water (DHW), only operates to heat up the closed heating circuit for space heating.

External hot water boiler model is available for all capacities (6-100kW) This is manufactured on demand of the customer. In this model there are two additional outlets to be connected to the external hot water boiler instead of the built in plate heat exchanger. DHW temperature NTC sensor is supplied alongside the boiler with a long cable so that the sensor can be placed on the external hot water boiler for monitoring and modulation of the DHW temperature.

The external hot water boiler model is demanded by users who require a high rate of DHW flow for their multiple baths, or for users who want to use the high capacity boilers for CH and DHW supply at the same time.

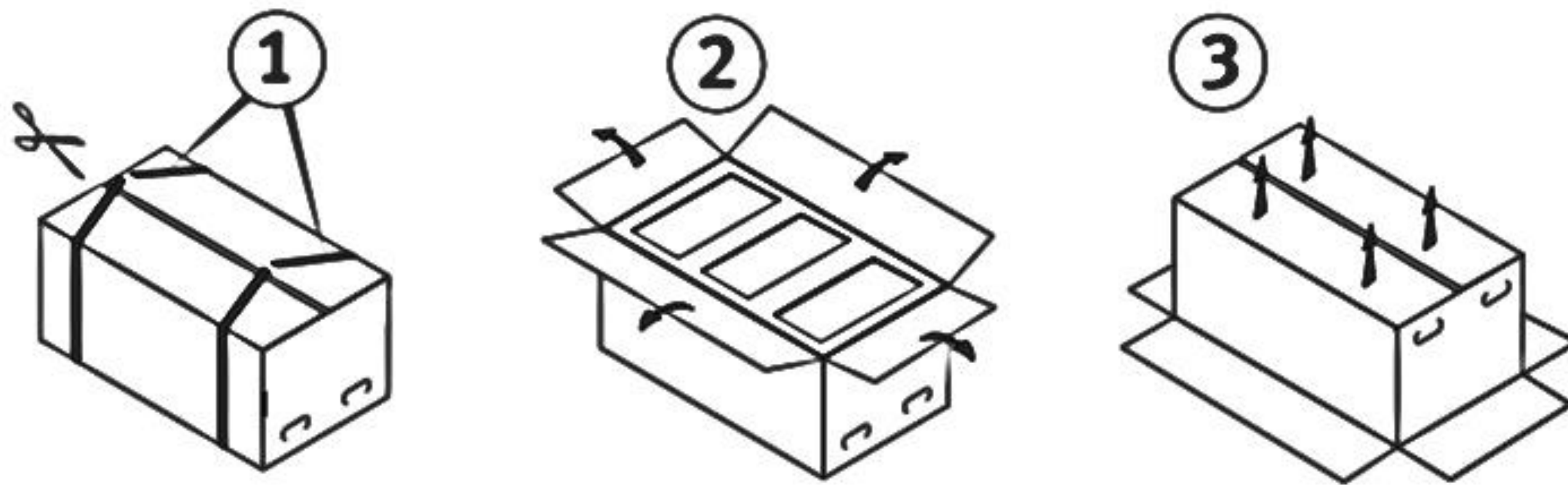
Maktek Omega LCD boiler has a built in weekly timer function, optional room thermostat and ambient temperature sensor operation features for advanced automation and comfort.

## 2.4 MAIN FEATURES OF THE BOILER

- MAKTEK Omega electric combi boiler uses ONLY electricity as fuel.
- Electricity as fuel for heating has no emissions and %100 environment friendly.
- There is no heat loss in electric heating. Unlike combustion systems with fossil fuels, there is no chimney therefore no heat loss from the chimney with hot fumes.
- Omega LCD Electric Boiler operates with %99 efficiency.
- With full automatic modulation, heating capacity of the boiler is adjusted according to the heating demand, ensuring maximum energy savings during operation.
- Mainboard with microprocessor and a large LCD screen enables enhanced control parameters and easy operation for the end user.
- Built in weekly timer function enables automatic operation of the boiler for adjusted time intervals for each day separately.
- Optional room thermostat and ambient temperature sensor provides a high level of automation, comfort and economy.
- Underfloor heating mode for safe and efficient underfloor heating applications.
- Adjustable maximum boiler capacity feature enables the boiler output to be adjusted on the LCD screen enabling the option to reduce the output of the boiler depending on climate or insulation levels of houses.
- 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.
- Provides hot water for showers, sinks and baths in constant temperature at set value even with variable flow rates with the help of electronic water flow sensor.
- Heating system can quickly enter the regime and heat the house rapidly.
- Protection against high pressures with 3 bar safety valve.
- Water pressure transducer shows system water pressure on the LCD screen also providing protection for low and high pressures.
- Energy efficient circulation pump provides electricity savings in line with ErP regulation.
- Float water level sensor ensures the main heat exchanger is full and protect the heating elements from operating without water.
- RCD (short circuit relay) provides electrical protection and safe operation.
- Automatic by-pass system provides additional safety.
- Electronic water temperature control with NTC system assures precise temperatures.
- Double safety measures against overheating with limit thermostat and safety thermostat.
- Anti-jamming system for the circulation pump and 3-way valve actuator motor. Operating in every 24 hours to prevent pump and actuator motor jamming.
- Automatic 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.

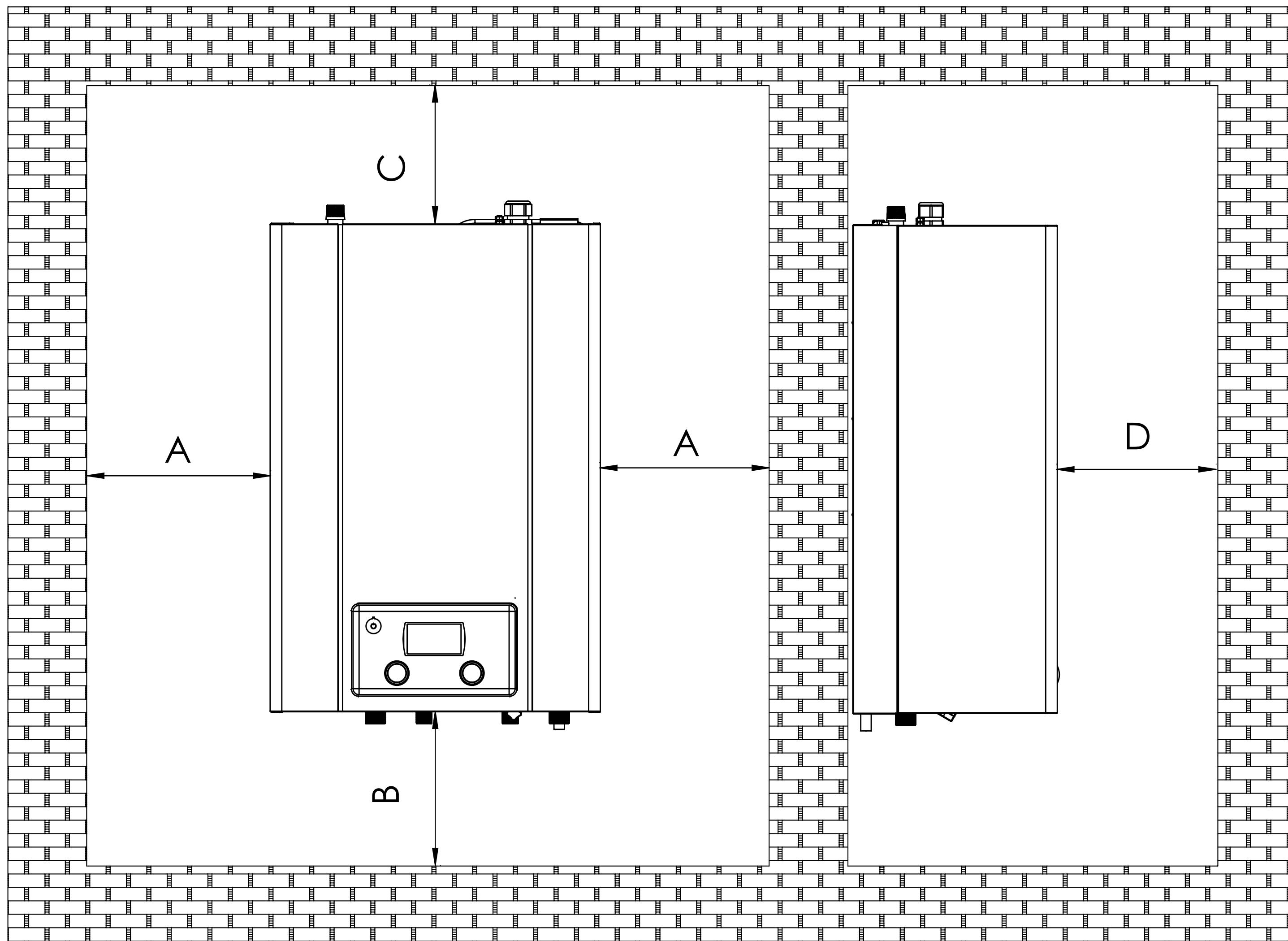
Specific space must be left around the boiler for the authorized service to intervene in the event of a technical breakdown or maintenance. You can find the minimum spaces required for installation in the below diagram.

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.

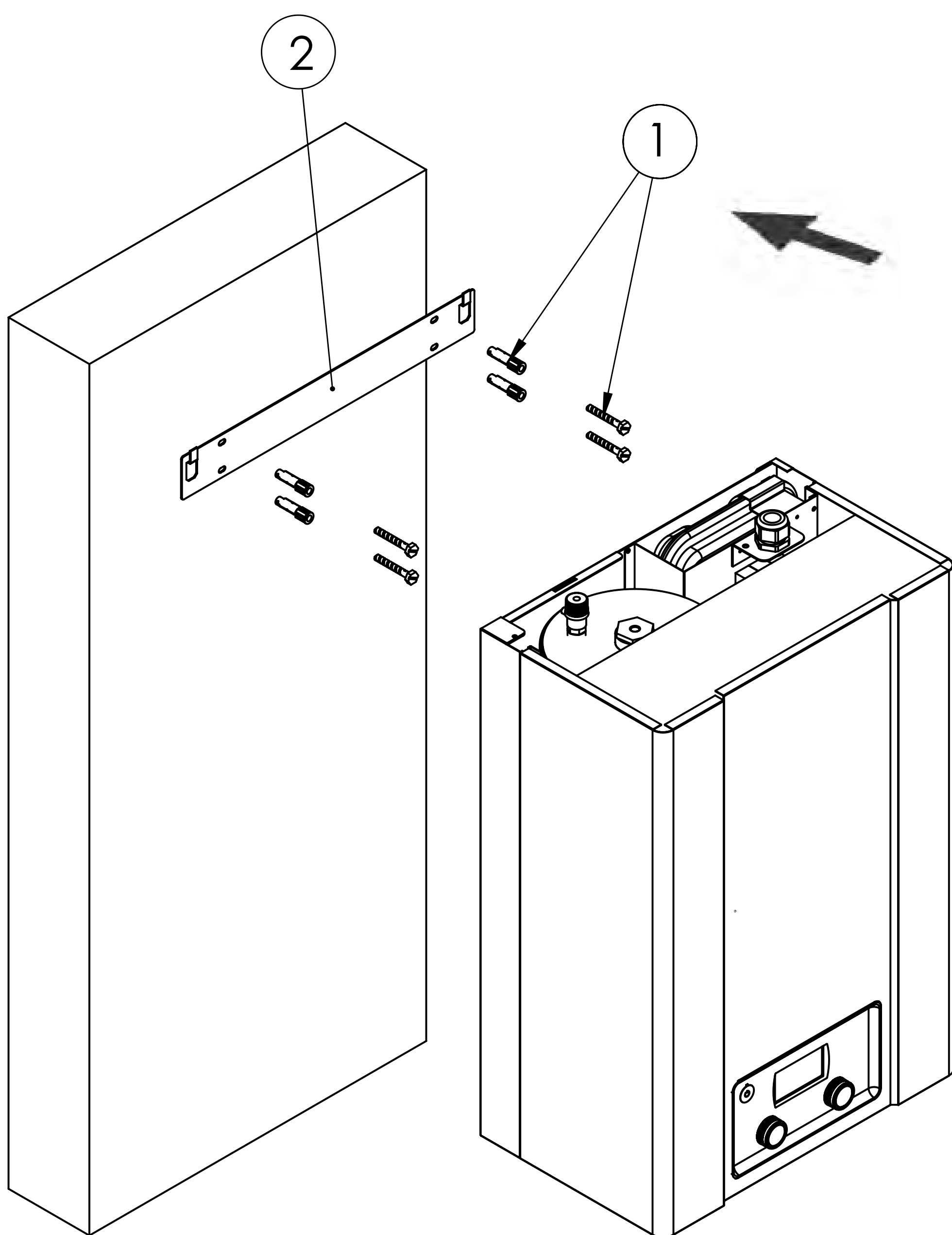
Suggested space is the minimum and it is favorable to leave more space depending on the situation.



**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.

1. Screws and plugs
2. Mounting plate

 Mind the electric cables and water pipes when drilling holes on the wall.

### 3.5 HEATING AND HOT WATER SYSTEM INSTALLATION CONNECTIONS

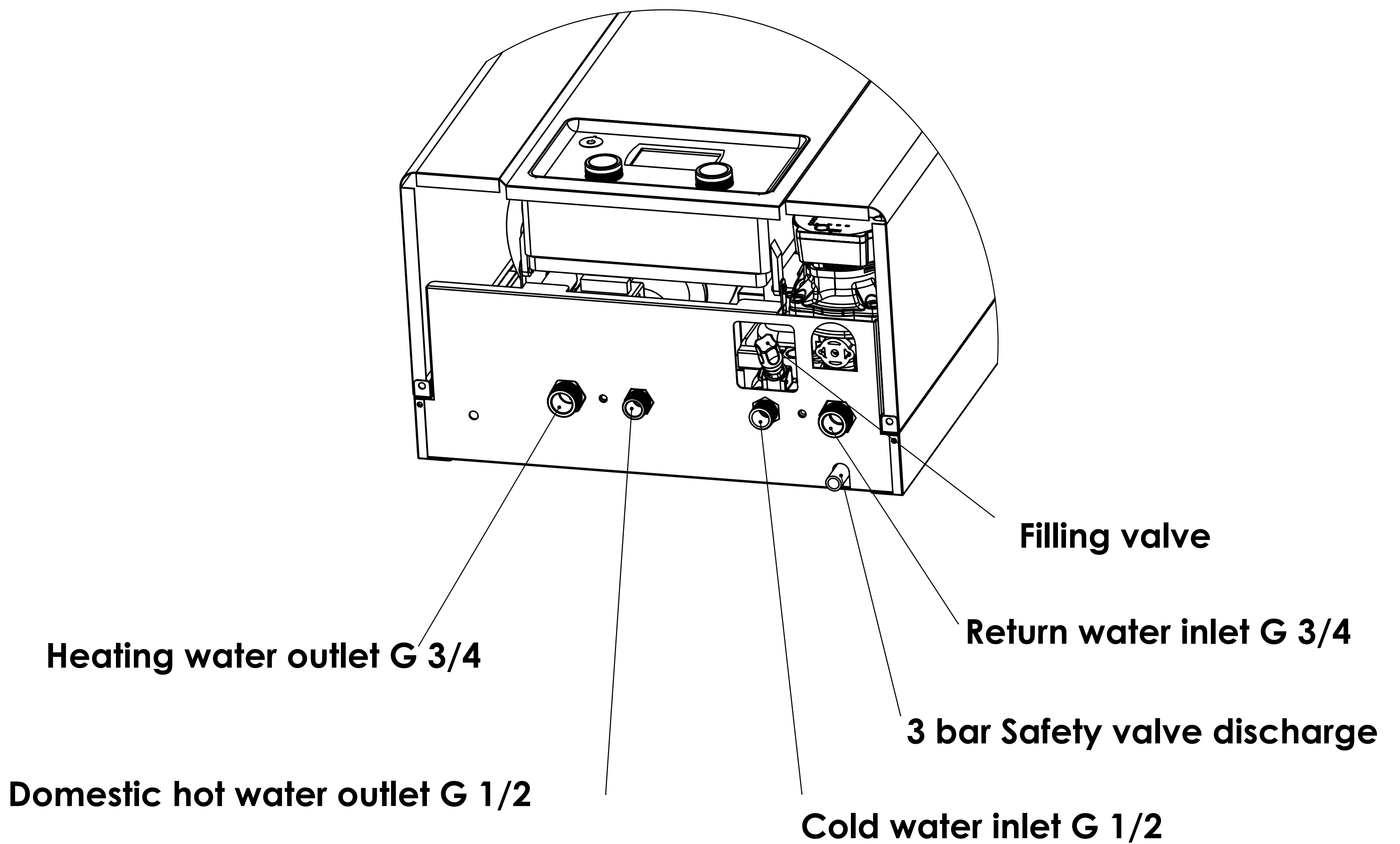
- At DHW function, please make sure that the pressure of the city water network on cold water inlet side is not more than 6 Bars. If the network pressure is more than 6 Bars, a pressure regulator must be added. In order for the DHW system to run, the minimum pressure level of the network must be 0,8 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 pipework is insulated where practical. Especially the primary pipework within 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 a 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 pipework 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 boiler installation diagrams in this manual. 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.
- The water hardness in the central heating installation should be 15-20fH (French hardness). Hard and calcerized water will harm the boiler, calcer will accumulate on the resistances in time causing them to fail. Breakdowns in boilers caused by improper water in the system are not covered by warranty.

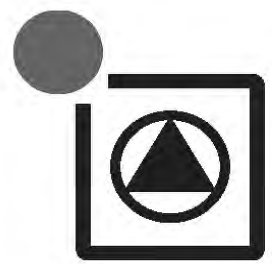




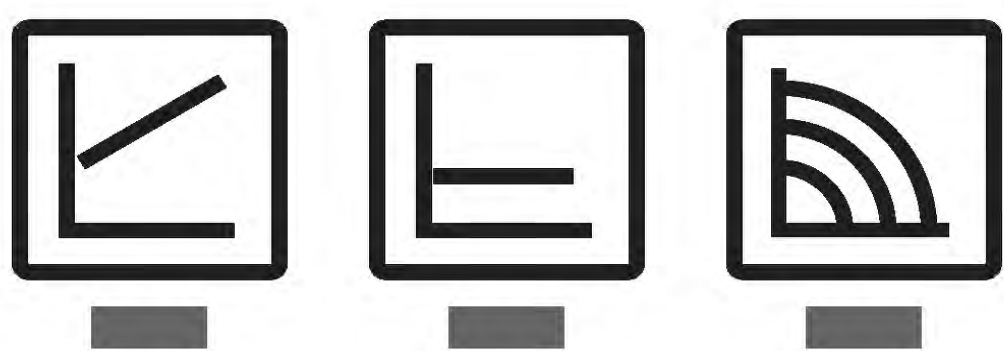
### 3.6 CIRCULATION PUMP INFORMATION

#### 3.6.1 Energy Efficient Pump

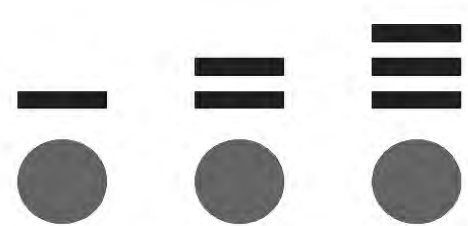
##### Indicator Lights (Leds)



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



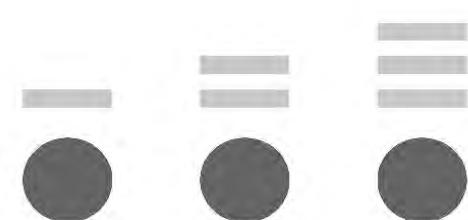
- Display of selected control mode  $\Delta p$ -v,  $\Delta p$ -c and con-stant speed



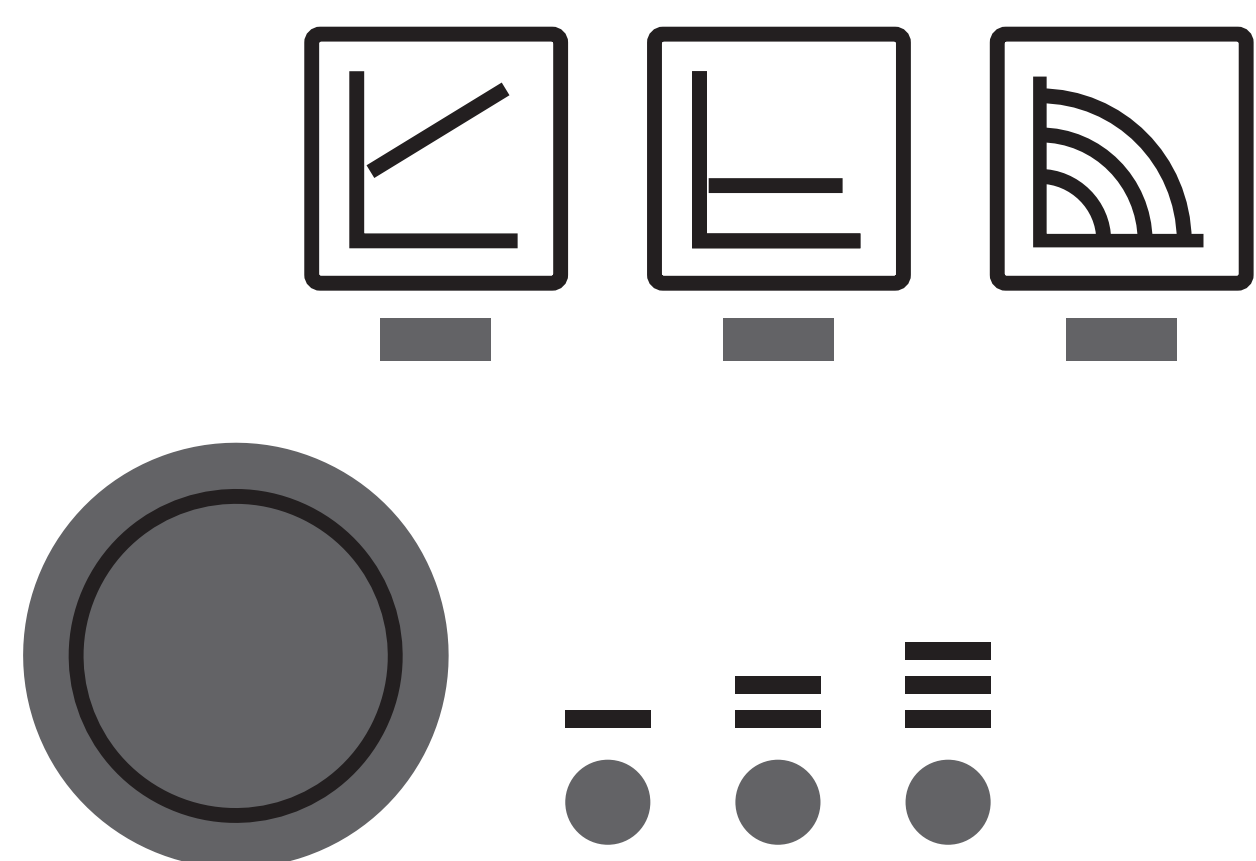
- Display of selected pump curve (I, II, III) within the control mode



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



## Operating button



Press

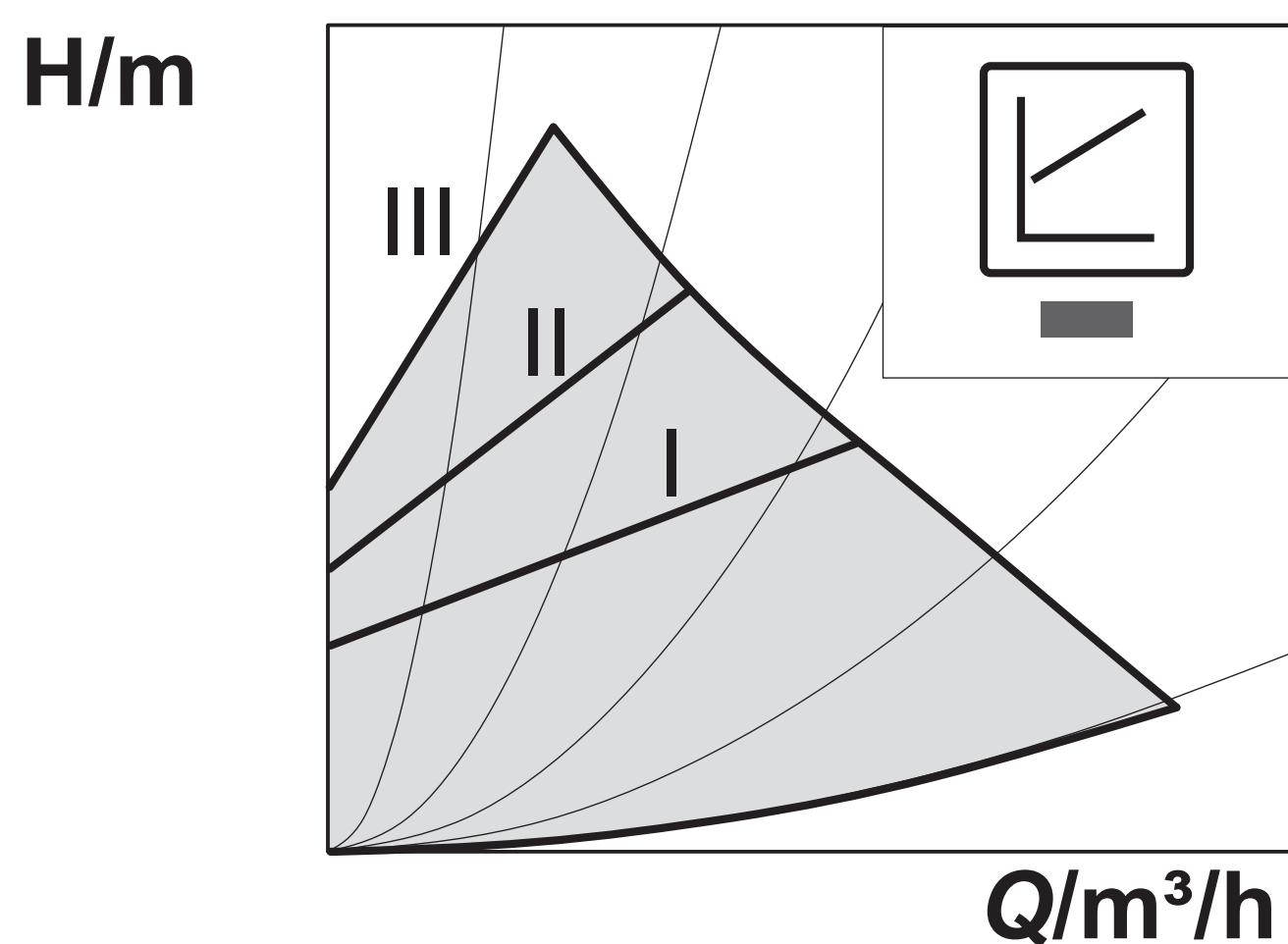
Select control mode

- 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)

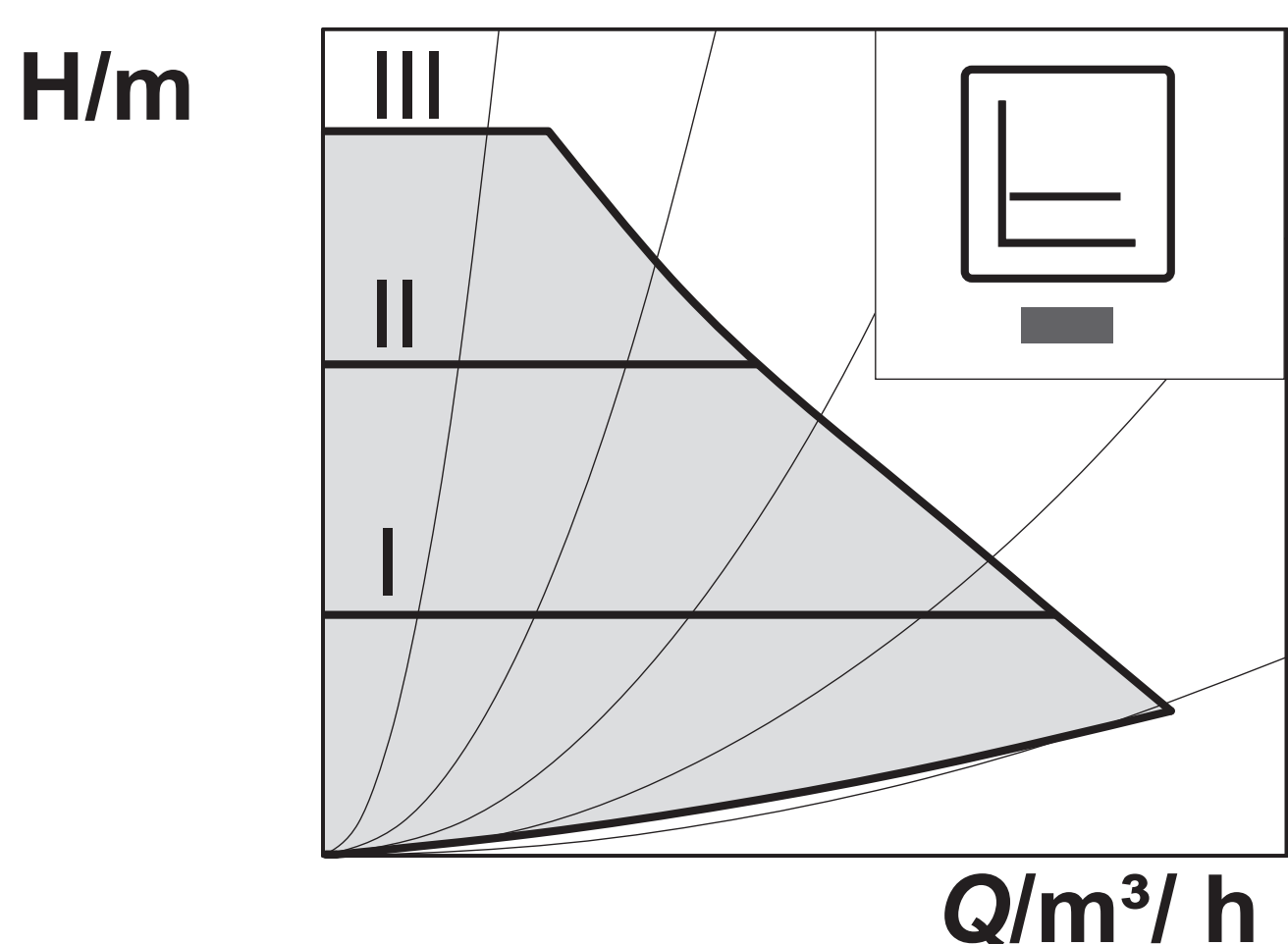
Recommended for two-pipe heating systems with radiators to reduce the flow noise at thermostatic valves.



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.

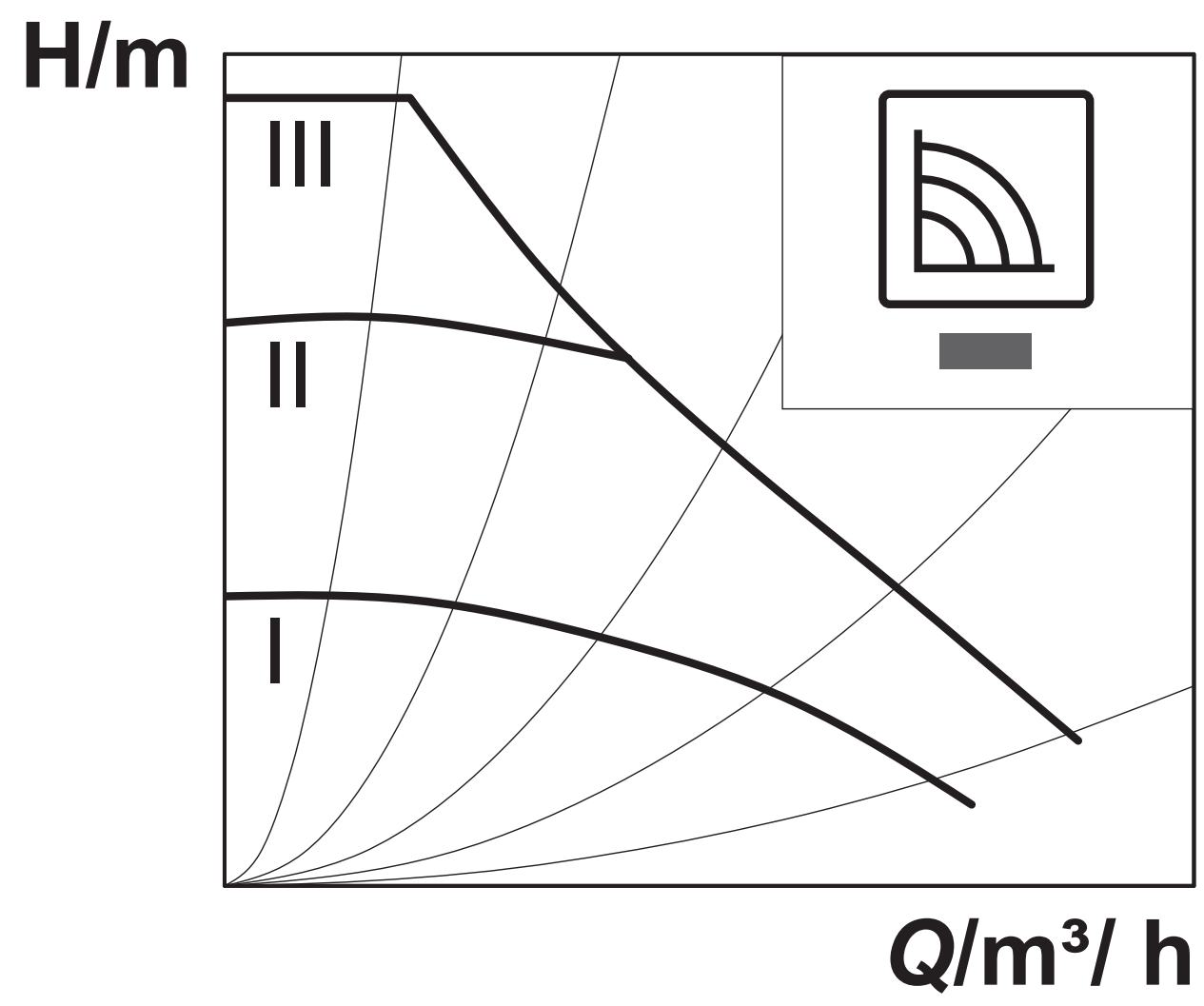
### Constant differential pressure $\Delta p-c$ (I, II, III)

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.

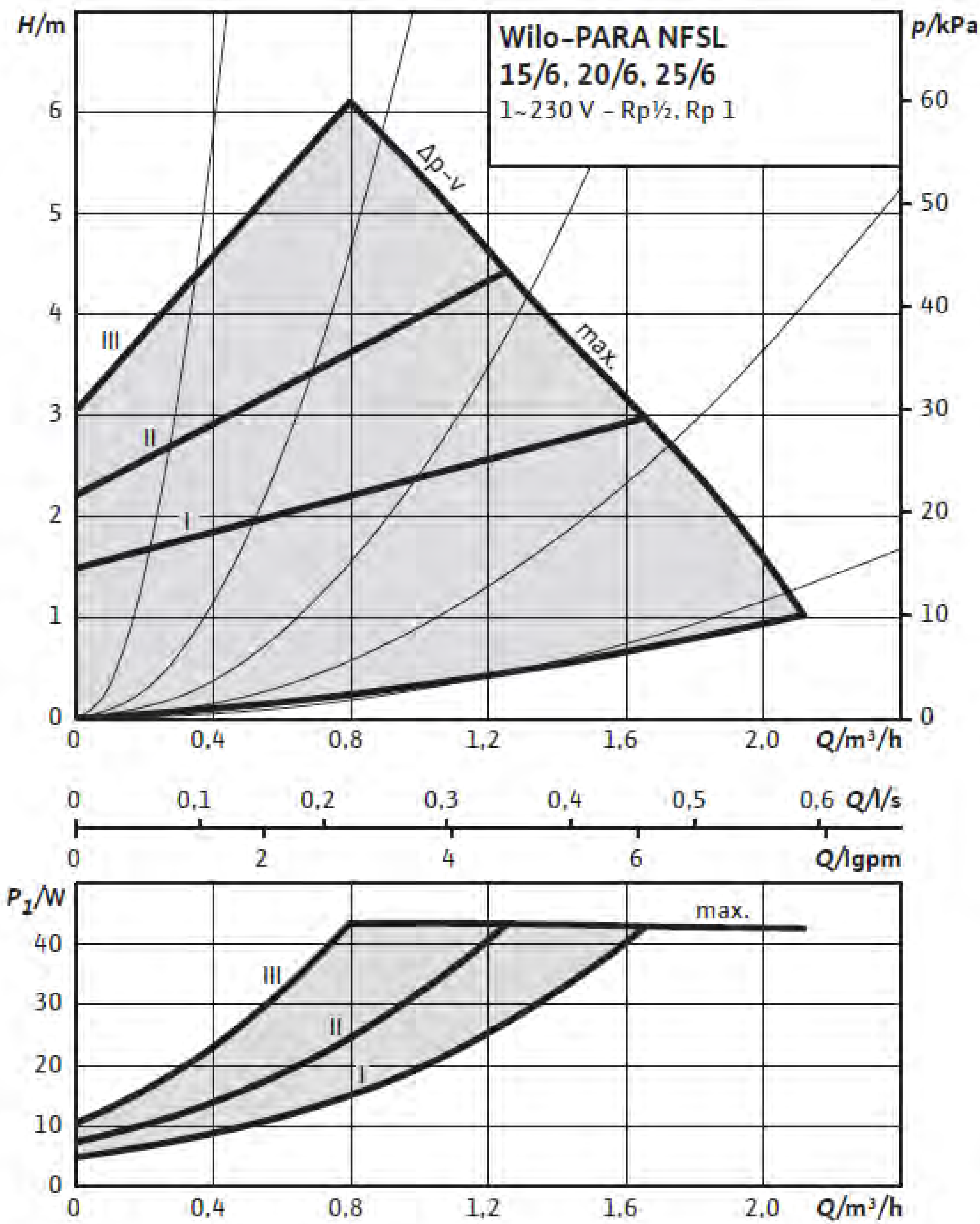


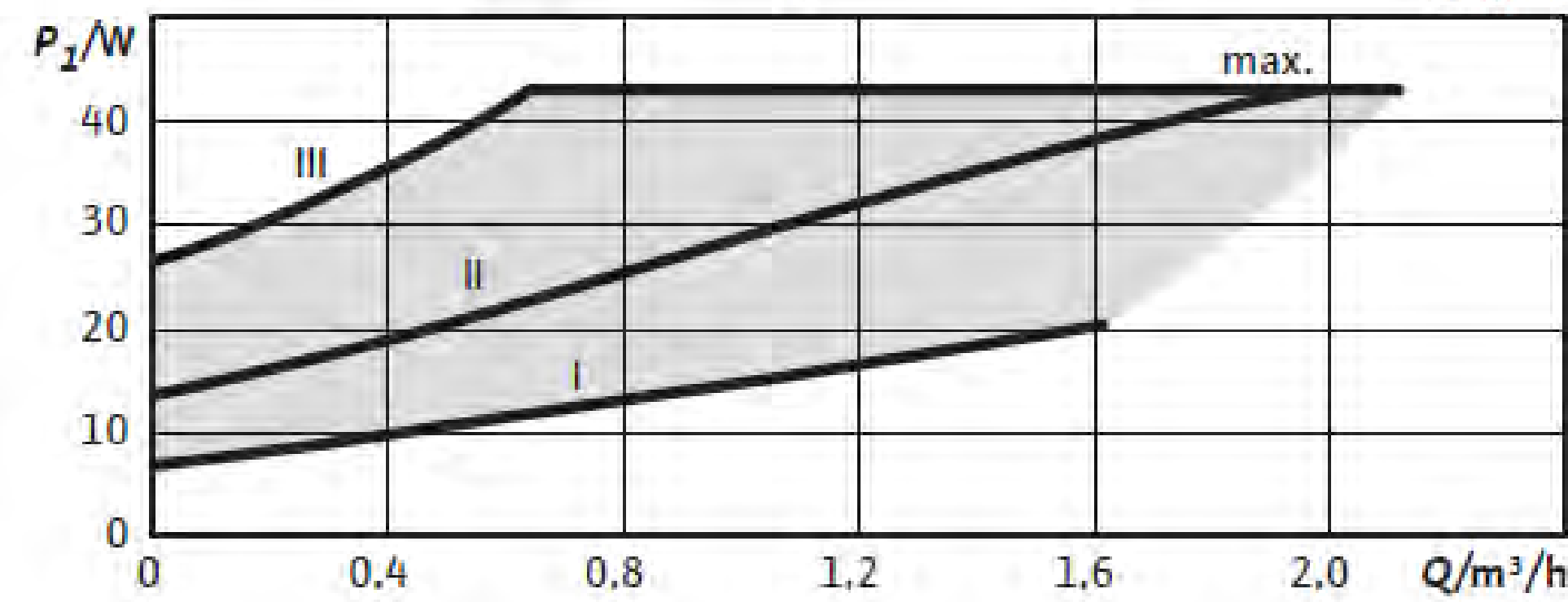
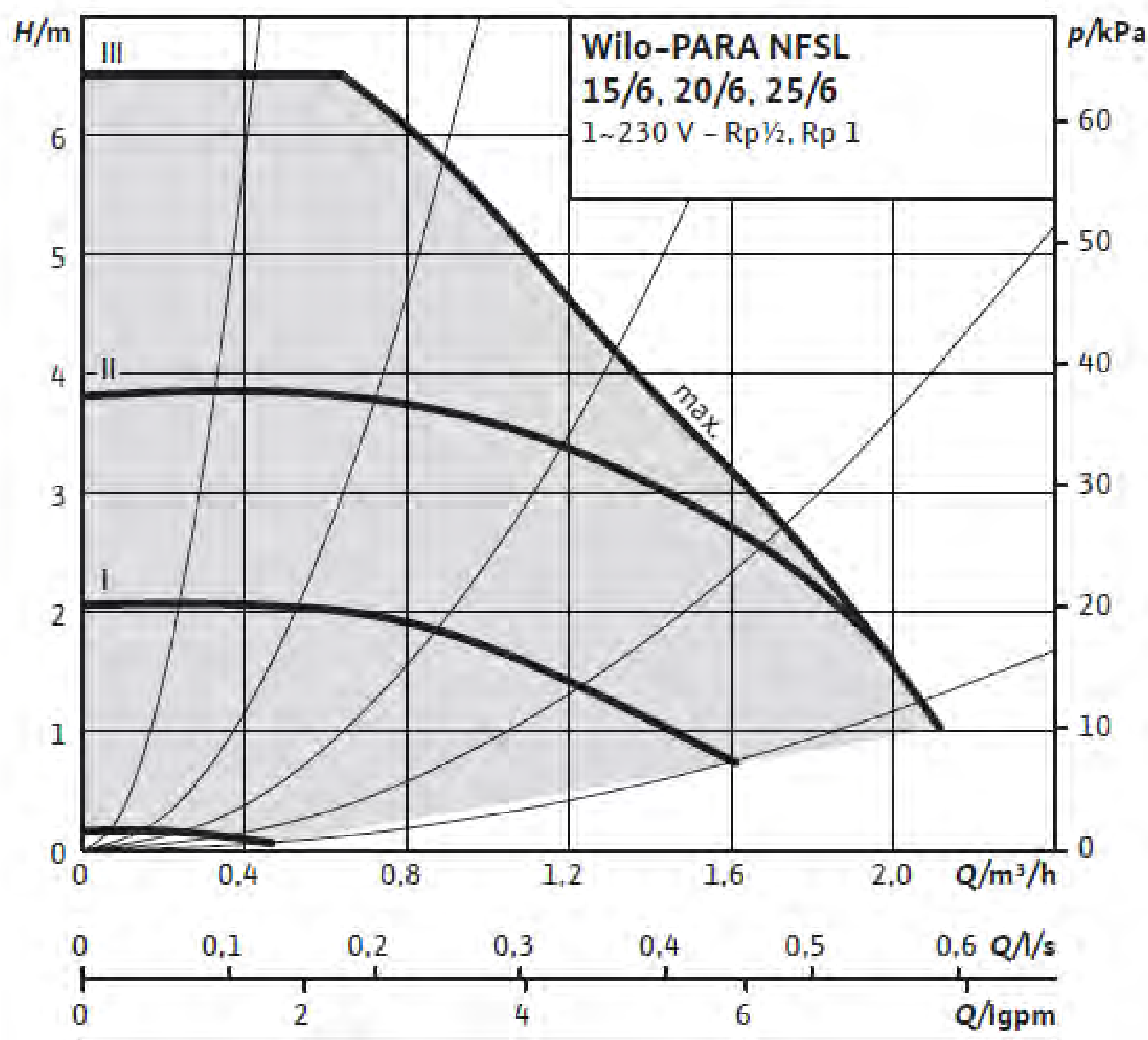
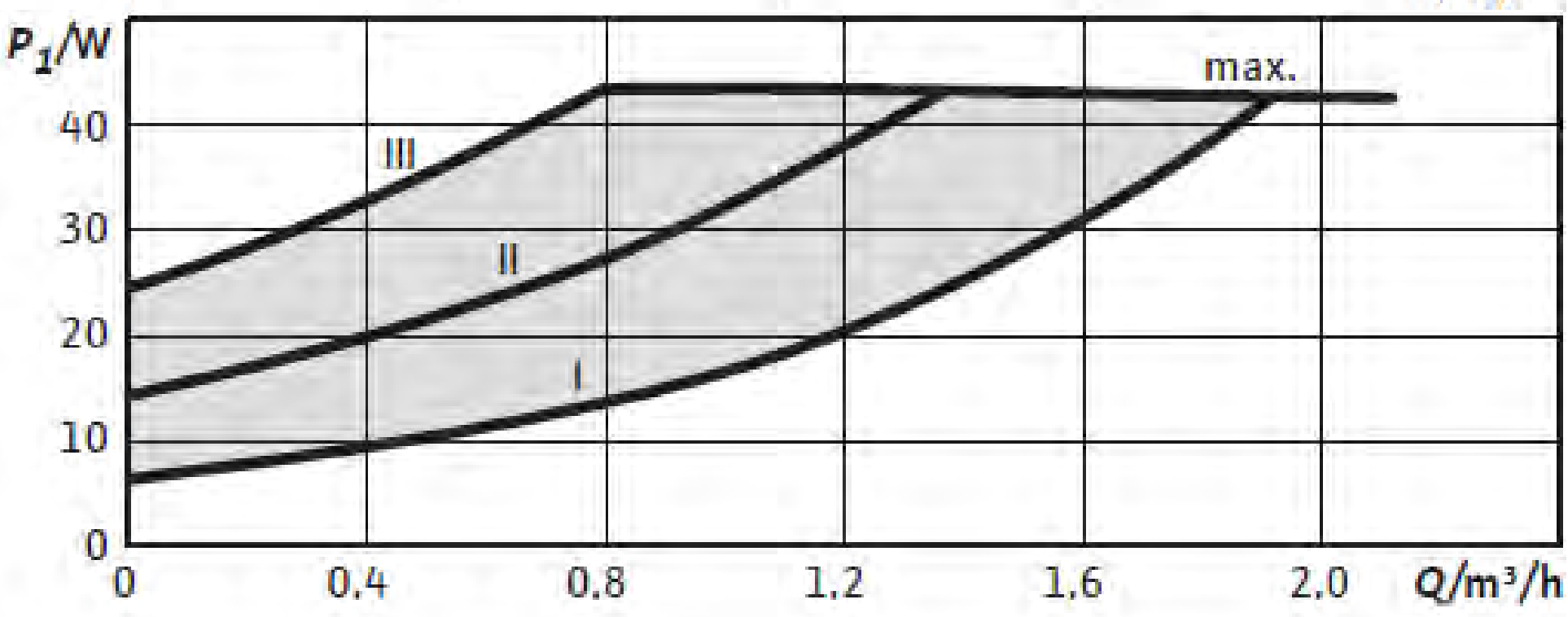
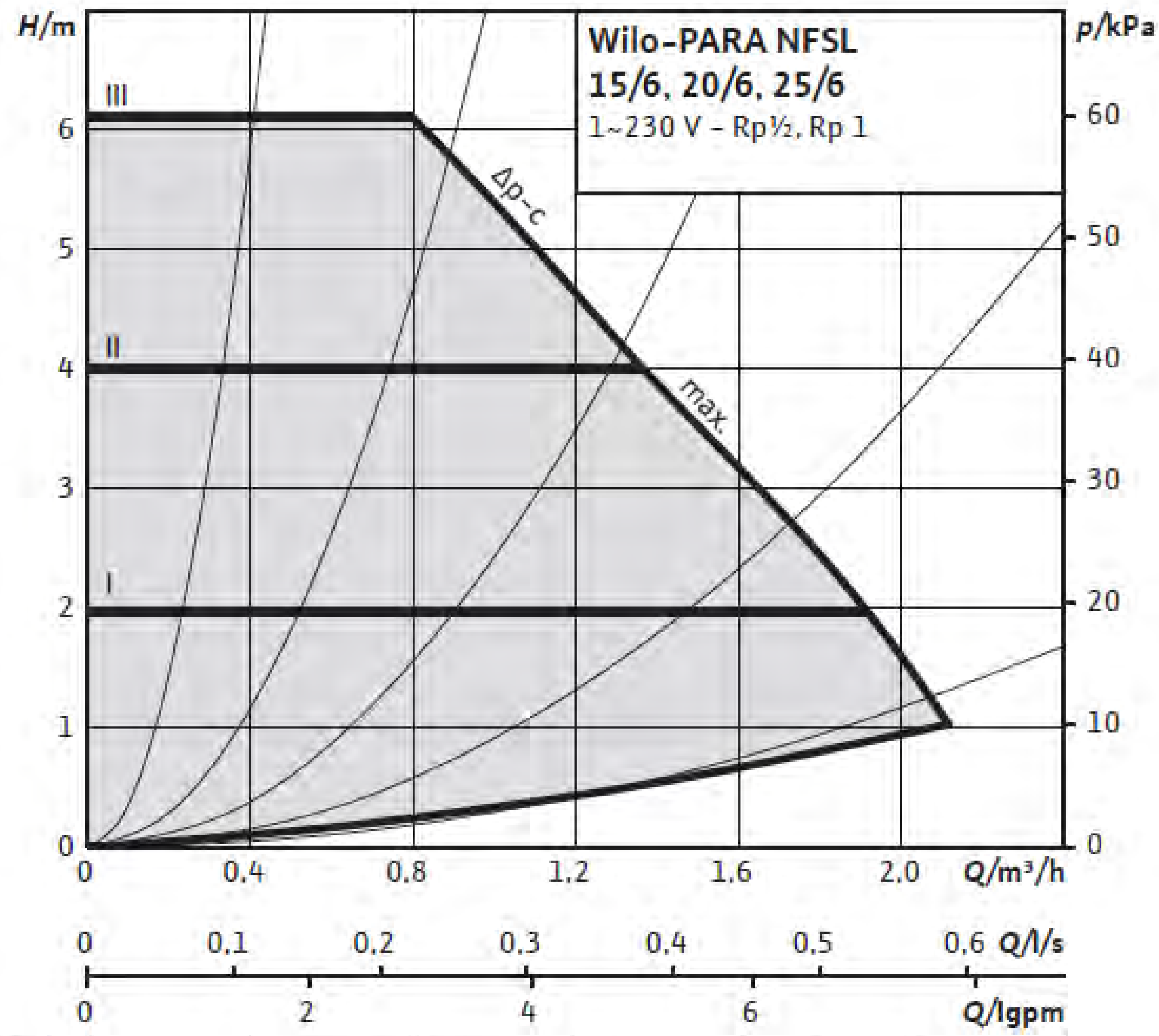
The control keeps the set delivery head constant irrespective of the pumped volume flow. There are three pre-defined pump curves (I, II, III) to choose from.

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



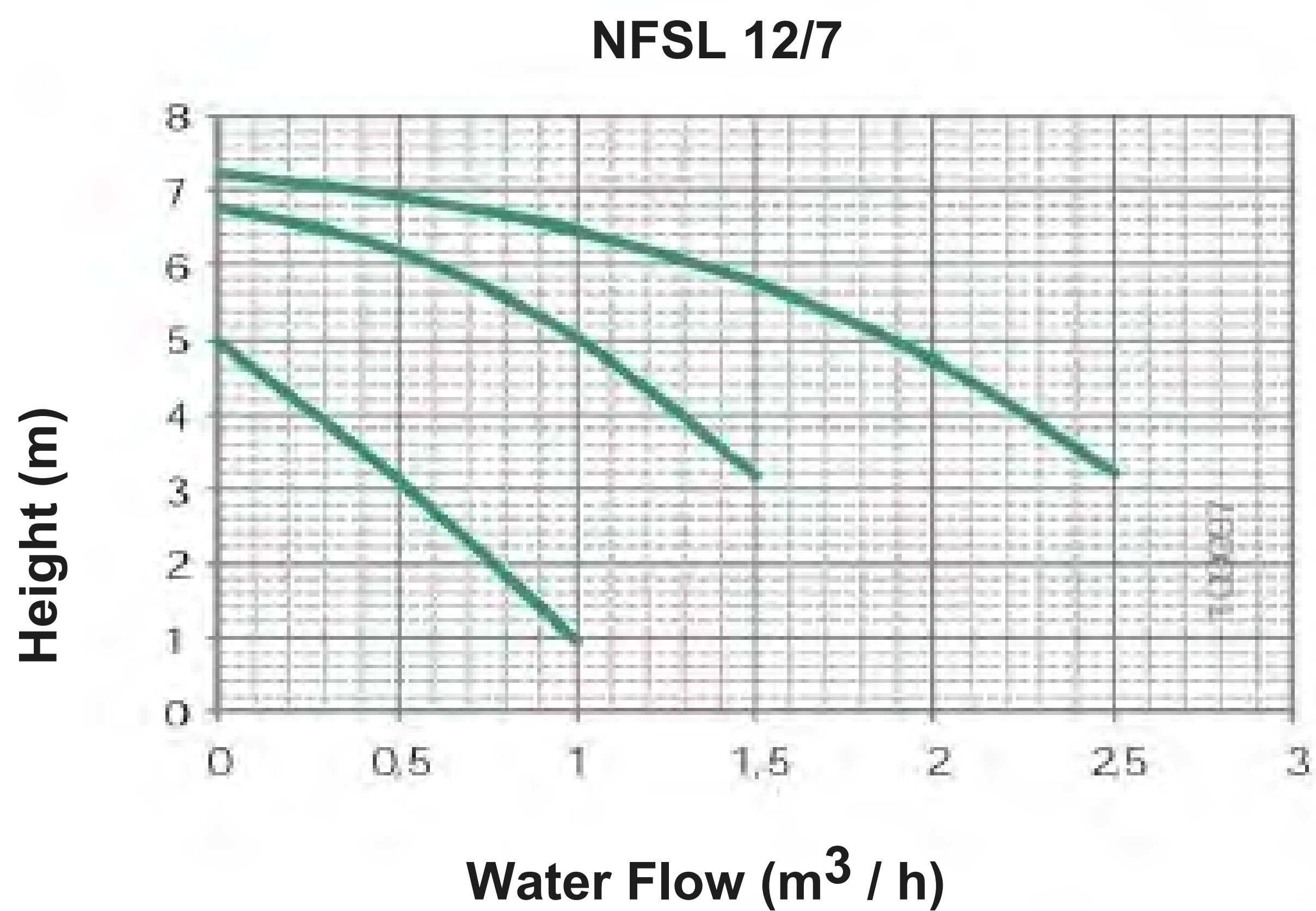
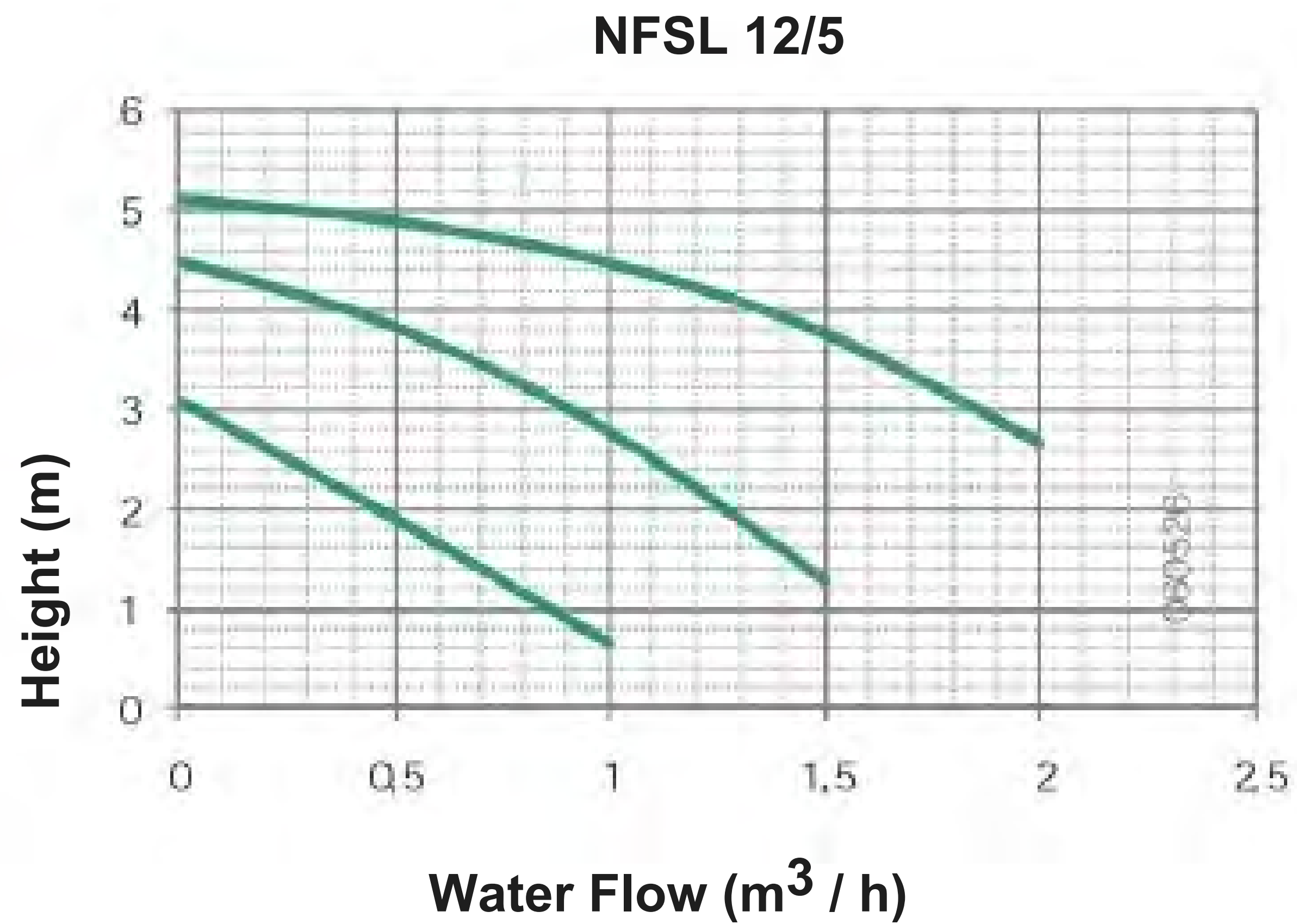
Recommended for systems with fixed system resistance requiring a constant volume flow.  
The pump runs in three prescribed fixed speed stages (I, II, III).





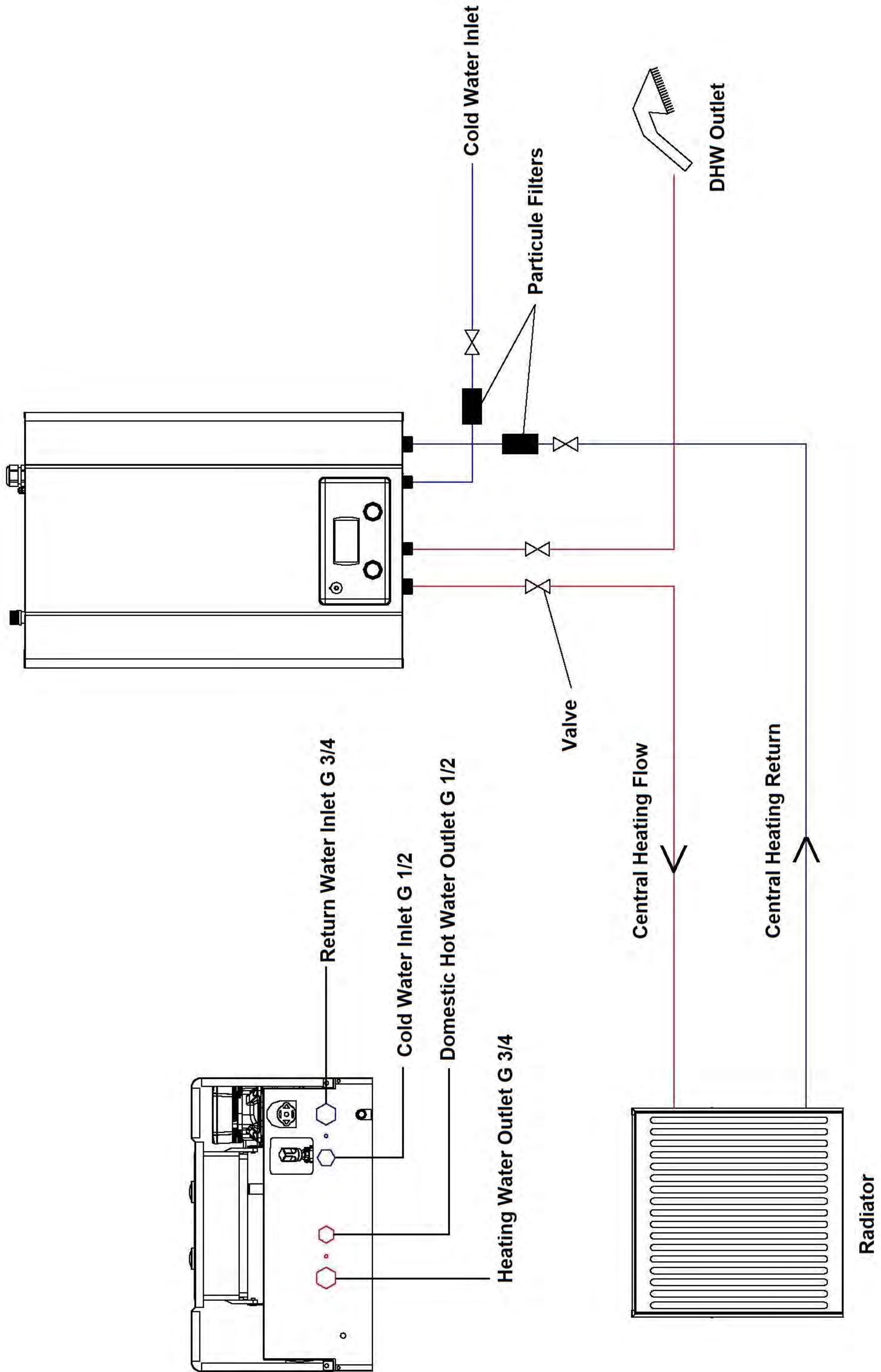
### 3.6.2 3-Speed Circulation Pump

MAKTEK Omega LCD Boiler can also be supplied with a 3-speed circulation pump. 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.

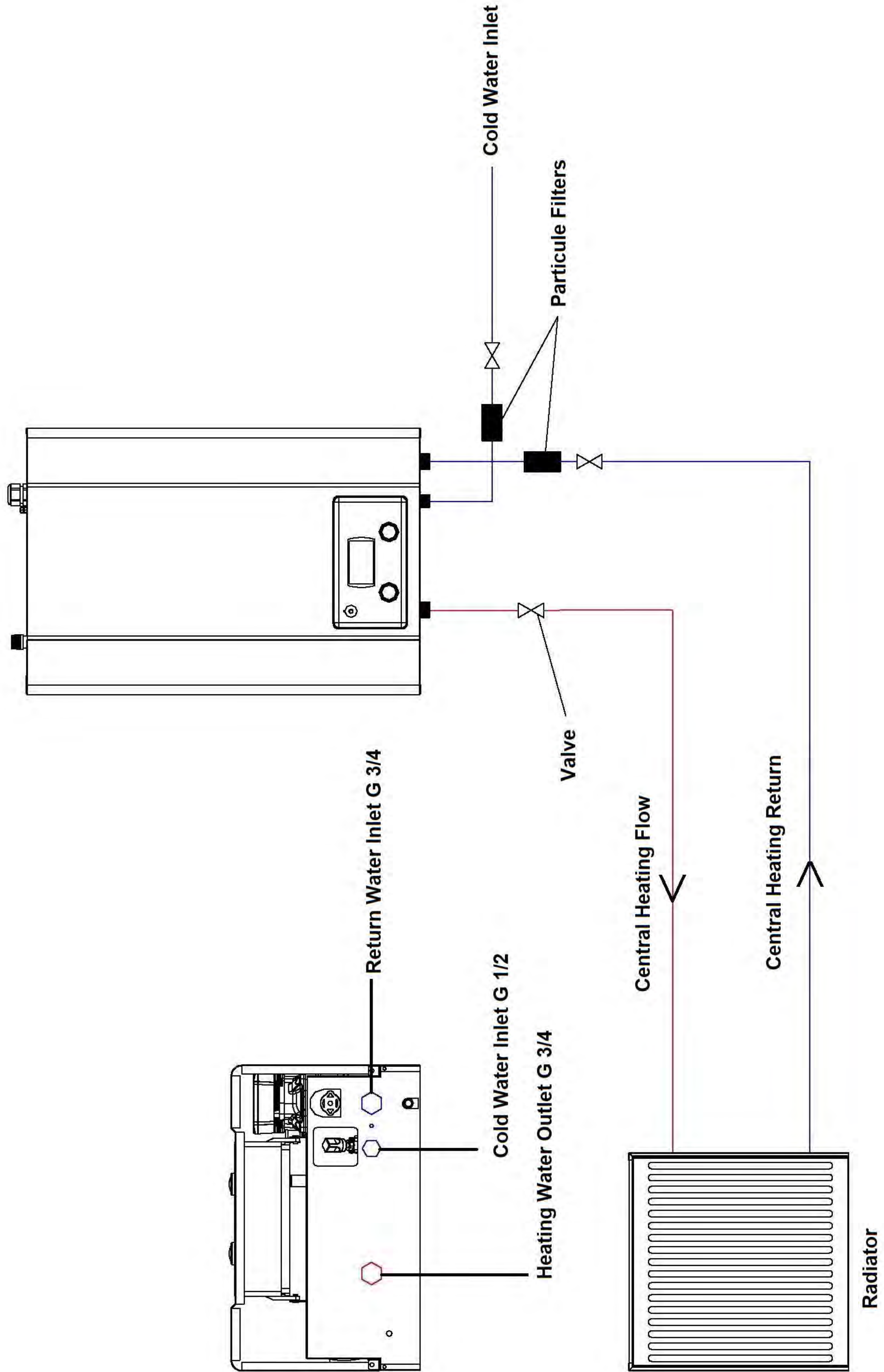


### 3.7 BOILER INSTALLATION DIAGRAMS

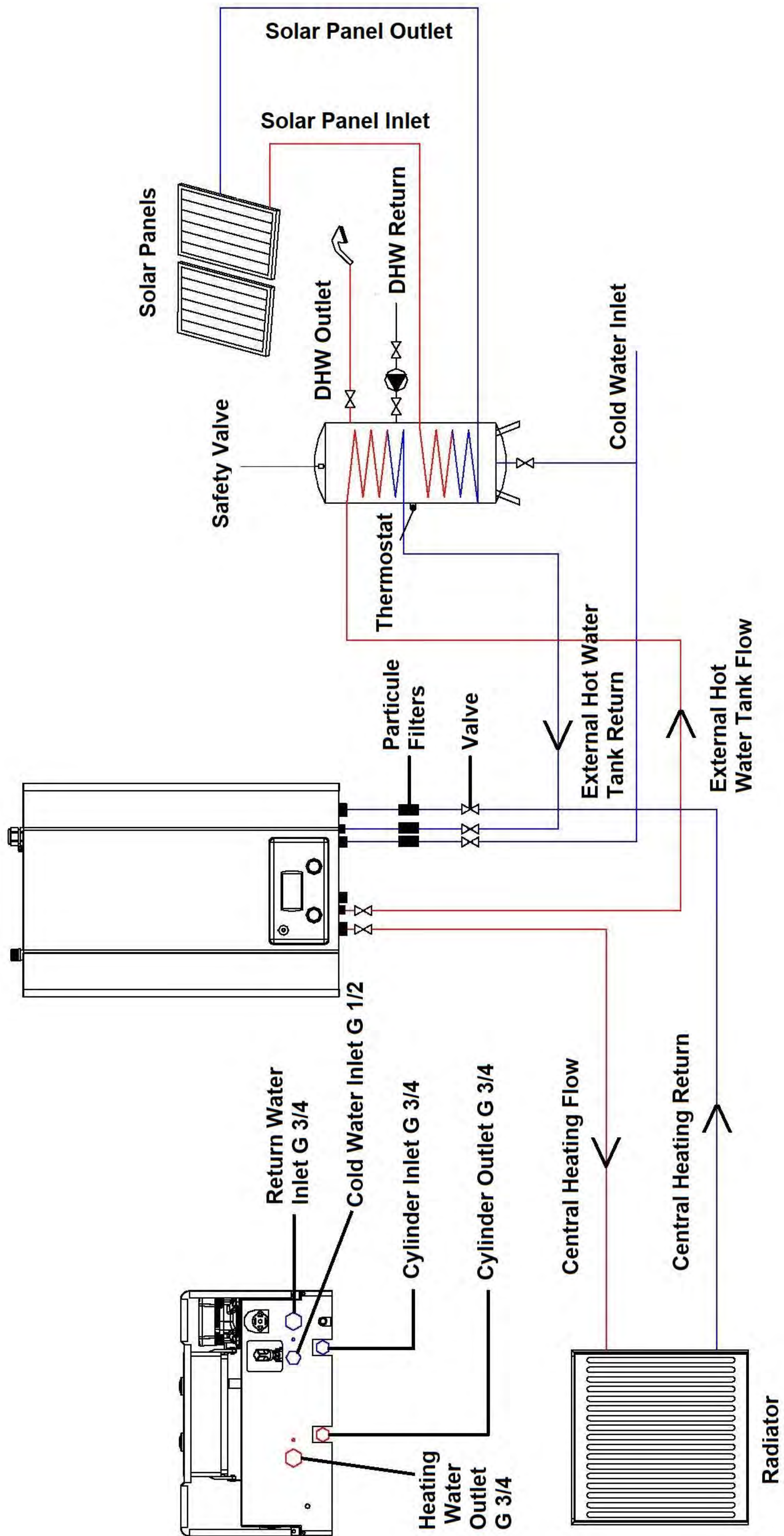
#### 3.7.1 With DHW (Plate Heat Exchanger)



### 3.7.2 Only Heating



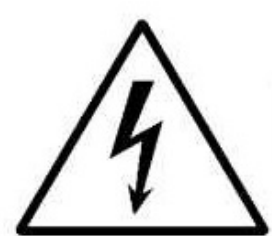
### 3.7.3 Installation With Hot Water Cylinder





## 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.

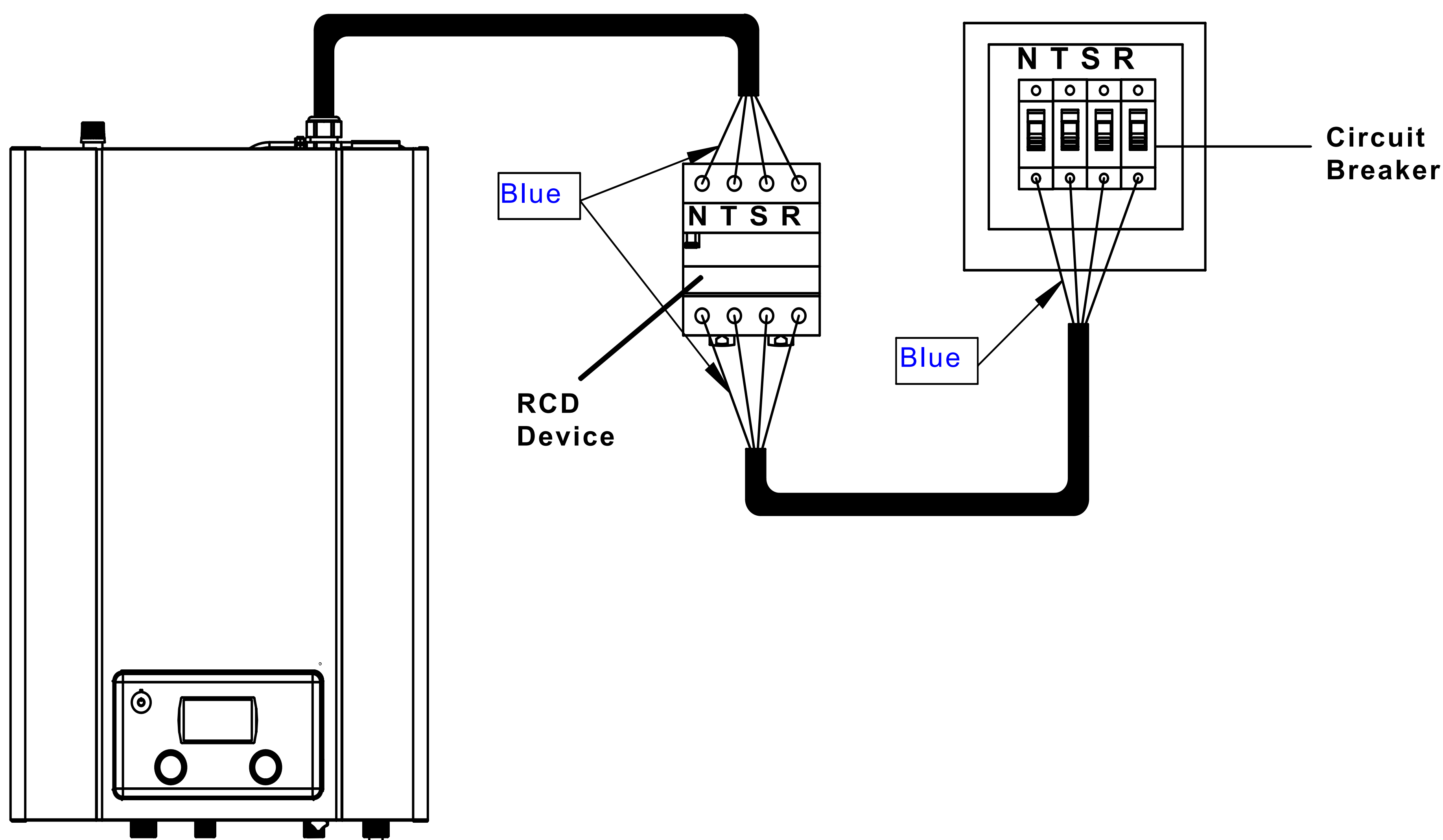
### 3.8.1 Electricity Connection Precautions

- 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.

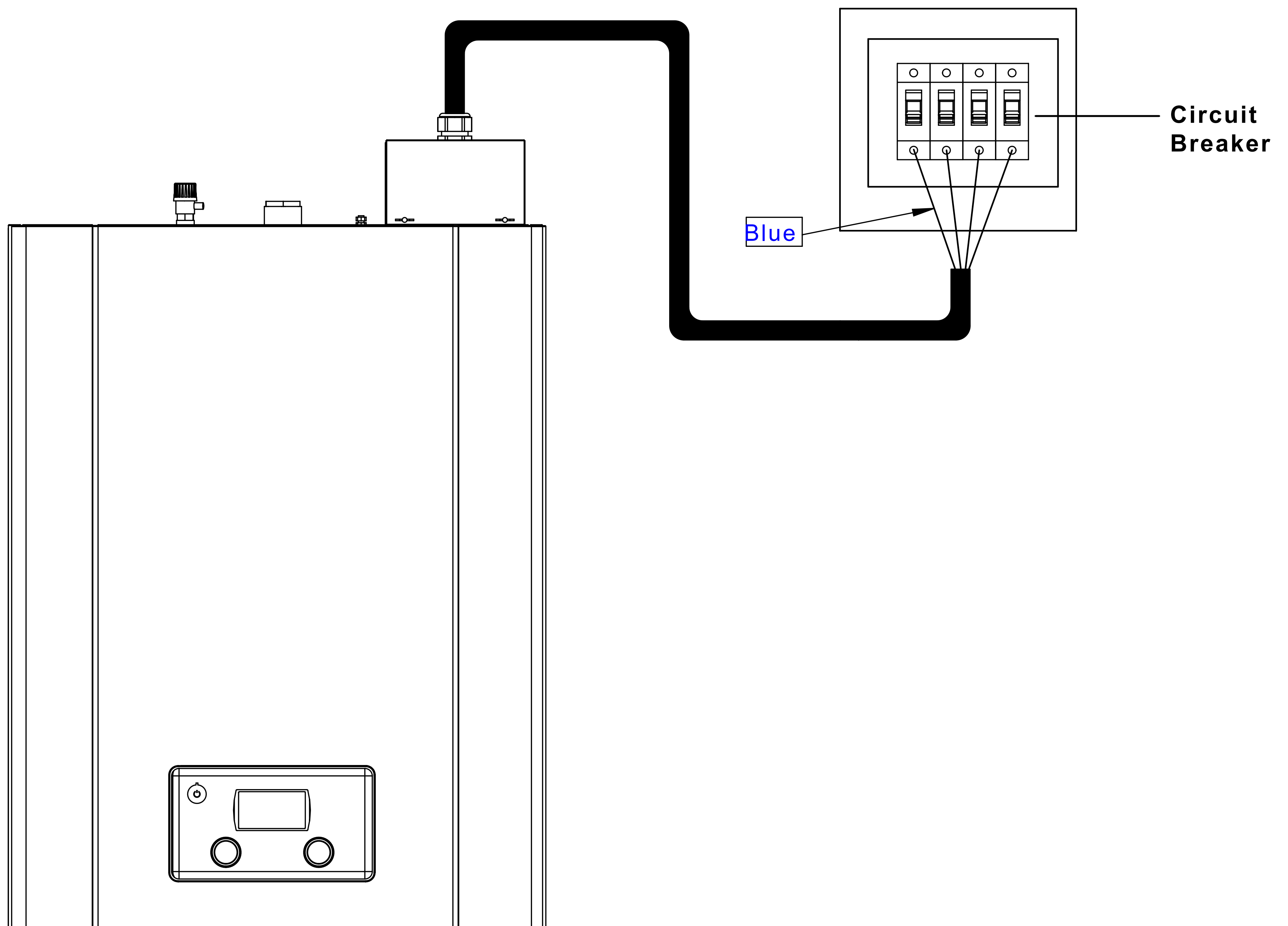
### 3.8.2 Electricity Supply Connection

- 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



\*In 50-100kW models, the RCD device is mounted inside the boiler. The connection between the RCD and the main circuit breaker should be made with a suitable dimension cable (see table for electricity connection parameters) and according to the diagram above.

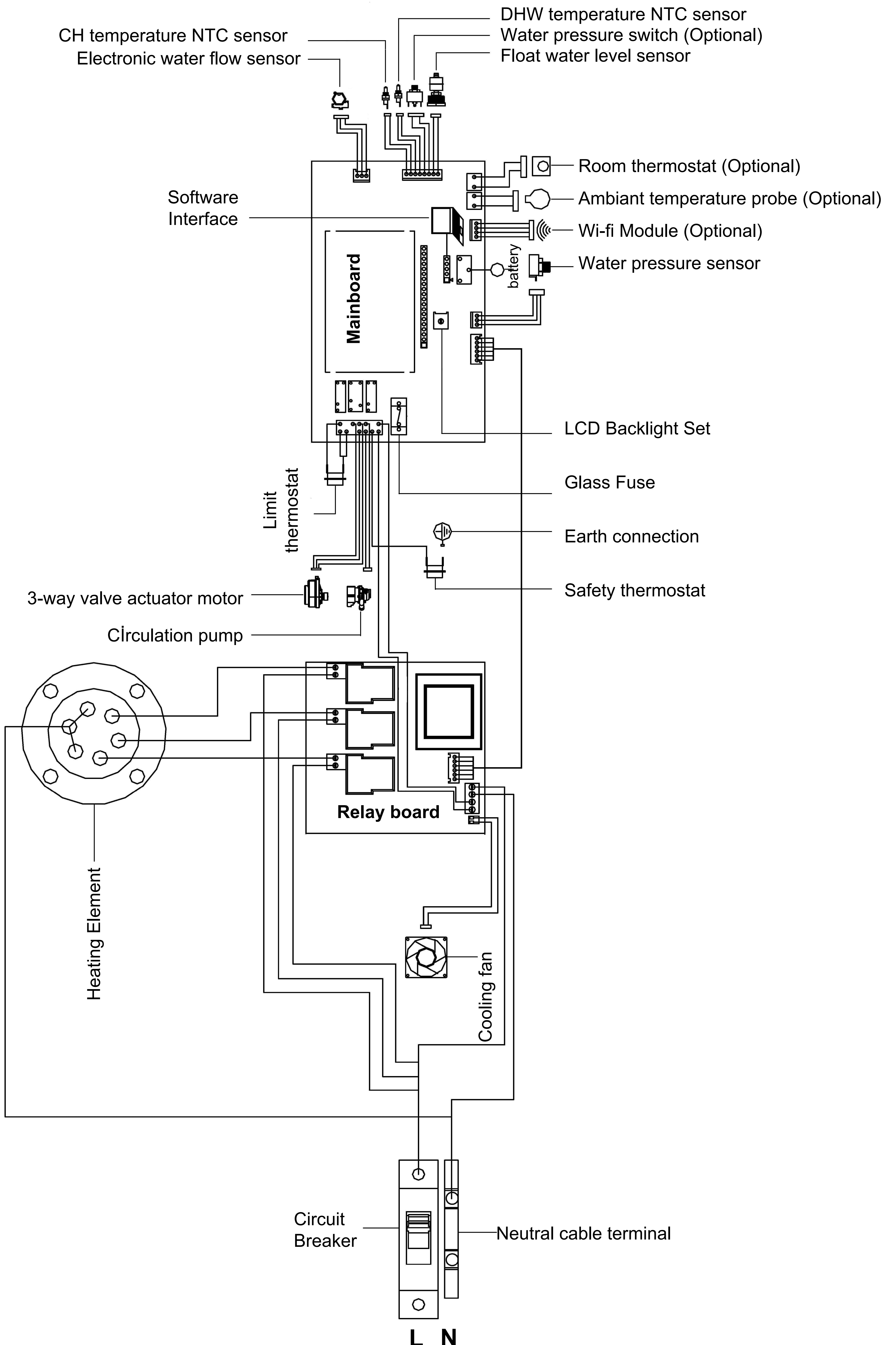
The cable connections are clearly marked on the cables to be connected to the RCD device.

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

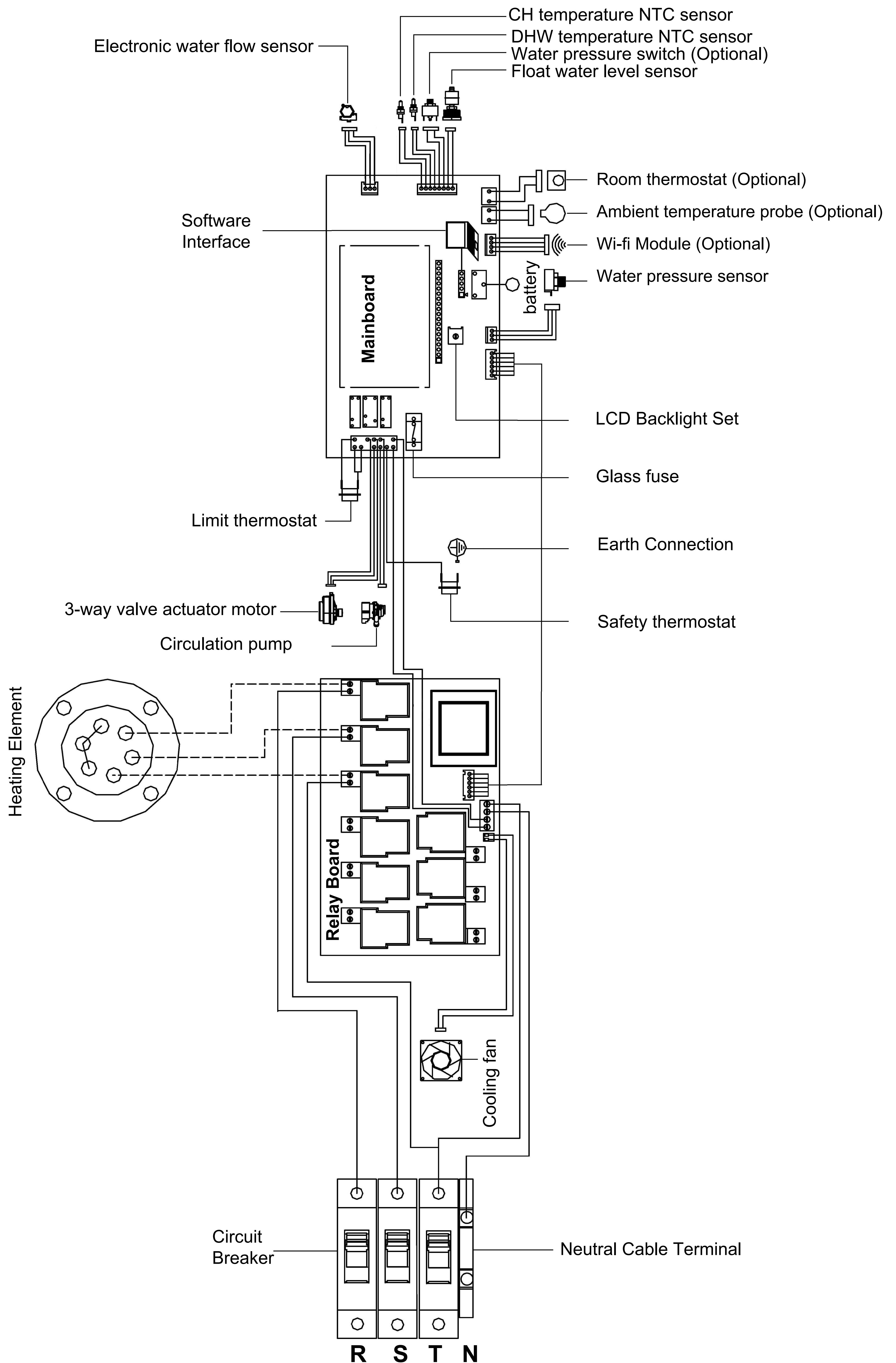
### WARNING

- 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.

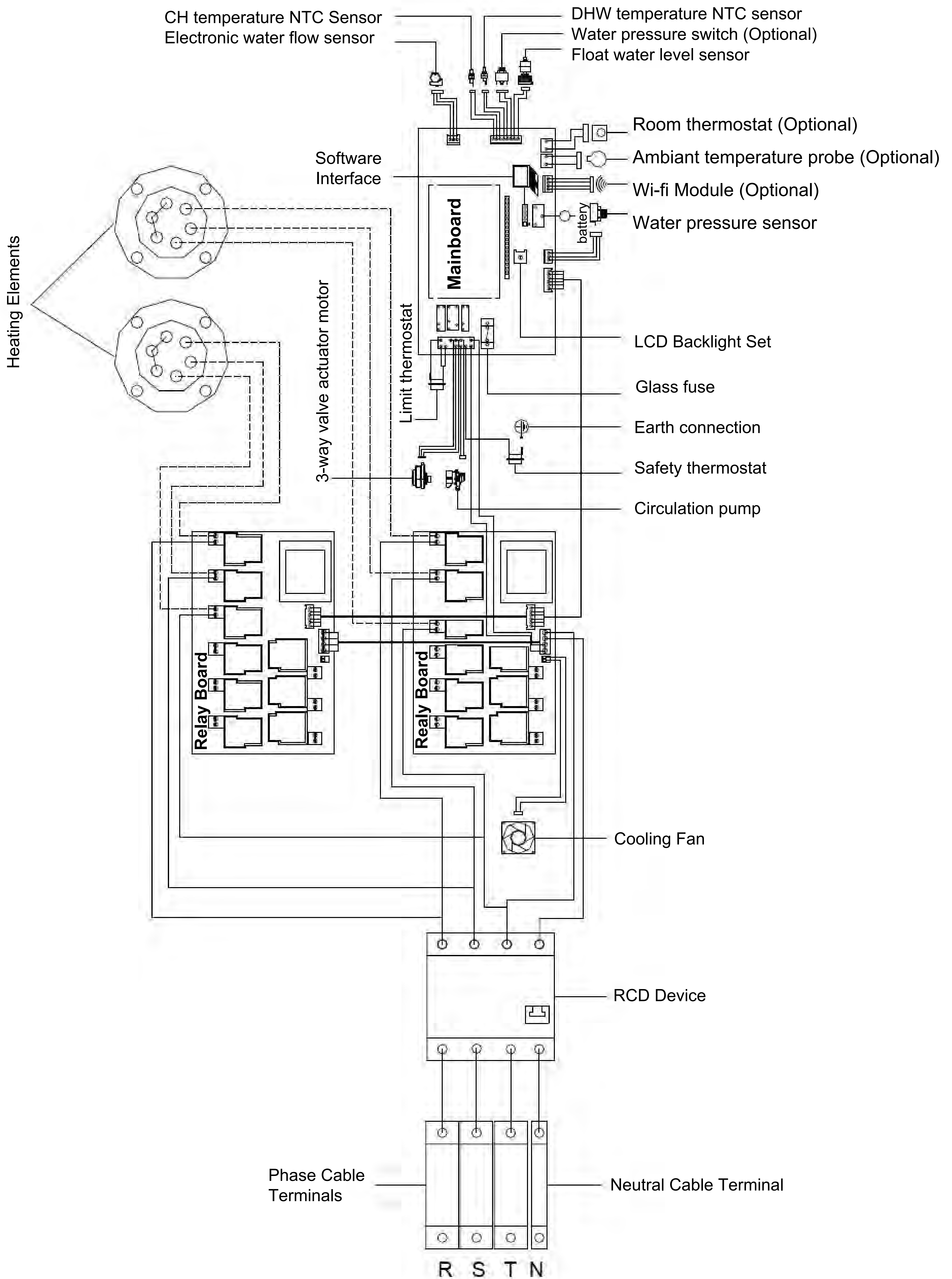
### 3.8.3 Electrical Connection Diagram 220V (Monophase) (6kW-12kW Models)



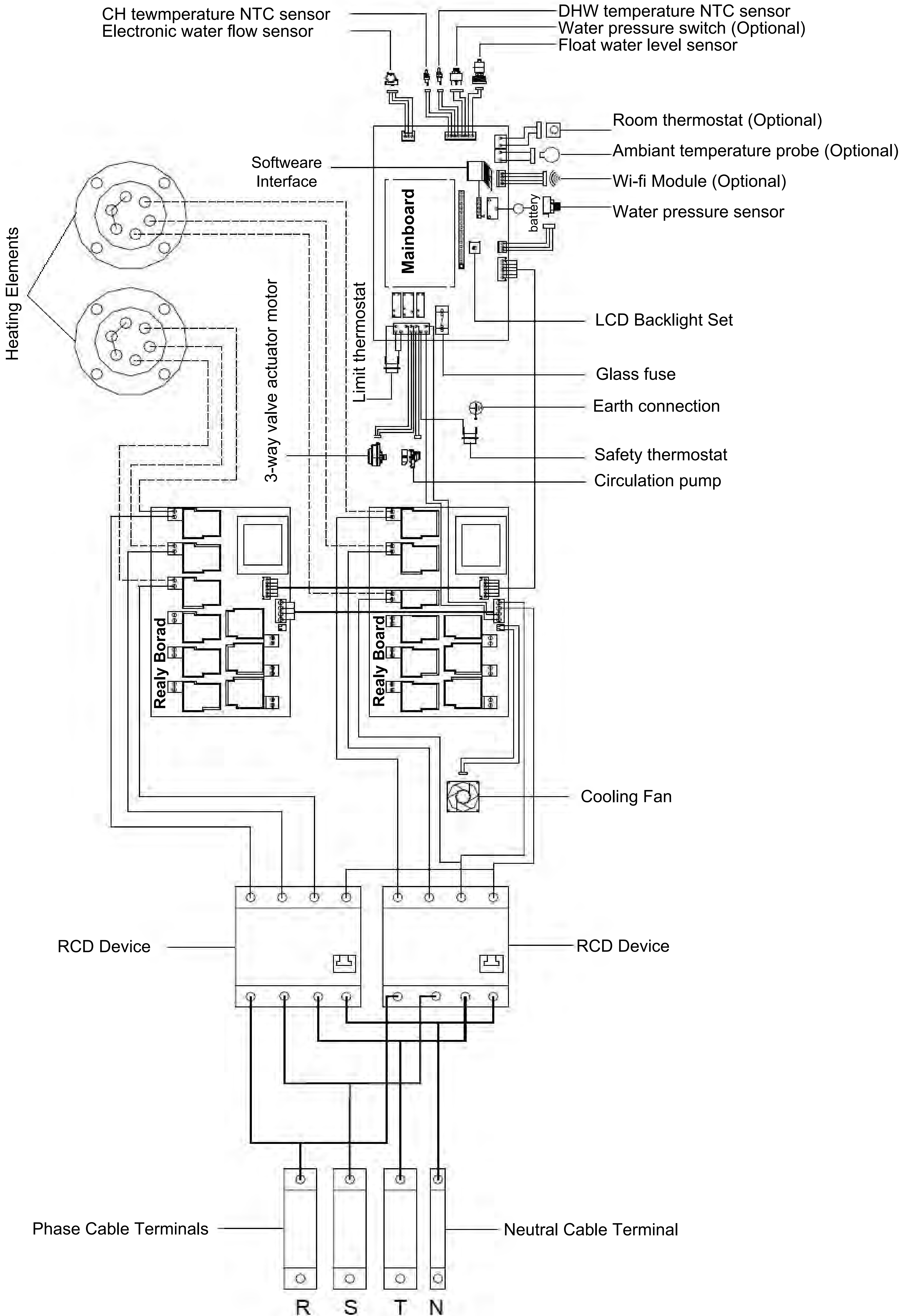
### 3.8.4 Electrical Connection Diagram 380V (3-phase) (15-40kW Models)



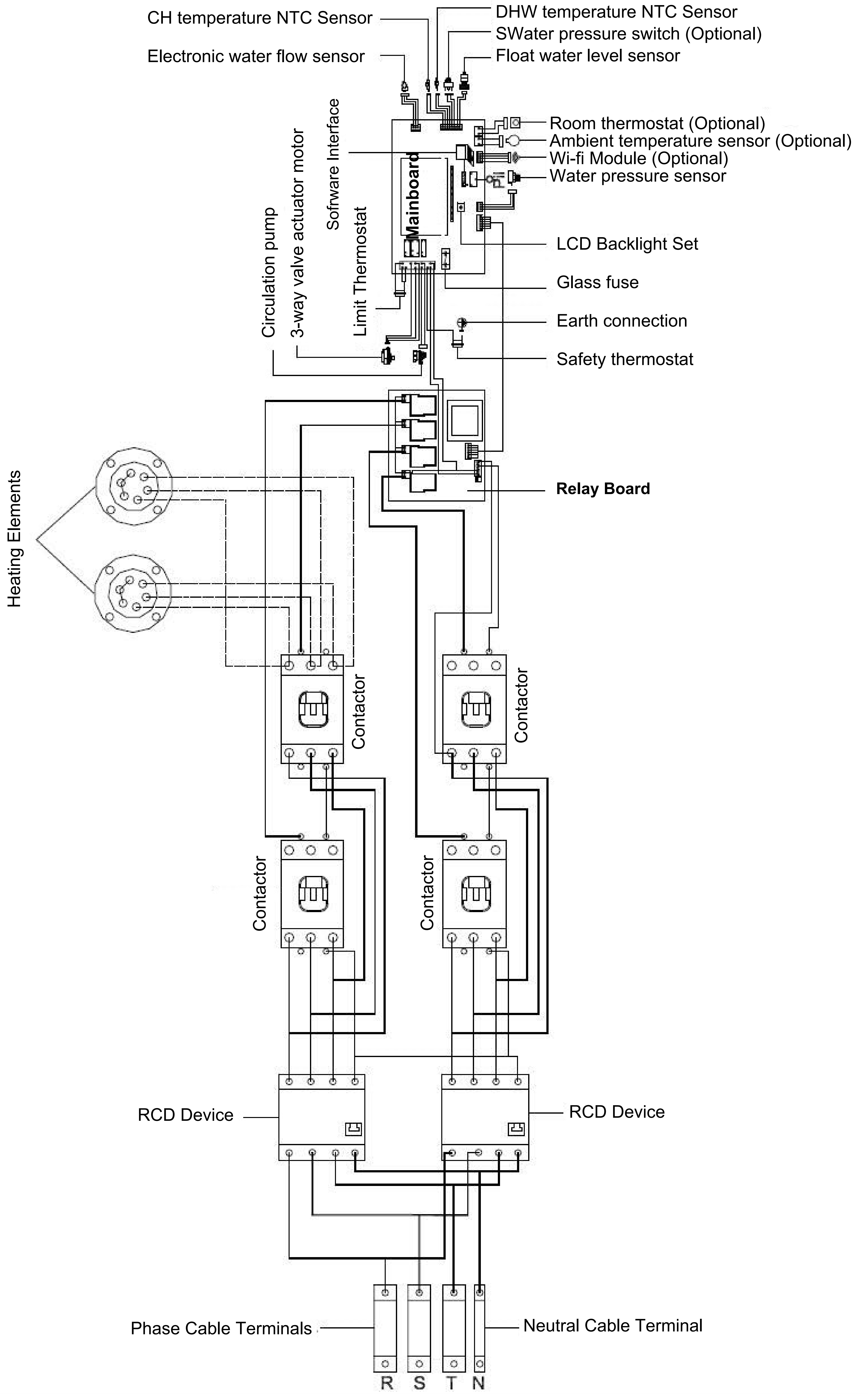
### 3.8.5 Electrical Connection Diagram 380V (3-phase) (50-60kW Models)




### 3.8.6 Electrical Connection Diagram 380V (3-phase) (80kW Model)

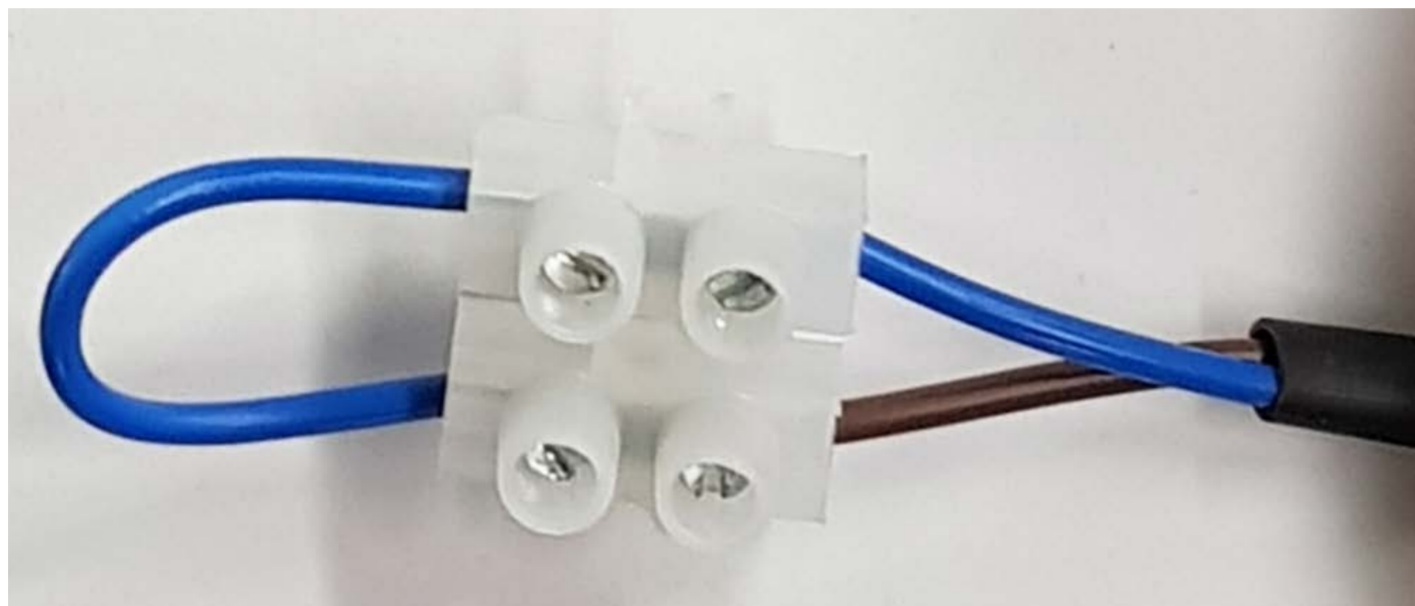


### 3.8.7 Electrical Connection Diagram 380V (3-Phase) (100 kW Model)



### 3.9 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. When the room thermostat is connected to your boiler;  icon will be shown on the LCD screen when the boiler operation is stopped by a signal from the room thermostat or in case of a room thermostat failure.



Room thermostat icon



**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.

### 3.10 ELECTRICITY CONNECTION PARAMETERS

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

Heating Power	kW	30-32-35-40	50	60	80	100
Electric Connection Cable 1 Phase	pcs./mm <sup>2</sup>	...	...	...	...	...
Electric Connection Cable 3 Phase	pcs./mm <sup>2</sup>	4 x 10	4x16	4x16	3x25+16	3x35+16
RCD 1 Phase	A/mA	...	...	...	...	...
RCD 3 Phase	A/mA	63 / 30	80/30	100/30	x2 63/30	x2 80/30
Main Breaker 1 Phase	A	...	...	...	...	...
Main Breaker 3 Phase	A	63	80	100	125	160
Electric Isolation Degree	IP	X4D	X4D	X4D	X4D	X4D

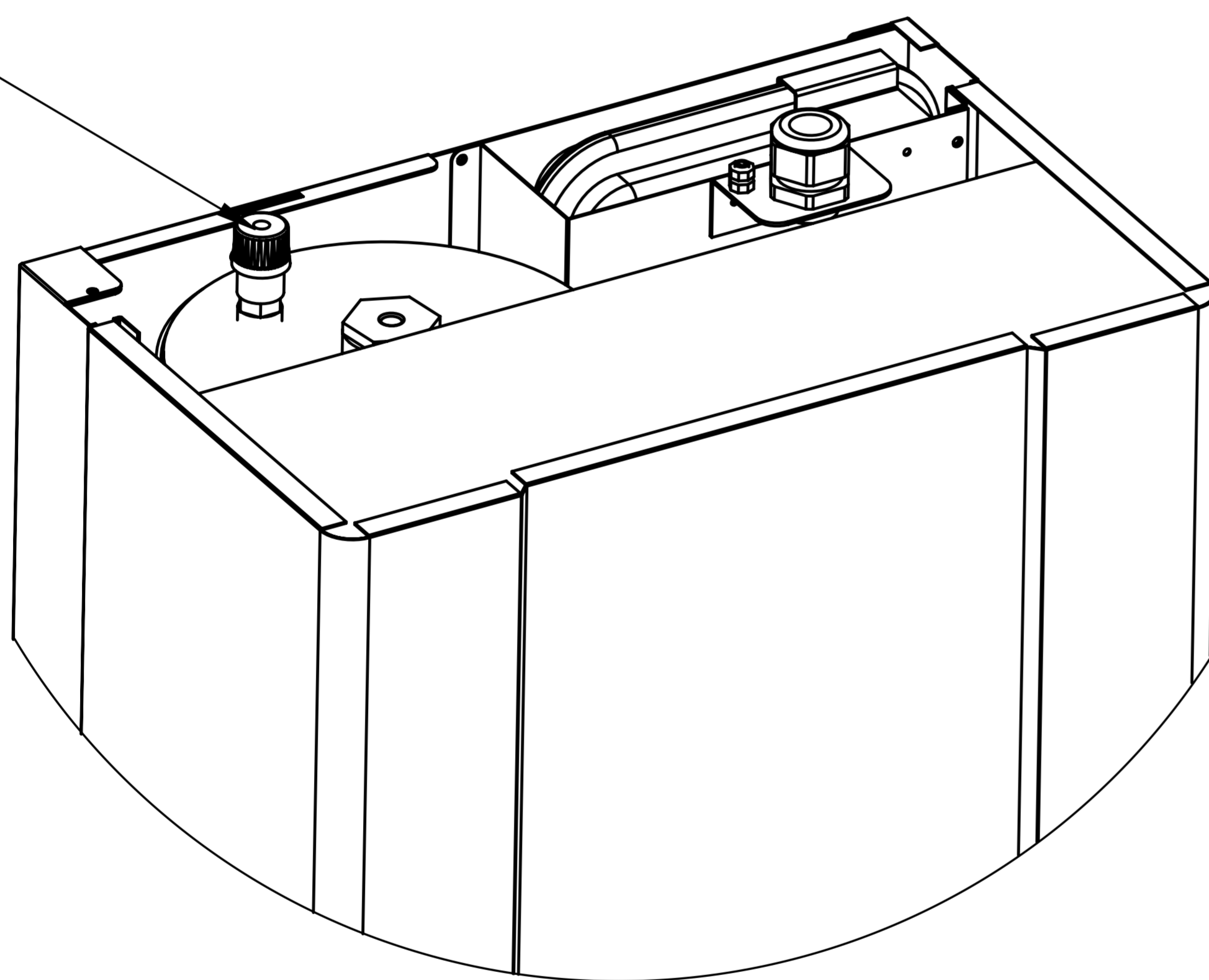


## 4. COMMISSIONING

### 4.1 FILLING WATER TO THE SYSTEM

- a) Make sure that the automatic air vent valve on the circulation pump is loose.
- b) Turn on the filling valve and fill water until the pressure reaches 1.5 bars on the LCD screen.
- 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 LCD screen. 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 1.5 bar is shown on the LCD screen.

Manuel Air Vent



Water Pressure Indicator



### 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.

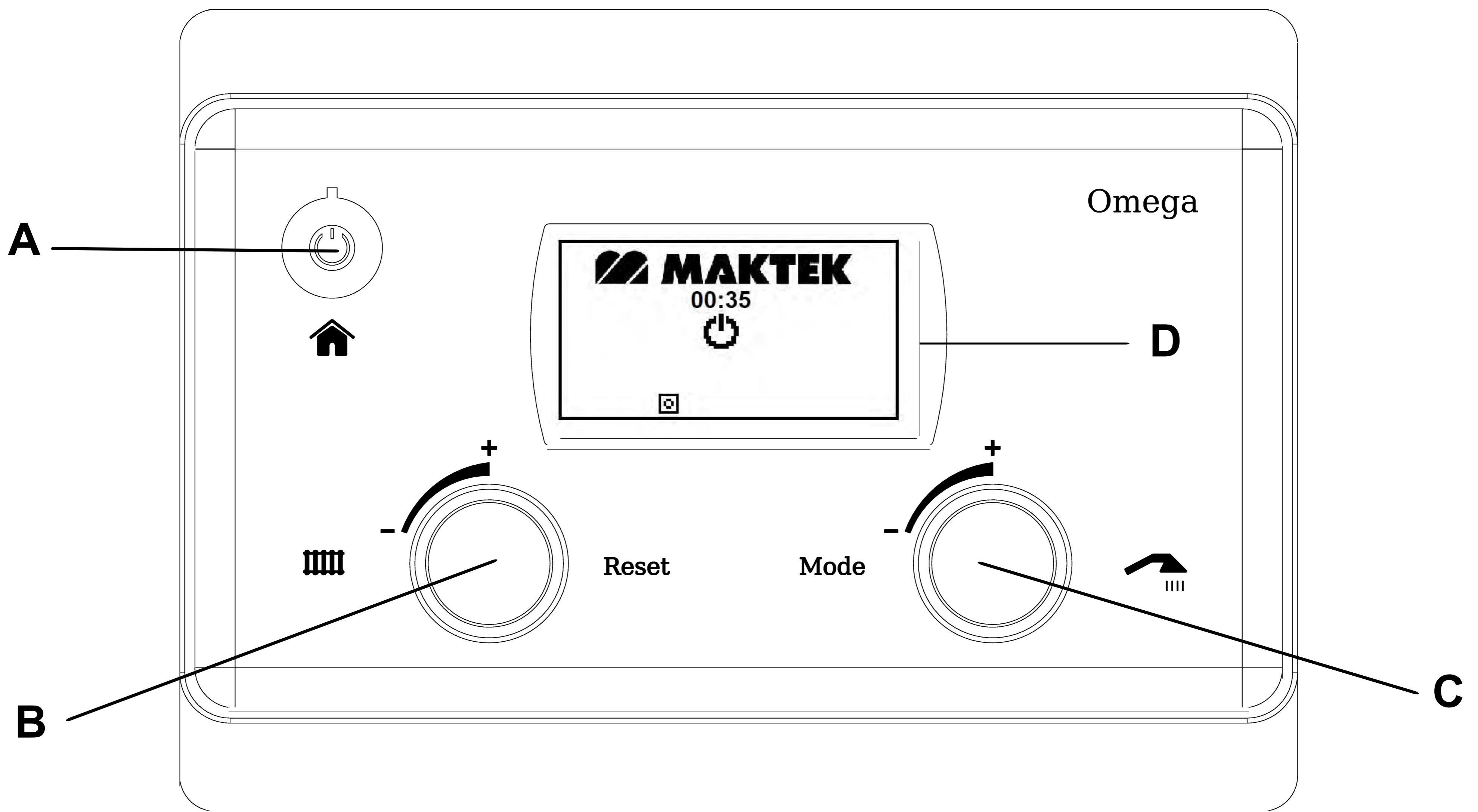
The following steps will be taken to put the boiler into operation:

- 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) Make sure water is filled to the system as explained in the previous section and all air inside the system is vented correctly. Pressure shown on the LCD screen should be 1-1.5 bar.
- d) Press the on/off button and turn on the boiler. Adjust the central heating temperature with P1 knob and domestic hot water temperature with P2 knob. The adjusted temperatures will flash on the LCD screen and then the instantaneous temperature values for both central heating and domestic hot water will be shown on the LCD screen during operation of the boiler.

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 adjustment knobs and an on/off button on the control panel. All operation parameters and adjustments can be followed on the LCD screen. All failure reports are shown on the LCD screen with codes and explanations.

#### **A. ON/OFF - HOME SCREEN BUTTON:**

This is the on/off button for the boiler. Returns to the main screen whilst pressed inside a menu.

#### **B. P1 KNOB :**

On the operation screen, turn this knob to adjust the central heating water temperature between 30-80°C. Press on this knob to enter the main menu. You can turn this knob to scroll through the sub menus and press on the knob again to enter in the selected sub menu.

In case of a failure that requires a manual reset, pressing on P1 knob will perform the manual reset.

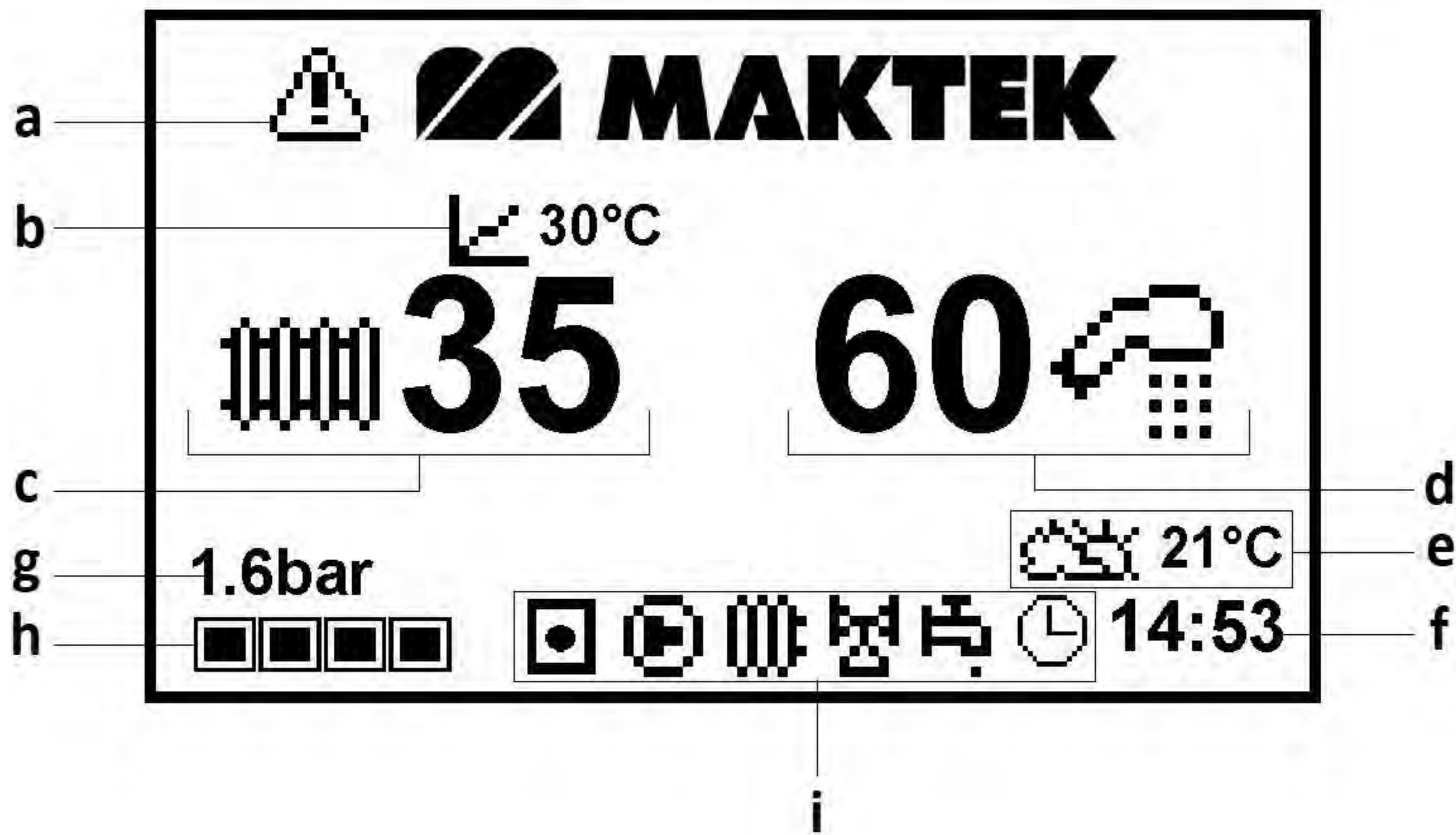
#### **C.P2 KNOB:**




On the operation screen, turn this knob to adjust the domestic hot water temperature between 30-60°C. Inside the settings menus, adjustment of desired values and parameters are done by turning this knob.

P2 knob is also used as a shortcut to change the boiler operation mode. Press and hold for 3 seconds on P2 knob to switch the boiler operation mode between; only heating, winter mode (heating + DHW) or summer mode (only DHW).

## D. LCD SCREEN

All operation parameters are shown with icons on the LCD screen. The definitions of the icons are explained below.



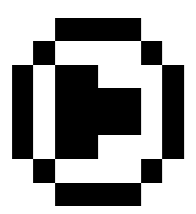
- a) **Error Icon:** Shows that there is an ongoing failure.
- b) **Ambient Temperature Operation Curve:** Shows the automatic operation curve when the ambient temperature probe is connected. Detailed information regarding automatic operation according to ambient temperature is given in section 5.2.3.4 of this manual.
- c) **Central Heating Temperature:** Central heating temperature adjusted with P1 knob is shown here. Adjusted value will flash for 5 seconds and save. Central heating circuit instantaneous temperature value is shown on screen during operation. When the boiler is operating in central heating mode,  icon will be flashing on the screen.
- d) **Domestic Hot Water Temperature:** Domestic hot water temperature adjusted with P2 knob is shown here. Adjusted value will flash for 5 seconds and save. DHW instantaneous temperature value is shown on screen during operation. When the boiler is operating in DHW mode,  icon is animated on the LCD screen.
- e) **Ambient Temperature Icon:** When the ambient temperature probe is connected to the boiler, the measured outside weather temperature is shown in this section.. If the user disables automatic operation with ambient temperature function, only  icon is displayed, reminding the user the probe is still connected.
- f) **Clock:** Time set by the user is shown on the LCD screen.
- g) **Water Pressure Indicator:** Closed circuit water pressure is shown in this section.
- h) **Modulation Indicator:** Shows which elements are currently in operation.

## i) Operation Indicators:

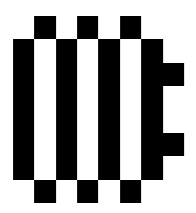


- **Room Thermostat Icon:** In boiler where a room thermostat is connected (optional equipment) this icon indicates that the room reached the adjusted temperature and boiler operation is stopped by the room thermostat.

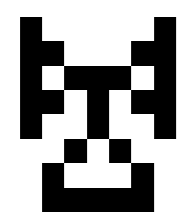
**NOTE:** In case of a room thermostat failure, this icon will be shown on the LCD screen constantly and the boiler will not start. Contact authorized service for a repair of the room thermostat or for checking the connections.



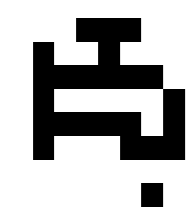
- **Pump Icon:** Indicates that the pump is working.



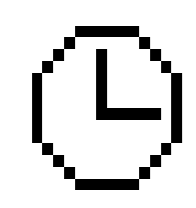
- **Central Heating Icon:** Shows that the boiler is operating in central heating mode.



- **3-way Valve Motor Icon:** Indicates that the actuator motor changed position.



- **Domestic Hot Water Icon:** Indicates that a hot water faucet is opened and the boiler is operating in domestic hot water mode.

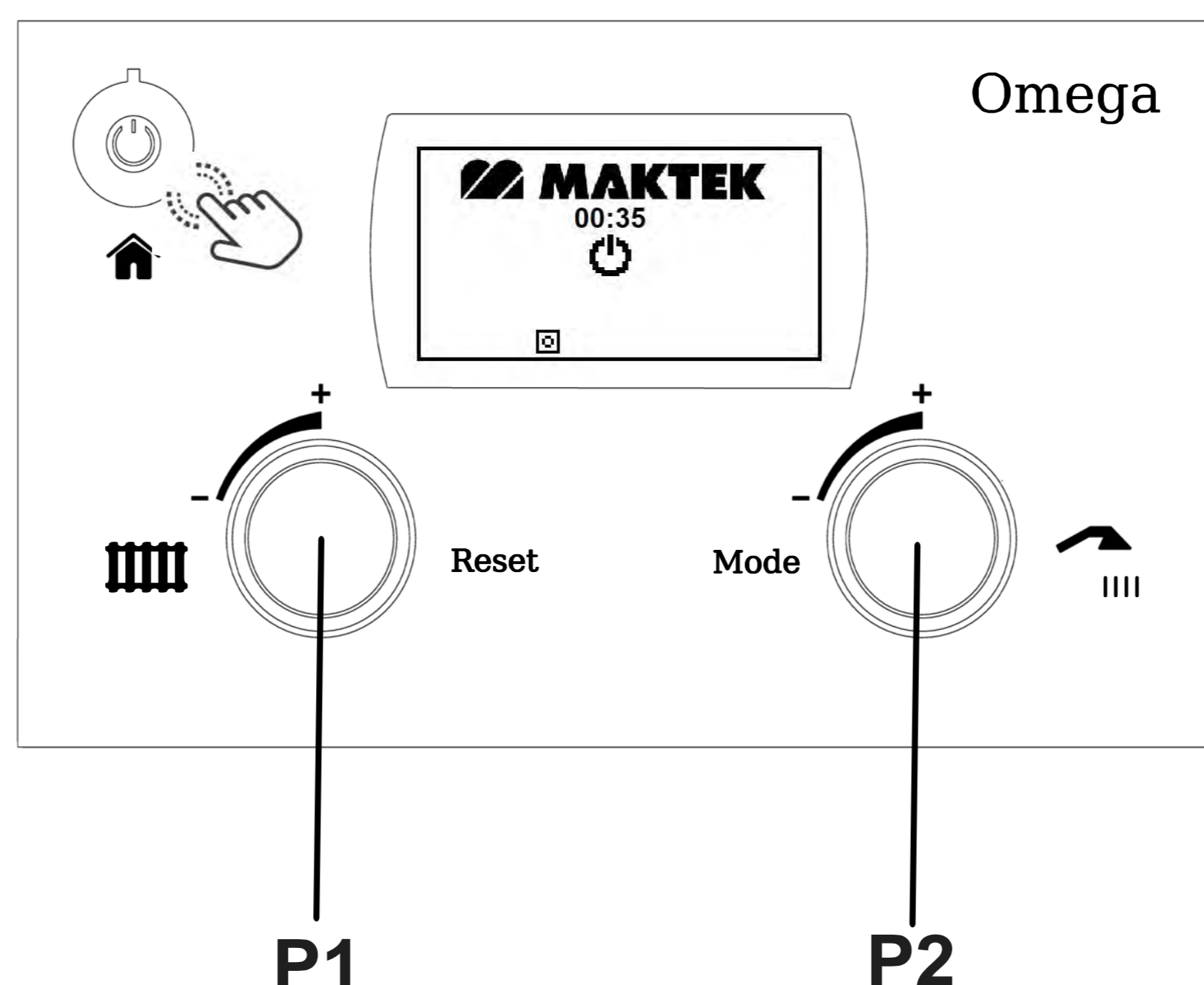


- **Weekly Timer Icon :** When a weekly automatic operation of the boiler is set with the weekly timer function, this icon indicates that the boiler is working automatically according to the set time intervals for that day.

Detailed information regarding automatic operation with the weekly timer function is given at section 5.2.4 of this manual.

## 5.2 OPERATION INSTRUCTIONS


### 5.2.1 TURNING ON THE BOILER



Press the ON/OFF (home) button to turn on the boiler. Adjust the central heating and domestic hot water temperatures shown on the LCD screen to your desired values and the boiler will operate according to your adjustments.

Turn the P1 knob to adjust the central heating temperature. The adjusted value will flash on the screen for 5 seconds and save. The screen will show the central heating water temperature during operation.

You can set the domestic hot water temperature in the same way, using the P2 knob.

To turn off the boiler, press the on/off button whilst on the operation screen.  icon will appear on the screen and boiler will be in stand-by mode. In stand-by mode, frost protection, pump and 3-way valve actuator motor anti-jamming functions are active.

**NOTE:** For the protection systems such as frost protection, pump and actuator motor anti-jamming functions to operate properly, electricity should be on and all the valves on the installation should be open. Any damage or breakdown occurring while the electricity is off or if the valves are kept closed is not covered by warranty.

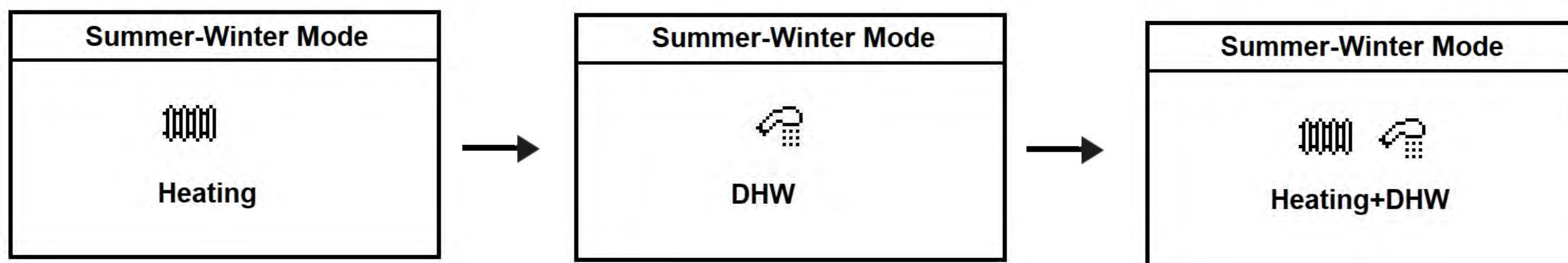
**⚠ CAUTION!** Frost damage which may occur in cases where the electricity is off or the installation valves are kept closed is not covered by warranty.

### 5.2.2 BOILER OPERATION MODE SELECTION:

Press on the P1 knob to enter the main menu. Turn the P1 knob to scroll through the sub menus inside the main menu. Select the summer-winter mode tab by pressing P1 knob on it.



Inside this menu, you can select the desired operation mode by turning P2 knob. When you complete your selection, you can press on P1 to return to the main menu or press the home (on/off) button to return to operation screen.



Boiler only works in CH mode to heat the radiators or the underfloor heating installation.

Summer mode only delivers domestic hot water from faucets and showers. Space heating is disabled.

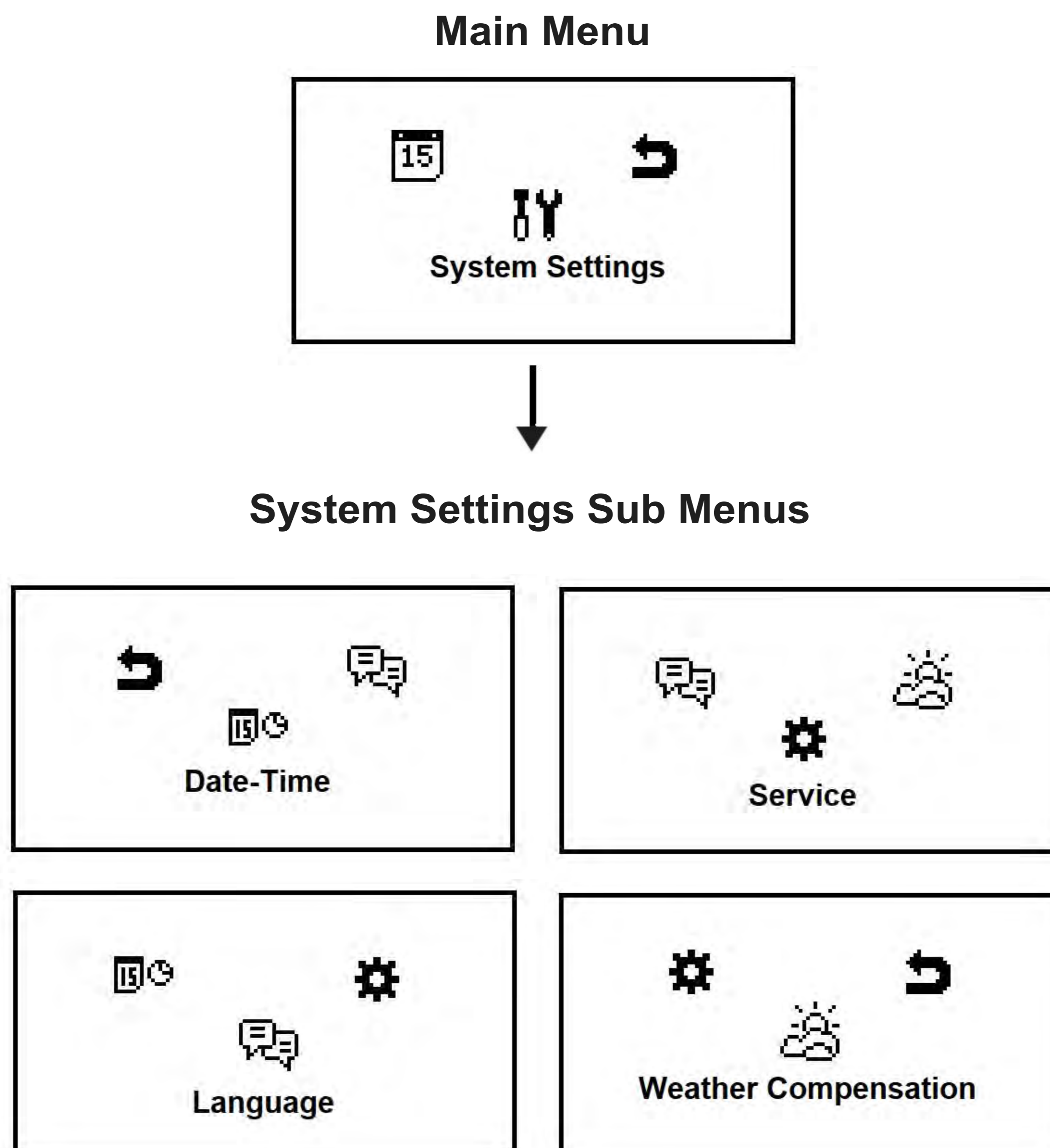
Standard operation mode of the boiler. Supplies hot water both for space heating (CH) and DHW.

- While the boiler is in operation screen you can switch between operation modes by pressing on and holding the P2 knob for 3 seconds as a shortcut.

**NOTE:** In Heating+DHW mode, the DHW supply is prioritised.

### 5.2.3 SYSTEM SETTINGS:

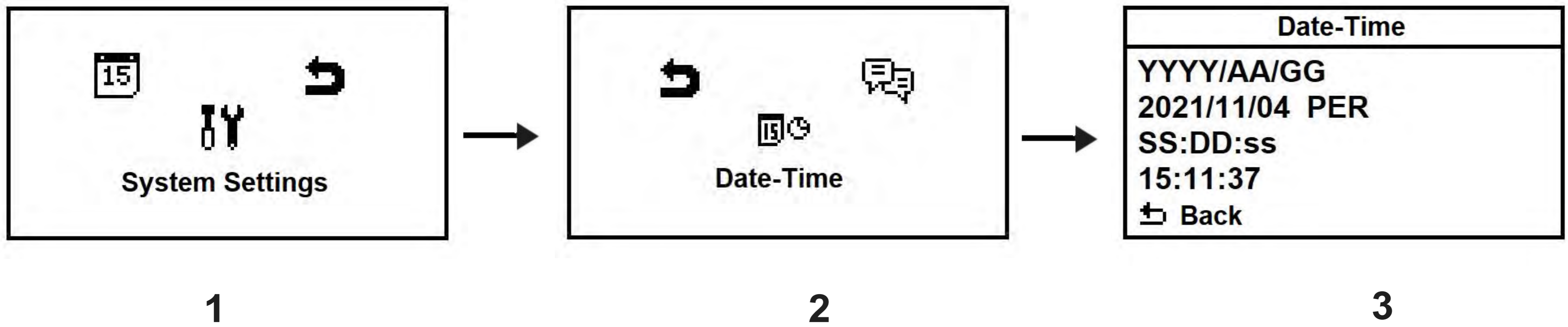
Press the P1 knob to enter to main menu. Scroll to system settings tab by turning P1 and press P1 to enter into system settings menu. Below shown sub menus are present in system settings menu.



### 5.2.3.1 Date - Time Setting

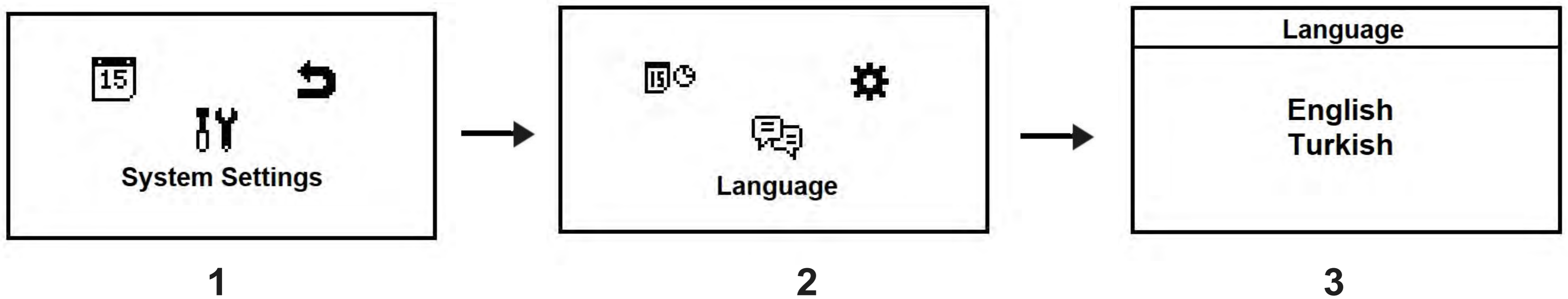
Select the Date -Time setting menu with P1 knob. Turn P1 to scroll through units, turn P2 knob to adjust the desired values for selected units. When the adjustment is complete scroll to back icon and press P1 to return to system settings menu.

**CAUTION!** Date-Time setting must be made accurately in order to be able to use the weekly timer function. If the adjusted date and time setting is incorrect, the boiler will not operate in week timer mode correctly.



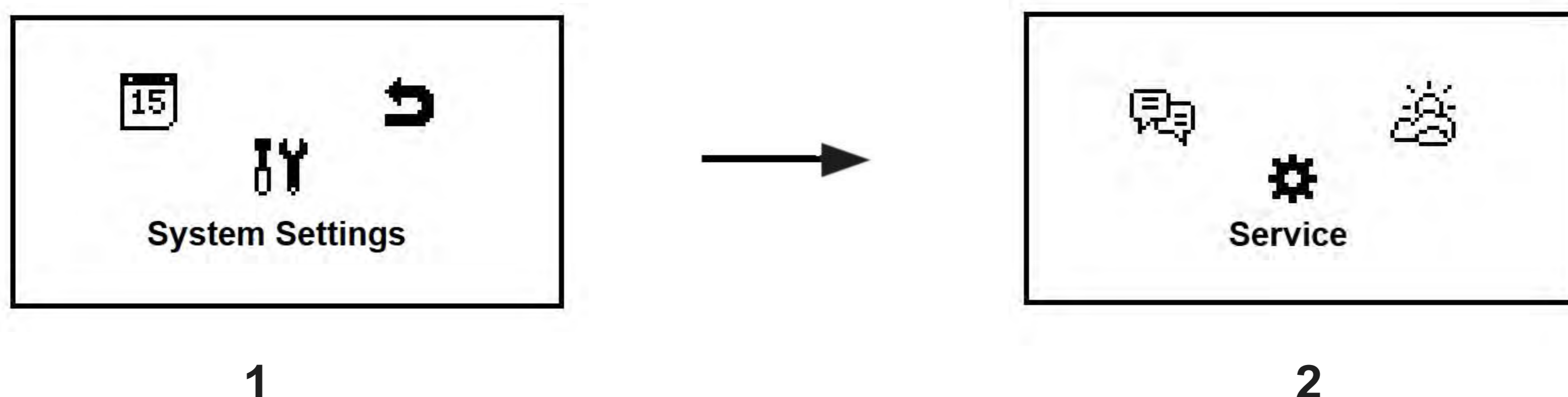
### 5.2.3.2 Language Selection

You can choose the LCD screen text language in language selection tab inside the system settings menu.



### 5.2.3.3 Service Settings Menu

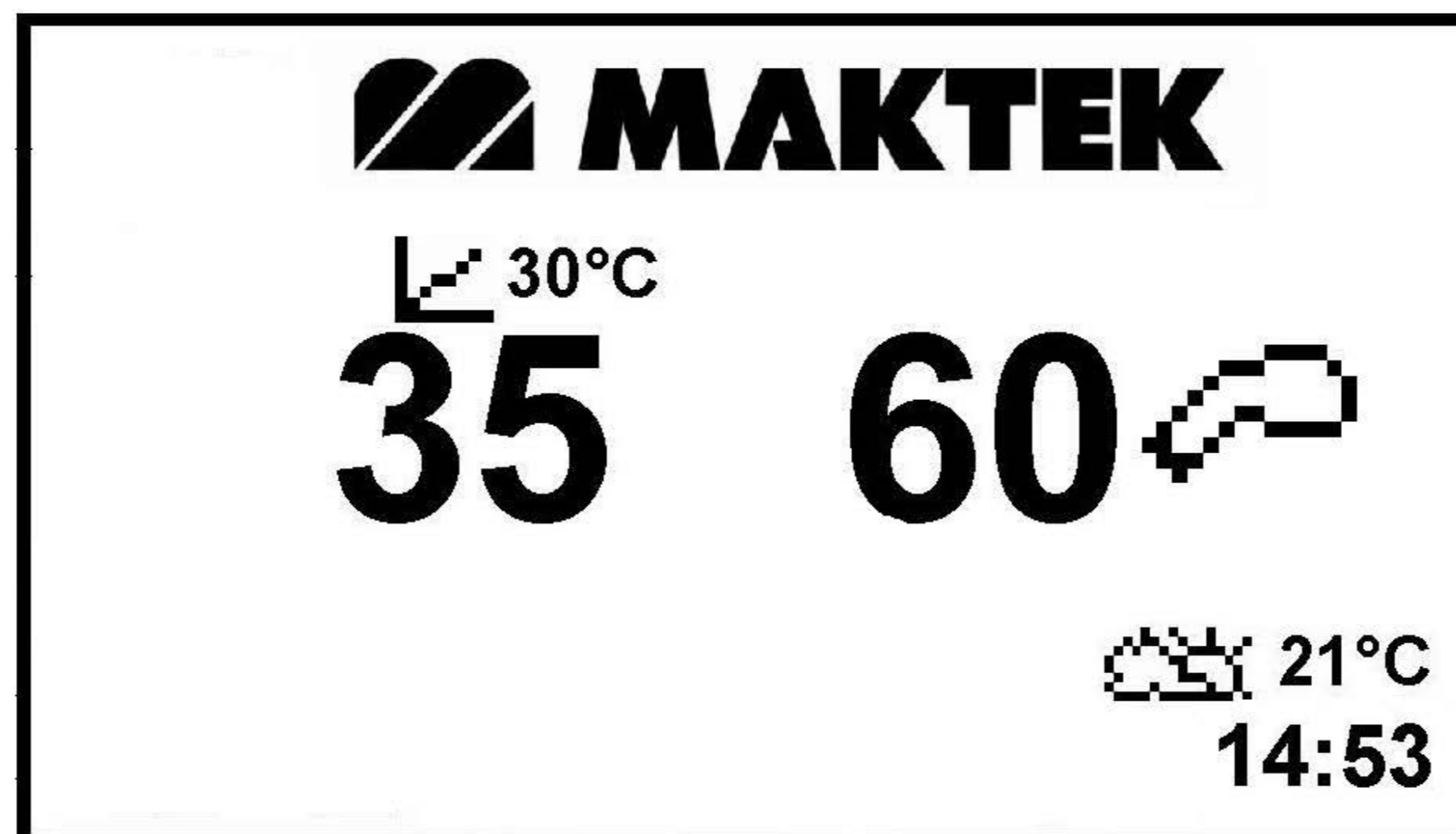
This menu contains settings and parameters for authorized service personnel to use during first start up and maintenance of the boiler. Access to these adjustable parameters of the boiler is restricted to only authorized services.



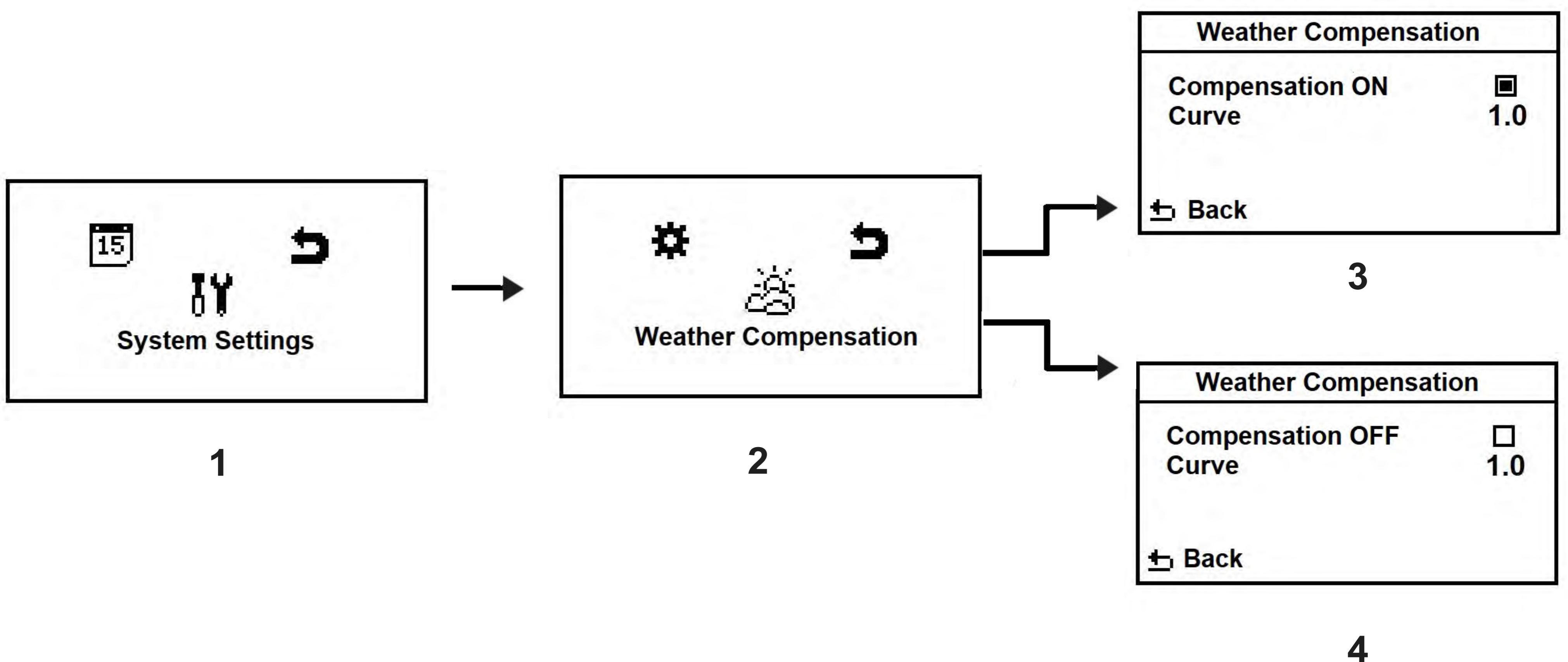


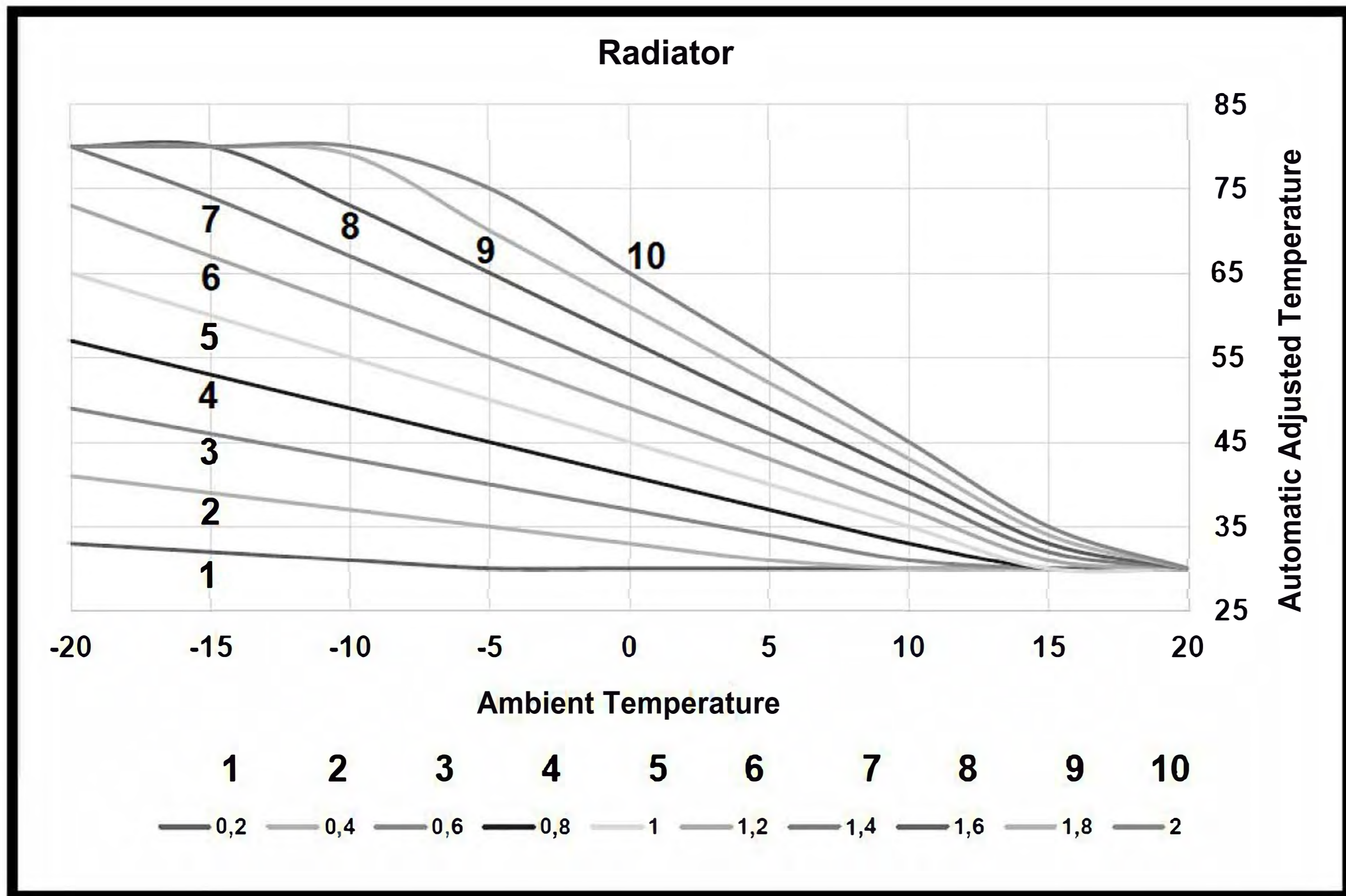
### 5.2.3.4 Weather Compensation

MAKTEK Omega LCD boiler has a automatic operation feature with weather compensation when an optional ambient temperature probe is connected. When this probe is installed to your boiler by an authorized service, ambient temperature icon, ambient temperature value and weather compensation coefficient curve icon will be shown on the LCD screen.

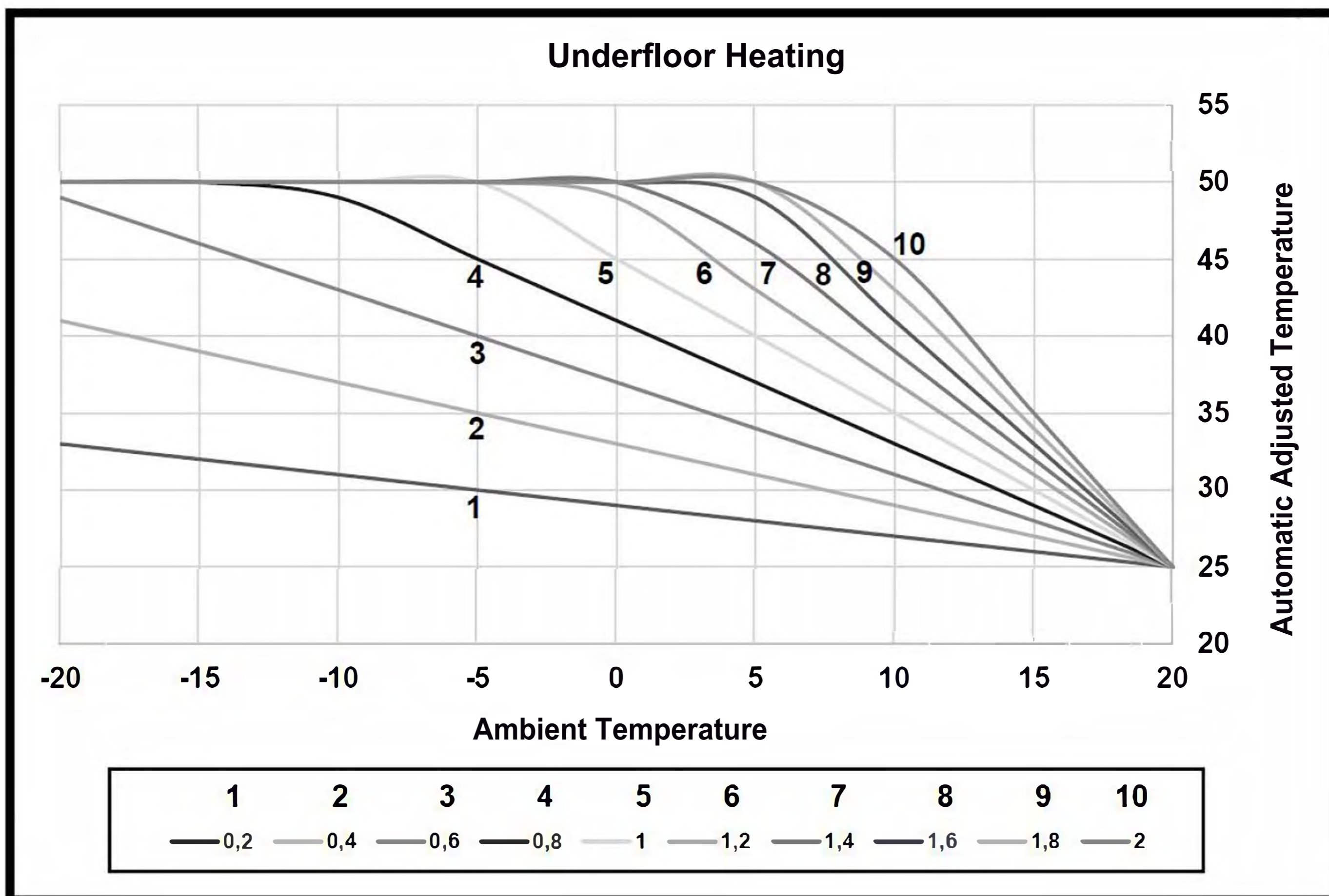


When the ambient temperature probe is connected, weather compensation menu will be activated inside the system settings menu. In this menu you can enable or disable the automatic operation with weather compensation function. When disabled, the boiler will resume operation according to the adjustments made on the control panel. Only ambient temperature icon (will not show the ambient temperature value) will be present on the LCD screen when weather compensation is disabled. Also in this menu you can change the weather compensation curve coefficient. This curve coefficient is used to increase or decrease the heating capacity of the boiler in automatic mode, depending on the insulation level of your home, location or your comfort preferences. Weather compensation curves and corresponding boiler water temperatures are given on page 38.





Heating Curve Coefficient		0,2	0,4	0,6	0,8	1	1,2	1,4	1,6	1,8	2
Outside Temperature	-20	33	41	49	57	65	73	80	80	80	80
	-15	32	39	46	53	60	67	74	80	80	80
	-10	31	37	43	49	55	61	67	73	79	80
	-5	30	35	40	45	50	55	60	65	70	75
	0	30	33	37	41	45	49	53	57	61	65
	5	30	31	34	37	40	43	46	49	52	55
	10	30	30	31	33	35	37	39	41	43	45
	15	30	30	30	30	30	31	32	33	34	35
	20	30	30	30	30	30	30	30	30	30	30



Heating Curve Coefficient		0,2	0,4	0,6	0,8	1	1,2	1,4	1,6	1,8	2
Outside Temperature	-15	32	39	46	50	50	50	50	50	50	50
	-10	31	37	43	49	50	50	50	50	50	50
	-5	30	35	40	45	50	50	50	50	50	50
	0	29	33	37	41	45	49	50	50	50	50
	5	28	31	34	37	40	43	46	49	50	50
	10	27	29	31	33	35	37	39	41	43	45
	15	26	27	28	29	30	31	32	33	34	35
	20	25	25	25	25	25	25	25	25	25	25
	25	24	23	22	21	20	20	20	20	20	20


## 5.2.4 WEEKLY TIMER

Maktek Omega LCD boiler's weekly timer function enables you to set automatic operation time intervals for each day of the week separately.

Press P1 knob to enter the main menu and scroll to the Week Timer menu to select with P1. Inside the week timer menu, there is an adjustment clock which can be set separately for each day of the week. When the selection cursor is on the DAY tab, you can choose the day you want to make a setting for by turning the P2 knob. Once you get to the desired day, press P1 to activate timer for that day. Active box will be filled.

Turn the P1 knob to scroll the cursor through the clock. Mark the time intervals by pressing on P1. Your boiler will operate automatically in the marked time intervals for that day. Once you finish setting for that day, use P1 knob to scroll back to the DAY tab and choose the other day you want to set the timer by turning P2. Press P1 to activate timer for that day and adjust the operation time intervals as instructed.

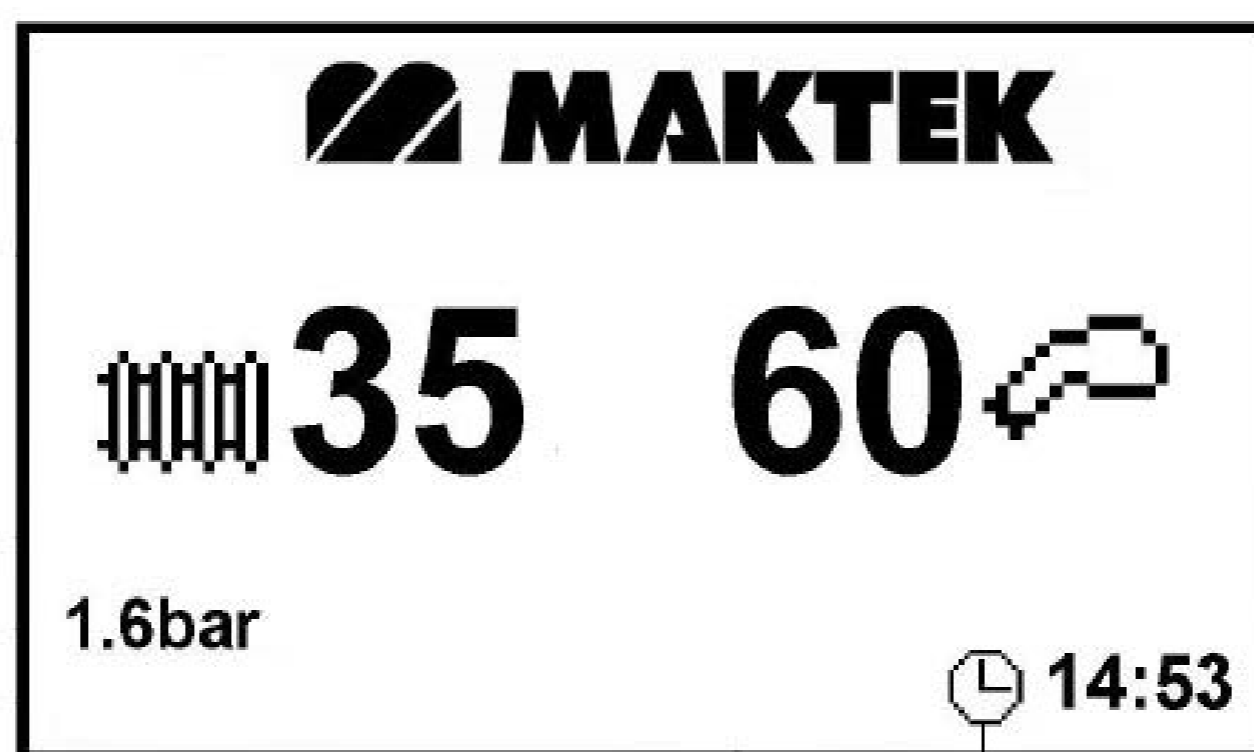
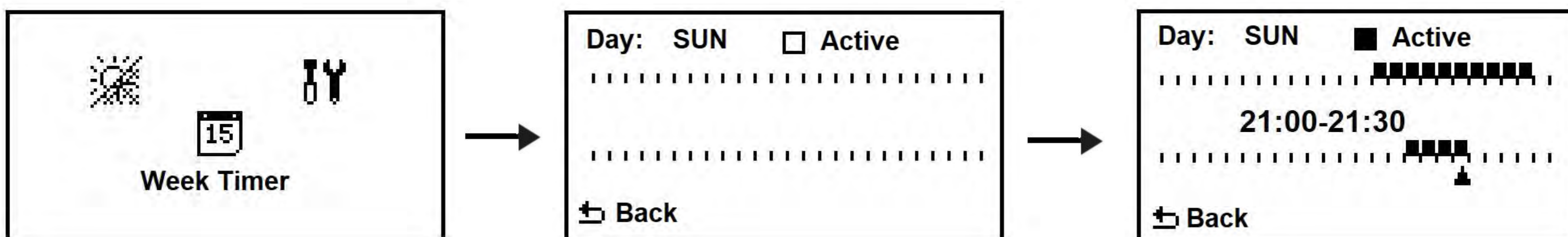
Once you finish all the adjustments, move the cursor to back tab and press P1 to return to the main menu. Your adjustments will be saved.

When your boiler is set to operate automatically with week timer function,  icon is shown on the LCD screen on days with a week timer operation interval adjustment.

During automatic operation with week timer, the boiler will operate at the set temperature values on the control panel. Week timer will instruct the boiler to turn and off according to the settings.

**CAUTION!** : In week timer function, when the active box is filled for a day, the boiler will only operate in the adjusted time intervals for that day.

If you activate the week timer, tick the active box but do not make any operation interval markings, the boiler will not work for that day. Make sure to make the time interval settings accurately.



Week timer active

## 5.3 ERROR CODES AND TROUBLESHOOTING

Error Code	Explanation	Reason	Solution
H1	CH Temperature Sensor Error	<ul style="list-style-type: none"> <li>• Disconnected sensor cable</li> <li>• NTC sensor failure</li> <li>• Mainboard failure</li> </ul>	<ul style="list-style-type: none"> <li>❖ Check the cable and socket</li> <li>❖ Replace the NTC sensor</li> <li>❖ Replace the mainboard</li> </ul>
H2	DHW Temperature Sensor Error	<ul style="list-style-type: none"> <li>• Disconnected sensor cable</li> <li>• NTC sensor failure</li> <li>• Mainboard failure</li> </ul>	<ul style="list-style-type: none"> <li>❖ Check the cable and socket</li> <li>❖ Replace the NTC sensor</li> <li>❖ Replace the mainboard</li> </ul>
H3	CH Circuit Low Water Pressure Error	<ul style="list-style-type: none"> <li>• Air trapped in the system</li> <li>• Water leakage from boiler or installation</li> <li>• Expansion tank failure</li> </ul>	<ul style="list-style-type: none"> <li>✓ Vent the air from boiler and radiators then fill system upto 1.5 bars.</li> <li>✓ Check all piping and connections for leakage</li> <li>❖ Check the counter pressure of the expansion tank. Pressurize the tank upto 1.1 bars with nitrogen. If membrane is damaged replace the tank.</li> </ul>
H4	Safety Thermostat Error Boiler temp $\geq 95^{\circ}\text{C}$	<ul style="list-style-type: none"> <li>• Air trapped inside the system</li> <li>• Valves on the installation may be closed</li> <li>• Thermostat failure</li> <li>• Particule filters may be clogged.</li> <li>• Circulation pump failure</li> <li>• Mainboard failure</li> </ul>	<ul style="list-style-type: none"> <li>✓ Vent the air from boiler and radiators then fill system upto 1.5 bars.</li> <li>✓ Make sure all the valves are open</li> <li>❖ Check the thermostat connections, replace thermostat if necessary.</li> <li>❖ Clean the filters.</li> <li>❖ Turn the rotor manually, check pump electric connection, replace pump if needed.</li> <li>❖ Replace the mainboard.</li> </ul>
H5	Limit Thermostat Error Boiler temp $\geq 93^{\circ}\text{C}$	<ul style="list-style-type: none"> <li>• Air trapped inside the system</li> <li>• Valves on the installation may be closed</li> <li>• Thermostat failure</li> <li>• Particule filters may be clogged.</li> <li>• Circulation pump failure</li> <li>• Mainboard failure</li> </ul>	<ul style="list-style-type: none"> <li>✓ Vent the air from boiler and radiators then fill system upto 1.5 bars.</li> <li>✓ Make sure all the valves are open</li> <li>❖ Check the thermostat connections, replace thermostat if necessary.</li> <li>❖ Clean the filters.</li> <li>❖ Turn the rotor manually, check pump electric connection, replace pump if needed.</li> <li>❖ Replace the mainboard.</li> </ul>
H6	Main Heat Exchanger Water Level Error	<ul style="list-style-type: none"> <li>• Air trapped in main heat exchanger</li> <li>• Float water level sensor failure</li> </ul>	<ul style="list-style-type: none"> <li>✓ Vent the air inside the mani heat exchanger using the manual air vent. Fill the system upto 1.5 bar.</li> <li>❖ Check the cable of folat water level sensor</li> <li>❖ Check if the folater is stuck, clean the part so the floater moves freely. Replace the float water level sensor if neccessary.</li> </ul>
H7	CH Circuit High Water Pressure Error	<ul style="list-style-type: none"> <li>• Filling valve malfunction</li> <li>• Expansion tank failure</li> <li>• Plate heat exchanger failure</li> <li>• Return manifold failure</li> </ul>	<ul style="list-style-type: none"> <li>✓ Drain the excess water prom the drain valve on the installation to reduce pressure.</li> <li>✓ Check if the filling valve tightly closed.</li> <li>❖ Replace the filling valve if its leaking.</li> <li>❖ Check the counter pressure of the expansion tank. Pressurize the tank upto 1.1 bars with nitrogen. If membrane is damaged replace the tank.</li> <li>❖ Replace the palte heat exchanger.</li> <li>❖ Replace the return manifold.</li> </ul>
H8	Ambient Temperature Probe Error	<ul style="list-style-type: none"> <li>• Disconnected or damaged probe cable</li> <li>• Temperature probe malfunction</li> </ul>	<ul style="list-style-type: none"> <li>❖ Check the cable and connection.</li> <li>❖ Replace the ambient temperature probe.</li> </ul>
<ul style="list-style-type: none"> <li>❖ These solutions can only be performed by AUTHORIZED SERVICE PERSONNEL.</li> <li>✓ These solution steps can be performed by end users.</li> </ul>			

## 6. SAFETY SYSTEM OF THE DEVICE

**MAKTEK Omega LCD 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, protecting human health and safety. For the RCD device to work properly, earth connection with proper dimension and ground resistance must be connected to the boiler by a certified electrician. Failure to do so will cause the RCD device to malfunction. In such a case, the manufacturer is not responsible for any harms to people or environment.

### 6.2 HEATING TANK FLOAT WATER 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 / HIGH 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 on the LCD screen.

Also if the water pressure increases beyond 2.7bars, H7 high water pressure error is shown on the display. The pressure should be dropped by discharging water from the drain valve to continue operation.

### 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 mainboard and H5 warning code is shown on the LCD 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 turn off the boiler and call an authorized service.

### 6.5 SAFETY THERMOSTAT

This is a secondary safety measure to prevent overheating in the boiler. If the limit thermostat does not function and the boiler temperature reaches 96°C, safety thermostat conducts neutral to the boiler chasis and the RCD device shuts off the electricity supply. Proper earth connection is required for the safety thermostat to work properly.

## **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 30°C, activation of resistances are stopped. This system prevents the water inside the boiler to freeze and damage the components.

In order for this system to work, the main switch to which the device is connected must be turned on and the valves on the installation should be open. Malfunctions and damages caused by frost when the electricity is off or if the valves are closed are not covered by warranty.

## **6.7 DOMESTIC HOT WATER NTC SENSOR**

In Maktek Omega LCD boiler, temperature control is done with precise NTC sensors. 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 CIRCULATION PUMP ANTI-JAMMING SYSTEM**

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 connection of the boiler is 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

<b>CAPACITY</b>																	
Heating Power																	
Capacity	kW	6	10	12	15	18	24	30	32	35	40	50	60	80	100		
Max. Working Pressure (Heating Circuit)	kcal/h	5160	8600	10320	12900	15480	20640	25800	27520	30100	34400	43000	51600	68800	86000		
Max. Working Pressure (Hot Water Circuit)	Bar	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
Heating Circuit Temperature Setting Range	°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	°C	—	—	30-60	30-60	30-60	30-60	30-60	30-60	30-60	30-60	—	—	—	—		
Domestic Hot Water Output	lt/dk	—	—	5	6	9	11	13	13	13	13	—	—	—	—		
<b>DIMENSIONS</b>																	
Height	mm	650	650	650	650	650	650	650	740	740	740	755	755	755	755		
Width	mm	440	440	440	440	440	440	440	435	435	435	571	571	571	571		
Depth	mm	274	274	274	274	274	274	274	320	320	320	320	320	320	320		
<b>ELECTRICITY</b>																	
Electricity Connection Cable (3-Phase)	pcs./mm2	—	4x4	4x4	4x4	4x6	4x6	4x10	4x10	4x10	4x10	4x16	4x16	4x16	3x25+16		
Electricity Connection Cable (Monophase)	pcs./mm2	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	10059	12059	15059	18059	24059	30059	32059	35059	40059	50059	60059	80059	100059		
Electricity Isolation Degree	IP	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D		
<b>INSTALLATION</b>																	
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"	—	—	—	—		
<b>ENERGY EFFICIENCY</b>																	
Space heating efficiency class		D	D	D	D	D	D	D	D	D	D	D	D	D	D		
Load profile for water heating		—	—	M	L	L	XL	XL	XL	XL	XL	—	—	—	—		
Water heating efficiency class		—	—	C	C	C	C	C	C	C	C	—	—	—	—		

## 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 adequate 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 at the boiler's invoice date 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. Please check the installation manual and boiler startup request form for installation requirements.
- 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.

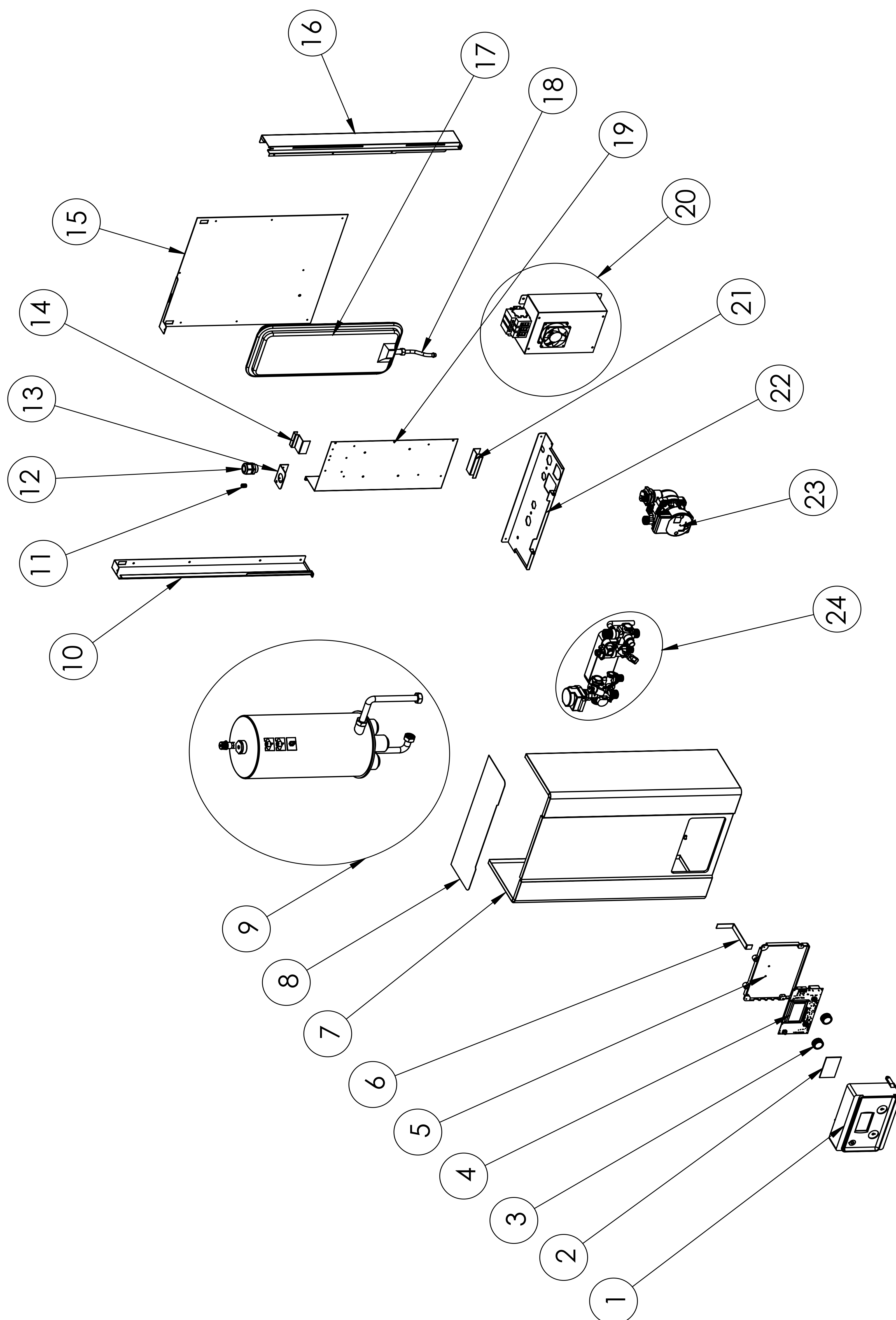


- 11- Boilers that are kept inappropriately, as showroom items for a long time.
- 12- Unavailability of the documents that the authorized service issues after the first operation. The user must keep these documents at all times.
- 13- Boilers with damaged or modified serial numbers.
- 14- When the temperature of the water drops 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.
- 17- Damages that may occur when the electricity connection and valves on the installation are kept closed in standby mode disabling the stand-by safety systems.
- 18- In cases where the boiler is taken out of the box and hung on the wall but not commissioned, damages that may occur because of the adverse conditions.
- 19- Damages to the boiler during mounting and installation.
- 20- Damages to the boiler because of unsuitable and dirty water in the closed circulation circuit. Make sure the piping is clean even if the installation is new.
- 21- If there is a risk of freezing in the boiler location, the water in the system should be discharged after the system is tested for leakage by the installer. If water is left inside the boiler before the authorized service commissions the boiler, the damages that may occur because of freezing are not covered by manufacturer's warranty.

## 10. EXPLODED VIEW (6-30 kW MODELS)

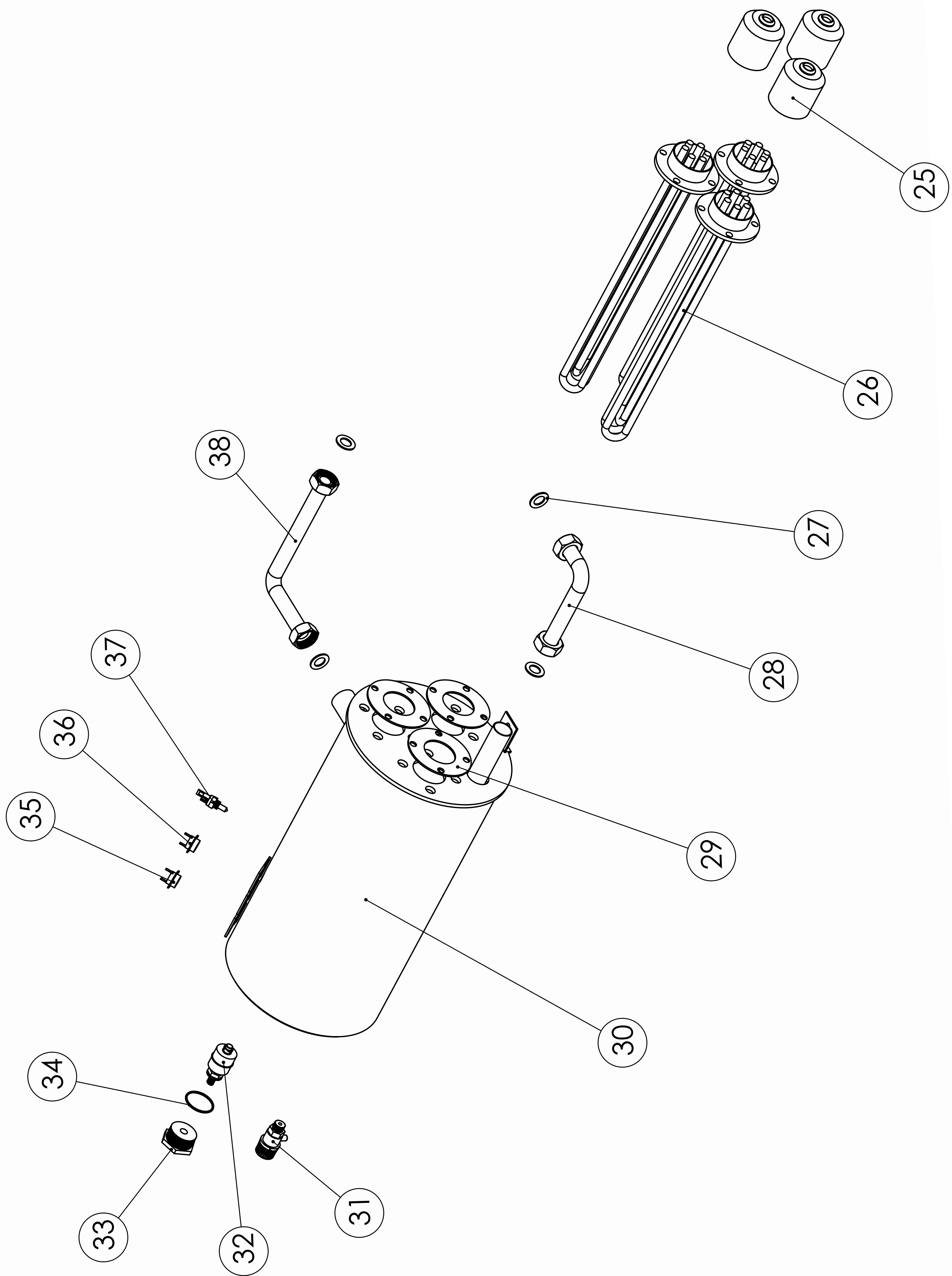
Below drawing belongs to 24kW model.

- 6-10 kW models have a single heating element.
- 12-15 kW models have 2 heating elements.

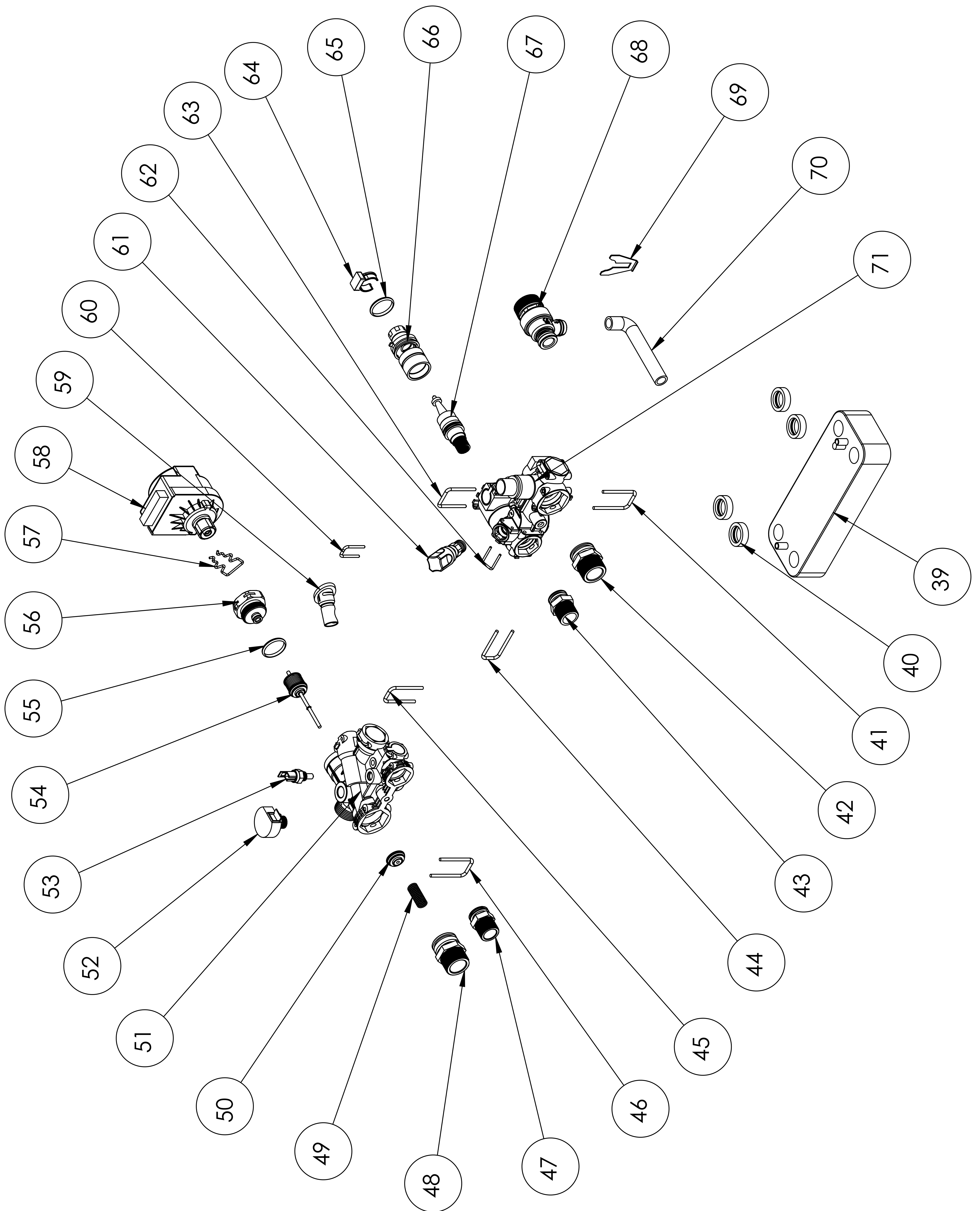


❖ The manufacturer reserves the right to make changes to the parts and design of the boiler.

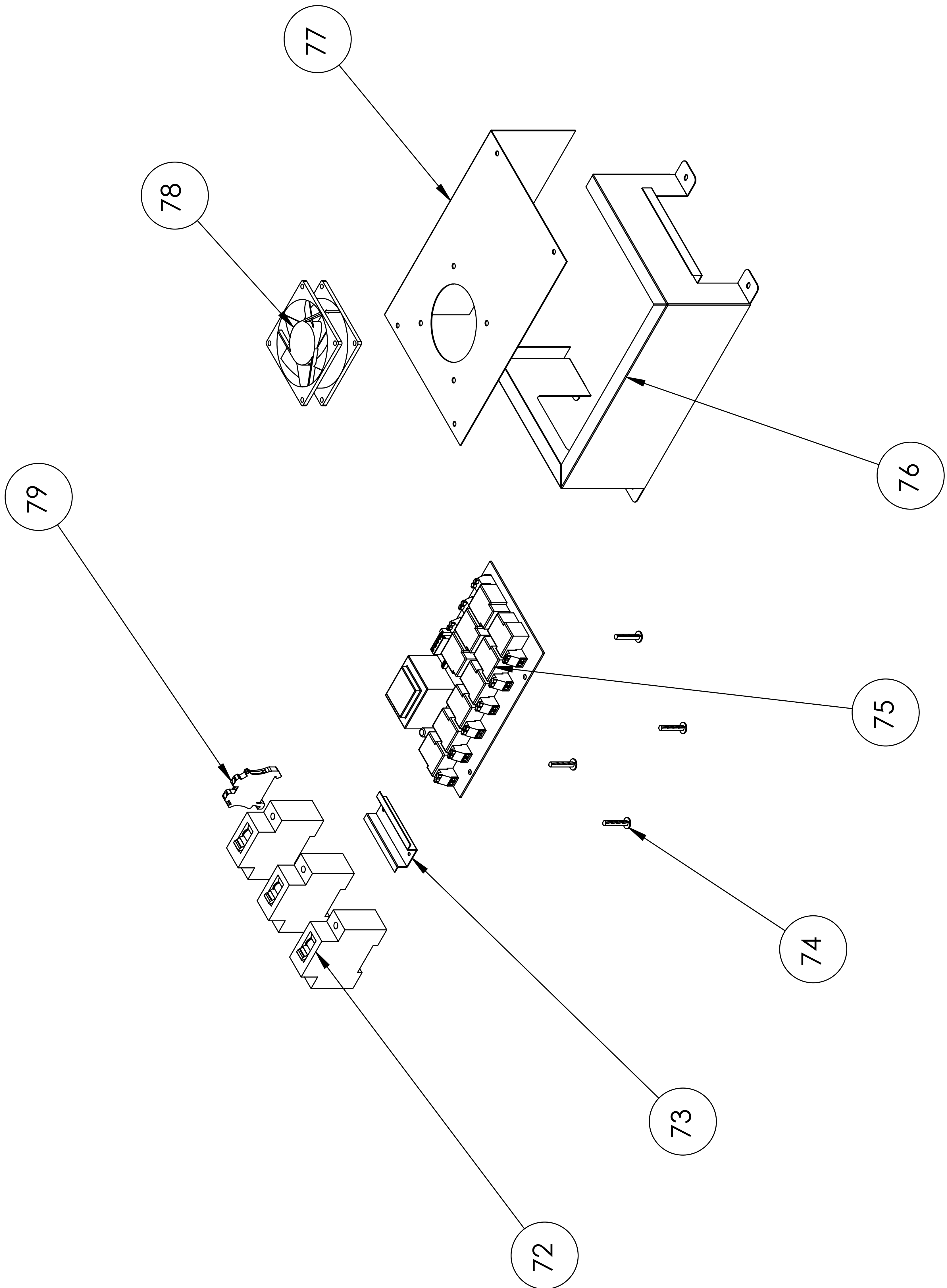
# 10.1 MAIN HEAT EXCHANGER GROUP DETAIL (6-30 kW MODELS)



## 10.2 HYDROLYIC GROUP DETAIL (6-30 kW MODELS)



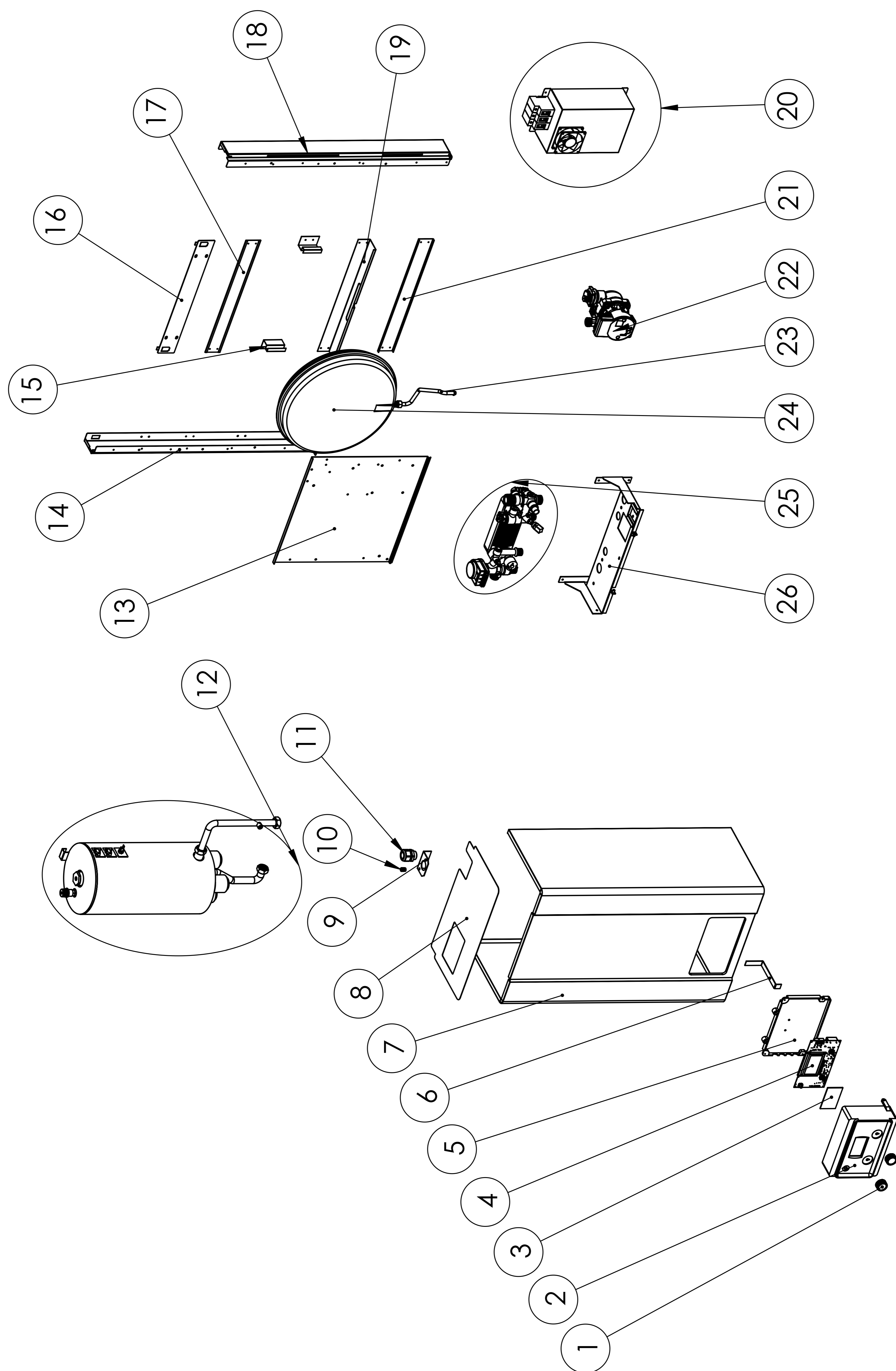
### 10.3 RELAY BOARD GROUP DETAIL (6-30 kW MODELS)



## 10.4 EXPLODED VIEW PARTS LIST (6-30 kW MODELS)

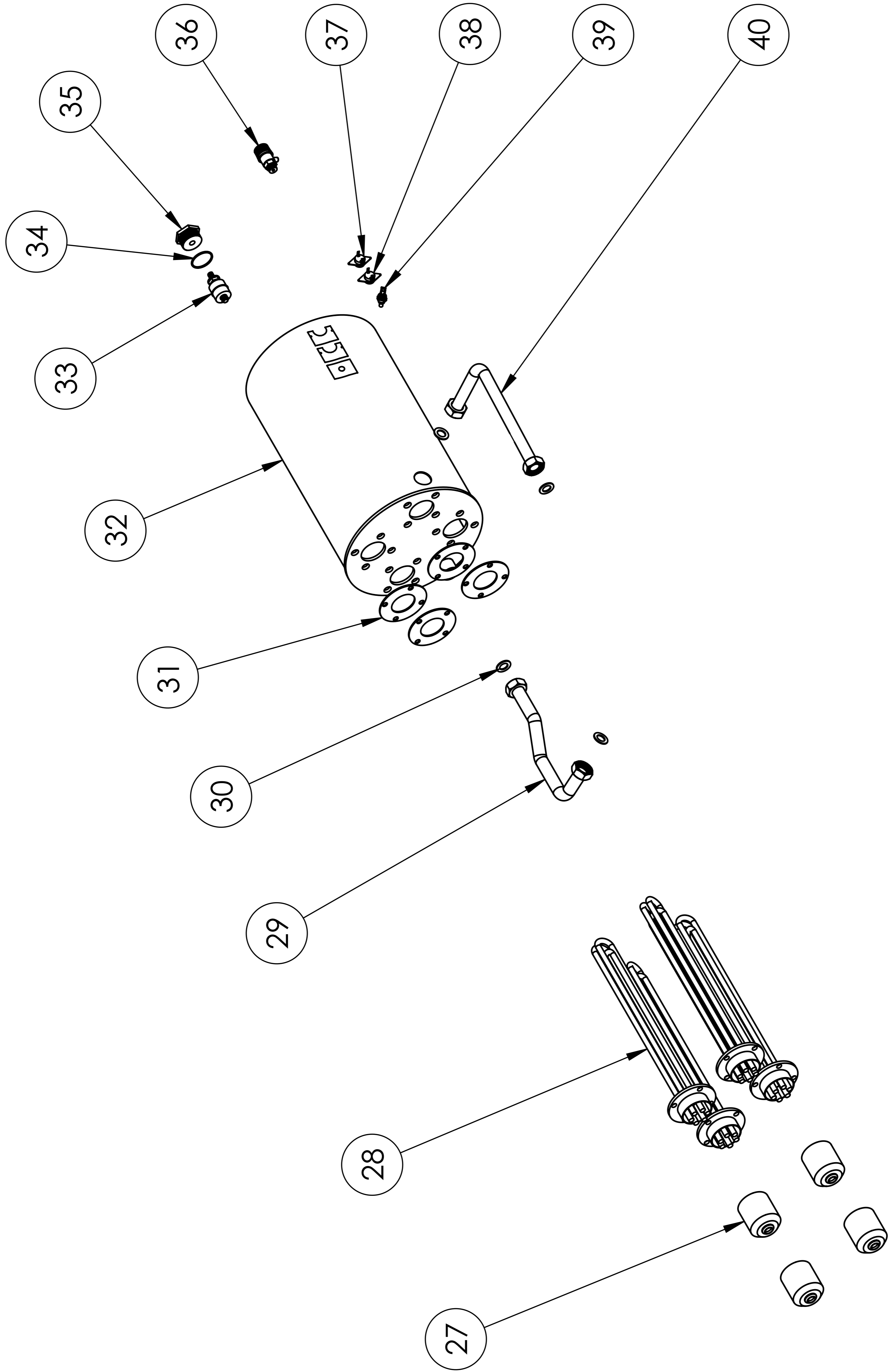
- |                                   |                                    |
|-----------------------------------|------------------------------------|
| 1. Control panel                  | 40. Plate heat exchanger o-ring    |
| 2. LCD screen glass               | 41. 3/4" connector clips           |
| 3. Control knobs                  | 42. Return manifold 3/4" connector |
| 4. Mainboard                      | 43. Return manifold 1/2" connector |
| 5. Control panel rear cover       | 44. 1/2" connector clips           |
| 6. Panel fixing plate             | 45. 1/2" connector clips           |
| 7. Front boiler cover             | 46. 3/4" connector clips           |
| 8. Top boiler cover               | 47. Flow manifold 1/2" connector   |
| 9. Main heat exchanger group      | 48. Flow manifold 3/4" connector   |
| 10. Left chassis                  | 49. Flow manifold pressure spring  |
| 11. Earth connection              | 50. Pressure spring retainer       |
| 12. Cable gland                   | 51. Flow manifold                  |
| 13. Cable fixing plate            | 52. Water pressure sensor          |
| 14. Expansion tank top fixer      | 53. DHW temperature NTC sensor     |
| 15. Boiler main chassis           | 54. 3-way valve spring rod         |
| 16. Right chassis                 | 55. 3-way valve motor seat o-ring  |
| 17. Expansion tank                | 56. 3-way valve motor seat         |
| 18. Expansion tank copper pipe    | 57. Motor clips                    |
| 19. Relay board mounting plate    | 58. 3-way valve actuator motor     |
| 20. Relay board group             | 59. Automatic by-pass              |
| 21. Expansion tank bottom fixer   | 60. Automatic by-pass clips        |
| 22. Hydrolic group mounting plate | 61. Filling valve                  |
| 23. Circulation pump              | 62. Filling valve clips            |
| 24. Hydrolic group                | 63. Water flow sensor clips        |
| 25. Insulator caps                | 64. Electronic water flow sensor   |
| 26. Heating elements              | 65. Water flow sensor o-ring       |
| 27. 3/4" gasket                   | 66. Water flow sensor housing      |
| 28. Copper flow pipe              | 67. Water flow sensor interior set |
| 29. Heating element gasket        | 68. 3 bar safety valve             |
| 30. Main heat exchanger           | 69. 3 bar safety valve clips       |
| 31. Manuel air vent               | 70. Safety valve discharge hose    |
| 32. Float water level sensor      | 71. Return manifold                |
| 33. Float sensor connector        | 72. Circuit breakers               |
| 34. Float sensor o-ring           | 73. Mounting rail                  |
| 35. Limit thermostat              | 74. Plastic spacers                |
| 36. Safety thermostat             | 75. Relay board                    |
| 37. CH temperature NTC sensor     | 76. Relay board lower cover        |
| 38. Copper return pipe            | 77. Relay board upper cover        |
| 39. Plate heat exchanger          | 78. Relay board cooling fan        |
|                                   | 79. Neutral cable terminal         |

## 11. EXPLODED VIEW (32-40kW MODELS)



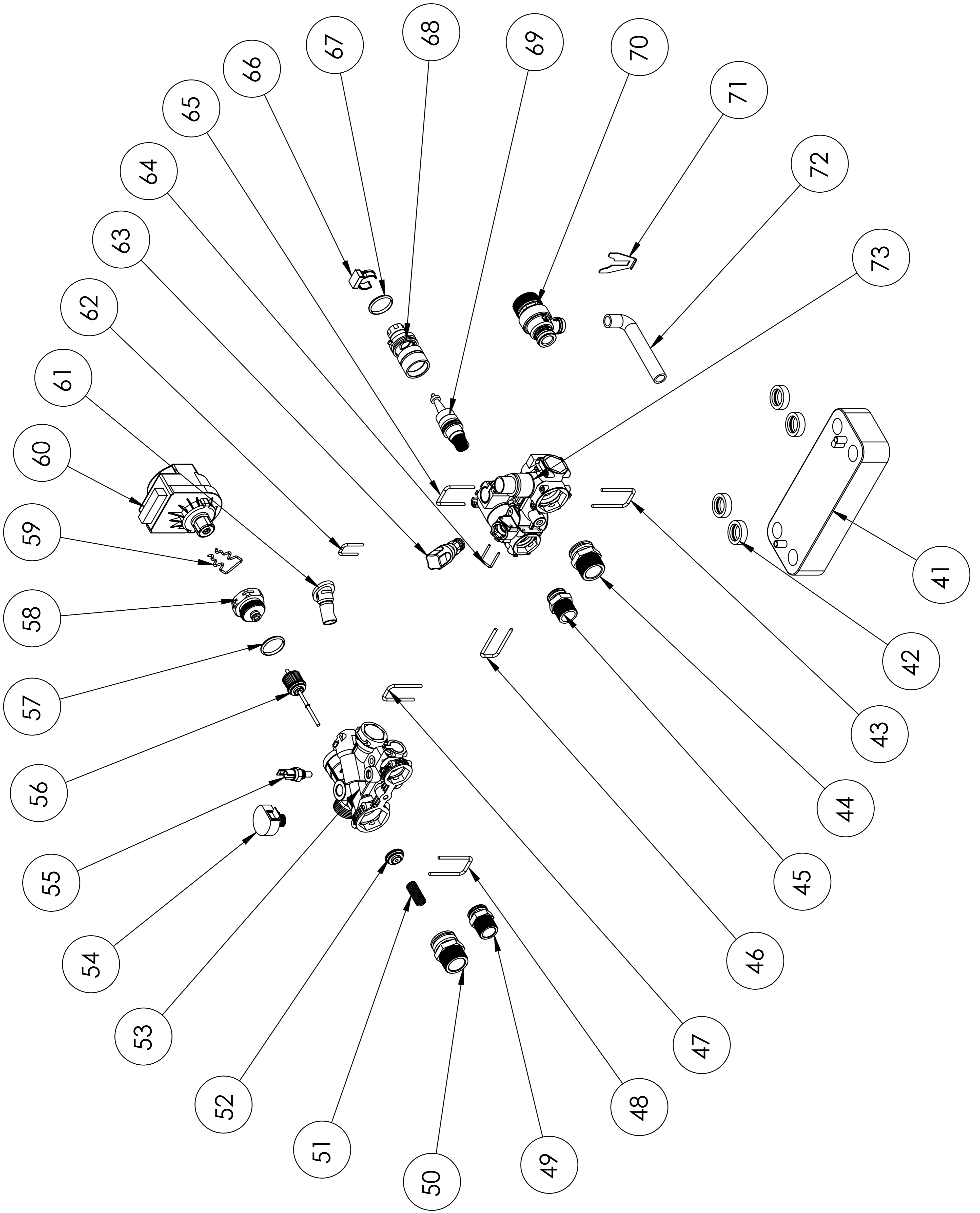
❖ The manufacturer reserves the right to make changes to the parts and design of the boiler.

# 11.1 MAIN HEAT EXCHANGER GROUP DETAIL (32-40 kW MODELS)

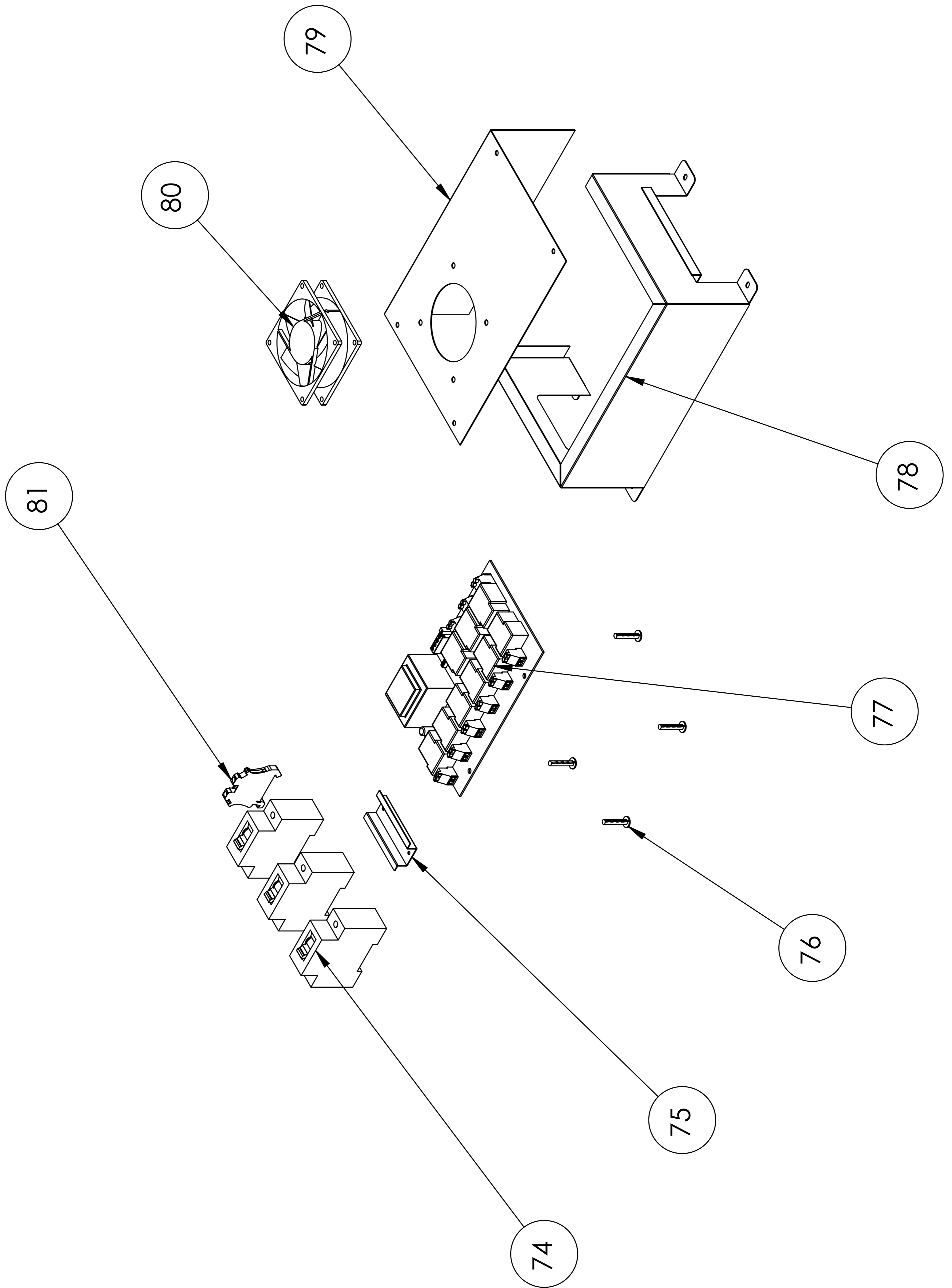




# 11.2 HYDROLIC GROUP (32-40 kW MODELS)



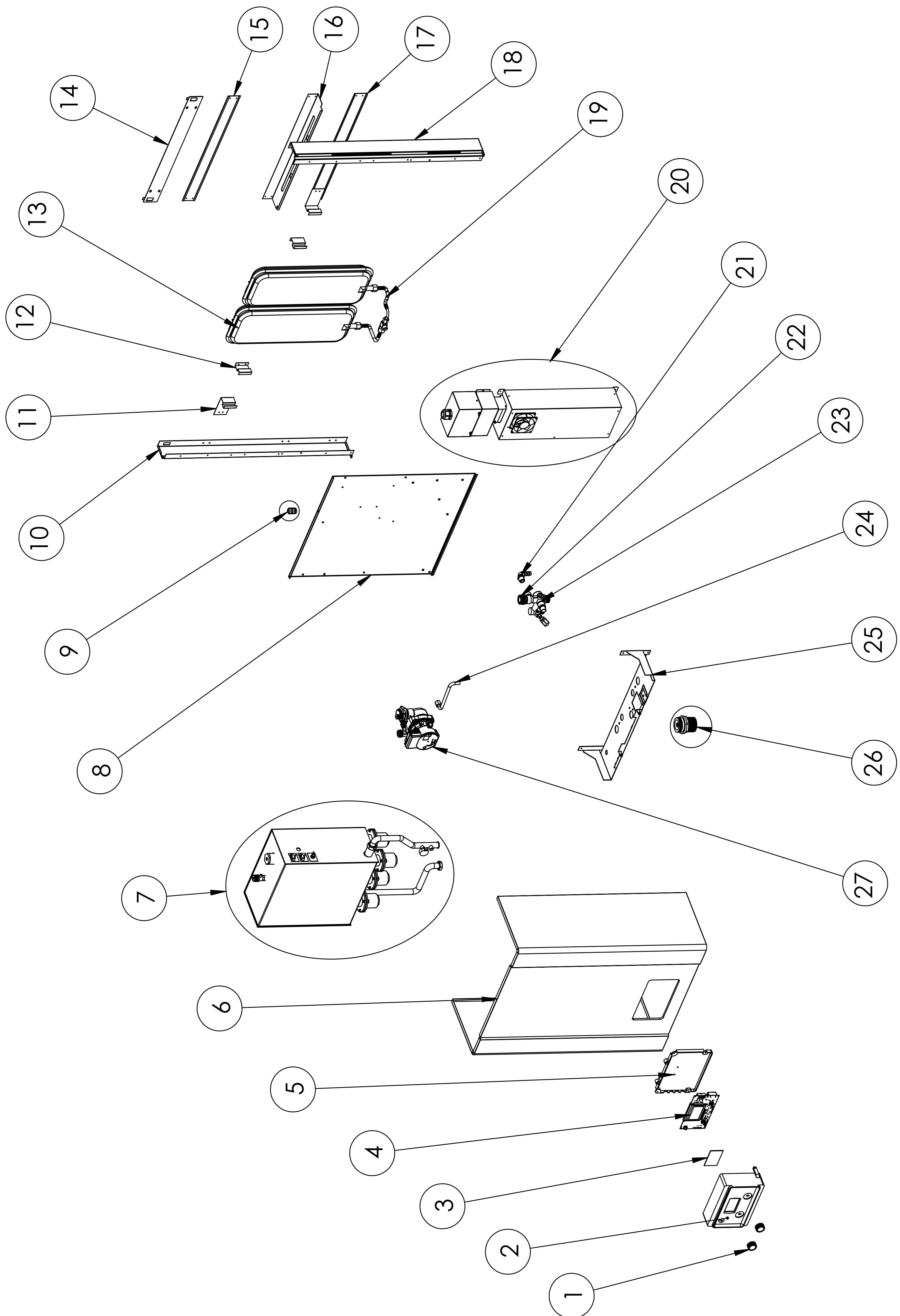
# 11.3 RELAY BOARD GROUP DETAIL (32-40 kW MODELS)



## 11.4 EXPLODED VIEW PARTS LIST (32-40 kW MODELS)

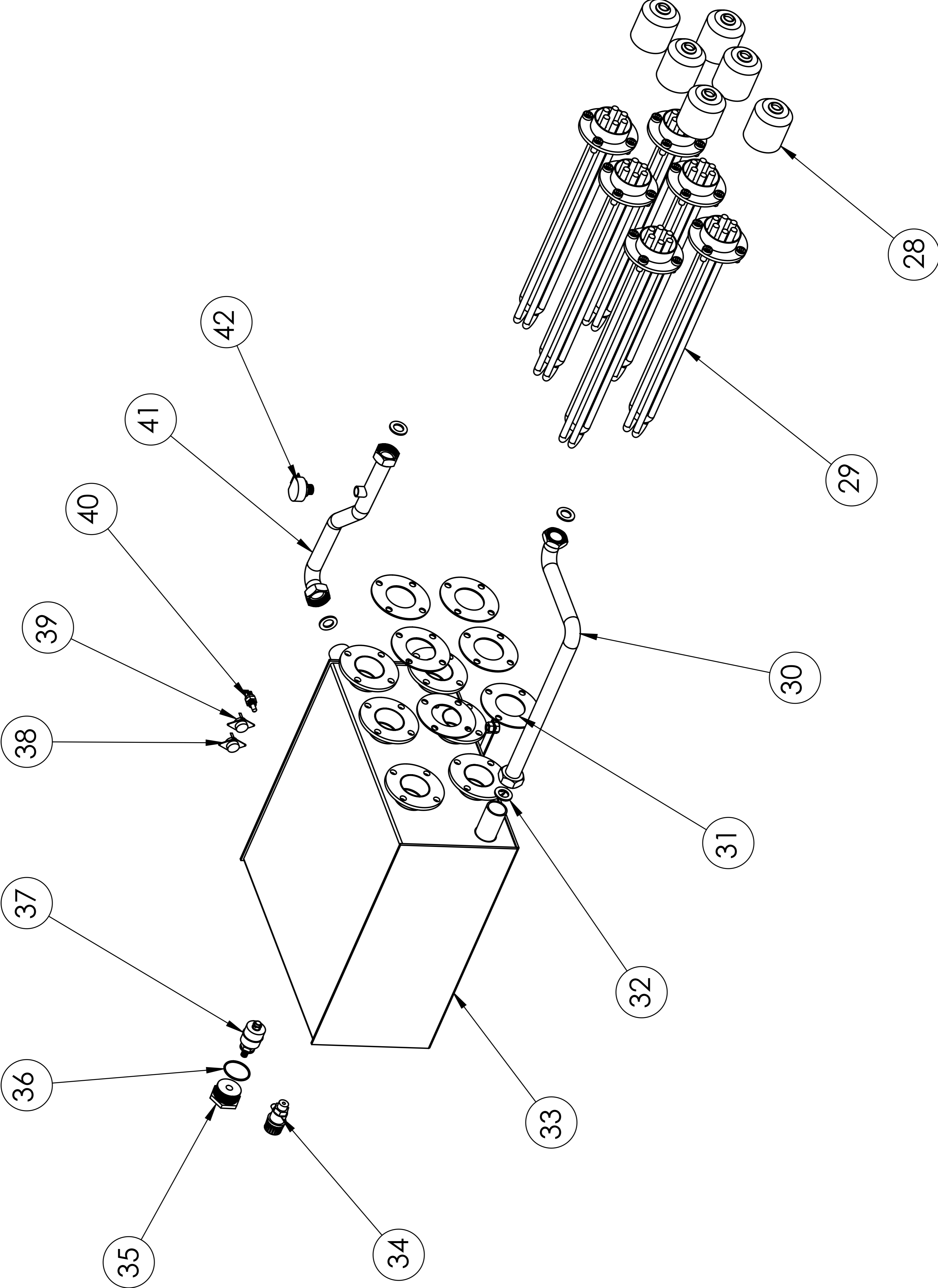
1. Control knobs
2. Control panel
3. LCD screen glass
4. Mainboard
5. Control panel rear cover
6. Panel fixing plate
7. Front boiler cover
8. Top boiler cover
9. Cable fixing plate
10. Earth connection
11. Cable gland
12. Main heat exchanger group
13. Boiler main chassis
14. Left chassis
15. Expansion tank fixers
16. Wall mounting plate
17. Upper support plate
18. Right chassis
19. Expansion tank support plate
20. Relay board group
21. Lower support plate
22. Circulation pump
23. Expansion tank copper pipe
24. Expansion tank
25. Hydrolic group
26. Hydrolic group mounting plate
27. Insulator caps
28. Heating elements
29. Copper flow pipe
30. 3/4" gasket
31. Heating element gasket
32. Main heat exchanger
33. Float water level sensor
34. Float sensor o-ring
35. Float sensor connector
36. Manual air vent
37. Limit thermostat
38. Safety thermostat
39. CH temperature NTC sensor
40. Copper return pipe
41. Plate heat exchanger
42. Plate heat exchanger o-ring
43. 3/4" connector clips
44. Return manifold 3/4" connector
45. Return manifold 1/2" connector
46. 1/2" connector clips
47. 1/2" connector clips
48. 3/4" connector clips
49. Flow manifold 1/2" connector
50. Flow manifold 3/4" connector
51. Flow manifold pressure spring
52. Pressure spring retainer
53. Flow manifold
54. Water pressure sensor
55. DHW temperature NTC sensor
56. 3-way valve spring rod
57. 3-way valve motor seat o-ring
58. 3-way valve motor seat
59. Motor clips
60. 3-way valve actuator motor
61. Automatic by-pass
62. Automatic by-pass clips
63. Filling valve
64. Filling valve clips
65. Water flow sensor clips
66. Electronic water flow sensor
67. Water flow sensor o-ring
68. Water flow sensor housing
69. Water flow sensor interior set
70. 3 bar safety valve
71. 3 bar safety valve clips
72. Safety valve discharge hose
73. Return manifold
74. Circuit breakers
75. Mounting rail
76. Plastic spacers
77. Relay board
78. Relay board lower cover
79. Relay board upper cover
80. Relay board cooling fan
81. Neutral cable terminal

## 12. EXPLODED VIEW (50-80 kW MODELS)

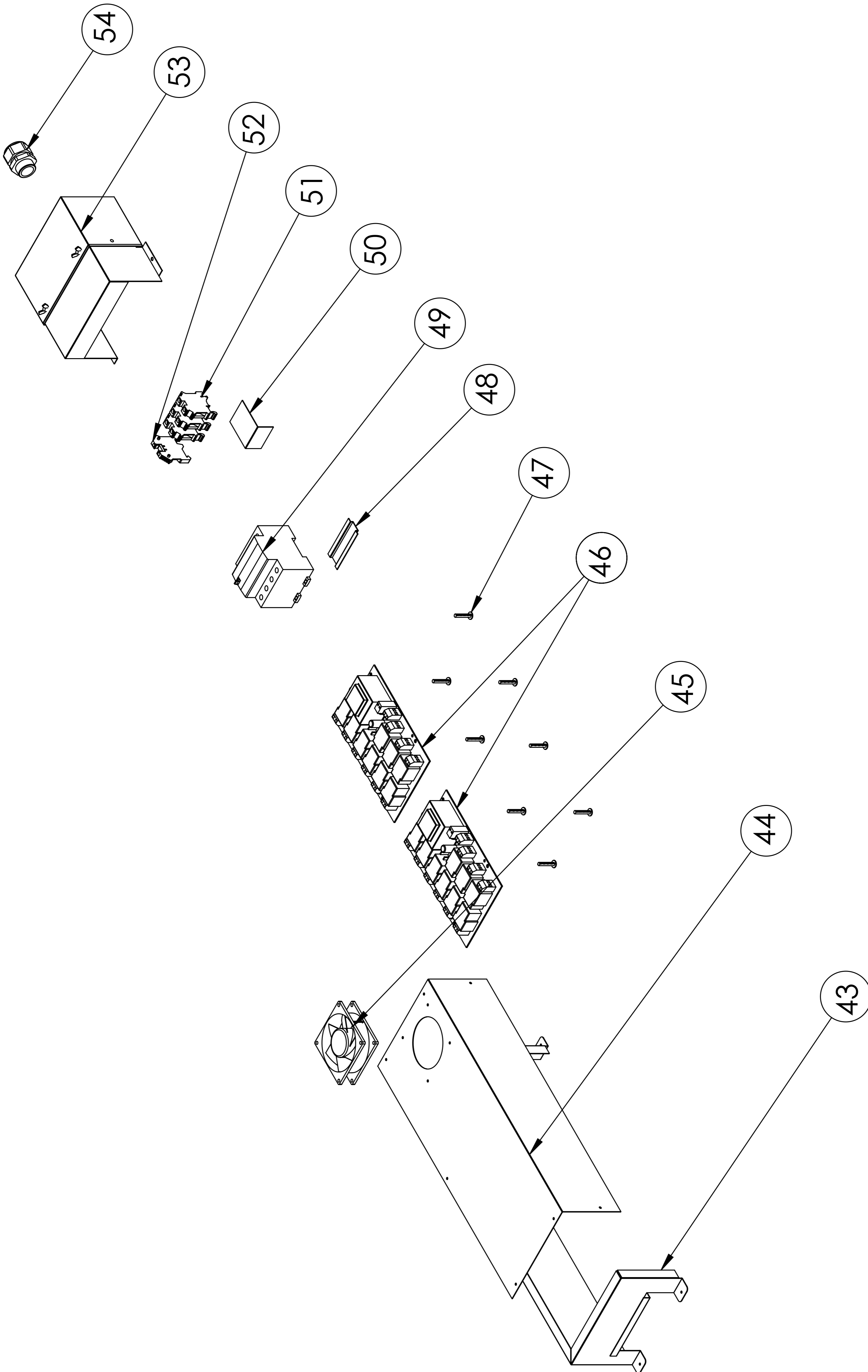


❖ The manufacturer reserves the right to make changes to the parts and design of the boiler.

12.1 MAIN HEAT EXCHANGER GROUP DETAIL (50-80 kW MODELS)



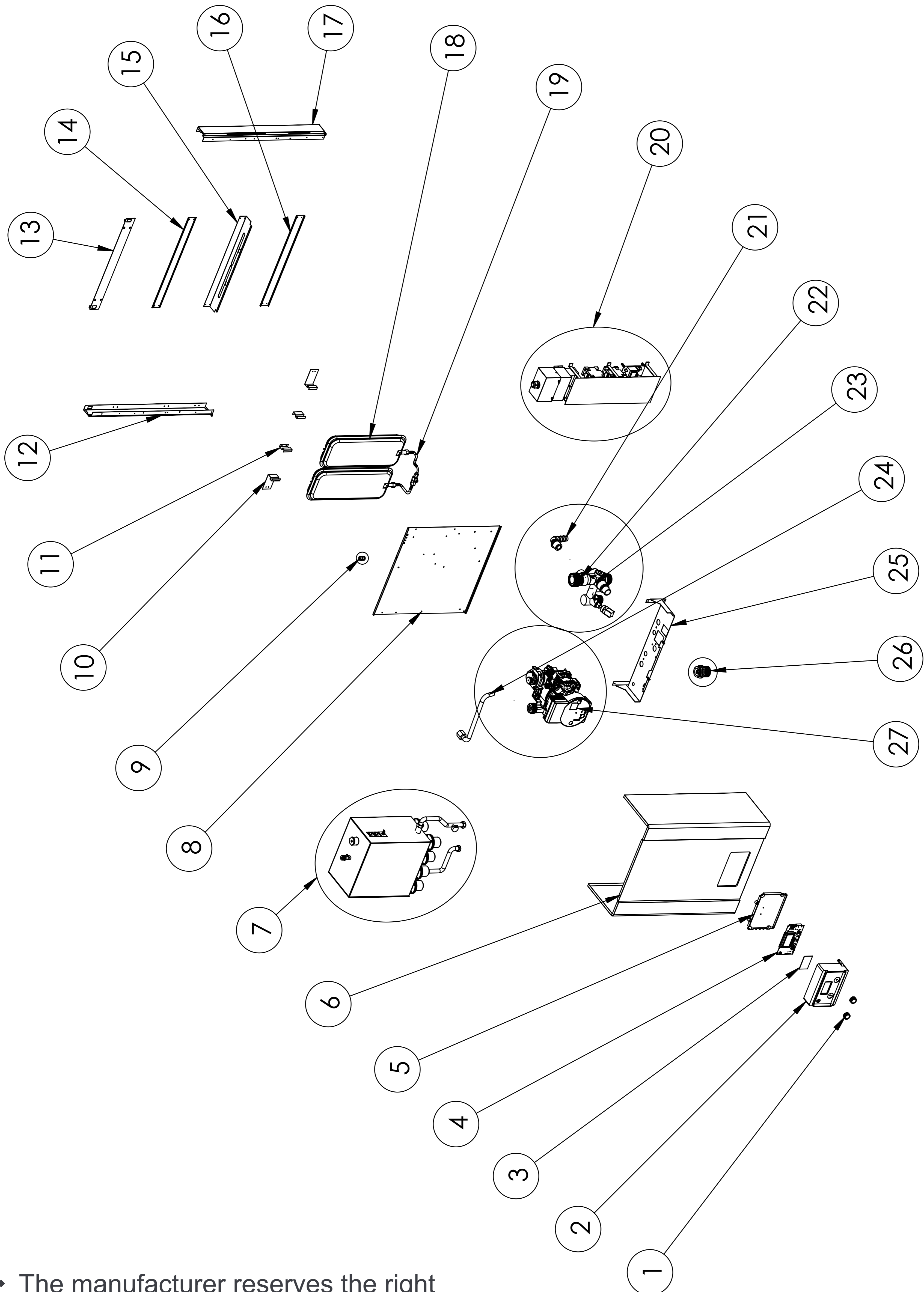
# 12.2 RELAY BOARD GROUP DETAIL(50-80 kW MODELS)



### 12.3 EXPLODED VIEW PARTS LIST (50-80 kW MODELS)

- |                                     |  |
|-------------------------------------|--|
| 1. Control knobs                    | 31. Heating element gasket             |
| 2. Control panel                    | 32. 3/4" gasket                        |
| 3. LCD screen glass                 | 33. Main heat exchanger                |
| 4. Mainboard                        | 34. Manuel air vent                    |
| 5. Control panel rear cover         | 35. Float water level sensor connector |
| 6. Front boiler cover               | 36. Float sensor o-ring                |
| 7. Main heat exchanger group        | 37. Float water level sensor           |
| 8. Boiler main chassis              | 38. Limit thermostat                   |
| 9. Earth connection                 | 39. Safety thermostat                  |
| 10. Left chassis                    | 40. CH temperature NTC sensor          |
| 11. Expansion tank fixer1           | 41. Copper return pipe                 |
| 12. Expansion tank fixer 2          | 42. Water pressure sensor              |
| 13. Expansion tank                  | 43. Relay board lower cover            |
| 14. Wall mounting plate             | 44. Relay board upper cover            |
| 15. Upper support plate             | 45. Relay board cooling fan            |
| 16. Expansion tank support plate    | 46. Relay boards                       |
| 17. Lower support plate             | 47. Plastic spacers                    |
| 18. Right chassis                   | 48. RCD mounting rail                  |
| 19. Expansion tank dual copper pipe | 49. RCD device                         |
| 20. Relay board group               | 50. Terminals support                  |
| 21. Safety valve discharge hose     | 51. Phase cable terminals              |
| 22. 3-Bar safety valve              | 52. Neutral cable terminal             |
| 23. Return manifold                 | 53. RCD device protective cover        |
| 24. Expansion tank copper pipe      | 54. Cable gland                        |
| 25. Hydrolic group mounting plate   |  |
| 26. Flow line connector             |  |
| 27. Circulation pump                |  |
| 28. Insulator caps                  |  |
| 29. Heating elements                |  |
| 30. Copper flow pipe                |  |

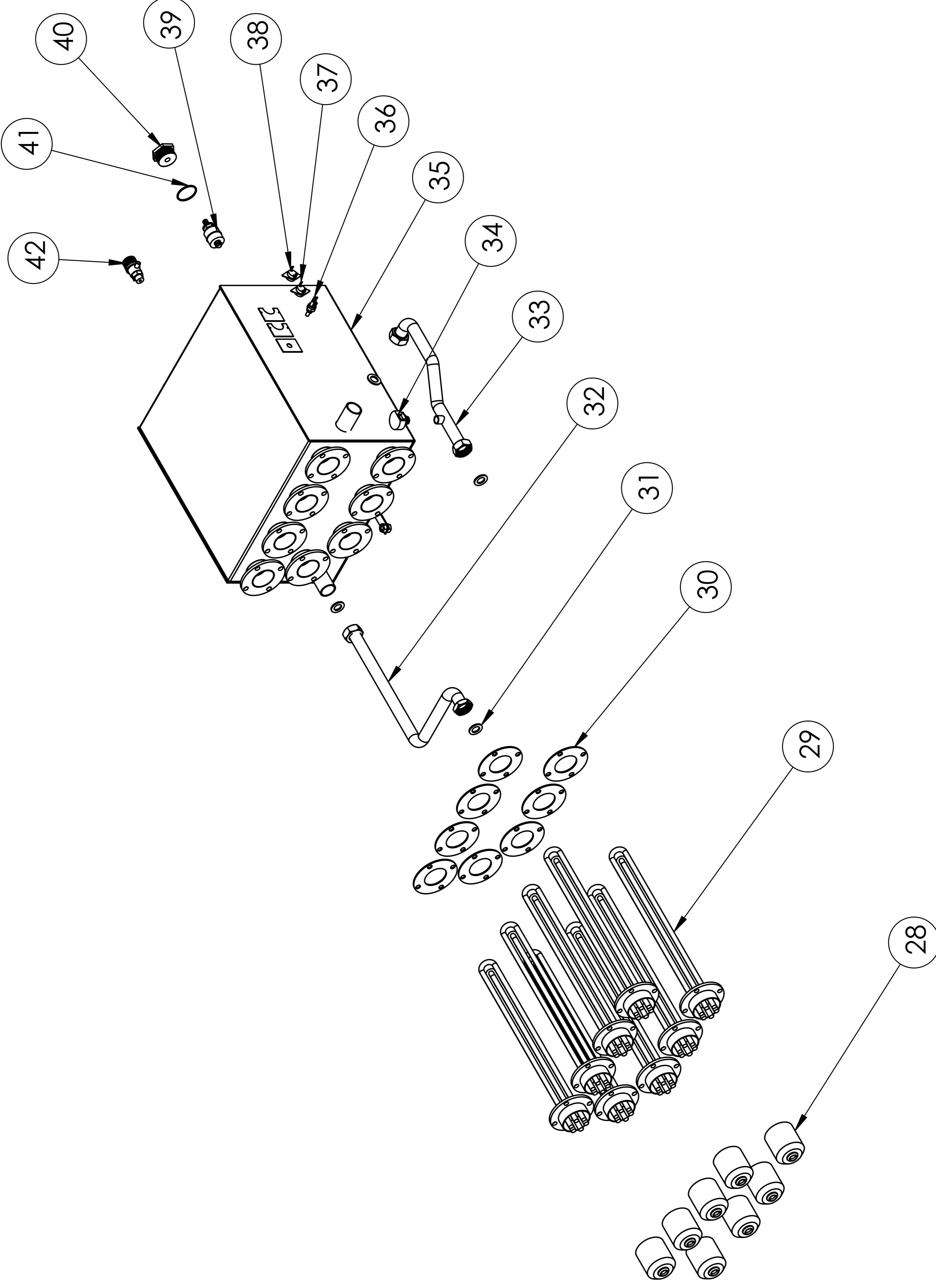
### 13. EXPLODED VIEW (100 kW MODEL)



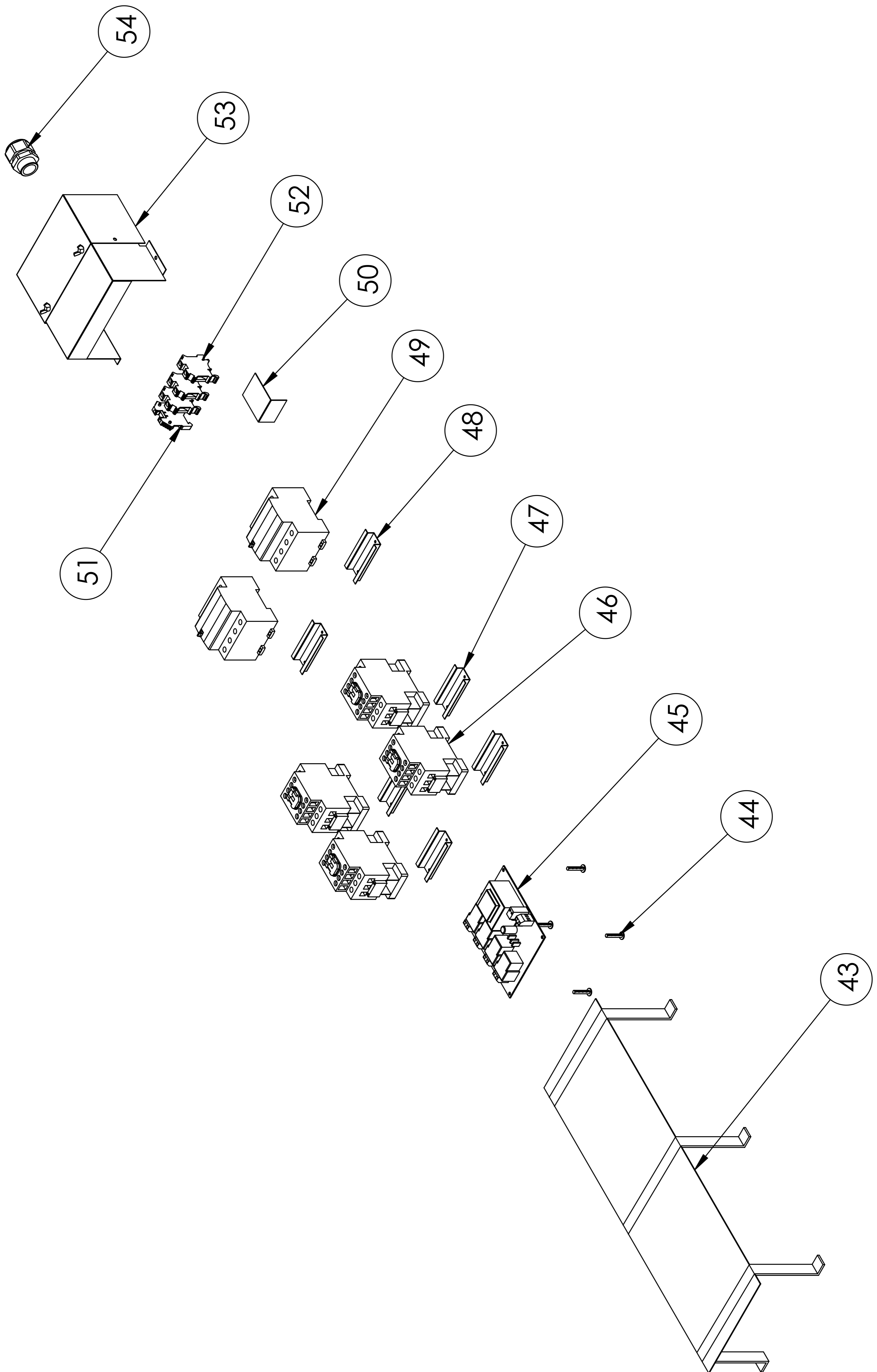
❖ The manufacturer reserves the right to make changes to the parts and design of the boiler.



13.1 MAIN HEAT EXCHANGER GROUP DETAIL (100 kW MODEL)



## 13.2 RELAY BOARD GROUP DETAIL (100 kW MODEL)



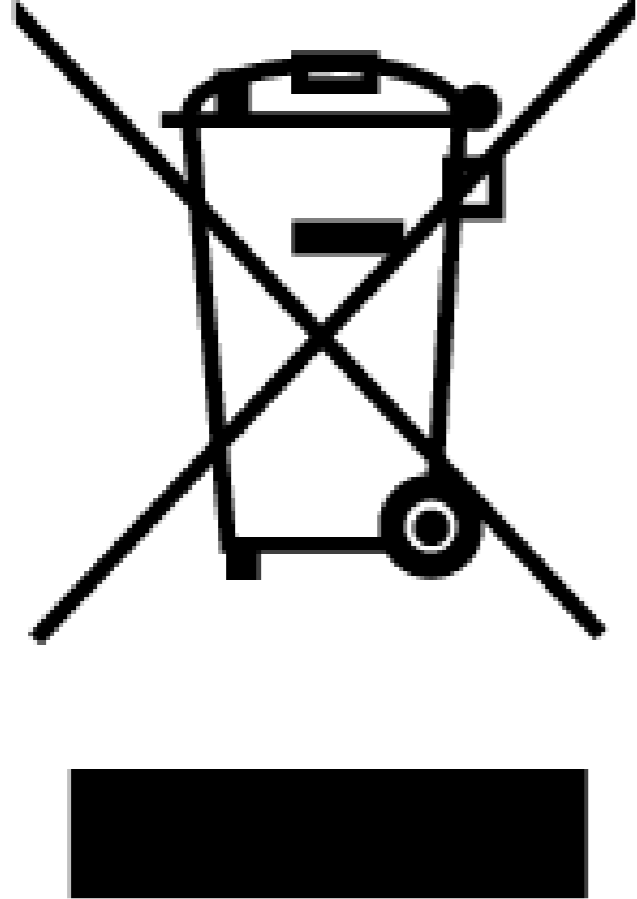
### 13.3 EXPLODED VIEW PARTS LIST (100 kW MODEL)

- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Control knobs                    | 31. 3/4" gasket                 |
| 2. Control panel                    | 32. Copper flow pipe            |
| 3. LCD screen glass                 | 33. Copper return pipe          |
| 4. Mainboard                        | 34. Water pressure sensor       |
| 5. Control panel rear cover         | 35. Main heat exchanger         |
| 6. Front boiler cover               | 36. CH temperature NTC sensor   |
| 7. Main heat exchanger group        | 37. Safety thermostat           |
| 8. Boiler main chassis              | 38. Limit thermostat            |
| 9. Earth connection                 | 39. Float water level sensor    |
| 10. Expansion tank fixer 1          | 40. Float sensor connector      |
| 11. Expansion tank fixer 2          | 41. Float sensor o-ring         |
| 12. Left chassis                    | 42. Manual air vent             |
| 13. Wall mounting plate             | 43. Relay board cover           |
| 14. Upper support plate             | 44. Plastic spacers             |
| 15. Expansion tank support plate    | 45. Relay board                 |
| 16. Lower support plate             | 46. Contactors                  |
| 17. Right chassis                   | 47. Contactor mounting rail     |
| 18. Expansion tank                  | 48. RCD mounting rail           |
| 19. Expansion tank dual copper pipe | 49. RCD device                  |
| 20. Relay board group               | 50. Terminals support           |
| 21. Safety valve discharge hose     | 51. Neutral cable terminal      |
| 22. 3-Bar safety valve              | 52. Phase cable terminals       |
| 23. Return manifold                 | 53. RCD device protective cover |
| 24. Expansion tank copper pipe      | 54. Cable gland                 |
| 25. Hydrolic group mounting plate   |                                 |
| 26. Flow line connector             |                                 |
| 27. Circulation pump                |                                 |
| 28. Insulator caps                  |                                 |
| 29. Heating elements                |                                 |
| 30. Heating element gasket          |                                 |

## 14. DECOMMISSIONING

- Use the on/off button to switch off the boiler.
- Disconnect the boiler from the power grid.
- Close the water inlet valve and all valves of the installation.
- Drain the water inside the boiler by turning the safety valve knob. The water will be discharged from the drain tube.
- Disconnect the installation connections and remove the boiler from the wall hanger.

## 15. DISPOSAL

 <p><b>DISPOSAL: Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.</b></p>	<p>The european directive 2012/19 /UE on wasted electrical and electronic equipments (WEEE), requires that household electrical appliances must not be disposed of in the normal unsorted municipal waste stream. appliances must be collected separately in order to optimize the recovery and recycling of the materials they contain, and reduce the impact on human health and the environment.</p> <p>The crossed out “wheeled bin” symbol on the product reminds you of your obligation, that when you disposed of the appliances, it must be separately collected.</p> <p>Consumers should contact their local authority or retailer for information concerning the correct disposal of their old appliance.</p>
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## 16. ERP PRODUCT FISCHER

MODEL(S): OMEGA SERIES Electric boiler combination heaters
CONDENSING BOILER: NO
LOW TEMP. BOILER: NO
BI BOILER: NO
CO-GENERATION SPACE HEATER: NO
COMBINATION HEATER: YES

## 16.1 ERP PRODUCT INFORMATION

(In accordance with EU regulation no. 813/2013, 814/2013)

SPECIFICATIONS	Unit	MODEL													
		OMEGA 6	OMEGA 10	OMEGA 12	OMEGA 15	OMEGA 18	OMEGA 24	OMEGA 30	OMEGA 32	OMEGA 35	OMEGA 40	OMEGA 50	OMEGA 60	OMEGA 80	OMEGA 100
Product Description															
Electric Boiler Combination Heater															
Brand															
MAKTEK															
Declared Load Profile for Water Heating	Qref	-	-	M	L	L	XL	XL	XL	XL	XL	XL	XL	-	-
Seasonal Space Heating Energy Efficiency Class		D	D	D	D	D	D	D	D	D	D	D	D	D	D
Water Heating Energy Efficiency Class		-	-	C	C	C	C	C	C	C	C	C	C	-	-
Nominal rated heat output (Prated)	kW	6	10	12	15	18	24	30	32	35	40	50	60	80	100
Space heating – Annual energy consumption*	GJ	19	32	38	47	57	76	95	101	110	127	158	190	253	318
Water heating – Annual energy consumption*	kWh	-	-	1430	2745	2745	4510	4510	4510	4510	4510	4510	4510	4510	4510
Seasonal space heating energy efficiencyi (ηs)	%	39	39	38	38	38,5	38,5	38,5	37,5	37,5	37,5	39	39	38,5	38
Water heating energy efficiencyi (ηwh)	%	-	-	40	40	40	40	40	40	40	40	40	40	40	40
Aux. Energy consumption at full load (elmax)	kW	0,075	0,075	0,075	0,075	0,075	0,075	0,075	0,075	0,075	0,075	0,075	0,075	0,075	0,075
Aux. Energy consumption at partial load (elmin)	kW	0,045	0,045	0,045	0,045	0,045	0,045	0,045	0,045	0,045	0,045	0,045	0,045	0,045	0,045
Energy consumption in standby mode (Psb)	kW	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005	0,005
Standby heat loss (Pstby)	kW	0,05	0,05	0,07	0,11	0,11	0,07	0,07	0,07	0,07	0,07	0,11	0,11	0,11	0,11
Sound level, L <sub>WA</sub>	dB	22	28	32	35	36	36	36	38	38	38	42	42	42	48
Special precautions for assembly, installation and maintenance	Before any assembly, installation or maintenance, the user and installation manual should be read carefully and the instructions should be followed.														
All data contained in the product information have been determined by applying the specifications of the relevant European directives. Product information listed in different places may result in different test conditions. Only the data contained in this product information is valid.															
* for average climatic conditions															
(1) For condensing combination heaters: Low temperature 30 °C means 37 °C for low temperature boilers and 50 °C return temperature (at the heater inlet) for other heaters.															
(2) High temperature regime: means 60 °C return water temperature and 80 °C leaving water temperature at the heater inlet.															
<b>ALPEL MAKİNA TEKNİK MALZEME SAN. VE TİC. LTD. ŞTİ.</b>															
10013 Sokak No:14 AOSB Çiğli İZMİR / TÜRKİYE															

# ELECTRIC COMBI BOILER

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