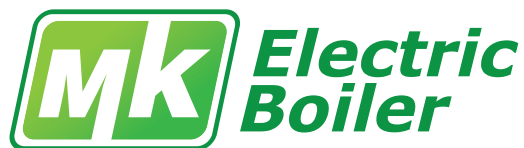


MK ELECTRIC BOILER

Instruction Manual

► Before using this product, carefully read this manual
After reading your note, please keep



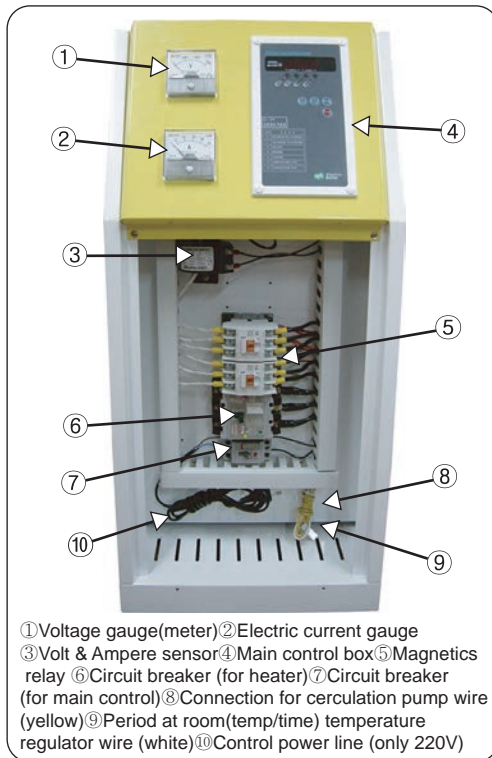


Thank you for your purchase MK Electric Boilers.
Read carefully for proper use just keep it in the end
During use, do not know the details or the normal
operation of the boiler this will be of great help when it is not

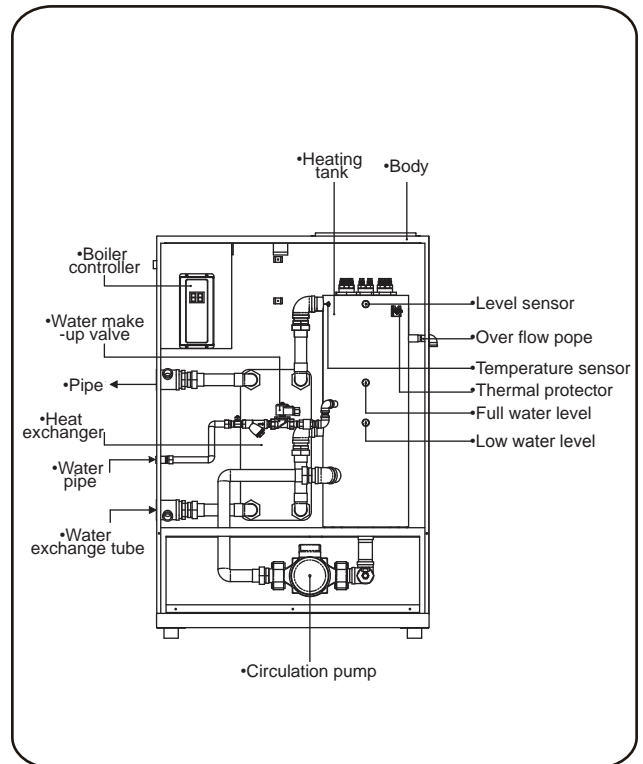
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- 8.Wall Owner's Manual

1.Name and function of each part



입형



벽걸이형

(1) Control system

Boiler water temperature and room temperature, so the safe can be controlled automatically. Leakage circuit breaker is used to prevent accidents caused by overheating of the boiler water level to prevent overheating and lamp. You can check the status of operation and so to be sure.

(2) Electric heater

The heater is the instantaneous amount of heat required for heating and hot water continuously, so that the heating capacity is set to be able Direct heating methods are inserted in the water heater is heated in a state of direct heating type

(3) Circulation pump

Heating circulation pump will start at the same time the only, The set temperature and time room temperature regulator operates according to the set temperature, the set time is reached, stops. However, the wall-mounted heater continues to operate during heating.

2.Special attention should be made

► Operating Voltage

Use of this product is the boiler control panel for controlling the voltage→AC220V 60Hz

Heater control panel→single phase 220V three phases220V

↓ three phases380V

Three-phase supply voltage, so be sure to check the rated voltage and heater before use

► The installation location

*Be sure The installation location should be free of moisture in this place, please install drainage.

*Between the upper portion of the boiler and the expansion tank if the height of 60-100 cm top-down bottom-up plumbing pipes, the best construction must be within 10 meters.

*Frost protection for the boiler piping thermal insulation please.

*Please submit your boiler must be grounded.

*Use a wire to the correct capacity.

*Boiler room installations. When installing the outdoor thermal insulation and waterproof cover, please be sure.

► Frost protection

*Away from home for a long time if the winter slow or disconnect the power plug, do not turn off the power to the boiler.

-Boiler from freezing weather to prevent freezing of the can.

*Heating or water pipes wrapped in insulation exposed areas it is lagging.

*Freezing in very cold weather, boiler for hot water pipes to prevent freezing of the end of the room slightly open the hot water faucet.

► Notes on lightning

*In summer when the boiler is not in use, unplug the power plug.

-Thunder, lightning or equipment damage due to damage to the boiler be able to stop.

► Prohibit outdoor installation

*When installing the outdoor rain water and a short circuit or electric shock may.

*Places such as indoors or under the eaves impermeable to rain installed in your place

► Heating and hot water only

*Because the hot water heating stove, clothes dryer, etc. Never use any other purposes

3.Boiler installation and handling instructions

1)Installation Precautions

►The installation location

*Or under the eaves of buildings facades, outdoor porch chassis with non-freezing place, or cause damage to the water to soak into. So be sure to install the boiler room indoors.

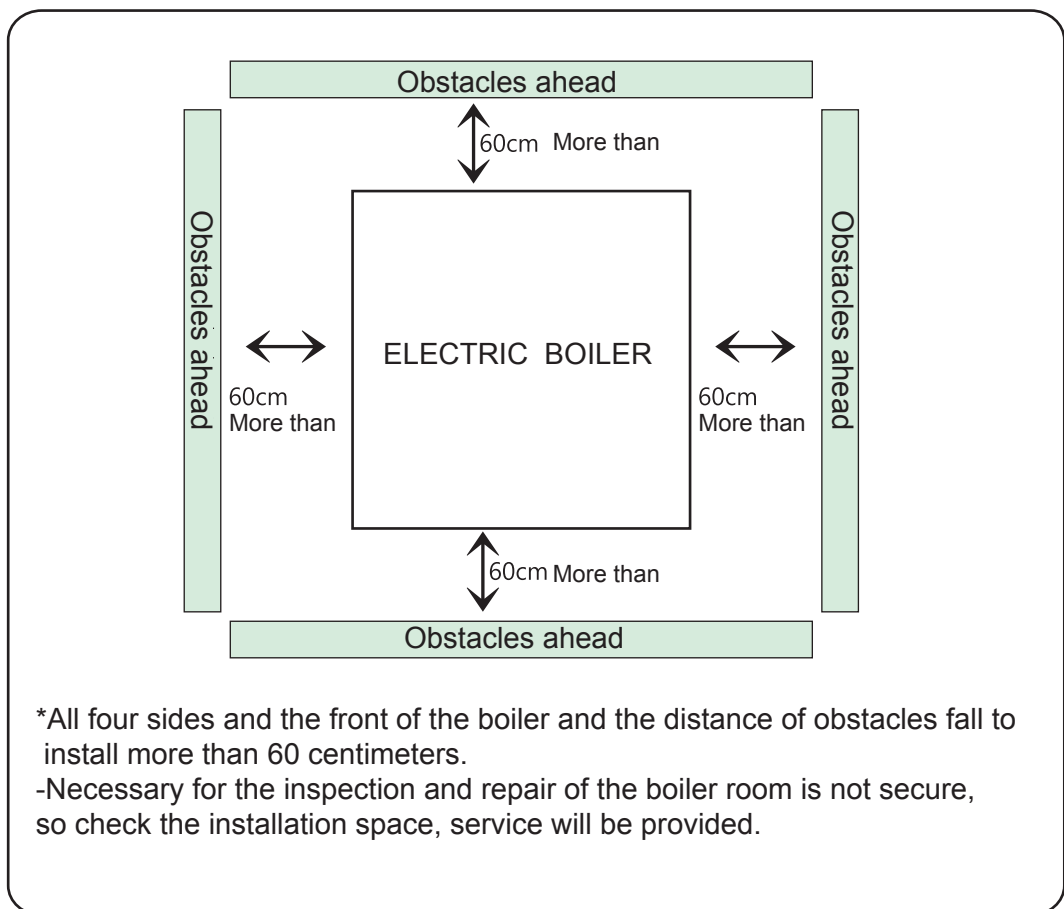
*Humid places, such as bathrooms or enclosed place, do not install it.

*Water piping and electrical work is easy to install in the place.

*Place the boiler is installed must be kept horizontal. If the furnace is tilted

I do not fall in the air inside the boiler is heating water circulation, noise and malfunction.

►Check the repair area to secure



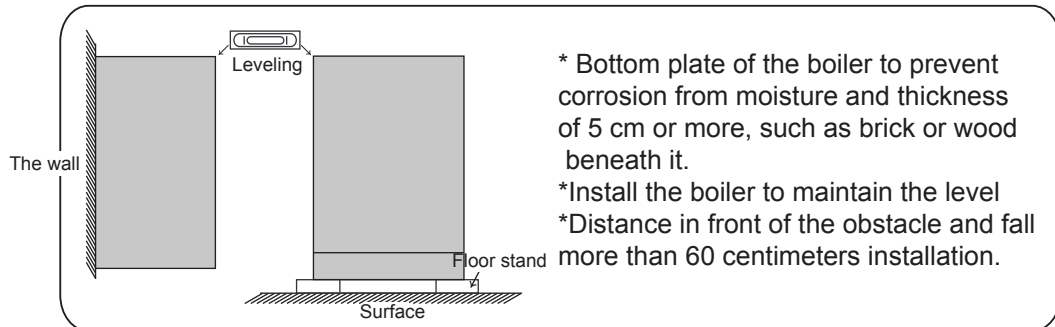
► Check the voltage

*This product uses the control voltage is 220 volts.

Outlet of the voltage and the use of a circulating pump, make sure the power is 220 volts.

In addition, the heater power supply wiring and circuit breaker supplying power to the state it then.

2)Boiler installation



3)Heating and hot water

*Than the material of the pipe material, use the table below.

Heating pipe	Copper and Copper alloy pipes (KS D5.01), XLpipes
Water and hot water pipe	Copper and Copper alloy pipes, Zinc water service pipe steels (KS D5.01), XLpipes
Pipe fittings (elbow, socket)	Ecliptic body, Stainless or KS B1531, KS B1533

*Boiler exploded pipe joints are connected to the two possible structures.

*Cistern water tank capacity is suitable for heating and plumbing of the structure is to automatically use the supplement.

*Capacity of the boiler circulation pump is sufficient to select your motor so that the horizontal part of the installation.

*Install the water supply valve and piping.

*The lowest position of the heating pipe, install the drainage valve.

*Exposed piping insulation to prevent heat loss to freeze the thermal insulation.

*Other plumbing installation example, see the following figure.

4)Indoor remote control and circulation pump wiring

*Indoor Remote Control:Boilers are marked with a red (white line) sticker on.

The two lines to the room insulation connect your remote line

*Circulation pump:Boiler and blue (yellow) marked with two lines sticker.

Be sure to connect your circulation pump insulation, waterproof action.

5)After installation checklist

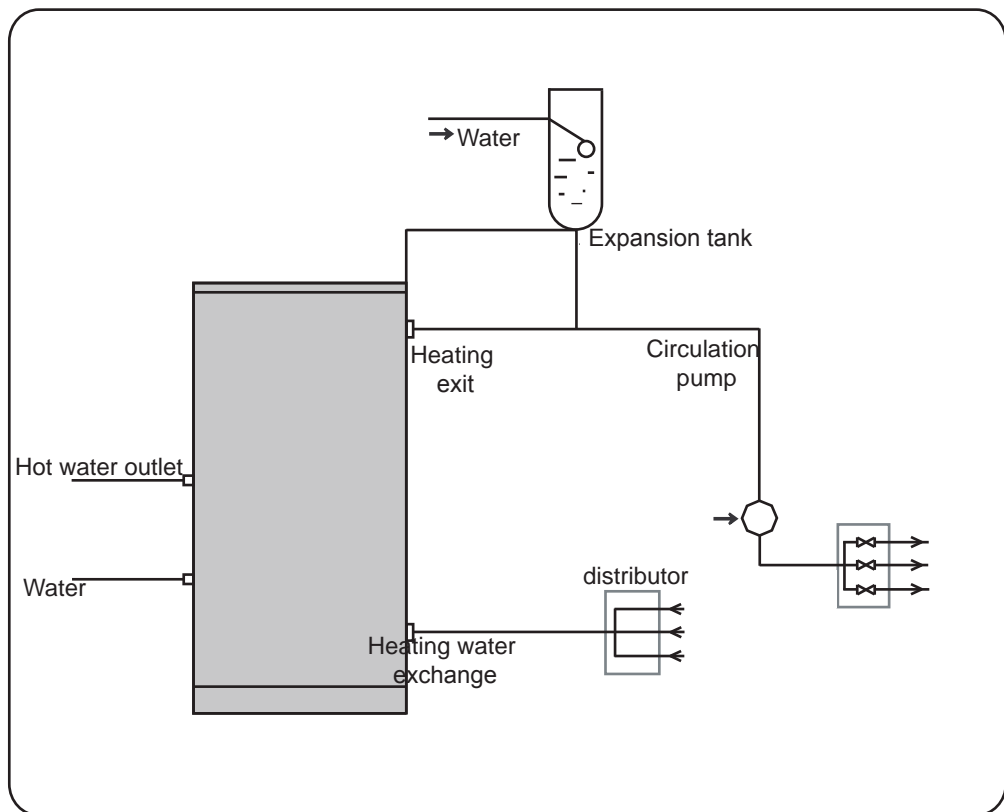
*Whether the leakage of water pipes.

*Check the voltage of the outlet:220V

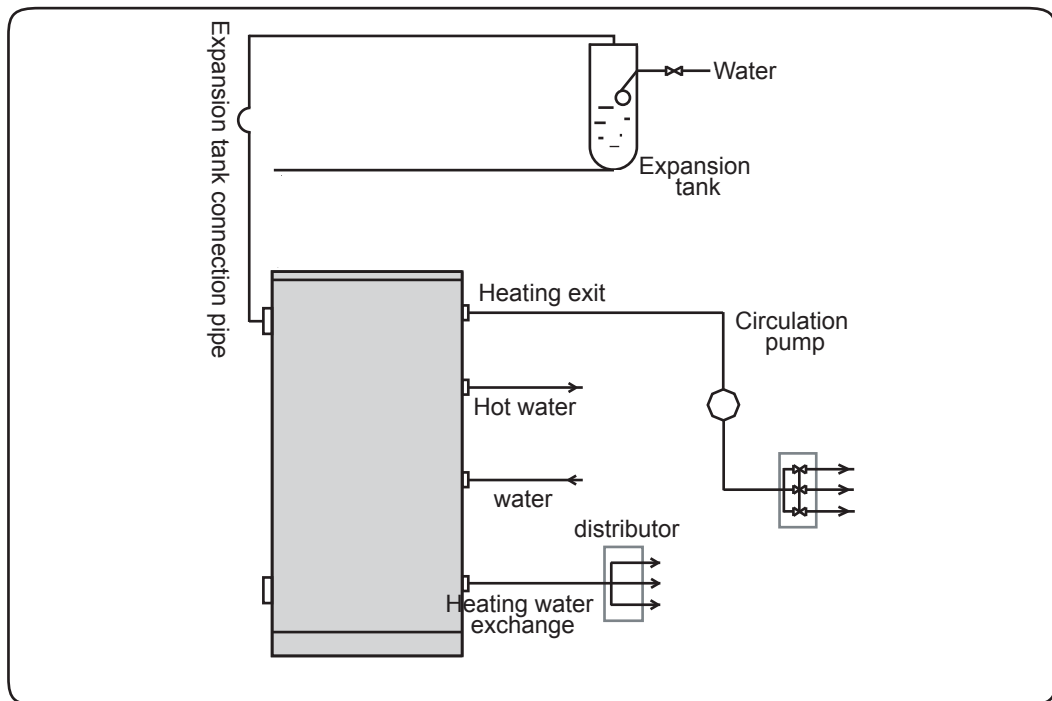
*Check the electrical wiring electrical wiring and heater power.

*Leveling the boiler check the status, and check again.

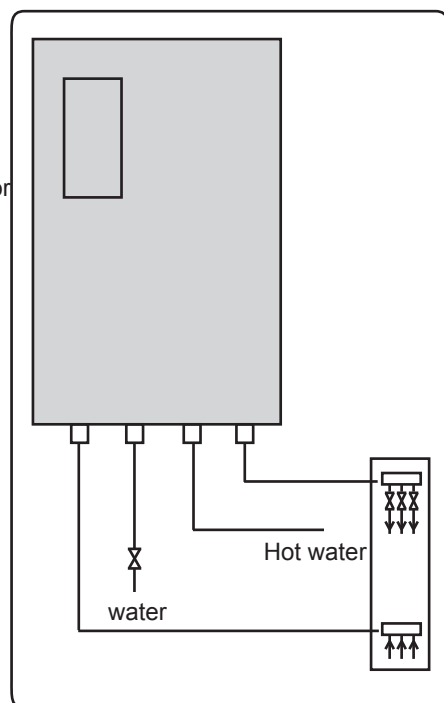
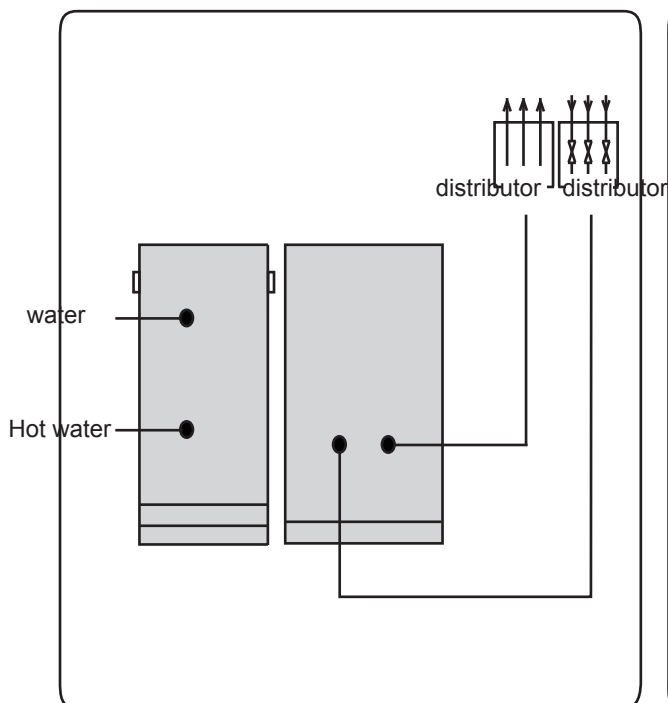
► External electric boiler base



► Built-in heat exchanger / expansion tank external (combined)



► Built-in circulation pump expansion tank (combined&Top-down) ► Wall Mount Electric boilers (top-down)



1.Electric Boiler Main Control User Manual

► Operation and display

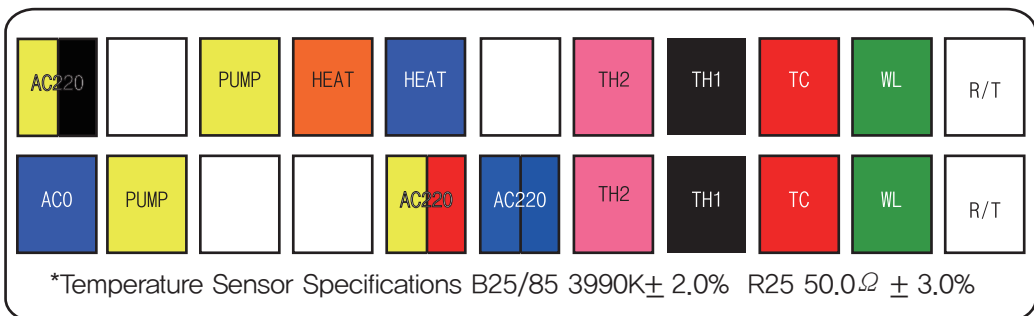
- *난방 LED
Lights up when the circulation pump operation.
- *히터 LED
Lights up when the heater is operating.
- *자동제어 LED
Lights overheating.
- *저수위 LED
Low water level detection occurs lights.



► Functional description of the product

- *전원 switch: Turn the product ON / OFF.
-Each time you press the ON / OFF by a toggle
-Power switch off when the room thermostat is off
- *검색 switch: You can set the function of the switch.
-Press and hold to switch each time you press the switch F0-> F1-> F2-> F3-> F4-> F5-> T1-> T2-> T3 Order.
- *올림, 내림 switch: Each function is used to change the settings on the switch.

► Connector Layout



*Power and (input and output)
Reference)

1.Power and input-output

ACO, AC220V,PUMP :Circulation pump

HEAT: Heater, TH1: Heat storage temperature sensor (bottom), TH2: Boiler temperature sensor (top)

R/T:Connect room thermostat, AC-G:Grounding, WL:Low water level sensor

※How to Set the water heater temperature controller is used

-The room temperature controller is removed and one minute after the temperature can be set by “올림” , “내림” button.

If you leave one minute after setting back to the initial screen.

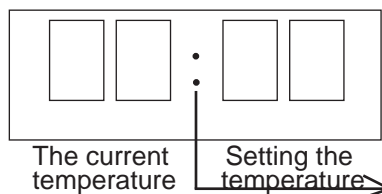
►Eb-con8 manual management mode and error code

*Search Administration Mode

Mode	SETUP	Remarks
F0	Pump operating temperature (20~80°C, 5°C Interval (Lower temperature))	The function F1 Frequent operation of the magnet to prevent noise set to a mode that you want. Example)Heating temperature is set to 90°C, the 90°C to 89°C in the heater OFF and ON, which is a magnet to prevent frequent operation of the heater temperature can be set to ON. RE)90°C water heating water heating setting When set to ON DIFF10 heating water temperature is 80°C when the magnet is turned ON.
F1	Heating water ON DIFF Set (1~25°C) 1°C Set the unit of	
F2	Upper temperature display	
F3	The lower the temperature display	
F4	Low water level ON/OFF	
F5	Low water level ON/OFF	

*If an error occurs, the display contents

Error Code	Check the display contents
Er .02	The upper sensor OPEN
Er .03	The lower sensor OPEN
Er .04	Overheating primary
E7	Communication error
:	Main error



※ (Emergency operation)Upper and lower sensor operation mode 60 minutes 90 minutes errors stop when the heater overheating when the temperature is the "전원" switch is pressed stop.

Room temperature controller removes the ":" is displayed.

5. Instruction manual room thermostat

► The characteristics of the product

Microcomputer intelligent room thermostat adopted the advanced and convenient functions as designed, and 21st-century design.

► Product Function Description

1)난방 /정지 switch:Driving or stopping the heating in the room switch.

①난방:난방/정지 switch to heating mode, press one of the mode once the indicator lamp is turned on and starts heating.

②정지:Driving while 난방 /정지 switch to turn off the heating stops.

2)온도 mode switch: Set automatically according to the ambient temperature by heating.

3)Timer function/Heating reservation function

*Timer function : Specified period of time at room temperature, regardless of the repeated heating.
5 to 25 minutes can be set in minutes 5.

-When set to 5 minutes: 5 minutes after heating for 25 minutes, repeat the stop.

-When set to 20 minutes: 20 minutes after heating for 10 minutes, repeat the stop.

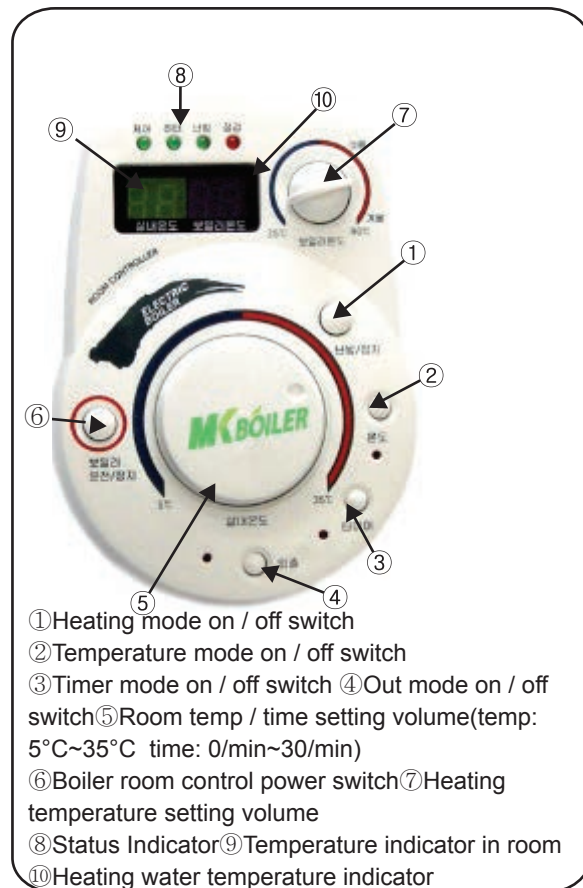
-Cycles are made in increments of 30 minutes and still continue to keep the heating automatically.

① Temperature for at least 3 seconds, press the timer switch on the display "00HR" appears.

② Each time you press the switch once the timer scheduled time is increased by one hour
1 hour (0HR) from 23 hours (23HR) hours will be scheduled.

③ After you set the time display 3 seconds after the timer reservation heating lamp starts blinking.

④ If you want to turn off heating booking for more than 3 seconds, press the timer switch
"00HR" is displayed, the reservation is automatically canceled Leaving heating.



【Examples heating reservation function-Before operating the boiler】

>If you start the reservation heating:Morning at 9:00 to go out, turn off the heating, heating, if you start at 5:00 for dinner ("08HR" for dinner from 9:00 to 5:00 in the morning hours) for dinner at 5:00 and the heating starts.

>In the case of stopping reservation heating (boiler Auto City) 21:00 Heating begin 5:00 a.m. the next day, if the heating is stopped (8 hours) <"08hr": 21:00 started the next day, 5:00 a.m. Stop> The Schedule feature allows you to repeat heating rates can also save heating

>Heating scheduling features, such as the repeated use of the timer function to further reduce your heating costs also available.

4)Out mode switch: 15°C room temperature, which is automatically set to switch on the screen when you go out for a long time.

5)Room temperature / timer: If you set the temperature you want to set the timer or repeated use.

①Temperature setting: Heating / stop switch on, then press the mode switch to the temperature after a temperature mode, temperature appears on the display to look at the room temperature and the volume is set to the desired temperature.

②Repeat timer: Heating state timer, the timer mode, press the switch mode. Set the volume to return to room temperature and the room temperature appears on the display while watching the timer, set the desired time.

6)Boiler operation switches (heater ON / OFF switch)

①When you turn on the heater switch (ON) temperature of the hot water boiler heating hot water tank to heat up the water when the set temperature.

②Heater switches off (OFF) boiler operation is stopped and the heating water temperature right on the display "OF" is displayed.

-A long time to stop boiler operation is convenient to use when.

(Except boiler operation switch is turned off (OFF) For electricity comes at night only stop the operation of the heater.)

※Boiler body has a r to f the controller is displayed in the window.

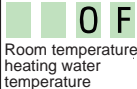
7)Heating water temperature setting volume: Heating temperature of the boiler water temperature appears on the display to look at if you want to use to set the temperature.

8)Status Indicators

- ①Energizing the control input display: Electricity came in the middle of the night when the heater is energized, the "control" lamp is lit.
 - ②Display heater operation: Operation of the boiler heater "heating" lamp is lit.
 - ③Heating Operation display: Heating boiler circulation pump starts up and the "Heating" lamp is lit.
 - ④Check the display: Abnormal such as boiler water level occupation "check" light is on.
- In addition, any error, heating water temperature check code is displayed on the display longer.

Check the display			
E1	Abnormal ambient temperature sensor	E5	Event of low water
E2(E3)	Abnormal heating hot water sensor (upper / lower)	E7	Abnormal communication with the controller

►Abnormal occurred over the first aid room thermostat

	Abnormal content	Checking and Corrective Action	
1	The boiler can not be operated	1 Check the set temperature heating water. 2 Heater ON / OFF (boiler operation switch) switch is turned on.	
2	The room is not heated.	1 an indoor set temperature confirmation. 2 heating mode and temperature mode, make sure the settings are incorrect.	
3	A room temperature controller is not any indication.	1 of General Electric boiler is a power outage or is missing the code to verify. 2 room thermostat is disconnected or the connector, verify that no short circuits.	
4	E1,E2(E3),E5	Emergency operation of the boiler controller made. A / S to contact us.	
5	E5	Because the low level state A / S, please contact us.	

※Warning

- Use of this product is very important because the DC voltage controller (EB-CON DX) in Must be connected.
- When installing in direct sunlight, near a window or doorway, avoiding having you are, in a well-ventilated area (in terms of floor 1.5M height) and install it.

6.How to use the correct

► Heating use

*The main control of "driving" button and adjust the temperature control to the desired temperature. (60 ~ 70C is appropriate)

*Indoor remote control "Power" button and select the button "heating" to press. (60 ~ 70C is appropriate)

*Heating temperature according to your preference and the Select button after selecting the time or times according to your desired temperature.

- Operating lamp is lit and the boiler will be operating.

☞ When the heating operation is stopped and the set temperature again falls below a certain temperature the heater is heating.

☞ The set temperature is reached, the heating circulation pump is stopped when the function is stopped.

► Use hot water

*Press the power button on the remote control, select an indoor button "hot water" and press.

*Circulation pump is stopped and the boiler is operating.

☞ The temperature of the hot water boiler and the temperature control of the room temperature, regardless of time or repeated separately defined will be controlled by the temperature control function.

*hot water during the winter if you are using a heating

-When writing a small amount of hot water for a short expression is "hot water," Do not press the button, open the hot water faucet only.

-When you use a lot of hot water, "hot water" button and after about 5 minutes using the right amount of adjustment you can use effectively.

*When you open the wall if the hot water valve function automatically turns the hot water.

Instructions on how to use hot water

*Open a hot water faucet before the cold water faucet open up to align the appropriate temperature. First, open the hot water valve in very hot water may be given if there is a risk of burns.

*When using the hot water slowly over hot water, close the valve.

If you can fly open and close rapidly, in this case, the boiler water hammer and piping can be damaged.

*When you use hot water because the heating circulation pump is not stopped.

After heated in the winter and I use it to switch to the heating (boiler wall mount not a relationship)

*Do not eat hot water.

► Stop the boiler

*Stop the boiler room, please press the button on the remote control.

- All lamps are off.

-Boiler frost protection and low water level detection function is stopped, except for the operation and circulation.

7.Daily inspection and fault diagnosis

*Economical use of the boiler without failure, check the usual trick is to use a common and clear.

*Inspection and care of the power peureogeu power and unplug the power is completely cool before the boiler.

1)Daily inspection

(1)Heating, hot water pipe connections, etc. Make sure the new.

(2) Boiler flammable materials or flammable materials, make sure to keep it clean please

(3) circuit breakers, heater wire connection from time to time, etc.

Make sure the wiring is color change back

►Boiler appearance

*Cleaning the exterior of the boiler with a dry rag and mild detergent wipe.

If water or a wet cloth to clean the boiler, switch electrocution failure.

►On low water ramp

The cause of the low water phenomenon?

- The lack of water in the boiler, or when there is no water
- Boiler heating water heavily polluted when the sensor is capable of detecting degradation.
- Other causes of lightning is an electrical circuit failure
- Boiler will stop and the lamp will turn off all of the indoor remote control.
- Boiler water into the water tank got checked. Which water enters the lamp is lit, water level sensors. Low water level sensor gives a clean rag, wipe.

► Troubleshooting Before You

*Before calling for assistance, check the table below for the action.

If you do not have to be commissioned following the point of service

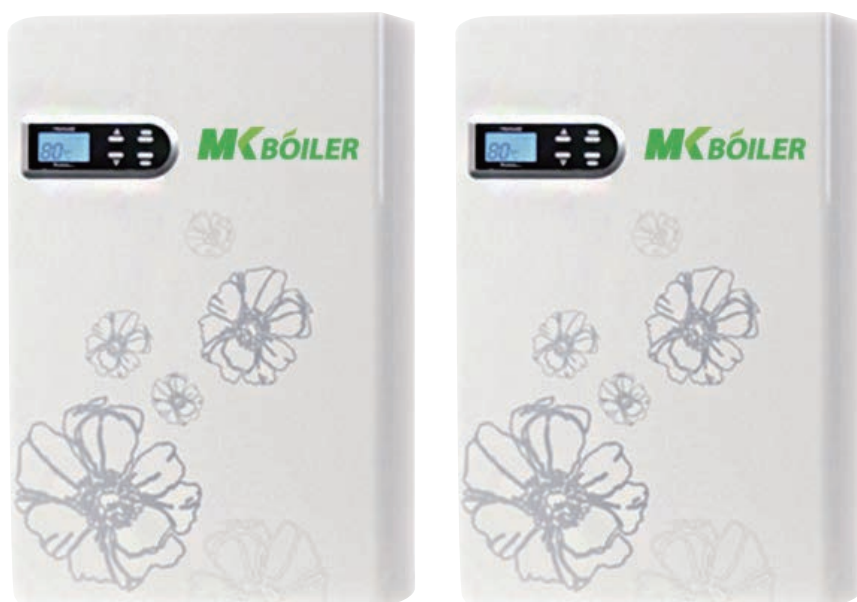
(1)Product Name (2)Model Name (3)The date of purchase, Serial number

(5)Where to buy

(6)Fault conditions

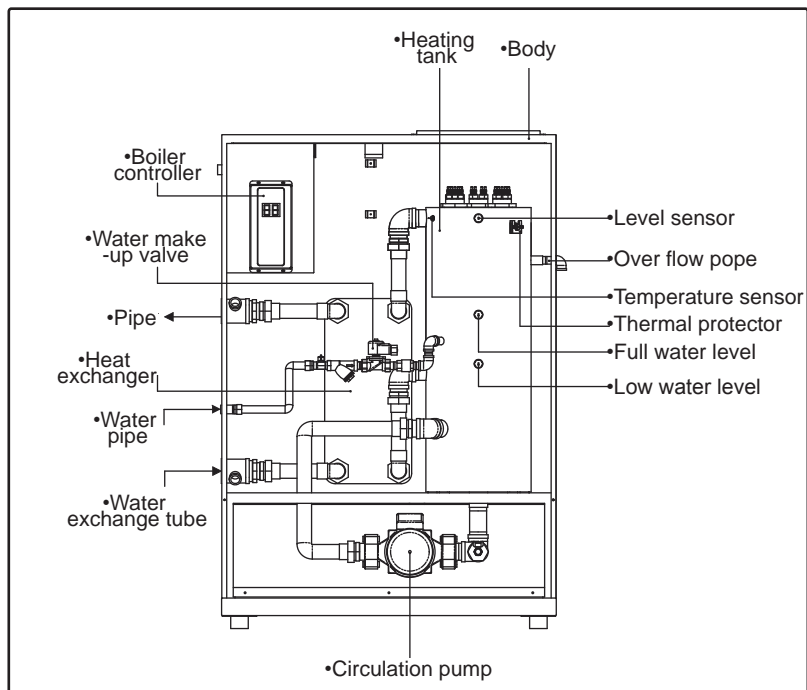
Fault conditions	Causes and corrective actions
The boiler is on the power of the boiler is not working.	1 conditioning temperature check -> Adjust the temperature is lower than the room temperature is not working. 2 boiler display is shown in the case r to f -> Interior switch power off state 3 indoor switch operation No operation even if automatic control is lit -> Automatic control of the primary schedule due to overheating when the temperature returns to the normal operation of automatic control LED OFF 4 Check the water level is usually confirmed when the fire comes the fire inspection. The water level in the main control room switch lights up
If the boiler is turned off	1 Check the power plug (220V) 2 Check the external circuit breaker 3 If there is no other more than the other, check the bottom of the main control contact.
If the switch is turned off indoor	1 indoor power line contact failure 2 Check the power supply main control room switch is OFF when OFF
If the circulation pump noisy	1 Check heating ducts in the air got back in the car. 2 of the valve is locked in heating distribution pipes. 3 so that the bearing life was consumed
Heating pipes are not heated (if no warmer room)	1 of the valve is locked in heating distribution pipes -> to open up. 2 at room temperature was too low switch heating temperature control. 3 was heating water temperature is set too low. 4 The boiler is in working order, but does not get warm -> circulation pump failure May pump air to enter the pipe does not push the situation -> gives the air-side heating distributor.
If you get no hot water	1 indoor switch heating start / stop button to change the hot water. 2 Heating water temperature is too low. 3 compared to the boiler capacity is low on quantity if there are a large number of calories
If it's not heating water temperature rise	1 heating unit on the basic three-phase 380V power is tolerable if you check the cage bolts 2 boiler operating temperature and the surface temperature should not rise -> amp gauge, check the phone after going up the scale
Other checks	1 boiler heating unit first power control operation, verify that the installation is well. 2 When the power is turned on the first time after filling the water supply to the boiler in operation.

Wall-mounted boiler instruction manual

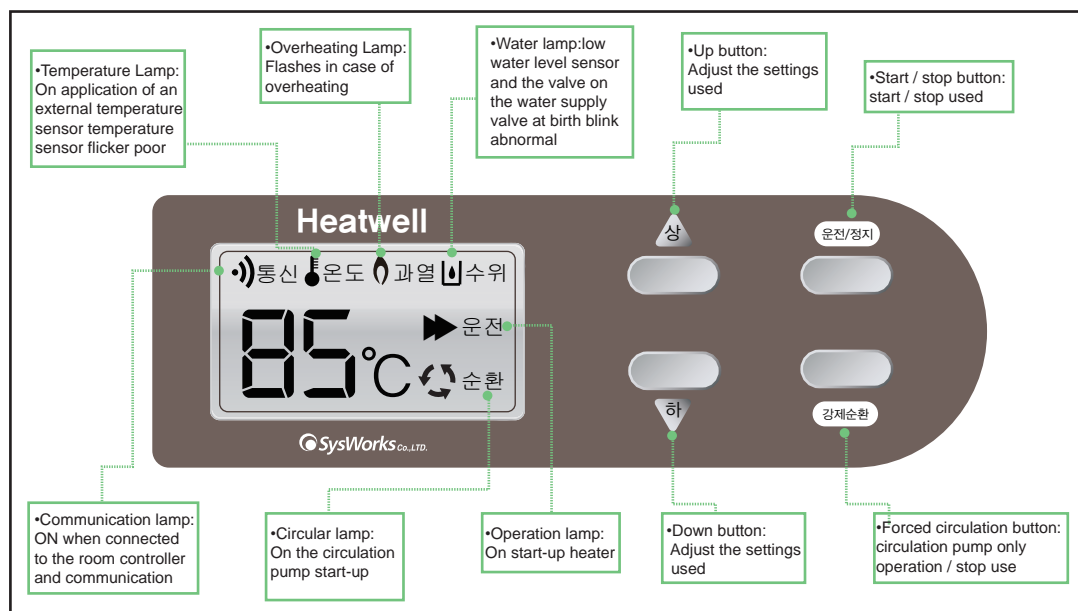


7. Daily inspection and fault diagnosis

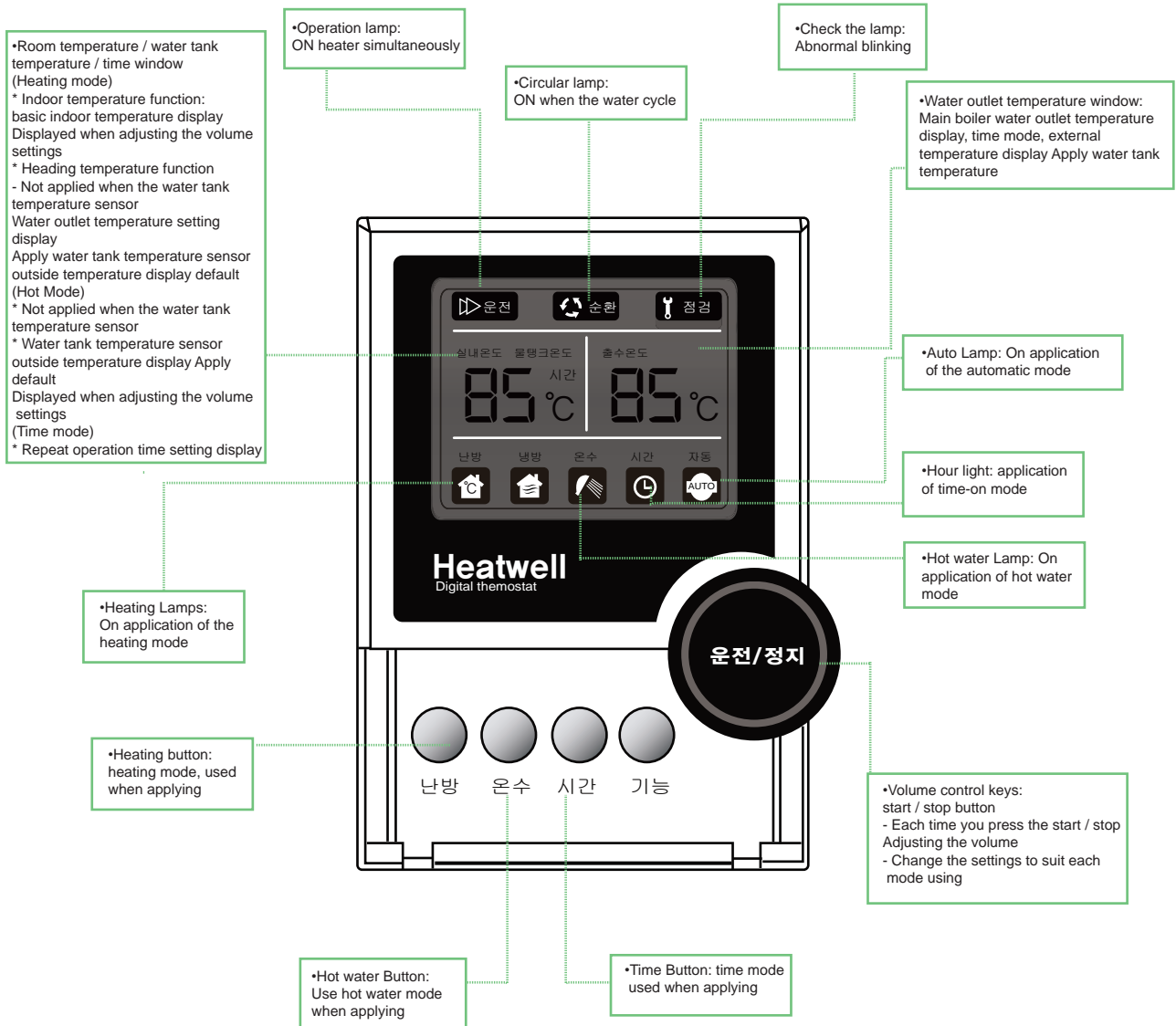
► Name and function of each part



► Boiler controller



► Room thermostat



8. How to use the room controller

► Heating operation

- ① 'heating' button to select the heating mode
- ② 'function' button below to select the function you want

■ Control room temperature

Depending on the temperature you are setting up a boiler room operation and stop functions

- Room temperature to room temperature is displayed on the window, adjust the volume setting is displayed at room temperature
- The current temperature of the boiler water outlet temperature is displayed in the window.

■ Boiler temperature control

Boiler temperature setting depending on your boiler operation and stationary features

- Room temperature set value is displayed in the window. ※ 2
- The current temperature of the boiler water outlet temperature is displayed in the window.

- ③ settings to suit your environment, adjust the volume.
- ④ Run / Stop button to let the driver. ※ 1

► Hot water operation

- ① Press the hot water button and select the mode. Depending on the temperature you have set up the boiler operation and stationary features
- ② Set the room temperature value is displayed in the window on the boiler. ※ 2
Current temperature of the boiler water outlet temperature is displayed in the window.
- ③ settings to suit your environment, adjust the volume.
- ④ Run / Stop button to let the driver. ※ 1

► Time operation

- ① Press the time button and select the time mode unrel.
- ② boiler room temperature window start / stop time is displayed repeatedly.
Current temperature of the boiler water outlet temperature is displayed in the window
- ③ settings to suit your environment, adjust the volume.
- ④ Run / Stop button to let the driver. ※ 1

► Automatic hot water operation

- ① heating / hot water only apply if the combined use (heating and hot water-only)
- ② When the operation status is detected using a hot water boiler will automatically switch to the operation of the driving
- ③ stops automatically when the hot water used in the previous operation mode, the phone will run the boiler.

※ 1. Operating status of each operation can change the operation mode, press the

※ 2. Applied water tank temperature sensor

Room temperature, the window displays the current temperature and the water tank water tank temperature when the volume control settings are displayed.

9.How to use the boiler regulator

▶ Run / Stop

- ① Run / Stop button is pressed, and stops when the boiler is operating.

▶ Forced circulation

- ① heating ducts used to subtract the function of the air.
- ② Each time the button is pressed, the forced circulation operation and stop the circulation pump only.
After refilling with forced circulation before driving, please.

▶ Forced circulation

- ① Press the Down button to select on or boiler temperature of your environment
(and water tank temperature) Set

※ 1. Automatic hot water operation function (heating / hot water in the case of combination)
Sangtaeng use in driving water is detected, the boiler operation is automatically heated to phones
Run.

※ 2. When applied to a water tank temperature sensor
Basic water tank temperature is displayed, or a button onto the water tank temperature settings during
jonjeol Displayed.

※ 3. Damage due to freezing in winter for boilers and pipe frost protection functions are applied to the base.

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