DAEWOO GASBOILER

DAEWOO GASBOILER

#175-16, CHEONGCHEON-DONG,
BUPYEONG-GU, INCHEON, KOREA

www.dwgb.com

MES W31(ENG) VER1. 2013.06

INSTALLATION AND USER'S INSTRUCTIONS

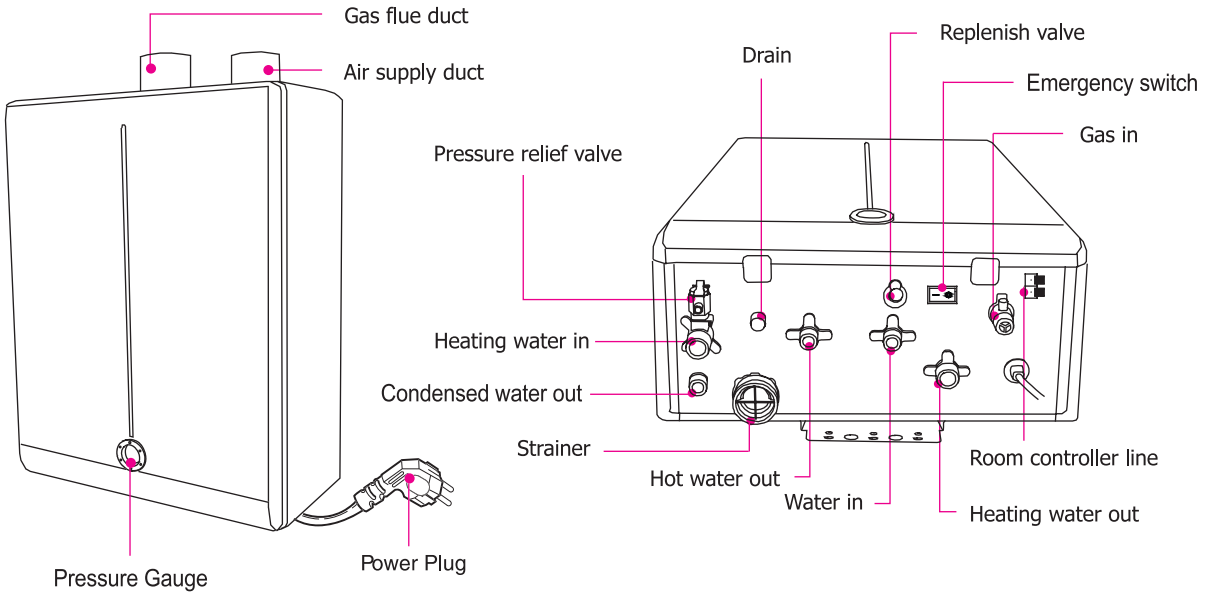
MODEL NO. DGB-160MES/200MES/250MES
DGB-300MES/350MES

DAEWOO GASBOILER

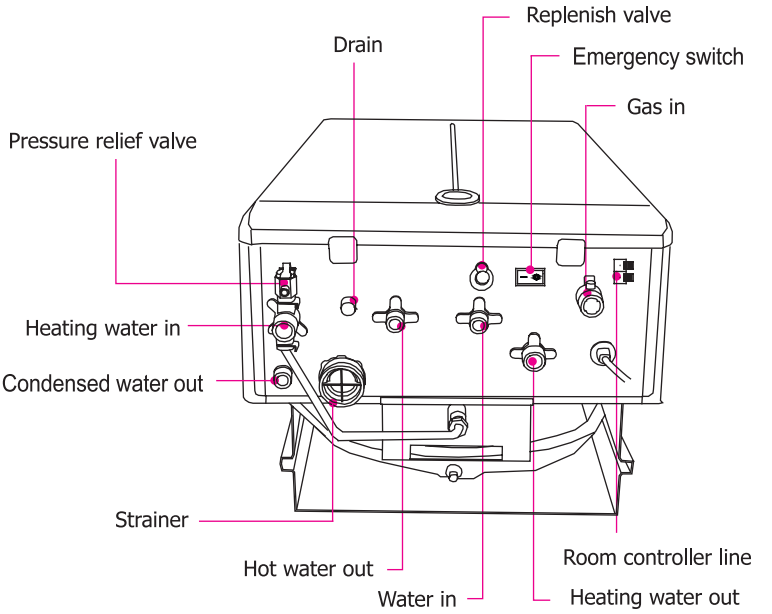
DAEWOO GASBOILER

General Description

Model No. DGB-160MES/200MES



Model No. DGB-250MES/300MES/350MES



Safety precautions

- It's essential to read, understand, and follow the recommendations on this manual before using this equipment.
- The cautions issued by this user's manual include critical information for your safety.

Please do not use the boiler for any purpose other than for heating and hot water. Failure to do so could result in serious injury, death, and/or property damage.

- The following words are used in this manual to denote the degree of seriousness of the individual hazards.

⚠ **Danger!**	Used to indicate an imminent hazard which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.
⚠ **Warning!**	Used to indicate a potential hazard situation which, if not avoided, could result in death or serious injury.
⚠ **Caution!**	Used to indicate a potential hazard situation which, if not avoided, may result in minor or moderate injury.

MUST FOLLOW sign

STOP sign

DANGER, WARNING, CAUTION sign

DO NOT TOUCH sign

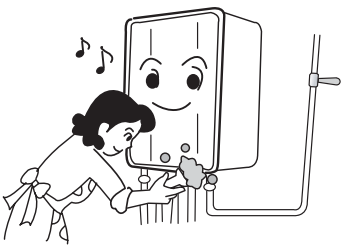
NO FLAMMABLES sign

Indicates "This appliance must be earthed"

⚠ Danger!

■ Check for gas leaks.

Please check for gas leaks often.



■ If there is any indication of a gas leak.

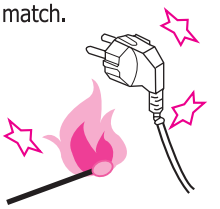
- Stop using the boiler immediatly.
- Close the main gas shut-off valve and open all windows.
- Any spark can cause fire or explosion.
- Gas leaks may result in serious injury or death.
- Call gas supplier or service center to repair any leak at once.



While airing out, never take the following actions

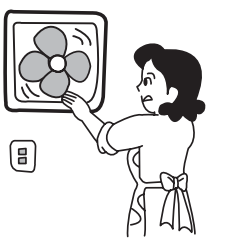
Do not use a lighter or a match.
Do not pull out the plug.

NO FLAMMABLES



Do not turn on/off any electric appliances such as a ventilator.

STOP



Safety precautions

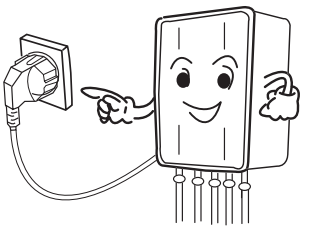
⚠ Warning!

■ Check the gas type.

- Do not use any gases other than the gas marked on the side of boiler.
- Improper use of gas may result in fire and explosion.
- Contact our service center if a change in gas type is necessary.

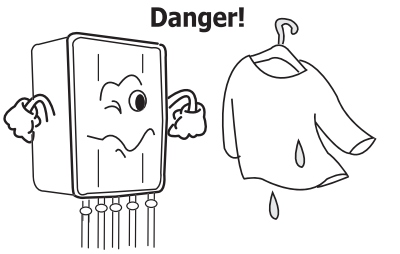
■ Keep plugged in at all times.

- Keep the boiler plugged in all the time, even when not in use. This allows the anti-freeze device to turn on the pump and the burner if necessary.



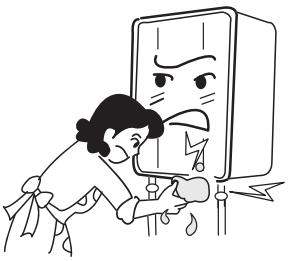
■ Do not use the boiler for any other purpose than for heating and hot water.

- If used for drying clothes, it may result in fire.
- Hot water from the boiler can not be used for food preparation.



■ Beware of electric shock

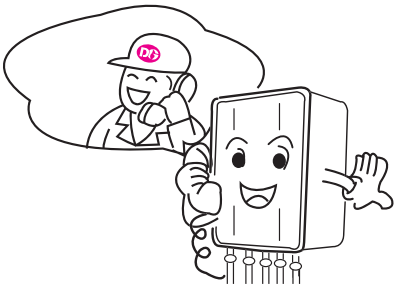
- Cleaning the boiler with anything wet any cause electric shock.
- Unplug the boiler while cleaning the boiler.



Caution!

■ Maintenance check

- Your boiler will work more reliably and efficiently if regulary serviced. We recommend an annual check. Call our service center for a safety check.

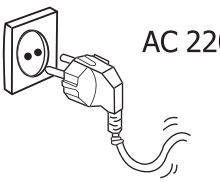


Points to check before using the boiler

⚠ Warning!

■ Check the power supply.

- This boiler is for AC 220V only.
  Use a power transformer if necessary (in the area of 110V).
  Using current other than AC may cause electric shock
  or fire.



■ Check if the boiler is properly installed.

Warning!

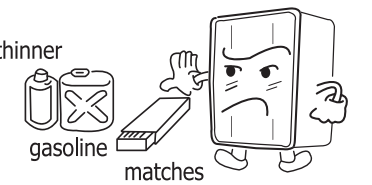
- The location chosen for the boiler must permit the provision of a satisfactory flue termination.
  The location must also provide adequate space for servicing and air circulation around the boiler.
- Installation must be carried our solely by qualified technicians.
- Verify that the boiler vent discharge and air intake areas are clean and free of obstructions.
- The boiler must be mounted on a flat, vertical wall, which must be sufficiently robust to take the weight of the boiler.
- The boiler may be installed on a combustible wall, subject to the requirements of the Local Authorities and Building Regulations.

■ Check flue gas venting system.

- Visually inspect entire flue gas venting system for blockage, deterioration or leakage.
- A gas leak may lead to gas poisoning.

■ Never leave flammable materials in the immediate vicinity of the boiler.

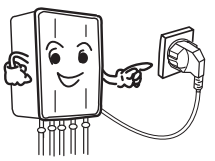
- Flammable materials may result in fire and explosion.



■ Check if the boiler and heat radiator units are filled with water.

- After plugged in, if "E1" appears on the display of the room controller, the boiler is empty.
- If the display shows "E1", replenish the boiler with water.

● Plug in

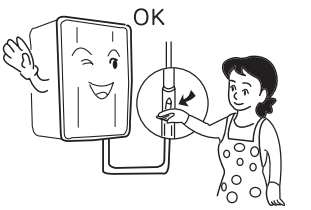


* If there is no water in the boiler, "E1" appears on the display of the room controller.

● Open the replenish valve, and the boiler will be replenished with water. (p. 37 for more details)

* When the boiler is replenised with water, "E1" on the display disappears.

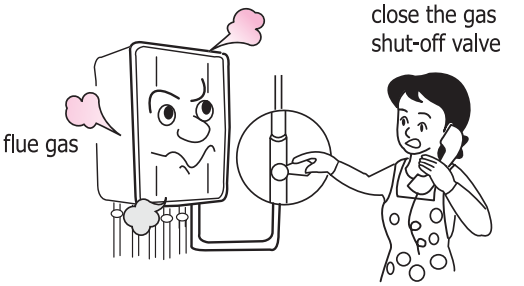
● Open gas valve



Cautions for use

⚠ Danger!

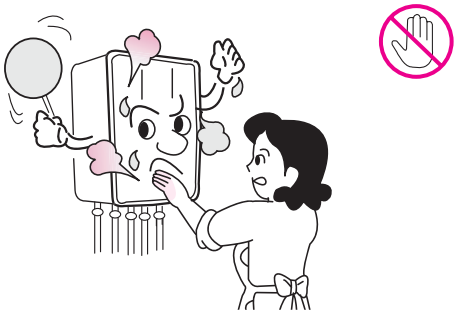
■ **If a gas leak exists in room, or is suspected,**
turn off the boiler and close the gas shut-off valve, and call a boiler installer or our service center. Improper exhaust of flue gas may lead to CO gas poisoning.



⚠ Caution!

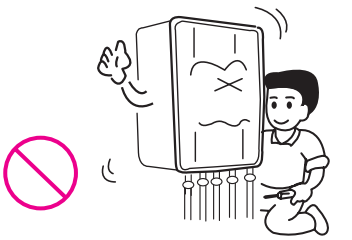
■ **Do not touch the flue or pipes while the boiler is in operation.**

- While operating, the flue and pipes are extremely hot and can cause severe burns.



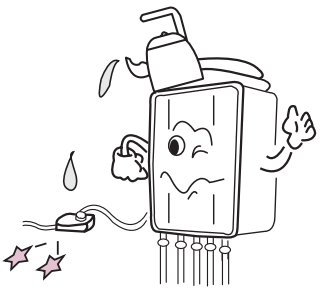
■ **Installation or repair work must be done by a qualified boiler installer or service techinician.**

- Failure to comply could result in severe personal injury, death or substantial property damage.



■ **Do not leave anything on the boiler.**

- It may cause a short circuit or fire.



■ **If there is any indication of a gas leak :**

- Stop using the boiler immediatly and call boiler installer or our service center.
  Gas leaks may result in serious injury or death.

- Check the gas pipes and regulators for gas leaks often and if a gas leak exists or suspected, close the gas shut-off valve and call a gas supplier or our service center.

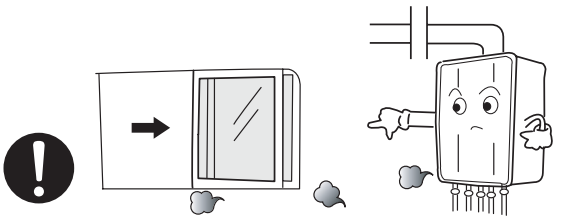
⚠
Danger!

Cautions for use

⚠ Caution!

■ Keep any window near the gas flue closed.

- An open window may allow escaping exhaust gas to come into your home. This will lead to CO gas poisoning. If necessary to open a window for any reason, open the farthest window away from the flue gas.



■ When using hot water, be careful not to burn youeself.

- Always be careful when using hot water. Your hot water consumption may alter the temperature of the water you use.
- Be careful, and test the temperature of any water you use. Exercise caution when altering the flow of water, as this may change the water's temperature.



⚠ Caution!

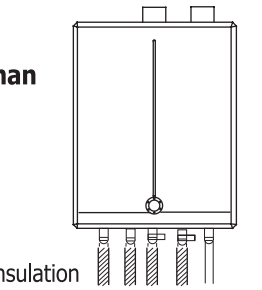
Boiler anti-freezing function

■ To prevent the pipes from freezing and bursting

- Keep the boiler plugged in at all times. When plugged in, the boiler's anti-freeze function maintains a minimum temperature to prevent the pipes from freezing.

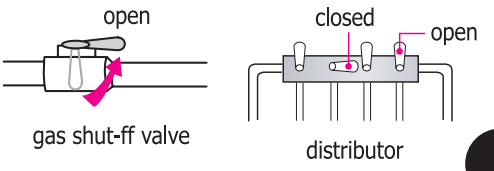


■ The pipes connected to the boiler must be insulated using more than 25mm thick insulation.



■ Even when you are away for a long time, leave the distributor valves and gas shut-off valve open.

- The anti-freeze function works only when the distributor valve is open.

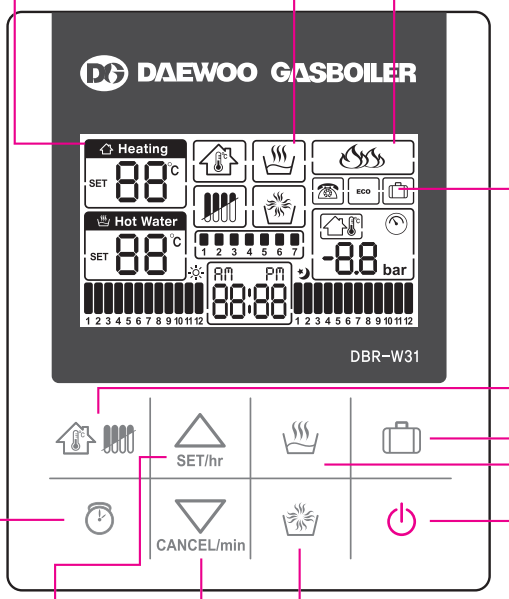


■ Boiler anti-freeze function

- If the water in the pipe gets too cold, the water-circulating pump starts operating automatically to it from freezing.
- If the temperature drops even further, the boiler starts combustion which will keep the pipes from freezing.
- For the auto-combustion to start, the boiler must be plugged in and filled with water. However, when the temperature sensor is out of order, the anti-freeze function will be inoperative.

Room Controller (DBR-W31)

■ Controls and Functions



Room controller display

Rapid hot water icon
This icon is showing when you select 'rapid hot water'

Combusion icon
This icon is showing when flame is on in the combusion chamber.

Going-out icon
This icon is showing when you select 'going-out'

Outdoor temperature and heating water pressure

Heating button
1) Touch this button to turn on and off your heating. When you turn on, the heating icon will flicker and then be lighten.

2) You can controll your heating condition by room temperature and heating water temperature. You can switch 'room temperature mode' or 'heating water temperature mode' by touching this button long.

Going-out button
Please touch this button to prevent the boiler from freezing when you go out. Also turning the hot water faucet slightly on will help to prevent the hot water pipe from freezing.

(Cancel/Minute/Decrease) button

(Set/Hour/Increase) button

Timer / Clock button
You can set the timer houly and by the days of week, and adjust the clock.

Hot water button
Touch this button to turn on and off hot water using. When you turn on, the hot water Icon will flicker and then be lighten.

Power button
Please touch this button to turn the room controller on and off.

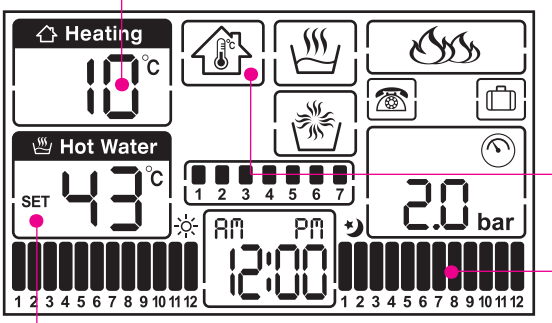
Rapid hot water button
Please touch this button whey you need to use hot water quickly. You can enjoy hot water within 1 minute.

Caution!

- After a power outage, the clock of room controller will initialized at 12:00 and start to operate. So please reset the heating timer and the clock.
- The other options you set before an outage is saved.

Room controller display (DBR-W31)

■ When you controll your heating by room temperature.



Heating temperature section

The room temperature is showing when you use heating.
(Room temperature setting range : 5℃ ~ 40℃)

This icon is showing when you select 'Room temperature' control mode.

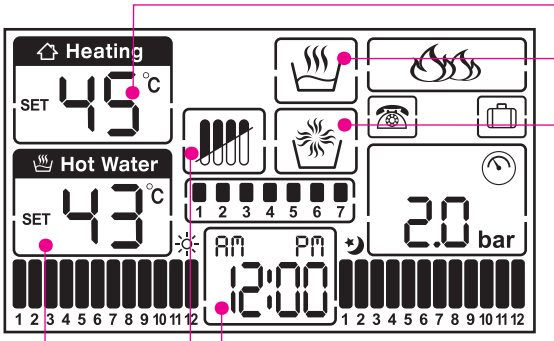
Heatig timer section

You can set the timer hourly and it is showing in black.

Hot water temperature section

When you select hot water, the temperature of hot water you set is showing.
When you are using hot water, the current temperature of hot water is showing. (Hot water temperature setting range : 35℃ ~ 60℃)

■ When you controll your heating by heating water temperature.



Heating temperature section

The heating water temperature you set is showing when you use heating. When the combustion is on, the current heating water temperature is showing.
(Heating water temperature setting range : 45℃ ~ 80℃)

This icon is showing when you select 'Hot water'

This icon is showing when you select 'Rapid hot water'

Clock

You can see the present time.

This icon is showing when you select 'Heating water temperature' control mode

Hot water temperature section

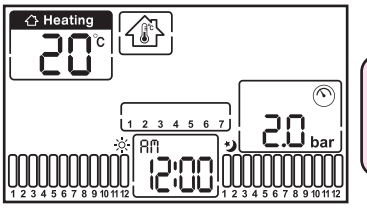
When you select hot water, the temperature of hot water you set is showing.
When you are using hot water, the current temperature of hot water is showing.
(Hot water temperature setting range : 35℃ ~ 60℃)

How to use (DBR-W31)

When using both heating and hot water

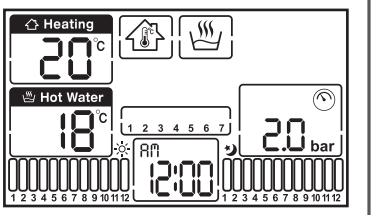
Touch Power button (Lights will be on)

Touch Heating button



Heating only

Touch hot water button



Both heating and hot water

When using both heating and hot water

1. Heating operation

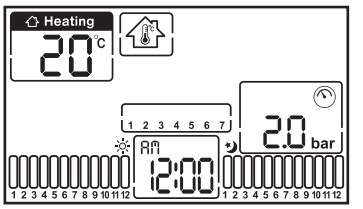
Heating stops when you use hot water, then heating works again after using hot water.

2. Hot water operation

When you use hot water, boiler works only for hot water and stop heating, After using hot water, boiler works for heating again automatically.

Heating only mode

Touch the heating button to turn heating on, and touch hot water button to turn off.

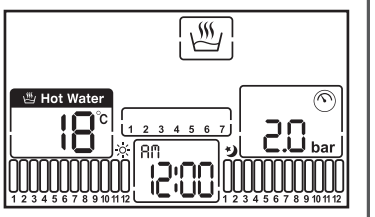


Heating only

Please set this mode when you want to use heating only.

Hot water only mode

Touch the hot water button to turn hot water on, and touch heating button to turn off.



Hot water only

1. Boiler works only for hot water and the heating is unable.

2. Please set this mode when you want to use hot water in summer.

1. Heating temperature setting

Set the temperature with △▽ buttons, then the display will flicker for 10 seconds and complete.

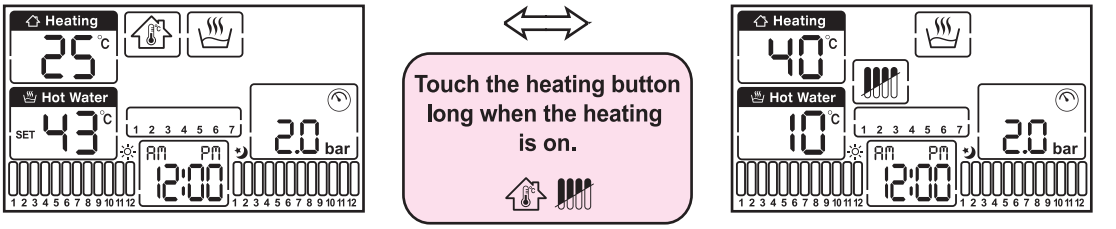
2. Hot water temperature setting

Touch the hot water button and set the temperature with △▽ buttons. The display will flicker for 10 seconds and complete.

How to use (DBR-W31)

Room temperature Mode / Heating water temperature Mode

- You can controll your heating by room temperature or heating water temperature.



Room temperature Mode

Heating water temperature Mode

- Touch the heating button more than 3 seconds and you can switch room temperature mode and heating water temperature mode. The display will flicker for 10 seconds and complete.
- The room temperature mode will not work well by the installed environment of room controller. If so, please use heating water mode.

Notes

- This boiler is designed with propotional control system which is control the flame by differences between set temperature and current temperature. So you can enjoy pleasant heating and constant hot water.
- The combustion will stop or start when the room temperature or the heating water temperature is over the ignition-extinguishment limit. (below chart for references)

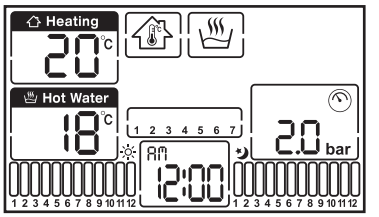
	Ignition	Extinguishment
Room temperature mode	1℃ lower than the set temperature	Higher than the set tmeperature
Heating water temperature mode	12~18℃ lower than the set temperature	7℃ higher than the set temperature

How to use (DBR-W31)

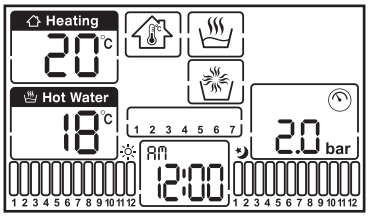
Rapid hot water mode

- You can enjoy hot water faster by Rapid hot water mode. Please set this mode 1 minute before using hot water.
- Touch the rapid hot water button tu turn on and off.

Heating on, Hot water on



Touch the rapid hot water button.



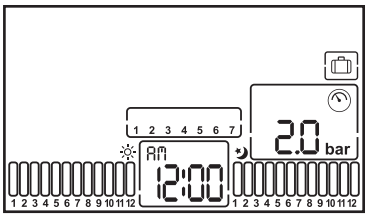
Both heating and hot water is on.

- When the rapid hot water mode is on, boiler works for preheat, though you don't use hot water.
- This mode is automatically off after using hot water or a period of time.

Going-out mode(Anti-freezing mode)

Power on

Touch the going-out button



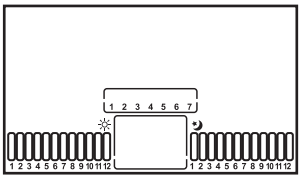
- In the going-out mode, the boiler and the pump works for minimum heating to keep the boiler pipes from freezing and bursting when the temperature getting cold.
- When the water in the boiler isn't enough, this mode won't work. (Error code E1 will be shown on the display.)
- Let your hot water faucets drip a little to keep the hot water pipes from freezing and bursting.

Cautions on using hot water!

- When the volum of hot water usage is large, the temperature of hot water won't be high enough though the set temperature is high. If so, please reduce the usage.
- When the volum of hot water usage is small, the temperature of hot water will be high eazily though the set temperature is low. If so, please turn on the cold water to make moderate water.
- During hot water use, it is unable to set the hot water temperature over 50℃(to prevent the danger of burn)

How to use (DBR-W31)

Clock and Week setting



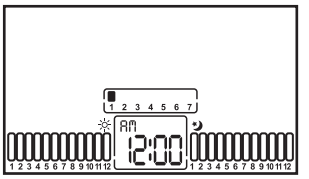
- Power off.





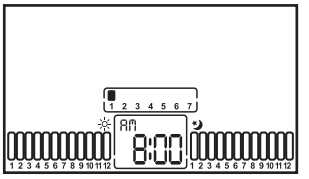
- Touch the timer button for more than 3 seconds.



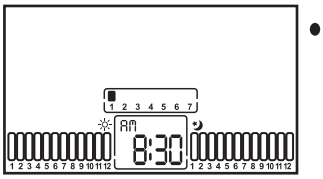


- The clock icon and the week icon flicker.



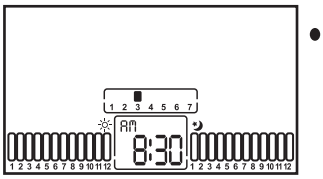


- Set the current hour with △ (Set/Hour/ Increase) button.



- Set the current minute with ▽(Cancle/Minute/ Decrease) button.





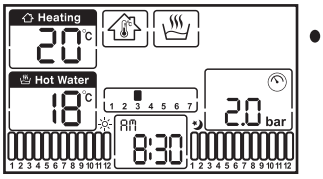
- Set the day with the rapid hot water button.





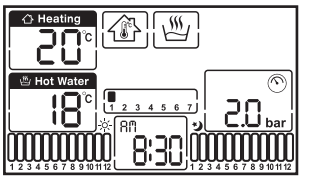
- Touch the timer button.





- The room controller is power on and the clock setting is complete.

Caution!



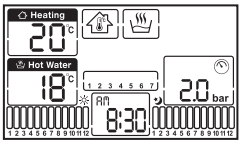
During the power outage, the room controller works with the internal battery for 2 hours. In case of the power outage for more than 2 hours, please reset the clock and the week.

How to use (DBR-W31)

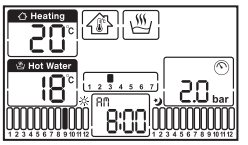
Timer setting

- **You can set the timer hourly and by days of the week.**
- **The boiler works on time you set, so you can save the gas and electric charge.**
- **When the heating timer section is in white, the boiler works for continuous heating. When the heating timer section is in black, the boiler works only for the hours you set.**
- **Timer setting(Weekly mode is set as the factory setting)**
  1) Weekly mode : You can set the timer hourly and by days at the same time. A week setting will be repeat.
  2) 24 Hour mode : You can set the timer hourly and it repeats every 24 hour.
- **How to change the timer mode**
  - Power on the room controller and touch the timer button for 3 seconds to switch between the weekly mode and 24 hour mode.

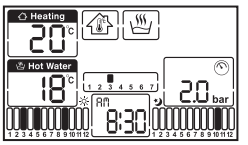
  - When the weekly mode is set, week section is on. When the 24 hour mode is on, week section is off.



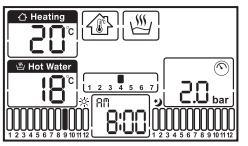
Touch Timer button.



- **The clock flichers.**
- **Cancel**
  - By touching the▽(Cancle/Minute/Decrease) button, The heating timer moves clockwise and cancels the any previously set heating timer. (marked white)
- **Setting**
  - By touching the △,(Set/Hour/Increase) button, the heating timer moves clockwise and set the timer hourly. (marked black)



- **The days of week setting(only for the weekly mode)**
  -You can change the days of week with the rapid hot water button when the timer flickers. Please set the timer houly and change the days also.
- **Complete**
  -Touch the timer button.



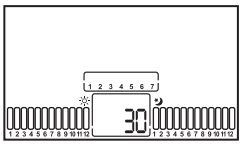
- **The set heating times are marked black.**
- **Heating lasts for 30 minutes and stops 30 minutes in every 1 hour.**

How to use (DBR-W31)

Heating duration setting

- **You can controll the heating duration when the timer is on.**
- **The heating lasts for 30 minutes in 1 hour as the factory setting. You can change it for 15, 30, 45, 60 minutes in 1 hour.**

Power off



Touch the going-out button for 3 seconds.

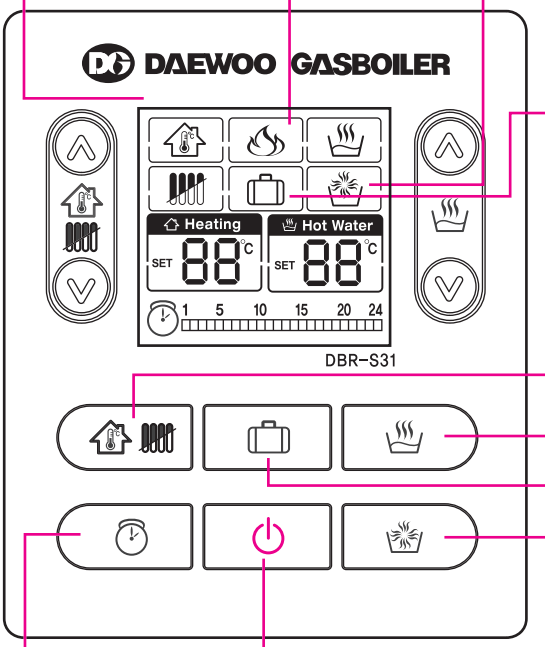
1. "30"(factory setting) will flicker on the display.

2. Choice the duration with the △(Set/Hour/Increase) button, and touch the power button to complete. (The duration changes 45→60→15→30.)

Room Controller (DBR-S31)

■ Controls and Functions

Room controller display



Combusion icon
This icon is showing when flame is on in the combusion chamber.

Rapid hot water icon
This icon is showing when you select 'rapid hot water'

Going-out icon
This icon is showing when you select 'going-out'

Heating button
1) Touch this button to turn on and off your heating. When you turn on, the heating icon will flicker and then be lighten.

2) You can controll your heating condition by room temperature and heating water temperature. You can switch 'room temperature mode' or 'heating water temperature mode' by touching this button long.

Going-out button
Please touch this button to prevent the boiler from freezing when you go out. Also turning the hot water faucet slightly on will help to prevent the hot water pipe from freezing.

Power button
Please touch this button to turn the room controller on and off.

Hot water button
Touch this button to turn on and off hot water using. When you turn on, the hot water Icon will flicker and then be lighten.

Economy heating timer
You can select to make an advance order to economy heating timer.

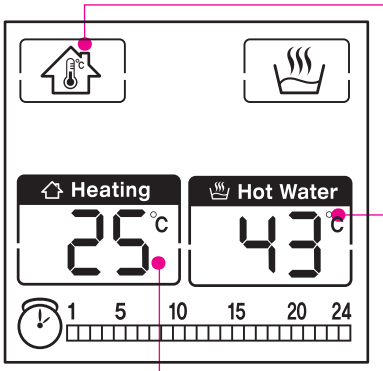
Rapid hot water button
Please touch this button whey you need to use hot water quickly. You can enjoy hot water within 1 minute.

Caution!

- After a power outage, the options you set before an outage is saved.
- After a power outage, the economy heating timer starts to work all over again.
- The back light wink out after 30 seconds you press any button.

Room controller display (DBR-S31)

■ When you controll your heating by room temperature,



This icon is showing when you select 'Room temperature' control mode.

It flickers when the combustion for heating is on.
When you turn the hot water on, this icon is showing automatically and it will flicker when the combstion for hot waer is on.

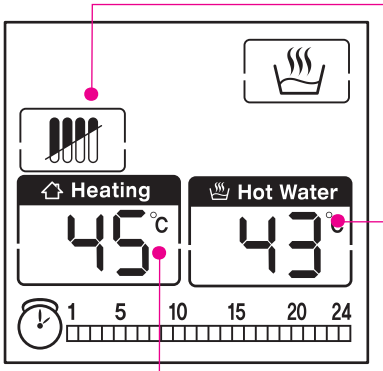
Hot water temperature section

When you select hot water, the temperature of hot water you set is showing. When you are using hot water, the current temperature of hot water is showing.
(Hot water temperature setting range : 35℃ ~ 60℃)
(Factory setting : 43℃)

Heating temperature section

The room temperature is showing when you use heating.
(Room temperature setting range : 5℃ ~ 40℃)
(Factory setting : 0℃)

■ When you controll your heating by heating water temperature.



This icon is showing when you select 'Heating water temperature' control mode.

It flickers when the combustion for heating is on.
When you turn the hot water on, this icon is showing automatically and it will flicker when the combstion for hot waer is on.

Hot water temperature section

When you select hot water, the temperature of hot water you set is showing. When you are using hot water, the current temperature of hot water is showing.
(Hot water temperature setting range : 35℃ ~ 60℃)
(Factory setting : 43℃)

Heating temperature section

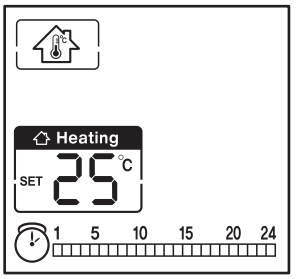
The heating water temperature you set is showing when you use heating. When the combustion is on, the current heating water temperature is showing.
(Heating water temperature setting range : 45℃ ~ 80℃)
(Factory setting : 45℃)

How to use (DBR-S31)

When using both heating and hot water

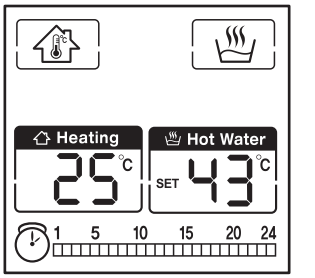
Press Power button (Lights will be on)

Press Heating button



Heating only

Press hot water button



Both heating and hot water

When using both heating and hot water

1. Heating operation

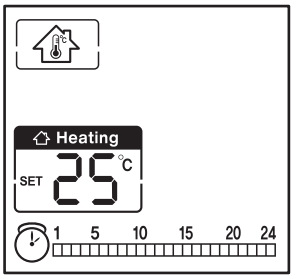
Heating stops when you use hot water, then heating works again after using hot water.

2. Hot water operation

When you use hot water, boiler works only for hot water and stop heating, After using hot water, boiler works for heating again automatically.

Heating only mode

Press the heating button to turn heating on, and touch hot water button to turn off.

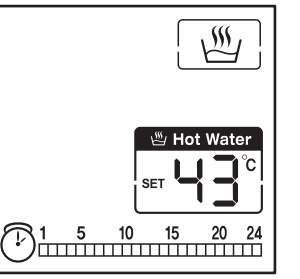


Heating only

Please set this mode when you want to use heating only.

Hot water only mode

Press the hot water button to turn hot water on, and touch heating button to turn off.



Hot water only

1. **Boiler works only for hot water and the heating is unable.**
2. **Please set this mode when you want to use hot water in summer.**

1. Heating temperature setting

Set the temperature with △▽ buttons, then the display will flicker for 10 seconds and complete.

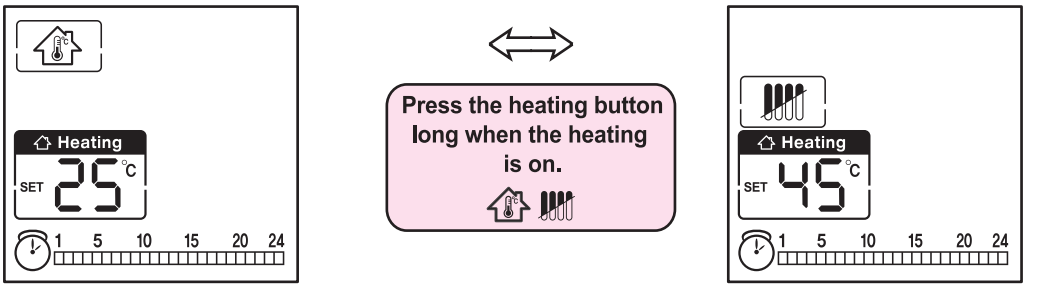
2. Hot water temperature setting

Press the hot water button and set the temperature with △▽ buttons. The display will flicker for 10 seconds and complete.

How to use (DBR-S31)

Room temperature Mode / Heating water temperature Mode

- You can controll your heating by room temperature or heating water temperature.



Room temperature Mode

Heating water temperature Mode

- Press the heating button more than 3 seconds and you can switch room temperature mode and heating water temperature mode. The display will flicker for 10 seconds and complete.
- The room temperature mode will not work well by the installed environment of room controller. If so, please use heating water mode.

Notes

- This boiler is designed with propotional control system which is control the flame by differences between set temperature and current temperature. So you can enjoy pleasant heating and constant hot water.
- The combustion will stop or start when the room temperature or the heating water temperature is over the ignition-extinguishment limit. (below chart for references)

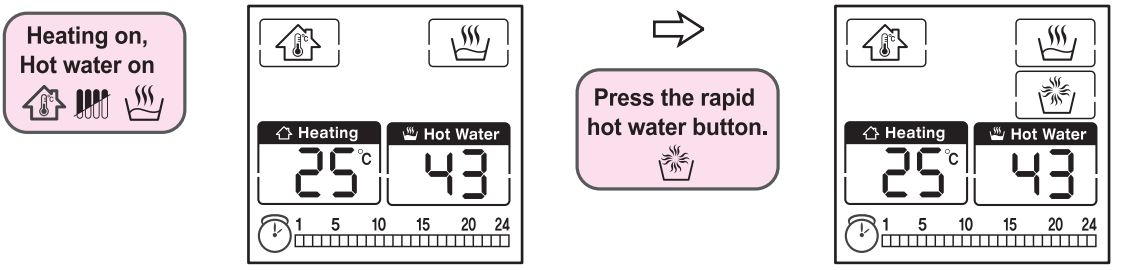
	Ignition	Extinguishment
Room temperature mode	1℃ lower than the set temperature	Higher than the set tmeperature
Heating water temperature mode	12~18℃ lower than the set temperature	7℃ higher than the set temperature

- When you turn heating off and turn hot water off, the room controller is power off automatically. In this condition, if you power on the room controller, the both of heating and hot water turn on automatically.

How to use (DBR-S31)

Rapid hot water mode

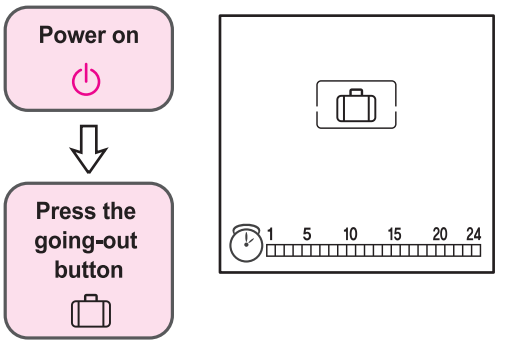
- You can enjoy hot water faster by Rapid hot water mode. Please set this mode 1 minute before using hot water.
- Press the rapid hot water button tu turn on and off.



Both heating and hot water is on.

- When the rapid hot water mode is on, boiler works for preheat, though you don't use hot water.
- This mode is automatically off after using hot water or a period of time.

Going-out mode(Anti-freezing mode)



- In the going-out mode, the boiler and the pump works for minimum heating to keep the boiler pipes from freezing and bursting when the temperature getting cold.
- When the water in the boiler isn't enough, this mode won't work. (Error code E1 will be shown on the display.)
- Let your hot water faucets drip a little to keep the hot water pipes from freezing and bursting.

Cautions on using hot water!

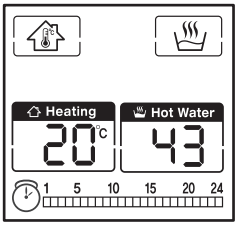
- When the volum of hot water usage is large, the temperature of hot water won't be high enough though the set temperature is high. If so, please reduce the usage.
- When the volum of hot water usage is small, the temperature of hot water will be high eazily though the set temperature is low. If so, please turn on the cold water to make moderate water.
- During hot water use, it is unable to set the hot water temperature over 50℃(to prevent the danger of burn)

How to use (DBR-S31)

Economy heating timer

- **The boiler works for 30 minutes in 1 hour on time you select.**
- **You can save the gas and electric charge with this function.**

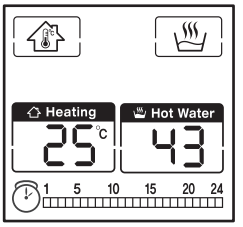
1. Continuous heating



- The heating keeps working on when you don't set the economy heating timer.
- The economy timer section is all in white.

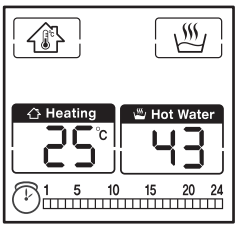
Touch Timer button.

2. Economy heating timer setting



- The economy heating timer section flickers.
- Setting
  - By pressing the △▽buttons, the economy heating timer moves clockwise and set the timer hourly. (marked black)
- Complete
  -Press the timer button.

3. When the economy heating timer is ON



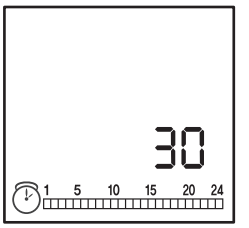
- The set economy heating times are marked black.
- Heating lasts for 30 minutes and stops 30 minutes in every hour.
- When you set the economy heating timer for 6 hours and under, heating works 30 mins first, then it stops for 30 mins. When you set the economy heating timer more than 7 hours, heating stops for 30 mins first, then it works for 30 mins agian.
- If you change any room temperature or heating water temperature, the heating works 30 mins first, then it stops for 30 mins.
- If you increase the timer during the economy timer works, the heating stops for 30 mins first, then it works for 30 mins. If you decrease the timer during it works, the heating works for 30 mins forst, then it stops for 30 mins again.

Heating duration setting

- **You can controll the heating duration when the timer is on.**
- **The heating lasts for 30 minutes in 1 hour as the factory setting. You can change it for 15, 30, 45, 60 minutes in 1 hour.**

Power off

Press the going-out button for 3 seconds.



1. "30"(factory setting) will flicker on the display.
2. Choice the duration with the △(Set/Hour/Increase) button and touch the power button to complete. (The duration changes 45→60→15→30.)

Useful tips

■ Error sign in Room controller

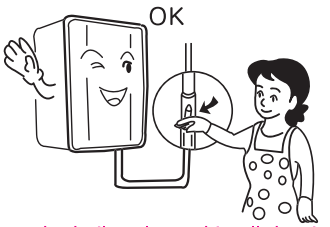
Error sign	Troubles	Check points
E0	Room controller's temperature sensor failure	Room controller's temperature sensor
E1	No water in boiler	Safety flow switch, Main PCB, Replenish Valve, Stop the supply of the water
E2	Incomplete combustion : The yellow tip of flame is occured when the boiler is burning	Flue, Combustion condition
E3	Boiling : No circulation of heating water	Pump, Distributer, The condition of heating water circulation
E4	Flue duct clogged or Fan failure	Flue, Fan, Main PCB
E5	Abnormal flame detected	Infrared flame sensor, Main PCB
E6	Gas leakage detected(optional) : The E6 is displayed when the gas detectir is installed with boiler only	Check gas leakage, Gas detector, Main PCB
E7	The communication failure between Room controller and Main PCB	Room controller, Main PCB
E8	Heating water temperature sensor failure	Heating water temperature sensor, Main PCB
EE	Fan failure : Fan is not rotating	Fan, Main PCB
버튼,U1	Room controller's buttons failure	Room controller's buttons
E9	Water leakage is detected in Heating pipe of boiler(Open type of boiler only)	Check Water leakage is detected in Heating pipe of boiler
Uo	Re-operation : Innition failure	Kind of gases, Ignition transformer, Infrared flame sensor, Main PCB, Gas valve, Check gas supply and shortage
EF	When the flow switch is sensing for over 30 min	Flow switch, Main PCB
EA	When the replenish valve is operating over 5 times for 1 min.(Open type of boiler only)	Check no water in Heating pipe of boiler
EC	Boiler's model number failure	Check the boiler's model number in SW1 of Main PCB
Ed	The power frequency is not correct	Check the power frequeency is 50Hz
U8	Hot water temperature sensor failure	Hot water temperature sensor, Main PCB

● When error sign appears in the display, exercise useful tips. If you still have trouble, call our service center.

When the boiler is not in use

1. Turn off the power.
2. Close the gas shut-off valve.

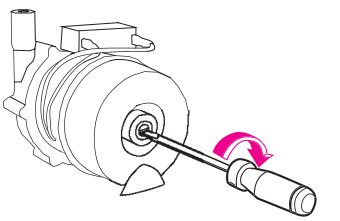
● But, leave the gas shut-off valve open in winter to prevent the boiler from freezing.



※ Leave the boiler plugged in all the time.

When the pump is not rotating

● If you have not used the boiler for a long period of time, the pump may not rotate.
● In the event of this, turn the inside groove clockwise 3 to 4 times with a screwdriver, and it will start rotating.



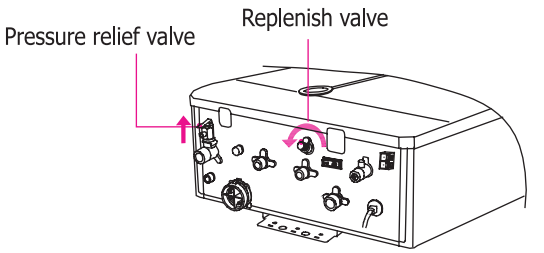
■ System to prevent pump sticking

The system to prevent pump sticking operates for about 5 minutes on a daily basis even when the boiler not in use.

Useful tips

Checking Heating pipe pressure

■ **There is a Replenish valve and a Pressure relief valve on the underside of boiler.**



■ **Please check the heating pipe pressure often with the LED lamp of pressure gauge.**

- 1 bar and less : Please open the replenish valve to fill the heating pipes with water until the lamp goes to 1~2 bar. (When the pressure of cold water supply is under 1 bar, please fill the heating pipes until the lamp goes to 3 bar.)
- When the pressure of heating pipes is over 3 bar, heating water is flow out from this pressure relief valve to drop the pressure. In this case, please pull the pressure relief valve upward and send out the water until the lamp goes to 2 bar.
- Low pressure of heating pipes may disturb the circulation of heating water. (Usable minimum pressure is 0.2 bar.)

[Pressure gauge] -

It shows the pressure of heating pipes which is the temperature sensor notice.



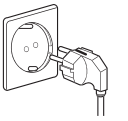
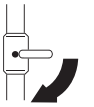
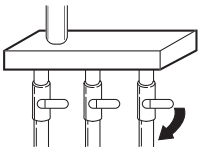
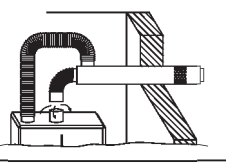
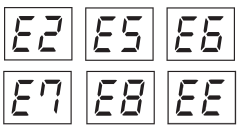
Pressure of heating pipes	Display sign	Appropriate action
Under 0.7 bar (No water)	☀ ○ ○ ○ 0 1 2 3	Fill the heating pipes with the replenish valve
0.7~0.9 bar	● ○ ○ ○ 0 1 2 3	Fill the heating pipes with the replenish valve
1.0~1.9 bar	● ● ○ ○ 0 1 2 3	
2.0~2.6 bar	● ● ● ○ 0 1 2 3	
2.7~2.9 bar	● ● ☀ ○ 0 1 2 3	Flow out the water with the pressure relief valve
More than 3.0 (Excessive pressure)	● ● ● ☀ 0 1 2 3	Flow out the water with the pressure relief valve

■ **Pressure relief valve**

- This is the safety device to prevent any burst of heating pipes or abnormality of boiler.
- When the pressure of heating pipes is over 2.7 ~ 3 bar, heating water is flow out from this pressure relief valve to drop the pressure.

Troubleshooting check list

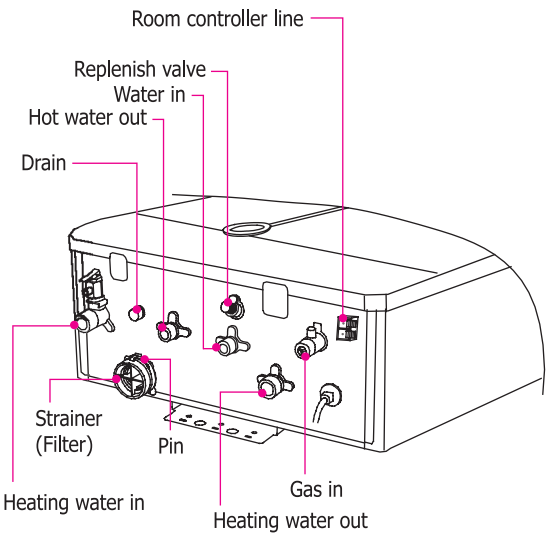
※ Check the items below first, and then call our service center, if necessary.

Problems	Troubleshooting
The boiler is not working.	 ● Have you turned on the power?  ● Is it plugged in?  ● Is the Room controller connected properly?
The boiler flame is not ignited. ● Indicator is flickering. ● Current temperature display is flickering.	 ● Have you opened the gas shut-off valve?  ● Have you checked if the gas ran out? ● After checking the above, press the Power button.
"  **" is flickering in the display.**	 ● Are there any foreign substances in the filter? ● Is the distributor valve open? ● Ensure that one of the distributor valves is open. ● After checking the above, turn the power off and on.
There is a smell of exhaust gas during combustion.	 ● Ensure the flue gas duct is not obstructed and is properly connected.
Water leaks from the boiler.	● If the boiler is operating for a long period time, it is normal for water to leak from the boiler. A drain hose should be connected to the sewer.
Hot water temperature is too low.	● Are several people using hot water at the same time? ● Set hot water temperature to maximum.
Hot water temperature is too high.	● Minimal use of hot water may lead to excessive temperature. ● Set hot water temperature to minimum.
	● Call our service center.

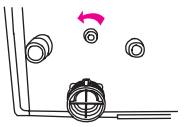
Caution How to clean the filter

- **Before the boiler is installed or relocated, foreign substances inside the pipes must be cleaned out. Contaminants may shorten the life of the boilers, make noise, and/or reduce thermal efficiency.**
- **Clean the filter every six months and the pipes every two years.**

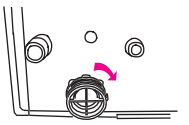
1. Unplug the boiler.
2. Close the water supply valve.



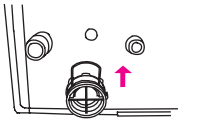
3. Turn the drain stopper counter-clockwise and pull downwards to open. The water in boiler (about 6L) will come out. Be careful because it may be hot.



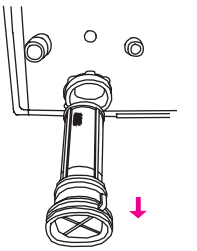
4. Turn the filter's fastener counter-clockwise.



5. Pull the pin of the filter upwads to separate.

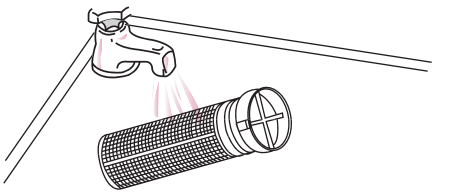


6. Pull the filter downwards to separate.
   Beware of any possible remaining hot water.



Caution

7. After cleaning, assemble the filter following the above steps in reverse. Insert the pin to affix the filter.



8. Put the drain stopper back in its original position.
9. Open the water supply valve.
10. Open the replenish valve until the pressure reaches 1~2kgf/cm^2.
11. Plug the boiler in.

Caution

- **Turn the boiler off for at least an hour before cleaning the filter.**
- **The water in the boiler may be hot. You need to proceed with caution to ensure you do not scald yourself.**

Installation instructions

⚠ Caution — To Installers !

- This boiler must be installed by a qualified boiler installer or service techinician.
- Any damages caused by not installing the boiler in accordance with the recommendations made herein are the installer's responsiblity.
- Improper gas piping may result in gas leakage, fire, and explosion.
- Improper air/flue duct may cause CO gas poisoning.
- Contaminants inside the pipes or sediments from underground water may cause damage to the boiler for which the manufacturer will not be held liable.
- Do not use antifreeze as it shortens the life of the boiler and may cause failuer or breakdown.
- The installer must complete the installer's checklist and must keep a record of installation for five years.
- A copy of the installation record must be handed to the customer.
- The user must be educated by the installer on how to use the boiler.
- After installation, the manual must be kept with the user.

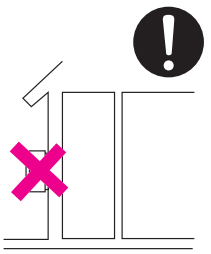
⚠ Caution — Before installing the boiler

- Check the gas type and power supply before installing the boiler.
- Do not damage the coating of the wire connected to the Room controller.

⚠ Warning — Boiler location

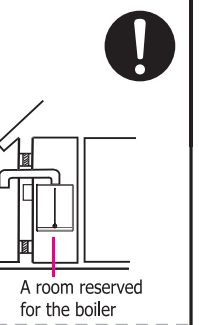
- **Do not install the boiler outdoors.**

  Do not install the boiler outdoors where it can be frozen in winter. In unavoidable circumstances, make sure the boiler is installed with cold protective measures.



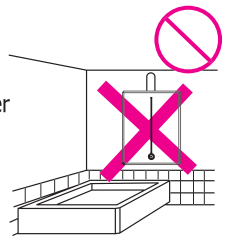
- **Install the boiler in the room reserved for the boiler only (FE type only).**

  Any other location may cause exhaust gas to enter living spaces, leading to CO poisoning. (except FF type)



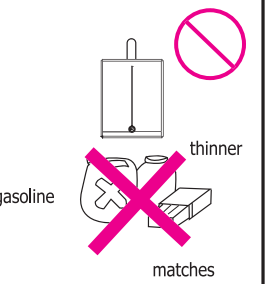
- **Do not install the boiler in enclosed areas.**

  Lack of oxygen due to improper ventilation may result in asphyxiation and death.



- **No flammables nearby.**

  Do not store flammables things near the boiler.

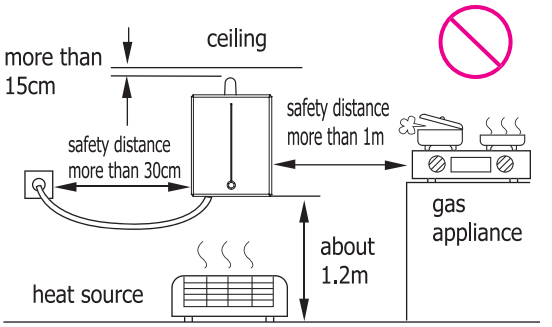


Installation instructions

Warning — Boiler location

- **Minimum clearance to combution materials.**

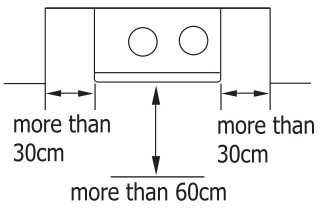
There must be at least 1m's clearance between the boiler and any other gas appliance. There must be at least 1.2m clearance below the boiler from any hot source. The electrical point must be at least 30 cm from the boiler.



This boiler is a hermetic tank type which allows for installation below the level of the boiler's exiting pipes.

- **Minimum Service Clearance.**

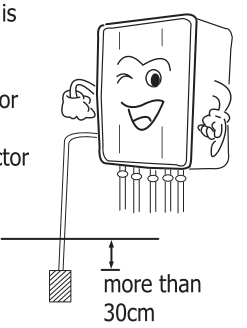
A distance of at least 60cm in front of the boiler must be provided for cleaning and servicing the boiler



The boiler must not be fitted on a combustible wall surface.
In case the wall surface is combustible, attach incombustible materials to the wall before installation.

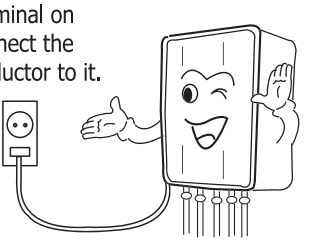
Earthing — Electrical earthing (Grounding)

- Earthing (Electrical grounding) is necessary to prevent you from getting electrocuted.
The boiler's grounding conductor must be earthed at least 30cm deep. Or the grounding conductor can be connected to a metallic water pipe.

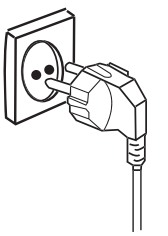


- The grounding conductor must be at least 1.15 mm^2 in diameter.

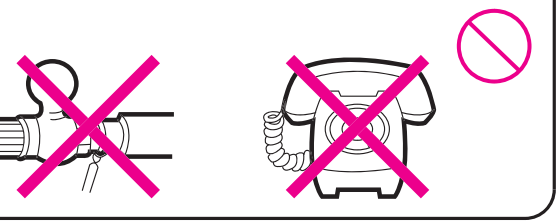
- If there is an earth terminal on an electrical point, connect the boiler's grounding conductor to it.



- When using an electrical point with an earth terminal, separate earthing is unnecessary.



- The boiler must not be earthed to a gas pipe, telephone line, or a lightning conductor.

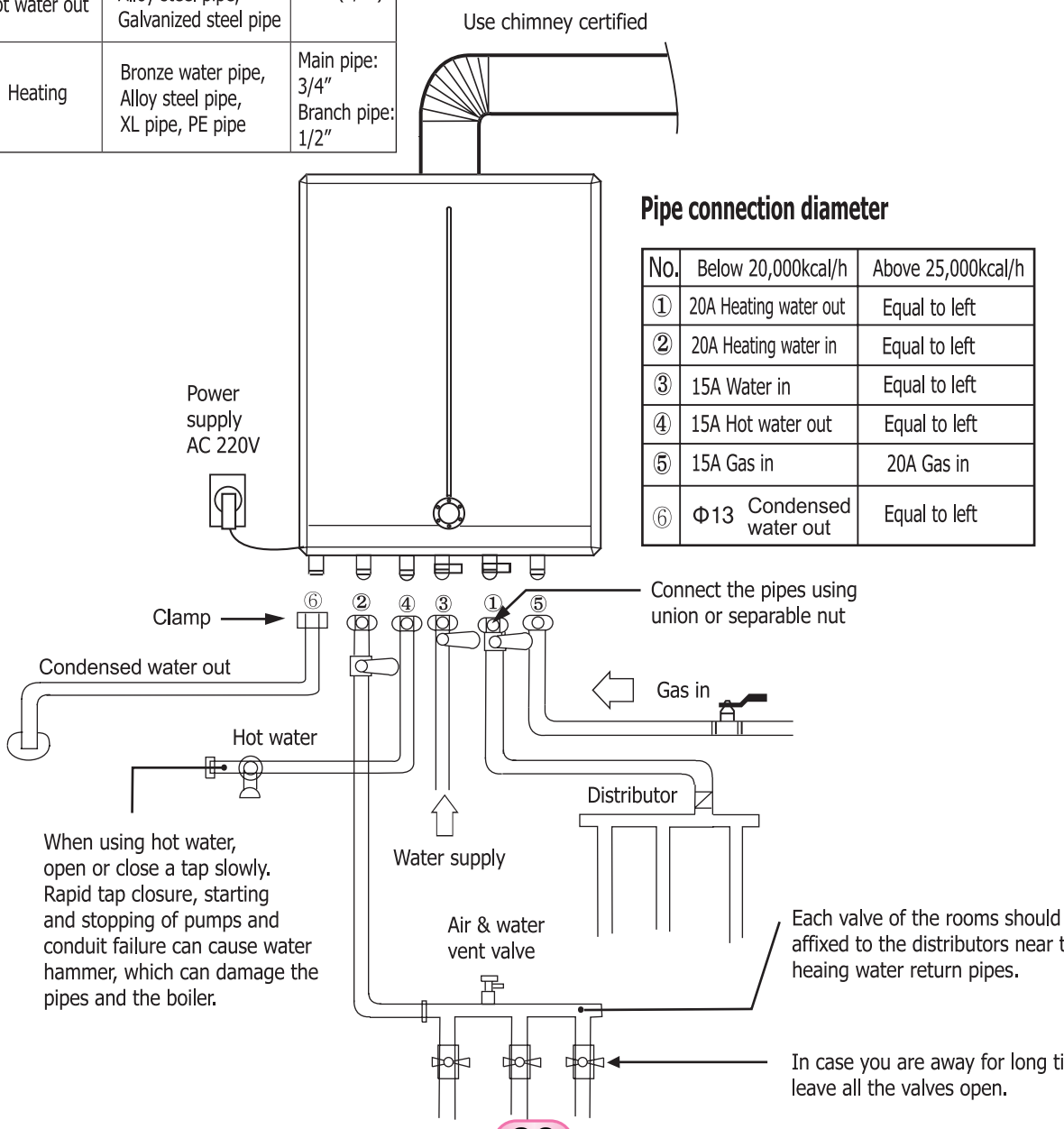


Installation instructions

How to install pipes

Components & Size

Sort	Components	Size
Gas	Metal pipes, Gasware, Metal flexible hose tested & certified	15A(1/2″), 20A(3/4″)
Water in, Hot water out	Bronze water pipe, Alloy steel pipe, Galvanized steel pipe	15A(1/2″)
Heating	Bronze water pipe, Alloy steel pipe, XL pipe, PE pipe	Main pipe: 3/4″ Branch pipe: 1/2″



Pipe connection diameter

No.	Below 20,000kcal/h	Above 25,000kcal/h
①	20A Heating water out	Equal to left
②	20A Heating water in	Equal to left
③	15A Water in	Equal to left
④	15A Hot water out	Equal to left
⑤	15A Gas in	20A Gas in
⑥	Φ13 Condensed water out	Equal to left

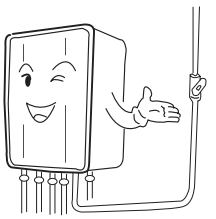
Installation instructions

Caution

Piping

Gas piping

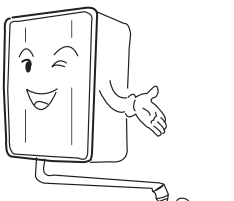
- Installation of gas pipes must be performed by gas professionals, or service provider.
- Ensure that the gas used, as indicated on the boiler, is the same as the gas supplied.
- The gas shut off valve needs to be located close to the boiler for easy access.
- Check if there is any gas leakage after pipe installation.



Install gas shut-off valve nearby

Hot water piping

- Hot water pipes shall be as short and simple as possible and slanted 1/100~1/200 for easy drainage.

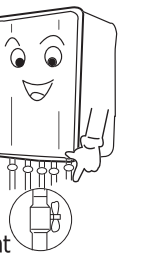


Make hot water pipes simple

Water supply piping

- A shut-off valve is needed at the point where the water supply pipe starts.
- The water supply pressure must be above 0.2kgf/cm^2(20kPa). If it is above 4.5kgf/cm^2, use the pressure relief valve.
- Before installation, all foreign substances in the pipes must be removed and cleaned.
- Refrain from using underground, or well water. Instead, use water supplied by your local provider.

* If the water supply pressure is too low and an auto water supply pump is needed, do not install the pump in the boiler room. The pump's automatic function can cause a fire in the case of a gas leak.



Install a shut-off valve at the water intake point

Heating water piping

- Heating water pipes should be installed in such a way that there are no pipe connections which make repairs hard and/or increase the possibility of leakage.
- Heating supply pipes and return pipes must be of the same size.
- The drain valve must be located at the lowest position of the piping so that heating water can be drained if necessary.
- When connected to radiators, an automatic or manual air vent device is necessary.

Caution

- Water supply, hot water, and heating pipes must be insulated using at least 25mm insulation.
- Attaching thermal heating elements to water supply and hot water pipes will help prevent winter freeze (optional).
- Do not insulate filter, air vent, or drain valves.

Installation instructions

⚠ Caution — Installation of flue system

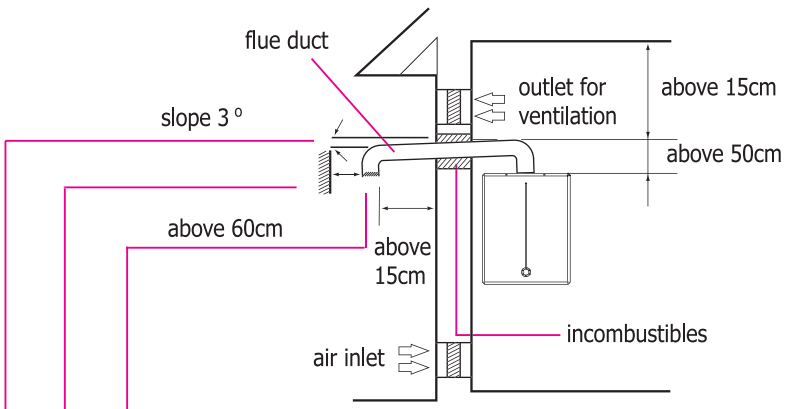
Forced exhaust type : FE

Install the boiler in a room reserved for the boiler only

⚠ Warning

- The forced exhaust type boiler must be installed in a room reserved for a boiler only.
- The boiler room means the space designated for a boiler only, separate from living spaces or spaces used for other purposes.
- The boiler room needs access to an air inlet and an outlet for ventilation.

The diameter of flue duct : Φ80mm



- Install a terminal guard to protect the terminal from mechanical damage from outside influences. (such as birds or rats)
- There must be no flammables within 60cm from the terminal. (within 30cm in case heat resistant boards are installed)
- A 3° downward slope is required to keep precipitation off.
- Make sure there is no hole within 60cm which allows flue gas to re-enter.
- Total length of ducts must be less than 5m, with no more than 3 turns. (not including the initial turn at the terminal / no ducts must be bent upwards)

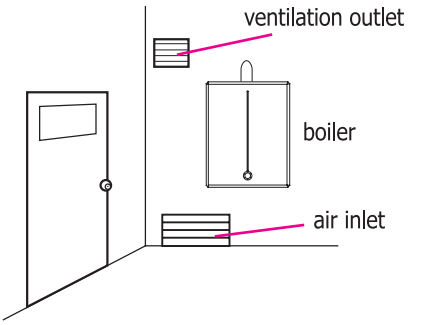
Installation instructions

Caution **Installation of flue system**

Forced exhaust type : FE

Air inlet and ventilation outlet

- Since fresh air (oxygen) is needed for combustion, an air inlet and a ventilation outlet must be installed.
- The air inlet and ventilation outlet must be located at points where air is well ventilated.
- The air inlet and ventilation outlet must be structurally distinct from the body of the boiler.
- The cross section area of air inlet and ventilation outlet must be larger than that of ducts.



Be cautious

- Use ducts made of stainless steel or materials which are heat and water resistant.
- If the gas flue ducts pass through walls made of flammable material, install incombustible boards on the walls to prevent fire.
- The ducts should be placed at a point at which you have easy access for maintenance.
- If, due to unavoidable circumstances, you must install them in the roof space or a concealed area, the ducts must be insulated with incombustible insulation. A minimum amount of space and ventilation for maintenance must always be preserved.
- You should use the ducts must be officially certified.

Warning

Must follow

- You should use the ducts must be officially certified.
- Do not use flexible aluminum ducts.
- The connection between the boiler and the exhaust gas duct must be fixed firmly so that it cannot be separated by external factors.
- Duct connections must be sealed using an O-ring and heat-resistant silicon (except plaster bandage) and exhuast gas leakage must be checked.
- Any damages caused by not installing the boiler in accordance with the recommendations made herein are the installer's responsibility.

⚠ Caution Installation for duct sharing

Forced exhaust type : FE

Duct sharing in a Communal Space

1) If the distance between the boiler and the duct shared by multiple boilers is more than 4 m, connect the gas flue ducts to the shared duct. If the distance is less than 4 m, the gas flue duct must be exhausted separately.

2) The effective cross sectional area of the shared duct must be at least the area calculated by the following formula.

$$A = Q \times 0.6 \times K \times F + P$$

※ The above A, Q, K, F, and P refer to the following:
A: Efficient cross sectional area of the shared flue duct(mm^2), Q: Total heat input(kcal/h),
K: K-factor (Figure 1), F: proportion of simultaneous use of boilers (Figure 1),
P: Horizontal projected area of the gas flue duct(mm^2)

[Figure 1] K-factor

When the cross sectional area is circular	1.0
When the cross sectional area is square	1.3
When the cross sectional area is rectangular	1.4

[Figure 2] Proportion of simultaneous use of boilers

Number of boilers	Simultaneous use ratio(F)	Number of boilers	Simultaneous use ratio(F)
1	1.00	11	0.80
2	1.00	12	0.80
3	1.00	13	0.80
4	0.95	14	0.79
5	0.92	15	0.79
6	0.89	16	0.78
7	0.86	17	0.78
8	0.84	18	0.77
9	0.82	19	0.76
10	0.81	20	0.76
		21	0.75

3) The shared duct must be installed vertically without a turn, and have a circular or rectangular cross section at below 1:1.4 ratio (width and height).

4) The number of the boilers connected to the shared duct on the same floor must be no more than 2.

5) The exhaust duct of a briquette stove or an oil-fired boiler must not be connected to the shared duct.

6) A conventional flue type boiler and a forced exhaust type boiler can not be connected to the same shared duct.

7) Install the FE type's terminal of gas flue duct which has a closed end with side ventilation holes.

Installation instructions

Caution — Installation of chimney

Forced draught balanced flue type : FF

Warning

- The chimney (air and gas flue duct) must be officialy certified.
- Do not change the shape or the structure.
- The maximum chimney length is 3m with no more than 2 elbows.
- The connection between the boiler and the gas flue duct must be fixed firmly so that they cannot be separated by the external factors.
- The connection between the ducts must be sealed using an O-ring and heat-resistant silicon (except plaster bandage) and exhaust gas leakage must be checked.
- The terminal of chimney connected to the air supply duct and gas flue duct must protrude outside the building and the holes on the terminal must not be blocked.
- Any damage caused by not installing the appliance in accordance with the recommendations made herein are the installer's responsibility.

Check if all the components listed below are in the chimney box

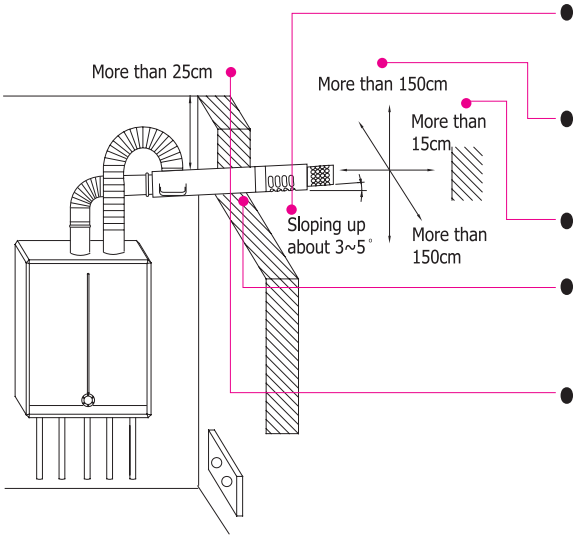
Co-axial pipes Chimney

No.	Components	Q'ty
1	Elbow	1
2	Chimney (Air and gas flue duct)	1
3	Steel band	2
4	Wall holder	2
5	O-ring	2

Dual pipes Chimney

No.	Components	Q'ty
1	Chimney (Air and gas flue duct)	1
2	Socket	1
3	Elbow	1
4	Wall holder	2
5	Wire band	2
6	O-ring	3
7	Air supply hose	1

Cautions for the installation of chimney



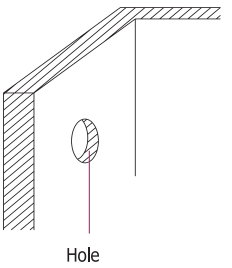
- A horizontally installed chimney, exposed to precipitation, must be installed sloping up about 3 ~ 5°.
- There must be at least 150cm of free circular space around the chimney terminus.
- There must be no obstructions within 15cm from the chimney terminus.
- Ensure that there is no exhaust gas leakage from the gap between the wall and the chimney.
- The chimney must be installed at least 25cm distance from the ceiling.

Installation instructions

How to install chimney (Dual pipes Chimney)

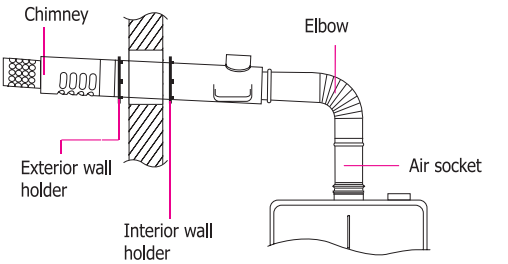
1. Drilling a hole in the wall

- Drill a hole in the wall after ensuring that there is no gas pipe, water pipe, or stud.



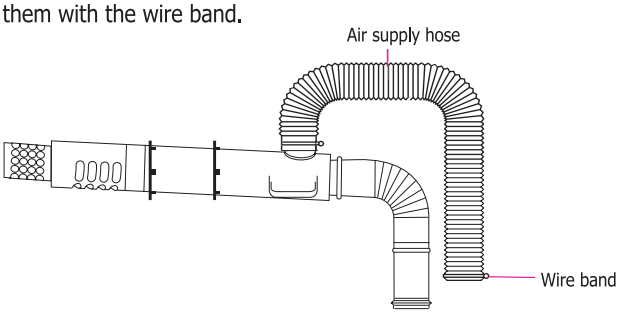
2. Assembling components

- Combine the elbow and the air socket using an O-ring. Insert the chimney in the interior wall holder, and connect the completed chimney to the boiler.
- Attach the exterior wall holder to the chimney on the building's exterior and affix it to the wall.
- The chimney should protrude about 30 cm from the exterior wall.



3. Fitting air supply hose and connecting to the boiler

- Connect air supply hose to the chimney and affix them with the wire band.
- Insert the air socket to the gas flue duct until you hear a "click" sound.
- Put the air supply hose to the air duct and affix them with the wire band.

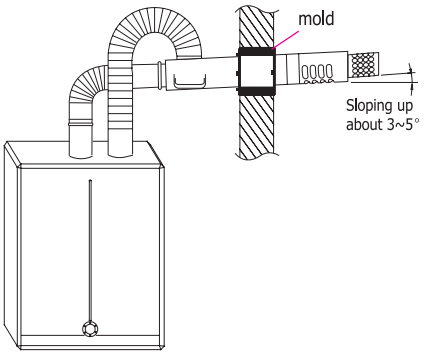


■ The dimensions of chimney

Diameter of connection(mm)	Diameter of duct (mm)	Hole in wall(mm)
Ø80	Flue gas duct Ø80 Air duct Ø110	More than Ø120

4. Installing in the wall

- Attach the interior wall holder to the internal wall and tighten it with the wire band.
- Block the external wall with concrete to prevent rainwater inflow.



- Make sure the ducts slope up about 3 ~ 5°.

⚠ Warning

■ Do not connect the chimney of the FF type boiler to existing ducts or shared exhaust ducts because it may cause incomplete combustion.

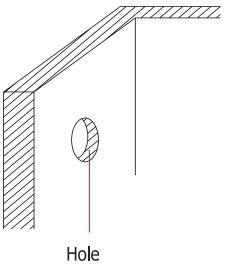
■ The gas flue duct and air duct of the FF type boiler must be located at the same air pressure.

Installation instructions

How to install chimney (Co-axial pipes Chimney)

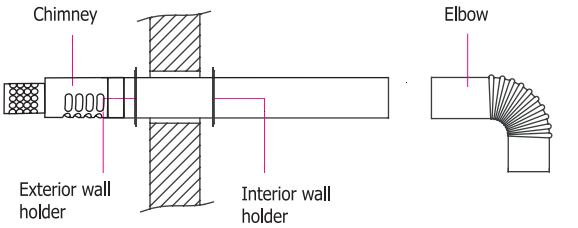
1. Drilling a hole in the wall

- Drill a hole in the wall after ensuring that there is no gas pipe, water pipe, or stud.



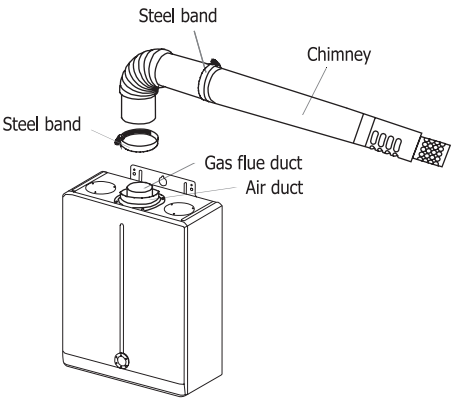
2. Assembling components

- Combine the elbow and the air socket using an O-ring. Insert the chimney in the interior wall holder, and connect the completed chimney to the boiler.
- Attach the exterior wall holder to the chimney on the building's exterior and affix it to the wall.
- The chimney should protrude about 30 cm from the exterior wall.



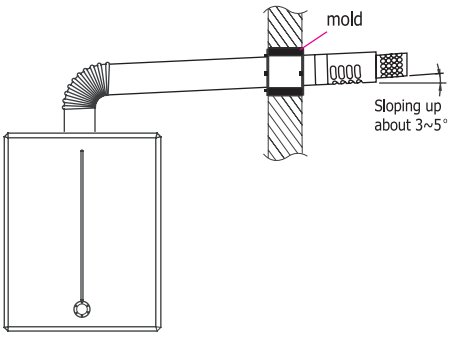
3. Connecting Chimney to the boiler

- Insert Chimney to the gas flue duct and the ait duct.
- Affix Chimney with Steel bands tightly.



4. Installing in the wall

- Attach the interior wall holder to the internal wall and tighten it with the wire band.
- Block the external wall with concrete to prevent rainwater inflow.
- The Chimney must be installed sloping up 3~5°.



■ The dimensions of chimney

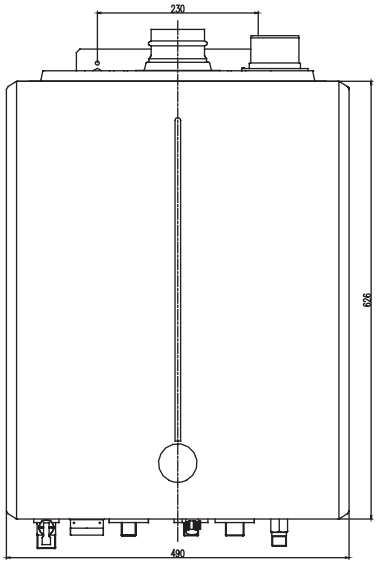
Diameter of duct (mm)	Hole in wall(mm)
Flue gas duct Ø80 Air duct Ø110	More than Ø120

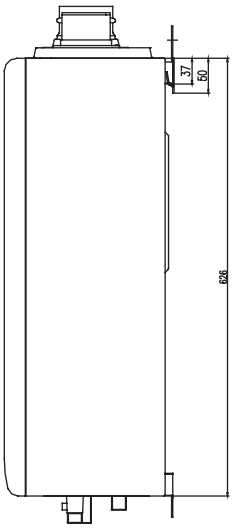
Warning

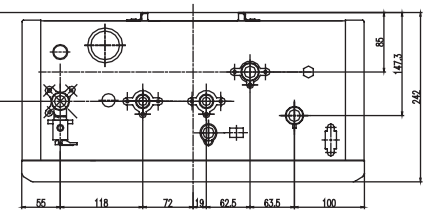
■ Do not connect the chimney of the FF type boiler to existing ducts or shared exhaust ducts because it may cause incomplete combustion.

■ The gas flue duct and air duct of the FF type boiler must be located at the same air pressure.

Appearance of boiler

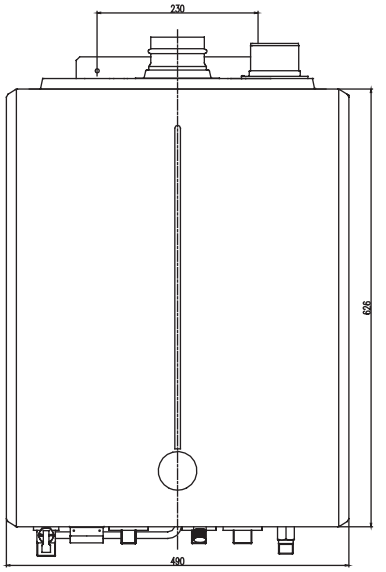


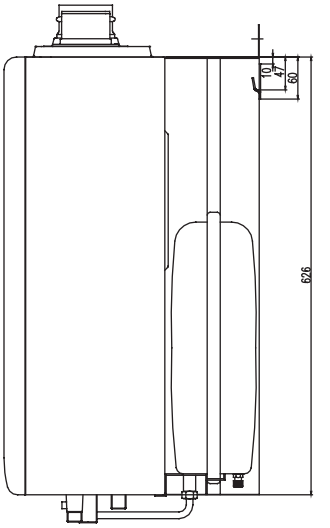


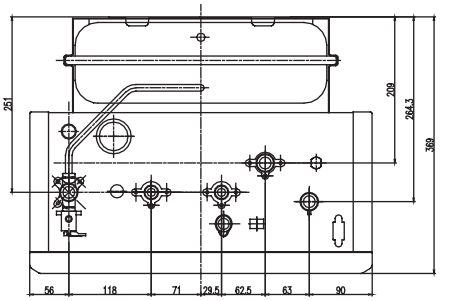


Model No.
DGB-160, 200MES

Connection pipes	Dimension
Heating water in	3/4″
Heating water out	3/4″
Water in	1/2″
Hot water out	1/2″
Gas in	1/2″
Gas Flue duct	80mm
Air Duct	110mm







Model No.
DGB-250, 300, 350MES

Connection pipes	Dimension
Heating water in	3/4″
Heating water out	3/4″
Water in	1/2″
Hot water out	1/2″
Gas in	1/2″
Gas Flue duct	80mm
Air Duct	110mm

How to install & connect the Room controller

Room controller's Installation location & conditions

- The Room controller can be on the wall where it is easy to set or control the heating and hot water.
- The Room controller must be kept out of reach of children

Caution

Do not install where :

- there is moisture
- the temperature rises to 40°C or in direct sunlight.
- it is oily or dusty

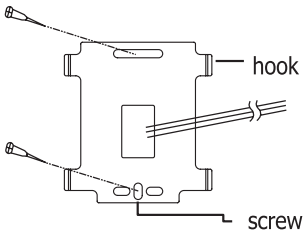
Conecting the cable of Room controller

Caution

- The two PVC-sheathed cables must be used. If the cable peels and a short circuit occurs, the boiler may not operate properly.
- The room controller cable must have its own designated cable line.
  Do not connect the cable to AC 220V, it may cause fire.
  Do not tie the room controller cable to a AC 220V cable or put them into the same cable pipe together, electrical noise can be generated.
- The length of the connections must be less than 50m.
  Otherwise, the room controller may be affected by external electrical noise and not work properly.
- There is no "+" or "-" in the room controller cable.
  Insulate the connections with insulating tape to prevent a shortcut, separation, or a fault current.

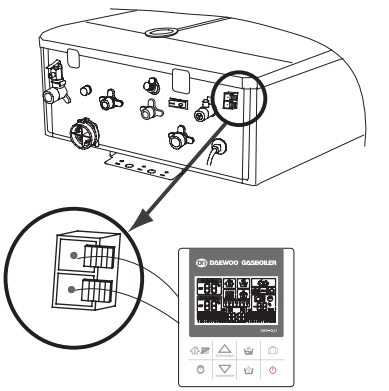
Mounting the Room controller

- Separate the holder from the room controller and affix it in to the wall with the 35mm screw provided .



1. Fix the holder over the electrical box in the wall.
2. Connect the cables in the electrical box to the room controller.
3. Hold the room controller down over the hook of the holder and pull it down. It will be attached to the wall.

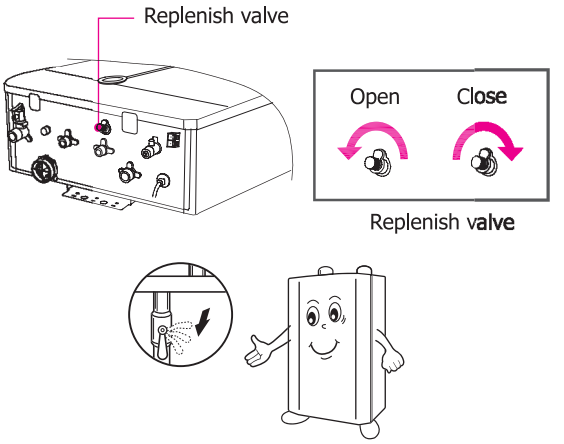
- Hold the room controller down over the hook of the holder and pull it down. It will be attached to the wall.



Conducting test runs

1. Open the distributor

- Open the distributor valve completely and the manual air-out valve of the distributor and the pipes.
- Close the gas shut-off valve.
- Open the replenish valve to fill the pipes with water.
- The heating water circulates as the air in the pipes dissipates.
- When the water comes out of the air-out valve, close the manual air-out valve.
- In case the heating water pressure is over 2kgf/cm ^{2}, close the replenish valve.



2. Fill the water

- Plug in the boiler.
- Open the distributor valves one at a time and let out the air in the pipe of each room respectively adjust the heating water pressure to 1~2kgf/cm ^{2} referring to the pressure gauge.
- Open all the distributor valves.
- In case the heating water pressure is over 2kgf/cm ^{2}, pull the pressure relief valve to adjust the pressure to 1~2kgf/cm ^{2}.
- Check if there is any water leakage from the heating water pipes and the water supply pipes.

3. Boiler combustion

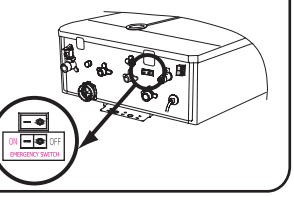
- Open the gas shut-off valve.
- Touch the power button to stop test runs.
- Touch the power button to restart the boiler.

4. Ending test runs

- After test runs, adjust all functions you need.
- Keep the boiler plugged in.

How to use the Emergency switch

- Turn on the Emergency switch when you will not be able to use Room controller, if "E7"(communication error) is flickering in the Room controller.
- The boiler's heating operates for 72 hours continuously when you turn on the Emergency switch. (Setting temperature when the Emergency switch is on : Heating 60°C, Hot water 43°C)
- Turn off the Emergency switch when the Room controller have no problems and the boiler operates well.



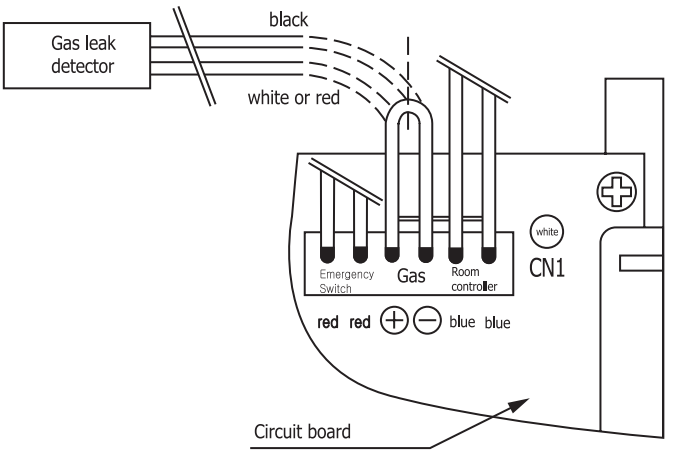
⚠ Caution Connecting Gas leak detector (optional)

- Use DC6-12V for a gas leak detector. Otherwise, it may not work properly.
- Cut the white line on the upper right corner of the circuit board and connect the cable of the gas leak detector. (See the picture below)

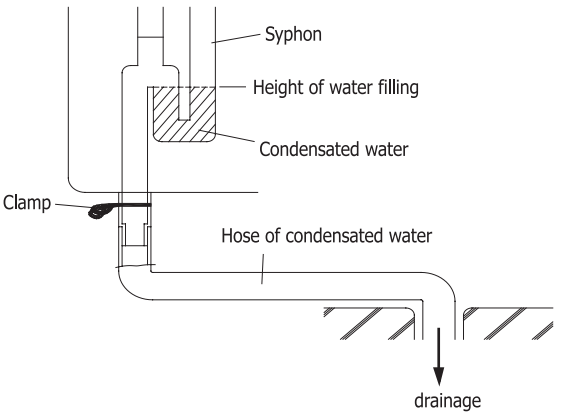
How to connect

- Connect the white or red line of the gas leak detector to the white line (+) of the circuit board.
- Connect the black line of the gas leak detector to the white line (-) of the circuit board.

- Make sure the white (or red) line must be connected to (+), and the black line to (-). If not, the gas leak detector will not work.
- Location of the gas leak detector.
  When using LPG or 13A (town gas): 30cm above the bottom
  When using LNG: 30cm below the ceiling



⚠ Danger! How to install Hose of Condensed water



- During operation, this boiler will occur condensated water from the inside the boiler.
- The condensated water is acidic, so you must not to drink.
- The syphon (see the below drawing) must be always filled with water, but if not, the flue gas will be exhausted at the syphon.
- Connect the Hose of condensated water which is packed in the boiler to the union of condensated water-out tightly, and then the end of Hose must be connected to the drainage.
- If you use another Hose, you must use over inside diameter Φ13 of vinyl or plastic Hose.

Specifications

Item \ Model		DGB-160MES	DGB-200MES	DGB-250MES	DGB-300MES	DGB-350MES
Type		Instantaneous Gas fired boiler				
Use		Central heating / Domestic hot water				
Gas control type		Proportional gas control system				
Heating circulation type		Hermetic tank (Closed) type				
Heating output		8.1kW~18.6kW	8.1kW~23.3kW	11.6kW~29.1kW	11.6kW~34.9kW	11.6kW~38.4kW
Condensed Heating output (Supply / Return 50/30℃)		8.1kW~19.8kW	8.1kW~24.4kW	11.6kW~30.0kW	11.6kW~36.6kW	11.6kW~40.7kW
Hot water output		8.1kW~23.3kW		11.6kW~29.1kW	11.6kW~34.9kW	11.6kW~40.7kW
Hot water supply	Increaced dT25℃	13.3 L/min		16.7 L/min	20.0 L/min	23.3 L/min
	Increaced dT40℃	8.3 L/min		10.4 L/min	12.5 L/min	14.6 L/min
Min. water pressure on hot water		20kPa (0.2bar)				
Range of gas pressure		1~2.5kPa (10~25mbar)				
Gas input	Heating	8.2kW~20.0kW	8.2kW~24.9kW	11.8kW~30.5kW	11.8kW~37.1kW	11.8kW~41.0kW
	Hot water	8.2kW~24.9kW		11.8kW~30.5kW	11.8kW~37.1kW	11.8kW~41.0kW
Useful efficiency at Heating Output (Supply / Return 80/60℃)		97.3%	97.0%	98.5%	97.7%	97.4%
Useful efficiency at Heating Output (Supply / Return 50/30℃)		106.2%	106.3%	106.3%	106.2%	106.3%
Useful efficiency at Heating Output (Return 30℃)		106.4%		106.5%		
Power supply		AC 220V 50Hz				
Electrical input		115W	115W	115W	125W	135W
Size (WxHxD)		490 x 626 x 242 mm		490 x 626 x 365 mm		
Weight		30kg (Packed 32kg)		36kg (Packed 38kg)		
Duct diameter		Air inlet 110mm / Gas flue 80mm				
Piping	Gas	1/2"		3/4"		
	Water in/ Hot water out	1/2"		1/2"		
	Heating water in/ Heating water out	3/4"		3/4"		
Safety Devices		Anti-freezing device, Flame detector, Burner Safety device, Extinction safety device, Pressure relief device, Safety device for re-ignition, Fan malfunction detection device, Circulation pump stick guard device, Boiling guard safety device, Replenish device, Overheating guard device, Gas leak detector(optional)				
Accessories		Room controller, Installation plate, chimney(optional)				

MEMO.

MEMO.

Warranty

Warranty card

We warrant our goods as follows :

Please have the date of purchase written on the warranty card and keep it in a secure place as you have to present the card to get good service from us when asking for repair.

1. This product is manufactured under strict quality control and inspection processes.
2. When this product goes out of order under the normal use of customer, we will repair it free of charge during the warranty period.
3. Even during the warranty period, we will provide repair services for problems not covered under this warranty with reasonable charges.
4. Please show us the warranty card when you ask for repair service.
5. Please keep the warranty card securely as it is not reissued.

Make sure every details in the below form have been filled in.
Free repair service will be provided during warranty on the basis on this form

DAEWOO GASBOILER
Daewoo Gasboiler Co., Ltd.

- Product name : - Model : - Serial No. : - Warranty period : For 2 years from the date of purchase - Date of outgoing : - Date of purchase :	- Seller Address : Telephone : Name : - Customer Address : Telephone : Name :