Installation & Operation Manual

Wood Pellet boiler [KRP-20PA ,KRP-50PA]

- SZU marking of boilers in compliance with : Standard EN303-5
- Wood Pellet is the main fuel for : Kiturami 'Wood Pellet boilers'





⚠ Caution ⚠

Read the Manual carefully and be sure your pellet boiler properly assembled, installed and maintained. Failure to follow these instructions exactly could result in a fire or explosion,serious bodily injury or property damage. This product must be installed and serviced by licensed plumber, a professional technician.
Using different than ordinary fuel doesn't guarantee wood pellet boilers right operating – as it was featured in technical data and it can influence the boilers way of working and its long-lasting.
Using different type of fuel that the main one is treated as wrong pellet boilers using and its effects can not be the reason for any complaint to the producer.

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○ Pellets
Wood pellets are manufactured by hot-extruding compressed Sawdust which is produced during the working of natural dried wood. The compactness of the material comes from the lignin which is contained in the wood itself, and allows the production of pellets without the use of glues or binders.



○ The market offers different types of pellet with characteristics which vary depending on what mixture of woods is used. The diameter varies between 6 mm and 8 mm, with a standard length in the range 5 mm to 30 mm. Good quality pellets have a density which varies between 600kg/m3 and 750 kg/m3, with a moisture content which varies from 5% to 8% by weight.



○ Besides being an ecological fuel (exploiting timber residues to the maximum and achieving cleaner combustion than is possible with fossil fuels), pellets also have technical advantages. While good-quality timber has a calorific power of 4.4 kW/kg (with 15% mois-ture,therefore after about 18 months' seasoning), the equivalent figure for pellets is 4,9 kW/kg.

○ To ensure good combustion, the pellets must be stored in an area That is free of humidity and protected from dirt. The pellets are Usually supplied in 10 kg. bags, so storing them is very convenient. Good quality pellets ensure good combustion, thus lowering the emission of harmful agents into the atmosphere.



The poorer the quality of the fuel, the more frequently will intervention be necessary for cleaning the internal parts ,such as the grate and the combustion chamber

The main certification of quality for pellets in the European market are Enplus-A1 these ensure respect of:
_ Calorific power: 4.9 kW/kg
_ Water content: max 10% of weight
_ Percentage of ashes: max 0,5% of weight
_ Diameter: 6mm , Length: max 30mm
_ Contents: 100% untreated wood, with no added bonding substances (bark percentage 5% max)
_ Packaging: in sacks made from ecologically compatible or biologically decomposing material

Certificate No. UK301



we recommends using certified fuel in its appliances to ENplus-A1
The use of fuel of inferior quality or not conforming to the specification given above compromises the running of your appliance and can therefore lead to the termination of the guarantee and of the manufacturer's responsibility for the product. Domestic pellet appliances run exclusively on pellets with a diameter of 6mm

CONSIDERATIONS FOR INSTALLATION

IMPORTANT!

Installation and assembly of the appliance must be carried out by qualified personnel. The appliance must be installed in a suitable position to allow the normal operations of opening and ordinary maintenance.

The site must be:
- capable of providing the environmental conditions for operation
- equipped with power supply 230V 50 Hz (EN73-23)
- capable of taking an adequate system for smoke discharge
- provided with external ventilation (if located indoors)
- provided with an earth connection complying with CEI 64-8

The appliance must be connected to a flue pipe or an internal or external vertical duct conforming to current standards UNI7129 - 7131 9615.
The boiler must be positioned in such a way that the power isolation fuse is accessible.



The boiler must be connected to a flue pipe or a vertical duct which can discharge the fumes at the highest point of the building.
The fumes are however derived from the combustion of wood products, and if they come into contact with or close to walls, they can cause smoke staining.
Also take care because the fumes are very hot and almost invisible, and can cause burns on contact.



<KRP-20PA, KRP-50PA>



<Room controller>


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Kiturami

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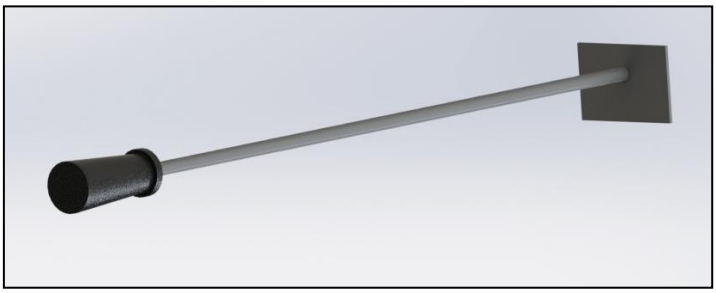
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<Manual>

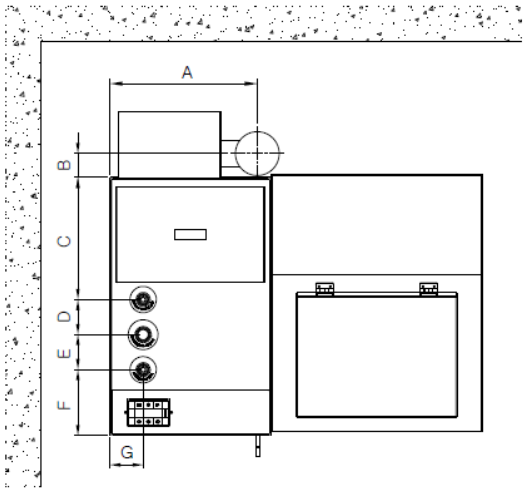


<Ash cleaning tool>

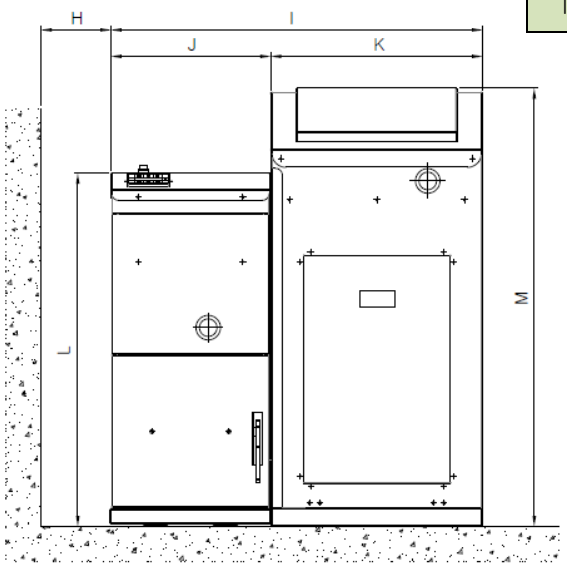


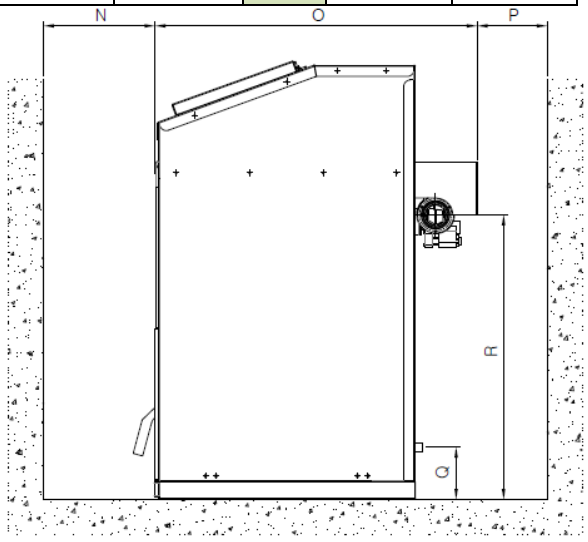
<Flue outlet connection device>

ITEMS		UNIT	KRP-20PA	KRP-50PA
Nominal Heating output		kW	26	52
Minimal Heating output		kW	7	12
Boiler Class		-	Class 4	Class 5
Combustion period in hours at Qn		Hr	8	
Purpose / Working Condition		-	Heating & DWH / Non-Condensing with fan And underpressure inside combustion chamber	
Air supply type		-	Forced exhaust fan type	
Maximum operating pressure		bar	3	
Permitted fuel as per EN 14961-2			Wood pellet EN-plus A1 / D06	
Maximum Length of Pellet		mm	32	
Fuel consumption with nominal output		kg/hr	5.7	11.5
Chimney draught		mbar	-0.05 ~ + 0.05 [-5Pa ~ +5Pa]	
Weight		kg	278	370
Size (W×L×H)		mm	1060×920×1250	1200×1030×1420
Pellet hopper capacity		kg	110	141
Flue pipe diameter		mm	≥ 125	
Diameter of inlet Port /outlet Port		inch	1	1 1/2
Volume of water		liter	90	155
Gases temperature	Nonimal output	℃	103	138
	Minimal output	℃	69	76
Acoustic pressure level [SPL] (According EN 15036-1)		dB(A)	53	56
Electrical consumption(ignition)		W	26 (380)	57 (380)
Electrical consumption_Qmin		W	11	16
Voltage / Frequency		V/Hz	230 / 50	
Pressure loss of water	ΔT 10℃	mbar	19	275
	ΔT 20℃	mbar	22	282
Weight flow of gases		kg/s	0.038	0.051
Range of temperature setting		℃	60~80	
minimum inlet(heating) temperature		℃	50	
Accumulation Tank capacity		liter	Min. 1000	
Stand by power		Watt	5	



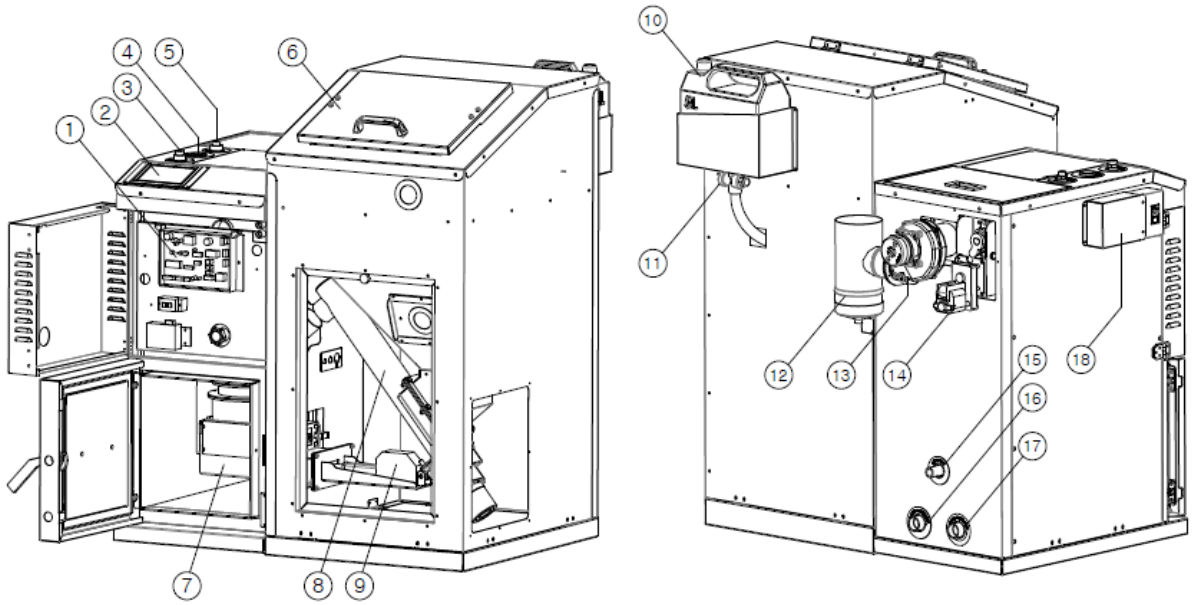
No.	KRP-20PA	KRP-50PA	No.	KRP-20PA	KRP-50PA
A	421	465	J	460	545
B	68	68	K	600	655
C	345	450	L	1007	1254
D	100	100	M	1250	1420
E	100	100	N	800	800
F	188	192	O	920	1030
G	95	95	P	Min.500	
H	Min.500		Q	100	100
I	1060	1200	R	811	1009





Caution

- Minimum distance of ceiling (related to cleaning) is 1000mm.
- The boiler should be installed on a non-combustible base



No	**Component**	No	**Component**
1	Main controller	10	Container for water(5L)
2	Sub controller	11	Temperature safety relief valve
3	Hot water inlet	12	Flue outlet
4	Heating inlet	13	Forced exhaust fan
5	Hot water outlet	14	AC motor(flue tube cleaning system)
6	Fuel hopper	15	Pressure relief valve
7	Pellet burner	16	Drain
8	Feeding system	17	Heating outlet
9	DC Actuator(burner cleaning system)	18	Wiring Box

○ Safety device of power is restored
Once again the power is out, the boiler is a device to work properly you should restart automatically to the state before the power failure.(1 hours maintenance)

○ Backfire prevention device
Reverse fire prevention device of 2 (rotary valve, drop suit) is ask, it is more secure.
Temperature of pellet fuel line rises to 95℃ or more Become a backfire in boiler running, stop the blower and fuel supply of boilers.
During the blackout backfire, By the paraffin wax plug supply water into the fuel line.(about 5L)

○ Fire ignition cut-off device (Flame monitoring)
If the illumination is not, is a device to automatically shut off the supply of pellets.
Flame of burning during normal disappears, I will shut off automatically the supply of pellets.

○ High temperature cut-off device
Boiler is overheated, it is a device that shuts off the supply of fuel, to stop the boiler.

○ Low water cut-off device
It is a device to inform that there is no water in the boiler, to stop the operation.

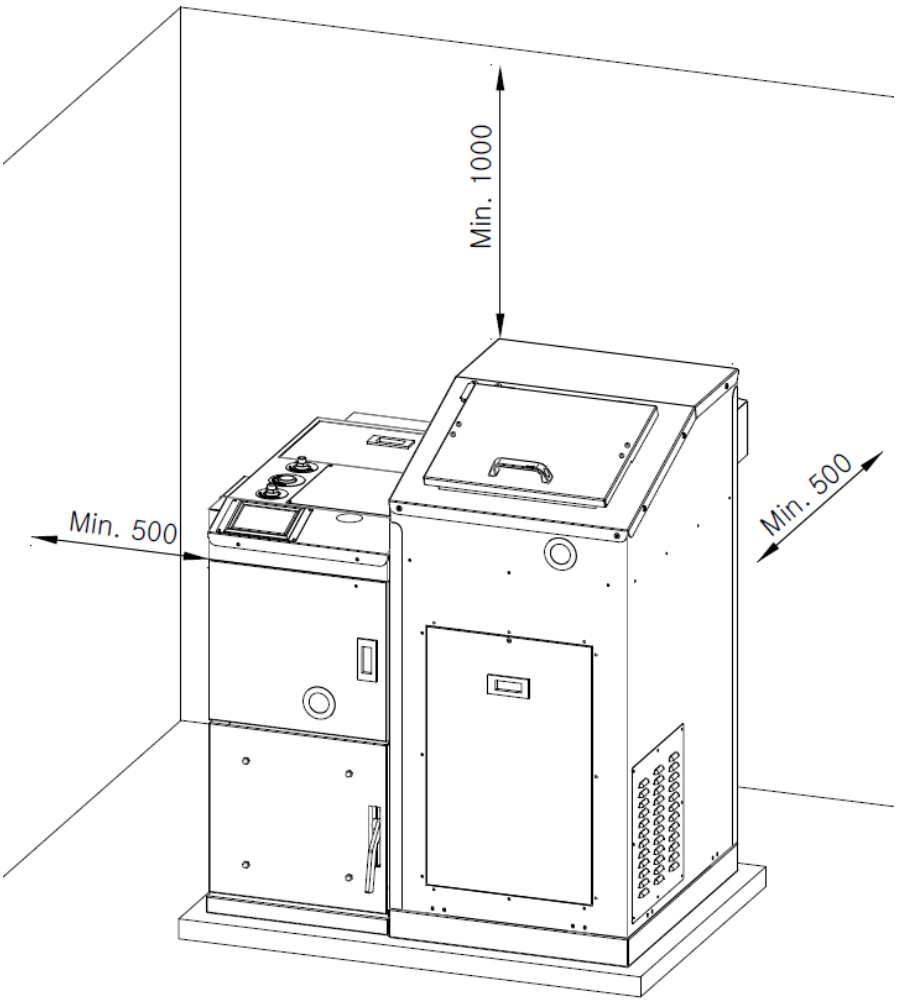
○ Safety device of the temperature controller
It is a device that stops block the operation of the boiler at the time of occurrence of an error temperature sensor.

○ Freeze prevention device
This equipment operate the burner by circulating water boiler automatically to prevent freezing in order to prevent freezing of the boiler when going out, me raising the temperature of the water.

○ Electrical short circuit interrupting device
If the overcurrent that exceeds the capacity of the rated fuse failure (short circuit), or occur has occurred wire inside the boiler, and stop the operation in short the fuse.

○ An error occurred during the operation of the normal
Phenomenon of errors that occur during normal operation are usually price start building after you have removed the error, turn on the power again / re-operation switch.

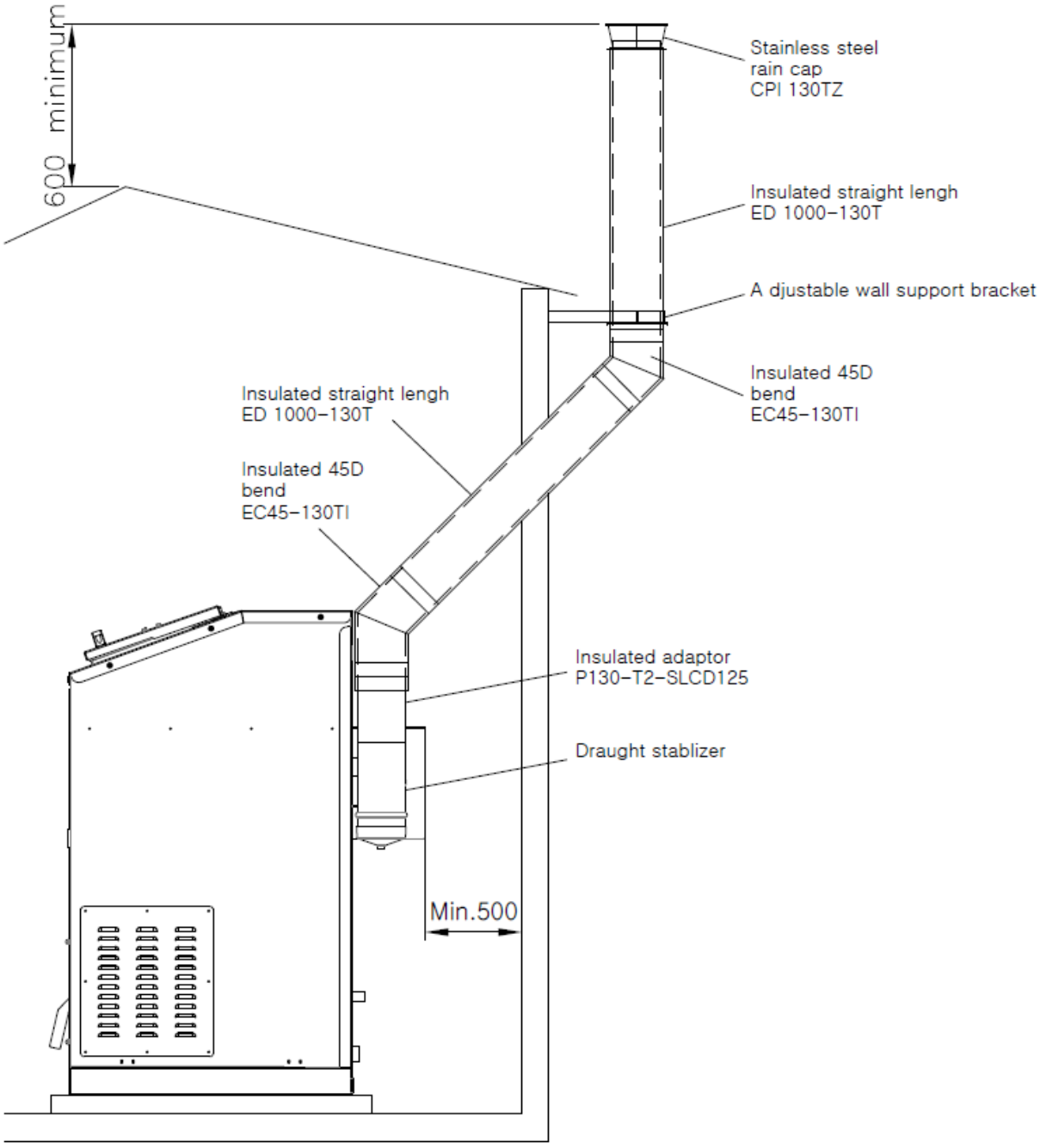
○ Safety device of exhaust gas closure
It is a device which stops the operation of the boiler



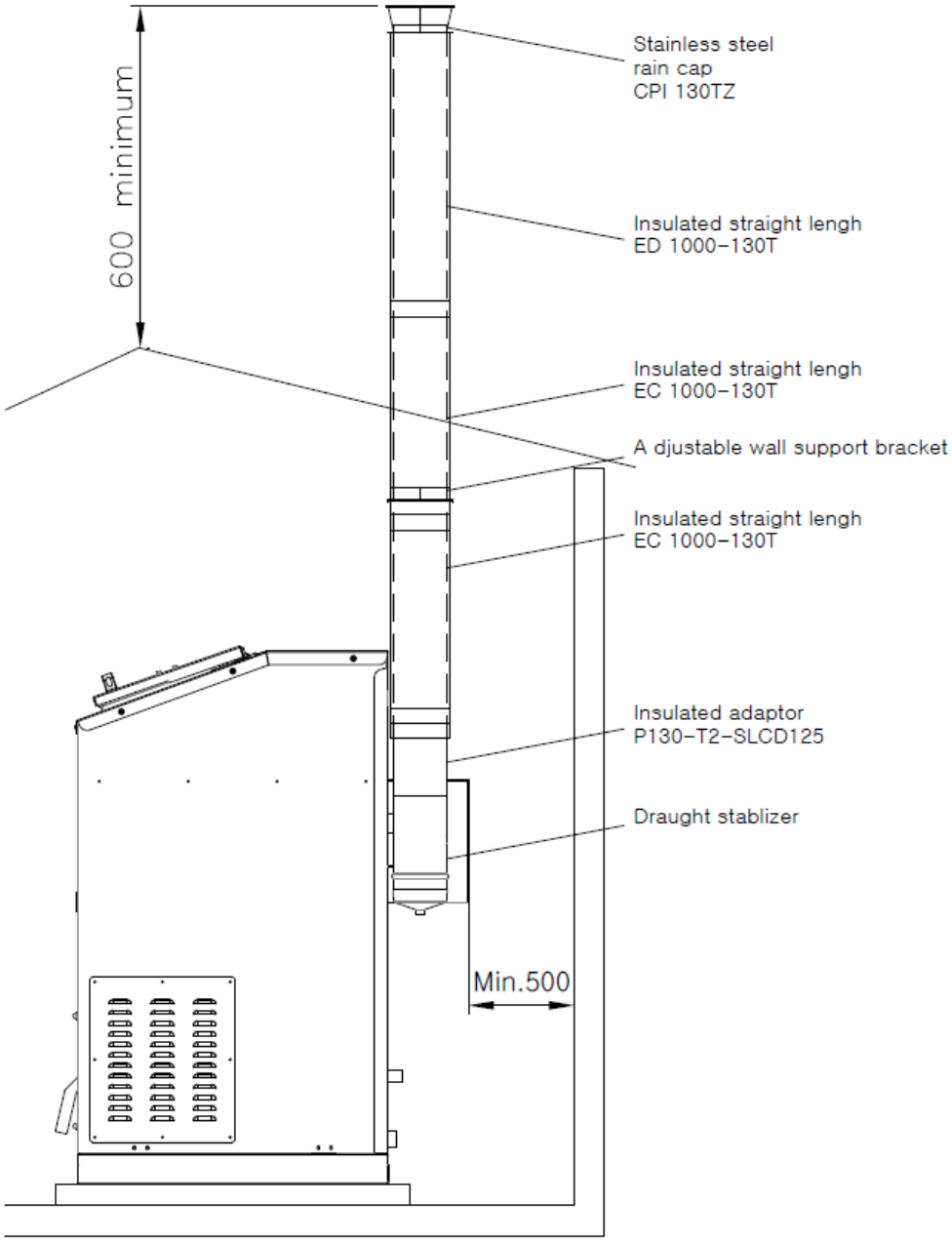
Careful planning at an early stage will greatly help the installation process and make sure that all the required clearances are adhered to for servicing and that any potential issues with the routing of the flue can be resolved.
The KRP-20PA,50PA pellet boiler should be positioned on a non-combustible base.

Refer to service and access clearances around the appliance on page 6.

1. Please install it in the boiler room only qualified.
   (Boundary wall of the living room and boiler room is that with the exception of the doorway, and wall of fire-resistant construction in the composition of the gas boiler room does not enter the living room)
2. The boiler room dedicated, please do not install a ventilation fan that causes the formation of (a pressure lower than atmospheric pressure) negative pressure.
3. Please do not install exhaust duct of the gas range that can be living and kitchen inhabited such as ventilation in the boiler room of a dedicated (food), and the like.
4. Ambient that you want to install, and there is need is not a place dealing save the flammable material and combustible material, please install it by securing sufficient space required for inspection and repair verification operation, the combustion.
5. Boiler room is installed exhaust port and air supply port always.
   The air supply port, must be at or more effective cross-sectional area of the boiler route.
6. To prevent rainwater soak the boiler, please do appropriate leak prevention equipment such as casing.
7. Please do waterproof treatment to such delay or insulation that has been exposed.
8. Please have the appropriate protective measures, such as water supply pipe outside of the boiler to prevent freezing.
9. Please to protective measures so as not to interfere with the combustion snow, rain, wind and the like.
10. So that there is no hindrance to observe with the naked eye did you installed in the boiler, you must have sufficient lighting equipment.



<Flue Pipe Existing Through a Wall>

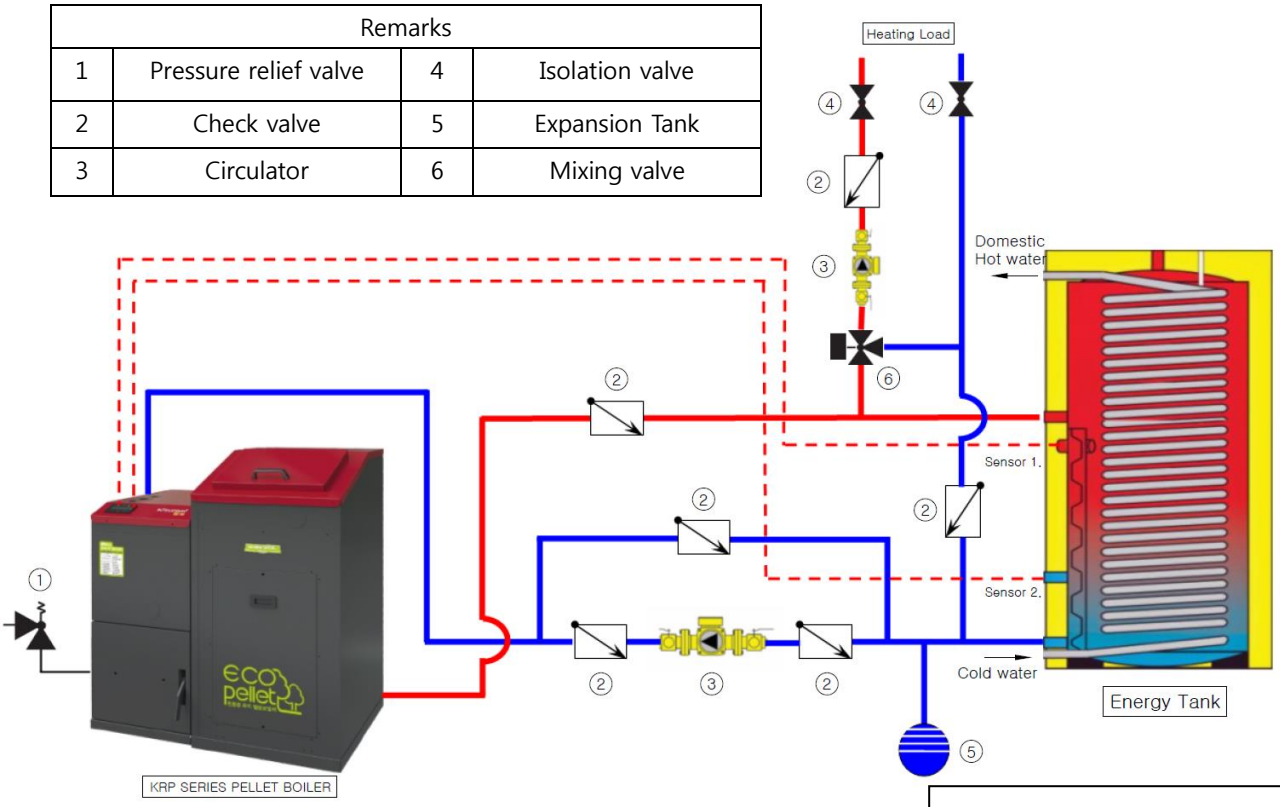


<Flue Pipe Existing Through a Roof>

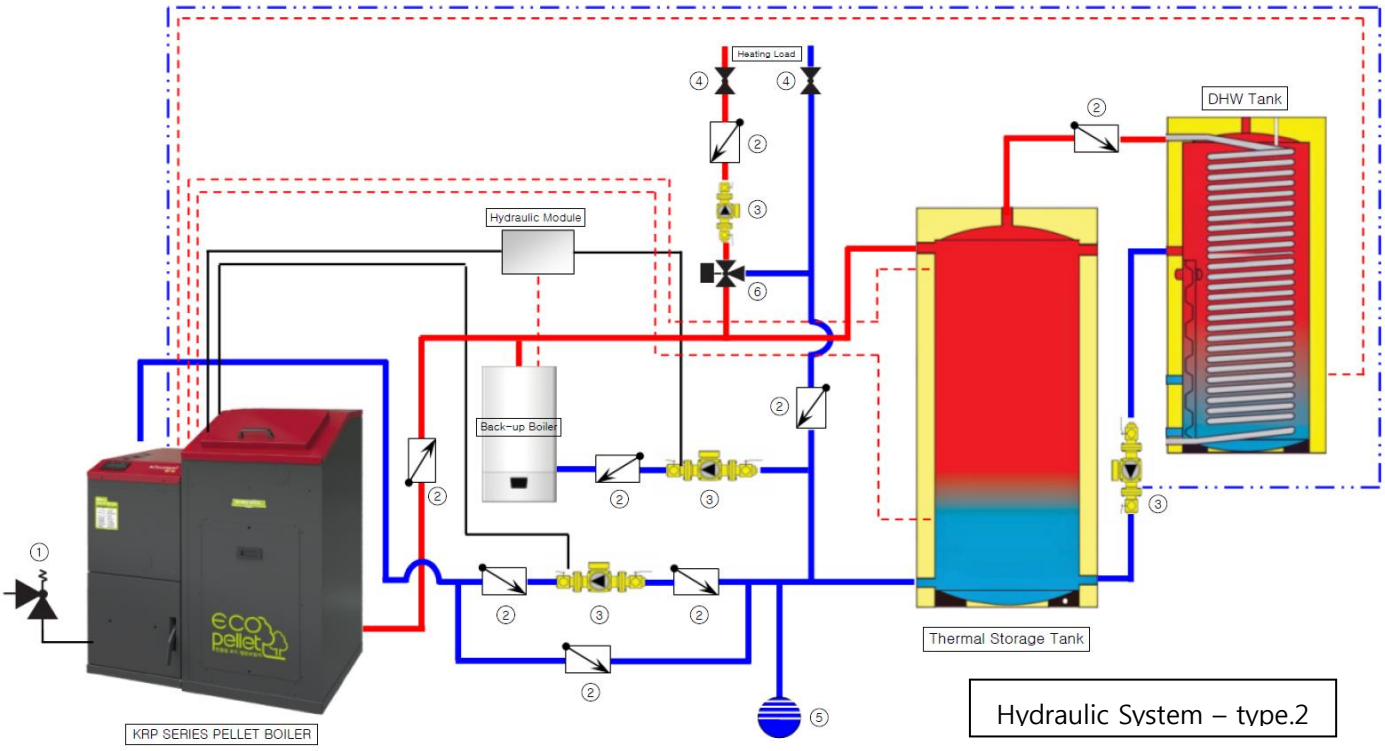
KRP-20PA, KRP-50PA should be operated under pressure (-5 Pa~+5Pa) at flue gas outlet. If the appliance is operated over pressure (Positive) than exhaust fan should be fitted additionly at flue Technician must be install in manuals and explain in detail to user.

Emission control after first installation is needed.

Remarks			
1	Pressure relief valve	4	Isolation valve
2	Check valve	5	Expansion Tank
3	Circulator	6	Mixing valve



Hydraulic System – type.1



Hydraulic System – type.2

1. During installation, please nut connection and entered into union removable for each connection.
2. Please use the products which conform to standard always piping material.
3. Please do not use the water for rubber hose when connecting pipes.
4. The water supply pipe water is supplied to the boiler, in order to prevent mixing of the metal foreign matter, please install the strainer (filter) always.
5. Please be sure to remove the foreign matter in the pipe before piping.
6. Please install it exactly as instructed by the vector also optional fan to be standard water supply, hot water supply, heating and drain outlet.
7. If you exceed the (3 bar) working pressure that is displayed in the water supply total nameplate, please install a pressure reducing valve always.
8. Piping of all, please take measures so that there is no leakage by performing a leak test must be after completion of construction.
9. In preparation for freezing, the piping of all, the construction is complete, please be sure and kept measures. (The hot water supply pipe and water supply, please note in heat retention. For cold climates, please hot wire heater measures in particular.)
10. Please do not install absolutely valve, the check valve to the safety valve installation or piping pressure escape tube. (If the valve, check valve is closed, I can boiler to explode by overpressure.)
11. Please install by selecting the capacity to match the boiler of selection of the boiler expansion tank.
12. Please install by connecting together the drain outlet and water inlet.
13. If you want to feed water to the boiler and a rooftop water tank, please install it by using an auxiliary tank that is separate from the rooftop water tank.
14. You can supply the water pressure of the maximum operating pressure of the boiler, which is on the rating plate of (3 bar) or more, please do not connect directly to the water pipe.
15. Please install always filter, pressure reducing valves, check valves, safety valves, a closed expansion tank when it is used by directly connecting a water pipe to the boiler.
16. The water supply pipe, please install a check valve and pressure reducing valve without fail.
17. At the top of the hot water piping open room, air (air) to be discharged smoothly, please install the air band always.
18. Please Pipe as standard piping diagram

○ Mixing Valve body [Danfoss TVM-W Code no. 003Z1125]

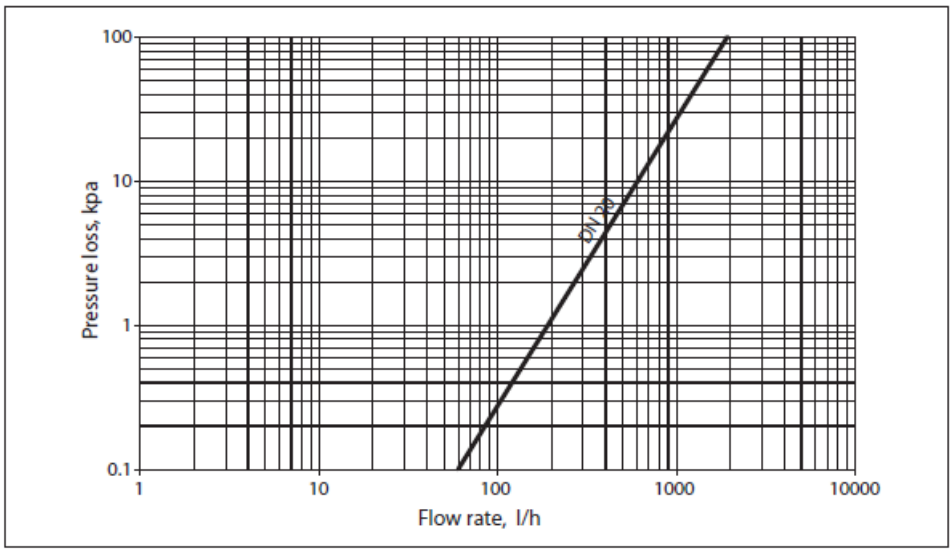


○ Mixing Valve Specifications

Factory temperature presseting	50 °C
Cold water supply temperature	10 °C
Hot water supply temperature	70 °C
Temperature stability (depend on pressure and temperature)	+/- 3 °C
Max. hot water temperature	100 °C
Supply pressure, static	10 bar max
Supply pressure, dynamic	500 kPa max.
Max. pressure loss ratio	10:1

Materials

Body	DZR + antilimescale treatment
Plastic cap	Polystyrene
Spring	SS steel 1.4301 (inoxydable)
Sealing	EPDM



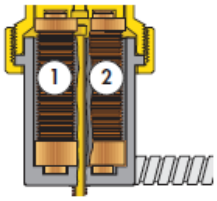
※ Mixing valve must be used in the case when boiler is used for heating up DHW.

○ Temperature safety relief valve : Caleffi, 543Series (code : 543513)



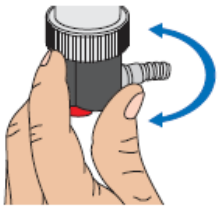
Construction details

Redundant expansion system
The entire expansion system has a built-in redundancy (1)-(2) to ensure maximum safety, so if one part of the sensor system fails the other part will perform the same functions as the entire sensor.

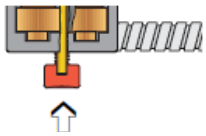


Pocket and capillary tubes
The size of the pocket is such that it is always in contact with the sensors, which improves heat transmission and keeps thermal inertia to a minimum. The capillary tubes are protected by a galvanized sheath.

Bellows holder support
The bellows holder support is made of acetalic resin and can be repositioned by loosening the knurled lock nut.



Drain
The lower part of the valve contains a button in order to drain the system.



Technical specification

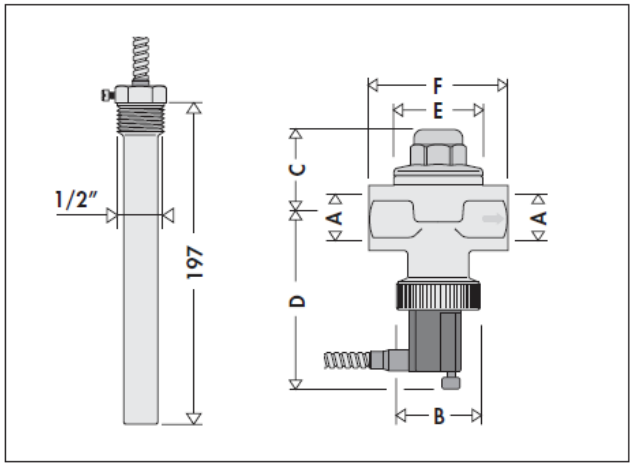
Materials:

Body:	brass EN 12165 CW617N, chrome plated
Control spindle:	brass EN 12164 CW617N
Obturator seal:	EPDM
Seals:	EPDM
Spring:	stainless steel
Protection cover:	POM

Performance:

Max. working pressure:	10 bar
Setting temperature:	98°C (+0°C -4°C)
Working temperature range:	5–110°C
Discharge flow rate at 110°C and Δp 1 bar:	3000 l/h
Ambient temperature range:	0–80°C
Action type (EN 14597):	2 KP (certified - double sensor - 5000 cycle test)
Max. temperature of the sensor:	130°C
Medium:	water
PED category:	IV
Connections:	3/4" F x 3/4" F
Probe pocket:	1/2" M
Capillary length:	1300 mm

Dimensions

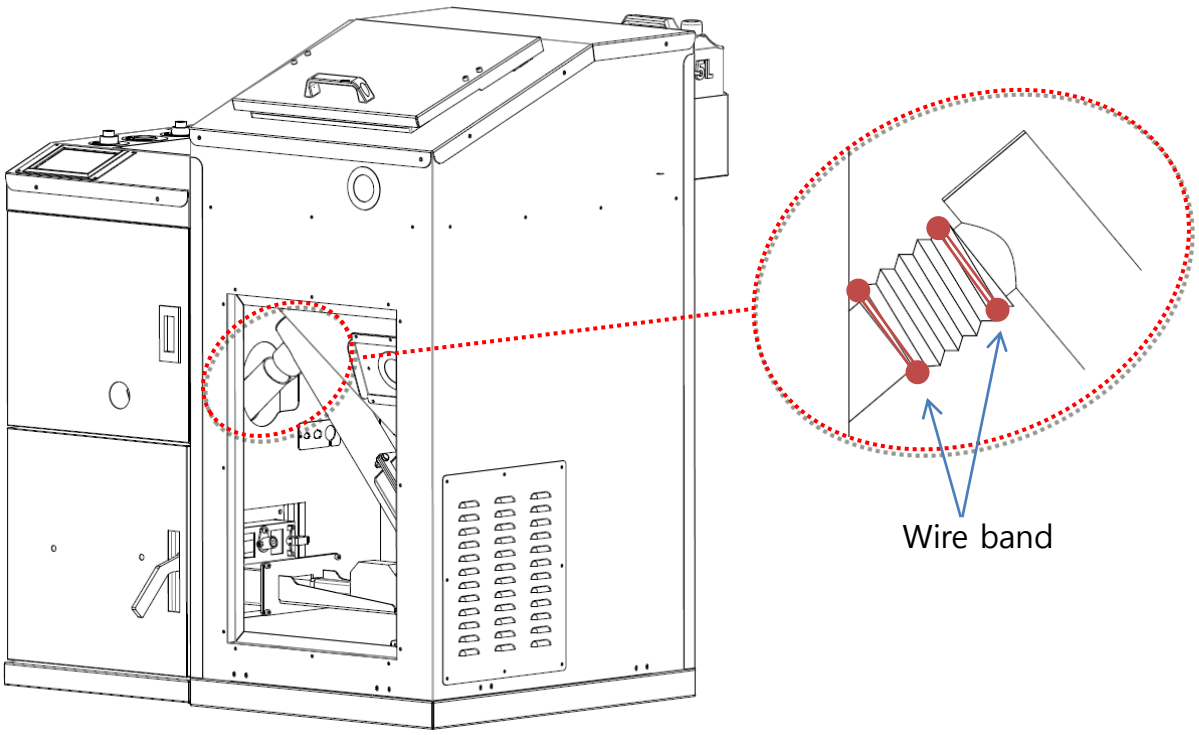


Code	A	B	C	D	E	F	Mass (kg)
543513	3/4"	Ø 40	42	86	Ø 42	70	1,06

○ Check if the fuel supply device is locked or inserted normally into the hopper.

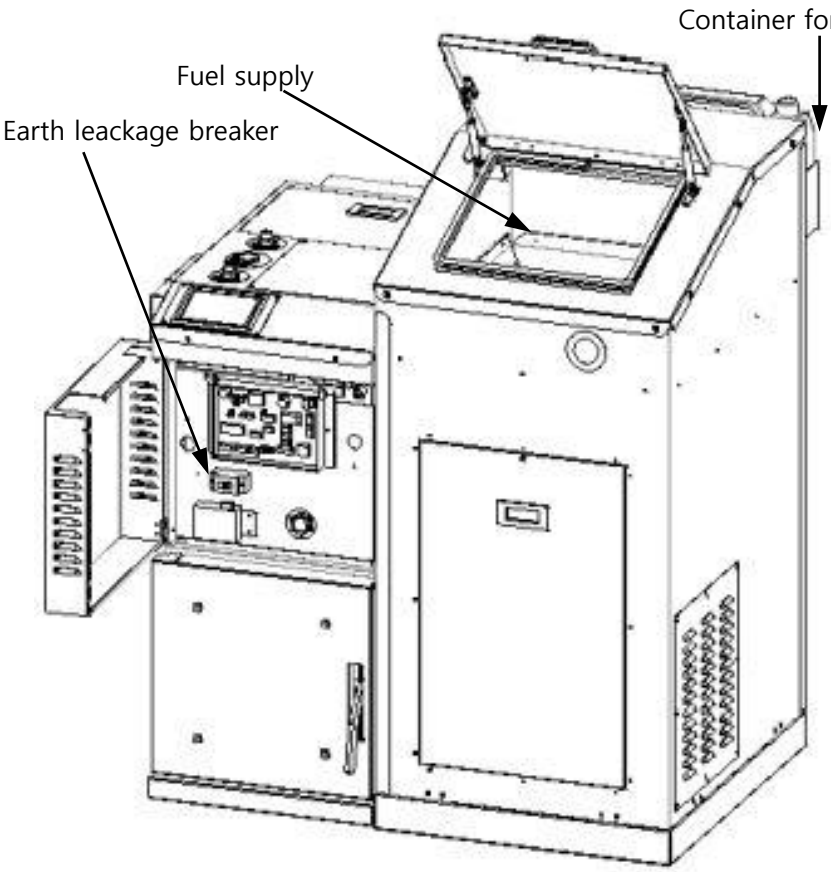
○ Lock securely using the wire band the connection hose between the feeding device and the fuel slot.

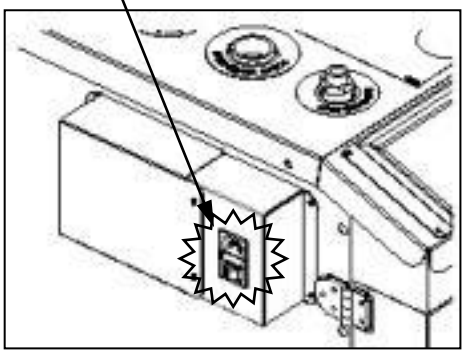
- If the connection hose is not tighten, back fire can happen.
- If the connection hose is dropped, fuel may be clogged preventing normal operation.



○ When connecting the flue, install it using the dust collection T-type within accessories.

○ As the flue pass should be cleaned up regularly, be sure to install the dust collection.



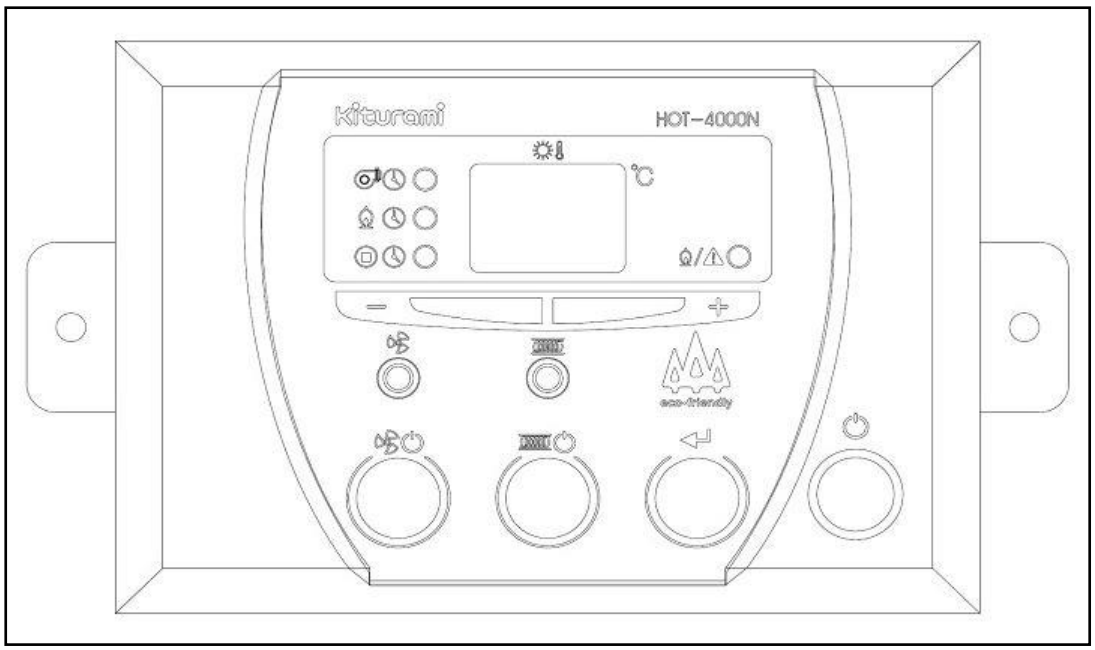




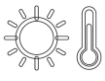
1. Connect the power plug of the boiler.
2. Turn "ON" the earth leakage breaker switch at the left of the control.(Fig. 1.)
3. The main switch located on the side of the HOT-4000P should be switched on.(Fig.2)
4. Check if power is supplied to the auxiliary control and the room control.
5. Fill the hopper with fuel (60Kg or more) and the Container with water about 5L.(Fig. 1)
6. After turning "OFF" the HOT-4000P Power , push for 5 sec. the fuel supply button. Then, the fuel supply device operates manually to supply fuel approximately during 3 min. (Fig. 3.)
7. If fuel is supplied to the burner, push power button.
8. After turning "ON" the HOT-4000P power button. set the setting temperature of the room controller higher than current temperature.
9. Check if the boiler operates normally and the circulation pump becomes ON/OFF repeatedly.
10. If not operated normally, check contents of " Error code & troubleshooting" and take actions. Then, request A/S center for follow-up measures.

○ Electrical Characteristics

Power range	230Vrms±15%
Input Hz	50/60Hz±15%
Electric current	0.80A
Maximum limit of humidity	90%@40℃
Operating temperature r	−10℃~60℃



Title	Symbol	Functional description	
POWER BUTTON		*POST PURGE initiates when the power of HOT-4000P is turned off.	
SETUP BUTTON		* Use when adjusting the fueling time setting.	
Fueling ON/OFF		Power on	Function not operable.
		Power off	Switched to the MANUAL MODE when pressed for 5 seconds.
		* Fueling can be manually turned ON/OFF in the MANUAL MODE * In the MANUAL MODE, it remains ON for only 3 minutes, then the time(minutes) is displayed. * Disengages when the power button is pressed ON/OFF.	

<table>
<tr><th colspan="2">Title</th><th>Symbol</th><th colspan="2">Functional description</th></tr>
<tr><td colspan="2" rowspan="3">FAN ON/OFF</td><td rowspan="3"></td><td>Power on</td><td>Function not operable.</td></tr>
<tr><td>Power off</td><td>Switched to the MANUAL MODE when pressed for 5 seconds</td></tr>
<tr><td colspan="2">* The FAN can be manually turned ON/OFF in the MANUAL MODE.
* Disengages when the power button is pressed ON/OFF. (FND ON/OFF is display in the MANUAL MODE.)</td></tr>
<tr><td colspan="2">UP/DOWN(-/+)</td><td></td><td colspan="2">Setting CHIP Offer Time</td></tr>
<tr><td colspan="2">Fueling LED</td><td></td><td colspan="2">* The LED turns on if a load is detected at the fuel supply.</td></tr>
<tr><td colspan="2">FAN LED</td><td></td><td colspan="2">* The LED turns on if a load is detected at the FAN.</td></tr>
<tr><td rowspan="3">Fueling</td><td>Initial fueling</td><td></td><td colspan="2">* The LED turns on when the fueling time is confirmed and set for the first time.</td></tr>
<tr><td>Fueling start</td><td></td><td colspan="2">* The LED turns on when the fueling time is confirmed and set.</td></tr>
<tr><td>Fueling stop</td><td></td><td colspan="2">* The LED turns on when the fueling stop time is confirmed and set.</td></tr>
<tr><td colspan="2">Operating/ Warning LED</td><td></td><td colspan="2">* The light turns on when a flame is detected or turns off when a warning(an alarm) is detected
* The light turns of when a warning(an alarm) is detected (ON for 0.5 seconds, OFF for 0.5 seconds)</td></tr>
<tr><td colspan="2">LED DISPLAY</td><td></td><td colspan="2">* Water temperature, initial stage, operation, stop time, and emergency trip displays.
* Displayed at increments of 1℃ (0℃~99℃) / The time is displayed in MANUAL MODE.</td></tr>
</table>

○ Adjusting initial fueling, fueling start, and fueling stop times.

- Everytime UP/DOWN buttons are pressed, the INITIAL, START, STOP LED indicators turn on and the time settings are displayed on the LED DISPLAY

- The numbers displayed on the DISPLAY starts to blink if the SETTING button is pressed for 5 seconds or longer at an LED ON condition of a desired time.

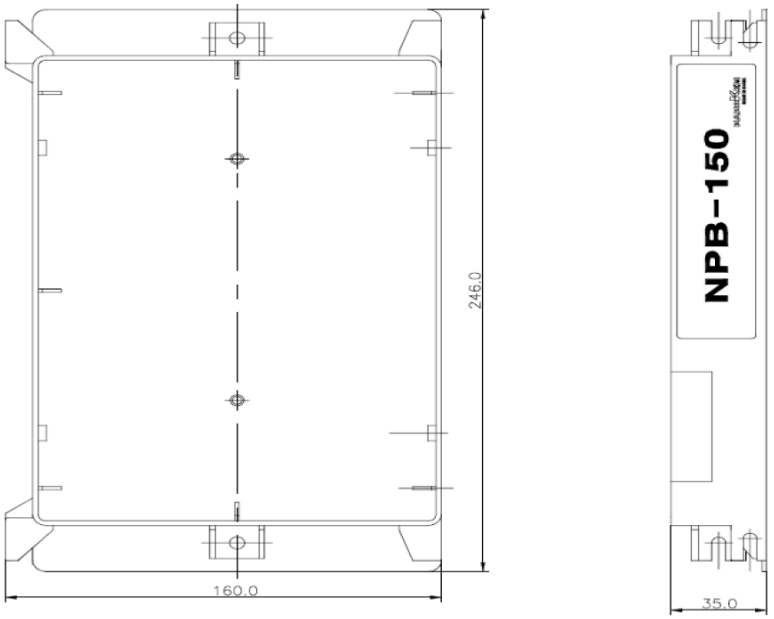
- Adjust to a desired time setting by pressing UP/DOWN buttons.
  (If no input signal is detected for 10 seconds, the boiler will reset itself to the previous setting and the setting is saved automatically.)

- Initial fueling (adjustable to 1 sec~99 sec)

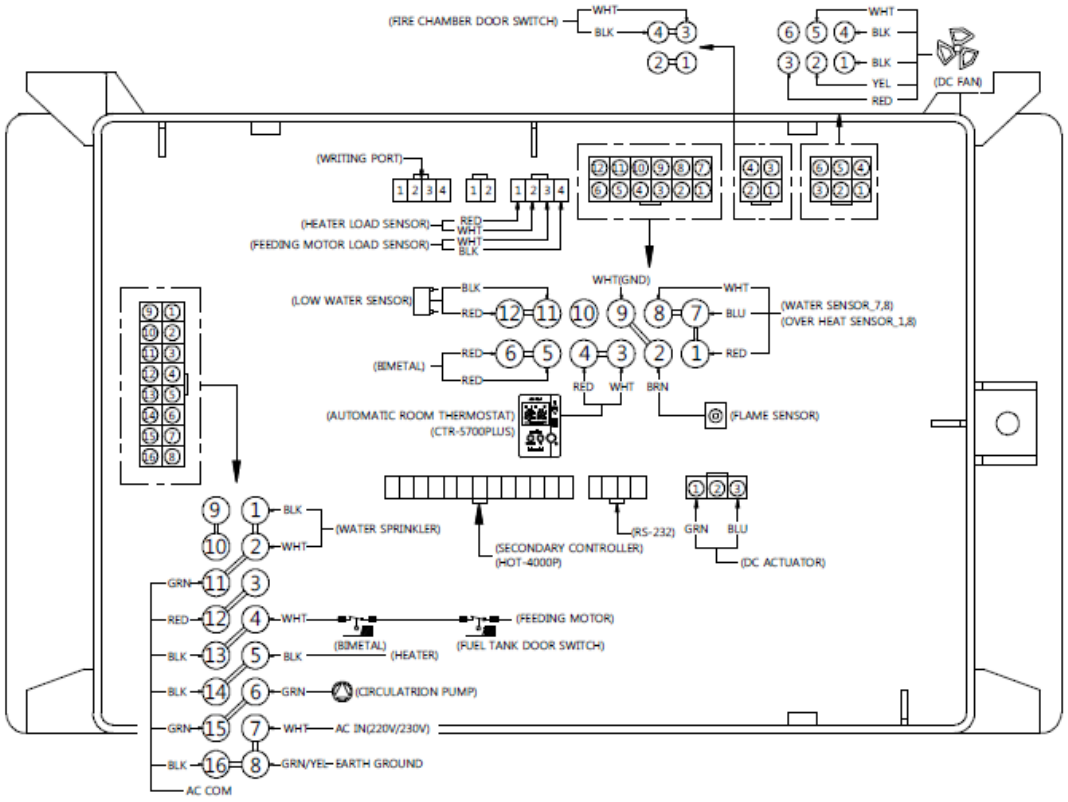
- fueling start, KRP-20PA adjustable to 0.1 sec ~1.5 sec
  KRP-50PA adjustable to 0.1 sec ~ 3 sec

- fueling stop, KRP-20PA adjustable to 6 sec ~ 99 sec
  KRP-50PA adjustable to 5 sec ~ 99 sec

○ NPB-150 Appearance specification



○ Electronic Diagram.



CONNECTOR		Description	Voltage
REFERENCE AND TYPE	PIN NO.		
CN3 (16PIN Connector)	1	AC 230V COM	230Vac
	2	WATER SPRINKLER	230Vac
	3	SOL VALVE	230Vac
	4	CHIP	230Vac
	5	HEATER	230Vac
	6	CIRCULATION PUMP	230Vac
	7	AC 230V COM	230Vac
	8	EARTH_GROUND	230Vac
	9	FAN	230Vac
	10	AC 230V	230Vac
	11	AC 230V	230Vac
	12	AC 230V	230Vac
	13	AC 230V	230Vac
	14	AC 230V	230Vac
	15	AC 230V	230Vac
	16	AC 230V	230Vac
REFERENCE AND TYPE	PIN NO.	Description	Voltage
CN4 (12Pin connector)	1	OVER HEAT SENSOR	5Vdc
	2	FLAME SENSOR	5Vdc
	3	ROOM (-)	12Vdc
	4	ROOM (+)	12Vdc
	5	VDD	12Vdc
	6	BIMETAL 1	12Vdc
	7	WATER SENSOR	5Vdc
	8	GND	
	9	GND	
	10	PIN	X
	11	LOW WATER	14Vac
	12	LOW WATER COM	14Vac
CONNECTOR		Description	Voltage
REFERENCE AND TYPE	PIN NO.		
CN5 (4Pin connector)	1	HEATER LOAD SENSING	5Vdc
	2	GND	5Vdc
	3	GND	5Vdc
	4	CHIP LOAD SENSING	5Vdc

CONNECTOR		Description	Voltage
REFERENCE AND TYPE	PIN NO.		
CN6 (4Pin connector)	1	VDD	12Vdc
	2	BIMETAL 2	12Vdc
	3	DOOR SENSOR	5Vdc
	4	GND	

CONNECTOR		Description	Voltage
REFERENCE AND TYPE	PIN NO.		
CN7 (3Pin connector)	1	ACT-GND	24Vdc
	2	PIN	X
	3	ACT-24V	24Vdc

CONNECTOR		Description	Voltage
REFERENCE AND TYPE	PIN NO.		
CN8 (6Pin connector)	1	GND	
	2	RPM	5Vdc
	3	PWM	5Vdc
	4	VDC	24Vdc
	5	GND	
	6	PIN	X

○ Functional Description (During initial power-up - Stop the ignition for about 12 seconds, including the initial flame section)

1. Secondary controller (HOT-4000P) power OFF

Function	Detecting method	Display	Contents	Releasing method
freeze and burst	Detect water temperature sensor(10℃)	x	Circulation pump ON	Over 12℃ Auto reset
Over heating warning	Detect water temperature sensor(83℃)	x	Circulation pump ON	Lower than 81℃ Auto reset
	Detect overheat sensor(83℃)			Lower than 81℃ Auto reset
Over heating error	Detect water temperature sensor(96℃)	x	Circulation pump ON	Lower than 81℃ Auto reset
	Detect overheat sensor(96℃)			Lower than 81℃ Auto reset

2. automatic room thermostat (CTR-5700PLUS) powers OFF

Function	Detecting method	Display	Contents	Releasing method
freeze protection system	Detect water temperature sensor(10℃)	x	Circulation pump ON	Over 12℃ Auto reset
	Detect water temperature sensor(7℃)		Burner ON Circulation pump ON	Over 25℃ Auto reset
Over heating warning	Detect water temperature sensor(83℃)	x	Circulation pump ON	Lower than 81℃ Auto reset
	Detect overheat sensor(83℃)		Circulation pump ON	Lower than 81℃ Auto reset
Over heating error	Detect water temperature sensor(96℃)	"96"	Circulation pump ON	Manual reset
	Detect overheat sensor(96℃)		Circulation pump ON	

3 Power ON (HOT-4000P, CTR-5700PLUS)

3.1 Function when connection with automatic room thermostat. (CTR-5700PLUS)

Room thermostat CTR-5700PLUS		NPB-150				Remark
Condition	Condition (Display through LED during operation)	Burner		Circulation PUMP		
		Lower than Setting temp.	Higher than Setting temp.	Lower than circulation point	Higher than circulation point	
Room Sleep Reservation	YES	ON	OFF	OFF	ON	#1
	NO	OFF	OFF	OFF	OFF	
Outing	YES (When room temp. is lower than 8℃)	Works is the same manner as the freezing protection function.				
	NO					
Bath	YES	ON (Lower than 70℃)	OFF (Over 80℃)	OFF		#2

#1: Setting temp. means water temp. setting.

#2: When the bath temperature setting is set at an temperature above 80℃, the BURNER operate at a fixed temperature of 80℃.

#3: Function of the MIN combustion: In case of the burner off temperature(80℃)-4℃, The operation of the two times the fuel stop time.

3.2 When automatic room thermostat (CTR-5700PLUS) not connected

- DISPLAY section to represent the water temperature.
- Operating condition

Item	When connecting line is short	When connecting line is open	Remark
Status	Operates	Shut down	

- Temperature settings is automatically set 75 ℃

Water temp.	Burner		Circulation pump		Remark
	ON	OFF	ON	OFF	
75℃	Lower than 70℃	Over 75℃	Over 70℃	Lower than 60℃	

4. Burner and circulation pump's seasonal operating temp. ℃

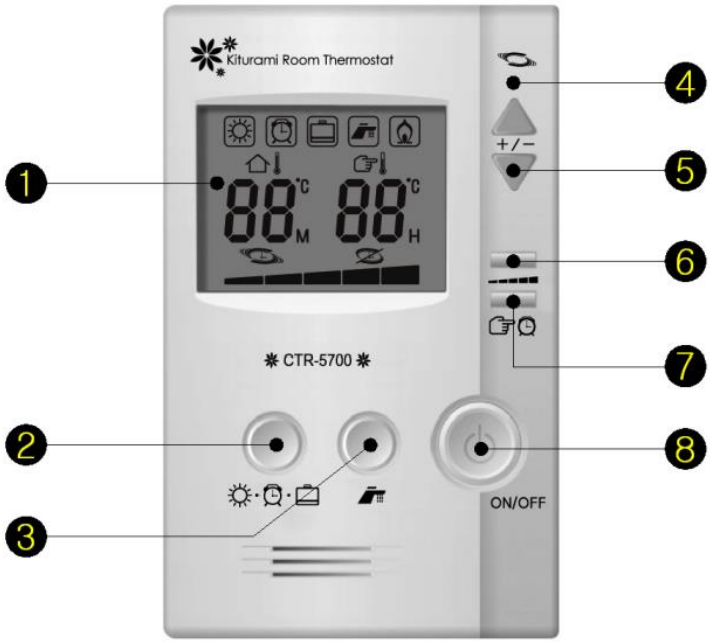
Water temp. Setting (CTR-5700PLUS)	Burner		Circulation pump		비 고
	ON	OFF	ON	OFF	
	55℃	60℃	55℃	45℃	
	60℃	65℃	60℃	50℃	
	65℃	70℃	65℃	55℃	
	70℃	75℃	70℃	60℃	
	75℃	80℃	75℃	65℃	

.4.1 The BURNER is always OFF if the detected value is a mid value of BURNER ON/OFF.

.4.2 If the circulating pump turns ON if the detected value is a mid value of CIRCULATING PUMP ON/OFF.

.4.3 Temperature Error Range: Unspecified margin of error is ±3℃.

○ Room thermostat CTR-5700(general), A(buzzer),R(remote control)



① Function display window
- It displays operation ready, current temperature, temperature setting, reserved operation and stoppage time, combustion, season selection and fault diagnosis number.

② Button for room, reservation and outing
- It's used for selecting among room, reservation and outing function.

③ Bath button
- It's used for selecting bath function.

④ Operation display
- It turns on the lamp when the boiler runs for each function.

⑤ Up/Down button
- It's used to adjust the settings for each function.

⑥ Season(temperature) selection button
- It's for setting the hot water temperature.

⑦ Reservation button
- It's used for adjusting the reserved operation and stoppage time.

⑧ Power button
- Used to turn on or off the power, it is used to turn on the boiler after fixing fault (The boiler can be restarted three time consecutively, and then can be started again after waiting for five minutes.)

○ To use the room function

1) Select Room from [Room, Reservation, Outing]. Each time the button is pressed, Room, Reservation and Outing will be displayed in order.



2) Set the desired room temperature.
by pressing up(▲) / down (▼) button.



3) Set the water temperature by
Pressing the season button.

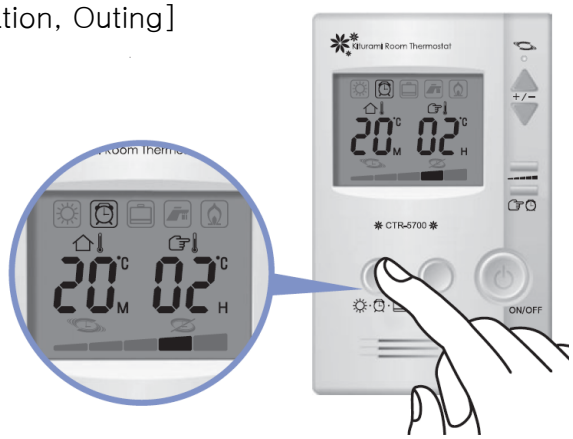


☞ What's the season selection function?
It's a function setting the water temperature when the Room or Reservation function is selected. At summer, water temperature is set 45°C, Fall 55°C, Spring 65°C, Early winter 75°C, Winter 80°C.

○ To use the reservation function

1) Select Reservation from [Room, Reservation, Outing]
(It will turn on, and start reservation operation for the duration already set).

☞ For example, it will run for 20 minutes, stop for 2 hours, and then run for 20 minutes again.



○ Changing the reserved operaion time

1) Select Reservation, Adjust the time by pressing the up(▲) / down(▼) button.

– If the setup is ended at this stage, the reserved stoppage time will be applied first.



2) If you want to adjust the reserved stoppage time, press the reservation button one more time.

• Method of adjusting the reserved stoppage time.

• Once it turns to the reservation function and the stoppage time blinks, adjust it bye pressing the up(▲) / down(▼) button.

☞ If the setup is ended at this stage, the reserved stopage time will be applied first.

3) If you want to adjust the reserved operation time, press the reservation button one more time.

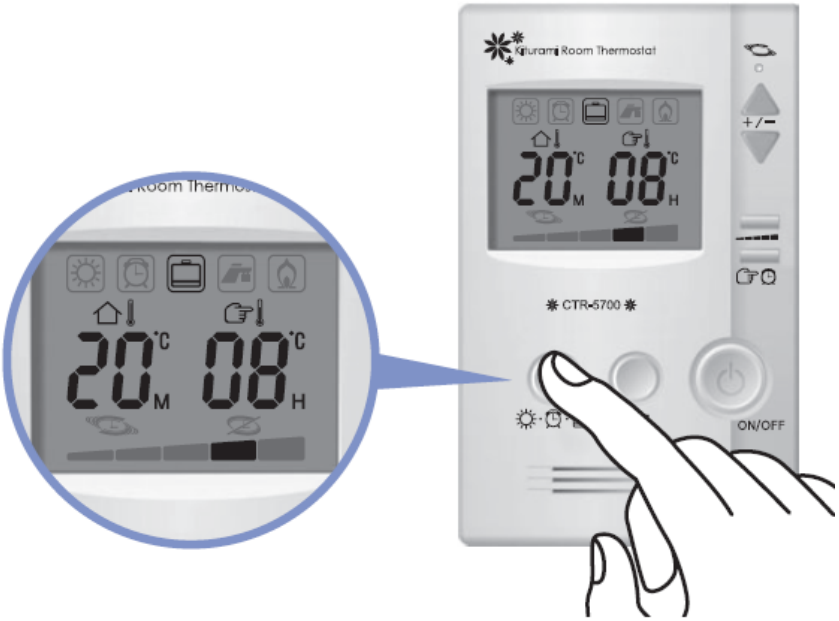
☞ <u>Using the reservation function.</u>

By using the reservation function you can arrange the operation and stoppage time in the optimal range to save the operation cost. (Please set the operation and stoppage time depending on the season and insulation level of your house.)

○ To use the outing fuction

1) Select Outing form [Room, Reservation, Outing]

(The outing fuction maintains the minimum room temperature to prevent freezing of the boiler and rooms).



☞ <u>What is the freezing prevention function?</u>

– The freezing prevention function prevents the boiler itself and pipes from freezing bye maintaining circulation in a certain temperature. During outing the boiler should be plugged to the wall, and the gas valve should be open (supplying gas).

※ During severe cold weather, you can prevent the boiler from freezing by setting the room temperature in the range of about 10~15℃

– The freezing prevention function doesn't work in the following circumstances

• When there's a power outage, or the boiler is unplugged.

• When the insulations of the incoming water pipe or exposed pipes are in poor conditions.

○ To use the bath function

1) To use plentiful hot water, select bath by using the bath button.

2) After 2 1/2 hours of selecting the bath function, it returns to the previous function.

3) If the water pressure is above 78~147Kpa(0.8~1.5kgf/㎠), install a pressure reducing valve.





☞ <u>What is temperature setting function?</u>

1) It sets the output water temperature in the Room, Reservation and Outing functions, and the desired temperature in the bath function is the set temperature.

☞ <u>Setting the hot water temperature</u>

1) Select the Bath function by using the bath function button.
2) Select temperature by pressing the up(▲) / down(▼) button.
3) In the temperature setting function, the range of temperature is 35~60℃.

☞ <u>Cautions while using the Bath function.</u>

1) Please be careful not to be burned by hot water.
2) Please be careful when you open the water tap asfter setting the bath function, because hot water may come out suddenly.
3) Please especially be careful the sick and the aged and the children are not burned by hot water.
4) The water from boiler can not be consumed.
5) During heating(indoor operation), after hot water is used for a long time, lukewarm water may come out.
6) During bath function, if the power is turned off and on, it will return to the pre-Bath function.

○ Use power outlet for boiler use and beware of electric leackage.

- As supply power is only AC 230V / 50Hz, be sure to check the voltage before use.
- Touching a power cord or operating a boiler with wet hands would cause electric shock. Do not clean up directly with water. Danger and boiler malfunction by electric leackage and electric Shock can happen.



○ Do not put inflammable materials close to the boiler.

- Always keep a fire extinguisher ready in the boiler room as there is danger of fire.
- Do not load woods close to the boiler or put inflammable materials. Always keep clean around the boiler.

○ User should never disassemble, repair or modify it at discretion.

- Electric shock or fire can happen.
- Call A/S service center for repair.

○ You can open the door, do not touch the exhaust port during the operation of the boiler.

- It may cause a burn.

○ Caution while using bath function.

- Beware of a burn while using hot water.
- Do not use it for drinking water.
- If opening the hot-water tap after setting bath, be careful as hot water may come out abruptly.
- In particular, children or seniors should be cautious of burns.

○ Be careful of freeze and burst during winter.

- As the product is connected to the pipe and the pipe is completely filled with water, be sure to connect the power cord and refill according to water refill method if pipe water is insufficient. If anti-freezing circuit operates while pipe water is insufficient, the pump would idle causing overheat or malfunction.
- Keep pipes completely warm.
- Take actions for anti-freezing in cold area such as winding exposed pipes with electric heaters. (It's also desirable to construct, insulate and keep warm by attaching like heating pipes.)
- Do not wrap up a draw-off valve with lagging materials.
- If not using the boiler for a long time, conduct draw-off for anti-freezing and be sure to pull out the power cord.
- Be sure to wrap up exposed parts with lagging materials (width of 25mm or more) in order to prevent freezing of pipes.
  (The width should be 50mm or more in cold area.)
- If leaving for a long time, open the hot-water tap a little in the kitchen for anti-freezing the tap pipe by a little amount of water flow in the hot-water supply pipe.

2) It should be checked 1 time or more a year.

- Request 1~2 times of regular check per year in local service center.
- Regular check would guarantee safe use.
- Request 1 time or more of regular check per year for cleaning status of boiler flue tubes and burner cleaning.

○ Keep the pellet in order not to contact with water or moisture.

- If the pellet is exposed to water or moisture, it would be transformed into powder form which cannot be used. If using the pellet in powder form after putting it into the hopper, serious problems may happen in the boiler such as lowered power, occurrence of large amount of ashes.
- Do not wrap up the draw-off valve with lagging materials.

2) Use fuel of 1st grade or more.

- If the boiler is in trouble after generally used low-price pellet fuel is used, you cannot receive proper A/S.
- Only the pellet with diameter of 6mm can be used.

3) Do not let foreign materials enter while inputting fuel.

- When inputting fuel into fuel storage container, you should watch if gloves or wood skins enter there.
- Foreign materials would cause malfunction and safety stop (Error 03) of machine.
- If foreign materials entered, remove them and restart operation.

4) Please do not exceed the capacity of the fuel hopper is turned on.

- The height of the maximum supplement is up to hopper cover can be closed.

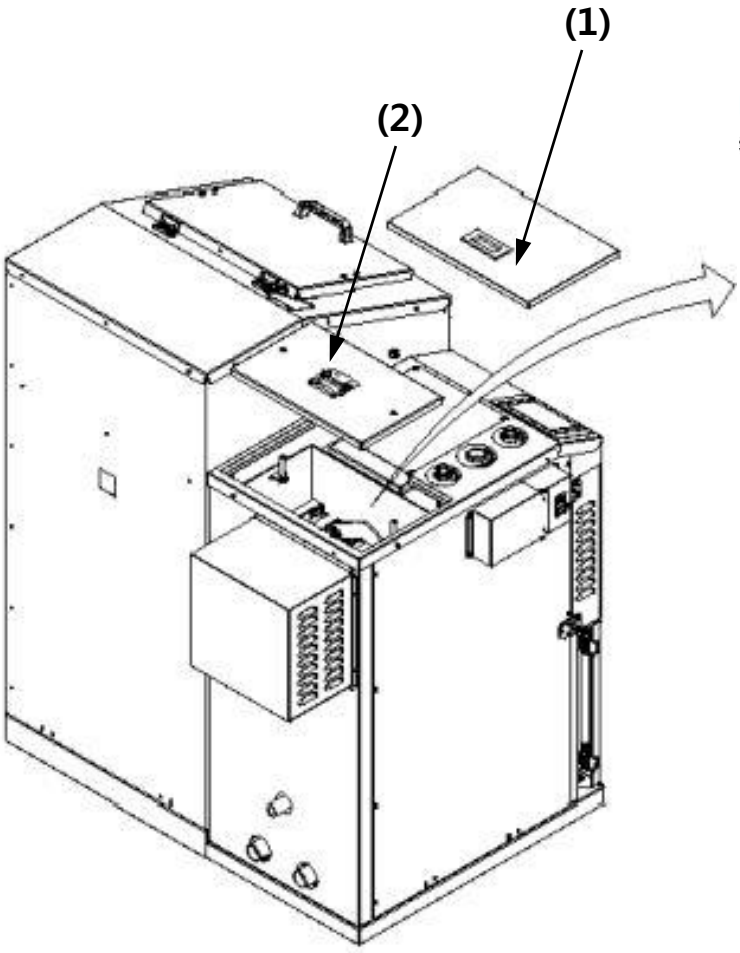
○ Remove upper cover(1) and flue tube cover(2) shown by arrows

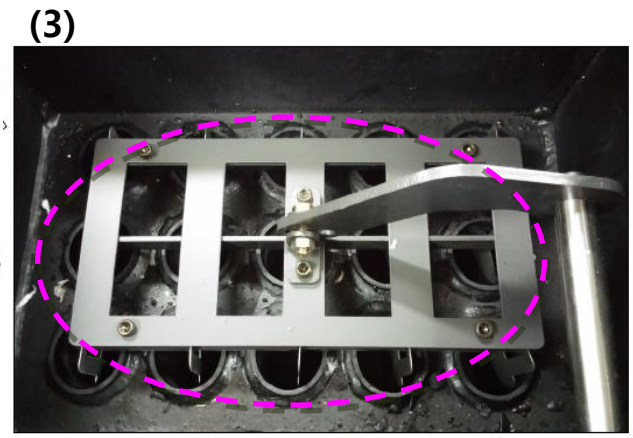
by turning counterclockwise. Then, check the flue tube surface.(clogged or not)

And then clean up flue tube section(3) with a brush for exclusive use.

It would reduce fuel cost and enhance performance.

[Cleaning cycle] : 1 times a month

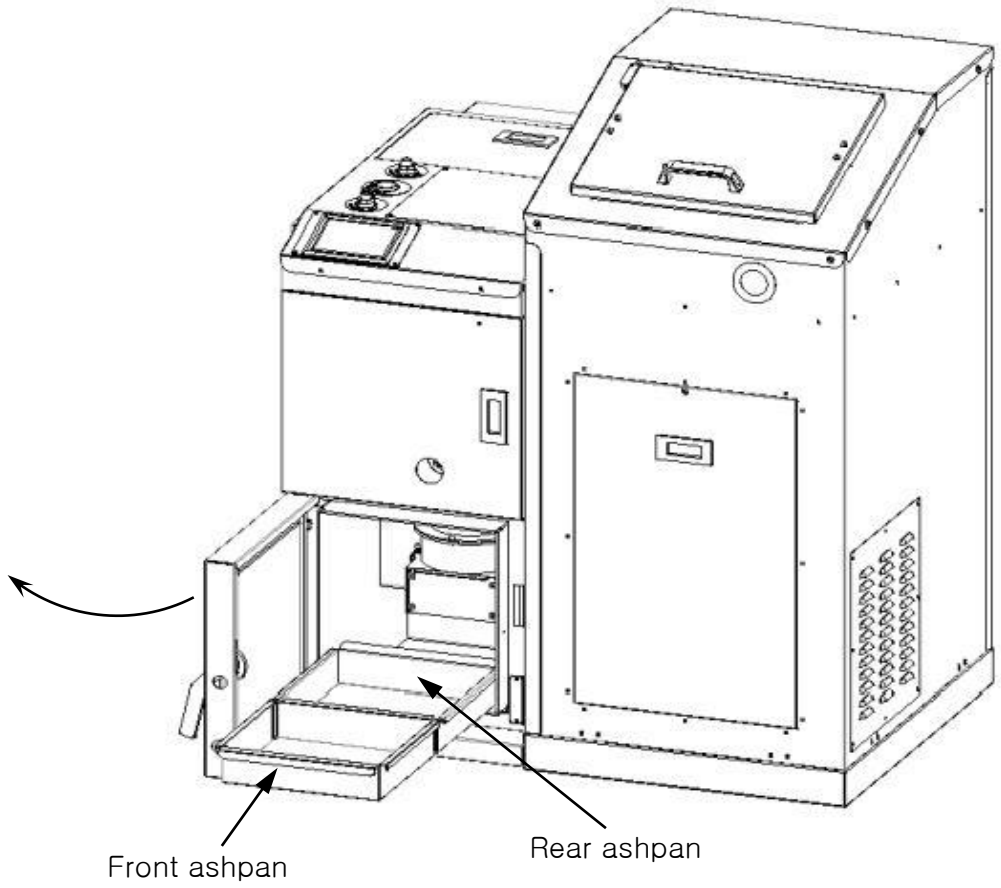




○ As in figure, draw out the ashpan from the inside of the fire chamber and remove ashes from there. If ashes remain insde the fire chamber, use a tool for cleaning the fire chamber.

[Cleaning cycle]

- Front ashpan : 2 times a week
- Rear ashpan : 1 times a week



※ Maintenance distance must be ensured.

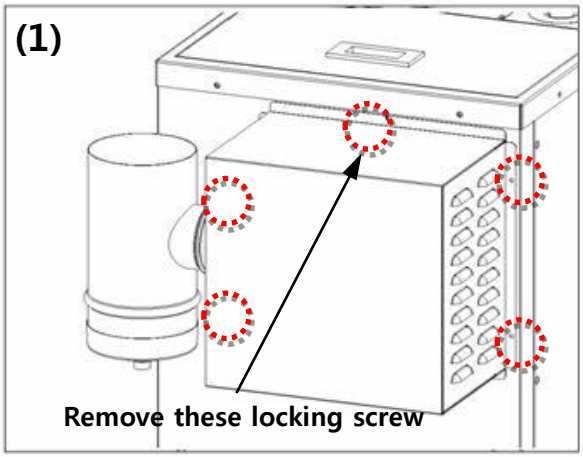
(1) In order to remove the exhauster cover, remove each of 3 locking screw.

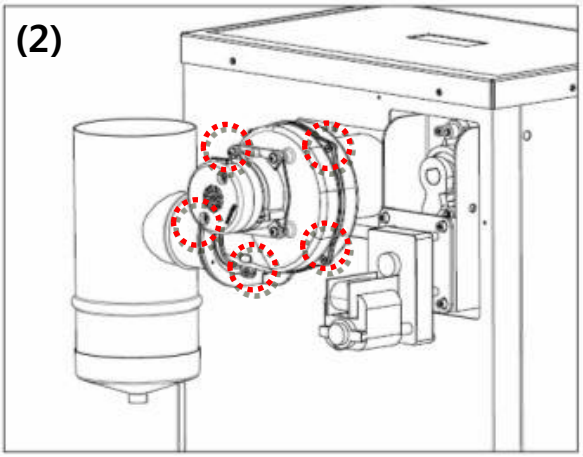
(2) Remove each of 5 locking screw which are used for fixing the exhauster.

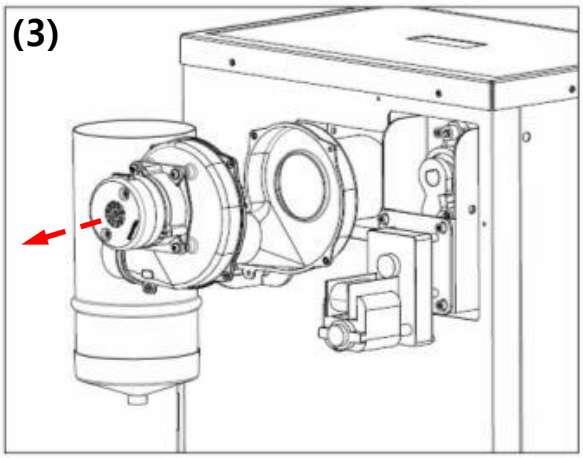
(3) Separate the exhauster as in arrow direction from the figure.

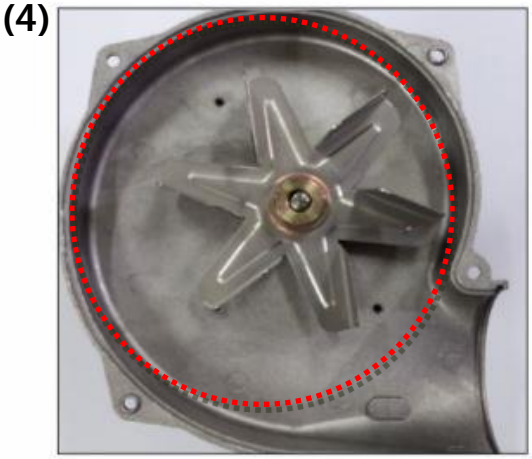
(4) Using the brush to remove dust and foreign materials from the fan section of the exhauster as in circle from the figure. After finishing the cleaning up, assemble them in reverse order of the disassembly. Be careful in order to prevent the air-tight gasket from damage during assembly/disassembly.

[Cleaning cycle] : 2 times a month









○ Breakdown : If not ignited

NO.	Trouble type	Actions
01	1. Fuel supply screw is in trouble.	① Check the supply motor assembly by separating it. ② After the screw is mechanically damaged, replace it when necessary.
	2. Fuel supply motor is in trouble.	① Check if the motor operates while power (230v) is supplied from the controller. ② If it doesn't operate, replace the fuel supply motor.
	3. Insufficient fuel in the hopper.	① Check if fuel is insufficient in the fuel storage hopper. ② Refill fuel up to fuel supply line.
	4. Foreign materials are cought on the screw.	① Check if the fuel screw doesn't operate as foreign materials are caught on the fuel supply screw. ② Remove foreign materials if they are found. (Gloves, wood skins etc.)
	5. Flame sensor is in trouble.	① Check if the photo sensor is abnormal. (Check if it is DC 2.5V or less when ignited.)
	6. Bad fuel is used.	① Use after removing congealed fuel after exposed to moisture.

○ Breakdown : If supply motor or electric heater is down

No.	Trouble type	Actions
02	1. Heater is down.	① Check if wiring of the heater is damaged. ② Measure insulation resistance with a tester. ③ Replace the heater if it is down.
03	2. Fuel supply motor is in trouble.	① Check if fuel clogging sensor switch operates normally. ② Check if foreign materials (gloves, wood skins etc.) are caught on the sensor switch. ③ Check wiring status on the fuel supply motor.

○ Breakdown : If water temp. sensor or overheat temp sensor is down.

No.	Trouble type	Actions
04	1. Water temp. sensor is down.	① Check if the water temp. sensor is connected properly. ② Check if wiring is damaged. ③ Replace the temp. sensor.
05	1. Overheat sensor is down.	① Check if the overheat sensor is connected properly. ② Check if wiring is damaged. ③ Replace the temp. sensor.

○ Breakdown : If transmission and reception are bad

No.	Trouble type	Actions
06	1. Rotation number of the blower is not detected.	① Check if the blower wiring is damaged. ② Replace the blower.
06	1. Row limit High limit	① If a funnel is installed in wind pressure zone and it is extremely windy, rotation number of the blower would become high. If it happened frequently, call the operator for correcting funnel position. ② If dewfall appeared on the funnel bent, remove condensate. ③ Call local store or A/S center for taking measures. ※ If foreign materials are caught on the blower case, rotation number of the blower becomes high or low.
08	1. Bad transmission /reception	① If bad transmission/reception between room control and main control, : Turn Ignition stroke OFF. ② If it lasts 10 min. or more, "Error 08" would happen and power would turn on and off. ③ Replace the room control or the main control.

○ Breakdown : Low water level, overheat error

1) Symptom : If water temp. sensor detects 90℃ or more / If overheat sensor detects 91℃ or more.

2) Return : If water temp. sensor detects 85℃ or less / If overheat sensor detects 86℃ or less, return manually.

No.	Trouble type	Actions
95	1. Insufficient water	① Check if make-up water line is locked. ② Check if water is leaked on the heat exchanger or piping. ③ Replace the low water level sensor.
96	1. Circulation pump doesn't operate.	① Check if plumbing of the circulation pump is short circuited. If measured resistance is '0', it is normal. If it is infinite, the coil is short circuited. For latter case, replace the circulation pump.
	2. Heating valve is locked to raise temperature abruptly.	① Check if the distributor valve is locked. If it is locked, open the valve.
	3. Control is in trouble.	① If the supply motor keeps operating though fuel supply is in Stop condition, replace the control.

○ Breakdown : Backfire overheat (bimetal) sensor operation of the burner

No.	Trouble type	Actions
97	1. Door open sensor is down.	① Check if the burner door is opened. ② Check if the door open sensor and wiring are damaged. ③ Replace the sensor if operating even though the wiring is "earthed".
98	1. Chimney is clogged.	① Separate flue cavity. ② Check if there is clogged area and remove ash.
	2. Head wind blows as "T-type funnel" is not installed on fuel.	① Install "T-type funnel" for preventing head wind on the funnel.
	3. Flue tube is clogged.	① Stop operating the boiler. ② Separate the clean door out. ③ Clean up with cleaning brush after removing buffle.

○ Breakdown : Bad auto cleaning function

Trouble type	Actions	Note
1. Ashes from the burner fire grate are not handled automatically.	① Check with a tester if DC 24V voltage is supplied when supplying power. ② Check if foreign materials are caught within the fire grate. If they are caught, remove and then restart operation. ③ Check if the burner fire grate is transformed. If it is transformed, call A/S center to receive measures.	

○ Instructions for customers and guarantee conditions.

- Claims regarding the completeness of delivery must be in accordance with Commercial Code and Civil Code of the supplier,
- Damage and defects due to transport must be claimed by customers to a carrier when goods is taken over.
- Guarantee period is 24 month from the date of sale.
- Guarantee is valid if boiler is commissioned by an authorized serviceman.
- Guarantee is valid if all the electric equipment is connected to regulation by an trained specialist and if recorded in relevant documents..
- Guarantee applies to construction, used material and product manufacture.
- Transport of serviceman is not included into guarantee repair . (it is paid by a customer in its full amount).

○ Guarantee does not apply to blow contents.

- Consumer material: door seal, seal of exchanger cap, seal under fan, Heatproof nozzle, heat proof / concrete/ filling, heatproof bricks,
- defects caused by a customer,
- defects due to not following assembly instructions, incorrect operation and
- maintenance or if the product is used otherwise than instructed and for a different purpose than specified in normal conditions; incorrect or unauthorized handling,
- otherwise the guarantee follows relevant provisions of Civil Code.

Wood Pellet boiler



Kiturami.CO.,LTD

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