

Kiturami

Boilers for heating and hot water

INSTALLATION & OPERATION MANUAL

PELLET BOILER



**CLIMA
CONTROL**

HEATING – AIR CONDITIONING

Exclusive Representation

Collateral of Egnatia Road P.O. Box 1200 P.C. 57 008 Diavata Interchange, Thessaloniki

Tel.: 2310 574 920, 2310 574 803 • Fax.: 2310 574 893

e-mail: info@climacontrol.gr • www.climacontrol.gr



Thank you for purchasing a KITURAMI unit to satisfy your needs in heating and hot water.

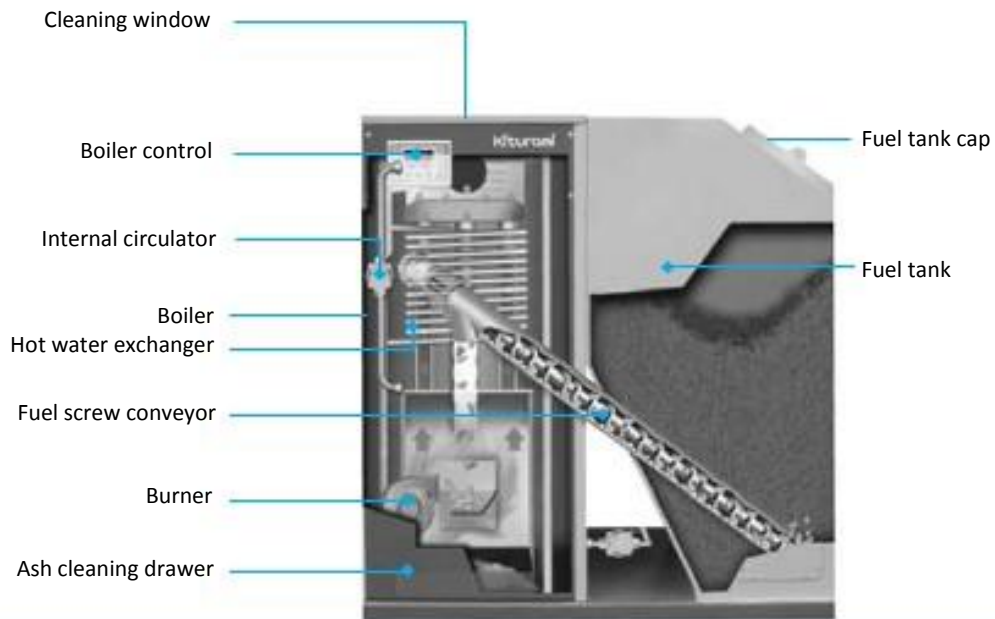
Please read carefully and make sure that you have fully understood the manual to ensure proper operation and maintenance of the machine. Keep this manual in a safe place. If the unit does not operate normally, or have any questions about its functions, please refer to the manual.

ATTENTION

Do not intervene by making changes in the operation mode of the unit for any reason without the permission of the manufacturer. This may cause fire and electric shock hazard.

CONTENTS

3	Description of PELLET unit
4-5	Installation
6	Chimney installation
7	Electrical connection & thermostat connection
8	Room thermostat CTR-5700PLUS
9-11	Thermostat modes (heating, timer, antifreeze, hot water)
12	Boiler control HOT-400N
13	Initial ignition
14	Pellet unit set-up
15	Remarks for the use of Pellet Fuel
16	Cleaning the combustion chamber / Markings
17-19	Code display on the screen Damage identification and solutions
20	Specification table



DESCRIPTION

■ Conditions to be checked before installation

- * Install the pellet unit in a place where abduction of the exhaust gas and the noise of the unit will not cause any inconvenience to the users of the equipment and the residents of the surrounding area.
- * Do not install the unit near any place where there is frequent access to people such as stairs or emergency exit.
- * Provide adequate space for the operation of the unit, its inspection and repair (1 m or more from the top, left and right side).
- * Do not install the unit in an area that does not have enough ventilation. The lack of oxygen causes incomplete combustion.
- * Never install the unit outside in the open space exposed to the weather conditions, it will create problems in its operation and its lifetime.
- * Installing the unit directly on the floor the base of the unit can corrode reducing its lifetime. Place the unit on surfaces of unflammable material, 50 mm above the floor like concrete blocks.
- * The installation of the unit should be executed by a qualified technician according to instructions provided by the user manual.
- * Install a fire extinguisher in the boiler room.
- * Do not store wood and do not place the unit near combustible materials. Keep the surroundings clean.

Contact customer service when the unit needs repair.



■ Plumbing installation of the boiler to the heating network

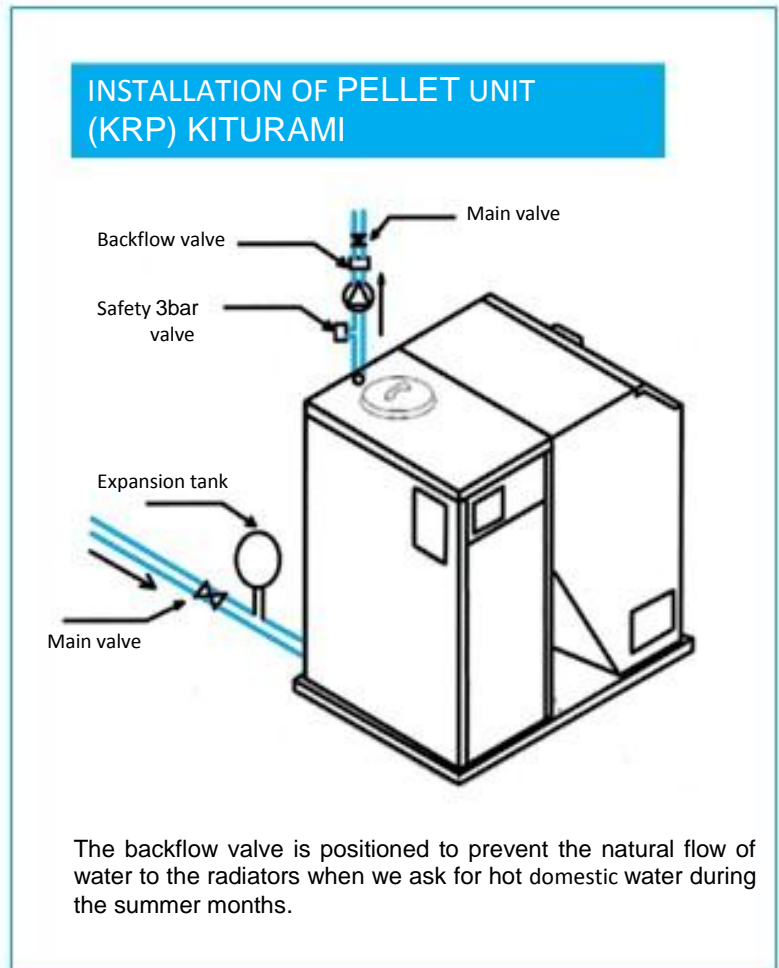
* The water supply to the heating network and the domestic water should be derived from the water supply network. The presence of calcium and salts in water can cause premature corrosion in the boiler and other problems.

* Ensure to keep hot the boiler pipes. The pipes should not be exposed to frost. The pipes should be insulated with an insulation thickness of more than 25 mm in order to be protected against frost (50mm in cold areas). In case of frost occurring on the plumbing of the heating network, the antifreeze protection available within the unit, in the area controlled by the thermostat will not function adequately.

* In order to select the size of the expansion tank estimate that for every thousand calories of boiler is required at least a liter in the tank. The expansion tank and the safety valve shall be checked regularly to ensure good operation and long lifetime of the boiler.

* If the safety valve opens often then it is due to increase of the pressure of the network. Check the automatic water filler of the heating network and the pressure in the expansion tank and fill with air (1 bar) if it is deemed necessary.

* Connect the safety valve outlet with a tube in the drainage to drain of the water.



The backflow valve is positioned to prevent the natural flow of water to the radiators when we ask for hot domestic water during the summer months.



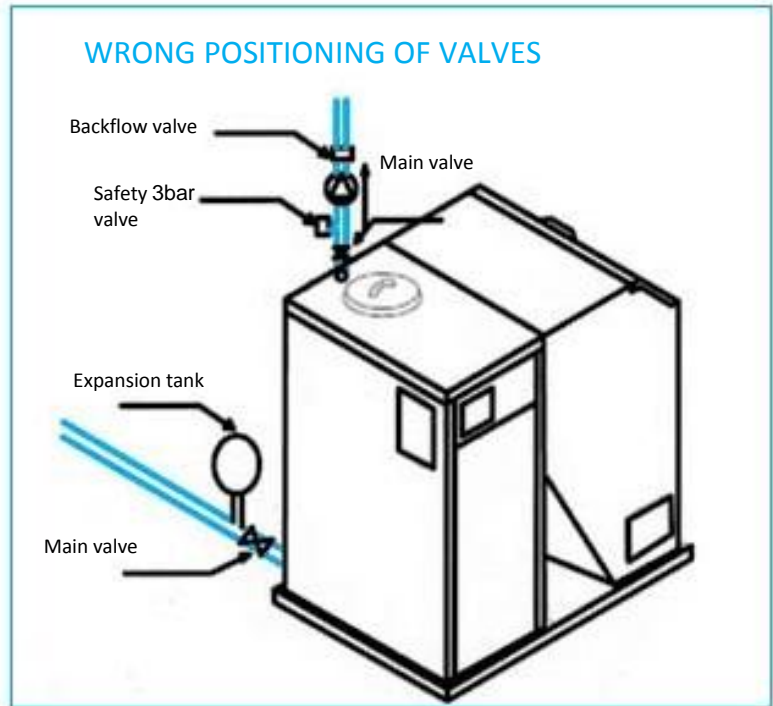


■ Plumbing installation of the boiler to the heating network

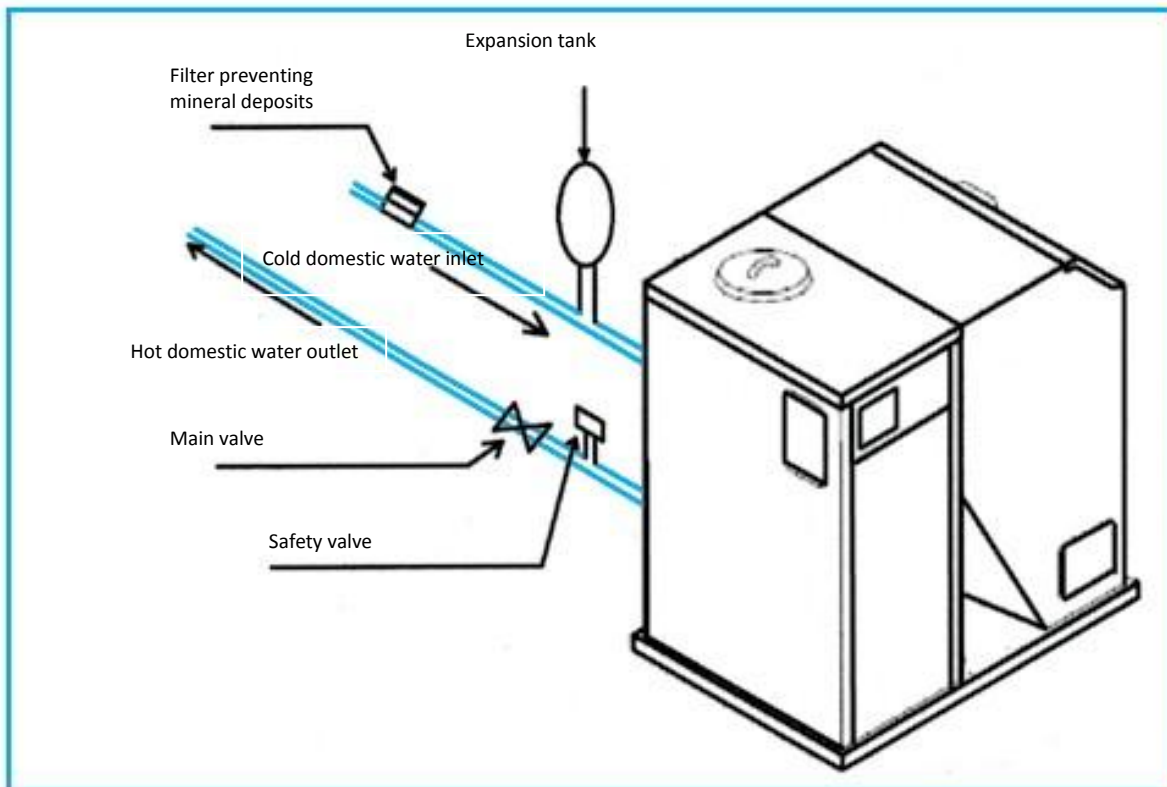
The valves should never be placed:

- between the boiler and the safety valve
- between the boiler and the expansion tank

In this case, if the burner is activated with closed valves the boiler will be destroyed.



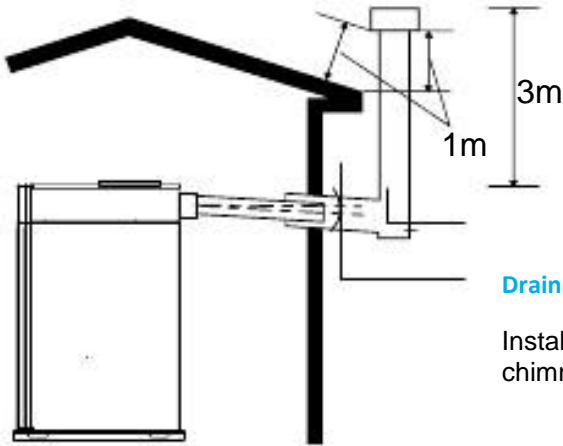
■ Plumbing installation of the boiler to supply hot domestic water



Before connecting the domestic water in the boiler measure the pressure of the water supply. Then adjust the expansion tank of the water supply at the same bar and insert a corresponding security valve. E.g. assume the water supply is 4 bar, then choose a safety valve of 6 bar and adjust the expansion tank at 4 bar.



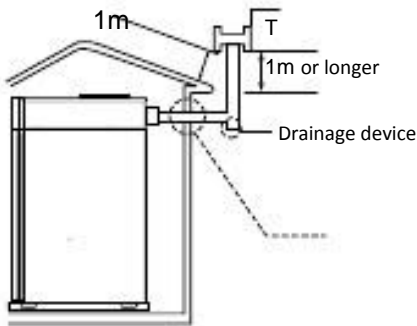
■ Chimney installation



Install the chimney in such a way that the exhaust gases come out unaffected by pressure, rain, winds.

Draining

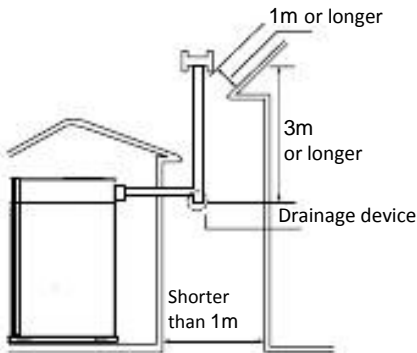
Install the chimney from the exit of the boiler to the vertical part of the chimney inclined 5 degrees downwards.



Install the chimney component that accompanies the unit for drainage. The vertical part of chimney be more than 3 meters of high from the boiler and at the end of the chimney insert a T to prevent incomplete combustion due to winds.

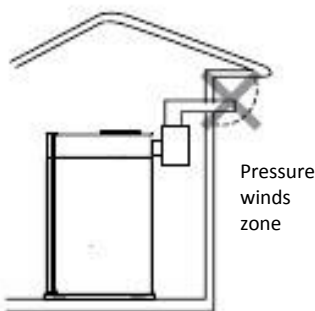
It may be caused increased exhaust heat, do not store flammable materials near the chimney.

Install the chimney by taking into account the appropriate measures and adequate distances. You should ensure that there are no flammable materials around the chimney in the minimum distance of 30 cm.



ATTENTION: Installation of additional chimney
If there is a high building or an obstruction within 1 m next to the evacuation of combustion gases, exceed the chimney 1 m higher than the top of the building.

* The height of the vertical piece of the chimney should be 3 times or longer than the horizontal piece.



If the abduction of the exhaust gases is executed in a zone of pressure winds, this can lead in causing excessive soot from incomplete combustion resulting in reduced performance of the boiler or create some damage and the unit will not work normally. To prevent this, the abduction of the exhaust gases should be executed off pressure winds zones.

If the chimney is longer than 4 m with 2 angles, increase the diameter of the chimney (Ø150→Ø200, Ø200→Ø250).

Following the installation work of piping and chimney, pour into the boiler the anticorrosive liquid accompanying the unit after you first dilute it with enough water. Then fill with water the boiler, the pipes and the radiators.



■ Electrical connection of the unit



Use a power supply outlet exclusively for the unit.

Connect the two green wires (phase - neutral) in the circulation pump.

Installation and connection of room thermostat

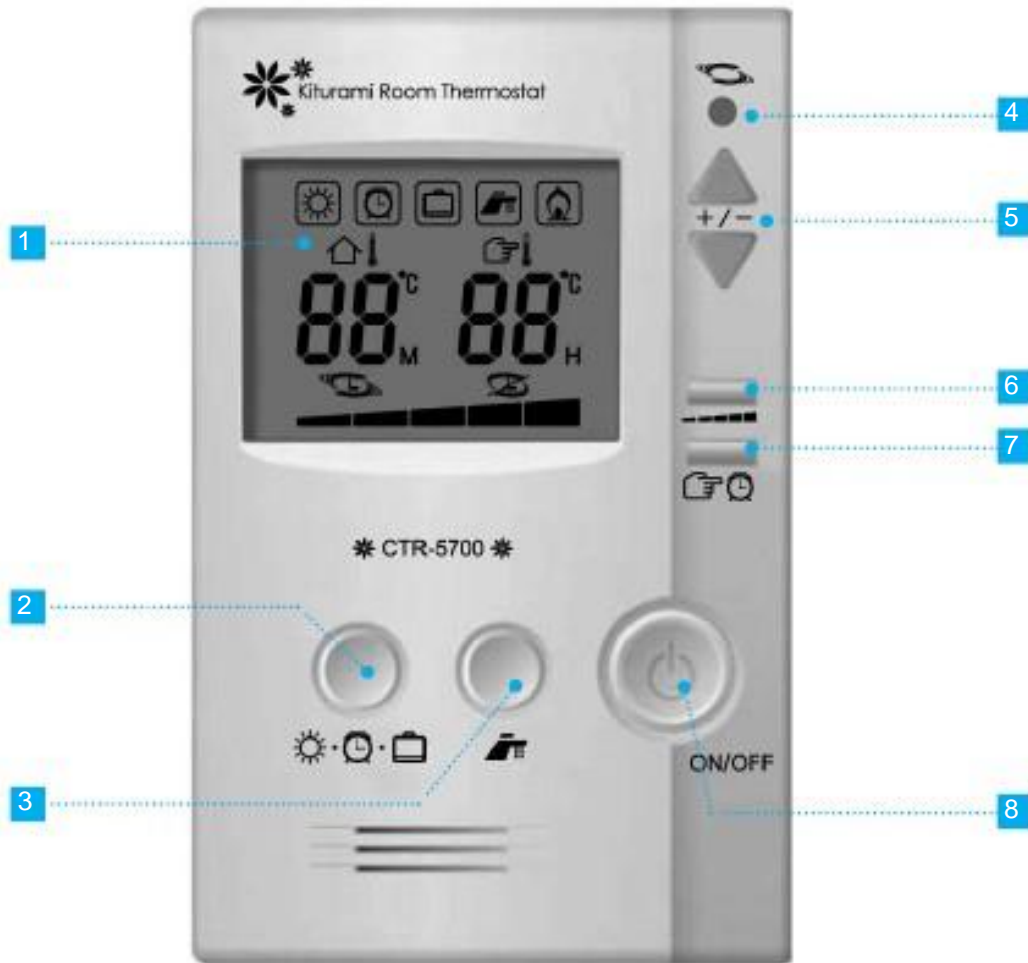
Place the thermostat base on an internal wall of the room, in a distance of 1,20 - 1,50 m from the floor. Extend and connect to the thermostat the two wires red and white expanding left of the inner control BCX4000C2 located within the unit. Connect the cable to the back of the thermostat. Connect the marking wires of the room thermostat according to the polarity when you wire. White (-), red (+) and place the thermostat in its place.

ATTENTION

- Do not place electrical cords e.g. AC120V type because the communicating between the room thermostat and the pellet unit may not be good.
- Do not bury under the ground or put the thermostat wire in the same tube with the electrical cable 230V. It can cause problems in the communication between the room thermostat and the unit panel.
- Do not place it in a place exposed to sunlight and high humidity.
- Do not place it in a place that can easily be reached by children.



■ Operation of the room thermostat CTR-5700PLUS



1. Multifunction display

2. Heating, timer and antifreeze mode button

3. Hot water mode button

4. Pellet unit power indicator

5. Buttons (+) / (-) (▲) (▼)

It is used for the configuration of settings in each unit operation and the selection of room temperature.

6. Heating water temperature selection button.

With this button you set the heating water temperature in the boiler.

7. Time adjustment button.

With this button you adjust the operating and pausing times.

8. Power (ON/OFF)

With this button you open and close the thermostat and simultaneously turn the power of the pellet unit on or off. It is also used to restart the unit after correcting some damage. (Number of restarts per damage up to 3 times, restart the unit after 5 minutes).



■ Heating mode

1. Setting the room temperature

By pressing consecutively the button select on the screen of the thermostat the indication with the sun.

The screen displays two two digit numbers. The left two digit indicates the temperature of the room, where the thermostat is, at that time. The right two digit number indicates the temperature we have chosen.



2. Setting the heating water temperature

With the button (+) / (-) (▲) / (▼) we increase or decrease the desired temperature



3. At the bottom of the screen of the thermostat display rectangular bars.

With this buttons increase or decrease the bars on the thermostat screen to select the desired water temperature in the boiler and the radiators. With the first bar you select 45°C, with the second 55°C, the third 65°C, the fourth 75°C and the fifth 85°C.



Select the water temperature in the boiler depending on the outdoor temperature. The lower the outdoor temperature, the more high temperature you should select in the boiler water.

■ Heating mode via timer

1. By pressing consecutively the button select on the screen of the thermostat the indication with the clock signal to select the operation mode through timer. The screen of the thermostat displays two two digit numbers.

The left two digit indicates the operation time of the boiler (10 to 90 minutes).

With the button (+) / (-) (▲) / (▼) we determine the operation time.





■ Heating mode via timer

2. Then press the button and the right two digit number corresponding to 1 up to 24 pausing hours begins flashing.

With the button (+) / (-) (▲) / (▼) we determine the hours of pausing operation of the boiler.



So if in the first left two digit number we select No. 20 and in the right two digit number we select No. 02 the unit will operate for 20 minutes and will stop operation for 2 hours.

When you finish setting up in this situation, the unit will initiate its operation with the adjusted pausing time.

■ Antifreeze mode

1. By pressing consecutively the button select on the screen of the thermostat the indication with the suitcase sign to select the antifreeze mode.

After selecting the antifreeze mode on the thermostat screen, the left two digit number will indicate the temperature in the room at that time and on the right side of the thermostat screen will display the number 08.

If the temperature drops below 10°C in the room where the thermostat is placed, the circulator will be activated and if the temperature drops below 8°C the burner will be also activated.

This will protect the boiler and heating network against frost.



Hints for the operation of antifreeze mode

The operation of the antifreeze mode during low temperatures maintains the proper temperature in the boiler body, in order for the tubes in the house and the pipes connected to the boiler for heating to be protected against frost.

When you are away from home during the winter, leave the power cord connected to the boiler. If you leave the house for several hours, open a tap in the kitchen so that a very small amount of water will drip and thus prevent freezing in the circuit of hot domestic water.



Antifreeze mode does not operate in the following situations:

- A. During power failure or if the power cord of the boiler is unplugged.
- B. In case of poor pipe insulation or if pipes are not well insulated and freeze.

■ Operation of hot domestic water

1. If you want to use hot domestic water, press the button to select the hot water mode.
The pellet burner will be activated regardless of the room temperature selected in thermostat and its function criterion will be the temperature you selected for hot water.

2. Setting the domestic hot water temperature

Pressing the button for 5 continuous seconds on the thermostat screen is displayed a two digit number flashing that corresponds to the hot domestic water temperature we want to select.

With the button (+) / (-) (▲) / (▼) we increase or decrease the desired hot domestic water temperature.

The internal circulator is turned on when selecting the hot water mode to ensure uniform temperature throughout the range of the boiler.

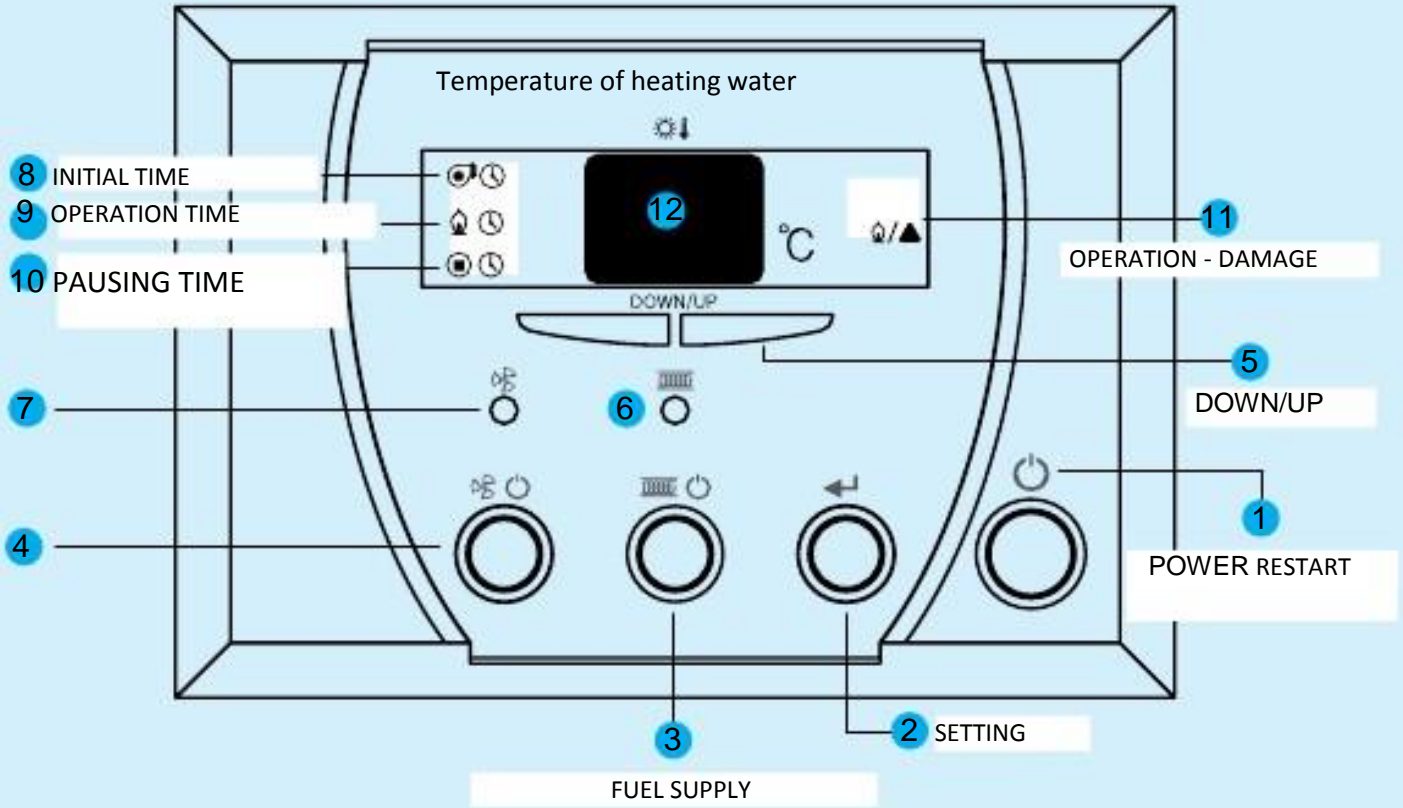


Hints for the operation of the boiler and remarks for the use of hot water

- Pay special attention when using the hot water so that you do not burn yourself.
- When you open the tap after selecting the hot domestic water mode, may run hot water. Be particularly careful to protect young children and the elderly from the hot water.
- The water in the hot domestic water mode is undrinkable.
- When operating the heating room mode for a long time, you can get some amount of hot water on tap if you open it.
- Increase or decrease the hot domestic water temperature from the room thermostat according to your needs. The higher the hot domestic water temperature, the more salts may be deposited inside the hot water exchanger of the unit.
- After 2.5 hours of continuous operation, the hot water mode is turned off automatically and the room thermostat returns to the program that you had selected before.



BOILER CONTROL HOT400N

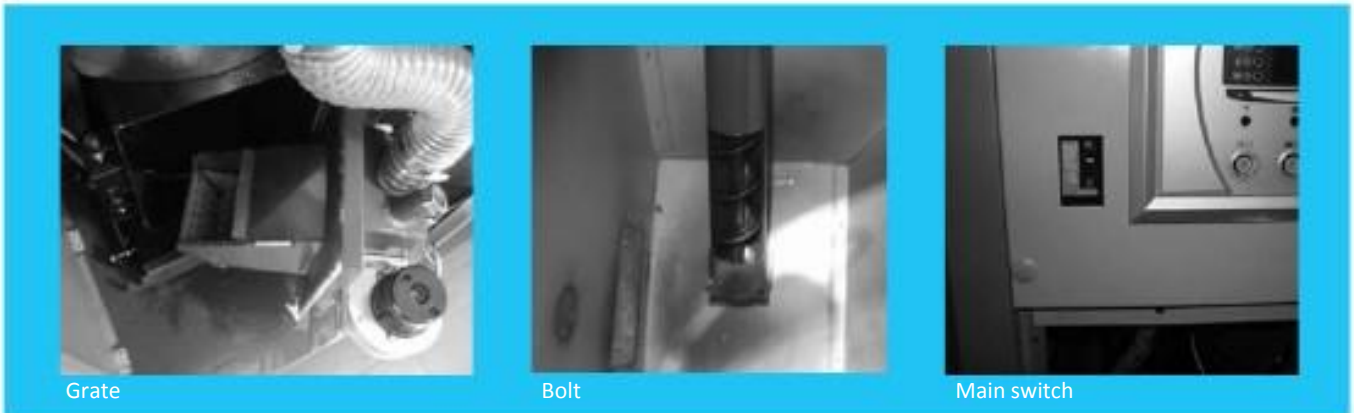


	1.	POWER – RESTART button
	2.	SETTING button
	3.	FUEL SUPPLY Activation button of the bolt for the initial feeding of the burner with pellet
	4.	Button for the manual activation of the fan
	5.	Button DOWN/UP for setting the operation parameters of the unit
	6.	Operation indicator of the feeding bolt
	7.	Fan operation indication
	8.	INITIAL TIME Indication of the feeding bolt function during the initial ignition
	9.	OPERATION TIME Indication of the feeding bolt function during the operation of the unit
	10.	PAUSING TIME Pausing of the feeding bolt indication during the operation of the unit
	11.	OPERATION - DAMAGE Unit operating indication (lights when the photocell detects flame in the combustion chamber or flashes if any damage is detected)
	12.	Water temperature display, unit operating parameters and damage code display

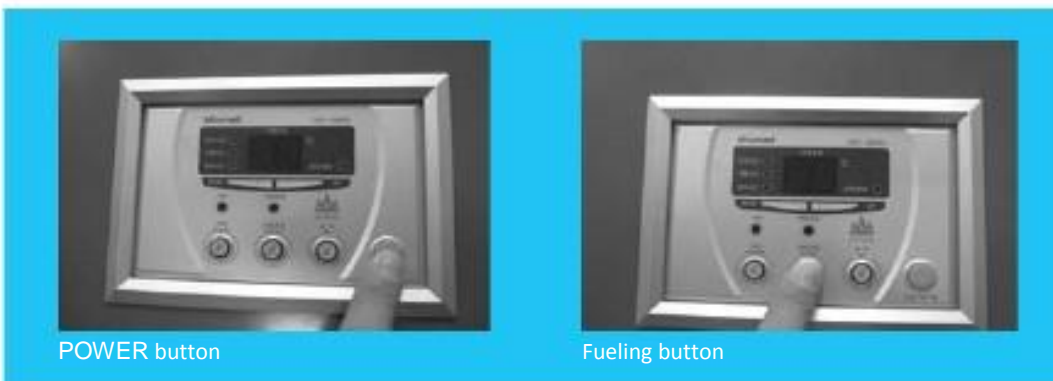


■ INITIAL IGNITION

Before turning on the pellet unit, check if the burner grate is in its place. Check if the bolt is in the correct position. Fill with pellet fuel the unit's tank. Insert the power plug into the outlet. Turn ON the main switch.



Before turning on the unit from the POWER button, press the fueling button on the instrument panel for 5 seconds.



On the panel display HOT 400N will appear the number 03 and the bolt that feeds with pellet fuel the burner will be activated for 3 minutes in a continuous operation to transfer pellet fuel from the beginning of the bolt until the dropping point. If the pellet fuel starts to drop from the bolt to the burner any earlier than 3 minutes, press the POWER button to stop the continued operation of the bolt and press the POWER button for a second time to activate the pellet unit.

Initially starts the fan operation at high turns to clean the chamber and immediately after that the bolt feeds the pellet fuel to the boiler in order to start its ignition.



■ PELLET UNIT SET-UP

The flame intensity and the power we will take from the boiler depend mainly on quantity of pellet that will be supplied to the unit by pellet the feeding bolt. For this reason you should make the following settings.

Setting the operation time of the feeding bolt when restarting the unit.

Press consecutively the button DOWN/UP (No. 5) (+) (-) to light the lamp with the indication INITIAL TIME and then immediately press the SET button for 5 seconds. On the panel HOT 400N is displayed a two-digit number that indicates the operating time of the feeding bolt in seconds each time the pellet unit is activated after pausing. Press the button DOWN/UP (No. 5) (+) (-) to increase or decrease the operation time of the feeding bolt for the reactivation of the unit. The proposed time for the unit KRP20 is about 20 seconds and for the unit KRP50 is about 38 seconds.

Setting the operation time of the feeding bolt during the unit's operation

Press consecutively the button DOWN/UP (No. 5) (+) (-) to light the lamp with the indication OPERATION TIME and then immediately press the SET button for 5 seconds. On the panel HOT 400N is displayed a two-digit number that indicates the operating time of the feeding bolt in seconds during the operation of the unit. Press the button DOWN/UP (No. 5) (+) (-) to increase or decrease the operation time of the feeding bolt for the operation of the unit.

The proposed time for the unit KRP20 is 1 second and for the unit KRP50 is 2 to 3 seconds.

Setting the pausing time of the feeding bolt during the unit's operation

Press consecutively the button DOWN/UP (No. 5) (+) (-) to light the lamp with the indication PAUSING TIME and then immediately press the SET button for 5 seconds. On the panel HOT 400N is displayed a two-digit number that indicates the pausing time of the feeding bolt in seconds during the operation of the unit. Press the button DOWN/UP (No. 5) (+) (-) to increase or decrease the pausing time of the feeding bolt for the reactivation of the unit.

The proposed time for the unit KRP20 should be from 7 to 15 seconds and for the unit KRP50 7 to 12 seconds.



REMARKS FOR THE USE OF PELLET FUEL

Keep pellets away from water and moisture.

- * The pellets exposed to water or moisture become in time sawdust and lose their properties as a fuel.
- * If you feed the pellet unit with such fuel, and set it to operation the boiler efficiency will be much impaired, the power of the boiler will be reduced and it will produce excessive ash.
- * Using top quality wood pellet ensures convenient operation of the unit and longer lifetime. The use of pellet Class A1 or A2 is recommended. It is important to use pellet quality recommended by the manufacturer.

Basic proposed features of pellet fuel

Diameter 6mm
Length \leq 32mm
Density \geq 640 kg/m³
Dust content \leq 0.7%
Moisture \leq 10%

IMPORTANT INFORMATION

- The shutdown of the burner fan is independent from the shutdown of the thermostat. The fan shuts 10 minutes after shutting down the thermostat or the POWER button.
- The power of the boiler 5 degrees before the desired water temperature in the boiler is reduced to 1/3. Thus the restarts of the burner are reduced to minimum.
- Do not let the pellet tank to be fully emptied.
- After cleaning the boiler or the burner close properly the control doors to prevent exhaust leak.
- The pump is switched on and off depending on the temperature selected in the boiler water. The higher water temperature is asked by the boiler at the higher temperature is activated and deactivated the circulation pump.



Cleaning the combustion chamber

Open the cap of the cleaning window.
Clean the burner grate and the ash container every time you fill the tank with pellet fuel or more frequently.
Once a month you should clean the boiler from burning residues.

Frequent cleaning of the boiler provides fuel economy.
Stop the unit operation, make sure the flame is completely burned out and remove the fuel retarders.



Ash container



Clean the retarders and the exhaust gas torch with a steel brush to save fuel.

* Remark:
You should pay attention during the opening and closing of the cleaning door, there is a danger of burns.
Remove any foreign particles and restart the unit.

SAFETY WARNINGS REMARKS

- The operating power of the unit is 230V and 50Hz.
- Do not touch or operate the unit with wet hands, there is a danger of electric shock.
- Never clean the unit with water, there is a danger of electric shock or damage of the unit.
- The unit must be inspected once a year by a qualified technician.
- You can operate the unit safely only when it is properly maintained.



■ CODE DISPLAY ON THE SCREEN, DAMAGE DETECTION AND SOLUTIONS

If a problem occurs in the pellet unit, the thermostat and the unit control display a flashing double digit number will appear.

This is a code that corresponds to a specific damage.

The causes of these damages with the codes are listed below.

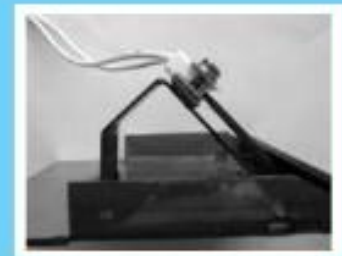
DAMAGE CODES

01

- Failure of the burner to generate flame in the combustion chamber of the boiler after two consecutive attempts.
- Insufficient fuel
Check if there is fuel in the fuel tank.
Fill the tank with fuel.
Faulty fuel
Remove the fuel which has been exposed to moisture.
- Check whether there is accumulated culm on the burner grate.
- Check if the pellet unit and the individual instruments like the engine bolt are supplied with current 230 V.
- Damage to the unit control HOT 400N.
- Check the feeding bolt.
- Damage to the internal unit control BCXI-4000C2 (picture 1)
- Check if the engine of the feeding bolt operates to supply fuel to the burner.
- Check the supply motor capacitor.
- Remove and check the supply motor. Replace the supply motor.
- Foreign particles on the bolt.
Foreign particles stick to the bolt and the bolt does not work.
Remove any foreign particles (gloves, hulls, cloth, etc.).
- Photocell damage
Check the photocell, the power must be less than 2,5 VDC.



(picture 1)



(picture 2)

02

- Disconnection of the resistor, check the cable of the resistor for wear.
- Damage of the resistor. Replace the resistor.
The ceramic resistor should be approximately 55 ohms.
When installing the ceramic resistor it should not touch any point of the burner (picture 2).
- Damage to the electrical load detector. (picture 3)
- Damage to the internal unit control BCXI-4000C2.



(picture 3)



■ CODE DISPLAY ON THE SCREEN, DAMAGE DETECTION AND SOLUTIONS

DAMAGE CODES

03

- The microswitch of the feeding bolt has stopped feeding with current the supplying motor. (picture 4)
- Check for the presence of foreign particles (gloves, bags).
- Check the cables near the microswitch for wear.
- Check the clear plastic feeding tube if filled with pellet.
- Check for charcoal in burner.
- Disconnection of the fuel supplying engine.



(picture 4)

04

- The water temperature sensor of the boiler does not communicate with the unit control.
Check the connections of the temperature sensor.
Replace the temperature sensor.

05

- The overheating sensor of the boiler water is not communicating with the unit control.
Check the connections of the overheating sensor.
Replace the overheating sensor.
- The door of the burner is open. Close the door.
The switch that controls the burner compartment is damaged or some of the connecting cables are disconnected.

06

- There are not detected any fan speeds of the burner.
Check the fan cable for wear.
Replace the fan.

07

- The fan speed is too low or too high.
- There are foreign particles and alter the fan speeds.
Clean the fan.
- Very high speed of the fan can be caused by strong wind when the evacuation of exhaust gases is against the wind.
Contact your installer to change the evacuation of combustion gases.
Remove the liquefaction and combustion residues from the corners of the chimney, if any.
Check the exhaust gas torch for combustion residues. Clean the boiler torch.



■ CODE DISPLAY ON THE SCREEN, DAMAGE DETECTION AND SOLUTIONS

DAMAGE CODES

08

- Faulty communication of the thermostat with the unit control.
Check if the cables connecting the thermostat to the unit have been worn.
The cables connecting the thermostat to the unit are in the same piping with cables 230V. Replace the cables with better quality or install the thermostat wires externally.
If the problem still exists, replace the thermostat or the unit control.

95

- The low water level sensor finds lack of water in the boiler.
Check the water filler of the heating installation.
Open manually the safety valve to pour water.
Install an automatic air vent on top of the unit to eliminate air that may occasionally be trapped inside the boiler.
Check that the cables make good contact (red on the sensor and black cable onto the chassis of the boiler).
Check if the sensor is damaged. Replace the sensor.

96

- The sensor detects overheating water temperature over 93°C.
- The burner is fed with pellet fuel although no such command.
- Check the interior of the unit control BCXI-4000C2.
- Check the overheating temperature sensor if it detects proper water temperature. Replace the sensor.

98

- The contact sensor located above the compartment of the burner detects high temperature.
There is an exhaust leak from the burner compartment.
Close the compartment.
Replace the exhaust gases seal cord.
- The chimney and the exhaust gas torch of the boiler are blocked and exhaust gases come out easily and the flame of the burner turns backwards.
There is insufficient chimney draught.
- Restart the unit by pressing the POWER button on the control or the POWER button on the thermostat.

SPECIFICATION TABLE

TYPE		KRP 20	KRP 50
FUEL		PELLET 1st to 2nd DEGREE Diameter Ø 6mm, LENGTH 10-30mm	PELLET LENGTH 10-30mm Ø
THERMAL EFFICIENCY	kcal/h	10.000-20.000	30.000-50.000
PERFORMANCE HEATING	kW	23,3	58,1
PERFORMANCE IN HOT WATER	kW	23,3	58,1
PERFORMANCE IN HEATING	%	91,4	92
PERFORMANCE IN HOT WATER	%	91,4	92
IGNITION METHOD		ELECTRICAL RESISTANCE	ELECTRICAL RESISTANCE
BURNER TYPE		GUN TYPE	GUN TYPE
HEATED SURFACE	m ²	3,5	8
GENERATION $\Delta t=25^{\circ}\text{C}$	l/min	13,3	33,3
HOT WATER $\Delta t=30^{\circ}\text{C}$	l/min	11,1	27,7
DOMESTIC $\Delta t=40^{\circ}\text{C}$	l/min	8,3	20,8
POWER SUPPLY	V/Hz	230V/50Hz	230V/50Hz
POWER CONSUMPTION (IGNITION/OPERATION)	W	500/150	500/160
CHIMNEY DIAMETER	mm	150	200
FUEL CONSUMPTION	kg/h	5,54	13,9
FUNNEL CAPACITY	kg	300	320
BOILER DIMENSIONS	L x W x H	607 X 780 X 1280	1150 X 1010 X 1430 <small>With burner</small>
TANK DIMENSIONS	L x W x H	700 X 772 X 1320	980 X 880 X 1380
HEATING BENEFITS CROSS SECTION	inches(A)	1"(25)	1" 1/4 (32)
HOT WATER SUPPLY CROSS SECTION	inches(A)	1/2"(15)	1/2"(15)
OVERFLOW	inches(A)	1"(25)	3/4" (20)
WEIGHT	kg	210	400