OCTAGON

USER GUIDE

Pellet Burner

Series Octagon

Models, bio 1 - bio 2

2 ½ ’’

CONTENTS

1. LETTER OF THANKS

Thank you for choosing the pellet burner of OCTAGON.

We would like to reassure you for the high quality of our product which we trust will fully satisfy your requirements.

OCTAGON will always be at your service maximizing the value of your purchase.

For a better future,

more sustainable,

more affordable.

Please read carefully the section under the heading "OPERATION OF THE BURNER" to ensure proper understanding of the operating principles of the pellet burner.

Management & Production of OCTAGON

2. INSTRUCTIONS FOR USE

The device can be used by persons over eighteen (18) years of age with full physical, neurological and mental capabilities and persons with no previous experience and skill or persons being trained for the use of the device but always under the supervision of person responsible for their safety.

Do not allow children to play with the device.

The cleaning of the device should not be done by children without the supervision of an adult.

3. BURNER'S OPERATING PRINCIPLES

First start

The pellet burner has predetermined configurations of maximum and minimum power rating by the manufacturer.

The authorized trained technician who will fire up the burner has the option – if necessary – to reduce the maximum power of the burner to fit the power of the boiler or a specific user's requirement.

Operation of the burner

First check

Once the start command is given by the user, the burner performs a series of checks to the whole system in order to ensure that all parameters permit its smooth and safe start.

To this effect the burner checks immediately a number of parameters e.g. the water temperature or the exhaust gas temperature. The values of all parameters should be within a predetermined and acceptable range as indicated by the manufacturer to enable start of the burner.

Combustion of the burner

After the controller performs the first check, the auger feeds the pellet burner with a specific quantity of pellet and ignition is generated with the use of an electrical heating element.

Burning

When the flame sensor "detects" - within a specific time frame - that the flame's intensity is sufficient then the pellet burner will proceed to the BURNING PHASE aiming to the maximum power level.

Should the flame sensor does not confirm the required intense of flame within the specific time frame then the starting process is stopped and an "error" notification is displayed which is accompanied with the code diagnosing the type of error (see §18 "Troubleshooting").

The innovation of Octagon pellet burner bio lies with two crucial elements relating to combustion:

a. The operation of the burner is totally proportional, within the predefined parameters, subject to automatic adjustment of the level of power (self adjustment). In this way the pellet burner will provide always the power required by the system and will achieve the maximum possible fuel economy
   And,
b. The pellet burner will control the burning process by the constant and excellent control of the boiler's backpressure and the chimney draft. The control of the fan ensures not only the extraction of the exhaust gas but mainly minimizes the possibility of "backfire" from the supply pipe.

Gradual reduction of combustion level

As soon as the burner achieves the predefined water temperature it will automatically reduce its power so as to remain functional within the set temperature range and below the upper safety limit. At this point the burner operates with the necessary, minimum power meeting the required thermal need.

END OF BURNING

The smooth termination of burning is achieved by ensuring the complete burning of any remaining fuel in the combustion chamber. This is achieved by continuous monitoring of the flame through the flame sensor which drives the fan that will continue to work in order to burn all residual pellets in the flame tube.

Thereafter, the fan continues at maximum speed for a period of time so as to clean the burning chamber from the ashes and preparing it for the next fire up.

4. BURNING PHASES

Everything described in the previous chapter, OPERATING PRINCIPLES, is outlined in the cycle below which is divided in four sections:

A. FIRE UP, yellow colour

The burner checks whether there is flame in the burning chamber, in case of a KEEP FIRE status, so as to offer the minimum required power to the system. Whatever the status of the burning chamber may be, the burner will proceed with full ignition of the fuel intensifying the flame until the threshold of burning phase is reached.

B. BURNING

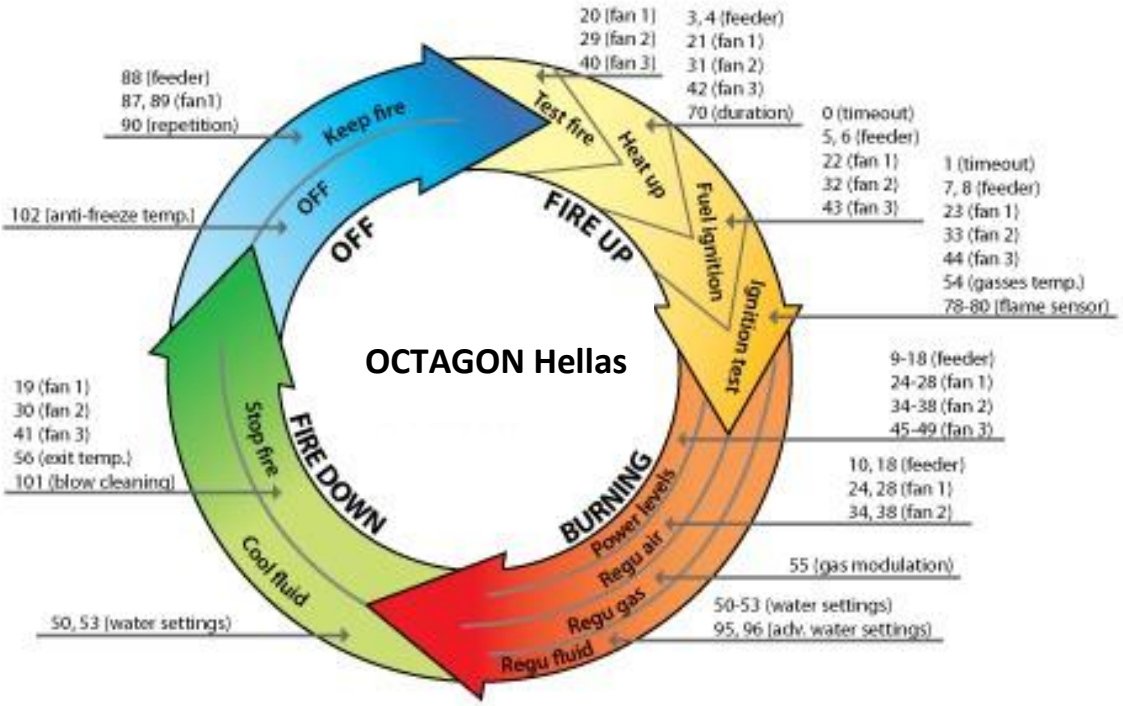
The power of the burner rises progressively whilst it performs constant checks to all parameters of the combustion in order to allow the maximum desired thermal performance with utmost economy.

C. FIRE DOWN

When the water temperature approaches the set threshold then the burner regulates POWER to achieve balance in the system. Gradually, the reduction in burning will lead the system to KEEP FIRE or OFF status.

D. KEEP FLAME OR OFF

The burner at this phase is put in stand-by mode either turned off or keeping the flame. In both cases it can be put back to FIRE UP status.



5. CHOOSING THE RIGHT BURNER

In order to make to right choice of burner - both technically and practically - you need to take under consideration certain basic parameters:

1. The burner is designed to burn wood pellets ONLY. The use of any other type of pellet such as agro-pellets (pellet made of agricultural by-products) without the approval of the manufacturer is explicitly prohibited.
2. Make sure that your boiler is designed to burn pellets. The manufacturer of the boiler will indicate the appropriate type of fuel and will provide relevant information for proper combustion including the following:
   - Output power for the particular fuel. This should be equal to or less than the maximum rated power of the burner as indicated on the name plate of the burner.
   - Minimum chimney draft.
   - Regulation of the burner's damper.
   - Exhaust gas temperature.
3. Additionally, please note that:
   - The minimum capacity of the combustion chamber should be 0,06 m^3 in respect of models bio 2 and 1 and 0,12 m^3 in respect of model bio 3 in order to achieve the maximum power of the burners.
   - For the unhindered opening of the boiler door both the door and the burning chamber of the boiler should have minimum width as follows:
     - Thirty (30) cm in respect of model bio 2
     - Forty (40) cm in respect of model bio 3
   - The minimum length of the burning chamber should be:
     - Forty (40) cm in respect of model bio 2
     - Fifty two (52) cm in respect of model bio 3

     The length of the flame should be at least five (5) cm below the above mentioned values.
   - The space in front of the boiler should be free in an arc 90° towards the same direction to which the door opens and at a distance of at least a hundred (100) cm to ensure unhindered door opening when necessary.
   - The burner should be installed ONLY in horizontal position.

POINTS TO REMEMBER

The technician responsible for the installation and the first fire up of your burner is obliged to provide you with a "Combustion Certificate" which includes the following:

- ✓ The type of the burner
- ✓ The type of the boiler
- ✓ The exhaust gas temperature
- ✓ The content in CO and CO2.

6. SAFETY RULES

The pellet burner is an electric/electronic device that operates with 230 V – 50 HZ. According to applicable legislation its installation, connection, regulation, operation and service should be done by trained personnel authorized by the local authorities.

It is expressly forbidden for anyone to modify parameters of 2nd level of configuration except for trained licensed technicians.

The private individual and end user of the pellet burner may operate and adjust the burner ONLY in so far as the basic commands of the burner are concerned and ONLY using the display and programming touch screen situated on the metal casing of the pellet burner.

6.1. SAFETY INSTALLATION INSTRUCTIONS TO LICENSED TECHNICIANS

Please ensure that the boiler standards comply with applicable legislation. The boiler must be connected with the hydraulic system and the chimney.

Measure the chimney draft and make sure that it is in line with the requirements of the manufacturer of the boiler.

Please adhere to all instructions concerning start up and make sure to use only approved and certified materials.

Never open the door of the boiler while the burner is in operation.

ATTENTION
Always ensure that the boiler's flame damper is open to allow optimum level of draft.
NEVER fire up the burner when the flame damper is closed as there is serious DANGER of the flame returning to the burner.

The burner conforms to European Directive EN 15270 and is CE marked.

7. PACKAGE

The pellet burner will be packed in hard cardboard box of dimensions 60 cm X 40 cm X 40 cm (Length / Width / Height) and will bear an adhesive label showing the model of the burner as follows:

Model

bio 2

Special care is given to the packing of the burner to make sure that it will be delivered to you safely and free of any damage. The product is wrapped in thick polystyrene sheets and placed in a plastic bag.

ALWAYS STORE THE PACKED PELLET BURNER IN CORRECT HORIZONTAL POSITION AWAY FROM MOISTURE.

7.1 PACKAGE CONTENTS

Each package contains:

- A user guide manual with information in respect of installation, operation and maintenance.
- A burner with its metal casing and the display screen, connected with its stainless steel burning chamber.
- A stainless steel pipe 2” for the feeding of the fuel.
- A certificate of quality control including the date of production of the burner at the last part of the manual.

The auger is supplied together with each burner.

FOR SAFETY REASONS THE DISPLAY SCREEN IS NOT CONNECTED TO THE ELECTRONIC CONTROL UNIT OF THE BURNER. THE CONNECTION SHOULD BE EXECUTED BY THE LICENSED TECHNICIAN.

DO NOT FORGET TO CHECK THAT ALL PARTS OF THE BURNER ARE FIRMLY CONNECTED.

7.2 PELLET BURNER PARTS

The pellet burner consists of the following parts:

1) A steel metallic casing electrostatically painted (green).
2) An electronic display and programming touch screen.
3) A connection cable of the screen to the central control unit.
4) A stainless steel frame body with flange for fixing the burner to the boiler.
5) One (1) centrifugal fan of 40 W.
6) An electronic central control unit (plc).
7) An electric heating element of 250 W.
8) A flame sensor.
9) Electric connector.
10) A stainless steel feeding tube 2” with insulating flange.
11) A bimetallic contact thermostat, STB, with manual reset placed in the 2” stainless steel feed tube.
12) Three (3) cable glands for the accommodation of the connection cables.
13) A high heat resistant stainless steel flame tube for the combustion of the fuel.
14) A high heat resistant stainless steel combustion rack.
15) A screw to hold the rack.
16) A mineral insulation of twenty five (25) mm for the flange.
17) Internal insulation of five (5) mm for the flame tube to the casing.
18) A boiler water temperature sensor.
19) An exhaust gas temperature sensor.

- A metallic auger moving the pellets from the fuel tank to the burner via electric motor of 50 W.
  This is packed with a polyurethane flex hose to be connected with the stainless steel feeding tube.

8. SPARE PARTS

The table herebelow contains a list of spare parts of a pellet burner by OCTAGON HELLAS including relevant reference numbers. The reference number should be quoted when an order is placed.

REFERENCE NUMBER	DESCRIPTION OF SPARE PART
M001-1001-1	Steel casing of pellet burner bio 2
M001-1001-2	Steel casing of pellet burner bio 3
D100-1100-1	Electronic touch screen LCD
D100-1200-1	Connection cable of screen to the central control unit 1 m.
D100-1200-2	Connection cable of screen to the central control unit 2,5 - 5 m.
D100-1300-1	Wall mounted stainless frame for touch screen
P100-1021-1	Plastic frame for touch screen
M001-1100-0	Auger set series OCTAGON , 2 1.2''
M001-1100-1	Auger set series OCTAGON , 3''
M001-1400-1	Steel casing for auger motor bio2 & bio3
P100-1011-1	PU flex hose feeding pellet 60 mm (diameter) per m
E100-1110-10	Auger motor series OCTAGON
E100-1030-1	Cable set for auger
A100-1001-1	High heat resistant stainless steel flame tube for bio 2
A100-1001-2	High heat resistant stainless steel flame tube for bio 3
A100-1011-1	High heat resistant grate for bio 2
A100-1011-2	High heat resistant grate for bio 3
A100-1021-1	Mineral insulation for the flange 25 mm (thickness) for bio 2
A100-1021-2	Mineral insulation for the flange 25 mm (thickness) for bio 3
F100-0101-2	Internal insulation gasket for flame tube 5 mm for bio 2
F100-0101-2	Internal insulation gasket for flame tube 5 mm for bio 3
A100-1101-1	Stainless steel flanged feeding tube 2''
F100-0101-1	Insulating flange for stainless steel feeding tube 2''

S100-1001-1	Flame sensor BRAHMA , FC 8R
S100-1010-1	Electric heating element 250 W
S100-1020-1	Boiler water temperature sensor
S100-1030-1	Exhaust flue gas temperature sensor 1,5 m (length)
S100-1030-2	Exhaust flue gas temperature sensor 3 m (length)
S100-1050-1	Bimetallic contact thermostat with manual reset, STB , for the 2''stainless steel feeding tube
E100-1110-11	Fan with flange series OCTAGON 40 W
D100-1001-1	Electronic central control unit (plc)

9. BURNER FUEL

The pellet burners of OCTAGON, are designed to burn wood pellets.

The pellets are very small chips of wood along with other logging residues which are compressed mechanically in order to take a cylindrical shape of around 6 - 8 mm diameter and less than 40 mm of length.

The type of wood used in this process as well as the percentage that each wood contributes to the final mixture will determine a number of important parameters including the following:

- Thermal output (heating power as a value of kW/kg or Kcal/kg or KJ/kg)
- Combustion quality (rate of solid residues of burning process)
- Cost per kg

The correct regulation of the combustion air in the pellet burner minimizes ash content and maximizes thermal output. The acceptable rate of ash content is specified by EN 14961-1 (Chapter 7.1, page 14).

It is very important for the proper functioning of the burner as well as fuel economy that the pellet burner to be fed with certified wood pellet that conforms to European standards and be supplied from producers who are well established in the market.

The thermal power of wood pellets must be in excess of 4,6 kW/kg so that the final result should satisfy all the parameters of proper combustion together with your expectations in economy.

DO NOT BUY WOOD PELLETS OF UNKNOWN ORIGIN AND QUALITY.

IT IS TO YOUR BEST INTEREST TO USE ALWAYS THE BEST QUALITY OF PELLETS.

9.1 TECHNICAL CHARACTERISTICS OF WOOD PELLET ACCORDING EN 14961-1

The European standard EN 14961-1, which specifies the technical characteristics of wood pellets, has not yet been finalized. Upon completion it will become mandatory to all European Union member states. As at today (September 2012) every member state has its own standards.

SIZE	MEASUREMENT UNIT	VALUE
DIAMETER	mm	6 - 8
LENGTH	mm	3,15 - 40
DENSITY	kg/m^3	≥ 600
FINES	w-% dry	≤ 1
MOISTURE CONTENT	w-% dry	≤ 10
ASH CONTENT	w-% dry	≤ 0,7
THERMAL POWER	MJ/kg	16,5 - 19
Sulphur	w-% dry	≤ 0,03
Nitrogen	w-% dry	≤ 0,3
Chlorine	w-% dry	≤ 0,02
Arsenic	mg/kg	≤ 1
Cadmium	mg/kg	≤ 0,5
Chrome	mg/kg	≤ 10
Copper	mg/kg	≤ 10
Mercury	mg/kg	≤ 0,1
Lead	mg/kg	≤ 10
Zinc	mg/kg	≤ 100
Nickel	mg/kg	≤ 10
Additives	%	≤ 2

10. FUEL FEEDING - AUGER

The feeding of the pellet burner is achieved using a metal auger which rotates via a motor and transfers pellet from the fuel tank to the burner.

Between the feeder and the inox feeding tube of the burner, a polyurethane flex hose is used. Relevant hose is flame retardant for safety reasons in case of gases and flames return from the combustion chamber through the inox feeding tube to the fuel tank (reverse path). In this case the tube will melt by the high temperature creating a disruption of the gases direction from the burner to the fuel tank.

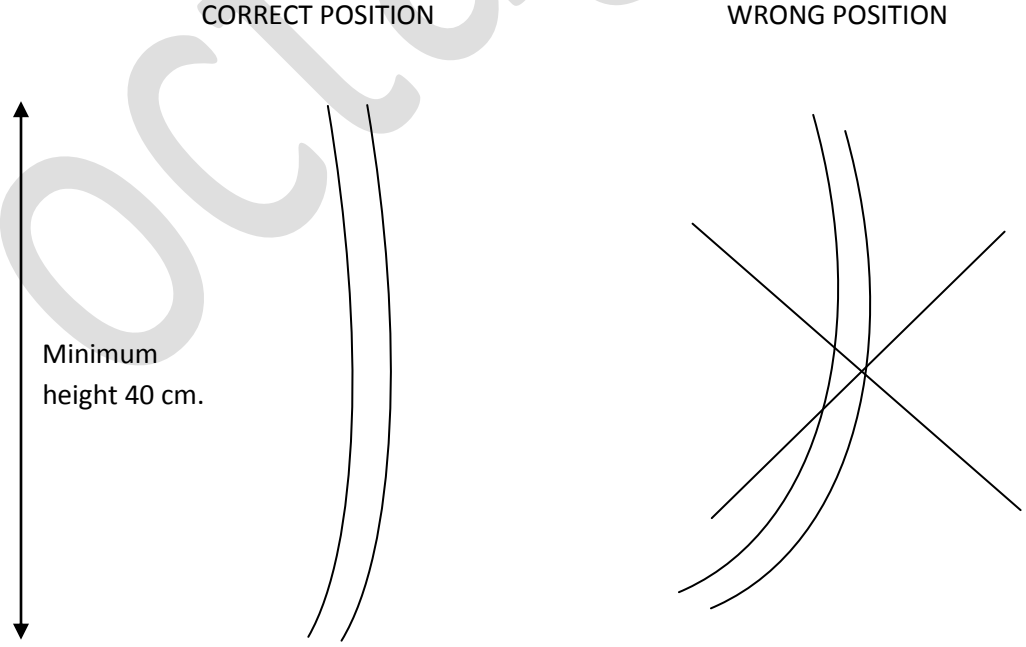
The slope of the auger should be within the range of 40 - 45 degrees.

Relevant slopes are achieved by OCTAGON fuel tanks of 200 and 350 litres. In case of different slope please contact the manufacturer for instructions as this will interfere with the proper supply of the fuel.

Never leave the fuel tank without pellets as then you will be required to fill the auger manually (see §15.2.6 “Filling the auger”).

MAKE SURE THAT THE PLASTIC PIPE IS OUTSTRETCHED WITHOUT CURVES

THE OPERATION OF THE BURNER MAY BE INTERRUPTED



11. FUEL TANK

The fuel tank plays an important role in the proper and undisturbed feeding of the burner. OCTAGON has designed a fuel tank - with special interior - that fully meets the requirements of the burner by ensuring steady and safe operation of the auger and allowing maximum utilization of the stored pellets.

DO NOT USE HOMEMADE FUEL TANKS
AS THIS WILL JEOPARDIZE
THE PROPER OPERATION AND FEEDING OF THE BURNER

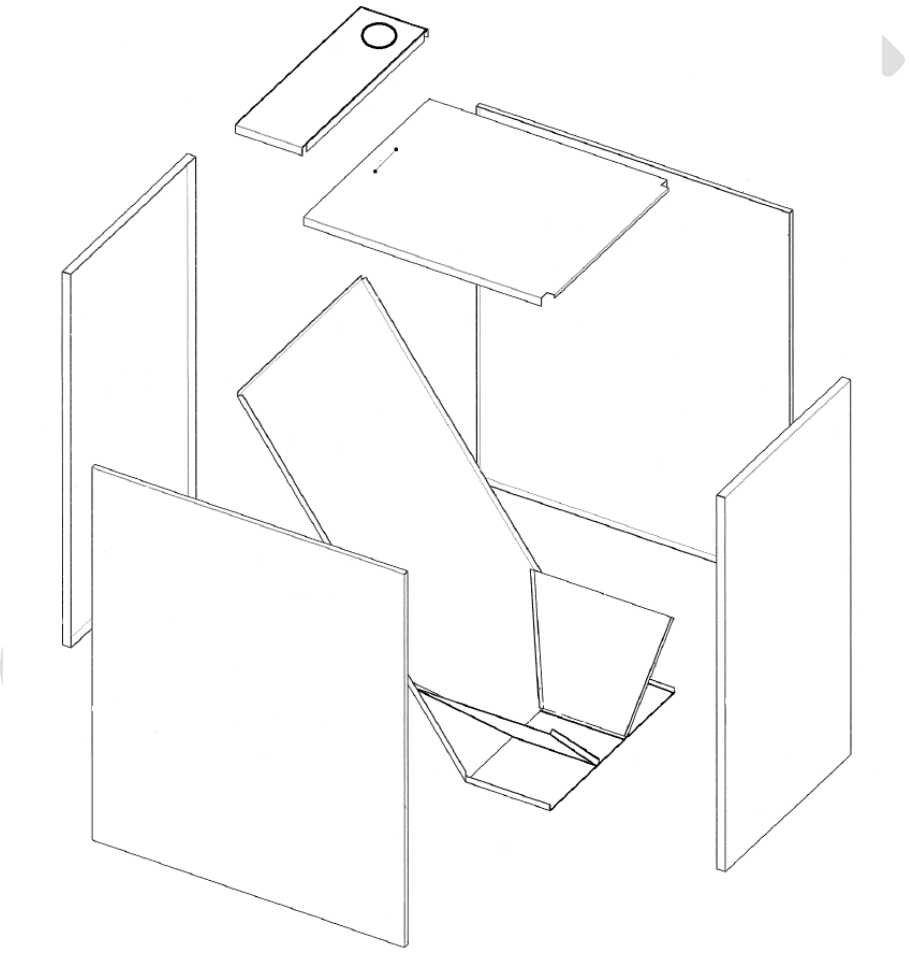


Diagram of fuel tank of 200 liters (usable volume)

12. BURNER INSTALLATION

12.1 INSTALLATION STEPS

1. Ensure that the boiler room is in line with local regulations paying special attention to ventilation.
2. Ensure that the boiler is connected to the hydraulic network and that the exhaust flue gas system is tightly connected.
3. Measure the chimney draft and make sure that it complies with the “minimum chimney draft” according to the manufacturer of the boiler.
4. Secure the flame damper of the boiler (if any) to the proper position.

Only after having satisfied the above terms you may proceed with burner installation.

5. Remove the steel metallic casing of the burner including the display screen.
6. Ensure that the burning chamber of the burner is tightly connected to the flange of the burner. If required, please tighten the screws.
7. Tighten the stainless steel flange of the burner against the door of the boiler.
8. Place the stainless steel feeding tube with the flange and tighten it.
9. Place the sensors of the burner:
   - Exhaust gas sensor to the flue duct connecting the boiler with the chimney
   - Boiler water temperature sensor
   - Other sensors
   - Bimetallic contact thermostat to the stainless steel feeding tube
10. Make electrical connections of the burner (see §13 “Electrical installation – Sensors”)
11. Fill the auger with pellets (see §15.2.6 “Filling the auger”)
12. Connect the flex hose feeding the pellets.
13. Connect the cable of the display screen with the electronic part of the burner.
14. Place and screw tightly the metal casing of the burner.

YOUR BURNER IS READY TO START UP

The burner regulates on its own both primary and secondary air required for the burning process.

13. ELECTRICAL INSTALLATION – SENSORS

The electrical connections of the burner as well as the adjustment of the burner are only allowed to trained licensed technicians for safety reasons. The safety electric connector of the burner has twelve (12) numbered connections.

As soon as all cables pass through the corresponding cable glands then cables should be connected as follows:

CONNECTION 1	POWER SUPPLY - Phase 230 V AC – 50 Hz (Live). The polarity of the current is very important and this connection should be connected with the phase of the current otherwise there will be a malfunction and/or damage to the electronic board.
CONNECTION 2	POWER SUPPLY - Neutral
CONNECTIONS 3 -4	AUGER.
CONNECTIONS 5 – 6	WATER PUMP. The current intensity of the water pump should not exceed 0,7 A otherwise, an electrical relay should be inserted.
CONNECTIONS 7 - 8	**EXTERNAL THERMOSTAT (Dry contact)**
CONNECTIONS 9 - 10	SAFETY SWITCH (water's safety thermostat)

The connections 11 and 12 will remain unused for future connections with peripheral devices to the burner.

Install the connection line of the burner to a general switch so that the poles of the current (L&N) can be disconnected should this be required.

CAUTION

THE EXTERNAL COMMAND OF THE BURNER (THERMOSTAT, AUTONOMY TABLE) IS DRY CONTACT. IN CASE OF CURRENT (230 V) YOU HAVE TO INSERT AN ELECTRICAL RELAY

SENSORS

BLACK PLASTIC = BOILER WATER TEMPERATURE SENSOR

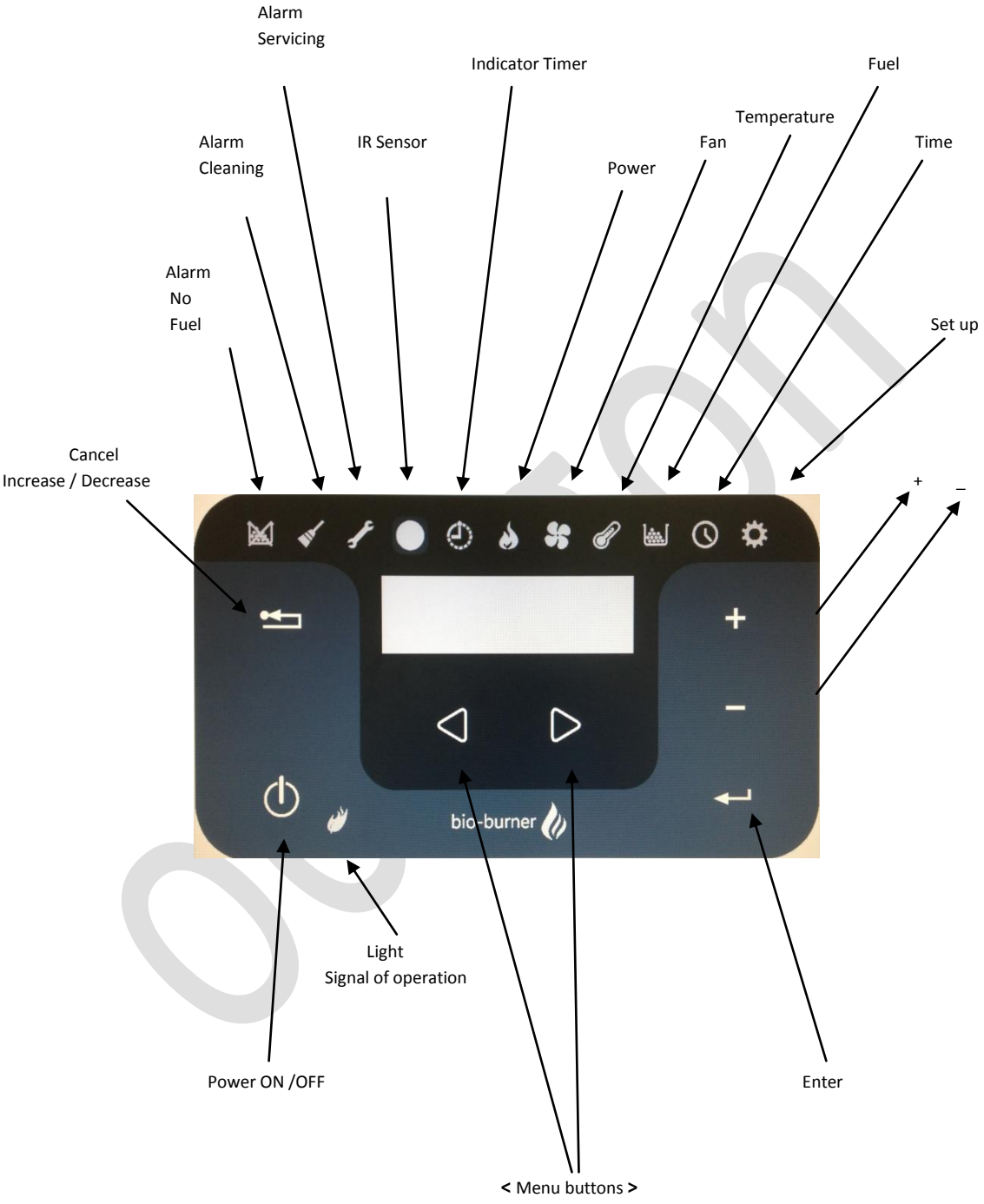
Put some thermal oil in the boiler thermometer pocket to achieve thermal conductivity.

SILVER METALLIC = CHIMNEY SENSOR

Secure the sensor to the flue with aluminum tape or high temperature silicon.

14. BURNER DISPLAY SCREEN

KEYBOARD BUTTONS AND DISPLAY SYMBOLS



15. 1ST LEVEL - CONFIGURATION OF THE BURNER

The 1st level of configuration is user friendly and easily accessible to the end user of the burner. This configuration mainly introduces the end user to basic information of the device and allows him to modify settings such as time or screen brightness.

15.1 DISPLAY SYMBOLS AND KEYBOARD BUTTONS

DISPLAY SYMBOLS

At the top of the display screen there are a number of symbols which indicate the basic functions of the burner (Image No. 1, page 21).

The symbols are displayed in three colours:
GREEN indicating FUNCTION
RED indicating ERROR
ORANGE indicating SETTING FUNCTION

MENU < > command allows us to choose one of the "basic functions" of the burner (1st level of configuration and operation). All basic functions are displayed in green colour in the following order from left to right:

POWER is displayed by a "flame" symbol and the screen indicates AUTO which means that the burner is operating automatically and proportionally in accordance with its settings.

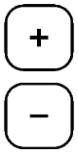
TEMPERATURE is displayed by a "thermometer" symbol and the screen indicates the temperature of the boiler water in °C (Celsius scale) at all times

FUEL is displayed by an "open container" symbol and the screen indicates the category of pellet with which the burner operates i.e. 1, 2 ή 3.

TIME is displayed by a “clock” symbol and the screen indicates the current time in hours and minutes i.e. 13:12.

PROGRAMMING is displayed by a “gear” symbol and the screen indicates OFF.
The programming belongs to the 2nd level of configuration of the pellet.

DESCRIPTION OF KEYBOARD BUTTONS

BUTTON	DESCRIPTION
	Power ON/OFF button is used for turning the combustion system on or off. Press and hold the button for one (1) second.
	Menu buttons are used for navigating the first level menu context. The currently selected menu context is indicated with the corresponding icon at the top. In addition, these buttons are used in the edit mode.
	Edit buttons are used for navigating the submenus and increasing / decreasing values in the edit mode, when the selected value blinks.
	Enter button is used for entering the edit mode and confirming the set values, or selecting the additional submenus.
	Cancel button is used for discarding the changes and returning up one level in the menu. If you press and h old this button for more than three (3) seconds, the last error or alert code is displayed.

The advanced keyboard of bio-burner is also equipped with the beeper, which provides the keyboard feedback signals. The following sound signals are available:

- Short high tone: sounds when navigating the menu and editing the settings
- Long low tone: sounds in case of an invalid operation (wrong button pressed)
- Long high tone: in case of and alert, this tone sounds with the user defined loudness, and in case of an error, this tone sounds with 100% loudness. For description of alerts and errors, refer to §18 “Troubleshooting”.

15.2 BASIC CONFIGURATION OF BURNER

After the electric connection is made you may proceed with the installation of the burner. By keeping the button ON / OFF pressed for one (1) second the indication ON will be displayed on the screen and the burner will automatically begin operation. This means that the burner will proceed to the phase “FIRE UP”.

15.2.1 POWER RATING 

The burner has been set by the manufacturer to work automatically (i.e. analog power control) at maximum power of 35 kW/h and 70 kW/h in respect of bio 2 and bio 3 respectively.
Additionally, there is the option to operate the burner at a different power rating but relevant adjustment can only be performed by a licensed technician using the 2nd level of configuration. (see §15.2.5 “Programming”).

The burner could also operate at all times at a user defined (NOT analog) power rating through appropriate adjustment at 1st level of configuration. The minimum and maximum power rating together with intermediate values, as defined by the manufacturer, are included in the table below:

POWER	bio 2	bio 3
P5 (Max)	35 kW/h	70 kW/h
P4	28 kW/h	56 kW/h
P3	21 kW/h	42 kW/h
P2	15 kW/h	27 kW/h
P1 (Min)	8 kW/h	12 kW/h

If you wish to reduce the maximum power rating of the burner by removing its analog feature then you should follow the next steps:

- Navigate through the MENU button < > to the POWER (flame symbol).
- Press ENTER. The indication AUTO will appear on the screen blinking.
- Press the EDIT buttons +, - to choose the desired power rating, 4, 3, 2, ή 1.
- Press ENTER to set the desired power rating. The command will be stored and the selected power rating will be displayed on the screen.

15.2.2 BOILER WATER TEMPERATURE 

- Navigate through the MENU button < > to the TEMPERATURE (thermometer symbol).
- PRESS ENTER. The screen will show the predefined boiler water temperature.
- Press the EDIT buttons +, - to choose the desired boiler water temperature.
- Press ENTER to set the desired boiler water temperature. The command will be stored and you can move on.

15.2.3 FUEL 

The FUEL button indicates the category of the pellet that bio burner is adjusted to.
The categories of the pellet are three (3) :
Category 1: Pellet with thermal power 5,4 kW/kg
Category 2: Pellet with thermal power 5 kW/kg
Category 3: Pellet with thermal power 4,6 kW/kg

All burners of OCTAGON HELLAS are initially adjusted to pellet Category 2

If you wish to change category pellet then:

- Navigate through the MENU button < > to the FUEL (open container symbol).
- Press ENTER. The number indicating the current pellet category will appear on the screen blinking.
- Press EDIT buttons +, - to choose the desired category.
- Press ENTER to set the desired pellet category. The command will be stored and the selected pellet category will be displayed on the screen.

The burner will adjust the AUGER and FAN to the new parameters automatically.
You simply need to define the pellet category in use.

15.2.4 TIME 

- Navigate through the MENU button < > to the TIME (clock symbol).
- Press ENTER. The indication 00:00 will appear on the screen. The first part will be blinking.
- Press the EDIT buttons +, - to insert the time in hours (0 to 24).
- Press the Menu button < > to move to the second part.
- Press the EDIT buttons +, - to insert the time in minutes (0 to 60).
- Press ENTER to set the time. The command will be stored and you can move on.

15.2.5 PROGRAMMING 

The programming has thirteen (13) submenus. These are:

1	OFF, useful only to the technician. (Always set to OFF).
2	SCREEN BRIGHTNESS (1 to 5)
3	CHANGING DISPLAY STATUS OF LCD SCREEN Press 1 for continuous rotation of display values Press 2 for screen display of boiler water temperature Press 3 for screen display of the time / water temperature
4	BEEPER VOLUME
5	HARDWARE TYPE AND SCREEN, useful only to the technician.
6	MANUAL ACTIVATION OF AUGER A particularly useful command for the filling of auger with fuel either at first start up or after emptying the fuel tank.
7	UNLOCK OF PROGRAMMING to new parameter settings This is ONLY allowed to a qualified licensed technician giving him access to modify predefined settings No 8 to 13
8	SYSTEM PARAMETERS e.g. fan speed
9	d In , to be adjusted only with manufacturer's approval
10	A In, display of sensors' current values (see §16.1.2)
11	DIGITAL OUTPUT, to be adjusted only with manufacturer's approval
12	STATISTICS OF BURNER'S USE (manufacturer)
13	ERROR LOG REPORT (manufacturer)

- Navigate through the MENU button < > to the PROGRAMMING (gear symbol).
  The indication OFF will appear on the screen.
- Press EDIT buttons +, - to choose the setting you wish to modify e.g. [2]* and press ENTER.
  A number indicating the screen brightness e.g. 3 will appear on the screen.
- Press EDIT buttons +, - to choose the desired brightness and press ENTER.

The end user is only allowed to modify parameter settings 2, 3, 4 and 6 at the 1st level of configuration of the burner.

15.2.6 FILLING THE AUGER

The filling of the auger is performed after you have first disconnected the flex hose from the stainless steel tube of the burner and place a bucket to its end to collect the outgoing pellets. Those pellets can be placed back to the fuel tank once you have finished.

- Navigate through the MENU button < > to the PROGRAMMING (gear symbol).
  The indication OFF will appear on the screen.
- Press the EDIT buttons +, - to go to number [6] and press ENTER.
- The screen will display horizontal dots - - - - .
- Keep ENTER button pressed constantly while the dots are blinking.
- The auger starts to operate and transfers the pellets to the burning chamber. The duration of this operation is approx. 30 seconds (30''). On completion of the operation the auger stops and OFF indication appears on the screen. This process is repeated one more time by keeping the ENTER button pressed and wait for another thirty seconds (30''). This will ensure that auger has been filled successfully.
- When OFF indication appears on the screen again you can move on.

To make sure that the auger has been fully loaded with pellet please fill in the fuel tank with minimum three (3) bags of pellet (45 kg in total) and activate the auger for at least ten (30) minutes.

16. 2nd LEVEL - CONFIGURATION OF THE BURNER

The 2nd level of configuration of the burner is ONLY allowable to trained licensed technicians. Access to this level of configuration is strictly forbidden to end users as there is a serious risk of deregulation of the burner.

16.1 ACCESS TO PROGRAMMING

- Navigate through the MENU button < > to the PROGRAMMING (gear symbol).
  The indication OFF will appear on the screen.
  When indication OFF appears on the screen and you press ENTER then the indication OFF will start blinking.
  Press EDIT buttons +, - to move to indications Hi or Lo.
  Hi: enables deactivation of ON/OFF button
  Lo: enables deactivation of ENTER button
  Above options are used only by the service personnel in case of cleaning the screen and/or keyboard of the burner etc.
- Press once any of the EDIT buttons +, - a number in brackets will appear on the screen e.g. [2]
- Press the EDIT button + to go to number [7] and press ENTER.
- A four (4) digit number will appear. Add up the four digits plus one e.g. number [2025] = = 9 +1 = 10 and press ENTER.
- Press EDIT buttons +, - to insert the sum (in our example above the sum is 10) and press ENTER. The ON indication will appear on the screen.

Now you have full access to the 2nd configuration level including the parameter settings of burning allowable by the manufacturer.

- Press EDIT buttons +, - go to number [8] and press ENTER. When “Par” indication appears on the screen press ENTER. The screen will display P 000.
- Press the EDIT buttons+, - to insert the code of the parameter you wish to change e.g. number 28 refers to the Fan speed 5 (max. speed).
- Press ENTER. The screen will display a blinking number e.g. 155 indicating the fan speed.
- Press the EDIT buttons+, - to choose the new fan speed e.g. 156 and press ENTER. The new fan speed 5 will be 156 i.e. higher than the previous setting.

See Table of parameters in Table 2, §19.2

16.1.2. DISPLAY OF INDIVIDUAL PARAMETERS OF COMBUSTION REGULATION

The screen provides us with information on the current values of the various parameters.
It is particularly useful during the first fire up and when you wish to perform a system check.

- Repeat steps detailed in previous section to go to setting number 10 and press ENTER.
- Press EDIT buttons +, - to display values for the following parameters:

t 03, EXHAUST GAS TEMPERATURE

t 04, for the manufacturer

t 01, BOILER WATER TEMPERATURE

t 02, for the manufacturer

t 05, for the manufacturer

F 01, FUEL TANK SENSOR (if any)

Press, BURNING CHAMBER PRESSURE SENSOR (BURNING CHAMBER DRAFT)

17. POWER ADJUSTMENT OF BURNER

Before you change the maximum power of the burner you should first understand its analog function and as an example we will look into the operation of model bio 2 of maximum power (P5), nominal power 35 kW/h and minimum power (P1) of 8 kW/h.
In analog power the intermediate power ratings P2, P3, P4 are automatically defined in such a way that the distance between two consecutive power ratings is always equal.
The minimum power P1 remains unchanged, unless you wish to modify it.

E.g. When you wish to reduce power rating from 35 down to 32 kW/h , the burner will automatically redefine the remaining three (3) power ratings by calculating the distance of the "step" the as follows = (32-8)/4 = 6
In the above example the power ratings are redefined as follows:

P5 = 32 kW/h (new default value)
P4 = 26 kW/h
P3 = 20 kW/h
P2 = 14 kW/h
P1 = 8 kW/h

POWER REDUCTION

In order to reduce the power of the burner you should also redefine the values of the AUGER and FAN at maximum power 5. To this effect you need to consult two tables:

- TABLE 2, TABLE OF PARAMETERS (see §19.2) for selection of the parameter to be modified
- TABLE 1, CONFIGURATION VALUES, AUGER-FAN WITH PELLETS OF CATEGORY 2 (see §19.1) for reference values of the AUGER and FAN.

The parameter that defines the AUGER at POWER 5 is No. 18,
Whereas,
The parameter that defines the FAN at POWER 5 is No. 28.

After unlocking and accessing the PROGRAMMING (see §16.1) the ON indication will appear on the screen.

- Press EDIT buttons +, - go to number [8] and press ENTER. When "Par" indication appears on the screen press ENTER. The screen will display P 000.
- Press the EDIT buttons+, - to insert the code of the parameter you wish to change e.g. number 28 refers to the Fan speed 5 (max. speed).
- Press ENTER. The screen will display a blinking number e.g. 145 indicating the fan speed.
- Press the EDIT buttons+, - to choose the new fan speed e.g. 138 and press ENTER. The new fan speed 5 will be 138 i.e. lower than the previous setting.

  In the same way you may redefine the value of AUGER in order to operate the burner at a default power rating.

The values of the fan in TABLE 1 (see §19.1) are indicative and may need to be revised by you.

Each system “burner -boiler-chimney” has its own characteristics and it might require new adjustments of fan values. The shortage of air fan may cause - in addition to poor combustion – an overload of fuel in the burner’s flame tube and malfunction of the whole system.

To avoid this situation ALWAYS use flue gas measuring instruments at first fire up of the burner.

18. TROUBLESHOOTING

The keyboard of the burner provides notifications and warnings for alerts and errors, which can occur during operation. The alarm icons indicate a problem. An alert notification is indicated with the blinking icons, errors are indicated with continuously lit icons. In case of an alert, the combustion system is still operational, in case of an error the combustion system is seriously malfunctioning and the service personnel should be contacted.

Each alert and error has a code, which can be used to identify the problem. To display the code, press and hold the Escape button. In case there is no information on the alert/error code, the display shows:

CODE	INDICATION	CAUSE / SOLUTION
A001	**Icon NO FUEL is blinking**	Refill the fuel container.
	Icon NO FUEL is on	A. Shortage of fuel in the fuel container. B. Improper fuel (high humidity), C. Wrong installation of auger.
A002	**Icons of CLEANING and SERVICE blinking simultaneously**	Time to service is up. Call service personnel for maintenance of the burner.
A003	**Icon CLEANING is blinking or on**	The burning chamber or chimney are dirty and require cleaning.
A004	**Icon SERVICE is on**	Call service personnel to change the battery as it is getting low. The burner is still operational.
A005	**Icon SERVICE is blinking**	The fan sensor malfunctioned. Call the service personnel.
A006	**Icons NO FUEL and SERVICE are blinking**	Burning chamber or fuel container door is open. Check and close the burning chamber or fuel container door
A007	**Icon SERVICE is blinking**	The pressure sensor malfunctioned. Call the service personnel.

18.1 ADDITIONAL ERROR NOTIFICATIONS

Indication: Icon SERVICE is on
The combustion system malfunctioned and is not operational.
This can be due to:

- Code E001: Keyboard error
- Code E002: IR communication error
- Code E003: RF communication error
- Code E004: MB communication error
- Code E101: Fire error or water overtemperature
- Code E105: NTC2 error
- Code E106: NTC3 error
- Code E107: TC2 error
- Code E108: Security switch error (STB safety thermostat is triggered, press to reset)
- Code E109: Pressure switch error (safety switch between contacts 9 – 10 is triggered)
- Code E110: NTC1 error
- Code E111: TC1 error
- Code E112: Fuel overtemperature
- Code E115: General error

Solution: Note the error code and contact the service personnel

During power supply fail, the settings of the burner remain active due to internal battery.

In case of a power supply failure internal electronics operate as follows:

DURATION OF POWER SUPPLY FAILURE	OPERATION BEFORE THE POWER SUPPLY FAILURE	OPERATION AFTER THE POWER SUPPLY FAILURE
LESS THAN TWO (2) MINUTES	FIRE UP PHASE	The burner continues normally.
	BURNING PHASE	The burner checks the air / water temperature and continues in the BURNING PHASE, or restarts in the FIRE UP phase.
	OFF	OFF
MORE THAN TWO (2) MINUTES	FIRE UP PHASE	The burner continues normally.
	BURNING PHASE	The burner checks the flue gases temperature. If the flue gases temperature dropped below predefined value of PARAMETER 56, the combustion system restarts in the FIRE UP phase, otherwise it continues in the BURNING phase.
	OFF	OFF

19. TABLES

19.1 TABLE 1 2 1/2''

CONFIGURATION VALUES, AUGER-FAN WITH PELLETS OF CATEGORY 2, HEATING POWER = 5 kW/kg

200 gr/min

AUGER 2 ½"
ANGLE 50o

POWER	**ON AUGGER VALUE**	**FAN VALUE**
	5	**Models**
kW/h	**Kw*h/kg**	**bio 1 -bio 2**
8	16	**98**
9	18	100
10	20	101
11	22	103
12	24	105
13	26	107
14	28	108
15	30	110
16	32	112
17	34	114
18	36	115
19	38	117
20	40	119
21	42	121
22	44	122
23	46	124
24	48	126
25	50	128
26	52	129
27	54	131
28	56	133
29	58	135
30	60	136
31	62	138
32	64	140
33	66	142
34	68	143
35	70	**145**

If you are using pellet of a different category to that of the burner, you should make the appropriate selection using the display and programming touch screen.

The burner will AUTOMATICALLY adjust the necessary parameters in line with the selected category of the pellet.

Ensure that fan is operating at the correct speed using measurement instruments.

19.2. TABLE 2

TABLE OF PARAMETERS

In so far as the 2nd level of configuration is concerned access to the parameters included in the table below is allowed. The remaining parameters belong to 3rd level of configuration and can be modified only in liaison with and subject to agreement of the manufacturer.

PARAMETER	DESCRIPTION	INDICATIVE VALUE OF PARAMETER bio 2
3	Heat Up Phase Feeder OFF Time: 0,5''second	5
4	Heat Up Phase Feeder ON Time: 11,5'' seconds	115
10	Power 1 = Feeder ON	12
18	Power 5 = Feeder ON	38
19	Fan Speed in FIRE STOP sequence	97
20	Fan speed in TEST FIRE sequence	98
24	Fan speed at POWER 1	95
28	Fan speed at POWER 5	145
50	Difference of degrees at start up of burner (51-50)	5
51	Desired Water / Air Temperature of boiler water	75
53	Safety limit of boiler water temperature (51+53)*	5
67	Water pump turn ON temperature in (^{o}C).	35
68	Water pump turn OFF temperature in (^{o}C).	30
70	Heat Up sequence duration (in seconds)	55
92	Defines one of the three pellets fuel quality types	2

IMPORTANT

If the boiler water temperature exceeds the safety limit set (sum of parameters 51 and 53 plus 1 ^{o}C) for more than one (1) minute the burner will automatically switch to FIRE STOP phase.

20. MAINTENANCE AND CHECKS TO BE PERFORMED BY END USER

As with all electronic devices, the burner also requires maintenance and cleaning service annually in order to ensure long term operability as well as optimum fuel economy. Do not neglect the annual service, it is possible that malfunctions may go unnoticed for several time leading to fuel wastage and costly damages.

WEEKLY CLEANING

The end user has also the obligation to inspect frequently the combustion system and keep both the boiler and the flame tube of the burner clean from ashes and combustion residues. The frequency shall be determined empirically since each system or type of pellet produces different wastage in solid form (ashes etc). We recommend that cleaning be performed at least twice (2) a week in the beginning. During these weekly cleanings you should:

A. Remove all ashes from the interior of the boiler as well as the exhaust gas outgoing routes using a special brush.
B. First unscrew the bolt holding the combustion grate and then remove it cleaning any ashes and solid combustion residues.
C. Check inside the flame tube and remove any visible ashes and solid combustion residues. Place back the combustion grate in position and tighten the screw again. Close the door of the boiler. Your system is ready to operate.

MONTHLY CLEANING

Once a month we recommend that you clean:

D. The inclined metallic, stainless steel surface where pellet is loaded. Remove the plastic tube with your hands, unscrew the stainless steel feeding tube 2'' and clean with a cloth the angled surface of the burner that leads to the burning chamber. You can also use a flat metallic scraper.
E. Detach the plastic tube and shake it well so that any dust and debris that may have been deposited inside the tube to be removed.
F. Unscrew and detach the flame sensor from the body of the burner. Check the glass surface and wipe it thoroughly with a dry cloth of soft texture (not paper).

ANNUAL CLEANING

G. Once a year and before the beginning of winter, clean the fuel tank from any dust and pellet deposits. It is essential that the fuel tank always contains clean and dry pellet. If moisture is present in pellet then do not use it as it is unsuitable for combustion.
H. Make sure by a visual check that the system "burner – boiler – chimney" is fully tightened. Otherwise please call immediately the service technician to repair the system.

21. WARRANTY OF PELLET BURNER OCTAGON

The European Directive 99/44/CE, sets out the specific responsibilities and obligations of the ultimate seller of the product to the ultimate buyer for any possible defects. The European Directive can be found on the website at: http://europa.eu/legislation_summaries/consumers/protection_of_consumers/l32022_en.htm
OCTAGON , is not the ultimate seller of the pellet burner; however, it accepts and undertakes the responsibility of the ultimate seller through its additional warranty granted to OCTAGON HELLAS approved and certified sales network.

SCOPE AND DURATION OF THE WARRANTY

OCTAGON hereby guaranties the good operation of the product sold and agrees to provide spare parts free of charge for the purpose of repairing any defective part of the burner for a period of twenty four (24) months after the date of delivery to the ultimate buyer.
As the date of delivery shall be considered the date included in the proof of purchase (Receipt or Invoice) and MUST accompany this warranty.
The purchase of this product should have taken place within three (3) years from the date of production as included in the special labelling of the burner (the adhesive label on the casing of the burner).

WHEN IS THE WARRANTY VALID

The warranty is hereby granted subject to the following prerequisites:

- The installation of the burner must be carried out by a licensed technician in accordance with local authority regulations, good engineering practices and the technical manual of the manufacturer.
- The burner must undergo proper service by specialized personnel and an entry be made accordingly in the Maintenance log, included herebelow, and be signed.
- The actual duration of the warranty will not be altered by intermediate service repairs.

EXCLUSIONS

This warranty will NOT cover:

- Cost of carriage of the spare parts and repair works.
- Damage or wear as a result of violent acts on the burner or malfunction of the power supply.
- Damage caused as a result of substandard fuel quality and/or unsuitable chimney.
- Incorrect installation by unlicensed technicians.
- Non compliance with local authority regulations, good engineering practice and installation instructions of the manufacturer.
- Non fulfillment of the annual service.
- Use of spare parts not approved by the manufacturer.
- Natural forces and disasters.

RESPONSIBILITY

- The licensed technician is totally and exclusively responsible for installation and compliance with local authority regulations, good engineering practice and installation instructions of the manufacturer.
- The terms of this warranty are unique and nobody can alter them, add or remove any part thereof.
- This warranty is a supplement to and does not replace the European Directive 99/44/CE.

This guaranty will be validated after it has been completed and a copy be sent to the representative firm of your country within 10 days from the date of purchase of the burner.

MODEL : **DATE OF PURCHASE :**
SERIAL NUMBER :

SIGNATURE AND STAMP OF THE SELLER **SIGNATURE OF THE BUYER**

22. MAINTENANCE LOG

SECTION	DATE	NAME OF TECHNICIAN	REMARKS	SIGNATURE
1st				
2nd				
3rd				
4th				
5th				

23. BRIEF INSTRUCTIONS FOR INITIAL ADJUSTMENT AND OPERATION

1. ELECTRICAL CONNECTION

CONNECTION 1	POWER SUPPLY - Phase 230 V AC – 50 Hz (Live). The polarity of the current is very important and this connection should be connected with the phase of the current otherwise there will be a malfunction and/or damage to the electronic board.
CONNECTION 2	POWER SUPPLY - Neutral
CONNECTIONS 3 -4	AUGER.
CONNECTIONS 5 – 6	WATER PUMP. The current intensity of the water pump should not exceed 0,7 A otherwise, an electrical relay should be inserted.
CONNECTIONS 7 - 8	**EXTERNAL THERMOSTAT (Dry contact)**
CONNECTIONS 9 - 10	SAFETY SWITCH (e.g. open boiler door sensor)

2. FILLING OF THE AUGER 1ST LEVEL CONFIGURATION

BUTTON	INDICATION	SCREEN DISPLAY
>	PROGRAMMING	OFF
+	[6]	[6]
ENTER		- - - - - - -

Keep pressed ENTER button to start the filling of the auger in process circles of thirty second (30') each. On completion of each circle the indication OFF appears on the screen. Repeat the process cycle as required.

3. SELECTION OF PELLET CATEGORY (only if pellet is not 5kW/kg)

BUTTON	INDICATION	SCREEN DISPLAY
< >	FUEL	2
ENTER		2
+, -	1 ή 3	SELECTED VALUE
ENTER		SELECTED VALUE

4. ACCESS TO PROGRAMMING, 2nd LEVEL CONFIGURATION

BUTTON	INDICATION	SCREEN DISPLAY
< >	PROGRAMMING	OFF
ENTER		OFF
+	[7]	[7]
ENTER		4-DIGIT NUMBER

Add up the four digits **plus one**

BUTTON	INDICATION	SCREEN DISPLAY
ENTER	SUM	SUM
ENTER		ON

You have now access to 2nd level configuration.

5. MODIFICATION OF THE MAXIMUM POWER OF THE BURNER IN TWO STEPS

5.1. ADJUSTMENT OF FAN SPEED, 2nd CONFIGURATION LEVEL

The speed levels per power rating are subject to the following parameters:

FAN SPEED	PARAMETER
Fan speed during phase FIRE STOP	19
Fan speed during phase TEST FIRE	20
Fan speed at Power 1	**24**
Fan speed at Power 5	**28**

ADJUSTMENT OF SPEED (CONTINUATION OF No 4), ACCESS TO PROGRAMMING

BUTTON	INDICATION	SCREEN DISPLAY
		ON
+, -	PARAMETERS	[8]
ENTER	PARAMETER SETTINGS	Par - - - -
+, -	PARAMETER SETTINGS	DESIRED PARAMETER
ENTER		SELECTED VALUE

5.2. ADJUSTMENT PELLET FEEDING-AUGER, 2nd CONFIGURATION LEVEL

This procedure is the same as with the adjustment of the fan.
By adjusting only the ON time of the auger, the burner will calculate automatically the OFF time.

Choose parameter.

AUGER OPERATION	PARAMETER
Power 1 = Auger ON	10
Power 5 = Auger ON	18

24. CERTIFICATES

Declaration of conformity

Manufacturer : Octagon
Address : Koumoundourou 53 – 182 33 Attiki – Hellas

declares that this unit is complies with the :

- EN 60335-1:2012 , EN 60335-2-102:2006 +A1:2010
  Harmonized to the LVD European directive 2006/95/EC (Low voltage Directive)

- EN 61000-6-1:2007, EN 61000-6-3:2007
  Harmonized to the EMC European directive 2004/108/EC

- EN 15270:2007

Quality Manager
Dimitris Papakonstantinou

CE12

25. QUALITY CONTROL CHECKLIST

We herby confirm that the burner passed successfully all manufacturing steps and quality control tests and is delivered to you ready to use.

MODEL OF BURNER ……

POWER RATING kW/h

P5……..
P4……..
P3……..
P2……..
P1……..

Electronic controller	
Touch screen bio-burner	
Boiler water temperature sensor	
Flue gas temperature sensor	
Flame sensor	
Bimetallic safety thermostat	
Heating element	
Fan	
Auger motor	
Electric connections	
Metallic parts	

DATE OF PRODUCTION: ……

PRODUCTION ENGINEER: ……..