



PELLET BURNERS

B-Home B-Essential



Code EBM0002 - 05/2020 - R2

INSTRUCTIONS FOR USE, INSTALLATION AND MAINTENANCE

EN

Before installing and using the burner, read this manual carefully and keep it close to the burner.

INTRODUCTION

Dear Client,

We would like to thank you for having chosen a **B-Max Technology** appliance.

The model chosen by you, is a high-performance product, with an advanced technological conception, high reliability and excellent construction quality.

We advise you to entrust the running and maintenance of this appliance to qualified professionals that you know, and also to use only original spare parts when needed.

This manual contains important guidelines and suggestions which should be complied with in order to obtain a simple installation and the best possible use of the appliance.

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SYMBOLS USED IN THE MANUAL AND THEIR MEANING



WARNING

To indicate information about particular details.



WARNING CAUTION

To indicate information about particularly sensitive details.



WARNING DANGER

To indicate actions, which, if not carried out correctly, can cause injuries of a generic kind or can cause malfunctions or material damage to the apparatus; so they require special attention and proper preparation.



WARNING DANGER ELECTRICITY

To indicate actions, which, if not carried out correctly, can cause injuries from electricity; so they require special attention and proper preparation.



IT IS FORBIDDEN

To indication actions which MUST NOT be taken.

1 GENERAL INFORMATION

1.1 General warnings



WARNING

- This manual is the property of **Elmec Group S.r.l.** and its contents may not be copied or passed on to third parties. All rights reserved.
- The appliance is not designed to be used in environments with a potentially explosive atmosphere.
- This manual is an integral part of the product; make sure that it is always kept with the appliance, even in the case of sale/transfer to another owner, so it can be consulted by the user or by the staff authorised to carry out maintenance and repairs. Read this manual thoroughly before using the appliance in order to ensure operational safety.
- In the event of doubts concerning the conditions and/or working of the appliance or its parts, the local distributor should be contacted for further information.
- Only use original spare parts or ones approved by the manufacturer in order to avoid damage to the product.
- In the event of damage to the packaging of the goods, inform the courier and the product supplier of the problem immediately.
- Carry out the operating tests on the appliance and inform the supplier of the product of any anomalies or running defects found.

1.2 Restrictions



IT IS FORBIDDEN

- Do not use the appliance in areas with a potentially explosive atmosphere.
- Do not carry out modifications to the product without the written authorisation of the manufacturer.
- Do not open the door of the boiler when it is in use.
- Do not store inflammable materials close to the burner, to minimise the risk of fire.
- Do not leave the appliance exposed to the weather.
- Do not install the appliance onto heat generators (boilers, water heaters) situated in places which are poorly ventilated or are very damp. The vents in the building must be sufficiently large to guarantee complete combustion.
- Do not touch the appliance with parts of the body which are wet, or damp and/or with bare feet.
- The appliance must not be used by children or by people who are inexperienced.

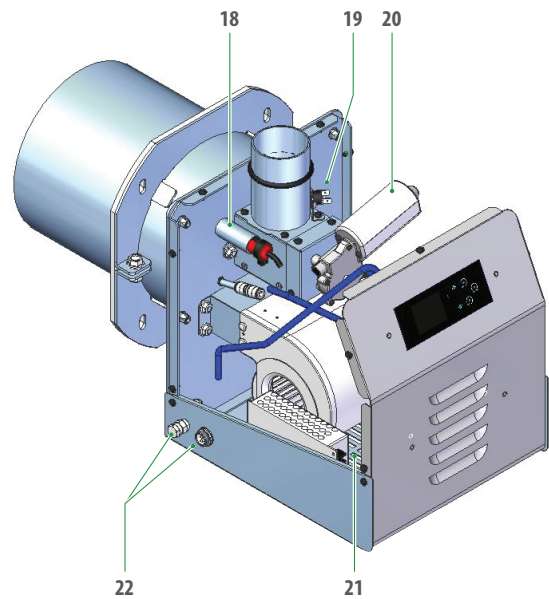
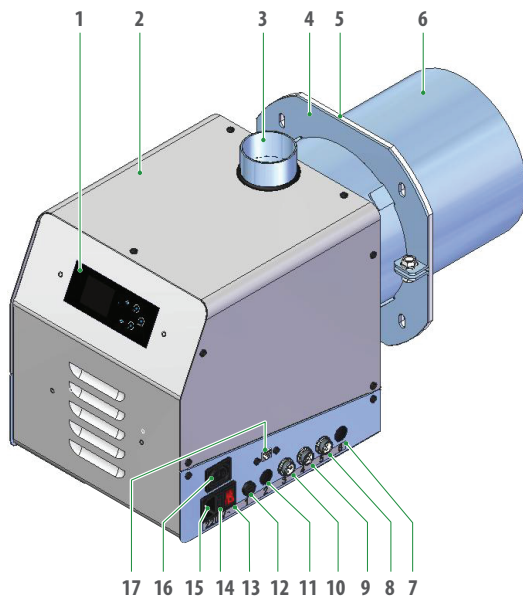
1.3 Conformities

The burners **B-Home** and **B-Essential** are in compliance with European directives:

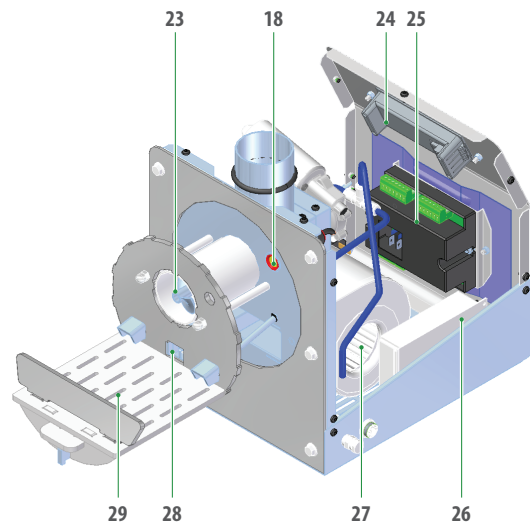
- Machinery Directive 2006/42/CE
- Electromagnetic Compatibility Directive 2014/30/CE
- Low Voltage Directive 2014/35/CE

as stated in the Conformity Certificate supplied with the appliance.

1.4 Structure



- 1 Control Panel
- 2 Carter cover
- 3 Socket connection hose
- 4 Boiler connection flange
- 5 Gasket
- 6 Combustion chamber
- 7 Connection for optional applications
- 8 Room thermostat connection
- 9 Boiler water probe connection
- 10 External cochlea motor connection
- 11 Connection for optional applications
- 12 Fuse (T 3.15 A)
- 13 Main switch
- 14 Fuse (F4 A)
- 15 Power socket (230 volts)
- 16 External cochlea fan power socket
- 17 Connection Plug RJ11 for updates , computer, modem
- 18 Flame detection photocell
- 19 Burner safety thermostat
- 20 Internal cochlea gear motor
- 21 Lower air grid
- 22 Connection for compressed air self cleaning kit (OPTIONAL)
- 23 Internal cochlea
- 24 Display
- 25 Electronic board
- 26 230V/24V transformer
- 27 Burner fan
- 28 Ignition resistance
- 29 Combustion grill



1.5 Burner description

The B-Home and B-Essential burners are extremely versatile and capable of covering a wide range of uses, from installation on new generation boilers, bread ovens, hot air generators, to the transformation of old boilers.

They consist of a round combustion head, a variable speed main fan, a reliable ignition system thanks to the igniter and the flame detection photocell, an internal auger for fuel feeding, and are prepared for installation of self-cleaning kit with compressed air.

For efficient compressed air cleaning of the B-Home and Essential models, we recommend a compressor of at least **50 liters** of capacity with a maximum pressure of **8 bar**.

They must be completed with a fuel supply system consisting of an auger, with flexible hose for connection to the burner and a pellet container, supplied separately as an accessory.

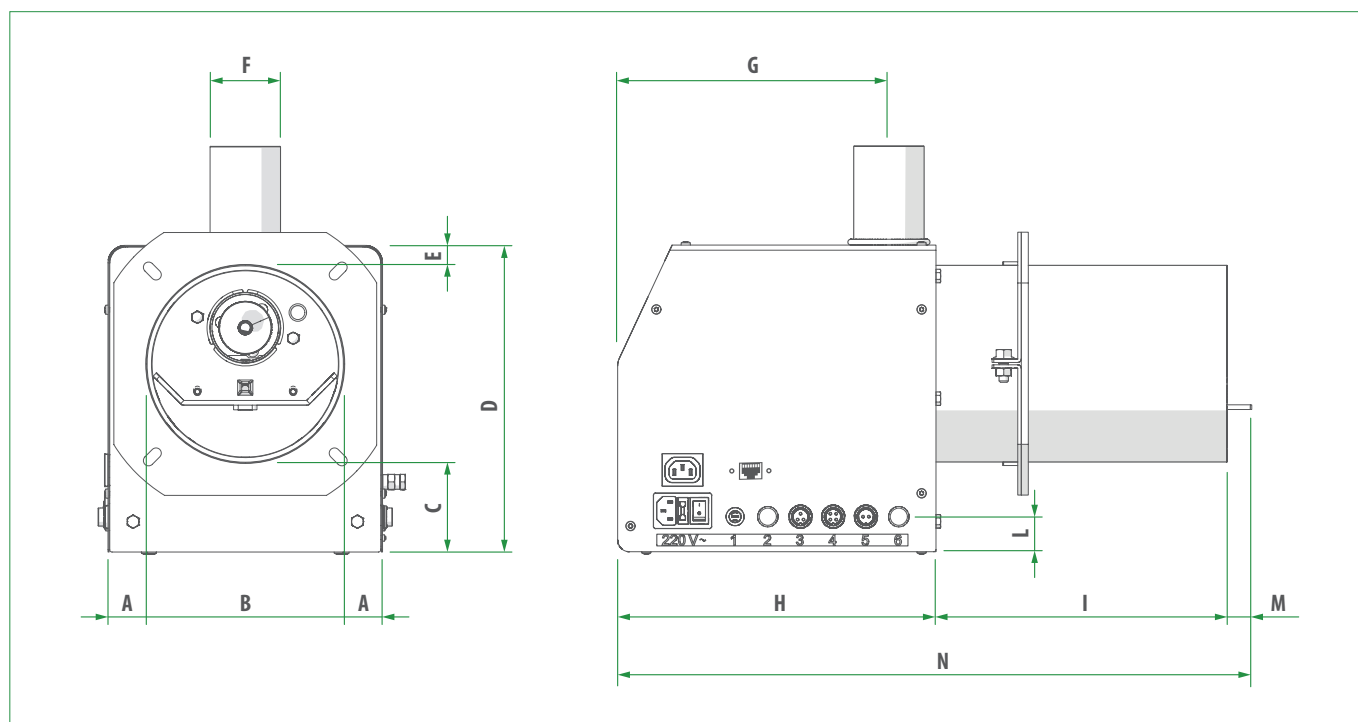
The burners and the entire system are managed by a microprocessor control panel mounted on the appliance which, in addition to managing all the functions, also allows programming of time bands; useful possibility for the User to operate the appliance only when needed.

1.6 Safety devices

The burners **B-Home** and **B-Essential** are fitted with the following safety devices:

- Burner safety thermostat
- Firebreak valve (optional)

1.7 Size



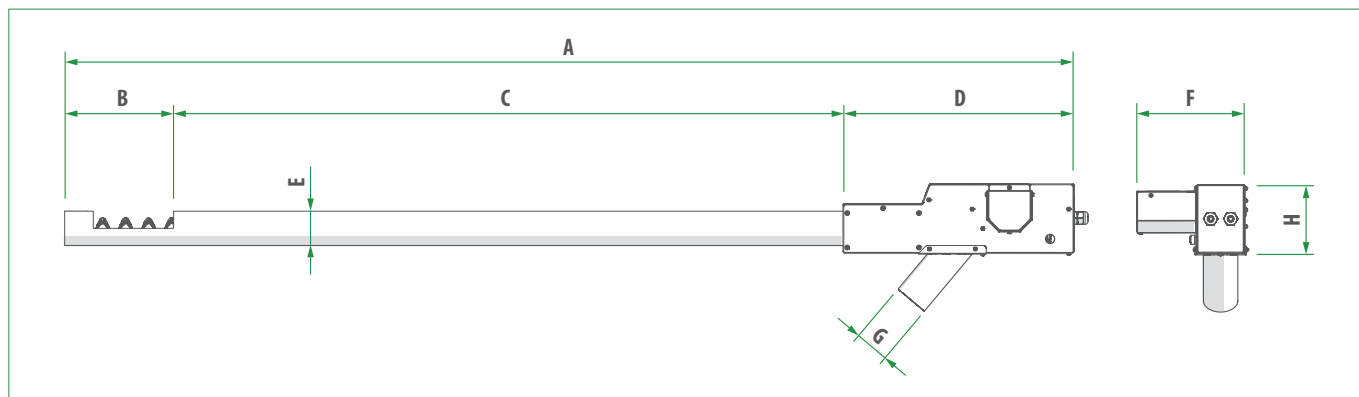
Model	A [mm]	B [Ø mm]	C [mm]	D [mm]	E [mm]	F [Ø mm]	G [mm]	H [mm]	I [mm]	L [mm]	M [mm]	N [mm]
B-Home	57,55	140	115	290	35	60	260	300	249	27	21	549
Essential	43,30	168,5	91	290	30,50	60	260	300	249	27	21	549

1.8 Accessories

The following accessories can be ordered separately from the burner. Their use is recommended for a proper functioning of the burner.

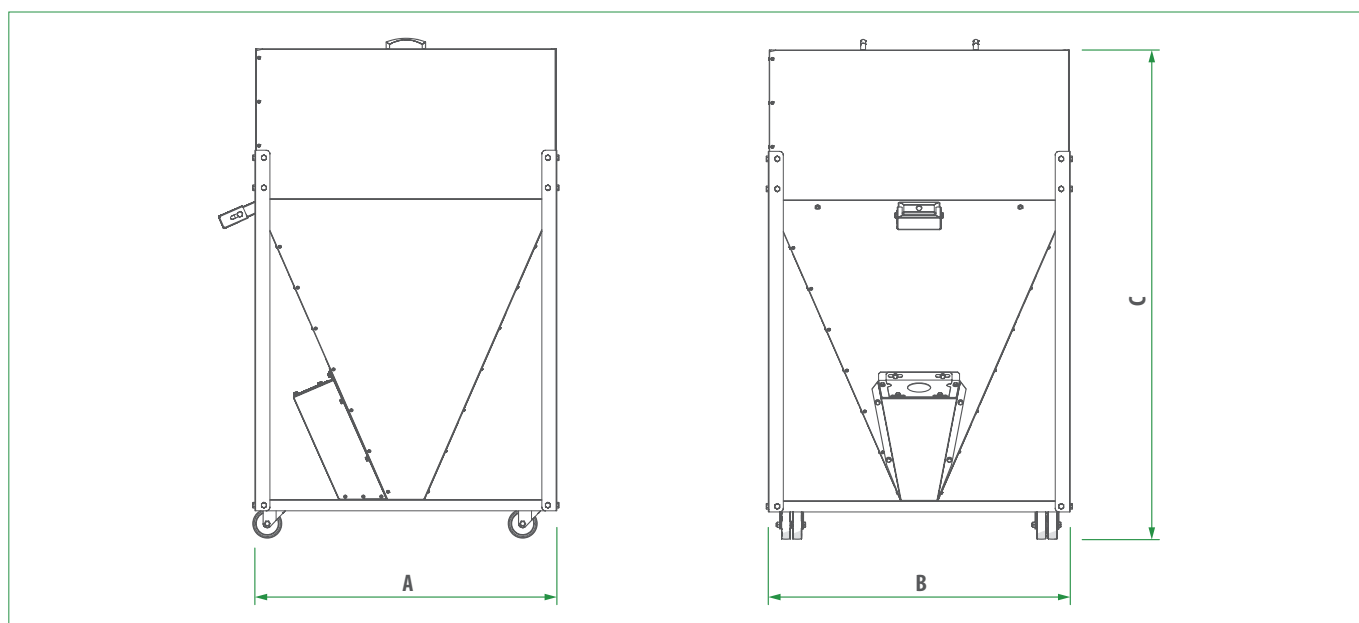
Model	Code
Pellet container	EBT0013-P00
Pellet container	EBT0002-PWO
Compressed air kit	EBK0018-P00

1.8.1 Feeding auger: size and weight



A [mm]	B [mm]	C [mm]	D [mm]	E [Ø mm]	F [mm]	G [Ø mm]	H [mm]	Weight [Kg]
1760	190	1168	402	60	190	60	120	9

1.8.2 Pellet container: size and weight

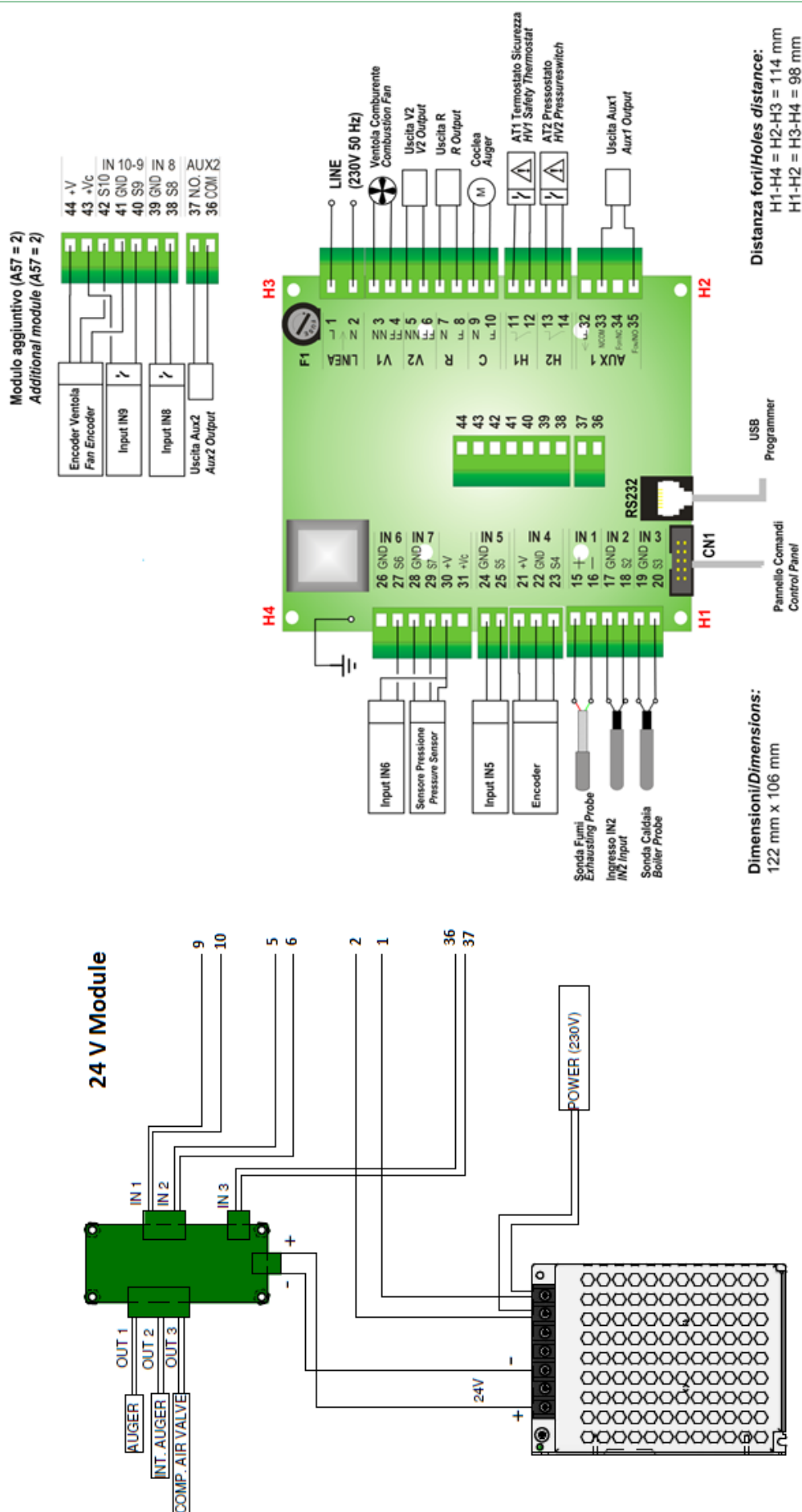


Description	Capacity [Kg]	A [mm]	B [mm]	C [mm]	Weight [Kg]
Pellet container EBT0013-P00	150	780	500	1225	33
Pellet container EBT0002-PWO	300	800	800	1230	55

1.9 Technical data

DESCRIPTION	U/M	B-Home	B-Essential
Burner power	kW	12 ÷ 34	12 ÷ 55
Power supply	V~Hz	230~50	230~50
Average power consumption	W	60	60
Ignition	W	230	230
Electronic board fuse	A	T 5.0	T 5.0
Feeding auger fuse	A	T 3.15	T 3.15
Noise level	dBA	35	40
Length of flame	mm	400	450
Boiler combustion chamber minimum size	Height	350	450
	Width	350	450
	Depth	550	650
Flue draw	Pa	20	20

1.10 Operational wiring diagram



PIN		Function	
1	L	Voltage Power Supply	230 Vac \pm 10% 50/60 Hz F1= Fuse T5,0 A
2	N		
3	NN	Combustion Fan	Triac adjustment 0.9 A max
4	FF		
5	NN	Internal auger	Triac adjustment 0.9 A max
6	FF		
7	N	Igniter	Triac adjustment 0.9 A max
8	F		
9	N	External auger	Triac adjustment 0.9 A max
10	L		
11		AT1 Safety Thermostat Input	Normally Closed ON/OFF Contact Short-circuit if not used
12			
13		AT2 Safety Pressure-switch Input	Normally Closed ON/OFF Contact Short-circuit if not used
14			
15	Red +	Smoke Probe (not used)	Thermocouple K
16	Green —		
17		IN2 (not used)	NTC
18			
19		Boiler Water Probe	NTC
20			
21	+5V	Not used	Signal TTL 0 / 5 V
22	GND		
23	SEG		
24	GND	Room Thermostat	ON/OFF Contact DO NOT POWER WITH 220V (to avoid irreparable damage to the electronic board)
25	SEG		
26	GND	IN6 (Not used)	
27	SEG		
30	+5V		
28	GND	Pressure Sensor	
29	SEG		
30	+5V		
31	+12V		
32	F		
33	COM/N	External auger ventilator	Relé 3 A max
35	NO/FON		
34	NC/FOFF		
36	COM	Compressed air valve	Relé 1 A Max, free contacts output
37	NO		
38	SEG	Photocell	ON/OFF Contact
39	GND		
40	SEG	IN9 (not used)	
43	+12V		
41	GND	(not used)	
42	SEG		
44	+5V		
RS232		Connector RS232	Connection to Programmer, Modem, Computer
CN1		Keyboard connection	Flat Cable

1.11 Functioning

The running of the appliance is controlled from a control panel with a microprocessor which programmes the following phases:

- When a request for heat is sent in start-up mode the main fan, the external cochlea and the internal loading cochlea start up to supply the necessary quantity of pellets for ignition. The internal cochlea starts up 8 seconds later than the external cochlea;
- When the pellet loading for ignition is finished, the ignition resistance is powered electrically, and this ignites the flame the brightness of which is recorded by the photocell. In the event of non-ignition, the burner goes into SHUTDOWN mode. In the event of a SHUTDOWN, in order to reactivate normal running conditions, it is necessary to disconnect the appliance from the mains, remove the cause of the malfunction, and then reconnect it to the power supply;
- After the flame has been correctly detected, the appliance starts to run normally with a gradual increase in power supply until the maximum value programmed is reached, and the appliance continues to operate in modulation until the programmed water temperature for the boiler is reached, or that of a water storage heater if one is installed. While the burner is running, the external and internal cochleas also work according to the programmed ON and OFF times;
- Once the programmed temperature has been reached, the cochleas, both internal and external, are stopped by the control panel, and the pellets remaining in the combustion chamber continue to burn;
- When the brightness of the photocell goes below the minimum Lux level for shutdown, the fan speed increases to clear the combustion chamber of the last residue and then it stops.

The burner is then ready for the next start-up.



WARNING CAUTION

- The programming of the parameters **MUST** be carried out **EXCLUSIVELY BY QUALIFIED TECHNICIANS AUTHORIZED BY Elmec Group S.r.l.**, and only after the Password has been given.
- For the working and shut-down periods of the burner, whether the "time bands" are activated or not should be taken into consideration.
- If the COMPRESSED AIR KIT is also present, cleaning of the combustion chamber takes place at the end of each operational cycle of the burner and during normal operation at adjustable intervals.



IT IS FORBIDDEN

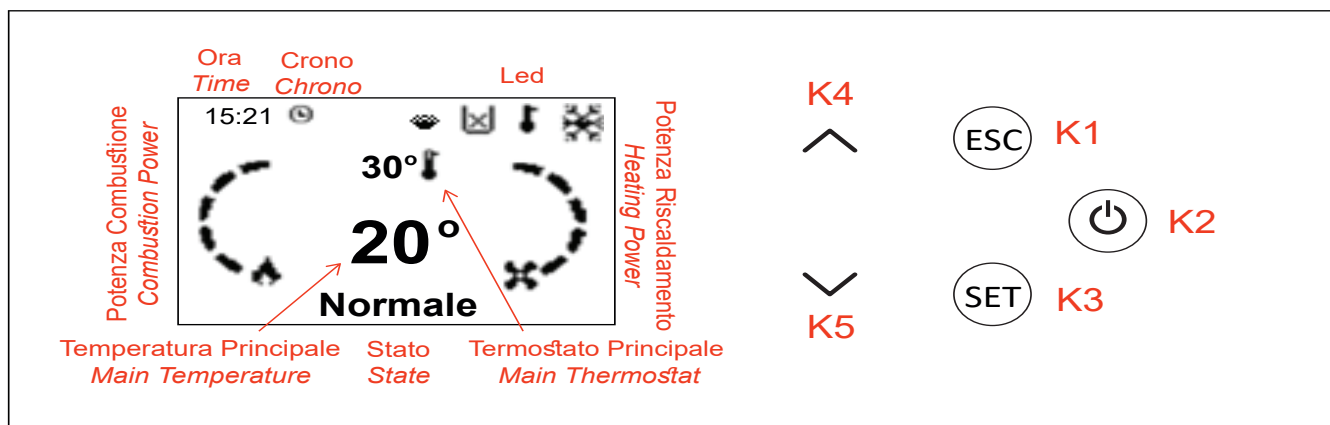
Programming of the technical parameters from the User Menu.

1.12 Pellet






The devices are designed and built to **burn quality pellets** which have the following characteristics:

Description	U/M	Pellet
Diameter	mm	6 Din Plus
Length	mm	25 (max)
Density	Kg/m ³	650
Lower heating power	kWh/kg	5
Percentage of humidity	%	Max 8 (of the weight)
Percentage of ash	%	Max 1 (of the weight)

1.13 Control Panel



1.13.1 OPERATING KEYS

Button	Function		
K1	Exit Menu/Submenu		
K2	Ignition and extinguishing (push for 3 seconds), Reset errors (push for 3 seconds), Chrono Activation		
K3	Enter in User Menu 1/submenu, Enter in User Menu 2 (push for 3 seconds), Save data		
K4	Enter Views menu, Increase		
K5	Enter in Views Menu, Decrease		
Led	Function	Led	Function
	Ambient Thermostat reached		Lack of fuel in the tank
	Winter		Summer
	Pellet modality		

1.13.2 VIEWS To access press K4/K5

Exhaust T.	Exhaust temperature [°C] (not used)
Flame Light	Light Flame
Boiler T.	Boiler temperature [°C]
Buffer T.	Buffer temperature [°C] (optional)
Ambient T.	Ambient Temperature [°C] (optional)
Pressure	Pressure [mbar] (not used)
Auger	Working time [s]
Recipe	Combustion program [nr]
Product Code: 515	Product Code reserved to the manufacturer

1.13.3 USER MENU 1

To access menu push the key K3

Combustion Management	Pellet Power Menu to set the system combustion management in Pellet modality. It is possible to choose between automatic modality (the system sets the power) and manual (the user sets the power).	
	Pellet Recipe Menu to select the combustion recipe with Pellet	
	Auger Calibration Menu to change the Auger's work time or speed. The system has 10 calibration's steps, 5 increasing and 5 decreasing, 0 value is set by the factory. The calibration's effect is valid only in Run Mode and Modulation for the current recipe. For each step the value is increased or decreased.	
	Fan Calibration Menu to change the Combustion Fan speed. The system has 10 calibration's steps, 5 increasing and 5 decreasing, 0 value is set by the factory. The calibration's effect is valid only in Run Mode and Modulation for the current recipe. For each step the value is increased or decreased.	
Heating Management	Boiler Thermostat Menu to change Boiler Thermostat value.	
	Summer-Winter Menu to modify the plumbing plant functioning according to the season.	
Remote control	(not used)	
Chrono	Menu to select the Chrono's program modality and the timers of Ignition/Extinguishing of the burner.	
	Modality It allows selecting the desired modality, or disable all set programming. <ul style="list-style-type: none"> enter modification mode through the key K3 select the chosen modality (Daily, Weekly or Week end) enable/disable chrono modality through the key K2 save the settings through the key K3 	<div> Disabled Daily Weekly Week End </div>

	<p>Programming</p> <p>The system includes three type of programming: Daily, Weekly, Week end. After selecting the desired kind of programming:</p> <ul style="list-style-type: none">• select the programming time through the keys K4/K5• enter the adjustment modality (selected time will be flashing) through the key K3• change the time via keys K4/K5• save the programming with the key K3• enable (a "V" is displayed) or disable the time slot (a "V" is not displayed") by pressing the key K2 <p>Daily</p> <p>Select the day of the week to program and set the ignition and extinguishing times.</p> <p>Programs around midnight</p> <p>Set the clock On of the previous day at the desired time: Ex. 20.30</p> <p>Set the clock of OFF of the previous day at: 23:59</p> <p>Set the clock On of the following day at 00:00</p> <p>Set the clock of OFF of the following day at the desired time: Ex. 6:30</p> <p>The system turns on at 20.30 on Tuesday and turns off at 6.30 on Wednesday</p> <p>Weekly</p> <p>The programs are the same for all days of the week.</p> <p>.</p> <p>Week-end</p> <p>Choose between 'Monday-Friday' and 'Saturday-Sunday' and then set the switching on and off times.</p>	<div><div>Monday</div><div>Tuesday</div><div>Wednesday</div><div>Thursday</div><div>Friday</div></div> <div><div>Monday</div><table><tr><td>ON</td><td>OFF</td></tr><tr><td>09:30</td><td>11:15 v</td></tr><tr><td>00:00</td><td>00:00</td></tr><tr><td>00:00</td><td>00:00</td></tr></table></div> <div><div>Mon - Fri</div><div>Sat - Sun</div></div>	ON	OFF	09:30	11:15 v	00:00	00:00	00:00	00:00
ON	OFF									
09:30	11:15 v									
00:00	00:00									
00:00	00:00									
Load	This menu allows loading manually the Auger. The system has to be in Off state to do the loading.									

1.13.4 USER MENU 1

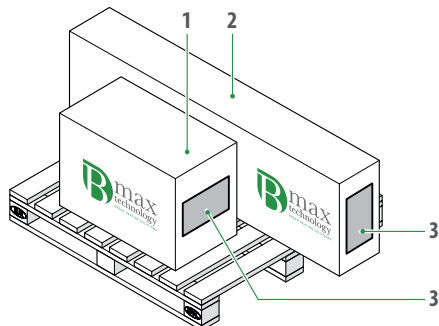
To access menu push the key K3

Keyboard Setting	Time and Date Used to set the day, month, year and current time.
	Language Menu to modify the keyboard language.
Display Menu	Node List This menu shows: communication address of the board, typology of the board, firmware code and firmware version.
	Contrast Menu used to regulate the display contrast.
	Minimum Light Menu used to regulate the lighting of the display when the command aren't used.
	Sound It allows to enable or disable the acoustic alarm of the keyboard.
System Menu	Menu to enter into technical menu. The access is protected by password (Access to this menu is reserved only for qualified and authorized service).

2 INSTALLATION

2.1 Delivery and identification of the product

The appliances **B-Max Technology** are delivered in separate packs and are placed on wooden pallets.



Burner (1)

It is supplied packed into a duplex corrugated cardboard box.

Feeding auger (2)

It is supplied packed into a duplex corrugated cardboard box and it is supplied separately from the burner.

Label (3)

It is placed on the outside of the packaging for identification of the product.

2.1.1 Identification

The identification of each pack is possible by means of the label placed on the outside of every package.



WARNING

On receipt of the product it should be checked that the delivery is complete and in the event of any non conformities or complaints, the organisation that sold the appliance should be contacted.

2.1.2 Contents of the package

Burner

- Burner
- O-ring
- Gasket and burner support flange
- Power supply cable
- Room thermostat connection cable
- Water probe
- Documentation envelope

The following material is supplied in the documentation envelope:

- Instruction manual
- Warranty certificate
- Declaration of conformity
- Bag of bolts and screws

Safety anti-backfire device

- Firebreak valve (optional)

Compressed air self-cleaning kit

- Kit to connect the burner to a compressor (optional)

Feeding aguer

- Feeding auger complete with:
 - Fan electrical cable
 - T 3.15A fuse.
 - Flexible hose

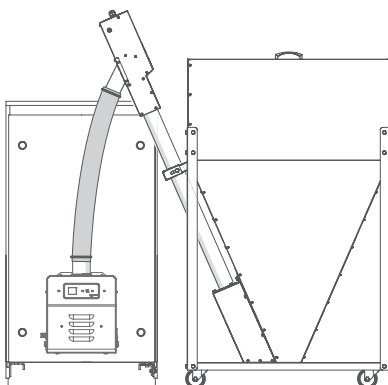
2.2 Handling

The burners **B-Home** and **Essential** have been designed to operate solely with heat generators that have a vacuum combustion chamber, so the smoke duct and the flue must be designed and realised to satisfy these requirements. The joints must be sealed and resistant to the maximum temperature levels that the fumes can reach.

2.3 Installation location

The pellet burner must be installed in a place that conforms to current Legislation, Regulations and Directives against fire hazards.

The positioning of the devices and the components must be organised so that there is enough space for maintenance work, cleaning and soot removal from the burner, the boiler and the flues.



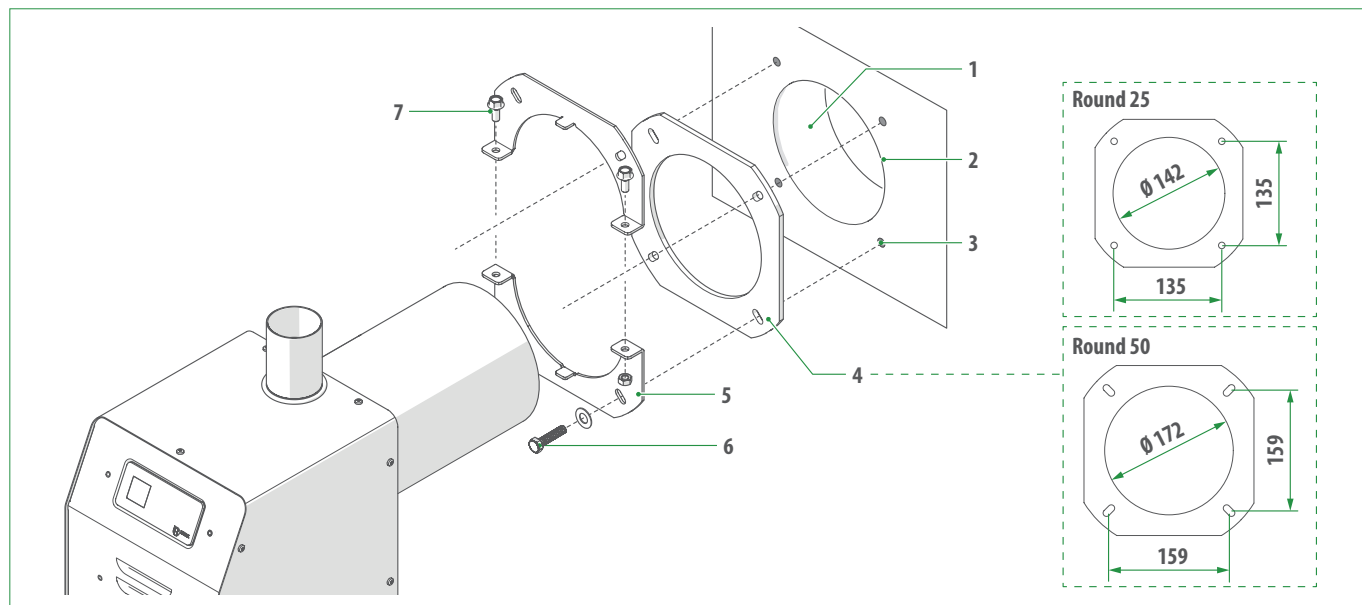
WARNING DANGER

The room must have sufficient ventilation vents which are of the right size and are positioned correctly.

2.4 Mounting the burner

When mounting the burner onto the boiler:

- check that the opening (1) of the door (2) of the boiler is sufficiently large to allow the combustion chamber of the burner to pass through it. If this is not the case, adapt it to the diameter
- make four threaded holes (3) (M8) for fixing the burner support flange
- position the seal (4), supplied with the burner, between the flange (5) and the door (2) of the boiler
- push in the 4 screws (6) (M8) but **ONLY** tighten the two screws which hold the lower split-flange. The two screws of the upper split-flange must **ONLY BE PLACED** but not tightened.
- Insert the combustion chamber of the burner into the boiler as far as is necessary
- tighten the two semi-flanges with the screws (7) and the screws (6), which were previously just placed in position



WARNING DANGER

- The burner **MUST** be mounted **ONLY** in the position shown in the diagram. Any other position is **FORBIDDEN**.
- The flame will propagate in a straight line, through the hole of the burner combustion chamber.



WARNING DANGER

The mounting of the burner on the boiler must be sealed to avoid any dangerous smoke escaping. Use the seal supplied by the manufacturer.

2.5 Mounting of the loading cochlea and the pellet container

The mounting of the external loading cochlea and of the pellet container is very important if the burner is to run correctly. It is advisable to buy and use the original accessories, because they have been specifically designed to ensure the correct running of the burner.



WARNING

The manufacturer **Elmec Group S.r.l.** DOES NOT ACCEPT RESPONSIBILITY for any damage to people, animals or things caused by the use of components that are not original.

2.6 Release of exhaust fumes

The burners **B-Home** and **Essential** have been designed to operate solely with heat generators that have a vacuum combustion chamber, so the smoke duct and the flue must be designed and realised to satisfy these requirements. The joints must be sealed and resistant to the maximum temperature levels that the fumes can reach.

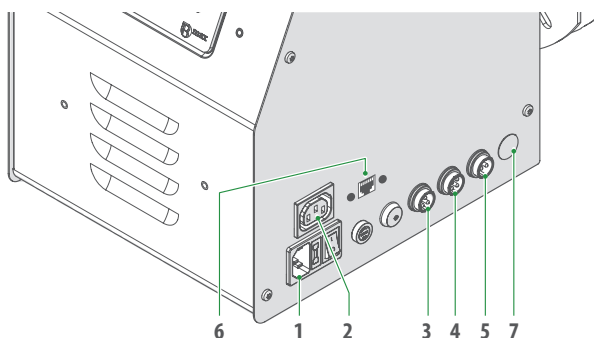


WARNING DANGER

- Any applications which are different from the one specified in the manual can cause fire.
- Non-insulated exhaust ducts are a potential source of danger.
- It is possible to install a flue valve which conforms to applicable legislation

2.7 Electrical connections

The burners **B-Home** and **Essential** have been wired in the factory and it is essential that only professionally-qualified personnel carry out the work reported below.



- 1 Power supply socket (230V~50Hz)
- 2 External cochlea fan power socket
- 3 External cochlea motor
- 4 Boiler water temperature probe
- 5 External thermostat connection
- 6 Connection Plug RJ11 for updates, computer, modem
- 7 Connection for optional applications



WARNING DANGER ELECTRICITY

Please remember that **IS OBLIGATORY**:

- to use an omnipolar circuit breaker switch, a disconnect switch in conformity with EN regulations
- to use an L (phase) - N (Neutral) connection
- to connect the earth to an efficient plant grounding device. The manufacturer **Elmec Group S.r.l.** DECLINES ANY RESPONSIBILITY for any damage to people, animals or things, caused by the absence of grounding of the appliance and of the non-compliance with anything specified in this manual.



IT IS FORBIDDEN

Use the water pipes for the grounding of the appliance.

3 START-UP

3.1 Before starting up the burner

Before starting up the appliance check that:

- the burner is correctly mounted on the boiler door and that this latter is firmly closed
- the feeding auger and the burner flexible connection hose are positioned correctly (see image paragraph 2.3). Make sure that the flexible hose that connects the feeding auger to the burner is **perpendicular** to the stub located in the upper part to favor a correct pellet fall. A non-linear positioning of the flexible hose favors accumulations of pellets that can cause uncontrolled dosing with consequent damage to the machine.
- the pellet container has been filled
- the water temperature probe has been correctly positioned
- the boiler and the plant has been filled with water
- the hydraulic circuit valves are open
- the fumes exhaust duct has been set up properly (particularly compact or restricted ducts can hinder the correct evacuation of the fumes causing returns of heat or flame).

3.2 First ignition

Connect the burner power supply, positioning the plant main switch and the main burner switch in the "ON" position, and check that the screen lights up.

The burner leaves the factory calibrated to a minimum output. During the first ignition, it is important to calibrate the pellet (see paragraph 3.5) to ensure that the burner is adequate for the power required by the system. **To avoid backfire or heat, it is essential not to make mistakes in overdosing the machine.**

Leave the burner in the continuous running mode, at maximum power for about 15 minutes, and then with a flue gas analyzer check that the values recorded are close to the ones indicated in the table:

Description	U/M	Correct value
O ₂	%	~ 10
CO (average)	mg/cm ³	< 500
Exhaust temperature	°C	120 ÷ 200

Press the  to turn off the burner and leave it to cool.



WARNING

This operation must be carried out ONLY by authorised and qualified technicians.

3.3 Checks to carry out after the first ignition

After the first ignition, with a cold burner:

- disconnect the pellet supply tube from the burner
- open the boiler door and check that on the combustion chamber grill THERE IS NO unburnt material. If this is not the case, it is necessary to modify the settings on the basis of the specific needs (the combustion air and the quantity of fuel) and to repeat the "FIRST IGNITION" phase previously described.

3.4 Automatic shut-down and subsequent start-ups

Once the request for heat has been satisfied, the pellet feeder stops, and the burner regulates its speed for the burning of the residual pellet, present in the combustion chamber, up to the minimum luminance measured by the photocell. When the minimum switch-off lux level is reached, the fan goes up to maximum speed to clean the combustion chamber of any residual matter and then it turns off.

At every request for heat all the phases described previously are repeated.

3.5 Pellet calibration

The calibration of the quantity of pellets necessary for ignition and for running the burner is achieved as follows:

- remove the flexible hose from the burner stub and place it in a container (bowl) while the burner is operating at power 5, to collect the pellets loaded by the external auger.
- Reposition the flexible tube in its place to prevent the burner from going into alarm due to lack of pellets.
- Weigh the container pellet, without tare.

Calculate the maximum burner power using the following formula:

$$[(Y/T)*3,6]*P = z \text{ (kW/h)}$$

where

Y Quantity of pellets (in grams) weighed with burner in power 5

5 The lower heating value of wood pellet (LHV)

45 Interval between pellet loads with feeding auger (seconds)

3,6 3600 seconds in one hour / 1000



WARNING CAUTION

If the type of pellets being used is changed (not advisable) or changed the position / inclination of the feeding auger the calibration of the pellets **MUST** be repeated, because the combustion characteristics will change.

3.6 List of parameters

Visualization on display		Description	U/M	Range	Factory default setting	
					B-home	Essential
AUGER						
C01	Not used					
C02	Stabilization	Loading time carried out by the external auger during the stabilization phase.	sec	0 : 60	3.00	
C03	Power 1	Loading time carried out by the external auger in power 1.	sec	0 : 60	2.00	
C04	Power 2	Loading time carried out by the external auger in power 2.	sec	0 : 60	3.50	
C05	Power 3	Loading time carried out by the external auger in power 3.	sec	0 : 60	4.50	
C06	Power 4	Loading time carried out by the external auger in power 4.	sec	0 : 60	5.50	
C07	Power 5	Loading time carried out by the external auger in power 5.	sec	0 : 60	6.50	
C08	Not used					
C10	Second Ignition	Loading time carried out by the external auger during the second ignition attempt.	sec	0 : 60	2.00	
C11	Not used					
C12	Not used					
P05	Auger period	Interval between one loading of the external auger and the next	sec	0 : 60	45.00	
P15	Not used					
P27	Not used					
P35	Not used					
NOTE						
The fill-up time depends on the power level programmed and on the type of fuel being used						
EXHAUST FAN						
V01	Ignition	Fan speed during ignition	V	0 : 230	145	
V02	Stabilization	Fan speed during stabilization	V	0 : 230	140	
V03	Power 1	Fan speed in power 1	V	0 : 230	140	
V04	Power 2	Fan speed in power 2	V	0 : 230	145	
V05	Power 3	Fan speed in power 3	V	0 : 230	150	
V06	Power 4	Fan speed in power 4	V	0 : 230	155	
V07	Power 5	Fan speed in power 5	V	0 : 230	160	
V08	Not used					
V09	Extinguishing	Fan speed during shut-down	V	0 : 230	230	
V10	Second Ignition	Fan speed during the second ignition attempt	V	0 : 230	145	
V11	Not used					
V12	Not used					
P14	Not used					
P30	Not used					
P16	Not used					
P22	Not used					
P24	Not used					
V70	Not used					
V71	Not used					
NOTE						
The fan speed depends on the fuel (type and quantity) and on the flue draw						
HEATING FAN						
F01	Not used					
F02	Not used					
F03	Not used					
F04	Not used					
F05	Not used					
F06	Not used					
A03	Not used					
A04	Not used					
A08	Not used					
A11	Not used					
P06	Not used					
P95	Not used					
Th05	Not used					
D04	Not used					
D05	Not used					
T69	Not used					

Visualization on display		Description	U/M	Range	Factory default setting	
					B-home	Essential
THERMOSTATS						
L00	System Off in pel-let modality	Level of light below which the burner goes off / alarm	LUX	0 : 100	7	
IL00	Not used					
L01	System On in pel-let modality	Minimum light level to establish the ignition of the burner	LUX	0 : 100	15	
IL01	Not used					
Th01	Not used					
Th02	Not used					
Th03	Not used					
Th06	Not used					
Th07	Not used					
Th08	Not used					
Th09	Not used					
Th11	Not used					
Th12	Not used					
Th13	Not used					
Th18	Not used					
Th19	Not used					
lh19	Not used					
Th20	Not used					
Th21	Not used					
lh21	Not used					
lh24	Boiler Thermostat Hysteresis	Hysteresis for regulating the water temperature. When the set temperature is reached, the burner stops. If the temperature drops, by the set hysteresis value, below the set value, the burner restarts.	°C	1 : 20	2	
Th25	Not used					
Th26	Not used					
Th27	Not used					
Th28	Not used					
lh33	Not used					
Th35	Not used					
Th36	Not used					
Th37	Not used					
Th38	Not used					
Th39	Not used					
Th40	Not used					
Th43	Not used					
Th51	Not used					
Th52	Not used					
Th56	Not used					
lh56	Not used					
Th57	Not used					
lh57	Not used					
lh58	Not used					
Th59	Not used					
lh59	Not used					
Th63	Not used					
Th64	Not used					
Th66	Not used					
Th68	Not used					
Th69	Not used					
D01	Not used					

Visualization on display		Description	U/M	Range	Factory default setting														
					B-home	Essential													
THERMOSTAT																			
D08	Water tempera-ture for automatic management of combustion	<div>T = set water tempera-ture</div> <div>• Water temperature $\leq T - D08$ the system works at maximum power (power 5)</div> <div>• $T - D08 < \text{water temper-ature} < T$ the combustion power is chosen propor-tionally (the greater the difference between the water temperature and T, the higher the power chosen)</div> <div>• Water temperature $\geq T$ The system goes into modulation D08 must be a multiple of 5 (power level number 1,2,3,4,5)</div> <div>Example: T =60°C, D08=20 °C</div> <table><tr><td>Water tem-perature °C</td><td>Power</td></tr><tr><td>≤ 40</td><td>5</td></tr><tr><td>$40 \div 45$</td><td>4</td></tr><tr><td>$46 \div 50$</td><td>3</td></tr><tr><td>$51 \div 55$</td><td>2</td></tr><tr><td>$56 \div 60$</td><td>1</td></tr><tr><td>≥ 60</td><td>1</td></tr></table>	Water tem-perature °C	Power	≤ 40	5	$40 \div 45$	4	$46 \div 50$	3	$51 \div 55$	2	$56 \div 60$	1	≥ 60	1	°C	1 : 30	10
Water tem-perature °C	Power																		
≤ 40	5																		
$40 \div 45$	4																		
$46 \div 50$	3																		
$51 \div 55$	2																		
$56 \div 60$	1																		
≥ 60	1																		
D23	Delta to pass from modulation to stand-by (to add to boiler Thermostat)	Maximum achievable value of the water tem-perature above the set value. If the tem-perature value exceeds the set value of the selected entity (5 ° C) the burner stops and restarts when the set water tempera-ture is reached	°C	0 : 50	5														
D41	Not used																		
SP01	Not used																		
SP08	Not used																		
TIMERS																			
T01	Not used																		
T02	Not used																		
T03	Auger preload	Loading time carried out by the external auger in preloading phase.	sec	0 : 900	10														
T04	Not used																		
T05	Not used																		
T06	Not used																		
T07	Cleaning Cycle	Interval between the cleaning of the combus-tion grill by the centrifu-gal fan	Min.	5 : 600	60														
T08	Cleaning time	Duration of the cleaning cycle with the centrifugal fan running at maximum power.	sec	0 : 900	30														
T09	Not used																		
T10	Not used																		
T11	Not used																		
T13	Not used																		
T14	Not used																		
T15	Not used																		
T16	Not used																		
T17	Not used																		
T18	Not used																		
T21	Not used																		
T22	Not used																		
T23	Not used																		
T24	Not used																		
T27	Not used																		
T29	Not used																		
T30	Not used																		
T31	Not used																		
T32	Not used																		
T33	Not used																		
T34	Not used																		
T40	Not used																		
T41	Not used																		
T42	Not used																		
T43	Not used																		
T46	Not used																		
T53	Not used																		

Visualization on display		Description	U/M	Range	Factory default setting	
					B-home	Essential
TIMERS						
T54	Not used					
T57	Not used					
T58	Not used					
T66	Not used					
T68	Not used					
T71	Not used					
T84	Work time before the system switches off	Interval between clean-ing of the combustion grill carried out with the compressed air system. The burner makes a shutdown and immediate ignition in this phase.	Min.	1 : 9600	1200	
T85	Not used					
T86	Not used					
T87	Not used					
T92	Not used					
T99	Not used					
TM18	Not used					
TM41	Not used					
TM42	Not used					
TM43	Not used					
TM44	Not used					
TM45	Not used					
TM46	Not used					
TM47	Not used					
TM48	Not used					
ENABLE						
A01	Room Thermostat Management	Room thermostat management 0 = On / Off; 1 = Normal / Modulation Only the values 0 and 1 can be used for this parameter IMPORTANT DO NOT USE OTHER OTHER VALUES !!! to avoid compromising the correct functioning of the system	Nr	0 : 5	0	
T18	Not used					
T21	Not used					
A06	Not used					
A13	Not used					
A14	Not used					
A26	Not used					
A27	Not used					
A28	Not used					
A29	Not used					
A36	Not used					
A40	Not used					
A57	Not used					
A60	Not used					
A61	Not used					
A75	Not used					
P02	Not used					
P03	Not used					
P04	Not used					
P09	Not used					
P11	Not used					
P20	Not used					
P25	Not used					
P26	Not used					
P36	Not used					
P37	Not used					
P42	Not used					
P44	Not used					
P48	Not used					
P49	Not used					
P51	Not used					

Visualization on display		Description	U/M	Range	Factory default setting	
					B-home	Essential
ENABLE						
P52	Not used					
D23	Delta to pass from modulation to stand-by (to add to boiler Thermostat)	Activate or deactivate room thermostat 0 = disabled 4 = activated IMPORTANT DO NOT USE OTHER OTHER VALUES !!! to avoid compromising the correct functioning of the system	°C	0 : 50	5	
D41	Not used					
SP01	Not used					
P71	Not used					
P72	Not used					
P74	Not used					
P76	Not used					
P81	Not used					
P83	Not used					
P86	Not used					
P92	Not used					
P93	Percentage variation of auger speed/time on during periodic cleaning	Percentage of variation of the loading time carried out by the external auger during the periodic cleaning of the combustion grill carried out by the centrifugal fan	%	-100 : 100	- 50	
PA23	Not used					
PA29	Not used					
PA44	Not used					
PA72	Not used					
FLOWMETER						
A24	Not used					
A25	Not used					
A31	Not used					
A70	Not used					
A71	Not used					
T19	Not used					
T20	Not used					
T70	Not used					
T72	Not used					
T73	Not used					
T80	Not used					
T90	Not used					
U60	Not used					
C60	Not used					
FL20	Not used					
FL22	Not used					
FL23	Not used					
FL24	Not used					
FL25	Not used					
FL26	Not used					
FL27	Not used					
FL30	Not used					
FL40	Not used					
FL70	Not used					
FL71	Not used					
FL52	Not used					
FL53	Not used					
FL54	Not used					
FL55	Not used					
FL56	Not used					
FL57	Not used					
FL60	Not used					

[illegible]

3.7 Alarm messages

In the event of a fault or malfunction, the following signs appear on the screen:

Description	System Status	Code
Extinguishing for lack of light in the brazier	Block	Er03
Extinguishing for water over-temperature	Block	Er04
Incorrect Date/Time values because of prolonged lack of voltage supply	Block	Er11
Ignition Failure	Block	Er12
Extinguishing for Supply Voltage black out	Block	Er15
RS485 Communication Error	Block	Er16
Lack of Fuel(pellet)	Block	Er18
Boiler Probe or Buffer tank Probe open	Block	Er23
Displaying the status of the Temperature Sensors. The message is displayed during the check-up and indicates that the temperature reading on one or more probes is equal to the minimum value or the maximum value (depending on the probe considered). Check that the probes are not open (read the minimum value of the temperature scale) or in shortcircuit (read the maximum value of the temperature scale).		Sond
Message that appears if the system is not manually turned off during Ignition (after preload): the system will turn off only when it arrives at run mode.		Ignition Block
Periodic Cleaning On		Cleaning On
Lack of communication between keyboard and control board		Link Error

3.8 Problems - Possible causes - Solutions

In the table below are reported the most common problems with their possible solutions.

Problem	Possible cause	Solution
Failed ignition	Empty pellet container	Fill the container
	Disconnected or broken external cochlea cable	Reconnect the cable or find the break
	Ignition resistance broken	Check the resistance and/or substitute it
	Combustion grill is blocked	Pull out the grill and clean it
	Internal feeding auger blocked	Check the internal cochlea and remove any blockages
	External feeding auger blocked	Check external auger fuse or other possible causes of blockage of the auger
	Combustion fan not working	Check if it is broken or clogged with dust
	Poor quality or wet pellets	Check the condition of the used fuel and if it cannot guarantee optimal combustion, change it
	Dirty photoresistor	Clean the photoresistor
Power supply absent	Electrical supply to burner not present	Check the mains supply
		Check that the electrical cables are connected correctly
		Check that the general switches and the switches on the burner are in the correct position
		Check fuse (nr. 14 pag. 4) and replace it with one of the same amperage
Water probe	The probe is incorrectly positioned or connected	Check its position and connections
	Probe faulty	Replace the probe
Shutdown due to lack of light in the brazier	Pellet container empty	Fill the container
	Disconnected or broken feeding auger cable	Re-establish the connection
	Feeding auger motor not working	Check the motor
	Dirty photoresistor	Clean the photoresistor

4 MAINTENANCE

4.1 Periodic maintenance

Periodic maintenance, as well as being necessary for the optimal functioning of the burner and the plant, is required by Law and if maintenance regulations are not observed, there can be problems or even fines.

Maintenance must be entrusted to and carried out SOLELY by qualified technicians.

The pellet burners **B-Home** and **Essential Round** have been designed to require minimal maintenance, the frequency of which depends directly on the quality and the size of the pellets used (certified or not) and on how the burner is regulated.



WARNING DANGER ELECTRICITY

Before carrying out any maintenance activity, disconnect the appliance from the mains, and put the general switches on the plant into the OFF position, but also the main ones on the burner and the boiler (if present).



WARNING CAUTION

- When carrying out maintenance, all the Personal Safety Equipment required by current Legislation must be used.
- Periodic maintenance refers to the whole plant in which the burner is installed.
- If non-certified pellets are used, the indications below are rendered null and void, since the characteristics of the fuel are not known.
- In the event of the use of non-certified pellets, **Elmec Group S.r.l.** DOES NOT ACCEPT RESPONSIBILITY for any breakages or malfunctions or for any possible harm to people, animals or things, or to the environment.
- The table is only for suggestion purposes and is not binding.
- For cleaning the housing of the burner, use a damp cloth with water and soap or water and methylated spirits, or with specific non-abrasive products.

Description	Periodic			
	When necessary	Weekly	Six-monthly	Annual
BURNER CLEANING				
Combustion chamber - ash and slag		x		x
Combustion grill	x	x		
Burner fan			x	x
Internal cochlea				
Photocell			x	x
Ignition resistance				
Pellet container	Filling	x		x
Combustion air suction grill		x		x
External cochlea bearings				x
Possible greasing or lubrication				x
External cochlea fan				x
Control of perishable parts			x	x
Control of cables and electrical connections			x	x
PLANT CLEANING				
Smoke channel and flue pipe			x	x
Inside and back part of the boiler			x	x
Control of perishable parts			x	x
Control of exhaust fumes			x	x



WARNING CAUTION

- After any maintenance work, checks should be made to ensure that the burner is operating correctly.
- Use of the appliance in a poor state of maintenance could cause unexpected and potentially extremely dangerous malfunctions.
- If any parts have to be substituted, only original parts should be used.
- In case of replacement of fuses, it is important to replace them with fuses of the same amperage, as indicated in the manual.
- Pay particular attention to the correct positioning of the combustion grill, and that it is fixed to the blocking system, after it has been removed for periodic cleaning. An incorrect positioning of the grate could cause pellets to fall into the underlying part of the same, creating deformations or irreparable damage in a short time.
- The pellet is a solid fuel that produces dust so it is recommended to check weekly for any obstructions along the path that the pellet carries inside the machine.



WARNING

The manufacturer **Elmec Group S.r.l.** DOES NOT ACCEPT RESPONSIBILITY for any damage to people, animals or things caused by the use of components that are not original.
Any modification of or tampering with the burner will render the GUARANTEE, as well as the Manufacturer's RESPONSIBILITY, null and void.

4.2 Disposal



The burner must be disposed of, at the end of its working life, in line with current recycling laws; for example, the European Directives 2002/95/CE RoHS and 2002/96/CE RAEE.



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