



ffreforyou

TECHNICAL MANUAL HEVO 14-18-21



ENGLISH



Presentation

The information in this manual is intended for qualified staff only. The manufacturer considers itself relieved of any liability for damage caused to property and/or persons, due to non-compliance with this important warning. The installation and maintenance of these devices is entrusted in EXCLUSIVE to qualified and authorized personnel as a MAGIKAL Technical Support Center. Instructions written by the manufacturer include the manual and alerts on the machine and control bodies. During installation, the staff must refer to the following Laws and Regulations:

D.M. No.37 – 22.01.2008 (Reordering of the provisions on the installation activities of the plants inside the buildings) UNI 10683 (Wood-powered heat generators or other solid fuels. Verification, installation, control and maintenance)

Laws and regulations in place in the country of use of the Magikal product can evidence superior safety levels and consider other risks respect to the ones indicated in the manual.

The maintenance expert must have read the present Manual and Maintenance manual and be aware about all the controls in order to act in full respect of the rules and norms as regards the safety.

Summary

1	Technical data	4
2	Installation	5
2.1	5	
2.2	Chimney and fumes Pipe	6
2.3	Hydraulic installation	7
3	Electronic Unit.....	13
3.1	Schema elettrico	14
3.2	Environment thermostat	15
4	Loading System	16
4.1	Manual Loading.....	16
4.2	Automatic Load	17
5	Technical Parameters.....	17
6	Errors and solutions	23

1 Technical data

TECHNICAL DATA	HEVO 14		HEVO 18		HEVO 21	
	Nominal	Reduced	Nominal	Reduced	Nominal	Reduced
Thermical Power kW	14	4,3	18,5	4,32	21,3	4,3
Nominal Technical power kW	13,2	4	17,1	4	19,5	4
performance - %	93	92,5	91,5	92,5	91,7	92,5
Consumption per hour – Kg/h *	2,8	0,8	3,75	0,85	4,32	0,8
Average smokes temperature - °C	154	83	158	83	160	83
Average draft – Pa	10		10		10	
Inner tank capacity - Kg	20		20		20	
Autonomy – h *	7	25	5 ½	25	5	25
Heatable volume (nominal) – m ³ **	350		410		490	
Air taking - Ø	50		50		50	
Smokes exit - Ø	80		80		80	
Max operational pressure - bar	2.5		2.5		2.5	
Tension – Frequency	230V / 50 Hz		230V / 50 Hz		230V / 50 Hz	
Weight – Kg	85		85		85	

*Consumption and autonomy vary depending on the quality of the pellet

**Condifering an energy need of kcal per m³. Values have been calculated following the norm EN14785:2006

2 Installation

2.1 Outdoor air intake and exhaust fumes

In order to get the boiler working properly, it is necessary to place it in where the air needed for combustion can flow. The air inflow must occur directly through permanent openings (according to the regulations of the Country) practiced on the walls of the room that go outwards and that have the following characteristics:

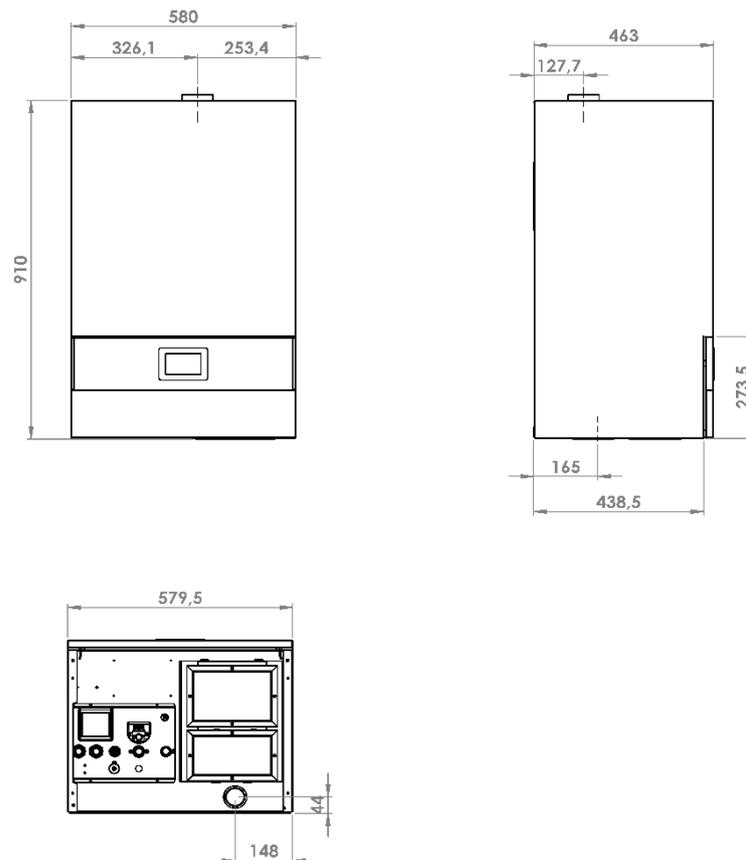
- They are made in such a way that they cannot be obstructed either from the inside or from the outside;
- Be protected with a grid, metal mesh or suitable protection, as long as it does not reduce the minimum section to 100 cm².

The minimum ambient volume must not be less than 20 m³.

The air inflow can also be obtained from rooms adjacent to the installation room as long as they have an external air intake and are NOT used as a bedroom and bathroom or, where there is no danger of fire like by a garage or fuels and with the full respect of the relevant norms.

The boiler's combustion air entrance is located at the top of the product next to the smoke output. The primary air tube has a diameter of 50mm.

Installation is not allowed in bedrooms, bathrooms or showers, and where another heating appliance is already installed without a self-contained influx (fireplace, stove, etc.).

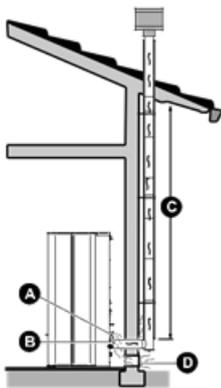


2.2 Chimney and fumes Pipe

The discharge of combustion products must be roofed and can take place in 3 different ways:

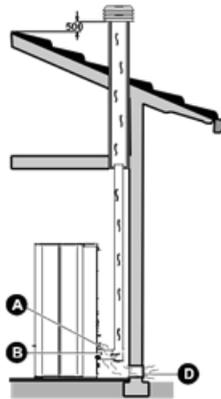
- By external conduit, which must have minimal internal dimensions of 80mm diameter and using only insulated pipes (double wall) stainless steel fixed to the wall (Figure 8).
- By chimney, which must be internal in size no more than 200x200mm; otherwise or in case of poor condition (e.g. cracks, poor insulation, etc.) it is recommended to insert inside the barrel a stainless-steel pipe of adequate diameter that develops throughout its length up to the chimney (Figure 9).
- By means of chimney or chimney siding, which for good operation, must have immediately downstream of the boiler a vertical section of at least 1500mm of height and minimum horizontal sections, however having a total width of no more than 4000mm with a gradient upwards of no less than 3% (Fig.10). In addition, for each 90-degree curve it is recommended to extend the vertical stretch by one meter and for each horizontal section it is recommended to extend the vertical section by 2 meters. In the case of vertical developments greater than 7 meters, it is necessary to use tubes of internal diameter greater than the fumes output of the boiler, which is 80mm. These connections, provided for by UNI 10683, ensure the evacuation of combustion fumes even in the event of a momentary lack of electricity. (Figure 10).

SCHEMA 1 (Fig.8)



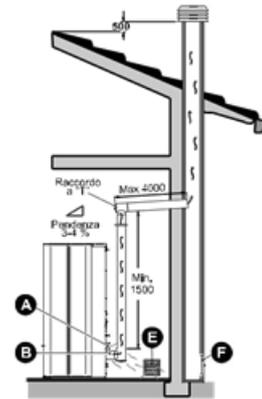
- C) Intake 'combustion air' minimum section 100 cm²
 D) Door for inspection of fumes conduction.

SCHEMA 2 (Fig.9)



- A) External fumes conduction coated double wall minimum 1500mm Length
 B) Intake combusting air minimum section 100 cm²

SCHEMA 3 (Fig.10)



- E) Intake combusting air
 F) Smokes pipe \varnothing 100

Check then:

- That there is a minimum draft of at least 10 Pa.
- The fumes exhaust system must always end with a windproof chimney.
- In the case of both an external chimney and a inner chimney, inspections should be provided for periodic checks and cleaning, which must be carried out annually.
- In case the fumes output pipes passed through a flammable material, coat it with an insulation (Class A1) enough thick

2.3 Hydraulic installation

Available models

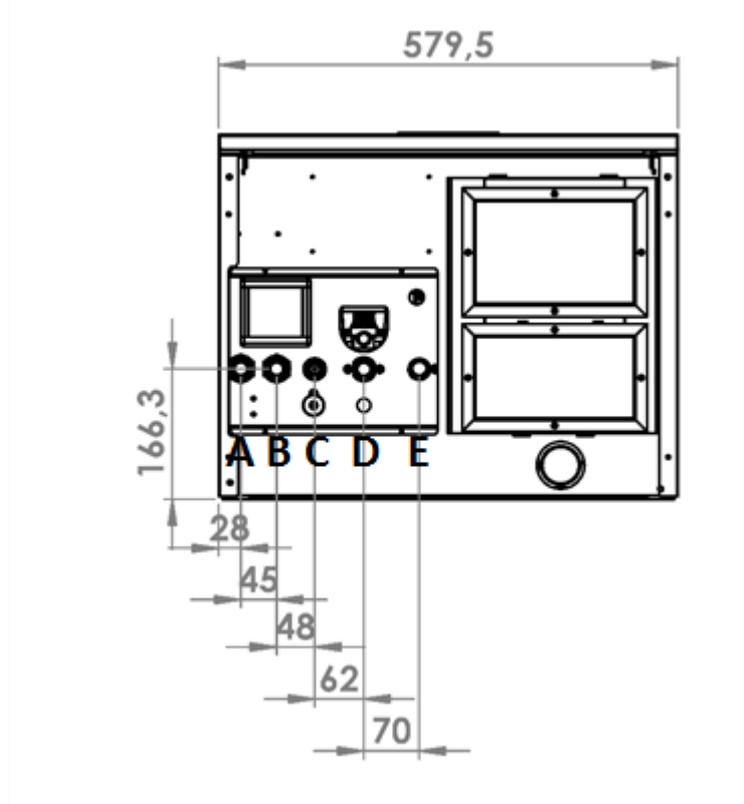
- Only domestic heating plant
- Domestic heating plant and production of hot water

Model	Components
<p data-bbox="363 481 507 510">Heating only</p> 	<ul style="list-style-type: none"> • Wilo circulator high performance 2.5/6 • Air Escape automatic • Safety valve 2,5bar • Expansion vase 6 lt. (Not in the picture)
<p data-bbox="236 922 635 952">Heating + Production of Hot Water</p> 	<ul style="list-style-type: none"> • Wilo circulator high performance 2.5/6 • Air Escape automatic • Safety valve 2,5bar • Expansion vase 6 lt. (Not in the picture)Circolatore – Motorized valve

Be sure that the hydraulic system will be provided with a proper expansion vase, closed and properly sized according to the same plant. The built-in case is sized only for the water content of the same

Hydraulic connection diagram as follows:

HEVO HYDRAULIC CONNECTIONS



Simboli	Legenda	Connection
A	Return Boiler Sanitary	¾" - M
B	Flow Boiler Sanitary	¾" - M
C	Charging of the plant by manual valve	½" M
D	Return to system	¾" - M
E	Flow to system	¾" - M

WARNING : Provide hydraulic connection to a thermal plant able to disperse the maximum nominal thermic power of the apparel.

! After verifying the intake and outtake of the hydraulic system, according to the model that will be installed, prepare the plant according to the following important aspects:

- Use rather flexible pipes in order to make the moving of the boiler easier for any extraordinary maintenance.
- Effect the connection by using intercept valves (sphere gate valves) in order to simplify any maintenance operation
- Connect the output of the safety valve to a losing drain
- For the hot water apparel, consider to install a safety valve of 6 bar.
- In order to reduce limestone formation, dangerous for the pipes, if the water has a particularly high level of hardness (more that 20°F) it is advisable to pass through a water softener.

Configuration of the system

Symbols	Components	Presence inside the apparel of the components	
		Heating only (HEVO__-R)	Heating + Hot water (HEVO__-P)
P1	Boiler circulator	PRESENT	PRESENT
P2	Secondary circulator or electrovalve	NOT PRESENT	PRESENT
FL	Flussostate	NOT PRESENT	NOT PRESENT
S1	Boiler Probe	PRESENT	PRESENT
S2	Puffer Probe	NOT PRESENT	NOT PRESENT

All not present components could be added during the installation, followed by a correct electric connection and a right electric configuration that will be shown in the next chapters

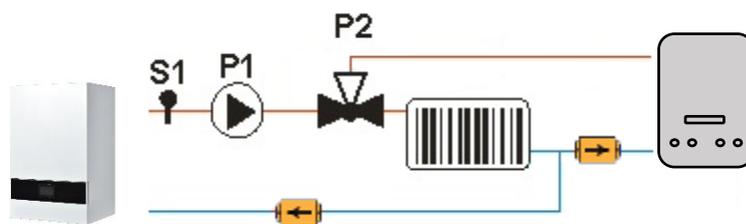
In order to set the best configuration it is sufficient to vary the parameter P26 inside the System Menu, in the section Settings.

Variation Parameter	Type of Plant
P26 = 0	Configuration 0
P26 = 2	Configuration 2
P26 = 4	Configuration 4

Hereafter the function logics will be explained

Configuration 0 – P26=0 – Default from production

- Apparel coupled with a gas boiler in the ‘heating only’ version

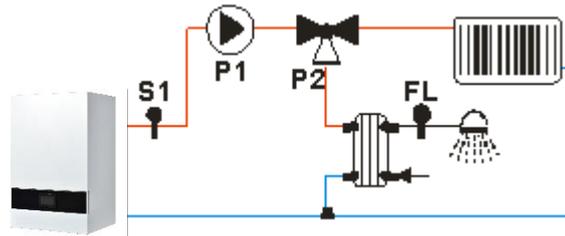


In order to connect the boiler to another (gas) boiler on a Hydraulic plant with closed vessel, it is suggested, according to the current norms, to install a Plate exchanger that separates the hydraulic circuits of the 2 heat generators. The function of the pellet boiler is priority with respect to the activity of the second generator, since the cheapest fuel is pellet. The central unit is able to control automatically the activity between the two apparels by the connection of a motorized valve 3 ways.

In this case the Boiler Probe (S1) detects the temperature of the body of the machine in the boiler; once that the probe reaches 50° (Th 19), the circulator P1 of the boiler begins to exchange with the plant and the motorized valve P2 with thermostat set at 50° (Th 56) opens the circuit between the plant and the boiler.

Vice versa, when the temperature read by the Probe S1 is less than 50°(Th 56) the 3 ways motorized valve (P2) exchanges allowing to the gas boiler o any other heat generator to heat the domestic plant.

- **Plant in independent function with production of hot water**



Logic of plant heating:

The pellet heating is the only heat generator for the heating plant and for the sanitary plant (or at least the connection between the boiler and the gas boiler is done manually by the end user). Then S1 is the probe that detects the temperature inside the boiler body and controls the start of the P1 circulator once that the machine reaches 50° (Th19).

Logic for production of Sanitary Hot Water:

The boiler presents a flow (FL) that controls the request of hot sanitary water. Automatically by means of the flow the central unit sends the output to the plates exchanger through the motorized valve (P2) for the immediate production of hot water. Moreover, when the boiler perceives the demand of hot water brings the temperature to 70# (Th 21-lh21) in order to guarantee a constant production of hot water.

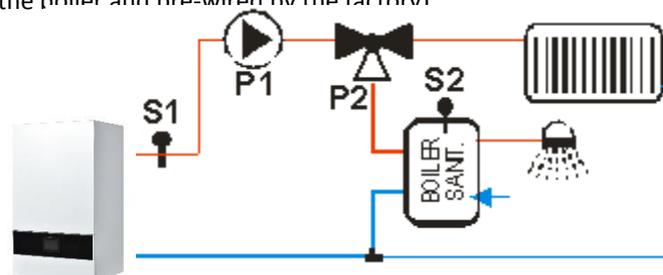
In this case, if the installed boiler produces also hot water, the flow, the exchanger and the motorized valve are already originally present inside the boiler.

Configuration 2 – P26=2 – Boiler Sanitary water

In order to set the boiler ready to heat a loading tank for sanitary hot water it is necessary to:

IN CASE THAT THE ORDERED MODEL WAS (HEV_-P) ALL THE FOLLOWING SETTINGS HAVE BEEN ADJUSTED BY DEFAULT FROM THE PRODUCER

- Enter the System Menu - Settings and set technical Parameter P26 to 2
- Connect the clamps 35 and 36 (IN3) from the electronic central unit to an optional Probe (NTC of 10K @ 25° C) and put it in a cockpit of the boiler in order to allow to the central unit to detect the temperature inside the boiler.
- Enter the System Menu – Settings and set technical Parameter P75 to 31
- Set the Puffer thermostat on the User’s Menu – Control heating – the desired water temperature inside the boiler Thermostat (default setting 55°)
- Connect the exit A2 of the central unit with the clamps of the 3 ways motor valve P2.
- (If it were the version prepared for working with the sanitary boiler, the 3-way valve is already present inside the boiler and pre-wired by the factory)



Logic for central heating:

Pump P1 functions if the temperature of the water in the boiler exceeds the thermostat value Th20 (55°) and the temperature does not exceed the value of Sanitary water Th20 (70°) and the difference between the temperature read by the Probe S1 and Probe S3 is superior to the one of the thermostat Th57). The pump is active even if the water temperature in the boiler exceeds the value of thermostat th19. To avoid freezing of the water the pumps starts when the water temperature goes under the value of Th18 (5°). If the water temperature exceeds th21 value (80°), for safety reasons, the pump remains active.

Logic for production of Sanitary Hot Water:

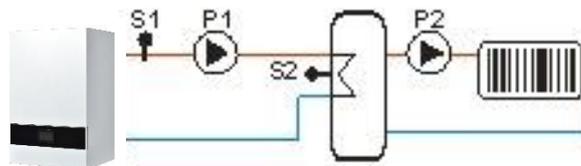
Hot water is predominant with respect to the heating. The valve is turned on the hot water boiler if the temperature of the water do not exceed the value of the thermostat ACS Th79 (70°) and the temperature does not exceed thermostat Th20 (55°). For safety reasons if the temperature of the boiler is higher than Th21 the valve turns towards the plant

Warning : By setting Summer mode (only hot water for sanitary use), when the temperature reaches 70° (Puffer thermostat) the boilers goes to Stand-by position. When the temperatures goes under 63°C (Puffer temperature 79 8°) the boiler interrupts the stand-by position and starts.

Configuration 4 – P26=4 – Puffer technical storage

In order to heat an accumulation puffer, it is necessary to:

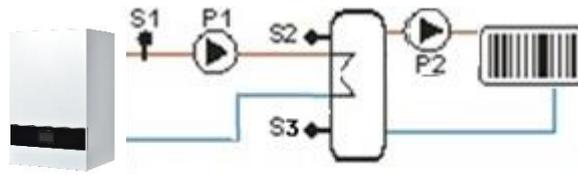
- Enter Menu System – Settings, set Technical parameter P26 to 4
- Set on Puffer Thermostat on the User's Menu – Heating control – the desired temperature for the water inside the Puffer (Default setting 65°)
- Connect the claps 35 and 36 from mother board (IN3) an optional probe (NTC of 10K @ 25°) and insert it in the Puffer tank in order to allow to the central unit to detect the temperature inside the boiler
- Enter the System Menu – Settings and set technical Parameter P75 to 9.
- If possible to connect the second pump P2 to exit A2 of the electric motherboard, precisely to claps 16 and 18.



Logic for plant heating:

If the temperature in the boiler S1 is Higher than the pump activating thermostat equal to 50° the system heats the water of the puffer if there's difference between S1 and S2 of more than 5° (Th57) in order that the boiler do not risk to get the water of the puffer warm. For safety reasons if the temperature of the water in the boiler (S1) exceeds the temperature of 80° the circulator gets into function. Circulator P2 starts when the Puffer exceeds 50° (Th59).

PUFFER MANAGEMENT WITH TWO PROBES, HIGH PUFFER PROBE AND LOW PUFFER PROBE



It is recommended to tap the supply water of the heating system from the Puffer at a height higher than or equal to the Puffer S2 probe.

The Puffer High (S2) probe was previously connected and configured in IN 3 (clamps 35-36). At this point it will be necessary to connect the Low Puffer Probe (S3) in Input 8(IN8, clamps 48 –49) and through the System –Settings menu, set parameter P71 to 23.

Now through the User's Menu, Heating managing it will be possible to set the desired temperature of both probes.

Probe operation logic: The boiler passes into the Stand-by state when both probes (S2 and S3) are satisfied and therefore both Puffer Probe thermostats (Low and high) have reached the temperature set in the User's Menu – Heating Management.

The boiler will exit the Stand-by state and then restart heating if Puffer Probe High (S2) temperature is < of the Puffer High Probe Thermostat –lh58 -1.

Example:

Puffer High Probe Thermostat (S2) = 50° (setting adjustable via user menu –Heating Management)

lh58 = Puffer Thermostat Hysteresis S2 = 8° (Default setting –adjustable via System Menu –Thermostats)

Puffer Low Probe Thermostat (S3) = 70° (adjustable setting via User Menu –Heating Management)

Puffer High Probe Thermostat (S2 = 50°)	Puffer Low Probe Thermostat (S3 = 70°)	Stato Funzionamento Caldaia
S2 < 50°	S3 < 70°	Run Mode (ON)
S2 > 50°	S3 < 70°	Run Mode (ON)
S2 > 50°	S3 > 70°	Stand-By

2.3.1 Filing of the plant

Do not start the boiler if the plant is not full of water since this could bring to a serious damage of the apparel.

In order to fill the plant please follow the instructions:

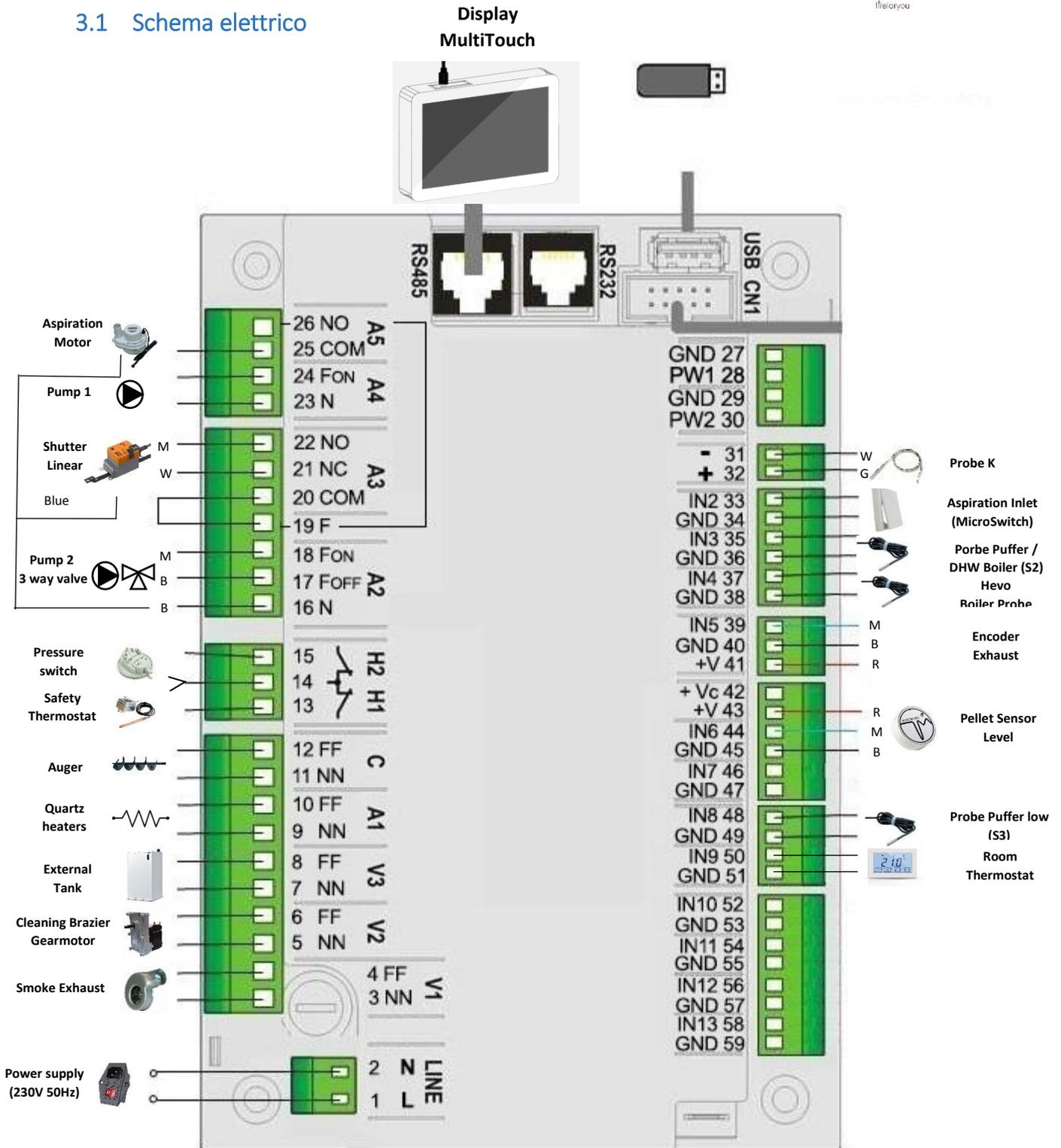
- Through a manual gate valve or filling group that must be mounted on the domestic
- Open all air passages of the radiators and avoid air bubbles that could interrupt the normal circulation of the water.
- Purge air through vent valves installed in the plant, and in radiators.
- Check that the vent in the machine body is loose, opening the upper central lid will allow in the back to slightly unscrew the cap placed on the automatic vent valve present in the send tube.
- Using the electronic control unit, check the pressure of the heating circuit. From the main screen of the display click once on info and verify that the pressure read is about 1100 mbar with the system at room temperature.
- Perform an additional vent from the radiator taps.
- Check that the pressure of the system is stable, checking for any water leaks. In case the pressure is stable and there is no water leakage, the product is hydraulically ready.

3 Electronic Unit

Electronic power station The boiler's Electronic Center, in addition to performing all the functions of managing and controlling the operation of the boiler itself, is also equipped with the following features

- Antifreeze function (automatic activation of the circulator with water temperature less than or equal to 5 degrees);
- Anti-lock Circulator or electrovalve function (automatic activation of the circulator and electrovalve for 20 seconds every 7 days of inactivity);
- Automatic management of the production of hot water sanitary only in the models that provide it;
- Management of a possible accumulation boiler for sanitary use;
- Management of a possible Storage Puffer for heating and sanitary;
- Automatic job management with a combined boiler (gas).
- Input for the connection of any additional environment thermostat.
- Serial port (RS232) for connecting a GSM modem (WiFi) and updating the control unit.

3.1 Schema elettrico



3.2 Environment thermostat

In case you need to connect the room thermostat, use for the IN9 connection, clamps 50-51. (See electrical diagram on page 14) Then, through the System –Settings Menu, configure input 9 with environment thermostat logic, setting the P70 parameter to 4.

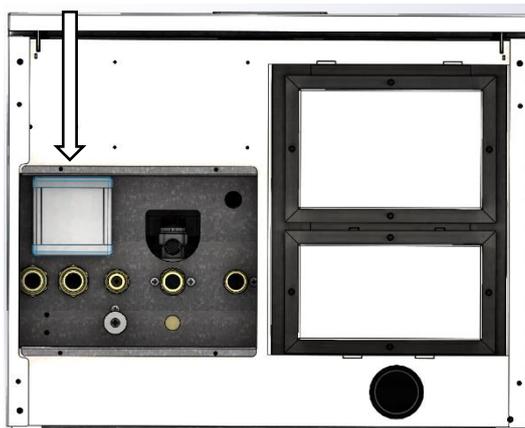
By setting the parameter A01 in the System Menu, you can work with different logics the Environment Thermostat according to the needs of the user.

- If A01 = 0
Environment Probe/Thermostat not reached: The System passes in the Check-Up state.
Probe/Environment Thermostat Reached: The Exceed System in the Shutdown state.
- If A01 = 1 (default setting)
Probe/Environment Thermostat not reached: The System goes in the Normal state. Probe/Environment Thermostat Reached: The Exceed System in the Modulation State.
- If A01 = 2
Environment Probe/Thermostat not reached: the System goes in the normal state.
Probe/Environment Thermostat Reached: The System goes in the State of Standby Environment
- if A01 = 3
Probe/Environment Thermostat not reached: The system reactivates Pump 1.
Probe/Environment Thermostat reached: If the temperature of the water in the boiler exceeds the value of the thermostat Th19 (50 degrees C) the system blocks Pump 1 until the thermostat Th21 (80 degrees Celsius) is reached.
- If A01 = 4
Probe/Environment Thermostat not reached: the System reactivates the Plant Pump and brings it in Normal.
Probe/Environment Thermostat reached: If the temperature of the water in the boiler exceeds the value of the thermostat Th19 (50 degrees C) the system blocks Pump 1 until the thermostat Th21 (80 degrees Celsius) is reached.
- If A01 = 4
Space/Environment Thermostat not reached: the System reactivates the Plant Pump and exceeds it in Normal. Probe/Environment Thermostat reached: the System exceeds in the state of Standby and blocks Pump 1 as in case 3.
- If A01 = 5
Probe/Environment Thermostat not reached: Heating fan working regularly.
Probe/Environment Thermostat Reached: If A11-0 The Heating Fan is turned off, if A11-1 goes to Power 1.

4 Loading System

The HEVO pellet wall boiler loads the fuel through an integrated engine on board the machine, capable of vacuuming the pellets and transporting it inside the tank of the machine itself. At the bottom of the boiler there is a socket where the suction hose supplied with the boiler will be inserted later.

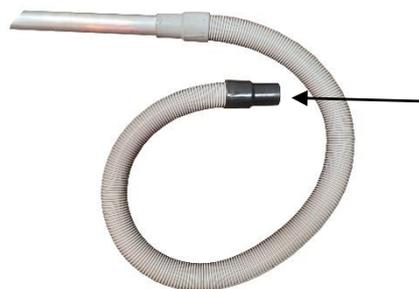
Aspiration Inlet



BOTTOM VIEW

4.1 Manual Loading

The manual loading is carried out directly by the intake of the pellets out of the bag.



Adapter that must be plugged into the in-outlet, indicated above, present at the bottom of the boiler.

To ensure a closed pellet load without any clogging blocks it is necessary to take the pellets in without fully inserting the metal lance so as not to obstruct the passage of the slots below so as to always guarantee a passage of air.

Air inlet slots.



4.2 Automatic Load



Automatic loading of the plug in which the supplied hose must be connected, which in turn must be connected to the in-outlet, indicated above, present in the lower part of the boiler.

Inside the additional tank there is an engine that handles the pellets at the bottom in order to avoid possible blockages due to fuel extraction. The engine is powered by the boiler's electronic control unit, connecting the power cables in the V3 output, corresponding clamps 7 and 8 (see electrical diagram p. 14)

Intake inlet air calibration:



Joining in which the supplied hose should be connected, which in turn must be grafted into the inlet socket, indicated above, present in the lower part of the boiler. By moving the tube shown in the figure, from right to left and vice versa (\leftrightarrow) it is possible to increase and reduce the air inflow during pellet intake.

The air during the loading operation is a fluidizer so in case the pellet should stick along the pipe connected to the boiler it will be necessary to increase the air entrance by completely opening the grey pipe slots in order to increase the air flow and reduce the flow of pellets so as to avoid possible blockages.

Below are the default technical parameters already prepared in the electronic board.

To make changes to the parameters, access via the Display, select the System Menu and enter the password: 6593.

Auger

Parametro	Descrizione Funzione	Hevo 14	Hevo 18	Hevo 21	U.M
C01	Time Auger ON in Ignition Power	1.20	1.20	1.20	sec
C02	Time Auger ON in Stabilization Power	1.30	1.30	1.30	sec
C03	Time Auger ON in Power 1	0.60	0.80	0.80	sec
C04	Time Auger ON in Power 2	1.00	1.30	1.30	sec
C05	Time Auger ON in Power 3	1.50	1.90	2.10	sec
C06	Time Auger ON in Power 4	1.90	2.50	2.80	sec
C07	Time Auger ON in Power 5	2.40	3.00	3.40	sec
C10	Time Auger ON in Second Ignition	1.30	1.30	1.30	sec
C11	Time Auger ON in Modulation	0.60	0.60	0.60	sec
P05	Auger Period Total Time	7			sec
P57	Auger On Maximum reachable time	3.60			sec

Smoke Exhaust 1

Parametro	Descrizione Funzione	Hevo 14	Hevo 18	Hevo 21	U.M
V01	Exhaust Speed in Ignition	2150	2150	2150	rpm
V02	Exhaust Speed in Stabilization	2400	2400	2400	rpm
V03	Exhaust Speed in Power 1	950	1250	1250	rpm
V04	Exhaust Speed in Power 2	1350	1500	1500	rpm
V05	Exhaust Speed in Power 3	1600	1750	1900	rpm
V06	Exhaust Speed in Power 4	1750	2100	2300	rpm
V07	Exhaust Speed in Power 5	1950	2500	2700	rpm
V09	Extinguishing Speed	2600	2600	2600	rpm
V10	Exhaust Speed in Second Ignition	2150	2150	2150	rpm
V11	Exhaust Speed in Modulation	950	950	950	rpm
V12	Exhaust Speed in Standby	950	950	950	rpm
V24	Exhaust Speed in Pre-heat	1000			rpm
P14	Combustion Fan Minimum Speed	800			rpm
P30	Combustion Fan Maximum Speed	2800			rpm
P16	Value of the Fan speed correction step	5			%

Thermostats Menu

Parametro	Descrizione Funzione	Hevo 14	Hevo 18	Hevo 21	U.M
lh19	Hysteresis of the Thermostat Th19 (Pump 1)	2			°C
lh20	Hysteresis of the Thermostat Th20	2			°C
lh21	Hysteresis of the Thermostat DHW2	10			°C
lh24	Hysteresis of the Boiler Thermostat	1			°C
lh25	Hysteresis of the Thermostat Th2	2			°C
lh33	Room Thermostat Hysteresis	1.00			°C
lh56	Hysteresis of the Thermostat Th56	1			°C
lh57	Hysteresis of the Thermostat Th57	1			°C
lh58	Hysteresis of the Buffer Tank Thermostat	2			°C
lh59	Hysteresis of the Thermostat Th59	2			°C
lh78	Isteresi termostato Th78	2			°C
lh79	Termostato Massimo Sonda Puffer	5			°C

lh80	Isteresi Termostato Th80	2	°C
lh81	Isteresi termostato Th81	1	°C
lh85	Isteresi termostato Th85	2	°C
lh97	Isteresi Termostato Th97	2	°C
Th01	Boiler OFF	70	°C
Th02	Igniter Deactivation	150	°C
Th03	Pre-Extinguishing for lack of flame	80	°C
Th06	Switch from Stabilization to Variable phase	350	°C
Th07	Modulation for Exhaust flue gas Over-temperature	750	°C
Th08	Safety for Exhaust flue gas Over-temperature	800	°C
Th09	Ignition Bypass	650	°C
Th18	Anti-Freeze Thermostat	5	°C
Th19	Pump Activation Thermostat	50	°C
Th20	DHW Thermostat 1	50	°C
Th21	DHW Thermostat 2	80	°C
Th25	Boiler Safety Thermostat	85	°C
Th26	Boiler Thermostat minimum Range	55	°C
Th27	Boiler Thermostat maximum Range	70	°C
Th28	Stove Off in Standby	80	°C
Th51	Buffer tank Thermostat minimum range	50	°C
Th52	Buffer tank Thermostat maximum range	70	°C
Th56	Output under Thermostat activation Thermostat	45	°C
Th57	Boiler Probe–DHW Probe differential or Buffer tank Probe–DHW Probe differential	5	°C
Th59	Plant Pump activation thermostat (only if P26=4)	50	°C
Th78	Buffer tank Probe Safety Thermostat	80	°C
Th80	DHW probe Safety Thermostat	75	°C
Th81	Differenziale Sonda Puffer – Sonda ACS	8	°C
Th83	DHW Thermostat Maximum Range	65	°C
Th85	Low Buffer tank Thermostat	50	°C

Shutdown thermostat

Setting the temperature value for each operating power, if the temperature of the fumes falls below the value set for the corresponding power in operation, the system goes into stoppage with Er03

Parametro	Descrizione Funzione	Hevo 14	Hevo 18	Hevo 21	U.M
Th35	Extinguishing thermostat for Power 1	48	48	48	°C
Th36	Extinguishing thermostat for Power 2	48	48	48	°C
Th37	Extinguishing thermostat for Power 3	48	48	48	°C
Th38	Extinguishing thermostat for Power 4	48	48	48	°C
Th39	Extinguishing thermostat for Power 5	48	48	48	°C
Th40	Extinguishing thermostat for Power 6 (non utilizzato)	48	48	48	°C
Th43	Extinguishing thermostat for Modulation	48	48	48	°C

Menù Timer

Parametro	Descrizione Funzione	Hevo 14	Hevo 18	Hevo 21	U.M
T01	Check-Up duration time in Ignition		20		sec
T02	Igniter Pre-heating duration time in Ignition		20		sec
T03	Pre-loading duration time in Ignition		65		sec
T04	Fixed Ignition duration time in Ignition		160		sec
T05	Variable Ignition duration time in Ignition		360		sec

T06	Stabilization duration time in Ignition	230	sec
T07	Interval of Periodic Cleaning repetition	30	min
T08	Periodic Cleaning duration time	20	sec
T09	Delay time for the Safety - Er01	10	sec
T10	Delay time for the Safety - Er02	20	sec
T11	Delay time to exit Standby	30	sec
T13	Minimum duration time of the Extinguishing Phase	300	sec
T14	Pre-Extinguishing for lack of flame Waiting time	120	sec
T15	Waiting time for Extinguishing in Safety	60	sec
T16	Final Cleaning duration time	60	sec
T17	Delay time combustion power change	15	sec
T18	Delay time combustion power change exiting Ignition	30	sec
T22	Delay time to enter Standby	10	sec
T29	Pre-loading waiting time in Ignition	90	sec
T40	Delay time for the Auger activation if there is a Pellet Safety Valve	0	sec
T41	Working time of the Pump if T42 expired	20	sec
T42	Maximum idle time of Pump P1 and Pump P2 or of the Valve	60	ore
T43	Timer to switch from Modulation to Standby if boiler temperature > (Boiler Thermostat+D23) and A13=1, 2	30	sec
T46	Working time of the Valve if T42 expired	10	sec
T57	Minimum duration time of Standby phase	30	sec
T58	Brazier Final Cleaning in Standby	120	sec
T66	System operating hours before it goes into Service Block	1600	ore
T67	System operating hours before the message 'Cleaning' is shown	0	ore
T68	Delay time to restore the original value of the Boiler Thermostat in case of ceased DHW demand	30	sec
T69	Delay on the activation at the maximum speed of the Heating Fan if exhaust flue gas temperature > thermostat Th07	60	sec
T88	Maximum time of power supply lack for the system to go back into its previous state.	60	sec
T89	Maximum time of power supply lack for the system to go back into Recovery Ignition.	5	min

Settings Menu

Parametro	Descrizione Funzione		Hevo 14	Hevo 18	Hevo 21	U.M
A01	0	Room thermostat = Ignition/Extinguishing		1		n°
	1	Room thermostat = Run Mode/Modulation;				
	2	Room thermostat = Run Mode/Standby-Extinguishing				
	3	Room thermostat Block the Pump1				
	4	Room thermostat = Run Mode/Standby andblock Pump1 until Th21				
	5	Room thermostat = RunMode/Modulation in Wood and Run mode/Standby-Extinguishing in Pellet;				
	6	Not Used				
	7	Not Used				
A08	0	Not Used		0		n°

	1	Not Used		
A10	0	Ignition command from the Extinguishing: 0=the system goes into Recovery Ignition;	0	n°
	1	Ignition command from the Extinguishing: 1=it goes into Check Up		
A13	0	System Management for Boiler Thermostat satisfied: the system goes into Modulation;	1	n°
	1	System Management for Boiler Thermostat satisfied: before the system goes in Modulation and after, if boiler temperature>(Boiler Thermostat+D23), goes in Standby;		
	2	System Management for Boiler Thermostat satisfied: in Winter the system goes in Modulation, in Summer the system goes in Modulation and if the boiler temperature>(BoilerThermostat+D23) in Standby		
A14	0	Management without Pressure Sensor: 0 = disabled;	0	n°
	1	Management without Pressure Sensor: 1 = enabled		
A26	0	Management to exit from Standby: 0=immediate,	1	n°
	1	Management to exit from Standby: 1=only upon the expiry of the timer T13 and if the exhaust flue gas temperature<Th28.		
A27	0	System management in Standby: 0=brazier Extinguishing;	0	n°
	1	System management in Standby: 1=Brazier Maintenance		
A28	0	Management Auger Brake: 0= not enabled;	0	n°
	1	Management Auger Brake: 1=enabled		
A29	0	System Management in Standby for Room Thermostat: 0= it does not exit for DHW demand	1	n°
	1	System Management in Standby for Room Thermostat: 1=g it exits for DHW demand		
A32	0	Internal Chrono Management:Ignition/Extinguishing	0	n°
	1	Internal Chrono Management:RunMode/Modulation		
	2	Internal Chrono Management:RunMode/StandBy		
	3	Internal Chrono block the Pump1 until Th21		
A41	0	Pump operation also in OFF	0	n°
	1	Pump dissimilated in OFF		
A53	0	Management lack of net supply voltage: 0=system in Block with Er15 if there was no supply voltage for more than T89 minutes;	0	n°
	1	Management lack of net supply voltage: system in Recovery Ignition if there was no voltage supply for more than T89 minutes		
A61	0	Periodical Cleaning Management enabled only if in Run Mode.	0	n°
	1	Periodical Cleaning Management enabled also in Modulation.		
P02		Maximum number of attempted Ignition	2	n°
P03		Number of Working Combustion Powers	5	n°
P04		Number of recipes shown to the user	1	n°
P12		Refill feature with error in case of threshold lower than the 10%: 0=error disabled, 1=error enabled	1	
P20		Pressure Sensor Selection	0	n°
P26		Hydraulic Plant Configuration (see pag. 9)	0	n°

P66	Enables RS485	0	n°
P74*	IN11 Input Configuration	0	n°
P83*	IN12 Input Configuration	0	n°
P84*	IN13 Input Configuration	0	n°
P92	Percentage variation of the Combustion Fan speed during the Periodic Cleaning	20%	n°
P93	Percentage variation of Auger speed/On time during the Periodic Cleaning	-30%	n°
P111	Maximum amount of pellet the stove may contain	21	Kg
P112	Amount of pellet used in 10 minutes with the auger at half of its maximum speed. To calculate the value, use the function 'Loading Test'.	830	gr
P118	Auger Off time in Unlock function	2.0	sec

Menù Delta

Parametro	Descrizione Funzione	Hevo 14	Hevo 18	Hevo 21	U.M
D01	Exhaust flue gas temperature increasing Delta in Stabilization	50			°C
D08	Water temperature Delta for automatic combustion regulation	5			°C
D23	Delta to add to the Boiler Thermostat to pass from Modulation to Standby at the end of T43 if A13=1, 2.	5			°C
D41	Ignition Delta	20			°C

Menu to Restore the Default Parameters

Sottomenù	Descrizione Contatore
Totally hours	Totally time operation
Hours of operation	Operation time: time while also one component works.
Run mode hours	Operation time
Ignition N°	Number of successful ignition attempts
Ignition failed N°	Number of failed ignition attempts
N° Errori	Total Error
Reset Contatori	Reset all counters

Menù Test Outputs

Menu that allows the test of the single outputs of the board (therefore of the loads connected to it) with the system in the Off state. If you leave them on, the outputs will automatically turn off after 30 seconds.

Sottomenù	Descrizione
Smoke exhaust	Test Smoke exhaust
Cleaning brazier Motor	Test Cleaning brazier Motor
Auger	Test Auger
Heater – A1	Test Quarz Heater
V3	Test Motor external Tank
Aux1	Test Pompa 2 o valvola motorizzata se prevista
A2	Pump 2 or 3 way valve
A3	Shutter linear
A4	Pump 1
A5	Pellet Aspiration motor

6 Errors and solutions

Top side of the display on the right – errors appear



Warning Er01

PROBLEM

The temperature of the water in the boiler reached 100 degrees Celsius and the safety thermostat with manual rearmament intervened.

ACTION

After letting the boiler cool down, press the manual rearmament button of the safety thermostat at the back of the boiler, then unlock the boiler by long-pressing the display on and off button.

CAUSE

- A. Presence of air bubbles in the system or boiler. To eliminate them use the vent valve present of the boiler body or those in radiators.
- B. Presence of interception organs, such as shutters, which prevent heat disposal. Open any shutters and in the case of planting in zones make sure that there is at least one open area.
- C. Circulator blocked. Place the circulator in the vent so that you can check if the engine turner can unlock automatically, otherwise replace the boiler circulator.
- D. Incorrect technical parameters. Check the P26 parameter (hydraulic configuration). It must be set in the way that reflects the installation of the product in question (see page 10).
- E. Faulty boiler probe. Observe the indication of the temperature of the water in the boiler on the control display; The indication must be appropriate for the actual temperature of the water (not 0 degrees Celsius for example). The resistance of the NTC probe that detects the temperature of the water in the boiler must be about 10 kΩ at the temperature of 25 degrees C and decrease as the temperature detected (to increase as the temperature drops). To measure the resistance of the probe, it is necessary to disconnect it from the electronic control unit; if the measured resistance is 0 ohm or is infinite the probe is to be replaced because it is short-circuited (indication of 110 degrees C) or interrupted (indication of 0-C). If the probe's resistance is correct but the temperature is wrong, you must replace the electronic control unit that does not correctly interpret the temperature detected by the probe
- F. Faulty circulator. If the temperature of the water in the boiler is > 55 degrees Celsius, there is a 230Volt Voltage (VAC) between the two N and L contacts of the circulator clamp. If this Voltage is not present, perform the same measurement directly on terminals 7 and 8 of the control unit to see if there is a problem with the external connection. If the Volta is not even present on the connector, you must replace the electronic control unit that does not properly feed the circulator. Sen the turner is unlocked and the capacitor efficient but the circulator does not turn yet, you have to replace the circulator because it is defective.
- G. Safety thermostat and/or related faulty wiring. Ensure electrical continuity between contacts C and 2 of the safety thermostat, the Electrical Resistance must be 0 Ohm.
- H. If the thermostat is working properly but the alarm remains, you will need to check the electrical connection between the thermostat and the electronic control unit (the Resistance

of the connecting wires must be 0 Ohm). If the thermostat is working properly but the alarm remains, you will need to check the electrical connection between the thermostat and the electronic control unit (the wire resistance must be 0 Ohm) and if necessary you will need to replace the connection fastons. If the electrical connection is also working, replace the electronic control unit.

Warning Er 02

PROBLEM

The depression inside the machine body is less than <20 Pa and the state intervened.

ACTION

Unlock the boiler by long-pressing the control panel - turn control panel on and off button.

CAUSE

- A. The boiler door was not closed perfectly. Close the door correctly of the combustion chamber. Non-compliant and/or dirty fumes discharge system. Check the implementation of the chimney in accordance with the UNI 10683:2012 standard. Check the cleaning status of the chimney, if necessary clean the same carefully by eliminating all combustion residues inside, especially on changes of direction and horizontal sections.
- B. Non-compliant and/or dirty fumes discharge system. Check the implementation of the chimney in accordance with the UNI 10683:2012 standard. Check the cleaning status of the chimney, if necessary clean the same carefully by eliminating all combustion residues inside, especially on changes of direction and horizontal sections..
- C. Non-airtight upper and lower fumes lap caps. Check and possibly replace the seals. If deformed replace the seals.
- D. Smoke extractor and/or capacitor not working. Verify that the extractor is working correctly.
- E. Check that the property is working properly or that it does not obstruct the transparent silicone tube in its entire length.

Warning Er03

PROBLEM

The boiler was accidentally switched off (the temperature of the fumes dropped below 45 degrees Celsius).

ACTION

Unlock the boiler by long-pressing the control panel turn the control panel on and off

CAUSE

- A. Pellet range not sufficient to maintain combustion (average longer pellets and/or poor calorific power). Check and possibly increase the technical parameters inherent in the On times of the cochlea (AUGER), especially in the lower powers.
- B. Excessive temperature drops. Make sure there are no external vents near the fumes output, which cool the probe. The fumes probe does not read correctly.
- C. Non-compliant or dirty smoke exhaust system and check the chimney in accordance with UNI 10683:2012 standard.

- D. Dirty brazier. Check the cleaning of the brazier; All holes must be free to allow the flow of combusting air, Perform seasonal maintenance.
- E. Excessive pellet range (average shorter pellets). Check possibly decrease the technical parameters inherent in the on times of the cochlea (AUGER) , especially to the higher powers.

Warning Er04

The temperature of the boiler water exceeded the value set in the parameter Th25 (90 degr. C)

ACTION

After letting the boiler cool, unlock the boiler by pressing the control panel to turn on and off for a long time.

CAUSE

- A. There are air bubbles in the system or boiler. To eliminate them use the vent valve present of the boiler body or those in radiators.
- B. Presence of interception organs, such as zone valves and/or shutters, which prevent heat disposal. Open any shutters and in the case of planting in zones make sure that there is at least one open area.
- C. Circulator blocked. Place the circulator in the vent so that you can check if the engine turner can unlock automatically, otherwise replace the boiler circulator.
- D. Incorrect technical parameters. Check the P26 parameter (hydraulic configuration). It must be set in the way that reflects the installation of the product in question (See page
- E. Faulty boiler probe. Observe the indication of the temperature of the water in the boiler on the control display; The indication must be appropriate for the actual temperature of the water (not 0 degrees Celsius for example). The resistance of the NTC probe that detects the temperature of the water in the boiler must be about 10 kΩ at the temperature of 25 degrees C and decrease as the temperature detected (to increase as the temperature drops). To measure the resistance of the probe, it is necessary to disconnect it from the electronic control unit; if the measured resistance is 0 ohm or is infinite the probe is to be replaced because it is short-circuited (indication of 110 degrees C) or interrupted (indication of 0-C). If the probe's resistance is correct but the temperature display is wrong, the electronic control unit that does not correctly interpret the temperature detected by the probe must be replaced.
- F. Faulty circulator. If the temperature of the water in the boiler is > 55 degrees Celsius, there is a 230Volt Voltage (VAC) between the two N and L contacts of the circulator clamp. If this Voltage is not present, perform the same measurement directly on terminals 7 and 8 of the control unit to see if there is a problem with the external connection. If the Volta is not even present on the connector, you must replace the electronic control unit that does not properly feed the circulator. If the turner is unlocked and the capacitor efficient but the circulator does not turn yet, you have to replace the circulator because it is defective.

Warning Er05

PROBLEM

The temperature of the fumes exceeded the value set in the technical parameter Th08 (200 degrees)

ACTION

After letting the boiler cool, unlock the boiler by pressing the control panel to turn on and off for a long time.

CAUSE

- A. Dirty boiler, carry out seasonal maintenance.
- B. Excessive pellet range and/or high calorific power of the same. Check and possibly reduce the on times of the boiler especially to the highest powers.
- C. The fumes probe does not read correctly, check its location and check the operation status of the fumes. Check the display for the temperature of the fumes, which must be appropriate for the likely actual temperature of the fumes. If the indicated temperature is very high (900 degrees Celsius), the probe that detects the temperature of the fumes must be replaced because it is damaged or interrupted. If replacing the probe the temperature indication remains wrong, you have to replace the electronic control unit that does not correctly interpret the temperature detected by the probe itself.

Warning Er07

PROBLEM

The boiler's electronic control unit does not detect the fume extractor Encoder signal (rpm fume extractor speed).

ACTION

After letting the boiler cool, unlock the boiler by pressing the control panel to turn on and off for a long time. From the System Menu – Outputs Test, start the Fume Fan Speed test, in case the extractor turns to check the correct encoder connections. If the extractor does not turn replace the extractor or the electronic control unit.

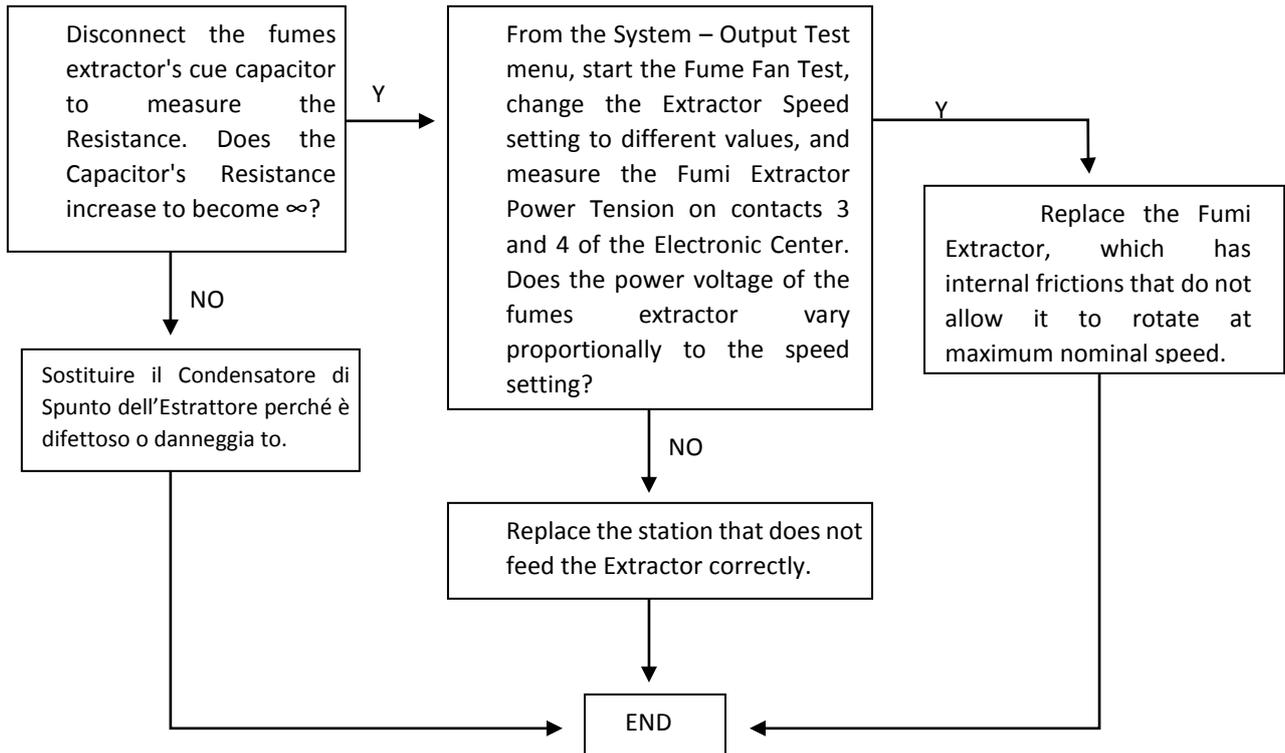
Warning Er08

PROBLEM

The speed adjustment of the fumes extractor failed.

ACTION

Check fume extractor functionality, check the electrical connection of the fumes extractor to the connection wiring of the electronic control unit and the input capacitor by checking the correctness of all electrical connections:



Warning Er09

PROBLEM

The boiler water pressure is less than the value set in the SP01 (300mbar) technical parameter.

ACTION

After restoring the correct pressure, unlock the boiler by long pressing the control panel turn on and off button.

CAUSE

- A. Exercise pressure too low. Compare the pressure value indicated by the electronic control unit by using the visualizations that appear by pressing the ↓ arrow twice when you are on the display home screen.
- B. Pressure transducer not working. Measure the power voltage of the pressure transducer on contacts 37 and 39 of the electronic control unit. If the Voltage is different from 5 Volts (VDC) replace the electronic control unit that does not power the pressure transducer. Otherwise, measure the Pressure Transducer Signal Tension on contacts 38 (-) and 39(-) of the electronic control unit. If the Voltage is proportional to the water pressure (0.8bar plus 0.8 volts – 1 bar plus 1 Volt etc etc) then replace the electronic control unit that does not correctly detect the pressure transducer signal. If the Tension is not proportional to the water pressure, replace the transducer and its connecting cable because they do not work properly.

Warning Er10

PROBLEM

The boiler water pressure exceeded the value set in the SP02 technical parameter (2300 mbar).

ACTION

After restoring the correct pressure by unloading the system, unlock the boiler by long pressing the control panel on and off button.

CAUSE

- A. The system's faucet is not perfectly closed. Check that it is closed correctly.
- B. Load pressure is too high. Allow the heating water to cool until it reaches room temperature. If cold the water pressure of the heating system is > 1 bar (1000mbar), decrease the amount of water in the system until you have a pressure equal to 1 bar (1000 mbar). To do this, simply open the vent valve of any radiator in the heating system and let out the necessary amount of water.
- C. Closed expansion vessel not enough. If the water pressure of the plant is cold 1 bar (1000mbar), check the correct sizing of the closed expansion vessel or check that it is loaded correctly
- D. Pressure transducer not working. Measure the power voltage of the pressure transducer on contacts 37 and 39 of the electronic control unit. If the Voltage is different from 5 Volts (VDC) replace the electronic control unit that does not power the pressure transducer. Otherwise, measure the Pressure Transducer Signal Tension on contacts 38 (-) and 39(-) of the electronic control unit. If the Tension is proportional to the water pressure (0.8bar plus 0.8 Volts – 1 bar plus 1 etc etc) then replace the electronic control unit that does not correctly detect the pressure transducer signal. If the Tension is not proportional to the water pressure, replace the transducer and its connecting cable because they do not work properly.

Warnong Er11

PROBLEM

The watch of the electronic control unit does not work correctly because the data storage is incorrect.

ACTION

Remove the 3-volt CR2032 button battery from the battery holder on the control board. Measure the Battery Voltage which must be > 2.8 Volts (VDC).

Warning Er12

PROBLEM

The boiler was turned on, but the combustion did not start within the maximum allowed time; Failed-Ignition

ACTION

Unlock the boiler by long-pressing the display on and off button.

CAUSE

If you find accumulated pellets in the brazier:

- A. Dirty brazier. Check the cleaning of the brazier; all holes must be free to allow adequate combusting airflow and safeguard the life of the brazier itself.
- B. Hole of the candle clogged with unburned pellets or combustion residue, then clean it and turn the boiler back on.
- C. Brazier not positioned perfectly, verify that the brazier is positioned correctly and that it is pushed towards the candle. The candle must be in the center of the tube and should not be in contact with the walls of the tube itself.
- D. Cartridge heater not working properly. Use the TEST-USCITE function, present in the System Menu, measure the voltage directly on the 9 and 10 contacts of the electronic control unit (to exclude malfunction of electrical connections) and if the Voltage is not present it will be necessary to replace the electronic control unit. If the power voltage is present but the candle does not heat up, it will be necessary to measure its electrical resistance after disconnecting it from the electronic control unit. The strength of the candle must be about $150\ \Omega$ (150 Ohm) - 5%. If the measured value is very different from the one indicated or even is ∞ (infinite) the candle is to be replaced because it is ruined or even interrupted.

If the brazier turns out to be empty:

- A. Engine not working; Use the TEST-USCITE function in the System menu, measure the power voltage of the measurable cochlea engine on its contacts. The voltage measured without disconnecting the engine must be 230 volts (VAC). If the voltage is not present, do the same directly on contacts 15 and 16 of the electronic control unit and if the Tension is not present here you will need to replace the electronic control unit. If you have the voltage on contacts 15 and 16 you will need to clean or replace the fastons connecting to the engine. If the Power Voltage arrives correctly to the engine, but the same engine (released from the cochlea) will not run, it will have to be replaced.
- B. Locked and/or cloited cochlea; Empty the pellet tank thoroughly clean the cochlea and remove any residues or solid pieces that prevent its rotation. After cleaning, check that the cochlea is free to move; simply rotate the cochlea block manually. If the cochlea is still blocked, it will be necessary to completely remove it from the tube that supports it, unscrewing the fastening screws in which the axis of the cochlea is centered.

The flame is present:

- A. The fumes probe does not read correctly; check its location. Make sure there are no external vents near the fumes output, which cool the probe.
- B. The fumes probe is not working properly; Check on the display the temperature of the fumes that must be consistent with the power and consonates with the probable actual temperature of the fumes (Power1 about 80 degrees - Power2 about 90 degrees - Power3 about 100 etc etc). If the indicated temperature is very high (>400 degrees Celsius) or absent (___ C), the probe that detects the temperature of the fumes must be replaced because it is damaged or

interrupted. If replacing the probe the temperature indication remains wrong, you have to replace the electronic control unit that does not correctly interpret the detected temperature of the probe itself..

- C. Incorrect technical parameters; Check the technical parameters related to thermostats and ignition times; if you change them, you can change them. Technical parameters don't correct.

Warning Er15

PROBLEM

There was a power interruption of the boiler (black-out) for more than 50 minutes.

ACTION

Unlock the boiler by long-pressing the control panel turn the control panel on and off button.

NOTE

If the power outage is less than 1 minute, the boiler when it recovers returns to the previous state of operation at the outage. If the power outage is between 1 and 50 minutes, the boiler when the power is restored is in the Power Recovery state, performing the shutdown phase, and then automatically turns it back on.

Other signals

Sond: Display status of Temperature Probes, The message is displayed during the Check Up phase and indicates that the temperature read on one or more probes is equal to the minimum value (0) or the maximum value. Verify that the probes are not open or short-circuited

Service: Message that signals the achievement of scheduled operating hours as it is necessary to perform the extraordinary seasonal cleaning.

Turn On Lock: A message that appears if the system is turned off not manually and when switching on.

Link Error: No communication between the electronic control unit and the display, check the correct insertion of the flat cable connectors in case to replace the entire cable because it is

Standby Man: A message that appears if the system is in Standby for pressing the P5 key.



Magikal Srl
Via Alpone, 22 – 37032 – Monteforte D’Alpone
Tel: 045 6106342 – Fax: 045 6107773
magikal@magikal.it – www.magikal.it