

SUNPELLET





- Read the warnings in this instruction booklet carefully since they provide important information on safe installation, use and maintenance.
- This instruction booklet is an integral and essential part of the product and must be kept with care by the user for future reference.
- If the unit is sold or transferred to another owner or if it is to be moved, always make sure the booklet stays with the boiler so that it can be consulted by the new owner and/or installer.
- Installation and maintenance must be carried out by professionally qualified personnel, according to current regulations and the manufacturer's instructions.
- Incorrect installation or inadequate maintenance can result in damage or injury. The manufacturer declines any liability for damage caused by errors in installation and use or by failure to follow the instructions provided.
- Before carrying out any cleaning or maintenance operation, disconnect the unit from the power supply using the system switch and/or the special cut-off devices.
- In case of a fault and/or poor operation, deactivate the unit and do not try to repair it or directly intervene. Contact professionally qualified personnel. Any repair/replacement of the products must only be carried out by qualified personnel using genuine parts. Failure to comply with the above can compromise the safety of the unit.
- Periodic maintenance performed by qualified personnel is essential in order to ensure proper operation of the unit.
- This unit must only be used for its intended purpose. Any other use is deemed improper and therefore hazardous.
- After unpacking, check the good condition of the contents. The packing materials are potentially hazardous and must not be left within the reach of children.
- The unit can be used by children aged at least 8 years and by persons with reduced physical, sensory or mental capabilities, or lacking experience or the necessary knowledge, only if under supervision or they have received instructions on its safe use and the related risks. Children must not play with the unit. Cleaning and maintenance intended to be done by the user can be carried out by children aged at least 8 years only if under supervision.
- In case of doubt, do not use the unit. Contact the supplier.
- The unit and its accessories must be appropriately disposed of in compliance with current regulations.
- The images given in this manual are a simplified representation of the product. In this representation there may be slight and insignificant differences with respect to the product supplied.

	This symbol indicates "CAUTION" and is placed next to all safety warnings. Strictly follow these instructions in order to avoid danger and damage to persons, animals and things
	This symbol calls attention to a note or important notice.
	This symbol, which is used on the product, packaging or documents, means that at the end of its useful life, this product must not be collected, recycled or disposed of together with domestic waste. Improper management of electric or electronic waste can lead to the leakage of hazardous substances contained in the product. For the purpose of preventing damage to health or the environment, users are kindly asked to separate this equipment from other types of waste and to ask for it to be dealt with by the municipal waste service or dealer under the conditions and according to the methods set down in national and international laws transposing the Directive 2012/19/EU.  Separate waste collection and recycling of unused equipment helps to save natural resources and to guarantee that this waste is processed in a manner that is safe for health and the environment. For more information about how to collect electric and electronic equipment and appliances, please contact your local Council or Public Authority competent to issue the relevant permits.



The CE marking certifies that the products meet the essential requirements of the relevant directives in force.

The declaration of conformity may be requested from the manufacturer.

COUNTRIES OF DESTINATION: IT - RO - CZ - HU

1 Operating instructions	4	
1.1 Introduction.....	4	
1.2 Control panel.....	4	
1.3 Lighting and shutdown	5	
1.4 Adjustments.....	6	
1.5 Operating instructions	12	
1.6 Cleaning the burner grille	12	
2 Installation	13	
2.1 General Instructions	13	
2.2 Installation in boiler.....	13	
2.3 Electrical connections.....	17	
2.4 Fuel supply	17	
2.5 Connection to an external hot water tank.....	18	
3 Service and maintenance.....	19	
3.1 Commissioning.....	19	
3.2 Maintenance.....	20	
3.3 Troubleshooting.....	22	
4 TECHNICAL DATA AND CHARACTERISTICS	23	
4.1 Dimensions.....	23	
4.2 General view and main components	25	
4.3 Technical data table	25	
4.4 Wiring diagram	27	

1. Operating instructions

1.1 Introduction

SUNPELLET is a new cast iron boiler for heating, **running on PELLETS**. The boiler shell consists of elements assembled with nipples; the profile of the elements has been carefully designed with optimum division of the fins to ensure high thermal efficiency, high performance and significant energy-saving. The combustion chamber is completely wet; which ensures long life and high efficiency.

SUNPELLET it is arranged for connection to an external domestic hot water tank (optional). In this manual, all the functions regarding domestic hot water production are active only with the optional hot water tank connected as indicated in cap. 2.5 "Connection to an external hot water tank".

1.2 Control panel

Panel

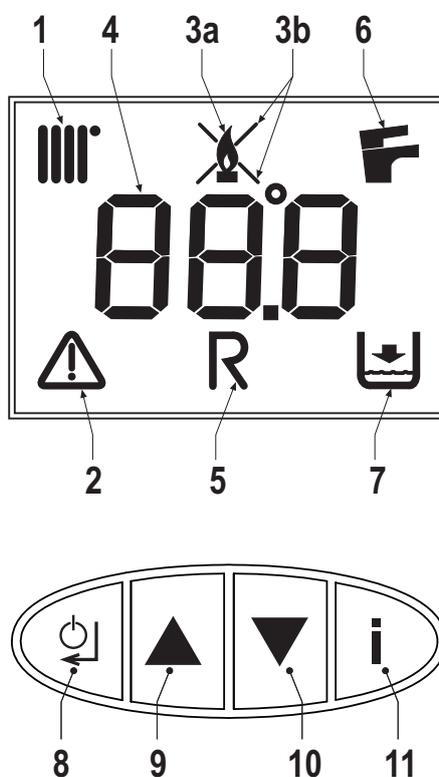


fig. 1 - Control panel

- 1 Heating mode
- 2 Fault
- 3a Burner lit
- 3b Shutdown Fault
- 4 Multifunction
- 5 Pellet Loading Request in progress
- 6 DHW mode
- 7 System Filling Request
- 8 Reset – Enter – On/Off button
- 9 Parameter selection button
- 10 Pellet Loading Function – Parameter selection button
- 11 Menu Access – Information button

Indication during operation

Heating

A heating demand (generated by Request Contact, Room Thermostat or Remote Timer Control) is indicated by activation of the radiator (detail 1 - fig. 1).

The multifunction display (detail 4 - fig. 1) shows the heating sensor temperature and, during heating standby time, the message "d2".

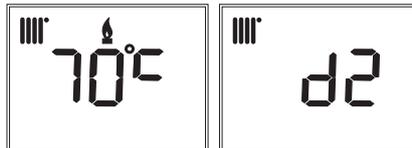


fig. 2

Domestic hot water (DHW)

A DHW demand (generated by drawing hot water) is indicated by activation of the faucet (detail 6 - fig. 1).

The multifunction display (detail 4 - fig. 1) shows the DHW sensor temperature and, during DHW standby time, the message "d1".

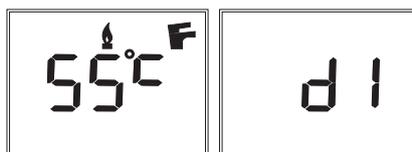


fig. 3

1.3 Lighting and shutdown

Burner not electrically powered



fig. 4 - Burner not electrically powered

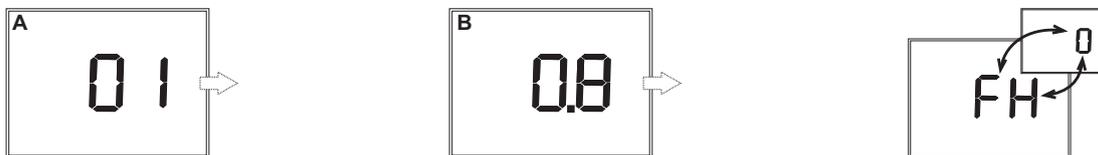


The frost protection system does not work when the power and/or gas to the unit are turned off. To avoid damage caused by freezing during long shutdowns in winter, it is advisable to drain all water from the boiler, the DHW circuit and the heating system water; or drain just the DHW circuit and add a suitable antifreeze to the heating system, as prescribed in .



Burner ignition

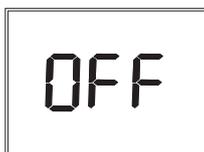
Switch on the power to the burner.



- For the next 180 seconds the display will show 0/FH which identifies the heating system air venting cycle.
- During the first 10 seconds the display also shows the software version of the cards (**A** = Display card software version / **B** = Controller software version).
- When the message FH disappears, the burner is ready to work automatically whenever there is a room thermostat demand.

Burner shutdown

Press the on/off button (detail 8 - fig.1) for 5 seconds.



When the device is turned off, the PCB is still powered. Domestic hot water and heating are disabled. The frost protection system remains activated. To switch the device on again, press the on/off button (detail 8 - fig.1) for 5 seconds.

The device will be immediately ready to work whenever domestic hot water is drawn or in case of a heating demand (generated by the Room Thermostat or Remote Timer control).

1.4 Adjustments

User menu

To access the user settings menu, press the Info button (detail 11 - fig. 1).

7 parameters and information indicated by the letter “u” are available.

Table 1

Parameters	User settings	Range	Default
u01	Heating adjustment temperature	30-80°C	80°C
u02	DHW adjustment temperature	10-65°C	65°C
u03	Summer/Winter selection	0 = Summer 1 = Winter	1 = Winter
u04	Economy/Comfort selection	0 = Economy 1 = Comfort	0 = Economy
u05	Burner max. power	1=Min, 5=Max	3
u06	Burner operation methodology	0=request contact, 1, 2	0=request contact
u07	Burner power (Step) and Flame status	0-6	-

By pressing the Info button it is possible to scroll the list of user settings, only in ascending order, until exiting the menu.

Heating temperature adjustment

Press the Info button (detail 11 - fig. 1) until displaying the parameter **u01** of the user settings menu.
 Press Enter (detail 8 - fig. 1): the actual value of the parameter **u01** is displayed.
 Use the buttons (details 9 and 10 - fig. 1) to adjust the temperature from a min. of 30°C to a max. of 80°C.
 Press Enter (detail 8 - fig. 1) to confirm the setting.
 Then press the Info button (detail 11 - fig. 1) until exiting the menu.

DHW temperature adjustment

Press the Info button (detail 11 - fig. 1) until displaying the parameter **u02** of the user settings menu.
 Press Enter (detail 8 - fig. 1): the actual value of the parameter **u02** is displayed.
 Use the buttons (details 9 and 10 - fig. 1) to adjust the temperature from a min. of 10°C to a max. of 65°C.
 Press Enter (detail 8 - fig. 1) to confirm the setting.
 Then press the Info button (detail 11 - fig. 1) until exiting the menu.

Summer/Winter Switchover

Press the Info button (detail 11 - fig. 1) until displaying the parameter **u03** of the user settings menu.
 Press Enter (detail 8 - fig. 1): the actual value of the parameter **u03** is displayed.
 Use the buttons (details 9 and 10 - fig. 1) to set Summer mode (0) or Winter mode (1).
 Press Enter (detail 8 - fig. 1) to confirm the setting.
 Then press the Info button (detail 11 - fig. 1) until exiting the menu.

ECO/COMFORT selection

Heating/hot water tank temperature maintaining (Comfort) can be excluded by the user.
 If excluded (Economy), domestic hot water will not be delivered.
 Press the Info button (detail 11 - fig. 1) until displaying the parameter **u04** of the user settings menu.
 Press Enter (detail 8 - fig. 1): the actual value of the parameter **u04** is displayed.
 Use the buttons (details 9 and 10 - fig. 1) to set Economy (0) or Comfort (1) mode.
 Press Enter (detail 8 - fig. 1) to confirm the setting.
 Then press the Info button (detail 11 - fig. 1) to exit the menu.

Burner Max. Power

Press the Info button (detail 11 - fig. 1) until displaying the parameter **u05** of the user settings menu.
 Press Enter (detail 8 - fig. 1): the actual max power step is displayed.
 Use the buttons (details 9 and 10 - fig. 1) to vary the max power: from 1 (min Step) to 5 (max Step).

Table 2 Burner max. power

Parameter value	SUN P7N Power - kW	SUN P12N Power - kW
1	14	30
2	20	36
3	25	41
4	30	48
5	34	55

Press Enter (detail 8 - fig. 1) to confirm the setting.
 Then press the Info button (detail 11 - fig. 1) to exit the menu

Burner operation methodology

Press the Info button (detail 11 - fig. 1) until displaying the parameter **u06** of the user settings menu.

Press Enter (detail 8 - fig. 1): the actual value of the parameter **u06** is displayed.

Use the buttons (details 9 and 10 - fig. 1) to vary the operation methodology:

- **u06=0 (default):** Burner activation with request contact (230Vac) or with Room Thermostat contact (voltage-free). (Remote Control request by-passed).
- **u06=1:** Burner activation from Remote Control or with request contact (230Vac).
- **u06=2:** Burner activation from Remote Control and with request contact (230Vac).

Press Enter (detail 8 - fig. 1) to confirm the setting.

Then press the Info button (detail 11 - fig. 1) to exit the menu.

Actual burner power (Step) and Flame status

Press the Info button (detail 11 - fig. 1) until displaying the information **u07** of the user settings menu.

Press Enter (detail 8 - fig. 1): the actual burner power (Step) and Flame status are displayed.

- **1** = Minimum Power
- **5** = Maximum power
- **0/FH** = During Pre-ventilation/Post-ventilation
- **6** = During Post-ventilation2

Press Enter (detail 8 - fig. 1) to return to the list of parameters.

Then press the Info button (detail 11 - fig. 1) to exit the menu.

Room temperature adjustment (with optional room thermostat)

Using the room thermostat, set the temperature required in the rooms. If the room thermostat is not installed, the boiler will keep the system at the set system delivery setpoint temperature.

Room temperature adjustment (with optional remote timer control)

Using the remote timer control, set the required temperature in the rooms. The burner will adjust the system water according to the required room temperature. For operation with remote timer control, refer to the relevant instruction manual.

Adjustments from Remote Timer Control

 If the Remote Timer Control (optional) is connected to the burner, the parameter "u06" must be modified (see *** 'Burner operation methodology' on page 8 ***); the previously described adjustments are managed as described in table 3.

Table 3

Heating temperature adjustment	Adjustment can be made from the Remote Timer Control menu and the burner control panel.
DHW temperature adjustment	Adjustment can be made from the Remote Timer Control menu and the burner control panel.
Summer/Winter Switchover	Summer mode has priority over a possible Remote Timer Control heating demand.
Eco/Comfort selection	Selection can only be made from the burner control panel
Burner shutdown (off)	Off mode can only be done from Remote Timer Control.

Parameters menu

The card Service Menu is accessed by pressing the Info button (detail 11 - fig. 1) for 10 seconds. Press the Up/Down buttons to select "tS", "In", "Hi" or "rE". "tS" means Transparent Parameters Menu, "In" means Information Menu, "Hi" means History Menu, "rE" means History Menu Reset. After selecting the menu, press the Info button to access it.

"ts" - Transparent parameters menu

Table 4

Remote Control	Card	Transparent Parameters	Range	Default/ SUN P7N	SUN P12N
01	t01	Pellet loading function	0=Disabled 1=Enabled	0=Disabled	0=Disabled
02	t02	Delivery probe	0=Disabled 1=Enabled	1=Enabled	1=Enabled
03	t03	Fan setpoint in Lighting	0-200 Pa	51 Pa	51 Pa
04	t04	Auger activation time in Lighting	0-100 (1=4 seconds)	8 (32 seconds)	8 (32 seconds)
05	t05	Adjustment calculation timer (only with t18=1 and t18=2)	0-100 seconds	5 seconds	5 seconds
06	t06	Ramp function timer	0-255 seconds	150 seconds	150 seconds
07	t07	Auger operation period (activation time + deactivation)	0-50 seconds	15 seconds	12 seconds
08	t08	Fan setpoint at Power 1	0-200 Pa	51 Pa	51 Pa
09	t09	Auger activation time at Power 1	0-100 (100=10 seconds)	28 (2.8 seconds)	38 (3.8 seconds)
10	t10	Fan setpoint at Power 2	0-200 Pa	74 Pa	70 Pa
11	t11	Auger activation time at Power 2	0-100 (100=10 seconds)	38 (3.8 seconds)	40 (4.0 seconds)
12	t12	Fan setpoint at Power 3	0-200 Pa	120 Pa	100 Pa
13	t13	Auger activation time at Power 3	0-100 (100=10 seconds)	46 (4.6 seconds)	45 (4.5 seconds)
14	t14	Fan setpoint at Power 4	0-200 Pa	150 Pa	120 Pa
15	t15	Auger activation time at Power 4	0-100 (100=10 seconds)	53 (5.3 seconds)	60 (6.0 seconds)
16	t16	Fan setpoint at Power 5	0-200 Pa	170 Pa	155 Pa
17	t17	Auger activation time at Power 5	0-100 (100=10 seconds)	56 (5.6 seconds)	65 (6.5 seconds)
18	t18	Burner operation selection (only with t02=1)	0=On/Off 1=Modulating 2=Modulating 2	0=On/Off	0=On/Off
19	t19	Post-ventilation 2 Time	0-255 (100=10 seconds)	200 (20 seconds)	200 (20 seconds)
20	t20	Photoresistance voltage (display only)	0-50 (50=5Vdc)	--	--
21	t21	Auger activation function in Lighting	0=Continuous 1=Cycle On/Off	0=Continuous	0=Continuous
22	t22	Photoresistance voltage threshold	0-100 (100=1Vdc)	50	50
23	t23	Burner type selection	1=P7/ECO 3.4 P 2=P12 3=ECO 5.5 P	1=P7/ECO 3.4 P	2=P12
24	P24	System water pressure protection selection	0=No Pressure switch, 1=Pressure switch	0=No Pressure switch	0=No Pressure switch
25	P25	Boiler type selection	1=Heating only 2=Storage with probe 3=Storage with probe 4=Instantaneous	1	1
26	P26	Heating pump activation temperature (P25=1)	0-80°C	30°C	30°C
		Heating pump activation temperature (P25=2)	0-80°C	30°C	30°C
		Heating pump activation temperature (P25=3)	0-80°C	30°C	30°C
		Heating pump activation temperature (P25=4)	0-80°C	30°C	30°C
27	P27	Post-circulation Heating pump	0-20 minutes	6 minutes	6 minutes
28	P28	Heating standby time	0-10 minutes	2 minutes	2 minutes

Remote Control	Card	Transparent Parameters	Range	Default/ SUN P7N	SUN P12N
29	P29	Pump operation	0=Post-Circulation 1=Continuous	0=Post-Circulation	0=Post-Circulation
30	P30	Pump deactivation temperature during Post-Circulation (P25=1)	0-100°C	35°C	35°C
		Pump deactivation temperature during Post-Circulation (P25=2)	0-100°C	35°C	35°C
		Pump deactivation temperature during Post-Circulation (P25=3)	0-100°C	35°C	35°C
		Pump deactivation temperature during Post-Circulation (P25=4)	0-100°C	35°C	35°C
31	P31	Heating user max. set point	31-90°C	80°C	80°C
32	P32	No function (P25=1)	--	--	--
		DHW pump activation temperature (P25=2)	0-80°C	40°C	40°C
		DHW pump activation temperature (P25=3)	0-80°C	40°C	40°C
		DHW pump activation temperature (P25=4)	0-80°C	40°C	40°C
33	P33	DHW pump Post-Circulation	0-20 minutes	4 minutes	4 minutes
34	P34	DHW standby time	0-20 minutes	4 minutes	4 minutes
35	P35	DHW user max. setpoint (P25=1)	--	--	--
		DHW user max. setpoint (P25=2)	55-65°C	65°C	65°C
		DHW user max. setpoint (P25=3)	55-65°C	65°C	65°C
		DHW user max. setpoint (P25=4)	--	--	--
36	P36	No function (P25=1)	--	--	--
		Hot water tank activation hysteresis temperature (P25=2)	0-20°C	4°C	4°C
		Hot water tank activation hysteresis temperature (P25=3)	0-20°C	4°C	4°C
		No function (P25=4)	--	--	--
37	P37	No function (P25=1)	--	-	--
		Hot water tank preparation delivery temperature (P25=2)	70-85°C	80°C	80°C
		Hot water tank preparation delivery temperature (P25=3)	70-85°C	80°C	80°C
		DHW mode delivery adjustment temperature (P25=4)	50-75°C	55°C	55°C
38	P38	Boiler shell warm-up activation temperature (P25=1)	0-80°C	0°C	0°C
		Boiler shell warm-up activation temperature (P25=2)	0-80°C	0°C	0°C
		Boiler shell warm-up activation temperature (P25=3)	0-80°C	0°C	0°C
		Comfort activation temperature (P25=4)	0-80°C	55°C	55°C
39	P39	Boiler shell warm-up deactivation hysteresis (P25=1)	0-20°C	5°C	5°C
		Boiler shell warm-up deactivation hysteresis (P25=2)	0-20°C	5°C	5°C
		Boiler shell warm-up deactivation hysteresis (P25=3)	0-20°C	5°C	5°C
		Comfort deactivation hysteresis (P25=4)	0-20°C	20°C	20°C
40	P40	Safety and heating sensor selection	0-2	0	0
41	P41	Variable output relay operation (P25=1)	0-4	0	0
42	P42	No function (P25=1)	--	--	--
		Legionella protection (P25=2)	0-7	0	0
		Legionella protection (P25=3)	0-7	0	0
		No function (P25=4)	--	--	--

Press the Up/Down buttons to scroll the list of parameters in ascending or descending order. To change the value of a parameter just press Enter at the parameter and then modify it with the Up/Down buttons: the change will be saved automatically.

To return to the list of parameters just press Enter.

To return to the Service Menu just press the Info button. To exit the card Service Menu press the Info button for 10 seconds or exiting will be automatic after 15 minutes

“In” - Information Menu

The card can display the following information:

Contents	Description	Range
t01	NTC Heating sensor (°C)	between 05 and 125°C
t02	NTC Safety sensor (°C)	between 05 and 125°C
t03	Hot water tank NTC sensor (°C) (only with parameter P25=2, storage boiler)	between 05 and 125°C
	Flow switch status (On/Off) (only with parameter P25=4, instantaneous boiler)	On/Off
P04	Actual system water pressure (bar/10)	00-99 bar/10
P05	Burner power (Step) and Flame status	0-6
P06	Actual air pressure (Pa)	00-255 Pa
P07	Actual air pressure setpoint (Pa)	00-255 Pa (00 with burner off)
P08	Actual air pressure Switch Off setpoint (Pa)	00-255 Pa (00 with burner off)
C09	Auger (On/Off)	On/Off
F10	Photoresistance voltage	0-50

Press the Up/Down buttons to scroll the list of information in ascending or descending order. To display the value just press Enter at the parameter. In case of damaged sensor, the card displays hyphens.

To return to the list of parameters just press Enter.

To return to the Service Menu just press the Info button. To exit the card Service Menu press the Info button for 10 seconds or exiting will be automatic after 15 minutes.

"Hi" - History Menu

The microprocessor can memorize the total hours with card powered (Ht), the last 10 faults and the hours of burner operation (Hb).

The History datum item H1 represents the most recent fault that occurred, whereas the History datum item H10 represents the least recent. The codes of the faults saved are also displayed in the corresponding menu of the Opentherm remote control.

Press the Up/Down buttons to scroll the list of faults. To display the value just press Enter at the parameter.

To return to the list of faults just press Enter.

Ht	Total hours with card powered
H1	Fault code
H2	Fault code
H3	Fault code
H4	Fault code
H5	Fault code
H6	Fault code
H7	Fault code
H8	Fault code
H9	Fault code
H10	Fault code
Hb	Hours of burner operation

To return to the Service Menu just press the Info button. To exit the card Service Menu press the Info button for 10 seconds or exiting will be automatic after 15 minutes.

"rE" - History Reset

By pressing Enter for 3 seconds it will be possible to delete all the faults stored in the History Menu: the card will automatically exit the Service Menu, in order to confirm the operation.

To exit the card Service Menu press the Info button for 10 seconds or exiting will be automatic after 15 minutes.

1.5 Operating instructions

Once the burner is installed and correctly adjusted, its operation is fully automatic without requiring any control by the user. In case of anomalies or no fuel, the burner stops and shuts down. To avoid irregular burner operation it is advisable to top-up the fuel before it finishes.

Make sure the room where the burner is installed is free of flammable materials or objects, corrosive gases and volatile substances, and that it is not dusty. In fact, dust drawn by the fan sticks to the blades and reduces the air flow or obstructs the flame stability disk thereby affecting its efficiency.



Do not allow unskilled persons or children to tamper with the burner.

1.6 Cleaning the burner grille

Before cleaning or any maintenance work, disconnect the power supply to the burner.

To avoid malfunctions and burner shutdowns, it is necessary to clean the combustion head grille.

Cleaning must be carried out at least once a week and in any case whenever the grille is obstructed by combustion residues.

To clean, wait for the burner to cool down completely.

Lift the grille, remove the nozzle and suck the ash. If necessary, free the slots by removing combustion residues using a metal brush.

Suck the ash present inside and outside the nozzle.

Refit the grille, making sure the pin is correctly positioned in the locking hole.

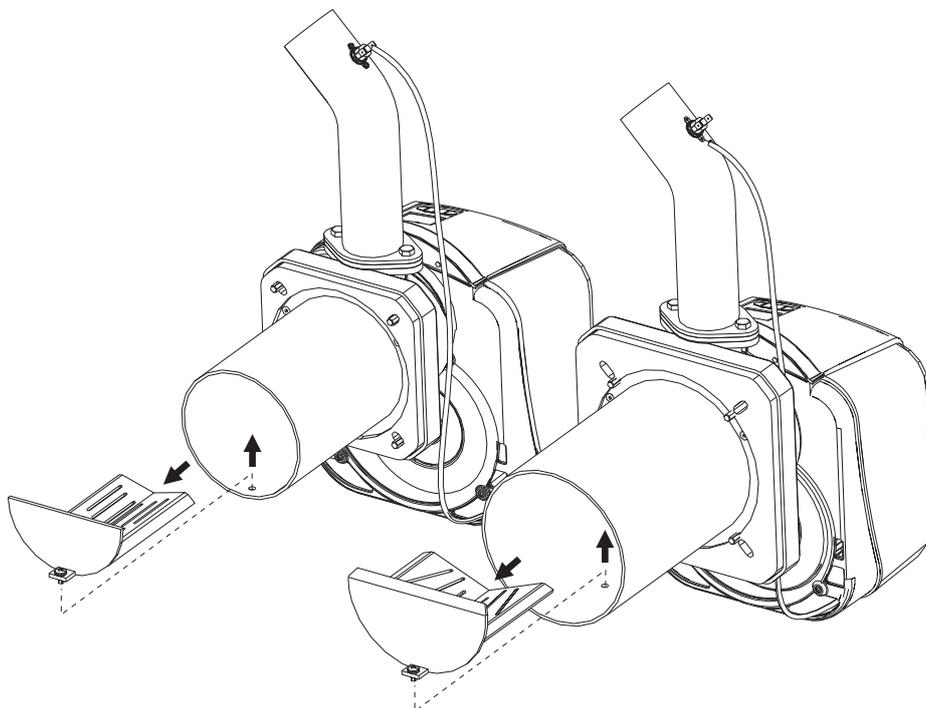


fig. 5- Cleaning the grille

2. Installation

2.1 General Instructions

This unit must only be used for its intended purpose.

This unit can be used with heat generators for solid fuels, compatibly with its characteristics, performance and heating capacity. Any other use is deemed improper and therefore hazardous. Opening or tampering with the unit's components is not allowed (except for the parts requiring servicing); do not modify the unit to alter its performance or intended use.

If the burner is completed with optionals, kits or accessories, only use original products.



BURNER INSTALLATION AND SETTING MUST ONLY BE CARRIED OUT BY QUALIFIED AND SPECIALISED PERSONNEL, IN COMPLIANCE WITH ALL THE INSTRUCTIONS GIVEN IN THIS TECHNICAL MANUAL, THE CURRENT PROVISIONS OF LAW, THE PRESCRIPTIONS OF NATIONAL AND LOCAL STANDARDS, AND THE RULES OF PROPER WORKMANSHIP.

2.2 Installation in boiler

Place of installation

The room where the boiler and burner are installed must have openings to the outside as required by the current regulations. If there are several burners or exhausters that can work together in the same room, the ventilation openings must be sized for simultaneous operation of all the units.

The place of installation must be free of flammable materials or objects, corrosive gases, dusts or volatile substances which, drawn by the fan, can obstruct the pipes inside the burner or the combustion head. The room must be dry and not exposed to rain, snow or frost.

Fix the burner to the door. Make the electrical connections as shown in cap. 4.4 "Wiring diagram" (wiring diagram). If the burner is installed in a boiler **Caldaia**, use the special conversion kit. Insert the temperature probe (contained in the kit) in the sheathing on the cast-iron boiler shell and make the respective electrical connections.



THE BURNER IS DESIGNED TO WORK ON HEAT GENERATORS WITH COMBUSTION CHAMBER IN NEGATIVE PRESSURE.

THE PELLETT HOPPER MUST BE POSITIONED SO THAT THE AUGER/BURNER FLEXIBLE CONNECTION TUBE IS NOT TWISTED AND/OR BENT.

Burner assembly instructions

For burner assembly (fig. 6), it is advisable to separate it as indicated in fig. 7.

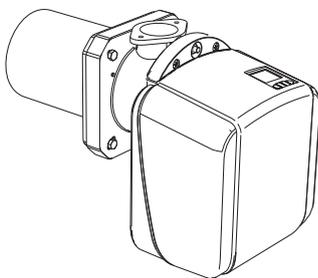


fig. 6

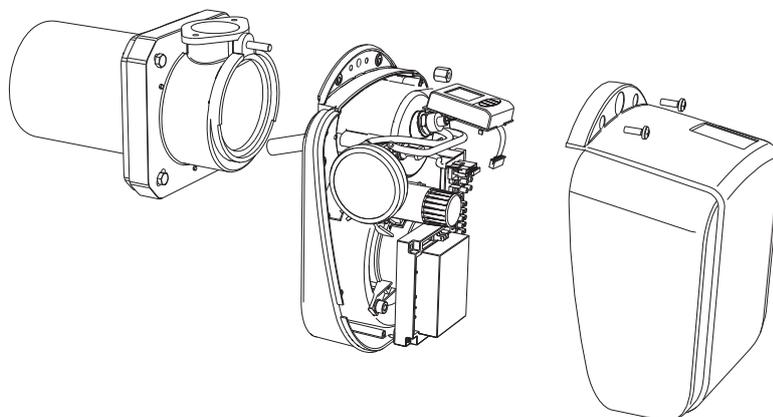


fig. 7



Secure the nozzle "E" with the screws "F" (fig. 8).

Secure the burner body "G" with the nut "H".

Secure the pellet duct "L", interposing the gasket "M", to the burner nozzle (fig. 9).

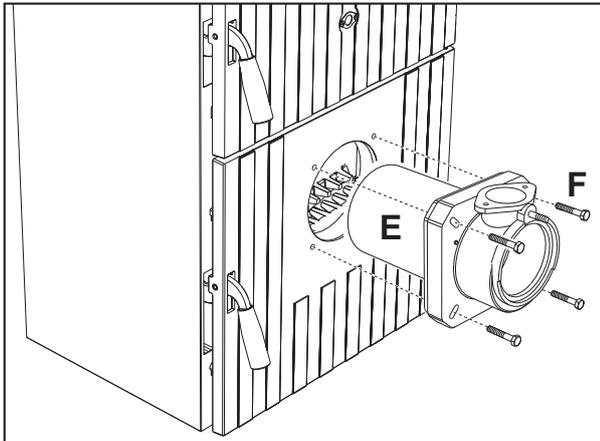


fig. 8

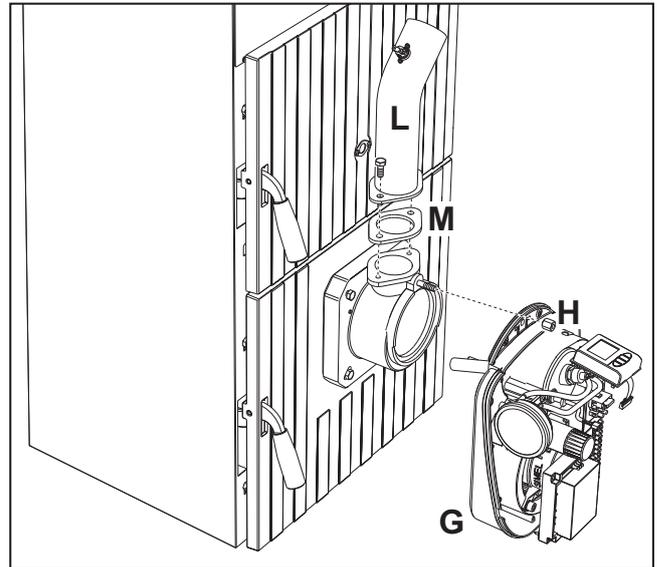


fig. 9

Place the pellet hopper "N" on the side of the boiler (fig. 10).

Insert the motorized feed tube "P" in the pellet hopper "N" and make the auger-burner connection so that the hose "R" (fig. 10) is not twisted or bent and **that it does not come into contact with hot parts that could damage it**. Make sure to respect the value indicated in the fig. 10 and the position as indicated in fig. 11.

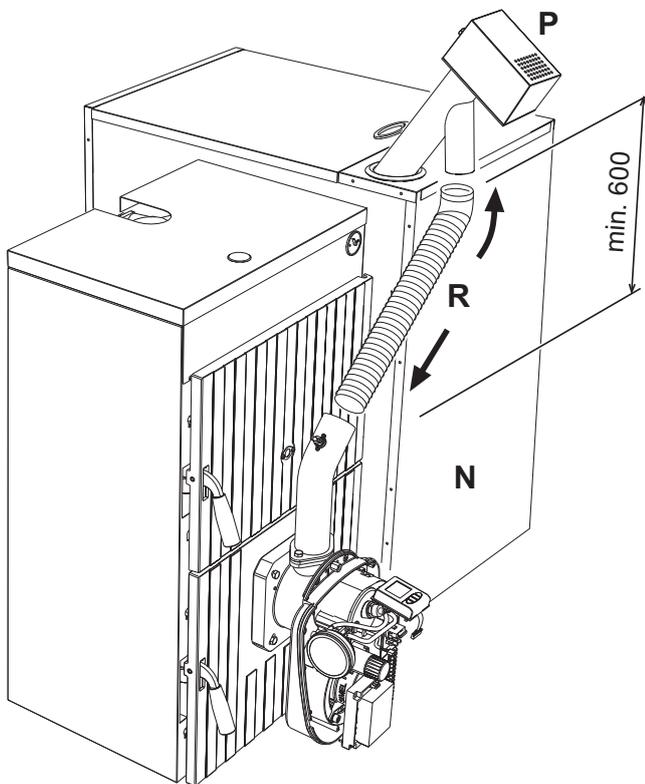


fig. 10

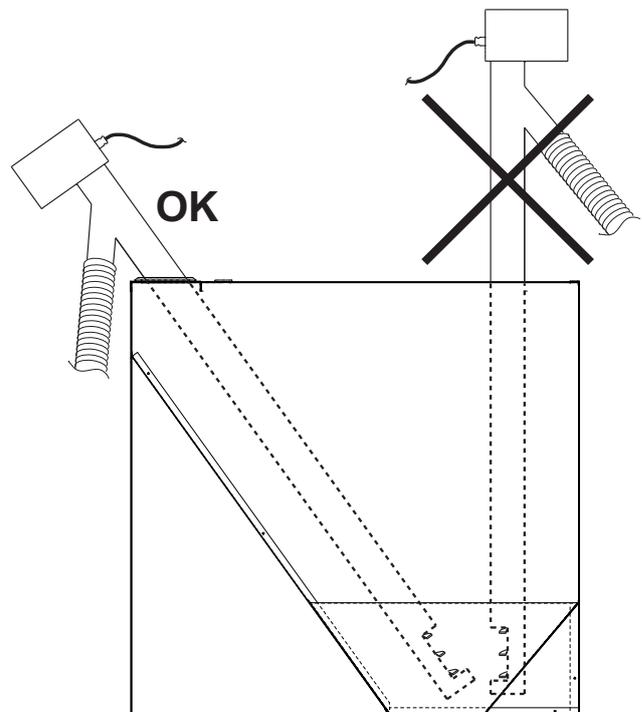


fig. 11- Pellet feed tube position

Electrical connections (fig. 12)

Run the cables through the slots behind the burner (fig. 12)

Connect the cable of the safety thermostat "49" to the terminals 20 and 21 and the cable of the temperature sensor cable "34" to the terminals 18 and 19. Connect the cable "B" of the motor auger "P" to the terminals 6, 7 and 8.

Insert the connector "V" on the "pellet safety thermostat" "T - 218" and connect the cable to the terminals 4 and 5. Make sure the cable does not touch the burner nozzle.

Secure the casing "P" to the burner body with the screws "U" fig. 13.



Position all the cables so that they are not in direct contact with the hot parts of the boiler and burner.

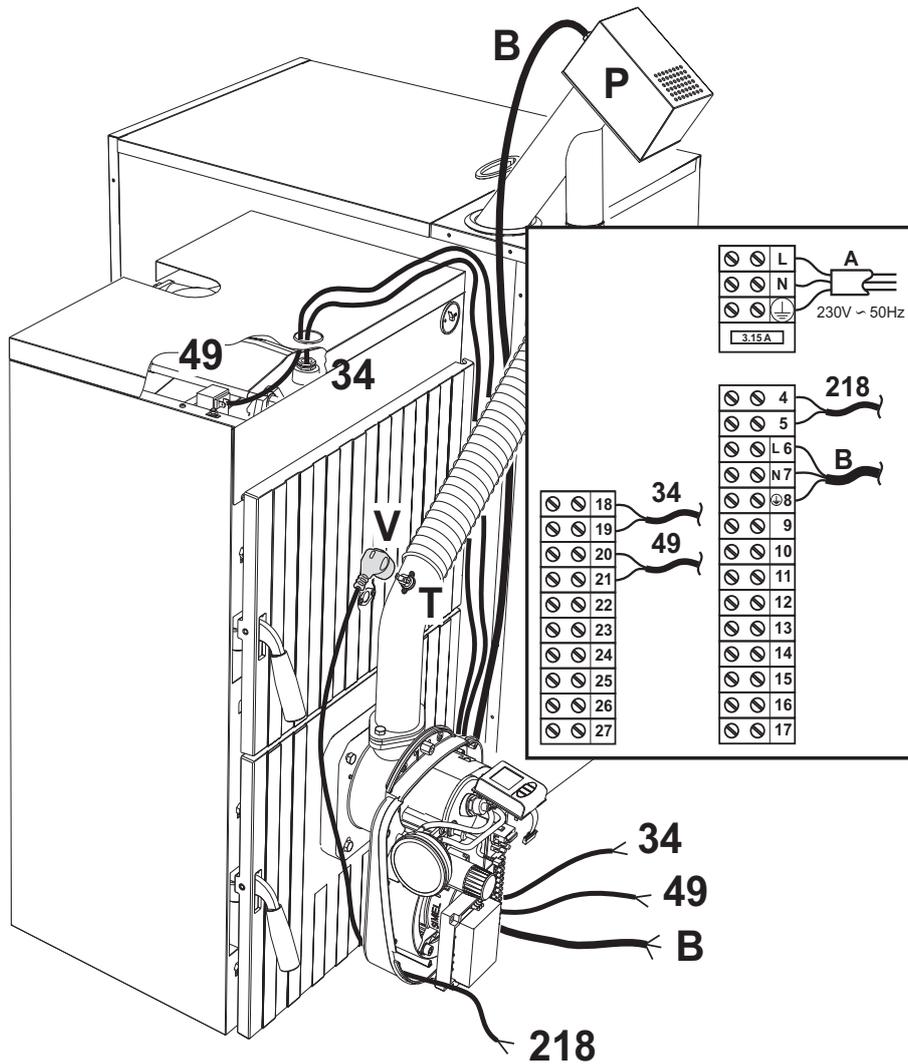


fig. 12



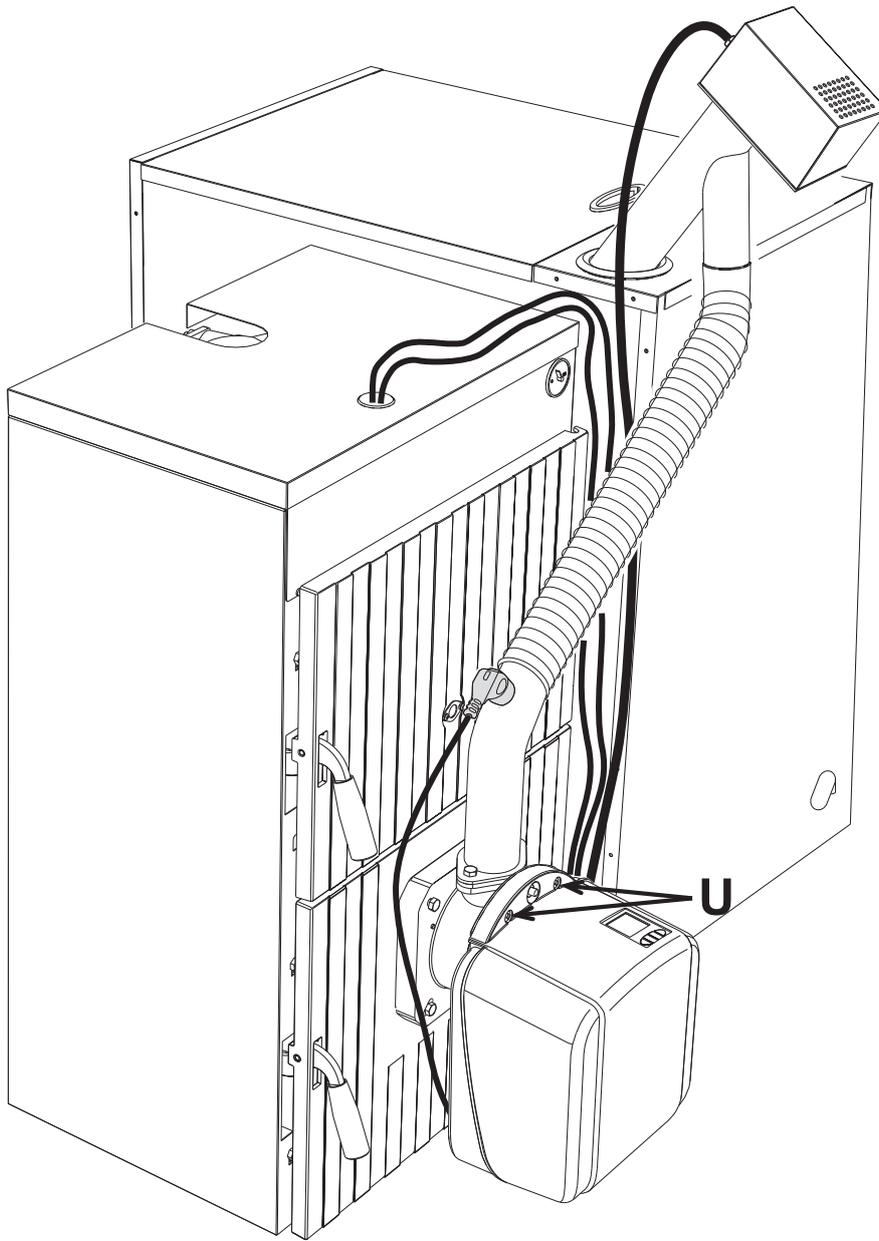


fig. 13

Adjust the burner as described in the relevant instruction manual and, in particular, set the parameter **u05** on the burner controller as indicated in the table.

Burner model		SUN P7N			SUN P12N	
Boiler model Caldaia		SUNPELLET 3	SUNPELLET 4	SUNPELLET 5	SUNPELLET 6	SUNPELLET 7
Nominal heating capacity	kW	24.9	33.4	41	48	55
Nominal heat output	kW	22	30	36	42	48
Parameter	u05	2	5	3	4	5

2.3 Electrical connections

The burner is equipped with a multi-pole terminal block for the electrical connections; refer to the wiring diagram in section "4 Technical data and characteristics" for the connections. The connections to be made by the installer are all those indicated by the dashed lines in the wiring diagram (see fig. 23).

The length of the connection cables must allow the burner and, if necessary, the boiler door to be opened. If the burner power cable is damaged, it must only be replaced by qualified personnel.

The burner must be connected to a single-phase 230 Volt-50 Hz electric line.



Have the efficiency and suitability of the earthing system checked by professionally qualified personnel; the Manufacturer declines any liability for damage caused by failure to earth the system. Also make sure the electrical system is adequate for the maximum power absorbed by the unit, as specified on the boiler data plate.

Make sure to respect the polarities (LINE: brown wire / NEUTRAL: blue wire / GROUND: yellow-green wire) in the connections to the electric line.

2.4 Fuel supply

General Instructions

The burner must be fed with the type of fuel for which it is arranged, as specified on the unit's dataplate and in the technical data table on of this manual.

The user is advised to use good quality pellets, since low quality pellets result in low heat outputs, high ash content with subsequent need of frequent cleaning, possible early wear of burner parts exposed to the fire, clogging of the auger and burner due to excess loose sawdust, and operation shutdowns due to sedimentation of unburnt materials inside the burner.

To identify quality pellets it is advisable to proceed as follows:

- They must be cylinders of constant diameter and have a smooth and bright surface.
- Check that the labels give the details of the quality certifications
- Check that the packs are intact so that the pellets do not absorb humidity.

Pellet loading

Pellet loading can be activated within 40 minutes after switching on the power to the burner.

Within this time, the system makes available three 5-minute attempts, during which only the auger is activated.

The burner cannot be lit during pellet loading.

Sequence:

1. Switch on the power to the burner.
2. Wait for the pre-ventilation stage to end.
3. Remove burner ignition request.
4. Press and hold down the button ▼ (detail 10 - fig. 1) for 3 seconds.
 - "R" (detail 5 - fig. 1) flashes, identifying the imminent start of the PELLETT loading procedure.
 - After two seconds, the auger will be electrically powered and continuously for a maximum time of 5 minutes.
 - The PELLETT loading procedure can be terminated at any time by pressing and holding down the button ▼ (detail 10 - fig. 1) for 3 seconds.
5. If the maximum pellet loading time (5 minutes) is reached, the power to the auger is switched off.
6. Press and hold down the button ▼ (detail 10 - fig. 1) for 3 seconds.
 - The message "R" will disappear and the display returns to normal operation.
7. If the first attempt was not sufficient, repeat the previous sequence from point 4 to start the second attempt
8. If the second attempt was not sufficient, repeat the previous sequence from point 4 to start the third and last attempt
9. In order to do another 3 attempts, switch the power to the unit off and then on again
10. After the loading of pellets, reinstate the burner ignition request.



2.5 Connection to an external hot water tank

Connection with circulating pump

The unit's electronic card is arranged for managing an external DHW storage tank. Carry out the plumbing connections according to the diagram fig. 14 (pumps and non-return valves must be supplied separately). Carry out the electrical connections as shown in the wiring diagram (see fig. 23). A FERROLI probe must be used. At the next lighting, the boiler control system detects the hot water tank probe and automatically configures the DHW function, activating the display and relevant controls.

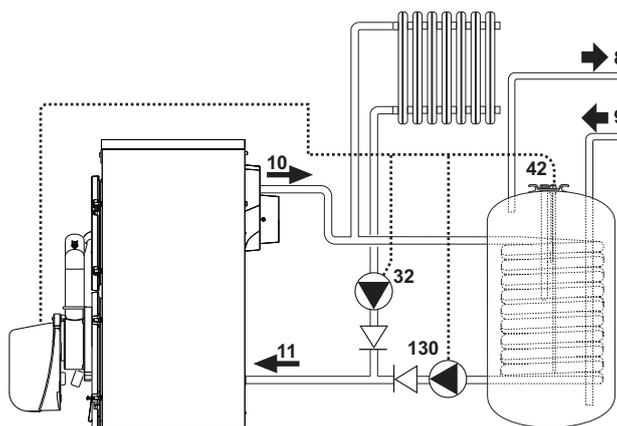


fig. 14- Diagram of connection with circulating pump

Connection with diverter valve

The unit's electronic card is arranged for managing an external DHW storage tank. Carry out the plumbing connections according to the diagram fig. 15 (the 3-way valve must be supplied separately). Carry out the electrical connections as shown in the wiring diagram (see fig. 23). A FERROLI probe must be used.

Change parameter **P25** of the "Transparent Parameters Menu" to **3**.

At the next lighting, the boiler control system detects the hot water tank probe and automatically configures the DHW function, activating the display and relevant controls.

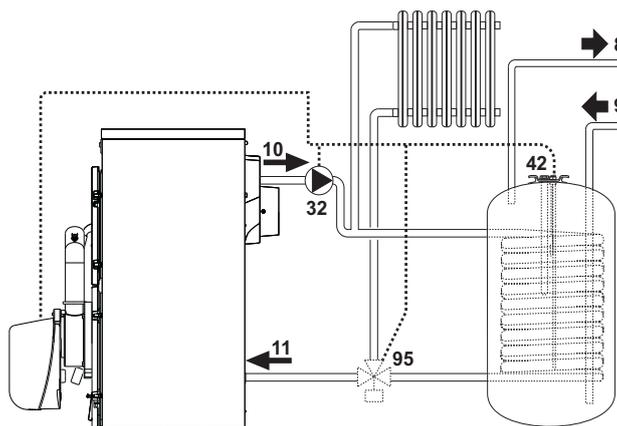


fig. 15- Diagram of connection with diverter valve

- Legend fig. 14 and fig. 15

- 8 Domestic hot water outlet
- 9 Cold water inlet
- 10 System flow
- 11 System return
- 32 Heating circulating pump
- 42 DHW temperature sensor

- 130 Hot water tank circulating pump
- 95 3-way valve - 2 wires with spring return (not supplied)
 - Powered (230 Vac) = Heating position
 - Not powered = DHW position

3. Service and maintenance

All adjustment, commissioning and maintenance operations must be carried out by Qualified Personnel in compliance with current regulations. The personnel of our sales organization and the Local After-Sales Technical Service are at your disposal for any further information.

FERROLI declines any liability for damage and/or injury caused by unqualified and unauthorized persons tampering with the unit.

3.1 Commissioning

Checks to be made at first lighting, and after all maintenance operations involving disconnection of the systems or any operation on safety devices or parts of the burner:

Before lighting the burner

- Make sure the burner is correctly fixed in the boiler with the preliminary settings indicated above.
- Make sure the boiler and system are filled with water or diathermic oil, the plumbing circuit valves are open and that the flue is free and correctly sized.
- Check closing of the boiler door, so that the flame is only generated inside the combustion chamber.
- Check the correct positioning of the auger and the burner connection flexible tube.
- Fill the hopper with pellets.
- Check the correct positioning and connection of the temperature probe.

 Make sure the grille (detail 1 fig. 16) is clean.

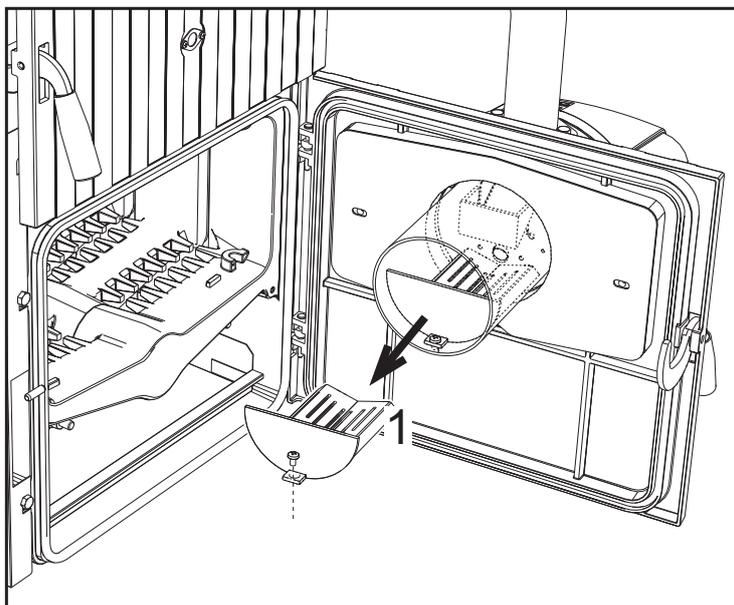


fig. 16- Burner grille

Burner lighting

- Switch on the power, operating the main switch ahead of the burner.
- To fill the auger with pellets, see sec. 2.4.
- close the thermostat line (boiler/room).

Burner setting

1. Connect a combustion analyser to the boiler outlet and leave the burner working at max. for 30 minutes; in the meantime check the fume extraction duct.
2. **MAKE SURE THE COMBUSTION CHAMBER IS IN NEGATIVE PRESSURE**
3. Check the combustion at max. burner power (adjusted according to boiler rated output).
4. Combustion parameters:
 - O₂ between 5% and 9%
 - CO between 150 and 1000 ppm

NOTE

The CO value is affected by the quality of the pellets, the amount of dirt in the combustion head, and boiler draft. If necessary, for burner calibration, vary the fan set point by modifying the relevant parameter (see par. “Parameters menu” on page 9 and Table 2, “Burner max. power,” on page 7).

5. After checking combustion at maximum power, also check the other burner steps, repeating the procedure described above and reducing the value of the parameter u05 to 1 (see par. “Parameters menu” on page 9 and Table 2, “Burner max. power,” on page 7).
6. To operate the burner in Modulating mode, it is necessary to modify the parameter t18 (see par. Parameters Menu)
7. Restore the burner maximum power parameter u05 to the desired value (adjusted according to boiler nominal power)

3.2 Maintenance

Checks and controls

-  Periodically check the cleanness of the burner parts which will tend to get dirty depending on the quality of the pellets or due to incorrect burner adjustment.
-  Periodically check the pellet hopper and remove dust from the bottom. An excessive amount of dust can affect the proper supply of fuel to the burner.

The burner requires periodical maintenance which must be performed by qualified personnel at least once a year.

The basic operations to carry out are:

- check and cleaning of the internal parts of the burner and boiler as indicated in the following sections;
- complete combustion analysis (after at least 10 minutes' operation) and check of correct settings;

Opening the casing and removing the burner

 Before carrying out any checking or cleaning inside the burner, disconnect the power to the burner by means of the main system switch.

To open

Undo the screws (A) and remove the casing (B). The internal components, motor, damper, etc., are directly accessible.

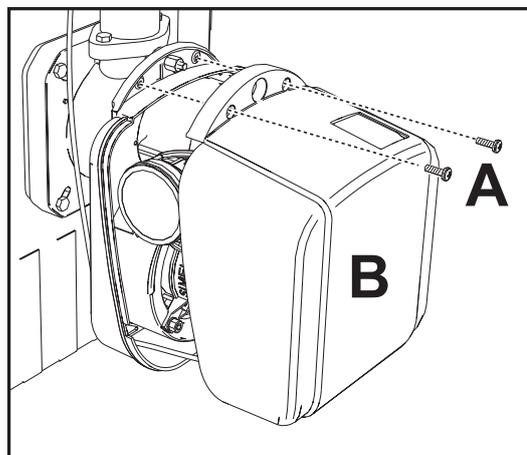


fig. 17- Casing opening

To disassemble the burner

After removing the casing, unscrew the nut (C) and disconnect the body, undo the fixing screws (D) and remove the nozzle (E).

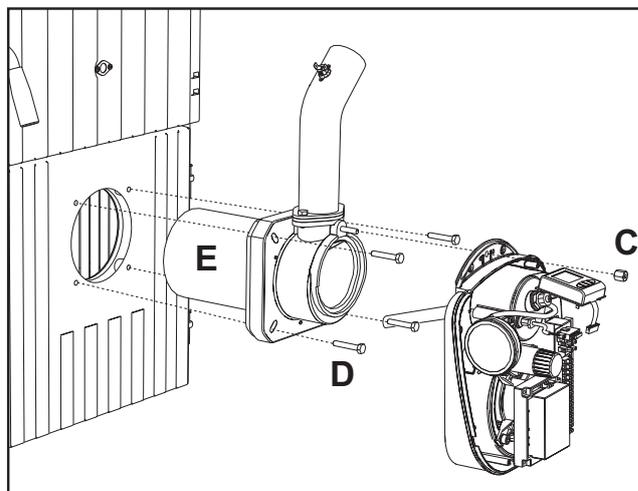


fig. 18- Burner disassembly

Checks on parts and components**Fan**

Make sure no dust has accumulated inside the fan and on the blades: it reduces the air flow, thus causing pollutant combustion.

Combustion head

Make sure all parts of the combustion head are intact, not warped by the high temperature, free of impurities coming from the room, and correctly positioned.

Photoresistance

Remove any dust on the glass. The photoresistance is press-on; to remove, pull it outwards.

3.3 Troubleshooting

The burner is equipped with an advanced self-diagnosis system. In case of a burner fault, the display (detail 4 - fig. 1) flashes indicating the fault code.

There are faults the cause permanent shutdowns (marked with the letter "A"): to reinstate operation, press the "Reset" button (detail 8 - fig. 1) for 1 second; if the burner fails to restart, it is necessary to firstly eliminate the fault.

Other faults cause temporary shutdowns (marked with the letter "F") which are automatically reset as soon as the value returns within the burner's normal operating range.

Table 5 - List of faults

Fault	Fault	Cause	Cure
A01	No ignition shutdown	Pellet container empty	Fill the container with pellets
		Auger cable broken or disconnected	Restore the connection
		Faulty igniter resistance	Replace and empty the head of pellets
		Combustion head dirty	Empty and clean it
		Pellet feed duct obstructed	Free it, make sure the combustion head is not clogged and empty it if necessary
F02	Parasite flame elimination	The demand for heat has ended, but the burner detects flame	Wait for end of post-ventilation
		Incorrect ignition parameters	Check ignition parameters
A02	Shutdown for parasite flame	Photoresistance short circuit	Replace the photoresistance
		Extraneous light strikes the photoresistance	Eliminate the light source
		Incorrect ignition parameters	Check ignition parameters
A03	Wiring fault	Jumper of terminals 20-21 not connected	Check the wiring
A04	Auger safety thermostat block	Boiler under pressure	Clean it and check correct minimum flue draft (10Pa)
		Faulty safety thermostat	Replace it
		Auger cable broken or disconnected	Restore the connection
F05	Incorrect pipe pressure adjustment	Pressure sensor connection tube squashed	Replace
		Fan motor damaged	Replace
		Fan dirty	Clean it
F06	Pressure transducer fault (disconnected)	Wiring disconnected	Check the wiring or replace the sensor
F10	Boiler shell probe fault (if enabled)	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	
F11	DHW sensor fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	
F14	Card parameter fault	Wrong card parameter setting	Check the card parameter and modify it if necessary
F34	Supply voltage under 170V.	Electric mains trouble	Check the electrical system
F37	Card parameter fault	Wrong card parameter setting	Check the card parameter and modify it if necessary
F42	Card parameter fault	Wrong card parameter setting	Check the card parameter and modify it if necessary

4. TECHNICAL DATA AND CHARACTERISTICS

4.1 Dimensions

Boiler dimensions

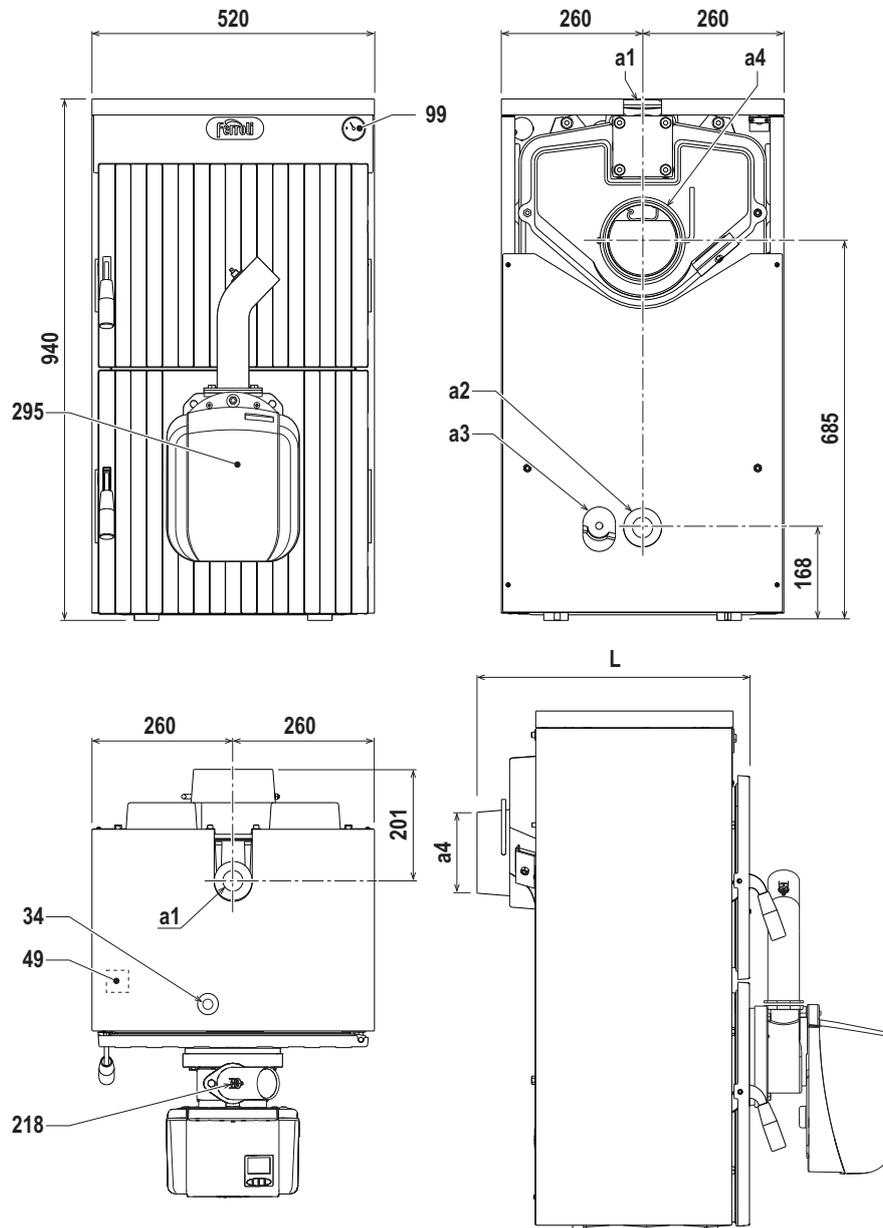


fig. 19- Boiler dimensions

Model	L	a4 - Ø mm
SUNPELLET 3	510	150
SUNPELLET 4	620	150
SUNPELLET 5	730	150
SUNPELLET 6	840	180
SUNPELLET 7	950	180

- a1** System delivery - Ø 1" 1/2
- a2** System return - Ø 1" 1/2
- a3** System drain - Ø 1/2"
- a4** Flue
- 34** Heating temperature sensor
- 49** Boiler safety thermostat
- 99** Thermometer
- 218** Pellet safety thermostat
- 295** Burner



Burner dimensions

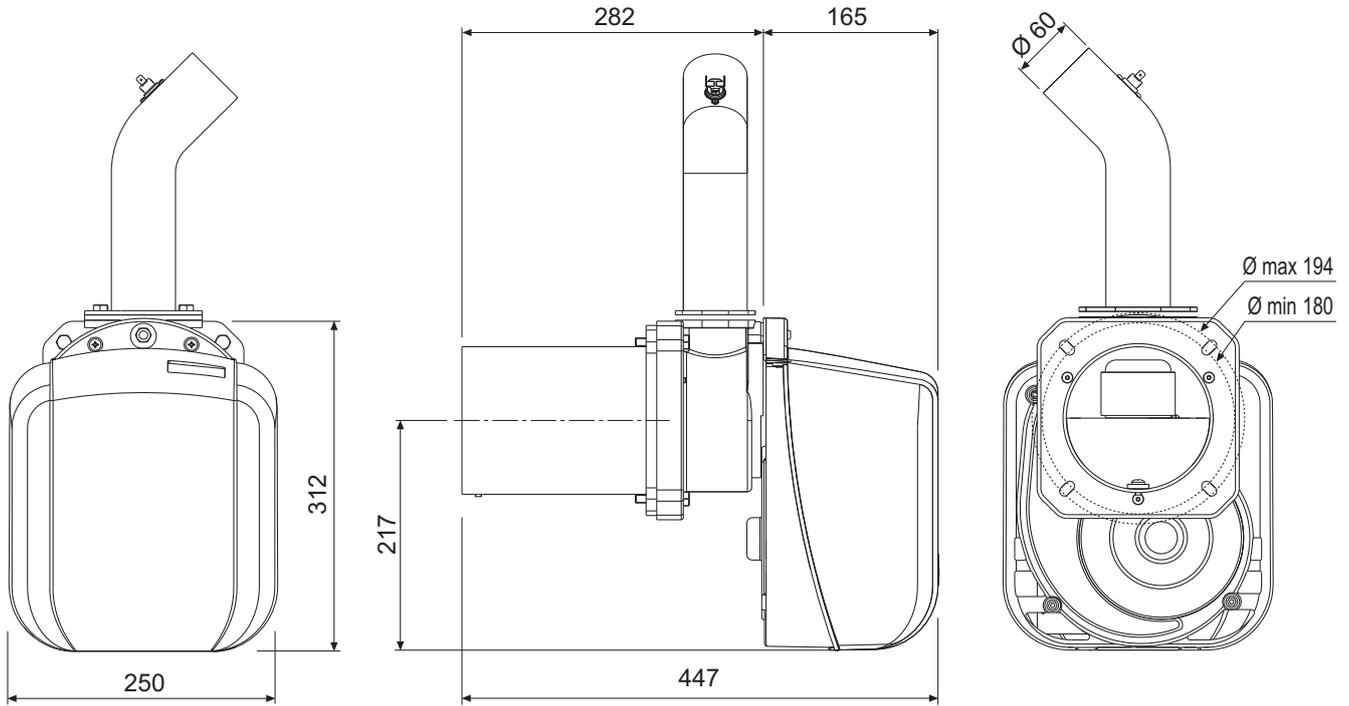


fig. 20 - Dimensional SUN P7N

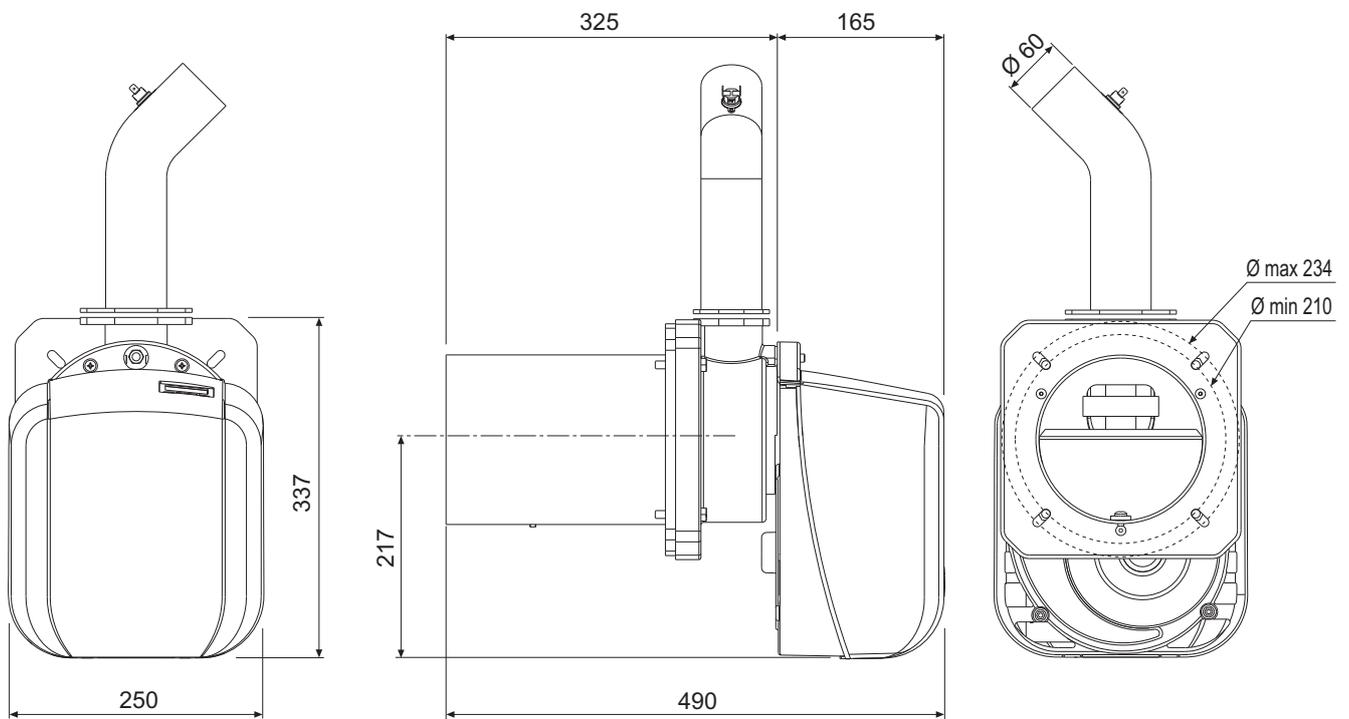


fig. 21 - Dimensional SUN P12N

4.2 General view and main components

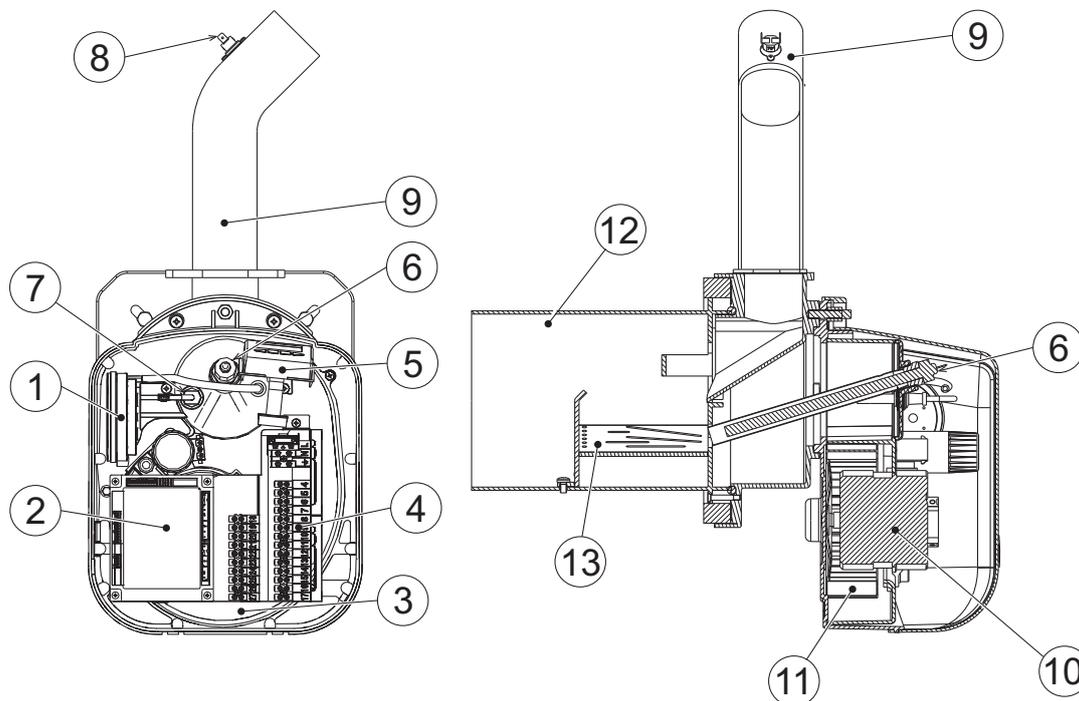


fig. 22

Legend

- | | | | |
|---|---------------------|----|---------------------|
| 1 | Pressure transducer | 8 | Thermostat 85° |
| 2 | Controller | 9 | Burner loading tube |
| 3 | Burner body | 10 | Motor |
| 4 | Terminal block | 11 | Fan |
| 5 | User interface | 12 | Nozzle |
| 6 | Heating element | 13 | Grille |
| 7 | Photoresistance | | |

4.3 Technical data table

The column on the right gives the abbreviation used on the data plate.

Data	Unit	SUNPELLET 3	SUNPELLET 4	SUNPELLET 5	SUNPELLET 6	SUNPELLET 7	
Heat output	kW	22	30	36	42	48	(P)
Efficiency	%	88.48	88.66	88.7	89.02	89.3	
Max. working pressure	bar.	4	4	4	4	4	
Water content	L.	26	30	34	38	42	
Chamber volume	dm ³	48	68	88	108	128	
Recommended temperature setting	°C	>60	>60	>60	>60	>60	
Boiler return min. temperature	°C	50	50	50	50	50	
Min. flue draught	Pa	23	25	28	30	32	
Efficiency class EN303-5		5	5	5	5	5	
Efficiency class EN303-5		5	5	5	5	5	
Empty weight	kg	193	241	289	337	385	

ErP product fiche

MODEL: SUNPELLET 3 (0JC3UWA)

Trademark: FERROLI			
Item	Symbol	Unit	Value
Energy efficiency class	EEl		A+
Rated heat output	Pn	kW	22
Energy efficiency index	EEl		122
Seasonal space heating energy efficiency	η_s	%	83

MODEL: SUNPELLET 4 (0JC4UWA)

Trademark: FERROLI			
Item	Symbol	Unit	Value
Energy efficiency class	EEl		A+
Rated heat output	Pn	kW	30
Energy efficiency index	EEl		122
Seasonal space heating energy efficiency	η_s	%	83

MODEL: SUNPELLET 5 (0JC5UWA)

Trademark: FERROLI			
Item	Symbol	Unit	Value
Energy efficiency class	EEl		A+
Rated heat output	Pn	kW	36
Energy efficiency index	EEl		122
Seasonal space heating energy efficiency	η_s	%	83

MODEL: SUNPELLET 6 (0JC6UWA)

Trademark: FERROLI			
Item	Symbol	Unit	Value
Energy efficiency class	EEl		A+
Rated heat output	Pn	kW	42
Energy efficiency index	EEl		122
Seasonal space heating energy efficiency	η_s	%	83

MODEL: SUNPELLET 7 (0JC7UWA)

Trademark: FERROLI			
Item	Symbol	Unit	Value
Energy efficiency class	EEl		A+
Rated heat output	Pn	kW	48
Energy efficiency index	EEl		122
Seasonal space heating energy efficiency	η_s	%	83

4.4 Wiring diagram



DO NOT CONNECT "LINE" OR "NEUTRAL" SIGNALS COMING FROM THE ELECTRICAL SYSTEM TO THE TERMINAL BLOCK.

ALL CONNECTIONS MUST BE MADE AS SHOWN IN THE WIRING DIAGRAM. EXTERNAL ELECTRICAL LOADS TO BE WIRED TO THE TERMINAL BLOCK MUST NOT EXCEED 100W FOR EACH SINGLE OUTPUT. FOR THE CONNECTION OF LOADS AND CONTACT "C" (230V), USE A DOUBLE INSULATION CABLE.

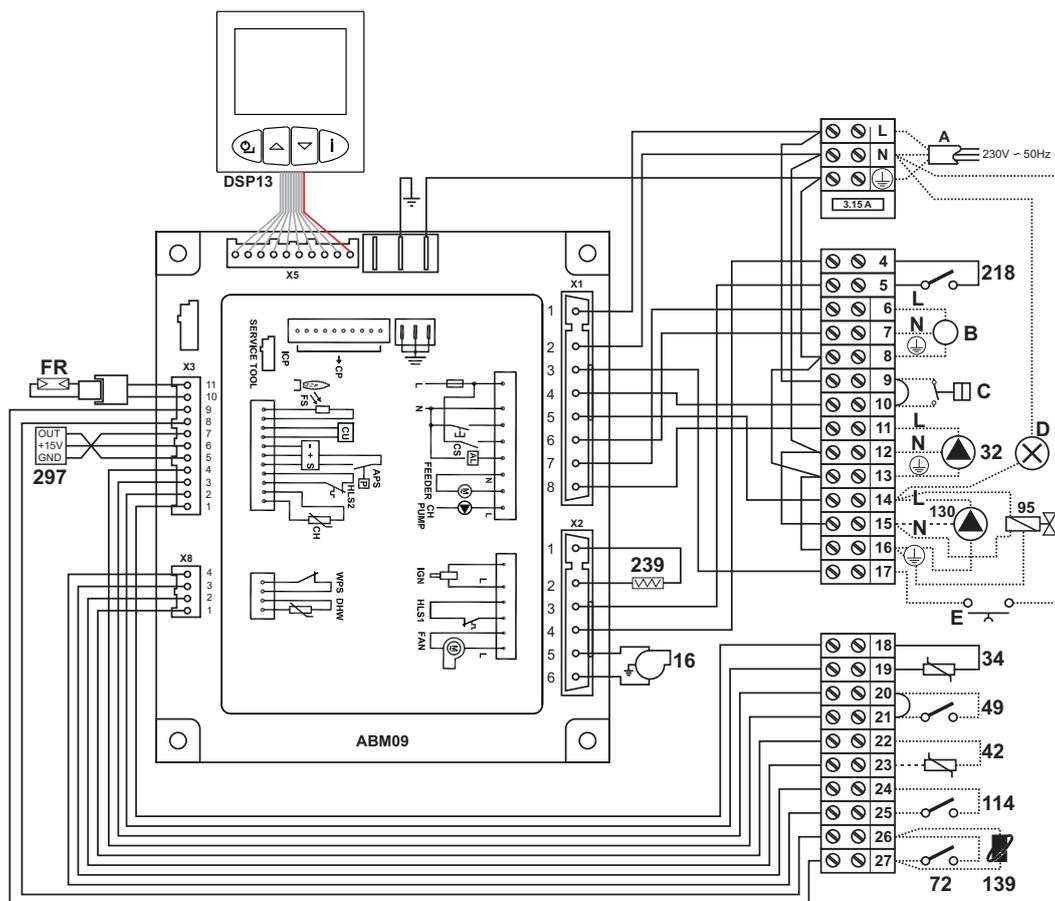


fig. 23 - Wiring diagram

N.B. Remove the jumper on contacts 9-10 before connecting the remote timer control or room thermostat.

Key - Wiring diagram fig. 23

A	electrical power supply	95	Diverter valve (optional)
B	Motor auger		• Powered (230 Vac) = Heating position
C	Request contact		• Not powered = DHW position
D	Shutdown signal	114	Water pressure switch (not supplied)
E	Burner reset	130	Hot water tank circulating pump (not supplied)
FR	Photoresistance	139	Remote timer control (optional)
16	Fan	218	Pellet safety thermostat
32	Heating circulating pump (not supplied)	239	Igniter
34	Heating temperature sensor	297	Air pressure transducer
42	DHW temperature sensor (optional)		
49	Boiler safety thermostat		
72	Room thermostat (optional)		

The logo features the word "ferroli" in a bold, lowercase, sans-serif font. A grey, curved graphic element arches over the top of the letters "e" and "r".

ferroli

FERROLI S.p.A.
Via Ritonda 78/a
37047 San Bonifacio - Verona - ITALY
www.ferroli.com

Made in Italy