

SERVICE MANUAL

Pellet boiler COMBO 25, 40, 60kw



Safety systems

Safety valve

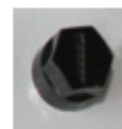
The hydraulic system must be equipped with a safety valve. This valve opens when the pressure inside the heating system increases to max. 3 bar. The safety valve must:

- be installed at the highest point of the boiler,
- must not be locked,
- and must be within 1 metre of the boiler.



Safety temperature sensor

The pellet boiler is equipped with a safety temperature sensor. This is located on the pellet boiler. If the boiler temperature exceeds 95°C then the heating system switches off.



Expansion tank

All heating systems must be equipped with a pressurised expansion tank. The plumber or heating system installer must dimension the expansion tanks according to the dimensions of the hydraulic system.

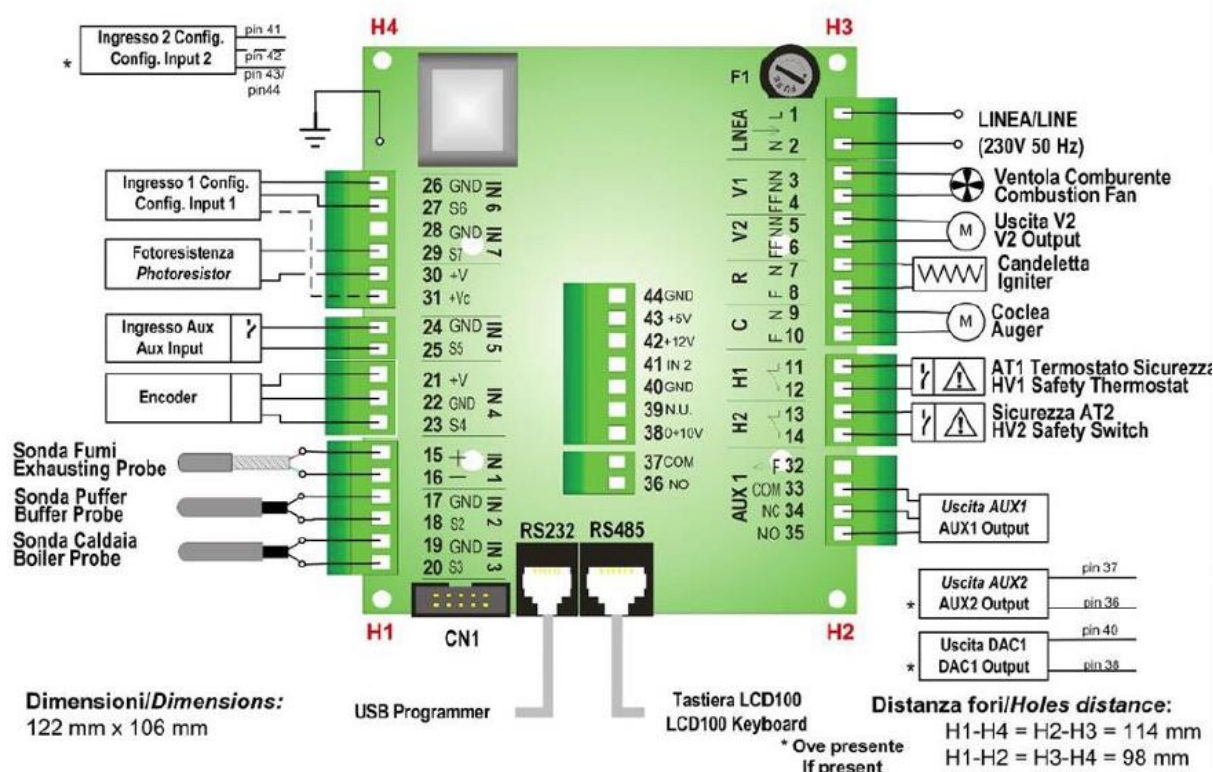


NOTICE

Starting up

Starting up for the first time has to be performed only by an authorized service technician.

Electrical connections



PIN		Function	Characteristics
1	L	Mains power line	230 Vac $\pm$ 10% 50/60 Hz F1 = Fuse T5,0 A
2	N		
3	N	Combustion Fan	Triac Regulation max 1A
4	L		
5	N	Configurable V2 Output (see par.9.10)	Triac ON-OFF max 1A
6	L		
7	N	Igniter Resistance	Relais 3 A max
8	L		
9	N	Pellet Auger	Triac ON-OFF 1A max
10	L		
11		Safety Thermostat Input HV1	Contact ON/OFF Normally closed Bypass if not used
12			
13		Safety Thermostat Input HV2	Contact ON/OFF Normally closed Bypass if not used
14			
15	Red +	Exhaust Temperature Probe	Thermocouple K: 500 °C Max
16	Green —		
17		Water Buffer Tank Temperature Probe	NTC 10K @25 °C: 120 °C Max
18			
19		Boiler Temperature Probe	NTC 10K @25 °C: 120 °C Max
20			
21	+5V	Encoder Signal	Signal TTL 0 / 5 V
22	GND		
23	S4		
24		AUX Input: Chrono/Room Thermostat	Contact ON/OFF
25			
26	GND	Configurable Input 1 (see par.9.11)	Signal 0 / 5 V
27	S6		
28	GND	Photoresistor	Analog input
29	S7		
30	+5V		
31	+12V		
32	F	Live Phase	Max current 5 A
33	COM	Configurable AUX1 Output (see par.9.10)	Relais 3 A max
34	NC		
35	NO		
RS485		Keyboard	
RS232		RS232 Connector	Connection to Modem/Computer

Functioning States in Pellet Modality

OFF

Timer	Controls			Combustion Fan	Auger	Igniter
		If Boiler Temperature > Th25	→ goes in Block	OFF	OFF	OFF
	Photoresistor P37 =1 or 2	If Flame Light > L00	→ goes in Extinguishing			
	Thermocouple P37 =0	If Exhaust Temperature > Th01 Thermostat and the last functioning modality was pellet	→ goes in Extinguishing			

7.2 CHECK UP

Timer	Controls			Combustion Fan	Auger	Igniter
T01		If Boiler Temperature > Boiler Thermostat and A13 =1	→ goes in Standby	Max Speed		OFF
	Photoresistor P37 =1 or 2	If Flame Light > L01 and PA20 =0	→ goes in Normal			
		If Flame Light > L01 and PA20 =1	→ goes in Stabilization			
	Thermocouple P37 =0	If Exhaust Temperature > Th01 Thermostat and the last functioning modality was wood	→ goes in Ignition Recovery			
		If Exhaust Temperature > Th09 Thermostat and the last functioning modality was pellet	→ goes in Normal			

7.3 PRE-HEATING

Timer	Controls			Combustion Fan	Auger	Igniter
T02	Photoresistor P37 =1 or 2	If Flame Light > L01 and PA20 =0	→ goes in Normal	U01	OFF	ON
		If Flame Light > L01 and PA20 =1	→ goes in Stabilization			
	Thermocouple P37 =0	If Exhaust Temperature > Th09 Thermostat	→ goes in Normal			

7.4 PRE-LOADING

Timer	Controls			Combustion Fan	Auger	Igniter
T03	Photoresistor P37 =1 or 2	If Flame Light > L01 and PA20 =0	→ goes in Normal	U01	ON	ON
		If Flame Light > L01 and PA20 =1	→ goes in Stabilization			
	Thermocouple P37 =0	If Exhaust Temperature > Th09 Thermostat	→ goes in Normal			

This phase doesn't start if a configurable output is set as Safety Valve and **T40** isn't finished

7.5 FIXED PHASE

Timer	Controls			Combustion Fan	Auger	Igniter
T04	Thermocouple P37 =0	If Exhaust Temperature > Th09 Thermostat	→ goes in Normal	U01	C01	ON

This phase is present only if the system works with the Thermocouple.

7.6 VARIABLE PHASE

Timer	Controls			Combustion Fan	Auger	Igniter
T05	Photoresistor P37 =1 or 2	If Flame Light > L01	→ goes in Stabilization	I Ignition: U01 II Ignition: U10	I Ignition: C01 II Ignition: C10	ON
		At the end of T05 if Flame Light < L01	→ tries again Ignition from Variable phase			
	Thermocouple P37 =0	If Exhaust Temperature > Th09 Thermostat	→ goes in Normal			ON if exhaust temp. < Th02
		If Exhaust Temperature > Th06 Thermostat	→ goes in Stabilization			
		If Exhaust Temperature < Th06 Thermostat at the end of T05	→ tries again Ignition from Variable phase → goes in Extinguishing with error Er12 in case of finished number of attempts			

7.7 STABILIZATION

Timer	Controls			Combustion Fan	Auger	Igniter
T06	Photoresistor P37 =1 or 2	If Flame Light < L01 for 30 seconds	→ Tries again Ignition from Variable phase	U02	C02	ON for TM13 , then OFF
		At the end of T06 if Flame Light > L01	→ goes in Extinguishing phase with error Er12 in case of finished number of attempts			
	Thermocouple P37 =0	If Exhaust Temperature > Th09 Thermostat	→ goes in Normal	U02	C02	ON if exhaust temp. < Th02
		If Exhaust Temperature < Th06 Thermostat	→ tries again Ignition from Variable phase			
		At the end of T06 if Exhaust Temp. > Th06+d01	→ goes in Extinguishing phase with error Er12 in case of finished number of attempts → goes in Normal			

7.8 IGNITION RECOVERY

The system goes in **Ignition Recovery**:

- After a Power failure (see par. 9.2) or If the System is in Extinguishing and you want restart the Burner pushing the button ON/OFF.

Timer	Controls			Combustion Fan	Auger	Igniter
T16	Photoresistor P37=1 or 2	If Flame Light > L01	→ goes in Ignition		OFF	OFF
		If Flame Light > L00	→ waits	U09		
		If Flame Light < L00	→ starts Timer T16	Max Speed		
		At the end of T16 if Flame Light < L00	→ goes in Check Up			
	Thermocouple P37=0	If Exhaust Temperature>Th01	→ waits	U09		
		If Exhaust Temperature<Th01	→ starts Timer T16	Max Speed		
		At the end of T16 if Exhaust Temperature<Th01	→ goes in Check Up			

7.9 NORMAL

Param.	Controls			Combustion Fan	Auger	Igniter
	Photoresistor P37 =1 or 2	If Flame Light < L00	→ Tries again Ignition from Variable phase → Goes in Extinguishing phase with error Er12 in case of finished number of attempts	User's Power	User's Power	OFF
	Thermocouple P37 =0	If Exhaust Temperature < Th03 Thermostat	→ Tries again Ignition from Variable phase → Goes in Extinguishing phase with error Er12 in case of finished number of attempts			
		If Boiler Temperature > Boiler Thermostat	→ goes in Modulation			
A07 =1		If Input Aux open				
	P37 =0 or 2	If Exhaust Temperature> Th07 Thermostat	→ goes in Standby			
		Buffer Temp.> Buffer Thermostat and P26 =1 and P42 =0 and P44, P45, P48 =14				
A07 =2		If Input Aux open	→ starts Timer T15 → goes in Extinguishing with error Er04 → starts Timer T15 → goes in Extinguishing with error Er05			
T15	P37 =0 or 2	If Boiler Temperature > Th25 Thermostat				
		At the end of T15 if Boiler Temperature> Th25				
		If Exhaust Temperature > Th08 Thermostat				
		At the end of T15 if Exhaust Temperature> Th08				
T14	Photoresistor P37 =1 or 2	If Flame Light < L00	→ starts Timer T14			
		At the end of T14 if Flame Light < L00	→ goes in Extinguishing with error Er03			
	Thermocouple P37 =0	If Exhaust Temp.< Th03 Thermostat or If Exhaust Temp.< Extinguishing Thermostat for the used power	→ starts Timer T14			
		At the end of T14 if exhaust temperature is low	→ goes in Extinguishing with error Er03			

7.10 MODULATION

Param.	Controls			Combustion Fan	Auger	Igniter
A13=1		If for the time T43 Boiler Temperature > Boiler Thermostat+d23	→ goes in Standby	If A06=1 → Power U11	If A06=1 → Power C11	OFF
		Buffer temp > Buffer Thermostat and P26=1 and P44, P45, P48=5		If A06=0 → Power U03	If A06=0 → Power C03	
A07=2		If Input Aux open				

T15	P37=0 or 2	If Boiler Temperature > Th25 Thermostat	→ starts Timer T15			
		At the end of T15 if Boiler Temperature > Th25	→ goes in Extinguishing with error Er04			
		If Exhaust Temperature > Th08 Thermostat	→ starts Timer T15			
		At the end of T15 if Exhaust Temperature > Th08	→ goes in Extinguishing with error Er05			
T14	Photoresistor P37=1 or 2	If Flame Light < L00	→ starts Timer T14			
		At the end of T14 if Flame Light < L00	→ goes in Extinguishing with error Er03			
	Thermocouple P37=0	If Exhaust Temp. < Th03 Thermostat or If Exhaust Temp. < Extinguishing Thermostat for the used power	→ starts Timer T14			
		At the end of T14 if exhaust temperature is low	→ goes in Extinguishing with error Er03			

7.11 STANDBY

Param.	Controls			Combustion Fan	Auger	Igniter
T13 (Extinguishing phase)	Photoresistor P37=1 or 2	If Flame Light > L00	→ starts Timer T13	U09	OFF	OFF
		At the end of T13 if Flame Light > L00	→ wait			
	Thermocouple P37=0	If exhaust temp. > Th28 Thermostat	→ starts Timer T13			
		At the end of T13 exhaust temp. > Th28	→ wait			
T16 Final Cleaning	Photoresistor P37=1 or 2	If Flame Light < L00	→ starts T16	Max Speed		
	Thermocouple P37=0	If Exhaust Temp. < Th28 Thermostat				
Standby OFF		At the end of T16	→ goes in Standby OFF	OFF		

7.12 EXTINGUISHING

Param.	Controls			Combustion Fan	Auger	Igniter
T13 (Extinguishing phase)	Photoresistor P37=1 or 2		→ starts Timer T13	U09	OFF	OFF
		At the end of T13 if Flame Light > L00	→ wait			
	Thermocouple P37=0	If exhaust temp. > Th01 Thermostat	→ starts Timer T13			
		At the end of T13 exhaust temp. > Th01	→ wait			
T16 (Final Cleaning phase)	Photoresistor P37=1 or 2	If Flame Light < L00	→ starts T16	Max Speed		
	Thermocouple P37=0	If Exhaust Temp. < Th01 Thermostat				
		At the end of T16	→ goes in Block if there are errors, otherwise goes in Off	OFF		

This phase doesn't stop if P44, P45, P48=16 and T27 isn't finished

7.13 BLOCK

Param.	Controls	Combustion Fan	Auger	Igniter
To exit: Press P2 button for 3 seconds. With no more block conditions the system goes in Off		OFF	OFF	OFF

8 FUNCTIONING STATES IN WOOD MODALITY

Wood modality is enabled only if **A31**=0 or 2

8.1 OFF

Timer	Controls	Combustion Fan	Auger	Igniter
		OFF	OFF	OFF

8.2 NORMAL

Param.	Controls	Combustion Fan	Auger	Igniter
T21	If Boiler Temperature < Th29	User's Power	OFF	OFF
	→ starts Timer T21			
	At the end of T21 if Boiler Temperature< Th29			
	→ goes in Block with error Er03			
	If Boiler Temperature > Boiler Thermostat			
	→ goes in Modulation			
	Buffer Temp.> Buffer Thermostat and P26 =1 and P42 =0 and P44, P45, P48 =14			
	→ goes in Standby			
	If Water Temperature > Th25 Thermostat			
	→ goes in Safety			

8.3 MODULATION

Param.	Controls	Combustion Fan	Auger	Igniter
	If Boiler Temperature > Th25 Thermostat	If A06 =1 → Power U11 If A06 =0 → Power U03	OFF	OFF
A13 =1	If for time T43 the Boiler temperature> Boiler Thermostat+d23			
	→ goes in Safety			
	→ goes in Standby			

8.4 STANDBY/ SAFETY

Param.	Controls	Combustion Fan	Auger	Igniter
		OFF	OFF	OFF

8.5 BLOCK

Param.	Controls	Combustion Fan	Auger	Igniter
To exit: Press P2 button for 3 seconds. With no more block conditions the system goes in Off		OFF	OFF	OFF

Average values (it depends of quality of pellet)

VALUE	COMBO 25		COMBO 40		COMBO 60	
	Nominal	Minimal	Nominal	Minimal	Nominal	Minimal
Draft (-) Pa	10	6-7	14	10	16	12
Flue gas C°	140-160	80-90	170-190	80-100	180-200	90-100
Concent.O₂	6%	14%	13%	15%	13%	15%
F.gas flow	14g/s	6g/s	15g/s	9g/s	17g/s	10g/s

Positioning of the boiler in the boiler room

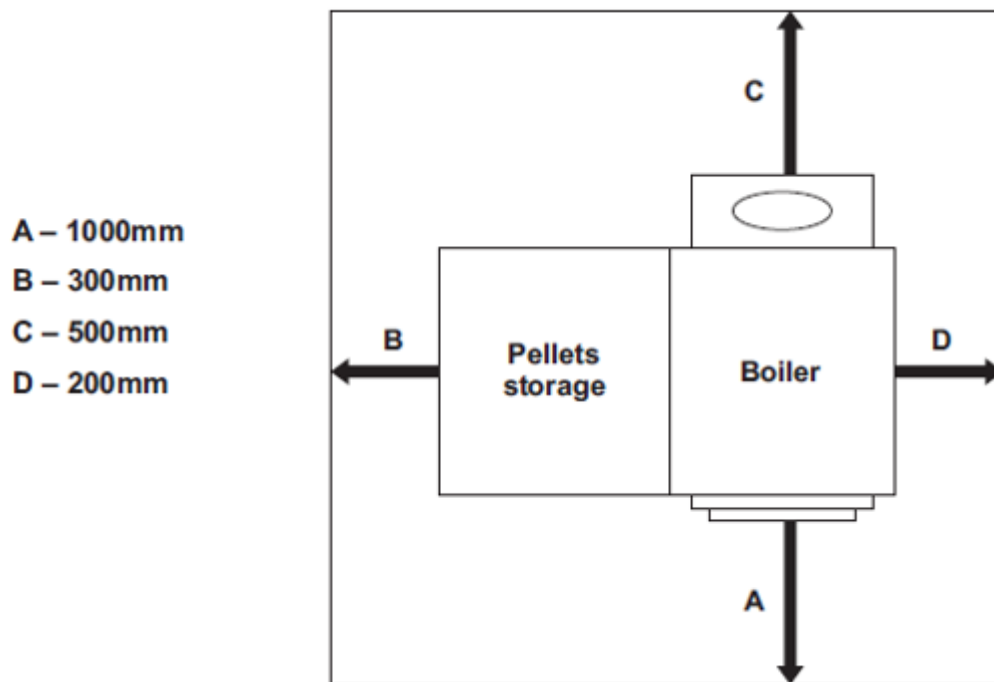
Boiler room must be secured from freezing.

Boiler room must have sufficient ventilation holes both for fresh air and for the outlet of the exhaust air.

Lack of sufficient ventilation in the boiler room may cause more problems in the work of the boiler. The main problem is the inability to achieve high temperature of output water, i.e. not achieving maximum power, which leads to condensation in the boiler.

Total area of these openings is minimum 150cm^2 for powers up to 50kW , while for the power over 50kW , the area must be bigger for 2cm^2 per kW .

Recommended distances of all four sides of the boiler in relation to the boiler walls or other solid body (buffer, etc.) are shown in picture.



*Take into account the required minimum space needed for accessing safety elements and for cleaning and regular repair.

*Determine whether the level of electrical protection is in accordance with the characteristics of the room where the boiler will be located.

* It is forbidden to expose the boiler to harsh weather conditions. The boiler is not designed for outdoor use and does not contain a system against freezing.

- * It is forbidden to close the vents in the boiler room. Vents are necessary for proper combustion.

Connection to chimney

During assembly of the chimney, we distinguish two situations:

- * Situation 1: The boiler is connected to the standard chimney (masonry or metal) that has its own foundation and full cross-section from the foundation to the top.

- * Situation 2: Boiler is connected to the prefabricated metal chimney attached to the facade.

- * Ceramic or metal pipes of circular cross-section of minimum 130mm in diameter should be used for chimney. Flue pipe must be insulated.

- * If the chimney already exists and is of square cross-section, then the minimum dimension of the intersection is 130x130mm.

- * It is not allowed to use the chimney for connecting multiple devices.

- * It is not allowed to use air ducts as chimney.

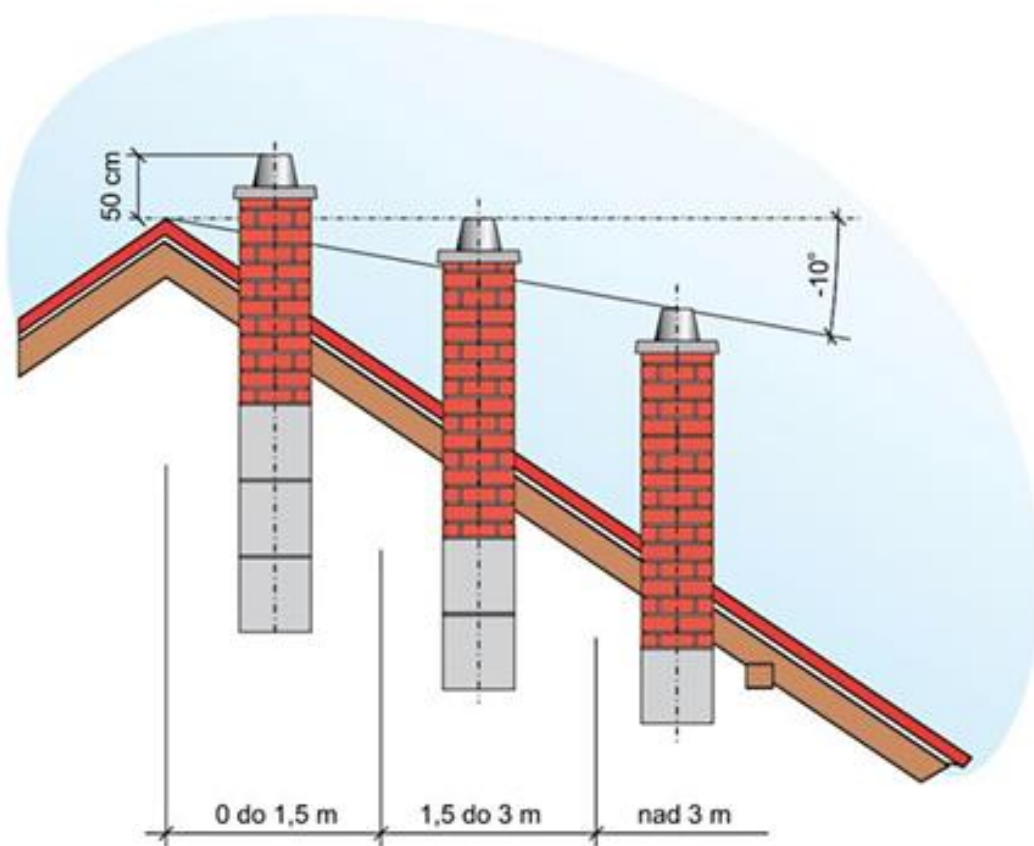
- * Top of the chimney should be protected with a chimney cap because of the impact of rain and wind. Distance from the cap to chimney should be 200mm.

- * Chimney should come out above the roof as per the recommendations. If there are some tall objects near the chimney, this should also be taken into account and the height of the chimney additionally increased.

- * The chimney must also have a connection for extracting condensation, as well as a revision door. During operation, the door should always be well sealed.

If possible, arches should be avoided. If not possible, then maximum number of arches should be 2. It is desirable to insulate flue gas channel from the boiler to chimney, especially if there are arches and longer sections. Flue gas probe is factory-installed in the housing of the exhaust gas fan. Prior to commissioning of the boiler, check whether the probe is still located in its place after the transport, since without adequately installed probe the boiler will not operate.

The chimney must have a door for cleaning and the door must be well sealed. Chimney outlet on the roof must be made in accordance with certain regulations. There are two different cases: if the roof angle is smaller than 12° and if it is bigger than 12°. For the angle smaller than 12°, the height of the chimney above the roof is 1m, while for the angle bigger than 12° please take a look at the picture:



Recommendation when building the chimney

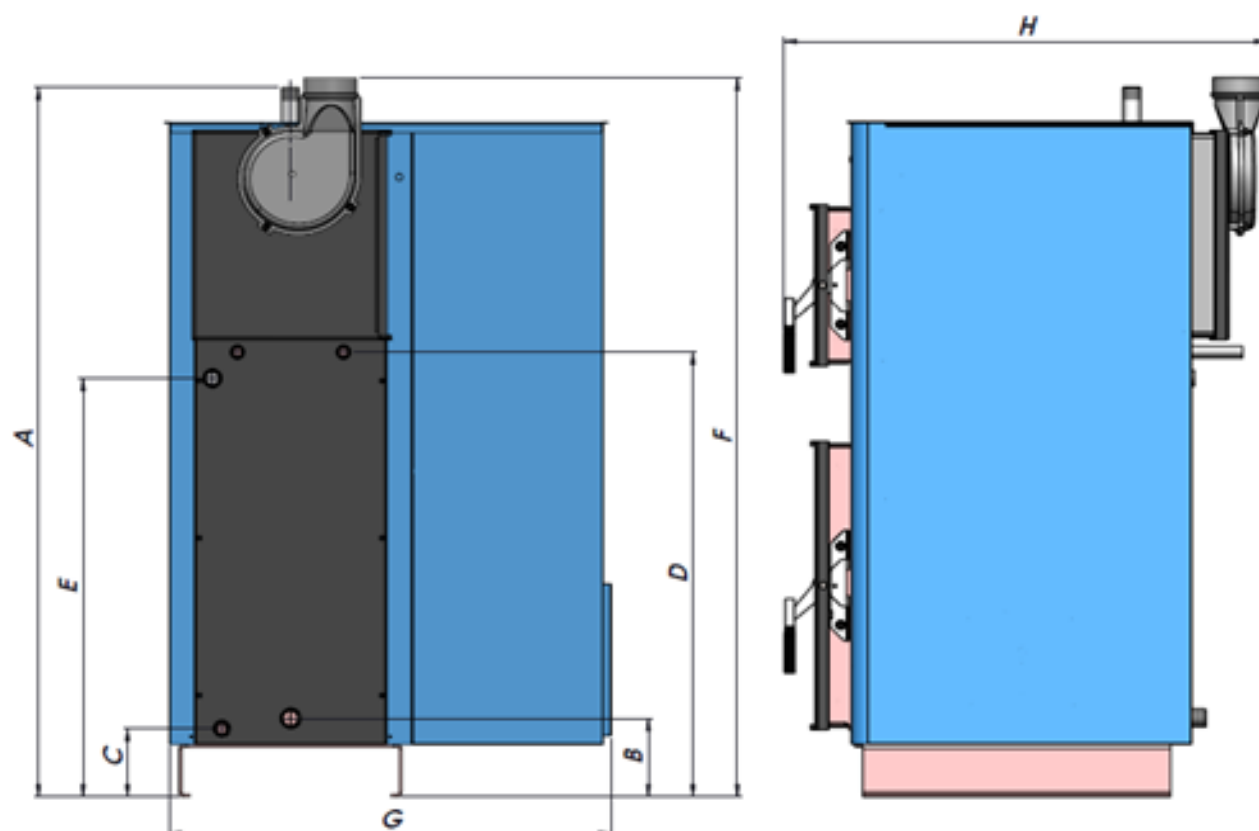


If the chimney is not of the prescribed height, cross-section or if it is not cleaned, there could be complications in the operation of the boiler. Primarily, high-temperature operating mode is not possible, that is, there is no maximum working power, resulting in appearance of condensation that affects boiler life expectancy.



Weak chimney is the main reason for smoke appearing on the upper or lower door during the ignition of the boiler or during the operation, especially at higher fan speeds.

Connections dimensions:



ABC COMBO 25kw

A – 1353mm – supply line

B – 150mm – return line

C – 130mm – charging and discharging

D – 799mm – heat exchanger

E – 566mm – cold water inlet

F – 1367mm – flue pipe / boiler height

G – 827mm – boiler width

H – 980mm – boiler depth

Hydraulic scheme

It is possible to choose 2 plumbing plants:



System pump is used to supply heating plant.
Pump is enabled if S1 temperature is greater than **Th19** Thermostat.
Pump is always ON if S1 temperature is greater than **Th21** Thermostat and lower than **Th18** Thermostat.

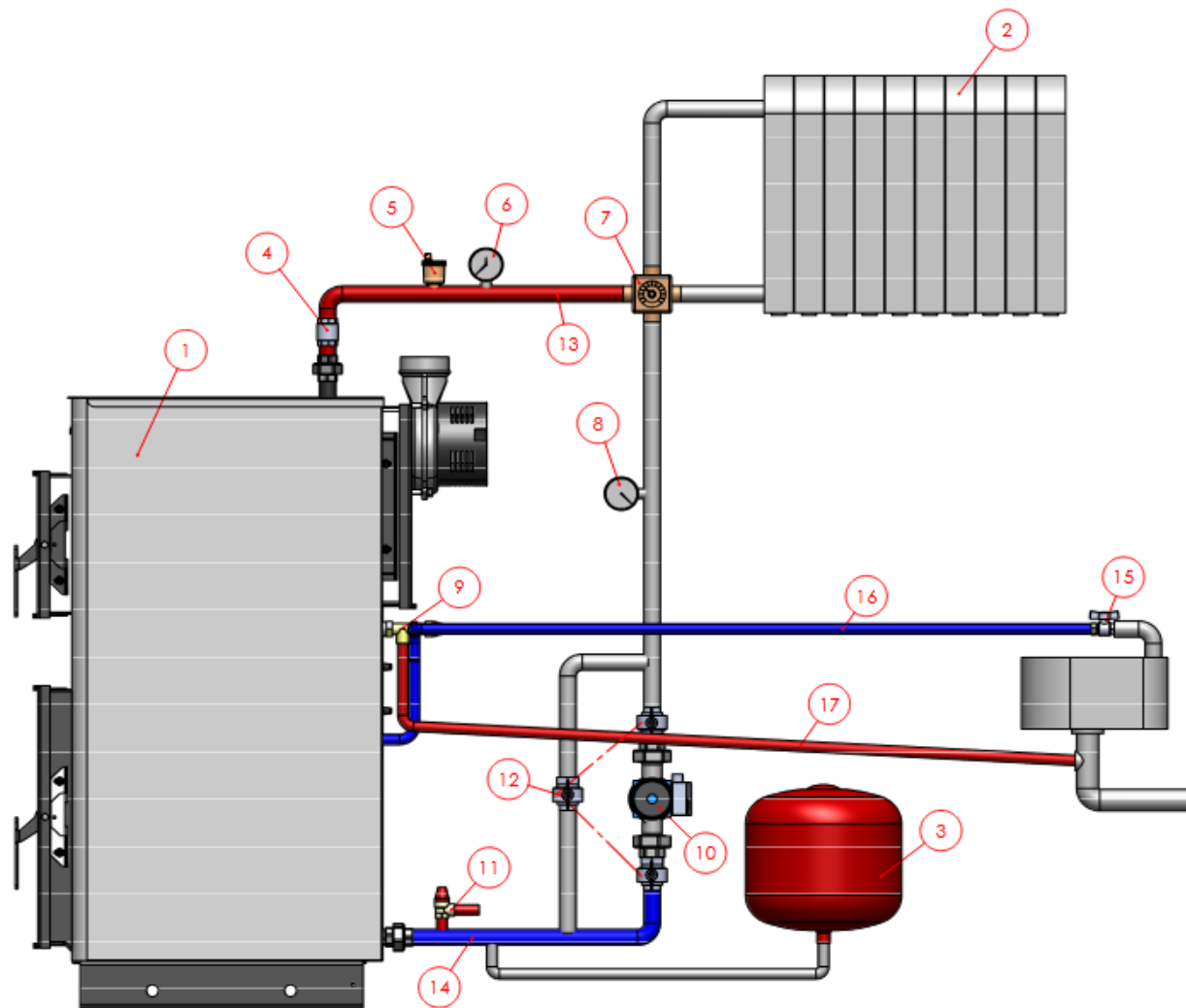


Pump is used as Buffer charge.
It is ON if differential temperature S1-S2 is greater than **Th47** and S1 temperature is greater than **Th19**.
If Buffer Thermostat **Th48** is satisfied, system goes in Standby. Pump is always ON if S1 temperature is lower than **Th18** Thermostat.

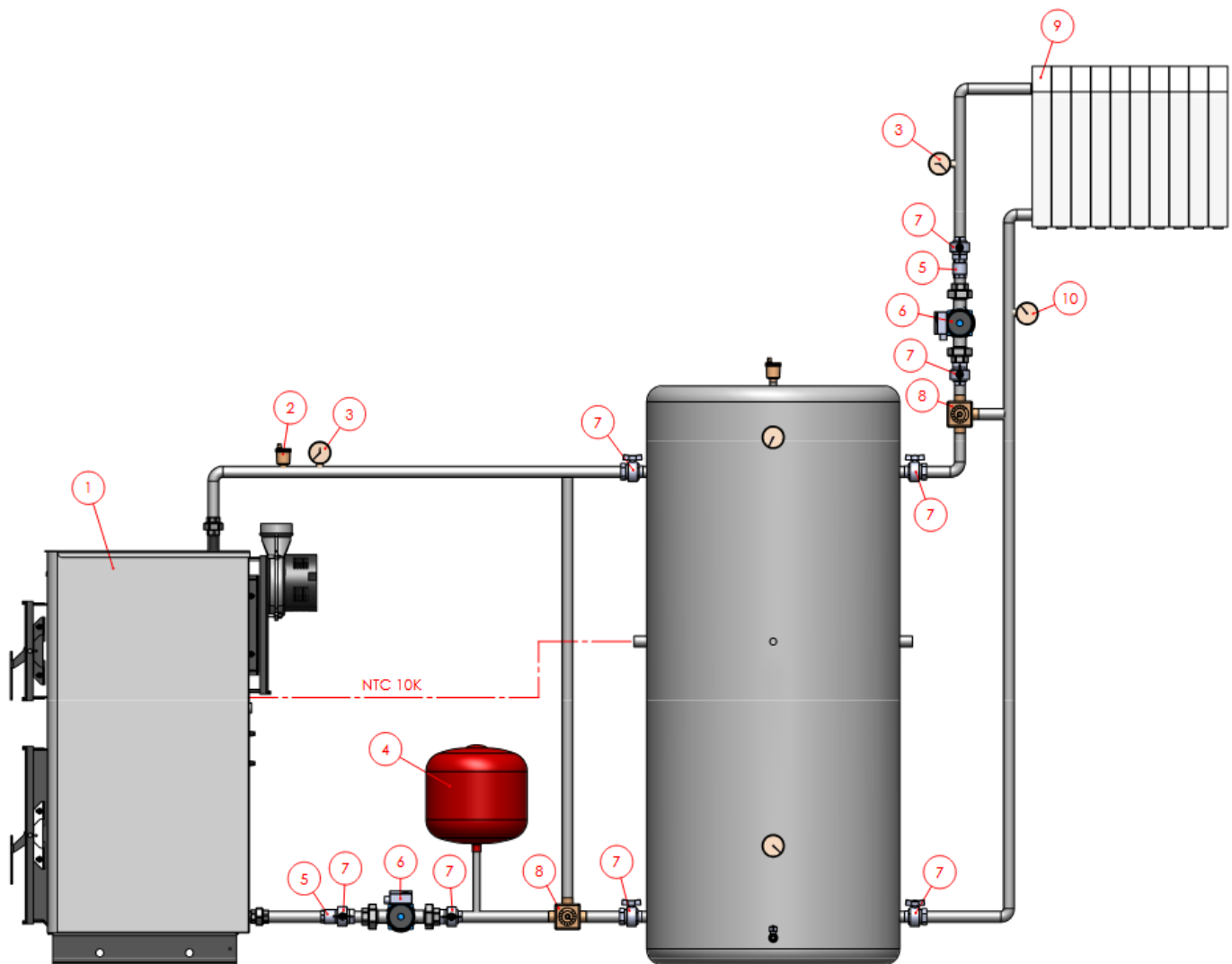
Unblock Pump

If Pump is OFF for a time greater than **T42**, it is activated for **T41** seconds, to avoid Pump block for inactivity.

P26 = 0

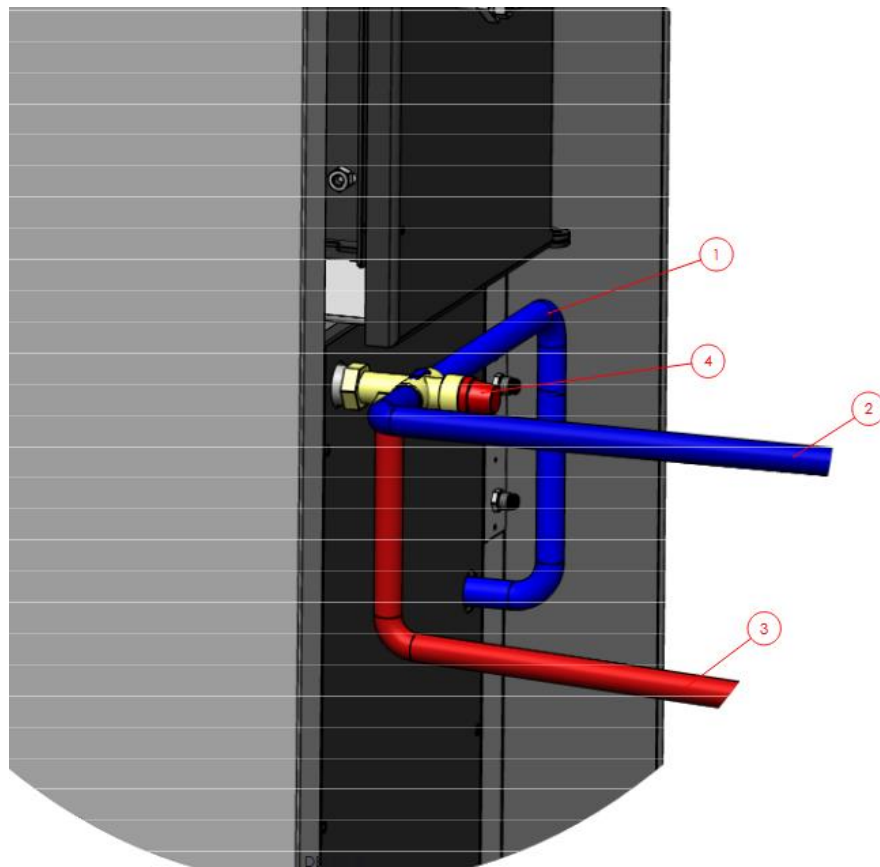


- | | | |
|---------------------|------------------------------|---|
| 1. Pellet boiler | 7. Water mixing valve 4 ways | 13. Outgoing water |
| 2. Heat exchanger | 8. Thermomanometer | 14. Returning water |
| 3. Expansion vessel | 9. Safety heat exchanger | 15. Tap water inlet |
| 4. Non-return valve | 10. Circulation pump | 16. Cold water for heat exchanger |
| 5. Vent pop for air | 11. Safety valve | 17. Pipe for releasing overheated water from Caleffi heat exchanger |
| 6. Thermometer | 12. Valves | |



1. Pellet boiler
2. Vent pop for air
3. Thermomanometer
4. Expansion vessel
5. Non return valve

6. Circulation pump
7. Valves
8. Water mixing valve 3 ways
9. Heat exchanger
10. Thermometer



1. Inlet for cold water
2. Tap water inlet
3. Pipe for releasing overheated water from boiler
4. Heat exchanger Caleffi 544/501

When incorporating a buffer tank into a biomass boiler system, it is important to consider the appropriate tank size. Several factors influence the sizing of a buffer tank, including:

- **Determining the appropriate tank size**

The size of the buffer tank depends on various factors, such as the heat demand of the building or process, the capacity of the biomass boiler, and the desired runtime without boiler operation. A qualified heating engineer can perform calculations to determine the optimal buffer tank size based on these parameters.

- **Factors affecting buffer tank size**

Factors that impact buffer tank sizing include the heat load profile, the desired comfort level, and the specific requirements of the heating system. A comprehensive assessment

of these factors ensures the selection of a buffer tank that can effectively store and distribute heat without compromising system performance.

- The inclusion of a buffer tank in a biomass boiler system is vital for optimizing its performance, increasing energy efficiency, and extending equipment lifespan. By providing energy storage and heat management capabilities, buffer tanks ensure smooth operation and reduce wear and tear on the boiler. They offer tangible benefits such as improved fuel efficiency, reduced maintenance costs, and enhanced overall system reliability. To fully harness the advantages of biomass boilers, it is essential to recognize and leverage the importance of buffer tanks.
- According to previous, our recommendation for size of buffer tank is from 10 to 30 lit/kw.

Power outage

- If boiler is using wood it is mandatory to provide ***Voltage converter with charger.***

These devices are characterized by a battery charging function. Therefore, the battery or the accumulator to which the device is connected starts charging the accumulator as soon as the electricity returns.

At the moment of power failure, the converter takes over the function of supplying power to the central heating pump (the central heating system remains safe and functional), immediately after the power supply, the converter charges the battery and prepares it and keeps it 100% functional for the next power failure.



- If the boiler is used for pellet fuel, then a generator could be provided to power the electrical devices on the boiler.



An inverter unit, which provides pure sinusoidal voltage.

PARAMETERS COMBO 25

Param	Descrizione	U.M.	Set	Min	Max
Thermostats					
Exhaust Probe Thermostats					
137	Th 01: System Off (for final cleaning)		60	5	900
145	Ih 01: Th 01 Thermostat Hysteresis		2	2	20
138	Th 02: Resistance Off		30	5	900
146	Ih 02: Th 02 Thermostat Hysteresis		3	2	20
139	Th 03: Pre-Extinguishing for lack of flame		35	5	900
147	Ih 03: Th 03 Thermostat Hysteresis		5	2	20
142	Th 06: Entry in Stabilization from Variable Ignition phas		35	5	900
150	Ih 06: Th 06 Thermostat Hysteresis		3	2	20
143	Th 07: Modulation for exhaust temperature		200	5	900
151	Ih 07: Th 07 Thermostat Hysteresis		20	2	20
144	Th 08: Safety for exhaust temperature		250	5	900
152	Ih 08: Th 08 Thermostat Hysteresis		3	2	20
226	Th 09: Bypass Ignition (entry in Run Mode)		120	5	900
234	Ih 09: Th 09 Thermostat Hysteresis		2	2	20
228	Th 28: System Off in Standby (for final cleaning)		80	5	900
236	Ih 28: Th 28 Thermostat Hysteresis		2	2	20
Stabilization Delta					
157	D 01: Stabilisation Delta		3	0	100
Water Boiler Thermostats					
174	Th 18: Antifreeze		5	5	10
182	Ih 18: Th 18 Thermostat Hysteresis		2	0	3
175	Th 19: Enable Exchanger		50	20	110
183	Ih 19: Th 19 Thermostat Hysteresis		2	1	20
177	Th 21: Unblock Pump Thermostat (used if A07 = 3)		80	30	85
185	Ih 21: Th 21 Thermostat Hysteresis		2	1	20
180	Th 24: Boiler Thermostat		75	20	110
188	Ih 24: Boiler Thermostat Hysteresis		1	1	20
181	Th 25: Boiler Safety Thermostat		90	20	110
189	Ih 25: Th 25 Thermostat Hysteresis		2	1	20
5	Th 26: Boiler Thermostat Minimum Range		50	20	110
6	Th 27: Boiler Thermostat Maximum Range		85	20	110
300	Th 29: Boiler Thermostat for Pre-extinguishing in Wood		10	10	90
308	Ih 29: Boiler Thermostat for Pre-extinguishing in Wood E		5	1	20
179	Th 56: Output Enable Thermostat		60	30	85
187	Ih 56: Th 56 Thermostat Hysteresis		2	1	20
Temperature Delta for automatic modes					
252	D 08: Boiler Temp. Delta for Automatic Combustion Reg		5	1	30
153	D 23: Boiler Temp. Delta to enter in Standby from Modul		3	0	50

Param	Descrizione	U.M.	Set	Min	Max
Extinguishing Thermostats					
265	Th 35: Power 1		35	5	900
266	Th 36: Power 2		40	5	900
267	Th 37: Power 3		48	5	900
268	Th 38: Power 4		48	5	900
269	Th 39: Power 5		48	5	900
273	Th 43: Modulation Power		35	5	900
Boiler Probe Thermostats					
1.816	Th 47: Boiler Probe - Buffer Probe Differential		8	1	30
1.824	Ih 47: Boiler Probe - Buffer Probe Differential Hysteresis		1	1	5
1.800	Th 48: Buffer Thermostat		85	30	85
1.808	Ih 48: Th 48 Thermostat Hysteresis		2	1	20
Photo Probe Thermostats					
102	L00 :Photo probe OFF threshold		20	0	100
118	IL00 :Photo probe OFF threshold Hysteresis		0	0	5
103	L01 :Photo probe ON threshold		80	0	100
119	IL01 :Photo probe ON threshold Hysteresis		0	0	5
Timers					
Ignition Timers					
160	T 01: Check Up		10	0	900
172	T 02: Resistance Preheating		120	0	900
173	T 03: Preload Auger		45	0	900
165	T 04: Fixed Ignition (only if P37=0)		200	0	3600
155	T 05: Variable Ignition		400	0	3600
Stabilization Timer					
156	T 06: Stabilisation		120	0	900
Pre-Extinguishing Timer					
158	T 14: Delay to enter in Extinguishing for L00 Thermostat		120	0	900
222	T 21: Delay to enter in Extinguishing for Th29 Thermosta		15	0	600
Safety Timer					
159	T 15: Delay to enter in Extinguishing for Th 08 or Th 25 '		120	0	900
Periodic Cleaning					
166	T 07: Cycle Periodic Cleaning		45	15	600
167	T 08: Length Periodic Cleaning		60	0	900
461	T 30: Work time of Cleaning Engine		30	0	9600
462	T 31: Wait time of Cleaning Engine		500	1	600

Param	Descrizione	U.M.	Set	Min	Max
458	T 85: Max waiting time for Cleaning Engine 2 limit swite		50	1	60
385	T 86: Cleaning Engine 2 On time		50	0	9600
380	T 87: Cleaning Engine 2 waiting time		50	1	900
High Voltage Safety Delay					
191	T 09: Delay signalling HV1 Error Safety Thermostat		5	1	900
192	T 10: Delay signalling HV2 Error Pressureswitch		600	1	900
Change Power Timers					
283	T 17: Delay change power		45	0	900
285	T 18: Delay change power entering in Run Mode from Ig		90	0	900
Timers Standby					
246	T 11: Delay to exit from Standby		10	0	900
247	T 22: Delay to enter in Standby		10	0	900
264	T 43: Delay to go in Standby from Mod. if water temp>(B		180	0	9600
Loading Tank Timers					
799	T 23: Timer tank filling		180	0	3600
798	T 24: Signalling pellet lack or control tank filling		45	0	3600
Timer Extinguishing					
287	T 13: Minimum length of Extiguishing		120	0	900
161	T 16: Final Cleaning		60	0	900
Hydraulic Plant Timer					
469	T 41: Work time of the Pump		10	0	3600
470	T 42: Maximum time of inactivity of the Pump		300	1	900
Auger Timers					
794	T 27: Delay to disable Auger 2		25	1	900
793	T 40: Delay to enable Auger		40	0	900

Enable Functions

Enables

253	A 06: Modulation Power	1	0	1
256	A 07: Input Aux Management	4	0	4
242	A 13: Standby for Boiler Thermostat	1	0	1
288	A 26: Exit from Standby at the end of extinguishing proc	1	0	1
164	A 28: Auger Brake	0	0	1
792	A 31: Combustible management (0=Pellet/Wood; 1=only	0	0	2
30	A 32: Enable Auxiliary Module	0	0	1
299	P 25: Combustion Fan Management	1	0	3

Param	Descrizione	U.M.	Set	Min	Max
Product Management					
800	Product Code		0	0	9999
480	Password Secret Menu		0	0	9999
136	P 02: Maximum Number of Ignition Attempts		2	1	5
211	P 03: Number of Functioning Power		5	1	5
115	P 05: Auger Period (Ton + Toff)		13	4	60
477	P 09: Configurazione Sensore Livello Pellet (0=NC; 1=NO)		0	0	2
1.354	P 14: Minimum Speed of Combustion Fan No Encoder		35	0	230
1.360	P 14: Minimum Speed of Combustion Fan with Encoder		550	300	2800
1.358	P 15: Percentage increase or decrease of set value of Auger		5	1	20
289	P 26: Plumbing System Management		0	0	1
116	P 27: Minimum Value of Auger On time in Run Mode and		0.30	0	60
1.356	P 30: Maximum Speed of Combustion Fan with Encoder		2600	300	2800
1.355	P 30: Maximum Speed of Combustion Fan No Encoder		220	0	230
460	P 37: Thermocouple or Photoresistor choice		0	0	2
320	P 42: Hydro/Air Configuration		0	0	1
10	P 44: Output V2 Configuration		14	0	16
11	P 45: Output Aux1 Configuration		0	0	16
14	P 48: Output Aux2 Configuration		0	0	16
386	P 49: Cleaning Engine 2 max Cycle Number on Run Mod		0	0	100
387	P 50: Cleaning Engine 2 max Cycle Number on Extinguis		0	0	100
20	P 60: Input 1 Configuration		0	0	2
21	P 61: Input 2 Configuration		0	0	2

Combustion Recipe Pellet 1

Exhaust Fan

500	U 01: Ignition	120	0	230
501	U 02: Stabilisation	130	0	230
502	U 03: Power 1	125	0	230
503	U 04: Power 2	135	0	230
504	U 05: Power 3	145	0	230
505	U 06: Power 4	155	0	230
506	U 07: Power 5	170	0	230
507	U 08: Periodic Cleaning Power	200	0	230
508	U 09: Extinguishing Power	210	0	230
509	U 10: Second Ignition	120	0	230
510	U 11: Modulation	125	0	230

Auger On

588	C 01: Ignition	0.30	0	60
589	C 02: Stabilisation	0.50	0	60
590	C 03: Power 1	1.5	0	60
591	C 04: Power 2	2.5	0	60

Param	Descrizione	U.M.	Set	Min	Max
592	C 05: Power 3		3.5	0	60
593	C 06: Power 4		4.5	0	60
594	C 07: Power 5		5.5	0	60
595	C 08: Periodic Cleaning Power		1.5	0	60
597	C 10: Second Ignition		0	0	60
598	C 11: Modulation		1	0	60

Exhaust Fan with Encoder

533	U 01: Ignition		1700	300	2800
534	U 02: Stabilisation		1600	300	2800
535	U 03: Power 1		1500	300	2800
536	U 04: Power 2		1600	300	2800
537	U 05: Power 3		1700	300	2800
538	U 06: Power 4		1800	300	2800
539	U 07: Power 5		1900	300	2800
540	U 08: Periodic Cleaning Power		2300	300	2800
541	U 09: Extinguishing Power		2400	300	2800
542	U 10: Second Ignition		1600	300	2800
543	U 11: Modulation		1400	300	2800

PARAMETERS COMBO 40

Param	Descrizione	U.M.	Set	Min	Max
Thermostats					
Exhaust Probe Thermostats					
137	Th 01: System Off (for final cleaning)		60	5	900
145	Ih 01: Th 01 Thermostat Hysteresis		2	2	20
138	Th 02: Resistance Off		35	5	900
146	Ih 02: Th 02 Thermostat Hysteresis		3	2	20
139	Th 03: Pre-Extinguishing for lack of flame		40	5	900
147	Ih 03: Th 03 Thermostat Hysteresis		5	2	20
142	Th 06: Entry in Stabilization from Variable Ignition phas		40	5	900
150	Ih 06: Th 06 Thermostat Hysteresis		3	2	20
143	Th 07: Modulation for exhaust temperature		180	5	900
151	Ih 07: Th 07 Thermostat Hysteresis		20	2	20
144	Th 08: Safety for exhaust temperature		250	5	900
152	Ih 08: Th 08 Thermostat Hysteresis		3	2	20
226	Th 09: Bypass Ignition (entry in Run Mode)		120	5	900
234	Ih 09: Th 09 Thermostat Hysteresis		2	2	20
228	Th 28: System Off in Standby (for final cleaning)		80	5	900
236	Ih 28: Th 28 Thermostat Hysteresis		2	2	20
Stabilization Delta					
157	D 01: Stabilisation Delta		3	0	100
Water Boiler Thermostats					
174	Th 18: Antifreeze		5	5	10
182	Ih 18: Th 18 Thermostat Hysteresis		2	0	3
175	Th 19: Enable Exchanger		50	20	110
183	Ih 19: Th 19 Thermostat Hysteresis		2	1	20
177	Th 21: Unblock Pump Thermostat (used if A07 = 3)		80	30	85
185	Ih 21: Th 21 Thermostat Hysteresis		2	1	20
180	Th 24: Boiler Thermostat		75	20	110
188	Ih 24: Boiler Thermostat Hysteresis		1	1	20
181	Th 25: Boiler Safety Thermostat		90	20	110
189	Ih 25: Th 25 Thermostat Hysteresis		2	1	20
5	Th 26: Boiler Thermostat Minimum Range		50	20	110
6	Th 27: Boiler Thermostat Maximum Range		85	20	110
300	Th 29: Boiler Thermostat for Pre-extinguishing in Wood		10	10	90
308	Ih 29: Boiler Thermostat for Pre-extinguishing in Wood H		2	1	20
179	Th 56: Output Enable Thermostat		60	30	85
187	Ih 56: Th 56 Thermostat Hysteresis		2	1	20
Temperature Delta for automatic modes					
252	D 08: Boiler Temp. Delta for Automatic Combustion Reg		5	1	30
153	D 23: Boler Temp. Delta to enter in Standby from Modul		3	0	50

Param	Descrizione	U.M.	Set	Min	Max
Extinguishing Thermostats					
265	Th 35: Power 1		40	5	900
266	Th 36: Power 2		45	5	900
267	Th 37: Power 3		48	5	900
268	Th 38: Power 4		48	5	900
269	Th 39: Power 5		48	5	900
273	Th 43: Modulation Power		40	5	900
Boiler Probe Thermostats					
1.816	Th 47: Boiler Probe - Buffer Probe Differential		8	1	30
1.824	Ih 47: Boiler Probe - Buffer Probe Differential Hysteresis		1	1	5
1.800	Th 48: Buffer Thermostat		85	30	85
1.808	Ih 48: Th 48 Thermostat Hysteresis		2	1	20
Photo Probe Thermostats					
102	L00 :Photo probe OFF threshold		20	0	100
118	IL00 :Photo probe OFF threshold Hysteresis		0	0	5
103	L01 :Photo probe ON threshold		80	0	100
119	IL01 :Photo probe ON threshold Hysteresis		0	0	5
Timers					
Ignition Timers					
160	T 01: Check Up		10	0	900
172	T 02: Resistance Preheating		120	0	900
173	T 03: Preload Auger		60	0	900
165	T 04: Fixed Ignition (only if P37=0)		200	0	3600
155	T 05: Variable Ignition		400	0	3600
Stabilization Timer					
156	T 06: Stabilisation		120	0	900
Pre-Extinguishing Timer					
158	T 14: Delay to enter in Extinguishing for L00 Thermostat		120	0	900
222	T 21: Delay to enter in Extinguishing for Th29 Thermosta		15	0	600
Safety Timer					
159	T 15: Delay to enter in Extinguishing for Th 08 or Th 25 '		120	0	900
Periodic Cleaning					
166	T 07: Cycle Periodic Cleaning		30	15	600
167	T 08: Length Periodic Cleaning		20	0	900
461	T 30: Work time of Cleaning Engine		30	0	9600
462	T 31: Wait time of Cleaning Engine		500	1	600

Param	Descrizione	U.M.	Set	Min	Max
458	T 85: Max waiting time for Cleaning Engine 2 limit switc		50	1	60
385	T 86: Cleaning Engine 2 On time		50	0	9600
380	T 87: Cleaning Engine 2 waiting time		50	1	900
High Voltage Safety Delay					
191	T 09: Delay signalling HV1 Error Safety Thermostat		5	1	900
192	T 10: Delay signalling HV2 Error Pressureswitch		600	1	900
Change Power Timers					
283	T 17: Delay change power		50	0	900
285	T 18: Delay change power entering in Run Mode from Ig		180	0	900
Timers Standby					
246	T 11: Delay to exit from Standby		10	0	900
247	T 22: Delay to enter in Standby		10	0	900
264	T 43: Delay to go in Standby from Mod. if water temp>(B		120	0	9600
Loading Tank Timers					
799	T 23: Timer tank filling		180	0	3600
798	T 24: Signalling pellet lack or control tank filling		45	0	3600
Timer Extinguishing					
287	T 13: Minimum length of Extinguishing		180	0	900
161	T 16: Final Cleaning		90	0	900
Hydraulic Plant Timer					
469	T 41: Work time of the Pump		10	0	3600
470	T 42: Maximum time of inactivity of the Pump		300	1	900
Auger Timers					
794	T 27: Delay to disable Auger 2		25	1	900
793	T 40: Delay to enable Auger		40	0	900

Enable Functions

Enables

253	A 06: Modulation Power	1	0	1
256	A 07: Input Aux Management	4	0	4
242	A 13: Standby for Boiler Thermostat	1	0	1
288	A 26: Exit from Standby at the end of extinguishing proc	1	0	1
164	A 28: Auger Brake	0	0	1
792	A 31: Combustible management (0=Pellet/Wood; 1=only	0	0	2
30	A 32: Enable Auxiliary Module	0	0	1
299	P 25: Combustion Fan Management	1	0	3

Param	Descrizione	U.M.	Set	Min	Max
Product Management					
800	Product Code		0	0	9999
480	Password Secret Menu		0	0	9999
136	P 02: Maximum Number of Ignition Attempts		2	1	5
211	P 03: Number of Functioning Power		5	1	5
115	P 05: Auger Period (Ton + Toff)		12	4	60
477	P 09: Configurazione Sensore Livello Pellet (0=NC; 1=NO)		0	0	2
1.354	P 14: Minimum Speed of Combustion Fan No Encoder		35	0	230
1.360	P 14: Minimum Speed of Combustion Fan with Encoder		550	300	2800
1.358	P 15: Percentage increase or decrease of set value of Auger		5	1	20
289	P 26: Plumbing System Management		0	0	1
116	P 27: Minimum Value of Auger On time in Run Mode and		0.30	0	60
1.356	P 30: Maximum Speed of Combustion Fan with Encoder		2600	300	2800
1.355	P 30: Maximum Speed of Combustion Fan No Encoder		220	0	230
460	P 37: Thermocouple or Photoresistor choice		0	0	2
320	P 42: Hydro/Air Configuration		0	0	1
10	P 44: Output V2 Configuration		14	0	16
11	P 45: Output Aux1 Configuration		0	0	16
14	P 48: Output Aux2 Configuration		0	0	16
386	P 49: Cleaning Engine 2 max Cycle Number on Run Mod		0	0	100
387	P 50: Cleaning Engine 2 max Cycle Number on Extinguis		0	0	100
20	P 60: Input 1 Configuration		0	0	2
21	P 61: Input 2 Configuration		0	0	2

Combustion Recipe Pellet 1

Exhaust Fan

500	U 01: Ignition	120	0	230
501	U 02: Stabilisation	130	0	230
502	U 03: Power 1	125	0	230
503	U 04: Power 2	135	0	230
504	U 05: Power 3	145	0	230
505	U 06: Power 4	155	0	230
506	U 07: Power 5	170	0	230
507	U 08: Periodic Cleaning Power	200	0	230
508	U 09: Extinguishing Power	210	0	230
509	U 10: Second Ignition	120	0	230
510	U 11: Modulation	125	0	230

Auger On

588	C 01: Ignition	0.60	0	60
589	C 02: Stabilisation	1	0	60
590	C 03: Power 1	3	0	60
591	C 04: Power 2	4	0	60

Param	Descrizione	U.M.	Set	Min	Max
592	C 05: Power 3		5	0	60
593	C 06: Power 4		6	0	60
594	C 07: Power 5		7	0	60
595	C 08: Periodic Cleaning Power		1.5	0	60
597	C 10: Second Ignition		0	0	60
598	C 11: Modulation		1	0	60
Exhaust Fan with Encoder					
533	U 01: Ignition		1700	300	2800
534	U 02: Stabilisation		1600	300	2800
535	U 03: Power 1		1300	300	2800
536	U 04: Power 2		1350	300	2800
537	U 05: Power 3		1400	300	2800
538	U 06: Power 4		1450	300	2800
539	U 07: Power 5		1550	300	2800
540	U 08: Periodic Cleaning Power		2300	300	2800
541	U 09: Extinguishing Power		2400	300	2800
542	U 10: Second Ignition		1600	300	2800
543	U 11: Modulation		1250	300	2800

PARAMETERS COMBO 60

Exhaust Probe Thermostats

137	Th 01: System Off (for final cleaning)	°C	60
145	Ih 01: Th 01 Thermostat Hysteresis	°C	2
138	Th 02: Resistance Off	°C	35
146	Ih 02: Th 02 Thermostat Hysteresis	°C	3
139	Th 03: Pre-Extinguishing for lack of flame	°C	40
147	Ih 03: Th 03 Thermostat Hysteresis	°C	5
142	Th 06: Entry in Stabilization from Variable Ignition phase	°C	40
150	Ih 06: Th 06 Thermostat Hysteresis	°C	3
143	Th 07: Modulation for exhaust temperature	°C	200
151	Ih 07: Th 07 Thermostat Hysteresis	°C	20
144	Th 08: Safety for exhaust temperature	°C	250
152	Ih 08: Th 08 Thermostat Hysteresis	°C	3
226	Th 09: Bypass Ignition (entry in Run Mode)	°C	120
234	Ih 09: Th 09 Thermostat Hysteresis	°C	2
228	Th 28: System Off in Standby (for final cleaning)	°C	50
236	Ih 28: Th 28 Thermostat Hysteresis	°C	2

Stabilization Delta

157	D 01: Stabilisation Delta	°C	3
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Water Boiler Thermostats

174	Th 18: Antifreeze	°C	5
182	Ih 18: Th 18 Thermostat Hysteresis	°C	2
175	Th 19: Enable Exchanger	°C	50
183	Ih 19: Th 19 Thermostat Hysteresis	°C	2
177	Th 21: Unblock Pump Thermostat (used if A07 = 3)	°C	80
185	Ih 21: Th 21 Thermostat Hysteresis	°C	2
180	Th 24: Boiler Thermostat	°C	75
188	Ih 24: Boiler Thermostat Hysteresis	°C	1
181	Th 25: Boiler Safety Thermostat	°C	90
189	Ih 25: Th 25 Thermostat Hysteresis	°C	2
5	Th 26: Boiler Thermostat Minimum Range	°C	50
6	Th 27: Boiler Thermostat Maximum Range	°C	85
300	Th 29: Boiler Thermostat for Pre-extinguishing in Wood	°C	30
308	Ih 29: Boiler Thermostat for Pre-extinguishing in Wood Hyster	°C	2
179	Th 56: Output Enable Thermostat	°C	60
187	Ih 56: Th 56 Thermostat Hysteresis	°C	3

Temperature Delta for automatic modes

252	D 08: Boiler Temp. Delta for Automatic Combustion Regulatio	°C	5
153	D 23: Boler Temp. Delta to enter in Standby from Modulation	°C	3

Extinguishing Thermostats

265	Th 35: Power 1	°C	40
266	Th 36: Power 2	°C	45
267	Th 37: Power 3	°C	48

High Voltage Safety Delay

191	T 09: Delay signalling HV1 Error Safety Thermostat	sec	5
192	T 10: Delay signalling HV2 Error Pressureswitch	sec	600

Change Power Timers

283	T 17: Delay change power	sec	50
285	T 18: Delay change power entering in Run Mode from Ignition	sec	180

Timers Standby

246	T 11: Delay to exit from Standby	sec	10
247	T 22: Delay to enter in Standby	sec	10
264	T 43: Delay to go in Standby from Mod. if water temp>(Boiler ')	sec	120

Loading Tank Timers

799	T 23: Timer tank filling	sec	180
798	T 24: Signalling pellet lack or control tank filling	sec	45

Timer Extinguishing

287	T 13: Minimum length of Extinguishing	sec	180
161	T 16: Final Cleaning	sec	90

Hydraulic Plant Timer

469	T 41: Work time of the Pump	sec	10
470	T 42: Maximum time of inactivity of the Pump	hr	300

Auger Timers

794	T 27: Delay to disable Auger 2	sec	25
793	T 40: Delay to enable Auger	sec	40

Enable Functions

Enables

253	A 06: Modulation Power	nr	1
256	A 07: Input Aux Management	nr	4
242	A 13: Standby for Boiler Thermostat	nr	1
288	A 26: Exit from Standby at the end of extinguishing procedure	nr	1
164	A 28: Auger Brake	nr	0
792	A 31: Combustible management (0=Pellet/Wood; 1=only Pellet	nr	0
30	A 32: Enable Auxiliary Module	nr	0
299	P 25: Combustion Fan Management	nr	1

Product Management

800	Product Code	nr	0
480	Password Secret Menu	nr	0
136	P 02: Maximum Number of Ignition Attempts	nr	2
211	P 03: Number of Functioning Power	nr	5
115	P 05: Auger Period (Ton + Toff)	sec	10
477	P 09: Configurazione Sensore Livello Pellet (0=NC; 1=NO; 2=I	nr	0
1,354	P 14: Minimum Speed of Combustion Fan No Encoder	Volt	35
1,360	P 14: Minimum Speed of Combustion Fan with Encoder	g/min	550
1,358	P 15: Percentage increase or decrease of set value of Auger On	%	5
289	P 26: Plumbing System Management	nr	0
116	P 27: Minimum Value of Auger On time in Run Mode and Moc	sec	0.30
1,356	P 30: Maximum Speed of Combustion Fan with Encoder	g/min	2600
1,355	P 30: Maximum Speed of Combustion Fan No Encoder	Volt	220
460	P 37: Thermocouple or Photoresistor choice	nr	0
320	P 42: Hydro/Air Configuration	nr	0
10	P 44: Output V2 Configuration	nr	14
11	P 45: Output Aux1 Configuration	nr	0
14	P 48: Output Aux2 Configuration	nr	0
386	P 49: Cleaning Engine 2 max Cycle Number on Run Mode	nr	0
387	P 50: Cleaning Engine 2 max Cycle Number on Extinguishing	nr	0

Combustion Recipe Pellet 1

Exhaust Fan

500	U 01: Ignition	Volt	120
501	U 02: Stabilisation	Volt	130
502	U 03: Power 1	Volt	125
503	U 04: Power 2	Volt	135
504	U 05: Power 3	Volt	145
505	U 06: Power 4	Volt	155
506	U 07: Power 5	Volt	170
507	U 08: Periodic Cleaning Power	Volt	200
508	U 09: Extinguishing Power	Volt	210
509	U 10: Second Ignition	Volt	120
510	U 11: Modulation	Volt	125

Auger On

588	C 01: Ignition	sec	0.50
589	C 02: Stabilisation	sec	1
590	C 03: Power 1	sec	3
591	C 04: Power 2	sec	4
592	C 05: Power 3	sec	5
593	C 06: Power 4	sec	6.5
594	C 07: Power 5	sec	8
595	C 08: Periodic Cleaning Power	sec	1
597	C 10: Second Ignition	sec	0
598	C 11: Modulation	sec	2

Exhaust Fan with Encoder

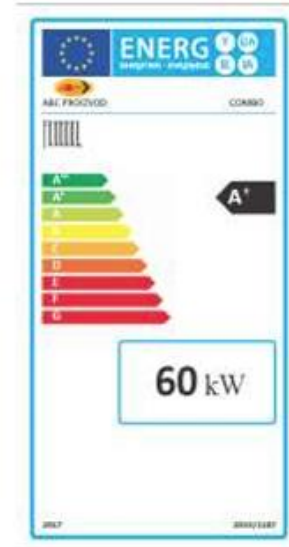
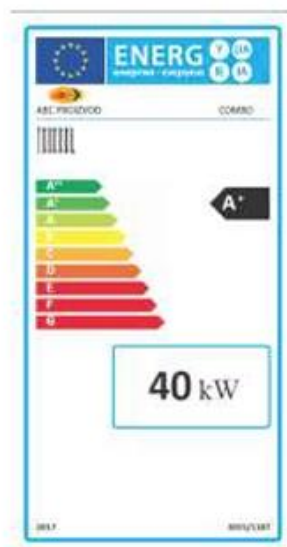
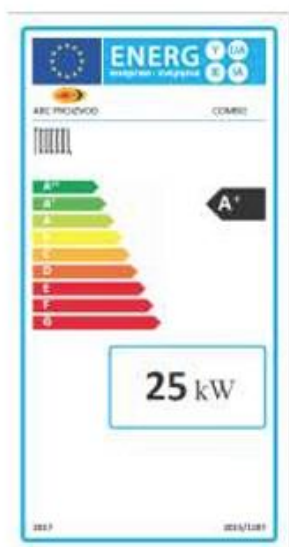
533	U 01: Ignition	g/min	1800
534	U 02: Stabilisation	g/min	1900
535	U 03: Power 1	g/min	1450
536	U 04: Power 2	g/min	1500
537	U 05: Power 3	g/min	1550
538	U 06: Power 4	g/min	1600
539	U 07: Power 5	g/min	1700
540	U 08: Periodic Cleaning Power	g/min	2300
541	U 09: Extinguishing Power	g/min	2400
542	U 10: Second Ignition	g/min	1400
543	U 11: Modulation	g/min	1200

NOTE:

It is mandatory that if you instal a room thermostat, you need to adjust following parameters:

1. Th01 must be at least two degrees lower than parameter Th 06
2. During first commissioning of the boiler, service person need to observe temperature of exhousing gasses and according to that data he will set parameters Th01 and Th06. This information is closely related to the quality of the pellets as well as the draft power in the chimney itself.

3. According to dimensions of pellet, service person need to observe during first commissioning, amount of pellet in burning pot. If it is needed to increase or decrease amount of pellet in the burning pot, there is a parameter that regulate this function and it is T03.
4. With parameter Th02 you can prolong heating resistance to turn off. If the pellet has too much humidity.



For Combo pellet boilers to calculate the estimated consumption can be used below formulas

$$B = \frac{Q}{Hu \times \mu} = \text{estimated consumption kg/h}$$

$$Q = B \times Hu \times \mu$$

Q – Capacity (Kcal/h)

B = Fuel amount (kg/h)

Hu = Heating value of fuel (Kcal/kg)

μ = Efficiency (%)

1kw = 860Kcal/h

Example for 40kw boiler:

Q for 40kw boiler is 34.400 Kcal/h

34.400

B = ----- = 9.32 kg/h

4100 x 0,9

Attention: For good result of pellet consumption important parameters are:

The heating value of pellets is different from C to A1 category(3950 up to 4150 Kcal/kg) we recommend only pellet category A1.(high power/low quantity of ash/low % of humidity)

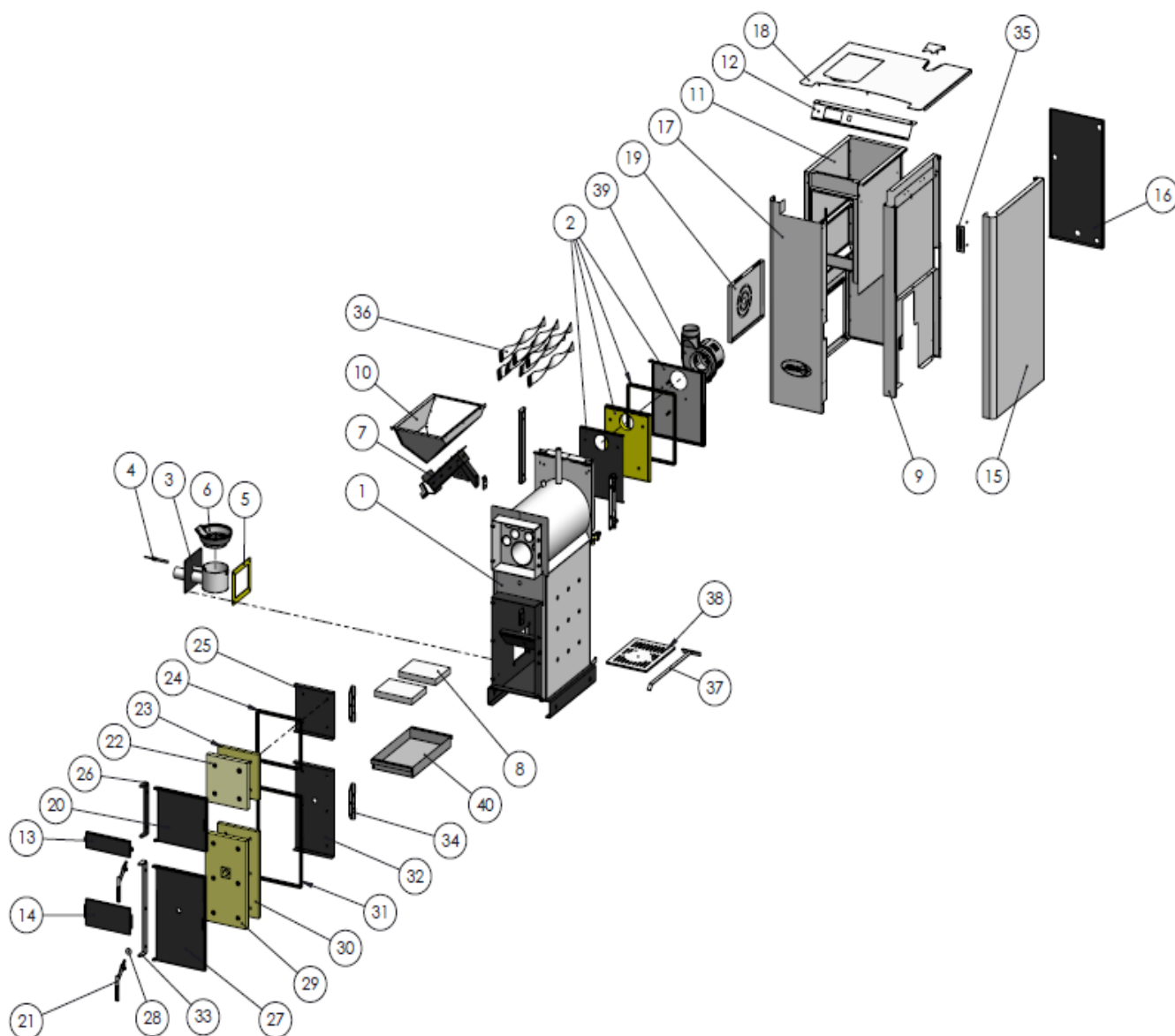
The standard efficiency of the boiler can decrease if the boiler is not installed properly, if is not cleaned properly and if low quality pellets are burned inside the boiler. Low efficiency means high consumption.

Room thermostat can help the boiler to decrease the consumption, and keep temperature in the house linear.

Boiler must have similar power with the demand of heating power of the house, a boiler undersized or oversized will not work properly and will have high consumption.

A house not insulated and without other houses around (outside the cities/villages) will have higher consumption.

SPARE PARTS



No	NAME OF THE POSITION	PCS	25kw	40kw	60kw
1.	Boiler with connections	1	S0670	S0637	S1102
2.	Doors of the flue gasses chamber	1	S0681	S0802	S0802
3.	Burner housing	1	S0510	S0613	S1086
4.	Heater	1	P03077	P03077	P03077
5.	Burner housing gasket	1	P02210	P03040	P03265
6.	Burner	1	P02087	P02232	P02337
7.	Pellets conveyor	1	S0615	S0615	S0615
8.	Fireclay board	2	P00195	P02329	P02554
9.	Side left sheeting of the boiler	1	S0620	S0821	S0878
10.	Funnel of the storage	1	S0618	S0646	S0885
11.	Sheeting of the storage	1	S0804	S0805	S0879
12.	Display housing	1	P02044	P02184	P02184
13.	Mask	1	P02015	P02185	P02185
14.	Front sheeting	1	P02010	P02177	P02177

15.	Right side boiler sheeting	1	S0679	S0819	S0877
16.	The back boiler sheeting	1	P02008	P02176	P02530
17.	Front pellet storage sheeting	1	S0807	S0823	S0823
18.	Top cover	1	S0635	S0649	S0883
19.	Cover of the opening for servicing	1	P02345	P02345	P02345
20.	Upper door	1	P01840	S0642	S0642
21.	Door handle	2	S0145	S0145	S0145
22.	Vermiculite panel of upper door 2	1	P01843	P02138	P02138
23.	Vermiculite panel of upper door 1	1	P01844	P02139	P02139
24.	Braided rope for upper door	1	P01842	P02140	P02140
25.	Protection of vermiculite of upper door	1	P01845	P02137	P02137
26.	Upper door hinge	1	P01846	P02134	P02134
27.	Lower door	1	P01850	P02128	P02128
28.	Visor glass	1	P01877	P01877	P01877
29.	Vermiculite panel of lower door 2	1	P01853	P02131	P02131
30.	Vermiculite panel of lower door 1	1	P01854	P02132	P02132
31.	Braided rope for lower door	1	P01852	P02133	P02133
32.	Protection of vermiculite of lower door	1	P01855	P02130	P02130
33.	Lower door hinge	1	P01856	P02127	P02127
34.	Bracket of upper door	1	S0606	S0606	S0606
35.	Connection for pump and room thermostat.	1	S1056	S1056	S1056
36.	Turbulator spirals	7	P02254	P02157	P02553
37.	Cleaning tools	1	S0288	S0288	S0288
38.	Cast grate for the combustion chamber	1	P01887	P02120	P02560
39.	Fan housing	1	P02276	S0803	S0803
40.	Ashtray	1	S0349	S0644	S0888