



**INSTRUCTIONS FOR USE OF COMBINED BOILER INTENDED
FOR COMBUSTION OF BOTH PELLETS AND SOLID FUEL
ABC COMBO**

1. Technical specifications

DESCRIPTION		UNIT	COMBO 25	COMBO 40	COMBO 60
Boiler power		kw	25	40	60
Water content in a boiler		lit	80	100	120
Required draft		Pa	12	14	16
Supply electrical power:					
- Ignition stage		W	370	480	480
- Operation stage		W	70	180	180
Supply voltage		V	230	230	230
Frequency		Hz	50	50	50
Boiler weight		kg	280	360	410
Maximum operating pressure		bar	2,5	2,5	2,5
Maximum operating temperature		°C	85	85	85
Flue pipe diameter		mm	100	120	120
Boiler dimensions	Width	mm	827	986	986
	Height	mm	1371	1539	1524
	Depth	mm	988	1052	1202
Boiler connectors	Supply line	Col	1	5/4	5/4
	Return line	Col	1	5/4	5/4
	Charging and discharging	Col	1/2	1/2	1/2
Fuel dimensions:					
- Pellet		mm	30x6	30x6	30x6
- Wood		mm	100x100x350	100x100x400	100x100x500
Pellet storage capacity		L	170	250	340

2. Display: Functions and use

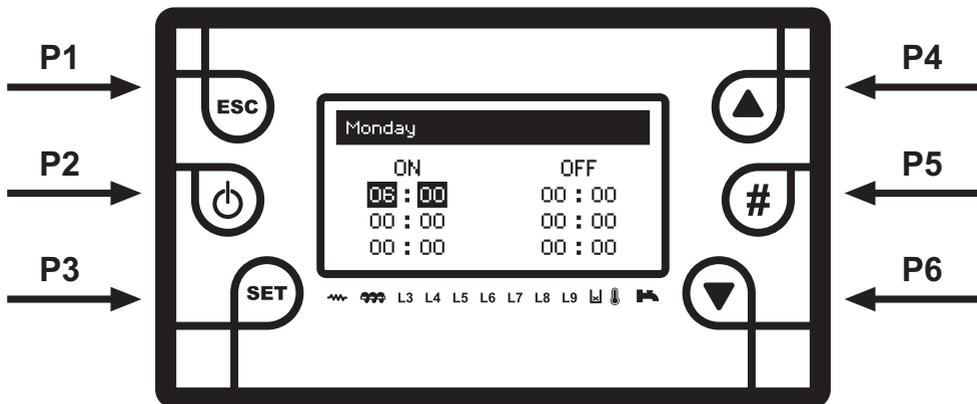


Figure 1

Buttons	Short press	Long press (3-5 seconds)
P1	Exit from the menu or sub-menu	-
P2	Activating Chrono function within the Chrono menu	ON/OFF and resetting alarm
P3	Entering the main menu, saving setup, activating time setup	Entering the system menu, setting up the keypad
P4	Visualization/Increasing values	-
P5	-	Locking the keypad
P6	Visualization/Decreasing values	-

LED lights	
L1	Heater turned on
L2	Motor – reduction gear turned on
L3	V2 output active - Pump
L4	AUX 1 output active
L5	AUX 2 output active
L10	Pellet level sensor turned on
L11	Auxiliary input active
L12	Micro-switch turned on

3.Alarms

DESCRIPTION	STATUS	NUMBER
Safety thermostat HV1	Blocked	Er1
Boiler door opened	Blocked	Er2
Turning off due to lack of fire	Blocked	Er3
Turning off due to excessive temperature in the boiler	Blocked	Er4
Turning off due to excessive temperature of exhaust	Blocked	Er5
Error in encoder: no signal	Blocked	Er7
Error in encoder: failed fan control	Blocked	Er8
Error in real time	Blocked	Er11
Failed ignition	Blocked	Er12
Failure of main power supply	Blocked	Er15
RS 485 connecting error	Blocked	Er16
Lack of pellet in the storage	Blocked	Er18
Micro-switch error	Blocked	Er52
Failure in probe control during the "Check Up" stage		Prob
Resetting of all alarms is performed by long pressing the button P2		

4.Visualization

Exhaust Temp: 103	- Exhaust gas temperature
Boiler Temp: 25	- The water temperature in the boiler
Buffer Temp: 25	- The water temperature in the „Buffer,,
Fan Speed : 1000	- Fan speed
Flame Light: 0	- illumination
Recipe [nr]: 1	- Number of admissions
Product Code: 488: 1234	- Software serial number

5.User menu

This menu is accessed by short pressing the button P3

5.1 Combustion power settings

Combustion power can be set via this menu. Setting mode may be manual or automatic. In the first case the user sets the power by himself, while in the other the system sets the combustion power in relation to the defined temperature.

Pellet: 1-2-3-4-5-Auto

Wood: 0-1-2-3-4-5-Auto

5.2 Thermostats

These are used to adjust the set temperature in the boiler and/or “Buffer”, if installed. “Buffer”-thermostat is visible only if P26=1 and P42=1

5.3 Operation mode

This menu enables the user to choose the boiler operation mode: pellet or solid fuel.

Changing the operation mode is possible only when the boiler is turned off.

5.4 Recipe

This menu is visible only when the boiler operation mode is “pellets” and the recipe change is not allowed.

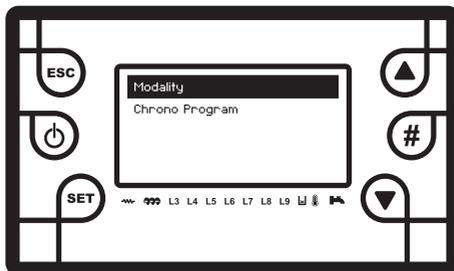
Only “**Pellet recipe**” 1 is available.

5.5 Chrono

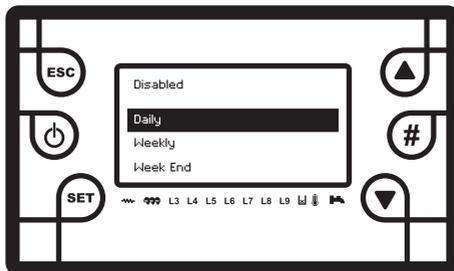
It is used to set the time of ignition and shutdown of the boiler. Press the button P3 to enter the menu.

5.5.1 Modality

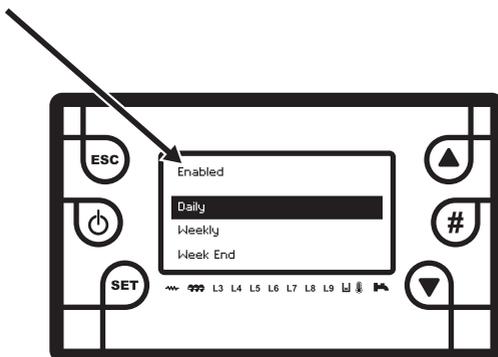
It is used to activate and deactivate the program settings.



Press button P3

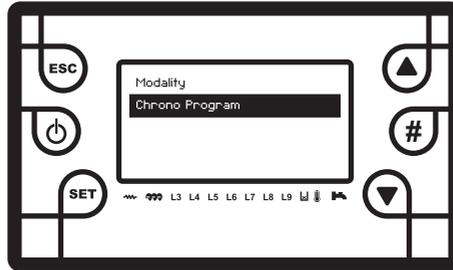


Press button P3 and choose Daily, Weekly or Week End program using the buttons P4 or P6. Activation of Chrono program is done by pressing the button P3 (selected field flashes) and then the button P2 (Disabled changes to Enabled)

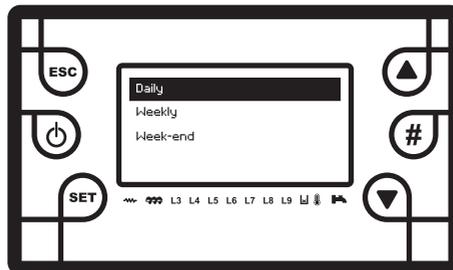


5.5.2 Chrono Program

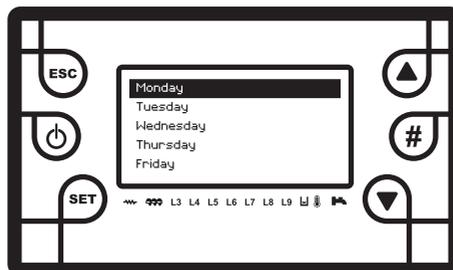
Press the button P1 to return one step back and select the field Chrono Program.



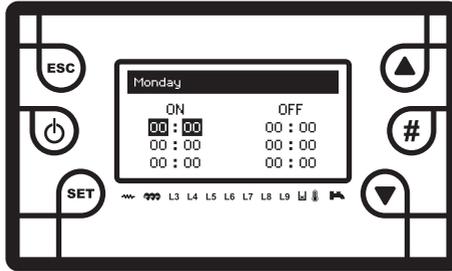
Press button P3 to enter the menu



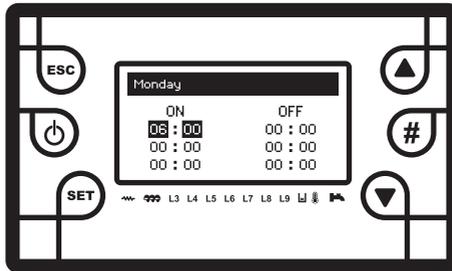
Choose Daily, Weekly or Week End program using the buttons P4 or P6 and press the button P3 to confirm



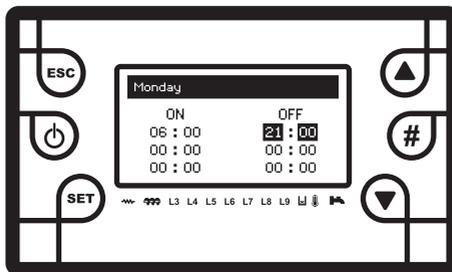
Select the day of the week using the buttons P4 or P6 and press the button P3 to confirm.



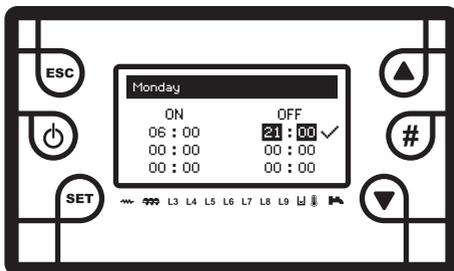
Within each day there are three programs that can be used. Press the button P3 (selected field flashes) and set the time of ignition of the boiler (ON) using the buttons P4 or P6. After setting the time press the button P3 to confirm.



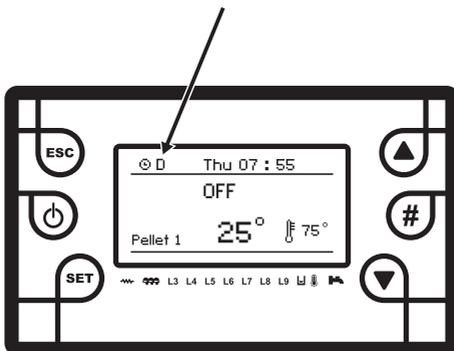
Press the button P6 to move to the field for boiler shutdown. Press the button P3 (selected field flashes) and using the buttons P4 or P6 set the boiler shutdown time.



Press the button P5 (symbol “√” appears) and setting of time for a specific day of a week is now activated.



Press button P1 until the display shows the initial screen. The symbol indicating that the Chrono program is active now appears in top left corner of the screen.



Programming for operation around midnight

Set the clock to **ON** for the previous day at a specified time: for example, at 20:30

Set the clock to **OFF** for the previous day at 23:59

Set the clock to **ON** for the next day at 00:00

Set the clock to **OFF** for the next day at a specified time: for example, at 6:30

Thy system turns on on Tuesday at 20:30 and turns off on Wednesday at 6:30.

5.5.3 Manual charging with pellets / Load

This option activates manual charging with pellets, while the motor-reducer works non-stop. Charging stops automatically after 600 seconds or by manual deactivation at any time by pressing **OFF** via the button P3.

Activating this function is only possible when the boiler is switched off. Manual charging with pellets is only used during start-up of the boiler or when there are on pellets in the storage.

5.5.4 Correction of charging with pellets / Calibration

This function is used to fine-tune the selected combustion power. The range of correction is from -7 to +7

Example:

1. If the set combustion power level 3 is not sufficient and power level 4 is too much power in such a case a correction of power level 3 can be made by +1 or 2 or power level 4 by -1 or 2.
2. The correction can be made even when the pellet is of poor quality and there is a large ash residue.

6. User Menu 2

This menu is accessed by long pressing the button P3.

6.1 Keyboard settings

6.1.1 Date and Time

In this menu you can adjust the day, month, year and hour.

6.1.2 Language

This menu is used to load data from the motherboard.

6.2 Keyboard Menu

6.2.1 Loading Menu (Learn Menu)

This menu is used to load data from the motherboard.

6.2.2. Setting the contrast

Display contrast setting menu.

6.3 System menu

This menu is protected by a security password and can be used only by authorized service technician.

6.4 Connection diagram

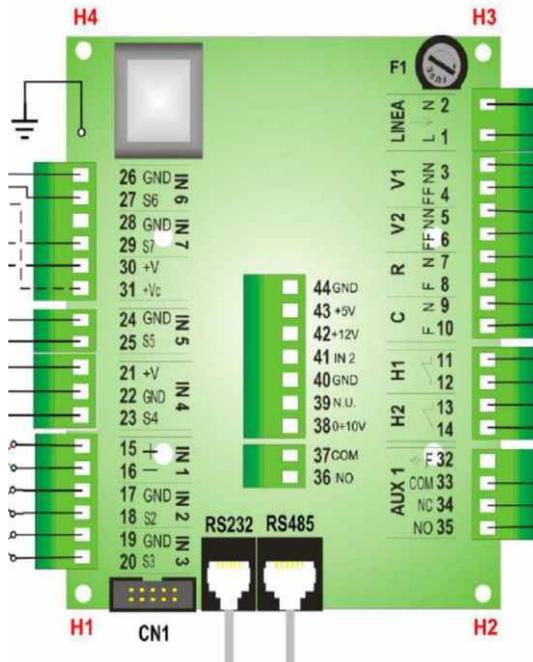


Figure 2

Pin		FUNKCIJE	CHARACTERISTICS
1	N	Main line	230Vac± 10% 50/60Hz F1= fuse T5,0A
2	L		
3	N	Fan	Triac regulation max 1A
4	L		
5	N	Configurable output V2 – Pump	Triac ON-Off max 1A
6	L		
7	N	Heater	Relay 3A max
8	L		
9	N	Motor-reducer	Triac ON-Off 1A max
10	L		
11		Safety thermostat, input Hv1	Contact ON-Off, Default valueclosed; Bypass of not used
12			
13		Safety thermostat, input Hv2	Contact ON-Off, Default valueclosed; Bypass of not used
14			
15	RED	Exhaust probe	Thermocouple K: 500°C Max
16	GREEN		
17		Buffer 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 / 5V
22	GND		
23	S4		
24		Auxiliary input: Chrono/Room thermostat	Contact ON-Off
25			
26	GND	Configurable input	Signal 0 / 5V
27	S6		
28	GND		
29	S7	Photo-cell	Analogue input
30	+5V		
31	+12V		
32	F	Phase	Max voltage 5A
33	COM	Configurable auxiliary output	Relay 3A max;
34	NC		
35	NO		
RS 485		Display	
RS 232		Conector Rs232	Connecting modem/computer

7. Instructions for use

Combined pellet and wood boiler ABC COMBO is designed for pellet combustion, and the addition of a grid into the combustion chamber of the boiler creates the possibility for the combustion of solid fuels. The boiler is designed using the most modern production technology and high-quality and certified materials, welded with modern robotic technology and tested in accordance with EN 303-5: 2012 standard, in order to meet all the requirements for connecting to the central heating system as well as European norms in terms of the efficiency and emissions of harmful particles.

7.1 Important information

- When installing the boiler all national, European as well as local regulations must be observed.
- It is allowed to use only original spare parts which are available through authorized dealers, service technician or directly from the factory.
- Combo boiler can be connected to the open and closed central heating system. Installation must be made in accordance with the technical standards by a professional who will be responsible for the correct operation of the boiler.
- If the boiler is installed to an open central heating system, it is necessary to place an open expansion tank minimum 0.5m above the level of the highest radiator. If the tank is installed in a room that is not heated it must be carefully insulated.
- If the boiler is mounted to a closed central heating system the installation of a certified safety valve and membrane expansion tank is required. Safety valve and expansion tank must be installed according to the professional requirements.
- The boiler must not be operated in flammable and explosive environment. The product should not be used by children or persons with reduced mental or physical abilities, 7 Instructions for use 16 as well as people without knowledge or experience, unless they are supervised or trained by a person responsible for their safety. Children must be supervised near the product.

7.1.1 Connecting the boiler to the chimney

Properly sized and configured chimney is a prerequisite for the safe operation of boiler and heating efficiency. The chimney must be highly insulated. On the lower part of the chimney a door for cleaning must be fitted. The chimney must be resistant to condensation of flue gases.

7.1.2 Fuel

ABC Combo Boiler is designed for burning wood pellets as well as solid fuel (wood and coal). Pellets used should meet the following standards: EN Plus, DIN Plus, Önorm-M-7135 or DIN 51731. It is recommended that the humidity of the wood does not exceed 25%.

* Pellets characteristics:

- Humidity ----- 6 – 8%
- Radius ----- 6mm
- Length ----- 10 – 30mm
- Ash residue ----- 1%

8. Boiler installation

8.1 The safety distance of the boiler from the wall and other facilities

A – 1000mm

B – 300mm

C – 500mm

D – 200mm

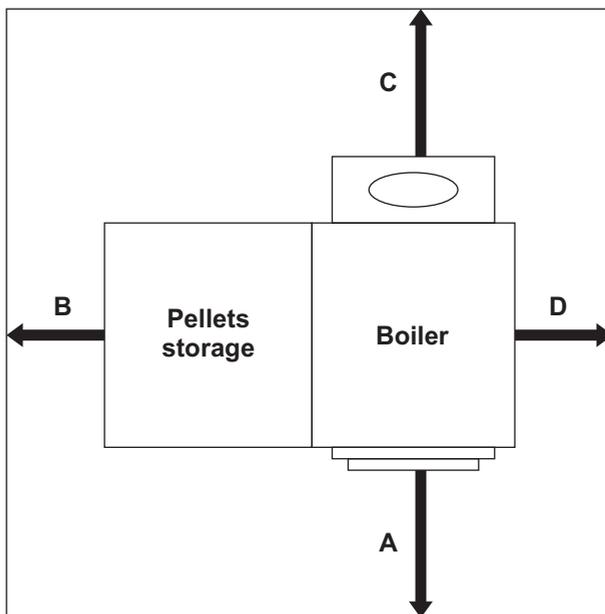
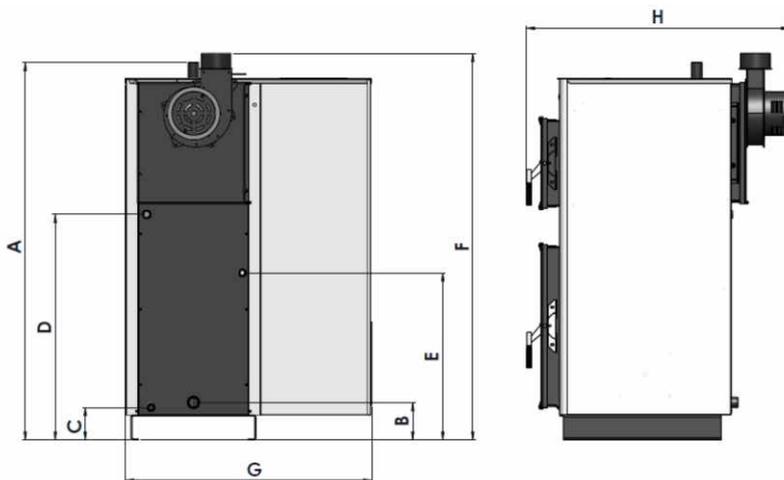


Figure 3

8.1.2 The opening for fresh air supply

Each boiler has to contain an opening for the supply of fresh air that is dimensioned in accordance with the power of the boiler. This opening must be protected with protective net or grate. All installation work must be performed in accordance with applicable national and European standards. The boiler must not operate in flammable or explosive environments.

8.1.3 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 – 1371mm – flue pipe / boiler height
- G – 827mm – boiler width
- H – 988mm – boiler depth

ABC COMBO 40kW - 60kW

- A – 1504mm – supply line
- B – 150mm – return line
- C – 130mm – charging and discharging
- D – 899mm – heat exchanger
- E – 665mm – cold water inlet
- F – 1539mm - flue pipe / boiler height
- F – 1524mm - flue pipe / boiler height 60kW
- G – 986 mm - boiler width
- H – 1052mm - boiler depth
- H – 1202mm – boiler depth 60kw

8.2 First commissioning of the boiler

- Check whether the burner is properly set
- Check whether all spirals of the turbulator are in place
- Connect the power supply cable to the 220V outlet
- Turn the main switch to position 1
- Select the boiler operation mode: pellets or solid fuel (the boiler is by default preset to pellets)
- Charge the storage with pellets
- Activate the option “Load” (manual charging 5.5.3) and wait until pellets start to fall into the combustion chamber. Wait 10 – 15 seconds and stop charging by pressing the OFF. Pellets in the combustion chamber should be emptied and the burner should be returned to its place making sure that the opening on the left side of the burner fits over the heater pipe.
- Close the lower door of the boiler and start the boiler by long pressing the button P2
- Set the power of the boiler (section 5.1)
- Set the set temperature of water (section 5.2)

8.3. Boiler operation using the solid fuel

In order to switch to the “solid fuel” operation mode, it is required to proceed as follows:

- press the button P3 and using the button P6 select the “Operation Mode”, then press the button P3 and using the button P6 select “Wood” and press the button P3 to confirm
- press the button P1 until the initial screen appears with message “Wood” instead of “Pellet” in the lower left corner
- open the lower door of the boiler and remove the burner from the combustion chamber and set a cast grid (to be ordered separately) on mounts that are designed for this purpose.



Figure 4

- a protective cover supplied with the boiler should be mounted to the pipe leading the pellet into the combustion chamber
- light a fire in the boiler and start the boiler by pressing the button P2
- it is necessary to close the upper and lower boiler door
- set the boiler power (section 5.1)
- set the water temperature (section 5.2)

Note: In case of power failure an overheating of the system may occur when the boiler is in “solid fuel” operation mode, so it is recommended to 21 install an “UPS device” that will allow the operation of the pump in case of power failure or connect the boiler to an open central heating system.

9. Cleaning and maintaining the boiler

Every millimeter of soot and dust on the heat exchangers and the flue pipes means 5% higher consumption of pellets. A clean boiler saves fuel and protects the environment.

USE OF PROTECTIVE GLOVES IS NECESSARY!



Daily cleaning:

- Depending on the intensity of firing it is necessary to empty the ashtray at least once a day
- The rest of the ash in the combustion chamber should be collected in the ashtray
- Remove the burner from its tray and clean the pellets residuals and ash deposits
- Clean the ash from the inside of the burner carrier
- Pull spirals of the turbulator back and forth

Weekly cleaning:

- Open the upper door of the boiler and clean the ash deposits in the turbulators and from the sides of the boiler
- Remove the turbulators (spirals) and clean the pipes

Monthly cleaning:

- Remove the flue pipes and clean them
- Separate the cable from the fan

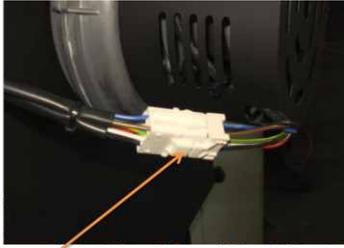


Figure 5

Press the connector in the middle and pull back

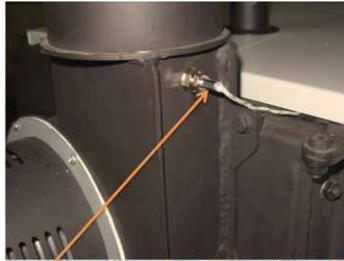


Figure 6

Pull out the exhaust temperature probe from its port. Open the door of the opening for cleaning (from the back of the boiler Fig. 7) and clean the soot and ash deposits

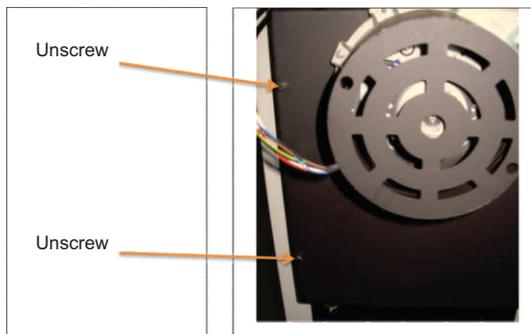


Figure 7

After the cleaning is completed the mounting procedure is performed in reverse order

At the end of the heating season:

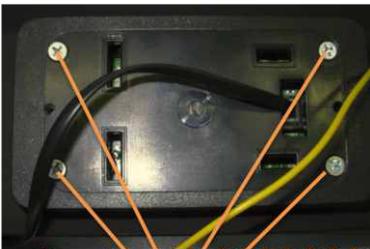
- Remove the fan housing and clean the dust with a vacuum cleaner taking care not to damage the fan propellers
- Clean the flue pipes and check if the chimney is congested
- Clean the storage for pellets from dust and tiny debris of pellets
- Scrape the layers of ash and soot from all metal parts in the combustion chamber of the boiler as well as the tube heat exchangers in the zone of the upper door

Note: If the boiler uses solid fuel cleaning dynamics is tripled. At the end of the heating season it is necessary to thoroughly clean the boiler from soot and grime and it is obligatory that the boiler always be filled with water, whether it is connected to a closed or open system of central heating.

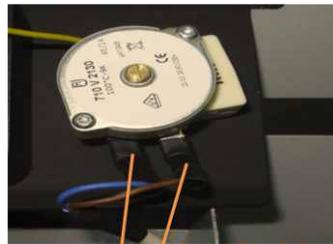
Dismantling the pellets storage



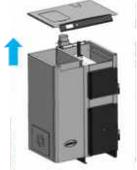
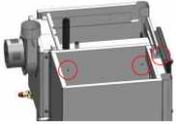
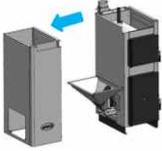
1. Disconnect the cables from the main switch



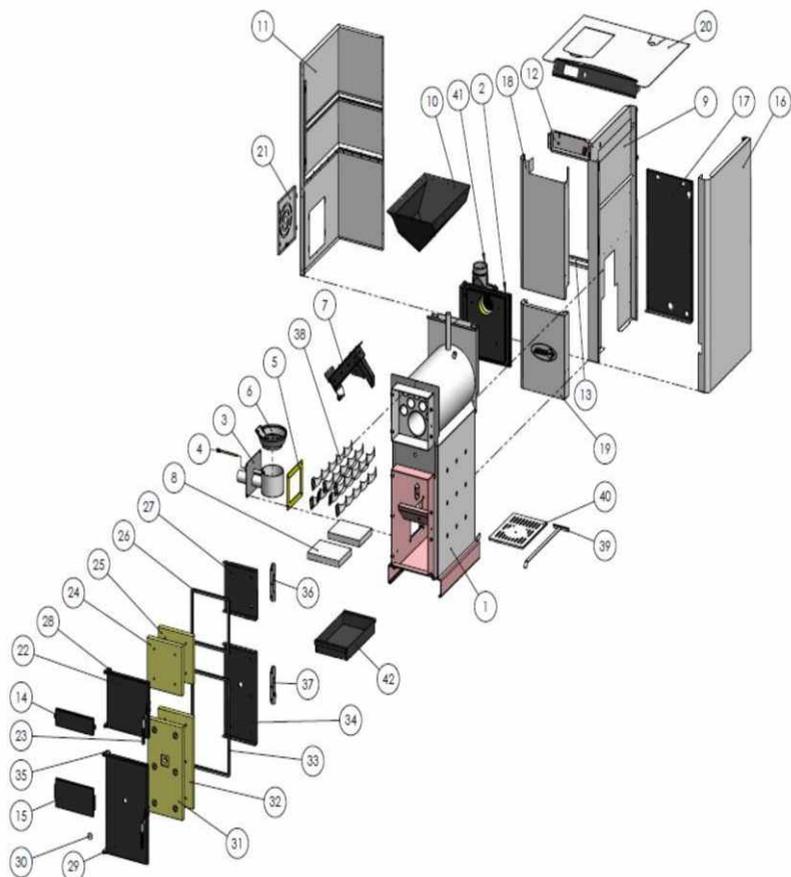
2. Unscrew 4 screws from the cover of the display and then pull the cable out from the housing.



3. Disconnect the cables from the safety thermostat

1.		<p>Remove the boiler cover. Before removing the cover, disconnect the electrical installations:</p> <ul style="list-style-type: none"> - main switch - display - safety thermostat
2.		<p>Unscrew the screws.</p> <p>Unscrew the three screws from the figure, from the internal side of the storage.</p>
3.		<p>Remove the side cover.</p> <p>Place hand under the sheeting and press lower corners of this side cover.</p>
4.		<p>Unscrew the screws.</p> <p>Unscrew the two indicated on the figure, from the inside, under the storage.</p>
5.		<p>Removing the storage.</p> <p>Lift the storage 20mm and then remove it to the side, in the direction of the arrow.</p>
6.		<p>Unscrew the screws.</p> <p>Unscrew the three screws from the figure, from the funnel of the storage.</p>
7.		<p>Removing the funnel of the storage together with pellets conveyor.</p> <p>Lift the funnel of the storage together with the pellets conveyor in the direction of the arrow (at an angle of 45°).</p>

Spare parts catalogue:



R.Br.	NAME OF THE POSITION	PCS	POSITION NUMBER
1.	Boiler with connections	1	S0670
2.	Doors of the flue gasses chamber	1	S0681
3.	Burner housing	1	S0510
4.	Heater	1	S0134
5.	Burner housing gasket	1	P02210
6.	Burner	1	P02087
7.	Pellets conveyor	1	S0615
8.	Fireclay board	2	P00195
9.	Side left sheeting of the boiler	1	S0620
10.	Funnel of the storage	1	S0618
11.	Sheeting of the storage	1	S0678
12.	Display housing	1	P02022
13.	Storage funnel carrier	1	P02023
14.	Mask	1	P02015
15.	Front sheeting	1	P02010
16.	Right side boiler sheeting	1	S0679
17.	The last boiler sheeting	1	P02008
18.	Front boiler sheeting – upper	1	S0619
19.	Front storage sheeting – lower	1	S0634
20.	Cover	1	S0635
21.	Cover of the opening for servicing	1	P00538
22.	Upper door	1	P01840
23.	Door handle	2	S0145
24.	Vermiculite panel of upper door 2	1	P01843
25.	Vermiculite panel of upper door 1	1	P01844
26.	Braided rope for upper door	1	P01842
27.	Protection of vermiculite of upper door	1	P01845
28.	Upper door hinge	1	S0676
29.	Lower door	1	P01850
30.	Visor glass	1	P01877
31.	Vermiculite panel of lower door 2	1	P01853
32.	Vermiculite panel of lower door 1	1	P01854
33.	Braided rope for lower door	1	P01852
34.	Protection of vermiculite of lower door	1	P01855
35.	Lower door hinge	1	P01856
36.	Bracket of upper door	1	S0645
37.	Bracket of lower door	1	S0606
38.	Turbulator spirals	7	P02254
39.	Cleaning tools	1	S0288
40.	Cast grate for the combustion chamber	1	P01887
41.	Fan housing	1	P02276
42.	Ashtray	1	S0349



ABC PROIZVOD d.o.o., Miloša Obrenovića 2, 31000 Užice, SRBIJA

Tel: ++381 (0) 31 514 501, (0) 31 514 502

E-mail: office@abcproizvod.rs www.abcproizvod.rs