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PELLET BOILER

PELLING



USER AND MAINTENANCE MANUAL



EC-DEKLARACIJA O USAGLAŠENOSTI

U skladu sa EN45014:1998



Mi : **ThermoFLUX d.o.o.**
Skela bb
70101 Jajce
Bosna i Hercegovina

Izjavljujemo sa vlastitom odgovornošću da je proizvod :

Naziv/Oznaka..... : Toplovodni kotao na pelet/PELLING

Tip / Model..... : PELLING 25, 30, 40, 50, 75, 100, 150, 200, 300;

Godina proizvodnje : 2010

Na koji se odnosi ova deklaracija, u skladu sa sljedećim normativnim dokumentima :

EC-Direktivama: MD 98/37/EC - Direktiva o sigurnosti mašina
PED 97/23/EC - Direktiva za opremu pod pritiskom
LVD 2006/95/EC - Direktiva o niskom naponu
EMC 2004/108/EC - Direktiva o elektromagnetnoj kompatibilnosti

Primjenjenim harmonizovanim standardima : EN 303-5:1999; EN 60204-1 : 2006;
EN 60335-1:2002; EN 60335-2-102; EN 61000-6-3:2001; EN ISO 12100-1 : 2003;
EN ISO 12100-2 : 2003; EN ISO 14121-1:2007

Drugim navedenim standardima i tehničkim specifikacijama : EN 287-1: 2004,
EN 15614-1:2004+A1:2008; EN 10204:2004; EN ISO 7000 :2004;

Primjenjena procedura za ocjenu usaglašenosti: Modul B1

Granična vrijednost emisija produkata sagorijevanja (Klasa): 3

Certifikati koji su izdati: EC Kontrola tipa-Certifikat br.5005/10.53/10....

Akreditovana tijelo: TÜV Thüringen e. V. Service-Center Südthüringen
Industriestr. 13 98544 Zella-Mehlis

Ovim izjavljujemo da je gore navedeni proizvod u njegovom konceptu i načinu izrade, u skladu sa sigurnosnim i zaštitnim normama koje odgovaraju gore navedenim direktivama i standardima.

Pri tome su svi pogonski uslovi i uslovi primjene u skladu sa priloženim uputstvom za upotrebu i tehničkom dokumentacijom.

Prilikom samo jedne promjene na proizvodu koja nije u dogovoru sa nama ova izjava gubi važnost.

Prezime, ime i funkcija potpisnika :

JAJCE, 15.09.2010.
Mjesto i datum



Direktor Tomislav Ladan

Potpis, pečat

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1 Notes on the manual

1.1 Introduction

1.1.1 Easy and safe operation

This manual contains important information for proper and safe operation of the Pelling boilers. Following these instructions you will avoid danger and repair costs, and also increase the operational life of the boiler.

1.1.2 Reading the manual

This manual must be read and applied by everyone who operates or works on the Pelling boiler.

1.1.3 Technical changes

ThermoFLUX continuously develops and improves its boilers. The information in this version is correct at the time of going to press. All details in this manual on standards and regulations should be checked before use and should be compared with the installed boiler. We reserve the right to make changes which may then deviate from the technical details and illustrations in this manual.

1.1.4 Copyright

Written agreement is required from Thermo FLUX d.o.o. for any reprints, storage in a data-processing system or transmission by electronic, mechanical or any other means, for copies and publications, in whole or in part.

2 Safety notes

2.1 Proper use

2.1.1 Basic principles

Pelling boiler was built in accordance with safety regulations. However, its use can result in the injury or death of the user and/or third part and in impairments to the boiler itself or to other material goods.

2.1.2 Using the boiler

Use the boiler only when it is in perfect condition. Use it properly, as described in this manual. Stay aware of the safety and of the dangers involved. Have any faults which can impair safety immediately fixed.

The boiler was designed to burn wood pellet and wood. The manufacturer will accept no responsibility for any damage resulting from improper use. Proper use includes maintaining the installation, operation and maintenance specified by the manufacturer. The user may only enter or change the operating values specified in this manual. Any other entries will affect the boiler's control program and operation, which can lead to a malfunction.

2.1.3 Permissible fuel for the Pelling boilers

Only wood pellets and wood are permissible as fuel for the boiler. Wood pellets are pressed into a cylindrical shape. They consist of untreated sawdust from the wood processing industry as well as unprocessed forestry waste. They have a standardized diameter and length and very low water content.

2.1.4 Recommended wood pellets

Thermo FLUX d.o.o. recommends wood pellets with a diameter of 6 mm and a length of 10 - 30 mm.

- Other requirements on the fuel result from either standard O-Norm M 7135,
- DIN plus 51731,
- UNI CEN/TS 14961

Pay particular attention to the wood pellet quality.

2.2 Warnings and safety symbols used



DANGER OF ELECTRIC SHOCK.

Work on areas marked with this symbol may only be done by a qualified electrician.



WARNING!

Warning about a dangerous location. Work on areas marked with this symbol can lead to serious injuries or to extensive material damage.



CAUTION!

Hand injuries. Work on locations marked with this symbol can lead to hand injuries.



CAUTION!

Hot surface. Work on locations marked with this symbol can lead to burns. .



Flammable materials

CAUTION!

Danger of fire. Work on locations marked with this symbol can lead to a fire.



CAUTION!

Frost danger. Work on locations marked with this symbol can lead to frost damage.



Notes on disposal.

2.3 Other risks of the side effects

Despite the precautions taken there are also certain risks of side effects:



DANGER OF CARBON MONOXIDE.

If the boiler is running during cleaning time may occur transmission of CO through the open door. Do not open the door longer than necessary.

2.4 Duty to inform

Reading the manual

Everyone who works on the boiler must have read the Use and maintenance manual before starting work and, in particular, have read the second chapter „Safety notes“. This holds especially true for persons who only occasionally work on the boiler e.g. when cleaning or maintaining the boiler. This manual must be kept ready to hand at the boiler's installation location.

Pay particular attention to the applicable local standards and guidelines.

2.5 Safety devices

Boiler is equipped with safety devices that in case of unexpected situations stop the power supply and thereby stop the operation boiler.

Boiler electronic regulation: operates directly and stops the operation of the boiler until it cools down.

* In case of the suction fan failure, failure of the motor for auger (doser), black out (if the blackout was longer than 10 seconds), an unsuccessful firing.

Fuse F 4 A 250V : Fast fuse , protects the boiler from large voltage changes of electricity and short circuits inside the boiler.

Safety thermo switch (STB) : intervenes by breaking the circuit in the boiler (automatically stops motor of the auger and exhaust gasses fan) if the boiler temperature reaches the limit of 95 °C.

3 Installation and commissioning of the boiler

Commissioning system in the operation is performed by personnel authorized by ThermoFLUX Ltd or authorized seller.

Commissioning includes referral to operation with the basic operations and maintenance of the boiler. Authorized service for the first start, must control the functioning of the boiler at least during one full operating cycle.



Danger from material and body due to improper commissioning. If the commissioning is performed by unauthorized personnel, it may cause damage to the boiler and heating system.

3.1 Conditions

The following conditions must be fulfilled before the system is put into operation.

Turn OFF electrical power.

Check mechanical connections

Check that all components are properly connected
Check that all mechanical components are connected.
Check whether combustion chamber properly seated

Check hydraulic connections

- Check whether the circulation pump and the mixing valve is properly connected.
- Check whether the safety equipment properly connected.

3.2 Chimney and flue gas pipes

The chimney should be calculated and constructed in accordance with the EN 13384-1 standard.

The venting of flue gas must be done in accordance with all applicable laws including those related to dimensions of the chimney and materials used for its production. Flue gas channel should be made of adequate materials, such as steel tubes, with various sealing.

In any case, materials that could potentially catch fire, e.g. wooden planks, beams, cloth, should be adequately protected with non-combustible material. For the sake of parity of dimensions, chimneys that are round in shape of the inner part should have an advantage over the rectangular-shaped chimneys.

Too small inner zone can cause irregular flow from the boiler to the top which could lead to poor boiler performance and excessive exhaust gas production that discharges the exhaust gas to the environment. Gas flue pipe should be permanently installed and it would be good to make safety door which would enable the cleaning of inner parts, especially the horizontal parts.

Smoke pipe should be installed fixed. It would be good to leave safety gates that could do the interior cleaning, especially in their horizontal parts.

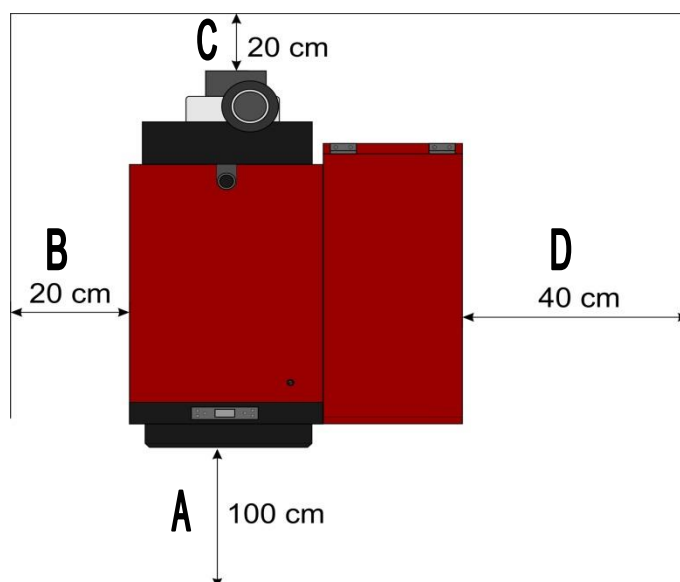
You should avoid as much as possible horizontal mounting parts. Horizontal parts must have a slope of at least 3% upwards.

Length of the horizontal part should be minimal and in any case not more than 3 meters.


ALL PARTS OF THE FLUE GASN PIPE NEED TO BE SECURED AND REPLACEABLE IN ORDER FOR INTERNAL CLEANING.

AVOID MULTIPLE HORIZONTAL DEVIATION AND ANGLES.

3.3 Minimum distances of the boiler from wall and objects



- A – minimum distance front - **100 cm**
- B – minimum distance from side (**BOILER BODY**) - **20 cm**
- C – minimum distance back side- **20 cm**
- D – minimum distance from side (**SILO**) - **40 cm**

 ThermoFLUX leaves itself the right to later perform changes without notice.

4 Functional description

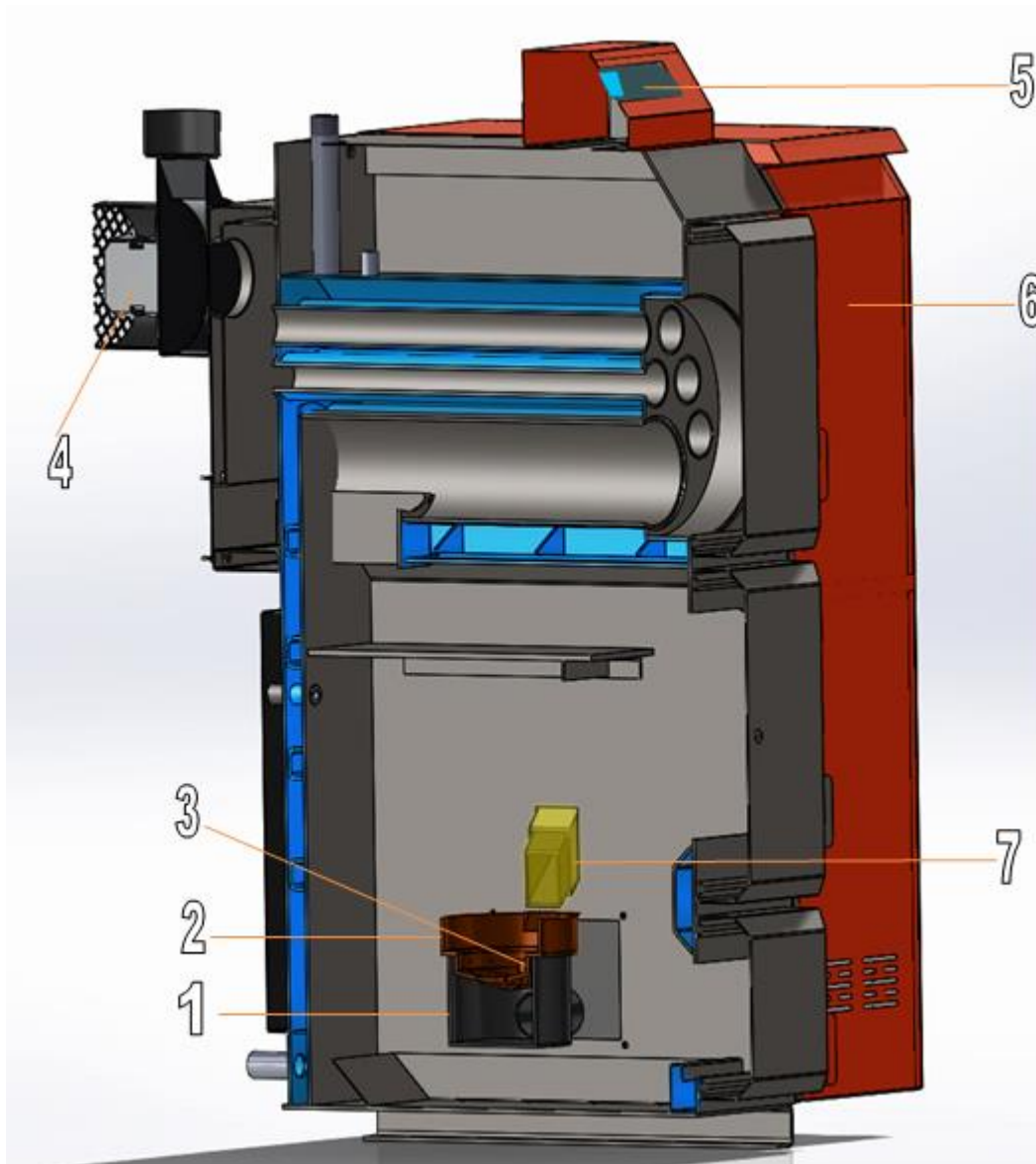
4.1 General overview



Accompanying material

- 1 – Tools for the pipeline and firebox cleaning
- 2 – Instructions booklet
- 3 – Guarantee

4.2 Pellet boiler PELLING



1. Combustion burner
2. Combustion chamber
3. Heater
4. Exhaust fan
5. Control unit
6. Silo
7. Dispenser

In the Pelling boiler the pellets introduced into the combustion burner 1. They are automatically ignited with an electric heater 4. Burnt pellet (ash) is collected in the ash pan 3. which is placed under the combustion burner. The air necessary for combustion is supplied to the combustion burner.

Through sensors:

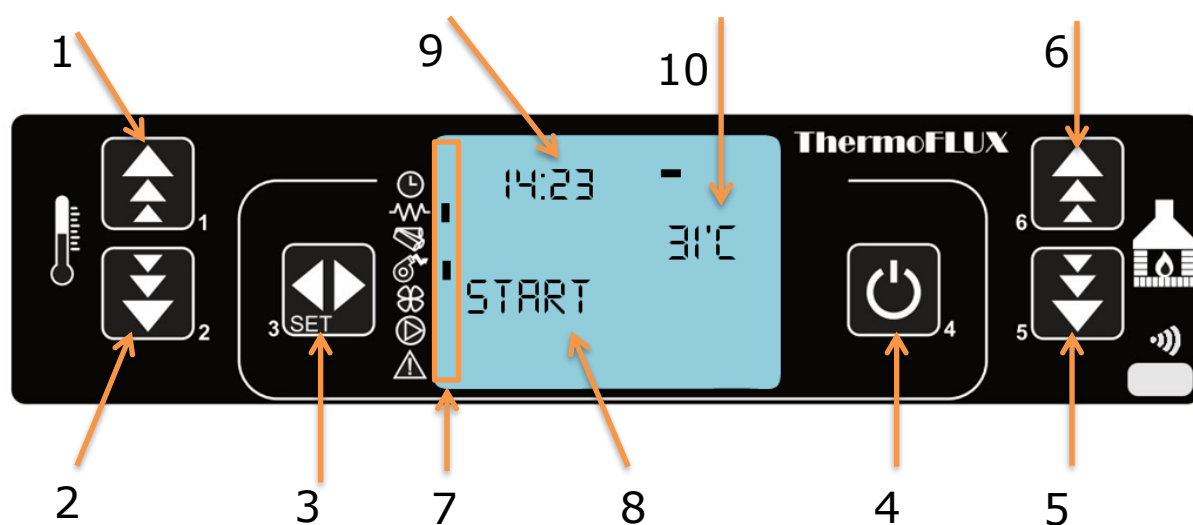
1. The boiler power is adjusted to the heat requirement.
2. The boiler efficiency is optimised.
3. Flue gases are optimised.

Technical data:

RB			Pelling 25	Pelling 35	Pelling 50	Pelling 75	Pelling100
1	Heat output	kW	8-25	11-35	20-50	30-75	50-100
2	Water content	l	60	90	120	154	181
3	Boiler weight	kg	267	348	392	494	580
4	Inlet / Outlet water connection	"	1"	5/4"	5/4"	6/4"	2"
5	Flue gas temperature	C	cca 160	cca 160	cca 160	cca 160	cca 160
6	Max water temperature	C	85	85	85	85	85
7	A Height to center of flue pipe	mm	1420	1600	1630	1750	1770
8	B Depth	mm	948	948	1098	1240	1390
9	C Width without silo	mm	410	510	510	560	650
10	D Height	mm	1245	1385	1385	1528	1532
11	E Width with standard / maxi silo	mm	710/910	810/1010	810/1010	1060	1150
12	F Flue pipe diameter	mm	120	120	120	150	150
13	G Height of Inlet / Outlet	mm	88.2/1282	85/1415	85/1415	70/1568	75/1532
14	Pellet silo capacity standard / maxi	kg	75/135	95/151	110/185	270/ -	290/-
15	Electric consumption nominal/ max	W	175/350	175/350	190/380	190/380	240/480
16	Min/max water temperature	C	55/85	55/85	55/85	55/85	55/85
17	Door opening (h x w)	mm	250x315	350x375	350x375	380x440	484x466
18	Min/max consumption of pellet	kg/h	1,6/5.5	2,2/7,5	3,1/11.1	4,9/16.6	6,1 /22.2
19	Max. Length of firewood logs	mm	400	400	500	500	500
20	Fuel	—	pellet/wood	pellet/wood	pellet/wood	pellet/wood	pellet/wood
21	Flue exhaust direction	—	up	up	up	up	up
22	In accordance to	EN	EN 303-5	EN 303-5	EN 303-5	EN 303-5	EN 303-5

5 Function of boiler

5.1 Overview of the controls and display and their basic functions



Button

Description

1 - 

Increasing temperature and program functions (adjusting days, time...)

2 - 

Decreasing temperature and program functions (adjusting days, time...)

3 - 

Changing – accepting program

4 - 

ON / OFF, program exit

5 - 








Decreasing power, navigate through the menu

6 - 

Increasing power navigate through the menu

7

When mark is visible

	Clock	<ul style="list-style-type: none"> programmed ignit. active
	Heater	<ul style="list-style-type: none"> heater active
	Pellet dosage	<ul style="list-style-type: none"> auger active
	Smoke fan	<ul style="list-style-type: none"> fan active
	Primary air fan	<ul style="list-style-type: none"> fan active
	Circulating pump	<ul style="list-style-type: none"> pump active
	Alarm	<ul style="list-style-type: none"> alarm active

Display

8	Info
9	Clock
10	Water temperature indicator

Regulation on the boilers "Pelling" is most important electronic component. It is consisted of key controlling modul set under the cover of the boiler and controlling unit with display set on the front side of the boiler. With controlling unit it is possible to control functions of the boiler and also to check information about present state of the boiler.

Due to the possibilty to work in 5 (five) different powers, regulation can satisfy needs to increase or decrease heating by automatic adjustment of power.

If there is a need to increase power, this is registered by regulation and regulation gives a signal to increase power by adding more pellet as well as proportional increase of air flow in the burning basket.

When desired temperature is reached (need for heating energy is satisfied) regulation is decreasing power (modulates), or when room thermostat gives signal that set temperature is reached, boiler then goes into SHUT DOWN mode (if mode STAND-BY is ON)

5.2 Principle of boiler operation

Principle of the boiler operation is very simple.

When button for start is pressed boiler goes into IGNITION MODE. START is displayed, and after that PELLET IGNITION. Usually this phase lasts for 5-15 minutes depending on type of the boiler and pellet quality. At that point dosing system is activated, igniter and suction fan. Dispenser is making initial dosing of pellet into burning basket. At the same point igniter starts to ignite pellet and suction fan is on and is making necessary underpressure needed for combustion. When temperature sensor for flue gasses detects that temperature in the chimney has reached necessary value, regulation then changes working mode of the boiler into FLAME STABILIZATION.

This phase (FLAME STABILIZATION) lasts for 2-3 min. (depending on the type of the boiler and in this phase igniter goes off. After flame stabilization, boiler goes into the normal working mode and changes power from power 1 to set power. On display is written WORK. On the right side set power is displayed and in the last



5.3 Schematic representation of the menu control

By pressing button SET we enter general menu.

MENU		VALUE		DESCRIPTION
MENU 01 SET CLOCK	SET	TABLE 1		TIME AND DATE ADJUST
MENU 02 SET CHRONO	SET	M-2-1 ENABLE CHRONO	TABLE 2	PROGRAMED SWITCHING ON - OFF
		ON / OFF M-2-1-01 ENABLE CHRONO	ON - OFF	
MENU 03 SELECT LANGUAGE	SET	HR-IT-EN-DE-FR-ES-PT		LANGUAGE SELECTION
MENU 04 MODE STAND-BY	SET	ON - OFF		ROOM THERMOSTAT MODE - SWITCH OFF BOILER (ON) , - MODULATION (OFF)
MENU 05 MODE BUZZER	SET	ON - OFF		BUZZER
MENU 06 LOAD INITIAL	SET	90 SEC		INITIAL LOAD OF THE PELLET
MENU 07 STATE STOVE	SET	WATER TEMP.; EQHAUST GASES TEMP.; EQHAUST FAN RPM.		STATE OF THE BOILER
MENU 08 SETTINGS TECHNIC	SET	ONLY FOR TECHNICAL PERSONAL		
MENU 09 FUEL TYPE	SET	PELLET - WOOD		FUEL TYPE SELECTION

BUTTONS 1 AND 2 - CHOOSE DESIRED
VALUE

BUTTONS 5 AND 6 - CROSSING
BETWEEN MENUS

BUTTON 3 (SET) - ACCEPT
BUTTON 4 (ON/OFF) - BACK

Table 1

MENU 01 SET CLOCK	MENU 01 MONDAY DAY 08	PON - NED	DAY ADJUSTMENT
	MENU 01 TIME CLOCK :33	00-24	HOURLY ADJUSTMENT
	MENU 01 MINUTES CLOCK 30	00-59	MINUTE ADJUSTMENT
	MENU 01 DAY CLOCK 30	01-31	DATE ADJUSTMENT
	MENU 01 MONTH CLOCK 13	1-12	MONTH ADJUSTMENT
	MENU 01 YEAR CLOCK 13	00-99	YEAR ADJUSTMENT

Table 2

MENU 02 SET CHRONO										
M-2-1 ENABLE CHRONO	M-2-2 PROGRAM DAY	ON/OFF M-2-2-01 CHRONO DAY	06:00 M-2-2-02 START 1 DAY	10:00 M-2-2-03 STOP 1 DAY	15:00 M-2-2-04 START 2 DAY	19:00 M-2-2-05 STOP 2 DAY				
	M-2-3 PROGRAM WEEK	ON/OFF M-2-3-01 CHRONO WEEKLY	06:00 M-2-3-02 START PROG-1	14:00 M-2-3-03 STOP PROG-1	ON / OFF M-2-3-04 MONDAY PROG-1	ON / OFF M-2-3-05 TUESDAY PROG-1	ON / OFF M-2-3-06 WEDNESDAY PROG-1	ON / OFF M-2-3-07 SUNDAY PROG-4	
	M-2-4 PROGRAM WEEK-END	ON/OFF M-2-4-01 CHRONO WEEK-END	06:00 M-2-4-02 START 1 WEEK-END	12:00 M-2-4-03 STOP 1 WEEK-END	16:00 M-2-4-04 START 2 WEEK-END	22:00 M-2-4-05 STOP 2 WEEK-END				
M-2-1-01 ENABLE CHRONO										

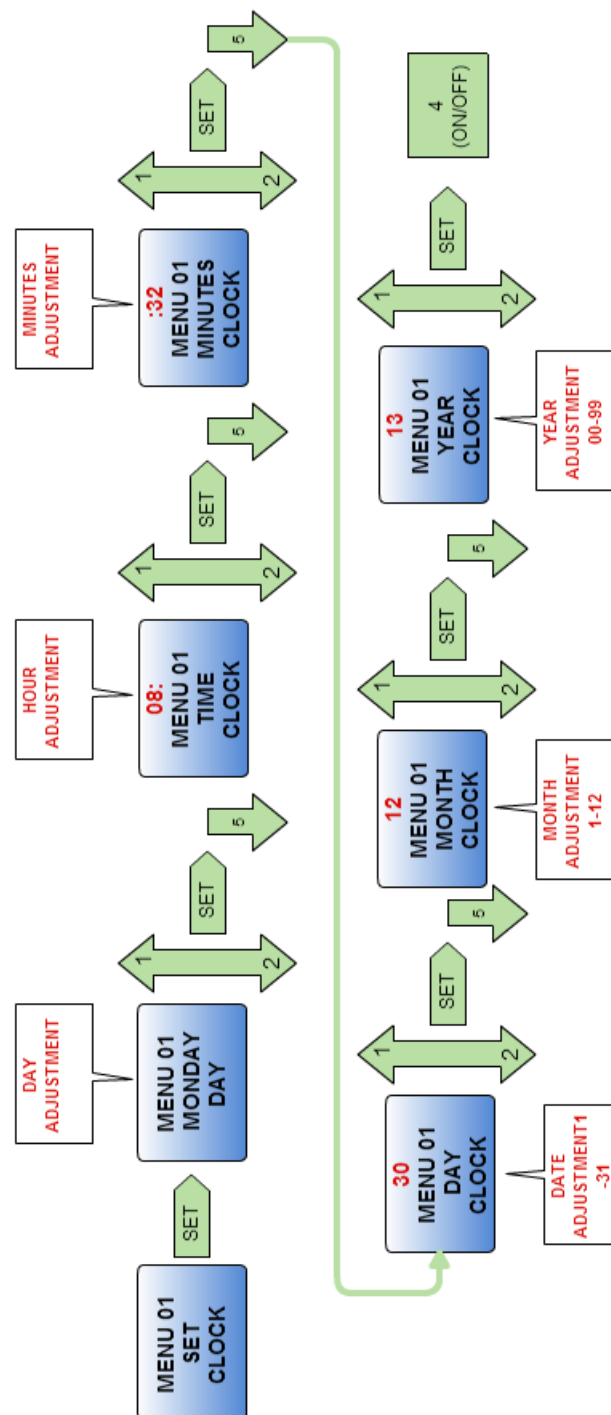
BUTTONS 1 AND 2 - CHOOSE DESIRED
VALUE

BUTTONS 5 AND 6 - CROSSING
BETWEEN MENUS

PROGRAM WEEK
(M-2-3)
POSSIBILITY OF 4 (four) TIMES FOR
SWITCHING ON OR OFF

5.3.1 Clock adjustments

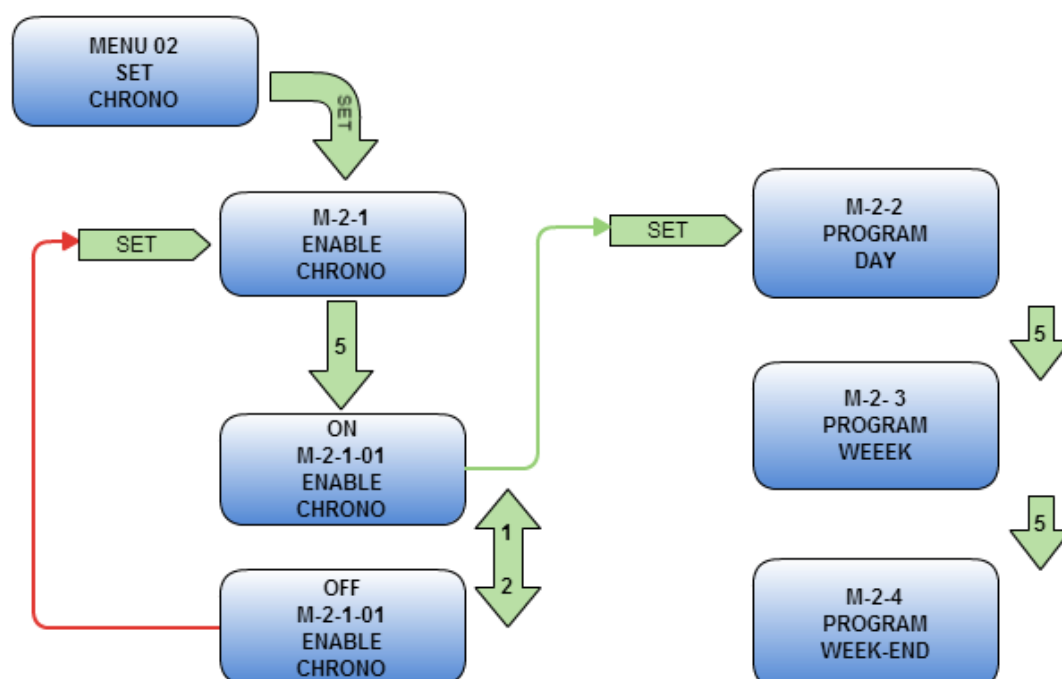
Clock adjustments can be done on following way:



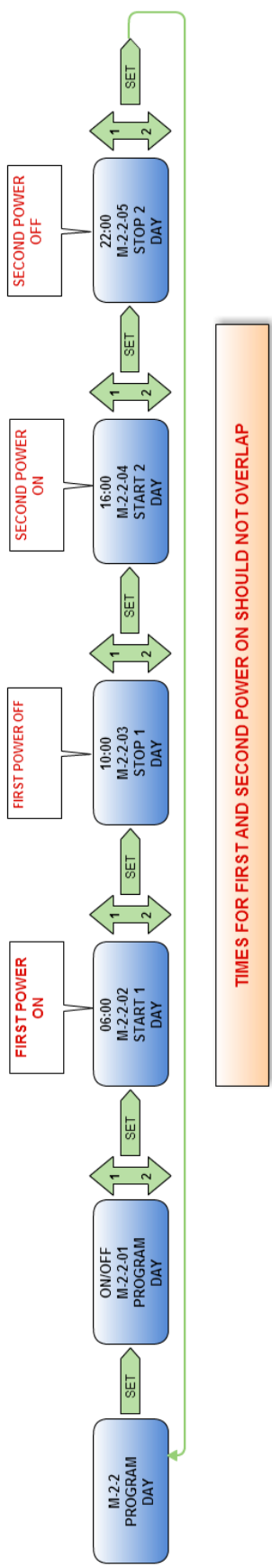
5.3.2 Adjustments of the programmed on and off mode

5.3.3 Boiler has possibility for programmed on and off mode during a day and this option is regulated on three ways:

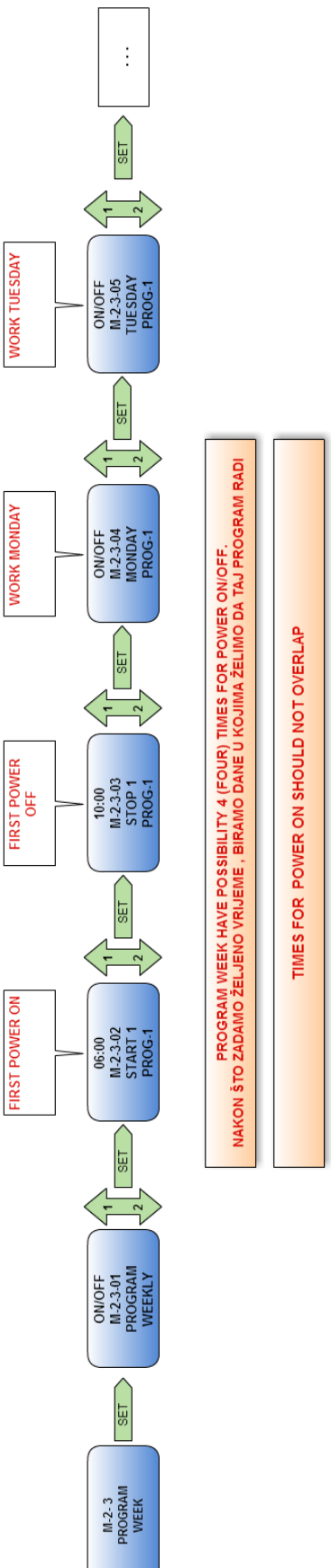
1. **DAY PROGRAM**, in this mode we can set 2 (two) different times for ignition and shutting down of the boiler. This applies to all days in the week. (Scheme 2)
2. **WEEK PROGRAM**, in this mode we can set 4 (four) different times for ignition and shutting down. In this mode, we can choose day in the week (MON-SUN) in which we want boiler to work for each program (Scheme 3)
3. **SUN-SAT PROGRAM**, in this mode we can set 2 (two) different times for ignition and shutting down, but only for SATURDAY and SUNDAY. (Scheme 4)



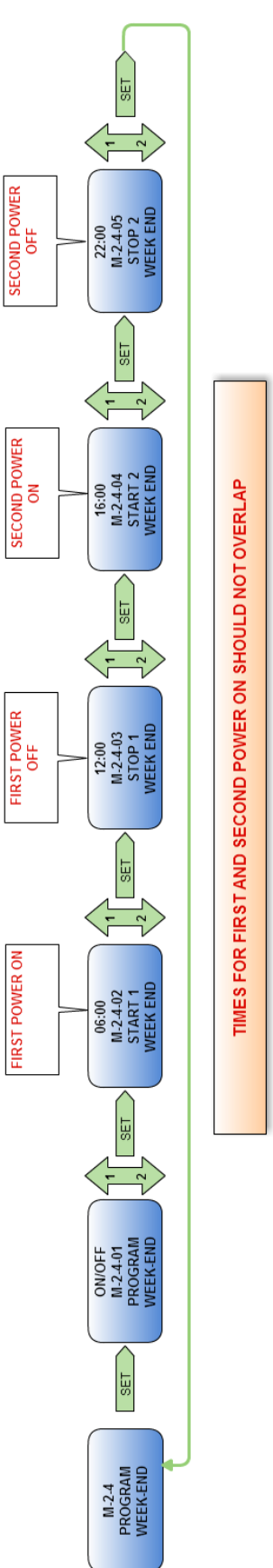
Scheme1.



Schema 2.



Schema 3.



Schema 4.

5.3.4 LANGUAGE OPTIONS

Language settings are adjusted by pressing the SET button, and after that by pressing of button 5 or 6 we choose option MENU 03-LANGUAGE.

By pressing of the SET button language menu is opened (italian, english, german, french, croatian...) in which we can choose desired language by pressing button 1 or 2.

When desired language is chosen, confirmation is to be done by pressing button SET.

Returning back is done by pressing button 4 (ON/OFF)

5.3.5 STAND BY mode

STAND BY is used in two ways..

- In the case that boiler shuts down because desired temperature is reached (set ON) ,
- In the case that boiler modulates when desired temperature is reached (set OFF).

Function STAND BY can be set ON or OFF on following way:

STAND BY mode is activated by pressing button SET, and afterwards by pressing buttons 5 and 6 we choose desired item in the MENU 04 – STAND BY MODE.

By pressing SET we are opening options ON or OF (chosen by pressing of buttons 1 or 2, and confirmed by pressing of button SET).

5.3.5.1 STAND BY mode with installed sensor for water temperature



Connection for room thermostat is delivered overbridged, which means that contact is closed.

1. FUNCTION STAND-BY SET ON

In the case that function STAND-BY is activated (ON), boiler will shut down when desired temperature is reached and above by 2 degrees C, and after 2 minutes of time pause (set in factory) TON-WAITING COOLING is displayed. If temperature do not decrease below set temperature during 4 (four) minutes, on display is written TON-REQUEST WAITING.

When temperature of the water in boiler is below set temperature by 2 degrees C, boiler will start again with ignition mode and it will work on set power.

2. FUNCTION STAND-BY SET OFF

In the case that function STAND BY is not activated (OFF) , and that connection for the room thermostat is not overbridged, boiler will always work in power 1 no matter which power is set.

In the case that function STAND BY is not activated (OFF), and connection for room thermostat is overbridged (set in the factory) boiler will work in the power chosen by the user, and when desired temperature is reached will go into modulation mode. Boiler will shut down only if the temperature in the boiler is 80 degrees C, and will start again when temperature drops down below desired temperature.

5.3.5.2 STAND BY mode with room thermostat connected

1. FUNCTION STAND-BY SET ON – room thermostat shuts down boiler

When room thermostat sends signal that desired temperature in the room is reached (contact is open/temperature is reached) boiler will shut down after 2 minute (factory settings- in the case that temperature in the room changes all to prevent constant turning on and off of the boiler) on display is written **tOFF-WAITING REQUEST**.

When room thermostat gives signal that room temperature is low (contact closed/ temperature needs to be reached) boiler will start ignition and on display is written **tON**.

Remark: Boiler functioning primarily depends on temperature of the water inside of boiler and factory settings inserted. If boiler is in state of **WAITING COOLING** (water temperature is reached), eventual request of the thermometer will be ignored.

2. FUNCTION STAND-BY SET OFF – room thermostat gives signal to the boiler to work in POWER 1

In the case that function STAND BY is not activated (OFF) boiler will work in power chosen by the user and when desired temperature is reached boiler will modulate (will not shut down but working power will change to lowest). Boiler will shut down only if temperature of the water in the system is 80 degrees C, and on display is written **WAITING COOLING**. Boiler will start again when temperature in the system drops down below set temperature.

5.3.6 Option Buzzer

BUZZER is used in the case that user want to hear sound signal from the boiler in the case of activated alarm (set ON), or without sound signal (set OFF).

Option BUZZER is activated by pressing of button SET, and after that with buttons 5 or 6 we choose item **MENU 05- OPTION BUZZER**.

By pressing of the button **SET** choice **ON** or **OFF** is opened (with buttons **1** or **2** we are selecting option and confirmation is done by pressing **SET**).

5.3.7 Filling of spiral dispenser

Filling of spiral dispenser with pellet is done when pellet is loading for the first time or in the case of empty silo. Process of filling of spiral dispenser is set to 90 seconds .

Filling of spiral dispenser is done by pressing of button SET, and after by pressing buttons 5 or 6 we choose **MENU 06-FILLING OF SPIRAL**.

Filling os spiral is activated by pressing of button SET.



Prior to start up of the boiler, check combustion chamber. There is a big possibilty that there are some leftovers from pellet in it while spiral dispenser was filled. Combustion chamber needs to be empty and then ignition process can be initiated.

5.3.8 STATE OF THE BOILER

State of the boiler is only of informational character and its purpose is to give us information about condition of the boiler. On display information is randomly changed about water temperature in the boiler, flue gasess temperature, fan RPM, etc.

To enter this option press SET, after that with buttons 5 or 6 we choose **MENU 07 – STATE STOVE**.

5.3.9 Technical settings

TECHNICAL SETTINGS are foreseen for authorised personnel only.

5.3.10 FUEL TYPE

FUEL TYPE is part of the menu where user is changing information about used fuel type. By default fuel is SET to PELLET, and in the case that we want to use wood, it is necessary to change this option to WOOD.

Selection of thy fuel type is done by pressing SET, and after that 5 or 6 we choose **MENU 09 – FUEL TYPE**.

By pressing SET, option for desired type of fuel is opened (**PELLET or WOOD**). Selection is made by buttons 1 or 2. After choosing of fuel type, confirmation of selection is done by pressing button SET.

6 Ignition and shutting down of boiler


Ignition sequence and description of regulation

Basic function of the regulation is to secure reliable ignition of used fuel, optimal conditions for combustion and controlled sequence for shutting down. Depending on working power, and complexity of the heating system, parameters are read and controlled differently. Some of the most important ways of working are described with relevant values.

Before start up following things needs to be checked:

- Silo needs to be filled with pellet
- Silo doors needs to be closed
- Combustion chamber/basket needs to be cleaned
- Ash pot needs to be clean
- All doors on boiler needs to be closed
- Boiler must be connected to electric source - 220 V, 50 Hz

6.1 Ignition

Press and hold button 4  for 3 (three) seconds. Boiler will start with ignition.




START will be displayed, on the left side of display we see that igniter and suction fan are activated. Mark **TON** is showing that room thermostat is connected or overbridged on connection for room thermostat (default).

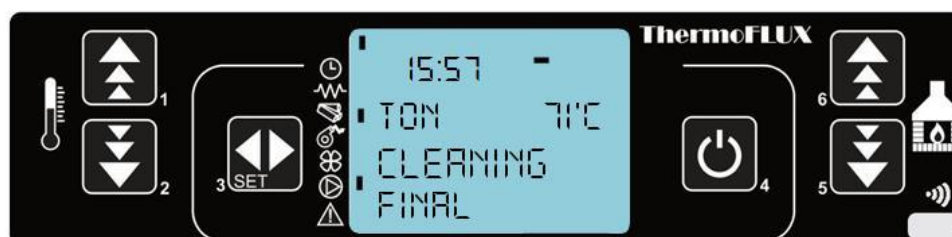
After that, on display we have text LOAD PELLETT and on the left side we see that feeding of pellet is activ.



After ignition of pellet, and after temperature of flue gasses raise on value of 55 °C, regulation receives signal that fire is on and boiler continues to work with set values.

6.2 Shutting down of boiler

Press and hold button 4  for 3 (three) seconds. On display it is written **CLEANING FINAL**. Suction fan is working on maximum, feeding of pellet is stopped.

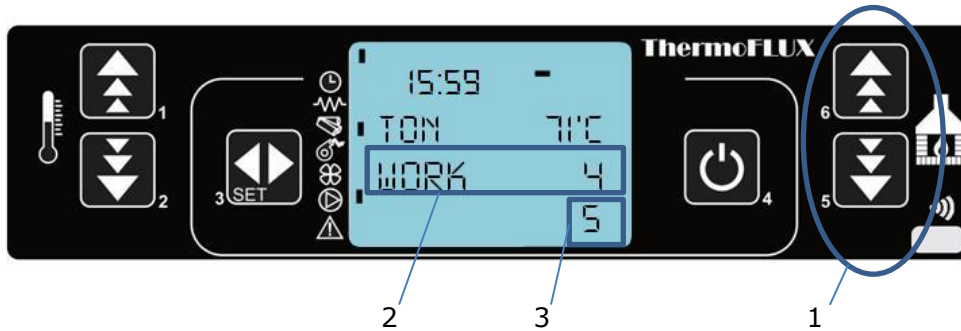


6.3 Boiler power adjustments

During working phase, it is necessary to set working power in which we want boiler to work.

Adjustments of the working power is possible in the range from 1-5, and selection of desired power is done by buttons 5 or 6 (*1). On upper line it is written **WORK** and set power (*2), and present working power sign is blinking on lower line on the right side (*3).

Power 1 is lowest and power 5 is highest power.

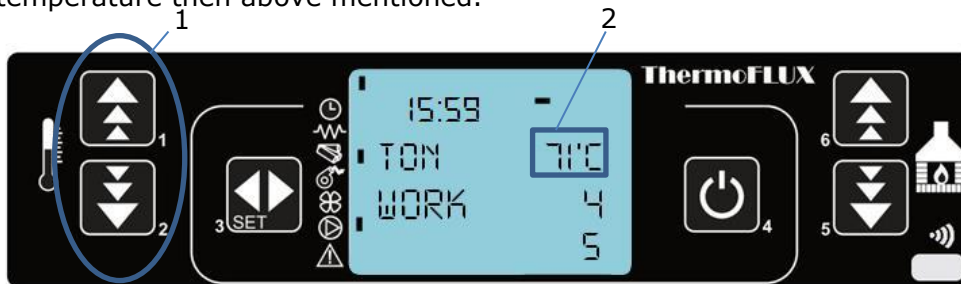


Regulation on the boiler is set in the way to modulate (power goes into lowest one) it's work when 4 C is reched below set temperature – **read**

6.5 Modulation

6.4 Adjustment of water temperature in boiler

Adjustment of water temperature in the boiler is done by pressing button 1 or 2 (*1). Temperature can be set in range from 55 °C to 80 °C (*2). These are factory settings and it is not possible to set lower or higher temperature then above mentioned.



6.5 Modulation

When water temperature in boiler is near to set value regulation begins to modulate its work and changes power to lowest. Modulation starts 4 °C below set temperature.

EXAMPLE: We have adjusted water temperature on 73°C and power 5, regulation will work in power 4 when temperature is 70°C, on 71°C boiler will work in power 3, on 72°C power is 2 and when 73°C is reached then boiler is working in power 1. **MODULATION** is displayed.



If temperature rises above set temperature by 2 °C, boiler will be shut down automatically and on display will be written **WAIT COOLING**.



When temperature in the boiler decreases for 2 °C below set temp. regulation will start process of ignition again.

6.6 Cleaning of FIRE-POT

During its work boiler has set timer for cleaning of combustion basket (fire-pot) after certain time. This phase is shown on display and work of the boiler is set to lower power, and suction fan is working on maximum for certain period of time as set in the factory.



When cleaning phase is finished, boiler will continue to work and power will be set on power chosen before.

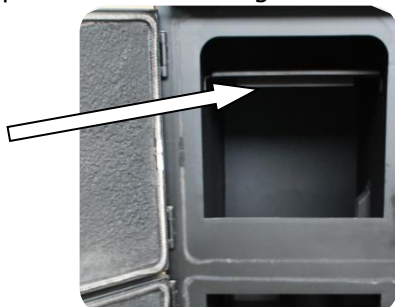
6.7 Burning of wood

Pelling boiler is constructed that beside pellet can burn wood also. Inserting of grate inside of boiler is very easy as well as changing of fuel type on regulation. Dry wood should be used only, not wet and no coal.



Pellet silo must be empty



1. First remove metal plate above burning basket.



2. After remove burning basket and insert grate.






3. After inserted grate, on regulation change mode to „wood“. This is done on following way:

Button SET  press once , after that press button 5  until on display it is written MENU 09 – FUEL TYPE.

Press SET , with buttons 1 or 2 choose WOOD.



4. Confirm with button SET , by pressing button  return to main menu.
5. Start fire manually and then turn on regulation on the boiler by pressing button ON/OFF 



Remark:

When burning wood, all doors on boiler must be closed. In the case of no electric power, if burning wood, boiler can reach overheating point.



While burning, wood can make certain amount of soot and tar which can amass on fan blades, and after certain period of time it can cause stoppage of fan and failure of fan function.

7 Cleaning and maintenance

To secure proper work of the boiler, cleaning and maintenance is necessary.

Cleaning can be divided in three stages :

- Daily
- Weekly
- Monthly

7.1 Daily cleaning

Depending on pellet quality, braizer basket (burning pot) needs to be cleaned every 1 – 3 days.

1. Turn off boiler and wait for cooling
2. Open lower and middle doors
3. Clean stockhole.¹ Use protection gloves to remove braizer basket (burning pot). After removal of basket clear content from it. Content should be cleaned into fireproof container. ¹
4. Holes on the basket should be cleaned with proper tool to secure air flow for combustion.
5. Return back basket into position to fit properly on igniter.



6. Close the door before ignition.

¹ We are suggesting vacuum cleaner with metal container.

7.2 Weekly cleaning

Every 4 – 10 days (depending on intensity of heating) it necessary to :

- **Clean ash pot.**
- **Clean heat exchanger tubes**

Cleaning of ash pot

1. Turn off boiler, wait for cool down.
2. Open door of the boiler.
3. Clean inside from dust and ash with tool delivered with boiler
4. Use protection gloves to remove ash pot and after removal of ash pot clear content from it. Content should be cleaned into fireproof container.

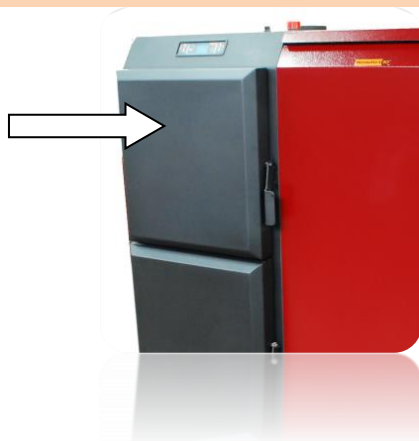


5. Return ash pot back.
6. Close door before ignition.

Cleaning of heat exchange tubes

i We recommend cleaning of heat exchange tubes before cleaning of ash pot and braizer basket

1. Turn off boiler and wait for cooling
2. Open upper door .



3. With metal cleaner (delivered with boiler) clean all tubes.



4. Close doors before ignition.

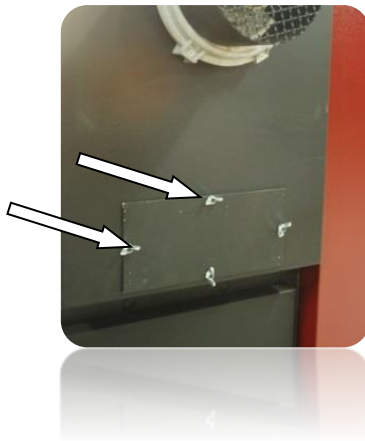
Check if there is ash in ash in a pot or braizer basket and clean them according to instructions given for celaning of ash pot and braizer basket.

7.3 Monthly cleaning

Cleaning of flue chamber

i Power off boiler, disconnect boiler from power supply.

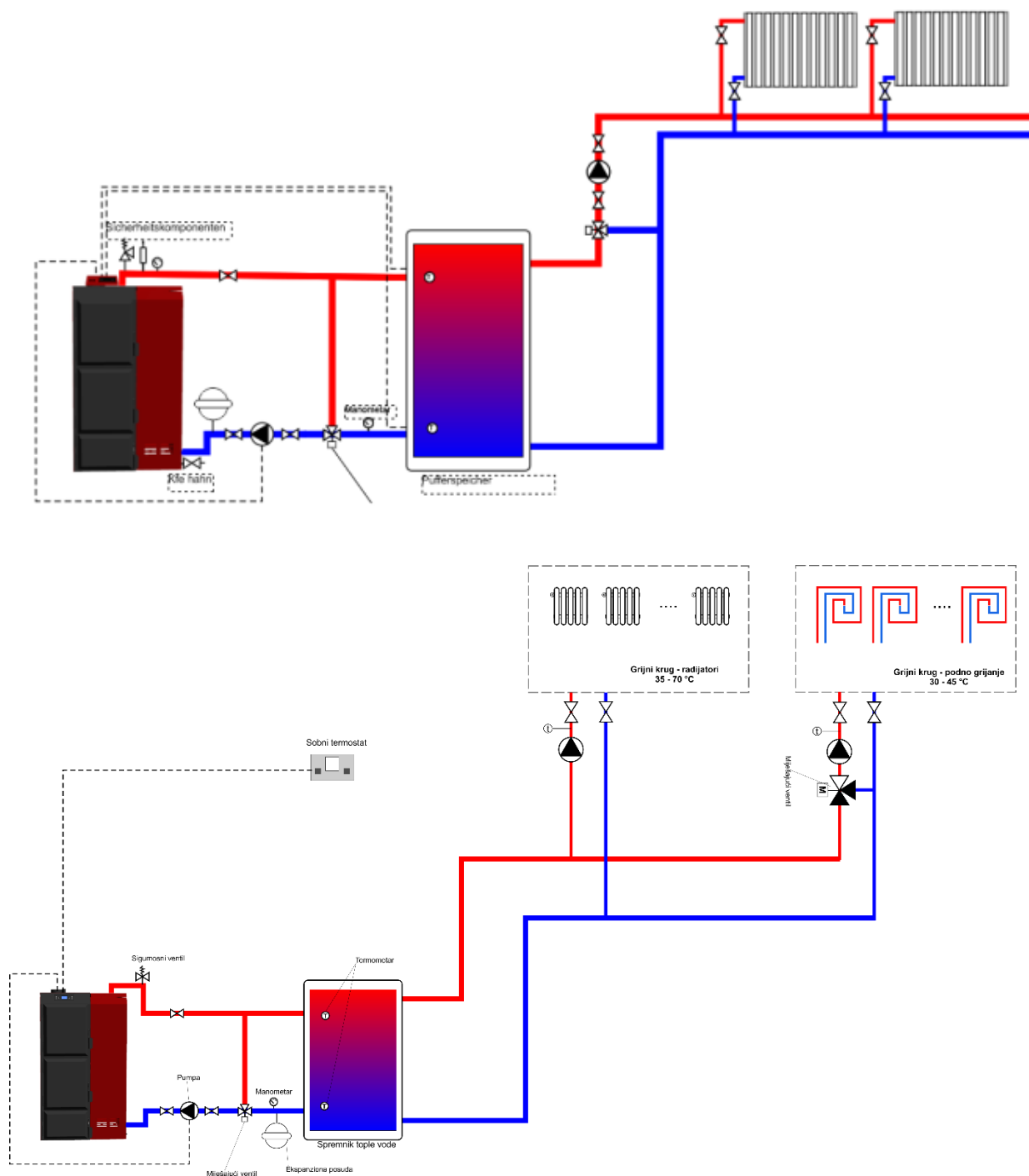
1. Turn off boiler and wait for cooling.
2. Unscrew the nuts on the back of flue chamber (picture below).

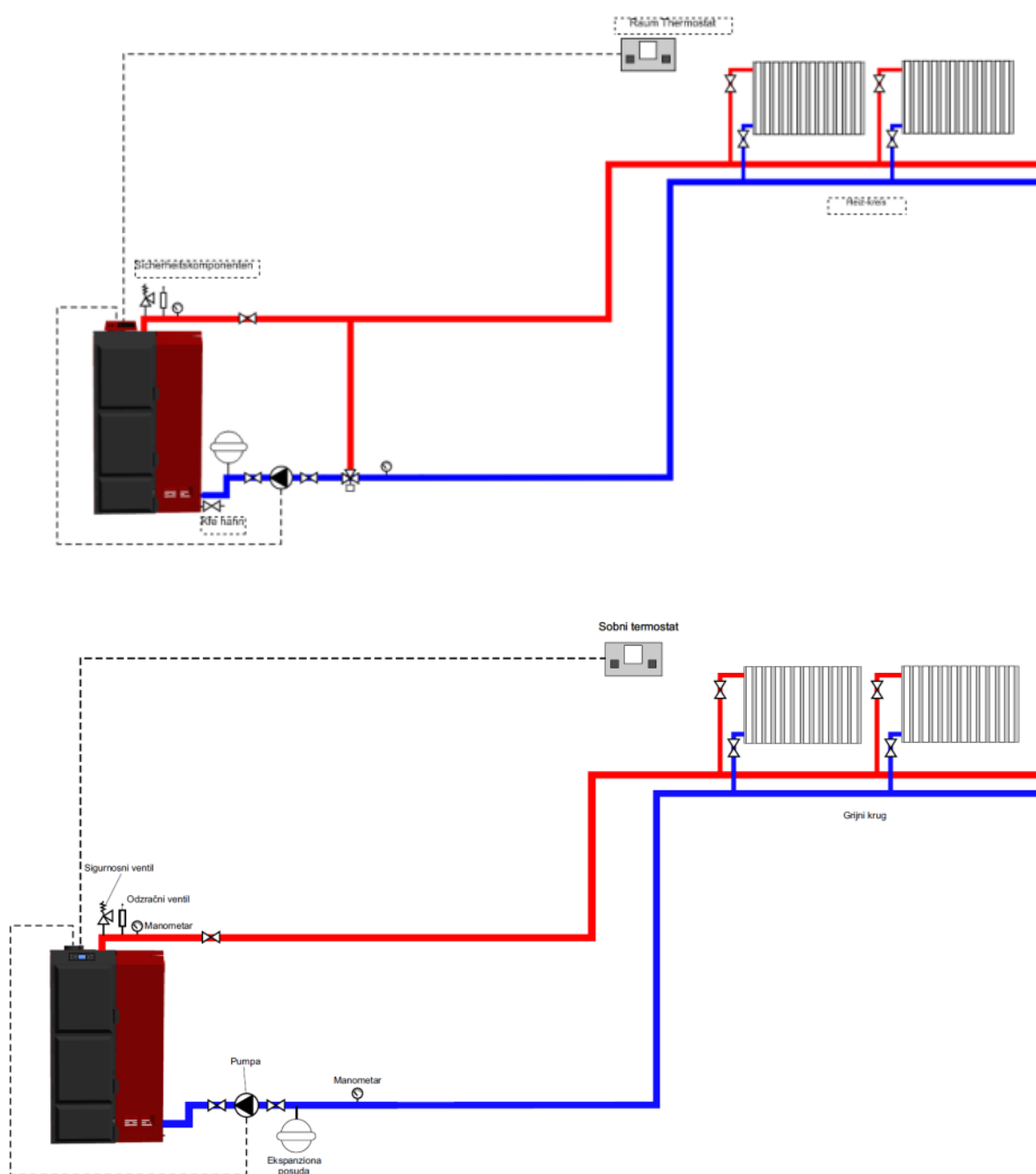


3. Remove metal plate.
4. Clean the content from the chamber into fireproof container.
5. Place removed plate back to position and all nuts should be tighten back.

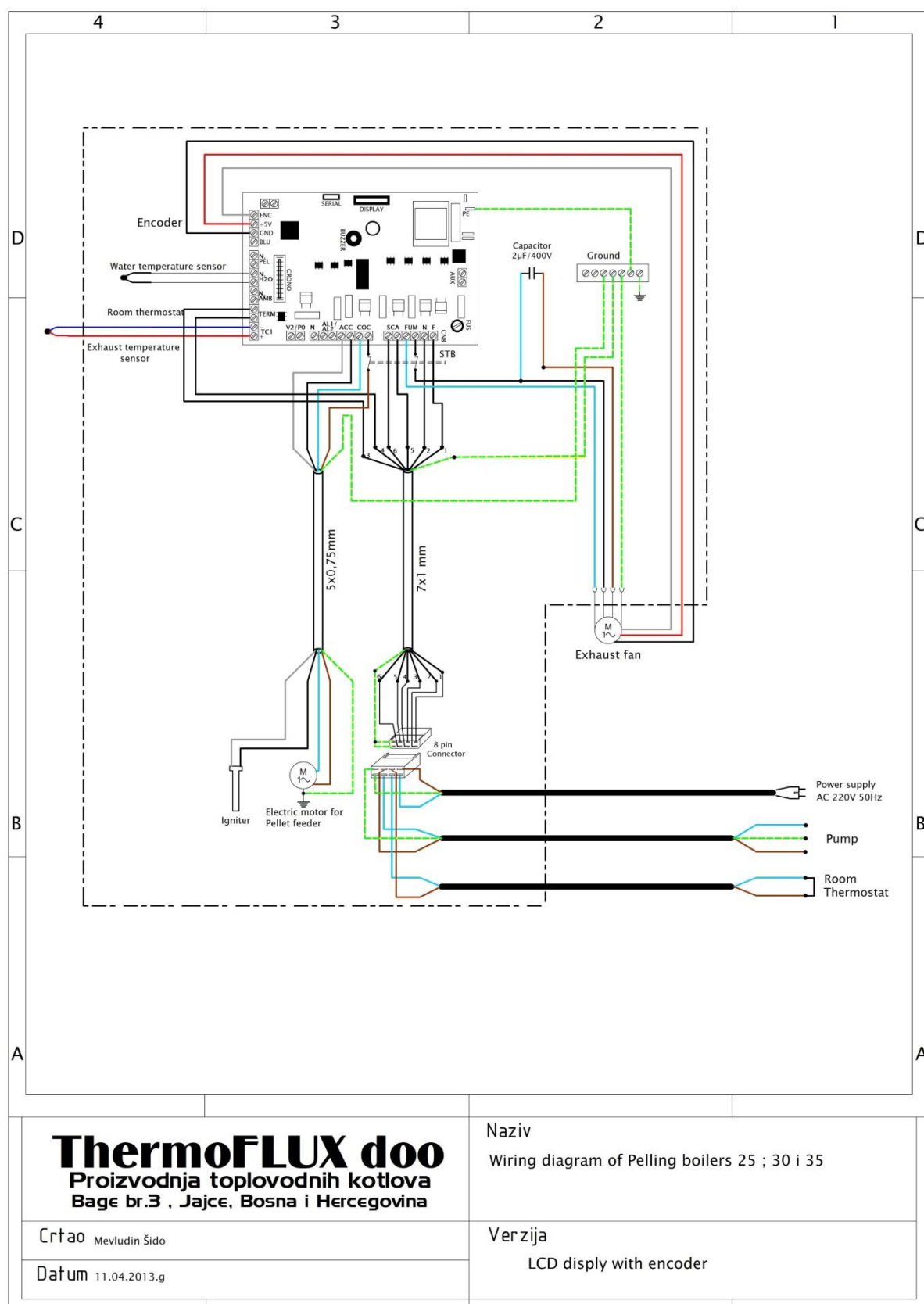
8 Connection options

8.1 Hydraulic schemes for connection



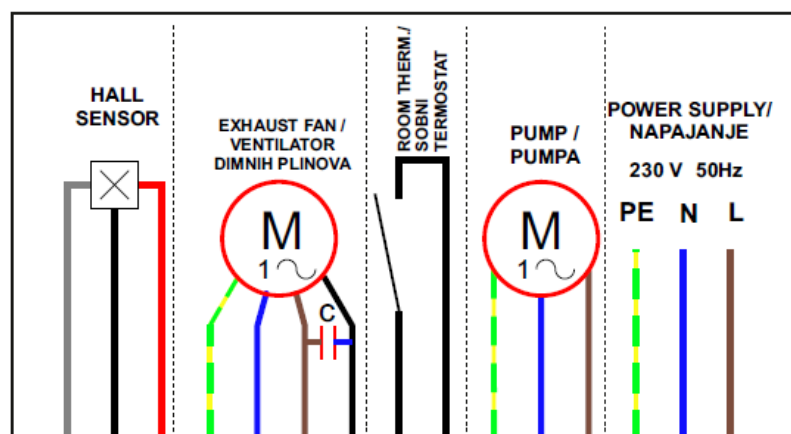


8.2 Scheme for electric connection



On the top of the boiler, below top cover are connectors for:

- Power 220 V, 50 Hz
- Circulation pump
- Room thermostat



Boiler needs to be connected to el. Power supply 220 V and 50 Hz, through fuse of 6 – 10 A (fast).

Circulation pump



Be sure to connect the pump on foreseen output. Power of the pump which can be connected on output is 120 W. If power is higher, or more pumps are foreseen to be connected then connection should be made with relays and contactors.

Room thermostat

User has possibility to instal room thermostat in other room separate from the boiler. Work og the boiler with thermostat connected to conection for room thermostat can be different depending on activated function STANDBY. Connection for room thermostat is overbridged (default factory settings) so it means that his contact is closed.

Instalation and connection of the room thermostat should be performed only by authorized personel.

9 Alarms

Display	Description	Solution
	Alarm active- indicated next to the sign for alarm	Cancel the alarm can be executed by pressing the button 4  After that, the display lists FINAL CLEANING lasting 4 minutes. After that we can restart the boiler if we solve the problem.
NO IGNITION	Failed ignition.	No pellets in the silo - fill the pellets in a silo Dosage spiral empty - initial filling A foreign object stuck dosage spiral - clean Poor quality pellets (wet pellet, long pellets, dust into pellets) - change the type of pellets Pellet igniter is defective - replace it Contact Service Restart the boiler.
NO PELET	During operation of the boiler, flue gas temperature has decreased below the permitted values	No pellets in the silo - fill the pellets in a silo Dosage spiral empty - initial filling A foreign object stuck dosage spiral - clean Poor quality pellets (wet pellet, long pellets, dust into pellets) - change the type of pellets Call service
SMOKE PROBE	Flue gas temperature sensor is defective or not connected. Boiler lists alarm is active and goes off.	Call service
WATER PROBE	Water temperature sensor is faulty or not connected Boiler lists alarm is active and goes off.	Call service
HOT FUMI	Flue gas temperature is above the allowed (250 ° C). Boiler lists alarm is active and goes off.	The boiler has not been cleaned, smoke sensor is dirty. Clean boiler and restart the ignition. Excessive amounts of feed pellets.

		Call service
SAFETY THERMAL	Safety thermostat (STB) has been activated because the boiler water temperature exceeded 95 ° C.	Wait for the boiler to cool down and then unscrew the plastic cap and suitable tool to reset the switch. It is possible that the pump is out of service and there is no water circulation Call service.
BLACK OUT	The boiler is out of power	Reset alarm and start again

STB- position



10 Instruction about safety removal and proper disposal of boiler

10.1 Disposal

Following elements are made of metal and can be disposed on landfills for metal:

- boiler
- cover metal sheets
- silo
- feeding system(except motor)
- braizer basket

Electronic components can be recycled .

Glass, glass wool and plastic parts can be recycled on landfills.

Motor auger is made of few types of material which can be recycled.



Oil and capacitors can be disposed only in special waste disposal sites.

11 Guarantee

11.1 Guarantee period

Guarantee period of 5 years applies on boiler body, metal covers and silo for pellet, and 2 years on electric component (regulation, motor, ignitier)

ThermoFLUX d.o.o. is responsible for service in BiH during guarantee period for failures as described in paragraph related to terms for guarantee,

Guarantee in other states is to be provided by authorised importer-distributor.

11.2 Guarantee terms

First start up of the boiler needs to be done by authorised service, or person authorised by ThermoFLUX or authorised importer – distributor.

Boiler must work in accordance with terms and conditions given in this manual.

Boiler needs to be instaled in accordance with all state regulations and law terms.

Quality of pellet must comply with all stnadards given in this manual.

11.3 Exemption from the guarantee

Guarantee does not cover:

- Unauthorised and negligent handling and maintenance
- Unauthorised opening and servicing of the boiler
- Improper installation, mechanical damage
- Damages caused by non-complying with instructions given in manual

Damages caused by other conditions such are: fire and water, high voltage, thunderstroke.



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