



**AUTOMATIC PELLET BOILER
INSTALLATION & OPERATION MANUAL**

MakPell 25 - 35



EN ISO 9001:2015

**Please read before use.
Keep for future reference.**

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PROLOGUE,

Since our establishment in 1976, MAKTEK became one of the leading heating appliances manufacturers in Turkey. As a result of continuous innovation aim, we are proud to present our full automatic pellet boiler model MakPell to Turkish and global markets.

Our principles of continuous innovation, high technology and high quality enable us to manufacture our products in line with all the recent standards, high efficiency and durability. This manual is your source for installation, operation, cleaning and maintenance of your boiler. Please only contact our authorized service personnel for your maintenance or repair requests.

Our widespread after sales network and trained personnel is at your service with reasonable spare part pricing and helpful service standards.

This manual gives detailed information about” *MakPell* “ model automatic pellet boiler's installation requirements, operation explanation, maintenance rules and tips about repairs and troubleshooting. The installer must also bear in mind all the local standards while making the boiler installation and meet the requirements.

Please keep this manual for future reference.

The manufacturer reserves the right to make changes on the design, components or dimensions of this boiler.

PLEASE READ THE MANUAL CAREFULLY BEFORE OPERATING THE
BOILER.

The commissioning of the boiler must be done by authorized MAKTEK
personnel.

MAKTEK A.Ş.

1. SAFETY WARNINGS

Symbol Key



This symbol expresses the risk of serious personnel injury or death unless taking care of warnings.



This symbol expresses the risks which can cause minor injuries or harms to the environment and goods



Protect the main energy cable against damages. Electric shock risk as a result of contact with live wires.
Live uninsulated wires may contact water and cause electric shock risk and fire hazard.



Make sure there is sufficient ground connection. Use suitable cable dimensions in all electric connections. Electric shock risk where there is insufficient ground connection. Risk of cables overheating and causing fires where unsuitable cable dimensions are used.



Do not open the front boiler doors while there is combustion in the boiler. Burnt risk as a result of flames coming out of the boiler doors.



Do not remove the outer covers of the boiler, do not open the maintenance covers while the boiler is working. Burnt risk as a result of contact with hot surfaces. Electric shock risk because of contact with live electric parts.



Do not dismantle the boiler from its installed place, do not cut off the installation pipes. Electric shock risk by contact to live electric parts. Flooding risk because of cut off water pipes.



Do not install the boiler to closed living areas. Adequate ventilation and constant fresh air supply is required for efficient combustion.



Do not perform any cleaning or maintenance before cutting of the main electricity connection of the boiler. Electric shock risk by contact with live electric parts.



Do not allow children or adults who have limited physical or mental competence, or people lacking the knowledge about the operating instructions of the boiler to intervene with the device. Risk of damage to device resulted from misuse.

1.1 GENERAL PRECAUTIONS BEFORE USE

- Check the boiler installation location for suitability of chimney connection, heating installation connection and electricity connections.
- For the safety of the electric connections, check the availability of insulated sufficient ground connection.
- In order to avoid injuries or damages, make sure to read this manual carefully, especially the safety warnings and precautions.
- MakPell pellet boiler is under manufacturer's warranty for two (2) years, given that all instructions and requirements given in the manual are complied. The manufacturer can not be held responsible for damages and failures caused by not following the rules on this manual and using the boiler in any way other than the design purpose.
- Do not use the boiler other than the intended design purpose. The boiler is designed to supply hot water to heating circuit (85°C). The boiler should be operated at suitable working pressure (1.5bar)
- Adequate fresh air supply is required for efficient combustion in the boiler. For safety reasons, it is forbidden to install the boiler in closed living areas.
- The boiler can not be installed in places where there are flammable gas or materials, in high moisture places or in places at which it can be affected from rain or other external factors.
- Only high quality (A1) pellets can be used in this boiler. Usage of low quality pellets invalidate the warranty.
- Do not operate the boiler dry. Do not add any cold water to the boiler when the boiler is hot. In case of overheating, do not add cold water to the boiler with the intent of cooling. This will damage the boiler and cause leakage.
- Do not keep the heating circuit empty, it will lead to corrosion in the boiler and in the installation. You can only drain the installation water in case of frost risk, if the boiler is not going to be used. You can add %15 anti freeze to overcome frost.
- The difference between the flow and return water temperatures should be 20°C max.
- Calcerous hard water is damaging for the boiler. The heating circuit water should be treated. Damage caused to the boiler because of accumulated lime stone is not covered by warranty.

- The boiler has an automatic ignition system. Do not try to ignite the fuel in the burning pot externally.
- All repairs and maintenance must be made by authorized service personnel. Interventions by unqualified people will invalidate the warranty.
- We suggest using the same brand pellets in the boiler to maintain stable heating performance. Adjustments may be required if the pellet quality is changed.
- MakPell pellet boiler is not a condensing boiler. Make sure there is no condensation in the boiler and in the chimney during operation.
- Do not let the boiler return water temperature drop below 55°C. In order to avoid condensation in the boiler, a thermostatic valve regulating the boiler return temperature must be added to the installation. Failure to install this thermostatic valve and not limiting the minimum return water temperature to 55°C will invalidate the warranty.
- Only use enamel or stainless steel flue gas pipes on the chimney installation. The chimney connection must be made according to the specifications given in this manual, in a manner to avoid the condensation or rain water on the chimney to enter the boiler.
- Before each heating season, soot accumulated in the boiler and in the chimney must be checked and cleaned to ensure efficient operation.
- It is advised to use a dust mask while emptying the ash drawer or cleaning the boiler.
- Do not use the water in the heating circuit for any reason.

2. GENERAL PROPERTIES

- MakPell pellet boiler is a complete unit consisting of chrome burning pot, automatic igniter, flue gas fan, integrated fuel tank, automatic pellet feeding motor, circulation pump, expansion tank, pellet feeding spiral, water and flue gas NTC sensors, integrated safety features and a LCD control panel.
- Manufactured in 2 models with 25kW (21.500 kcal/h) and 35kW (30.100 kcal/h) capacity options, in our ISO 9001:2015 certified heating appliances factory.
- Effortless and efficient automatic operation due to full automatic ignition and pellet feeding systems.
- Patented cylindrical burning pot and pellet redirector ensures homogeneous distribution of pellets on the burning pot providing efficient and uniform combustion.
- LCD screen control panel enables monitoring all operation parameters and allows adjustments for the user easily.
- Simple automatic operation of the boiler by the touch of a button on the control panel..
- Advanced safety features including; overheat protection with limit thermostat, backfire prevention with fuel line safety thermostat, protection against low water pressure, frost protection ensures safe operation of the boiler.
- Special boiler body design provides efficient combustion, energy savings and low emissions.
- 310 grade stainless steel burning pot ensures extreme durability at high temperatures.
- Quiet encoder controlled fan supplies variable air enabling constant flame modulation and ensures maximum efficiency in all operation power levels.
- Ashes are accumulated in the ash drawer and practically removed from the boiler by emptying the drawer.
- ErP compliant energy efficient circulation pump enables variable flow rates and ensures energy efficient operation.

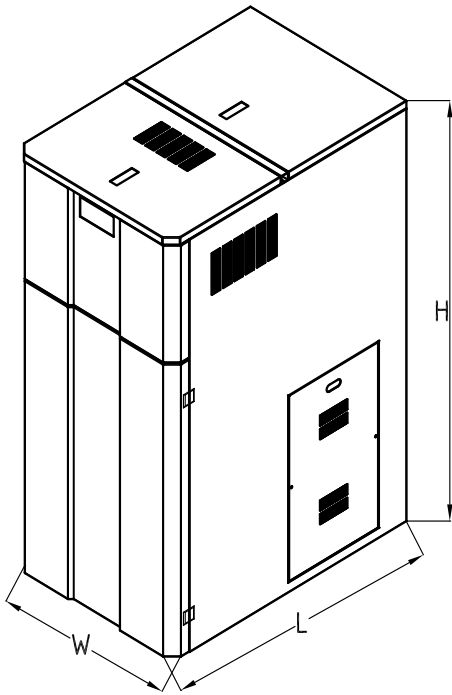
- Automatic extinguishing feature enables to turn off the boiler safely. When the fuel inside the fuel tank finishes and the temperature drops below 25°C, the boiler turns off automatically shutting off pump, fan and fuel loading motor to provide energy saving.
- Special burning chamber design maximizes the energy transfer from the combustion to water, increasing the boiler efficiency.

Not: Economic life of this product is determined as 10 years. It is suggested to replace the boiler after this period.

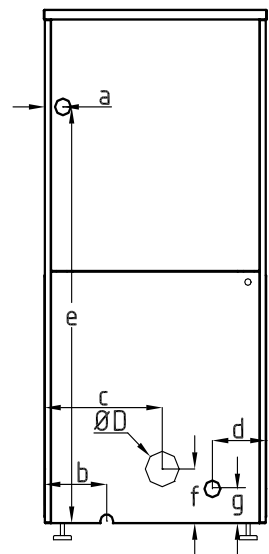
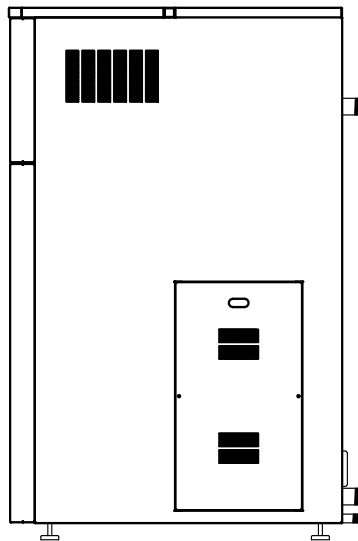
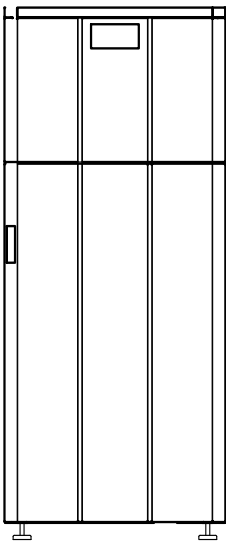
2.1 TECHNICAL PROPERTIES TABLE

		MakPel 25	MakPel 35
Weight	kg	215	235
Width	mm	555	585
Depth	mm	840	940
Height	mm	1285	1285
Flue Gas Pipe Diameter	mm	80	80
Pellet Storage Capacity	kg	40	55
Max. Power During Ignition	W	455	455
Max. Power During Operation	W	155	155
Nominal valtage/frequency	V/Hz	220/50	220/50
Circulation flow / return pipes	"	1"	1"
Filling - Draining Pipe	"	1/2"	1/2"
Pump Flowrate	lt/h	0.8 - 3.5	0.8 - 3.5
Pump Head	m	1 – 7.7	1 – 7.7
Max. Flue Gas Temperature	°C	135	150
Boiler Water Content	lt	50	60
Boiler Heat. Capacity (min-max)	kW	7,5 – 25	8,75 - 35
Fuel Consumption (min-max)	kg/h	1,2 - 4,9	1,7 - 6,9
Recommended Chimney Draught	Pa	-20	-20
Pellet Class		A1	A1
Efficiency	%	92	92
Energy Efficiency Index (EEI)		124,36	124
Energy Efficiency Class		A+	A+
Boiler Class (EN 303-5)		5	5
Sound Level	dB	58	64

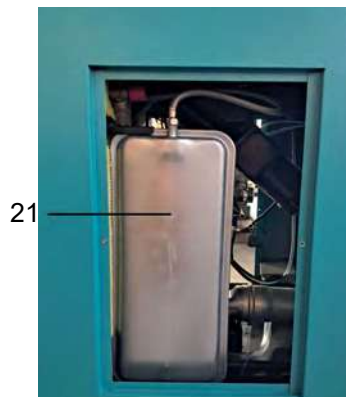
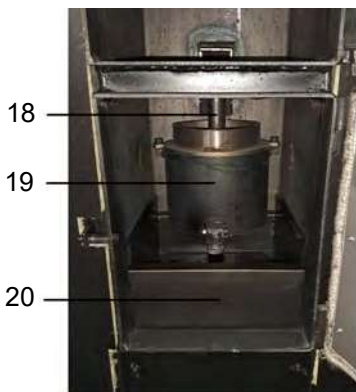
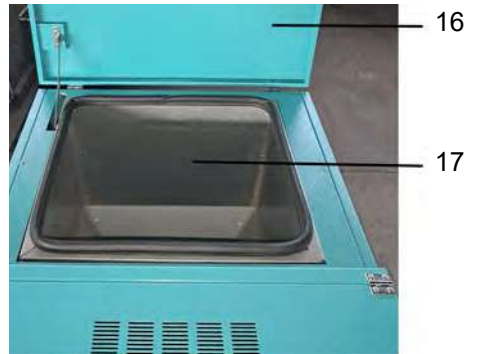
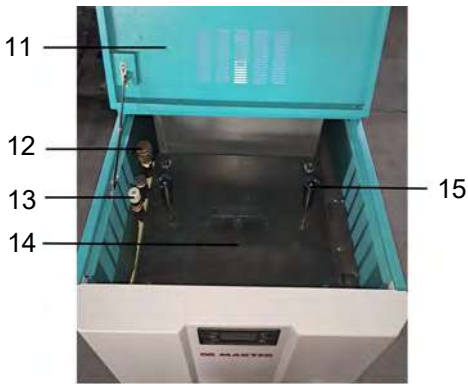
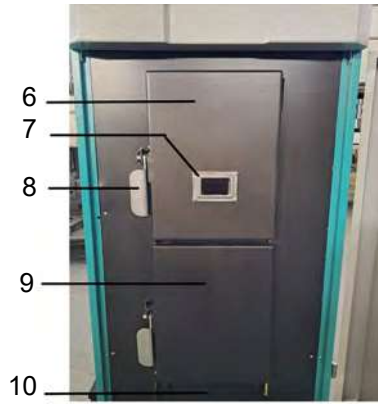
3. APPEARANCE AND EXTERNAL DIMENSIONS

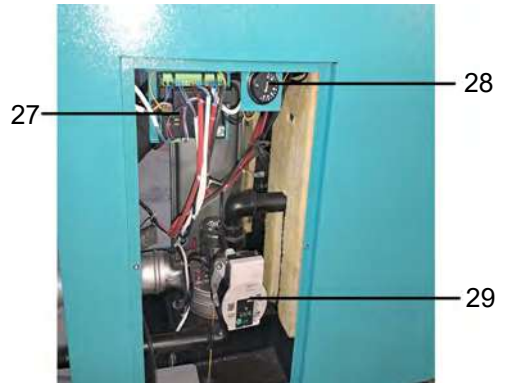
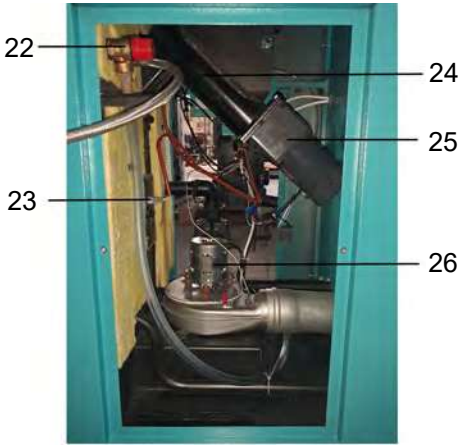


	25 MKP	35 MKP
W	555	585
L	840	940
H	1285	1285
a	45	45
b	150	150
c	240	240
d	120	120
e	1030	1030
f	120	120
g	100	100
ØD	80	80



3.1 SECTIONS OF THE BOILER

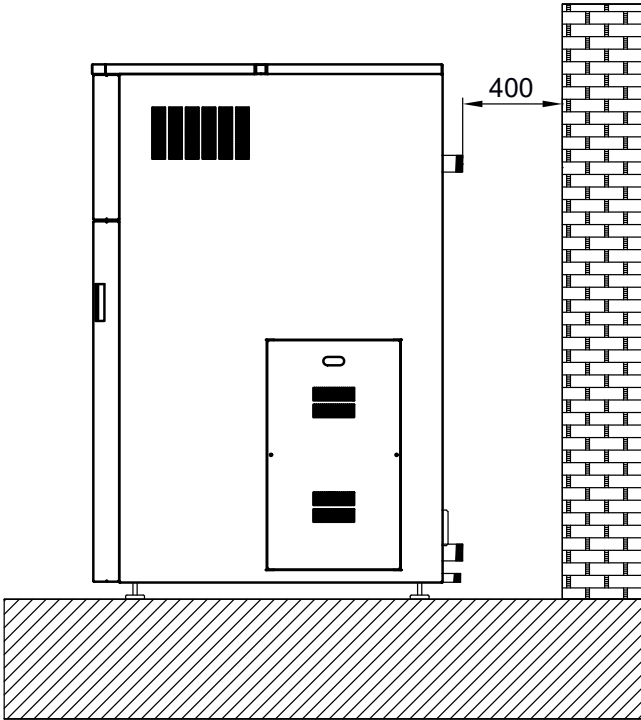
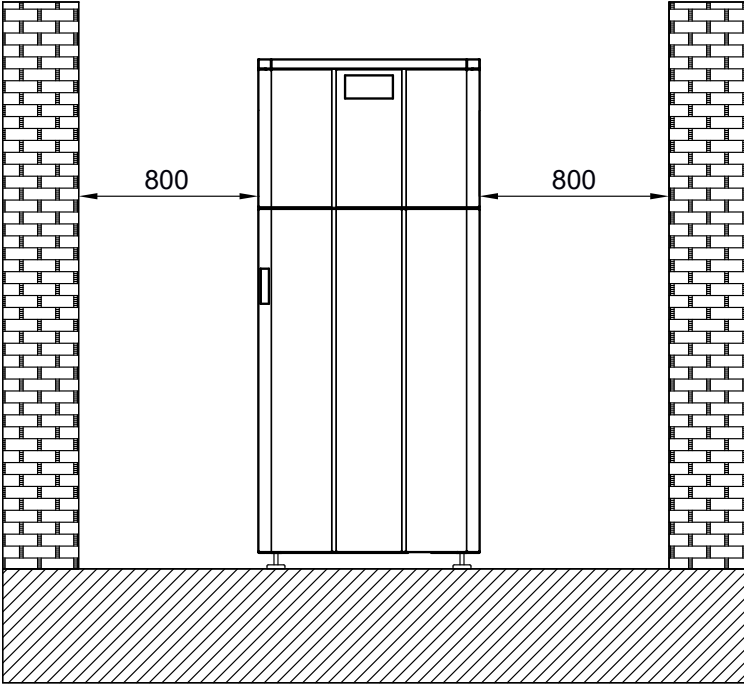




1. Fuel Tank Cover
2. Top Cleaning Cover
3. Control Panel
4. Front Outer Cover
5. Left Side Service Cover
6. Burning Chamber Door
7. Observation Window
8. Door Handle
9. Cleaning Door
10. Front Smoke Box Cover
11. Top Cleaning Cover
12. Automatic Air Vent
13. Manuel Air Vent Valve
14. Top Smoke Box Service Cover
15. Cleaning Handles

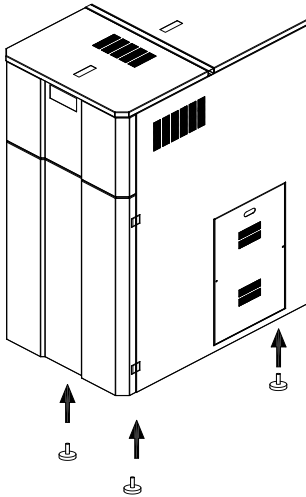
16. Fuel Tank Cover
17. Fuel Tank
18. Pellet Redirector
19. Burning Pot
20. Ash Drawer
21. Expansion Tank
22. 3bar Safety Valve
23. Igniter
24. Fuel Feeding Pipe
25. Fuel Feeding Motor
26. Fan
27. Electronic Board
28. Safety Thermostat
29. Circulation Pump

3.2 MINIMUM SPACES FOR INSTALLATION



4. MOUNTING AND INSTALLATION

- All mounting, installation, setting and maintenance work must be done by qualified plumbers according to standards and regulations in place. If the local regulations are insufficient about the installation rules of the boiler, please refer to European (EU) norms.
- While unloading the boiler from the transport pallet, make sure to fix the 4 plastic stands which are packed inside the boiler. Balance the boiler by adjusting the screws on the plastic stands so that the boiler is leveled.



Plastic screw stands should be fixed on the bottom support plate as shown on the left diagram. The positions of the stand fixing holes are marked with red arrows on the boiler bottom support plate.

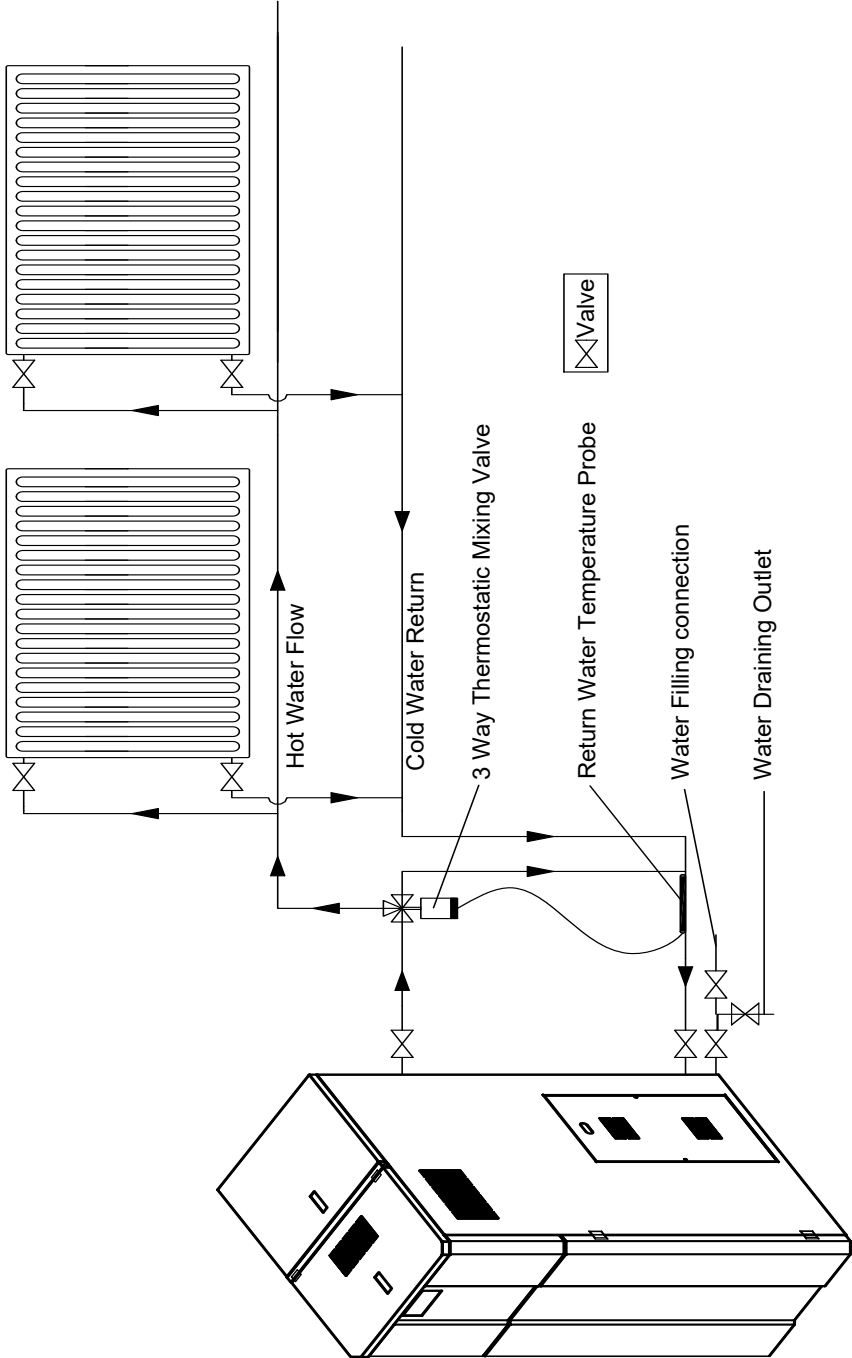
- The boiler should be installed in a suitable indoor place where it will not be affected by external factors, which has adequate ventilation and fresh air supply, with no frost risk and with a suitable chimney with adequate draught. (-2Pa ile -8Pa)
- The chimney connection must have adequate draught. Use of minimum number of elbows and extensions between the boiler and the chimney are suggested.
- For efficient combustion in the boiler, adequate fresh air supply to the boiler location must be provided. MAKTEK "MakPell" series boilers are manufactured with built in expansion tank and 3bar safety valve. In order to compensate the expansions on the heating circuit, an additional safety valve should be added on the heating circuit installation.
- Before the boiler is commissioned, the heating circuit installation pipes must be cleaned and flushed to remove any debris or dirt particles inside the pipes.

- While choosing an installation location for the boiler, make sure to leave enough space on all sides of the boiler for easy fuel filling and maintenance. Necessary minimum spaces are given in this manual.
- Make sure to install ball valves to flow and return pipes of the boiler.
- During installation, a suitable boiler drain pipe must be installed with a T fittings on the boiler filling-draining outlet. The filling draining connection must be made in a way to allow draining of the boiler water completely. Please refer to the installation diagram on section 4.2.
- Flue gas pipes connecting the boiler flue gas outlet to the chimney should be air tight. No diameter reduction is allowed on the flue gas pipes, all pipes should be the same diameter with the boiler outlet.
- Proper ground connection must be made for the boiler. Please call the authorized service in any electrical failures.

4.1 HEATING CIRCUIT AND FILLING WATER TO THE SYSTEM

- In order to maintain boiler operation during electricity shortages, use of a UPS (uninterruptible power supply) is recommended.
- If an additional circulation pump is required for the heating circuit, it should be mounted on the return side of the installation to protect it from high temperatures.
- It is advised to keep the boiler return water temperature min. 55°C during operation to prevent condensation in the boiler. A thermostatic mixing valve and a by-pass connection between flow and return pipes should be made to regulate the return water temperature of the boiler. Failure to install this return water mixing valve and limiting the return water temperature drop to 55°C will invalidate the warranty. Boiler installation diagram on section 4.2 shows how the mixing valve, the temperature probe and by-pass line should be installed on the circuit.
- After the boiler installation, all connections and valve positions should be checked.
- Filling water and draining from the boiler must always be done when the boiler is turned off and cooled down..
- The water filled to the heating system during commissioning or any water added to the system afterwards should meet the requirements given in section 4.3, heating circuit water properties. Suitable water usage in the system is essential for the durability and efficient operation of the boiler. While soft water causes corrosion in the boiler, hard water causes accumulation of limestone.
- Fill the system from the filling valve on the installation. Check the water pressure on the LCD screen and close the filling valve when you reach 1.5bar(1500mbar).
- Vent the air on the installation. Avoid making pipe connections which can cause air to trap. Use automatic air vents in specific locations likely to trap air in the system. After you heat up the boiler to 80°C, repeat the air venting procedure. If required add water to the system to get 15.bar pressure.

4.2 BOILER INSTALLATION DIAGRAM



4.3 HEATING CIRCUIT WATER PROPERTIES

The closed heating circuit water should be in accordance with the parameters given in the below table in order to avoid corrosion and limestone accumulation in the boiler. Failures and damages caused by filling improper water to the system (corrosion, performance reductions, breakdowns because of blocked passages inside the boiler) are not covered by manufacturer's warranty.

Parameters	Unit	Topping Water	Filling Water
Working Pressure	Bar	All Pressures	
Visual Appearance	-	Clean, clear, without solid particles or bubbles	
Conductivity at 25 °C	µS/cm	< 1500	
pH Value at 25 °C	-	>7.0	9.0 ila 11,5 ^a
Total Hardness (Ca + Mg)	mmol/l	< 0,05	
Fe Concentration	mg/l	< 0,2	
Compound Alkaline Value	mmol/l	-	<5
Oil/Grease Concentration	mg/l	<1	-
Organic Matter (TOC)	-	-	

4.4 VENTILATION

CAUTION!: The boiler can only be installed in a place which has sufficient ventilation, proper shelter against external factors (rain, dust, frost risk etc.) and which is non-residential.

In order to achieve safe and efficient combustion in the boiler, fresh air supply to the boiler room is required. In case of poor ventilation and insufficient fresh air supply, oxygen level in the room will gradually decrease, resulting in deterioration of combustion. Deteriorated combustion will decrease the efficiency of the boiler, and will cause rapid soot accumulation in the boiler and the chimney.

Before commissioning the boiler, check if the fresh air supply vents are in sufficient size. End user should be reminded to never close the air vents for safe and efficient operation of the boiler.

Suggested Fresh Air Supply Vents:

- a) Upper Opening: 20-30cm below the ceiling, minimum 200cm²
- b) Lower Opening: 20-30cm above floor level, minimum 300cm²

4.5 CHIMNEY CONNECTION

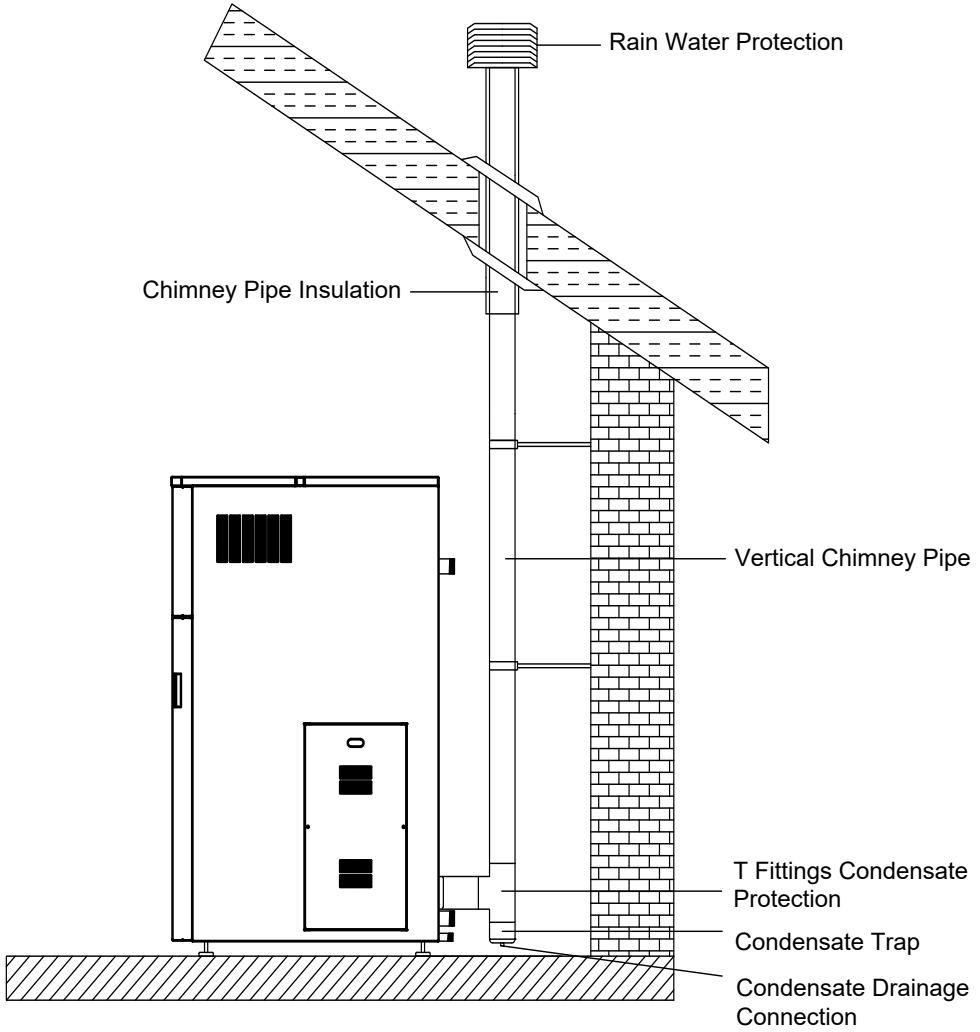
Chimney connection and chimney draught is very important to achieve an efficient and trouble-free combustion.

The boiler should be connected to a separate chimney which can supply the minimum draught. The boiler can not be operated with a suitable chimney connection.

- Flue gas pipes and the chimney must be installed and controlled by an expert. Be aware that one of the main factors providing efficient and safe operation of the boiler is the chimney design and draught.
- Flue gas pipes should be the same diameter as the boiler's flue gas outlet. Horizontal length of flue gas pipes should be min. 60cm, max. 200cm and should be connected to the chimney with a 10° slope.
- Stainless steel flue gas pipes are recommended to be durable for corrosion and soot accumulation.
- If elbows are required in the flue gas pipe connections, maximum 2 pieces 45° round elbows can be used.
- Flue gas pipe connection should be detachable and air tight.
- It is not allowed to let the flue gas pipes out through a window or a wall. The flue pipes must be connected to a chimney.
- The flue gas pipes or chimney should not contact flammable materials.
- Flue gas pipes should not be pushed inside the vertical chimney.
- The direction of the flue gas pipes should not be changed if possible. Where it's required to change the direction to allow connection to the chimney, it should not exceed 60° horizontally.
- Flue gas pipes and chimney should be perfectly sealed. It should be air tight both indoor and outdoor.
- Do not connect more than one boiler or other appliance to the same chimney. Doing so will reduce the draught and decrease the boiler efficiency.
- Adjacent chimneys should not have any connection with each other.
- Constriction in any part of the chimney should be avoided.

- Walls of the building can never be used as a element of the chimney surface. It is ideal to have the chimney connection inside the building. If an external chimney is used, it should be properly insulated.
- Chimney cleaning must be made periodically to prevent soot accumulation in the chimney. If the periodic cleaning of the chimney is not made, the soot will cause blockage and it will not be possible to clean the chimney easily.
- Make sure the interior surface of the chimney is smooth. Rough surfaces will enable easier accumulation of soot.
- Minimum flue gas outlet diameter must compiled from the boiler outlet to the chimney's end..
- Chimney connection must be made in a way to prevent the condensed water in the chimney to enter the boiler. Suitable condensate preventer fittings, condensate trap and drainage must be made during chimney installation.
- Chimney should pass the highest point of the roof by min. 1 meter.
- An acceptable chimney design example for MakPell Pellet boilers is given as a diagram in section 4.6.

4.6 CHIMNEY CONNECTION DIAGRAM



4.7 CIRCULATION PUMP INFORMATION

MakPell automatic pellet boiler is equipped with a high-efficiency circulator for hot-water heating systems with integrated differential pressure control. (Erp compliant) Control mode and delivery head (differential pressure) are adjustable. The differential pressure is controlled via the pump speed.

4.7.1 Indicator Lights (LED)



- Signal display
 - LED is lit up in green in normal operation
 - LED lights up/flashes in case of fault



- Display of selected control mode $\Delta p-v$, $\Delta p-c$ and constant speed



- Display of selected pump curve (I, II, III) within the control mode



- LED indicator combinations during pump venting function, manual restart and key lock



4.7.2 Operating Button



Press

- Select control mode
- Select pump curve (I, II, III) within the control mode



Press and hold

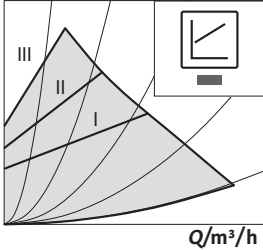
- Activate the pump venting function (press for 3 seconds)
- Activate manual restart (press for 5 seconds)
- Lock/unlock button (press for 8 seconds)

4.7.3 Control Modes and Functions

Variable differential pressure $\Delta p-v$

(I, II, III)

H/m



Recommended for two-pipe heating systems with radiators to reduce the flow noise at thermostatic valves.

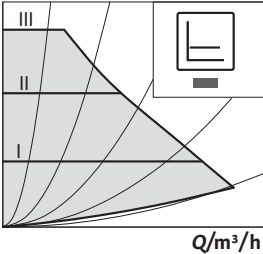
The pump reduces the delivery head to half in the case of decreasing volume flow in the pipe network. Electrical energy saving by adjusting the delivery head to the volume flow requirement and lower flow rates.

There are three pre-defined pump curves (I, II, III) to choose from.

Constant differential pressure $\Delta p-c$

(I, II, III)

H/m



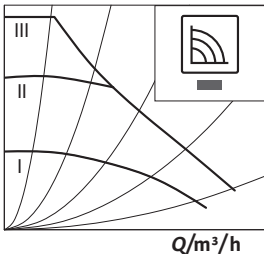
Recommended for underfloor heating or for large-sized pipes, applications without a variable pipe network curve (e.g. storage charge pumps) or single-pipe heating systems with radiators.

The control keeps the set delivery head constant irrespective of the pumped volume flow.

There are three pre-defined pump curves (I, II, III) to choose from.

Constant speed (I, II, III)

H/m



Recommended for systems with fixed system resistance requiring a constant volume flow.

The pump runs in three prescribed fixed speed stages (I, II, III).

NOTICE

Factory setting:
Constant speed, pump curve III

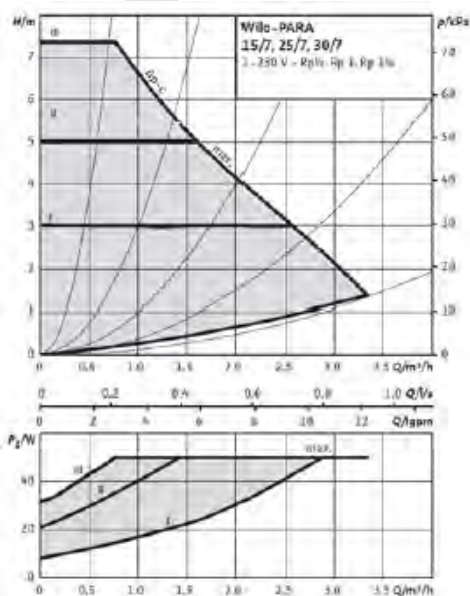
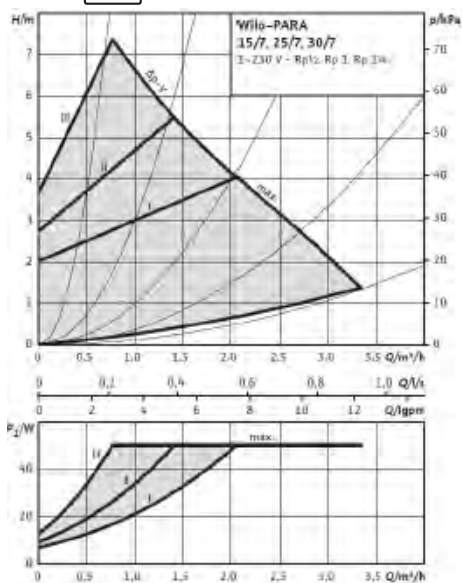
4.7.4 Pump Characteristic Curves



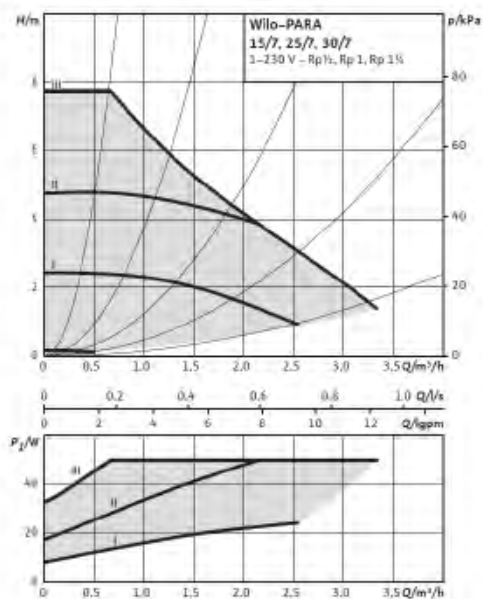
$\Delta p-v$



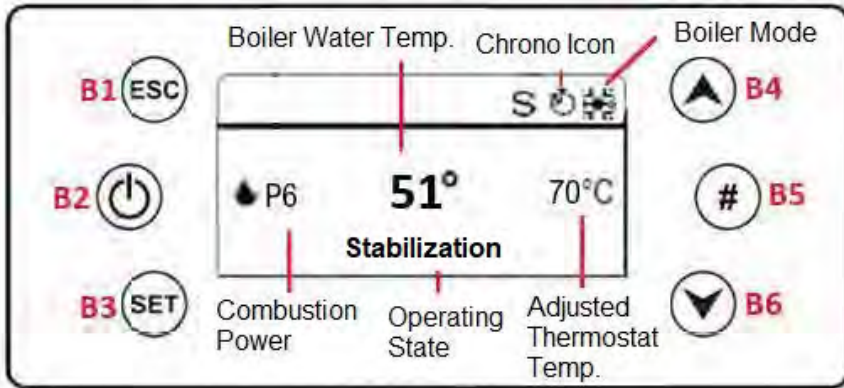
$\Delta p-c$



Constant Speed



5. AUTOMATIC PELLET BOILER CONTROL PANEL



LCD screen on MakPell pellet boiler shows detailed information about; date and time, chrono state, local room temperature in use, local room thermostat in use, errors report and combustion power. All settings and adjustments for boiler operation are made by the buttons on the control panel.

LCD Screen Icons

D ☉	Daily Chrono on
W ☉	Weekly Chrono on
WE ☉	Week End Chrono on
🔥	Local room heating target reached









Boiler Mode Icons

❄️	WINTER MODE
☀️	SUMMER MODE

Operating States Visualization

State	Display
Modulation for flue gas temperature	Run Mode M
Modulation for other conditions	Modulation
Other States	The name of the state is displayed

5.1 CONTROL PANEL BUTTON FUNCTIONS

FUNCTION	BUTTON	EXPLANATION	SYMBOL
EXIT		B1 button is used to exit from menus and sub menus. Press and hold for 3 seconds to activate refill function.	B1
ON- OFF		Press and hold for 3 seconds, to turn on/off the boiler and to reset error codes.	B2
RESET		Enable/disable chrono inside the user menu.	
ENTER MENU		Press B3 button to enter user menu 1 and sub-menus.	B3
ENTER SUBMENU		Press and hold for 3 seconds to enter user menu 2.	
SAVE		Press to save data after making adjustments.	
INCREASE UNITS		Use B4 button to increase units while making adjustments in menus. While on the main screen, press B4 to access combustion power menu.	B4
ACCESS COMBUSTION POWER MENU			
ACCESS INFO MENU		Press B5 button to access info menu where all boiler operation parameters are shown.	B5
ENABLE CHRONO TIME SLOT		Inside the chrono adjustment menu press B5 to enable time slots for operation.	
DECREASE UNITS		Use B6 button to decrease units while making adjustments in menus. While on the main screen, press B6 to access temperature info menu showing boiler water temperature, chimney temp. and room temp.	B6
ACCESS TEMP. INFO MENU			
SECONDARY INFO MENU SHORTCUT	 	Press and hold B3+B5 buttons together for 3 seconds to directly access secondary info menu which is inside the service menu.	B3 + B5

5.2 CONTROL PANEL MENUS

5.2.1 User Menu 1

Press B3 button to access user menu 1. Sub-menus which can be accessed inside user menu 1 are listed in the below table.

<p>POWER</p>	<p>Pellet: Boiler's combustion power adjustment is made in this menu. It can be set to automatic or to fixed power levels from 1 to 6. (A = automatic, 1 = minimum capacity, 6 = maximum capacity)</p>				
<p>THERMOSTATS</p>	<p>Boiler: Desired boiler water temperature is adjusted between 5€-80»C in this menu.</p>				
<p>7 < FCBC</p>	<p>Automatic operation of the boiler depending on selected time zones can be obtained by activating Chrono function. From the 2 sub menus you can select the chrono mode and program the boiler for desired operation time zones.</p> <p>AC85 @HM Daily, weekly or weekend chrono mode is selected in this sub menu. Press B3 button on Modality to access mode selection. Choose the desired mode with arrow keys (B4 and B6) and select with B2 button. Save the selection by pressing B3 button.</p> <table border="1" data-bbox="348 898 552 992"> <tr><td>OFF</td></tr> <tr><td>Daily</td></tr> <tr><td>Weekly</td></tr> <tr><td>Weekend</td></tr> </table> <ul style="list-style-type: none"> - Daily: Operation time intervals are selected for each day separately. - Weekly: Same operation time intervals are used for all 7 days. - Weekend: One time interval program is selected for all weekdays (Monday-Friday) and a separate program is made for weekends (Saturday and Sunday) <p>PROGRAM: Scroll through the input parameters with arrow keys (B4 and B6). Use B3 button to select day or time interval. When the selected parameter starts flashing, adjust the desired value with arrow keys (B4 and B6). Save the setting by pressing B3 SET button. B5 (#) is used to activate and deactivate the selected time interval. When the selected time interval is active, a ✓ sign will appear next to it. It shows that the boiler will operate automatically in this time interval.</p>	OFF	Daily	Weekly	Weekend
OFF					
Daily					
Weekly					
Weekend					

5.2.2 Chronograph Adjustment Examples

a) Daily Program

First select the day to input time intervals for the boiler to operate. Adjust the on and off times with arrow keys. Press B5 (#) button to activate the adjusted time interval. You can set different time intervals of operation for each day of the week.

Daily	Monday	Monday	
Weekly	Tuesday	ON	OFF
Weekend	Wednesday	09.30	11.15 ✓
	Thursday	17.00	22.00 ✓
	Friday	00.00	00.00

b) Weekly Program

In this mode a single program can be set to be active for all days. Every day the same program will be valid.

Daily	Monday - Sunday	
Weekly	ON	OFF
Weekend	09.30	11.00 ✓
	13.00	19.00 ✓
	00.00	00.00

c) Weekend Program

In this mode two separate programs can be adjusted. One program for week days (Monday to Friday) and another program for the weekend. (Saturday and Sunday)

Daily	Monday - Friday	Monday - Friday	
Weekly	Saturday-Sunday	ON	OFF
Weekend		09.30	22.15 ✓
		00.00	00.00
		00.00	00.00

5.2.3 User Menu 2

SETTINGS	Time and Date: It allows you to set day, month, year and current time.	
	Language: Language displayed on the LCD screen is selected in this menu.	
	Radio Control: This feature is not available.	
	Summer - Winter: Summer winter mode selection according to the installation with DHW or for only heating.	
SERVICE	<p>Counters: Boiler's operation durations can be monitored here. Work Time: Total operation duration of the boiler. Ignitions: Total count of ignitions. Failed Ignitions: Number of unsuccessful ignition attempts.</p>	
	Error List: Last 10 errors which occurred during boiler operation are listed here with time stamps.	
	Secondary Information: Detailed information about boiler operation state and readings are displayed in this menu. (Information about configurable outputs and inputs are only available if they have been set.)	
	Prod.Code 562	Mainboard product code information
	Exhaust Fan (rpm)	Actual exhaust fan rotation/min. information
	Auger	ON-OFF Fuel feeding motor state
	Heat Resistance	ON-OFF ignitor operating state
	Pump	ON-OFF pump operating state
	Exhaust Temp. °C	Flue gas actual temperature
	Water Temp. °C	Actual boiler water temperature
	Pressure (mbar)	Closed circuit water pressure
	HV1 Input	Optional equipment: Input State: open->0, closed->1
	HV2 Input	Optional equipment: Input State: open->0, closed->1
	Cleaning Reset: This is used to reset the boiler monthly cleaning reminder alarm. Cleaning reminder alarm interval is set by factory.	
Auger Calibration: This menu is used to proportionally adjust pellet feeding amount of the auger. Default setting 0. Can be adjusted between -7/+7. When pellets with different calorific value is used, pellet supply is adjusted to maintain optimum boiler capacity.		
Fan Calibration: This menu is used to proportionally adjust fan speed. Default setting 0. Can be adjusted between -7/+7. If the chimney draught is stronger or weaker than standard, it may be required to adjust the fan speed in this menu.		

SERVICE	<p>Automatic Power: When set to ON position, the boiler only works in Auto mode. P1-P6 power levels become inactive and cannot be selected in Power menu under User Menu 1. When set to OFF position, P1-P6 fixed power levels selection are enabled and can be selected in Power menu.</p>
	<p>Manual Load: The procedure activates the pellet manual loading and will stop automatically after 300 seconds. The boiler must be in OFF position for the function can be activated. This function is used in start-up of the boiler or when the fuel inside the fuel tank finishes completely to fill the pellet feeding tube.</p>

DISPLAY	<p>Contrast: It allows you to adjust the screen contrast.</p>
	<p>Min. Brightness: Allows the user to adjust the minimum brightness of the screen when no input is entered on the control panel (during standby)</p>
	<p>Keyboard Address: Inactive function.</p>
	<p>Screen Saver: This menu allows the user to enable and disable the screen saver</p>
	<p>Firmware Codes: Connection settings of the keyboard, software code and version is displayed.</p>
	<p>Acoustic Alarm: Menu to enable/disable the acoustic alarm which will alert the user in case of an error code.</p>
SYSTEM MENU	<p>Restricted access. Only authorized service personnel is allowed to access this menu with a pass code. Operation parameters of the boiler can be accessed and modified here. Failures and errors caused by modified parameters by unauthorized people are not covered by manufacturer's warranty.</p>

5.3 FAILURE ALARMS AND DESCRIPTIONS

With any error the system goes into Block	
Descriptions	Code
Safety Thermostat Intervention - Boiler water temp. too high	Er01
Extinguishing state - Exhaust gas temperature drops below limit value	Er03
Extinguishing state - Boiler water temp. exceeds max. allowed value	Er04
Extinguishing state - Exhaust gas temp. exceeds max. allowed value	Er05
Pellet Thermostat Intervention (backdraft risk in the pellet feeding line)	Er06
Combustion Fan Encoder Error: Lack of Encoder signal	Er07
Combustion Fan Encoder Error: Failed speed regulation	Er08
Low Water Pressure	Er09
High Water Pressure	Er10
Incorrect Date/Time values due to lengthy lack of voltage power supply	Er11
Ignition Failure	Er12
Lack of voltage power supply	Er15
Communication Error between control panel and mainboard	Er16

Press and hold B2 (on/off) button for 3 seconds to reset alarms. For detailed information about failure codes and solution suggestions, you can examine section 5.4 of this manual. In this section failures are classified into two groups. Solution suggestions marked with **U** are guidelines for end-users in order to try and overcome the problem. Suggestions marked with **S** are for authorized service interventions. In case an end user fails to overcome the problem, they should contact service personnel for assistance.

Note: Service interventions for failures which do not originate from the boiler built or design (improper use - improper installation, electric connection, flue gas exhaust connection - lack of proper boiler cleaning etc.) are not covered by manufacturer's warranty and charged from the user by the service personnel.

Note: Some of the alarm codes displayed on the screen are for informative purposes. These alarms should be reset by the users after necessary actions are taken. Service intervention requests for these alarm resets are not covered by warranty and charged from the user.

5.4 FAILURE SOLUTION SUGGESTIONS

Some of the problem solving suggestions given below are applicable by end users and error codes can be reset from the control panel. In case the user can not solve the problem and reset the alarm, they should contact authorized service for technical support.

U: Suggestions for end users to apply on the boiler

S: Failures which require service intervention

Er01 Safety Thermostat Intervention - Boiler water temp. too high:

If the boiler water temperature rises above 95 °C this error code is displayed and the boiler goes into Block. The error can be reset after the water temperature drops below 65°C by pressing the ON/OFF (B2) button. If this error repeats itself, the below table should be examined to find the reason for the problem.

	POSSIBLE CAUSES	SOLUTION SUGGESTIONS
U	Air trapped inside the boiler or in the installation	Vent the air out by using the manual air vent on the boiler and the air vents on the radiators until you see water coming out.
U	Closed valves on the heating circuit or on the boiler	Check all the valves on the circuit and on the radiators.
U	Particle filter on the system may be clogged	Remove the particle filter. Check for dirt clogging the filter. Clean and reinstall.
U / S	Air trapped inside the pump, pump motor jam, no energy on the pump or pump malfunction	In case of trapped air or pump motor jam, apply pump air vent and manual restart functions which are described in the pump information section of this manual. If none of the led indicators are illuminated on the pump control box, check the pump energy socket is in place. If none of the above works, contact authorized service for assistance.
U	Overheating of the boiler because of uncontrolled manual fuel loading	If externally additional fuel is added to the burning chamber of the boiler manually, the boiler water temperature may rise uncontrolledly. After the boiler cools down below 65°C you can reset the boiler and resume operation.
S	Automatic air vent failure	If the automatic air vent can not remove the air in the boiler, the water temperature can exceed limit values. The faulty auto air vent needs to be replaced by service.
S	Limit thermostat failure	This error code is also shown in case the limit thermostat malfunctions. The part needs to be replaced by service.
S	Electronic mainboard failure	Mainboard needs to be replaced by service.

Er03 Extinguishing state - Exhaust gas temperature drops below limit value:

If the boiler's flue gas temperature drops below the set limit value during operation, this error code is displayed and the boiler goes into block. After the error alarm is reset if this error repeats itself, below table should be examined to find the reason.

	POSSIBLE CAUSES	SOLUTION SUGGESTIONS
U	Blocked flue gas pipes	Check the flue gas pipes and chimney for blockage.
U	Blocked fresh air intake in the boiler	Open the side service covers and check the fresh air intake for blockage.
U	Blocked air holes on the burning pot	Check the air holes on the burning pot. Clear the blockage using a metal rod that can fit the holes and insert it into the holes.
U	Insufficient fuel delivered to the burning pot	Check the fuel tank to see if its full. Add pellets if necessary. When the pellet motor is working observe the burning chamber and see if the pellets are dropping into the pot.
S	Incorrectly set flue gas temp. parameter	Get assistance from the service to check if the flue gas temp. parameter is set correctly.
S	Chimney temp. sensor failure	Sensor needs to be replaced by service.
S	Electronic mainboard failure	Mainboard needs to be replaced by service.

Er04 Extinguishing state - Boiler water temp. exceeds max. allowed value:

If the boiler's water temperature exceeds the set limit value this error code is displayed and the boiler goes into block. Solution suggestions from Er01 error code can be followed for this error too. If the NTC temperature sensor is faulty, it should be replaced by service.

Er05 Extinguishing state - Exhaust gas temp. exceeds max. allowed value:

If the boiler's flue gas temperature exceeds the set limit value during operation, this error code is displayed and the boiler goes into block. The error can be reset after the chimney cools down. If the same error is repeated after operation the below table should be examined to find the reason of the error.

	POSSIBLE CAUSES	SOLUTION SUGGESTIONS
U	Chimney connection pipes are too long or the chimney draught is not sufficient.	Check if the chimney connection is made correctly according to the instructions in this manual. Check if the chimney draught is adequate. Failures and damages caused by improper chimney connection are out of warranty.
S	Using fuel with a very high calorific value	If pellets which do not meet the required pellet properties will be used, boiler's operation parameters should be modified by service personnel to maintain optimum operation. This procedure is charged by service from the user.
U	Excessive exhaust gas temperature because of uncontrolled manual fuel loading	Wait for the boiler to cool down and remove the excessive manually loaded fuel out of the burning pot. Reset the error alarm and resume operation with automatic loading.
S	Chimney temperature sensor failure	Sensor needs to be replaced by service.

Er06 Pellet Thermostat Intervention (back-draft risk in the pellet feeding line):

The safety thermostat placed on the pellet feeding pipe stops the operation of the boiler if the temperature reading of the thermostat exceeds the limit value in case of a fire back-draft risk. This problem may happen if the fuel tank lid is kept open, if the gasket of the fuel tank lid is deformed or if the gasket came off. In order to overcome this error, activate the manual loading procedure and discharge all the pellet inside the fuel feeding pipe. Remove the discharged pellets from the burning pot. Check the remaining fuel inside the fuel tank and make sure that it did not start to burn. Remove all the pellets inside the fuel tank if necessary. Check the gaskets of the fuel tank lid and make sure to close and lock the lid after filling fuel. You can reset the alarm after the fuel feeding pipe cooled down and resume automatic operation if you don't observe any damaged parts because of fire back-draft.

NOTE: In case you see parts of the boiler damaged by fire back-draft, do not operate the boiler, cut off electricity supply and call authorized service for assistance.

Er07 Combustion Fan Encoder - Error Lack of Encoder signal:

If the fan encoder signal which regulates the fan rotation speed can not be transmitted to the mainboard this error is displayed and boiler goes into block. If you can not reset the error alarm, examine the below table for solution suggestions.

	POSSIBLE CAUSES	SOLUTIONS SUGGESTIONS
S	Fan encoder socket came out of place	Check the encoder signal sockets on the fan and on the mainboard.
S	Fan failure	Fan needs to be replaced by service.
S	Electronic mainboard failure	Mainboard needs to be replaced by service.

Er08 Combustion Fan Encoder Error - Failed speed regulation:

If the fan fails to perform required rotations for designated power stages, this error is displayed and the boiler goes into Block. After resetting the error alarm, if this error signal repeats the below table should be examined.

	POSSIBLE CAUSES	SOLUTION SUGGESTIONS
S	Fan blades turning uneasily or jammed	Dismount the fan and clean the fan blades. Check if the fan blades are turning freely.
S	Low voltage from electric supply	Check if 220V electricity is supplied constantly.
S	Fan failure	Fan needs to be replaced by service.
S	Electronic mainboard failure	Mainboard needs to be replaced by service.

Er09 Low Water Pressure and Er10 High Water Pressure Errors:

The boiler has protection against operation with low and high water pressures. Below solution suggestions should be applied to be able to reset the errors and resume operation.

	POSSIBLE CAUSES	SOLUTION SUGGESTIONS
U	Water pressure dropped below 0.5bar Er09	Use the filling valve to fill water to the boiler and increase pressure to 1.5bar (1500mbar).
U	Water pressure exceeded 2.8bar Er10	Use the drain valve to discharge water out of the boiler and reduce the pressure to 1.5bar (1500mbar) Actual water pressure can be observed by pressing B5 button on the control panel.
U/S	Filling valve failures	Check if the filling valve is closed tightly and is working properly. If the valve is leaking it should be replaced by service.
S	Water pressure sensor failure	Water pressure sensor needs to be replaced by service.
S	Expansion vessel failure	Expansion vessel should be filled with Nitrogen upto 1bar. If the membrane is damaged, it should be replaced by service.

Er%Incorrect Date/Time values due to lengthy lack of voltage power supply:

If the internal battery of the mainboard is drained the boiler can not keep correct time and date information and this error code is displayed. When the electric connection is turned on, correct time and date information should be adjusted. In order to avoid this error again, the internal battery of the mainboard should be replaced.

Er%Ignition Failure:

After a failed ignition attempt, if no combustion is achieved and the flue gas temperature does not increase above a certain degree in the set ignition time interval, this error is displayed and the boiler goes into block. After the error is reset and if the boiler still can not achieve combustion after a couple of attempts, examine the below table to overcome the problem.

	POSSIBLE CAUSES	SOLUTION SUGGESTIONS
U	Finished fuel inside the fuel tank	Fill the fuel tank with pellets. Activate manual loading function to fill the fuel feeding pipe to ensure operation. (Check section 6.1 for manual loading instructions)
U	Blocked air holes in the burning pot or blockage in front of the ignitor	Clean the burning pot and open blocked air holes. Remove any pellets which may have blocked the tip of the ignitor.
S	Ignition resistance failure	Ignitor needs to be replaced by service.
S	Fuel loading motor (auger) failure or Electronic mainboard failure	Check the auger for jamming. Check the energy supply of the fuel feeding motor. If there is energy supply from the mainboard but no rotation at the auger, it may be motor failure. If there is no energy supply to the motor, then mainboard may be faulty.

Er15 Lack of voltage power supply:

The boiler resumes automatic operation after short durations of power shortage but if the electricity supply is interrupted more than set duration, then the boiler will display Er15 error and will go into Block to prevent unstable combustion. This error can be reset from the control panel to restart automatic operation.

Er16 Communication Error between control panel and mainboard:

If the data transfer between the control panel and the mainboard is interrupted this error is displayed. Even if the control panel seems to be working, the inputs made from the control panel buttons may not be transmitted to the mainboard and cause this error. Check the cable sockets on the mainboard and the control panel. Check the communication cable for damages. Contact the service if there is no damage to the cable and if the sockets are in place.

5.5 SAFETY FEATURES OF THE BOILER

MakPell automatic pellet boilers are equipped with sophisticated safety features. These safety systems ensure secure operation of the boiler in all conditions. It is strictly forbidden to bypass, override or deactivate any of the safety features. Below are some of the main safety features:

- Mechanical protection to over pressure with 3bar safety valve.
- Integrated closed expansion vessel to compensate expansion and pressure increases during operation.
- Automatic and manual air vents to ensure all air can be vented from the system.
- Two stage security system against boiler water overheating; electronic board controlled NTC temperature probe and limit thermostat.
- Safety thermostat on the pellet feeding line for protection of fire back-draft.
- Protection against operation with low or high water pressure with the help of water pressure sensor
- Fan encoder system constantly checking fan operation.
- Chimney flue gas temperature sensor provides protection against high and low chimney temperatures.
- Anti frost protection system to prevent freezing in low ambient temperatures. (In order for this function to work, the boiler electric supply should be ON and there should be enough fuel in the fuel tank)
- Anti-jamming function to prevent the circulation pump to get stuck (The electricity connection of the boiler should be ON for this function to work)
- Protection system against uncontrolled combustion in electricity shortages.
- Periodic cleaning reminder function to prevent problems which may be caused because of lack of boiler cleaning.

6. COMMISSIONING AND OPERATION INSTRUCTIONS



Commissioning of the boiler should only be done by AUTHORIZED SERVICE PERSONNEL.

6.1 COMMISSIONING

- The heating circuit should be filled with suitable quality water up to 1.5bar and all the air should be vented before first operation. System pressure should be viewed as 1500mbar on the LCD screen. To view the system pressure: Press B5 (#) button once to access boiler information menu.
- Fill pellets to the fuel tank and close the fuel tank lid. Before first operation (also each time after the fuel finishes completely in the tank) manual loading procedure should be applied to fill the fuel feeding pipe with pellets. We advise you to refill the fuel tank before all the pellet runs out so that you won't have to repeat manual loading procedure each time. Manual Loading procedure is described below.

Manuel Loading:


Manuel loading can only be activated when the boiler is in OFF position. Press and hold B3 (SET) button for 3 seconds to access User Menu 2. In this menu, use the arrow keys to scroll onto SERVICE tab and press SET (B3) button to enter the service menu. In the service sub-menu, use the arrow keys to highlight MANUEL LOADING tab and select by pressing SET (B3) button. ON and OFF tabs will be viewed on the screen. Choose ON and press SET (B3) button to start manual loading. In this procedure, fuel feeding motor will work continuously for 300 seconds to fill the fuel feeding pipe. Observe the burning chamber while manual loading is underway. When pellets start to pour into the burning pot continuously, stop manual loading by selecting OFF tab and by pressing SET (B3) button. You can quit this menu by pressing ESC (B1) button.

CAUTION!: All the pellets which poured into the burning pot during manual loading procedure must be removed. The boiler supplies a fixed amount of fuel during automatic operation to obtain optimal combustion. The additional fuel left inside the burning pot may decrease combustion quality and possibly cause a failed ignition attempt.

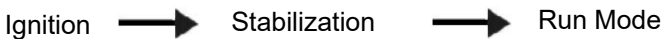
CAUTION! Manual loading procedure should only be activated during first time operation or when the fuel inside the fuel tank finishes completely. Otherwise fuel loaded uncontrolledly may cause failures and damages which will not be covered by manufacturer's warranty.

6.2 OPERATION INSTRUCTIONS FOR USERS

MakPell series boilers have automatic operation with automatic fuel feeding and automatic ignition features. After all checks before first time operation are complete, user can put the boiler into operation with only a push of a button.

To turn on the boiler, press and hold  B2 button for 3 seconds. OFF icon will disappear from the LCD screen and the boiler will start to operate. The user only needs to adjust the desired boiler water temperature from the control panel. Afterwards the boiler will operate according to the set thermostat value automatically.

The boiler operates in 3 working stages.



Ignition: This is the stage where pellets dropped in the burning pot are ignited by the ignition resistance. Set amount of fuel is loaded into the burning pot, ignition resistance heats up and fan speed is regulated to achieve ignition. Once flames are formed and the chimney temperature reaches a certain value, ignition state comes to an end and ignition resistance turns off.

Stabilization: In this stage the boiler operates to achieve a uniform and efficient combustion. Fan speed and fuel supply is regulated to develop the combustion to an optimum level.

Run Mode: This is the stage where the boiler operates automatically according to the set boiler temperature automatically. In Run Mode the boiler operates according to the chosen combustion power (A=automatic, 1 minimum capacity, 6 maximum capacity)

6.2.1 Setting Boiler Water Temperature

To access boiler thermostat adjustment menu, press the down arrow button (B6) once. In this menu use the arrow buttons to adjust the boiler water temperature to desired value and press SET (B3) button to save your adjustment. You can quit this menu by pressing ESC (B1) button.

6.2.2 Setting Boiler Combustion Power

When the boiler is at operation screen press SET (B3) button to access user menu 1. Select the Power tab with the arrow keys and press SET (B3) button to enter the combustion power adjustment. In this menu you can select between automatic combustion power or one of the six fixed combustion power stages. In auto mode the boiler adjusts the combustion power automatically by modulation. A = automatic, 1 = minimum capacity, 6 = maximum capacity.

Factory default Power setting is A (automatic)

6.2.3 How to Reset Error Codes on Display

Press and hold B2 ON/OFF button for 3 seconds to reset failure alarms on the control panel. If it is an error code which can be reset, then the error message will disappear and the boiler will resume automatic operation.

CAUTION!: Some of the error codes displayed on screen are for informative purposes. Please check section 5.4 (Failures and Solution Suggestions) and apply suggested actions to be able to reset the error alarm. For errors which require a service intervention, please contact authorized service for technical support. If you interfere an error which can be reset by users and if you get the same error alarm again after operation, please check the actions you need to take for that error once again. If the problem can not be solved, contact authorized service.

6.2.4 How to Reset Periodic (Monthly) Cleaning Reminder

Your boiler has a periodic cleaning reminder function. After each time boiler operates for 300 hours, the cleaning reminder is displayed on the LCD screen. The display shows the message 'CLEANING' and a periodic acoustic signal is emitted. When you receive this reminder, perform the monthly cleaning instructions mentioned on section 7.3. After the cleaning is done, you can reset the cleaning reminder. Press B3 (SET) button to access user menu 1. Use the arrow keys to choose SERVICE sub-menu and press B3 (SET) to enter. In the service menu use the arrows keys to choose CLEANING RESET and select it with B3 (SET) button. Select the ON tab and press B3 (SET) button again to reset the cleaning reminder counter. Cleaning reminder message will disappear from the LCD until the counter reaches the next cleaning reminder. You can exit this menu by pressing B1 (ESC) and return to the main screen.

6.3 PRECAUTIONS ABOUT PELLET

Your boiler is designed to operate with pellets which are 6mm in diameter, 10-30mm in length, made from debarked wood, with maximum %10 moisture, with minimum 4000 kcal/h lower heat value and which are produced without any additives or chemicals.

CAUTION! Failures and damages caused by improper pellet use are not covered by manufacturer's warranty. Make sure there are no foreign substances inside the pellets you pour into the fuel tank. Hard foreign particles (nails, metal parts etc.) will damage the fuel feeding motor. These damages are out of warranty.

Diameter (mm)	6
Length(mm)	10-30
Moisture (%)	< 10
Ash Ratio (%)	< 1
Foreign Ash Content (%)	< 1
Lower Heating Value (MJ/kg)	> 17

6.4 OPERATION PRECAUTIONS

MakPell series pellet boilers are equipped with automatic fuel feeding and ignition systems. The user only adjusts the desired water temperature value from the control panel and presses and holds the B2 (ON/OFF) button for 3 seconds to start the boiler. As long as you keep enough fuel inside the fuel tank, the boiler will keep operating automatically according to the adjusted boiler temperature.

This boiler is designed to be used only with pellets specified in this manual. Do not attempt to use any other fuel types.

This boiler has sophisticated safety features to ensure secure operation at all times. Do not by-pass or disable any of the safety features.

When you are using the boiler, never open the front cleaning door when there is combustion in the boiler. Make sure you turn off the boiler and let it cool down before attempting boiler cleaning. Make sure to turn off the electricity supply of the boiler before you start cleaning.

Even though pellet is a clean biomass fuel, it is still a solid fuel and ash is generated during combustion. In order to maintain an efficient combustion, boiler cleaning is very important. We recommend you to make periodic cleaning of the boiler according to the cleaning instructions given in this manual in section 7.

7. BOILER CLEANING INSTRUCTIONS

In order to maintain efficient combustion and trouble free operation in your boiler, boiler cleaning must be done periodically. Necessary cleaning operations are given below for each time interval. Keep in mind that in case of lower quality pellet use, the boiler will require more frequent cleaning.

CAUTION!: All cleaning operations must only be done when there is no combustion inside the boiler and when the boiler body has cooled down. Make sure to turn off the electricity supply of the boiler before starting cleaning.

WARNING: Do not start cleaning procedures without taking required work safety precautions. Use of dusk masks are recommended during cleaning. It's also advised to use work gloves.

Failures and damages on boilers which are not cleaned periodically are not covered by manufacturer's warranty.

7.1 DAILY CLEANING

- Open the top cleaning cover. Move the cleaning handles up and down rapidly for 10 times each. By this way movable spirals inside the boiler smoke pipes will clean the inner surface of the pipes and will let the ash particles accumulated in the pipes to be discharged to the ash drawer.



- Clean the burning pot if there are residual burnt pellets.
- Check the air holes on the burning pot. Insert a metal rod to open any air holes which may be clogged with ash.



- Empty the ash drawer. The amount of ash depends on the quality of the pellets so empty the drawer more frequently if required. Check the boiler bottom plate and clean if there are ashes on the plate.
- Clean the observation window if it gets clouded by soot. Do not use cleaning chemicals to clean the glass.



7.2 WEEKLY CLEANING

- Before weekly cleaning, apply the daily cleaning steps first.

- Remove the ash drawer. Open the cleaning cover on the bottom of the burning pot using the screw. Remove the ash accumulated on the bottom of the burning pot. Clean the ash which poured down to the boiler bottom plate. Clean the interior of the burning pot.



Note: If you observe that only small amount of ash accumulates on this part, you can perform this cleaning procedure in monthly intervals.



7.3 WHEN CLEANING REMINDER IS SHOWN ON SCREEN (MONTHLY CLEANING)

- Apply the daily and weekly cleaning steps before starting monthly cleaning.

- Clean the soot and ash accumulated on the inner surfaces of the boiler using a wire brush.

- Open the front smoke box cover and clean the interior of the front smoke box. We advise you to use a vacuum cleaner suitable for ash.

- Use a vacuum cleaner to clean the interior of the burning pot, boiler bottom plate and interior surfaces of the boiler.



8. MAINTENANCE AND SERVICE

Besides the cleaning and maintenance which must be done by the end user periodically, it is advised that the boiler undergoes detailed cleaning and maintenance by authorized service personnel before each heating season. This will enhance boiler's efficiency and will improve the durability of working mechanisms and components of the boiler.



We advise you that you get your annual maintenance done by authorized service. The annual maintenance labor by the authorized service is not part of the manufacturer's warranty and service cost is charged from the end user by service personnel.

8.1 GUARANTEE CONDITIONS

The manufacturer's guarantee starts at the invoice date of the product and the warranty is valid for the amount of time written on the guarantee certificate of the boiler. For all repair and maintenance work on the boiler, only contact authorized service. Interventions to the boiler by unauthorized people will invalidate the warranty. This warranty does not cover failures and damages caused by improper use or use of the boiler other than the design purpose.

The below listed conditions are not covered by the manufacturer's warranty.

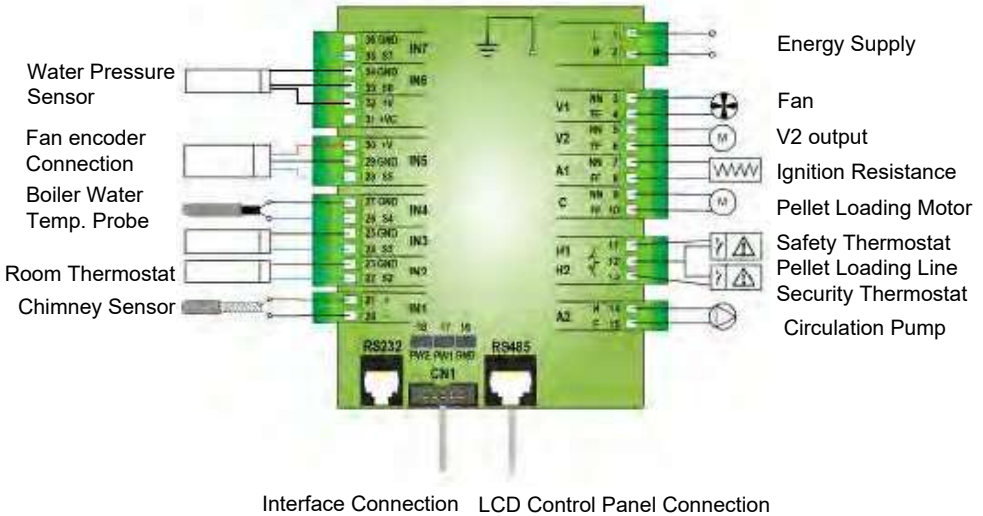
- Failures and damages caused by improper installation, chimney connection or electric connection.
- Damages to the boiler's mainboard and electrical components because of unstable electricity supply voltage. (operation voltage margin $230 \pm \%10$ V)
- Failures and damages to the boiler as a result of installation in humid locations, or in locations exposed to external factors.
- Failures caused by installation of unauthentic and not approved spare parts or components to the boiler.
- Failures and damages to the boiler caused by extreme temperature conditions at the installation location. ($<5^{\circ}\text{C}$, $>50^{\circ}\text{C}$)
- Damages which occurred during improper storage of the boiler.
- Damages which occurred during transport of the boiler.
- Interventions to the boiler by unauthorized people invalidate the warranty. Further damage and failures caused by incorrect works on the boiler.
- The boiler is designed for residential domestic heating. Using the boiler outside its design purpose will invalidate the warranty.
- Boilers which are kept for showroom items for prolonged periods of time are out of manufacturer's warranty.

- Boilers without service startup documents and without validated guarantee certificates are not covered by manufacturer's warranty.
- Boilers with removed or changed serial numbers are out of warranty.
- There is a frost risk of the system water when the ambient temperature drops below 5°C. The boiler is equipped with an anti-frost protection system during stand-by mode. In order for this function to operate, the electric connection should be on and there should be sufficient fuel in the fuel tank. If these requirements are not met, and if the system water is not emptied when the boiler is not being used, the frost damage to the boiler is not covered by manufacturer's warranty.
- The heating circuit installation must be cleaned and flushed before the boiler is installed. Failures and damages caused by dirt, debris and particles inside the closed circuit are not covered by the warranty.
- Use of improper quality water in the heating circuit and damages to the boiler by limestone are not covered by warranty.
- Corrosion and condensation damages to the boiler which is caused because of not limiting the return water temperature to 55°C are not covered by warranty.
- Damages and failures caused by condensation in the chimney are not covered by warranty.

9. SUGGESTIONS FOR ENERGY EFFICIENCY

- When you open the windows to let fresh air in, make sure to close the radiator valves so that you don't waste heat energy.
- Do not overheat your living areas. 20°C room temperature is appropriate for comfort. Setting your room temperature 1°C lower will decrease your fuel consumption by approximately %6.
- It is advised to close the curtains and shutters at night to decrease heat loss. They will improve the insulation decrease heat requirement.
- Make sure the radiators are not blocked with furniture. This will reduce the heat transfer from the radiators.
- Make full use of the adjustable parameters of your boiler's control panel to optimize operation and efficiency.

10. ELECTRIC WIRING DIAGRAM



11. TRANSPORT AND HANDLING

A) PLACING THE BOILER ON VEHICLE

While placing the boiler on a vehicle, loading must be done with a forklift. Gates of the vehicle body must be opened previously.

The boiler should be lifted from the pallet on the bottom of the boiler. Avoid sudden movements when the boiler is on a forklift.

Move the boiler next to vehicle to be loaded with the least amount of lift from the ground as possible. After the boiler placed next to vehicle, lift the boiler from 30-40 cm higher than the vehicle body and take it down on vehicle chassis slowly.

ATTENTION : When the boiler is lifted up with a forklift, there shouldn't be any living being under the boiler. Boiler must be carried with its accessories installed on it.

B) CARRYING BOILER ON VEHICLE

When the boiler is being carried on a vehicle, it must be tied to the vehicle strictly, supporting stuff which would prevent slipping, should be put around. Boiler should not be carried along with fragile, smashable and living beings. Top of the vehicle must be covered with canvas after placing boiler. Driver must keep away from sudden moves that would cause danger.

C) UNLOADING THE BOILER TO THE PLACE OF USE

Boiler should not be placed in work or residence places, it must be placed in a separate boiler room.

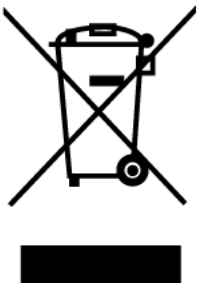
When unloading the boiler to boiler room, forklift must be used again, points that stated in Clause A, must be considered.

If the place of use is not appropriate for forklift entrance, boiler must be unload in a proper place and carried with rollers to the place intended.

Before unloading the boiler from the pallet at the installation site, base 4 supports which are supplied with the boiler must be screwed to the base plate of the boiler. Adjust the base supports to level the boiler on the installation place.

11.1 DISPOSAL

Disposal of the packaging materials are under the responsibility of the installer.



The European Directive 2012/19 /UE on WEEE (Waste of Electrical and Electronic Equipment), requires that household electrical appliances must not be disposed of in the normal unsorted municipal waste stream. Appliances must be collected separately in order to optimize the recovery and recycling of the materials they contain, and reduce the impact on human health and the environment. Consumers should contact their local authority or retailer for information concerning the correct disposal of their old appliance.

12. ERP PRODUCT FISCHÉ

Information according to EU regulation 2015/1187 and 2015/1189

Brand	MAKTEK	
Model Name	MakPelI	
	MKP 25	MKP 35
Manufacturer Information	Alpel Mak. Tek. Malz. San. Tic .LTD. 10013 Sokak No:14 AOSB Çiğli/İzmir	
Boiler Class (According to EN 303-5)	5	
Heat-up Mode	Automatic	
Condensing Boiler	No	
Solid fuel boiler with cogeneration system	No	
Combination heater	No	
Energy Efficiency Class	A+	
Energy Efficiency Index (EEI)	124,36	124
Seasonal space heating energy efficiency in active mode η_{son}	88	88
Seasonal space heating energy efficiency η_s	85	85
Useful heat at nominal heat power P_n [kW]	25	35
Useful heat at 30 % of the nominal heat power P_p [kW]	7,5	10,5
Pellet Fuel Properties	Pellets made of 100% natural wood according to EN ISO 17225-2, Class A1	
Lower Calorific Value [kWh/kg]	$\geq 4,6$	
Bulk Density [kg/m ³]	≥ 600	
Water Content [Gew. %]	≤ 10	
Ash [Gew. %]	$\leq 0,7$	
Length [mm]	≤ 40	
Diameter [mm]	6 ± 1	

Model Name	MakPelI	
	MKP 25	MKP 35
Annual space heating emissions		
PM [mg/m ³]	< 40	
OGC [mg/m ³]	< 20	
CO [mg/m ³]	< 500	
NOx [mg/m ³]	< 200	
Auxiliary power consumption		
Auxiliary power consumption at nominal heat power $e_{l_{max}}$ [W]	155	
Auxiliary power consumption at 30 % of nominal heat power $e_{l_{min}}$ [W]	105	
Standby auxiliary power consumption P_{SB} [W]	5	

Manufacturer:

Alpel Mak. Tek. Malz. San. Tic. Ltd. Őti
10013 Sk. No: 14 A.O.S.B. iđli - İZMİR
Tel. : 0 232 328 03 65 – 66
Fax : 0 232 328 04 86

Exporter:

Maktek Kazan Radyator Klima San. A.Ő.
10013 Sk. No. 14 A.O.S.B. iđli - İZMİR
Tel: 0 232 328 21 06 - 07 - 08 Faks: 0 232 328 04 86
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