



ÜNMAK
DUOPELL AUTOMATIC FEEDING
USER MANUAL



INTRODUCTION

Thank you for choosing ÜNMAK brand.

In this guide you will find operating and maintenance information for the ÜNMAK pellet fuel boilers.

In order to use the product efficiently, economically, smoothly and for a long time, please check this manual carefully. In this guide, introduction and technical data on installation, operation, maintenance and accident are also included.

You can contact the product brochure or your authorized dealer or service center for more detailed information about your warranty.

Keep this guide for reference when needed.

Our authorized resellers and services will provide you with the necessary information about the use and maintenance of the product once you have made and operated the connection to the boiler. Do not hesitate to contact with us. Our specialists will be happy to answer your questions.

WARRANTY AND SERVICE

Your device is guaranteed a 2 (two) year; against your material and manufacturing faults, provided that it complies with the principles, warnings and standards stated in the user manual.

WARRANTY DOCUMENTATION must be sent to the factory after it has been filled authorized service that you purchased your device and signed to you. All faults that may occur in our boilers, Unmak After-Sales Service Department is at your service.

For installation, commissioning of the boiler and in case of any malfunction, you can find the authorized services of UNMAK from the booklet of UNMAK authorized service which is supplied with the service. When you encounter any problem, you can call +90 444 3532 Customer Hotline from anywhere and you can reach to ÜNMAK After-Sales Service Department by e-mail at service@unmak.com.

WARNINGS

For the safety of boilers, do not install them in closed spaces that people live in. Over time, the boiler pipes may be filled with dust and air, or excessive wind may cause poisonous waste gases to leak into the ground. For this reason, boilers should be installed outside the living spaces in places that are constantly ventilated. Our company is not responsible for the problems caused by the boilers in living spaces.

Do not operate solid fuel boilers with closed expansion tank. An increase in pressure resulting from interruption of heat transfer in closed expansion tank installations due to power cuts or other causes can cause the weakest equipment in the boiler or installation to explode. Our company is not responsible for the problems caused by boilers operated by closed expansion.

Connect open expansion tanks in accordance with standards. Calculate the open expansion volume by calculating the volume below. Observe the values given in this document for pipe diameters. Smaller capacities can cause the boiler to become dehydrated, resulting in overheating. It is recommended that no plastic pipes be used in the installation. Be sure to connect both safety inlet and outlet pipes. This connection should be made immediately after the boiler outlet and there should be no valve on the line.

Calculation of open expansion tank volume:

$$Vg=0,0025*Q$$

Vg = water volume of tank (lt)

Q = power of the boiler (kcal/h)

Example:

Volume calculation for 25.000 kcal/h boiler

$$Vg=0,0025* 25.000$$

$$Vg=62,5 \text{ lt}$$

Never operate the boilers without water. Never add cold water supply to a hot boiler. It can be done when the cold water supply falls below 40°C. Do not feed water to cool any overheated boiler (over 90°C). May cause cracking of the body. The most correct response to an overheated accident is to get the burning fuel out of the boiler. It is dangerous to continue to fuel burning in the boiler.

Do not use the boilers except for purpose. Our boilers are manufactured to provide hot water (max 90°C) to the atmospheric open radiator installation. In case of use outside of the intended purpose, dangerous situations may occur for the device and the user. Our company is not responsible for any problems that may arise.

Duo-pell boilers are designed to burn pellets and wood. Other alternative fuels (lignite, coal, petroleum coke, etc.) are not covered by the warranty.

Do not leave the doors open when the boiler is running. A power cut (electricity), failure of the circulation pump, or a similar burning of the cow may cause the boiler to fail. This can cause damage to the weakest equipment in the system.

GENERAL FEATURES

The Duopel boilers are designed to burn pellets and wood. Wood and pellets can be burned at the same time or burned separately. In Duopel boilers, pellet loading and ignition are done automatically. Wood loading is done manually (by hand). The ignition is first manually ignited in the wood mode operation.

DuoPel series boilers, three passages, passages are provided by water system, body and water system are manufactured using steel material.

Our boilers have been designed and manufactured to operate with a full quality control and 3 bar operating pressure. Each boiler that is manufactured and packed, after being passed hydrostatic test at 5 bar pressure.

Check the desired chimney drafts from the technical specifications table.

MAIN PARTS AND FUNCTIONS

Main boiler body: Prismatic welding construction from steel material.

External cassette sheets: Easy to install and disassemble, painted with phosphate-protected electrostatic powder paint.

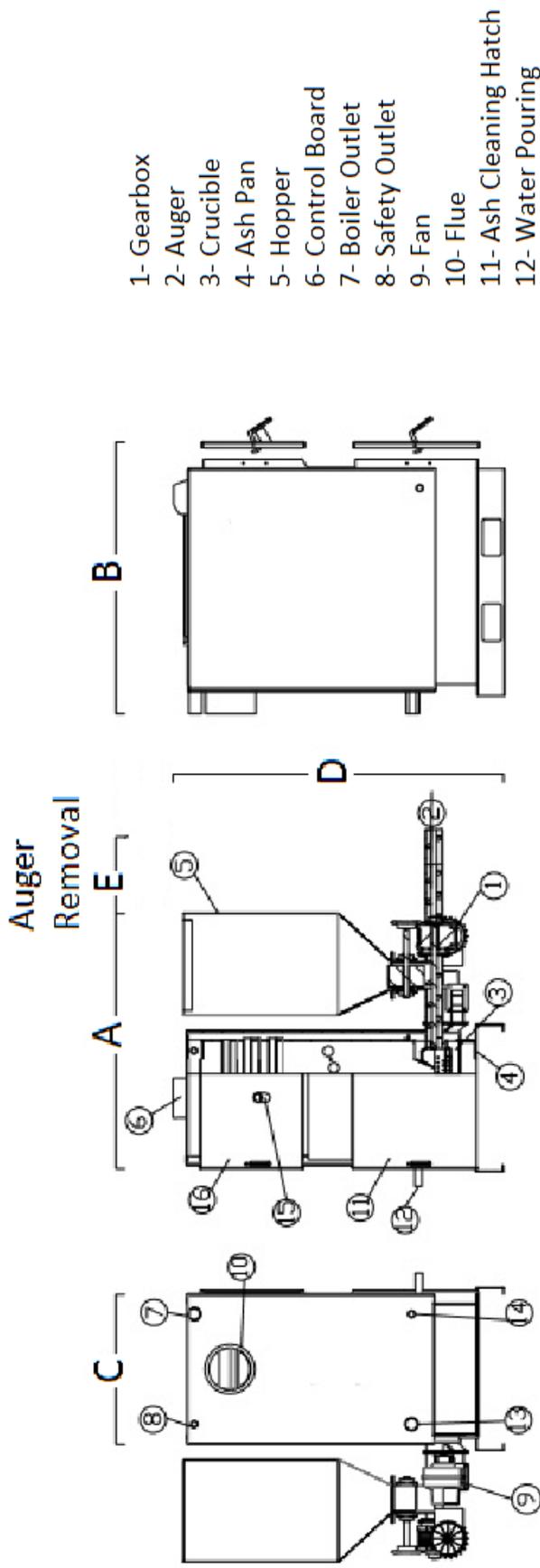
Crucible (Pot): The ideal fuel is specially designed to handle the air mixture. Manufactured from cast iron.

Flame sight glass: Allows the flame to be observed without opening the combustion chamber cover.

Fuel storage (hopper): Used to store fuel.

Fuel supply gearbox: The drive system is provided with a closed, high efficiency motor + reducer assembly.

Fan: Provides air for combustion as primary and secondary.



- 1- Gearbox
- 2- Auger
- 3- Crucible
- 4- Ash Pan
- 5- Hopper
- 6- Control Board
- 7- Boiler Outlet
- 8- Safety Outlet
- 9- Fan
- 10- Flue
- 11- Ash Cleaning Hatch
- 12- Water Pouring
- 13- Boiler Inlet
- 14- Safety Inlet
- 15- Sight Glass
- 16- Log Wood Feeding

Power kW	Dimensions (mm)					Boiler Inlet/Outlet	Safety Inlet/Outlet	Flue Inner Dia. (mm)	Hopper Volume (Lt)
	A	B	C	D	E				
25	1050	625	550	1550	700	1"	1"	130	215
40	1050	725	550	1550	700	1 1/4"	1"	160	245
60	1150	800	650	1550	700	1 1/2"	1"	180	245
80	1150	1000	650	1550	700	1 1/2"	1 1/4"	220	245
100	1250	1075	740	1550	700	2"	1 1/4"	220	245

ASSEMBLY

Accessories that may be damaged in transfer are packaged separately. Installation of these parts will be done by the authorized service and will be taken into operation. The boiler installation must be done by a certified plumber and electrician according to current standards. Defects resulting from improper installation are not covered by the warranty. Boilers should be installed in accordance with the applicable standards. In addition to these standards, attention should be paid to the following issues.

ATTENTION: Changes and additions to the original design cannot be made. The altered boilers will be excluded from the warranty.

ASSEMBLY PLACE AND PLACEMENT

Boilers must be installed outside the living environment of people in terms of safety. Blockage of boiler pipes or boiler over time can cause toxic gas leaks due to dust and ash filling. For this reason, the boilers should be installed in continuous ventilated places. The floor where the boiler is to be installed should be made a reinforced concrete platform and should be mounted at least 10 cm above the boiler floor. This platform will protect the boiler and the equipment from flooding and dust sucking. Sufficient space must be left for the boiler to be able to intervene easily in case of any malfunction during installation. At least 90 cm space should be left by hopper for automatic load boilers.

MONTAGE AND INSTALLATION

In installations to connect solid-fired boilers, absolutely use the expansion tank. Electricity cut-off in expansion-wise installation or heat transfer to the boiler system can cause the boiler temperature and pressure to rise excessively due to any reason and cause the weakest equipment in the system to explode.

It is recommended that the circulation pump be mounted on the return line for overheating protection. It is recommended to install it on the return line in one floor installation applications. All radiators must be installed at ground level to avoid circulation problems which may be caused by the return line pump in single storey installation applications. Connecting the pump with a by-pass valve of the pump can provide natural circulation in multi-level systems.

INSTALLATION- VENTILATION REQUIREMENTS

The environment in which the boiler is mounted must be ventilated continuously. This should be provided with a natural circulation or fan by opening a window or a fixed grill. Since the combustion is achieved by blowing air to the combustion volume with the fan, the boiler works with pressure.

Fresh air is needed to burn the fuel safely. Once you start burning in an enclosed, non-ventilated environment, oxygen will shortly decrease and combustion will deteriorate. In case of insufficient air, boiler and boiler can cause shortage of capacity and frequent cleaning is needed.

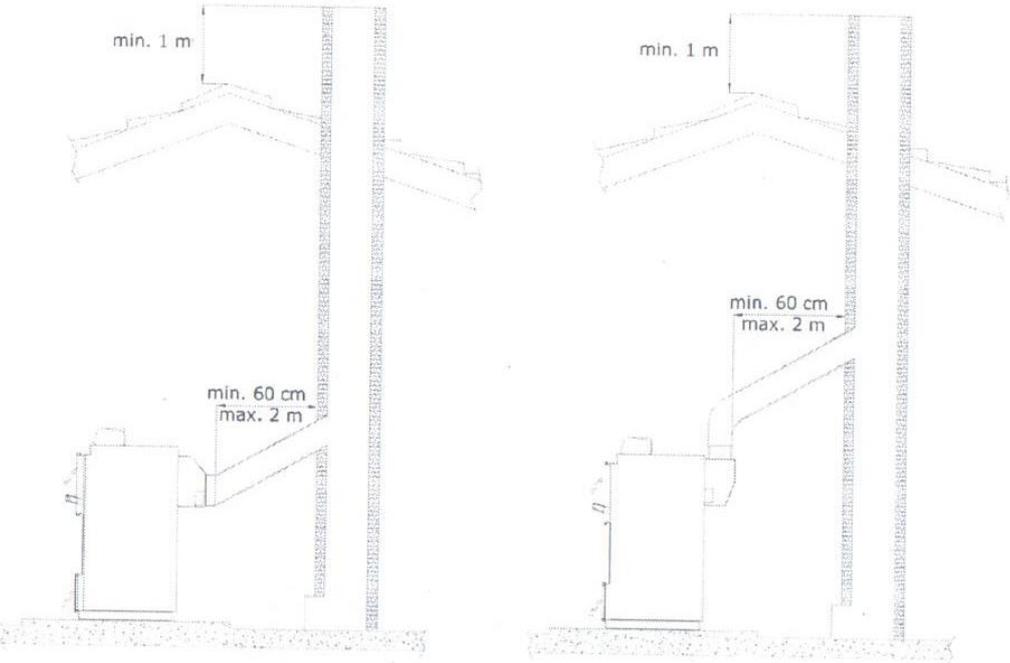
Against gas leaks that can occur in the boiler, the boiler should be installed outside the habitat.

INSTALLATION AND CHRONIC CONDITIONS

The boiler must be connected to a chimney (min 0,20 mbar) suitable for the standards that will provide sufficient draft. In the case of insufficient draft, the boiler efficiency drops, the boiler often needs to be cleaned and it causes smoke to come from the hopper (Smoke from the fuel tank can cause pellets to become wet).

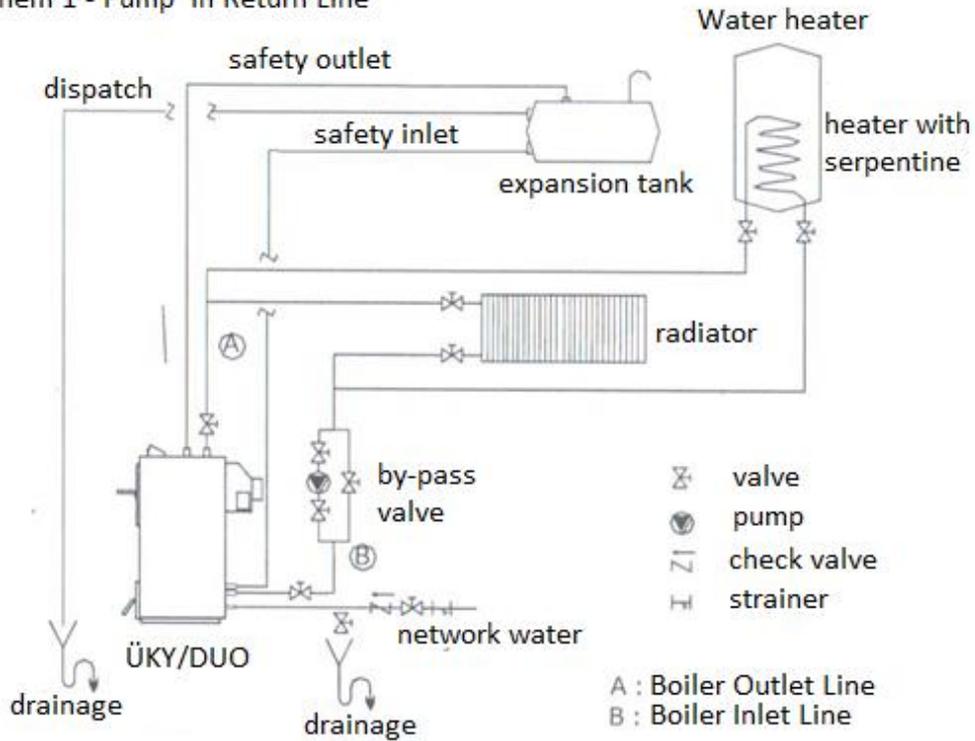
For proper chimney draft, it is recommended that the horizontal smoke duct diameter is smaller than the chimney section, that the length is not shorter than 60 cm and not longer than 2 m, not exceeding ¼ of the chimney height, 10% increasing inclination and possibly without using the elbow. It is advisable to use a round and wide angle bracket if direct use is mandatory.

For applications where the elbow is used, the flue length should be regarded as 1 m straight pipe for each elbow, while the flue length is proportional to the height of the chimney. The chimney connection must be manufactured and installed in order not to gas will leak. The chimney should not be less than 6m and the height of the top of the chimney should be 1m higher than the level of the roof of the roof of the building. A protective hat must be placed at the exit of the chimney against excessive wind effects.

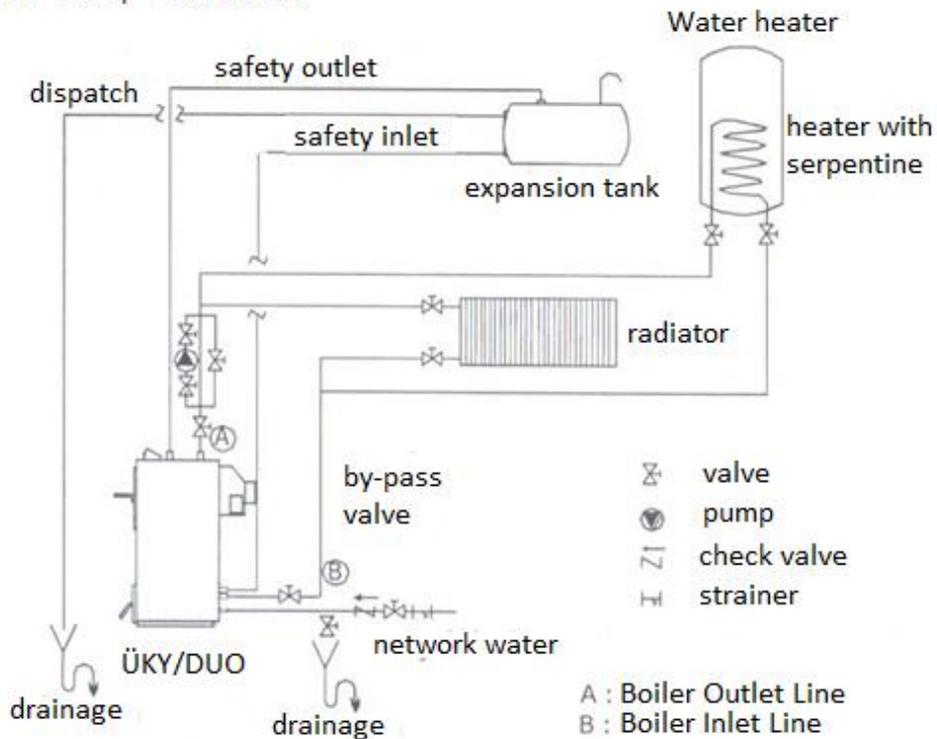


INSTALLATION

Schem 1 - Pump in Return Line



Schem 2 - Pump in Out Line



COMMISSIONING

ATTENTION: Make the initial operation of the boiler with the authorized service.

Check the appliance and installation standards, the instructions for the regulations, and the precautions to be followed and the accuracy of the installation.

Make sure that the grounding line and system protective elements comply with the standards, as the energy is 230V, 50Hz in the boiler control board. The system must be filled with water in accordance with the standards. The hardness of the water to be used should not be as high as 20°F. (1°F = 1 lt calcium carbonate in the water) If the water hardness is more than 20°F, the heating/softening system should be installed in the heating system. Defects that may arise as a result of the use of scaling, hard water and unsuitable water are not covered by the warranty.

Parameter	Birim	Boler feed water	Boiler filling water
Appearance		Clean, clear, solid and stable foam free	
Conductivity @25°C	µs/c	<1500	
Ph value @25°C		>7,0	9,0 t"o 11,15
Total hardness (Ca+Mg)	Mm Ol/l	<0,05	
Fe concentration	Mg/l	<0,2	
Combined alkali value	Mm Ol/l	<1	
Diesel/Oil concentration	Mg/l		

Move all the valves in the system to the open position. Check the expansion tank. Check the direction of rotation by operating the circulation pump. Make sure that the upper limit thermostat and the boiler heat sensor tip are positioned towards the boiler housing in the control cabinet. Check that the boiler fan is running and that the airflow is correct.

Once the heating system is full of water, you can start operating the system after ensuring that the circulation pump and other electrical equipment are operating correctly and functionally.

CONTROL BOARD



ON/OFF: Is used for open and close the control panel. Also used for to switch WOOD mode to PELLET mode.

WOOD MODE: is the button for switching from automatic feeding mode to manual feeding mode. This button is also used for to cancel the pellet feeding.

(See for mode transitions. Pg. 12-13)

ENTER: It is used to input new value to the device, to confirm the entered value and to memorize. Each setting change must be confirmed by pressing the ENTER key. The values you have not pressed ENTER will not be acknowledged.

- : is used to increase the value

+ is used to decrease the value

ESC: When entering new values to the device, it is used to cancel the entered value and return the old value in the memory.

GEARBOX ON/OFF: It is used to open and close the gearbox unit. The light should always be on when in automatic pellet load mode.

FAN ON/OFF: The fan is switched on and off with this key. If the boiler is running, the fan must be ON continuously. (The light should be burned.)

FAN ADJUSTMENT: Fan speed (speed) is adjusted with this key.

MANUAL FUEL SUPPLY: Manual fuel loading is done with this key.

TEMPERATURE SETTING: Boiler temperature set value is done with this key.

FUEL SUPPLY: The fuel feed time is set with this key.

FUEL DELAY: This is the time to wait for fuel.



START UP

Before the boiler is fired, the water has to be filled and taken out of the air. The bunker should be filled with pellets.

SYSTEM WORK

1. PELLET & PELLET+WOOD (LOG WOOD) MODE

- ✓ In this mode the pellet and wood can burn at the same time. Pellet will automatically, Wood will be loaded manually.
- ✓ In this mode the gear unit must always be ON (the light must be on).
- ✓ The fan should always be ON (the light should be on).

Connect the control board to the energy source. The board will work and the screen will open. Press the **ON / OFF** button on the control panel. In this case the values will come to the screen. Then, enter the desired temperature setting with the **TEMPERATURE SETTING** button (adjust the + and - buttons and press the **ENTER** key).

Select how long you want to send pellets to the combustion chamber with the **FUEL FEED** button (press the + and - buttons and press the **ENTER** key). You can access this value from the standby feed setting table (see feeding setting table (see page 13) and the label on the bunker.

Set the length of time after which the pellet will be reloaded with the **FUEL DELAY** button. (Press the + and - buttons and press the **ENTER** key.) You can access this value from the standby supply setting table (see page 13) and the label on the bunker.

Use the **FAN ADJUST** button to set the appropriate stage for burning the pellet in the pot (press the + and - buttons and press the **ENTER** key). The boiler will make **CHECK-UP** and automatically start

ignition. Your pellet will catch up and burn off after a certain amount of time depending on its quality.

In automatic loading mode, the ODD MODU should always be OFF. (The light should be off.)

2. WOOD MODE (CANCELS PELLETS LOADING)

- ✓ Only wood can burn in this mode. The pellet is not transferred to the pot from the bunker.
- ✓ The **WOOD MODE** should always be **ON** (the light should be on).
- ✓ The gear unit must always be **OFF** (the light must be off).
- ✓ The fan should always be **ON** (the light should be on).

Connect the control board to the energy source. The board will work and the screen will open. Press the **ON / OFF** button on the control panel. It will be activated by pressing the button **WOOD MODE** (the light will be on). After this step the automatic loading will be canceled. Fuel (wood) must be loaded manually. **Ignition must be done manually.**

Then enter the desired temperature setting with the **TEMPERATURE SETTING** button (adjust the + and - buttons and press the **ENTER** key).

3. WHILE BOILER AUTOMATIC LOADING, SWITCHING MANUAL LOADING (TO WOOD MODE) TRANSITION

When the boiler is still burning in the pellet mode, simply turn it **ON** by pressing the **WOOD MODE** button for near wood (to switch to wood mode and cancel pellet loading). (The light will be on.) The display will show the WOOD MODE. After this step the automatic installation will be canceled. Fuel (wood) must be loaded manually.

4. WHILE BOILER MANUAL FEEDING MODE (WOOD MODE), SWITCHING AUTOMATIC FEEDING MODE

The boiler is turned off using the **ON / OFF** button on the panel so that the boiler can be switched to the automatic mode (with pellet load) while the burning in manual mode (wood mode) continues. By pressing boiler's **WOOD MODE** button to turn off the mode (the light will turn off). Press the **ON / OFF** button again to start the system. The boiler will be in automatic pellet mode.

ÜNMAK DUOPELL AUTOMATIC BOILER FEEDING AND WAITING ADJUSTMENT TABLES

ÜNMAK DUOPELL AUTOMATIC BOILER FEEDING & WAITING ADJUSTMENTS										
BOILER POWER	25 KW		40 KW		60KW		80KW		100KW	
	min	max								
FEEDING	50 sec	1,10								
WAITING	3 sec	5 sec	4 sec	6 sec	5 sec	8 sec	7 sec	10sec	10 sec	15 sec

ERROR CODES AND SOLUTIONS

High temperature: Boiler temperature is displayed on the information display when it exceeds 90°. If you are getting this warning when you first start boiler installation, there may be air in the boiler. Take out the air in the boiler with the aid of a circulation pump. Circulation may not work with your pump. Check the operation of the pump. If the pump is faulty, contact the service of ÜNMAK. The temperature sensor may be malfunctioning. The warning appears on the screen. Please contact UNMAK service.

Fuel out: The pellet in the bunker may have run out. Do the pellet loading. If this error is displayed on the screen when the pellet is in the bunker, check the socket entries. If there is no problem and the error continues, there may be a fault in the sensor. Please contact UNMAK service.

Flue sensor fault: Check the sensor inputs if the flue sensor is faulty on the display. If the sensor inputs are OK and the error persists, the sensor may have failed. Please contact UNMAK service.

In this fault the boiler continues to operate normally. However, because the boiler cannot measure the flue temperature, the pellet cannot fire automatically. The boiler is manually fired until the fault of the sensor is eliminated.

Room thermostat: When the room thermostat enters the circuit, this warning will be shown on the screen.

MAINTENANCE

Boiler cleaning

Boiler passes must be cleaned frequently, depending on fuel specifications and operating conditions. However, if the boiler is cleaned at least once a week, the boiler will be able to work efficiently. Not being cleaned of the boiler and the lack of chimney intake cause the system to lose its efficiency and to consume excessive fuel. When this clogging is excessive, poisonous waste gases from the coal and ash can leak into the aquifer.

Clean the crucible (pot)

Depending on the nature of your fuel, there may be hardening of the crown on the pot. Curing in the ash may cause the pot to become inefficient or smoke from the hopper. Clean the burnt material ashes on the pot. Clean the air reservoir by removing the cleaning cap on the crucible air reservoir.

Cleaning
Cover



Fan cleaning

The fan motor should be cleaned if it is excessively dirty. Dust can cause the fan motor to become stuck. Do not use pressurized water when cleaning the fan.

Chimney cleaning

If the boiler is being cleaned, check the main satchet if there are not enough chimneys draft (min. 0,15 mbar).

POWER CUT (ELECTRICITY)

Boiler connection electrical installation 230V 50Hz should be plugged in and a socket with grounding connection. In addition, there should be a leakage current relay in the general electrical installation of your building.

As the circulation pump will not operate in the power cuts, there will be some temperature rise in the boiler water. The boiler water may rise to the boiling point in boilers with good chimney draw. For this reason, the operations to be performed in the power cuts are as follows:

- Bring the flue clack to the fully closed position.
- The by-pass line in system is activated.
- Never open the boiler flaps.
- If possible, use uninterruptible power supplies (UPS) to stop the circulation pump in the event of a power failure.

DISCLAIMER OF WARRANTIES

Warranty 2 year (2 years) warranty against material and manufacturing defects in accordance with the principles, warnings and standards stated in the user manual are included in the warranty. Our company is not responsible for any damage or malfunction resulting from the unauthorized use of the product in the user manual.

For initial start-up, warranty start-up and fault reporting, please contact our service center at +90 232 444 35 32 or our local call center.

Boilers not made by the start-up service will not be covered by the warranty.

Make sure that the boiler installation and the chimney system comply with the guidelines specified in the operating instructions. Installations and chimney system incompatible boilers are not covered by the warranty.

As fuel for the boiler, use the fuels specified in the operating instructions. When determining that fuel is used other than the fuel indicated in the operating instructions, your warranty is voided.

In order to achieve a proper combustion and sufficient efficiency capacity, clean and annual maintenance must be carried out on time. Insufficient, improper cleaning and maintenance failures are beyond the warranty.

During the winter months do not empty the water in the installation or interrupt the power supply of the boiler when you are not using the boiler. (The pump will run continuously and prevent frost when the water level approaches the freezing point.)

In the event of failure to comply with the conditions specified in the freezing conditions, the boiler is not covered by the warranty.

The deformations caused by sooting, drying and sweating which are caused by the operation of the boiler at 45 ° C are not covered by the guarantee.

PROBLEMS	CAUSE	SOLUTION
Problematic combustion	Poor quality, damp fuel Soot accumulation on the surfaces of flameproof slices	Use appropriate dry fuel. You need to clean the boiler soot
Drowning	Poor fuel use Problem with fuel and air supply	Change your fuel. Check the fuel supply and standby settings. Change the fan stage settings.
Unburned fuel accumulation in the combustion chamber for a long time	Excess fuel is fed Low fan setting	Increase fuel hold time. Raise the fan speed.
Non-heating problems Much fuel consumption	Isolation and capacity inadequacy Failure to comply with installation standards	The insulation of the space should be improved. The fuel used must be replaced. The heat requirement of the space should be controlled and the boiler replaced if necessary. The installation should be changed in accordance with the standards.
Overheating of the boiler	Heat transfer to the system may be stopped.	Check the circulation pump.Size Contact your nearest UNMAK authorized service
Not fuelling	There may be a problem with the motor or the gearbox	Contact your nearest UNMAK authorized service
Problems with alternative fuels	Incorrect alternative fuel use	The fuels and operating conditions supported by our products are given in the operating instructions. Be careful to observe these conditions.
There's smoke in the hopper	The surface of the flameproof slices is filled with soot The combustion chamber is filled with ash	Clean the boiler Do the upper and inner cleaning of the ladle.
The pot pellet is solidifying. Ash is not flowing	Pellet quality (Sand dunes inside the pellet)	Change your fuel. Clean the pot in order to keep the burner in order.