



**INSTALLATION USE MAINTAINANCE GUIDE FOR
MKK SERIES SOLID FUEL BOILER**

**18 MKK - 25 MKK - 40 MKK - 60 MKK - 80 MKK
100 MKK - 150 MKK - 200 MKK - 300 MKK - 400 MKK**



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**Please read.
Please keep.**

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1.GENERAL WARNING BEFORE OPERATING THE UNIT

Please check the conformity of waste gas , water and electric infrastucture of the area to necessary technical parameters where the boiler will be installed.

For safe use of electricity , make sure that the grounding of the installation is isolated and there is no phase.

Your boiler is under guarantee for 2 years against component and production defects as long as it is used in line with the suggestions in this manual. Our company cannot be held liable for any misuse of the product.

Please do not use the boiler out of its purpose. The boiler is designed to supply hot water (max.90 degrees) to your heating system.

Clean air must always be available in the area where the boiler is installed. Due to reasons of security, the installation of the boiler to closed areas with human presence is strictly forbidden.

Please do not operate the boiler without water. Do not feed cold water to hot boiler. If,for any reason the boiler temprature is over 90 degrees, do not attempt to feed cold water to the boiler until the boiler temprature drops down to 40 degrees. The best solution for over heated boiler is to take out burning coal outside of the boiler.

Please do not drain the system water except repairing or during times of frost. Antifreeze material can be added to sytem water up to 15%.

During operation, the temprature difference between return and flow can be maximum 20 degrees.

Water with high calcer rate is extremely dangerous for boiler and installation. In this case, please use water softeners . Product failures as a result of blocked water passes is out of scope of factory guarantee

Each year,before start of heating season,the boiler's chimney connection and internal parts must be checked and cleansed. This will enable efficient operation of the boiler.

Please do not take hot water out of the boiler for domestic purposes.

2. FEATURES OF THE BOILER

Our boilers are designed to be used for comfortable heating and domestic hot water in residential areas, work places and offices.

It is easy to use the boiler thanks to digital control panel. The outer case of the boiler is designed for easy demounting enabling installation and service ease.

Thanks to wide loading and disposal doors, fuel feeding, ignition and ash cleansing is easily done.

If proper chimney is selected, thanks to three pass pipes, chimney draught related problems are not seen.

Thanks to three pass parallel pipes, the efficiency of the boiler is high. Set temperature is quickly achieved.

Thanks to fan which can be adjusted with digital thermostat, the air is homogeneously distributed inside the boiler, enabling a full and stable burning.

Thanks to digital thermostat fan, the boiler reaches a natural burning after a certain period.

The chimney temperature drops, enabling a higher efficiency.

The pump cable is extended outside the boiler's body for connection.

The moving grills are designed for easy demounting with long life

Ash disposal system enables a care free cleansing to large volume ash tray.

The clap in front of the fan closes air inlet by 90% when the boiler reaches adjusted temperature, thus enabling control of burning and temperature.

Thanks to limit thermostat, electricity is cut out if the boiler temperature exceeds 90 degrees.

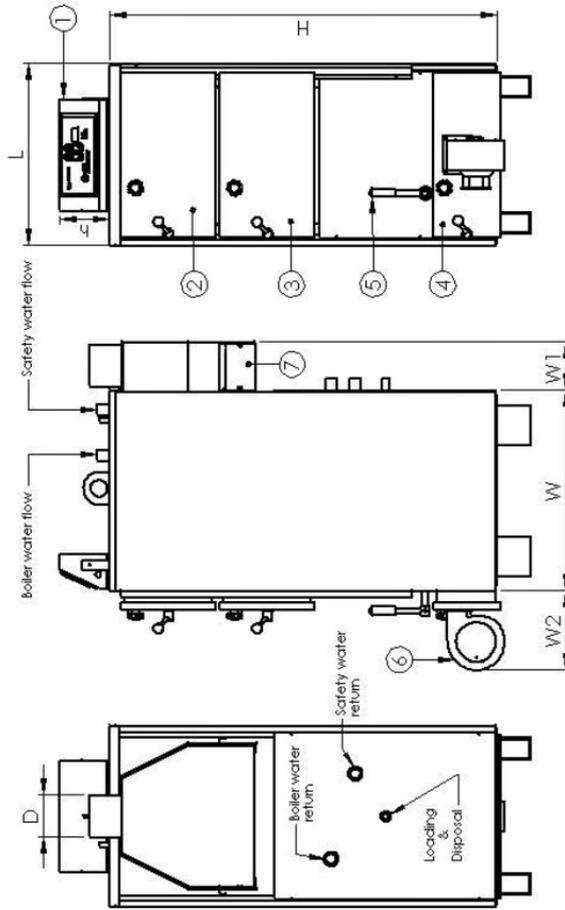
The boiler is perfectly isolated against heat losses and the heat moving down is absorbed thanks to the grill.

Boiler cleaning is easily done thanks to special inner design of the boiler. Special sheet metal is used in burning pot enabling durability and long life.

Our boilers are designed to be used at 3 bars working pressure. Each boiler is tested with 5 bars pressure using hydrostatic pressure test and produced in conformity with CE standards

The economic life cycle of the boiler is estimated to be 15 years.

3. SECTIONS OF THE BOILER



- 1. Control panel
- 2. Top (cleaning) cover
- 3. Loading cover
- 4. Disposal cover

- 5. Mechanism handle
- 6. Fan
- 7. Smoke case

1. Electronic control panel	5. Mechanism handle
2. Cleansing lid	6. Fan
3. Loading lid	7. Smoke case
4. Disposal lid	

1. **Control Panel:** The adjustment about working of the boiler can be done on control panel. All breakdown information can be seen on control panel screen. The features of the control panel is explained on 6th section of this manual.
2. **Cleansing Lid:** Enables easy cleaning of smoke pipes and inside of the boiler. The unit must never be opened during operation. During periodic cleaning this lid is opened to enable cleaning of the smoke pipes with boiler brush.
3. **Loading lid:** The loading of fuel to boiler is done from this lid.
4. **Disposal lid:** This is the lid that enables easy reach and dispose the ash accumulated at the ash tray.
5. **Mechanism handle:** The moving grill is moved with this handle and all ashes fall to ash tray.
6. **Fan:** Air necessary for burning is forced supplied.
7. **Smoke case:** The part where the smoke is passed to the chimney. The ash accumulated in smoke pipe are drained through cleaning lid on the smoke case.

4. INSTALLATION

It is advised that the installation of the boiler is done by a specialist. Improper installations may cause breakdown and damages where the manufacturer cannot be held responsible.

For safety, proper grounding must be done for electricity installation.

It is forbidden to make changes or additions to the original design. Any modified boiler is out of scope of guarantee.

ATTENTION! Please do not install the boiler to closed areas of human presence. In time there might arise the risk of poisonous gases spreading to the area as a result of clogged flue or other problems.

In order to supply fresh air to the installation site, air ducts is a necessity to avoid the formation of poisonous gases.

The boiler must be installed in a secure location, unaffected by weather conditions. This will protect the boiler and the system from frost and also reduce heat losses while increasing the efficiency.

A minimum 10 cm high brick statue to be prepared at the base of the installation site is a necessity for protecting the boiler from water flood and rusting of the sheet material.

The installation site must at least have 75 cm empty space as the installation inlet is at the back of the boiler.

Chimney connection must be connected with long meterage pipes with maximum 2 elbows.

Chimney connection must be done in such a way that it can be easily demounted and will not allow gas leak.

4.1 INSTALLATION AND WATER FLOOD

Please use open expansion tank for our boilers. Closed expansion tank systems may trigger steaming of the boiler when there is an electric cut out or when the pump is not functioning.

Please connect open expansion tanks according to standarts.

No valve or similar materials must be installed on safety return or flow line of the open expansion tank.

In order to increase safety if the pump does not function, a by pass line must be secured between inlet and outlet spot of circulation pump as show in installation schema. The valve on by pass line should be kept closed during normal functioning . if there is an electricity cut and a risk of overheating appears, the valve must be open and the evacuation of hot water must be provided by natural circulation. The diameter of the pipe to be used at by pass line should be the same diameter size with the pipe used in installation at minimum.

As an extra security measure, an infinite power source may be used for electricity cut.

Please mount 3 bar security valve on the boiler for safety against over pressure in open expansion systems.

We suggest the mounting of the pump on return line in order to protect from over heating (steam).

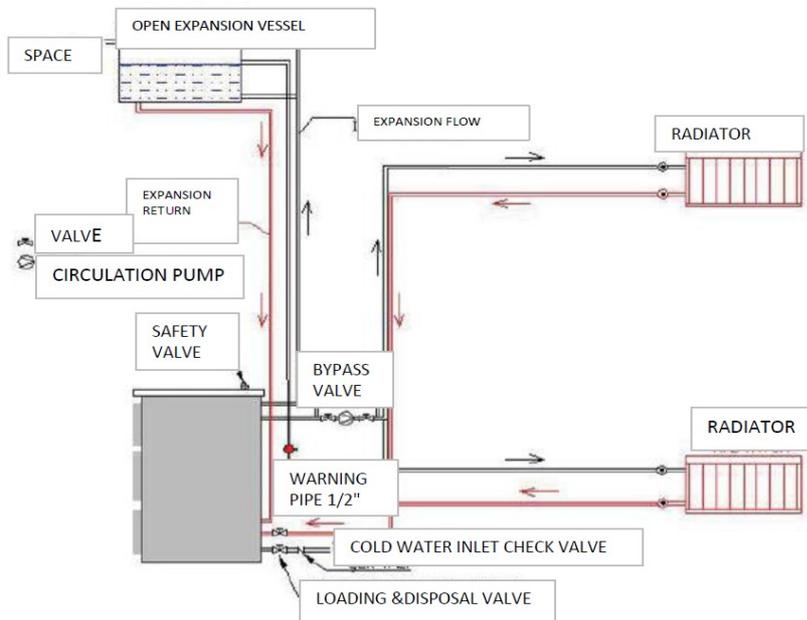
All connections and valve positions must be checked after the installation of the boiler is complete.

Operations like water flooding or evacuation must be done while the boiler is not working and cold.

Please flood water to the system until water comes out of warning pipe. Please close the valves when the filling is complete.

Please purge air in the system where necessary. Avoid any installation that might block air in the system, if any doubt, please use automatic purger.

BOILER INSTALLATION SCHEMA



TYPE CAPACITY EXPANSION TANK

18 MKK	18.000 kcal/h	40 lt
25 MKK	25.000 kcal/h	50 lt
40 MKK	40.000 kcal/h	75 lt
60 MKK	60.000 kcal/h	100 lt
80 MKK	80.000 kcal/h	200 lt
100 MKK	100.000 kcal/h	250 lt
150 MKK	150.000 kcal/h	300 lt
200 MKK	200.000 kcal/h	500 lt
300 MKK	300.000 kcal/h	750 lt
400 MKK	400.000 kcal/h	1000 lt

4.2 VENTILATION

The area where the boiler is installed must always be supplied with fresh air by using a window or a duct. In order for a boiler to burn safely and efficiently, fresh air is required. Otherwise once the burning starts, the oxygen level will drop causing the burning to be inefficient. In turn, this will result in formation of soot in the boiler and chimney and will require frequent cleaning.

4.3 CHIMNEY

The chimney that will be connected to the boiler must be private. The chimney must be connected to provide minimum draught. A boiler without chimney connection should not be operated.

Chimney connection pipe and pipe systematic should be installed and checked by authorized people only. May we remind you that the biggest factor in boiler efficiency is chimney design and draught.

Proper chimney connection pipe should not smaller than the boilers chimney diameter, vertical length must not be shorter than 60 cm and longer than 2 meters and pipe must be connected to the chimney with minimum 10 degree of angle.

We suggest not to use enamel stove pipes as it creates tar in chimney connection pipe or chimney system.

In case of an elbow use in chimney connection, the elbows must be round with a wide angle. Quantity of an angle must be minimum 2 pieces.

Chimney connection must be installed to allow demounting from the boiler and avoid gas leaking.

Chimney connection pipe must not be extended to the outside and must be connected to a pipe.

The contact of chimney connection pipe with flammable material must be avoided.

Chimney connection pipe must not be pushed inside the chimney.

The direction of the pipe should not be changed, should there is a need ,it must be positioned by 60 degrees.

The chimney must be leak proof and air transperancy from inside and outside must be avoided.

No other boiler or device must be connected to same chimney. This would decrease chimney draught and decrease boiler efficiency.

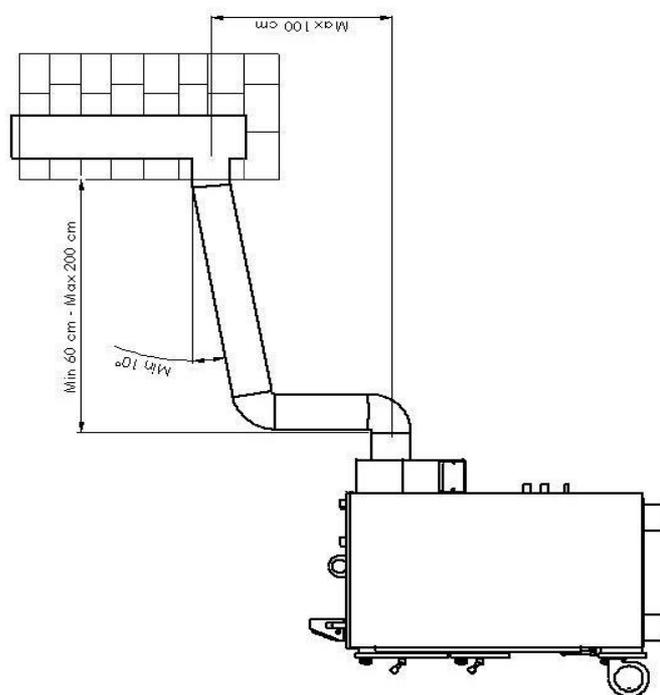
Parallel chimneys should have no inter connection.

There should be no sectional narrow down in any place of the chimney.

Main walls of the building should never be used as chimney wall element. The chimney must be inside the building, if the chimney must pass from outside, the isolation must be done properly.

The chimney must be frequently cleaned in order to avoid tar and soot and clogs.

Please avoid foreign objects, cement or surface flow inside the chimney, as these will increase the risk of narrow chimney section and will result in decrease on chimney draught.



MAKTEK

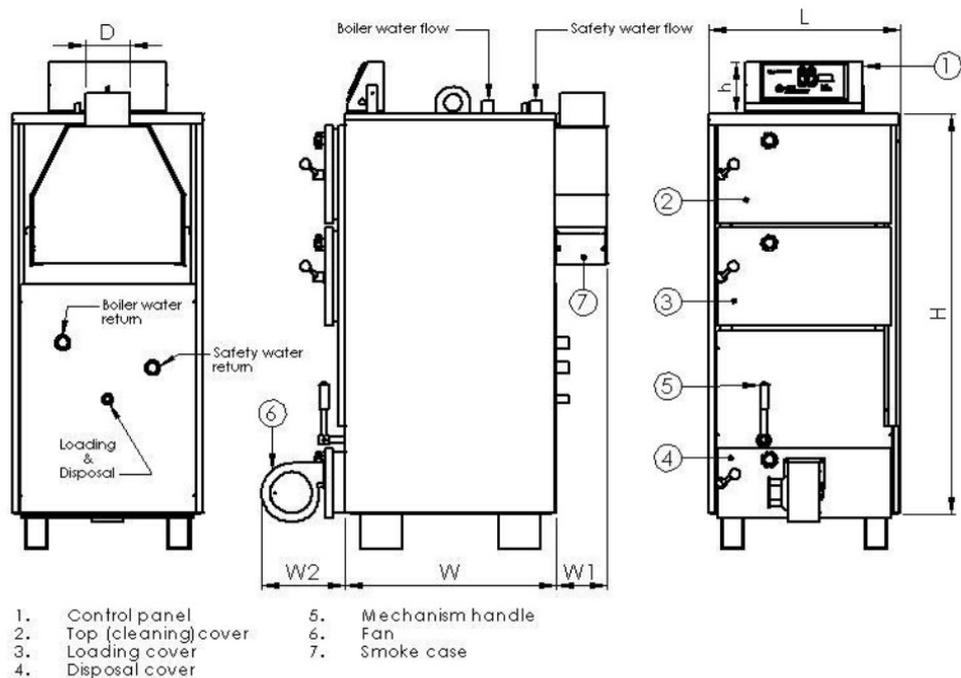
Specification of the Fuel To Be Used

For care free use, we recommend dust free, dry and with high heating value (6500 kcal/kg- 7500 kcal/h), low sulphur dioxide coal.Linyit coal with low calorie, and high amount of ash and dust will fill the smoke pipes of the boiler in short time, causing a dramatic decrease on capacity and efficiency of the boiler.

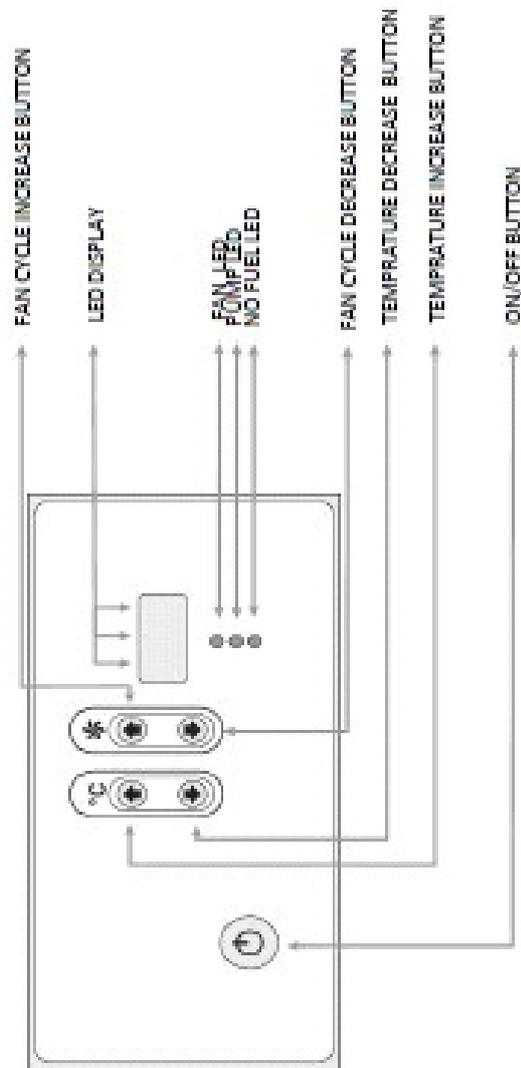
Please pay special attention to specification of fuel

NOTE: In order to determine the pipe diameter to be used in chimney connection, please use pipe outlet dimension on technical specification table

You can find the dimension of the boiler on technical specification table



6. CONTROL PANEL



On/Off Button	System is turned on or off. For both modes, please press the button for 2 second
Temprature Increase Button	Increases boiler temprature. Please set value between 45-90 degrees
Temprature Decrease Button	Decreases boiler temprature. Please set value between 45-90 degrees
Fan Cycle Increase Button	Increases fan speed (from 1 to 5)
Fan Cycle Decrease Button	Decreases fan speed (from 1 to 5)
Fan Led	Indicates that the fan is functioning properly
Pump Led	Indicates that the pump is functioning properly
Led Display (7 part)	Shows measured temprature during operation or shows set temprature during setting
No Fuel Led	Indicates that fuel is finished

FAILURE CODES

H1: No fuel

H2: Heat sensor is not functioning

H3 : Boiler water temprature is extremely high

7.FIRST OPERATION OF THE BOILER AND USING

ATTENTION! Please make sure that the boiler and system is filled with water, boiler in-out valves are open, energy to boiler panel is 220 w and grounding line is standart.

Please flood the system with water until water comes out of warning pipe.

Please check if there is any leakage in the system.

Purge out all air from the system and add some water for decreased pressure

Please mark the value on hydrometer after air purge. This marking will be a warning data in case of loss in water.

Before burning the boiler, make sure that all valves that are supposed to be open, especially boiler inlet-outlet valves are open. Next, please check if the circulation pump is properly functioning and pumping the water to right direction.

For places with low chimney draught, fan must be cancelled until the problem is fixed.

Gas draught of the chimney must be high. A simple way to detect this is to cover the entrance of the chimney with a news paper and see if the paper hangs in the air or not. If the paper hangs in the air, the draught of the chimney is suitable for the boiler.

7.1 FIRST OPERATION

High quality, with high heating value, dust free, small particle coal must be selected. The coal to be used in the boiler is very important as it will effect boiler efficiency, ash quantity and burning quality.

The boiler's burning chamber is capable of meeting a day's coal demand. The boiler must be burned with full fuel in first burning. Avoid adding coal to the pot during burning. However, if necessary this quantity must be as low as possible. Otherwise, these additions will increase smoke formation and will cause the boiler and the pipes to get dirty.

Please load fuel from the front to the back after making sure that the moving grill handle and grill is in closed position.

To flame the coal, please add wood pieces on the coal and burn the fuel from the top with diesel.

Please close the boiler doors and turn on main switch. The boiler will gradually burn since the air is supplied through the fan. Do not open the boiler doors when the burning is still going on. In case of a necessity, the doors might be opened after stopping the fan.

During first operation, we suggest to set the temperature of control thermostat to a high degree (70 C). You may set the thermostat to desired temperature for later uses.

When the boiler reaches to 40 degrees, the circulation pump will function. This will avoid unnecessary electricity consumption and damages as a result of instant heating.

In case of a frost below 0 degrees, the system should continue to function, otherwise the system water must be drained.

The fan will continue to function until the system water temperature reaches to set values on control thermostat. At this value, the fan will stop and the circulation pump continues to function. In this case, you can see what temperature is the boiler water. You can monitor desired temperature value by pushing and releasing the control thermostat button.

When the fan speed settings change, speed setting value appears on the screen. Then the boiler water temperature continues to be seen.

The boiler temperature will continue to decrease when the fuel inside the boiler is finished. Even if the control thermostat is set to high temperature, the pump will stop to function after the system water drops down to 35 degrees and circulation pump will stop running. When temperature drops down to 25 degrees, fan will stop running and system shuts down. In this case please add fuel and press ON/OFF button for 2 seconds, close the system and then press again for 2 seconds to turn on the system.

NOTE: During long term use, please move the mechanism handle to right and left in order to supply air to unburned fuel.

7.2 WARNINGS FOR USE

ATTENTION! Do not use the boiler without water. Please check water level each time before burning from hydrometer.

ATTENTION ! Do not close boiler return-flow valves and circulation pump when there is burning coal inside the boiler.

ATTENTION ! Do not open fuel feeding door frequently. In case there is a need, shut down the fan and keep it minimum 50 cm away from the boiler.

ATTENTION ! If you will not use the boiler during winter, please drain the water or add anti freeze. In case of a frost, the boiler and the pump might get damaged.

ATTENTION ! In case of an electricity cut and when the circulation pump is not functioning, the boiler water can reach to a boiling degree, since heat transfer will not be done. In this case:

1. Please completely close the air flap on the fan's draught opening
2. Open the by pass valves between return and flow system
3. Do not open the boiler doors
4. Do not flood any cold water to the boiler
5. Do not throw cold water on burning coal in order to put it down

ATTENTION ! If the boiler temperature cannot be controlled after doing the above, please push the grill and lower the coal to ash tray in order to take it out of the boiler

ATTENTION ! Do not flood water to the boiler when the boiler temperature is high

8.CLEANING AND MAINTAINENCE

In order to use your boiler safely for a long period of time, please pay attention to below mentioned rules of cleaning and maintainence. The cleaning is intended to be done every 15 days if the fuel is appropriate. Inapropriate coal will require more frequent cleaning and will cause inefficient burning.

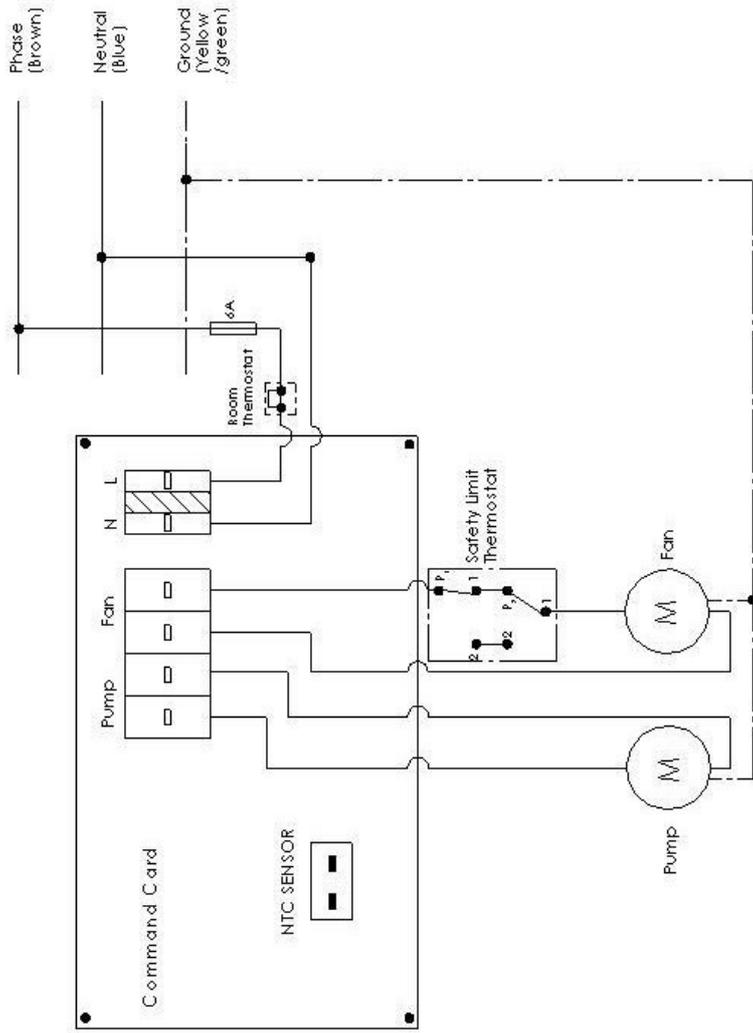
- Your boiler must be cleaned when there is no burning fuel left inside and when the boiler is cold
- Please cut down electricity before cleaning the boiler
- Please allow the accumulateed burned ash to fall down to cleaning shelf by moving grill handle located at the front of your boiler to right and left . the cüruf accumulateed on the grill must also be cleaned. Next, please remove ash tray and clean it.
- Every 15 days, clean smoke pipes and boiler surface with boiler brush, after opening boiler cleaning door
- After the cleansing of boiler smoke pipes are over, remove the cleaning lid at the back smoke case and clean inside of the smoke case. Make sure that it fits properly during remount.
- Close the cleaning lid and turn off moving grill in order to restart the boiler
- Chimney connection and chimney must be cleaned after the boiler is cleaned
- The soot formed inside the boiler, acts as isolation on pipes and boiler surface, prevents heat transfer to system water and decreases boiler efficiency
- Uncleaned boiler and chimney soot weakens draught and causes inefficient burning.

SUGGESTIONS FOR ECONOMIC USE

- In order to properly air the residence, please open the windows for short period of time while the radiator valves are closed
- Pay attention not to heat up too much: room temprature must be kept at 20 degrees. Each 1 degree less makes a 6% economy on heating costs
- When the weather is dark, please close the shuttters if available
- Do not cover your radiators with objects
- Make use of special setting of the control panel, set the using water from control panel
- Consume hot water considerably. You will consume less water and energy during shower in comparison to taking a bath.

9. ELECTRIC SCHEME

MKK SERIES DIGITAL CARD CONNECTION SCHEME



10.TROUBLE SHOOTING

PROBLEM	REASON	SOLUTION
The boiler does not reach to set temprature while operating	<ul style="list-style-type: none"> - Low quality coal - Soot is accumulated on flame pipes 	<ul style="list-style-type: none"> - Change the fuel - Remove the soot from the boiler
The boiler does not reach to set temprature while operating and fuel consumption is too high	<ul style="list-style-type: none"> - Low quality coal - There is an over draught in the chimney 	<ul style="list-style-type: none"> - Change the fuel - Decrease draught by reinforcement
There is gas clogging when the boiler is on sleep mode	<ul style="list-style-type: none"> - Soot is accumulated around flame pipes 	Remove the soot from the boiler
When the boiler reached set value, the temprature does not become stable,increases	<ul style="list-style-type: none"> - Thermostat is broken - There is an over draught in the chimney 	<ul style="list-style-type: none"> - Thermostat must be replaced - Decrease draught by reinforcement
The fan does not stop when it reaches to thermostat value	<ul style="list-style-type: none"> - Thermostat is broken 	<ul style="list-style-type: none"> - Thermostat must be replaced
There is tar and soot inside the boiler and chimney	<ul style="list-style-type: none"> - Low quality fuel - The burning is done with low temprature. Burning air is not sufficient - Chimney draught is not sufficient 	<ul style="list-style-type: none"> - Change the fuel - Increase temprature - Check airing of the boiler surroundings - Increase chimney draught
The boiler reached to set temprature but the house is still cold	<ul style="list-style-type: none"> - Problem in installation system 	<ul style="list-style-type: none"> - Check pipe isolation, building isolation and radiator quantity
The grill handle does not move	<ul style="list-style-type: none"> - Coal or a hard particle is clogged in between the grill 	<ul style="list-style-type: none"> - Check the grill
The boiler burns too hard and stops for too long	<ul style="list-style-type: none"> - Low quality fuel - There is soot between flame bender pipes - Burning air is insufficient 	<ul style="list-style-type: none"> - Change the fuel - Clean the boiler - Supply fresh air to chimney draught fan and surroundings

12. CARRYING AND TRANSPORT

A) PLACING THE BOILER ON VEHICLE

- *When the boiler places on vehicle, loading must be with crane.
- * Gates of the vehicle must be opened previously.
- * Make use of the supporting ring while loading boiler with crane.
- * Pass the crane boom hook from the supporting ring.
- *Make sure that hook pin is in safety.
- *Uphold the crane boom and take the space.
- *Slowly uphold the boiler that bottom level should be 30-40cm up from the ground.
- *Keep away from sudden moves that would cause boiler to shake.
- *Move the boiler next to vehicle in this way.
- *Lift the boiler from 30-40cm higher than the vehicle body and and take it down on vehicle body correctly.
- *Remove the hook from crane supporting ring.

ATTENTION : Boiler must be carried in vertical position, make use of the supporting ring. When the boiler lifted up with crane, there shouldn't 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 carrying with vehicle, it must be tied to vehicle strictly, supporting stuff which would prevent slipping, should be put around. Boiler should not carry with fragile, smashable and living beings. Top of the vehicle must be covered with canvas after placing boiler. Driver must keep away from the 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, must be placed in a separate boiler room.

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

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

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