



# Manuel Feeding, Solid Fuel Boiler User Manual

ÜKY



ÜKY/D2



ÜKY/3K



ÜKY/D3



ÜKYP



ÜKYS/3G



ÜKYS

## ÜNLÜSOY

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This booklet covers below models:

<b>ÜKY</b>	16-25-34-45-60-80-100
<b>ÜKY/D2</b>	25-34-45-60-80-100
<b>ÜKY/3K</b>	25-34-45-60-80-100
<b>ÜKY/D3</b>	25-40-60-80-100
<b>ÜKYP</b>	130-160-180-200-250-300-350-400-450-500-600
<b>ÜKYS/3G</b>	120-150-180-210-240-270-300-330-360-390-420-450-480-510-540-600-660-720-780-840-900-1000-1100-1200
<b>ÜKYS</b>	200-225-250-300-350-400-450-500-600-700-800

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## INTRODUCTION

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We would like to thank you for your choice of UNMAK manual feeding solid fuel boilers. Please read the user manual carefully before installing and operating your product and keep the user manual for the duration of the product use. Do not touch or mix any part of the product except where permitted in the user manual.

The installation, maintenance and service of the boiler requires a specialist technical team.

These operating instructions and regulations should be considered for the installation of the boiler, selection of the location for installation, installation of the boiler water installation and the design of the chimney.

UNMAK boilers are high-efficiency, steel-based hot water boilers designed to burn only solid fuel. These boilers are only used for heating of central heating, not suitable for direct use of water. However, it can produce hot water with the help of a water heater or heat exchanger. The energy required for domestic water will be taken from the boiler's energy.

UNMAK boilers convert the chemical energy of the fuel into heat energy by burning and load it onto the water which is the heating fluid. Excessive fuel overcharging to the combustion chamber will cause energy loss and will take longer to burn.

The combustion circuit, fan and circulation pump control are carried out by the electronic control board supplied with the boiler. In large boilers, it is manually controlled by pump contactor or other than panel.

UNMAK boilers are designed to burn fuels that will not fall from the grid intervals. Powdered fuels will not be an efficient combustion because they will fly or fall under the combustion chamber with the system fan. Depending on the calorific values of the fuels, the heat from the boiler to the water may exceed the declared values.



***User manual should be read carefully and stored with the associated warranty certificate for the life of the boiler.***

## SHIPPING AND TRANSPORTATION

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UNMAK solid fuel boilers are manufactured from thick sheet. Boilers are sent in a complete package.

1. Boiler Group: It is shipped with boiler insulation and outer jacket covered.
2. Accessories: Control panel, pump (pump for capacities under the boiler including 60.000 kcal / h capacity), operating instructions with warranty certificate and boiler accessories are included in the boiler package.

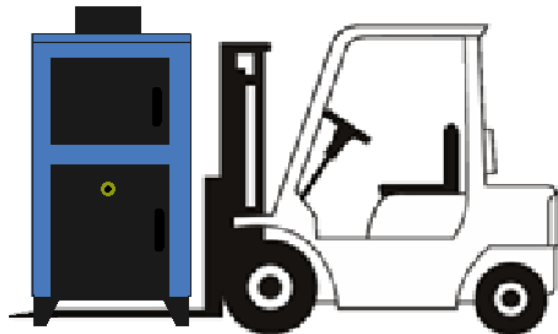
### Safe transport of the product

Solid fuel boilers are heavy products, so care should be taken when transporting the boiler to the place where it will be installed. The equipment used to lift and transport the product must therefore be of sufficient capacity.

In order to prevent damage to the boiler's outer plates and the boiler during transportation;



In small boilers, it must be ensured that the hoisting rope does not damage the painted thin sheets of the boiler and the reducer and fan group under the bunker while carrying the hoisting rope from the forklift stands on the chassis and transporting the boiler with the help of crane or hoist.



It is also convenient to remove the large grates from the forklift stands or the transport ring on the boiler. If the connection ropes are to be passed under the boiler when lifting by crane, preventive action should be taken to prevent the top of the boiler from being crushed by the ropes. The boiler standing on the floor should be taken by the crane should not be pulled. When transporting in cold weather, the boiler should not be lifted suddenly in case of freezing of the rope from the cold.



***When removing the packaging around the boiler, hard and sharp objects should not be used to prevent damage to the painted boiler plates under the packaging.***

## SELECTION OF INSTALLATION PLACE

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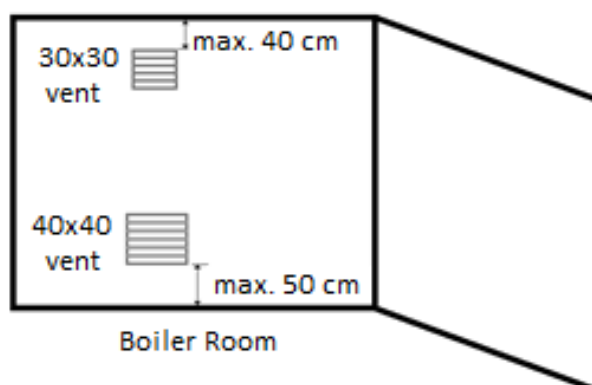
The space where the boiler is installed must have sufficient free space for the installation, combustion and maintenance of the boiler. It must be spaced from the wall for service needs. For this purpose, the dimensions in the paragraph titled “Installation location dimensions” must be applied.

There should also be sufficient air circulation for efficient combustion, the chimney design must meet the required draft values for the model used and comply with the construction criteria given in the manual. The boiler should never be installed in open spaces, balconies, living areas (kitchen, living room, bathroom, and bedroom), explosive and flammable materials.

The door of the boiler room must not be opened directly to the escape ladder or general use ladder and must be opened to a security hall. In boiler rooms with thermal capacities of 50 kW-350 kW, there must be at least one door, a floor area of more than 100 m<sup>2</sup> or at least 2 exit doors in boiler rooms with a thermal capacity of more than 350 kW. The exit doors must be placed as far opposite as possible, at least 90 minutes resistant to fire, smoke-proof and self-closing.

At least one of the doors must be opened directly outwards. If it is possible to open a door directly from the boiler room, this creates the most appropriate solution. The door of the boiler room must not be opened directly to the escape ladder or general use ladders and must be opened to a common hall or corridor.

It is recommended to have a threshold of at least 10 cm in the doors opening into the building from the boiler room. If it is possible to illuminate the boiler room naturally, it should be ensured that the



lighting openings do not come under the other windows of the building. If artificial lighting is done, a system that does not dazzle but illuminates the apartment must be properly installed. The main switchgear and panels for the boiler room should be placed around the entrance door and should be of leak-proof type. There should be a fire tube in the boiler rooms.

One of the objectives of placing the boiler on the concrete base in the boiler room is to prevent the fan from absorbing dust from the ground. Ventilation can be done either naturally or in a forced

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manner. Ensure that the fresh air intake shaft is at the floor level and the air outlet nozzle at the ceiling level.

The boiler room must have at least 1 piece 6 kg dry powder dry fire extinguisher and at least 1 fire cabinet in large boiler rooms.

If natural gas or liquid fuel boilers are also used in the same boiler room, a tear surface must be designed.

The installed space must be directly connected to the external environment, allowing the access of fresh air. One of the grilles should be at most 40 cm below the ceiling of the boiler room and the other should be at least 50 cm above the floor. These grilles should be open continuously. The lower vent should be at least 40 x 40 cm and the upper grille should be at least 30 x 30 cm. Pets should not be fed, smoke and any food and beverages that may be affected should not be stored in the boiler room (boiler room).

All electrical and water installations must be carried out by authorized plumbers, in accordance with all applicable legal and technical rules and regulations.

The fuels to be burned in the boiler should be kept at a distance of at least 800 mm. It is recommended to store fuels in a separate space.

Boilers must be installed on a concrete base 10 cm above the base to protect the solid fuel from the moisture of the water. The concrete base prevents the fan from absorbing fuel or ash dust in the ground.

Laying of tiles with tile and tile stones facilitates cleaning.



***It is inconvenient to have flammable, caustic and flammable materials in the boiler room.***

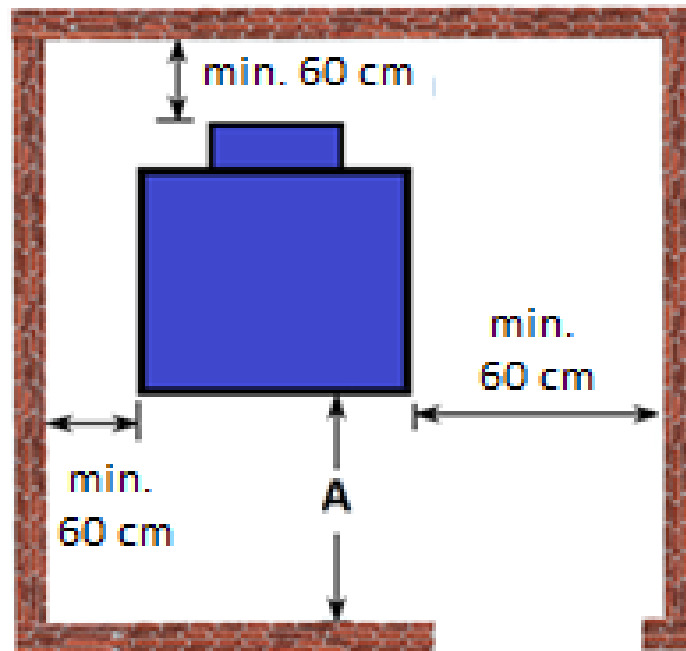
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**Mounting dimensions:**

The boiler room must be of a size to provide the minimum dimensions given in the picture below.

When the boiler is placed, sufficient distance must be left to ensure that the service is comfortable.



Dimension A: 60 cm greater than the opening of the boiler door;

If the above measurements are observed, a minimum of 8 m<sup>3</sup> of volume requirement in the regulations is ensured.

**!** *There should be no faulty and unsafe power lines in the boiler room.*

**!** *The 230 V electrical connection from the control panel must be connected to the mains via the W automaton.*



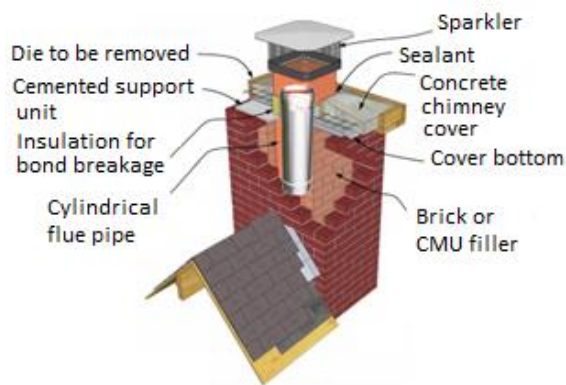
## SAFETY PRECAUTIONS

**!** *The electrical installation of this product must be carried out by authorized personnel in accordance with the instructions given in this manual and the applicable local or national regulations.*

**⚡** ***THIS PRODUCT MUST BE CONNECTED TO THE ELECTRICITY WITH EARTH LINE!***

The boiler must be connected to a chimney in accordance with the specifications specified in the operating instructions and the relevant regulations. The chimney must provide the draft value required by the connected boiler. Your boiler should not be operated without a chimney connection and there must be enough draft to burn. In chimneys where sufficient draft is not ensured, the boiler must never be operated. Any installation in the place where the boiler is installed should not be installed.

In case of boiler changing in the boiler room, the old boiler must be removed or disconnected from the chimney and the insulation must be sealed and insulation should be made. In no case should more than one boiler be connected to the same chimney. The cylindrical chimney can be passed through the chimney in the figure.



Smoke chimneys should not be placed on the outer wall of the building unless it is a technical requirement. The wall thickness of the chimney walls should not be less than a brick thickness. For chimney construction, hollow bricks and briquettes should never be used. It should be plastered inside and outside of the rectangular chimney.

It should be ensured that fresh air is continuously introduced into the area where the boiler is installed. Reference must be made to the dimensions specified in this manual. The boiler should never be installed in living spaces or in a place directly connected to such a place. In order to reduce the risk of scaling and corrosion in old and new installations, the instructions given in the relevant section of this manual should be applied by the installer who installs the boiler. In particular, if the boiler is connected

to an old installation, it is necessary to clean the waste completely before installation. The installation must be cleaned and cleaned several times.

Avoid overloading fuel into the boiler and check the suitability of combustion frequently.

Burning and floating fuel particles in the boiler, fuel ashes out of the open door can easily open to the outside environment, the fan must not be opened while the fan is working.



***The electrical connection must never be cut off while the boiler is operating.***

For any reason, direct cold water should not be added to the overheated boiler for cooling. This can cause noise in the installation, excessive thermal stresses in the boiler and thus permanent damage. The water in the installation must not be drained unless there is a risk of maintenance or freezing. The system design should ensure that the ratio between the water flow rate and the boiler capacity is not exceeded and the difference between the boiler inlet and outlet water temperatures of 20°C is not exceeded. In order to minimize the water missing in the installation, the water level should be checked regularly and the leaks in the system should be removed. Because excessive water additions to the system will cause lime accumulation on the water side of the boiler and this will cause regional overheating and this will damage the boiler.

The boiler must not be burned directly, it must be installed on a level surface. It is recommended that the height of the base on which the boiler is to be installed shall be at least 10 cm and its width is wider than the outside dimensions of the boiler. Thanks to the base, the boiler is protected from the water that can accumulate on the ground and the fan will be prevented from absorbing dust from the ground.

The fire should not be approached when the lid of the burning boiler is open;



***Do not open the boiler doors while the fan is running.***



***Do not add water when the boiler is hot.***



## ELECTRICAL INSTALLATION INSTRUCTIONS

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UNMAK small boilers are supplied with 230 Volt, 400 Volt mains voltage of large boilers. The regulator should be used where the mains voltage is less than or equal to ten percent.

The control panel must be connected to a wall panel with suitable grounding equipment, the distance between the boiler board and this wall panel must not exceed 50 cm.

All electrical connections must be carried out by authorized personnel in accordance with local regulations.

Separate grounding installation must be done for each boiler room. Earthing installation:

- a) 0.5 m<sup>2</sup>, 2 mm. Thick copper plate,
- b) 0.5 m<sup>2</sup>, 3 mm. thick galvanized plate (hot dip) or
- c) Pure copper rod should be made with electrodes.

The copper rod electrodes must be at least 1.5 m in length or  $\varnothing$  20 mm in diameter and at least 1.25 m in length and the grounding resistance of the rod electrodes should be below the limits of 20 Q. (Neutral-Earth voltage Earth3V)

In all three cases, copper electrodes or plates must be connected to the natural gas installation by soldering or welding using at least 16 mm<sup>2</sup> multi-stranded copper wire and conductive shoe. Copper electrodes or plates should be placed in the ground as a whole, and the conductor remaining on the ground must be connected to the boiler room main table with the pipe housing.



***THIS PRODUCT MUST BE CONNECTED TO A SAFE EARTH LINE!***

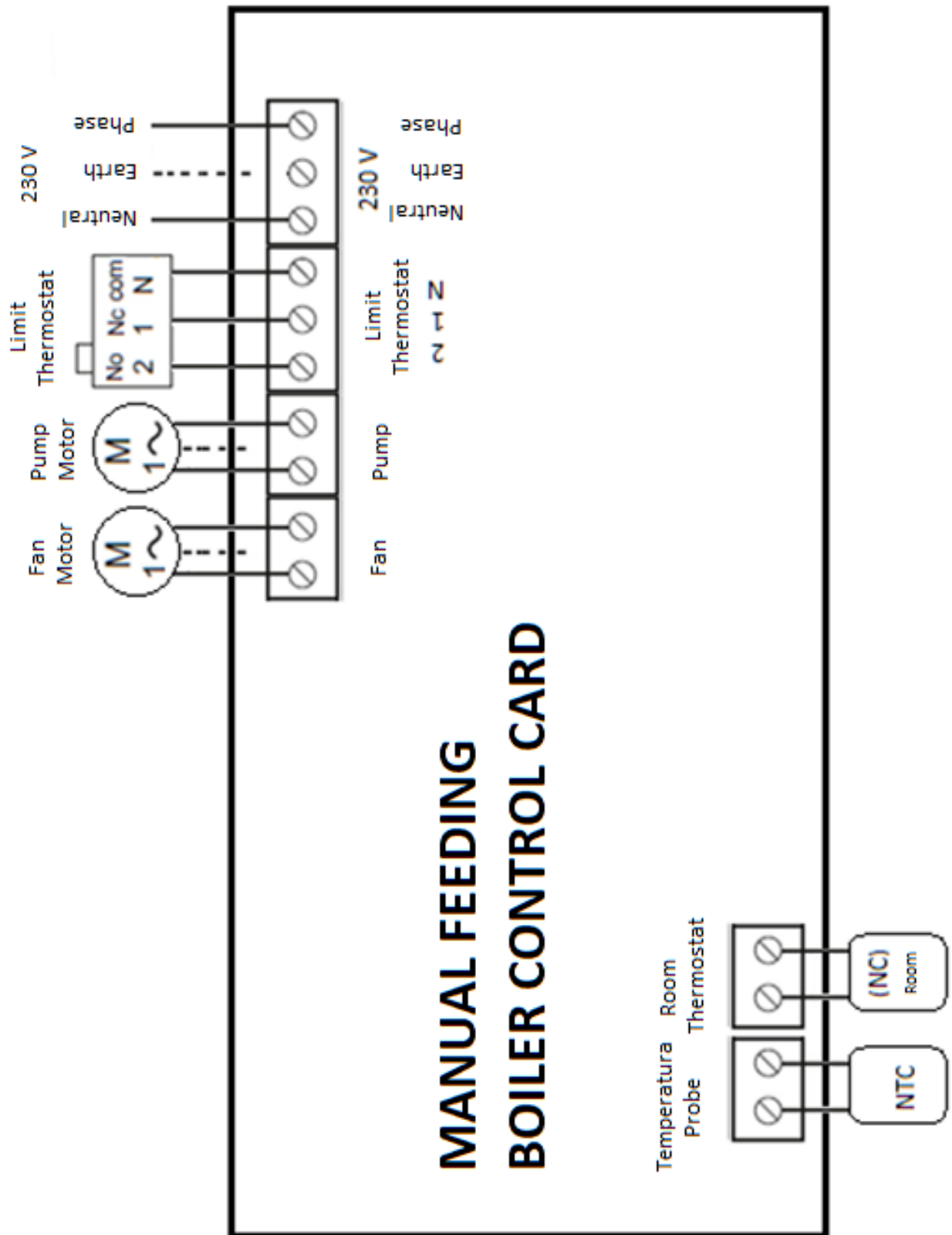


***The boiler must be closed and should not be installed in living spaces.***

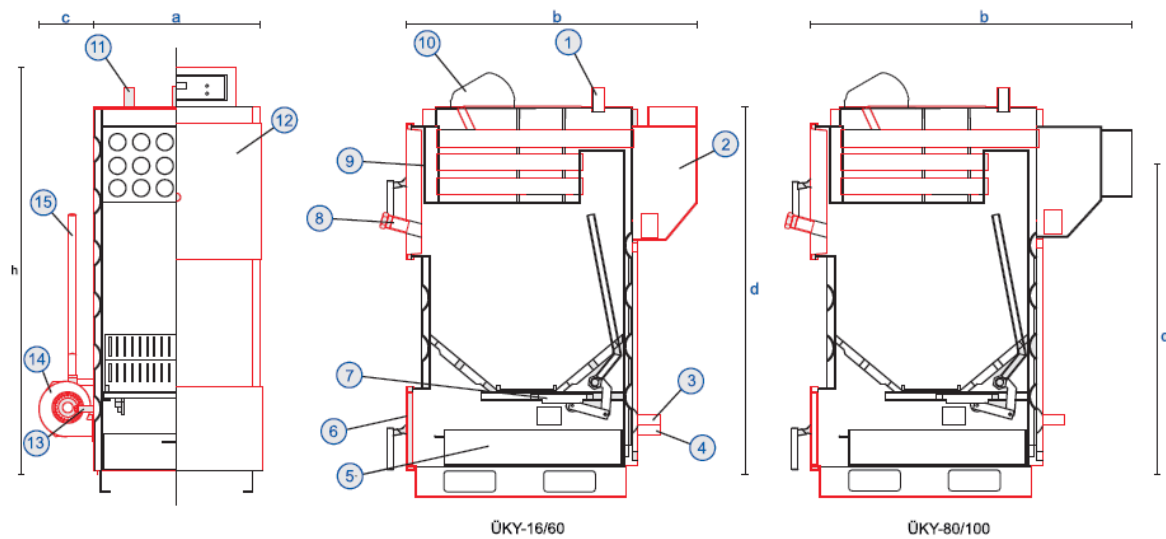
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Manual Control Board Electrical Wiring Diagram

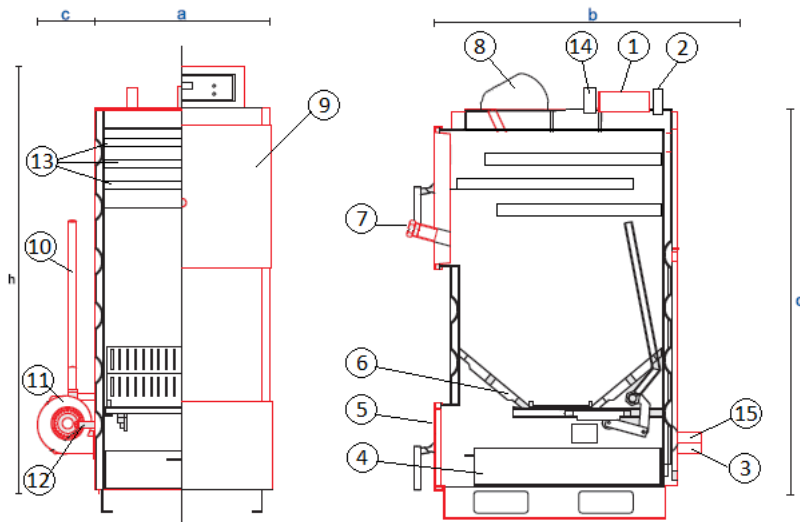


## BOILER FEATURES



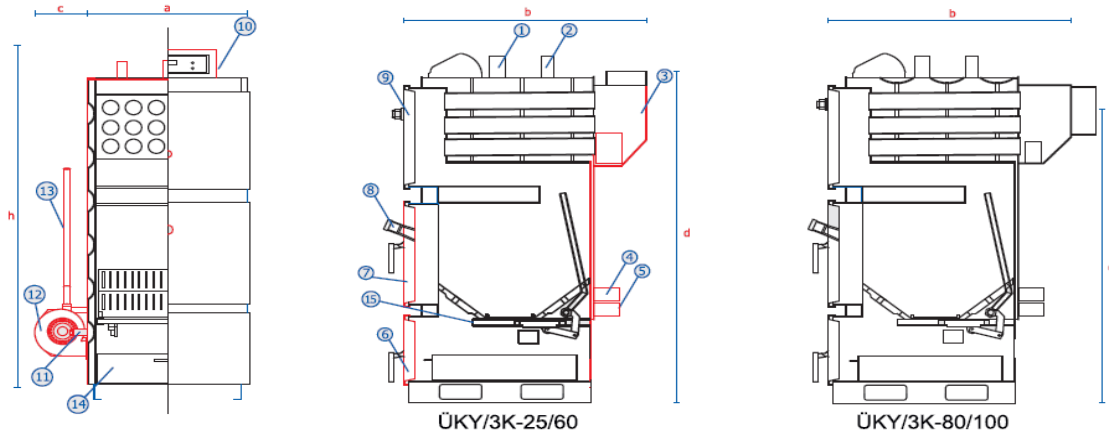
- 1- Safety exit
- 2- Flue
- 3- Hot water return
- 4- Safety return
- 5- Ash pan
- 6- Ash discharge cover
- 7- Moving grid
- 8- Flame inspection hole
- 9- Flame return cover
- 10- Control panel
- 11- Hot water outlet
- 12- Fuel loading cover
- 13- Filling draining
- 14- Fan
- 15- Ash unloading arm

Model - Series: ÜKY		16	25	34	45	60	80	100	
Fuel Type		Log Wood – Coal - Biomass							
Power	kW	19	29	40	52	70	93	116	
	kcal/h	16.000	25.000	34.000	45.000	60.000	80.000	100.000	
Combustion Chamber Height	mm	370		440			400		
Combustion Chamber Length	mm	300	355	500				585	
Combustion Chamber Depth	mm	430	500	430	510	660	850		
Combustion Chamber Volume	Lt	47,7	65,7	94,6	112,2	145,2	187,0	198,9	
Fuel Feeding Area	mm	150x300	180x355	190x500				190x585	
Water Volume	Lt	45	70	80	100	130	200	240	
Boiler Weight	kg	185	230	265	310	370	455	525	
Draft	Pa	15-20		20-30	25-35		30-40		
Temperature Control Range	°C	40-90							
Return Temp. (Recommended)	°C	40							
Max. Operating Pressure	bar	3							
Test Pressure	bar	5							
Dimensions	Length (a)	mm	425	485	625			740	
	Depth (b)	mm	800	880	800	920	1080	1400	1415
	Fan Connection Length (c)	mm	200					250	
	Flue Connection Height (d)	mm	1230		1320	1410		1220	1310
	Boiler Total Height (h)	mm	1320		1400	1480			1565
Flue Diameter	mm	130			160	180	220		
Min. – Max. Flue Temperature	°C	170-210							
Boiler Inlet - Return	G"	1"		1 ¼"		1 ½"	2"		
Safety Inlet – Return	G"	¾"	1"				1 ½"		
Draining – Filling	G"	½"							
Electrical Connection	V/Hz	230/50							



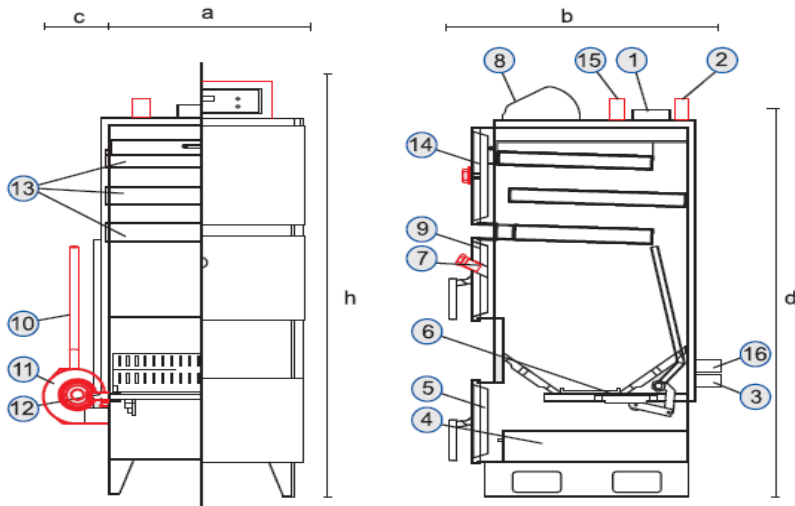
- 1-Flue
- 2- Safety outlet
- 3- Hot water return
- 4- Ash pan
- 5- Ash discharge cover
- 6- Moving grid
- 7- Flame inspection hole
- 8- Control panel
- 9- Fuel loading cover
- 10- Ash unloading arm
- 11- Fan
- 12- Filling and draining
- 13- Water jackets
- 14- Hot water outlet
- 15- Safety return

Model - Series: ÜKY/D2		25	40	60	80	100	
Fuel Type		Log Wood – Coal - Biomass					
Power	kW	29	46	70	93	116	
	kcal/h	25.000	40.000	60.000	80.000	100.000	
Combustion Chamber Height	mm	290	385	440		400	
Combustion Chamber Length	mm	355	500			585	
Combustion Chamber Depth	mm	500	510	660	850		
Combustion Chamber Volume	Lt	51,5	98,2	145,2	187,0	198,9	
Fuel Feeding Area	mm	190x355	190x500			190x585	
Water Volume	Lt	70	100	130	200	240	
Boiler Weight	kg	245	335	380	465	530	
Draft	Pa	25-28	28-30	30-34	32-35	34-37	
Temperature Control Range	°C	40-90					
Return Temp. (Recommended)	°C	40					
Max. Operating Pressure	bar	3					
Test Pressure	bar	5					
Dimensions	Length (a)	mm	485	625			740
	Depth (b)	mm	780	800	910	1120	1200
	Fan Connection Length (c)	mm	200			250	
	Flue Connection Height (d)	mm	1275	1435			1490
	Boiler Total Height (h)	mm	1320	1480			1565
Flue Diameter	mm	130	160	180	220		
Min. – Max. Flue Temperature	°C	170-210					
Boiler Inlet - Return	G"	1"	1 ¼"	1 ½"	2"		
Safety Inlet – Return	G"	1"			1 ½"		
Draining – Filling	G"	½"					
Electrical Connection	V/Hz	230/50					



- 1- Hot water outlet      5- Hot water return      9- Flue pipe cleaning      13- Ash unloading arm
- 2- Safety outlet        6- Ash discharge cover    10- Control panel        14- Ash pan
- 3- Flue                    7- Fuel loading cover      11- Filling and draining   15- Moving grid
- 4- Safety return        8- Flame inspection hole   12- Fan

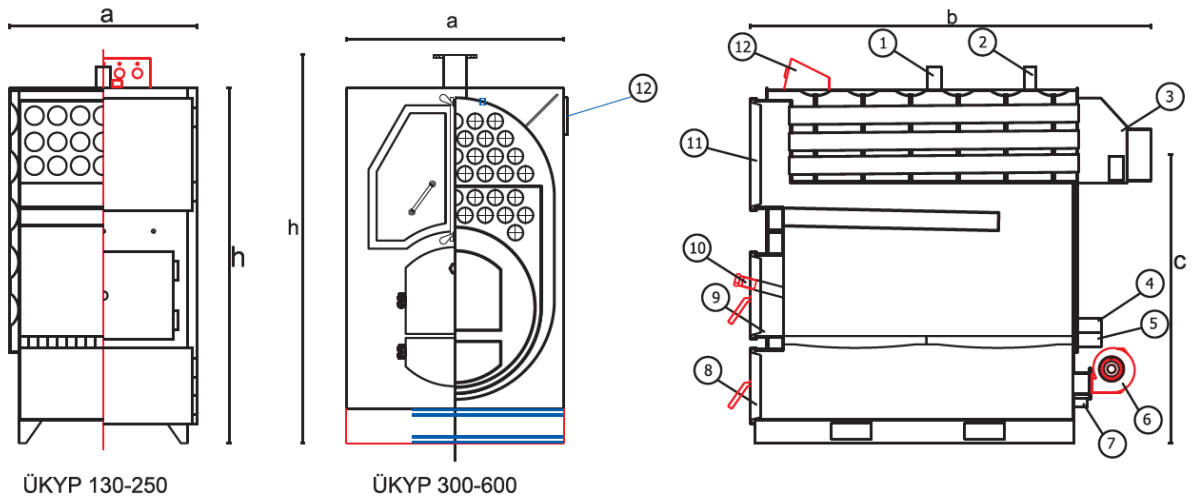
Model - Series: ÜKY/3K		25	34	45	60	80	100	
Fuel Type		Log Wood – Coal - Biomass						
Power	kW	29	40	52	70	93	116	
	kcal/h	25.000	34.000	45.000	60.000	80.000	100.000	
Combustion Chamber Height	mm	175	230	200				
Combustion Chamber Length	mm	355	500				585	
Combustion Chamber Depth	mm	500	430	510	660	850		
Combustion Chamber Volume	Lt	31,1	49,5	51,0	66,0	85,0	99,5	
Fuel Type	mm	250x355	265x500				265x585	
Fuel Feeding Area	Lt	75	85	107	138	206	249	
Water Volume	kg	245	280	335	375	470	575	
Boiler Weight	Pa	15-20	20-30	25-35		30-40		
Draft	°C	40-90						
Temperature Control Range	°C	40						
Return Temp. (Recommended)	bar	3						
Max. Operating Pressure	bar	5						
Dimensions	Length (a)	mm	485	625			740	
	Depth (b)	mm	880	800	920	1080	1400	1415
	Fan Connection Length (c)	mm	200				250	
	Flue Connection Height (d)	mm	1230	1320	1410		1220	1310
	Boiler Total Height (h)	mm	1320	1400	1480			1565
Flue Diameter	mm	130		160	180	220		
Min. – Max. Flue Temperature	°C	170-210						
Boiler Inlet - Return	G"	1"	1 ¼"		1 ½"	2"		
Safety Inlet – Return	G"	1"				1 ½"		
Draining – Filling	G"	½"						
Electrical Connection	V/Hz	230/50						



- 1- Flue
- 2- Hot water outlet
- 3- Hot water return
- 4- Ash pan
- 5- Ash discharge cover
- 6- Moving grid
- 7- Flame inspection hole
- 8- Control panel
- 9- Fuel loading cover
- 10- Ash unloading arm
- 11- Fan
- 12- Filling and draining
- 13- Water jackets
- 14- Cleaning cover
- 15- Safety outlet
- 16- Safety return

Model - Series: ÜKY/D3		25	40	60	80	100	
Fuel Type		Log Wood – Coal – Biomass					
Power	kW	29	46	70	93	116	
	kcal/h	25.000	40.000	60.000	80.000	100.000	
Combustion Chamber Height	mm	185	310			340	
Combustion Chamber Width	mm	355	500			585	
Combustion Chamber Depth	mm	500	510	660	850		
Combustion Chamber Volume	Lt	32,8	79,1	102,3	131,8	169,1	
Fuel Feeding Area	mm	250x355	265x500			265x585	
Water Volume	Lt	70	100	130	200	240	
Boiler Weight	kg	245	340	380	475	580	
Draft	Pa	25-28	28-30	30-34	32-35	34-37	
Temperature Control Range	°C	40-90					
Return Temperature (Recommended)	°C	40					
Max. Operating Pressure	bar	3					
Test Pressure	bar	5					
Dimensions	Length (a)	mm	485	625			740
	Depth (b)	mm	780	800	910	1120	1200
	Fan Connection Length (c)	mm	200			250	
	Flue Connection Height (d)	mm	1275	1435			1490
	Boiler Total Height (h)	mm	1320	1480			1565
Flue Diameter	mm	130	160	180	220		
Min. – Max. Flue Temperature	°C	170-210					
Boiler Inlet - Return	G"	1"	1 ¼"	1 ½"	2"		
Safety Inlet – Return	G"	1"			1 ½"		
Draining – Filling	G"	½"					
Electrical Connection	V/Hz	230/50					



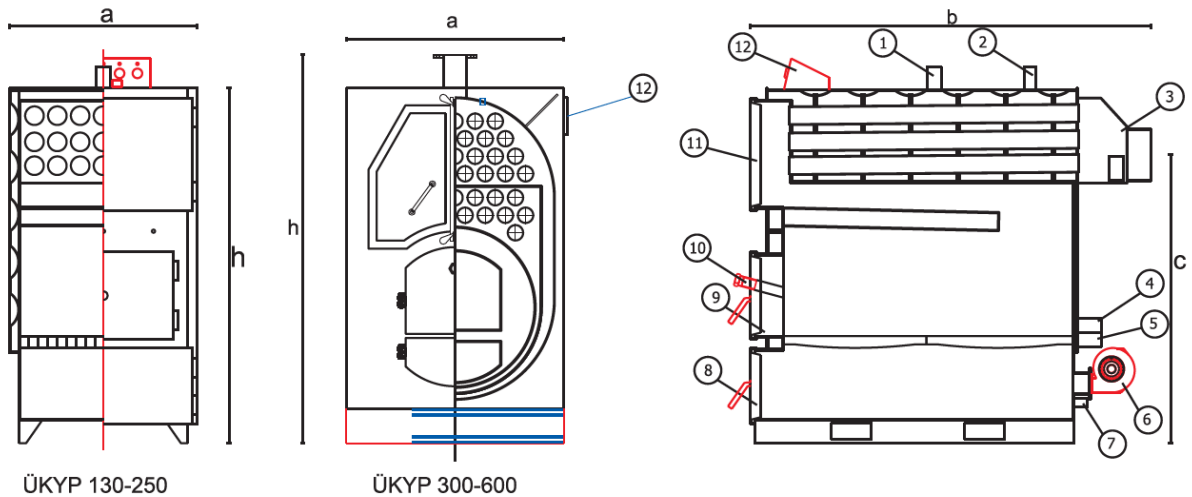


- 1- Hot water outlet
- 2- Safety outlet
- 3- Flue
- 4- Hot water return

- 5- Safety return
- 6- Fan
- 7- Filling and draining
- 8- Ash discharge cover

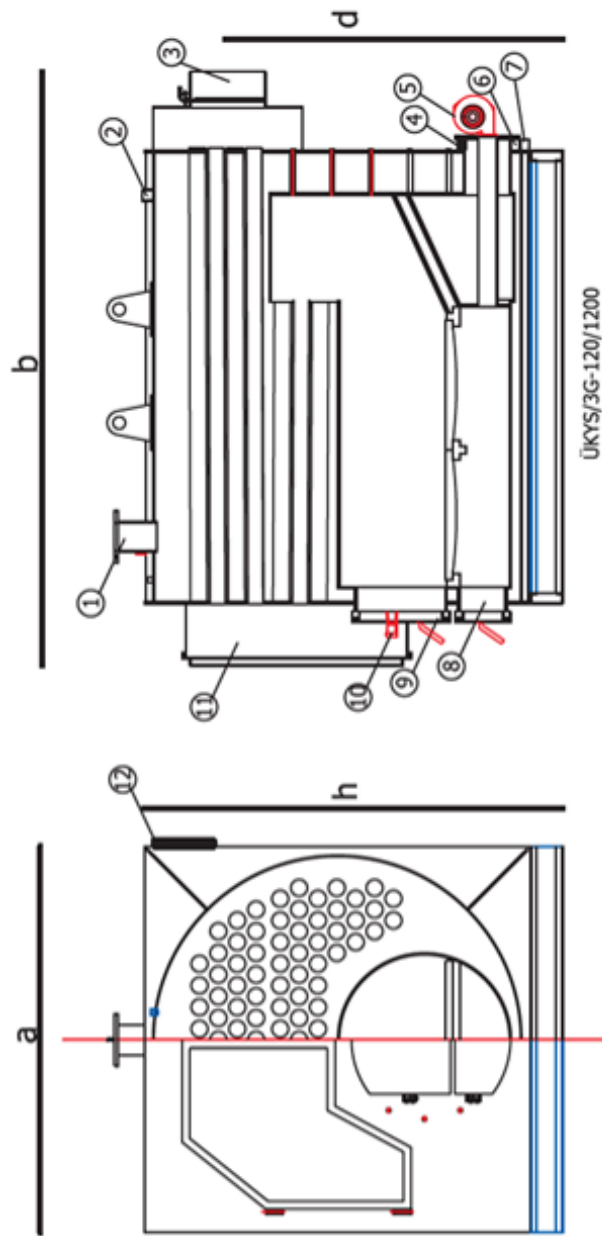
- 9- Fuel loading cover
- 10- Flame inspection hole
- 11- Flue pipe cleaning cover
- 12- Control panel

Model - Series: ÜKYP		130	160	180	200	250	
Fuel Type		Log Wood – Coal - Biomass					
Power	kW	151	186	209	233	291	
	kcal/h	130.000	160.000	180.000	200.000	250.000	
Combustion Chamber Height	mm	510					
Combustion Chamber Length	mm	600		700		800	
Combustion Chamber Depth	mm	1020	1220		1320		
Combustion Chamber Volume	Lt	312	373	436	471	539	
Fuel Feeding Area	mm	440x340					
Water Volume	Lt	320	400	480	560	640	
Boiler Weight	kg	740	855	985	1050	1205	
Draft	Pa	42-45	44-47		45-49		
Temperature Control Range	°C	40-90					
Return Temp. (Recommended)	°C	40					
Max. Operating Pressure	bar	3					
Test Pressure	bar	5					
Dimensions	Length (a)	mm	760		860		960
	Depth (b)	mm	1615	1815		1915	
	Fan Connection Length (c)	mm	1370				
	Flue Connection Height (d)	mm	1640				
Flue Diameter	mm	220					
Min. – Max. Flue Temperature	°C	170-210					
Boiler Inlet - Return	G"	2"				2 ½"	
Safety Inlet – Return	G"	1 ½"					
Draining – Filling	G"	½"					
Electrical Connection	V/Hz	230/50					



- 1- Hot water outlet
- 2- Safety outlet
- 3- Flue
- 4- Hot water return
- 5- Safety return
- 6- Fan
- 7- Filling and draining
- 8- Ash discharge cover
- 9- Fuel loading cover
- 10- Flame inspection hole
- 11- Flue pipe cleaning cover
- 12- Control panel

Model - Series: ÜKYP		300	350	400	450	500	600
Fuel Type		Log Wood – Coal - Biomass					
Power	kW	349	407	465	523	582	698
	kcal/h	300.000	350.000	400.000	450.000	500.000	600.000
Combustion Chamber Height	mm	510	560				
Combustion Chamber Length	mm	755	790				
Combustion Chamber Depth	mm	1045				1400	1510
Combustion Chamber Volume	Lt	402	462			619	668
Fuel Feeding Area	mm	460x380					
Water Volume	Lt	890	925	1240	1195	1505	1570
Boiler Weight	kg	1595	1745	1960	2015	2305	2560
Draft	Pa	47-51				50-53	
Temperature Control Range	°C	40-90					
Return Temp. (Recommended)	°C	40					
Max. Operating Pressure	bar	3					
Test Pressure	bar	5					
Dimensions	Length (a)	mm	1130	1180	1390		
	Depth (b)	mm	2280	2400			2750
	Fan Connection Length (c)	mm	1465	1600	1665		1675
	Flue Connection Height (d)	mm	2000	2055	2095		2125
Flue Diameter	mm	300					350
Min. – Max. Flue Temperature	°C	170-210					
Boiler Inlet - Return	G"	DN 80			DN 100		DN 125
Safety Inlet – Return	G"	1 ½"		2"			
Draining – Filling	G"	½"		¾"			
Electrical Connection	V/Hz	230/50					

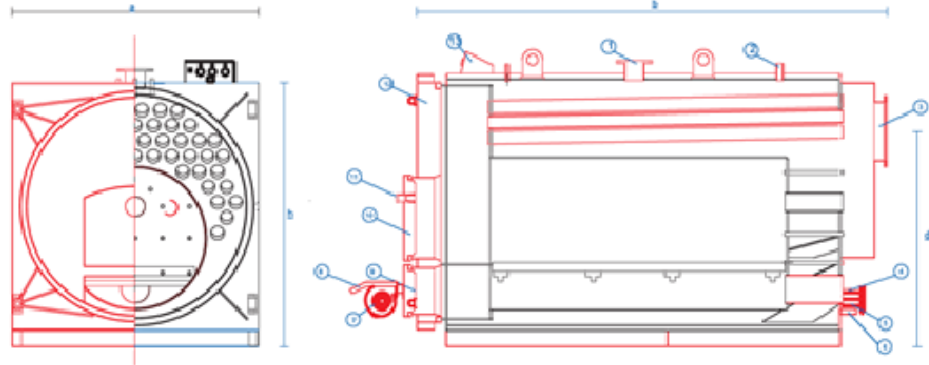


- 1- Hot water outlet
- 2- Safety outlet
- 3- Flue
- 4- Hot water return
- 5- Fan
- 6- Safety return
- 7- Water filling and draining
- 8- Ash discharge cover
- 9- Fuel feeding cover
- 10- Flame inspection hole
- 11- Flue pipe cleaning cover
- 12- Control panel

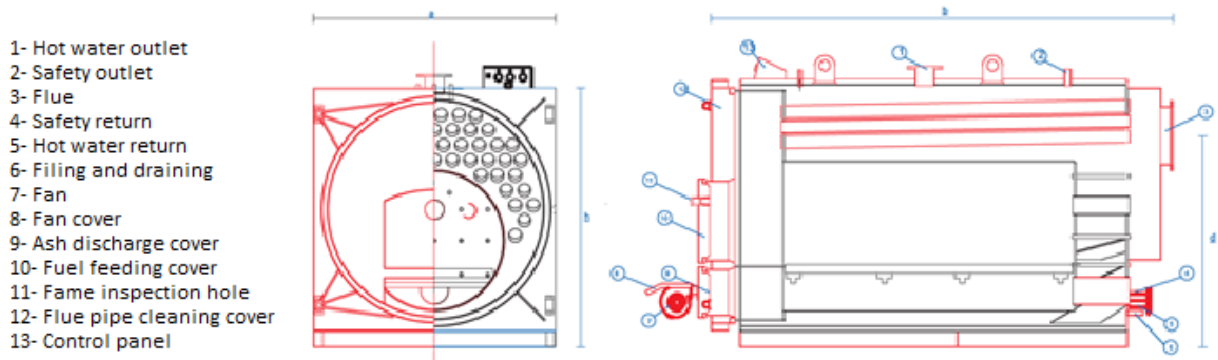
MODEL - SERIES	UKYS/3G	120	150	180	210	240	270	300	330	360	390	420	450
Fuel Type		Wood - Coal - Biomass											
Power	kW	140	174	209	244	279	314	349	384	419	453	488	523
	kcal/h	120.000	150.000	180.000	210.000	240.000	270.000	300.000	330.000	360.000	390.000	420.000	450.000
Combustion Chamber Height	mm	450	485	500	540	560							
Combustion Chamber Width	mm	655	700	750	800	815							
Combustion Chamber Depth	mm	1100											
Combustion Chamber Volume	dm3	324	373	413	575	607							
Fuel Feeding Area	mm	380*345 440*395 460*415											
Water Volume	lt	720	794	894	1146	1276	1213	1768	1814	1905	1987	2063	2433
Boiler Weight	kg	1270	1375	1610	1740	1925	2000	2450	2615	2740	2830	3100	3250
Draft	mbar	0,42 - 0,45 0,44 - 0,47 0,46 - 0,49 0,48 - 0,52											
Temperature Control Range	°C	45-80											
Return Temperature (Recommended)	°C	35											
Max. Operating Pressure	bar	4											
Test Pressure	bar	6											
Dimensions	Width (a)	1200	1240	1320	1428	1510	1580	1600	1650	1700	1790		
	Depth (b)	2220											
	Flue Connec. From bottom (c)	1145	1120	1300	1370	1415	1440	1475	1485	1575			
	Boiler Height (h)	1570	1610	1690	1798	1880	1950	1970	2020	2070	2160		
Flue Connection Diameter	mm	250 300 350											
Min-Max Flue Temperature	°C	170-210											
Boiler Outlet/Return	R"	DN 50	DN 50	DN 65	DN 80	DN 100							
Safety Outlet/Return	R"	1 1/4" 1 1/2" 2"											
Filling and Draining	R"	3/4"											
Electrical Connection	V/Hz	400 V / 50Hz											

MODEL - SERIES	ÜKYS/3G	480	510	540	600	660	720	780	840	900	1000	1100	1200
Fuel Type		Wood - Coal - Biomass											
Power	kW	558	593	628	698	767	837	907	977	1.047	1.163	1.279	1.395
	kcal/h	480.000	510.000	540.000	600.000	660.000	720.000	780.000	840.000	900.000	1.000.000	1.100.000	1.200.000
Combustion Chamber Height	mm	560	595										
	mm	815	850										
Combustion Chamber Width	mm	1330	1510										
	mm	607	764										
Combustion Chamber Depth	dm3	607	850										
	mm	500*435	520*435										
Fuel Feeding Area	lt	2369	2628	2679	2585	2915	3093	3248	3448	3354	4396	4479	4610
	kg	3335	3585	3700	3860	4135	4350	4490	4740	5020	5600	5890	6250
Boiler Volume	mbar	0,51 - 0,54											
	°C	40 - 80											
Temperature Control Range	°C	40											
	°C	4											
Return Temperature (Recommended)	bar	6											
	bar	6											
Max. Operating Pressure	mm	1790	1810	1890	1950	2000	2050	2100	2150				
	mm	2690	2920	3020	3020	3540							
Dimensions	Flue Connec. From bottom (d)	1615	1640	1570	1655	1645	1700	1750	1760	1815	1860		
	Boiler Height (h)	2160	2180	2180	2260	2320	2320	2370	2420	2470	2520		
Flue Connection Diameter	mm	350											
	mm	400											
Min-Max Flue Temperature	°C	170-210											
	°C	DN 125											
Boiler Outlet/Return	R"	DN 100											DN 150
	R"	2"											2 1/2"
Safety Outlet/Return	R"	3/4"											
	R"	400 V / 50Hz											
Filling and Draining	V/Hz	400 V / 50Hz											
	V/Hz	400 V / 50Hz											

- 1- Hot water outlet
- 2- Safety outlet
- 3- Flue
- 4- Safety return
- 5- Hot water return
- 6- Filling and draining
- 7- Fan
- 8- Fan cover
- 9- Ash discharge cover
- 10- Fuel feeding cover
- 11- Flame inspection hole
- 12- Flue pipe cleaning cover
- 13- Control panel



Model - Series: ÜKYS		200	225	250	300	350	
Fuel Type		Log Wood – Coal - Biomass					
Power	kW	232	262	291	349	407	
	kcal/h	200.000	225.000	250.000	300.000	350.000	
Combustion Chamber Height	mm	400	410	450		500	
Combustion Chamber Length	mm	675		720		760	
Combustion Chamber Depth	mm	1200			1500		
Combustion Chamber Volume	Lt	324	332	389	486	570	
Fuel Feeding Area	mm	450x400		550x470		550x460	
Water Volume	Lt	900	1000	1050	1260	1440	
Boiler Weight	kg	1850	2050	2160	2440	2750	
Draft	Pa	44-47		46-49			
Temperature Control Range	°C	40-90					
Return Temp. (Recommended)	°C	40					
Max. Operating Pressure	bar	4					
Test Pressure	bar	6					
Dimensions	Length (a)	mm	1250	1350	1400		1500
	Depth (b)	mm	2210			2650	
	Fan Connection Length (c)	mm	1015	1115	1165		1265
	Flue Connection Height (d)	mm	1530	1630	1680		1780
Flue Diameter	mm	300				350	
Min. – Max. Flue Temperature	°C	170-210					
Boiler Inlet - Return	G"	DN 65	DN 80				
Safety Inlet – Return	G"	1 ¼"		1 ½"			
Draining – Filling	G"	¾"					
Electrical Connection	V/Hz	230/50					



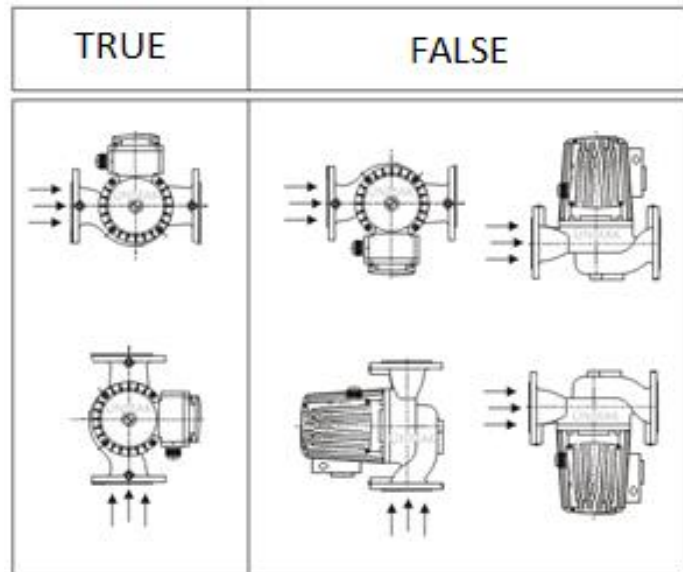
Model - Series: ÜKYS		400	450	500	600	700	800	
Fuel Type		Log Wood – Coal - Biomass						
Power	kW	465	523	581	697	814	930	
	kcal/h	400.000	450.000	500.000	600.000	700.000	800.000	
Combustion Chamber Height	mm	500	570		580	740	780	
Combustion Chamber Length	mm	760	810		840	940	980	
Combustion Chamber Depth	mm	1800		2000				
Combustion Chamber Volume	Lt	684	832	924	974	1391	1529	
Fuel Feeding Area	mm	550x460	550x455		600x500			
Water Volume	Lt	1880	1990	2050	2560	3090	3300	
Boiler Weight	kg	3020	3500	3670	4375	5150	5670	
Draft	Pa	46-49	48-52			51-54		
Temperature Control Range	°C	40-90						
Return Temp. (Recommended)	°C	40						
Max. Operating Pressure	bar	4						
Test Pressure	bar	6						
Dimensions	Length (a)	mm	1500	1550		1700	1900	1930
	Depth (b)	mm	3025	3090	3360	3400	3550	
	Fan Connection Length (c)	mm	1265	1315		1465	1665	1695
	Flue Connection Height (d)	mm	1780	1830		1980	2180	2210
Flue Diameter	mm	350				400		
Min. – Max. Flue Temperature	°C	170-210						
Boiler Inlet - Return	G"	DN 80	DN 100		DN 125			
Safety Inlet – Return	G"	2"					2 ½"	
Draining – Filling	G"	¾"						
Electrical Connection	V/Hz	230/50						

## RULES FOR HEATING INSTALLATION

### Circulation Pump:

A pump with sufficient capacity is recommended. The capacity of the required pump is determined by taking into account the resistance in the installation. Refer to the wiring diagrams in the manual to determine the correct position of the pump in the system. The pump stage must be adjusted according to the resistances in the installation.

In addition to the schematic installation connection shown in high-capacity boiler installations, a backup pump system must be installed. The by-pass line must be connected directly to the spare pump line as a primary pump. Boiler inlet and outlet lines must be connected with collectors. For open expansion installations, the head of the pump must be less than the height of the expansion, so that the system does not make air.



When the circulation pump is installed, the failure of the electrical connections to come down will eliminate the problem of entering the water into the pump. Perpendicular installation of the shaft should also be avoided in order to prevent the pump shaft from pressing the housing or the outer cover during operation.

### Expansion tank:

In hot water heating systems, when the water is heated from 10°C to 90°C, its volume increases by 3.55% in its first volume. Expansion tanks are used in order to obtain this expansion due to the temperature in the water. Expansion tanks also fulfill the safety of the system, that is, the pressure does not rise, and the necessary water support functions for the system.

### Open expansion tanks:

At the top of the system, the roof is put on the level difference and works open to the atmosphere. An expansion tank is placed at a slightly higher point than the highest point of the dispensing system to collect the expanded water volume. The water that expands in the boiler is stored in the expansion



tank by means of a travel safety pipe. When the water in the installation cools, the water of the installation is completed by the expansion tank by means of the return safety pipe. As the expansion tank also opens the system to the atmosphere, it ensures the safety of the system by preventing the pressure in the heating installation to rise above atmospheric pressure. The venting pipes are opened from the expansion tank to the atmosphere and the air in the system is discharged. It is recommended to use separate expansion tanks according to their capacities for each boiler in the installation. That is, it is not correct to connect the two boilers to a single expansion tank. There are return and return safety pipes for each boiler and expansion tank. Valves, check valves etc. on these safety pipes. No fittings such as material should not be installed. Safety pipes must reach the nearest point of the boiler inlet and outlet by the shortest vertical path. Horizontal movement is only allowed at the level of the expansion tank and at minimum length.

UNMAK solid fuel boilers must be connected to an installation with an open expansion tank in accordance with the installation diagram shown below. The circulation pump can be connected to the return or return line. If the pump is in the boiler return; the open expansion tank must be higher than the discharge head of the pump.

**Warning about the water level:**

After the first water is pressed into the system, the minimum water level must be marked on the hydrometer. Water level should be checked on a daily basis and water should be added to the installation when it falls below the minimum value.



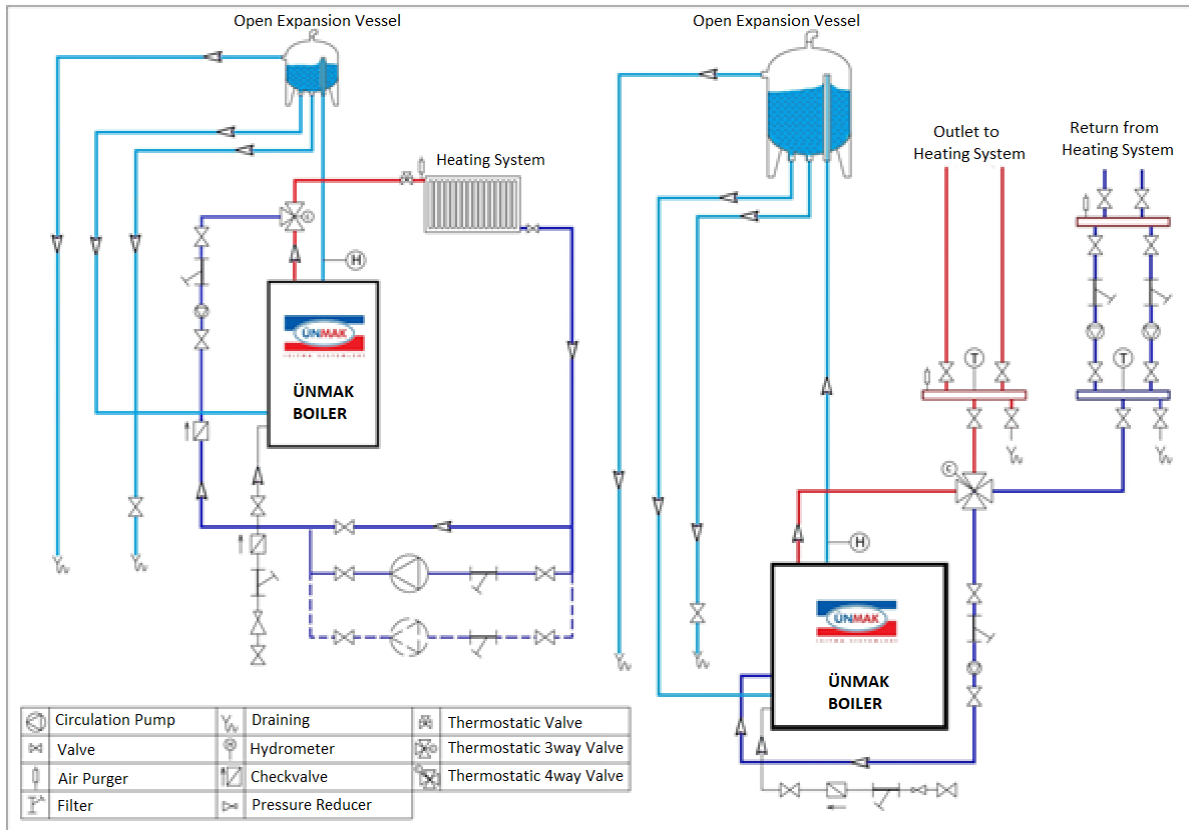
***Adding fresh water to the installation should only be carried out when the installation is cold.***

*Expansion tank volumes that must be rated according to the rated boiler capacity*

<b>Boiler Power (Mcal/h)</b>	<b>Open Expansion Volume (lt)</b>	<b>Boiler Power (Mcal/h)</b>	<b>Open Expansion Volume (lt)</b>
25	50	360	750
34	50	390	750
40	50	400	750
45	90	420	750
60	90	450	750
80	110	480	750
100	210	500	750
120	210	510	750
130	210	540	1000
150	210	600	1000
160	300	660	1000
180	300	700	1000
200	300	720	1000
210	300	780	1200
225	500	800	1200
240	500	840	1300
250	500	900	1400
270	500	1000	1500
300	500	1100	1600
330	500	1200	1800
350	500		

*Open expansion tanks were selected by considering the open expansion volumes of Ünmak brand and panel radiator in the system.*

### Wiring diagram with open expansion tank



#### Warning of corrosion in installation:

UNMAK boilers are extremely resistant to corrosion. However, all iron-based components in the heating installation (including installation pipes and radiators) must be protected against corrosion. Oxygen in the heating water causes oxidation of the iron surfaces resulting in rust and thus loss of material.

During the initial filling of the installation, the accumulated air must be evacuated. Usually, if the necessary measures are taken after the first filling, there is no damage caused by the oxygen in the water. Oxidation is mostly caused by oxygen which is involved in the heating water during operation.

#### Warning against frost protection:

The heating installation must be completely isolated. Outdoor parts of the installation should be isolated more than the interior. If operating with an open expansion tank, the return and return pipes to the expansion line must be isolated or even the expansion tank must be isolated.

#### Considerations in new installations:

To minimize the addition of fresh water system design and sizing should be done correctly. None of the materials used in the installation must have a gas permeability. A maximum of 50 micron filters of synthetic or metal porous must be placed on the fresh water splicing line.

**Considerations for heating connected to old installations:**

A long-term heating system produces a protective layer (black magnetite) on metal surfaces in contact with water. When a new boiler is installed in the old system, the clean surfaces of the boiler will be the first place to start corrosion. Therefore, when a new boiler is connected to the old heating system, in addition to the measures to be taken for new systems, the following issues should be considered:

1. The old system must be thoroughly rinsed to remove any impurities and sediments from the boiler before connecting.
2. A manual valve air separator must be installed at the top of the system.



***Before installing a new boiler in the old heating installation, the installation must be washed several times with water.***



***The chimney must be cleaned before installation into the old chimney installations.***

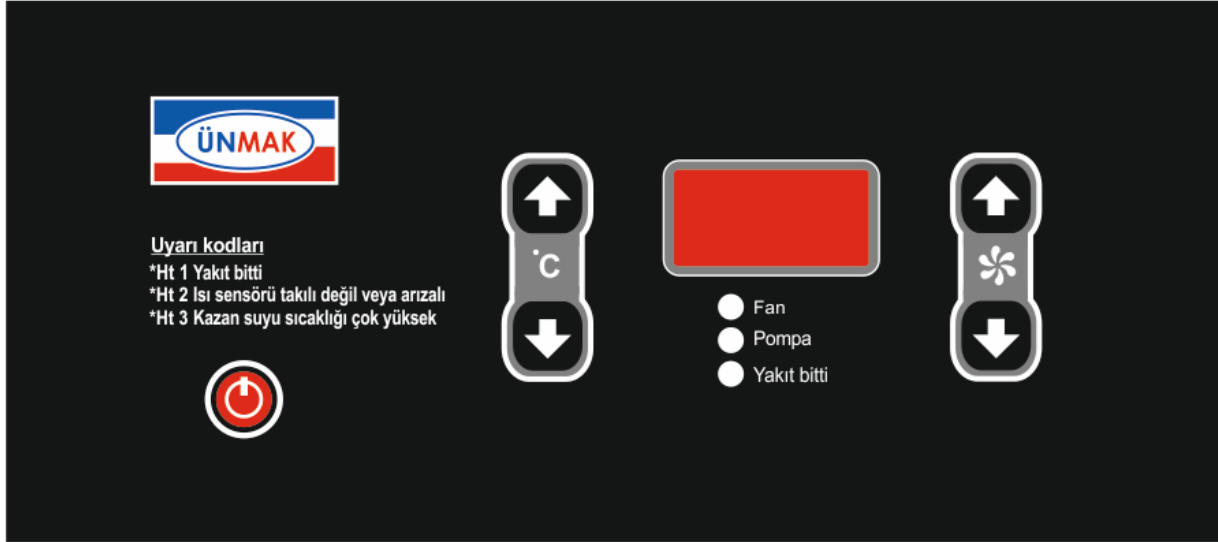


***Each boiler chimney must be detached. Never connect more than one boiler to the same flue system.***



## CONTROL PANEL AND USER INTERFACE

### Buttons and Explanations





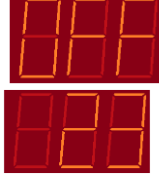

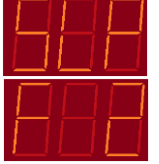


ON/OFF button		Used to turn the control panel on and off.
Temperature Set		It is used to make "Temperature Setting" in the device. The value decreases when the down arrow is pressed, the value increases when the up arrow is pressed.
Fan Set		It is used to determine the fan speed. The value decreases when the down arrow is pressed, the value increases when the up arrow is pressed.

	<b>1st Group</b> Warning Codes: <b>Ht1:</b> No Fuel <b>Ht2:</b> Heating Probe is not Fit or Probe Fault <b>Ht3:</b> Over Temp.	<b>2nd Group</b> <ul style="list-style-type: none"> <li><input type="radio"/> Fan</li> <li><input type="radio"/> Pump</li> <li><input type="radio"/> No Fuel</li> </ul>
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Warning and error messages are located at the top right of the panel. Lights on the sides illuminate when the fan and pump are running. When the fuel in the boiler is over, the light on their sides lights up to report the error.

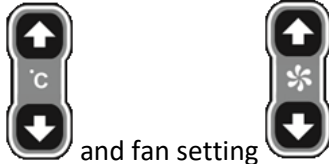
## START-UP

The following steps should be followed for the initial start of the boiler:

Check for any visible glitches in the installation. If there is an error, please refer to the "Information on Usage Errors" page and correct the malfunctions.	
Observe that manometers are used in closed systems and water is not lost in hydrometrical installations in open systems. Add water if it is missing.	 Hidrometre
Check for visible glitches in the power line of the boiler. If there is an error, please refer to the "Information on Usage Errors" page and correct the malfunctions.	
If you are going to burn coal; If you are going to burn coal origins, fill the boiler with wood pieces, wood etc. put wood, burn wood on the floor, newsprint paper, etc. to make it easy to ignite.	
When the device is plugged in, the first display on the side will show the trip wire OFF. Press the On / Off  button to open the control panel. When it is opened, the probe meter will show the boiler water temperature as seen on the second screen.	
Burn the fuel inside the boiler.	
 Press the button to set the fan speed. The first time the button is pressed, the fan may be in sleep (the SLP letters are displayed like the first screen on the side). Press the up arrow button to bring it to F2 (second screen) for the first burn.	
 Set the first warm temperature with the arrows up and down the 60 oC button.	
You can increase the fan speed when the fuel in the boiler is fully engaged.	

Sıcaklık ayar ve fan ayar butonları ile ayarladığınız değerler otomatik olarak kaydedilecektir.

Sıcaklık ayar butonunda oklardan birisine basılı tutulduğunda değerler hızlı ilerleyecektir.



The temperature setting and fan setting buttons will automatically save the values you have set.

The values will scroll quickly when you hold down one of the arrows on the temperature setting button.




**Increasing the fan speed excessively will cause some heat to be thrown out of the chimney. Air given at one and many times in the air will cause adhesion in the slag.**

## APPLICATION BY TYPES


### UKY and ÜKY / D2 SERIES BURNING APPLICATION





The combustion logic of the UKY and ÜKY / D2 type boilers is the combustion of the boiler after it is completely filled with fuel. The combustion chamber of the boiler is completely filled and burned. When necessary, it can be put to sleep by decreasing the

temperature from the temperature setting buttons  on the control panel. The fan does not start and saves fuel until it reaches the set temperature. According to the isolation of the place where it is installed, comfort requirement, fuel quality, traction, the fuel may remain asleep for hours. It is not preferred to add fuel to these boilers, but only when the fuel in the combustion

chamber is exhausted.

Fill the boiler's combustion chamber with fuel up to the lid level. If coal is used as fuel, ignite with wood parts. Open the control panel by pressing and holding the ON / OFF button  after closing the

bottom  and top cover of the boiler. Adjust the desired temperature from the temperature control buttons on the control panel (not to be set below 50 ° C). Set the fan speed setting on the fan speed

control  buttons. When the boiler water temperature reaches the set degree, the fan will be disabled. The fan will stop automatically when the water temperature drops to 27 ° C in the boiler. If it does not reach the set setpoint for a certain time, it gives a fuel out warning.


When the fuel in the boiler is over, pull the ash discharge lever while the lids are closed, take the ash into the ash trough, and close the boiler again. When the boiler water temperature reaches 30-40 ° C, the pump is activated automatically.


Since the cold air entering the furnace when it is opened in January, cooling the furnace and thus cause the fuel loss, coal removal, swelling and slag removal operations should be done very quickly and the cooker door should be closed.


**ÜKY/3K and ÜKY/D SERIES BURNING APPLICATION**



Fill the boiler's combustion chamber with fuel up to the lid level. If the fuel to be used is charcoal, then wood, newspaper paper and other charcoal-derived fuels. Ignite with type. Open

the control panel by pressing ON / OFF  by closing the bottom and top cover of the boiler. Adjust the desired

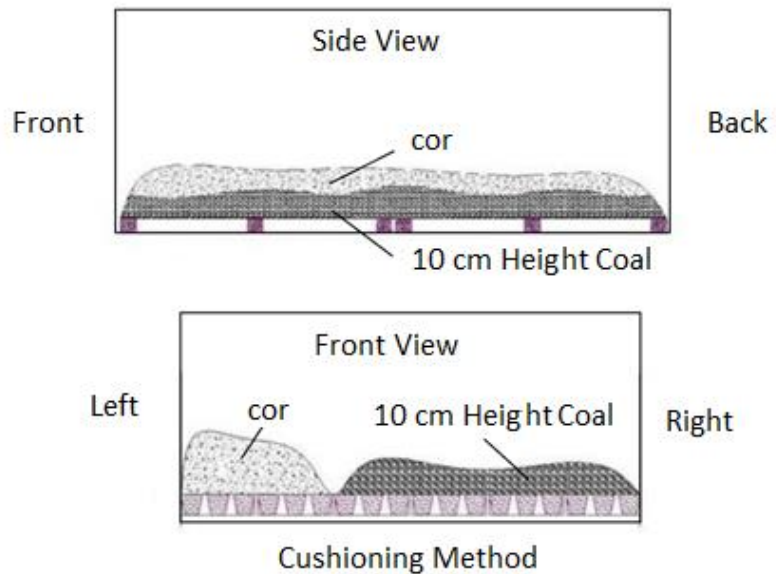
temperature from the temperature control buttons  on the control panel (not to be set below 50 °C). Set the fan speed

setting on the fan speed control buttons  on the control

panel. When the boiler water temperature reaches the set degree, the fan will be disabled. The fan will stop automatically when the water temperature drops to 27 °C when the fuel is exhausted.

When the fuel in the boiler is over, pull the ash discharge lever while the lids are closed, take the ash into the ash trough, and close the boiler again. When the boiler water temperature reaches 30-40 °C, the pump is activated automatically.

It is checked by looking through the peep hole of the boiler hearth (orange flame). When the charcoal on the grill has become a burner, the existing coal is collected on the right half of the grill and the new coal is laid on the left side of the grill. Thus, with the cushioning method, a right half of the grill can be burned with charcoal.



Since the cold air entering the furnace when it is opened in January, cooling the furnace and thus causes the coal loss, coal removal, swelling and slag removal processes should be done very quickly and the cooker door should be closed.

**ÜKYP, ÜKYS and ÜKYS/3G SERIES BURNING APPLICATION**



The charcoal loading cap is opened and the coal is laid on it in 10-15 cm thickness. With the exception of wood to be placed in the front of the grid (some), the coal is controlled (especially at the corners) where there is no uncovered space. Wood or chip is placed on the front side, if there is a small amount of gas is poured on it. Paper pieces are placed and ignited. For ignition, no form of flammable, explosive substances such as gasoline is used. At this stage the fan must be off, the pump must be in the open position.

The coal cover is closed. The ash door is opened to the end to allow the coal to ignite with natural traction. When the fire is spread over the entire grate surface, the fire is reinforced with 1/3 of the boiler capacity and the ash door is closed tightly and the fan is started. In this position, combustion can be achieved without the fan running. This depends on the quality of the coal. The ash cover can also be opened semi-open. When the boiler water temperature reaches 30-40 °C, the pump is activated automatically. In other models, when the boiler temperature rises to 50-60 °C, the pump is started by closing the bay-pass valve.

It is checked by looking through the peep hole of the boiler hearth (orange flame). When the charcoal on the grill is emitted, the existing coal is collected along the grid in the right half of the grid. New coal is laid on the left side of the grill. Thus, with a cushioning method, a right half of the grill is burned with charcoal.

Since the cold air entering the furnace when it is opened in January, cooling the furnace and thus causes the coal loss, coal removal, swelling and slag removal processes should be done very quickly and the cooker door should be closed.

### **Suppression of the fire pot**

Above all, the charcoal to be cast on the grid should be adjusted by experience; when the fire pot is pressed, the charcoal on the grill should now be intact. This layer is covered with dry coal. In this case, the fan and ash cover should be closed, the circulation pump stopped and the by-pass valve opened.

### **Refire of the Pressed Fire Pot**

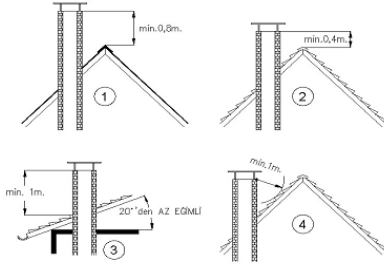
The ash door is opened or the fan is operated to allow air to enter underneath the grid. The coal on the grill is mixed and the slag is removed, the embers are exposed and the coal is laid on it. The ash door is closed when the layered charcoal layer is completely ignited.

When the boiler water temperature exceeds 60-70 °C, the by-pass valve is closed. Circulation pump is taken into operation and the boiler is taken into operation.

## INFORMATION ON COMBUSTION

In order to ensure correct combustion, as a general rule, the air supplied to the fuel must be at a certain rate. So the fan speed should be adjusted well. The air required for a certain amount of fuel should not be too much. If the amount of air which is changed depending on the type of fuel is less than the required amount of carbon monoxide, the energy produced is reduced, the combustion starts, the combustion efficiency decreases, the air quantity is decreasing, the carbon monoxide decreases while the non-combustion air is heated from the chimney by heating in the furnace, the combustion is deteriorated and the combustion efficiency It decreases.

If the temperature of the flue gas is above the accepted values, excess energy will be ejected from the flue to the atmosphere. The material, the way of construction and the connection of the chimneys are important in terms of high combustion efficiency, low heating cost and protection of the environment.



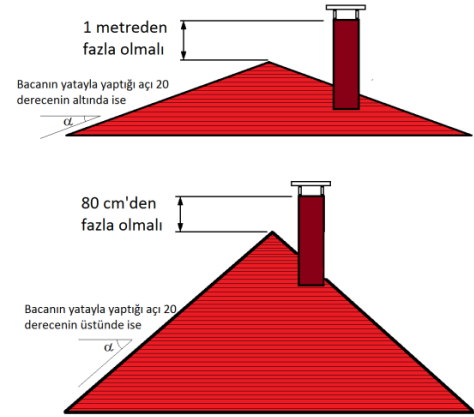
The chimney must be good for burning to be good. It is recommended to use a high temperature resistant firebrick and stainless steel chimneys. The horizontal smoke ducts should be connected to the

chimney with a slope of at least 5% and the length should never exceed 1/4 of the height of the chimney. The height of the chimney should be well determined. The chimney sections must be circular unless necessary.

Never use a hollow brick on the chimney walls. The most ideal is the creation of fire bricks.

UNMAK boilers must be connected to an independent chimney that can provide the minimum desired minimum traction. Minimum traction is usually min. It should be measured with a manometer in 20 Pa. The part of the waste gas line between the boiler and the chimney should be insulated with glass wool. The waste gas pipe and flue pipe shall be made of steel sheet or material which is resistant to 400 oC. All connections on the exhaust gas pipe must be sealed to obtain better combustion and efficiency. The waste gas pipe must be connected to the chimney in the shortest way within the dimensions given in the diagram below. Horizontal connections and equipment such as elbows should be avoided.

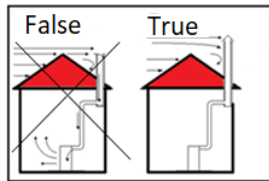
A vertical steel pipe should not be used as a chimney, the chimney must have an inside and an outer surface. The outer surface may be steel or brick braided. For the inner surface of the chimney, corrosion-resistant stainless steel may be preferred. In order to prevent condensation, thermal insulation should be applied to the space between the inner and outer surfaces of the chimney.



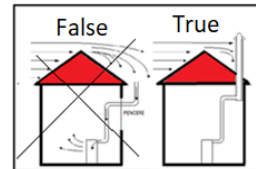
At the lowest level of the chimney, there must be a cleaning lid made of steel that is sealed.

The length of the exhaust gas pipe between the chimney and the boiler must not exceed a quarter of the height of the chimney.

The size of the waste gas pipe and the chimney should be greater than the size of the waste gas outlet (fumes) of the boiler. The boiler chimney installed must be at least 1 meter above the roof of the space and at least 0.4 meter above the tiled roofs.



Chimney without chimney head and chimney head



Correctly installed chimney and chimney head with incorrectly installed chimney



**Excess air causes high flue temperature, high flue temperature also causes combustion in combustion efficiency.**

It is recommended to have a qualified firefighter for boiler rooms. Unburned charcoal dusts falling under the grid during combustion should not be discarded with ash and burned again in order to be more efficient in combustion.

Do not throw unburned coal on coal burning in the boiler. Burn the unburned coals to the right and left, one side, or backwards.



**Excess air causes high flue temperature, high flue temperature causes loss of combustion efficiency.**

To burn with the cushioning method it is necessary not to cover the flame. Combined with the flames of coal on the coal to ignite the coal and start burning. At regular intervals to swell the fever, the opening helps oxygen entry and accelerates the flame.

In order to let the boiler sleep, the flame must be covered with moist coal. Turn the fan off and set the chimney damper to half position according to the chimney traction status. In order to awaken the same boiler, the chimney blade must be opened and the combustion should be revived by allowing the escape of the compressed gases.

## MAINTENANCE AND BOILER CLEANING

For your system to work efficiently, regular maintenance is required by specialist teams according to the manufacturer's instructions.

### Regular checks:

- The water level should always be checked. The hydrometer (water level indicator) should be marked after the first filling of the system. If water level or pressure drops below the static pressure or system setting, water addition (boiler cold) must be done to the system. To protect the system and the boiler from corrosion, the water to be fed into the system needs to be softened according to local settings.
- Check that the front doors are closed properly, and if necessary, the door wickets should be replaced.
- Check that there is a gas leak from the chimney connection. If there is a leak, it must be repaired.
- Boiler heating surfaces should be checked. The formation of the corporation depends on the type of fuel used and the amount of combustion air. If it is understood that the outlet water temperature can not rise to the usual values in usual conditions, the boiler surfaces are treated, the heat transfer surfaces of the boiler should be cleaned.
- Check that the fan is working properly. A non-functioning, balanced fan will sound periodically. If fuel dusts or ashes are gathered between the fan blades, it is necessary to blow the fan blades without disturbing the blades or clean the blades by holding the drying machine.

### Boiler cleaning:

It should be done when the boiler is cold. Before cleaning the pump, the electrical equipment connected to the system must be switched off.

### To clear the boiler:

- In smoke tube boilers, the smoke pipes of the boiler should be cleaned individually between jackets in water-filled boilers. When the brush is inserted into the pipes, it must be completely retracted. Otherwise, the wire will not be able to return the brush because the wires of the brush can not be returned in the pipe.
- Bitumen on the walls of the boiler forms a layer, which will prevent the energy that is released in the boiler from passing through the water, thus resulting in low efficiency. To prevent this, all heating surfaces should be cleaned regularly with the help of a spatula or as required.
- The boiler with the smoke box should be cleaned from the ashtray and underneath the grill cleaning door at regular intervals or as needed.
- The control panel dust must be protected from moisture and water. The terminals behind the panel must remain dust free.
- Boiler outer cover sheets can be cleaned as needed.

### Maintenance:


The system has a contracted service before each working season; We strongly advise you to call our authorized service to check the boiler, fittings, electrical connections, syringe. Never do maintenance work without the help of an expert.



**Chimney cleaning should be done by a firm that has successfully passed certification training in your city organized by the fire department chairs.**

## INFORMATION ON USAGE ERRORS

PROBLEM	CAUSE	SOLUTION
Insufficient heating	<ul style="list-style-type: none"> <li>Boiler heat transfer surfaces may be coated with soot and soot</li> <li>The fuel used may be of poor quality</li> <li>Pump may not be working</li> <li>Isolation failure</li> <li>Overloading the boiler</li> </ul>	<ul style="list-style-type: none"> <li>Clean with a spatula. (the boiler should not burn)</li> <li>Change the fuel and take some fuel before you buy it.</li> <li>Call for service, make sure the control panel's plug is plugged in.</li> <li>Increase the heat insulation of the room where the boiler is installed</li> <li>Load with padding, do not cover all walls of the boiler</li> </ul>
The bad side is not good	<ul style="list-style-type: none"> <li>Less combustion air</li> <li>Lack of chimney traction</li> </ul>	<ul style="list-style-type: none"> <li>Make sure the fan is running, making sure that the clasp is not turned off.</li> <li>Check that there are no holes or cracks in any part of the boiler. If it is not enough yet, consult your abdomen.</li> <li>Have your chimney isolated.</li> </ul>
The appearance of bitumen in smoke pipes	<ul style="list-style-type: none"> <li>Incineration of plastic derived fuels in the boiler</li> <li>The boiler is not warmed</li> </ul>	<ul style="list-style-type: none"> <li>Never burn plastic debris in the boiler.</li> <li>Check that there are no holes or cracks in any part of the boiler. If it is not enough yet, consult your abdomen. Have your chest isolated.</li> </ul>
Excess fuel consumption	<ul style="list-style-type: none"> <li>Poor quality fuel</li> <li>High chimney draw</li> <li>Excess air</li> <li>Insufficient space insulation</li> </ul>	<ul style="list-style-type: none"> <li>Change your fuel</li> <li>Check that there are no holes or cracks in any part of the boiler. If it is not enough yet, consult your abdomen.</li> <li>Reduce fan speed.</li> <li>Increase the heat insulation of the room where the boiler is installed</li> </ul>
Smoke gas leakage from the boiler front doors	<ul style="list-style-type: none"> <li>Wear of cover wicks</li> <li>Deformation of covers</li> </ul>	<ul style="list-style-type: none"> <li>Change wicks.</li> <li>Ensure that the burner does not rest on the covers. Get help from authorized service centers for deformed covers.</li> </ul>
The boiler can not reach the set temp.	<ul style="list-style-type: none"> <li>The temperature may have come out of the sensor housing</li> <li>The control panel may not be receiving power</li> <li>Fuel may be low</li> </ul>	<ul style="list-style-type: none"> <li>Replace the temperature sensor end of the control panel card by lifting the boiler top cover. Pour heat transfer oil into the housing.</li> <li>Connect the plug of the control panel to the power supply. If it still does not work, call the service.</li> <li>Perform fuel loading</li> </ul>
Heating of the expansion tank	<ul style="list-style-type: none"> <li>Expansion tank is under pump effect</li> </ul>	<ul style="list-style-type: none"> <li>Increase the expansion tank further or reduce the cycle of the pump.</li> </ul>

PROBLEM	CAUSE	SOLUTION
Partial heating of the radiators	<ul style="list-style-type: none"> <li>Radyatör içinde hava olması</li> <li>Pompanın yetersiz kalıyor ya da düşük kademede çalışıyor olabilir</li> </ul>	<ul style="list-style-type: none"> <li>Air in the radiator</li> <li>The pump is running low or may be running low</li> </ul>
Combustion failure	<ul style="list-style-type: none"> <li>Excessive air supply by the fan before full ignition is provided</li> </ul>	<ul style="list-style-type: none"> <li>Reduce fan airflow.</li> </ul>
Noisy water coming from the boiler	<ul style="list-style-type: none"> <li>Air stays inside before the boiler is first filled</li> </ul>	<ul style="list-style-type: none"> <li>See the start up section.</li> </ul>
Usage problems of fuels such as fruit seeds and hazelnut shell	<ul style="list-style-type: none"> <li>Fuel flow in the burner</li> <li>The burnout ends very quickly</li> </ul>	<ul style="list-style-type: none"> <li>Reduce fan airflow.</li> </ul>
Boiler water temperature was too high, now it is down but the boiler is not working	<ul style="list-style-type: none"> <li>Limit thermostat may be thrown</li> </ul>	<ul style="list-style-type: none"> <li>Wear by turning the black plastic cover on the back of the control panel. Limit thermostat is activated by pressing the red pin.</li> </ul> 
Panel writes Ht1 error (Fuel is over)	<ul style="list-style-type: none"> <li>The fuel in the boiler is exhausted</li> </ul>	<ul style="list-style-type: none"> <li>Add fuel to the winner</li> </ul>
Panel writes Ht2 error (Temperature sensor)	<ul style="list-style-type: none"> <li>The temperature sensor is not installed or may be removed</li> <li>The temperature sensor may be faulty</li> </ul>	<ul style="list-style-type: none"> <li>Fit the heat sensor firmly</li> <li>Call a service</li> </ul>
Panel writes Ht3 error (Limit thermostat)	<ul style="list-style-type: none"> <li>Limit thermostat may be thrown</li> </ul>	<ul style="list-style-type: none"> <li>Wear by turning the black plastic cover on the back of the control panel. Limit thermostat is activated by pressing the red pin.</li> </ul>



**Do not open the boiler flaps at power cuts, do not water boiler in the boiler.**

## ÜNLÜSOY YAPI MALZEMELERİ SANAYİ ve TİCARET LİMİTED ŞRKETİ

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