



EKİN ENDÜSTRİYEL

Liquid and Gas - Fired Boilers
User Guide



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**The first condition of innovation is to question.
And the first condition of sustainable innovation is to question
constantly.**

The journey of innovation has started with a question for us too: "How can we develop value-added technologies in Turkey?". First turning point in this long journey was the birth of MIT (Made in Turkey) brand. MIT made us the first plate heat exchanger producer of Turkey and it's founding vision was not to become a local alternative, it was to build a high-quality brand that can compete on a global level.

While we are working towards this goal in the past 15 years, our products and processes deemed worthy for documentation by many national and international quality assessment institutions such as ISO, TSE, CE, GOST and many more. This was the natural outcome of our constant questioning of the status-quo and our desire to outperform ourselves.

New Generation Engineering

With our engineering approach that focuses on the process, not the problem, we do not just specialize in a product, we consider the entire ecosystem of that product. Ergo, we produce all the other components of a system in addition to plate heat exchangers and we focus on the constant development of engineering staff required to provide an end-to-end application.

We provide a "solution" rather than a product with our business development, presales, sales and after sales services provided by our expert engineers.

In our 15th year, we continue to grow as a solution partner for projects that need high technology in more than 60 countries with our internationally approved high-quality plate heat exchangers; components such as accumulation tanks, boilers, industrial pumps and installation materials that completes these exchangers to form a system; and complementary services provided by our expert engineer staff.



HEAT TRANSFER PRODUCTS

- Gasketed Plate Heat Exchangers
- Brazed Heat Exchangers
- Shell & Tube Heat Exchangers
- Evaporators and Condensers
- DC Fan Driven Oil Coolers
- Heat Coils
- Serpentine / Radiators / Economizers

PRESSURE VESSELS

- Water Heater Tanks
- Water Storage Tanks
- Buffer Tanks
- Expansion Tanks
- Stainless Steel Tanks
- Balance Tanks / Dirt Separators / Air Separators / Air Tubes
- Steam Separators
- Pressured Air Tanks
- Neutralization Units

INDUSTRIAL AND FOOD GRADE SYSTEMS

- Heat Stations
- Industrial Process Systems
- Dosing Systems
- Substations
- Thermoregulators
- Pasteurizers
- CIP and Hygienic Process Systems
- Hygienic Storage and Process Tanks
- Homogenizers
- Turn-key Projects

FLUID TRANSFER PRODUCTS

- Lobe Pumps
- Hygienic Centrifugal Pumps
- Gear Pumps
- Acid Pumps
- Dosing Pumps
- Air Operated Double Diaphragm Pumps (AODD)
- Drum Pumps
- Monopumps
- Centrifugal Blowers
- Roots Blowers
- Turbo Blowers

FLOW CONTROL UNITS

- Butterfly Valves
- Ball Valves
- Globe Valves
- Knife Gate Valves
- Actuators
- Check Valves and Strainers
- Thermoplastic Valves

ENERGY SYSTEMS

- Boilers
- Steam Generators
- Solar Collectors
- Chillers
- Cooling Towers

PRODUCT RANGE



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WARRANTY AND SERVICE

On condition that principles, warnings and standards specified in the usage manual are obeyed, your device is under Ekin Endüstriyel warranty against material and manufacturing defects for 2 (two) years.

Before commencing the assembly process, please read this manual carefully. Expert technical team is required for the assembly, please demand the required expert technical team from your authorized dealer. It is necessary to follow conditions written in this manual to conduct selecting assembly location, installation, chimney and electrical connections.

Warranty period begins with the commissioning of device, our Authorized Service commissioning the device will fill the Commissioning Form and sign the form. Do not forget to receive a copy of Commissioning Form by reading and signing and keep the form.

For such devices, expected usage life specified by the Ministry of Industry and Trade is 10 (ten) years. As required by applicable law, manufacturers and vendors during this period undertake to keep for spare parts required to fulfill the functions of devices and to provide maintenance services to the device.

Terms Of Warranty

- The warranty period starts from the date of delivery of the device, and is 2 years.
- All parts of this heating device is covered by the warranty of our company for 2 years. Consumables on the device (gasket, suppositories, ceramic pipe etc.) are outside the scope of warranty.
- In the event that the device malfunctions within the guarantee period, the guarantee period shall be extended at the rate of the period for such repairs. Device repair duration shall not exceed 20 business days. This duration shall start from the date of notification to the service station, and in the event of the absence of the service station, from the date of notification to one of device vendor, dealer, agent, representative, importer or manufacturer. Customer can inform the fault notification via phone, fax, e-mail, registered mail or any similar way. However, in the event of dispute, burden of proof belongs to the consumer. In the event that device's fault is not recovered within 20 days, manufacturer-producer or importer are obliged to assign another product with similar features to the consumer until the repair of device is completed.
- In the event of any malfunctions because of either material or workmanship, or assembly errors to occur within the duration of warranty, repairs will be carried out without requesting any fees under the title of workmanship cost, changed part price or any other items.
- Despite using consumer's usage of right to repair, if the device;
 - Malfunctions at least four times within a year falling within the warranty period as of the delivery to the customer or malfunctions at least six times during the warranty period specified by manufacturer-producer and/or importer, also if these failures make it impossible to make use of these devices,
 - Exceeding the maximum amount of time required to repair,
 - Consumer may request device replacement for free, the price discount or discount at amount of defective good price in the event that service station of the company is not available and it is not possible to repair the damage according to the report issued by one of seller, dealer, agent, importer-manufacturer, representative.

- Defects arising from using the device against considerations contained in the manual are outside the scope of the guarantee.
- For problems in relation to the Warranty Certificate, it is possible to consult to the General Director of Protecting Customer and Market Monitoring under Turkish Ministry of Custom and Trade.

Conditions Outside To Scope Of Warranty

The product warranty provided by Ekin Endüstriyel does not cover faults arising from the use of device outside normal using conditions. Failures, problems and damages that may occur within conditions specified below shall be outside the scope of warranty.

- Faults arising from neglecting responsibilities specified in the user manual and belonging to the customer, from conditions of commissioning, usage and maintenance.
- Malfunctions and problems arising from failure to conduct first commissioning of the product by an Authorized Service, intervention to the device by unauthorized third parties (private service) other than Authorized Service Technicians or interference to service settings of the device by the consumer are outside to scope of warranty.
- If any disinformation is applied on the Certificate of Warranty, the product shall be fallen outside the scope of warranty.
- Our products are provided as factory delivery. Transportation will be on customer's responsibility. After delivery of the product to the customer, any damages occurring during shipping shall be out of warranty.
- Failures and damages occurring as a result of incorrect storage by the customer and environment conditions shall be outside the scope of warranty.
- Failures due to hard water circulating in the installation, product exposure to freeze, rain water entering from chimney, waterless operation and continuous water addition to the system due to water leakage in the installation shall be outside the scope of warranty.
- In case of wrong connection while installing electricity connection of the device, any related failures shall be outside the scope of warranty.
- Failure to comply with technical features specified in the user manual for standard and smooth operating conditions for the device (water pressure, voltage value, fuse value, grounding etc.), failures and problems to occurring in the device shall be outside the scope of warranty.
- Failures that may occur on the product due to lack of maintenance and controls to be conducted by the consumer periodically shall be outside the scope of warranty.
- Since parts on the devices such as gasket, cord etc. are consumable materials, they are outside the scope of warranty.
- Cancellation of the panel on the device shall leave the device outside the scope of warranty.
- Any structural changes to be applied on the device will affect the strength calculation made at the smallest detail level and working under pressure and this will compromise your safety. In this case, your device shall be out of warranty.
- Keeping the device without water for a long term by discharging the water inside the device will result in decay of boiler since boiler and plate are exposed to corrosion. Boiler water must not be changed frequently and boiler should not stay waterless. Defects that may occur in such cases shall be outside the scope of warranty.



- In the event that boiler water and/or return water temperature is less than 50 °C, defects that may occur due to condensation shall be outside the scope of warranty. To avoid this situation, it is recommended to use 3-way valve and companionization system etc.
- Defects and problems occurring as a result of natural disasters, external/physical outer factors not originating from the product, seasonal weather conditions and environmental factors (earthquake, fire, flood, inundation, high winds, lightning, lime, high limy installation, muddy, dirty, humidity, dust etc.) are outside the scope of warranty.

PRECAUTIONS

This Device is manufactured to feed heating installation as the heater and to prepare utility hot water. The device cannot be used to obtain clean water directly.

The manufacturer cannot be held responsible for damages that occur due to reasons such as improper uses, interventions made by unauthorized persons or user, faulty installation, wrong operations.

Due to safety reasons, do not install boilers in a closed environment where people live. Toxic waste gases may leak into the environment due to boiler pipes and chimney filling with dust and fly ash or high winds. For this reason, boilers should be installed in places outside residents and places with continuously ventilation. Our company is not responsible for problems originated from boilers installed in living quarters. In installations with closed expansion tank, make sure to use automatic safety valve suitable for boiler operating pressure. Our company cannot be held responsible for any problems originated from failure in using safety valve in boilers that are operated with closed expansion tank. Connect closed expansion tanks in accordance with standards. Small capacities cause overheating by leaving the boiler waterless.

Heating installation must be carried out by authorized personnel. It is recommended not to use plastic pipe in the installation.

Do not use boilers outside their purposes. Our company is not responsible for any problems that may occur due to incorrect use.

Our boilers are not low-temperature boilers, and they are designed for 90/70 °C operating temperature. Condensation will occur in the event of operating the boiler in low temperature. Problems faced in the event of continuous condensation shall be outside the scope of warranty.

Heating boiler may cause accidents that could cause loss of life in an explosion or similar way or through fire if they are operated outside operating conditions specified in this manual. Therefore, the first time commissioning, tuning, maintenance and cleaning operations of the Ekin Endüstriyel heating boiler must be performed only by Ekin Endüstriyel Authorized Services.

When failure occurs in the heating system, the boiler must be stopped. Defective parts must be replaced by authorized service centers only.

Heating boiler is designed to operate up to 90 °C and at pressures specified in the label value. The board found on the boiler is equipped with limit thermostat safety. Therefore, the board should never be disabled.

Heating boiler must be used only with burners in brands that have CE document as per hot water boiler regulation (92/42/EC), gas burning devices regulation (2009/142/EC) and TS EN 676 product certificate.

Water in the installation must be in the value specified in the user manual. Otherwise efficient and economical usage life span of the boiler will shorten due to calcification and corrosion.

In the event of leakage in the installation, failure must be eliminated immediately. Otherwise, continuous water addition will cause calcification and shorten the economic life of the boiler.

The burner connected to the boiler provides air used for combustion. Therefore, clean air must be supplied to environment where boiler is installed.

Before starting cleaning and maintenance, make use to cut electricity coming to the control panel and never intervene in electrical installations.

Boilers must be mounted on a concrete pedestal with at least 10-15 cm height from the ground. Do not feed cold water to the boiler overheated for some reasons (100 °C and higher).

This process can lead to the explosion of the boiler. In this case, please check the circulation pump working, immediately close burner and wait for cooling in natural way, then contact to authorized service. To prevent any accidents, install a switch outside the boiler room to shut down only combustion system in emergency situation.

Do not touch water outlet pipe of the boiler, burner base observation tube, chimney and hood. There areas may be hot and can lead to injury.

The boiler is not a condensing boiler, make sure that there is no condensation in the boiler expect for first operation. Check the connection of condensation water drain pipe to water drain, and make sure boiler is working over 55 °C. Otherwise, the boiler will be exposed to corrosion due to condensation and its usage life will shorten.

To make sure that explosion covers found in hood of boiler work, pull them toward you and leave out.

Never use water in heating installation and condensation water as drinking and utility water, they are dirty due to chemical sediments.

Keeping the boiler without water for a long term by discharging the water inside the device will results in decay of boiler since boiler and plate are exposed to corrosion. Boiler water must not be changed frequently and boiler should not stay waterless.

To prevent harming yourself and those around you, gas connections and burner connections must be made by authorized service. Burners, gas and water installations are not covered by Ekin Endüstriyel's liability and warranty scope.



In LPG usage, especially on cold days, burner must not be operated when frosting or dewing is observed on outer surfaces of pipes due to liquidation of gas fuel left in fuel pipes from night. The liquid LPG must be safely drained from drain cock. (Liquidation may occur during normal times due to the problem of evaporator level control or line regulator problem) In cold climate regions; necessary measures should be taken to prevent water temperature in the installation falling below freezing point. In workplaces where no works are carried out during night and on weekends, circulation pump must be run continuously. If heating is to be stopped for the long term, boiler and system water should be drained. Antifreeze should not be used (antifreeze leads to corrosion and lowering of thermal capacity of water.)

Ekin Endüstriyel is not responsible for the burner on the boiler. For settings related to burner and commissioning process, contact to manufacturer company and make these processes carried out by authorized services.

In the event of failure in burner, reset button on the burner should not be pressed more than twice. If burner does not work again, related burner authorized service must be called.

If you feel or smell gas, or if there is a gas leak;

- Stay calm.
- Extinguish any burning fires.
- Open doors and windows.
- Close valves of all gas devices.
- Close valves at the entrance to the building.
- Do not burn matches, lighters, etc.
- Do not play with electric buttons.
- Do not operate electrical devices.
- Do not pull or insert plugs.
- Do not use bells.
- Do not use the phones in gas environment.
- Call number 187 and inform gas company and fire department.

To prevent shock hazard, do not remove coverings and board on the boiler. Do not play with electric cables. Electrical operations related to boiler can only be carried out by authorized service after taking all necessary precautions.

Before making any changes or any modifications, contact with the authorized service in our province or call +90 (216) 232 24 12 to communicate with your technical service.

Do not attempt to repair yourself any malfunctions in the device.

The device must pass from the check once a year. These controls must be performed only by Ekin Endüstriyel authorized services. Maintenance is not covered within the scope of warranty.

Alteration to be made in boiler, random structural changes and any similar changes are prohibited. Such changes can cause damage to the device and endanger people. When these

considerations are not considered, the device guarantee expires!

When you call +90 (216) 232 24 12 at Ekin Endüstriyel center for service or technical support, we remind you to prepare the following information for providing better service to you.

Located on the aluminum sheet label on the device;

1. Year of manufacture and serial number of the device,
2. Your device model,
3. Supply dealer information for the device,
4. If the device is commissioned before, give authorized service information.

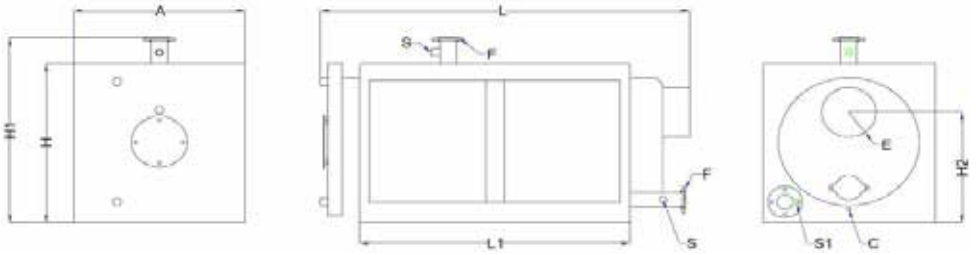
PRODUCT GENERAL SPECIFICATIONS

Ekin Endüstriyel MG series gas-fueled heating boilers are manufactured with three-pass. Known as scotch type boilers across the globe, these boilers are preferable because of their high operating efficiency and long operating life.

High combustion efficiency of 91% and 95% can be achieved thanks to three-pass combustion system. Thanks to window-type turbulators (flame breaker) found in third pass pipes, combustion efficiency increases and fuel consumption decreases.

Manufactured and projected as per TS 303-1-2-3 and TS 497 standards, these boilers have CE document according to B+E module of 92/42/AT and 2009/142/AT gas fueled hot water boilers directive.

As per 152.2000 pose included in unit cost books, preferred by governmental bodies and institutions, three pass gas-fueled boilers have thermal efficiency reports as per TS 4040 and TS 4041 standards.



TLG TECHNICAL SPECIFICATIONS

Model			TLG 80	TLG 100	TLG 125	TLG 150	TLG 175	TLG 200
Capacity		kcal/h	80.000	100.000	125.000	150.000	175.000	200.000
		kW	93	116	145	174	203	232
Width	A	mm	771	771	771	894	894	894
Height	H	mm	791	791	791	914	914	914
Height	H1	mm	968	968	968	1091	1091	1091
Length	L	mm	1349	1429	1529	1529	1629	1629
Foot record	L1	mm	782	882	982	982	1082	1082
Chimney Diameter	E	mm	200	200	200	200	200	200
Chimney Height	H2	mm	550	550	550	665	665	665
Hot Water Flow / Return	F	DN	65	65	65	65	65	65
(PN 16)		lt	118	135	138	240	260	251
Water Volume		kg	425	460	505	610	660	670
Dry Weight	S	inch	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
Safety Departure / Return	S1	inch	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Condensing Expense	C	inch	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Back Pressure		mbar	1.2	1.3	1.5	2.2	2.3	2.5
Standard Operating Pressure		bar	4	4	4	4	4	4

TLG TECHNICAL SPECIFICATIONS

Model			TLG 250	TLG 300	TLG 350	TLG 400	TLG 450	TLG 500
Capacity		kcal/h	250.000	300.000	350.000	400.000	450.000	500.000
		kW	290	348	406	464	522	580
Width	A	mm	947	947	947	1113	1113	1113
Height	H	mm	967	967	967	1133	1133	1133
Height	H1	mm	1144	1144	1144	1312	1312	1312
Length	L	mm	1879	2054	2054	2040	2140	2290
Foot record	L1	mm	1332	1487	1487	1487	1587	1732
Chimney Diameter	E	mm	300	300	300	300	300	300
Chimney Height	H2	mm	670	670	670	849	849	849
Hot Water Flow / Return	F	DN	65	65	80	80	100	100
(PN 16)		lt	354	376	357	578	610	670
Water Volume		kg	815	885	925	1070	1145	1275
Dry Weight	S	inch	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
Safety Departure / Return	S1	inch	1/2"	1/2"	1/2"	1"	1"	1"
Condensing Expense	C	inch	1/2"	1/2"	1/2"	1"	1"	1"
Back Pressure		mbar	2.8	3	3.8	5.2	5.2	5.7
Standard Operating Pressure		bar	4	4	4	4	4	4

TLG TECHNICAL SPECIFICATIONS

Model			TLG 600	TLG 700	TLG 800	TLG 900	TLG 1000	TLG 1250
Capacity		kcal/h	600.000	700.000	800.000	900.000	1.000.000	1.250.000
		kW	696	812	928	1044	1160	1453
Width	A	mm	1269	1269	1269	1463	1463	1463
Height	H	mm	1309	1309	1309	1483	1483	1483
Height	H1	mm	1490	1490	1490	1664	1664	1664
Length	L	mm	2287	2407	2557	2549	2549	2754
Foot record	L1	mm	1734	1834	1984	1984	1984	2189
Chimney Diameter	E	mm	350	350	350	500	500	500
Chimney Height	H2	mm	945	945	945	1078	1078	1078
Hot Water Flow / Return	F	DN	125	125	125	125	125	125
(PN 16)		lt	900	932	996	1368	1385	1412
Water Volume		kg	1480	1695	1780	2180	2360	2510
Dry Weight	S	inch	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"
Safety Departure / Return	S1	inch	1"	1"	1"	1"	1"	1"
Condensing Expense	C	inch	1"	1"	1"	1"	1"	1"
Back Pressure		mbar	5.8	5.9	6	5.2	5.2	5.8
Standard Operating Pressure		bar	4	4	4	4	4	4



TLG TECHNICAL SPECIFICATIONS

Model			TLG 1500	TLG 1750	TLG 2000	TLG 2500	TLG 3000	TLG 3500
Capacity		kcal/h	1,500,000	1,750,000	2,000,000	2,500,000	3,000,000	3,500,000
		kW	1740	2030	2320	2900	3480	4060
Width	A	mm	1654	1654	1654	1648	1782	1880
Width	H	mm	1674	1674	1674	1688	1802	1900
Height	H1	mm	1855	1855	1855	1971	1985	2083
Height	L	mm	3054	3354	3754	4060	5085	4612
Length	L1	mm	2484	2784	3184	3474	4515	3986
Foot record	E	mm	500	500	500	500	500	500
Chimney Diameter	H2	mm	1264	1264	1264	1279	1361	1510
Chimney Height	F	DN	150	150	150	200	200	200
Hot Water Flow / Return		lt	2088	2363	2731	2714	2731	2580
(PN 16)		kg	3450	3855	4430	4945	6555	6900
Water Volume	S	inch	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"
Dry Weight	S1	inch	1"	1"	1"	1"	1"	1"
Safety Departure / Return	C	inch	1"	1"	1"	1"	1"	1"
Condensing Expense		mbar	5.8	6.2	6.7	6.5	6.8	7
Back Pressure		bar	4	4	4	4	4	4

TWG TECHNICAL SPECIFICATIONS

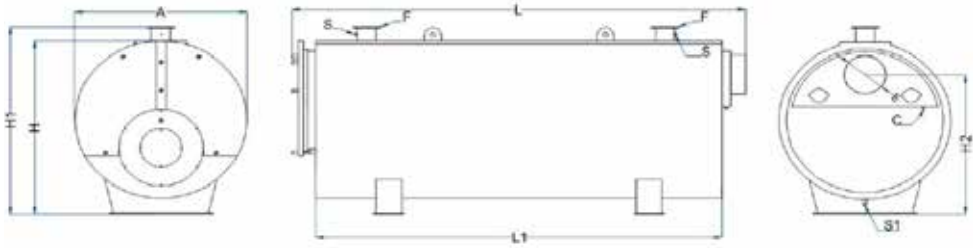
Model			TWG 80	TWG 100	TWG 125	TWG 150	TWG 175
Capacity		kcal/h	80,000	100,000	125,000	150,000	175,000
		kW	93	116	145	174	203
Width	A	mm	707	707	707	757	757
Width	H	mm	757	757	757	807	807
Height	H1	mm	933	933	933	983	983
Height	L	mm	1299	1299	1539	1544	1744
Length	L1	mm	742	742	982	987	1187
Foot record	E	mm	200	200	200	200	200
Chimney Diameter	H2	mm	547	547	547	597	597
Chimney Height	F	DN	65	65	65	65	65
Hot Water Flow / Return		lt	118	118	145	160	191
(PN 16)		kg	360	370	425	460	510
Water Volume	S	inch	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
Dry Weight	S1	inch	1/2"	1/2"	1/2"	1/2"	1/2"
Safety Departure / Return	C	inch	1"	1"	1"	1"	1"
Condensing Expense		mbar	0.5	1.2	1.3	2.2	2.5
Back Pressure		bar	4	4	4	4	4

TWG TECHNICAL SPECIFICATIONS

Model			TWG 200	TWG 250	TWG 300	TWG 350	TWG 400
Capacity		kcal/h	200.000	250.000	300.000	350.000	400.000
		kW	232	290	348	406	464
Width	A	mm	757	880	880	880	984
Width	H	mm	807	930	930	930	1034
Height	H1	Mm	983	1107	1107	1107	1211
Height	L	Mm	1744	1744	2039	2039	1939
Length	L1	Mm	1187	1187	1482	1482	1384
Foot record	E	mm	200	300	300	300	300
Chimney Diameter	H2	mm	597	670	670	670	772
Chimney Height	F	DN	65	65	65	80	80
Hot Water Flow / Return		lt	185	285	350	330	383
(PN 16)		kg	530	635	745	800	900
Water Volume	S	inch	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
Dry Weight	S1	inch	1/2"	1/2"	1/2"	1"	1"
Safety Departure / Return	C	inch	1"	1"	1"	1"	1"
Condensing Expense		mbar	3.3	3	2.8	2.5	3
Back Pressure		bar	4	4	4	4	4

TWG TECHNICAL SPECIFICATIONS

Model			TWG 450	TWG 500	TWG 600	TWG 700	TWG 800	TWG 1000
Capacity		kcal/h	450.000	500.000	600.000	700.000	800.000	1.000.000
		kW	522	580	696	812	928	1160
Width	A	mm	984	984	1140	1140	1140	1192
Width	H	mm	1034	1034	1160	1160	1160	1212
Height	H1	mm	1211	1211	1341	1341	1341	1393
Height	L	mm	1939	2039	2311	2311	2561	2170
Length	L1	mm	1384	1482	1734	1734	1984	2156
Foot record	E	mm	300	300	350	350	350	500
Chimney Diameter	H2	mm	772	772	864	864	864	813
Chimney Height	F	DN	100	100	125	125	125	125
Hot Water Flow / Return		lt	371	396	620	586	660	760
(PN 16)		kg	945	985	1305	1385	1550	1650
Water Volume	S	inch	1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Dry Weight	S1	inch	1"	1"	1"	1"	1"	1"
Safety Departure / Return	C	inch	1"	1"	1"	1"	1"	1"
Condensing Expense		mbar	3.5	4.3	3.8	5.2	5.4	5.6
Back Pressure		bar	4	4	4	4	4	4



TLGS TECHNICAL SPECIFICATIONS

Model			TLGS 1000	TLGS 1250	TLGS 1500	TLGS 1750	TLGS 2000	TLGS 2500
Capacity		kcal/h	1.000.000	1.250.000	1.500.000	1.750.000	2.000.000	2.500.000
		kW	1160	1450	1740	2030	2320	2900
Width	A	mm	1680	1680	1809	1809	1870	1892
Width	H	mm	1893	1893	2017	2017	2081	2106
Height	H1	mm	2073	2073	2198	2198	2259	2289
Height	L	mm	2720	2920	3515	3915	3915	4219
Length	L1	mm	2194	2394	2994	3394	3394	3698
Foot record	E	mm	500	500	500	500	500	500
Chimney Diameter	H2	mm	1460	1460	1585	1585	1643	1670
Chimney Height	F	DN	125	125	150	150	150	200
Hot Water Flow / Return		lt	1879	1955	2894	3443	3844	4096
(PN 16)		kg	3160	3560	4315	4850	5150	6210
Water Volume	S	inch	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Dry Weight	S1	inch	1"	1"	1"	1"	1"	1"
Safety Departure / Return	C	inch	1"	1"	1"	1"	1"	1"
Condensing Expense		mbar	5.4	6	6	6.4	6.9	6.7
Back Pressure		bar	4	4	4	4	4	4

TLGS TECHNICAL SPECIFICATIONS

Model			TLGS 3000	TLGS 3500	TLGS 4000	TLGS 4500	TLGS 5000
Capacity		kcal/h	3.000.000	3.500.000	4.000.000	4.500.000	5.000.000
		kW	3480	4060	4640	5220	5800
Width	A	mm	2002	2110	2152	2244	2292
Width	H	mm	2212	2320	2360	2452	2502
Height	H1	mm	2293	2503	2543	2635	2687
Height	L	mm	5245	5251	5345	5747	6721
Length	L1	mm	4724	4730	4826	5226	6200
Foot record	E	mm	500	500	500	600	600
Chimney Diameter	H2	mm	1776	1884	1884	1966	2014
Chimney Height	F	DN	200	200	200	200	200
Hot Water Flow / Return		lt	5589	6684	7292	8369	10141
(PN 16)		kg	8050	8685	9430	10580	12650
Water Volume	S	inch	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Dry Weight	S1	inch	1"	1"	1"	1"	1"
Safety Departure / Return	C	inch	1"	1"	1"	1"	1"
Condensing Expense		mbar	7	7	7.2	7.2	7.4
Back Pressure		bar	4	4	4	4	4

SHIPPING AND INSTALLATION

Shipped products will be delivered in shrink plastic packaging in a way to get affected from external weather conditions minimally.

Fan and control panel taken from the package without mounted will be installed by your authorized service. While receiving your device, check; The model you ordered with incoming delivery, Whether there are any damages during shipment.

Determine any damaged devices or missing parts to be sent with the device and inform our authorized dealer.

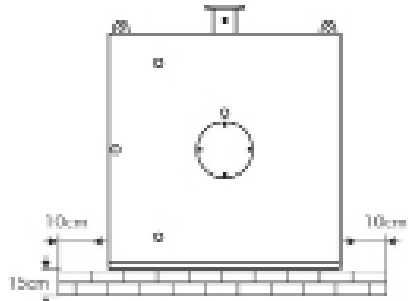


Figure-3A (Front View)

MIT brands products are heavy products, so care should be taken while moving the product to install in the place. You can find information about weight of the product you purchased in boiler weight table (Page 11 - Table 1). You can lower the device with a vehicle suitable for tonnage of the product (crane and/or fork-lift trucks).

Determination Of The Place Of Device Assembly

Arrange the location of boiler room and boiler assembly location in accordance with Technical Specifications published by Gas Distributor companies. From the point of safety of you and your environment, never install the device in daily life sections (kitchen, bathroom, hallway etc.), open spaces and balconies, places where explosive and easily flammable materials exist. Boiler problems that may arise during use or toxic waste, gas leakages due to return of flue gas after the blockage of the chimney may arise. For this reason, boilers should be installed in places outside residents and places with continuously ventilation. The place where the device will be installed must have vents connected directly to external environment and that allow fresh air entrance. Vents that should always be kept open must be at least in 40 cm x 40 cm dimensions in upper and lower sections of boiler room. Fuel transfer lines must comply with valid technical specifications, regulations and standards. For better ventilation of device and protection against decays caused by water accumulation, the boiler must be placed onto a platform of 15 cm height. Based on boiler dimensions, dimensions of the platform that will be made of concrete material are given in Figure-3A and Figure-3B. A place must be selected with adequate space for carrying out device installation, combustion and necessary maintenances. In the field shown in Figure-3C, no other devices, fuel or materials cannot be found that may prevent casual work and safety.

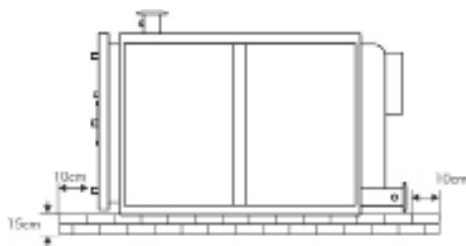
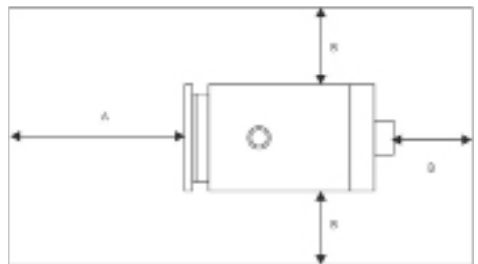


Figure-3B (Side View)

Figure-3C Boiler Room Settlement Plant (Top View)



A = A Distance of Boiler Length.
B = A Distance of Boiler Width.

Chimney Connection Scheme

Arrange the chimney and its connections in accordance with Technical Specifications published by Gas Distributor companies. For proper chimney draught; boiler chimney must be connected to a separate chimney with at least chimney exit diameter and with enough amount of draught (Figure-4). Material to be used for the chimney must be resistant to at least 400°C temperature. Length of the steel link between boiler and chimney must be less than 60 cm and not more than 3 m height, must not exceed 1/6 of chimney height and must be connected to the chimney with 10% increasing aim. To prevent loss of draught, it is recommended to connect to chimney without using elbow. If the use of elbow is required, it is crucial to use round and wide angle elbows and not to use more than two elbows. Steel chimney connection must be manufactured and assembled in a way to disassemble from boiler and prevent gas leak. Chimney height should not be less than 6 m, and upper end of the chimney must be above the level of the building roof ridges. Protective hat must be placed on chimney exit against effects of extreme wind and precipitation. At the bottom of chimney, cleaning cover with sealing must be provided. In gas fueled boilers, drainage system in addition to cleaning cover must be applied. In chimney diameter calculation, the most appropriate value must be taken into account. To boiler chimneys, chimneys of other devices should not be connected. Chimneys should be built upright as much as possible, in mandatory situations, deviation of at least 60° angle should be allowed. The smoke channels should be steel made and isolated.

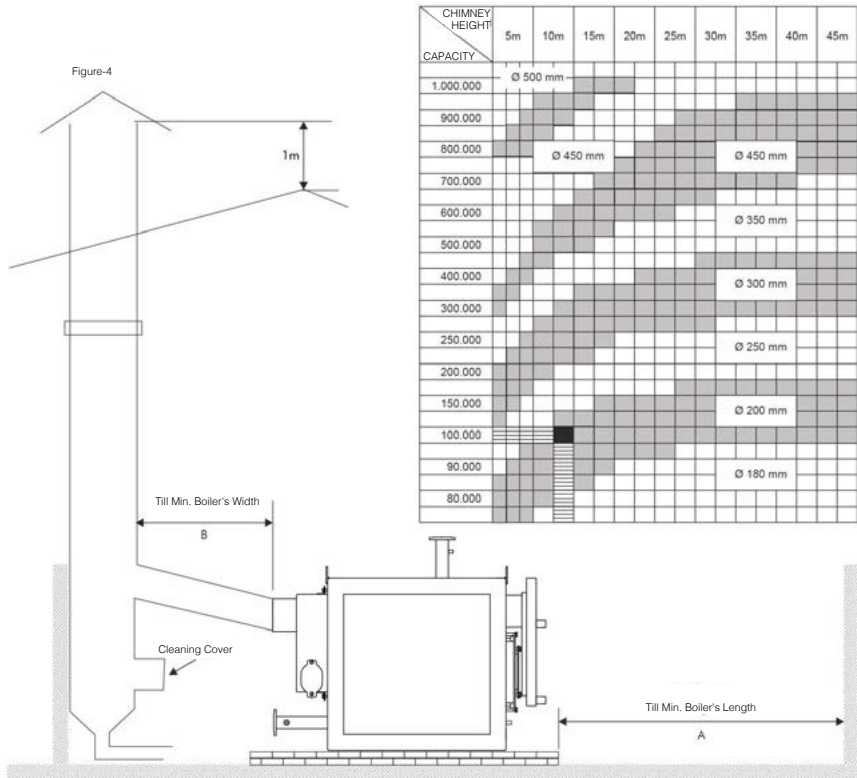


Figure-4 (Chimney Section Sizes According to Capacity and Height)

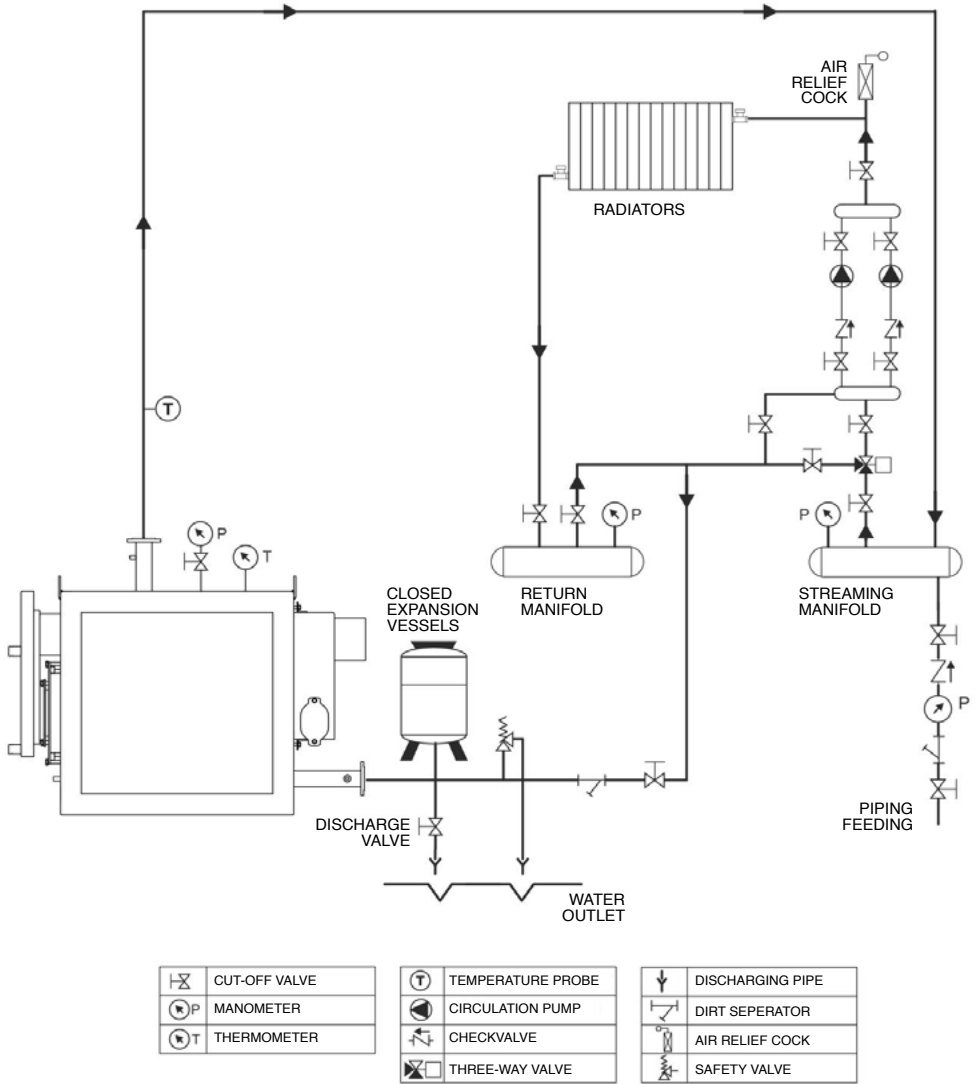
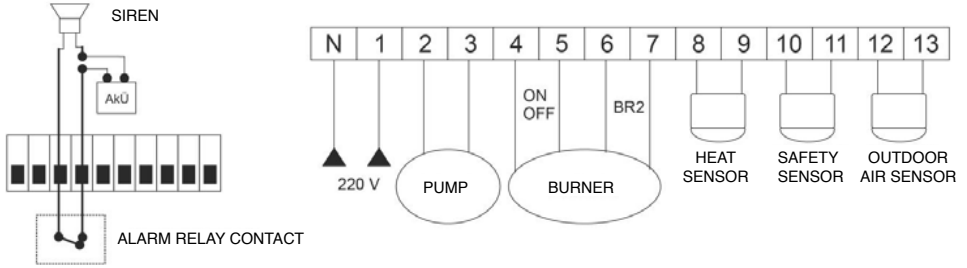


Figure - 5 (instalment schematic)

Installation Connection Diagram



TECHNICAL SPECIFICATIONS

Supply Voltage	AC 210 ~ 230 V	
Maximum Relay Output Power	2 kVA	
Maximum Relay Output Current	1.5kW (cos θ =0.75)	
Minimum Idle Current	10A	
Sensor Type	150mA AC (500mA insured)	
Safety Sensor Cutting Temperature (1)	Two-wire NTC sensor (\pm 2%)	
Safety Sensor Commissioning Temperature (2)	Maks. 97 °C	Min. 93 °C
Temperature Sensor Measuring Range	Maks. 64 °C	Min. 60 °C
Extreme Temperature Limits (plastic sheathed ntc)	0 ~ 100 °C	
Battery Current During Battery Fed Operation	Maks. -40 °C	Min. 150 °C
Average Battery Fed Operation Time	Mod 1: 20 ~ 35 mA	Mod 2: 8 ~ 10 mA
Available Battery Type	~ 5 hours	
Rechargeable Battery	Rechargeable Battery NiMh 9V	
Battery Charging Method	Constant Current and Constant Voltage	
Battery Charge Current and Duration	10mA (20 hours)	
Minimum Ambient Temperature	-30 °C	
Highest Ambient Temperature	Storage 70 °C	Operation 70 °C
Warning Output Voltage Type	10 ~ 220 Volts, Triac	
Triac Output Current	Nominal 0 ~ 10A	Instantaneous Peak 160A

Burning control system is a digital thermostat control device designed for two-stage burners. For each stage, activation temperature range and pump activation temperature value can be adjusted. There are five buttons on the board, and the user adjusts thermostat temperature, pump operation and stopping temperature and external air compensated operation through these five buttons.



Working Principle Of Control Panel

Device; allows to adjust activation temperature difference for both burner stages and activation temperature value for pump. When Open/Close button is pressed, burner is activated at the second level. In the meantime, it will display “burner activated” indicator. Boiler water starts to warm up. When boiler water reaches the temperature of pump activation temperature, pump is activated, when the pump is activated, related indicator is activated (Pump Active).



While boiler water temperature increases, when it reaches temperature difference value adjusted for the first stage of the burner, burner falls to the first stage. When boiler water temperature reaches thermostat value adjusted by user, burner switches to off position.

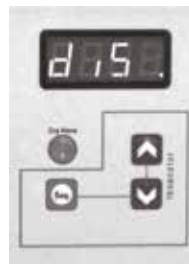
After boiler water reaches thermostat value and burner switches to off position, boiler water begins to cool. During cooling down, when there is temperature difference between boiler water temperature and adjusted thermostat temperature as much as “burner first stage difference temperature”, the burner is activated at first level. If the temperature continues to fall, when there is a difference between boiler water temperature and adjusted thermostat value as much as “burner second stage difference value”, the burner is activated at the second stage. System is closed by pressing open/close button on the panel.

Safety relay prevents the system reaching a temperature over 95 degrees regardless of the processor. In this case, the device shuts down the burner. In order for burner to be reactivated, boiler water should be cooled down to 62 (+-5%) degree.

Adjusting External Air Thermostat Environment Compensation:

By press Select button until (external) appears and entering (external) menu, environment compensation is activated with AUTO and deactivated with OFF by adjusting with up and down arrow keys, and wait 12 sec. and saved in memory.

If this setting is selected as AUTO, control Temperature equals to adjusted environment Temperature difference. If selected as OFF, control Temperature equals to adjusted thermostat temperature.



Adjusting The Control Panel

By pressing Select button once to enter service menu, values to be operated are adjusted with up and down arrow keys on any desired menu, after waiting for 12 seconds, saving in memory is completed.

Adjusting pump activation temperature:

1. When entered into Service menu, you will see "PC." Indication on the screen. With Up and Down arrow keys, you can adjust pump operating temperature. If you exceed the value you want to adjust, you can return back by pressing down arrow button. Recommended pump operating temperature is 30 °C. When Select button is pressed again, screen advances to another menu.
2. With Up and Down arrow keys, you can adjust pump stop temperature. If you exceed the value you want to adjust, you can return back by pressing down arrow button. Recommended pump stop temperature is 27 °C. Wait for 12 sec without pressing any buttons, the screen stating that adjustments are saved in memory will appear.

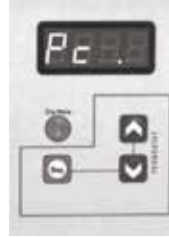


Figure - 6A



Figure - 6B

Adjusting The Burner

Up and down the thermostat keys allow adjustment of Operating Temperature of the system. Until the desired menu is seen, press the Select button. To reach burner first stage adjustment menu, press Select button six times and you will see the following screen.

Adjust desired temperature difference with up and down arrow buttons. If required, to adjust activation temperature difference for burner second stage, press SELECT button 5 times, you will see the following screen.

Adjust desired temperature difference with up and down arrow buttons. Wait 12 seconds to take the values in memory.

After adjusting system with stages above, adjust thermostat temperature with up arrow button. When you turn off the device with device On/Off button, the system will start to work in this configuration.



Single-Stage Operation Of Burner

The device can run single stage or two-stage burners. Normally you do not need a configuration change for this. If a single-stage burner is to be operated, connect on burner on/off contact; leave two-stage contacts empty. If two-stage burner is to be operated in single-stage, switch "burner two-stage temperature difference" adjustment to "off" position from service menu.

To do this;

1. To reach burner second stage adjustment menu, press Select button five times and you will see the following screen.
2. Hold the up arrow button, the indicator will display off on screen when you select 98.
3. Wait without pressing any buttons, until you see memory indicator on the screen. From now on, the burner will consistently work with first level all the time.
4. After adjusting system with stages above, adjust thermostat temperature with up arrow button. When you turn off the device with device On/Off button, the system will start to work in this configuration.



FIRST-RUN AND CONSIDERATIONS BEFORE FIRST-RUN

- Clean boiler internal and external parts thoroughly from dust, soot etc.
- Ensure sealing by checking smoke flue, flue and chimney cleaning covers.
- By reviewing fuel burning system according to operational principles and check whether each element is working correctly.
- Check whether boiler explosion cover works.
- Check boiler safety systems (manometer, hydrometer, safety valve, light or audible warning system etc.) and make sure they are working correctly.
- Boiler thermostats must be set to the appropriate value.
- After filling the installation with water, make sure all valves are on (excluding backup circulation pump or by-pass valve). Air must be taken from air intake valves and air relief cocks in the installation. Circulation pump should not be run during air intake.
- Ekin Endüstriyel is not responsible for the burner on the boiler. For settings related to burner and commissioning process, contact to manufacturer company and make these processes carried out by authorized services.
- With switches on burner electrical board, burner must be specified with a path.
- When the boiler enters the regime (1-1.5 hours after burner runs), air adjustment of burner should be made using flue gas analysis device.
- If overheating occurs in boiler water, circulation pump must be checked (It may cycle wrong due to incorrect electrical connections). If it is not possible to achieve any results, installation should be checked by stopping burner.
- Monitor Gas consumption as per line pressure from the counter.



BOILER WATER SPECIFICATIONS

According to TS EN 12953-10 Boilers

Feeding and Boiler Water Quality standard, boiler water and feeding water specifications should be as follows.

With a view to prevent damages that might occur due to rusting in heating installation, heating water in drinking water quality should be used, chemical additives and/or aggressive waters in terms of corrosion should not be used. Within water content to be filled in boiler and installation, there should not be residue, wastes and unwanted solid particles. This sediment and dirt are extremely harmful to the circulating pump. If you suspect that water is not clear, make sure to install a filter before filling water.

Hardness of water to be used installation and boiler must be between (0-50) French hardness. Limy water used in the system forms a layer of lime and mud in time on tube plate of boiler. This lime and mud layer prevents water circulation and heat transfer, and deforms the boiler.

In this case, your device shall be out of warranty.

GENERAL MAINTENANCE

Heating boilers must undergo a general maintenance at least once a year. In general maintenance, check the following considerations.

- Monitor operations of boiler fittings (thermostat, thermometer, hydrometer, manometer) all the time, do the necessary controls, replace it if necessary. By putting thin mineral oil in thermometer hives, healthier heat transfer must be ensured.
- Check sealing of all connections in the installation. Eliminate any leaks and reinforce seals of valves if necessary.
- Sealing elements of boiler front large cover and front and rear smoke chest should be checked continuously, if any leaks exist; clamping elements and bolts should be tightened in balance, if leaks are not cut off, seal, cord should be changed or our authorized services must be contacted. Bolts and nuts of clamping elements must have lubricated with grease.
- At the end of heating season, clean your boiler completely as in periodic cleaning.
- Achieve protection against oxidation by applying transformer oil or thin mineral oil on boiler heating surfaces after cleaning.
- Water in boiler and installation should not be emptied if not required. At the end of season, negative influence of corrosive elements on metal surfaces such as oxygen in water should be eliminated by adding chemical additive to water in the system.
- Compare heating indicators with a calibrated thermometer. Check whether safety elements, round safety pipes and safety valves work correctly.

- After winter use season of the heater boiler, make sure to have Ekin Endüstriyel Authorized Services to carry out annual maintenance.
- Ekin Endüstriyel is not responsible for the burner on the boiler. For periodic annual maintenance relating to burner, contact to manufacturer company and make these processes carried out by authorized services.
- Periodic maintenances will prevent problems that may occur during use of boiler.
- Annual maintenance will eliminate the risk of failure during the next season, and allow your boiler to work more efficiently and with energy saving for a longer-lasting usage life.
- While entering the winter season, please do not forget Ekin Endüstriyel Authorized Services work in intensive pace and have your annual maintenance done in summer.
- Since annual and other periodic maintenances are not within the scope of warranty, these are carried out by Ekin Endüstriyel Authorized Services by fee.

Adjusting Boiler Water Temperature As Per Exterior Temperature

Heating system in your building should carry out combustion process when external temperature is +12 °C and lower. When external air temperature is between +12+15 °C, heating system should be operated in limited mode. If external air temperature is +15 °C and higher, heater should not be operated. This information is a reference. In using heating boilers, local regulations apply.

External Air Temperature (°C)	12	11	10	9	8	7	6	5	4	3	2	1	0	-1	-2	-3
Boiler Water Temperature (°C)	45	48	51	54	57	60	63	66	69	72	75	78	81	84	87	90

Internal ambient temperatures in houses; should be 22 °C in sitting rooms and halls, 15 °C in stairs, kitchen and toilets, 20 °C in bedrooms.
It should be 15-20 °C in Factories and Business locations.

What To Do In The Event Of Power Failure

In power failures, the whole system (burner, pump) will stop.
When the power comes on, check again whether system equipment work and system values are in ranges you set before.

What To Do In Case Of An Emergency

When water pressure drops below 0.5 bar or operating pressure reached over 1.5 time of its limit, emergency operation must be applied and boiler must be shut down immediately. Intervene only after boiler water temperature drops below 40 °C.
Do not feed cold water to the boiler under any conditions and situations. This situation may cause serious damage and life-threatening outcomes.



Expansion Tank

Closed expansion tanks are connected to heating installation in the boiler room. In the water circuit entering into tank, there is a membrane (bubble) based on EPDM, and air is pumped between the tank and membrane. Expanded water fills into the membrane and compresses the air. Then, when pressure drop and water decrease occur due to cooling down on system side, compressed air pushes the water inside membrane back to system again and completes the missing water. It is required to use with appropriate safety valve. Closed expansion tanks can only be used in liquid and gas-fueled heating systems provided automatic control mechanical combustion.

Necessary Operating Pressure Of Boiler As Per Floor Height

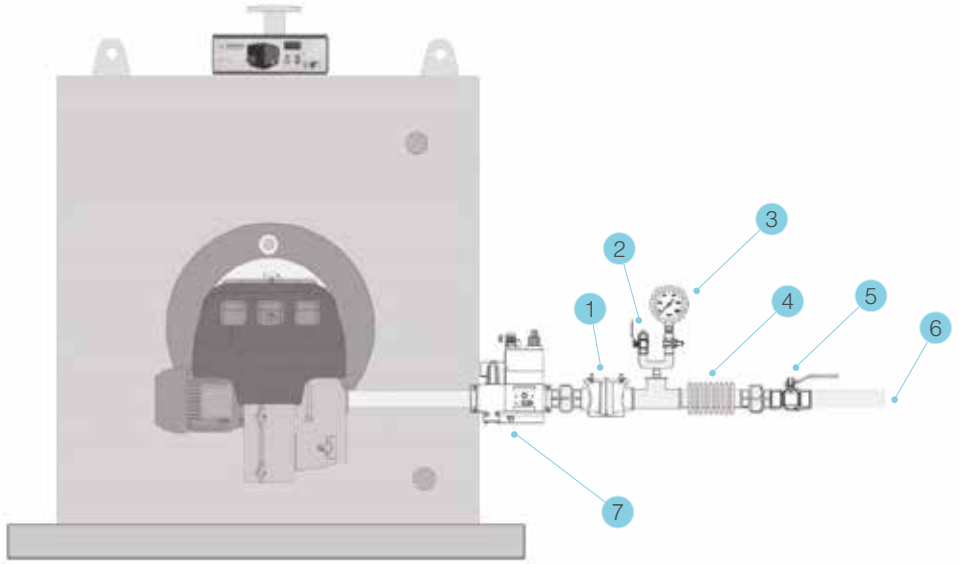
Boiler selection in terms of operating pressure must be done as follows.

Floor Height	Pressure (ATÜ)
1 - 7	3
7 - 10	4
10 - 13	5
13 - 15	6

Fuel Selection

Except for Natural Gas, in the event of using LPG or LNG;
Burner settings must be set in accordance with the specifications of manufacturer company.
Fuel tank and lines, should be organized in accordance with the specification of the company where fuel is procured.

Natural Gas Burner Assembly Scheme



1	Gas filter
2	Test nipple
3	Push tap and manometer
4	Compensator
5	Global gas valve
6	Gas entry line
7	Mutliblock gas valve (Filter/Regulator/Minimum gas processor, Safety gas valve/operating gas valve)

DETECTION AND FIXING OF ERRORS/MALFUNCTIONS

Error Name	Error Description	Fixing Applications
Ignition does not occur	Burner failure	Please follow the burner manufacturer
Dark smoke coming out of chimney	Low air surplus coefficient, Low supply voltage	Check fresh air coming into boiler room or air setting of burner. Voltage drop results in decrease of engine speed, low fuel air mixture.
Knocking in water section of boiler	Air in installation. Installation and assembly error	Drain the air. Check connections as per installation assembly circuit diagram.
Overheating in boiler water	Circulation pump failure Thermostat failure	Please check whether there is reverse turning in circulation pump. Check whether the boiler thermostat is working.
Failure in increasing boiler exit water temperature	High water speed Selection of burner unsuitable to boiler capacity	If circulation pump is speed-adjusted, speed should be reduced, if it is single-speed, by reducing valve, tuning should be made or Pump should be replaced with an appropriate pump. Make your burner checked by authorized service.
Water accumulation or leakage in smoke chest	Condensation of water vapor in flue gas	Failure in operating boiler in low temperature, failure in reducing flue gas temperature under 70°C at boiler exit. 3 or 4-way valve should be used, thermostat settings of boiler should be high. The condensed water must be drained with a connection from the lowest elevation of smoke chest. Condensation drain may have clogged.
Paint cover burning, heat increase, refractory concrete and turbulator deformation	Wrong burner selection and higher setting	Burner change, renovation to suitable conduit dimension and burner setting are necessary.
Increase in flue gas temperature	Operating without turbulator or missing turbulators, wrong burner setting and selection	It may be required to install turbulator and eliminate deficiencies, carry out setting of burner normally and procure suitable burner.
If water continuously decreases in the boiler	Mechanical / Installation failure	<ol style="list-style-type: none"> 1. Possible leakage in installation. Check the installation. 2. If water is coming from inside the boiler, there may be leakage in pipe or body. 3. Expansion tank might be low on air.

If there is an indicator "Sen" on the screen and Thermostat light is blinking	Heat sensor fault	Make sure heat sensor is connected properly Check whether heat sensor is cut or disconnected.
There "Ac" indicator on the screen	AC failure	Make sure AC input is connected properly. If AC input is key controlled, make sure switch is in off position and there is AC energy input to the system.
Temperature warning is flashing on the screen	Overheating in boiler	Boiler temperature increases over 95 degrees. Lower the temperature.
The burner cannot be activated.	Safety thermostat problem or Burner connection problem	Make sure the burner connection is made properly. Check that the boiler temperature is within normal working temperature. Make sure safety sensor cable is not short-circuiting or disconnected.
If there is "Enn" sign on the screen.		Check whether safety sensor cable is disconnected or plucked.

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ISO 10002:2018

11.04.2021
12.03.2023
12.03.2025

CERTIFICATE OF WARRANTY



The Document's Confirmation Date And Number.

The use of this document has been authorized by T.C. Sanayi Ticaret Bakanlığı İl Müdürlüğü in accordance with the Law No 4077 on the Protection of Consumers and the Communiqué on the Implementation of the Guarantee Certificate put into effect based on this Law.

WARRANTY CONDITIONS

1. Warranty period starts from the delivery date of the goods.
2. All parts of the goods are covered by our company's warranty.
3. In case of malfunction of the goods within the warranty period, the time spent in the repair is added to the warranty period. The repair period of the goods is maximum 30 working days. This period starts from the date of notification to the service station of the defect goods. In the absence of service station, this period starts from the date of notification to the seller, dealer, agent, representative, importer, or manufacturer of the goods.
4. In case of malfunction of the goods within the warranty period due to material, workmanship or assembly defects, the goods will be repaired at no cost and no additional cost will be asked from the buyer under the name of changed part price or any other name.
5. Malfunctions arising from the use of the product in contravention of the provisions in the user manual are not covered by the warranty.
6. For the problems that may arise in relation to the warranty certificate can be applied to the Sanayi ve Ticaret Bakanlığı Tüketicinin ve Rekabettin Korunması Genel Müdürlüğü.

For the product that was sold to LTD. ŞTİ. / AŞ / Legal Entity
on/...../20..... with stated model, brand and serial number, all kinds of
manufacturing and material defects are covered by the warranty of our company
for two years.

SELLER _____

DEALER _____

END USER _____

Brand: _____

Model : _____

Serial No : _____

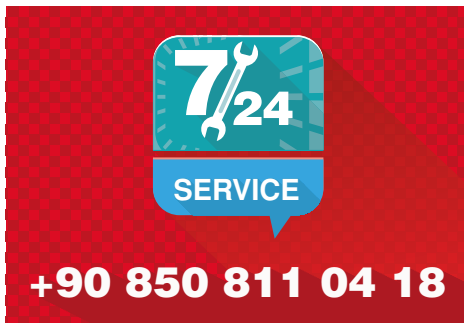
PROFESSIONAL SYSTEM SOLUTION CENTER

From our MIT professional system solution center, you can get help with problems with your pumps, heat exchangers and your system. Our solution center consisting of our expert engineers will be happy to help you.

- Domestic hot water installations.
- Central and district heating systems.
- Milk, yogurt, heating, cooling and pasteurization systems.
- Industrial cooling and heating systems.
- Oil cooling systems.
- Energy recovery systems.
- Pool heating systems.
- Steam installations.



It is vital for your system to be designed and implemented correctly in the first installation in order to be able to operate at the desired capacity, smoothness and long life. For this reason, you can get first-hand the technical support you need during the installation phase of your system and the problems that may arise in the business; You can reach us **24 hours +90 (216) 232 24 12 in 7 days.**



7/24
SERVICE
+90 850 811 04 18

We would like to reiterate that we will be happy to share our knowledge accumulated over many years with our valued customers in order for your system to work correctly and performance.

Ekin will continue to be the best solution partner for you in all applications with all kinds of heating and cooling applications.



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