



EKIN ENDUSTRIYEL

**Custom - Made Pressure Vessels
Installation and User Manual**



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EKIN PRODUCTS. LUMIPRA CONTACT.

Your authorized Ekin partner in the DACH region.

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Products, technical advice, procurement and spare parts.



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 Türkiye) 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 17 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 17th 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.



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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
- Twin Screw Pumps
- Gear Pumps
- Magnetic Drive Pumps / Thermoplastic 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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Introduction

- Installation, use and maintenance of the device should be done as described in this manual otherwise the product will not be covered by warranty.
- DO THE INSTALLATION to a qualified firm according to the connection scheme that corresponds to the model of the product you have purchased.
- After you have completely filled your device with water, OPEN THE HOT WATER TAP to remove the air in the product.
- Have the electrical connections of your device made by licensed electricians.
- The device has been prepared in accordance with its intended use. If it is used for other than this purpose, it will be out of warranty.
- While the device is being installed, areas should be left where technical service personnel can intervene when necessary.
- If an electric heater is to be connected to the device, a thermostatic control device, energy cut off device, residual current relay should be used and grounding should be done. Ekin Industrial is not responsible for any damages that may arise otherwise.
- No repair, modification or revision can be made on the device without the approval of the manufacturer. Otherwise, the product will be out of warranty.
- The maintenance and controls of the device should be carried out periodically by authorized persons in accordance with regulations and standards.
- All electrical connections must be grounded by licensed electricians.
- All electrical supply lines must have a residual current relay. At least 6 mm grounding cable must be connected to the electrical supply panels, and this cable must be mounted separately from the installation with a copper grounding stake or galvanized sheet in accordance with the "Groundings Regulation in Electrical Facilities".
- In pressurized devices, an automatic type safety valve with an opening value of at least 10% below the operating pressure value should be used. Otherwise, the product will be out of warranty.
- Electrical panels, electric motors, resistances, bearings, seals and other equipment failures are not covered by the warranty.



The Manufacturer Reserves the right to change product specifications, technical measurements and information and installation schemes without notice. Any information given in this page can not be copied and used without the permission of the Manufacturer. The Manufacturer can not be held responsible in any way by showing examples of technical information and schematics.

Device Placement and Installation Principles

Do the installation to a qualified firm according to the connection scheme that corresponds to the **model of the product you have purchased**.

- Products are shipped with wooden pallets for transportation purposes. It should be disassembled before assembly.
- For the installation of the product, it is necessary to build a base on a solid / stable floor with the strength to bear the weight of the water heater.
- In the place where the product is to be installed, it is necessary to determine the location
- of the installation by providing the necessary interventions and discharging fields that can be done in case of product breakdown or change.
- Your device should be placed in a closed or non-freezing location. Your product is designed for use at ambient temperatures of + 5-50 degrees Celsius. Products used outside of this temperature range and outside conditions are not covered by the warranty.
- In order for your product to be able to operate efficiently, the installation must be made exactly as indicated on the scheme and the capacity of the heat sources must be selected according to the need for hot water. The product is not covered by warranty due to inefficient operation or physical damage due to installation errors.
- The device is not covered by the warranty if the automatic type safety valve conforming to TS EN 1487: 2016 is not installed, damaged or improperly.

Control / Safety Equipment

For Electricity Equipment:

1. Thermostatic control device.
2. Energy-cut device.
3. Grounding
4. Residual current device

For Water Systems:

1. Safety Valve
2. Pressure Reducer
3. Expansion Valve
4. Manometer
5. Thermometer

For Steam Systems:

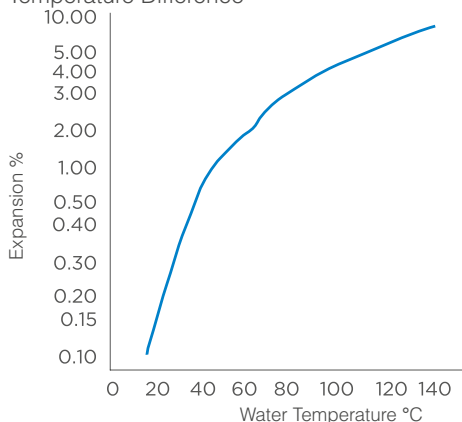
1. Safety Valve
2. Condenstop
3. Thermostatic Valve
4. Manometer

Safety Valve	In case of high pressure in the product, the water heater drains the water.
Expansion Tank	It is used to regulate the pressure fluctuations that can occur in the system.
Filter(Dirt Separator)	It is used to keep undesirable substances in the particle which may be present in the liquid entering the system.
Valve	It is used as an installation element that allows water flow in the system or stops the flow.
Circulation Pump	It is used to circulate the liquid used in the system.
Manometer	It allows the liquid moving in the system to flow in the desired direction, reverse flow of liquid is prevented.
Thermometer	It is used to see the temperature of the liquid in the system.
Pressure Reducer	It is absolutely necessary to install a pressure reducer in the connection line so that the water pressure on the line does not rise above the maximum allowable pressure of the device.
Check Valve	It allows the liquid moving in the system to flow in the desired direction, reverse flow of liquid is prevented.

The water expands when heated. The amount of water expansion according to temperature is shown in the table and graphic below. For example; At a temperature increase of 50 °C, the volume of water increases by 1.19%. This water has to be evacuated. Water can not be compressed like air. If the expanding water does not go out of the water heater, it presses the shaft and explodes the water heater at the weakest point.

Temperature °C	Density kg/lt	Volume kg/lt	Expansion %
0	0.9998	1.0002	0
10	0.9996	1.0004	0.02
20	0.9982	1.0018	0.16
30	0.9956	1.0044	0.42
40	0.9922	1.0079	0.77
50	0.9880	1.021	1.19
60	0.9832	1.071	1.67
70	0.9777	1.0228	2.26
80	0.9718	1.0290	2.88
90	0.9635	1.0359	3.57
100	0.9583	1.0435	4.33
110	0.9519	1.0515	5.13
120	0.9431	1.0603	6.01

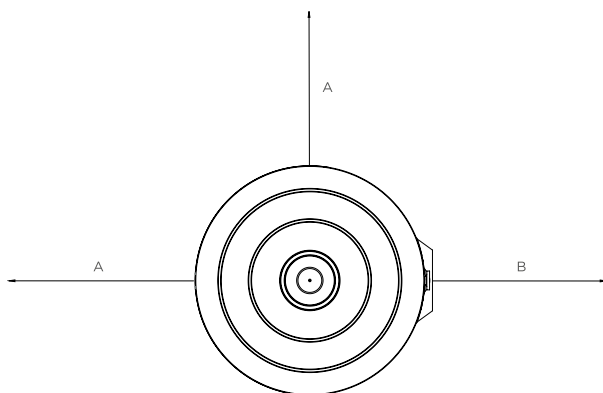
Water Expansion According To Temperature Difference



Expansion Tank Application

The closed expansion tank volume to be installed on the cold water inlet side of the device should be selected at least 10% of the device volume. The expansion tank can operate up to 8 bar and the pre-pressure should be set below 10% of the operating pressure. The most important point to pay attention to in the equipment equipments is the connection of the automatic safety valve and expansion tank to the system. Always do install the expansion tank and the safety valve between the device and the valve. Always do check the pre- pressure of the expansion tank twice a year.

Volumetric Mounting Distances



Volume Liter	Unit	100	160	200	300	400	500
A	mm	875	875	875	875	875	875
B	mm	1125	1125	1125	1125	1125	1125
Min. Ceiling Height	mm	1430±10	1475±10	1920±10	1810±10	2500±10	2850±10

Volume Liter	Unit	800	1000	1500	2000	2500	3000
A	mm	875	875	875	875	875	875
B	mm	1125	1125	1125	1125	1125	1125
Min. Ceiling Height	mm	3150±10	3270±10	3500±10	3430±10	3400±10	3820±10

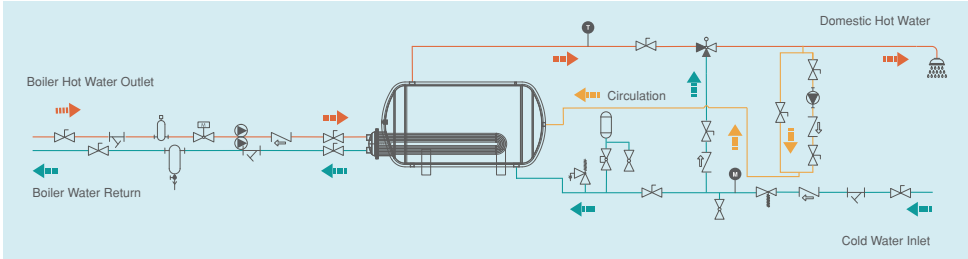
Process Tank With Agitator



CAUTION!

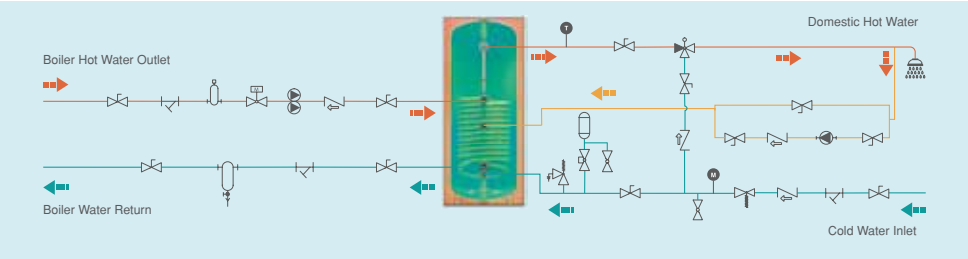
- It is recommended to use an inverter in the mixing tank panel connections. Otherwise, mixer blade, shaft, bearing and motor failures may occur.
- There must be residual current relay, grounding and de-energizing device in the electrical panel. Ekin Industrial is not responsible for any damages that may occur otherwise.
- For Rolbont and serpentine products, the safety equipment specified on page 2 must be used. Otherwise, the product will be out of warranty.
- The lid should never be opened while the device mixer is operating, and product filling and unloading processes should not be performed. Otherwise, the product will be out of warranty.
- Repairs and modifications to be made on the device without the manufacturer's approval will exclude the product from the scope of warranty.
- Engine, reducer, seal, bearing and other equipment maintenance should be done periodically. Otherwise, the product will be out of warranty.
- Electrical components, bearings, seals and bearing Teflon are not covered by the warranty.

Horizontal Water Heater Tank



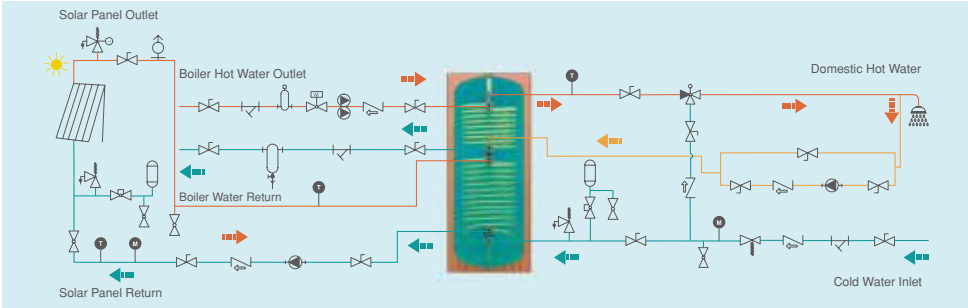
Product Type	Maximum Safety Valve Opening Pressure
Horizontal Water Heater Tank	An automatic type safety valve with a minimum opening pressure of 10% lower than the operating pressure of the device should be used.

Single Serpentine Water Heater Tank



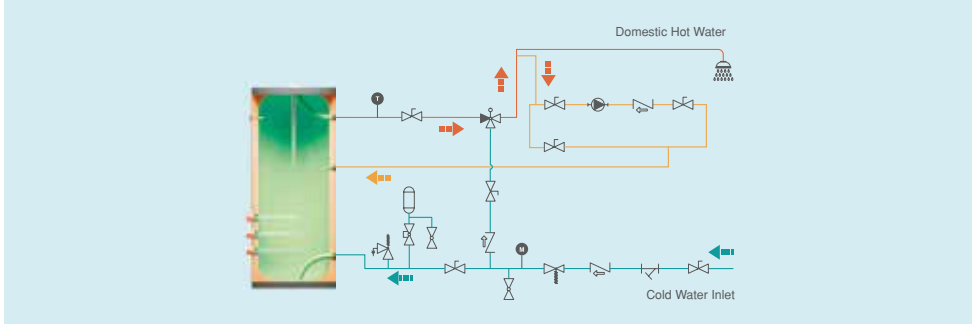
Product Type	Maximum Safety Valve Opening Pressure
Single Serpentine Water Heater Tank	An automatic type safety valve with a minimum opening pressure of 10% lower than the operating pressure of the device should be used.

Double Serpentine Water Heater Tank



Product Type	Maximum Safety Valve Opening Pressure
Double Serpentine Water Heater Tank	An automatic type safety valve with a minimum opening pressure of 10% lower than the operating pressure of the device should be used.

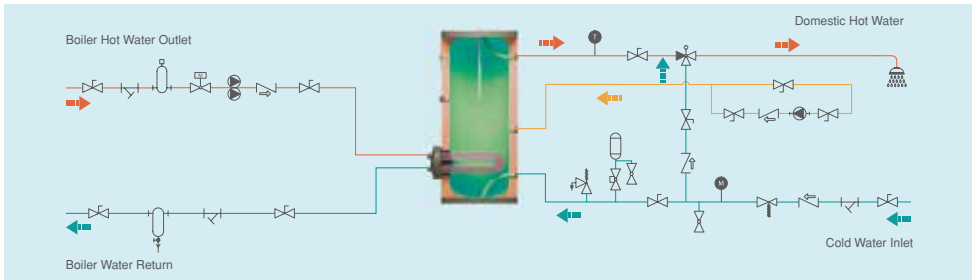
Electric Water Heater Tank



Power & Distance Based Cable Sections

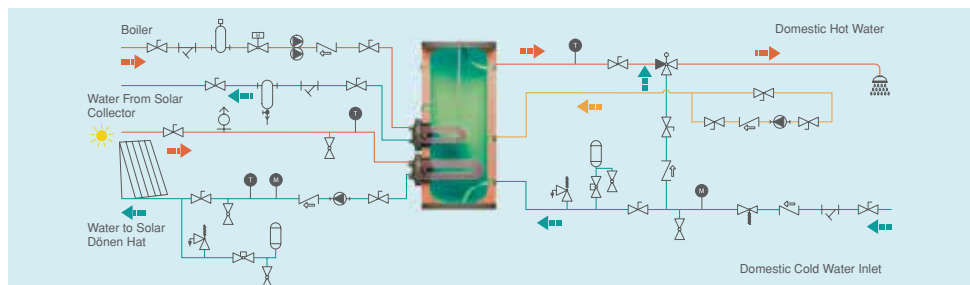
Panel Type	Power Unit Max.	Unit	Power Unit Max.	Unit	Cable Metrics <25m	Cable Metrics >25m
1x7,5 kW	7,5	kW	12,0	A	4x4 mm NYY	Please Consult
1x10 kW	10	kW	16,0	A	4x4 mm NYY	
1x15 kW	15	kW	24,0	A	4x6mm NYY	
2x7,5 kW	15	kW	24,0	A	4x6 mm NYY	
2x10 kW	20	kW	32,0	A	4x6 mm NYY	
2x15 kW	30	kW	48,0	A	4x10 mm NYY	
Panel Type	Power Unit Max.	Unit	Power Unit Max.	Unit	Cable Metrics <25m	Cable Metrics >25m
3x7,5 kW	22.5	kW	36,0	A	4x6 mm NYY	Please Consult
3x10 kW	30	kW	48,0	A	4x10 mm NYY	
3x15 kW	45	kW	72,1	A	4x16 mm NYY	
4x7,5 kW	30	kW	48,0	A	4x10 mm NYY	
4x10 kW	40	kW	64,0	A	4x16 mm NYY	
4x15 kW	60	kW	96,1	A	4x25 mm NYY	
>4 x .. kW	Lütfen Danışınız					

U Type Single Serpentine Water Heater Tank



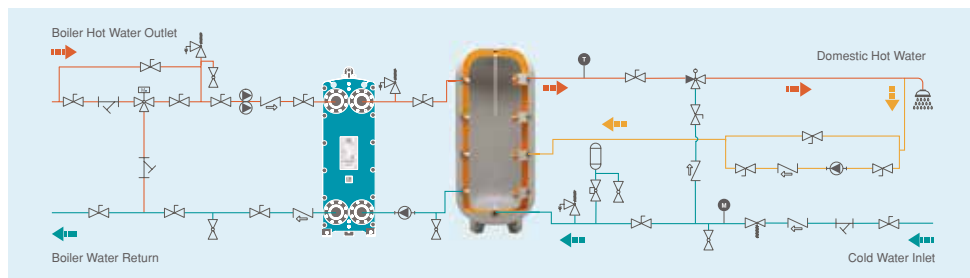
Product Type	Maximum Safety Valve Opening Pressure
U type copper pipe single serpentine water heater tank	An automatic type safety valve with a minimum opening pressure of 10% lower than the operating pressure of the device should be used.

U Type Double Serpentine Water Heater Tank



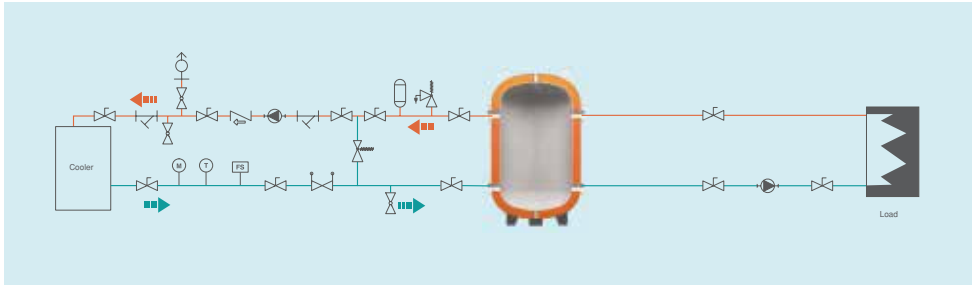
Product Type	Maximum Safety Valve Opening Pressure
U type copper pipe double serpentine water heater tank	An automatic type safety valve with a minimum opening pressure of 10% lower than the operating pressure of the device should be used.

Accumulation Tank

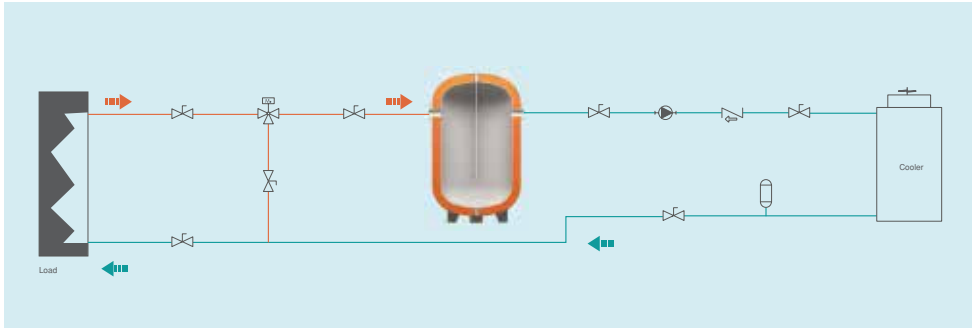


Product Type	Maximum Safety Valve Opening Pressure
Accumulation Tank	An automatic type safety valve with a minimum opening pressure of 10% lower than the operating pressure of the device should be used.

Buffer Tank Without Baffle Plate



Buffer Tank With Baffle Plate



Product Type	Maximum Safety Valve Opening Pressure
Buffer Tank With Baffle / No Baffle	An automatic type safety valve with a minimum opening pressure of 10% lower than the operating pressure of the device should be used.

 Solar Panel	 Central Heating	 Underfloor Heating	 Three-Way Valve	 Pump	 Radiator Valve
 Bypass Valve	 Pressure Release Valve	 Strainer	 Drain Valve	 Check Valve	 Twin-Head Pump
 Balance Valve	 Ball Valve	 Flow Switch	 Ball Valve	 Air Vent	 Buffer Tank
 Air Separator	 Dirt Separator	 Two-Way Motorized Valve	 Radiator Heating System	 Safety Thermostat	 Thermostatic Valve
 Pressure Relief Valve	 Membrane Expansion Tank	 3-Way Modulating Motorized Valve	 Thermometer	 Pressure Gauge	

Periodic Maintenance - Cleaning



Depending on the stiffness of the mains water, cleaning the lime, dirt and sludge that may form in the resistance and the water heater in certain periods by opening flange is recommended in order to always get the desired performance from your device. Chemical cleaning is not absolutely recommended while the product is cleaned.



Except for anode gaskets, the gaskets on the product are disposable gaskets. Do not use the gaskets again when the parts of the gaskets are disassembled for any reason. contact the seller.



Make sure that the equipments such as valve, check valve, dirt separator, safety valve, expansion tank, thermometer in the installation of the device to be robust.



Clean the dirt separator by removing the dirt holder(filter) at regular intervals.



The magnesium anode on the device should be checked for at least Twice for at least one year and the control frequency to be done according to the number of the anodic wear after the first check is determined. Magnesium anode finished products are not covered by warranty.



When the device is deactivated, measures must be taken to prevent freezing and the water heater must be emptied.



When cleaning the inside of the product, do not damage the internal body covering (enamel) the physical and chemical damage.



After cleaning the product, the cleaning flange, thermowell, thermostat connection points must be sealed.

Cathodic Protection

Cathodic protection is the stopping of the anodic reactions of metals that come into contact with water and air by occurring on the metal surface by turning an electrochemical cell into a cathode. The cathodic protection that we apply in our water heater is galvanic-based and the anode is the galvanic element. There are some tolerances for enamel coating in the standard DIN 4753-3. These tolerances describe weak zones in the amount of enamel-covered work. The anode task is to prevent corrosion from these regions.

Depending on the product model, the diameter and length of the magnesium anode may vary. In the type of magnesium anode to be used in products, MIT has the right to choose and change without informing the customer. Below are three different anode patterns used in MIT branded products;



PLUGGED ANODE



ISOLATED ANODE



ELECTRONIC ANODE

At Magnesium Anode Change

1. Turn off the product cold water valve.
2. Open the safety valve or hot water tap to get the pressure from the place. Do never interference with the product under pressure.
3. Remove the plastic cap from the top of the product and peel off the anodes with the appropriate tools and / or appliances.
4. Determine your control period according to the magnesium anodisation. The life of the anodes may vary with respect to water structure and galvanic corrosion that may or may form in time. At suitable water conditions, the life of anode is 2 years, but this can be reduced to 6 months depending on the condition of the water used. Set the control period not less than 2 times per year. Change the magnesium anodes in accordance with the lifetime simulation given in page 28.
5. Assemble the magnesium anodes / anodes with the appropriate tools and household appliances that have supplied the product in varying amounts and types according to the model and volume of the product.
6. The assembled magnesium anodes should be as tight as the need for sealing.
7. Open the cold water valve. You can continue to use your product.



The anode is not covered by warranty because it is an consumable material. Electronic anodes do not need to be changed. MAKE SURE that your electronic anode is permanently connected to the 220V power supply of the power supply line.

Magnesium Anode Life Simulation

Please consider the results of the following product life simulation during the exchange of your magnesium anodes, which are cathodic protection elements based on galvanic.

Appearance	Situation	6 th Month Control	1 st Year Control
	%0 UNUSED	Please contact the seller company. Your anode doesn't function.	Please contact the seller company. Your anode doesn't function.
	%25 USED	You can determine the control period as once a year.	Tap water conductivity is not suitable.
	%75 USED	You can determine the control period as once a year.	You can determine the control period as once a year.
	%100 ALL OVER	Tap water is not suitable for your water heater. Please contact the seller company.	You can determine the control period as twice a year.
NOTE: IF WATER IS NOT SUITABLE, PLEASE CONTACT THE COMPANY.			

Domestic Water Charter

The water you will use in your device is required to be conditioned according to the limit values allowed in the who regulations for human consumption waters and world health organization guidelines for drinking-water quality, which was published in the official gazette dated 07.03.2013 and numbered 28580. If the water used in your device does not comply with the relevant regulations, standard values and limit values (EPA, WHO, etc.) given in documents belonging to internationally accepted organizations, your product will not be covered by the warranty. Some limit values are presented below as an example.

Parameter		Limit Value	Unit
Sodium	Na	200	mg/l
Amonium	NH ₄	0,5	
Manganese	Mn	50	
Iron	Fe	200	
Fluoride	F	1,5	
Chloride	Cl	250	
Nitrate	NO ₃	50	
Nitrit	NO ₂	0,5	
Sulfate	SO ₄	250	
T.Cation / T.Anion	K/A	>1	% mval

Parameter		Limit Value	Unit
Kadmium	Cd	5	µg/L
Chromium	Cr	50	µg/L
Copper	Cu	2	µm/L
Cyanide	CN	50	µg/L
Plumb	Pb	10	µg/L
Mercury	Hg	1	µg/L
Nickel	Ni	20	µg/L
Aluminium	Al	200	µg/L
Conductivity		2500	25 °C'de µS/cm ⁻¹
pH		≤ 9,5-6,5 ≤	%mval

About Production / User Faultable Products

For products that are under warranty, the following procedure is applied for customer satisfaction.

1. If your device malfunctions, please contact the dealer. Fill in the customer returns and feedback form sent by the seller and send the photograph showing at least 1 mechanical and / or electrical installation to the dealer.
2. The technical service report and photographs of the defective product are recorded on by the technical service Personnel of the seller in order to pass the quality records about the customer complaint. In the technical service report, the conformity of the installation and installation of the product to the requirements will be considered in the user's manual absolutely.
3. During on-site technical service, the product can be recalled to our factory for the detection of the production / user error even if the location and shape of the error can be seen.
4. If it is decided to send a new product without waiting for the destructive/non-destructive inspection results for situations where the source of the error cannot be determined on site and similar situations, the defective product must be sent to the manufacturer within 15 days. Otherwise, the product price will be invoiced to the customer. For the shipment of new products, the manufacturer can wait for the destructive / non-destructive test results as long as the relevant regulations allow.
5. The new product is shipped to the customer by MIT.
6. The defective product in the system is disassembled and sent to MIT factory. For analysis of faults such as puncture, the product is connected to the test station, after the conditions of the end user are simulated, the product is cut and the drilled region is removed. In such cases, the determination of the shape of the piercing, the direction of the piercing and whether it depends on the water condition is carried out by various visual and / or destructive inspection techniques.



CERTIFICATE OF WARRANTY

The Document's Confirmation Date and Number:

The usage of this document has been authorized by T. C. Sanayi 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. In case of malfunction of the products 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.
3. 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 buyer under the name of changed part price or any other name.
4. Defects caused by the use of the product contrary to the items in the user manual are out of the warranty.
5. For the problems that may arise regarding the Warranty Certificate can be applied to the Sanayi ve Ticaret Bakanlığı, Tüketicihin ve Rekabetin Korunması Genel Müdürlüğü.
6. The manufacturer may request that the product be sent to its own production facility at its own discretion. The shipping cost to be spent by the customer belongs to the manufacturer if it is evaluated within the scope of warranty as a result of the examination made on the product. If the defect is not evaluated under the warranty, all costs incurred will be invoiced to the customer.
7. The manufacturer is not responsible for any damages and losses that may occur in the cargo or warehouse during the shipment of the product.
8. The manufacturer accepts no liability for the damage caused by the following reasons:
 - Failure to comply with temperature, pressure or other conditions specified in the technical specifications.
 - Incorrect applications and normal abrasion conditions.
 - Damages that may occur from sudden opening and closing of the fluid valves.
 - Damages caused by the usage of non-original spare parts.
 - Damages that may occur during shipping.
 - Damages that may arise from corrosion.
 - Blockages caused by the fluid passed through inside the product.
 - Damages that may arise from condensate discharge in products which are used in steam applications.
 - Damages that may occur by the blockages caused by the solid materials which can block the products.
 - Damages that may occur as a result of incorrect interventions by the un-authorized services.
 - Damages that may be caused by the lack of fixtures or not working properly.
 - Accidents and problems that may occur in the system if the safety fixtures (safety valve, thermostat, pressure sensors, temperature sensors etc.) are not used are not considered under warranty. The manufacturer is not responsible for any of the pecuniary and non-pecuniary damages that may occur.
9. Manufacturer is not responsible for secondary damages, loss of production and accidents whether it is under warranty or not.
10. All of the above items have been specified in our offer and order confirmations and you have been informed that they supersede the contract. Commissioning of the product means acceptance of the contract.

For the product that was sold to LTD. ŞTİ./A. Ş / 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 2 (two) years.

SELLER

DEALER

END USER

Brand : _____
Product Type : _____
Product Code : _____
Serial No : _____
Product No : _____

not covered by warranty.

Please keep this certificate!

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 each us



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e 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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