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**ÜNMAK HOT WATER STORAGE TANK SERIES  
WARRANTY CERTIFICATE  
USER AND MAINTENANCE MANUAL**

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**Please keep your user manual, warranty certificate, and invoice during the life cycle of the device.**

**ÜNLÜSOY**

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## This Booklet covers the following models

- **Single Serpentine Hot Water Storage Tank – ÜEB/T**
- **Double Serpentine Hot Water Storage Tank – ÜEB/Ç**
- **Hot Water Storage Tank for Heat Pumps – ÜEB/HP**
- **Accumulation Tank – ÜAT**
- **Electrical Water Heater – ÜEB/E**
- **Buffer Tank – ÜBT**



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## 1. INTRODUCTION

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Thank you for choosing ÜNMAK water storage tank series. Please read the user manual carefully before installing and operating your product and keep the user manual and guarantee certificate throughout the product's usage period. Do not touch or mix any part of the product other than those permitted in the user manual.

This user manual and regulations should be taken into consideration for the installation of the product, the selection of the appropriate place for the installation, and the installation of the plumbing.

ÜNMAK Water Storage Tank Series is designed in such a way that hot water with heating fluid passes through their coils. For this purpose, a heat source such as a heating boiler, combi boiler and solar energy is required. The water volume in the tank is heated by the hot water circulating from the serpentine and provides the opportunity to use it.

ÜNMAK Electric Water Heater, Accumulation Tank and Buffer Tank are storage tanks without serpentine inside. They are used to reduce thermal fluctuations by assisting the tanks or assisting the heating installation.

The domestic water is stored in the tank, and the heat taken from the heat source heats the domestic water in the tank with the coil. In electric models, the domestic water is heated with the help of resistance when the heat source is not operated or not able to work.

The Buffer Tank is designed to increase the volume of water in the closed circuit in heating and cooling systems and to reduce the number of times the pump goes on and off.

Our products are produced by the TS 736 Standard, considering the welding methods and safety principles, and are offered to our valued customers. Ünmak family strives to offer its users a more comfortable life, aiming at customer satisfaction by making continuous improvement, research and development in our products with the principles of higher quality and maximum safety.

Our devices are manufactured in accordance with the standards. The steel sheet material used in the devices is made of high quality complying with the standards are used, the inner surface is covered with wet enamel, and cathodic protection is provided against corrosion. Its outer surface is covered with high-density hard polyurethane with low heat permeability starting from litres 100 up to 3000 litres, and with highly insulating sponge for capacities of 4000 and 5000 litres.

ÜNMAK tank series are produced following types and models:

- Single Serpentine Hot Water Storage Tanks
- Double Serpentine Hot Water Storage Tanks
- Hot Water Storage Tanks for Heat Pumps
- Accumulation Tanks
- Electric Water Heaters
- Buffer Tanks

Except for the buffer tank, other devices are produced according to a working pressure of 10 bar so that they can operate under city water mains pressure and are subjected to a test pressure of 15 bar. The buffer tank is produced according to 6 bar working pressure and is subjected to 9 bar test pressure.

All devices are covered with wet enamel and kilned except the buffer tank. A thermometer can show the water temperature inside the devices. Each device has a heater input.

To reduce the resistance of Legionnaires bacteria breeding in the lower dished area, the lower dished area is heated by coils. At the same time, the circulation of the water in that region was carried out with the gooseneck. Each device is formed with convex sheets at the top and bottom to increase pressure resistance. In serpentine tanks, the pipes forming the serpentines are low carbon, high heat transfer, and special alloy pipes.

Types up to 3000 litres are insulated with hard polyurethane in order to the heating of the outer surface of the device, and types from 4000 litres to 5000 litres are insulating high density sponge material. The high-density recovered with a special cover made of artificial leather. The products are packaged with bubble wrap and stretch film on it. To adding a pallet has been made for forklifts and pallet trucks to facilitate transportation and loading.



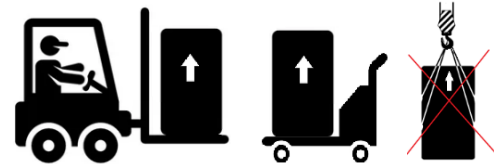
**The manual must be read carefully before handling, installing and maintaining the product.**



**Your user manual, warranty certificate and product invoice should be kept for the life of the device. In case of malfunction, please contact our company before intervening.**



## 2. DELIVERY CONDITION, HANDLING AND STORAGE

Our products are shipped in one piece, packed on a pallet. Since the products are heavy, care should be taken when transporting them to the place where they will be installed. The net weight of each type of device is indicated in the technical specifications table. Therefore, the equipment to be used to lift and transport the product should be of sufficient capacity.



The products should be transported vertically and the risk of crushing the insulation material should be eliminated by tilting it. When transporting with cranes and similar equipment, it should never be carried over the tank by suffocating it with ropes. The ropes can crush the insulation on the tank and damage it.

There are eyebolts on the upper side that can be used at points close to the face in cases where it is required to be transported by crane. To reach these eyebolts, please contact our company.

-  **The device should be transported upright and operated upright and level in the place where it is installed.**
  
-  **When removing the packaging around the devices, hard and sharp objects should not be used in order not to damage the insulation material under the package in the tanks.**



### 3. ASSEMBLY

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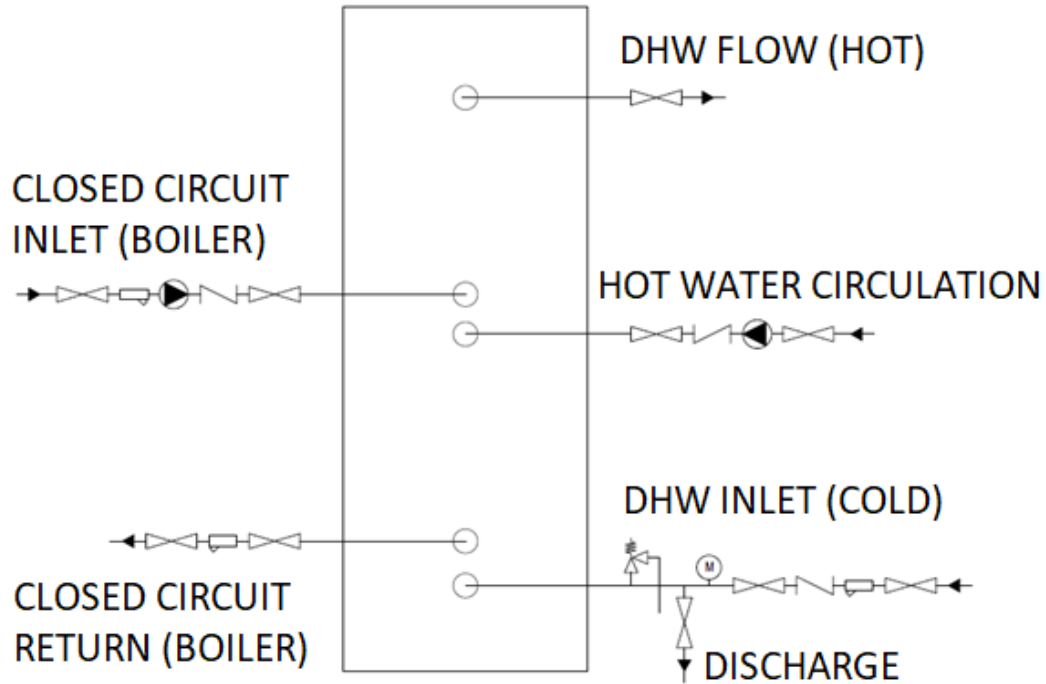
#### 3.1 Things to be Considered in Installation

- The place where the device will be installed must have sufficient free space for the installation and maintenance of the product. If there is a need for service, it should be far enough from the wall that the heater can easily come out. The minimum distances required for assembly and maintenance must be taken into account when placing the device.
- Considering the water volume as well as the weight and capacity of the product, it is necessary to assemble it in a suitable place with balanced.
- When the device is balanced (if it will not be used for a long time), measures should be taken to prevent the water from freezing (especially in cold regions).
- Considering that the anode of the device will also be changed, the ceiling of the mounting place should be of sufficient size.
- The place where the device will be installed should be considered as easily accessible during breakdown or maintenance. In cases where the tank needs to be disassembled and intervened, it is necessary to assemble it as if it could be easily disassembled.
- Before installing the device, the installation and user manual should be read completely.
- All products must be operated strictly vertically. It should not be operated horizontally or on an incline.
- The device should not be kept in places where it will be exposed to direct sunlight for a long time.

- All products should be placed on a levelled floor that is strong enough to support the full weight of water.
- The device must be placed in a place protected against the risk of frost. For the device to be used it is necessary to make the correct connections of the installation where the tank is mounted, on the products, and to check that the heating fluid capacities are suitable for the hot water requirement.
- Make sure that the installation of the device is done by people who are qualified to do this work.
- A safety valve of maximum of 9 bar suitable for the working pressure must be installed at the mains water inlet of the device. In buffer tanks, the maximum safety valve is determined as 6 bar.
- If the safety valve is not installed or connected incorrectly, the device will be out of warranty.
- It is recommended to use a pressure reducer.
- The evacuation of the safety valve should be given to a suitable drain.
- In order to avoid pressure fluctuations that may occur in your system, you must select and use the appropriate expansion tank for your system.
- Make sure that the device is completely filled and that there is no air in the tightness of the fittings and pipes.
- If your device has electric heaters, have the electrical work done by qualified persons. Never operate electrical components when the device is empty.
- In electric water heater, make sure that the electrical connections are grounded.

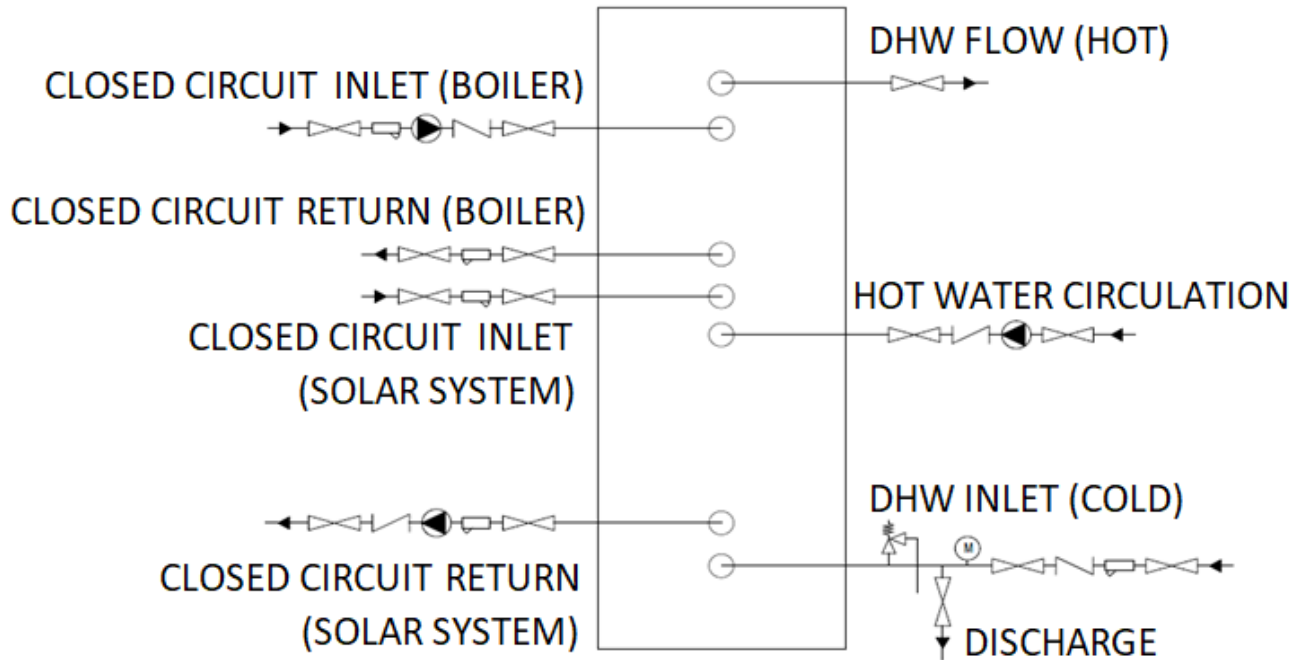


### SINGLE SERPENTINE TANK PLUMBING CONNECTIONS



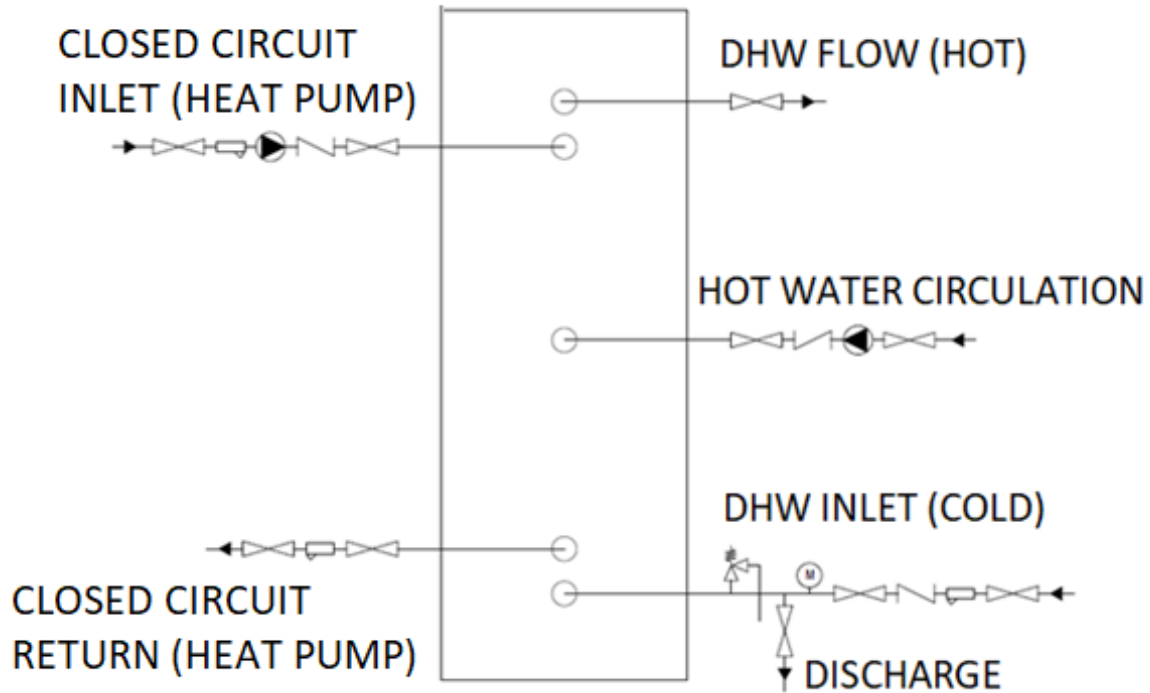


### DOUBLE SERPENTINE TANK PLUMBING CONNECTION





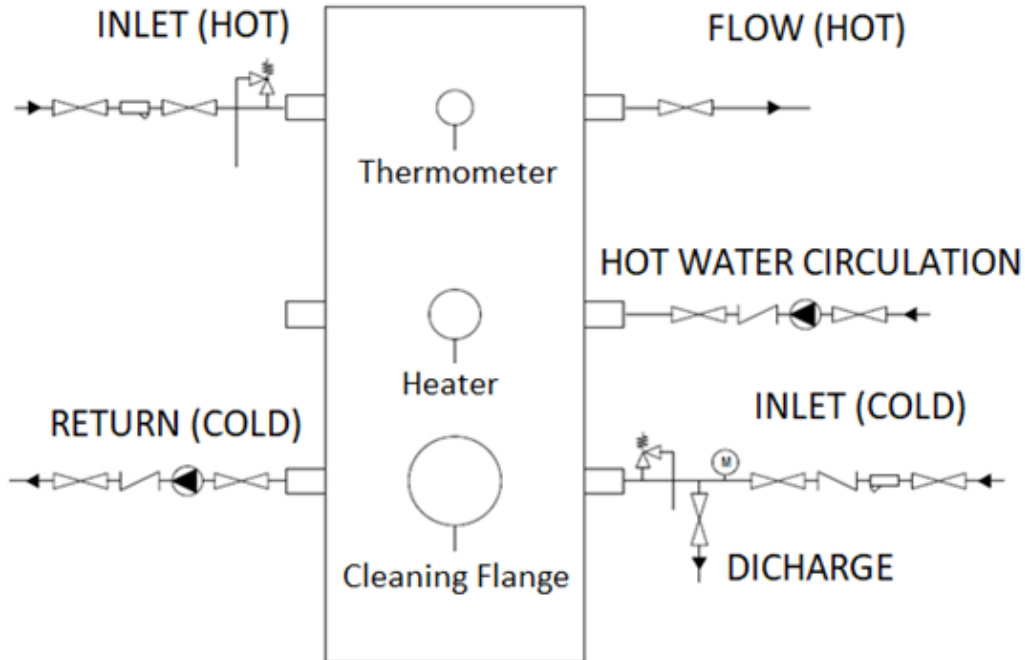
**WATER STORAGE TANK for HEAT PUMP PLUMBING CONNECTION**





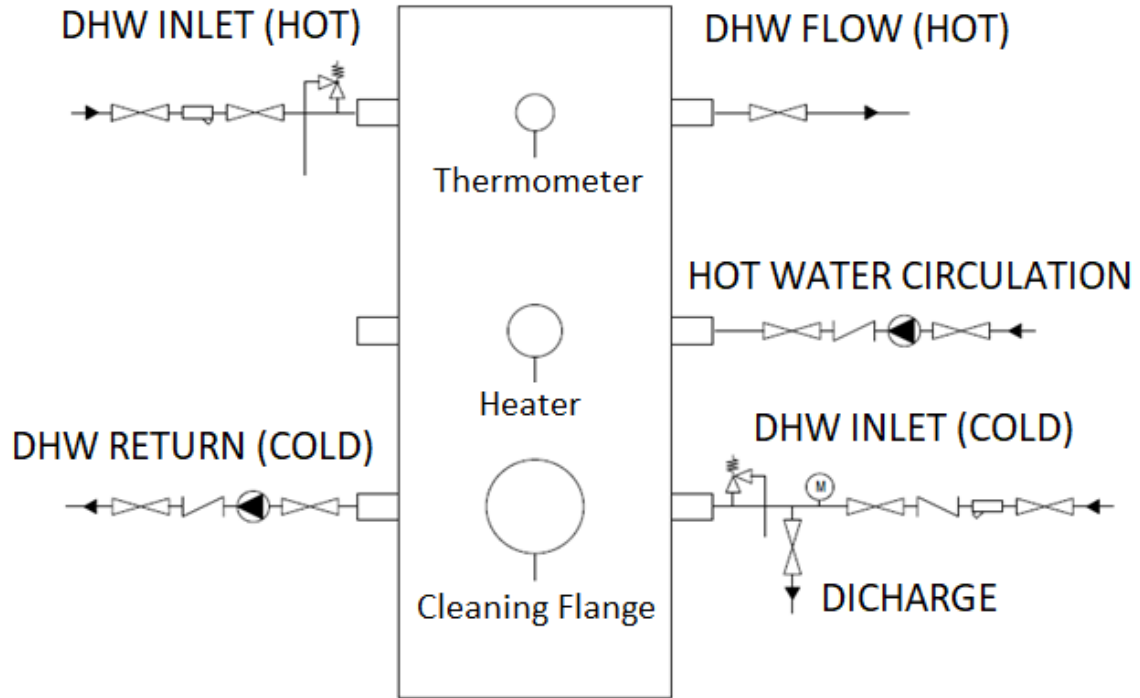


### ACCUMULATION TANK PLUMBING CONNECTION

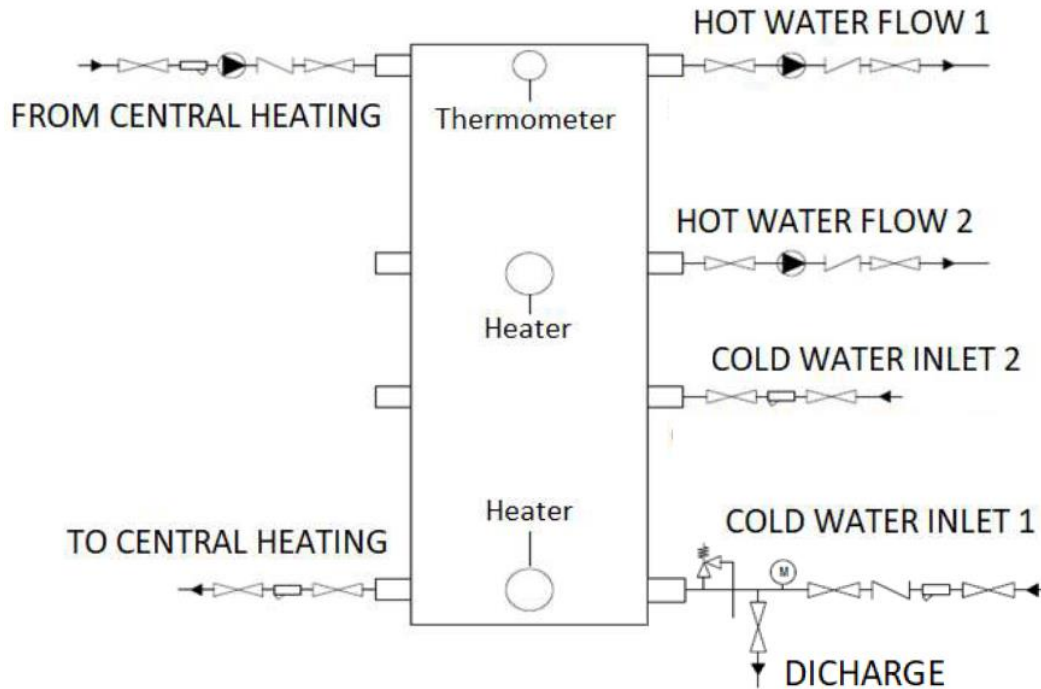




**ELECTRIC WATER HEATER PLUMBING CONNECTION**





**BUFFER TANK PLUMBING CONNECTION**

Ünmak reserves the right to make changes in the dimensions given in the tables.

### 3.4- ELECTRICAL CONNECTION

Connection Diagram and Cable Sections of Our Electrical Products

Electrical Power	Cable Cross Section*
4 kW	4x4
4 kW	Cross-Section
7,5 kW	4x4
12 kW	4x6
20 kW	4x6
24 kW	4x10
30 kW	4x10
45kW	4x10

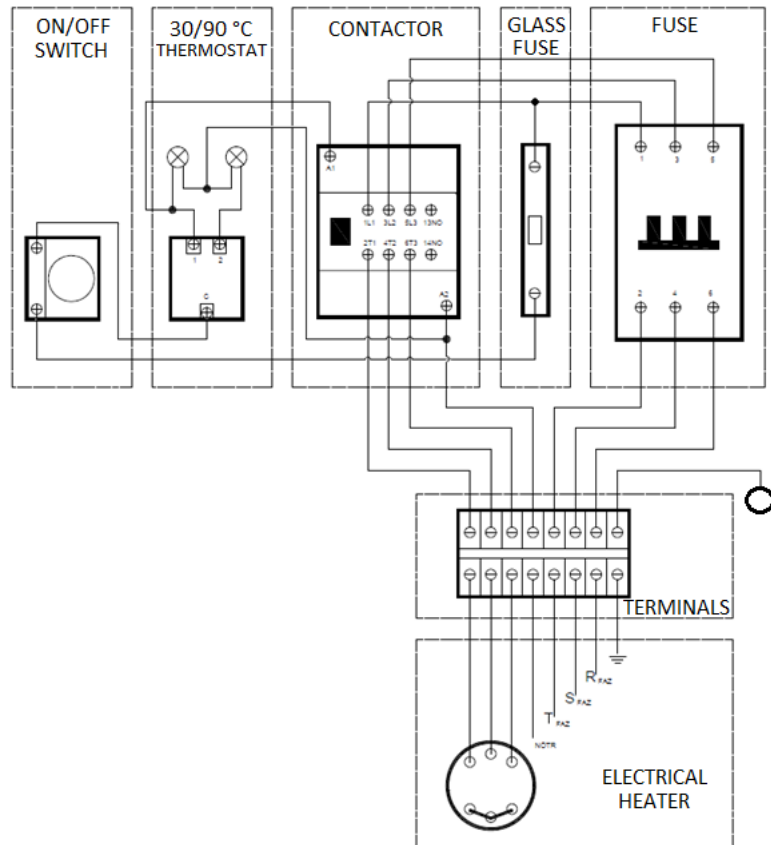


**Residual current relay must be add to the residual electric water heaters and tanks with electrical resistance additions.**



**The wiring diagram is exemplary. The electrical connection should be made in accordance with the current system.**

\* Cable cross-sections are calculated according to 25 meters, insulated cable.





#### 4. START-UP

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- Before the device is started for the first time, check the electrical connections if there is a heating resistance. Check the cable sections and fuses suitable for the device. Do not operate the heaters without filling the tank with water.
- A safety valve with a membrane of maximum 10 bar must be installed on the top of domestic water side.
- For the buffer tank, a safety valve with a maximum 6 bar membrane must be installed.
- If it is a tank with serpentine, the appropriate safety valve of the heating system connected to the serpentine must be installed.
- It is recommended to install a check valve on the cold water inlet of the tank. Otherwise, when the cold water is cut off, there is a possibility that the water in the closed circuit will damage the inner body due to the discharge of the used water.
- Closed expansion tank selected according to the system should be used.
- It must comply with the rules and local regulations on the assembly diagrams page.

## 5- GENERAL MAINTENANCE

### 5.1- SYSTEM MAINTENANCE

- The anode should be checked every 6 months. It should be changed according to the amount of consumption in the anode.
- In cases where the water is not suitable for its quality (hard and very hard water, calcareous and clayey water) and at high usage temperatures, we recommend that maintenance be carried out at shorter intervals. (It should not be forgotten that the 1 mm thick lime that will form on the serpentine surface will reduce the tank efficiency by 60%).
- If a strainer is used at the cold water inlet of the tank, it must be cleaned periodically.
- The devices should be insulated against the cold in areas where there is a risk of freezing, and should be emptied when the use is interrupted.
- The pre-reservoir pressure of the expansion tank should be checked at regular intervals when the working pressure is below 10%.

## 5.2- CLEANING

- The domestic water section of the device should be cleaned at least once a year.
- If there is a heater and electrical connection on the tank, the electricity must be disconnected before cleaning and maintenance.
- The water in the tank should be drained and the cleaning cover should be opened.
- The body and serpentine should be cleaned by sending the water up through the cleaning cover with pressurized water.
- The water accumulated in the lower chamber should be drained and the chamber is that have settled to the bottom should be removed.
- The lower dish should be emptied several times for rinsing purposes.
- While cleaning the product, no harmful chemical or impact application should be applied to the inner surface.
- The operation of all equipment on the device should be checked (eg safety valve, etc.). Check the water tightness of the disassembled and installed equipment during the inspection.
- Replace the gaskets removed during cleaning or maintenance with new ones.
- It should be operated by paying attention to the first operating steps after cleaning.

## 6- SAFETY WARNINGS



NO INTERFERENCE MUST BE TAKEN UNTIL READING THE ENTIRE MANUAL



PRODUCT INSTALLATION MUST BE DONE ON A FLAT FLOOR WITH A BALANCE



IF THIS PRODUCT IS TO A BE USED WITH AN ELECTRIC HEATER; INSTALLATION MUST BE DONE BY AUTHORIZED PERSONNEL IN ACCORDANCE WITH THE DESCRIPTIONS GIVEN IN THIS MANUAL AND APPLICABLE LOCAL OR NATIONAL REGULATIONS



THIS PRODUCT IS TO BE USED WITH AN ELECTRIC HEATER IT MUST BE CONNECTED TO THE ELECTRICAL LINE!



QUALIFIED PERSONS SHOULD MAKE THE GROUNDING CONNECTION.



THE HEATER TEST OF THE ELECTRIC WATER HEATER MUST BE DONE WHILE THE TANK IS FILLED WITH WATER

## 7- INFORMATION ON USAGE ERRORS

### 7.1 Misuse of Closed Circuit Waters

Closed circuit water circulates inside the coils of Single and Double Serpentine Tank and in the Buffer Tank. The used water must have certain properties. Otherwise, it will cause punctures in Serpentine and Buffer Tank bodies over time. Inside-out punctures on these products are not covered by the warranty. Conditioning limits are given in the table to prevent corrosion in the closed circuit. Closed circuit water should be checked periodically.

<b>Parameter</b>	<b>Control Limits</b>	<b>Unit</b>
Total Hardness	< 10	ppm
Ph	8,3 - 9,5	
Conductivity	< 1000	µs/cm
Total Iron	< 1	ppm

- Chemical preservatives should be applied to the closed-circuit water for the proper work of the system.
- In order to condition the closed-circuit water and apply protective chemicals, support must be obtained from companies that make protective chemical applications.

## 7.2 Usage Errors Caused by Domestic Water

In order not to damage the surfaces of the enameled tank and serpentine, the water with the following properties should be used.

- The usage water must be conditioned in accordance with the limit values in the Regulation on Water Intended for Human Consumption, published in the Official Gazette dated 07.03.2013 and numbered 28580. Otherwise, the product will be out of warranty. Well water and artesian water uses are not covered by the warranty.

Parameter	Control Limits	Unit
Total Hardness	< 500	ppm
Ph	6,5-9,5	
Conductivity	< 2500	µs/cm
Total Iron	< 0,2	ppm

- The health of the enamel coating is very important in terms of maintaining the quality of drinking water. For this reason, cathodic protection is an issue that should be given importance. Enamels are protected with Magnesium anode inside the products. The anode rod inside the devices should be checked in every maintenance period, that is, every 6 months, and should be replaced in case of exhaustion. An annual change is recommended.

- No anode is used in our buffer tank. The fact that the anodes are running out is due to the negative values of your domestic water. For this reason, punctures are considered out of warranty. In order to prevent punctures, it is necessary to check your anode and comply with the table below. Products that do not change the anode in annual periods are covered by the warranty.

### ANODE CONDITION CHART

Control Period	Anode Condition	Detection		Change Process
6 month control	No deformation at the anode	Anode is not working		Contact us
6 month control	Slight deformation at the anode	Anode is working	Usage water is suitable	1 anode replacement in 2 years is appropriate.
6 month control	Normal deformation at the anode	Anode is working	Usage water is suitable	1 anode replacement per year is appropriate.
6 month control	Excessive deformation at the anode	Anode is working	Usage water is not suitable	1 anode change in 6 months is appropriate.

Note: If you are not sure about the consumption of your magnesium anode, take a photo and consult our company.

### 7.3 Other Usage Errors

PROBLEM	CAUSE	SOLUTION
No hot water from the hot water tap	<ul style="list-style-type: none"> <li>• Water in the network may be cut off</li> <li>• Product’s hot water outlet valve or cold water inlet valve may be closed.</li> <li>• Strainer may be full</li> <li>• Since the check valve is not installed on the cold water side of the tank, the hot water with increased pressure may be returning to the mains.</li> </ul>	<ul style="list-style-type: none"> <li>• Wait for the water to come</li> <li>• Open the valves</li>   <li>• Open the strainer and clean it</li> <li>• Install a check valve at the mains inlet of the tank, check that if there is a check valve, it works.</li> </ul>
Unheated water coming out of the hot water tap	<ul style="list-style-type: none"> <li>• Tank or tank capacity may not be selected according to need.</li> <li>• The heating system may not be working.</li> <li>• The temperature in the heating system may be low and the circulation may not be working.</li> <li>• The collector pump in the installation may not be working.</li> <li>• In electrical devices with thermostat setting, it may be set to low temperature.</li> </ul>	<ul style="list-style-type: none"> <li>• Consult your dealer</li> <li>• Turn on the system</li> <li>• Wait for the temperature to rise and the circulation pump to start.</li> <li>• Start the pump</li> <li>• Increase the thermostat setting</li> </ul>
Electric heater not working	<ul style="list-style-type: none"> <li>• The mains power may be cut off or the switch may have tripped.</li> </ul>	<ul style="list-style-type: none"> <li>• Question the electrical network, investigate why the switch has tripped, and open the switch if there is no problem.</li> </ul>
Water leaking from safety valve	<ul style="list-style-type: none"> <li>• If there is no expansion tank, it is normal for the safety valve to discharge water in order to regulate the pressure in case the water gets hot.</li> <li>• The water pressure from the mains may have increased.</li> </ul>	<ul style="list-style-type: none"> <li>• Install an expansion tank (according to the criteria in the heading "What should be considered in installation")</li> <li>• If there is any small piece left in the mouth of the safety valve, clean it.</li> <li>• Check the mains pressure.</li> </ul>



## 8- WARRANTY CONDITIONS

1. Guarantee period is two (2) years with starting from the date of delivery of the goods to the consumer. Keep the warranty certificate and product invoice during the warranty period.
2. In case of malfunction of the goods, the time spent in repair is added to the warranty period.
3. This warranty certificate is only given for water heater, storage tank and buffer tank. It does not cover other equipment such as boiler, combi boiler, heat pump, radiator, pipe, valve, fittings etc. in the heating system.
4. Errors that may occur due to incorrectly selected device capacity or incorrectly selected device type are not covered by the warranty.
5. Errors caused by transportation after the device is delivered to the customer are not covered by the warranty.
6. Damages that may occur on painted surfaces are not covered by the warranty.
7. Errors caused by the user and device placement, errors caused by natural disasters, frostbite arising from climatic conditions are not covered by the warranty.

## **ELECTRICAL PRODUCTS**

- 8.** The product is out of warranty with the installation, electrical connections or any application that is not in accordance with the user manual of the device.
- 9.** Electrical heater failures that occur after the commissioning of our electrical water heater and electrical supplementary products are not covered by the warranty.
- 10.** Earthing connection must be made in our products with electrical resistance and/or in our products that will be installed later. Otherwise, the product is out of warranty.
- 11.** The heater and all equipment that come out of our company without an electric heater and that are installed later than the authorized service are out of the scope of warranty.
- 12.** Failures caused by high-low voltage, voltage fluctuation, sudden fluctuations of electricity, installation or quality of electrical installation are not covered by the warranty.

## **WORKING PRESSURE AND SAFETY VALVE**

- 13.** If the safety valve is not installed, is stuck at a point different from the installation diagram or is blinded, the connected product is out of warranty.
- 14.** A product with a safety valve that has lost its working feature over time is out of warranty.
- 15.** It should be used as in the wiring diagram. The use of products that may prevent the operation of the safety valve, such as a valve, between the device and the safety valve or the blinding of the safety valve will not be covered by the warranty.
- 16.** If the domestic water pressure is above 10 bar, the product is out of warranty.
- 17.** The use of a maximum 9 bar membrane safety valve in each product is a guarantee condition.
- 18.** If the pressure of the closed circuit water in the serpentine and buffer tank is above 6 bar, the product is out of warranty.

## USE WATER

- 19.** Usage water must be conditioned in accordance with the limit values in the Regulation on Water Intended for Human Consumption, which came into force after being published in the Official Gazette dated 07.03.2013 and numbered 28580. Otherwise, the product will be out of warranty.
- 20.** If water with high metal corrosion, such as artesian, well water, is used for domestic water, the product is out of warranty.
- 21.** Magnesium anode should be checked at 6-month intervals and should not be changed annually. The anodes, which are not changed annually and/or are excessively depleted in 6 months, indicate that the quality of the water is not suitable. Therefore, the product is out of warranty.

## **CLOSED CIRCUIT WATER (HEATER FLUID)**

- 22.** Closed circuit waters must be softened and protected with a metal protective chemical.
- 23.** Closed circuit waters should be metal-saturated, dark colour and between the boundary conditions specified in this manual.
- 24.** The punctures in the non-welded areas of the coil and the buffer tank are not covered by the warranty.
- 25.** Water in closed circuit lines should not be replenished or added frequently. Constantly renewed or added water can damage our products and cause them to perforate.
- 26.** Automatic filling valve etc. in the installation. The use of the products is not recommended. This product makes it difficult to detect the leak by automatically replenishing water frequently in case of leaks anywhere. Continuously adding fresh water to the installation may damage the system and cause punctures in the products. In such cases, our products are out of warranty.



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**Product Serial No:**

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**Product Volume/Type:**

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**Delivery Date:**

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**Customer Name:**

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**Customer Signature:**

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*“Feel the heat...”*