

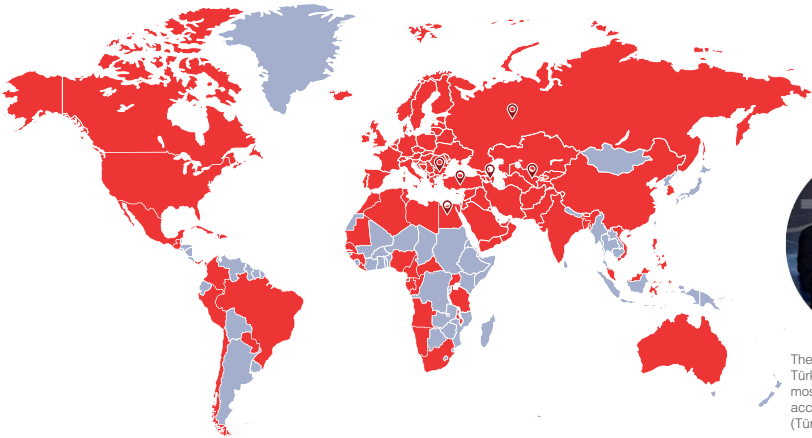


Pump Controlled Expansion System
Installation and User Manual





Your Satisfaction Is Our Priority;
Globalization Is Our Goal!



The second-rated company in
Türkiye has exported to the
most different countries in 2021,
according to ISIB
(Türkiye HVAC-R).



The first condition of innovation is to question. Sustainable innovation is to never stop questioning.

For us, the journey of innovation started with a question: “Why not produce value-added technology in Türkiye?”. The first turning point in this long journey was the birth of the MIT (Made In Türkiye) brand. The founding vision of MIT, which enabled us to become Türkiye’s first domestic manufacturer in the field of “Plate Heat Exchanger”, was not to be a domestic “alternative”, but to create a quality brand that could compete in the global market.

By working for this goal, we have been entitled to receive many international quality certificates such as ISO, TSE, CE, GOST... for our products and processes over many years. For us, questioning the current situation was a natural result of our desire to exceed ourselves.

New Generation Engineering

With our engineering approach that focuses on the process, not the problem, we do not only specialise in one product, but also consider the entire ecosystem of that product. Therefore, we provide an end-to-end application by producing all other components that will form a system as well as the plate heat exchanger. For this, we focus on the continuous development of the necessary engineer staff. With our business development, pre-sales, sales and after-sales services provided by our expert engineers, we produce not only products but also “solutions”.

At the point we have reached; we offer complementary services with our internationally approved plate heat exchangers, components such as accumulation tanks, boilers, industrial pumps and installation materials that turn these heat exchangers into a system. With our team of more than 100 expert engineers, we continue to develop as a solution partner for projects requiring high technology in more than 60 countries.



HEAT TRANSFER PRODUCTS

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

PRESSURE VESSELS

- Water Heater Tanks
- Water Storage Tanks
- Buffer Tanks
- Expansion Tanks / Automatic Pump Controlled Expansion Systems
- Stainless Steel Tanks
- Hydraulic Balance Tanks / Air Separators / Sediment Separators
- Magnetic Sediment Separators / Magnetic Filters / Bag Filters
- Air Tubes
- Steam Separators
- Pressured Air Tanks
- Neutralization Units

INDUSTRIAL AND FOOD GRADE SYSTEMS

- Heat Stations
- Industrial Process Systems
- Dosing Systems
- Thermoregulators
- Pasteurizers
- CIP and Hygienic Process Systems
- Hygienic Storage and Process Tanks
- Custom-Made Stainless Steel Tanks
- Reactors
- Homogenizers

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
- Peristaltic (Hose) Pumps
- Centrifugal Blowers
- Roots Blowers

FLOW CONTROL UNITS

- Butterfly Valves
- Ball Valves
- Globe Valves
- Knife Gate Valves
- Actuators
- Check Valves and Strainers
- Pneumatic Piston Valves

ENERGY SYSTEMS

- Domestic and Industrial Boilers
- Steam Generators
- Chillers
- Cooling Towers

PRODUCT RANGE



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Pump Controlled Expansion System



Pump-controlled Expansion Systems are technological devices developed to keep the system pressure constant by absorbing the volume changes that occur in heating and cooling systems. Due to temperature changes in the system, the water expands or contracts, causing a change in the water volume. This change is managed through proportional valves and pumps, transferring the water from the system to the tank and from the tank back to the system. This process maintains the system pressure within a tolerance of 0.1 bar.



Volume: Minimum 500L

Tank: 51, 11 ENAMELLED Accumulation Tank Pump

Grundfos CM Series

Maximum Operating Temperature: 95°C

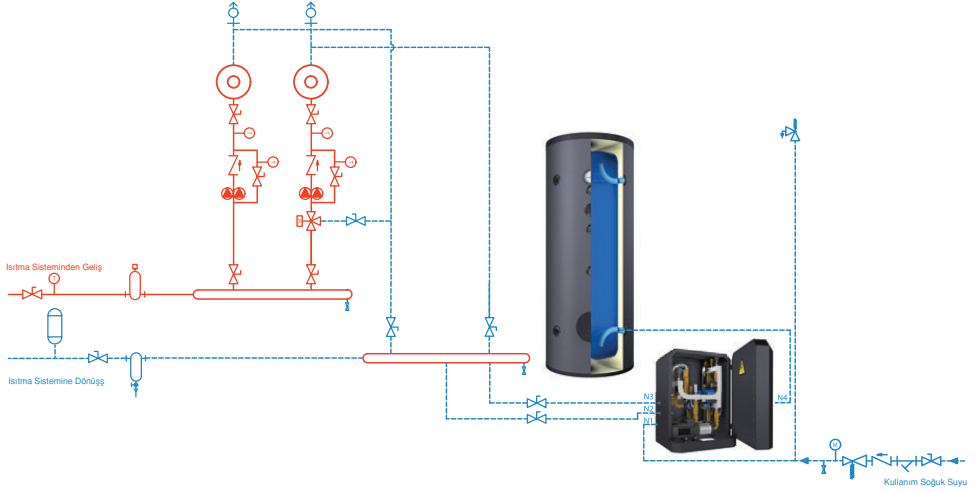
Maximum Operating Pressure: 6/10/16 Bar

Control Circuit Voltage: 230 VAC

Automatic System Filling System: Available

It is manufactured in accordance with the 2014/68 EU Pressure Equipment Directive, TS EN 13445-3, and TS EN 12897 standards.

Wiring Diagram



Membrane safety valves should be installed at a higher level than the top edge of the tank. This way, they are protected against high temperatures and scaling. Additionally, there is no need to empty the boilers when maintenance is performed on the safety valve.

The connection diagram provided above is an example. The installation should be done according to the current standards and directives.

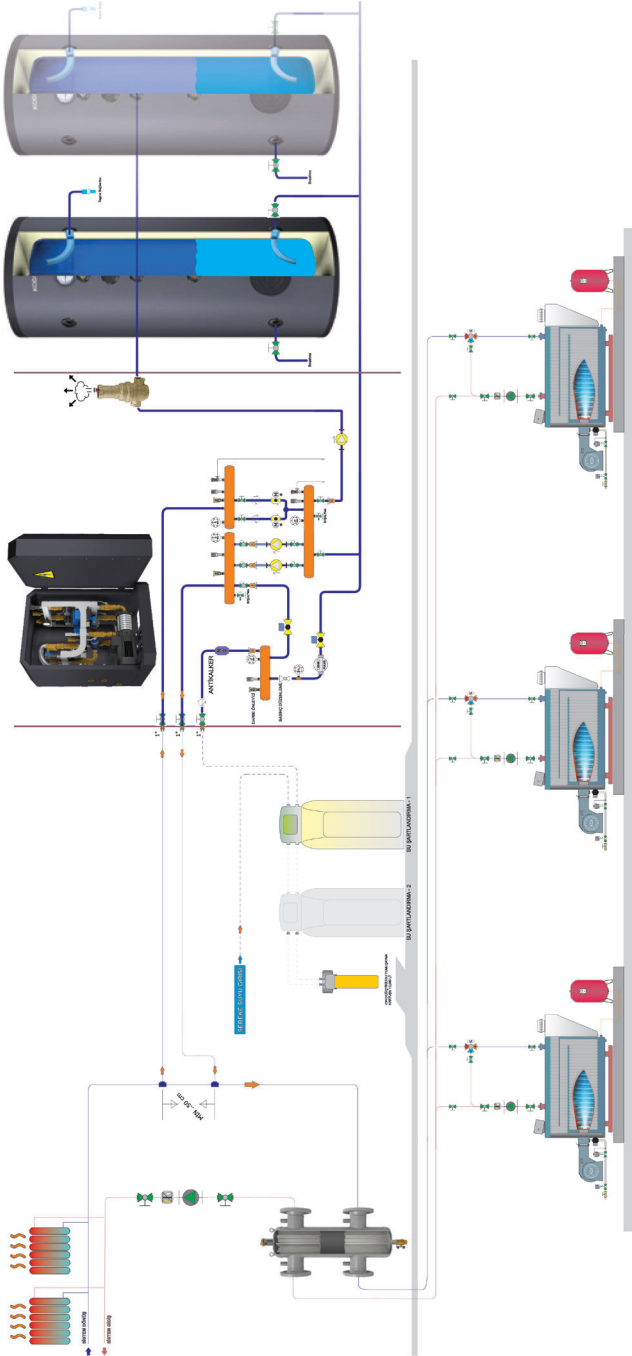
		500L	800L-1000L	1500L-2000L	2500L-3000L	4000L-5000L
INSULATION	Tank	42 kg/m ³ HCFC-free rigid polyurethane in accordance with the PU-814/2013 EU ErP Commission Regulation and TS EN 12897 Standard.	STD/50 mm	x	x	x
		Soft PU-15 kg/m ³ soft polyurethane.	x	STD/80 mm	STD/80 mm	STD/80 mm
		Soft PU-26 kg/m ³ flame-retardant soft polyurethane.	x	OPS/80 mm	STD/80 mm	STD/80 mm
		Izomax-814/2013 EU Commission Regulation and TS EN 12897 Standard compliant 50 kg/m ³ ErP Regulation compliant BL-S3, d0 fire reaction class insulation.	x	OPS/80 mm	OPS/80 mm OPS/100 mm*	OPS/80 mm
DIS KILIF KORUMA	Tank	Blueshell - Polyethylene coating that provides heat insulation	STD	x	x	x
		Vinleks - Artificial Leather	x	STD	STD	STD
		Izoqua - Waterproof PVC usage unit suitable for outdoor use (optional when Izomax insulation is used).	x	OPS	OPS	OPS
	Unit	Sheet Metal Cover - Electrostatic Powder Coated Sheet Metal.	STD	STD	STD	STD
EQUIPMENT	Tank	Thermometer (0°C - 120°C)	STD/Ø63	STD/Ø100	STD/Ø100	STD/Ø100
		Sensor Socket	STD/1½" 2 adet	STD/1½" 2 adet	STD/1½" 2 adet	STD/1½" 2 adet
		Leaning and Control Flange	STD/4"	STD/5" OPS/16"	STD/5" OPS/16"	STD/5" OPS/16"
		Electric Heater	OPS/1½"	OPS/2"	OPS/2"	OPS/2"
	Unit	Pump	STD	STD	STD	STD
		Automatic System Filling System	STD	STD	STD	STD
CARRYING COMPONENT	Tank	Steel leg system mounted on the pallet at three points	STD	STD	STD-x	x
		Circular floor contact providing ring steel leg system	x	x	x-STD	STD
	Unit	Rubber leg system mounted on the unit at four points	STD	STD	STD	STD

STD: It is the abbreviation used for spare parts and equipment related to standard products.

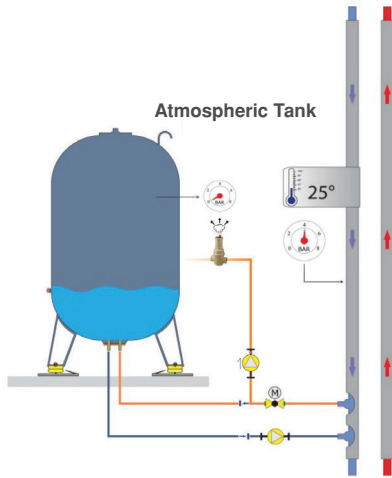
OPS: It is the abbreviation used for optional spare parts and equipment for non-standard products.

	Kod	Birim	911.06	911.10	911.16
Volume	V	lt	min 500L	min 500L	min 500L
Maximum Allowable Pressure	P	bar	6	10	16
Width	D1	mm	650	650	650
Depth	D2	mm	650	650	650
Height	H	mm	960	960	960
Domestic Cold Water Inlet Connection	N1	inch	1"	1"	1"
Expansion Line Inlet Connection	N2	icnh	1"	1"	1"
Pressurization Line Outlet Connection	N3	inch	1"	1"	1"
Storage Tank Connection	N4	inch	1."	1."	1."
Maximum Flow	Q	m ³ /h	6	1	3,2
Power	P _{power}	kW	1,8	2,7	4,9
Gross weight	G	kg	135	142	160
Tilt Height	R	mm	1100	1100	1100

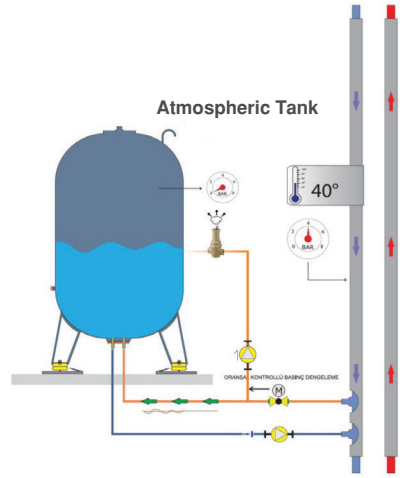
The table above has been prepared based on spare parts and equipment for standard products; all provided connections are internally threaded.



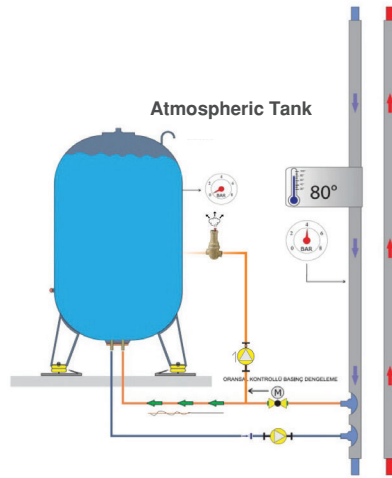
1. Low Temperature



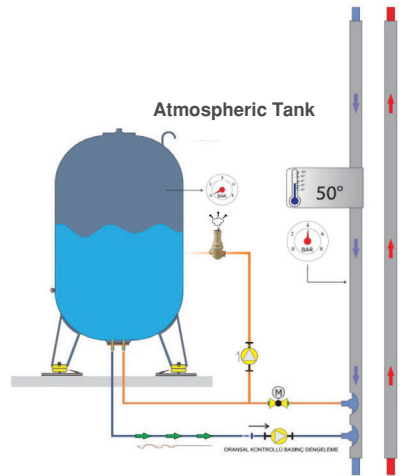
1. Temperature Increase



1. Maximum Load



1. System Feedback



Benefits

Compared to traditional membrane expansion tanks, these systems are very precise pressure balancing systems. Due to their operating principle, they have the advantage of a smaller volume. They provide ease of maintenance and service.

Since there is no pressure in the tank, there is no risk of membrane rupture. Therefore, in a pumped expansion system, there is no pressure inside the tank.

The device pumps are supported separately by frequency inverters. The water level is constantly monitored by sensitive level sensors inside the tank.

The automation system of the device detects the amount and location of leaks in the system as static levels and provides a warning by shutting down the system when it approaches dangerous limits. The system uses 99% of the tank's volume.

Thanks to the touch & color screen and internet module of the automation system, local and remote access to the device is possible.

The automatic system filling system compensates for the reduced water volume due to evaporation and leaks in the system.

The automation system keeps a record of the last 20 faults.

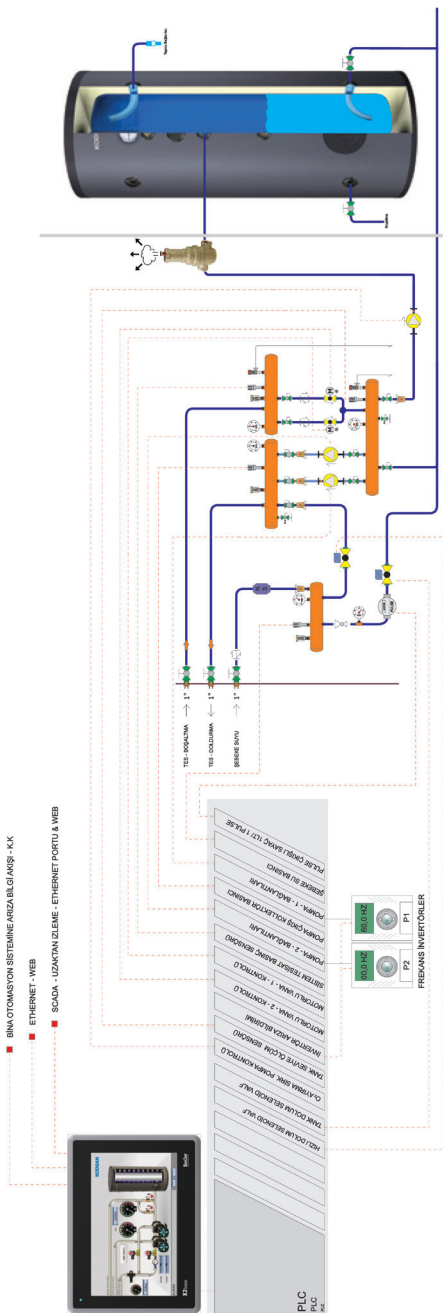
No pressurized gas is required inside the tank. Atmospheric air pressure is sufficient. Since there is no pressure in the pump-controlled expansion tank, it is not classified as a pressure vessel.

In traditional expansion tanks, membrane replacement is required at least once every 3 years, and maintenance is necessary every year. In a pumped expansion system, since there is no membrane, replacement is not required, and annual maintenance is unnecessary.

It helps to eliminate air and heating issues at the upper floor points in systems.

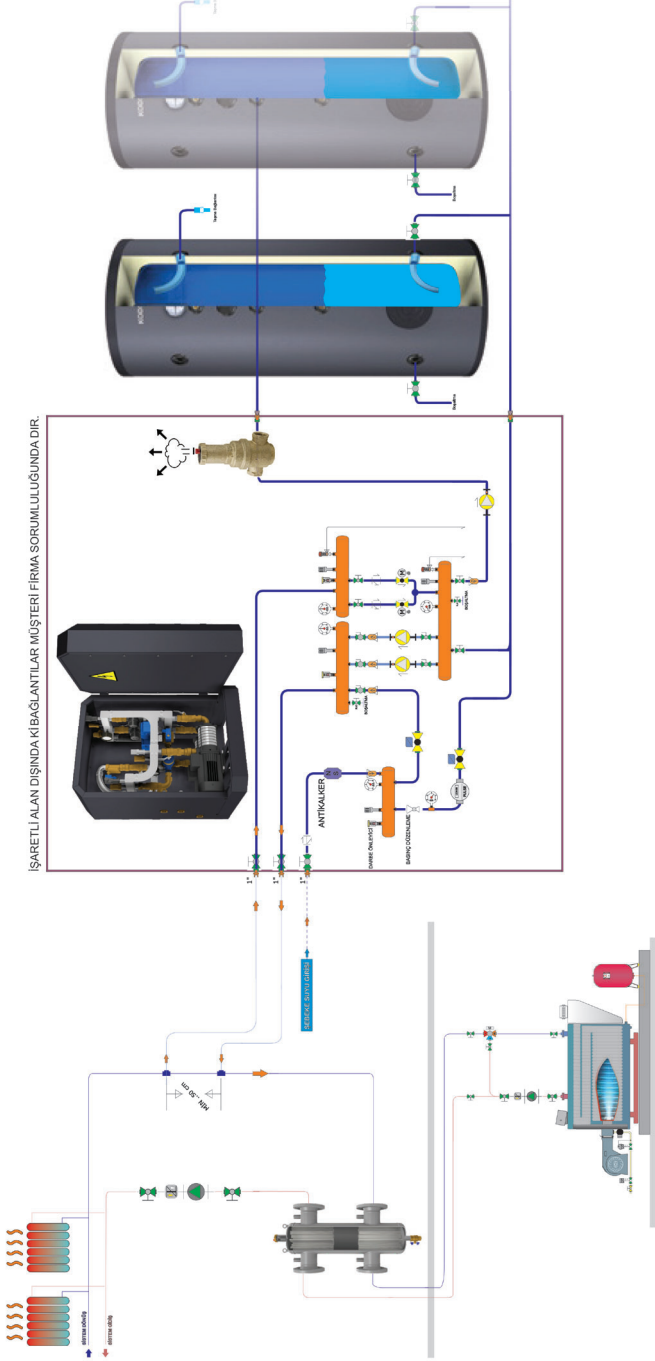
The MIT Expansion system has a useful volume utilization rate of 99%.

Therefore, it can be used in volumes 65% smaller compared to traditional expansion tanks.





- Precise pressure monitoring; proportional control of filling and discharge - precision (0.1 bar).
- Daily system water loss monitoring - with a pulse (1lt-1pulse) meter (adjustable daily in liters).
- Tank oxygen separation - oxygen separation activates when the pressurization pumps are in standby mode.
- Precise tank water level measurement (factory calibrated).
- Vibration-free system filling process with additional frequency inverter control for pumps.
- Soft start & stop system for pumps to ensure long service life.
- 15-day data log recording (pressures - tank level - network water usage, etc.).
- Last 20 fault records (pressures - tank level - system water loss exceeded, etc.).
- Adjustable aging working hours (factory setting 12h).



General Terms Of Use and Important Warnings

- Our products are guaranteed for 2 years against material and manufacturing defects. The warranty period starts with the delivery of the product to the user. Consumables and parts worn out in normal use (Gasket, shaft seal, stator, rotor, diaphragm, membrane, resistor, springs, electrical circuit elements, etc.) are not covered by the warranty. Warranty conditions are void if the product is used outside of the specified operating conditions.
- Failures caused by the product's installation, commissioning and use contrary to the items in the user's manual are not covered by the warranty. Ekin Industrial sends the user manuals with the product. It also publishes it on its website. In cases where the user manual does not reach the Buyer, the product should not be commissioned and must be requested in writing from Ekin Industrial. Otherwise, it is accepted that you are aware of the installation, maintenance and usage conditions, that you have this competence and that you have taken responsibility for all problems that may arise, and Ekin Industrial is not responsible for any problems that may arise.
- Periodic maintenance and repairs should be done using original parts supplied by Ekin Industrial or authorized services. Otherwise, the Warranty Terms are void.
- When procuring the product, the type of the product, the type of fluid used, pressure, temperature, density, etc. All information must be given completely and accurately. Otherwise, our company is not responsible for the problems that may occur.
- Problems, blockages and contaminations caused by the quality of the fluid used in our products or the installation are not covered by the warranty. Damages that may occur as a result of corrosion, cavitation, vibration, water hammer and freezing are not covered by the warranty.
- The reason for the damages that may occur due to the absence or malfunction of the armatures in the system or the non-use of the safety armatures (safety valve, thermostat, pressure sensor, temperature sensor, etc.) cannot be determined later and is not covered by the insurance. Our company is not responsible for material and moral accidents and losses that may occur.
- Any products and accessories that we trade or use in our products that are not our own production are not under the guarantee of Ekin Industrial. The warranty of these products and the responsibility of the damages that may occur are under the commitment of the manufacturers of the products.
- Our company is not responsible for process, production or real estate losses that may arise from our products. Claims for compensation will not be accepted unless the damage caused by us is the result of willful or gross negligence. The compensation amount for the damages that may occur, the delay penalty or any penalty that may arise for any reason cannot exceed the invoice amount.
- After receiving the products, the buyer; For obvious defects, the period of direct or indirect control, inspection and notification is 2 business days, for hidden defects, the period of direct or indirect control, inspection and notification is 8 business days. Products that are not notified in writing by the buyer within this period are deemed to have been accepted..
- Except for assembly and usage errors, we have the right and obligation to improve in the event of a manufacturer's defect and the product's lack of guaranteed features. We also have the right to choose to replace the product with a new one. However, the buyer has no right to demand a new one. In case of no improvement, repair or new delivery, the buyer may request the termination of the contract or a refund of the product price.
- The system designer and user are responsible for the selection of the appropriate product, its suitability for specific applications, its safe and trouble-free installation, operation and maintenance. Otherwise, we are not responsible for any damage or work accidents that may occur.
- Our company is only responsible for making the products to be delivered carefully ready for shipment. Since our company does not provide engineering services, product selection should be made after the application details, suitability of the material to the system and product features are technically evaluated by the buyer. Improper selection, installation or misuse of products may result in property damage or injury. Our company does not accept responsibility for product selection.
- If the buyer is a merchant or public law legal entity, all legal disputes will be resolved by the court over which we have jurisdiction. Anadolu Adliyesi / Turkey is exclusively authorized and competent authority in all disputes arising from joint legal relations. In case of dispute, Istanbul Anatolian courthouse courts and enforcement offices are authorized.



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 Tüketicinin 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. :

Please keep this certificate!

NOTE: User mistakes are not covered by warranty.
www.ekinendustriyel.com

Notes

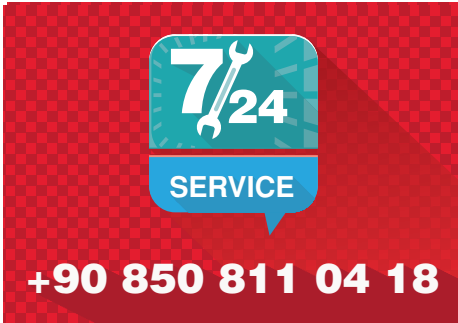
Professional System Solution Center

You can get answers to the problems you experience with your pumps, heat exchangers and system from our MIT professional system solution center. You can also benefit from our 7/24 uninterrupted service with our solution center consisting of our expert engineers.

- 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.**



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.



Producer; reserves the right to change the product features, technical dimensions and information and installation diagrams specified in this catalog without notice. No specified information can be copied and used without the permission of the manufacturer. In no way can the manufacturer be held responsible by giving examples of technical information and diagrams. In case of need, we request you to request a special technical drawing for your project for exact dimensions.



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