EKİN ENDÜSTRİYEL

Thermoregulator (Water Type) User Manual

MIT

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EKİN ENDÜSTRİYEL
Isıtma-Soğutma San. Tic. Ltd. Şti.

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.

PRODUCT RANGE

HEAT TRANSFER PRODUCTS

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

MIT · INNSUN · mitrojen · AIROO · TRUEVALVE · DORIS · magneto · INJECTA · DINO · Ruby · GemmeCotti · inoxen · NOVA MOTORS

Contents

INSTRUCTION MANUAL

This manual should be read before operating the device to prevent accidents that may harm people and the machinery. All service operations must be carried out by trained personnel without exception. This manual contains all the instructions required for operating and maintenance.

MIT-TRG-S series are mostly used in heating and stabilizing the molds of injection molding machines. They are also suitable to use in similar systems.

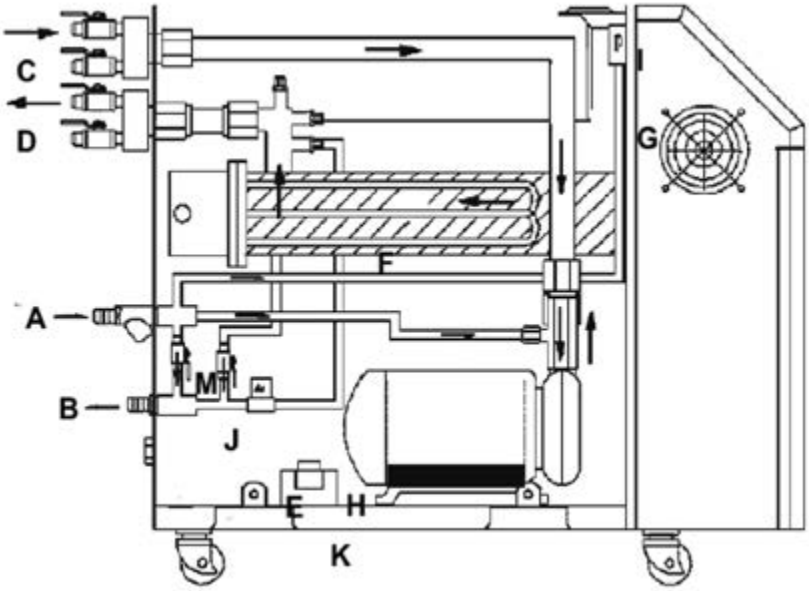
General Features

MODEL		MIT TRG-S-6	MIT TRG-S-9	MIT TRG-S-12	MIT TRG-S-24	MIT RG-S-36	MIT TRG-BS-6	MIT TRG-BS-12
Heater Power	kW	6	9	12	24	36	6	12
Maximum Temperature	°C	120	120	120	120	120	180	180
Fluid Type		Water	Water	Water	Water	Water	Water	Water
Pump Power	kW	0,55	0,75	1,5	2,8	4	0,55	1
Maximum Pump Flow	lt/dk	27	42	74	90	100	25,5	50
Maximum Pump Pressure	bar	3,8	5	6,2	8	8	4,8	5,8
Tank Capacity	lt	3	3	3	7,4	17,7	3,4	3,4
Number of Heater Tanks		1	1	1	2	3	1	1
Control System		PID	PID	PID	PID	PID	PID	PID
Cooling System		Direct	Direct	Direct	Direct	Direct	Indirect	Indirect
Temperature Adjustment Intervals	°C	0,5	0,5	0,5	0,5	0,5	0,5	0,5
Mold Connection Sizes	İnç	3/4	3/4	1	1	1	3/4	3/4
Weight	kg	55	60	69	140	150	80	95
Dimensions (HxWxD)	mm	700x350x900	700x350x900	755x320x900	900x407x1009	928x407x1000	750x320x770	750x320x810

Coolant system pressure will be between 2 and 5 bars.

1. Thanks to the P. I. D. temperature control system, the mold temperature is kept constant with an accuracy of ± 1 °C.
2. If the device performs outside the defined parameters, safety features detect the fault and warning lamps indicates what it is. Devices are equipped with improved protection and alarm systems.
3. In emergency situations, the main switch is used to cut the power.
4. The pumps are used which have high pressure and high performance.
5. The temperature inside the system is under control thanks to the high temperature thermostat.
6. All parts used in the device are stainless and resistant to heavy duty and corrosion.
7. MIT-TRG-S series mold heater operates up to maximum temperature of 120 ° C.
8. Operation and maintenance can be carried out with convenience thanks to its easy-to-remove outer casing.

WORKING PRINCIPLE



A. Cooling Water Inlet
B. Cooling Water Outlet
C. Mold Return Line
D. Mold Line
E. Solenoid Valve
F. Resistance
G. Pressure Key
H. Pump
I. Pressure Gauge
J. Water Drain
K. Heat Sensor
M. By-Pass Valve

The Things To Be Done For Commissioning Process Of Thermoregulator

1. Connect three phase line to the power input.
2. Check that the mold heater complies with the instructions on it and wrap the pipe joints with Teflon to prevent water leakage. Outputs should be evaluated from technical drawings first. After making the cooling tower connections of the cooling inlet of the mold heater, open all the valves.
3. Turn on the main switch and the low-level lamp will light up with an audible alarm. The MIT-TRG-S series automatically fills up water until this alarm stops.
4. Check the direction of pump rotation. If it is reverse, move the phases.

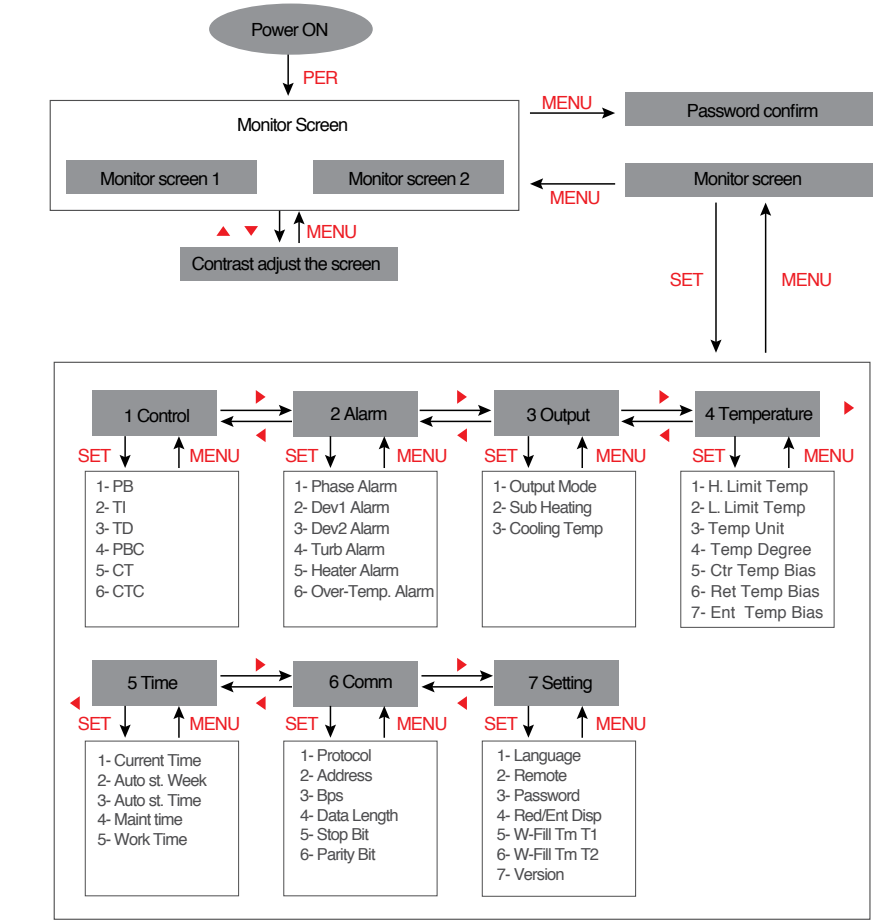
Before commissioning the device, please ensure that the connections are correct and leak proof.
The device shouldn't be used except its usage aim and it should be used within the specified conditions in this manuel book.

CONTROLLER

MIT-TRG-S Series 6-9-12-24-36 Kw

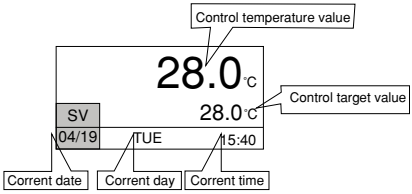
No	Name	Function	Instructions
1	Power Light	After connecting the three phases, it will light green when the main switch is turned on.	Be careful during installation since electrical parts and cable terminals have electrical current.
2	Reverse Phase Light	Phases are connected reverse or there is a short circuit. System will not run, and an audible warning signal is given.	Check the electrical input and reset the alarm by replacing the two phases.
3	Pump Overload Light	When the pump is overloaded, the lamp lights up, sounds an audible signal and the system stops.	Check if the engine runs smoothly Check if there are three phases. Reset the thermal relay.
4	High Temperature Light	When the temperature of the water in the system exceeds 120 °C, it gives an audible warning and stops the system to protect it.	Hot water in the tank should be drained and filled again.
5	Low Water Light	When the water level in the device is decreased and not refilled it gives warning and stops the system to protect it.	The water filter should be cleaned. The water supply pressure must be checked.
6	Temperature Controller	Adjusts the temperature.	Necessary information should be obtained by contacting the authorized service.
7	Pump Key	Starts and stops the pump.	
8	Heater Key	Starts and stops the heating system.	

MENU ENTRY



FIRST START-UP

1. Turn main switch ON.
2. Turn pump switch ON.
3. Turn the resistance switch to ON.
4. Adjust the process temperature using the arrow keys. ▲ ▼

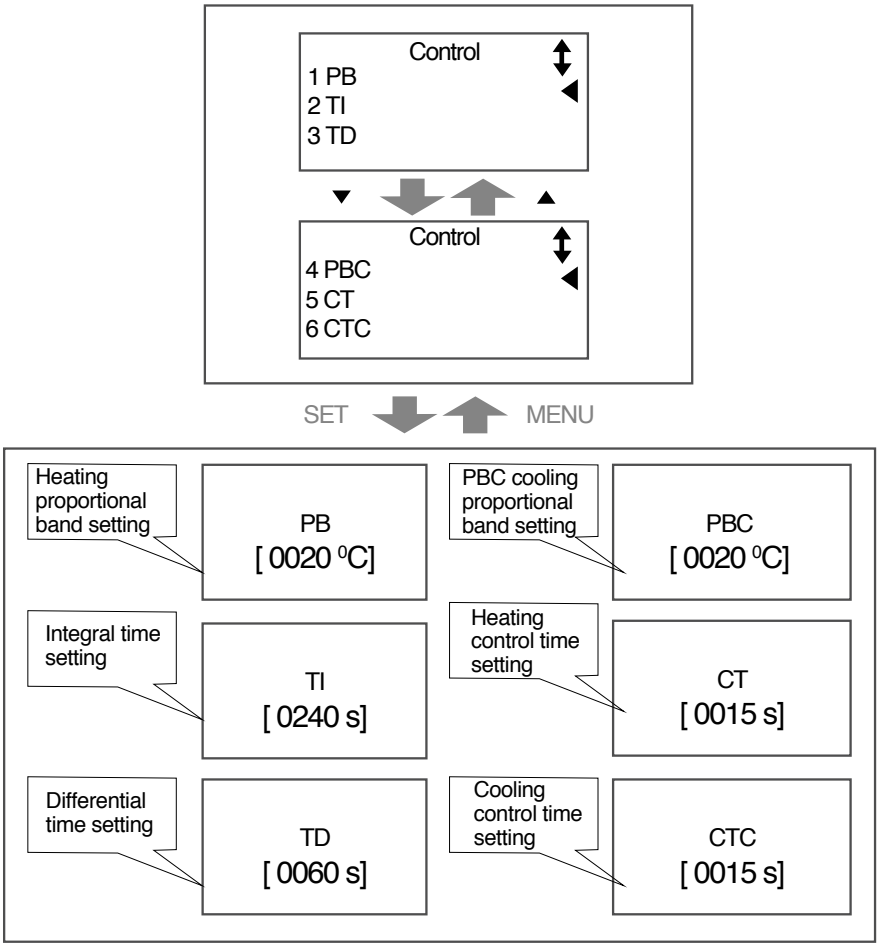


MIT-TRG-S Series Mold Heater can be adjusted up to a maximum temperature of 120 °C.

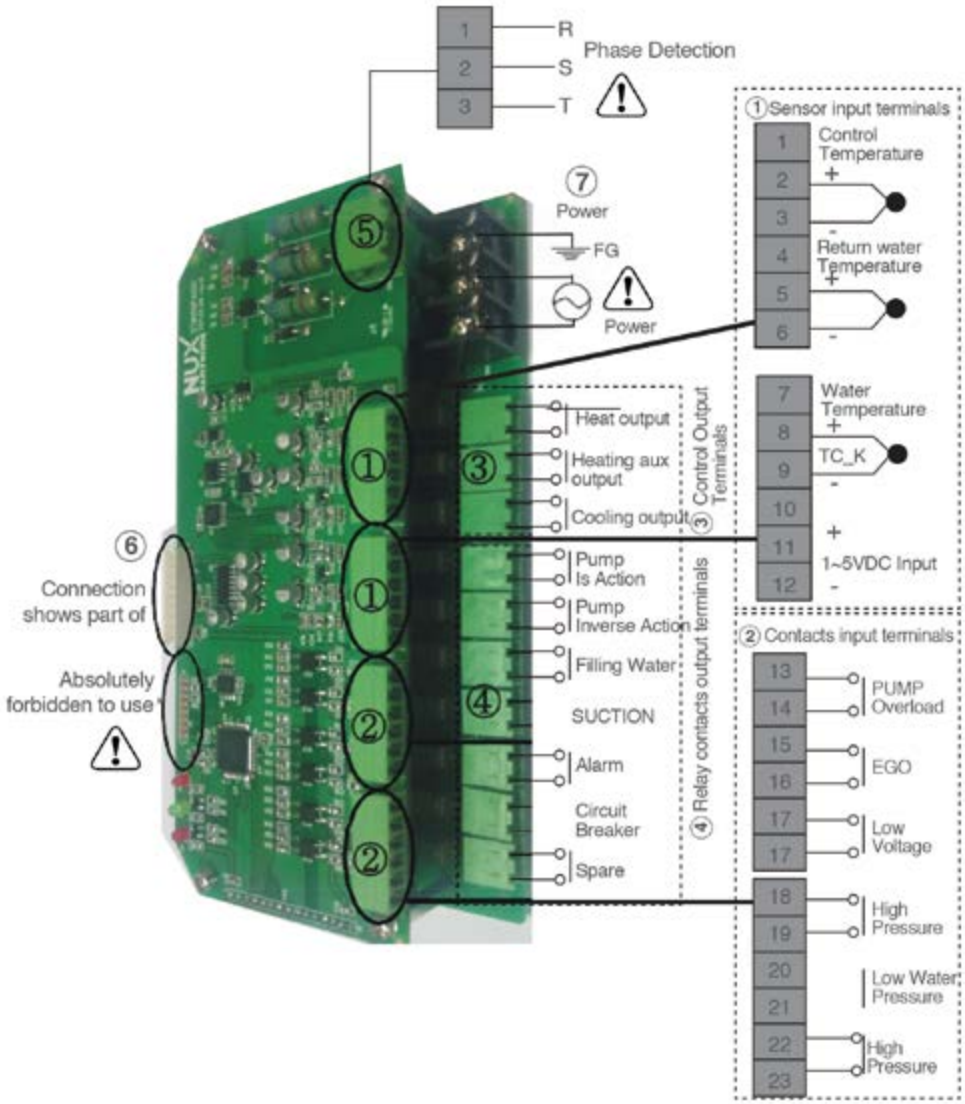
5. The device automatically adjusts the mold temperature with an accuracy of ± 1 °C

WARNING: Check the direction of rotation of the pump.

INFORMATION: In order for the device to function continuously without malfunctions and to have a long life, it should be operated within the parameters stated in this manual.



Power Connection



Mold and Water Connections

Figure 1

Figure 2

Mold connection pipes are installed in the inlet-outlet pipes on the device as shown in Figure 1. Then the other ends of the hoses are attached to the mold. After that valves behind the device are opened and hose connections are completed for the first start-up.

Cooling water connections of the device are shown in Figure 2. Water from the water tower or chiller must be connected to the cooling water inlet. Cooling water outlet should also be connected to the return line of the water tower or chiller.

Opening of The Outer Casing for Maintenance

Before interfere the devices, the pressure should be reduced and the energy should be cut off.

To remove the top cover of the device, lift it up as shown in the picture.

To remove the side covers of the device, pull it as shown.

To reach the parts in the electrical panel of the device, unscrew the thumbscrews shown in the picture and tilt it forward as shown in the picture.

Y Type Water Filter

1. Cooling water used in the system should be soft and clean. Filter collects the sediment and other particles in the water passing through the pipes to prevent possible damage to the device.
2. Dirty and clogged filter prevents the device from working properly and the temperature rises above the optimal value. It should be cleaned periodically.
3. Filter slot is opened as shown in the picture to remove and clean the filter.

Malfunctions and Solutions

Malfunction	Cause	Solution
Pump rotates in the wrong direction.	Phase connections are faulty.	Change phase connections.
Even though the main switch is on, the machine does not run.	1. Pump key is OFF. 2. Fuse switch is tripped	1. Turn the pump key ON. 2. Switch the fuse switch to the ON position.
Temperature does not increase properly.	1. Temperature controller is broken. 2. TC sensor is broken. 3. Electric valve is broken. 4. Heater is broken	1. Replace with new. 2. Replace with new. 3. Replace with new. 4. Replace with new.
Pump and resistance do not work. System sounds an audible warning.	1. Missing oil or water	1. Check the system for leaks. 2. Add oil or water to the system.
“OVERLOAD” light is on.	1. Blocked pipeline 2. Low voltage 3. Broken pump	1. Clean the pipeline 2. Stabilize the voltage 3. Replace the pump
Draining system does not work.	1. Magnetic valve is broken.	1. Repair or replace with new.

	The coolant pressure should be 2 bars. It should not be higher than 5 bars at any given moment. Y type filter ensures the cooling capacity of the device is efficient given that it is cleaned frequently.
	This sign indicates the direction of rotation of the pump. When the direction of rotation of the pump is reversed, the phase reversal lamp lights up and sounds an audible warning. When the phases are This sign indicates the direction of rotation of the pump. When the direction of rotation of the pump is reversed, the phase reversal lamp lights up and sounds an audible warning. When the phases are This sign indicates the direction of rotation of the pump. When the direction of rotation of the pump is reversed, the phase reversal lamp lights up and sounds an audible warning. When the phases are
	High Voltage Operator must take caution.
	Warning!!! It is a general-purpose warning and caution should be exercised.

General Maintenance

Date: ...... /...... /...........

- [ ] Check operating functions.
- [ ] Check all electrical connections.
- [ ] Check all electrical cables.
- [ ] Check if the Y-type filter is clean.
- [ ] Check the solenoid valve.
- [ ] Check the alarm system.

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CERTIFICATE OF WARRANTY

The Document's Comfirmation 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 Rekabetin Korunması Genel Müdürlüğü.

For the product that was sold to ..…… S.C. COSIMO TECHNOLOGY S.R.L. / 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.

Brand: MIT

Model : _____

Serial No: _____

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EKİN ENDUSTRİYEL ISITMA-SOGUTMA SAN.TİC.LTD.ŞTİ.	S.C. COSIMO TECHNOLOGY S.R.L.	

NOTE: User mistakes are not covered by warranty.

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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.

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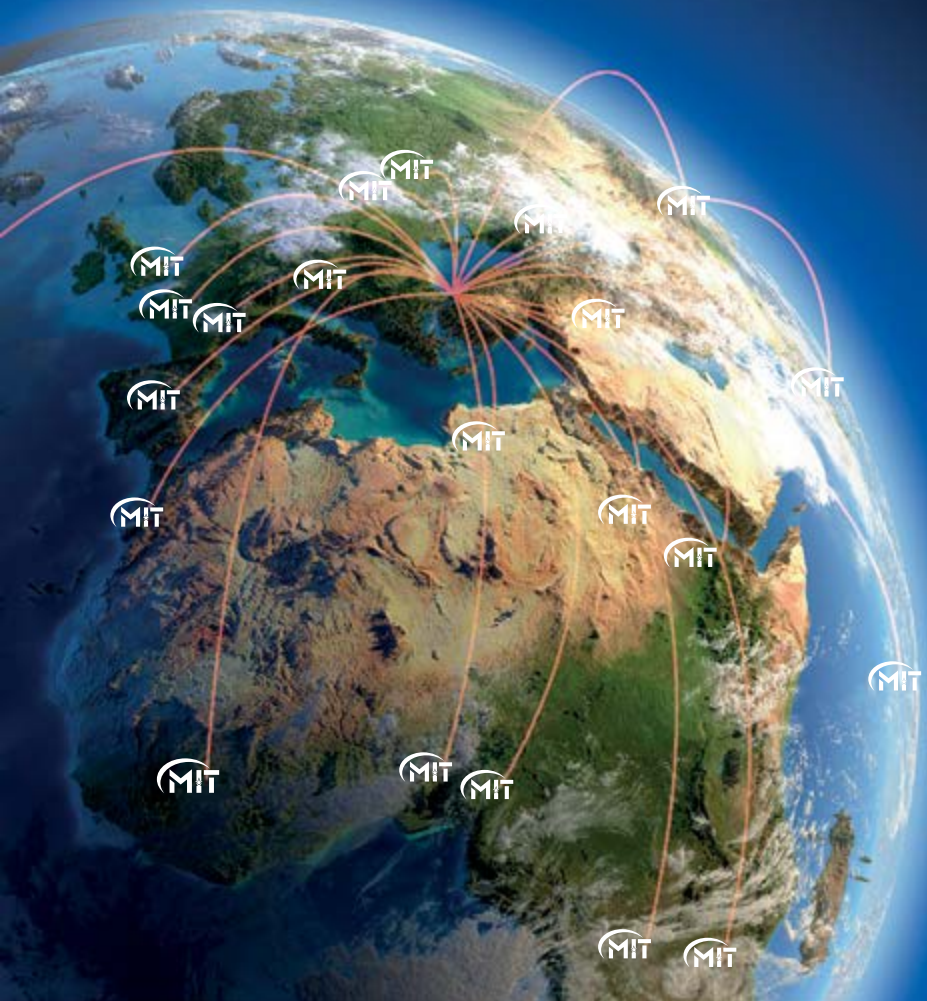
- Central and district heating systems.
- Milk, yogurt, buttermilk heating, cooling and pasteurization systems.
- Industrial cooling and heating systems.
- Oil cooling systems.
- Energy recovery systems.
- Pool heating systems.
- Steam installations.

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.

Today; **135 points** in the world.



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