EKİN ENDÜSTRİYEL

Hygienic Centrifugal Pump
User Guide

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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.

ISO CE GOST CERTIFICATE 799 33 13 TSE-HYB TURQUM® TURKISH QUALITY OF MACHINERY

APPLICATION FIELDS

HEAT TRANSFER PRODUCTS

• Gasketed Plate Heat Exchangers • Brazed Heat Exchangers • Shell & Tube Heat Exchangers • Air Fan Oil Cooler • Economizers • Coils and Radiators

PRESSURE VESSELS

• Water Heater Tanks • Water Storage Tanks • Buffer Tanks • Expansion Tanks • Stainless Steel Process Tanks • Balance Tanks / Dirt Separators / Air Separators • Vapour Separator • Pressured Air Tanks • Neutralization Tanks • Air Tubes • Steel IBC Tanks with ADR

COMPLETE SYSTEMS UNITS

• Heat Stations • Steam Package Systems
• Special Designed Systems • Dosing Systems
• Substations • Thermoregulators

FOOD GRADE SYSTEMS

• Pasteurizers with plate heat exchangers • Hygienic Pasteurizers with Shell & Tube Heat Exchangers
• Cheese and Whey Systems • UHT - Sterilization Systems
• CIP Systems • Hygienic Storage and Process Tanks
• Homogenizers • Standardization Systems • Evaporators
• Turn-key Projects

FLUID TRANSFER PRODUCTS

• Lobe Pumps • Hygienic Centrifuge Pumps • Turbo / Roots / Centrifuge Blowers • Drum Pumps • Acid Pumps
• Dosing Pumps • Monopumps • Air Operated Double Diaphragm Pumps (AODD)

FLOW CONTROL UNITS

• Butterfly Valves • Ball Valves • Globe Valves • Knife Gate Valves • Actuators • Check Valves • Strainers
• Thermoplastic Valves • Plastomatic Valves

ENERGY SYSTEMS

• Boiler Systems
• Solar Collectors
• Water Heater Tanks For Solar

CONTENTS

1. SAFETY

1.1 Important Information

Always read the manual before using the pump.

- Indicates that special procedures must be followed to avoid severe personal injury.
- Indicates that special procedures must be followed to avoid damage to the pump.
- Indicates important information to simplify or clarify.

1.2 Safety Precautions

1.2.1 Installation

Always read the technical data thoroughly.

- Always remove pump casing before deliver the pump. use a lifting crane when handling big size pump.
- Always have the pump electrically connected by authorized personnel (See the motor instructions).

1.2.2 Operation

The motor will be overload if the flow, concentration and viscosity of the liquid exceed the value in the parameter sheet. It will cause motor overloaded. Never touch the pump or the pipelines when pumping hot liquids or when sterilizing. Never run the pump with both the suction side and the pressure side blocked. Always handle alkali and acid with great care.

1.2.3 Maintenance

Always disconnect the power supply when servicing the pump.

- Never service the pump when it is hot.
- Never service the pump with pump and pipelines under pressure.

2. INSTALLATION

2.1 Unpacking / Delivery

We cannot be held responsible for incorrect unpacking.

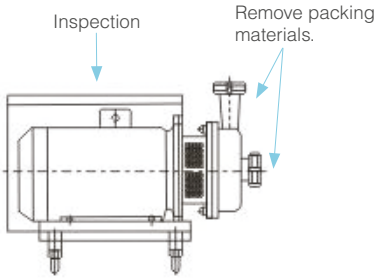
Step 1:

Check the delivery for:

1. Pump surface in good condition.
2. Parts on packing list.
3. Pump intruction.

Step 2:

Remove possible packing materials from the inlet and the outlet. Inspect the pump for visible transport damages. Make sure pump inlet and outlet are in good condition.



Step 3:

Always remove pump casing before move the pump. Always use a lifting crane when handling big size pump. Remover the pump casing, if fitted, before lifting the pump.

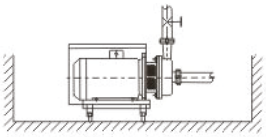
2.2 Installation

Step 1:

Please use a lifting crane when handling large size pump. Always have the pump electrically connected by authorized personnel. (see the motor instructions)

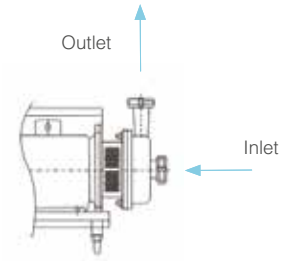
Step 2:

Ensure that there is sufficient space around the pump. (min.0.3 - 0.5m)



Step 3:

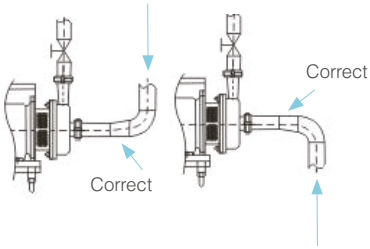
Ensure correct flow direction.



Correct flow direction.

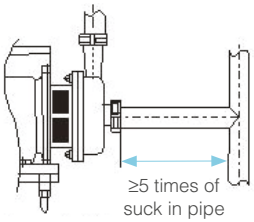
Step 4:

- Suction tube should be as short as possible.
- As few elbows as is better in the suction tube. The elbow with big radius of curvature (R≥2D) is a good choice.
- Avoid air gathered in the suction tube or suck the air.



Step 5:

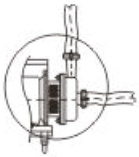
- Ensure fluid flow rate steady.



Step 6:

Support the inlet and outlet pipe properly and Avoid stressing the pump.
Pay special attention to:

- Vibrations of tube.
- Thermal expansion of the tubes.
- Excessive welding.
- Overloading of the pipelines.



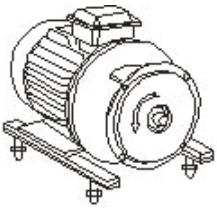
2.3 Pre-use Check

Step 1:

Always remove the impeller before checking the direction of rotation. Never start the pump if the impeller is fitted and the pump casing is removed.

1. Remove screws, gasket (16), and pump casing (9).
2. Remove impeller (14).

Step 2:



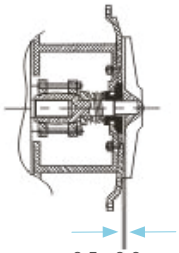
See the indication label.

1. Start and stop the motor momentarily.
2. Ensure that the direction of rotation of the stub shaft (5) is anticlock¬wise as viewed from the inlet side.

Step 3:

1. Use a feeler to measure the clearance between the back cover and impeller.

2. If the clearance is not correct, please adjust it according to the methods mentioned in the article.



Adım 4:

Clean the impeller, and fit and tighten impeller.

Step 5:

1. Install the pump according to structure drawing.
2. Clean pump casing and install it (9).
3. Install gasket and fit the screw (16)

3. OPERATION

3.1 Operation / Control

Step 1:

The motor will be overload when the flow goes over the rated value since the resistance of the tube system become to smaller. We cannot be held responsible for incorrect operation/control.

Step 2:

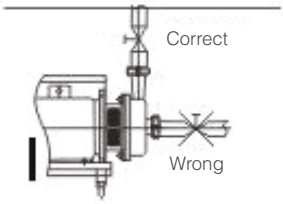
Never touch the pump or the pipelines when pumping hot liquids or when sterilizing.

Step 3:

Never run the pump with both the suction side and the pressure side blocked.

Step 4:

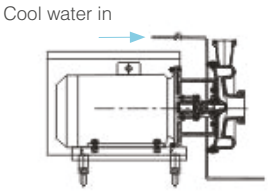
The shaft seal must not run dry. Double seal pump, must feed in cool water before start pump. Never throttle the inlet side.



Step 5:

Double Seal

1. Connect the inlet of the flushing liquid correctly.
2. Regulate the water supply correctly.
3. Keep outlet open.

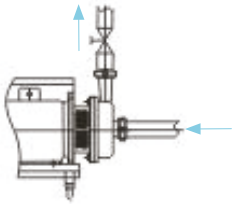


Step 6:

Control

Reduce the capacity and the power consumption by means of:

1. Throttling the pressure side of the pump.
2. Reducing the impeller diameter.
3. Reducing the speed of the motor.



3.2 Troubleshooting

Problem	Reason	Solution
Motor overload.	• Low outlet pressure and too large flow rate. • Pumping of viscous liquids. • Pumping of liquids with high density. • Rotary speed of the motor is too higher. • Lamination of precipitates from the liquid.	• Throttling using outlet valve. • Larger motor or smaller impeller. • Check the frequency of the circuit. • Frequent cleaning
Flow small, shortage of lift, no water pumped.	• The pump and suction tube are unfilled with liquid. The impeller or pipes is blocked. • Suction tube is leak. • Pipe resistance exceeds the lift of pump. • Lower voltage, small rotary speed of the motor. • The liquid temperature is too higher.	• Check the bottom valve for leaks and refill it. • Take apart the pump to remove the deposit. • Reseal the suction tube. • Reduce the pipe resistance or use the larger pump instead. • Check the motor wiring and the voltage, frequency of the circuit. • Decrease the liquid temperature or increase the pressure of the suction inlet or outlet.
Shock and noise increased to produce foul air.	• The suction is shortage or the pressure of suction inlet is too lower. • The liquid temperature is too higher. • Suction tube is leak. • There are foreign matters jam in impeller and pump shell. • Fraction between the impeller and pump shell. • The motor shaft is damaged.	• Reduce the resistance of the suction tube or the height of the suction inlet and liquid level. • Reinstall the suction tube or replace the seals. • Take apart the pump to remove the foreign matters. • Adjust the clearance between impeller and pump shell. • Replace the motor shaft.
Shaft seal is leak to cause foul air.	• Shaft seal working without liquid. • Rotary or stationary ring worn-out. • O-shape seal ring is old or material selection is wrong. • There are abrades in the liquid. • The material liquid.	• Replace all wearing parts to make sure the liquid material feeding continuous. • Replace the rotary ring or stationary ring. • Replace the O-shape seal ring or reselect the material. • Stationary ring or rotary ring is made of silicon carbide or graphite. • Take apart to clean the pump or use water to rinse the seal.
Rubber seal is leak.	• Material of the rubber seal is selected wrong.	• Reselect the material.

3.3 Recommended Cleaning

Step 1:

Always handle alkali and acid with great care. Be sure to cover your hands with rubber gloves and wear safety glasses.

Step 2:

Never touch the pump or the pipelines when sterilizing.

Adım 3:

Examples of cleaning agents:

Use clean water, free from chlorides.

1. 1% by weight NaOH at 70 °C (158 °F).

1 kg NaOH	+	100 l water	=	Detergent
2.2 l 33% $NaOH_3$	+	100 l water	=	Detergent

2. 0.51% by weight HNO_3 at 70 °C (158 °F).

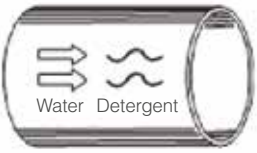
0.7 l 53% $NaOH_3$	+	100 l water	=	Detergent

Step 4:

1. Avoid excessive concentration of the detergent.
   - Dose gradually!
2. Adjust the cleaning flow to the process. Sterilization of milk/viscous liquids.
   - Dose gradually!

Step 5:

Always rinse well with clean water after the cleaning.



Step 6:

The detergent must be stored/disposed of in accordance with current rules/directives.

4. MAINTENANCE

4.1 General Maintenance

Step 1:

Always follow technical data. Always disconnect the power supply when servicing the pump.

All scrap must be stored/disposed of in accordance with current rules/directives.

Step 2:

Never service the pump when it is hot.

Step 3:

Service the pump with pump and pipelines under atmospheric pressure.

Step 4:

Fit the electrical connections correctly if they have been removed from the motor during service.

4.2 Maintenance

	Shaft Seal	Rubber Seal Ring	Motor Shaft
Preventive Maintenance	• Replace all shaft seals every 12 months. (one shift) Complete shaft seal.	• Replaced when replacing shaft seal.	-
Leakage	• Replace at the end of the day. Complete shaft seal.	• Replaced when replacing shaft seal.	-
Planned Maintenance	• Regular inspection for leakage and smooth operation. • Keep a record of the pump • Use the statistics for planning of inspections. • Replace after leakage complete shaft seal.	• Replaced when replacing shaft seal.	• Yearly inspection is recommended.
Lubrication	• Before installation lubricate the o-rings with silicone greaseor silicone oil and rubber seals.	• Before installation silicone grease or silicone oil.	• Replace complete bearing if worn. • Ensure that the bearing is axially locked.

Pre-use Check

Fit the electrical connections correctly if they have been removed from the motor during maintainance.

- Start and stop the motor momentarily.
- Ensure that the pump operates smoothly.

4.3 Removal of The Pump / Shaft Seal

1. Take off the nut (16), remove the gasket (10) and cover (9).
2. Take off the O-shaped ring (11) from the back cover.
3. Take off the coupling guard (6).
4. Thrust a screwdriver against the nut (12) of the coupling. Then turn the impeller (14) in an anticlockwise direction (Opposite the impeller) and remove the impeller. If it is necessary, adjust the blade of impeller to loose it.
5. Remove the rotary ring (18) from the impeller with the complimentary spanner. (Opposite the impeller, turn in an anticlockwise direction).
6. Double-end seal pump: Remove the water in and out tube.
7. Take off the locknut of the back cover, remove gasket (11) and pump body (10).
8. Double-end mechanical seal pump:
   - Take off the auxiliary rotary ring from the water seal holder.
   - Take off the bolt from the pump body.
   - Take off the water seal holder and O shaped ring.
   - Take off the auxiliary rotary ring from the shaft (5).
9. Take off the stationary ring and O shaped ring from the pump body.

4.4 Inspection of The Pump Shaft

1. Measure the pulsation frequency of the shaft by the dial indicator.
2. If the pulsation frequency exceeds 0.06mm, the shaft seal should be replaced.

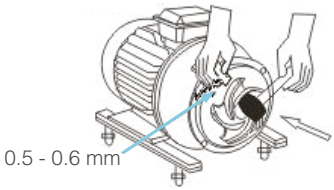
4.5 Reassemble of The Pump

1. Double-end mechanical seal:
   - Lubricate the O shaped ring of the auxiliary stationary ring and put the rotary ring back to
   - the shaft seal.
   - Press the auxiliary stationary ring into the water seal ring.
   - Lubricate the O shaped ring of the auxiliary rotary ring and install it to the shaft seal.
   - Put the water seal ring back to the pump body and tighten the bolt.

2. Install the pump body and tighten the nut. (Pay an attention to the inlet direction of the pump).

3. Lubricate the O-shaped ring of the stationary ring and screw it back to the pump body together with stationary ring. Tighten it with the spanner.

4. Screw the impeller back to the shaft (5). The clearance between the impeller and back cover should be 0.5-0.6mm.Adjust it by loosen the coupling bolt (4) if it is not correct. Tighten the bolt (4) after adjustment.



5. Lubricate O shaped ring (11) and round it to the pump body (9).

6. Double-end mechanical seal pump: Put back the water in and out tube.

7. Install the coupling guard.

8. Put the pump cover (9) back and screw the nut (16).

9. All bolts should be screwed according to the list below during installation:

Strength Grade	NM					
	M6	M8	M10	M12	M16	M20
8.8	10	25	49	85	210	420
A2 - 70	7.3	17	35	69	144	281

5. ASEEMBLY SHEET

Code	Qty	Items
1	1	Motor
2	1	Pump Guard
3	4	Bolt, Gasket
4	1	Coupling
5	1	Shaft
6	1	Coupling Guard
7	1	Connection Base
8	4	Bolt, Gasket
9	1	Pump Cover
10	1	Pump Body
11	1	O Shaped Ring
12	2	Nut, Gasket
13	1	Impeller
14	2	Support
15	4/6	Bolt, Gasket
16	4	Nut, Bolt, Gasket
17	1	Mechanical Seal
18	1	Water Cooled Double-end Seal

NOTES

NOTES

CERTIFICATES

EKİN ENDÜSTRİYEL

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

Brand: _____

Model: _____

Pump Serial Number: _____

Motor Serial Number: _____

SELLER **DEALER** **END USER**

NOT: User mistakes are not covered by warranty.

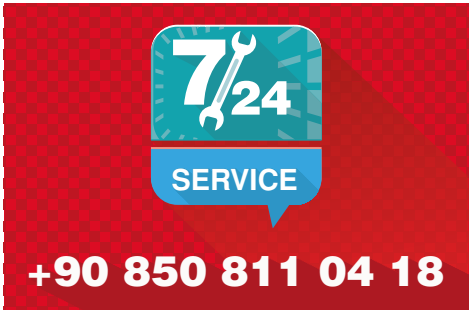
www.ekinendustriyel.com

Please keep this certificate!

PROFESSIONAL SYSTEM SOLUTION CENTER

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

- Domestic hot water installations.
- Central and district heating systems.
- Milk, yoghurt, 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.

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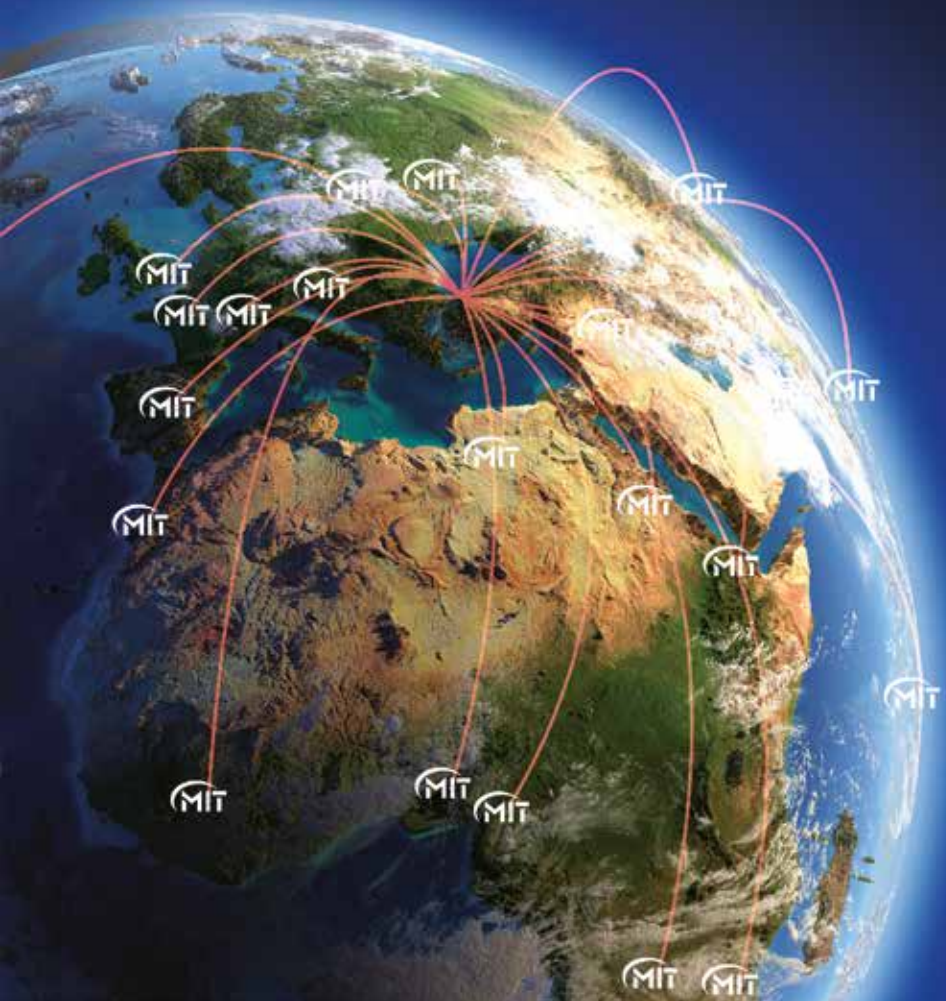

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