



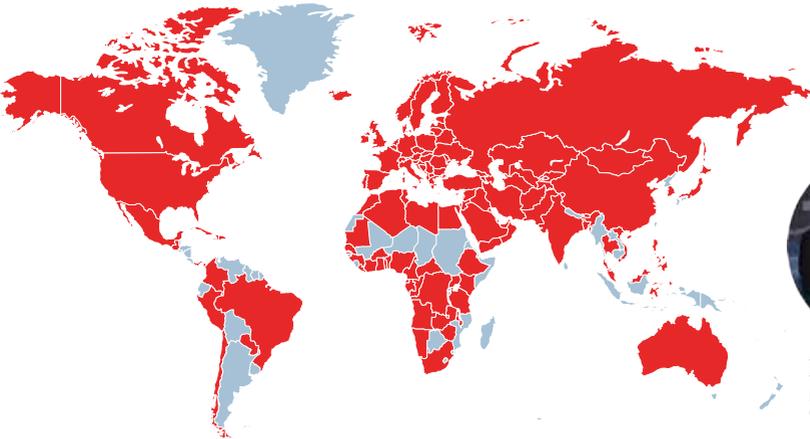
EKİN ENDÜSTRİYEL

Gear Pumps  
User Manual

**GP** GEARYMAX



Your Satisfaction Is Our Priority;  
Globalization Is Our Goal!



The 2nd Company from Türkiye Exporting to the Highest Number of Countries (SIB 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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## General

This guide book belongs to Gearymax, includes necessary information for gear pumps and it must be read carefully before installation, service and maintenance. This guide book should be kept at hand to reach easily when needed.



Pumps should not be used for purposes that are not advised or mentioned in the guide book without first consulting EKİN ENDÜSTRİYEL. Unsuitable liquids for the pump may cause individual injuries and damage to the pump. EKİN ENDÜSTRİYEL doesn't give any guarantee for modifications or maintenance by unauthorized and it doesn't accept any responsibility.

## Important Features Of Gear Pumps

Gear pumps can work efficiently in both directions. By changing the cycle direction of pump shaft, pumping direction of the liquid can be changed but if the by-pass system is active, the by-pass direction must also be changed in the same way.

It can reach high pressures even at low capacity thanks to being positive displacement and it can work efficiently at low flows. As it is positively correlated with flow, the needed flow can be obtained easily just by changing the rotation. All the liquids which have viscosity between 38 cSt and 2.000.000 cSt can be carried without any problem.

## Its Uses

Internal gear, spur & helical and centrifuge pumps that we are manufacturing have proved themselves in various industries in terms of reliability and efficiency. Our pumps can be used to carry solid substances as well as light, medium and heavy viscous liquids. These pumps have the capacity of absorbing 7-metres under the sea depending on the vaporization of the liquid. These pumps can be used to pump materials such as asphalt, alcohol, beer, fuel-oil, food, medicine, chemical substances, bitumen, molasses, fruit juice, lube oil, petrol, plastic, soap, dairy products, LPG, chocolate, heated oil, olive oil etc.

## Acceptance

Take out all the packaging stuff after you get the product. Check whether it is damaged or not. In case of a damage or missing part, write a report. Give a copy of the report you write to the transporter and take his signature. Inform EKİN ENDÜSTRİYEL about the situation. If there isn't any missing part in the product, check the label and the order informations of the product and match them.

## Commencing Operations and Storing

Check the weight of the pump. Lift every part of the product over 20 kilos by using hoisting suspenders, caraskal and lifting equipments like crane. Lifting ways of the product are shown below.

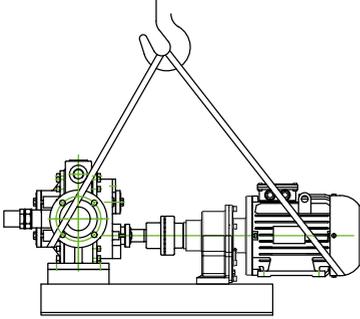


Figure1. Always use hoisting cables. Make sure that these cables have been placed and the pump has been hanged and appropriately.

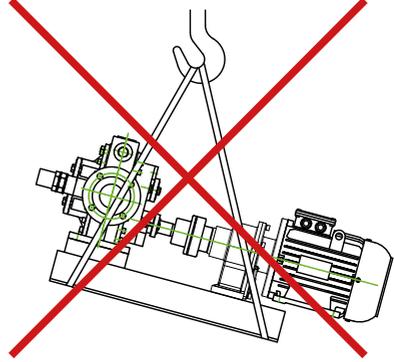


Figure 2 Never tie the pump in a way that it may slide. Wrong lifting may cause injuries damage to the product.



If the pump is not used directly, store it in a clean and dry place. Turn the spindle of the pump in every two months and make sure that there is protective oil inside the pump.

## Safety

### IMPORTANT /CAUTION!



The pump must never be used for different purposes that have not been advised or mentioned without first consulting to EKIN ENDÜSTRİYEL.

This pump must be installed and used according to the current international and local health and safety laws and regulations. So, before the pump is fixed onto the system, it begins to work and after it starts to work, the warnings below should be read carefully.



Always wear a suitable safety clothing while putting it into service.



In order to prevent human injury and damage to the pump, FIX THE PUMP before you turn it on.



Before service and maintenance, in order to close entry and out flow, fasten opening and losing valves to both sides of the pump. Ensure that the pump can be carried without causing any damage to living things, environment or other equipments.



Make sure that all demountable and turning parts of the pump have been closed properly to prevent it from giving damage to the personnel.

 The whole electricity system should be installed by authorized people. In order to prevent the pump working mistakenly, fix a lockable circuit breaker. Protect the engine and other electrical devices against overloading. Ensure that abundant amount of cooling air are provided to electrical engines. In situations where there is the danger of explosion, in addition to extra special safety devices, use electrical engines that are safe against explosion. Inappropriate electrical engines and electricity wiring may cause deadly consequences.

 Overheating, short circuit, corrosion, and the powder, liquid and gas materials that could cause a fire must be kept away from the engine and other equipments. If the pump is used in the transfer of liquids that are detrimental to people and environment, put a suitable container in which the leaking liquid can be accumulated.

 The areas of system or the parts of the system where surface temperatures exceed 60 °C should be marked with the sign of 'HOT SURFACE'.

 The pump must not be exposed to sudden temperature changes in the liquid before pre-heating or pre-cooling is performed. A hot pump should certainly NOT be cleaned with a cold liquid or substance. Sudden temperature changes may cause cracks, thus threatening human health and environment.

 The pump must never be worked over the specified performance.

 Before any intervention to the pump or the system is made, electricity must be closed down and starter button must be locked.

 The pump must NOT be worked dry. In order to eliminate the possibility of working the pump dry, a suitable protective system should be set up.

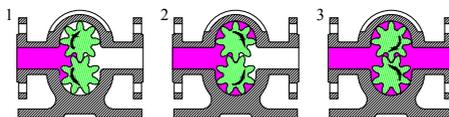
 If the pump can not reach the desired capacity and pressure values, contact with EKİN ENDÜSTRİYEL.

## Working Principles

### Working Principle Of Helical & Spur Geared Pump;

As the pump shaft starts to turn by the motion it takes from the engine, gears separate from each other and vacuum forms. Thanks to the occurring vacuum, transferred liquid starts to fill in the absorption channel of the pump. (Figure 1)

The liquid that fills in the absorption channel is carried towards the gear gaps of the pump. (Figure 2) In the discharge channel, gears get telescoped, thus performing transfer operation by pushing out the liquid through discharge channel. (Figure 3)



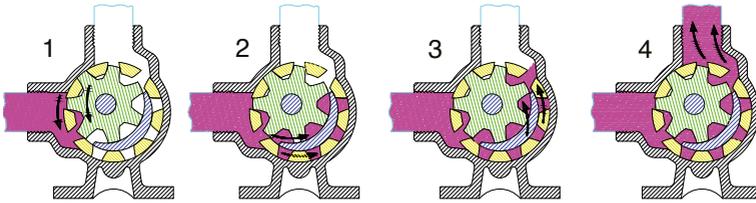
## Working Principle Of Internal Gear Pump

As the pump shaft starts to turn by the motion it takes from the engine, rotor and idler separate from each other and vacuum forms. Thanks to the occurring vacuum, transfer liquid starts to fill in the absorption channel of the pump (Figure 1).

As the liquid that fills in the absorption channel proceeds through the gear gaps, the escape of liquid is prevented thanks to the crescent and the liquid is carried towards the gear gaps of the pump (Figure 2).

The gears that separate from each other at the discharge channel by semilunar start to get telescoped again and begin to push the liquid out (Figure 3).

The liquid that is pushed out is compressed from the discharge channel and transferring process is performed.

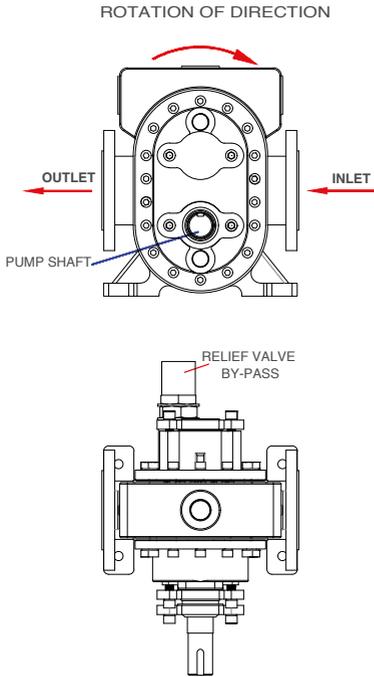


## Pump Rotation Direction

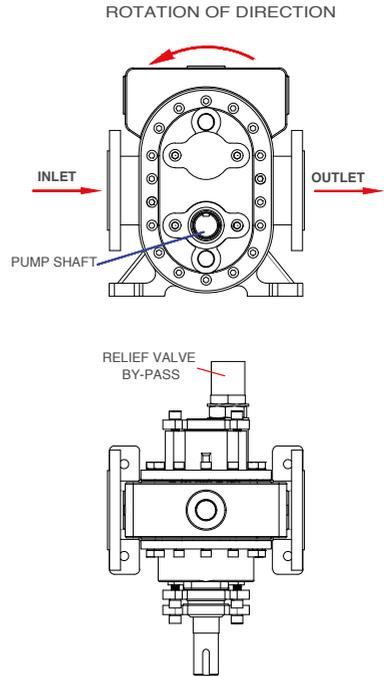
The pumps that we manufacture have the capacity of working in both directions. However, some types of pumps with mechanical seal and by-pass must be worked according to the direction way shown on the product in production process. If the pumping directions of these pumps are to be changed, you should consult EKİN ENDÜSTRİYEL. Absorption and compression lines of the pumps according to rotation directions are shown below.

## Helical and Spur Gear Pumps

### The Pump Shaft Is At The Bottom Side.

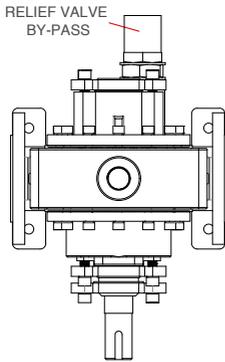
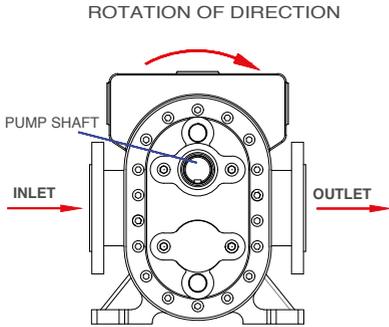


Direction of Rotation of the Pump: Clockwise rotation when looking from the cover side.

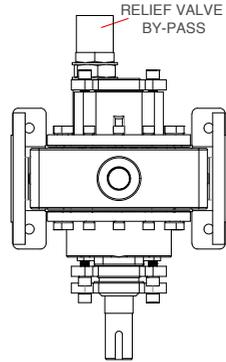
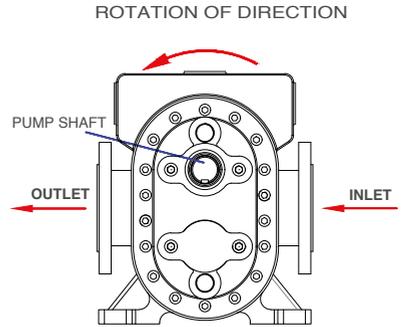


Direction of Rotation of the Pump: Counter-clockwise rotation when looking from the cover side.

### Pump Shaft Is At The Top Side.



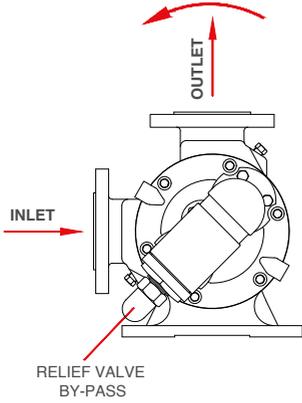
Direction of Rotation of the Pump: Clockwise rotation when looking from the cover side.



Direction of Rotation of the Pump: Counter-clockwise rotation when looking from the cover side.

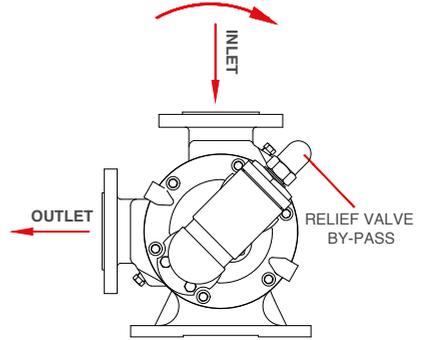
## Internal Gear Pumps

ROTATION OF DIRECTION



Pump Rotation Direction: Clockwise direction when viewed from the cover

ROTATION OF DIRECTION



Pump Rotation Direction: Clockwise direction when viewed from the cover

## The Attachment Of The Pump To The System And Its Maintenance

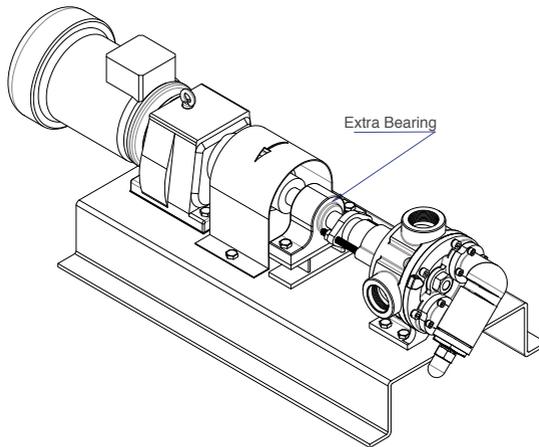
### General

- Pump unit must be assembled to its place completely.
- Lockable circuit breaker must be fixed to pump unit. While the electrical engine is attached to the system, a thermic magnetic circuit breaker with an overprotective capacity should be used. The current level of the circuit breaker should be 1.1 times of the engine's nominal current. The attachment of engines over 4 kW must be done with star triangle circuit breaker. This protects both the pump and the electricity network against overloads. Electricity attachments must be made by authorized people.
- Before any maintenance in the system or in the pump, the electricity must be turned off and in order to prevent it from working accidentally, starter device must be locked. The pump must be detached from the electricity line and electricity circuit. If the pump is used for destructive and dangerous liquids, the pump and its system must be emptied.
- In order to protect the pump and system against overloading, a suitable safety valve or another safety device must be used.

### Plumbing And Pipe Line

- Place the pump chassis on a smooth ground and fix the chassis onto the ground.
- After assembling the pump to the plumbing and tightening the screws, Check the tune of the coupling between the pump spindle and electrical engine. If there is deviation between the parts of coupling, fix it. Pay great attention that the gap between two parts of the coupling must be 2mm.
- Make sure that the pipe and the pump's attachment inlets have been aligned accurately and there is no loading or contraction on the pump from pipe lines. If possible, use a compensator in the attachments of the pump.
- Use as little fitting material as possible in the absorption line. To prevent air pockets close to the pump, set the absorption line at a particular slope.
- To prevent capacity loss and in order not to lose power, the pipe calibres of inlet and outlet must be same or even absorption inlet attachment pipes must be bigger.
- In order to prevent leakage in the pipe and fitting material attachments, using teflon band and gasket are advised. Any leakage in absorption line is important, because it may cause noise and capacity loss.
- Attaching trap-door, which is at least at the same calibre or bigger, check valve to the tip of the absorption line and the availability of water in the absorption line facilitate the first working of the pump.
- In order to prevent the pump being damaged from other materials, a filter that is at least three times more of the pipe section area must be used in the liquids whose viscosity is less than 300ssu and a filter that is six to eight times more of the pipe section area must be used in the liquids (detergent, petrol, asphalt etc) whose viscosity is high. The filter should be cleaned regularly and waste materials should be destroyed to save the environment.
- In order to prevent any damage to the pump, engine and even the reducer from the blockages in the pressure line, by-pass system on the engine or circulation has been developed. Overpressure may cause the engine to absorb more currency ( so get broiled) and fragmentation of reducer gears. By-pass should be adjusted a little over the pressure required by the facilities. for example, if 5 bar is necessary, adjust the by-pass to 6 bar.
- Attachment of vacuum gauge to the absorption circuit and attachment of manometer to the compression circuit are advised. Vacuum gauge shows the capacity of the pump, while manometre shows the values of the resistance in the compression line and blockages.

- The pumps with soft compression packing, the fabricated compression packing has usually been less tightened. And, when the pump is turned on and the action of pumping begins, compression packing should be tightened from two parts in ten minutes, just allowing two or three drops. The leakage will prevent the eroding of the spindle as well as lubricating the compression packing. When it is overtightened, it may cause power loss and the spindle to lose its property due to overheating.
- The screws of the pumps that will be used in a hot setting should be checked a while after the pump starts to work and the gap caused by dilation should be taken.
- If the pump couple has not been produced by EKİN ENDÜSTRİYEL, pulley must be on the same plane in vee belt drive and dont distorted must be on the same tension and if the number of belt is more than one, they must be in the same tolerance. Unless these conditions are provided, environmental speed changes could cause gear knockings, a change in output and noise, thus decreasing the product life of the pump. The belts and the rotors must be covered with a suitable protective material.
- If the pump couple has not been produced by EKİN ENDÜSTRİYEL, Install extra bearing as seen on the drawing in front of the pump.



- The pumps that are used in the transfer of inflammable and explosive materials must absolutely be used as exproof, and all the parts in the system must be earthened.

### **Operating;**

- Open all the vents in the pipe system and make sure that there isn't any blockage.
- Make sure that the rotation direction of the pump is right. To do this, first turn it on and then turn it off and check whether rotation direction is right.
- Fill in the pump with the transfer liquid. Don't operate without liquid.
- Turn the pump on. Check whether there is any problem in the absorption and compression system. If there is a problem, stop the pump and look for the error.
- Keep the engine, the pump, vacuum gauge and manometer under control until 10 or 15 minutes after first starting it. If there is any abnormality, look for it and solve it. You can use error correcting table to solve the problem.
- If it is a soft seal pump, adjust it to allow two or three drops of leakage per ten minutes according to circulation pressure, by tightening the packing gland equally from both parts. (For the pumps with mechanical seal, there is no need to adjust.)

## Routine Controls

- Check regularly whether sound level, vibration and pump temperature is normal or not.
- Check whether there is any leakage in the pump or plumbing.
- Check the outlet pressure of the pump and the amount of flowing regularly.

## Maintenance

### A- Daily Maintenance

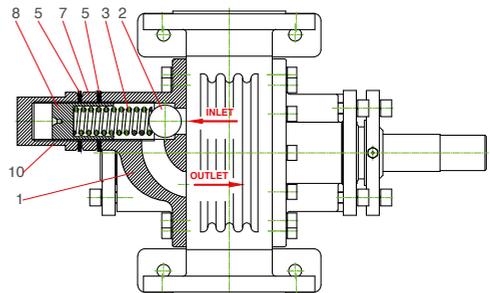
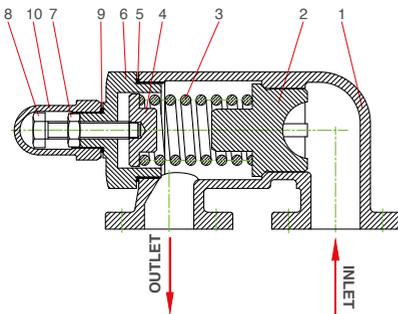
- Check whether the connections of pump lines are good or not.
- Check manually whether the pump's spindle rotates freely or not. Make it work at least one circulation to be sure.
- Compress lubricant into the grease nipple.
- Check the belts of vee belt drive pumps. Check the oil level of the reducer in coupled with reducer pumps. If it isn't enough, fill it with the oil advised by the manufacturer.

### B- Annual Maintenance

- Check the packing. If it is necessary, change them.
- Check the filters in the absorption line. Clean the filter and make sure that there is no air.
- In the pumps that have been used for a long time, abrasions in the gears and gaps in the seat may cause engine knocking. These must be changed. Make sure that the changing of the parts should be performed in the service or in the factory.

### By-Pass And Its Function;

Geared pumps with positive displacement are exposed to overloading due to the blockages in the compressing line during the operation. As a result of this, some parts of the pump or the engine may be damaged. By-pass system is useful because it protects the engine, the pump and the plumbing against any pressure due to blockage that may be caused by any problem in the compression line.



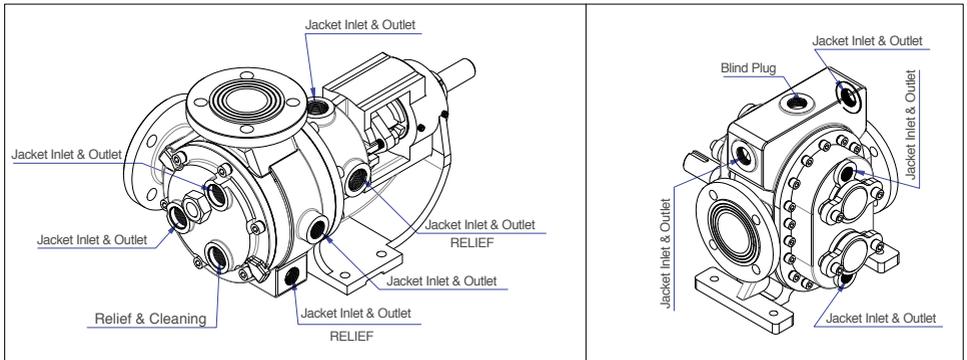
- |                      |                    |
|----------------------|--------------------|
| 1. By-pass body      | 6. By-Pass cover   |
| 2. Trap-door         | 7. Nut             |
| 3. Spring            | 8. Bolt            |
| 4. Spring compressor | 9. Gasket & O-ring |
| 5. Gasket & O-ring   | 10. Cover          |

By-pass setting is done as follows;

1. Cover, number "10" should be dismantled and removed.
2. Lock nut, number "7" should be loosened properly and removed.
3. Adjusting screw, number "8" should be tightened or loosened to adjust the output pressure required for the facility. ( Tightening the screw increases the pressure, loosening the screw decreases the pressure.)
4. When the required output pressure is achieved, lock nut, number "7" should be tightened back.
5. Finally the cover number "10" should be assembled back.

### Heating Jacket;

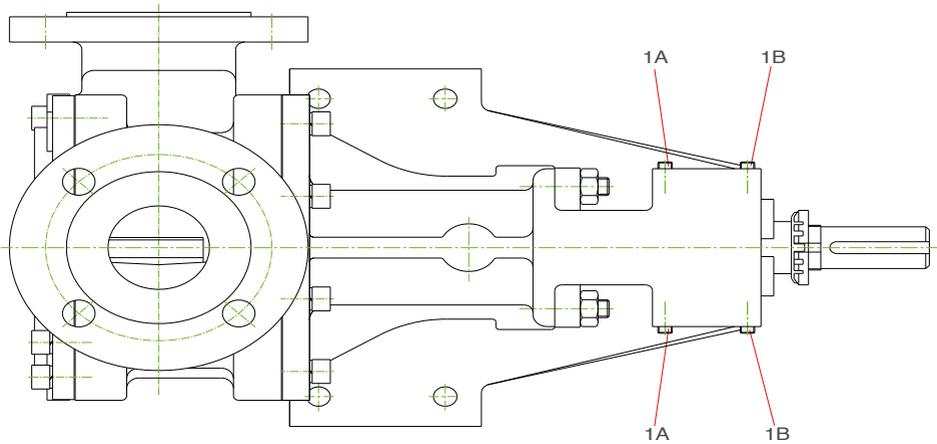
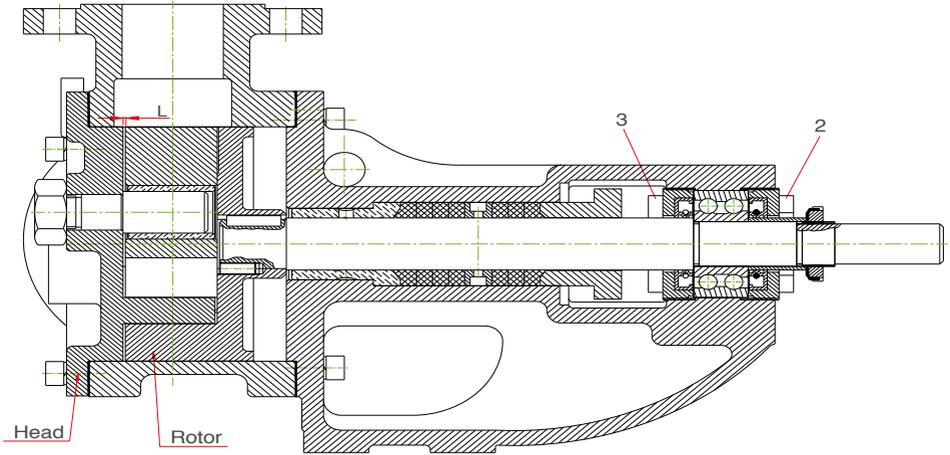
Heating Jackets could be installed to our pumps to heat freezable liquids which may go through the pump. These heating jackets could be installed to the cover, casing or for the bracket type pumps to the bracket of the pump according to the properties of the liquid. To heat these jackets, hot oil, steam, hot water etc. could be used. Entries and exits for these heating jackets are shown below.



### Capacity Adjustment

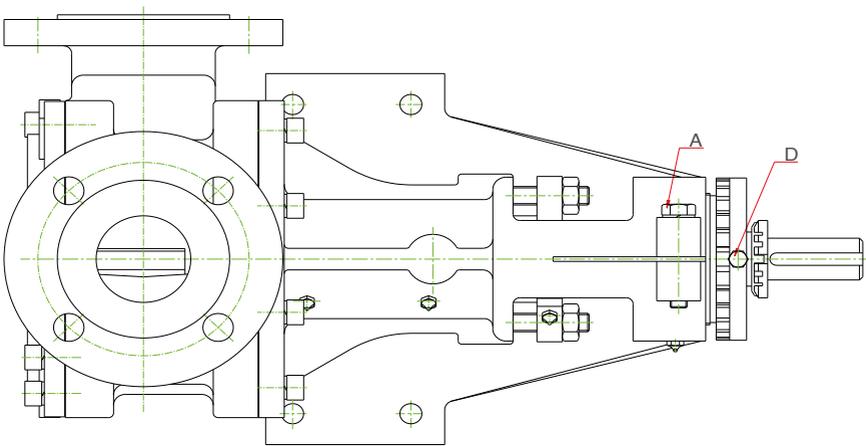
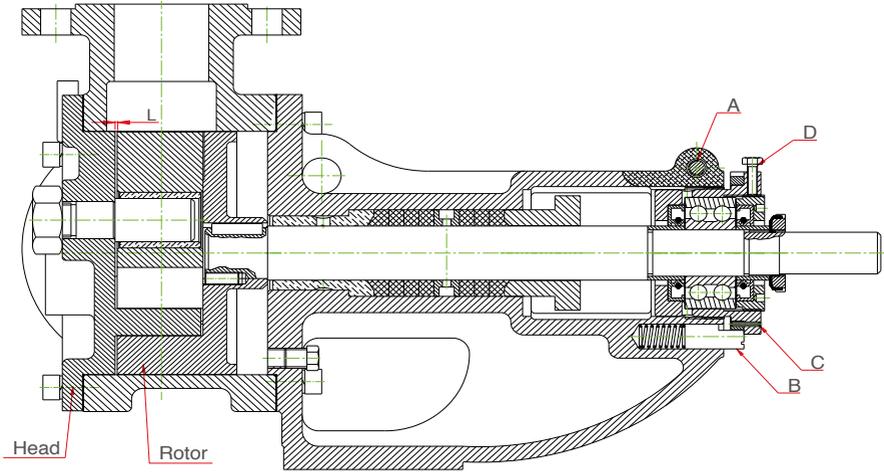
In the internal eccentric pumps in order to increase or decrease the max. capacity at a certain rate, it is necessary to put away the rotor from the pump cover (to increase the gap "L" between the cover and the gear) or to draw the rotor toward pump cover (to decrease the gap "L" between the cover and the gear). This process can be done in the following order.

Type-1



- A - Loosen the stay bolts 1A and 1B
- B - Loosen the adjusting nut number 3 using a screwdriver and a hammer.
- C - Tighten the adjusting nut number 2 using a screwdriver and a hammer. Check the rotation of the pump with your hand. Continue tightening the adjusting nut number 2 until the pump stops to rotate.
- D - After the pump stops its rotation, slowly loosen the adjusting nut number 2.
- E - Slowly tighten the adjusting nut number 3 and check the rotation of the pump. When the pump starts to rotate again, stop tightening the adjusting nut number 3 and tighten the stay bolt 1A.
- F - Tighten the adjusting screw number 2 all the way and check the rotation of the pump. If the pump rotates without any problem, tighten the stay bolt 1B.

Type-2



1. Loosen the locker screw (A).
2. Turn the adjustment fixer pin (B) 90 degrees to the right and left by pressing it
3. The ball carrier (C) is adjusted from the holes on the forehead using an appropriate key, according to desired capacity; to increase, in clockwise (the "L" gap is decreased between the rotor and the cover), to decrease, in counter clockwise (the "L" gap between the rotor and the cover is increased).
4. When the capacity adjustment is finished, the adjustment fixer pin (B) is turned back and the locker screw (A) is firmly tightened.



During this process the locker screw must not be touched.

## Seals

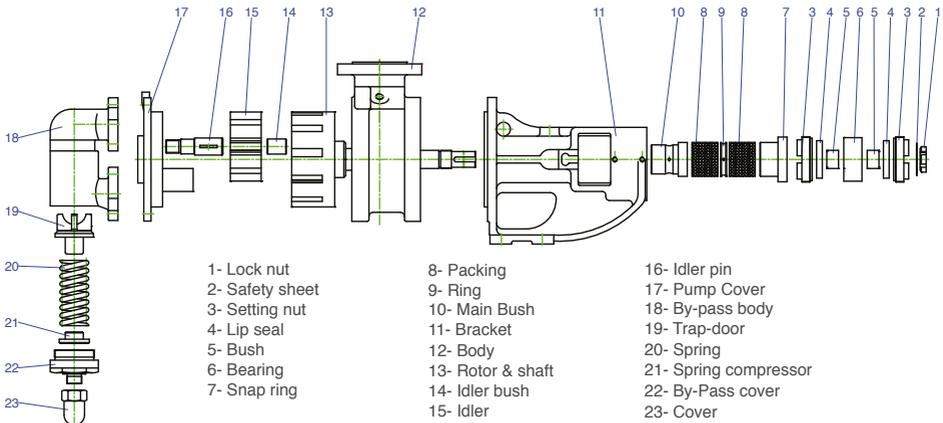
### A- Soft Seal

- Before you begin to change the mechanical seal, clean the stuffing box, packing gland, and the pump shaft.
- Cut acrossly the parts that have adequate number and suitable length from a suitable scale packing.
- Make sure that the tips have been closed completely, by wrapping the cut packing on the shaft.
- Push the packing into its place with the help of packing gland in a way that connection parts of the first ring must be on the upperside.
- Place the second ring in a way that the connection parts must be on the below side.
- Place the other rings on the stuffing box in a way that the connection parts of the previous ring mustn't be in touch with those of the following one.
- Place the sealmastra compression and tighten it fully. Loose tha packing gland after the packings get the shape of stuffing box. Tighten the packing gland slowly by rotating the spindle. Stop tightening when you feel the brake of the shaft.
- After you start the pump, there must be drops coming from the packing. Adjust the packing gland to allow two or three drops in ten minutes.
- After you adjust the packing gland, check two hours later whether there is any temperature increase in the seal area or not. The temperature of the seal area must not be over 80 C in the pump that performs the liguid transfer.

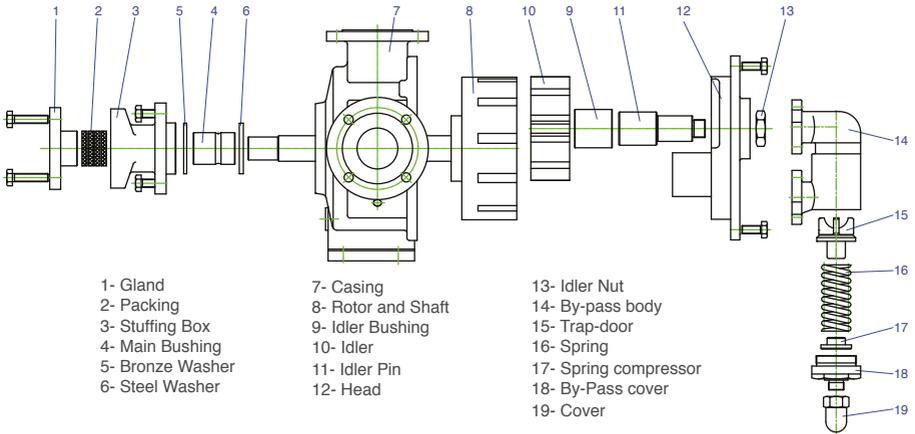
### B- Mechanical Seal

- Unless there is any leakage in a properly functioning mechanical seal, they don't need any maintenance.
- Follow the instructions of the mechanical seal manufacturers in the pumps that use mechanical seal and NEVER OPERATE MECHANICAL SEAL PUMPS DRY AND IN THE REVERSE DIRECTION.
- If a kind of liquid that can freeze is transferred in mechanical seal pumps, without heating the system, don't activate the pump till you make sure that the pump spindle can rotate easily. If it is required, assemble the necessary equipments to the system. (for example, heat sensor)

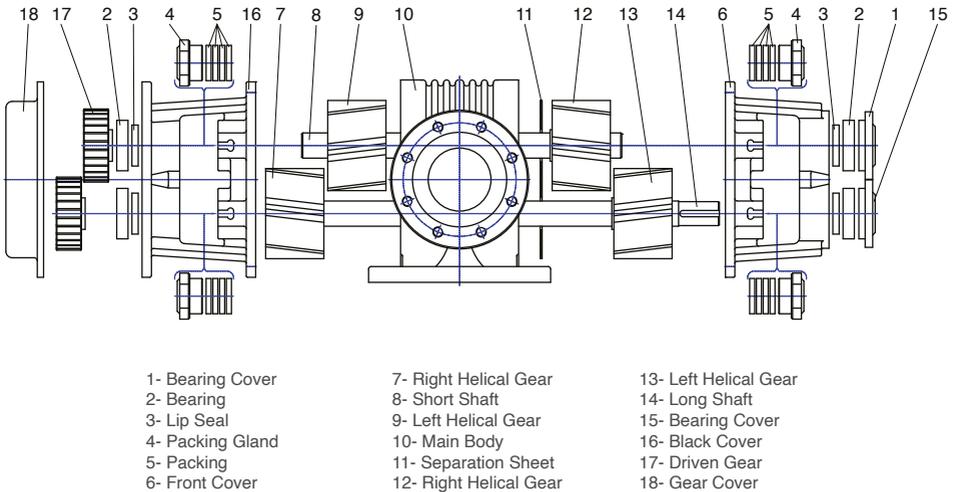
### With Bracket Type Internal Gear Pump Spare Parts List



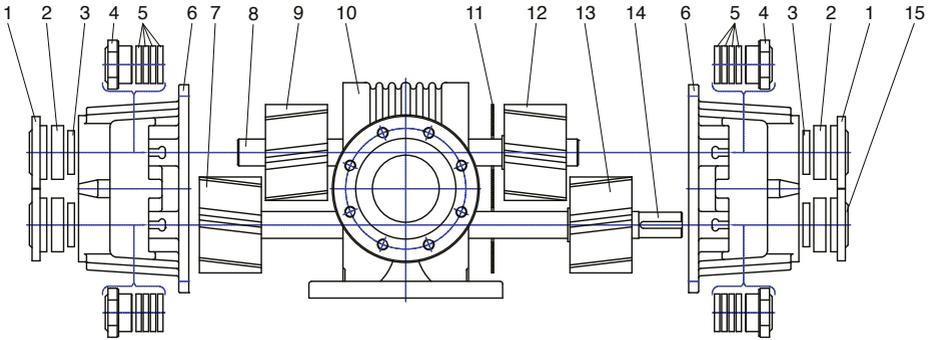
## Without Bracket Type Internal Gear Pump Spare Parts List



## External Bearing&driven Type Helical Gear Pump Part List



### External Bearing Helical Gear Pump Part List

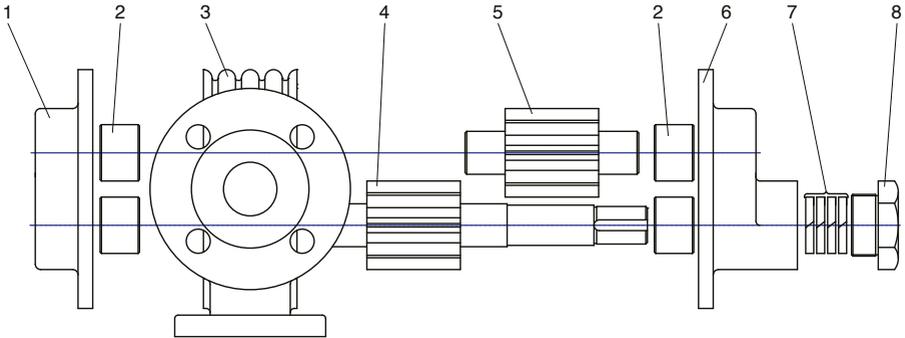


- 1- Bearing Cover
- 2- Bearing
- 3- Lip Seal
- 4- Packing Gland
- 5- Packing

- 6- Pump Cover
- 7- Right Helical Gear
- 8- Short Shaft
- 9- Left Helical Gear
- 10- Main Body

- 11- Separation Sheet
- 12- Right Helical Gear
- 13- Left Helical Gear
- 14- Long Shaft
- 15- Bearin Cover

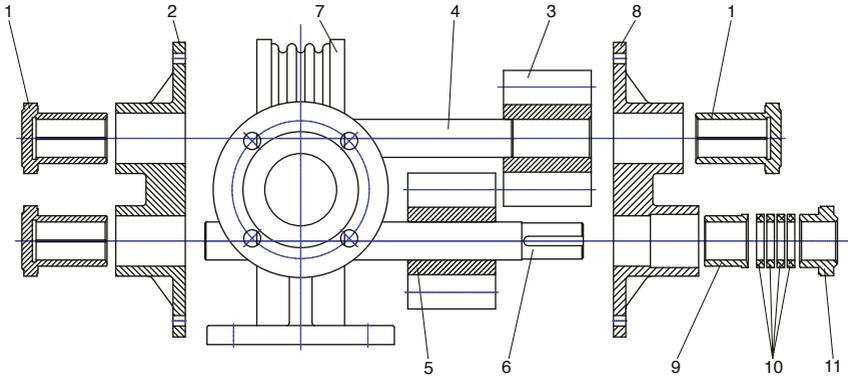
### Spur Bearing Helical Gear Pump Part List



- 1- Back Cover
- 2- Bushing
- 3- Main Body
- 4- Long Geared Shaft

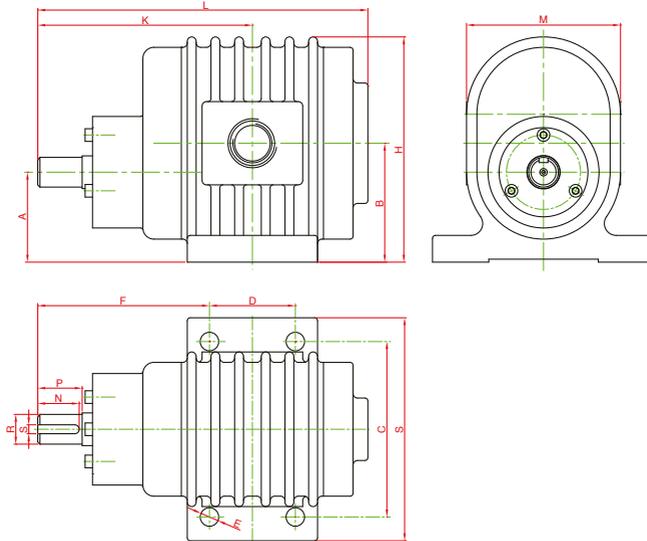
- 5- Short Geared Shaft
- 6- Front Cover
- 7- Packing
- 8- Packin Gland

## Helical Gear Pump Part List



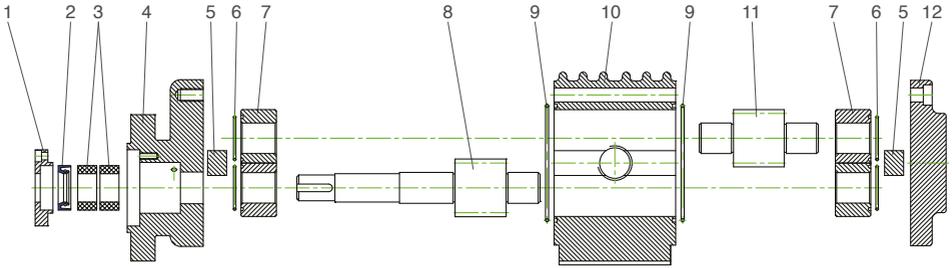
- |                |                   |
|----------------|-------------------|
| 1- Bushing     | 7- Masn Body      |
| 2- Back Cover  | 8- Front Cover    |
| 3- Gear        | 9- Bushing        |
| 4- Short Shaft | 10- Packing       |
| 5- Gear        | 11- Packing Gland |
| 6- Long Shaft  |                   |

## High Pressure Pump Dimensions



Pump Type	Inlet	Outlet	A	B	C	D	E	F	H	K	L	M	N	P	R	S	Weight
HP-0,5	R3/4"	R3/4"	40	59,5	110	34	9	110	118	127	188	106	18	22	Ø16	5	8 kg
HP-1	R1"	R3/4"	60,5	80	118	58	12,5	116	152	145	223	104	28	30	Ø20	6	14 kg
HP-2	R11/4"	R1"	68,5	96	150	78	14	154	189	193	289	136	42	45	Ø28	8	28 kg

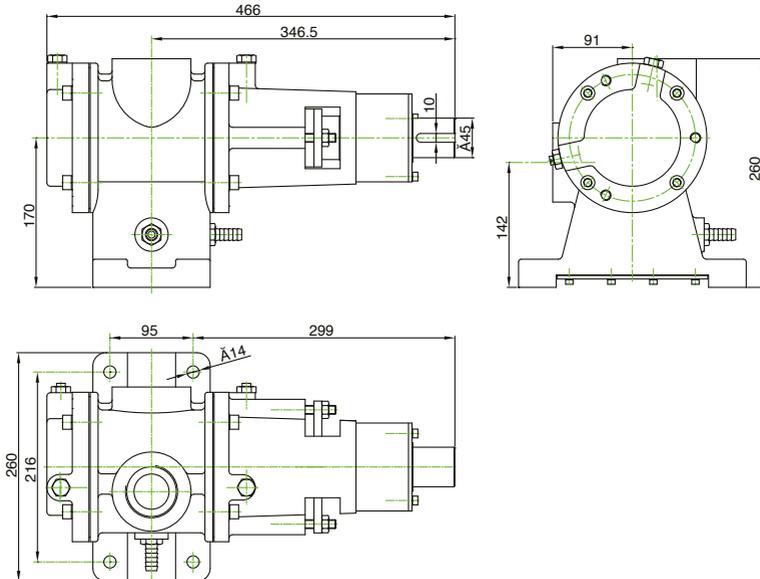
### High Pressure Pump List



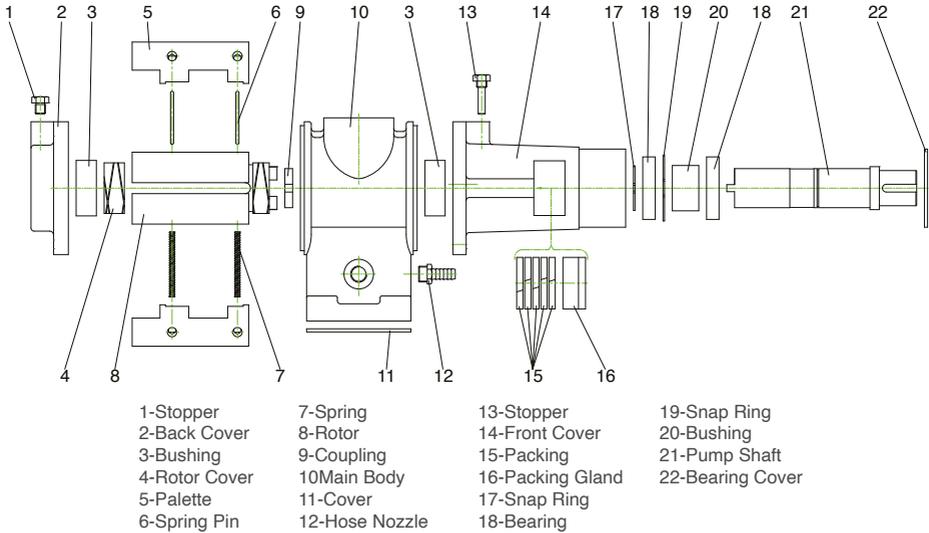
- 1- Seal Cover
- 2- Lip Seal
- 3- Packing
- 4- Front Cover
- 5- Stopper
- 6- O-Ring

- 7- Bushing
- 8- Long Geared Shaft
- 9- O-Ring
- 10- Main Body
- 11- Short Geared Shaft
- 12- Back Cover

### P3 Type Pump Dimension



### P3 Type Pump Part List



### Error Correcting Table

Problem	Possible Reasons	Solution
There is No Flow While The Pump is Working (It is Not Pressing).	Wrong Rotation Direction.	Reverse The Rotation Direction.
	There is Air In The Absorption Line.	Fill In The Absorption Pipe. Empty The Whole Air.
	Check Valve is Blocked.	Clean Check Valve.
	The Filter In The Absorption Line is Blocked.	Clean The Filter.
Low Capacity.	Check Valve is Blocked.	Clean Check Valve.
	The Pump Gets Air From The Absorption Line.	Check The Connections Of Absorption Line. Determine The Place Of The Air. Allow The Pump To Get Air Through The Absorption Line.
	Npsh is Very Low (The Distance Of Absorption Is Too Much).	Shorten The Distance Of The Absorption.
	By- Pass Starts To Work Early And Closes.	Adjust The By-Pass Opening Air. Check By-Pass Mechanism. Clean It If It is Dirty.
	Transfer Liquid is Very Dense.	Heat The Liquid To The Necessary Temperature.
	The Filter In The Absorption Line is Blocked	Clean The Filter.
The Pump is Working Noisily.	There is Cavitation. The Distance Of Absorption is Too Much.	Shorten The Distance Of Absorption. Check The Filter In The Absorption Line And Clean It.
	Error Of Alignment Of Pump Shaft. Wrong Coupled (Akuple).	Align The Pump Shaft And Electrical Engine Shaft.
	Vibration Noise is Coming From By-Pass.	Increase The Pressure On The Spring. Change The Spring If It is Necessary.

## 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.
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- 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.
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- 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. Anadolgu 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.

Notes

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# 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

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Product Type : \_\_\_\_\_

Product Code : \_\_\_\_\_

Serial No : \_\_\_\_\_

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Please keep this certificate!

NOTE: User mistakes are not covered by warranty.  
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Notes

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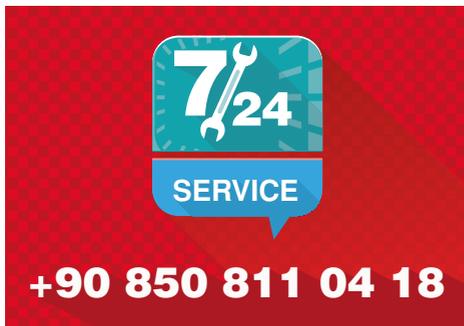
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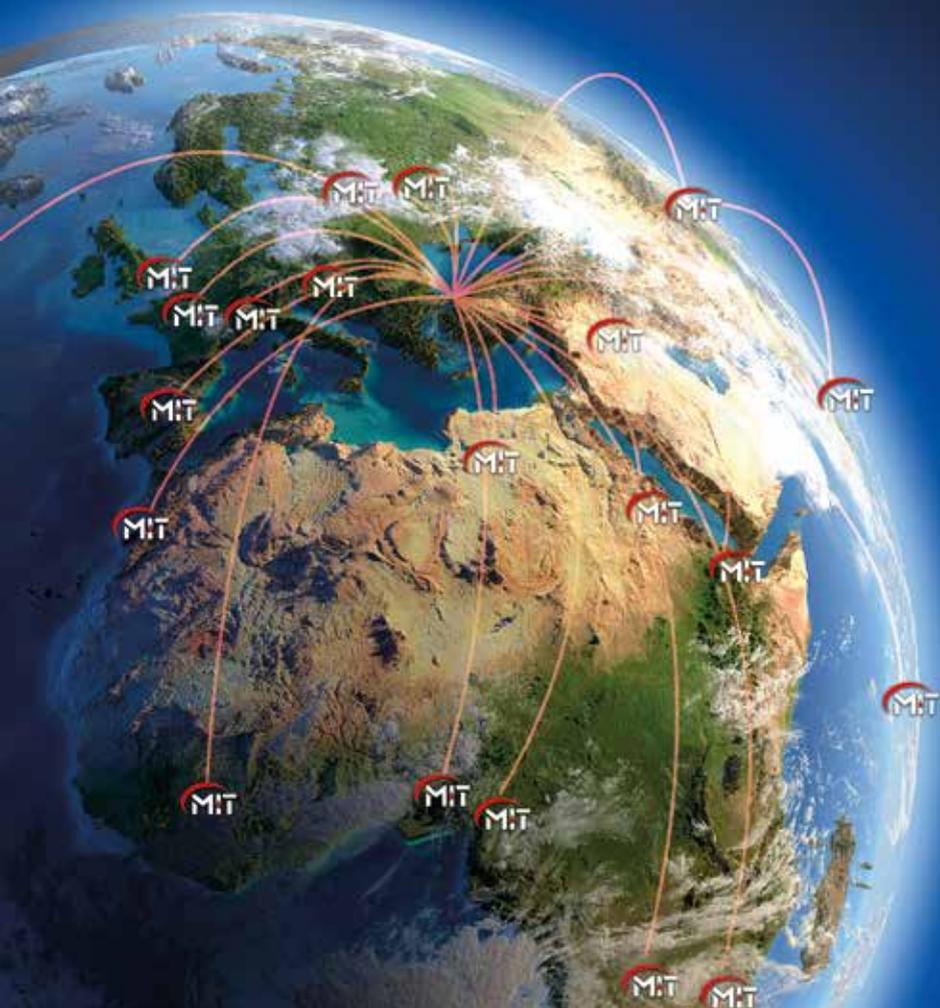
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