CRESTPUMPS

Stainless Steel Magnetic Drive Pump

Installation / Operation / Maintenance Manual

TYPE PS

Model: PS-25x20-100 PS-25x20-120 PS-25x20-140
PS-25x20-160 PS-40x25-120 PS-40x25-140
PS-50x40-130 PS-50x40-160 PS-40x25-200
PS-50x40-200 PS-80x40-160

Table of Contents

1.General

Thank you for selecting the PTCXPUMP stainless steel magnet drive pump. In order for you to achieve and ensure that pump is in perfect operating condition with unique performance of PTCXPUMP pump, please be sure to read this manual before using it. Failure to follow this operating instruction may cause serious personal injuries and/or equipment damage.

2.Safety instructions of before use

2.1 DO NOT RUN PUMP DRY

Frictional heat generated under dry run conditions (without liquid inside the pump) can cause damage to the pump. Operating the pump with the suction valve fully closed will result in dry operation.

2.2 Influence of rare earth permanent magnets

The rare earth permanent magnets in this pump have been manufactured such that the magnetic field is directional toward each half of the magnetic coupling. For this reason, the magnetic field that exists outside of the assembled magnetic coupling is minimal. When the two halves are apart, the magnetic field is exposed, which is why we recommend that personnel wearing medical devices DO NOT HANDLE the magnetic coupling components. When the pump is assembled, the magnetic fields from the magnetic coupling components are not exposed and it is safe for those who wear medical devices to be in the general proximity of the assembled pump, whether the pump is in operation or not.

2.3 Notice of pump use in different locations

Each pump is designed according to the operating conditions provided by the customer. If it is necessary to move the pump to another location, please contact our company or your local distributor to confirm the new operating conditions are suitable for it. In accordance with pump operating conditions changes (temperature, concentration, viscosity, specific gravity, etc.) may cause abnormal operation of the pump.

2.4 Function of dry run protector

To prevent pump run dry or other issues causing pump damage, we suggest installing a pump DRY RUN PROTECTOR.

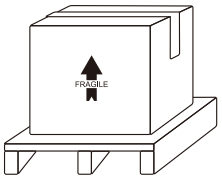
3.Preliminary check

3.1 Package appearance confirmation

After receiving the pump, please check the outer packaging box or the pump body (the packaging method will depend on the size of the pump) for potential physical damage during the transportation process. If any damage is found, please notify the transportation company and our company or your local distributor immediately to confirm the attribution of responsibility and promptly handle it.

3.2 Inner contents confirmation

The contents of the shipment will contain: pump, pump test report and operation Manual. If any item is missing, please contact our company or your local distributor immediately and promptly handle it.

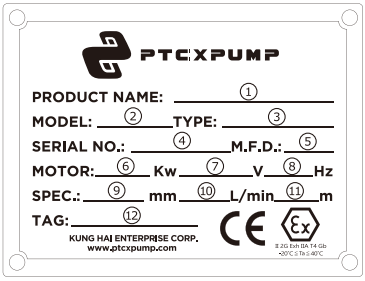


3.3 Pump rotating parts confirmation

Use a small screwdriver to rotate the impeller of the motor's cooling fan. The fan should turn easily. If the fan feels tight or if there are unusual sounds, the interior of the pump may have been damaged during shipping. Please contact our company or your local distributor immediately and promptly handle it.

3.4 Name plate check

Check the nameplate on the pump against receiving and purchase documents to be sure there is the correct pump model, pump head, flow rate, frequency and materials of construction have been supplied. If a motor has been supplied, check for correct enclosure, horsepower, speed, and voltage.



Nameplate content explanation

① Product name
② Product model
③ Product type
④ Serial number
⑤ Manufacture date
⑥ Motor power
⑦ Motor voltage
⑧ Motor frequency
⑨ Suction & discharge Size
⑩ Flow rate
⑪ Head
⑫ Subsidiary information (Use for TAG, fluid name, material, etc.)

3.5 Spare parts storage

3.5.1 Short term storage

▪ Do not remove the sticker on the suction and discharge flanges before the pump is connected to pipe line to prevent foreign objects and dust enter.

▪ The storage location should be dry and well ventilated to prevent excessive moisture.

▪ It is recommended to use tape to seal the junction box hole to avoid foreign objects and dust enter.

▪ If the pump is used in a cold and frozen area, please drain and empty the liquid from the drain hole to avoid the problem of liquid freezing.

▪ If the used pump will be stored, please follow the steps below:

» Use the clean water to flush internal and dry inside.

» Seal the suction and discharge flanges to avoid foreign objects and dust entering.

» If the pump storage time exceeds one year or more, please check all the screws are tightened. Remove the motor fan cover and turn the fan to check the smoothness of the rotation. If cannot judge whether it can be used, the pump can be sent back to our factory for maintenance or contact with your local distributor for solution.

3.5.2 Long term storage

▪ Same as short-term storage.

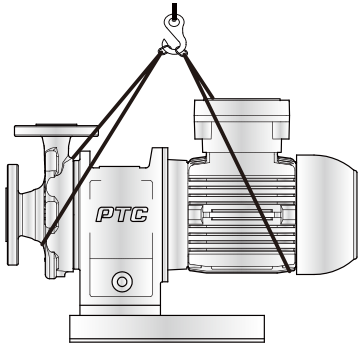
▪ Remove the motor fan cover every one to three months, turn the fan by hand and check the rotation smooth.

▪ If the pump storage time exceeds one year or more, please check all the screws are tightened. Remove the motor fan cover and turn the fan to check the smoothness of the rotation. If can not judge whether it can be used, the pump can be sent back to our factory for maintenance or contact with your local distributor for solution.

▪ Because the gasket is made of plastic, it will react to the shrinkage and thermal expansion as the environment changes. It is recommended to replace the gasket if stored more than one year before operation. If cannot judge whether it can be used, the pump can be sent back to our factory for maintenance or contact with your local distributor for solution.

3.6 Pump handling

Before lifting the pump, please check and understand the total weight of the pump with motor and use the loadable rope or lifting device to prevent the pump from falling and injuring the operator.



4.Pre-installation inspection

4.1 Installation location/Environment

▪ The foundation should be firm and heavy to reduce vibration. A concrete foundation with a

▪ Avoid installation in humid and dusty environments. If necessary, please install protective covers.

▪ The installation location should be as low as possible and close to the liquid supply source.

▪ There must be sufficient space for the installation location for future maintenance.

▪ The pump and its wiring should be placed in a relatively dry environment, protected from possible flooding.

▪ Motor selection requires inspection of the installation location requirements, such as outdoor, indoor, explosion-proof or non-explosion-proof specifications.

▪ Pump install area tempertaure -20˚C<Ta<40˚C.

▪ Ingress Protection Ratings: IP66

4.2 Pump body inspection

Before starting pump, please check if all the screws are tightened and remove the motor fan cover and turn the fan to check the smoothness of the rotation.

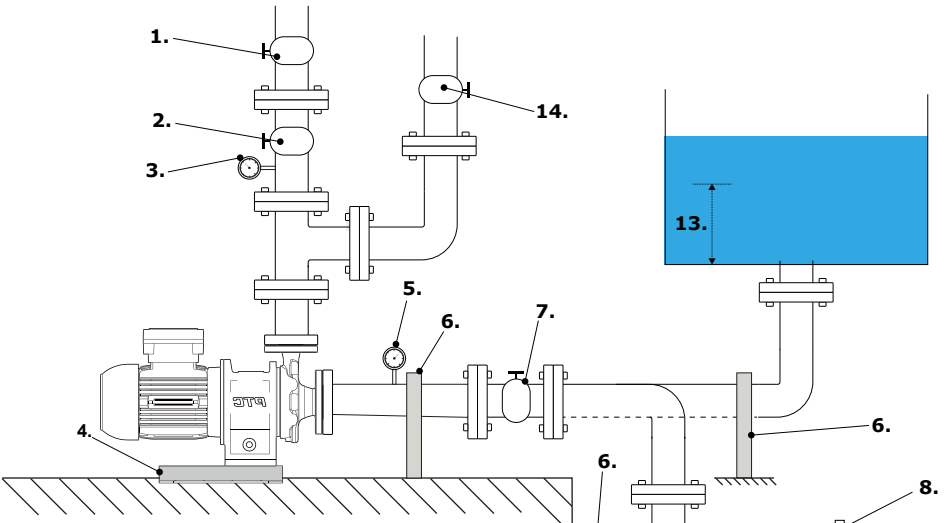
4.3 Piping inspection

Check for foreign objects in the inner piping and make sure all the screws are tightened.

5.Installation / Piping / Wiring

5.1 Suggestion of installation

Fig.1



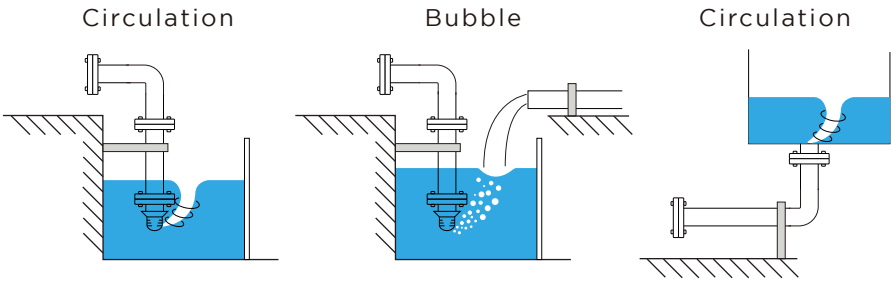
1.Outlet adjust valve	8.Level window
2.Check valve	9.Foot valve
3.Outlet pressure gauge	10.>0.5m or 2D
4.Pump base	11.>1.5D
5.Inlet pressure gauge	12.>1.5D
6.Pining support	13.>2D
7.Inlet adjust valve	14.Priming valve (Exhaust valve)

5.2 Suction piping

5.2.1 General requirements

- Suction condition must satisfy NPSHa>NPSHr+0.5m.
- Reduce inlet head as much as possible, use straight and short piping.
- The pipes should have adequate structural support and should not use the pump as its primary support.
- Inlet piping and connectors should be installed properly to prevent drawing in air.
- The piping system should not have upward bumps that may collect air. The inlet piping should also have a 0.01~0.02 (slop increase towards the pump.
- There should not be any elbows for at least 5 times the pipe diameter from the opening of the pump. The elbow closest to the pump opening should be a long radial elbow.

Fig.2



5.2.2 inlet piping

▪ There should be at least a 1.5 diameter distance between the pipe inlet and closest tank wall to prevent circulation.

▪ The submerge depth of the inlet should be at least 0.5m or at least twice the pipe diameter below the liquid surface.

▪ There should be a distance of a least 1.5D between the bottom of the tank and the beginning of the inlet pipe opening.

▪ If there are two or more inlet piping in the same tank, they should be placed at least 3D apart to prevent mutually disrupting each other's flow.

5.2.3 Foot valve

▪ Please install a foot valve if upward suction is used.

5.2.4 Self-priming cylinder

▪ If suction method is upward suction, please install a self-priming cylinder to prevent dry-running due to leaking foot-valve.

▪ The side of the self-priming cylinder should have a minimum liquid level of at least 0.5m above the opening of the pump.

5.2.5 Control valve

▪ A control valve should be installed to make disassembling the pump easier. The valve should only be shut off when the pump is to be detached for maintenance or repairs.

▪ We recommend the use of valves that have the least loss when fully opened, like a gate valve.

5.2.6 Filter system

▪ It is generally not recommended to install a filter in front of a pump, which can unpredictably increase suction system resistance.

▪ If a filter has to be used, it should be cleaned regularly to ensure a smooth flow.

5.3 Discharge piping

5.3.1 General requirements

▪ The weight of the outlet piping should be properly supported to prevent putting excessive stress on the pump.

▪ A priming piping must be installed if the suction system does not employ positive pressure, i.e. upward suction.

▪ The flow rate in the outlet piping should not exceed 3m/sec.

▪ The ability of each component in the piping system to withstand pressure should be calculated to determine the maximum allowable operating pressure.

5.3.2 Priming piping

▪ Upward suction pumps that do not have a self-priming cylinder should have a priming piping system.

5.3.3 Pressure gauge

▪ Pressure gauge used should be able to read beyond the maximum operating pressure.

▪ Pressure gauge should be made of material that is corrosive resistant, otherwise a diaphragm should be used.

▪ A valve can be installed on the piping that leads to the pressure gauge, to facilitate maintenance and to lengthen the gauge's service life.

▪ During operation, if the pressure gauge reading fluctuates, either there are air bubbles in the system or cavitation has occurred.

5.3.4 Check valve

A check valve should be installed in the following situations:

▪ Outlet piping is long.

▪ Head of outlet is more than 15m

▪ Discharge pressure exceeds 2kg/cm² and flow rate exceeds 3m/sec.

▪ Two or more pumps share the same outlet piping system.

▪ To prevent back flow (water hammer) from damaging the pump during unexpected power outages.

5.3.5 Control valve

▪ Adjust valve can be used for controlling the flow of fluids. Do not run the pump with adjust valve closed for an extended period of time.

▪ When starting the pump, always start with a closed valve and then slowly open the valve to obtain the desired operating pressure and flow. Always open or close the valve gradually.

5.3.6 Exhaust valve

▪ A vent should be installed if the horizontal section of the outlet piping is very long.

5.4 Electrical connections

The electrical connection should be carried out by an authorized electrician in accordance with local regulations. Please make sure that the electrical data on the nameplate of the motor corresponds to the electricity supply on which it will be used. Motors must be connected to a motor protection switch.

▪ Use an electromagnetic switch that conforms with the specifications (voltage, capacity, etc.) of the pump motor.

▪ If using the pump outdoors, waterproof the wiring to protect the switches from rainwater.

▪ Electromagnetic switches and push buttons should be installed reasonably distant from the pump.

** Refer to the instruction manual of the motor issued by the motor maker for detailed handling instructions.*

6.Operation & Start-up

*Dry operation of the pump (pump operation without liquid inside) may cause damage to the pump internally. Never operate the pump dry. The rotating parts are self-lubricated and self-cooled by operating liquid. If the pump is operated dry or with the suction-side valve closed, damage may result.

6.1 Pre-operation inspection

▪ Use the screwdriver to rotate the motor's fan to ensure it is not too tight or stuck.

▪ Check the motor's power rating, including frequency, voltage and wiring.

▪ Recheck and make sure all the parts (flange, pump casing, base plate, etc.) are securely fastened.

▪ Fill the pump with liquid (priming) to remove any air within the pump and suction piping.

▪ Check and make sure all the inlet valves of the system are open.

▪ Make sure before starting the pump, and exhaust the inlet piping system and pump internal air.

6.2 Start-up sequence

▪ Before starting the pump make sure inlet piping system and pump internal chamber there is no air residue, if there is air inside, please open the outlet valve remove the motor fan cover and manually rotate motor fan to vent.

▪ After finishing the vent, please close outlet valve and check the direction of rotation of motor by instantly switching on and off the power, the direction of rotation can be checked from the motor fan side, it should be clockwise seeing from the fan cover.

▪ If the rotating direction is reversing, please check the motor wiring followed by motor junction box.

▪ Before starting the pump, piping outlet valve needs to be fully closed.

▪ When pump starts, the inlet pressure will rise, if the pressure does not rise or pressure is insufficient, please shut down the power and check the piping system or wiring again.

▪ When pump starts (outlet valve closed), please check whether the shut-off current value of the motor matches with testing report or not, when the current value is reached to value, then slowly open outlet valve.

▪ Slowly open outlet valve and adjust it to obtain the desired operating pressure and flow rate.

▪ Check whether the pump's unusual sound, vibration, outlet pressure and motor current value match with testing report or not.

6.3 Operating precautions

▪ Regularly check for pressure gauge, current valve, etc. data.

▪ Shut down power immediately in the case of cavitation or dry-running. When dry-running happens DO NOT give liquid immediately, it might happen SiC parts cracking due to high temperature thermal shock

▪ If decoupling should happen, shut down the pump to prevent reducing the magnet's strength.

▪ During power outage, shut off the power supply and close the outlet valve.

6.4 Shutting down the pump precautions

▪ Close the outlet valve slowly, DO NOT close outlet valve urgently to prevent damage to pump due to reverse fluid flow (water hammer)

▪ Shut off the pump, motor should stop gradually. If not, please check the interior of the pump for problems.

▪ The pump should be checked periodically, if the pump is used in a cold operating environment (relative to the fluid's freezing point), the fluid may crystallize even if the pump is shut down for a very short amount of time. To prevent crystallization, a drain plug should be included in the piping system or a heating system could be used to maintain the temperature during shutdown.

7. Maintenance and inspection instructions

7.1 Daily inspection

7.1.1 Visual inspection

▪ Check for corrosive or damage of the front casing, bracket, and base plate.

▪ Check for leakage of pump and piping system.

▪ Check the pump and motor surface for physical damage such as corrosion, paint peeled off.

7.1.2 Operating inspection

▪ Check for the unusual sounds and vibrations when pump is running.

▪ Check for any abnormal overheating on the surface of motor, current and motor loading, noise, foreign objects blocking the vent of fan, etc.

▪ Check for liquid level in tank and inlet & outlet pressure.

7.2 Periodic inspection

▪ The following item should be inspected every three months.

▪ If there are spare pumps should be inspected and regularly test running.

Periodic inspection chart

Parts name	Inspection item	Solution
Front & rear casing	a.Any crack on the surface	Replace
	b.Unexpecting scratch marks	Contact the supplier
	c.Crystallization and sludge	Clean
Gasket / O-ring	a.Deformed, corroded or swollen	Replace and contact the supplier
Impeller and inner magnet	a.Surface scratch marks or cracks	Contact the supplier
	b.Surface cracked or crystallization	Contact the supplier
	c.Cavitation or corrosion marks	Contact the supplier
	d.Impeller clogging	Clean
	e. Dimensional change in impeller	Contact the supplier
Shaft / Bearing / Thrust ring / Bushing	a.Surface scratch marks	Contact the supplier
	b.Surface cracks	Contact the supplier

8. Troubleshooting

Problem	Symptoms	Cause	Solution
Liquid is not being pumped	No suction or discharge pressure, Pump power usage is very low	Pump not primed	Re-prime pump and verify that suction pipe is full of liquid, check the suction pipe for high points that can trap air
	Suction gauge reads much lower than normal	Suction pipe clogged	Confirm that any suction valve or control valve is not stuck shut, inspect suction pipe for blockage
	Suction gauge reads normal, pump generates full discharge pressure but no flow	Discharge pipe clogged	Confirm that any discharge valve or control valve is not stuck shut, inspect discharge pipe for blockage
	Discharge pressure is only slightly higher than suction pressure	Clogged impeller	Open pump and clean blockage from impeller
	No discharge pressure, pump makes loud buzzing noise, increased vibration	De-coupled impeller	Shut off pump, verify that the motor fan spin smoothly by hand, if motor will not spin by hand, open pump for inspection
			If motor spins smoothly by hand, confirm that the impeller is sized for operating conditions and liquid specific gravity
			Verify the viscosity of the liquid is not too high, impeller or outer magnet may be weakened if overheated

Problem	Symptoms	Cause	Solution
	Pump generates full discharge pressure but no flow, pump casing and pipes immediately before and after pump heats up	Head requirement higher than anticipated	Confirm that discharge line is not blocked or valve is not stuck shut
		Undersized impeller	Pump may require a larger impeller of overcome system head
Pump not delivering desired head or flow	Suction pressure is negative (Gauge pressure)	Air leak in suction line	Located and seal the air leak
	Discharge pressure is lower than normal		
	Discharge pressure is lower than normal, flow rate is decreased, pump is noisy, increased vibration	Insufficient NPSH	Check liquid level in suction tank
			Check suction piping for restrictions or obstructions
			Verify vapor pressure and temperature of process liquid
			be located as close to the source as possible
	Discharge pressure is lower than normal, flow is reduced	Backward rotation	Verify motor rotation and correct if necessary
	Pump does not reach desired flow rate	Head requirement higher than anticipated	Increase motor speed
		Undersized impeller	increase impeller size
	Suction gauge is very low	Strainer device is full / clogged(if equipped)	Clean / empty strainer basket

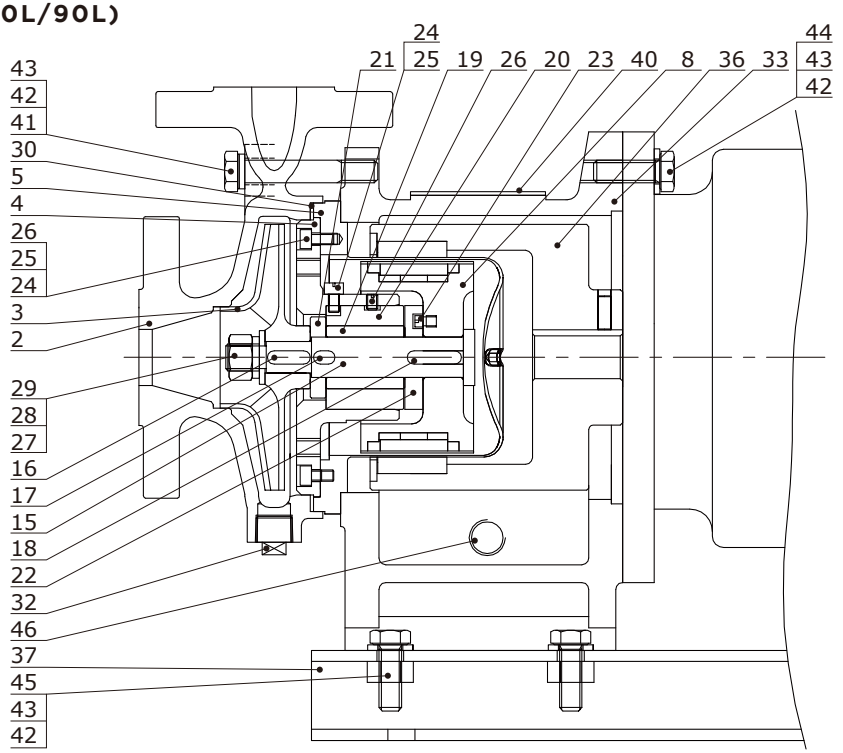
Problem	Symptoms	Cause	Solution
Pump starts and immediately stops pumping	Discharge pressure rises then falls	Pump is not properly primed	Re-prime pump and verify that suction pipe is full of liquid, check the suction pipe for high points that can trap air
	Pump power usage is very low after pressure drops		
	Discharge pressure rises then falls, pump makes a loud buzzing noise, increased vibration	De-coupled impeller	Confirm that the impeller is sized for operating conditions and liquid specific gravity
			Verify the viscosity of the liquid is not too high, impeller assembly of outer magnet may be weakened if overheated
	Pump operated normally but stops pumping & loses prime, pump will not run until priming chamber is re-filled	Suction pipe volume too large for priming chamber	Calculate volume of the suction pipe, it is recommended that the priming chamber volume should be 3 times the suction pipe volume
			Decrease suction pipe volume
			Move pump closer to source
Pump uses excessive power	Burning smell coming from back of pump	Outer magnet installed improperly	Confirm that the groove on the outer drive lines up with the edge of adapter and is properly tightened
	Decreased flow	Damaged or broken SiC ring	Inspect the pump and replace damaged components
	High power		
	Consumption		
	High vibration		
	Noisy operation		

Problem	Symptoms	Cause	Solution
	Pump delivers the required flow and head, but power consumption is high, high discharge pressure	Specific gravity or viscosity higher than expected	Determine liquid viscosity and specific gravity, verify the actual power consumption is correct
	Pump will produce the rated flow, discharge head may be decreased, power will be higher	Clogged impeller	Open pump and clean blockage between impeller and bushing
Pump is noisy or vibrates	No discharge pressure, pump makes a loud buzzing noise, increased vibration	De-impeller	Shut off pump, and verify that the motor spins smoothly by hand, if motor will not spin by hand, open pump for inspection
			If motor spins by hand, confirm that the impeller is sized for operating conditions and liquid specific gravity
			Verify the viscosity of the liquid is not too high, impeller or outer magnet may be weakened if overheated
	Flow and head are normal, pump or pipes vibrate	Piping or pump not properly anchored	Tighten mounting bolts on pump feet and base plate, confirm that the suction and discharge
			Pipes are properly supported per hydraulic institute recommendations

Problem	Symptoms	Cause	Solution
	Discharge pressure is lower than normal, flow rate is decreased, pump is noisy, increased vibration	Insufficient NPSH / pump is cavitating	Check liquid level in suction tank
			Check suction piping for restriction or obstructions
			Verify vapor pressure and temperature of process liquid
			Pump should be located as close to the source as possible
		Partially clogged of inside pump parts	Open pump and clean blockage from parts

9. Pump construction chart

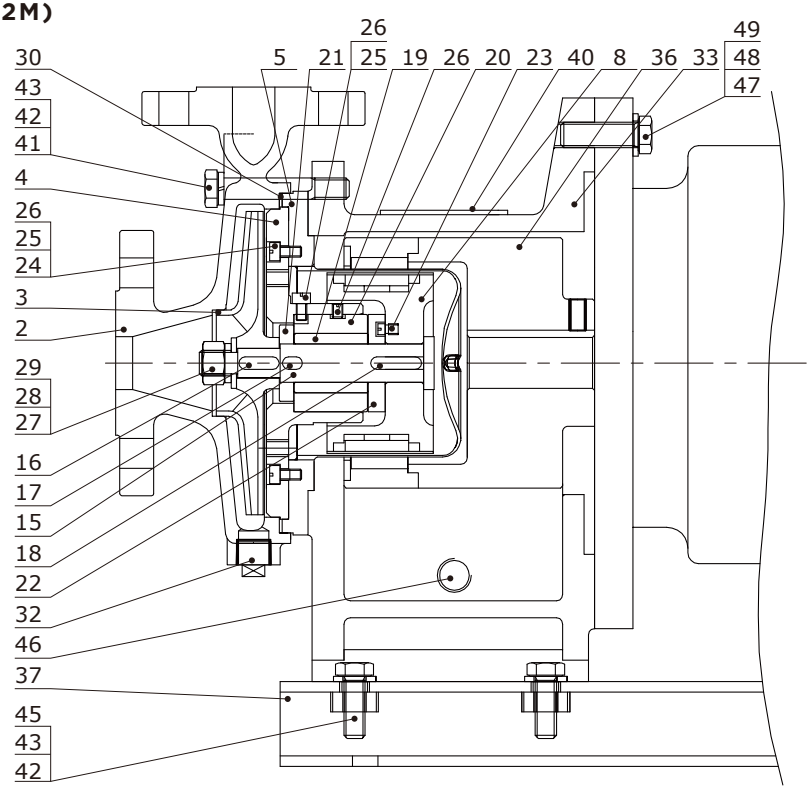
9.1 (80L/90L)



No.	Parts Name	Material	Qty.
2	Front Casing	SUS316L	1
3	Impeller	SUS316L	1
4	Casing Cover	SUS316L	1
5	Rear Casing	SUS316L	1
8	Inner Magnet Coupling	SUS316L+RearEarth	1
15	Shaft	SUS316L	1
16	Impeller Key A5*19	SUS316L	1
17	Thrust Ring Key A6*9.5	SUS316L	1
18	Coupling Key A6*24	SUS316L	1
19	Sleeve	SiC	1
20	Bushing	SiC	1
21	Thrust Ring(A)	SiC	1
22	Thrust Ring(B)	SiC	1
23	Set Screw	SUS316L	1
24	M5*10L Hexagon Socket Screw	SUS316L	5
25	M5 Spring Washer	SUS316L	5

No.	Parts Name	Material	Qty.
26	M5*6L Set Screw	SUS316L	1
27	Impeller Nut	SUS316L	1
28	M12 Spring Washer	SUS316L	1
29	M12 Washer	SUS316L	1
30	Gasket Ø136*Ø122*1.5t	PTFE	1
32	Plug R3/8	SUS316L	1
33	Adapter	FC25	1
36	Outer Magnet Coupling	SS400+RareEarth	1
37	Baseplate	SS400	1
40	Nameplate	SUS304	1
41	M10*65L Hexagon Screw	SUS316	6
42	M10 Spring Washer	SUS316	14
43	M10 Washer	SUS316	14
44	M10*35L Hexagon Screw	SUS316	4
45	M10*35L Hexagon Screw	SUS316	4
46	Plug R3/8	PP	1

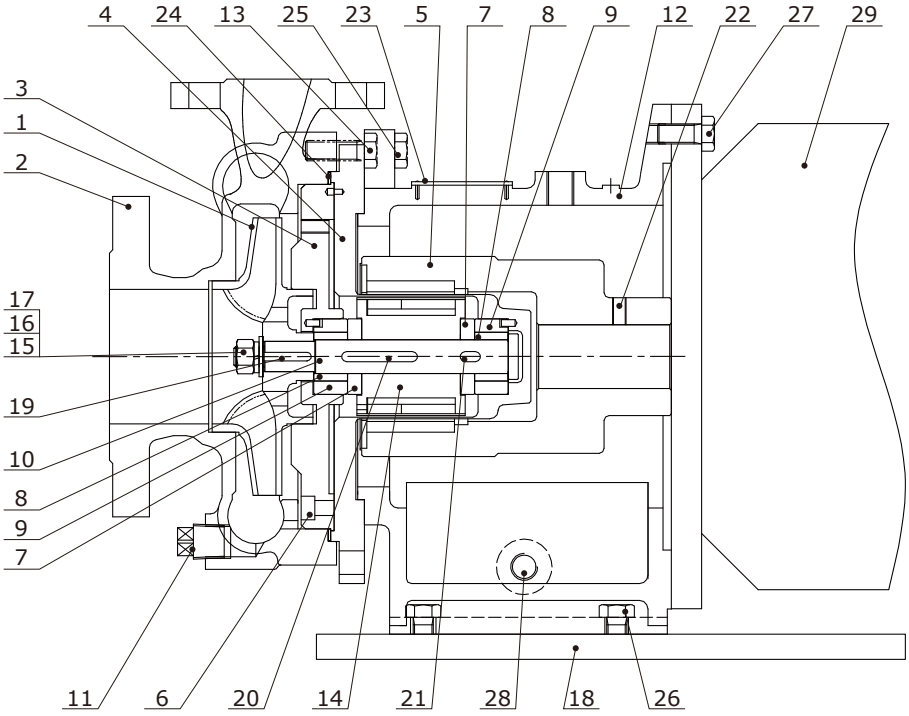
9.2 (112M)



No.	Parts Name	Material	Qty.
2	Front Casing	SUS316L	1
3	Impeller	SUS316L	1
4	Casing Cover	SUS316L	1
5	Rear Casing	SUS316L	1
8	Inner Magnet Coupling	SUS316L+RareEarth	1
15	Shaft	SUS316L	1
16	Impeller Key C5*37	SUS316L	1
17	Thrust Ring Key A6*13.5	SUS316L	1
18	Coupling Key A5*36	SUS316L	1
19	Sleeve	SiC	1
20	Bushing	SiC	1
21	Thrust Ring(A)	SiC	1
22	Thrust Ring(B)	SiC	1
23	Set Screw	SUS316L	1
24	M5*10L Hexagon Socket Screw	SUS316L	5
25	M5 Spring Washer	SUS316L	5
26	M5*6L Set Screw	SUS316L	1

No.	Parts Name	Material	Qty.
27	Impeller Nut	SUS316L	1
28	M12 Spring Washer	SUS316L	1
29	M12 Washer	SUS316L	1
30	Gasket Ø183*Ø170*1.5t	PTFE	1
32	Plug R3/8	SUS316L	1
33	Adapter	FC25	1
36	Outer Magnet Coupling	SS400+RareEarth	1
37	Baseplate	SS400	1
40	Nameplate	SUS304	1
41	M10*65L Hexagon Screw	SUS316	6
42	M10 Spring Washer	SUS316	10
43	M10 Washer	SUS316	10
45	M10*35L Hexagon Screw	SUS316	4
46	Plug R3/8	PP	1
47	M12*35L Hexagon Screw	SUS316	4
48	M12 Spring Washer	SUS316L	4
49	M12 Washer	SUS316	4

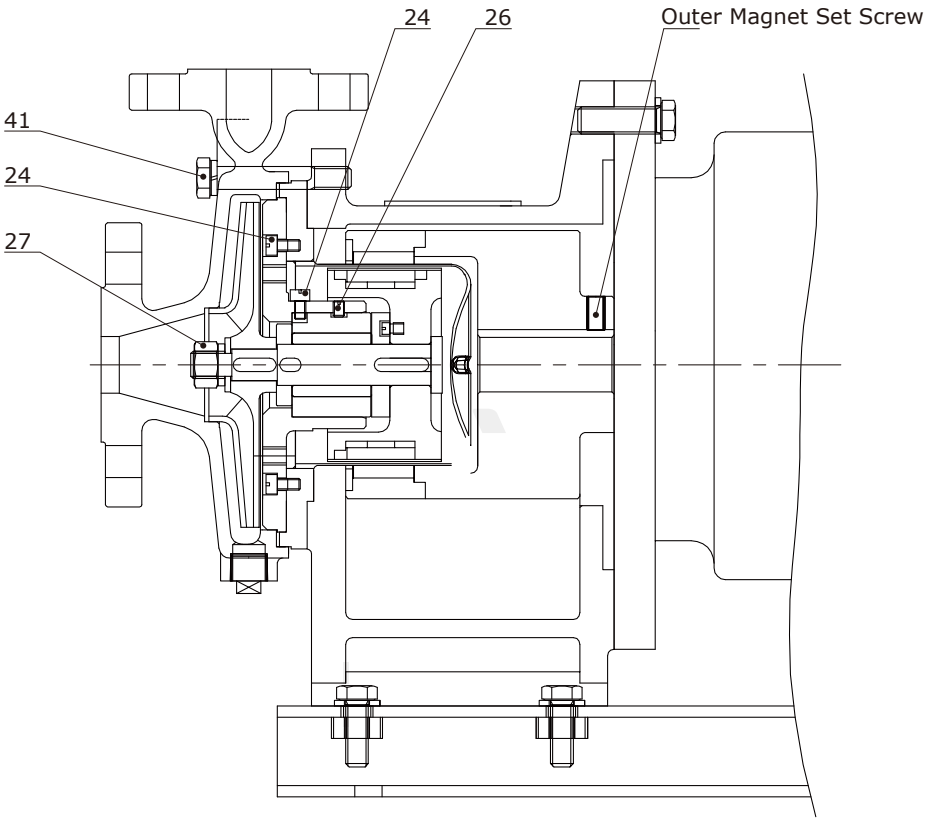
9.2 (132L)



No.	Parts Name	Material	Qty.
1	Impeller	SUS316L	1
2	Front Casing	SUS316L	1
3	Casing Cover	SUS316L	1
4	Rear Casing	SUS316L	1
5	Outer Magnet Coupling	SS400+RareEarth	1
6	M8*20L Set Screw	SUS316L	4
7	Thrust Ring	SiC	2
8	Sleeve	SiC	2
9	Bushing	SiC	2
10	Shaft	SUS316L	1
11	Plug R1/2	SUS316L	1
12	Adapter	FC25	1
13	M12*35L Hexagon Screw	SUS316	8
14	Inner Magnet Coupling	SUS316L+RareEarth	1
15	Impeller Nut	SUS316L	1

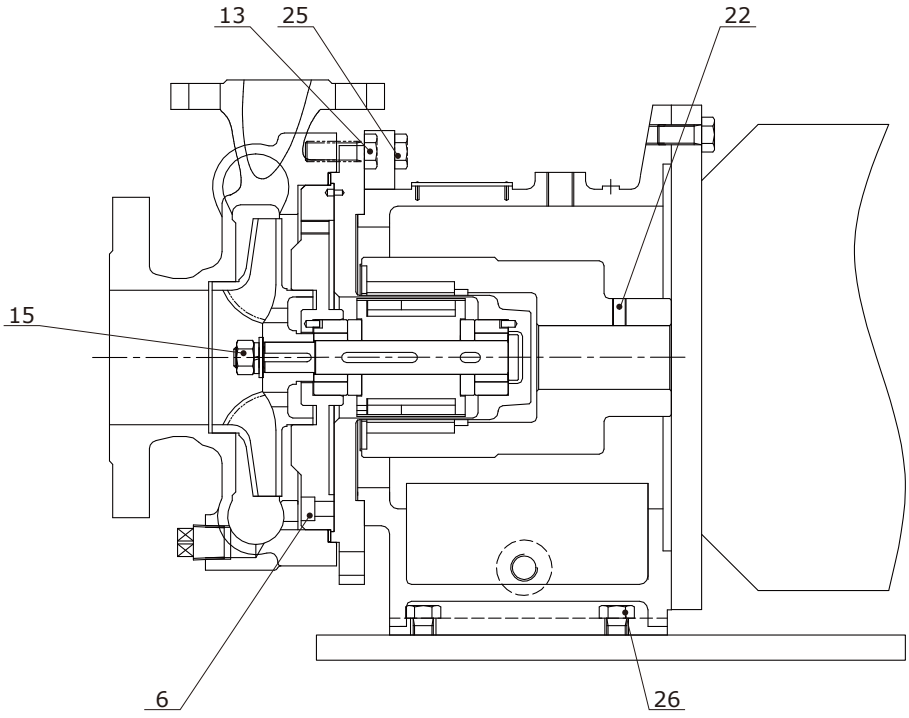
No.	Parts Name	Material	Qty.
16	M14 Washer	SUS316L	1
17	M14 Spring Washer	SUS316L	1
18	Baseplate	SS400	1
19	Impeller Key C5*28	SUS316L	1
20	Coupling Key A6*45	SUS316L	1
21	Thrust Ring Key A6*12	SUS316L	1
22	M8*8L Set Screw	SS400	2
23	Nameplate	SUS304	1
24	Gasket Ø205*Ø219*1.5t	PTFE	1
25	M12*35L Hexagon Screw	SUS316	4
26	M12*30L Hexagon Screw	SUS316	4
27	M12*35L Hexagon Socket Screw	SUS316	4
28	Plug R3/8	PP	1
29	Motor		

10. Torque for bolts and nuts



No.	41	27	24	24	26	---
Parts Name / Model	Hexagon Screw (Front Casing)	Impeller Nut (Impeller)	Hexagon Socket Screw (Casing Cover)	Hexagon Socket Screw (Bearing)	Set Screw (Bearing)	Set Screw (Outer Magnet)
PS-25x20-100	M10 2.4 N•m (2.45 kgf•m)	M12 29.4 N•m (3.0 kgf•m)	M5 2.8 N•m (0.29 kgf•m)	M5 2.8 N•m (0.29 kgf•m)	M5 0.5 N•m (0.145 kgf•m)	M6 2.4 N•m (0.25 kgf•m) Motor Frame 80
PS-25x20-120						
PS-25x20-140						
PS-25x20-160						
PS-40x25-120						M8 6.0 N•m (0.61 kgf•m) Motor Frame 90/112
PS-40x25-140						
PS-50x40-130						
PS-50x40-160						

10. Torque for bolts and nuts



No.	15	6	13	22	25	26
Parts Name / Model	Impeller Nut (Impeller)	Hexagon Socket Screw (Casing Cover)	Hexagon Screw (Front Casing)	Set Screw (Outer Magnet)	Hexagon Screw (Front Casing)	Hexagon Screw (Baseplate)
PS-40x25-200	M14 47.3 N•m (4.83 kgf•m)	M6 4.8 N•m (0.49 kgf•m)	M12 42.1 N•m (4.3 kgf•m)	M8 6 N•m (0.61 kgf•m)	M12 42.1 N•m (4.3 kgf•m)	M12 42.1 N•m (4.3 kgf•m)
PS-50x40-200						
PS-80x40-160						

11.Repairs and guarantee

When the problem happens, please read this instruction manual and try to troubleshoot the problem. If the problem cannot be found or solved and if replacement parts are needed, please call the supplier and provide the following information:

(1) The pump model and manufacturing serial number are indicated on the nameplate.

(2) The operating condition.

(3) The situation under which the pump fails.

The warranty period of the pump is based on the purchase date of customer and is under normal use for one year (if purchase contract has been changed to warranty date issue, please follow the purchase contract as standard), except for consumables such as SiC ring and gaskets.

During the warranty period, if the pump failure is due to design or manufacturing reasons, the company is responsible for free maintenance or replacement of the pump.