

SANITARY SELF PRIMING PUMP Manual

JONENG VALVES

Technical principle

Qty.	Parameter	Unit
Dynamic viscosity factor	μ	mPa.s (=cP=Centipoise)
Viscosity	$V=\mu/\rho$	With ρ =specific weight (kg/dm ³) and V =kinematic viscosity (m ² /s)=cSt=Centistoke
	They are all dynamic viscosity	
Pressure	p	(bar)
	Δp	(bar) different pressure
	P_m	(bar) max. pressure of the outlet
	Except indication, the pressure in the manual is relative pressure.	
(NPSH)	NPSH(m)	
	In this manual,NPSH=NPSHr (NPSH is needed by the pump.) NPSHr=When the liquid come to the hydrostatic or cavitation, the connection tube should be avoid bend. NPSH=It is used for measure the self priming curve。 When the speed reduces to 4%, The data will be record accurately. NPSHa=If the pump temperature is up to the running temperature, the pressure will be reduce. Total Self priming pressure is measured.. NPSHa \geq NPSHr=0.5	

Training and operation

As to the operation and maintenance, the operator should be experienced or trained.

Any operation differing from the manual could make damage the operator and equipment.

The damages:

Fail to start the equipment

Failed to maintenance.

Electrical, mechanical, chemical dangerous.

Chemical released gas will pollute the air.

Safety instruction for maintenance, check and demounting

Need professional operator to maintain the equipment. The operator should read the manual carefully before testing and demounting even though they are very professional. It is very important to stop the pump according to manual. Please read the "working principle" in the manual carefully before you use the pump again.

Do not allow to make any change on the pump without permission

Do not allow to make any change on the pump without asking permission of the manufacturer. Had better to use the spare parts and fitting supplied by the manufacturer for security. We will not be responsible for the accident resulting from that.

Do not allow to exceed the max. load of equipment in any circumstances.

Guarantee

We are not responsible for the damage resulting from the following situations:

Operation or maintenance of the equipment is not carried out according to the manual;

Repair is not finish by our operator or without our written permission.

Change the material of the pump without our written permission.

Error installation.

2. Instruction

Description

CIP return stroke pump is made of AISI316/304. Impeller and pump bonnet are both made by in precision casting technology.

CIP return stroke pump is compact, with level inlet and vertical outlet.. They are both sanitary connection.

The motor is designed in accordance with IEC standard. IP-55 Protection. Insulation grade: F. Power: 50Hz, 60Hz.

Standard voltage of motor: 220-240/360-400/600-690,420-460. You also can choose different kinds motor and voltage. For example: 220V 60Hz. The motor could be made in explosion-proof type.

Operation principle:

The impeller will be driven by setting. Then the liquid will be pumped from the inlet to outlet in power or pressure. The rotary direction of the pump is irreversible (Rotation direction: Clockwise rotation viewed from motor end).

Attention:

If it is very noisy when the pump is running in the no sheltered situation, please refer to article 15-8/91 of the regulation No 277 to operate the pump. The operation is similar to 85DBA.

When the noise grade is over 85DBA, please adopt special protection.

Application

General speaking, standard return stroke pump is used for pump the liquid material contained air or gas or the liquid of chemical and pharmaceutical.

Main products:

Wine, juice, beer, acetone.....

Solvent, boiling liquid, sprite.....

Juice, alcohol beverage, oil.....

The pressure curves of each series pump shall be produced under 50HZ/60HZ.

Structure:

All the spare parts of the pump are all made of stainless steel, which makes the pump in

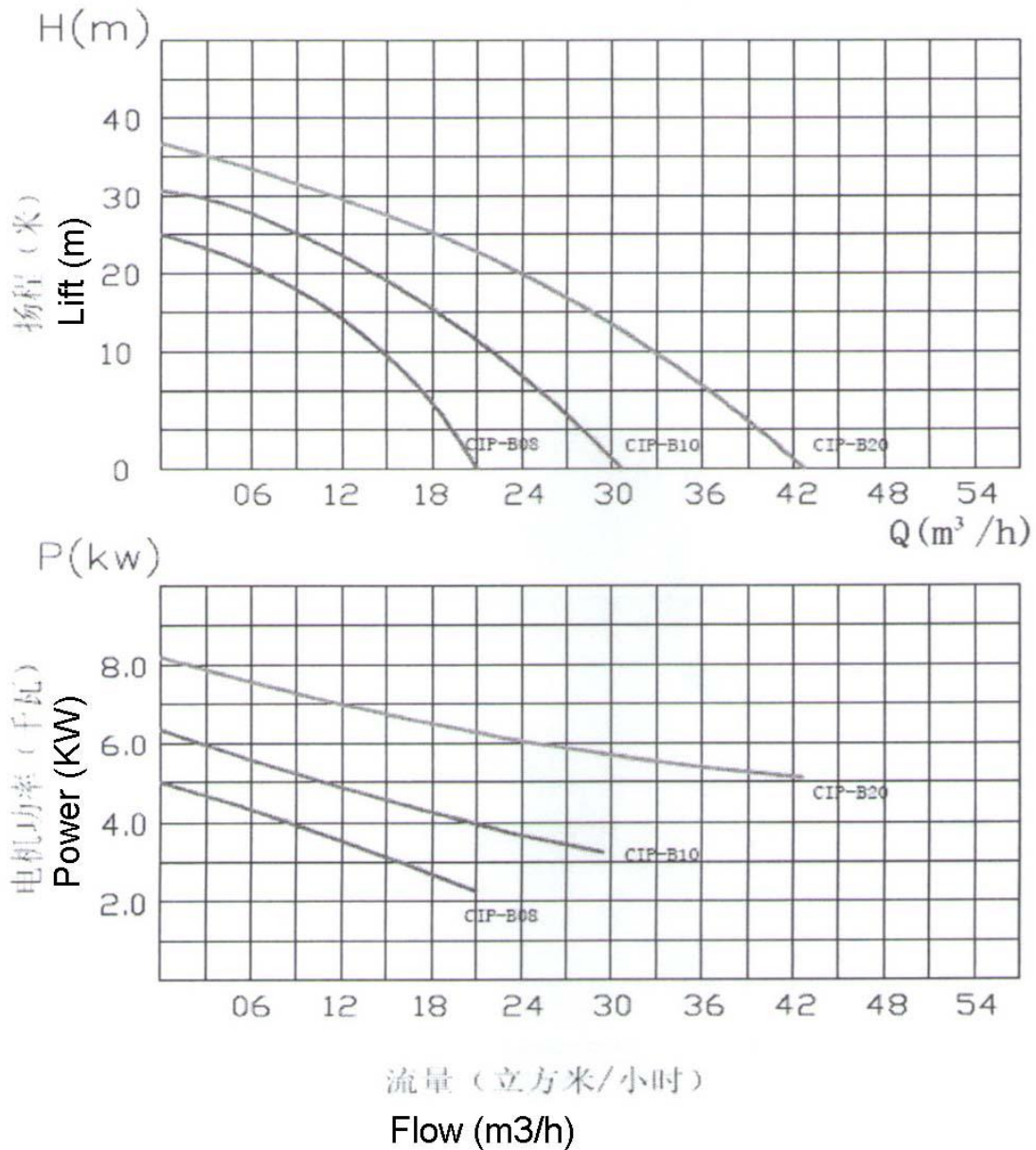
good corrosion-proof and prevent the liquid from pollution.
 Check to be sure that the pump is made according to sanitary standard.

Performance Curve

CIP

N—1450min

Medium: 20oC water	Suction Head: 8M	Inlet dia: 63.5mm
Tolerance: ± 5%	Frequency: 50Hz	Outlet dia:63.5



Technical specifications

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Model: SLRP-20

Code: _____

Max.flow: 15m³/h

Max.head: **24H(M)**

Max.pressure: 3Bar/43PSI

Max.operating temp: 120°C、248°F

Max.rev.: 1750min

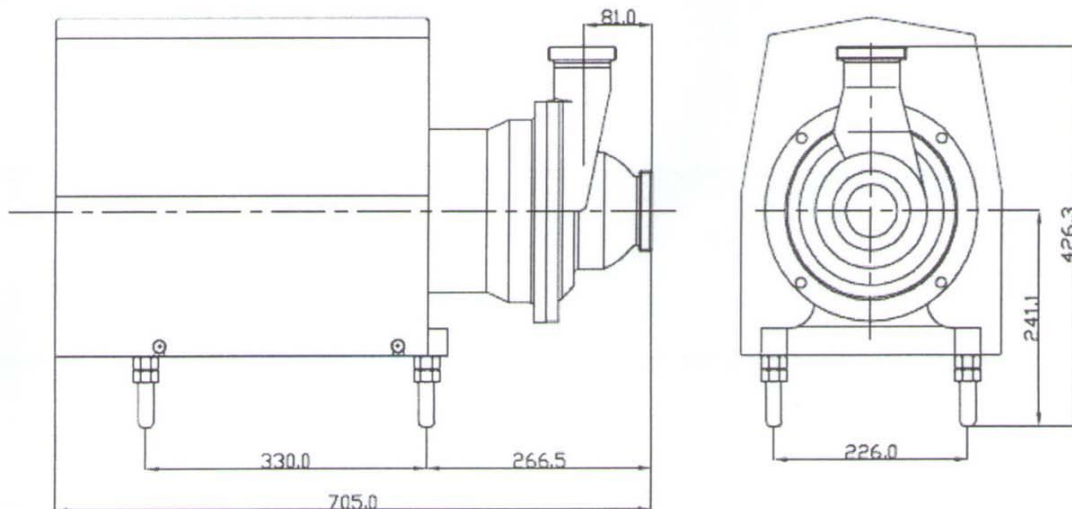
Max.Suction height: 8m/22ft

Motor type: B35, Motor frequency 50HZ/60HZ.

Motor power (KW) refer to table below:

Power (KW)	Voltage	Power (KW)	Voltage
0.75	210V-230V/50HZ 360V-400V/50HZ 420V-460V/60HZ	4	360V-400V/50HZ 630V-690V/50HZ 420V-460V/60HZ
1.1		5.5	
1.5		7.5	
2.2		11	
3		15	

INSTALLATION SIZE



Important information

Always read the manual before using the pump.

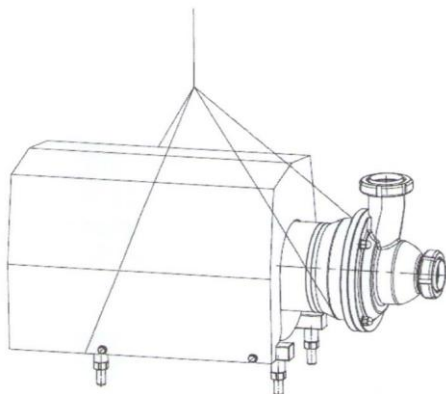
Unsafe practices and other important information are emphasized in this manual.

Warnings are emphasized by means of special signs.

Warnings indicateds that special procedures must be followed to avoid severe personal injury.

the pump must be operated by authorized person. The pump must never be pressurised when the pump is serviced.

It is the way to lift pump



Positioning

Pipe system

Make the pump close tank as possible. If possible, the liquid level should be in horizontal level or lower. The inlet and outlet tube should be in vertical direction, please use suitable pipes to reduce the pressure losses resulting from choke flow.

Feasibility

Leaving enough space around the pump for checking.

Leaving enough space in the front and end of the pump for demounting the pump.

If the weight of the pump is over than 30Kg, please leaving enough space for elevating.

Put the pump close to the drain place.

It is very important to increase the connection device of the pump. (Same as in the running)

Outside device

The pump should be installed in the sheltered place. Before installation, please consult the supplier first.

Inside device

Keep the motor in the airy place when you setting the pump. Please start the motor according to the manual of the supplier.

The connection parts of the pump should be with adequate protections if the liquid is inflammable or explosive.

The explosion-proof motor shall comply with the national or local standard.

High temperature

If the liquid temperature is too high, the temperature inside and around the pump will be higher.

Proper protection measures should be adopted when the temperature is over 70 degree.

Warning reminder should be adopted.

The pump should be placed in horizontally, strictly and shockproof for preventing dangerous. (The pump should be placed before start)

Operation

If the pump is not with motor, the buyer/user is responsible for start and install the pump.

Motor

Please read the local safety regulation of the electrical before start the motor.

Ask the professional electrician to connect the motor. Necessary measures should be adopted for preventing connection and wiring error.

Protection to Overloaded motor

For the protection of overload motor or short circuit, recommended heat or magnetic relay. According to motor max current to adjust current.

Electrically connection



Have the pump Electrical connected by authorized person (pay attention to manual)

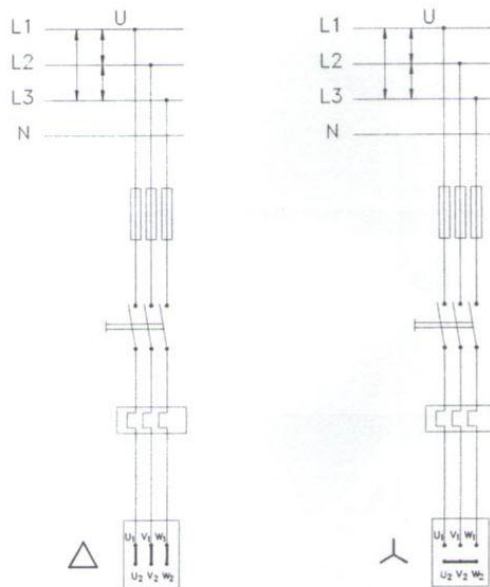
The direction of rotation



From the motor behind, the pump is rotating clockwise.

Power Chart

	Connection U=...	
	3*220	3*380
Motor		
220/380		
380		



6. Operation

Attention: After install according to Manual Chapter 4 "Installation", The pum can be start now.



Always read the manual before operate the pump.

Clean



Always check and clean the pipline and pump before operate the pump.

Start

Open Globe valve on the inlet/outlet tube.

If liquid do not flow into pump, fill with liquid when pump is on.



Never start the pump when there is no liquid.

When the liquid is in a low level, fill the pump with liquid.

Check the pump is safe.

Start pump.

Check whether the pressure of absolute self-priming is sufficient.
control of outlet pressure.



When the liquid level in a regular, do not use the globe valve. Throughout the operation, the

Globe valve should be in a open condition.

7. Maintenance



Maintain the pump carefully.

Study the manual carefully

Maintenance work need be done by authorized person.

We can not be held responsible for incorrect operation

Preparation work

Work area

Provide a clean work area, some parts are placed according to strict requirements.

Tool

Proper use of specialized tools for maintenance and repire.

Disconnect

Disconnect the power supply before maintenance work.

Safty

If you need to repair the pump, do not start the motor.

In accordance with the following procedures:

the pump switch in the "off" position.

disconnect the pump from the power supply.

First, empty the pump.

Lubricate the internal parts

External cleaning

Make sure the pump exterior is clean. Make sure the pump cover is on when cleaning. It is to protect pump motor.



Never cool down pump hot parts with water, it will damage the pump parts.

8. Trouble Shooting

Problem	Reason
Motor overload	7,8,12
Inadequate flow	1,2,4,5,6,7,8,
No pressure for outlet pipe	2,3,6,16
Flow out and pressure problem	1,2,4,5,6,8
Noise and vibration	2,4,5,6,7,8,9,12,13,14
Pump failure	8,9,12,14
Pump overheating	7,8,9,12
abnormal damage	4,5,7,9,12,14
Rubber seal leak	10,11,15

	Reason	Solution
1	Rotary Direction error	Turn Rotary direction
2	NPSH lack	Increase NPSH valve
		Lower the pump position
		Lower steam pressure
		Enlarge suction tube diameter
3	Without liquid	Fill in
4	cavitation	Increase suction pressure
5	Air flow into pump	Checking the suction tube and all connectors
6	Suction tube blocked	Checking the suction tube and filter
7	Outlet pressure Too high	Enlarge outlet tube size
8	Liquid viscosity too high	Lower the viscosity, eg. By heating up the liquid
9	Liquid temperature too high	Cooling the liquid
10	Rubber seal damaged	Replace rubber seal
11	O-ring is not suit for specific liquid	Replace suitable O-ring
12	Impeller damage	Lower the temperature
		Lower the suction pressure
		Adjust impeller and rack gap
13	Suction tube tension	Release tension of suction tube
14	Impurity in the liquid	Include filter in the suction tube
15	Spiral seal tension	Adjust according to manual
16	Suction tube valve is close	Check and open

If the problem continue, please stop using the pump. And contact with manufacturer.

9. Demounting and Assembling

Maintenance

The demounting and assembling of the pump should be finished by the professional operator. Please read the manual carefully before use.

Error demount or assemble could damage the pump.

We will not be responsible for the accident or damage not conformity with the instrument.

Preparing

Precise parts could not be put on the floor.

Clean and check the parts carefully after demounted. Replace all worn and damaged parts.

Tool

Please use proper tool to demount and assemble carefully.

Cleaning

Clean the inside and outside of pump before take apart.

Do not clean the pump when working.

Safety

Please do not start the pump if you need to make some adjustment to pump.

If the support of the pump is removed, please make sure the motor is stop first.

Do not stop the pump without supports.

Cut off the power supply before demounting and assembling.

Make the pump cool down to the room temperature if the liquid permits.

Electrical safety

Do not start the motor if you need to make some adjustment to pump.

According to the following steps:

Make sure the switch is turned off.

The power supply is cut off.

Do not remove the protection device around the pump when the pump is not work.

Demounting

Stand the pump to vertical like the drawing in the right.

Pump shield

Close the valves in the inlet and outlet.

Watch out! The liquid will splash when you remove the pump shield and tubes.

Loosen the four screws (37)

Remove the motor shield with hands. (01)

Pump head

Loosen the four nuts (09) by wrench and remove them.

Remove the pump bonnet (22) with hands, then takes off the O-shaped ring (14). Replace the O-shaped ring if necessary.

Impeller and mechanical ring

Loosen the nut (21) on the impeller with wrench and remove it.

Use plastic rod support the impeller (19). Hit the impeller carefully by hammer till it is possible to remove it.

Loosen the mechanical seal rotary ring (17) in the end of the impeller with proper tool and remove it.

Take off the O-shaped ring (18). Replace the O-shaped ring if necessary.

Remove the mechanical stationary ring (16) in the pump base and O-shaped ring (15). Replace the O-shaped ring if necessary.

Pump base

Attention! It is no need to separate the pump base and connection supports in regular practice.

Make sure the pump base is stand in vertical.

Loosen the four nuts (12) on the connection support (08) by wrench. Then raise the (13) and (08) with hands or rope and remove. And put them in the floor.

By a turn of 180 degrees, make the connection support up. Loosen the nut (09) by proper wrench and remove. Now the pump base and connection support could be separated.

Drive shaft

Attention! It is no need to take apart the drive shaft in regular practice.

Loosen the tighten ring (05) and bolt (07) by wrench. Hit the tighten ring (05) with rubber hammer carefully and remove. Then hit the tighten ring (03) by hammer till fall away from the drive shaft. Remove the drive shaft (04) by now.

Assembling

Stand the pump to vertical like the drawing in the right.

Put the tighten ring (03) and (05) on the drive shaft. Then assemble the tighten ring (03) and (05) together by bolt (07) and (06). Do not allow to tighten by the wrench right now.

Put the whole drive shaft (03, 04, 05, 06, 07) on the motor shaft, Fix the whole drive shaft on the motor shaft with wrench.

Put the connection support (08) on the motor flange. Make hole on the connection support and the hole of the motor flange in a straight line. Then put the pump base (13) on the connection support. Screw the impeller carefully onto the drive shaft. Then adjust the shaft height.

Remove the impeller (19), then takes off the pump base (13) and connection support (08). Try not touch the drive shaft right now. So the drive shaft is loose.

Screw all bolts on the drive shaft tightly with wrench. Make sure it is tight and drive shaft is perpendicular to impeller.

Assemble the support (08) and pump base (13) together.

Lift the connection support (08) and pump base (13) onto the motor flange and aim at the bolt hole. Then fit on four bolts (12) and nut (27 ,26 ,28). The bolts could be tightened by wrench right now.

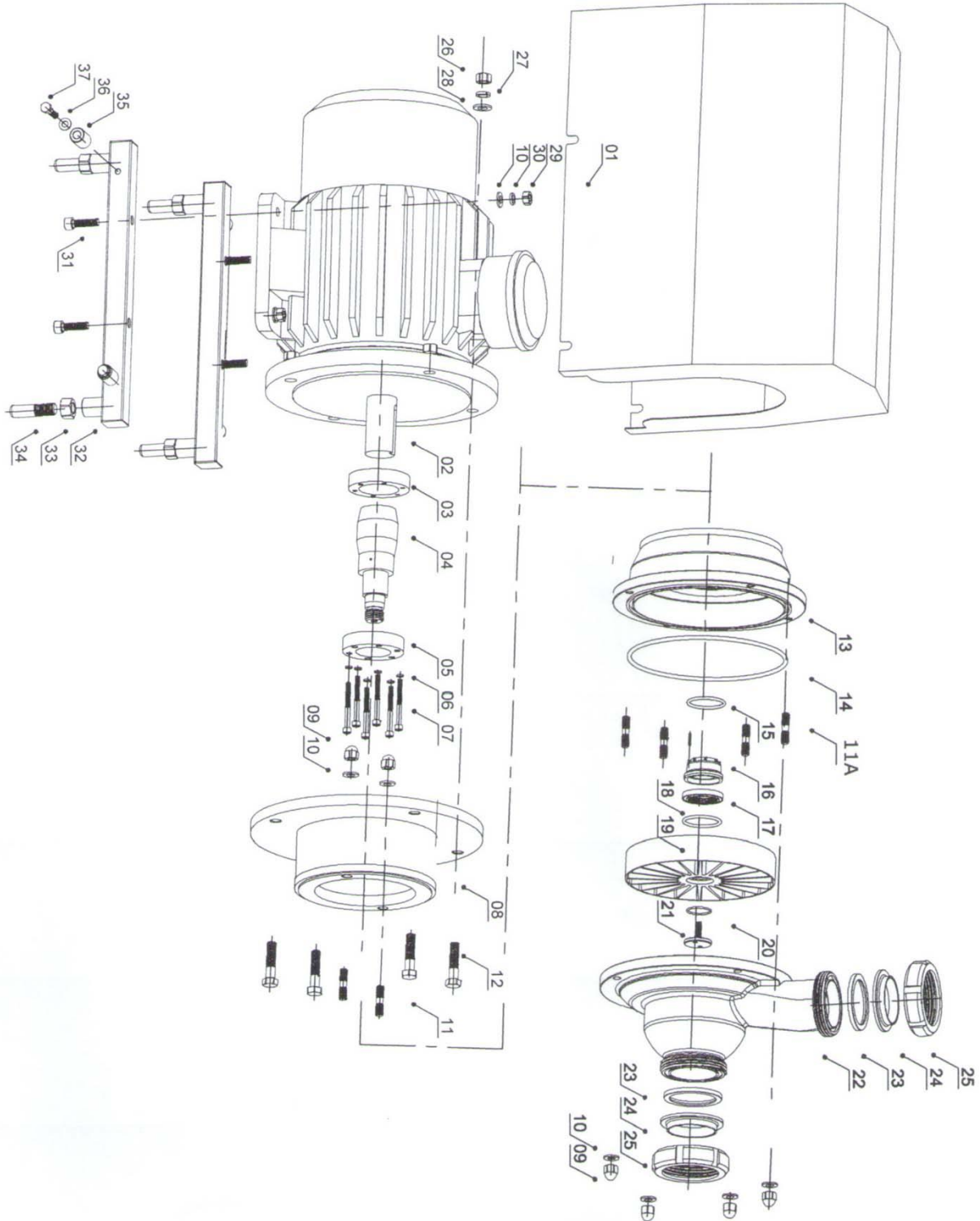
Fit the rotary ring (7) and O-shaped ring (18) on to the impeller (19). Fit the O-shaped ring (15) and Stationary ring (16) on the pump base (13). The fixed pin on the stationary ring should aim at the fixed pin on the pump base.

Screw the impeller (19) onto the drive shaft. Then turn the impeller to see if it is jumping or friction with the pump base. If there is no any abnormal conditions, you can tighten the four bolts that used for connect the connection support and motor totally. Then Fit the O-shaped ring (20) and impeller nut (21) onto the impeller and tighten it with wrench totally.

Screw the four bolts (11A) onto the pump base (13) with hands. Then grease the O-shaped ring (14) and fit it onto the pump base. Install the pump bonnet (22) to the pump base. Then install the pipes and fittings of the inlet and outlet. As to the detailed parts drawing, pleaser refers to the decomposition map on the chapter 11.

10. 零件分解图

10. Parts list



11. Parts list

NO.	Name	Q'TY	Material
1	Pump cover	1	304
2	Motor	1	/
3	adapter sleeve (screwed hole)	1	304
4	Drive shaft	1	316L
5	adapter sleeve (hole)	1	304
6	Spiral gasket	6	304
7	outer Hex. Bolt	6	304
8	Connection part	1	304
9	Box nut	6	304
10	Spiral gasket	10	304
11	Double head bolt	6	304
12	Inner Hex. Bolt	4	304
13	Pump base	1	304
14	O-Ring	1	NBR
15	O-Ring	1	NBR
16	Stationary ring	1	/
17	Rotary ring	1	/
18	O-Ring	1	FPM
19	Impeller	1	316L
20	O-Ring	1	NBR
21	Impeller bolt	1	316L
22	Pump head	1	316L
23	Seal gasket	2	EPDM
24	Plain adapter	2	316L
25	nut	2	304
26	nut	4	304
27	Spiral gasket	4	304
28	Flat gasket	4	304
29	Nut	4	304
30	Spiral gasket	4	304
31	Inner Hex. Bolt	4	304
32	foot	2	304
33	Nut	4	304
34	support	4	304
35	Buffer shaft sleeve	4	plastic
36	Flat gasket	4	304
37	Outer Hex. Bolt	4	304