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High Pressure Homogenizer (JJ2.5-25)

Operation

Manual

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I. Usage and applicable range

This homogenizer of JJ serie rotates stably and has a beautiful appearance. It is an advanced model of homogenizer.

This machine is mainly used to break, homogenizing and emulsify fluid mixing materials (liquid mix liquid or liquid mix solid). It is the ideal machine to micromachining liquid for food, chemical, pharmaceutical and microbial industry.

II. Main technology data

Model		JJ-2.5/25
Rated pressure	One stage (Mpa)	25
	Two stage (Mpa)	25
Rated flow (L/H)		2500
Material requirement	Viscosity (pa.s)	≤ 0.2
	Temperature(°C)	≤ 80
Inlet pipe (mm)		D51 d40
Outlet pipe (mm)		D38 d30
Cooling water inlet		G1/4"
Cooling water outlet		G1"
Main motor	Model	Y280S-8-B3
	Power (kw)	22
	Rotation (R.P.M)	730
Outside dimension(mm)		1250× 900× 1150
Whole weight (kg)		1000

III. Main structure and operation principle

The machine is made up of homogenizing system, driving system, lubricating system and machine frame. The homogenizing work is finished by homogenizing system and driving system. The driving system leads to the movement of the three plungers to make the materials in the pump produce high pressure energy. The materials flow to the homogenizing valve in the high pressure and the homogenizing process is finished in the homogenizing valve. The homogenizing valve of machine contains two stages of manual, one stage of work pressure is 0-40Mpa or 0-30Mpa, two stage work pressure is 0-30Mpa or 0-40Mpa. The space is adjustable between the valve core and valve seat, when flowing the pump, the materials get high pressure energy through the space between valve core and valve seat, it forms a huge pressure fall down, then makes the materials get a high flow rate (200-300m/s), knock to the baffle ring. Then the materials go through the composite function of pressure loss, knock, hole and turbulence and shear forces., and it processes the original rough emulsion or suspension to subtle particles and obtains the subtle evenly liquid-liquid or liquid-solid dispersion.

Since the first and second grades pressure is difference, the process effect of materials is also difference. The first grade pressure is high and the break effect is good. The second grade pressure is low and emulsify effect is good. Customer could be as the requirements of processing technology to adopt the first and second grade together or

first or second grade singly.

IV. Hoist and installation

1. When lifting, use the middle lifting ring of the machine, take away the up cover and remove the door on the left and right.
2. Place the machine on the stable and strong cement ground, and make use of the adjustable nut on the foundation of the machine.(photo 1-4), adjust the machine to horizontal, and then tighten the lock nuts.
3. Adjustment before switching the machine
 - (1) Make the inlet(photo 1-6) (pipe diameter D51) and outlet(photo 1-7) (pipe diameter D38) connected with the production pipe(Note: Don't install the section gate with the outlet pipe). Set more than 50 mesh strainer filter with the inlet pipe to avoid the larger granule and hard object to go into the homogenizer cavity, then avoid damaging the valve core and breakdown.
 - (2) Make the main motor and trigger connected with the wire, and make the machine earth ground reliably.
 - (3) Make the inlet of cooling water(1-2) (contact thread G1/4") contacted well with the sewer. The cooling water should be clear and has a rated pressure.
 - (4) Take away the up cover of machine, add the oil(30 number oil for winter and 40 number oil for summer) to the dynamic box of the machine from the square hole in the body box. The oil adding volume should be in accordance to the oil level in the oil standard. The new adding oil should add into the oil box through the 100 meshes filter, It must not have the oil leakage in the oil pipe.

V. Adjustment and commissioning of the machine

- (1) Please check all the connections to make sure of the tight situation before starting the machine.Check if the lubrication oil is in the right position,open the cooling water to see if it flows fluency, rotate the band pulley, and check if the driving system is stuck, when all of those are normal, then you could start the machine.
- (2) When the machine has materials (or clear water), then it is ok to start the machine. It is prohibit to start the machine without the materials.
- (3) Open the switch of the cooling water (This is set in the cooling water pipe by customer oneself), take away the cover plate, observe the sprinkler pipe water spraying condition, adjust the switch to make the water spraying hole work well.
- (4) Check the first and second grade pressure adjusting handle if it is in loose situation, and it is prohibited to start the machine in tight situation.
- (5) Push the launcher to check the rotation direction of the motor to make sure if the direction is in accordance with the arrow marked in the sign. (Facing the pulley, rotation with the anticlockwise).
- (6) Start the machine to listen if there is any abnormal noise. When the air is exhausted clear in the passageway through with the materials, the outlet

material is normal, rotate the adjusting nuts slowly, and the pressure gage has show, then it could be added pressure.

- (7) Follow the attached photo 2, photo of manual control two stage homogenizing part. This machine is manual control two stage homogenizing. When using it, it could be as the production requirement to choose the qualified homogenizing ways. Most of the materials would reach the homogenizing effect only through the first grade homogenizing. When working, tighten the adjusting nut gradually. If use the second homogenizing, please adjust the first grade homogenizing pressure (Don't exceed the 2/3 of required pressure) Then adjust the second grade to required pressure. Or adjust the first grade pressure gage to rise up a little, then adjust the second grade pressure to 3-5Mpa, after that adjust the first grade pressure to required pressure.
- (8) After working, operator should loose the pressure adjusting nut, first grade pressure adjusting nut , then second grade pressure adjusting nut, when the machine is in the situation of no-load, then it could be stopped, at last close the valve of the cooling water.

VI. Maintenance and service

1. Please replace the lubrication oil regularly. The first oil replacing time is that when the machine has worked for 100 hours or one month , whatever the one the machine reaches, it all should be replaced. After the replaced lubrication oil is through the filter and sedimentation, it could be repeated use., then the machine should be replaced the oil after working 1000 hours. Twist off the section gate under the oil box, then the lubrication oil in the box could be let out. Open the driving box every year to clean the greasy dirt one time on the tank walls.
2. The inner cavity and connection part with the materials should be cleaned regularly, and it should be as the follow requirements to clean it.
 - (1) Clean in the moving situation.
 - (2) Work pressure is zero (When the pressure adjusting nut is in the loose position).
 - (3) Use the clear water or circulatng clean liquid, and the cleaning liquid could be acidic or alkaline. Such as nitrate solution and caustic soda solution, but the nitric acid and caustic soda should be kepted no more than 1.5%, and don't have any trace chlorine ion.
3. Please check the pairing degree regularly. If it is too loose and the belt is skidding, operator should adjust it through the screw bolt. It is better with about 10mm between the two pulleys when finger presses it.
4. The consumables are as follows: the homogenizing valve's first grade valve seat(photo3-11), first grade valve core(photo3-9), valve baffle

ring(photo3-10) and second grade valve seat(photo3-6), second grade valve core (photo3-5)and second grade valve baffle ring(photo3-14). Since the work face has the function of high pressure materials, after a period of working, it will be weared and corroded. When there is a obvious indentation and a big place between the two working face(Generally, the pressure gage shows not enough or unstably), operator should change or repair it.

Change modes:

(1) Take off the second grade valve body from the first valve, use the putter of second grade valve(photo3-2) could take apart the second grade valve seat and valve core, then valve baffle ring. When installating, please installate the baffle ring first ,then valve core, then valve seat.

(2) Make the first grade valve body away from the pump, use the first valve putter to take away the first grade valve seat and first valve core, then take away the valve baffle ring,when installating, please installate the valve baffle ring first, then valve core, then valve seat.

5. The three piston and piston seals are consumables. When working, the piston rotates movement between the gaskets to form a rubbing pair, when one of the two wears seriously, it will lead to the leakage of the materials, the pressure shows unstably and the grinding emulsion effect is bad, then operator should change the them in time.

Change modes: (see the attached photo 4)

(1) Twist off 8 pieces cap nuts of M27, take apart the pump.

(2) Take a object to place between the connection wheel and tighed nut, rotate the big band pulley to knock out the piston cylinder.

(3) If just change the gasket.ring, then take apart the bad, and set well the good one. Note: When setting the piston cylinder, please loosen the connection wheel to make the piston could be fixed in the gasket ring, then tighten the pressing nuts and tighten the connected wheel.

(4) If it needs to change the piston, then twist off the connected wheel and replace the new piston, then installate it well.

6. Single way valve core and valve seat is the controlling valve of the liquid flow. The difference pressure is big between the up and down, and they work oftenly and are the consumables. The taking apart and installating modes:(as photo 5)

(1) Twist off the cap nut on the pump, take away the square pressed board, then there is a up cover, use the M8 screw could take away it easily.

(2)Twist off the nylon plug under the pump, and take apart the nylon gasket ring, niveo-maginatium, single-way valve core and valve seat.

(3) Clear up all the parts and installate them with the order taking apart. Note:When setting the gasket ring, it should be matched well with the chamfer surface of the valve seat. The underside of nylon ring should be about 0.5mm higher than the underside of the valve seat.

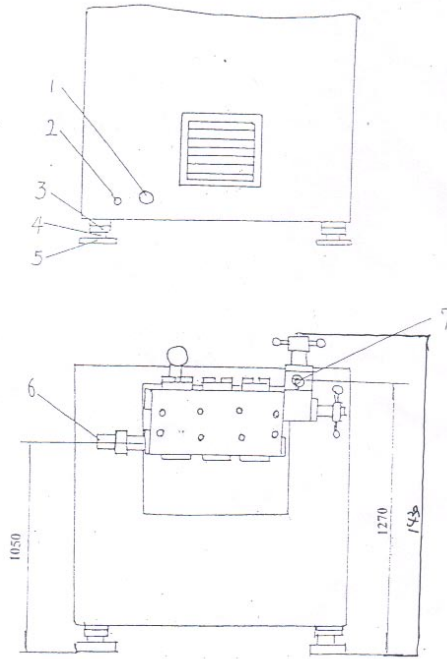
7. Pressure shows:make C as pressure in the pump to show to operator.If the machine

fails to show pressure, it will not work normally. The pressure gage shows 100Mpa or 60Mpa and is 1.5 grade quakeproof pressure gage. The pressure showing system is made up of gage connection, piston and pressure transferring cylinder. All the hollow sections are full filled with plant oil. Operator should check the oil volume in the cylinder regularly. Twist off the connected joints(photo 2-7), then make the transferring piston (photo 2-8) to the bottom, then fill the oil, twist the connected joints of the pressure gage.

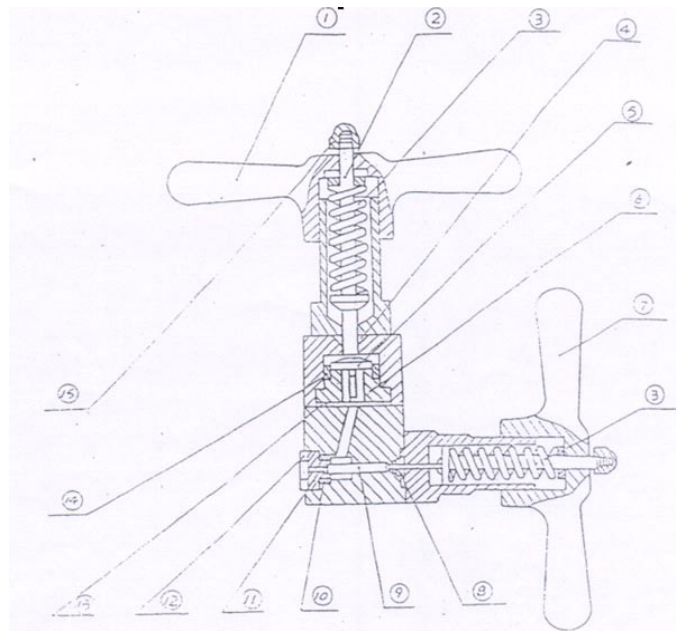
8. See attached photo 4, there are two Y type rings in the oil seal seat to avoid the leakage of the engine oil, and also avoid the cooling water to go into the oil box to emulsify the lubricating oil. When the oil leakage is serious and the oil has been emulsified, then operator should change the Y type rings.

When the machine is delivered to the factory, please take away the packing case, and check the every part and attached tools. Keep well the machine and every part to avoid missing and damage. If the machine has been not used recently, we recommend to clear up the machine and paint the oil against rusty, also keep the machine well.



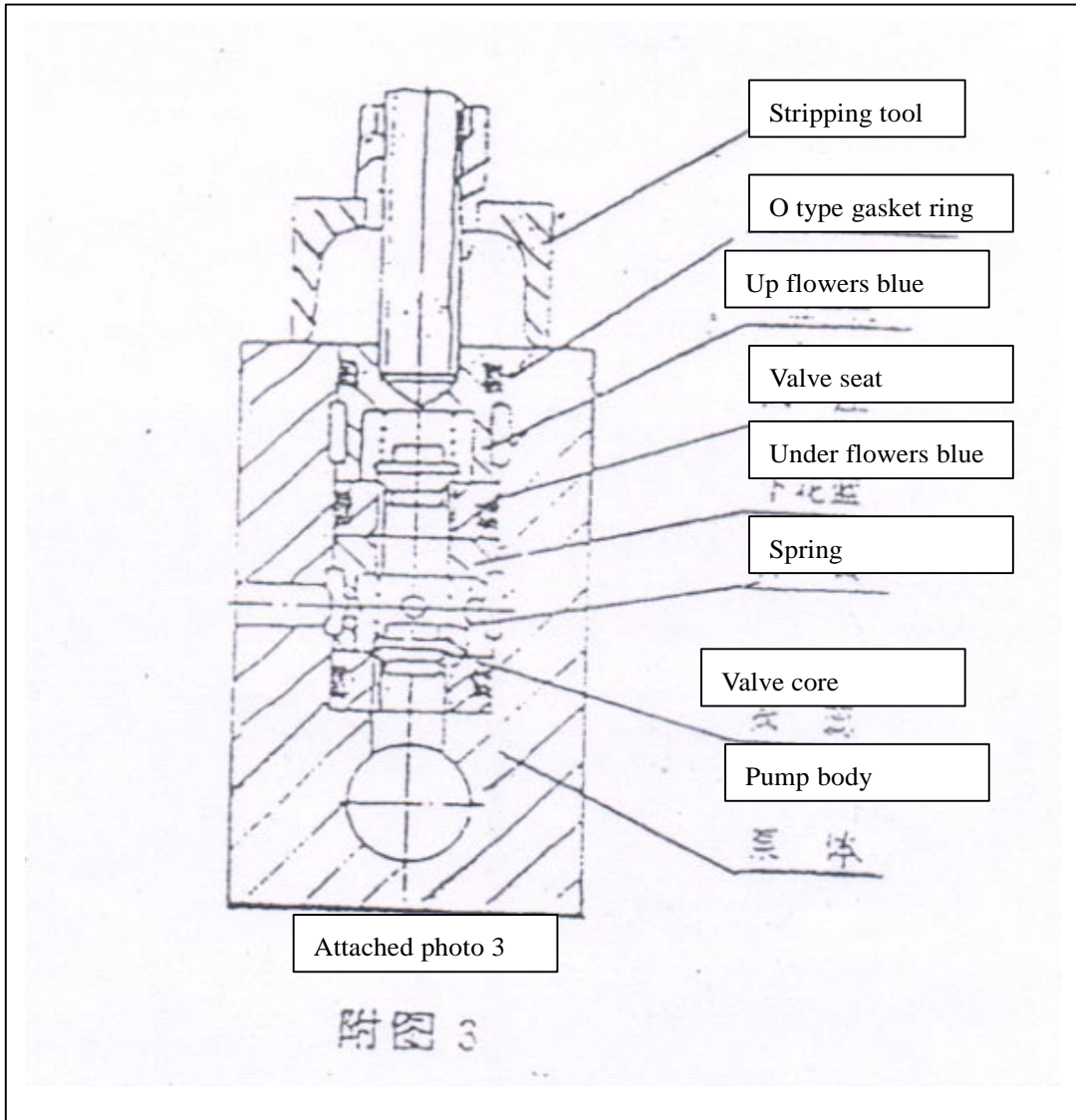


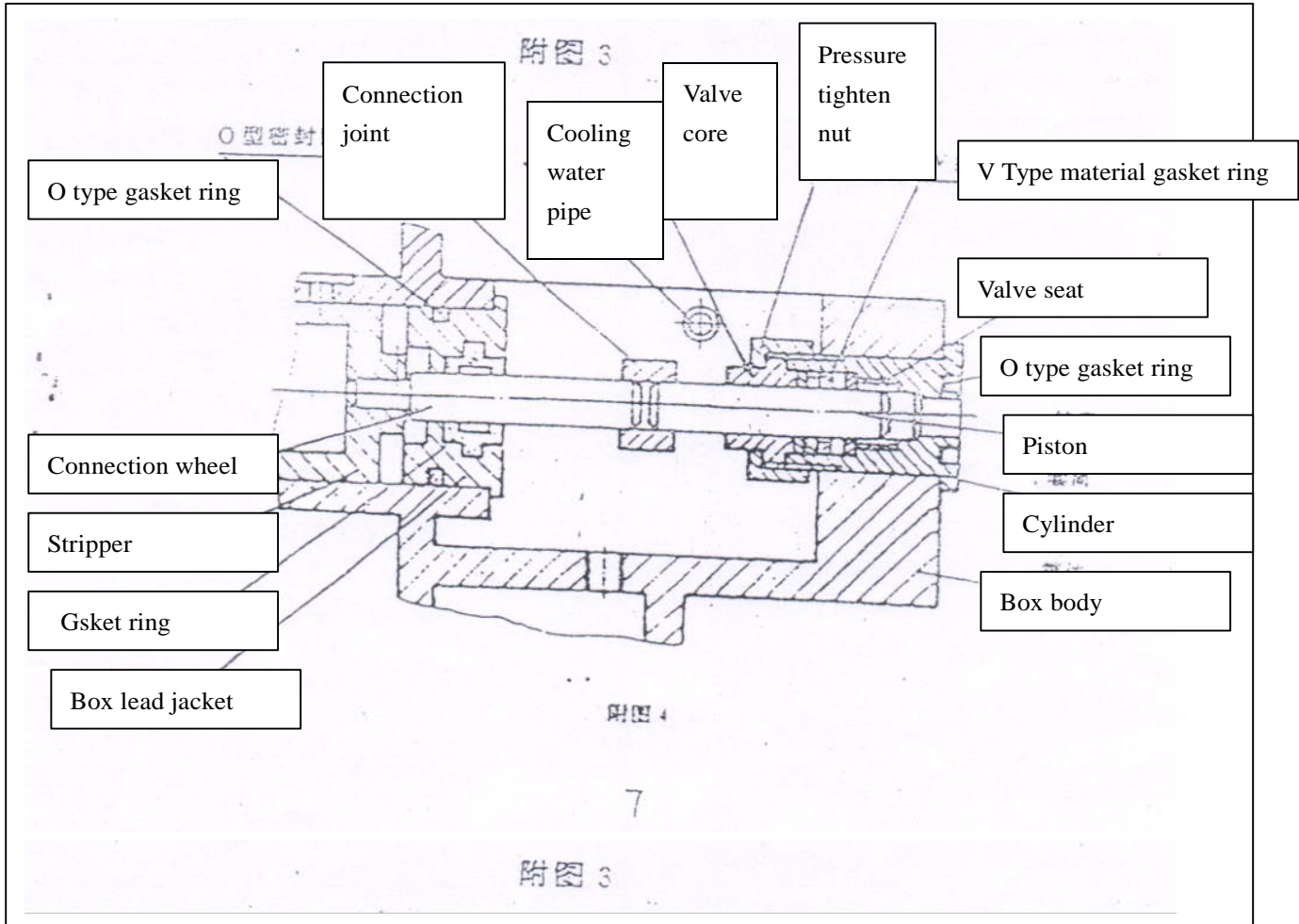
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|----------------------|-----------------------|-------------------|
| 1. Water outlet G1'' | 2. Water inlet G1/4'' | 3. Lock nut |
| 4. Adjusting bolt | 5. Nylon mounting | 6. Material inlet |
| 7. Material outlet | | |

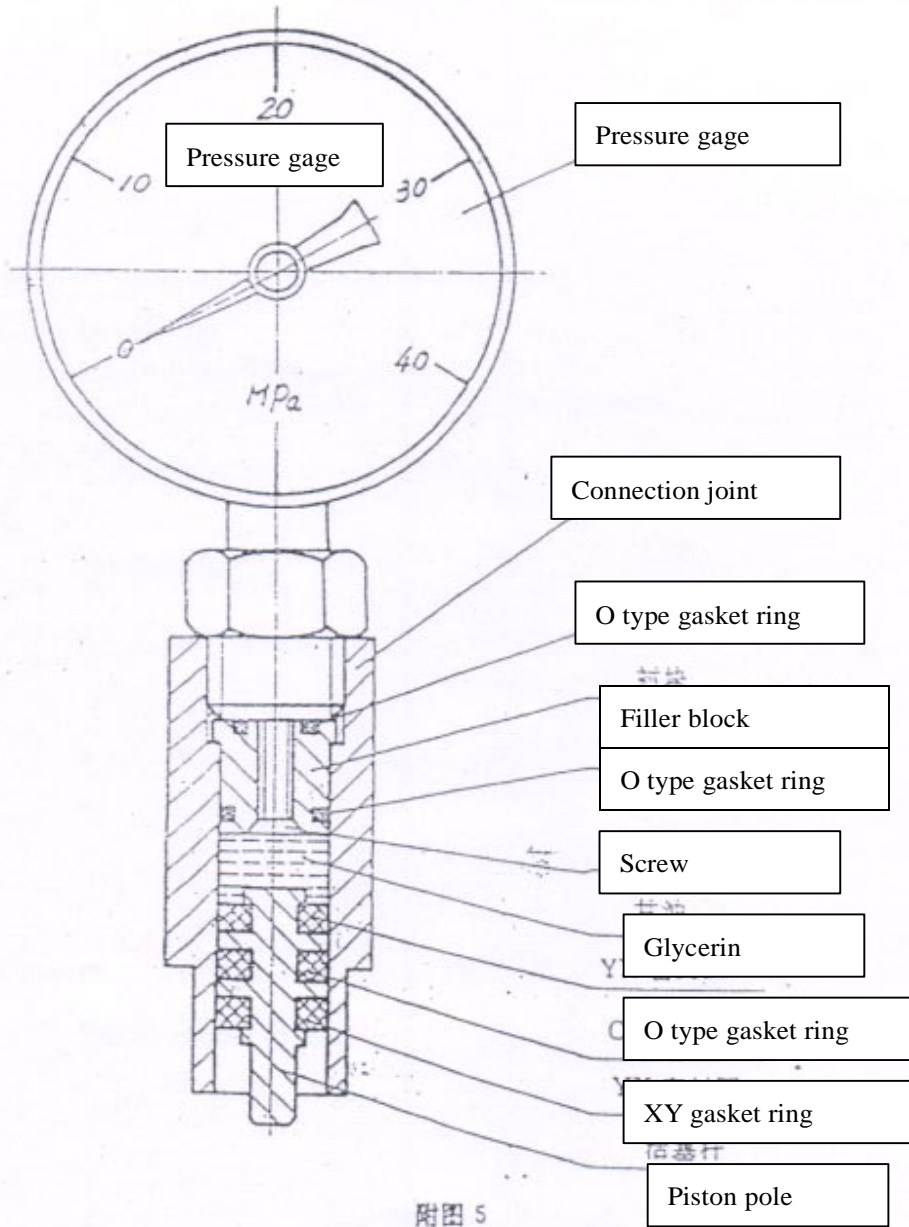


Flow chart of manual control and double grade homogenizing part attached photo 2

- | | | |
|------------------------------|---|---------------------------------------|
| 1. Pressure adjusting nut | 6. Second grade valve seat | 11. First grade valve seat |
| 2. Second grade valve putter | 7. Pressure adjusting nut (first grade) | 12. Gasket |
| 3. Springs | 8. Gasket ring 1 | 13. Gasket |
| 4. Gasket ring 1 | 9. First grade valve core | 14. Baffle ring of second grade valve |
| 5. Second grade valve core | 10. Baffle ring of first grade valve | 15. Bezel ring nut |







附图 5

Item	Failure content	Result	Ways
1	The pressure gage's handle swing big	<ol style="list-style-type: none"> 1. Valve is leakage 2. The damage of the valve or gasket ring 3. The loss balance of the pressure gage's screw valve 4. There is air in the pump 	<ol style="list-style-type: none"> 1. Repair or change it 2. Change 3. Repair and adjustment 4. Exhaust the air out
2	The knocking noise of the valve in the pump is not average.	<ol style="list-style-type: none"> 1. Part of the valves or valve seat is leakage 	<ol style="list-style-type: none"> 1. Repair or change
3	The pressure in the pressure gage is low or there is no pressure	<ol style="list-style-type: none"> 1. There is air in the pump. 2. The leakage of homogenizing valve surface. 3. The leakage or damage of the pressure gage. 4. The leakage of the valve or the damage of the gasket ring. 5. The oil lack of the pressure gage 	<ol style="list-style-type: none"> 1. Exhaust the air 2. Repair or change 3. Change 4. Change 5. Adding the oil
4	There is knocking noise in the machine	<ol style="list-style-type: none"> 1. Connection wheel is loose. 2. The wheel is weared of the connection pole. 	<ol style="list-style-type: none"> 1. Tighten the screw 2. Change
5	The main wheel is with high temperature	<ol style="list-style-type: none"> 1. The damage of the wheel 2. There is inclusion in the wheel. 	<ol style="list-style-type: none"> 1. Change 2. Check carefully and clear up the inclusion.
6	The flow is not enough	<ol style="list-style-type: none"> 1. The damage of the gasket parts. 2. The leakage of the valve. 3. The liquid thick is too high or the the level of inlet materials is too low. 4. The belt is too loose and the rotation reduces. 	<ol style="list-style-type: none"> 1. Change 2. Check and change 3. Reduce the liquid thick or improve the height of the inlet liquid. 4. Adjusting the loose situation of the belt
7	The leakage is serious in the gasketing part of the piston.	<ol style="list-style-type: none"> 1. The damage of the gasket ring. 2. The wear of the piston. 	<ol style="list-style-type: none"> 1. Change 2. Change