

**Air-cooling vertical
Oilless High-pressure Oxygen
Compressor
Installation/Maintenance/Use
Instructions**



△△ Thank you for choosing our company's series high-pressure oxygen compressor!

△△ The product purchased by the user may differ from some contents of this specification due to modification and generation upgrade without prior notice.

△△ In order to ensure our company's high-pressure oxygen compressor can run safely and efficiently under optimum condition, before you use it, please be sure to read through these operation instructions!

△ △ Our company has passed the ISO9001 international quality system certification. Its quality policy is: "make 'oil-free' elaborate products, and create 'Wind brand' value", please rest assured to use our company's products!

△△ Hope you can get something after you read these instructions, also welcome you to propose valuable comments and suggestions!

General Safety Precautions

1. This compressor should be earthed reliably. An explosion-proof wall should be built between the compressor and the bottle filling area according to the standard. Before the unit is running, it must be ensured that all components and parts assembled on the machine have been strictly de-oiled and degreased (use anti-oxidant grease for bearings), and all joints and accessories have been locked securely.
2. Both high-pressure oxygen and electricity have danger! Do not conduct overhaul or maintenance and service on the unit before you make sure that the power supply has been cut off and the compressed gas in the entire compressor system has been emptied.
3. During the unit running, don't loosen or disassemble any pipeline accessory and any machine component/part; high pressure and high temperature oxygen is filled inside the unit, they may cause serious safety accident.
4. The rotation direction of the main unit and fan must be correct, otherwise it will cause burning blast accident.
5. A suitable air switch must be installed on the power supply line led to the compressor, and a suitable grounding wire must be connected. The compressor is required to be well ventilated during operation, and the ambient temperature is less than 35°C. In addition, necessary maintenance space is required around the machine.
6. The compressor should not work at an exhaust pressure higher than that specified on the nameplate, otherwise, the stress of components and parts of the compressor will be deteriorated and the motor will be overloaded, which will consequently result in abnormal phenomenon such as damage of components and parts of the compressor, reduced life, shutdown, etc., even serious safety accident.
7. The safety valve on the compressor is the safety protection barrier of the machine, and should be calibrated at the local special equipment inspection and testing institute once every year; if the gas pressure in the system exceeds the rated pressure, be sure to check the overpressure cause when opening the safety valve to release the gas; use the compressor again only after determining the fault has been eliminated.
8. Before carrying out any service on the compressor, you must well do the following works:
 - 1) Shut down the unit; 2) Cut off the power to ensure that the compressor is in a power-off state; 3) Ensure that the compressed gas in the unit has been emptied; 4) Any parts assembled must be guaranteed to have been strictly de-oiled and degreased.
9. Personal protection: during the compressor operation, the operator's body and clothes should be kept far away from moving components such as the belt pulley, blades, belts, etc. of the compressor, he should also not touch the cylinder and pipeline directly with his hand in order to avoid scalding; the operator should have relevant professional knowledge and experience.
10. Before starting up the compressor, you must understand this operation and maintenance manual.

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I. Outline

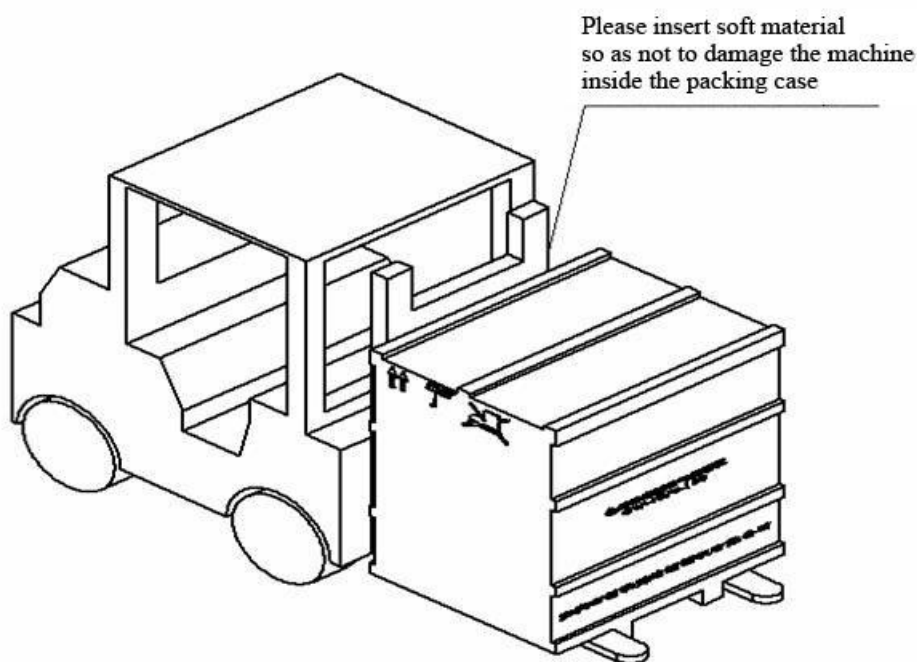
Our company's series high-pressure oxygen compressors are of oil-free reciprocating piston structure with two-row vertical four-stage compression, and cooling methods are air-cooled and water-cooled. There is no lubricating oil in the machine. The rotary moving parts adopt grease-lubricated sealed bearings, and the moving seals in the cylinder are made of self-lubricating material to ensure that the compressed gas will never contact any oil. It is mainly used for oxygen filling; In addition, it can also be used to compress clean air, nitrogen, carbon dioxide and other gas media with stable properties. The machine adopts automatic control mode with low leakage and noise and without the need to arrange dedicated person for attention, and can operate over long term reliably.

This machine is an air-cooled compressor, with 1st ~ 4th stages in one row and 2nd ~ 3rd stages in one row, equipped with independent fan cooled cylinder and cooler. Each stage is equipped with a temperature sensor to alarm when the machine temperature rises abnormally. The gas inlet and exhaust pipes are designed with pressure switches for overpressure protection. The machine adopts the integral skid type, all components and parts are connected completely before the machine leaves our factory, the user only needs to connect the inlet and outlet pipelines and connect the power supply, then it can run.

II. Installation of compressor

2.1 Handling on installation site

Check the nameplate of the compressor to ensure the received machine has the same model as the ordered machine, meanwhile, check if the accessories are complete, e.g., documents supplied with the machine, control cabinet, spare parts (if any), etc. During the transportation, movement and hoisting of the compressor unit, protective measures should be taken, accidental damage of the machine is strictly forbidden, and tools such as forklift, sling, etc. should not contact machine components other than the machine base, as shown in the figure below:

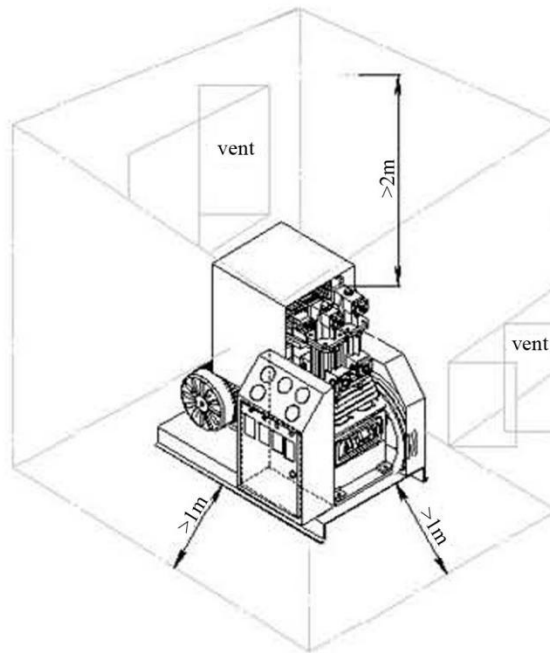


Truck transport

2.2 Installation site requirements

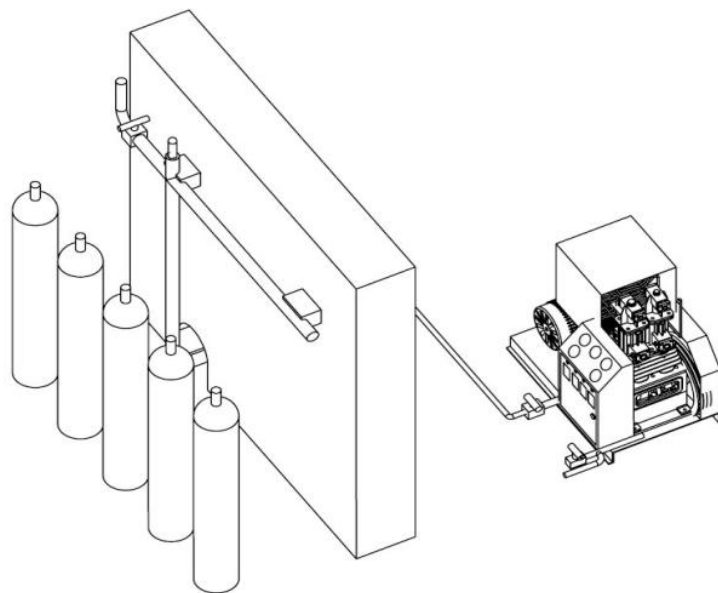
The compressor should be installed in a indoor place with good lighting and ventilation,

clean environment and low air humidity, the foundation should be hard and level, and the ambient temperature should be controlled below 38°C. Around the machine, sufficient space should be reserved to facilitate maintenance. The vibration of the compressor is relatively low during its operation, therefore, the requirements on the foundation are not stringent, but it should be ensured that the concrete thickness of the foundation $\geq 20\text{cm}$, the entire base should be closely fit against the level surface of the foundation and fixed with expansion bolts, local suspension is not allowed between the base and the ground.



2.3 Pipeline installation diagram

The compressor should be grounded reliably, and an explosion-proof wall should be built between the compressor and the bottle filling area according to the standard. The compressor should not be placed nearby the inflammable gas and the explosive substance. The inlet and outlet of the compressor should be provided with bypass valve for blowdown so as to facilitate maintenance of the compressor, as shown in the figure below:



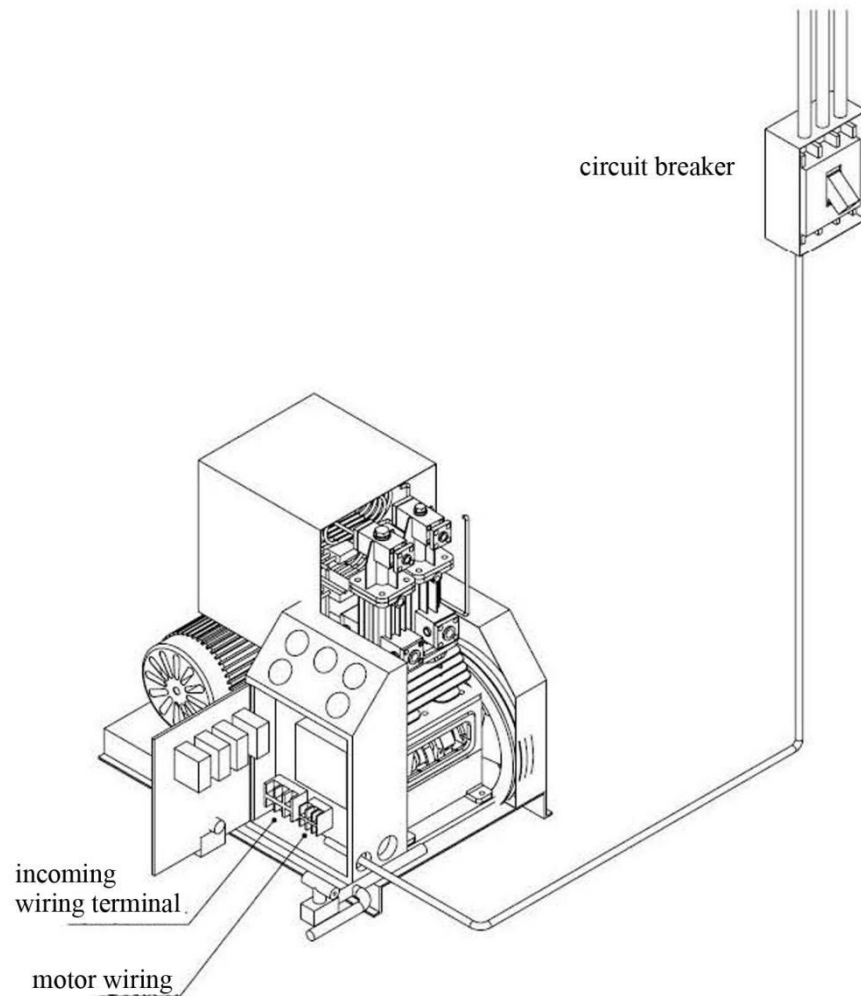
The compressor and the work area need to be separated by an explosion-proof wall

For the pipeline connected to the compressor, the problem of vibration isolation should be considered, and it should also be ensured that its strength and diameter are sufficient. It is recommended to use stainless steel pipelines. The inner surface of the pipeline should be cleaned before installation, especially welding slag, iron filings and grease should be thoroughly removed. The pipe diameter should ensure that the flow speed of the gas inside it falls within the range in the table below. The main pipeline should not be expanded or reduced, the quantity of bends and valves should be reduced as far as possible, and the pressure drop of the entire pipeline should not exceed 5% of set pressure of the compressor.

Gas medium	Pressure range, MPa	Average flow speed m/s
Oxygen	≤ 0.6	7
	0.6~1.0	5
	1.0~3.0	3.5
	3.0~20	2.0

2.4 Electrical installation

Before installation, be sure to check compliance of the power supply, power line and transformer capacity, and equip appropriate fuse or circuit breaker in the installation. The unbalance between voltage phases must be limited within 5% so as to prevent overcurrent due to low voltage. During the installation of motor, connection of electric wires and cables and all electric components, relevant national electric standard and local codes must be complied with, and only the electricians with qualification can undertake above work. The compressor must be grounded reliably, refer to the electric diagram(see the figure below). Special attention: the wiring terminal serial numbers on the machine should strictly correspond to those within the control cabinet.



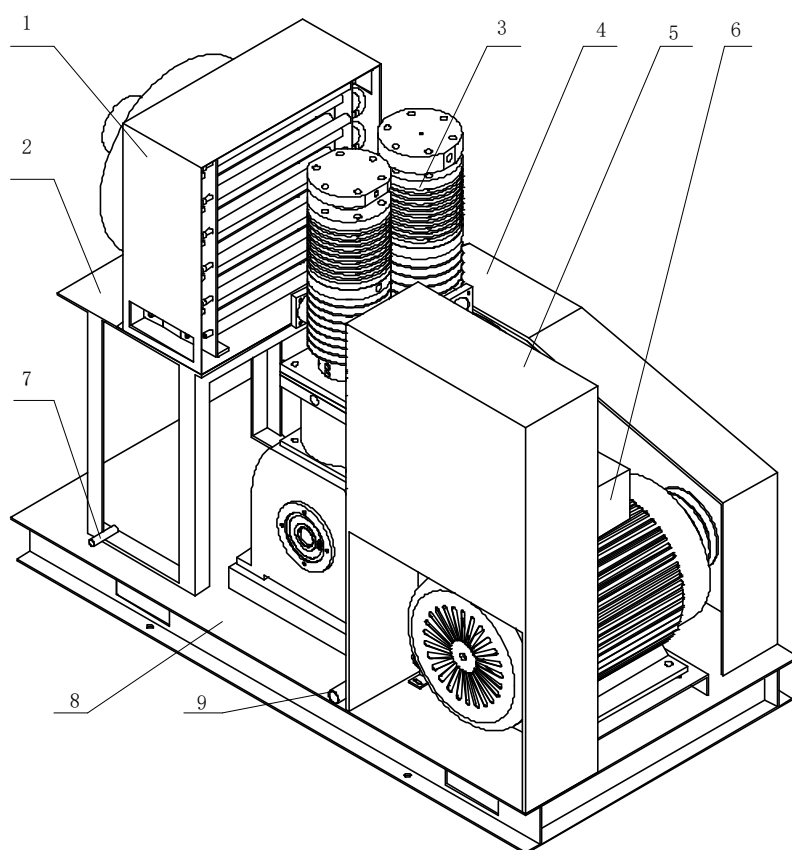
III. Construction and operating principle

3.1 Structural diagram of the main unit (Fig. 5 and Fig. 6).

3.2 Operating principle

3.3 The compressor consists of the basic machine, motor, base, pipeline system, cooling system and display control system.

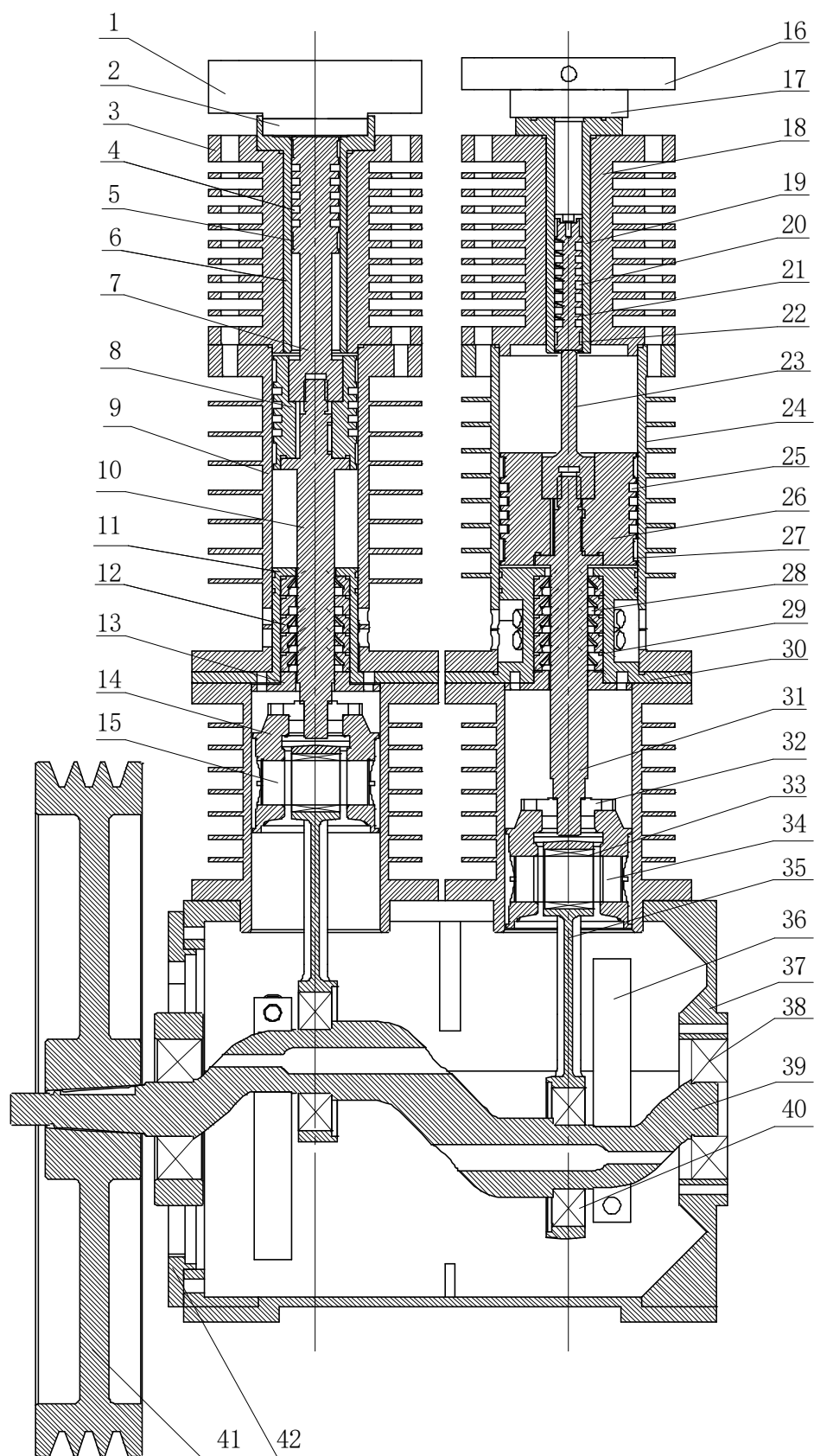
3.4 The movement mechanism of the compressor is the crank-connecting rod mechanism consisting of crankshaft, connecting rod, pistons etc.: it is driven by motor through belts so as to drive the compressor crankshaft to perform rotary motion, the crankshaft drives the connecting rod and the connecting rod drives the piston to perform reciprocating linear motion so as to make the volume of the cylinder change and thus achieve the goal of increasing the gas pressure because the automatic gas valve determines the suction and discharge process of the cylinder. The crankshaft rotates for one revolution to complete a working cycle, the lower pressure gas enters into the cylinder through the gas suction port and is compressed into higher pressure gas and is discharged for use.



Compressor outline diagram

SN	Q'ty	Name
1	1	Air-cooled heat exchanger
2	1	Heat exchanger support
3	1	Main unit of compressor
4	1	Protective screen
5	1	Electric control cabinet
6	1	Motor
7	1	Gas outlet
8	1	Base plate
9	1	Gas inlet

Structural diagram of compressor



SN	Name	SN	Name	SN	Name
1	3 rd stage cylinder	15	Piston pin	29	O-ring of packing box

	cover				
2	3 rd stage gas valve assembly	16	4 th stage cylinder cover	30	1 st stage stuffing box
3	3 rd stage cylinder	17	4 th stage gas valve assembly	31	Piston rod
4	3 rd stage piston ring	18	4 th stage cylinder	32	Piston rod flange
5	3 rd stage guide ring	19	4 th stage cylinder liner	33	Small head bearing of connecting rod
6	3 rd stage cylinder liner	20	4 th stage piston ring	34	Piston pin assembly
7	3 rd stage piston	21	4 th stage piston	35	Connecting rod
8	2 nd -stage piston	22	4 th stage guide ring	36	Counterbalance
9	2 nd stage cylinder	23	Ejector rod	37	Crankcase
10	Piston rod	24	1 st stage cylinder	29	Main bearing
11	2 nd stage stuffing box	25	1 st stage piston ring	39	Crankshaft
12	Packing box	26	1 st stage piston	40	Big head bearing of connecting rod
13	Packing gland	27	1 st stage guide ring	41	Big flywheel
14	Guide piston	28	Packing seal ring and O-ring	42	Bearing block

3.5 There is no liquid lubricant in this compressor, both piston rings and guide rings are made of high quality self-lubricating PTFE, all parts in contact with gas are made of anti-oxidant non-sparking material, and all bearings have seal rings to ensure reliable operation of the machine.

3.6 The machine is also equipped with an independent fan cooling system to ensure that the cylinder at each stage works at a lower temperature, which further improves safety and also ensures the working life of the machine.

IV. Process and control mode of the system

1. System process (Fig. 7)

When the user configures the pipelines of the compressor system, we recommend to adopt the pattern of double buffer tanks, i.e., the gas suction port is equipped with a low-pressure storage tank and the exhaust port is equipped with a high-pressure storage tank, the volume of the storage tank is determined according to the flow capacity of the compressor, if necessary, the user can contact our company's technical department. In order to facilitate commissioning and maintenance of the compressor, we recommend to provide a bypass valve for blowdown each at the gas intake and exhaust port.

System process: The compressed oxygen enters the first-stage cylinder of the compressor through the filter and the suction solenoid valve, and is discharged to the first-stage cooler for cooling after the first-stage compression, and then enters the second-stage cylinder for compression and cooling... and it discharged through the check valve after the fourth stage compression and cooling. The cylinder and cooler of the compressor are blow cooled by independent fans.

2. Control mode

The compressor is automatically controlled by the inlet and outlet pressure switches and the inlet solenoid valve (refer to the system flow chart and electrical schematic diagram):

In the electrical control circuit of the compressor, suction and exhaust pressure switches are connected in series, of which the intake pressure switch is a normally open type, used for

shutdown protection when the suction pressure is too low; The exhaust pressure switch is a normally closed type, used for shutdown protection when the exhaust pressure is too high. The specific control principle is as follows: when the gas source pressure reaches the upper limit of the set value of the suction pressure switch, the pressure switch is closed, at this time when the start button is pressed, the motor runs, the suction solenoid valve is energized and opened, at the same time, the fan starts to operate, and the compressor works normally. When the exhaust pressure rises up to the upper limit of the set value of the exhaust pressure switch, the exhaust pressure switch acts, the machine stops running, meanwhile, the suction solenoid valve is de-energized and closed, the fan stops running; when the exhaust pressure drops to the lower limit of the set value of the exhaust pressure switch, the exhaust pressure switch is closed, and the machine continues running. When the gas source pressure drops to the lower limit of the set value of suction pressure switch, the suction pressure switch is opened, the machine stops running and stays in standby state; when the gas source pressure is restored to the upper limit of the set value of the suction pressure switch, the suction pressure switch is closed, the machine continues running.

Each stage of the compressor is equipped with a temperature sensor for temperature protection, when the exhaust temperature of a certain stage is too high, an alarm will be given or the machine will be shut down.

V. Test run

1. Test run

1.1 After the compressor is installed completely, carry out test run only after confirming it conforms to the requirements.

1.2 Before starting up the machine, bar over the machine for 2~3 revolutions with hands, and the basic compressor should rotate without obstacle. Open the suction valve and exhaust valve. When the suction pressure rises to the set value, jog the compressor to check whether the rotation direction of the main unit and fan is correct. If the rotational direction is normal, let the compressor run for a few minutes without load and observe the operating condition of the machine; if the direction is not correct, stop the machine and adjust the power phase sequence to make each direction normal.

1.3 Gradually increase the pressure to the rated pressure, and check for abnormal vibration, noise and heat when the machine is running. Check whether the controllers act according to the specified working conditions: manually stop the machine at the rated exhaust pressure, and restart it at the rated lower limit pressure; Check if the shutdown protection functions when the suction gas source pressure is insufficient. Check each display instrument displays normally and check the leakage of the entire gas compression system, eliminate the fault in time, if any.

1.4 During the test run of the machine, please carefully observe its running, if there is abnormal sound, abnormal vibration or abnormal heat generation, if finding any abnormal phenomenon, be sure to shut down the machine and make checks, it is not allowed to continue test run only after confirming the fault is eliminated.

1.5 After the test run is normal, it can be put into normal use.

Reference values of machine operating parameters:

SN	Item	Reference value	Remarks
1	Suction pressure (MPa)		
2	1 st stage gas pressure (MPa)		
3	2 nd stage gas pressure (MPa)		
4	3 rd stage gas pressure (MPa)		
5	4 th stage gas pressure (MPa)		
6	Suction temperature (°C)	≤40	
7	Exhaust temperature (°C)	≤160	Same requirements for each stage

VI. Operation and maintenance

After the compressor is installed and after the normal test run, it can be put into normal operation. In general case, all the automatic control parameters have been set before the compressor leaves the factory, so during the period of operation, it is generally not recommended to adjust the set values of the control parameters again. If it is really needed to readjust a parameter, please follow the following steps.

1. Adjustment set value of pressure switch

The machine generally has 2 pressure switches, find the one that needs to be adjusted, refer to Fig. 5 below, the adjustment is described by taking exhaust pressure switch as an example:

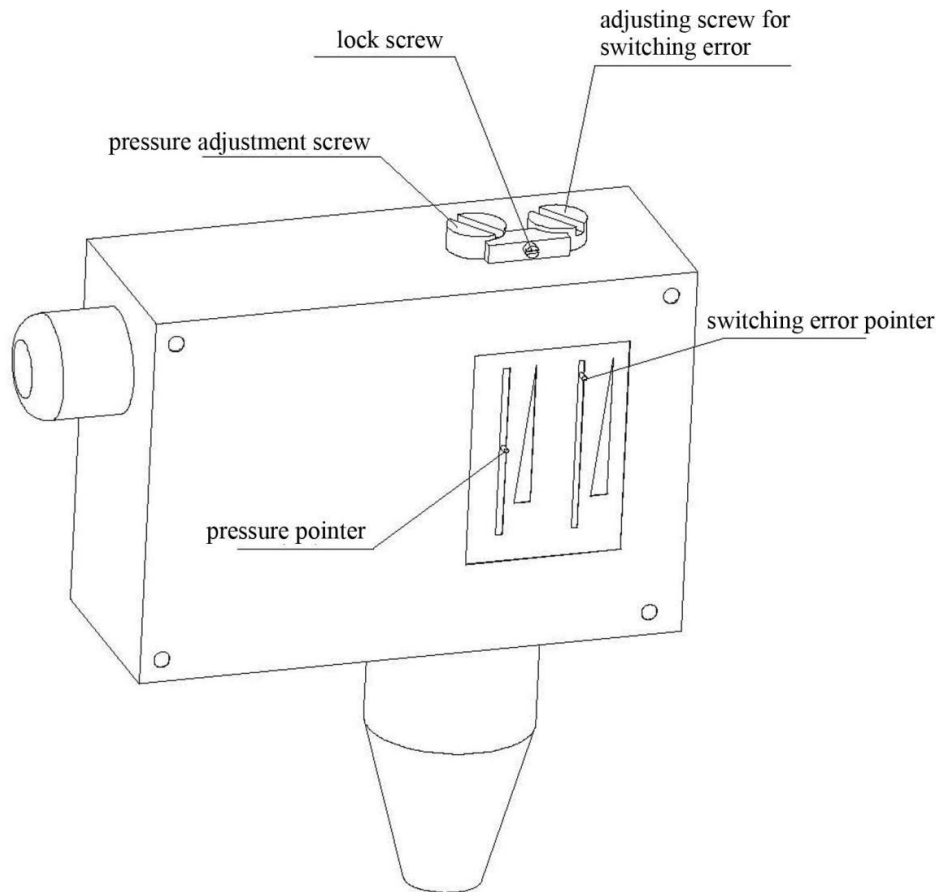


Fig. 9

Control principle: Loading pressure (starting pressure) + pressure difference = shutdown pressure,

- 1) When making the adjustment, loosen the lock nut with reference to the pressure meter;
- 2) Reduce the loading pressure: turn the pressure adjusting screw clockwise (the pointer moves up, the pressure decreases) by a half turn, and observe if the loading pressure meets the requirement (because the pressure difference is not regulated, the shutdown pressure will vary accordingly), if not, then make appropriate adjustment.
- 3) Increase the pressure difference: turn the pressure difference adjusting screw counterclockwise (the pointer moves down, and the pressure increases) by a half turn, observe if the pressure difference, i.e. shutdown pressure reaches the requirement, if not, then make appropriate adjustment.
- 4) After finishing the re-setting of each pressure value, lock the nut, and then check the parameters once again.

To increase the loading pressure or reduce the pressure difference, adjust in opposite direction to the above method. The adjustment methods for gas suction pressure switches are basically the same, but their connections are different, at this time the shutdown pressure = starting pressure - pressure difference.

It is absolutely prohibited to let the machine work at a pressure exceeding the rated exhaust pressure.

2. Temperature controller adjustment

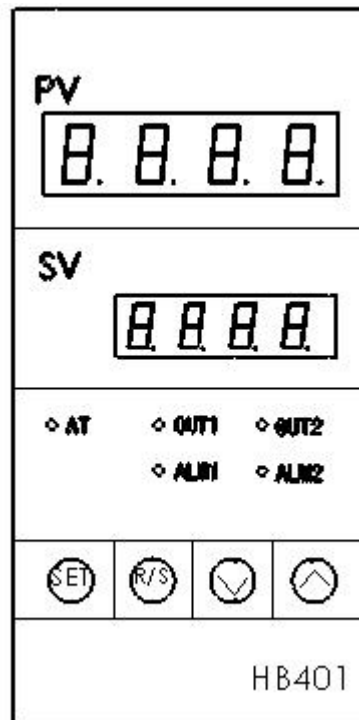


Fig. 6 Intelligent temperature controller

Each stage of the compressor is equipped with temperature controllers, which are installed on the control cabinet panel and have been set before leaving the factory. Please refer to the instructions of the intelligent temperature controllers for re-setting.

3. Thermal relay regulation

The thermal relay functions as overload protection of the motor, and its occasional failure will make the motor stopped, if you are sure the set value fails, appropriate adjustment should be made by the professional electrician, meanwhile, the operating current should be measured.

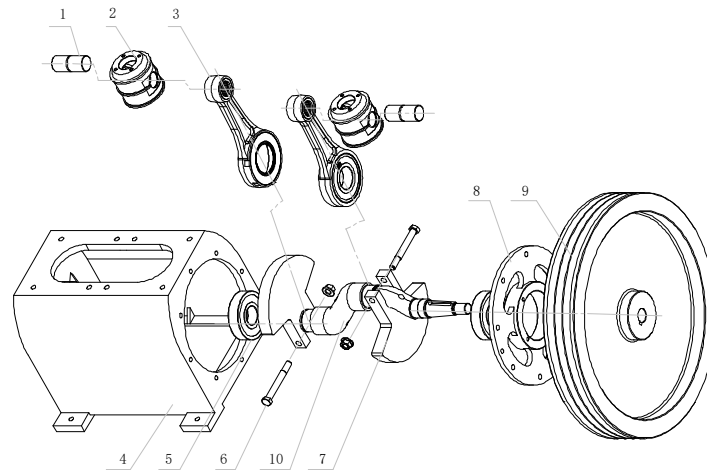
During the normal operation of the compressor, it requires less maintenance work, but there must be a person designated to be responsible for it, he should make walkaround inspection twice per shift, observe whether the compressor has the phenomenon of abnormal heating, abnormal vibration and abnormal sound, etc., if any, he should immediately stop the machine and make checks, he should not continue operation until confirming the trouble has been eliminated. After the end of each work shift, the power supply should be cut off and the suction valve should be closed. In order to ensure the long-term reliable operation of the machine, please check the following requirements:

- a. Daily check
 1. Pressure switch
 2. Pressure meter
 3. Noise, vibration and heat

- b. Monthly (about 200 hours) check
 1. Safety valve
 2. V-belt
 3. Fasteners
 4. Clean the dust on the machine
- c. Yearly (about 2000 hours) check
 1. Piston ring, guide ring and packing
 2. Gas valve
 3. Bearing (**anti-oxidant grease must be used**)

Several maintenance methods for easily worn parts (remember: new parts installed on the machine should be strictly de-oiled and degreased):

4. crankcase assembly:



Schedule of vertical air-cooled crankcase parts

SN	Name	Q'ty	Remarks
1	Piston pin assembly	2 sets	
2	Guide piston	2 pcs	
3	Connecting rod assembly	2 sets	2 big head bearings, 2 small head bearings, 2 connecting rods
4	Crankcase	1 set	1 crankcase, 3 end covers
5	Main bearing	2 sets	
6	Locking bolt	2 sets	Bolt nut
7	Counterbalance	2 pcs	
8	Bearing block	1 pcs	
9	Big flywheel assembly	1 set	1 flywheel, 1 nut flat washer and 1 elastic washer for each
10	Crankshaft assembly	1 set	1 crankshaft, 1 flat key, 2 circlips

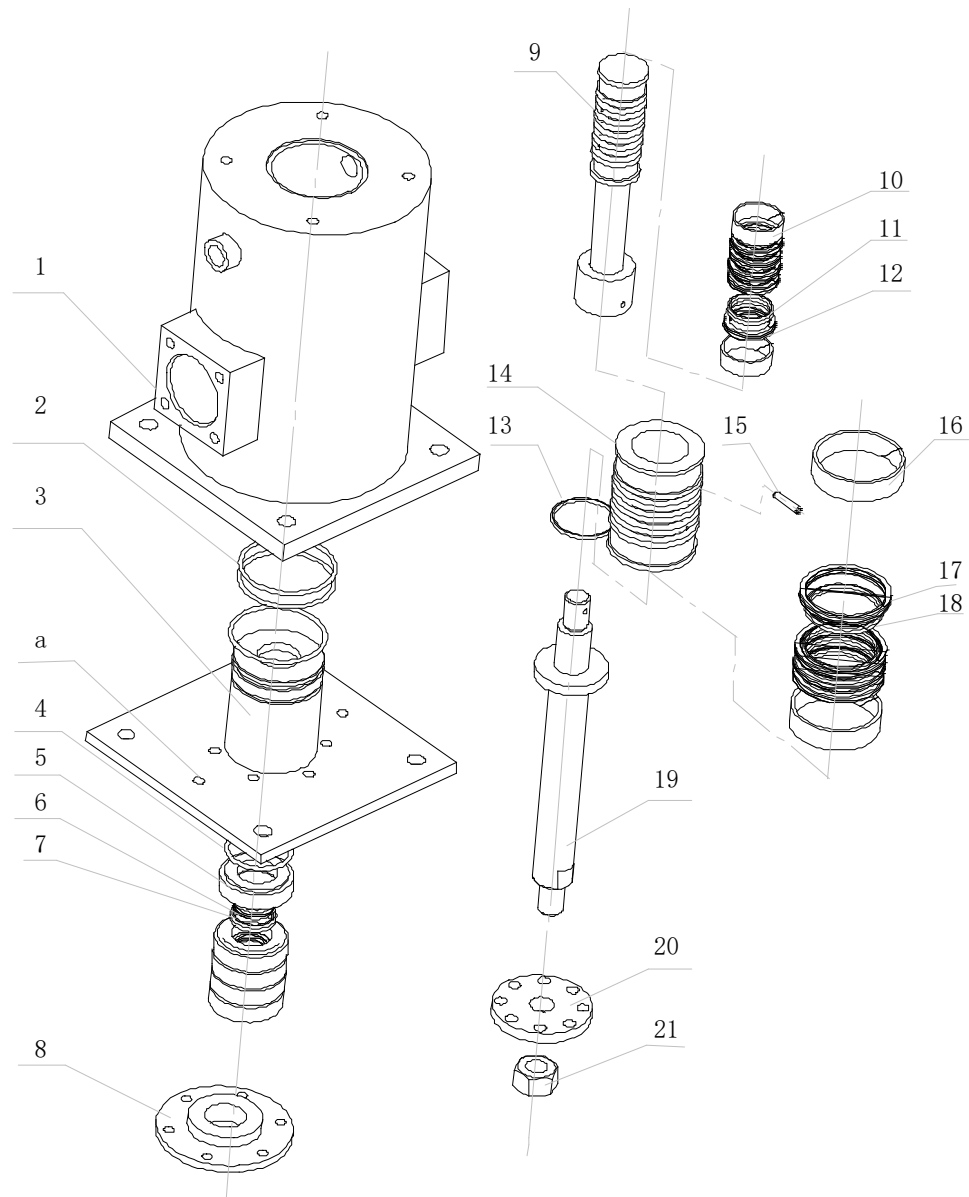
Installation method of crankcase components:

First press the connecting rod assembly onto the crankshaft, install the circlips and then install the counterweight, install it into the crankcase from the square hole under the crankcase, install them on the bearing block, and then heat the guide piston in boiling water before putting it on the connecting rod small head, knock in the piston pin. The disassembly procedure is just opposite to the assembly sequence. The tightening torque of the lock bolt is

190NM.

Note: The lock nut has an installation direction.

5. Stuffing box parts



Schedule of vertical air-cooled stuffing box parts

SN	Name	Q'ty	Remarks
1	2 nd stage cylinder	1 pcs	
2	O-ring of stuffing box	3 pcs	
3	Stuffing box	1 pcs	
4	O-ring of packing box	5 pcs	
5	Packing box (annular box)	5 pcs	
6	Packing seal ring	5 pcs	
7	O-ring of packing seal ring	10 pcs	
8	Stuffing box cover	1 pcs	
9	3rd stage piston	1 pcs	

10	3rd stage guide ring	2 pcs	
11	3rd stage piston ring	5 pcs	
12	O-ring of 3 rd stage piston ring	10 pcs	
13	O-ring of 2 nd stage piston ring	1 pcs	
14	2 nd -stage piston	1 pcs	
15	Set screw	1 pcs	
16	2 nd stage guide ring	2 pcs	
17	2 nd stage piston ring	4 pcs	
18	O-ring of 2 nd stage piston ring	8 pcs	
19	Piston rod	1 pcs	
20	Piston rod flange	1 pcs	
21	Piston rod nut	1 pcs	
22	Throttling ring	1 pcs	

Stuffing box disassembly procedure:

First, unscrew the connecting bolts between the secondary cylinder and the guide cylinder, pull the stuffing box components out of the guide cylinder as an integral body, then unscrew the connecting bolts of the piston rod flange, and remove the stuffing box components from the compressor as a whole.

Unscrew the piston rod nut 21, remove the piston rod flange 20, and disassemble the stuffing box cover 8. At this time, the piston rod and piston assembly can be drawn out.

Screw in the bolt at location a in the above figure, remove the stuffing box, and take out the stuffing box 5 from the center hole.

Disassembly procedure of the piston rod assembly: Remove the uppermost 2nd stage piston ring 17 and 2nd stage piston ring O-ring 18, insert a hexagonal wrench into the threaded hole at the bottom of the ring groove, remove the locking screw 15, and rotate the 3rd stage piston 9 and take off the 2nd stage piston 14.

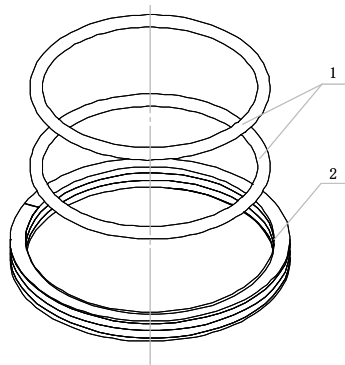
The assembly procedure of this component is exactly the opposite of the above disassembly procedure, please note:

1 When installing the stuffing box in the cylinder, you can apply a small amount of oxygen special grease on the O-ring to prevent the O-ring from being cut;

2 Please notice the direction and tightening torque (450NM) of the piston rod flange nut 21 during assembly.

6. Seal ring component

Parts list of seal rings



SN	Name	Q'ty
1	O-ring	2 pcs
2	Sealing ring	1 pcs

Disassembly procedure of the sealing rings:

The seal ring used on the piston is generally called the piston ring; The seal ring used on the

piston rod is generally called packing seal ring. On the oil-free high-pressure oxygen compressor, the ring structures with two different purposes are similar.

The procedure for disassembling the piston rings is as follows: directly remove the piston rings, and then just pick out two O-rings from the piston ring groove with a slender tool.

The installation procedure is just opposite to the disassembly sequence.

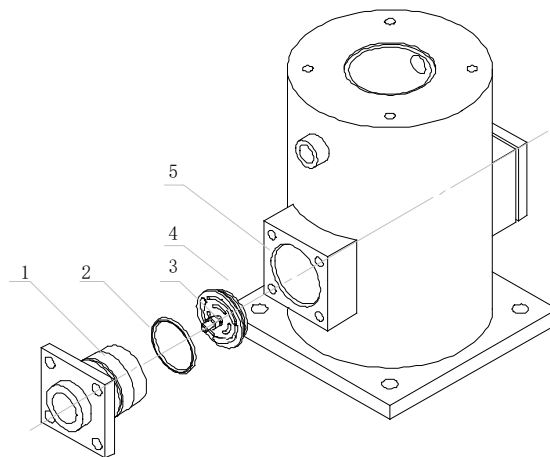
When the piston with the piston rings installed is installed into the cylinder, the piston ring must be tightened first, and the piston ring must be rotated as far as possible into the cylinder. Do not operate in a forced way.

The installation procedure of the packing seal ring is as follows: Fig. 6, first install the O-ring 4 on the stuffing box 3 and a single packing box 5, then put them on the piston rod 19, fix the packing box 5 to keep it on the outside of the stuffing box, and then put the packing seal 2 (see Fig. 7) on the piston rod and push it into the packing box, then press the O-ring into the gap between the packing box and the packing seal twice, then press them together into the stuffing box, and then proceed to the next packing box installation.

The disassembly of the packing seal only needs to be directly removed from the piston rod, which is very simple.

Note: The difference with the piston ring is that the O-ring is on the outside of the packing seal.

7. Gas valve assembly



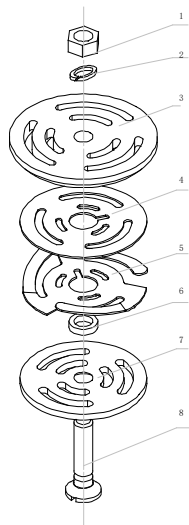
There are two structural types of gas valves for the oil-free high-pressure oxygen compressor, namely, ring valve and reed valve. They are described as below:

Table of ring valve parts

SN	Name	Q'ty	Remarks
1	Pressure valve cover	1 pcs	
2	O-ring	1 pcs	
3	Gas valve assembly	1 set	
4	Copper gasket	1 pcs	
5	Gas cylinder	1 pcs	

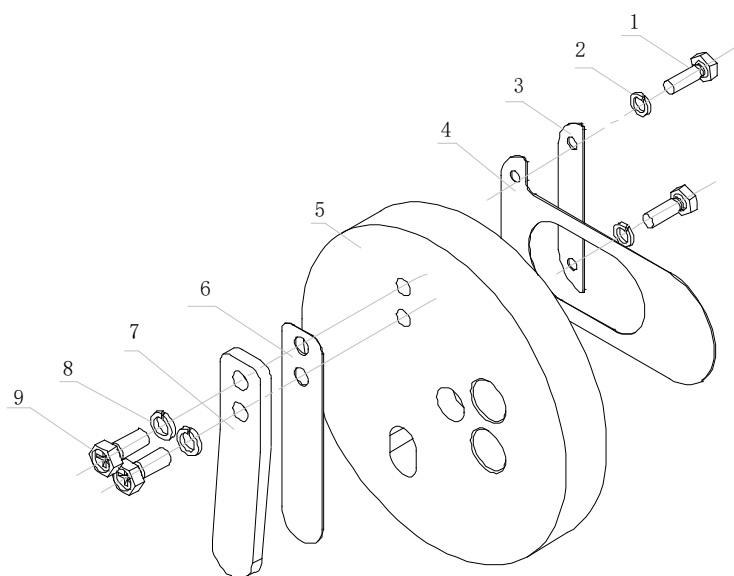
When assembling the ring valve assembly, apply a small amount of oxygen special grease on the O-ring.

Be careful the O-ring should never be cut during assembly.



SN	Name	Q'ty
1	Nut	1 pcs
2	Gasket	1 pcs
3	Valve seat	1 pcs
4	Valve plate	1 pcs
5	Spring	1 pcs
6	Guide ring	1 pcs
7	Valve bonnet	1 pcs
8	Bolt	1 pcs

Ring gas valve structure



Reed valve assembly diagram

Table of reed valve parts

SN	Name	Q'ty	Remarks
1	Suction valve screw	2 pcs	
2	Spring washer	2 pcs	
3	Elastic pressure shim	1 pcs	
4	Suction valve plate	1 pcs	

5	Valve plate	1 pcs	
6	Exhaust valve plate	1 pcs	
7	Lift limiter	1 pcs	
8	Spring washer	2 pcs	
9	Exhaust valve screw	2 pcs	

Reed valve installation requirements:

Make inspection against the light, the suction and exhaust valves should be seamlessly and flatly attached to the plane of the valve plate, and there should be no gap between them in the naked eyes, otherwise they need to be adjusted.

As for a specific model of machine or gas valve, although the external dimensions are different, the installation requirements are the same - the gastightness of the gas valve must be ensured.

Whether the gas valve can work normally or not directly affects the displacement volume of the compressor and inter-stage pressure, it is one of the key components of the compressor. The key point to check the quality of gas valve is to check whether the valve seat and sealing face of valve plate is damaged or not. Kerosene leak test method is often adopted to check valve quality, only the leakage in the form of drops is considered as acceptable, the excellently manufactured gas valve basically has no leakage.

Piston ring and guide ring

Piston ring and guide ring are the main dynamic sealing parts of the machine, and they are also easily worn parts. They must be checked or replaced after the machine has been running for a certain period of time; Otherwise, there will appear the phenomenon such as insufficient air displacement, slow pressure rise, and increased machine noise. For the installation position and structure of each stage piston ring and guide ring, please refer to the structure diagram of the main unit (Fig. 6).

8. Solenoid valve

Generally dust or microparticles will enter the solenoid valve, resulting in the phenomenon of untight closing or seizure, it can work normally just by opening it and clearing away the dirt. In addition, if the power supply does not conform to the specifications of the solenoid valve coil, the coil is live at no-load or the nut that fixes the coil becomes loose, this can cause coil burnout, after the coil is replaced, it can work normally. After the solenoid valve is energized, the permissible temperature of the coil is 80°C.

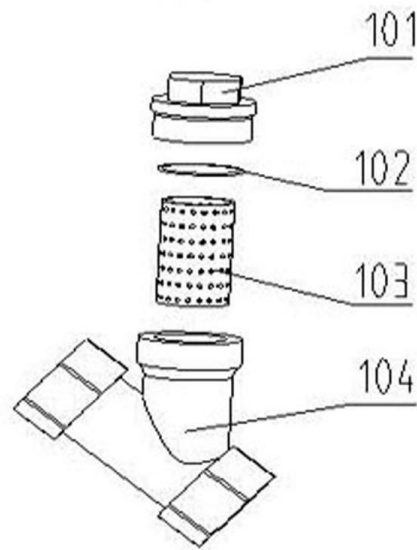
9. Safety valve

The safety valve plays a role of safety protection and will not be opened under normal circumstances; When a safety valve at a stage is opened, you should locate the cause whether it is a malfunction of the safety valve itself or a machine fault. The safety valve should be calibrated at least once a year.

10. Gas suction filter

The Y-type suction filter should be cleaned every 1000 hours. If the working environment is harsh, it is recommended to clean it every 500 hours to ensure normal compressor operation and service life.

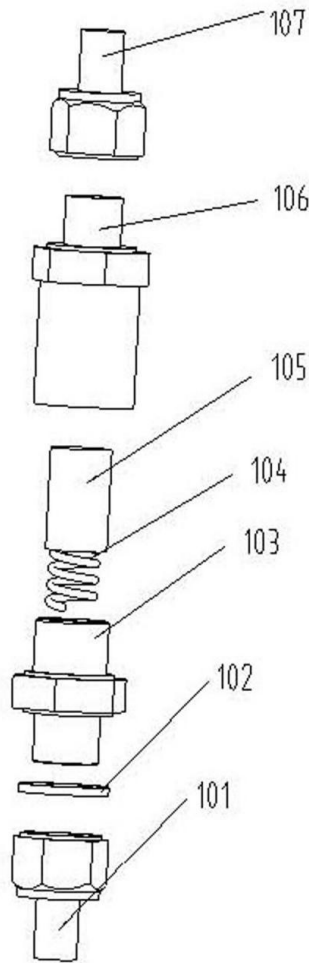
Y type suction filter



Sr No.	Name	Q'ty
101	Filter cap	1
102	Seal ring	1
103	Filter core	1
104	Filter housing	1

11. Filter

Disassembly and maintenance of stage 1, 2 and 3 filters



Sr. No.	Name	Q'ty	Material
101	Filter cap	1	Stainless steel
102	Sealing pad	1	PTFE
103	Filter housing 2	1	Stainless steel
104	Spring	1	
105	Filter core	1	
106	Filter housing	1	Stainless steel
107	Filter cap	1	Stainless steel

This filter is an interstage filter with higher precision. Consider replacing the filter core every 500h to ensure the normal operation and service life of the compressor

12. Others

The user should often remove the dust on the machine, and regularly maintain the motor and electrical components in accordance with relevant regulations.

VII. General fault analysis and elimination methods

Phenomenon of fault	Possible cause	Elimination method
Motor fails to run	Loss-of-phase of power supply Broken wire of electric circuit Electric motor fault Electromagnetic starter does not pick up Pressure controller malfunction Insufficient gas intake pressure	Locate the cause Replace the wire or fuse Repair or replace it Repair or replace it Repair or replace it Check the gas source
Pressure does not rise up or the rise process is slow	Malfunction of pressure meter System leak Piston ring is worn	Replace them Check each connecting part and piping system

	Gas valve leakage Reduced rotating speed Low suction pressure The suction solenoid valve is not opened Exhaust solenoid valve is not closed Filter is blocked up	Replace them Repair or replace the valve plate Take up the belt or replace it Check the gas source Check and repair it Check and repair it Clean it up
Ultrahigh pressure	Malfunction of pressure meter Pressure controller malfunction	Replace them Readjust or replace
Ultrahigh exhaust temperature	Poor ventilation, too high ambient temperature Gas valve fault Failure of fan to rotate or reversing	Improve ventilation condition Repair or replace it Check and eliminate the cause
Too big sound or vibration	Improper installation Relaxed fasteners Lack of grease or wear of bearing The easily worn parts are seriously worn	Readjust it Tighten it Add anti-oxidant grease or replace (when the bearing is replaced, the grease must be anti-oxidant grease) Replace them

Statement

1. The user must use original spare parts. Unqualified parts will seriously affect the performance of the machine, and even have potential safety hazards such as burning blast, and the consequences caused by this will be at your own risk.
2. In the process of installation, operation and maintenance, strictly follow the instructions in this manual to perform operations; Improper installation, operation or repair will seriously affect the performance of the machine, and even cause safety hazards such as burning blast. The consequences caused by this are at your own risk.