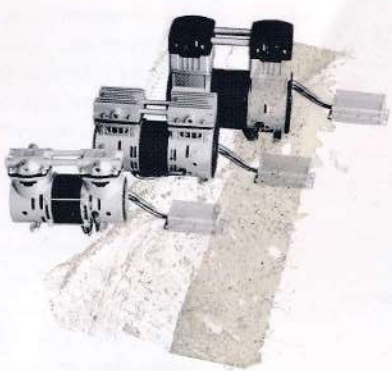
User Manual

OIL-LESS ROCKING PISTON

COMPRESSORS AND VACUUM PUMPS

Operation & Maintenance Manual



Dear Customer:

Thank you for purchasing this product. It is manufactured to the highest standards using quality materials. Please follow all recommended maintenance, operational, and safety instructions and you will receive years of trouble free service.

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Section A: PRODUCT USE CRITERIA, AND PURPOSE

- ⌘ Pump only clean, dry air.
- ⌘ Operate at 32°F- 1O4°F (O°C- 40°C).
- ⌘ Protect unit from dirt and moisture.
- ⌘ Do not pump flammable or explosive gases or use in an atmosphere that contains such gases.
- ⌘ Protect all surrounding items from exhaust air. This exhaust air can become very hot.
- ⌘ Corrosive gases and particulate material will damage unit. Water vapor, oil-based contaminants, or other liquids must be filtered out.
- ⌘ Consult your Distributor/ Representative before using at high altitudes.
- ⌘ This pump is oil-less and requires NO lubrication.

Your safety and the safety of others is extremely important.
We have provided many important safety messages in this manual and on your product. Always read and obey all safety messages.

⚠ This is the safety alert symbol. This symbol alerts you to hazards that can kill or hurt you and others.The safety alert symbol and the words DANGER" and WARNING will precede all safety messages. These words mean:

⚠ DANGER

You will be killed or seriously injured if you don't follow instructions.

⚠ WARNING

You can be killed or seriously injured if you don't follow instructions.

All safety messages will identify the hazard, tell you how to reduce the chance of injury, and tell you what can happen if the safety instructions are not followed.

Section B: INSTALLATION

⚠ WARNING

Electrical Shock Hazard
Disconnect electrical power at the circuit breaker or fuse box before installing this product.
Install this product where it will not come into contact with water or other liquids.
Install this product where it will be weather protected.
Electrically ground this product.
Failure to follow these instruction can result in death, fire, or electrical shock.

Correct installation is your responsibility. Make sure you the proper installation conditions and that installation conditions and that installation clearances do not block air flow.

⚠ WARNING

Blocking air flow over the product in any way can cause the product to overheat.

B1: Mounting

This product can be installed in any orientation. Mounting the product to a stable, rigid operating surface and using shock mounts will reduce noise and vibration.

B2: Plumbing

Remove plugs from the IN and OUT ports. Connect with pipe and fittings that are the same size or larger than the product's threaded ports. Be sure to connect the intake and exhaust plumbing to the correct inlet and outlet ports. Ports will not support plumbing

B3: Accessories

The products external intake and filtration in most applications. Check filters periodically and replace when necessary. Consult your Distributors/Representative for additional filter recommendations.

Install relief valves and gauges at valves at inlet or outlet or both, to monitor performance. Check Valves may be required to prevent back streaming through the pump.

B4: Motor Control

It is your responsibility to contact a qualified electrician and assure that the electrical installation is adequate and in conformance with all national and local codes and ordinances. The metal capacitor must be grounded.

Determine the correct overload setting required to protect the motor (see motor starter manufacturer's recommendations). Select fuses, motor protective switches or thermal protective switches to provide protection. Fuses act as short circuit protection for the motor, not as protection against overload.Incoming line fuses must be able to withstand the motor's starting current. Motor starters with thermal magnetic overload or circuit breakers protect motor from overload or reduced voltage conditions.

The wiring diagram supplied with the product provides required electrical information. Check that power source is correct to properly operate the dual-voltage motors.

B5: Electrical Connection

WARNING

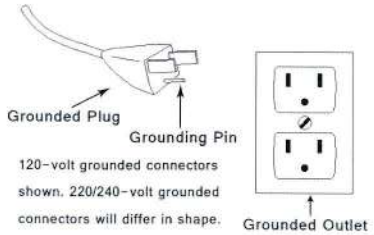
Electrical Shock Hazard

This product must be properly grounded. Do not modify the plug provided. If it will not fit the outlet, have the proper outlet installed by a qualified electrician.

If repair or replacement of the cord or plug is necessary, do not connect the grounding wire to either flat blade terminal. The wire with insulation that is green or green with yellow stripes is the grounding wire.

Check the condition of the power supply wiring. Do not permanently connect this product to wiring that is not in good condition or is inadequate for the requirements of this product.

Failure to follow these instructions can result in death, fire, or electrical shock.



Model with a power supply cord:

This product must be grounded. For either 120-voltor 220/240-volt circuits connect power supply cord grounding plug to a matching grounded outlet. Do not use an adapter. (See above diagram.)

In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This product may be equipped with a power supply cord having a grounding wire with an appropriate grounding plug.

The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if you are not sure whether the product is properly grounded. Do not modify the plug provided. It will not fit the outlet, have the proper outlet installed by a qualified electrician.

Model that is permanently wired:

This product must be connected to a grounded,metallic, permanent wiring system, or an equipment grounding terminal or lead on the product.

Power supply wiring must conform to all required safety codes and be installed by a qualified person.Check that supply voltage agrees with that listed on product nameplate.

B6: Extension Cords

Use only a 3-wire extension cord that has a 3-bladegrounding plug. Connect extension cord plug to a matching 3-slot receptacle. Do not use an adapter.Make sure your extension cord is in good condition. Check that the gage wire of the extension cord is the correct size wire to carry the current this product will draw.

An undersized cord is a potential fire hazard, and will cause a drop in line voltage resulting in loss of power causing the product to over neat. The following table indicates the correct size cord for length required and the ampere rating listed an the product nameplate. **If in doubt, use the next heavier gage cord. The smaller the gage number, the heavier the wire gage.**

Minimum gage for extension cords

Amps	Volts	Length of cord in feet								
	120V	25	50	100	150	200	250	300	400	500
	240V	50	100	200	300	400	500	600	800	1000
0-2		18	18	18	16	16	14	14	12	12
2-3		18	18	16	14	14	12	12	10	10
3-4		18	18	16	14	12	12	10	10	8
4-5		18	18	14	12	12	10	10	8	8
5-6		18	16	14	12	10	10	8	8	8
6-8		18	16	12	10	10	8	6	6	6
8-10		18	14	12	10	8	8	6	6	4
10-12		16	14	10	8	8	6	6	4	4
12-14		16	12	10	8	6	6	6	4	2
14-16		16	12	10	8	6	6	4	4	2
16-18		14	12	8	8	6	4	4	2	2
18-20		14	12	8	6	6	4	4	2	2

Section C: OPERATION

WARNING

Injury Hazard

Install proper safety guards as needed.

Keep fingers and objects away from openings and rotating parts.

When provided, motor terminal covers must be in place for safe operation.

Product surfaces become very hot during operation,allow product surfaces to cool before handling

Air stream from product may contain solid or liquid material that can result in eye or skin damage, wear proper eye protection.

Wear hearing protection. Sound level from motor may exceed 70 dB(A).

Failure to follow these instructions can result in burns, eye injury, or other serious injury.

It is our responsibility to operate this product at recommended pressures or vacuum duties and room ambient temperatures. **Do not start against a vacuum or pressure load.**

C1: Start Up

If motor fails to start or slows down significantly under load, shut off and disconnect from power supply. Check that the voltage is correct for motor and that motor is turning in the proper direction.Check the plug, cord and switch for damage. If so equipped, the thermal protection switch has tripped,the motor can restart after cooling.

Section D: MAINTENANCE

WARNING

Electrical Shock Hazard
Disconnect electrical power supply cord before performing maintenance on this product.
If product is hard wired into system, disconnect electrical power at the circuit breaker or fuse box,before performing maintenance on this pr oduct.
Failure to follow these instructions can result in death, fire, or electrical shock.

WARNING

Injury Hazard
Product surfaces become very hot during operation, allow product surfaces to cool before handling-Air stream from product may contain solid or liquid material that can result in eye or skin damage, wear proper eye protection.
Clean this product in a well ventilated area. Failure to follow these instructions can result in burns, eye injury, or other serious injury.

It is your responsibility to:

- **Regularly inspect and make necessary repairs to product in order to maintain proper operation.**
- **Make sure that pressure is released from product before starting maintenance.**

Check intake and exhaust filters after first 500 hours of operation. Clean filters and determine how frequently filters should be checked during future operation. This one procedure will help to assure the product's performance and service life.

1. Disconnect electrical power supply to unit.
2. Vent all air lines.
3. Remove filter cover.
4. Check filter felt. Replace felt if it is covered with contamination or shows signs of increasing differential pressure.
5. Re-install felt and filter cover.

Check that all external accessories such as relief valves and gauges are attached to cover and are not damaged before re-operating product.

D1: SHUTDOWN PROCEDURES

It is your responsibility to follow proper shutdown procedures to prevent product damage. NEVER ADD OIL TO THIS OILLESSPUMP.

Proper shutdown procedures must be followed to prevent pump damage. Failure to do so may result in premature pump failure. The Rocking Piston Oil-Less Pumps are constructed of ferrous metals or aluminum which are subject to rust and corrosion when pumping condensable vapors such as water. Follow the steps below to assure correct storage and shutdown between operating periods.

1. Disconnect plumbing.
2. Operate product for at least 5 minutes without plumbing.
3. Run at maximum vacuum for 10 to 15 minutes.
4. Repeat step 2.
5. Disconnect power supply.
6. Plug open ports to prevent dirt or other contaminants from entering product.

D2: SERVICE KIT INSTALLATION

WARNING

Electrical Shock Hazard
Disconnect electrical power supply cord before installing Service Kit.

If product is hard wired into system, disconnect electrical power at the circuit breaker or fuse box before installing Service Kit.

Vent all air lines to release pressure or vacuum.Failure to follow these instructions can result in death, fire, or electrical shock.

We will NOT guarantee field-rebuilt product performance. For performance guarantee, the product must be returned to our Authorized Service Facility.

Service Kit contents vary. Most contain gasket and filter parts.

1. Disconnect electrical power to pump.
2. Disconnect air supply and vent all air lines to release pressure or vacuum.
3. Mark the orientation of the ports so cover will be re-installed correctly.
4. Remove screws from the head of the pump. Remove the head of the pump.
5. Mark orientation of valve plate(s). Remove valve plate(s).
6. Remove and discard old cups(s), retainer screws, cylinder O-ring(s), head O-ring(s),valves,and valve retainers.
7. Install new cup(s) on rod(s) facing up.
8. Re-install retainer plates.
9. Apply a thread locking compound (Loctite 222) to retainer screws. Torque screws to 50 in. lbs.
10. Carefully install cylinder(s) over cup(s) at an angel to avoid damaging cup(s).
11. Clean valve plates with water based solvent. Take care to not scratch valve seats.
12. Install valves and valve retainers. Check that the orientation with the ports is correct.
13. Apply a thread locking compound Loctite 222 to retainer screws. Torque screws to 10-13in.lbs.
14. Install cylinder O-ring(s) in the bottom of valve plate(s).
15. Check that the orientation of valve plate(s) with the ports is correct.
16. Install head O-rings in the O-ring grooves on top of valve plate.
17. Re-install head over valve plate(s) checking that orientation with ports is correct.
18. Torque screws to 50 in. Lbs

Check that all external accessories such as relief valves and gauges are not damaged before re-operating product.

If pump still does not produce proper vacuum or pressure, send unit to a HC Authorized Service Facility for repair.

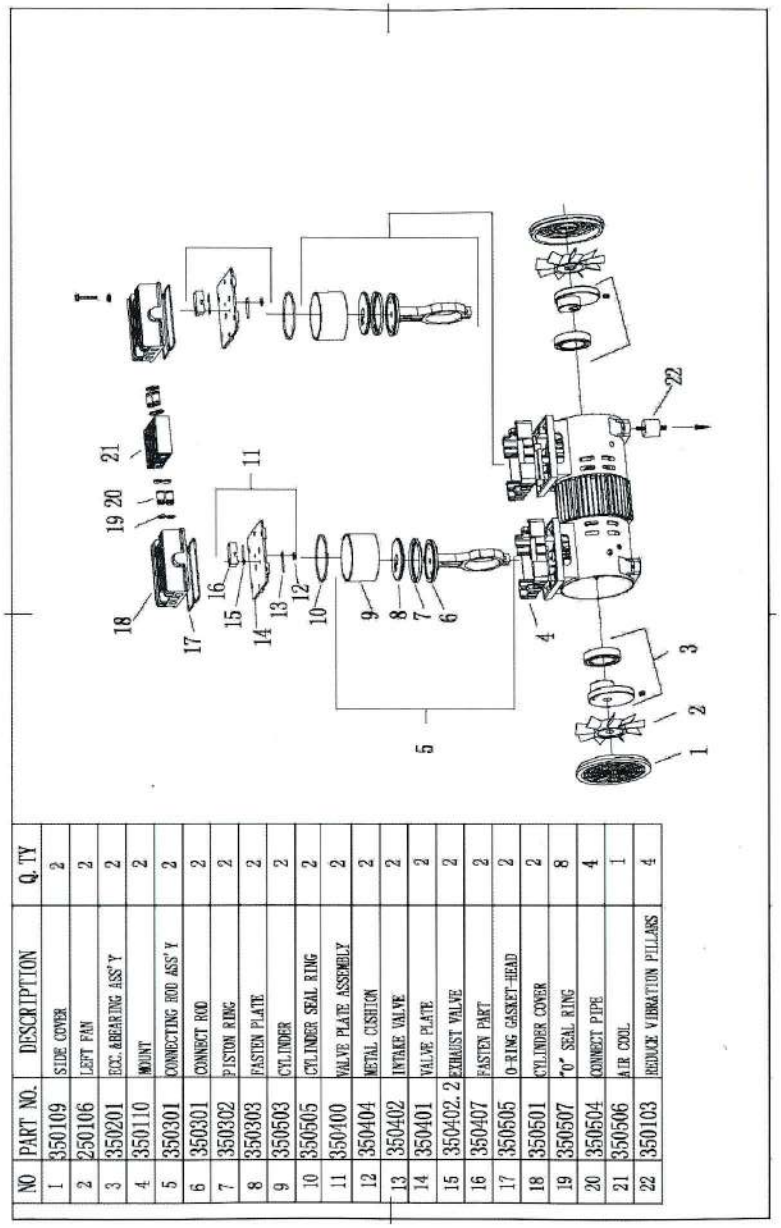
Section E: Parts List

E1: REPLACEMENT PARTS LIST

High quality accessories:

1. Cylinder with Military industrial technology
2. NSK/SKF/TPI bearing
3. 100% copper wire motor.
4. The lifetime of piston ring is about 24,000 hours.
5. Connect Rod Assembly.
6. The motor life is more than 8,000 hours.
7. Warranty is 2 years.

E2: EXPLODED PRODUCT VIEW: AIR COMPRESSOR PUMP



NO	PART NO.	DESCRIPTION	Q. TY
1	350109	SIDE COVER	2
2	250106	LEFT FAN	2
3	350201	ECC. &BEARING ASS'Y	2
4	350110	MOUNT	2
5	350301	CONNECTING ROD ASS'Y	2
6	350301	CONNECT ROD	2
7	350302	PISTON RING	2
8	350303	FASTEN PLATE	2
9	350503	CYLINDER	2
10	350505	CYLINDER SEAL RING	2
11	350400	VALVE PLATE ASSEMBLY	2
12	350404	METAL CUSHION	2
13	350402	INTAKE VALVE	2
14	350401	VALVE PLATE	2
15	350402.2	EXHAUST VALVE	2
16	350407	FASTEN PART	2
17	350505	O-RING GASKET-HEAD	2
18	350501	CYLINDER COVER	2
19	350507	"O" SEAL RING	8
20	350504	CONNECT PIPE	4
21	350506	AIR COOL	1
22	350103	REDUCE VIBRATION PILLARS	4

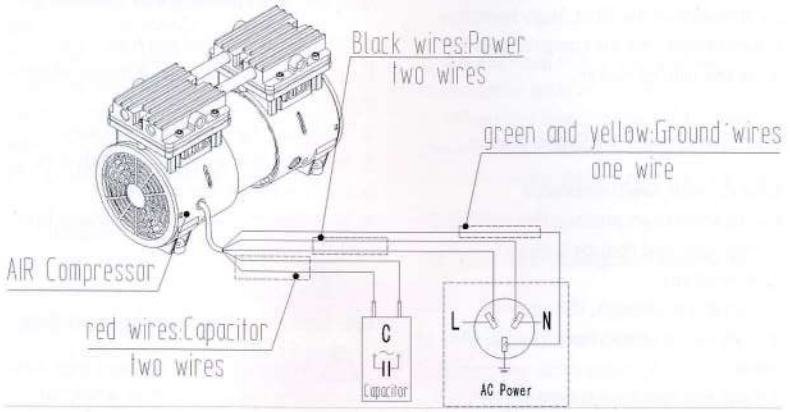
E3: MAIN COMPONENTS

No	Part No *	DESCRIPTION	QTY
1	350109	SIDE COVER	2
2	250106	MOTOR FAN	2
3	350201	ECC.&BEARING ASS'Y	2
4	350110	MOUNT FRAME	2
5	350301	CONNECT ROD ASS'Y	2
6	350301	CONNECT ROD	2
7	350302	PISTON RING	2
8	350303	FASTEN PLATE	2
9	350303	CYLINDER	2
10	350505	CYLINDER SEAL RING	2
11	350400	VALVE PLATE ASSEMBLY	2
12	350404	METAL CUSHION	2
13	350402	INTAKE VALVE	2
14	350401	VALVE PLATE	2
15	350402.2	EXHAUST VALVE	2
16	350407	FASTEN PART	2
17	350505	O-RING GASKET-HEAD	2
18	350501	CYLINDER COVER	2
19	350507	'O' RING SEAL	8
20	350504	CONNECT PIPE	4
21	350506	AIR COOL	1
22	350103	RUBBER FEET	4

Section F: Wire connection

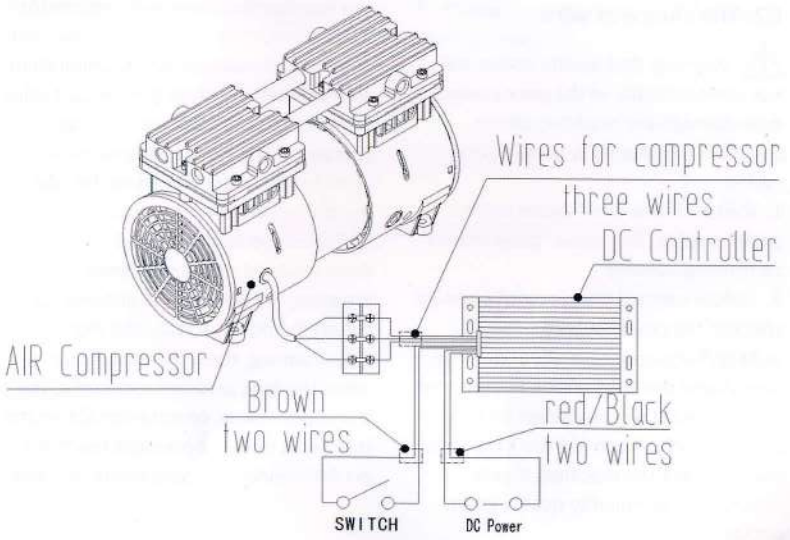
F1: Wire connection of AC series air compressor pumps :

Red wires connect with capacitor, Black wires connect with power supply.



F2: Wire connection of DC series air compressor pumps :

Green wire, blue wire and yellow wire are for compressor, orange wires are for switch, red wire and black wire are for power supply.



Section G: Installation & Notes of Complete Compressor

⚠ Warning: Don't use & store the compressor in the dust, high humidity environment, the air compressor can't be in the rain or water .

G1: The choice of Store place

1.Air is clean, well ventilated environment can prolong the service life of machine and reduce energy consumption.
2.The light is enough, the reserve maintenance space, keep the air filter is clean.
3.Place the machine balanced, not too close to the wall, so as not to affect the cooling effect (should be reserved and wall have a distance of 30 cm)
4.putting the machine smoothly, with handle gently push, will not swing .

G2: The choice of wire

⚠ Warning: Bad quality socket will not work normally as the poor contact, even damage the machine, please choose the high quality quality goods socket.
1. Please choose the Rubber cable for power supply , the rubber cable should be firmly grounded.
2. Before connect the electricity, should checked the power supply's voltage/frequency carefully, it must be same same the label on the compressor. Inferior socket will be caused by poor contact machine can not work normally, even damage the machine, please choose the high quality quality goods socket.

G3: Before running for checking

1. Checking whether each part has loose for bolts and nuts, if loose, please tight it.
2. Whether the air pipe line is well.
3. Whether the wires and switch is in accordance with the provisions
4. Whether the wires are right and firm.

G4: Minding for Starting running

⚠ Warning: Don't remove and close the cooling fan and muffler when the machine is running.
1. After running before items checked, open the exhaust valve fully, then put the pressure switch button in the open position, use the machine starts running at no load for about 3-5 minutes, so you can increase the life of the compressor motor.
2. After the machine no-load operation without matters, close the exhaust valve, the storage tank began to running, pressure is gradually increased to a predetermined pressure and then do the protection function tests.
3. Protection function tests
After reaching a predetermined pressure, pressure switch automatically cut off the power supply, the motor stops running, open the exhaust valve, when the tank pressure reduced to the starting pressure, compressor automatic start work until the pressure reaches a predetermined pressure inside the tank.

G5: Adjust the pressure control system

Pressure switch working pressure has been adjusted before out the factory, please do not change the setting on their own, if it really need to change the pressure, you should consult our technical department before changing opinions, pressure adjustment under the guidance of technical personnel.

1. Increase/decrease the use of pressure, according to the clockwise, counterclockwise rotate pressure to adjust the screw .
2. Adjusting the pressure, don't make it more than the rated pressure of the compressor.

G6: Safety valve

The pressure has been adjusted well before they leave the factory, please don't adjust it again. If you need to change the safe valve setting pressure, please contact our company.

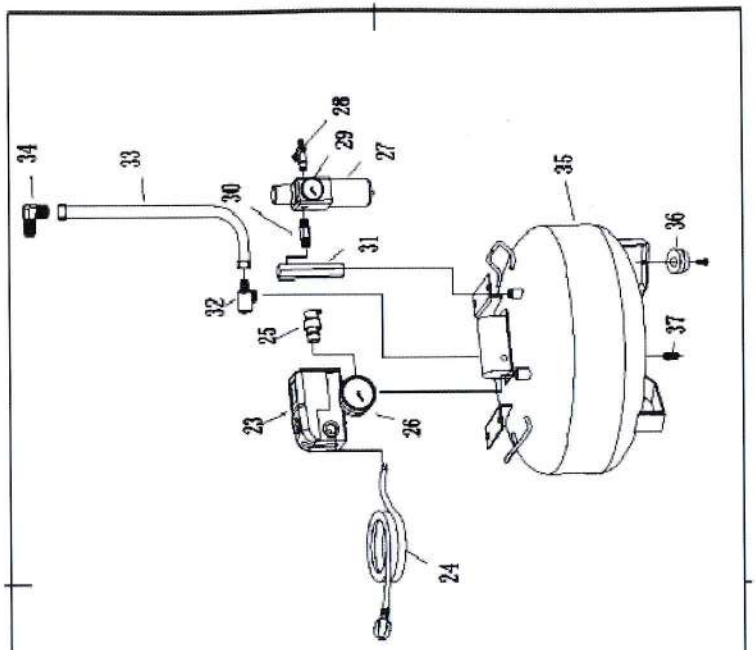
G7: Repair the motor

1. Please keep the motor and air compressor surface cleanly.
2. When the bearing life will be over, the motor running will have big vibration voice, please replace bearings.

G8: Regular checking and Maintenance

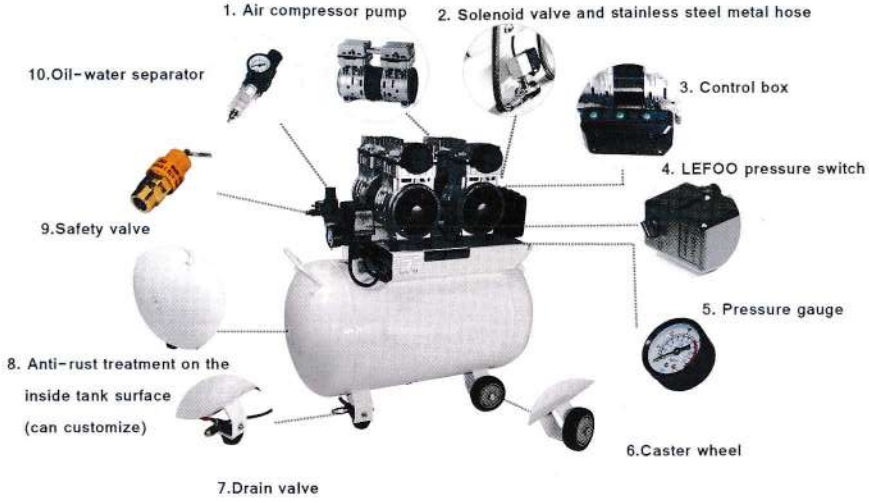
1. Please keep the machine clean.
2. Open the drain valve of storage tank once a day, and pour the dirty water.
3. For the air filter, please use the compressor clean the dust every month, please also replace the filter about once 1 year.
4. Checking whether every parts of screw is loose every month.
5. Please clean the exhaust valve every half one year.

G9: EXPLODED PRODUCT VIEW: COMPLETE COMPRESSOR



NO	PART NO	DESCRIPTON	QTY
23	350703	PRESSURE SWITCH	1
24	350704	CORD	1
25	350711	SAFETY VALVE	1
26	350817	40 PRESSURE GAUAE	1
27	350712	WATER SAPARATOR	1
28	350713	AIR VALVE	1
29	350818	60 PRESSURE GAUAE	1
30	350714	FITTING	1
31	350715	TWO WAYS CONNESTOR	1
32	350815	NONRETURN VALVE	1
33	350814	EXHAUST TUBE	1
34	350813	ELBOW	1
35	350902	TANK ASSEMBLY	1
36	350901	BUMPER	3
37	350911	DRAIN COCK ASSEMBLY	1

G10: Main accessories for complete compressor:



Section H: Common Problems, Possible Causes and Solutions

Air compressor pump:

Symptoms	Possible Causes	Solutions
Difficult to start or fails to start	1.No power supply 2.Machine parts damage	1.Confirm power to motor 2. Replace worn part(s).
Suddenly stopped working and the Pumps/motors are hot to the touch.	1.Thermal protector kicked in /unit over heated 2.Work environment temperature is too hot 3.Power supply fuse blown	1. Allow the motor to cool down for at least 10 min then reset the thermal protector. 2. Ensure the space is properly ventilated or air conditioned 3. Unplug the power plug and check the circuit and its controls.
Reduced air flow	1. Dust filter too dirty 2. System leak 3. Part(s) worn-out/damaged	1. Take apart filter assembly and clear it or replace it. 2. Leak proof the system 3. Replace the worn/damaged part(s).

Complete compressor:

Faults	Reasons	Dealing with
The pressure can't be increased Or increased to a certain extent It can't be increased	Motor leak Exhaust leak Gas consumption is too large Piston ring over wear There is some dirt on the valve, sealing is lax Seal is invalid	Check and exclude Replace the exhaust pipe Reduce gas consumption Replace the piston ring Clean or replace the valve Replace the seals
Motor temperature is too high	Use pressure more than rated pressure Voltage is too high or too low Capacitor damaged Motor bearing can't work	Using it within the rated pressure Install stabilizers Replace the capacitor Replace bearings

Machine have big Vibration	Machine placed not balanced Damping spring loose or damaged Crank the screws loose Excessive wear of piston rings	Place the compressor on flat ground Tighten the screws or replace the spring Install the crank again Replace the piston ring
No any voice	Power failure Plug and socket connection is bad. Motor failure	Restart the power supply Using the high quality socket Repair by professional factory
Big noise	Excessive wear of piston rings Bearing damaged Foreign Matter inhalation	Replace the piston ring Replace the bearing Clean the foreign matter
Difficult to start or can't start	Foreign matter blocked the air hole of the air outlet Voltage is too low Plug and socket connection is bad Storage tank pressure more than 5 bar Temperatureis too low, the exhaust valve was frozen by water	Clean the foreign matter Adjust the use voltage to rated voltage Checking the faults Reduce the pressure in the tank Should work within -5℃ environment

SERVICE AND MAINTENANCE CHART

Date	Problem	Technician	NOTES