

PUFCO Air Compressor

Operation and Maintenance Manual

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1. Important precautions for use

Before the equipment is put into operation:

- 1) Please read this manual carefully before operation, understand the contents of this manual, and understand the operating procedures and precautions of the equipment;
- 2) Before operation, check the equipment operation status, maintenance records, precautions in this manual, operation warnings, and equipment safety instructions to prevent misoperation and major accidents;
- 3) It is forbidden to modify the equipment structure without permission to prevent malfunctions and major accidents during equipment operation;
- 4) Operators must be trained and qualified before operating this equipment.

Equipment in operation:

- 1) Fully understand the contents of this manual and operate strictly in accordance with the operating procedures in this manual;
- 2) It is prohibited to use the equipment for purposes other than the initial design or beyond the conditions of use of the equipment;
- 3) When the equipment is running, ensure that there is no one in the danger zone or no objects that may hinder the normal operation of the equipment;
- 4) The equipment is in operation and all protective devices are in good condition;
- 5) Do not touch any movable part of the equipment;
- 6) In case of emergency, please press the [Emergency Stop Switch] button.

During equipment maintenance:

- 1) Fully understand the contents of this manual and maintain the equipment strictly in accordance with the requirements of this manual;
- 2) It is forbidden for one person to maintain the equipment. Two or more people are required, and the maintainers must have the ability to cooperate and communicate with each other;
- 3) When performing equipment maintenance, there must be a supervisor and other personnel are prohibited from approaching the machine;
- 4) The equipment should have designated operators, designated maintenance personnel, and designated servicing personnel;
- 5) Pay attention to the voltage, air pressure, and equipment operation;
- 6) Pay attention to the firmness of the moving parts and the firmness of the pipeline connections, and discharge the residual gas in the pipeline.

After equipment operation:

- 1) After the operation, operators gather to ensure that there are no debris in the dangerous area and no interference in the moving parts;
- 2) After the operation, check that all doors of the equipment are closed and the protective devices are in good condition;
- 3) Put away all tools and parts after the operation.

2. Purpose of the Manual

to increase the service life of air compressors , reduce the equipment failure rate during operation, maintain the normal operation of equipment, and effectively prevent various types of accidental injuries during maintenance.

3. Scope of application

All the company's departments, personnel, equipment, facilities and working environment related to air compressor equipment .

4. Operating procedures

4.1 First use and daily operation process

1) **The first start-up of the machine after arrival:** Close the air switch, the machine display lights up, and displays the relevant parameters. (If it displays an electrical fault, it is the reverse protector that is in action. Please swap any two power cords). Check whether the voltage is normal (220V/380V±20V), press the start button (green button) to start the air compressor, and after about 30 seconds, press the stop button (red button) to stop. Check whether the machine has oil leakage, air leakage, etc. If everything is normal, start the machine and use it.

2) **Daily use of power on and off:** The air compressor operation panel is a touch screen panel. When turning on the machine, press and hold the green power button on the control panel for one second. After releasing the button, the screen will display words such as power-on delay, which means the machine has turned on successfully. When shutting down the machine, press and hold the red shutdown button on the control panel for one second. After releasing the button, the screen will display words such as shutdown delay, which means the machine has turned off successfully.

If the air compressor operation panel is left idle for a long time, it will automatically enter sleep mode. Click anywhere on the screen to automatically cancel the sleep mode.

Note: Unless it is an emergency, remember not to use the red emergency stop button to stop the machine, otherwise it may cause damage to the intake valve and the main engine connecting shaft!

3) Power on and off sequence: The power on sequence is to turn on the dryer first, then the air compressor. There is no order for shutting down.

If the machine is not to be used for a long period of time, please turn off the power supply. Before turning off the power supply, make sure that all equipment on the machine has stopped working.

The machine cannot be restarted immediately after being shut down. There should be at least one minute interval between restarting it.

4.2 Daily start and stop precautions

1) Please make sure that the oil level in the oil tank of the air compressor is at one quarter of the oil level when operating.

2) Please confirm whether the air control valve between the exhaust pipe and the air tank is open normally.

3) Please confirm whether the exhaust ventilation fan is started and operating normally.

4) Please make sure that the split dryer starts and runs for 3 minutes before starting the air compressor (optional check).

5) After the air compressor stops and then restarts, you need to wait for 3 minutes (residual pressure, motor, and dryer integrated protection).

6) When the air compressor stops, close the air control valve to prevent condensate backflow, and open the drain valve to release condensate and pressure.

7) When the air compressor is running, please open the cover to check whether the internal oil system is leaking oil, whether the air system is leaking air, and whether the data displayed on the control panel is normal.

5. Maintenance Manual

5.1 Daily inspection

1) When the air compressor is running, check whether the oil level display is normal by observing the oil mirror at one quarter of the distance to see if there is any oil or air leakage.

2) The air compressor control panel displays operating data, operation record management, and confirms maintenance-alarm-abnormal information

3) Whether the electromagnetic steam trap and the pressure differential steam trap are working normally.

4) Whether the pipeline filter drain valve is working properly.

5) Whether the dryer is operating normally (refrigerant pressure, dew point temperature, steam trap drainage).

6) Please confirm whether there is any leakage in the safety valve of the gas tank and make sure that the bottom air control valve is drained.

5.2 Daily maintenance subjects

1) Check whether the dust screen is blocked (depending on the specific environment). Normally, it should be maintained once every two days.

2) Check whether the air filter and air compressor radiator are blocked (clean according to the specific environment). Normally, maintenance should be carried out every 500 hours.

3) Check whether the air cooler and oil cooler of the air compressor are blocked (clean according to the specific environment). Normally, maintenance is performed once every 2000 hours.

5.3 Maintenance content

1) First maintenance (150 hours): Replace the oil filter.

2) Regular maintenance (2000 hours): Replace the air filter, oil filter, and add super coolant once.

3) Regular maintenance (4000 hours): Replace the air filter, oil filter, oil separator, and add super coolant once.

4) Routine maintenance (8000 hours): Replace the air filter, oil filter, oil separator, and replace all super coolants.

5.4 Notes

1) Read the instruction manual carefully before using the air compressor.

2) The operating environment of the air compressor should be operated below 45 degrees (this can be improved by ventilation through exhaust fans).

3) Air compressor lubricating oil and motor grease must not be mixed (use according to the specifications in the instruction manual).

4) The three voltages of the power supply RST of the air compressor should be balanced. The power air switch, power cord, grounding and zero connection must be selected and connected according to the standards in the instruction manual.

5) The interval between turning on and off the air compressor and dryer should be greater than 3 minutes (to prevent overload).

6) The air compressor needs maintenance every 2,000 hours. When the maintenance time is approaching, please contact the sales staff in advance to confirm the delivery of accessories.

7) If the air compressor is abnormal or the "Maintenance", "Alarm" or "Abnormal Stop" message appears, please write down the displayed content and contact our company.

6. Common fault causes and troubleshooting

Serial NO.	Fault	Possible causes	Troubleshooting measures
1	Unable to start	<ol style="list-style-type: none"> 1. The fuse is burnt out 2. Protection relay action 3. The start button has poor contact 4. Voltage is too low 5. Motor failure 6. Machine failure 	<ol style="list-style-type: none"> 1. Ask an electrical engineer to inspect and replace 2. Ask electrical personnel to inspect and replace 3. Ask electrical personnel to inspect and replace 4. Ask electrical personnel to inspect and replace 5. Ask electrical personnel to inspect and replace 6. If the manual machine cannot be turned, please contact Party B
2	Exhaust temperature is high (shutdown if it exceeds 105°C)	<ol style="list-style-type: none"> 1. The ambient temperature is too high 2. Temperature control valve failure 3. Insufficient lubricating oil 4. The oil cooler fins are too dirty 5. Oil filter is blocked 6. Cooling fan failure 7. Temperature sensor failure 	<ol style="list-style-type: none"> 1. Improve surrounding ventilation 2. Check/replace the temperature control valve 3. Check/adjust oil level 4. Clean the cooler fins 5. Replace the oil filter 6. Replace the cooling fan 7. Check/replace the temperature sensor
3	Low exhaust pressure	<ol style="list-style-type: none"> 1. Air demand exceeds supply 2. The air filter is blocked 3. The intake valve cannot be fully opened 4. Oil-gas separation core is blocked 	<ol style="list-style-type: none"> 1. Check if the pipeline is leaking 2. Clean or replace the filter element 3. Check the intake valve 4. Check the pressure gauges before and after the oil-gas separation core and the pressure value displayed on the LCD panel, and replace if necessary.
4	The vehicle cannot be empty. When the vehicle is empty, the system pressure still maintains the working pressure or continues to rise.	<ol style="list-style-type: none"> 1. Intake valve malfunction 2. Pressure sensor failure 3. Failure of the relief valve 	<ol style="list-style-type: none"> 1. Check the intake valve 2. Repair and replace if necessary 3. Repair and replace in time if necessary
5	Frequent empty and loaded vehicles	<ol style="list-style-type: none"> 1. Pipeline leakage 2. The empty and loaded vehicle pressure difference is set too small 3. Unstable air consumption 	<ol style="list-style-type: none"> 1. Check the pipeline 2. Reset 3. Increase the capacity of the gas tank

6	The oil content in the air is too high, and the oil consumption is excessive	<ol style="list-style-type: none"> 1. Oil level is too high 2. The filter or throttle hole of the oil return pipe is clogged 3. The oil-gas separation core or gasket is damaged 4. Lubricating oil system leakage 5. Exhaust pressure is too low 6. Excessive lubricant foam 	<ol style="list-style-type: none"> 1. Check the oil level and drain it to the normal position. 2. Clean the filter screen and throttle hole of the oil return pipe and replace them if necessary. 3. Check the filter element and gasket and replace them if damaged. 4. Check the pipeline 5. Increase exhaust pressure 6. Replace lubricating oil
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