

Silent Oil-Free Air Compressor Instruction Manual

Table of Contents

- 1. Product Overview**
- 2. General Standard Technical Specifications**
- 3. Safety Warnings**
- 4. Machine Structure Introduction**
- 5. Installation & Commissioning**
- 6. Standard Operating Procedures**
- 7. Routine Maintenance**
- 8. Troubleshooting**
- 9. Accessories List**
- 10. Warranty Terms**

1. Product Overview

This unit is a silent oil-free piston air compressor, equipped with an oil-free compression pump and fully enclosed sound insulation cabinet. No lubricating oil is required inside the compression chamber to deliver clean compressed air, featuring low operating noise and slight vibration.

It is widely matched with pneumatic tools, cold cut saws, spray painting equipment, metal processing machines, auto repair equipment and laboratory air supply systems.

Core Features: Oil-free design, low noise, automatic pressure start-stop, built-in safety valve, air tank drain valve and pressure regulating assembly.

⚠ Important Notice: This machine adopts an oil-free structure. Never pour engine oil into the pump head, otherwise the main unit will be permanently damaged.

2. General Standard Technical Specifications (Adjustable as Required)

- Rated Voltage: AC220V/50Hz
- Motor Type: AC Silent Motor (Variable Frequency Brushless Motor optional for partial models)
- Adjustable Working Pressure: 0.5 ~ 0.8MPa
- Pressure Switch Control: Auto Start $\approx$ 0.5MPa, Auto Stop $\approx$ 0.8MPa
- Safety Valve Relief Pressure: 0.85MPa
- Noise Level: $\leq$ 60dB (A)
- Air Tank Volume (Optional): 24L / 30L / 50L / 100L
- Operating Ambient Temperature: 5°C ~ 40°C
- Applicable Medium: Only clean air. Do not inhale corrosive or flammable gas.

3. Safety Warnings ⚠

1. Operators shall wear safety goggles. Never aim high-pressure airflow at human bodies or eyes.
2. Place the machine on a flat, ventilated and dry ground. Reserve heat

dissipation space around the unit and keep away from flammable materials.

3. The power supply must be reliably grounded with an earth leakage protection switch. Do not use damaged power cords.
4. Cut off power and open the exhaust valve to release all pressure inside the tank before maintenance or moving the machine.
5. The air tank is a pressure vessel. Do not impact, weld, drill or modify it without authorization.
6. Do not operate under overpressure. Blocking the air inlet or heat dissipation vents is prohibited.
7. Do not open the sound insulation cabinet cover during operation to avoid contact with rotating components.
8. Keep children away from the machine. Do not run the machine continuously for a long time without supervision.
9. Shut down and cut off power immediately for inspection if abnormal noise, smoke or continuous overheating occurs.

4. Machine Structure Introduction

1. Silent Sound Insulation Cabinet
2. Oil-Free Compression Pump Head + Cooling Fan
3. Automatic Pressure Switch
4. Pressure Vessel Air Tank
5. Pressure Gauge, Pressure Regulating Valve, Quick Air Outlet Connector
6. Safety Valve (Auto Pressure Relief at Overpressure)
7. Manual Drain Valve at Bottom
8. Power Switch & Power Cord
9. Intake Air Filter (Silencing Filter)
10. Shock-Absorbing Foot Pads

5. Installation & Commissioning

5.1 Placement

Put the unit on a flat hard floor with all four shock-absorbing foot pads fully attached. Do not place the machine tilted. Reserve a clearance of $\geq 20\text{cm}$ around the machine for heat dissipation.

5.2 Pipeline Connection

1. Confirm the drain valve is fully closed;
2. Connect the pneumatic air tube to the quick plug outlet of the pressure regulating valve;
3. Turn the adjustment knob clockwise to increase pressure, counterclockwise to decrease pressure. Pull up the knob before adjustment and push down to lock after setting.

5.3 First Trial Run

1. Confirm no residual pressure inside the tank and all joints are airtight;
2. Connect power supply and turn on the power switch;
3. Observe the pump head inflates air normally. The machine shall automatically stop when pressure rises to 0.8MPa and restart when pressure drops to 0.5MPa, which indicates normal operation.
4. Check all pipeline joints for air leakage (use soapy water for leakage test).

6. Standard Operating Procedures

Startup Steps

1. Inspect power cord and all joints, confirm the drain valve is closed;
2. Ensure all pneumatic equipment valves are shut off;
3. Switch on power, the compressor starts inflating;
4. Observe the pressure gauge and adjust output pressure to match tool requirements (0.6–0.7MPa recommended for cold cut saws);
5. Start working with pneumatic equipment after pressure stabilizes.

Shutdown Steps (Mandatory Daily After Work)

1. Turn off all pneumatic equipment;

2. Cut off the power supply of the compressor;
3. Slowly open the pressure regulating valve to release residual pipeline pressure;
4. Open the drain valve at the bottom of the air tank to drain all condensed water, then close the valve completely.

Recommended Continuous Operation Rule: Run for 40 minutes then stop for 10 minutes to cool down and prevent overheating of the pump head.

7. Routine Maintenance

Daily (After Each Use)

1. Drain condensed water from the air tank;
2. Check air tube joints for air leakage;
3. Wipe dust off the cabinet surface, do not block the cooling fan.

Weekly

1. Remove the intake air filter and clean dust with a brush; replace the filter if heavily clogged;
2. Check shock-absorbing foot pads for aging;
3. Inspect power cord for damage.

Monthly

1. Perform full air leakage inspection on all threaded joints;
2. Clean dust accumulated inside the sound insulation cabinet;
3. Check the safety valve for flexible movement (do not pry the safety valve arbitrarily).

Long-Term Storage (Over 7 Days)

Drain all water from the air tank, cut off power and store the machine in a dry indoor area.

Key Reminder: No lubricating oil is required for oil-free models!

8. Common Faults & Troubleshooting

Fault Phenomenon	Possible Causes	Solutions
Compressor fails to start	1. No power supply 2. Faulty pressure switch 3. Overheat protection shutdown	Check power socket; repair pressure switch; stop machine and cool down before restart
Machine keeps inflating without stopping at rated pressure	Severe pipeline air leakage / damaged pressure switch	Locate leakage points; replace pressure switch
Slow air pumping, pressure cannot rise	Clogged intake filter / loose leaking joints / worn pump head	Clean or replace filter; fasten all joints
Sudden loud noise & violent vibration	Aged shock pads; loose internal fasteners; clogged filter	Replace foot pads; tighten all screws; clean filter
Excessive water in output air	Irregular draining; high ambient humidity	Drain water daily; optional external drying filter
Abnormally hot pump head	Long continuous operation; blocked heat dissipation vents	Operate intermittently; clean heat dissipation channels

9. Standard Accessories List

1. Instruction Manual & Product Certificate
2. 1 Set Spare Intake Air Filter
3. Quick Connectors & PTFE Tape

4. Shock-Absorbing Foot Pads

10. Warranty Terms

1. The whole machine enjoys a 12-month warranty.
2. Damage caused by man-made blockage, unauthorized disassembly, oil filling, overpressure operation or long-term running with air leakage is not covered under warranty.
3. Consumable parts including air filter, sealing rings and pressure regulating valve diaphragms are excluded from warranty coverage.
4. Unauthorized modification of the air tank or removal of the safety valve will automatically void the warranty.