

# INSTRUCTION MANUAL

# RANKOR

OIL FREE AIR COMPRESSOR

**RAC24005001**



Made in China

1125-V01

[www.rankortools.com](http://www.rankortools.com)

**READ AND FOLLOW ALL SAFETY PRECAUTIONS IN THE INSTRUCTION MANUAL.**

Thank you for choosing RANKOR tools.

RANKOR products are renowned for their reliability, high performance, and superior quality. Our team is committed to continuous innovation, providing customers with upgraded tools and a comfortable user experience.

Before operating the tools, please read all warnings, cautions, and instructions on the tool labels and in the owner's manual. Note that the safety information provided does not cover all potential conditions or situations that may arise. Thoroughly review the owner's manual for complete safety guidelines and operating procedures. Failure to follow the instructions and safety information may lead to severe injury or death.

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# PRODUCT OVERVIEW

## Intended use

This oil free air compressor is intended to compress air for powering pneumatic tools, inflating tires, and operating air-driven equipment in industrial, construction, automotive, and household applications.

## Product introduction

- The power motor takes advantage of an advanced design system which can optimize performance, consequently realizing power, efficiency, energy-saving capabilities, and high reliability.
- We use newly-developed, eco-friendly material for the piston ring, with the advantage of a low coefficient of friction and self-lubricating properties. It replaces the traditional oil-lubricated method and will not contain any harmful oily substances which may cause secondary pollution to the air source.
- The cylinder is processed with a surface hardening treatment, with the advantages of light weight and quick thermal conductivity, which can improve wear resistance, reduce the coefficient of friction, and subsequently extend the machine's lifespan and reduce maintenance time and costs.
- The air intake/outlet valve pack uses Sweden-made valves with specialized steel. It undergoes an 80-hour special treatment process, ensuring stable performance throughout its rated lifespan.
- The proper mute design of air intake, low-noise motor, and specialized bearings for noise reduction-all these new technologies promise a more silent effect compared to other products of this type.
- Multiple pressure and overload protection systems ensure the machine runs in a stable condition. The whole machine adopts a scientific design and thoughtful concept, making it easy to operate and maintain.

# SPECIFICATIONS

Model	RAC24005001
Rated Power	2400W(3.2hp)
Rated Voltage/Frequency	220-240V 60Hz
Tank	50L
Refill Time	84s
Tank Size	300*500mm
Displacement	230L/min
Motor Winding Material	Aluminum Wire
Max. Pressure	8bar

# SAFETY NOTES

## General safety notes

**⚠ WARNING:** Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire, or severe injury. Save all warnings and instructions for future reference.

The term "power tool" in the safety notes refers to the mains-operated (corded) power tool or battery-operated (cordless) power tool.

### **Work area safety**

- DO NOT operate power tools in explosive atmospheres, such as in flammable liquids, gases or dust. Power tools create sparks that may ignite the dust or fumes.
- Keep the work area clean and well-lit. Cluttered or dark areas invite accidents.
- Keep children and bystanders away while operating a power tool. Distractions can cause loss of control.

### **Electrical safety**

- DO NOT operate power tools in explosive atmospheres, such as in flammable liquids, gases or dust. Power tools create sparks that may ignite the dust or fumes.
- Keep the work area clean and well-lit. Cluttered or dark areas invite accidents.
- Keep children and bystanders away while operating a power tool. Distractions can cause loss of control.
- DO NOT expose the tool to rain or wet conditions. Moisture entering the tool may increase the risk of electric shock or cause malfunction.
- DO NOT attempt to open or modify the internal electrical components. Unauthorized tampering may lead to electric shock or serious malfunction.
- DO NOT abuse the cord or use it for carrying, pulling, or unplugging the power tool. Keep the cord away from heat, oil, sharp edges, and moving parts. Damaged or entangled cords increase the risk of electric shock.
- DO NOT modify the plug in any way. DO NOT use any adapter plugs with earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce the risk of electric shock. Power tool plugs must match the outlet.
- Use the tool only with compatible power sources as specified by the manufacturer.
- Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges, and refrigerators. Contact with such surfaces increases the risk of electric shock.
- Keep the tool clean and dry. Contamination with conductive materials such as dust, metal shavings, or moisture may lead to short circuits.
- If it is unavoidable to operate a power tool in a damp location, use a power supply protected by a residual current device (RCD). Using an RCD reduces the risk of electric shock.
- When operating a power tool outdoors, use an extension cord suitable for outdoor use. Using a cord suitable for outdoor use reduces the risk of electric shock.

### **Personal safety**

- DO NOT overreach. Keep proper footing and balance at all times. This enables better control of the power tool in unexpected situations.
- DO NOT use a power tool while the user is tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating power tools may result in serious personal injury.
- DO NOT wear loose clothing or jewellery. Keep hair, clothing and gloves away from moving parts. Loose clothes, jewellery or long hair can be caught in moving parts.
- Use personal protective equipment. Always wear eye protection. Protective equipment such as dust masks, non-skid safety shoes, hard hats, and hearing protection for appropriate conditions will reduce personal injuries.
- Prevent accidental activation. Always verify the power switch is in the OFF position before connecting to a power source, transporting, or handling the device. Never carry the tool with your finger on the switch or operate it while the switch is engaged, as this may lead to hazardous situations.

- Remove all adjustment tools before operation. Ensure any wrenches or keys are detached from the device before powering it on. Leaving tools attached to rotating components can cause serious injury.
- If devices are provided for connecting dust extraction and collection facilities, ensure these are connected and properly used. The use of dust collection can reduce dust-related hazards.

### **Power tool use and care**

- DO NOT force the power tool. Use the correct power tool for application. The correct power tool will do the job better and safer at the rate for which it was designed.
- DO NOT use the power tool if the switch does not turn on and off. Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- Disconnect the plug from the power source or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools. Such preventive safety measures reduce the risk of starting the power tool accidentally.
- Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool. Improper use of power tools by untrained individuals may result in serious injury or property damage.
- Maintain power tool. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use. Failure to properly maintain power tools can lead to malfunction and increase the risk of accidents.
- Use the power tool, accessories, tool sets, etc., in accordance with these instructions, taking into account the working conditions and the work to be performed. Using the power tool for operations different from those intended could result in a hazardous situation.

### **Service**

- Have the power tool serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the power tool is maintained.

## **Additional safety notes for mains-powered tools**

- DO NOT abuse the cord or use it for carrying, pulling, or unplugging the tool. Keep the cord away from heat, oil, sharp edges, or moving parts.
- Ensure that the power supply matches the tool's rated voltage. Connecting to an improper voltage may result in a risk of electric shock or fire.
- To reduce the risk of electric shock, this tool must be properly grounded. Grounding provides a low-resistance path for the electric current if a malfunction occurs.
- If an extension cord is necessary, ensure that it is rated for outdoor use and has sufficient current capacity. An undersized cord may result in voltage drop and loss of power or overheating.
- When operating a power tool outdoors, use a residual current device (RCD) to reduce the risk of electric shock.

## **Specific safety notes for oil free air compressor**

- Before operation, please read the instruction manual carefully.
- The compressor should be placed in a dry and ventilated room. Keep the machine away from perishable, flammable items, and chemicals. It should not be more than two years since you received the product and left it idle. Necessary maintenance and inspection should be applied before it is put into use.

- Avoid the air compressor from tipping or falling. It must be placed on a stable and level surface, and should not be tilted during transportation or operation.
- To guarantee good performance, the machine should be placed in a well-ventilated, clean, and cool area. A dusty and high-temperature environment, or one with dirty air, is not recommended.
- Before connecting to the power supply, ensure the machine is shut down. After connecting to the power, the machine can operate normally. The voltage must not be more than 10% higher or lower than the rated voltage.
- The air compressor is forbidden to get wet by water and should not be placed in a wet area to avoid damage.
- Avoid touching high-temperature components, such as the cylinder head, exhaust pipe, and check valve, to prevent burns.
- The electric wire of the power supply should be in accordance with the power requirement. The cable wire should not be too long, otherwise, it will affect the starting of the air compressor.
- There is a safety valve installed on the compressor. When the pressure in the air vessel exceeds 0.88MPa, the safety valve will alarm and release the air. At the time of the alarm, please check the pressure switch to ensure it is working correctly at the rated working pressure.

## PRODUCT INSPECTION UPON ARRIVAL

- When you receive the air compressor, please check whether the product is the correct model and meets the required specifications.
- Check whether there is any damage to the machine and its components.

## OPERATING INSTRUCTIONS

- If the compressor fails to start, please release the air from the tank until the pressure drops to 0.4MPa; it will then start.
- Turn the switch to "OFF," cutting off the power supply, and the machine will stop running.
- After the machine stops each day, press the valve located under the oil-water separator to drain any accumulated dirty water.

Note: Some units may not be equipped with an oil-water separator; this instruction does not apply in such cases.

- The air pressure can be adjusted using the knob on the oil-water separator. Turn the knob in a clockwise direction to increase the air pressure; turn it in a counterclockwise direction to reduce the air pressure or shut off the air source.

**⚠ NOTICE:** When turning the knob to the end, **DO NOT** force it to turn, otherwise, it will cause damage.

- When you want to adjust the working pressure of the pressure switch, please remove the cover, adjust the turning screw inside, turning it in a clockwise direction to increase air pressure, and counterclockwise to decrease pressure.

**⚠ NOTICE:** The power should be cut off before operation.

# MAINTENANCE

**⚠ WARNING:** Maintenance work can only be executed after the power is cut and the compressed air is thoroughly released from the tank. Otherwise, it will be dangerous!

- Please keep the machine clean. Clean the machine from time to time.
- Drain the dirty water in the tank once a week. When draining the water from the tank, ensure the pressure in the tank is below 0.1MPa.
- Check frequently whether the safety valve is sensitive or not. The safety valve should be able to release air easily. Pull down the lever, and it will reset.
- The air filter should be cleaned or replaced every 500 hours. Simultaneously, remove the air valve and clean it. If the air delivery volume is significantly less than the rated one, please check if the air filter is blocked, if all connections are still tight, and if there is any air leakage. If the piston ring or bowl is worn out due to dust, replace it.
- The compressor vessel should undergo a pressure test every two years. Check the exterior for any rust or damage. If the tank fails to pass the pressure test, it should be scrapped.

# TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	RECOMMENDED ACTION
The motor does not rotate and produces no sound	Power disconnection	Check the connection and the switch
	Pressure switch disconnection	Check the pressure switch
	Fuse burnt	Replace the fuse
	The overload protector is activated	Allow the motor to cool before restarting the machine
	Pressure switch damaged	Contact a professional repairman
	The motor stator burnt	Replace the stator
Humming sound is present, but the motor fails to start or runs slowly	The voltage is too low	Check the voltage. It must not be more than 10% lower than the rated value
	Short circuit in the motor winding	Contact a professional repairman
	Valve or pressure switch malfunction	Contact a professional repairman
The overload protector frequently cuts off the power	The voltage is too low	Check the voltage. It must not be more than 10% lower than the rated value
	Poor ventilation or high temperature	Move the machine to a well-ventilated area

Air pressure decreases when the machine is turned off	The air pipe is loose or leaking	Check the air pipe and fix it
	The water drain valve is open	Tighten the valve
	Valve leakage	Remove and clean it. Replace it if necessary
There is excessive water in the delivered air	There is excessive water in the tank	Drain the water from the tank
	The humidity is too high	Move the machine to a cooler place or use an oil water separator
The machine fails to stop running	Pressure switch damaged	Disconnect power immediately
	Air leakage	Check and eliminate any leaks
The compressor vibrates	Some parts are loose	Check and eliminate any loose parts
	Foot pad damaged or missing	Replace the foot pad
The pressure fails to reach the rated value or cannot increase	Water drain valve open	Tighten the valve
	Air filter blocked	Check and replace the air filter element if it is dirty or clogged
	Air leakage	Check and eliminate any leaks
	Valve clack malfunction or air leakage	Clean or replace the valve clack
	Piston Seal wear and tear	Replace the piston Seal

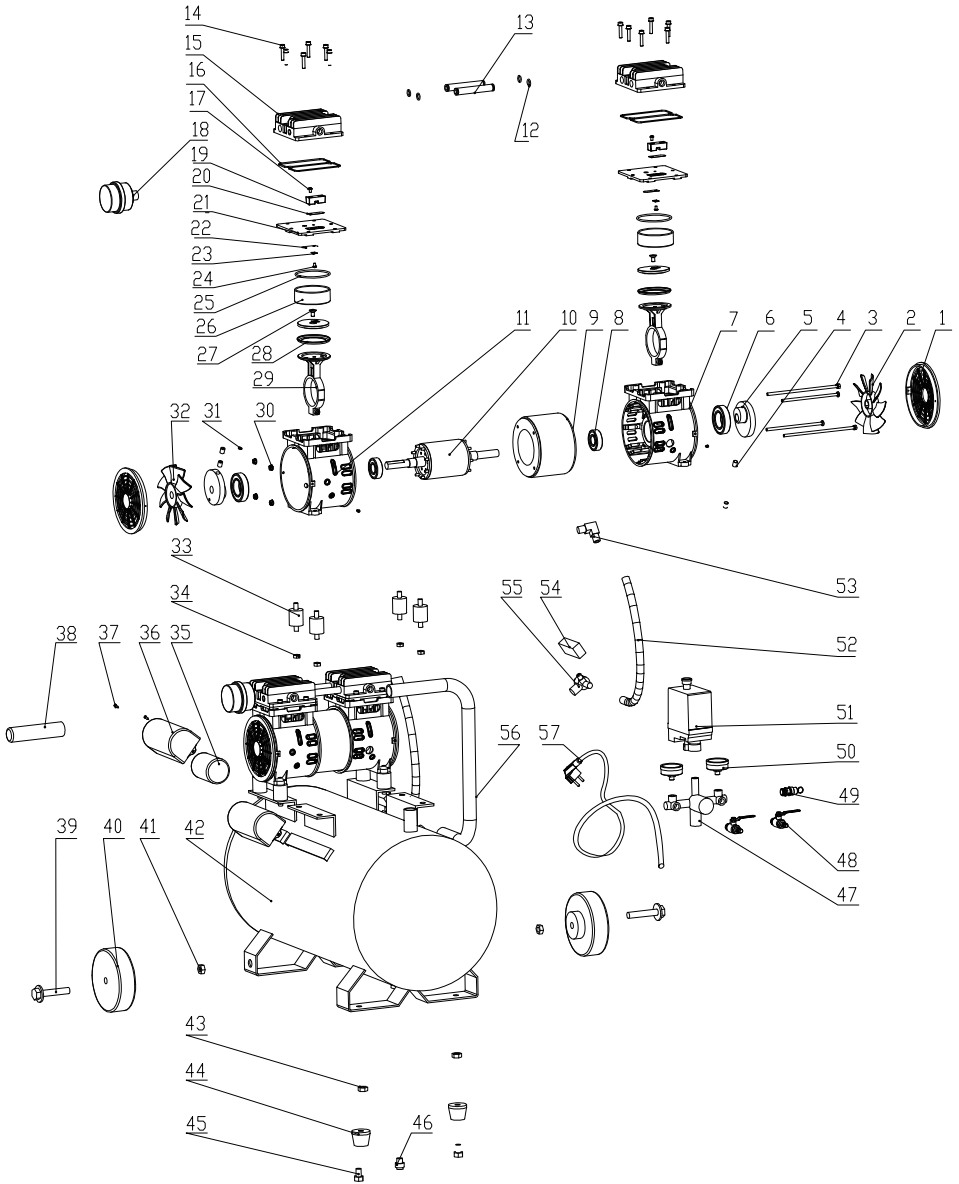
# RAC24005001 OIL FREE AIR COMPRESSOR SPARE PARTS LIST

Exploded View NO.	Part Name	QTY
1	Fan Cover	4
2	Fan	2
3	Screw	8
4	Screw	8
5	Crank	4
6	Bearing	4
7	Crankcase	2
8	Bearing	4
9	Stator	2
10	Rotor	2
11	Crankcase	2
12	Pipe Gasket	8
13	Pipe	4
14	Screw	24
15	Cylinder Head	4
16	Cylinder Head Gasket	4
17	Screw	4
18	Air Filter	2
19	Stop Block	4
20	Valve Clack	4
21	Valve Plate	4
22	Valve Clack	4
23	Screw	4
24	Screw	4
25	Cylinder Gasket	4
26	Cylinder	4
27	Screw	4
28	Clamp Plate	4
29	Packing Leather	4
30	Spring Washer	4
31	Screw	8
32	Fan	2
33	Foot Pad	8
34	Screw	8
35	Capacity	2
36	Capacity Box	2
37	Screw	4
38	Handle	1
39	Axle	2

# RAC24005001 OIL FREE AIR COMPRESSOR SPARE PARTS LIST

Exploded View NO.	Part Name	QTY
40	Wheel	2
41	Spring Washer	2
42	Tank	1
43	Spring Washer	2
44	Foot Pad	2
45	Screw	2
46	Drain Valve	1
47	Regulator Assembly	1
48	Ball Valve	2
49	Safety Valve	1
50	Pressure Gauge	1
51	Pressure Switch	1
52	Exhaust Pipe	2
53	Connector	2
54	Electromagnetic Valve	2
55	Check Valve	2
56	U-handle	1
57	Plug Line	1

# RAC24005001 OIL FREE AIR COMPRESSOR EXPLODED VIEW





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