VEVOR RS-1

VEVOR 3 CFM 1/4 HP Single Stage HVAC Vacuum Pump

Model: RS-1

Introduction

This instruction manual provides essential information for the safe and efficient operation, maintenance, and troubleshooting of your VEVOR 3 CFM 1/4 HP Single Stage HVAC Vacuum Pump. Please read this manual thoroughly before using the product and retain it for future reference. This vacuum pump is designed for various applications including HVAC system evacuation, refrigeration, and automotive air conditioning maintenance.

Figure 1: VEVOR 3 CFM Vacuum Pump with Manifold Gauge Kit in typical applications.

Important Safety Instructions

Always follow basic safety precautions when using electrical appliances to reduce the risk of fire, electric shock, and personal injury.

- **Read all instructions:** Familiarize yourself with the product's operation and safety guidelines.
- **Electrical Safety:** Ensure the power supply matches the voltage specified on the pump's label. Do not operate the pump with a damaged cord or plug. Avoid using extension cords unless absolutely necessary and ensure they are rated for the pump's power requirements.
- **Ventilation:** Operate the pump in a well-ventilated area to prevent overheating and accumulation of refrigerant vapors.
- **Personal Protective Equipment (PPE):** Always wear safety glasses and gloves when handling refrigerants or operating the vacuum pump.
- **Refrigerant Handling:** Be aware of the specific safety requirements for the refrigerants you are working with. Some refrigerants are flammable or toxic.

- **Oil Level:** Regularly check the oil level and ensure it is within the specified range before and during operation. Operating without sufficient oil can damage the pump.
- **Hot Surfaces:** The pump motor and housing may become hot during operation. Avoid direct contact.
- **Stability:** Place the pump on a stable, level surface to prevent tipping.
- **Children and Pets:** Keep children and pets away from the operating area.

Package Contents

Verify that all items are present and undamaged upon unpacking. If any parts are missing or damaged, contact VEVOR customer service.

- 1 x VEVOR 3 CFM 1/4 HP Single Stage Vacuum Pump
- 1 x Multifunctional Manifold Gauge Set
- 3 x Color-Coded Hoses (Yellow, Blue, Red)
- 2 x Adjustable Quick Couplers
- 1 x Bottle of Vacuum Pump Oil (Note: Oil may be shipped separately or not included depending on region/regulations)
- 1 x Instruction Manual

Figure 2: Included components of the VEVOR Vacuum Pump Kit.

Product Features

The VEVOR 3 CFM 1/4 HP Single Stage HVAC Vacuum Pump is engineered for reliable performance and durability.

- **High Efficiency:** Features a 3 CFM (85 L/min) flow rate and 1/4 HP motor for quick and effective vacuuming.
- **Durable Construction:** Equipped with a robust die-cast aluminum housing and a strong copper motor for extended service life.
- **Stable Operation:** Four rubber feet provide enhanced stability and minimize vibration during use.
- **Anti-Oil Reflux Design:** Prevents oil from flowing back into the system, protecting connected equipment.
- **Efficient Heat Dissipation:** Enlarged heat-sink holes and a cooling fan ensure rapid heat dissipation, preventing overheating.
- **Oil Sight Window:** A clear oil sight window allows for easy monitoring of oil levels and quality.
- **Multifunctional Manifold Gauge:** Includes a two-valve manifold gauge set with clear pressure readings for precise system monitoring.

- **Color-Coded Hoses:** Three durable, color-coded hoses (yellow, blue, red) with SAE 1/4" (6.35 mm) brass fittings for easy identification and connection.

Figure 3: Key features of the VEVOR Vacuum Pump, including copper motor and aluminum housing.

Figure 4: Oil sight window and heat dissipation features.

Specifications

Parameter	Value
Model	RS-1
Voltage	220 V 50 Hz
Flow Rate (Air Displacement)	3 CFM (85 L/min)
Power	1/4 HP
Ultimate Vacuum	5 Pa
Stage	1

Parameter	Value
Oil Capacity	220 ml
Manifold Gauge	2-Way
Hose Connection Size	SAE 1/4" (6.35 mm)
High Pressure (Manifold Gauge)	0~800 PSI
Low Pressure (Manifold Gauge)	0~500 PSI
Max Working Pressure (Hose)	800 PSI
Hose Burst Pressure	4000 PSI
Product Dimensions (L x W x H)	10.9 x 24.4 x 21.1 cm (4.3 x 9.6 x 8.3 inches)
Product Weight	7.32 kg (16.14 lbs)

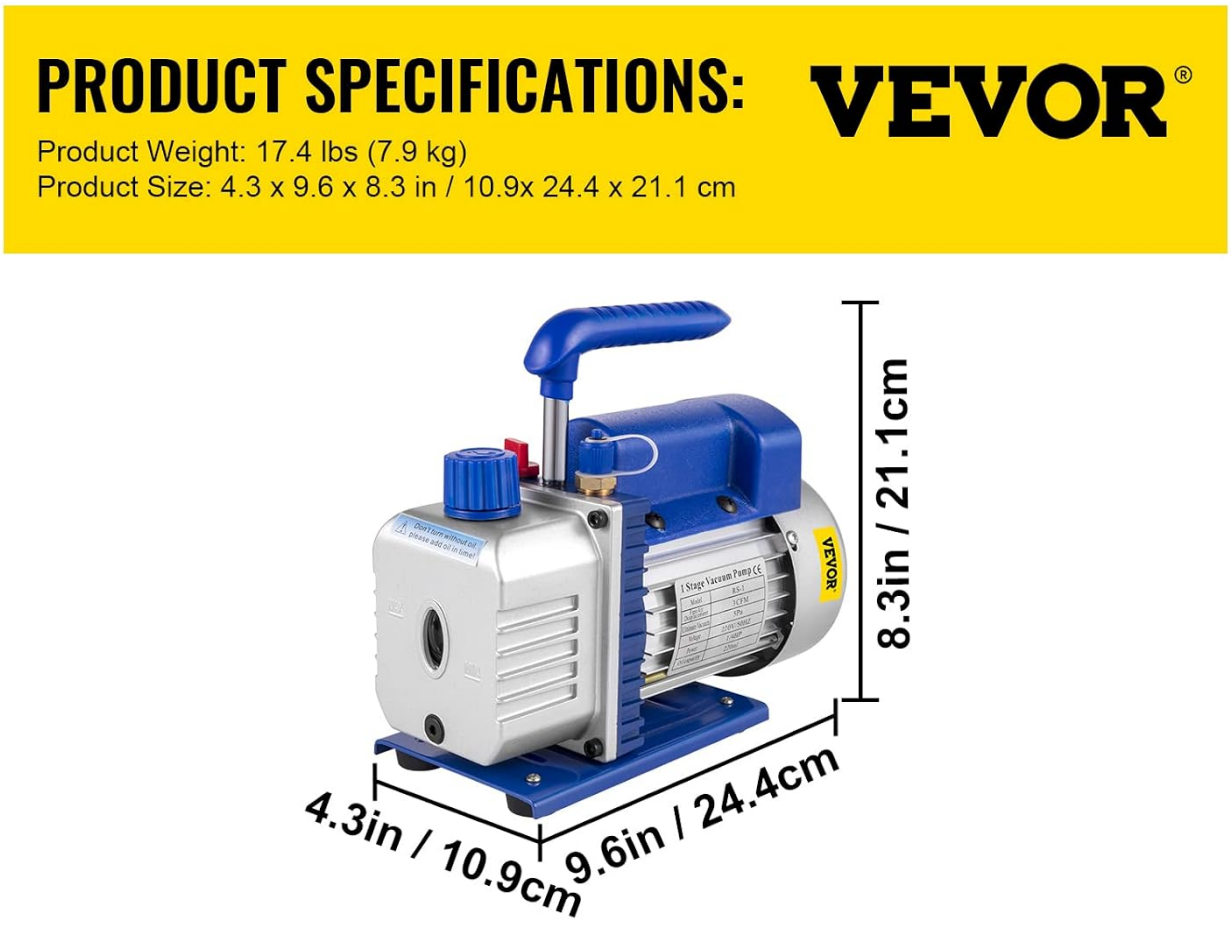

Figure 5: Product dimensions and typical applications.

Setup

Follow these steps for initial setup before operating the vacuum pump.

1. **Unpack and Inspect:** Carefully remove all components from the packaging. Inspect for any shipping damage.
2. **Add Vacuum Pump Oil:**
    - Locate the oil fill cap on top of the pump.
    - Remove the cap and slowly pour the provided vacuum pump oil into the reservoir.
    - Monitor the oil level through the oil sight window. Fill until the oil level is between the 'MIN' and 'MAX' marks. Do not overfill.
    - Replace the oil fill cap securely.

Figure 6: Oil sight window with MIN/MAX indicators.

3. **Placement:** Place the vacuum pump on a firm, level, and dry surface. Ensure adequate ventilation around the pump.

4. **Electrical Connection:** Connect the power cord to a grounded electrical outlet that matches the pump's voltage requirements.

Operating Instructions

This section outlines the general procedure for using the vacuum pump with the manifold gauge set for HVAC/refrigeration systems. Always refer to the specific service manual for the equipment you are working on.

1. **Prepare the System:** Ensure the HVAC/refrigeration system is depressurized and all service ports are accessible.
2. **Connect Manifold Gauge:**
    - Connect the blue hose (low pressure) to the low-side service port of the system.
    - Connect the red hose (high pressure) to the high-side service port of the system.
    - Connect the yellow hose (service hose) from the manifold gauge's central port to the vacuum pump's inlet port.

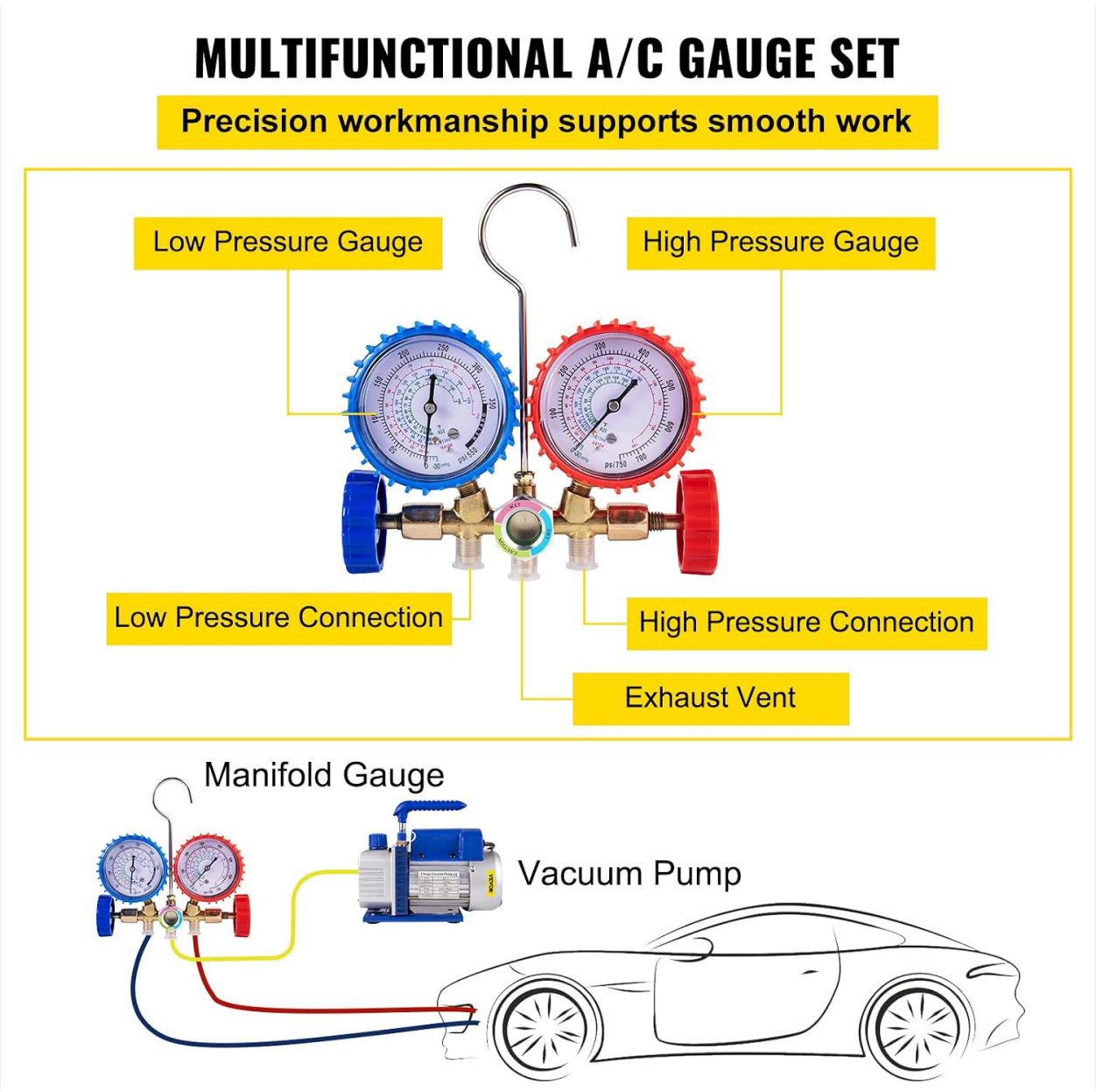

Figure 7: Manifold gauge connections diagram.

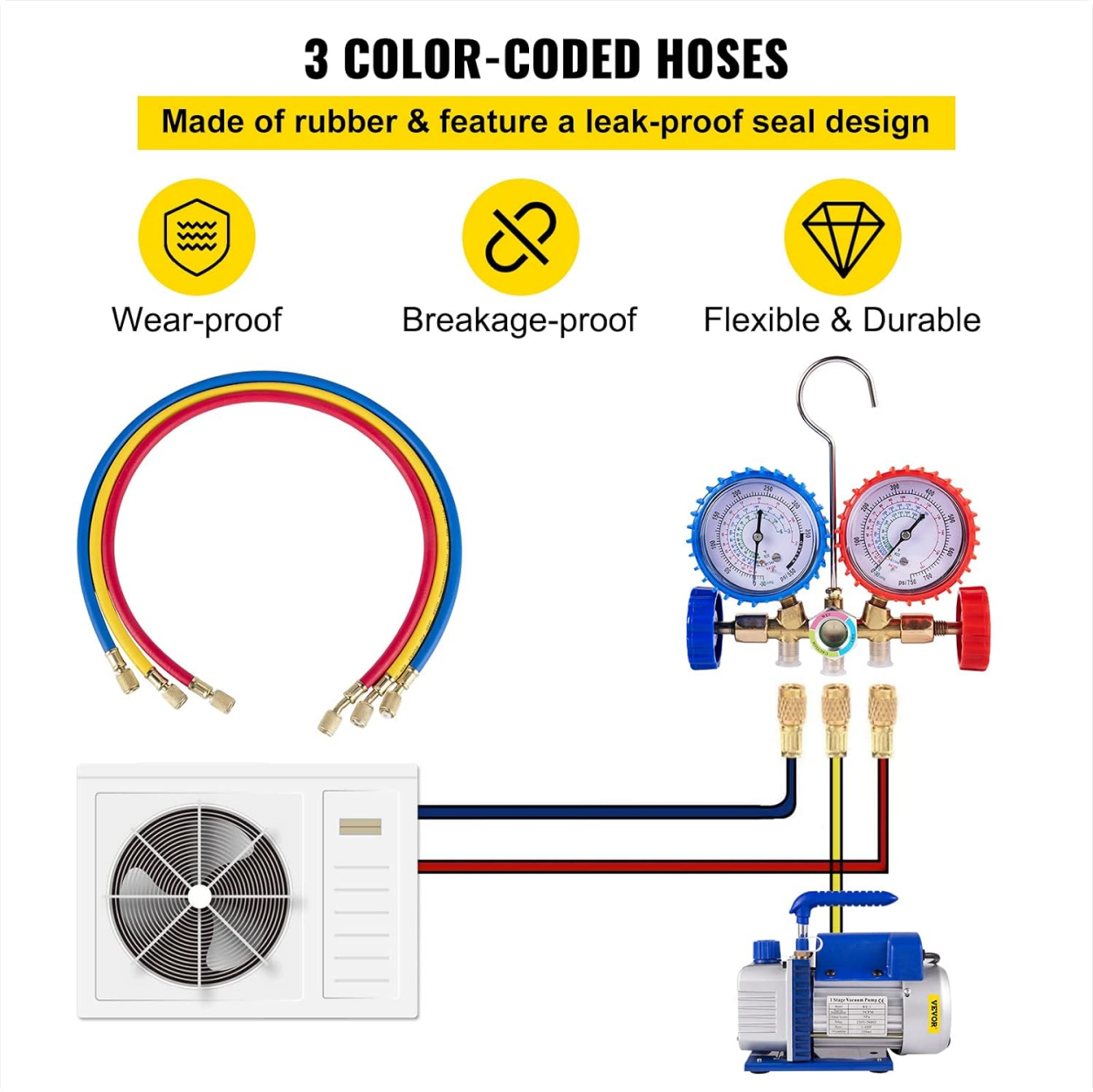

Figure 8: Color-coded hoses connected to an HVAC unit.

3. **Open Manifold Valves:** Fully open both the high-side and low-side valves on the manifold gauge set.
4. **Start Vacuum Pump:** Turn on the vacuum pump. The pump will begin to evacuate air and moisture from the system.
5. **Monitor Vacuum:** Observe the low-pressure gauge on the manifold. The needle should drop into the vacuum range. Continue running the pump until the desired vacuum level is achieved, typically for a specified duration based on system size and conditions.
6. **Isolate Pump:** Once the desired vacuum is reached, close both the high-side and low-side valves on the manifold gauge set. Then, turn off the vacuum pump.
7. **Vacuum Hold Test:** Allow the system to sit under vacuum for a period (e.g., 15-30 minutes) and monitor the gauge. If the vacuum holds steady, the system is leak-free. If the pressure rises, there may be a leak that needs to be addressed.
8. **Disconnect:** After a successful vacuum hold test, slowly open the manifold valves to release the vacuum from the hoses, then disconnect the hoses from the system and the pump.

Maintenance

Regular maintenance ensures optimal performance and extends the lifespan of your vacuum pump.

- **Oil Change:** Vacuum pump oil should be changed regularly, especially if it appears cloudy, discolored, or contaminated.
- **To Change Oil:**
    a. Ensure the pump is off and cool.
    b. Place a suitable container under the oil drain plug (usually located at the bottom or side of the pump).
    c. Remove the oil drain plug and the oil fill cap to allow the old oil to drain completely.
    d. Replace the drain plug and refill with new, clean vacuum pump oil as described in the 'Setup' section.
- **Cleaning:** Keep the exterior of the pump clean and free of dust and debris. Ensure the cooling fins and fan area are clear for proper airflow.
- **Storage:** When not in use, store the pump in a dry, clean environment. Ensure the oil is at the correct level before storing for extended periods.

Troubleshooting

Refer to this section for common issues and their potential solutions.

Problem	Possible Cause	Solution
Pump does not start	No power supply Damaged power cord/plug Motor overload	Check power connection and outlet Inspect cord/plug for damage; replace if necessary Allow motor to cool; check for obstructions
Pump runs but does not pull vacuum	Low oil level Contaminated oil Leaky connections System leak	Add oil to correct level Change oil Tighten all hose connections Perform leak detection on the system
Pump is noisy or vibrates excessively	Low oil level Contaminated oil Unstable surface Internal damage	Check and add oil Change oil Place pump on a stable, level surface Contact VEVOR support
Oil appears milky or cloudy	Moisture contamination	Change oil immediately; ensure system is dry before vacuuming

Warranty and Support

VEVOR products are designed for durability and performance. For specific warranty information, please refer to the warranty card included with your product or visit the official VEVOR website. If you encounter any issues or require technical assistance, please contact VEVOR customer support through their official channels. Provide your product model number (RS-1) and purchase details for efficient service.

Figure 9: Extensive applications of the VEVOR Vacuum Pump.