VIVOHOME VH1784

VIVOHOME VG Series 7.2CFM 2-Stage HVAC Vacuum Pump and 4-Way Manifold Gauge Kit User Manual

Model: VH1784

For R12, R134a, R22, R502, R410a Auto HVAC Systems and Commercial Use

1. Introduction

This manual provides comprehensive instructions for the safe and efficient operation, maintenance, and troubleshooting of your VIVOHOME VG Series 7.2CFM 2-Stage HVAC Vacuum Pump and 4-Way Manifold Gauge Kit. Please read this manual thoroughly before initial use and retain it for future reference.

2. Safety Information

WARNING: Always wear appropriate safety goggles and gloves when operating this equipment. Ensure proper ventilation when handling refrigerants. Refer to local regulations for refrigerant handling and disposal.

- Do not operate the vacuum pump without sufficient oil.
- Ensure all connections are secure and leak-free before operation.
- Avoid contact with refrigerants.
- Do not use with flammable refrigerants classified as A2L or A2.
- Disconnect power before performing any maintenance.

3. Package Contents

Verify that all items listed below are included in your package:

- 1x 7.2 CFM Vacuum Pump
- 2x Bottles of Vacuum Oil (0.24qt & 0.35qt)
- 1x Manifold Gauge Set

- 2x R134a Quick Couplers
- 4x Color-Coded Hoses
- 2x 1/4" Male to 5/16" Female Adapters
- 1x 1/4" Male to 1/2" Female Adapter
- 1x R134a Self-Sealing Can Tap
- 1x Carrying Case
- 1x Storage Bag

Figure 1: Complete VIVOHOME VG Series Kit with all components.

4. Product Overview

4.1. Vacuum Pump

The VIVOHOME VG Series dual-stage vacuum pump is designed for efficient air removal in HVAC and refrigeration systems.

- **Motor:** 3/4 HP pure copper motor, running at 3456 RPM for a fast flow rate of 7.2 CFM (204 L/min). Achieves an ultimate vacuum of 15 microns and a partial pressure as low as 0.2 Pa.
- **Cooling & Filtration:** Features a powerful internal fan, T-shaped motor cooling fins, and mesh ventilation ports to prevent overheating. A coarse filter at the intake blocks dust, and an exhaust filter separates oil mist.
- **Anti-Backflow Design:** Prevents oil from returning to the system, ensuring safe and clean operation.
- **User-Friendly Features:** Reinforced aluminum housing for durability, ergonomic handle for transport, oil sight window for monitoring levels, and a convenient oil drain valve.

Figure 2: Vacuum Pump Motor and Performance Details.

Figure 3: Air Inlet Port with Anti-Backflow Design.

Figure 4: Exhaust Port with Filtration System.

4.2. Manifold Gauge Set

The high-precision 4-way manifold gauge provides accurate readings for various HVAC and refrigeration systems.

- **Gauge Accuracy:** Provides accurate, reliable readings with a rubber casing for shock protection and a built-in hanging hook.
- **Hoses:** 5.0 ft color-coded rubber hoses (red for high pressure, blue for low pressure, yellow for refrigerant, black for vacuum). Rated for 800 PSI working and 4000 PSI burst pressure.
- **Hose Lock-Off Valve:** Ensures a secure and airtight seal.

Figure 5: 4-Way Manifold Gauge.

Figure 6: Color-Coded Hoses.

5. Setup

5.1. Initial Oil Filling

1. Unscrew the oil-filling port cap on the vacuum pump.
2. Carefully pour the provided vacuum pump oil into the port until the oil level is between the 'MIN' and 'MAX' marks on the oil sight window.
3. Securely replace the oil-filling port cap.

Figure 7: Vacuum Pump Oil.

5.2. Connecting the Manifold Gauge and Hoses

1. Attach the color-coded hoses to their respective ports on the 4-way manifold gauge: red to high pressure, blue to low pressure, yellow to refrigerant, and black to vacuum.
2. Connect the black vacuum hose from the manifold gauge to the vacuum pump's inlet port.
3. For R134a systems, attach the R134a quick couplers to the red and blue hoses. Ensure the quick couplers are in the closed position before connecting.
4. For R410a systems, use the included 1/4" Male to 5/16" Female adapters for the low-pressure port.

Figure 8: R134a Quick Couplers.

6. Operating Instructions

6.1. System Evacuation (Vacuuming)

1. Ensure all manifold gauge valves are closed.
2. Connect the blue low-pressure hose to the low-pressure service port of the AC system.
3. Connect the red high-pressure hose to the high-pressure service port of the AC system.
4. Connect the black vacuum hose to the vacuum pump inlet.
5. Open the low-pressure and high-pressure valves on the manifold gauge.
6. Turn on the vacuum pump. Allow the pump to run for 10-15 minutes, or until the low-pressure gauge reaches -1 bar (or 15 microns).
7. Close the low-pressure and high-pressure valves on the manifold gauge.
8. Turn off the vacuum pump.
9. Disconnect the black vacuum hose from the vacuum pump to prevent backflow.
10. Monitor the low-pressure gauge for 5-10 minutes. If the needle remains steady, there are no leaks in the system.

6.2. Refrigerant Charging

1. After successful vacuuming, connect the yellow refrigerant hose to the R134a self-sealing can tap (or appropriate can tap for your refrigerant).
2. Attach the can tap to the refrigerant can. Turn the can tap clockwise to pierce the can, then counter-clockwise to retract the pin.
3. Purge air from the yellow hose by slightly loosening the connection at the manifold gauge's refrigerant port and pressing the valve core until refrigerant escapes, then retighten.
4. Turn on the vehicle's engine and set the AC to maximum cooling.
5. Slowly open the low-pressure valve on the manifold gauge.

6. Invert the refrigerant can (if charging liquid) and allow refrigerant to flow into the system. Monitor the high-pressure and low-pressure gauges, and the refrigerant can's weight (if using a scale) to ensure the correct amount is added according to the vehicle's specifications.
7. Once the desired refrigerant level is reached, close the low-pressure valve on the manifold gauge and the valve on the refrigerant can.
8. Turn off the vehicle's engine and AC.
9. Disconnect the quick couplers from the AC system and the yellow hose from the refrigerant can.

Video 1: VIVOHOME VG Series 7.2 CFM 2 Stage HVAC Vacuum Pump Kit - Demonstrates the vacuuming and charging process for automotive AC systems.

Figure 9: R134a Self-Sealing Can Tap.

7. Maintenance

7.1. Checking and Changing Vacuum Pump Oil

Regularly check the oil level and clarity through the oil sight window. Change the oil if it appears cloudy, discolored, or below the minimum level.

1. Ensure the vacuum pump is off and cool.
2. Place a suitable container under the oil drain valve.
3. Open the oil drain valve and allow all old oil to drain completely.
4. Close the oil drain valve.
5. Remove the oil-filling port cap and add new vacuum pump oil until the level is between 'MIN' and 'MAX' on the sight glass.
6. Replace the oil-filling port cap securely.

7.2. Cleaning Filters

Periodically inspect and clean the intake and exhaust filters to ensure optimal performance and prevent contamination.

8. Troubleshooting

8.1. Pump Body Fails to Start or Motor Runs Unstably

If the vacuum pump experiences issues starting or the motor runs erratically, consider the following:

- **Abnormal Power Supply Voltage:** Ensure the power source provides stable voltage and that the plug and wiring are in good contact.
- **Capacitor Failure or Detached Connectors:** Check the capacitor, switch, and ensure all connecting wires are firmly attached.

- **Excessive Pump Head Load:** Start the pump with the air intake open. If excessive water vapor intake has caused pump chamber rust, rotate the rotor blades counterclockwise with a flat-head screwdriver.
- **Ambient Temperature:** At low temperatures (below 5°C), pump oil may crystallize. Under high-temperature conditions (above 40°C), multiple startup attempts may be required.

Video 2: VIVOHOME Pump Body Fails to Start or Motor Runs Unstably - Provides visual guidance for common startup and motor issues.

9. Specifications

Manufacturer	VIVOHOME
Part Number	VH1784
Item Weight	32 pounds
Product Dimensions	13.1 x 5.1 x 9.5 inches
Size	7.2CFM
Color	Orange, Black, Silver
Material	Aluminum, Copper, Rubber
Item Package Quantity	1
First Available	March 26, 2025

Figure 10: Product Specifications Overview.

10. Warranty and Support

This VIVOHOME product comes with a 1-year warranty. For technical support, warranty claims, or further assistance, please contact VIVOHOME customer service through their official channels.