VALUE®

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Recovery Unit

VRR12N/VRR24N

VALUE Mechanical & Electrical Products CO., LTD
Add:No 5, 3rd. Street, East Industrial Park, Wenling, Zhejiang, China
Tel:+86-576-86191959
Email:value@worldvalue.cn www.worldvalue.cn

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CONTENT

GENERAL SAFETY

Use information

- To ensure long-term stable operation of this product, please carefully read this manual before operation, maintenance or servicing to fully understand safety-related issues and precautions regarding operation and use.
- Please carefully check whether the received product matches your order, whether accessories and user manuals are complete, and whether there is any damage during transportation. If any of the above situations are found, please immediately contact our marketing department or local distributors.
- Carefully reading this manual and adopting correct operation methods can ensure operational safety and extend the service life of this equipment.

Safety indication

⚠ Warning

Indicates that incorrect use may cause serious personal injury or death.

⚠ Notice

Indicates that incorrect use may cause equipment damage, malfunction or performance degradation.

Matters needing attention

⚠ Warning

This equipment must only be operated by qualified personnel familiar with air conditioning and refrigeration systems!

Ensure reliable and effective grounding before starting this equipment!

When using cables, they must have grounding wires and be reliably connected!

Power connections must be properly installed by certified electricians according to electrical equipment technical standards and wiring regulations!

When inspecting or maintaining this equipment, power must be disconnected before operation!

If the power cord provided by our company is damaged, it must be replaced with a grounded power cord or one purchased from our company!

Before powering on, please consider the current capacity of your power supply, electric meter, wires and sockets!

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When using this equipment indoors, the area must ensure forced ventilation of no less than 4 times per hour or the equipment must be used at least 0.5m above the ground!

Only use certified and reusable refrigerant cylinders with a minimum nominal pressure of 45 bar ! Do not overfill refrigerant cylinders during recovery - maximum filling must not exceed 80% of capacity to allow expansion space and prevent potential explosion from pressure buildup!

Always wear protective gloves and goggles during operation to prevent refrigerant contact with skin or eyes, which may cause health damage!

This equipment shall not be used in areas with liquid spills or near open containers of flammable liquids!

This equipment must not be used to directly extract refrigeration oil. To add oil to pressurized systems, place the oil container on the recovery unit's discharge side and flush into system using refrigerant!

When recovering refrigerant, cylinders must be monitored using a refrigerant scale to prevent overfilling!

Before connecting refrigerant, perform startup checks:
① Check for airflow on condenser side to verify fan operation;
② Connect shut-off valve to exhaust port, set recovery unit knob to "FAST" position. For VRR24N, discharge pressure should reach ~38.5bar within 35 seconds(55 seconds for VRR12N), triggering high-pressure switch to automatically stop the unit.

⚠ Notice

The power supply must match the product specifications exactly!

Power cable length must not exceed 7.5 meters (minimum 2.0mm² wire gauge) - voltage drop from longer cables may damage the compressor!

Inlet pressure (low-pressure gauge reading) must never exceed 26 bar.

Always operate the unit horizontally. Tilting during operation may increase compressor vibration/noise and accelerate component wear.

Do not expose the equipment to direct sunlight or rain!

OPERATION MANUAL

1. Connect power supply, all indicators will light up for 2 seconds then turn off. Press and hold button " ⏻ " for over 0.2 seconds then release to start the equipment; after an interval of over 0.5 seconds, press and hold button " ⏻ " for over 0.2 seconds then release to shut down the equipment; after an interval of over 2 seconds, press and hold button " ⏻ " for over 0.2 seconds then release to start the equipment.

2. Do not mix different types of refrigerants in the same recovery cylinder. Mixed refrigerants cannot be separated or reused.

3. Before recovering refrigerant into an empty cylinder, the empty cylinder must be evacuated to -75cmHg (-29.6inHg) to remove all non-condensable gases. Empty refrigerant cylinders are pre-charged with dry nitrogen before leaving factory and must also be evacuated before first use.

4. When not in use, the knob should be in "CLOSE" position, and both inlet and outlet connections must be capped to prevent air and moisture ingress, which would affect recovery performance and equipment service life.

5. A properly oriented dryer filter must be correctly installed at the equipment's inlet port and should be replaced frequently.

6. Exercise extreme caution when recovering from burned-out systems - two dryer filters must be used.

7. This equipment is equipped with auto-reset high-pressure protection switch. When internal pressure exceeds the switch's rated cut-off pressure (see technical parameters), the compressor will automatically stop while the high-pressure red warning light illuminates. To restart, wait until internal pressure drops (high-pressure gauge reading below 30bar) and the high-pressure warning light flashes (indicating auto-reset of protection switch), then press the start button on side panel to restart compressor. After high-pressure protection activation, the cause must be identified and resolved before restarting the equipment. Causes and troubleshooting methods for high-pressure protection:

①The inlet valve of the refrigerant cylinder is not opened - simply open the valve;

②The hose connecting this equipment to the refrigerant cylinder is clogged - first close the valves on both this equipment and the cylinder, then replace the hose;

③The refrigerant cylinder temperature rises, causing pressure increase - wait for natural cooling of the cylinder until pressure and temperature decrease.

8. This equipment is equipped with an O.F.P socket and can be connected to cylinders with liquid-full protection output interface using O.F.P cable. When the O.F.P cable is not connected, this unit automatically disables the O.F.P function.

9. When recovering large amounts of liquid refrigerant, the "push-pull mode" is recommended.

10. After recovery, ensure no refrigerant remains in the equipment. Carefully follow the "self-purge" operation procedure described in this manual. Residual liquid refrigerant in the condenser may expand and cause component damage.

11. The low-pressure gauge indicates the pressure at the compressor inlet of this recovery unit; the high-pressure gauge indicates the outlet pressure.

12. After using this equipment, always return the knob to the "CLOSE" position.

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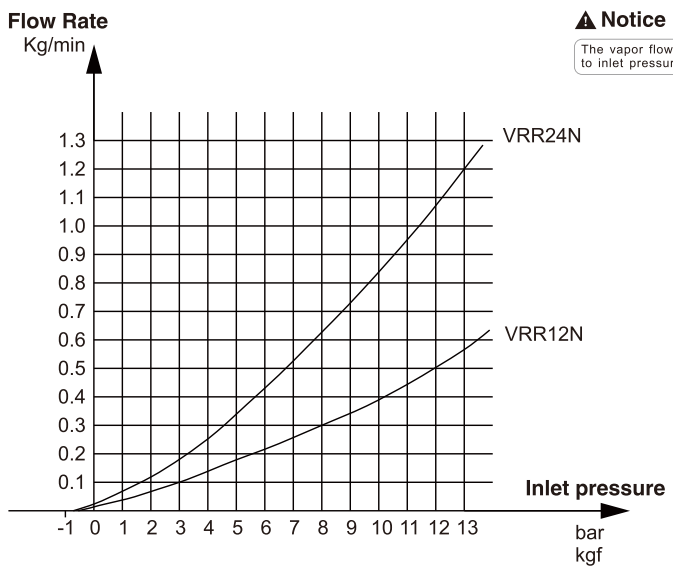
SPECIFICATION

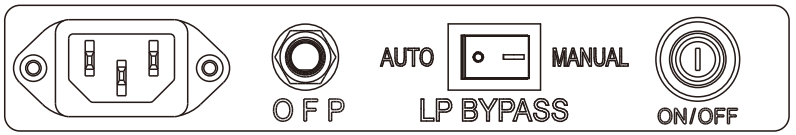
	VRR12N	VRR24N
Refrigerants	Category III: R12, R134a, R401B, R401C, R500 Category IV: R22, R401A, R402B, R407C, R407D, R408A, R409A, R502, R509 Category V: R402A, R404A, R407A, R407B, R410A, R507	
Power	220-240V~50/60Hz	
Rated Current	5 A	7.5 A
Motor	Brushless Motor 1HP	
Motor Speed	3000 RPM	
Compressor	Oil-less, Air-cooled, Piston	
High Pressure Protector	38.5 bar	
Operating Temperature	0 ~ 40℃	
Dimensions	311mm×240mm×245mm	
Net Weight	8.9 kg	9.2 kg



⚠ Notice

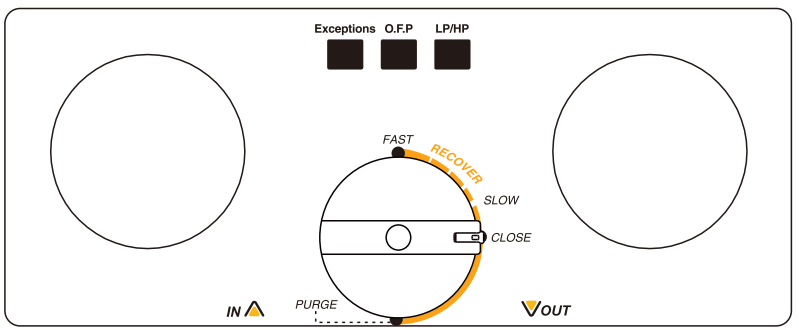
The vapor flow rate is proportioned to inlet pressure.

CONTROL PANEL INTRODUCTION



Power | O.F.P Socket | Low Pressure Switch | Start Button

Start Button: Starts and stops the unit; press and hold for 0.2 seconds then release to start the unit, press again after 0.5 seconds to stop the unit.



EXCEPTIONS : Overload, drive board, motor fault indication

O.F.P : Over fill protection

LP : Low-Pressure Protection

HP : High-Pressure Protection

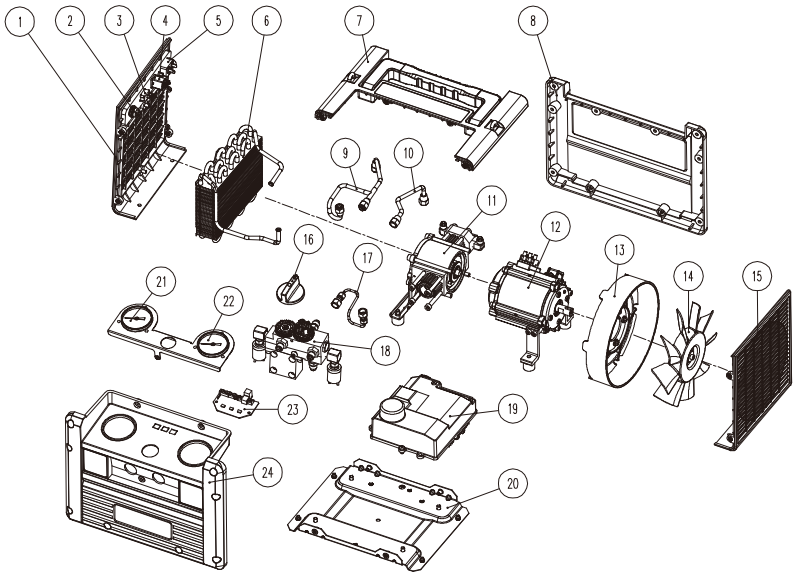
CLOSE : The Inlet port valve closed

RECOVER : The Inlet port valve partially open

FAST : The Inlet port valve fully open

PURGE : The Inlet port valve is closed and the outlet port valve is open, so that the refrigerant in the equipment can be recovered

PARTS DIAGRAM

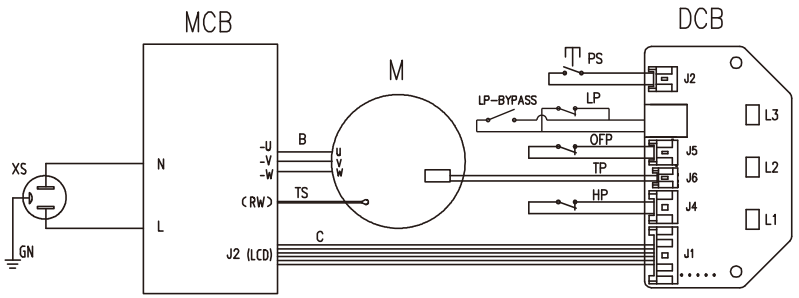


NO.	Parts name
1	Left Side Panel
2	Start Switch
3	Low Pressure Switch
4	O.F.P Socket
5	Power
6	Condenser
7	Top Panel
8	Rear Panel
9	Input Pipe
10	Output Pipe
11	Compressor
12	Motor

NO.	Parts name
13	Fan Blade Cover
14	Fan Blade
15	Right Side Panel
16	Knob
17	Pipe
18	Control Assy
19	Motor Control PCB
20	Base
21	Input Gauge
22	Output Gauge
23	Indicator board
24	Front Side Panel

Notes: VRR24N: 11 compressor units （twin cylinder）;
VRR12N: 11 compressor units（single cylinder）。

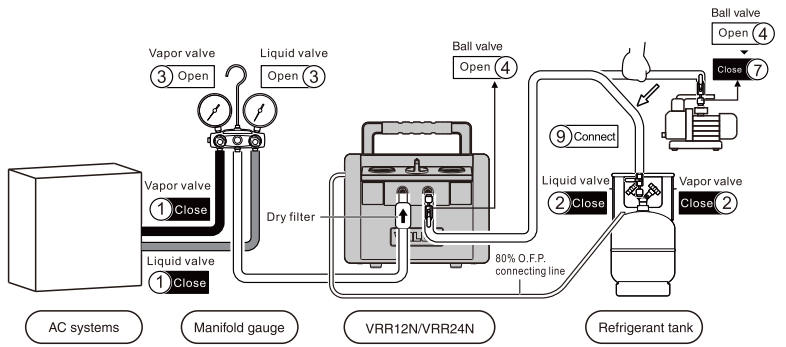
WIRING DIAGRAM

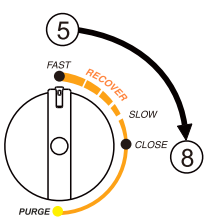


Graphics Code	Item
M	Motor
MCB	Motor control board
XS	Socket
DCB	Indicator board
OFP	80% liquid full protector
TP	Motor thermal protector
HP	High pressure switch
TS	Temperature sensor
LP	Low Pressure switch
LP-BYPASS	Low-pressure bypass switch
PS	Start/Stop button

OPERATING INSTRUCTION

1). Hoses evacuation





Preparation for Operation

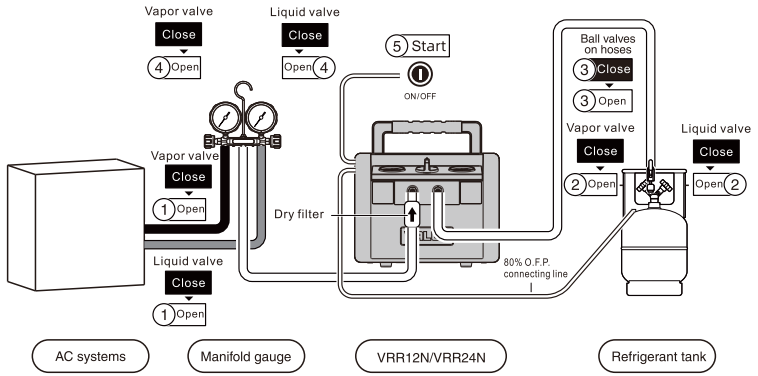
Must use hoses with ball valves, ensure all hose connections are correct and secure(refer to connection diagram);
1. Confirm the gas valve and liquid valve of the AC system are in closed position;
2. Confirm the gas valve and liquid valve of the Refrigerant tank are in closed position;
3. Open both gas and liquid valves on the Manifold gauge;
4. Open both ball valves on the hose connecting the recovery unit's exhaust port and vacuum pump's suction port;
5. Turn the recovery unit knob to "FAST" position;

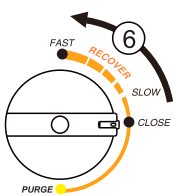
Operation Start

6. Start the vacuum pump and let it run until the recovery unit's low-pressure gauge needle reaches "-76cmHg";
7. Close the ball valve on the hose connected to vacuum pump's suction port;
8. Turn the recovery unit knob to "CLOSE" position;
9. Connect hoses to refrigerant tank.

OPERATING INSTRUCTION

2). Recovery mode





※Refer to connection diagram

※First purge air from recovery unit and hoses

1.Open both gas and liquid valves of the AC system;
2.Open corresponding tank ports (gas recovery connects to liquid port, liquid recovery connects to gas port);
3.Open ball valves on hoses connected to refrigerant tank ports;
4.a. For liquid recovery, open the liquid valve on Manifold gauge;
b. For gas recovery, open the gas valve on Manifold gauge;
5.Press the " ⏻ " switch to start the equipment;
6.Slowly turn the recovery unit knob to "FAST".;
7.Operation may be completed when desired vacuum level is reached or low-pressure switch protection activates.

※After recovery completion, do not turn off power - proceed directly to self-purge mode operation.

⚠ Notice

① If liquid slugging occurs at "FAST" position, slowly turn knob to "SLOW" position until low-pressure gauge reading decreases and slugging stops, but do not let pressure drop to 0 (no suction at inlet when pressure reaches 0).

② If restarting after power failure or experiencing startup difficulty: for liquid recovery set knob to "CLOSE" position, for gas recovery set to "PURGE" position. Press "START" switch to activate equipment, then turn knob to "FAST" position.

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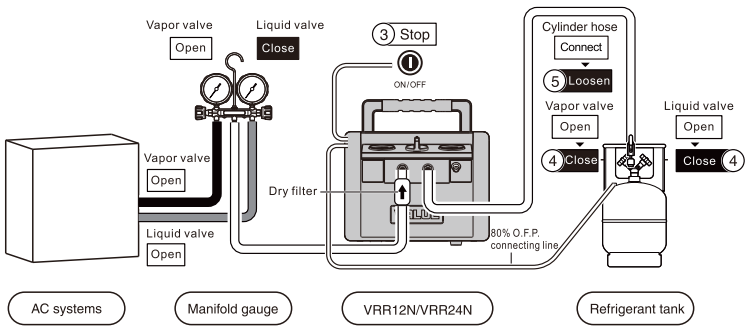
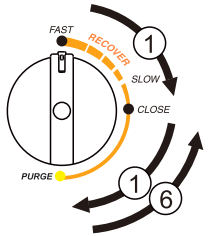
OPERATING INSTRUCTION

3). Purge mode

⚠ Notice

The unit must be purged after each use;
Liquid refrigerant remained may expand and damage the components and pollute the environment.





※Refer to connection diagram

Preparation for Operation

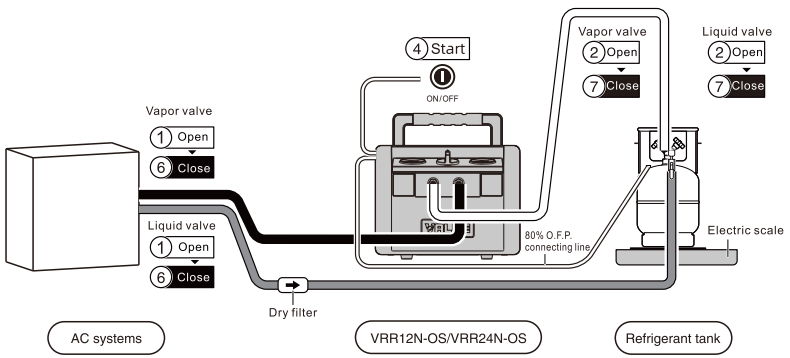
1. After reaching target vacuum level, slowly turn knob to "PURGE" position to begin self-purge;
2. Continue operation until desired vacuum level is achieved to complete self-purge;
3. Shut down machine;
4. Close refrigerant tank valves;
5. Disconnect exhaust hose;
6. Turn knob to "CLOSE" position;
7. Disconnect power cord;
8. Remove all connecting hoses.

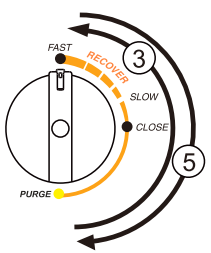
OPERATING INSTRUCTION

4). Liquid push/pull mode

⚠ Notice

An electric scale is needed to monitor the recovery process to prevent overfilling.





Preparation for Operation

※Refer to connection diagram for hose connections
※Ensure all valves are in closed position
※First purge air from recovery unit and hoses

1. Open both gas and liquid valves of the AC system;
2. Open both gas and liquid valves on refrigerant tank;
3. Turn knob to "FAST" position;
4. Press "⏻" switch to activate equipment and begin push-pull mode recovery;

※When refrigerant scale shows stable or slowly changing readings, this indicates completion of liquid recovery and gas recovery may commence.

5. Slowly turn knob to "PURGE" position and perform liquid recovery self-purge;
6. Close both gas and liquid valves on AC system;
7. Close both gas and liquid valves on refrigerant tank;
8. Reconnect hoses and perform gas recovery from AC system following recovery mode procedures.

TROUBLE SHOOTING

PROBLEM	CAUSE	SOLUTION
Power on, indicator light no response	1. Power cord is damaged. 2. Inner connection is loose. 3. Connect to J1 is damaged. 4. Malfunction of circuit board.	1. Replace cord. 2. Check the connection. 3. Replace the connect. 4. Replace MCB or DCN circuit board. Contact VALUE tech support.
Machine does not run after pressing Start switch	1. Pressing the button is not maintained for more than 0.2 s. 2. High pressure protection switch is broken, HP light is on. 3. OFP switch is off, OFP light is on. 4. Exceptions lamp is on. 5. Button is damaged. 6. Circuit board is damaged.	1. Re-press the button. 2. Test whether the connection of the high pressure switch is good. 3. Test if the connection of OFP switch is good. 4.1. Check if the input voltage is correct. 4.2. Check if the connection between TS and MCB is good or not. 4.3. Check if the connection between TP and DCB is good or not. 4.4. Check if the connection between PS and DCB is good. 4.5. No-load also error, power failure, such as can not rotate the wind blade, is a mechanical stagnation, return to the factory for repair; if it can rotate, replace the control board. 4.6. with load, liquid recovery knob rotated to "CLOSE" position, gas knob rotated to "PURGE" position, and then press the button to start the equipment 5. Replace the button. 6. Replace the circuit board and contact VALUE tech support.
Machine stops after running a period of time	1. Misoperation causes high pressure switch to operate, HP light up. 2. Thermal protector action, Exceptions lamp lights up 3. Refrigerant is 80% in the tank, and O.F.P Cutoff shows.	1. Please read the OPERATION MANUAL carefully. 2. When the switch is reset and the Exceptions light is blinking, you can reboot the device. 3. Replace the tank. When O.F.P Cutoff and Restart flash, press Start Switch.
Slow recovery rate	1. The pressure of the refrigerant tank is too high. 2. Valve opening too small 3. Piston ring of compressor is damaged.	1. Cooling the tank help decrease the pressure. 2. Turn the knob to "FAST" 3. Contact VALUE tech support.
Not evacuate	1. Connection hose is loose. 2. Machine leaks.	1. Tighten the connection hoses. 2. Contact VALUE tech support.

Correct Disposal of this product:

This marking indicates that this product should not be disposed with other household wastes. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.