WIPCOOL

IDEAL PRODUCTS FOR HVAC

# MRM75

Dual Piston Recovery Machine

-Operation manual-



## I Notice before usage

■ Thank you for buying WIPCOOL refrigerant recovery machine, we are dedicated to providing you with high quality products.

■ Please check if your ordered goods in good shipment condition, with the correct accessories, any damage during transportation, please contact us or the local distributors in time if you find any problems.

■ If there is any change in the product (including the specification), we won't inform any more.

### ⚠Warning

In order to make sure this product run stably and long-term, please read this instruction before you use, examine and repair or maintain it, be sure that you are know each details on the SAFETY GUIDELINES, OPERATION and other items, and run the unit per this instruction strictly:

1. Only qualified technicians or under their supervision are allowed to operate this recovery unit.
2. Always wear safety goggles and protective gloves when working with refrigerants, to protect your skin and eyes from liquid/gas refrigerants.
3. Use ONLY authorized refillable refrigerant tanks. It requires the use of recovering tanks with a minimum of 45bar(650psi) working pressure. Do not overfill the storage tank. Tank is full at 80% volume. There should be enough space for liquid expansion-overfilling the tank may cause an violent explosion.
4. Only qualified electricians are allowed to connect the wire per the electrical equipment standard; also the ground wire should be connected effectively before start this unit or using wire.
5. When using an extension cord, it should be a 14AWG minimum also no longer than 7.5meters, or it may depress the voltage and damage the compressor.
6. Do not expose this recovery machine in the sun or rain.
7. Be sure that any room where you are working in is thoroughly ventilated.
8. Please put the unit horizontally when using it, if it is put tipsily, the compressor may be vibrated, the noise larger, the parts are wore out easily, shorten its service life.
9. A scale must be used to avoid overfilling the storage tank, when this unit is used with refrigerant tank.





10. When the unit is not used, all the valve should be closed. Because the air or the moisture of the air may harm the recovery result and shorten the service life of the unit.
11. If the wire is damaged, you must choose the wire with earth wire or buy the replacement from our company.
12. The using power must stay same with the power of the label.
13. Make sure cut-off power before you checking and repair this unit; cut-off power before you doing any operations.
14. This intake pressure (means the indicated value in low voltage) can not over 26bar(377psi)!

## II GENERAL SAFETY GUIDELINES

1. Do not mix different refrigerants together in one tank, otherwise they could not be separated or used.
2. Before recovering the refrigerant, the tank should achieve the vacuum level: -75cmHg(-29.6inHg), which is for purging non-condensable gas. Each tank was full of nitrogen when it was manufactured in the factory, thus the nitrogen should be evacuated before the first use.
3. A dry filter must always be used and should be replaced frequently. And each type of refrigerant mush have its own filter. For the sake of assuring the normal operation of the unit, please use the filter specified by our company. High quality dry filters will bring high quality services.
4. When this unit is not being used, the switch should be lies on the "Close" position, the connector of inlet and outlet should be cover with the cap, to make sure the air or the moisture of air won't going into the unit, if not, it may harm the recovery result and shorten the service life of this machine.
5. Special care should be taken when recovering from a burned-out system. Use two high quality dry filters.
6. A scale must be used to avoid overfilling the storage tank, when this unit is used with refrigerant tank.
7. To maximize recovery rates, we recommend that use the hose, and its inner diameter should be more than 4mm, and length is no more than 1.5meter; if not, the recovery rate will be reduced.
8.When recovering large amount of liquid, use the Push/Pull method.





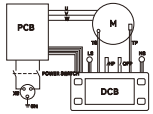
9. After recovering, make sure there is no refrigerant left in the unit. Read the Self-Purging Method carefully. Remained refrigerant may be expanded and destroy the components.
10. This unit has an Internal Pressure Shut Off switch. If the pressure inside the system go above the rated pressure, the system will automatically shut itself off. When you reset it, make sure the internal pressure has been reduced(the high press gauge shows the value under 30bar), press the button of ON/OFF after the "HP" flashing

When the unit is protected caused by high pressure, you must find the reason and solve the problem, then you can start this unit. Some suggestions on the question and solution of high pressure protection:

1) The input valve of refrigerant tank isn't be turned on, so please turn on the valve;
2) The hose connect this unit and tank is air-logged, then you should turn off the valve of this unit and tank, change a good hose;
3) The temperature of tank is too high, then the pressure is higher, when the tank is cooling by itself, then the temperature and pressure will lower.

11. If the unit is to be stored and not used for long time, we recommend that it should completely evacuate off any residual and purged with dry nitrogen.
12. Please wash the air inlet screen frequently, keep it clean, it is fixed in the air inlet connector; if it is damaged, please replace a new one in time.
13. The low pressure meter shows the input pressure of compressor, and high pressure meter shows the output pressure.
14. After use this unit, please put the switch on "close" position.

## III WIRING DIAGRAM




| CODE | Description | CODE | Description |
|---|---|---|---|
| HS | HP sensor | HP | HP protection button |
| LS | LP sensor | XS | Power supply socket |
| TP | Temp protection | M | Motor |
| TS | Temp sensor | DCB | Digital panel |
| OFP | OFP switch(Optional) | PCB | PCB |

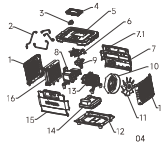




## IV SPECIFICATIONS

| | | | | |
|---|---|---|---|---|
| Refrigerant | | III: R12, R134A, R401C, R406A, R500, R1234yf | | |
| | | IV: R22, R401A, R401B, R402B, R407C, R407D, R408A, R409A, R411A, R411B, R412A, R502, R509 | | |
| | | V: R402A, R404A, R407A, R407B, R410A, R507, R32 | | |
| Voltage | | 230V~/50~60Hz | 100~120V~/50~60Hz | |
| Motor | | 1.3HP | | |
| Motor Speed | | 3000RPM | | |
| Max. Current Draw | | 6.5A | 13A | |
| Compressor Type | | "Oil-less", air cooled, piston-style | | |
| High pressure shut off | | 38.5bar/3850kpa(558psi) | | |
| Recovery Rate | | III | IV | V |
| | Vapor | 0.5 kg/min | 0.7 kg/min | 0.7 kg/min |
| | Liquid | 2.6 kg/min | 3.0 kg/min | 3.9 kg/min |
| | Push/Pull | 8.2 kg/min | 9.3 kg/min | 10.5 kg/min |
| Operating Temp. | | 0°C~40°C | | |
| Dimensions | | 386mm(L)*255mm(W)*276mm(H) | | |
| Net Weight | | 12kg | | |

## V PARTS DIAGRAM AND PARTS LIST

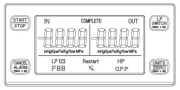







| Code | Part Description | Code | Part Description |
|---|---|---|---|
| 1 | Side cover | 9 | Control valve holder |
| 2 | Copper tube | 10 | Wind guide cover |
| 3 | Switch | 11 | Fan |
| 4 | Digital panel | 12 | Bottom support plate |
| 5 | Upper cover | 13 | Motor |
| 6 | Control valve | 14 | PCB |
| 7 | Back cover | 15 | Front cover |
| 7.1 | Switch | 16 | Condenser |
| 8 | Compressor | | |

## VI OPERATION PANEL INSTRUCTIONS




**START/STOP:** Swith on/off machine

**LP SWITCH:** Program switching, Long press and hold on 3 seconds to switch between LP1 and LP2

**UNITS/ZERO:** Short press to switch units inHg,Kpa,Psi,Kgf,bar,MPa. Long press and hold on 3 seconds, it will be zero cleaning.

**CANCEL ALARM:** Short press to cancel the alarm; Long press and hold on 3 seconds, machine will be in MUTE mode, and the sign is lighting up.

**LP1:** If the intake pressure is below -14 inHg for more than 20 seconds, the machine will activate low pressure protection and shut down automatically, sound an alarm (if mute is set, it will not sound), and display "COMPETE". When the intake pressure is > 0 inHg, the alarm will stop, "COMPETE" will end, and "LP1" and "RESTRAT" will flash. At this time, you can press "START" to restart, and after restarting, "LP1" will turn to a long light display

**LP2:** The machine runs continuously whatever of the intake pressure

**HP:** High pressure protection. When the outlet pressure is more than 38.5 bar, the machine will automatically shut down, "**HP**" will be displayed, and an alarm will sound; When the pressure is less than 29 bar, the alarm stops. "**HP**" flashes, and "RESTRAT" flashes. At this time, you can press "START" to restart.

**O.F.P(Optional):** Full liquid protection, when the cylinder is filled to 80% or the OFP line is disconnected, the machine will stop running, "**O.F.P**" will be displayed, and the alarm will sound intermittently for a long time.



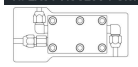


**RESTART:** Can be restarted. After the fault is cleared, the corresponding fault prompt flashes, and "RESTART" flashes at the same time. At this time, you can press "START" to restart, and after restarting, "RESTART" will end displaying

F: Fault.

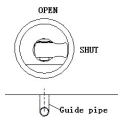
F1-Pressure sensor disconnected
F2-Overcurrent protection
F3-Undervoltage protection
F4-Overvoltage protection
F5-Temperature sensing protection
F6-Thermal protector disconnected
F7-Motor Phase failure
F8-Main signal failure

## VII EASY ACCESS PORT FOR FAST MAINTENANCE



A easy access port for fast maintenance is located at the back of the machine. By removing the long plastic cover plate, it is convenient to disassemble the cylinder head and quickly repair or replace compressor piston rings.

## VIII Oil Separate & O.F.P (Optional)




**1.Oil Seperate**

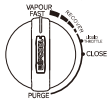
For the first use, a guide pipe needs to be connected to the outlet of the oil and gas separator and fixed with an elastic clamp. When the machine is in standby and there is no refrigerant inside, it can be removed the oil. After removing the oil, the knob needs to be returned to its original position.

**2.O.F.P**

This machine can be connected to a cylinder with oil full liquid protection when configured with O.F.P socket and wiring. The machine will automatically blocks O.F.P function when not plugged in O.F.P wiring.

## VX REFRIGERANT LIQUID/VAPOR RECOVERY METHOD

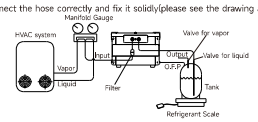
1. Rotate Switch to "LIQUID THROTTLE" position








2. Connect the hose correctly and fix it solidly(please see the drawing as follow)




3. Connect the unit with correct power, press on/off button.
4. Open the valve of tank.
5. Open the liquid port on your manifold gauge set, start the recovery.
6. When finishing the liquid recovery, rotate switch to "FAST" position, it will accelerate the recovery speed of residual air refrigerant.

Note:

1) If the compressor starts to knock, turn the rotary switch to "Liquid Recovery" position. If the whomp is still exist, then clockwise rotate switch slowly, and the value of low voltage is decrease, don't stop until the whomp is gone, pay attention: the low voltage can't be equal 0, otherwise, the input port won't evacuating.
2) If power off or hard starting, turn rotary switch to "liquid recovery" position after turning it three times, then open the power switch.
7. Run until desired vacuum level is achieved or close automatically caused by low voltage protector, then the recovery finish, and star to self-purging.

## X SELF-PURGING METHOD

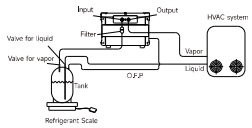
1. When recovery the refrigerant is done, don't cut-off the power, put Rotary Switch on the "Purge" position.
2. Run until desired vacuum level is achieved, then self-purging is over.

1) Turn off the valve of tank.
2) Turn off the stop valve of hose of air output (if it is existed)
3) Turn off the liquid port and vapor port on your manifold gauge set.
4) Turn off the valve, which connecting the refrigerant system and manifold gauge.
5) Turn off power, disconnect all hoses carefully and slowly.
6) Fix the cap on the input and output port.





3. Press on/off button, start the unit.
4. Open the liquid valve and vapor valve of recovery tank.
5. Rotate switch on "FAST" position, start to use PUSH/PULL method.
6. When the show value on the scale isn't variable or it is variable slowly, that means PUSH/PULL method is finished, then need to change into VAPOR Recovery method.(Please re-connect all the hose per "Vapor Recovery method", then recovery the residual vapor in the unit and hose.)
7. Turn off the air valve of tank, then turn off the power of recovery unit.
8. After turning off all the valves, disconnect all hoses, then recovery the residual refrigerant per the liquid/vapor recovery method.
9. Self-purging after recovering




## XI WHOLE SYSTEM PUSH/PULL METHOD

### ⚠Caution

PUSH/PULL method is only applicable to large systems where the liquid refrigerant is heavier than 10kg.

When using the "Push/Pull" method, a scale must be used to avoid overfilling the storage tank, once the siphon is started, it can continue and overfill the storage tank even if the tank is equipped with a float level sensor. The siphon can continue even when the machines is turned off. You must manually close the valves on the tank and the unit to prevent overfilling of the recovery tank.

1. Turn Rotary Switch on "Liquid Recovery" position.
2. Connect the hoses of system, make sure they are connected rightly and fixed solidly (Please see the connected diagram)





## XII TROUBLSHOOTING

| Problem | Cause | Action |
|---|---|---|
| Display is not lighting when power on | 1. check power cord<br>2. Loose internal wirings<br>3. Communication fault<br>4. PCB failure | 1. Replace the power cord<br>2. Check the internal wiring<br>3. Replace the connector and main signal line<br>4. Request manufacturer services |
| No response when switch on | 1. High pressure protection switch or OFP switch disconnect<br>2. F3 or F4<br>3. F2<br>4. F5<br>5. F6<br>6. F7<br>7. F8<br>8. The motor or other electronic components are failure | 1. Check if the connection between the high pressure switch and OFP switch is good<br>2. Plug on correct voltage. If the voltage is correct, replace the PCB<br>3.1 If it only occurs during startup, turn the knob to the "CLOSE" position when in liquid recovery, or to the "PURGE" position when in vapor recovery. Then press the "START" switch once to start the machine, turn the knob to the "FAST" position.<br>3.2. Switch the knob to "SLOW" position when the in or out pressure is high or liquid hammer occurs<br>3.3 If it occurs on Empty load when machine is power off , it is due to mechanical jamming if the motor fan cannot be turned, Require PCB replacement if motor fan can rotate.<br>4. Check if the connection between TS and DCB is good, otherwise require after-sales service<br>5. Check if the connection between TP and DCB is good, otherwise require after-sales service<br>6. Check if the motor input and PCB output wiring are properly connected, otherwise require after-sales service<br>7. Check if the PCB and DCB signal wiring are properly connected, otherwise require after-sales service<br>8. Request manufacturer services |
| Machine shut down after run a period time | 1. Improper operation, trigger high pressure protection<br>2. The thermal protector is activated and the digital display shows F6.<br>3. Recycling tank reaches 80% protection, digital display Display O.F.P.<br>4. Recycling completed, activated low-pressure protection, digital display shows "COMPLETE"<br>5. The motor or other electronic components are broken | 1. Read the operation instructions, Check and open the output valve or recovery cylinder valve.<br>2. When the switch is reset and F6" flashes, the machine can be restarted<br>3. Replace the recovery cylinder and press "START" to restart the machine<br>4. Refer the "X SELF-PURGING METHOD"<br>5. Request manufacturer services |
| Display F1 | Poor connection or short circuit of pressure sensor | Check if the connection between LS or HS and DCB is good. If it is good, please replace the pressure sensor |
| Recovery is too slow | 1. The pressure of the recovery cylinder is too high<br>2. The valve opening is too small<br>3. Wear of compressor seals | 1. Cooling the recovery cylinder to reduce pressure<br>2. Rotate the knob towards "FAST" direction<br>3. Request manufacturer services |
| Unable to reach vacuum | 1. Pipe connecting is loose<br>2. There is some components leakage | 1.Fasten the connecting<br>2.Request manufacturer services |