Air source heat pump dryer Manual

JT-25ZTX JT-35ZTX JT-50ZTX

Content

1.To user

1 Before installing and using this product, please read this manual carefully, otherwise it will damage the equipment, hurt the operator and loss property.

2 Technology continues to progress, product series and specifications will be improved, please pay attention to our latest product information.

3 When reading this manual, if you need any technical advice, please contact the company or local agents.

4 Notes:

4.1 When installing heat pump dryer unit, please check the corresponding power supply whether meet the heat pump power requirements, please refer the detail nameplate or installation instructions.

4.2 Be sure to install the earth leakage protection device.

4.3 Heat pump must be reliable grounding, is strictly prohibited in the case of no reliable grounding using the unit. Do not connect the ground wire to zero wire.

4.4 When wiring the electrical wire, please refer to the wiring diagram.

4.5 For safe use, do not privately modify or repair the heat pump dryer unit.

4.6 It is strictly forbidden to insert any tools into the heat pump so as not to touch the fan. This may cause damage the unit or accident (children avoid).

4.8 Do not use the drying unit in the state of removing the grid or sheet metal, so as to avoid accidents or abnormal operation of the unit.

4.9 When the unit is immersed in water, please contact the manufacturer or its maintenance department immediately. It can't re-use the unit until the technical personnel checking.

4.10 Non-qualified technical staff must not adjust the switches, valves, controllers and other components.

2. Product introduction

2.1 Heat pump characteristics

◆ **High efficient and energy saving**

Heat pump dryer units get a lot of free heat from the air, consume a little electric about a quarter of the traditional electric heater to carry air or solar energy with same hot water output, so save a lot of electricity costs.

◆ **Green and environmental protection**

Heat pump dryer units use solar energy, air, hydrothermal energy and electric clean energy, without any oil, coal, gas and other fossil fuels to cause environmental pollution. It does not discharge harmful gases during working, truly energy saving and environmental protection.

◆ **All-weather use**

Heat pump dryer units don't be affected by cloud, rain and other heavy weather, it can use at all weather during 24 hours a day.

◆ **Long life span**

Heat pump dryer units adopt the high quality world famous brand compressor, four-way valve and other main parts, corrosion-resistant stainless steel plate, thus ensuring the quality of products, its service life is over 10 years, much higher than other types of water heater's life.

◆ **Widely used**

Heat pump dryer series have a different capacity to meet different occasions, material requirements.

3. Technical parameters

Unit technical data

Note: The technical parameters of heating capacity working condition:

Outdoor dry-bulb temperature 20℃, the oven temperature is 70℃.

Dehumidified volume working condition: the bake room temperature 35℃, drying room humidity is 60%

Our company reserves for improving product performance and design without prior notice.

In actual use, please take the drying room heat loss around 6% into consideration.

Parameter data, if there is difference, please refer to the nameplate as standard.

Model No.	**JT-25ZTX**	**JT-35ZTX**	**JT-50ZTX**
Horse power (HP)	1	1.5	2
Oven temp.(℃)	10-80	10~80	10~80
Dry humidity(%)	8%-99%	8%-99%	8%-99%
Heating capacity	2.41	3.50	4.48
Rated power input(kW)	0.86	1.25	1.6
COP	2.8	2.8	2.8
Rated current input	5.5A	7.2A	7.2A
Maximum power input	1400W	1500W	1900W
Maximum current output	6.3A	8.6A	11A
Auxiliary heater power input	2kW	2kW	2kW
Auxiliary heater current	9A	9A	9A
Refrigerant	R134a	R134a	R134a
Power supply	220V/1Ph/50 or 60Hz	220V/1Ph/50 or 60Hz	220V/1Ph/50 or 60Hz
Suction/discharge max pressure	0.7 / 3.8MPa	0.7 / 3.8MPa	0.7 / 3.8MPa
Dehumidify capacity(L/H)	2.5	3.75	5
Material plate layer	15	18	18
Anti-electric shock class	Grass I	Grass I	Grass I
Noise	≤64dB(A)	≤68dB(A)	≤68dB(A)
Working temp.	-10-40℃	-10-40℃	-10-40℃
Drying room	690*690*1690	710*690*1810	710*690*1810
Net weight	185kg	210kg	220kg
Product dimension	1270×760×1650=1.59m³	1270×760×1850=1.79m³	1270×760×1850=1.79m³

Test condition: Heating capacity: Outside dry bulb temp. 20℃, oven temp. 70℃

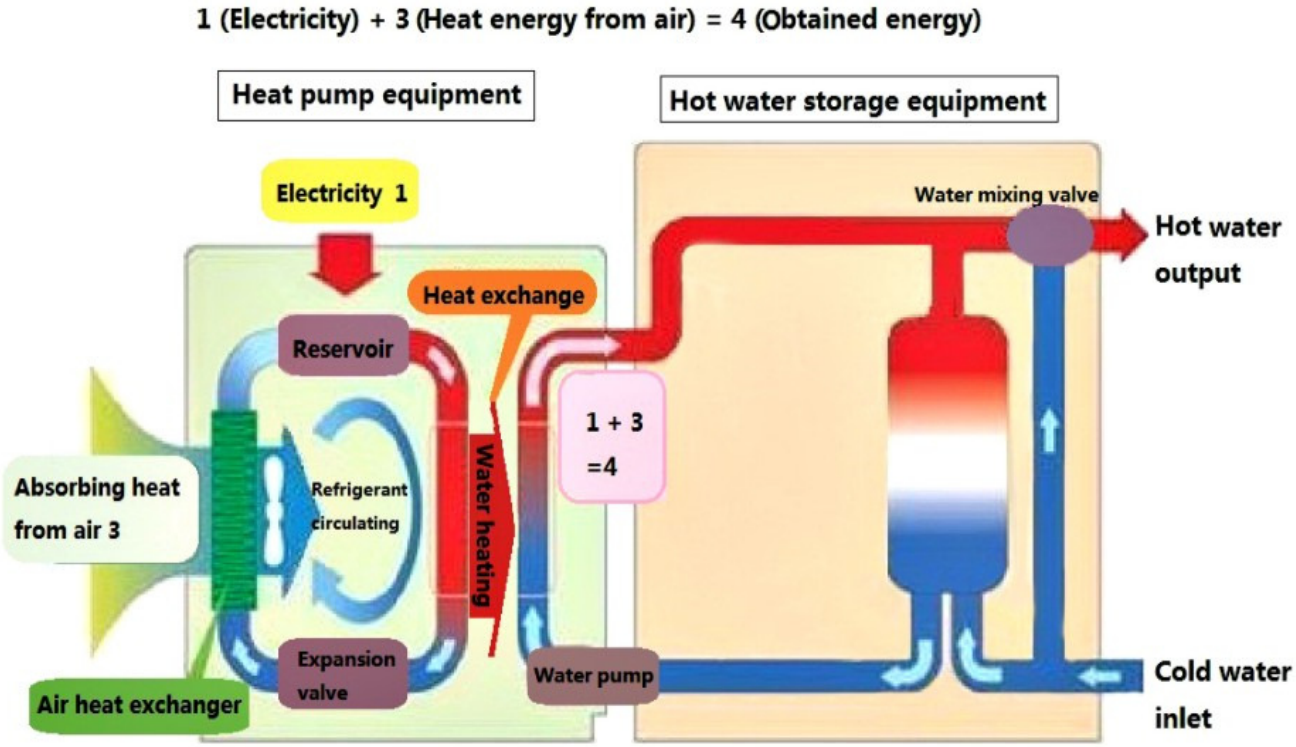
Dehumidify: Drying room temp. 35℃, drying room temp. 35℃, humidity 60%

4. Heat pump principle

Working principle:

Compressor absorbs low temperature and low pressure refrigerant gas from the evaporator, then refrigerant compressed to high temperature and high pressure gas. The high temperature and high pressure gas goes into the condenser through fan to exchange heat with the air, and condensed into cryogenic liquid in the condenser and give off a lot of heat.

The air absorbs the heat and the temperature increasing. High pressure and low temperature liquid is throttled and depressurized through the expansion valve, absorbs heat from the surrounding air and volatilize into low pressure gas by fan in the evaporator, being compressed in the compressor, this repeated cycle, so as to continuously rise the drying room temperature.



5. Controller

Main menu interface

5.1 Controller operation method

5.2 Lock and unlock

At the unlock state, press Esc for 3s until hear “Di” sound, the key is lock.

At the lock state, press Esc for 3s until hear “Di” sound, the key is unlock.

Timer on-off function

It will timer on or off at the setting timer time.

5.3 System parameter setting (At the power-on state it can change the parameter)

Parameter	Name	Range	Default	Note
1	Drying setting (it can set on the running state)	15℃~80℃	70℃	Adjustable
2	Drying return difference	1℃~15℃	5℃	Adjustable
3	Cold-dry setting (it can set on the running state)	5-28℃	12℃	Adjustable
4	Cold-dry return difference	1℃~15℃	5℃	Adjustable
5	Humidity setting (it can set on the running state)	8%-99%	40%	Adjustable
6	Humidity temp return difference setting	1%~15%	5%	Adjustable
7	Drying mode (it can set on the running state)	Ladder heating/ rising heating	Rising heating	Adjustable
8	Defrost inner fan	On/off	off	Adjustable
9	E-heater	No/yes	yes	Adjustable
10	E-heater lower limited	0℃-60℃	20℃	Adjustable
11	E-heater return difference	0℃-10℃	5℃	Adjustable
12	Forced E-heater	On/off	off	Adjustable
13	Compressor stop	3-60min	3min	Adjustable
14	Humidity elimination fan	0 press set humidity 1 Automatic control	0	Adjustable

15	Humidity excl fan	0 humidity control/ 1 automatic control	0	Adjustable
16	Defrost entrance	-9℃~3℃	-3℃	Adjustable
17	Defrost exit	5℃~25℃	15℃	Adjustable
18	Defrost interval	10~90min	50min	Adjustable
19	Defrost time	1~12min	12min	Adjustable
20	Power off memory	No/yes	yes	Adjustable
21	System quantity	1/2	1	Adjustable
22	Humidity on time	0-144 (660min)	6	Adjustable
23	Return fan temp compensation	0℃-10℃	0℃	Adjustable
24	Humidity compensation	0%-10%	0℃	Adjustable
25	Humidity elimination work time	1-60min	10min	Adjustable
26	Humidity elimination interval time	1-60min	20min	Adjustable

5.4 Temp inquiry

Parameter	Meaning	Range	Note
1	Return air temp.	-20℃~99℃	Measured value
2	Drying room humidity	0%~99%	Measured value
3	Outside ambient temp	-20℃~99℃	Measured value
4	Outside coil temp 1	-20℃~99℃	Measured value
5	Outside coil temp 2	-20℃~99℃	Measured value
6	Exhaust temp 1	0℃~125℃	Measured value
7	Exhaust temp 2	0℃~125℃	Measured value
8	Return air temp 1	-20℃~99℃	Measured value
9	Return air temp 2	-20℃~99℃	Measured value
10	Outlet air temp	-20℃~99℃	Measured value
11	EEV opening 1	60-500 step	Measured value
12	EEV opening 2	60-500 step	Measured value

5.5 Function control description

1. Work in ten times section, adjust the working time independently for each time section, set the temperature, set the humidity

2. When setting temperature < room temperature, the compressor is on
When setting temperature> room temperature, the compressor is off
When setting humidity +5 < indoor humidity, the ventilator opens
When setting humidity > indoor humidity, the ventilator closes

3. When the sensor is faulty, stop the machine to protect
4. When high pressure or low pressure, stop machine to protect

5. When the exhaust temperature > setting protection temperature, open the bypass solenoid valve; close the solenoid valve when less than setting 5 degrees.

5.6 Function mode description

1 Drying mode: Rapid Heating, warming;
2 Cooling mode: Cooling and dehumidification
3 Dehumidification mode: Heating warming firstly, change to Dehumidification after reaching the setting temperature;
4 Drying + hydrofuge mode: It can be hydrofuge at the heating process;
5 Drying + dehumidification: Priority to dry, after reaching the set temperature, change to dehumidification;
6 Ventilation: Circulating fan operation, other parts are not running;
7 Dehumidification + hydrofuge: It can be hydrofuge at the dehumidification process.

8 Installation instruction
a. Unit should be installed in a large and well ventilated place, and it's better to avoid to expose to the sun and rain.
b. Make sure the installation place is not any block at the inlet and outlet.
c. Set drain near the installation location so as to easily carry out drainage.
d. The installation foundation should be solid and firm to ensure the unit runs steady.
e. Make sure the machine installed upright not slant.
f. Do not install the host unit in the contaminated, corrosive gas and gray sand, leaves and other contaminants easily gathered place.
g. The installation location can not be close to inflammable, explosive and open fire place.

6. Installation debugging and running

6.1 Prepare work before commissioning

a) Heat pump dryer unit inspection:

※ Check whether the unit appearance and the inside piping system are damaged during transport.

※ Check whether the fan blades interfere with the fan fixed plate and fan guard.

b) Distribution system inspection

※ Check whether the power supply is consistent with the power supply required on this manual and the unit nameplate.

※ Check all power supply and control lines are all connected in place, whether the wiring diagram according to the correct wiring, grounding is reliable, all terminals are tight.

6.2 The commissioning of the commissioning unit must be performed by a professional!

※ When the entire system is conducted a comprehensive inspection and meet the requirements, the overall test run.

※ Connect the power and turn on the heat pump, the host units delay 3 minutes then start automatically.

For the three-phase power unit, at first check whether the fan run rightly. If not, please turn off the power

immediately to adjust the phase sequence.
Measure whether the compressor operating current is normal or have abnormal sound.

※ Check whether the unit meets the requirements, run for some time (usually 3 days), then the unit can put into normal use.

6.3 Normal operation

※ Heating running process:
Turn on unit -- Inside fan running -- fan motor running -- compressor control running

※ Temp control: When the setting temp < indoor temp, compressor starts;
When the setting temp > indoor temp, compressor closes.

※ Setting humidity +5 < inside humidity, hydrofuge fan opens;
When the setting humidity > inside humidity, hydrofuge fan closes.

※ The four-way valve is a power-off state at the normal start, 4-way valve turn on power and work only in the defrost.

7. Maintenance

Heat pump dryer unit is a high automatic apparatus, regularly checking when using. If the unit keeps a long-term and effective maintenance, the operational reliability and service life will be unexpectedly improved.

1. When use and maintain the unit, please pay attention to:
All safety devices in the unit are set at the factory, don’t self-adjustment.

2. Check the unit's power and electrical system wiring is solid usually, whether electrical components are abnormal, if abnormal it should be timely maintenance and replacement.

3. It should be kept clean and dry, well ventilated around the unit. Regular cleaning (1-2 months) heat exchanger to maintain heat transfer in a good effect.

4. Check the work of the unit various parts often, check the inside pipe joints and inflation valve whether has oil to ensure the unit refrigerant without leakage.

5. Please don’t stack sundries block around the unit so as not to block inlet and outlet, the unit should be kept clean and dry, well ventilated.

6. If the shutdown time is longer, cut off the power, set a good protective cover. Conduct a comprehensive inspection before restarting the system.

7. When the unit failure, if the user can not solve, please call the company in the local special maintenance department, in order to send people maintenance in time.

Error code sheet:

Fault code	Fault name
E00	Phase sequence protection
E01	High pressure switch 1 fault (Protect when Switch off)
E02	Low pressure switch 1 fault (Protect when Switch off)
E03	High pressure switch 2 fault. Single system don't have (Show error when switch off)
E04	Low pressure switch 2 fault. Single system don't have (Show error when switch off)
E05	Fan pressure switch fault
E06	Communication fault (Controller can't receive the main board signal)
E07	Return air temp sensor fault (Open circuit or short circuit)
E08	Drying room temp sensor fault (Open circuit or short circuit)
E09	Outside temp sensor fault (Open circuit or short circuit)
E10	Air outlet temp sensor fault (Open circuit or short circuit)
E11	Outdoor coil temp sensor 1 fault (Open circuit or short circuit)
E12	Outdoor coil temp sensor 2 fault (Open circuit or short circuit)
E14	Return air 1 temp sensor fault (Open circuit or short circuit)
E15	Return air 2 temp sensor fault (Open circuit or short circuit)
E16	Exhaust temp sensor 1 fault (Open circuit or short circuit)
E17	Exhaust temp sensor 2 fault (Open circuit or short circuit)
E18	Exhaust temp sensor 1 temp over high
E19	Exhaust temp sensor 2 temp over high

8. Common failures and troubleshooting methods

1. Compressor 3 min delay protection, compressor start and stop time is 3min.

2.High pressure protection:
(pressure switch off) In (three times / hour), the display does not show pressure protection. After the pressure recovery, compressor is delayed for 3 minutes to restart.
When over (three times / hour) the controller locks the fault, accordingly compresses is no longer restarted regardless of whether the pressure switch is reset, and the fault code is displayed;

3. Low pressure protection:
Don't detect low pressure switch during defrosting; Heating start delay 3 minutes detection, pressure switch off, accordingly compressor do not restart regardless of the pressure switch is reset, and the fault code is displayed;

4. The temp sensor failure: if sensor is failure, it stops all components.

5. Exhaust temperature protection:

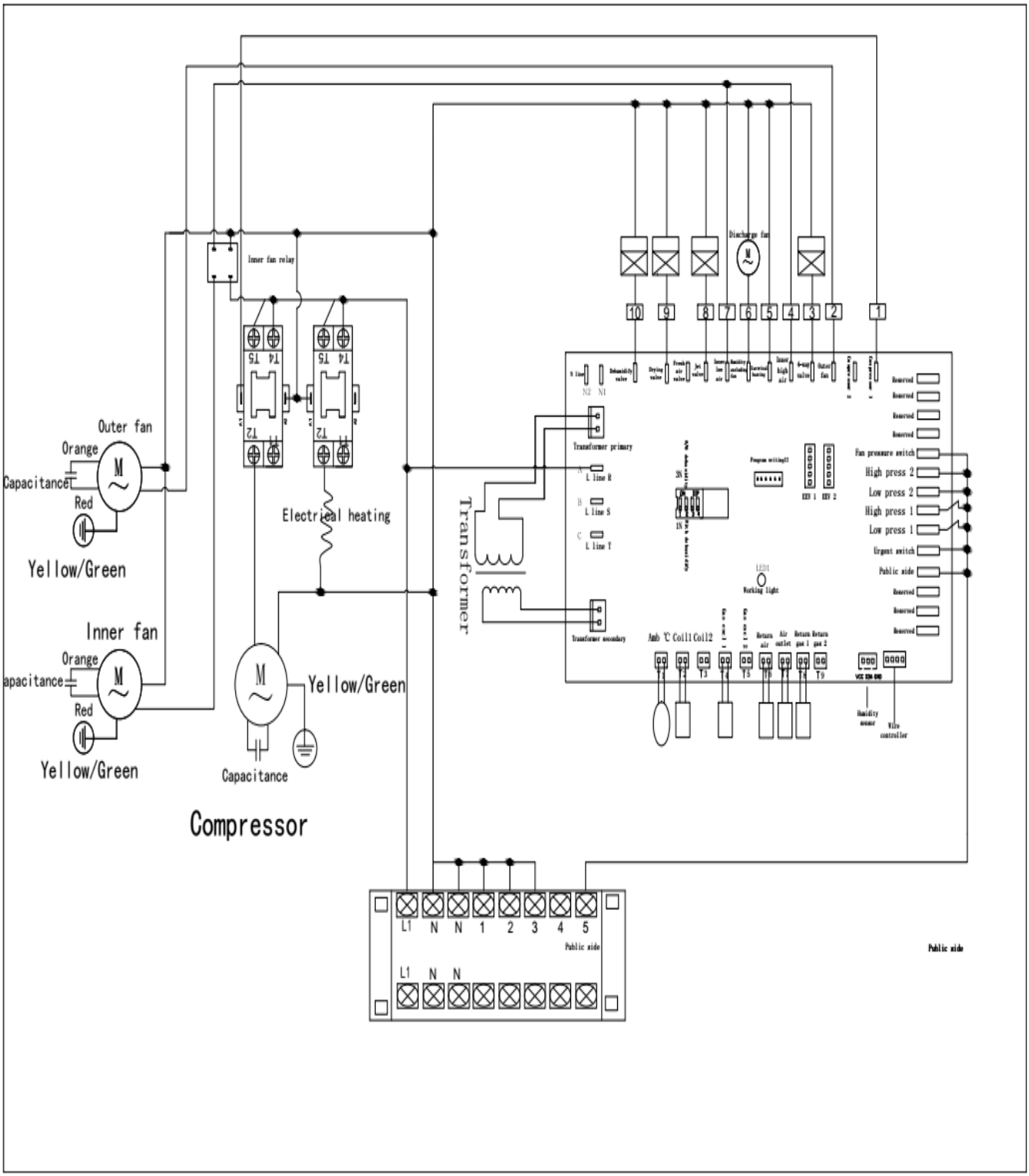
In (three times / hour), the display does not show the exhaust temperature protection, after the exhaust temperature recovery, the compressor is delayed for 3 minutes to restart. The controller locks the fault when it exceeds (three times / hour), the corresponding compressor is not restart and display fault code.

6. Default phase and anti-phase protection: all components of the unit do not allow action, then display the fault and code.

Please refer the below sheet to trouble shooting.

Fault state	Possible fault reason	Treatment
Unit not running	✧ Power supply fault ✧ Power supply wiring is loose ✧ Fuse is broken	✧ Turn off power and check the power ✧ Check the cause and repair ✧ Replace fuse
Heating capacity is low	✧ Lack of refrigerant ✧ Warehouse poor insulation ✧ Improper hydrofuge settings	✧ System leak detection and filling refrigerant ✧ Strengthen the warehouse insulation ✧ Set suitable hydrofuge control
Compressor not running	✧ Power supply fault ✧ Compressor contactor is damaged ✧ Wiring loose ✧ Compressor overheat protection	✧ Check the cause and solve power fault ✧ Replace contactor ✧ Check loose points and repair ✧ Check the cause of heat troubleshooting and then boot the unit
Compressor loud noise	✧ Liquid goes into compressor ✧ Compressor internal parts are damaged	✧ Check expansive valve whether is out of work ✧ Replace compressor
Fan not running	✧ Fan screws loose ✧ Fan motor burned ✧ Contactor is damaged	✧ Tighten the screws ✧ Replace fan ✧ Replace contactor
The compressor is running, but the unit is not heated	✧ Refrigerant leakage ✧ Compressor fault	✧ System leak detection and filling refrigerant ✧ Replace compressor
Exhaust pressure is too high	✧ To much refrigerant ✧ Refrigerant system has non-condensable gas	✧ Get out redundant refrigerant ✧ Get out non-condensable gas
Suction pressure is too low	✧ Filter clogging ✧ Solenoid valve is not open ✧ The pressure drop through the heat exchanger is too large	✧ Replace filter ✧ Repair or replace solenoid valve ✧ Check the thermostatic expansion valve opening whether is proper

9. Circuit chart



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