

CW-5000/5200 Series Industrial Chiller

Malfunction Testing and Repair Handbook



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一、Chiller Alarm (red light flash)—With Water Circulation

Turn off the chiller, connect the outlet and inlet with 1 meter's water pipe (as picture), and then turn on the chiller to observe the running status.



The Status: Water circle running normal, the alarm stop (green light flash)

Reason: The pipes which use to connect the chiller and apply machine and the pipes within the apply machine are choking (Such as pipe blockage or bending etc.)

Solution: Clean the pipes to remove blockage, or replace the bending or damage pipes.

The Status II: Water circle running normal, the alarm continuing (red light flash).

Reason:

- 1、 Flow switch issue
- 2、 Relay issue

Testing Method

1) Turn off the chiller, and then open the sheet metal on the chiller, locate the flow switch at outlet.



2) Cut off two red wires on the baffle flow switch, and then connect these two wires .Turn on the chiller to observe if the alarm continues.

2.1) If the alarm stop (green light flash).It can be judged as the flow switch malfunction.

Solution: Replace the baffle flow switch.

2.2) If the alarm keep going (red light flash), please reconnect two red wires back to flow switch to conduct next testing



3) Cut off four wires on the Hall flow switch, connect the red wire with other red one, the black wire connect with the yellow one. And then turn on the chiller to observe if the alarm continues.

3.1) If the alarm stop (green light flash), it can be judged as the flow switch failure.

Solution: Replace the Hall flow switch

3.2) If the alarm continues, please reconnect these four wires back to the flow switch to conduct next testing.

4) To test input voltage of relay coil with test tools.

Note: Standard Voltage of relay coil of baffle flow switch is AC220V, relay coil of Hall flow switch is DC24V.

4.1) If input voltage of relay coil (as picture) is not standard voltage, it can be judged as wires break which flow switch connect to relay.

Solution: Check if wires of relay are loose or broken.



The status III: Water current on and off, the alarm continues (red light flash)

Reason:

- 1、 Pipe choking issue
- 2、 Switching mode power supplies issue
- 3、 DC Pump issue

Testing method

- 1) Open the sheet metal on chiller, and observe pipe status within chiller.



Clean the pipes to remove blockage or replace the bending or damage pipes.

- 2) Check output voltage of switching mode power supplies with testing tools; Standard working voltage of switching mode power supplies is DC24V for CW-5000 series machine.



- 2.1) If output voltage of switching mode power supplies lower than DC18V, the life and flow of pump will affect due to low voltage, it can be judged as failure of switching mode power supplies or pump failure.

Solution: Replace the switching mode power supplies first and then test the pump.

- 2.2) If output voltage of switching mode power supplies is DC24, it can be judged as pump failure.



Solution: Take away the shell of DC pump and check if there is choking or wore in rotor. If the alarm continues, it will need to replace DC pump.

二、Chiller Alarm(red light flash)—Without Water Circulation

Reason:

- 1、 Low water level
- 2、 Switching mode power supplies issue
- 3、 DC pump issue

Testing method

- 1) Examine if the water in water tank lower than pump inlet.

Solution: Add purified water if water lower than pump inlet.

- 2) Check output voltage of switching mode power supplies with testing tools; standard working voltage of switching mode power supplies is DC24V for CW-5000 series machine.



- 2.1) If output voltage of switching mode power supplies lower than DC18V, the life and flow of pump will affect due to low voltage, it can be judged as failure of switching mode power supplies or pump failure.

Solution: Replace the switching mode power supplies first and then test the pump.

- 2.2) If output voltage of switching mode power supplies is DC24v, it can be judged as pump failure.



Solution: Take away the shell of DC pump and check if there is choking or wore in rotor. If the alarm continues, it will need to replace DC pump.

三、CW-5000 Series Temperature Controller T-503 alarm (the alarm buzzer within Temperature Controller goes with code display when alarming)



Remarks: In alarming status, the alarm sound could be suspended by pressing any button, but the alarm display remains until the alarm condition is eliminated.

Alarm code E1: ultrahigh room temperature

Under default state, press ▼ button will display room temperature; 6 seconds later will restore to display water temperature.

Reason:

1、 Ambient temperature higher than 40°C or the machine' s location not ventilated.

Solution: The chiller placed in ventilated position, air inlet at least 30cm away from obstructions (The dust gauze), and air outlet (The fan) at least 50 cm away.

2、 The dust gauze is extremely dirty

Solution: Clear the dust gauze regularly.

3、 Dust accumulation heavily on the aluminum fin of condenser inside the chiller.

Solution: Clear dust on condenser with compressor air regularly.

Alarm code E2: ultrahigh water temperature

Reason:

1、 External issue

1.1) Ambient temperature higher than 40°C or the machine's location not ventilated .

1.2) The dust gauze is extremely dirty.

1.3) Dust accumulation heavily on the aluminum fin of condenser inside the chiller.

1.4) The chillers heat overload (The load of heat higher than refrigeration capacity)

1.5) The chiller working voltage is lower than required (depending on the model: please refer to the manual technical parameters)

2、 Fan issue

3、 Temperature controller issue

4、 Compressor capacitor issue

5、 Compressor Protector issue

6、 Leakage Refrigerant

7、 Refrigerant solenoid valve issue

8、 Compressor issue

Texting method

1) Check input voltage of fan with testing tools (depending on the model: please refer to the manual technical parameters). If there is voltage input, it can judge is fan failure; if no voltage input, it can judge is circuit poor contact or fan short circuit.

2) The thermostat under refrigeration status

2.1) Check the working voltage output of output terminals of the compressor at the back of thermostat with testing tools .If there is no voltage output, it can be judged as thermostat failure, if there is voltage output, then continue next testing.



2.2) Check the working voltage output of output terminals of the solenoid valve at the back of thermostat with testing tools .If there is voltage output, it can be judged as thermostat failure, if no voltage output, then continue next testing.

3) Under refrigeration status, the compressor cannot start

3.1) Check the capacity of boost capacitor of compressor with testing tools, the standard capacity is 10%, if the figure below 10% can be judged the compressor’s capacitor lower standard requirements.



3.2) Check input voltage of compressor with testing tools (depending on the model: please refer to the manual technical parameters), if voltage lower than compressor boost voltage, the compressor do not work.

3.3) Check output voltage of output terminal of compressor overload protector with testing tools. If there is no voltage output at output terminal, it can be judged as overload protector failure or circuit damage.

3.4) Check the input wire (white color) of compressor with ammeter, if current is triple times or above than rated current, it can be judged as the rotor within the compressor not working.

4) Under refrigeration status, the compressor can work.

4.1) Observe the refrigeration piping (as picture) whether there is oil tracking or frosting, such as oil or frost phenomenon, can be judged refrigerant leakage (such as inside the condenser or evaporator internal pipe line leakage refrigerant).

Solution: Have some air-conditioning maintenance people to locate the leakage parts, refill the holes of leakage, and then fill the refrigerant.(The mode and capacity of refrigerant can be view from the label of machine)



4.2) Check the capacity of boost capacitor of compressor with testing tools (as picture), the standard capacity figure is 10%, if the figure below 10% can be judged the compressor boost capacitor lower lead to refrigeration capacity low.

Solution: Replace capacitor of compressor.



5) The core of Solenoid valve malfunction (as picture)



6) Compressor Rotor not working



Observe whether the compressor is vibrating when the thermostat reaches refrigeration status (D2 of thermostats light on). If there is no vibration of the compressor and the surface of the compressor gets heating, it means the interior of the compressor has malfunctioned.

Solution: Replace compressor

Alarm code E3: ultralow room temperature

Reason:

E3 alarm display is normal at first use when the ambient temperature is low (such as winter and autumn season), just add certain warm water the temperature will restore to working temperature.

Alarm code E4: room temperature sensor failure

Reason:

- 1、Connected wires loose
- 2、Sensor failure

Testing method

1) Look for the terminals of the room temperature sensor and water temperature sensor (as picture), swap and connect terminals of the room temperature sensor and water temperature sensor to the temperature controller.



1.1) If the alarm stops can be judged as the terminals poor contact, and then reconnect the wires back

to original terminals.

1.2) If there is E4 alarm, can determine the temperature controller malfunction; If there is E5 alarm, can determine the room temperature sensor failure.

1.3) If the alarm display E4 ,E5 at the same time , suggest to replace room temperature sensor and temperature sensor and temperature controller

Alarm code E5: Water temperature sensor failure

Reason:

- 1、 Connected wires loose
- 2、 Sensor failure

Testing method

1) Look for the terminals of room temperature sensor and water temperature sensor (as picture), swap and connect the room temperature sensor and water temperature sensor to the temperature controller.



1.1) If the alarm stop can judge is the terminal poor contact, reconnect the wires back to original terminals.

1.2) If there is E5 alarm, can determine the temperature controller malfunction, if there is E4 alarm, can determine the temperature sensor failure;

1.3) If the alarm display E4 ,E5 at the same time , suggest to replace room temperature sensor and temperature sensor and temperature controller

四、The machine does not work when power is on

Reason:

- 1、Fuse Fusing
- 2、Switching Mode Power Supplies

Testing method

1) Open the safety tube and check if the fuse is fused (as picture).If fused, replace the standby insurance tube.



2) Check AC220V voltage (depend upon the mode of machine) of two groups of wire on the Switching Mode Power Supplies with Universal meter etc tools, if only one group with the AC220V voltage can judge switching mode power suppliers failure , will need to replace a new one.