

Industrial chiller instruction manual



Water-cooled open industrial chiller



Air cooling chiller



Water cooling chiller

Please read this operation manual carefully before using the unit to master the correct and safe usage 2

Thank you for choosing the industrial chiller produced by our company among many commercial brands.

This unit selects various refrigeration accessories with excellent technical properties and adopts advanced technology.

production, with excellent technical properties and easy operation.

However, no matter how good the unit is, its excellent performance cannot be displayed without correct operation and maintenance. Therefore, in order to ensure that the unit operates in the best condition, please read this user manual carefully before starting it.

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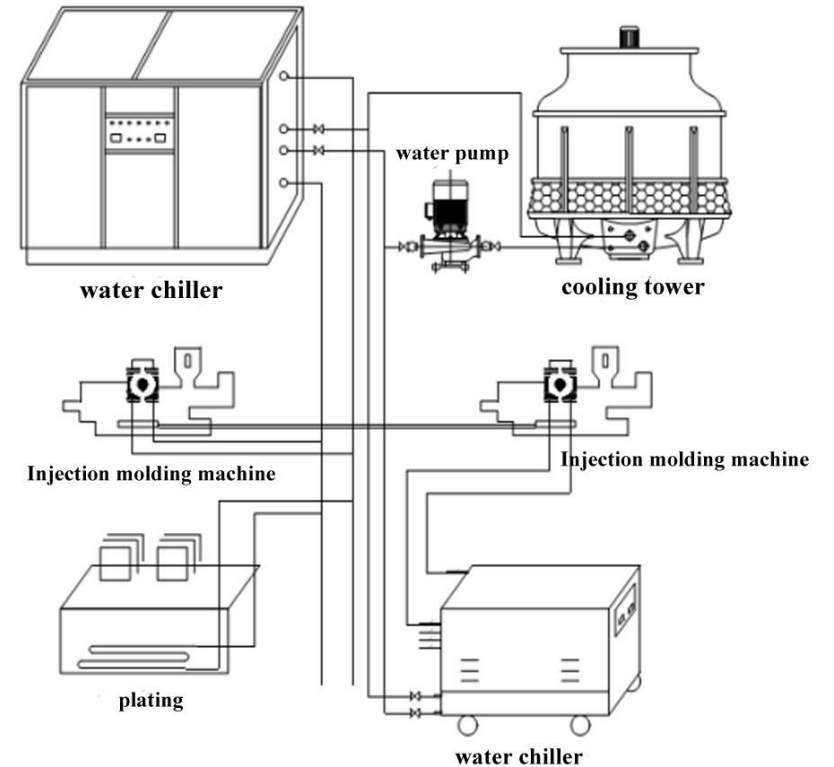
Maintenance record sheet

Repair date		Maintenanceman		
Fault conditions:				
Cause of issue:				
Maintenance status:				
Replace parts	Name	Qty.	Name	Qty.

Maintenance record sheet

Repair date		Maintenanceman		
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I. Water pipe installation flow chart



Air-cooled industrial chillers do not require a cooling water system

II. Chiller installation instructions

(1)、Chiller transportation:

Necessary protective measures should be taken before transporting the chiller, and care should be taken not to damage the unit during transport.

(2) Unit installation:

2-1. When installing the chiller, be careful not to damage the unit and arrange the space around the chiller reasonably to facilitate maintenance of the chiller.

2-2. According to the recognized piping system design and construction and installation standards, the frozen water and cooling water system should be reasonably designed and

installed to give full play to the performance of the chiller.

2-3. The chiller should be placed horizontally and installed in a ventilated and dry location. When installing the air-cooled unit, attention must be paid to leaving enough space for the exhaust port and maintaining a necessary distance around it to facilitate heat exchange.

2-4. When the environment around the water source and water cooling tower is harsh, the chilled water and cooling water circuits must be installed with Y-type filters and cleaned regularly. An automatic exhaust valve must be installed at the highest point of the closed chilled water system and a drainage joint must be installed at the lowest point of the system to prevent For system drainage.

2-5. Select a matching cooling tower according to the cooling capacity of the unit (air-cooled units do not need to be equipped with a cooling tower).

2-6. After the chilled water pipe passes the leak test, cover it with an insulation layer to avoid cooling loss and pipe dripping.

(3), power connection:

3-1. The power supply of the chiller adopts three-phase four-wire, and the power wire (R, S, T) is connected to the live wire of the power supply.

(N) Connect the neutral wire (G) Ground wire ※ **Do not connect the neutral wire (N) to the live wire of the power supply.**

3-2. The main power cord of the unit is connected to the connection post in the electric control box through the hole in the box, ensuring that the connection is tight.

3-3. Unit power distribution requirements: Main power supply voltage: within $\pm 10\%$ of rated voltage

Main power frequency: within $\pm 2\%$ of rated frequency

3-4. When the main power supply voltage fluctuation exceeds the specified range, the chiller is not allowed to be started, otherwise it will be regarded as improper operation, and the resulting damage is not within the scope of our company's maintenance.

3-5. The water flow switch, water pump, cooling tower motor and other interlocking circuits of the water system can be correctly connected to the unit control circuit when necessary (the air-cooled unit does not need to be equipped with a cooling tower).

3-6. The chiller is equipped with various protection measures such as current overload protection, high and low pressure protection at the exhaust end of the compressor, motor coil overheating protection, anti-icing protection, cooling water flow chain protection, etc., and the control circuit is advanced. The control circuit of our company's ice water unit has been installed and debugged in the factory. Do not make any unauthorized changes. Please contact our company if changes are needed.

III. Start up and run

(1)、Preparation before starting:

1-1. Check whether there are any abnormalities around the unit.

1-2. Check whether the power supply of the unit is properly connected (whether the phase power supply meets the voltage requirements of the chiller).

1-3. Check whether the sluice gate of the radiating water pipe is open, whether the water tower is in standby state, and whether the sluice gate of the cold water pipe is open.

1-4. Turn on the water pump and water tower in the system first, and then turn on the chiller (the air-cooled unit does not need to be equipped with a cooling tower).

※ The water tank and condenser of the chiller must be filled with water, otherwise do not run the water pump when there is no water.

(2)、Chiller operation:

After the power supply and water pipe are connected, first turn on the water pump switch. At this time, pay attention to the running direction of the water pump to ensure that the water pump runs in the correct direction. If the direction is opposite, just swap the power cords R and S, and then turn on the compressor. switch, and then adjust the outlet water temperature to the temperature required by the mold (for example, when the mold requires a water temperature of 12 degrees, adjust the temperature to 12 degrees, and the mold water temperature can be maintained within the range of 12 degrees) [Usually the temperature adjustment cannot be lower than 3 degrees. To prevent the condenser from freezing] When the compressor reaches the adjusted temperature, it will automatically switch on and off.

IV. Chiller warranty card

Chiller warranty card

Warranty card number:

User name:

Product name:

Product model:

Serial number:

Purchase date:

Shipping invoice number:

Buy merchant:

Product warranty card usage instructions:

1. This card should be kept properly by the user and used together with the goods invoice as a product warranty certificate.

2. If this product malfunctions within one year from the date of leaving the factory, it will be

You can get free repairs and replacement parts with this card and purchase receipt. However, due to transportation, storage,

Damage caused by improper use or other reasons will not be covered by the warranty.

3. Users are kindly requested to notify our company of product failure details. Our company will respond based on specific

If the situation arises, personnel will be sent to the home for repairs. If the product fails due to misuse or human factors,

If there is a fault, the company will charge appropriate inspection fees.

4. After purchasing, users please fill in the warranty card carefully; after the warranty expires or the warranty scope

All other chillers will be repaired at a preferential price.

Manufacturer's name: _____

Manufacturer's address: _____

Manufacturer's phone number: _____ Fax: _____

V.Chiller combination certificate

Chiller combination certificate	
product name	
Product number	
Serial number	

This product has been inspected and the results fully meet the technical standards.

Inspectors: 006检 Inspection date: _____

Manufacturer's name: _____

Manufacturer address: _____

Switch setting	*Cooling overload	Normally closed	Normally closed~Normally open	Switch input mode selection
	*Remote switch	Normally closed	Normally closed~Normally open	It is valid after selecting remote as the startup mode.
	*freeze overload	Normally open	Normally closed~Normally open	Normally closed: starts when the input is closed
	*Flow switch	Normally closed	Normally closed~Normally open	
	*Water level switch	Normally closed	Normally closed~Normally open	
	*Compressor overload	Normally open	Normally closed~Normally open	
	*Compressor low pressure	Normally closed	Normally closed~Normally open	
	*Compressor high pressure	Normally open	Normally closed~Normally open	

※If the chiller is installed with a phase switch, when the phases are reversed, the red indicator light (phase failure) on the control panel lights up and the alarm sounds, please turn on the main power switch, and then connect two of the power cords R, S, and T. After adjusting the connection, turn on the power supply and chiller, then the machine can return to normal operation.

4. Maintenance

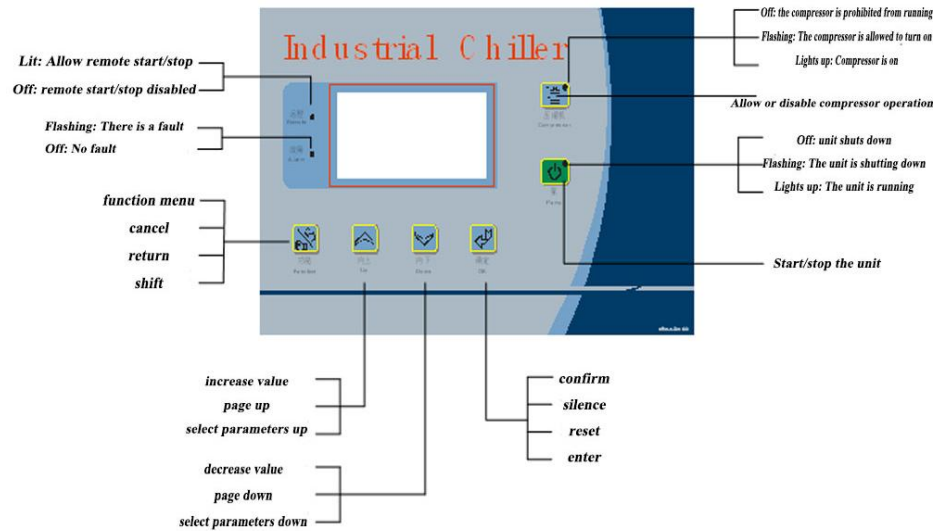
- 4-1. Keep the water in the water tower clean, keep the air circulation around the water tower low, and avoid any debris entering the water tower to reduce the heat dissipation efficiency (the air-cooled unit does not need to be equipped with a cooling tower).
- 4-2. The chiller is air-cooled. Please keep the surface of the chiller's radiator clean, allow air circulation around the radiator, keep the temperature low, and clean the radiator regularly.
- 4-3. Reduce the occurrence of mold (sweat).
Before stopping the plastic machine, turn off the cold water valve of the attached mold or turn off the water chiller. This can increase the water temperature in the mold cavity and prevent rust accumulation in the mold.
- 4-4. If the chiller has been used for more than six months, or the high/low pressure often fails, or the cooling capacity is reduced, please arrange for staff to clean the radiator (if the chiller is equipped with a pressure gauge, check whether the pressure of the high pressure gauge is higher than 300 PSI. If it exceeds, please clean the radiator, or check whether the water pipe switch is turned off.) If you follow the above instructions many times to repair, and the chiller failure alarm still sounds {constantly}, then arrange for staff to repair it.

4-5, (applicable to chillers below 5 HP)

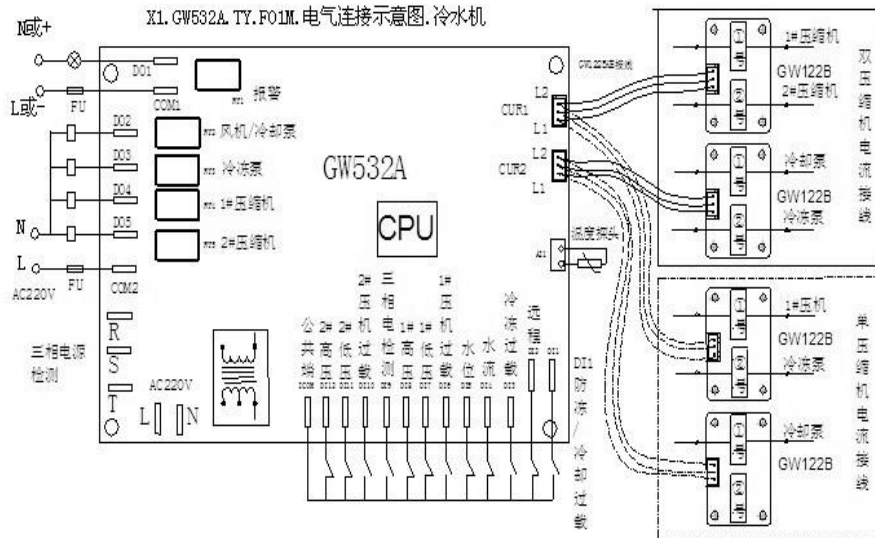
If the water chiller is out of service for a period of time, the water pump blades may be solidified by the contaminants due to the solidification of water contaminants. When the chiller is turned on again, the water pump rotor must be loosened first to prevent the pump blades from not rotating and causing the fuse to burn.

※ Do not modify the control circuit or any equipment inside the chiller without authorization

VI. Panel icon



VII. Electrical connection diagram



Error indication	Repair method
Voltage failure	First turn off the main power switch of the chiller, open the electrical box, connect the power supply, and check whether the power supply voltage and phase voltage are normal.
Water pump failure	Check whether the impedance of the water pump coil is open or short-circuited, then connect the power supply, check whether the power supply voltage is normal, press the green RESET position of the current overload switch, and pay attention to the running direction of the water pump.
★Oil pressure failure★ (Applicable to chillers above 15 HP)	※Never run the water pump when there is no water.
High and low voltage fault	Check whether the compressor oil is sufficient and whether the radiator water temperature is too low. If it is lower than 12 degrees, please turn off part of the radiator water. At the same time, do not adjust the cold water temperature below 3 degrees. After checking, press the RESET of the oil pressure protection system.
Compressor failure	If the water chiller is equipped with a pressure gauge, please pay attention to whether the high pressure gauge pressure is higher than 300PST. If it is higher, please check whether the water transportation of the water tower is normal, whether the water pipe gate connecting the chiller to the water tower is closed, and whether the water in the water tower is overheated. (The water temperature is higher than 34 degrees), if a Y-type filter is installed, check and clean the filter.

Temperature setting	Loading bias	1.0°C	0~10.0°C	Open press temperature deviation
	Offload bias	1.0°C	0~10.0°C	Pressure shutdown temperature deviation
	Set upper temperature limit	30.0°C	0~99.9°C	User-set temperature range limits
	Set temperature lower limit	5.0°C	-38.0~99.9°C	
	Temperature compensation	0.0°C	-9.9~9.9°C	Compensate for outlet water temperature
	Low temperature protection	4.0°C	-40.0~99.9°C	If the outlet water temperature is lower than the set value, a low temperature fault will be reported.
	Over temperature warning	50.0°C	0~99.9°C	If the outlet water temperature is higher than the set value, an over-temperature warning fault will be reported, and the machine will not stop and can be automatically reset.
	Over temperature alarm	60.0°C	0~99.9°C	If the outlet water temperature is higher than the set value, an over-temperature alarm fault will occur and the machine will not shut down.
Over temperature hysteresis	5.0°C	0~99.9°C	Over-temperature fault reset, temperature difference	
Time setting	Freezing start delay	10 s	0~255 s	Delay after starting the chilled water pump
	Cooling start delay	10 s	0~255 s	Delay after cooling water pump starts
	energy regulation cycle	5 s	0~255 s	energy regulation cycle
	Compressor protection	60 s	0~255 s	The press prevents frequent start delay. The time between two starts of the press must be greater than this setting value.
	General fault de bouncing	2 s	0~255 s	General fault de bouncing
	Insufficient water flow to eliminate shaking	5 s	0~255 s	The insufficient water flow fault will be considered valid only if it lasts for this period of time.
	Low voltage detection delay	60 s	0~255 s	The press is allowed to detect the low pressure fault input after the press has been running for this set time.
	Low voltage anti-bounce	5 s	0~255 s	Low voltage fault de bounce time
	Compressor usage time	0 h	0~9999 h	0: This parameter has no effect
	Compressor switching time	0 h	0~255 h	Non-0: When the cumulative running time of the press is greater than this set value, the unit will not be able to start.
	1# press start time	8 s	3~255 s	0: This parameter has no effect;
	2# press start time	8 s	3~255 s	Non-0: When one compressor runs continuously for this time, it will automatically switch to another compressor.
	Freezing start time	8 s	3~255 s	The current fault of the 1# press is allowed to be detected only after the set time of the 1# press is started.
	Cooling start time	8 s	3~255 s	The current fault of the 2# press is allowed to be detected only after the set time of the 2# press is started.

10.3 Manufacturer parameter table

The parameters set by the manufacturer and their meanings are as follows:
(Items with "*" are configuration wizard parameter flags)

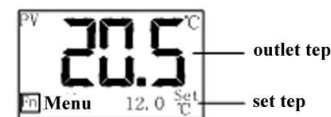
Set	Name	Factory default	Predetermined area	Remark
Control settings	*one-button start	Disable	disable~use	Disabled: The compressor is allowed to start only after pressing the compressor button; Usage: The compressor automatically allows operation after pressing the pump button.
	Automatic activation of incoming calls	Disable	disable~use	Use: automatically start the unit after power on; disable: do not automatically start the unit after power on When the user parameter [Startup Mode] is set to "Remote", auto-start for incoming calls is invalid.
	Alarm output mode	Silence hold output	Silence and maintain output~	Silencer holding output: Once there is a fault, it will act according to the "alarm output type" parameter; Silencing and stopping output: After silencing, press the "Alarm Output Type" parameter action when there is no fault.
	Alarm output type	Normally open	Silence and stop output	Normally open: the relay is closed when a fault occurs; Normally closed: the relay is disconnected when a fault occurs.
	*Low water level treatment	Stop water pump	Normally closed~Normally open	Stop water pump: stop the water pump when low water level failure occurs; Non-stop water pump: non-stop water pump when low water level failure occurs
	*Insufficient water flow treatment	Stop water pump	Stop water pump~	Stop water pump: Stop the water pump when insufficient flow occurs; Non-stop water pump: non-stop water pump when insufficient flow failure occurs
	*Current Detection	use	Non-stop water pump	Use: with current detection module; Disable: without current detection module
	*1# press rated current	0.3A	Stop water pump~	0A: Do not detect this current fault. When [Current Detection] is set to disabled, this parameter will not be displayed.
	*2# press rated current	0.3A	Non-stop water pump	
	*Freezing rated current	0.3A	disable~use	
	*Cooling rated current	0.3A	0~35.0A	
	*Three-phase electrical detection	onboard	0~35.0A	Onboard: Use the controller with its own three-phase electrical protection; Switching input: Use external three-phase electrical protection
	Antifreeze/cooling overload	cooling overload	0~35.0A	Switch DI1 input function selection
	*Number of compressors	2	0~35.0A	Compressor number selection
	*Model selection	air-cooled cold water	Onboard~switch input	4 models: air-cooled cold water, water-cooled cold water, air-cooled cold air, water-cooled cold air

VIII. Commonly used interfaces and operations

Commonly used interfaces include the main interface and alarm interface.

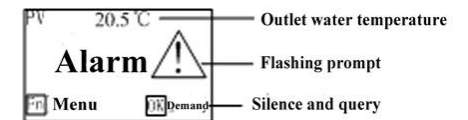
7.1 Main interface

After the countdown is completed, the main interface will be entered, and the main interface will display as follows:



7.2 Alarm interface

When the unit fails, the alarm prompt interface as follows:



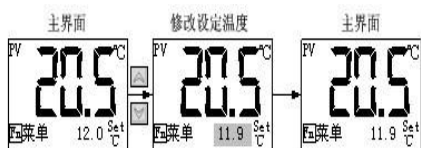
No.	Parameter name	Factory default	Predetermined area	Remark
1	lock temperature	no	yes~no	Yes: After locking, the set temperature cannot be modified on the main interface.
2	set temperature	12.0℃	-38.0~99.9℃	No: The set temperature can be modified on the main interface.
3	Adjust contrast	32	20~44	The setting range is limited by the manufacturer's parameters [set temperature upper limit] and [set temperature lower limit].
4	Start mode	local	Local; local + remote; remote	Adjust LCD contrast
5	Backlight off time	0	0~255 minutes	Local: Only the unit can be started or stopped locally.
6	multi-language	Chinese	Chinese~English	Local + remote: Both local and remote control can start and stop the unit.

7.3 Common operations

Fault name	Detection conditions	Troubleshooting	Solution
1# compressor high pressure	1# compressor operation test	Stop 1# compressor	Check whether the input is consistent with the switch setting
1# compressor low pressure			
1# compressor overload			
1# compressor current is too high			
1# compressor current is too low	2# compressor operation test	Stop 2# compressor	Check whether the rated current setting of the compressor is reasonable
1# compressor current is too low			
2# compressor high pressure			
2# compressor low pressure			
2# compressor overload			
2# compressor current is too high			
2# compressor current is too low			
2# compressor current is too low	2# compressor operation test	Stop 2# compressor	Check whether the compressor current wiring is correct and whether the interface is secure
2# compressor high pressure			
2# compressor low pressure			
2# compressor overload			
2# compressor current is too high	2# compressor operation test	Stop 2# compressor	Check whether the compressor current wiring is correct and whether the interface is secure
2# compressor current is too low			
2# compressor high pressure			
2# compressor low pressure			

7.3.1 Quickly modify the set temperature

If the user parameter [Lock Temperature] is set to the "No" interface, the set temperature can be modified directly in the main interface. The operation is as follows:



7.3.2 Query/reset fault

When a fault occurs, the alarm interface will automatically pop up. The fault query and reset operations are as follows:



IX. Function menu



Press in the main interface Enter the function menu, there are 5 items in the function menu, as shown in the following table:

NO.	Menu Item	Function	Remark
1	user settings	Show user parameters	Reference for the number and meaning of user parameters: 9 User Parameter Table
2	Unit status	Display the current operating status of the unit	The current value is not displayed when the current module is not used.
3	Historical fault	Can query the last 10 faults that have occurred	Press 2s Clear fault history
4	Device usage	Display the cumulative running time of the compressor	
5	Version Information	Query the currently used software version	

X. Parameter table and operation

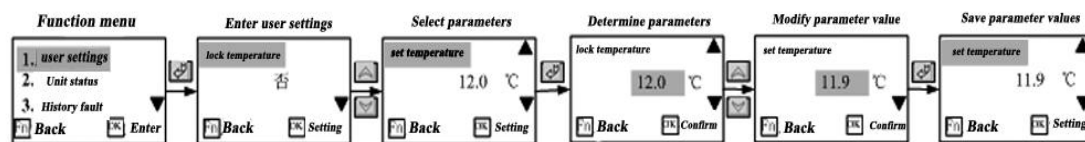
The parameter value modification operation is explained by taking the user's operation to modify the set temperature as an example. ([Lock Temperature] select "No")

User parameter table

The meaning of each parameter in the user parameters is as follows:

X. Fault code description and parameter table Fault table

10.1 Fault table



Note: The set temperature can also be modified in user parameters.

Fault name	Detection conditions	Troubleshooting	Solution
Compressor high pressure	Detect when the press status indicator light flashes or lights up	Stop the compressor, delay the cooling pump (fan), and the freezing pump does not stop	Check whether the input is consistent with the switch setting
Compressor low pressure	If [Low Voltage Detection Delay] is 0, the press status indicator light flashes or lights up when detected;		Check whether the input is consistent with the switch setting
Compressor overload	If [low pressure detection delay] is not 0, the press will run and detect		Check whether the rated current setting of the compressor is reasonable
Compressor current is too high			Check whether the compressor current wiring is correct and whether the interface is secure
Compressor current is too low			Press operation inspection
Temperature too low		Stop the compressor, delay the cooling pump (fan), and the freezing pump does not stop	Check whether the outlet water temperature is lower than the set low temperature protection temperature
Over temperature warning	Run the test If the [over-temperature detection delay] is 0, the unit will start detecting when it starts; if the [over-temperature detection delay] is not 0, the unit will detect after the set time.	Only call the police	Check whether the outlet water temperature is higher than the over-temperature warning temperature
Over temperature shutdown		If [over-temperature alarm processing] is set to "non-stop water pump", the compressor, delayed cooling pump (fan), and freezing pump will not stop;	Check whether the outlet water temperature is higher than the set over-temperature shutdown temperature
Antifreeze failure		Stop the compressor, delay the cooling pump (fan), and the freezing pump does not stop	Check whether the antifreeze input is consistent with the switch setting
Temperature probe disconnected			Check whether the temperature probe is in good contact
Temperature probe short circuit			
Cooling overload	Detection after cooling pump (fan) starts	The compressor, cooling pump (fan), and freezing pump do not stop.	Check whether the cooling overload input is consistent with the switch setting
Cooling circuit too high			Check whether the cooling rated current setting is reasonable
Cooling current too low			Check whether the cooling current wiring is correct and whether the interface is secure
Cooling water flow failure	Detection after the cooling pump starts [cooling start delay] time	The compressor, cooling pump and freezing pump do not stop.	Check whether the cooling water flow switch input is consistent with the switch value setting

water flow failure	Detection after the freezing pump starts [freezing start delay] time	If [Insufficient Water Flow Processing] is set to "Stop Water Pump", the unit will be stopped;	Check whether the water flow input is consistent with the switch setting
(If there is cooling water flow detection, it will indicate chilled water flow failure)	Detection after starting the freezing pump	If [Insufficient water flow processing] is set to "non-stop water pump", the compressor, delayed cooling pump (fan), and freezing pump will not stop. shutdown group	Check whether the refrigeration overload input is consistent with the switch setting
freezing overload			Check whether the freezing rated current setting is reasonable
Freezing current is too high			Check whether the freezing current wiring is correct and whether the interface is secure
Freezing current is too low	Power-on detection		Check whether the three-phase electrical input is missing or reversed
Three-phase power failure	Power-on detection	shutdown group	Check whether the water level input is consistent with the switch setting
Water level failure	Run the test	Once the unit is stopped, it cannot be started (the cumulative running time of the press exceeds the set value)	

10.2 Control logic

Single compressor: During the heating process, the compressor is started when $PV \geq SV + ADD$.

During the cooling process, the compressor stops when $PV < SV - SUB$.

Dual compressor: During the heating process, one compressor is started when $PV > SV$, and two compressors are started when $PV \geq SV + ADD$.

During the cooling process, one compressor is stopped when $PV < SV$, and two compressors are stopped when $PV < SV - SUB$.

Description PV: outlet water temperature SV: set temperature ADD: loading temperature difference SUB: unloading temperature difference