CW-5300 SERIES

Industrial Chiller USER MANUAL

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Chiller Expert

Contents

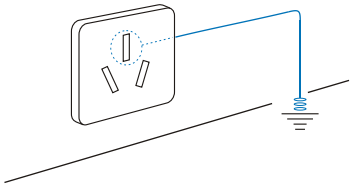
Thank you for using the machine

Please read the installation instructions carefully before installing and operating and keep it properly.
This installation instructions is not a quality assurance.

Reserves the right to the interpretation of correction of typographical errors, improper mentioned information and product improvement.
The amended content will be reprinted in installation instructions without notice in advance.

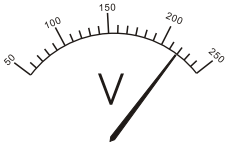
CAUTIONS

1 Please ensure that the power supply and electrical outlet are in good contact and the earth wire must be firmly grounded!



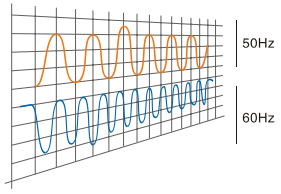
2 Please make sure there is stable and normal voltage for the working chiller!

As the refrigeration compressor is more sensitive to the power supply and voltage, so the operating voltage of our standard product is of 200 ~ 250V (110V model is of 100 ~130V). If you do need a wider operating voltage range, customization is available for us.



3 Unmatched power frequency can cause the chiller damage!

Please choose model of 50Hz or 60Hz according to actual circumstance.

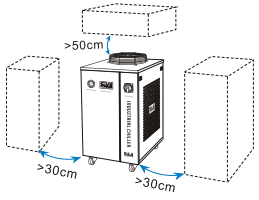


4 To protect the pump, it's strictly forbidden to run the chiller without water in the storage water tank!

The new machine is packed after draining whole water in the tank, so please make sure the tank has water inside before machine starting, otherwise it's easily to have the pump damaged. When the water level is below the green (NORMAL) range of the water level gauge, the cooling capacity of our chiller will go down slightly. Hence please ensure the water level is within the green (NORMAL) range. To drain through circulating pump is strictly prohibited!

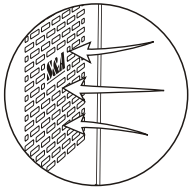
5 Please be sure that the air inlet and air outlet are in good ventilation!

There must be at least 50cm from obstructions to the air outlet which is in the back of the cooler, and should leave at least 30cm between obstructions and the side air inlet.



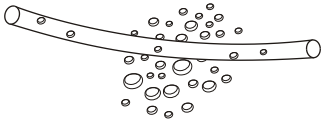
6 The filter screen must be regularly cleaned!

It's essential to unpick and wash the dust gauze, or the serious blockage will cause breakdown to the chiller.



7 Please pay attention to the effect of the condensate water!

With greater ambient humidity, when the water temperature is lower than the ambient temperature, the condensate water will generate on the surface of water circular pipes and the cooled components. If above circumstance appears, it is recommended to set a higher water temperature or keep pipes and cooled parts warm.

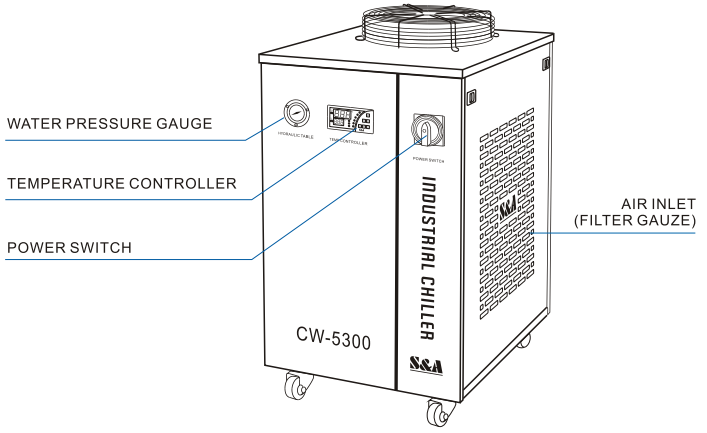


PROFESSIONAL USE ONLY!

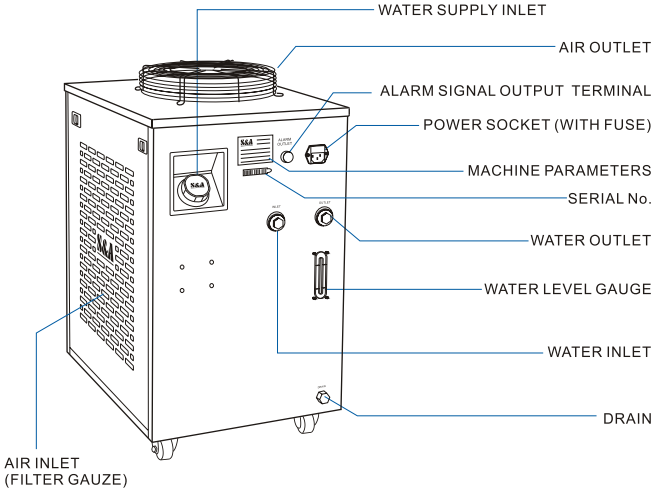
The appliance is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction, children being supervised not to play with the appliance!

CONTOUR AND PARTS INTRODUCTION

Front



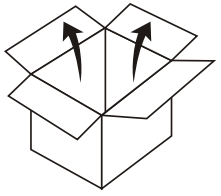
Back



INSTALLATION

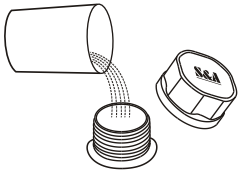
It is very simple to install this industrial cooling machine. The installation for the first time of the new machine can be carried out by following steps:

1



Open the package to check if the machine is intact and all the necessary accessories are completed.

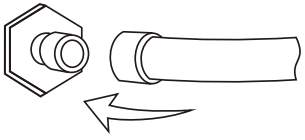
2



Open the injection port to feed cooling water. (Do not spill out the water!)

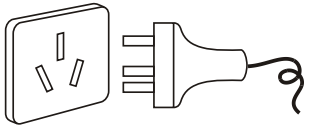
Observing the water level gauge and adding water slowly, be careful not to have the water overflowed! For the cooling of carbon steel equipment, the water should be added an appropriate amount of cooling water additive (anti-corrosion water aqua). Users in cold area should use noncorrosive antifreeze fluid.

3



Connect the water inlet and outlet pipes well according to system conditions.

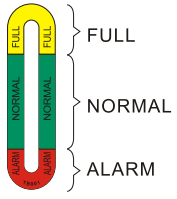
4



Plug in power and turn on the power switch. (Do not start up without water in the water tank!)

(1) Power switch turned on, the circulation pump of the chiller starts working. The first time of operating may cause more bubbles in the pipe leading to a flow alarming occasionally, but running for a few minutes later, it will go back to normal.
(2) After the first boot, you must immediately check whether the water pipe leaks.
(3) Power switched on, if the water temperature is below the set value, it is normal that fans and other components of the machine do not work. The temperature controller will automatically control the working conditions of the compressor, magnetic valve, fans and other parts based on the set controlling parameters.
(4) As it takes a longer time to start over the compressor and other components, according to different conditions, the time is range from seconds to minutes, so do not turn off the power and again on frequently.

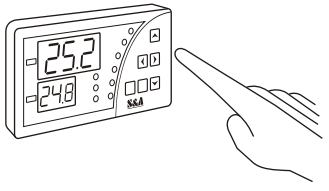
5



Check the water level in the water tank.

The first startup of the new chiller empties the air in the water pipe, leading a slight water level decline, but in order to keep the water level in the green area, it's allowed to add adequate water again. Please observe and record the current water level, and inspect it again after the chiller running for a period of time, if the water level drops obviously, please re-inspect the water pipeline leakage.

6



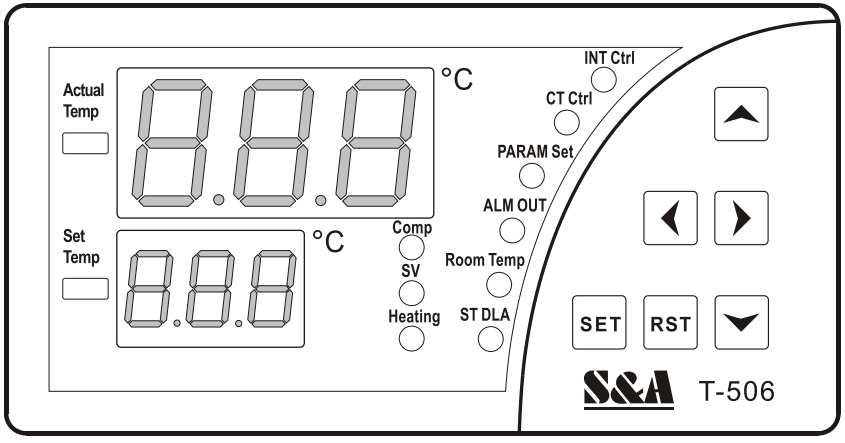
Adjust parameters of temperature controller.

CW-5300 series use an intelligent thermostat. Normally users do not need to adjust it. If it is really necessary, please refer to page 17, "Operating status and parameters adjustment".

Operation and parameters adjustment

T-506 new temperature controller does not need to be adjusted the controlling parameters. It will self-adjust controlling parameters for meeting equipment cooling requirements.
T-506H new intelligent temperature controller works in defaulted constant temperature control mode with water temperature set at 25℃ which can be adjusted as needed.
T-506 and T-506H temperature controllers have the same functions and structure except default settings.

1. Temperature control panel introduction



Comp	ON, compressor working
SV	ON, solenoid valve working
Heating	ON, heating rod working
INT Ctrl	ON, controller working in intelligent control mode
CT Ctrl	ON, controller working in constant temperature control mode
PARAM Set	ON, controller working in parameters setting mode
ALM OUT	ON, alarm output status
Room Temp	ON, displaying room temperature
ST DLA	ON, starting up delay status

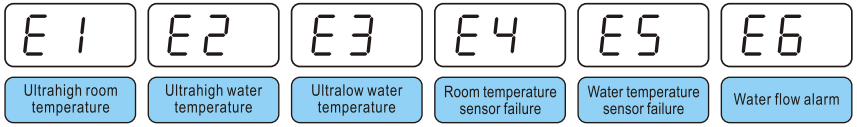
(1) Press ▽ button to show the room temperature, seconds later default display restored. (Meanwhile, Room Temp light is on, displaying room temperature).
(2) △▽ bottons are for modifying parameters values and ◁ ▷ buttons are for switching parameter items.
(3) **RST** button: confirm.
(4) **SET** button: setting function.

2. Restore to factory settings

Before machine startup, press and hold △▽ buttons until the controller displays rE, 6 seconds later after releasing the buttons, the controller works in normal order.
All parameters values settings of the controller have been restored to factory settings.

3. Alarm function

(1) Alarm Display:



When alarm occurs, the error code and the temperature will be alternately displayed.

(2) To suspend the alarm:

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

4. Thermostat parameters list

Order	Code	Item	Range	T-506 Temperature controller Factory Setting	T-506H Temperature controller Factory Setting	Notes
1	F0	Temperature setting	F9~ F8	25	25	Constant temperature control effecting
2	F1	Temperature difference values	-15~+5	-2	-2	Intelligent control effecting
3	F2	Cooling hysteresis	0.1~3.0	0.8	0.3	
4	F3	Way of control	0~1	1	0	1: intelligent 0: constant temperature
5	F4	Alarm for over high water temperature	1~20	10	10	
6	F5	Alarm for over low water temperature	1~20	15	15	
7	F6	Alarm for over high room temperature	40~50	45	45	
8	F7	Password	00~99	8	8	
9	F8	The allowed highest water temperature	(F9+1)~40	30	30	
10	F9	The allowed lowest water temperature	1 ~(F8-1)	20	20	

5. General settings adjustment

Press SET button to enter into the user-defined state. Meanwhile, PARAM SET is on, controller in parameters setup status.

(1) Under intelligent mode, the control panel displays the temperature difference value between water and air (default value is -2).

(2) Under constant temperature mode, the control panel displays the set temperature value (default value is 25).
At this moment, press △ or ▽ button to change settings. After modifying the value, press RST button to save and exit, then new parameters take effect, or press SET button to exit without saving parameters. If there is no more action within 20 seconds, it will automatically exit modifying status without saving parameters.

6. Advanced settings adjustment

(1) Press and hold the △ button while press SET button for 5 seconds until 00 displayed in upper window and PAS in lower window. Then press △ or ▽ button to select the password (default setting is 8), and then press the SET button, if the password is correct, F0 displays, entering into setup status, D1 flashing to indicate that the controller is under parameters setup status. If the password is incorrect, it returns to temperature display.

(2) Enter setup state, press ◁ or ▷ button to switch parameter items circularly, then press △ or ▽ button to modify the parameter values. Press enter RST button at any time to exit parameters setup with saving modified parameters and return to temperature display, then chiller runs under the new parameters. If no button is pressed within 20 seconds, the controller will automatically exit parameters setup without saving the modified parameters (under parameters setup status, system running in original parameters). Under parameters setup status, SET button does not work.

Note:

1. During parameters setting condition, system runs under original parameters.
2. Under constant temperature control mode, the water temperature is controlled by parameter F0;
3. Under intelligent control mode, the water temperature will be automatically adjusted according to temperature changes. The temperature difference is commanded by F1.

7. Advanced parameters adjustment case:

Order	Code	Item	Value in case 1	Value in case 2	Value in case 3	T-506 Temperature controller Factory Setting	T-506H Temperature controller Factory Setting
1	F0	Temperature setting		28	25	25	25
2	F1	Temperature difference values	-3			-2	-2
3	F2	Cooling hysteresis	0.5	2.0	1.0	0.8	0.3
4	F3	Way of control	1	0	0	1	0
5	F4	Alarm for over high water temperature	10	5	4	10	10
6	F5	Alarm for over low water temperature	10	10	14	15	15
7	F6	Alarm for over high room temperature	45	45	45	45	45
8	F7	Password	8	8	8	8	8
9	F8	The allowed highest water temperature	31	30	30	30	30
10	F9	The allowed lowest water temperature	25	5	5	20	20

(1) Case 1: cooling water temperature is controlled by intelligent mode. Requiring water temperature to be between 25℃ to 31℃. Ambient temperature keeping constant, when the set water temperature is 3℃ lower than the ambient, the fluctuation will not exceed ±0.5℃. There will be an alert when water temperature is 10℃ lower or higher than target. (e.g. when ambient temperature is 30.0℃, cooling water temperature is between 27.5℃ to 26.5℃, if ambient temperature is up to 30.5℃, water temperature will be between 28.0℃ to 27.0℃.)

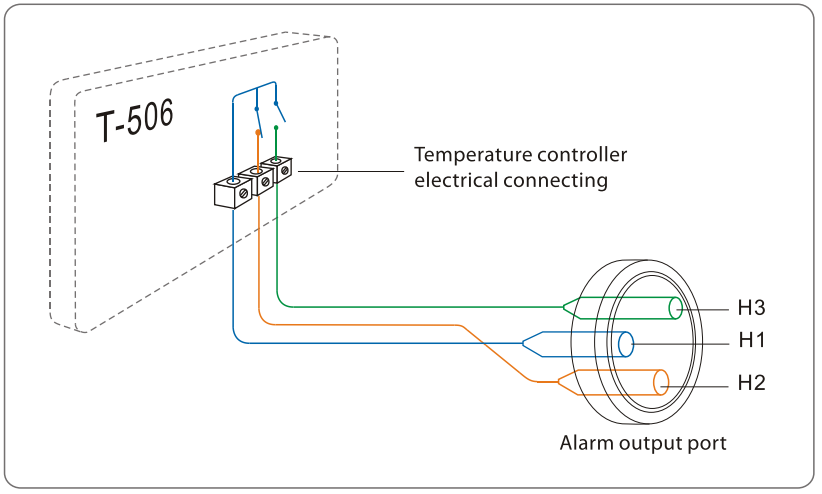
(2) Case 2: cooling water temperature is controlled by constant mode. Requiring water temperature is constant in 28℃, and the fluctuate does not exceed ±2℃. The alarm of over high water temperature will be on when water temperature is 5℃ higher than normal, and the alarm of over low water temperature will be on when water temperature is 10℃ lower than normal.

(3) Case 3: cooling water temperature is controlled by constant mode. Requiring water temperature is constant in 25℃, and the fluctuate does not exceed ±1℃. The over high water temperature will be on then water temperature is higher than 30℃, and the alarm of over low water temperature will be on when water temperature is lower than 10℃. (No matter what is the ambient temperature, the cooling water temperature is constant in 24.0℃ to 26.0℃)

ALARM AND OUTPUT PORTS

In order to guarantee the equipment will not be damaged while cooling water circulation is out of control, CW-5300 series chillers possess alarm protection.

1. Alarm output port and wiring diagram.



2. Alarm causes and working status table.

Condition \ Display	Alarm code	Buzzer	OUT H1 H2	OUT H1 H3
Circulating pump works properly			Disconnection	Breakover
Blocked cooling water circulation loop	E6	Sounds	Breakover	Disconnection
Alarm of water shortage	E6	Sounds	Breakover	Disconnection
Faulted circulating pump	E6	Sounds	Breakover	Disconnection
Ultrahigh room temp	E1	Sounds	Breakover	Disconnection
Ultrahigh water temp	E2	Sounds	Breakover	Disconnection
Ultralow water temp	E3	Sounds	Breakover	Disconnection
Faulted room temp sensor (Constant temperature invalid)	E4	Sounds	Breakover	Disconnection
Faulted water temp sensor	E5	Sounds	Breakover	Disconnection
Chiller power failure			Breakover	Disconnection

Note: the flow alarm is connected to the normally open relay and normally closed relay contacts, requiring operating current less than 5A, working voltage less than 300V.

SPECIFICATIONS

CW-5300 Series

Model	CW-5300AH	CW-5300BH	CW-5300DH	CW-5300AI	CW-5300BI	CW-5300DI	CW-5300AN	CW-5300BN	CW-5300DN
Voltage	AC 1P 220V	AC 1P 220V	AC 1P 110V	AC 1P 220V	AC 1P 220V	AC 1P 110V	AC 1P 220V	AC 1P 220V	AC 1P 110V
Frequency	50Hz	60Hz	60Hz	50Hz	60Hz	60Hz	50Hz	60Hz	60Hz
Current	0.25~4.93A	0.25~5.03A	0.45~7.61A	0.7~5.38A	0.7~5.48A	0.45~8.16A	2.3~7A	2.3~7.1A	4.2~12A
Compressor power	0.615KW	0.72KW	0.68KW	0.615KW	0.72KW	0.68KW	0.615KW	0.72KW	0.68KW
	0.82HP	0.96HP	0.91HP	0.82HP	0.96HP	0.91HP	0.82HP	0.96HP	0.91HP
	6274Btu/h	7638Btu/h	7266Btu/h	6274Btu/h	7638Btu/h	7266Btu/h	6274Btu/h	7638Btu/h	7266Btu/h
	1.84KW	2.24KW	2.13KW	1.84KW	2.24KW	2.13KW	1.84KW	2.24KW	2.13KW
	1586Kcal/h	1931Kcal/h	1837Kcal/h	1586Kcal/h	1931Kcal/h	1837Kcal/h	1586Kcal/h	1931Kcal/h	1837Kcal/h
Refrigerant	R-22/R-410a								
Refrigerant charge	650g	750g	680g	650g	750g	680g	650g	750g	680g
Precision	±0.3℃								
Reducer	Capillary								
Protection	Overcurrent protection for compressor, flow alarm, over temperature alarm								
Pump power	0.05KW			0.1KW			0.37~0.55KW		
	10 L								
Inlet and outlet	Rp1/2"								
Max. lift	12M			25M			28~45M		
Max. flow	13L/min			16L/min			70L/min		
N.W	44Kgs						50Kgs		
G.W	50Kgs						56Kgs		
Dimension	59X38X74 cm (L X W X H)								
Package dimension	67X51X93 cm (L X W X H)								

*With heating and higher temperature control precision functions are optional.

SIMPIE TROUBLESHOOTING

FAILURE	FAULT CAUSE	APPROACH
Machine turned on but unelectrified	Power cord is not plugged in place	Check and ensure the power interface and the power plug is plugged in place and in good contact.
	Fuse burnt-out	Replace the protective tube in the power socket on the back of chiller.
Flow Alarm (controller displays E6) use awater pipe directly connect tothe water outlet and inlet butstill without water flowing	Water level in the storage water tank is too low	Check the water level gauge display, add water until the level shown in the green area; And check whether water circulation pipe leaks.
Flow alarm occurs while running with other equipment (controller displays E6), but there is water flowing and no alarm when use a water pipe directly connected to the chiller water outlet and inlet.	Water circulation pipes are blocked or a pipe bending deformation.	Check water circulation pipe
Ultrahigh water temperature alarm (controller displays E2)	Blocked dust gauze, bad thermolysis	Unpick and wash the dust gauze regularly
	Poor ventilation for air outlet and inlet	To ensure a smooth ventilation for air outlet and inlet
	Voltage is extremely low or astable	To improve the power supply circuit or use a voltage regulator
	Improper parameter settings on thermostat	To reset controlling parameters or restore factory settings
	Switch the power frequently	To ensure there is sufficient time for refrigeration (more than 5 minuets)
	Excessive heat load	Reduce the heat load or use other model with larger cooling capacity
Ultrahigh room temperature alarm (controller displays E1)	The working ambient temperature is too high for the chiller	To improve the ventilation to guarantee that the machine is running under 40℃.
Serious problem of condensate water	Water temperature is much lower than ambient temperature, with high humidity	Increase water temperature or to preserve heat for pipeline
Water drains slowly from drainage nozzle during water changing	Water supply inlet is not open	Open the water supply inlet

PACKING LIST

1. 1 unit of industrial chiller.
2. 1 copy of user manual.
3. 1 pc of power plug.
4. 1 pc of power cord.
5. 2 pcs of pipe connector
6. 2 pcs of sealed hoop.
7. 1pc of PTFE Tape.
8. 1 pc of alarm signal output plug.
9. 1pc of spare protective tube.
   (Held in the spare fuseholder of power socket)