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INDUSTRIAL WATER CHILLER
USER MANUAL

MODEL: CW-6000

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INDUSTRIAL WATER CHILLER

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This is the original instruction, please read all manual instructions carefully before operating. VEVOR reserves a clear interpretation of our user manual. The appearance of the product shall be subject to the product you received. Please forgive us that we won't inform you again if there are any technology or software updates on our product.

	Warning-To reduce the risk of injury, user must read instructions manual carefully.

1. PLEASE MAKE SURE THAT THE POWER SUPPLY AND THE POWER OUTLET ARE IN GOOD CONTACT AND THE GROUNDING WIRE MUST BE FIRM!

Although the average working current of the chiller is small, the instantaneous working current can sometimes reach 6~10 amperes (the instantaneous working current of the AC110V power supply model is possible up to 10~1 5 amperes)

2. PLEASE MAKE SURE THAT THE WORKING CHILLER HAS A STABLE AND NORMAL VOLTAGE!

Since the refrigeration compressor is more sensitive to power supply and voltage, so the working voltage our standard product is 220^ 240V (110V model is 110 120V), if you really need a wider operating voltage range, we can customize.

3. PLEASE MISMATCHED POWER FREQUENCY WILL CAUSE CHILLER DAMAGE!

Please select mode: 50Hz or 60Hz depending on the actual situation.

4. TO PROTECT THE PUMP, IT IS STRICTLY FORBIDDEN TO RUN THE CHILLER WITHOUT WATER IN THE STORAGE TANK!

The new machine is packed after draining the entire water in the tank, so please make sure that the tank has enough water and there is water inside the machine before starting, otherwise it is easy to damage the pump.

When the water level is below the green (normal) range of the water level gauge, the cooling capacity of our chillers will drop slightly. Therefore, make sure that the water level is in the green (normal) range. Pumps are strictly forbidden by circulating drainage!

5. PLEASE MAKE SURE THE AIR INLET AND OUTLET ARE WELL VENTILATED!

The air outlet from the obstacle to the back of the cooler must be at least 30 cm, and it should be at least 8 cm between the obstacle and the side air intake.

6. THE FILTER MUST BE CLEANED REGULARLY!

The dust meter must be unlocked and cleaned, otherwise it will cause serious clogging failure to the cooler.

7. PAY ATTENTION TO THE EFFECT OF CONDENSATE!

As the ambient humidity increases, when the water temperature is lower than the ambient temperature, condensate will create circular pipes and cooling parts on the water surface. If this occurs, it is recommended to set a higher water temperature or keep the connected pipes and cooling components warm.

PROFESSIONAL USE ONLY!

This device must not be used by a child or a person with physical, sensory or physical, sensory, or physical impairments, or lack of experience and knowledge, unless supervision or instruction is given, and the child is not allowed to play with electrical appliances!
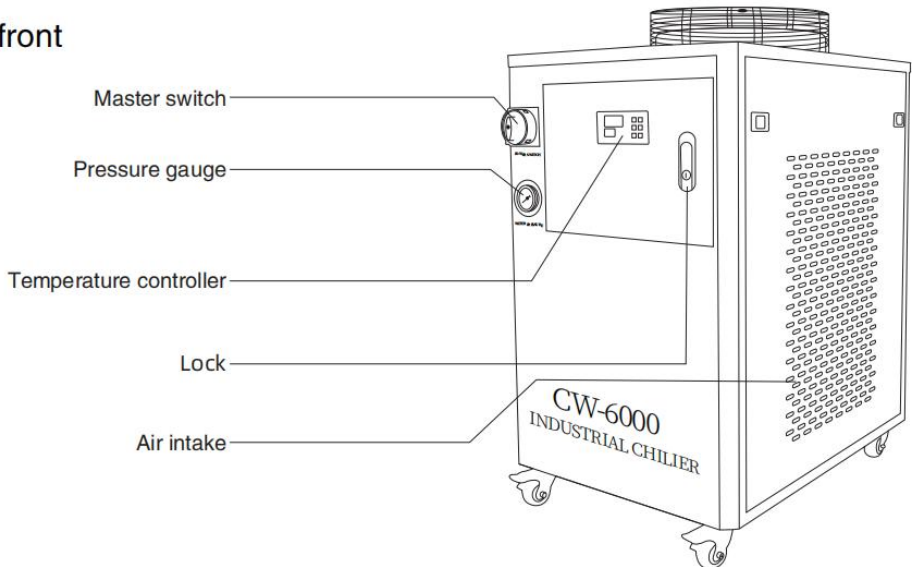
The circulating water of the water cooler must use a sealed container for normal use, such as laser tube cooling water. Unsealed containers cannot circulate, such as water basins, buckets cannot be used for circulating water cooling with water coolers.

SPECIFICATIONS

Model	CW-6000	
voltage	AC220-240V	AC120V
frequency	50Hz	60Hz
power	1500W	
Cooling capacity	3.2kw	3.5kw
Refrigerant	R410a	
noises	≤80dB	
Water tank capacity	15L	
Maximum flow	65L/min	
Pump power	370W	600W
The main material	Iron, copper	
Security	Compressor overcurrent protection flow alarm overtemperature alarm	

front

Master switch
Pressure gauge
Temperature controller
Lock
Air intake

CW-6000
INDUSTRIAL CHILIER

behind

Water supply inlet

Cooling water inlet

Waterline observation port

Alarm output terminal

Power outlets

Cooling fan

Cooling water outlet

Drain spout

Spinner wheels

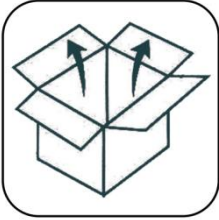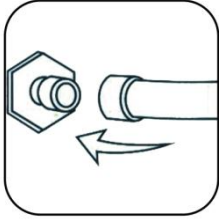INLET(A)   OUTLET(A)   OUTLET(B)   OUTLET(B)

ALARM OUTLET

DRAIN
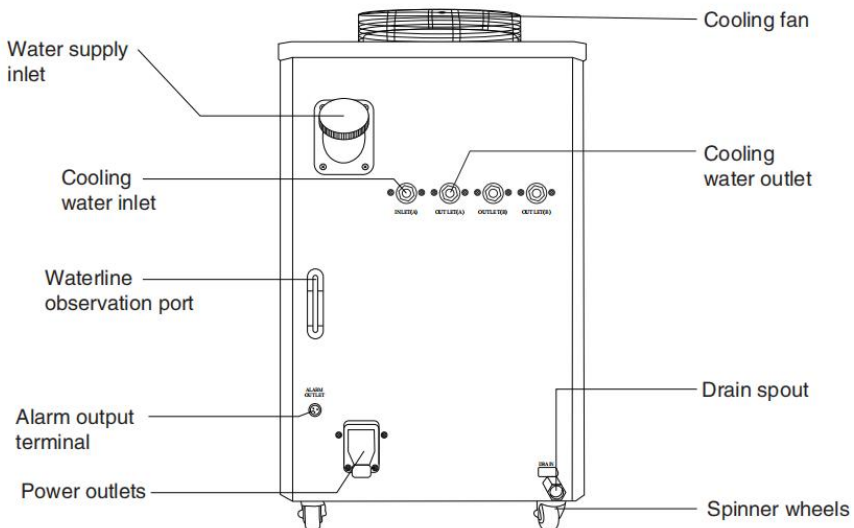
PROCEDURE

Installing this industrial chiller is very simple.

The first installation of a new machine can be carried out by following these steps:

	①.OPEN THE PACKAGE TO CHECK IF THE MACHINE IS FIXED AND ALL NECESSARY ACCESSORIES ARE COMPLETE.
	②.OPEN THE WATER SUPPLY INLET TO SUPPLY COOLING WATER (DON'T SPILL THE WATER OUT!). Observe the water level gauge and add water slowly, taking care not to let the water overflow! For the cooling of carbon steel equipment, an appropriate amount of cooling water additive (anti-corrosion water aqua) should be added to the water. Users in cold regions should use non-corrosive antifreeze.
	③.CONNECT THE INLET AND OUTLET PIPES ACCORDING TO THE SYSTEM CONDITIONS.

④.PLUG IN THE POWER SUPPLY AND TURN ON THE POWER SWITCH. (DON'T START WITHOUT WATER IN THE TANK!)

(1) The power switch is turned on and the circulating pump of the chiller starts to work. The first operation may cause more bubbles in the pipe, causing occasional alarms for traffic, but after a few minutes of operation, it will return to normal.

(2) After the first start-up, the water pipe must be checked for leakage immediately.

(3) The power supply is turned on, if the water temperature is lower than the set value, it is normal that the fan and other parts of the machine do not

work. The temperature controller will automatically control the working state of compressor solenoid valves, fans and other components according to the set control parameters.

(4) Since the restart of the compressor and other components takes a long time, depending on different conditions, the time varies from a few seconds to a few minutes, so do not turn off the power frequently and turn it on again.
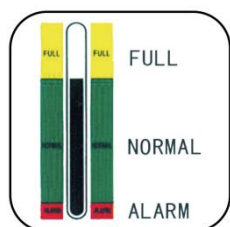
⑤.CHECK THE WATER LEVEL IN THE TANK.

The first start of the new cooler drains the air in the water pipe, causing a slight drop in the water level, but in order to maintain the water level in the green area, it is allowed to add enough water again. Please observe and record the current water level, check again after the chiller has been running for a period of time, and if the water level drops significantly, please re-check the leakage of the water pipe.

⑥.ADJUST THE TEMPERATURE CONTROLLER PARAMETERS.

CW-5000/5200 series uses intelligent thermostats. Usually the user does not need to adjust it. If it is really necessary. See "Operating status and parameter tuning".

DISPLAY PANEL AND BUTTONS
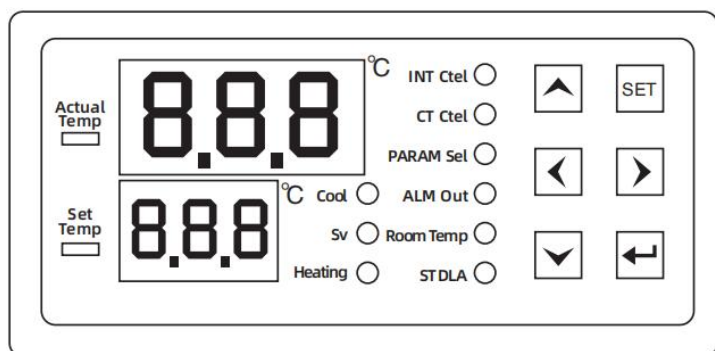
▲ key:Move the up key

▼ key:Move the key down

◀ key:Left key

▶ key:Right key

SETkey:Set the key

↵ key:Enter

(1) The display board can display six digits and nine status indicators (compressor-comp, solenoid valve-solenold valve, electric heating

rod-heating, intelligent mode-INT ctrl, constant temperature mode-CT ctrl, parameter setting-PARAM set, alarm output-ALM output, room temperature-room temp, start-up delay-ST delay).

Under normal operation, the upper display window displays the normal water temperature, and the lower display window displays the set water temperature.

(2) Description of display symbols:

LIGHT	STATE	STATE	FUNCTION OR MEANING
Compressor indicator	Comp	bright	Compressor starts
		extinguish	The compressor is turned off
Refrigerant solenoid valve indicator	Solenold valve	bright	The refrigerant solenoid valve is activated
		extinguish	The refrigerant solenoid valve is closed
Heating rod indicator	heating	bright	The heating rod starts
		extinguish	The heating rod is turned off
Intelligent control mode	INT ctrl	bright	The controller works in intelligent control mode
		extinguish	The controller works in non-intelligent control mode
Thermostatic mode	CT ctrl	bright	The controller works in thermostatic control mode
		extinguish	The controller operates in non-thermostatic control mode
Parameter setting mode	PARAM set	bright	The controller works in parameter setting mode
		extinguish	The controller operates in non-parametric mode
Alarm output mode	ALM output	bright	Alarm output status
		extinguish	Non-alarm output status
Displays the room temperature status	Room temp	bright	Displays the room temperature status
		extinguish	Displays a non-room temperature state
Boot delay status	ST delay	bright	The boot delay state is in
		extinguish	The device is in the non-boot delay state

KEY PRESS INSTRUCTIONS

DIGIT	KEYSTROKE	FUNCTION	DESCRIPTION OF THE OPERATION
1	SET+Enter	Manufacturer parameter adjustment	Press and hold the Enter key and the SET key, "99" will be displayed after three seconds, press the ▲▼ key to modify the password "XX" of the factory settings, press the SET key to enter the menu settings, you can modify the factory settings, and you can change the (F0-A11) parameters. Press the Enter key any time to save the modified parameters, exit the parameter setting state, return to the temperature display, and run according to the new parameters. If no button is pressed within 20 seconds, the controller will automatically exit the parameter setting state and will not save the modified parameters. If the password is incorrect, press SET to return to the temperature display
2	▲+SET	User parameter adjustments	1.▲ ▽ Key change parameter value, key change parameter item, ◄ ► enter key save exit. 2. Press and hold the ▲ key first, and then press the SET button at the same time for five seconds The upper limit window displays "00", and the lower display window displays "PAS", at this time, press the ▲▼ key to select the password that has been set, and then press the SET key, if the password is correct, the lower display window displays the parameter item F0, and the upper display window displays the parameter value of F0, and enters the setting state, indicating that the controller is now in the parameter setting state. If the password is incorrect, the temperature display will be returned. After entering the setting state, press the left and right keys to change the parameter item in turn, and press the key ▲▼ to change the parameter value of the parameter item. Press the enter key at any time, save the modified parameters, exit the parameter setting state, return to the temperature display, and run according to the new parameters. If no button is pressed within 20 seconds,the controller will automatically exit the parameter setting state and will not save the modified parameters. In the state of parameter setting, pressing SET does not respond
3	▲+▼	Quickly restore factory settings	When the power is on and the normal display, when the tempera- ture is not set, press and hold the ▲▼ button at the same time, the thermostat will be powered on, and "rE" will be displayed after three seconds, and all the set values will be restored to the factory value, and then return to normal working state after 3 seconds.

| 4	▼	Check room temperature	In the non-set state, press the ▽ key to display the detection value of the room temperature sensor, and resume the display of water temperature after 6 seconds (at this time, the room temp light is on, indicating that the upper window is displayed as room temperature)
5	SET	Quick adjustments	Press the SET button when the thermostat is working normally, if the thermostat is working in constant temperature mode, the panel will display the parameter value of F0 (set temperature), and the parameter value of F1 (temperature difference value) will be displayed in the smart mode (at this time, the panel PARAM set light will be on, indicating that the controller is now setting the parameter state). At this time, press the ▲▼ key to modify the setting value, and then press the SET key to exit or exit without pressing the button within 20 seconds. If you press the enter key to save the disk and exit, the new parameters will take effect.

MENU DESCRIPTION

code	SET UP THE PROJECT	RANGE	DEFAULT VALUE	REMARK
F0	Set the temperature	F9~ F8/-20~40	25.0	Smart temperature control mode constant temperature mode
F1	Temperature difference value	− 15~5	-2	
F2	Refrigeration regression	0.1~9.0	0.8	
F3	Control mode	0~1	1	1 Smart, 0 Constant Temperature
F4	Water temperature super high alarm	1~80	10	
F5	Water temperature ultra-low alarm	1~40	15	
F6	Temperature super high alarm	40~50	45	
F7	password	00~99	06	
F8	Maximum set water temperature	(F9+1)~ 50	30	
F9	Minimum set water temperature	-30~（F8 −1)	20	

A0	Heating back	0.1～5.0	0.5	
A1	Start-up alarm delay	0～30	5	minute
A2	Boot delay	10～300	15	second
A3	State transition delay	0～99	5	second
A4	Room temperature calibration	-10.0～10.0	0	
A5	Water temperature temperature correction	-10.0～10.0	0	
A6	System coefficient of inertia	0~40	08	The smaller the value the more accurate it is
A7	Compressor start-up protection	0～300	30	second
A8	The electric heating rod controls the regression	-5.0～20.0	0.2	temperature< F0-A8 works temperature>F0-A8 stops working
A9	The input signal is delayed	0～99	2	second
A10	The input signal is normally open and normally closed	NO/NC	NC	NO is normally open NC is normally closed
A11	The solenoid valve opens with a delay	0-4.0	0	F0-A11 solenoid valve
A12	E6 function when alarming	0/1	0	0 is normal operation 1 is the system stop
A13	The external alarm output is delayed in recovery	0～99	2	second
A14	The compressor starts the solenoid valve and closes it for a delayed time	0～30	0	second
A15	ER1-ER5 signal relay alarm status	0/1	0	1 output/0 no output

CONTROLLER WIRING DIAGRAM

RY1001A
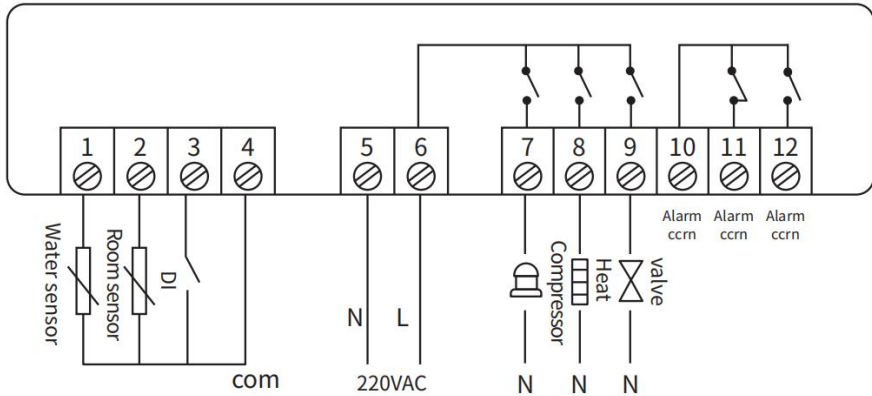
Notice
1.Strictly distinguish the wiring terminal of the relay,sensor and power supply.
2.The wiring of sensor and power supply should be kept in a proper distance.

Note:
①.Strictly distinguish the wiring of power supply, relay output and sensor, and the relay should not be overloaded.
②.All wiring changes must be made with the power supply disconnected.
③.This controller is forbidden to be used in water or excessively humid environments, and is prohibited from being used in high temperatures, strong electromagnetic interference, and strong environments.
④.Ensure that the power supply voltage is consistent with the voltage marked on the controller, and ensure the stability of the power supply voltage;

CONTROL THE OUTPUT FUNCTION

1. REFRIGERATION CONTROL:

CHILLER WORKING CONDITION	COMPRESSOR CONDITION	REFRIGERANT SOLENOID VALVE WORKING CONDITION	HEATING ROD WORKING CONDITION	REMARK
refrigeration	running	end	Stop it	100% full power refrigeration
One-stage micro refrigeration	running	Conduction	Stop it	40% power refrigeration
Two-stage micro-cooling	running	Conduction	initiate	20% power refrigeration heating rod work
heating	Stop it	Conduction	initiate	No refrigeration, only heating

The above are the four working states of the chiller controlled by the smart thermostat. The shortest transition time between refrigeration and micro-cooling is (about 5-10 seconds) and can be changed multiple times in one minute.

If the heat load is turned on, the chiller mainly works in these two working conditions, and the temperature of the cooling water can be precisely controlled. (The water temperature fluctuates around 0.3 degrees Celsius during the actual test.) When the heat load is turned off, the water temperature is overshooted downward, and when the A0 set value is reached, the refrigeration compressor stops working.

It is important to note that; There will be a time difference between the conversion of the chiller working condition and the change of water temperature, and the parameter A6 is the relevant parameter that describes the inertia of the system, according to this parameter, the controller can calculate the corresponding action advance, reduce the overshoot of the water temperature.

REFRIGERANT SOLENOID VALVE

1. When the compressor is working, when the temperature is reduced to (equal to, below) the set value of the water temperature, and the cut-off duration of the refrigerant solenoid valve has been greater than the time set by the state transition delay (A3), the refrigerant solenoid valve is turned on. When the temperature rises above (higher) the water temperature set value, and the conduction duration of the refrigerant solenoid valve is greater than the time set by the state transition delay (A3), the refrigerant solenoid valve is cut off.

2. When the compressor stops running, the refrigerant solenoid valve is turned on.

3. When the compressor starts to work (when starting), the refrigerant solenoid valve must be in the cut-off state

(under normal circumstances, this condition is satisfied).

ELECTRIC HEATING RODS

When the water temperature is lowered below the water temperature set point - the electric heating rod controls the difference, the electric heating rod starts to work. When the water temperature rises to higher than the water temperature set value - the electric heating rod controls the difference, the electric heating rod stops working.

2. WATER TEMPERATURE SETPOINT:

When the thermostat is operating in constant temperature mode, the water temperature setting value is constant at F0 just like a normal thermostat. When the thermostat is in smart mode, the water temperature setting is varied.

SMART MODE SETPOINT

When the room temperature plus F1 is less than F9, the water temperature set value is equal to F9

When the room temperature plus F1 is greater than F8, the water temperature setting value is equal to F8

When the room temperature plus F1 is less than, equal to F8, greater than, or equal to F9, the water temperature setting value is equal to room temperature + F1

3. ALARM CODE AND CONTROL LOGIC:

CODE	CONTENT	ALARM CONDITIONS
Er1	The room temperature is too high	Room temperature > temperature ultra-high alarm value (F6 setting value)
Er2	The water temperature is too high	Water temperature> set temperature + refrigeration difference F2 + water temperature super high alarm F4
Er3	The water temperature is too low	Water temperature< set temperature - heating return difference A0 - water temperature ultra-low alarm F5
Er4	Room temperature sensor failure	Room temperature sensors are short-circuited or open-circuited
Er5	The water temperature sensor is faulty	The water temperature sensor is short-circuited or open-circuited
Er6	External input alarms	The external connection is lost
Er2 and Er3 will only be effective when the water temperature enters the target temperature section (i.e., between the set temperature and the set temperature + refrigeration difference F2) after satisfying the start-up alarm delay (A1) or after powering on and forced cooling for 30 seconds		

(1) THE CONTROL STATE WHEN THE ALARM IS GENERATED

When the Er3 alarm occurs, the refrigeration and heating relays operate according to normal logic.

When the Er4 alarm occurs, the water temperature setting (F0) of the controller runs according to the factory setting. (If the controller works in constant temperature mode, E4 does not alarm)

In the event of an Er5 alarm, the system should be shutdown regardless of the state in which it is running.

(2) ALARM STOP SOUND

In the alarm state of the thermostat, press any button to stop the alarm buzzer, but the alarm display will not stop until the alarm condition is eliminated.

(3) EXTERNAL INPUT ALARM:

After the external input alarm signal and the time of delay setting A9 is satisfied, Er6 is displayed, the system control is not affected, and the alarm buzzer sounds.

(4)When Er1-Er6 appears, the alarm buzzer sounds, and when the silencer alarm key is pressed, the buzzer stops ringing. Alarm output, relay and other faults are automatically reset after they are removed.

(5)When Er1-Er6 appears, the alarm buzzer sounds, and when the silencer alarm

key is pressed, the buzzer stops ringing. Alarm output, relay and other faults are automatically reset after they are removed.

1. KEY TONE
There is a key prompt when the controller button is pressed, and a short tone prompt when each button is pressed.

2. POWER-ON ID
After powering on, the display flashes for 3 seconds, and the indicator light and digital tube are displayed at the same time, and the buzzer enters the normal logic operation state after the sound.

3. TEMPERATURE CORRECTION
Room temperature calibration and water temperature calibration, when the displayed temperature (room temperature and water temperature) is deviated from the actual temperature, A4 and A5 can be adjusted for correction.

4. POWER-ON PROCESSING
After the power-on delay (A2) time passes after the thermostat is powered on, the thermostat enters the 100% full-power cooling state for 25 seconds. Then control the chiller to work according to the actual air temperature and water temperature. (Note: This is the "Forced Refrigeration on Boot" function.) If the water temperature is higher than the water temperature setpoint-heating backdrop, the compressor does not need to stop after the forced refrigeration is turned on. This function is designed to facilitate maintenance work)

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