

CWUL-10 Ultraviolet Laser Exclusive Chiller

User Manual



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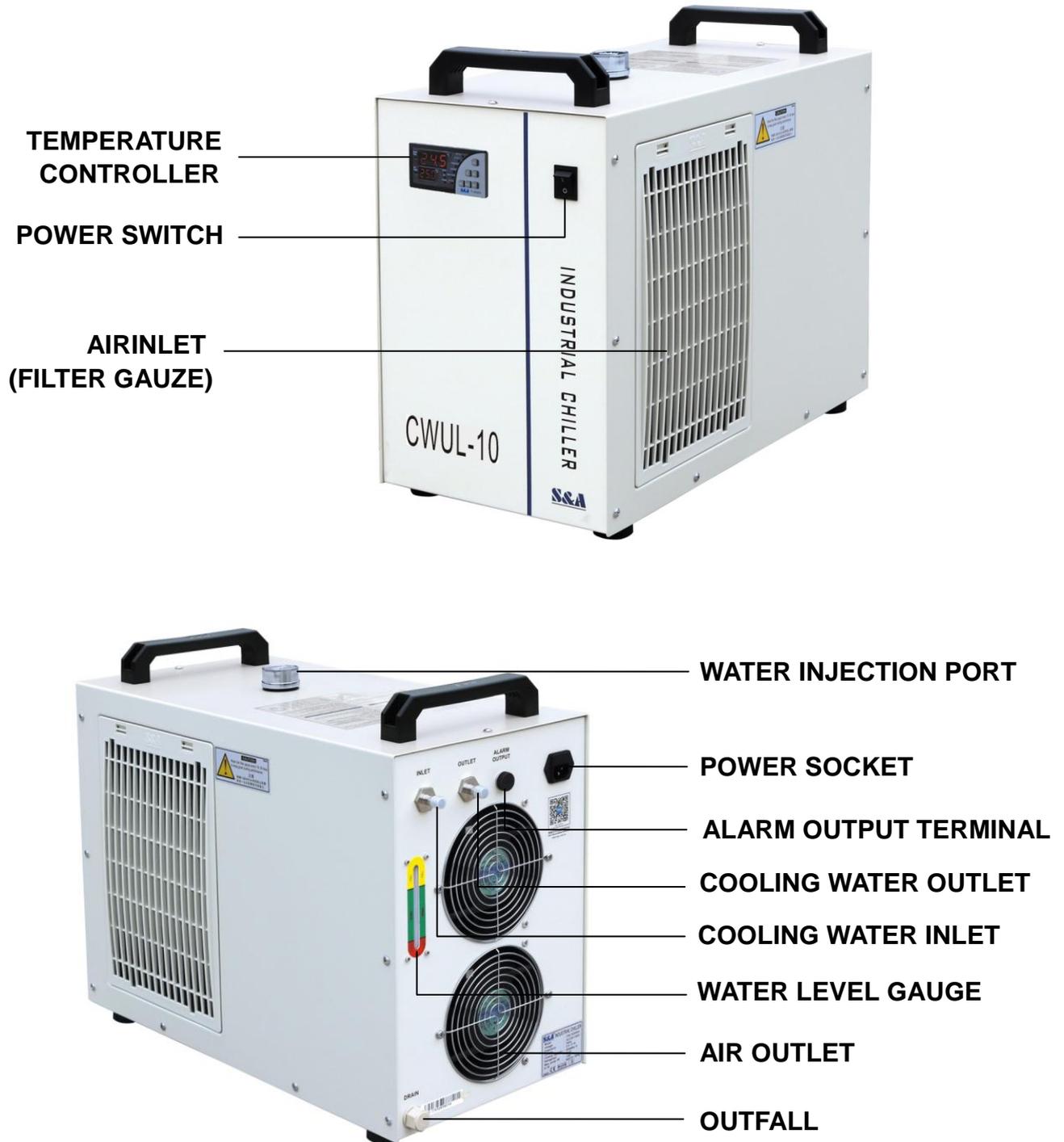
Thank you for using the machine from GUANGZHOU TEYU ELECTROMECHANICAL CO., LTD. Please read the User Manual carefully before use and keep it properly.

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<1> Cautions

1. Please ensure that the power supply and electrical outlet are in good contact and the earth wire must be firmly grounded!
Although the average operating current of the chiller is small, but the instantaneous operating current could be up to 6 ~ 10amps sometimes (The instantaneous operating current for models of AC110V power supply are possible to be up to 10 ~ 15amps).
2. Please make sure the chiller's working voltage is stable and standard.
As the refrigerate compressor is more sensitive to voltage of power supply, the standard working voltage of our standard machines is 200~250V (110V model is 100~130V).
3. Unmatched frequency of power supplies can leading to chiller damage!
Choose 50Hz or 60Hz model according to actual circumstance.
4. In order to protect the water pump, it is strictly forbidden to run the chiller without water in water tank
The new machine will empty all water in water tank before packing in the box, so make sure the water tank is filled with water before starts the machine or the water pump will damage easily. When water gauge of water tank below green NORMAL area, the refrigeration volume will drops a little, please make sure the water gauge is around the green NORMAL area. To drain through circulating pump is strictly prohibited.
5. Please be sure that the air inlet and air outlet are in good ventilation!
The air outlet that is at the back of the chiller at least 30cm away from obstructions, and 8cm for the side air inlet.
6. The filter of air inlet requires cleaning regularly.
It is important to wash the anti-dust **gauze** regularly by removed it from chiller, because if anti-dust **gauze** heavy accumulated dust will lead to chiller failure.
7. Please pay attention to condensate water.
When water temperature lower than ambient temperature, and ambient humidity is higher, the condensate water will generate on the surface of circular water pipes and surface of devices which being cooled. If it happens, setting higher water temperature or keep warm for water pipes and devices will be recommended.
8. The machine is industrial equipment, only professional people allowed to use.

<2> Outlook and Components



<3> Installation

The chiller is designed for Ultraviolet Laser, it is easy to install and use. Please follow below steps for the first time use of new chiller.

1. Open the package to check if the machine is intact and all the necessary accessories are completed.
2. Open the injection port and pour cooling water. Observing the water level gauge while pouring water, please do it slowly do not overflow. For cold area at north China, should add noncorrosive antifreeze fluid.
3. Well connect the water inlet and outlet pipes according to apply equipments.
4. Plug in power, turn on the power switch. (Do not turn on the machine without water in the water tank!)
 - (1) The circulation pump is starting work after the power switch turned on. The first time of operating may cause more bubbles in the pipe leading to flow alarming occasionally, but keep it running for a few minutes, it will back to normal later.
 - (2) For the first boot, will required immediate attention to check whether the water pipe leaks.
 - (3) It is normal the fan and other components of machine not works if water temperature lower than set water after started the machine. The temperature controller will automatically control the working status of compressor, magnetic valve and fan etc components upon the set parameters.
 - (4) As it takes time for the compressor etc components to start, the waiting period could range from tens second to few minutes according to different working condition before the machine start, so do not turn on and off the chiller frequently.
5. Check the water level of water tank

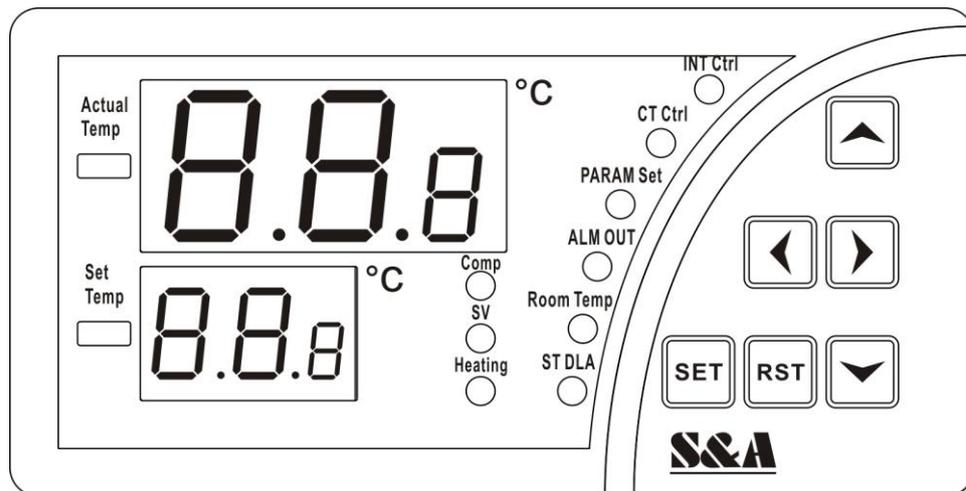
The water level in water tank will drop slightly as the air in water pipe was empty after new machine turned on. It is ok to refill certain amount of water in order to keep the water level around green area. Observe and record current water level, check the water level again after chiller running for a period of time, if water level drops obviously, will require to check whether the water pipeline leaks.
6. Parameters of temperature controller adjustment

Default setting of CWUL-10 series UV laser chiller temperature controller is 25°C water temperature cooling UV parameter, usually do not need to adjust the control parameter ,but if special require for specific temperature ,please refer P6 of 《Operation and Parameters adjustment》

<4> Operation status and parameters adjustment

Default setting of H-506H new model intelligent temperature controller is Intelligent temperature mode, water temperature is setting 25°C, customer could adjust the temperature according to requirement.

1. Temperature controller panel introduction



(1). Indicators of temperature controller working status:

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

(2). Press  key to show the room temperature, 6 seconds later default display restored. (Meanwhile, Room Temp light is on, displaying room temperature.)

(3).   keys are for modifying parameters values and   keys are for switching parameter items.

(4). RST key: confirm

(5). SET key: setting function

2. Restore to default setting

Press “   ” buttons at the same time and hold still while turn on the machine, until the controller display “rE”. Release the buttons the controller will enter working status after 6 seconds. And then all parameter value settings restored to default setting.

3. Temperature controller parameters list

Order	Code	Item	Range	T-506 Temperature controller Factory Setting	Note
1	F0	Temperature setting	-20~ 40	25.0	Cooled water temperature ,constant temperature working available
2	F1	Temperature difference values	-15~+5	-2.0	Intelligent temperature control mode parameter, control temperature difference between water and ambient. Constant temperature mode not available
3	F2	Cooling hysteresis	0.1~3.0	0.1	This parameter control water temperature precise, the value more small, the precious more high but energy efficiency ratio will worse.
4	F3	Control methods	0~1	0	“1”Intelligent temperature mode, “0”Constant temperature mode. UV laser recommend use constant temperature mode.
5	F4	Ultrahigh water temperature alarm	1~20	10.0	When water temperature up to F0+F4 the chiller will alarm, the alarm code display “E2”.
6	F5	Ultralow water temperature alarm	1~20	15.0	When water temperature low to F0+F4 the chiller will alarm, the alarm code display “E3”.
7	F6	Ultrahigh ambient temperature alarm	40~50	45.0	When temperature of inlet air of chiller higher than F6, the chiller will alarm the alarm code display “E1”.,
8	F7	Password	00~99	8	User menu password can change
9	F8	Maximum water temperature setting	(F9+1) ~40	30.0	Intelligent temperature mode parameter, constant temperature mode not available.
10	F9	Minimum water temperature setting	1 ~ (F8-1)	20.0	Intelligent temperature mode parameter, constant temperature mode not available.

4. General settings adjustment

Press SET key to enter into the user-defined status. Meanwhile, PARAM SET is on, indicates controller in parameters setting status.

Constant temperature mode displays setting water temperature value (Default setting value is 25°C).

Press   buttons can change setting value. Press confirm button “RST” to save and exit after modified the values, then new values is working. (Means F0 modified to new values, the chiller is running under new values).

If there is no more action within 20 seconds, it will automatically exit modifying status without saving parameters.

5. 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 keys to select the password (default setting is 8), and then press the SET button, if the password is correct, F0 displays, entering into setting status, means the temperature controller is under parameter setting status. If the password is incorrect, it returns to temperature display. To avoid operation mistake, passwords could change by equipment user or equipment keeper.

(2) Enter setting status, press   buttons to modify parameter content follow by recycle, then press “   ” buttons to modify the parameter values. Press confirm button RST at any time to exit parameters setting with saving modified parameters and return to temperature display, then chiller runs under the new parameters. If there is no any action within 20 seconds, the controller will automatically exit parameters setting without saving the modified parameters (under parameters setting status, system running in original parameters). Under parameters setting status, SET key does not work.

Note:

1. During parameters setting status, 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 ambient temperature changes. The temperature difference is controlled by F1.

6. Advanced parameters adjustment cases:

(1)、Case 一: 26.8 °C cooling UV laser settings

Chiller under constant temperature control mode, press SET button will display setting water temperature value (F0) ,then press  or  buttons to modify setting temperature value, set the temperature to 26.8 °C,press RST button save parameter and exist then back to the temperature display (If there is no any action within 20 seconds, the controller will automatically exit parameters setting return to temperature display without saving the modified parameters)

(2)、Case 二: 16°C cooling UV laser settings

Chiller under constant temperature control mode, press SET button will display setting water temperature value (F0) ,then press  or  buttons to modify setting temperature value, set the temperature to 16.0 °C,press RST button save parameter and exist then back to the temperature display (If there is no any action within 20 seconds, the controller will automatically exit parameters setting return to temperature display without saving the modified parameters)

(3)、Case 三: Change alarm temperature of water temperature, water temperature higher 5 °C than **set** value will alarm, lower 10 °C than **set** value will alarm.

Press and hold  button while press SET button lasts 5 seconds the temperature controller will display 0, then press  button modifies 0 to 8(default setting password),and then press SET button will enter setting content code display turns to F0 if password corrects (Will restore to actual water temperature if password incorrect). Press  or  button change the content code to F4, and press SET button enter setting parameter values, press  or  button set the parameter to 5,return to content code after complete setting ,and then press  or  button modifies the content code to F5,press  or  button set the parameter to 10,then press RST button save and save parameter and exist then back to the temperature display (If there is no any action within 20 seconds, the controller will automatically exit parameters setting return to temperature display without saving the modified parameters)

Order	Code	Content	Case 一 Set value	Case 二 Set value	Case 三 Set value	T-506H Temperature controller default setting
1	F0	Temperature setting	26.8	16.0	25.0	25.0
2	F1	Temperature difference value	-2.0	-2.0	-2.0	-2.0
3	F2	Cooling hysteresis	0.1	0.1	0.1	0.1
4	F3	Control methods	0	0	0	0
5	F4	Ultrahigh water temperature alarm	10.0	10.0	5.0	10.0
6	F5	Ultralow water temperature alarm	15.0	15.0	10.0	15.0
7	F6	Ultrahigh ambient temperature alarm	45.0	45.0	45.0	45.0
8	F7	Password	8	8	8	8
9	F8	Maximum water temperature setting	30.0	30.0	30.0	30.0
10	F9	Minimum water temperature setting	20.0	20.0	20.0	20.0

<5> Alarm function and output ports

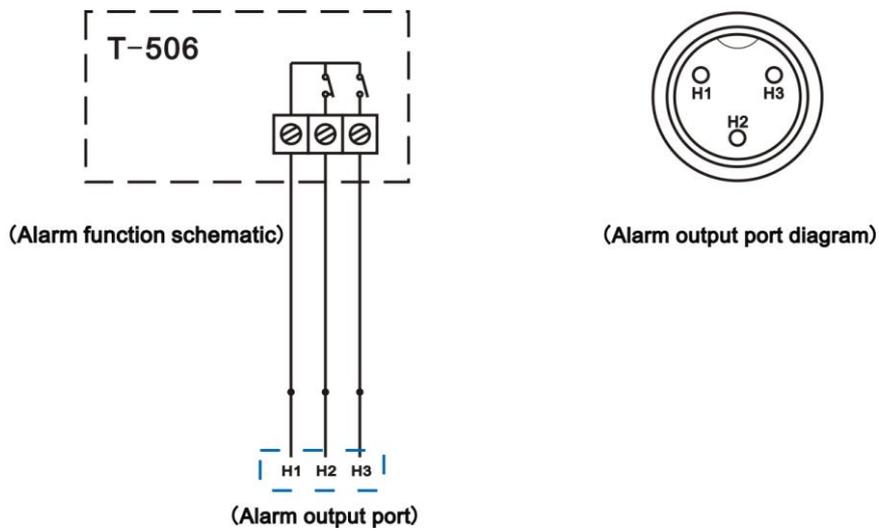
In order to protect the safety of equipments when something unusual happens to cooling water recyle, CWUL-10 series UV laser chiller equip with alarm protection function.

1. Alarm function

- (1) Alarm display: When chiller alarm, error code and water temperature will alternate display
- (2) Suspend the alarm sound: Under alarming status press any buttons can stop the alarm sound, but the alarm will lift until alarm cause solved.
- (3) Alarm causes and working status table

Display	Alarm code	Buzzer	Input port H1、 H2	Output port H1、 H3
working status				
Circulation pump works properly			Open circuit	Breakover
Cooling water circulation loop blocked	E6	Sounds	Breakover	Open circuit
Alarm of water shortage	E6	Sounds	Breakover	Open circuit
Circulation pump failure	E6	Sounds	Breakover	Open circuit
Ultrahigh ambient temperature	E1	Sounds	Breakover	Open circuit
Ultrahigh water temperature	E2	Sounds	Breakover	Open circuit
Ultralow water temperature	E3	Sounds	Breakover	Open circuit
Room temperature sensor failure	E4	Sounds	Breakover	Open circuit
Water temperature sensor failure	E5	Sounds	Breakover	Open circuit
Chiller power supply failure			Breakover	Open circuit

2. Alarm output ports and wiring diagram



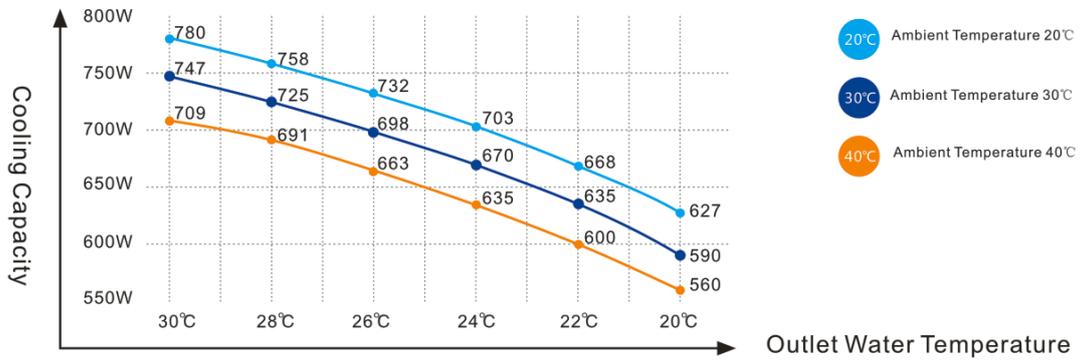
Note: The flow alarm is connected to the normally open relay and normally closed relay contacts, requiring operating current less than 5A, working voltage less than 300V.

<6> Specifications

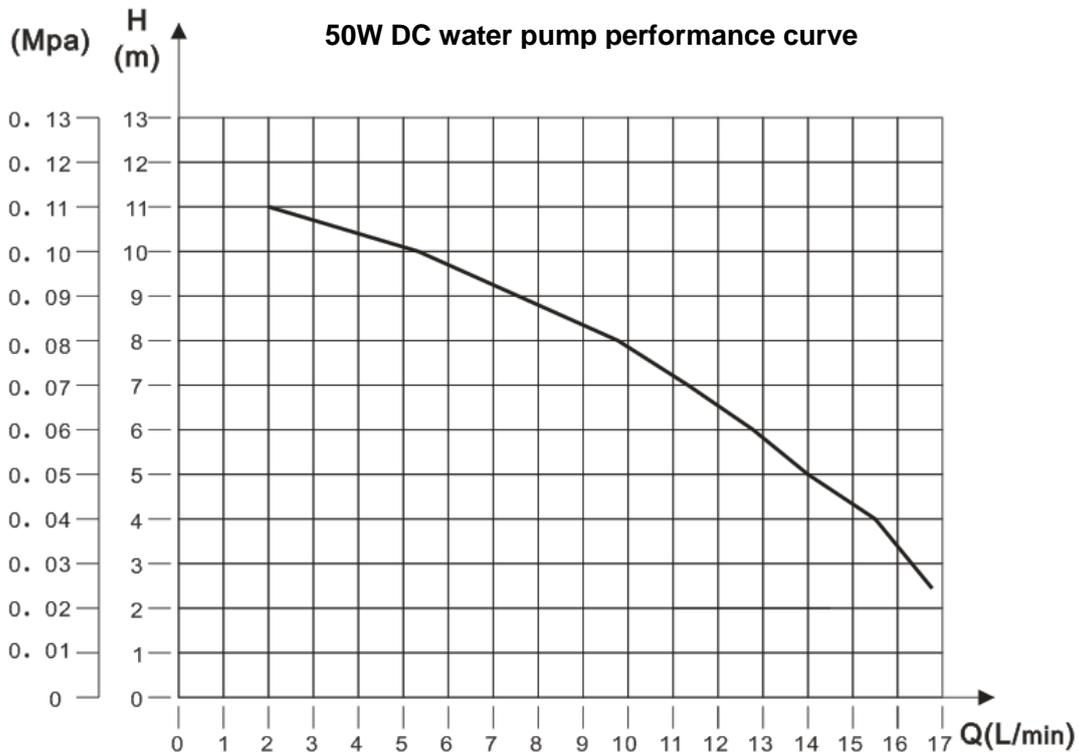
Mode	CWUL-10
Voltage	AC 1P 220V
Frequency	50Hz
Current	0.25~2.3A
Compressor power	0.295KW
	0.40HP
Refrigeration capacity	2361Btu/h
	0.692KW
	595Kcal/h
Refrigerant	R-134a
Refrigerant charge	300g
Precision	±0.3℃
Reducer	Capillary
Protection	Overcurrent protection for compressor, flow alarm, over temperature alarm
Pump power	50 W
Tank capacity	6 L
Inlet and outlet	Diameter 8mm quick coupling
Max. lift	12M
Max. flow	13L/min
N.W	24Kgs
G.W	27Kgs
Dimension	58X29X47 cm (L X W X H)
Package dimension	70 X43X58 cm (L X W X H)

<7> Performance curve

Performance curve of chiller under ambient temperature 20°C、30°C and 40°C



<8> Water pump performance curve



<9> Troubleshooting

Phenomenon	Reason	Solution
No power after turned on	Power cord is not plugged in place.	Check and ensure the power interface and the power plug are well plugged.
	Fuse burnt-out.	Replace fuse tube that in the electric box at the back of chiller
Flow Alarm (controller panel displays E6) use a water pipe connect the water outlet and inlet but without water flowing.	Low water level in the water tank.	Check the water level gauge indicator, pour water until the water meet green area; and check whether water circulation pipe leaks.
Flow alarm occurs while running with applied equipments (controller displays E6), but there is water flowing without alarm when use a water pipe directly connected to the water outlet and inlet.	Water circulation pipes are blocked or a pipe bending.	Check water circulation pipes.
Ultrahigh water temperature alarm(controller panel displays E2)	Anti-dust gauze accumulated heavy dust leading to poor heat dissipate.	Remove the anti-dust gauze and clean it regular.
	Poor ventilation for air outlet or inlet.	Make sure good ventilation for air outlet and inlet.
	Over low or unstable voltage.	To improve the power supply circuit or use a voltage regulator.
	Error parameter setting of temperature controller.	Resetting parameter or restore to default setting.
	Chiller On/Off frequently	To make sure chiller have enough time to refrigeration (about 5 minutes above).
	Heat overload	Reduce heat overload, or use larger refrigeration capacity chiller.
Ultrahigh ambient temperature alarm (controller displays E1).	The working ambient temperature is too high for the chiller.	To improve the ventilation makes s ure that the machine is running under 40℃.
Condensate water heavily.	Water temperature is much lower than ambient temperature, high humidity.	To increase water temperature or to keep warm for pipeline.
Water drains slowly from outfall when changing water.	Water Supply Inlet not open.	To open water supply inlet.

