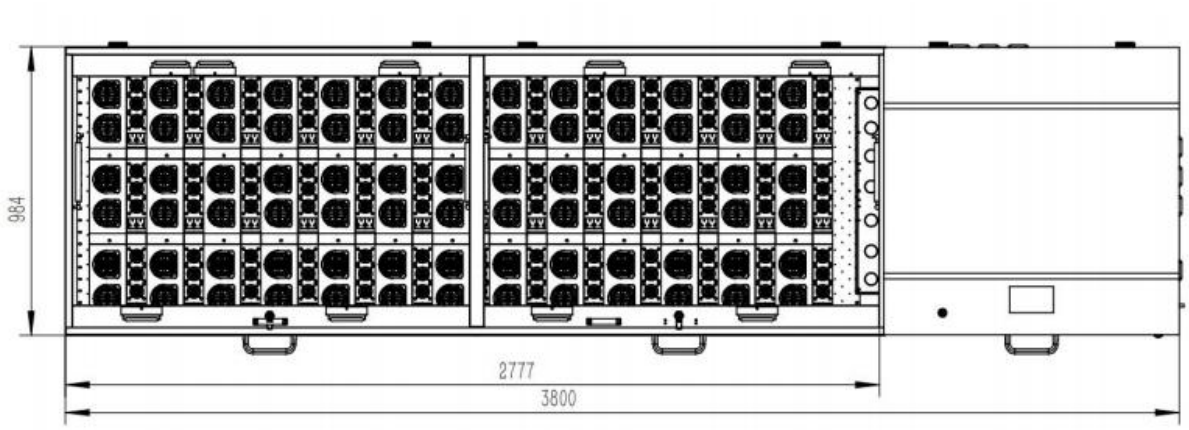
DT-200KW Immersion Liquid Cooling Cabinet Instructions



Introduction

Name: 200KW Immersion Liquid Cooling Box

Order quantity (MOQ): 1

Dimension: 380*98*85.5cm

Inner dimension: 279.7*97.7*48.7cm

Packaged size: 392*110*105cm

Net weight: 650kg

Packaged weight: 750kg

Parameters: Take S19 series as an example, 39 sets can be cooled in 120KW in terms of their size and power.

Major switch capacity: 350A

Rated current: 305A

Input voltage: 380V~415V AC 50/60HZ

Working power (excluding servers): 2.4KW

Max operating power: 202.4KW

Oil amount: 1300 L(without miners), 100L (24 miners running)

Installation cables at least should be:

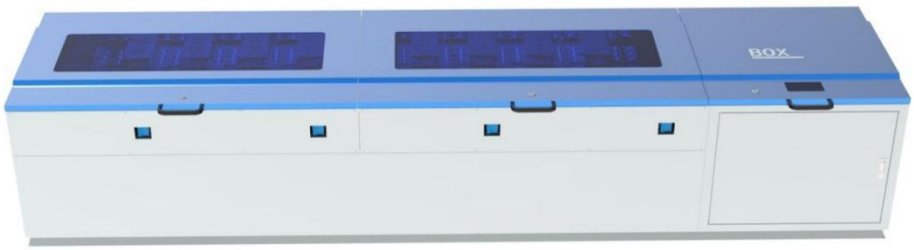
415V: copper cable 120mm²; aluminum cable 185mm²

380V: copper cable 150mm²; aluminum cable 240mm²

With quality coolant, heat exchanging becomes more efficient and safer. With a brazed plate heat exchanger, the whole machine runs more efficiently and reliably. With a famous brand circulation pump, breakdown is reduced to ensure the cabinet works well. With a visible man-machine interaction interface, it is easy for users to operate this machine. Besides, users are able to download a cellphone app to conduct remote monitoring.

With joints welded, DT-200KW immersion liquid cooling cabinet is ensured to be stable in operation and corrosion-resistant. And it also makes sure there is no oil leakage in the places of welded joints. The design of a flexible upper cap blocks dusts and stops oil from splashing.

Appearance



Key Advantages

Close to mute state

With miners completely immersed in cooling liquid, noise is extremely low. Liquid cooling greatly decreases noise in comparison with cooling.

Effective overclocking

Some miners can get a 40%-60% overclocking.

Easy installation

Modular design and assembled deployment highly shorten the circle of implementation, increasing installation efficiency.

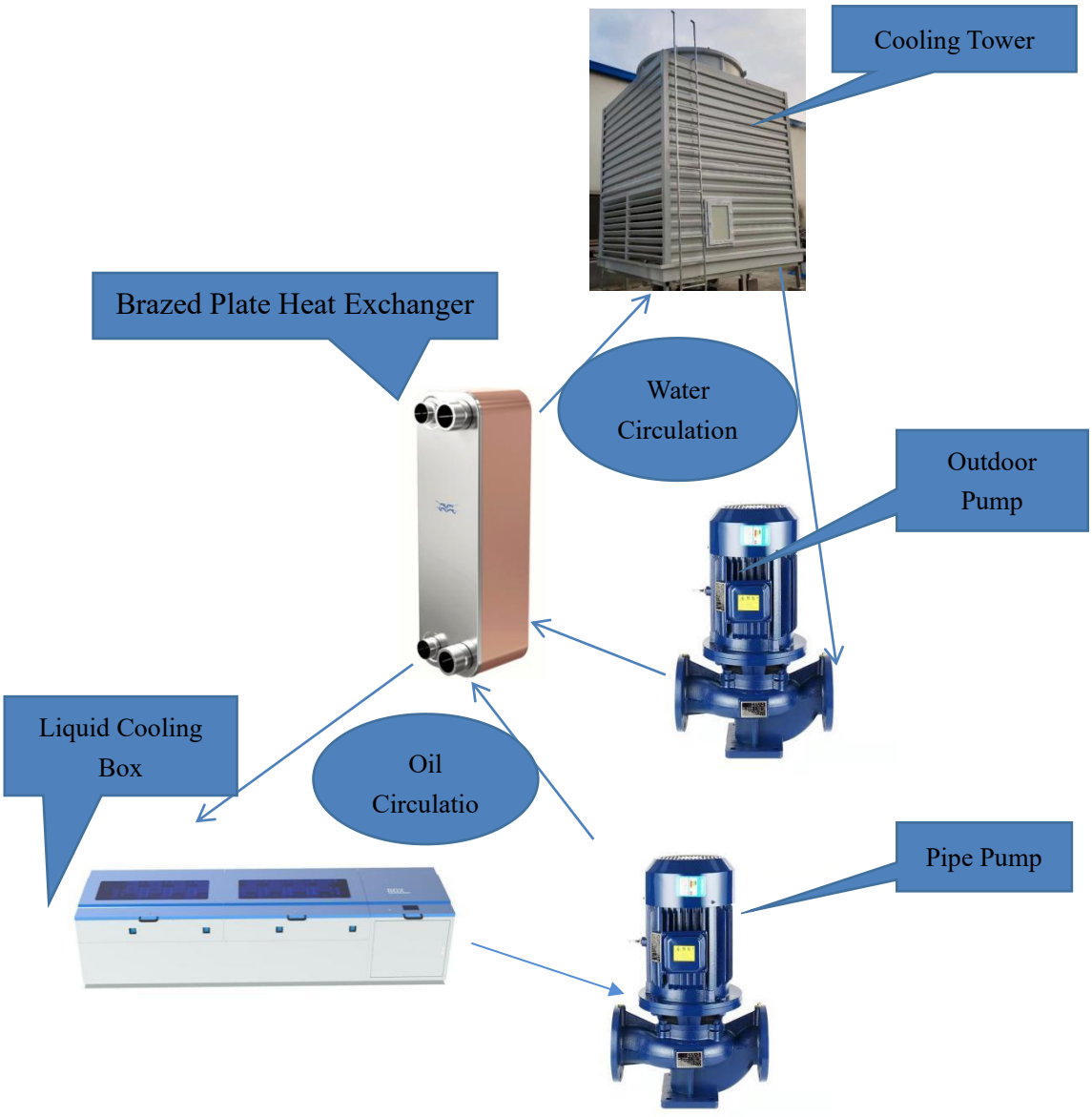
Waste heat recycling

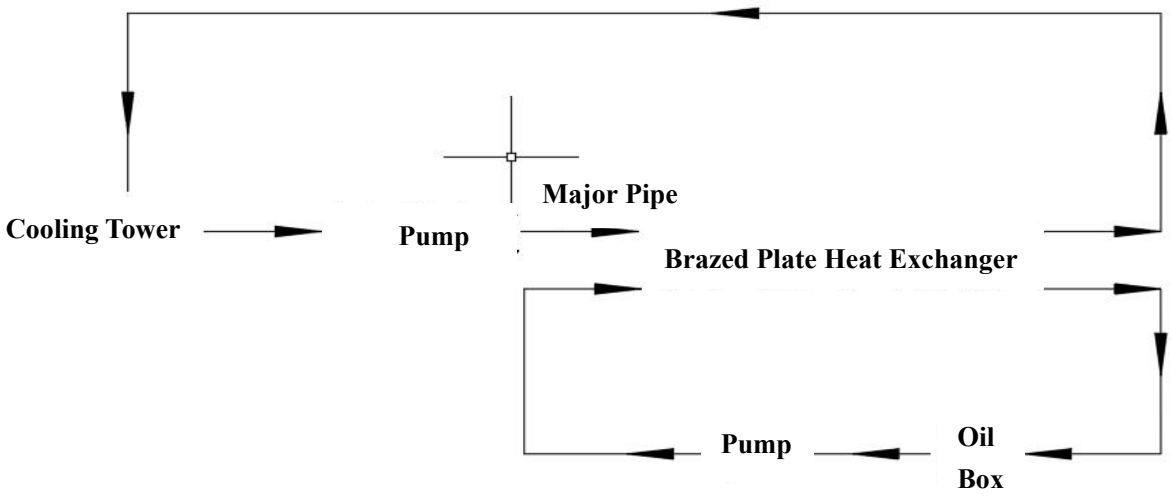
90% heat energy from miners can be recycled in an efficient manner with the help of waste heat recovery technology, like supplying heat for your houses or swimming pool, supplying hot water, or making profits by heat supply, etc.

Parameters

Item	Name	Unit	Qty
Box Frame	Cooling pool	Piece	1
	Cooling pool frame	Piece	1
	Cover	Piece	3
	Electrical door	Piece	1
	Filter	Piece	7
Electrical Control System	PDU	Piece	9
	Thermal overload relay	Piece	1
	AC contactor	Piece	2
	Circuit breaker	Piece	3
	Phase sequence relay	Piece	1
	Insulated cable	m	30
	PLC	Piece	1
	Man-machine interface	Piece	1
Cooling System	Brazed plate heat exchanger	Piece	1
	Circulation pump	Piece	1
Network System	Network cable	m	120
	Switch board	Piece	3
	Registered Jack	Piece	39
Remarks	**Configuration is adjustable based on customers' needs.**		

Operational Principle





Installation Notes

1. Confirm and adjust the position of individual machine according to the diagram;
2. Connect circuits and make sure they are in line with the specifications;
3. Connect waterways to the major pipe and ensure there is no water leakage;
4. Place in servers to get access to network and power, and make sure they are well-connected;
5. Server power connection needs attention of the balanced three-phase voltage, to avoid server breakdown;
6. Pour cooling oil into the box, and ensure there is no leakage and overflow;
7. Connect the whole system and start commission.

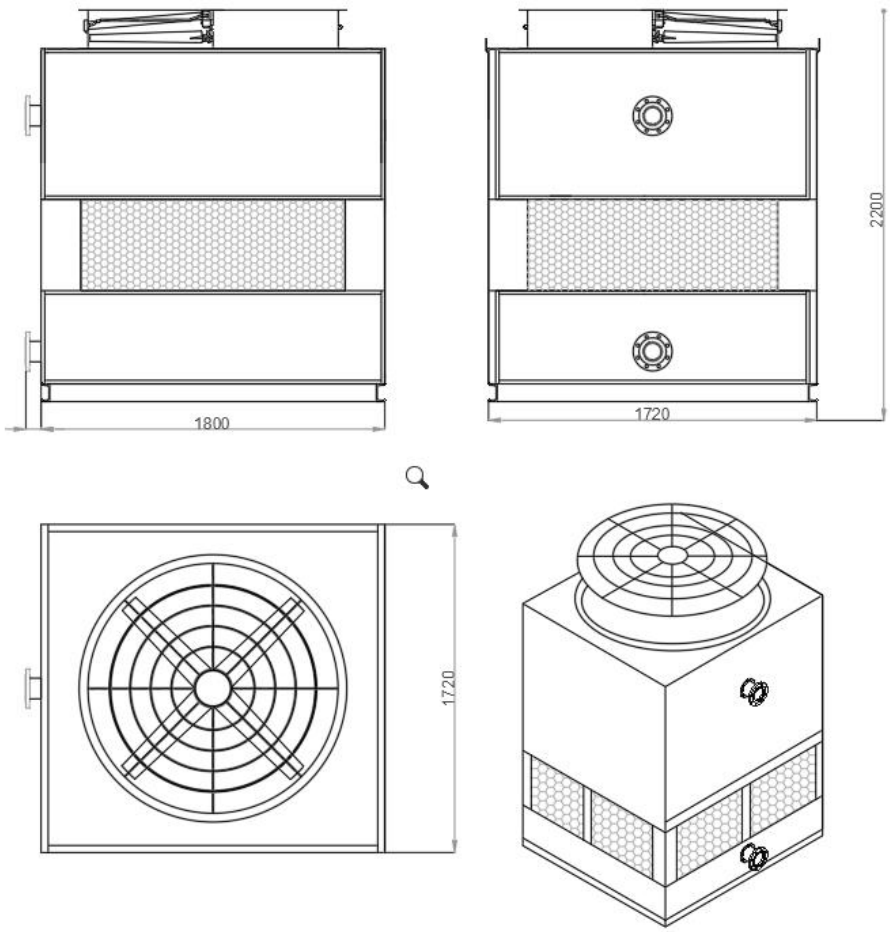
Common Failures and Solutions

Failures	Causes	Solutions
1. Pump does not work	a. In/out valve is not opened; and pipe and flow channel impeller are blocked. b. The motor runs in a wrong direction, operating slowly due to phase missing.	a. Remove the blockage, and open the valve. b. Adjust and tighten motor wire connection. Check and make sure the whole equipment is wired.
2. Pump produces noise and vibration	a. Pipe line support problems b. Scratching c. Unstable voltage	a. Fix pipe lines b. Check and solve the problem c. Stabilize voltage
3. Water/oil leakage	a. Water leakage b. Oil leakage	a. Check connectors, tighten welded joints or re-weld the place where it is needed. b. Ditto

DTC-200-D2 Requires A 80-Ton Cooling Tower

I. Parameters

Cooling Tower Parameters Sheet	
Dimension mm	1880*1720*2200
Water m^3/h	80
Draught fan capacity KW	2.2
Fluid	Purified water
Water quality (PH)	6.8～7.5
Water entering pipe diameter	DN100
Water exiting pipe diameter	DN100
Drainage pipe diameter	DN40
Overflow pipe diameter	DN40
Automatic water replenishing pipe diameter of floating ball	DN25
Above-said parameters are adjustable based on local ambient conditions and customers' needs.	



II. Installation Instructions

1. The place where the cooling tower is placed should be well-ventilated, and free from building effects, dusts and hot current.

2. No oxygen fuel gas welding, electric welding and other open fires are allowed on the top of cooling tower, so as to avoid fires.

3. The elevation of each side is required to be aligned, with the elevation error no greater than 10mm.

4. Each component must have screw bolts connected, especially the driving components (fan, motor and rotating distributor), and each and every one of them must be fastened.

5. The installed motor's connecting the power requires the leading wire of the automatic motor wiring box to be hung as a U-shape, to prevent rains from entering the box along with power wire. The hole of exiting wire has to be sealed.

6. The oil level of reducer needs to be normal. And its belt should be tight.

7. The fan blades must be flexible in rotation, with no collision.

8. Draught fan rotation should be clockwise when looked down from the tower top, with air drawing up.

III. Matters Needing Attention

1. Inlet & outlet pipe lines and water pool need completely washing before use, to clean off wastes inside the tower and prevent the pipe from blockage.

2. Water from rivers or water with impurity substances is not allowed to pour into the cooling tower, which is more likely to block pipe and heat exchanger.

3. Users are required to add softening agent to tap water based on its quality, so as to prevent pipe from blockage owing to scale formation.

4. Open the water valve when the draught fan is running. And regulate pump flow amount, entering voltage, electric current, voltage, vibration and noise value according to the specifications.

5. Circulating water should come from tap water or clean water, without oil stains and impurities. And its turbidity is banned from exceeding 50mmg/.

6. As a key cooling device, the cooling tower should be taken care by special personnel, who has duties to record in/out water temperature, flow amount, and meteorological parameters.

IV. Maintenance

1. Power cutting is necessary before maintenance, with a person checking electric brake to prevent accidents.

2. Once-a-year examination and maintenance is essential for the tower.

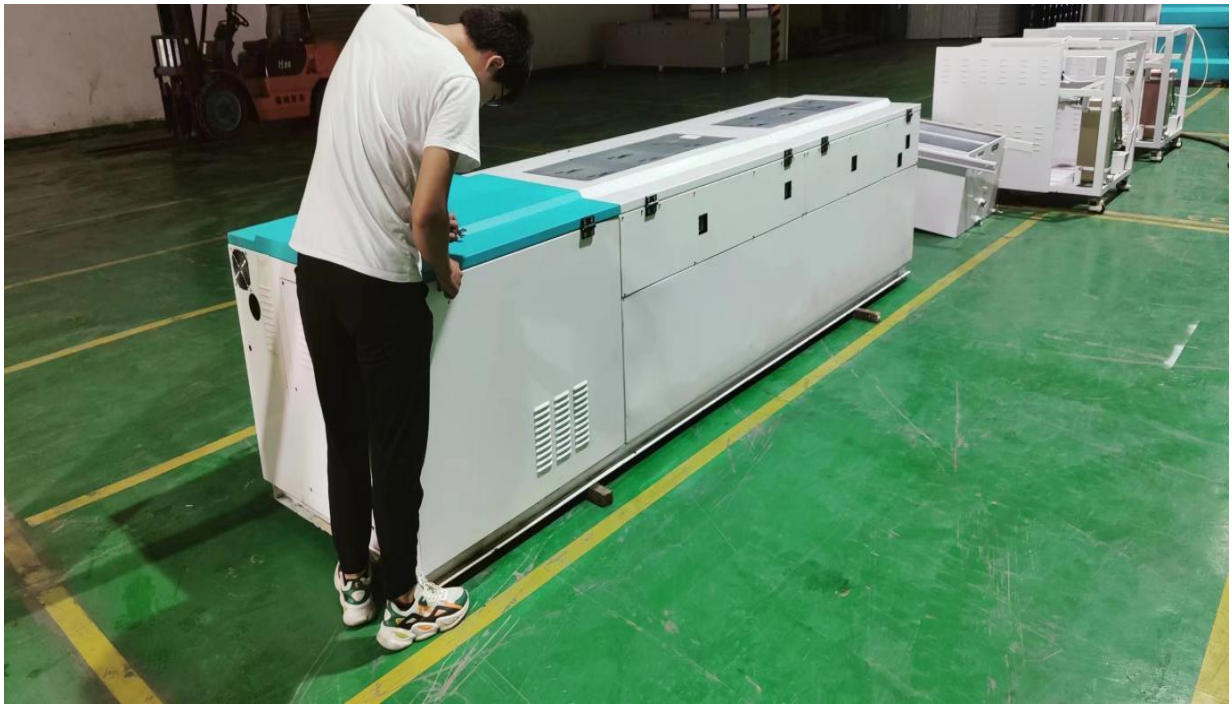
3. Motor also should be maintained.

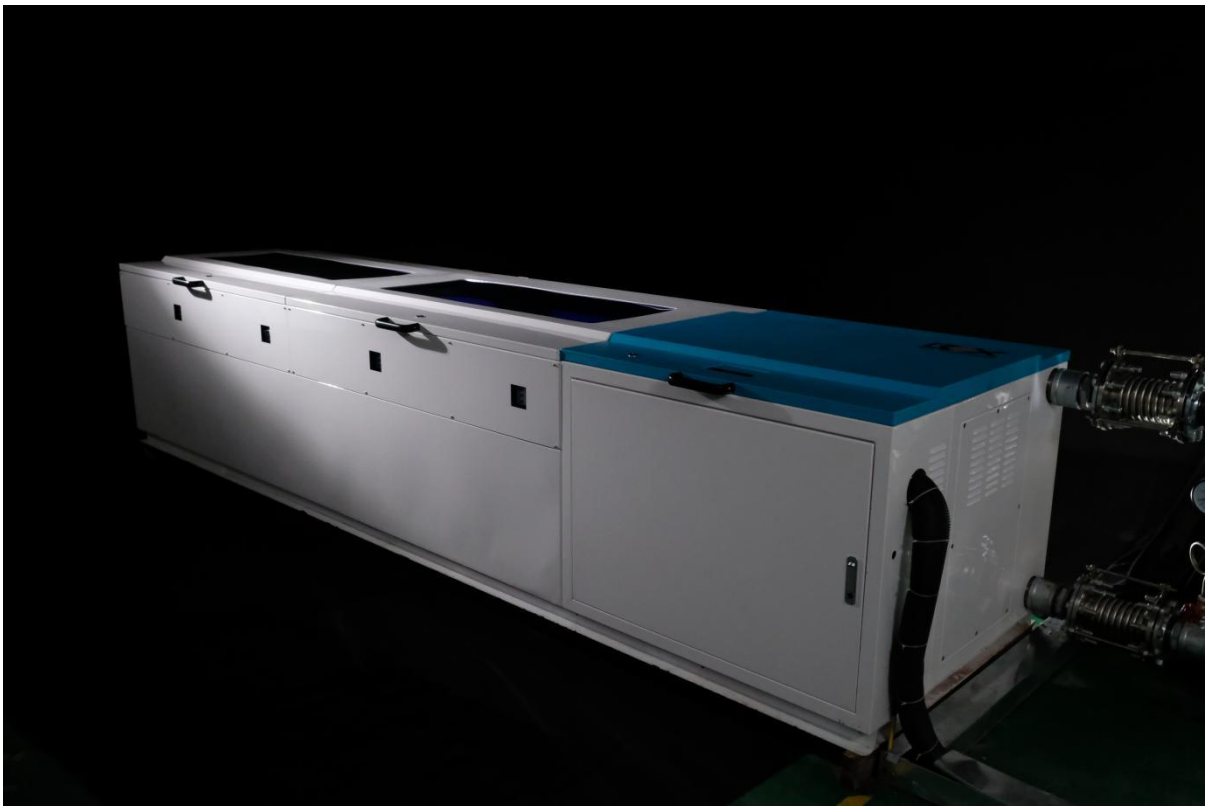
4. Filling materials inside the tower should be cleaned if scales are more enough, or it decreases cooling efficiency.

5. Anti-rusting paints should be applied to steel holders inside the tower if necessary, which prolongs the service life.

6. The water tower should be covered by a piece of oilcloth in case of long-time no use, to stop dirty things from entry and inner filling materials from aging.

V. Real Cabinet Pictures





V. Operational Manual

1. To power up the system: turn on all the 3 circuit breakers on the front panel of the equipment, shown as follows:

(1) "QF1" circuit breaker: general power supply

(2) "QF2 " circuit breaker: power supply for the circulation pump.

(3) "QF3" circuit breaker: general power supply for the control loop.

Note: Do not manually cut off the power supply while the box is in operation. Turn off all circuit breakers if it needs to be idle for a long time.

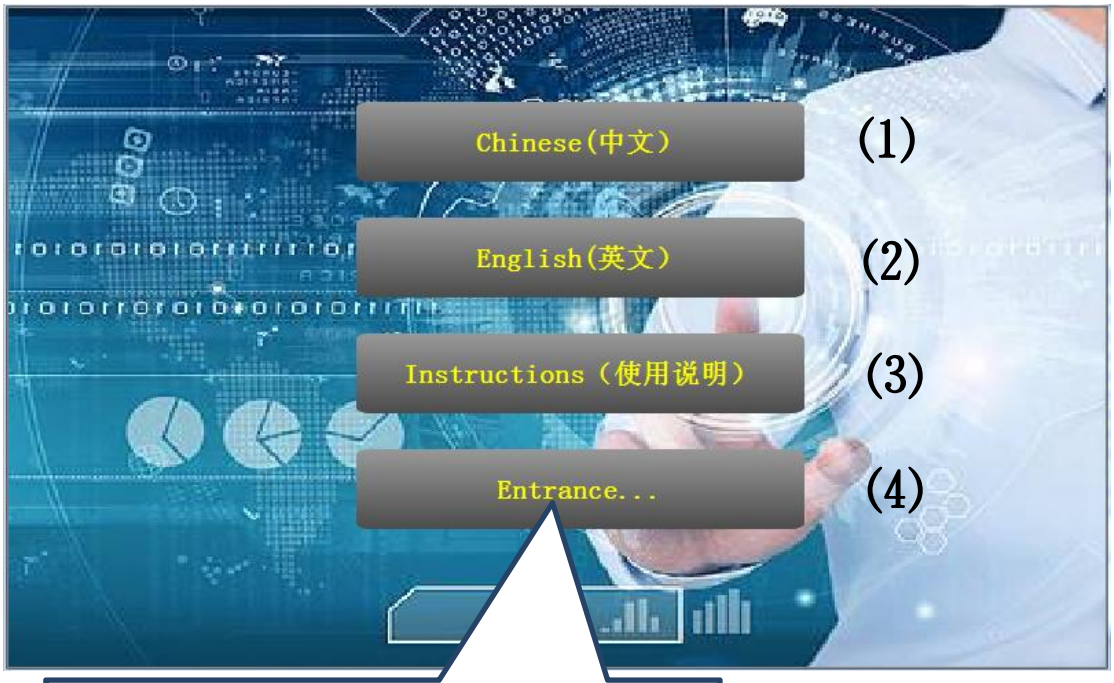
2. Initial screen: the touch screen will enter the initial screen when the system is powered on.This screen includes 4 buttons:

(1) Chinese button: tap to switch the language to Chinese.

(2) English button: tap to switch the language to English.

(3) The Instructions button: tap and enter the "Instructions" screen.

⑷ System entry button: enter the "status monitoring" screen by tapping. As it is shown in the picture below:



Tap "Entrance..." to switch it to the status monitoring screen.

After the system enters, users will see four screen settings, with their switching buttons set as: ① "status monitoring", ② "parameter setting", ③ "alarm browsing" and ④ "initial screen". Switch to the screen you want by tapping the corresponding button.

3. Status monitoring screen: showing temperature and system running status, as well as starting or shutting down the system (users are required to make sure the displayed temperature is normal before starting the system). Refer to the picture below:

1). Temperature display:

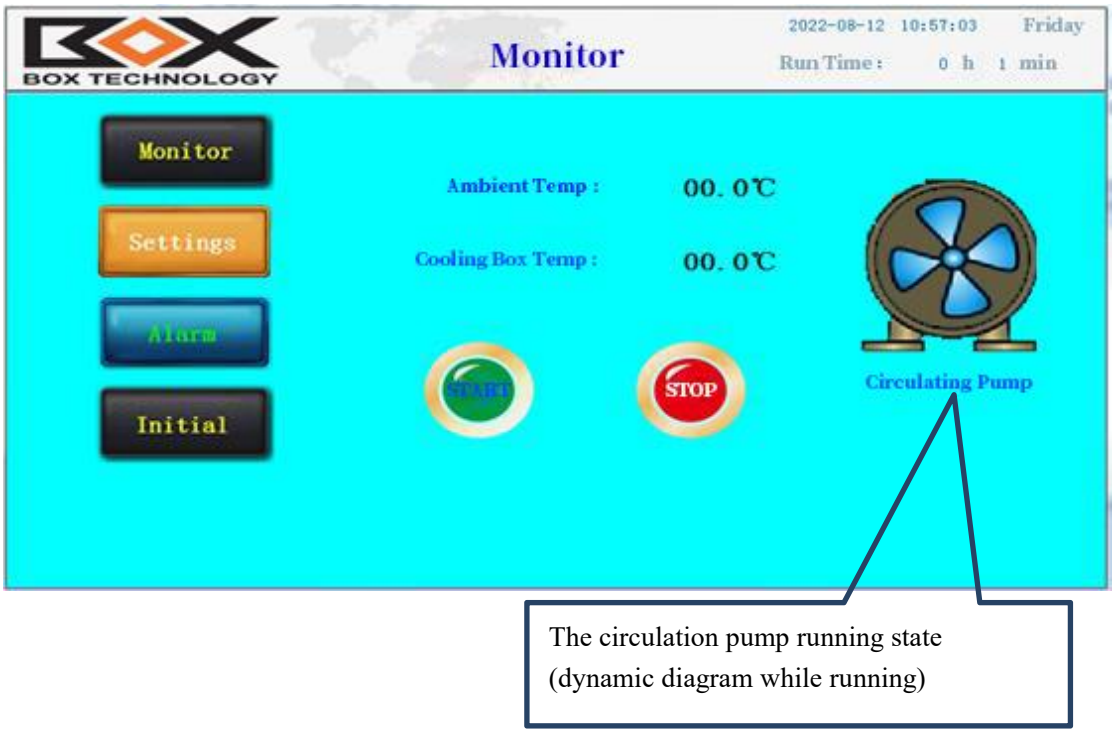
① "Environmental temperature": displaying the external temperature.

② "Cooling box temperature": displaying its internal temperature.

2. Starting/stopping operation of the system:

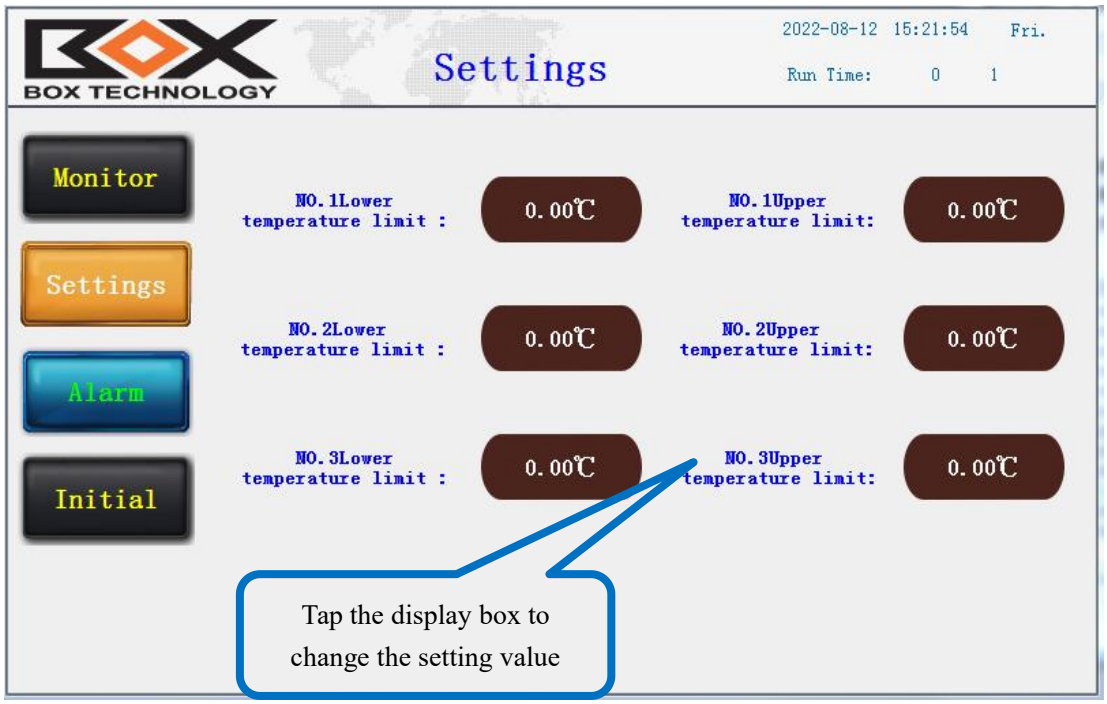
(1) "Start" button: tap this button to start the system.

(2) "Stop" button: tap this button to shut down the system.



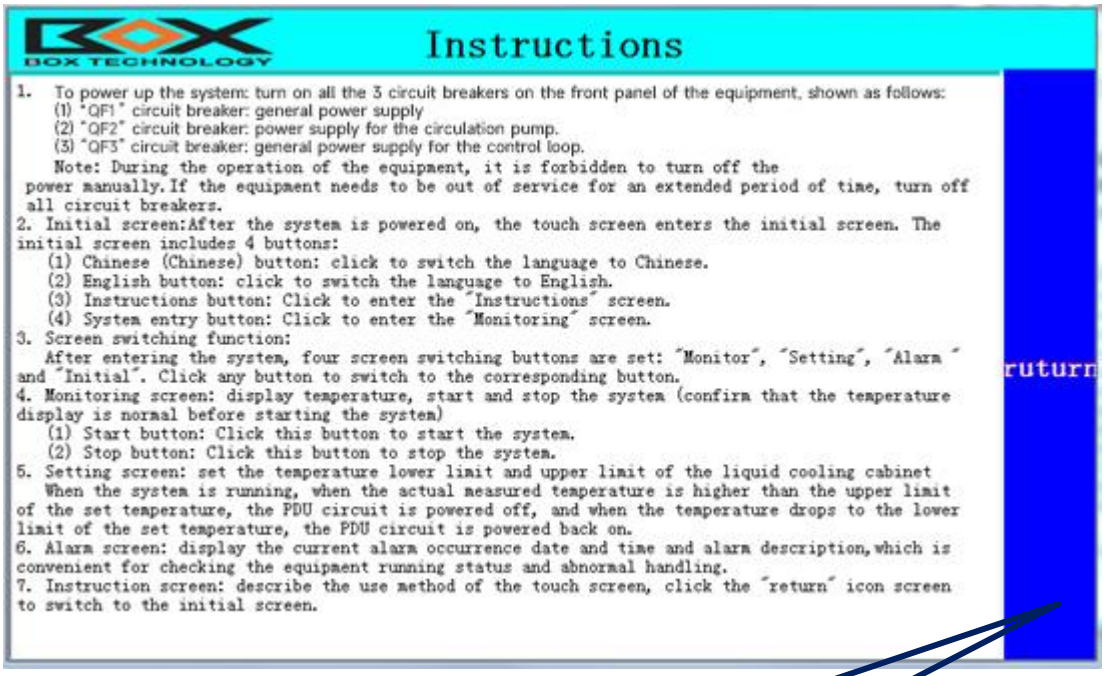
4. Parameter setting screen: where the lower and upper temperature limits of cooling box are set, shown in the picture below:

When the system is running, and the actual measured temperature is higher than the upper limit of the set temperature, the PDU circuit is powered off. It is powered back on when the temperature is below the lower limit.



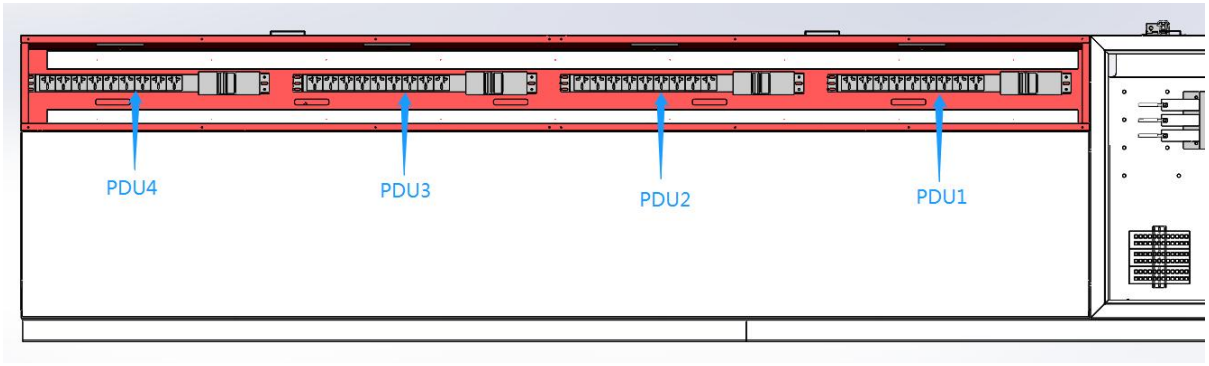
5. Alarm browsing screen: displaying the time in which the current alarm took place and alarm description, which makes it easy for users to check the running status and exception handling. As it is shown in the picture below.

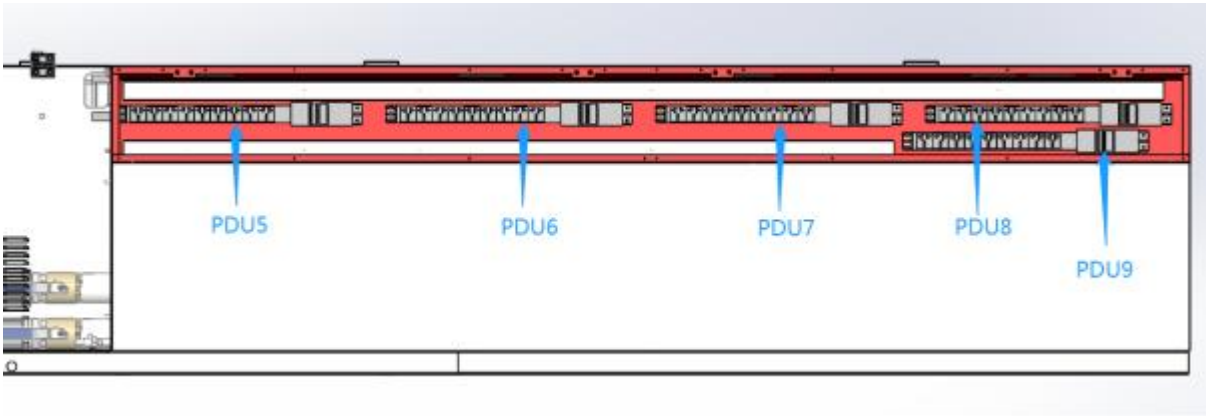
6. Instructions screen: telling how to use the touch screen. Tap “back” to switch to the initial screen.



Tap “Return” to get back to the “initial screen”

8. PDU Operating Instructions





1. The three-phase load distribution should be even. The difference between the quantity of servers in each phase is ≦1.

2. The recommended way of plugging (as shown in the diagram below, the access sequence of single power server at full load (39 severs)

Access in order: PDU 1 ⟹ PDU 2 ⟹ PDU 3. .....The access rules are as follows:

PDU 1: Access from phase A, and plug in successively according to the phase sequence:

A⟹ B ⟹C ⟹A.

Next PDU: Start with which phase of this PDU is determined by the last phase of the former:

① The last phase of the first PDU is A, then here start with phase B, namely,

A⟹ B⟹C ⟹A.

② The last phase of the former is B, then here start with phase C, namely,

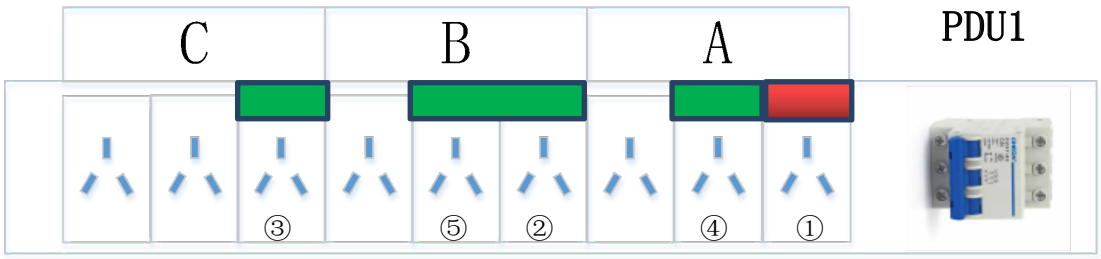
A ⟹B⟹C ⟹ A

③ The last phase of the former is C, then here start with phase A, namely,

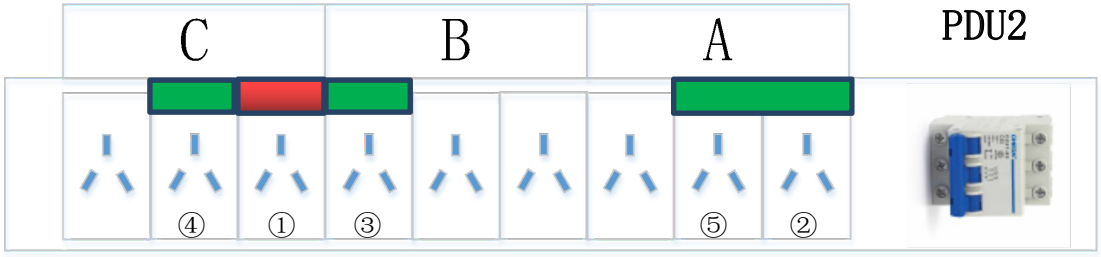
A ⟹B ⟹C⟹ A

The initial phase

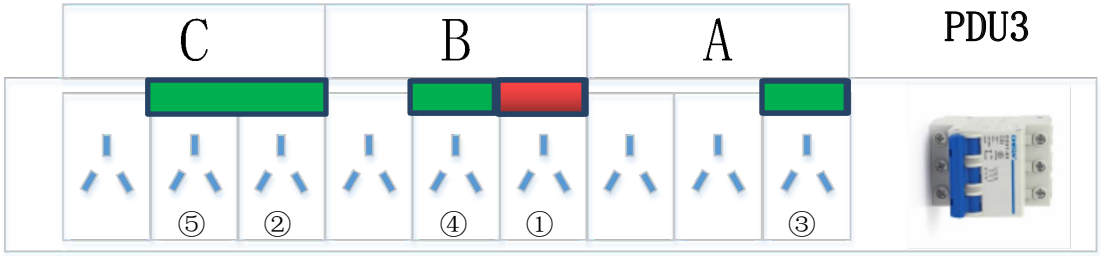
Numerical order: plugging sequence



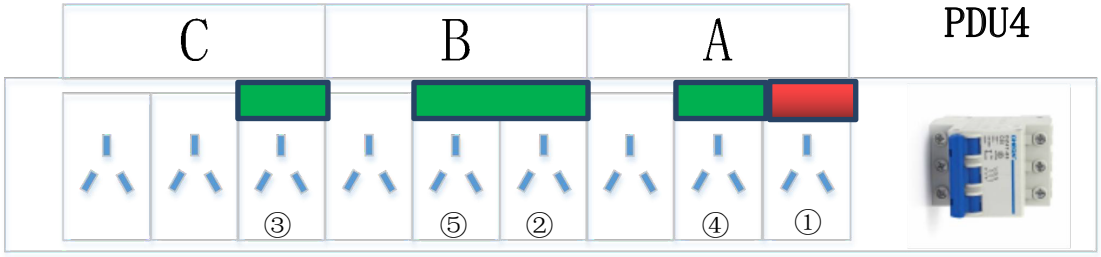
PDU1



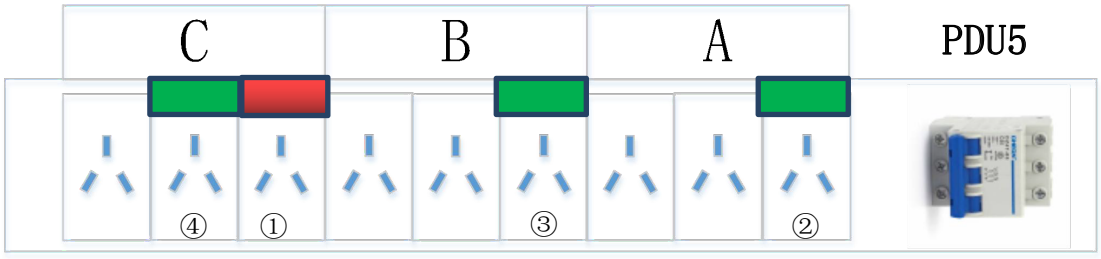
PDU2



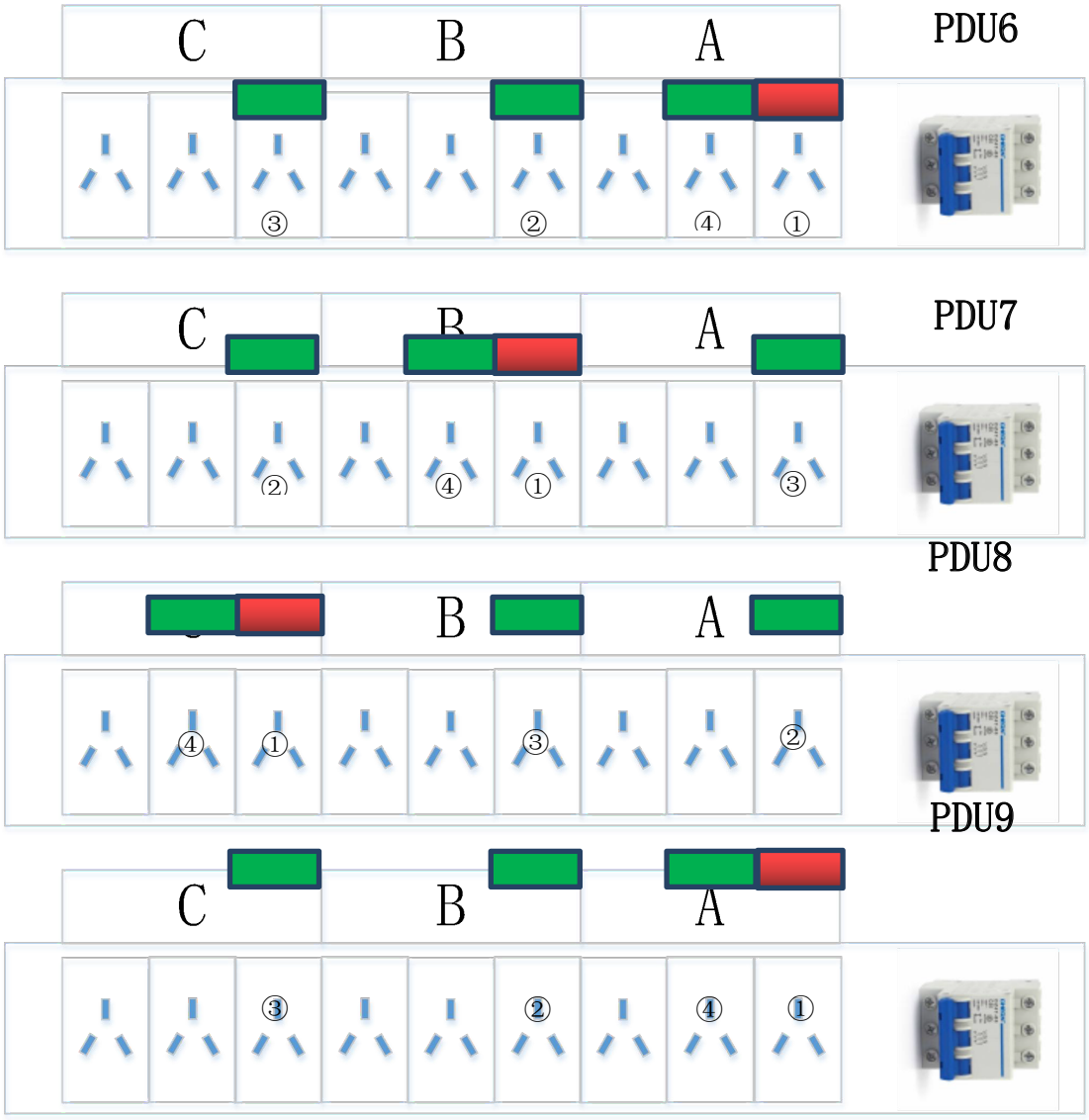
PDU3



PDU4



PDU5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