whatsminer

HEAT CORE

HS05

Hardware installation guide

Integrated Energy & Mining System

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Version Control

Version Code	Initiator/Reviewer	Approver	Contents of Change	Date
V2.0.0	HeatCore	—	—	2025-03-04

1. PRODUCT OVERVIEW

1.1 Product Introduction

HS05 is a high-temperature single-phase H-cabinet designed for efficient mining, featuring the following key highlights:

Compact Size: Dimensions of 615 x 550 x 545mm, suitable for various applications such as homes, offices, swimming pools, and warehouses.

Efficient Cooling: Utilizes a hydro cooling system with distilled water and corrosion inhibitor, maintaining high efficiency even at a high inlet water temperature of 70˚C.

Excellent Heat Dissipation: Features robust heat dissipation capabilities and upgraded PDU, enabling miners to achieve stable overclocking of up to 30% (PSU capacity ranging from 3,800W to 5,000W).

Intelligent Operating System: Offers real-time device performance monitoring with an easy-to-use interface featuring one-button control.

Eco-Friendly Design: Utilizes mining-generated heat for home heating, cutting down on energy waste and carbon emissions.

Portable and Home-Friendly: Its modular design allows for easy installation, making it suitable for home environments.

HS05 is the perfect 5kW water-cooled mining rack, providing integrated solutions for energy utilization and applications worldwide, particularly in district heating and seawater desalination.

1.2 General Safety Precautions

1.2.1 General Safety Considerations

- Please strictly follow these instructions during installation. Improper installation may cause water leakage, electric shock, fire hazards, and equipment damage.
- Do not install this product in spaces where flammable gases may be present, as this may lead to fire hazards.
- Ensure the unit is installed on a floor that has sufficient structural integrity to support its weight, to avoid collapse and potential injury.
- Avoid standing on the unit; do not store or place any items on top of it to prevent injuries from falling objects.
- Thoroughly check piping for leaks before operation.

1.2.2 Electrical Connection Related

Table 1-1 Safety Instructions on Electrical

The electrical installation shall obey the relevant national standards, as well as this instruction. Individual and dedicated wiring from the switchboard/distribution board to each unit must be used. Where wiring of insufficient capacity is used or connections are imperfect, an electric shock or fire hazard may occur.	⚠
Use wire of the specified rating between the units. Incorrectly rated wire may lead to fire hazard or electric shock. Ensure all connections are firm and capable of withstanding any movement and tension from the wires. Loose connections present a fire hazard.	⚠
Grounding shall be done by qualified professionals.	⚠
Prior to opening the unit casing for wiring an installation, ensure that all power to the unit is turned off (and isolated where applicable). Do not operate on live equipment.	⚠

1.2.3 Disclaimer

The contents of this document are for reference only, HEATCORE INC. reserves the right to interpret any updates or changes to this document.

2. PRODUCT INFORMATION

2.1 Product Introduction

2.1.1 Function Introduction

1. The HS05 is an indoor integrated hydro cooling rack solution designed for factory prefabrication, standardization, integrated delivery, and efficient deployment. Through modular design, the HS05 ingeniously combines hydro cooling racks, control panel, and CDU. This creates a high-capacity, high-power-density operational grid.
2.Compared to traditional distributed solutions, the HS05 offers rapid and immediate deployment, along with flexible expansion. This makes it a robust and adaptable choice for modern operational needs.
3.One Button-Start:The rack can be switched on by single operation of touching the button.
4. Integral Alarm System:Necessary alarm detectors are integrated in/around the detection points to collect the parameter to controller and predict/report risks timely.

2.2 System and Product Views

2.2.1 System Diagrams

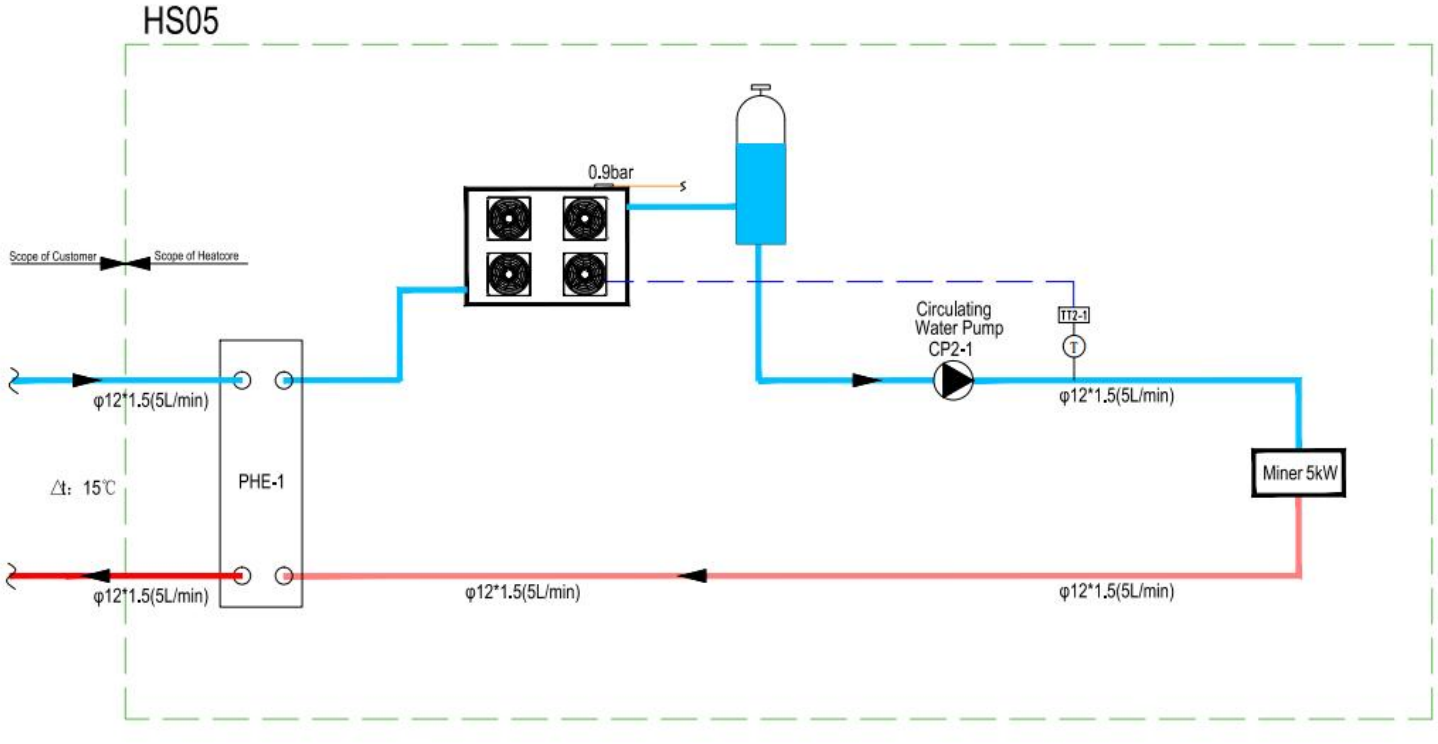


Figure 2-1 System Scheme

2.2.2 Product Views

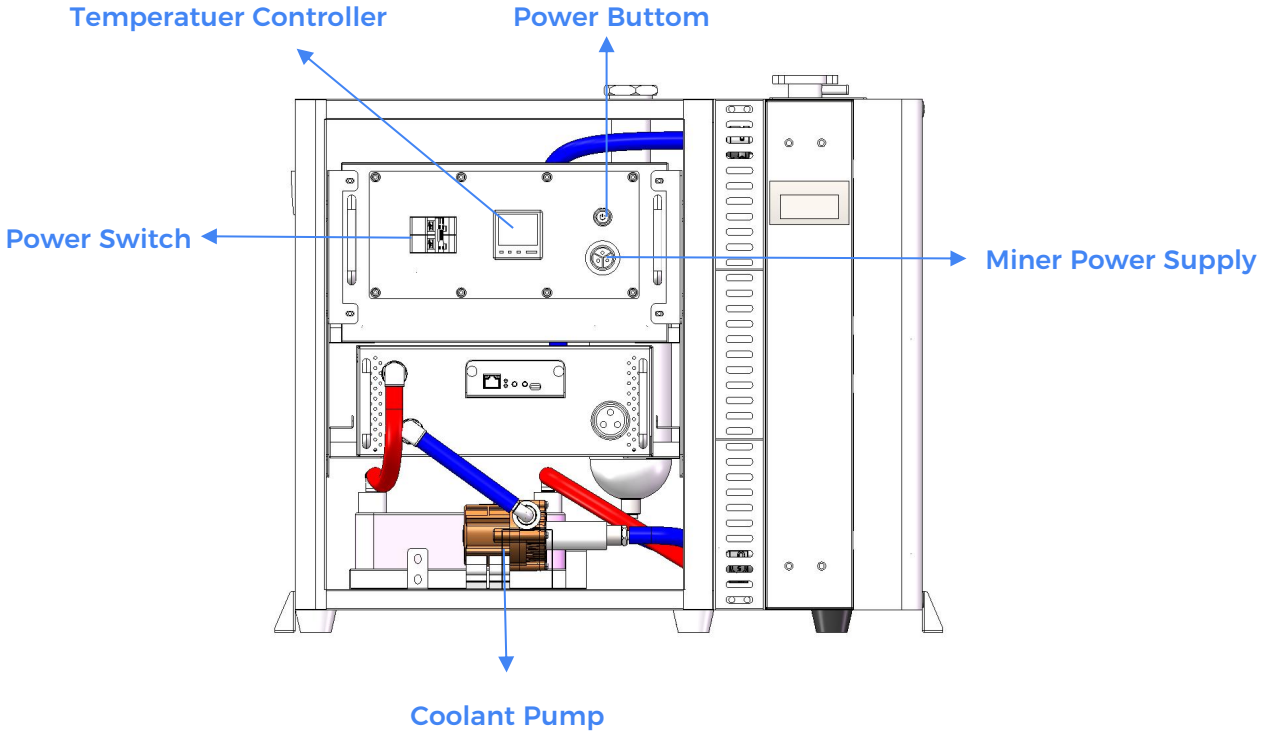


Figure 2-2 Appearance of HS05 (front view)

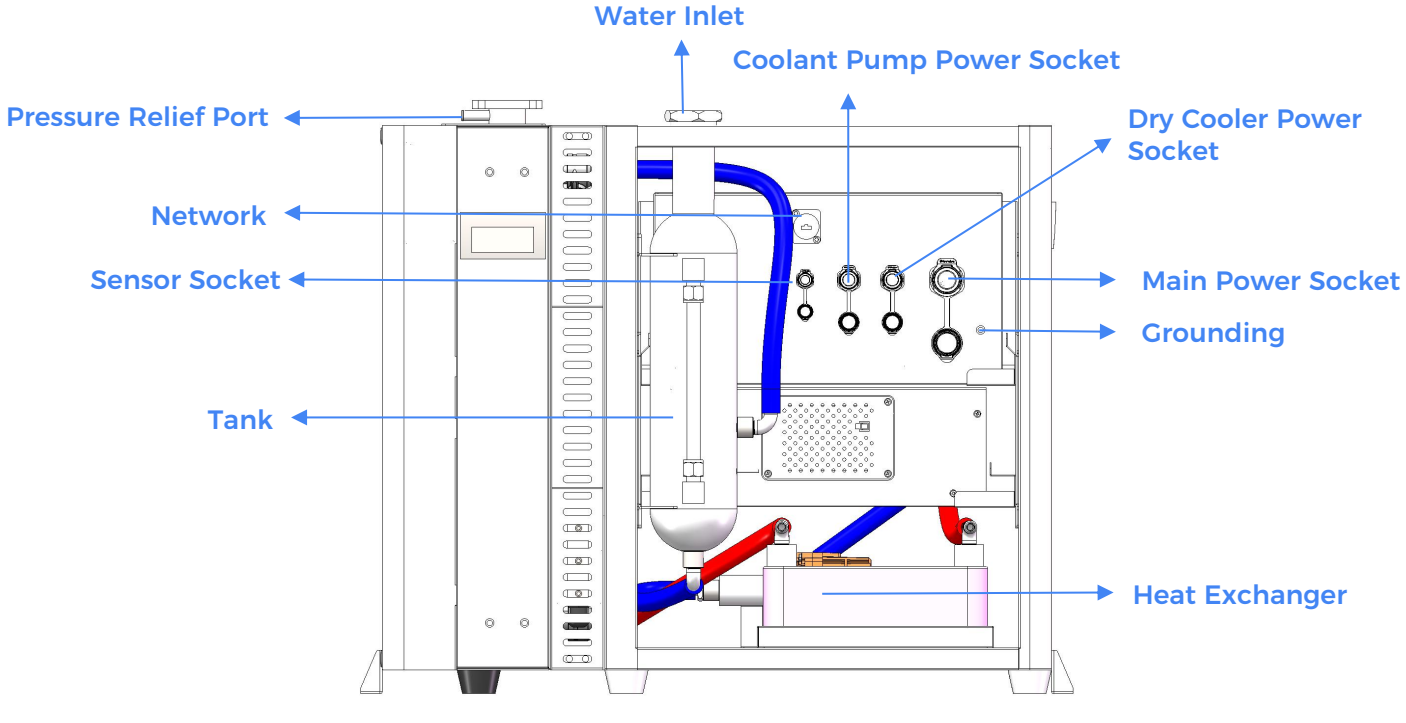


Figure 2-3 Appearance of HS05 (rear view)

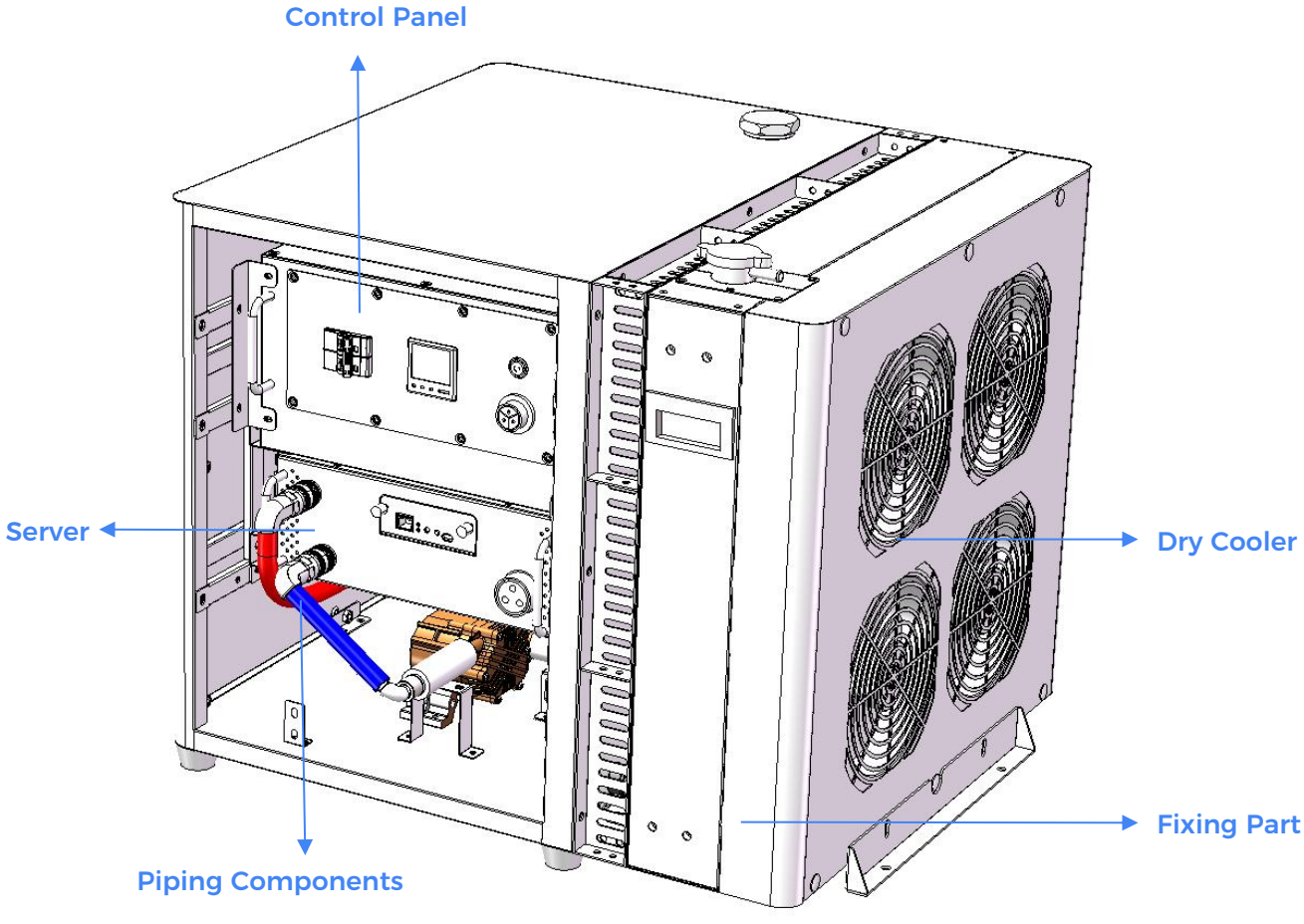


Figure 2-4 Isometric of HS05

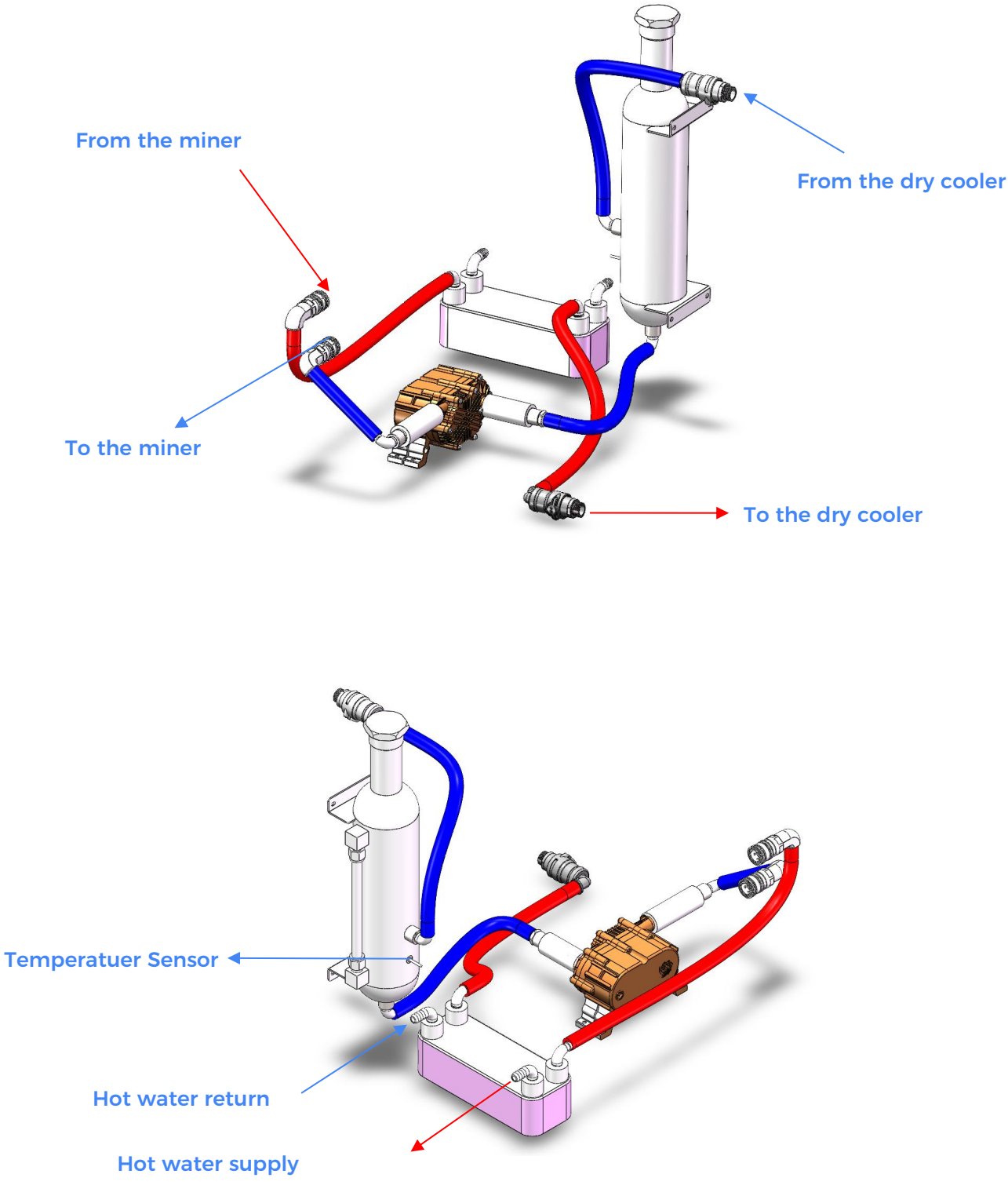


Figure 2-5 Appearance of piping components（front and rear view）

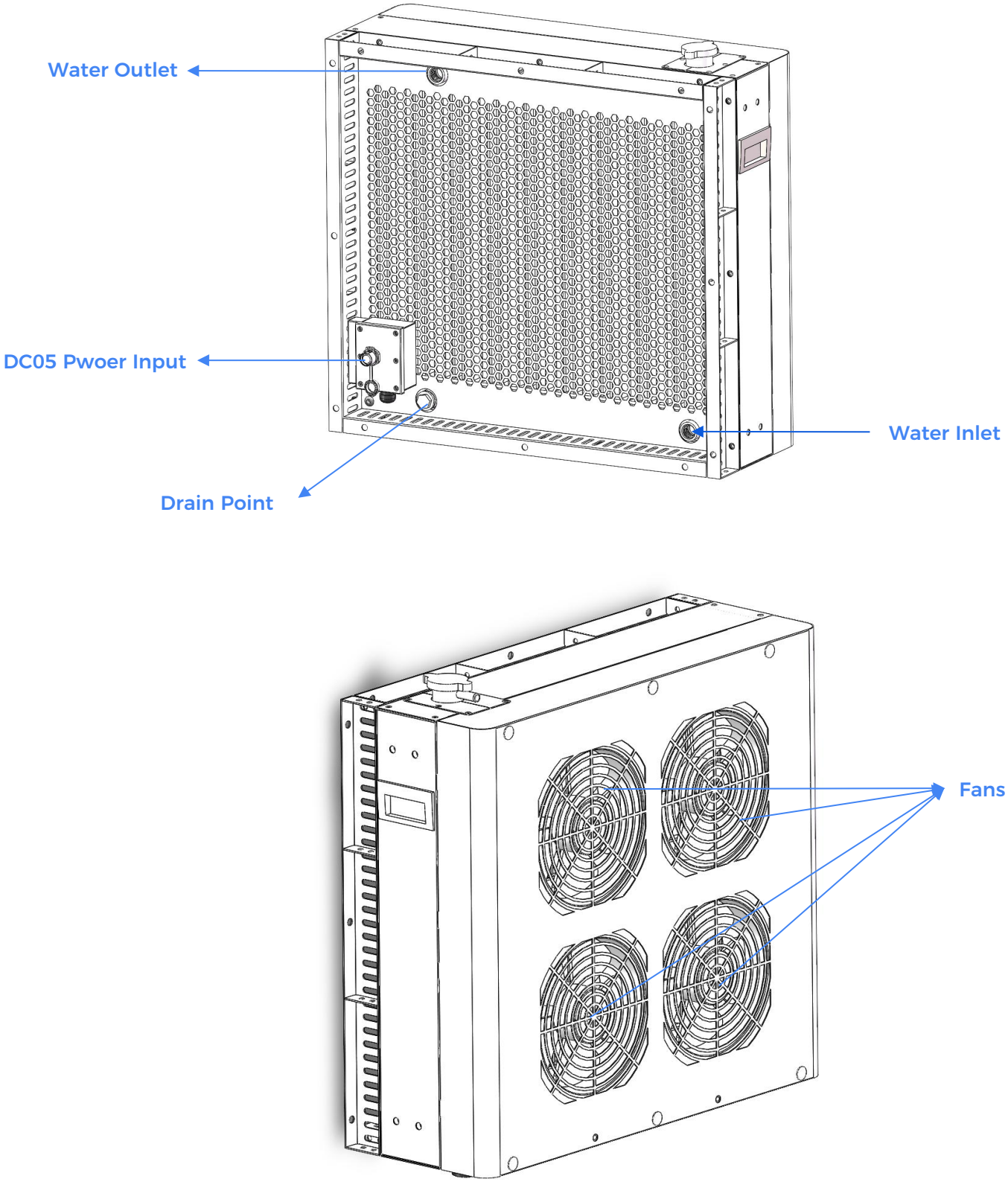


Figure 2-6 Appearance of DC05（front and rear view)

2.3 Technical Parameters

2.3.1 HS05 SPECIFICATION

Physical	
Model	HS05
Capacity	5KW
Dimensions (W x D x H)-mm	615 x 550 x 545(with DC05)
Net Weight-kg	35(with DC05)
Operating Weight-kg	52 (with DC05 & miner & fluid)
Shipping Weight-kg	50(with DC05)
Fluid	
Coolant	Distilled water +Corrosion Inhibitor + Antifreeze (as per requirements)
Flow	5L/min
Fluid volumes	3L(With Miner)
Electrical connections	
Power Supply voltage and Hertz	1Ph/N/PE 220V~240V 50/60Hz
Typ. Power of HS05	5.5 kW
Full Load Amps	28A
Operation	
Environment temperature	-25˚C~45˚C Antifreeze measures are required when the temperature is <0˚C
Environment humidity	10%RH~90%RH No condensation
Altitude	<2000m If the altitude exceeds the limit, the capacity should be reduced.
Noise	
Sound pressure level	<50dB(A)
Connection interface	
Dry cooler	P12 Pneumatic Quick-Connect Fitting
Heating	P12 Pneumatic Quick-Connect Fitting
Maximum Allowable Working Pressure	
Internal Circulation	4bar
External Circulation	10bar

2.7.2 DC05 SPECIFICATION

Physical	
Model	DC05
Cooling capacity	5kW
Dimensions (W x D x H)-mm	550 x 205x 545
Net Weight-kg	20
Operating Weight-kg	23 (with fluid)
Shipping Weight-kg	20
Fluid	
Coolant	Distilled water +Corrosion Inhibitor + Antifreeze (as per requirements)
Flow	5L/min
Fluid volumes	1L
Electrical connections	
Power Supply voltage and Hertz	200V~240V 50/60Hz
Wiring	L1/L2/L3/Ground: 1 x (4/C 14 AWG)
Typ. Power of dry cooler	170W
Typ. Power of single fan	170W
Full Load Amps. - DC05	1.30A
Operation	
Ambient temperature	-25˚C~45˚C Antifreeze measures are required when the temperature is <0˚C
Environment Humidity	10%RH-90%RH
Altitude	<2000m If the altitude exceeds the limit, the capacity should be reduced.
Noise	
Sound pressure level	47.5dB(A) @ 3m
Connection interface	
Dry cooler	p12 Pneumatic

2.7.3 PLATE HEAT EXCHANGER SPECIFICATION

PLATE HEAT EXCHANGER	
Model	HZL14R-20D
Type	Brazed Plate Heat Exchangers
Cooling capacity	5kW with 21% duty margin
Plate material	ALLOY 316L
Internal loop rated flow	0.3 m^3/h @ Water
Internal loop inlet / outlet temperature	55˚C / 70˚C
External loop rated flow	0.3 m^3/h @ Water
External loop inlet / outlet temperature	45˚C / 60˚C
Maximum Allowable Working Pressure Internal Circulation / External Circulation	4bar/10bar

3.1 Installation Preparation

3.1.1 Packing List

HS05 package Item List					
Serial number	**Name**	**Model**	**Component description**	**Quantity of single unit**	**Remark**
1	HS05 cabinet+DC05	HS05+DC05	HS05 cabinet & DC05 - RAL7035 - Size 615 mm * 550 mm * 545 mm	1	
2	HS05 main power cable	-	The power connection between power source and HS cabinet	1	
3	HS05 to DC05 power cable	-	The power connection between HS cabinet and Drycooler	1	
4	HS05 to DC05 pipeline	-	The pipeline connection between HS cabinet and Drycooler	1	

3.1 Installation Preparation

3.1.2 Site Preparation List

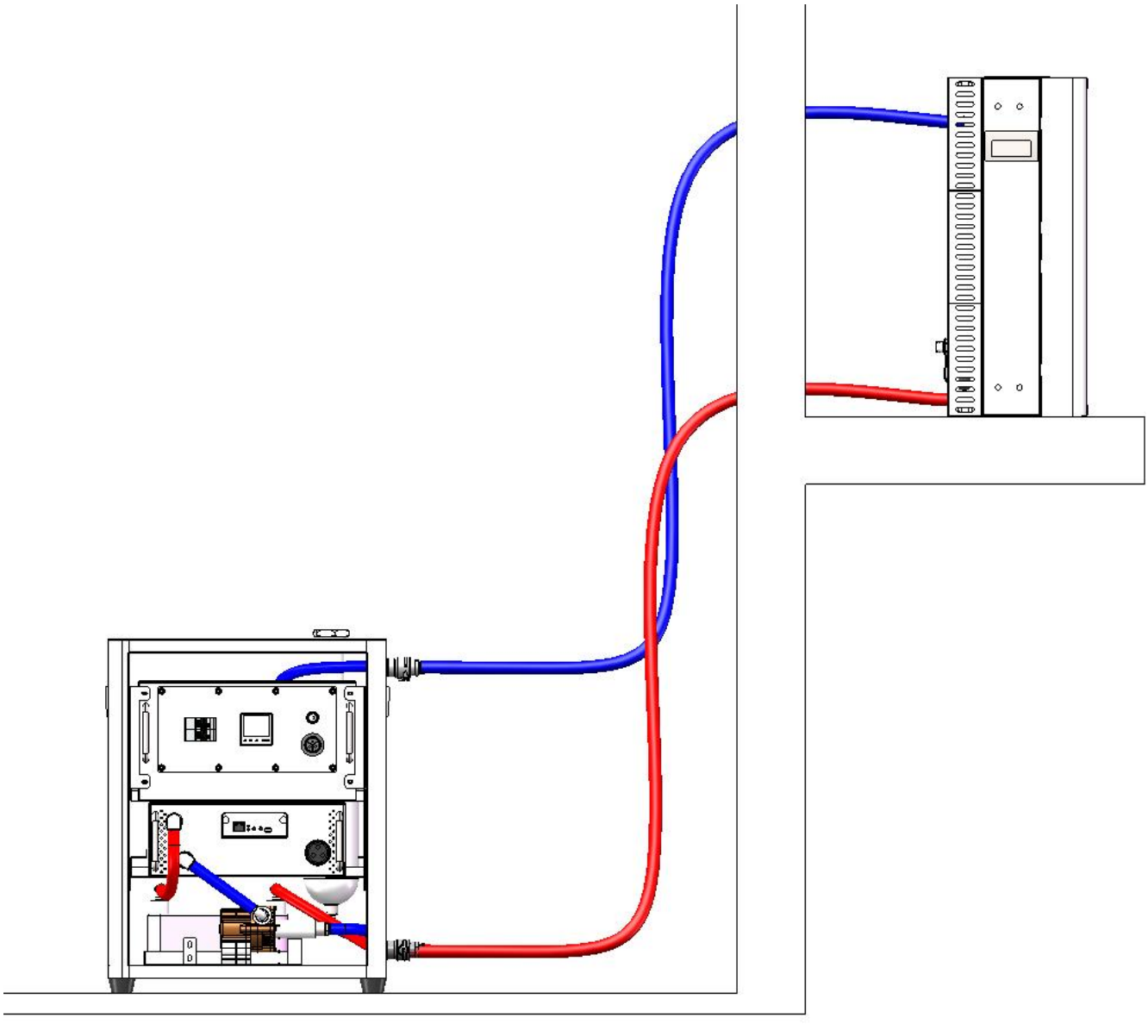
Category	Item	description
Media	Water	Use industrial distilled water or deionized water,The water consumption can be found in the date sheet of the corresponding model.
	Antifreeze	Use ethylene glycol or propylene glycol, adjust the mixing ratio according to the local minimum temperature and the equipment specifications.
	Corrosion inhibitor	Please consult Heat Core
Electrical	Cable	Need to prepare the main power cables for the container and the dry cooler. The cable length should be determined based on the site layout, and the cable type should be selected according to the equipment operating current and local regulations. The operating current can be found in the date sheet.
	Protective pipes and cable trays	The quantity and model should be selected based on the number of cables and the installation method.
	lugs and special tools	Reserve electrical interfaces according to the equipment, prepare lugs and special tools for wiring
	Insulating material	Prepare insulation tape, insulation sleeves, heat shrink tubing, and other materials according to the construction process.
	Lightning protection and grounding	Develop lightning protection measures based on site conditions and connect to the grounding point reserved for the equipment if necessary.
	Test device	Prepare the appropriate testing equipment according to the testing requirements, such as an insulation resistance tester, multimeter, and hipot tester.
Infrastructure	Equipment base	Different forms of equipment foundation can be used according to the site conditions, such as concrete foundation, steel structure foundation or other forms of foundation. The foundation should be built according to the equipment layout diagram, which can be found in the attachment. The foundation should take into account the impact of extreme climate (such as floods, snow)
Pressure holding test toolings	Hose	Internal diameter of 20 mm, and the hose material options are PE (polyethylene) or PU (polyurethane); the maximum output air pressure is more than 8bar, and 10 bar is the best.
	Air compressor	maximum output air pressure is more than 8bar
Internet	Network bandwidth	Dedicated network, bandwidth ≥50Mbps.
	Network cable (if wired network)	Connected using CAT5E or above network cables or using wireless 4G/5G network.

3.2 Installation Steps

3.2.1 Pipe installation requirements

In summer or when temperatures are high, the **DC05** can be detached from the **HS05** and placed outdoors for heat dissipation.

When installing the **DC05** outdoors, it must be securely fastened.



3.2.2 Electrical Installation

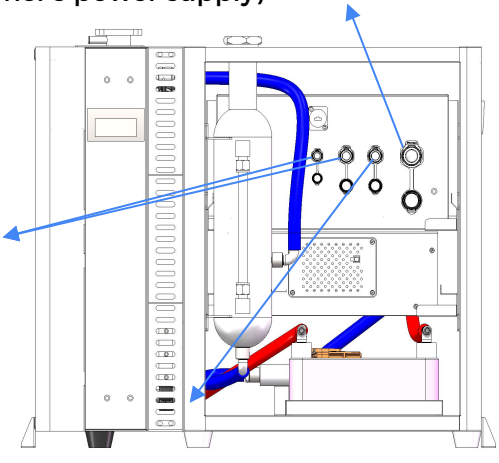
3.2.2.1 Power Wiring

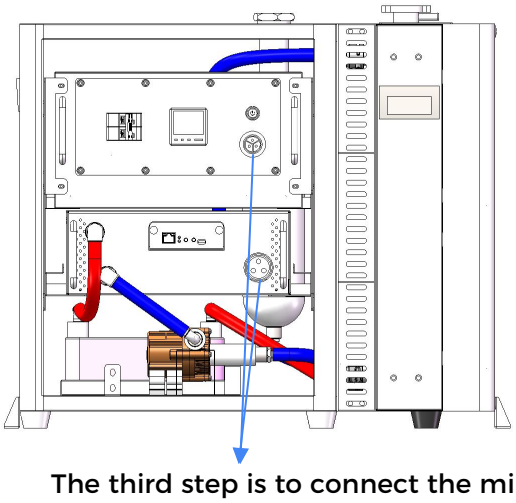
After ensuring that all outlets and piping connections are correct and secure, you can power on the equipment.

The final step is to properly connect the power cable of the mining machine.

(The power cable is pre-fabricated. Insert the plug end first, and connect the lug end to the customer's power supply)

The first step is to connect the plugs of the pump and temperature sensor to their corresponding sockets.





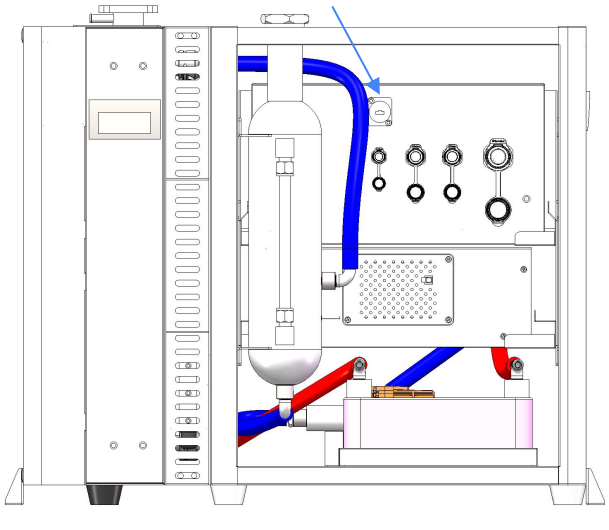
The second step is to connect the dry cooler.(The short cable for use when the fan is integrated with the HS05 unit, while the long cable is designed for the fan is detached and installed at an elevated position)

The third step is to connect the miner power with pre-fabricated cable.

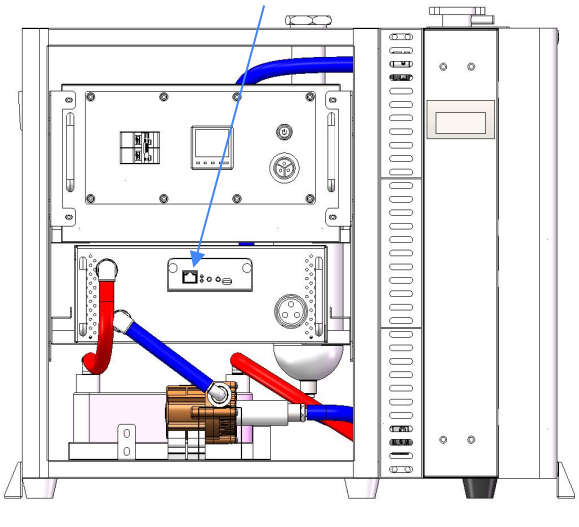
3.2.2.2 Networking

Insert the network cable directly into the network port of the miner to establish communication with the device. Insert both lower network cables and the customer's network cable into the customer switch.

Connect the network cable to the RJ45 port for remotely viewing and adjusting temperature values.



Connect the miner network cable for Configuration Parameters.



4. COMMISSIONING

4.1 Pre-Commissioning Checks

Necessity of checking before start-up.
① Safety: Inspecting equipment ensures that it does not pose a safety hazard when it is started up.
By checking the integrity and functionality of key components, you can reduce the risk of accidents and protect the safety of operators. In addition liquid-cooled systems involve the flow and circulation of water or other liquids, and a pre-start-up inspection ensures the integrity of key components such as pipework, valves, pumps, etc., to prevent leaks or other leakage problems.
② Efficiency: Ensure that the conditions necessary for equipment startup have been met, avoiding startup and then shutdown due to inadequate preparation, and ensuring the continuous and stable operation of the equipment.
③ Equipment protection: Before start-up, check whether the filters and pipelines in the liquid cooling system and other liquid-contacting parts are clean, and remove any possible dirt and impurities, so as to protect the mining machine from pollution and corrosion, and extend the service life of the mining machine.
④ Compliance: Ensure that the equipment meets the relevant safety standards and regulatory requirements.
Pre-startup inspection can refer to the following table:

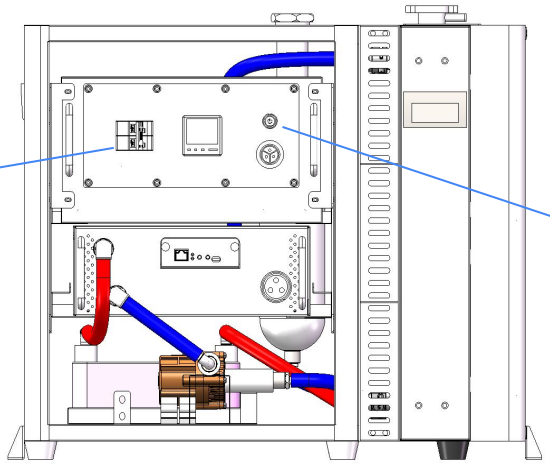
Table 4-1 Pre-Commissioning Checks

Inspection Item	Action Recommended	Status
General Inspection	Ensure that adequate and appropriate PPE (Personal Protective Equipment) is specified in the work procedures and/or standard operating procedures. Verify if PPE has been provided and if the personnel using PPE have received training on its proper use.	☐
	Have sufficient measures been taken to prevent all potential hazards associated with this equipment.	☐
	Ensure that all relevant personnel (operations, maintenance, technical, and management) have received adequate and appropriate training regarding the equipment and operating procedures.	☐
Documentation	Review all instructions, drawings, and wiring diagrams.	☐
	Have all relevant documents and drawings (e.g., P&ID diagrams, Single Line Diagrams (SLD), schematics, equipment layout drawings, I/O, logic) been updated to reflect the current installation.	☐
Condition Inspection	Inspect the installation condition is in coordinate with the ambient temperature and humidity conditions required in the specific customer order.	☐
	Pre-prepare sufficient liquid-cooling system medium, which should meet the corresponding requirements.	☐
	Debris (packages, glands) generated after the installation shall be cleaned up, and the toolings need to be sorted.	☐
	Key preparation shall be checked in advance.	☐
Equipment Checks	Ensure that all components are installed correctly according to the guidelines and that the installation of the equipment guarantees stable and reliable operation during use.	☐
	Ensure that after the at-site installation of the equipment and piping is completed, the equipment surfaces and interiors are clean, free of dust and debris, and without any deformation.	☐
	Ensure that all mechanical connections are fixed and secure.	☐
	Is the equipment provided with clear identification methods to ensure it is isolated from all energy sources.	☐

4.2 Power on

When the power supply socket is energized, the devices are powered on by manually controlling the position of the micro circuit breaker linkage. During the initial power-up, it is important to first add water before turning on the circulation pump switch.

Step 1: Switch on the main circuit breaker on the panel.



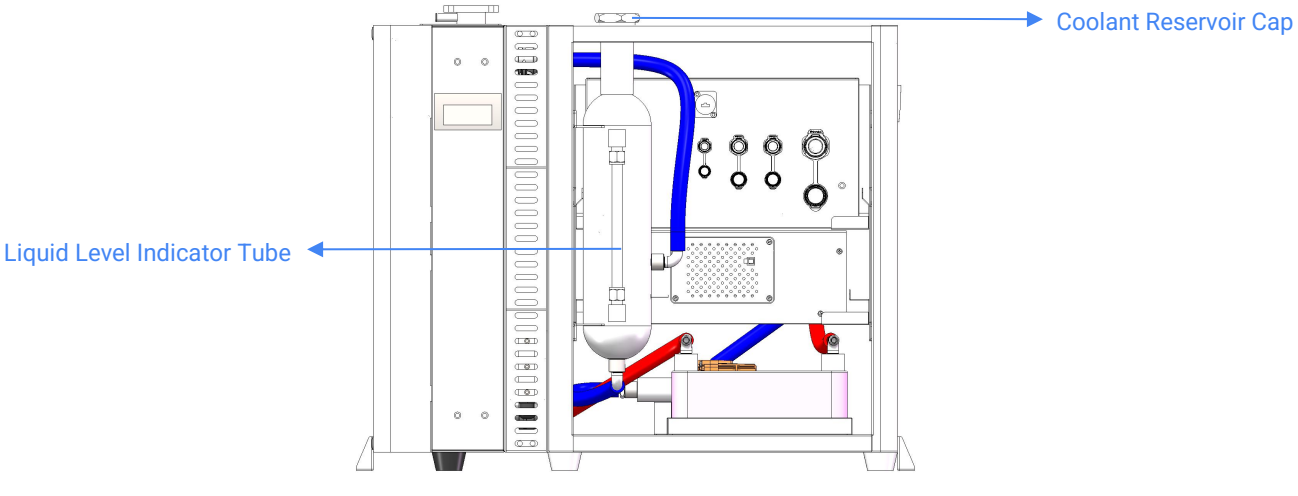
Step 2: Upon the water tank reaching full level, press the button to start the pump.

4.3 Filling Step

1. Unscrew the cap on the coolant reservoir and pour the coolant into the reservoir from the top until the liquid level reaches the maximum mark on the liquid level indicator tube.

2.Turn on the circulation pump, and the liquid level will slowly drop. If the liquid level falls below the 1/3 mark on the liquid level indicator tube, continue to add water to the reservoir.

3.Once the liquid level remains almost unchanged, tighten the coolant reservoir cap securely.



4.4 Installation of Miner

Please refer to the "**MINING CONFIGURATION MANUAL**" for the procedure of how to configure whatsminers with HS05.

4.5 Installation of Miner

Please refer to the "**MINING CONFIGURATION MANUAL**" for the procedure of how to configure whatsminers with HS05.

4.6 finish installation

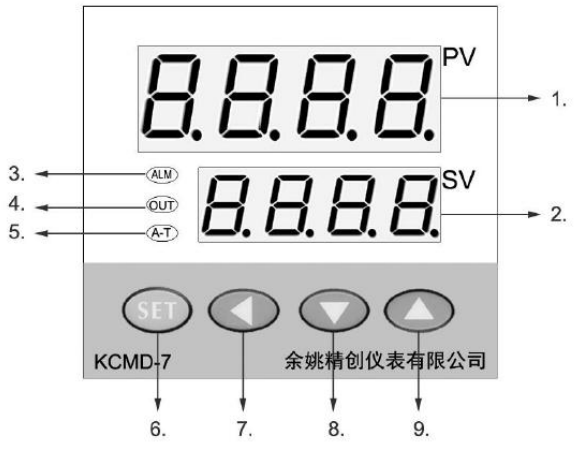
4.6.1 Startup

If quick startup required, please referring to the "QUICK STARTUP GUIDELINE" .

4.6.2 Mining Setup

Please refer to the "**MINING CONFIGURATION MANUAL**" for Mining Setup.

5. Thermostat introduction



(1) PV Display Window:

Normal operation: Displays temperature measurement value

Parameter modification mode: Shows parameter symbols

(2) SV Display Window:

Normal operation: Displays temperature setpoint value

Parameter modification mode: Shows parameter values

(3) ALM Alarm Indicator:

Illuminated when the corresponding ALM alarm relay is energized

(4) A-T Indicator:

Illuminates during instrument auto-tuning

(5) OUT Control Indicator:

Illuminated when the primary OUT control relay is energized

(6) SET Function Key:

Short press (≤1s): Enters SP setpoint adjustment mode

Long press (≥3s): Enters parameter configuration mode
(7) Shift Key:

In parameter edit mode: Selects digit position for modification

Note: KCMR-6 models are not equipped with this function

(8) Decrement Key:

During parameter/setpoint modification or manual mode: Decreases numerical values

(9) Increment Key:

During parameter/setpoint modification or manual mode: Increases numerical values

6.APPENDICES

Drawings: (wiring diagrams, equipment structure drawings, networking configuration drawings, etc)

Enter a New Era of Zero Carbon Emission Mining

Our Goal

#We are dealing global problems

HeatCore is dedicated to advancing in three key directions: ecological, low-carbon, and resource-oriented. We strive to seamlessly integrate digitization and sustainable development, serving as a global solution provider in **digital computing, photovoltaic DC miners, seawater desalination, desert management,Heat provide,Methane reduction, and ecological agriculture**. Our focus on innovative, energy-efficient technologies emphasizes the synergy between economic and social benefits. Through initiatives like zero-carbon computing and green industry development, we actively explore opportunities for cross-industry integration while prioritizing the enhancement of livelihoods.

Environmentally friendly

Socially friendly

Governance friendly

Enter a New Era of Zero Carbon Emission Mining

ABOUT US

HEATCORE INC is a leading service provider and operator in the field of integrated energy and mining systems. Our mission is to empower the Bitcoin mining industry to help mitigate climate change.

We are committed to creating a carbon-negative, zero-carbon mining model and ecosystem. We aim to reduce the costs of the ever-expanding digital economy and minimize its environmental impact by decreasing methane emissions and utilizing the heat.

Meanwhile, the globally most renowned mining machine manufacturer, MicroBT, is also one of our strategic investors.

Vision

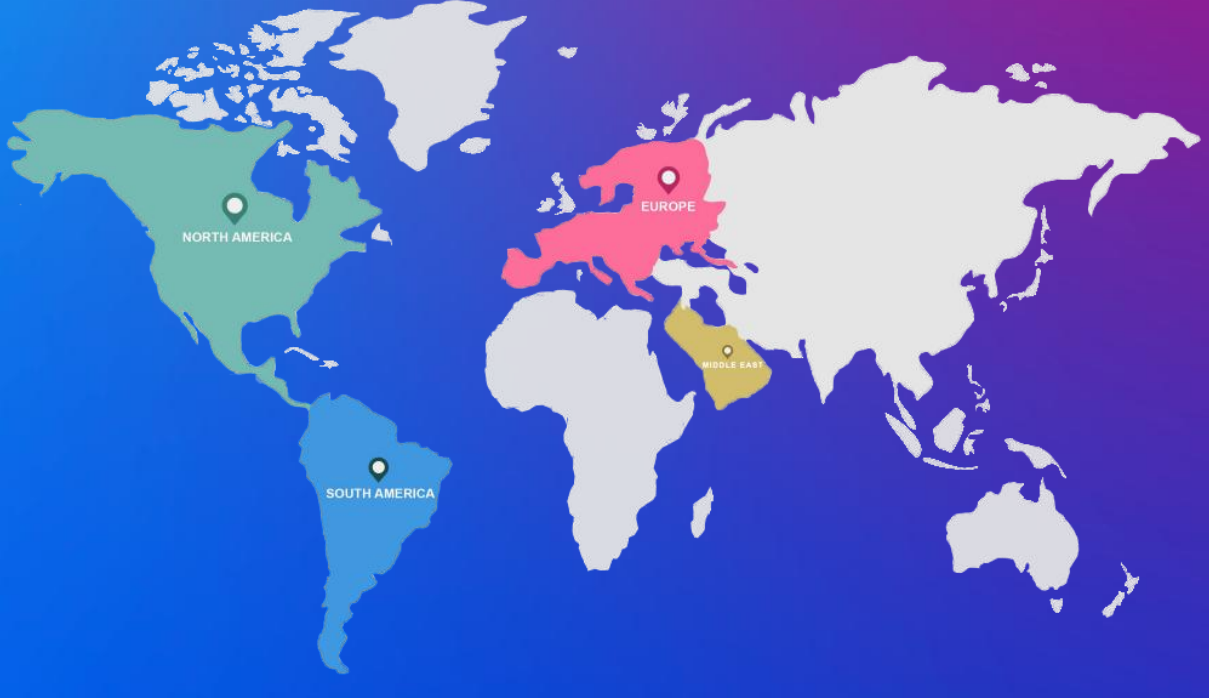
Empower people's livelihood, Create zero carbon.

Mission

Environment friendly, Social friendly, Grid friendly

Values

Focus on technological innovation, and lead the development of the industry



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