Stock Code: 002837

Coolinside Full Chain Liquid Cooling Solution

Overall cooling from inside to outside

Cold plate full chain liquid cooling solution

Immersion full chain liquid cooling solution

Strong R&D
In-house Production

Cold Plate

Electronics Cooling

Quick Coupling

Cabinet

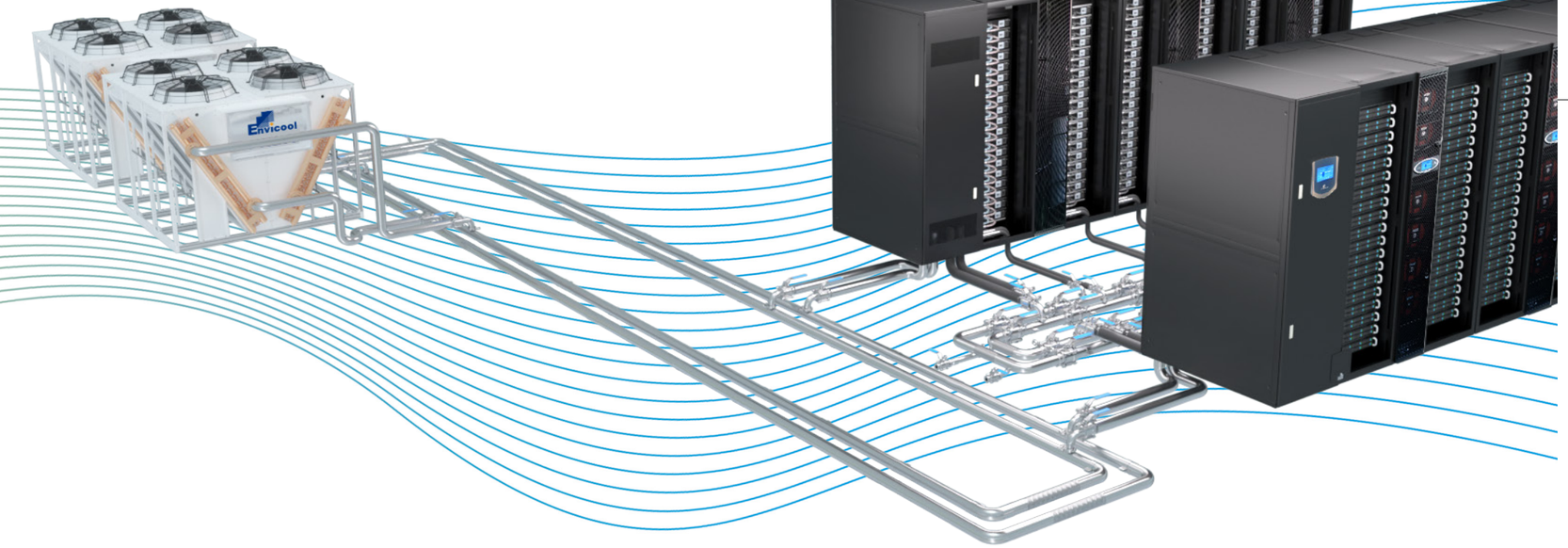
Secondary Loop

CDU

Soluking Long-term Working Medium

Cold Source

Comprehensive Detection
Intelligent Control
Quick Delivery



Coolinside
Full Chain Liquid Cooling Solution

Shenzhen Envicool Technology Co., Ltd.

intlsales@envicool.com

86-755-66833272

www.envicool.com

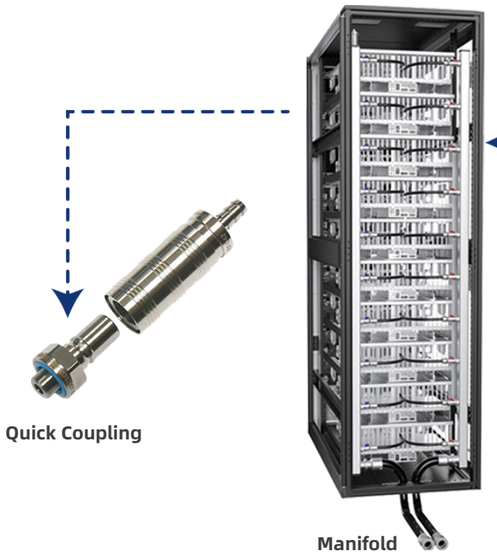
Hongxin Industrial Park, Guanlan, Longhua District, Shenzhen, China 518110

Overall Cooling from Inside to Outside

Integrated high-efficienct variable frequency pump and warm-water-cooling technology, making full use of natural cold source

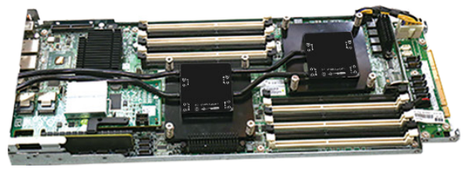
High flexible solutions configured for different application scenarios

Modularized and factory prefabricated design for immediate use on site after rapid deployment and installation



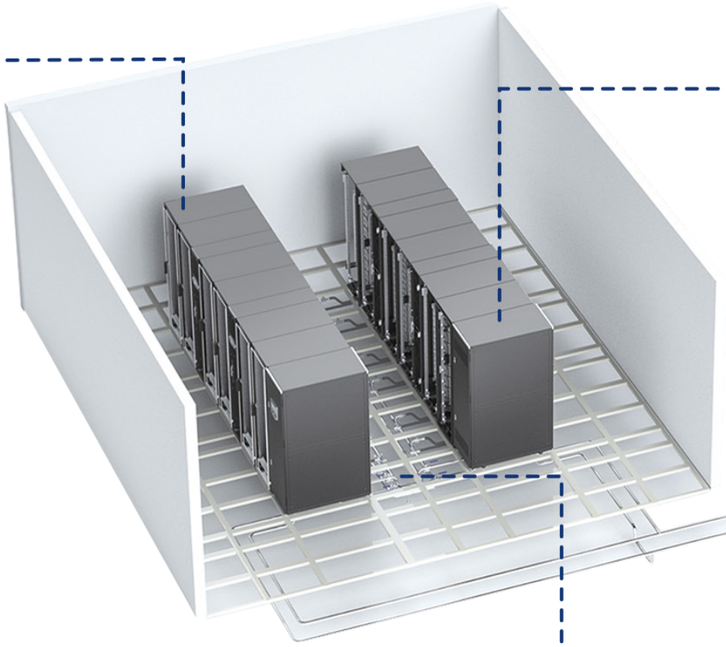
Quick Coupling

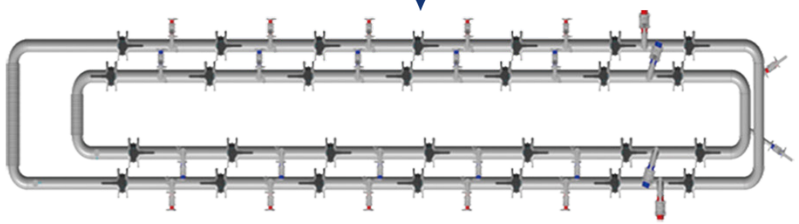
Manifold



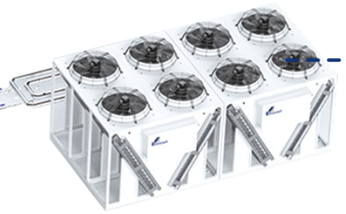
Liquid Cooling Module

Cold Plate





Secondary Loop



Dry Cooler

Cold Plate Full Chain Liquid Cooling Solution

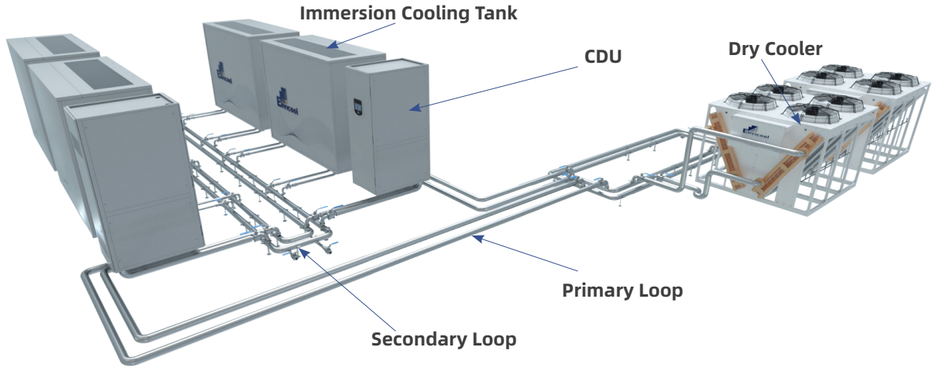
- High reliability, integrated automatic liquid rehydration device, liquid leakage detection component, anti-condensation control logic, etc. to ensure safe and stable operation of the equipment
- Support online maintenance of key components such as water pump and filter, anti-condensation
- Suitable for centralized and distributed liquid cooling systems
- Wide range of cooling capacity, automatically adjust the output cooling capacity according to the end load change

CDU

Immersion Full Chain Liquid Cooling Solution

Immersion liquid cooling technology is a new cooling technology that uses liquid instead of air as the cooling medium. Its main feature is that the liquid as the cooling medium is in direct contact with the heat source. Compared with air, liquid has better heat transfer characteristics (greater specific heat capacity and higher thermal conductivity). Therefore, compared with the traditional air cooling system, the liquid cooling system has the advantages of high heat exchange efficiency and low cooling energy consumption. According to whether the liquid phase changes during the heat exchange process, it can be divided into two forms: phase-change immersion liquid cooling and single-phase immersion liquid cooling.

Modular Liquid Cooling System



- Modular liquid cooling system: composed of CDU and cabinet
- The CDU integrates the coolant circulation pump, heat exchanger, filter, controller and sensors, realizing the intelligent control of the liquid cooling system
- The quantity of CDU, cabinet, and dry cooler can be flexibly matched to different application scenarios
- Suitable for single-phase immersion liquid cooling system applications

Product Specification

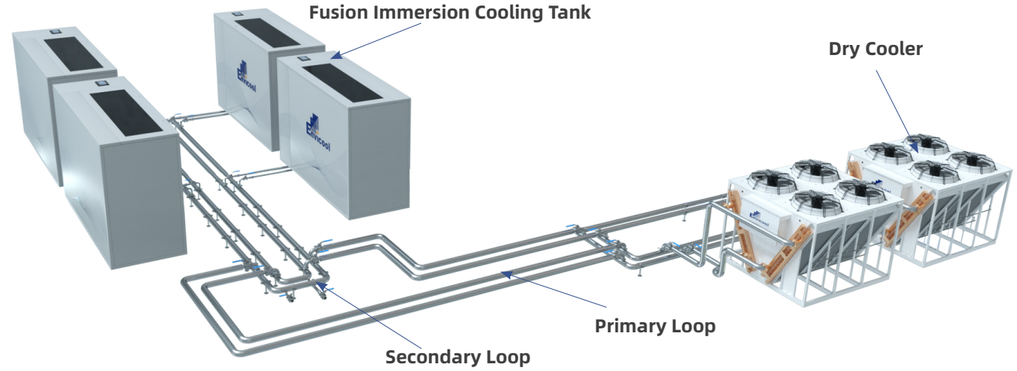
Coolinside Cabinet (Single-phase Immersion)			
Model	TK021	TK042	TK052
Cabinet Capacity (U)	21	42	52
Equipment Specifications for IT	19 inch depth ≤ 900mm	19 inch depth ≤ 900mm	19 inch depth ≤ 900mm
Power of IT Devices (kW)	10~30	20~60	25~80
Liquid Volume (L)	280~420	560~840	690~1000
External Dimensions-L*W*H (mm)	1050*800*1250	2100*800*1250	2550*800*1250
Net Weight (kg)	200	400	550

Coolinside Liquid CDU				
Model	CDU080I	CDU120I	CDU200I	CDU320I
Power of IT Devices (kW)	80	120	200	320
Number of Coolant Pumps	1	1	1	1
Circulation Volume (m^3/h)	36/32	54/49	90/81	144/130
Working Medium	Oil / fluorinated liquid	Oil / fluorinated liquid	Oil / fluorinated liquid	Oil / fluorinated liquid
Power Supply	380V 3P 50Hz	380V 3P 50Hz	380V 3P 50Hz	380V 3P 50Hz
Cold Source Demand	Chilled water	Chilled water	Chilled water	Chilled water
	Supply water temp. ≤ 35℃	Supply water temp. ≤ 35℃	Supply water temp. ≤ 35℃	Supply water temp. ≤ 35℃
	Flow ≥ 241L/min	Flow ≥ 362L/min	Flow ≥ 602L/min	Flow ≥ 965L/min
External Dimensions-L*W*H (mm)	1000*800*1500	1200*800*1500	1500*1000*1800	1600*1200*1800
Net Weight (kg)	400	500	650	850

Advantages

- Rapid deployment, reduce on-site construction and shorten deployment period
- Efficient cooling to meet the needs of high performance computing
- Green and energy saving, greatly reducing the power consumption
- Noise and vibration reduction by removing the fans in the data center room
- Safe and reliable as the characterstics of the coolant
- Simplified system design to reduce failure rate

Integrated Liquid Cooling Cabinet



- Various functions of CDU are integrated in the cabinet
- Integrated cabinet module is relatively independent, flexible deployment and convenient for later expansion
- Suitable for single-phase or phase-transition immersion liquid cooling systems
- Integrated design, highly productized, greatly reducing on-site construction and realizing rapid deployment
- Suitable for applications such as small data centers, edge nodes, and communication base stations

Product Specification

Coolinside Integrated Cabinet (Single-phase Immersion)			
Model	TK011FS	TK021FS	TK032FS
Cabinet Capacity (U)	11	21	32
Equipment Specifications for IT	19 inch depth ≤ 900mm	19 inch depth ≤ 900mm	19 inch depth ≤ 900mm
Power of IT Devices (kW)	10	20	35
Working Medium	Oil/Fluorinated liquid	Oil/Fluorinated liquid	Oil/Fluorinated liquid
Power Supply	380V 3P 50Hz	380V 3P 50Hz	380V 3P 50Hz
Cold Source Demand	Chilled water	Chilled water	Chilled water
	Supply water temp. ≤ 35℃	Supply water temp. ≤ 35℃	Supply water temp. ≤ 35℃
	Flow ≥ 241L/min	Flow ≥ 362L/min	Flow ≥ 602L/min
External Dimensions-L*W*H (mm)	1000*800*1300	1550*800*1300	2100*800*1300
Net Weight (kg)	220	300	400

Coolinside Integrated Cabinet (Phase-transition Immersion)			
Model	TK021FD	TK032FD	TK042FD
Cabinet Capacity (U)	21	32	42
Equipment Specifications for IT	19 inch depth ≤ 900mm	19 inch depth ≤ 900mm	19 inch depth ≤ 900mm
Power of IT Devices (kW)	50	80	100
Working Medium	fluorinated liquid	fluorinated liquid	fluorinated liquid
Power Supply	380V 3P 50Hz	380V 3P 50Hz	380V 3P 50Hz
Cold Source Demand	Supply water temp. ≤ 35℃	Supply water temp. ≤ 35℃	Supply water temp. ≤ 35℃
	Flow ≥ 72L/min	Flow ≥ 144L/min	Flow ≥ 179L/min
External Dimensions-L*W*H (mm)	1100*880*1550	1650*880*1550	2250*880*1550
Net Weight (kg)	320	450	600

Independent R&D · Independent Production

Dust-free workshop
Strict production process

MES system, efficient management of production quality and delivery cycle

Independent design, production and assembly

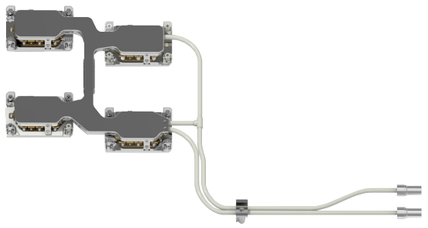
Cold plate

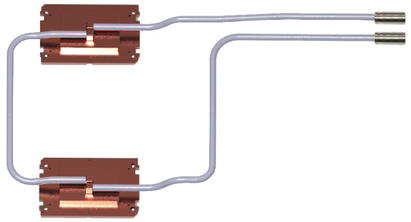
Server Module

Thermal conductive silicone grease is filled between the cold plate and the chip to introduce heat into the cold plate, and then heat is taken away by the flowing liquid to achieve the purpose of cooling the chip. In the data center application, the energy consumption can be greatly reduced.

Applications

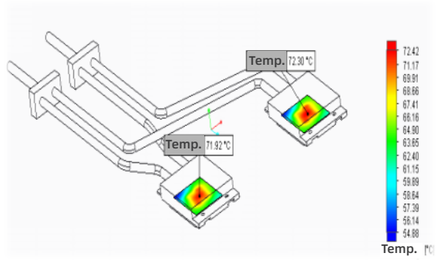
CPU, GPU, memory-chip and others





Features

- Flow channel is designed inside the cold plate to dissipate heat to the CPU and other chips through liquid flow circulation
- Optional customized shape and size
- High reliability, with characteristic of tight sealing, corrosion resistance and leak proof design
- High heat dissipation power, good temperature uniformity, low thermal resistance and low flow resistance
- CFD technology: optimize the design of cold plate flow channel by accurately locating the hot spots of CPU and GPU



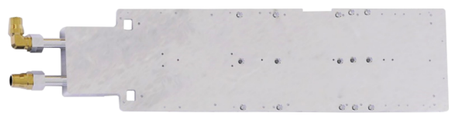
Power Electronic Cold Plate

The heat dissipation problem can be solved by designing corresponding flow channels according to different product types, well solving the problem of high heat dissipation of traditional power electronics.

Advantages: smaller, quieter, better heat dissipation performance, cleaner and less dependence on the environment when comparing with air cooling.

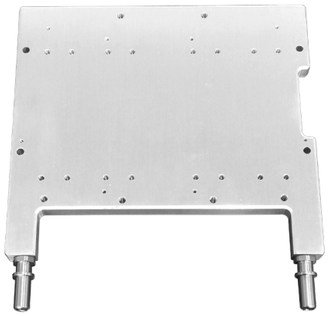
Applications

Charging pile, blockchain, power module, medical treatment, laser, radar, etc.



Features

- Flow channel is designed inside the cold plate to dissipate heat through liquid flow circulation
- It can be formed by welding, CNC, milling and other processes
- High reliability, with characteristic of tight sealing, corrosion resistance and leak proof design
- High heat dissipation power, good temperature uniformity, low thermal resistance and low flow resistance



The material of the cold plate satisfies different applications and operating environments

Copper: excellent heat dissipation

Aluminum: excellent weight reduction

Stainless steel: strong corrosion resistance

Electronics Cooling

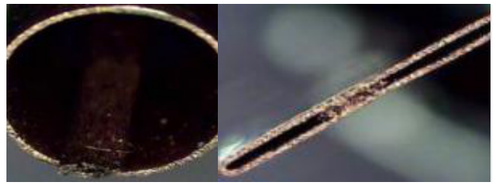
Heat Pipe

Heat pipe is a special material with fast temperature equalizing. The hollow metal tube makes it light and has excellent thermal superconductivity; the application range is quite wide. Heat pipes are widely applied with its first application in the aerospace field, and are widely used in various heat exchangers, coolers and other equipment now.

Sintered H/P

Composite H/P

Groove H/P



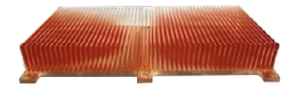
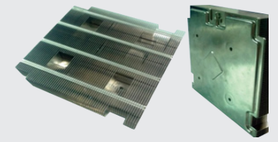
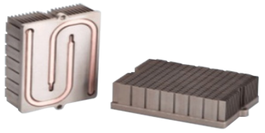
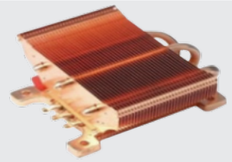
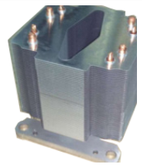
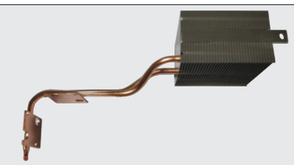
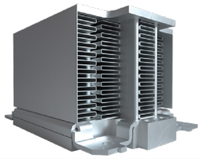
Artery UT H/P

Vapor Chamber

Vapor chamber is a high-speed heat conduction device with a capillary structure on the inner wall. When the heat is conducted from the heat source to the evaporation area, the working medium in the cavity begins to vaporize and absorb heat. The gas-phase working medium condenses and releases heat in the lower temperature area inside the heat pipe, and the condensed liquid-phase working medium returns to the heat source under the action of capillary force or gravity to realize the rapid diffusion and transfer of heat.

Thermal Module

The heat dissipation module is composed of copper, aluminum and other different materials and different heat dissipation components. The heat sink can be customized according to the user's working conditions to meet the heat dissipation requirements in different environment.

Name	Features	Photo
Pure copper shovel tooth	High temp. adaption and high reliability	
Vapor chamber	Maximum size: 350(L)mm*300(W)mm	
Aluminum + heat pipe	Lower cost, higher performance (80W, thermal resistance lower to 0.25 ℃/W)	
Copper fin + heat pipe	Copper fin + heat pipe (130W, thermal resistance lower to 0.15 ℃/W)	
Aluminum fin + heat pipe without welding	Large space, high performance, low cost (200W, thermal resistance lower to 0.10℃/W)	
Heat pipe	Low power and multi heat source environment	
TS	Phase transition heat exchange, thermosyphon heat dissipation	

Quick Coupling

The quick coupling is the connector between every devices in the liquid cooling circulation system. It can realize the quick connection and disconnection between the devices without leakage, improve the efficiency, and reduce workload for liquid discharge and injection.

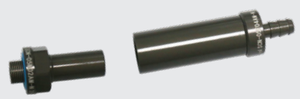
Applications

Free connection and disconnection under pressure

Features

- Manual/self-fastening
- Blind Connection
- No leakage
- Highly reliable sealing test passed
- Multiple sizes
- Optional material in stainless steel, aluminum and copper available
- Customized interface modes available

Selected Product

Model	Working Principle	Photo
Self-fastening Series	Stell ball fastening mode, disconnect the joint through sliding sleeve	
Blind Connection Series	No fasting structure, locked by external structure	

Sealing Ring

Model	Code	Working Temp. (℃)	Working Medium
MFVQ	MFVQ	-55~175	EG, aviation fuel, N_2 , antifreeze, silicone oil
EPDM	EPDM	-45~150	Brake fluid, hot water, EG, silicone oil, freon
FKM	FKM	-20~200	Aviation fuel, strong acid, strong alkali
NBR	NBR	-30~100	EG, gasoline, grease, silicone oil

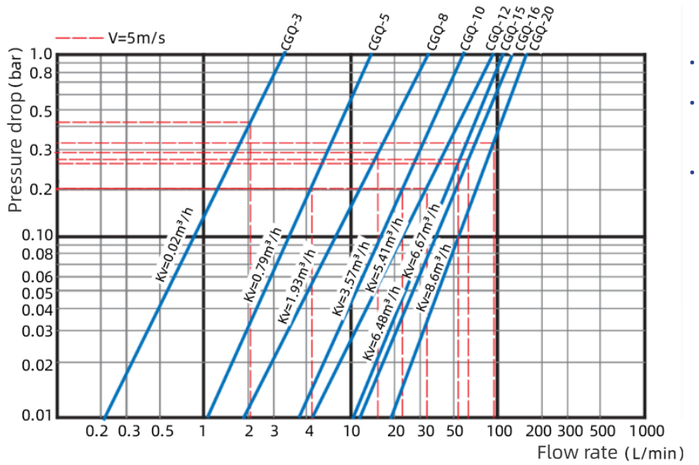
Standard Code

Series Code	Type	Load Type	Media Type	Connector Name	Brief Description
CGQ	Coolinside quick coupling	Light load	EG (Glycol) Glycol aqueous solution	Normal connector	Rear pull sliding sleeve, steel ball fastening
CGQ				Quick connector	Direct and steel ball fastening
CGB				Blind connector	Direct and fastening by external force
CRN		Light load	Refrigerant	Normal connector	Pressure balance, rear pull sliding sleeve, steel ball fastening
CRQ				Quick connector	Pressure balance, direct and steel ball fastening
CRB				Blind connector	Pressure balance, direct and fastening by external force
CPT		Light load	Medical	Quick connector with two-sided seal	Plastic, direct, press-button, double-sided seal
CPS				Quick connector with one-sided seal	Plastic, direct, press-button, one-sided seal
CHH		Heavy load	Oil pressure	Hang up quick connector	Direct, reinforced, hang up fastening
CHT				Thread quick connector	Direct, reinforced, thread fastening

Nomenclature

Diameter	3, 4, 5, 6, 8, 10, 12, 15, 20	Red as non-standard specification		
Connector Type	M (Male)	F (Female)		
Base Material	Aluminium alloy A	Stainless steel S	Plastic P	
Material of Sealing Ring	EPDM	MFVQ	FKM/FPM	NBR
Locking Form	Steel ball fastening B	No fastening N (Null)		
	Steel ball fastening			
Interface Code	Internal thread:01 External thread:02 Flange:03 Pagoda:04 Other customization:06	Detailed specification of the interface at the end of the naming, e.g., M10 * 0.75, G1/4, etc. or 6 (the inner diameter of the pagoda pipe: 6mm PTFE pipe)		
Color Identification	R-red, G-green, Y-yellow, B-blue, C-colorless			

Hydraulic Flow/Pressure Drop Curve



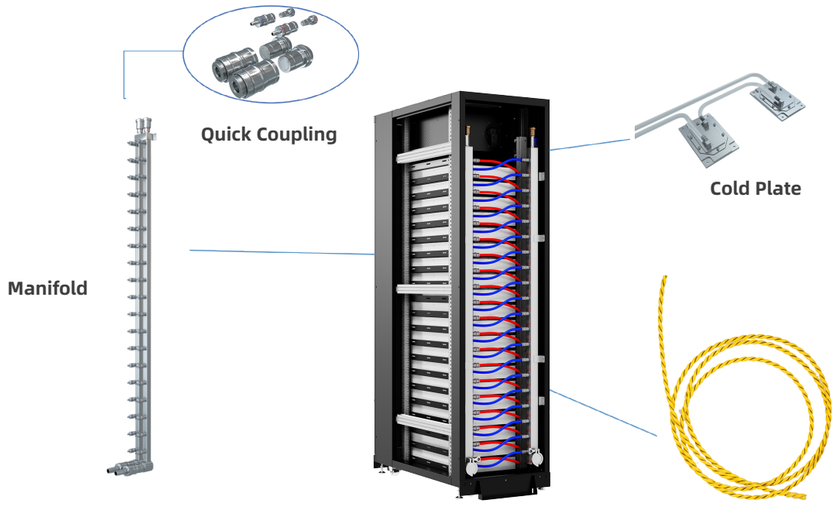
Test Conditions

- Medium temp.: 20℃
- Liquid medium: purified water (density: 998kg/m³, viscosity 1.08cSt)
- Flow direction: plug to socket

Cabinet

Cabinet

The liquid cooling cabinet is mainly composed of cabinet, manifold pipeline, power distribution system, exchange board and internal equipment; as the carrier of liquid cooling equipment, each equipment is connected with a special liquid cooling hose to ensure the heat dissipation effect.



Technical Specification

No.	Cabinet Dimension			Available Installation Space 1U = 44.45 (mm)
	Width (W)	Depth (D)	Height (H)	
1	600mm	1200mm	2000mm	42U
2	600mm	1200mm	2200mm	47U
3	600mm	1200mm	2500mm	54U

Features

Upwards pipe, downwards pipe, dual power supply, water leakage alarm, water tray

Manifold

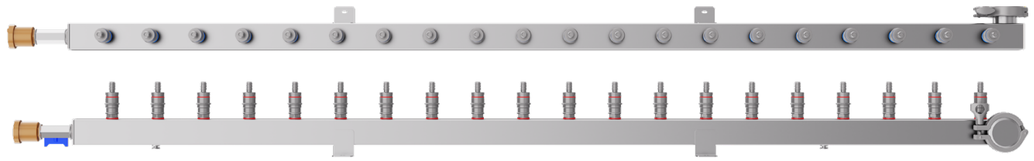
Manifold is mainly used to connect the main circuit between the liquid cooling source CDU and the cold plate. It has the characteristics of strong corrosion resistance, high strength and easy processing. It is widely used in military and civil field. According to the needs of use, there are single pipe and double row pipes. The single pipe is mainly used for quick-plug connection, whereas the double row pipe is used for blind plug connection, and it is welded. The position accuracy of the two pipes is ±0.15mm, which belongs to ultra-precision manufacturing.

Features

- Strict control process, MES control system
- Dust-free workshop, high cleanliness
- High reliability, double pressure test of gas and liquid
- Uniform flow distribution
- Optional self fastening type and blind connection type

Technical Specification

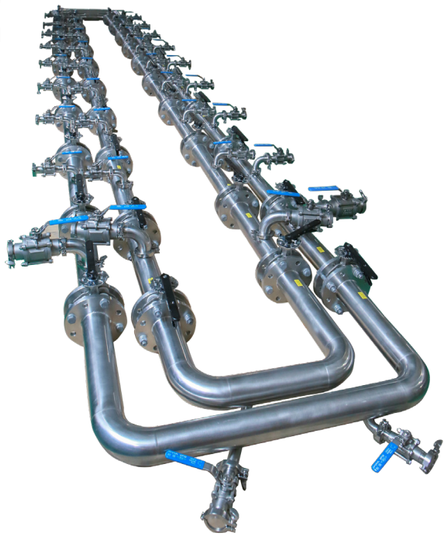
Model	Specifications	Material	Connection Mode	Working Temp.	Working Medium
MDU030S	30X30 (mm)	SUS304 SUS316L	Quick connect	-180℃ -400℃	Ethylene glycol, propylene glycol, deionized water
	40X40 (mm)				
	50X50 (mm)				
MDU030D	30X30 (mm)	SUS304 SUS316L	Blind connect	-180℃ -400℃	Ethylene glycol, propylene glycol, deionized water
	40X40 (mm)				
	50X50 (mm)				



Manifold

Secondary Loop

The secondary loop is made of stainless steel, belongs to modular prefabricated loop, easy to use and can be assembled quickly. Connect the secondary loop of the waterway system, and control the flow of the branch pipe through the valve.



Features

- Modular production, connected with quick chuck, quick assembly
- No cutting and welding needed on-site
- High reliability
- Uniform flow distribution
- Easy maintenance

Valve

SS304 Ball Valve

Butterfly Valve

CDU

Cabinet Type CDU

The CDU is mainly composed of cabinet, water pump, plate exchanger, valve, expansion tank and pipeline, etc. The heat is exchanged through the plate, the cooled liquid is sent to the heat source to absorb heat, and the liquid with the heat enters the plate for heat exchange cyclically.

Features

- Dual power backup
- Optional high efficient single pump or dual pumps
- Anti-condensation control
- 50μm ultra dense filter available
- Automatic fluid rehydration
- Online maintenance
- Single unit with cooling capacity at 100kW, 300kW, 900kw, etc.
- Corrosion-resistant stainless steel pipeline
- Intelligent monitoring system
- Online water quality monitoring
- 10% ~ 100% adjustable flow
- Over-pressure protection
- Low energy consumption
- Liquid leakage detection

Coolinside Technical Specification

Model	CDU050	CDU100	CDU120	CDU300	CDU600	CDU900
Heat Exchange Capacity	50kW (Dual pumps)	100kW (Single pump)	120kW (Single pump)	300kW (Single pump)	300kW (Single pump)	900kW (Single pump)
Primary Loop Inlet and Outlet Temp.	15/21℃	35/45℃	31/36℃	35/45℃	35/40℃	35/45℃
Secondary Loop Inlet and Outlet Temp.	40/50℃	40/50℃	35/40℃	40/50℃	40/45℃	40/50℃
Primary Loop Connecting Spec.	1.25"quick chuck	2"quick chuck	2"quick chuck	2.5"quick chuck	4"flanged	4.5"flanged
Secondary Loop Connecting Spec.	1.25"quick chuck	2"quick chuck	2"quick chuck	2.5"quick chuck	4"flanged	4.5"flanged
Power Supply	380V 3Ph 50Hz	380V 3Ph 50Hz	380V 3Ph 50Hz	380V 3Ph 50Hz	380V 3Ph 50Hz	380V 3Ph 50Hz
Communication	Modbus/SNMP	Modbus/SNMP	Modbus/SNMP	Modbus/SNMP	Modbus/SNMP	Modbus/SNMP
Dimension W*D*H (mm)	600*1200*2000	600*1200*2000	600*1200*2000	600*1200*2000	1200*1200*2000	1200*1200*2000

Note: The above parameters all use pure water as the working medium. Please check with us for different refrigeration capacities and different liquid cooling working medium requirements.

Coolinside Full Chain Liquid Cooling Solution

Embedded CDU

Applications

- Suitable for all-in-one cabinet, save space
- Support high power density
- Maximum cooling capacity: 80kW

Features

- Height: 4U
- The pipeline adopts 304 stainless steel with strong corrosion resistance and long life cycle
- The centrifugal pump automatically adjusts the flow according to the number of equipment that generates heat
- Redundant pumps to improve product life cycle
- Intelligent monitoring system (Modbus, SNMP)
- Single CDU can support 80kW cooling capacity
- Dual power supply, higher reliability by stable operation without power connection
- Liquid leakage detection
- Automatic fluid rehydration
- Anti-condensation
- Optional secondary loop 50μm filter
- 7 inch LCD display

Coolinside Technical Specification

Model			CDU015R	CDU030R
Heat Exchange Capacity		kW	15	30
Primary Loop	Working Medium	/	Softened water	30% glycol aqueous solution (freezing point - 15℃)
	Inlet and Outlet Temp.	℃	15/20	15/22
	Connecting Specification	mm	1"quick chuck	1.25"quick chuck
Secondary Loop	Working Medium	/	Deionized water	25% propylene glycol aqueous solution
	Inlet and Outlet Temp.	℃	40/45℃ , support inlet & outlet water temp. of 5℃ or above	30/35° C, support inlet & outlet water temp. of 30-50℃
	Quantity of Pump	Set	2 (one main & the other standby)	2 (one main & the other standby)
	Interface Specification	mm	1"quick chuck	1.25"quick chuck
Dimension W*D*H		mm	450*850*175	450*850*175

Air Cooled CDU

It is high heat density liquid cooling solution specially developed for the data center industry in view of the characteristics that the server CPU/GPU heat is sensitive to the ambient temperature. When the unit is running, the cooling liquid is sent to each end cold plate, taking away the heat.

Features

- Overall dimension: 4U
- Complete functions with upstream communication, display operation and alarm, etc.
- High reliability
- Easy installation without complicated debugging

Working Principle

- Composed of water pump, heat exchanger, fan, filter, expansion tank and control module
- The power is provided by the built-in circulating pump to take away the heat and then dissipate the heat to the environment through the fan

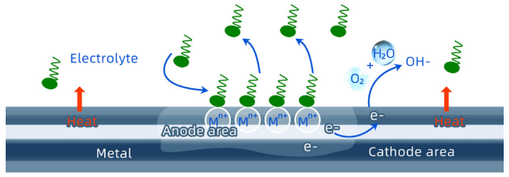
Coolinside Technical Specification

Model			CDU010A	CDU020A
Parameter	Heat Exchange Capacity	kW	8	16
	Working Medium	/	25% propylene glycol aqueous solution	25% propylene glycol aqueous solution
	Inlet and Outlet Temp.	℃	50/40	50/40
	Flow	L/min	12	24
	Dimension W*D*H	mm	445*850*175	445*850*350

SoluKing Long-Term Liquid Cooling Working Medium

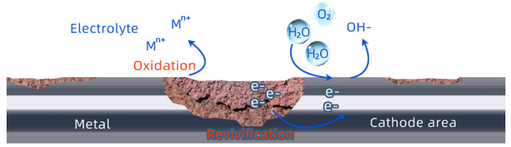
Composition

Deionized water, additives (pH buffer, ionic corrosion inhibitor, scale inhibitor), antifreeze (optional propylene glycol, ethylene glycol), fungicide, etc.



Compatibility analysis of liquid contact materials

Compatibility: metal & non-metal & liquid cooling medium
Commonly used: copper cold plate, aluminum cold plate



Tybe of Additive	Function
Corrosion Inhibitor	Prevent metal from corrosion
Buffer	Adjust pH
Scale Inhibitor-Dispersant	Prevent scale deposition
Others	Prevent accidental ingestion by bitter taste or adding stain for convenient leak detection purpose

Technical Specification

Item	Soluking Long-term Liquid Cooling Working Medium
Color	Colorless or with color (optional)
Taste	Tasteless
pH	7.5-9.0
Proportion	1.000-1.050
Conductivity	>5000 μs/cm
Fe	<10 ppm
Cu	<10 ppm
Al	<10 ppm
CFU	<100 CFU/mL
Turbidity	<5 NTU

Cold Source

Dry Cooler

Through liquid inside the pipe and natural air outside the pipe to cool the liquid inside the pipe. The connector has unit or combined mode, and it is convenient for disassembly and maintenance with independent fan. The material is high-strength galvanized plate with anti-corrosion coating, which is more suitable for outdoor installation environment with anti-corrosion coating copper pipes and fins.

Features

- Composed with stainless steel connectors and marine grade corrosion-resistant aluminum
- Frequency conversion control, high efficient and energy saving
- Owl fan, low noise
- iFreecooling can be integrated with evaporative cooling
- Low maintenance requirements, suitable for various climatic conditions
- Single/dual refrigeration circuit

- High performance V type condenser/dry cooler
- Achieve medium or high capacity in process of cooling and air adjustment
- Reduce fan losses while obtaining heat exchange
- Reduce the pressure drop of the medium in the coil

Cooling Tower

- Optional multiple types and cooling capacity
- Multiple fluid cooling applications
- Easy installation and maintenance
- High efficiency, energy saving, reliable operation
- Optimized solutions for different demand available

Comprehensive Detection and Intelligent Control

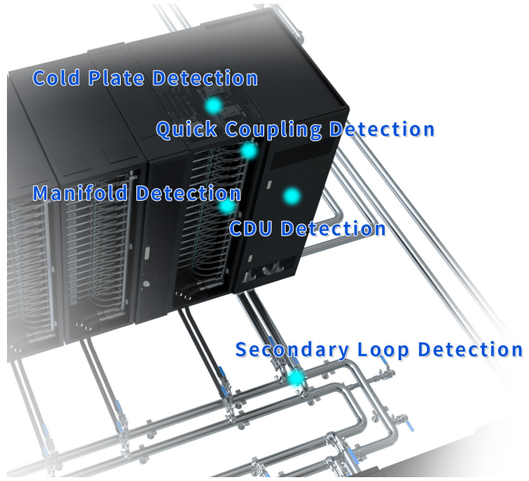
Efficient operation
Intelligent linkage control

Visual monitoring
Safe and secure

Energy saving and emission reduction

Full chain liquid leakage detection

Cabinet (server and manifold) leakage detection, CDU leakage detection, primary loop and secondary loop side pipeline leakage detection



Online water quality monitoring

Detection of pH, conductivity and turbidity

Anti-condensation control

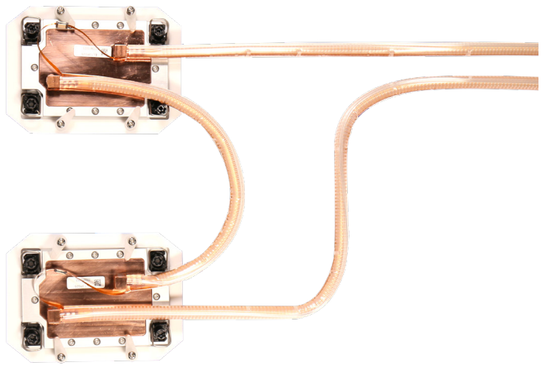
CDU anti-condensation function

Liquid leakage detection in the server

Zero risk of liquid leakage remote alarm

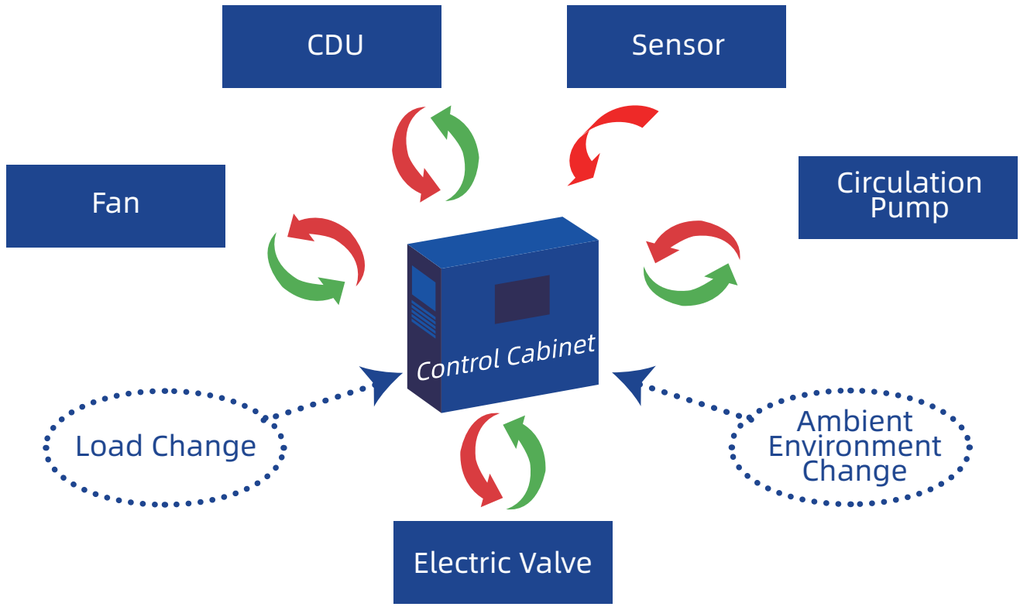
Attached closer to pipeline

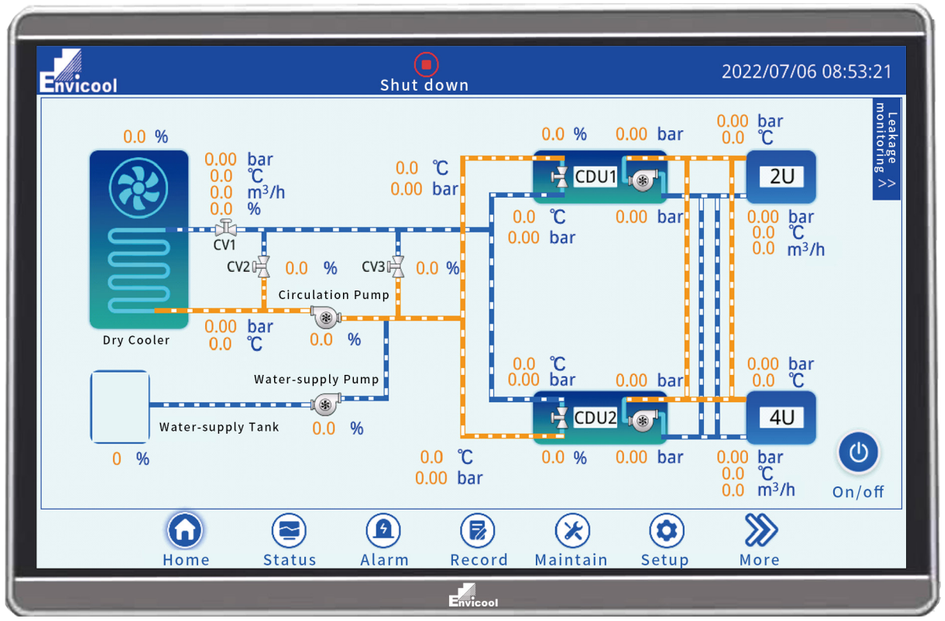
Compact impedance detection



Intelligent linkage control of liquid cooling system

Matching the required cooling capacity regulation system, the primary loop water pump and outdoor cooling equipment are optimized for overpressure protection, automatic fluid replenishment and online maintenance.

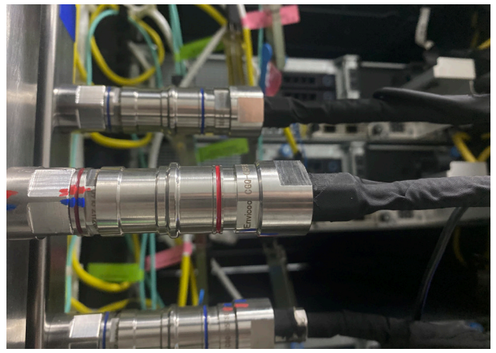


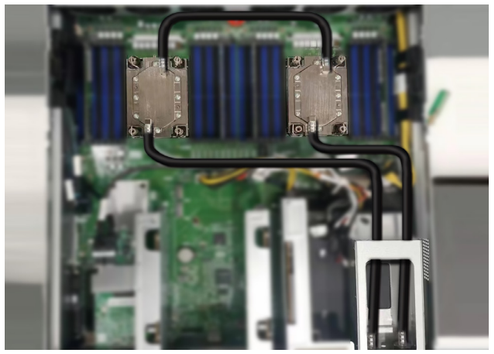


Independent Delivery and Service

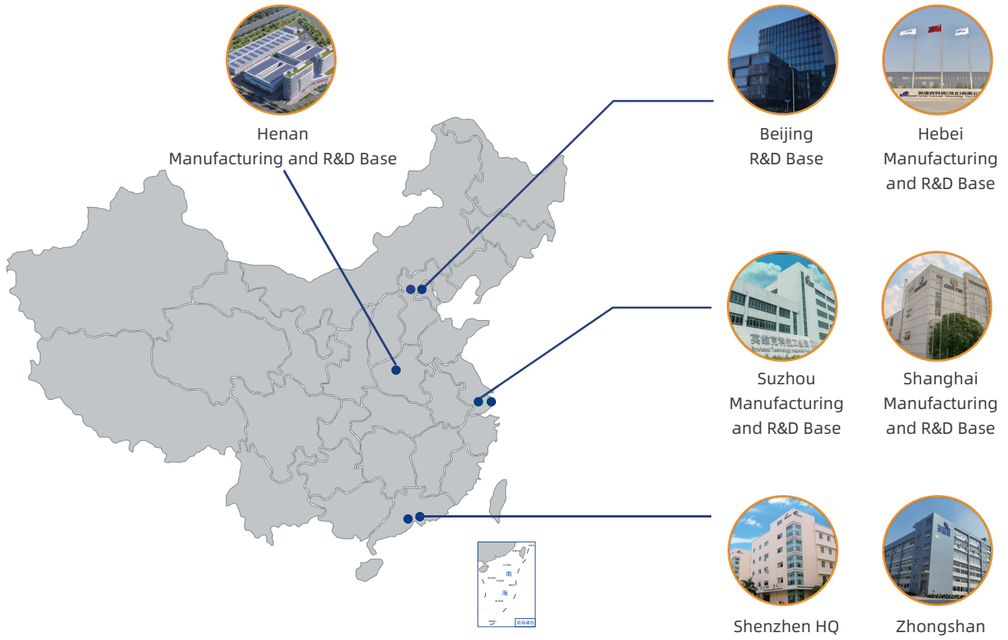
- Independent delivery
- Support software & hardware upgrade
- One-stop customized service
- National after-sales service network
- Quick response
- Professional services

Applications





Manufacturing Bases and R&D Centers



- 31 customer service centers and spare part centers in China
- Overseas service available in multiple countries

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