

**ACT Advanced Cooling Technology**  
One-stop liquid cooling solution provider



# Thermal Management Solutions Expert

Advanced Cooling Technology SDN.BHD

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# ► Company Profile

Advanced Cooling Technology SDN BHD specializes in thermal management solutions, providing the whole process from R&D and design, processing and manufacturing, and end-to-end delivery. Our products includeliquid cooling cold plates, quick disconnects, piping components and cooling systems. Our company has astrong R&D and design capability with several R&D and design teams led by PhD professors, and joint thermalcontrol forward-looking technology development with several universities in the country and abroad.

ACT is committed to continuous technological innovation and creating value for our customers. Guided bymarket demand, we respond quickly to customer needs and provide highly competitive and customizedproducts and solutions. Our customers are in ICT, semiconductor, analytical instrumentation and medicalequipment, ral transportation, new energy, industrial automation and other industries; We have rich experien-  
cein product design and simulation, manufacturing, quality control, delivery and on-site management.



# ► Coolant Distribution Unit(CDU)

The ECU/ACECU/RCU/ARCU coolant distribution unit is a device mainly used to achieve physical isolation and heat exchange of primary and secondary cooling media. It integrates secondary side drive modules, stabilizing and replenishing liquid modules, degassing modules, filtering modules, and real-time monitoring functions for temperature, flow, and pressure. It has the characteristics of high redundancy and reliability of key components, fast installation of interface support, and real-time intelligent control of key parameters, and is suitable for application scenarios in multi cabinet computer rooms.

## Product Features

- High Reliability
- High-Performance
- Convenient Deployment and Flexible Operation and Maintenance
- Green Energy-Saving



	ECU Series			ACEU Series		RCU Series				ARCU (AALC) Series	
Model	EC32-35	EC40-100	EC50-120	AE25-06	AE25-15	RC50-350	RC80-600	RC100-900	RC125-1800	AR40-70	AR50-150
Power System	AC220V	DC48V		AC220V 50Hz/60Hz, Dual Power Supply		AC380V 50Hz/60Hz, Dual Power					
Cooling Capacity (kW)	35	100	120	6	15	350	600	900	1800	70	150
Rated flow rate (m³/h)	3	6	7.2	0.9	1.5	30	43.2	80	144	6	8.3
ATD (°C)	3	5	4	15	15	3	4	3	4	10	10
Rated Power	440W	830W	1.5kW	1.25W	4kW	6kW	13.6kW	16kW	32kW	8kW	11kW
Dimension (W * D * H mm)	448×850×177	448×1030×177	448×900×266	448×950×177	448×856×444	600×1200×2200	1200×1200×2102	950×1500×2200	1200×2000×2000	600×1200×2200	1200×1200×2200
Coolant	Formula Coolant Or if pure water coolant, please notice us in advance for the purification module configuration										

# ► Liquid Cooling Rack



## Product Features

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- Cabinet compatible with 19" and 21" servers
- Rack Manifold adaptable for 1U/2U/4U servers, embedded 4~6U CDU, or centralized CDU
- RDHx with a built-in touch screen to control flow/outlet/temperature and monitor flow/temperature/pressure
- Passive (15kW Max) and Active (25kW Max) type RDHx both available
- A cold plate liquid-cooled system with PUE≤1.04

## ► Rear Door Heat Exchanger (RDHx)

RDHx is one of the important functional components for achieving full liquid cooling design of cold plate liquid cooling system. ACT manufactures passive and active RDHx, cooling capacity from 10kW to 25kW.

- ⚡ Energy Saving and Consumption Reduction
- 🔥 High Heat Dissipation Efficiency
- 🛡️ Safe and Reliable



We have transformed the active standard RDHx into a passive standard one with wind wall design. allowing for free choice and upgrading passive applications to active when needed. The maximum heat exchange capacity is 25KW@inlet air 25°C AT=15°C.

A built-in LCD screen to control RDHx's flow/outlet temperature, to monitor flow/temperature/pressure and dew point alarm, as well as to control the active type RDHx's fan speed.

RDHx features a condensation collection and discharge design to prevent condensation water droplets from falling into the server due to low coolant temperature.

RDHx transmits heat from the server's air cooling part into the liquid cooling system, increasing the proportion of liquid cooling in data centers, reducing energy consumption, and optimizing PUE. It can help the plate-cooled liquid cooling system to achieve  $PUE \leq 1.04$ .

## ► **Rack Manifold(MANIFOLD)**

Manifold is a functional component product that connects and distributes flow to servers in cabinet. Manifold mainly consists of main pipes, branch pipes, quick disconnects, automatic exhaust valves, etc.



Customized Design



High Reliability



20 Year Life Guarantee



## **Product Features**

- Manifold is an all-stainless steel square tube with a design pressure of 10bar
- The top is equipped with an inlet exhaust valve with a check function, and the bottom is equipped with a ball valve for liquid discharge, to ensure efficient and safe fluid management
- Customized threaded joints for branch pipes or direct connection with QD
- The main and branch interfaces can be on the same or different sides
- The length of the main pipe and the number of branch pipes can be customized for design
- The uniformity of flow distribution can be selected between 5% and 10%
- 20 year life guarantee
- Customized threaded joints for branch pipes or direct connection with QD
- Quick disconnect can be specified
- Higher applicability of coolant, including pure water, formulated antifreeze, and fluorinated liquid (special instructions required)

# ► Quick Disconnect(QD)

UQD/UQDB/TBV/TFA/TFB/TFC/TFD Series

## Product Features



- UQD and UQDB series comply with OCP standard
- Flat drip free design, on-off under pressure without leakage
- Long service life, plug and pull life > 5000 times
- Easy to install and identify, product come out with red and blue labels
- Interchangeable with OCP standard QD products

Series	Features	Material	Model	Temp. Range	Sealing Options
UQD	Comply with OCP standard Flat drip free Plug and unplug under pressure	316L stainless steel	UQD02/UQD04 UQD06/UQD08	-40 °C ~ +120 °C	EPDM
UQDB	Comply with OCP standard Flat drip free Plug and unplug under pressure	316L stainless steel	UQDB02/UQDB04 UQDB06/UQDB08	-40 °C ~ +120 °C	EPDM
TBV	Ball Valve QD Flat drip free Small conduction spacing	304L/316L stainless steel	TBV25/TBV40/TBV50	-40 °C ~ +120 °C	EPDM
TFA	Flat drip free Compact size Low flow resistance Pierce board Plug and unplug under pressure	316L stainless steel	DN04	-55 °C ~ +125 °C	EPDM
TFB	Flat drip free Sealing ring protection design Low flow resistance one-handed operation Plug and unplug under pressure	EPDM standard configuration	DN04/DN06 DN09/DN14 DN19/DN25	-40 °C ~ +120 °C	EPDM
TFC	Flat drip free Special treated surface for wear resistance self-lubricating	aluminium alloy	DN06/DN09/DN14	-15 °C ~ +125 °C	HNBR standard configuration low temperature NBR FVMQ optional
TFD	Flat drip free Small conduction spacing	aluminium alloy 316L stainless steel	DN03/DN05/DN08	-40 °C ~ +120 °C	EPDM standard configuration FVMQ optional

## ► Cold Plate

Full capacity in cold plate design, thermal and fluid simulation, production and test.



## Product Features

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- High reliability, high density, no leakage
- Optimized internal channel and high-density skiving-fin design
- ANSYS / 6SigmaET thermal simulation capability
- Full set of cold plate manufacturing device, including water immersion ultrasonic test, box-type helium detection, as well as flow resistance and thermal resistance test, etc.
- Meet Intel Whitley/Purley/Eagle Stream/OKS stream, AMD Genoa/Turin/Venice CPUs specifications
- Meet Nvidia H100 GB200 GPUs specifications
- Highly customizable cold plate design and production

## ► Coolant

Advanced cooling technology provides FM-CU series, FM-AL series formulated coolant and DI series pure water coolant.



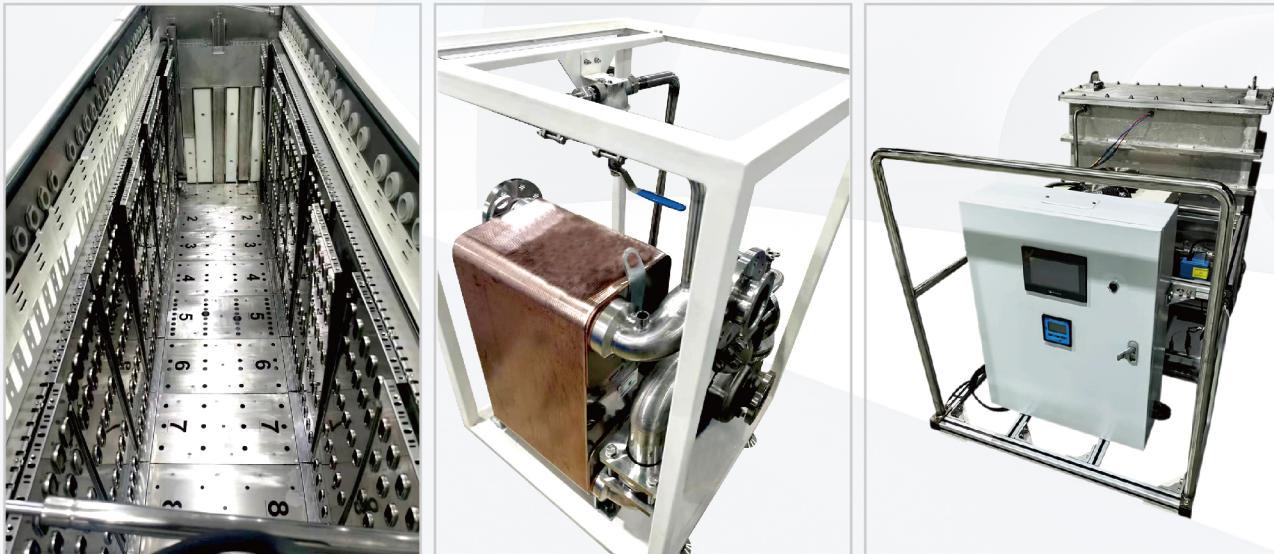
## Product Series

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- FM-CU series of formulated coolant products are used in cooper cold plate system and the initial conductivity is less than 550 $\mu$ s/cm
- FM-AL series of formulated coolant products are used in aluminum cold plate (thickness of skiving fin must be >0.2mm)system, with an initial conductivity less than 550 $\mu$ s/cm
- The initial conductivity of the DI series pure water formula is less than 10 $\mu$ s/cm , And the service life of the supporting MPM can be customized 3-5 years

## ► **Immersion Liquid Cooling**

The immersion liquid cooling system mainly consists of CDU+Tank. The blade-box immersion liquid cooling system is composed of CDU, manifold and immersion blade-box. Nowadays, Tank immersion liquid cooling system is generally structured with 20~60UTank and CDU at left and right side.



## **Our Advantages**

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- ACT has the ability to customize the design and development of immersion liquid cooling systems
- We have in-house technology to enhance the localized heat dissipation capacity
- ACT has a clear understanding of compatibility materials of silicone oil-based, fluorinated liquid-based single-phase and phase change immersion systems
- ACT has abundant design experience and material selection experience

## ► Leakage Detection Product

Leakage detection rope can detect whether there is liquid leakage along the cable, it has strong mechanical performance and corrosion resistance, wear resistance. Flame retardant liquid leakage detection rope is suitable for IDC server room, data center, liquid-cooled servers, new energy vehicles, and storage batteries usage. The leakage detection board can detect the point of water and conductive liquid appearing in any position of the flat object, which is suitable for clean environment and leakage detection for cold plate.



## Product Features

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- Compact size, high reliability, long service life
- Feature-rich, can detect open circuit, short circuit, cross, liquid leakage
- Status indicator for on-site troubleshooting
- Meet the requirements of CE/UL certification and RoHS directive

## ► **TTV**

TTV can be used to simulate heat situation during the operation of server chips as a thermal testing tool and monitor the Tcase value in real-time. It can form a controllable thermal load, which enables a testing environment for product development and validation.



## **Product Features**

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- 19" or 21" standard rack structure
- Simulation of mainstream CPUS and GPUS, heating power up to 2.5KW or even higher
- Continuously adjustable load heating power
- T<sub>case</sub> temperature multipoint monitoring
- Air-or liquid-cooled heat dissipation modules are both suitable

# ► Liquid Cooling Solution

Providing liquid cooling solution for ICT, energy storage, rail transit, medical equipment and other industries.



ICT



Rail Transit



Energy Storage



Medical Equipment

- In house Engineering+Production+Standardization=High Quality and Fast Delivery
- Modular design and standardization concepts throughout the design and manufacture process of all components

# ► ACT Provides



① Standardized Modular Design



② Product Manufacture



③ Product Test



⑥ Delivery, Operation and Maintain Training



⑤ On Site Installation and Debugging



④ Professional Packing and Transportation

Welcome to contact us!

- Coolant Distribution Unit(CDU)
- Rear Door Heat Exchanger (RDHx)
- Rack Manifold (MANIFOLD)
- Quick Disconnect (QD)
- Cold Plate
- Thermal Test Vehicle(TTV)
- Immersion Tank
- Coolant
- Leakage Detection Product
- Liquid Cooling Solution

## **Advanced Cooling Technology SDN.BHD**

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