

**AI / Machine
Learning training clusters**

**HPC (High-Performance
Computing) data centers**

**Edge AI gateways
& GPU farms**

**Cloud Service Provider (CSP)
high-density server rooms**

**High-power 5G edge sites /
MEC equipment racks**



ABLECOOL™

Built for AI. Cooled by Design

Rear Door Heat Exchanger (RDHx)



Liquid-to-Air Heat Exchange

AbleCool is designed to capture and dissipate heat directly at the back of the rack, where servers and IT equipment expel the most thermal energy.

By intercepting this exhaust before it enters the white space, AbleCool ensures stable thermal conditions, enhances overall cooling efficiency, and significantly reduces the burden on CRAC system.

RDHx Benefits



Energy savings

30% energy saving : High-efficiency fans for dense loads



Localized cooling Control

Source heat removal prevents air mixing



High- efficiency cooling

Rack-level cooling:
Supports up to **65kW** heat load



Deployment Flexibility

Fast integration with existing racks and cooling



Fan Energy Reduced

20% fan energy reduction with ultra-low PUE



Lowers TCO

Rack-mounted design saves space, ROI in 1 year

Future-ready Solution

- Maximize cooling efficiency at the rack level
- Minimize energy costs with exceptional PUE performance
- Eliminate the need for extra cooling aisle space
- Future-ready integration with your existing infrastructure





EC (CDR) / DC (CDA) Centrifugal Fan

High static pressure

Suitable for ducted or high-resistance environments

Highly efficient

EC motor, more energy-saving

Precise speed control

supports PWM, Modbus

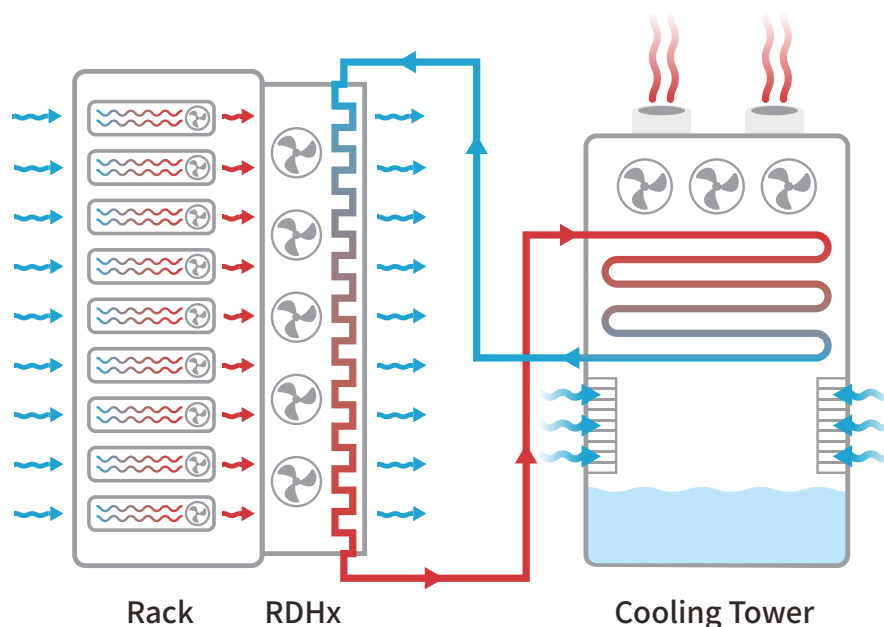
Low noise and vibration

Due to smoother motor

Efficient Rear-Door Liquid Cooling

AbleCool is a rear-mounted liquid-to-air heat exchanger designed to cool high-density server racks without altering the rack layout.

Installed on the back of a standard 42U~60U server rack, it captures the hot exhaust air generated by high-performance computing equipment and cools it in real time using circulating liquid coolant—typically deionized water or a glycol mixture.



The system includes coolant supply and return lines that route chilled liquid through internal coils embedded within the door. As hot air exits the server, it passes through the AbleCool where heat is transferred into the liquid circuit, resulting in significantly cooler air being released back into the room.

This passive, rack-level solution enables up to 65kW heat load dissipation per rack, reduces reliance on energy-intensive CRAC systems, and helps stabilize ambient temperatures in dense data center environments—all without internal airflow turbulence.

Product Lineup & Specifications

Explore the full RDHx Green Series product range, including model appearances, key specifications, and performance data for easy comparison and selection.



Model	CDR42 (EC)	CDA42 (DC)
Support rack Form Factor	42U - 52U	
Dimension (Width)	600 – 800 mm (23.62" - 31.50")	
Dimension (Depth)	337 mm (13.3")	235 mm (9.25")
Cooling Capacity *	25 kW (50 kW / ATD = 15C)	35 kW (50 kW / ATD = 15C)
Fan Quantity	4 pcs EC Centrifugal Fan	5 pcs DC Centrifugal Fan
Active Air Flow**	3900 CFM	2500 CFM
Design Water Flow	Max: 70LPM (18.5 GPM)	Max: 70LPM (18.5 GPM)
Water Fluid Quality	ASHRAE D-90564	
Max Power Consumption	1.7 kW	1.2 kW
Power Supply	AC : 200 - 240V(1+1)	DC : 48V
Internal Sensor Detection	Temp. , Diff. Pressure, Condensation, Leakage	
Communication	SNMP, Modbus, Redfish API, BMC Link	
Monitor control	Touch Panel 、 Web UI	
Operating Ambient Temperature	15°C ~ 45°C (59°F ~ 113°F)	
Operating Relative Humidity	8 ~ 80% RH (No Condensing)	
Operating Attitude	0 ~ 3,048m (0 ~ 10,000ft)	
Internal Sensor Detection	Quick Dry Connector (FD83)	
Shipping Weight (kg)	252	252
Dry weight(kg)	114	114
Wet Weight(kg)	130	130

*Test condition: 23.9°C (75°F) Room Temperature, 45%RH, Supply Water at 12.8°C (55°F).

** Test condition: All the RDHx fan modules operation by 100% speed in the wind tunnel.

*** Max air flow supply from rack systems to RDHx: 52RD model: 8000+CFM ; 42RDmodel: 7000+CFM.

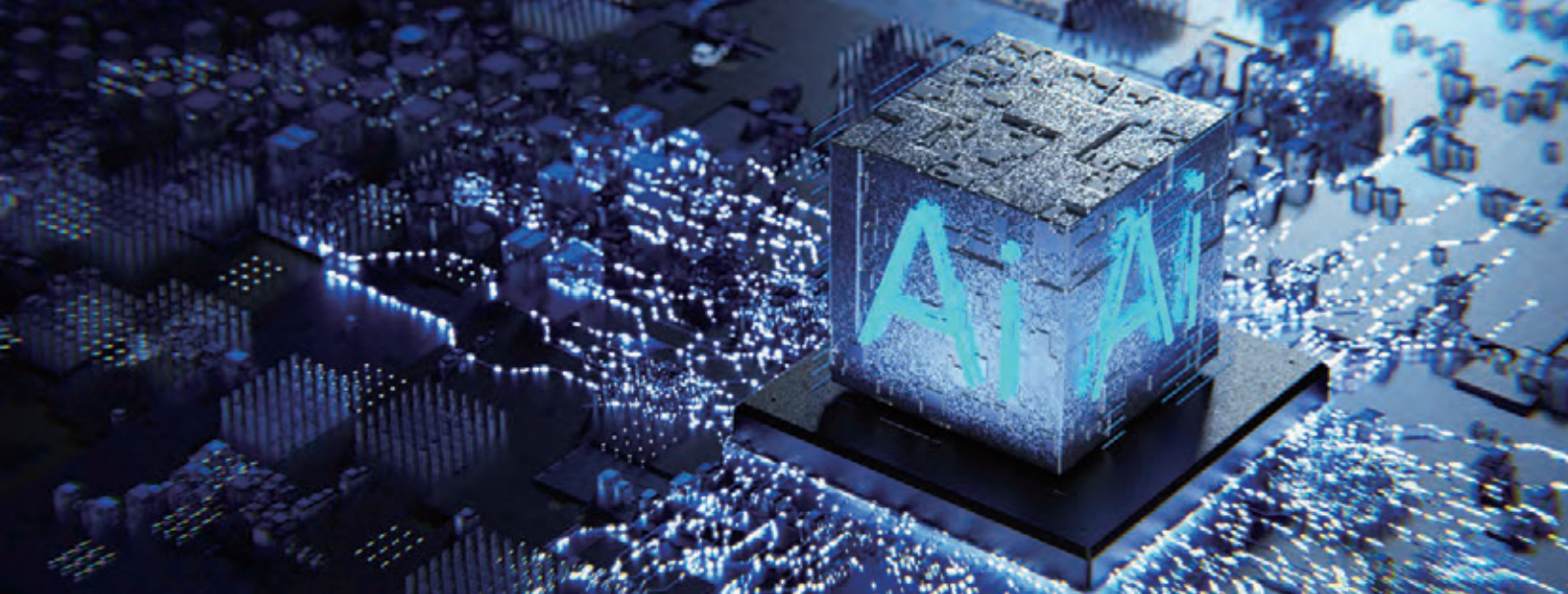


Model	CDR52	CDR82
Support rack Form Factor	48U - 52U	48U - 60U
Dimension (Width)	750 – 800 mm (29.53" - 31.50")	600 – 800 mm (23.62" - 31.50")
Dimension (Depth)	382.9 – 470 mm (15.07"-18.50")	382.9 – 470 mm (15.07"-18.50")
Cooling Capacity *	50 kW (80 kW / ATD= 15C)	72 kW (100 kW / ATD= 15C)
Fan Quantity	5 pcs EC Centrifugal Fan	6 pcs EC Centrifugal Fan
Active Air Flow**	5030 CFM	7440 CFM
Design Water Flow	Max: 100LPM (26.4 GPM)	Max: 100LPM
Water Fluid Quality	ASHRAE D-90564	
Max Power Consumption	2.1 kW	3.3 kW
Power Supply	AC : 200 - 240V (1+1)	AC : 200 - 277V(1+1)
Internal Sensor Detection	Temp. , Diff. Pressure, Condensation, Leakage	
Communication	SNMP, Modbus, Redfish API, BMC Link	
Monitor control	Touch Panel 、 Web UI	
Operating Ambient Temperature	15°C ~ 45°C (59°F ~ 113°F)	
Operating Relative Humidity	8 ~ 80% RH (No Condensing)	
Operating Attitude	0 ~ 3,048m (0 ~ 10,000ft)	
Internal Sensor Detection	Quick Dry Connector (FD83)	
Shipping Weight (kg)	277	287
Dry weight(kg)	136	146
Wet Weight(kg)	155	165

*Test condition: 23.9°C (75°F) Room Temperature, 45%RH, Supply Water at 12.8°C (55°F).

** Test condition: All the RDHx fan modules operation by 100% speed in the wind tunnel.

*** Max air flow supply from rack systems to RDHx: 52RD model: 8000+CFM ; 42RDmodel: 7000+CFM.



AI-Ready Intelligent Control System for Adaptive Thermal Response

Intelligent Hardware Control System

AbleCool integrates an advanced control logic that dynamically adjusts fan performance based on **real-time differential pressure** or **temperature readings**, ensuring precision cooling under vary-ing workloads. The control system development includes:

- Implementation of **preliminary fan control** algorithms tailored to thermal response
- Coordination with suppliers to finalize base board design
- Sequential initiation of **interposer board development**

Advanced Customization

we understand that no two data centers are alike. That's why our RDHx solutions are fully customizable to meet your specific thermal, mechanical, and operational requirements.



Tailored Dimensions

Support for non-standard rack heights, widths, or legacy enclosures.



Exterior Finish & Panel Design

Branding-ready panel colors, powder coating, or ventilation patterns tailored to your environment.



Coolant Compatibility

Options for different coolant types including DI water, glycol mixtures, or customer-specified fluids.



Thermal Load Planning

Engineering support to match RDHx capacity to your rack-level heat output (30–50kW+).



Interface & Connector Customization

Quick-connect fitting types, hose placement, and valve integration according to your facility's cooling layout.



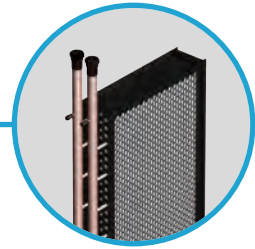
Integration with Existing CDU Systems

Ensuring compatibility with your facility's liquid cooling infrastructure, including pressure and flow testing.

Internal Component Overview

Primary Loop Design with Smart Monitoring

Top/bottom feed, electronic valve, and flow sensors with quick-disconnect hose support for easy commissioning.



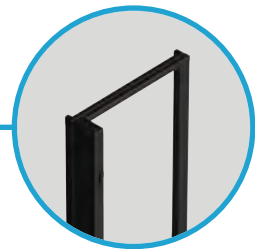
High-Capacity Coil Heat Exchanger

Delivers up to 65kW cooling per rack, designed for high thermal loads and scalable environments.



Advanced Control System

7" touchscreen HMI, with temperature, pressure, and flowrate monitoring; SNMP, Modbus, WebUI, and Redfish API supported.



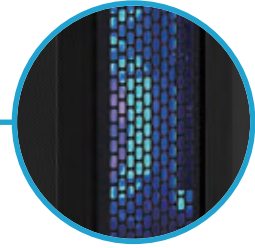
Modular Integration for 42U-60U Racks

Compatible with standard frame widths from 600mm to 800mm for seamless deployment.



Hot-Swappable Redundant EC / DC Fans

Tool-less, zero-downtime fan replacement for maximum uptime and optimized cooling performance.



LED Status Indicator

Enables clear visual feedback on system health and operational status.





Leadtek Research Inc.

Tel : +886-2-8226-5800

Mail : contact@leadtek.com.tw