



Product brochure

Vertiv™ CoolChip CDU

Coolant distribution units for high-density deployments



What is direct liquid cooling?

Direct-to-chip (DTC) liquid cooling delivers liquid coolant directly into the server and across high-power components like CPUs and GPUs. The system circulates liquid to transfer heat more efficiently than traditional air cooling. This significantly improves thermal transfer performance, allowing data centers to support higher rack densities and compute-intensive workloads such as AI, high performance computing (HPC), and machine learning (ML) applications.

Coolant Distribution Units (CDUs) are essential in liquid-cooled server deployments. They serve as the interface between facility cooling systems and IT hardware. CDU types can vary based on deployment style and form of heat exchange; each designed for specific deployment needs.

Vertiv's thermal solutions, including the **Vertiv™ CoolChip CDU family**, features advanced liquid cooling technologies for high-density and hybrid air-liquid environments. These solutions offer modular, cost-effective deployments while maintaining high performance and security for critical IT infrastructure.

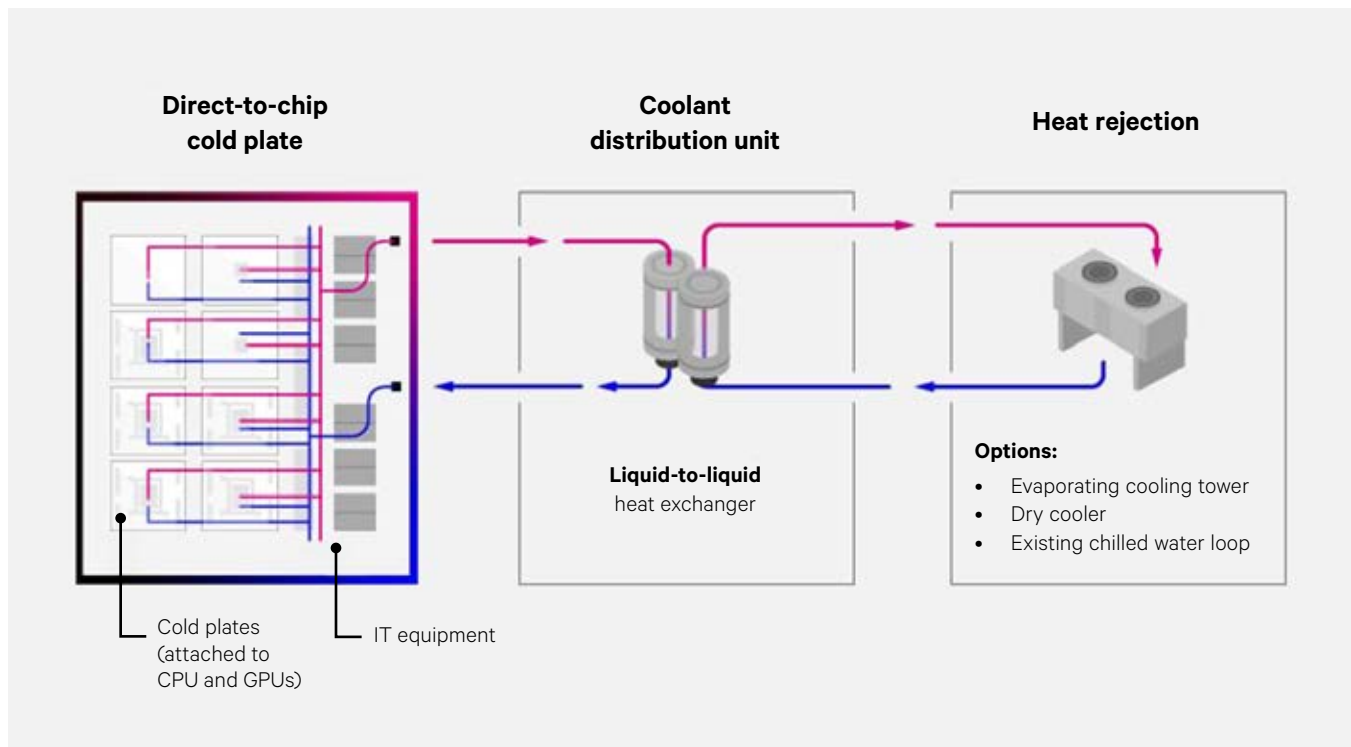


Diagram showing how CDUs create an isolated secondary loop from the chilled water supply for precise control and improved cooling efficiency.



Vertiv™ CoolChip CDU

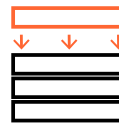
Power, cool, and scale AI

Unlock your data center's AI potential with thermal efficiency even under high computational loads. Seamlessly scale to meet evolving demands. Enhance performance, manage heat, and expand capacity with direct-to-chip liquid cooling enabled by the Vertiv™ CoolChip CDU.



Higher thermal efficiency

Liquid cooling provides significantly higher heat transfer than air and supports stable operation for compute-intensive workloads.



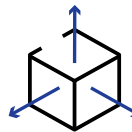
More compute density

Enables denser rack configurations with high-power CPU/GPUs, which are critical for scaling AI infrastructure.



Improved energy efficiency

Reduces cooling power OPEX, directing more of the total power budget to revenue-generating compute operations.



Scalability

Designed for expanding AI workloads, with the flexibility to scale as model sizes and data volumes grow.



Enhanced performance

Delivers sustained peak performance of AI accelerators without thermal throttling, which is essential for continuous AI training.



Liquid-cooled row supported by Vertiv™ CoolChip CDU and Vertiv™ CoolChip Fluid Network

Liquid-to-air CDU (L2A)

Liquid-to-air CDUs enable rapid deployment of liquid-cooled servers without requiring chilled water infrastructure. Designed for compatibility with air-cooled data centers, these units create an independent secondary cooling loop to transfer heat away from servers and reject it through an integrated liquid-to-air heat exchanger.

Variable speed pumps deliver precise cooling through a closed-loop secondary fluid network. The working fluid then returns to the heat exchanger, where heat is rejected into the room's air supply.

Available models for L2A CDUs



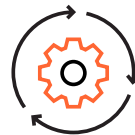
Vertiv™ CoolChip CDU 70

Key benefits



No facility water required

Eliminate key deployment barriers with liquid cooling systems that operate with or without chilled water infrastructure.



Seamless integration

Leverage existing air-cooling infrastructure while enabling liquid cooling for high-density applications.



Reduce retrofit costs

Minimize expenses, reduce downtime, and address space constraints compared to traditional cooling upgrades.



Vertiv™ CoolChip CDU - Liquid-to-air (L2A)

Closed-loop pipe design with integrated leak detection

Operates with limited water volume and hose piping to simplify deployment and protect data center equipment.

7" color touch screen display

With state-of-the-art controls for complete visibility of operating conditions and unit status.

Closed loop fan speed control with extra capacity

Automatically matches the supply water temperature to the load to eliminate overcooling and boost efficiency.

Integrated secondary filtration

Keeps supply water clean to protect server integrity and performance.

Full service access from front and rear doors

Simplify unit servicing in all installation environments.

Top or bottom liquid supply & return connection

Accommodates any facility design including raised floor and non-raised floor data centers.

Adjacent or remote placement options

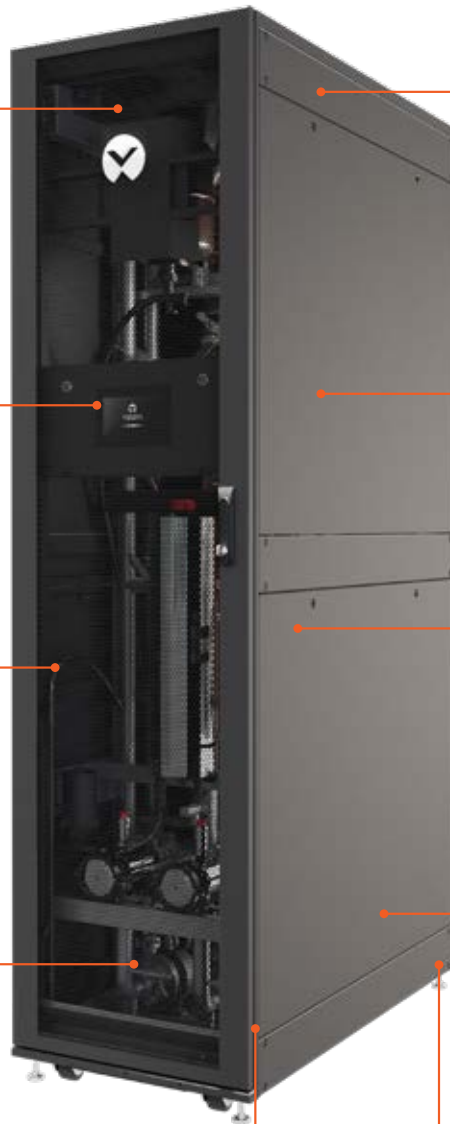
To channel rejected hot air to the right location to coordinate with the facility's current cooling configuration.

Liquid-to-air heat rejection

Allows for high density liquid-cooled deployments in traditionally air-cooled environments without the need for significant infrastructure changes.

Redundant pumps with VSD control

Deliver efficient, reliable cooling with adjustable flow rates to match site-specific requirements.



Liquid-to-liquid (L2L) CDU

Liquid-to-liquid (L2L) CDUs enhance cooling efficiency by isolating IT equipment from the main chilled water system. These units support flexible coolant options, such as treated water or a water-glycol mix. Integrated filtration maintains system integrity during operation. L2L CDUs are ideal for high-density workloads where consistent cooling is critical to prevent overheating and downtime.

Available models for L2L CDUs



**Vertiv™ CoolChip
CDU 121**



**Vertiv™ CoolChip
CDU 600**



**Vertiv™ CoolChip
CDU 1350**



**Vertiv™ CoolChip
CDU 2300**

Key benefits



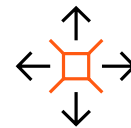
Improved efficiency

Supports higher-density racks with enhanced heat transfer performance.



Isolated fluid circuits

Separates primary and secondary cooling loops to support fluid compatibility, better filtration, and long-term system reliability.



Flexible deployments

Available in multiple CDU sizes and capacities for in-rack, in-row, or perimeter deployments.



Vertiv™ CoolChip CDU - Liquid-to-liquid (L2L)

Integrated controls

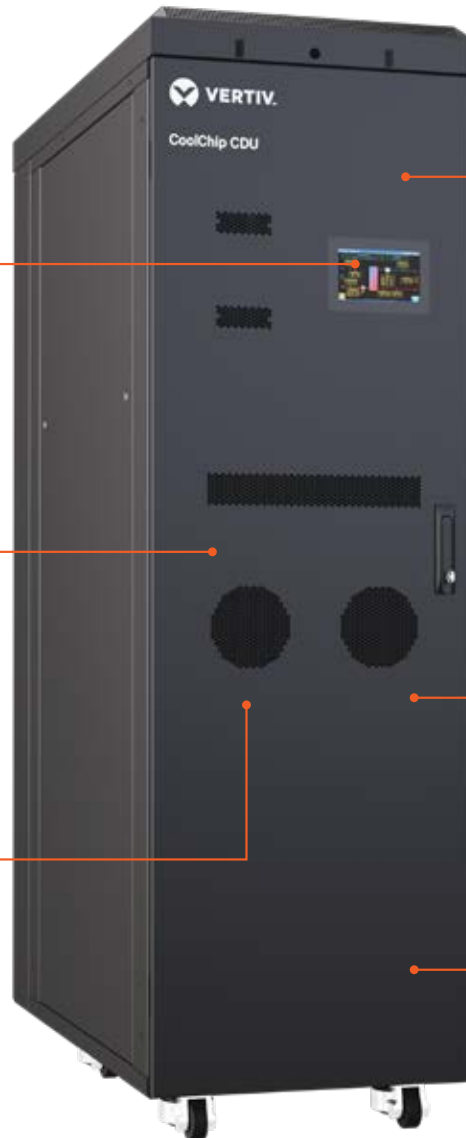
Provides full visibility into operating conditions with intuitive control features.

Integrated secondary filtration

Keeps supply water clean to protect server integrity and performance.

Redundant pumps with VSD control

Deliver efficient, reliable cooling with adjustable flow rates to match site-specific requirements.



Top or bottom liquid supply & return connection

Configurable to accommodate various facility layouts, including raised and slab floor designs intuitive control features.

Liquid-to-liquid heat rejection

Offers higher heat transfer efficiency compared to air-cooled systems.

Secondary fluid quality package

Monitors secondary fluid health for changes to PH, conductivity, and turbidity.

Technical specifications

	70	121	600	1350	2300
CDU type	L2A	L2L	L2L	L2L	L2L
Nominal cooling capacity*	70 kW at 11°C Approach Temperature Difference (ATD)	121 kW at 4°C Approach Temperature Difference (ATD)	600 kW at 4°C Approach Temperature Difference (ATD)	1368 kW at 4°C Approach Temperature Difference (ATD)	2300 kW at 4°C Approach Temperature Difference (ATD)
Nominal fluid flow rate	60 l/min (15.8 gpm)	120 l/min (31.7 gpm)	900 l/min (238 gpm)	1200 l/min (317 gpm)	3400 l/min (898 gpm)
Maximum airflow, (N+1 operation)	10,100 CMH (5,945 CFM)	n/a	n/a	n/a	n/a
Unit dimensions (H x W x D), in (mm)	91 x 24 x 48 (2300 x 600 x 1200)	6.89 x 17.52 x 33.46 (175 x 445 x 850)	78.7 x 23.6 x 47.2 (2000 x 600 x 1200)	81.6 x 35.4 x 48.9 (2069 x 900 x 1243)	94.5 x 48 x 48 (2400 x 1200 x 1200)
Power supply	115V, 1PH, 60Hz 230V, 1PH, 50Hz	110-120V, 1PH, 50/60Hz 208V-240V, 1PH, 50/60Hz 46V-52V VDC	400V, 3PH, 50/60Hz 480V, 3PH, 60Hz	400V, 3PH, 50/60Hz 480V, 3PH, 60Hz	400V, 3PH, 50/60Hz 480V, 3PH, 60Hz

*Please contact Vertiv sales representative for unit performance data based on site conditions.



Vertiv™ pre-engineered AI solutions

Within the Vertiv™ 360AI solutions portfolio, Vertiv's pre-engineered AI solutions offer a faster and easier way to deploy AI infrastructure.



Reduce deployment time by up to 50%

Pre-engineered solutions eliminate design work, significantly shortening deployment time by up to 50%.



A broad range of flexible deployment methods

Solutions are available from edge inferencing to AI data centers, with options ranging from high-density rack systems to large prefabricated modular data centers.



Industry-leading expertise and support

Comprehensive support is provided throughout the process, from assessment and design to deployment and lifecycle management.



Interoperability and seamless operation

Vertiv is uniquely positioned to meet AI's power and cooling demands, thanks to a comprehensive portfolio of solutions designed to handle the most complex data center requirements. This integrated approach combines industry-leading power and cooling technologies for optimal performance across every aspect of your infrastructure.

Kick-start AI deployments with pre-engineered solutions optimized for retrofits

Liquid-to-air (L2A) CDU

AI test environments, training pilots, or edge inferencing

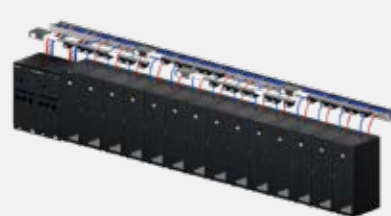


AI labs, transitions to AI data centers



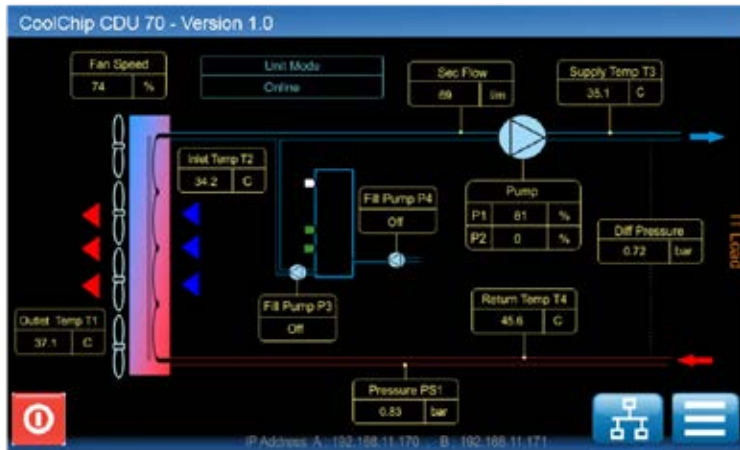
Liquid-to-liquid (L2L) CDU

Prototype AI factory and training



Monitor and control your IT

Monitoring environmental conditions and status around liquid cooled systems is critical to protecting IT equipment. Unlike traditional air-cooling, liquid cooling requires a faster system response in failure scenarios due to higher heat densities. The Vertiv™ CoolChip CDU controller is designed to monitor and control the temperature, pressure, and flow rate of the unit to help maintain system reliability and performance.



Advanced control features

- **Precise temperature control** within $\pm 1.8^\circ\text{F}$, triple-redundant temperature sensors, and automated condensation prevention
- **Automated pressure control** and monitoring with built-in leak prevention
- **Dual pump configuration** with automatic failover and automatic pump rotation to ensure even wear
- **Advanced group control** coordinates up to 8 units, provides automatic load sharing and redundancy management
- **Smart data management** with comprehensive system logging, on-board storage card (4GB), and product lifetime data retention
- **Optional automatic transfer switch (ATS)** with near-instantaneous power switching that maintains cooling during power source changes
- **User-friendly controls** that feature an intuitive touchscreen interface, real-time status monitoring, and easy access to system parameters

Customer benefits



Maximum system reliability



Reduced operational risk



Simplified system management



Lower maintenance requirements



Optimal cooling performance



Enhanced protection of critical IT assets



The tools you need to manage all your high-density power and cooling infrastructure

Monitoring



Vertiv™ Environet™ Connect

Cloud-based platform for remote management and monitoring of physical infrastructure.

Cloud-based solution - customers can always access the latest software version and there is no need for additional hardware.

Vendor-neutral SNMP device management - integration of third-party devices available upon request.

Maximize uptime and increase efficiency - customizable dashboards and reports provide centralized management, monitoring, alerting, and trending of your devices.

Fast and easy configuration - users can effortlessly manage their devices' lifecycles through a unified cloud portal, making it easy to keep the firmware and device settings current.

Full suite of services - from remote Helpdesk and training library to support for installation, startup and firmware upgrade.

Thermal controls



Vertiv™ Liebert® iCOM™-S

Manage and control your entire data center cooling system.

Simplified, automated thermal management - advanced algorithms detect and prevent hot spots and control cooling settings to ensure optimal conditions.

Optimize environments - access thousands of data points and gain a holistic, centralized view of your data center footprint.

Enable 'teamwork' functionality allow Vertiv™ cooling units to collaborate on thermal loads and modulate their capacity to maximize energy efficiency.

Auto-discovery of Vertiv devices -allows for faster deployment and accelerated ROI.

Dashboards and reporting - simplifies data analysis and communication on thermal conditions across multiple locations and regions.

Environmental monitoring & leak detection



Environmental sensors - Monitor rack enclosures for temperature, humidity, and dewpoint.

Leak detection - Detects moisture using up to 100 feet of sensing cable for early warning and risk mitigation.

Vertiv™ Liquid Cooling Services

Expert turnkey services and maintenance

As demand for high-performance computing continues to rise, effective thermal management becomes increasingly critical. Liquid cooling technologies are key to managing high-density workloads, minimizing downtime, and extending equipment lifespan. Validated startup processes help maintain fluid integrity and cold plate performance. Given the high cost of failure, managing cooling system fluids requires specialized expertise. Vertiv Liquid Cooling Services deliver end-to-end support—from design and installation to commissioning and maintenance. This streamlines operations, strengthens IT infrastructure resiliency, and helps you meet your operational goals.

Getting started with Vertiv™ Liquid Cooling Services

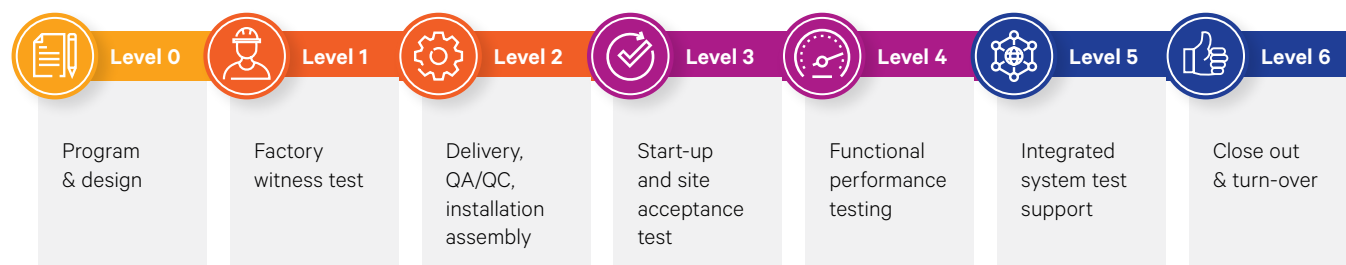
- 1 Consultation & assessment**
We work closely with you to define requirements, assess site conditions and support the design of your liquid cooling solution keeping your system performance top of mind.
- 2 Installation & integration**
Prioritizing thorough validation during the installation of all liquid cooling components for a seamless start-up process.
- 3 Commissioning**
Test, train, and handover. By performing all necessary testing and delivering comprehensive training, we smoothly transition the solution into your operations.
- 4 Recurring services**
Lifecycle maintenance services. Ongoing services help maintain operational continuity and support the uptime of critical systems.
- 5 Reliability through our extensive global network**
Vertiv's strong global footprint and network of certified technicians enables support for large-scale deployments worldwide with consistent quality and rapid response.
- 6 Optimize operations with end-to-end lifecycle support**
Providing a holistic suite of services including installation, startup, system commissioning, maintenance, fluid management, and digital management to support smooth and optimized operation of your liquid cooling systems.
- 7 Save time when leveraging world-class expertise**
Digitally-enabled diagnosis, prompt technician assignment, and reliable on-site response, all delivered by highly skilled technicians with deep expertise in liquid cooling equipment.

Contact us about Vertiv Liquid Cooling Services



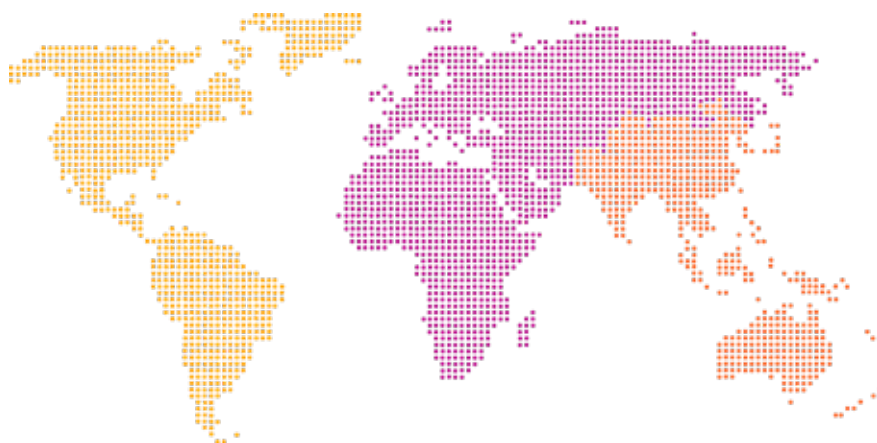
Levels of project execution

Getting critical infrastructure up and running is a multi-step approach, and liquid cooling introduces unique challenges that demand expertise at every stage. Vertiv's Liquid Cooling Services provide a structured, end-to-end approach to navigate these complexities, delivering a system designed, installed, and maintained to support scalability and future-ready operations.



Our global service presence

With a global network of certified technicians and industry experts, we provide consistent support and service quality across all locations. This global reach allows you to receive the same high level of service, no matter where your data centers are located.



Worldwide

Manuf. and Assembly Locations: **23**
Service Centers: **310+**
Service Field Engineers: **~4,000**
Technical Support/Response: **~300**
Customer Experience Centers/Labs: **27**

Americas

Manuf. and Assembly Locations: **9**
Service Centers: **170+**
Service Field Engineers: **~1,750**
Technical Support/Response: **~120**
Customer Experience Centers/Labs: **4**

Europe, Middle East, and Africa

Manuf. and Assembly Locations: **9**
Service Centers: **60+**
Service Field Engineers: **~650**
Technical Support/Response: **~130**
Customer Experience Centers/Labs: **12**

Asia Pacific

Manuf. and Assembly Locations: **5**
Service Centers: **80+**
Service Field Engineers: **~1,600**
Technical Support/Response: **~50**
Customer Experience Centers/Labs: **11**

