



Product brochure

Vertiv™ CoolCenter Immersion

High-performance server cooling up to 240 kW



The Vertiv™ CoolCenter Immersion cooling system addresses thermal management challenges in high heat density environments caused by the adoption of artificial intelligence (AI) and machine learning (ML) applications. Vertiv CoolCenter Immersion is specially designed for high-performance servers in data centers, using a dielectric fluid to directly cool the server.

With the innovative development of AI, Internet of Things, big data, and distributed computing, the application of high-performance equipment in the field of data centers is growing rapidly. With the exponential growth of data traffic and the increasing power density of equipment, traditional cooling solutions no longer meet the heat dissipation requirements of high thermal density racks.

How does immersion cooling work?

Immersion cooling systems consists of three main components: a liquid-filled cabinet (tank), a coolant distribution unit (CDU), and fluid pipes connecting the two together. The high density servers are immersed vertically in the tank which contains a thermally conductive dielectric coolant that is in direct contact with the heat-generating components of the server. The coolant absorbs the heat and is pumped out to the heat exchanger in the CDU. This plate heat exchanger transfers the IT load to the facility water circuit, cooling the dielectric coolant. The coolant is then recirculated back to the tank while the facility water is pumped by the CDU out to a heat rejection unit (e.g. cooling tower, chiller, etc.) outside of the data center for heat reuse or rejection. This approach to thermal management maximizes the thermal transfer properties of liquid, and is a highly efficient form of liquid cooling.

Key benefits

- 100% Heat Dissipation with energy-efficient thermal transfer
- Meet various deployment needs with multiple configurations
- Ensure high cooling availability with redundant pumps and power supply options
- Maintain precise coolant temperature and flow with integrated temperature sensors and variable speed pumps
- Easily view unit operation through transparent window
- Protects IT from harsh environments
- Significantly reduces noise since server fans are not required
- User-friendly control of system through an integrated 9" color touchscreen display
- Recover heat from IT for reuse opportunities



Vertiv™ CoolCenter Immersion, self-contained unit



Vertiv™ CoolCenter Immersion, four-tank unit



Vertiv™ CoolCenter Immersion, Self-Contained Features



Technical Specifications

Physical Data	24U Standalone System	42U	52U	CDU
Unit Dimensions, mm	1360 x 896 x 1392	2130 x 730 x 1284	2600 x 730 x 1284	1190 x 1073 x 1398
Dry Weight, kg	401	342	424	575
Wet Weight (with coolant), kg	881	1102	1364	631
Shipping Weight, kg	492	451	533	658

Performance Data	24U Standalone System	Four Tanks	Three Tanks	Dual Tanks	Single Tank
Total Nominal Cooling Capacity with Chilled Water (12°C), kW	50	240	240	240	120
Nominal Cooling Capacity per Tank with Chilled Water (12°C), kW	50	60	80	120	120
Total Nominal Cooling Capacity with Warm Water (35°C), kW	25	120	120	120	60
Nominal Cooling Capacity per Tank with Warm Water (35°C), kW	25	30	40	60	60
System pPUE	1.08	1.08	1.08	1.08	1.08

Fluid Circuit Data		
Fluid Type	Thermal Conductive Dielectric Fluid	
Filtration	80 mesh	
Maximum Fluid Flowrate, Tank	7m³/h	
Maximum Fluid Flowrate, CDU	29m³/h	
Single Tank Fluid Capacity, L	550	950 per 42Utank / 1180 per 52Utank
Primary Side Piping Connection	DN40	DN50

Electrical Data		
Power Supply, CDU	380-415V/3ph/50-60Hz+N	
Power Supply, Tank	N/A	24V (from CDU)
Max Power Consumption, kW	3	4.5
FLA, A	6	10
PDU Power Supply	230-400V, 3Ph, 50/60Hz, 40A	230-400V, 3Ph, 50/60Hz, 63A

Operating Conditions		
Ambient Temperature, °C Dry Bulb	5 to 40 (Max. 24°C WB)	
Ambient Humidity, RH	20 to 80%	
Inlet Water, °C	12 to 35	
Altitude, m	2000	

Storage Conditions		
Ambient Temperature, °C dry bulb	32	
Ambient Humidity, RH (@ 30°C)	Less than 95%	
Ingress Protection Rating (IP Rating)	IP20	
Storage Conditions		
Safety Compliance	CE, RoHS	

- Cooling water, 32°C inlet water, 37°C outflow water parameters
- Chilled water, 12 °C inlet water, 22 °C outwater parameters
- Weight values included do not include weights associated with servers and other related ITE equipment.
- Air-cooled parameters and solutions, please contact the product department colleagues for support

Disclaimer:

Although the Company has taken every precaution to ensure the accuracy and completeness of the information, the information in this document may contain financial, operational, product line, new technology and other projections about the future, which are uncertain and may differ from actual results, and the Company is not responsible for any errors or omissions in the information.

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Monitor and control your IT

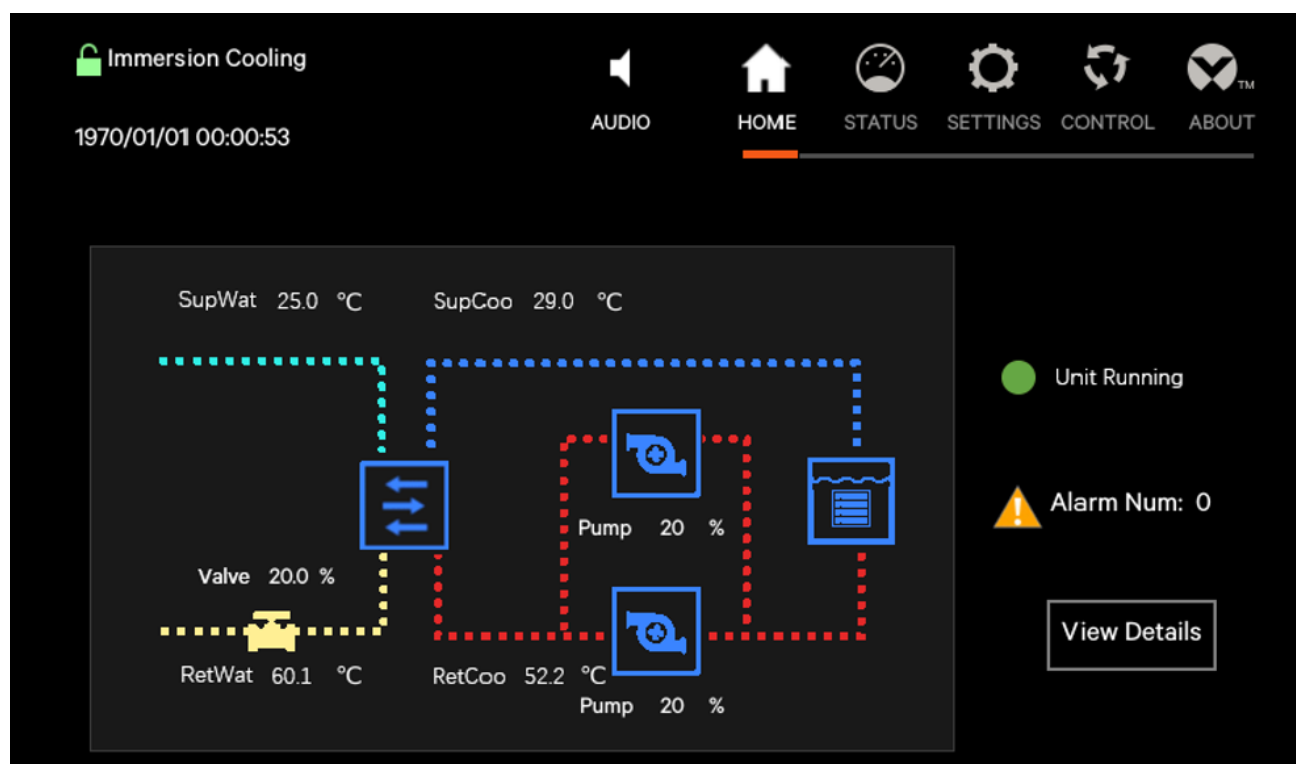
Monitoring environmental conditions around liquid cooled systems is pivotal to ensuring protection of the IT equipment. Liquid cooling is inherently different than air cooling when it comes to rapid system response time when a failure scenarios occur due to the higher heat densities associated with liquid cooling.

Because dielectric fluid is in direct contact with heat generating components, fluid level monitoring, leak detection, and temperature sensors are integrated into the Vertiv™ CoolCenter Immersion systems, increasing the ability to monitor and control system status. These sensors in conjunction with an expert-level fault diagnosis automatically display active alarms/warnings in addition to supporting any necessary troubleshooting and maintenance.

Available teamwork modes provide flexible deployments and functionality for Tanks and CDUs. Teamworking modes allow for the sharing of parameters, control calculation modes, and temperature setpoints while also enabling standby units, and rotational unit functions.

Key benefits

- User-friendly touch screen control interface
- Temperature, fluid level, and leak detection sensors integrated in the CDU and tank for adaptive control
- BMS (Modbus, SNMP) communication
- Unit-to-unit teamwork functionality up to 4 Tanks
- Multi-level password protection
- Ambient LED Status Light for high operational visibility



Vertiv™ Liquid Cooling Services

Expert turnkey services & maintenance

As the demand for high-performance computing continues to rise, effective thermal management becomes essential.

Liquid cooling technologies are critical for managing high-density computing loads, preventing downtime, and extending equipment lifespan. Validated startup processes are essential for maintaining fluid integrity and cold plate performance. Given the high cost of failure, managing cooling system fluids demands expert attention. Vertiv™ Liquid Cooling Services provide a comprehensive solution that includes design, installation, commissioning, and maintenance, enabling seamless and sustainable operations helping to protect the resiliency of your IT infrastructure and help you achieve your operational goals.

Getting started with Liquid Cooling Services

Hassle-free design, deployment, and management for forward-looking data centers in every location.



Consultation & assessment

Perform design consultation and assessment customized to specific site requirements:

- Site visit
- Product selection
- System planning/design
- System layout
- Integration drawings
- Computational fluid dynamic (CFD) Digital Twin modeling



Installation & integration

Manage project and perform assembly services:

- Rack assembly
- Busway installation
- Rack PDU installation
- Aisle containment
- Integration from CDU to chip via overhead and rack manifolds
- Removal of old equipment
- New Vertiv unit installation



Commissioning

OEM commissioning and startup service:

- Site Acceptance Inspection
- Startup
- Site Acceptance Testing
- Integration System Testing
- Training



Recurring services

- Preventive Maintenance Visits
- Parts/Labor Coverage
- Emergency Response
- Technical Support
- Fluid management:
- Fluid sampling and testing
 - System discharge and recharge
 - Fluid quality remediation

Reliability through our extensive

global network. Vertiv's strong global footprint and network of certified technicians enables us to support large-scale deployments world-wide with consistent quality and quick responsiveness.

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 for smooth and optimized operation of your liquid cooling systems.

Save time when leveraging world-class expertise.

Digitally-enabled and swift diagnosis, prompt technician assignment, and guaranteed on-site response, all delivered by highly skilled technicians who are experts in liquid cooling equipment.



Global presence, local expertise

Headquartered in Westerville, Ohio, USA, Vertiv does business in more than 130 countries.

Worldwide

Manufacturing locations: **24**

Service centers: **310+**

Service field engineers: **~4,000**

Technical support/response: **~300**

Customer experience centers/labs: **27**



● Americas

Manufacturing locations: **9**

Service centers: **170+**

Service field engineers: **~1,750**

Technical support/response: **~120**

Customer experience centers/labs: **4**

● Europe, Middle East, and Africa

Manufacturing locations: **9**

Service centers: **60+**

Service field engineers: **~650**

Technical support/response: **~130**

Customer experience centers/labs: **12**

● Asia Pacific

Manufacturing locations:

Service centers: **80+**

Service field engineers:

Technical support/response:

Customer experience centers/labs:

Company information as of December 31, 2024.

