

Modular Data Center Liquid Cooling



Article Overview

Modular data center liquid cooling uses liquid-based systems to efficiently remove heat from high-density racks, enabling higher performance, energy efficiency, and scalable deployment.

Overview

Modular data centers integrate liquid cooling systems to manage the intense heat generated by modern CPUs, GPUs, and AI accelerators, which can exceed 100 kW per rack in AI workloads (e.g., Nvidia Blackwell GPUs) . Unlike traditional air cooling, liquid cooling circulates a coolant directly to heat-generating components, offering superior thermal conductivity and enabling higher rack densities without overheating .

Types of Liquid Cooling

- Direct-to-Chip Cooling (D2C): Cold plates are mounted directly on CPUs, GPUs, or other chips. Coolant flows through these plates, absorbing heat at the source. This method supports high-density racks and reduces thermal resistance, allowing chips to operate at optimal temperatures .
- Dielectric Direct-on-Chip Cooling (DDoCC): Uses dielectric fluids that are electrically non-conductive, allowing safe contact with electronics. Two-phase dielectric cooling can boil on the chip surface, leveraging latent heat for highly efficient cooling while enabling higher facility water temperatures and energy savings .
- Rear Door Heat Exchangers (RDHx): Liquid-cooled coils are integrated into the rear doors of racks, removing heat from hot air exiting the servers. This hybrid approach allows incremental adoption of liquid cooling in existing air-cooled data centers .
- Immersion Cooling: Entire servers are submerged in dielectric fluids, providing uni...

Article Content

What is liquid cooling? A future-ready guide for data

Explore the benefits of liquid cooling in modern data centres. Learn how direct-to-chip systems enhance

Liquid cooling solutions for AI and high-density data centers ...

Schneider Electric's data center liquid cooling solutions are purpose-built for AI workloads, GPU servers, and high-density IT

Data Center Cooling Systems | Data Center Cooling

We create solutions for our customers that focus on streamlined integration of cooling solutions into

Why Liquid Cooling Is the New Standard for Data

Discover why liquid cooling is replacing air systems in modern data centers. Explore its role

Liquid cooling solutions for AI and high-density data centers ...

Our advanced liquid cooling ensures peak thermal performance for AI and high-density workloads, keeping your data center efficient

Liquid and Immersion Cooling Options for Data Centers

Data center operators are evaluating liquid cooling options, as processing-intensive computing applications grow. The market for

Liquid Cooling Market Matures: Innovations, Acquisitions, and Modular ...

Major industry players like CoolIT, Vertiv, Accelsius, and LiquidStack are advancing liquid cooling through strategic

Deep Dive into Direct Liquid Cooling

Introduction The cooling landscape for servers has been evolving over the past decade with more and more data centers considering

ICEtank® Immersion-Cooled Modular Data Center Overview – GRC

ICEtank ® Immersion-Cooled Modular Data Center Overview ICEtank liquid-immersion cooled modular data centers from GRC are

DCX Liquid Cooling Systems

DCX Liquid Cooling Systems is an EU-based premier global manufacturer of comprehensive liquid cooling

Deploying liquid cooling in the data center

Adopting Liquid Cooling at Existing Data Centers The future of IT thermal management has arrived, and it's a hybrid of air and liquid

Deploying liquid cooling in the data center

Liquid-to-air CDUs do not require a chilled water supply to provide liquid cooling to the rack, but rather provide an independent

MicroModular™ Liquid Cooling Solution | LiquidStack

MicroModular™ by LiquidStack offers efficient liquid cooling in a compact modular container, ideal for scalable infrastructure and

Fourier Modular Data Center for AI/HPC

Modular, transport-ready facilities with integrated cooling and power—deploy anywhere, scale instantly. Fully immerse servers for

The Ultimate Guide to Data Center Liquid Cooling in 2026?

The ultimate guide to data center liquid cooling in 2026. Learn air vs liquid cooling, D2C vs

Liquid Cooling Data Center: DLC, Immersion, RDHx

Liquid cooling for data centers uses circulating fluid to remove heat from servers and IT equipment, replacing or

Fourier Modular Data Center for AI/HPC

Modular Data Center Site Planning Clear planning builds faster, safer, and more scalable deployments. A modular data center

Accelerating AI-Ready Data Centers with Modular Cooling Innovation

At the core of these pods is Motivair cooling technology. Our ChilledDoor® Rear Door Heat Exchanger (RDHx) and C

A View into Liquid Cooled Modular DCs | LiquidStack

Modular solutions make edge computing even more attractive and affordable when liquid immersion cooling is

Schneider Electric Announces Industry-First, All-In-One Liquid Cooled ...

Schneider Electric Announces Industry-First, All-In-One Liquid Cooled, EcoStruxure™ Modular Data Center - World's

Data Center Liquid Cooling: Efficiency, Evolution, and Deployment ...

Data Center Liquid Cooling:... By 2025, liquid cooling has become a mature and reliable technology in modern data

Liquid Cooling for Data Centers | Munters

Explore liquid cooling for data centers, including hybrid architectures, CDUs and system design for AI, HPC

Microsoft Word

This whitepaper explores the dynamic world of liquid cooling, with a particular focus on Direct-on-Chip Cooling, shedding light on its

Direct Liquid Cooling in Hyperscale Data Centers | Rittal

Direct Liquid Cooling in hyperscale data centers – Empowering AI For hyperscalers, artificial intelligence is a key growth market.

Direct Liquid Cooling in Hyperscale Data Centers | Rittal

Our liquid-to-air solutions cool heat-generating components like the AI chip using a water/glycol mixture which is air-cooled via the

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://www.sdesign.net.pl>

Email: sales@sdesign.net.pl

Phone: +48 694 237 815

Address: ul. Marszałkowska 10, 00-001 Warsaw, Poland

This document is for informational purposes only. Specifications subject to change without notice.

