

Data Center Liquid Cooling Solutions



Article Overview

Liquid cooling is the most effective method for managing heat in high-density, AI, and HPC data centers, offering superior energy efficiency, scalability, and sustainability compared to traditional air cooling.

Overview of Liquid Cooling

Liquid cooling systems transfer heat directly from IT components using specialized fluids, which have much higher thermal conductivity than air, enabling efficient heat removal even in high-density racks. These systems reduce energy consumption, improve Power Usage Effectiveness (PUE), and allow data centers to operate in warmer or space-constrained environments.

Key Liquid Cooling Technologies

- Rear-Door Heat Exchangers (RDHx)
 - Attach to server rack doors to absorb heat from hot air exiting the rack.
 - Handle rack densities up to 40-78 kW and integrate with existing air-cooled infrastructure.
 - Enable partial or full free cooling, reducing energy usage without a full mechanical overhaul.
- Direct-to-Chip Cooling
 - Cold plates are mounted directly on CPUs, GPUs, or AI accelerators.
 - Single-phase systems circulate coolant without phase change; two-phase systems use dielectric fluids that boil and condense, maximizing heat removal efficiency.
 - Ideal for high-density AI and HPC workloads, improving thermal precision and ene...

Article Content

Disrupting Data Centre Design

Additionally, this report provides insights into the cost modelling implications, offering a thorough perspective of how liquid cooling

Data center liquid cooling in 2025

Data centre liquid cooling interest surges for AI; direct to chip leads dense racks, while legacy under 10kW

Optimize your data center's thermal management | Danfoss

Let's level up liquid cooling Optimize your data center's thermal management with Danfoss comprehensive range of Coolant

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

Liquid Cooling Solutions for Data Centers | Gerchamp

Discover liquid cooling infrastructure including Coolant Distribution Units (CDU) and Direct Liquid Cooling Cabinets (DLCC) for AI,

Data Center Liquid Cooling: Deep Dive | Flexential

Among these, liquid cooling stands out as a game-changer for its efficiency, performance enhancement, and energy-saving

Data Center Liquid Cooling Solutions | nVent

Efficient Liquid Cooling For High-Performance Computing Liquid cooling solutions can provide significantly higher cooling efficiency

Liquid cooling solutions for data centers

Liquid cooling solutions for data centers As global digitalization, artificial intelligence and electrification rises sharply across all

Liquid Cooling | Center of Expertise for Data Center Efficiency

Liquid cooling is highly valuable in reducing energy consumption of cooling systems in data centers. We survey the landscape on

Why Liquid Cooling Is the New Standard for Data

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

Data Center Liquid Cooling Solutions | LiquidStack

Ultra-compact, sustainable and highly efficient liquid cooling solutions for data centers. Learn about our data center cooling systems

Liquid Cooling for Data Centers | Munters

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

Liquid cooling: the future of data center architecture and

Their ability to leverage free cooling further enhances energy savings. Overall, liquid cooling

Rack-Scale Liquid Cooling Solutions | Supermicro

Superior Cooling Reduces Power, Water, Noise, and Space Supermicro liquid cooling solutions reduce power costs by up to 40%,

Liquid cooling solutions for AI and high-density data

Explore our end-to-end liquid cooling solutions for AI, high-density IT, and sustainable thermal performance.

LiquidCool Solutions: Immersion-Cooled Rack Servers

Meet soaring compute demands efficiently with LiquidCool Solutions'' versatile, immersion cooling for high-performance GPU dense

Liquid Cooling for Data Centers | JetCool

JetCool provides efficient, direct-to-chip liquid cooling for the world''s most power-dense data centers. Discover our sustainable

DCX Liquid Cooling Systems

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

An introduction to liquid cooling in the data center

When analyzing liquid cooling options for enterprise-grade IT hardware there are essentially two main categories of

Liquid Cooling Options for Data Centers

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

A Guide to Data Center Liquid Cooling

Liquid-based cooling technologies allow operators to achieve significant energy savings, reduce water usage, and

Liquid cooling solution for data centers | Siemens

Deliver reliable, energy-efficient liquid cooling equipment for demanding data centers. Accurate automation and hydronic

Liquid Cooling: The Sustainable Solution Driving Efficiency in Data Centers

The data center liquid cooling market is emerging as a game-changing solution to keep these massive centers

Top 10: Liquid Cooling Companies | Data Centre Magazine

In association with Mitsubishi Electric, Data Centre Magazine spotlights top liquid cooling companies developing

Data Center Liquid Cooling Automation Solutions

Enhance data center efficiency with Mitsubishi Electric's liquid cooling solutions designed for AI, HPC, and sustainable infrastructure.

Advanced Liquid Cooling Solutions Provider | LiquidStack

Transform your data center with LiquidStack's energy-efficient liquid cooling solutions. Contact us today to optimise your

32 Leading Data Center Liquid Cooling Companies Shaping the

Conclusion: Secure Your Competitive Edge in the Liquid Cooling Market With data center heat loads and sustainability pressures

Products

Delta presents an extensive array of air and liquid cooling products, delivering tailored solutions for enterprises, colocation facilities,

Stulz: Liquid Cooling Solutions for Data Centers

Your partner for integrated liquid cooling infrastructures. Discover direct-to-chip and immersion cooling for

Liquid Cooling for Data Centers: What You Need To Know

As the need for data centers continues to evolve in support of AI workloads and high-density

Data Center Liquid Cooling: The AI Heat Solution

Advanced AI chips are generating more heat in data centers, necessitating improved cooling solutions. Liquid cooling

Choosing the Right Liquid Cooling Solution: A Comprehensive Guide

Choosing the Right Liquid-Cooling Solution in Summary To determine the best liquid cooling solution for a specific server installation,

Efficient Cooling and Thermal Management for Data Centers

To meet these demands, data centers are adopting advanced liquid cooling and immersion cooling technologies that offer superior

Cooling Solutions for Data Center & Cloud Performance

Unlock next-level performance and energy efficiency with Dow's direct-to-chip (D2C) liquid cooling fluids. Designed to address the

Data Center Liquid Cooling Solutions | nVent

Liquid cooling solutions can provide significantly higher cooling efficiency compared to traditional air-cooling methods. Our hybrid

The data center cooling state of play (2025) — Liquid

Cooling The data center cooling state of play (2025) — Liquid cooling is on the rise, thermal

Contact Us

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