

Intrusive Liquid-Cooled Cabinets for Data Centers

Article Overview

Intrusive liquid-cooled cabinets use direct-to-chip or immersion cooling to efficiently manage high-density heat loads in modern data centers.

Overview

Intrusive liquid-cooled cabinets are designed to directly remove heat from high-performance computing components such as CPUs, GPUs, and AI accelerators using liquid rather than air. These systems are increasingly essential as rack power densities exceed 20-50 kW, surpassing the capabilities of traditional air cooling systems. Liquid cooling leverages the superior thermal conductivity of fluids, which can be up to 1,000–3,000 times more effective than air, enabling higher compute density and energy efficiency.

Key Liquid Cooling Approaches

- Direct-to-Chip (Cold Plate) Cooling
 - Coolant is circulated through plates attached directly to processors and GPUs.
 - Reduces the need for high airflow and allows precise thermal management.
 - Often integrated with Coolant Distribution Units (CDUs) to manage fluid flow and temperature.
- Rear-Door Heat Exchangers (RDHx)
 - Mounted on the back of racks, these units remove heat from exhaust air using liquid....

Article Content

Feb 21, 2026

Chill factor: Top liquid cooling considerations for high

Explore the advantages of liquid cooling, key considerations for successful implementation,

Apr 09, 2026

A review of the immersion liquid cooling technology for high ...

Abstract In the context of global digital transformation, the rapid expansion of data centers has intensified the challenge

Jul 11, 2026

Data Center Liquid Cooling Explained: Components,

Learn how data center liquid cooling works, including CDUs, cold plates, dual-loop

Jan 24, 2026

Data Centers with Liquid-Cooling Cabinet for Better Energy Efficiency

From data centers and telecom companies to AI firms and gaming platforms, this cutting-edge technology not only

Mar 30, 2026

Immersion Cooling Solution for Data Centers

The scalable, faster, and energy-efficient way to cool your data center, immersion cooling can save more for your business and is

Aug 09, 2025

ZTE launches high-density liquid-cooled cabinet

Chinese telecoms firm ZTE has launched a high-density liquid-cooled cabinet called IceCube, aimed at green data

Feb 13, 2026

Liquid Cooling Technologies in Data Center: A Comprehensive Overview

Liquid Cooling Technologies in Data Center: A Comprehensive Overview Liquid cooling is a technology that utilizes liquids to

Jul 16, 2026

LiquidCool Solutions: Immersion-Cooled Rack Servers

Meet soaring compute demands efficiently with LiquidCool Solutions' versatile, immersion cooling for high

Nov 17, 2025

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

Apr 28, 2026

Data Center Liquid Cooling Solutions | nVent

With over 15 years of experience in liquid cooling, nVent is proud to collaborate with industry experts to develop innovative data

Nov 27, 2025

Current Status and Challenges for Liquid-Cooled Data

Then, it re-enters the liquid cooling tank to cool the server when the coolant is cooled by

Jan 24, 2026

An introduction to liquid cooling in the data center

Although air-based cooling options exist for racks drawing more than 20kW, they are often

Dec 03, 2025

Keeping cool in the data age

Data center demand shows no signs of abating, but air-cooling systems are struggling. Liquid-cooled data centers

Dec 29, 2025

Data Centers with Liquid-Cooling Cabinet for Better Energy Efficiency

Liquid-cooling cabinets, like CNTE's STAR-H, offer an advanced solution to prevent overheating, enhancing both

Aug 30, 2025

Liquid cooling architecture for data centers | Eaton

Liquid cooling architectures are reshaping how data centers handle rising rack densities. Explore core design models, efficiency

Dec 29, 2025

Liquid Cooling in Data Centers: Types, Benefits, and Deployment Tips

Explore liquid cooling types for data centers—immersion, direct-to-chip, and rear-door heat exchangers—with key

Aug 30, 2025

Is Liquid Cooling the Future of Your Data Center?

Data centers are increasingly facing challenges due to rising energy costs and the

Sep 25, 2025

Liquid and Immersion Cooling Options for Data Centers

Learn about the future of data center cooling and how liquid cooling solutions support high-density

May 18, 2026

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

Jun 23, 2026

Liquid Cooling Comes to a Boil: Tracking Data Center

As AI workloads surge and power densities soar, liquid cooling has shed its niche status to

Feb 02, 2026

Data Center Cooling

Coolant distribution units serve as the vital core of liquid-cooled data centers, functioning as the beating heart that sustains optimal

Aug 24, 2025

Cooling IT in Data Centers

Considerations when selecting the proper cooling systems include: • Computer room size • Maximum kW load per cabinet • Number

Oct 15, 2025

Liquid cooling solutions for AI and high-density data

Explore why data center liquid cooling is essential for optimizing performance, reducing energy costs, and

Feb 11, 2026

The Ultimate Guide To Liquid Cooling Cabinets For Data Centers

Conclusion The liquid cooling cabinet is a marvel of modern IT infrastructure. By seamlessly integrating the cabinet,

Dec 08, 2025

The Ultimate Guide To Liquid Cooling Cabinets For

In this guide, we will break down the anatomy of a liquid cooling cabinet, explore how its

Jul 01, 2026

Data Center Liquid Cooling | Rittal

Liquid cooling brings heat removal much closer to the source than other heat removal methods, making it better at protecting your

Sep 08, 2025

LCS ZPServer | Immersion-Cooled Rack Server for Data Centers & AI

Unlock maximum scalability & energy efficiency in your data center. LiquidCool Solutions" immersion-cooled rack server (ZPServer)

Aug 28, 2025

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

Liquid cooling is a high-efficiency method that uses liquid (rather than air) to remove heat from servers, AI accelerators, and

Nov 23, 2025

OceanCool - Immersion Liquid Cooling

OceanCool immersion cooling solution combines performance, energy saving, and reliability, and is the

Feb 12, 2026

Cooling solutions for high-density data center racks

Also, most data centers will always have low-density servers and secondary server

Nov 26, 2025

Liquid Cooling for Data Centers: What You Need To Know

Explore how liquid cooling for data centers is becoming a strategic necessity to meet the

Jun 12, 2026

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

Apr 04, 2026

Direct Liquid Cooling Tames High-Density Data Center Heat

Direct Liquid Cooling Tames High-Density Data Center Heat The surge in power density, reaching 100+ kW per rack

Aug 15, 2025

Liquid Cooling in High-Density Data Centers

Immersion cooling fully submerges high-performance IT systems in a non-conductive liquid

Apr 27, 2026

VERTIV WHITE PAPER

This is impacting data center design on multiple fronts. The first is new data centers being designed to rely exclusively on liquid

Jan 06, 2026

A Guide to Data Center Liquid Cooling

Unlike air cooling systems, which require extensive air conditioning, cold aisle containment, and fan power, liquid

Aug 22, 2025

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

Contact Us

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

Website: <https://www.iiss.co.za>

Email: sales@iiss.co.za

Phone: +27 63 174 2895

Address: Unit 8, Innovation Park, 15 Rivonia Road, Sandton, Johannesburg,
2196, South Africa

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

