

Alternative Solution for Cold Aisle Cabinets Immersion Liquid Cooling



Summary of Content

Immersion liquid cooling submerges IT components in non-conductive fluid, offering a highly efficient alternative to traditional air-cooling for high-density data center racks.

Overview of Immersion Cooling

Immersion cooling involves submerging servers or IT components directly into a dielectric liquid that absorbs heat efficiently. Unlike traditional cold aisle air-cooling, which is limited to around 15–20 kW per cabinet, immersion cooling can handle much higher power densities, making it ideal for AI, HPC, and other high-performance workloads. The liquid directly removes heat from the components, reducing the need for extensive airflow management and minimizing hot spots.

Advantages Over Traditional Air-Cooling

- **Higher Efficiency:** Immersion cooling can remove heat more effectively than air, allowing racks to operate at higher densities without overheating.
- **Energy Savings:** By reducing reliance on CRAC/CRAH units and fans, immersion cooling lowers energy consumption and operational costs.
- **Reduced Noise and Maintenance:** Fewer moving parts and no need for complex airflow management reduce maintenance requirements and noise levels.
- **Scalability:** Systems can be scaled to accommodate increasing rack densities, supporting workloads that exceed 15–20 kW per rack.

Deployment Considerations

Article Content

Liquid, Immersion, Hybrid: The Cooling Architectures

As AI facilities move toward higher rack densities and sustained thermal loads, operators

Immersion cooling for modern data centers

Liquid immersion hardware To respond to the growing acceptance of this technology, UL's certification personnel have developed a

Data Center Cooling Trends: Liquid Cooling, Immersion & High

This whitepaper explains the cooling technologies that are replacing it: liquid cooling (direct to chip and immersion), hot-aisle/cold

An Overview Of Liquid Immersion Cooling Technology For Data

These liquid cooling solutions can include options such as direct-to-chip and immersion cooling, both of which involve

Liquid Cooling vs Immersion Cooling: What's the

Discover the key differences between liquid and immersion cooling and choose the most efficient data

Data Center Cooling Design: Theory, Strategies, and Emerging

As rack densities exceed the limits of air cooling, liquid cooling provides a powerful alternative. Liquids have over 1,000

Choosing the Right Cooling Path for AI-Powered Data Centers

There are four main cooling approaches to consider: hot/cold aisle containment, rear-door heat exchangers, direct-to

Liquid Cooling in Data Centers Explodes in 2026: How to Choose

AI-driven power densities are making liquid cooling essential. Cold plate cooling leads today, while immersion cooling

Immersion Cooling: The Good, the Bad, and the Ugly

Immersion cooling is supposed to be the next big thing, but for many data centers, adding it

Using fluid technology to address cooling limitations in data centers

The evolution of data center cooling from air systems to liquid solutions is because of the need to adapt to high-power

Designing and Planning Liquid Cooling Data Centers for Optimal ...

Discover best practices for designing and planning liquid - cooled data centers for optimal performance. Learn about

Immersion or Direct-to-Chip: A Comparison of the Most Common Liquid ...

For the sake of brevity, we'll keep this discussion limited to the most common liquid cooling technologies: immersion

Liquid revolution. Is spray cooling a better alternative to immersion ...

Air cooling is struggling to handle the temperatures generated by leading edge server CPUs and GPUs, while

COOLING

A middle-ground solution where one part of the cabinet is closed, and the other allows the airflow path into the aisle. Both cold and

Stulz: Liquid Cooling Solutions for Data Centers

Whether you're building liquid-cooled data centers or integrating Liquid Cooling into existing air-cooled

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

Cooling Strategies for Data Centres ⇒ Liquid vs

Efficient and cost-effective cooling strategies are now more essential than ever. This guide

Deploying liquid cooling in the data center

Vertiv provides products that support the entire thermal management chain (air cooling, liquid cooling, and outdoor heat rejection),

Liquid vs Air Cooling for Data Centers 2026: Cost & Efficiency Analysis

Data Center Cooling 2026: Liquid Immersion vs Air — TCO & Performance Institutional TCO comparison of liquid immersion vs air

Data Center Cooling Systems – Benefits, Differences and Comparisons

There are many data center cooling systems, but what is best for your organization? We examine various liquid and air

The Four Techniques You Need to Know to Cool AI Data Centres

There are four base design options for liquid cooling to consider: traditional hot/cold aisle containment, rear-door heat

AI-driven cooling technologies for high-performance data centres:

This study presents a comprehensive, system-wide review of next-generation cooling technologies, including direct

VERTIV WHITE PAPER

Legacy of Innovation As a global leader in thermal management, Vertiv brings a holistic approach to liquid cooling supported by a

OceanCool – Immersion Liquid Cooling

Attom OceanCool is a single-phase immersion liquid cooling solution designed for AI, HPC, cloud computing, and other high-density

How advanced technologies are helping AI Data

The only practical alternative is to use liquid cooling methods for this next-generation

Immersion cooling systems: Advantages and

While rear door heat exchangers (RDHxs) and direct-to-chip cooling manage current heat

Datacenter Anatomy Part 2 – Cooling Systems

Demand for Liquid Cooling is underestimated and will lead to an increase in inefficient “bridge” solutions as there

Liquid vs Air Cooling for Data Centers 2026: Cost & Efficiency Analysis

Energy Solutions Intelligence maintains a database of 156 liquid immersion cooling deployments across hyperscale, colocation, and

Contact Us

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

Website: <https://madibabayelectrical.co.za>

Email: sales@madibabayelectrical.co.za

Phone: +27 63 947 2185

Address: 15 Fredman Drive, Sandton, Johannesburg, 2196, South Africa

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

