

Liquid Cooling Systems Market to Reach USD 13.4 Billion by 2035, Growing at 5.5% CAGR | Transparency Market Research

The global liquid cooling systems market is set to reach US\$ 13,422.0 Mn by 2035, expanding at a CAGR of 5.5% from its 2024 value of US\$ 7,514.4 Mn.

WILMINGTON, DE, UNITED STATES, October 6, 2025 /EINPresswire.com/ -- The global [liquid cooling systems market](#) is witnessing a dynamic transformation, driven by the expanding demand for high-performance computing (HPC), growing adoption of electric vehicles (EVs), and the urgent need for energy-efficient thermal management across industries. Valued at US\$7,514.4 Mn in 2024, the market is projected to grow steadily at a CAGR of 5.5% from 2025 to 2035, reaching approximately US\$ 13,422.0 Mn by 2035.

Liquid Cooling Systems Market Outlook

The global liquid cooling systems industry was valued
US\$ 7,514.4 Mn 2024



The global liquid cooling systems market is projected to grow at a
CAGR of 5.5%

and reach **US\$ 13,422.0 Mn** by the end of 2035



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Driven by AI data centers and EV growth, liquid cooling is emerging as the key to high-performance, energy-efficient, and sustainable thermal management.”

Transparency Market Research

As computing power and electrification evolve at an unprecedented pace, traditional air-cooling methods are proving insufficient to manage the escalating heat loads in modern systems. In this context, liquid cooling—with its superior heat transfer efficiency and energy savings—has emerged as a transformative solution across multiple sectors including data centers, telecommunications, automotive, and industrial applications.

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Analysts' Viewpoint

The liquid cooling systems market is evolving rapidly under the combined influence of high-performance computing demands, the electrification of mobility, and global sustainability objectives. Air cooling, once the industry standard, is increasingly unable to handle the heat output generated by AI infrastructure, EV batteries, and dense computing clusters. Liquid cooling systems, which use direct or indirect contact with heat-generating components, deliver enhanced performance, reduced energy consumption, and improved operational reliability.

Analysts highlight that direct liquid cooling systems (DLC)—where the coolant directly interfaces with high-heat components such as CPUs, GPUs, and battery cells—are gaining particular traction. This approach enables greater thermal precision and higher computing densities, while aligning with ESG goals and reducing environmental impact.

Market Introduction

Liquid cooling systems are essential for efficiently dissipating heat in advanced computing and electronic systems. Unlike air cooling, which relies on fans and airflow, liquid cooling uses fluid-based mediums (typically water, glycol, or dielectric fluids) to transfer heat away from sensitive components. The market encompasses a wide range of technologies and applications—from data centers and EV battery packs to industrial machinery, medical equipment, and telecommunications infrastructure.

With the exponential growth of data and electrification, industries worldwide are re-evaluating their cooling infrastructure to ensure sustainability, performance, and scalability. Increasing investments in edge computing, AI-driven workloads, and renewable energy systems have made liquid cooling indispensable for achieving the next level of technological efficiency.

Market Drivers

1. Shift to Liquid Cooling Systems for Electric Vehicles (EVs)

The global EV revolution is one of the most significant catalysts for liquid cooling system adoption. Modern lithium-ion batteries generate substantial heat during operation and fast charging, which can degrade battery performance, shorten lifespan, and pose safety risks.

While air cooling offers a cost-effective solution, it falls short under high-demand conditions or extreme climates. Liquid cooling systems, by contrast, provide consistent temperature control, enabling:

- Higher charging and discharging rates
- Safer thermal management
- Improved energy efficiency

- Longer battery life
- Extended driving range

Leading EV manufacturers such as Tesla, BYD, General Motors, and Rivian are integrating advanced liquid cooling architectures to ensure reliable performance and safety. As global EV adoption accelerates, the market for liquid-cooled battery and drivetrain systems is expected to expand significantly through 2035.

2. Growth of Data Centers and Cloud Infrastructure

The exponential rise in data-intensive applications—from artificial intelligence (AI) and machine learning (ML) to big data analytics and the Internet of Things (IoT)—has pushed data centers to their thermal limits. Traditional air-based cooling methods can no longer efficiently manage the increasing power densities of high-performance servers.

Liquid cooling systems, particularly direct-to-chip and immersion cooling, are now viewed as the most effective solutions for enhancing power usage effectiveness (PUE) and enabling higher computing densities.

Tech giants such as Google, Amazon Web Services (AWS), Microsoft Azure, and Meta are leading the shift toward liquid cooling to improve energy efficiency and achieve carbon neutrality targets. Furthermore, edge data centers—which support latency-sensitive workloads like 5G and autonomous driving—are adopting compact liquid cooling solutions for decentralized environments.

Segment Outlook

By Type

- Indirect Liquid Cooling Systems:

The indirect segment currently dominates the market due to its widespread use across data centers, research facilities, and healthcare environments. These systems combine the benefits of liquid and air cooling, offering flexibility and ease of integration with existing infrastructure.

Indirect cooling systems minimize maintenance requirements, prevent direct contact between fluids and electronics, and offer scalable performance for high-density workloads. Their adaptability and reliability make them particularly attractive for enterprises seeking efficient yet cost-effective cooling solutions.

- Direct Liquid Cooling Systems:

Direct systems, though still emerging, are experiencing rapid adoption in high-performance

computing (HPC) and EV battery systems. By bringing the coolant directly into contact with heat-generating components, they provide precise and powerful thermal management, supporting next-generation computing workloads and high-speed automotive systems.

Regional Outlook

North America: Market Leader

North America continues to lead the global liquid cooling systems market. The region's dominance stems from:

- Early adoption of HPC and hyperscale data centers
- Rapid expansion of cloud infrastructure
- Strong focus on energy-efficient and sustainable technologies

The U.S. hosts several major technology companies—Google, Amazon, Microsoft, Meta, and NVIDIA—that operate vast data centers requiring advanced thermal management. The growing emphasis on AI-driven workloads and environmental responsibility has prompted these firms to integrate liquid cooling across their facilities.

Moreover, the U.S. automotive sector, led by companies such as Tesla, Ford, and General Motors, is pioneering liquid-cooled EV technologies to enhance performance and reliability.

Asia Pacific: Fastest-Growing Region

The Asia Pacific (APAC) region is emerging as a high-growth market due to rapid industrialization, expansion of tech manufacturing hubs, and growing investments in renewable energy and smart infrastructure.

Countries such as China, India, Japan, and South Korea are witnessing robust growth in EV production, semiconductor fabrication, and hyperscale data centers. Government policies promoting energy efficiency, green data centers, and electric mobility are further propelling market expansion.

As APAC continues to strengthen its technological ecosystem, the demand for advanced liquid cooling systems in industrial automation, telecommunications, and consumer electronics will surge through 2035.

Europe: Focus on Sustainability and Data Sovereignty

Europe's liquid cooling systems market is characterized by strong environmental policies and the growing importance of data sovereignty. European countries are emphasizing the deployment of green data centers powered by renewable energy sources, making liquid cooling an integral part

of achieving net-zero emissions.

Automakers in Germany, France, and the U.K. are also integrating liquid-cooled systems into electric and hybrid vehicle platforms to comply with the EU's stringent emissions regulations.

Competitive Landscape

The global liquid cooling systems market is highly competitive, with a mix of established multinational corporations and emerging innovators. Key market participants are focusing on strategic partnerships, product innovation, and R&D investments to strengthen their positions.

Major Players Include:

- AIR CARE SYSTEM & SOLUTION INDIA PVT. LTD.
- Asetek A/S
- Boyd Corporation
- Green Revolution Cooling Inc. (GRC)
- Laird Thermal Systems
- LUMIVIDA
- Midas Green Technologies LLC
- Rittal GmbH & Co. Kg
- Schneider Electric SE
- YWCT

These companies are investing in advanced materials, modular cooling architectures, and hybrid systems that blend liquid and air cooling for optimal energy efficiency.

Key Developments

- June 2025: Green Revolution Cooling (GRC) secured new investment led by Samsung Ventures, alongside existing backers such as HTS, SK Enmove, and ENEOS. This funding aims to accelerate GRC's global expansion and development of next-generation immersion cooling solutions.
- May 2025: Asetek A/S launched Ingrid, a platform-based liquid cooling solution offering superior thermal performance, reduced noise levels, and enhanced platform flexibility—addressing the growing needs of data center operators and PC builders.

These developments underline the industry's innovation trajectory, where emphasis on sustainability, reliability, and customization drives product differentiation.

Opportunities and Future Trends

1. Immersion Cooling for AI and HPC:

As AI workloads grow, full-system immersion cooling will become standard for optimizing

thermal management in GPUs and AI accelerators.

2. Integration with Renewable Energy Infrastructure:

Liquid cooling can play a critical role in optimizing energy efficiency in renewable-powered data centers and smart grids.

3. Miniaturized and Modular Cooling Systems:

Future systems will feature modular liquid cooling units designed for edge computing, 5G base stations, and micro data centers.

4. Sustainability-Driven Adoption:

As carbon-neutral goals intensify, liquid cooling will help organizations cut emissions and improve Power Usage Effectiveness (PUE).

5. Hybrid Cooling Systems:

Combining air and liquid systems for transitional infrastructure will allow broader adoption across mid-scale enterprises.

The global liquid cooling systems market is at the forefront of a technological revolution, bridging performance efficiency with environmental responsibility. With a projected valuation of US\$ 13,422.0 Mn by 2035, the market's growth trajectory reflects the critical need for advanced cooling solutions across data centers, EVs, and industrial applications.

As industries continue to scale their digital and electric capabilities, liquid cooling systems will remain essential to achieving high-performance, low-energy, and sustainable operations. The convergence of AI expansion, EV adoption, and climate-conscious infrastructure ensures that liquid cooling technologies will not only grow in demand but also evolve as a key enabler of the next generation of innovation.

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