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Asia Pacific Data Center Cooling Market Report (2021-2031) by Scope, Segmentation, Dynamics, and Competitive Analysis

https://marketpublishers.com/r/A0A9D791F68AEN.html
Date: August 2025
Pages: 251
Price: US$ 3,450.00 (Single User License)
ID: A0A9D791F68AEN

Abstracts

The Asia Pacific data center cooling market is projected to grow significantly, reaching approximately US$ 10,645.55 million by 2031, up from US$ 2,769.64 million in 2023, with a compound annual growth rate (CAGR) of 18.3% during this period.

Executive Summary and Market Analysis

In September 2021, Vantage Data Centers, a leading global provider of hyperscale data center campuses, made a strategic entry into the Asia Pacific market through two acquisitions. This expansion was bolstered by a substantial equity investment of US$ 1.5 billion from DigitalBridge Investment Management and other investors. Vantage aims to provide data center services in major cities such as Tokyo, Osaka, Melbourne, Hong Kong, and Kuala Lumpur, focusing on the needs of hyperscale, cloud, and large enterprise clients. This move is expected to significantly influence the growth of the data center cooling market in the region.

The demand for sustainable and energy-efficient cooling solutions is increasingly critical in Asia Pacific. Cooling systems account for a large portion of total energy consumption in data centers, prompting a shift from traditional air-based cooling to more efficient liquid cooling systems. This transition is driven by the advantages of lower operational costs, reduced environmental impact, and easier maintenance associated with liquid cooling technologies.

Market Segmentation Analysis

The Asia Pacific data center cooling market can be segmented by component, cooling type, data center type, and industry vertical:

Component: The market includes air conditioning systems, chillers, air handling units, cooling towers, heat exchangers, humidifiers, and others. In 2023, air conditioning systems held the largest market share.

Cooling Type: The market is divided into room-based cooling, row-based cooling, and rack-based cooling, with room-based cooling leading in market share in 2023.

Data Center Type: Segmentation includes hyperscale, colocation, wholesale, and enterprise data centers, with hyperscale data centers dominating the market in 2023.

Industry Vertical: The market is categorized into IT and telecom, BFSI, healthcare, manufacturing, government and defense, media and entertainment, retail, energy, and others, with IT and telecom holding the largest share in 2023.

Market Outlook

The future of data center cooling is likely to be shaped by AI-optimized cooling solutions as organizations strive to manage the heat generated by advanced technologies like AI, machine learning, and edge computing. This trend is essential for maintaining optimal temperatures for high-density equipment, which traditional cooling systems struggle to achieve. AI-optimized cooling systems utilize artificial intelligence to monitor and adjust cooling in real-time, enhancing energy efficiency and hardware reliability. For example, in 2024, Eaton introduced SmartRack modular data center solutions that integrate IT racks, cooling, and service enclosures, addressing the growing need for machine learning and AI integration. Additionally, Asetek and Fabric8Labs announced a partnership to develop the AI-Optimized Cold Plate, a groundbreaking liquid cooling solution unveiled at Computex 2024, aimed at enhancing performance and efficiency.

Noise pollution from cooling systems is a significant concern in data centers, primarily due to the noise generated by compressors and fans. Many operators are considering liquid immersion cooling as a quieter alternative. For those not ready to adopt

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immersion cooling, optimizing airflow can effectively reduce noise from traditional cooling systems.

Country Insights

The Asia Pacific data center cooling market includes key countries such as China, India, Australia, Japan, South Korea, and others, with China holding the largest market share in 2023. Major cities like Shanghai, Beijing, Guangzhou, Shenzhen, and Chengdu are pivotal for data center infrastructure and colocation services. China has 92 data center facilities, with Equinix and iAdvantage being the leading providers. The country is exploring innovative cooling solutions, such as ocean cooling, to lower costs and reduce reliance on traditional energy sources. The demand for cooling solutions in China is driven by the rapid adoption of cloud computing, big data, AI, and IoT, leading to increased use of economizer systems, liquid cooling, and other advanced cooling technologies.

Company Profiles

Key players in the Asia Pacific data center cooling market include Asetek, Mitsubishi Corp, Stulz SpA, Vertiv Group Corp, Aspen Systems, Daikin Industries, Delta Electronics, Danfoss, Motivair, Madison Industries, Fujitsu, Rittal, Schneider Electric, Trane Technologies, Black Box, Carrier Global, Alfa Laval, Hewlett Packard Enterprise, Boyd Corp, and Evapco. These companies are pursuing strategies such as expansion, product innovation, and mergers and acquisitions to enhance their market presence and offer innovative solutions.

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