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Data Center Air Handling Units Market by Type, Capacity (?5,000 M3/H, 5,001-15,000 M3/H, 15,001-30,000 M3/H, 30,001-50,000 M3/H, ?50,001 M3/H), Data Center Type (Hyperscale, Enterprise, Colocation Providers), and Region - Global Forecast to 2032

https://marketpublishers.com/r/DA242D96A087EN.html
Date: September 2026
Pages: 272
Price: US$ 2,970.00 (Single User License)
ID: DA242D96A087EN

Abstracts

The data center air handling units market is projected to grow from USD 4.00 billion in 2026 to USD 6.70 billion by 2032, at a CAGR of 9.0% during the forecast period. The increasing adoption of artificial intelligence (AI), generative AI, high-performance computing (HPC), and cloud computing is the primary driver of the global data center air handling units market. AI servers equipped with advanced GPUs and accelerators from companies such as NVIDIA, AMD, and Intel generate substantially higher heat loads than conventional server architectures, pushing rack power densities from traditional 5–15 kW to 50–100 kW and, in some AI deployments, beyond 150 kW per rack. These elevated thermal loads require advanced thermal management solutions that can efficiently dissipate heat while ensuring continuous system reliability and performance.

“By type, the AHU integrated with chilled water systems segment is estimated to account for the largest, in terms of value, during the forecast period.”

The AHU integrated with chilled water systems segment is projected to account for the largest market share due to increasing adoption of chilled water-based cooling in hyperscale, colocation, and enterprise data centers. Chilled water-based cooling provides high efficiency and high-scale cooling.

An ongoing trend is the proliferation of hyperscale data centers and AI-enabled

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computing infrastructure, which is also driving the use of chilled water systems with AHUs. Higher rack power densities across data centers are prompting operators to embrace a centralized chilled water-cooling architecture that can effectively remove heat from the entire facility. Furthermore, such systems can incorporate other emerging technologies such as variable-speed pumps, intelligent controls, free cooling schemes, and highly efficient chillers for enhanced efficiency.

“By data center type, the hyperscale data centers segment is projected to witness the highest CAGR during the forecast period.”

Based on data center type, the hyperscale data centers segment is projected to register the fastest growth in the global data center air handling units market during the forecast period. Large cloud service providers and technology companies are rapidly deploying hyperscale data centers to cater to the soaring demand for digital workloads. As the utilization of AI/ML, HPC and cloud-based applications increases, there is a need for more sophisticated cooling infrastructures. AHUs, along with chilled water systems, free cooling, intelligent controls and variable-speed fans, are all being employed to control increased BTU loads with lower overall energy consumption. Hydrogen and methane-based nuclear cell-powered hyperscale operators are also offering an environmentally sustainable approach to data center development and operation via the deployment of highly energy-efficient HVAC components and systems to achieve 1.2PUE standards.

“By capacity, the ?50,000 M3/H segment is the highest growth during the forecast period.”

In terms of capacity, the above ?50,000 m3/h segment is projected to grow at the highest CAGR in the overall data center air handling units market during the forecast period. The growth of this segment can be attributed to high demand for AHUs having airflow capacity of above 50,000 m 3/h due to the rapid growth of hyperscale data centers, large colocation facilities, and AI-focused computing infrastructure.

With increasing applications to AI/ML/HPC and cloud-based applications, the use of large-capacity air handling units (AHUs) is being further promoted. AHUs of this capacity increasingly feature chilled water cooling, free cooling, EC fans, variable air volume for cooling/heating, and intelligent monitoring systems.

“North America is projected to be the largest data center air handling units market, in terms of value, during the forecast period.”

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North America is estimated to be the largest market for data center air handling units during the forecast period. This growth is primarily driven by its established digital infrastructure, a significant presence of hyperscale cloud providers, and the rapid increase in artificial intelligence (AI) and high-performance computing (HPC) workloads. The US and Canada continue to experience significant investment in hyperscale, colocation, and enterprise data centers. Companies like Amazon Web Services (AWS), Microsoft, Google, Meta, Oracle, and CoreWeave are expanding their AI-ready infrastructures. As more high-density server racks and GPU clusters are implemented, thermal loads are increasing, which in turn raises the demand for enhanced thermal management solutions across the region.

Moreover, the region is at the forefront of developing next-generation cooling technologies. These include direct-to-chip liquid cooling, immersion cooling, precision air conditioning, computer room air handlers (CRAHs), computer room air conditioners (CRACs), coolant distribution units (CDUs), heat exchangers, and smart thermal monitoring systems. With these advanced tools, data center teams can improve cooling efficiency, maintain optimal temperatures, reduce energy consumption, and achieve better Power Usage Effectiveness (PUE) outcomes, all while managing the growing demands of power-hungry AI applications.

Profile break-up of primary participants for the report:

By Company Type: Tier 1 – 45%, Tier 2 – 22%, and Tier 3 – 33%

By Designation: C-Level Executives– 50%, Directors– 10%, and Others – 40%

By Region: North America – 17%, Asia Pacific – 17%, Europe – 33%, Middle East & Africa – 25%, and South America – 8%

Leading players operating in the data center air handling units market include STULZ GMBH (Germany), Samsung Electronics (South Korea), Systemair AB (Sweden), Vertiv Group Corp (US), Swegon Group AB, (Sweden), Munters Group AB (Sweden), Johnson Controls (US), Trane (Ireland), Carrier (US), Daikin (Japan), Mitsubishi Electric Corporation (Japan), LG Electronics (South Korea), Trox SE (Germany), Airedale International Air Conditioning Ltd (Modine) (UK), AL-KO THERM GMBH (Germany), AAON (US), Zeco Aircon (India), GD Midea Heating & Ventilating Equipment Co., Ltd. (China), and others. These key players are significant contributors to the data center air handling units market. These players have adopted various strategies, including agreements, joint ventures, and expansions, to increase their market share and business revenue.

Research Coverage:

The report defines, segments, and projects the size of the data center air handling units market based on data center type, capacity, type, and region. It strategically profiles the key players and comprehensively analyzes their market shares and core competencies. It also tracks and analyzes competitive developments, such as expansions, partnerships, and acquisitions undertaken by them in the market.

Reasons to Buy the Report:

The report is expected to help market leaders/new entrants by providing them with the closest approximations of revenue numbers for the data center air handling units market and its segments. This report is also expected to help stakeholders gain a deeper understanding of the market's competitive landscape, acquire valuable insights to enhance their business positions, and develop effective go-to-market strategies. It also enables stakeholders to understand the market's pulse and provides information on key market drivers, restraints, challenges, and opportunities.

The report provides insights into the following pointers:

Analysis of drivers (Rapid expansion of data center market, Growing emphasis on energy efficient and sustainable data center cooling, Increasing server rack power density driving demand for advanced airflow management), restraints (Growing adoption of liquid cooling technologies for high density computing, High capital investment and lifecycle costs of advanced AHU systems), opportunities (Increasing adoption of hybrid cooling architectures in AI ready data centers, Growing retrofit and modernization of legacy data center cooling infrastructure), and challenges (Integration challenges in hybrid cooling architectures) influencing the growth of the data center air handling units market

Product Development/Innovation: Detailed insights into upcoming technologies and research & development activities in the data center air handling units market

Market Development: Comprehensive information about lucrative markets – the report analyzes the data center air handling units market across varied regions.

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Market Diversification: Exhaustive information about new products, various types, untapped geographies, recent developments, and investments in the data center air handling units market

Competitive Assessment: In-depth assessment of market shares, growth strategies, and product offerings of leading players such as STULZ GMBH (Germany), Samsung Electronics (South Korea), Systemair AB (Sweden), Vertiv Group Corp (US), Swegon Group AB, (Sweden), Munters Group AB (Sweden), Johnson Controls (US), Trane (Ireland), Carrier (US), Daikin (Japan), Mitsubishi Electric Corporation (Japan), LG Electronics (South Korea), Trox SE (Germany), Airedale International Air Conditioning Ltd (Modine) (UK), AL-KO THERM GMBH (Germany), AAON (US), Zeco Aircon (India), GD Midea Heating & Ventilating Equipment Co., Ltd. (China), and others

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