

South Korea Data Center Cooling - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2030

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Report description:

The South Korean data center rack market reached a value of USD 350.4 million in the previous year, and it is further projected to register a CAGR of 8.4% during the forecast period. '

Key Highlights

- The increasing demand for cloud computing among SMEs, government regulations for local data security, and growing investment by domestic players are some of the major factors driving the demand for data centers in the country/region.
- The upcoming IT load capacity of the South Korea data center market is expected to reach 2K MW by 2029. The country's construction of raised floor area is expected to increase to 5 million sq. ft by 2029. The country's total number of racks to be installed is expected to reach 270K units by 2029. Greater Seoul is expected to house the maximum number of racks by 2029. Throughout the year, temperatures typically fluctuate between 21F and 85F, rarely dropping below 11F or above 91F. Depending upon climatic conditions, the DC cooling is processed in the DC facilities.
- There are close to 10 submarine cable systems connecting South Korea, and many are under construction. One such submarine cable that is estimated to start service in 2023 is Southeast Asia-Japan Cable 2 (SJC2), which stretches over 10,500 Kilometers with landing points from Geoje, South Korea

South Korea Data Center Cooling Market Trends

Liquid-based F is the fastest Growing Segment

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- Liquid cooling takes advantage of the superior heat transfer properties of water or other liquids to support efficient and cost-effective cooling of high-density racks, up to 3000 times more effective than using air. Long proven in mainframe and gaming applications, liquid cooling is increasingly being used to protect rack servers in data centers across the region.
- Direct liquid cooling solutions deliver remarkable power usage effectiveness (PUE) values, typically ranging from 1.02 to 1.03. This performance surpasses even the most efficient air cooling systems by a slight margin, usually in the low single-digit percentage range. It is essential to note that the enhanced energy efficiency of direct liquid cooling (DLC) cannot be solely attributed to improvements in power PUE.
- Conventional servers incorporate fans that consume power from the rack, and as such, their operation is accounted for within the IT power segment of the PUE calculation. These fan-related power requirements are considered an integral part of the data center's overall workload, often referred to as the data center payload.
- The use of smartphones and tablets is only expected to increase as technology advances. Many Korean ed-tech startups focus exclusively on education through mobile apps or computers. One such startup, SmartStudy, developed a brand called "Pinkfong," which became a global sensation thanks to its Baby Shark series.
- SmartStudy creates educational entertainment content for young children on YouTube. It is estimated that children over six years old spend approximately 50 minutes per day on gaming alone. Such developments contribute to the rising data traffic per smartphone in the country.
- Technological advances have made liquid cooling easier to maintain, more scalable, and more affordable, reducing data center liquid consumption by more than 15% in tropical climates and by 80% in greener areas. The energy used for liquid cooling can be recycled to heat buildings and water, and advanced artificial refrigerants can effectively reduce the carbon footprint of air conditioners.
- The South Korean e-commerce market is the fourth-largest in the world. As of July 2022, 1.28 million shopping apps were downloaded nationwide. The demand for online shopping during the pandemic is expected to increase, thereby driving investments in cloud computing and data centers. The key items leading to the expansion of South Korea's online market are electronic home appliances and fresh and processed foods. The e-commerce segment continues to grow, boosted by the development of logistics systems such as improved convenience of online payment systems, fast delivery, and early-morning delivery. This would increase the DC facilities, further creating demand for DC cooling equipment in the country.

IT & Telecommunication is the Largest Segment

- The ICT industry is a growth engine of the economy, generating nearly 9% of South Korea's Gross Domestic Product (GDP) since 2011. In 2019, the industry's real contribution to GDP reached 10.8%, equivalent to KRW 199 trillion (USD 0.15 billion). The two major sub-sectors of the telecom industry, telecom equipment and services, respond flexibly to changing market demands and technology trends and continuously invest in innovations that drive growth in the ICT industry.
- Following the introduction of 5G technology, South Korea unveiled its national strategy, "5G Plus (5G+)," in April 2019. This strategy centered on bolstering ten 5G-based industries and promoting five key services vital to the economy. As a pivotal component of this comprehensive initiative, the city of Seoul has set ambitious objectives, including the aspiration to capture a substantial 15% share of the global market and generate an impressive 600,000 new job opportunities by the conclusion of 2026.
- Recently, the government decided to lower the barriers to entry for cloud computing services in the country. The move is expected to make foreign tech giants such as Amazon and Microsoft a threat to domestic companies. US and Chinese tech firms welcome proposed deregulation despite growing concerns from KT, Naver, NHN, and other domestic cloud service providers about foreign firms' potential domination of local markets and are beginning to explore opportunities, experts said. Cloud computing services for the public sector. Such developments have increased the need for data centers from the domestic cloud sector.
- In parallel with the 5G+ initiative, the Moon administration proposed in July 2020 a Korean version of the New Deal based on two pillars: the Green New Deal and the Digital New Deal. Combined with environmental programs, the Digital New Deal paints a grand blueprint for the digital economy. To implement these measures, the South Korean government plans to put more emphasis

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on developing a DNA-based digital ecosystem. Technologies that facilitate the development of productivity and the production of digital goods and services. Thus, advancement in ICT would increase the overall sector in the country.

South Korea Data Center Cooling Industry Overview

The South Korean Data Center Cooling Market exhibits a moderate level of competitiveness but has gained a significant competitive edge in recent years. Currently, a select few major players, including Stulz GmbH, Schneider Electric SE, Vertiv Group Corp., Rittal GmbH & Co. KG, and Iceotope Technologies Limited, prominently dominate this market in terms of market share.

In March 2023, STULZ, a renowned mission-critical air conditioning company based in Hamburg, announced a noteworthy development. Certain units within its industry-leading CyberAir 3PRO DX series are now equipped to utilize the environmentally friendly refrigerant R513A, known for its low global warming potential (GWP). This breakthrough underscores the company's unwavering commitment to delivering the most sustainable air conditioning solutions for data centers. Furthermore, STULZ has extended its commitment to sustainability by incorporating the R513A refrigerant into additional products within its portfolio, further promoting eco-friendly practices in the industry.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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