

Data Center Liquid Cooling Market - A Global and Regional Analysis: Focus on Data Center Types and Solutions, End-Use Industry, Government Initiatives, Trends, Patent Analysis, Drivers, Challenges, Opportunities, and Country Analysis

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Abstracts

Market Report Coverage - Data Center Liquid Cooling

Market Segmentation

End-Use: IT and Telecom, Banking, Financial Services, and Insurance (BFSI), Government and Public Sector, Healthcare, Manufacturing, Retail, and Others

Data Center Type: Hyperscale Centers, Enterprise type, Colocation Data Centers, and Others

Solution Type: Indirect Cooling (In-Row-Based and In-Rack-Based), Direct Cooling (Single-Phase and Two-Phase)

Regional Segmentation

North America: U.S., Canada, and Mexico

Europe: Germany, France, Netherlands, Switzerland, and Rest-of-Europe

China

U.K.

Asia-Pacific and Japan: Japan, South Korea, Singapore, and Rest-of-Asia-Pacific and Japan

Rest-of-the-world: South America and Middle East and Africa

Market Growth Drivers

Changing Government and International Policies on Carbon Emissions and Increased Emphasis on Energy Efficiency

Growing Need for Energy-Efficient Cooling Solutions

Increased Demand from Hyperscalers

Market Challenges

Susceptibility to Leakage

Higher Costs of Implementation and Compatibility Issues

Market Opportunities

Increased Demand for Data Centers

Retrofitting Existing Infrastructure

Key Companies Profiled

Aquila Group, Asetek, Inc., Aspen Systems Inc., Asperitas, Chilldyne, Inc., Cooler Master Co., Ltd., CoolIt Systems, DCX The Liquid Cooling Company, ExaScaler Inc., Fujitsu, International Business Machines Corporation, Schneider Electric, Submer, 3M, and Royal Dutch Shell plc

How This Report Can Add Value

Business and Corporate Strategies

The data center liquid cooling market players have opted for partnerships, collaborations, mergers, acquisitions, and joint ventures, as well as product development strategies as a way of establishing dominance in the market. Out of the total strategies and developments observed in this market from January 2018 till April 2021, almost 45% were related to partnerships, collaborations, mergers, acquisitions, and joint ventures, which is followed by product developments with almost 43% share in total developments.

The only way to have a breakthrough in the market is by launching a product or component with unique capabilities. For instance, in March 2021, Submer, a leading innovator in advanced immersion cooling solutions for data centers and cloud & edge computing, launched its latest immersion cooling solution, the MegaPod.

Key questions answered in the Report

What is the estimated global data center liquid cooling market size in terms of revenue for the forecast period 2021-2026, and what is the expected compound annual growth rate (CAGR) during the forecast period 2021-2026?

What are the key trends, market drivers, and opportunities in the market pertaining to data center liquid cooling?

What are the major restraints inhibiting the growth of the global data center liquid cooling market?

What kinds of new strategies are being adopted by the existing market players to expand their market position in the industry?

What is the competitive strength of the key players in the data center liquid cooling market on the basis of analysis of their recent developments, product offerings, and regional presence?

How is the competitive benchmarking of the key data center liquid cooling companies in the agriculture market based on the analysis of their market coverage and market potential?

How much revenue each of the segments is expected to record during the forecast period along with the growth percentage? Following are the segments:

End Use Industry, including IT and Telecom, Banking, Financial Services, and Insurance (BFSI), Government and Public Sector, Healthcare, Manufacturing, Retail

Data Center Type, including Hyperscale Centers, Enterprise Type, Colocation Data Centers

Solution Type, including Indirect Cooling (Row Based, Rack Based) and Direct Cooling (Single Phase, Two Phase)

Region, including North America, the U.K., Europe, Asia-Pacific and Japan, China, and the Rest-of-the-world

Which type of players and stakeholders are operating in the market ecosystem of the data center liquid cooling market, and what is their significance in the global market?

How does the regulatory landscape differ in different regions for data center liquid cooling?

Global Data Center Liquid Cooling Market

Liquid cooling was initially designed for supercomputers during the 1960s. IBM utilized liquid cooling for its System360 mainframe computers; however, it was expensive and had few applications limited to supercomputers and mainframes only. These computers were very rare and were used for mission-critical applications. Thus, liquid cooling was essential to keep them running at an optimum temperature. However, in the 1970s and 1980s, due to negligible computing needs in most industries and lower adoption of computers, liquid cooling was not an ideal solution. The global data center liquid cooling market is at a growing stage as compared to well-established markets of other cooling methods.

Since the formation of the Kigali Amendment in 2016 (leading to a global ban of few industrial gases such as chlorofluorocarbons and limited consumption of

hydrochlorofluorocarbons and hydrofluorocarbons) and similar movements across regions, such as the EU Green Deal formed in 2019, a greater emphasis is now given to sustainability and energy efficiency, which has pushed the demand for liquid cooling technologies as a cleaner and energy-efficient alternative to traditional cooling.

Impact of COVID-19 on Global Data Center Liquid Cooling Market

COVID-19 had a neutral impact on the data center liquid cooling market. The worldwide lockdown during the pandemic has increased the demand for data center services, which has witnessed a two-fold increase in traffic during the period. However, the supply chain of the majority of the industries across the globe got impacted due to COVID-19, which has negatively impacted the supply side of this market. Overall, the impact was neutral as data center demand increased, leading to various new deployments and the commissioning of new capacities.

Global Data Center Liquid Cooling Industry Overview

The global data center liquid cooling market is expected to reach \$7.7 billion by 2026, with a CAGR of 27.31% during the forecast period 2021-2026. High growth in the market is expected to be driven by the growing need for green and energy-efficient alternatives to existing cooling infrastructure. Apart from this, increased emphasis on digitization, growing internet reach, and cloud migration has led to an increase in IT workloads globally. This will eventually increase the rack power densities. Liquid cooling technologies have higher efficiency for high rack densities as compared to air-based cooling systems. Thus, the growing demand for data centers is also responsible for such high growth in the data center liquid cooling market.

Market Segmentation

Global Data Center Liquid Cooling Market by End-Use

The data center liquid cooling market by end-use industry is led by the IT and telecom industry. The telecom industry is the largest consumer of data centers. Data centers are a crucial part of the ICT industry as data transmission and data delivery operations require better connectivity. As communication is the biggest factor contributing to the success of the ICT industry, data centers have become critical to this industry. Thus, the demand for data center liquid cooling from the IT and telecom industry is highest amongst industries.

Global Data Center Liquid Cooling Market by Data Center Type

The market by data center type is dominated by hyperscale data center type. This is since most of the leading hyper-scale and cloud service providers have committed to increased energy efficiency and reduced carbon emissions. These companies include Google LLC, Facebook, Microsoft, and Amazon AWS. Another factor contributing to this is the growing emphasis on cloud migration. More companies globally are either planning or have already migrated some of their operations to cloud computing.

Global Data Center Liquid Cooling Market by Solution Type

The market for indirect cooling is expected to lead the market by solutions in the data center liquid cooling market by solution type. This is due to the wide adoption and better availability of indirect cooling systems. As compared to direct cooling technologies, such as immersion cooling and direct-to-chip cooling, the indirect cooling market has more vendors and manufacturers, which have helped it assume a leading market position.

Global Data Center Liquid Cooling Market by Region

Europe is the leading market for data center liquid cooling that is expected to reach \$2.5 billion by 2026. This is due to the wide acceptance of environment-friendly policies and an increase in emphasis on energy efficiency in almost all industrial sectors. Apart from this, European Union has formed a Green Deal, which dictates plans to make the entire data center and information and communications technology (ICT) industry carbon neutral by 2030.

Key Market Players and Competition Synopsis

Key market players operating in the market include Aquila Group, Asetek, Inc., Aspen Systems Inc., Asperitas, Chillydyne, Inc., Cooler Master Co., Ltd., CoolIt Systems, DCX The Liquid Cooling Company, ExaScaler Inc., Fujitsu, International Business Machines Corporation, Schneider Electric, Submer, 3M, and Royal Dutch Shell plc.

The companies that are profiled in the report have been selected based on a selective pool of players, primarily Tier-1 (which holds 50-60% of the market) and mid-segment players (comprise of 30-40% share), and small & emerging companies (holds the balance 10-20% share), based on various factors such as product portfolio, annual revenues, market penetration, research, and development initiatives, along with a domestic and international presence in the industry.

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