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Global Immersion Cooling System for Data Center Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Immersion Cooling System for Data Center market size is expected to reach $ 637 million by 2032, rising at a market growth of 11.3% CAGR during the forecast period (2026-2032).

Immersion Cooling System for Data Center refers to an advanced thermal management solution in which servers and their electronic components are fully submerged in a dielectric cooling liquid. The system typically consists of a sealed immersion tank, dielectric coolant, circulation pumps, heat exchangers, a Coolant Distribution Unit (CDU), and intelligent monitoring modules. Structurally, it resembles an industrial-grade metallic cabinet or modular enclosure. Based on whether the coolant undergoes phase change, the technology is categorized into single-phase and two-phase immersion cooling systems. The operating principle relies on the high thermal conductivity and specific heat capacity of liquid media to directly remove heat from electronic components, eliminating traditional air-cooling pathways. This approach significantly improves energy efficiency and supports ultra-high power density workloads. It is widely deployed in AI training clusters, high-performance computing (HPC), edge data centers, and high-density GPU infrastructure, representing a next-generation cooling architecture for modern high-compute data centers.

In terms of market development opportunities and main driving factors, Immersion Cooling System for Data Center is transitioning from a technology validation phase to a large-scale deployment stage. The rapid expansion of large AI model training, generative AI inference, high-performance computing (HPC), and high-density GPU clusters has driven rack power density from 10?20 kW to 40 kW, 80 kW, or even above 100 kW. Traditional air cooling and some direct-to-chip liquid cooling solutions are approaching their physical and efficiency limits, positioning immersion cooling as a key

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alternative due to its superior heat flux handling capability and lower PUE potential. Meanwhile, global carbon neutrality targets and tightening energy regulations have placed data centers under stricter efficiency requirements. Immersion cooling reduces fan power consumption, simplifies cooling chains, and enables high-temperature heat recovery, providing structural support for green data center development. In addition, new computing hubs and modular edge deployments increasingly favor prefabricated and containerized solutions, where immersion systems demonstrate strong adaptability. Upstream localization of dielectric fluids and immersion-ready server designs are also lowering integration barriers. From a capital perspective, computing infrastructure is viewed as strategic new infrastructure, and the combined effects of policy incentives, industrial funds, and energy transition are accelerating broader commercialization.

Regarding market challenges, risks, and restraints, large-scale adoption still faces several constraints. Initial capital expenditure remains relatively high, including immersion tanks, coolant filling, customized server modifications, and heat exchange systems. The short-term ROI may be uncertain, especially in regions with low electricity prices or underutilized computing capacity. Industry standards are still evolving, with incomplete harmonization in hardware compatibility, coolant stability, sealing requirements, and fire safety regulations, potentially leading to ecosystem fragmentation. Operational maturity is another challenge, as traditional data center operators lack experience maintaining servers in liquid environments, and customers may have concerns about reliability, warranties, and asset residual value. Coolant price volatility, supply chain concentration, and environmental compliance issues?particularly regarding certain fluorinated fluids?also represent potential risks. Structurally, hyperscale cloud providers may prefer in-house development or partnerships with leading vendors, creating entry barriers for smaller players and prolonging commercialization cycles.

In terms of downstream demand trends, future demand will be characterized by high-density prioritization, coexistence of centralized and edge computing, and integration of green energy with computing-as-a-service models. AI training clusters and supercomputing centers will remain the primary growth drivers, as thermal management increasingly becomes a limiting factor for next-generation GPUs and AI accelerators. At the same time, compact modular immersion systems may find opportunities in edge scenarios with limited space or challenging environmental conditions. Energy transition will drive data centers toward renewable-rich regions, where immersion cooling?s high-temperature heat reuse capability supports integrated ?computing + energy? utilization models. As computing services become more platformized, third-party operators will

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focus on lifecycle energy efficiency and power density optimization, further strengthening the value proposition of immersion cooling. Overall, procurement patterns are expected to shift from pilot-based adoption toward scaled infrastructure deployment, accelerating ecosystem formation in the coming years.

This report studies the global Immersion Cooling System for Data Center production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Immersion Cooling System for Data Center and provides market size (US$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Immersion Cooling System for Data Center that contribute to its increasing demand across many markets.

Highlights and key features of the study
Global Immersion Cooling System for Data Center total production and demand, 2021-2032, (Units)
Global Immersion Cooling System for Data Center total production value, 2021-2032, (USD Million)
Global Immersion Cooling System for Data Center production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Units), (based on production site)
Global Immersion Cooling System for Data Center consumption by region & country, CAGR, 2021-2032 & (Units)
U.S. VS China: Immersion Cooling System for Data Center domestic production, consumption, key domestic manufacturers and share
Global Immersion Cooling System for Data Center production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (Units)
Global Immersion Cooling System for Data Center production by Type, production, value, CAGR, 2021-2032, (USD Million) & (Units)
Global Immersion Cooling System for Data Center production by Application, production, value, CAGR, 2021-2032, (USD Million) & (Units)

This report profiles key players in the global Immersion Cooling System for Data Center market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Schneider Electric, Vertiv Holdings, Fujitsu, Delta Electronics, GIGABYTE Technology, Wiwynn Corporation, Shenzhen Envicool Technology, GRC, Submer, Trane Technologies, etc.

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This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Immersion Cooling System for Data Center market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (Units) and average price (US$/Unit) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Immersion Cooling System for Data Center Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global Immersion Cooling System for Data Center Market, Segmentation by Type:

Single Phase Cooling

Two Phase Cooling

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Global Immersion Cooling System for Data Center Market, Segmentation by Coolant Chemical Composition:

Synthetic Hydrocarbon-Based Immersion Cooling System

Mineral Oil-Based Immersion Cooling System

Fluorocarbon-Based Immersion Cooling System

Engineered Dielectric Fluid-Based System

Bio-Based Dielectric Fluid System

Global Immersion Cooling System for Data Center Market, Segmentation by Physical Structural Configuration:

Open-Bath Immersion Tank System

Sealed Tank Immersion System

Modular Containerized Immersion System

Rack-Integrated Immersion System

Global Immersion Cooling System for Data Center Market, Segmentation by Coolant Circulation Mechanism:

Passive Natural Convection System

Pump-Driven Circulation System

Gravity-Assisted Circulation System

Hybrid Circulation Immersion System

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Global Immersion Cooling System for Data Center Market, Segmentation by Application:

Small and Medium Data Centers

Large Data Centers

Hyper-Scale Data Centers

Companies Profiled:

Schneider Electric

Vertiv Holdings

Fujitsu

Delta Electronics

GIGABYTE Technology

Wiwynn Corporation

Shenzhen Envicool Technology

GRC

Submer

Trane Technologies

Asperitas

Iceotope

LiquidCool Solutions

Midas Immersion Cooling

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DCX Liquid Cooling Systems

Nautilus Data Technologies

Mitsubishi Heavy Industries

Key Questions Answered:

1. How big is the global Immersion Cooling System for Data Center market?
2. What is the demand of the global Immersion Cooling System for Data Center market?
3. What is the year over year growth of the global Immersion Cooling System for Data Center market?
4. What is the production and production value of the global Immersion Cooling System for Data Center market?
5. Who are the key producers in the global Immersion Cooling System for Data Center market?
6. What are the growth factors driving the market demand?

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