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Global Liquid Cold Plates for Energy Storage PCS Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Liquid Cold Plates for Energy Storage PCS market size is expected to reach $ 282 million by 2032, rising at a market growth of 14.5% CAGR during the forecast period (2026-2032).

Liquid Cold Plates for Energy Storage PCS are metal thermal management components used for cooling power conversion systems, bidirectional converters, energy storage inverters, IGBT modules, SiC power modules and related power electronics inside battery energy storage systems. The product mainly covers aluminum alloy cold plates, copper aluminum composite cold plates, stainless steel cold plates, brazed cold plates, vacuum brazed cold plates, friction stir welded cold plates, embedded tube cold plates, extruded channel cold plates and customized power module cold plates. A cold plate is mounted close to or directly onto heat generating power electronics and transfers waste heat into a circulating coolant, which is consistent with the common technical definition of liquid cold plates in power electronics cooling. Its manufacturing process usually includes metal forming, machining, internal channel design, brazing or welding, surface treatment, sealing, pressure testing and cleanliness control. Key specifications include plate size, channel design, coolant flow rate, pressure resistance, thermal resistance, heat dissipation capacity, flatness, leakage rate, corrosion resistance, insulation clearance and mechanical compatibility with converter power modules. The product is mainly used in grid scale energy storage PCS cabinets, containerized energy storage systems, renewable energy storage converters, industrial and commercial storage systems and high power bidirectional power conversion equipment. In 2025, global shipment volume of Liquid Cold Plates for Energy Storage PCS is estimated at about 0.74 million units, with an industry average selling price of about USD 125 per unit and an industry average gross margin of about 30%.

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Liquid Cold Plates for Energy Storage PCS represent a specialized thermal management component within the power electronics supply chain rather than a complete energy storage product. The upstream chain includes aluminum, copper, stainless steel, brazing materials, sealing materials, coolant compatible materials, CNC equipment, welding equipment and leak testing systems. The midstream segment covers cold plate design, channel optimization, brazing, friction stir welding, machining, cleaning, pressure testing and reliability validation. Downstream demand mainly comes from energy storage PCS, bidirectional converters, energy storage inverters, renewable energy storage systems and high power power conversion units. As energy storage systems move toward higher power density, larger containerized architecture and stricter safety requirements, liquid cooling is becoming more important for PCS thermal control, especially where high heat flux IGBT or SiC modules need stable operating temperatures. The competitive landscape is shaped by two groups of suppliers. International players are stronger in high power electronics cold plates, IGBT cold plates, customized thermal solutions and advanced joining processes, while Chinese suppliers benefit from the rapid expansion of energy storage, charging infrastructure and new energy vehicle thermal management supply chains. The industry is moving from general metal cooling plates toward application specific PCS cold plates with better flatness, lower thermal resistance, tighter leak control and improved manufacturability. Capacity investment is mainly concentrated in brazing lines, automated cleaning, pressure testing, machining and module level validation. Some suppliers are also using acquisitions, production line upgrades and cross application expansion to enter higher value power electronics cooling scenarios. Policy and demand conditions remain supportive. Grid flexibility, renewable energy integration, industrial and commercial storage deployment and battery energy storage investment continue to expand the installed base of PCS equipment. The global battery storage sector added 108 GW of capacity in 2025, showing the strength of the downstream market that indirectly supports PCS cooling components. The long term outlook is positive but not without pressure. Growth will be driven by higher liquid cooled PCS penetration, wider use of SiC power devices, higher cycling intensity and stricter reliability requirements. At the same time, pricing pressure, customer designated manufacturing, regional supply chain localization and competition from battery cold plate suppliers may limit margin expansion.

This report studies the global Liquid Cold Plates for Energy Storage PCS production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Liquid Cold Plates for Energy Storage PCS and provides market size (US$ million) and Year-over-

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Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Liquid Cold Plates for Energy Storage PCS that contribute to its increasing demand across many markets.

Highlights and key features of the study
Global Liquid Cold Plates for Energy Storage PCS total production and demand, 2021-2032, (Units)
Global Liquid Cold Plates for Energy Storage PCS total production value, 2021-2032, (USD Million)
Global Liquid Cold Plates for Energy Storage PCS production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Units), (based on production site)
Global Liquid Cold Plates for Energy Storage PCS consumption by region & country, CAGR, 2021-2032 & (Units)
U.S. VS China: Liquid Cold Plates for Energy Storage PCS domestic production, consumption, key domestic manufacturers and share
Global Liquid Cold Plates for Energy Storage PCS production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (Units)
Global Liquid Cold Plates for Energy Storage PCS production by Base Material, production, value, CAGR, 2021-2032, (USD Million) & (Units)
Global Liquid Cold Plates for Energy Storage PCS production by Application, production, value, CAGR, 2021-2032, (USD Million) & (Units)

This report profiles key players in the global Liquid Cold Plates for Energy Storage PCS 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 Eaton Corporation, Wieland Microcool, Mersen, Wakefield Thermal, Advanced Cooling Technologies, Advanced Thermal Solutions, Innovative Thermal Solutions, Radian Thermal Products, AVIC Jonhon Optronic Technology Co., Ltd., Changzhou HeatCreate Thermal Management System Co., Ltd., etc.

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 Liquid Cold Plates for Energy Storage PCS market

Detailed Segmentation:

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Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (Units) and average price (US$/Unit) by manufacturer, by Base Material, 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 Liquid Cold Plates for Energy Storage PCS Market, By Region:

- United States
- China
- Europe
- Japan
- South Korea
- ASEAN
- India
- Rest of World

Global Liquid Cold Plates for Energy Storage PCS Market, Segmentation by Base Material:

- Aluminum Cold Plates
- Copper Cold Plates
- Copper Aluminum Composite Cold Plates
- Stainless Steel Cold Plates
- Others

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Global Liquid Cold Plates for Energy Storage PCS Market, Segmentation by Manufacturing Process:

Stamping and Brazing

Vacuum Brazing

Friction Stir Welding

CNC Machining and Sealing

Extrusion and End Sealing

Others

Global Liquid Cold Plates for Energy Storage PCS Market, Segmentation by Cooling Channel Design:

Straight Channel

Serpentine Channel

Microchannel

Pin-fin

Hybrid

Others

Global Liquid Cold Plates for Energy Storage PCS Market, Segmentation by Application:

Grid Storage

C&I Storage

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Charging Infrastructure

Industrial Power

Others

Companies Profiled:

Eaton Corporation

Wieland Microcool

Mersen

Wakefield Thermal

Advanced Cooling Technologies

Advanced Thermal Solutions

Innovative Thermal Solutions

Radian Thermal Products

AVIC Jonhon Optronic Technology Co., Ltd.

Changzhou HeatCreate Thermal Management System Co., Ltd.

Shenzhen FRD Science and Technology Co., Ltd.

Envicool Technology Co., Ltd.

Nabaichuan New Energy Co., Ltd.

Suzhou Ruidaike Thermal Technology Co., Ltd.

Sanhua Automotive

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Zhejiang Yinlun Machinery Co., Ltd.

Anhui Wenxuan New Energy Thermal Management System Co., Ltd.

Dongguan Meijie Metal Products Co., Ltd.

Key Questions Answered:
1. How big is the global Liquid Cold Plates for Energy Storage PCS market?
2. What is the demand of the global Liquid Cold Plates for Energy Storage PCS market?
3. What is the year over year growth of the global Liquid Cold Plates for Energy Storage PCS market?
4. What is the production and production value of the global Liquid Cold Plates for Energy Storage PCS market?
5. Who are the key producers in the global Liquid Cold Plates for Energy Storage PCS market?
6. What are the growth factors driving the market demand?

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