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Global EV Battery Cooling Plate Market Growth 2025-2031

https://marketpublishers.com/r/G9B5B3146C20EN.html
Date: August 2025
Pages: 127
Price: US$ 3,660.00 (Single User License)
ID: G9B5B3146C20EN

Abstracts

The global EV Battery Cooling Plate market size is predicted to grow from US$ 2074 million in 2025 to US$ 5446 million in 2031; it is expected to grow at a CAGR of 17.5% from 2025 to 2031.

The impact of the latest U.S. tariff measures and the corresponding policy responses from countries worldwide on market competitiveness, regional economic performance, and supply chain configurations will be comprehensively evaluated in this report.

The battery cooling plate is a component in the battery thermal management system that directly exchanges heat with the battery. The liquid cooling plate is a product component of the liquid cooling radiator. Its heat dissipation principle is to form a flow channel in the metal plate. The electronic components are installed on the surface of the water cooling plate and coated with a heat-conducting medium in between. The internal coolant enters from the inlet of the plate and then takes away the heat conducted by the components from the outlet. According to the different shapes and structures, the common liquid cooling plates in the market are mainly harmonica tube type, stamping type, extrusion type, inflation type and other types. In the field of new energy vehicles, the battery liquid cooling plate is a component in the battery thermal management system that directly exchanges heat with the battery. The coolant in the liquid cooling plate flow channel transfers the heat generated by the battery to the cooling device or transports the heat to the battery through the coolant, so as to maintain the battery temperature in the range of 20?-35? that is most suitable for its working efficiency.

The liquid cooling plate for new energy vehicle (NEV) batteries is a critical component in thermal management systems. Typically made of metals (e.g., aluminum alloy) or

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composites, it features internal microchannels that circulate coolant (e.g., water-glycol mixtures) to absorb and dissipate heat generated during battery charging/discharging. This ensures the battery operates within an optimal temperature range (20–40°C), enhancing performance, safety, and longevity.

Future Trends

1. Lightweight & High Thermal Conductivity Materials: Adoption of aluminum composites, graphene coatings, or 3D-printed structures to optimize weight and heat dissipation.

2. Integrated Design: Deep integration with battery modules (e.g., CTP/CTC technologies) to reduce complexity and improve space efficiency.

3. Smart Thermal Management: AI-driven control systems with sensors enable dynamic zonal temperature regulation, supporting ultra-fast charging (e.g., 800V platforms) and extreme conditions.

4. Sustainability: Shift toward recyclable materials and eco-friendly coolants (e.g., propylene glycol replacing ethylene glycol).

5. Multifunctional Systems: Synergy with heat pumps to reuse energy for both battery heating (in winter) and cooling (in summer).

6. Cost Reduction via Scale: Automated and standardized manufacturing processes will lower costs as NEV adoption accelerates globally.

BEVs will lead the zero-emission future with PHEVs as a transitional bridge, while FCEVs and HEVs carve niche roles. Success hinges on battery innovation, infrastructure investment, and policy alignment.

From the perspective of product type and technology, it can be divided into harmonica tube type, stamping type and inflation type. The harmonica tube liquid cooling plate has the advantages of arbitrary flow channel design, large contact area, good heat exchange effect, high production efficiency, good pressure resistance and strength, but because it needs to be molded, the cost is high, and the flatness requirements are high, and the installation is difficult. However, due to its soft material, it has a large shortcoming in pressure resistance and strength. Its flow channel is single, the contact area is small, and the pipe wall is thin, resulting in its general heat exchange effect and

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poor load-bearing capacity. It is expected that the harmonica tube type will be gradually eliminated. The stamping liquid cooling plate has excellent heat dissipation performance: complex flow channels are formed through the stamping process, the heat dissipation area is large, and the temperature distribution is uniform. The thin-wall design reduces the amount of material used and is suitable for lightweight requirements. The flow channel can be customized to adapt to different battery module shapes (such as CTP/CTC technology). It is the mainstream technical direction, especially widely used in high-performance BEV and fast charging scenarios. The inflatable liquid cooling plate forms a complex internal flow channel through the inflating process, and the heat dissipation path is optimized. Due to the low yield rate and high cost of the inflating process, and the integrated design makes it difficult to repair after local damage, it is currently mainly used in high-end models and customized battery packs.

From the perspective of product market application, pure electric vehicles are the main force in the market. In 2024, pure electric vehicle applications accounted for more than 70% of the battery cooling plate application share. Pure electric vehicles will lead the zero-emission future, plug-in hybrid electric vehicles will become a transition bridge, and fuel cell electric vehicles and hybrid electric vehicles will occupy their respective market segments. Success depends on battery innovation, infrastructure investment and policy coordination.

Currently, the world's major manufacturers include Valeo, MAHLE, Yinlun Holdings, Sanhua Auto Parts, Nabaichuan, Dana, Boyd Corporation, Cotran, Modine Manufacturing, ESTRA Automotive, ONEGENE, Hubei Reddit Cooling System, Trumony Aluminum, Runthrough Heat Exchange, Shenzhen FRD, XD THERMAL, Anhui ARN Group, Hengchuang Thermal Management, Sogefi Group, Nippon Light Metal, etc. In 2024, the market share of major manufacturers will exceed 60%. It is expected that industry competition will become more intense in the next few years, especially in the Chinese market.

LP Information, Inc. (LPI) ' newest research report, the “EV Battery Cooling Plate Industry Forecast” looks at past sales and reviews total world EV Battery Cooling Plate sales in 2024, providing a comprehensive analysis by region and market sector of projected EV Battery Cooling Plate sales for 2025 through 2031. With EV Battery Cooling Plate sales broken down by region, market sector and sub-sector, this report provides a detailed analysis in US$ millions of the world EV Battery Cooling Plate industry.

This Insight Report provides a comprehensive analysis of the global EV Battery Cooling

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Plate landscape and highlights key trends related to product segmentation, company formation, revenue, and market share, latest development, and M&A activity. This report also analyzes the strategies of leading global companies with a focus on EV Battery Cooling Plate portfolios and capabilities, market entry strategies, market positions, and geographic footprints, to better understand these firms' unique position in an accelerating global EV Battery Cooling Plate market.

This Insight Report evaluates the key market trends, drivers, and affecting factors shaping the global outlook for EV Battery Cooling Plate and breaks down the forecast by Type, by Application, geography, and market size to highlight emerging pockets of opportunity. With a transparent methodology based on hundreds of bottom-up qualitative and quantitative market inputs, this study forecast offers a highly nuanced view of the current state and future trajectory in the global EV Battery Cooling Plate.

This report presents a comprehensive overview, market shares, and growth opportunities of EV Battery Cooling Plate market by product type, application, key manufacturers and key regions and countries.

Segmentation by Type:

Harmonica Tube Type

Stamping Type

Inflation Type

Segmentation by Application:

Battery Electric Vehicles (BEVs)

Plug-in Hybrid Electric Vehicles (PHEVs)

Others

This report also splits the market by region:

Americas

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United States

Canada

Mexico

Brazil

APAC

China

Japan

Korea

Southeast Asia

India

Australia

Europe

Germany

France

UK

Italy

Russia

Middle East & Africa

Egypt

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South Africa

Israel

Turkey

GCC Countries

The below companies that are profiled have been selected based on inputs gathered from primary experts and analysing the company's coverage, product portfolio, its market penetration.

Valeo

Dana

MAHLE

Modine Manufacturing

Boyd Corporation

Nippon Light Metal

ESTRA Automotive

Sogefi Group

ONEGENE

Nabaichuan Holding

Runthrough Heat Exchange

Yinlun

Sanhua Group

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Cotran

Trumony Aluminum

Hubei Reddit Cooling System

Shenzhen FRD

Anhui ARN Group

XD THERMAL

Hengchuang Thermal Management

Key Questions Addressed in this Report
What is the 10-year outlook for the global EV Battery Cooling Plate market?
What factors are driving EV Battery Cooling Plate market growth, globally and by region?
Which technologies are poised for the fastest growth by market and region?
How do EV Battery Cooling Plate market opportunities vary by end market size?
How does EV Battery Cooling Plate break out by Type, by Application?

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Application (2026-2031)

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