

Battery Thermal Management System Market By Propulsion (Battery Electric Vehicle (BEV) , Plug-in Hybrid Electric Vehicle (PHEV) , Fuel Cell Electric Vehicle (FCEV)) , By Technology (Active Systems, Passive Systems) By Vehicle Type (Passenger Vehicles, Commercial Vehicles, Others) By Battery Type (Lithium-Ion Battery, Nickel-Metal Hydride (NiMH) Battery, Lead-Acid Battery, Solid-State Battery) : Global Opportunity Analysis and Industry Forecast, 2024-2030

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Abstracts

Battery Thermal Management System Market

The battery thermal management system market was valued at \$3.2 billion in 2023 and is projected to reach \$7.3 billion by 2030, growing at a CAGR of 12.4% from 2024 to 2030.

A battery thermal management system (BTMS) is an arrangement in batteries that facilitates their efficient cooling and heating. Along with temperature regulation, the system allows supercharging, minimizes cell-to-cell temperature variations, prevents malfunctions & thermal runaways, and maximizes the life of batteries. BTMS primarily finds applications in portable electronics, electric vehicles (EVs), and energy storage systems.

Expansion of the consumer electronics industry is a key driver of the battery thermal

management system market. Rapid surge in the adoption of smartphones and other portable electronics is boosting the demand for effective thermal management solutions for batteries. In addition, the integration of BTMS with renewable energy sources for enhanced reliability is propelling the development of the market. In recent times, the use of phase change materials (PCMs) for temperature regulation is trending in the market. PCMs are serving as a feasible solution for simplified thermal management by reducing the maintenance requirements and enhancing the system reliability.

However, the development & integration of BTMS requires significant capital, which limits its adoption and hampers the widespread expansion of the market. On the contrary, as the EVs industry continues to expand, the battery thermal management system market is anticipated to witness several remunerative opportunities in the future. Increase in the purchase of EVs is fueling the requirement for efficient and reliable batteries. For instance, the automotive lithium-ion battery demand increased by approximately 65% in 2022, rising from 330 GWh in 2021 to 550 GWh in 2022. This surge in the capacity of batteries for EVs is poised to open new avenues for the battery thermal management system market.

Segment Review

The battery thermal management system market is segmented into propulsion, technology, vehicle type, battery type, and region. On the basis of propulsion, the market is divided into battery electric vehicle (BEV), plug-in hybrid electric vehicle (PHEV), and fuel cell electric vehicle (FCEV). By technology, it is bifurcated into active systems and passive systems. Depending on vehicle type, it is classified into passenger vehicles, commercial vehicles, and others. As per battery type, it is categorized into lithium-ion battery, nickel-metal hydride (NiMH) battery, lead-acid battery, and solid-state battery. Region wise, it is analyzed across North America, Europe, Asia-Pacific, and LAMEA.

Key Findings

On the basis of propulsion, the plug-in hybrid electric vehicle (PHEV) segment is expected to dominate the market during the forecast period.

By technology, the active systems segment is projected to acquire a high stake in the market throughout the forecast period.

Depending on vehicle type, the passenger vehicles segment is anticipated to garner a high share of the market by 2030.

As per battery type, the lithium-ion battery segment is predicted to be the highest shareholder during the forecast period.

Region wise, Asia-Pacific is expected to be the highest revenue generator by 2030.

Competition Analysis

The major players of the global battery thermal management system market include Robert Bosch GmbH, GENTHERM, VALEO, Dana Limited, MAHLE GmbH, Hanon Systems, VOSS Automotive, Inc, 3M, Grayson Automotive Services Limited, and ContiTech Deutschland GmbH. These major players have adopted various key development strategies such as business expansion, new product launches, and partnerships, to strengthen their foothold in the competitive market.

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Additional country or region analysis- market size and forecast

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Key Market Segments

By Propulsion

Battery Electric Vehicle (BEV)

Plug-in Hybrid Electric Vehicle (PHEV)

Fuel Cell Electric Vehicle (FCEV)

By Technology

Active Systems

Passive Systems

By Vehicle Type

Passenger Vehicles

Commercial Vehicles

Others

By Battery Type

Lithium-Ion Battery

Nickel-Metal Hydride (NiMH) Battery

Lead-Acid Battery

Solid-State Battery

By Region

North America

U.S.

Canada

Mexico

Europe

France

Germany

Italy

Spain

UK

Rest of Europe

Asia-Pacific

China

Japan

India

South Korea

Australia

Rest of Asia-Pacific

LAMEA

Brazil

South Africa

Saudi Arabia

Rest of LAMEA

Key Market Players

Robert Bosch GmbH

GENTHERM

VALEO

Dana Limited

MAHLE GmbH

Hanon Systems

VOSS Automotive, Inc

3M

Grayson Automotive Services Limited

ContiTech Deutschland GmbH

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