

Global Electric Vehicle Battery Thermal Management Systems Market Size Study, by Propulsion (BEV, PHEV, FCEV), by Offering (BTMS with Battery, Without Battery), by Technology (Active, Passive, Hybrid), by Battery Type, by Battery Capacity, by Vehicle Type, and Regional Forecasts 2022-2032

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Abstracts

The Global Electric Vehicle Battery Thermal Management Systems Market is valued at approximately USD 3.23 billion in 2023 and is poised to grow at a robust compound annual growth rate (CAGR) of 14.7% during the forecast period from 2024 to 2032. The rising demand for electric vehicles (EVs) across the globe has heightened the need for efficient battery thermal management systems (BTMS). These systems are critical to ensuring the safety, longevity, and performance of EV batteries, particularly as advancements in EV technology push the boundaries of energy density and charging speed. By integrating active, passive, and hybrid thermal management technologies, BTMS provides effective solutions to mitigate overheating, thermal runaways, and power loss, which are key concerns in EV adoption.

The market is fueled by the accelerating transition to electrified transportation, driven by stringent environmental regulations and incentives promoting zero-emission vehicles. Technological innovations in BTMS, such as liquid cooling systems and phase-change materials, have significantly improved the energy efficiency and reliability of EV batteries. However, the high cost of advanced BTMS technologies and their integration into EV architectures presents a notable challenge. Nevertheless, ongoing R&D efforts and economies of scale are expected to reduce costs over the forecast period, thereby bolstering market growth.

The applications of BTMS extend beyond passenger vehicles to encompass commercial EVs and electric two-wheelers. As electric buses and delivery vans gain traction in urban mobility solutions, the need for scalable, efficient BTMS solutions becomes paramount. Furthermore, advancements in battery capacity and energy storage are expanding the scope of BTMS to support high-performance EVs, fostering innovation in the sector.

Regionally, North America dominates the market due to its established EV ecosystem, supportive government policies, and a significant presence of key automotive players. Europe follows closely, driven by stringent carbon neutrality targets and expanding EV infrastructure. Meanwhile, the Asia-Pacific region is projected to exhibit the fastest growth during the forecast period, bolstered by government subsidies, rapid urbanization, and the increasing production of EVs in countries like China, Japan, and South Korea.

Major market players included in this report are:

LG Chem

Valeo

Gentherm Inc.

Mahle GmbH

Denso Corporation

Hanon Systems

Dana Incorporated

Continental AG

Samsung SDI

Robert Bosch GmbH

Panasonic Corporation

Calsonic Kansei Corporation

Voss Automotive GmbH

BYD Company Ltd.

Hitachi Automotive Systems, Ltd.

The detailed segments and sub-segment of the market are explained below:

By Propulsion:

Battery Electric Vehicle (BEV)

Plug-in Hybrid Electric Vehicle (PHEV)

Fuel Cell Electric Vehicle (FCEV)

By Offering:

BTMS with Battery

Without Battery

By Technology:

Active

Passive

Hybrid

By Battery Type:

Lithium-Ion

Solid-State

Others

By Battery Capacity:

Below 50 kWh

50-100 kWh

Above 100 kWh

By Vehicle Type:

Passenger Vehicles

Commercial Vehicles

Two-Wheelers

By Region:

North America:

U.S.

Canada

Europe:

UK

Germany

France

Spain

Italy

Rest of Europe

Asia-Pacific:

China

India

Japan

Australia

South Korea

Rest of Asia-Pacific

Latin America:

Brazil

Mexico

Middle East & Africa:

Saudi Arabia

South Africa

Rest of Middle East & Africa

Years considered for the study are as follows:

Historical Year: 2022

Base Year: 2023

Forecast Period: 2024 to 2032

Key Takeaways:

Market estimates & forecast for 10 years from 2022 to 2032.

Annualized revenues and regional-level analysis for each market segment.

Detailed analysis of geographical landscape with country-level analysis of major regions.

Competitive landscape with information on major players in the market.

Analysis of key business strategies and recommendations on future market approaches.

Analysis of competitive structure of the market.

Demand-side and supply-side analysis of the market.

Contents

CHAPTER 1. GLOBAL ELECTRIC VEHICLE BATTERY THERMAL MANAGEMENT SYSTEMS MARKET EXECUTIVE SUMMARY

1.1. Global Electric Vehicle Battery Thermal Management Systems Market Size & Forecast (2022-2032)

1.2. Regional Summary

1.3. Segmental Summary

1.3.1. By Propulsion

Battery Electric Vehicle (BEV)

Plug-in Hybrid Electric Vehicle (PHEV)

Fuel Cell Electric Vehicle (FCEV)

1.3.2. By Offering

BTMS with Battery

Without Battery

1.3.3. By Technology

Active

Passive

Hybrid

1.3.4. By Battery Type

Lithium-Ion

Solid-State

Others

1.3.5. By Battery Capacity

Below 50 kWh

50-100 KWH

Above 100 kWh

1.3.6. By Vehicle Type

Passenger Vehicles

Commercial Vehicles

Two-Wheelers

1.4. Key Trends

1.5. Recession Impact

1.6. Analyst Recommendation & Conclusion

CHAPTER 2. GLOBAL ELECTRIC VEHICLE BATTERY THERMAL MANAGEMENT

Global Electric Vehicle Battery Thermal Management Systems Market Size Study, by Propulsion (BEV, PHEV, FCEV),...

SYSTEMS MARKET DEFINITION AND RESEARCH ASSUMPTIONS

- 2.1. Research Objective
- 2.2. Market Definition
- 2.3. Research Assumptions
 - 2.3.1. Inclusion & Exclusion
 - 2.3.2. Limitations
 - 2.3.3. Supply Side Analysis
- Availability
- Infrastructure
- Regulatory Environment
- Market Competition
- Economic Viability (Consumer's Perspective)
 - 2.3.4. Demand Side Analysis
- Regulatory Frameworks
- Technological Advancements
- Environmental Considerations
- Consumer Awareness & Acceptance
- 2.4. Estimation Methodology
- 2.5. Years Considered for the Study
- 2.6. Currency Conversion Rates

CHAPTER 3. GLOBAL ELECTRIC VEHICLE BATTERY THERMAL MANAGEMENT SYSTEMS MARKET DYNAMICS

- 3.1. Market Drivers
 - 3.1.1. Increasing Demand for Electrified Transportation and Enhanced Battery Performance
 - 3.1.2. Advancements in Cooling Technologies and Innovative Thermal Solutions
 - 3.1.3. Stringent Environmental Regulations and Government Incentives
- 3.2. Market Challenges
 - 3.2.1. High Cost of Advanced BTMS Technologies and Integration into EV Architectures
 - 3.2.2. Technological Complexity and Rapidly Evolving Battery Technologies
 - 3.2.3. Supply Chain Constraints and Limited Aftermarket Support
- 3.3. Market Opportunities
 - 3.3.1. Ongoing R&D and Economies of Scale Reducing Costs
 - 3.3.2. Integration with Smart and Connected Vehicle Systems
 - 3.3.3. Expansion in Commercial and High-Performance EV Segments

CHAPTER 4. GLOBAL ELECTRIC VEHICLE BATTERY THERMAL MANAGEMENT SYSTEMS MARKET INDUSTRY ANALYSIS

- 4.1. Porter's 5 Force Model
 - 4.1.1. Bargaining Power of Suppliers
 - 4.1.2. Bargaining Power of Buyers
 - 4.1.3. Threat of New Entrants
 - 4.1.4. Threat of Substitutes
 - 4.1.5. Competitive Rivalry
 - 4.1.6. Futuristic Approach to Porter's 5 Force Model
 - 4.1.7. Porter's 5 Force Impact Analysis
- 4.2. PESTEL Analysis
 - 4.2.1. Political
 - 4.2.2. Economical
 - 4.2.3. Social
 - 4.2.4. Technological
 - 4.2.5. Environmental
 - 4.2.6. Legal
- 4.3. Top Investment Opportunity
- 4.4. Top Winning Strategies
- 4.5. Disruptive Trends
- 4.6. Industry Expert Perspective
- 4.7. Analyst Recommendation & Conclusion

CHAPTER 5. GLOBAL ELECTRIC VEHICLE BATTERY THERMAL MANAGEMENT SYSTEMS MARKET SIZE & FORECASTS BY PROPULSION 2022-2032

- 5.1. Segment Dashboard
- 5.2. Global Electric Vehicle Battery Thermal Management Systems Market: Propulsion Revenue Trend Analysis, 2022 & 2032 (USD Million/Billion)
 - 5.2.1. Battery Electric Vehicle (BEV)
 - 5.2.2. Plug-in Hybrid Electric Vehicle (PHEV)
 - 5.2.3. Fuel Cell Electric Vehicle (FCEV)

CHAPTER 6. GLOBAL ELECTRIC VEHICLE BATTERY THERMAL MANAGEMENT SYSTEMS MARKET SIZE & FORECASTS BY OFFERING 2022-2032

- 6.1. Segment Dashboard

6.2. Global Electric Vehicle Battery Thermal Management Systems Market: Offering Revenue Trend Analysis, 2022 & 2032 (USD Million/Billion)

6.2.1. BTMS with Battery

6.2.2. Without Battery

CHAPTER 7. GLOBAL ELECTRIC VEHICLE BATTERY THERMAL MANAGEMENT SYSTEMS MARKET SIZE & FORECASTS BY TECHNOLOGY 2022-2032

7.1. Segment Dashboard

7.2. Global Electric Vehicle Battery Thermal Management Systems Market: Technology Revenue Trend Analysis, 2022 & 2032 (USD Million/Billion)

7.2.1. Active

7.2.2. Passive

7.2.3. Hybrid

CHAPTER 8. GLOBAL ELECTRIC VEHICLE BATTERY THERMAL MANAGEMENT SYSTEMS MARKET SIZE & FORECASTS BY BATTERY TYPE AND BATTERY CAPACITY 2022-2032

8.1. Segment Dashboard

8.2. Global Electric Vehicle Battery Thermal Management Systems Market: Battery Type Revenue Trend Analysis, 2022 & 2032 (USD Million/Billion)

8.2.1. Lithium-Ion

8.2.2. Solid-State

8.2.3. Others

8.3. Global Electric Vehicle Battery Thermal Management Systems Market: Battery Capacity Revenue Trend Analysis, 2022 & 2032 (USD Million/Billion)

8.3.1. Below 50 kWh

8.3.2. 50-100 kWh

8.3.3. Above 100 kWh

CHAPTER 9. GLOBAL ELECTRIC VEHICLE BATTERY THERMAL MANAGEMENT SYSTEMS MARKET SIZE & FORECASTS BY VEHICLE TYPE 2022-2032

9.1. Segment Dashboard

9.2. Global Electric Vehicle Battery Thermal Management Systems Market: Vehicle Type Revenue Trend Analysis, 2022 & 2032 (USD Million/Billion)

9.2.1. Passenger Vehicles

9.2.2. Commercial Vehicles

9.2.3. Two-Wheelers

CHAPTER 10. GLOBAL ELECTRIC VEHICLE BATTERY THERMAL MANAGEMENT SYSTEMS MARKET SIZE & FORECASTS BY REGION 2022-2032

10.1. North America Electric Vehicle Battery Thermal Management Systems Market

10.1.1. U.S. Electric Vehicle Battery Thermal Management Systems Market

10.1.1.1. Propulsion breakdown size & forecasts, 2022-2032

10.1.1.2. Offering breakdown size & forecasts, 2022-2032

10.1.1.3. Technology breakdown size & forecasts, 2022-2032

10.1.1.4. Battery Type/Capacity breakdown size & forecasts, 2022-2032

10.1.1.5. Vehicle Type breakdown size & forecasts, 2022-2032

10.1.2. Canada Electric Vehicle Battery Thermal Management Systems Market

10.2. Europe Electric Vehicle Battery Thermal Management Systems Market

10.2.1. UK Electric Vehicle Battery Thermal Management Systems Market

10.2.2. Germany Electric Vehicle Battery Thermal Management Systems Market

10.2.3. France Electric Vehicle Battery Thermal Management Systems Market

10.2.4. Spain Electric Vehicle Battery Thermal Management Systems Market

10.2.5. Italy Electric Vehicle Battery Thermal Management Systems Market

10.2.6. Rest of Europe Electric Vehicle Battery Thermal Management Systems Market

10.3. Asia-Pacific Electric Vehicle Battery Thermal Management Systems Market

10.3.1. China Electric Vehicle Battery Thermal Management Systems Market

10.3.2. India Electric Vehicle Battery Thermal Management Systems Market

10.3.3. Japan Electric Vehicle Battery Thermal Management Systems Market

10.3.4. Australia Electric Vehicle Battery Thermal Management Systems Market

10.3.5. South Korea Electric Vehicle Battery Thermal Management Systems Market

10.3.6. Rest of Asia-Pacific Electric Vehicle Battery Thermal Management Systems Market

10.4. Latin America Electric Vehicle Battery Thermal Management Systems Market

10.4.1. Brazil Electric Vehicle Battery Thermal Management Systems Market

10.4.2. Mexico Electric Vehicle Battery Thermal Management Systems Market

10.4.3. Rest of Latin America Electric Vehicle Battery Thermal Management Systems Market

10.5. Middle East & Africa Electric Vehicle Battery Thermal Management Systems Market

10.5.1. Saudi Arabia Electric Vehicle Battery Thermal Management Systems Market

10.5.2. South Africa Electric Vehicle Battery Thermal Management Systems Market

10.5.3. Rest of Middle East & Africa Electric Vehicle Battery Thermal Management Systems Market

CHAPTER 11. COMPETITIVE INTELLIGENCE

11.1. Key Company SWOT Analysis

11.1.1. LG Chem

11.1.2. Valeo

11.1.3. Gentherm Inc.

11.2. Top Market Strategies

11.3. Company Profiles

11.3.1. LG Chem

11.3.1.1. Key Information

11.3.1.2. Overview

11.3.1.3. Financial (Subject to Data Availability)

11.3.1.4. Product Summary

11.3.1.5. Market Strategies

11.3.2. Valeo

11.3.3. Gentherm Inc.

11.3.4. Mahle GmbH

11.3.5. Denso Corporation

11.3.6. Hanon Systems

11.3.7. Dana Incorporated

11.3.8. Continental AG

11.3.9. Samsung SDI

11.3.10. Robert Bosch GmbH

11.3.11. Panasonic Corporation

11.3.12. Calsonic Kansei Corporation

11.3.13. Voss Automotive GmbH

11.3.14. BYD Company Ltd.

11.3.15. Hitachi Automotive Systems, Ltd.

CHAPTER 12. RESEARCH PROCESS

12.1. Research Process

12.1.1. Data Mining

12.1.2. Analysis

12.1.3. Market Estimation

12.1.4. Validation

12.1.5. Publishing

12.2. Research Attributes

List Of Tables

LIST OF TABLES

TABLE 1. Global Electric Vehicle Battery Thermal Management Systems Market, Report Scope

TABLE 2. Global Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts by Region 2022-2032 (USD Million/Billion)

TABLE 3. Global Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts by Propulsion 2022-2032 (USD Million/Billion)

TABLE 4. Global Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts by Offering 2022-2032 (USD Million/Billion)

TABLE 5. Global Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts by Technology 2022-2032 (USD Million/Billion)

TABLE 6. Global Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts by Battery Type 2022-2032 (USD Million/Billion)

TABLE 7. Global Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts by Battery Capacity 2022-2032 (USD Million/Billion)

TABLE 8. Global Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts by Vehicle Type 2022-2032 (USD Million/Billion)

TABLE 9. Global Electric Vehicle Battery Thermal Management Systems Market by Segment, Estimates & Forecasts 2022-2032 (USD Million/Billion)

TABLE 10. North America Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts 2022-2032 (USD Million/Billion)

TABLE 11. Europe Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts 2022-2032 (USD Million/Billion)

TABLE 12. Asia-Pacific Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts 2022-2032 (USD Million/Billion)

TABLE 13. Latin America Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts 2022-2032 (USD Million/Billion)

TABLE 14. Middle East & Africa Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts 2022-2032 (USD Million/Billion)

TABLE 15. U.S. Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts, 2022-2032 (USD Million/Billion)

TABLE 16. U.S. Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts by Segment 2022-2032 (USD Million/Billion)

TABLE 17. Canada Electric Vehicle Battery Thermal Management Systems Market Estimates & Forecasts, 2022-2032 (USD Million/Billion)

TABLE 18. Canada Electric Vehicle Battery Thermal Management Systems Market

Estimates & Forecasts by Segment 2022-2032 (USD Million/Billion)

TABLE 19. Additional Tables (Detailed Segment Analysis)

List Of Figures

LIST OF FIGURES

- FIG 1. Global Electric Vehicle Battery Thermal Management Systems Market, Research Methodology
- FIG 2. Global Electric Vehicle Battery Thermal Management Systems Market, Market Estimation Techniques
- FIG 3. Global Market Size Estimates & Forecast Methods
- FIG 4. Global Electric Vehicle Battery Thermal Management Systems Market, Key Trends 2023
- FIG 5. Global Electric Vehicle Battery Thermal Management Systems Market, Growth Prospects 2022-2032
- FIG 6. Global Electric Vehicle Battery Thermal Management Systems Market, Porter's 5 Force Model
- FIG 7. Global Electric Vehicle Battery Thermal Management Systems Market, PESTEL Analysis
- FIG 8. Global Electric Vehicle Battery Thermal Management Systems Market, Value Chain Analysis
- FIG 9. Global Electric Vehicle Battery Thermal Management Systems Market by Segment, 2022 & 2032 (USD Million/Billion)
- FIG 10. Global Electric Vehicle Battery Thermal Management Systems Market, Regional Snapshot 2022 & 2032
- FIG 11. North America Electric Vehicle Battery Thermal Management Systems Market 2022 & 2032 (USD Million/Billion)
- FIG 12. Europe Electric Vehicle Battery Thermal Management Systems Market 2022 & 2032 (USD Million/Billion)
- FIG 13. Asia-Pacific Electric Vehicle Battery Thermal Management Systems Market 2022 & 2032 (USD Million/Billion)
- FIG 14. Latin America Electric Vehicle Battery Thermal Management Systems Market 2022 & 2032 (USD Million/Billion)
- FIG 15. Middle East & Africa Electric Vehicle Battery Thermal Management Systems Market 2022 & 2032 (USD Million/Billion)
- FIG 16. Global Electric Vehicle Battery Thermal Management Systems Market, Company Market Share Analysis (2023)
- FIG 17. Additional Figures (Detailed Segment & Regional Analysis)

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