

# **Global Battery Housing Market: Analysis By Material (Non Metallic & Metallic), By Battery Type (Lithium Ion, Lead Acid & Others), By Vehicle Type (Passenger, Commercial & Others), By Region Size and Trends with Impact of COVID-19 and Forecast up to 2028**

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## **Abstracts**

The global battery housing market in 2022 was valued at US\$3.51 billion. The market value is anticipated to grow to US\$18.03 billion by 2028. The fundamental powerhouse of an automobile, particularly an electric one, is its batteries. The batteries store chemical energy, which is then converted into electrical energy and used to power the vehicle. Battery housings are structures that encapsulate the battery. They shield the vehicle's powertrain from external disturbance, such as a collision. Some may serve as insulators or aid in the cooling system of the battery.

The market value is expected to grow at a CAGR of 31.36% during the forecast period of 2023-2028. In every NEV, the battery housing is a critical safety structure. To power the drivetrain, NEVs replaced traditional fuel tanks and exhausts with battery packs. Battery housing is responsible for providing a stable enclosure for the battery system throughout vehicle performance, assisting with thermal management, and improving vehicle structural integrity and crash energy absorption.

Market Segmentation Analysis:

By Material: The report provides the bifurcation of the market into two segments based on the material: Non Metallic and Metallic. In 2022, in terms of value, non metallic segment held the major share in the market. Non-metallic battery housings are typically made of plastic, composite, or other non-metallic materials, which make them lightweight, corrosion-resistant, and offer better thermal insulation than metallic

housings. These features make them a good choice for EV applications that require insulation from extreme temperatures or environments. The material also helps greatly to enhance heat control due to its low thermal resistance. The demand for non-metallic battery housing in the EV market is primarily driven by the need for lightweight materials that can improve the overall performance and range of electric vehicles.

**By Battery Type:** The report further provides the segmentation based on the deployment: Lithium Ion, Lead Acid & Others. During the forecast period, the lithium ion segment is expected to grow at the fastest CAGR because of their high energy per unit mass relative to other electrical energy storage systems. They also have a high power-to-weight ratio, high energy efficiency, good high-temperature performance, and low self-discharge. Most of today's all-electric vehicles and PHEVs use lithium-ion batteries.

**By Vehicle Type:** The battery housing market is further bifurcated based on the vehicle type: Passenger, Commercial & Others. Passenger vehicles held the highest share in the global electric vehicle battery housing market in 2022. Factors such as rising demand for zero-emission vehicles, government initiatives, and improved charging infrastructure are driving the expansion of passenger vehicles, and hence the battery housing market. Moreover, the desire for safe and efficient journeys, which augments the requirement for high-quality housing for encapsulating EV batteries, is a critical aspect that will likely drive the segment's growth.

**By Region:** The report provides insight into the battery housing market based on the geographical operations, namely Asia Pacific, Europe, North America and ROW. The Asia Pacific region held the dominant share in the battery housing market. The market is driven by factors such as consumers' preference for NEV makers due to high gasoline prices, reducing car buyers' payments on more launches of lower priced plug-in hybrid electric vehicles, and rising NEV makers' promotion amid tough competition. The governments of various countries in the region have set up favorable policies and incentives for electric vehicles, which has boosted the demand for electric vehicles. Furthermore, the increasing awareness among consumers about the benefits of electric vehicles has also contributed to the growth of the market. China is one of the largest markets for electric vehicles, and the increasing adoption of electric vehicles in the country has been in line with the clean energy policy.

Europe is a significant market for EV battery housing due to the increasing demand for electric vehicles and the presence of stringent emission regulations. The European Union's target to reduce CO2 emissions from new cars by 37.5% by 2030 is driving the growth of the European market. The development of charging infrastructure and the

availability of cost-effective battery solutions are also driving the growth of this region. Moreover, the European Union has set up an extensive charging infrastructure for electric vehicles, which has boosted the demand for electric vehicles and in turn, the demand for battery housing.

#### Market Dynamics:

**Growth Drivers:** One of the most important factors impacting the global battery housing market is the increasing demand for EVs. Electric vehicle battery housing is experiencing a boom in demand due to the increasing demand of electric vehicles. The increasing popularity of electric vehicles, as well as the adoption of different novel technologies, has increased demand for reliable and energy-efficient batteries. The use of nanotechnology and other technologies to improve battery performance and efficiency is the product of battery research and development activities. Moreover, composite components used in battery housing to improve fire prevention, underbody protection, and battery temperature regulation are creating new opportunities for the market. The expansion of the vehicle sector, as well as stringent environmental rules and standards, are major forces propelling the battery housing market. Furthermore, the market has been growing over the past few years, due to factors such as growing public charging infrastructure, increasing demand and declining prices of Li-Ion battery, increasing government support, and advancements in battery technology.

**Challenges:** However, the market has been confronted with some challenges specifically, lack of standardization, development of electric roads, etc. The development of electric roads, also known as wireless charging roads, is a relatively new technology that aims to provide continuous charging to electric vehicles while they are in motion. This technology uses electromagnetic fields to transfer energy wirelessly from the road to the vehicle's battery, eliminating the need for conventional charging methods such as plug-in charging or battery swapping. While the development of electric roads has the potential to significantly improve the convenience and practicality of electric vehicles, it could also impact the growth of the EV battery housing market.

**Trends:** The market is projected to grow at a fast pace during the forecast period, due to various latest trends such as growing new energy vehicle (NEV) market in China, housing with integrated cooling systems, battery swapping systems, emerging firms providing a competitive edge and focus on lightweighting. The automobile sector has been identified as a strategic industry for China. It contributes significantly to China's GDP, employment, and taxation. Chinese participants in the traditional ICE vehicle market have fallen behind leading global peers in terms of technology, namely

powertrain. The NEV market is intended to level the playing field and give Chinese NEV businesses a larger role. As charging facilities are a significant constraint for NEV demand, rapidly expanding charging infrastructure should pave the road for NEV development. Thus, in order to entice prospective NEV buyers, adequate charging infrastructure and convenient charging services are essential. As a result, the increasing Chinese NEV market is likely to drive the battery housing market in the coming years.

#### Impact Analysis of COVID-19 and Way Forward:

The pandemic has disrupted the supply chain for battery housing manufacturers, as many of the components needed for production are sourced from countries with strict lockdown measures. Additionally, the pandemic has led to a reduction in the production capacity of EV manufacturers, leading to a decrease in demand for EV battery housing. On the other hand, the pandemic has also created opportunities for the EV battery housing market. The increasing demand for electric vehicles and the growing trend towards sustainable transportation could drive the market's growth in the long run.

One of the key factors that will shape the post-COVID battery housing market is the increasing demand for lightweight and durable materials. Battery housings need to be lightweight to ensure that the battery is not too heavy for the application, and durable to protect the battery from damage. Manufacturers are exploring new materials such as carbon fiber and aluminum to develop lightweight and durable battery housings.

#### Competitive Landscape:

Global battery housing market is a rapidly evolving and highly fragmented market. The battery housing market is subject to a range of regulatory requirements and standards, including safety and environmental regulations. Companies that can demonstrate compliance with these regulations and obtain certifications and approvals from relevant authorities will be better positioned to win business from automotive OEMs and other customers. To excel in the fast-changing market of battery housing, major firms are focusing on strong R&D capabilities. Battery housing manufacturers must evolve from manufacturers to solution providers in order to help downstream clients in realizing the various battery pack designs.

The key players in the global battery housing market are:

Magna International Inc.

SGL Carbon SE

Novelis, Inc.

Constellium SE

Nemak, S.A.B. de C.V

Gestamp Automocion, S.A.

UACJ Corporation

GF Linamar LLC

Minth Group

Thyssenkrupp AG

Proterial, Ltd.

TRB Lightweight

Ling Yun Industrial Corp Ltd.

Hoshion

Companies are focusing on R&D to develop technologically advanced products in order to gain a competitive advantage, and they are also engaging in partnerships, mergers, and acquisitions with battery cell manufacturers, automotive OEMs, and other key players in the EV ecosystem in order to strengthen their product portfolio, manufacturing capacities, and provide competitive differentiation. For example, In June 2022, Renault Group and Minth Group announced the signing of a memorandum of understanding to establish a joint venture in France to manufacture battery casings.

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