

Hybrid Train Market by Battery Type (Lead Acid, Lithium-Ion, Sodium-Ion, Nickel Cadmium), Application (Passenger and Freight), Operating Speed (Below 100 KM/H, 100–200 KM/H, And Above 200 KM/H), Service Power, Propulsion Region - Global Forecast to 2030

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Abstracts

The global hybrid train market is projected to grow from 412 units in 2023 to 446 units by 2030, registering a CAGR of 1.1%. With a growing emphasis on environmental sustainability, energy efficiency, and the need to reduce carbon footprints, hybrid trains have emerged as a compelling solution to meet the challenges of modern rail transport. These advanced locomotives seamlessly integrate multiple power sources, combining the benefits of traditional diesel propulsion with electric and battery technologies. As urbanization accelerates and environmental concerns intensify, the hybrid train market is witnessing remarkable growth, not only revolutionizing the way we travel but also paving the way for a cleaner, greener, and more sustainable future in rail transportation.

“Urban Transit Passenger Trains to be the largest market during the forecast period.”

The global trend of urbanization has led to increased population density in cities. Urban transit trains are an efficient way to move many people within these urban areas, reducing traffic congestion and air pollution. Urban areas often suffer from traffic congestion, leading to significant delays and economic costs. Urban transit trains offer a solution by providing an alternative mode of transportation unaffected by road traffic.

Hybrid trains can operate both on electrified tracks within urban areas and on non-electrified tracks in suburban or rural areas. This flexibility allows transit systems to

extend their reach beyond electrified zones while still benefiting from electric operation where possible. In November 2022, Iarnród Éireann (I?) received approval from the Government of Ireland to procure 90 new battery-electric train carriages from Alstom. The government has authorized a procurement framework for new train carriages in a USD 185 million contract. The Department of Transport will fund the train order, which will include 18 modern five-carriage battery-electric multiple units (BEMUS) through the National Transport Authority (NTA). This development will increase the demand for urban transit trains during the forecast period.

“Hybrid trains with speed below 100 KM/H are expected to grow at the fastest rate during the forecast period.”

Hybrid trains with speeds below 100 KM/H are expected to grow at the fastest rate during the forecast period. Hybrid trains include passenger trains and freight locomotives. Hybrid trains that usually travel short distances have an operating speed of less than 100 km/h. Some freight locomotives and passenger trains run at an operating speed of less than 100 km/h. Most of the hybrid trains such as urban transit trains are included in this operating speed range. Trains in this operating speed range are generally more efficient, as less power is required.

“Europe holds the largest market share during the forecast period.”

Europe is estimated to be the largest hybrid train market in the forecast period. With the development of infrastructure and the increasing adoption of hybrid trains in several countries, the global hybrid train market is anticipated to witness exponential growth in the coming years. Europe has been investing in electrified rail infrastructure, including overhead lines and charging stations, to support hybrid and electric trains. This infrastructure development makes it more feasible to operate hybrid trains across longer routes. Further, Europe presents a big growth opportunity for the hybrid train market as the safety and environment regulations have become stringent. These changes propel the market for testing and development of hybrid trains, which would further increase their demand. Germany is estimated to be the largest hybrid train market in the region. A vibrant R&D landscape and technological excellence justify its dominance in the field of connectivity, hybrid technology, and innovative railway applications. The country was the first to witness a hydrogen-powered passenger train. These factors collectively contribute to the growth and adoption of hybrid trains in the region.

In-depth interviews were conducted with CEOs, marketing directors, other innovation and technology directors, and executives from various key organizations operating in

this market.

By Company Type: OEMs – 40%, Tier I – 42%, Tier II– 18%,

By Designation: CXOs – 23%, Directors– 43%, Others– 34%

By Region: Asia Oceania– 35%, Europe – 25%, North America– 20%,
MEA–15%, ROW–5%

The hybrid train market is dominated by established players such as CRRC (China), Alstom (France), Siemens (Germany), Wabtec Corporation (US), and Stadler Rail AG (Switzerland), among others. These companies manufacture trains and develop new technologies. These companies have set up R&D facilities and offer best-in-class products to their customers.

Research Coverage:

The market study covers the Hybrid Train Market by Hybrid Train Market by Battery Type (Lead Acid, Lithium-Ion, Sodium-Ion, Nickel Cadmium And Others), Application (Passenger And Freight), Operating Speed (Below 100 KM/H, 100–200 KM/H, And Above 200 KM/H), Service Power (Less than 2000 KW, Between 2000 To 4000 KW And Above 4000 KW), Propulsion (Electro Diesel, Battery Electric, And Hydrogen Battery) and Region (Asia Oceania, Europe, North America, Middle East & Africa, Rest of the World). It also covers the competitive landscape and company profiles of the major players in the hybrid train market ecosystem.

Key Benefits of the Report

The study also includes an in-depth competitive analysis of the key players in the market, along with their company profiles, key observations related to product and business offerings, recent developments, and key market strategies.

The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall hybrid train market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges,

and opportunities.

The report provides insights on the following pointers:

Analysis of key drivers (Increasing stringency in emission norms, Rising demand for less polluting train operations and energy-efficient transport, Benefits of hybrid trains over conventional diesel trains, Increasing preference for railway-based public transport to reduce traffic congestion), restraints (High development costs and complexities in technologies and related infrastructure, Refurbishment of existing trains), opportunities (Development of hydrogen fuel cell locomotives, Development of battery operated trains, Retrofitting of diesel-electric trains), and challenges (Technical challenges related to lead-acid and lithium-ion batteries, High cost of charging infrastructure and replacement) influencing the growth of the hybrid train market.

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product launches in the hybrid train market

Market Development: Comprehensive information about lucrative markets – the report analyses the hybrid train market across varied regions

Market Diversification: Exhaustive information about new products, untapped geographies, recent developments, and investments in the hybrid train market

Competitive Assessment: In-depth assessment of market shares, growth strategies and service offerings of leading players like CRRC (China), Alstom (France), Siemens (Germany), Wabtec Corporation (US), and Stadler Rail AG (Switzerland) among others in the hybrid train market Page 25 of 34 strategies. The report also helps stakeholders understand the pulse of the rolling stock market and provides them with information on key market drivers, restraints, challenges, and opportunities.

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