

Electric Construction Equipment Market by Equipment type, Battery Capacity, Battery Chemistry, Power Output, Application, Propulsion, Electric Tractor Market, Electric Construction & Mining Equipment and Region - Global Forecast to 2030

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Abstracts

The global electric construction equipment market is projected to grow from USD 10.2 billion in 2023 to USD 44.8 billion by 2030, at a CAGR of 23.6% during the forecast period. All key countries have established programs/regulations for GHG emissions in the transportation industry. To follow the government mandates and the associated costs, the manufacturers and customers opt for an alternative sustainable mode of mobility. This greatly aided the development of hybrid and electric construction equipment, which are more efficient, emission-free, and noise-free than their IC engine counterparts. Generally, electric off-highway equipment can initially be more expensive, ranging from 20-50% or more compared to their conventional counterparts. The higher upfront costs are primarily due to the costly battery technology and specialized components required for electric systems. Additionally, the current electric equipment infrastructure is not as fully established or optimized as traditional equipment, contributing to higher costs.

The regulations also mandate that the air reaching each mine's working faces must travel with a velocity to cover at least 60 feet in a minute. Various ventilation systems control these air velocities and balance the airflow with the correct ratio. Diesel engine vehicles produce emissions, heat, and high sounds within narrow mining channels. For these reasons and to achieve sustainability goals, manufacturers and mine owners have started to prefer the electrification of these mining vehicles. Electric equipment boasts reduced operating costs in comparison to diesel-powered machinery. This cost efficiency helps offset ventilation expenses in underground mining.

Additionally, by producing zero on-site emissions, electric machinery minimizes the need for extensive ventilation systems to clear exhaust fumes, directly reducing ventilation costs. This cost-effectiveness and environmental advantage position electric construction equipment as an appealing solution for mining operations seeking to lower overheads and comply with stringent environmental regulations. Consequently, the potential for reduced operating costs and improved environmental performance will likely accelerate the market demand for electric construction equipment.

"The battery electric equipment will lead the market due to the stringent noise and emission regulations."

The rapid evolution of battery technology is propelling the growth of battery electric equipment. These advancements enable longer operational durations without recharging, making them increasingly viable for uninterrupted construction operations. The stringent noise regulations around the globe outline specific hours for construction work, limiting noisy tasks and emphasizing compliance under the Pollution Control Act. For instance, the UK enforces specific hours for construction work to mitigate noise disturbances, guided by the Pollution Control Act. Acts like the Environmental Protection Act empower councils to tackle noise concerns and establish action plans for targeted areas. Additionally, residential areas follow guidelines where nighttime noise levels exceeding 34 decibels above the background are considered unreasonable.

Battery electric machinery's more straightforward design compared to hybrids results in lower maintenance and operational costs, presenting an attractive, cost-effective solution for construction companies aiming to optimize expenditure. Driven by escalating environmental concerns and stringent regulations, the rising demand for zero-emission equipment favors battery electric options, aligning seamlessly with regulatory mandates and customer preferences for eco-friendly solutions. Volvo Construction Equipment and Portable Electric have teamed up to provide mobile charging solutions for electric construction equipment. The Voltstack 30k from Portable Electric offers 30 kW power output and 80 kWh battery capacity, rechargeable via the grid, solar arrays, or diesel gensets. This partnership aims to reduce carbon footprints on construction sites by bundling the Voltstack 30k with Volvo CE's electric equipment purchases at their North American dealer locations, ensuring efficient and emission-free charging options for noise-sensitive environments. These ongoing improvements in charging infrastructure are gradually mitigating the limitations associated with battery electric equipment, such as charging times and accessibility. This enhancement in infrastructure further enhances the appeal of battery electric choices within the construction sector.

Europe holds the largest market share in the electric construction equipment market.

European countries like Germany, the UK, France, Spain, Italy, Russia, and others are pivotal players in the electric construction equipment market, positioning Europe as the largest region. Municipal corporations in this region increasingly prioritize emission and noise reduction in urban construction, fueling the demand for electric equipment. In Germany, several factors drive the electric construction equipment surge, notably zero-emission zones in cities and the rising demand for sustainable construction and mining gear. Fendt, Farmtrac, and Multi-Tool Trac unveiling electric tractor prototypes at events like the Machinery Show signify the industry's innovation. Deutz AG, Fendt, Stihl Holding AG & Co. KG, and Wacker Neuson SE are key players shaping this market.

Berliner Stadtreinigung's purchase of Volvo L25 electric wheel loaders for waste management highlights Germany's swift adoption of electric equipment. The country's robust agricultural sector fuels the demand for more productive and autonomous technology, creating opportunities for compliant electric tractors. The advent of autonomous electric tractors, addressing labor shortages and enhancing productivity, is anticipated to drive the market further. This trend underscores Europe's commitment to eco-friendly construction practices, with significant strides made in Germany. The region's concerted efforts toward sustainability, amplified by key player innovations and industry developments, signal a promising future for electric construction equipment adoption across the continent.

Such developments of the leading companies to minimize drawbacks of the conventional battery types in electric loaders and excavators are further expected to drive the growth of electric construction equipment in the US.

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

By Company Type: Electric Construction Equipment OEM – 100%

By Designation: C Level - 30%, Directors- 20%, and Others – 50%

By Region: North Americas - 30%, Europe –20%, Asia Pacific - 40%, Rest of the World-10%

The key players in the electric construction equipment market are Hitachi Construction Machinery (Japan), Caterpillar Inc. (US), Komatsu Ltd. (Japan), Volvo Construction Equipment (Sweden), Hitachi Construction Machinery Co., Ltd. (Japan), and Deere & Company (US). Major companies' key strategies to maintain their position in the global electric construction equipment market are strong global networking, mergers and acquisitions, partnerships, and technological advancement.

Research Coverage

The study segments the electric construction equipment market. It forecasts the market size based on equipment (electric excavator, electric motor grader, electric loader, electric dump truck, electric load haul dump loader, electric lawn mower, electric sprayer, electric tractor), battery capacity (500 kWh), battery chemistry (Lithium-ion Phosphate, Lithium-ion NMC, Other battery chemistries), Power Output (300 HP), Propulsion (Battery Electric, Hybrid Electric and Hydrogen), application (Construction, Mining, Agriculture, Gardening) and region (Asia Pacific, Americas and Europe).

The study also includes an in-depth competitive analysis of the major electric construction equipment manufacturers, their company profiles, key observations related to product and business offerings, recent developments, and key market strategies.

Key Benefits of Buying the Report:

The report will help the market leaders/new entrants with information on the closest approximations of the revenue numbers for the overall electric construction equipment market and the sub-segments. 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 market's pulse and provides information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

Analysis of key drivers (Strict vehicular emission regulations, high ventilation costs in underground mining, rising demand for low-noise construction in residential areas), restraints (Higher initial cost than conventional ICE equipment, Loss of productivity due to prolonged charging time, Complex charging infrastructure for electric construction machinery), opportunities (development of long-range and fast-charging battery technology, increased

manufacturing and testing of hybrid electric vehicles, emergence of hydrogen-powered construction equipment), and challenges (limited compatibility, interchangeability, and standardization of electric construction equipment for long-haul applications, Complex thermal management of batteries, Rapid transition of construction equipment toward alternative power sources) influencing the growth of the electric construction equipment market.

Product Development/Innovation: Detailed insights on upcoming technologies and new product & service launches in the electric construction equipment market.

Market Development: Comprehensive market information – the report analyses the authentication and brand protection market across varied regions.

Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the electric construction equipment market.

Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players like Caterpillar Inc. (US), Komatsu Ltd. (Japan), Volvo Construction Equipment (Sweden), Hitachi Construction Machinery Co., Ltd. (Japan), and Deere & Company (US) among others in electric construction equipment market.

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