

Aircraft Electric Motor Market to Reach USD 11.56 Billion by 2034, Growing at 18.20% CAGR Driven by Fuel Efficiency

NEW YORK, NY, UNITED STATES, March 12, 2025 /EINPresswire.com/ -- The global <u>Aircraft Electric Motor Market</u> is experiencing significant growth, driven by the increasing demand for more sustainable, efficient, and eco-friendly propulsion systems in the aviation industry. As the aviation sector seeks to reduce carbon emissions and improve fuel efficiency, electric propulsion technologies, including electric motors for aircraft, have



become a central focus for manufacturers, researchers, and policymakers. The market is poised to expand rapidly as the shift toward electric aircraft continues to gain momentum across various segments, including commercial aviation, military aviation, and unmanned aerial vehicles (UAVs). This comprehensive market research report offers an in-depth analysis of the global aircraft electric motor market, segmented by aircraft type, motor power rating, end application, and region, and provides detailed forecasts through to 2034.

The demand for electric motors in aircraft has seen a marked increase in recent years due to the growing need for more sustainable and environmentally friendly alternatives to traditional fossil-fuel-powered engines. Electric motors in aircraft can significantly reduce the carbon footprint of aviation, making them an attractive option for reducing greenhouse gas emissions and mitigating climate change. In addition to sustainability, electric motors offer the potential for lower operational costs, less maintenance, and quieter flight operations, further driving their adoption in both commercial and military aviation, as well as UAV applications. These advantages, coupled with advancements in battery technology, have positioned the aircraft electric motor market as one of the most promising areas in the aviation sector.

General Electric Company, Thales Group, Avio Aero, Pratt Whitney, Woodward, Kawasaki Heavy Industries, Ltd., Rolls-Royce Holdings plc, Mitsubishi Electric Corporation, Siemens AG, Kawasaki Heavy Industries, Aerospace Company, MTU Aero Engines AG, Safran Nacelles, Elbit Systems Ltd., Safran Electrical Power, Honeywell International Inc.

The aircraft electric motor market is divided into three main categories based on aircraft type: fixed-wing aircraft, rotary-wing aircraft, and unmanned aerial vehicles (UAVs). Among these, fixed-wing aircraft are expected to account for the largest share of the market in the coming years. Electric motors for fixed-wing aircraft are seen as the most viable option for transitioning to greener aviation, with advancements being made in both fully electric and hybrid-electric propulsion systems. Hybrid-electric aircraft are anticipated to become particularly popular in short-haul commercial flights, where electric motors can complement conventional engines to reduce fuel consumption and emissions.

Rotary-wing aircraft, such as helicopters, are also embracing electric propulsion systems, though the market for electric motors in rotary-wing aircraft is expected to develop at a slightly slower pace. This is due to the challenges associated with battery power density and the power requirements of rotary-wing aircraft. However, technological advances in electric motors and battery systems are expected to increase the adoption of electric propulsion in helicopters, particularly for urban air mobility (UAM) and eVTOL (electric vertical takeoff and landing) aircraft.

Unmanned aerial vehicles (UAVs) are another key segment in the aircraft electric motor market, and the demand for electric motors in UAVs is growing rapidly. UAVs are already predominantly powered by electric motors due to their low weight, compact design, and high efficiency. The use of electric motors in UAVs for surveillance, cargo delivery, and recreational purposes is expected to continue increasing, driven by advancements in autonomous flight technologies, longer flight durations, and expanding applications across industries such as logistics, defense, and agriculture.

The aircraft electric motor market is also segmented based on motor power rating, which includes categories such as below 50 kW, 50-500 kW, 500-1,000 kW, and above 1,000 kW. The power rating of electric motors for aircraft is critical in determining the range of the aircraft, as

well as its ability to carry payloads and maintain performance at various altitudes.

The below 50 kW segment is expected to dominate the market in the short term, driven by the growth of UAVs and small electric aircraft used in urban air mobility. These small electric motors are well-suited for lighter, short-range applications such as eVTOL aircraft and small drones. As technology progresses, the 50-500 kW and 500-1,000 kW segments will experience significant growth, particularly in the hybrid-electric and fully electric propulsion systems for small-to-medium-sized commercial aircraft and military applications. These power ratings are ideal for electric motors used in regional aircraft, which are expected to become the primary focus of electrification efforts in the commercial aviation sector.

The above 1,000 kW segment will likely witness slower growth in the near term due to the high energy requirements of large aircraft. However, as battery technology advances and energy density improves, electric motors in this power range may become viable for larger aircraft, potentially revolutionizing long-haul aviation in the future.

The market is also analyzed based on its end applications, which include commercial aviation, business and general aviation, and military aviation. The commercial aviation segment is poised for rapid growth as airlines look for ways to reduce operational costs and meet increasingly stringent environmental regulations. Electric motors in hybrid-electric aircraft will play a crucial role in achieving the industry's carbon reduction goals. In particular, hybrid-electric propulsion systems are expected to be a key enabler for regional aircraft, providing a pathway for airlines to offer more sustainable short-haul flights.

Business and general aviation are expected to see growing adoption of electric propulsion systems, particularly as smaller electric aircraft become viable options for private, corporate, and recreational flying. Electric motors offer the potential for lower operational costs, quieter operations, and lower environmental impact, making them increasingly attractive for private aircraft owners and operators.

In military aviation, electric motors are expected to see limited but growing adoption in specific applications such as drones, UAVs, and advanced military aircraft. While the high-power requirements of combat aircraft currently make full electrification impractical, the military sector is exploring hybrid-electric and all-electric propulsion systems for certain aircraft, as well as exploring the use of electric motors for non-combat applications like surveillance, reconnaissance, and cargo transport.

Geographically, the aircraft electric motor market is analyzed across key regions including North America, Europe, South America, Asia Pacific, and the Middle East and Africa. North America is expected to lead the global market, with the United States at the forefront of the electric aircraft revolution. The region's strong aerospace industry, supported by government funding and private sector innovation, has created a conducive environment for the development and commercialization of electric aircraft. The growing adoption of hybrid-electric and electric propulsion technologies by major aviation players such as Boeing, Airbus, and several regional startups is expected to drive growth in the North American market.

Europe is also a significant player in the aircraft electric motor market, with several countries leading efforts to develop sustainable aviation technologies. The European Union has introduced various initiatives and funding programs to accelerate the development of electric aircraft, positioning the region as a key player in the global market. Countries such as the United Kingdom, France, and Germany are expected to drive innovation in both small and hybrid-electric aircraft, as well as urban air mobility solutions like eVTOL.

The Asia Pacific region is expected to experience the highest growth rate in the aircraft electric motor market due to the rapid expansion of the aviation industry in countries such as China, Japan, and India. With a growing middle class and increasing demand for air travel, these countries are investing heavily in sustainable aviation technologies, including electric propulsion systems. Additionally, the rise of UAVs in the region, particularly for military and commercial applications, will contribute to the market's growth.

In South America and the Middle East and Africa, while the market for electric aircraft is currently emerging, the increasing demand for eco-friendly aviation solutions and the rapid growth of the UAV sector will drive steady progress in these regions as well.

Several key factors are driving the growth of the aircraft electric motor market. The primary driver is the global push for decarbonizing the aviation sector, which is one of the most challenging industries to electrify due to the high energy demands of aircraft. However, with advancements in electric motor technology, energy storage systems, and the growing emphasis on sustainable aviation, electric propulsion is becoming increasingly feasible.

Additionally, regulatory support in the form of government incentives, subsidies, and research funding is playing a crucial role in accelerating the development and adoption of electric motors

in aircraft. The growing interest in urban air mobility and the proliferation of UAV applications are also contributing to the expanding market.

The aircraft electric motor market is poised for rapid growth through 2034 as the aviation industry seeks to transition toward more sustainable, eco-friendly, and efficient propulsion systems. Driven by innovations in electric motor technology, advancements in battery systems, and increasing regulatory pressure for carbon reductions, electric motors are set to play a critical role in shaping the future of aviation across commercial, business, and military applications. With substantial market potential in key regions such as North America, Europe, and Asia Pacific, the aircraft electric motor market is on track for significant transformation, offering new opportunities for manufacturers, policymakers, and stakeholders across the aerospace industry.

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