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Axial Flux Motor Market Forecasts to 2032 – Global Analysis by Type (Air-Cooled Axial Flux Motor and Liquid-Cooled Axial Flux Motor), Motor Type, Power Output, Application and By Geography

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Abstracts

According to Stratistics MRC, the Global Axial Flux Motor Market is accounted for $618.6 million in 2025 and is expected to reach $1376.2 million by 2032 growing at a CAGR of 12.1% during the forecast period. An Axial Flux Motor is an electric motor where the magnetic flux flows parallel to the rotor's axis, unlike traditional radial flux motors. It features a compact, disk-like design with stator and rotor disks positioned axially, leading to high power density and efficiency. These motors offer superior torque-to-weight ratios, making them ideal for applications like electric vehicles, aerospace, and renewable energy systems. Their shorter magnetic path reduces losses, enhancing performance. Axial flux motors also enable better cooling, lightweight construction, and space-saving integration, making them a promising alternative to conventional motors in next-generation electrification and high-performance industries.

According to the International Energy Agency (IEA), global electric car sales reached nearly 14 million in 2023, a 35% increase from 2022, representing 18% of all cars sold worldwide.

Market Dynamics:

Driver:

High Power Density & Efficiency

The high power density and efficiency of axial flux motors are revolutionizing the market

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by enabling compact, lightweight, and energy-efficient designs. These advancements drive demand in electric vehicles, aerospace, and industrial applications, offering superior torque and performance in a smaller footprint. Enhanced efficiency reduces energy consumption, lowering operational costs and environmental impact. As industries prioritize sustainability and performance, axial flux motors with high power density gain traction, fueling innovation and market growth across diverse sectors.

Restraint:

High Manufacturing Costs

High manufacturing costs significantly hinder the growth of the market by limiting mass production and increasing end-user prices. The complex design, expensive raw materials, and advanced manufacturing techniques drive up costs, making these motors less accessible for widespread adoption. This cost barrier discourages small and mid-sized manufacturers from entering the market, slowing innovation and commercialization. Consequently, high prices reduce demand, particularly in cost-sensitive industries, restricting market expansion.

Opportunity:

Advancements in Materials & Manufacturing

Advancements in materials and manufacturing are significantly driving the axial flux motor market by enhancing efficiency, power density, and thermal management. Innovations in high-performance magnetic materials and advanced cooling techniques are enabling compact, high-torque motors ideal for EVs and industrial applications. Precision manufacturing, including 3D printing and automated production, is reducing costs and improving scalability. These advancements boost adoption across automotive and aerospace sectors, accelerating the transition toward high-performance electric propulsion systems.

Threat:

Complex Design & Scalability Issues

Complex design and scaling problems in the axial flux motor market prevent large manufacture and broad acceptance. Production costs are raised by the need for sophisticated materials, accurate engineering, and specific manufacturing techniques

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for these motors. As manufacturers find it difficult to move from prototypes to large-scale production, scalability is still an issue. Furthermore, market progress is slowed by the high initial investment and specialized personnel requirements, which restrict accessibility for smaller firms and postpone commercialization attempts.

Covid-19 Impact

The COVID-19 pandemic initially disrupted the Axial Flux Motor Market due to supply chain challenges, production halts, and reduced industrial activity. However, the market rebounded as demand for electric vehicles (EVs) and energy-efficient solutions surged post-pandemic. Government stimulus packages and increased investments in electrification accelerated adoption, driving growth. The crisis highlighted the need for resilient supply chains and innovation in motor technology.

The air-cooled axial flux motor segment is expected to be the largest during the forecast period

The air-cooled axial flux motor segment is expected to account for the largest market share during the forecast period, due to its high power density, compact design, and superior efficiency. These motors enhance performance in electric vehicles, industrial automation, and aerospace applications by reducing weight and improving thermal management. Their simplified cooling mechanism lowers maintenance costs and increases reliability, making them an attractive choice for manufacturers. As demand for lightweight and energy-efficient solutions rises, air-cooled axial flux motors are poised to accelerate market expansion.

The aerospace segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the aerospace segment is predicted to witness the highest growth rate, as the industry transitions to electrification and hybrid-electric aircraft, axial flux motors provide improved efficiency, compact design, and increased performance. They are perfect for next-generation aircraft and urban air mobility (UAM) because to their excellent torque-to-weight ratio. The aerospace industry is a major driver of market expansion and technological developments due to rising investments in electric vertical take-off and landing (eVTOL) aircraft and sustainable aviation.

Region with largest share:

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During the forecast period, the Asia Pacific region is expected to hold the largest market share due to advancements in electric vehicle (EV) adoption, industrial automation, and renewable energy integration. These motors offer higher power density, efficiency, and compact designs, making them ideal for EVs, drones, and wind turbines. Government incentives, increasing R&D investments, and rising demand for sustainable mobility are further propelling the market. This shift is fostering technological innovation, reducing carbon emissions, and enhancing energy efficiency, positively impacting industries and economies across the region.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR, due to demand for high-performance electric motors in automotive, aerospace, and industrial applications. These motors offer superior power density and enhanced efficiency, making them ideal for electric vehicles (EVs) and renewable energy systems. Government initiatives promoting electrification and sustainability further boost market adoption. With advancements in materials and manufacturing, axial flux motors are set to revolutionize the region’s transportation and energy sectors, fostering innovation and economic growth.

Key players in the market

Some of the key players profiled in the Axial Flux Motor Market include Magnax, YASA, Saietta Group, EMRAX, AVID Technology, Turntide Technologies, Danfoss Editron, DANA TM4, MAVEL, TECO Electric & Machinery, Lucchi R. Elettromeccanica, Celera Motion, Agni Motors, Protean Electric, Elaphe Propulsion Technologies, ePropelled, Tula Technology, Axiomatic Technologies, Nidec Corporation and Mahle.

Key Developments:

In October 2024, Ashok Leyland has signed a multipronged partnership agreement with Japan-based global electric motor drives manufacturer Nidec Motor Corporation. This partnership will enable both Ashok Leyland and Nidec to develop novel e-drive motors and systems that cater to the specific needs of India's commercial vehicle industry, ensuring advanced and efficient electric mobility solutions.

In June 2024, Nidec Corporation has developed a new air suspension motor for automobiles. By utilizing its long-nurtured technologies for brake and power steering motors and other drivetrain products, Nidec Motor (Dalian) has developed this latest air

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suspension motor. Compact, durable, and highly responsive during start-up, this product drives the air compressor, the component that supplies the air tank with compressed air.

In August 2021, Magnax expanded its prototyping and testing capabilities in Kortrijk, Belgium, by establishing a pilot production line. The company states play an important role in accelerating the development, manufacturing and testing of prototypes of yokeless axial flux motors and power electronics.

Types Covered:

- Air-Cooled Axial Flux Motor
- Liquid-Cooled Axial Flux Motor

Motor Types Covered:

- Single-sided Axial Flux Motors
- Double-sided Axial Flux Motors

Power Outputs Covered:

- Low Power (100 kW)

Applications Covered:

- Automotive
- Aerospace
- Industrial
- Marine
- Consumer Electronics

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- Other Applications

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe
- Asia Pacific
  - Japan
  - China
  - India
  - Australia
  - New Zealand

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South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

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- Company Profiling
  - Comprehensive profiling of additional market players (up to 3)
  - SWOT Analysis of key players (up to 3)
- Regional Segmentation
  - Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)
- Competitive Benchmarking
  - Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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