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eVTOL Aircraft Market Report by Lift Technology (Vectored Thrust, Multirotor, Lift Plus Cruise), Mode of Operation (Piloted, Autonomous, Semi-Autonomous), Maximum Take-off Weight (MTOW) (1500 Kg), Range (0-200 Km, 200-500 Km), Propulsion Type (Battery-Electric, Hybrid-Electric, Hydrogen-Electric), Application (Commercial, Military, Emergency Medical Service), and Region 2024-2032

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Abstracts

The global eVTOL aircraft market size reached US$ 12.4 Billion in 2023. Looking forward, IMARC Group expects the market to reach US$ 35.1 Billion by 2032, exhibiting a growth rate (CAGR) of 11.87% during 2024-2032. The growing demand for lighter and more aerodynamic designs, along with the development of advanced materials, rising demand for transportation that bypass ground-level traffic, and increasing preference for eco-friendly transportation alternatives to reduce carbon dioxide emissions are some of the major factors propelling the market.

An electric vertical takeoff and landing (eVTOL) aircraft is an innovative mode of transportation that utilizes electric propulsion systems to achieve vertical takeoff and landing capabilities. It is designed with multiple electric rotors or ducted fans that enable it to ascend and descend vertically. They offer efficient, environmentally friendly, and quiet aerial transportation options. As it is widely employed in various applications, such as urban air taxis, cargo delivery, and emergency medical services, the demand for eVTOL is rising worldwide.

At present, the increasing utilization of eVTOLs due to their enhanced convenience for

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commuting is bolstering the growth of the market. Besides this, the growing demand for eVTOLs, as they offer lower operating costs compared to traditional helicopters, is offering a positive market outlook. In line with this, the rising popularity of on-demand air travel among individuals is propelling the growth of the market. Apart from this, the increasing preference for urban air mobility (UAM) to address mobility challenges and enhance connectivity is contributing to the growth of the market. Furthermore, advancements in battery technology to extend the range and endurance of eVTOL aircraft are supporting the growth of the market. Moreover, the increasing demand for quick travel options among individuals is strengthening the growth of the market.

eVTOL Aircraft Market Trends/Drivers:

Rising demand for transportation that bypass ground-level traffic

Urban congestion and traffic gridlock are becoming a pervasive issue in many metropolitan areas worldwide. In addition, the rising demand for transportation that bypasses ground-level traffic is bolstering the growth of the market. Apart from this, eVTOL aircraft can take off and land vertically, which means they can utilize existing infrastructure, such as helipads and vertiports, while also accessing more confined urban spaces. Moreover, it assists in reducing travel times and making commuting more efficient and enjoyable, which is offering a positive market outlook. In line with this, the rising adoption of eVTOLs to address the need for congestion relief and enhanced urban mobility is supporting the growth of the market.

Growing preference for eco-friendly transportation alternatives

The rising preference for eco-friendly transportation alternatives is propelling the growth of the market. In line with this, there is an increase in concerns over climate change and air pollution among the masses across the globe. Besides this, these aircraft are powered by electricity that produces zero emissions during flight while aligning with sustainability goals. In addition, they have a lower noise profile as compared to conventional helicopters. Governing agencies worldwide are encouraging the adoption of cleaner and greener transportation modes, which is offering a positive market outlook. Furthermore, advancements in battery technology are extending the range and efficiency of these aircraft, which makes them even more environmentally attractive.

Increasing demand for lighter and more aerodynamic designs

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Rapid technological advancements in these aircraft, such as electric propulsion, battery energy density, and autonomous flight systems, assist in providing a more viable transportation solution. Electric propulsion systems offer high efficiency and have low maintenance requirements as compared to traditional internal combustion engines. Moreover, the rising development of advanced materials to offer lighter and more aerodynamic eVTOL designs is bolstering the growth of the market. Simultaneously, autonomous flight technology is enhancing the safety and operational capabilities of aircraft, which is contributing to the growth of the market. As a result, these technological advancements assist in the manufacturing of reliable and cost-effective aircraft.

eVTOL Aircraft Industry Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the market, along with forecasts at the global, regional, and country levels from 2024-2032. Our report has categorized the market based on lift technology, mode of operation, maximum take-off weight (MTOW), range, propulsion type, and application.

Breakup by Lift Technology:

Vectored Thrust

Multirotor

Lift Plus Cruise

Multirotor accounts for the majority of the market share

The report has provided a detailed breakup and analysis of the market based on the lift technology. This includes vectored thrust, multirotor, and lift plus cruise. According to the report, multirotor represented the largest segment. Multirotor eVTOLs consist of multiple rotors, typically four or more, arranged in a symmetric fashion. They provide vertical lift that enables the aircraft to take off and land vertically, similar to a helicopter. They are known for their stability, agility, and ease of control, which makes them suitable for urban air mobility (UAM) applications, such as air taxis. In this, if one rotor or propulsion system encounters an issue, the others can compensate, which assists in enhancing safety. Additionally, they are often designed to be electrically powered to reduce emissions and noise pollution while aligning with sustainability goals.

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Breakup by Mode of Operation:

Piloted

Autonomous

Semi-Autonomous

Semi-autonomous holds the largest share

A detailed breakup and analysis of the market based on the mode of operation has also been provided in the report. This includes piloted, autonomous, and semi-autonomous. According to the report, semi-autonomous accounted for the largest market share. Semi-autonomous eVTOLs are designed to reduce the cognitive and operational workload on pilots or operators while still allowing for human intervention when needed. In a semi-autonomous eVTOL, various flight systems, such as navigation, stability control, and obstacle avoidance, are automated to enhance safety and ease of operation. These systems can assist in tasks like takeoff, landing, and maintaining stable flight. They offer a higher level of safety and ease of operation as compared to fully manual aircraft, which makes them suitable for a broader range of operators, including those with limited flight experience. This mode of operation strikes a balance between human expertise and the advantages of automation.

Breakup by Maximum Take-off Weight (MTOW):

1500 Kg

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