Aircraft Exhaust Systems - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

Market Report | 2024-02-17 | 110 pages | Mordor Intelligence

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Report description:

The Aircraft Exhaust Systems Market is valued at USD 1.06 billion in 2024 and is anticipated to reach USD 1.48 billion by 2029, registering a CAGR of 7.02% during the forecast period.

The market's growth is an outcome of the organic growth of the aviation industry, as a large number of aircraft deliveries are scheduled during the forecast period. Aircraft exhaust systems are essential for ensuring a proper propulsion cycle. Integration of the engines with the new-generation aircraft will drive the demand for individual components of the exhaust systems.

The aviation industry incumbents are keenly investing in the development of new aircraft propulsion technologies to enhance the performance characteristics of newer-generation aircraft. Emerging technologies, like the electronic thrust reverser actuation system (ETRAS), will drive the R&D efforts divested toward developing advanced engine subsystems. ETRAS is a hybrid system that enables automated thrust reverser operation through electromechanical actuators. The ETRAS will physically combine the existing electrical thrust reverser actuation controller (ETRAC) and thrust reverser power unit (TRPU) of the aircraft engine into a single system, thereby reducing the engine's weight profile by a significant margin.

The increasing use of new manufacturing technologies, such as automated fiber placement (AFP), is envisioned to reduce the aircraft's turnaround time (TAT). It is to manufacture airframe components, such as tubes with a T-shape or Y-shape or tubes with circular shape flanges, like exhaust ducts, in jet engines.

Aircraft Exhaust Systems Market Trends

Commercial Segment to Lead the Market in the Forecast Period

Commercial aviation is a major source of greenhouse gas emissions and is, hence, being subjected to global scrutiny from environmental protection agencies. It led to the imposition of stringent emission norms to curb environmental degradation caused by the combustion of aviation fuel. In March 2017, the International Civil Aviation Organization (ICAO) adopted a new aircraft CO_2 emission standard to be enforced on the new aircraft type designs from 2020 and the aircraft type designs already in production. The regulation also states the provisions for engine modification to ensure full compliance by 2028. The aircraft combustion cycle is directly influenced by the engine design, including subsystems, such as exhaust systems. The stringent emission norms are anticipated to drive technological innovations in the design of fuel-efficient engines with sophisticated exhaust systems. For instance, in July 2023, Power Flow Systems partnered with Maple Leaf Aviation to design dual exhaust system fairings for Cessna 180, 182, and 185 airframes. As per the agreement, Maple Leaf will produce the new set of exhaust fairings, while Power Flow will offer the specialized set at a 'combined package price' to its tuned exhaust system customers.

Moreover, in an effort to curb emission levels, R&D initiatives are being undertaken to develop an electric power train for aviation. For instance, in September 2022, Researchers captured the first images of CO_2 emissions from a commercial aircraft engine using chemical species tomography. They used a novel near-infrared light imaging technique to capture the first cross-sectional images of carbon dioxide in the exhaust plume of a commercial jet engine. The technique could accelerate turbine combustion research aimed at developing engines and aviation fuels that are more environmentally friendly. Similarly, in February 2022, engineers at the Arnold Engineering Development Complex and MetroLaser in the US are using a new type of laser measurement system to test the gas velocity of engine exhaust and help find ways to reduce noise from aircraft. Such efforts are envisaged to enhance the business prospects of commercial aircraft exhaust systems during the forecast period.

Asia-Pacific to Generate the Highest Demand during the Forecast Period

The Asia-Pacific region is anticipated to generate the highest demand for the aircraft exhaust systems market during the forecast period. This demand can be attributed to the increasing orders of new aircraft, propelled by ever-growing passenger traffic in the region. The International Air Transport Association (IATA) projected that China will eventually become the world's largest aviation market by the mid-2020s. According to the Ministry of Aviation (India), 80-90 new airports, including heliports and water aerodromes, will be built by 2030 in India. The huge market potential encouraged aircraft OEMs to devise strategic expansion plans to increase their penetration into the region. It, in turn, will support the growth of the aircraft exhaust systems market.

Furthermore, the Asia-Pacific region registered the second-largest military expenditure across the world. The tense geopolitical scenario prevalent in the region is fostering the initiation of fleet modernization programs for enhancing the aerial defense capabilities of the countries. For instance, China's proposed 2023 defense spending rose to USD 225 billion, which is 7.2% higher than the 2022 budget and is the eighth consecutive year of increase in its military spending. Similarly, India proposed USD 72.6 billion in defense spending for the 2023-24 financial year, which is 13% up from the previous period's initial estimates. It is aiming to add more fighter jets. Such developments are anticipated to drive the market for aircraft exhaust systems during the forecast period.

Aircraft Exhaust Systems Industry Overview

The aircraft exhaust systems market is characterized by the presence of a limited number of dominant vendors operating at the global level. The market is highly competitive, with the players competing to gain the largest market share. Constraints associated with the design of aircraft exhaust systems and cancellation of aircraft orders due to macroeconomic factors impede the growth of the market. The vendors must provide advanced systems to aircraft OEMs to survive in an intensely competitive market environment. The dominant market players include GKN Aerospace (Melrose Industries PLC), Triumph Group Inc., Magellan Aerospace Corp., Rolls-Royce plc, and Esterline Technologies Corporation (Transdigm Group Inc.). These players compete mainly based on their in-house manufacturing capabilities, their global footprint network, their product offerings, their R&D investments, and a strong client base. The increase in the aircraft procurement rate, due to the rapid increase in air passenger traffic, is expected to fuel market growth during the forecast period. The competitive environment in the market is likely to further intensify due to an increase in product/service extensions and technological innovations. For instance, in March 2023, Power Flow Systems hit a milestone by delivering 6,500 systems since the first tuned exhaust system in 1999. To meet the growing demand and reduce the lead times for new orders, the company expanded its Daytona Beach and Florida branch production facility and workforce.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

Table of Contents:

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