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Aerospace Composite Market Forecasts to 2030 – Global Analysis By Fiber Type (Carbon Fiber, Glass Fiber, Aramid Fiber and Other Fiber Types), Matrix Type, Manufacturing Process, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Aerospace Composite Market is accounted for $38.1 billion in 2024 and is expected to reach $81.1 billion by 2030 growing at a CAGR of 13.5% during the forecast period. Aerospace composites are materials made from multiple components that exhibit superior properties when combined. They are used in the aerospace industry for manufacturing parts like aircraft, spacecraft, and satellites due to their strength, light weight, and resistance to fatigue and corrosion. These composites consist of a reinforcement material like carbon fiber and a matrix material like polymer, metal, or ceramic. They are designed to withstand high-altitude flights, extreme temperature variations, and environmental exposure, making them ideal for critical structural and non-structural components like wings, fuselage, tail sections, and engine parts.

According to World Data, in 2024, the aviation industry is accountable for 2.6% of global carbon dioxide emissions and 4% of global warming. This factor stimulates the development and adoption of lightweight and sustainable aerospace composites.

Market Dynamics:

Driver:

Enhanced durability and corrosion resistance

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Aerospace composites with enhanced durability and corrosion resistance extend the life cycle of aircraft and spacecraft components, reducing maintenance and operating costs. This leads to increased demand for high-performance composite materials in new aircraft and retrofitting older models, contributing to market growth. Additionally, enhanced durability and corrosion resistance improve safety and reliability in aerospace structures, especially in harsh environments. The aerospace industry's stringent safety standards are likely to favor these composites, driving demand for higher durability and corrosion resistance in the market.

Restraint:

Complex manufacturing processes

The intricate manufacturing processes of aerospace composites can lead to longer lead times, affecting the market. This can hinder aerospace companies from meeting tight production schedules, especially in sectors like commercial aviation or defense. This can result in delays in aircraft delivery, operational disruptions, and customer dissatisfaction. Additionally, the complex manufacturing processes can create challenges in scaling up production. This can create bottlenecks, limiting the supply of composite components and restricting market expansion, especially in high-volume sectors like commercial aviation.

Opportunity:

Growing global air travel industry and rise in both commercial and military aircraft production

The driving demand for fuel-efficient aircraft, with airlines using lightweight materials like composites to reduce operating costs. This trend is affecting the market for aerospace composites, which are used in critical components like wings, fuselage, tail sections, and interior structures. The growth of the industry, driven by rising disposable incomes, expanding middle classes, and increased connectivity, leads to a rise in new aircraft production and deliveries propelling the market growth.

Threat:

High manufacturing and material costs

The complex manufacturing processes for aerospace composites, such as fiber

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placement, resin infusion, and autoclave curing, require specialized equipment, skilled labor, and expensive raw materials. These costs can deter smaller companies and those with limited budgets from adopting aerospace composites, potentially limiting market growth in price-sensitive sectors like commercial aviation. Additionally, the intricacy of these processes can result in longer lead times for producing components, with some processes taking several hours to days, depending on the size and complexity of the part.

Covid-19 Impact

The COVID-19 pandemic significantly disrupt in global supply chains, halting production, and delaying aircraft deliveries. With travel restrictions and reduced demand for air travel, commercial aircraft production slowed, affecting the demand for composite materials. Additionally, many aerospace manufacturers faced financial challenges, leading to postponed projects and budget cuts in R&D. However, as recovery takes place, the market is gradually rebounding, with a renewed focus on lightweight, fuel-efficient aircraft, boosting long-term demand for aerospace composites.

The carbon fiber segment is expected to be the largest during the forecast period

The carbon fiber is expected to be the largest during the forecast period owing to improved fuel efficiency by replacing heavier materials like aluminum or steel. This reduces aircraft weight, resulting in better fuel economy and lower operating costs. Airlines and aerospace manufacturers are increasingly using carbon fiber to meet fuel efficiency and environmental sustainability goals. These advantages have made carbon fiber a key material in the development of modern aircraft, including both commercial and military applications driving growth in the aerospace composite market.

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

The autoclave processing segment is anticipated to have the highest CAGR during the forecast period which involves heating and shaping large composite parts, generates significant material waste and high energy consumption. These factors increase the environmental and economic costs of aerospace composite production. Manufacturers under pressure to reduce carbon footprint may explore alternative methods of composite manufacturing, potentially affecting demand for autoclave-based aerospace composites. This could lead to a shift in production methods.

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Region with largest share:

North America is expected to hold the largest market share during the forecast period owing to major aerospace hubs like the US and Canada have a network of suppliers, research institutions, skilled labor, and facilities for producing composite materials and components. The region's strong manufacturing ecosystem allows seamless integration across the supply chain, meeting the commercial and defense sector's demand for lightweight, durable materials. This results in consistent growth for the aerospace composite market in the region, and a well-developed infrastructure supports rapid production scaling as market demands increase.

Region with highest CAGR:

Asia Pacific is anticipated to register the highest CAGR over the forecast period due to governments in Asia Pacific, particularly China and India, are promoting the growth of their aerospace sectors through funding for research, tax incentives, and investments in infrastructure. These policies provide a strong foundation for the aerospace composite market, accelerating the adoption of composites in commercial and military aircraft production by incentivizing investment in high-performance materials and technologies.

Key players in the market

Some of the key players in Aerospace Composite market include Airbus, BAE Systems, Bally Ribbon Mills, Boeing, DuPont, General Dynamics, Hexcel Corporation, Lockheed Martin, Materion Corp., Mitsubishi Chemical Carbon Fiber and Composites Inc., Northrop Grumman, Raytheon Technologies, Royal Ten Cate N.V., SGL Carbon SE, Solvay SA, Thales Gr, Toho Tenax Co., Ltd and Toray Industries Inc.

Key Developments:

In December 2024, DuPont water technologies featured in avoided-emissions use case by world business council for sustainable development. Advanced FilmTec™ BW30 PRO-400 RO elements, introduced to the market in 2022, transform salty water sources into high-quality freshwater to secure water access for industrial.

In December 2024, BAE Systems (UK), Leonardo (Italy), and Japan aircraft industrial enhancement Co Ltd (JAIEC), have reached an agreement to form a new company under a business joint venture for the Global Combat Air Programme (GCAP), subject to regulatory approvals.

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Fiber Types Covered:

- Carbon Fiber
- Glass Fiber
- Aramid Fiber
- Other Fiber Types

Matrix Types Covered:

- Polymer Matrix Composites
- Metal Matrix Composites
- Ceramic Matrix Composites
- Other Matrix Types

Manufacturing Processes Covered:

- Autoclave Processing
- Resin Transfer Molding
- Filament Winding
- Hand Layup
- Other Manufacturing Processes

End Users Covered:

- Commercial Aviation

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- Military Aviation
- General Aviation
- Aerospace
- Other End Users

Regions Covered:

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

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India

Australia

New Zealand

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 2022, 2023, 2024, 2026, and 2030
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment

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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

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

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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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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