

**Global Aerospace Composites Market Assessment, By Fiber Type [Carbon Fiber, Glass Fiber, Aramid Fiber, Ceramic Fiber, Others], By Application [Structural Components, Aerodynamic Surfaces, Interior Components, Others], By Aircraft Type [Commercial Aircraft, Military Aircraft, Business Jet, Others], By Region, Opportunities and Forecast, 2018-2032F**

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**Report description:**

Global aerospace composites market is projected to witness a CAGR of 10.75% during the forecast period 2025-2032, growing from USD 35.76 billion in 2024 to USD 80.94 billion in 2032. The demand for composite materials in aviation and space, as well as light materials, has led to significant growth in the global aerospace composites market. Composite materials made of carbon fiber are corrosion-resistant and ideal for high temperatures. The incredible weight-to-strength ratio and resistance properties of these materials are a major benefit to space- and aviation-friendly composites. These materials are incredibly important for losing weight to reduce fuel consumption, increase performance, and promote sustainability.

The usage of aerospace composites has spread throughout many parts of the aircraft, including the wings, fuselage, tail, and interior components. The next generation finds it extremely important to reduce the costs of operation and the environmental footprint to keep a reduced weight while retaining structural integrity. In the space sector, composites help build satellites, carrier vehicles, and other space infrastructures.

The aircraft industry has embraced advanced materials, automation, and digital technologies that improve sustainability, cost savings, and performance gains. Aircraft manufacturers are embracing advanced composite materials such as carbon fiber and ceramic to respond to a challenging aviation market demanding lighter, more fuel-efficient aircraft. Advanced technologies are changing the design and production of aircraft components, including 3D printing, responsive smart materials, intelligent components, and real-time monitoring, allowing for faster production and rapid modifications. The sector is particularly focused on environmental protection for excessive travel and new aircraft systems, particularly by attempting to reduce emissions and

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developing materials that can withstand demanding environments.

For instance, in March 2025, Collins Aerospace inaugurated its new engineering development and test center (EDTC) at the North Gate campus in Bengaluru, India. This facility is designed to streamline the development, testing, and certification processes of aerospace components locally, thereby accelerating the introduction of aerospace technologies to the market.

#### Reducing Emissions and Increasing Fuel Efficiency Propels Market Growth

Although the aerospace industry has addressed the issue of improving fuel efficiency and reducing emissions, there are new ideas to support this effort, one of which is sharkskin riblet-shaped surface coatings. The sharkskin riblet-shaped surface coating would have millions of microscopic grooves designed similarly to the aircraft's body that can help eliminate air resistance as the aircraft flies. Reducing emissions and increasing fuel efficiency have become the driving forces in aviation as it transitions to greener practices. To have less thrust, the aircraft must create less aerodynamic drag to sustain the necessary speed, contributing to reduced fuel consumption to operate and reducing the carbon emissions produced as the aircraft is flying.

Implementing riblet coatings represents a significant step toward more efficient and sustainable air travel. The aircraft's efficiency can be improved by riblet coating, which improves the entire aircraft's efficiency without changing the engine's or fuel type's structure. It upgrades the smoothness of the aircraft's surface at the microscopic level and helps to move the air more efficiently around the fuselage and wings.

For instance, in January 2025, Japan Airlines Co., Ltd. covered the Boeing 787-9 with a unique coating to increase fuel efficiency, reduce air resistance, and improve fuel efficiency. This is modeled after the shark skin. Inspired by the texture of shark skin, the innovative riblet design reduces carbon emissions by encouraging the smooth flight of the aircraft. This drive is one of the efforts that airlines can make aviation more sustainable.

#### Lightweight and High-Strength Materials Propel Market Growth

Due to the special properties of combining high strength and light design, composite materials were increasingly used in the aerospace sector. In many aircraft components, composite materials such as carbon fiber and state-of-the-art polymer-based materials enter the equation of traditional metals such as aluminum, with amazing performance and efficiency improvements. In the fight for greener aviation, weight is more important, as lightweight directly leads to fuel savings, reduced operating costs, and reduced pollutants. Composite also prevents fatigue and corrosion, increasing the lifespan of aircraft components and reducing maintenance requirements.

Another important benefit of aerospace composites is their increased structural performance. It can be used to provide flexibility to suit your specific design needs and create difficult shapes and structures that are difficult or impossible to reach with traditional materials. This capability makes it possible to create more efficient and aerodynamic designs that improve the overall performance and safety of the aircraft. This encompasses efforts to enhance its effectiveness, resistance, fire safety, and the ability to withstand high-temperature environments and further expand applications in both commercial aviation and space research. The ongoing advancement of aerospace composites will define the future of flight, making it more efficient, cost-effective, and environmentally friendly.

For instance, in March 2025, a UK-based business secured USD 41 million to expand its additive manufacturing operations, marking a significant improvement in aerospace innovation. This action promotes the creation of advanced, lower-weight metal parts to improve next-generation aircraft performance and efficiency by utilizing innovative materials and design methodologies.

#### Carbon Fiber Dominates the Aerospace Composites Market

Due to its outstanding connection with weight, high rigidity, and resistance to fatigue and corrosion, carbon fiber forms the basis of aerospace composites. These features make them suitable for significant structural components such as the fuselage, wings, and tail. Its lightweight properties significantly reduce fuel efficiency and aircraft operational emissions. One of the most essential uses of carbon fiber is in the Boeing 787 Dreamliner, which has approximately 50% carbon reinforced polymer (CFRP). The comprehensive utilization of CFRP. On this airplane, fuel is utilized by 20% compared to the previous airplane models. Continuous advances in manufacturing technologies, such as automated fiber arrangement and more production, also support carbon fiber domination of aerospace composites. These innovations make carbon fiber components low-cost and more accessible, expanding their use in the commercial and military travel sectors.

For instance, in May 2024, India announced to start manufacturing T100 carbon fiber domestically in two and a half years to get around import limitations and support key industries. With the help of important organizations like BARC, HAL, and MIDHANI, this

project will support defense, aerospace, and civil engineering applications such as infrastructure projects, airplanes, and missiles.

#### Europe Dominates the Aerospace Composites Market

Europe leads the global market for composite materials for its long history of innovation, sustainability, and next-generation production. The region has invested in light materials such as reinforced carbon fiber over a longer period, which is extremely important for the performance and efficiency of modern aircraft. These materials are valued for their ability to reduce the total weight of aircraft, leading to improved fuel efficiency and reduced greenhouse gas emissions, as well as the most important priorities of the European Green Aviation Strategy. Europe is also supported by strong aviation infrastructure, research and development, and a qualified workforce. Coordination of governments, research institutes, and industry has created an ecosystem that is constantly evolving to meet the changing requirements of the aviation industry. The region's investment in sustainable materials and automated, accurate production has made a global improvement in Green Aviation.

For instance, in March 2025, Europe-based Airbus declared its next-generation aircraft will feature advanced composite materials in fuselage and wing designs. This initiative, rooted in European innovation, aims to reduce aircraft weight, improve fuel efficiency, and reduce emissions. The move aligns with Europe's broader commitment to sustainable aviation and next-gen aerospace technology.

#### Impact of U.S. Tariffs on the Global Aerospace Composites Market

##### ☐☐Increased Material Costs

Duty tax on imported raw materials such as carbon fiber and resin has made production costs higher for US space travel products manufacturers. This can affect profit margins and limit investments in research and development.

##### ☐☐Supply Chain Disruption

Taxes can make global supply chains even more difficult, especially when critical composite components are obtained from countries affected by tariffs. Manufacturers can delay or find alternative suppliers that affect delivery time.

##### ☐☐Lower Global Competitiveness

US companies are revealed to have higher input costs compared to their international competitors, making it challenging to compete in the global aviation and space markets. This could result in the loss of export options.

##### ☐☐Boost to Domestic Production

Some tariffs may uplift domestic production of composite materials as companies look to lower dependence on imports. This could lead to long-term advantages, such as raising local investment and job creation.

##### ☐☐Innovation Slowdown

With increasing costs and a disrupted supply chain, companies might divert resources away from innovation and product development. This could slow down progress in next-generation aerospace composites and sustainability goals.

#### Key Players Landscape and Outlook

The global aerospace composites market will develop quickly due to increased demand for light, fuel-efficient aircraft and sustained innovation in materials science. Most important market participants focus on improving performance and reducing environmental impact, particularly through investments in advanced composite technologies such as carbon fiber reinforced polymers and thermoplastic composites. These materials provide high strength, corrosion resistance, and improved durability, making them ideal for commercial and defensive aviation applications. Many are expanding operations or procurement in emerging countries such as India, which offers a combination of technical capabilities, cost advantages and growth infrastructure. The leading aerospace engine manufacturer announced plans to double its procurement from India over the next five years. This shift highlights India's increasing importance in the global aerospace landscape as manufacturers seek to build resistance to supply chain obstacles and increased production costs.

Apart from global sourcing strategies, sustainability is also a focus area for the leading players. Recycling-based composite innovations, automation in composite manufacturing, and decreased reliance on autoclave processes are all becoming more prominent. All this is essential as the aerospace industry comes under increased pressure to fulfill climate targets and lower lifecycle emissions. Looking forward, the position is robust. With ongoing growth in material technology, manufacturing efficiencies, and geographically aligned alliances, the composites market in aerospace is on track for a continued growth run, laying the groundwork for future generations of light, green, and efficient flight.

For instance, in February 2024, Rolls-Royce announced its strategy to double sourcing from India within five years. The move

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underlines India's increasing position as a part of the international aerospace supply chain with improved emphasis on sophisticated manufacturing, engineering expertise, and low-cost production, aiding the company to increase supply chain resilience and operate globally.

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\*All segments will be provided for all regions and countries covered

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\*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work.

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