

Woven Textile in the Aerospace & Defense Market Report: Trends, Forecast and Competitive Analysis to 2031

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Abstracts

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Woven Textile in the Aerospace & Defense Trends and Forecast

The future of woven textile in the global aerospace & defense market looks promising with opportunities in the aircraft interior, ducting, and rotor blade markets. Woven textile in the global aerospace & defense market is expected to grow with a CAGR of 6.8% from 2025 to 2031. The major drivers for this market are the rising demand for lightweight materials for fuel efficiency, growing aircraft production, and the increasing demand for aerospace textiles.

Lucintel forecasts that, within the product type category, woven roving is expected to witness higher growth over the forecast period.

Within the application category, aircraft interiors are expected to witness the highest growth.

In terms of regions, APAC is expected to witness the highest growth over the forecast period.

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Emerging Trends in Woven Textile in the Aerospace & Defense Market

Woven Textile in the Aerospace & Defense Market Report: Trends, Forecast and Competitive Analysis to 2031



Woven textile in the aerospace and defense market domain progresses at an extremely fast pace with clear signs of the emergence of specific trends, including the use of woven textiles. These trends underscore the growing importance of high-performance materials, environmental performance, and more intelligent technologies for the design and operational effectiveness of aerospace and defense systems.

Lightweight Materials Take Center Stage: Modern military vehicles superimpose non-laminated textiles on almost every surface in a bid to keep their combined weight lower than so-called 'regular' textiles. Lesser weight materials empower minimization of fuel usage, maximizing the Company's operational economy efficiency and improving performance. This trend is primarily seen in aircraft and military vehicles, as it is crucial in enhancing speed and minimizing emissions. There is also improvement in body protection equipment where woven lightweight material is utilized without compromising protection even during active operations.

Developments in Fire and Heat Resistant Features: An attempt is being made to the modern fabrics in such a way that they enhance fire and heat degradation resistance, their application is critical in aerospace and defense structures. There are also various uses of these materials in the insulation of airplanes, fireproof walls, and protective clothing for soldiers. With the tightening of fire safety regulations, there is an increasing appeal for innovative woven fireretardant fabrics. This trend is facilitating enhancement in the safety and survivability of the armed forces and aircraft in unfriendly environments.

Advanced Integration of Smart Textiles: Textiles incorporating devices with sensors or other technologies integrated into the woven are being increasingly utilized in the aerospace and defense industries. Such textiles can sense temperature, pressure, humidity, and even the degree of porosity of the materials, as well as their scuffs. Processes are underway to generate textiles that will be able to gather information for maintenance proactively, aid in making better decisions, and improve operational efficiencies in military and aerospace systems.

Eco-Friendly Solutions and Sustainability: There is a growing need for green building materials, and woven textiles are in turn being produced from recyclable materials or bio-degradable fibers. Incipient sources define employing more sustainable practices to lower industrial greenhouse output and meet tougher



space standards in the aerospace and defense industries. This trend is leading towards the making of environmentally friendly woven textiles for use in definite areas such as aircraft interiors, defense equipment packaging, and safety wear for the military.

Chemical and Physical Properties are Improved: The woven textiles are improving in terms of performance to withstand extreme environmental exposure to harsh elements like high pressures, UV rays, and chemicals. Such materials are very important in the military as well as the aerospace industry besides the everyday business, since equipment is likely to be subjected to extreme environmental conditions. Progress in the manufacturing of textiles is making it possible for the woven materials to still be intact and perform in adverse environments, hence the resulting products are more durable for further applicable operational conditions.

On the one hand, these trends are changing the performance and sustainability of the aerospace and defense market and introducing more innovation into them. It is projected that woven textiles will remain central in changing the future of aerospace and defense applications as the demand for lightweight, durable, and environmentally friendly materials increases.

Recent Developments in Woven Textile in the Aerospace & Defense Market

In recent developments in woven textile in the aerospace and defense market, there was a need to explore the developments that would improve the efficiency safety, and sustainability of such engineering materials in critical uses.

Evolution of Composite Woven Textiles for Aircraft Interiors: In modernist designs, woven textiles are getting more applications in the manufacture of composite materials intended for aircraft interiors. These composites are materials made of woven and some other fibers that help in enhancing strength, lowering weight, and averting flames. The use of these composite materials makes it easier for aerospace manufacturers in abiding to achieve more stringent safety requirements while optimally using the operational costs and the amount of fuel used.

State-of-the-art fire-resistant woven Textiles for Military Use: Recent values of woven textiles have been improved in fire resistance and heat also which makes



them useful for defense purposes in items like armored suits and helmets as well as protective coverings for vehicles. These knee guards and gloves are manufactured to endure high and hot conditions providing more protection to soldiers in dangerous regions.

Main Features of Smart Fabric Enabling its Functional Properties: The use of smart fabrics works in that they incorporate sensors that are embedded in cloth, giving this use a meaning and trend in the aerospace system and defense. All key performances such as temperature, pressure, and structural health can be measured through the textiles, thus relaying information that can be used for maintenance and efficiency of operation. This transformation is an important advancement toward the use of aerospace and defense systems that makes the safety of operations and decision-making during operations a great challenge.

Development of Eco-Friendly Woven Textiles: Sustainability is becoming an essential aspect in the aerospace and defense sector, and there seem to be increasing trends towards woven textiles that are environmentally friendly. These fabrics consist of recyclable or biodegradable fiber by sustainable development concepts worldwide. This change not only decreases the by-products generated by the industry but also adheres to the newly established restrictions on waste disposal and material usage.

Development of New Materials for Sound and Vibration Suppression: woven textiles are assisting in the enhancement of noise and vibration control in the area of aerospace applications. Modern woven materials are starting to be utilized in aircraft cabins and military vehicles to cut down noise levels for the sake of passenger and crew feeling within the space. In this case, those improvements are essential for quality of living when performing long-distance flights or missions without losing the effectiveness of the activity.

These include recent results that follow a clear path toward performance enhancement, sustainability, and safety within the using advanced woven textile in the aerospace and defense. The manufacturing sector has appreciated this growth and hence continues to bring forth changes and creativity in the field by the needs of the industry.

Strategic Growth Opportunities for Woven Textile in the Aerospace & Defense Market

The woven textiles markets provide exceptional opportunities for aerospace and



defense with increased scope for improvement in performance and safety as well as in sustainability factors.

Aircraft Interiors: Considering the usage of lightweight materials that have high strength and flame retardant features in the construction of aircraft's interior, there lies an opportunity for nonwoven textiles. Addressing the specifics, these materials are used in thermal insulation, seating systems, and fire retardant barriers, and they can decrease its weight, and improve the safety and comfort of passengers. The worldwide growth of air transportation and streamlining policies fully support the increasing need for these woven materials for this application.

Body Armor and Protective Gear: woven fabrics more and more find their application in the production of body armor and other protective gear for military personnel. Indeed these materials are characterized by light weight but high strength and flexibility as well as protection against ballistic threats. The increasing attention on the aspect of modernizing defense forces provides a wonderful market growth potential in this segment.

Noise and Vibration Control in Aerospace: woven textiles applied for noise and vibration control continue to gain relevance within the aerospace industry. This sensation can potentially lower the overall noise in aircraft cabins and improve the comfort of the occupants thereby increasing demand from the military and commercial aerospace markets. This growing market will be advantageous to manufacturers who will be able to make materials that are efficient and lightweight.

Aerospace Elements that are Environment Friendly: Customers are requesting environmentally friendly woven textiles because of the call for sustainability in aerospace. These materials can be utilized in parts such as elements, linings, and wraps. As manufacturers look to dominate these natural and organic advances in woven textiles focused on recyclable or degradable materials they will usurp before the growth of the sustainable aerospace industry.

Smart Textiles that will Assist Maintenance and Monitoring: A key part of this fantastic opportunity is the evolution of smart textiles embedded with sensors and real-time monitoring of one's conditions. Such textiles can be adopted in the aviation and military sectors to keep track of the working conditions like temperature, pressure, and force. This will help in reducing unplanned outages



and improve productivity.

Each of these growth areas talks of the need for modern woven textile in the aerospace and defense market that are high in performance, have high levels of sustainability and have high levels of technology integration. This market seems to have a bright future as innovations are being made on the changes in the materials and applications used in the market.

Woven Textile in the Aerospace & Defense Market Driver and Challenges

The woven textile in the aerospace and defense market is governed by a host of operational, socio-political, fiscal, and technological drivers and restraints that influence the industry.

The factors responsible for driving the woven textile market in aerospace and defense include:

Technological Advancements in Materials: Advancements in fiber technologies and manufacturing processes have resulted in the production of stronger, lighter, and more flexible woven textiles. These innovations have enhanced the ability of woven textiles to provide insulation, reduce noise, and offer protection, making these fabrics essential in the aerospace and defense sectors.

Increasing Demand for Lightweight Materials: The aerospace industry's drive to cut fuel consumption and improve operational efficiency has led to a significant demand for lightweight materials. This trend is boosting the use of woven textiles in aircraft components, insulating materials, and interior works.

Rising Defense Budgets and Modernization: Nearly all countries have begun to upgrade their defense forces, with many adopting advanced technologies, including the use of woven textiles in body armor, protective wear, and military vehicles. As military expenditure rises, the demand for cutting-edge materials for various military applications continues to increase.

Focus on Sustainability: Regulatory pressures to reduce environmental impact have encouraged the use of recyclable and biodegradable materials, such as nonwoven fabrics. This shift is driving the development of greener materials in aerospace and defense applications.



Glaring Need for More Safety Features: Safety is a core consideration in the design of aerospace and defense systems. Woven textiles are being engineered to meet high-performance safety requirements, including fire resistance and protection against bullets, which enhances their use in air travel and military operations.

Challenges in the woven textile market in aerospace and defense include:

High Cost of Advanced Woven Textiles: Producing high-performance woven textiles, especially those made from advanced or eco-friendly fibers, can be expensive. These costs can limit production volumes, particularly in price-sensitive regions.

Material Durability and Performance: Woven textiles used in aerospace applications, such as in aircraft, must meet rigorous performance standards, including strength, durability, and resistance to weather and other extreme conditions. A key challenge is developing textiles that can withstand the harsh environments of aerospace and defense applications while retaining their properties over time.

Regulatory and Certification Processes: Aerospace and defense applications must comply with stringent safety standards, and meeting these regulatory requirements often requires additional time and investment. Demonstrating that new woven textiles meet industry standards can delay their market entry.

Technological improvements, successful sustainability measures, and the growing demand for lightweight and high-performance fabrics are the major drivers of the growth of woven textile in the aerospace and defense market. However, high production costs, the need to comply with various regulations, and the challenges of ensuring durability in harsh conditions continue to impact the development of the market.

List of Woven Textile Companies in the Aerospace & Defense Industry

Companies in the market compete on the basis of product quality offered. Major players in this market focus on expanding their manufacturing facilities, R&D investments, infrastructural development, and leverage integration opportunities across the value



chain. Through these strategies woven textile companies in the aerospace & defense industry cater increasing demand, ensure competitive effectiveness, develop innovative products & technologies, reduce production costs, and expand their customer base. Some of the woven textile companies in the aerospace & defense industry profiled in this report include-

Teijin Limited Hexcel Corporation BASF SE Boeing 3M

Woven Textile in the Aerospace & Defense Market by Segment

The study includes a forecast for woven textile in the aerospace & defense market by product type, application, and region.

Woven Textile in the Aerospace & Defense Market by Product Type [Analysis by Value from 2019 to 2031]:

Woven Roving

Woven Yarn

Woven Textile in the Aerospace & Defense Market by Application [Analysis by Value from 2019 to 2031]:

Aircraft Interior

Ducting

Rotor Blades



Others

Woven Textile in the Aerospace & Defense Market by Region [Analysis by Value from 2019 to 2031]:

North America

Europe

Asia Pacific

The Rest of the World

Country Wise Outlook for Woven Textile in the Aerospace & Defense Market

The use of woven textiles has traditionally been employed in aircraft engineering, but the use of nonwoven fabrics in the aerospace market is also steadily growing. These materials have a wide range of applications, from the interiors of aerospace vehicles to defense materials, as they are lightweight, strong, and inexpensive. Nonwoven textiles are a unique combination of strength, softness, fireproofing, and thermal insulation, all of which are essential in enhancing performance under difficult conditions. The dollar amount spent on innovation has been increasing, particularly in new powder and water connecting methods, which are improving material density in thin-walled combustor components.

United States: Nonwoven textiles are increasingly advancing in the U.S. aerospace and defense industries due to their strength-to-weight ratios and ability to withstand adverse conditions. Companies in the U.S. are looking to use advanced composite materials for insulation, flame-resistant barriers, and upholstery in aircraft interiors. Additionally, there is a strong focus on using green materials, as the military and aerospace industries in the U.S. aim to achieve their sustainability goals. The Department of Defense has also been working on incorporating new technology in nonwoven textiles for military vehicles, drones, and aerospace structures, improving design and development through R&D.

China: China has a rapidly growing aerospace and defense sector, and



nonwoven textiles are becoming increasingly important for this growth. Nonwoven materials are used in the manufacturing of internal structures of aircraft, insulation panels, and protective clothing for defense personnel. Producers in China are working to enhance the performance of nonwoven textiles by incorporating polyester and carbon fiber technologies, aiming to make the fabrics more eco-friendly. The government's policy to enhance military and aerospace technologies has contributed to the demand for high-grade, lightweight, fire-resistant materials that can endure extreme conditions, leading to the rapid adoption of these materials in defense and military applications.

Germany: Germany is known for its precision engineering and technological development, and it is considered to be at the forefront of high-performance nonwoven fabric development for aerospace and defense applications. German companies are leaders in creating structures for aircraft interiors, as well as materials for reducing structure-borne noise and vibrations. In defense, nonwoven textiles are used in personnel armor, medical devices, and camouflage. Additionally, the German aerospace industry is focused on environmental stewardship by producing aircraft parts that contain nonwoven materials made from biodegradable or recycled fibers.

India: The Indian aerospace and defense industry has been on the rise, with renewable nonwoven textiles contributing to this growth. Domestic players are increasingly focused on manufacturing lightweight, high-performance nonwoven composites for land systems, aircraft interiors, and personal protective equipment. The government's self-reliance policy has led to the development of nonwoven fabrication technologies in India. These nonwoven materials are now used in various applications, such as insulation materials in aircraft and heatprotective fabrics in aramid protective clothing.

Japan: Japan is home to some of the most advanced aerospace technologies, and nonwoven fabrics have played a key role in advancing certain aspects of their aerospace and defense industries. Nonwoven materials are now used in aircraft interior components, including seat coverings, soundproofing, and insulation. Moreover, nonwoven fabrics for body armor and other personnel protective equipment are becoming commonplace in Japan's defense sector. Manufacturers in Japan are also designing smart fabrics that can be incorporated into the aerospace sector to improve functionalities such as thermal management and real-time data acquisition.



Features of Woven Textile in the Global Aerospace & Defense Market

Market Size Estimates: Woven textile in the aerospace & defense market size estimation in terms of value (\$B).

Trend and Forecast Analysis: Market trends (2019 to 2024) and forecast (2025 to 2031) by various segments and regions.

Segmentation Analysis: Woven textile in the aerospace & defense market size by product type, application, and region in terms of value (\$B).

Regional Analysis: Woven textile in the aerospace & defense market breakdown by North America, Europe, Asia Pacific, and Rest of the World.

Growth Opportunities: Analysis of growth opportunities in different product type, application, and regions for the woven textile in the aerospace & defense market.

Strategic Analysis: This includes M&A, new product development, and competitive landscape of the woven textile in the aerospace & defense market.

Analysis of competitive intensity of the industry based on Porter's Five Forces model.

If you are looking to expand your business in this or adjacent markets, then contact us. We have done hundreds of strategic consulting projects in market entry, opportunity screening, due diligence, supply chain analysis, M & A, and more.

This report answers following 11 key questions:

Q.1. What are some of the most promising, high-growth opportunities for woven textile in the aerospace & defense market by product type (woven roving and woven yarn), application (aircraft interior, ducting, rotor blades, and others), and region (North America, Europe, Asia Pacific, and the Rest of the World)?

Q.2. Which segments will grow at a faster pace and why?

Q.3. Which region will grow at a faster pace and why?

Q.4. What are the key factors affecting market dynamics? What are the key challenges and business risks in this market?



Q.5. What are the business risks and competitive threats in this market?

Q.6. What are the emerging trends in this market and the reasons behind them?

Q.7. What are some of the changing demands of customers in the market?

Q.8. What are the new developments in the market? Which companies are leading these developments?

Q.9. Who are the major players in this market? What strategic initiatives are key players pursuing for business growth?

Q.10. What are some of the competing products in this market and how big of a threat do they pose for loss of market share by material or product substitution?

Q.11. What M&A activity has occurred in the last 5 years and what has its impact been on the industry?



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