+44 20 8123 2220
info@marketpublishers.com

Aircraft Gears Market– Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Platform (Commercial Aviation and Military Aviation), By Gear Type (Spur Gears, Bevel Gears, Helical Gears, Rack and Pinion Gears, and Others), By Application (Auxiliary Power Unit, Actuators, Pumps, Air Conditioning Compressors, and Others), By End User (Original Equipment Manufacturer (OEM) and Aftermarket), By Region & Competition, 2020-2030F

https://marketpublishers.com/r/A4A686741754EN.html
Date: January 2025
Pages: 183
Price: US$ 4,500.00 (Single User License)
ID: A4A686741754EN

Abstracts

The Global Aircraft Gears Market was valued at USD 361.6 Million in 2024 and is expected to reach USD 494.6 Million by 2030 with a CAGR of 5.47% during the forecast period. The aircraft gears market has witnessed substantial growth due to the continuous advancements in aviation technology and the increasing demand for high-performance, fuel-efficient aircraft. As airlines expand their fleets to meet the rising air travel demand, there is an ongoing need for innovative gear systems that can improve the performance, durability, and efficiency of aircraft. This trend is coupled with the rising focus on sustainable aviation practices, where reducing fuel consumption and enhancing engine efficiency are key priorities. Aircraft gears play a crucial role in ensuring that engines and other components operate at optimal levels, driving the adoption of more advanced gear technologies in both commercial and military sectors. The Association of Asia Pacific Airlines (AAPA) reported sustained growth in international air travel. Airlines in the region transported 31 million international passengers in the month, reflecting a year-on-year increase of 19.8%.

In addition to technological advancements, the growing defense budgets across several

nations are contributing significantly to market growth. Military aircraft require highly specialized gear systems for various functions, from propulsion to weapon systems, which require continuous innovation and upgrades. The increasing demand for sophisticated defense aircraft is prompting manufacturers to develop more robust and efficient gears that can withstand harsh conditions. The trend of modernizing aging fleets is another driver, as military and commercial aircraft operators seek to replace outdated gear systems with state-of-the-art solutions that enhance performance and safety.

Despite these promising growth drivers, the market faces certain challenges, such as the high cost of manufacturing advanced aircraft gears. The production of these components requires specialized materials and precision engineering, making them expensive to produce. Moreover, the complex supply chain and stringent regulatory requirements for the aerospace industry add another layer of difficulty in scaling production. Companies are also under pressure to meet strict performance and safety standards, which increases development timelines and costs. However, with ongoing innovation and collaborations between industry leaders, opportunities remain for companies to overcome these challenges and tap into the growing demand for aircraft gears in both civil and military aviation sectors.

Market Drivers

Technological Advancements in Aerospace Engineering

Continuous technological innovations in aerospace engineering are one of the primary drivers of the aircraft gears market. New materials, lightweight alloys, and advanced manufacturing techniques allow for the development of more efficient, durable, and cost-effective gear systems. These innovations are crucial for improving the performance and fuel efficiency of both commercial and military aircraft. Moreover, advancements in automation and digital technologies are streamlining gear design, manufacturing, and testing processes, ensuring higher precision and reduced lead times.

Increase in Global Air Traffic

Rising global air traffic, fueled by expanding middle-class populations and increased tourism, drives the demand for new aircraft. As airlines grow their fleets to meet the demands of more passengers and flights, there is a corresponding rise in the need for replacement and maintenance of aircraft gears. Airlines are also opting for more efficient and cost-effective gear systems to meet environmental and performance

+44 20 8123 2220
info@marketpublishers.com

standards, further boosting market growth. According to GAMA, In 2023, general aviation shipments and billings saw growth across all aircraft categories compared to 2022. Preliminary aircraft deliveries were valued at $28.3 billion, reflecting a 3.3% increase. In terms of airplane deliveries, 2023 witnessed an 11.8% rise in piston airplane deliveries, totaling 1,682 units. Turboprop deliveries grew by 9.6%, reaching 638 units, while business jet deliveries rose to 730 units from 712 in 2022. The total value of airplane deliveries for 2023 reached $23.4 billion, marking a 2.2% increase.

Growth in Military Aircraft Procurement

Rising defense budgets worldwide are fueling demand for military aircraft, driving up the need for highly specialized gear systems. Military aircraft often require more complex and robust gear systems, which must operate under challenging conditions. The modernization of aging fleets and the development of new defense technologies are expected to drive a steady demand for advanced aircraft gears.

Shift Toward Electric Aircraft

The aviation industry’s increasing interest in electric and hybrid-electric aircraft has emerged as a driver in the aircraft gears market. Electric and hybrid-electric aircraft require specialized gear systems to ensure that propulsion systems function efficiently and quietly. As the industry moves toward more sustainable flight solutions, new gear technologies will be necessary to support the growing demand for electric aircraft.

Rising Focus on Fuel Efficiency and Sustainability

Aircraft manufacturers are under increasing pressure to meet stricter emissions regulations, and fuel efficiency has become a major focus for both commercial and military aircraft. Efficient aircraft gears directly contribute to improved engine performance and reduced fuel consumption. As airlines and military fleets strive to reduce their carbon footprints, demand for advanced, fuel-efficient gear systems is set to rise.

Key Market Challenges

High Manufacturing Costs

The production of advanced aircraft gears involves the use of premium materials and precision engineering, resulting in higher manufacturing costs. The complexity and

+44 20 8123 2220
info@marketpublishers.com

specialized nature of these gears make them expensive to produce, which can deter manufacturers from scaling up production. This high cost is often passed on to customers, making it a barrier for small and medium-sized airlines or military organizations to afford the latest technologies.

Supply Chain Complexity

The aerospace industry's supply chain is notoriously complex, involving multiple tiers of suppliers and strict quality control standards. Aircraft gear manufacturers face challenges in managing the procurement of raw materials, managing lead times, and maintaining stringent quality requirements. Any disruption in the supply chain can significantly delay production timelines and increase costs, which can affect the timely delivery of critical gear components.

Stringent Regulatory Standards

The aerospace industry is subject to rigorous regulatory standards concerning safety, performance, and environmental impact. Aircraft gears must comply with various regulations set by aviation authorities such as the FAA (Federal Aviation Administration) and EASA (European Union Aviation Safety Agency). Meeting these standards can be time-consuming and costly, posing a challenge for manufacturers to stay compliant while innovating.

Technological Integration and Compatibility

Integrating advanced gear systems with existing aircraft components or legacy systems poses a significant challenge. Aircraft gears must function seamlessly with other high-performance systems, such as engines and control mechanisms. Ensuring compatibility between new gear technologies and older aircraft can result in significant engineering challenges and increased costs.

Maintenance and Lifecycle Costs

Aircraft gears require regular maintenance and servicing to ensure safe and optimal performance. The maintenance process is highly specialized, often requiring skilled technicians and sophisticated tools. The cost of maintaining advanced gear systems throughout their lifecycle can be substantial, especially for smaller operators or military units with limited resources.

+44 20 8123 2220
info@marketpublishers.com

Key Market Trends

Adoption of 3D Printing for Gear Manufacturing

3D printing is becoming increasingly popular for manufacturing aircraft gears. This technology allows for the creation of highly intricate and lightweight gear components with a level of precision that traditional manufacturing methods struggle to achieve. By utilizing 3D printing, manufacturers can reduce production time, lower costs, and create more customized components suited to specific aircraft designs.

Increasing Use of Smart Materials

Smart materials, such as composites and alloys that can adapt to changing environmental conditions, are gaining traction in the aircraft gears market. These materials allow for the development of gears that are more resistant to wear, corrosion, and fatigue. The use of smart materials also helps reduce the weight of gears, which is essential for improving fuel efficiency in modern aircraft.

Rise of Autonomous Aircraft Systems

The growing trend toward autonomous aircraft, both in commercial and military applications, is influencing the design and demand for aircraft gears. Autonomous systems require highly reliable and durable gear mechanisms that can support advanced flight controls, sensors, and engines. This shift toward automation in aviation is driving innovation in gear technologies that can operate seamlessly in highly automated environments.

Emergence of Hybrid Aircraft

Hybrid aircraft, which combine traditional jet propulsion with electric motors, are emerging as a key trend in the aviation industry. Hybrid aircraft require specialized gears that can support both types of propulsion systems. As hybrid technology matures and more manufacturers look to integrate it into their fleets, the demand for these unique gear systems is expected to rise.

Focus on Noise Reduction in Aircraft

Aircraft noise reduction has become an important factor for both environmental and passenger comfort reasons. Gear systems play a key role in minimizing noise

generated by engines and mechanical components. Manufacturers are increasingly focusing on developing quieter gears, especially for commercial and urban air mobility aircraft, where noise pollution can be a significant concern in densely populated areas.

Segmental Insights

Platform Insights

The aircraft gears market is divided into two primary segments: commercial aviation and military aviation. In the commercial aviation sector, the demand for aircraft gears is driven by the growing number of air travel passengers and the increasing number of commercial aircraft being built. As airlines continue to expand their fleets and modernize their existing ones, the need for high-performance gear systems that ensure smooth operation, fuel efficiency, and safety becomes crucial. Commercial aircraft gears are primarily used in systems such as engines, landing gears, and propulsion systems. As fuel efficiency and weight reduction become central to the design of commercial aircraft, manufacturers are continuously focusing on advanced materials and technologies that improve the efficiency and durability of gears. This sector also witnesses substantial demand for aftermarket parts, including gear replacements and upgrades, due to the ongoing maintenance requirements of operating fleets.

The military aviation sector involves a different set of requirements for aircraft gears. Military aircraft, such as fighter jets, helicopters, and surveillance planes, require highly specialized and durable gear systems capable of withstanding extreme operational environments. The gears used in military aviation are often designed for specific functions, such as precision control, weapon deployment, and high-speed flight performance. These aircraft often operate in combat situations, where the durability and reliability of gears are critical for mission success. Military aircraft gears must be engineered to handle rigorous demands such as high loads, temperature fluctuations, and stress, requiring cutting-edge materials and advanced manufacturing techniques. As defense spending increases in various regions, military forces are investing in the development of more advanced aircraft and upgrading existing fleets, leading to a consistent demand for high-performance gear systems.

Both sectors, while differing in their operational needs, rely on innovations in materials science and precision engineering to meet the increasingly complex requirements of modern aviation. Commercial and military aviation markets are becoming more aligned in their pursuit of more efficient, durable, and environmentally friendly aircraft gears. The evolution of technologies such as electric and hybrid propulsion systems, along with

+44 20 8123 2220
info@marketpublishers.com

advancements in automation and artificial intelligence, will likely drive further developments in gear systems across both sectors.

Regional Insights

In 2024, North America was expected to be the dominant region in the aircraft gears market. The region's strong aerospace industry, led by a robust presence of both commercial and military aviation sectors, significantly drives demand for advanced gear systems. The United States, in particular, is home to major aircraft manufacturers, defense contractors, and numerous airlines, all of which require high-quality gears for their operations. As commercial air travel continues to rebound and expand in the region, the need for new aircraft and subsequent gear systems grows. This trend is further supported by ongoing fleet modernization efforts, with airlines replacing older aircraft with newer, more fuel-efficient models that rely on advanced gear systems to improve overall performance and reduce operational costs.

The military aviation sector in North America also plays a pivotal role in driving the market. The United States' substantial defense budget allows for continuous investment in next-generation military aircraft, which require specialized and durable gear systems to meet the demands of advanced technologies and mission-critical operations. The U.S. military's focus on modernizing its fleets, particularly with the introduction of advanced fighter jets, drones, and helicopters, ensures a steady demand for cutting-edge aircraft gears. Additionally, the region’s significant investments in research and development within the aerospace and defense sectors facilitate the development of new gear technologies, further boosting market growth.

North America’s strong focus on sustainability also influences the aircraft gears market. As the region strives to reduce emissions and improve fuel efficiency, there is an increased demand for lighter, more efficient gear systems. Manufacturers in this region are actively working on incorporating innovative materials, such as composites and advanced alloys, into aircraft gear designs to meet these environmental goals. These developments align with broader industry trends toward more sustainable aviation solutions and contribute to North America's leadership in the aircraft gears market in 2024.

Key Market Players

CIRCLE & GEAR MACHINE CO., INC.

+44 20 8123 2220
info@marketpublishers.com

AMERICAN GEAR, INC.

HANLOO CO. LTD.

RILEY GEAR CORP

AMERICAN PRECISION GEAR CO., INC.

WM BERG INC.

SHANGHAI BELON MACHINERY CO., LTD.

TRIUMPH GROUP

BATOM CO., LTD.

Arrow Gear LLC

Report Scope:

In this report, the global Aircraft Gears Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

· Aircraft Gears Market, By Gear Type:

Spur Gears

Bevel Gears

Helical Gears

Rack and Pinion Gear

Others

· Aircraft Gears Market, By Platform:

+44 20 8123 2220
info@marketpublishers.com

Commercial Aviation

Military Aviation

· Aircraft Gears Market, By End User:

Original Equipment Manufacturer (OEM)

Aftermarket

· Aircraft Gears Market, By Application:

Auxiliary Power Unit

Actuators

Pumps

Air Conditioning Compressors

Others

· Aircraft Gears Market, By Region:

North America

United States

Canada

Mexico

Europe & CIS

Germany

+44 20 8123 2220
info@marketpublishers.com

France

U.K.

Spain

Asia-Pacific

China

Japan

India

Indonesia

South Korea

Middle East & Africa

South Africa

Saudi Arabia

UAE

South America

Brazil

Argentina

Competitive Landscape

Company Profiles: Detailed analysis of the major companies presents in the global Aircraft Gears Market.

Available Customizations:

+44 20 8123 2220
info@marketpublishers.com

Global Aircraft Gears Market report with the given market data, TechSci Research offers customizations according to the company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

+44 20 8123 2220
info@marketpublishers.com

Contents

+44 20 8123 2220
info@marketpublishers.com

5. NORTH AMERICA AIRCRAFT GEARS MARKET OUTLOOK

+44 20 8123 2220
info@marketpublishers.com

6. EUROPE & CIS AIRCRAFT GEARS MARKET OUTLOOK

+44 20 8123 2220
info@marketpublishers.com

7. ASIA-PACIFIC AIRCRAFT GEARS MARKET OUTLOOK

+44 20 8123 2220
info@marketpublishers.com

8. MIDDLE EAST & AFRICA AIRCRAFT GEARS MARKET OUTLOOK

+44 20 8123 2220
info@marketpublishers.com

9. SOUTH AMERICA AIRCRAFT GEARS MARKET OUTLOOK

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

+44 20 8123 2220
info@marketpublishers.com

I would like to order

Product name: Aircraft Gears Market– Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Platform (Commercial Aviation and Military Aviation), By Gear Type (Spur Gears, Bevel Gears, Helical Gears, Rack and Pinion Gears, and Others), By Application (Auxiliary Power Unit, Actuators, Pumps, Air Conditioning Compressors, and Others), By End User (Original Equipment Manufacturer (OEM) and Aftermarket), By Region & Competition, 2020-2030F

Product link: https://marketpublishers.com/r/A4A686741754EN.html

Price: US$ 4,500.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/A4A686741754EN.html