

Airplane Carbon Brake Disc Market By Aircraft Type (Commercial Aircraft, Military Aircraft, Business Jets, Regional Aircraft) , By Break Type (Carbon-Carbon (C/C) Brakes,, Carbon-Silicon Carbide (C/SiC) Brakes, Carbon-Ceramic Brakes) By End User (OEM, Aftermarket) : Global Opportunity Analysis and Industry Forecast, 2024-2033

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Abstracts

Airplane Carbon Brake Disc Market

The airplane carbon brake disc market was valued at \$1.2 billion in 2023 and is projected to reach \$2.1 billion by 2033, growing at a CAGR of 5.9% from 2024 to 2033.

Airplane carbon brake disc is an element of the aircraft braking system that slows down or stops the aircraft after landing. It is developed from carbon composites that offer brake discs the ability to perform exceptionally at high temperatures and extreme conditions. The major attributes of airplane carbon brake discs are their lightweight nature, high friction coefficient, thermal resistance, and wear & brake fade resistance.

The lightweight of carbon brake discs minimizes the overall load of aircraft and reduces fuel consumption. This helps to lower the operational costs for aircraft and augments the growth of the market. In addition, the ability of these brake disks to operate under extreme situations reduces the need for frequent maintenance or replacements, thereby driving the market development significantly. An emerging trend anticipated to become prominent in the future is the assimilation of smart technology into braking systems. The data-driven approach of smart technology enables predictive maintenance by offering real-time data about the performance of brakes. This reduces the downtime of aircraft

and ensures seamless operations.

However, the formation of brake discs through carbon composites requires specialized technology and skilled technicians, which increases their overall cost. This acts as a major restraint for the widespread usage of airplane carbon brake discs. Moreover, owing to their high sensitivity toward damage from foreign objects, such as some scraps on the runway, they remain considerably susceptible to wear & tear or cracks. This limits their utility and hampers the development of the market. Contrarily, to align with the sustainability goals, manufacturers are striving to develop disk brakes with low carbon footprint. They are exploring recyclable & eco-friendly materials and environment-friendly processes to cater to sustainability demands. According to the predictions of the European Commission, surge in demand for flying is expected to increase the greenhouse emissions of the aviation industry by 300% by the middle of the 21st century. Therefore, the development of environmentally friendly disc brakes is one of the several steps required to curb the carbon footprint of the industry. This is further expected to open new avenues for the market.

Segment Review

The airplane carbon brake disc market is segmented into aircraft type, break type, end user, and region. On the basis of aircraft type, it is divided into commercial aircraft, military aircraft, business jets, and regional aircraft. Depending on break type, it is classified into carbon-carbon (C/C) brakes, carbon-silicon carbide (C/SiC) brakes, and carbon-ceramic brakes. As per end user, it is bifurcated into OEM and aftermarket. Region wise, it is analyzed across North America, Europe, Asia-Pacific, and LAMEA.

Key Findings

On the basis of aircraft type, the commercial aircraft segment held a high share of the market in 2023.

Depending on break type, the carbon-carbon (C/C) brakes segment acquired a high stake in the market in 2023.

As per end user, the OEM segment dominated the market in 2023.

Region wise, Asia-Pacific was the highest revenue generator in 2023.

Competition Analysis

The leading players operating in the global airplane carbon brake disc market include Safran, Honeywell International Inc., Meggitt PLC, UTC Aerospace Systems, Collins Aerospace, Dunlop Aircraft Tyres Limited, Lufthansa Technik, TP Aerospace, Seginus Inc., and Aircraft Wheel & Brake. These major players have adopted various key development strategies such as business expansion, new product launches, and partnerships to strengthen their foothold in the competitive market.

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Market share analysis of players by products/segments

Additional company profiles with specific to client's interest

Historic market data

Key Market Segments

By Aircraft Type

Commercial Aircraft

Military Aircraft

Business Jets

Regional Aircraft

By Break Type

Carbon-Carbon (C/C) Brakes,

Carbon-Silicon Carbide (C/SiC) Brakes

Carbon-Ceramic Brakes

By End User

OEM

Aftermarket

By Region

North America

U.S.

Canada

Mexico

Europe

France

Germany

Italy

Spain

UK

Russia

Rest of Europe

Asia-Pacific

China

Japan

India

South Korea

Australia

Thailand

Malaysia

Indonesia

Rest of Asia-Pacific

LAMEA

Brazil

South Africa

Saudi Arabia

UAE

Argentina

Rest of LAMEA

Key Market Players

Safran, Honeywell International Inc

Meggitt PLC

UTC Aerospace Systems

Collins Aerospace

Dunlop Aircraft Tyres Limited

Lufthansa Technik

TP Aerospace

Seginus Inc

Aircraft Wheel & Brake

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