

Aircraft Engine Forging Market By Type (Closed Die Forging, Open Die Forging), By Material (Aluminum, Titanium, Nickel, Steel Alloys, Others), By Aircraft Type (Commercial, Military): Global Opportunity Analysis and Industry Forecast, 2023-2032

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Abstracts

The global aircraft engine forging market size was valued at \$2.6 billion in 2022, and is projected to reach \$5 billion by 2032, growing at a CAGR of 6.9% from 2023 to 2032.

Aircraft engine forging refers to the manufacturing process of shaping metal materials, typically high-strength alloys such as titanium, aluminum, and steel, into complex and precision-engineered components used in aircraft engines. This process involves subjecting metal billets or ingots to high temperatures and pressure within a die to achieve the desired shape and properties of the final component. By utilizing techniques such as closed die forging, the metal is compressed and shaped to exact specifications, ensuring high strength, durability, and resistance to the extreme conditions encountered in aircraft engines, such as high temperatures, pressure, and mechanical stress.

Closed die forging, also referred to as impression die forging, is a metal forming technique utilized to shape metal materials into intricate and precise components. In this process, two or more dies, or molds, encase the workpiece, typically a metal billet or ingot. These dies are engineered to endure high temperatures and pressures. Closed die forging facilitates the production of components with stringent tolerances and complex geometries, ensuring a precise fit and optimal functionality.

within aircraft engines. Through controlled deformation and grain flow, closed die forging enhances mechanical properties such as strength, toughness, and fatigue resistance, surpassing those of cast or machined components.

This method also promotes efficient material usage, minimizing waste and maximizing material utilization, particularly advantageous for costly materials such as titanium and nickel alloys. Despite potentially high initial tooling costs, closed die forging yields long-term cost savings due to its heightened productivity, reduced material waste, and improved material properties, rendering it financially viable for crafting high-performance aerospace components. As the aerospace sector continues to emphasize lightweighting, performance, and efficiency in aircraft engines, closed die forging is anticipated to assume a pivotal role in the market.

Moreover, rise in global population, urbanization, and disposable incomes have increased the demand for air travel, especially in emerging markets.

To accommodate this demand, commercial airlines are expanding their fleets, creating a need for new aircraft engines and forged engine components. In addition, airlines are replacing older, less fuel-efficient aircraft with newer models featuring advanced engines, driven by the necessity to cut operating costs and adhere to environmental regulations. This trend of fleet modernization further boosts the demand for forged engine components that are optimized for enhanced performance and efficiency. Furthermore, the emergence of low-cost carriers has democratized air travel, making it more accessible to a wider audience. These carriers primarily operate single-aisle aircraft that rely on forged engine components. As low-cost carriers expand their fleets to cater to increasing demand, they play a significant role in driving the growth of the commercial aircraft engine forging market.

The aircraft engine forging market is segmented on the basis of type, material, aircraft type, and region. On the basis of type, the market is bifurcated into closed die forging and open die forging. On the basis of material, it is categorized into aluminum, titanium, nickel-based superalloys, steel alloys, and others. On the basis of aircraft type, the market is classified into commercial and military. On the basis of region, the market is analyzed in North America, Europe, Asia Pacific, and LAMEA.

Some major companies operating in the market include Precision Castparts Corp., Canton Drop Forge, ATI Inc., Mettis Group, Alcoa, SIFCO Industries, Consolidated Industries, Inc., voestalpine Böhler Aerospace GmbH & Co. KG, Forgital Group, and Safran.

Key Benefits For Stakeholders

This report provides a quantitative analysis of the market segments, current trends, estimations, and dynamics of the aircraft engine forging market analysis from 2022 to 2032 to identify the prevailing aircraft engine forging market opportunities.

The market research is offered along with information related to key drivers, restraints, and opportunities.

Porter's five forces analysis highlights the potency of buyers and suppliers to enable stakeholders make profit-oriented business decisions and strengthen their supplier-buyer network.

In-depth analysis of the aircraft engine forging market segmentation assists to determine the prevailing market opportunities.

Major countries in each region are mapped according to their revenue contribution to the global market.

Market player positioning facilitates benchmarking and provides a clear understanding of the present position of the market players.

The report includes the analysis of the regional as well as global aircraft engine forging market trends, key players, market segments, application areas, and market growth strategies.

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SWOT Analysis

Key Market Segments

By Type

Open Die Forging

Closed Die Forging

By Material

Aluminum

Titanium

Nickel

Steel Alloys

Others

By Aircraft Type

Commercial

Military

By Region

North America

U.S.

Canada

Mexico

Europe

UK

Germany

France

Russia

Rest of Europe

Asia-Pacific

China

Japan

India

South Korea

Rest of Asia-Pacific

LAMEA

Latin America

Middle East

Africa

Key Market Players

Precision Castparts Corp.

Canton Drop Forge

ATI Inc.

Mettis Group

Alcoa

SIFCO Industries

Consolidated Industries, Inc.

voestalpine B?HLER Aerospace GmbH & C%li%KG

Forgital Group

Safran

Contents

CHAPTER 1: INTRODUCTION

- 1.1. Report Description
- 1.2. Key market segments
- 1.3. Key benefits to the stakeholders
- 1.4. Research Methodology
 - 1.4.1. Primary research
 - 1.4.2. Secondary research
 - 1.4.3. Analyst tools and models

CHAPTER 2: EXECUTIVE SUMMARY

- 2.1. CXO perspective

CHAPTER 3: MARKET OVERVIEW

- 3.1. Market definition and scope
- 3.2. Key findings
 - 3.2.1. Top impacting factors
 - 3.2.2. Top investment pockets
- 3.3. Porter's Five Forces Analysis
 - 3.3.1. Low bargaining power of suppliers
 - 3.3.2. Low threat of new entrants
 - 3.3.3. Low threat of substitutes
 - 3.3.4. Low intensity of rivalry
 - 3.3.5. Low bargaining power of buyers
- 3.4. Market dynamics
 - 3.4.1. Drivers
 - 3.4.1.1. Rise in air traffic
 - 3.4.1.2. Increase in aircraft production and deliveries
 - 3.4.1.3. Government support and initiatives to promote the aviation industry
 - 3.4.2. Restraints
 - 3.4.2.1. High energy consumption and high costs
 - 3.4.2.2. Adoption of additive manufacturing
 - 3.4.3. Opportunities
 - 3.4.3.1. Advancement in technology and material science
 - 3.4.3.2. Demand for lightweight engine components

CHAPTER 4: AIRCRAFT ENGINE FORGING MARKET, BY TYPE

4.1. Overview

4.1.1. Market size and forecast

4.2. Closed Die Forging

4.2.1. Key market trends, growth factors and opportunities

4.2.2. Market size and forecast, by region

4.2.3. Market share analysis by country

4.3. Open Die Forging

4.3.1. Key market trends, growth factors and opportunities

4.3.2. Market size and forecast, by region

4.3.3. Market share analysis by country

CHAPTER 5: AIRCRAFT ENGINE FORGING MARKET, BY MATERIAL

5.1. Overview

5.1.1. Market size and forecast

5.2. Aluminum

5.2.1. Key market trends, growth factors and opportunities

5.2.2. Market size and forecast, by region

5.2.3. Market share analysis by country

5.3. Titanium

5.3.1. Key market trends, growth factors and opportunities

5.3.2. Market size and forecast, by region

5.3.3. Market share analysis by country

5.4. Nickel

5.4.1. Key market trends, growth factors and opportunities

5.4.2. Market size and forecast, by region

5.4.3. Market share analysis by country

5.5. Steel Alloys

5.5.1. Key market trends, growth factors and opportunities

5.5.2. Market size and forecast, by region

5.5.3. Market share analysis by country

5.6. Others

5.6.1. Key market trends, growth factors and opportunities

5.6.2. Market size and forecast, by region

5.6.3. Market share analysis by country

CHAPTER 6: AIRCRAFT ENGINE FORGING MARKET, BY AIRCRAFT TYPE

6.1. Overview

6.1.1. Market size and forecast

6.2. Commercial

6.2.1. Key market trends, growth factors and opportunities

6.2.2. Market size and forecast, by region

6.2.3. Market share analysis by country

6.3. Military

6.3.1. Key market trends, growth factors and opportunities

6.3.2. Market size and forecast, by region

6.3.3. Market share analysis by country

CHAPTER 7: AIRCRAFT ENGINE FORGING MARKET, BY REGION

7.1. Overview

7.1.1. Market size and forecast By Region

7.2. North America

7.2.1. Key market trends, growth factors and opportunities

7.2.2. Market size and forecast, by Type

7.2.3. Market size and forecast, by Material

7.2.4. Market size and forecast, by Aircraft Type

7.2.5. Market size and forecast, by country

7.2.5.1. U.S.

7.2.5.1.1. Market size and forecast, by Type

7.2.5.1.2. Market size and forecast, by Material

7.2.5.1.3. Market size and forecast, by Aircraft Type

7.2.5.2. Canada

7.2.5.2.1. Market size and forecast, by Type

7.2.5.2.2. Market size and forecast, by Material

7.2.5.2.3. Market size and forecast, by Aircraft Type

7.2.5.3. Mexico

7.2.5.3.1. Market size and forecast, by Type

7.2.5.3.2. Market size and forecast, by Material

7.2.5.3.3. Market size and forecast, by Aircraft Type

7.3. Europe

7.3.1. Key market trends, growth factors and opportunities

7.3.2. Market size and forecast, by Type

7.3.3. Market size and forecast, by Material

- 7.3.4. Market size and forecast, by Aircraft Type
- 7.3.5. Market size and forecast, by country
 - 7.3.5.1. UK
 - 7.3.5.1.1. Market size and forecast, by Type
 - 7.3.5.1.2. Market size and forecast, by Material
 - 7.3.5.1.3. Market size and forecast, by Aircraft Type
 - 7.3.5.2. Germany
 - 7.3.5.2.1. Market size and forecast, by Type
 - 7.3.5.2.2. Market size and forecast, by Material
 - 7.3.5.2.3. Market size and forecast, by Aircraft Type
 - 7.3.5.3. France
 - 7.3.5.3.1. Market size and forecast, by Type
 - 7.3.5.3.2. Market size and forecast, by Material
 - 7.3.5.3.3. Market size and forecast, by Aircraft Type
 - 7.3.5.4. Russia
 - 7.3.5.4.1. Market size and forecast, by Type
 - 7.3.5.4.2. Market size and forecast, by Material
 - 7.3.5.4.3. Market size and forecast, by Aircraft Type
 - 7.3.5.5. Rest of Europe
 - 7.3.5.5.1. Market size and forecast, by Type
 - 7.3.5.5.2. Market size and forecast, by Material
 - 7.3.5.5.3. Market size and forecast, by Aircraft Type
- 7.4. Asia-Pacific
 - 7.4.1. Key market trends, growth factors and opportunities
 - 7.4.2. Market size and forecast, by Type
 - 7.4.3. Market size and forecast, by Material
 - 7.4.4. Market size and forecast, by Aircraft Type
 - 7.4.5. Market size and forecast, by country
 - 7.4.5.1. China
 - 7.4.5.1.1. Market size and forecast, by Type
 - 7.4.5.1.2. Market size and forecast, by Material
 - 7.4.5.1.3. Market size and forecast, by Aircraft Type
 - 7.4.5.2. Japan
 - 7.4.5.2.1. Market size and forecast, by Type
 - 7.4.5.2.2. Market size and forecast, by Material
 - 7.4.5.2.3. Market size and forecast, by Aircraft Type
 - 7.4.5.3. India
 - 7.4.5.3.1. Market size and forecast, by Type
 - 7.4.5.3.2. Market size and forecast, by Material

7.4.5.3.3. Market size and forecast, by Aircraft Type

7.4.5.4. South Korea

7.4.5.4.1. Market size and forecast, by Type

7.4.5.4.2. Market size and forecast, by Material

7.4.5.4.3. Market size and forecast, by Aircraft Type

7.4.5.5. Rest of Asia-Pacific

7.4.5.5.1. Market size and forecast, by Type

7.4.5.5.2. Market size and forecast, by Material

7.4.5.5.3. Market size and forecast, by Aircraft Type

7.5. LAMEA

7.5.1. Key market trends, growth factors and opportunities

7.5.2. Market size and forecast, by Type

7.5.3. Market size and forecast, by Material

7.5.4. Market size and forecast, by Aircraft Type

7.5.5. Market size and forecast, by country

7.5.5.1. Latin America

7.5.5.1.1. Market size and forecast, by Type

7.5.5.1.2. Market size and forecast, by Material

7.5.5.1.3. Market size and forecast, by Aircraft Type

7.5.5.2. Middle East

7.5.5.2.1. Market size and forecast, by Type

7.5.5.2.2. Market size and forecast, by Material

7.5.5.2.3. Market size and forecast, by Aircraft Type

7.5.5.3. Africa

7.5.5.3.1. Market size and forecast, by Type

7.5.5.3.2. Market size and forecast, by Material

7.5.5.3.3. Market size and forecast, by Aircraft Type

CHAPTER 8: COMPETITIVE LANDSCAPE

8.1. Introduction

8.2. Top winning strategies

8.3. Product mapping of top 10 player

8.4. Competitive dashboard

8.5. Competitive heatmap

8.6. Top player positioning, 2022

CHAPTER 9: COMPANY PROFILES

- 9.1. Precision Castparts Corp.
 - 9.1.1. Company overview
 - 9.1.2. Key executives
 - 9.1.3. Company snapshot
 - 9.1.4. Operating business segments
 - 9.1.5. Product portfolio
 - 9.1.6. Business performance
 - 9.1.7. Key strategic moves and developments
- 9.2. Canton Drop Forge
 - 9.2.1. Company overview
 - 9.2.2. Key executives
 - 9.2.3. Company snapshot
 - 9.2.4. Operating business segments
 - 9.2.5. Product portfolio
 - 9.2.6. Business performance
 - 9.2.7. Key strategic moves and developments
- 9.3. ATI Inc.
 - 9.3.1. Company overview
 - 9.3.2. Key executives
 - 9.3.3. Company snapshot
 - 9.3.4. Operating business segments
 - 9.3.5. Product portfolio
 - 9.3.6. Business performance
 - 9.3.7. Key strategic moves and developments
- 9.4. Mettis Group
 - 9.4.1. Company overview
 - 9.4.2. Key executives
 - 9.4.3. Company snapshot
 - 9.4.4. Operating business segments
 - 9.4.5. Product portfolio
 - 9.4.6. Business performance
 - 9.4.7. Key strategic moves and developments
- 9.5. Alcoa
 - 9.5.1. Company overview
 - 9.5.2. Key executives
 - 9.5.3. Company snapshot
 - 9.5.4. Operating business segments
 - 9.5.5. Product portfolio
 - 9.5.6. Business performance

- 9.5.7. Key strategic moves and developments
- 9.6. SIFCO Industries
 - 9.6.1. Company overview
 - 9.6.2. Key executives
 - 9.6.3. Company snapshot
 - 9.6.4. Operating business segments
 - 9.6.5. Product portfolio
 - 9.6.6. Business performance
 - 9.6.7. Key strategic moves and developments
- 9.7. Consolidated Industries, Inc.
 - 9.7.1. Company overview
 - 9.7.2. Key executives
 - 9.7.3. Company snapshot
 - 9.7.4. Operating business segments
 - 9.7.5. Product portfolio
 - 9.7.6. Business performance
 - 9.7.7. Key strategic moves and developments
- 9.8. voestalpine B?HLER Aerospace GmbH & Co KG
 - 9.8.1. Company overview
 - 9.8.2. Key executives
 - 9.8.3. Company snapshot
 - 9.8.4. Operating business segments
 - 9.8.5. Product portfolio
 - 9.8.6. Business performance
 - 9.8.7. Key strategic moves and developments
- 9.9. Forgital Group
 - 9.9.1. Company overview
 - 9.9.2. Key executives
 - 9.9.3. Company snapshot
 - 9.9.4. Operating business segments
 - 9.9.5. Product portfolio
 - 9.9.6. Business performance
 - 9.9.7. Key strategic moves and developments
- 9.10. Safran
 - 9.10.1. Company overview
 - 9.10.2. Key executives
 - 9.10.3. Company snapshot
 - 9.10.4. Operating business segments
 - 9.10.5. Product portfolio

9.10.6. Business performance

9.10.7. Key strategic moves and developments

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