

Automotive Crankshaft Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, By Type (Flat Plane, Cross Plane), By Material (Cast Steel, Forged Iron/steel), By Vehicle Type (Passenger Cars, Commercial Vehicles), By Region & Competition, 2020-2030F

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Abstracts

Market Overview

The Global Automotive Crankshaft Market was valued at USD 3.85 Billion in 2024 and is projected to reach USD 5.10 Billion by 2030, growing at a CAGR of 5.0% during the forecast period. Crankshafts continue to be a fundamental component in internal combustion engines, converting piston motion into rotational force essential for power delivery. As the global production of passenger and commercial vehicles rises, demand for durable and efficient crankshafts has strengthened. With the industry focusing on engine downsizing while maintaining high performance, crankshaft designs are evolving to endure greater stress and dynamic loads. This trend is particularly prominent in vehicles equipped with turbocharged and high-output engines. The increasing focus on high-strength materials and advanced manufacturing technologies is shaping the development of modern crankshafts, enabling them to deliver optimal performance, longevity, and fuel efficiency in next-generation powertrains.

Key Market Drivers

Rising Demand for High-Performance Engines

The rising preference for vehicles with higher torque, rapid acceleration, and greater

load-handling capacity is driving demand for high-performance engines. Crankshafts play a critical role in enabling these engines to deliver peak performance by withstanding intense combustion pressures and maintaining balance under dynamic stress. Automakers are increasingly utilizing crankshafts made from advanced alloys and precision-forged materials to improve durability while reducing weight. The integration of turbocharging and supercharging technologies across vehicle segments has heightened the need for crankshafts capable of enduring increased torsional forces. As automotive design increasingly emphasizes engine power without sacrificing reliability or emissions performance, the demand for robust crankshafts is expected to remain strong.

Key Market Challenges

Fluctuating Raw Material Costs

One of the key challenges for the automotive crankshaft market is the volatility in raw material prices, especially steel, iron, and specialty alloys. These fluctuations, influenced by global trade dynamics, geopolitical instability, and supply chain disruptions, directly impact production costs. Manufacturers often face pressure to manage margins while maintaining product quality and meeting OEM specifications. Inconsistent material costs can delay production cycles and necessitate pricing adjustments, particularly in cost-sensitive markets. To mitigate these risks, crankshaft manufacturers must pursue strategies such as long-term supplier agreements or diversifying sourcing channels, which can add further operational complexity.

Key Market Trends

Shift Toward Lightweight Forged Crankshafts

The move from cast iron to forged crankshafts is accelerating, driven by the need to reduce engine weight and improve performance. Forged crankshafts offer higher strength, better fatigue resistance, and are more suitable for compact, high-efficiency engines. These benefits make them increasingly popular among OEMs aiming to comply with fuel economy standards without compromising power output. In addition, manufacturers are adopting advanced dynamic balancing and simulation tools to refine crankshaft design, minimize engine vibrations, and enhance drivability. These innovations are particularly relevant in hybrid and high-speed engines, where smooth operation and reduced mechanical stress are critical for both performance and component longevity.

Key Market Players

MAHLE GmbH

ThyssenKrupp AG

Bharat Forge Ltd.

CIE Automotive S.A.

Maschinenfabrik Alfing Kessler GmbH

Nippon Steel Integrated Crankshaft LLC

Tianrun Crankshaft Co., Ltd.

Arrow Precision Ltd.

Crower Cams & Equipment Co., Inc.

Farndon Engineering Ltd.

Report Scope:

In this report, the Global Automotive Crankshaft Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Automotive Crankshaft Market, By Type:

Flat Plane

Cross Plane

Automotive Crankshaft Market, By Material:

Cast Steel

Forged Iron/Steel

Automotive Crankshaft Market, By Vehicle Type:

Passenger Cars

Commercial Vehicles

Automotive Crankshaft Market, By Region:

North America

United States

Canada

Mexico

Europe & CIS

Germany

France

U.K.

Spain

Italy

Asia-Pacific

China

Japan

India

South Korea

Middle East & Africa

South Africa

Saudi Arabia

UAE

Turkey

South America

Brazil

Argentina

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Automotive Crankshaft Market.

Available Customizations:

Global Automotive Crankshaft 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).

Contents

1. INTRODUCTION

- 1.1. Research Tenure Considered
- 1.2. Market Definition
- 1.3. Scope of the Market
- 1.4. Markets Covered
- 1.5. Years Considered for Study
- 1.6. Key Market Segmentations

2. RESEARCH METHODOLOGY

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Key Industry Partners
- 2.4. Major Association and Secondary Sources
- 2.5. Forecasting Methodology
- 2.6. Data Triangulation & Validation
- 2.7. Assumptions and Limitations

3. EXECUTIVE SUMMARY

- 3.1. Overview of the Market
- 3.2. Overview of Key Market Segmentations
- 3.3. Overview of Key Regions

4. GLOBAL AUTOMOTIVE CRANKSHAFT MARKET OUTLOOK

- 4.1. Market Size & Forecast
 - 4.1.1. By Value
- 4.2. Market Share & Forecast
 - 4.2.1. By Type Market Share Analysis (Flat Plane, Cross Plane)
 - 4.2.2. By Material Market Share Analysis (Cast Steel, Forged Iron/steel)
 - 4.2.3. By Vehicle Type Market Share Analysis (Passenger Cars, Commercial Vehicles)
 - 4.2.4. By Regional Market Share Analysis
 - 4.2.5. By Top 5 Companies Market Share Analysis, Others (2024)
- 4.3. Automotive Crankshaft Market Mapping & Opportunity Assessment

5. NORTH AMERICA AUTOMOTIVE CRANKSHAFT MARKET OUTLOOK

5.1. Market Size & Forecast

5.1.1. By Value

5.2. Market Share & Forecast

5.2.1. By Type Market Share Analysis

5.2.2. By Material Market Share Analysis

5.2.3. By Vehicle Type Market Share Analysis

5.2.4. By Country Market Share Analysis

5.2.4.1. United States Automotive Crankshaft Market Outlook

5.2.4.1.1. Market Size & Forecast

5.2.4.1.1.1. By Value

5.2.4.1.2. Market Share & Forecast

5.2.4.1.2.1. By Type Market Share Analysis

5.2.4.1.2.2. By Material Market Share Analysis

5.2.4.1.2.3. By Vehicle Type Market Share Analysis

5.2.4.2. Canada Automotive Crankshaft Market Outlook

5.2.4.2.1. Market Size & Forecast

5.2.4.2.1.1. By Value

5.2.4.2.2. Market Share & Forecast

5.2.4.2.2.1. By Type Market Share Analysis

5.2.4.2.2.2. By Material Market Share Analysis

5.2.4.2.2.3. By Vehicle Type Market Share Analysis

5.2.4.3. Mexico Automotive Crankshaft Market Outlook

5.2.4.3.1. Market Size & Forecast

5.2.4.3.1.1. By Value

5.2.4.3.2. Market Share & Forecast

5.2.4.3.2.1. By Type Market Share Analysis

5.2.4.3.2.2. By Material Market Share Analysis

5.2.4.3.2.3. By Vehicle Type Market Share Analysis

6. EUROPE & CIS AUTOMOTIVE CRANKSHAFT MARKET OUTLOOK

6.1. Market Size & Forecast

6.1.1. By Value

6.2. Market Share & Forecast

6.2.1. By Type Market Share Analysis

6.2.2. By Material Market Share Analysis

6.2.3. By Vehicle Type Market Share Analysis

- 6.2.4. By Country Market Share Analysis
 - 6.2.4.1. France Automotive Crankshaft Market Outlook
 - 6.2.4.1.1. Market Size & Forecast
 - 6.2.4.1.1.1. By Value
 - 6.2.4.1.2. Market Share & Forecast
 - 6.2.4.1.2.1. By Type Market Share Analysis
 - 6.2.4.1.2.2. By Material Market Share Analysis
 - 6.2.4.1.2.3. By Vehicle Type Market Share Analysis
 - 6.2.4.2. Germany Automotive Crankshaft Market Outlook
 - 6.2.4.2.1. Market Size & Forecast
 - 6.2.4.2.1.1. By Value
 - 6.2.4.2.2. Market Share & Forecast
 - 6.2.4.2.2.1. By Type Market Share Analysis
 - 6.2.4.2.2.2. By Material Market Share Analysis
 - 6.2.4.2.2.3. By Vehicle Type Market Share Analysis
 - 6.2.4.3. United Kingdom Automotive Crankshaft Market Outlook
 - 6.2.4.3.1. Market Size & Forecast
 - 6.2.4.3.1.1. By Value
 - 6.2.4.3.2. Market Share & Forecast
 - 6.2.4.3.2.1. By Type Market Share Analysis
 - 6.2.4.3.2.2. By Material Market Share Analysis
 - 6.2.4.3.2.3. By Vehicle Type Market Share Analysis
 - 6.2.4.4. Italy Automotive Crankshaft Market Outlook
 - 6.2.4.4.1. Market Size & Forecast
 - 6.2.4.4.1.1. By Value
 - 6.2.4.4.2. Market Share & Forecast
 - 6.2.4.4.2.1. By Type Market Share Analysis
 - 6.2.4.4.2.2. By Material Market Share Analysis
 - 6.2.4.4.2.3. By Vehicle Type Market Share Analysis
 - 6.2.4.5. Spain Automotive Crankshaft Market Outlook
 - 6.2.4.5.1. Market Size & Forecast
 - 6.2.4.5.1.1. By Value
 - 6.2.4.5.2. Market Share & Forecast
 - 6.2.4.5.2.1. By Type Market Share Analysis
 - 6.2.4.5.2.2. By Material Market Share Analysis
 - 6.2.4.5.2.3. By Vehicle Type Market Share Analysis

7. ASIA-PACIFIC AUTOMOTIVE CRANKSHAFT MARKET OUTLOOK

7.1. Market Size & Forecast

7.1.1. By Value

7.2. Market Share & Forecast

7.2.1. By Type Market Share Analysis

7.2.2. By Material Market Share Analysis

7.2.3. By Vehicle Type Market Share Analysis

7.2.4. By Country Market Share Analysis

7.2.4.1. China Automotive Crankshaft Market Outlook

7.2.4.1.1. Market Size & Forecast

7.2.4.1.1.1. By Value

7.2.4.1.2. Market Share & Forecast

7.2.4.1.2.1. By Type Market Share Analysis

7.2.4.1.2.2. By Material Market Share Analysis

7.2.4.1.2.3. By Vehicle Type Market Share Analysis

7.2.4.2. Japan Automotive Crankshaft Market Outlook

7.2.4.2.1. Market Size & Forecast

7.2.4.2.1.1. By Value

7.2.4.2.2. Market Share & Forecast

7.2.4.2.2.1. By Type Market Share Analysis

7.2.4.2.2.2. By Material Market Share Analysis

7.2.4.2.2.3. By Vehicle Type Market Share Analysis

7.2.4.3. India Automotive Crankshaft Market Outlook

7.2.4.3.1. Market Size & Forecast

7.2.4.3.1.1. By Value

7.2.4.3.2. Market Share & Forecast

7.2.4.3.2.1. By Type Market Share Analysis

7.2.4.3.2.2. By Material Market Share Analysis

7.2.4.3.2.3. By Vehicle Type Market Share Analysis

7.2.4.4. South Korea Automotive Crankshaft Market Outlook

7.2.4.4.1. Market Size & Forecast

7.2.4.4.1.1. By Value

7.2.4.4.2. Market Share & Forecast

7.2.4.4.2.1. By Type Market Share Analysis

7.2.4.4.2.2. By Material Market Share Analysis

7.2.4.4.2.3. By Vehicle Type Market Share Analysis

8. MIDDLE EAST & AFRICA AUTOMOTIVE CRANKSHAFT MARKET OUTLOOK

8.1. Market Size & Forecast

8.1.1. By Value

8.2. Market Share & Forecast

8.2.1. By Type Market Share Analysis

8.2.2. By Material Market Share Analysis

8.2.3. By Vehicle Type Market Share Analysis

8.2.4. By Country Market Share Analysis

8.2.4.1. South Africa Automotive Crankshaft Market Outlook

8.2.4.1.1. Market Size & Forecast

9.2.4.1.1.1. By Value

8.2.4.1.2. Market Share & Forecast

8.2.4.1.2.1. By Type Market Share Analysis

8.2.4.1.2.2. By Material Market Share Analysis

8.2.4.1.2.3. By Vehicle Type Market Share Analysis

8.2.4.2. Saudi Arabia Automotive Crankshaft Market Outlook

8.2.4.2.1. Market Size & Forecast

8.2.4.2.1.1. By Value

8.2.4.2.2. Market Share & Forecast

8.2.4.2.2.1. By Type Market Share Analysis

8.2.4.2.2.2. By Material Market Share Analysis

8.2.4.2.2.3. By Vehicle Type Market Share Analysis

8.2.4.3. UAE Automotive Crankshaft Market Outlook

8.2.4.3.1. Market Size & Forecast

8.2.4.3.1.1. By Value

8.2.4.3.2. Market Share & Forecast

8.2.4.3.2.1. By Type Market Share Analysis

8.2.4.3.2.2. By Material Market Share Analysis

8.2.4.3.2.3. By Vehicle Type Market Share Analysis

8.2.4.4. Turkey Automotive Crankshaft Market Outlook

8.2.4.4.1. Market Size & Forecast

8.2.4.4.1.1. By Value

8.2.4.4.2. Market Share & Forecast

8.2.4.4.2.1. By Type Market Share Analysis

8.2.4.4.2.2. By Material Market Share Analysis

8.2.4.4.2.3. By Vehicle Type Market Share Analysis

9. SOUTH AMERICA AUTOMOTIVE CRANKSHAFT MARKET OUTLOOK

9.1. Market Size & Forecast

9.1.1. By Value

9.2. Market Share & Forecast

9.2.1. By Type Market Share Analysis

9.2.2. By Material Market Share Analysis

9.2.3. By Vehicle Type Market Share Analysis

9.2.4. By Country Market Share Analysis

9.2.4.1. Brazil Automotive Crankshaft Market Outlook

9.2.4.1.1. Market Size & Forecast

9.2.4.1.1.1. By Value

9.2.4.1.2. Market Share & Forecast

9.2.4.1.2.1. By Type Market Share Analysis

9.2.4.1.2.2. By Material Market Share Analysis

9.2.4.1.2.3. By Vehicle Type Market Share Analysis

9.2.4.2. Argentina Automotive Crankshaft Market Outlook

9.2.4.2.1. Market Size & Forecast

9.2.4.2.1.1. By Value

9.2.4.2.2. Market Share & Forecast

9.2.4.2.2.1. By Type Market Share Analysis

9.2.4.2.2.2. By Material Market Share Analysis

9.2.4.2.2.3. By Vehicle Type Market Share Analysis

10. MARKET DYNAMICS

10.1. Drivers

10.2. Challenges

11. MARKET TRENDS & DEVELOPMENTS

12. PORTERS FIVE FORCES ANALYSIS

13. COMPETITIVE LANDSCAPE

13.1. Company Profiles

13.1.1. MAHLE GmbH

13.1.1.1. Company Details

13.1.1.2. Products

13.1.1.3. Financials (As Per Availability)

13.1.1.4. Key Market Focus & Geographical Presence

13.1.1.5. Recent Developments

13.1.1.6. Key Management Personnel

- 13.1.2. ThyssenKrupp AG
- 13.1.3. Bharat Forge Ltd.
- 13.1.4. CIE Automotive S.A.
- 13.1.5. Maschinenfabrik Alfing Kessler GmbH
- 13.1.6. Nippon Steel Integrated Crankshaft LLC
- 13.1.7. Tianrun Crankshaft Co., Ltd.
- 13.1.8. Arrow Precision Ltd.
- 13.1.9. Crower Cams & Equipment Co., Inc.
- 13.1.10. Farndon Engineering Ltd.

14. STRATEGIC RECOMMENDATIONS

15. ABOUT US & DISCLAIMER

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