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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

https://marketpublishers.com/r/AE5E8A9E8D81EN.html
Date: July 2025
Pages: 183
Price: US$ 4,500.00 (Single User License)
ID: AE5E8A9E8D81EN

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

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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.

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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

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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

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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).

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