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Global Piston Market Research Report - Forecast to 2032

Report / Search Code: MRFR/AM/1803-HCR Publish Date: April, 2024

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Price	1-user PDF : \$ 4950.0	Site PDF : \$ 5950.0	Enterprise PDF : \$ 7250.0
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Description:

Global Piston Market Overview:

Piston Market Size was valued at USD 2.8 Billion in 2022. The Piston market industry is projected to grow from USD 2.9 Billion in 2023 to USD 4.3 Billion by 2032, exhibiting a compound annual growth rate (CAGR) of 5.10% during the forecast period (2023 - 2032). Increased requirement for lightweight pistons to improve engine performance and a rise in the production and sale of vehicles are the key market drivers enhancing the growth of market.

Piston Market

Source: Secondary & Primary Research, MRFR Database, and Analyst Review

Piston Market Trends

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Rising requirement for improved engine performance is driving the market growth

Market CAGR for the piston market is being driven by the rising requirement for improved engine performance. The change in the global automotive environment due to globalization has simultaneously increased the demand for fuel-efficient, eco-friendly, light-wight vehicles, and others have risen. The rising demand for the two & four-wheelers has significantly boosted the demand for the piston for manufacturing markets. The investment and development by the market players in the automotive industries are driving the piston market globally.

The piston is an important part of both the internal and external combustion engine that functions by generating mechanical energy and supplying the required force to the vehicle to run on the road. In order to enhance the capability of the engine, the lightweight pistol is widely recommended; the development of these engines fuels the growth of the global market. The aim to get better engine performance can be achieved by minimizing the overall size and weight of all the components. Currently, aluminum alloys are getting popular due to their favorable features like lightweight, high corrosion resistance, higher strength, nice durability, and improved operating capacity at high temperatures. Hence, to ensure the high ability to retaliate motion, cast aluminum is used. The high percentage of financing on research to develop new technologies in automobile engines by the automotive manufacturing companies for improving fuel efficiency and overall performance of vehicles are driving the market growth.

The shift to electric vehicles from conventionalfuel vehicles, which causes air pollution and carbon emission, is certainly affecting the market growth as customer's inclination toward sustainable sources of energy. The developing electric vehicles market is going to hamper the rise of the market as it does not include piston engines.

The altering demographics, urbanization improving standards of lifestyle, and growth in disposable income of individuals increasing spending capacity fueled the growth of the market throughout the world. The leaning towards comfort, safety, and convenience are boosting high-performance vehicles with more pistons, and the growing industrialization and developing road infrastructures have fueled the growth of the piston market. The frequent demand for heavy, light, and passengers car and the demand for gasoline engines fuels the piston market. The production of premium segment bikes with double cylinders is likely to boost the market. Thus, driving the Piston market revenue.

Piston Market Segment Insights:

Piston Coating Type Insights

The Piston Market segmentation, based on coating type, includes Oil Shedding, Dry Film Lubrication, Thermal Barrier, and Others. The thermal barrier segment dominates the market, accounting for the highest market revenue. These are ceramic coatings that are largely used to coat the piston and other components of the engine as it minimizes the migration of heat by reflecting it. Hence it's coating on the piston helps enhance the complete combustion efficiency of the engine.

Piston Vehicle Type Insights

The Piston Market segmentation, based on vehicle type, includes Passenger Cars and Commercial Vehicles. Commercial vehicle dominates the market, and the application of automotive pistons in commercial vehicles is higher than in passenger cars. Commercial vehicles dominate as it is utilized for mining, construction, logistics, and transportation. Furthermore, the initiatives taken by the government to increase the sale of automotive vehicles are fueling the rise of the piston market globally.

Figure 1: Piston Market by Vehicle Type, 2022 & 2032 (USD Billion)

Piston Market by Vehicle Type, 2022 & 2032

Source: Secondary & Primary Research, MRFR Database, and Analyst Review

Piston Regional Insights

By region, the study gives market insights into Asia-Pacific, North America, Europe, and the Rest of the World. The North American piston market dominates this market, as there is an exponential rise in the number of commercial vehicles in this region, and the presence of important automotive manufacturing companies is granting to their market spread in the region. The US is the largest market contributor to the piston market, followed by Canada.

Further, the main countries studied in the market report are The US, Canada, German, France, the UK, Italy, Spain, China, South Korea, Japan, India, Australia, and Brazil.

Figure 2: Piston Market Share By Region 2022 (USD Billion)

Piston Market Share By Region 2022

Source: Secondary & Primary Research, MRFR Database, and Analyst Review

Asia Pacific piston market accounts for the second-largest market share due to the increased manufacturing and sale of the vehicles, and customers here are opting for advanced technologies for developing fuel-efficient and lightweight vehicles, an increase in disposable income of the individual in this region. Further, China's piston market held the largest market share, and the Indian Piston market was the fastest-growing market in the Asia Pacific region.

The European piston Market is expected to show steady growth in CAGR from 2023 to 2032. This is due to the slower sales and production in this region and also the strict emission regulations in this region. Moreover, the German Piston market held the largest market share, and the UK Piston market was the fastest-growing market in the Asia-Pacific region.

Piston Key Market Players & Competitive Insights

Leading market participants are investing heavily in research and development in order to spread their product lines, which will help the Piston market grow even more. Market participants are also undertaking a various strategic activities to spread their global footprint, with important market developments including new product launches, mergers and acquisitions, higher investments, contractual agreements, and collaboration with other organizations. To spread and survive in a more competitive and rising market climate, the Piston industry must offer cost-effective items.

Manufacturing locally to reduce operational costs is one of the key business tactics used by manufacturers in the global Piston industry to benefit clients and increase the market sector. In recent years, the Piston industry has provided some of the important advantages to the automotive industry. Major players in the Piston market, including MAHLE GmbH, Hitachi Automotive System, Rheinmetall Automotive AG, Teneco Inc., Federal-Mogul Corporation, Indian Piston Limited, Shriram Piston and Rings Ltd., KSPG AG, Ross Racing Pistons, Arias Pistons Ltd., Aisin Seiki Co. Ltd., and others, are trying to increase market demand by investing in research and development operations.

Tenneco Inc. was established in 1999 and headquartered in Illinois, US. Tenneco Inc. designs and manufactures, and sells products and provides services for lightweight vehicles, commercial trucks, off-highway, industrial, and aftermarket customers. It is one of the global leaders in designing and manufacturing automotive products, with approx 71,000 team members at more than 200 sites globally. In March 2020, an innovative new material that provides wear-resistant performance with largely minimized cobalt content, was announced by the company's power-train business group, which will assist engine manufacturers in eliminating the limited availability and price volatility of cobalt. The utilization of substitute sintered steel formulation has shown that the Teneccos sintered materials with the cobalt content can be minimized drastically without wear resistance being compromised.

MAHLE GmbH was established in 1920, headquartered in Stuttgart, Germany. The MAHLE company provides integrated system solutions for e-mobility. It works in four business segments, namely engine systems and components, filtration and engine peripherals, thermal management, and aftermarket. In September 2018, MAHLE made public a new generation of piston coatings that are being developed with the function of enhancing efficiency and reducing emissions. These coatings are expected to assist and minimize the heat coming into the piston. This, at the start, reduced the demand for piston cooling, and the increased exhaust temperature of gas lets a larger quantity of energy be excluded by the waste heat recovery system.

Key Companies in the Piston market include

- MAHLE GmbH
- Hitachi Automotive System

- Rheinmetall Automotive AG
- Teneco Inc.
- Federal-Mogul Corporation
- Indian Piston Limited
- Shriram Pistons and Rings Ltd.
- KSPG AG
- Ross Racing Pistons
- Arias Pistons Ltd.
- Aisin Seiki Co. Ltd.

Piston Industry Developments

July 2020: MAHLE, a global automotive component supplier, partnered with sports car manufacturer Porsche and mechanical engineering company Trumpf to provide high-performance Aluminium pistons that uses 3D printing techniques for the first time.

April 2020: The acquisition of all shares of Seneos GmbH was announced by Hitachi Automotive Systems. Ltd., which is a wholly-owned subsidiary of Hitachi, Ltd. With this acquisition, Seneos, the German automotive device software developer, became the fully-owned subsidiary of Hitachi Automotive System.

March 2018: Rheinmetall Automotive AG got the first order for the next-generation gasoline engine. It has been awarded the first recent Liteks four technology new generation gasoline engine pistons by the joint partnership between China's leading group of companies and major international markets.

Piston Market Segmentation:

Piston Coating Type Outlook

- Oil Shedding
- Dry Film Lubrication
- Thermal Barrier
- Others

Piston Vehicle Type Outlook

- Passenger Cars
- Commercial Vehicles

Piston Regional Outlook

- North America
 - US
 - Canada
- Europe
 - Germany
 - France
 - UK
 - Italy
 - Spain
 - Rest of Europe
- Asia-Pacific

- China
- Japan
- India
- Australia
- South Korea
- Australia
- Rest of Asia-Pacific
- Rest of the World
 - Middle East
 - Africa
 - Latin America

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