

Vane Pumps Market - Forecast from 2026 to 2031

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Abstracts

The vane pumps market is expected to grow at a 5.66% CAGR, achieving USD 4.006 billion in 2031 from USD 2.878 billion in 2025.

The vane pumps market is a specialized segment within the positive displacement pump industry, focused on pumps that utilize sliding vanes mounted on a rotor within an eccentric cavity to move fluid. As the rotor turns, centrifugal force extends the vanes, creating sealed chambers that increase in volume at the inlet (suction) and decrease at the outlet (discharge), thereby generating flow. This design offers advantages such as self-priming capability, relatively smooth and quiet operation, and the ability to handle low-viscosity fluids, including those with lubricating properties, and certain volatile compounds. The market serves a range of mid-pressure fluid transfer and hydraulic power applications across key industrial sectors, including automotive manufacturing, machine tools, lubrication systems, and light-duty oil and gas transfer. Its growth is sustained by ongoing industrial activity, the need for reliable mid-range hydraulic power, and specific applications where their operational characteristics are favored over other pump types.

Core Technology and Functional Characteristics

Vane pumps operate on a simple yet effective principle of positive displacement, ensuring a consistent flow rate proportional to shaft speed, which makes them suitable for metering and transfer applications. They are commonly categorized as balanced or unbalanced designs; balanced vane pumps feature an elliptical cam ring that subjects the rotor to balanced hydraulic pressure, allowing for higher pressure ratings and longer service life, while unbalanced designs are simpler and more cost-effective for lower-pressure duties.

Key performance attributes include good dry priming capability and tolerance for a

range of fluids, particularly those with some inherent lubricity. They typically operate at moderate pressures compared to piston pumps but offer higher efficiency and smoother flow than gear pumps in their operational range. Their ability to handle low-viscosity fluids like solvents, LPG, and ammonia makes them suitable for specific chemical and transfer applications.

Key Market Drivers and Application Areas

Demand is anchored in several established industrial processes. The automotive industry is a significant consumer, utilizing vane pumps in various capacities. They are employed in power steering systems, automatic transmission lubrication circuits, and within manufacturing equipment such as machine tools and hydraulic presses on assembly lines. The volume of global vehicle production and the complexity of automotive manufacturing processes directly influence demand.

The oil and gas sector, particularly in midstream and downstream operations, uses vane pumps for transfer duties involving light hydrocarbons, fuel oils, and LPG. Their self-priming feature and ability to handle volatile fluids make them a practical choice for certain loading/unloading and circulation applications within refineries and terminals.

Industrial machinery and mobile equipment represent another core market. Vane pumps provide hydraulic power for a wide array of machine tools, plastic injection molding machines, and light industrial equipment where a compact, reliable source of moderate hydraulic power is required. The broad base of general manufacturing activity provides a steady demand stream.

Furthermore, they are used in lubrication systems for large engines and industrial gearboxes, as well as in certain chemical processing applications for transferring solvents and other compatible fluids.

Market Challenges and Competitive Dynamics

The market faces competition from alternative positive displacement technologies. Piston pumps offer significantly higher pressure capabilities, making them the choice for demanding mobile and industrial hydraulics, while gear pumps often present a lower-cost, more robust alternative for high-viscosity fluids and harsh environments. The specific niche of vane pumps—balancing cost, smooth flow, and moderate pressure—can be encroached upon by advancements in these competing technologies.

Operational limitations also present challenges. Vane pumps are generally not suited for abrasive fluids or dry running for extended periods, as wear on the vanes and cam ring can degrade performance. Their efficiency can also drop with highly viscous fluids. This confines their optimal application range.

Regional Market Dynamics

North America, particularly the United States, represents a mature and technologically advanced market. Demand is driven by a strong automotive manufacturing base, a vast network of oil and gas infrastructure requiring fluid transfer pumps, and a diverse general industrial sector. Investments in advanced manufacturing and chemical processing sustain replacement and upgrade cycles.

The Asia-Pacific region is the largest and fastest-growing market, propelled by its massive manufacturing ecosystem, especially in China, Japan, India, and South Korea. The region's dominance in automotive production, rapid industrialization, and significant investments in energy and chemical infrastructure create concentrated, high-volume demand for industrial pumps, including vane types.

Competitive Landscape and Strategic Focus

The market includes global diversified industrial manufacturers and specialized pump companies. Competition is based on product reliability, efficiency, material quality (for vanes and housings), and the depth of application expertise. A key differentiator is the ability to provide customized solutions for specific fluid handling challenges.

Strategic initiatives are focused on material innovation to enhance wear resistance and compatibility with a broader range of fluids, thereby extending pump life and application scope. There is also a push toward improving energy efficiency in pump designs to meet broader industrial sustainability goals. Manufacturers are expanding their offerings to include integrated systems (pump, motor, controller) and enhancing digital connectivity for condition monitoring and predictive maintenance, adding value beyond the core component.

Market Outlook

The vane pumps market is positioned for steady, incremental growth aligned with general industrial and manufacturing output. While it is a mature technology unlikely to see explosive expansion, its role in specific, well-established applications ensures its

continued relevance.

Future growth will be tied to modernization of existing industrial assets and greenfield projects in developing economies. Innovation will likely focus on niche improvements: extending service intervals through better materials, enhancing performance in hybrid vehicle hydraulic systems (e.g., electro-hydraulic power steering), and developing more compact, efficient designs for space-constrained applications.

As industries focus on total cost of ownership and system reliability, the vane pump's value proposition of smooth operation, self-priming, and suitability for specific fluids will sustain its market position. Success for suppliers will depend on deep application knowledge, providing robust and efficient solutions for their core markets, and adapting to evolving industrial needs, such as handling new synthetic lubricants or integrating with smarter machine controls.

Key Benefits of this Report:

Insightful Analysis: Gain detailed market insights covering major as well as emerging geographical regions, focusing on customer segments, government policies and socio-economic factors, consumer preferences, industry verticals, and other sub-segments.

Competitive Landscape: Understand the strategic maneuvers employed by key players globally to understand possible market penetration with the correct strategy.

Market Drivers & Future Trends: Explore the dynamic factors and pivotal market trends and how they will shape future market developments.

Actionable Recommendations: Utilize the insights to exercise strategic decisions to uncover new business streams and revenues in a dynamic environment.

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Report Coverage:

Historical data from 2022 to 2024 & forecast data from 2025 to 2031

Growth Opportunities, Challenges, Supply Chain Outlook, Regulatory Framework, and Trend Analysis

Competitive Positioning, Strategies, and Market Share Analysis

Revenue Growth and Forecast Assessment of segments and regions including countries

Company Profiling (Strategies, Products, Financial Information, and Key Developments among others.

Key Segment:

By Type

Unbalanced Vane Pump

Balanced Vane Pump

Flexible Vane Pump

Others

By Component

Shaft

Casing

Rotor

Cam Ring

Impeller

Sliding Vane

By End-User Industry

Oil & Gas

Automotive

Food & Beverages

Others

By Geography

North America

USA

Canada

Mexico

South America

Brazil

Argentina

Others

Europe

Germany

France

United Kingdom

Spain

Others

Middle East and Africa

Saudi Arabia

UAE

Others

Asia Pacific

China

India

Japan

South Korea

Indonesia

Thailand

Others

Contents

1. EXECUTIVE SUMMARY

2. MARKET SNAPSHOT

- 2.1. Market Overview
- 2.2. Market Definition
- 2.3. Scope of the Study
- 2.4. Market Segmentation

3. BUSINESS LANDSCAPE

- 3.1. Market Drivers
- 3.2. Market Restraints
- 3.3. Market Opportunities
- 3.4. Porter's Five Forces Analysis
- 3.5. Industry Value Chain Analysis
- 3.6. Policies and Regulations
- 3.7. Strategic Recommendations

4. TECHNOLOGICAL OUTLOOK

5. VANE PUMPS MARKET BY TYPE

- 5.1. Introduction
- 5.2. Unbalanced Vane Pump
- 5.3. Balanced Vane Pump
- 5.4. Flexible Vane Pump
- 5.5. Others

6. VANE PUMPS MARKET BY COMPONENT

- 6.1. Introduction
- 6.2. Shaft
- 6.3. Casing
- 6.4. Rotor
- 6.5. Cam Ring
- 6.6. Impeller

6.7. Sliding Vane

7. VANE PUMPS MARKET BY END-USER

7.1. Introduction

7.2. Oil & Gas

7.3. Automotive

7.4. Food & Beverages

7.5. Others

8. VANE PUMPS MARKET BY GEOGRAPHY

8.1. Introduction

8.2. North America

8.2.1. USA

8.2.2. Canada

8.2.3. Mexico

8.3. South America

8.3.1. Brazil

8.3.2. Argentina

8.3.3. Others

8.4. Europe

8.4.1. Germany

8.4.2. France

8.4.3. United Kingdom

8.4.4. Spain

8.4.5. Others

8.5. Middle East and Africa

8.5.1. Saudi Arabia

8.5.2. UAE

8.5.3. Others

8.6. Asia Pacific

8.6.1. China

8.6.2. India

8.6.3. Japan

8.6.4. South Korea

8.6.5. Indonesia

8.6.6. Thailand

8.6.7. Others

9. COMPETITIVE ENVIRONMENT AND ANALYSIS

- 9.1. Major Players and Strategy Analysis
- 9.2. Market Share Analysis
- 9.3. Mergers, Acquisitions, Agreements, and Collaborations
- 9.4. Competitive Dashboard

10. COMPANY PROFILES

- 10.1. YUKEN KOGYO CO., LTD
- 10.2. Xylem
- 10.3. TOKYO KEIKI U.S.A., INC.
- 10.4. Procon Products (Standex International)
- 10.5. VELJAN
- 10.6. Eaton Corporation
- 10.7. SPECK Pumpen
- 10.8. Atlas Copco

11. APPENDIX

- 11.1. Currency
- 11.2. Assumptions
- 11.3. Base and Forecast Years Timeline
- 11.4. Key Benefits for the Stakeholders
- 11.5. Research Methodology
- 11.6. Abbreviations

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