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Vacuum Pumps Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Lubrication (Dry Vacuum Pumps and Wet Vacuum Pumps), By Mechanism (Gas Transfer Vacuum Pumps and Gas Binding Vacuum Pumps), By Pressure (Low Vacuum Pumps, Medium Vacuum Pumps, High Vacuum Pumps, Ultra-High Vacuum Pumps and Extreme-High Vacuum Pumps), By End-User (Aerospace & Defense, Automotive, Chemical & Petrochemical, Electronics & Semiconductors, Food & Beverage, Healthcare & Pharmaceuticals, and Other), By Region & Competition, 2021-2031F

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Abstracts

The Global Vacuum Pumps Market is projected to expand from USD 6.92 Billion in 2025 to USD 10.09 Billion by 2031, reflecting a Compound Annual Growth Rate (CAGR) of 6.49%. These mechanical devices are fundamental for removing gas molecules from sealed spaces to create partial vacuums, facilitating essential industrial processes like filtration, evaporation, and suction. The market is primarily driven by heightened demand within the semiconductor industry, where vacuum environments are indispensable for etching and deposition, as well as the pharmaceutical sector's need for sterile packaging and freeze-drying solutions. Furthermore, increasingly strict regulations governing energy efficiency are pushing manufacturers to replace legacy equipment with low-emission, sustainable pumping technologies.

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Sector performance data further validates this strong industrial demand, particularly within the electronics supply chain. According to SEMI, global sales of semiconductor manufacturing equipment rose by 10% to 117.1 billion dollars in 2024, highlighting the critical nature of vacuum components in this thriving market. However, despite this upward trend, the market encounters substantial obstacles related to the high upfront capital requirements and ongoing maintenance costs of advanced vacuum systems. These financial pressures can significantly strain the resources of small and medium-sized enterprises, potentially hindering broader adoption and impeding market penetration.

Market Driver

The surge in semiconductor manufacturing, fueled by the demands of AI and 5G applications, acts as a primary growth engine for the vacuum pumps market due to the rising complexity of chip architectures. As fabrication plants migrate to advanced nodes for artificial intelligence and high-performance computing, the requirement for ultra-high vacuum environments in processes like extreme ultraviolet (EUV) lithography and plasma etching has become critical. To meet these needs, the industry is aggressively scaling capacity; according to SEMI's '300mm Fab Outlook' report from June 2025, global capacity for advanced processes of 7nm and below is expected to grow by roughly 69% between 2024 and 2028. This momentum was further evidenced by the Semiconductor Industry Association, which reported in January 2025 that global semiconductor sales hit 57.8 billion dollars in November 2024, confirming the sustained volume demand driving equipment procurement.

Simultaneously, the booming electric vehicle (EV) and renewable energy sectors are generating a significant secondary revenue channel for vacuum technologies. Vacuum pumps play a vital role in lithium-ion battery production, specifically during electrode drying and electrolyte filling, where moisture removal is crucial for safety and preventing chemical degradation. The transition toward mass EV battery production has triggered the deployment of energy-efficient, large-scale vacuum drying systems. This industrial reliance is underscored by the IEA's 'Global EV Outlook 2025' report from May 2025, which noted that global battery demand for storage and EV applications reached nearly 1 terawatt-hour in 2024, signalling a long-term dependency on vacuum solutions for the global energy transition.

Market Challenge

A significant barrier facing the Global Vacuum Pumps Market is the high initial capital

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investment and considerable maintenance costs required for advanced vacuum systems. As regulatory bodies increasingly mandate the use of low-emission and energy-efficient pumping technologies, the cost of acquiring compliant, modern units has escalated sharply. This financial load creates a disproportionate challenge for small and medium-sized enterprises, which frequently lack the capital reserves needed to transition from legacy systems. Consequently, these budgetary constraints force many industrial buyers to delay new purchases or extend the service life of older, less efficient machinery, effectively limiting the volume of new installations and decelerating the adoption of modern infrastructure.

This trend of reduced capital investment is mirrored in broader industrial data. The VDMA (Mechanical Engineering Industry Association) reported that in 2024, global machinery and equipment sales totaled an estimated 3.26 trillion euros, marking a 1.5% decline compared to the previous year. This contraction within the global capital goods sector underscores the prevailing financial caution among manufacturers. It confirms that high equipment costs are actively dampening the investment activities necessary for the continued expansion and modernization of the vacuum pump sector.

Market Trends

The market is undergoing a significant transformation toward oil-free and dry vacuum technologies as industries increasingly prioritize contamination control. In contrast to traditional oil-sealed models, dry pumps eliminate the risks of hazardous waste generation and back-streaming, rendering them essential for sensitive manufacturing environments. This shift is further incentivized by a lower total cost of ownership, as dry systems demand considerably less routine maintenance than their lubricated equivalents. The rapid uptake of these systems is reflected in recent corporate performance; according to the Atlas Copco Group's 'Third-quarter report 2024' released in October 2024, their Vacuum Technique business area saw a 10% organic rise in orders, highlighting the strong industrial migration toward cleaner pumping architectures.

Parallel to this, the incorporation of smart predictive maintenance and the Industrial Internet of Things (IIoT) is emerging as a key competitive differentiator. By integrating advanced sensors, operators can track pump performance in real-time, enabling the identification of anomalies prior to system failure. This digital progression shifts maintenance protocols from reactive to predictive, drastically cutting unplanned downtime in continuous processing industries. The focus on aftermarket support and digital connectivity is driving financial growth, as evidenced by Ingersoll Rand Inc.'s

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'Fourth Quarter and Full-Year 2024 Results' from February 2025, which reported a 5% increase in annual revenues to $7,235 million, validating the increased market investment in intelligent, service-backed vacuum operations.

Key Market Players

Atlas Copco AB

Flowserve Corporation

Pfeiffer Vacuum Technology AG

Ingersoll Rand Inc.

Ebara Corporation

Graham Manufacturing

ULVAC, Inc.

Sulzer Ltd

Busch Group

Gebr. Becker GmbH

Report Scope

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

Vacuum Pumps Market, By Lubrication

Dry Vacuum Pumps

Wet Vacuum Pumps

Vacuum Pumps Market, By Mechanism

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- Italy
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- Japan
- Australia
- South Korea

South America

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- Argentina
- Colombia

Middle East & Africa

- South Africa

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Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Vacuum Pumps Market.

Available Customizations:

Global Vacuum Pumps Market report with the given market data, TechSci Research offers customizations according to a 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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