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Automotive Vacuumless Braking Market - Global Industry Size, Share, Trends, Opportunity, And Forecast, Segmented By Vehicle Type (Passenger Cars and Commercial Vehicles), By Propulsion, (Battery Electric Vehicle, Plug-In Hybrid Electric Vehicle, And Other Vehicles), By Sales Channel (OEMs And Aftermarket), By Region & Competition, 2021-2031F

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Abstracts

The Global Automotive Vacuumless Braking Market is projected to expand from a valuation of USD 6.11 Billion in 2025 to USD 8.53 Billion by 2031, registering a CAGR of 5.72%. This market comprises electro-mechanical systems that employ electric motors to generate hydraulic brake pressure, effectively removing the need for traditional internal combustion engine vacuum boosters. Key factors driving this market include the rapid electrification of global vehicle fleets, which demands independent braking sources, and strict safety regulations that mandate rapid pressure modulation for automatic emergency braking. Additionally, the ability of these systems to optimize energy recovery during regenerative braking makes them critical for meeting contemporary fuel efficiency and driving range standards.

Conversely, a major obstacle impeding widespread market growth is the high cost of components coupled with the technical complexity required to guarantee absolute fail-safe redundancy. These financial and technical hurdles often restrict immediate adoption within cost-conscious vehicle segments. The trajectory of this technology is closely tied to the surge in electrified platforms. Data from the China Association of Automobile Manufacturers (CAAM) indicates that in 2024, the production and sales of

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new energy vehicles surpassed 12 million units, representing 40.9 percent of the total new vehicle trade.

Market Driver

The rapid global adoption of Electric Vehicles acts as the primary catalyst for the Global Automotive Vacuumless Braking Market, fundamentally requiring a shift from conventional vacuum-based systems to electro-mechanical solutions. Since electric powertrains lack the internal combustion vacuum source historically used for boosting, manufacturers must integrate independent braking technologies to maintain consistent safety standards. This technical necessity is driving high installation rates as electrification targets broaden across key regions. As reported by the European Automobile Manufacturers? Association in their 'New car registrations: +1.4% in November 2025' report published in December 2025, battery-electric cars achieved a cumulative market share of 16.9 percent for the year-to-date, creating a direct production demand for compatible vacuumless architectures.

Simultaneously, the industry transition toward Brake-by-Wire Architectures is reshaping the market by separating the brake pedal from hydraulic connections, allowing for advanced software-defined capabilities. These wire-based systems eliminate heavy vacuum pumps and support superior integration with autonomous driving functions through rapid, electronically controlled pressure modulation. Highlighting this trend, ZF announced in a January 2025 press release titled 'ZF wins contract to supply brake-by-wire technology' that it had secured a commercial agreement to equip nearly 5 million vehicles with its electro-mechanical braking system. Reflecting the broader momentum in this sector, Continental AG reported in 2025 that its Automotive group sector achieved an order intake of 5.7 billion euros in the second quarter alone, with advanced brake systems contributing significantly to this volume.

Market Challenge

The substantial cost of electro-mechanical components and the technical complexity needed for absolute fail-safe redundancy pose a significant barrier to the expansion of the Global Automotive Vacuumless Braking Market. These sophisticated braking systems rely on expensive sensors, high-speed electric motors, and advanced control units, resulting in a notably higher bill of materials compared to traditional vacuum boosters. Consequently, automotive manufacturers are compelled to restrict the integration of these technologies to premium vehicle segments, preventing their widespread adoption in cost-sensitive entry-level and mid-range models. This price

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sensitivity directly hampers market growth, as mass-market volume is essential for achieving the economies of scale necessary to reduce unit costs and justify engineering investments.

This financial strain is further intensified by the severe economic pressure currently affecting the automotive supply chain, which limits the liquidity available for developing such complex safety-critical systems. Suppliers are increasingly forced to scale back on capital-intensive projects due to shrinking margins, stalling the innovation required to make these systems more affordable. According to the European Association of Automotive Suppliers (CLEPA), capital investment in electric vehicle components across the European Union dropped to ?5.64 billion in 2024, marking the lowest level since 2019. This sharp decline in investment underscores the challenges suppliers face in sustaining the high development costs associated with next-generation technologies, thereby slowing the broader market penetration of vacuumless braking solutions.

Market Trends

The transition toward One-Box Integrated Brake Systems is revolutionizing the market by consolidating the master cylinder, vacuum booster, and electronic stability control into a single compact unit. This architectural consolidation separates the brake pedal from the hydraulic system, enabling maximum regenerative braking efficiency?essential for electric vehicles?while significantly reducing vehicle weight and assembly complexity. The rapid adoption of these integrated electro-hydraulic solutions is evident in the robust financial performance of key manufacturers, particularly within the booming Chinese electric vehicle sector. According to Bethel Automotive Safety Systems' '2024 Annual Report' released in April 2025, the company reported annual revenue of 9.94 billion CNY, a substantial figure driven largely by the mass deployment of its wire-controlled integrated braking systems across multiple new energy vehicle platforms.

At the same time, the emergence of Dry Electro-Mechanical Brake-by-Wire Technology represents the next evolutionary step, eliminating hydraulic fluid entirely to create a 'dry' system that simplifies maintenance and enhances environmental sustainability. These systems utilize electric motors directly at the wheel calipers to generate clamping force, offering faster response times and superior integration with autonomous driving software compared to traditional hydraulic setups. This technological shift is generating significant commercial interest as automakers transition toward software-defined vehicle architectures that require modular chassis components. As noted by Continental AG in their August 2025 press release 'Continental Continues Solid Development and Further Improves Automotive Earnings,' the Automotive group sector secured orders exceeding

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3 billion euros in the second quarter alone for advanced technologies, including future brake systems and electronic control units, validating the strong market demand for these innovative solutions.

Key Market Players

Robert Bosch GmbH

Continental AG

Brembo S.p.A

AKEBONO BRAKE INDUSTRY CO., LTD.

Hitachi Astemo, Ltd.

KSR International Inc.

Knorr Bremse AG

AISIN CORPORATION

ZF Friedrichshafen AG

Veoneer HoldCo, LLC.

Report Scope

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

Automotive Vacuumless Braking Market, By Vehicle Type

Passenger Cars

Commercial Vehicles

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Automotive Vacuumless Braking Market, By Propulsion,

- Battery Electric Vehicle
- Plug-In Hybrid Electric Vehicle
- Other Vehicles

Automotive Vacuumless Braking Market, By Sales Channel

- OEMs Aftermarket

Automotive Vacuumless Braking Market, By Region

- North America
  - United States
  - Canada
  - Mexico
- Europe
  - France
  - United Kingdom
  - Italy
  - Germany
  - Spain
- Asia Pacific
  - China
  - India

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Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

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

Available Customizations:

Global Automotive Vacuumless Braking 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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