

Automotive Brake System Market by Type (Disc, Drum), Technology (ABS, ESC, TCS, EBD, AEB), OHV Brakes (Hydraulic Wet, Hydrostatic, Dynamic), On & Off-Highway Vehicles & Electric Vehicles, Component, Actuation and Region - Global Forecast to 2028

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Abstracts

The automotive brake system market is estimated to grow from USD 23.5 billion in 2023 to USD 30.1 billion by 2028 at a CAGR of 5.1% during the forecast period. The demand for automotive brake systems is growing because governments worldwide are mandating the installation of vehicle safety features such as ABS, ESC, TCS, and EBD. This has strongly driven the electronic brake system market. The growing popularity of high-end and luxury cars would further fuel this demand.

Countries like India, China, Brazil, Mexico, and Argentina focus on enhanced automotive safety standards. However, the high maintenance and repair costs can hinder market growth, especially in developing countries.

“Agricultural tractors will dominate the off-highway brake system market in 2023.”

Agricultural tractors hold the largest market for brakes during the forecast period. Agricultural tractors are widely used in wet and muddy farmlands, and hence, drum brakes are unsuitable for achieving the desired performance as they get heated quickly and experience friction loss. Due to their robustness and effectiveness in handling heavy-duty applications, hydraulic wet brakes are predominantly preferred in agriculture tractors. These brakes ensure reliable stopping power and durability, essential for challenging terrains and rigorous usage. They are also preferred for farming due to low maintenance requirements and no major price difference compared to dry disc brake systems. Presently, a high installation rate of hydraulic wet brakes (more than 80%)

exists in agricultural tractors, mostly equipped on the rear axle. According to insights from industry experts, drum brakes find application in less than 30 horsepower tractors, mainly in emerging economies of the Asia Pacific region. Initially, a hydraulic single-line brake system was installed in tractors. However, the new tractor models are equipped with dual-line braking systems, considered a suitable option for running at speeds of 40 km/h and above. The increasing levels of farm mechanization and anticipated advancements in braking technology will subsequently spur the growth of the agricultural tractor brake system market.

“The Pneumatic System market is analyzed to grow at the fastest growing brake actuation type.”

The pneumatic brake system is popular in the heavy-duty trucks and bus segments as it offers superior performance, safety, efficiency, and strict regulation compliance, making it an ideal choice for heavy-duty applications. As global heavy vehicle manufacturers and braking companies strongly emphasize safety and performance, they embrace air brake technology, ensuring their trucks meet the demanding requirements of various industries and sectors, including construction, logistics, and transportation. The US has mandated pneumatic brake systems for heavy truck applications for stopping distance since August 2013. For these heavy truck tractors, the amended standard requires those vehicles to stop at not more than 250 feet when loaded to their gross vehicle weight rating (GVWR) and tested at 60 miles per hour (mph). Further, these regulations demand brake systems compatible with ABS and ESC, as manufacturers must meet the regulatory standards. With ongoing technological progress, there is a growing demand for brake systems that integrate ABS and ESC as vehicle manufacturers strive to incorporate the latest safety features. Some OEMs, such as Daimler AG, Volvo, and PACCAR, offer anti-lock braking systems with air disc brakes in their commercial truck models, such as Freightliner Cascadia, Volvo VNL, and Kenworth T680. Thus, the integration of ABS and ESC technologies in the brake systems of heavy commercial vehicles will bring a positive growth trajectory to allow brake manufacturers to increase their business venture in pneumatic brake systems.

“North America holds the largest market share in the ATV brake system market during the forecast period.”

ATVs are used in multiple sports, agriculture, military & defense, and construction applications. Hydraulic disc brake systems are primarily fitted in ATVs due to their effectiveness in providing reliable stopping power across diverse terrains. Hydraulic disc brakes excel in off-road conditions, offering precise control and responsiveness. Other

benefits include improved heat dissipation, reduced fade during prolonged use, and the ability to handle the varying demands of different terrains. Major ATV manufacturers such as Polaris, Honda, and Textron offer models loaded with hydraulic disc brakes to optimize performance. Owing to their advantages and ongoing developments to diversify the usage of ATVs, the demand for hydraulic disc brake systems is expected to notice a positive growth trend in the upcoming years

North America has the largest share of the ATV market owing to increasing recreational activities, government support for off-road racing such as desert racing, and dirt racing, and growing demand for ATVs in military and farm applications. Thus, with growing sales of ATVs in North America for a variety of applications, the demand for brake systems for ATVs in North America will increase.

“North America will be the second largest automotive brake system market during the forecast period.”

North America holds the 2nd largest market after Asia Pacific in the automotive brakes market, in which the US dominates the regional market, followed by Mexico and Canada. Owing to customers' preferences towards luxury and sports vehicles, the adoption of all disc brakes in passenger cars, SUVs, and pick-up trucks has grown significantly in recent years. North American countries are incorporating ADAS functions in their vehicles, and OEMs in the US have voluntarily taken initiatives to include AEB in the latest production vehicles. For instance, according to the NHTSA, 20 automakers in the US made AEB standards in 50% of their 2017 models. These automakers pledged to include AEB in all new US vehicles in the coming years. Following the European scenario, many regional OEMs such as Ford General Motors and other players such as Toyota, Honda, Hyundai, and Mitsubishi have incorporated AEB in many current product lineups, and more are expected to join the force to remain competitive in the market. This is likely to boost the penetration of electronic braking systems due to their regulations complying with advanced braking system regulations stipulated in the US FMVSS105 guidelines. Thus, with the implementation of stringent safety standards and the inclination for efficient braking solutions, the demand for automotive brake systems is expected to grow further in North American countries.

Breakdown of Primaries

In-depth interviews were conducted with CXOs, marketing directors, other innovation

and technology directors, and executives from various key organizations operating in this market.

By Company Type: Supply Side- 80%, Demand Side- 20%

By Designation: C-Level Executives - 50%, Director/ Vice Presidents– 40%, and Others - 10%

By Region: Asia Pacific- 45%, Europe - 20%, North America - 25%, and RoW- 10%

The automotive brake system market is led by globally established players such as Robert Bosch GmbH (Germany), ZF Friedrichshafen AG (Germany), Continental AG (Germany), AISIN Seiki Co, Ltd. (Japan), Knorr-Bremse AG (Germany), and Brembo S.p.A (Italy), Hitachi Astemo Ltd. (Japan), Mando Corporation (South Korea), and Haldex AB (Sweden). The study includes an in-depth competitive analysis of these key players in the automotive brake system market with their company profiles, MnM view of the top five companies, recent developments, and key market strategies.

Research Coverage:

The automotive brake system market is segmented by region (Asia Pacific, Europe, North America, and RoW), vehicle type (passenger car, LCV, truck, and bus), brake type (disc brakes and drum brakes), technology (anti-lock braking system, traction control system, electronic stability control, electronic brake-force distribution, and automatic emergency braking system), component type (Master cylinders, brake pads, brake shoes, brake calipers, and brake disc rotors), off-highway application (agricultural tractor, construction equipment, and mining equipment), off-highway brake type (hydrostatic brake, hydraulic wet brake, dynamic brake, and others), actuation (hydraulic and pneumatic), regenerative brake market (Battery Electric Vehicle, and Plug-in Hybrid Electric Vehicle), and ATV brake system market (Asia Pacific, Europe, North America and Rest of the World)

The study also includes an in-depth competitive analysis of the key players in the market along with their company profiles, key observations related to product and business offerings, recent developments, and key market strategies.

Key Benefits of Buying the Report:

Automotive Brake System Market by Type (Disc, Drum), Technology (ABS, ESC, TCS, EBD, AEB), OHV Brakes (Hydraul...

This report provides insights concerning the following points:

Country-level brake type-wise market: The report offers in-depth market sizing and forecasts for 2028 by brake types, such as disc and drum brakes. This study covers the market sizing for the automotive brake system market at the country and regional levels.

By Technology & Vehicle type: The report offers in-depth market sizing and forecasts up to 2028 by technology, such as ABS, ESC, TSC, EBD, and AEB at the regional level. In-depth analysis of different technology types used in vehicle type at the regional level.

Component Type & By Actuation Type: The report offers in-depth market sizing and forecasts up to 2028 by component types, such as master cylinders, brake pads, brake shoes, brake calipers, and brake disc rotors. The report provides market sizing and forecasting till 2028 by actuation type, such as hydraulic and Pneumatic, for each vehicle type.

The report provides the “Market Share” of the leading automotive brake system market players.

Market Development: The report provides comprehensive information about lucrative emerging markets for the automotive brake system market across regions.

Product Development/Innovation: The report gives detailed insights into R&D activities, upcoming technologies, and new product launches in the automotive brake system market.

Market Diversification: The report offers detailed information about untapped markets, investments, new products, and recent developments in the automotive brake system market.

The report provides insights on the following pointers:

Analysis of key drivers (Increased emphasis on road safety, Stringency of government regulations to reduce stopping distance for light-duty and heavy-duty vehicles, growth in demand for off-highway heavy-duty trucks, Increasing adoption of advanced brake systems for enhanced vehicle safety, integration of adaptative cruise control in electronic braking systems for improved vehicle handling, Implementation of New Car Assessment Program (NCAP) will drive

the advanced brake systems), Restraints (High development and maintenance costs of advanced braking technology), Opportunities (Rising adoption of brake-by-wire systems, Government regulation to make advanced emergency braking systems mandatory, Increasing use of regenerative braking in EV ecosystem), Challenges (Malfunctioning of electronic braking systems, Freezing of air brakes at low temperature)

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product launches in the automotive brake system market.

Market Development: Comprehensive information about lucrative markets – the report analyses the automotive brake system market across different regions.

Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the automotive brake system market.

Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players like Continental AG (Germany), Robert Bosch GmbH (Germany), AISIN Seiki Co., Ltd. (Japan), ZF Friedrichshafen AG (Germany), Knorr-Bremse AG (Germany), and Akebono Brake Industry Co., Ltd (Japan) in the automotive brake system market.

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