

# **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.



## Contents

### 1 INTRODUCTION

#### 1.1 STUDY OBJECTIVES

#### 1.2 MARKET DEFINITION

##### 1.2.1 INCLUSIONS AND EXCLUSIONS

#### TABLE 1 SEGMENT-WISE INCLUSIONS AND EXCLUSIONS

#### 1.3 MARKET SCOPE

#### FIGURE 1 AUTOMOTIVE BRAKE SYSTEM MARKET SEGMENTATION

##### 1.3.1 REGIONS COVERED

##### 1.3.2 YEARS CONSIDERED

#### 1.4 CURRENCY CONSIDERED

#### TABLE 2 CURRENCY EXCHANGE RATES

#### 1.5 STAKEHOLDERS

#### 1.6 SUMMARY OF CHANGES

### 2 RESEARCH METHODOLOGY

#### 2.1 RESEARCH DATA

#### FIGURE 2 RESEARCH DESIGN

#### FIGURE 3 RESEARCH METHODOLOGY MODEL

##### 2.1.1 SECONDARY DATA

#### 2.1.2 LIST OF KEY SECONDARY SOURCES TO ESTIMATE VEHICLE PRODUCTION/ SALES AND MARKET SIZING

##### 2.1.2.1 Key data from secondary sources

##### 2.1.3 PRIMARY DATA

#### FIGURE 4 BREAKDOWN OF PRIMARY INTERVIEWS

##### 2.1.3.1 Sampling techniques & data collection methods

##### 2.1.4 PRIMARY PARTICIPANTS

#### 2.2 MARKET SIZE ESTIMATION

#### FIGURE 5 RESEARCH METHODOLOGY: HYPOTHESIS BUILDING

##### 2.2.1 BOTTOM-UP APPROACH

#### FIGURE 6 BOTTOM-UP APPROACH: BY BRAKE TYPE AND VEHICLE TYPE

##### 2.2.2 TOP-DOWN APPROACH

#### FIGURE 7 TOP-DOWN APPROACH: BY ACTUATION TYPE

#### 2.3 DRIVER ANALYSIS FOR MARKET SIZING: DEMAND AND SUPPLY SIDES

#### FIGURE 8 DRIVER ANALYSIS FOR AUTOMOTIVE BRAKE SYSTEM MARKET

#### 2.4 FACTOR ANALYSIS

**FIGURE 9 FACTORS IMPACTING AUTOMOTIVE BRAKE SYSTEM MARKET****2.5 RECESSION IMPACT****2.6 MARKET BREAKDOWN AND DATA TRIANGULATION****FIGURE 10 DATA TRIANGULATION****2.7 GLOBAL ASSUMPTIONS****2.8 RESEARCH ASSUMPTIONS****2.9 RESEARCH LIMITATIONS****3 EXECUTIVE SUMMARY****3.1 REPORT SUMMARY****FIGURE 11 AUTOMOTIVE BRAKE SYSTEM MARKET OUTLOOK****FIGURE 12 AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023 VS. 2028 (USD MILLION)****4 PREMIUM INSIGHTS****4.1 ATTRACTIVE GROWTH OPPORTUNITIES FOR PLAYERS IN AUTOMOTIVE BRAKE SYSTEM MARKET****FIGURE 13 STRINGENCY OF SAFETY STANDARDS AND CAR ASSESSMENT PROGRAMS TO DRIVE ADVANCEMENTS IN THE BRAKE TECHNOLOGY****4.2 AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE****FIGURE 14 DISC BRAKES SEGMENT TO HAVE LARGER MARKET SIZE DURING FORECAST PERIOD****4.3 AUTOMOTIVE BRAKE SYSTEM MARKET, BY TECHNOLOGY****FIGURE 15 ABS SEGMENT TO LEAD MARKET, BY VOLUME, IN 2023****4.4 AUTOMOTIVE BRAKE SYSTEM MARKET, BY ACTUATION TYPE****FIGURE 16 HYDRAULIC SEGMENT TO DOMINATE MARKET DURING FORECAST PERIOD****4.5 AUTOMOTIVE BRAKE SYSTEM MARKET, BY COMPONENT****FIGURE 17 BRAKE PADS SEGMENT TO HAVE LARGEST MARKET SIZE DURING FORECAST PERIOD****4.6 AUTOMOTIVE BRAKE SYSTEM MARKET, BY VEHICLE TYPE****FIGURE 18 PASSENGER CARS SEGMENT TO LEAD MARKET DURING FORECAST PERIOD****4.7 REGENERATIVE BRAKE SYSTEM MARKET, BY ELECTRIC VEHICLE TYPE****FIGURE 19 BATTERY ELECTRIC VEHICLES SEGMENT TO DOMINATE MARKET THROUGHOUT FORECAST PERIOD****4.8 OFF-HIGHWAY BRAKE SYSTEM MARKET, BY BRAKE TYPE**



FIGURE 20 HYDRAULIC WET BRAKES SEGMENT TO ACCOUNT FOR LARGEST MARKET SIZE DURING FORECAST PERIOD

4.9 OFF-HIGHWAY BRAKE SYSTEM MARKET, BY APPLICATION

FIGURE 21 AGRICULTURAL TRACTORS SEGMENT TO COMMAND FASTEST GROWTH DURING FORECAST PERIOD

4.10 ALL-TERRAIN VEHICLE BRAKE SYSTEM MARKET, BY REGION

FIGURE 22 NORTH AMERICA TO LEAD MARKET FROM 2023 TO 2028

4.11 AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION

FIGURE 23 ASIA PACIFIC TO REGISTER HIGHEST CAGR DURING FORECAST PERIOD

## **5 MARKET OVERVIEW**

5.1 INTRODUCTION

5.2 MARKET DYNAMICS

FIGURE 24 MARKET DYNAMICS: BRAKE SYSTEM MARKET

5.2.1 DRIVERS

5.2.1.1 Increased emphasis on road safety

TABLE 3 COUNTRY-WISE ADVANCED BRAKING SYSTEM REGULATIONS

5.2.1.2 Stringency of government regulations to reduce stopping distance in light-duty and heavy-duty vehicles

TABLE 4 LIST OF COMMERCIAL VEHICLE MODELS EQUIPPED WITH ANTI-LOCK BRAKING SYSTEMS AND ELECTRONIC STABILITY CONTROL BRAKING SYSTEMS

FIGURE 25 COMPARISON OF STOPPING DISTANCES AT 65 MPH FOR PASSENGER CARS AND TRUCKS IN US

FIGURE 26 TOTAL STOPPING DISTANCES FOR PASSENGER CARS AND TRUCKS

5.2.1.3 Growth in demand for off-highway heavy-duty trucks

FIGURE 27 ARTICULATED & RIGID DUMP TRUCK MARKET, 2020–2028 (UNITS)

5.2.1.4 Increasing adoption of advanced brake systems for enhanced vehicle safety

TABLE 5 LIST OF TOP BRAKE SUPPLIERS AND THEIR ADVANCED BRAKING SYSTEM OFFERINGS

FIGURE 28 EFFECT OF EBD

5.2.1.5 Integration of adaptive cruise control in electronic braking systems for improved vehicle handling

TABLE 6 VEHICLES WITH ADAPTIVE CRUISE CONTROL

FIGURE 29 ANALYSIS OF ELECTRONIC BRAKING SYSTEMS FOR DIFFERENT VEHICLE CLASSES

5.2.1.6 Implementation of New Car Assessment Program (NCAP)

TABLE 7 LOCAL NEW CAR ASSESSMENT PROGRAMS (NCAP)

**TABLE 8 FACTORS AND WEIGHTAGE FOR EURO NCAP RATING****5.2.2 RESTRAINTS**

5.2.2.1 High development and maintenance costs of advanced braking technology

**TABLE 9 ABS CONTROL MODULE REPAIR COSTS (USD)****5.2.3 OPPORTUNITIES**

5.2.3.1 Rising adoption of brake-by-wire systems

**TABLE 10 VEHICLE MODELS WITH BRAKE-BY-WIRE SYSTEMS**

5.2.3.2 Government regulations to make advanced emergency braking systems mandatory.

5.2.3.3 Increasing use of regenerative braking systems in EV ecosystem

**5.2.4 CHALLENGES**

5.2.4.1 Malfunctioning of electronic braking systems

5.2.4.2 Freezing of air brakes at low temperatures

**5.3 REVENUE SHIFT FOR AUTOMOTIVE BRAKE SYSTEM MARKET****5.4 MARKET ECOSYSTEM****FIGURE 30 AUTOMOTIVE BRAKE SYSTEM MARKET ECOSYSTEM**

5.4.1 BRAKE SYSTEM MANUFACTURERS

5.4.2 BRAKE SYSTEM COMPONENT SUPPLIERS/TECHNOLOGY PROVIDERS

5.4.3 AUTOMOTIVE OEMS

5.4.4 REGULATORY AUTHORITIES

5.4.5 DEALERS & DISTRIBUTORS

5.4.6 SERVICE & REPAIR CENTERS

5.4.7 FLEET OWNERS & OPERATORS

**TABLE 11 AUTOMOTIVE BRAKE SYSTEM MARKET: ROLE OF COMPANIES IN ECOSYSTEM****5.5 SUPPLY CHAIN ANALYSIS****FIGURE 31 AUTOMOTIVE BRAKE SYSTEM MARKET: SUPPLY CHAIN ANALYSIS****5.6 VALUE CHAIN ANALYSIS****FIGURE 32 AUTOMOTIVE BRAKE SYSTEM MARKET: VALUE CHAIN ANALYSIS****5.7 REGULATORY LANDSCAPE**

5.7.1 US: FEDERAL MOTOR SAFETY STANDARDS FOR BRAKE SYSTEM PARTS

**TABLE 12 US: FEDERAL MOTOR VEHICLE SAFETY STANDARDS**

5.7.2 VEHICLE SAFETY STANDARDS, BY COUNTRY/REGION

**TABLE 13 VEHICLE SAFETY STANDARDS, BY COUNTRY/REGION**

5.7.3 ELECTRONIC BRAKE SYSTEM MANDATES, BY COUNTRY/REGION

5.7.4 VEHICLE SAFETY STANDARDS

**TABLE 14 NORTH AMERICA: VEHICLE BRAKE SAFETY STANDARDS**

5.7.5 EUROPE: VEHICLE BRAKE SAFETY STANDARDS

5.7.6 LIST OF REGULATORY AUTHORITIES FOR BRAKE SYSTEMS, BY REGION

## 5.8 TRADE ANALYSIS

### 5.8.1 IMPORT DATA

#### 5.8.1.1 US

TABLE 15 US IMPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

#### 5.8.1.2 Canada

TABLE 16 CANADA IMPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

#### 5.8.1.3 China

TABLE 17 CHINA IMPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

#### 5.8.1.4 Japan

TABLE 18 JAPAN IMPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

#### 5.8.1.5 India

TABLE 19 INDIA IMPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

#### 5.8.1.6 Germany

TABLE 20 GERMANY IMPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

#### 5.8.1.7 France

TABLE 21 FRANCE IMPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

#### 5.8.1.8 Spain

TABLE 22 SPAIN IMPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

#### 5.8.1.9 UK

TABLE 23 UK IMPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

## 5.8.2 EXPORT DATA

### 5.8.2.1 US

TABLE 24 US EXPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

### 5.8.2.2 Canada

TABLE 25 CANADA EXPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

### 5.8.2.3 China

TABLE 26 CHINA EXPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

### 5.8.2.4 Japan

TABLE 27 JAPAN EXPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

### 5.8.2.5 India

TABLE 28 INDIA EXPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

### 5.8.2.6 Germany

TABLE 29 GERMANY EXPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

### 5.8.2.7 France

TABLE 30 FRANCE EXPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

### 5.8.2.8 Spain

TABLE 31 SPAIN EXPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS, MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

### 5.8.2.9 UK

TABLE 32 UK EXPORT: BRAKES & SERVO-BRAKES AND THEIR PARTS, FOR TRACTORS, MOTOR VEHICLES FOR TRANSPORT OF TEN OR MORE PERSONS,

## MOTOR CARS, AND OTHER MOTOR VEHICLES, BY COUNTRY (VALUE %)

### 5.9 PRICING ANALYSIS

#### 5.9.1 BY REGION

TABLE 33 PRICE TREND, BY REGION, 2020 VS. 2022

#### 5.9.2 BY BRAKE TYPE

TABLE 34 PRICE TREND, BY BRAKE TYPE, 2020 VS. 2022

### 5.10 PATENT ANALYSIS

TABLE 35 PATENT ANALYSIS

### 5.11 CASE STUDY

5.11.1 CASE STUDY 1: USE OF HIGH-CONTENT KELVAR MATERIALS TO INCREASE CLUTCH BRAKE PERFORMANCE

5.11.2 CASE STUDY 2: FAILURE OF ABS TECHNOLOGY

5.11.3 CASE STUDY 3: KNORR-BREMSE AG FACED SEVERAL CHALLENGES IN DEVELOPING ITS BRAKE SYSTEMS

5.11.4 CASE STUDY 4: DEVELOPMENT OF AIR BRAKE SYSTEMS FOR COMMERCIAL VEHICLES

### 5.12 KEY CONFERENCES AND EVENTS

TABLE 36 AUTOMOTIVE BRAKE SYSTEM MARKET: LIST OF UPCOMING CONFERENCES AND EVENTS, 2023–2024

### 5.13 BUYING CRITERIA

FIGURE 33 KEY BUYING CRITERIA FOR DISC BRAKES VS. DRUM BRAKES

TABLE 37 KEY BUYING CRITERIA FOR DISC BRAKES VS DRUM BRAKES

### 5.14 TECHNOLOGY TRENDS

5.14.1 DEVELOPMENT OF BRAKE-BY-WIRE (BBW) SYSTEMS

5.14.2 DEVELOPMENT OF AUTONOMOUS EMERGENCY BRAKING (AEB) SYSTEMS

5.14.3 DEVELOPMENT OF ELECTRO-PNEUMATIC BRAKE SYSTEMS FOR COMMERCIAL VEHICLES

### 5.15 IMPACT OF AUTONOMOUS ELECTRIC VEHICLES ON BRAKE SYSTEMS

5.15.1 AUTONOMOUS VEHICLES (L1, L2, AND L3)

5.15.1.1 Vehicle braking requirements for autonomous vehicles

5.15.1.2 Level 1 (driver assistance)

5.15.1.3 Level 2 (partial autonomous)

5.15.1.4 Level 3 (conditional driving automation)

5.15.2 ADAS FEATURES

FIGURE 34 EVOLUTION OF AUTOMATED SAFETY TECHNOLOGIES/BRAKE TECHNOLOGIES

5.15.3 ELECTRIC VEHICLES

FIGURE 35 WORKING OF REGENERATIVE BRAKING SYSTEMS

## **6 AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE**

### **6.1 INTRODUCTION**

#### **6.1.1 INDUSTRY INSIGHTS**

FIGURE 36 AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023 VS. 2028 (USD MILLION)

TABLE 38 AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 39 AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 40 AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 41 AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

### **6.2 DISC BRAKES**

6.2.1 BETTER HEAT DISSIPATION AND SELF-ADJUSTING FRICTION MATERIAL TO DRIVE DEMAND

TABLE 42 DISC BRAKES: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 43 DISC BRAKES: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 44 DISC BRAKES: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 45 DISC BRAKES: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

### **6.3 DRUM BRAKES**

6.3.1 COST-SENSITIVE NATURE OF EMERGING MARKETS TO DRIVE DEMAND

TABLE 46 DRUM BRAKES: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 47 DRUM BRAKES: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 48 DRUM BRAKES: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 49 DRUM BRAKES: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

## **7 AUTOMOTIVE BRAKE SYSTEM MARKET, BY TECHNOLOGY**



## 7.1 INTRODUCTION

### 7.1.1 INDUSTRY INSIGHTS

FIGURE 37 AUTOMOTIVE BRAKE SYSTEM MARKET, BY TECHNOLOGY, 2022 VS. 2028 (THOUSAND UNITS)

TABLE 50 AUTOMOTIVE BRAKE SYSTEM MARKET, BY TECHNOLOGY, 2018–2022 (THOUSAND UNITS)

TABLE 51 AUTOMOTIVE BRAKE SYSTEM MARKET, BY TECHNOLOGY, 2023–2028 (THOUSAND UNITS)

## 7.2 ANTI-LOCK BRAKING SYSTEM (ABS)

### 7.2.1 REGULATIONS TO MANDATE ABS TO DRIVE MARKET

TABLE 52 ANTI-LOCK BRAKING SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 53 ANTI-LOCK BRAKING SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

## 7.3 ELECTRONIC STABILITY CONTROL (ESC)

7.3.1 GOVERNMENT MANDATES FOR INSTALLATION OF ESC IN PASSENGER CARS TO DRIVE MARKET

TABLE 54 ELECTRONIC STABILITY CONTROL MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 55 ELECTRONIC STABILITY CONTROL MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

## 7.4 TRACTION CONTROL SYSTEM (TCS)

### 7.4.1 GROWING FOCUS ON BETTER TRACTION CONTROL TO DRIVE MARKET

TABLE 56 TRACTION CONTROL SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 57 TRACTION CONTROL SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

## 7.5 ELECTRONIC BRAKEFORCE DISTRIBUTION (EBD)

### 7.5.1 STRINGENCY IN SAFETY REGULATIONS TO DRIVE MARKET

TABLE 58 ELECTRONIC BRAKEFORCE DISTRIBUTION MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 59 ELECTRONIC BRAKEFORCE DISTRIBUTION MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

## 7.6 AUTOMATIC EMERGENCY BRAKING (AEB)

7.6.1 DEMAND FOR AUTOMOTIVE SAFETY AND REGULATIONS TO INCREASE DEMAND FOR AEB SYSTEMS

TABLE 60 AUTOMATIC EMERGENCY BRAKING MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 61 AUTOMATIC EMERGENCY BRAKING MARKET, BY REGION, 2023–2028

(THOUSAND UNITS)

## **8 AUTOMOTIVE BRAKE SYSTEM MARKET, BY VEHICLE TYPE**

### **8.1 INTRODUCTION**

#### **8.1.1 INDUSTRY INSIGHTS**

FIGURE 38 AUTOMOTIVE BRAKE SYSTEM MARKET, BY VEHICLE TYPE, 2023 VS. 2028 (USD MILLION)

TABLE 62 AUTOMOTIVE BRAKE SYSTEM MARKET, BY VEHICLE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 63 AUTOMOTIVE BRAKE SYSTEM MARKET, BY VEHICLE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 64 AUTOMOTIVE BRAKE SYSTEM MARKET, BY VEHICLE TYPE, 2018–2022 (USD MILLION)

TABLE 65 AUTOMOTIVE BRAKE SYSTEM MARKET, BY VEHICLE TYPE, 2023–2028 (USD MILLION)

### **8.2 PASSENGER CARS**

#### **8.2.1 STRINGENCY OF SAFETY STANDARDS TO DRIVE MARKET**

TABLE 66 PASSENGER CARS BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 67 PASSENGER CARS BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 68 PASSENGER CARS BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 69 PASSENGER CARS BRAKE SYSTEM MARKET, 2023–2028 (USD MILLION)

### **8.3 LIGHT COMMERCIAL VEHICLES**

8.3.1 GROWING DEMAND FOR ADVANCED BRAKING SYSTEMS TO DRIVE MARKET

TABLE 70 LIGHT COMMERCIAL VEHICLES BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 71 LIGHT COMMERCIAL VEHICLES BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 72 LIGHT COMMERCIAL VEHICLES BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 73 LIGHT COMMERCIAL VEHICLES BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

### **8.4 TRUCKS**

#### **8.4.1 INTRODUCTION OF ELECTRONIC BRAKE SYSTEMS TO DRIVE MARKET**

TABLE 74 TRUCKS BRAKE SYSTEM MARKET, BY REGION, 2018–2022  
(THOUSAND UNITS)

TABLE 75 TRUCKS BRAKE SYSTEM MARKET, BY REGION, 2023–2028  
(THOUSAND UNITS)

TABLE 76 TRUCKS BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD  
MILLION)

TABLE 77 TRUCKS BRAKE SYSTEM MARKET, 2023–2028 (USD MILLION)  
8.5 BUSES

8.5.1 INCREASING ADOPTION OF EFFICIENT BRAKE SYSTEMS TO DRIVE  
MARKET

TABLE 78 BUSES BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND  
UNITS)

TABLE 79 BUSES BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND  
UNITS)

TABLE 80 BUSES BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD  
MILLION)

TABLE 81 BUSES BRAKE SYSTEM MARKET, 2023–2028 (USD MILLION)

## **9 AUTOMOTIVE BRAKE SYSTEM MARKET, BY ACTUATION TYPE**

### **9.1 INTRODUCTION**

#### **9.1.1 INDUSTRY INSIGHTS**

FIGURE 39 AUTOMOTIVE BRAKE SYSTEM MARKET, BY ACTUATION TYPE, 2023  
VS. 2028 (USD MILLION)

TABLE 82 AUTOMOTIVE BRAKE SYSTEM MARKET, BY ACTUATION TYPE,  
2018–2022 (THOUSAND UNITS)

TABLE 83 AUTOMOTIVE BRAKE SYSTEM MARKET, BY ACTUATION TYPE,  
2023–2028 (THOUSAND UNITS)

TABLE 84 AUTOMOTIVE BRAKE SYSTEM MARKET, BY ACTUATION TYPE,  
2018–2022 (USD MILLION)

TABLE 85 AUTOMOTIVE BRAKE SYSTEM MARKET, BY ACTUATION TYPE,  
2023–2028 (USD MILLION)

### **9.2 HYDRAULIC**

#### **9.2.1 LIGHT CONSTRUCTION AND LOW OVERALL WEIGHT TO DRIVE DEMAND**

TABLE 86 HYDRAULIC BRAKE SYSTEM MARKET, BY REGION, 2018–2022  
(THOUSAND UNITS)

TABLE 87 HYDRAULIC BRAKE SYSTEM MARKET, BY REGION, 2023–2028  
(THOUSAND UNITS)

TABLE 88 HYDRAULIC BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD

MILLION)

TABLE 89 HYDRAULIC BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

### 9.3 PNEUMATIC

9.3.1 SAFETY REGULATIONS FOR HEAVY COMMERCIAL VEHICLES TO DRIVE DEMAND

TABLE 90 PNEUMATIC BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 91 PNEUMATIC BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 92 PNEUMATIC BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 93 PNEUMATIC BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

## 10 AUTOMOTIVE BRAKE SYSTEM MARKET, BY COMPONENT

### 10.1 INTRODUCTION

#### 10.1.1 INDUSTRY INSIGHTS

FIGURE 40 AUTOMOTIVE BRAKE SYSTEM MARKET, BY COMPONENT, 2023 VS. 2028 (USD MILLION)

TABLE 94 AUTOMOTIVE BRAKE SYSTEM MARKET, BY COMPONENT, 2018–2022 (THOUSAND UNITS)

TABLE 95 AUTOMOTIVE BRAKE SYSTEM MARKET, BY COMPONENT, 2023–2028 (THOUSAND UNITS)

TABLE 96 AUTOMOTIVE BRAKE SYSTEM MARKET, BY COMPONENT, 2018–2022 (USD MILLION)

TABLE 97 AUTOMOTIVE BRAKE SYSTEM MARKET, BY COMPONENT, 2023–2028 (USD MILLION)

### 10.2 MASTER CYLINDERS

10.2.1 INCORPORATION OF ELECTRONIC CONTROL IN BRAKE SYSTEMS TO DRIVE MARKET

TABLE 98 MASTER CYLINDERS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 99 MASTER CYLINDERS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 100 MASTER CYLINDERS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 101 MASTER CYLINDERS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY

## REGION, 2023–2028 (USD MILLION)

## 10.3 BRAKE PADS

## 10.3.1 RISING NUMBER OF PASSENGER VEHICLES WITH DISC BRAKE SYSTEMS TO DRIVE MARKET

TABLE 102 BRAKE PADS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 103 BRAKE PADS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 104 BRAKE PADS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 105 BRAKE PADS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

## 10.4 BRAKE SHOES

## 10.4.1 INCREASING ADOPTION OF BRAKE SHOES IN ECONOMY CARS AND HEAVY COMMERCIAL VEHICLES TO DRIVE MARKET

TABLE 106 BRAKE SHOES: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 107 BRAKE SHOES: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 108 BRAKE SHOES: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 109 BRAKE SHOES: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

## 10.5 BRAKE CALIPERS

## 10.5.1 DEVELOPMENT OF ELECTRONIC CALIPERS AND INCREASING USE OF LIGHTWEIGHT MATERIALS IN PASSENGER CARS TO DRIVE MARKET

TABLE 110 BRAKE CALIPERS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 111 BRAKE CALIPERS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 112 BRAKE CALIPERS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 113 BRAKE CALIPERS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

## 10.6 BRAKE DISC ROTORS

## 10.6.1 GROWING ADOPTION OF DISC BRAKE TECHNOLOGY IN COMMERCIAL VEHICLES TO DRIVE MARKET

TABLE 114 BRAKE DISC ROTORS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 115 BRAKE DISC ROTORS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 116 BRAKE DISC ROTORS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 117 BRAKE DISC ROTORS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

## **11 OFF-HIGHWAY BRAKE SYSTEM MARKET, BY APPLICATION**

### **11.1 INTRODUCTION**

#### **11.1.1 INDUSTRY INSIGHTS**

FIGURE 41 OFF-HIGHWAY BRAKE SYSTEM MARKET, BY APPLICATION, 2023 VS. 2028 (USD MILLION)

TABLE 118 OFF-HIGHWAY BRAKE SYSTEM MARKET, BY APPLICATION, 2018–2022 (THOUSAND UNITS)

TABLE 119 OFF-HIGHWAY BRAKE SYSTEM MARKET, BY APPLICATION, 2023–2028 (THOUSAND UNITS)

TABLE 120 OFF-HIGHWAY BRAKE SYSTEM MARKET, BY APPLICATION, 2018–2022 (USD MILLION)

TABLE 121 OFF-HIGHWAY BRAKE SYSTEM MARKET, BY APPLICATION, 2023–2028 (USD MILLION)

### **11.2 AGRICULTURAL TRACTORS**

11.2.1 GROWING DEMAND FOR HIGH-POWERED TRACTORS TO DRIVE MARKET

TABLE 122 AGRICULTURAL TRACTORS BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 123 AGRICULTURAL TRACTORS BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 124 AGRICULTURAL TRACTORS BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 125 AGRICULTURAL TRACTORS BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

### **11.3 CONSTRUCTION EQUIPMENT**

11.3.1 GROWING INFRASTRUCTURE/CONSTRUCTION PROJECTS BY GOVERNMENTS TO DRIVE MARKET

TABLE 126 CONSTRUCTION EQUIPMENT BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 127 CONSTRUCTION EQUIPMENT BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)



TABLE 128 CONSTRUCTION EQUIPMENT BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 129 CONSTRUCTION EQUIPMENT BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

#### 11.4 MINING EQUIPMENT

11.4.1 GROWING MINING ACTIVITIES AND ENHANCED FOCUS ON MINING EQUIPMENT SAFETY TO DRIVE MARKET

TABLE 130 MINING EQUIPMENT BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 131 MINING EQUIPMENT BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 132 MINING EQUIPMENT BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 133 MINING EQUIPMENT BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

## 12 OFF-HIGHWAY BRAKE SYSTEM MARKET, BY BRAKE TYPE

### 12.1 INTRODUCTION

#### 12.1.1 INDUSTRY INSIGHTS

FIGURE 42 OFF-HIGHWAY BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023 VS. 2028 (USD MILLION)

TABLE 134 OFF-HIGHWAY BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 135 OFF-HIGHWAY BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 136 OFF-HIGHWAY BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 137 OFF-HIGHWAY BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

### 12.2 HYDROSTATIC BRAKES

12.2.1 INCREASING DEPLOYMENT OF MINING EQUIPMENT WITH HYDROSTATIC BRAKING TO DRIVE MARKET

TABLE 138 OFF-HIGHWAY HYDROSTATIC BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 139 OFF-HIGHWAY HYDROSTATIC BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 140 OFF-HIGHWAY HYDROSTATIC BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 141 OFF-HIGHWAY HYDROSTATIC BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

### 12.3 HYDRAULIC WET BRAKES

12.3.1 STRINGENCY IN SAFETY REGULATIONS FOR HEAVY COMMERCIAL VEHICLES TO DRIVE MARKET

TABLE 142 OFF-HIGHWAY HYDRAULIC WET BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 143 OFF-HIGHWAY HYDRAULIC WET BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 144 OFF-HIGHWAY HYDRAULIC WET BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 145 OFF-HIGHWAY HYDRAULIC WET BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

### 12.4 DYNAMIC BRAKES

12.4.1 GROWING REGULATIONS ON BRAKE PERFORMANCE AND STOPPING DISTANCES TO DRIVE MARKET

TABLE 146 OFF-HIGHWAY DYNAMIC BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 147 OFF-HIGHWAY DYNAMIC BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 148 OFF-HIGHWAY DYNAMIC BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 149 OFF-HIGHWAY DYNAMIC BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

### 12.5 OTHERS

TABLE 150 OFF-HIGHWAY OTHER BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 151 OFF-HIGHWAY OTHER BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 152 OFF-HIGHWAY OTHER BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 153 OFF-HIGHWAY OTHER BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

## 13 REGENERATIVE BRAKE SYSTEM MARKET, BY ELECTRIC VEHICLE TYPE

### 13.1 INTRODUCTION

#### 13.1.1 INDUSTRY INSIGHTS

FIGURE 43 REGENERATIVE BRAKE SYSTEM MARKET, BY ELECTRIC VEHICLE

TYPE, 2023 VS. 2028 (USD MILLION)

TABLE 154 REGENERATIVE BRAKE SYSTEM MARKET, BY ELECTRIC VEHICLE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 155 REGENERATIVE BRAKE SYSTEM MARKET, BY ELECTRIC VEHICLE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 156 REGENERATIVE BRAKE SYSTEM MARKET, BY ELECTRIC VEHICLE TYPE, 2018–2022 (USD MILLION)

TABLE 157 REGENERATIVE BRAKE SYSTEM MARKET, BY ELECTRIC VEHICLE TYPE, 2023–2028 (USD MILLION)

### 13.2 BATTERY ELECTRIC VEHICLES (BEVS)

13.2.1 ATTRACTIVE GOVERNMENT INITIATIVES AND STRINGENT EMISSION STANDARDS TO DRIVE MARKET

TABLE 158 BATTERY ELECTRIC VEHICLES: REGENERATIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 159 BATTERY ELECTRIC VEHICLES: REGENERATIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 160 BATTERY ELECTRIC VEHICLES: REGENERATIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 161 BATTERY ELECTRIC VEHICLES: REGENERATIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

### 13.3 PLUG-IN HYBRID ELECTRIC VEHICLES (PHEVS)

13.3.1 GROWING PHEV SALES DUE TO STRINGENT EMISSION STANDARDS TO DRIVE MARKET

TABLE 162 PLUG-IN HYBRID ELECTRIC VEHICLES: REGENERATIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (THOUSAND UNITS)

TABLE 163 PLUG-IN HYBRID ELECTRIC VEHICLES: REGENERATIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (THOUSAND UNITS)

TABLE 164 PLUG-IN HYBRID ELECTRIC VEHICLES: REGENERATIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD MILLION)

TABLE 165 PLUG-IN HYBRID ELECTRIC VEHICLES: REGENERATIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD MILLION)

## 14 ALL-TERRAIN VEHICLE BRAKE SYSTEM MARKET, BY REGION

### 14.1 INTRODUCTION

#### 14.1.1 INDUSTRY INSIGHTS

FIGURE 44 ALL-TERRAIN VEHICLE BRAKE SYSTEM MARKET, BY REGION, 2023 VS. 2028 (USD MILLION)

TABLE 166 ALL-TERRAIN VEHICLE BRAKE SYSTEM MARKET, BY REGION,

2018–2022 (THOUSAND UNITS)

TABLE 167 ALL-TERRAIN VEHICLE BRAKE SYSTEM MARKET, BY REGION,  
2023–2028 (THOUSAND UNITS)

TABLE 168 ALL-TERRAIN VEHICLE BRAKE SYSTEM MARKET, BY REGION,  
2018–2022 (USD MILLION)

TABLE 169 ALL-TERRAIN VEHICLE BRAKE SYSTEM MARKET, BY REGION,  
2023–2028 (USD MILLION)

## **15 AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION**

### **15.1 INTRODUCTION**

#### **15.1.1 INDUSTRY INSIGHTS**

FIGURE 45 AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2022 VS. 2028  
(USD MILLION)

TABLE 170 AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022  
(THOUSAND UNITS)

TABLE 171 AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028  
(THOUSAND UNITS)

TABLE 172 AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2018–2022 (USD  
MILLION)

TABLE 173 AUTOMOTIVE BRAKE SYSTEM MARKET, BY REGION, 2023–2028 (USD  
MILLION)

### **15.2 ASIA PACIFIC**

#### **15.2.1 RECESSION IMPACT**

FIGURE 46 ASIA PACIFIC: AUTOMOTIVE BRAKE SYSTEM MARKET SNAPSHOT

TABLE 174 ASIA PACIFIC: AUTOMOTIVE BRAKE SYSTEM MARKET, BY COUNTRY,  
2018–2022 (THOUSAND UNITS)

TABLE 175 ASIA PACIFIC: AUTOMOTIVE BRAKE SYSTEM MARKET, BY COUNTRY,  
2023–2028 (THOUSAND UNITS)

TABLE 176 ASIA PACIFIC: AUTOMOTIVE BRAKE SYSTEM MARKET, BY COUNTRY,  
2018–2022 (USD MILLION)

TABLE 177 ASIA PACIFIC: AUTOMOTIVE BRAKE SYSTEM MARKET, BY COUNTRY,  
2023–2028 (USD MILLION)

#### **15.2.2 CHINA**

##### **15.2.2.1 Growing vehicle production to drive market**

TABLE 178 CHINA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2018–2022 (THOUSAND UNITS)

TABLE 179 CHINA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2023–2028 (THOUSAND UNITS)

TABLE 180 CHINA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 181 CHINA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY VEHICLE TYPE, 2023–2028 (USD MILLION)

#### 15.2.3 INDIA

15.2.3.1 Stringency in safety standards to drive market

TABLE 182 INDIA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 183 INDIA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 184 INDIA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 185 INDIA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

#### 15.2.4 JAPAN

15.2.4.1 Rising penetration of automatic braking systems to drive market

TABLE 186 JAPAN: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 187 JAPAN: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 188 JAPAN: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 189 JAPAN: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

#### 15.2.5 SOUTH KOREA

15.2.5.1 Government mandates for implementation of advanced brake systems to drive market

TABLE 190 SOUTH KOREA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 191 SOUTH KOREA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 192 SOUTH KOREA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 193 SOUTH KOREA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

#### 15.2.6 REST OF ASIA PACIFIC

TABLE 194 REST OF ASIA PACIFIC: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 195 REST OF ASIA PACIFIC: AUTOMOTIVE BRAKE SYSTEM MARKET, BY

BRAKE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 196 REST OF ASIA PACIFIC: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 197 REST OF ASIA PACIFIC: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

### 15.3 EUROPE

#### 15.3.1 RECESSION IMPACT

FIGURE 47 EUROPE: AUTOMOTIVE BRAKE SYSTEM MARKET, BY COUNTRY, 2023 VS. 2028

TABLE 198 EUROPE: AUTOMOTIVE BRAKE SYSTEM MARKET, BY COUNTRY, 2018–2022 (THOUSAND UNITS)

TABLE 199 EUROPE: AUTOMOTIVE BRAKE SYSTEM MARKET, BY COUNTRY, 2023–2028 (THOUSAND UNITS)

TABLE 200 EUROPE: AUTOMOTIVE BRAKE SYSTEM MARKET, BY COUNTRY, 2018–2022 (USD MILLION)

TABLE 201 EUROPE: AUTOMOTIVE BRAKE SYSTEM MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

#### 15.3.2 GERMANY

15.3.2.1 Implementation of advanced emergency braking systems as standard fitment to drive market

TABLE 202 GERMANY: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 203 GERMANY: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 204 GERMANY: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 205 GERMANY: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

#### 15.3.3 FRANCE

15.3.3.1 Increasing penetration of disc brakes to drive market

TABLE 206 FRANCE: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 207 FRANCE: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 208 FRANCE: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 209 FRANCE: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

#### 15.3.4 SPAIN



#### 15.3.4.1 Implementation of AEB in passenger cars to drive market

TABLE 210 SPAIN: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 211 SPAIN: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 212 SPAIN: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 213 SPAIN: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

#### 15.3.5 ITALY

##### 15.3.5.1 Regulations mandating AEB to drive market

TABLE 214 ITALY: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 215 ITALY: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 216 ITALY: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 217 ITALY: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

#### 15.3.6 UK

##### 15.3.6.1 Increasing adoption of ABS and ESC to drive market

TABLE 218 UK: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 219 UK: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 220 UK: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 221 UK: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

#### 15.3.7 REST OF EUROPE

TABLE 222 REST OF EUROPE: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 223 REST OF EUROPE: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 224 REST OF EUROPE: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 225 REST OF EUROPE: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

#### 15.4 NORTH AMERICA

#### 15.4.1 RECESSION IMPACT

##### FIGURE 48 NORTH AMERICA: AUTOMOTIVE BRAKE SYSTEM MARKET SNAPSHOT

TABLE 226 NORTH AMERICA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY  
COUNTRY, 2018–2022 (THOUSAND UNITS)

TABLE 227 NORTH AMERICA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY  
COUNTRY, 2023–2028 (THOUSAND UNITS)

TABLE 228 NORTH AMERICA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY  
COUNTRY, 2018–2022 (USD MILLION)

TABLE 229 NORTH AMERICA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY  
COUNTRY, 2023–2028 (USD MILLION)

#### 15.4.2 US

15.4.2.1 Regulations to reduce stopping distance in commercial vehicles to drive  
market

TABLE 230 US: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2018–2022 (THOUSAND UNITS)

TABLE 231 US: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2023–2028 (THOUSAND UNITS)

TABLE 232 US: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2018–2022 (USD MILLION)

TABLE 233 US: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2023–2028 (USD MILLION)

#### 15.4.3 CANADA

15.4.3.1 Mandatory features like ABS and ESC to drive market

TABLE 234 CANADA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2018–2022 (THOUSAND UNITS)

TABLE 235 CANADA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2023–2028 (THOUSAND UNITS)

TABLE 236 CANADA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2018–2022 (USD MILLION)

TABLE 237 CANADA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2023–2028 (USD MILLION)

#### 15.4.4 MEXICO

15.4.4.1 Free trade agreements promoting domestic production of brake system  
components to drive market

TABLE 238 MEXICO: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2018–2022 (THOUSAND UNITS)

TABLE 239 MEXICO: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2023–2028 (THOUSAND UNITS)

TABLE 240 MEXICO: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 241 MEXICO: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

## 15.5 REST OF THE WORLD

### 15.5.1 RECESSION IMPACT

FIGURE 49 REST OF THE WORLD: AUTOMOTIVE BRAKE SYSTEM MARKET, BY COUNTRY, 2023 VS. 2028 (USD MILLION)

TABLE 242 REST OF THE WORLD: AUTOMOTIVE BRAKE SYSTEM MARKET, BY COUNTRY, 2018–2022 (THOUSAND UNITS)

TABLE 243 REST OF THE WORLD: AUTOMOTIVE BRAKE SYSTEM MARKET, BY COUNTRY, 2023–2028 (THOUSAND UNITS)

TABLE 244 REST OF THE WORLD: AUTOMOTIVE BRAKE SYSTEM MARKET, BY COUNTRY, 2018–2022 (USD MILLION)

TABLE 245 REST OF THE WORLD: AUTOMOTIVE BRAKE SYSTEM MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

### 15.5.2 BRAZIL

15.5.2.1 Setting up of local plants for brake system components to drive market

TABLE 246 BRAZIL: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 247 BRAZIL: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 248 BRAZIL: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 249 BRAZIL: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

### 15.5.3 TURKEY

15.5.3.1 Low manufacturing and labor costs to drive market

TABLE 250 TURKEY: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (THOUSAND UNITS)

TABLE 251 TURKEY: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (THOUSAND UNITS)

TABLE 252 TURKEY: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2018–2022 (USD MILLION)

TABLE 253 TURKEY: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE, 2023–2028 (USD MILLION)

### 15.5.4 RUSSIA

15.5.4.1 Increasing adoption of disc brakes in LCVs to drive market

TABLE 254 RUSSIA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,

2018–2022 (THOUSAND UNITS)

TABLE 255 RUSSIA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2023–2028 (THOUSAND UNITS)

TABLE 256 RUSSIA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2018–2022 (USD MILLION)

TABLE 257 RUSSIA: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2023–2028 (USD MILLION)

#### 15.5.5 OTHERS

TABLE 258 OTHERS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2018–2022 (THOUSAND UNITS)

TABLE 259 OTHERS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2023–2028 (THOUSAND UNITS)

TABLE 260 OTHERS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2018–2022 (USD MILLION)

TABLE 261 OTHERS: AUTOMOTIVE BRAKE SYSTEM MARKET, BY BRAKE TYPE,  
2023–2028 (USD MILLION)

## 16 RECOMMENDATIONS BY MARKETSANDMARKETS

16.1 ASIA PACIFIC: POTENTIAL MARKET FOR AUTOMOTIVE BRAKE SYSTEMS

16.2 BRAKE SUPPLIERS SHOULD FOCUS ON DISC BRAKES

16.3 GROWING DEMAND FOR HYDRAULIC WET BRAKES IN AGRICULTURAL  
TRACTORS

16.4 CONCLUSION

## 17 COMPETITIVE LANDSCAPE

17.1 OVERVIEW

17.2 MARKET SHARE ANALYSIS, 2022

TABLE 262 AUTOMOTIVE BRAKE SYSTEM MARKET SHARE ANALYSIS OF  
LEADING PLAYERS, 2022

FIGURE 50 AUTOMOTIVE BRAKE SYSTEM MARKET SHARE ANALYSIS OF  
LEADING PLAYERS, 2022

#### 17.2.1 DISC BRAKE CALIPERS

TABLE 263 LIST OF DISC BRAKE CALIPER SUPPLIERS

TABLE 264 REGIONAL/COUNTRY WISE LIST OF TOP DISC BRAKE CALIPER  
SUPPLIERS

#### 17.2.2 DISC BRAKE PADS

TABLE 265 LIST OF DISC BRAKE PAD SUPPLIERS

TABLE 266 REGIONAL/COUNTRY WISE LIST OF TOP DISC BRAKE PAD SUPPLIERS

17.2.3 BRAKE MASTER CYLINDERS

TABLE 267 LIST OF BRAKE MASTER CYLINDER SUPPLIERS

TABLE 268 REGIONAL/COUNTRY WISE LIST OF TOP MASTER CYLINDER SUPPLIERS

17.3 REVENUE ANALYSIS OF TOP LISTED/PUBLIC PLAYERS

FIGURE 51 TOP PUBLIC/LISTED PLAYERS DOMINATING AUTOMOTIVE BRAKE SYSTEM MARKET DURING LAST 3 YEARS

17.4 COMPANY EVALUATION MATRIX: BRAKE SYSTEM MANUFACTURERS

17.4.1 STARS

17.4.2 EMERGING LEADERS

17.4.3 PERVASIVE PLAYERS

17.4.4 PARTICIPANTS

17.4.5 COMPANY FOOTPRINT

FIGURE 52 COMPETITIVE EVALUATION MATRIX: AUTOMOTIVE BRAKE SYSTEM MANUFACTURERS, 2022

TABLE 269 AUTOMOTIVE BRAKE SYSTEM MARKET: COMPANY PRODUCT FOOTPRINT, 2022

TABLE 270 BRAKE SYSTEM MARKET: COMPANY APPLICATION FOOTPRINT, 2022

TABLE 271 BRAKE SYSTEM MARKET: COMPANY REGION FOOTPRINT, 2022

17.5 COMPANY EVALUATION MATRIX: OFF-HIGHWAY BRAKE SYSTEM MANUFACTURERS

17.5.1 STARS

17.5.2 EMERGING LEADERS

17.5.3 PERVASIVE PLAYERS

17.5.4 PARTICIPANTS

17.5.5 COMPANY FOOTPRINT

TABLE 272 OFF-HIGHWAY BRAKE SYSTEM MARKET: COMPANY PRODUCT FOOTPRINT, 2022

TABLE 273 OFF-HIGHWAY BRAKE SYSTEM MARKET: COMPANY APPLICATION FOOTPRINT, 2022

TABLE 274 OFF-HIGHWAY BRAKE SYSTEM MARKET: COMPANY REGION FOOTPRINT, 2022

FIGURE 53 COMPETITIVE EVALUATION MATRIX: OFF-HIGHWAY BRAKE SYSTEM MANUFACTURERS, 2022

17.6 COMPETITIVE SCENARIO

17.6.1 PRODUCT LAUNCHES

TABLE 275 PRODUCT LAUNCHES, 2020–2023

### 17.6.2 DEALS

TABLE 276 DEALS, 2019–2023

### 17.6.3 OTHERS

TABLE 277 OTHERS, 2018–2023

### 17.7 KEY PLAYER STRATEGIES/RIGHT TO WIN, 2018–2022

TABLE 278 COMPANIES ADOPTED NEW PRODUCT DEVELOPMENTS AND EXPANSIONS AS KEY GROWTH STRATEGIES, 2018–2022

## 18 COMPANY PROFILES

(Business overview, Products offered, Recent developments & MnM View)\*

### 18.1 KEY PLAYERS

#### 18.1.1 CONTINENTAL AG

TABLE 279 CONTINENTAL AG: COMPANY OVERVIEW

FIGURE 54 CONTINENTAL AG: COMPANY SNAPSHOT

TABLE 280 CONTINENTAL AG: PRODUCTS OFFERED

TABLE 281 CONTINENTAL AG: PRODUCT LAUNCHES

TABLE 282 CONTINENTAL AG: DEALS

TABLE 283 CONTINENTAL AG: EXPANSIONS

#### 18.1.2 ROBERT BOSCH GMBH

TABLE 284 ROBERT BOSCH GMBH: COMPANY OVERVIEW

FIGURE 55 ROBERT BOSCH GMBH: COMPANY SNAPSHOT

TABLE 285 ROBERT BOSCH GMBH: PRODUCTS OFFERED

TABLE 286 ROBERT BOSCH GMBH: PRODUCT LAUNCHES

TABLE 287 ROBERT BOSCH GMBH: DEALS

TABLE 288 ROBERT BOSCH GMBH: EXPANSIONS

#### 18.1.3 ZF FRIEDRICHSHAFEN AG

TABLE 289 ZF FRIEDRICHSHAFEN AG: COMPANY OVERVIEW

FIGURE 56 ZF FRIEDRICHSHAFEN AG: COMPANY SNAPSHOT

TABLE 290 ZF FRIEDRICHSHAFEN AG: PRODUCTS OFFERED

TABLE 291 ZF FRIEDRICHSHAFEN AG: PRODUCT LAUNCHES

TABLE 292 ZF FRIEDRICHSHAFEN AG: DEALS

TABLE 293 ZF FRIEDRICHSHAFEN AG: EXPANSIONS

#### 18.1.4 AKEBONO BRAKE INDUSTRY CO., LTD.

TABLE 294 AKEBONO BRAKE INDUSTRY CO., LTD.: COMPANY OVERVIEW

FIGURE 57 AKEBONO BRAKE INDUSTRY CO., LTD.: COMPANY SNAPSHOT

TABLE 295 AKEBONO BRAKE INDUSTRY CO., LTD.: PRODUCT OFFERED

TABLE 296 AKEBONO BRAKE INDUSTRY CO., LTD.: PRODUCT LAUNCHES

#### 18.1.5 BREMBO S.P.A.



TABLE 297 BREMBO S.P.A.: COMPANY OVERVIEW

FIGURE 58 BREMBO S.P.A.: COMPANY SNAPSHOT

TABLE 298 BREMBO S.P.A.: PRODUCTS OFFERED

TABLE 299 BREMBO S.P.A.: PRODUCT LAUNCHES

TABLE 300 BREMBO S.P.A.: DEALS

TABLE 301 BREMBO S.P.A.: EXPANSIONS

#### 18.1.6 AISIN SEIKI CO., LTD.

TABLE 302 AISIN SEIKI CO., LTD.: COMPANY OVERVIEW

FIGURE 59 AISIN SEIKI CO., LTD.: COMPANY SNAPSHOT

TABLE 303 AISIN SEIKI CO., LTD.: PRODUCTS OFFERED

TABLE 304 AISIN SEIKI CO., LTD.: PRODUCT LAUNCHES

TABLE 305 AISIN SEIKI CO., LTD.: DEALS

#### 18.1.7 HITACHI ASTEMO LTD.

TABLE 306 HITACHI ASTEMO LTD.: COMPANY OVERVIEW

FIGURE 60 HITACHI ASTEMO LTD.: COMPANY SNAPSHOT

TABLE 307 HITACHI ASTEMO LTD.: PRODUCTS OFFERED

TABLE 308 HITACHI ASTEMO LTD.: DEALS

#### 18.1.8 KNORR-BREMSE AG

TABLE 309 KNORR-BREMSE AG: COMPANY OVERVIEW

FIGURE 61 KNORR-BREMSE AG: COMPANY SNAPSHOT

TABLE 310 KNORR-BREMSE AG: PRODUCTS OFFERED

TABLE 311 KNORR-BREMSE AG: PRODUCT LAUNCHES

TABLE 312 KNORR-BREMSE AG: DEALS

TABLE 313 KNORR-BREMSE AG: EXPANSIONS

#### 18.1.9 HALDEX AB

TABLE 314 HALDEX AB: COMPANY OVERVIEW

FIGURE 62 HALDEX AB: COMPANY SNAPSHOT

TABLE 315 HALDEX AB: PRODUCTS OFFERED

TABLE 316 HALDEX AB: PRODUCT LAUNCHES

TABLE 317 HALDEX AB: DEALS

#### 18.1.10 DENSO CORPORATION

TABLE 318 DENSO CORPORATION: COMPANY OVERVIEW

FIGURE 63 DENSO CORPORATION: COMPANY SNAPSHOT

TABLE 319 DENSO CORPORATION: PRODUCTS OFFERED

\*Details on Business overview, Products offered, Recent developments & MnM View might not be captured in case of unlisted companies.

### 18.2 OTHER PLAYERS

#### 18.2.1 MANDO CORPORATION

TABLE 320 MANDO CORPORATION: COMPANY OVERVIEW

**18.2.2 HYUNDAI MOBIS CO., LTD.**

TABLE 321 HYUNDAI MOBIS CO., LTD.: COMPANY OVERVIEW

**18.2.3 WUHAN YOUFIN AUTO PARTS CO., LTD.**

TABLE 322 WUHAN YOUFIN AUTO PARTS CO., LTD.: COMPANY OVERVIEW

**18.2.4 BETHEL AUTOMOTIVE SAFETY SYSTEM CO., LTD. (WBTL)**

TABLE 323 BETHEL AUTOMOTIVE SAFETY SYSTEM CO., LTD. (WBTL): COMPANY OVERVIEW

**18.2.5 BERINGER**

TABLE 324 BERINGER: COMPANY OVERVIEW

**18.2.6 EBC BRAKES**

TABLE 325 EBC BRAKES: COMPANY OVERVIEW

**18.2.7 NIFO SRL**

TABLE 326 NIFO SRL: COMPANY OVERVIEW

**18.2.8 BWI GROUP**

TABLE 327 BWI GROUP: COMPANY OVERVIEW

**18.2.9 MERITOR, INC.**

TABLE 328 MERITOR, INC.: COMPANY OVERVIEW

**18.2.10 BRAKE PARTS INC. LLC**

TABLE 329 BRAKE PARTS INC. LLC: COMPANY OVERVIEW

**18.2.11 BLUDOT MANUFACTURING**

TABLE 330 BLUDOT MANUFACTURING: COMPANY OVERVIEW

**18.2.12 SILVERBACKHD**

TABLE 331 SILVERBACKHD: COMPANY OVERVIEW

**18.2.13 METELLI S.P.A.**

TABLE 332 METELLI S.P.A.: COMPANY OVERVIEW

**18.2.14 ADVICS CO., LTD.**

TABLE 333 ADVICS CO., LTD.: COMPANY OVERVIEW

**18.2.15 KNOTT BRAKES**

TABLE 334 KNOTT BRAKES: COMPANY OVERVIEW

**18.2.16 CARLISLE BRAKE & FRICTION**

TABLE 335 CARLISLE BRAKE &amp; FRICTION: COMPANY OVERVIEW

**19 APPENDIX****19.1 INSIGHTS FROM INDUSTRY EXPERTS****19.2 DISCUSSION GUIDE**

TABLE 336 OTHER DEVELOPMENTS: PRODUCT LAUNCHES, 2018–2021

TABLE 337 OTHER DEVELOPMENTS: DEALS, 2018–2021

**19.3 KNOWLEDGESTORE: MARKETSANDMARKETS' SUBSCRIPTION PORTAL**

## 19.4 CUSTOMIZATION OPTIONS

### 19.4.1 ALL-TERRAIN VEHICLE BRAKE SYSTEM MARKET, BY BRAKE TYPE

#### 19.4.1.1 Disc Brakes

#### 19.4.1.2 Drum Brakes

### 19.4.2 AUTOMOTIVE HYDRAULIC DISC BRAKE SYSTEM MARKET, BY REGION

#### 19.4.2.1 Asia Pacific

#### 19.4.2.2 Europe

#### 19.4.2.3 North America

#### 19.4.2.4 Rest of the World

### 19.4.3 HYDRAULIC DRUM BRAKE SYSTEM MARKET, BY REGION

#### 19.4.3.1 Asia Pacific

#### 19.4.3.2 Europe

#### 19.4.3.3 North America

#### 19.4.3.4 Rest of the World

### 19.4.4 PNEUMATIC DRUM BRAKE SYSTEM MARKET, BY REGION

#### 19.4.4.1 Asia Pacific

#### 19.4.4.2 Europe

#### 19.4.4.3 North America

#### 19.4.4.4 Rest of the World

### 19.4.5 PNEUMATIC DISC BRAKE SYSTEM MARKET, BY REGION

#### 19.4.5.1 Asia Pacific

#### 19.4.5.2 Europe

#### 19.4.5.3 North America

#### 19.4.5.4 Rest of the World

## 19.5 RELATED REPORTS

## 19.6 AUTHOR DETAILS

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