

CONNECTED

Facts and Figures 2016

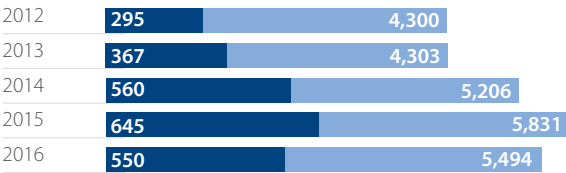
KNORR-BREMSE



At a glance

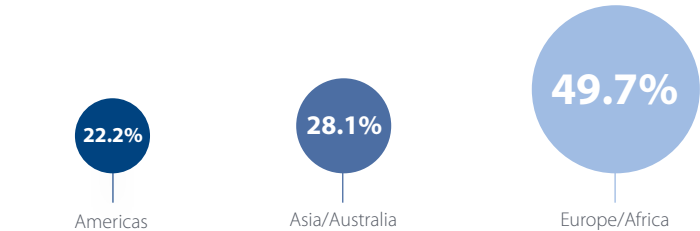
KNORR-BREMSE GROUP		2012	2013	2014	2015	2016
Sales	EUR millions	4,300	4,303	5,206	5,831	5,494
Net income	EUR millions	295	367	560	645	550
Workforce (as per Dec. 31)*	Number	19,120	20,833	23,916	24,275	24,565
HR expenditure	EUR millions	861	907	1,038	1,213	1,197
Balance sheet total	EUR millions	2,615	2,869	3,543	4,002	4,604
Equity capital	EUR millions	995	1,107	1,443	1,736	1,819
Investment (without financial assets)	EUR millions	166	159	161	210	195
Depreciation (without financial assets)	EUR millions	160	125	169	199	179
Incoming orders	EUR millions	3,948	4,752	5,510	5,668	5,723
R&D expenditure	EUR millions	250	253	296	347	328

*incl. HR leasing



Sales and net income for Knorr-Bremse Group in EUR millions

■ Sales ■ Net income



Group sales by region

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Company profile

Knorr-Bremse's daily mission is to make mobility safer.

Knorr-Bremse is the leading manufacturer of braking systems and supplier of additional sub-systems for rail and commercial vehicles, with sales totaling approximately EUR 5.5 billion in 2016. Some 25,000 employees develop, manufacture, and service braking, entrance, control and energy supply systems, HVAC systems, driver assistance systems, and control technology, as well as power-train-related solutions.

Ever since 1905 the Company has been pioneering new technologies that make a crucial contribution to improving road and rail safety. Every day, more than a billion people around the world put their trust in systems made by Knorr-Bremse. The Company is renowned for products and services characterized by their safety, quality, reliability, customer benefits, and efficient use of resources.

The Executive Board of Knorr-Bremse AG



Dr. Lorenz Zwingmann

Member of the Executive Board since 2008, responsible for Finance, Controlling, and IT.



Klaus Deller

Member of the Executive Board since 2009, Chairman of the Executive Board since January 1, 2015, since July 1, 2016 also responsible for the Rail Vehicle Systems division.



Dr. Peter Laier

Member of the Executive Board since January 1, 2016, responsible for the Commercial Vehicle Systems division.

Connected.

Knorr-Bremse's success is based on a strategy of expanding our systems competence where this makes sense: The Company links together products to form integrated solutions that offer our customers significant efficiency advantages for purchasing, operation, and maintenance. By networking the skills of more than 25,000 people at some 100 sites around the world, we develop individualized solutions that meet a wide variety of different customer requirements.

We use digitalized industrial value creation to continuously improve the efficiency of our production processes. And we link many aspects of environmental and social commitment into a coherent agenda that enables us to realize our corporate responsibilities.

We also develop new business models in response to the increasingly individualized requirements of a digitalized and mobile world. This lays the foundation for the long-term success and future viability of the Company. A single word sums up our way of thinking and acting: 'Connected.'



The Supervisory Board of Knorr-Bremse AG



① Werner Ratzisberger*

Project engineer,
Knorr-Bremse Systeme für
Nutzfahrzeuge GmbH,
Munich

② Erich Starkl*

Second Authorized
Representative of the
IG Metall Trade Union,
Passau Office,
Passau

③ Wolfgang Tölsner

Corporate consultant,
Uetersen

⑦ Julia Thiele-Schürhoff

Member of the
Supervisory Board
since March 11, 2016,
Chair of the Executive
Board of Knorr-Bremse
Global Care e.V.,
Munich

⑧ Hans-Georg Härter

Chairman of the
Supervisory Board since
July 5, 2016. Former
Chairman of the
Executive Board of
ZF Friedrichshafen AG,
Salzweg

⑨ Franz-Josef Birkeneder*

First Deputy Chairman of
the Supervisory Board
since March 11, 2016,
Plant Manager
Knorr-Bremse, Aldersbach

④ Günter Wiese*

Chairman of the Works
Council, Knorr-Bremse
Systeme für Schienen-
fahrzeuge GmbH,
Berlin

⑤ Michael Jell*

Deputy Chairman
of the Works Council,
Knorr-Bremse Systeme für
Schienenfahrzeuge GmbH,
Knorr-Bremse AG,
KB Media GmbH,
Knorr-Bremse
IT Services GmbH,
Munich

⑥ Georg Weiberg

Retired Head of
Development, Daimler
Trucks, Stuttgart

⑩ Dr. Wolfram Mörsdorf

Retired Member of the
Executive Board of
ThyssenKrupp AG,
Essen

⑪ Sebastian Roloff*

Lawyer at IG Metall Trade
Union,
Munich office

* Employee representative.

Kiepe
Electric

KIEPEELECTRIC



Traction converter for light rail vehicles

Kiepe Electric (formerly Vossloh Kiepe) has more than a hundred years of experience with electrical systems for rail vehicles. With its acquisition of the company in January 2017, Knorr-Bremse has added modern drive technologies to its product portfolio.

Gearbox actuator for dual clutch transmission



TRS

TRS is a Japanese specialist in systems for assisting truck drivers in gear-shifting and clutch operation – for example in vehicles with automated manual transmissions (AMTs) and dual clutch transmissions.

STEERINGSYSTEMS

Steering
Systems

Knorr-Bremse SteeringSystems (formerly tedrive Steering Systems) develops hydraulic steering systems for trucks and light commercial vehicles. Acquisition of the company has enabled Knorr-Bremse to enter the steering system business.



iHSA module

Connected growth

2016 saw Knorr-Bremse launch – and in most cases successfully complete – seven takeover bids. The new acquisitions fit the Company's strategy of offering customers networked system solutions from a single source that enable them to meet today's and tomorrow's challenges. In this way they strengthen Knorr-Bremse's future viability.

COSID
Rail
Friction

COSID pad for rail vehicles



With the acquisition of the rail activities of TMD Friction, Knorr-Bremse added so called K blocks for freight cars and other well-known COSID organic friction materials to its portfolio.



Icer
Rail

Brake pad pioneer



Knorr-Bremse has been a partner in the joint venture Icer Rail in Pamplona, Spain since 2010. The company has successfully produced organic brake pads and blocks as well as sinter elements for brake pads on high-speed trains. In 2016 Knorr-Bremse increased its share of the company to 100%.

Exhaust brake



With a workforce of 250, GT Group, based in Peterlee, UK, is one of the European market leaders in exhaust recirculation valves and exhaust brakes.

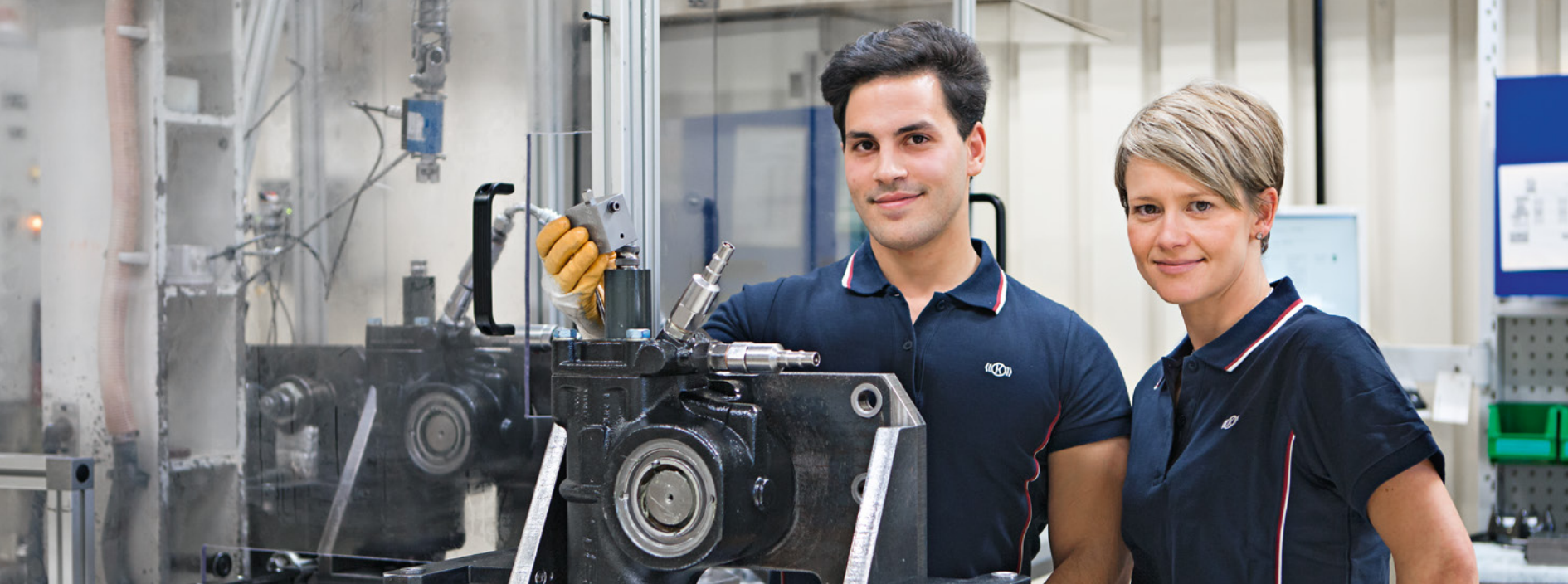
Haldex

Brake adjuster



Together with listed Swedish automotive supplier Haldex, Knorr-Bremse aims to expand its product portfolio in the trailer braking and pneumatic suspension systems segment and drive forward the development of system solutions for automated tractor/trailer combinations.

GT
Group



Sustainable prospects

Knorr-Bremse creates an attractive working environment in which trust, teamwork, diversity, equality of opportunity, and mutual respect are valued and practiced. The basis for this is provided by the corporate values: entrepreneurship, technological excellence, reliability, passion, and responsibility.

Knorr-Bremse is an attractive employer. At our sites around the world we offer young people opportunities to undergo training in a variety of technical and commercial occupations. Amongst the most popular of these are industrial technology, machining technology, electronics, mechatronics, and IT. Depending on the sites where they are employed, staff are also offered a range of voluntary extra benefits such as meal allowances, subsidized travel, and sport and health provisions. Within the framework of what is locally feasible, Knorr-Bremse also offers voluntary contributions to a company pension. As a global market leader, Knorr-Bremse can only succeed if it attracts the best talents and experts in the sector. It already has – and is constantly seeking – high-performing, hard-working

employees who are willing and able to support its success. When such specialists join Knorr-Bremse they are faced with fascinating technologies, state-of-the-art workplaces, a flexible working environment, and exciting opportunities to forge a career at home or abroad.

Knorr-Bremse deliberately offers employees a variety of programs and measures designed to help them reconcile the demands of work and family. Whether one is talking about highly-qualified women wishing to stay at work after having children, fathers wanting to play a bigger part in bringing up their offspring, or families with sick dependents temporarily requiring extra care: Knorr-Bremse responds to the needs of its employees, offering them, amongst

other things, flexible working time models and teleworking. At the end of 2016, the Knorr-Bremse Group had a glo-

bal workforce of 24,565 (22,221 excl. HR leasing). This represented a year-on-year increase of 1.2% (excl. HR leasing, 2.0%).



Number of employees on Dec. 31, 2016

18.0%

Americas

24.8%

Asia/Australia

57.2%

Europe/Africa

Distribution of employees by region on Dec. 31, 2016



Investment and innovation

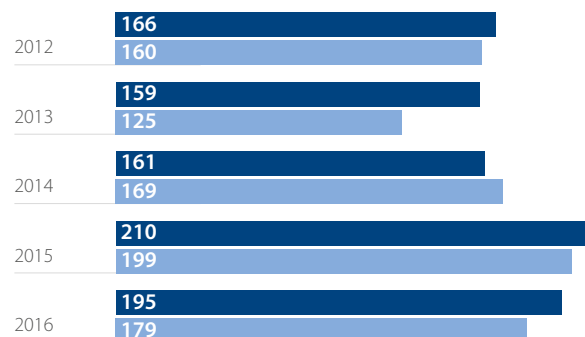
Knorr-Bremse makes responsible use of resources, constantly endeavors to reduce CO₂ emissions, and minimizes – where possible completely avoiding – undesirable impacts on nature.

Knorr-Bremse does not leave the sustainability of its innovations up to chance – it systematically integrates it into the product creation process, from the initial vision right through to product development, manufacture, and marketing. Ideas for new products are assessed using a score card with sustainability criteria such as energy efficiency, emissions reduction, safety, materials, life cycle costs, and ease of maintenance. The outcome of this process is a product innovation that serves the requirements of customers and markets, and at the same time offers substantial advantages in terms of sustainability. With research and development investment amounting to EUR 328 million in 2016, Knorr-Bremse

ensured the long-term future of its innovative capabilities. This is reflected in the Company's extensive portfolio of patents, with a current total of some 8,400 registered designs worldwide. As of December 31, 2016 the Company employed more than 3,200 people in the field of R&D. The main focus of investment was on expanding the Budapest plant, acquiring machines and equipment for the introduction of new generations of products, establishment of the new facility for the Company's French rail subsidiary in Tinquieux, near Reims, equipping the new Development Center in Munich, and replacement investment worldwide.



R&D expenditure in EUR millions



Investments and depreciation in EUR millions

■ Investments ■ Depreciation



Rail Vehicle Systems

Knorr-Bremse is the leading manufacturer of braking systems for local and long-distance trains. The Company's systems are used for high-speed trains, multiple units, metros, light rail vehicles, locomotives, and freight cars. At the end of 2016, the Rail Vehicle Systems division employed 14,440 people and generated sales of EUR 2.99 billion.

All over the world, Knorr-Bremse systems ensure greater safety and comfort for rail transportation. They are, for example, capable of withstanding extreme temperatures ranging from -50 °C to +80 °C. In addition to braking systems, Knorr-Bremse's portfolio covers train entrance systems from IFE, platform doors from Westinghouse Platform Screen Doors, HVAC systems from Merak, and drive simulators from Sydac.

The list also includes brake pads, modern drive technologies, and electrical systems from Kiepe Electric, and is rounded off by the iCOM family (with monitoring, driver assistance systems, and energy metering) as well as energy supply systems,

sanding units, and additional equipment such as derailment detectors. Increased competition, pressure on prices, and passengers' growing expectations regarding modernity and comfort are changes that are increasingly having an impact on the maintenance, repair, and overhaul of rail vehicles. Knorr-Bremse has bundled its global service activities under the RailServices brand in order to be able to offer a customized service package to meet all requirements.

Products and services

BRAKING SYSTEMS

- Air supply
- Bogie equipment
- Brake control

RAILSERVICES

- Maintenance
- On-site service
- Customer training
- Modernization and engineering
- Spare parts and logistics

ONBOARD SYSTEMS

- Entrance systems
- HVAC systems
- Power electronics
- Power supply systems
- Train control management system
- iCOM family

OFFBOARD SYSTEMS

- Platform screen doors
- Drive simulators
- Signaling systems for grade crossings



Global sales in Rail Vehicle Systems division in EUR millions



Commercial Vehicle Systems

Knorr-Bremse supplies braking systems for trucks, buses, trailers, and agricultural vehicles, and is a market leader for electronic brake control and driver assistance systems. Other product areas are steering, and powertrain-related systems. In 2016, the division employed 9,674 people and generated sales of EUR 2.52 billion.

Knorr-Bremse has a reputation for pioneering solutions aimed at ensuring the safety and efficiency of commercial vehicle systems – today and tomorrow – in an increasingly mobile society. The Company contributes in particular to paving the way for automated driving, reducing the volume of resources required for manufacturing processes, and continuously improving the components used. Reducing weight, cutting consumption, and at the same time ensuring a longer service life for its products are some of the ways Knorr-Bremse ensures the sustainability and economy of its innovative solutions. But the focus is also on developing low-emission

traction systems, e.g. through electrification. Knorr-Bremse has successfully established itself in the market with safety-critical systems such as brake control, stability regulation, and driver assistance systems. And it continues to increase its competence in the commercial vehicle sector, with a new offer of steering systems and automated driving functions as well as an extended engine air management portfolio.

Knorr-Bremse has bundled its aftermarket services under the new TruckServices brand name. It also cooperates with Bosch and ZF in operating the Alltrucks full-service workshop system.

Products and services

BRAKING SYSTEMS

- Electronic brake control
- Air treatment
- Disc brakes
- Drum brakes
- Actuators
- Valves
- Brake adjusters
- Driver assistance systems
- Compressors

STEERING SYSTEMS

- Hydraulic steering systems
- Electronic control modules

POWERTRAIN SYSTEMS

- Automated transmission management
- Clutch actuators
- Torsional vibration dampers
- Engine air control valves

CHASSIS SYSTEMS

- Air treatment
- Electronic pneumatic suspension

TRUCKSERVICES

- Technical training
- Technical hotline
- Technical documentation
- Electronic product catalogue
- Diagnostic system
- Current value related service solutions



Global sales in Commercial Vehicle Systems division in EUR millions



Responsibility

Knorr-Bremse involves itself in social issues and is engaged worldwide as a good corporate citizen.

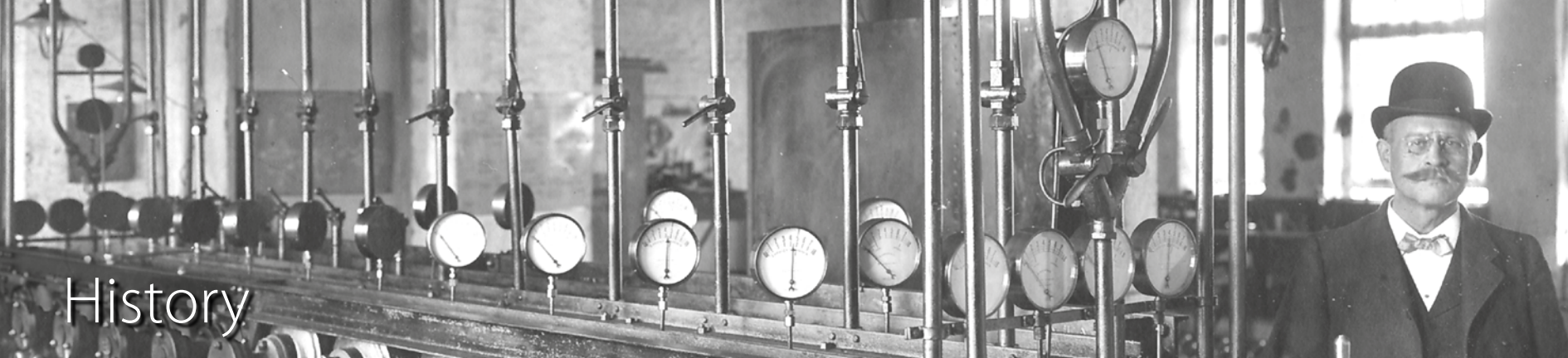
'Responsibility' is a Knorr-Bremse corporate value and one that the Company lives by on a daily basis – not only through its products, which make global mobility safer, and through its climate-friendly, resource-efficient production methods, but also through its active involvement in community affairs. Taking part in the life of the community, having a positive impact in the areas around our sites, and playing a constructive role in shaping them are a key part of our identity.

Our social commitment covers both local and global issues. In 2016, Knorr-Bremse invested a total of around EUR 2.9 million for these purposes.

Knorr-Bremse's social commitment is based on two pillars: Local Care and Global Care. Local Care covers all the local community activities at Knorr-Bremse

sites, whereas Knorr-Bremse Global Care is a charitable organization that promotes longer-term projects with bigger financial implications all over the world – both in countries with Knorr-Bremse sites and in developing countries. Both pillars offer our employees a wide range of opportunities to become involved in community projects in the area around their workplace.

A recent example of effective networking between Local Care and Knorr-Bremse Global Care was an aid project carried out by employees at Bendix Commercial Vehicle Systems in Acuña in Mexico. 80 employees from the site played an active role in implementing a project funded by Knorr-Bremse Global Care, spending four days building a house for a family that had been made homeless by a tornado in 2015.



History

1905

Georg Knorr founds Knorr-Bremse GmbH in Berlin.

1918 – 1926

Knorr-Bremse sets new technological standards for freight trains with its pneumatic brakes. Knorr-Bremse becomes Europe's biggest manufacturer of braking systems for rail vehicles.

1922

Development of the pneumatic braking system for commercial vehicles begins.

1931 – 1939

The Hildebrand-Knorr braking system for rail vehicles (HIK brake) sweeps the market and becomes the standard system in 17 different countries. By 1939, about 90% of all German trucks from 7 t – 16 t are equipped with Knorr-Bremse brakes.

1945

The Knorr-Bremse plant in Berlin is confiscated and dismantled at the end of the Second World War.

1945 – 1953

The development and manufacture of braking equipment resumes in the western part of Germany. Company headquarters move to Munich.

1960 – 1980

Knorr-Bremse plays a leading role in the development of braking technology for rail and commercial vehicles. Knorr-Bremse establishes the new UIC standard with its KE control valve.

1985

Step by step, Heinz Hermann Thiele becomes the sole owner of Knorr-Bremse. He focuses the Company on two divisions: Rail Vehicle Systems and Commercial Vehicle Systems, and launches the Company's international orientation.

1999

The commercial vehicle brakes division of Robert Bosch GmbH is integrated into Knorr-Bremse, complementing the Company's activities in the field of electronic brake control.

2002

In 2002 Knorr-Bremse acquires Bendix Commercial Vehicle Systems, one of the leading U.S. manufacturers of air brakes and ABS anti-lock braking systems for commercial vehicles.

2005

Knorr-Bremse celebrates its centenary. In response to the tsunami disaster in Southeast Asia, Knorr-Bremse sets up the charity Knorr-Bremse Global Care.

2010

Knorr-Bremse strengthens its HVAC systems business through the strategic acquisition of the Sigma Coachair Group. The Company opens new production plants in the Czech Republic and Hungary, using state-of-the-art production and logistics concepts. Knorr-Bremse signs up to the UN Global Compact and adopts a Group-wide Corporate Responsibility Strategy.

2011

30 years of ABS and 10 years of ESP – Knorr-Bremse celebrates two important anniversaries.

2012

Knorr-Bremse introduces new corporate values which describe what the Company is about: entrepreneurship, technological excellence, reliability, passion, and responsibility. Bendix celebrates 10 years of belonging to the Knorr-Bremse Group.

2013

The Knorr-Bremse Group continues its extensive program of investment in state-of-the-art production plant and buildings by opening six new facilities.

2014


The Company launches the new Knorr-Bremse PowerTech brand for power supply systems and also launches a truck joint venture in China with Dongfeng Motor Group Co., Ltd.

2015

With the integration of Selectron, Knorr-Bremse expands its expertise in train control management systems. The Company also celebrates its 110th birthday and the 10th anniversary of the founding of the charitable organization Knorr-Bremse Global Care e.V.

2016

Knorr-Bremse makes seven takeover bids with potential sales of EUR 1 billion in order to offer customers connected systems solutions.



Basic information on the Company's products and projects can be found in the Annual Report of Knorr-Bremse AG entitled 'Connected.'

In-depth information on the Company's sustainability management can be found in the Knorr-Bremse AG Communication on Progress Report entitled 'Responsible.'

Detailed information on the work of Knorr-Bremse Global Care e.V. can be found in the organization's annual report entitled 'Enable.'

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Knorr-Bremse Group