

SHAPING SUSTAINABILITY

United Nations Global Compact
Communication on Progress Report 2017

KNORR-BREMSE



Company Profile

► Knorr-Bremse is the leading manufacturer of braking systems and supplier of additional sub-systems for rail and commercial vehicles, with sales totaling over EUR 6 billion in 2017. In 30 countries, some 28,000 employees develop, manufacture, and service braking, entrance, control, and energy supply systems, HVAC and driver assistance systems, as well as steering systems, and powertrain and transmission control solutions. As a technology leader, through its products the company has been making a decisive contribution to greater safety by road and rail since 1905.



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Ladies and gentlemen,

At Knorr-Bremse, we strongly believe that sustainable corporate governance means behaving responsibly towards our customers, our employees and suppliers, the environment and society as a whole. That is why we systematically plan and implement programs to continuously improve our sustainability performance. Once again, we can be proud of the progress made during 2017. This year, our focus was on product innovation, purchasing, compliance and human resources.

As a company with a long tradition of market-leading products that include braking systems and other subsystems, we are extremely well placed to help make rail and road transportation safer and greener. Our preventive maintenance, fleet management and electric drive products lead the way in terms of sustainability. In the rail transportation sector, the iCOM intelligent diagnostics system monitors and analyzes vehicle subsystem data. The resulting knowledge can be used to optimize the systems' operation and maintenance and reduce overall operating costs. The Profleet Connect intelligent fleet management software supports cleaner and more cost-efficient truck freight transportation by continuously analyzing current vehicle data. It reduces costs, emissions and wear and tear by helping drivers to adopt a more fuel-efficient driving style and providing optimized route planning. With the recent integration of Kiepe Electric into the Group, we are also strongly placed in the field of e-mobility. Our portfolio now includes the development of complete electric drive systems for light rail vehicles, metros and regional trains, trolley buses and In Motion Charging (IMC) buses, which operate as battery-driven vehicles on route sections without overhead lines.

Knorr-Bremse integrates sustainability into every value stage of the product life cycle, from the initial vision and product development right through to remanufacturing of products. Since 2017, a cross-divisional eco-design working group has been helping to deliver these ambitious processes.

We have been working systematically towards a greater focus on sustainability in our purchasing processes. In keeping with this goal, in 2017 we developed and commenced the global rollout of a Supplier Code of Conduct. Knorr-Bremse also assessed the sustainability performance of 437 suppliers and had two independent sustainability audits carried out.

A further milestone in 2017 was the restructuring of our compliance organization. A compulsory e-learning module for all our employees was among the measures implemented. As well as expecting employees to behave with integrity and in a legally compliant manner, we also recognize that training and motivation are key drivers of success. Accordingly, targeted training and continuous professional development measures further develop employees' individual strengths. The annual global Knorr-Bremse Values Day aims to motivate employees and give them a chance to experience the personal satisfaction that comes from responsibility. In 2017, the corporate value of Passion found expression in the sharing of ground-breaking knowledge and a range of community activities.

Our corporate responsibility activities are consistent with the principles of the UN Global Compact, which we first signed up to in 2010. In this report you can read about how we are engaging in this area.

Klaus Deller, Chairman of the Executive Board of Knorr-Bremse AG

FIELD OF ACTION COMMUNICATION & COOPERATION



Knorr-Bremse endeavors to maintain an open and constructive dialogue with our various stakeholders, regularly providing them with transparent information on our performance in the field of sustainability.

SUSTAINABLE CORPORATE GOVERNANCE

VISION AND VALUES
CR STRATEGY AND ORGANIZATION
MATERIALITY ANALYSIS
INVOLVING STAKEHOLDERS
COMPLIANCE
RISK MANAGEMENT
HUMAN RIGHTS

SUSTAINABLE CORPORATE GOVERNANCE

Knorr-Bremse's approach to corporate responsibility is based on the principle of sustainable development and covers not just products and their manufacture but also employees, the environment, climate protection and a commitment to playing an active role in society.

VISION AND VALUES

Knorr-Bremse lives by the idea of sustainable, responsible corporate governance – a vision that sets our overarching aims. Our values provide the basis for our actions and describe who we are. Internal guidelines and standards spell out precisely how we should implement these values on a day-to-day basis.

Vision

As a global driver of innovative, sustainable systems designed to increase the reliability, safety and efficiency of mobility and transportation, we are motivated by a determination to create added value for our customers, while at the same time making a positive contribution towards society.

Corporate values

Entrepreneurship, Technological Excellence, Reliability, Passion and Responsibility are the company's five basic values that provide a foundation for responsible behavior by all our employees.

Principles and guidelines

Our internal guidelines provide a basis for the actions of all our employees and for every business area within the Company. They specify how our values should be applied on a day-to-day basis:

- Our CR guidelines define the principles and strategic aims for responsible action at Knorr-Bremse.
- Our Code of Conduct establishes our understanding of responsible behavior for all employees world-wide.

- Our Supplier Code of Conduct demonstrates our commitment to fair, sustainable business practices within our supply chain.
- Purchasing Quality Standards establish the requirements we make of our suppliers – including sustainability aspects.
- In our Health, Safety and Environmental policy we commit to high standards of performance.
- Our Leadership principles provide guidance for successful employee management and show what HR responsibility at Knorr-Bremse should look like in practice.
- The Principles for Social Commitment set out the framework for our social commitment at site level.

Our sustainable corporate governance is also based on international guidelines and conventions. External documents of importance for Knorr-Bremse include the Guiding Principles on Business and Human Rights of the UN Human Rights Council, the Charter on Sustainable Development of the International Association of Public Transport (UITP), and the UN Global Compact, which we signed up to in 2010.

KNORR-BREMSE DAY PASSION

Every year, Knorr-Bremse Day focuses on one of our corporate values. In June 2017, the value discussed by employees at all our sites was Passion. In team events, presentations, workshops and entertainment programs, they considered this value and its significance. Many sites honored outstanding achievements in this field by presenting the relevant colleagues with a Local Value Award.

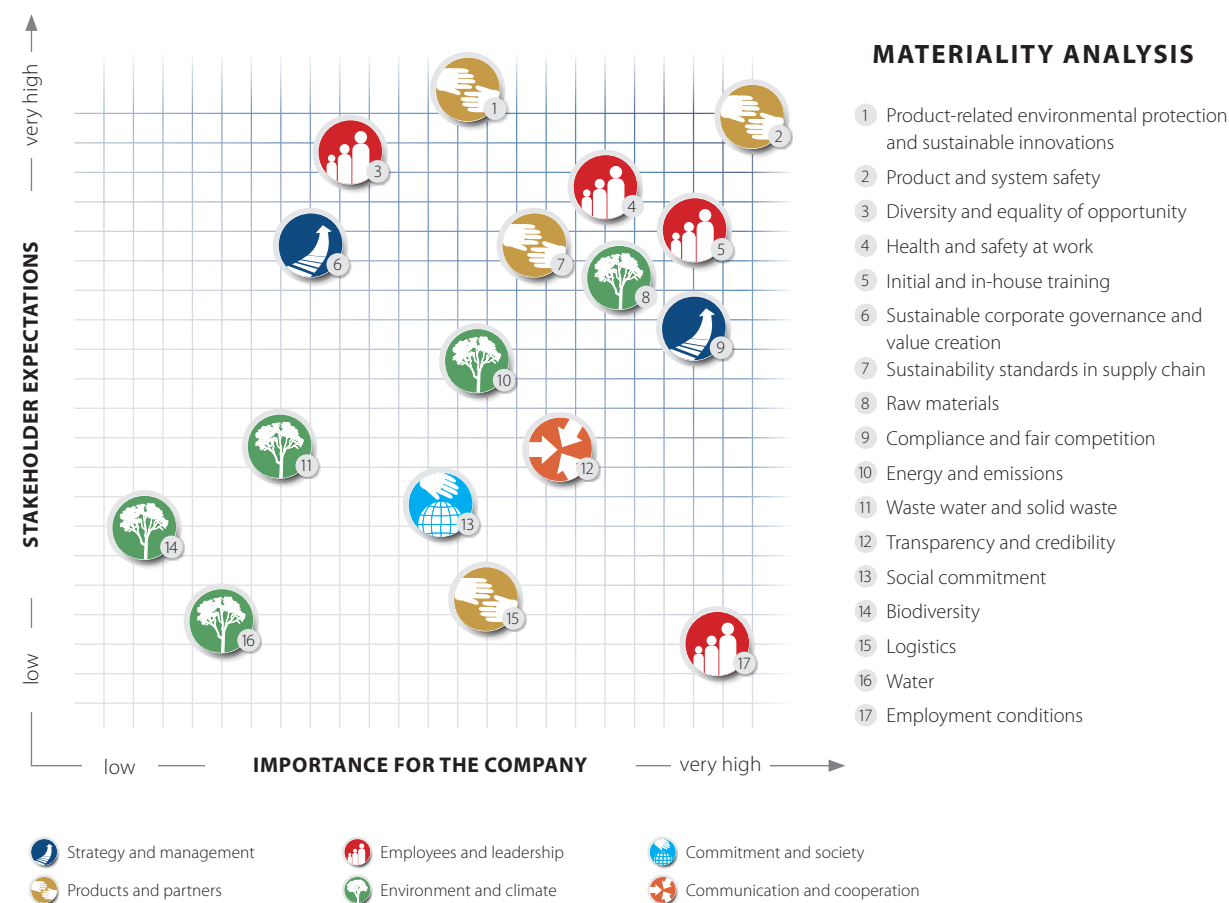
Day in, day out, system solutions from Knorr-Bremse make mobility safer all over the world.

The Corporate Responsibility department looks after the topic of sustainability and reports directly to the Executive Board. Goals and measures are discussed and decided by the Group's Corporate Responsibility Council (CR Council), which encompasses a member of the Executive Board, two representatives of top management from the two corporate divisions, the chair of the charitable association Knorr-Bremse Global Care, and the Head of Corporate Responsibility. CR projects from the various specialist departments are reported directly to the CR Council. This organizational structure ensures that the issue of sustainability is firmly established in the top decision-making bodies within the Group, and relevant issues related to day-to-day operations are incorporated into decision-making processes.

In September 2015, all member states of the United Nations agreed on the Agenda 2030, which essentially lays out 17 universally applicable sustainable development goals (SDGs) aimed at responding to global economic, social and ecological challenges. Knorr-Bremse supports the implementation of these SDGs and hopes to make a positive contribution towards achieving them with its sustainability-based corporate strategy. In 2017 we started to examine in greater detail the links between Knorr-Bremse's goals and the SDGs, the extent to which we are already contributing to them and the scope they offer for our corporate development. Global Knorr-Bremse Day (see p. 5) will focus in 2018 on the SDGs. At all our sites around the world we will be looking closely at our current and future impact on the SDGs.

As a supplier to the rail and truck industries, we receive enquiries from many of our customers about our sustainability performance. In the year under review, we once again took part in assessments on the basis both of standardized and individualized surveys, and succeeded in improving our performance in many different areas. 2017 also saw us participate in the CDP Supply Chain survey for the first time.

At the suggestion of one of our customers a sustainability audit was carried out at our facility in Aldersbach, Germany. Independent auditors examined its compliance with environmental, social and human rights standards and gave an extremely positive assessment, only noting minor deviations.



A materiality analysis prioritizes the topics on which the company can meet its responsibilities. The results of the analysis show – against a background of environmental and social challenges – what requirements are important both for the long-term economic success of Knorr-Bremse and also for the company's stakeholders. Of particular importance for the company are the areas of product-related environmental protection, compliance, product safety on rail and road, and supply chain sustainability.

Knorr-Bremse conducts an ongoing dialogue with its internal and external stakeholders. Groups of particular importance to the company are employees, new recruits, customers and suppliers, the company owners, business partners, public authorities, trade unions, industry associations, the media, policymakers, NGOs, and residents and local action groups in the neighborhood of our sites. Knorr-Bremse maintains a regular, structured dialogue with stakeholders through its membership of many regional, national and international associations.



We are committed to a model of sustainable corporate governance that integrates environmental and social aspects into strategic planning, management and corporate processes.

KNORR-BREMSE'S MEMBERSHIP OF ORGANIZATIONS AND ASSOCIATIONS (SELECTION)

- American Public Transportation Association (APTA), USA
- Association of American Railroads (AAR), USA
- Ausschuss 'Nachhaltigkeit in der Lieferkette' im Verband der Automobilindustrie e.V. (VDA), GER
- Automotive Industry Action Group (AIAG), USA
- Automotive Parts Remanufacturer Association (APRA) European Board, USA
- Energieeffizienznetzwerk Oberbayern, GER
- Fachgruppe 'Umwelt' im Verband der Bahnindustrie in Deutschland e.V. (VDB), GER
- Motor & Equipment Manufacturers Association (MEMA), USA
- New York and New Jersey Minority Supplier Development Council, USA
- Stifterverband der Deutschen Wissenschaft e.V., GER
- Sustainable Transport Committee of the Union des Industries Ferroviaires Européennes (UNIFE), BEL

COMPLIANCE AND INTEGRITY

We put great emphasis on integrity and responsible conduct in our dealings with business partners and employees. We comply with laws and internal regulations, and our actions adhere to our voluntary commitments as a matter of course. The Knorr-Bremse Code of Conduct defines the basic principles for the appropriate approach to our day-to-day activities – on the basis of our corporate values and the principles of the UN Global Compact. The Code ensures that there is a consistent understanding of responsible entrepreneurial conduct that transcends national borders. Amongst other things, the Code of Conduct includes a ban on corruption, including bribery and blackmail, and also covers aspects of human rights such as freedom of expression, freedom from discrimination and a ban on child labor and forced labor. These principles and rules are binding for all Group employees. In 2018 we will flesh them out further, with new guidelines on handling gifts and invitations, anti-corruption, conflicts of interest and fair competition.

Compliance management

A newly-created compliance organization ensures that we fulfil our obligations on a day-to-day basis. The Chief Compliance Officer (CCO) reports regularly to the Compliance Committee chaired by the Chief Financial Officer. On this basis the members of the Committee discuss the most important compliance issues and set priorities for

SUSTAINABILITY WITH DEUTSCHE BAHN

In July 2017 a delegation of Knorr-Bremse employees discussed with Deutsche Bahn (DB) the scope for closer cooperation on the topic of corporate responsibility. At the invitation of Deutsche Bahn, Knorr-Bremse gave a presentation of its proposals to the DB Competence Center Sustainability, what action could Knorr-Bremse, as a supplier, take to help DB achieve its sustainability aims as part of the DB 2020+ overall strategy.



compliance management. At present, the focus is on world-wide corruption prevention, ensuring fair competition conditions and avoiding conflicts of interest. These core topics are the result of a comprehensive compliance risk analysis that in future will be regularly updated. Regional compliance officers support the CCO and underpin the presence of compliance management in the regions. The task of these regional officers is to advise and train local employees, deal with compliance issues and identify local risks.

One important element in our compliance management is the whistleblowing system that we introduced at the end of 2017. This enables employees worldwide, as well as people outside the Company, to file anonymous reports of criminal activities or serious infringements of the law. The portal is operated by an external service provider on a secure, independent server, and reports can be submitted in a total of 20 countries and 20 languages. Our guideline on the whistleblower system defines the legal framework for providing information and ensures that confidentiality and data protection are guaranteed.

In addition, the internal Group Audit Department supports the Executive Board in its monitoring function by carrying out independent, objective audits aimed at improving business processes and identifying possible infringements of the law. As part of the regular auditing process, familiarity with the Code of Conduct and its

active communication by members of management is also monitored.

Transparent communication and proper training of employees are important requirements if compliance infringements are to be prevented from the very outset. Employees must be aware of what acting responsibly actually means and what rules have been defined for it. With this in mind, in December 2017 we launched a world-wide e-learning program. By their compulsory participation, employees document the fact that they are familiar with our Code of Conduct and have understood the requirements it contains.

Risk management

As a global company, Knorr-Bremse's international business operations inevitably involve both risks and opportunities. The aim of risk management is to reduce risks to a minimum and use opportunities to achieve a lasting increase in corporate value. The focus is on early identification of potential risks, thereby creating scope for effective risk control. The risk management system established for the Group is constantly evolving and in 2017 was adapted to the latest requirements. The structure and procedures of the risk management system mirror the general organizational structure of the Company and are laid down in a Group guideline with a clear definition of responsibilities and reporting structures. A survey of potential risks takes place on a quarterly basis, as part of a world-wide risk inventory that includes all companies within the Group. The regular risk reporting system includes a synoptic risk report that is submitted to the Knorr-Bremse Group Executive Board on a quarterly basis and discussed in the corresponding Board meeting. To ensure timely identification of significant risks, there is an internal ad-hoc reporting process in addition to the regular submission of reports. For all our business activities we weigh up the chances and risks extremely carefully. Knorr-Bremse encourages all employees to become involved in proactive reporting of risks and requires them to handle such risks in a responsible manner.

A detailed description of the risk management system, including descriptions of the most significant risks, can be found in the Management Report section of the Annual Report.

DUE DILIGENCE FOR HUMAN RIGHTS

As a signatory to the UN Global Compact, Knorr-Bremse is committed to observing human rights. In addition we also undertake to comply with the human rights conventions of the International Labour Organization (ILO) and the UN Universal Declaration of Human Rights. These commitments, together with the relevant national legislation, provide the basis for our actions.

The Knorr-Bremse Code of Conduct covers, amongst other things, aspects of human rights such as freedom of expression, freedom from discrimination and a ban on child labor and forced labor, and formulates principles and rules of behavior that are binding for all employees. At the same time our Supplier Code of Conduct (see page 33) requires our business partners to respect human rights. The recently launched obligatory training module on the Code of Conduct also provides all our employees with instruction on human rights. And the whistleblowing system for infringements of the Code of Conduct enables us to monitor adherence to human rights more closely. Regular audits by the independent internal audit team also examine aspects of human rights at local level.

In 2018 we aim to further establish and expand our due diligence processes for human rights, basing our actions on the UN Guiding Principles on Business and Human Rights.

UK MODERN SLAVERY ACT

The issues of modern slavery and associated legislation are growing in importance. In line with the UK Modern Slavery Act, Knorr-Bremse has published a separate declaration on modern slavery and human trafficking on its website which contains our guidelines and measures on this topic and our plans for future improvements.

RESPONSIBILITY FOR PRODUCTS

As part of our comprehensive responsibility for our products we focus on developing environmentally compatible products and innovative technologies for sustainable mobility. To achieve this, we integrate sustainability aspects into the development process, using environmentally compatible materials, remanufacturing products and developing technologies for efficient, networked transportation.

As a global technology leader in the development of braking systems and subsystems for rail and commercial vehicles, Knorr-Bremse helps these sectors to future-proof mobility, ensuring that it is safe and more environmentally compatible. In doing so, we focus on the following aspects of our products:

- **Safety.** All around the globe, our products make an important contribution towards improving road and rail safety.
- **Quality and reliability.** As a manufacturer of safety-critical systems, quality and reliability are top priorities for us. Our products and services conform to stringent safety requirements and meet the highest quality standards in all areas and processes.
- **Customer benefits.** We regard our customers as partners, maintaining close links with them in markets all over the world and collaborating with them on an ongoing basis to develop customized solutions.
- **Technological competence.** The name Knorr-Bremse is synonymous with technological expertise. Our experience, technical know-how, profound knowledge of markets and extensive investment in research and development enable us to offer innovative system solutions for tomorrow's world of mobility.
- **Environmental protection and resource conservation.** We are determined to make mobility cleaner, more energy-efficient, and quieter, while at the same time reducing its impact on the climate and its use of resources. Our research and development activities are therefore also focused on the requirements of environmental and climate protection.

INVESTMENT AND INNOVATION

Knorr-Bremse is determined to find solutions for tomorrow's world of mobility. With research and development investment amounting to EUR 359 million, the Company further strengthened its innovative capabilities in 2017. This was reflected in particular in its extensive portfolio of patents, which currently covers some 6,800 active industrial property rights worldwide. As of 31.12.2017 Knorr-Bremse had more than 3,700 employees working in research and development (2016: over 3,200).



R&D expenditure in EUR millions

At the new Knorr-Bremse Development Center in Munich there is about one hundred state-of-the-art test rigs and other testing equipment.

RESPONSIBILITY FOR PRODUCTS

- PRODUCT INNOVATION
- SAVING RESOURCES
- PRODUCT LIFE CYCLE
- VEHICLE AND TRAFFIC SAFETY
- ENVIRONMENTAL PROTECTION
- NOISE PREVENTION
- CONNECTIVITY



Sustainability in product development

The sustainability of Knorr-Bremse’s innovations is carefully planned, with sustainability aspects systematically incorporated into the development process from the initial vision, via product development and manufacture, right down to sales, maintenance and product remanufacturing. Ideas for new products are evaluated in consultation with the development engineers on the basis of sustainability criteria such as energy efficiency, emissions reduction, safety, materials, life-cycle costs and ease of maintenance. This is followed by an approval process for research and development funding that involves top management from the Corporate Responsibility department.

In 2017 we set up a cross-divisional working group on eco-design with the aim of further integrating environmental aspects into the product development process and using synergies from both divisions. Training sessions and guidelines will support this process.

Sustainable business development

Knorr-Bremse expands its systems portfolio with a combination of internal development and acquisition of other leading-edge business operations. The main driver of new acquisitions is an assessment of sustainable mega-trends. In 2017, for example, the acquisition of Kiepe Electric GmbH was successfully concluded. With its efficient solutions and environmentally sustainable concepts for local, emission-free public transport, Kiepe Electric offers scope for new growth and applications. In addition to its eco-friendly drive technology for light rail vehicles, metros and regional trains, Kiepe Electric is also a specialist in modernization of rail vehicles. The acquisition has also enabled Knorr-Bremse to expand its offer in the field of commercial vehicle systems – Kiepe Electric develops eco-friendly drive technologies for trolleybuses and battery-powered buses.

In order to minimize sustainability risks when acquiring new companies, aspects of CR and compliance are integrated into the due diligence process. In addition to environmental impact these also cover social aspects.

When new companies are integrated into the Group, Knorr-Bremse lays down specific requirements in terms of their approach to sustainability management and expects these to be implemented. Knorr-Bremse also regards itself as a learning organization, so the new company’s approach to sustainability and its existing projects in this area are discussed, communicated and examined for their applicability to the entire Group. In this way we ensure that sustainability remains an integral part of our corporate strategy.

SAVING RESOURCES

We are determined to minimize the use of natural resources, and try to do so at an early stage in the product development process. Life-cycle analyses are helpful in this context. Another area of focus is product remanufacturing.

Sustainability in the product life cycle

Our aim is to minimize the environmental impact of our products. To do this, we carry out life cycle assessments (LCAs) to examine the environmental footprint of selected products during their entire life – from initial production to final disposal. These generate valuable data on the use of materials and resources during production and also environmental compatibility during the product’s service life. They enable us to identify weaknesses and develop improvements. Such LCA analyses have already been successfully carried out for various product components and systems and in some cases certified by independent experts according to ISO 14040/14044. Such analysis include Product Carbon Footprints (PCFs), which examine CO₂ emissions across a product’s entire life cycle.

During the design phase for new products, care is taken to ensure optimum design for subsequent remanufacturing. Our new internal Product Design Guideline in the Commercial Vehicle Systems division details specific requirements, for example for the use of materials or ease of product disassembly.

THE ECOLOGICAL BENEFITS OF A REMANUFACTURED COMPRESSOR

Remanufacturing of a truck compressor generates 79% fewer CO₂ emissions than production of a new one. Product-related energy consumption is also reduced by 72%, and 75% less new material is required. In addition, logistics costs are reduced, as the distances travelled in connection with the production process can be reduced by 80%.

‘GREEN CARTRIDGE’ WITH RECYCLED DESICCANT

The Bendix Green Cartridge is an air dryer cartridge that uses recycled desiccant from Bendix but still offers the same level of quality of the original. In North America alone it is estimated that some 500,000 air dryer cartridges end up in landfill. The Bendix Green Cartridge helps to reduce this quantity.

Industrial remanufacturing

Extending the life of a product can make an important contribution towards greater sustainability. That is why genuine remanufacturing of products is becoming increasingly important: Used products are refurbished by the manufacturer in such a way that they can be redeployed in identical functions and with identical levels of safety. Compared with a newly-manufactured product, the environmental impact is reduced, as considerably fewer new materials and less energy are required.

Remanufacturing has always played a prominent role in the Rail Vehicle Systems division. For example, when Knorr-Bremse overhauls control, load-proportional and weighing valves for freight car brakes, only those parts that are subject to actual wear are replaced, and more than 90% of the material is reused. During the year under review, the Service Center in Berlin alone overhauled a total of 45,000 products of various kinds. In China, 2017 saw Knorr-Bremse industrially remanufacture braking equipment for over 2,000 high-speed train cars, 1,700 locomotives and almost 1,500 metro trains. In addition, some 1,000 high-speed train entrance systems and 1,500 HVAC units were supplied in remanufactured form. Knorr-Bremse is expecting demand for remanufactured components to increase in the near future, especially in China, as many Chinese high-speed trains will soon be due for a regular service, having travelled a total of more than 5 million kilometers. Increased spending on maintenance and replacement of braking equipment, entrance systems and HVAC systems can be expected.

In the commercial vehicle division, customers return used products to us for remanufacturing. We disassemble them, clean individual components and examine their reusability. Reassembly and inspection of the remanufactured products involve the same processes and approval steps as for the assembly of new ones. The portfolio of remanufactured products includes almost 400 individual article numbers that Knorr-Bremse

offers under the EconX® brand. Despite the transportation costs involved in returning used products, a remanufactured product saves up to three quarters of the CO₂ emissions generated by a new product. In 2017 alone, we saved some 1,400 tonnes of CO₂, 416 tonnes of material and 5,069 MWh of energy through remanufacturing. Our calculations were audited and confirmed by the independent DEKRA Institute.



Percentage of total revenues accounted for by remanufactured products

Packaging

For packaging our products we mainly use recyclable materials and containers. Our Quality Management Guidelines for both divisions also call on our suppliers to avoid and/or reduce packaging wherever possible and to use recyclable materials.

PRODUCTS THAT BENEFIT PEOPLE AND THE ENVIRONMENT

As well as meeting the highest quality and safety standards, Knorr-Bremse’s products also provide benefits for society. In addition to informed and correspondingly cost-efficient resource utilization, these include the reduction of CO₂ and noise emissions. We are particularly keen to take advantage of the major opportunities offered by vehicle connectivity for the development of cutting-edge solutions in this area.

KNORR-BREMSE IMPROVES SAFETY ON INDIAN PASSENGER TRAINS

In India, manually-operated doors with no automatic locking system mean it is easy for anyone to open the doors on a moving train. This poses a huge safety hazard on trains that can run at speeds of up to 130 km/h. It is estimated that open doors are responsible for between two and three thousand deaths every year. Indian Railways is now addressing this problem – with the help of Knorr-Bremse. We have developed a solution to fit the current fleet with automatic doors that cannot be opened while the vehicle is in motion.

KNORR-BREMSE HELPS DRIVE FORWARD HYBRIDIZATION OF DIESEL TRAINS

In the past, brake energy recuperation was only possible in electric rail vehicles, but all that is now changing with a new hybridized drive platform developed for Germany’s Erzgebirgsbahn. One core element of Deutsche Bahn’s showcase project is a new brake control system from Knorr-Bremse. The EcoTrain should eventually reduce fuel consumption by up to 30% compared to conventional diesel multiple units. As well as the economic benefits for the operator thanks to significant energy cost savings and lower carbon dioxide emissions, people living in the vicinity of rail stations also stand to benefit from the EcoTrain. Switching to the all-electric drive allows the trains to operate particularly quietly when approaching and leaving stations.

Vehicle and transportation safety

Safe road and rail transportation is our core competence and a key requirement of our customers – and indeed all transportation users. The demands made on safety and comfort keep growing, as more and more people and goods are transported around an increasingly crowded world. Knorr-Bremse is responding to this trend by providing mechatronic air treatment, door control, brake control and steering systems, together with assistance functions for vehicle stabilization and collision avoidance.

PRODUCT EXAMPLES RAIL VEHICLE SYSTEMS

- The enhanced MGS3 wheel slide protection system allows rail vehicles to optimize their braking distances across a range of different weather conditions. This is made possible by an adaptive control system that enables optimized adjustment to the current wheel-to-rail adhesion.
- Derailment detectors detect when one or more wheelsets have derailed, by registering and analyzing the vibrations and bumps that typically occur in a derailment when the running wheels pass over the sleepers. If a derailment is detected, the driver receives a warning signal or an emergency braking function automatically brings the train to a halt.
- Our obstacle detection systems prevent injuries caused by closing doors.
- The iCOM intelligent diagnostics system monitors and analyzes vehicle subsystem data. This makes it possible to optimize the systems’ operation and maintenance and reduce overall operating costs.

PRODUCT EXAMPLES COMMERCIAL VEHICLE SYSTEMS

- The Lane Departure Warning System features a camera that monitors the lane markings on the road ahead and warns the driver if the vehicle is about to drift out of its lane. Lane Departure Prevent combines this feature with an automatic braking and/or steering function. If the driver fails to react to warning signals, the system brings the truck safely to a halt.
- The Advanced Emergency Braking System (AEBS) is an automatic assistance system that progressively applies the brakes if the truck comes within a minimum distance of the vehicle in front.

- The Blind Spot Assistant allows the driver to check the area to the side and rear of the vehicle using a monitor that provides a view of the road. When the truck is at an intersection, the radar sensor and camera monitor the driver’s blind spot. If there is a risk of collision, the driver receives an acoustic and visual warning so that he can take the appropriate action.
- Intelligent Hydraulic Steering Assist (iHSA) is a hydraulic steering system with electronic actuation specially developed to meet the demands of automated driving in commercial vehicles. By providing a full range of safety features for trucks and buses, it helps to significantly reduce the risk of accidents. As well as the safety functionality, it offers additional comfort features. For instance, the degree of steering assist is adjusted to match the vehicle’s speed. If the vehicle is performing yard maneuvers or driving in a city, a higher level of steering assistance ensures a more comfortable steering experience.

Environment and resources

For Knorr-Bremse, environmental compatibility and resource efficiency play an important role in the development of innovative technologies. It is clear that reducing emissions in the transportation sector will become even more important as volumes continue to grow. In addition to global and regional requirements, communities are calling for zero-emission zones in specific locations such as inner cities. The same applies to noise restrictions in residential areas and in the vicinity of hospitals. This is leading to the development of novel vehicle concepts, some adapted in various ways, and some entirely new. Knorr-Bremse supplies customized or completely new solutions for these vehicles. In the commercial vehicle sector, for example, the enhanced accuracy of our electric actuators is helping to optimize internal combustion engine performance, while we can also now provide complete electric drive solutions for urban buses.

Passenger safety on Indian trains will be improved by replacing manual doors with automatic ones.



PRODUCT EXAMPLES RAIL VEHICLE SYSTEMS

- Weighing in at just 180 kg, the CFCB Light compact freight car brake offers maximum weight savings, helping to reduce CO₂ emissions.
- The modular IFE Generation 4 entrance system is 20% lighter and uses 25% less energy than its predecessor. Moreover, the use of new insulating materials means the door leaves now provide improved noise and heat insulation.
- The VV 180-T oil-free compressor is particularly light and quiet-running. Its low-friction design means it uses up to 20% less energy than its predecessor.
- New components and intelligent design make the Knorr-Bremse HVAC air conditioning and ventilation system up to 400 kg lighter than its predecessor, resulting in energy savings of up to 32 MWh per year per railcar.

PRODUCT EXAMPLES COMMERCIAL VEHICLE SYSTEMS

- The ProFleet Connect intelligent fleet management software continuously analyzes current vehicle data in order to provide the driver with visual information that helps him to adopt a safer and more fuel-efficient driving style. Further fuel and driving time savings are achieved through optimized route planning that is updated online even during the trip. Intelligent logistics module integration reduces empty runs, with every mile knocked off the journey time also contributing to lower costs, emissions and wear and tear.
- Thanks to its optimized design and combination of materials, the new Synact disc brake generation delivers weight savings of up to 10% compared with the current SN7 series, resulting in significantly lower energy consumption.

- The Active Caliper Release mechanism fully retracts the brake pads from the disc once the braking operation has been completed, reducing residual friction by up to 90% when the brake is not in use. The resulting reduction in fuel consumption can cut emissions by up to one ton of CO₂ per vehicle per year.
- The control module for automatic gearshifts enables the driver to anticipate gearshifts and also speeds up the shifting operation itself. Ideally combined with a fast-operating clutch, this reduces fuel consumption.
- Kiepe Electric produces electric drives for bus applications. It can supply complete systems for trolley buses and battery-powered buses. A particular highlight is the In Motion Charging (IMC®) function, which allows the traction battery to be charged while the vehicle is in motion. This makes it possible to significantly extend the bus's zero-emission range on parts of the route where there are no overhead lines. It means that a reliable new electric bus fleet – even with long articulated or double-articulated vehicles – can still be introduced in areas with only a limited overhead line network. IMC roads with overhead lines can make a valuable contribution to sustainability – IMC buses require significantly fewer batteries than standard e-buses which can only be charged overnight and have to carry a full day's energy supply around with them in their batteries.

Noise

Most technologies aimed at increasing efficiency provide financial benefits for the operator through a range of savings. However, rail vehicle technologies face the added challenge of reducing noise levels for people who live near railroad lines. Knorr-Bremse is very conscious of this concern and engages in a close dialogue on matters such as noise mitigation with both the vehicle operators and the people who are directly affected by this issue. We recognize that our product portfolio must address the important goal of reducing noise emissions.

The LL composite brake pad is used in whisper brakes. LL stands for Low Friction, Low Noise – unlike conventional pads, the LL pads do not roughen the surface of the wheel during braking. This reduces noise emissions from moving freight trains by some 10 dB(A), which is perceived as a halving of the noise level by the human ear. The so-called K pad has a similar effect. While the LL pad is designed for retrofitting, the K pad is the version for new-build vehicles. For some years now, it has been compulsory for such vehicles in the EU to be fitted with this type of pad.

Optimizing the noise levels of air supply systems is also key to reducing noise emissions. To this end, Knorr-Bremse supplies VV-T generation noise-optimized oil-free compressors and air dryer silencers that reduce the blow-off sound pressure level by up to 20 dB(A). Intelligent Air Control allows the compressors to be controlled according to their current operating situation. For example, the compressor speed can be reduced when the train enters a station, providing a reduction in noise levels of up to 6 dB(A).

Vehicle connectivity

Knorr-Bremse regards the megatrends of automated driving and connectivity as important drivers of innovation within the industry. The underlying goals of these trends include more efficient vehicle operation, accident prevention and improved infrastructure utilization. In order to keep costs down, it is necessary to use individual vehicle sensors for multiple functions, thereby increasing the systems' complexity. There is huge potential to drive efficiency in both the commercial vehicle and rail vehicle sectors through vehicle-to-vehicle and vehicle-to-infrastructure communication, as well as telematic communication between vehicles and operators, GPS systems and other information sources. Knorr-Bremse is using its systems expertise to actively shape these developments.

PRODUCT EXAMPLE RAIL VEHICLE SYSTEMS

- The key connectivity product developed by Knorr-Bremse for rail vehicles is the iCOM open digital platform, which provides the basis for a wide variety of functions and applications, from driver assistance to measuring power consumption and a range of different diagnostics functions. iCOM's open architecture means it can be employed by any subsystem or vehicle manufacturer. As a result, it provides the operator with a direct overview of the status of different subsystems – regardless of whether or not they form part of Knorr-Bremse's portfolio – across all their vehicle fleets.

PRODUCT EXAMPLES COMMERCIAL VEHICLE SYSTEMS

- Knorr-Bremse's Adaptive Cruise Control (ACC) system assists convoy vehicle drivers by automatically maintaining a safe distance from the vehicle in front for the current speed. As well as helping to prevent rear-end collisions, ACC technology also enables efficient road capacity utilization.
- Knorr-Bremse has already delivered a prototype implementation of a fully self-driving truck with the aid of its Autonomous Yard Maneuvering system. Radar, video cameras and other chassis sensors continuously survey the truck's surroundings, allowing it to safely perform autonomous yard maneuvers. If an obstacle is encountered, the truck is brought to a halt and automatically continues on its way as soon as its path is clear.
- iTAP Fleet Remote is an integrated system for monitoring tire temperature, tire pressure, distance traveled, braking patterns and error messages. The data is sent via an integrated WLAN transmitter directly to the Fleet Remote Server, where it is analyzed for critical maintenance requirements and made available to the operator online.





RESPONSIBILITY FOR EMPLOYEES

As a family-owned company, we are particularly aware of our responsibility for our employees. We want to be a fair, reliable employer who takes account of individual strengths and circumstances. We have high expectations of our staff and support them with further training opportunities and varied career paths.

The Knorr-Bremse Group's progress over the years is something for which all our employees can take credit. With their willingness to work hard and their excellent performance, they made 2017 a very successful year. Knorr-Bremse wants to be seen as an attractive employer worldwide and to recruit and retain the most talented employees. We achieve this by creating safe workplaces, challenging jobs, scope for individual decision-making and opportunities for personal and professional development. We see these as the foundations for the company's success over the long term.

At the end of 2017, Knorr-Bremse employed 27,705 people worldwide. This is an increase of 12.8% over the previous year (24,565). 80% were working at sites outside Germany – a strong indicator of the Group's international focus.

FAIR EMPLOYMENT PRACTICES

Knorr-Bremse respects and protects the rights of employees. Clear commitments set out in the Knorr-Bremse Code of Conduct are core elements of our corporate responsibility: complying with high standards for a safe, healthy working environment, providing fair working conditions, respecting freedom of association and ensuring equal opportunities for and equal treatment of our employees around the world. We firmly oppose all forms of forced and child labor. And we demand the same from our business partners and suppliers as well.

TOP EMPLOYER AWARD

Our HR policy places a great emphasis on increasing the Group's attractiveness as an employer, both in the eyes of the general public and among highly qualified young professionals – the group that is particularly important for the future of the Company. We have been recognized as a Top Employer for engineers in Germany by the international Top Employers Institute (Amsterdam) since 2014. In the judges' views, Knorr-Bremse provides 'an outstanding working environment and a wide range of creative initiatives, from working conditions to performance management programs that are fully in line with the corporate culture.'



Number of employees in the Group at 31.12.2017

- RESPONSIBILITY FOR EMPLOYEES
- WORKING CONDITIONS
- EQUALITY OF OPPORTUNITY
- WORK-LIFE BALANCE
- PERSONNEL DEVELOPMENT
- SAFETY AT WORK
- PROTECTING HEALTH

As an employer, Knorr-Bremse has received many accolades for its working conditions and performance management.

General working conditions

In line with our position on fair working conditions, we set out minimum standards in our employment contracts. Our employment contracts are based on voluntary agreements. Employees can exercise their right to terminate the contract unilaterally as long as they respect certain notice periods.

Establishing an atmosphere of trust and cooperation across all levels of the hierarchy is something Knorr-Bremse regards as particularly important. This includes an objective exchange of views with employee representation bodies such as the Group Works Council. We respect employees' freedom of association and assembly and their right to collective bargaining, where this is possible and legally permissible in the country concerned. Members of employee representation bodies and trade unions are neither disadvantaged nor given preferential treatment.

Remuneration and employee benefits

Knorr-Bremse is a fair employer and we make sure that our employees are paid a fair market rate. At many of our sites we pay wages and salaries that exceed the minimum rates negotiated in collective bargaining processes. Our high qualification requirements mean that statutory minimum wage levels are not relevant for the majority of our workforce. We do not differentiate between female and male employees when it comes to pay. Remuneration is based exclusively on an employee's qualifications, performance and personality.

At management level, all positions are graded according to a standard global system and measured against external benchmarks to ensure that managers receive fair salaries that can be compared across national borders. The more responsible the position, the higher the variable pay element, which is based on the company's results and on individually agreed targets. These targets are agreed between the manager and their superior during the Staff Dialogue (see page 23), a global appraisal system. Depending on the role, the targets may also include sustainability aspects.

In addition, employees benefit from a whole range of voluntary extra benefits, which vary from site to site. These may include subsidized meals and transport, as well as sport and health provision. Depending on local possibilities, Knorr-Bremse pays voluntary additional contributions to the company pension scheme, while complying with legal requirements and tax and social security legislation.

PROMOTING DIVERSITY

We consider the cultural diversity of our workforce to be one of our key economic success factors. People's differences and their unique qualities are an enrichment for the Company. As a Group that operates around the world, we promote understanding and appreciation of different cultures and lifestyles and actively promote the integration of employees from other countries. We support this with intercultural training, language courses and periods spent working abroad. In order to ensure the necessary proximity to our markets and customers and make use of country-specific language skills and cultural competence, we attach particular importance to employing local executives at our international sites.

Equal opportunities

Treating our employees equally, regardless of gender, age, nationality, religion, health or other circumstances, is something we do as a matter of course. When recruiting new staff and managers, all that counts is their qualification for the job. This principle is firmly enshrined in the Knorr-Bremse Code of Conduct. We have created contact points for employees needing advice: all employees can take questions to their managers, the Compliance Organization, the HR department or the Works Council. In addition, our whistleblower system gives employees the opportunity to report infringements of our equal opportunities policy anonymously, wherever they are in the world.

In view of demographic developments and a predicted shortage of skilled workers, particularly in technical occupations, it is important for Knorr-Bremse to attract more highly-trained and qualified women. In 2017, the proportion of women in the Knorr-Bremse workforce was 20.2% (2016: 19.7%). Whereas the world-wide proportion of women in management across all areas is 11.2% (2016: 11.6%), the average proportion of female managers in non-technical areas is 32.3% (2016: 32.8%).

Knorr-Bremse makes a point of using and supporting programs that aim to increase the proportion of women in management positions. These include the Knorr-Bremse Management Evolution Program (MEP). The proportion of female participants in 2017 was 36% (2016: 42%). In North America, our Bendix subsidiary offers female managers the chance to take part in a special training program for women in leadership positions. Over a period of six months there are regular workshops, an important aspect of which is the opportunity to exchange ideas with women in management positions in other companies in the sector.

As part of a joint initiative with the Technical University of Munich, we provide support for female students of scientific and technical subjects. In a program entitled mentoring, the female students are provided with mentors who help them to build up their first networks relevant to their studies and future professions. The program also includes seminars and training courses tailored to specific target groups.

Severely disabled employees and those with serious health conditions receive special protection and assistance at Knorr-Bremse. The disabled employees' representative helps to find the right workplace for them within the Company. The proportion of severely disabled employees at our German locations in 2017 was some 6.0% (2016: 5.1%).

16TH KNORR-BREMSE FOR KIDS PROGRAM

Knorr-Bremse for Kids is a holiday program run at the Munich site. It gives children between the ages of 12 and 14 a chance to get to know the company their parents work for. In 2017, the children were given the task of building a locomotive out of aluminum following clear quality and cleanliness guidelines. They presented the finished item to 70 guests. The program is designed to encourage girls and boys to choose technical careers.

Work-life balance

One of the aims of our HR policy is to promote work-life balance – especially in countries which, like Germany, face major challenges as a result of demographic change. To help employees reconcile the demands of work and family – from highly qualified women with children who wish to stay at work, or fathers wanting to play a bigger part in bringing up their offspring, to those with dependents requiring care – Knorr-Bremse offers the following assistance, as required:

- Flexible working hours and working time accounts
- Part-time employment
- Leave lasting several months (sabbaticals)
- Teleworking
- Support for the family e.g. assistance in finding child-care and nursing care for dependents, holiday programs
- Family support programs, e.g. contributions to health-care and health insurance, special financial assistance, days off to care for sick children or other dependents, maternity leave and parental leave even in countries with no legislation in this area
- Offers such as health programs and facilities

The 'Audit Beruf und Familie' certificate from auditing company berufundfamilie gGmbH, which is highly regarded in Germany, provides confirmation of the family-friendly personnel policies in place at Knorr-Bremse. Knorr-Bremse has held the certificate since 2012.

PERSONNEL DEVELOPMENT

Excellent products and services can only be developed in an excellent team. Knorr-Bremse supports the development of excellent teams with systematic, targeted staff development measures and the option of international assignments all over the world. In line with the principle of lifelong learning, we make it possible for our employees to carry on training and earning qualifications – for their professional and personal development – throughout their careers.

Vocational training

Young people can receive training in a variety of technical and commercial occupations at our sites around the world. The most popular specialist areas include industrial mechanics, machining technology, electronics, mechatronics and IT. As of December 31, 2017, a total of 248 young people were completing an apprenticeship with us.





KNORR-BREMSE TRAINS EMPLOYEES OF THE FUTURE

At its Acuña site in Mexico, Bendix is working in partnership with the ICATEC institute, offering a one-month technical training course and the possibility of a job afterwards. 200 young people between the ages of 18 and 25 who were not in work or education have already attended the monthly course. Around 80% completed it successfully and around 60% could be offered employment at Bendix. In addition, the site is supporting the extension being built by the local technical training college CECyTEC and in future will be offering a dual-track training program for selected students (see page 40).

Employees at the Commercial Vehicle Systems production site in Pune/India, are teaching vocational school students how to repair brake components. The service training center for brake equipment set up in 2010 by Knorr-Bremse and Don Bosco improves job prospects for young people. More than 1,500 young people have now undergone training.

Knorr-Bremse Rail Systems in Budapest/Hungary invested in a new training center in 2017, where an initial cohort of 30 students have started a dual-track training program. Here, Knorr-Bremse is working closely with the Technical Training Center Budapest, the Loránd Eötvös vocational school and the Kálmán Szily technical school. Through this dual-track system we are not only training good skilled workers, but also passing on Knorr-Bremse's working culture.

Further training and qualifications

We want to improve our ability to identify our employees' potential and support them along their individual development paths. Managers talk to their staff about qualifications once a year. We have standardized our annual appraisal meetings throughout the Group under the heading Staff Dialogue and have refined the assessment criteria and talent management system. This includes individual written target agreements as well as assessments of performance and potential. As a result, both sides are clear about the employee's performance and potential, and the employee receives a personalized further development plan.

At the Knorr-Bremse Academy we bring together a number of different qualification and training activities that have been tailored to Knorr-Bremse's requirements. The aim of the Academy is to offer a modern, future-oriented, efficient training landscape, where the focus is on employees' further development.

Promoting new talent

As far as possible, we strive to fill our management vacancies worldwide with in-house talent. Following the Staff Dialogue, employees who demonstrate potential are invited to an in-house Assessment Center where they are assessed by experienced managers and external experts. Through these measures, Knorr-Bremse is making a concerted effort to develop talented young employees and secure the future of its workforce.

Personnel development at Knorr-Bremse includes a number of other important programs and measures:

- Management Evolution Program (MEP): Here, trainees spend 18 months familiarizing themselves with three different departments, gaining experience in international projects and working at a foreign location for six months. Mentors from management support the trainees.
- International Management Potential Group (IMPG): This support program gives first-level managers around the world the opportunity to develop their abilities further through training courses and projects, to strengthen their leadership skills and expand their personal international network.
- Engineering Development Program (EDP): This program enables American college graduates with degrees in technical subjects to receive two years of further training in mechatronics – for example, through cross-divisional transfers to other departments or through work experience in Mexico.

The training provided at Knorr-Bremse's sites world-wide meets the highest standards of quality.

Leadership

Personnel development is an important task for leadership, and Knorr-Bremse has formulated guidelines that cover five core topics – Reflect, Step Ahead, Engage, Develop and Execute – and describe ways of putting leadership into practice.

One expression of our culture of open dialogue is Leadership Feedback. This takes place at least every two years or as required, and enables managers to receive feedback from their staff regarding their style of leadership. The results are used as a basis for jointly drawing up measures to optimize their teamwork.

International exchanges

For many years now, Knorr-Bremse’s commitment to international exchange has resulted in improved intercultural skills, particularly among its management. The company’s international locations provide ideal conditions for such exchanges to take place. Expatriates posted abroad for periods of between six months and five years are all supported centrally by a team of specialists in the International Transfers department – from the initial preparations to their return and reintegration into their former workplace. In addition to long-term international assignments, short-term exchanges related to specific topics are another main focus at Knorr-Bremse. By frequently giving employees project-specific assignments around the world, we help ensure skills acquisition, sharing of specialist knowledge and transfer of expertise.

SAFETY AT WORK

We ensure a safe and healthy working environment by promoting the prevention of injuries and impairment to health. This principle is laid down in our Group-wide Health, Safety and Environmental (HSE) policy. Key aspects are risk assessments of machinery, workplaces and work processes, the promotion of safety awareness in the workforce through training courses and information campaigns, the analysis of accidents and subsequent introduction of accident-prevention measures.

Our occupational health and safety management system meets the requirements of the international standard OHSAS 18001 (Occupational Health and Safety Assessment Series) and takes the form of our own company HSE processes, with internal audits being conducted at regular intervals. 39 global production and service sites in our Rail Vehicle Systems division are already certified according to OHSAS 18001. In the coming year, we will be adapting our occupational health and safety management systems in line with the new ISO 45001 international standard and applying for certification for the sites in our Rail Vehicles division. We are taking our responsibility to all our employees seriously and looking at both positive and negative aspects that have an impact on the Company.

Using standardized processes, we record and analyze the key indicators for occupational safety, and derive appropriate measures from these. In order to maintain and further improve our high standards of health and safety at work, we provide internal training at regular intervals and offer those responsible for HSE the opportunity to take part in international congresses, conferences and projects. Awareness is also increased by internal work safety campaigns such as Bendix Stars in the USA. All work teams are called on to undertake training in awareness of workplace safety issues, and the best teams are rewarded on a monthly basis.

Accident rate



Number of accidents resulting in absence from work per 200,000 hours worked

KNORR-BREMSE MELKSHAM WINS ROSPA AWARD

Knorr-Bremse Rail Systems in the UK has received a gold RoSPA award, the prestigious annual prize awarded by the Royal Society for the Prevention of Accidents (RoSPA). RoSPA Award applicants are assessed in terms of their health and safety management systems. The award provides evidence of the site’s high occupational health and safety standards.

In 2017 we adapted the surface treatment process at our site in Palwal/India, to make it safer: instead of using a chemical with a flashpoint lower than the average summer temperature in India, the site now uses a water-based chemical. This has not only eliminated the risk of fire, but also removed the solvent fumes.

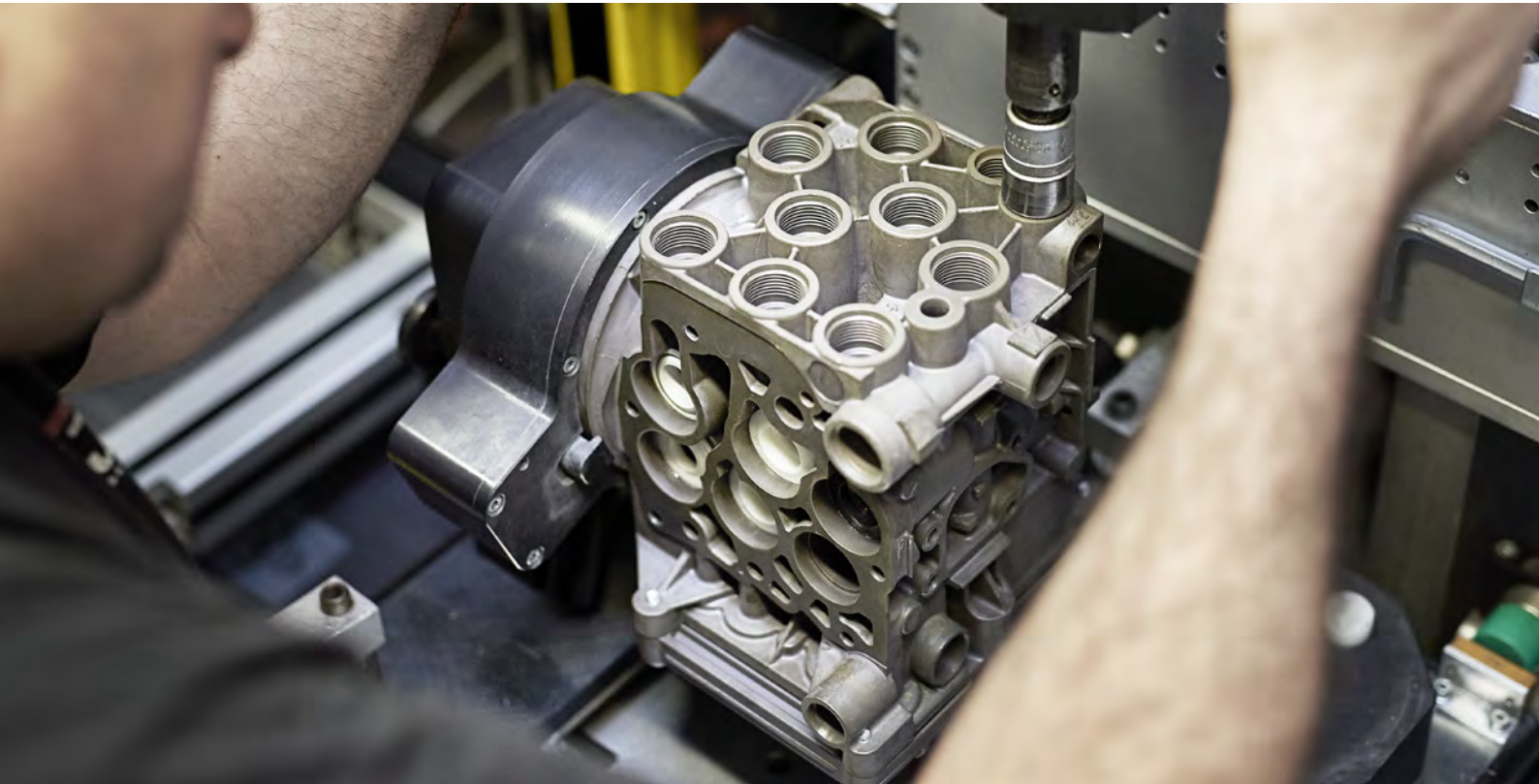
Further measures include health advice, stress management seminars, fitness programs and medical examinations. At many sites – for example in Germany, the UK and the USA – special health days with medical screening, advice and sporting events for employees are offered.

In-house medical care is available to our employees at all our sites, in addition to important preventive check-ups, vaccinations and pre-travel consultations. In the USA, our Bendix subsidiary offers its employees an extensive range of activities and information on subjects such as breast cancer prevention, healthy nutrition and physical fitness as part of its Bendix Be Healthy program.

PROTECTING HEALTH

An extensive range of measures aimed at maintaining and promoting our employees’ long-term health and tailored to the local needs of individual sites is available throughout the Group. Workplace design is constantly improved, for example by the introduction of low-vibration electric machines for assembly work or through advance planning of assembly processes to take ergonomic aspects into account.

Working conditions at Knorr-Bremse comply with top safety and health standards.



OPERATIONAL ENVIRONMENTAL PROTECTION

ENVIRONMENTAL MANAGEMENT
CLIMATE PROTECTION TARGETS 2020
ENERGY EFFICIENCY
RESOURCE EFFICIENCY

OPERATIONAL ENVIRONMENTAL PROTECTION

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

Knorr-Bremse is committed to comprehensive environmental protection in its production processes and through the development of resource-saving products and services. We are continually improving our environmental protection measures, collecting and analyzing key environmental performance data and setting environmental targets at Group and site level. By regularly inspecting and servicing our plant and machinery and carrying out preventive maintenance and repairs on the entire infrastructure, we minimize the negative environmental impact of our operations. At the same time, we promote environmental awareness and appropriate conduct amongst our employees through a range of communication measures and training courses, annually assessing the need for these on a site-by-site basis.

ENVIRONMENTAL MANAGEMENT

Knorr-Bremse's environmental principles are set out in our Health, Safety and Environmental (HSE) policy, which includes, amongst other things, regulations on the use of energy. In our HSE policy we commit to preventing or minimizing the impact of our processes, services and products on the environment and our fellow human beings. In order to achieve this aim, the Group has introduced an environmental management system at all its production sites. This is coordinated by central HSE departments for the Rail Vehicle Systems and Commercial Vehicle Systems divisions. A cross-divisional HSE Board ensures maximum coordination and standardization of HSE work in both divisions and encourages the leverage of synergies. A Group-wide HSE report provides regular information from production sites worldwide on the most important health and safety and environmental protection data and events.

Since 2001 we have also been driving a step-by-step process of Group-wide certification of all sites under the international environmental management standard ISO 14001. By the end of 2017, 59 production sites had achieved certification.

CLIMATE PROTECTION TARGETS 2020

Our measures to reduce carbon dioxide emissions (Scope 1 and Scope 2 as defined in the Greenhouse Gas Protocol) are grouped together under the Efficient Cut of CO₂ (ECCO₂) initiative, which was launched in 2009. Our original aim was to achieve a 20% reduction in our specific CO₂ emissions by 2020 and to increase our specific energy efficiency by the same amount. However we had already achieved this by the end of 2014, so we now have a new target: climate-neutral organic growth up to the year 2020. In specific terms this means that in 2020 – despite a sharp increase in production capacity – CO₂ emissions from operations at our sites will not exceed the figure for 2015. An annual Group-wide analysis identifies the biggest generators of CO₂ emissions within the company and draws up a list of short, medium and long-term measures to reduce CO₂ output. Another target – which includes new sites added to the Group as a result of acquisitions – involves energy efficiency being improved by a further 10% by 2020 compared with 2015.

Knorr-Bremse also aims to implement an energy management system according to the international ISO 50001 standard at its most energy-intensive production facilities. By the end of 2017, 34 European legal entities within the Group had a certified ISO 50001 energy management system. Our global guideline for the purchasing of electricity aims to increase the proportion derived from renewable sources provided by external companies.

Knorr-Bremse minimizes or avoids any impact on people and the environment caused by its processes, services or products.

ENERGY EFFICIENCY

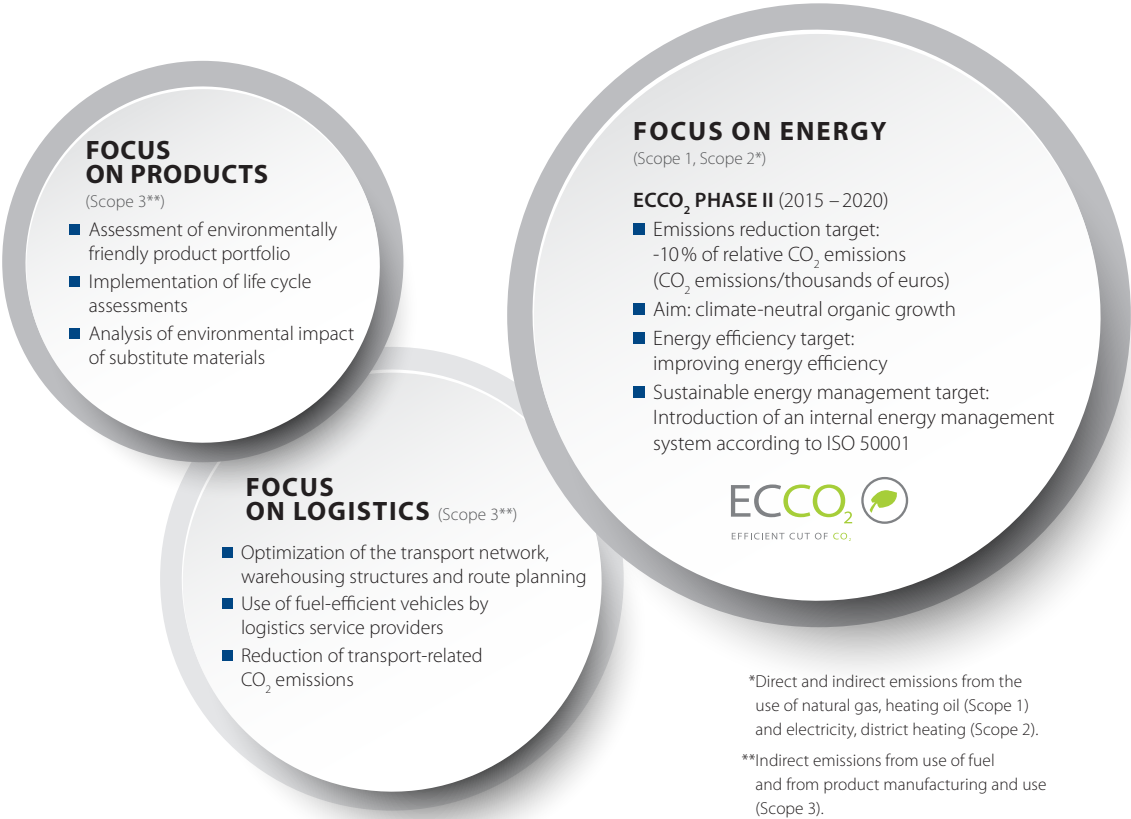
Knorr-Bremse identifies potential for energy savings throughout the company, with a main focus on buildings, plants and production processes. At some of our sites we have installed sub-meters to provide a detailed breakdown of energy consumption that helps us to identify areas where savings can be made and to develop measures to reduce energy consumption. Examples of local best practice are publicized throughout the Group in order to encourage synergies. For example the following energy-efficiency measures have been adopted within the Company.

BENDIX RECEIVES ENVIRONMENTAL PROTECTION AWARD FROM OHIO EPA

In October 2017 the EPA (Environmental Protection Agency) in Ohio gave Knorr-Bremse subsidiary Bendix a silver Encouraging Environmental Excellence (E3) Award for preventive environmental protection. The E3 program honors companies and organizations for outstanding voluntary achievements in environmental protection. Bendix received the award for several measures:

- Reducing waste and conserving resources in production processes by prolonging the life of brake components.
- Recycling 80% of original materials for refurbishment of new components
- Waste reduction measures that ensure that some 84% of waste no longer has to go to landfill.
- Saving some 495,000 kWh of electricity through new lighting systems.

CLIMATE PROTECTION AT KNORR-BREMSE
FOCUS ON THREE AREAS



*Direct and indirect emissions from the use of natural gas, heating oil (Scope 1) and electricity, district heating (Scope 2).
**Indirect emissions from use of fuel and from product manufacturing and use (Scope 3).

ALDERSBACH

At the Aldersbach/Germany facility, energy savings of some 400,000 kWh have been achieved in production and assembly operations by reducing the pressure of compressed air from 7.0 bar to 6.0 bar. This has not only increased energy efficiency at the facility but also improved the safety of employees who use tools powered with compressed air.

SUZHOU

The new facility at the major rail site in Suzhou/China sources some of its energy from its own photovoltaic plant, which generates some 240,000 kWh of electricity every year. A lighting concept that includes a new day-light reflection system means that in many areas of the plant additional lighting is not required. A further 210,000 kWh of electricity is saved by feeding compressed air generated for compressor testing back into the general compressed air system for production operations.

BOWLING GREEN

With a new lighting concept, the installation of energy-efficient air compressors and further energy-saving measures, a total of USD 350,000 are saved every year in Bowling Green/USA. For this achievement this site was presented with a Green To Gold Award by the Bowling Green Area Chamber of Commerce.

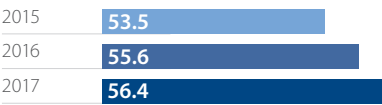
RESOURCE EFFICIENCY

Knorr-Bremse endeavors to make sparing and efficient use of materials in its production processes. In particular this applies to steel and iron materials, light metals, polymers, fuels and lubricants and packaging materials. In the product development process there is therefore a growing focus on the scope for using environmentally-friendly, resource-saving materials. The aim is to continuously increase the proportion of such safe, environmentally friendly materials used. Thus, for example the new painting facility for door leaves at the IFE production plant in the Czech Republic has been designed to ensure a sustainable production process, with no use of cleaning agents containing solvents during chemical pre-treatment. Furthermore, the use of adsorption zeolite filtration means that any solvents that have to be used during the later hardening process are retrieved and recycled. Waste air from the zeolite wheel is also used for controlling the temperature in the workshops and storage area.

Energy consumption*

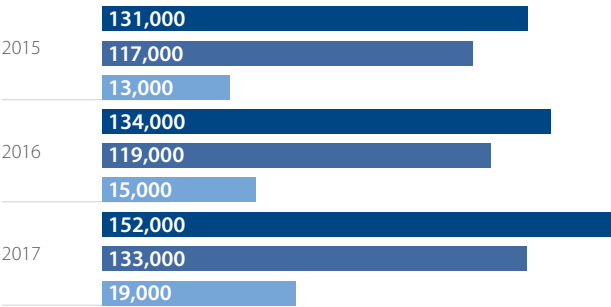


Absolute energy consumption in MWh



Specific energy consumption in kWh per thousand euros turnover

Emissions*



■ Total CO₂ emissions
■ Indirect CO₂ emissions (scope 2)
■ Direct CO₂ emissions (scope 1)

Direct and indirect CO₂ emissions in tonnes

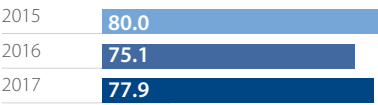


Specific CO₂ emissions in kg per thousand euros turnover

*In 2017 new and hitherto unconsolidated sites were included in the calculations. These accounted for around 9.6% of overall energy consumption.

Waste generated at Knorr-Bremse consists primarily of scrap metal, paper, and packaging as well as residual waste. In addition, surface treatment of our products results in electro-plating sludge. Measures are being taken to steadily reduce waste and improve material cycles. Smart utilization of waste offers considerable potential for reducing the use of resources. Our subsidiary Bendix has launched a comprehensive waste management program that aims to reduce landfill waste to zero by 2020. The company has already achieved almost 84% of its target. Waste audits help Knorr-Bremse identify the scope for waste reduction. A solvent recycling plant has been in operation in Palwal/India since 2017 and already recycles some 60% of solvents, significantly reducing the amount of toxic waste generated.

Water consumption



Specific use of fresh water in liters per thousand euros turnover

Water is used by Knorr-Bremse primarily for surface treatment and cleaning of products, for test applications and for drinking water and sanitary purposes. We obtain our fresh water from local authority suppliers and dispose of our waste water via public sewage systems. In order to save drinking water, some of our sites use rainwater for cleaning, in their sanitary facilities and for watering green spaces. It is our aim to use water with maximum efficiency and to recycle it as often as possible. For example, the site in Palwal/India operates a treatment plant for process water that makes it available for re-use in industrial processes, thereby significantly reducing fresh water requirements. And new dry ice cleaning technology in Suzhou/China helps to ensure more efficient water use. When parts are sent to be overhauled or repaired, they are usually covered in oil and dirt. As well as cleaning them more thoroughly, blasting them with a jet of dry ice saves some 600 tonnes of fresh water every year compared to conventional techniques and prevents the same amount of waste water from being generated.

Photovoltaic arrays help generate electricity at various Knorr-Bremse sites.

FIELD OF ACTION
ENVIRONMENT & CLIMATE



Our aim is to use resources responsibly, consistently reduce CO₂ emissions, minimize – and where possible avoid – undesirable impacts on nature and the environment and actively use opportunities to protect the environment.



SUPPLY CHAIN SUSTAINABILITY

SUPPLIER REQUIREMENTS

SUPPLIER ASSESSMENT

SOURCING OF RAW MATERIALS

EFFICIENT LOGISTICS

SUPPLY CHAIN SUSTAINABILITY

Our suppliers are an important part of our value chain and make a crucial contribution to the Company's success. Working with them, we intend to improve the entire value chain and meet our social and environmental responsibilities. This is the key to future-proofing the Company.

Knorr-Bremse's Group-wide Supplier Management System works with our partners to continuously improve the sustainability of our supply chain. For this reason, when suppliers are selected, in addition to purely commercial considerations such as quality, price, delivery reliability and availability, other aspects such as trusting cooperation, safety and environmental protection are also taken into account. As an international company, Knorr-Bremse works with a large number of different suppliers whose goods and services are mainly purchased locally. For both divisions the local content – the proportion of the total volume purchased that comes directly from suppliers in the region surrounding the manufacturing site – is around 70%. Such a high level of local content promotes sustainability by supporting the regions, reducing transportation requirements and cutting CO₂ emissions.

In 2017, both Knorr-Bremse divisions drove forward process optimization across the entire supply chain, with a view to integrating sustainability more closely into their supply management.

SUPPLIER REQUIREMENTS

Our Group-wide Supplier Code of Conduct sets out the requirements that we make of our suppliers in terms of working conditions, human rights, environmental protection, safety, business ethics and compliance. The Code was drawn up in 12 languages in 2017 and in the first roll-out phase was sent to some 3,600 direct suppliers.

49% of suppliers have now confirmed receipt and their acceptance of the Code of Conduct. During the coming year, distribution of the Supplier Code of Conduct will continue.

The cross-divisional purchasing guidelines for indirect materials (not used in production) require sustainability criteria to be taken into account when selecting suppliers. In addition there are precise guidelines on the use of renewable energy and the purchasing of energy-efficient products, equipment and services.

Suppliers of direct material must comply with the relevant quality management guidelines for the business unit concerned. Both divisions expect the ten principles of the UN Global Compact to be adhered to, and ISO 14001-compliant environmental management systems to be in place (and if possible, certified). More than 70% of our total purchases come from suppliers who have agreed to be bound by the principles of the UN Global Compact. Suppliers collectively responsible for more than 58% of the total purchasing volume in the Commercial Vehicle Systems division have a certified environmental management system.

We are currently working on updating our quality management requirements, which will refer to the Code of Conduct for Suppliers and also establish minimum requirements for sustainability. Signing a new supply contract will involve a commitment on the part of new suppliers to adhere to our sustainability standards and apply them to their upstream supply chain.

Knorr-Bremse is constantly improving logistics processes across the entire value chain.

RAILSPONSIBLE

At the start of 2015, the Rail Vehicle Systems division launched the Railsponsible initiative together with Alstom Transport, Bombardier Transportation, Deutsche Bahn, Nederlandse Spoorwegen, and French rail operator SNCF, with a view to achieving sustainable purchasing within the rail industry. The initiative also aims to encourage railway industry customers and suppliers around the world to subscribe to ethically and socially responsible environmental and business practices. Since it was first set up, a number of additional companies have joined the initiative: SKF (Svenska Kugellagerfabriken AB), SBB (Schweizerische Bundesbahnen) and RFI (Rete Ferroviaria Italiana).

KNORR-BREMSE HONORS SUSTAINABLE SUPPLIERS

In May 2017 Federal-Mogul Bremsbelag GmbH was named Supplier of the Year 2017 in the Sustainability category by the Commercial Vehicle Systems division. The evaluation was based on the following criteria: high level of sustainability assessment, environmental management system, responsible HR management, voluntary commitment to ethical conduct and sustainable supply chain management. The strategic supplier's activities demonstrated genuine commitment to sustainability and corporate responsibility.



SUPPLIER ASSESSMENT

Strategic and preferred suppliers for both Knorr-Bremse divisions are asked by external service providers about their sustainability performance, and their responses validated and assessed. Currently, 437 of our suppliers, accounting for 42% of our purchasing volumes, have undergone such an assessment.

We intend to increasingly integrate this sustainability assessment into the process of awarding supply contracts. The first steps in this direction were taken during the year under review: In the Rail Vehicle Systems division, preferred European suppliers and those of strategic importance are required to have undergone a valid sustainability assessment. In the Commercial Vehicle Systems division the decision to include a supplier in our

supply chain management now depends partly on their participating in a sustainability assessment.

Independent sustainability audits of two high-risk suppliers were also carried out in 2017, and further audits for high risk suppliers are planned. We also intend to increasingly include sustainability aspects in our internal quality audits. Appropriate audit questions are being drawn up and employee training will be offered.

We are determined to further integrate sustainability into our purchasing processes, and are currently working on our approach to supplier development. If an audit or assessment reveals infringements or scope for improvement, we intend to work with the supplier to tackle these deficits and improve their sustainability performance.



We take into account and support the endeavors of our business partners to improve their environmental impact and social compatibility.

FIELD OF ACTION
PRODUCTS & PARTNERS

RESPONSIBLE SOURCING OF RAW MATERIALS

Every year Knorr-Bremse spends more than EUR 300 million on raw, ancillary and operating materials. Most of the raw materials consist of metals, friction components, electronic components and plastics. In 2017 we set up an eco-design working party that we tasked with analyzing individual risk materials in detail with regard to sustainability and drawing up appropriate recommendations for action.

In our sustainability questionnaire (see page 34) our suppliers are questioned about the sourcing of minerals in conflict and high-risk areas and required to inform us of their status in this regard. Our subsidiary Bendix in USA requires annual disclosure of the origin of minerals used by its suppliers. We are also working within the German Automotive Association (Verband der Automobilindustrie) on finding effective solutions for the entire sector.

EFFICIENT LOGISTICS

In both divisions, Knorr-Bremse is working on improving logistics along the entire supply chain – from suppliers, via the production processes at all our sites, right down to delivery of the finished product to customers. The aim is to standardize and optimize processes and methods at our sites, and improve inter-site cooperation. The result will be better service in all distribution channels – particularly in relation to delivery reliability, quality, and lead times.

We already make full use of the scope offered by rail, road and sea transport to minimize the environmental impact of moving our products. For intercontinental transportation we try as far as possible to make use of rail or sea freight and avoid air freight. Consolidation of deliveries also reduces the number of freight movements and cuts CO₂ emissions.

Knorr-Bremse is working on optimizing operational transport management with the support of external service providers who handle the planning, consolidation and implementation of deliveries to Knorr-Bremse as well as transportation of products to our customers. Optimum coordination of the various transport modes has enabled Knorr-Bremse to further improve the sustainability of its logistics operations. Logistics service providers also bundle incoming material flows at strategically-positioned consolidation hubs within Europe.

Another important part of our global transport strategy involves making optimum use of existing container capacity. To improve the environmental impact of logistics, we largely avoid break bulk transportation. In 2017 we achieved 70% utilization of containers used by the Commercial Vehicle Systems division on main routes, and we are continuing to adjust quantities and packaging concepts to make even better use of the weight and volume limits of shipping containers.

In order to improve the efficiency of our transport network and reduce transport-related CO₂ emissions, we require our logistics partners to use modern, fuel-efficient vehicles that meet the current European emissions standards for trucks. In 2014, Knorr-Bremse introduced a contractually-agreed reporting system according to DIN ISO 16258 in order to monitor transport-related pollutants. This obliges transport service providers not only to adhere to the statutory emissions standards but also to take the most direct route for their deliveries. Knorr-Bremse is also continuously improving its internal logistics.

WAREHOUSES MERGED FOR GREATER EFFICIENCY

At our Suzhou site in China, the merging of three separate storage facilities into a single warehouse within easy walking distance of the factory has enabled us to avoid some 1,000 internal shipments per year. Processing costs have also been reduced, as goods from different facilities no longer have to be consolidated into a single delivery. This not only results in cost savings and reduced throughput times but also cuts CO₂ emissions by some 7.4 tonnes per year.

SOCIAL COMMITMENT

Knorr-Bremse concerns itself with social issues and plays an active role world-wide as a good corporate citizen.

Responsibility' is a Knorr-Bremse corporate value and one that the Group lives by, day after day – 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 projects. 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 company's identity. Our community involvement covers both global and local social issues. In 2017 Knorr-Bremse spent a total of some EUR 3.9 million on such activities.

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. Knorr-Bremse Global Care is a charitable organization that promotes longer-term projects with bigger financial implications all over the world. Knorr-Bremse Global Care was founded at the beginning of 2005 by employees of the Knorr-Bremse Group in the aftermath of the tsunami disaster in Southeast Asia.

An autonomous organization based in Munich, it is funded by an annual donation from the Knorr-Bremse Group. Both Local Care and Global Care offer employees a wide range of opportunities to become involved in community projects in the area around their workplace and beyond.

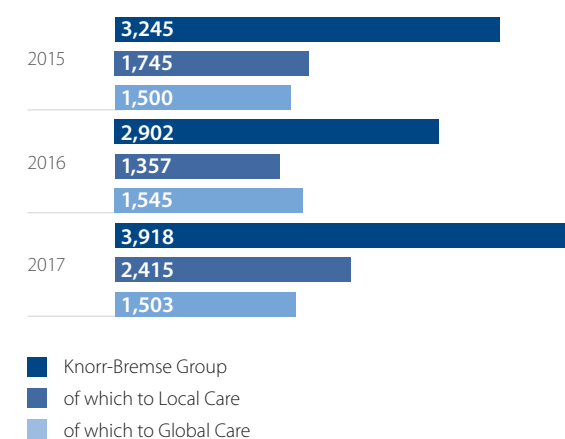
LOCAL CARE: INVOLVEMENT AT LOCAL LEVEL

Local Care is the name given to the community activities carried out by our sites and their employees all over the world on the basis of the Principles for the Social Commitment of Knorr-Bremse which formulate goals and standards and establish areas for funding and the criteria involved. The Local Care Donation Guideline establishes standard principles for the local distribution of donations.

Local Care covers donations, projects and activities that are selected, financed and supervised autonomously by the sites in question. Instruments include

- Voluntary donations of time and money in aid of charitable causes and for projects in our main funding categories: education, health, environment and social cohesion;
- Corporate volunteering, in which staff are allowed time off work to support charitable organizations;
- The Get involved initiative, which provides donations to support the personal voluntary work carried out by employees in their free time for charitable organizations and projects in the support categories mentioned above;
- Matched giving programs in which donations from the workforce are topped up by the company, which matches or multiplies every donation made by employees.

Donation expenditure





Donations made by the Knorr-Bremse Group
(in EUR thousands)

SOCIAL COMMITMENT
 LOCAL CARE
 GLOBAL CARE

Central record keeping for all projects facilitates the communication of transferable best practice. There is a dedicated communication platform where users can share information and ideas between sites. Projects that enable us to contribute our own expertise are considered particularly good examples of best practice.



We place a special emphasis on networked projects that involve both Local Care and Knorr-Bremse Global Care. Two current examples that demonstrate how the two pillars can be combined in a meaningful way are the refurbishment of a women's refuge in Austria and planting and maintaining a community garden in Hungary.

SELECTED LOCAL CARE PROJECTS BY SUPPORT CATEGORY

	ENVIRONMENT 	HEALTH 
EUROPE/ AFRICA	<ul style="list-style-type: none">Planting and looking after a community garden for local residents in need (Budapest/Hungary)Funding purchase of seed for a nearby area affected by forest fires (Madrid/Spain)River clean-up as part of an environment day (Florence/Italy)Financial support for the conservation of a nature and bird reserve (Budapest/Hungary)	<ul style="list-style-type: none">Staff supervise a healthy breakfast for schoolchildren (Munich/Germany)Producing artificial hands for land mine victims in developing countries (Berlin/Germany)Financial support for an organization that promotes physical health (Melksham/UK)Staff involvement in supporting various cancer charities (Wolverton/UK)
ASIA/ AUSTRALIA	<ul style="list-style-type: none">Beach clean-up (Hong Kong/China)Planting trees, which staff will personally look after and water for three years (Pune/India)Participation in a lakes and rivers conservation project (Pune/India)	<ul style="list-style-type: none">Financial support for an organization that promotes eye health (Hong Kong/China)Financial support and participation in sporting events (Suzhou/China)Participation in charity cycle races to support patients with multiple sclerosis (Granville/Australia)
AMERICA	<ul style="list-style-type: none">River bank clean-up (Elyria/USA)Supporting a rehabilitation and species conservation center for wild animals (Itupeva/Brazil)Scholarship for a student of sustainability and environmental sciences (Watertown/USA)	<ul style="list-style-type: none">Donating blood to the American Red Cross (Westminster/USA)Collecting donations for socially disadvantaged families to secure healthcare for them (Westminster/USA)Collecting donations for a heart health organization (Watertown/USA)Funding medical equipment for the local medical service (Elyria/USA)

Both projects were financed by Knorr-Bremse Global Care and supported by local employees, who invested a considerable amount of time and effort in them. The Knorr-Bremse Rail Systems site in Budapest created a community garden in a suburb of the capital, which is run and maintained by Knorr-Bremse staff. The garden is for the benefit of socially disadvantaged people, a local home for

the elderly and a facility for people with disabilities. In Mödling, the residents of the women's refuge are delighted with their refurbished kitchen area. Staff at the Knorr-Bremse and Zelisko sites in Mödling worked hard to create an attractive temporary home for women and children who have been the victims of domestic violence.

EDUCATION 	SOCIAL COHESION 	
<ul style="list-style-type: none">Refurbishing nurseries and primary schools and helping with equipment and healthcare (Kecskemet/Hungary)Financial support for a facility for young patients with autism (Wolverton/UK)Financial support in the field of robot programming for children (Budapest/Hungary)Financial support for an education center for disadvantaged children (Cape Town/South Africa)	<ul style="list-style-type: none">Refurbishing a common room in a support center for people with disabilities (Melksham/UK)Helping to refurbish a women's refuge (Mödling/Austria)Christmas presents for children in the women's refuge and in the Horizont-Haus for homeless mothers and their children (Munich/Germany)Funding school dinners for socially disadvantaged children (Madrid/Spain)Donations of clothing and food for street children (Port Elizabeth/South Africa)	EUROPE/ AFRICA
<ul style="list-style-type: none">Donation of school materials for disadvantaged young people (Pune/India)Funding sanitary facilities and helping refurbish a school (Pune/India)Funding scholarships and supporting a technical university (Suzhou/China)Funding a covered outdoor area at a facility for disabled schoolchildren (Dalian/China)Funding new equipment and the refurbishment of a primary school (Nankou and Daxing/China)	<ul style="list-style-type: none">Funding a roof over a school yard for disabled children (Dalian/China)Actively helping a food bank prepare and distribute meals to socially disadvantaged people (Hong Kong/China)Financial support for a facility for the homeless (Granville/Australia)	ASIA/ AUSTRALIA
<ul style="list-style-type: none">Funding schoolchildren's participation in a one-week environmental project (Westminster/USA)Funding scholarships for socially disadvantaged youngsters (Watertown/USA)Financial support for schools, especially in the sciences (Quebec/Canada)Building and equipping an industrial laboratory for a high school (Acuña/Mexico)	<ul style="list-style-type: none">Collecting donations (money and donations in kind) for the victims of hurricanes Harvey, Irma and Maria (Elyria, Watertown and Westminster/USA)Building homes for the homeless in Elyria and for victims of the tornado in Acuña (Acuña/Mexico; Elyria/USA)Renovating rooms for socially disadvantaged women (Westminster/USA)Donations of toys for disadvantaged children (Watertown/USA)	AMERICA

GLOBAL CARE: WORLD-WIDE INVOLVEMENT

Since it was set up in 2005, Knorr-Bremse Global Care has worked with partner organizations to improve the living conditions of over 670,000 people in 59 countries through around 245 projects. Funds totaling around EUR 18 million have been made available. In 2017, Global Care supported 60 projects in 28 countries at a cost of around EUR 2 million, reaching more than 36,300 people.

Knorr-Bremse Global Care focuses most of its project work on countries with Knorr-Bremse sites. In addition, the organization supports development projects in ten other countries with which it has a longstanding connection, (Cambodia, Colombia, Ethiopia, Ghana, Kenya, Myanmar, Peru, Sri Lanka, Tanzania and Ukraine). Knorr-Bremse Global Care's development activities are focused on two main areas: WASH (water, sanitation and hygiene) and education. In individual cases, the organization supports emergency relief measures following disasters, including in regions outside its focus countries.

Through its WASH projects, the organization aims to bring about long-term improvements to clean water supplies and hygiene conditions, especially in developing countries and emerging economies. In 2017, Knorr-Bremse Global Care supported World Vision in its efforts to develop a sustainable water supply system in the region around the city of Miraj in India. By installing drinking water treatment plants, it has provided access to clean water for 1,370 families in four of the villages severely affected by drought. 100 small-scale farmers and their families also received assistance to set up a drip-irrigation system for some of their fields. Indian experts trained the farmers in the best way to irrigate crops planted in rotation, and how to carry out simple repairs.

Through its education projects, Knorr-Bremse Global Care aims to give young people new prospects and a chance to secure their own livelihood. Together with Bendix Commercial Vehicle Systems and ICATEC, a local workplace skills institute, Knorr-Bremse Global Care has launched a training project in Acuña in Mexico. Each month, the Light Manufacturing Skills for Youth at Risk program trains 15 to 20 young people between the ages of 18 and 25 who left school with poor qualifications, or none at all. The full-time program runs over four weeks, each week consisting of four days of theory in the company's own training center, and a practical day on the Bendix production line. The timetable includes topics like safety, quality and measuring techniques, as well as practical skills such as driving forklift trucks and assembly. Students who successfully complete the training receive an ICATEC certificate. The program is tailored to meet local social challenges and also helps with staff turnover at Bendix. The result is a win-win situation that helps the young people improve their education and job prospects, while at the same time generating added value for Bendix. Recently, 60% of young adults completing the program have been offered employment with the company.

Further project examples and information on the activities of Knorr-Bremse Global Care can be found at www.global-care.eu and in the Knorr-Bremse Global Care 2017 Annual Report.



**As a member of society, we support social projects
and play an active world-wide role as a good
corporate citizen.**

In 2017, Knorr-Bremse Global Care funded
60 projects in 28 different countries.



IMPLEMENTATION OF THE TEN UN GLOBAL COMPACT PRINCIPLES

Knorr-Bremse has been a signatory to the UN Global Compact since 2010, and we report annually on how we implement the Global Compact’s ten principles in our company. The following table provides an overview of the voluntary commitments, guidelines and management

systems that help us integrate the principles of the Global Compact into our business processes. The index also provides references to the relevant content regarding the Global Compact and its implementation in 2017.

PRINCIPLE		KNORR-BREMSE GUIDELINES, REGULATIONS AND MANAGEMENT SYSTEMS	PAGES/SECTIONS
H U M A N R I G H T S			
PRINCIPLE 1	Businesses should support and respect the protection of internationally proclaimed human rights.	Code of Conduct (p. 5, 8, 19) Corporate Responsibility Guidelines (p. 5) Health, Safety and Environmental policy (p. 5, 24, 27) UITP Charter on Sustainable Development (p. 5) Compliance Management System and Organization (p. 8) Supplier Code of Conduct (p. 5, 9, 33)	5 Sustainable corporate governance 8 Compliance and integrity 9 Due diligence for human rights 19 Responsibility for employees 19 Fair employment practices 20 Promoting diversity 24 Safety at work 25 Protecting health 33 Supply chain sustainability 33 Supplier requirements 34 Supplier assessment 35 Responsible sourcing of raw materials
PRINCIPLE 2	Businesses should make sure they are not complicit in human rights abuses.		
L A B O R S T A N D A R D S			
PRINCIPLE 3	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining	Code of Conduct (p. 5, 8, 19) Corporate Responsibility Guidelines (p. 5) Compliance Management System and Organization (p. 8) Leadership Principles (p. 5, 24)	5 Sustainable corporate governance 8 Compliance and integrity 9 Due diligence for human rights 33 Supply chain sustainability 33 Supplier requirements 34 Supplier assessments 35 Responsible sourcing of raw materials
PRINCIPLE 4	and furthermore uphold the elimination of all forms of forced and compulsory labor,		
PRINCIPLE 5	the effective abolition of child labor		
PRINCIPLE 6	and the elimination of discrimination in respect of employment and occupation.		



PRINCIPLE		KNORR-BREMSE GUIDELINES, REGULATIONS AND MANAGEMENT SYSTEMS	PAGES/SECTIONS
ENVIRONMENTAL PROTECTION			
PRINCIPLE 7	Businesses should support a precautionary approach to environmental challenges,	Code of Conduct (p. 5, 8) Supplier Code of Conduct (p. 5, 9, 33) Climate protection strategy with Group-wide targets (p. 27) Health, Safety and Environmental policy (p. 5, 24, 27) Group-wide Environmental Management System (p. 27) Energy Management System (p. 27)	5 Sustainable corporate governance 10 Responsibility for products 10 Investment and innovation 12 Saving resources 14 Products that benefit people and the environment 19 Responsibility for employees 24 Safety at work 27 Operational environmental protection 27 Environmental management 27 Climate protection targets 2020 28 Energy efficiency 29 Resource efficiency 33 Supply chain sustainability 33 Supplier requirements 34 Supplier assessments 35 Responsible sourcing of raw materials 35 Efficient logistics 37 Social commitment
PRINCIPLE 8	undertake initiatives to promote greater environmental responsibility and		
PRINCIPLE 9	encourage the development and diffusion of environmentally friendly technologies.		
CORRUPTION PREVENTION			
PRINCIPLE 10	Businesses should work against corruption in all its forms, including extortion and bribery.	Code of Conduct (p. 5, 8, 19) Compliance Management System and Organization (p. 8) Supplier Code of Conduct (p. 5, 9, 33)	5 Sustainable corporate governance 8 Compliance and integrity 9 Due diligence for human rights 33 Supply chain sustainability



Since 1905, Knorr-Bremse has pioneered the development, production, marketing and servicing of state-of-the-art braking systems.

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