



**SUSTAINABILITY  
REPORT 2023**



**KNORR-BREMSE**

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# Foreword

Dear Reader,

Knorr-Bremse can weather a crisis – and we impressively proved that again in 2023 by setting new records for revenue, order intake, and the order book in spite of enormous economic challenges. War and territorial conflict, persistently high energy prices, and the slow decline in inflation burdened the global economy, and therefore our business, in 2023. However, thanks to our resilience and strong performance, we were able to achieve our ambitious targets. Sustainability has once again proven to be an important driver for Knorr-Bremse as a company shaping the future.

The Executive Board is united in its commitment to the sustainable direction of Knorr-Bremse and has emphasized the significance of sustainability for innovation and profitable company growth in the “BOOST 2026” strategy program. With our products, our processes, and our employees’ development spirit, we enable safe and sustainable mobility. As part of our integrated sustainability strategy, we continued to work in a structured manner on improving our sustainability performance along the entire value chain in 2023. Examples include the ongoing implementation of energy efficiency measures, the expansion of renewable energy self-generation, the stronger incorporation of sustainability in decision-making processes, and the efficient product solutions we have successfully developed for our customers. External sustainability ratings and rankings rewarded our efforts and performance with above-average ratings in many cases, e.g. Knorr-Bremse received an A- rating from CDP.

The linking of STI and LTI remuneration at the management levels 0 to 2 to ESG criteria is just one example of the ongoing integration of sustainability into the company-wide governance structures. Another is the fact that two thirds of Knorr-Bremse’s financing instruments are linked to sustainability criteria. Compliance with responsible business practices and principles can be seen, for example, in our commitment to a sustainable supply chain management, which we foster with sustainability assessments and audits of suppliers.

Climate change is a major challenge, and we counter it with our climate protection strategy and innovative product portfolio that make a contribution to sustainable mobility. Knorr-Bremse has committed itself to a long-term target of net zero emissions (Scopes 1 to 3) by 2050. Milestones on this journey include our revised interim targets for 2030, which have been validated by the Science Based Target initiative (SBTi). We are on track to reduce our Scope 1 and Scope 2 emissions and have expanded our reporting on material emissions along our value chain (Scope 3). Our internal carbon price, introduced in 2023 as a criterion for capital expenditure decisions, is a further contribution to climate protection.

Knorr-Bremse, a global market and technology leader as well as system supplier, is a key driver of transformation in transportation and mobility. This is underscored by our R&D activities, on which we spent 6.9 % of consolidated revenue in 2023. Our sustainable mobility solutions, developed from an EcoDesign perspective, fit the development road maps of rail and road customers.

Economical and reliable solutions for train operation promote the shift of traffic to environmentally friendly rail transportation and accelerate decarbonization. Our Digital Automatic Coupler (DAC), alongside our passenger couplers first ordered in 2023, is part of the solution package for the Digital Freight Train. The latest generation of the CubeControl brake control paves the way for the innovative Reproducible Braking Distance (RBD) brake architecture, which can increase rail transportation capacity. Furthermore, digital services and business models enable improved train life cycle management.

A wide variety of Knorr-Bremse technologies and solutions contribute to the decarbonization of the commercial vehicle industry, as well. In the Commercial Vehicle Systems division, the successful eCUBATOR innovation unit was extended beyond 2023. At it, we are developing system solutions for electric commercial vehicles and, in the future, will concentrate on further fields of business surrounding zero-emission vehicles. Our commercial vehicle steering business offers electric power steering (EPS), a key technology for automated driver assistance systems (ADAS), highly automated driving (HAD), and e-mobility. We are also committed to the idea of the circular economy and remanufacturing, the industrial reconditioning of used brake components. This conserves valuable raw materials and energy.

An extensive, longer-term task is the cultural change initiated within the company in 2023. The management and workforce are shaping and driving this change together. Our vision, as an open, highly innovative technology company, is to be a top employer. Important elements of this include the enhanced leadership culture and the Group-wide Diversity, Equity, and Inclusion (DEI) Strategy, which is being rolled out. Our social commitment, with over 450 Local Care projects in 2023, not only promotes our appeal as an employer and the cohesion of our workforce, but also contributes above all to an improvement of the living conditions surrounding our locations.

We have set the course to continue fulfilling our responsibility towards the environment, employees and society in the future. Find out more about our strategy, targets, and initiatives in our online Sustainability Report. The additional magazine section presents a few of our employees who are practicing and promoting sustainability at Knorr-Bremse. We hope you enjoy reading it.

The Executive Board  
Knorr-Bremse AG



**Marc Llistosella**  
Chief Executive Officer



**Frank Markus Weber**  
Chief Financial Officer



**Dr. Claudia Mayfeld**  
Member of the Executive Board



**Dr. Nicolas Lange**  
Member of the Executive Board



**Bernd Spies**  
Member of the Executive Board

## Sustainable action in all areas of responsibility – this is what the Executive Board of Knorr-Bremse stands for



### Marc Llistosella

Chief Executive Officer since 2023

Global responsibility for Strategy, Communication, IT, Information Security, Corporate Security, Internal Audit, and Digitalization

**“Our ‘BOOST 2026’ strategy stands for profitable company growth. Knorr-Bremse’s determined focus on sustainability will be a key factor of success in this. With technological excellence, our product range, our processes, and our committed employees, we are a reliable paver of the way for ESG and our customers’ sustainable mobility. As such, we are also supporting our innovation and long-term business success.”**



### Dr. Nicolas Lange

Member of the Executive Board since 2023

Global responsibility for the Rail Vehicle Systems division

**“The rail industry demands solutions that promote cost-effectiveness, reliability, and efficiency in train operation. This is how to shift traffic toward rail and accelerate decarbonization. Knorr-Bremse is just as much a pioneer for this as it is for its digital strategy, with developments such as the Digital Automatic Coupler (DAC) for the freight train of the future. This unlocks new business models for us, e.g., Nexxiot solutions for condition-based maintenance.”**



### Dr. Claudia Mayfeld

Member of the Executive Board since 2021

Global responsibility for Integrity, Legal, IP, Data Protection, and Human Resources

**“Being involved in shaping and driving corporate culture is a very intensive and worthwhile task. Our vision as a technology company is to be a top employer where everyone enjoys working due to the appreciative corporate culture. Our revised leadership principles, the further development of our speak-up and leadership culture and our holistic diversity strategy are important elements in this. We know that cultural change takes time, but we are already setting a lot in motion thanks to our highly motivated workforce!”**



### Bernd Spies

Member of the Executive Board since 2022

Global responsibility for the Commercial Vehicle Systems division

**“With the eCUBATOR innovation unit, we are directing our product portfolio toward e-mobility. We develop secure and reliable systems that correspond with the vehicle makers’ electrification road maps, featuring energy efficiency and minimized noise and fine dust emission. Our eCUBATOR is fit for the future, too, as we developed strategic focus areas and a global setup in 2023 in order to respond to regional legislation and market requirements quickly and efficiently.”**



### Frank Markus Weber

Chief Financial Officer since 2020

Global responsibility for Finance, Accounting, Controlling, Taxes, Treasury, M&A, Sustainability, and Investor Relations

**“Knorr-Bremse has set ambitious sustainability targets, and these can only be met with a strong organizational structure for sustainability. We align it with the targets and are consistently integrating sustainability further into our decision-making processes. Noteworthy examples of this include the independent confirmation of our ambitious emission reduction targets by the SBTi and the establishment of an internal carbon price as a criterion for capital expenditure decisions.”**



# International Sustainability Strategy, Local Implementation: Insights from America

Sustainability management – in all its facets – is a global task. Marcus Hoffmann, Vice President ESG at Knorr-Bremse, and Maria Gutierrez, Senior Director ESG at Bendix, are convinced that the combined strengths of global and local sustainability management are crucial for realizing the company’s ambitious targets. How can this be done? With a shared understanding of sustainability globally, good organization, buckets of enthusiasm, and advice from Spiderman.

## Maria Gutierrez

has worked for Bendix since 1997 and is the cross-divisional HSE coordinator for Knorr-Bremse’s Americas region. In her role as Senior Director ESG at Bendix, Maria Gutierrez has achieved a lot in terms of environmental protection and employee activities at the manufacturing sites.

## Marcus Hoffmann

Vice President ESG, has headed Knorr-Bremse’s Sustainability department since October 2022. The global dimension and the wide range of sustainability topics at Knorr-Bremse are a particularly motivating challenge for him.

Anyone who reads or listens to the news these days will undoubtedly come across the various global environmental and social challenges we are all facing. The sustainability performance of a company is therefore increasingly coming under scrutiny. In a corporate context, the three-letter acronym ESG [environment, social, and governance], a guardrail defining a set of criteria, is receiving more attention. Yet why are these criteria so important for Knorr-Bremse?

**Marcus Hoffmann:** Knorr-Bremse has already been pursuing active sustainability management since 2008. Back then, we incorporated different sustainability aspects into our organization and progressively expanded our internal structures and processes. Today, we benefit from this long-standing basis. With increasing stakeholder and reporting requirements, the ESG criteria serve to provide a clear structure for sustainability-related topics and effectively support their efficient management. This is crucial since it provides more guidance in an increasingly

complex environment and makes it easier to identify and manage ESG-related risks and opportunities. ESG thus creates transparency and comparability for internal and external stakeholders and underlines the importance of sustainability for the long-term success of a company.

### Think globally, act locally – presumably the same goes for the sustainability strategy?

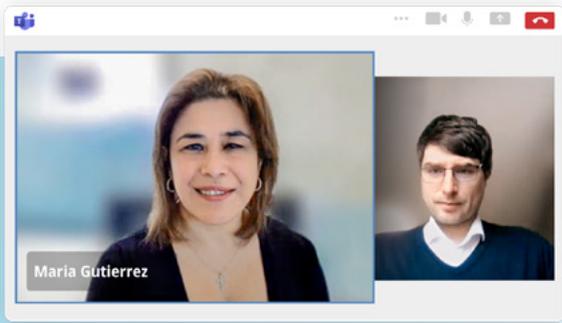
**Marcus Hoffmann:** Absolutely. As a company, we strive to enable safe and sustainable mobility – with our products, our processes, and the innovative spirit of our employees. Our overarching global sustainability strategy is developed in Munich by our Corporate Sustainability Department in close collaboration with the various specialized departments across the company. In this context, our Group ESG Board acts as a guiding body that constantly challenges the status quo as well as the way forward and provides further ideas for the efficient achievement of the agreed targets (→ [Organizational Structure for Sustainability](#)). The ESG Board is thus an important interface between the Knorr-Bremse Group, the divisions, and regional coordinators. Incorporating the viewpoints and arguments from these stakeholders is especially important because ultimately the ESG strategy and most of the respective activities are implemented at a local level.

### Mrs. Gutierrez, how are you adapting the global sustainability strategy at the Bendix locations in the Americas?

**Maria Gutierrez:** We are all pieces of the puzzle – and in order for Knorr-Bremse to be successful, we have to figure out how we all fit in it. Structurally, we have implemented an organizational structure for ESG at Bendix, built by a very ambitious team full of central specialists and the locations reporting to this team. Strategically, in the Americas, we apply the global Knorr-Bremse sustainability framework and define our tactical regional plan. For a corporate vision or goal – like zero injuries or net zero – we create a road map and identify specific actions for our locations.

### Can you give us an example?

**Maria Gutierrez:** Take safety, for instance, where our goal is to reduce incidents. Each location implements various actions which are based on their specific risks such as ergonomics, machine guarding, material presentation, or culture. Today, our total case incident rate (TCIR) is far below the industry average. A key factor behind this figure is our consistent awareness of routines and campaigns at all locations.



**“We can only tackle global challenges such as climate change, extreme weather, or social inequality by thinking globally and acting locally.”**

**Maria Gutierrez**

### **Energy treasure hunt at the Bendix Bowling Green plant**

The energy treasure hunt is a three-day event intended to lower energy costs and reduce carbon emissions, sponsored by the US Department of Energy. In Bowling Green, 17 employees went looking for energy savings potential in production. This allowed structural air leaks to be identified with containment that helped to render an entire air compressor unnecessary. It's nothing short of a treasure trove with potential energy and gas savings of 1.6 tons of CO<sub>2</sub>e and a value of over \$250,000.



### **LEED Silver certification for the headquarters of Bendix (2022)**

LEED (Leadership in Energy and Environmental Design), administered by the U.S. Green Building Council, is the most widely used green building rating system in the world. The energy efficiency of the building was and is particularly important to Bendix. High-efficiency lighting, windows, insulation, and HVAC equipment help reduce overall energy consumption in the building by over 18% compared to similar buildings.



### **Photovoltaic installation in Huntington**

The 1,168-megawatt PV installation at Huntington, Indiana, completed its first full year of operation in 2022. At full capacity, the project can produce 1.5 million kilowatt-hours of electricity annually from its 2,612 solar panels. In 2022, the installation was satisfying 30% of the electrical demand at Huntington Plant 1. The self-generated energy provided a 19% reduction in the campus' carbon footprint. And by producing this energy, Bendix saved more than \$140,000 in energy costs - well above the company's original estimates.



**Mr. Hoffmann, currently one major challenge is to implement new or upcoming European ESG-related regulations such as the CSRD. How is their acceptance worldwide?**

**Marcus Hoffmann:** The EU Corporate Sustainability Reporting Directive [CSRD] is a regulatory framework that imposes a broad bandwidth of legally binding ESG management and reporting requirements. The CSRD aims to standardize the disclosure of nonfinancial information and, in parallel, to increase the transparency and comparability of a company's ESG performance. For a global player like us, European directives naturally have a direct impact on our sustainability management globally because we ultimately need to report for the entire Group. While imposing considerable administrative effort and complexity, the idea behind the CSRD is a good one. The information to be disclosed helps the company as well as the local level to dive deeper into critical ESG topics and identify relevant risks and opportunities as well as their status. In this context in particular, we need to clearly communicate the advantages of such regulations as the procurement of information and data requires local commitment and good organization. Are European regulations more of a driver or a burden, Maria?

**Maria Gutierrez:** I'll start by looking at the big picture. We can only tackle global challenges such as climate change, extreme weather, or social inequality if we think globally and act locally. That's why I think the regulatory framework is a necessary evil. It will require additional effort from our side, but it is needed. We as corporations have a responsibility to help solve the problems of the world and, furthermore, we as a public company have to act and report transparently for the benefit of our stakeholders.

**Does the central sustainability strategy adequately take the local conditions into account?**

**Maria Gutierrez:** We understand the focus in Munich is to create global strategies, and it is a challenge to keep everyone informed. The key to making this work successfully is collaboration from both sides. In the Americas region, we took a very proactive approach. We try to stay informed of developments and we proactively reach out to Munich. We ask for updates to understand potential future impacts and we offer information before it is requested. Nevertheless, one goal could be to create an even more formal network between regions and locations. We have intensified the exchange of best practices in our region.

**Does this mean you are connecting regionally and across divisions?**

**Maria Gutierrez:** Exactly, the aim must be to leverage many synergies in the form of common tools between the locations. The locations' Health, Safety, and Environment [HSE] challenges are very similar; we don't have to reinvent the wheel. During our Global Zero Waste initiative, we identified a plethora of best practices that could easily be transferable and implemented at many other locations. In 2023, we were determined in working with our sister company in the Rail Vehicle Systems division in the Americas. A highlight was our first joint annual HSE conference for the Americas region; our Brazilian location also took part.

## Was Knorr-Bremse's 2030 Climate Strategy a topic at the conference?

**Maria Gutierrez:** Very much so, as we all wish to contribute to reducing Knorr-Bremse's carbon emissions by 2030. The important areas on which Bendix has focused its efforts are related to HVAC, compressed air, and lighting. For several years, we have also focused on carbon emission reductions by adding the lever of onsite renewable energy generation. We were strategic in identifying the locations where it made financial sense – due to local incentives, cost, labor, sunlight availability, or other matters. Bendix now has three photovoltaic array systems in operation (→ [New photovoltaic systems produce electricity for production facilities](#)).

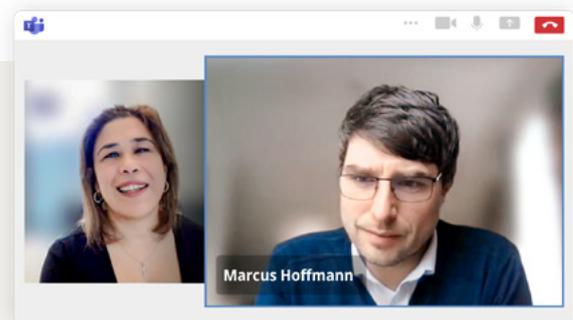
## There are shared goals uniting the regions. Does this also apply to your Group-wide diversity, equity, & inclusion [DEI] strategy?

**Marcus Hoffmann:** The strategy is currently being rolled out and our goal is to reach each and every employee around the world. Our job at a Group level is to communicate the benefit of diversity for the company and even society. In every country, you'll find some people who are critical of our company's mindset – this is something we have to accept and think about. However, it will not affect our intrinsic motivation to contribute to sustainable development by acting responsibly toward our employees, business partners, the environment, and society. After all, we firmly believe that this is important for our company's success. And to be clear, we can only be successful if we make use of the know-how, commitment, and experience of our colleagues. Maria, how do you see it?

**Maria Gutierrez:** A common thread of ours as a company is corporate responsibility, and this applies in particular to DEI. We are all unique individuals with personal life experiences that make us perceive the world in different ways. In this lies the power of diversity and inclusion, provided we are able to harness all these different perspectives to be more agile, creative, innovative, and, ultimately, successful. I also have an individual biography as a female engineer, single mother, and immigrant. All these experiences have shaped my life. Now, in my current position, I see it as part of my responsibility to create a good environment for other people to develop personally and professionally.

**“What's important to me is to consistently show that sustainability creates value for the company, for our business partners, and for society as a whole. This will accelerate awareness and commitment – professionally and privately – even further.”**

**Marcus Hoffmann**



## Do you see many employees also feeling personally driven towards sustainability?

**Marcus Hoffmann:** There is an incredible number of committed employees at Knorr-Bremse, whether in product development and EcoDesign, purchasing, supply chain management, HSE, or sales. It is encouraging to see how activities are executed in the locations globally and Bendix is leading the way on a broad range of topics. Concretely, I am thinking here of the staff's Local Care commitment with volunteering and the Get Involved program, as well as of the Green Team at Bendix. These are environmental ambassadors within the workforce who initiate environmental campaigns within the company, for example. In addition, Employee Resource Groups, i.e., interest groups initiated voluntarily and led by employees, have taken another leap forward by covering topics such as veterans or pride [LGBTQIA+] and caring for dependents. The Group-wide women's network "woman@" exists in North America, too, of course.

**Maria Gutierrez:** I would also like to recognize the commitment of our employees to volunteering in social projects. Along with all forms of financial and material support, Bendix team members volunteered close to 9,500 service hours in 2023. Among all the wonderful projects, I want to mention the homebuilding project for families in need in Ohio. Last year, 200 employees were involved in the project as volunteers (→ [With hearts and hands: Social commitment at Knorr-Bremse's sites](#)). The number and long-term nature of our projects show that our community support efforts are not one-off events, but rather are part of who we are as an organization.

### Health center at the Huntington site

Since September 2023, the center, operated in partnership with Marathon Health LLC, has been caring for employees and their family members. A nurse practitioner and medical assistant provide preventive, primary, and acute care services, follow-up care, and referrals. Other services include health assessments, health coaching, medication dispensing and support, lab tests, handling of chronic conditions, and educational offerings.



### Zero Waste to Landfill

Laying the groundwork for Bendix's zero-waste program is a continuously evolving ISO 14001-certified environmental management system. The program uses a detailed self-certification process where each location must meet several requirements related to waste management, waste diversion, and continuous improvement to verify that the site is diverting 100% of its waste from landfill. Eight Bendix manufacturing locations and the headquarters succeeded in achieving the company's official Zero Waste to Landfill certification.



### Diversity, Equity, & Inclusion (DEI) Day 2023 in Avon

A keynote speech by Maria Gutierrez set the tone for the importance of Diversity, Equity, & Inclusion for the company. Various communication activities as well as a scavenger hunt encouraged employees to get to know each other. The Employee Resource Groups, employee-led networks that promote diversity and inclusion, sent out invitations to their “Open Day”. For example, the women’s network women@Bendix reported on its activities and goals in the US and Mexico.



### The social commitment of Global Care

Knorr-Bremse Global Care North America Inc. (KBGCNA) was founded five years ago. Since then, this philanthropic organization has granted a total of \$2.62 million for 32 projects. One example is the financial support for the Boys Hope Girls Hope organization in northeast Ohio. It provides educational programs for students who have recently graduated from high school and are pursuing postsecondary education.



### What is particularly important to you personally in terms of sustainability, in addition to the company’s targets?

**Marcus Hoffmann:** What’s important to me is to consistently show that sustainability creates value for the company, for our business partners, and for society as a whole. This will accelerate awareness and commitment – professionally and privately – even further. We can ask ourselves, “What does sustainability thrive on?” and, “How can I contribute with my expertise, attitude, and commitment?” Many employees around the world have already taken a positive approach to this and are actively working toward greater sustainability and inspiring others. We have also discussed this with a number of such colleagues (→ [Smart minds worldwide: Together for sustainable mobility](#)). Looking around with open eyes and an open mind, you can see that the global challenges we face are becoming more urgent day by day. Technological innovation in parallel with intrinsic motivation to change things for the better are key to finding sufficient solutions. I want to play a part in leaving behind a livable world for my children and everyone else’s.

**Maria Gutierrez:** “With great power comes great responsibility” – if one thing, I at least have in common with Spiderman a belief in the truth of these words. As a business, we have the responsibility to be a good corporate citizen and have an impact on the economic, social, and environmental challenges of our time. We have the resources, the knowledge, and the power to make a difference. I believe that my role is to be that inner voice or compass and to encourage and coach our business leaders. Our world needs transformational change, and change starts with action. What better way than to start with action in our own backyard?

**Thank you for this interesting interview.**

## About Bendix

As a subsidiary of Knorr-Bremse, Bendix and its 4,400 employees provide leading-edge vehicle safety solutions for truck, bus, and other commercial vehicle customers in North America. Bendix develops and supplies active safety technologies from compressors to wheel-end and energy management solutions, as well as air brake charging and control systems and components for medium- and heavy-duty trucks throughout North America. Bendix Commercial Vehicle Systems is headquartered in Avon, Ohio, with manufacturing plants in Acuña, Mexico, and Bowling Green, KY; Hanover, PA; Huntington, IN; Lebanon, TN; and Wytheville, VA, in the United States.



# Corporate culture: The big HOW at the company

*A statement by Dr. Claudia Mayfeld, member of the Executive Board*

In politics, in business and at the workplace, people are facing a world of rapid change and increasing complexity: geopolitical conflicts, rapid advances in AI, the consequences of climate change, and disrupted supply chains. That unsettles many people and also has a big influence on the actions of international companies. How does a company position itself for a viable future under these conditions? My answer: What is needed is an adaptive culture that conveys stability to the employees and is consequently implemented with a clear strategy. I would like to play my part in that.

**“It is very exciting to successfully align the culture of a traditional company for the future.”**

**Dr. Claudia Mayfeld**  
Member of the Executive Board,  
responsible for HR, Integrity, Legal, IP  
and Data Protection



It is very exciting to successfully align the culture of a traditional company for the future. Change never means devaluing the past – on the contrary. We at Knorr-Bremse are consciously committed to our established values: entrepreneurship, technological excellence, reliability, passion and responsibility. This value system is a great foundation for developing our culture further.

We convey to employees that the culture, i.e. the “HOW” in which each individual acts, is closely linked to the success of the company. If employees recognize that they can make a positive contribution to the corporate culture by what they do, their commitment and effectiveness will rise to a far higher level. Employees identify more strongly with the company and develop a strong feeling of togetherness. Each and every one tackles their tasks wholeheartedly, which has a direct impact on the performance of their team, their department and ultimately our commercial success.

If we continue along this path, the future will hold many opportunities for Knorr-Bremse as:

- **An innovative company** that encourages and empowers employees to devise creative solutions. This is particularly important in the mobility industry with its large strides in development and customer requirements.
- **A resilient company** that is able to counter challenges with flexible solutions.
- **A diverse company** that values and respects different cultures, characters, perspectives and ways of thinking. That is vital to being an “employer of choice” and highly innovative.
- **An attractive employer** that gives all its employees – the younger generation as well as experienced professionals – a purpose.

## Knorr-Bremse is committed to a value-driven climate.

This ethos defines – socially and professionally – the answers to important questions in everyday working life: How good is the cross-divisional and Group-wide cooperation among employees? How do we develop solutions and how do we deal with conflicts? How is knowledge passed on and entrenched at the company? How do I create and gain space for creativity and innovation? Sustainable, widely accepted answers and process solutions require the parties involved to engage “as equals.” These two words encapsulate the fair working relationship we always strive for and an open error culture.

**“It is important to engage in a dialog on equal footing with employees.”**

**Dr. Claudia Mayfeld**

Member of the Executive Board, responsible for HR, Integrity, Legal, IP and Data Protection

## So how do we implement cultural change in concrete terms?

The strategic core of this transformation is the enhanced leadership culture coupled with empowerment of all employees. Our new Leadership Principles, conveyed in workshops, guide managers in acting independently. That enables us to fully live up to our function as a role model (“leading by example”) with the ability to think, communicate and act in a networked manner. At the same time, empathy is required from all managers when they experience the current fears, worries and needs. The goal is to provide a safe haven in the midst of the stormy change. Among others, a team-oriented speak-up culture, i.e. where sensitive topics are also openly raised and discussed, is vital in that. That is the only way to achieve a positive error culture that enables results-oriented and open-ended processes.

## Empowerment means strengthening individuals.

The dialog on equal footing with the employees is essential and has a very enriching effect on me. It is extremely important for employees to participate directly in cultural change – and that is an aspect that we at Knorr-Bremse can become even better at. We have recognized this and set up platforms and dialog formats to promote an open feedback culture. This offer is gladly accepted and a real jolt goes through the team. At this point, I would particularly like to mention the worldwide workshops we held following the global employee survey. The workforces at our locations enthusiastically discussed topics such as work-life balance, trusted communication and new career paths and underpinned them with measures.



**The article “Knorr-Bremse: The courage to change” provides in-depth insights into the further development of our culture**

[↗ To the article](#)

## We want to be transparent in our ethos and culture.

Only in this way can we give employees, customers, the financial market and all other stakeholders the stability they desire. Knorr-Bremse has a clear ethos and is committed to an open, tolerant and inclusive culture. Whenever I travel to our international locations, I convey this ethos actively throughout the company in a spirit of open dialog. Such inspiring discussions make me realize how important it is to be able to look at things from a different perspective. After all, different points of view not only promote cooperation steeped in respect, but also a holistic mindset. New process approaches and innovative problem solutions are a logical upshot of that.

**“If employees recognize that they can make a positive contribution to the culture by what they do, their commitment and effectiveness will rise to a far higher level.”**

**Dr. Claudia Mayfeld**

Member of the Executive Board, responsible for HR, Integrity, Legal, IP and Data Protection

Our multidimensional Diversity, Equity and Inclusion (DEI) strategy, which we are currently rolling out across the Group, plays a key role in ensuring a diverse workforce. What is inspiring about the DEI strategy and where is there friction? Do all people feel accepted along with their culture and personality? I am incredibly eager to hear the feedback from our locations around the world. We had previously established the organization needed to implement the strategy with our Global Diversity Officer Charlotte Herzog and regional Diversity Champions. We believe that equality of opportunity is not just a “nice to have” or an issue to which we pay mere lip service. For both professional and demographic reasons, technology companies will only be successful in the future if they tap into the great potential of a diverse workforce – STEM skills included.

## What drives me personally?

I firmly believe that cultural change, to which the entire Executive Board is committed, will prepare Knorr-Bremse ideally for the future. Working together on this process is great fun and demands courage and a positive attitude. We have both – as evidenced by my colleagues who are passionate about Knorr-Bremse and their work. The opportunity to help ensure a higher share of women in the company and the industry through my work is also a huge motivation for me. However, it is also true that extensive change takes time; it has to develop from within. Everyone involved has to change their behavior, learn new things, and sometimes even go against the grain. This is not a sprint, but rather a marathon. And the wide finish line tape reads in large letters: corporate success.

I look forward to walking this path together with Knorr-Bremse.

Sincerely, Dr. Claudia Mayfeld



## Smart minds worldwide: Together for sustainable mobility

**One engineer undertakes basic research in France so that energy-efficient e-trucks can drive all over the world. Another engineer develops high-performance aluminum discs in China for train bogies to allow them to complete their journeys with low emissions, vibration-free and silent.**

All experts at Knorr-Bremse worldwide have one thing in common:

They work on high-tech products to ensure a high level of safety and greater sustainability on both rail and road. Their specialist knowledge, their commitment and their passion find expression in small components, large systems and in Knorr-Bremse's service offerings.

Here you can get to know some of these smart minds who drive sustainable mobility forward, not only in their professional setting but also in their personal lives through their passionate commitment for more sustainability.



## Gilles Hebrard

Knorr-Bremse, Lisieux, France, CVS

<b>Occupation</b>	Research manager for compressors
<b>Location</b>	Knorr-Bremse Systèmes pour Véhicules Utilitaires France
<b>Product and Service Solutions</b>	Electric Screw Compressor and Rotary Vane Compressor
<b>Contribution</b>	Energy-saving compressors for e-trucks and e-buses

**“We can absolutely describe ourselves as pioneers. After all, our team in Lisieux has been developing e-compressors for ten years.”**

Gilles Hebrard

With its e-compressors, Knorr-Bremse was able to position itself early on as a leading system provider who supports commercial vehicle customers as they move toward sustainable mobility. Gilles was a driving force from the start and is today working on projects for the electric screw compressor and the rotary vane compressor. “Both are used in electric and hybrid trucks and buses,” the Research Manager for Compressors reports.

**Gilles is driving electrification with new applications for compressors.** This is because the rotary vane compressor operates energy-efficiently and with a minimum of noise and it can be adapted to the construction and technical requirements of electric commercial vehicles with moderate to low demand for compressed air. The rotary vane compressor uses less energy from batteries to produce 1 m<sup>3</sup> of air than a piston compressor powered by a diesel engine. In combination with a compact e-motor, the rotary vane compressor makes up the Electrical Vane Module (EVM). This module is able to increase the efficiency of a drive in a commercial vehicle, also when compared with a combustion engine. This means that the energy is used more efficiently, increasing the range of e-vehicles and making them more attractive.



### E-compressors for Commercial Vehicles

Compressors produce compressed air, the main source of energy for all pneumatic brake systems, air suspensions and clutches used in commercial vehicles. Compressors in an electric vehicle are powered by the vehicle’s own e-motor – in a conventional truck this is done by the combustion engine. Knorr-Bremse offers the EVM electrical vane compressor and the ESM electric screw compressor for e-commercial vehicles. Both modules possess two characteristics required for e-trucks: energy efficiency and quiet-as-a-whisper operation.

→ [More information](#)

**Knorr-Bremse compressors have been Gilles' passion for twenty years.** The graduate engineer helped pave the way for electrification. The generation of his own electricity and its efficient use were also on Gilles' mind in his private life when he renovated his house – sustainability never takes any time off.

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HUNGARY 

## Edina Hornyik

Knorr-Bremse, Budapest, Hungary, RVS

<b>Occupation</b>	Customer Care Engineer
<b>Location</b>	Knorr-Bremse Vasúti Jármű Rendszerek Hungária
<b>Product and Service Solutions</b>	Construction of braking systems in the field
<b>Contribution</b>	Extending the life cycle of braking systems

**“We are committed to your products throughout their lifetime.”**

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**Edina Hornyik**

When Edina has before her a unit of the PF6 braking system that has been successfully incorporated into a rail vehicle for a good 20 years, it is clear that her design and construction expertise and that of her team are needed. This is because the railway continually develops. For the braking system to continue its life cycle, old vehicle parts must meet the new requirements. Edina, who has been working in the Construction department since 2010, is working on these requests with designers.

**Edina ensures the operation of braking systems over the entire service life of the product.** She explains: “Our team provides support for our products not only during the warranty period, but also beyond, assuring our customers that our brake systems can perform their task until the end of their service life. To do this, we analyze all failures and feed them back into our design processes in the form of a development.” A mechanical engineer by training, Edina has specialized in welding technology and stands out through her knowledge and inventiveness in construction-related matters. After all, dealing with customer requests is a complex undertaking. Edina gives some examples: “To comply with environmental guidelines, we avoid certain materials such as chromium-containing coatings in the design process. We are also rethinking existing designs in view of the EU’s environmental protection directives. This is a very difficult task. The market itself requires us to think in a sustainable way: they expect us to produce products that are as small as possible and easy to maintain, and we try to meet these expectations.”

**The job demands innovative thinking from Edina.** And it doesn’t stop at the factory gates. “I use an electric car in my daily life, and I think it would be nice if it had a removable and replaceable battery so that it can be charged while I use the other one.” To recharge her own batteries, Edina goes running – she is a member of the Knorr-Bremse Running Club.

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## Jean-Baptiste Maescot

Knorr-Bremse, Lisieux, France, CVS

<b>Occupation</b>	R&D Manager for Brake Air Compressors
<b>Location</b>	Knorr-Bremse Systèmes pour Véhicules Utilitaires France
<b>Product and Service Solutions</b>	Compressor for Electric Vane Module
<b>Contribution</b>	Reduction of CO <sub>2</sub> e emissions from e-trucks

**“Our air compressor in the e-truck helps ensure that its CO<sub>2</sub>e emissions are between 4 to 5 times lower than in a comparable combustion engine vehicle.”**

### Jean-Baptiste Maescot

Jean-Baptiste is happy about the recent market launch of the compressor for the Electric Vane Module (EVM). His team in Lisieux collaborated with others on this, including the Center of Competence Air Supply in Munich.

#### The career of Jean-Baptiste is a lived e-truck evolution.

When he started as a construction engineer at Knorr-Bremse 25 years ago, awareness of climate change was still low. “Around 2010, the concept of sustainable development became more present in the sector. We responded to the calls for reduced emissions and energy consumption in commercial vehicles with clutch compressors,” Jean-Baptiste recalls. Later, Lisieux developed the electric screw compressor for the first hybrid buses – as electromobility became an issue in heavy goods transport. Of course, the compressor is now also used in fully electric commercial vehicles.

**A Milestone was the COP21 in Paris in 2015.** The pressure to reduce CO<sub>2</sub>e emissions mounted, and manufacturers began to develop the first generation of electric trucks. “At Knorr-Bremse, we proactively supported this transition by adjusting our resources through training, recruitment and investment,” reports Jean-Baptiste. In 2020, it became increasingly apparent that electric trucks will assume an important role on the market sooner or later.



#### Electrical Vane Module (EVM)

Compressors generate compressed air and thus supply a main source of energy for pneumatic braking systems, for example. The Electrical Vane Module (EVM) consists of a rotary vane compressor paired with a compact e-motor. The energy-efficient and quiet rotary vane compressor is designed for electric commercial vehicles with moderate to low demand for air. Because it is robust, the compressor can be used in a wide range of temperatures (-40°C to 80°C) and operates highly efficiently throughout the entire rpm

**Jean-Baptiste has a hunger for sustainability knowledge:** “I wanted to understand the potential of hydrogen for heavy goods transport, and in the process, I became enthusiastic about the energy transition.” This enthusiasm is catching, as around 50 employees experienced at the team building day in Lisieux in 2023. Jean-Baptiste shared his expertise on the topic of the “Energy Transition and its Impact on E-mobility.”

spectrum. The quiet operation of the e-compressor is due to its low-pulse compressed-air production and low vibration.

→ [More information](#)



GERMANY 

## Fernando Venegas-Diaz

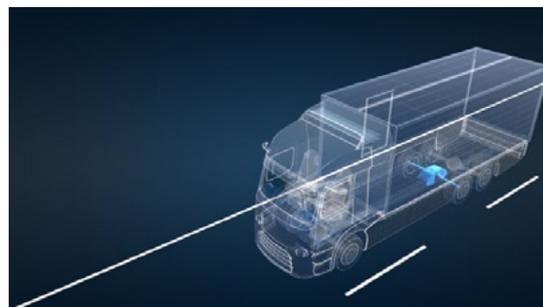
Knorr-Bremse, Munich, Germany, CVS

<b>Occupation</b>	Software and Project Engineer
<b>Location</b>	Knorr-Bremse Systeme für Nutzfahrzeuge GmbH, eCUBATOR
<b>Product and Service Solutions</b>	Electric Vehicle Motion Control (eVMC)
<b>Contribution</b>	Software for the energy-efficient operation of e-trucks

**“We no longer have to source all the energy we recover during braking from the power grid.”**

Fernando Venegas-Diaz

Electric vehicles are able to recover a certain amount of energy during braking and use it when the vehicle is in traction mode. Fernando supports the development of the Electric Vehicle Motion Control (eVMC) software from its design through to implementation. It maximizes energy recovery during braking and thus enables energy-efficient driving. Fernando, too, is driven: after graduating in Mechatronics in Mexico, he gained seven years’ work experience at Bendix. In the course of his expat career (→ [Promoting Cultural Diversity](#)), he has been supporting the eCUBATOR team in Munich, Knorr-Bremse’s electromobility innovation unit, since 2021.



### Electric Vehicle Motion Control (eVMC)

Looking at the energy efficiency in e-trucks, Knorr-Bremse develops products that save and reclaim energy instead of simply just consuming it. The eVMC software optimizes the

**Knorr-Bremse always wants to offer its customers the best braking system performance, also in the age of E-Mobility.** To this end, Fernando is working on the perfect “brake mix”: “We are looking for the perfect balance between the use of friction brakes and electric generators in order to maximize energy efficiency while at the same ensuring vehicle stability.” These algorithms are then integrated into the products of the new brake control system, Global Scalable Brake Control (GSBC). Fernando is convinced that the technologies developed in the eCUBATOR can increase the reliability and performance of electric vehicles and thus strengthen their appeal for fleet operators.

**“It is work for a greater purpose.”** Fernando wants to use his skills to reduce greenhouse gas emissions in transport: “As experts in the mobility industry, we have a responsibility to keep working toward achieving the goal of becoming climate-neutral.” Fernando also lives out this belief in his private life as he is a public transport user by conviction.

longitudinal dynamics in e-commercial vehicles, thereby ensuring energy-efficient driving and stable driving performance. The motion control functions can be integrated into all new e-powertrain configurations worldwide, from a central electric motor through to multi-motor layouts with axle or wheel-specific drive for one or more driven axles.

→ [More information](#)



CHINA 

## Guangwen Xiao

Knorr-Bremse, Suzhou, China, RVS

<b>Occupation</b>	Director of Bogie Equipment Engineering
<b>Location</b>	Knorr-Bremse Systems for Rail Vehicles (Suzhou)
<b>Product and Service Solutions</b>	High-performance aluminum disc for bogie equipment
<b>Contribution</b>	Reduction of energy consumption and CO <sub>2</sub> e emissions in trains

**“In the R&D ‘Aluminum disc’ project, various departments are working on the joint goal of increasing product sustainability even further.”**

**Guangwen Xiao**

For Knorr-Bremse in Suzhou, the focus is on the needs of local customers. They ask for lighter, more powerful and intelligent products. One result is the development of a high-performance aluminum disc for the bogies of rail vehicles. “This project was initiated on site and launched together with our European colleagues,” reports Guangwen. He started at Knorr-Bremse 15 years ago as a systems engineer in the high-speed trains segment and is now responsible for the development of the bogie equipment in Suzhou.

The high-performance aluminum discs project also fully involves the Industrial Engineering, Procurement, Quality and Design departments. This close collaboration leads to a more sustainable and thus more competitive product, as Guangwen knows. When developing high-performance aluminum discs, Knorr-Bremse Suzhou combines the benefits of domestic suppliers of sintered aluminum. Cast steel discs are normally used for higher thermal requirements, e.g., inter-city rail projects. However, the high-performance aluminum discs greatly reduce the unsprung mass, which significantly reduces energy consumption and CO<sub>2</sub>e emissions. Guangwen, who recently obtained his doctorate, seeks to improve both himself and Knorr-Bremse products further. Suzhou is an important development location for Group-wide and local application tasks and provides excellent conditions for this.

**Guangwen is enthused by teamwork.** This applies both in his job and in his personal life, when cycling and rowing: “First of all, movement makes me healthier. Secondly, we want to achieve a goal together and leave nobody behind.”

## Bogie Equipment

A bogie forms the chassis (running gear) of a rail vehicle. The wheel sets are not mounted directly on the vehicle body, but on several frames (bogies) that can rotate around the vertical axis. The task of the bogie equipment is to implement the driver’s braking command and generate the braking force. In locomotives, for example, this is done via wheel brake discs and the compact brake calipers.



BRAZIL 

## Mauricio Costa

Knorr-Bremse, Itupeva, Brasil, CVS

<b>Occupation</b>	Head of Production
<b>Location</b>	Knorr-Bremse Sistemas para Veículos Comerciais Brasil
<b>Product and Service Solutions</b>	Reconditioned disk brakes and compressors (remanufacturing)
<b>Contribution</b>	Saving raw materials and cutting CO <sub>2</sub> e emissions by remanufacturing products.

**“We at Knorr-Bremse have recognized the importance of remanufacturing products.”**

**Mauricio Costa**

Remanufacturing is Mauricio Costa’s world. The Head of Production is responsible for remanufacturing of Knorr-Bremse products at the CVS division in Itupeva, Brazil. “By giving products a new lease of life, we make a major contribution to the reuse of raw materials and thus to reducing CO<sub>2</sub>e and waste,” ex-

plains Mauricio, who has coordinated the department at Knorr-Bremse Brasil for 11 years. However, current projects – such as reconditioning of components for the latest generation of brakes – are as exciting for him as they were on day one.

**Remanufacturing involves carefully checking which products can be refurbished and used by the customer.** In Itupeva, this work mainly relates to air disk brakes, compressors, air dryers, and actuators (spring brakes). They are cleaned, mechanically reconditioned and returned to the product cycle. They then meet the same high safety and quality standards as new products. Mauricio and his team agree on the importance of remanufacturing: “The extended use of components saves energy and raw materials in production – and that reduces CO<sub>2</sub>e emissions. At the same time, remanufactured products enable our customers to extend the life cycle of their trucks. That makes a lot of sense from an ecological and economic perspective.”

**Mauricio even starts his working day in a way that saves resources and cuts emissions.** That is because he commutes the around 70 kilometers between his home in São Paulo and Itupeva by carpooling. Mauricio can see the air pollution in his home city and would like the public transportation services to be expanded on a greater scale. Incidentally, Mauricio is also committed to the circular economy at home: Waste is strictly sorted and all knowledge about a sustainable lifestyle is shared with his family.

## Remanufacturing at the RVS and CVS divisions

Remanufacturing (CVS) and overhauling (RVS) are major lines of business of Knorr-Bremse and comprise industrial reconditioning of used Knorr-Bremse products such as components of braking systems or compressors. They can be reused in vehicles with identical functions. Remanufacturing products for trucks are established under the EconX® brand.



HUNGARY 

### Olivia Marossy

Knorr-Bremse, Budapest, Hungary, RVS

<b>Occupation</b>	Systems Integration Engineer
<b>Location</b>	Knorr-Bremse Vasúti Jármű Rendszerek Hungária
<b>Product and Service Solutions</b>	Piped brake panels
<b>Contribution</b>	3D metal printing for raw material- and energy-reduced production

**“I am enthusiastic that additive manufacturing is able to minimize material consumption and the impact on our environment.”**

Olivia Marossy

In 2023, Olivia was given the opportunity to get acquainted with 3D metal printing. She has been focusing on piped brake panels in the past 20 years and now she designed her first 3D metal printed auxiliary brake panel for a high-speed train. "Additive manufacturing is a relatively new technology in this field with great future perspectives. It enables to design more complex geometries. But even more exciting for me is the sustainability aspect of this technology", reports the Systems Integration Engineer.

**Olivia works closely with French project and system engineers from Knorr-Bremse and their 3D printing technical expert team.** The result is a more ergonomic and smaller panel than the original was. The weight of the panel is only one third of the weight of the original drilled panel. Moreover, the production of the size-optimized 3D-printed structures requires less material and energy, by making a contribution to sustainability. Olivia's colleagues have recognized the added value provided by this project by granting it the Knorr-Bremse Budapest RDM (R&D Mechanical) Excellence Award.

**Good work-life balance is essential for good engineering work.** Olivia tries to focus on her mental and physical health by taking long walks with her two dogs and regular jogging, also as a member of the Knorr-Bremse Budapest Running Club. "As a mother of two kids, who also leads a sustainable household, I am really happy to use and promote such an innovative and sustainable technology as additive manufacturing in my daily work", Olivia comments happily.

## Successful cooperation worldwide

**6.9 %**

of its revenue was spent by Knorr-Bremse on research and development in 2023

**33,319**

smart minds are working on safe and sustainable mobility across the Knorr-Bremse Group

**114**

different nations are home to our employees

**110**

innovation projects were classified according to EcoDesign criteria in 2023

**4,588**

experts at Knorr-Bremse's R&D centers are driving forward technologies for commercial and rail vehicles

**€ 544 million**

was spent by Knorr-Bremse on research and development in 2023



# With hearts and hands: Social commitment at Knorr-Bremse's sites

**Knorr-Bremse is deeply rooted in the social fabric at its sites thanks to its local engagement. Primary focus areas of the Local Care Commitment are projects in the fields of the environment, health, education and social cohesion.**

Local social commitment has a long tradition at Knorr-Bremse, as Katja Lamberty, our Corporate Responsibility Specialist, knows. "Our sites' engagement is simply magnificent. Our colleagues on the ground know the local needs and where they are most required and how they can direct their efforts to best effect." To help them in their efforts, Knorr-Bremse Local Care offers a variety of tools that are used worldwide. In addition to financial and in-kind donations, corporate volunteering projects in particular are very popular. Our colleagues not only devote their know-how, craftsmanship and time, but also put their hearts and souls into making a contribution to society.

## Creating prospects

The Local Care Commitment focuses on local projects and challenges, preferably in the immediate proximity of the respective Knorr-Bremse sites. With our support, we can create real prospects for people locally and improve their quality of life. At the same time, involvement in social projects molds employees' personalities and strengthens their ties to the site and Knorr-Bremse.

## Leveraging diverse talents

Every social project brings together people with different knowledge, talents and backgrounds. These encounters not only broaden horizons, but also promote cohesion and creativity and often engender inspiring experiences.

## Local Care and Global Care highly effective

The close ties between Local Care and [↗ Global Care](#), Knorr-Bremse's non-profit organization, strengthen the impact of numerous projects. This applies, for example, in crises such as the war in Ukraine ([↗ Wide-Ranging Support for Ukraine](#)), when emergency aid and local engagement have to complement each other.

## Sharing experience desired

There is already dialog between the sites about their social commitment. However, Knorr-Bremse aims to expand the structures further. Katja Lamberty looks ahead: "In the future, we want to strengthen the exchange of best practices. Knorr-Bremse employees on all continents are actively engaged in social projects. It would be wonderful if they could inspire each other and share their experiences even more widely."



Granville, Australia |  Education

### Personal development program

*Knorr-Bremse Australia Pty. Ltd.*

The Reach Foundation, a non-profit youth organization in Australia, runs personal development workshops for young people. Knorr-Bremse supports the Reach Crew Development Program financially. This training aims to improve young people's communication skills, strengthen their emotional resilience and build a sense of social belonging. The crew members who have completed this training visit schools and communities to pass on their knowledge to young people there – an important impetus that can help the youngsters develop into stable, confident and reflective personalities.

Daxing, China |  Social Cohesion

### Excursion to the adventure farm

*Knorr-Bremse CARS LD Vehicle Brake Disc Manufacturing (Beijing) Co. Ltd.*

Employees at Knorr-Bremse's Daxing location regularly get involved in social projects. In the fall of 2023, eight employees' families with five autistic children, their families and teachers visited an adventure farm. The relaxed get-together broke the ice, after which the group first visited the Tropical Botanical Garden. They then went to the zoo, the most popular part of the program: Feeding the ostriches, llamas and rabbits made the children's day. The excursion was a welcome break from the stresses of everyday life, especially for the invited families.

Itupeva, Brasil |  Environment

### Fostering wildlife protection

*Knorr-Bremse Sistemas para Veículos Ferroviários Ltda. and Knorr-Bremse Sistemas para Veículos Comerciais Brasil Ltda. .*

Knorr-Bremse's rurally located plant in Itupeva has recorded numerous invasions by wild animals over the years. To ensure the safety and well-being of employees and wildlife alike, Knorr-Bremse Brazil entered into a partnership with the non-governmental organization Mata Ciliar a few years ago. The NGO runs a rehabilitation facility for wild animals near Itupeva, where Knorr-Bremse Brazil has become the sponsor of two ocelots named Ro and Fer (Truck and Rail in Portuguese). Knorr-Bremse Brazil also provided financial support for construction of a new rehabilitation compound for small wild cats.



Sival Moreira and  
Ariane Semensato  
HSE Supervisor and  
HR Analyst

**"We are very happy about our environmental project, because our region is full of ecological wealth and great biodiversity. We were able to express our respect with the symbolic adoption of the ocelots Ro and Fer and the donation for the construction of a rehabilitation enclosure."**

Suzhou, China |  Social Cohesion

### Community service activities in Suzhou

*Knorr-Bremse Commercial Vehicle Systems (Shanghai) Co. Ltd. and Knorr-Bremse Systems for Rail Vehicles (Suzhou) Co. Ltd.*

In 2021, Knorr-Bremse China (RVS and CVS) and the Suzhou New District administrative authorities signed a long-term agreement to promote public welfare. The initiative covers a wide range of activities, including support for educational offerings, cultural tours and assistance for physically or socio-economically disadvantaged people. The program also includes leisure offerings. One highlight in 2023 was the "Our Festival-Chongyang" on the occasion of the Chinese holiday dedicated to the elderly. Knorr-Bremse employees were also involved as volunteers.



Joyce Liu  
Manager Corporate  
Communication

**"We support the 'Our Festival Chongyang' event, which honors the elderly. This fits perfectly with our commitment to social cohesion in our local community, which we see as part of Knorr-Bremse's social responsibility."**

Chachoengsao, Thailand |  Education

### School equipment for better learning conditions

*Knorr-Bremse Commercial Vehicle Systems (Thailand) Ltd.*

Many schools in Chachoengsao Province, where Knorr-Bremse's Thai branch is based, have only limited financial resources. Knorr-Bremse employees have therefore launched a donation program. They want to improve the quality of local education and give students in the area a better future. Thanks to the financial aid from Knorr-Bremse CVS Thailand and the commitment of our colleagues, two local schools have been provided with fans, sports equipment and toys to promote learning and development. Nearly 200 pupils benefit from the new purchases.

Pune, India |  Education

## School renovation for a better learning environment

*Knorr-Bremse Technology Center India Private Limited*

Knorr-Bremse wants to make a contribution to establishing a solid educational infrastructure in India. As part of the move to create the “ideal school,” the premises of the Swami Vivekananda School in Aasde, Pune, were renovated and equipped with modern facilities. Knorr-Bremse provided funding for that. Laboratories and rooms for various subject areas were set up for the pupils: agriculture, computers, home economics and crafts, zoology and botany, electronics as well as sports and music. In addition, the sanitary facilities were renovated and the drinking water supply modernized.

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Faridabad, India |  Environment

## Restoration of a pond

*Knorr-Bremse India Private Limited*

Knorr-Bremse India has implemented the Baghola Pond Rejuvenation project to regenerate the degraded pond ecosystem. Local Care supported the project financially that was successfully completed in 2023. The tasks in the project included desilting of the pond to increase its water storage capacity, installation of a filtration system and a biological treatment plant, as well as an improved drainage system. A fence was also erected around the pond area. Approximately 6,000 villagers benefit from the project. A Village Development Committee (VDC) was founded to protect the water area in the future and its members were given related training.



Rupali Agarwal  
CSR Manager

**“It is impressive to see what a great asset the rejuvenated pond is for the community of Baghola. The body of water with its flora and fauna is adding socio-economic and ecological value to improve the overall quality of life.”**

Pretoria, South Africa |  Social Cohesion

## Residential home for people with mental disabilities supported

*Semiconductor Solutions (Pty) Ltd*

The organization Ons Huis Trust provides accommodation for mentally handicapped adults in Pretoria. Due to their social and mental condition, these people are unable to find work in the private sector and are permanently dependent on financial support. However, they are able to perform simple tasks, such as household chores, under supervision and with help and guidance. Knorr-Bremse has been supporting the organization financially for some time. In addition, on Nelson Mandela International Day 2023, Knorr-Bremse employees visited the home and brought variety into the everyday lives of themselves and the residents alike with a joint meal and games.

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Acuña, Mexico |  Education

## STEM event for future employees

*Bendix Commercial Vehicle Systems de Mexico S.A. de C.V.*

80 children of Bendix employees were guests at a STEM event in Acuña. The kids, aged between eight and 18, were given the opportunity to get to know their parents' working environment and learn more about truck braking systems and the company. Maybe the insights kindled an interest among them in pursuing a technical profession or studying engineering? The young people took part in various activities in four age-appropriate teams. In addition to a tour of the plant, they were able to gather technical impressions. For example, they checked out how the braking system works and watched product tests and quality audits. The robot and programming workshop was a special highlight.

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Westminster, US |  Social Cohesion

## **New youth center set up**

*Knorr Brake Company*

The Boys & Girls Clubs of Carroll County provide a safe, productive and active environment for youngsters after school and during the summer – an important mission given the rise of mental health impairments among adolescents. The Boys & Girls Club expanded its youth work to the North Carroll area in 2023. Employees from Knorr-Bremse offered to provide support with handicraft activities as part of the Volunteer Days in September 2023 so that the new clubhouse could open on time. The tasks accomplished included painting work throughout the building, furnishing, varnishing furniture, as well as setting up an art room and IT equipment.



Michelle Miller  
Engineering Technical Writer

**“I always jump at the chance to volunteer for the Boys and Girls Club of Carroll County. They are an amazing organization, and this new expansion to the North Carroll area will significantly increase its impact on the youth in our community.”**

Avon, US |  Environment

## **Clean-up event at Lake Erie**

*Bendix Commercial Vehicle Systems LLC*

Employees from Bendix' headquarters in Avon took part in a clean-up event at Lake Erie's Edgewater Beach in 2023. The lake is close to the location. Equipped with tongs, the volunteers picked up countless items of garbage over a weekend. The non-profit organization Drink Local Drink Tap has conducted well over 100 cleanup campaigns with volunteers in neighborhoods around and on the beaches of Lake Erie since 2010. These are important actions that contribute to preserving biodiversity and the ecosystem's balance.

Avon, US |  Social Cohesion

## **Volunteering to build social housing**

*Bendix Commercial Vehicle Systems LLC*

More than 200 Bendix employees lent a strong helping hand in Avon in mid-2023 to build two houses for families in need in Ohio. The construction projects were realized in collaboration with two local Habitat for Humanity Ohio affiliates and Help Build Hope. After the frame had been built, the volunteers from Bendix inscribed the beams and walls with well wishes. The finished houses were then loaded and donated to be erected at the designated sites in Ohio. Bendix bought the wood for both houses and also provided a grant for the roof fund, as well as transportation. Over the past few years, a total of 15 houses have been completed, something the volunteers can be truly proud of.

Florence, Italy |  Social Cohesion

## **Handiwork on a campsite for the socially disadvantaged**

*Knorr-Bremse Rail Systems Italia S.r.l.*

The non-profit organization Caritas runs a campsite in Tuscany. Since mid-June 2023, it has taken in children from difficult family backgrounds and refugees from Ukraine and other countries. In one day, 125 Knorr-Bremse employees cleaned the bungalows and green areas, helped build new facilities and planted trees. In addition, building materials and cleaning equipment were donated.

Lund, Sweden |  Social Cohesion

## Sports participation for young people

*Knorr-Bremse Nordic Rail Services AB*

Knorr-Bremse provides financial support to families at the Lund location so that their children can take part in sports and leisure activities. In 2023, the aid reached a total of 19 girls and boys between the ages of 7 and 16. The activities supported included membership in a swimming club, basketball, art and soccer training, along with the equipment.

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Melksham, UK |  Environment

## Natural garden opened on campus

*Knorr-Bremse Rail Systems UK*

The Knorr-Bremse location in Melksham celebrated the inauguration of its natural garden “KBee’s Retreat” on Knorr Day in June 2023. Dedicated employees were actively involved in the landscaping, helping to plant lavender and build insect hotels, among other activities. The garden not only serves as a new habitat for small animals and insects, but also offers employees a place to socialize and to rest.

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Stráž nad Nisou, Czech Republic |  Social Cohesion

## Community center kept in good repair

*Knorr-Bremse Systémy pro užitková vozidla ČR, s.r.o.*

In May 2023, Knorr-Bremse employees performed various handicraft activities in the Konopná community center as part of the “We Help to Help” charity campaign. As a place where all generations can come together, the center offers meeting rooms, a community café and a garden to relax in. Among other things, there is also a lecture room for educational events and social services for young people and adults in crisis situations. The Knorr-Bremse team provided support with masonry work in the garden, as well as with sanding and painting.

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Liberec, Czech Republic |  Environment

## Environmental project builds dams and cohesion

*Knorr-Bremse Business Services Europe*

Knorr-Bremse Business Services Europe introduced a Volunteer Day in 2023. Each and every employee is entitled to one paid working day – away from the office – supporting a volunteer project initiated by Knorr-Bremse. The inaugural project centered around the environment: the restoration of peat bogs in the Jizera Mountains, a forested area near Liberec. One fall day last October, 35 employees built small dams at drainage channels to retain the water and restore small ponds for insects and amphibians. Our Czech colleagues transported a total of 500 slats (10 tons of wood) to the moorland to build the dams. The Volunteer Day also proved to be a kind of interdepartmental team-building project.



Vojtech Stejskal  
Corporate Responsibility  
Specialist

**“The restoration of degraded peat bogs is work that promotes sustainability in the truest sense: It helps nature, reduces evaporation and combats climate change.”**

Kraków, Poland |  Health

## Running for a good cause

*Knorr-Bremse Systemy Kolejowe Polska Sp. z o.o*

20 Knorr-Bremse employees took part in the Poland Business Run 2023 in Kraków. Each runner in a 5-strong relay team covers the distance for a good cause. The money for the entry fees and additional donations from Knorr-Bremse benefited people with amputations, including mastectomies, and with mobility impairments. Among other things, the money raised went toward prosthetic devices, wheelchairs and stays in rehabilitation facilities.

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Munich, Germany |  Education

## Resume training for a successful career start

*Knorr-Bremse AG, Knorr-Bremse Systeme für Schienenfahrzeuge GmbH and Knorr-Bremse Systeme für Nutzfahrzeuge GmbH*

The “Gastro Academy” is a qualification program run by “Über den Tellerrand kochen München e.V.,” a non-profit association that is supported financially by Knorr-Bremse Global Care. Participants receive theoretical and practical training to prepare them for work in the catering industry and receive support with bureaucratic matters. Local Care provided support as part of the program’s “Resume training” module: Eight Knorr-Bremse employees sat down with nine refugees from Afghanistan, Syria, Nigeria, Yemen and Senegal on a Volunteer Day to compile their resumes. The effort is paying off: Several of the participants now have a job in catering.



Katja Lamberty  
Corporate Sustainability  
Specialist

**“Knorr-Bremse employees worked with refugees from a wide range of backgrounds to create resumes for them in preparation for working in the catering industry. That is an important step towards social participation for these people and I am very pleased to be able to support them.”**

Mödling, Austria |  Social Cohesion

## Vacation week for youngsters in need and refugee minors

*Knorr-Bremse GmbH*

As part of its volunteering initiative, Knorr-Bremse Mödling supported the tralalobe association, which looks after socially disadvantaged children and unaccompanied refugee minors. Thanks to the commitment of a Knorr-Bremse employee who works as a volunteer for the association, it was possible to organize a vacation week with a wide range of sports activities for the young people in its care. Swimming lessons in small groups were particularly important for the participants, some of whom were traumatized after fleeing by sea. The eventful week provided the youngsters with the basis for strengthening their confidence and for coping better with everyday challenges.



Monika Tröscher  
HR Business Partner

**“I am always delighted when we can give young refugees a few carefree days with community sporting activities.”**

Budapest, Hungary |  Education

## Robotics Club program for budding STEM enthusiasts

*Knorr-Bremse Rail Systems Budapest*

In 2023, Knorr-Bremse Budapest focused its Local Care activities on the STEM disciplines (science, technology, engineering and math). The aim is to get children interested in practical scientific topics at an early age and encourage them to think critically and analytically. One flagship project is the “Robotics Club ’23,” which was initiated by György Tarnai, a team leader in Electronics Development at Knorr-Bremse. Knorr-Bremse supports schools with programmable robots and a comprehensive curriculum using a program he himself developed. Three further schools established a Robotics Club in 2023. So far, the program has helped familiarize 250 students with the world of computer science and programming.

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Kecskemét, Hungary |  Education

## Road safety training as a theater play

*Knorr-Bremse Fékrendszerek Kft.*

The municipality of Kecskemét and the police authority of Bács-Kiskun County have implemented an exciting way to convey the issue of road safety to young people. They developed an interactive theater program to raise awareness of dangerous traffic situations among school students in Kecskemét. The content of the individual acts is based on true events and deals, for example, with how pedestrians become careless when their attention is distracted by media. The young audience discusses the scenes they have seen with the police. Around 900 school students took part in the event, which is supported financially by Knorr-Bremse.



Szilvia Varga-Papp  
HR Manager

**“I’m proud to support the road safety training program in Kecskemét, where interactive theater engages young minds on the importance of safe road behavior. This initiative, backed by the municipality and the police authority, has already reached 900 students.”**

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"It is impressive to see what a great asset the rejuvenated pond is for the community of Baghola. The body of water with its flora and fauna is adding socio-economic and ecological value to improve the overall quality of life."

**Rupali Agarwal**  
CSR Manager



"We are very happy about our environmental project, because our region is full of ecological wealth and great biodiversity. We were able to express our respect with the symbolic adoption of the ocelots Ro and Fer and the donation for the construction of a rehabilitation enclosure."



**Sival Moreira and Ariane Semensato**  
HSE Supervisor and HR Analyst



"I always jump at the chance to volunteer for the Boys and Girls Club of Carroll County. They are an amazing organization, and this new expansion to the North Carroll area will significantly increase its impact on the youth in our community."



**Michelle Miller**  
Engineering Technical Writer



"Knorr-Bremse employees worked with refugees from a wide range of backgrounds to create resumes for them in preparation for working in the catering industry. That is an important step towards social participation for these people and I am very pleased to be able to support them."



**Katja Lamberty**  
Corporate Sustainability Specialist



"I am always delighted when we can give young refugees a few carefree days with community sporting activities."

**Monika Tröscher**  
HR Business Partner



"I'm proud to support the road safety training program in Kecskemét, where interactive theater engages young minds on the importance of safe road behavior. This initiative, backed by the municipality and the police authority, has already reached 900 students."

**Szilvia Varga-Papp**  
HR Manager



"We support the 'Our Festival Chongyang' event, which honors the elderly. This fits perfectly with our commitment to social cohesion in our local community, which we see as part of Knorr-Bremse's social responsibility."

**Joyce Liu**  
Manager Corporate Communication



"The restoration of degraded peat bogs is work that promotes sustainability in the truest sense: It helps nature, reduces evaporation and combats climate change."

**Vojtech Stejskal**  
Corporate Responsibility Specialist



# Sustainability Management

Through our technical excellence, innovative products and the strong commitment of our employees we enable and accelerate sustainable and safe mobility solutions. Together with our customers we deploy them for rail and road. Sustainability management focuses on the necessary environment for implementation of our sustainability activities. It ensures that sustainability is an integral part of our processes and decisions.

# Sustainability Strategy and Materiality

Knorr-Bremse wants to live up to its environmental and social responsibilities. In line with this desire, we have committed to sustainable corporate governance and integrated sustainability into our organizational structures and business processes. We aim to strengthen this integration continuously because the company's sustainable direction contributes to its business success. The resulting sustainability strategy is impetus for adding value in a way that conserves resources and a key influence on our conduct as a fair business partner and employer.

The specific design of our sustainability management is based on international standards and internal rules. They lay out our requirements for sustainable corporate governance and are a guide for our employees' and business partners' conduct. These internal guidelines include, for example, our Sustainability Guidelines, the Group-wide Code of Conduct and our Human Rights Policy. Furthermore, we are guided by international guidelines and conventions such as the UN Global Compact, the UN Guiding Principles on Business and Human Rights, the conventions of the International Labour Organization (ILO), and international standards such as ISO 14001 (environmental management), ISO 50001 (energy management), or ISO 45001 (health and safety management). The UN Sustainable Development Goals (SDGs) also guide us. Our sustainability ambitions are accomplished using the specific, established management systems and action programs.

## Industry Guidelines

There are also industry guidelines that provide orientation for Knorr-Bremse in the design of its sustainability management. For example, we are cosignatories to the following guidelines:

- Sustainability Charter of the International Association of Public Transport (UITP)
- Code of Conduct of the Verband der Bahnindustrie in Deutschland e. V. (VDB, railway industry association)
- UNIFE Code of Conduct
- Dublin Declaration of the European Rail Supply Industry
- European Railway Safety Culture Declaration

# The Knorr-Bremse Sustainability Guidelines

## Sustainability Guidelines

Our sustainability guidelines set out the principles and strategic objectives for responsible corporate governance at Knorr-Bremse.

↓ [Sustainability Guidelines](#)

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## Code of Conduct

Our Code of Conduct defines our understanding of responsible behavior for all Knorr-Bremse employees globally.

↓ [Code of Conduct](#)

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## Procurement Guidelines

Our Supplier Code of Conduct, updated in 2023, sets out the standards our suppliers are required to meet with respect to working conditions, human rights, environmental protection, health and safety, business ethics and compliance. We expect our suppliers to comply with the code and implement it in their upstream supply chain.

Furthermore, the quality guidelines for our procurement spell out the requirements that we have of our suppliers with regard to sustainability.

The Conflict Minerals Policy governs the handling of conflict minerals and guides the Purchasing department at Knorr-Bremse as well as Knorr-Bremse's suppliers.

Internal guidelines specify the extent to which sustainability aspects are to be taken into account in purchasing decisions for various categories (e.g., energy, business travel or energy-efficient products).

↓ [Supplier Code of Conduct](#)

↓ [Conflict Minerals Policy](#)

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## Compliance Guidelines

There are six Group-wide compliance guidelines that specify principles for conduct. They cover dealing with gifts and invitations, donations and sponsorship, corruption prevention, conflicts of interest, screening of business partners and fair competition.

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## Human Rights Policy

The Human Rights Policy describes how we aim to respect and protect the human rights of all people working for us directly or indirectly.

↓ [Human Rights Policy](#)

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## HSE Policy

With our Health, Safety and Environmental (HSE) Policy, updated in 2023, we commit to high performance standards.

↓ [HSE Policy](#)

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## Product and System Safety Guidelines

Our high safety and quality requirements are laid down in the Quality and the Safety Policy for the RVS division and in the Quality First Policy for the CVS division.

The Product Safety and Product Conformity Organizational Policy provides an organizational framework for fulfilling our product safety requirements.

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Through our sustainability strategy, we have set the objective of constantly enhancing our sustainability performance in all areas of the value-adding process. We derive the specific focus topics from international guidelines, our materiality analysis, external ratings and customer assessments. We also gain important input through dialogue with our stakeholders, such as customers, employees and investors. We use the ESG approach to structure our overarching sustainability program, and the measures derived from it. This means we follow capital market requirements and future legislation.

Our sustainability activities during the reporting period focused on the ongoing strengthening of our ESG organizational structure, the continuing implementation of our climate action projects, and the constant incorporation of sustainability into decision-making processes. For instance, the carbon price that we have implemented internally is a decision-making criterion for capital expenditure over € 500 thousand. Furthermore, defined ESG criteria are integrated into property management. In terms of climate protection, Knorr-Bremse has committed to a long-term target of net zero emissions (Scopes 1 to 3) by 2050. Moreover, expanded climate targets validated by the Science Based Target initiative (SBTi) were set in 2023 and comprise emissions from our own production (Scope 1 and 2) as well as relevant emissions from the supply chain and product use (Scope 3) (→ [Climate Protection](#)). The systematic development of our sustainability management is one reason for our significant improvement in selected sustainability ratings during the reporting year.

### **The ESG Approach**

ESG stands for environment, social and governance. It provides a structure for the areas of a company's sustainability management. The ESG approach is intended to be a tool to achieve sustainable business and company development and make a positive contribution to sustainable development in society as a whole. The term is used mostly in the capital market for the guiding principle of sustainability.

We used our materiality analysis to determine the focus topics we need to prioritize in order to take responsibility for environmental and social challenges. These material sustainability topics also determine the content of this report. During the analysis, we first evaluated the positive and negative impacts of our business activity on the environment and society from an inside-out perspective. Secondly, we analyzed the impact of the topics on Knorr-Bremse's business activities and future viability (outside-in perspective). This confirmed the following 13 focus topics from the previous materiality analysis:

Anti-corruption and Fair Competition <b>G</b>	Climate Protection <b>E</b>	Data Protection <b>G</b>	Diversity, Equal Opportunities and Inclusion <b>S</b>
Employment Conditions <b>S</b>	Environmental Product Design <b>E</b>	Occupational Health and Safety <b>S</b>	Personnel Development <b>S</b>
Product and System Safety <b>S</b>	Social Commitment <b>S</b>	Sustainability in the Supply Chain <b>G</b>	Waste <b>E</b>
Water <b>E</b>			



### Anti-corruption and Fair Competition

Responsible corporate governance is a prerequisite for gaining the trust of society, customers and employees. It is the basis for the company's growth and minimizes reputational and legal risks. We hold ourselves to our own high standard of constant compliance with laws, internal regulations and voluntary commitments. Combating corruption and bribery is therefore one of the key topics in compliance management at Knorr-Bremse. The topic of anti-corruption and fair competition is integrated into the "Integrity and Compliance" chapter.

→ [Integrity and Compliance](#)

Impacts on the Environment and Society: ■■■□

Business Relevance: ■■■□



### Climate Protection

Climate change is a global challenge. As a manufacturing company, our business activity has direct and indirect impacts on the environment and the climate. Moreover, we must develop strategies that prepare us for the risks associated with climate change. With our Climate Strategy 2030, we want to make our contribution to the target of the 2015 UN Paris Agreement to limit global warming to a maximum of 1.5 degrees.

→ [Climate Protection](#)

Impacts on the Environment and Society: ■■■□

Business Relevance: ■■■■

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# G

## Data Protection

Digitalization is important for our company's future direction as it supports efficient processes and new business models. We are always responsible for our handling of the data from various stakeholders that is used and acquired. We have developed and implemented legally compliant safeguards for this.

→ [Data Protection and Information Security](#)

Impacts on the Environment and Society: ■□□

Business Relevance: ■■□

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# S

## Diversity, Equal Opportunities and Inclusion

Positive and fair employment conditions inherently involve equal treatment for all employees. Individual employees can harness their potential better when they are in an environment characterized by diversity. A diverse workforce is therefore a driver of creativity, innovation and cultural competence in business partnerships – and consequently a cornerstone of our commercial strength. To reinforce gender equality at Knorr-Bremse, we work on increasing female representation within the workforce and within management.

→ [Diversity, Equal Opportunities and Inclusion](#)

Impacts on the Environment and Society: ■■■

Business Relevance: ■■□

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# S

## Employment Conditions

As a responsible employer, we wish to offer good employment conditions. They are the foundation for satisfied employees as well as for gaining and obtaining the loyalty of the best skilled workers and managers. In addition to having an open and supportive corporate culture, there are many other factors that contribute to good employment conditions, from fair, competitive salaries to a reasonable work-life balance.

→ [Employment Conditions](#)

Impacts on the Environment and Society: ■■■

Business Relevance: ■■□

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# E

## Environmental Product Design

We can make a significant contribution to climate and environmental protection with environment-oriented product development. It also enables us to utilize market opportunities and counteract product-based risks proactively. Using our EcoDesign approach, we systematically integrate sustainability criteria, such as longevity, resource conservation and emission prevention, into our processes. In addition, we make sure we design our products in such a way that they are capable of industrial remanufacturing and overhaul; this is now a significant line of business at both Knorr-Bremse divisions that contributes to a circular economy.

→ [Environmental Product Design](#)

Impacts on the Environment and Society: ■■■

Business Relevance: ■■■

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# S

## Occupational Health and Safety

With high standards and targeted measures for occupational health and safety, we as a responsible employer meet our own requirements and the requirements of human rights more broadly. We promote a healthy and safe working environment that prevents accidents at work and where our employees can reach their full potential.

→ [Occupational Health and Safety](#)

Impacts on the Environment and Society: ■■■■

Business Relevance: ■■□

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# S

## Personnel Development

Knorr-Bremse can only manifest its leading market position with well-qualified and motivated employees. Our strategic personnel development focuses on the recruitment of qualified people and the individual, further development of employees and managers.

→ [Personnel Development](#)

Impacts on the Environment and Society: ■■□

Business Relevance: ■■□

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# S

## Product and System Safety

Knorr-Bremse's products for commercial and rail vehicles are highly relevant to transportation safety. Our customers rely on us fulfilling our distinct, self-imposed standards for technological excellence and high quality and safety. Simultaneously, we are a driver of innovation and are successful in constantly enhancing the safety of our products and boosting our commercial success.

→ [Product and System Safety](#)

Impacts on the Environment and Society: ■■■■

Business Relevance: ■■■■

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# S

## Social Commitment

Knorr-Bremse is a part of society through its business activity and as an enabler of sustainable mobility concepts. For this reason, the company and its employees contribute to society, especially at its locations. As an employer, as a purchaser of materials and services and through its products, Knorr-Bremse influences local communities and economies in a variety of ways. Thanks to our engagement in society, our employees' identification with Knorr-Bremse increases. Our employees feel motivated to play an active role in social projects themselves. In addition, having a greater reputation in society contributes to the company's employer branding.

→ [Social Commitment](#)

Impacts on the Environment and Society: ■■□

Business Relevance: ■□□

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# G

## Sustainability in the Supply Chain

Having a sustainable supply chain structure is a core element of our value-adding process and makes a decisive contribution to our company's success. We create the foundation for sustainable products with our selection of suppliers and raw materials. On top of that, our selection of suppliers has significant impacts on the environment and society in the countries the goods are produced in. That is why we demand adherence to our high sustainability standards. After all, violations of them can result in reputational or business risks.

→ [Sustainability in the Supply Chain](#)

Impacts on the Environment and Society: ■■■

Business Relevance: ■■□

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# E

## Waste

Waste management is an important aspect of a circular economy, as the valuable raw materials contained in waste can be returned to production. The disposal of waste can also create burdens on the environment. For this reason, we attach great importance to preventing waste or recycling it wherever possible.

→ [Resource Conservation](#)

Impacts on the Environment and Society: ■■□

Business Relevance: ■□□

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# E

## Water

Our water management is intended to promote sustainable and responsible use of this resource. The current and predicted water shortages in a number of regions around the world also result in increased entrepreneurial risk for us. We want to use water efficiently and reuse it multiple times through recirculation wherever possible so that water is consumed sustainably and conservatively.

→ [Resource Conservation](#)

Impacts on the Environment and Society: ■□□

Business Relevance: ■□□

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## Organizational Structure for Sustainability

With a clear organizational structure, we ensure the integration of the topic of sustainability in the Group's highest decision-making bodies. The entire Executive Board is responsible for the business strategy's focus on sustainability. The Sustainability division coordinates the sustainability strategy and reports directly to the Chief Financial Officer (CFO). To address the topic of sustainability in an organizationally appropriate way and support the implementation of the defined measures, the company relies on the ESG Board as the central coordination body. The ESG Board, which meets several times a year, comprises two members of the Executive Board, a representative of the senior management from each of the two divisions, a representative of each of the management teams of the Knorr-Bremse North America/ South America and Asia-Pacific regions, the Chair of Knorr-Bremse Global Care e. V. and the Head of the Sustainability department. The ESG Board advises on the development of the sustainability program. It defines goals and measures for implementing the strategic topics and evaluates their progress on an ongoing basis. The ESG Board and the Sustainability department are centrally responsible for the development, management, and monitoring of sustainability projects. The operational implementation of projects takes place in different areas of activity and divisions.

The ESG Alignment Circle is a body that precedes the ESG Board. It has the task of coordinating the implementation of the individual sustainability activities across departments and divisions and ensuring systematic process integration. It comprises leading representatives of nearly all functional units of the Knorr-Bremse Group. In addition, issue-specific committees and departments supplement the implementation and development of the sustainability program. Established bodies – e.g., for the topic of human rights or sustainable purchasing – communicate on individual specialist topics and monitor operational implementation. The Executive Board and the Supervisory Board are informed regularly about sustainability topics and make important decisions.

### ESG Board: A Glance Behind the Scenes in 2023

The ESG Board as the coordination body for sustainability measures met five times in 2023. The members were informed of material topics and developments but also received strategic or project-related draft proposals for decision and granted approvals. Topics from the reporting year:

- **Sustainability Management:** Decision on the integration of ESG aspects into various processes (e.g., CO<sub>2</sub>e price, risk management, real estate management); status update on central KPIs
- **Environment:** Adoption of climate targets and updates on the SBTi validation process
- **Social:** Concept to raise employee awareness of sustainability topics
- **Governance:** Information exchange on global regulatory changes and the extent to which Knorr-Bremse complies with them at present

## The Organizational Structure for Sustainability at Knorr-Bremse



## Stakeholder Management

Trusting collaboration and open exchange with stakeholders is the basis for sustainable business success. We seek to understand the perspectives and demands of our stakeholder groups. This is essential in order to identify future trends, global developments and market requirements at an early stage and thus meet our stakeholders' expectations. Particularly important stakeholder groups for us include employees, young professionals, customers and suppliers, shareholders and investors, business partners, authorities, unions, associations, the media, politics, non-government organizations (NGOs), local residents near our sites and representatives of local initiatives. We maintain a dialog with them all, often within fixed communication and event formats. They include direct conversations with customers, global trade fairs, active work in associations, investor meetings, the Annual General Meeting and communication with employees.

### Knorr-Bremse as a Driver of the "Europe's Rail" Technology Initiative

Knorr-Bremse is one of the 25 founding members of the technology initiative Europe's Rail. By working together the companies are developing a whole series of forward-looking, sustainable solutions in digitalization, automation and connectivity across all levels of rail transport. Knorr-Bremse is active in five of its six "Flagship Areas". Knorr-Bremse will be the driving force for three topics in the "Sustainable and Green Rail Systems" cluster: the use of halogen-free and low-GWP refrigerants, technology for improved air quality in trains and the testing of the electromechanical brake.

➤ [Europe's Rail](#)

## Stakeholder Inclusion

<b>Customers</b>	
<b>Format and Examples in 2023</b>	<p><b>Exchange through meetings and visits with customers and customer satisfaction surveys</b></p> <p><b>Trade fairs and conventions</b> that serve as important dialog formats:</p> <ul style="list-style-type: none"> <li>■ Eurasia Rail, Istanbul (RVS)</li> <li>■ RailLog, Busan (RVS)</li> <li>■ Africa Rail, Johannesburg (RVS)</li> <li>■ TRAKO, Gdańsk (RVS)</li> <li>■ Expo Ferroviara, Mailand (RVS)</li> <li>■ APTA, Orlando (RVS)</li> <li>■ IREE, Neu-Delhi (RVS)</li> <li>■ Modern Railways, Beijing (RVS)</li> <li>■ AusRAIL PLUS, Sydney (RVS)</li> <li>■ 8. Railway Forum, Berlin (RVS)</li> <li>■ Mass-Trans Innovation Japan 2023, Chiba (RVS)</li> <li>■ Metro Trans 2023 @ Qingdao, Beijing (RVS)</li> <li>■ Automec, São Paulo (CVS)</li> <li>■ Solutrans, Lyons (CVS)</li> <li>■ Busworld, Brussels (CVS)</li> <li>■ DEKRA Nutzfahrzeugkongress, Berlin (CVS)</li> <li>■ Truck Race Saison (CVS)</li> </ul> <p><b>Events for business partners organized by Knorr-Bremse:</b></p> <ul style="list-style-type: none"> <li>■ Deutsche Bahn: HGV 3.0 (RVS)</li> <li>■ KB Agent Days Brakes Europe, Berlin (RVS)</li> <li>■ Customer Day, Ankara (RVS)</li> <li>■ Spanish Distributor Meeting in Liberec (CVS)</li> <li>■ Nexus customer visit in Liberec (CVS)</li> <li>■ DAF: Tech Day, Eindhoven (CVS)</li> </ul> <p><b>Customer events</b> in which Knorr-Bremse took part:</p> <ul style="list-style-type: none"> <li>■ Alstom: Global Supplier Day 2023 (RVS)</li> <li>■ Alltrucks Partner Event, Fulda (CVS)</li> <li>■ MAN: ATLAS-L4 Funding Project Event, Munich (CVS)</li> </ul> <p><b>Awards for Knorr-Bremse from customers and the industry:</b></p> <ul style="list-style-type: none"> <li>■ Sales Professional Award der CARAT Systementwicklungs- und Marketing GmbH &amp; Co. KG (CVS)</li> </ul>

<b>Important Topics</b>	<ul style="list-style-type: none"> <li>■ Product safety</li> <li>■ Transportation safety</li> <li>■ Supplier safety</li> <li>■ Quality, prices</li> <li>■ Mobility transition, energy efficiency</li> <li>■ Governance and compliance</li> <li>■ Sustainability</li> </ul>
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<b>Employees</b>	
<b>Format and Examples in 2023</b>	<p><b>Employee communication with a large range of formats and measures:</b></p> <ul style="list-style-type: none"> <li>■ 2023 pulse survey</li> <li>■ Employee events such as town hall meetings</li> <li>■ Feedback conversations with supervisors</li> <li>■ Intranet, employee magazine</li> <li>■ Global workshops for the further development of the corporate culture</li> <li>■ Local campaigns such as Diversity, Equity, and Inclusion (DEI) Day, Bendix</li> <li>■ Volunteering</li> </ul> <p>→ <a href="#">Employment Conditions</a></p>
<b>Important Topics</b>	<ul style="list-style-type: none"> <li>■ Wages and salaries</li> <li>■ Occupational health and safety</li> <li>■ Working conditions</li> <li>■ Current business development</li> <li>■ New products</li> <li>■ Customer projects</li> </ul>

<b>Suppliers and business partners</b>	
<b>Format and Examples in 2023</b>	<p><b>Direct exchange with our suppliers and business partners:</b></p> <ul style="list-style-type: none"> <li>■ Various Knorr-Bremse policies for business partners, e.g., Code of Conduct for Suppliers</li> <li>■ Discussions with suppliers</li> <li>■ Supplier evaluations and on-site audits; discussions for following up on audits; and comparisons of planned corrective measures</li> <li>■ Training courses and provision of training material, e.g., on conflict minerals</li> <li>■ Knorr-Bremse SEA Supplier Conference 2023</li> </ul> <p>→ <a href="#">Sustainability in the Supply Chain</a></p>

<b>Important Topics</b>	<ul style="list-style-type: none"> <li>■ Price, quality</li> <li>■ Governance and compliance</li> <li>■ Safety</li> <li>■ Climate protection</li> <li>■ Human rights due diligence</li> <li>■ Circularity</li> </ul>
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<b>Financial market stakeholders (shareholders, investors, lenders)</b>	
<b>Format and Examples in 2023</b>	<p><b>Regular dialog and information formats for the financial market:</b></p> <ul style="list-style-type: none"> <li>■ Annual General Meeting</li> <li>■ Financial information and reports such as the Annual Report 2023</li> <li>■ (Virtual) road shows and conferences</li> <li>■ (Individual) conversations with investors and lenders</li> <li>■ ESG ratings</li> </ul> <p>→ <a href="#">Knorr-Bremse Investor Relations</a></p>
<b>Important Topics</b>	<ul style="list-style-type: none"> <li>■ Dividend</li> <li>■ Business development and outlook</li> <li>■ Sustainability/ESG</li> </ul>

<b>Politics/government agencies/local initiatives</b>	
<b>Format and Examples in 2023</b>	<p><b>Local and technical interest groups</b> offer a good platform for conversation with stakeholders:</p> <ul style="list-style-type: none"> <li>■ Work and interest groups of Europe's Rail Joint Undertaking (ERJU)</li> <li>■ Participation in local economic initiatives such as the second climate pact of the Munich business community or the Environment and Energy Committee of the Chamber of Commerce and Industry for Munich and Upper Bavaria</li> <li>■ Cooperation in Automation and Digitalization in Rail Freight Transportation sub-working group, part of the Rail Freight Transportation Master Plan Working Group of the German Federal Ministry for Digital and Transport</li> </ul> <p><b>Information formats for national and local officials</b> at sites globally:</p> <ul style="list-style-type: none"> <li>■ Reception, meeting, and exchange with politicians and diplomats</li> </ul>
<b>Important Topics</b>	<ul style="list-style-type: none"> <li>■ Safety</li> <li>■ Climate protection</li> <li>■ Governance and compliance</li> </ul>

<b>Residents at locations</b>	
<b>Format and Examples in 2023</b>	<p>Knorr-Bremse maintains <b>social commitment at its sites</b> with measures such as:</p> <ul style="list-style-type: none"> <li>■ Local Care initiatives</li> <li>■ Person-to-person contact, e.g., visitor groups during site tours and open day for school classes</li> </ul> <p>→ <b>Social Commitment</b></p>
<b>Important Topics</b>	<ul style="list-style-type: none"> <li>■ Safety</li> <li>■ Attractive employer</li> <li>■ Local engagement</li> <li>■ Operational changes</li> </ul>

<b>Industries/trade associations/unions</b>	
<b>Format and Examples in 2023</b>	<p><b>Memberships in trade associations:</b></p> <ul style="list-style-type: none"> <li>■ Rail and commercial vehicles: American Public Transportation Association (APTA), US</li> <li>■ Rail: Association of American Railroads (AAR), US; European Rail Supply Industry (UNIFE), Belgium; Verband der Bahnindustrie in Deutschland (VDB, railroad industry association), Deutsches Verkehrsforum (DVF, German transportation forum), Allianz pro Schiene (rail alliance), VDV IndustrieForum (VDV industrial forum), Center for Transportation &amp; Logistics Neuer Adler e.V. (C-NA e.V.), all of Germany</li> <li>■ Commercial vehicles: Motor &amp; Equipment Manufacturers Association (MEMA), US</li> <li>■ co<sub>2</sub>ncept plus – Verband der Wirtschaft für Emissionshandel und Klimaschutz e.V., Germany</li> </ul> <p><b>Knorr-Bremse conducts active project work, including at:</b></p> <ul style="list-style-type: none"> <li>■ Europe’s Rail Joint Undertaking (ERJU)</li> <li>■ Railsponsible: head of a working group on “responsible purchasing”</li> <li>■ UNIFE: working groups on subjects such as sustainability/environment, mobility strategy and vehicle registration, Knorr-Bremse represented on the Strategy Committee and Presiding Board</li> <li>■ German Association of the Automotive Industry (VDA): meeting of working groups on “environment and product” and “sustainability in the supply chain”</li> <li>■ Verband der Bahnindustrie in Deutschland (VDB, railway industry association): working groups on subjects such as sustainability/environment and vehicle registration, Knorr-Bremse represented on Technical and Executive Committees</li> </ul> <p><b>Knorr-Bremse’s experts held specialized presentations at industry events such as these:</b></p> <ul style="list-style-type: none"> <li>■ IAA Mobility, Munich, Germany</li> <li>■ DEKRA Zukunftskongress Nutzfahrzeuge (convention for commercial vehicles of the future), Berlin, Germany</li> </ul> <p><b>Industry honors for Knorr-Bremse:</b></p> <ul style="list-style-type: none"> <li>■ Awarded the 41st KS Energie- und Umweltpreis (KS energy and environment prize) 2023 from KS/AUXILIA</li> <li>■ Labeled a specially recommended top rail industry supplier by Bahnverband e.V.</li> </ul>

<b>Important Topics</b>	<ul style="list-style-type: none"> <li>■ Lobbying work in the industry</li> <li>■ Transportation safety</li> <li>■ Mobility transition</li> <li>■ Climate protection</li> <li>■ Innovative products</li> </ul>
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<b>Young professionals</b>	
<b>Format and Examples in 2023</b>	<p><b>Partnerships and projects with schools and educational institutions:</b></p> <ul style="list-style-type: none"> <li>■ Technical University of Munich, RWTH Aachen</li> <li>■ Chamber of commerce apprenticeship scout and education partnerships</li> </ul> <p><b>Attendance of university fairs and events to appeal to and recruit young talent::</b></p> <ul style="list-style-type: none"> <li>■ Career information evenings and application training at schools</li> <li>■ University fairs at the Munich University of Applied Sciences, TUM, and LMU, Munich; “bonding” university fairs in Aachen, Karlsruhe, and Kaiserslautern</li> </ul> <p><b>Promotion of women (especially in STEM professions):</b></p> <ul style="list-style-type: none"> <li>■ Mentoring programs: mentorING women’s support program at TU Munich: Bayern-mentoring (“Bavaria mentorship”) at the Munich University of Applied Sciences; Cross Mentoring Munich</li> <li>■ Her Career apprenticeship fair, Munich</li> <li>■ Mädchen für Technik-Camp (“girls for technology camp”), Munich; Girls Day</li> </ul> <p>→ <a href="#">Personnel Development</a></p>
<b>Important Topics</b>	<ul style="list-style-type: none"> <li>■ Working conditions</li> <li>■ Development opportunities</li> <li>■ Work-life balance</li> <li>■ Company values</li> <li>■ Current business development</li> <li>■ New products</li> <li>■ Diversity</li> </ul>

<b>Media</b>	
<b>Format and Examples in 2023</b>	<p><b>Networking and exchange of information with the media around the world:</b></p> <ul style="list-style-type: none"> <li>■ 2023 annual press conference</li> <li>■ Site tours</li> <li>■ Interviews</li> <li>■ Financial, technical and corporate press releases</li> </ul> <p>→ <a href="#">Knorr-Bremse Newsroom</a></p>
<b>Important Topics</b>	<ul style="list-style-type: none"> <li>■ Innovative products</li> <li>■ Strategy and business development</li> </ul>

## NGOs

### Format and Examples in 2023

**Local Care and Global Care projects** at our locations are carried out in collaboration with NGOs – usually local ones – or other aid initiatives

Knorr-Bremse Local Care projects organized by the relevant location:

- Résumé training for refugees, Über den Tellerrand e.V. NGO, Knorr-Bremse Munich
- “tralalobe” association (supports socially needy children and unaccompanied underage refugees), Knorr-Bremse GmbH, Mödling
- Mata Ciliar organization, a nonprofit NGO that advocates for environmental preservation in various projects
- Treedom (tree planting), Iltuoeva, Sistemas para Veículos Ferroviários Ltda. and Knorr-Bremse – Sistemas para Veículos Comerciais Brasil Ltda Brasil

**Strategic partnerships** by Knorr-Bremse Global Care with a long-term project focus:

- atmosfair, Berlin: drinking water projects, including in Kenya
- AMANDLA, Cape Town: Safe-Hub Global GmbH founded for global Safe-Hub projects

→ [Social Commitment](#)

↗ [Global Care](#)

### Important Topics

- Education
- Social cohesion
- Health
- Water, sanitation and hygiene
- Environment

# Sustainable Development Goals (SDGs)

The United Nations' 17 Sustainable Development Goals, which came into effect in 2015, provide guidance for companies to align their business activities with sustainable development across the entire value chain. Based on these Sustainable Development Goals (SDGs), the industry can use its economic power and strong innovation in a more targeted way to face the economic, social and environmental challenges. In this context, Knorr-Bremse wants to address the challenges through its business model and activities, and contribute to the achievement of the SDGs. Our sustainability strategy focuses on the five SDGs that we can have the greatest influence over through our business. Furthermore, Knorr-Bremse contributes to SDG 4 (Quality Education) and SDG 6 (Clean Water and Sanitation) through the activities of Knorr-Bremse Global Care e. V. (→ [Social Commitment](#)).

## We focus on the following SDGs:

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### SDG 5: Gender Equality

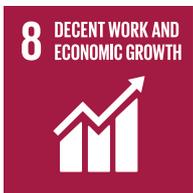
Knorr-Bremse believes that a diverse workforce is a critical factor in business success. We are committed to gender equality and to supporting women in the entire workforce, in management and in STEM professions. We support our employees with various offerings that help to achieve a work-life balance.

#### Examples of activities in 2023:

- Adoption of a Group-wide DEI (Diversity, Equity and Inclusion) strategy
- Development of a global diversity network
- Establishment of women's networks at further locations

→ [Diversity, Equal Opportunities and Inclusion](#)

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### SDG 8: Decent Work and Economic Growth

Knorr-Bremse strives to add value sustainably and wants to offer good working conditions and fair social standards to its current and future employees around the world. We continuously work on making our global supply chain more sustainable. We seek to respect and uphold human rights with our processes for human rights due diligence for our employees and suppliers.

#### Examples of activities in 2023:

- Implementation of 10 sustainability audits on-site at suppliers
- Establishment of processes for human rights due diligence in accordance with the German Supply Chain Due Diligence Act
- Key occupational health and safety figures at persistently low levels

→ [Employment Conditions](#)

→ [Due Diligence Processes for Human Rights](#)

→ [Sustainability in the Supply Chain](#)

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**9** INDUSTRY, INNOVATION  
AND INFRASTRUCTURE

## SDG 9: Industry, Innovation and Infrastructure

Knorr-Bremse finds solutions for the mobility of tomorrow and invests in a sustainable future through its research and development activities. Working in cooperation with our customers we can actively drive the transition to sustainable mobility with our innovative solutions. Thanks to our EcoDesign approach, we are already integrating aspects of sustainability into the development and innovation process.

### Examples of activities in 2023:

- Continuation of eCUBATOR, an ideas factory for electric mobility
- Implementation of a recycling analysis for 28 projects in the RVS division
- Consistent incorporation of EcoDesign criteria into product development

→ [Environmental Product Design](#)

**12** RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION

## SDG 12: Responsible Consumption and Production

Knorr-Bremse is committed to integrated and preventive environmental protection in its production processes, which it practices by preventing waste and using natural resources efficiently. In our product development, too, we take care to use materials in a way that conserves resources and to recycle with the help of our EcoDesign approach. We extend the product service life through our remanufacturing (CVS) and overhaul (RVS) activities and improve our customers' environmental and commercial sustainability.

### Examples of activities in 2023:

- Increase of revenues from remanufactured/overhauled products to around 11 %
- Performance of life cycle analyses (LCAs) of selected products
- Publication of key figures on Knorr-Bremse's global waste volume

→ [Environmental Management](#)

→ [Resource Conservation](#)

→ [Environmental Product Design](#)

→ [Climate Protection](#)

→ [Eco-friendly Logistics](#)

**13** CLIMATE  
ACTION

## SDG 13: Climate Action

Knorr-Bremse aligns its climate protection objectives with the 1.5 degree target of the UN Paris Agreement. We want to minimize the carbon emissions from our business activity through production processes with reduced energy and emissions levels and through innovative products and solutions.

### Examples of activities in 2023:

- Knorr-Bremse's updated climate targets (Scope 1-3) validated by the Science Based Targets initiative (SBTi)
- Setting of an internal CO<sub>2</sub>e price for investment measures
- Installation of photovoltaic systems at further locations

→ [Climate Protection](#)

# Sustainability Ratings and Rankings

Knorr-Bremse's commitment to sustainability is evaluated regularly and recognized as part of external ratings and rankings. They are important to us as they confirm our direction and alert us to potential improvements. Using sustainability ratings and rankings, we analyze and evaluate the external perception of our sustainability performance. The comparison with our peers and early detection of trends gives us findings that we use to develop our sustainability management further. Knorr-Bremse has already received many above-average ratings for its sustainability measures and was able to improve further on a number of relevant ratings during the reporting period.

## ESG Ratings and Rankings

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### DAX® 50 ESG

Knorr-Bremse has been listed in the index since it started. It represents the top 50 companies in Germany based on their ESG performance, market capitalization and revenue.

[↗ DAX® 50 ESG](#)



### S&P Global Corporate Sustainability Assessment

Knorr-Bremse scored 51 out of 100 points (2022: 50; 2021: 52), putting it in the top 21% of the comparison group.

The S&P Global Corporate Sustainability Assessment takes into account economic criteria as well as environmental and social criteria based on the best-in-class principle. The most sustainable companies in an industry are added to the index.

[↗ S&P Global Corporate Sustainability Assessment](#)



### MSCI

Knorr-Bremse's rating of "AA" was confirmed for the reporting year 2023 (2022: AA, 2021: A), the second-best of seven categories. MSCI ESG ratings score companies on a scale from "AAA" to "CCC" with regard to their industry-specific ESG risks and their risk management.

[↗ MSCI](#)

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### ISS ESG

Knorr-Bremse improved to the prime status of "B-" (2022: C+, 2021: C+), thus putting Knorr-Bremse among the best 12% in an industry comparison. ISS ESG assesses a company's sustainability performance on a scale from "A+" to "D-."

[↗ ISS ESG](#)



## Morningstar Sustainalytics

Knorr-Bremse scored 13.8 out of a total of 100 risk points (2022: 19.5; 2021: 18.9) and was therefore classified as low risk (top 1% of the comparison group).

Sustainalytics categorizes ESG risks across five risk levels (negligible, low, medium, high and severe).

[↗ Sustainalytics](#)

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For more information, visit [↗ Sustainalytics](#)



## CDP

Knorr-Bremse received an improved rating of "A-" for transparency and performance on climate protection (2022: C, 2021: B). This meant that Knorr-Bremse achieved the leadership level of CDP, putting it above the European average (B) and the global sector average (C). Within the comparison group Knorr-Bremse is among the top 21%.

CDP rates companies on climate protection according to a scale from "A" to "D-", with "A" being the highest.

[↗ CDP](#)



## EcoVadis

Knorr-Bremse is currently scored with Gold (2023: Silver status; 2022: Silver status) and is therefore among the top 3% of companies in the comparison group.

EcoVadis rates corporations from 180 countries in the categories of Environment, Labor & Human Rights, Ethics and Sustainable Procurement, awarding a status of Platinum, Gold, Silver or Bronze.

[↗ EcoVadis](#)



## SAQ – Sustainability Self-Assessment Questionnaire by Drive Sustainability

20 Knorr-Bremse sites are rated within a range from 84% to 92% (2022: 18 sites within a range from 81% to 93%, 2021: 17 sites within a range from 80% to 93%).

The Self-Assessment Questionnaire (SAQ) is a supplier questionnaire of the automotive (supplier) industry. It rates the sustainability management of a company's individual locations on a scale from 0% to 100%.

[↗ Drive Sustainability](#)

## Transparency in Sustainability Reporting

Our goal of transparent reporting also includes the transparent presentation expected by investors of our corporate climate risks and opportunities. We publish these in this Sustainability Report in accordance with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)

(→ [TCFD-Reference Table](#)).

In addition, we constantly work on meeting the statutory reporting obligations, such as the EU Taxonomy (→ [Management Report](#)) and on preparing for further developments in legislation on non-financial reporting (Corporate Sustainability Reporting Directive, CSRD).



# Environment

Resource consumption and climate change are major challenges for business and society. With our Climate Strategy 2030, we aim to make a significant reduction in CO<sub>2</sub>e emissions within our own production sites as well as across our upstream and downstream value chains. Our EcoDesign approach enables us to take aspects of sustainability into account across the entire life cycle of our products. In use, these products in turn promote the safe, efficient, and sustainable mobility of rail and commercial vehicles.

## Environmental Management

With comprehensive environmental management, we seek to continuously reduce the environmental impacts that come from our business activities. Clear processes and local initiatives accelerate the conservation of resources as well as the reduction of emissions and waste at Knorr-Bremse.

The Health, Safety, and Environment (HSE) Policy, revised in 2023, sets out the principles of environmental and energy management in the Knorr-Bremse Group. We want to avoid or minimize any potential impairments for people and the environment that arise from our processes, services and products. In order to realize the corresponding measures, we have put divisional HSE management systems that use standardized processes in place at our locations around the world. HSE management takes account of statutory and customer requirements and internal policies and process instructions. It is an integral component of our company management systems (Rail Excellence [REX] in RVS, Truck Excellence [TEX] in CVS), covering roughly 90% of our employees. Furthermore, our processes are guided by international standards such as ISO 9001, ISO 22163, IATF 16949 (quality management), ISO 14001 (environmental management), ISO 45001 (occupational safety) and ISO 50001 (energy management). There are 77 locations that are certified according to ISO 14001. We follow the European Energy Efficiency Directive in our implementation of energy management. 46 locations globally are currently certified according to ISO 50001 or have had an energy audit analogous to EN 16247. Knorr-Bremse uses internal and external audits to monitor its environmental management, auditing compliance with specified standards in the Group and the implementation of defined improvement measures.

### Number of Certified Business Units

	2023	2022	2021
In accordance with the environmental management standard ISO 14001	77	71	70
Percentage of employees covered, in % <sup>1</sup>	89	-	-
In accordance with the energy management standard ISO 50001 or EN 16247	46	37	38
Percentage of employees covered, in % <sup>1</sup>	57	-	-

<sup>1</sup> Prior-year data not available

The central HSE departments of the RVS and CVS divisions are responsible for managing and implementing the environmental management system. They develop strategic guidelines and bring together all cross-location management and coordination tasks. Knorr-Bremse's senior management is involved in strategic and operational environmental management through regular meetings, ad hoc reporting and the ESG Board. HSE managers implement the strategic requirements, goals and programs at the Knorr-Bremse locations with the local managers. Local environmental protection and energy officers, regional coordinators and experts from the departments involved provide support. We aim for largely uniform standards in HSE management across both divisions. There is a regular exchange of expertise both within and between the divisions to this end. This addresses aspects relevant to HSE, best practices, legal requirements and the associated reporting.

# Climate Protection

Climate protection is a key focus of Knorr-Bremse’s sustainability management. With our Climate Strategy, we wish to contribute to the 2015 UN Paris Agreement targets of limiting global warming to significantly well below 2 degrees Celsius and, through joint efforts, to a maximum of 1.5 degrees Celsius. Knorr-Bremse has committed to a long-term target of net zero emissions (Scopes 1 to 3) by 2050. Milestones on this journey include interim targets for 2030 that were revised during the reporting period and validated by the Science Based Target initiative (SBTi).

## Climate targets for production-related emissions (Scope 1 and Scope 2):

We aim to lower our direct Scope 1 emissions and indirect Scope 2 emissions (market-based) by 75% from their levels in the reference year 2018 by 2030. With this target, which was updated in the reporting year, we have once again significantly increased our 2019 climate target of reducing emissions by at least 50.4% over this period.

Production-related Scope 1 and Scope 2 emissions are planned to be reduced by using three main levers:

## Climate Week at Knorr-Bremse in France

Knorr-Bremse wishes to continuously raise its employees’ awareness of sustainability-related topics. Knorr-Bremse Systèmes Ferroviaires France, Tinguieux, with the support of external organizations, organized a Climate Week with exciting events in June 2023. For example, all employees were asked to attend a “2 Ton Workshop” – as 2 tons less CO<sub>2</sub>e per person per year must be achieved in order to reach the Paris Agreement target. During the workshop, the employees learned more about the impacts of their day-to-day actions on the CO<sub>2</sub>e balance, whether at work, when eating, or when traveling during their time off. Other seminars taught attendees valuable information on the topics of waste sorting and composting, sustainable mobility, and environmentally friendly home renovation. There were highly practical programs on offer, such as simulator-based eco-driving training and the lending of an electric bike for a month. Tasty meals made from food that was otherwise designated for disposal ensured that attendees were well-nourished. Climate Week was characterized by learning, exchange, and questioning – working together to make everyday life more sustainable.

 <b>Increased efficiency of CO<sub>2</sub>e and energy</b>	 <b>Self-generation of renewable energy</b>	 <b>Purchase of renewable energy</b>
Energy efficiency measures and the use of low-carbon fuels in heating systems and in the fleet	Investments in measures to increase the share of our own renewable energy produced at Knorr-Bremse sites	Increase in the share of renewable energy purchased through green electricity tariffs and green power certificates

The internal carbon price implemented in 2023 is an additional tool for steering CO<sub>2</sub>e reduction and energy efficiency. It will be included as an additional factor in decision-making in the future when decisions are made on investments of € 500 thousand or more.

# -75 %

By 2030, we want to reduce our direct Scope 1 and indirect Scope 2 emissions (market-based) by 75%.

## Climate targets for the upstream and downstream value chain (Scope 3):

We extended the Knorr-Bremse climate targets to its value chain at the start of 2023. Our Scope 3 target is to reduce emissions by 25% from their 2021 baseline level by 2030. The announced reduction is aimed at relevant greenhouse gas emissions in key areas of the value chain upstream and downstream of Knorr-Bremse. This includes the indirect emissions from purchased goods and services (category 3.1), upstream transportation and distribution (3.4), and the use of sold products (3.11). It is extremely challenging for Knorr-Bremse to achieve the Scope 3 target because consistent emission reduction depends on many external factors, as well. For example, supplier decarbonization strategies, the availability of technological solutions, or the development of customer preferences with regard to energy-efficient and CO<sub>2</sub>e-efficient product solutions are some of the areas that can be mentioned in this context. Consequently, close cooperation with our business partners across the value chain is necessary.

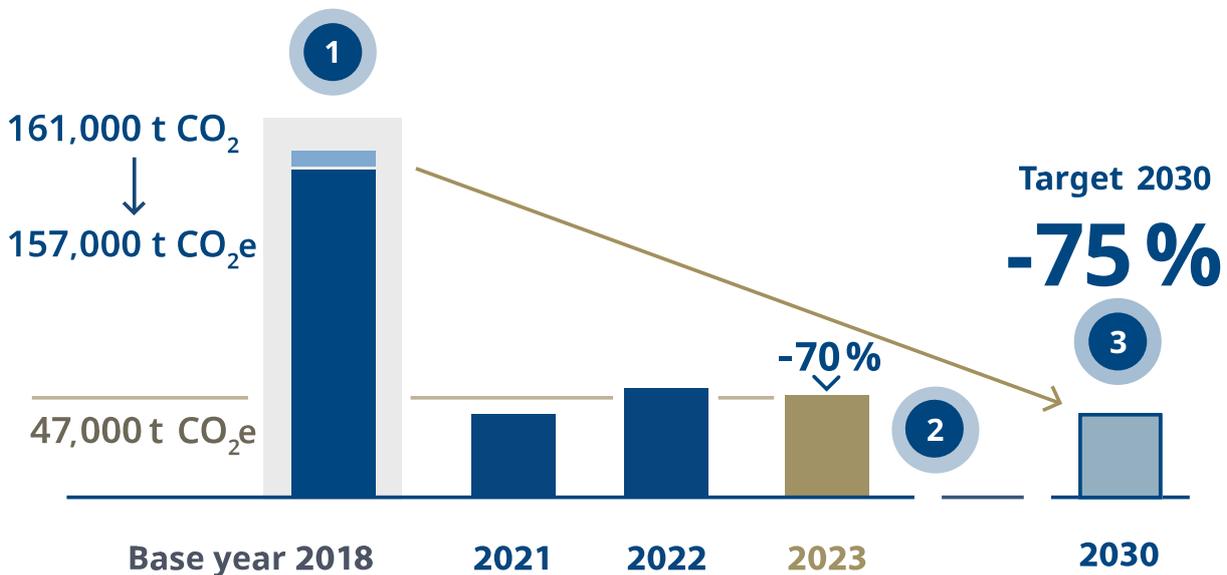
### Status of Our Climate Targets

During the 2023 reporting period, we were able to lower our absolute Scope 1 emissions and market-based Scope 2 emissions by approximately 70% from their 2018 baseline level. This positive development reflects the successful implementation of the above levers of increased energy efficiency and CO<sub>2</sub>e efficiency, self-generation of renewable energy, and the purchase of renewable energy. Scope 3 emissions rose by approximately 10% from the baseline, caused mainly by an increase in our sales figures in the relevant product categories.

# -25 %

By 2030, we want to reduce the key Scope 3 emissions by 25%.

### Knorr-Bremse Climate Strategy 2030



#### 1 Recalculation of 2018 baseline level

The values for the 2018 baseline level have been recalculated based on our restatement policy. In addition to the broadening of the reporting unit from CO<sub>2</sub> to CO<sub>2</sub>e, this recalculation also reflects our M&A activities, as the foundry of R.H. Sheppard, an investment of the Knorr-Bremse subsidiary Bendix in the US, was sold in 2023. At the same time, recently consolidated subsidiaries, including the RVS division's DSB Component Workshops in Denmark, were included.

## 2 CO<sub>2</sub>e emissions reduced by 70%

In 2023, Knorr-Bremse had already been able to reduce its CO<sub>2</sub>e emissions by ~70% compared to 2018. To support the 1.5°C pathway, we will continue to consistently pursue this path and reduce our CO<sub>2</sub>e emissions as far and as early as possible wherever economically feasible.

## 3 2030 climate target

We aim to lower our direct Scope 1 emissions and indirect Scope 2 emissions (market-based) by 75% from their 2018 baseline level by 2030. With this target that we revised in the reporting year, we once again significantly increased our 2019 climate target to reduce emissions by at least 50.4%.

## Knorr-Bremse Energy and CO<sub>2</sub>e Balance

In 2023, Knorr-Bremse recorded total energy consumption of 482 GWh. This is equivalent to an approximately 8% decrease compared to the previous year. In addition to the consistent implementation of energy efficiency measures, the drop in energy consumption is attributable to the sale of the foundry of R.H. Sheppard, an investment of the Knorr-Bremse subsidiary Bendix in the US. At the same time, recently consolidated subsidiaries, including the RVS division's DSB Component Workshops in Denmark, were included. Around 65% of the total energy demand in 2023 was for electricity and 24% for natural gas. The share of electricity supplied to Knorr-Bremse from renewable sources in 2023 was 95%. The ratio of self-generated electricity to purchased electricity is 1.8%.

### Energy Consumption<sup>1</sup>

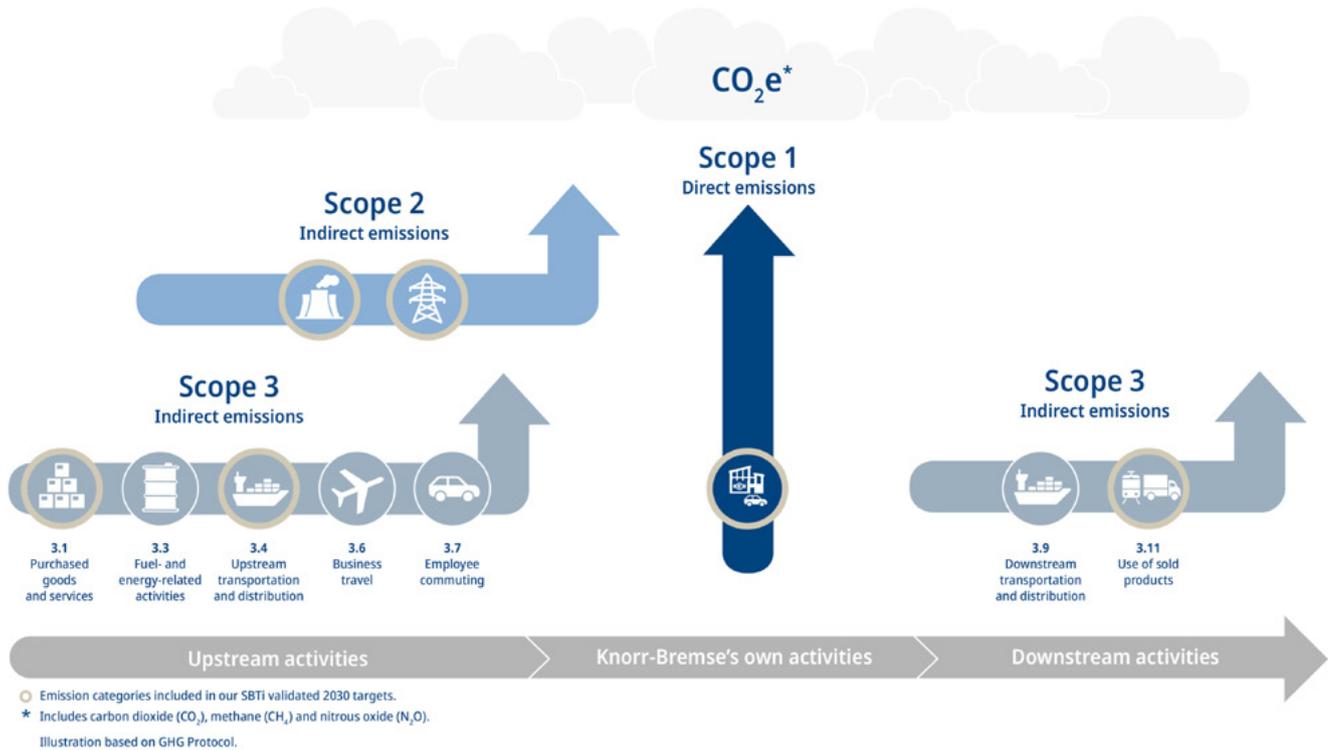
		2023	2022 <sup>2</sup>	2021 <sup>2</sup>	2018 <sup>2</sup>
<b>Primary energy consumption</b>	in GWh	160	180	131	155
Natural gas	in GWh	118	138	99	120
Fuels	in GWh	37	39	31	34
Self-generated renewable energy	in GWh	6	2	1	0
<b>Secondary energy consumption</b>	in GWh	322	344	301	326
Purchased electricity	in GWh	311	336	287	314
Of which renewable energy	in %	95	94	98	13
District heating	in GWh	11	8	14	12
<b>Total energy consumption</b>	in GWh	482	524	431	481
<b>Energy efficiency</b>	in MWh/ € millions of revenue	60.8	73.3	64.3	72.7

<sup>1</sup> The figure for 2023 relates to all sites under operating control, excluding locations with fewer than 50 employees other than production locations or service workshops. This covers around 94% of Knorr-Bremse's employees.

<sup>2</sup> The data from the baseline year 2018 has been recalculated in line with our restatement policy. The data from 2022 and 2021 was not retroactively adjusted.

Knorr-Bremse's CO<sub>2</sub>e reporting is aligned with the Greenhouse Gas Protocol (GHG Protocol) and takes into account the emissions from key areas in the value chain. A detailed description of the calculation method can be found here: → [CO<sub>2</sub>e Calculation Method](#).

## Overview of relevant Emission Categories at Knorr-Bremse



In line with the lower energy consumption, our absolute Scope 1 and market-based Scope 2 emissions in 2023 fell to approximately 47,000 tons of CO<sub>2</sub>e. The emission intensity (Scope 1 and 2) amounted to 5.9 tons of CO<sub>2</sub>e emissions per million euros of revenue during the reporting period. The use of natural gas by Knorr-Bremse was the primary source of approximately 36,000 tons of Scope 1 emissions that were identified in 2023. The indirect, location-based Scope 2 emissions tallied up to roughly 117,000 tons of CO<sub>2</sub>e and were mainly from the consumption of purchased electricity at the Group locations.

## Direct and Indirect CO<sub>2</sub>e Emissions<sup>1,2</sup>

		2023	2022	2021	2018 <sup>3</sup>
Scope 1 direct CO <sub>2</sub> e emissions	in thousand metric tons of CO <sub>2</sub> e	36	38	28	41
Scope 2 indirect market-based CO <sub>2</sub> e emissions	in thousand metric tons of CO <sub>2</sub> e	11	12	7	116
Scope 2 indirect location-based CO <sub>2</sub> e emissions	in thousand metric tons of CO <sub>2</sub> e	117	122	152	141
<b>Total market-based CO<sub>2</sub>e emissions</b>	in thousand metric tons of CO <sub>2</sub> e	<b>47</b>	<b>50</b>	<b>35</b>	<b>157</b>
<b>Total location-based CO<sub>2</sub>e emissions</b>	in thousand metric tons of CO <sub>2</sub> e	<b>154</b>	<b>160</b>	<b>180</b>	<b>182</b>
<b>CO<sub>2</sub>e intensity</b>	in metric tons of CO <sub>2</sub> e/ € million of revenue	<b>5.9</b>	<b>7.0</b>	<b>5.2</b>	<b>23.7</b>

<sup>1</sup> The recording of CO<sub>2</sub>e emissions is aligned with the recognized requirements of the Corporate Accounting and Reporting Standard (Scopes 1 and 2) of the Greenhouse Gas Protocol. The figures from 2022 and 2021 were not adjusted retroactively for M&A activities and divestments.

<sup>2</sup> The CO<sub>2</sub>e data recorded in 2023 includes emissions of carbon dioxide (CO<sub>2</sub>) as well as other climate gases defined by the GHG Protocol, such as nitrous oxide (N<sub>2</sub>O) and methane (CH<sub>4</sub>) as well as emissions resulting from refrigerant leakage. The comparison data from 2022 and 2021 only includes CO<sub>2</sub> emissions unless indicated otherwise.

<sup>3</sup> The values for the 2018 baseline level have been recalculated based on our restatement policy. In addition to the broadening of the reporting unit from CO<sub>2</sub> to CO<sub>2</sub>e, this recalculation also reflects our M&A activities.

The Scope 3 greenhouse gas emissions in the reported categories rose by approximately 10% compared to the baseline level to 42,145 thousand tons of CO<sub>2</sub>e. This was caused mainly by an increase in the sales figures in the relevant product categories. Furthermore, an improved calculation method was applied for Scope 3.6 and especially for Scope 3.11. The comparability of the emissions with previous years is therefore limited. During the reporting period, our focus was primarily on improving data quality and analyzing the largest drivers of emissions in order to derive measures based on them. On the subject of procurement-related emissions, we have begun analyzing the raw materials and suppliers with the greatest potential for reductions. A pilot project was launched in this context in 2023 to analyze the emission data from suppliers (→ [Sustainability in the Supply Chain](#)). To reduce transportation-related emissions, we collected and analyzed data on our operational transportation management and network. The resulting optimizations pertained to transportation between Knorr-Bremse locations as well as delivery to customers. We design our products, such as systems for electrified passenger and cargo transportation, to be as environmentally friendly as possible by applying technological innovation. They are intended to be low-emitting and resource-conserving in usage across the entire product life cycle.

## Financial Support for Climate Protection Projects in Kenya and India

As a further contribution to climate protection, we are maintaining our commitment and supporting two atmospheric GmbH climate protection projects certified in accordance with the Gold Standard: a project for clean drinking water in Kenya and a project for efficient wood gasifier ovens in India. These projects were selected jointly with Knorr-Bremse Global Care e.V.

In 2023, global emissions of approximately 40,000 tons of CO<sub>2</sub>e were avoided with the help of a project in India for efficient wood gasifier ovens. In collaboration with the local project partner, Calcutta-based Sapiient, low-income households in the rural region of western Bengal are provided with efficient wood gasifier ovens, which can reduce firewood consumption by 50% to 60%. The ovens enable people to cook without smoke, and the wood gasification process generates charcoal that they can then sell. At the same time, the lower wood consumption helps conserve the mangrove forests in western Bengal. The goal is to distribute a total of 30,000 new ovens subsidized by Knorr-Bremse by 2030.

The project for clean drinking water of the local partners Boreal Light GmbH and Waterkiosk Ltd. supports access to clean drinking water for rural households in Kenya. These efforts help to avoid transmission of water-borne diseases. There are now 38 solar-powered water treatment facilities in operation, with approximately 44 million liters of water being desalinated and purified each year. The result is clean drinking water for approximately 50,000 people, and the units also produce process water. The first monitoring period was concluded in late 2023. In addition to the monitoring of the CO<sub>2</sub>e emissions prevented by the project, a study is being conducted in collaboration with Knorr-Bremse Global Care e.V. to identify the positive health effects enjoyed by the local population.

## CO<sub>2</sub>e Emissions in the Value Chain (Scope 3)<sup>1</sup>

		2023	2022 <sup>6</sup>	2021 <sup>6</sup>
3.1 Purchased goods and services	in thousand metric tons of CO <sub>2</sub> e	1,986	1,802	2,025
3.3 Fuel- and energy-related activities <sup>2</sup>	in thousand metric tons of CO <sub>2</sub> e	25	27	29
3.4 Upstream transportation and distribution <sup>3</sup>	in thousand metric tons of CO <sub>2</sub> e	198	184	200
3.6 Business travel <sup>4</sup>	in thousand metric tons of CO <sub>2</sub> e	13	6	4
3.7 Employee commuting	in thousand metric tons of CO <sub>2</sub> e	23	25	26
3.9 Downstream transportation and distribution <sup>3</sup>	in thousand metric tons of CO <sub>2</sub> e	46	47	50
3.11 Use of sold products <sup>5</sup>	in thousand metric tons of CO <sub>2</sub> e	39,853	26,301	36,092
<b>Scope 3 emissions, total<sup>7</sup></b>	in thousand metric tons of CO <sub>2</sub> e	<b>42,145</b>	<b>28,393</b>	<b>38,426</b>

<sup>1</sup> A detailed description of the calculation methodology can be found (→ [CO<sub>2</sub>e calculation method](#)).

<sup>2</sup> For fuel- and energy-related emissions, the emission savings from the purchase of green electricity will be taken into account from reporting year 2023 (market-based approach). The years 2022 and 2021 were retroactively adjusted.

<sup>3</sup> For Commercial Vehicle Systems, a large part of the footprint is based on primary emission data supplied by suppliers. A further part was calculated using a distance-based approach, while the remaining part was calculated using a spend-based approach. For Rail Vehicle Systems, the footprint was calculated based on a purely distance-based approach.

<sup>4</sup> The calculation of emissions from flights is based on the different calculation methods depending on the travel agency. In 2023, Thrust Carbon was used for the first time for some of the countries, thereby including other emission-relevant factors in addition to flight distance and travel class. As a result, it is not possible to compare this emission data with the previous year.

<sup>5</sup> Knorr-Bremse incorporated long-term field test data from the CVS division in its calculation of Scope 3.11 emissions for the first time in 2023, and thus further increased the data quality. As a result, it is not possible to compare this 2023 emission data with the data from 2022, but it is possible to compare it with the base year 2021.

<sup>6</sup> The values for Scope 3.1, Scope 3.4 and Scope 3.11 for the 2021 baseline level have been recalculated based on our restatement policy. The figures from 2022 were not retroactively adjusted.

<sup>7</sup> Deviations are due to rounding differences.

## Climate Risks and Opportunities

The consequences of climate change, as well as global decarbonization in an attempt to limit climate change, come with potential risks – as well as opportunities – for Knorr-Bremse. They include, for example, extreme weather events, and costs associated with regulatory requirements or, on the other hand, rising demand for our efficient product solutions. We therefore analyze our climate-related business risks and opportunities as part of Group-wide → [risk management](#).

Furthermore, we align ourselves with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) for reporting on climate-related business risks and opportunities. Using a qualitative scenario analysis, we identified potential risks in our internal production, the supply chain, and in the markets. In accordance with the Do No Significant Harm requirements of the EU Taxonomy Regulation, a detailed climate risk and vulnerability analysis was additionally carried out in 2023.

→ [TCFD-Table](#)

## Climate Protection Measures at Group Locations

There are numerous colleagues who are contributing to the implementation of the Climate Strategy 2030. They include divisional representatives from the EcoDesign, Purchasing, Engineering, and HSE departments as well as Logistics and Supply Chain Management, accompanied by representatives from the Knorr-Bremse North America/South America and Asia-Pacific regions, the Sustainability department, and Energy Purchasing. Local environmental and energy management has the task of evaluating and improving processes in the Group on an ongoing basis with respect to energy requirements. For example, consumption data can be monitored at locations, potential savings can be found, and the efficiency of any measures implemented can be audited. A new cross divisional reporting tool that was implemented in 2023 is harmonizing data collection and management. The transparent data basis is intended to simplify the management and reporting of KPIs just as much as it does information exchange. Find out here in concrete terms how we realized our climate targets in 2023 by using our three levers:

### Saving Energy: Employee Activities at Bendix

Knorr-Bremse actively promotes its employees' energy conservation ideas, with Bendix, for example, putting on an Energy Treasure Hunt at its Bowling Green production location.

This three-day event served as a playful way for Bendix to initiate its implementation of an energy conservation project. Seventeen employees working together with the US Department of Energy became successful treasure hunters. They uncovered potential energy and gas savings at the location worth more than \$250,000 (-21%), with a volume of 1.6 tons of CO<sub>2</sub>e (location-based). The air leakage, for example, was significant, and its containment – in combination with other repairs – makes an entire air compressor surplus to requirements.

→ [More about local sustainability projects at Bendix](#)



### Increasing CO<sub>2</sub>e and energy efficiency

To increase CO<sub>2</sub>e efficiency and energy efficiency, we identify potential and, as a result, projects for saving energy using internal and external analyses. The energy conservation projects completed during the reporting period included an expanded modernization of the HVAC system at the Acuña, Mexico, location and the conversion of gas-operated heating systems to heat pumps in Budapest, Hungary. Further examples include the exchange of a compressor in Italy and the utilization of waste heat from air compressors in China. As in previous years, we replaced conventional lighting systems with LEDs at multiple locations and implemented additional projects for reducing fossil fuel consumption, e.g., electrifying kitchen appliances in Mexico. With the measures realized at the locations since 2019, we expect energy savings of around 16,700 MWh per year. In 2023, new energy-saving projects with potential savings of approximately 11,100 MWh per year were also approved.



### Self-generation of renewable energy

Photovoltaic systems supply self-generated electricity from renewable sources at multiple locations globally: Suzhou, China; Palwal, India; Darra and Granville, Australia; Getafe, Spain; Florence and Milan, Italy; Melksham, UK; Huntington, US; Acuña, Mexico; and Munich and Schwieberdingen, Germany. In total, Knorr-Bremse generated approximately 5,600 MWh of renewable energy in 2023, around 3,200 MWh more than in the previous year. Further investments in PV systems in Kecskemet, Hungary; Kempton Park, South Africa; Mödling, Austria; and Rzeszow, Poland, and expansion of the systems in Acuña, Mexico; Munich, Germany; and Suzhou, China, were approved in 2023. These new systems are likely to increase the company's renewable energy self-generation capacity by around 6,100 MWh per year.



### Purchase of renewable energy

Of the power supplied to Knorr-Bremse in 2023, approximately 95% was from renewable energy sources and purchased via green power contracts or certificates. Renewable electricity is purchased via a green power contract for our locations in Sweden, France, and Brazil, and we obtain green energy certificates for additional global Knorr-Bremse sites. In Europe, these are European proofs of origin, with the exception of specific local proofs of origin in Poland and the United Kingdom. Renewable Energy Certificates (RECs) are used in the US and Canada, and International Renewable Energy Certificates (I-RECs) are used in China, India, Thailand, Mexico, South Africa, and Turkey. For the purchase of green energy certificates, Knorr-Bremse has defined quality criteria that must be met as far as possible. They include details about energy sources, the year and location of generation, and the age of the systems, among other information.

## Photovoltaic Systems Produce Electricity for Production Sites



Huntington, USA

### Award-Winning Solar Project

The 1,168-megawatt solar project at Bendix in Huntington, USA, received the prestigious “Governor’s Award for Environmental Excellence” from the state of Indiana in 2022. Connected to the grid in 2021, the PV system noticeably reduces Bendix’s environmental footprint while saving costs.

Electricity production per year	Coverage of internal demand	CO <sub>2</sub> e emissions reduction per year
<b>1,500</b> MWh	<b>approx. 10%</b>	<b>530</b> tons



Acuña, Mexico

### PV Systems for Two Plants

At the Bendix plants in Acuña, Mexico, PV systems on two mills have been generating and supplying electricity since December 2022. The future total output is expected to be around 2,000 MWh per year. 1,296 solar panels were installed on each plant roof for this purpose.

Electricity production per year	Coverage of internal demand	CO <sub>2</sub> e emissions reduction per year
<b>2,089</b> MWh	<b>approx. 9%</b>	<b>835</b> tons



Florence, Italy

### “Florence Sunlight” Project

The new PV system at Knorr-Bremse Rail Systems Italia, Florence, generates approximately 380 MWh of energy annually with 900 photovoltaic modules and a peak output of 320 kWp. This meets up to 80% of the site’s electricity requirements and can reduce CO<sub>2</sub>e emissions by well over 100 tons per year.

Electricity production per year	Coverage of internal demand	CO <sub>2</sub> e emissions reduction per year
<b>380</b> MWh	<b>up to 80%</b>	<b>100</b> tons



Getafe, Spain

### PV System for Energy Self-Sufficiency

At Knorr-Bremse Spain in Getafe, a PV system installed on the factory roof went into operation in 2022. Generating 569 MWh of electricity per year, it will meet around 30% of the location’s own electricity consumption. In addition to significant cost reductions, CO<sub>2</sub>e emissions are expected to fall by 87 tons annually.

Electricity production per year	Coverage of internal demand	CO <sub>2</sub> e emissions reduction per year
<b>569</b> MWh	<b>approx. 30%</b>	<b>87</b> tons



Various locations, Australia

### Four New PV Plants

Since 2022, new PV systems have been supplying Knorr-Bremse with its own green electricity at four locations in Australia. Larger systems were installed in Granville, with 728 solar modules (300 kWp), and in Darrara, with 242 modules (100 kWp). The plants are expected to reduce CO<sub>2</sub>e emissions by nearly 360 tons per year.

Electricity production per year	Coverage of internal demand	CO <sub>2</sub> e emissions reduction per year
<b>530</b> MWh	<b>29%</b>	<b>360</b> tons



Faridabad, India

### Existing 75 kW Rooftop PV Power Plant

A 75 kW grid-connected rooftop PV power plant was installed in 2016.

Electricity production per year

**91** MWh

Coverage of internal demand

**approx. 1%**

CO<sub>2</sub>e emissions reduction per year

**63** tons



Munich, Germany

### Further Expansion of Solar Power Generation at Headquarters

The headquarters of Knorr-Bremse in Munich already had PV systems installed. PV capacity was added on the rooftops of two buildings in 2023. With this addition, the total estimated PV generation is expected to meet approximately 5.6% of the total electricity needs of the complex.

Electricity production per year

**628** MWh

Coverage of internal demand

**approx. 6%**

CO<sub>2</sub>e emissions reduction per year

**220** tons



Schwieberdingen, Germany

### Rooftop Photovoltaic System

Knorr-Bremse in Schwieberdingen has installed a solar system across the rooftop of the building, with 267 solar panels fitted. The panels deliver a nominal output of 98 kWp. The energy is used for the company's own consumption.

Electricity production per year

**91** MWh

Coverage of internal demand

**approx. 5%**

CO<sub>2</sub>e emissions reduction per year

**71** tons



Melksham, UK

### New Solar Panel Plant Installed

A solar PV system was installed in February 2023. With a total of 1,430 individual solar panels combined, it has a 565 kWp maximum capacity, which would supply around 17–25% of the average total facility demand throughout the year. With less than 8% of the weekly generation being released back to the grid, the remaining amount goes toward meeting all of the baseline demand.

Electricity production per year	Coverage of internal demand	CO <sub>2</sub> e emissions reduction per year
<b>&lt; 565</b> MWh	<b>&gt; 17–25%</b>	<b>&gt; 99</b> tons



Reims, France

### New Photovoltaic Car Park Canopy

A new solar panel canopy with an installed capacity of approximately 85 kWp has been set up above a parking lot in France. The project meets more than 15% of the location's annual consumption.

Electricity production per year	Coverage of internal demand	CO <sub>2</sub> e emissions reduction per year
<b>85</b> MWh	<b>approx. 15%</b>	<b>5</b> tons



Milan, Italy

### New Solar Panel Plant Installed

A new rooftop solar power plant has been completed at the Microelettrica Scientifica location in Milan. The planned generation is largely aligned with the energy demand of the plant, which will use most of the energy generated.

Electricity production per year	Coverage of internal demand	CO <sub>2</sub> e emissions reduction per year
<b>741</b> MWh	<b>approx. 50%</b>	<b>229</b> tons



Suzhou, China

### New Photovoltaic Power Station

A new photovoltaic power station was constructed at the Suzhou location in 2023, expanding the already existing photovoltaic capacity from more than 200 MWh to nearly 1,200 MWh of renewable electricity output every year. With this expansion project, renewable electricity utilization is expected to make up 10% of total electricity consumption by the Suzhou plant.



Electricity production per year <sup>1</sup>	Coverage of internal demand	CO <sub>2</sub> e emissions reduction per year <sup>2</sup>
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**954** MWh      **approx. 10%**      **585** tons

<sup>1</sup> in the first year and an average of 881 MWh throughout its life cycle

<sup>2</sup> in the first year and an average of 540 tons throughout its life cycle

## Resource Conservation

Knorr-Bremse wants to reduce the use of raw materials and supplies and, as far as possible, recycle them. This concept of reducing use and the circular economy applies to all waste as well as water. In principle, our waste management practices are designed to avoid waste – be it raw materials generated during production, packaging or other waste on-site. At the same time, we strive toward the sustainable use of water and, in doing so, account for the different requirements and needs of our locations around the world.

### Packaging and Resource Conservation

Using packaging smartly has the potential to lower resource consumption and costs significantly. This can be achieved by reusing materials or with a new packaging solution, like at Knorr-Bremse Systems for Rail Vehicles in Suzhou, China.

#### Environmentally Friendly Protective Packaging: Fabric Replacing Plastic

When a cable harness box is shipped, the external plugs need to be protected against scratches and bumps. Previously, Knorr-Bremse in Suzhou had used disposable air cushions to do this. They provide good protection, however they need to be disposed of immediately after usage. So, a few committed employees set out to look for an alternative that produced less waste. A solution was found in the form of protective fabric bags which are easy to transport and reusable.

#### Recyclable Packaging: Heavy-Duty Cardboard Replaces Wooden Crates

Previously, Knorr-Bremse in Suzhou delivered aluminum brake disks to its customers in wooden packaging. These are very secure containers, though they are also resource-intensive and are disassembled and disposed of after delivery. The new packaging box made of recyclable, heavy-duty cardboard was designed in consultation with the customers. Extensive testing was carried out afterwards (including stacking and crash tests). The internal findings and the customer feedback were analyzed and the packing instructions updated. The new packaging uses roughly 30 kilograms less wood per crate, for a total annual saving of thousands of euros in material costs.

## Global Waste Management

For its waste management, Knorr-Bremse is guided by the principle of a circular economy, with the primary objective of avoiding waste. If this is not possible or economically viable in a particular case, we endeavor to ensure environmentally friendly reuse. Overall, Knorr-Bremse focuses on three points in its global waste management:

- Avoiding waste through the targeted and optimized use of resources
- Substituting materials with environmentally friendly input materials, avoiding the use of single-use plastics, for example
- Promoting the circular economy for the environmentally friendly recycling or reuse of materials

Waste at Knorr-Bremse consists largely of scrap metal, paper and residual waste. As a company in the production sector, we produce steel and iron materials, light metals, polymers, consumables and packaging materials. In addition, we generate electroplating sludge during the surface treatment of metallic materials. The total waste volume at the Knorr-Bremse Group during the reporting period was 69,000 tons, of which 13% was hazardous waste; 83% of non-hazardous and 66% of hazardous waste was fed into recycling processes.

The Knorr-Bremse production system (KPS) supports the reduction of waste volumes in production. Using value stream analyses, we identify and eliminate various types of waste such as overproduction and avoidable reject products. Knorr-Bremse itself tries to avoid or reduce packaging as far as possible and to utilize reusable materials and containers. Our quality guidelines direct our suppliers to take similar actions.

## Global Water Management

We strive to use water as efficiently as possible and, if possible, to use it more than once as part of a closed-loop system. Knorr-Bremse uses water in particular for surface treatment and cleaning of its products, for test applications and as drinking and plumbing water. The usage of water varies strongly by location. We obtain our water from public utilities. To reduce our consumption of drinking water, we use rainwater for cleaning, for sanitary facilities and for watering green areas at some locations. We get rid of wastewater via public wastewater systems.

### Water consumption<sup>1</sup>

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in thousands of cubic meters



<sup>1</sup> The figure for 2023 covers more than 80% of Knorr-Bremse’s employees.

<sup>2</sup> The year-over-year reduction in water consumption is the result of the introduction of new production processes and the sale of water-intensive business units. The water usage of some locations in the Commercial Vehicle Systems division for 2023 was extrapolated from the previous year’s consumption based on revenues and other environmental metrics.

#### Reduced Water Consumption: Overhauling Process in Brazil

Knorr-Bremse opened an overhauling plant at an operator for agricultural products in Rio Claro, Brazil, in 2018; the operator had previously done this work by himself. Knorr-Bremse reconditions locomotive and freight car braking systems at the plant in accordance with “green value” principles and tests these systems. Its aim here is to reduce resource usage further and to recycle materials. That applies to the washing process as well, a process which roughly 500 components go through each month as part of the repair work. Over the five years in which the facility has been operating, the system has already saved around 1.7 million liters of water and reduced the use of chemical products by more than 115,000 liters.

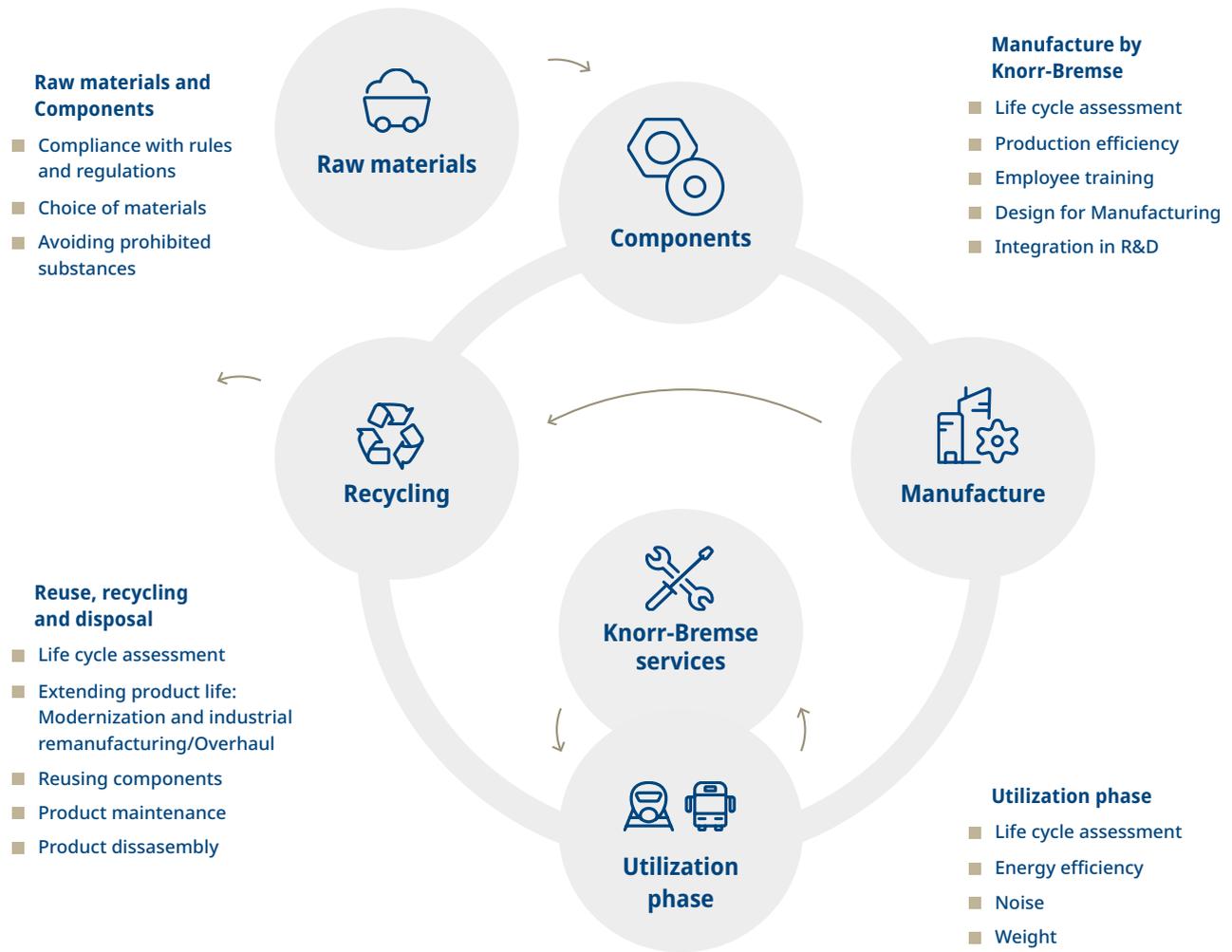
## Environmental Product Design

Knorr-Bremse can make a contribution to climate and environmental protection with systematically environmentally oriented product development while achieving a medium- and long-term competitive edge. Knorr-Bremse EcoDesign – environmental product design – enables us to develop products, processes, and services with an improved environmental impact across the complete product life cycle. We thus want to ensure a future-proof product portfolio and, at the same time, pursue our company vision and HSE policy. With the EcoDesign approach, in addition to various internal requirements, the requirements of regulatory stipulations, standards, and customer expectations also influence product development. The focus here is on sustainability aspects such as a long service life, conservation of resources, and avoiding emissions.

### EcoDesign Entrenched within the Organization

EcoDesign is organizationally incorporated into both divisions in such a way that it supports strategic research and development (R&D) planning and creates synergies and standardized processes between the Group divisions. The EcoDesign experts of the RVS and CVS divisions have one central function here. They are integrated into the development processes and help, with the assessment of product development, for example. They are supported in this by divisional analysis teams, which analyze Knorr-Bremse products and components in respect of compliance with internal, legal, and customer requirements on content. A specially developed EcoApp supports the analysis of the products in the RVS division. The EcoDesign experts work together closely and across divisions on a project basis. Thanks to the regular exchange, synergies can be leveraged in the transfer of know-how and common standards compiled for product development. During the year under review, the focus was, in particular, on recording the Scope 3 emissions in product use and identifying reduction potential (→ [Climate Protection](#)).

Intensive training of engineering and R&D employees over the past few years has given them a shared understanding of EcoDesign standards for evaluating product development. We continue to offer this training as needed. For example, training for engineers from the Bendix subsidiary (CVS division) was held in 2023. In RVS, EcoDesign analysts were trained on upcoming statutory environmental regulations.



## EcoDesign in Development Processes

Knorr-Bremse wants to proactively integrate EcoDesign aspects into product development and is working on systematically anchoring sustainability criteria in the processes – from strategic planning through innovation to product development.



### Strategic Planning

In strategic planning, the business units determine their goals on a product and system level for the next five years. In addition to many other aspects, product sustainability is an integral part of this process. As such, EcoDesign criteria such as selection of materials, energy efficiency, reduction of emissions and life cycle are taken into consideration.



### Innovation

In our innovation process, we assess projects' and product ideas' potential for development and implementation, including on the basis of their alignment with strategically relevant megatrends. In the RVS division's innovation projects, EcoDesign is one of five different assessment criteria in the planning process. In the reporting period, 110 projects were classified in terms of EcoDesign criteria. All innovation projects are assessed using a criteria catalog that includes the topic of sustainability. The resulting priority list for the projects is discussed and adjusted at management level. A higher priority generally means a higher probability of project implementation. The size of a project budget is based on the responsible department's coordinated project and budget planning.



### Product Development

When developing new products and solutions, we want to incorporate and minimize their environmental impact from the start. This is why we assess them along the product life cycle in accordance with EcoDesign criteria and derive improvements from this. Both divisions have introduced a binding process that takes account of the following EcoDesign criteria:

#### Material extraction and production phase:

- Hazardous substances
- Weight (CVS division)
- Choice of materials (including proportion of secondary materials)
- Origin of materials (conflict minerals)

#### Usage phase:

- Weight (RVS division)
- Energy efficiency
- Longevity
- Direct emissions

#### End of product life:

- Recyclability

## Product Development: Analyses and Tools for Minimized Environmental Impacts

In the RVS division, the EcoDesign assessment form is provided to the development teams for the mandatory assessment of innovation projects and complex customer projects. It defines requirements for product design and makes assessment tools available, such as supporting standards and methods for evaluating environmental impacts. For example, the recyclability analysis of the materials used helps us to identify and reduce their potential environmental impact. In 2023, a total of 28 projects in the RVS division were reviewed on the basis of a recyclability analysis in accordance with ISO 22628 and/or ISO 21106. Here, the result of the rail vehicle business area's products is more than 90% recyclability for Knorr-Bremse products.

The CVS division has defined concrete EcoDesign requirements and targets in the product development and commercialization (PDC) process for new products and products with material changes. These requirements and targets – for example, a minimum reduction in weight – need to be implemented in the phases of project planning through to the product and process development. Specific guidelines and concrete tools and methods assist with this process. These include the IMDS system for identifying hazardous materials and materials requiring declaration, comparative analyses of material-specific environmental impacts, and the EcoDesign assessment form.

Moreover, Knorr-Bremse also used life cycle analyses (LCAs) in 2023 to calculate product-based environmental impacts comprehensively. While the RVS division conducted LCAs on brake resistor and the i3HU hydraulic unit products, CVS carried them out on pneumatic disk brakes. The analyses deliver valuable insights on the use of materials and energy in production and on impacts in the product use phase through to disposal. The LCAs were conducted in accordance with standards such as ISO 14040 and the UNIFE Product Category Rules.

### Usage of the EcoDesign assessment (CVS)

The EcoDesign assessment form was used as part of a project for the development of a truck pedal unit to create a unit design that had a small environmental footprint. In particular, the parameters of component weight, material choice, and share of recyclates were assessed. This corresponded fully with customer expectations of lower CO<sub>2</sub>e emissions.

## Life cycle analyses: environmental impacts of selected Knorr-Bremse products

**Dessicant material** used for drying air in pneumatic systems (such as truck braking systems). A project was established under the Commercial Vehicle Division in 2023 to determine the feasibility and the potential benefits of the remanufacturing of this substance. As part of this project, an LCA was carried out that showed massive environmental benefits, including significant savings in associated CO<sub>2</sub>e emissions and the avoidance of landfilling tons of used materials

**- 1,000 tons CO<sub>2</sub>e**

Based on the LCA, close to **1.000 tons CO<sub>2</sub>e** emissions were avoided in 2023 by the remanufacturing of desiccants.

**HydroControl Smart** is an extremely compact, light-weight and robust intelligent hydraulic unit concept in development that combines versions with or without integrated brake electronics, using one unified design. Designed for the demanding operating conditions of modern public transportation systems, it is suited to a wide range of vehicle types. Its high power density, modular extendable system layout, connectivity and data management features make it a perfect choice for hydraulic railway brake systems.

**- 15% CO<sub>2</sub>e**

Based on the LCA carried out in 2023; After its re-design, the total CO<sub>2</sub>e footprint during the whole life cycle of the product was reduced by close to **15%** compared to an equally performing combination of HydroControl Classic hydraulic unit and brake electronics.

## Saving Resources through Industrial Remanufacturing

Our RailServices and TruckServices business is another driver of sustainable product design. This includes, among other things, overhauling in the RVS division and remanufacturing in the CVS division, which are key lines of business. With these services, Knorr-Bremse industrially remanufactures products so that they can be reused in a transportation context with identical functionality. The extended product life cycle results in reduced material usage and energy consumption simultaneously, which influences both our and our customers' life cycle assessment positively.

Because we design our products to be ready for remanufacturing and overhauling during the development and design stages, it is possible to use them for longer. Knorr-Bremse TruckServices currently has products representing roughly 1,000 item numbers in its EconX portfolio for the Europe/Africa region. The brand stands for a circular economy and includes remanufactured components, e.g., for braking systems. The completely reconditioned products are installed in trucks again and individual parts and commodities are recycled directly. Thanks to industrial refurbishment, 3,648 tons of CO<sub>2</sub>, 1,220 tons of materials and 18,987 MWh of energy were saved in the reporting period.

If rail vehicle customers have inquiries about overhauls and repairs, they can turn to one of the 50 Knorr-Bremse service centers globally, with this network recently having been expanded to include locations in Denmark, the UK and Italy, among other places. Numerous delivered components are regularly overhauled at the service branches, and, following a successful check, installed back in the respective fleet or vehicle. The goal is for the components to maintain functionality until the end of the corresponding train's life. One example in this regard is compressors, which are overhauled after defined intervals or set hours of operation. Moreover, exchanging a component or implementing additional functionality may also form part of a complete upgrade or modernization project. These full maintenance packages have the potential to extend an entire train's useful life.

Knorr-Bremse refurbished around 67,000 products of various kinds at the service center in Berlin in 2023. In China, braking equipment for more than 5,300 high-speed train cars, 2,000 locomotives, and nearly 4,200 product units for metro trains were refurbished in 2023. On top of that, approximately 2,500 entrance systems and 1,280 HVAC systems were delivered for high-speed and metro trains.

### Remanufacturing: Good for Development

Knorr-Bremse, applying its EcoDesign approach, considers the separability of its individual components from as early as the product development stage. In doing so, Knorr-Bremse acts ahead of forthcoming legislation, the European Ecodesign Directive, and the right to repair. Remanufacturing also drives product innovation in the Commercial Vehicle Systems division, as the division’s developers get to find out a great deal about product behaviors during long-term usage in the field. Using a remanufacturing road map and working on a project basis, TruckServices tracks the products that will likely enter the independent after-market in the foreseeable future. First, the spare parts for a product need to be available, with remanufacturing products seeing greater demand after about six years. Behind these development projects are business cases that have been coordinated with OE customers. The technology – whether it is a component for a combustion engine or an electric motor – is of secondary importance.

### Revenue<sup>1</sup> from Refurbished Products Relative to Group Revenue

in %



<sup>1</sup> Revenue including labor and spare parts needs

## Eco-Friendly Logistics

Knorr-Bremse strives for eco-friendly logistics across the entire value chain. We optimize the operational transportation management on an ongoing basis, including with the help of external service providers. These service providers take over the planning, consolidation, and operational execution of deliveries from external suppliers to Knorr-Bremse as well as the transportation between the Knorr-Bremse locations and the deliveries to our customers.

We seek to minimize the costs as well as environmental impacts of product transportation. We constantly optimize the coordinated use of rail, road, and shipping routes. We achieve this through the use of standardized processes and methods, which, at the same time, increase our service quality across all distribution channels with regard to delivery reliability, delivery quality, and delivery deadlines. In 2023, too, we primarily carried out intercontinental product transportation by ship. Our target utilization rate of at least 85% for sea freight containers (CVS) supports efficient goods transportation. Rail transportation from China to Europe was used in certain cases as a safeguard for production. We avoid air freight transport whenever possible.

We calculate the CO<sub>2</sub>e footprint of the global transportation network (→ [Climate Protection](#)) and are working on improving it. Going forward, CO<sub>2</sub>e emissions caused by transportation will increasingly play a role in decision-making for optimizations in logistics. Commercial Vehicle Systems, when carrying out new sourcing procedures in the past, has already calculated and assessed the CO<sub>2</sub>e emissions generated through transportation. To make a systematic, quantitative assessment of CO<sub>2</sub>e reduction measures and track them, the CVS division began rolling out a transportation management system (TMS) in 2023. It is being introduced in Europe first and will then be implemented in the Asia-Pacific and South America regions. The TMS already established in North America will be expanded to include additional CO<sub>2</sub>e KPIs. Along with the transparency it creates, the additional monetary evaluation will also incentivize the reduction of CO<sub>2</sub>e emissions.

Further emission-reducing measures in the RVS division are supported by the “NextGen European Distribution Network” project, which has created a digital twin, among other things. Using the bottom-up calculation method, this has enabled reproducible CO<sub>2</sub>e reporting and analysis in real time for the transport network since 2022. These findings are incorporated into decision-making processes in the transportation sector and form the basis for initiating sub-projects for CO<sub>2</sub>e reduction. In addition, the European distribution structure close to our locations (RVS) in Spain, Hungary and Germany, which was redesigned as part of the “NextGen European Distribution Network” project, was further developed in 2023 so that transportation flows can be made more efficient and with lower emissions. In 2024, the concept is planned to be expanded for greater consolidation of the deliveries to North America and China.

Knorr-Bremse continuously reviews and analyzes the transportation flows in conjunction with its logistics contractors. This allows for shipments to be consolidated and CO<sub>2</sub>e emissions lowered, for example. This results in local projects with reduced emissions, such as in Aldersbach, Germany, Liberec, Czech Republic, or Huntington, United States.

The Commercial Vehicle Systems division is pursuing a reduction of the carrier portfolio in the Europe/Africa region with a reinforced focus on strategic partnerships. The smaller number of interfaces with forwarding agents is a further measure to enable more efficient CO<sub>2</sub>e management. We will work on comparable steps in the Asia-Pacific and South America regions as well.

The CVS division has implemented a central tracking process for the Europe/Africa region for optimized logistics in connection with global special freight shipping. The special freight shipments that are carried out or pending are analyzed in regional sales inventory planning (SIOP). Countermeasures such as inventory increases can be defined using the results.

### **CO<sub>2</sub>e Reduction in Logistics: Transformation Project Being Expanded**

Increased efficiency, lower costs, and less carbon emissions in the logistics across the supply chain – these are all things represented by the NextGen European Distribution Network transformation project in the RVS division. Knorr-Bremse’s European logistics and supply chain network optimizes economic and environmental factors according to eleven criteria, including targets for logistical quality. As a result, the number of ton-kilometers driven was able to be reduced by 20% and thus logistics costs and CO<sub>2</sub>e emissions by a significant amount. This occurred simultaneously with increased logistical speed and flexibility for customers.



## Social

We take responsibility for society and for our employees. As part of that, we are committed to respecting and protecting human rights and also expect this from our business partners throughout the value chain. While we practice our social commitment to an exceptional degree at our sites, our products make a significant contribution to greater safety on railways and roads worldwide. We seek to offer all our employees an attractive working environment characterized by fair working conditions, equal opportunities and holistic personnel development.

## Product and System Safety

Knorr-Bremse makes a significant contribution to safe, efficient and connected transportation based on rail and commercial vehicles. In our Rail Vehicle Systems (RVS) division, this applies to braking systems in particular as well as intelligent entrance systems, HVAC systems, energy supply systems, electronic control systems and driver assistance systems. Our Commercial Vehicle Systems (CVS) division offers not only braking and steering systems for safe transportation, but also products such as driver assistance systems, air treatment and systems for the powertrain, as well as digital and data-driven aftermarket solutions.

Our products and systems are subject to high safety requirements arising from customer requirements, legal requirements and standards, and we carefully monitor compliance with these. To this end, Knorr-Bremse makes use of extensive quality-planning, quality-assurance, and testing procedures.

Knorr-Bremse acknowledges product safety and quality in its vision, company values, and Code of Conduct. Moreover, there are separate safety and quality policies for the two divisions that the company locations must introduce. The permanent improvement of our product and system quality is a matter of major importance here. The results of regular customer satisfaction surveys in both divisions also provide us with valuable information in this regard.

Safe production and work processes are just as important for product and system quality. The zero-defect philosophy and our procedures and processes to ensure product safety are intended to help us achieve our objectives with all our products and services: increased efficiency, maximum flexibility and productivity from production to vehicle operation, maximum delivery reliability, accident prevention, and better utilization of infrastructure.

The Product Safety and Product Conformity Organizational Policy lays down the organizational framework for implementing our requirements for product safety. It documents the responsibilities and tasks in the organization. Overall responsibility for compliance with product safety and product conformity lies with the Executive Board of Knorr-Bremse AG; the Executive Board involves the companies of the RVS and CVS divisions for this. The Product Safety Committee (PSC) has to ensure that product safety and product conformity are implemented.

### Regular customer satisfaction surveys

Knorr-Bremse conducts regular customer satisfaction surveys in both divisions. The results provide insights and important indications of which Knorr-Bremse services fully meet customer expectations and where we can optimize our offerings. The goal is always to offer the best products and services to support our customers in their daily business.

In 2023, Knorr-Bremse TruckServices approached over 500 distributor partners to survey their level of satisfaction in various areas such as the product portfolio, customer support, logistics and services. The Net Promoter Score (NPS) was used as a measure of customers' willingness to recommend the company to others. The survey results showed that 91% of respondents were satisfied or very satisfied overall with their collaboration with TruckServices, with a response rate of 16%. Results were benchmarked against the survey conducted in 2021 and the average score showed an overall improvement in 2023 (4.85 stars out of 6) compared to 2021 (4.73 stars out of 6). Product quality and reliability along with strong technical support continued to be major strengths highlighted by customers. Feedback from customers has been analyzed and action fields for potential improvement in selected areas have been defined.

The RVS division conducts an OE survey every two years. In 2023, over one thousand customers from 130 companies were invited to take part in the survey, with a response rate of 22%. Based on the survey results, measures were derived in areas such as communication, packaging and complaints management.

At RailServices, centrally coordinated surveys are conducted and analyzed at location level at least every two years. In addition, an evaluation and benchmark between the locations is conducted centrally on an annual basis. In 2023, 1,076 operators were approached worldwide, of which 33% took part in the survey. The strengths emphasized here were technical expertise, sustainability and the friendliness of employees, with around 95% satisfaction. Potential for improvement is developed and implemented by the locations themselves.

## Integrated Management Systems Ensure the Highest Standards

Both divisions employ integrated management systems. Their processes satisfy internally defined requirements and also meet regulatory or customer requirements regarding quality assurance and environmental and health protection.

We describe and manage the product and system safety management processes using the management systems Rail Excellence (REX) and Truck Excellence (TEX)<sup>1</sup>. The process manuals and work instructions of the management systems set out all the basic rules for the processes. We aim to ensure quality and safety at every stage of the value chain that we are in a position to influence by using various measures. This covers the development process, product validation, careful supplier selection, the Knorr-Bremse production process, and the delivery of our products. The instruments used include failure mode and effects analyses (FMEA) as well as production safety audits and product safety reviews. Furthermore, we practice supplier monitoring, separate auditing of production lines, obligatory product safety training for employees, product and field testing, and close monitoring of the relevant markets. Regular internal audits and assessments serve to verify and optimize the implementation of our process management system. In addition to worldwide monthly internal reporting to the quality organization as well as management teams and Executive Board for monitoring quality metrics, Knorr-Bremse regularly conducts regional, global, and product-specific quality reviews. The reviews and strict escalation processes ensure that potential safety-critical incidents are assessed and resolved at an early stage.

Knorr-Bremse seeks to fulfill its obligation to observe its products globally and uncover potential risks in the usage phase and, to this end, has implemented a product integrity process. The regional quality managers are responsible for active product monitoring through market observation, media research, customer complaint analysis, and checks of accident/recall databases. Potential risks in product and system safety are reported to the Group Clearing board. After the matters have been investigated, which includes performing a risk assessment, Group Clearing decides on the recommended actions and involves the PSC if necessary. If there are safety-critical incidents, the PSC decides on the final assessment and on appropriate risk prevention measures in order to ensure the safety and conformity of the marketed products and systems.

International standards form the basis of the Knorr-Bremse quality management systems. In the RVS division, these are the quality standards ISO 9001 and ISO 22163 (formerly IRIS, International Railway Industry Standard). The rail-specific requirements included in ISO 22163 are firmly anchored in the division's processes and manuals and the Knorr-Bremse production system. For the CVS division, the IATF (International Automotive Task Force) 16949 quality standard applies. In 2023, 116 Knorr-Bremse sites globally had a cer-

<sup>1</sup>This applies to all companies with more than 50 employees in which Knorr-Bremse holds at least 50% of the shares.



### New Training Lab in Suzhou teaches product knowledge and safety

The new Training Lab in Suzhou is now an important hub for training Asian rail vehicle customers. In 2023, the Chinese location (RVS) opened a new test and training center, which gives visitors a better understanding of Knorr-Bremse technology and RailServices services over an area of 200 m<sup>2</sup>. There are product demonstrations and simulations of Knorr-Bremse systems, such as the innovative, intelligent air supply unit AirSupply Smart. The presentation of other systems from Knorr-Bremse that are critical to safety and business operations, such as doors and HVAC systems, is being expanded. It goes without saying that customers are also offered remote training. In this way, Knorr-Bremse can share knowledge directly from Suzhou with customers, for example the metro operator in a tier 1 Chinese city. This allows train drivers to familiarize themselves with new functions of the braking systems and enables them to act proactively and safely at all times in their work.

tified quality management system (ISO 9001, ISO 22163 or IATF 16949). To date, no Knorr-Bremse location has had a certificate revoked.

### Number of certified sites with quality management systems

	2023	2022	2021
According to ISO 9001, ISO 22163 or IATF 16949	116	109	101

In order to meet supplier management quality standards, both divisions monitor and audit their supplier base. In addition to a process audit for suppliers, the RVS division uses prior information that suppliers have provided about themselves, including on quality certificates such as ISO 22163. The standard is a requirement for achieving preferred supplier status at Knorr-Bremse. In the CVS division, every supplier goes through the product safety audit and a Sourcing Board assessment.

### Products for Greater Transportation Safety

Knorr-Bremse continuously develops the high level of safety and quality of its business processes and product portfolio in both divisions. On this basis, we contribute to improved traffic safety by supplying reliable, high-quality products, systems, and services.

The two divisions' product developments for higher traffic safety include our knowledge of braking systems that we have acquired over the course of decades and our in-depth expertise in driver assistance systems and forward-looking digital solutions. Here are a few current examples:

#### Braking Systems for Improved Transportation Capacity and Safety

ElectroAct, a digital **electromechanical brake**, is designed to contribute to a dynamic traffic flow through increased transportation capacity and efficient train operation. The system transmits the brake signal and energy electrically, rather than pneumatically, by using brake by wire. The improved braking dynamic and the associated increase in the friction brake's application and release shortens braking distances and increases route capacity.

With the latest generation of the CubeControl product, the world's most frequently installed brake control, Knorr-Bremse is again putting into use a high-quality successor technology to update a successful product. It will debut in 2024 in a fleet of Swedish high-speed trains. The enhanced CubeControl integrates multiple components in an even better way, enabling a smarter interaction of electropneumatic, mechatronic, and software technologies.

With CubeControl, Knorr-Bremse is paving the way for the innovative **Reproducible Braking Distance (RBD)** brake architecture. It supports an increase in rail-based transportation capacity with enhanced train frequencies and improved schedule stability and punctuality. A team of engineers integrates three technologies for this: a new deceleration control (DCC) technology, WheelGrip Adapt for adaptive wheel slide protection and a smart sanding system designed for adhesion management (ADM) across the entire train. Simulations have highlighted the significant potential for improved rail traffic flow.

The modular **SYNACT® family of disk brakes** ensures that heavy commercial vehicles and buses are safe for road transportation. The new, weight-reduced **SYNACT® radial brake** is tailor-made for urban buses. The 10 kg weight reduction helps with efficient vehicle operation, all while offering full performance of up to 30 kNm. With the active caliper release (ACR) equipment option, SYNACT® can achieve fuel savings of up to 1%.

## Systems for Collision Avoidance and Object Recognition

In rail and road transportation, collision avoidance systems help to avoid accidents by acting as emergency braking assist systems and, on trucks, as turning assist systems. These systems are developed further for autonomous driving in commercial vehicles to enable driverless operation in the future. Knorr-Bremse supplies collision avoidance systems with sensors for recognizing surroundings and conditions that can be used in similar ways on rail and road. ProFleet Assist+ Gen 2, the turning assistant from Knorr-Bremse TruckServices and Mobileye which can be retrofitted on commercial vehicles, is one example of this. The system meets the latest financial support requirements.

In rail transport, another highlight is the obstacle detection technology from Israeli start-up Rail Vision, in which Knorr-Bremse has a stake. The driver assistance technology makes it possible to identify trains, objects, and obstacles from large distances and is also a tool in the realization of future automatic train operation (ATO). The high-performance sensor systems will be put into use on passenger trains in an initial commercial order.

## Safety with Digital and Electrified Solutions

The **Digital Freight Train** represents high-performing, competitive rail transport with efficient train loading and high vehicle availability. The **Digital Automatic Coupler** (DAC, also known as FreightLink) enables automatic mechanical/pneumatic car coupling and uncoupling along with consistently reliable, trainwide power supply and data communication. With the innovative concept of the electric contact coupling – a key DAC module – smart services for speeding up processes and performing smart maintenance in the freight segment, including automated brake testing, remotely controlled hand-braking, and condition-based maintenance, for example, can also be implemented across vehicles in conjunction with the FreightControl control system.

A range of DAC tests lasting several years was launched under real-world conditions in 2023. They are being carried out as part of Europe's Rail Joint Undertaking (EU-Rail) – which is an EU research and innovation program – and DAC4EU.

**Condition-based maintenance** on rail vehicles means data can be generated for braking systems, entrance systems, HVAC systems, and other subsystems and immediately subjected to smart, algorithmic analysis in the cloud. This enables precise condition monitoring and resource-conserving condition-based maintenance for safety- and function-critical subsystems, which is an important tool for safe rail transport with high availability.

With key technologies such as **fully Electric Power Steering** (EPS) and **electrohydraulic AHPS** (Advanced Hybrid Power Steering), the Knorr-Bremse steering portfolio comprises solutions for automated driving in the commercial vehicle segment. Consequently, Knorr-Bremse offers solutions for electric as well as conventional vehicles. Both steering systems increase transportation safety and comfort by offering a broad range of driver assistance functions, including speed-based steering support, active lane-keeping assistance, and steering wheel return. With its power-on-demand function, EPS additionally reduces fuel consumption and carbon emissions.

## Employment Conditions

A total of 33,319 employees around the world work for Knorr-Bremse and they are a key reason for our business success. To remain successful as a company, we need to be an attractive employer. This is essential in order for us to recruit the best skilled workers and managers and gain their loyalty. As a driver of innovation, Knorr-Bremse depends on highly qualified employees, professionals and junior staff.

We want satisfied employees who judge their employment conditions to be good and value an open and supportive company culture. Knorr-Bremse therefore wants to offer all employees the best possible opportunities and conditions for developing their personal capabilities in their professional environment. It is also our aspiration to protect employees' rights and ensure fair and appropriate pay. We are guided by the principles of the UN Global Compact, the UN Universal Declaration of Human Rights and the International Labour Organization (ILO) conventions relating to human rights (→ [Due Diligence Process for Human Rights](#)). The standards we set ourselves as a responsible employer are defined in the Knorr-Bremse Code of Conduct and in our Human Rights Policy. Within the Knorr-Bremse organization, these form the basis for daily interaction among employees.

The Group-wide Human Resources (HR) department plans, manages, and monitors all overarching activities regarding our employees at Knorr-Bremse. The Global Head of Human Resources bears the overall responsibility and reports regularly to the Executive Board member for Integrity, Legal, IP, Data Protection and HR. Regional HR officers are responsible for implementing the HR measures in the regions (Asia-Pacific, Europe/Africa, North America/South America). Local HR officers are guided by the requirements of the central HR department and local circumstances. We strive to maintain a continuous flow of information across the entire organization. If information on the Code of Conduct is needed, or in the event of violations thereof, employees and external partners can rely on established processes. If they have questions, they can turn to their direct supervisors, the compliance organization, the HR department or – if applicable – their Works Council. Violations of the principles of the Code of Conduct can be reported anonymously via a global whistleblower system (→ [Integrity and Compliance](#)).

### A top employer for the eleventh time

Pioneering products and services are created by top-class teams. Excellent working conditions are vital to this – and Knorr-Bremse offers them. In 2023, the independent audit by the Top Employers Institute certified that Knorr-Bremse is a “Top Employer” for the eleventh time in a row. The award confirms that Knorr-Bremse boasts excellent personnel development, a high level of employee orientation and development, and above-average employer benefits. In particular, it is testimony to our above-average performance in the areas of sustainability, well-being, and digital HR. We achieved improvements in the audit with regard to employer branding and employee listening, among other areas. The 20 HR areas audited include the HR strategy, working environment, talent acquisition, personnel development, well-being, and diversity and integration.

## Employee structure in 2023<sup>1</sup>

		Worldwide	APAC	EMEA	North and South America
<b>Total employees</b>	Number	29,487	6,613	16,333	6,541
of whom women <sup>2</sup>	in %	21.6	17.9	21.3	26.3
<b>Ratio of employees on fixed-term contracts</b>	in %	7.5	19.1	5.2	1.1
of whom women <sup>2</sup>	in %	26.7	26.1	26.5	40
<b>Part-time employees</b>	in %	6.3	0.2	11	0.7
of whom women <sup>2</sup>	in %	39.5	45.5	39.4	43.8

<sup>1</sup> The figures refer to employees excluding personnel leasing.

<sup>2</sup> Approx. 98% of the workforce covered.

## HR Strategy 2027 will make us a preferred employer

The global HR Strategy 2027 lays out concrete specifications for the strategic action area of “People” in our company strategy, with the goal of ensuring that we are a preferred employer and thus establishing a talent pipeline of highly qualified and talented people internally and externally. To achieve this, there was a focus on active employer branding in the 2023 reporting period as well as a focus on the implementation of new leadership principles for a modern leadership culture. Other topics that were concentrated on included the development and piloting of the expert career path and the continuing digitalization of HR processes. In this context, there is the HR Connect employee platform which acts as a basis for transparent and efficient work processes. This company-wide recruitment portal is already established in talent management and a module for improved succession planning was rolled out in 2023. Furthermore, digitalized talent management processes and functions that are planned for 2024 are aimed at employee and manager development as well as the promotion of a feedback and dialog culture.

## Employee Satisfaction

To analyze and influence employee satisfaction, we used the results of a Group-wide employee survey which we conduct in a detailed format every two years. In 2022, 74% of employees<sup>1</sup> around the world took part in the digital survey on a voluntary basis. In our follow-up analysis of the results from this seventh employee survey, we were able to identify strengths such as the employees’ high level of commitment to the

<sup>1</sup> All Knorr-Bremse staff incl. agency workers were invited to participate.

### Global workshops as part of cultural change

Cultural change is a long journey that takes time. Both top-down and bottom-up efforts are required. The seventh employee survey (2022) was augmented by a transparent follow-up process with workshops at all locations. Around 450 managers and their teams worldwide compiled more than 3,200 measures.

Here are some of the core topics:

- **Feedback culture:** Its enhancement was a topic throughout the Group, including in Watertown, USA. Special achievements will be honored with the Excellence Award there – and in Budapest, too, in the future.
- **Team-building measures:** These ranged from family days (Lisieux, France), community dinners (Hong Kong) and volunteering in schools (Brazil), to redesigning offices (Buccinasco, Italy).
- **Career development and further training:** These topics, in which there is great interest worldwide, were discussed just as intensively in South Africa for blue collar employees as they were in Mexico (“Skill Level Program”) or in Pamplona, Spain.

Knorr-Bremse brand and their duties. Simultaneously, there are areas requiring development that should be pursued proactively, e.g., with regard to communication and career opportunities. The strengths as well as the areas requiring development both have the potential to contribute important findings for cultural transformation. Workshops were held at company locations around the world for this. The resulting action plans included items such as formats for creating speak-up and feedback cultures as well as measures for employee loyalty, particularly in the areas of family-friendly work and employee health. Furthermore, a pulse survey about the current changes underway was held in 2023 with a participation rate higher than the one for the employee survey. The survey engagement score of 71, an important indicator of workplace appeal and employee willingness to recommend their workplace, remained stable with a somewhat higher overall level of employee satisfaction.

## Work-Life Balance

A good work-life balance is an important factor of employee satisfaction. We take this into account in our New Work concept, which encourages agile and collaborative working. Our comprehensive options for mobile working also contribute to a good work-life balance, as do flexible working hours and online training opportunities. Our locations implement the initiatives independently in accordance with local requirements and prevailing legal conditions. The same goes for the various options for making day-to-day life easier. They include:

- Care services for families: referrals to childcare services or nursing services for relatives as well as vacation programs for children
- Financial and social support programs for families: special grants or contributions to preventive health care and health insurance; time off in the event of illness of children or family members, maternity and paternity leave – even in countries without such statutory regulations
- Workplace health promotion: a range of health programs and facilities

All seven locations in Germany have been certified according to a berufundfamilie (“job and family”) audit. This seal of quality attests to HR policies that consider families and different stages of life and to family-friendly working conditions. Family-friendly employment conditions are also supported by a company childcare center, which was opened nearby the Munich headquarters in June 2023.

- **Social offerings:** In addition to greater appreciation in everyday working life, the focus was also on very practical, useful offerings in the family sphere (such as flexible working hours) and preventive health care. Interest in them was particularly keen among employees in Asia (Hong Kong, South Korea, Thailand). Examples include the planned establishment of an annual health check-up or psychological discussion programs.

# 71

This engagement score in the 2023 pulse survey underscores once again that our employees have a high level of commitment to the Knorr-Bremse brand.

## Easing the Burden on Employees: Balancing Care and Career

In light of the ongoing demographic shift, the topic of long-term care is growing increasingly relevant. Providing or organizing care for relatives is a demanding task which people often have to take on unexpectedly. Relatives who provide care need the initial technical information and practical help at short notice so that they can organize themselves for the long term. Knorr-Bremse believes that supporting this care is a key matter for the company’s social benefits. Knorr-Bremse offers an important source of help through an external, specialized service provider to ease the physical and psychological burden on employees who provide care. This service, offered free of charge for employees at German locations, includes for example:

- **Digital consultation:** To address the initial, basic questions surrounding care.

## Remuneration, Additional Benefits and Codetermination

Knorr-Bremse wants to be a fair employer that ensures that its employees around the world receive rates of pay in line with the market. Salaries at Knorr-Bremse should only differ on the basis of employees' qualifications and performance. We adhere to local minimum wages, but they are not relevant for the majority of the workforce due to the high level of qualifications required.

With the objectives of fair pay and international comparability of pay, we intend to assess all job profiles in accordance with a globally uniform system and compare them with reference values. This has currently been implemented for 80% of all employees (2022: 73%). A new compensation structure is being implemented in Germany in the period through to 2026. It is planned to continue offering performance-based and market-aligned remuneration through greater transparency and comparability. The core working hours will be reduced to 40 hours per week as part of it.

The more responsibility comes with a position, the higher the proportion of variable remuneration. This form of remuneration is based on the company's current success and individual targets, which are discussed and set between managers and employees during the standardized, global Staff Dialogue process (→ [Personnel Development](#)). The integration of sustainability aspects into the goals depends on the role of the employee. With effect from fiscal year 2022, there has been a remuneration system for management levels 0-2 (Executive Board, senior management, regional managing directors, heads of division). In this system, short-term variable remuneration will factor in achievement of sustainability goals (→ [Responsible Corporate Governance](#)).

In addition to pay, Knorr-Bremse offers its employees location-dependent, voluntary additional benefits, mostly in the form of financial benefits or benefits in kind. This can include assistance for employees facing special situations in their lives. In Germany, for example, this is provided by Knorr-Bremse's support association, which unbureaucratically provides financial aid to employees who are primarily facing crisis situations.

Knorr-Bremse launched the Heinz Hermann Thiele share program in September 2021. It enables eligible Knorr-Bremse employees to purchase subsidized shares in Knorr-Bremse AG each year. At the end of 2023, a total of roughly 28,200 employees in 24 countries with at least six months' employment at the Group were eligible. The employee-shareholder rate among these eligible employees is 20%.

- **Care course:** Video call for sharing theoretical and practical knowledge (maneuvers) for relatives.
- **Seminars:** Free online presentations on selected topics related to care (e.g., sources of financing for care, care-life balance, advance healthcare directives, etc.).
- **Physical visits:** Qualified nurses pay a home visit and provide individual advice on the care situation.
- **24/7 hotline:** Expert help for all questions about caring for relatives and in emergencies.
- **Conversation opportunities:** Networking with other carers to talk about their experiences.



### The "Brake Blocks" are here

In the summer of 2023, the "Bremskiötchen" ("Brake Block") childcare center opened directly opposite Knorr-Bremse's headquarters in Munich. It offers qualified care for a maximum of 12 children of our employees aged between 10 months and 3 years. While Knorr-Bremse provides financial support, an external organization is responsible for the pedagogical concept and organizational matters. Particular attention was paid to an excellent staff-child ratio with only a few children per educator, as well as highly qualified educational staff and a fair parental contribution. The company's own childcare center is an important step that can help improve the work-life balance of employees at the location.

With regard to codetermination by employees and their representatives, Knorr-Bremse relies partly on direct feedback communication such as the employee survey. In addition, we are conscious of the importance of cooperation in a spirit of trust, which includes factual communication with bodies representing employees, such as the Group Works Council. We respect employees' right to freedom of association and assembly and to collective bargaining, wherever this is legally permitted and possible. The members of bodies representing employees and trade unions are treated equally in the Group and neither disadvantaged nor favored.

## Employee Turnover

Knorr-Bremse strives for high employee satisfaction and to have that satisfaction reflected in a turnover rate that is as low as possible. Despite the current labor market situation in various countries where we have locations as well as the macroeconomic climate, we were able to have a positive influence on employee turnover in 2023, in terms of both general turnover as well as employee resignations. This effect can be seen in all regions and is particularly prevalent in North America. We strive to keep counteracting this development by continuously refining the measures listed here for the improvement of employment conditions. In addition, we have further expanded our recruitment processes and channels to hire new employees in a timely manner. In Germany, for example, initiatives on LinkedIn have been given a boost. For the North America region, a shared service center, including recruitment administration, was opened at our Acuña, Mexico, location in January 2023.

### Turnover Rate<sup>1</sup>

in %

	2023	2022	2021
Staff turnover worldwide <sup>2</sup>	15.0	18.7	14.1
Staff turnover limited to employee resignations	7.4	10.4	8.7

<sup>1</sup> Approx. 98% of the total workforce covered.

<sup>2</sup> Definition: Number of employees leaving as a proportion of the average total workforce. Since 2022, this has taken into account all ways in which employees leave, including employees on fixed-term employment contracts.

## Personnel Development

Qualified employees are a competitive advantage and a basis for the company's success. In personnel development, in addition to ongoing specialist training programs and promoting specialist skills, we also focus on developing managers. In terms of the content of the personnel development measures, we are guided both by our company objectives and by market requirements such as new job profiles influenced by the digital transformation. We systematically survey strengths and potential improvement to initiate necessary improvement processes in personnel development.

The HR process model provides the content framework for our personnel development, with two performance areas in the foreground:

- **Source**

Recruitment of new talented young employees, long-term establishment of effective employer branding, and collaborative partnerships with universities and training providers

- **Develop**

Assessment and promotion of our employees/managers, offering training programs specific to target audiences, and further development of leadership culture and leadership principles

## Promoting New Management Strategies

With products like its highly autonomous driving portfolio, Knorr-Bremse is helping to shape the digitalization of mobility. The opportunities provided by digitalization change our way of thinking and certain processes, for example in discovering innovations or the development of new business models. The market environment requires an agile company and leadership culture in this regard, and we promote this culture within the Group. The online event "Digi News," which was also held in the reporting period, contributes to this. Its focus was on artificial intelligence and its integration into Knorr-Bremse's business processes. Opportunities and possible risks were discussed.

Agile leadership can be a preferred management method for determining the best solution. In addition to training in and the application of various agile methods such as SCRUM, design thinking and the canvas business model, the focus lies on conveying an agile way of thinking, the so-called agile mindset. Events like the Digital News, training courses and internal initiatives are drivers of the transformation process. In this area, Knorr-Bremse places high priority on the long-term and systematic use of new management methods. At the same time, the company also applies the management methods that have shaped its success. Our goal is to meaningfully combine classic and new approaches.

## Advanced Training and Qualification Initiatives

Personnel development offers qualification and training measures tailored to the individual needs of employees, including in the areas of social skills, project and quality management, technology, and IT applications. In addition to in-person and virtual training, the self-learning tool LinkedIn Learning supplements training with around 21,000 courses on topics relevant to work. At around 9,200 users, the use rate among eligible employees increased by 31% in 2023 compared to the previous year. The users viewed 58,000 courses and spent more than 14,000 hours training while doing so.

The findings of the Staff Dialogue are relevant to the professional and personal development of employees. The annual employee appraisal results in an evaluation of performance and potential capabilities and individual written agreements on targets. We also see these as a good basis for developing training programs.

## Staff Dialogue Coverage and Completion Rates

in %

	2023	2022	2021
Coverage rate <sup>1</sup>	78.2	76.3	78.2
Completion rate <sup>2</sup>	91.8	92.0	90.7

<sup>1</sup> Coverage rate: proportion of employees who participated in the Staff Dialogue. Fluctuation is predominantly caused by the purchase of new companies (delayed system rollout) and a high proportion of new recruits in the second half of the year, as the Staff Dialogue is not held during an employee's first year. The relevant categories of people are not part of the Staff Dialogue process, though they are included in the total number of employees.

<sup>2</sup> Completion rate: proportion of employees in the Staff Dialogue who fully completed the process. The delta between the rate and 100% primarily results from employees not having yet completed the Staff Dialogue as of May 31, 2023.

## Recruiting and Developing Managers and Young Professionals

In personnel development, in addition to ongoing specialist training programs and promoting specialist skills, we also focus on developing managers because good leadership is essential when it comes to maximizing the Group's performance, creativity, and long-term success. This is why we seek to recruit only the best managers throughout all age groups and to enhance their skills. We introduced five new leadership principles during the reporting period. They describe how leadership must be practiced within the company and promote open, inclusive leadership behavior, interdisciplinary cooperation, and the assumption of responsibility. Managers are called on to add value for Knorr-Bremse's various stakeholder groups through their actions at all times, and this explicitly applies to the achievement of the Knorr-Bremse sustainability targets as well.

The Leadership Feedback initiative provides important insights about the individual professional development needed by managers. In it, managers responsible for three or more employees are given feedback on the various dimensions of their leadership. Leadership Feedback is obligatory and must be conducted within a period of two years. The aim is to jointly develop measures to improve collaboration on the basis of the results, strengthen dialog between managers and employees, and establish an open feedback culture. The most recent Leadership Feedback process in 2021 achieved a completion rate of 92%, with the next global round starting in Germany in 2023 (completion rate: 87%).

In 2023, we began rolling out the planned expert career path with pilots in two organizational units. This is a career peak model that offers an equal alternative to the management career path. With the expert career path, we want to secure technical expertise, bolster excellence, entrench innovation, and ensure sustainable growth within our company. This visible recognition of expert excellence is furthermore intended to promote employee loyalty. We are planning for an initial rollout in Germany for 2024/2025 and then globally after that.

### New leadership principles and behavioral anchors

Good leadership is a crucial factor in successful personnel development and the company's success. The new leadership principles are intended to inform the speak-up and feedback culture in communication. Knorr-Bremse's international management contributed to formulating the five leadership principles, which were jointly scrutinized and updated at the 2023 World Leadership Meeting. Managers at Knorr-Bremse ...

- create stakeholder value
- work as a team in a spirit of respect
- empower employees to leverage their potential
- are networked beyond their own team
- set an example as a role model.

More information about our corporate culture

→ [The big HOW at the company](#)

Knorr-Bremse has relied on local managers at its global sites from a very early stage. In combination with needs-based training and development, their familiarity with the markets and customers and their knowledge of the languages and cultures can be important factors in our success. Knorr-Bremse strives to fill vacant managerial positions internally with talented employees wherever possible. To promote leadership development and succession planning, Knorr-Bremse employs potential analysis procedures (Development Center) and Group-wide management development programs (Management Potential Groups). It also offers global and regional development programs for the purpose of training upcoming managers and young professionals in-house.

 <b>Global Development Programs</b>	 <b>Regional Development Programs</b>
<p><b>Management Evolution Program (MEP)</b> As part of this 18-month program, trainees get to know three different departments, gain experience in international projects and work at a location abroad for at least six months. The personal and professional development is additionally supported by training courses, events and a mentor.</p> <p><b>International Management Potential Group (IMPG)</b> Each year, this support program offers managers around the world with the potential for middle management the opportunity to develop their talents within the framework of training courses and projects, to strengthen their leadership skills and to expand their personal international network.</p>	<p><b>Junior Management Potential Group (JMPG)</b> This is a support program for employees whose performance indicates that they are well suited for a (future) team leadership position.</p> <p><b>Engineering Development Program (EDP)</b> This program enables college graduates of technical degree programs from the United States to continue their education for two years in the field of mechatronics through exchange programs with cross-divisional departments or with locations abroad in Mexico, for example.</p>

## Training and University Programs

Looking to the future, Knorr-Bremse is training people for careers in areas that are in demand in the Group. These include industrial mechanics, machining technology, electronics, mechatronics, and IT.

### Number of Trainees as of December 31



In the area of academic training, especially in the dual approach, we work closely with German and international universities. Since 2008, Knorr-Bremse has been a partner company of Baden-Wuerttemberg Cooperative State University (DHBW) Ravensburg and its satellite campus in Friedrichshafen. As part of this partnership, Knorr-Bremse offers a three-year cooperative degree program for students majoring in industrial, electrical and mechanical engineering, as well as business informatics. To retain young talent and managers, Knorr-Bremse offers programs such as the Management Evolution Program (MEP) for trainees, or career development under the aegis of the International Management Potential Group (IMPG) for upper management positions (→ [Recruiting and Developing Managers and Young Professionals](#)).

## Diversity, Equal Opportunities and Inclusion

Knorr-Bremse has 33,319 employees who work at more than 100 locations in over 30 countries. We see this internationality and the diversity of our workforce as a company success factor and as a driver of creativity, innovation, and cultural competence in business partnerships. In turn, these factors are building blocks of the economic strength of Knorr-Bremse that underscore our leading position in technology and in the market. We have set out the requirements for diversity, equity, and inclusion (DEI) in our Code of Conduct and our Human Rights Policy. A fundamental principle is the equal treatment of all our employees – irrespective of gender, age, country of origin, sexual identity, state of health, religion, or beliefs. We confirmed this in 2020 by signing the Diversity Charter in Germany. Procedures for the possible detection of risks and breaches of our requirement for diversity and equal opportunities have already been established in the Group. In the event of potential discrimination regarding a fact or an action, each Knorr-Bremse subsidiary has a direct contact person who is responsible for the matter. As an alternative, employees who work at the company's sites in Germany may consult with the respective HR department (pursuant to the German General Equal Treatment Act, AGG) or the Works Council. Complaints can also be submitted using the Compliance team's general whistleblower system (→ [Integrity and Compliance](#)).

### Diversity Organization Expanded

We have made progress gradually integrating DEI management into the HR and sustainability strategy. A Group-wide DEI strategy was adopted by the Executive and Supervisory Boards in late 2023 and is planned to be rolled out in 2024. The strategy defines three global focus topics for 2024: gender diversity, age and generations, and internationality. Further topics of local relevance for company locations are defined and worked on regionally in addition to the above topics.

The Diversity Office established in 2022 is responsible for the DEI strategy, directs the core measures resulting from it, and coordinates the regional activities. The Knorr-Bremse Group's Global Diversity Officer reports to HR management. We have appointed six regional diversity champions for the regional implementation of the diversity measures. They also act as points of contact for the local diversity champions. Knorr-Bremse introduced local coordinators such as these for location activities at a total of 78 selected, mostly larger company locations in 2023.

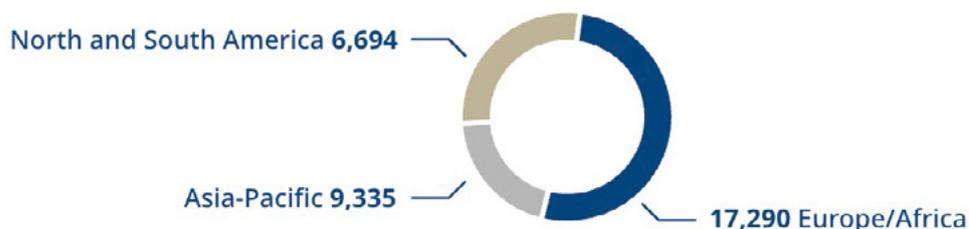
We want to strengthen a culture of diversity and active workforce commitment to the topic of DEI. To this end, we offer training, conduct campaigns, and promote exchange among employees. As part of International Women's Day 2023 and Diversity Day 2023, the Knorr-Bremse locations in Germany, India, and the USA, for example, held various themed events. There were 135 managers who participated in DEI workshops on awareness raising and strategy during the reporting period. In addition, Knorr-Bremse supports the creation of Employee Resource Groups, which are voluntary networks led by employees for the support of diversity and integration (→ [the women@KB network is becoming established throughout the Group](#)).

### Promoting Cultural Diversity

As a global Group, cultural diversity is an important success factor for Knorr-Bremse. Around 83% of employees are employed at sites outside of Germany. There are 114 different nationalities employed at Knorr-Bremse globally and the share of colleagues of a foreign nationality at the company's locations is 6.5%. Top management roles in the regions are mainly filled with local colleagues (2023: 84.1%; 2022: 86.9%; 2021: 84.9%) to take local and cultural circumstances into account.

We support international communication with intercultural training, language courses, cross-location projects, and stays abroad. With locations in more than 30 countries, sending Knorr-Bremse employees abroad is a common practice. These expatriates can work abroad for a period ranging from six months to five years in the process. Knorr-Bremse provides them with support via the International Transfers team – from initial preparations for the exchange and their return through to their reintegration at their earlier workplace. In 2023, 52 employees were sent to other Knorr-Bremse locations around the world (2022: 38; 2021: 47).

### Distribution of Employees Internationally as of December 31, 2023



### Gender Equality

Knorr-Bremse supports gender equality and has set itself the goal of increasing the share of women in the workforce and management, supporting women’s careers more strongly, and attracting qualified women. Targets that apply globally were set for the Knorr-Bremse Group in 2022: 25% women in the workforce and 20% in management levels 1 to 4 by the end of the third quarter of 2027. The target for management levels 1 to 4 incorporates female leaders as well as female employees who are experts or specialists (without their own leadership responsibility). The share of women in management levels 1 to 4 in 2023 was 15.3% (2022: 15.2%; 2021: 14.1%). A concept was finalized in 2020 to help with the achievement of the set target. It calls for at least one female candidate in the final round of the selection procedure for applications at management levels 2 to 4. Initially defined for the German Knorr-Bremse companies, the target has applied globally since 2023. In addition, the participants in Knorr-Bremse’s development programs are planned to be at least one-third women. The trainee program MEP exceeds this target with women currently already representing 41.6% of its participants (2022: 38%; 2021: 30%)

**25 %**

Target: 25% share of women in the workforce and 20% at the management levels 1 to 4

## Share of female employees globally<sup>1</sup>



## Share of female leaders globally<sup>1,2</sup>



<sup>1</sup> Approx. 98% of the total workforce covered.

<sup>2</sup> Takes into account female employees with their own leadership responsibility at management levels 1 to 4 as well as under the management levels.

We want to strengthen gender equality with development programs for talented young women and female professionals. One of the Employee Resource Groups supported by Knorr-Bremse is the Women@Knorr-Bremse network, which was initially founded in Munich in 2021. It has been followed by numerous other interconnected women's networks within the Group, such as Women@Bendix (Avon, USA) and Women@Bendix Mexico Chapter (Acuña, Monterrey, and Mexico City). Groups were formed in Austria and Hungary in 2023. These networks help to consider local needs more intensively and initiate projects in a targeted way.

To strengthen the share of female junior staff in technical professions, we are working together with various initiatives and universities. The cooperation with the Technical University of Munich in the mentorING program is directed at supporting female college students in scientific and technical degree programs. Through participation in the Cross-Mentoring Munich initiative, we want to support the next generation of female managers by means of cross-company mentoring tandems.

## Generation Management to Safeguard Knowledge

The average age at Knorr-Bremse in 2023 was 41.7 (2022: 41.6; 2021: 41.3) and further increased due to demographic change in industrialized nations. Our generation management is intended to offer employees of all ages the best working conditions. We are gradually creating the conditions for this, including with ergonomic workplaces, active health management, and formats for intergenerational knowledge transfer. For example, understanding and collaboration among the generations are promoted through the involvement of former employees, who, following their retirement, pass on their experience to younger employees. This usually involves specialists and managers who carry out project and consulting tasks.

### The women@KB network is becoming established throughout the Group

Since it was founded in Munich in 2022, the Employee Resource Group "women@KB" has quickly expanded and is now active, in North America and with new groups in Austria, the Czech Republic and Hungary, for instance. The women's networks are a platform that enables dialog and professional development. They give our female employees more visibility and are intended to promote further training opportunities, mentoring options and sharing of experience and ideas. In addition to workshops and virtual lunches, the wide range of location-specific activities includes a mentoring program for women in Munich, for example. Experienced mentors and mentees share their knowledge in around 50 tandems per year. Women's networks also take up and tackle topics in a new way: At Bendix, for instance, a comedian discussed her specialist field, mental health in the workplace, with 60 employees.

## Age structure in the Group<sup>1</sup>

in %

	2023	2022	2021
Up to 20	1.0	1.0	1.4
21-25	5.7	5.4	5.5
26-30	10.6	11.0	11.4
31-35	15.9	16.9	17.2
36-40	16.1	15.7	15.6
41-45	14.3	13.8	13.3
46-50	12.2	11.6	11.4
51-55	10.5	9.9	10.1
56-60	8.4	9.5	9.5
over 60	5.3	5.2	4.6

<sup>1</sup> Share of the workforce included in the age data in 2023: around 98%.

## Inclusion on the Job

People with disabilities and health-related limitations are an important part of the diverse Knorr-Bremse workforce. We have implemented inclusion measures for the particular protection and special advancement of employees with severe disabilities and health limitations. The disabled persons' delegation helps people with disabilities to find the right workplace for them, equipped according to their needs, within the Group. We maintain contact with social sponsors and organizations, and conduct activities with them as part of ongoing partnerships. The aggregate ratio of people with severe disabilities at the German sites was 4.6% in 2023 (2022: 4.6%; 2021: 4.4%).

## Occupational Health and Safety

Our sustainability strategy's important objectives include providing a safe working environment and protecting and promoting employee health. We see this as a responsibility to the individual employee and as a prerequisite for the long-term success of the company. Our measures and processes encourage preventive safety and health management, medical care, ergonomic workplaces, and the avoidance of accidents at work.

The Group-wide Health, Safety and Environment (HSE) Policy, revised in 2023, defines obligations and material guidelines in the areas of occupational health and safety. The Executive Board has the overarching responsibility for these areas. The central HSE departments of the RVS and CVS divisions develop strategic guidelines and bundle all cross-location management and coordination tasks. At the company locations, the HSE professionals bring together all the activities on health and safety and support the managers in implementing them. In particular, assessing injury and accident risks from production facilities, workplaces, and work processes and initiating measures based on these are key tasks.

Occupational safety management is defined through the Group's own HSE processes and embedded in our structures. The processes and standards are geared to laws and international standards such as ISO 45001, ISO 14001, and ISO 9001. System and process audits, HSE safety audits, equipment acceptance audits, and inspections at the company locations encourage compliance with the processes. In the Rail Vehicle Systems division, 50 production and service sites around the world are certified on occupational health and safety in accordance with ISO 45001 (2022: 46; 2021: 44).

### Avoiding Workplace Accidents

The goals of Knorr-Bremse are to avoid workplace accidents as much as possible and to continue to reduce the number of workplace accidents per 200,000 contractually agreed hours of work. At 0.7, this accident rate is at the same level as the previous year<sup>2</sup>. Most lost-time accidents occurred when handling machinery and work equipment and resulted in bone and muscle symptoms from manual lifting, cuts, and falls. There were no fatal workplace injuries at Knorr-Bremse's locations in 2023, the same as in 2022.

To monitor safety in the workplace, we record and analyze work-related accidents at the locations and the causes of these accidents. The local HSE officers identify potential improvements as part of a continuous optimization process and implement action plans. We share the findings across the divisions within the company through continuous reviews and occupational safety reports. This supports other locations with the analysis of their local risks and with the implementation of preventive measures. The accidents and remedial measures are the subject of regular reporting to the Executive Board and management teams.

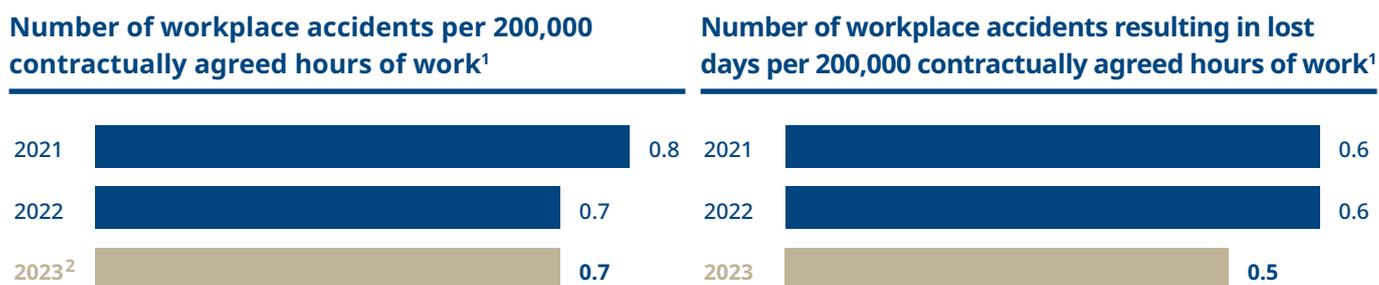


### Exoskeletons: Innovation in occupational health protection

The use of supporting exoskeletons at the workplace is a relatively new topic, but modern technology can make a contribution to preventive health care. Knorr-Bremse Systèmes Ferroviaire France, Tinqueux, uses the exoskeleton to counteract postures that cause a strain on the bodies of employees in technical customer service. For example, working with your head constantly stretched upward can lead to musculoskeletal disorders. After extensive research, two models for supporting the neck were initially selected, tested by several employees, and rated good by them. Other technical customer service employees are now using the selected neck devices. Other exoskeletons, such as for the shoulder-arm system, are currently being tested. Being open to innovations and introducing them together with employees also pays off in terms of occupational health protection.

All locations are required to report major workplace accidents that are tantamount to a crisis situation to the crisis management team and the Executive Board immediately.

The following regularly recurring measures also make a contribution to safety awareness in the workforce and thus to what we consider effective prevention of accidents at work and health risks: internal training, location-specific safety activities, information campaigns, and regular meetings on occupational safety and reporting together with follow-up. In addition, the safety@work program for assessing the safety culture was launched in the CVS division in 2022. Using employee surveys and on-site audits at European production sites, the areas of management, organization, and processes were assessed with regard to their contribution to the safety culture. With the results, local action plans were able to be developed in workshops based on the potential improvements identified for the locations, and these plans are now being gradually implemented.



<sup>1</sup> The figure relates to all sites under operational control excluding sites with fewer than 50 employees other than production sites or service workshops. This covers around 94% of Knorr-Bremse’s employees. Data relating to temporary workers provided by a third party (e.g., “agency employees”) who work on behalf and under the control of Knorr-Bremse is included in the figures.

<sup>2</sup> Note due to rounding effect: Compared to the previous year, the key figure has improved by 8%.

## Occupational Health Firmly Established

Knorr-Bremse is aware of the importance of functioning occupational health protection and offers a range of measures for disease prevention and preventive health care at its locations. For example, the “meinEAP” employee assistance program for crisis counseling has been rolled out. Employees at the German locations and their family members can make use of the offer of psychosocial support in times of work- or health-related crisis. Various internal communication channels provide information on the options, and their rates of use imply good acceptance.

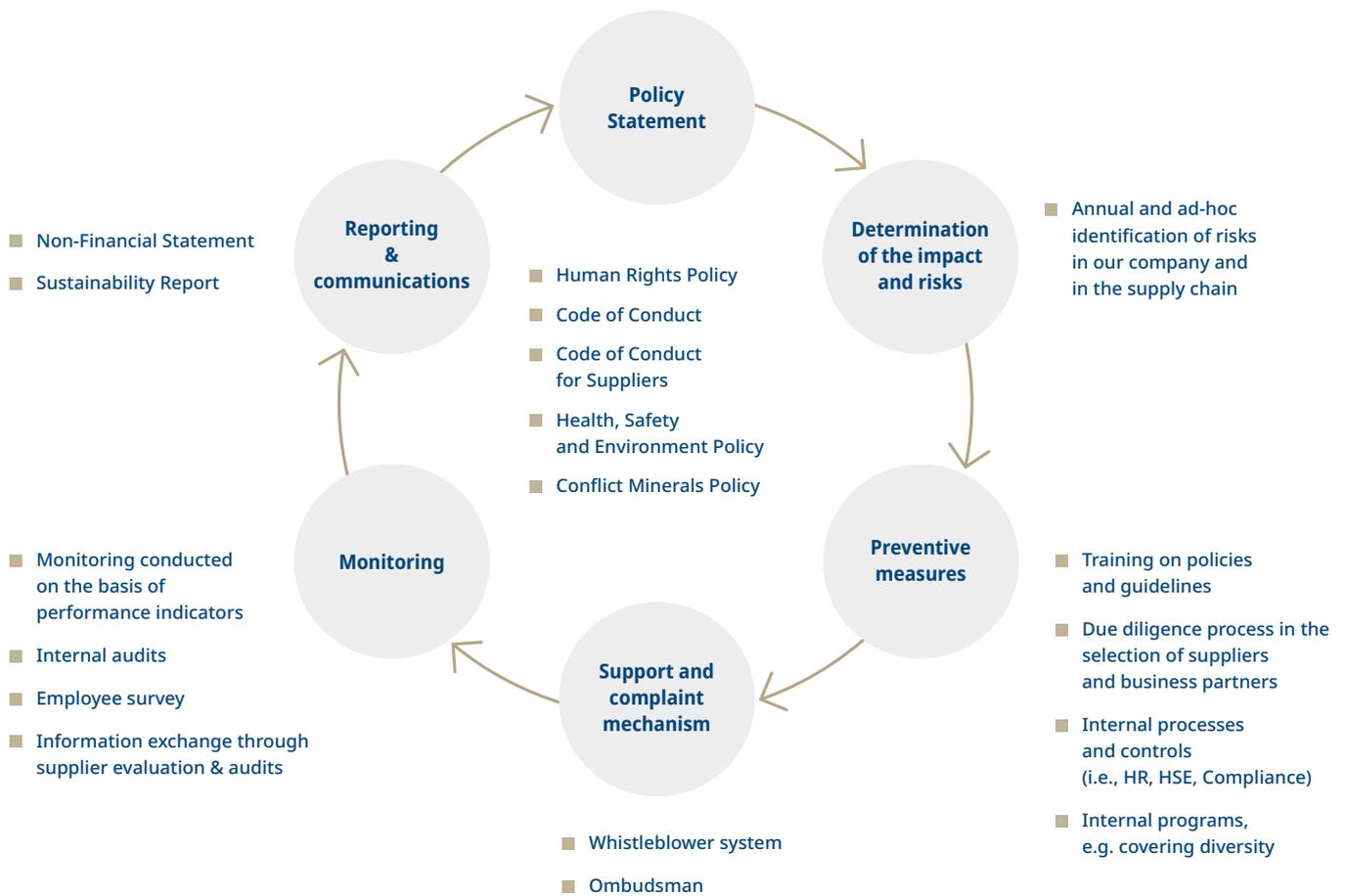
### meinEAP: Boosting and Promoting Employee Health

“meinEAP” (Employee Assistance Program) is the name of an occupational health management service for employees of German locations and their family members. Those seeking help can use an external advisory service free of charge, 24/7, and anonymously if desired. It offers professional, short-term advice on health-related, professional, and personal issues. These issues could be related to work and career, personal health, or critical situations in life, for example. Managers and those in charge of company functions have access to “meinEAP-Coach” so that they know how to use meinEAP optimally in their area. The program assists them on matters such as management duties, change management activities, and coaching on work-related topics. To raise awareness, Knorr-Bremse devotes space in internal media to meinEAP, which proved itself during the pandemic in particular. Other measures to boost employee mental health include seminars and workshops on topics such as mindfulness, resilience, healthy sleeping, and healthy remote working. Psychological risk assessments are carried out and varying monthly talks are held on subjects such as depression and addiction. In the medium term, Knorr-Bremse intends to identify health management needs in a more targeted fashion.

# Due Diligence Processes for Human Rights

Knorr-Bremse wants to fulfill its human rights due diligence duty along its value chain: to its own employees, to contractors and employees in the supply chain and to customers and society. To respect and protect human rights, we are systematically expanding our processes in accordance with our internal obligations, external guidelines and legal requirements. Knorr-Bremse has signed the UN Global Compact, thus also committing itself to compliance with human rights. Moreover, we are committed to respecting the relevant national legal frameworks, the International Labour Organization (ILO) conventions relating to human rights, and the UN Universal Declaration of Human Rights. We align our processes with the UN Guiding Principles on Business and Human Rights and the German Supply Chain Due Diligence Act.

## Human Rights Due Diligence Processes at Knorr-Bremse



Central principles and rules for respecting human rights are set out in the Knorr-Bremse Code of Conduct, which is binding for all employees. The Human Rights Policy specifies the code's requirements and combines all human rights aspects from various internal policies. It describes how we intend to protect the human rights of everyone who directly or indirectly works for us by reducing any negative impact of our actions. The respect for human rights that the Human Rights Policy requires of suppliers and subcontractors supports and adds to corresponding requirements in Knorr-Bremse's Supplier Code of Conduct. Our [↓ Conflict Minerals Policy](#) also helps ensure compliance with our human rights due diligence obligation.

In the Knorr-Bremse organization, the Executive Board and the senior management of the subsidiaries have responsibility for risk management with regard to human rights. Following the introduction of the German Supply Chain Due Diligence Act (SCDDA), the Executive Board concretized the responsibilities for human rights risk management and delegated them to the respective departments. These include Purchasing, the HR department and the HSE department. The Compliance department monitors the operational implementation of the measures in the departments. Appointed by the Executive Board, the Human Rights Officer in the Compliance department monitors compliance with the requirements of the German Supply Chain Due Diligence Act in the Group and reports regularly on this to the Executive Board.

## Determining Human Rights Risks

We are constantly working on integrating human rights due diligence even more strongly into our operating processes to minimize human rights risks and prevent negative effects from our business operations. To do so, we also use the results of the human rights risk analyses and related information on potential human rights breaches.

During the reporting period, we continued our analysis of the human rights risks in our supply chain and in our own business divisions in accordance with legal requirements. For example, we used external sources to assess the potential risks of our direct suppliers and our own sites with regard to procurement categories, country risks, site sizes, and numbers of blue-collar workers. By comparing this data with the sustainability assessments available to us at the supplier level and with countermeasures such as ISO certifications, we have been able to determine supplier risk and location risk. In Purchasing, we concentrate our follow-up efforts on suppliers whose actions we can influence due to the level of purchasing volume. We conduct the risk analysis annually and whenever required.

In the supply chain, roughly 600 suppliers were identified and, due to their risk appetite and the size of our purchasing volume of high or very high priority, asked to sign our Supplier Code of Conduct and obtain a sustainability rating. This equates to 2% of suppliers. Risks were identified in our own area of business, particularly in the field of occupational safety and also in ensuring respect for human rights at the Brazil, China, India, and Mexico sites. We are developing a Group-wide minimum wage register as a measure to protect human rights. Furthermore, work is in progress on guidelines specifying further measures to protect human rights in the field of HR.

The human rights risk analysis is included as a selection criterion by Internal Audit as part of the audits. Selected human rights are also audited on site as part of this regular audit and, in the event of complaints, remedial actions are determined.

### Knorr-Bremse Human Rights Policy

The Knorr-Bremse Human Rights Policy brings together all aspects of the company's various internal guidelines. It addresses the following issues:

- Work schedules, wages, social benefits and occupational safety and health
  - Child labor, forced labor and modern slavery
  - Freedom of speech, freedom of assembly and collective bargaining
  - Equal opportunity, privacy and physical and mental stress
  - Corruption and security management
- ↓ [Human Rights Policy](#)

## Reporting Human Rights Violations

Knorr-Bremse employees and external stakeholders can report information on suspected human rights breaches or complaints anonymously or choose to provide their contact details (→ [Integrity and Compliance](#)). In fiscal year 2023, no cases of child labor, forced labor or modern slavery were reported through the whistleblower system. In total, we received 112 reports (2022: 90) through our whistleblower system. 44 of these cases (2022: 29) concerned reports of discrimination and inappropriate conduct by individual employees as well as other workplace-related topics. The information was confirmed in five of these cases, with employment terminated in two of these cases. Investigations are still continuing in ten cases. The remaining 29 reports could not be confirmed.

## Raising Awareness and Providing Training

Knorr-Bremse promotes awareness of human rights due diligence within the Group and along the supply chain. We engage in constant dialog on the topic with the departments. The Human Rights Officer regularly provides information to company management on realized and planned Group-wide activities in close communication with the Head of Sustainability. The Supervisory Board and Works Council are also informed about current developments on the protection of human rights and corresponding measures by Knorr-Bremse. Knorr-Bremse employees are informed about the obligation to respect human rights by the Code of Conduct and by the Human Rights Policy. The compliance management system provides support through mandatory training on the Code of Conduct. We maintain a dialog with suppliers on a wide range of sustainability topics (→ [Sustainability in the Supply Chain](#)).

In addition, we contribute to the automotive industry dialog on the National Action Plan (NAP) of the German Federal Ministry of Labor and Social Affairs. Together with other companies, politicians, civil society and NGOs, we want to develop solutions to be able to live up to the increasing requirements for protecting human rights.

### Transparent Communications

We strive to continuously expand our reporting on human rights due diligence. Our annual Sustainability Report explains our activities in more detail. Furthermore, Knorr-Bremse publishes separate declarations on its website setting out its guidelines on and measures for preventing modern slavery and human trafficking in accordance with the requirements of the UK Modern Slavery Act and the Australian Modern Slavery Act.

## Social Commitment

For Knorr-Bremse, business success and social responsibility belong together. For good reason: Social engagement adds value – for affected and supported individuals as well as for the business locations and the employees of Knorr-Bremse. In this context, we want to encourage our employees to take part in social projects.

Knorr-Bremse's social commitment is focused on local and global challenges, which is reflected in Knorr-Bremse Local Care and the non-profit organization Knorr-Bremse Global Care. Both initiatives carry out joint and individual projects.

 <b>Knorr-Bremse Local Care</b>	 <b>Knorr-Bremse Global Care</b>
<p>Knorr-Bremse Local Care comprises all social activities of our locations. It includes financial support to non-profit organizations and corporate volunteering projects in which employees personally take part. These activities focus on the environment, education, health, and social cohesion.</p>	<p>Knorr-Bremse Global Care consists of independent non-profit organizations in Germany, Hong Kong and the United States that fund long-term projects with extensive financial support around the world. The work is aimed at offering new prospects to people who find themselves in need through no fault of their own. Knorr-Bremse Global Care collaborates closely with partner organizations and supports their projects particularly in the areas of education and WASH (water, sanitation and hygiene).</p>

Closely integrating the sites – of which there are more than 100 in over 30 countries – is very important to us. Within the communities at our sites, Knorr-Bremse has the possibility to have a direct and indirect economic and social impact on the respective region: as an employer, as a purchaser of materials and services and with its products. Thus, we feel responsible for the community. We ensure a high impact from our local engagement activities because of the long-term integration of our sites and their local cultural knowledge. In addition, this increases employees' identification with Knorr-Bremse as well as the reputation of the company in the respective community.

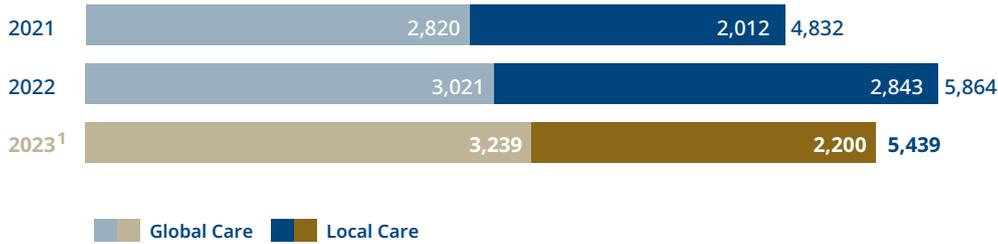
In 2023, the Knorr-Bremse Group donated €5.4 million for social causes via Local Care and Global Care. Knorr-Bremse Global Care received around 60% of this support.

# 5.4 € million

was donated to social causes by the Knorr-Bremse Group in 2023 through Global Care and Local Care

## Donation Volume

in € thousand



<sup>1</sup> Whereof € 500 thousand is attributable to sponsoring.

## Local Care: Engagement in the Local Communities

Local Care organizes and financially supports a broad range of social activities that improve the lives of people who live in proximity to our company sites. These activities range from financial support of non-profit organizations to corporate volunteering projects with the personal involvement of employees.

Primary funding areas of the Local Care Commitment are projects in the fields of the environment, health, education, and social cohesion. The instruments used to implement Local Care measures include:

- Voluntary monetary donations for charitable causes
- Corporate volunteering projects: Knorr-Bremse exempts employees from working hours to support non-profit organizations
- The Get-Involved Initiative: Donations are made to private volunteer activities performed by employees for non-profit organizations and projects
- Financial donation programs: Knorr-Bremse matches the donations of its employees or contributes an amount significantly more than the original donation

In 2023, more than 450 Local Care projects were conducted on every continent of the world. More than 900 employees actively participated in social projects in 2023. Our magazine article → [With hearts and hands: Social commitment at Knorr-Bremse's sites](#) reports on selected Local Care projects and the motivation of employees to volunteer.



Granville, Australia |  Education

### Personal development program

*Knorr-Bremse Australia Pty. Ltd.*

The Reach Foundation, a non-profit youth organization in Australia, runs personal development workshops for young people. Knorr-Bremse supports the Reach Crew Development Program financially. This training aims to improve young people's communication skills, strengthen their emotional resilience and build a sense of social belonging. The crew members who have completed this training visit schools and communities to pass on their knowledge to young people there – an important impetus that can help the youngsters develop into stable, confident and reflective personalities.

Daxing, China |  Social Cohesion

### Excursion to the adventure farm

*Knorr-Bremse CARS LD Vehicle Brake Disc Manufacturing (Beijing) Co. Ltd.*

Employees at Knorr-Bremse's Daxing location regularly get involved in social projects. In the fall of 2023, eight employees' families with five autistic children, their families and teachers visited an adventure farm. The relaxed get-together broke the ice, after which the group first visited the Tropical Botanical Garden. They then went to the zoo, the most popular part of the program: Feeding the ostriches, llamas and rabbits made the children's day. The excursion was a welcome break from the stresses of everyday life, especially for the invited families.

Itupeva, Brasil |  Environment

### Fostering wildlife protection

*Knorr-Bremse Sistemas para Veículos Ferroviários Ltda. and Knorr-Bremse Sistemas para Veículos Comerciais Brasil Ltda. .*

Knorr-Bremse's rurally located plant in Itupeva has recorded numerous invasions by wild animals over the years. To ensure the safety and well-being of employees and wildlife alike, Knorr-Bremse Brazil entered into a partnership with the non-governmental organization Mata Ciliar a few years ago. The NGO runs a rehabilitation facility for wild animals near Itupeva, where Knorr-Bremse Brazil has become the sponsor of two ocelots named Ro and Fer (Truck and Rail in Portuguese). Knorr-Bremse Brazil also provided financial support for construction of a new rehabilitation compound for small wild cats.



Sival Moreira and  
Ariane Semensato  
HSE Supervisor and  
HR Analyst

**"We are very happy about our environmental project, because our region is full of ecological wealth and great biodiversity. We were able to express our respect with the symbolic adoption of the ocelots Ro and Fer and the donation for the construction of a rehabilitation enclosure."**

Suzhou, China |  Social Cohesion

### Community service activities in Suzhou

*Knorr-Bremse Commercial Vehicle Systems (Shanghai) Co. Ltd. and Knorr-Bremse Systems for Rail Vehicles (Suzhou) Co. Ltd.*

In 2021, Knorr-Bremse China (RVS and CVS) and the Suzhou New District administrative authorities signed a long-term agreement to promote public welfare. The initiative covers a wide range of activities, including support for educational offerings, cultural tours and assistance for physically or socio-economically disadvantaged people. The program also includes leisure offerings. One highlight in 2023 was the "Our Festival-Chongyang" on the occasion of the Chinese holiday dedicated to the elderly. Knorr-Bremse employees were also involved as volunteers.



Joyce Liu  
Manager Corporate  
Communication

**"We support the 'Our Festival Chongyang' event, which honors the elderly. This fits perfectly with our commitment to social cohesion in our local community, which we see as part of Knorr-Bremse's social responsibility."**

Chachoengsao, Thailand |  Education

### School equipment for better learning conditions

*Knorr-Bremse Commercial Vehicle Systems (Thailand) Ltd.*

Many schools in Chachoengsao Province, where Knorr-Bremse's Thai branch is based, have only limited financial resources. Knorr-Bremse employees have therefore launched a donation program. They want to improve the quality of local education and give students in the area a better future. Thanks to the financial aid from Knorr-Bremse CVS Thailand and the commitment of our colleagues, two local schools have been provided with fans, sports equipment and toys to promote learning and development. Nearly 200 pupils benefit from the new purchases.

Pune, India |  Education

## School renovation for a better learning environment

*Knorr-Bremse Technology Center India Private Limited*

Knorr-Bremse wants to make a contribution to establishing a solid educational infrastructure in India. As part of the move to create the “ideal school,” the premises of the Swami Vivekananda School in Aasde, Pune, were renovated and equipped with modern facilities. Knorr-Bremse provided funding for that. Laboratories and rooms for various subject areas were set up for the pupils: agriculture, computers, home economics and crafts, zoology and botany, electronics as well as sports and music. In addition, the sanitary facilities were renovated and the drinking water supply modernized.

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Faridabad, India |  Environment

## Restoration of a pond

*Knorr-Bremse India Private Limited*

Knorr-Bremse India has implemented the Baghola Pond Rejuvenation project to regenerate the degraded pond ecosystem. Local Care supported the project financially that was successfully completed in 2023. The tasks in the project included desilting of the pond to increase its water storage capacity, installation of a filtration system and a biological treatment plant, as well as an improved drainage system. A fence was also erected around the pond area. Approximately 6,000 villagers benefit from the project. A Village Development Committee (VDC) was founded to protect the water area in the future and its members were given related training.



Rupali Agarwal  
CSR Manager

**“It is impressive to see what a great asset the rejuvenated pond is for the community of Baghola. The body of water with its flora and fauna is adding socio-economic and ecological value to improve the overall quality of life.”**

Pretoria, South Africa |  Social Cohesion

## Residential home for people with mental disabilities supported

*Semiconductor Solutions (Pty) Ltd*

The organization Ons Huis Trust provides accommodation for mentally handicapped adults in Pretoria. Due to their social and mental condition, these people are unable to find work in the private sector and are permanently dependent on financial support. However, they are able to perform simple tasks, such as household chores, under supervision and with help and guidance. Knorr-Bremse has been supporting the organization financially for some time. In addition, on Nelson Mandela International Day 2023, Knorr-Bremse employees visited the home and brought variety into the everyday lives of themselves and the residents alike with a joint meal and games.

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Acuña, Mexico |  Education

## STEM event for future employees

*Bendix Commercial Vehicle Systems de Mexico S.A. de C.V.*

80 children of Bendix employees were guests at a STEM event in Acuña. The kids, aged between eight and 18, were given the opportunity to get to know their parents' working environment and learn more about truck braking systems and the company. Maybe the insights kindled an interest among them in pursuing a technical profession or studying engineering? The young people took part in various activities in four age-appropriate teams. In addition to a tour of the plant, they were able to gather technical impressions. For example, they checked out how the braking system works and watched product tests and quality audits. The robot and programming workshop was a special highlight.

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Westminster, US |  Social Cohesion

## **New youth center set up**

*Knorr Brake Company*

The Boys & Girls Clubs of Carroll County provide a safe, productive and active environment for youngsters after school and during the summer – an important mission given the rise of mental health impairments among adolescents. The Boys & Girls Club expanded its youth work to the North Carroll area in 2023. Employees from Knorr-Bremse offered to provide support with handicraft activities as part of the Volunteer Days in September 2023 so that the new clubhouse could open on time. The tasks accomplished included painting work throughout the building, furnishing, varnishing furniture, as well as setting up an art room and IT equipment.



Michelle Miller  
Engineering Technical Writer

**“I always jump at the chance to volunteer for the Boys and Girls Club of Carroll County. They are an amazing organization, and this new expansion to the North Carroll area will significantly increase its impact on the youth in our community.”**

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Avon, US |  Environment

## **Clean-up event at Lake Erie**

*Bendix Commercial Vehicle Systems LLC*

Employees from Bendix' headquarters in Avon took part in a clean-up event at Lake Erie's Edgewater Beach in 2023. The lake is close to the location. Equipped with tongs, the volunteers picked up countless items of garbage over a weekend. The non-profit organization Drink Local Drink Tap has conducted well over 100 cleanup campaigns with volunteers in neighborhoods around and on the beaches of Lake Erie since 2010. These are important actions that contribute to preserving biodiversity and the ecosystem's balance.

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Avon, US |  Social Cohesion

## **Volunteering to build social housing**

*Bendix Commercial Vehicle Systems LLC*

More than 200 Bendix employees lent a strong helping hand in Avon in mid-2023 to build two houses for families in need in Ohio. The construction projects were realized in collaboration with two local Habitat for Humanity Ohio affiliates and Help Build Hope. After the frame had been built, the volunteers from Bendix inscribed the beams and walls with well wishes. The finished houses were then loaded and donated to be erected at the designated sites in Ohio. Bendix bought the wood for both houses and also provided a grant for the roof fund, as well as transportation. Over the past few years, a total of 15 houses have been completed, something the volunteers can be truly proud of.

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Florence, Italy |  Social Cohesion

## **Handiwork on a campsite for the socially disadvantaged**

*Knorr-Bremse Rail Systems Italia S.r.l.*

The non-profit organization Caritas runs a campsite in Tuscany. Since mid-June 2023, it has taken in children from difficult family backgrounds and refugees from Ukraine and other countries. In one day, 125 Knorr-Bremse employees cleaned the bungalows and green areas, helped build new facilities and planted trees. In addition, building materials and cleaning equipment were donated.

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Lund, Sweden |  Social Cohesion

## Sports participation for young people

*Knorr-Bremse Nordic Rail Services AB*

Knorr-Bremse provides financial support to families at the Lund location so that their children can take part in sports and leisure activities. In 2023, the aid reached a total of 19 girls and boys between the ages of 7 and 16. The activities supported included membership in a swimming club, basketball, art and soccer training, along with the equipment.

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Melksham, UK |  Environment

## Natural garden opened on campus

*Knorr-Bremse Rail Systems UK*

The Knorr-Bremse location in Melksham celebrated the inauguration of its natural garden “KBee’s Retreat” on Knorr Day in June 2023. Dedicated employees were actively involved in the landscaping, helping to plant lavender and build insect hotels, among other activities. The garden not only serves as a new habitat for small animals and insects, but also offers employees a place to socialize and to rest.

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Stráž nad Nisou, Czech Republic |  Social Cohesion

## Community center kept in good repair

*Knorr-Bremse Systémy pro užitkovú vozidla ČR, s.r.o.*

In May 2023, Knorr-Bremse employees performed various handicraft activities in the Konopná community center as part of the “We Help to Help” charity campaign. As a place where all generations can come together, the center offers meeting rooms, a community café and a garden to relax in. Among other things, there is also a lecture room for educational events and social services for young people and adults in crisis situations. The Knorr-Bremse team provided support with masonry work in the garden, as well as with sanding and painting.

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Liberec, Czech Republic |  Environment

## Environmental project builds dams and cohesion

*Knorr-Bremse Business Services Europe*

Knorr-Bremse Business Services Europe introduced a Volunteer Day in 2023. Each and every employee is entitled to one paid working day – away from the office – supporting a volunteer project initiated by Knorr-Bremse. The inaugural project centered around the environment: the restoration of peat bogs in the Jizera Mountains, a forested area near Liberec. One fall day last October, 35 employees built small dams at drainage channels to retain the water and restore small ponds for insects and amphibians. Our Czech colleagues transported a total of 500 slats (10 tons of wood) to the moorland to build the dams. The Volunteer Day also proved to be a kind of interdepartmental team-building project.



Vojtech Stejskal  
Corporate Responsibility  
Specialist

**“The restoration of degraded peat bogs is work that promotes sustainability in the truest sense: It helps nature, reduces evaporation and combats climate change.”**

Kraków, Poland |  Health

## Running for a good cause

*Knorr-Bremse Systemy Kolejowe Polska Sp. z o.o*

20 Knorr-Bremse employees took part in the Poland Business Run 2023 in Kraków. Each runner in a 5-strong relay team covers the distance for a good cause. The money for the entry fees and additional donations from Knorr-Bremse benefited people with amputations, including mastectomies, and with mobility impairments. Among other things, the money raised went toward prosthetic devices, wheelchairs and stays in rehabilitation facilities.

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Munich, Germany |  Education

## Resume training for a successful career start

*Knorr-Bremse AG, Knorr-Bremse Systeme für Schienenfahrzeuge GmbH and Knorr-Bremse Systeme für Nutzfahrzeuge GmbH*

The “Gastro Academy” is a qualification program run by “Über den Tellerrand kochen München e.V.,” a non-profit association that is supported financially by Knorr-Bremse Global Care. Participants receive theoretical and practical training to prepare them for work in the catering industry and receive support with bureaucratic matters. Local Care provided support as part of the program’s “Resume training” module: Eight Knorr-Bremse employees sat down with nine refugees from Afghanistan, Syria, Nigeria, Yemen and Senegal on a Volunteer Day to compile their resumes. The effort is paying off: Several of the participants now have a job in catering.



Katja Lamberty  
Corporate Sustainability  
Specialist

**“Knorr-Bremse employees worked with refugees from a wide range of backgrounds to create resumes for them in preparation for working in the catering industry. That is an important step towards social participation for these people and I am very pleased to be able to support them.”**

Mödling, Austria |  Social Cohesion

## Vacation week for youngsters in need and refugee minors

*Knorr-Bremse GmbH*

As part of its volunteering initiative, Knorr-Bremse Mödling supported the tralalobe association, which looks after socially disadvantaged children and unaccompanied refugee minors. Thanks to the commitment of a Knorr-Bremse employee who works as a volunteer for the association, it was possible to organize a vacation week with a wide range of sports activities for the young people in its care. Swimming lessons in small groups were particularly important for the participants, some of whom were traumatized after fleeing by sea. The eventful week provided the youngsters with the basis for strengthening their confidence and for coping better with everyday challenges.



Monika Tröscher  
HR Business Partner

**“I am always delighted when we can give young refugees a few carefree days with community sporting activities.”**

Budapest, Hungary |  Education

### Robotics Club program for budding STEM enthusiasts

*Knorr-Bremse Rail Systems Budapest*

In 2023, Knorr-Bremse Budapest focused its Local Care activities on the STEM disciplines (science, technology, engineering and math). The aim is to get children interested in practical scientific topics at an early age and encourage them to think critically and analytically. One flagship project is the “Robotics Club ‘23,” which was initiated by György Tarnai, a team leader in Electronics Development at Knorr-Bremse. Knorr-Bremse supports schools with programmable robots and a comprehensive curriculum using a program he himself developed. Three further schools established a Robotics Club in 2023. So far, the program has helped familiarize 250 students with the world of computer science and programming.

Kecskemét, Hungary |  Education

### Road safety training as a theater play

*Knorr-Bremse Fékrendszerek Kft.*

The municipality of Kecskemét and the police authority of Bács-Kiskun County have implemented an exciting way to convey the issue of road safety to young people. They developed an interactive theater program to raise awareness of dangerous traffic situations among school students in Kecskemét. The content of the individual acts is based on true events and deals, for example, with how pedestrians become careless when their attention is distracted by media. The young audience discusses the scenes they have seen with the police. Around 900 school students took part in the event, which is supported financially by Knorr-Bremse.



Szilvia Varga-Papp  
HR Manager

**“I’m proud to support the road safety training program in Kecskemét, where interactive theater engages young minds on the importance of safe road behavior. This initiative, backed by the municipality and the police authority, has already reached 900 students.”**

We select and implement Local Care projects based on the Local Care donation guidelines. These guidelines set goals and benchmarks, define support areas and criteria, and provide transparency about the donation process with the help of organizational specifications and approval requirements.

Many Knorr-Bremse locations have appointed a Local Care officer, who coordinates and assumes responsibility for Local Care activities. Every location plans the selection, financing and oversight of its Local Care projects on its own and allocates its own budget for social purposes. We believe that this local focus facilitates efficient, sustainable and successful project management. This commitment is acknowledged. One example is the accolade bestowed on Knorr-Bremse Rail Systems Budapest, Hungary, in 2023: The robotics workshop program for schoolchildren received the CSR Hungary Award and the “Doing Good – CSR Award” in two categories.

## Global Care: Worldwide Engagement

Knorr-Bremse Global Care is a globally active non-profit organization set up by Knorr-Bremse employees. The main objective of Knorr-Bremse Global Care is to promote the independence and autonomy of people who find themselves in need through no fault of their own and to support high-impact projects. Through targeted long-term project partnerships, the organization strives to contribute to structurally relevant and far-reaching changes in society. Knorr-Bremse Global Care has identified education and WASH (water, sanitation and hygiene) as areas for its support and aligned its specific targets with the subgoals of SDG 4 and 6 of the United Nations.



## SDG 4: Quality Education

SDG 4 is aimed at ensuring quality, lifelong education for all. Knorr-Bremse Global Care supports medium- and long-term education projects. We focus our support on vocational training and related qualifications because we see great leverage for creating prospects for marginalized people in it. In alignment with SDG targets 4.3 and 4.4, we contribute to reducing unemployment among young people through projects that provide vocational training and job-related skills or to help individuals find a career path.

### Examples of activities in 2023:

- Global scaling of the Safe-Hub concept with our strategic partner AMANDLA (→ [More about the project](#))
- Project “Brazil Women Entrepreneurs” with the Instituto Anchieta Grajaú (IAG), São Paulo (→ [More about the project](#))



## SDG 6: Clean Water and Sanitation

SDG 6 is aimed at ensuring the availability and sustainable management of water and sanitation for all. Clean water and improved hygiene can protect communities from disease and create a stronger foundation for individual, educational and developmental opportunities. The WASH engagement of Knorr-Bremse Global Care is geared toward lowering morbidity and mortality rates related to water-borne illnesses. One main goal of Knorr-Bremse Global Care is to decrease the rate of children younger than five who die of water-borne illnesses. WASH-related activities include providing access to safe drinking water as well as sanitary and hygiene improvements, which contribute to SDG targets 6.1 and SDG 6.2. We also want to involve the communities through training courses and jobs.

### Examples of activities in 2023:

- WASH project in Ethiopia with Norwegian Church Aid → [More about the project](#)

Since its founding in 2005, Knorr-Bremse Global Care has worked with partner organizations to improve the lives of more than 1 million people. In total, more than €32 million in funding was made available for this purpose. In 2023, Knorr-Bremse Global Care supported 53 projects around the world and invested about €3.18 million in them. 109,160 people benefited from the supported projects.

A majority of Knorr-Bremse Global Care projects are realized in countries where the Group operates locations. As a result, we can remain in direct contact with the projects we are supporting with the help of Knorr-Bremse employees. 74% of the funds from Knorr-Bremse Global Care in 2023 went to projects in countries where the Knorr-Bremse Group has locations. Our goal is to sensitize our colleagues about social engagement and encourage them to take action themselves. In addition, the organization funds development projects in ten further countries: Ethiopia, Ghana, Cambodia, Kenya, Colombia, Myanmar, Peru, Sri Lanka, Tanzania and Ukraine.

### Brazil: Entrepreneurship training for women

Access to high-quality education remains a challenge for many individuals worldwide, particularly amidst a backdrop of socio-economic disparities that disproportionately affect women and youth. As these marginalized groups rarely have the necessary financial resources, they face obstacles in their search for educational opportunities. Knorr-Bremse Global Care therefore entered into a close partnership in 2016 with the NGO Instituto Anchieta Grajaú (named after the homonymous neighborhood in São Paulo). It has been actively working since 1994 to address social issues. Since 2021, Knorr-Bremse Global Care has been

Knorr-Bremse consists of the non-profit association located in Munich, Germany, and the two independent regional organizations Knorr-Bremse Global Care North America Inc. in the United States and Knorr-Bremse Global Care Asia Pacific Ltd. based in Hong Kong. The Munich-based association is supported by Knorr-Bremse companies in Europe and employee donations. It benefits from the effort and commitment of its members and employees of the Group. The holding companies in Hong Kong and the United States financially support their own Global Care organizations and, where possible, provide personnel support from local business locations. All Knorr-Bremse Global Care units work closely with local partner organizations. Our partners carry out local projects in an efficient, impact-driven manner. They work with needs-based approaches and provide transparent documentation. We engage with local communities within the projects to ensure that the activities are useful and sustainable. Joint impact goals are set and pursued during every project. Occasionally, our members or employees act as mentors to the project and, in addition to their personal support, also offer professional expertise. These structures allow us to support partner organizations and projects even beyond funding.

Knorr-Bremse Global Care effectively achieves its aspiration of having a high impact while working in strategic partnerships. These partnerships also strengthen project partners, enabling them to plan and work on a long-term basis. Identification with our projects also grows, both among Knorr-Bremse employees and in the communities surrounding the company's locations. Strategic partnerships with proven partners also improve impact measurement. Accompanying evaluation studies allow us to continuously measure the results of our activities, derive new insights and adapt the targeted use of resources accordingly. This gives us an effective lever for improving the lives of disadvantaged people over the long term with the more efficient use of resources.

As an example of this commitment, Safe-Hub Global gGmbH was established in mid-2021 by Knorr-Bremse Global Care and the non-profit organization AMANDLA. The non-profit organization has a vision of a world in which all young people have fair opportunities to lead a self-determined life and can freely develop their potential regardless of origin, faith or gender. We are jointly designing and scaling one of the world's highest-impact youth and community development projects in the shape of what are known as "Safe-Hubs" (→ [Safe-Hub: Using the Power of Sport and Education to Support Young People](#)). Each Safe-Hub is a community-based education and sports center for children and young people. The collective brings together a wide

funding the "Women Entrepreneurs Project" in collaboration with the NGO ContBem and the Instituto Anchieta Grajaú. This project focuses on providing women who are economically and socially disadvantaged with entrepreneurial training. By teaching them basic entrepreneurial and financial skills, the goal is to promote their economic independence and enable them to start their own small business. 149 women have successfully completed the program since 2021, thus demonstrating tangible progress towards economic self-sufficiency and breaking the cycle of poverty within their communities.

# 74 %

of the funds from Knorr-Bremse Global Care in 2023 went to projects in countries the Knorr-Bremse Group has locations in.

### **Ethiopia: WASH project with a sustainable impact**

In the Ethiopian district of South Ari, around two-thirds of the population have no access to clean water. Knorr-Bremse Global Care wants to improve the situation of the local people and is supporting a WASH project to provide more than 13,500 people in the South Ari Woreda region with access to an adequate water supply, sanitation and hygiene. Local government health and water agencies are actively involved in planning the project so that it can be put on long-term footing at the community level, i.e. with water user associations. The project is being implemented by Action For Development and Norwegian Church Aid. Plans include the development of two drinking water supply sources and the establishment of a water management system.

range of players from the fields of education, employability and psychosocial support, among others, all with the aim of providing holistic support for young people. Ten Safe-Hubs are now being run in South Africa. Further important scaling milestones were achieved globally in 2023: In Berlin, an artificial turf pitch was built and inaugurated for the pedagogical youth sports program, and in Philadelphia, USA, and Delhi, India, the programs are already running successfully at schools or public places with steadily increasing numbers of participants. Last year alone, the project reached around 60,000 young people worldwide.

The schools are to be fitted with sanitary facilities. Trained multipliers such as health advisors or teachers impart basic knowledge about hygiene to the population. The objective is also to raise public awareness about issues such as family planning and sanitary facilities.

You'll find more information about the work of Global Care at [↗ Knorr-Bremse Global Care](#).



# Governance

Corporate governance as practiced by Knorr-Bremse aims, without exception, to adhere to responsible business practices and principles. We believe that increasingly and continuously integrating aspects of sustainability into our organization and business processes drives innovation and is a critical factor for success. Our approach of applying predictive risk and opportunity management can yield information that is vital to the company's future.

## Responsible Corporate Governance

Knorr-Bremse responds to industry trends such as connectivity, e-mobility and sustainability with innovative, long-term, system-based solutions. In doing so, we act as a driving force to help our global customers in the rail and commercial vehicle industries to develop their sustainable mobility solutions and achieve digital transformation. Our systems for the reliable, safe and efficient transportation of goods and passengers are designed to add value for our customers and make a positive contribution to society.

We take the responsibility associated with our entrepreneurial activities very seriously. We apply responsible corporate governance that observes laws, strengthens our image and creates trust in Knorr-Bremse among our shareholders, the capital market, customers, business partners, employees and the general public. Each goal set and activity undertaken by Knorr-Bremse must always reflect our company values: entrepreneurship, technological excellence, reliability, passion and responsibility. We believe that these company values are the foundation of long-term success.

Our governance structures support our commitment to responsible corporate governance and ensure transparency as well as clear leadership and responsibilities. They apply to the entire leadership and monitoring systems at the company and include Knorr-Bremse's organizational structures, business policy principles, guidelines and internal and external management and monitoring mechanisms. We adhere largely to the recommendations of the German Corporate Governance Code. More information about Knorr-Bremse's implementation of these recommendations can be found on our website ([↗ Corporate Governance](#)) and in our [→ Corporate Governance Statement](#).

Our commitment to sustainability is an integral part of our business activity. The Boost 2026 corporate strategy published in 2023 further underscored the importance of putting this commitment into practice. The sustainable direction for corporate governance has been firmly integrated into Knorr-Bremse's organizational structures as well as its allocation of responsibilities and business processes through sustainability management ([→ Sustainability Management](#)). The Executive Board has defined a set of key performance indicators that are designed to help plan and steer the sustainable direction of Knorr-Bremse. A selection of KPIs are linked to the remuneration system for management levels 0 to 2 (Executive Board, senior management and heads of department) as ESG criteria. 20% of the short-term variable remuneration (short-term incentive) is linked to the achievement of sustainability targets on climate protection and occupational safety ([→ Compensation Report](#)). There are plans to extend this to other management levels in the medium term. In the long-term variable remuneration (long-term incentive), 20% of the achievement of targets from fiscal year 2024 onward is also tied to the achievement of specific sustainability targets (currently a reduction of Scope 1 and 2 CO<sub>2</sub>e emissions and an increase in employee satisfaction). This link between remuneration and ESG criteria embeds the spirit of sustainability throughout the company's management team even more strongly and thus in the day-to-day conduct of the company's managers and workforce as well.

## Integrity and Compliance

Compliance management is guided by our aspiration of always complying with laws, internal regulations and voluntary commitments. This is because only as a reliable business partner will we gain the trust of employees, customers and business partners needed for sustainable growth and thus shareholder value. We therefore place great emphasis on dealing with our stakeholders with integrity and responsibility. Combating corruption and bribery is an important part of corporate responsibility and one of the key topics in compliance management at Knorr-Bremse. We do not tolerate any form of corruption or other unfair business practices and expect the same of our business partners. Conflicts of interest, including and especially in dealing with our business partners, must be avoided. We have also established the respective compliance policies.

Our compliance requirements across the entire supply chain are set out in a Group-wide Code of Conduct. On the basis of Knorr-Bremse's corporate values and the principles of the UN Global Compact, the code defines the principles for Group-wide responsible business conduct, including a prohibition of corruption in any form. These principles of action and rules are binding for all the Group's employees and are a component of the written employment contracts for new employees around the world. We have given concrete expression to these principles through further Group-wide compliance policies:

- Dealing with Gifts and Invitations
- Donations and Sponsoring
- Corruption Prevention
- Conflicts of Interest
- Screening of Business Partners
- Fair Competition

Moreover, we have developed compliance guidelines for our suppliers. Our mandatory Group-wide Code of Conduct for Suppliers defines our expectations regarding responsible working relationships with these suppliers. The code is a way to combat corruption and addresses a wide range of issues, including human rights and environmental protection (→ [Sustainability in the Supply Chain](#)).

Relevant compliance risks are compiled and assessed in the Compliance Management System (CMS). The CMS's main goal is to effectively anchor compliance in business processes. For example, we want to ensure that employees comply with the law and internal regulations, prevent systematic misconduct and detect and remedy breaches.

Corruption prevention, ensuring fair competition and avoiding conflicts of interest are defined as the focus issues for Knorr-Bremse's CMS. The basis of this decision is a compliance risk analysis which is carried out each year and involves selected business areas and markets. As part of a worldwide compliance risk assessment, possible compliance risks were compiled and assessed on the basis of risk scenarios.

## Establishing a Compliance Organization

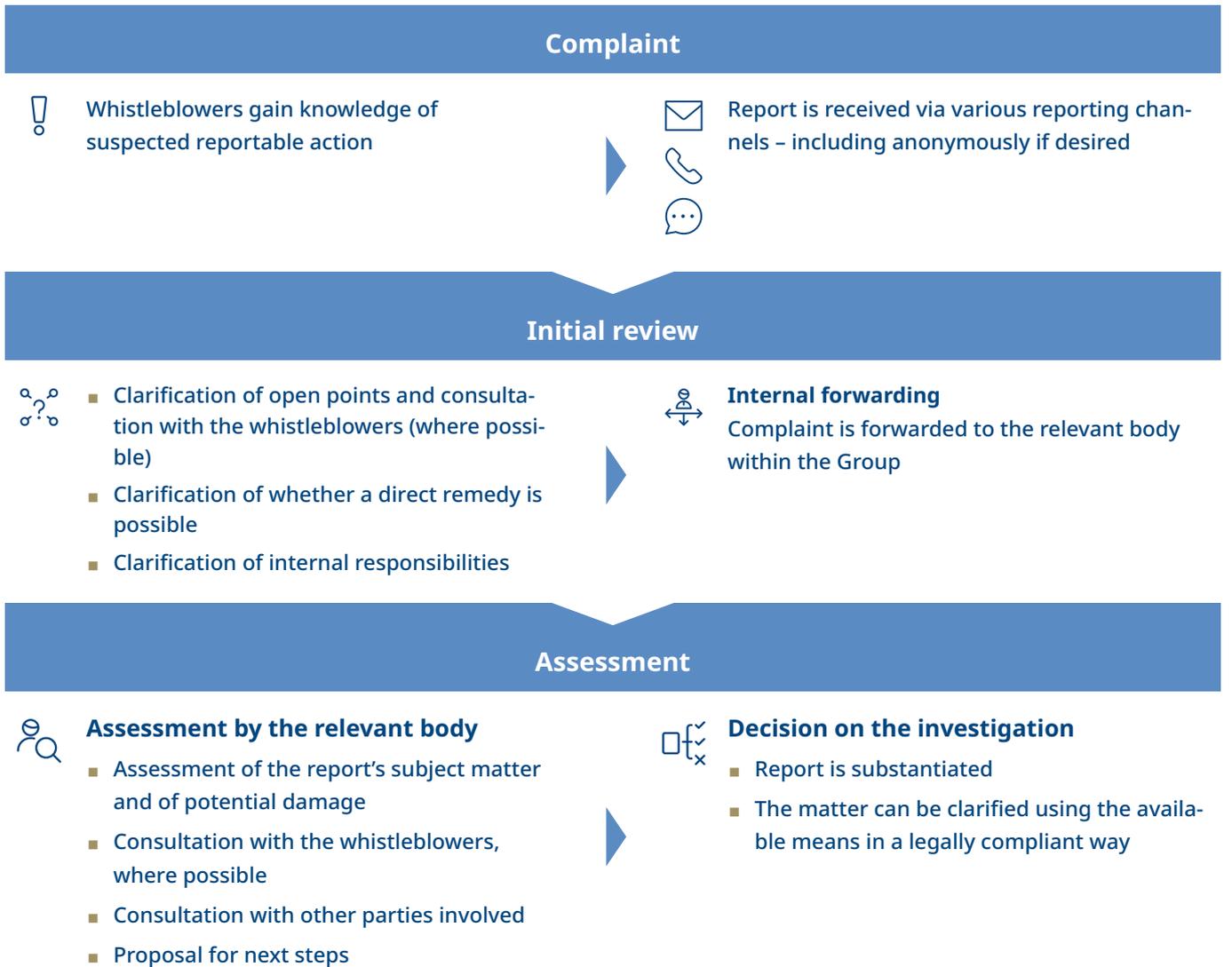
The Chief Compliance Officer (CCO) is responsible for implementing the CMS, except in the area of anti-trust and competition law, where the Legal department is responsible for the CMS. The CCO reports to the member of the Executive Board responsible for Integrity, Legal, IP, Data Protection and Human Resources. Compliance topics are also a regular agenda item at Executive Board meetings. The Supervisory Board and the Audit Committee are also regularly informed about the status of the CMS. Along with the global heads of Knorr-Bremse's Controlling, Human Resources, Accounting, Legal and Internal Audit departments, the CCO is a member of the Compliance Committee. The Compliance Committee advises on initiatives and strategies for developing the CMS, on current compliance topics, and on focuses of compliance activities. In the Knorr-Bremse regions, regional compliance officers take on the role of advising and training employees, processing compliance cases and identifying local risks. The compliance organization's headcount was even increased in 2023. Business activities in Brazil, China, India, South Africa, and the US are now supervised by full-time compliance officers. Local compliance officers are additionally assigned to nearly all Knorr-Bremse companies and are involved in the local implementation of the Compliance Management System.

The internal Group audit department supports the Executive Board in its monitoring function through independent and objective audit procedures. These are geared toward improving business processes and uncovering any breaches of laws or internal rules or guidelines. The Internal Control System (ICS), which comprises compliance-specific controls, further serves to verify adherence to compliance guidelines.

Knorr-Bremse sites must also conduct spot checks to prove that they are effectively implementing the guideline requirements. In addition, the audit firm PwC was engaged to review the appropriateness and effectiveness of the CMS in accordance with IDW AuS 980 for the period from May 1 through October 31, 2023. An unqualified certification was issued for this review on March 7.

## Well-Developed Complaint Management

Employees, business partners, and external individuals can report information on any possible compliance breach to the compliance organization by email, directly through the compliance organization or online through an independent and anonymous whistleblower system. This globally accessible portal operated by an external service provider allows for information on any compliance breaches to be reported in 31 different countries and in 20 languages (→ [Knorr-Bremse Compliance](#)). The whistleblower system was extended in fiscal year 2023 by commissioning an external ombudsman service, which will serve as an additional point of contact for receiving information and complaints. The external ombudsman service will then pass the information and complaints on to us. Information about the system is communicated internally and during training events and via the Group-wide intranet. In addition, the Incident Notification and Alarm Services (INAS) system is used for non-anonymous reporting of time- and safety-critical events from the areas of compliance, data protection, information security and Group security. Events classifiable as critical reach the responsible area of the Group directly via the system.



## Internal investigation



### Examination

- Interviews, document review, site visits, etc.
- Final report with recommendations for action



The management decides on **sanctions and remediation**

## Remediation and root cause analysis



### Remediation, e.g.,

- Disciplinary measures
- Adjustment of processes
- Training & communication
- Compensation & reimbursement
- Adjustment of risk analysis



Implementation by the local management or relevant body

Rules of procedure for dealing with whistleblower information and complaints have been agreed by the Executive Board and govern the process, responsibilities and the rights of whistleblowers and the individuals concerned. Key principles include the protection of whistleblowers from disadvantages, the fairness and confidentiality of the process, the independence of investigations and the safeguarding of data privacy. We follow up on every suspicious activity report or forward it on to the respective departments for further investigation. Where the initial suspicion is substantiated, investigations are carried out. When rules are found to be violated, the causes are remedied. Any proven misconduct is penalized.

In the year under review, 112 reports were recorded in our Group-wide whistleblower system (2022: 90; 2021: 45). The number of reports thus rose compared to the previous year. We attribute this increase to greater employee awareness with regard to compliance and integrity. 44 reports (2022: 29; 2021: 10) concerned information on discrimination or other workplace-related topics (→ [Due Diligence Process for Human Rights](#)). Nine reports (2022: 9; 2021: 2) concerned allegations of corruption. The allegations were unable to be confirmed in four of the cases closed during the reporting period. Accordingly, no disciplinary actions were taken against employees regarding these. Internal investigations are still ongoing in the other five cases. There were no lawsuits, judgments or fines due to corruption offenses in the reporting period. There were no reports made in connection with child labor, forced labor, or modern slavery.

## Reports Made in 2023

Category	2023
Discrimination and harassment	32
Other working conditions	12
Conflicts of interest, theft, equipment misuse, fraud, embezzlement	28
Corruption	9
Data protection, IT security, trade secrets	6
Child labor, forced labor, modern slavery	0
Other	25
<b>Total</b>	<b>112</b>

## Prevention through Training and Communication

To prevent compliance breaches, Knorr-Bremse relies on transparent communication and employee training. In the year under review, the Executive Board confirmed its commitment to integrity and communicated its expectations of managers and employees clearly on the intranet and at various manager events and employee meetings.

A global e-learning module on our Code of Conduct is available in 13 languages and needs to be completed online every two years. Another e-learning course on the topic of preventing corruption is aimed at employees in purchasing or sales as well as managers. This training, too, must be repeated every two years. In December 2023, around 98% (2022: 96%; 2021: 98%) of the 17,385 employees with access to e-learning platforms (approximately 52% of the entire workforce) had a valid certificate for the training on the Code of Conduct. 5,396 employees were enrolled in anti-corruption training, of which 97% had obtained a valid certificate by the end of December 2023.

In addition to e-learning, live training (face-to-face events and webinars) is held for employees on specific compliance content as well as on our guidelines and tools. 77 such compliance training courses were held globally in 2023 (2022: 64; 2021: 25).

### Talking to Staff about Integrity and Compliance

Personal contact sticks in people's minds, making it ideal for creating awareness – and compliance and integrity are no exception. Dr. Claudia Mayfeld, the Executive Board member responsible for this topic, regularly meets with employees to get to the bottom of the issue: How do our employees experience integrity and compliance at Knorr-Bremse and how important is it to them? In February 2023, 72 employees from different regions, departments and levels of the organization took part in a joint workshop to evaluate how compliance and integrity are being embedded in day-to-day work and make suggestions for improvement. A second workshop was held in May 2023 and was attended by 51 employees. The fruitful discussion not only highlighted current strengths, but also showed compliance officers that more intensive communication and specific training for managers would be a welcome next step. Specific measures will be developed once the results have been evaluated.

# Management of Sustainability-Related Risks and Opportunities

As an international corporate Group with global structures, Knorr-Bremse encounters risks as well as opportunities in its business activities. The goal of risk management is to identify risks across the Group and minimize their potential impact on the Group's anticipated business position. Equally, such risk management should proactively leverage opportunities to increase the company's value.

## Risk Management

Our risk management structures and procedures are aligned with our overall organizational structure and anchored in a corporate policy that includes clear definitions of responsibilities and reporting structures.

An inventory of potential risks that involves all of the Group's companies is conducted every quarter so that risks of major significance can be identified at an early juncture. A key component of regular risk reporting is a condensed Group Risk Report, which is submitted to the internal Risk Committee and the Executive Board. In addition to regular reporting periods, there is an internal ad hoc reporting process, whereby all employees are encouraged to proactively report risks.

The risk management system established in the Group is subject to continuous refinement, which includes adjustments of internal and external requirements. New developments are periodically integrated into the risk management guidance on the topic of risk management, which is available to all employees on the intranet.

Our risk management system comprises 14 specific risk categories based on the company's value chain. Within the company's departments, particular attention is paid to identifying sustainability-related risks – an area that will be expanded further going forward. The "sustainability" category encompasses risks in connection with environmental and climate protection and the protection of human rights. The risks relating to environmental and climate protection concern, for example, rising energy and material costs as a result of increased environmental regulations and the increasing taxation of carbon emissions as part of the journey to a decarbonized economy. In the future, meeting ESG requirements will have an increasing influence on the financing of the Knorr-Bremse Group. In addition, climate change can disrupt supply chains and impact material properties that are relevant to product quality. The company deals with these risks at an early stage in order to be able to react to them adequately and with appropriate measures in all areas. We address the risks that could arise from the implementation of the German Supply Chain Due Diligence Act by integrating human rights due diligence into our operating processes even more strongly with the goal of minimizing human rights risks and preventing negative impacts on our business activities. To do this, we also use the results of the human rights risk analyses and associated information on potential human rights breaches (→ [Due Diligence Processes for Human Rights](#)).

Descriptions of other risk categories as well as a detailed explanation of our risk management system can be found in our → [Report on Risks, Opportunities and Expected Developments](#).

### TCFD Reporting

To provide transparent information about the climate risks and opportunities we face as a company, we have reported based on the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) since 2021. The appendix contains a reference table reflecting the status of our climate-related reporting based on the areas of governance, strategy and risk management as well as key performance indicators and targets (→ [TCFD table](#)).

## Opportunity Management

The opportunity management system at Knorr-Bremse follows the processes used in the risk management system. In addition to regular management reviews, opportunities are reported in the quarterly report on risks and opportunities.

Besides the megatrends of urbanization, digitalization and mobility, the megatrend of sustainability also unlocks important, strategic opportunities for Knorr-Bremse.

Knorr-Bremse is benefiting from opportunities to expand rail transportation as cities, states and countries make growing efforts to combat climate change. Electrification and other energy-efficient and eco-friendly solutions are the result of a growing public awareness of the importance of energy efficiency, combined with intensified government energy initiatives such as stricter emission regulations. End-to-end eco-design in our products is helping to reduce carbon footprints and make transportation more energy-efficient.

More information about our opportunity management system can be found in our [↗ Report on Risks, Opportunities and Expected Developments](#).

## Sustainable Company Financing

As a player in the capital market, Knorr-Bremse sees orientation toward ESG criteria as increasingly important. Financial market players measure corporate performance in the area of sustainability by means of ESG criteria and use the findings as the basis for investment decisions. Numerous conversations with investors and rating agencies (→ [Stakeholder Management](#)) in 2023 demonstrated that the capital market continues to show growing interest in sustainability issues at Knorr-Bremse. Companies and institutions are also increasingly seeking to engage in an informative dialog with Knorr-Bremse on sustainability-linked financing instruments. Knorr-Bremse has already received many above-average ratings for its sustainability measures (→ [Sustainability Ratings and Rankings](#)).

The link between our financing strategy and our sustainability targets underscores our ambitions in these areas. To position Knorr-Bremse as a sustainable company for investments and obtain sustainability-linked capital, the company established a Sustainability-Linked Bond Framework and updated it during the reporting period. This framework ties Knorr-Bremse's decarbonization targets (Scopes 1, 2, and 3) in with the company's financing strategy. These expanded targets were reassessed by an external party. A second party opinion issued by the credit rating agency S&P Global Ratings confirmed that the targets set by Knorr-Bremse are consistent with the global goals for climate action set forth in the 2015 Paris Agreement. The framework also lays the foundations for current and future sustainability-linked financial instruments. Over one-third of Knorr-Bremse's financing arrangements are linked to sustainability criteria, increasing to around two-thirds for long-term capital market financial instruments.

Currently, Knorr-Bremse has linked three different financing initiatives to its sustainability performance. First, we signed syndicated financing with a credit line of € 750 million, the interest rate of which is linked to our sustainability rating by ISS Corporate Solutions. If Knorr-Bremse's rating improves due to progress being made from a sustainability perspective, we will be granted more favorable repayment terms. Because our rating improved to the prime status of "B-" in 2023, we will be able to draw on this regulation in the future and benefit from it.

In addition, we issued the first sustainability-linked bond with a volume of € 700 million in 2022. We fulfilled the associated obligation to define a Scope 3 target validated by the Science Based Target initiative (SBTi) (→ [Climate Protection](#)). Moreover, we make use of incentive systems for our suppliers. The Sustainability-Linked Supply Chain Finance Program (SSCF), which was implemented in collaboration with Deutsche Bank, is now linked to the ESG rating of suppliers. The global SSCF serves as an important instrument that Knorr-Bremse uses to foster stronger commitment to ESG among its suppliers. The program exemplifies our fundamental beliefs: We will only be able to achieve the sustainability-driven transformation

# 66 %

of the long-term capital market financing instruments used by Knorr-Bremse are linked to sustainability criteria

### Suppliers Who Have a Good ESG Ranking Receive Better Financing Terms

The Sustainability-Linked Supply Chain Finance Program that was introduced in collaboration with Deutsche Bank makes an ESG rating for suppliers particularly appealing. Under this program, they receive their money earlier, as the bank provides a line of credit for the time until Knorr-Bremse pays their invoices at attractive interest rates. The financing costs for suppliers are based on the creditworthiness of Knorr-Bremse, a feature that generally lowers suppliers' financing costs. The inclusion of sustainability components in the program creates additional financial benefits for suppliers: Companies that do business more sustainably can reap dividends from improved financing terms. The result is a win-win situation: for our suppliers and for Knorr-Bremse.

when we resolutely foster ESG throughout the entire value chain. The entire SSCF process was designed by the bank to be very low threshold so that it would consciously appeal to smaller suppliers. The ESG link has been successively rolled out globally since 2023.

### **EU Taxonomy**

A key step in the achievement of the EU climate and energy targets for 2030 and in the realization of the European Green Deal's aims is the directing of capital flows toward sustainable projects and activities. This requires a shared language and consistent understanding of the activities that count as "environmentally sustainable." Consequently, the EU's Sustainable Finance action plan provides for the creation of a uniform classification system for sustainable economic activities, or an "EU Taxonomy."

The 2023 amendment of the climate taxonomy introduced additional economic activities that bring Knorr-Bremse into the scope of the EU Taxonomy to a greater extent than before. While the production of low-emission vehicles was already classified as taxonomy-eligible, this amendment also puts a stronger focus on the key role of suppliers in climate protection. You can find detailed reporting on the EU Taxonomy in the [↗ 2023 Annual Report](#).

# Data Protection and Information Security

The processing of personal data is a core element of increasing digitalization. For Knorr-Bremse, the protection of such sensitive data is an important requirement when developing new fields of business and interacting with our internal and external stakeholders. Numerous statutory requirements, like those in the EU General Data Protection Regulation in particular, provide the framework for our actions.

For this reason, Knorr-Bremse set up an organizational structure for data protection in 2018. It is headed by the Group data protection officer, who is supported by data protection managers in the divisions and at the locations around the world. Data protection coordinators in the central departments additionally act as points of contact and multipliers for data protection. The Data Protection Board installed in 2022 decides on the direction of the Knorr-Bremse data protection management system and monitors its ongoing development. The Data Protection Board is made up of representatives of the Executive Board, divisional management, IT, and HR.

Our Group data protection guideline is the foundation for all data protection measures in the company and imposes binding specifications and processes for implementation of the statutory requirements. Furthermore, the protection of personality rights and privacy of each individual is an important element of our internal Code of Conduct.

## Our Data Protection Measures

- Our employees are made familiar with the requirements of data protection law through e-learning courses and face-to-face training and are given instructions on handling personal data carefully.
- The processing of data is checked and documented by the data protection organizational structure using an IT tool that is available globally (list of processing activities).
- A central Incident Notification and Alarm Services [INAS] system ensures that data protection incidents can be reported to the data protection organizational structure and addressed quickly and without any detours (→ [Integrity and Compliance](#)).
- Anonymous or personalized reports of data breaches can be made by employees or external stakeholders at any time using the compliance whistleblower system. In these cases, the established process for clarifying situations is applied (→ [Integrity and Compliance](#)).

## Protection with Multilevel Cybersecurity Architecture

The security by design approach at the divisions is adapted to the requirements of the product platforms. It protects products against attacks or makes them resilient. The architecture underpinning the protective measures features a multilevel design (applying the “defense in depth” concept) because securing the outer defenses of the network is no longer close to sufficient. If hackers manage to breach one layer, there is another underneath it with a different structure. The cybersecurity architecture includes, among other things:

- Conventional security products such as **secure gateway (SGW)**, which secures gateways.
- **Public key infrastructure (PKI)**, which allocates digital security certificates to devices and software solutions that are equipped with chips and protects them against unauthorized modifications as a result.
- In the RVS division, the **threat detection solution (TDS)**. The TDS detects anomalies in incoming and outgoing data traffic much as an early warning system does and only allows authorized communication and devices in the network. Hackers are prevented from feeding harmful devices into the train networks.

## Information Security

The Information Security section at the Group ensures unfailing adherence to the three central information values of confidentiality, availability, and integrity for all our data. The section is headed by the corporate information security officer and controlled by a corporate security board.

In addition to the responsible member of the Executive Board, this board also includes the managing directors of the two divisions as well as the Chief Information Officer.

The maturity level of the control processes was significantly improved in recent years. Firstly, the Group-wide information security guideline was revised. This guideline is aligned with ISO/IEC 27001, the international standard for information and asset security, for which 26% of our locations are certified. On top of that, there are internal specifications to meet the statutory requirements of the respective location. Furthermore, we have introduced a new process for audits and risk management.

For projects in operations, the primary focus is on the preventive protection of the IT infrastructure of Knorr-Bremse via IT security solutions implemented throughout the Group.

## Protection of Digitalized Products

Knorr-Bremse's products and services support our customers in the digital age and promote sustainable mobility. Examples of new, digitalized business fields include condition-based maintenance for rail vehicles as well as highly automated or autonomous driving in the Commercial Vehicle Systems division.

As part of this portfolio development, data protection and information security (often referred to as "cybersecurity" in this context) are playing an increasingly important role. Accordingly, Knorr-Bremse considers the requirements of data protection law from as early as the product development stages (privacy by design).

With regard to information security, dedicated organizational units and teams in both divisions ensure that aspects of cybersecurity are firmly integrated into the processes in product development and customer projects.

Both the RVS division with its Digital Products & Services department and the CVS division follow the security by design approach. It develops solutions for governance, risk management, and security checks that are adapted to the special requirements of each individual product platform. Rail or commercial vehicle hardware with security certification is thus combined with high-performing cybersecurity functions and tailor-made services for a comprehensive cybersecurity architecture. Digitalized products and systems, whether current or future ones, are protected against attacks or made resistant to them. The matrix-structured Digital Products & Services department (RVS division) is closely interconnected with the Knorr-Bremse Cybersecurity Center of Competence (CoC). At the CVS division, the product cybersecurity team is an integrated part of the platform organization. The cybersecurity management system at CVS includes the development, production, and maintenance phases of a product and covers the entire life cycle. It meets all requirements under ISO 21434 (Road Vehicles – Cybersecurity engineering).

### Assuring Quality: Collaboration with Bureau Veritas

Rapid technological development exposes rail vehicles to an increased risk of cybercrime. Knorr-Bremse responds to this risk with pioneering cybersecurity solutions for secure, digital vehicle communication. They are continuously adapted to the constantly developing industry requirements and regulatory standards. In this context, Knorr-Bremse has signed a Global Cybersecurity Services Framework Agreement with Bureau Veritas, a globally leading provider of audit, inspection, and certification services. Besides cybersecurity risk assessments, the agreement includes a range of other important cybersecurity support services that are adapted specifically to Knorr-Bremse's special needs.

Knorr-Bremse maintains continuous efforts to uphold and improve cybersecurity. We align ourselves with international standards and use internal and external guidelines. In 2023, Knorr-Bremse published a cross divisional traffic light protocol policy (for controlling information dissemination). Furthermore, both divisions strive to adhere to the forthcoming legal framework for cybersecurity, which includes the EU NIS 2 Directive and the Regulation on Horizontal Cybersecurity Requirements for Products with Digital Elements (EU Cyber Resilience Act), for example.

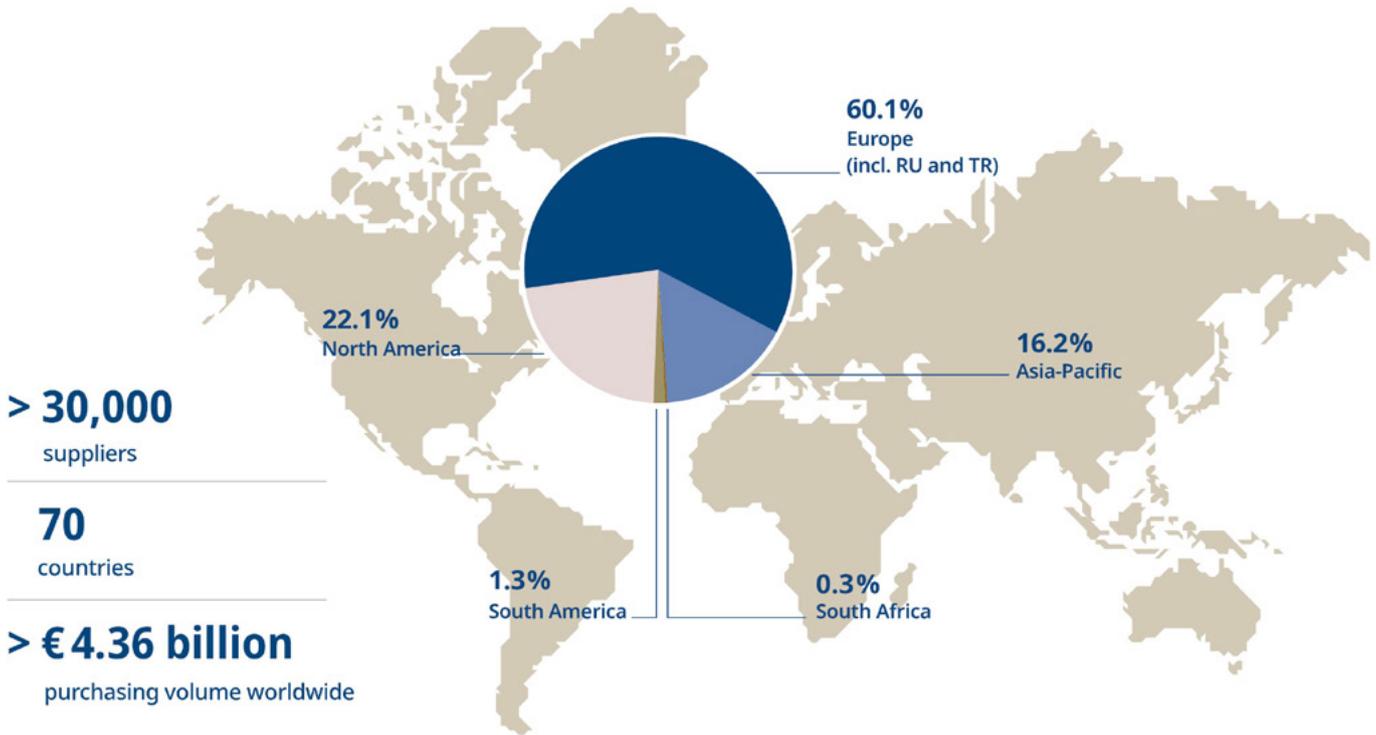
Awareness of the subject of cybersecurity is strong within the Knorr-Bremse workforce and is being raised further. The Product Cybersecurity Center of Competence (CoC) offers a variety of webinars and videos in the Rail Vehicle Systems division, for example, an "Introduction to Cybersecurity in Rail Products." RVS is further expanding its internal training on topics such as cryptography, key lifecycle management and security controls. At the internal Global Cybersecurity Summit event, Knorr-Bremse's cybersecurity specialists in its management and engineering teams engaged in intensive dialog, while the center of competence demonstrated its presence in the industry by participating in international conventions on the subject of cybersecurity. At the CVS division, all CoCs can take advantage of a range of continuous awareness-raising training courses for cybersecurity. Knorr-Bremse believes there are many opportunities that arise from industry-wide collaboration on cybersecurity and has an active role in various initiatives for its ongoing development. One example of this for rail vehicles is the UNIFE Cybersecurity working group. For commercial vehicles, Knorr-Bremse has been active in the VDA ISO21434 working group since 2023, which is working on different recommendations for Automotive Cybersecurity.

## Sustainability in the Supply Chain

Taking responsibility along the value chain is part of our self-image as a sustainable company. Strategic procurement, including the selection of suppliers and materials, lays the foundation for Knorr-Bremse's sustainable, reliable and safe products.

As a global Group, we work with a large number of predominantly local suppliers. We currently purchase products and services from approximately 30,000 suppliers from over 70 countries. They include roughly 7,000 partners for the manufacturing and production of parts, components, and materials for our products; just by themselves, they account for 74% of procurement spending. The ordered products primarily comprise metals, friction components, electronic components and plastics, with the proportion of raw materials purchased by us being low.

## Purchasing volume by region of origin



We are aware that Knorr-Bremse's selection of suppliers has a significant impact on the environment and society in production countries. Working together with our suppliers, we want to improve sustainability in the supply chain and minimize risk.

The Knorr-Bremse strategy for sustainable procurement is embedded in purchasing processes across the Group. The purchasing managers for direct and indirect materials are responsible for implementing sustainable procurement. Compliance with and optimization of sustainability standards in the supply chain are supported by experts at Group level. The Sustainable Procurement Steering Committee discusses and decides on strategic and current sustainability topics several times a year. It consists of the heads of Knorr-Bremse's global purchasing units and the head of the Sustainability department.

We provide process descriptions and guidance to implement our sustainability standards in internal procurement processes. These give an overview of the sustainability criteria and management approaches that we incorporate into the global purchasing processes. Internal guidelines specify the extent to which sustainability aspects are to be taken into account in purchasing decisions for various categories, including renewable energy, business travel, or energy-efficient products,

### The focus of purchasing: Scope 3

In 2023, the focus of the purchasing department's sustainability activities was again on its contribution to reducing CO<sub>2</sub>e. Continued efforts were undertaken to reduce emissions from purchased goods and services (Scope 3.1) (→ [Climate Protection](#)). In addition, a cross-functional and cross-divisional Scope 3 project team tackled the new Scope 3 target of cutting CO<sub>2</sub> emissions by 25% by 2030. It develops action plans and decarbonization strategies for the supply chain. The core tasks in 2023 were to improve the data quality, analyze major emission drivers, and communicate directly with significant suppliers about possible reduction initiatives. Moreover, we worked on solutions for collecting primary CO<sub>2</sub> data from suppliers. To do this, we ran a pilot project which collated the carbon balance and reduction efforts of suppliers of greatly varying characteristics in a carbon accounting tool. This helps us to increase transparency in the supply chain and obtain findings to align our future data collection processes.

equipment, and services. As part of our EcoDesign approach, we are working on implementing sustainability requirements in the material specifications of the products and components we acquire. The EcoDesign Standard on Hazardous Substances in Products from the RVS division guides us in that (→ [Environmental Product Design](#)).

Further information on climate protection and respect for human rights in the supply chain:

- → [Climate Protection](#)
- → [Due Diligence Processes for Human Rights](#)

### **Direct and indirect procurement**

The purchasing organization at Knorr-Bremse consists of global direct procurement, which is controlled by the respective division, and cross-divisional indirect procurement with global responsibility. Direct procurement acquires production materials (direct materials). This includes all externally sourced raw materials, items and components that are directly or indirectly delivered to our customers as part of our products. Indirect procurement handles the sourcing of non-production materials (indirect materials) and services that are not an integral part of Knorr-Bremse products but that serve to support the internal organization indirectly.

## Sustainability in Supplier Relationships

We rely on three pillars for the implementation and realization of sustainability standards in the supply chain: determination of our sustainability requirements, evaluation and assessment, and qualification of our suppliers and procurement specialists.

### Sustainability Requirements for Suppliers

We have set out Knorr-Bremse's commitment to sustainability in the supply chain in our Code of Conduct and our sustainability guidelines. We expect suppliers to act in a manner that is in line with our values and takes account of international environmental and human rights guidelines and standards. These include the principles of the UN Global Compact, the International Labour Organization (ILO) conventions, and the UN Universal Declaration of Human Rights. These principles are specified in our guidelines:

#### Code of Conduct for Suppliers

Our Group-wide ↓ [Supplier Code of Conduct](#) is intended to promote and require the systematic inclusion of sustainability aspects in the production methods and conduct of our suppliers. The code exists in 15 languages and sets out the standards our suppliers are required to meet with respect to working conditions, human rights, environmental protection, safety, business ethics, and compliance. We expect our suppliers to comply with the code and implement it in their upstream supply chain. In 2023, we issued concrete specifications in our Supplier Code of Conduct that set out the requirements for complaint mechanisms, among other measures. For instance, suppliers are asked to inform their employees about the Knorr-Bremse whistleblower and complaint systems. If a supplier's employees or stakeholders report their concerns or potential breaches of the Supplier Code of Conduct, we do not permit any disadvantages for them as a result of this. The binding code is an integral component of all supplier contracts.

#### Human Rights Policy

In accordance with our ↓ [Human Rights Policy](#) we expect our suppliers and subcontractors to respect human rights. They are also instructed to convey this expectation to their suppliers and contractors. Our procurement and supplier management strives to support suppliers in improving their human rights due diligence processes (→ [Due Diligence Processes for Human Rights](#)).

#### Conflict Minerals Policy

The ↓ [Conflict Minerals Policy](#) governs the handling of conflict materials and thus serves as a guide for Knorr-Bremse procurement and Knorr-Bremse suppliers.

#### Procurement Quality Guidelines

In accordance with our quality guidelines, we require our suppliers to observe the Principles of the UN Global Compact as well as our Supplier Code of Conduct, among other regulations.

## Review and Assessment of Suppliers

We use targeted instruments to review and assess compliance with our requirements and also include the results in our procurement decision-making.

### Sustainability Assessments

Sustainability assessments at suppliers are continuously conducted by external service providers with experience in the industry. They survey and assess the implementation of suppliers' sustainability management systems. The criteria during the selection of suppliers for a sustainability assessment are purchasing volume, ESG risk profile, and classification as a new or preferred supplier. We currently have a valid sustainability assessment for roughly 3,200 suppliers. The coverage rate is thus 71% of the global purchasing volume, meeting the target of 70% that we set for 2023. We are aiming for a target rate of 75% in 2025.

### Sustainability assessment coverage rate for suppliers

in % of purchasing volume



### Integration in Sourcing Decisions

We take account of suppliers' sustainability assessments in our contract award process. In the CVS division, the sustainability assessment and a signed Supplier Code of Conduct are integrated into the so-called Sourcing Board, the review and decision-making body for supplier orders. In the RVS division, preference is given to suppliers who have been granted "Preferred" or "Potential Preferred" supplier status. To be able to reach the highest supplier status, Knorr-Bremse requires a valid supplier sustainability assessment or proof that such assessment is in progress. Moreover, the suppliers should be able to present a certified environmental management system that is in line with the international standard ISO 14001. Of our direct purchasing volume, 61% is covered by suppliers that possess valid ISO 14001 certification.

## Risk Classification

We use the findings from the sustainability assessments of both divisions to conduct a risk assessment of the suppliers. Based on the individual assessment results, we classify our suppliers into the categories A, B and C, where C represents the level with the potentially highest sustainability-related risks. We aim to reduce the share of suppliers that perform low in the sustainability assessment. To this end, we draw up action plans for improving the sustainability performance with the suppliers in question. In the long term, Knorr-Bremse sees two main development paths for suppliers in category C: They measurably and demonstrably make progress on their sustainability performance or we gradually relocate the purchasing volume allocated to them. We aim to continuously improve our risk assessment approach. In the next step we take, we will restructure the categories and raise the assessment levels. In doing so, we will also set a new sustainability-linked financial incentive for our Supplier Early Payment Program (SEPP) (→ [Sustainable Company Financing](#)).

Furthermore, we carry out risk analyses on the topic of human rights. The risk assessment is based on criteria such as a supplier's location, production technology, and sustainability assessment. We introduced remedies during the reporting period for suppliers that have a potentially higher risk assessment. Consequently, 600 of our suppliers were instructed to sign our revised Supplier Code of Conduct. They have also been requested to update their sustainability assessment in accordance with a revised assessment model that complies with Germany's Supply Chain Due Diligence Act (LkSG) (→ [Due Diligence Processes for Human Rights](#)).

## Sustainability Audits

We also audit and assess suppliers' sustainability performance in supplier visits and external audits. Firstly, we have integrated sustainability aspects into standard supplier visits. Knorr-Bremse employees in the area of supplier development use the Supplier On-Site Sustainability Risk Checklist so that they can identify and assess sustainability-related risks on-site at suppliers. The results of the completed checklists are used as a decision-making criterion regarding additional sustainability audits on-site or other in-depth investigations. In addition, independent experts conduct their own sustainability audits of suppliers. They examine adherence to international social and environmental standards based on initiatives such as the Responsible Business Alliance, Together for Sustainability, and the UN Global Compact. 10 on-site audits were conducted this way in 2023 (2022: 30; 2021: 18), of which 3 were follow-up audits (2022: 9; 2021: 8). The selection criteria for these audits were the purchasing volume that went to the supplier as well as the supplier's results in the human rights risk analysis respectively sustainability assessment. If an audit or a sustainability assessment reveals breaches or improvement potential, Knorr-Bremse develops and implements action plans for improvement with the suppliers and conducts follow-up audits.

## Qualification and Professional Development

To meet our sustainability requirements over the long term, we offer training programs to support our suppliers in the further development of their sustainable business practices. At the same time, we provide our employees with qualification and training on the topics as well.

### **Awareness and Training**

We continuously work to raise the awareness and develop the skills of our suppliers in the area of sustainability. In coordination with a few service providers responsible for the sustainability assessments, we also offer corresponding webinars and additional support on the subject. For example, we provide training materials on the subject of conflict minerals. In 2023, we continued to advance our approach to training and developing suppliers in the field of sustainability.

### **Supplier Development Programs**

If a sustainability assessment reveals breaches by or improvement potential for a supplier, action plans for improvement are subsequently implemented and follow-up audits conducted. In addition, the audit results help us to identify potential risk fields, which we will pay particular attention to in the future as part of our supplier management.

### **Training for Procurement Specialists**

Raising the awareness of and training Knorr-Bremse employees are key prerequisites for sustainable purchasing management. Around the world, they should develop know-how to be able to assess, advise, and audit suppliers. In 2023, we continuously informed our purchasing specialists about sustainability in procurement at events, at workshops, and in webinars. Our e-learning courses on sustainable procurement processes and practices were utilized by 51% of purchasing employees globally in 2023 (2022: 53%).

### **Involvement in Industry-Specific Sustainability Initiatives**

As a leading and global actor in the industry, Knorr-Bremse actively participates in industrial sustainability initiatives. This means we can improve sustainability standards in the supply chain together with customers, competitors, and other stakeholders. As a member of the Railsponsible initiative, we have signed the Responsible Climate Pledge, a voluntary commitment to decarbonization across the rail transportation supply chain by 2050. Knorr-Bremse is seeking to help with the achievement of this goal through its climate protection measures. In the automotive industry, we are an active member of the German Association of the Automotive Industry (VDA) and, using the Drive+ platform, strive for systematic dialog on sustainability-related issues with automotive suppliers. As a member of the Responsible Minerals Initiative (RMI), Knorr-Bremse is working on an improved process for responsible mineral procurement.

## Handling of Conflict Minerals

As a manufacturer of brakes and other systems for rail and commercial vehicles, we are aware of our responsibility for the sustainable procurement of our raw materials. This applies above all to the procurement of minerals from conflict or high-risk areas, termed conflict minerals. Some of these are mined in conflict-ridden regions and used to finance armed conflicts. They include tin, tantalum, tungsten, and gold (“3TG”). In order to protect human rights in the area of conflict minerals, we have introduced a due diligence process. We create transparency in the procurement process for conflict minerals by heeding the recommendation of the Responsible Minerals Initiative. Key instruments for managing and reporting conflict minerals include the Group-wide binding Conflict Minerals Policy and supplier surveys. In an annual survey, we ask direct suppliers with 3TG relevance for information on the origin of the minerals used using the Conflict Minerals Reporting Template (CMRT). More than 70% of our purchasing volume was covered by the most recent survey. It identified 32 (2022: 24; 2021: 6) smelting plants that were classifiable as critical. These companies do not meet the requested requirements of the compliant smelters and refiners list, and we have instructed them to join through an independent audit of the Responsible Minerals Assurance Process (RMAP). RMAP audits demonstrate if a supplier’s business practices, management systems, and values correspond to the most important principles of responsible procurement. To ensure due diligence in the cobalt and mica supply chain, we collect relevant information with the aid of the Extended Minerals Reporting Template (EMRT). At the end of 2023, 2,160 suppliers were asked to answer the questionnaire by mid-2024.

### Climate Pledge of the industry initiative Railponsible

The ↗ [Railponsible initiative](#) with its 15 members, including Knorr-Bremse, is geared toward sustainable procurement practices in the rail industry. The Climate Pledge published by Railponsible in 2023 is a voluntary commitment to decarbonization across the rail transportation supply chain by 2050. The signatory members want to play a leading role in sustainable procurement measures in order to mitigate climate change. Environmentally friendly and carbon-conscious business decisions, as well as close cooperation across the entire value chain, are intended to contribute to this. The signatories of the Climate Pledge commit, among other things, to reduce greenhouse gas (GHG) emissions with the aim of achieving the goal of net zero across the entire company, and to assess and publish GHG emissions in accordance with the Greenhouse Gas Protocol. The working group for responsible procurement, which Knorr-Bremse is chairing once again, takes on important tasks as part of this. Knorr-Bremse shares its well-founded knowledge with members and suppliers regarding sustainable procurement practices, transparent business processes and the further development of suppliers there.

### Reporting of Conflict Minerals<sup>1</sup>

		2023	2022	2021
Suppliers invited to take the CMRT survey	Number	2,160	2,301	2,449
Response rate of the suppliers surveyed	in %	49	51	62

<sup>1</sup> The figure for 2022 relates to the percentage of suppliers who have provided us with information on the use and origin of conflict minerals in the June 2022–April 2023 reporting period. The figures for 2023 represent an interim status for the period from June 2023 to February 2024. The current data collection process will end in April 2024.

# Appendix

# Key Figures

## Financial indicators

		2023	2022	2021
Revenue	in € million	7,926	7,150	6,706
EBITDA	in € million	1,221	1,046	1,207
Earnings per share	in €	3.43	3.03	3.85
Equity ratio <sup>1</sup>	in %	35.2	33.6	33.7
Operating cash flow	in € million	914.6	541.6	975.5
Capital expenditure	in € million	368.5	352.2	375.5
Revenue with refurbished products relative to total revenue <sup>2</sup>	in %	11.2	10.3	9.9
R & D costs <sup>3</sup>	in € million	544.1	466.1	431.4
R & D employees (Dec. 31)	Number	4,588	4,216	3,980

<sup>1</sup> Figures for 2022 adjusted.

<sup>2</sup> Revenue including labor and spare parts needs.

<sup>3</sup> Research and development costs include all costs over a financial period (including capitalized costs) that can be allocated to research into and development of new products, further development of existing products and pure research.

## Environment

### Certified Sites

		2023	2022	2021
Sites with a certified quality management system (ISO 9001, ISO 22163, IATF 16949)	Number	116	109	101
Sites with a certified environmental management system (ISO 14001)	Number	77	71	70
Share of employees covered <sup>1</sup>	in %	89	-	-
Sites with a certified energy management system (ISO 50001 or EN 16247)	Number	46	37	38
Share of employees covered <sup>1</sup>	in %	57	-	-

<sup>1</sup> Prior-year data not available.

## Energy Consumption<sup>1</sup>

		2023	2022 <sup>2</sup>	2021 <sup>2</sup>	2018 <sup>2</sup>
<b>Primary energy consumption</b>	in GWh	160	180	131	155
Natural gas	in GWh	118	138	99	120
Fuels	in GWh	37	39	31	34
Self-generated renewable energy	in GWh	6	2	1	0
<b>Secondary energy consumption</b>	in GWh	322	344	301	326
Purchased electricity	in GWh	311	336	287	314
Of which renewable energy	in %	95	94	98	13
District heating	in GWh	11	8	14	12
<b>Total energy consumption</b>	in GWh	482	524	431	481
<b>Energy efficiency</b>	in MWh/ € millions of revenue	60.8	73.3	64.3	72.7

<sup>1</sup> The figure for 2023 relates to all sites under operating control, excluding locations with fewer than 50 employees other than production locations or service workshops. This covers around 94% of Knorr-Bremse's employees.

<sup>2</sup> The data from the baseline year 2018 has been recalculated in line with our restatement policy. The data from 2022 and 2021 was not retroactively adjusted.

## Direct and Indirect CO<sub>2</sub>e Emissions<sup>1,2</sup>

		2023	2022	2021	2018 <sup>3</sup>
Scope 1 direct CO <sub>2</sub> e emissions	in thousand metric tons of CO <sub>2</sub> e	36	38	28	41
Scope 2 indirect market-based CO <sub>2</sub> e emissions	in thousand metric tons of CO <sub>2</sub> e	11	12	7	116
Scope 2 indirect location-based CO <sub>2</sub> e emissions	in thousand metric tons of CO <sub>2</sub> e	117	122	152	141
<b>Total market-based CO<sub>2</sub>e emissions</b>	in thousand metric tons of CO <sub>2</sub> e	<b>47</b>	<b>50</b>	<b>35</b>	<b>157</b>
<b>Total location-based CO<sub>2</sub>e emissions</b>	in thousand metric tons of CO <sub>2</sub> e	<b>154</b>	<b>160</b>	<b>180</b>	<b>182</b>
<b>CO<sub>2</sub>e intensity</b>	in metric tons of CO <sub>2</sub> e/ € million of revenue	<b>5.9</b>	<b>7.0</b>	<b>5.2</b>	<b>23.7</b>

<sup>1</sup> The recording of CO<sub>2</sub>e emissions is aligned with the recognized requirements of the Corporate Accounting and Reporting Standard (Scopes 1 and 2) of the Greenhouse Gas Protocol. The figures from 2022 and 2021 were not adjusted retroactively for M&A activities and divestments.

<sup>2</sup> The CO<sub>2</sub>e data recorded in 2023 includes emissions of carbon dioxide (CO<sub>2</sub>) as well as other climate gases defined by the GHG Protocol, such as nitrous oxide (N<sub>2</sub>O) and methane (CH<sub>4</sub>) as well as emissions resulting from refrigerant leakage. The comparison data from 2022 and 2021 only includes CO<sub>2</sub> emissions unless indicated otherwise.

<sup>3</sup> The values for the 2018 baseline level have been recalculated based on our restatement policy. In addition to the broadening of the reporting unit from CO<sub>2</sub> to CO<sub>2</sub>e, this recalculation also reflects our M&A activities.

## CO<sub>2</sub>e Emissions in the Value Chain (Scope 3)<sup>1</sup>

		2023	2022 <sup>6</sup>	2021 <sup>6</sup>
3.1 Purchased goods and services	in thousand metric tons of CO <sub>2</sub> e	1,986	1,802	2,025
3.3 Fuel- and energy-related activities <sup>2</sup>	in thousand metric tons of CO <sub>2</sub> e	25	27	29
3.4 Upstream transportation and distribution <sup>3</sup>	in thousand metric tons of CO <sub>2</sub> e	198	184	200
3.6 Business travel <sup>4</sup>	in thousand metric tons of CO <sub>2</sub> e	13	6	4
3.7 Employee commuting	in thousand metric tons of CO <sub>2</sub> e	23	25	26
3.9 Downstream transportation and distribution <sup>3</sup>	in thousand metric tons of CO <sub>2</sub> e	46	47	50
3.11 Use of sold products <sup>5</sup>	in thousand metric tons of CO <sub>2</sub> e	39,853	26,301	36,092
<b>Scope 3 emissions, total<sup>7</sup></b>	in thousand metric tons of CO <sub>2</sub> e	<b>42,145</b>	<b>28,393</b>	<b>38,426</b>

<sup>1</sup> A detailed description of the calculation methodology can be found (→ [CO<sub>2</sub>e calculation method](#)).

<sup>2</sup> For fuel- and energy-related emissions, the emission savings from the purchase of green electricity will be taken into account from reporting year 2023 (market-based approach). The years 2022 and 2021 were retroactively adjusted.

<sup>3</sup> For Commercial Vehicle Systems, a large part of the footprint is based on primary emission data supplied by suppliers. A further part was calculated using a distance-based approach, while the remaining part was calculated using a spend-based approach. For Rail Vehicle Systems, the footprint was calculated based on a purely distance-based approach.

<sup>4</sup> The calculation of emissions from flights is based on the different calculation methods depending on the travel agency. In 2023, Thrust Carbon was used for the first time for some of the countries, thereby including other emission-relevant factors in addition to flight distance and travel class. As a result, it is not possible to compare this emission data with the previous year.

<sup>5</sup> Knorr-Bremse incorporated long-term field test data from the CVS division in its calculation of Scope 3.11 emissions for the first time in 2023, and thus further increased the data quality. As a result, it is not possible to compare this 2023 emission data with the data from 2022, but it is possible to compare it with the base year 2021.

<sup>6</sup> The values for Scope 3.1, Scope 3.4 and Scope 3.11 for the 2021 baseline level have been recalculated based on our restatement policy. The figures from 2022 were not retroactively adjusted.

<sup>7</sup> Deviations are due to rounding differences.

## Other Air Emissions<sup>1,2</sup>

		2023	2022	2021
Dust	in kg	433	-	-
Nitrogen oxides (NO <sub>x</sub> )	in kg	38,620	-	-
Sulphur dioxide (SO <sub>2</sub> )	in kg	596	-	-

<sup>1</sup> Prior-year data not available.

<sup>2</sup> Calculated values based on fuel (natural gas, heating oil, liquified gases, diesel and gasoline) consumption using the emissions factors published by the VDA (Verband der Automobilindustrie; German Association of the Automotive Industry) in 2022. Partially based on estimated figures.

## Waste<sup>1</sup>

		2023	2022	2021
Waste	in tons	69,000	-	-
of which hazardous waste	in %	13	-	-
Recycling ratio of non-hazardous waste	in %	83	-	-
Recycling ratio of hazardous waste	in %	66	-	-

<sup>1</sup> Prior-year data not available.

## Water<sup>1</sup>

		2023 <sup>2</sup>	2022	2021
Water consumption	in thousands of cubic meters	575	657	533

<sup>1</sup> The figure for 2023 covers more than 80% of Knorr-Bremse employees.

<sup>2</sup> The year-on-year reduction in water consumption is the result of the introduction of new production processes and the sale of water-intensive business units. The water usage of some locations in the Commercial Vehicle Systems division for 2023 was extrapolated from the previous year's consumption based on revenues and other environmental metrics.

## Social

### Group Employees

		2023	2022	2021
Employees	Number	33,319	31,599	30,544

### Turnover Rate<sup>1</sup>

in %

		2023	2022	2021
Staff turnover worldwide <sup>2</sup>		15.0	18.7	14.1
Staff turnover limited to employee resignations		7.4	10.4	8.7

<sup>1</sup> Approx. 98% of the total workforce covered.

<sup>2</sup> Definition: Number of employees leaving as a proportion of the average total workforce. Since 2022, this has taken into account all ways in which employees leave, including employees on fixed-term employment contracts.

### Staff Dialogue Coverage and Completion Rates

in %

		2023	2022	2021
Coverage rate <sup>1</sup>		78.2	76.3	78.2
Completion rate <sup>2</sup>		91.8	92.0	90.7

<sup>1</sup> Coverage rate: proportion of employees who participated in the Staff Dialogue. Fluctuation is predominantly caused by the purchase of new companies (delayed system rollout) and a high proportion of new recruits in the second half of the year, as the Staff Dialogue is not held during an employee's first year. The relevant categories of people are not part of the Staff Dialogue process, though they are included in the total number of employees.

<sup>2</sup> Completion rate: proportion of employees in the Staff Dialogue who fully completed the process. The delta between the rate and 100% primarily results from employees not having yet completed the Staff Dialogue as at May 31, 2023.

### Global Share of Women<sup>1</sup>

		2023	2022	2021
Share of female employees	in %	21.6	21.1	20.3
Share of female leaders <sup>2</sup>	in %	15.8	16.4	14.1

<sup>1</sup> Approx. 98% of the workforce covered.

<sup>2</sup> Takes employees with their own leadership responsibility at management levels 1 to 4 as well as under the management levels into account.

## Age structure in the Group<sup>1</sup>

in %

	2023	2022	2021
Up to 20	1.0	1.0	1.4
21-25	5.7	5.4	5.5
26-30	10.6	11.0	11.4
31-35	15.9	16.9	17.2
36-40	16.1	15.7	15.6
41-45	14.3	13.8	13.3
46-50	12.2	11.6	11.4
51-55	10.5	9.9	10.1
56-60	8.4	9.5	9.5
over 60	5.3	5.2	4.6

<sup>1</sup> Share of the workforce included in the age data in 2023: around 98%.

## Average Age

	2023	2022	2021
Average age	41.7	41.6	41.3

## Share of Employees with Severe Disabilities

	2023	2022	2021
Ratio of people with severe disabilities in Germany	4.6	4.6	4.4

## Certified locations

	2023	2022	2021
Sites with a certified occupational health and safety management system (ISO 45001)	50	46	44

## Occupational Safety<sup>1</sup>

		2023	2022	2021
Workplace accidents per 200,000 contractually agreed hours of work		0.7 <sup>2</sup>	0.7	0.8
Workplace accidents resulting in lost days per 200,000 contractually agreed hours of work		0.5	0.6	0.6

<sup>1</sup> The figure relates to all sites under operational control excluding sites with fewer than 50 employees other than production sites or service workshops. This covers around 94% of Knorr-Bremse's employees. Data relating to temporary workers provided by a third party (e.g., "agency employees") who work on behalf and under the control of Knorr-Bremse is included in the figures.

<sup>2</sup> Note due to rounding effect: Compared to the previous year, the key figure has improved by 8%.

## Social Commitment

		2023 <sup>1</sup>	2022	2021
Donations by Global Care	in € thousand	3,239	3,021	2,820
Donations by Local Care	in € thousand	2,200	2,843	2,012
<b>Total</b>	in € thousand	<b>5,439</b>	<b>5,864</b>	<b>4,832</b>

<sup>1</sup> Whereof € 500 thousand is attributable to sponsoring.

## Governance

### Compliance

		2023	2022	2021
Reports filed via the whistleblower system <sup>1</sup>	Number	112	90	45

<sup>1</sup> A breakdown of the reports filed in 2023 can be found here (→ [Well-Developed Complaint Management](#)).

## Suppliers

		2023	2022	2021
Sustainability assessment coverage rate for suppliers	in % of purchasing volume	71	69	61
Sustainability audits of suppliers	Number	10	30	18

## Reporting of Conflict Minerals<sup>1</sup>

		2023	2022	2021
Suppliers invited to take the CMRT survey	Number	2,160	2,301	2,449
Response rate of the suppliers surveyed	in %	49	51	62

<sup>1</sup> The figure for 2022 relates to the percentage of suppliers who have provided us with information on the use and origin of conflict minerals in the June 2022–April 2023 reporting period. The figures for 2023 represent an interim status for the period from June 2023 to February 2024. The current data collection process will end in April 2024.

## CO<sub>2</sub>e Calculation Method

Knorr-Bremse calculates its CO<sub>2</sub>e emissions – Scope 1, Scope 2, and relevant Scope 3 categories – according to the Greenhouse Gas (GHG) Protocol. The balance sheet limits are applied on the basis of operational control via business units. In the following, we describe the calculation methods for the CO<sub>2</sub>e emission figures published by us for the three scopes of the GHG Protocol.

### Scope 1 and Scope 2 – Direct and Indirect CO<sub>2</sub>e Emissions

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The CO<sub>2</sub>e balance of Knorr-Bremse incorporates direct CO<sub>2</sub>e emissions from the company's own emission sources (Scope 1) and indirect emissions from the generation of purchased energy (Scope 2). As with the underlying energy consumption, we report on emissions in accordance with our HSE reporting guideline. As such, we include locations with more than 50 employees or locations with an environmental management system, which primarily concerns production and service locations. This results in a coverage rate of about 94% of Knorr-Bremse employees.

#### Scope 1

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For Scope 1, we calculate direct emissions that arise within the company from burning natural gas, oil, petroleum-based fuels, and liquefied petroleum gas, or from our own generation of electricity. This also includes fuel consumption by the company's own vehicles. The emissions caused by refrigerant leakage were also included in the balance for the first time in 2023. Emissions are calculated based on the VDA<sup>1</sup> emission factors that were current in 2023.

#### Scope 2

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For Scope 2, we calculate emissions from purchased energy in the form of electricity, district heating, district steam, and district refrigeration and cooling. Since 2021, we have reported both market-based and location-based emissions. To calculate location-based CO<sub>2</sub>e emissions, we use the VDA<sup>1</sup> and IEA<sup>2</sup> country-specific emission factors that were current in 2023.

For the market-based balancing approach, we use the specific CO<sub>2</sub>e emissions factors of the electricity providers or we recognize the emissions factor as 0 kg of CO<sub>2</sub>e/kWh if renewable energies are used. If the data for the electricity providers is not available, we use the European Residual Mix of the Association of Issuing Bodies (AIB). The average country-specific emissions factors of the IEA<sup>2</sup> (see "Location-Based Approach") are used if neither the data of the suppliers nor the residual mix is available.

### Scope 3 – Indirect CO<sub>2</sub>e Emissions

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In addition to the indirect emissions from upstream company activities, which we reported for the first time back in 2021, we have also published indirect emissions from upstream and downstream transportation and distribution as well as downstream usage of sold products since 2022. Currently, we consider the following categories:

### Scope 3.1 – Purchased Goods and Services

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The emissions from purchased goods and services are calculated based on monetary purchase data, i.e., a spend-based approach looking at expenses on material and services. The emission factors incorporated into this come from an external data model. The model used combines methods from input-output modeling (EEIO, environmental extended input/output methodology) as well as life cycle assessment with trade data and other external datasets. The calculated emissions span the entire upstream value chain, from the production of raw materials to the tier one supplier (“cradle to gate”).

### Scope 3.3 – Fuel- and Energy-Related Emissions

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This category includes upstream greenhouse gas emissions for energy generation prior to combustion that are not calculated under Scope 1 or Scope 2. The emissions from green electricity are taken into account (market-based approach). We use the emission factors published in 2023 by the IEA<sup>2</sup> and BEIS/DEFRA (UK Government GHG Conversion Factors for Company Reporting), including the methodology underlying them, for the calculation.

### Scope 3.4 – Upstream Transportation and Distribution

### Scope 3.9 – Downstream Transportation and Distribution

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This category covers transportation-related emissions from incoming, internal, and outgoing (paid by Knorr-Bremse) transportation of goods (Scope 3.4) as well as for outgoing transportation of goods paid by the customer and carried out by external carriers (Scope 3.9). The calculation was performed for the Commercial Vehicle Systems and Rail Vehicle Systems divisions using different calculation methods.

For the Commercial Vehicle Systems division, a large part of the footprint is based on primary emission data provided by suppliers. The other parts were calculated using a distance-based approach and a spend-based approach. The Rail Vehicle Systems footprint was calculated using solely a distance-based approach with the help of standard emission factors (well-to-wheel) from the Smart Freight Centre’s GLEC Framework. The approximate spend-based figures are based on emission factors from the Quantis Scope 3 Evaluator. The emissions of external warehouses are calculated based on the sizes in square meters and the greenhouse gas values supplied by CRREM Global Pathways for industrial distribution warehouses per year per square meter. These emission figures are added onto the transportation-related emissions.

### Scope 3.6 – Business Travel

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Calculation of CO<sub>2</sub>e emissions from business trips is carried out by our four most relevant travel agencies on the basis of flight distances. The calculation of emissions from flights is based on the different calculation methods depending on the travel agency. The travel agency for Europe and parts of the APAC<sup>3</sup> region calculates emissions in accordance with the Greenhouse Gas Protocol. The agencies for North and South America and China use emissions factors for short-, medium-, and long-haul flights. In 2023, Thrust Carbon was used for the first time for some of the countries, thereby including other emission-relevant factors in addition to flight distance and travel class.

## Scope 3.7 – Employee Commuting

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Emissions arising from the commutes of our employees are calculated using average commute distance data from Germany as well as the EMEA<sup>4</sup>, Americas, and APAC<sup>3</sup> regions. The modes of transportation included are cars, public transportation, bicycles, and walking. The number of working days and employees are also used for the calculation. Work from home was additionally accounted for using a factor of 16%. The emission factors for Scope 3.7 come from the BEIS/DEFRA emission factors published in 2023.

## Scope 3.11 – Use of Sold Products

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Knorr-Bremse's footprint in Scope 3.11 comprises the direct emissions from the use phase of products with direct energy and fuel consumption in rail and truck vehicles. They are calculated based on the estimated energy consumption across the lifetime of the products that were supplied to our customers during the reporting period. These emissions are very relevant for Knorr-Bremse as the products are characterized by their long lifetime and, accordingly, the emissions accounted for are from a long use phase.

For the Rail Vehicle Systems calculation, 19 relevant product categories were identified. A typical use phase profile across the product lifetime was defined for each product category and took into account different rail vehicle types (e.g., diesel multiple units [DMUs], electric multiple units [EMUs], locomotives). Most products are overhauled at set maintenance intervals during a 30-year lifetime. The products' assumed energy consumption during the use phase remains the same after maintenance. The energy consumption is multiplied by the current, region-specific emission factors according to the IEA and BEIS/DEFRA. The calculation is based on a variety of assumptions regarding the proportions of the powertrains in rail vehicles, with the data coming from global market studies and being updated constantly. Indirect emissions from the use phase caused by the transportation of our products are not included, and neither are emissions from maintenance work, as they are deemed insignificant.

For the Commercial Vehicle Systems division, one relevant product category was identified and an estimate of further product categories with direct energy consumption was calculated. The estimate indicated that they altogether represent roughly 2% of the Commercial Vehicle Systems division's Scope 3.11 emissions, for which reason they are deemed not relevant and added on as a lump sum. The current global emission factors according to the IEA and BEIS/DEFRA were used for the emission calculation in the Commercial Vehicle Systems division.

Our Scope 3.11 emissions are to a large degree dependent on our sales figures and the respective customer preferences, so they may vary significantly from reporting period to reporting period.

<sup>1</sup> VDA – Verband der Automobilindustrie; German Association of the Automotive Industry

<sup>2</sup> IEA – International Energy Agency

<sup>3</sup> APAC – Asia and Pacific regions

<sup>4</sup> EMEA – Europe, Middle East and Africa

## Restatement

In the event of methodological or structural changes or incorrectly reported figures, the baseline years for the climate targets will be adjusted if the changes have a more than 5% effect on the total emissions of an emission category.

## TCFD Reference Table

Knorr-Bremse follows the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and amendments of established reporting standards relating to the publication of climate-related risks and opportunities. In the CDP Climate Change Request 2023, Knorr-Bremse reports key figures, risks, and opportunities as well as strategies for the management of climate-related issues. In addition, a cross-functional working group was set up in 2021 to develop measures for the implementation of the TCFD recommendations. The focus in this context was in particular on identifying relevant risks and opportunities across the value chain and integrating these topics into risk management. Taxonomy-related information was already added to the TCFD reference table in 2022. The following table describes the results in accordance with the TCFD recommendations.

### Governance

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#### Monitoring by the Supervisory Board

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##### Climate-related information by category

UN Sustainable Development Goal (SDG) 13, Climate Action, is a high priority for Knorr-Bremse and is operationalized through the Knorr-Bremse Climate Strategy 2030, which was approved by the Executive Board in 2019. The Executive Board monitors the implementation of the climate strategy and approves the extensive capital expenditure on it. Climate-related topics were on the agenda of the Executive Board on multiple occasions in 2023.

The Knorr-Bremse Supervisory Board exercises a monitoring function for the sustainability and climate strategies and their implementation. The focus of the Supervisory Board's work in 2023 was on a critical assessment of the higher emission targets for Scopes 1 to 3. Another significant aspect was the incorporation of sustainability-related factors into the long-term Knorr-Bremse remuneration system (LTI) at a management level. In addition, the Supervisory Board conducts an in-depth review of the Knorr-Bremse risk report at least once a year and also on an ad-hoc basis if necessary.

The remuneration system for management levels 0 to 2 (Executive Board, senior management, regional managing directors, and heads of department), introduced in 2022, sets incentives for achieving our sustainability targets. The short-term remuneration (the "short-term incentive"), first implemented in fiscal year 2022 and continued in 2023, is 20% linked to the achievement of sustainability targets, including performance indicators in the context of the Climate Strategy. Aspects of sustainability were also implemented in the long-term variable remuneration (the "long-term incentive") in 2023, with sustainability targets making up 20% of this remuneration as well.

##### Reference to further information

- → [Sustainability Management](#)
- → [Annual Report 2023, Sustainability Strategy and Organization chapter, page 42](#)
- ↗ [2023 CDP Climate Change Response: Governance \(C1\)](#)

## Role of the Executive Board and Senior Management

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### Climate-related information by category

The top level of management is systematically included in the management of risks and opportunities. A summary Group risk report is an important component of regular risk reporting. This is discussed and adopted in the Risk Committee. The participants in the Risk Committee are the heads of finance with regional responsibility, the heads of other governance functions, and the global quality managers. The Group risk report, after it has been prepared, is presented to the Knorr-Bremse Group's Executive Board at quarterly intervals and explained and discussed at the relevant Executive Board meeting. The Sustainability department is responsible for the ongoing development and coordination of the Climate Strategy's implementation and for the integration of climate-related risk and opportunity management into existing risk processes. The department reports directly to the CFO and ESG Board on a regular basis.

The ESG Board is the key body where the Knorr-Bremse sustainability and climate strategies are discussed and defined. It comprises two members of the Executive Board, a representative of the senior management from each of the two divisions and of the Knorr-Bremse North America/South America and Asia-Pacific regions, the Chair of Knorr-Bremse Global Care e. V., and the Head of the Sustainability department.

A cross-functional working group for the implementation of the TCFD recommendations was created in the fall of 2021. The working group consists of representatives of the Strategy, Risk Management, Procurement, Production, and Sustainability departments as well as representatives of the North America/ South America and Asia-Pacific regions. In particular, it dealt with a TCFD gap analysis and a qualitative scenario analysis.

### Reference to further information

- → [Sustainability Management](#)
- → [Annual Report 2023, Sustainability Strategy and Organization chapter, page 42](#)
- ↗ [2023 CDP Climate Change Response: Governance \(C1\)](#)

### Identified Climate Risks and Opportunities for Various Time Horizons and Potential Financial Impacts

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#### Climate-related information by category

Knorr-Bremse defines the time horizons short-term (0-1 year), medium-term (1-3 years), and long-term (3-5 years) in its planning. In addition, Knorr-Bremse carried out an extensive, qualitative scenario analysis for the years 2030 and 2050 in the fall of 2021. The findings from the analysis complement the regular risk management approach.

The analysis focused on climate-related risks and opportunities across the upstream and downstream value chain based on the following two scenarios:

The Net Zero Emissions by 2050 Scenario (NZE) from the International Energy Agency was chosen mainly to incorporate the transition risks resulting from a 1.5°C global temperature increase. The RCP 6.0 scenario from the Intergovernmental Panel on Climate Change (IPCC) was chosen mainly to incorporate the physical risks resulting from a 2.7°C global temperature increase. Knorr-Bremse's choice of scenarios therefore corresponds to the current and expected external requirements of the TCFD and Corporate Sustainability Reporting Directive (CSRD). In addition, the transition risk scenario corresponds with Knorr-Bremse's ambition of helping to limit the global temperature increase to 1.5°C through its Climate Strategy. The analysis differentiates between the Rail Vehicle Systems division and the Commercial Vehicle Systems division. It focuses on material business activities in the supply chain, in in-house production, and in sales markets in order to identify risks and opportunities that arise from the scenarios and have the potential to cause significant financial impacts on Knorr-Bremse.

The following tables summarize the relevant types of identified risks and opportunities as well as their financial impacts on Knorr-Bremse.

#### Reference to further information

- → [Climate Protection](#)
- → [Annual Report 2023, Climate Protection chapter, page 44](#)
- → [Annual Report 2023, EU Taxonomy chapter, page 60](#)
- ↗ [2023 CDP Climate Change Response: Risks and Opportunities \(C2\), Business Strategy \(C3\)](#)

## 1.5°C (Transition) Scenario

**Relevant types of climate-related risks and opportunities** for the Knorr-Bremse Rail Vehicle Systems and Commercial Vehicle Systems divisions

**Potential financial impacts** for the Knorr-Bremse Rail Vehicle Systems and Commercial Vehicle Systems divisions

### Risks

**Supply chain:** regulatory, technological, and market risks (Rail Vehicle Systems and Commercial Vehicle Systems divisions)

It is expected that the prices of energy-intensive materials such as steel and aluminum will rise by 2030 due to prices on CO<sub>2</sub>e and greater costs for low-carbon technology production (e.g., “green steel” production with electric arc furnaces/direct reduction using hydrogen).

In the long term, by 2050, the significance of this development will subside due to the ongoing technological progress in material production. The procurement of critical resources, particularly in connection with the decarbonization of the global economy (e.g., copper in electrical devices), may result in goods shortages and influence market prices..

Regulatory, technological, and market risks may potentially have negative impacts on the EBITDA (earnings before income taxes) margin due to rising procurement costs.

**In-house production:** regulatory, technological, and market risks (Rail Vehicle Systems and Commercial Vehicle Systems divisions)

It is assumed that the strongly increasing prices on CO<sub>2</sub>e from fossil fuels as well as the shift toward low-carbon forms of transportation will result in the procurement of energy and logistics services becoming more expensive. This effect will already be recognizable in 2030 and will increase further by 2050.

Regulatory, technological, and market risks may potentially have negative impacts on the EBITDA margin due to rising costs in in-house production.

**Sales market** risks (Commercial Vehicle Systems division)

In a 1.5 degree scenario, measures for decarbonizing the economy dampen the expected growth in the customer-driven truck business when compared to a “business as usual” scenario. Such measures include the avoidance of transportation and a shift to low-carbon forms of transportation. Looking at 2050 in particular, this risk will materialize more strongly when compared with a moderate risk manifestation in 2030.

Market risks for the Commercial Vehicle Systems division may have negative impacts on revenues.

### Opportunities

**Sales market** risks (Commercial Vehicle Systems division)

Regardless of the scenario, the growth of GDP and population size represents an opportunity for higher demand. However, in a 1.5°C scenario, the measures for decarbonizing the economy, such as avoiding transportation and a shift toward low-carbon forms of transportation, result in stronger growth of the rail market when compared with a “business as usual” scenario. These market opportunities will already be large in 2030 and will remain at a high level in the years through to 2050.

New market opportunities may increase revenues in the Rail Vehicle Systems division.

## 2.7°C (Physical) Scenario

**Relevant types of climate-related risks and opportunities** for the Knorr-Bremse Rail Vehicle Systems and Commercial Vehicle Systems divisions

**Potential financial impacts** for the Knorr-Bremse Rail Vehicle Systems and Commercial Vehicle Systems divisions

### Risks

Generally speaking, the physical risks in a 2.7 degree scenario intensify over time, with the result that the physical risks in 2050 escalate when compared to 2030. Nevertheless, the risk's severity and frequency can vary locally.

**Supply chain:** acute risks (Rail Vehicle Systems and Commercial Vehicle Systems divisions)

The acute physical risks from extreme weather events such as floods, tropical cyclones, and droughts are the most relevant risks for Knorr-Bremse. The increased likelihood of drought represents a risk for the production of key raw materials, especially in Germany and the US. The increased likelihood of floods and tropical cyclones (India, China, Japan, and the US) poses a risk of operational downtime if local suppliers are affected.

Acute physical risks that affect local suppliers may have negative impacts on the EBITDA margin due to rising production costs.

**In-house production:** acute risks (Rail Vehicle Systems and Commercial Vehicle Systems divisions)

The material physical risks in relation to Knorr-Bremse's production sites are floods (China, India, Japan, and Germany) and tropical cyclones (China, US, and Mexico), which may result in damage to assets and in business interruptions, e.g., from production downtime or blackouts.

Acute physical risks may result in damage to production sites and, consequently, production downtime. Increasing operating and capital expenditure have an impact on the EBITDA margin and may cause lost income.

**Sales markets:** acute risks (Rail Vehicle Systems and Commercial Vehicle Systems divisions)

Floods and tropical cyclones may cause significant damage to rail networks, which in turn can result in operational downtime and a risk to the demand for products from the Rail Vehicle Systems division. The Commercial Vehicle Systems division is also affected by acute risks such as floods and tropical cyclones, however to a lesser extent.

Because rail infrastructure is subject to a particular risk of extreme weather events, the revenues of the Rail Vehicle Systems division may be negatively affected.

### Opportunities

**Sales markets:** acute risks (Commercial Vehicle Systems division)

Drought may represent a climate-related opportunity for the Commercial Vehicle Systems division as inland shipping would be replaced by truck-based transportation in this case.

During temporary droughts, truck-based transportation in place of ships on inland waterways may boost the revenues of the Commercial Vehicle Systems division.

In keeping with the "Do No Significant Harm" requirements of the EU Taxonomy Regulation, a climate risk and vulnerability analysis was carried out to ensure that material climate risks can be counteracted in good time. The scope of this analysis included 167 Knorr-Bremse production and administration sites which are associated with taxonomy-relevant activities and were therefore examined corresponding to relevant acute and chronic risks. The basis for the measurement included various recognized sources of data as well as the IPCC SSP5 8.5 climate scenario (which forecasts the rise in average annual temperature at the end of the century at approximately 4.4°C) to take account of the most significant impacts of climate risks in accordance with the precautionary principle. No significant physical climate risks were identified for the production and administration locations after considering the location-specific vulnerability and studying the countermeasures already implemented. To ensure that the economic activities are not negatively impacted by secondary or cascading impacts, a climate risk assessment of the most material direct suppliers was carried out as well. If there was potential risk exposure, the affected suppliers were informed and asked about adaptation solutions.

## Resilience

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### Climate-related information by category

Knorr-Bremse sees its Climate Strategy as an essential contribution to the limiting of transition risk. The strategy was adopted in 2019 and updated and expanded in 2023. The climate targets included in it have been validated by the Science Based Target initiative (SBTi). The goal is to reduce global production-related CO<sub>2</sub>e emissions (Scopes 1 and 2) by 75% from their 2018 baseline level by 2030. The transformation plan is supported by three levers: CO<sub>2</sub>e efficiency and energy efficiency, self-generation of renewable energy, and external purchasing of renewable energies. Furthermore, the absolute Scope 3 CO<sub>2</sub>e emissions from purchased goods and services, upstream transportation and distribution, and the use of sold products are planned to be lowered by 25% from the 2021 baseline level by 2030.

### Reference to further information

- → [Climate Protection](#)
- → [Annual Report 2023, Climate Protection chapter, page 44](#)
- ↗ [2023 CDP Climate Change Response: Business Strategy \(C3\)](#)

## Risk Management

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### Process for Identifying and Evaluating Climate-Related Information

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### Climate-related information by category

Knorr-Bremse has defined 14 risk categories as part of its risk management, and the physical and transition risk types defined according to the TCFD have been assigned to these categories.

In the Law and Regulation category, for example, physical risks are assigned to the item “force majeure” and regulatory risks to “environmental legislation,” and, in the Purchasing/Procurement category, technological risks to “pricing.”

The risk owners at the Group’s locations – the process coordinators who identify risks and are the driving force behind mitigation measures – and the risk managers in Knorr-Bremse’s divisional units classify risks as “low,” “medium,” or “high” based on their expected financial impact. Risks between € 0 million and € 10 million are categorized as “low” while risks over € 50 million are categorized as “high.” This process classifies any evaluated net risk exceeding € 5 million as substantial and, accordingly, forwards it to Knorr-Bremse’s central risk management. Risks to the Group as a whole are also reported directly to central risk management by the respective Group departments, including the Sustainability department.

### Reference to further information

- → [Management of Sustainability-Related Risks and Opportunities](#)
- → [Annual Report 2023, Risk, Opportunity, and Forecast Report, page 87](#)
- ↗ [2023 CDP Climate Change Response: Risks and Opportunities \(C2\)](#)

## Process for Managing Climate-Related Risks

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### Climate-related information by category

In all, the risk management process comprises six stages, from identification through evaluation, mitigation, and aggregation to reporting and monitoring. When climate-related risks and opportunities are evaluated, the management defines the response to them after considering the costs and benefits.

If risks are identified (including those that are climate-related), this is followed by the implementation of operational measures that limit the risk to a tolerable level. Aggregating individual risks within the existing risk categories makes for a comprehensive view of the risk situation of the organization as well as each divisional unit and individual locations. In addition to regular risk reporting, there is also ad hoc risk reporting that forms part of Knorr-Bremse's risk management. Divisional risk reports are consolidated centrally and reported to the Executive Board each quarter. Knorr-Bremse ensures diligent risk monitoring through continuous risk assessment as well as external audits of the risk management system by the Risk Committee.

### Reference to further information

- → [Management of Sustainability-Related Risks and Opportunities](#)
- → [Annual Report 2023, Risk, Opportunity, and Forecast Report, page 87](#)
- ↗ [2023 CDP Climate Change Response: Risks and Opportunities \(C2\)](#)

## Integration into Overall Risk Management

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### Climate-related information by category

The climate-related risks and opportunities identified based on the climate scenarios have been added to the Knorr-Bremse risk report.

### Reference to further information

- → [Management of Sustainability-Related Risks and Opportunities](#)
- → [Annual Report 2023, Risk, Opportunity, and Forecast Report, page 87](#)
- ↗ [2023 CDP Climate Change Response: Risks and Opportunities \(C2\)](#)

## Key Figures and Targets

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### Key Figures Used

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#### Climate-related information by category

Knorr-Bremse has published initial estimates of examples of potential financial impacts as part of its 2023 CDP climate reporting.

The main key figure for managing the decarbonization of Knorr-Bremse is CO<sub>2</sub>e emissions. Knorr-Bremse accounts for emissions using the scopes under the Greenhouse Gas Protocol Standard.

#### Reference to further information

- → [Climate Protection](#)
- → [Annual Report 2023, Climate Protection chapter, page 44](#)
- ↗ [2023 CDP Climate Change Response: Risk and Opportunities \(C2\), Business Strategy \(C3\), Targets and Performance \(C4\), Emission Methodology \(C5\), Emissions Data \(C6\), Emissions Breakdown \(C7\)](#)

### Greenhouse Gas Emissions

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#### Climate-related information by category

The CO<sub>2</sub>e balance of Knorr-Bremse was as follows in 2023:

- Scope 1: ~36,000 metric tons of CO<sub>2</sub>e
- Scope 2: ~11,000 metric tons of CO<sub>2</sub>e (market-based accounting) and ~117,000 metric tons of CO<sub>2</sub>e (location-based accounting)
- Scope 3: ~42,100,000 metric tons of CO<sub>2</sub>e

The Scope 3 emissions include Scope 3.1 Purchased Goods and Services, Scope 3.4 Upstream Transportation and Distribution, Scope 3.9 Downstream Transportation and Distribution, and Scope 3.11 Use of Sold Products, which are categories relevant to Knorr-Bremse, as well as Scope 3.3 Fuel- and Energy-Related Activities, Scope 3.6 Business Travel, and Scope 3.7 Employee Commuting.

#### Reference to further information

- → [Climate Protection](#)
- → [Annual Report 2023, Climate Protection chapter, page 44](#)
- ↗ [2023 CDP Climate Change response: Risk and Opportunities \(C2\), Business Strategy \(C3\), Targets and Performance \(C4\), Emission Methodology \(C5\), Emissions Data \(C6\), Emissions Breakdown \(C7\)](#)

### Targets Used

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#### Climate-related information by category

In keeping with the latest climate research into a limitation of global warming to no more than 1.5°C, Knorr-Bremse has set a target of reducing the absolute CO<sub>2</sub>e emissions of its locations globally and of its vehicle fleet (Scopes 1 and 2) by 75% by 2030. Knorr-Bremse had achieved a reduction of approximately 70% by 2023, mainly by purchasing electricity from renewable sources of energy and by increasing energy efficiency.

Moreover, Knorr-Bremse expanded its climate targets to the value chain in early 2023. They provide for a 25% reduction of the emissions associated with the business activities of the upstream and downstream value chain (Scope 3) by 2030, compared to the 2021 baseline level. The emissions focused on for this are the ones in the Scope 3 categories 3.1 Purchased Goods and Services, 3.4 Upstream Transportation and Distribution, and 3.11 Use of Sold Products.

#### Reference to further information

- → [Climate Protection](#)
- → [Annual Report 2023, Climate Protection chapter, page 44](#)
- ↗ [2023 CDP Climate Change Response: Risk and Opportunities \(C2\), Business Strategy \(C3\), Targets and Performance \(C4\), Emission Methodology \(C5\), Emissions Data \(C6\), Emissions Breakdown \(C7\)](#)

## SASB-Index

In the table below, information and metrics are disclosed in accordance with the requirements of the SASB classification system for the Resource Transformation Sector - Industrial Machinery & Goods.

Topic	Accounting metric	Code	2023 Disclosure
Energy Management	Total energy consumed	RT-IG-130a.1 (1)	482 GWh <sup>1</sup> → <b>Environment</b>
	Percentage grid electricity	RT-IG-130a.1 (2)	65% → <b>Environment</b>
	Percentage renewable	RT-IG-130a.1 (3)	59% → <b>Environment</b>
Workforce Health and Safety	Total recordable incident rate (TRIR)	RT-IG-320a.1 (1)	0.7 <sup>2,3</sup> → <b>Social</b>
	Fatality rate	RT-IG-320a.1 (2)	0 → <b>Social</b>
	Near miss frequency rate (NMFR)	RT-IG-320a.1 (3)	Not currently disclosed. For information on our health and safety management, please see: → <b>Social</b>
Fuel Economy and Emissions in Use Phase	Sales-weighted fleet fuel efficiency for medium- and heavy-duty vehicles	RT-IG-410a.1	Not applicable to Knorr-Bremse as the Group's products do not consume fuel directly. Respective GHG emissions under Scope 3 Category 3.11 – Use of Sold Products is reported. → <b>Environment</b>
	Sales-weighted fuel efficiency for non-road equipment	RT-IG-410a.2	
	Sales-weighted fuel efficiency for stationary generators	RT-IG-410a.3	
	Sales-weighted emissions of (1) nitrogen oxides (NOx) and (2) particulate matter (PM) for: (a) marine diesel engines, (b) locomotive diesel engines, (c) on-road medium- and heavy-duty engines, and (d) other non-road diesel engines	RT-IG-410a.4	
Materials Sourcing	Description of the management of risks associated with the use of critical materials	RT-IG-440a.1	Key instruments for managing and reporting conflict minerals include the Group-wide, binding ↓ <b>Conflict Minerals Policy</b> and supplier surveys. → <b>Governance</b>

Remanufacturing Design and Services	Revenue from remanufactured products and remanufacturing services	RT-IG-440b.1	Revenue from refurbished products – including labor and spare parts needs – represented around 11% of Group revenue in 2023.  → <a href="#">Environment</a>
<b>Activity metrics</b>		<b>Code</b>	<b>2023 Disclosure</b>
Number of units produced by product category		RT-IG-000.A	Not currently disclosed. Knorr-Bremse creates a wide variety of products and services, thus this metric is not currently in use.  Please refer to our → <a href="#">Annual Report</a> for more details on our products and further information.
Number of employees		RT-IG-000.B	33,319  → <a href="#">Key Figures</a>  → <a href="#">Social</a>

<sup>1</sup> According to the Knorr-Bremse HSE Reporting Guidelines, this figure is based on all sites under operational control excluding sites with fewer than 50 employees, other than production sites or service workshops. This covers around 97% of Knorr-Bremse's employees.

<sup>2</sup> Number of workplace accidents per 200,000 contractually agreed hours of work

<sup>3</sup> Data relating to temporary workers provided by a third party (e.g., "agency employees") who work on behalf and under the control of Knorr-Bremse is included in the figures.

## About the Report

Our Sustainability Report has informed our stakeholders about the sustainability-related activities at Knorr-Bremse since 2011. In addition to providing extensive details of the Company's impact on the environment and society, this report presents key indicators, targets, and measures used by Knorr-Bremse to manage its sustainability activities. The reporting period is fiscal year 2023. Comparison data from previous years is provided where available. The report includes the subsidiaries that are fully consolidated in the Consolidated Financial Statements. Content that applies only to individual parts of companies has been identified as such.

Supplementing this report is the nonfinancial statement pursuant to the CSR Directive Implementation Act at Knorr-Bremse [↗ Annual Report 2023](#). The statement covers the information material for the Group due to its relevance to business activities with regard to the required aspects of environmental, employee, and social matters, as well as respect for human rights and combating corruption and bribery. The audit of the subject matter of the non-financial statement was performed by KPMG Wirtschaftsprüfungsgesellschaft AG as a limited-assurance engagement according to the ISAE 3000 (revised) audit standard.

### Editorial Information

The deadline for publication was April 24, 2024. This Sustainability Report is available in German and English. If the content differs between the two versions, the German online version takes precedence.

### Report Information

#### Contact

We are pleased to assist you if you need further information.

Marcus Hoffmann, Knorr-Bremse AG  
Katarina Vetter, Knorr-Bremse AG

Knorr-Bremse AG  
Moosacher Str. 80, 80809 Munich, Germany  
[Sustainability@Knorr-Bremse.com](mailto:Sustainability@Knorr-Bremse.com)  
Phone +49 89 3547-0 (Head Office)  
[www.Knorr-Bremse.com](http://www.Knorr-Bremse.com)

#### Concept and Design

3st kommunikation GmbH, Mainz

#### Editorial Team

Katarina Vetter, Knorr-Bremse AG  
Katharina Serfas, Knorr-Bremse AG  
Ingo Woelk, [www.ingowoelk.de](http://www.ingowoelk.de), Essen

#### Photography

Getty Images  
Knorr-Bremse  
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