
Corporate Responsibility 2023

LIEBHERR

The Group

Foreword by the shareholders

Dear readers,

2024 is a very special year for us because Liebherr celebrates its 75th anniversary – a milestone that fills us with pride and gives us the opportunity to look back to the start of our success story: in 1949 our grandfather Hans Liebherr developed the world's first mobile tower crane and in doing so laid the foundation for our company. Our parents' generation helped the Group to make significant progress, for which we are very grateful. As true

pioneers they and our grandfather understood how to identify future-oriented technologies, put visionary ideas into practice at the right time and continuously conquer new markets. Their principles and actions are still influencing us and our company today and continue to exist in our core values. Long-term orientation and consistent focus on responsible behaviour, stability and reliability have enabled us to develop into an

international Group, which has played a key role in shaping technological advances in several industries. Our history shows how far we have come in our 75 years – and at the same time inspires us to also accept future challenges and successfully carry on our heritage. These challenges also include developments on a global level, which make us more aware than ever of the importance of sustainability. As a family-run company operating

The family shareholders active in the Group (from left to right): Patricia Rűf, Sophie Albrecht, Jan Liebherr, Stėfanie Wohlfarth, Philipp Liebherr, Johanna Platt, Isolde Liebherr, Willi Liebherr



worldwide, we bear a great responsibility towards our employees, society and the environment, which has been an integral component of our corporate culture for decades. We will anchor sustainable action even more firmly in the Group in the future and disclose our activities in this area through a compulsory annual sustainability report as well as further voluntary reporting on the topic of corporate responsibility. We will accomplish this task with commitment and transparency and consider it another component of our corporate responsibility.

We developed a comprehensive Corporate Responsibility Strategy in order to promote sustainable and responsible action in all areas of our business and to define the understanding of corporate responsibility at Liebherr. We see sustainability as an all-embracing concept that includes economic,

environmental and social factors. We aim to improve the quality of life of present and future generations through innovative solutions, technological progress and responsible action. This also serves our long-term and cross-generation orientation as a family-run company. To implement our Corporate Responsibility Strategy, the fields of action we have identified and core topics require concrete sustainability objectives and measures, which are currently being developed across multiple disciplines. Taking into consideration the existing strategies within the individual product

segments, we will formulate common objectives, strategies and key figures centrally in order to gradually establish an overall concept for the Group.

This publication gives you an insight into the corporate responsibility organisation at Liebherr and the topics the Group is currently working on. While we are aware that there is still a long road ahead of us, we want to continue on our chosen path with the same steadfastness with which our grandfather and parents also drove the Group.



Jan Liebherr
President of the Administrative
Board of Liebherr-International AG



Stéfanie Wohlfarth
Vice president of the Administrative
Board of Liebherr-International AG



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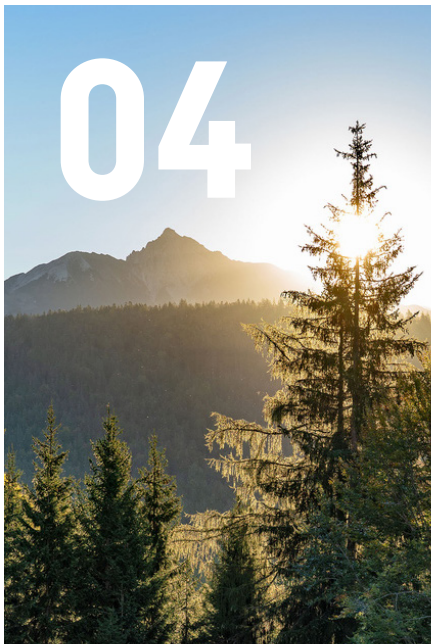
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Unless otherwise specified, all statements in this publication refer to the entire Liebherr Group, for which, generally speaking, the year 2023 was taken as the basis. For better readability the masculine form is used throughout the document. It is a gender-neutral designation, representing all sexes.



01



Overview of the Liebherr Group

The Liebherr Group

Founded in 1949, the Liebherr Group today comprises over 150 companies on all continents and has 53,659 employees.

The Liebherr Group is a global technology company with a broadly diversified product programme. Not only is Liebherr one of the biggest construction machine manufacturers in the world, it also provides high-quality, user-oriented products and services in many other areas. The family-run company was founded in 1949 in Kirchdorf an der Iller, a town in southern Germany. The employees have always aimed to impress customers with sophisticated solutions and to contribute to the advancement of technology. The diverse products of the Liebherr Group are renowned on world markets for their high precision and particularly long service life. With its remarkable innovations and visionary

technologies, Liebherr succeeds time and again in inspiring its customers and redefining the limits of what is possible.

Product segments

The Group's product programme incorporates the segments of earthmoving machines, deep foundation machines, mobile and crawler cranes, tower cranes, concrete technology, material handling technology, mining, maritime cranes, aerospace and transportation systems, gear technology and automation systems, refrigerators and freezers, as well as components and hotels.



Main locations of the Liebherr companies

Focus on customer satisfaction

Liebherr attaches great importance to close cooperation and a trusting partnership with its customers and business partners – their satisfaction always takes top priority. Liebherr has expertise in key technologies for its products, which enables it to develop convincing solutions for even the most demanding requirements. Customers are at the heart of development activities, not only for the product, but also in the variety of services.

Liebherr dares to pursue new things and makes a decisive contribution to the technological history of many industries. Bearing in mind the challenges facing customers in the future, the company sets trends and always goes one step further. To make that possible, Liebherr invests heavily in development each year, conducts applied research for specific problems, and is actively involved in basic research.

Diversified and decentralised

The Liebherr Group includes more than 150 companies on all continents. It employs more than 50,000 employees and, in 2023, achieved consolidated sales of over €14 billion. The Liebherr Group is a decentralised organisation – its holding company is Liebherr-International AG, which exercises executive, coordinating and controlling functions. Independently operating divisional controlling companies are responsible for the operational management of the Group's product segments. These decentralised structures with clear business units allow Liebherr to react flexibly to market signals in global competition and to quickly implement ideas.

Liebherr is always close to its customers worldwide. The high level of diversification also makes the company even more impervious to economic fluctuations in individual sectors or markets.

Family-run company with a long-term focus

The holding company of the Group, Liebherr-International AG, is based in Bulle (FR), Switzerland. All its shareholders are members of the Liebherr family. The family-run company is managed jointly by siblings Dr. h.c. Isolde Liebherr and Dr. h.c. Willi Liebherr, as representatives of the second generation of the family, as well as Sophie Albrecht, Jan Liebherr, Philipp Liebherr, Johanna Platt, Patricia Rüt

and Stéfanie Wohlfarth, as representatives of the third generation of the family.

The family shareholders make up the Administrative Board of Liebherr-International AG, the top decision-making and management body of the Group. Together they decide on all fundamental policies relating to corporate governance, business development, product policy, and financial and investment policies. The children and grandchildren of the company founder Dr.-Ing. E.h. Hans Liebherr who are active in the Liebherr Group ensure continuity in the company management. They guarantee that the Group will remain inextricably linked to the Liebherr family in the future and continues to be managed as an independent family-run company.

Liebherr focuses on the long-term success, sustainable development, stability and reliability. The Liebherr Group is guided by these maxims in all its major business decisions. This is why profits are reinvested and remain in the company. This sound business management provides financial independence – which, in turn, forms the basis for the Group's freedom to make decisions and to act in all its activities. The family shareholders are also committed to this approach.

Successful for 75 years

Since its foundation exactly 75 years ago, Liebherr has developed from a small company based in the Upper Swabia region of Germany into a global Group. The success story started in 1949, when Dr.-Ing. E.h. Hans Liebherr developed the world's first mobile tower crane. This crane was simple to erect on-site, allowing quick and low-cost construction.

The rapid success of this first patented Liebherr crane became the cornerstone of the company. In the years that followed, Liebherr developed a comprehensive range of cranes for various requirements and the range of construction machines grew. Numerous new sectors and markets were opened up and the current diversified organisational structure began to take shape.



Transcending borders

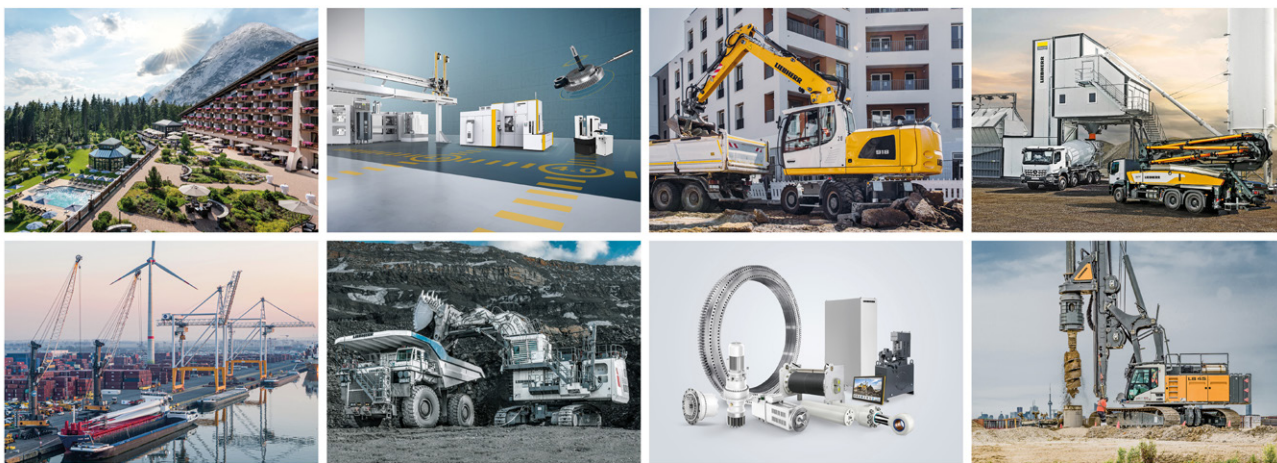
The pioneering spirit of the company founder lives on in many Liebherr employees around the world. They believe: there are no unattainable goals, only goals that cannot yet be imagined.

The people at Liebherr share a common passion: they are passionate about technology and fascinating products. They are motivated to do their very best for customers. The fascinating tasks that they carry out together create a strong team spirit and powerful bond on which they can rely – across all borders and continents. Liebherr encourages everybody to think practically and creatively to overcome the diverse challenges in day-to-day work. Employees have the freedom to pursue ambitious goals and find optimal solutions in a responsible manner. This is why many employees identify strongly with the company and its products, and often remain loyal to Liebherr for many years. An important factor here is also the corporate culture, which focuses on mutual respect, fairness, trust and long-term relationships.

Products and services for diverse sectors

Liebherr's products and services are aimed at various sectors and target groups. These include mainly other companies in the field of refrigerators and freezers and hotels, but also private individuals.

The product range for the construction and mining industry comprises tower cranes, mobile and crawler cranes, hydraulic excavators, dump trucks, duty cycle crawler cranes, wheel loaders, crawler dozers and crawler loaders, deep foundation machines, pipelayers, telescopic handlers, concrete mixing plants, truck mixers and concrete pumps. The Group also offers comprehensive product lines in other areas. This includes ship cranes, floating cranes, offshore cranes, container and mobile harbour cranes, reach stackers and other material handling machines designed specifically for maritime goods handling; in material handling technology, it is represented by specialist machines for scrap, recycling and wood handling; in machine and plant construction, it is represented by gear cutting machines,



measuring technology, gear cutting tools and automation systems; in the field of aerospace equipment, it is represented by landing gears, flight control systems and air management systems; in transportation systems, it is represented by equipment for rail vehicles. As a specialist in the field of refrigerators and freezers, Liebherr offers a broad range of energy-efficient appliances for domestic use. There are customised solutions for professional applications. Liebherr also operates six luxury hotels in Ireland, Austria and Germany.

The range of services is also diverse, and has been developed in full knowledge of the challenges facing customers, and is continuously adapted to meet current requirements. Depending on the sector, Liebherr offers its customers, for example, used machines, machines to hire, project-related consulting services, fleet management solutions, training courses, electronic manufacturing services or the use of test centres. Across the world, Liebherr offers high-performing customer service teams, the Liebherr remanufacturing

programme, and a fast and reliable supply of spare parts. Condition-monitoring solutions, remote services and services for the maintenance, overhauling and optimisation of machines, plants, systems and individual components round off the range of services in many areas.



Corporate management principles

Liebherr is an independent, wholly-owned, family-run company, which is managed as a decentralised Group and has a broadly diversified product programme. The company relies on long-term success, sustainable development, stability and reliability. Over the years and decades, Liebherr has always attached great importance to close working relations and a trusting partnership with its customers and business partners – characterised by fairness and mutual respect.

Value-oriented corporate culture

As a global family-run company, Liebherr bears a huge responsibility towards its employees, society and the environment. Liebherr strongly believes that the company can only achieve lasting success if it accepts this responsibility. For Liebherr, Corporate Responsibility (CR) is a long-term corporate principle, which is also expressed in the Group's [Core Values](#).

In addition to this, the [Corporate Responsibility Policy](#) summarises the Group's understanding of responsibility towards people and the environment. It applies to all Liebherr companies worldwide and supplements existing guidelines and policies of the Liebherr Group, such as the core values and the Code of Conduct. The Group is guided by the ten principles of the United Nations Global Compact on human rights, labour standards, the environment and

anti-corruption, as well as the Sustainable Development Goals of the United Nations. As a globally active Group, Liebherr implements these in a variety of ways.

The Group operates on the principle that its growth should be organic, i.e. achieved through its own intrinsic strength. However, it is also open to useful and practical collaborations or joint ventures in individual cases. With its high level of diversification, internationality and decentralised structure, the Liebherr Group is able to compensate for economic fluctuations in individual sectors and markets. Furthermore, the decentralised structure with manageable, independently operating business units allows the Group to react flexibly to market requirements in global competition.

As a technology leader, Liebherr masters key technologies for its products that enable the company to offer its customers the right solutions, even for the most challenging

of tasks. The services of the Liebherr Group do not end at the product, but also include services that make a real difference. The company is constantly expanding its global presence to be close to customers and always complies with fair standards in procurement and competition.

Management with responsibility

The family shareholders are constantly aware of their corporate responsibility – they are dedicated to long-term success, sustainable development, stability and reliability. Liebherr seeks to realise these maxims in all its major business decisions. To ensure long-term and forward-looking success, profits are reinvested and remain in the company. Sound business management creates financial independence – which, in turn, forms the basis for the Group's freedom to make decisions and freedom to act in its activities. Responsible action and job security are important corporate directives of Liebherr. An above-average capitalisation with a high equity ratio and considerable liquid funds make Liebherr an economically strong company.

The employees are key to the success of the family-run company. The trust placed in them gives them the freedom to act independently and promotes a sustainable work culture. With their qualifications, passion and commitment, Liebherr employees play a key role in shaping the company. Working at Liebherr means total commitment to the cause, breaking new ground time and again, and growing both on a personal and professional level. All employees contribute their own unique ideas to find creative solutions and create something fascinating, regardless of the complexity of their task. This reflects Liebherr's commitment to innovation and continuous improvement, in line with the company's sustainability objectives.

Compliance

Liebherr attaches great importance to conduct with integrity and compliance with ethical standards. This is manifested in strict compliance with applicable laws as well as internal guidelines and Codes of Conduct. Under the hypernym 'compliance', the company summarises not only anti-corruption measures, but also internal instructions and measures for complying with applicable regulations in areas such as competition and antitrust law, foreign trade law, material compliance and IT compliance. This primary focus is regularly reviewed on the basis of regulatory and other developments and adapted if required using a risk-based approach. The Group has introduced comprehensive internal standards and Codes of Conduct in an effort to support management and employees in the implementation of these principles. In addition to this, regular compliance training takes place to encourage compliant behaviour. The principles of conduct for employees are summarised in the [Liebherr Code of Conduct](#). On this basis, Liebherr has also formulated its expectations of suppliers and their obligations in a special [Code of Conduct](#).

Whistleblower system

The key to compliance with applicable laws and internal regulations is the detection of possible misconduct or wrongdoing at an early stage and its immediate investigation. Both employees and external individuals are encouraged to report possible misconduct that violates statutory regulations, the Code of Conduct or other internal regulations of the Liebherr Group. The [whistleblower system](#) is an important component of an effective compliance management system and serves to prevent illegal business practices, human rights or environmental violations as well as their prosecution.

This could include the following areas, for example:

- Economic crimes
- Breaches of antitrust and competition law
- Money laundering offences
- Violation of product safety and conformity requirements, including breaches of safety requirements in civil aviation
- Breaches of personal data protection regulations
- Breaches of applicable embargo and export regulations
- Breaches of the German Supply Chain Due Diligence Act

There are various channels available for reporting such a suspicion. Verbal tip-offs of infringements or violations are accepted in German, French and English. Written tip-offs can be sent by post or electronically to the Chief

Compliance Officer. The written tip-offs can be submitted in a total of nine languages: German, French, English, Italian, Spanish, Portuguese, Bulgarian, Russian and Chinese. Every individual who reports a suspicion is guaranteed their report and their personal data will be handled confidentially. Any disadvantage for or discrimination of or sanctions against informants are not tolerated in the Liebherr Group. However, a deliberate false statement may have consequences under criminal law.

Risk management and internal control system

Opportunities and risks are identified, assessed and controlled at an early stage to ensure the long-term success of the Liebherr Group. This is done using an established risk management and internal control system that is



continuously optimised. In doing so, Liebherr takes into account operational, market-related and legal requirements.

An integrated approach is adopted, whereby all managers responsible for risk management and the internal control systems used in the individual Group companies are involved in the recording, analysis and evaluation of risks. Risks are identified and assessed locally in the individual companies. Measures are then taken to reduce risk and the impact of their implementation is assessed. This localised approach also makes it possible to identify and assess opportunities efficiently.

The information gained about market-related and technological developments is used in opportunity management

to reach decisions about future areas of business and production processes. At Group level, the current risk situation is regularly reviewed and the effectiveness of the systems and processes used is assessed. The internal audit department monitors compliance with Group guidelines and the implementation of the risk management and internal control systems.





02



Corporate responsibility management

Materiality assessment and stakeholders

Liebherr is convinced that it can only be successful in the long term if it takes a sustainable and forward-looking approach. To meet this requirement, the Group engages with its internal and external stakeholders on an ongoing basis through various dialogue formats. It includes their concerns and perspectives in decisions and strategies.

For determining the corporate responsibility of a company, the views and opinions of all relevant interest groups (stakeholders) are usually merged through standardised measures and processes. Liebherr includes all individuals and organisations with whom the company has a relationship and maintains a dialogue. This also includes all those who are looking to engage with Liebherr and are interested in the company and its products. The Group liaises with all stakeholders in a number of ways to facilitate an active and continuous exchange of interests. Within the framework of product and corporate communication, Liebherr engages with customers and business partners to determine customer, product and market requirements. All employees can have an active influence and continually further develop the company with its products and processes. This can be done through corporate co-determination, surveys and interviews among employees, ideas management and the continuous improvement process. On a national level, Liebherr actively

participates in the central industrial associations, which are relevant for the respective product segments. At their sites, the Liebherr companies maintain close personal contact with local municipalities and residents. They exchange information and ideas with them on a regular basis about site-specific issues and requirements. The Group, represented by Corporate Communications, is engaged in dialogue with regional and national media and informs them about company- and product-related matters. In addition, Liebherr maintains long-standing partnerships with various academic institutes and universities in the area of product development and for many technologies.

The key stakeholders of the Liebherr Group

Family shareholders	
Liebherr companies	Over 150 companies in more than 50 countries on all continents
Employees	
Customers	End customers, industry customers, OEM customers, importers, business partners
Suppliers	Production and non-production material
Service providers	IT, logistics, marketing, disposal, product, operation/organisation, service partners
Surrounding area	Education institutions/science, offices and authorities, municipalities, (non-)governmental organisations, consumer organisations, associations and trade unions, banks and insurance companies, medical care and rescue organisations, external individuals, public and media

Double materiality assessment

The European Union Corporate Sustainability Reporting Directive (CSRD) requires companies to perform a materiality assessment. The aim of this analysis is to identify all issues that are relevant for sustainability reporting. It also helps companies to adopt a forward-looking approach in their strategic alignment.

Liebherr conducted a group-wide double materiality assessment for the first time from June 2023 to March 2024. Two perspectives were taken into consideration in the double materiality assessment: The inside-out perspective looks at the significant impact of business operations on people, the environment and society across different periods. This is also called impact materiality. On the other hand, the out-side-in perspective covers all external sustainability factors which have a financial impact on the operation, profitability and long-term viability of a company. This is also referred to as financial materiality.

Definition of the theme set

In the first phase of the project Liebherr identified the relevant stakeholders and defined the course of action to be taken. In this connection, Liebherr also evaluated the materiality assessments already conducted by individual divisional controlling companies. In addition, the content of various surveys and interviews on sustainability issues which Liebherr had received from its business partners in the past were considered. The results were then compared with the CR Strategy adopted by the Group in the first half of 2023 and the requirements of the European Sustainability Reporting Standards (ESRS). This allowed Liebherr to define 29 potential key topics.

The second phase of the project involved the step-by-step evaluation of these sustainability aspects within the framework of two internal online surveys. These surveys were directed at the management of the divisional controlling companies as well as selected international sales companies and various corporate functions. Both the impact materiality and financial materiality perspectives were covered. In accordance with the ESRS requirements, Liebherr set various criteria for assessment in the survey:

- Scale (significance) of the impact, risks and opportunities
- Scope (extent) of impact
- Reversibility (irreversibility) of the respective impact
- Likelihood of impact, risks and opportunities

Results of the materiality assessment

Then the inside-out perspective was combined with the outside-in perspective. An interdisciplinary internal workshop was held for the purpose of analysing the results from the two online surveys in order to determine the key sustainability aspects for Liebherr. These were then adopted by the top decision-making bodies of the Group and comprise the following:

- Greenhouse gases
- Energy consumption & efficiency
- Water
- CO₂-efficient products and services
- Occupational health & safety
- Employee training & development
- Diversity & equal opportunities
- Remuneration & additional benefits
- Product safety & quality
- Customer satisfaction
- Product & process innovation
- Corporate culture & values
- Compliance
- Anti-corruption & bribery
- Data protection & IT security
- Fair competition

Outlook

Liebherr is now actively pursuing the development of these issues as well as the definition and collection of corresponding key figures for the entire Group. In some instances, they have already served as a guide for the preparation of this first sustainability publication. Above all, however, they will significantly influence the sustainability reporting of Liebherr for the 2024 and 2025 business years as well as the strategic alignment.

Corporate Responsibility Strategy of the Liebherr Group

With its CR Strategy, the Liebherr Group, as an economically, ecologically and socially sustainable company, aims to provide innovative solutions and improve the quality of life of present and future generations. As a family-run business, Liebherr sees this as an obligation and an investment in the success of the company in the long term.

Liebherr's CR Strategy was developed in a multistage process. It started in 2023 with a thorough analysis of the status quo in order to identify the current situation of the Group with regard to environmental, economical and social responsibility – taking into account existing obligations and legal requirements. The knowledge gained then formed the basis for defining the vision, mission and strategic fields of actions together with the specialist areas and product segments.

The CR Vision of Liebherr is to become an economically, environmentally and socially sustainable company that offers innovative solutions for demanding tasks and improves the quality of life of present and future generations. The CR Mission of Liebherr specifies how this vision is achieved. The content framework for this is provided by the four fields of action: products and services, environment and energy, employees and society, and sustainable management.

In the field of products and services, Liebherr aims to offer its customers high-quality, innovative and customised products which bring economic benefit to the users. With respect to the environment and energy, the company is continuously improving its environmental footprint by increasingly using renewable energy sources and natural resources responsibly as well as focusing more on a circular economy. For employees and society this means that Liebherr offers secure jobs in an attractive environment,

promotes equal treatment and equal opportunities, ensures safety at the workplace, as well as actively supports the communities in which employees work and live. In the field of sustainable management Liebherr acts in an economically responsible manner by taking a long-term view of financial commitments and financing itself primarily from its own resources. The company attaches great value to behaviour with integrity. This means behaving fairly towards other market participants and complying with applicable laws and internal standards.

Liebherr has identified key topics in each field of action, which serve as strategic guides for the Corporate Responsibility Strategies of its product segments and companies.



Fields of action	Products and services	Environment and energy	Employees and society	Sustainable management
Key topics	Reduction of pollutants and harmful substances, especially greenhouse gas emissions	Use of renewable energies and optimisation of energy efficiency	Promotion of occupational safety	Healthy and sustainable growth
	Maintain and improve product safety	Development of circular economy	Promotion of equal opportunities	Question and further develop business models
	Maintain and improve service and product quality	Careful use of water as a resource	Promotion of education and training	Stable and sustainable value chains
		Reduction of waste and pollution	Supporting the communities in which we live and work	Compliance with laws and regulations

The Sustainable Development Goals (SDGs) as a guideline for Liebherr's Corporate Responsibility Strategy



As the holding company of the Liebherr Group, Liebherr-International AG supports the Sustainable Development Goals, adopted by the United Nations in 2015, and which form the basis of Liebherr's Corporate Responsibility

Strategy. To implement this strategy, the key topics of each field of action will be linked to specific, group-wide sustainability objectives and measures in the future.

Corporate responsibility organisation



The Liebherr Group's CR organisation provides the framework for the management and monitoring of sustainability-related issues. It helps to establish a clear understanding of corporate responsibility within the company.

The role of Liebherr-International AG

The overall strategic responsibility for CR lies with Liebherr-International AG, the Group's central holding company based in Bulle, Switzerland. Its top executive body is the Administrative Board, which is made up solely of members of the Liebherr family. The Administrative Board is the highest decision-making body in all areas and thus also in the field of corporate responsibility.

CR Advisory Board

The CR Advisory Board is the highest internal advisory body. Its members include the Executive Board of Liebherr-International AG, the managing directors of the divisional controlling companies as representatives of the product segments and the representatives of the relevant corporate functions, such as IT, Purchasing and Group Communication & Brand Management.

The board meets four times a year and discusses current sustainability-related topics so that an exchange can take place between all the bodies involved. To this end, the representatives of the individual product segments report on CR-related activities and tasks in connection with current customer requirements, the competitive situation and relevant regulations.

CR Core Team

The regular meeting of the CR Core Team is an important exchange platform for all CR managers in the Group and the CR-relevant central departments at working level. It creates synergy effects within the Group and drives important sustainability issues. In addition, the CR Core Team receives work assignments from the CR Advisory Board and supports group-wide sustainability projects as required.

Expert groups for key topics

Expert groups are made up of experienced specialists from various product segments and corporate functions, allowing different perspectives can be incorporated and the requirements of all areas to be heard. Their aim is to develop important corporate responsibility programmes and measures, exchange expertise and pass on the results to the relevant departments.

Regulations such as the Corporate Carbon Footprint (CCF), Carbon Border Adjustment Mechanism (CBAM) or the German Supply Chain Due Diligence Act (LkSG), for example, are currently being dealt with in expert groups.

CR reporting

The Liebherr Group is currently working on developing comprehensive CR reporting, starting with the current publication as a pilot project. CR reporting is managed by a project organisation, led by a steering committee. It is made up of representatives from Liebherr-International AG as well as managers from selected divisional controlling companies. This committee meets once a month and is informed of the respective project status. If necessary, other measures are also decided.

Outlook

The Liebherr Group is currently revising the entire structure of its CR organisation. The planned reorganisation is expected to be completed by 2026.





03



Product responsibility

Product responsibility

For Liebherr, to be fit for the future means facing challenges in a flexible and creative manner. The company manages time and again to impress its customers with sophisticated and intelligent products and solutions that bring tangible and sustainable benefits.

Liebherr has been active in many sectors and industries for decades and therefore boasts in-depth expertise in the development, production and maintenance of excellent products. Liebherr has actively shaped the history of technology in many fields with numerous innovations and forward-looking developments.

The broad diversification of the Group means that synergies can also be exploited across sectors. The mastery of important key technologies enables the company to offer customised solutions for different requirements.

Liebherr sees constant change as an opportunity and the company is actively involved in important transformations: Liebherr machines are used worldwide for building or re-designing necessary infrastructures. Technologies developed by Liebherr support defossilisation and the digitalisation of entire industries. And the Liebherr products themselves are also experiencing changes: they are going digital and have lower emissions.

Customer satisfaction

Liebherr always focuses on customer satisfaction in all of its activities. Customer satisfaction does not just extend to the company's products but also to services that make a real difference. The relationships with customers and business partners, often spanning decades, are characterised by trust and fairness.

Liebherr is close to its customers with a global presence and continues to expand its sites. The Group markets its products and services through a global network of its own sales and service companies as well as reliable, long-term partner companies. Customer wishes are implemented quickly, reliably and flexibly. By combining comprehensive knowledge and outstanding technology expertise from different specialist areas, the company is able to also develop tailored solutions.

Even after the sale, customers can still count on Liebherr's support. They have access to a comprehensive range of spare parts, repair, reconditioning and service offers, which for many products are also complemented by digital solutions. The targeted and regular training of service specialists also always includes current environment and disposal topics. An international complaints management system enables short communication paths and quick and effective troubleshooting.

Product and technology development

The Group conducts applied research to solve specific problems, as well as ongoing basic research. In doing so, it always aims to contribute to the advancement of technology. In the 2023 business year, Liebherr invested a total of €634 million in research and development. At the same time, numerous scientific projects were also started or continued with universities, colleges and institutes.

Research and development activities at Liebherr focus on alternative drives, digitalisation and autonomy. Existing technologies are continuously developed and numerous new machines, components and solutions are also added to the broad product portfolio every year.

Liebherr adopts an open approach to technology in order to support its customers in achieving their emissions targets and meeting current and future environmental standards. Some of the topics researched and developed at Liebherr include electric drives, hydrogen fuel cells and alternative fuels for combustion engines, for example hydrogen and ammonia.

2023 saw not only the sale of the first battery-electric Liebherr wheel loader, the L 507 E, but also the delivery of the new LH 80 M High Rise Industry electric material handling machine. Liebherr expanded its product portfolio in the maritime cranes product segment with the CBG 500 E, the first all-electric floating transshipment crane. In parallel to this, the first all-electric heavy-duty ship crane, the LS 800 E, is currently being manufactured.

While most of the rubber-tyre gantry cranes (RTG) produced in 2023 are powered by a cable reeling drum or electric busbar system, Liebherr has now for the first time combined busbar technology with fully automatic RTGs. For this purpose, Liebherr developed a battery system for the electric

cross-traffic of RTGs at its Killarney site in Ireland. The system supplies the crane with power, while it moves between various container stackers and busbars. For terminals where all-electric operation is not yet available, Liebherr offers a capacitor energy storage system for diesel-powered cranes, which reduces fuel consumption by up to 40 %.

In 2023, Liebherr introduced an electric 'trim-list-skew' system for ship to shore cranes. It controls the angular orientation of the container and replaces the previous hydraulic system. Together with optimised hydraulic systems in the machine house, the use of hydrocarbons can thus gradually be reduced near marine environments.

The new 600-tonne hydraulic excavator R 9600 G8 was equipped with the

Liebherr Power Efficiency energy management system. This system makes it 20 % more productive than the predecessor model, consuming 18 % less fuel, which corresponds to an annual reduction of 1,465 t of CO₂ emissions. Liebherr offers a Trolley Assist system for its mining trucks, which uses an overhead catenary system to connect the electric drive system to the power supply of the mine. This technology was used in 2023 with T 236 mining trucks in the Erzberg mine in Austria. It enabled a 65 % reduction of total fuel consumption at the operation site. In this case, a total of 8,000 t of CO₂ emissions can be saved per year.

In the components product segment, Liebherr prepared for the series production of the Liduro Power Port energy storage system for mobile power supply, which is scheduled to begin in

2024. In the concrete technology product segment, Liebherr developed a new generation of mixing plants, which were put into operation for the first customers in 2023. The new Mobilmix and Betomix series can be fully put together from a modular system. The focus is on energy and cost efficiency: compared to their predecessor versions, they require up to 30 % less energy. Less cement is also required with the more accurate dosing of the ingredients in concrete production. This saves CO₂ because cement production is energy-intensive.

In the aerospace product segment, in 2023 there was also a focus on alternative technologies for generating electrical energy to propel future aircraft and supply them with electricity.



A test bench was installed at the Toulouse site in France that uses fuel cells to generate electrical power for the non-propulsion systems of next-generation aircraft. Liebherr entered into an agreement with Eve Air Mobility to supply electro-mechanic actuators for the flight control system of the Eve eVTOL aircraft. Eve is a subsidiary of the Brazilian aerospace company Embraer S.A., which specialises in the development of the electric vertical take-off and landing aircraft (eVTOL).

Liebherr made a quantum leap in energy efficiency in the field of refrigeration and freezing, with the innovative patented technology for the cold insulation of its appliances. It uses a vacuum in combination with finely ground lava rock (perlite) for insulation instead of petroleum-based PU foam. The natural and renewable raw material can be recovered at the end of the product life and reused in new appliances without significant processing. Liebherr can also design the walls of the appliances one-third thinner than the walls of a conventional foam-insulated appliance, resulting in about 25 % greater capacity. Following a research period of ten years, the first vacuum perlite models appeared on the market in 2023 with the name BluRoX. The power saving enabled Liebherr for the first time to manufacture freezers of energy efficiency class A and B in accordance with the EU label.

The Group also invested again in the expansion of its digital platforms and solutions to give customers greater reliability, convenience and efficiency when operating machines. For example, the separate Tower Crane Portal was fully integrated into the MyLiebherr customer portal. In addition, Liebherr further developed the Crane Finder for mobile and crawler cranes, which can be used to identify the appropriate crane for a lifting task, as well as the MyNotifier app, which provides crane operators with infor-

mation on wind effects or the status of the high-voltage battery and the charging process. Development of the pioneering Tower Crane Operating System 2 crane control for a large number of fast-erecting cranes also continued. Liebherr developed the MyGuide for Earthmoving app to give customers comprehensive product information and news from the earthmoving and material handling technology product segments. The app is connected to the product configurator via an interface, and also offers options for contacting Liebherr's sales and service partners.

In addition to alternative drives and digitalisation, the Group also focused on the area of autonomy and automation in 2023. For example, Liebherr equipped the latest series of mobile harbour cranes with a crane control called Master V, on the basis of which future assistance and semi-automatic systems can be integrated. Liebherr is also involved in the German research project ZIRKEL, which deals with the development of production technologies for the circular economy in electromobility. The main goal here is to increase productivity and efficiency in the disassembly, separation and dismantling of traction battery systems and electric motors. Within the framework of this project, Liebherr is developing disassembly processes for battery packs of electric vehicles. These processes can achieve high recycling rates and establish carbon-neutral battery production throughout the process chain for the long term. In the field of automation, the LiReCon teleoperation unit was also further developed and tested in 2023. The innovative system allows various machines to be operated from a single control panel. Crane operators can, for example, conveniently change from one crane to another from a construction site container in order to perform a lift. LiReCon increases efficiency and transparency on complex construction sites and supports the optimisation of processes.

View of the entire product life cycle

Research and development activities at Liebherr are guided by sustainability issues, which are also taken into consideration across the entire product life cycle. An overall goal is the continued improvement of the energy efficiency of the products in order to reduce CO₂ emissions. This is supported, for example, by more efficient drive systems, the use of alternative fuels, the electrification of machines, energy recovery systems, lightweight construction, process optimisations or low-wear product design.

At the same time, the focus is on offering particularly durable products. This influences the development and procurement strategies, as well as the production and use of the machines, devices and systems. High-quality materials, a high reparability of the products and the availability of spare parts for many years ensure the longest possible useful life. In addition, important components installed in the machines are integrated in a reconditioning programme. This maximises the useful life of components, which not only reduces operating costs, but also the frequency of replacement. Old and worn parts are sent to recycling sites in the respective market.

Liebherr also refurbishes construction machines and maritime cranes as used machines, giving machines a second and third life cycle in different target markets. As Liebherr machines are largely – many even up to 90 % – made from ferrous materials, their recycling rate is quite high.

If there are supply bottlenecks for spare parts, for example for older cranes, parts are also specifically repurchased and retrofit kits are offered in order to keep the machines operable for as long as possible.

In the maritime cranes product segment, Liebherr has developed a lifting system to quickly extend the height of



older cranes so that they can serve newer, larger container ships. This extends the range of application of existing cranes and replaces the costly and resource-intensive construction of new cranes. A further focus is on the use of sustainable materials for transport and in production. Here reusable wood and metal racks and wooden pallets are used, packaging is made from (recycled) cardboard and paper is used as filling material. There are also special requirements for supplier packaging. Where possible, components are designed in product development so that an optimal transport concept can be used later. This reduces the number of trucks required and saves CO₂. Operating manuals contain additional information about the safe disposal of operating materials and lubricants, batteries as well as the machine itself, and warn of the dangers of improper use.

In the field of refrigerators and freezers, the take-back and recovery of electrical appliances in the EU is regulated by law in the Waste Electrical and Electronic Equipment (WEEE) Directive. Introduced in 2006, this gives manufacturing companies the legal obligation to take back old appliances. To this end, Liebherr cooperates with private disposal companies in Europe, and in some instances also uses state take-back and recycling systems.

Digitalisation

Liebherr aims to realise its digital transformation strategy in the company and to develop this process in numerous other industries. Across all product segments, specialists at Liebherr are working on digital innovations and more and more new opportunities for networking machines, appliances or components and the associated systems. Data security, data governance

and cybersecurity play a key role here. With the provision of application-specific data, the Liebherr digital experts also support development engineers in accelerating the introduction of CO₂-optimised machines.

For Liebherr, digitalisation is not an end in itself. The aim is to improve the customers' processes and the efficiency of how they use their products. The MyLiebherr customer portal is the central gateway to Liebherr's digital world. It contributes to the expansion of digitalisation and paves the way for new, digital business models. Having started as a spare parts portal, it has now become a contact point with over 125,000 active users and more than 60,000 customers through the integration of an increasing number of applications. They visit the portal, for example, to book training sessions, acquire licences or purchase spare parts, or to use applications for different machines.

In 2020, Liebherr opened the Digital Development Center in Ulm in southern Germany as a central organisation. It works on technology and digitalisation based on the needs of customers. As an internal service partner, the teams contribute extensive knowledge in the areas of IoT (Internet of Things), cloud solutions, data science and mobile applications. The aims are to improve the speed and efficiency of digital development within the Group, to support the standardisation of digital technologies and to attract talent for digital development.

Quality management and product safety

The Group attaches great importance to the quality and safety of its products. Every individual product meets the highest requirements, and components are tested and selected for their durability. Liebherr subjects all devices and components to continuous quality control throughout the production process.



Qualified and highly trained employees help to maintain the high quality standards.

At present, the quality management systems at 41 of the 46 production and/or repair sites worldwide are already certified in accordance with DIN EN ISO 9001, which equates to a rate of 89 %. Another site is currently undergoing the certification process. The Liebherr companies base their quality assurance measures on the processes prescribed in the ISO standard. The measures are monitored by means of internal and external audits and assessed on the basis of performance indicators. Improvements are defined and implemented as required. Some of the quality assurance measures

include, for example, the selection and review of suppliers, incoming and outgoing goods inspections, non-destructive testing of weld seams, dimensional inspections, acceptances or load tests. Another key component of a functioning quality management system is the advanced training and instruction of employees.

Liebherr works closely with experts and authorities to ensure that products and services meet the decisive legal requirements and safety standards. In addition, there is participation in relevant standards committees such as the European Committee for Standardization (CEN) and the International Organization for Standardization (ISO).

The Liebherr product segments have set up expert groups locally or across different locations, which deal with the global standards and norms applicable to the respective products. Internal processes and training ensure that all employees are aware of and comply with the relevant laws and regulations. Specialised software assists in implementation and documentation.

As Liebherr is also involved in machine construction, the company must observe, for example, the European harmonised standards in accordance with the 2006/42/EC Machinery Directive. The directive aims to guarantee the health and safety of individuals who use, install, service or repair machines.

It applies to machines manufactured in or imported to the European Union.

The Liebherr product segments affected by the directive compile a risk assessment for each machine based on the applicable product standard. The safety requirements of the product standards are thoroughly observed by Liebherr in order to minimise product risks. Voluntary conformity assessments are also carried out by state-authorised organisations. These issue independent certificates of conformity if the technical design of the machines corresponds to the relevant product standard.

Non-European directives are equally important. In countries such as the USA or China, for example, third-party certification by independent experts is required.

In the aerospace and transportation systems product segment, Liebherr works closely with civil aviation authorities on product safety. In Europe this is, for example, the EASA (European Aviation Safety Agency), in the United States of America the FAA (Federal Aviation Administration), in Canada the TCCA (Transport Canada Civil Aviation) and in China the CAAC (Civil Aviation Administration of China). They all issue rules and regulations and award certificates which are valid for the respective regional air traffic. This ensures that international safety standards are harmonised.

In the aerospace product area, Liebherr has all civil quality and airworthiness certificates required to perform its tasks. Including, for example, AS9100 or EASA Part 21 J, certifications for design organisations within the EU. Liebherr complies with the highest standards with respect to quality, safety and environmental protection. All processes are continuously monitored and improved.

The transportation systems product area also has all relevant certifications, such as in accordance with the European standard EN 15085, which deals with the welding of railway vehicles and components, or in accordance with DIN 6701, which ensures the quality and safety of bonded components in the construction of railway vehicles.

Liebherr also manufactures refrigerators and freezers for domestic and professional use. Again here, all appliances are extensively examined in the development and production phase for any subsequent health and safety risks for users. Representatives from development, product and quality management, purchasing and production are involved. Within the framework of product audits, appliances that are ready for shipping are randomly selected and checked according to defined criteria, and the results are evaluated. An external testing institute checks the safety of all appliances in the course of product development, taking into account the respective local standards and regulations of the target market.

In the components area, a working group made up of representatives from all companies of the product segment exchanges information on product safety. A central organisation for product safety and material compliance within the product segment is currently being set up.

The product segments of the Group have defined different processes depending on requirements to address any problems with products that have already been delivered and are in use. This means that all affected parties such as customers, partner companies, suppliers or, if necessary, authorities can be informed immediately and appropriate measures can be introduced. All incoming queries and complaints about products are evaluated for customer service. As a result, risks

can be identified quickly and suitable measures adopted depending on the classification. These range from repair instructions to recalls or a technical modification of the product, if necessary. In many cases the service technicians are also on-site with the customers and can quickly eliminate safety risks or replace safety-related components if needed.

In order to guarantee the longest possible product life cycle, it is particularly important to Liebherr that customers use the products correctly and are aware of and take into account the relevant safety risks. Comprehensive instructions are already provided during the handover of the machines and appliances. Customers learn how to prevent damage and premature wear and keep energy consumption as low as possible. This also includes information on the supply and availability of spare parts as well as information on how the use of greases, oils and lubricants can be kept as low as possible. Related documentation and operating instructions contain all important safety instructions, depending on the area of application, for example for assembly and dismantling, use and maintenance of the product. Liebherr also offers its customers advanced product training and training on the operation and maintenance of the machines.

Cybersecurity of the products

Together with its partner companies, Liebherr works continuously to also further develop the security of cyber-physical products to effectively protect customers and partners from cyber attacks. In doing so, Liebherr pursues a security-by-design approach. This means that security considerations already start in the planning phase of these products and run like a thread through the entire development, implementation and maintenance phases.

If potential security vulnerabilities are identified by external security researchers, partner companies, customers or internal sources, Liebherr's own Product Security Incident Response Team (PSIRT) steps in to fix these as quickly as possible. This relates to both the hardware and software of corresponding Liebherr products. The PSIRT works closely with engineering and development teams to respond to potential security

incidents. This includes the development of a suitable response plan and ongoing communication with the people who provided the information.

Liebherr encourages all parties to report identified security vulnerabilities in connection with the products. These can be researchers, industry associations, Computer Emergency Response Teams (CERTs), partner companies or other sources. The

interests of the persons providing information are taken seriously, including anonymous reports.

The disclosure of security vulnerabilities should be well coordinated. Public disclosures made too early may entail unnecessary risks for customer systems. Security vulnerabilities must therefore be initially treated as strictly confidential until a solution has been developed.







04



Environmental and energy management



Operational environmental and energy management

Operational environmental and energy management is organised at a local level within the Liebherr Group. Related topics are implemented worldwide in the 13 product segments according to the specific requirements of sites and production processes as well as their respective local legislation. There are officers for environmental and energy management at most sites, who engage with each other as required. Working groups look after the development of larger cross-regional measures and objectives.

The Liebherr companies ensure compliance with local official regulations as well as laws and regulations in the environment and energy areas through defined processes. This concerns aspects such as air and water pollution, waste disposal, energy efficiency or the protection of natural resources. The implementation of regulations at the individual subsidiaries is regularly reviewed and documented by independent external and internal bodies. The overall goal of Liebherr is to keep the environmental impact of production sites and of products as low as possible.

In order to achieve and document continuous improvement of the environmental performance, 19 of Liebherr's 46 production and/or repair sites (41 %) currently have an environmental management system certified in accordance with ISO 14001. Fifteen other sites (33 %) are already at the implementation stage or are planning the introduction. In order to also be able to systematically control energy efficiency, the energy management system of 15 production and/or repair sites (33 %) is also certified in accordance with ISO 50001, 12 more sites (26 %) are at the certification stage or

planning the introduction. At the moment Liebherr is carrying out an analysis in order to examine the gradual extension of the certifications to other relevant sites.

Legal registers have been created in many product segments, which contain the relevant legal requirements in environmental and energy law. These are regularly updated and adapted, in some instances by external environmental experts or other service providers.

Material compliance – fulfilling material-specific environmental requirements

All over the world, economic regions apply complex rules to control and monitor the use of potentially harmful materials in products. These range from restrictions through to complete substance prohibitions. A current example is the imminent restriction of the use of lead in the EU. In 2023, the European Chemicals Agency (ECHA) and the U.S. Environmental Protection Agency (EPA) initiated processes which aim at banning a large chunk of a certain group of substances: poly- and perfluoroalkyl substances (PFAS). These are often referred to as forever chemicals as they have an extremely long life and they do not degrade or break down. The waterproof, grease-proof and stain-resistant substances are chemically and thermally highly stable. They are used in the engineering industry, e.g. in seals, valves and hoses. However, as they pose risks for human or animal health and the environment, even greater restrictions on the use of these substances are expected in the future.

To make this possible, continuous adaptation to new regulations is required. In addition to the applicable legislation, future regulations must also be anticipated and their potential impact on the products and their life cycle assessed. For this reason, Liebherr has set up its own internal organisational structure for material compliance. An expert team from various specialist disciplines, such as Purchasing, Product Conformity, Law and IT, was established. It monitors the development of new regulations. The team reports to the Executive Board of Liebherr-International AG as well as to the managing directors of the individual product segments and develops proposals. Within the product segments, the specific impact of new regulations is analysed and, if required, alternatives to the used products are identified and tested.

The meetings of a committee comprising members of the expert team as well as representatives of the respective product segments serve as a central communication platform. The committee discusses requirements, makes recommendations for action and provides tools for documentation or eLearning, for example. Supplier companies and employees of the Group obtain comprehensible information on relevant legislation in a compact format.

Energy consumption

The product segments of the Liebherr Group implement different climate protection measures at their respective subsidiaries. A total of 39 sites have already changed over to green power, and more sites are planning to do so. Moreover, many sites, for example in Germany, Austria, Spain and Thailand, have photovoltaic systems. Other subsidiaries are planning the installation of such systems or are examining the potential to further expand existing installations. These measures help boost the company's resilience as they guarantee the in-house generation of electricity and can compensate for increasing energy prices.

In order to further reduce energy consumption and increase energy efficiency, existing buildings are also being renovated to optimise their energy performance. Measures include insulation or the installation of energy-efficient lighting systems.

Many subsidiaries are also concentrating on changing over from natural gas to renewable energies. For example, in Nenzing, Austria, the heating system for the entire site is at the moment gradually being converted from a natural gas boiler to a groundwater heat pump. The installation of heat recovery systems is planned in the course of replacement investments, wherever this is technically and economically viable.

Greenhouse gas emissions

Individual product segments have already defined specific targets and measures for the systematic reduction of climate-relevant emissions in their business area. A comprehensive strategy and long-term objectives for lowering these emissions for the entire Liebherr Group are currently being developed in different committees.

In an initial step, the Corporate Carbon Footprint expert group was established within the corporate responsibility organisation at the start of 2022. It comprises members from different specialist areas in order to integrate as many viewpoints as possible when analysing the topics. The specialist areas include CR, Technology, Health and Safety, Design and Development, Strategy, Accounting, Production, as well as Engineering Services. The expert group was tasked with defining the principles for calculating the Corporate Carbon Footprint based on the Greenhouse Gas Protocol. It coordinates the collection of necessary data points and calculates the emissions.

Scope 1 emissions are direct greenhouse emissions that occur from sources that are controlled or owned by the company. This covers emissions from the stationary combustion of fossil fuels for energy generation or from stationary combustion engines, from mobile combustion when operating vehicle fleets (gas or diesel) or from industrial processes. Fugitive emissions from leaks of greenhouse gases are also included here. By contrast, indirect scope 2 emissions are associated with the purchase of electricity, steam, heat or cooling.

The initial calculation of the entire scope 1 and scope 2 emissions of the Group was made for 2022. For the 2023 data, the expert group developed a tool to achieve even higher data quality and perform plausibility evaluations.

Liebherr is still working on the calculation of the scope 3 emissions. This category includes indirect emissions from the supply chain and product use, i.e. emissions that occur within the value chain. The aim is to consolidate the data centrally, instead of collecting the information at a local level as before. Data points, such as purchasing data, are calculated by central Purchasing, sales figures by central Controlling of Liebherr-International AG. This means that all data comes from the one source and can be checked for completeness and quality by nominated experts. Another challenge is that some necessary data points are new and must first be integrated in existing processes. This applies, for example,

for the Product Carbon Footprint of purchased goods or the emissions during the transport of goods.

The results are expected to be available for 2024 in the Group's Corporate Responsibility Report.

Waste and recycling at the sites

The Liebherr companies pursue various measures to reduce the amount of waste generated locally, promote recycling and implement sustainable disposal practices. The entire development process of products and services is taken into consideration with the aim of minimising negative environmental impact.

Depending on the region and product segment, Liebherr companies set different priorities in waste management. Waste is collected separately all over the country and recycled where possible. Disposal processes are continuously optimised and cycles are closed whenever and wherever this is appropriate in order to limit the loss of raw materials. In order to reduce packaging waste, there is an increasing use of reusable and returnable packaging. Moreover, care is taken to ensure that hazardous waste such as solvents, acids, alkalis or pigment pastes, as well as the emissions of volatile organic compounds, is kept as low as possible.

Energy consumption according to scope 1 and scope 2 in 2023

Energy sources	Energy consumption in 2023 (MWh)	Scope 1 and scope 2 (tCO ₂ e)	Scope 1 (tCO ₂ e)	Scope 2 (tCO ₂ e)
Fuels without natural gas	337,928	75,346	75,346	0
Natural gas	205,244	37,238	37,238	0
Electricity	424,183	55,370	0	55,370
Other	27,773	6,434	3,780	2,654
Total	995,129	174,389	116,364	58,025

Scope 1 and scope 2 compared to the previous year 2022

Type of emissions	tCO ₂ e 2022	tCO ₂ e 2023
Scope 1	118,380	116,364
Scope 2, site-based	104,688	122,507
Scope 2, market-based	70,954	58,025
Total	189,334	174,389

Energy consumption by energy type 2023

	Energy consumption in MWh
Total energy consumption in connection with own company	995,129
Total energy consumption from fossil fuels	606,295
Total energy consumption from nuclear sources	52,354
Percentage of total energy consumption from nuclear sources	5.3 %
Total energy consumption from renewable sources	336,479
Fuel consumption from renewable sources	32,556
Consumption of purchased electricity, steam, heat and cooling from renewable sources	288,040
Consumption of self-generated renewable energy, which is not used as fuel	15,883
Percentage of total energy consumption from renewable energies	33.8 %
Fuel consumption from coal and coal products	0
Fuel consumption from oil and petroleum products (without electricity)	214,950
Fuel consumption from natural gas (without electricity)	233,570
Fuel consumption from other fossil sources (without electricity)	85,041
Consumption of purchased electricity, steam, heat and cooling from fossil sources	148,033
Percentage of total energy consumption from fossil energy sources	60.9 %
Non-renewable power generation¹	19,835
Production of renewable energy (photovoltaic)	15,883

¹Electricity and heat from combined heat and power unit (Oberopfingen site, Germany), as well as electricity from engines (Bulle site, Switzerland).

All sites are constantly on the lookout for technological alternatives for existing production processes in order to minimise the volume of waste generated. At the Biberach site in Germany, for example, the tower cranes product segment equipped the paint shop with a new two-component mixing plant and changed the painting process to an electrostatic process which uses up to one-third less paint. In Pamplona in Spain the production process in the paint shop was also reorganised in order to reduce solvent waste. It is currently being examined how to further improve the paint process and minimise the associated emissions.

There is an increasing use of reusable packaging for transporting products. Wooden pallets are returned and also

reused, plastics are being replaced with paper packaging, for example. Service providers for the disposal of non-reusable waste are selected carefully and the disposal conditions are agreed on a contractual basis. The proper disposal of hazardous waste in particular is being monitored.

Water consumption

The various product segments of the Liebherr Group use a variety of measures at sites with high or extremely high water stress to reduce water consumption in the respective regions. The mining product segment, for example, installed rainwater collectors at larger sites in Australia in order to use the collected water for maintenance activities. At the Colmar site in France, it was examined what a water recycling

system might look like, which is used to test a sprinkler system. The water is no longer drained, but fed back to the storage tank of the sprinkler system. In the tower cranes product segment, Liebherr was able to save a considerable amount of water through the monitoring of water consumption and rectification of leaks at the Pune site in India.

Liebherr has already examined many production processes for their water-saving potential. The refrigerators and freezers product segment was able to reduce consumption through targeted water management. Measures such as the reduction of the water requirement during the paint preparation and the recycling of process water in the powder-coating facility have helped



Liebherr-Hausgeräte Ochsenhausen GmbH
(Germany)

here. Since 2013 water has been pumped from a deep well at the Lienz site in Austria and used for cooling the production processes. The well water is also used for watering green areas and for cooling the server rooms, other applications are currently being examined. In addition to the public water supply, well water is also used at the Radinovo site in Bulgaria.

The gear technology and automation systems product segment has installed a new demineralisation system in the electroplating plant at the Ettlingen site in Germany. The use of demineralised, ultrapure water reduces water consumption and at the same time improves the quality of the electroplating processes. In Ehingen, Germany, the mobile and crawler cranes product

segment has introduced a water recycling system for the crane wash bays in order to treat wastewater. In the long term it is planned to operate these wash bays by means of a cistern. Minimum lubrication is used for boring machines in the mechanical machining process in an effort to lower water consumption.

The Liebherr companies are also applying various methods to reduce the water requirement in toilets or in office and factory canteens. Some measures include, for example, the installation of waterless urinals, water-saving fittings and the use of cisterns for rainwater collection.





05



Employees and society

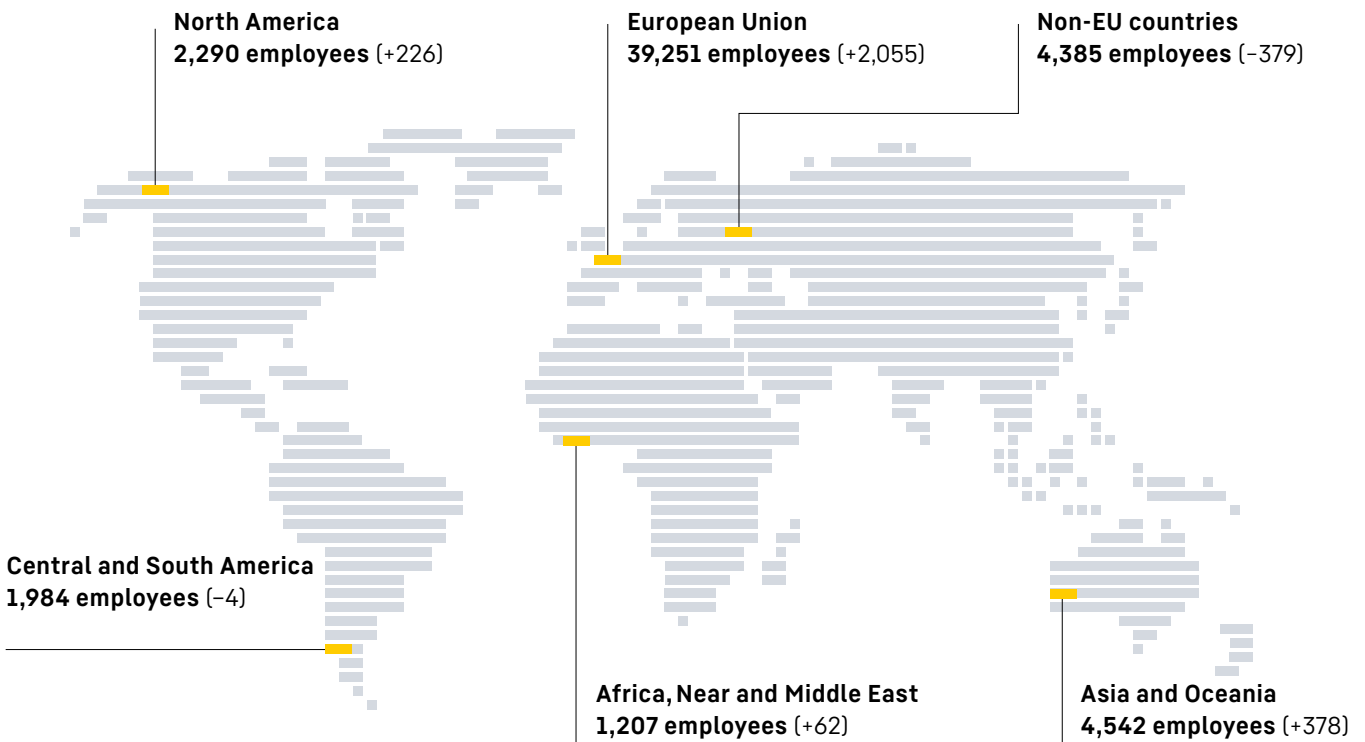
Employees and society

The Liebherr Group relies on highly motivated, competent employees and offers secure jobs in an attractive working environment with flat hierarchies. Employees enjoy responsible tasks and a high degree of autonomy. Entrepreneurial behaviour is supported and employees are continuously encouraged with extensive vocational and advanced training programmes. These measures help ensure that employees remain loyal to the company for years to come and are key factors for employee satisfaction and securing the success of Liebherr.

In the course of the long-term future orientation of the Group, processes and structures as well as role profiles are continually adapted and further developed. The qualification, passion, commitment and determination of the employees to achieve great things for customers are an important part of what shapes the company. Part of Liebherr's tradition as a family-run company and employer is a partnership based on mutual respect, fairness, trust and long-term relationships.

Number of employees and internationality

The number of employees increased again in the business year. At the end of 2023, there were 53,659 employees working at Liebherr all over the world, this corresponds to a year-on-year increase of 4.6 %. The sharpest increase was in the European Union, whereas the number of employees in non-EU countries fell slightly. The number of employees rose in North America, Africa, the Middle East, Asia and Oceania.



Liebherr is regarded as an attractive and reliable employer. Internationality is a key component of the company organisation and an essential part of the corporate culture. Variety and a high level of diversification are firmly anchored in the Group's core values and the employees play an important role in shaping the company.

Human resources policy and strategy

Human resource management at Liebherr is organised at a local level. Strategic and operational tasks are divided between the Human Resources (HR) corporate function and the HR organisations of the divisions and companies. This also enables short-term adjustments to individual legal, corporate and social requirements of the different countries. The personnel work (training, human resource management, etc.) of the divisions and companies is organised by the responsible HR departments according to the individual circumstances. This primarily concerns local, operational personnel work.

Diversity and inclusion

Liebherr attaches great importance to a positive and inclusive corporate culture and does not tolerate any unequal treatment on the basis of age, sex, culture, religion, language, nationality, sexual orientation, political world view, disability, marital status or ethnic origin. The company endeavours to ensure equal treatment in recruitment, remuneration

as well as staff development, and is guided solely by professional criteria. Liebherr fulfils its duty of care towards severely disabled employees and employees with reduced capacity to work whenever possible and offers family-friendly and age-appropriate job opportunities.

Vocational and advanced training

Vocational training and the professional development of employees is organised by the Human Resources departments. For example, Liebherr offers a wide choice of approximately 60 technical and commercial apprenticeships as well as 40 dual courses of study in German-speaking countries. Some of the general measures include annual performance reviews where tasks and objectives are agreed and training measures are defined. In Germany, Liebherr provides financial support for part-time training or a paid training period.

Talent management and leadership development

The Group Talent and Leadership Development area in the HR corporate function is responsible for the group-wide organisation of talent management and leadership development. The global trainee programme offers graduates the opportunity to get to know Liebherr from different perspectives. Managers undergo basic training that prepares them for their role and a mentoring programme encourages exchanges between new and experienced managers.

Liebherr-Aerospace Lindenberg GmbH (Germany)



A development programme for senior management aims to fill vacant positions for department or divisional head or the board of managers internally.

Working conditions and health

The working conditions include modern and attractive working hours, family-friendly and health-oriented work environments and preventive, health-promoting measures for specific target groups. All managers and employees are required to adhere to the occupational health and safety regulations and report unsafe situations. Managers are advised by occupational health and safety employees and the results are regularly discussed with the managing directors.

Co-determination and communication

The participation of employees is guaranteed by employee representatives in accordance with applicable national law. In the European Union, employee representatives from the respective national companies work together in their own interest group.

Remuneration and social benefits

The remuneration and social benefits at Liebherr are in line with modern standards of comparable companies. They are guided by the respective country standards, which are in some instances defined by agreements with trade unions and employee representatives, but also go beyond these agreements with voluntary employer contributions.

Social commitment

Liebherr is often one of the largest employers at its production sites and engages with local people, as a result of which the needs of the region are well known. A broad social commitment has developed over the decades, which focuses in particular on the areas around the company sites. The international sales companies also show varied



Liebherr-Werk Bischofshofen GmbH (Austria)

involvements. The managers of the companies themselves identify suitable projects. High funding amounts are agreed with the Administrative Board of Liebherr-International AG. Liebherr supports projects in the fields of culture and education, sport, nature conservation and environmental protection, development aid and disaster relief, as well as the funding of non-profit organisations and charitable organisations.

Various volunteering

Liebherr attaches great importance to good cooperation with local rescue units and response teams and always endeavours to be a reliable partner. Voluntary work by Liebherr employees is supported whenever possible and employees are released from work for emergency responses or civil defence operations. For example, the Austrian sites Nenzing and Bischofshofen are recognised as 'firefighter-friendly employers'. In Germany, Liebherr-Werk Ehingen GmbH,



Ehingen, and Liebherr-Mischtechnik GmbH, Bad Schussenried, are recognised as 'volunteer-friendly employers' by the state of Baden-Württemberg.

In addition, various Liebherr sites have officially recognised plant fire brigades. All units work closely with the state fire services associations of the countries and are also alerted when needed. Their members volunteer hundreds of hours every year to serve the public. Numerous other rescue services are also supported by Liebherr.

Together with the German Red Cross (DRK), Liebherr also organises blood donor campaigns at various company sites in Germany every year. In 2023, a total of 440 employees from five Liebherr sites donated over 100 litres of blood. They support the valuable work of the DRK in saving lives. The time required for the blood donation is included in the employee's working time.

The employees themselves also regularly organise highly successful fundraising campaigns for good causes. For example, last year employees from Liebherr-Aerospace Lindenberg GmbH, Germany, raised €1,000 for the St. Nikolaus children's hospice in Bad Grönenbach and €1,000 for the children's cancer society in Allgäu.

Commitment to table tennis and the promotion of young talent

As a long-term partner and promoter of table tennis, Liebherr has been actively involved in many developments in this sport for over three decades. The activities started in 1991 when Liebherr first sponsored the German table tennis club TTF Liebherr Ochsenhausen, which was promoted to the Bundesliga, the top league in the German table tennis league system. Since 2003 the company has been a partner of the International Table Tennis Federation (ITTF) and the World Table Tennis organisation (WTT), sponsoring major events like the World and European Championships, World Cups and the Europe Top 16. As partner of the German Table Tennis Federation (DTTB) and the Austrian Table Tennis Association (ÖTTV), Liebherr also sponsors the German and Austrian national teams for women's, men's and youth teams. This support helps boost the popularity of table tennis as a sport and make it accessible to the general public.

Also at the Ochsenhausen site in southern Germany, Liebherr has been supporting the Liebherr Masters College (LMC) since 2012 for promoting young talent. This institute serves to secure and develop global talent and helps junior players on their way to the top. To this end, the LMS uses its specially created STEP method (Scouting, Testing, Educating, Protecting). The college also provides optimal training conditions and top-class funding programmes to develop the next generation of top players.



06



Supply chain and logistics

Supply chain

Due to the diversity of their business areas, the Group works with various technology companies to cover the requirements for materials, products and services. Many of these companies are innovation leaders in their field. Liebherr attaches great importance to building a long-term, collaborative and committed business relationship with its partners. Because a stable and trusting relationship is the cornerstone of successful cooperation for the family-run business.

Liebherr-Purchasing Services GmbH, with its headquarters in Biberach (Riß), Germany, is responsible for the group-wide organisation and coordination of Purchasing. The company has the task of standardising and optimising purchasing processes and systems within the Group. Globally oriented material group management serves as a basis. Materials and services are assigned on the basis of their properties and procurement markets. Lead buyers with comprehensive technical expertise and good knowledge of the respective procurement market ensure a balance of interests between Liebherr and its suppliers.

Liebherr uses state-of-the-art software to create transparency and networking along the entire supply chain. On this basis, it is possible to make well-informed decisions and effectively control processes. The continuous monitoring of price trends and cost development enables active purchasing controlling.

Reliable delivery and supply security are guaranteed because of the partnership-based supply relationships as well as the regular review and optimisation of the logistics concepts. At the same time, there is always

maximum flexibility to respond to unforeseeable events. In order to optimise stocks, employees continuously check demand planning and ensure interdisciplinary adjustment and standardisation of the products. They guarantee that an optimum level of goods and services are available for production and sales, and that these goods and services meet the quality criteria.

The Liebherr Purchasing Academy offers specific training courses and advanced training for all Liebherr employees in purchasing as well as purchasing-related specialist departments worldwide. The courses take place in person and online, and complement the general Liebherr seminar programme with specific content.

Risk analysis

Liebherr has established a supplier risk management system to identify, evaluate and minimise potential risks in the procurement of goods and services. Economic, political and legal risks are analysed here and suitable measures are developed. In addition, Liebherr applies risk mitigation strategies. This not only secures the supply chain, but also contributes to the success of the company.

A total of nine risk clusters are relevant for the Group, which may cause interruptions to the production and supply chain:

- Geopolitical risks**
- Financial risks**
- Currency risks**
- Risks of salary and cost increases**
- Quality risks**
- Logistics risks**
- Capacity risks**
- Compliance risks**
- Cyber risks**

The key product groups in purchasing

The partner companies mainly supply Liebherr with materials and products with steel or plastic as a raw material, hydraulic components and power units, as well as electrical and electronic assemblies.

The challenges of globalisation and increasing economic and geopolitical influences increase the complexity in procurement and the cost pressure on Liebherr products. This presents the Group with a series of new challenges and requires flexible and effective action within the purchasing organisation. In order to secure material supplies, Liebherr continues to internationalise procurement activities within the framework of its purchasing strategy.

Supplier management

The principles for trusting cooperation are set out in the [Code of Conduct](#) and in the compliance guidelines for the companies and employees of the Group. In addition, there is a specific [Code of Conduct](#) for suppliers. The Code of Conduct outlines the standards for integrity and correct management.

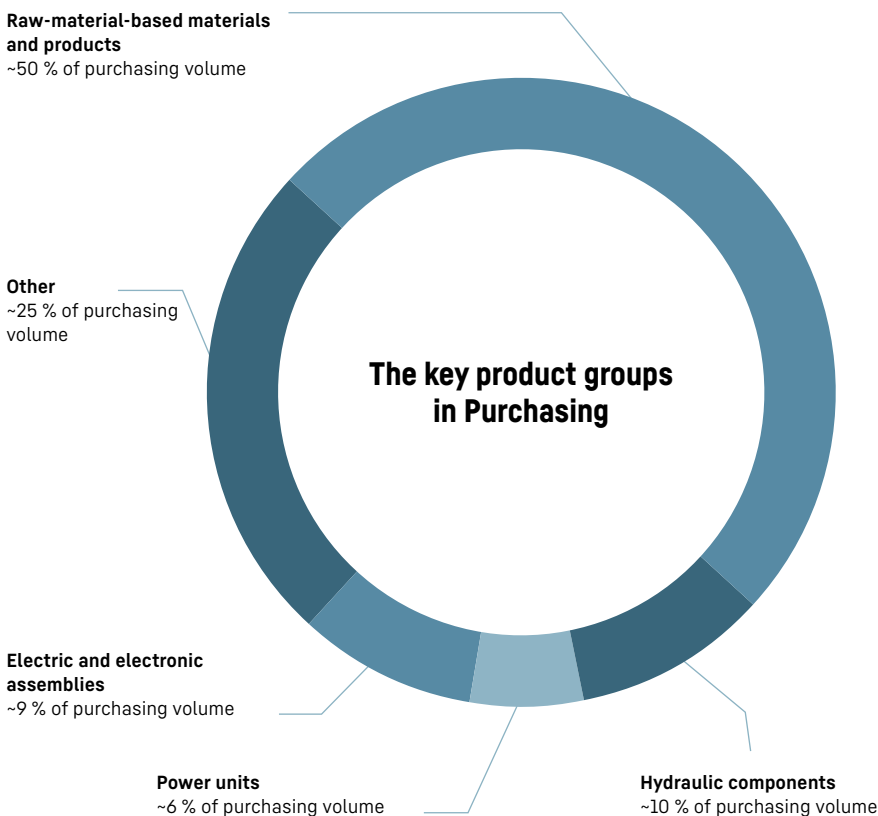
The Group ensures compliance with social standards when selecting suppliers. Liebherr respects human rights and prohibits forced or child labour, as well as discrimination and unequal treatment. Suppliers confirm in writing that they shall adhere to the Code of Conduct for suppliers, ensure compliance and follow applicable standards, guidelines and laws worldwide. Appropriate verifications must be presented if required. In addition, Liebherr considers it important that its partners

also adhere to the social and environmental standards applicable in their markets or for their products and use a certified quality management system.

Environmental requirements of components and raw goods consist on one hand of the applicable laws and on the other hand the internal guidelines and regulations of the Liebherr product segments. Substance prohibition, food and drinking water conformity or regulations on wood and packaging, for example, depending on the product segment or company, are therefore taken into consideration in the contracts with suppliers. Suppliers of Liebherr companies based in the European Union must also ensure that their products comply with, for example, the EU regulations REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) and RoHS (Restriction of Hazardous Substances). These regulations govern the use of certain harmful chemicals in products to protect the environment and the health of consumers. The use of these chemicals of very high concern is severely restricted or prohibited in the regulations.

Liebherr regularly conducts external audits to check the performance and delivery capability of its partners and compliance with quality standards. The scope and number of audits are individually defined each year between the specialist areas purchasing, quality and development. The risk potential of individual countries is also considered.

A review process is initiated in cases where there is a reasonable suspicion that quality standards are being breached. Any necessary measures are subsequently defined and implemented jointly by the specialist departments.





Supply chain laws

The German Supply Chain Due Diligence Act (LkSG) came into force on 1 January 2023. The law regulates corporate responsibility for the observance of human rights in supply chains and compliance with environmental due diligence obligations. It initially applied to companies with at least 3,000 employees. However, since 1 January 2024, the range of application has been extended to companies employing more than 1,000 employees.

According to these definitions, in 2023 Liebherr-Werk Ehingen GmbH, with its headquarters in Ehingen, Germany, was the first Liebherr company to which the LkSG applied. Seven more German Liebherr companies, all employing over 1,000 employees, were added in 2024.

In preparation for the introduction of the law, Liebherr set up a project team in 2022 which was to determine the requirements for Liebherr resulting from the law and support all eight

companies with its implementation. The Liebherr plant in Ehingen served as a pilot project. The knowledge gained could then be used for preparations in the other seven Liebherr companies.

The project team first conducted a comprehensive risk analysis, for which the purchasing volume of 2021 was taken as a basis. They assessed the industry risks of suppliers according to the research report of the Federal Ministry of Labour and Social Affairs



(BMAS). In a final step, they also included the regional context, which takes into account the registered office of the supplier concerned and the origin of the purchased materials. Risk scoring was then implemented in accordance with the guidelines of the German Engineering Federation (VDMA) and the Basel Convention. Training and workshops were developed and implemented in order to support the Liebherr companies with the implementation of the legal requirements. In this context, Liebherr also appointed

and trained human rights officers. Their main task is to monitor the preparation, set-up and maintenance of the risk management system relative to the due diligence obligations specified in the LkSG in the eight affected Liebherr companies. Each Liebherr company affected by the LkSG submits documentation of the implementation of the LkSG and the results of the risk analyses to the Federal Office for Economic Affairs and Export Control (BAFA) and also publishes the report on the company website. This ensures that the measures are transparent, traceable and meet the legal requirements. The already published report for Liebherr-Werk Ehingen GmbH (in German) can be found [here](#).

Numerous other countries within and outside the EU have also already introduced rules which are comparable to the German Supply Chain Due Diligence Act. Countries such as Norway, Canada, Australia or Great Britain also require companies to give verification every year of their commitment to the protection of human rights along the value chain. The Liebherr

companies located in these countries submit legally required declarations to the national authorities and also publish them online on the company website. The joint declaration for the Liebherr sites in Great Britain, for example, can be found here: [Modern Day Slavery Act](#) (in English).

European Carbon Border Adjustment Mechanism

The European Liebherr companies also deal with the new European Carbon Border Adjustment Mechanism (CBAM). This aims to prevent carbon leakage, i.e. the relocation of greenhouse gas emissions to non-EU countries, and encourage production with lower emissions in these countries. From 2026, goods from certain sectors from third countries will be taxed when imported to the EU. This should avoid competitive advantages for companies who relocate their production to countries outside the EU.

In autumn 2023, Liebherr set up an expert group which explores the issue centrally for the Group. It supports companies and specialist areas in implementing the CBAM requirements.

Logistics

Logistics plays a key role in the value chain of the Group. As a global company, Liebherr is aware of the responsibility associated with the movement of goods and materials. Through innovative and sustainable logistics solutions, the company aims to minimise the environmental impact of its activities and, at the same time, to maximise the efficiency and reliability of the supply chains.

Liebherr enjoys a long-standing partnership with many of its logistics service providers. They are highly familiar with the requirements of Liebherr and have set up their transport and logistics processes accordingly. This ensures that goods arrive at the desired destination efficiently, undamaged and on time. Liebherr works with global companies and companies in the immediate vicinity of one or several sites of the Group. They are well aware of the local situation and permit assignments at short notice. Liebherr sets clear, transparent objectives for the cooperation, and fulfilment is checked on a regular basis. This enables early the identification and correction of divergences in order to achieve consistently high quality.

Logistics is responsible for creating functioning, robust and needs-based transport and storage processes, and ensuring the efficient use of resources. The selection of the correct means of transport (air, sea, rail and land transport, as well as express services) is determined by the requirements of incoming and outbound logistics. Here, Liebherr also relies on multimodal logistics concepts, which optimally combine the various modes of transport (road, rail and ship). Optimum use is made of transportation capacities and freight space. Route planning is constantly optimised and unladen journeys should be avoided. This saves costs and reduces environmental pollution. Shipments from suppliers are combined within the Group where possible. The material flows between the European Liebherr plants run via fixed regular services, which are operated between the sites within the framework of clearly defined schedules. After delivery, the trucks load reusable outer packaging and pallets from the production areas for the return trip. For outbound logistics, various plants also have a direct rail connection or a direct carriage loading option.

Liebherr aims to amalgamate incoming goods and avoid a situation where every supplier makes a separate delivery. The number of truck journeys required can thus be reduced significantly. It also saves space for incoming goods and reduces the coordination effort. For the drivers, this means that there is less unloading and their waiting times are shorter.

Central coordination of transportation logistics

Since 2023, Liebherr-Logistics GmbH, which is based in Oberopfingen, Germany, has been responsible for the group-wide organisation of transpor-

tation logistics. It provides platforms for exchanging information and making joint decisions. Based on the model of the Purchasing organisation, a so-called lead buyer structure is also currently being set up in logistics, where specialised employees look after the development of group-wide structures for important logistics areas. Purchasing and logistics make common tools and systems available to the Liebherr companies in order to identify and exploit synergies. The European production companies are already fully integrated in the



transportation logistics coordinated by Liebherr-Logistics GmbH. The sales and service companies of the Group are now being gradually integrated. Owing to the large range of products within the Group, the logistics assignments across the product segments are organised and divided differently. However, selected topics are handled by general expert groups. These groups are called upon when decisions impact several companies or product segments or several areas have the same requirements. Their members deal with, for example, customs and

tax regulations, changed market situations, the discontinuation of service providers, loss of transport infrastructures, special transport conditions, the inclusion of new business or the implementation of major projects.



