Sustainability report
2022

SEW EURODRIVE

THE GREEN SIDE OF DRIVE

Contents

Sustainability Report 2022
A sustainability strategy with a future and for the future

SEW status:
2021 Silver 63/100
2022 Gold 70/100

Dear Readers,

The world is changing at an incredible speed, wars and crises are threatening people all round the world, and the number and scale of natural disasters is growing at an alarming rate. The vast majority of these environmental changes and global conflicts can be attributed directly to human activity and human decisions over recent decades.

This means every one of us has a responsibility to do what we can to slow down and stop this process, and this is particularly true for industry.

If industry did not already have sufficient reasons to take action, then the European Union's Green Deal, presented at the end of 2019 with the aim of achieving climate neutrality by 2050, and the moving forward of this deadline to 2045 in Germany, certainly provided a huge incentive to re-think.

However, sustainability is nothing new for SEW-EURODRIVE. Our company has long since seen recycling as an essential step in achieving a sustainable circular economy and has been championing renewable and efficient energy sources – with photovoltaics, combined heat and power plants, and – most importantly – the maximized energy efficiency of our drives.

We believe that sustainability goes even further than that, though. We are determined to live up to our responsibilities in every way, whether in relation to the environment, our customers, our business partners, our employees, and not least our children and the world in which they will live.

People make the difference. This principle has always been at the heart of what we do at SEW-EURODRIVE. It is people who conceive, develop, and optimize our products. We work hand-in-hand with dedicated people to ensure everything we do in our company is focused on people and on the future of humankind. Maintaining and protecting the very basis of our existence – that is exactly what sustainability means and that is what drives us at SEW-EURODRIVE.

It was with this in mind that we expanded our sustainability activities at the start of the year with a new initiative. We created a new body to evaluate, rate, and optimize sustainability throughout the entire value chain at SEW-EURODRIVE – as the sum of its many different parts.

This brochure, which presents a comprehensive report on sustainability at SEW-EURODRIVE, is the first milestone in this new initiative. It highlights the results of the activities and measures we have pursued over recent years, and will be updated on an annual basis moving forward. In short, it documents what we are already doing in relation to sustainability and what we can do better – our drive for the future!

Yours,

Jürgen Blickle
Managing Partner

Sustainability is now

Climate change is quite possibly the biggest challenge humankind has ever had to tackle. According to the latest forecasts, average global temperatures are set to rise by between 1.6 and 4.7 degrees Celsius by the year 2100.

No matter where in that range the temperature increase falls, it will be the fastest rise in 10 000 years. Sea levels are also rising, by at least 18 cm to 160 cm.

As staggering as these figures might be, we cannot allow ourselves to be paralyzed by shock. Instead, they should shock us into action and motivate us to do everything we can to mitigate the negative impacts of climate change as much as possible.

55

As part of the European Green Deal, CO_2 emissions across Europe are to be reduced by 55% by 2030.

Tackling climate change with determination
It is encouraging that most people, countries, regions, institutions, and businesses around the world have acknowledged the dangers posed by climate change and are actively taking steps to combat it. The Federal Government of Germany has anchored in law its aim to achieve climate neutrality by 2045. As part of the European Green Deal, CO_2 emissions across Europe are to be reduced by 55% by 2030. Europe as a whole is to be climate neutral by 2050.

These plans also demand huge efforts from businesses, including comprehensive sustainability initiatives with targets that can be clearly measured.

CO_2

As part of our sustainability initiative, we aim to conserve resources and drive down CO_2 emissions.

sustainability@SEW is our response to the current scenario
SEW-EURODRIVE is meeting its responsibilities through sustainability@SEW. As part of this long-term sustainability initiative, we aim to gradually and consistently safeguard resources, lower CO_2 emissions, and thus optimize our entire value chain.

However, we are not starting out from nothing. For many years and decades, a philosophy and practical approach centered on sustainable, durable products has been ingrained in the corporate DNA of SEW-EURODRIVE.

Through sustainability@SEW, we aim to combine these approaches in a much more targeted way. At the same time, the initiative also elevates sustainability on an organizational and strategic level by establishing a Sustainability Committee that reports directly to the Management Board. This coordinated approach will ensure individual measures and activities can have even more impact than they have done to date.

We know we can't change everything overnight, but if we don't start today, it could be too late by tomorrow – and certainly by the day after.

1.6 – 4.7

Average global temperatures are set to rise by between 1.6 and 4.7 degrees Celsius.

2045

The Federal Government of Germany has anchored the target of climate neutrality by 2045 in law.

We know we can't change everything overnight, but if we don't start today, it could be too late by tomorrow – and certainly by the day after.

10 000

The rise in global temperatures will be the fastest in 10 000 years.

2050

Europe is to be climate neutral by 2050.

Being well organized is half the battle – the Sustainability Committee at SEW-EURODRIVE

We will only be able to permanently establish "sustainability" as an additional corporate aim and implement practical steps successfully if we work to that end every day, every week, and every month. This is the only way we can ensure that every individual at every level is able to play their part in delivering sustainable change, thus making sure it works for our entire company.

If all the associated concrete targets are to be met, responsibilities will need to be clearly allocated within SEW-EURODRIVE. A new Sustainability Committee was established in 2022 to do precisely that.

↑
Organizational chart for the Sustainability Committee at SEW-EURODRIVE

The structure and functions of the Sustainability Committee at SEW-EURODRIVE

By creating the Sustainability Committee, we are emphasizing the huge importance our company attaches to sustainable development. The organizational chart on the left shows how the importance of the issue is reflected in our organization. The Sustainability Committee (SC) comes under the umbrella of quality and sustainability management and reports directly to the SEW Management Board.

One of the most important tasks for the SC is to keep the Management Board informed and provide a basis for making decisions. Further key tasks include developing and updating the SEW sustainability strategy and consolidating the programs, targets, and measures associated with that strategy. Finally, all the SC's activities are geared toward continuously promoting the various sustainability issues and projects within the five fields of action. This also includes regularly carrying out certifications and audits.

Overarching responsibility ensures a holistic approach

The field of activity of the SEW Sustainability Committee covers the entire company, from research & development and sales to the plants and procurement. The primary focal points are advising and assisting individual divisions and departments and supporting external consultants when it comes to rolling out sustainable projects.

As part of this approach, a growing number of working groups and project organizations are being established within the SEW-EURODRIVE Group to drive forward specific activities and projects with as much focus as possible. This means that individual managers and executives have responsibility for the activities aimed at achieving targets and for implementing group-wide standards. They are also tasked with coordinating the individual working groups.

The Sustainability Committee at SEW-EURODRIVE

Claus-Peter Sieber
Head of
Quality Management
Sustainability officer

Oliver Bollian
Head of Main Department IM1 /
Cluster manager for Central Europe

Dr. Jürgen Miller
Head of Product, Support
Release Management (PSRM)

Karl-Heinz Martus
Head of
Financial Controlling

Daniela Schmid
Head of
Construction and
Facility Management

Dr. Wolfgang Weis
Head of
Graben Production Plant

Bernd Kohring
Head of
Procurement

The SEW sustainability roadmap – the key stages and milestones

While gradually rolling out carbon accounting at more plants and sites and introducing additional measures, we have put together a special roadmap that sets out the key milestones for our journey towards greater sustainability by 2026.

sustainability@sew-eurodrive.de:
The first place to send any idea for boosting sustainability

Are you a customer, partner, or employee of SEW-EURODRIVE with something you'd like to tell us about our sustainability initiative? Do you have an idea for a project or an opinion on a particular measure that is already being implemented? Whatever it is about sustainability at SEW-EURODRIVE that really matters to you, we look forward to hearing about it.

The next sustainability report will likely be published at the end of 2023, and will include sustainability projects and content from SEW-EURODRIVE around the world.

The SEW Newsroom will also be publishing a steady stream of information online about the progress of our sustainability initiative.

2022

03 – 2022 Results of site-specific carbon accounting for the pilot site in Graben-Neudorf

Q4 – 2022 Initial publication of the design rules catalog

Process for the reuse of brake components implemented

Feasibility of closed-loop processes for magnets investigated

Compliance with the German Supply Chain Due Diligence Act (LkSG)

Analysis of supply chain/ sourcing strategy

Analysis of transport logistics/ transport routes

2025

05 – 2025 New training center with introduce-train-specialize approach

Q4 – 2025 Site-specific carbon accounting for SEW-EURODRIVE assembly plants

2023

03 – 2023 Results of site-specific carbon accounting for the Bruchsal Electronics Plant

Q2 – 2023 Results of product-specific carbon accounting for a pilot mechanical/mechatronic product

Concept for cross-site reduction of packaging materials

Q4 – 2023 Evaluation of additional economically viable reuse projects

Site-specific carbon accounting – system and infrastructure for automated creation prepared, rollout plan drawn up

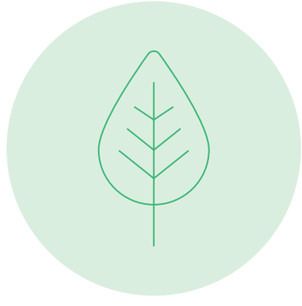
2026

Carbon neutrality at German sites

2024

Q2 – 2024 Product-specific carbon accounting – system and infrastructure for automated creation developed, rollout plan drawn up

Q4 – 2024 Site-specific carbon accounting for SEW-EURODRIVE production plants



Sustainability throughout history

The term sustainability has become ever more prominent in the public consciousness over recent years and decades. Originally conceived as a natural approach to forestry, its primary purpose was to restore the natural ability of forests to regenerate. Even in these early days, it was not just the ecological aspects of a forest that mattered – its economic and social functions also played a crucial role.

Today, sustainability spans these three distinct aspects – the environment, the economy, and society – and is synonymous with an environmentally aware, cost-effective, and socially responsible approach. The latter aspect in particular has become increasingly important over recent years. Sustainability must be socially just. That is the only way highly developed, industrialized nations such as Germany can play a decisive role in ensuring all countries in the world pursue the same measures.

17

Global
sustainability targets

Highly developed, industrialized countries must set an example when it comes to fighting climate change. To do that, we will need to give up habits we have become fond of in Germany over the coming years and decades. However, climate change also presents us with an opportunity to gradually establish a new way of living and new philosophy that are in harmony with our planet.

It was in this spirit that the United Nations defined 17 global sustainable development goals (SDGs) in 2015 as part of its Sustainable Development Agenda.

5

Our five focus topics are rounded off by
the category of "ethics and governance"

Our five focus topics are rounded off by the "ethics and governance" category, in which all overarching sustainability measures are anchored.

Our value chain always starts with an individual and their individual actions.

We safeguard our planet's resources by providing products that are durable and require minimal service outlay.

SDGs along the value chain

Enhancing positive effects

Minimizing negative effects

5

Our five main topics are rounded off by the "Ethics and governance"

Our five main topics are rounded off by the "Ethics and governance" area, in which all overarching sustainable measures are anchored.

3

aspects of sustainability – environment, society, economy

All three aspects of sustainability as it is generally understood – environment, society, economy – make up the basis for our commercial operations. All three are also covered by another key trait of SEW-EURODRIVE as a manufacturer of motors, gear units, and gearmotors – quality. By providing products that are durable and have minimal service outlay, we are helping safeguard the planet's resources.

We aim to monitor and continuously re-evaluate the ways our actions across all sectors and departments impact the environment. Our goal is to ensure the company is managed on as sustainable a basis as possible. As a family-owned company, we feel we have a responsibility to future generations, too.

Furthermore, as an internationally operating company, we are also seeking to ensure our approach is as wide-ranging and all-encompassing as possible. To satisfy the international requirements placed on our drives and our customer structure, we aim to actively incorporate our partners into our sustainability process.

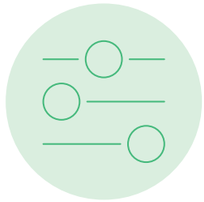
The Sustainable Development Goals (SDGs) are the global framework for

1

Sustainable economic growth (economic sustainability)

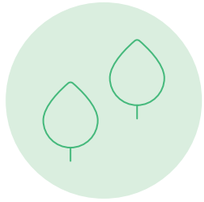
2

Creating equality of opportunity (social sustainability)



3

Sustainable management of natural resources (environmental sustainability)



Bee meadow at the Plant for Large Gear Units, Bruchsal site

Our matrix of what really matters

People

1 Diversity and equality

2 Demographic change

3 Safety and health management

4 Qualifications and training

5 Being an attractive employer

Products and services

6 Sustainable product development

7 Resource-efficient products

8 Digital products and services

9 Recyclability of products

Supply and raw material chains

10 Collaborative supplier management

11 Resource-friendly raw material sourcing

Production and business processes

12 Resource-friendly production

13 Buildings and infrastructure

14 Logistics and mobility

15 Circular economy

Ethics and governance

16 Sustainability management

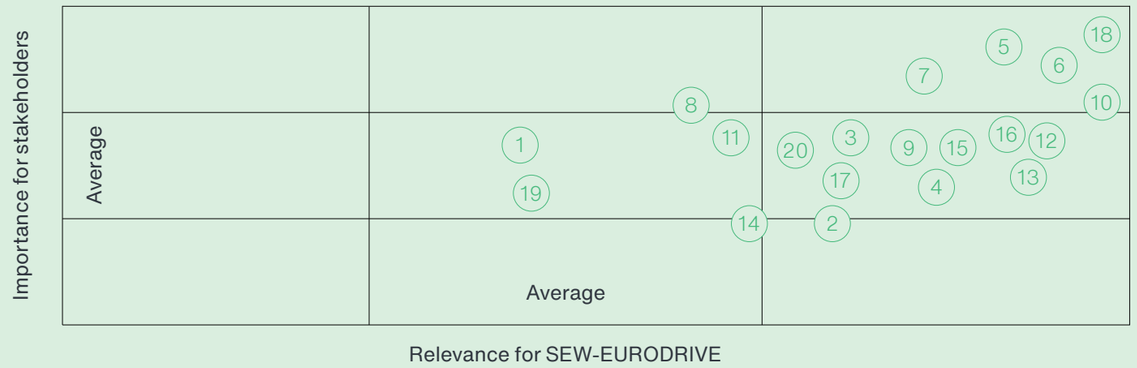
17 Risk management

18 Legal compliance

19 Social commitment

20 Data protection

SEW-EURODRIVE priorities for action



The basis of our business activities

→ **People**
+ People make the difference
+ Safety and health management
+ Qualifications and training
+ Being an attractive employer

→ **Products and services**
+ Sustainable product development
+ Resource-efficient products
+ Digital products and services
+ Recyclability of products

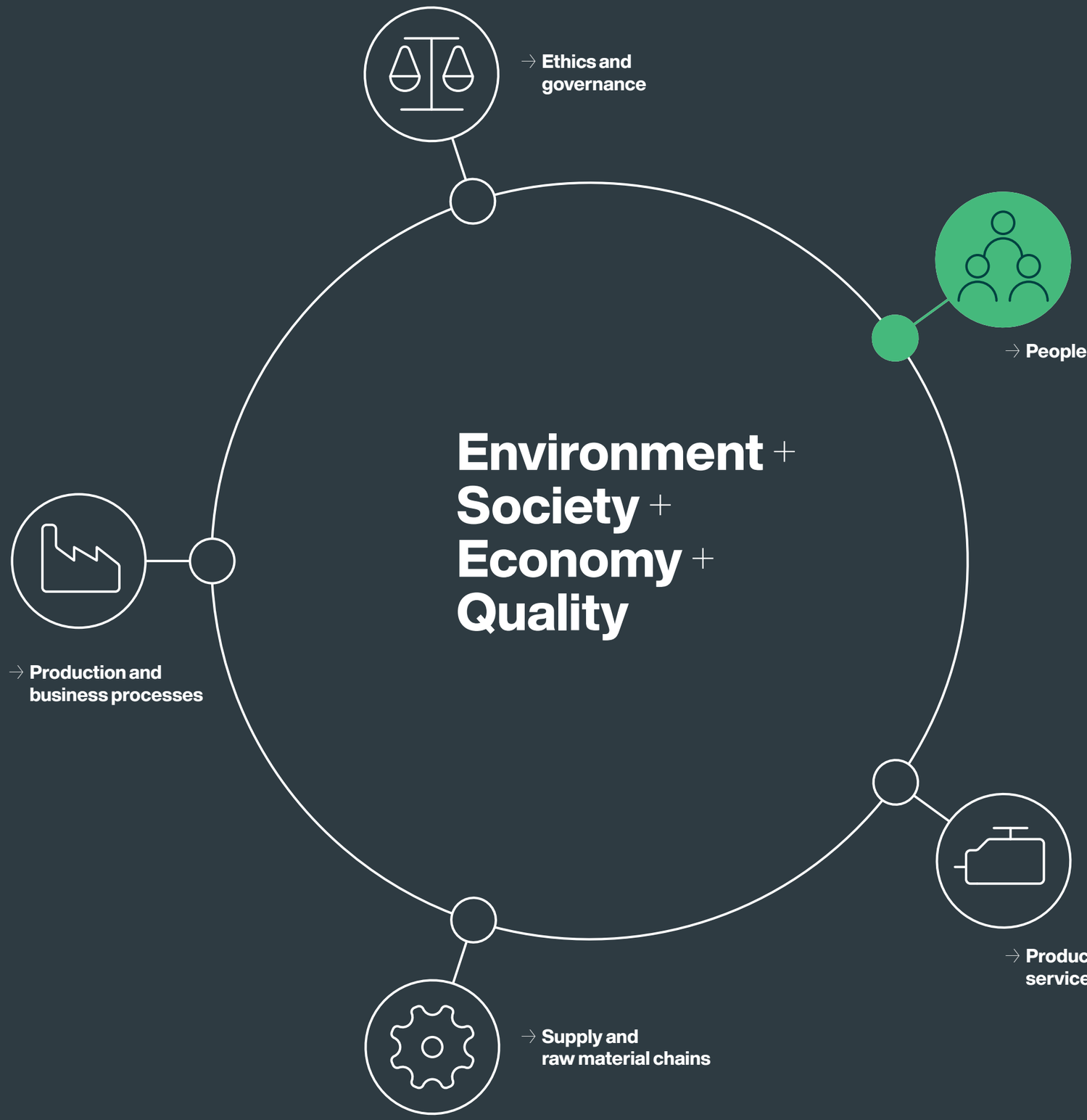
→ **Supply and raw material chains**
+ Collaborative supplier management
+ Resource-friendly raw material sourcing

→ **Production and business processes**
+ Resource-friendly production
+ Buildings and infrastructure
+ Logistics and mobility
+ Circular economy

→ **Ethics and governance**
+ Sustainability management
+ Risk management
+ Legal compliance
+ Social commitment
+ Data protection

People

+ People make the difference
+ Safety and
  health management
+ Qualifications and training
+ Being an attractive employer



People make the difference

By taking this as our mission statement, we are emphasizing just how important each and every member of staff at SEW-EURODRIVE is. It is people who "drive" our company and are the secret to our sustained corporate success.

Our corporate culture is steeped in mutual trust, respect, and appreciation. Our programs promote equal opportunities, lifelong learning, and cross-unit collaboration. A trusting and inclusive approach ensures the shared success of the company and nurtures a high level of job satisfaction among the workforce.

This is why we also take care to ensure our staff can enjoy a good work-life balance. By putting in place countless measures related to occupational health management and both basic and further training, we keep levels of motivation high and make sure our employees identify strongly with our company.

20 000
employees worldwide

5500
staff in Germany

Over
290
apprentices and dual-study students

14
training staff

800
researchers and developers

It is people who "drive" our company and are the secret to our sustained corporate success.

4.18
training quota FY 2021

87.5
percentage of trainees who go on to work at the company

1400
engineers and IT specialists

Knowing what matters

The success of our company starts in our employees' heads. Whether in production, research, or service – at SEW-EURODRIVE, people are at the heart of everything. The expertise of our workforce is essential if we are to survive and thrive in the market on a long-term, sustainable basis.

Basic and further training are crucially important to us, which is why we have created a dedicated SEW-EURODRIVE brand for it – the DriveAcademy®. This brand stands for a culture of lifelong learning based on innovative learning and teaching methods and an infrastructure that is growing and developing all the time. It creates the ideal framework for focused, technically grounded seminars and training courses as well as other methodological issues and topics relevant to management.

Facts & figures for DriveAcademy® 2021

2819
training courses led in-person by training staff

2594
items of digital learning content available, such as videos and e-learning units

13 122
participants in total

By continuously updating our offerings, we can keep up with the cutting edge of technological progress and thus ensure we can always count on having the very latest expertise in areas such as energy efficiency and resource consumption at our disposal. The training content we offer makes it possible for both the company and its customers to get the best out of SEW-EURODRIVE drives and systems, so as to achieve the optimum balance between economic and ecological interests.

When it comes to designing our training offerings, we are always learning
The broad portfolio of extremely practice-based units we offer is geared towards the needs of both our staff and our customers. Content ranges from specific product and application training to personal development, and features practical aspects of sustainability, such as using the right drive technology to save energy. We keep content as relevant as possible to the needs of participants, making the whole experience beneficial, enriching, and fascinating. All our training staff are themselves continuously studying new educational and presentational techniques so that we can provide training to a consistently high standard on an interpersonal level.

Headquartered in Bruchsal and with ten further sites, our DriveAcademy® has a local and regional presence throughout the whole of Germany and is always in easy reach. Besides being convenient, keeping journey times short for participants also helps reduce the CO_2 emissions generated by traveling to and from training courses. The growing number of online courses and seminars is also helping to shrink this carbon footprint.

34 905
learning formats completed

The success of our company starts in our employees' heads. Whether in production, research, or service – at SEW-EURODRIVE, people are at the heart of everything.

The future of learning is here

Digitalization, process management, energy efficiency – in a globally networked world, the requirements placed on modern training and on keeping the associated techniques and technologies up to date are only growing. Built in 1989, our training center in Graben-Neudorf has reached its limits. By building a new training center, we are aiming to create what will be the perfect surroundings for lifelong learning of the highest caliber.

Scheduled for completion in 2025, a brand new training facility comprising technical training rooms, offices, laboratories, and social areas is being built on a 9230 m² site directly adjacent to our production and logistics plant in Graben-Neudorf, which is our largest worldwide. The concept behind the new site focuses primarily on flexibility, new technologies, and the incorporation of forward-looking working models such as agility. The site offers plenty of space to shape the changes that are coming.

The new training center will enable us to complete the "work-life circle", which starts with getting children excited about technology, moves on to imparting basic skills and specialist expertise, and then to passing on knowledge and life experience in a "generational workshop", for instance. The center is to be a place for experiencing, learning, and sharing knowledge and skills.

The new training center is organized into three clusters.

9230

A completely new training center on a 9230 m² site featuring technical training facilities, offices, laboratories, and social areas is to be completed by 2025.

1

Introduction
This cluster is primarily about getting children and young people interested in technology and giving participants in workshops, seminars, and presentations a genuine experience of the diverse world of technology. Participants can be parents, teachers, and schools.

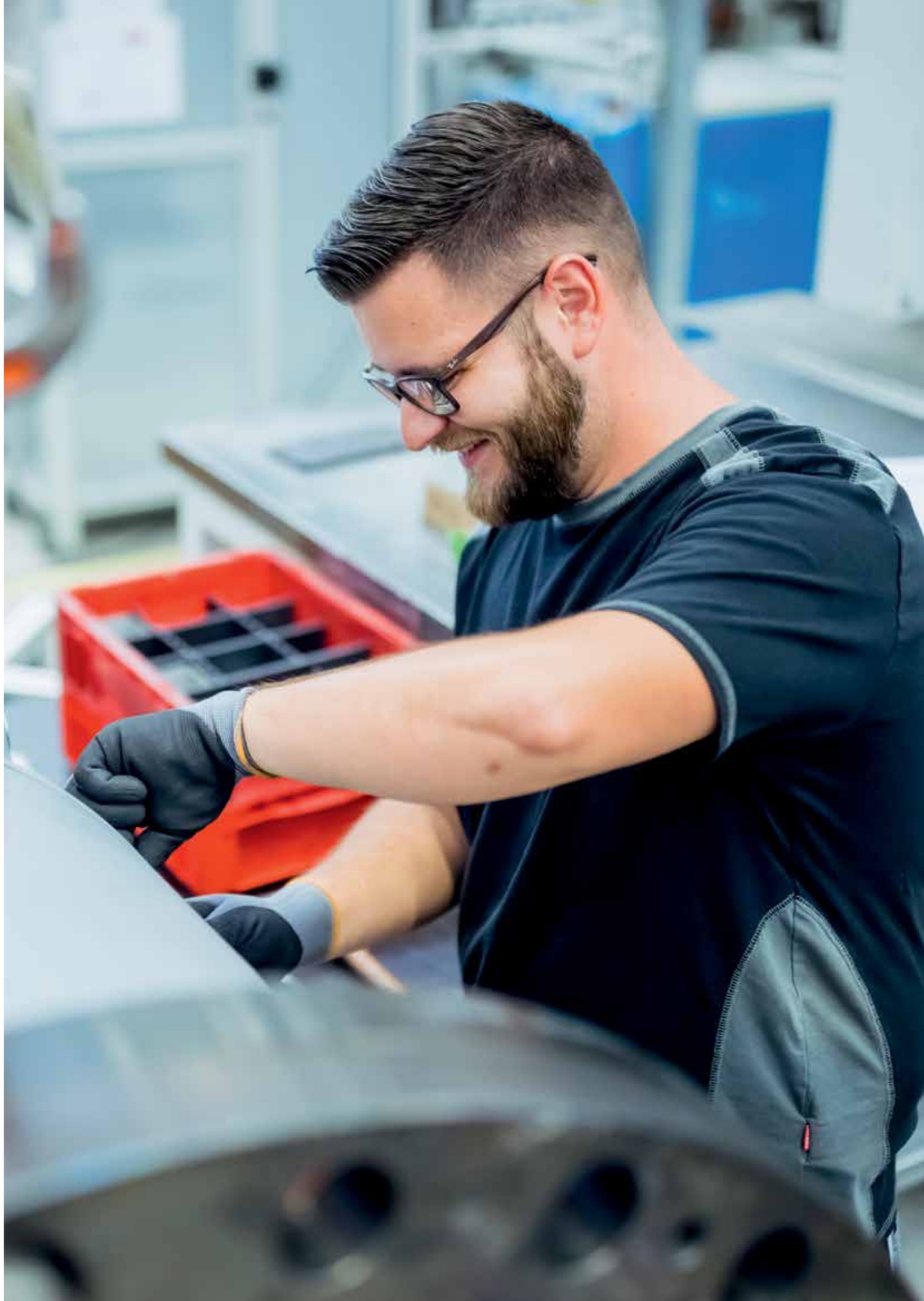
2

Training
This cluster is focused on conventional basic or initial vocational training for professionals, as well as hands-on training for high-school students and other interested parties. This is also where training collaborations will be based as we seek to boost and safeguard our regional economy.

3

Specialization
This cluster is all about extending the expertise and skills of individual specialists in their particular area of activity. The topics covered are based around all aspects of production and logistics technologies specific to SEW-EURODRIVE. Furthermore, management staff will also get in-house basic and further training to ensure the company benefits from a sustainable and consistent management culture and corporate culture.

All three clusters are closely intertwined in terms of both the subject matter covered and organizational considerations. Multi-professional training units will meet the needs of the future world of work and its (technological) challenges.



Healthy all-round

The health of our staff is priceless to us. As part of our "vital360°" occupational health management program, we run a wide range of activities and campaigns to support the health and fitness of our staff. Our top priority is to very specifically raise awareness of just how important it is to keep moving, regardless of whether your work is mostly done sitting at a desk or on your feet in production.

By keeping active and making use of health-boosting measures, our staff can improve their ability to cope with stressful situations and demonstrate their flexibility every day.

Although the program is very deliberately built around the health of every individual employee, we also see our company as a living organism in its own right, with every individual part of something bigger. When individuals feel healthy and are mindful, they radiate more positive energy, help create an altogether positive working environment, and inject added motivation into their team.

When individuals feel healthy and are mindful, they radiate more positive energy, and help create an altogether positive working environment.

vital360°

We run numerous fitness campaigns through our "vital360°" occupational health management program.

Well organized: That is how we help our staff look after their health

+
Health managers, who are responsible exclusively for occupational health management, coordinate all ideas, activities, and campaigns as part of a working group known as a "Vital Circle".

+
A Vital Circle is where the strategic planning and coordination of all health management activities take place. This is where we pool specialist expertise and pass it on to the relevant units. This ensures that all the relevant sections and departments at the company are involved.

+
Volunteer health scouts form a network within the company and act as the first point of contact for staff. They help to spread the word about the campaigns in the various units, coordinate any feedback, and interface with the Vital Circles.

The individual activities – an overview

Regular events such as an annual Health Day

Attractive partner offers with gyms

Leisure program including sports and cooking courses, for example

Ergonomically designed workstations in offices and production facilities

Modern IT equipment to suit the relevant working process

Ergonomically adapted workshop equipment and tools

Operational integration management

Helpful nutrition tips

Social support and addiction prevention

Health seminars, e.g. for stress management

Training for managers regarding healthy management

In-house company medical staff and outpatient clinics at the Bruchsal and Graben-Neudorf sites

The Bruchsal Run for Hope
The Red Runners from SEW-EURODRIVE have been taking part in the Bruchsal Run for Hope since 2012. We are the main sponsor for this event, which sees money raised for social projects in Bruchsal with every lap that is completed. Runners decide for themselves how much they pay as an entrance fee, and this also goes directly to social projects. The 3.5 kilometer course runs through the city center of Bruchsal and the Baroque gardens of Bruchsal Palace, with large crowds cheering the runners on all the way. All participants are free to complete the laps at their own pace.

Over the years, a total of 2600 registered runners have racked up around 27 000 km altogether. In 2022, our team once again took first place, with 62 runners completing 206 laps.

3.5 km
The 3.5 km course of the Bruchsal Run for Hope winds its way through the city center of Bruchsal and the Baroque gardens of Bruchsal Palace.

4918
kilograms of CO_2 emissions avoided

104
active cyclists

31 941
kilometers cycled

"City cycling" campaign
The "City cycling" competition, staged across communities throughout the whole of Germany, is first and foremost about protecting the environment and promoting cycling. The communities of Bruchsal and SEW-EURODRIVE have been taking part since 2016, with 2022 marking the sixth time they have been involved. The campaign sees registered teams record all the journeys they make by bicycle over a 21-day period in an online cycling calendar. Between 2016 and 2022, a total of around 230 000 cycled kilometers have been logged, representing a saving of 33 368 kg in CO_2 emissions – equivalent to about 136 one-way flights to Mallorca.

2016
The communities of Bruchsal and SEW-EURODRIVE have been taking part in the "City cycling" competition since 2016.

Sustainable canteen management for health and balanced nutrition
Sustainability is also a key consideration for us when it comes to food. The same applies to our catering partner Eurest, which prioritizes sustainability when sourcing its produce. The company is prudent in its use of resources, keeps transport routes short, and sources as many products as it can locally. This helps us both protect the environment and support regional producers.

Further sustainability traits at Eurest include choosing suppliers with great care, avoiding food waste, and clearly labeling environmentally friendly food in its app and in our restaurants.

The following points show that sustainability comes first for Eurest:

+
Focusing on plant-based foods and animal welfare when creating recipes, for instance Powered by Plants, Better Green, and chicken from the most ethical sources.

+
Preparing for exclusive certification to the "360° für Morgen" standard (sustainable company restaurant).

+
Participating in numerous organizations such as the Global Coalition of Animal Welfare, the European Better Chicken Commitment, founding member of United Against Waste, etc.

+
Using Trim Trax software in our kitchens to track all waste transparently and make savings.

+
Carrying out regular training for Eurest staff on the subject of using resources sustainably.

+
Sourcing work clothing made from environmentally friendly materials.

+
Making a commitment to achieving carbon neutrality with regard to scope 1 & 2 and hitting the net-zero emissions target worldwide by 2050.

Other campaigns and activities

100

By collating around 100 recipes from staff in a cookbook, we have helped to enhance healthy and sustainable meal plans in our canteen.

Since

2012

SEW-EURODRIVE has been organizing an annual Health Day with lots of activities to encourage healthy living, such as "Rest your mind", back coaching, and a nutrition radar. The most important aims are to have a sustainable and healthy workforce, to share knowledge, and to provide a catalyst for a healthy lifestyle. Health Day is incredibly popular, and around 80% of participants regularly rate it with the top marks of 1 and 2 in feedback. Health Day is currently suspended due to the pandemic.

A step-counting campaign has been run several times to encourage staff to walk more.

152

In 2021, our annual blood donation drive saw 152 donations made.

Our drinking water campaign called on staff to drink more water from the coolers we provide all year round and to donate towards building a well in Africa.

We are sticking to it Further activities and planned campaigns

Health and society

+
Customized, flexible working time models to make it easier to balance work and family life

+
In-house daycare center with up to 100 places for children aged 2 months and up, running from 7 a.m. to 6 p.m.

+
Travel risk management for health and safety during business trips

+
Driving safety training for field sales representatives

+
Campaign to collect spectacles for Africa.

+
Christmas gift campaign for children's homes in the region

Sustainability

+
Parking facility with charging stations

+
Bicycle parking places with integrated changing facilities

In planning

+
Bicycle leasing for staff

+
Mindfulness/sustainability training

+
Analog health scouts

+
Establishment of energy scouts

Currently

Awaiting decision by the Management Board:

+
The mobile working model as a component for personalizing working patterns. The option of mobile working is designed to help staff benefit from more flexibility and improve their work-life balance. It will also help reduce commuting journeys and thus cut emissions.

+
Injecting added flexibility into work and private life

+
Diversity measures

2004

We have had a group from Lebenshilfe e. V. Bruchsal in our Bruchsal Electronics Plant since 2004.

More of an opportunity than a handicap – including people with disabilities

If a company can include people with disabilities in day-to-day working life in a practical way that benefits all parties, it shows just how much it values its staff. This is precisely the motivation behind the close cooperation that has been established with Lebenshilfe e. V.

A group from the workshops of Lebenshilfe e. V. Bruchsal has been integrated into our Bruchsal Electronics Plant

As part of a project initiated in 2004, we have gradually integrated a group from this Bruchsal-based support association into the Bruchsal Electronics Plant and made it part of our process chain. Today, some 15 staff members and two group managers carry out various activities relating to around 60 different articles. Their work covers tasks as diverse and demanding as product preassembly, preliminary picking for connectors, preparing partial sets, and machining work during finishing steps. Staff are deployed across a range of roles and activities, which provides a high level of variety and makes work more rewarding.

To ensure the best possible all-round support, direct cooperation with staff from SEW-EURODRIVE is overseen by group managers with specialist social and educational training.

The excellent capabilities of the Lebenshilfe group have certainly proven to be an important enhancement to the value chain.

Integrating these workers is a win-win scenario. From the perspective of Lebenshilfe, giving work to people with disabilities helps them take that first step toward the regular jobs market and gives them an opportunity to train or find a job. For SEW-EURODRIVE, learning from each other in this way improves the working environment by creating a better level of understanding and consideration. What's more, the preassembly work helps produce perfectly synchronized processes.

"...disability should no longer be seen as a deficit, but rather as a challenge for life and for the non-disabled world."

Ina Stein, former Disability Officer of the Bavarian state government

Products and services

+ Sustainable product development
+ Resource-efficient products
+ Digital products and services
+ Recyclability of products

How a sustainable product concept laid the foundations for our success story

In 1945, when Ernst Blickle took overall responsibility, he had a sustainable idea. By rolling out a modular concept for gearmotors, he laid the foundations for the success we enjoy today. Almost 80 years on, the resulting variety of our current portfolio is a crucial guarantee for customer satisfaction. It is also a guarantee for the sustainable product design approach at the heart of our company.

Our vision

As a leading drive technology company, we see innovation as a decisive factor at the heart of our sustainable approach to developing products, systems, and services. At every step in this process, we maintain an unwavering focus on our customers and their requirements. What's more, the only way we can meet our environmental and climate targets, while also maintaining and enhancing the true value of our company, is if we can ensure resources are used sparingly throughout the entire value chain.

Developing processes for reuse and recycling

We are currently working with our site in France to develop processes centered around reuse. Thanks to this pioneering work, we have been able to save valuable time and resources in areas such as component testing, for example.

International discussion forums are held to spread the word through the company about how this work is progressing. These processes are being designed to be as attractive as possible to our national companies from both an environmental and an economic perspective. As the home location of SEW-EURODRIVE, it is particularly important to us that we utilize this kind of ecological technology transfer to roll out sustainability on an international scale.

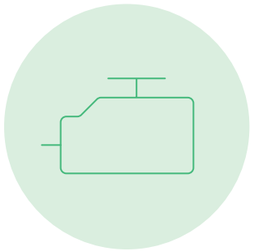
Also integral to this closed-loop concept is a service concept geared consistently toward sustainability that includes a comprehensive and holistic repair portfolio designed to ensure resources are used as sparingly as possible. Indeed, our concept for predictive maintenance ensures resources are put to the best possible use. As part of our Life Cycle Services, we can also retrofit plants, systems, and components and calculate energy saving potential.

As sustainable and logical as all that might sound, we also believe that product concept development offers a great deal of potential for further activities. We aim to make our products more environmentally friendly step by step.

What's more, the only way we can meet our environmental and climate targets while also maintaining and enhancing the true value of our company, is if we can ensure resources are used sparingly throughout the entire value chain.

18 %

A gearmotor from SEW-EURODRIVE is an average of 18% lighter than a comparable solution with an adapter flange and IEC motor.



We still get gear units from the 1960s to repair and overhaul – that's good evidence of how durable our products are.

1945

Ernst Blickle takes on overall responsibility at SEW-EURODRIVE

Consistently sustainable from the very start – our in-house eco-design guidelines

The cradle-to-cradle approach has arrived in industrial production. Established back in 1990 as an end-to-end system for a circular economy, this consistent philosophy is now a benchmark for the most environmentally friendly approaches to developing products and the associated processes. Ultimately, "cradle to cradle" means that all the products, materials, and substances used to manufacture a product can be fully returned to, or reused in, biological or technical loops. We are taking this holistic approach as a basis for planning the roll-out of our own in-house eco-design guidelines.
That includes, among other things, developing and documenting the two projects that are already underway on the recycling of brake components and magnets. These will serve as a basis for preparing and expanding the concept in the product categories of motors and electronics, while an additional project aims to take these findings further and incorporate more product families.

New capital in product development
We aim to open a completely new chapter in product design with this sustainable product concept development. Thanks to the sustained commitment to quality we have pursued since day one, we have built up considerable expertise. We aim to pull together all this know-how in these design guidelines, distilling it into practical recommendations such as avoiding the use of certain adhesives or casting resin.
The design guidelines will also produce a new, extended product qualification system that will become a key benchmark for product development.

1990

The cradle-to-cradle approach has been established as an end-to-end system for a circular economy since 1990.

Reuse and recycling are two approaches that give many parts a second lease on life.

Besides maximizing the scope of our recycling and scrutinizing our products for recycling concepts, we also aim to leverage a reuse system so that as many of our products as possible can be put back into service. That involves taking individual, reusable parts, inspecting them, cleaning them, potentially repainting them and then feeding them directly back into the production process. Compared to the recycling of copper, steel, and die-cast aluminum parts, for example, this alternative approach saves all the energy that would otherwise be spent on transporting used parts, separating components, melting down materials, and then producing the parts all over again. In addition, we also supply a considerably CO_2-reduced lubricant in recycled containers.

"Cradle to cradle" means that all the products, materials, and substances used to manufacture a product can be fully returned to, or reused in, biological or technical loops.

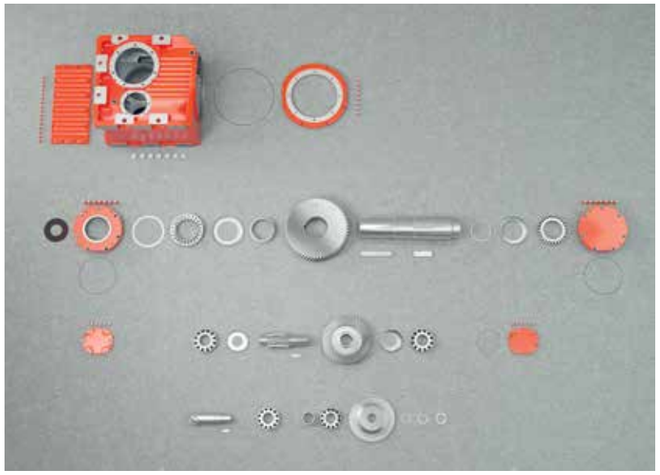
Why our modular system is so sustainable

The modular concept behind our products is one of the most important reasons for their success and also contributes significantly to sustainability. So, what is it that makes this concept especially sustainable? Although the following points apply to lots of our product series, the new PxG® planetary servo gear unit is a particularly good example to use in answer to this question.

The sustainability of our state-of-the-art gear unit is principally based on the general idea of creating as many variants as possible from as few individual parts as possible. A good example of this is using the same gear set for multiple purposes. For instance, we use the same gear wheel as the last gear unit stage in one gear unit size and then again as the preliminary stage in the next size. This means we can scale up the production of this particular gear wheel quite considerably, thereby making production more resource-efficient.

Another way that our modular system benefits sustainability is that we manufacture as few different parts as possible. For instance, many components can be used across a range of different product series. At the same time, simply having one component in dual variants, such as a drive bearing, means we can offer twice as many variants of each product.

Since all components are compatible, the end result is greater variation. This in turn enables us to build solutions that are tailored as closely as possible to specific customer requirements.



↑
A K-series gear unit

↓
PxG® planetary servo gear units

As a consequence, our production is very much geared to the market and we are therefore wasting almost zero resources on products that the market does not need or that do not work efficiently because they have not been optimally designed.

When overhauling the PxG® planetary servo gear unit, we focused very much on what our customers want and need from the product. This meant we could ensure from the very start that customers would want the series and that we would therefore be manufacturing to meet demand. At the same time, when developing product concepts, we always work to minimize friction and maximize efficiency. We were able to achieve this to particularly good effect with the new PxG® planetary servo gear unit.

Thanks to virtual product simulation based on a digital twin, the previously standard practice of building several prototypes in order to validate specific parameters has been rendered obsolete.

Our modular system illustrated by the PxG® planetary servo gear unit

All the components in the gear unit have been designed for minimum wear and a long service life.

Maximum efficiency: Overall efficiency of up to 94%, due in part to the use of our friction-optimized Premium Sine Seal oil seal, which extends the replacement interval for seals by 100% and reduces sealing losses by 45% compared to conventional sealing systems.

Smallest possible rotating mass for energy-efficient acceleration

Energy-optimized design thanks to the use of different programming solutions to increase efficiency from 93.4% to 94.3% and reduce gear unit losses by 14%.

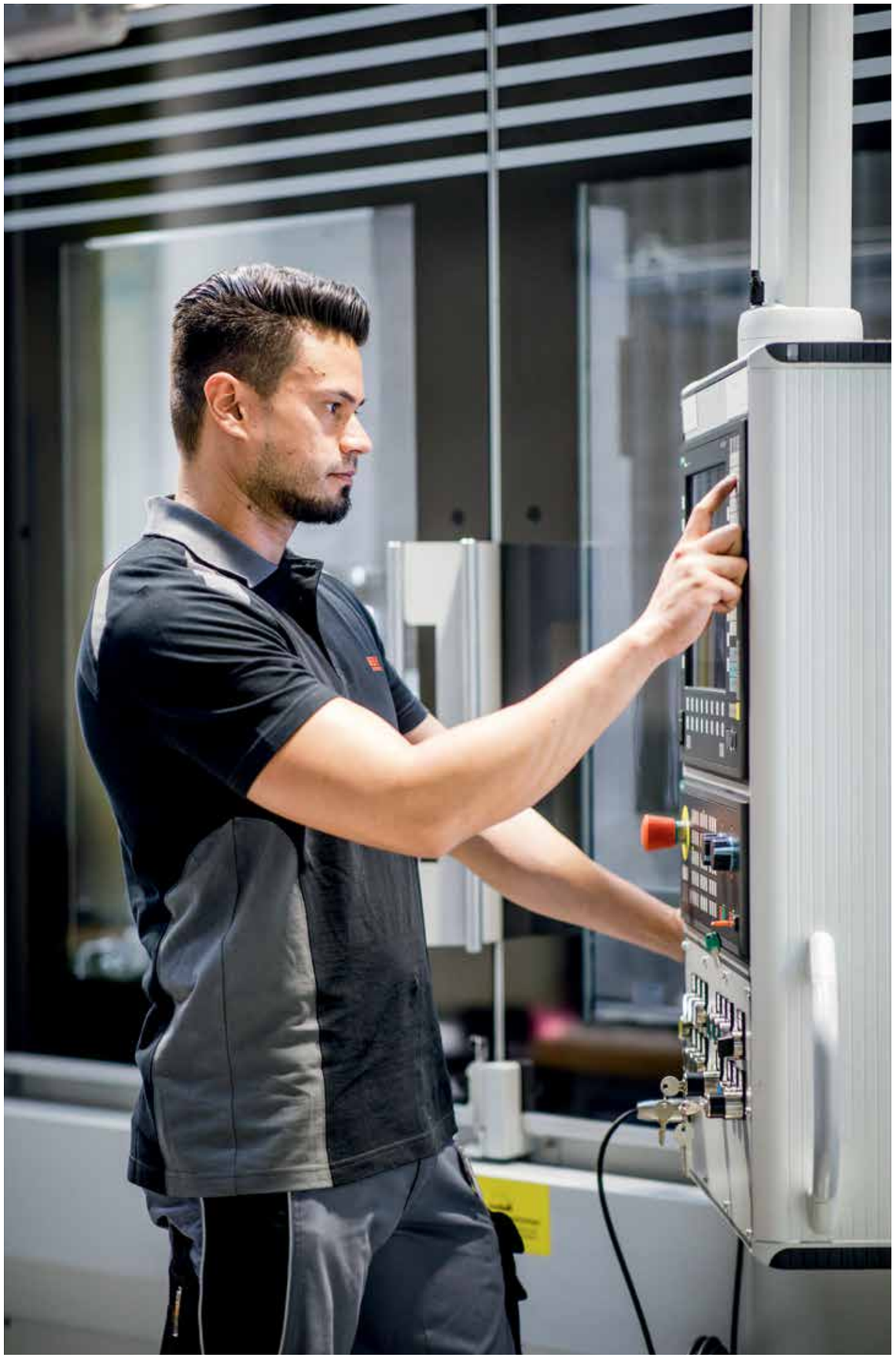
Lubrication for life eliminates the need to change lubricant

All PxG® gear units are supplied unpainted for optimum recyclability. Instead of being painted, they are given a special heat treatment for consistent corrosion protection. We can avoid the use of paint on many other aluminum product series.

Thanks to its use of GearOil by SEW-EURODRIVE, which incorporates cutting-edge additives, the PxG® planetary servo gear unit exhibits excellent aging resistance and ensures maximum wear protection for gearing and bearing parts.

Every product has a digital twin. This virtual version of the product documents both the product in its as-supplied condition and other relevant details that facilitate optimum, resource-saving service monitoring.

Extremely low noise emission levels




D11
KUKA

Driving down CO_2 emissions by 84% – GearFluid is a high-end premium lubricant made from high-quality biomass

84

The carbon footprint of GearFluid is an impressive 84% better than that of petroleum-based polyglycol base oils.

The challenge – developing a sustainable gear unit lubricant
A company such as SEW-EURODRIVE, which has been building and developing gear units for all sorts of uses for over 90 years, has considerable expertise in tribology, which is the study of friction, lubrication, and wear on interacting surfaces in relative motion.

In April 2022, we launched GearFluid Poly 220 E1, a product that draws on this expertise to provide the first CO_2-reduced gear unit lubricant made from sustainable biomass.

The implementation – a gear unit oil based on sustainable biomass
What makes our "GearFluid" sustainable gear unit oil really stand out from other industrial gear unit lubricants is the raw materials it is made from. Instead of utilizing petroleum or some other fossil raw material, as is usually the case, GearFluid is made from sustainable biomass. This improves the carbon footprint of GearFluid by an impressive 84% compared to petroleum-based polyglycol base oils. However, there are many more benefits both for the environment and for our customers.

One important aspect of the biomass we have developed is that it does not need to be specially produced for us and does not take up any additional agricultural land. Instead, our biomass comes from green cuttings and food waste, which is readily available and can now be very easily recycled.

This biowaste undergoes a complex synthesis process that transforms it into a high-quality base oil. The biomass used for this purpose complies with the EU Commission's Renewable Energy Directive. We have even thought carefully about the packaging, with the canisters made with 25% recycled plastic.

The customer benefits – less lubricant, lower CO_2 emissions, higher efficiency

Outstanding potential
Switching all demand for polyglycol lubricant in VG220 at SEW-EURODRIVE (approx. 250 000 liters) over to GearFluid would save 545 metric tons of CO_2 a year. That is equivalent to the annual carbon emissions of 341 mid-range cars with a total mileage of 3.4 million km.

Better efficiency
A service life that is up to 50% longer than conventional polyglycol oils and up to three times longer than mineral oils

As high-quality as always
Low friction coefficients, high thermal and mechanical stability, and maximum wear protection for the gearing and rolling bearings combine to reduce the risk of failures.

Carefully tested
GearFluid satisfies the stringent quality requirements of SEW-EURODRIVE testing specification No. 07 004 03 13.

Ecological standard
Suitable as an initial fill for many standard gear units and standard gearmotors as well as for servo gear units and servo gearmotors


2

Better energy efficiency across the entire system

For many years, our product development work has focused on delivering energy efficiency and thus safeguarding resources to the fullest extent possible.

By maximizing energy efficiency at the concept development stage, we aim to make our drive solutions as economical as we can. One good example for this is the inverters in the latest generation of our MOVI-C® modular automation system. All the variants and products in this range satisfy the IE2 standard for inverter efficiency. Thanks to a compact product concept, we are using less aluminum, and we have also cut down on the use of potting compound, opting instead for separate assemblies, which simplifies repair work. Regenerative units, energy storage devices, a standby mode, energy-saving functions, and energy-efficient brake management help us achieve further savings. Another contributing factor to these savings is the use of simulation software when developing parts that are relevant to heat dissipation.

When rating energy efficiency, both the motion task as a whole and the complete drive system are key.

40

The energy consumption for a motion task can be reduced by 40%.

Over the next few years, we will continuously expand our established DRN modular system of motors in energy efficiency class IE3.

To do that, we are initially taking the traditional approach of enhancing the efficiency class of the individual components, meaning the drive's efficiency is measured exclusively based on rated torque and rated speed. When it comes to international standards, IE4 is viewed as the technological limit for asynchronous motors. At this level, the properties of the motors, particularly during startup, pose a challenge when it comes to the strain that is placed on machinery and systems in line operation. As a result, there are only a few specialist applications where an IE4 asynchronous motor is a suitable solution from the viewpoint of both energy efficiency and drive technology. That is precisely why we are implementing an IE4 variant from within our DRN series – so we can offer a modular solution for these requirements, too.

The key to making energy savings in the near future lies in the application. A paper issued by the European Committee of Manufacturers of Electrical Machines and Power Electronics (CEMEP) refers to potential energy savings of up to 40% when using speed-controlled systems.

This means that, despite the additional losses brought by a frequency inverter, the amount of energy required to complete a motion task can be reduced by 40%.

We believe that this, combined with other benefits of frequency inverter-controlled systems

(for instance, being able to control drives dynamically in line with the application and incorporate the asset digitally), will see the proportion of inverter-controlled motors rise from 30% today to at least 80% in ten years.

This will lead to a much more energy-efficient and therefore more sustainable approach when evaluating the energy consumption of the drive system for a motion task in an application. Instead of the various individual components of the drive system being evaluated based on their rated characteristics, they will be evaluated based on how they work together with the entire drive system – comprising inverter, cable, motor, and gear unit – at specific load points in the application. The methods for doing this were set out back in 2018 in the IEC61800-9 series of international standards.

This is why the second strategy we are pursuing for our portfolio of motors focuses on expanding our existing modular system with add-ons that have been specially developed for inverter operation.

There are several technologies that can be used for this purpose. For example, magnets can be installed in the rotor to increase the dynamics of the drives and minimize size, while maximizing the efficiency of the drives in a very broad range of uses. We will be using this Integrated Permanent Magnet (IPM) technology primarily in the smaller sizes.

Besides championing energy efficiency, we will also be factoring in the use of raw materials by putting reluctance motors front and center. This technology also achieves very high energy efficiency, but can do so without using any magnets whatsoever – thereby eliminating the need to use materials that are becoming scarce.

80

We estimate that the proportion of inverter-controlled motors will increase from around 30% today to at least 80% in ten years.

Added energy efficiency from virtualization and digitalization

The ever-growing opportunities associated with virtual simulations and digital models can play an important role in helping save energy during product development stages. They can also provide valuable insights into how a product will actually be used and thus help developers focus on what really matters.

Generally speaking, preliminary simulations that are run during development projects help to deliver important findings at an earlier stage. As a result, far fewer practical experiments and specially built models or prototypes are needed, which can save a lot of resources.

One specific example of this is a virtual simulation of oil flows, which helps eliminate the need to carry out experiments in a test center. Reducing the number of prototypes and experiments means less material is used and less CO_2 emitted.

Simulations can also support analyses to establish potential reductions in power losses. This results in higher operational efficiency standards and thus much lower current consumption. Once again, oil flow simulations offer a good example for this. The same applies to oil level optimizations during operation.

Shortening the test run times for XS.e

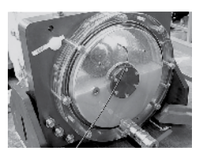
In another project, we succeeded in reducing the testing time for installed units from the XS.e series. Specifically, this meant being able to tell after just 15 minutes whether the temperature sensor was in line with the approximate progression forecast. As a result, the development team was able to reduce the overall testing time for each unit from 2 hours (one hour each for counterclockwise and clockwise rotation) to 30 minutes, which equates to a total annual saving of approximately 4500 hours.

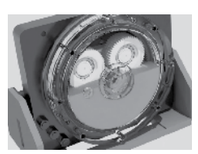
We intend to roll out this model for all single-piece housings and additional sizes.

When rating energy efficiency, both the motion task as a whole and the complete drive system are key.

4500

hours in total of annual savings on the testing time for the XS.e series





← **Fig. 1**
The real thing in the test center

← **Fig. 2**
A digital simulation
When it comes to development projects, advance simulations offer great opportunities by providing early insights, lowering costs, and reducing the number of experiments required.

Reusing and recycling spring-loaded brakes

The challenge – making composite materials recyclable
We believe that SEW-EURODRIVE's product responsibility extends beyond the end of the customer's operation phase (end of use) and only comes to an end after final utilization (end of life). For example, all the main components of a gearmotor, such as gray cast iron, aluminum, and copper can be recycled and can all be fed back into the production cycle. We are continuously working to develop new ideas and concepts that will support an optimum circular economy. One example of our achievements in this regard is the reuse and recycling of spring-loaded brakes.

The company manufactures more than 1.5 million of these brakes every year at three sites and one of the key components in each brake is its opening system. The force of an electromagnet helps to overcome the braking force of the mechanical spring fitting and open the brake electrically. The coil used for this purpose is integrated into a magnet body made of cast iron and embedded in a sleeve made of cast resin. Although this is certainly a neat solution from a technical design viewpoint, it poses certain problems on an environmental level. Before a composite structure such as this can be reused, it needs to be broken down into its constituent parts. Until now, there has not been an efficient way of removing the thermoset cast resin.

The implementation – isolating the individual materials and components for reuse
In 2019, the first step was taken to investigate and verify the basic feasibility of a process for separating out copper. The project team found it was possible to disintegrate the cast resin and all other plastic components to leave behind just the magnet body and the copper. During a second step in 2020, the process was scaled up from laboratory scale and implemented as a production process in the factory (along with the corresponding sorting, separating, and treatment processes).

1.5
million spring-loaded brakes are manufactured each year at three sites.

Lab tests have shown that the magnet bodies left at the end of this process exhibit exactly the same level of magnetism, look perfect, and can be repainted without any problems. In 2021, following successful carbon accounting and after determining the process engineering parameters for the separation procedure, the new technique was rolled out in the internal production cycle for testing purposes and has been playing a considerable role in conserving resources ever since. The sorting, separating, and treatment process is to be fully integrated into our production cycle by the end of 2022. We are also working on a discount or deposit return model to make this recirculation scheme as attractive as possible to our customers.

Outlook – recycling more magnets, taking a rotor as an example

As part of a project initiated in early 2022, we aim to leverage the expertise we have acquired through the recycling project for spring-loaded brakes for other magnetic materials. One of the main challenges in this regard is separating the magnets from the rotor without damaging them.

As a first step, we researched the circular economy for magnetic materials and investigated the technical feasibility of reusing undamaged magnets. Having conducted a technical analysis on used rotors and thoroughly investigated the demagnetization, treatment, and reuse of the magnets, we will be taking measurements on prototypes built with recycled magnets. The next stage after that will be to analyze the potential of reusing damaged magnetic material and carry out supplier analyses on recirculation and reuse by magnet manufacturers and on resale as separated scrap. The final step will be to draw up a design guideline for new products that will optimize the recyclability of magnets and to re-evaluate the environmental impact of the rotor.

The key objectives

When it comes to reusing and recycling magnetic materials, our aims are as follows:

+ Improving resource efficiency and environmental protection
+ Avoiding waste as a component of sustainable industrial production
+ Proactively preparing for potential future regulatory requirements
+ Enhancing security of supply
+ Safeguarding costs

Holistically sustainable service concept and excellent ease of maintenance

It is part of SEW-EURODRIVE's DNA that its products should always be designed to be as maintenance-friendly and repair-friendly as possible. For example, our gear units and gearmotors can be disassembled non-destructively and then reassembled again once faulty or worn parts have been replaced. In addition, all individual components are available worldwide for decades. This means we can extend the service life of our existing products and services and avoid unnecessarily using up resources.

Our Life Cycle Services represent the next logical step in this approach. They are based on the concept of a holistic and carefully thought-through closed loop that covers the entire service lifespan of a product while it is in use with the customer.

1
Guidance in the form of personal advice on trends, issues that will arise in the future, application and industry know-how, regulations, and specifications

2
Planning and engineering, such as concept development, variant management, and energy consulting

3
Procurement and supply, such as via electronic data exchange, delivery services, and electronic dispatch notifications

4
Installation and startup, including advice on nstalling and programming the application

5
Operation at the customer's premises, including product monitoring via remote services, repairs, servicing, maintenance, Spare Parts Service, and energy efficiency tools

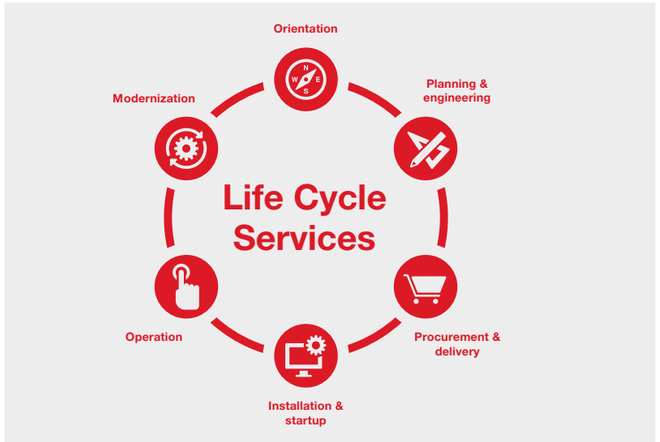
6
Modernization through retrofitting

↑ **Fig. 1**
Inspection & maintenance, thermography

Thanks to this service from a single source, which is provided by a dedicated contact, our customers can rest assured that they are getting the best possible expertise and advice for their drive technology.

So what exactly is sustainable about that?

Example – the maintenance-friendly connection between gear unit and motor
The connection between the gear unit and motor on all our standard gearmotors offers a good example of just how maintenance friendly our solutions are. It is made via a pinion shaft that has a key and a mounted pinion with a corresponding slot. Unlike on crimped pinions, this connection can be disassembled without destroying the parts. Any necessary repairs can be carried out at the customer's premises or in one of our service centers.



We ensure that our customers get precisely the solution they need – we manufacture with precision and to suit the market.

How our Life Cycle Services are sustainable

By providing personal consulting and working in partnership to plan customized drive and automation solutions, we ensure our customers always get precisely the solution they really need. In other words, we always manufacture with precision and to suit the market.

As we continue to digitalize our supply chain, we are continuously driving down the amount of paper we use while simultaneously maximizing transparency.

Together, a preliminary in-house check and startup support ensure that our gearmotors run as smoothly as possible on an efficient and resource-friendly basis from the outset.

Thanks to our remote services, we can leverage predictive maintenance to reduce repair outlay and therefore the associated production of spare parts.

A customized and broad-based spare parts production system that satisfies the highest standards in technology and quality helps us maximize flexibility while minimizing costly and energy-hungry downtime and extending the dependable service life of our components.

By providing our Pick-Up Boxes for mechanical drive components as part of our Pick-Up and Delivery Service, we are optimizing the logistics outlay and CO_2 emissions associated with transportation.

Our retrofitting and modernization concept ensures that every system can be kept up to date and in the best possible energy-efficient state.

Our 800 sales and service experts provide 30 services at 33 sites directly and rapidly, thereby enabling us to reduce the energy use and resource consumption otherwise associated with long journey times.

Thanks to condition monitoring and DriveRadar®, we know today what will happen tomorrow

The more effectively, regularly, and consistently the data from a system or machine can be measured, the higher the probability that concepts such as preventive or predictive maintenance can avoid unplanned downtime. The process of gathering this data is known as condition monitoring and involves permanently monitoring systems and analyzing their performance with the aid of sensors to track values such as speed, temperature, and vibration. The measurement data captured in this way can be used to assess the condition of a system and therefore identify deviations, for example, and trigger alarms when limit values are breached.

This permanent monitoring also means engineers can much more accurately determine the timeframe or specific point when a system needs to be overhauled. As a result, our customers don't need to keep a parallel system on hand, as would otherwise be the case, and can thus save on resources.

Early maintenance interventions also mean systems never become so degraded as to cause downtime or even a fire department call-out, neither of which is an efficient use of technical resources. Furthermore, concepts such as these make it easier to plan spare parts inventories, which further enhances efficiency.

59%

Thanks to MOVIGEAR®, current consumption has been cut by 59%.

Another example for predictive service

Our new on-site inverter reforming service, which is part of our Life Cycle Services, now gives customers the option to have these capacitors energized once a year. This stops the inverters becoming fully discharged, which would mean they could no longer be used with the drive.

drive systems. Dedicated cloud solutions and apps ensure maximum dependability and data security. The extent of data and parameters that are captured by DriveRadar® can be adjusted to suit specific customer requirements.

Cloud systems and apps make condition monitoring much more convenient for customers.
SEW-EURODRIVE has created the DriveRadar® brand for its condition monitoring offerings. The brand covers and coordinates all the performance characteristics for condition monitoring and predictive maintenance. The products and solutions that are monitored include smart devices such as intelligent inverters and motors, along with industrial gear units and mobile

DriveRadar® in action
The best way to explain the benefits of Drive Radar® is to look at a practical example. Take, for instance, our project to implement condition monitoring at Europe's leading manufacturer of EPDM® sealing products.

To prevent unplanned downtime, we fitted out two extruder gear units with our DriveRadar® system. Ethylene propylene diene (EPDM) rubber is a synthetic rubber. In this scenario, we measure and monitor:

+ The temperature of the oil sump and surroundings
+ The oil fill level
+ The input speed
+ Vibration on the rolling bearings and gearing

At frequent intervals, the collated sensor data is encrypted and transmitted via a mobile network to a data center that boasts excellent availability and has been certified to ISO/IEC 27 001. The data is then evaluated and interpreted on an automated basis in the data center. Specific assessments can then be made regarding the condition of the rolling bearings and gearing (including a prediction of remaining service life), the date for the next oil change, the oil fill level, and the viscosity of the oil.

By using a traffic light system to depict condition values and forecast values, the DriveRadar® IoT Suite web application makes sure that imminent damage and target value breaches are always readily identifiable.

In addition to familiar benefits such as less downtime, lower maintenance costs due to longer breaks between services, targeted fault elimination, and the avoidance of knock-on damage, these measures also help to safeguard resources. For example, when the replacement of parts such as rolling bearings is accurately planned, we can ensure we have the parts needed in stock when required. We can also extend the service life of oil in the system by determining how the oil level changes in line with use.

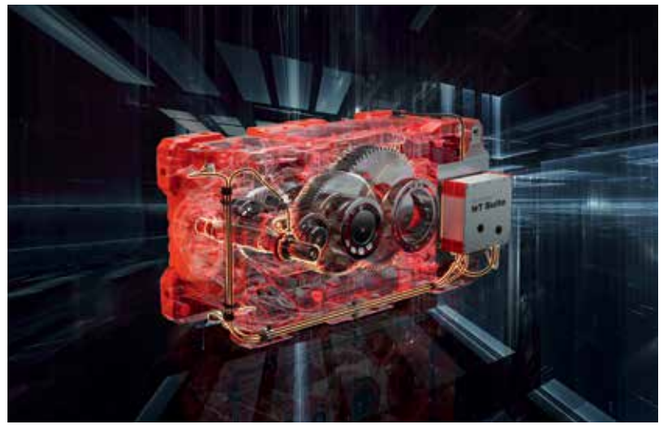
59% lower current consumption: Retrofit concept boosts the sustainability of conveyor belts
One of the world's biggest logistics center operators was faced with an increasingly pressing need to retrofit and modernize its conveyor belts at four sorting centers in the USA. Safety covers made the existing competitor solutions difficult to access and required special maintenance concepts for the drives and belts that posed certain mechanical challenges. In addition, a larger volume of spare parts had to be kept in stock.

A further, key disadvantage was high energy consumption, not just in the drive and gear unit themselves, but also through power losses in the belt drive, cam drive, and toothed gear drive.

SEW-EURODRIVE was brought on board through a collaboration partner. By switching over to our easily installed MOVIGEAR® mechatronic drive system, our customer's company was able to drive down total cost of ownership, for instance by eliminating the costly storage of spare parts. Our solution also makes it much easier to replace components while the system is running.

The clear reduction in current consumption – which was cut by more than half – was a considerable improvement from an environmental standpoint.

Over the selected period, the conventional drive system required electrical power of 254 W on average, with a maximum spike of 5714 W, while MOVIGEAR® required electrical power of 104 W on average, with a maximum spike of 497 W. MOVIGEAR® was thus able to reduce current consumption by 59%.



↑ DriveRadar IoT Suite for industrial gear units

Outlook: The SEW-EURODRIVE roadmap for sustainable product and service concept development

Product-specific carbon accounting

+ **July 2022:**
  Overview of activities for creating efficient product-specific carbon accounting
+ **Q2/2023:**
  Results of pilot project for product-specific carbon accounting relating to a mechanical and mechatronic product
+ **Q2/2024:**
  Product-specific carbon accounting – system and infrastructure for automated creationready, rollout plan drawn up
+ **Gear unit development:**
  Reduction of CO_2 emissions in heat treatment – selected options EGT-WT

Sustainable product development / resource-efficient products

+ **Q4/2022:**
  Initial publication of the design rules catalog

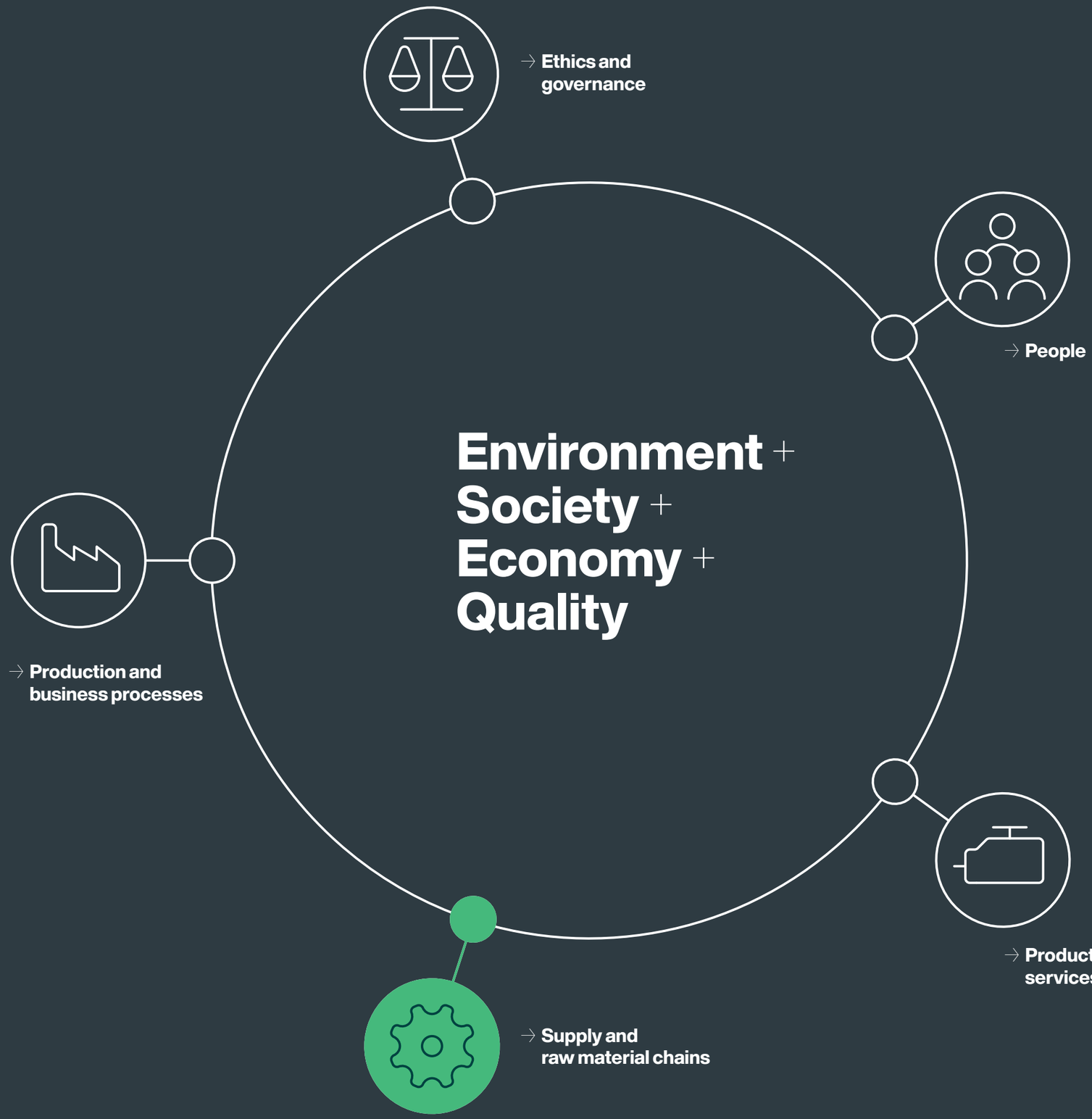
Products suitable for closed-loop systems and recycling

+ **Q4/2022:**
  Process implemented for reusing brake components within the factory
+ **Q4/2022:**
  Feasibility of closed-loop processes for magnets investigated
+ **Q4/2023:**
  Clarification of additional subprocesses within the setup of material loops
+ **Tbd:**
  Business model for product returns developed
+ **Tbd:**
  Business model for product returns rolled out

Further steps
+ Implementation of closed-loop processes for reusable components
+ Establishment of return process / business model for reuse

Supply and raw material chains

+ Collaborative supplier management
+ Resource-friendly raw material sourcing



At home around the world
Keeping things local

"Act global – think and buy local." For many companies, a combination of globalization and localization – sometimes known as "glocalization" – has become the best possible approach when it comes to shrinking their carbon footprint. Given the many problems currently impacting supply chains, a large number of businesses are making concerted efforts to achieve as much flexibility as possible moving forward. They are looking to avoid overdependence on individual countries and regions.

The same applies to the supply and raw material chains of SEW-EURODRIVE. To achieve our aims of minimizing our carbon footprint and maintaining a healthy supply chain, we aim to use our global network to ensure both the procurement of raw materials and our products and solutions themselves are located as close as possible to our sites and our customers. By keeping transportation routes short in this way, we will reduce our CO_2 emissions and minimize the amount of packaging involved.

50

Percent
less paper inside four years (2017 – 2021)

211 174

kilometers of entirely carbon-free personal travel
completed with Deutsche Bahn

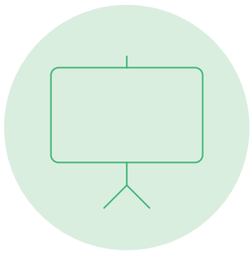
Our specially developed KPI both demands and nurtures sustainability among our suppliers.
Reviewing the sustainability of our service providers and suppliers is a key element in our supplier management system. To help us do that, we have established a special key performance indicator that is used in the overall assessment we carry out on our business partners. This is another area where we are in harmony with the general trend among our customers and society as a whole in terms of making the entire value chain greener and more environmentally friendly.

At the same time, we are working hard to prepare for the German Supply Chain Due Diligence Act (LkSG), which comes into force on January 1, 2023. The Act gives companies a clear legal framework for fulfilling their duties of due diligence under human rights law.

37 524

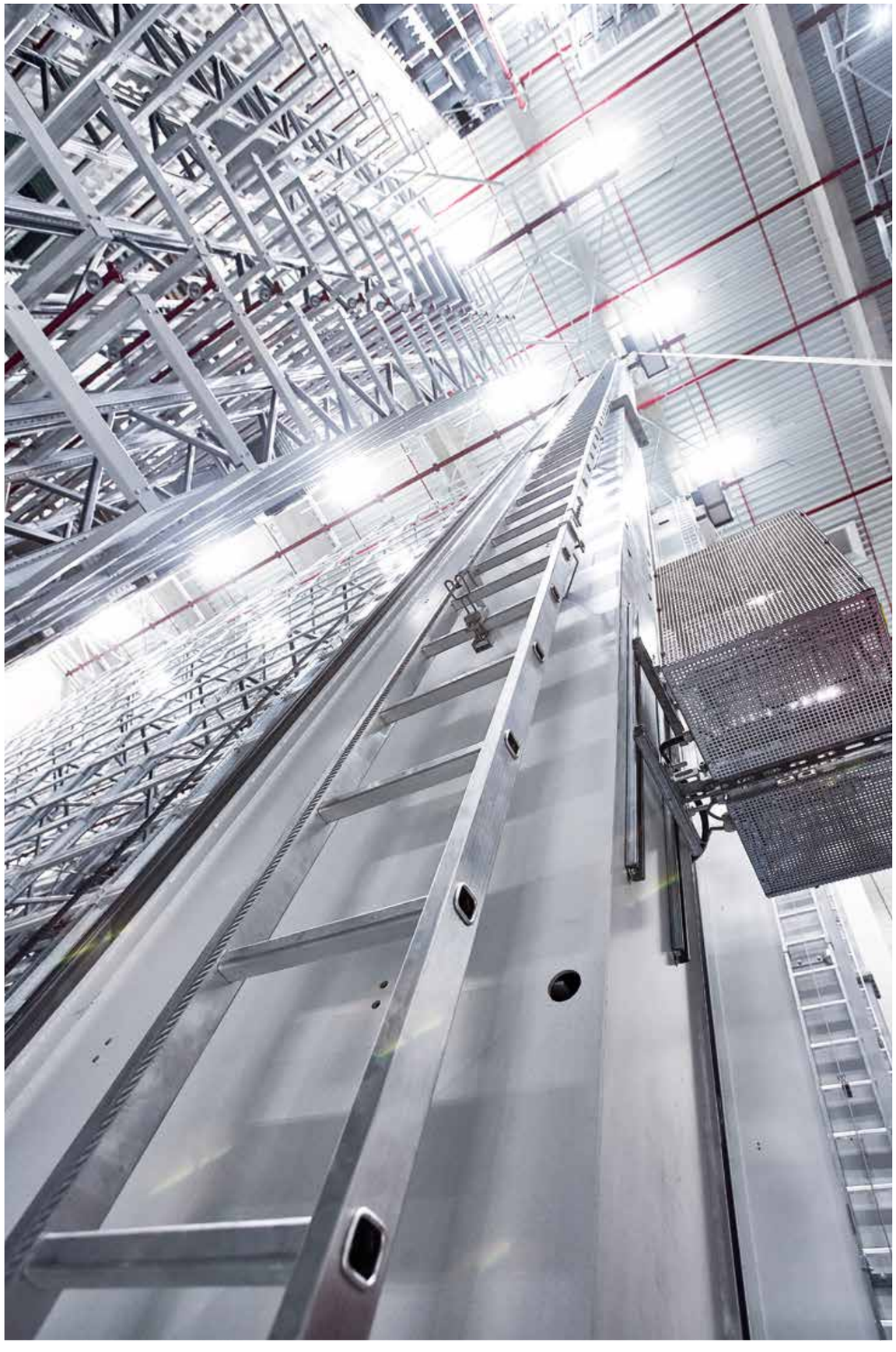
kg of CO_2 equivalents to
offset greenhouse gas emissions
through environmental protection projects

**Act global –
think and buy local.**



Since
2020

ordering and procurement processes
have been entirely digital,
and therefore paperless



Our procurement guidelines

Looking beyond the Supply Chain Due Diligence Act, which comes into force at the start of 2023, SEW-EURODRIVE is already working in line with statutory regulations and directives. These include:

The REACH regulation, which is the European chemicals legislation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

The RoHS directive for limiting the use of certain substances in electrical and electronic devices, such as lead, mercury, and cadmium.

The U.S. Dodd-Frank Act for keeping conflict minerals such as gold, tantalum, tin, and tungsten out of supply chains to eliminate them as a source of financing for violence and human rights violations in conflict zones and high-risk regions.

The WEEE directive for the environmentally friendly disposal of electrical and electronic equipment
and other associated provisions

These rules and regulations set out various requirements for our products that affect the substances they contain as well as the environmental friendliness of the products themselves and how resource friendly they are. All the products and materials that are supplied to us must meet these requirements. What's more, all the individual suppliers are also required to ensure these standards are met in their own supply chain. Terms and conditions of purchase make reference to the finer details of these provisions (product compliance guideline).

Terms and conditions of purchase to download:

A tighter focus on sustainability both now and in the future

While refining and realigning our collaborative approach to supplier management, we decided to make a major change. In the past, our priority in procurement has been to secure the best and most consistent material quality at the best possible conditions on very different markets.

However, focusing exclusively on conventional requirements such as cost reduction and risk minimization is no longer enough. Instead, procurement will need to take account of not just the origin and price of procured services and products, but also – and more especially – their use and subsequent disposal.

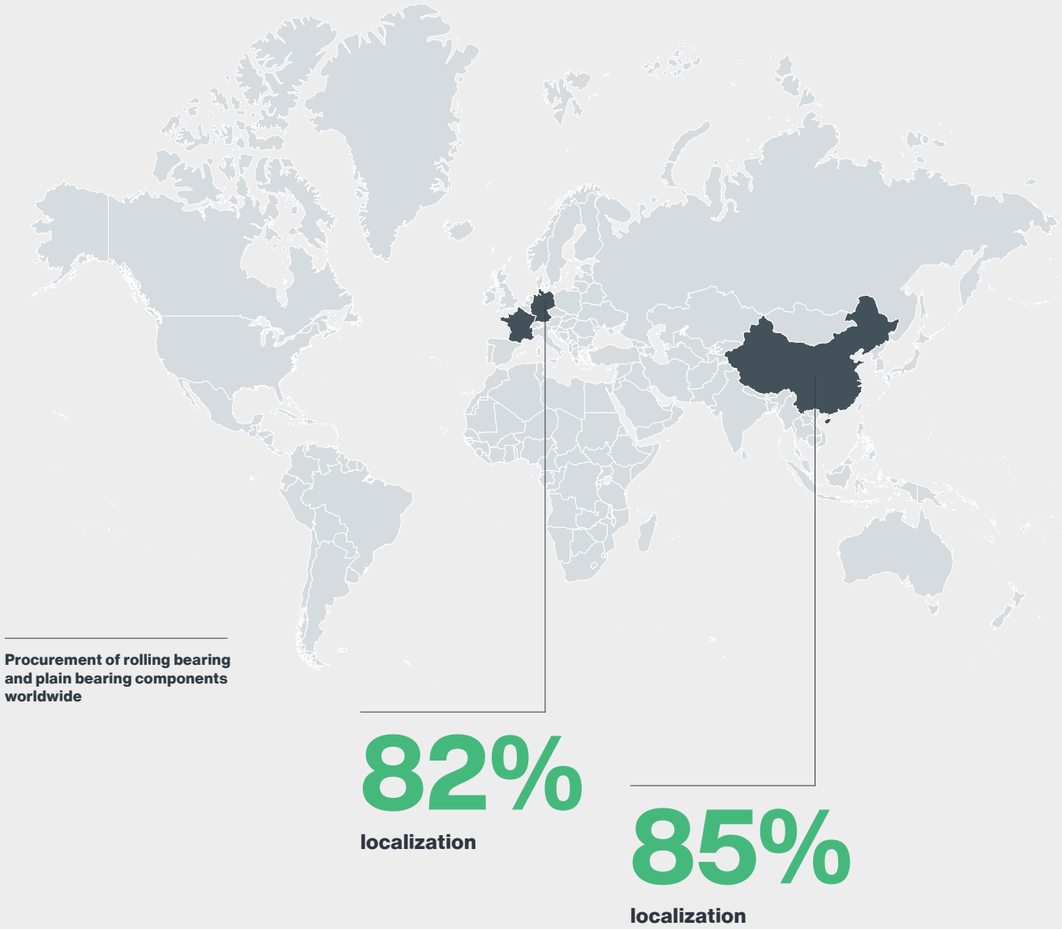
With this in mind, we have developed a key performance indicator for sustainability. This system enables us to examine various criteria in order to assess how sustainably a company operates. The following pages set out how it works.

Procurement will need to take account of not just the origin and price of products, but also – and more especially – their use and subsequent disposal.

How we aim to achieve more sustainability

- Focusing on consistently environmentally friendly and resource-friendly product design with a minimal carbon footprint, including the procurement of suitable raw materials and the use of materials that can be recycled as easily as possible
- Extending the zero-paper strategy by fully leveraging opportunities for digital collaboration both internally and externally
- Continuously optimizing business processes to ensure the efficient and sustainable use of resources
- Reviewing global supply chains on a yearly basis, particularly to expose and tackle inhumane working conditions
- Establishing collaborative supplier relationships with a focus on mutual reliability and social responsibility
- Continuing to specifically prioritize local service providers and suppliers
- Complying with international product compliance directives in collaboration with our suppliers as a way of protecting people and the environment
- Extending due diligence measures to ensure compliance with the German Supply Chain Due Diligence Act
- Maintaining transparency in the global supplier pool so risks can be systematically analyzed and targeted measures implemented
- Using procurement to drive innovation so as to put ecological and social values on an equal footing with economic profit

Resource-friendly raw material sourcing based on the example of rolling bearing and plain bearing components



Procurement of rolling bearing and plain bearing components worldwide

82%
localization

85%
localization

Localized production of rolling bearing and plain bearing components. CO_2 emissions saved

Savings
in 2021

1 858 208 kg

By procuring rolling bearing and plain bearing components from our partners based on the principle of keeping production as local as possible, we were able to save a total of 1 858 208 kg of CO_2 emissions in 2021 with one supplier within the framework of our supply chain.

Introduction of a dedicated sustainability KPI

Through our KPI, we aim to make it much easier to ensure our suppliers operate in line with sustainable criteria for the benefit of SEW-EURODRIVE and our customers.

The KPI comprises twelve separate criteria, each weighted with points. Six of these criteria are knock-out requirements.

The sustainability information collated in Procurement comprises environmental, economic, and social criteria that can be verified on a factual basis (e.g. certificates).

The assessment process looks at key elements such as company sustainability (environmental aspects of procurement and energy-efficient procurement) and product compliance (e.g. conflict minerals, RoHS and REACH declarations, and UL approvals).

Different categories also have different weightings. While forced labor and discrimination are knock-out criteria, other aspects such as social management, anti-corruption measures, and environmental management are factored into the evaluation with a factor of two, four, or five.

12

different categories for our key performance indicator

Specific data gathering methods have also been defined to ensure the various criteria are scored as reliably and credibly as possible. Naturally, maximum data security is ensured throughout all data processing and evaluation procedures.

The KPI produces a sustainability score that is factored into annual strategic supplier evaluations and a one-off supplier assessment carried out at the start of the collaboration.

The sustainability information collated in Procurement comprises ecological, economic, and social criteria.

Award for holistic eSolution supplier scouting
In 2021, the German Association for Supply Chain Management, Procurement and Logistics (BME) presented us with an award for the all-round innovative approach we have adopted in our supplier scouting activities for eSolutions. The BME was particularly impressed by the holistic supply chain management we have put in place for procuring IT solutions. As part of its "Procurement 360°– see the big picture" initiative, SEW-EURODRIVE put procurement front and center as an interface manager. The Procurement team works with the relevant specialist departments to coordinate the approach, thereby enabling it to control the selection process efficiently and professionally to the company's advantage. Collaborating closely with an AI-supported scouting platform solution ensures suitable potential suppliers can be found in next to no time based on precisely the criteria that matter most to the company carrying out the search. These criteria include high quality standards, sustainable technologies, and much more besides. This approach helps to largely remove the need for costly and time-consuming visits to trade fairs, which in turn benefits staffing and environmental resources.

This lighthouse project has since helped the Procurement team convince other departments and units of how valuable a central procurement management system is when it comes to achieving maximum cost-efficiency and environmentally friendliness in our company.

An outstanding example of digitalization and sustainability working hand in hand
Optimized and focused supplier research that incorporates a fully digitalized scouting process makes it possible to investigate and document sustainability criteria across a much broader range.

The result of this innovative scouting can also be reported in unambiguous figures:

12 ×

AI ensures that twelve times as many suitable suppliers are scouted than is the case when using conventional supplier research processes

+70 %

Some 70% more suppliers were kept in the process up to the point data was queried

75 %

Some 75% less outlay for SEW-EURODRIVE compared to conventional supplier research

Environmental management system
ISO 14001

+ Status regarding conflict minerals

1 Environmental management system
2 Product-based carbon footprint
3 Energy management system
4 Social management system
5 *Minimum age for employment
6 *No minors undertaking work that poses health risks
7 *No forced labor/ forced prison labor
8 *Right to union membership/ co-determination negotiations
9 *No discrimination
10 Anti-corruption measures
11 Code of Conduct

0% ≤ Sustainability KPI ≤ 100%

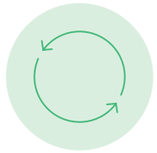
Establishing sustainable container management

When an international drive technology supplier such as SEW-EURODRIVE wants to minimize its carbon footprint, it is only logical that it should scrutinize its logistics chain. That includes putting in place the most sustainable and therefore most environmentally friendly management system for transportation and load handling possible. A key step in this process is establishing sustainable closed loops for containers, both within internal production sequences and in external dealings with customers and suppliers. The following are crucial areas of focus:

+
Reducing loss and depletion

+
Using reusable containers

+
Repairing containers instead of replacing them with new ones

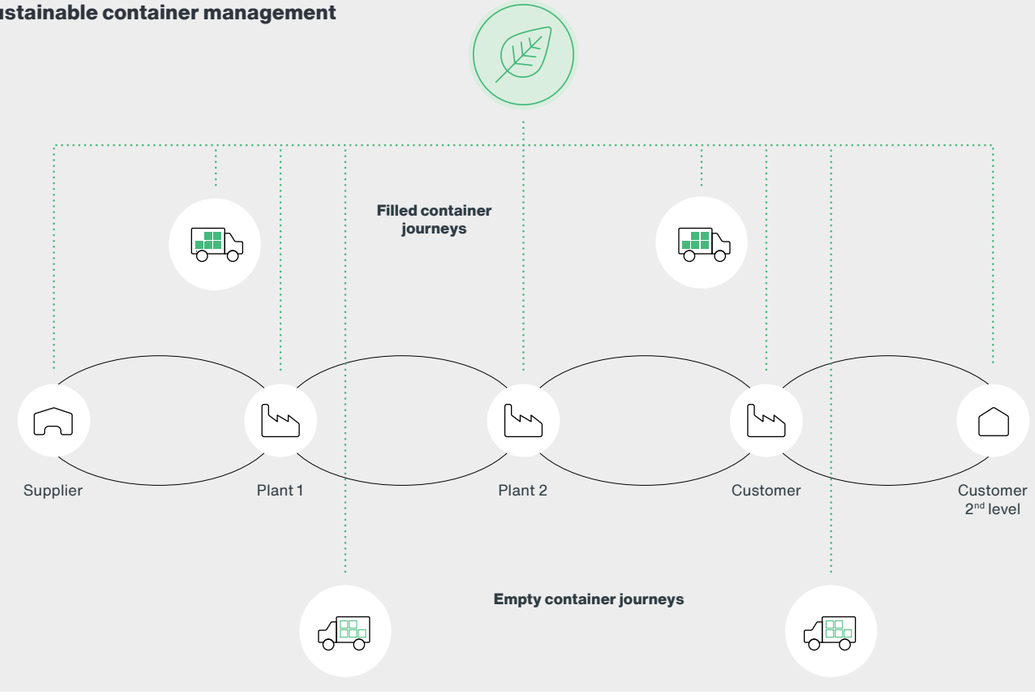


Thanks to our recycling partners, we can feed a lot of waste materials back into the material cycle in their entirety.

As part of this strategy, we want to avoid the environmentally harmful practice of sending out trucks empty. Instead, we aim to gradually establish the circulation of cargo containers between various SEW-EURODRIVE sites, with tracking systems for cross-site transparency and resource-friendly container management. In the future, there will be digital systems for capturing all the data generated during this process. AI solutions can then leverage this data to ensure deliveries are focused as efficiently as possible and carried out on as environmentally friendly a basis as possible.

Professional recycling of various types of metal scrap
When it comes to conserving resources and protecting the environment, asking "how?" is often more important than focusing on "what". Thanks to the cutting-edge technologies that our recycling partners use, we can process a lot of the materials left over from production in their entirety, without leaving anything behind, and feed them back into the material cycle. An ingenious material-type management system also ensures that metals are not downcycled, an environmentally harmful process whereby metals are reduced in quality when they are recycled. As part of an holistic approach to environmental management, our recycling partners also implement noise reduction concepts to minimize their impact on nearby residents and pursue rigorous measures to protect the soil and groundwater.

Sustainable container management



Further examples of partners for optimum resource conservation
Other examples of SEW-EURODRIVE partners include an iron foundry that has a silver eco-rating from EcoVadis and a Green-Machine mechanical engineering firm. The foundry smelts down 100% of the material waste associated with the cast housings it manufactures for us, using it in the production of new parts. Meanwhile, our mechanical engineering partner manufactures machines for us on a carbon-neutral basis, meaning that when they arrive at our company, they can be put to good energy-efficient and low-emission use.

Our administrative operations are also pursuing very promising approaches to resource-friendly sourcing by procuring hardware from an eco-friendly global closed-loop system and working with a partner for office supplies that is dedicated to sustainability. Our hardware procurement partner already utilizes recycled plastic in its product design, procures 50% of its materials from recycled sources, and refurbishes used PCs and laptops. Meanwhile, our office supplies partner is aiming to make closed-loop packaging available for all products by 2025 and achieve the ambitious target of a "zero-waste workplace" by 2026.

We also take the most sustainable approach possible when it comes to reusing discarded smartphones and cellphones, thanks to usage-oriented asset lifecycle management.

Low-carbon green steel production
Green steel is manufactured for SEW-EURODRIVE in a process where CO_2 emissions have been reduced as much as possible by using recycled waste and electric arc furnaces that are powered entirely by renewable energy. Only around 110 kg of CO_2 are emitted per metric ton of raw steel, which is 90% less than the global average.

Outlook
Our next steps

We aim to use the following projects to further improve our supplier and procurement management over the next few years:

+
Running a pilot project to reduce packaging

+
Reducing the use of VCI film packaging materials

+
Scouting innovative and sustainable supplier solutions that generate added value on economic, environmental, and social levels

+
Expanding risk management to include sustainability criteria

+
Adapting supplier evaluation and self-appraisal accordingly

+
Adjusting the sourcing strategy and the associated supplier base

+
Conducting a value analysis based on sustainability and covering all supply chains

Production and business processes

+ Resource-friendly production
+ Buildings and infrastructure
+ Logistics and mobility
+ Circular economy

Counting on sustainability:

Green lights all round for making production processes and business processes more sustainable

How much CO_2 does a drive solution from SEW-EURODRIVE generate? Given the modular nature of our product portfolio, that question is impossible to answer on a generic basis, since every solution is tailored to a customer's specific needs. We have only limited access to figures, as we are dependent onthe companies in question telling us about the conditions in which their solutions are being used.

Although it is challenging to determine the carbon footprint of our solutions that are actually in use, we are making good progress when it comes to calculating the annual carbon footprint associated with the energy and electricity consumption of our own production operations. The following pages set out an example calculation for our Graben-Neudorf site.

Over

99*

% of our CO_2 emissions are generated in the operation phase, when products are being used by customers

* Based on a strict interpretation of DIN EN 50598.
The calculation method in the standard is currently under review.

How can this high proportion be broken down and split up so emissions can be measured? And most importantly, how can we use this carbon footprint to actually reduce CO_2 emissions? It goes without saying that this can only be done in cooperation with our customers, and we are already working with them to define parameters and determine the extent or percentage to which CO_2 reductions should and could be made.

There are already standards that can be used as guidance for measuring the carbon footprint of gear units and drive technology – ISO 14044 and DIN EN 50598-3 for products, and the Greenhouse Gas Protocol for operational facilities. However, these have not yet been standardized within the EU and the associated carbon footprints are difficult to compare. We cannot wait for legislators to standardize these guidelines, and nor do we intend to. Instead, given how urgent the situation is, we aim to create our own binding standards, ensure they are as wide-ranging as possible, and view them as a challenge to be embraced. We also want to set potential benchmarks for our branches in other countries and thus help roll out these new standards across Europe and the wider world.

ISO 14044

ISO 14044
combines previous
ISO standards 14041 to 14043
and focuses on
life cycle assessment (carbon footprint).

Over

7000

m^2 of green roofs
at the Bruchsal and Graben sites

Calculating our carbon footprint is a major challenge due to the modular principle underpinning our product portfolio.

DIN EN 50598-3

This part of EN 50598 sets out the principles for implementing environmentally aware product design, evaluating ecodesign performance, and communicating the potential environmental consequences of drive and motor systems for applications.

Continuous improvement in both the finer details and the bigger picture.

We aim to enhance our efficiency and added value across individual areas by ensuring our production and assembly processes are ideally coordinated, by enhancing these processes with supporting automation, and by adopting a smart approach to the digitalization of our business processes.

Our highly functional factory and office buildings, which are geared toward maximum efficiency, combine with sustainable energy concepts to play a particularly important part in helping conserve resources. We are continuously investing in the construction and renovation of our buildings to satisfy the latest energy standards, and this includes designing outdoor spaces to be sustainable and close to nature.

In terms of production operations themselves, we constantly strive to further improve workflows across all process chains and avoid waste and inefficiency. This includes, first and foremost, a comprehensive recycling concept for our entire production chain that also incorporates optimized cooling lubricant management for extended service life and a general reduction in quantities of cooling lubricant. The following pages provide more detail on these and other examples, such as using efficient heat pump technology to help dry paint that has been applied to drives at the service sites in Germany, optimized compressed air management, and the ongoing digitalization of our business processes to reduce the amount of paper being used.

One more, overarching activity is the ongoing expansion of our network of assembly, service, and sales sites, which is strengthening our local presence both across Germany and worldwide. This is the only way we can continue to gradually reduce transport and travel routes.

Site:
Graben-Neudorf

Service Competence Center - Mechanics/ Mechatronics

Continuously optimizing our building management and our company's overall environmental credentials in terms of sustainability, energy efficiency, and resource conservation requires a lot of small steps:

- Renovating existing building stock with regard to energy use
- Optimizing lighting management
- Consistently managing the switching off of machinery/ systems and equipment outside of working hours
- Installing PV systems on all new buildings, wherever possible
- Ensuring precipitation water seeps into infiltration pits
- Using rainwater for irrigation via reservoirs
- Creating valuable habitat areas with flower meadows and insect hotels
- Conserving resources by recycling old devices such as smartphones and PCs

Carbon accounting in Graben-Neudorf

The carbon accounting we have carried out in Graben-Neudorf, on one of our biggest and most important production and assembly sites, sets a benchmark and serves as a reference for where our CO_2 emissions are generated and how we can best reduce them.

Around 2000 employees work in production and logistics at the Graben-Neudorf site. Our Service Competence Center for mechanics and mechatronics is also based there. In 2019, a new 40 800 m² workshop was opened for production operations and a 62 000 m² facility is to open in 2023, bringing with it a further 1000 production jobs. In pursuing this growth, we are also implementing a whole range of measures designed to make our operations as environmentally friendly as possible.

-3.4

million metric tons

Reduction in CO_2 emissions between 2019 and 2020

Cutting CO_2 emissions from 26.1 million metric tons (2019) to 22.7 million metric tons (2020)

+
Scope 1 covers CO_2 output from direct greenhouse gas emissions, from burning natural gas, fuel oil, diesel, etc. for stationary systems (e.g. heating) and mobile systems (e.g. the car pool).

+
Scope 2 covers indirect emissions associated with the electricity consumed.

+
Scope 3 covers all other indirect emissions that do not fall under Scope 2, such as the extraction, processing, and transportation of raw materials, the fuel consumption of leased vehicles, waste and wastewater, the operation phase with our customers, and the disposal of products.

The following graphic clearly illustrates that Scope 3, the use of products by the customer, dominates our emissions. Some 99.3% of our CO_2 emissions fall under Scope 3. Or, to put it another way:

Only 0.1% of CO_2 emissions are generated under Scope 1 and Scope 2, and therefore in our production.

The figures:
2020

Scope 1 approx.

7500

metric tons of CO_2

Scope 2 approx.

14 000

metric tons of CO_2

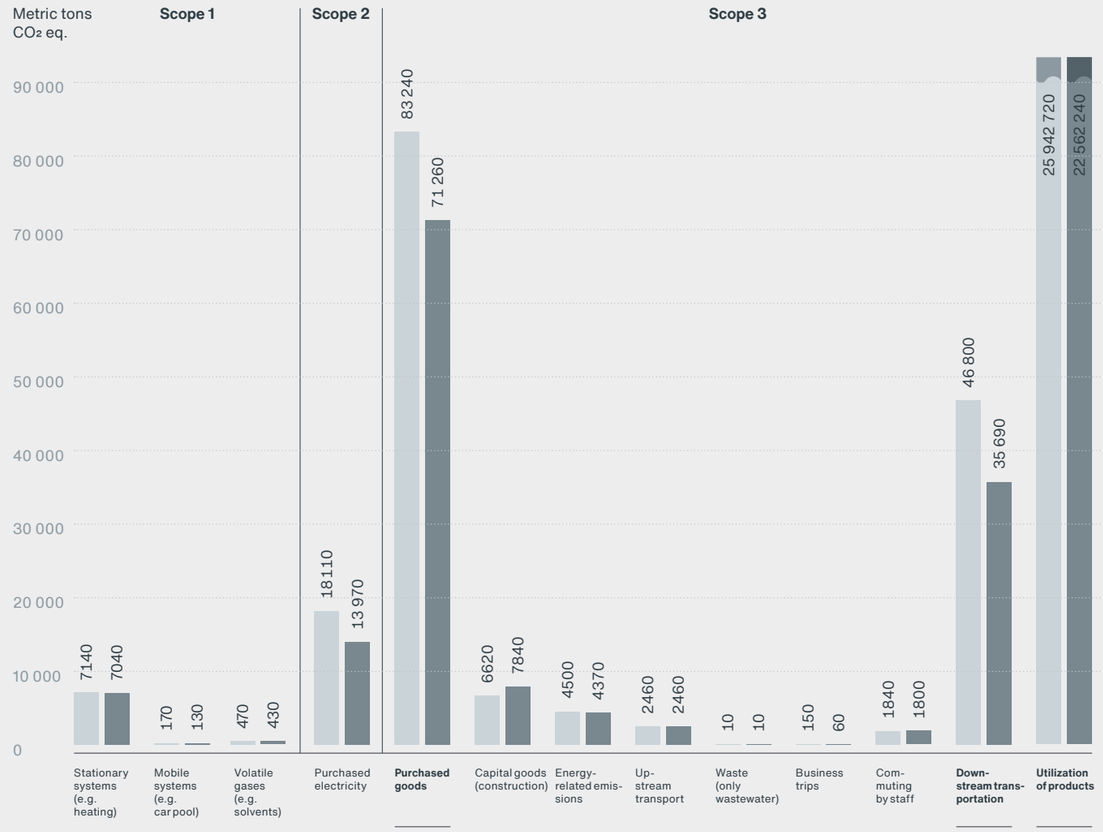
Scope 3 approx.

22.7

million metric tons of CO_2

Emissions accounting

Overview of the top 3 categories



As explained above, we are currently working with our customers on solutions for calculating and reducing the CO_2 emissions associated with the operation phase of our products.

Investing in infrastructure to measure energy consumption
We have invested in the infrastructure needed to get a more detailed picture of the primary consumers. This two-year project involved installing the necessary meters and
connecting these measuring points with a database link.

We believe the transparency and accuracy of published environmental data as essential.
As a result, we commissioned a service provider that specializes in life cycle assessment to help us check the measured values and emissions calculations.

Roadmap for carbon accounting

Over the next few years, we aim to create more transparency regarding the carbon footprints of additional sites and plants.

March 2023
Results of site-specific carbon accounting for the Bruchsal Electronics Plant

End of 2023
Site-specific carbon accounting – system and infrastructure prepared for automated creation, rollout plan developed

End of 2024
Site-specific carbon accounting for SEW-EURODRIVE production plants

Site-specific carbon accounting for SEW-EURODRIVE assembly plants

Enhancing energy efficiency in Graben-Neudorf and Bruchsal

Every gram of CO_2 emissions avoided helps the environment. That is why we have been running a range of energy-saving projects at our site in Graben-Neudorf for a number of years now.

Heat recovery on compressed air systems

The compressors in a compressed air system generate a lot of waste heat during operation. Instead of simply being dissipated, this waste heat is now fed into the existing heating network through a heat recovery system.

+ 206.3 metric tons less CO_2
+ Energy saving: 391 579 kWh
+ Investment: EUR 25 000

Switching over to dry filter elements for paint separation (drying)

Instead of using water for paint separation, we have switched to dry filter elements in order to save valuable resources.

+ 40.2 metric tons less CO_2
+ 600 m^3 less water
+ 17.2 metric tons less paint sludge
+ Energy saving: 125 000 kWh
+ Investment: EUR 41 415

Peak load reduction with Power and Energy Solutions

We have used Power and Energy Solutions (see Chapter 4 Products and Services) to improve energy management in our industrial drives and thus significantly reduce both load spikes and the amount of power being drawn from the electricity grid. For example, the braking energy generated by machinery and systems with a high level of dynamic acceleration can be temporarily stored and then used as required. All in all, this results in a more consistent energy flow and therefore a reduction in energy spikes.

206.3

metric tons less CO_2 thanks to a heat recovery system for compressed air systems

40.2

metric tons less CO_2 from switching to dry filter elements for paint separation

243

metric tons less CO_2 every weekend from reducing the base energy load in Graben-Neudorf at weekends

Energy-saving measures in Graben-Neudorf and Bruchsal

Saving energy has been a priority at SEW-EURODRIVE since well before the recent energy supply crisis. For example, we have been implementing measures to reduce our energy consumption on a sustainable basis for several years.

Reducing the base energy load in Graben at weekends

The machines and systems in the Graben Production Plant (WGF) at Graben-Neudorf have been investigated to ascertain whether the base energy load can be reduced at weekends. Traffic signal layouts have been created for the production units. The machines/systems are to be put into the color-coordinated statuses at the end of the shift. This approach saves 90 000 kWh of power between the hours of 2 p.m. on Saturday and 10 p.m. on Sunday.

+ 243 metric tons less CO_2 every weekend
+ Energy saving: 755 200 kWh

Energy-saving plan in inverter assembly in Bruchsal

At the end of their shift or at the weekend, staff at the Bruchsal Electronics Plant switched off the individual consumers. Three different switch-off categories were defined – "daily", "weekly", and "on instruction". These categories were color coded and displayed in a special table.

Sustainable energy from PV systems and CHP plants

By installing photovoltaic (PV) systems, running in-house combined heat and power (CHP) plants, and thus generating our own electricity, we are not only helping to save the environment, we are also easing the strain on power supplies across the whole of Germany at a time of crisis.

Photovoltaics at the Graben-Neudorf site

PV system, Motor Production, South Workshop Graben-Neudorf

+ 370.3 metric tons less CO_2 yearly
+ Active since: October 2020
+ Area: 5000 m²
+ System size: 614.8 kWp
+ Yield per year: approx. 606 982 kWh

PV system, Graben-Neudorf parking garage

+ 276.4 metric tons less CO_2 yearly
+ Active since: June 2017
+ Area: 4900 m²
+ System size: 505.2 kWp
+ Yield per year: approx. 473 363 kWh

PV system, Graben-Neudorf / Parts Production, North Workshop – scheduled for completion in 2023

+ 1577 metric tons less CO_2 yearly
+ Active from: 2023
+ Area: 4900 m²
+ System size: approx. 3 MWp
+ Yield per year: approx. 2 700 000 kWh

CHP plant Graben-Neudorf / CHP plant scheduled for completion in 2023

+ 1500 metric tons less CO_2 yearly
+ 3 CHP plants
+ Active from: 2023
+ lectrical power per CHP plant: approx. 2300 kW
+ hermal power per CHP plant: approx. 2200 kW

5

metric tons less CO_2 yearly

SEW-EURODRIVE "Morgentau" child daycare center in Bruchsal

1577

metric tons less CO_2 yearly

PV system Graben-Neudorf / Parts Production, North Workshop

334.4

metric tons less CO_2 yearly

PV system Parking garage in Bruchsal

PV systems at the Bruchsal site

PV system, Plant for Large Gear Units, Bruchsal

+ 101.5 metric tons less CO_2 yearly
+ Active since: May 2009
+ Area: 1360 m²
+ System size: 154.8 kWp
+ Yield per year: approx. 145 000 kWh

PV system, Bruchsal parking garage

+ 334.4 metric tons less CO_2 yearly
+ Active since: July 2014
+ Area: 6600 m²
+ System size: 625.3 kWp
+ Yield per year: approx. 566 808 kWh

PV system, Electronics Production, Bruchsal

+ 396 metric tons less CO_2 yearly
+ Active since: October 2017
+ Area: 7640 m²
+ System size: 723.84 kWp
+ Yield per year: approx. 678 250 kWh

PV system, Testing Workshop, Bruchsal

+ 23 metric tons less CO_2 yearly
+ Area: 660 m²
+ System size: 40 kWp
+ Yield per year: approx. 40 000 kWh

PV system, SEW-EURODRIVE child daycare center "Morgentau", Bruchsal

+ 2 metric tons less CO_2 yearly
+ Active since: June 2015
+ System size: 3.72 kWp
+ Yield per year: approx. 3700 kWh

PV system, infrastructure headquarters, Bruchsal

+ 100 metric tons less CO_2 yearly
+ Active since: September 2022
+ Area: 2343 m²
+ System size: 190 kWp
+ Yield per year: approx. 171 000 kWh

CHP plants at the Bruchsal site

Infrastructure headquarters, Plant for Large Gear Units, Bruchsal

+ 485 metric tons less CO_2 yearly
+ Active since: September 2009
+ Electrical power: approx. 201 kW
+ Thermal power: approx. 303 kW

SEW-EURODRIVE "Morgentau" child daycare center in Bruchsal

+ 5 metric tons less CO_2 yearly
+ Startup: June 2015
+ Electrical power: approx. 6 kW
+ Thermal power: approx. 13.5 kW

2 CHP plants, infrastructure headquarters, Bruchsal

+ 530 metric tons less CO_2 yearly
+ Active since: November 2022
+ Electrical power per CHP plant: approx. 720 kW
+ Thermal power per CHP plant: approx. 800 kW

Solar heating system, Bruchsal

+ 5 metric tons less CO_2 yearly
+ Active since: September 2009
+ Collector surface: approx. 37 m²
+ Buffer capacity: approx. 3000 liters
+ Water heating capacity: approx. 1250 liters
+ Use of warm water for washrooms and shower rooms

Keeping an eye open for new energy concepts

We are always looking for new, innovative, and sustainable energy concepts. We regularly review and evaluate new methods of energy generation that may be of interest to us.

Geothermal power plants are already either in place or under construction close to our sites in Graben-Neudorf and Bruchsal.

Additional measures in Bruchsal and Graben-Neudorf

44 charging points for electric vehicles

Since March 2020, there have been more than 40 charging points where staff can charge their electric vehicles. This project was subsidized by the German state of Baden-Württemberg.

Wildflower meadows in Bruchsal and Graben-Neudorf

Ecologically valuable habitats covering an area of 3940 m² (Bruchsal) and 2380 m² (Graben-Neudorf) have been created with a carefully selected range of plants. They provide an ideal environment where many species of plant and animal can flourish. The soil also helps to store carbon and the meadows do not need to be irrigated.

44
Charging points for electric cars

20
Charging points Parking garage in Bruchsal

4
Charging points Plant for Large Gear Units in Bruchsal

20
Charging points Parking garage in Graben-Neudorf

7000
m² of green roofs in Graben-Neudorf and Bruchsal

Using surface water and rainwater

Our aim is to return as much precipitation water as possible to the natural water cycle via pumping plants and infiltration pits and to utilize rainwater for irrigation by storing it in reservoirs. These approaches have been put into practice in the following examples:

Precipitation water is returned to the natural water cycle via a pumping plant and infiltration pits in Motor Production, South Workshop and Parts Production, North Workshop at the Graben-Neudorf site, in the Bruchsal parking garage (approx. 265 l/s), and the "Morgentau" child daycare center in Bruchsal (approx. 22 l/s).

In addition, a line approximately 2.2 km long on a roof area measuring 5760 m² at the Plant for Large Gear Units in Bruchsal carries rainwater to a reservoir with a capacity of 180 m³. This gives us a supply of 1.5 million liters of drinking water a year, which is equivalent to the water consumption of approximately ten four-person households.

Green roof areas

Extensive areas of green roofs on our buildings provide a valuable habitat for plants and insects. The roofs are planted with various types of sedum that require little or no upkeep or artificial watering. Additional benefits include reduced rain runoff thanks to the natural capacity of the green roofs to store water and effective protection for roof seals.

Recycling and reusing materials, components, and assemblies

By recycling individual components and assemblies such as faulty gear units, we are attempting to make our material cycle as sustainable and resource friendly as possible. This includes recycling components from returns, faulty devices, and canceled orders, as well as directly reusing components that are free of any wear and are in perfect technical condition and therefore can be used again in production after being cleaned and/or treated.

We also recycle plastic parts, cast parts, sheet steel, high-quality transformers, and individual basic components.

When disassembling devices, we separate out and recycle valuable materials such as steel, copper, and electronics.

↑ Shuttle crates for internal deliveries

Waste and packaging management – less waste, more care for the environment

The best way to look after resources is to avoid waste in the first place. To achieve this aim, we have rolled out a range of appropriate measures in our production operations:

Examples of measures designed to reduce waste volumes and packaging materials

We use reusable shuttle crates in electronics production at our Bruchsal site instead of disposable packaging for internal deliveries.

By switching from disposable towels to reusable towels in one production area we have saved 50 000 disposable towels per year since the first quarter of 2022. All in all, other changes have helped us to save more than 1000 kg on waste volumes.

We now use reusable packaging throughout the internal material cycle at our Graben plant, thereby cutting the volume of waste by 4.5 metric tons per year. We have also been able to save 11.9 metric tons of cardboard and 1046 liters of anti-corrosion agents.

A cross-site reduction concept for packaging materials is planned for 2023.

Less paper being used in technical communications thanks to optimization of information materials

The following improvements have helped to considerably reduce paper consumption, particularly with regard to operating instructions and technical descriptions:

⊕

Reduction in the quantity of information materials included in the scope of supply

⊕

Discontinuation of redundant information materials such as the documentation DVD and the associated plastic packaging

⊕

Optimization of information materials

Reduction in the number of copies of operating instructions supplied with products

⊕

The number of copies of operating instructions included in the scope of supply has been limited to the legally required minimum, although customers can specifically request more copies up to the delivery quantity.

⊕

This improvement means that, wherever legally permissible, only one copy of the operating instructions will be provided for each order item.

⊕

This ensures customers always get the right number of copies of the relevant documentation in the correct version and language, and in the right place. Customers can therefore save on disposal costs and improve their own carbon footprint and material consumption levels.

Minimization and standardization
Overview and measures

↓

Modernization

+ New formats, responsive design
+ Optimized accessibility, search functions, switching between languages
+ Generating added value

↓

Standardization

+ Consolidation of documentation concepts*
+ Aim: Making sure content is accurate
+ Use of new methods
+ Optimization of external image

↓

Minimization

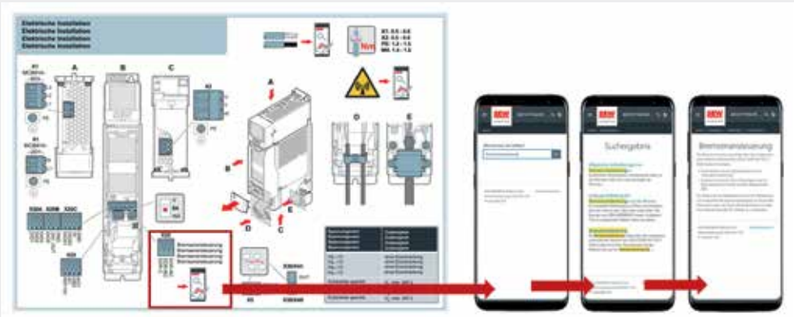
+ Using less paper
+ Moving content elsewhere
+ Adapting information to target groups and application scenarios
+ Improving sustainability

↓

Internationalization **

+ EU/international comparison of legislation: Depiction of the differences by country groups
+ Enhancing legal certainty
+ Strengthening position as a global business
+ Constructing an international network

* Follow-up task due to discontinuation of documentation DVD
** Implementation to follow



Discontinuation of documentation DVD

⊕

Many electronic products are already supplied with optimized operating instructions (reduced number of pages) and without a documentation DVD, further manuals, or additional plastic sleeves.

⊕

Further documentation is available via Online Support on the SEW-EURODRIVE website.

↑ **Fig. 1**

Order-neutral documentation (poster), interplay between poster and HTML5 help. Implementation concept

Accessing additional technical documents by scanning the product label (QR code)

Scanning the product label or order number with a smartphone will take customers to the Digital Service Cockpit, where they can select the documentation they need from a range of options. In the future, this process will use an HTML5 format to provide a responsive design.

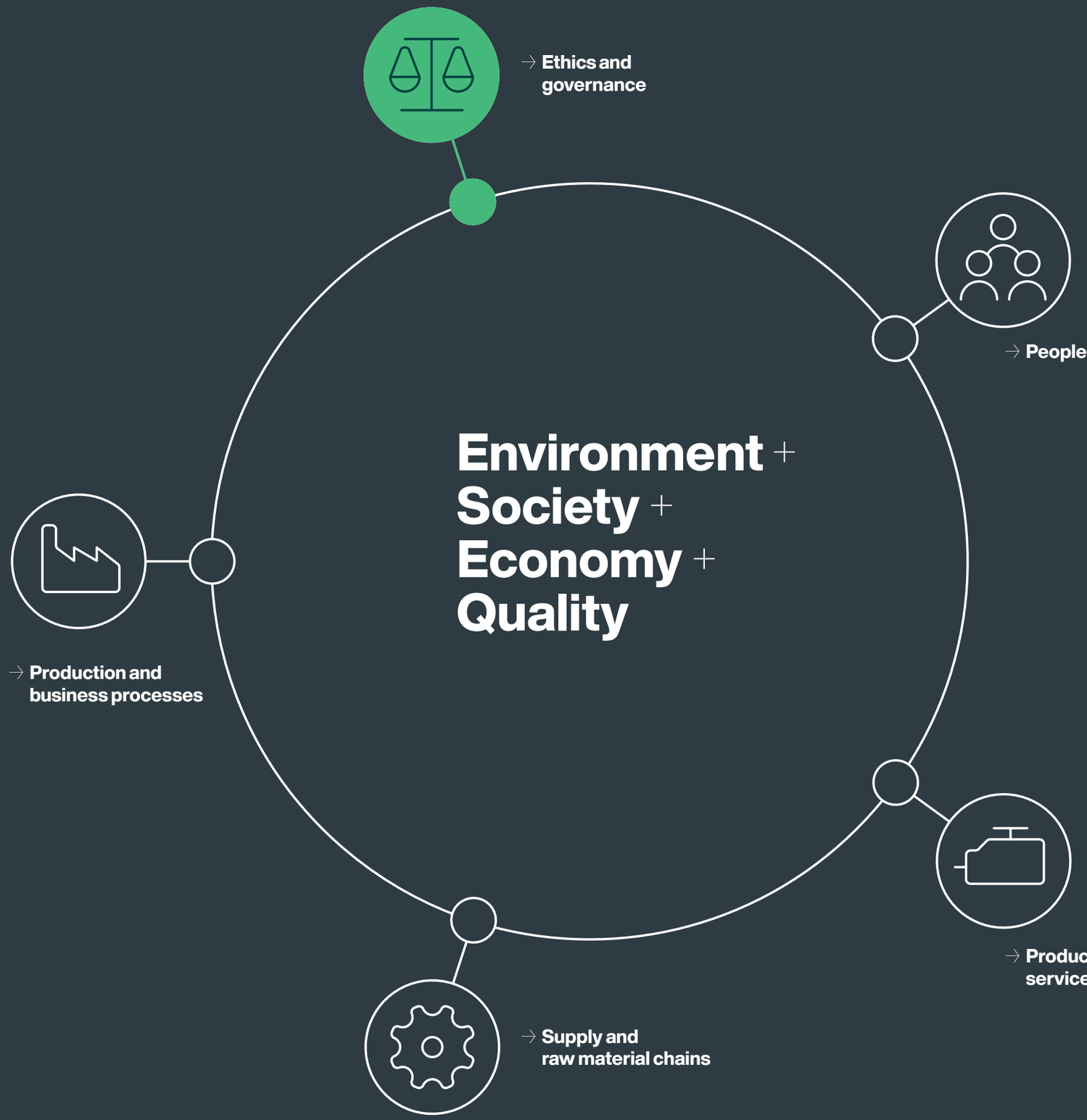
An initial selection of information materials in the new format has been available since August 2022 for the MOVIKIT® software modules from the MOVI-C® modular automation system, and this selection will be further expanded.

As part of a reference project, the paper enclosures for simple products are being reduced significantly, for instance by shrinking the layout. Supplementary information that was previously provided on paper is now accessible online via a QR code on the product label.

Reducing the amount of paper being used and making more extensive use of online help has two benefits: Firstly, the optimized design of paper information is easier and faster for customers to navigate and, secondly, they can also access additional, helpful information from the Digital Service Cockpit.

Ethics and governance

+ Sustainability management
+ Risk management
+ Legal compliance
+ Social commitment
+ Data protection



Ethics and governance: The highest standards for maximum integrity

Our most fundamental corporate principles
The high quality of our products and solutions is matched by a high benchmark in ethical guidelines and standards. We believe that ethics and governance are about more than just abiding by applicable laws and global human rights. For us, ethics and governance are about actively managing sustainability and pursuing our company's core values of freedom, reliability, and humanity. As one of the world's leading manufacturers of drive technology, these standards are very close to our heart, whether in terms of occupational health and safety, a corporate code of conduct, or functional safety.

Corporate security and data protection.
Corporate security and data protection affect us all. By protecting data, we can ensure the continuity of our commercial activities and protect our innovations and processes.

Functional safety.
A whole range of products are created with features that offer functional safety.
This enables us to actively contribute to occupational safety beyond our company.

Health and safety.
Health and safety at work is especially important to us as a means of effectively avoiding and reducing accidents and health problems.

We are committed to quality across all units and functions.

90

languages are covered by the whistleblower tool on our website

We are determined to look after the environment and use natural resources economically.

We make sure we use energy efficiently in our products and in their production.

The high quality of our products is matched by high ethical standards

This claim is firmly anchored on both a structural and organizational level at SEW-EURODRIVE by our corporate governance, by a compliance management system that has been rolled out across Germany and worldwide, and by an integrated management system for quality and energy management, environmental protection, and occupational health and safety. The same applies to the responsible handling of conflict materials and dual-use goods, as well as IT security and data protection. Within the framework of this compliance organization, we put in place monitoring to ensure laws are followed and that in-house regulations such as our Code of Conduct, guideline on gifts, and signature procedures are observed. As part of our response to the German Supply Chain Due Diligence Act (LkSG), we are expanding our Code of Conduct with an additional passage on human rights and environmental protection in the supply chain.

We also provide support in contractual negotiations with business partners, as far as assessing other legal questions in business relationships with third parties, and we take account of the legal implications when establishing or changing internal business processes or business models.

Added to this are further measures within the framework of a regular internal audit:

- Continuously monitoring the internal stipulations of our managing partners and Management Board as well as business processes, reporting, and compliance with laws, regulations, and directives.
- Identifying new and as-yet unknown risks for all units and functions in the company.

- Auditing processes such as the sales process – starting with the request for a quotation and ending with accounting, including auditing operational and administrative steps and checks that are implemented throughout the core process.
- Communicating audit results directly to the Audit Committee, which consists of managing partners and Management Board members.

We have also successfully launched a publicly accessible whistleblower tool in more than 90 languages on our website. The company's employees and external third parties such as suppliers can use this tool to submit anonymous tip-offs. Most importantly, the tool provides a channel of communication with the source of information, without that source having to reveal their identity.

Sedex Member

We undergo external ethics audits as part of our regular SEDEX certification process.

Last but not least, we encourage social engagement around the world by supporting social institutes and organizations located close to SEW-EURODRIVE sites with donations and sponsorships. In Germany specifically, our interest is focused on helping the company's workforce engage in volunteering activities and develop their contributions to society and their empathy.

Code of Conduct – the ethical guidelines for our day-to-day activities
Our Code of Conduct guides our everyday work. Through this code, we make a commitment to abide by all applicable laws and the core values of our company, namely freedom, reliability, and humanity. At the same time, the Code of Conduct helps us acknowledge our responsibility as an international family business with a history that stretches back more than 90 years.

Our Code of Conduct applies to every single member of staff, whether a senior executive or trainee, and to all hierarchy levels across all our branches and business units worldwide. Misconduct that violates the Code of Conduct may be harmful to SEW-EURODRIVE and will not be tolerated.

Our actions are governed by eight key principles

1
Abiding by the law
We always act in accordance with the applicable laws of the country.

2
Management culture
Our managers have a special responsibility and pay particularly close attention to the regulations of the Code of Conduct.

3
Human rights / ban on child labor / forced labor
We reject child and forced labor, and are vigilant with regard to any human rights violations.

4
Workers' rights
We respect the labor rights that apply in any given circumstance and support their enforcement.

5
Health and safety in the workplace
We place major emphasis on the safety and health of our employees and support the continuous further development of safety measures.

6
Working together and the prohibition of discrimination
We respect each other and reject any form of discrimination.

7
Environmental protection
We always consciously act to minimize our impact on the environment and conserve resources.

8
Tax compliance
We meet our tax and contribution obligations and provide constructive assistance to the relevant authorities.

You can find the full text of our Code of Conduct, plus a detailed description of all principles and regulations, here:

Our Code of Conduct also contains detailed rules for how to handle business relationships. For example, we reject any form of preferential treatment or bribery as part of our business dealings. We also have a proactive policy regulating the giving and receiving of gifts. Any form of gratuity must not under any circumstances influence a business decision. Gifts and invitations that exceed a set upper value of EUR 50 per individual gift or EUR 150 per person, per financial year must be reported and seamlessly documented.

Any agreements that are anti-competitive are also prohibited. We avoid any semblance of a conflict of interest, as it is in our own business interest to do so. We also handle information with care, and always ensure that the appropriate level of confidentiality is assured. We place a strong emphasis on the protection of personal data.

Expanding our Code of Conduct in response to the Supply Chain Due Diligence Act
The Supply Chain Due Diligence Act comes into force in 2023, and we are therefore expanding our Code of Conduct with additional passages setting out our commitment to protect human rights on the basis of various internationally applicable standards such as the UN's Universal Declaration of Human Rights and the OECD Guidelines for Multinational Enterprises. Based on our international and wide-ranging business model, we are emphasizing the local responsibility of the individual regions and countries. At the same time, we believe it is our duty to champion human rights and environmental standards even where the local understanding of these may diverge, for instance in relation to occupational health and safety regulations. To better ensure that human rights are respected, we have also appointed a human rights officer.

The international rollout of our Code of Conduct has already begun in Europe. As part of our decentralized approach, each Management Board is being instructed to appoint a local compliance officer and arrange training for local staff. A local Code of Conduct is also to be implemented. The roll-out in other continents outside Europe is already being planned.

768

employees classed as being relevant to compliance have received in-person training since 2016

Following the Code of Conduct in everyday working life
A Code of Conduct is only worth having if it is actually put into practice on a daily basis. That is why we regularly train our staff in how to apply our Code of Conduct. For example, all staff who are classed as being relevant to compliance have been given in-person training. This amounts to 768 employees since 2016. Other staff with access to a PC have completed an e-learning course.

We obtain corresponding contractual commitments from our suppliers, particularly to the effect that they undertake to comply with our Code of Conduct. Furthermore, we carry out audits to check whether suppliers are abiding by the commitments they have made, doing so both on a regular basis and as required by circumstances.

We have defined clear, internal responsibilities to ensure our duties of due diligence with respect to human rights are recognized and met. Human rights officers are appointed directly by the Management Board.

We also involve relevant departments such as HR, Data Protection, and Procurement in the implementation of our Code of Conduct. These units are responsible for the necessary steps that are taken within their sphere of responsibility.

Supply Chain Due Diligence Act – heightening awareness internationally

To ensure human rights and the environment are better protected within the global economy, the German Federal Government passed a new supply chain law in 2021. Starting from 2023, all companies with 3000 or more employees in Germany will need to do more to meet their global responsibility regarding the observance of human rights and environmental standards across the entire supply chain.

SEW-EURODRIVE is ideally prepared to meet its supply chain due diligence obligations. For example, we carry out a risk analysis on all direct suppliers based on protected legal rights and environmental risks. This includes protecting employees, safeguarding people's livelihoods, and preventing the misuse of private or public security services for commercial aims. Furthermore, we audit breaches of environmental protection obligations. Suppliers are required to take reasonable precautions to prevent such breaches. Section 3 II of the Supply Chain Due Diligence Act states that companies are not legally required to be successful but they are legally required to make suitable efforts.

2021

saw the German Bundestag pass a new supply chain law.

The first step will be to separate current suppliers into strategic and non-strategic suppliers. Strategic suppliers will each be audited to DIN ISO standards 14001 for environmental management and 45001 for occupational health and safety and for sustainability. As part of this sustainability investigation, we will also draw attention to our own Code of Conduct and to compliance with the principles set out in it. In the case of non-strategic suppliers, a risk analysis will be carried out first and used as a basis for deciding whether to conduct an audit.

SEW-EURODRIVE is ideally prepared for meeting its supply chain due diligence obligations.

Systematic categorization of all suppliers creates clarity

Based on these results, all suppliers will be systematically integrated into a three-stage process.

Stage 1
If all ISO certificates are present, no further measures will be implemented at first.

Stage 2
If not all ISO certificates are present, a desk audit will be carried out and then suggestions made for improvements and training.

Stage 3
If there are considerable gaps, the supplier will be closely monitored with an on-site audit and the initiation of a continuous improvement process.

The risk analysis is conducted based on the geographical location of the supplier in relation to the Corruption Perceptions Index maintained by Transparency International.

During the risk analysis, we also take into account special sector-specific considerations. For example, some sectors, such as the textile industry and raw material mines, are subject to special labor law risks, while others, such as the steel industry, are particularly impacted by environmental risks.

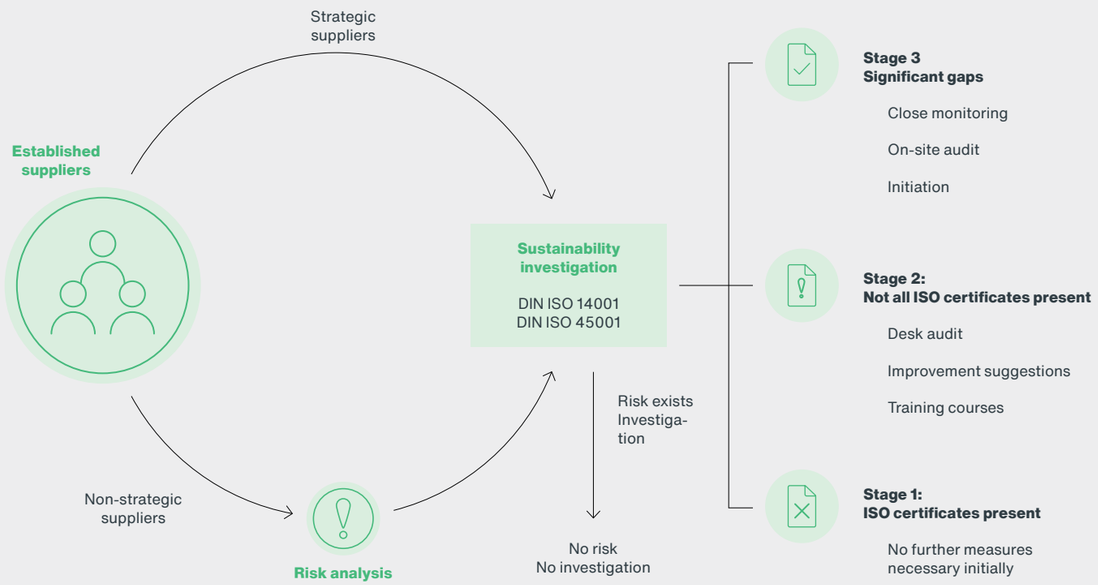
Our whistleblower tool can be found at *https://www.sew-eurodrive.de/unternehmen/unser_drive/whistleblower-hotline-hinweisgebersystem/whistleblower-hotline-hinweisgebersystem.html* and is open to the public.

In-house system for reliable whistleblower input

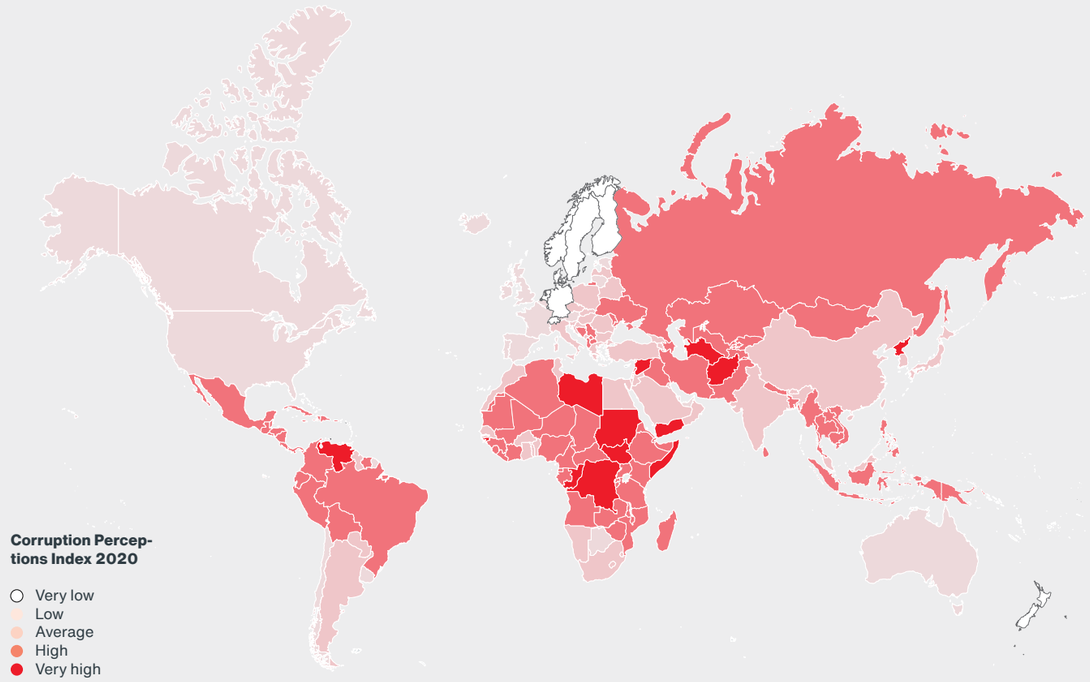
We have introduced a Whistleblower Hotline and an online tip-off tool, which has been translated into more than 90 languages, to support and encourage employees worldwide to report any concerns about misconduct that could harm our company or affect the health and wellbeing of staff or third parties. We make it very clear that this reporting system must not be used to make false accusations or report information that is known to be false.

To ensure communications are as secure as possible, it is advisable to create a secure mailbox. Although we encourage our staff to give their name in their report, it is also possible to submit an anonymous report.

Systematic approach to dealing with suppliers



Risk analysis based on the geographical location of the supplier 2020



Dependable data protection through the GDPR and data protection officers
As a company based in Germany, we naturally observe and abide by all provisions and regulations in the General Data Protection Regulation (GDPR), which entered into force in 2018. We have appointed in-house data protection officers for this purpose.

Overview of all certificates and product compliance regulations
We comply with the applicable international standards for quality management, environmental management, and energy management in addition to other ISO standards on occupational health and safety and information security. A full overview of all the standards, regulations, and product compliance directives that we abide by can be accessed via the following QR code:

The risk analysis is conducted based on the geographical location of the supplier in relation to the Corruption Perceptions Index maintained by Transparency International. During the risk analysis, we also take into account special sector-specific considerations.

Outlook: Our next steps

- Successively rolling out the compliance management system worldwide
- Introducing a supplier management system so ethical requirements can be safeguarded using the supply chain
- Implementing supplier management to avoid child labor, forced labor, and discrimination; to protect human rights and occupational health and safety; and to promote transparency and equality
- Establishing an international data protection organization
- Reviewing procurement guidelines and the procurement manual

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