

# The Sustainability Report for BILSTEIN GROUP companies





Marc T. Oehler  
CEO and partner  
BILSTEIN GROUP

## Dear colleagues,

In 2022, the war in Ukraine and soaring energy prices were, without a doubt, the main issues that dominated the year. But even if the green transformation of industry has to take a back seat every now and again, it is still moving forward – and it's the steel industry and companies like the BILSTEIN GROUP that are leading the charge.

You might already be aware that our Scope 1 and 2 emissions – which we have direct control over – are relatively modest in the context of the overall carbon footprint of our end product, cold-rolled strip. Still, in 2022, we made huge progress on a number of projects in this area; right now we're working to ensure that, by the end of the decade, most of the heat used in the industrial processes in our German plants is generated using hydrogen. We will be investing an eight-figure sum over the coming years so that we can deploy hydrogen in this way as quickly as possible, even if it is not completely viable yet as an

energy source. The goal is to design our operating infrastructure redundantly so that we can power our annealing furnaces with either hydrogen or natural gas, depending on their availability.

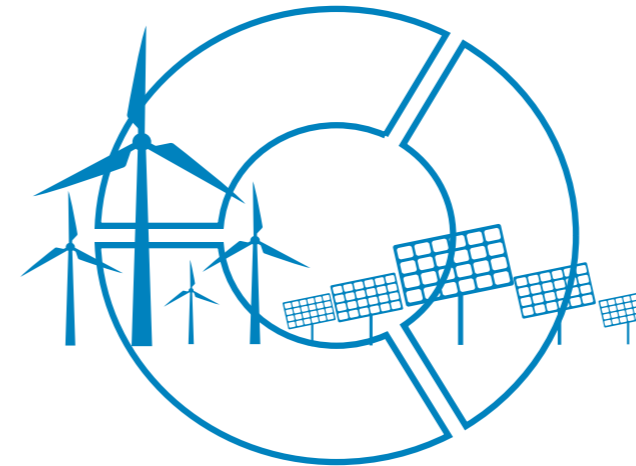
In terms of reducing the Scope 3 emissions of our cold-rolled strip, we are in close talks with all our raw material suppliers and have already signed a number of contracts and declarations of intent for sourcing low-carbon hot rolled strip. We're also taking a number of smaller actions to reduce our emissions, for example, the 18 charging stations we're installing for electric vehicles at our main site.

The pace of transformation is not only challenging for the management team; it's pushing all BILSTEIN GROUP employees to the limits. The current uncertainties around the war in Ukraine, high energy prices, huge increases in inflation and rising interest rates are further causes for worry. We've launched the "BILSTEIN GROUP: Tackling the future, together!" project to help us keep pace with this rapid change, and above all to help us better understand the real concerns of BILSTEIN GROUP employees and open management up to scrutiny. This cultural change, which is a process over a period of several years, will focus on improving management and communication, and removing any disruptive factors, whether big or small. We want to improve employee satisfaction and motivation, despite the enormous challenges we face. Because we know that people can only truly get behind change if they understand the need for it.

Other issues keeping us busy at the moment include preparing for implementation of the Supply Chain Due Diligence Act, which will come into force for us in 2024 but has already gone into effect for some companies. The best possible environmental measures, high social standards, happy, productive employees, and ensuring meticulous compliance with or exceeding legal guidelines – these are the things that set the BILSTEIN GROUP apart. And we are constantly trying to better ourselves so that we continue to be a leader in these areas.

I hope you enjoy our latest Sustainability Report.

Kind regards,  
Marc T. Oehler



## Management Board resolution of May 17, 2021 on sustainability and climate neutrality in the BILSTEIN GROUP:

The BILSTEIN GROUP Management Board hereby resolves that, by 2035, the (German) companies in the BILSTEIN GROUP will make their production, logistics and administrative processes carbon-neutral – provided that sufficient carbon-neutral (renewable) energy sources are available by then (i.e. electricity/hydrogen as a substitute for fuel gas).

Furthermore, by 2035, depending on the availability of raw materials and customer expectations, the BILSTEIN GROUP commits to transition a large proportion of its raw material procurement to steel grades that have either been produced in a way that is carbon-neutral or that results in a significant reduction in CO<sub>2</sub> emissions compared with today.



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# It's time for action!

With climate change underway and our planet's resources dwindling, environmentally conscious, sustainable practices and policies have been a part of politics, society and industry for some time now. Reducing energy and raw material consumption and cutting greenhouse gas emissions are key elements of the BILSTEIN GROUP's future strategy.

**Supply bottlenecks, the energy crisis, inflation ... how much of a priority is green steel in the current situation?**



**Michael Ullrich,**  
Chief Technology  
Officer

**Michael Ullrich:** Even if the energy crisis is taking up all our attention right now for the most part, we're still following our own ambitions to climate neutrality and remain focused on continuing all the projects we've initiated around raw materials procurement and modernizing our production technologies. Despite all the challenges we're currently facing,

sustainability is and remains an extremely important part of our company strategy. Our main focus is on avoiding CO<sub>2</sub> emissions wherever possible. In our processes, CO<sub>2</sub> is emitted during the combustion of natural gas. So, we're working hard to optimize the technology we're using. Our goal is to be "H<sub>2</sub> ready" as soon as possible, so that in future we can replace gas – a fossil fuel – with carbon-neutral hydrogen.

Furthermore, we're taking a close look at the energy efficiency of all our new investments. This includes using cutting-edge technologies like energy recovery and the conversion of waste heat into electricity, for use in our annealing processes, for example. We're constantly expanding our comprehensive heat recovery system, and there are specific projects underway in this area.



**Bernd Grumme,**  
Chief Sales and  
Procurement Officer

**Bernd Grumme:** At the EuroBLECH trade show, which took place at the end of October 2022 in Hanover, it was clear that many of the exhibitors are trying to reduce their carbon emissions. Everyone is talking about it. Even more so than last year. Something else has changed too: everyone understands now that green steel

is simply more expensive. And there is a growing willingness to get behind the transition – even if the current recession and energy crisis mean our customers are more reluctant to invest money. Ultimately it's about spending more money so we can preserve our planet for future generations. Sustainability is a critical success factor; without it, companies won't be able to survive in this industry for much longer. The sense of urgency is there, and the motivation is, too.



**Dimitar Yotsov,**  
Chief Process and  
Information Officer

**Dimitar Yotsov:** The importance of sustainability has grown exponentially in our sector; at the end of the day, the steel industry is one of the biggest emitters of greenhouse gases. But at the same time, steel will always be an important material. So, we're continuing to pursue our approach of establishing sustainable structures

and processes, even in tough times like these.

The introduction of our carbon accounting model is a good example of how our systems landscape is supporting the BILSTEIN GROUP's sustainable business models. It provides our customers with a transparent, practical and useful solution, so their demand for cold-rolled strip products with a small carbon footprint can be fulfilled in a flexible way, in line with their needs. We responded quickly here to ensure we're already meeting the market requirements that will become standard in the future, today. We must be innovative across this issue to ensure we are well equipped to cater to future requirements.

**What is the biggest challenge standing in the way of the BILSTEIN GROUP reducing its carbon footprint?**

**Michael Ullrich:** The biggest driver of our CO<sub>2</sub> emissions is still the raw material we purchase, which has a carbon footprint that we can't directly influence. But we are making good progress with our suppliers here. There are some specific solutions that will allow us to source our first volumes of low-carbon steel.

**Bernd Grumme:** Here at the BILSTEIN GROUP, we have some very firm plans in this area; in fact, we're aiming to purchase more than 30,000 tons of low-carbon hot strip in 2023 – which will help us significantly reduce the carbon footprint of our products overall. We've signed declarations of intent with our suppliers to keep things moving forward quickly. Our journey to reducing carbon emissions, or achieving carbon neutrality, in steel production has begun. And the topic is picking up steam across the sector.

**Michael Ullrich:** There was also the groundbreaking for the new green steel plant H2 Green Steel in Sweden in the summer, a project that we have a stake in. In just a few years' time, it will give us the first and (for now) only opportunity to procure mostly carbon-neutral steel. This is a huge step in terms of our competitiveness and is therefore essential to the future survival of the company. Because if we don't manage to produce steel in a sustainable and resource-efficient way, we'll eventually be shut out from key customer structures.

**When it comes to green steel, we're talking about the transformation and future viability of an entire industry. Which aspects of sustainable growth are priorities for the BILSTEIN GROUP?**

**Dimitar Yotsov:** When we talk about the future viability of systems and processes, the term "sustainability" goes beyond ecological aspects like protecting the environment and conserving resources. The idea is to make our organization as sustainable and modern as possible. We want to use state-of-the-art, digital solutions to help build a more sustainable work environment. We're in the process of developing a road map for the BILSTEIN GROUP on this exact topic.

But even the best systems and processes are no use if our employees aren't motivated. That's why we've launched the huge "BILSTEIN GROUP: Tackling the future, together!" project, to initiate a cultural transformation that will take us all the way through 2023. The focus is on how our employees feel across the process and value chain, and how we can build a successful future together.

**Bernd Grumme:** The key success factor for BILSTEIN has always been its many dedicated employees, who are passionate about their work and bring so much enthusiasm to it. But this doesn't just happen by itself, especially after the challenging few years we've just had. With our project "BILSTEIN GROUP: Tackling the future, together!", we want to rekindle this enthusiasm and get people excited about the changes that lie ahead. 🌱

# Company profile

The BILSTEIN GROUP develops cold-rolled strip solutions for customers worldwide, meeting the needs of the market as a full-service provider with a complete range of products. Its expertise is the result of a rich 111-year company history. Its close relationships with customers and employees, commitment to the highest quality standards and extensive know-how are particularly noteworthy, while its entrepreneurial mindset is innovative and focused firmly on the future. This is evident in our increasingly highly automated and digitalized production landscape, which results in resource-efficient processes and higher-than-average levels of process reliability and product quality.

The BILSTEIN portfolio encompasses a range of specialist products and services for customers in the automotive and mobility industry.

In particular, the BILSTEIN ZE ranges meet particularly high demands in terms of component strength, which goes hand in hand with weight and cost benefits. BILSTEIN steel is used to make components such as pressure regulators, seat rails, airbag housings, bearings, deep-drawing and fine-blanking parts, clutch plates, and much more

HUGO VOGELSANG offers specialty cold-strip products for customers in the sawing and cutting

industry, including high-grade and tempered steel. Thanks to innovative control systems, the products comply with extremely tight tolerances. Products can be individually tempered in line with customer requirements and adapted specifically to the application in question.

Among other things, HUGO VOGELSANG steel is used to make circular saw blades, chainsaw links, band and gang saws, doctor blades, knitting needles, knives, hand tools and spring elements.

Based in the western Czech Republic, in Králův Dvůr the cold-rolled strip manufacturer

BILSTEIN CEE is the BILSTEIN GROUP's base in Eastern Europe. Its broad portfolio includes soft iron grades, micro-alloys and carbon steel grades. The company site is also home to a hardening and tempering plant.

BILSTEIN COLD ROLLED STEEL started operating in the USA in 2017, serving customers across North and Central America from its location in Bowling Green, Kentucky. The core of the company's setup is a state-of-the-art wide-strip rolling mill. BILSTEIN COLD ROLLED STEEL caters to the needs of the international automotive and tooling industry, as well as other sectors.

## 7 LOCATIONS IN 5 COUNTRIES; 2 HOLDINGS IN 2 COUNTRIES



1,200 CUSTOMERS  
WORLDWIDE



> 850 MILLION EUROS  
IN REVENUE



> 1,400  
EMPLOYEES



> 500,000 TONS  
IN ANNUAL PRODUCTION





# Scope 1

## Direct greenhouse gas (GHG) emissions

Emissions from sources that are under the ownership or control of the BILSTEIN GROUP, including emissions from combustion in its own plants or those under its control (boilers, furnaces, vehicles, etc.; as well as emissions from chemical production in processing facilities owned or controlled by the group). Scope 1 GHG emissions are calculated based on the volumes of commercial fuels purchased (such as natural gas and heating oil) using the professional emissions accounting software GaBi. The basis for emissions factors data is the Ecoinvent life cycle database (version 3.6).

## How much CO<sub>2</sub> does the BILSTEIN GROUP's cold-rolled strip emit?

More and more customers are asking this question – and the BILSTEIN GROUP is taking a range of approaches to answer it as transparently as possible.

The BILSTEIN GROUP calculates its Corporate Carbon Footprint (CCF), meaning all the relevant greenhouse gas emissions produced along its supply chain, in accordance with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard and ISO 14064. Overall, this amounts to an average of 2,626.5 kg of CO<sub>2</sub> equivalent per ton of material produced. Most of this is emitted during the production of steel from iron ore, which is handled by the BILSTEIN GROUP's raw material suppliers.

To calculate its CCF, the BILSTEIN GROUP uses intensity figures to build relationships between data in different categories, so that the volumes produced can be viewed in the context of total emissions. By analyzing this indicator over time, it is possible to identify trends and our performance in relation to our carbon reduction goals.

To distinguish between direct and indirect emission sources, the BILSTEIN GROUP uses the standards set by the Greenhouse Gas Protocol, with emissions broken down into Scopes 1, 2 and 3:

# Scope 2

## Indirect GHG emissions from sourced energy

Indirect emissions under Scope 2 refer to greenhouse gas emissions resulting from energy generation. They include electricity that is bought into the organization – and therefore all the emissions produced during electricity generation.

Scope 2 GHG emissions are calculated based on the company's electricity consumption and the supplier-specific, local network, as well as other published emissions factors.

# Scope 3

## All other indirect GHG emissions

Scope 3 emissions are the result of the company's activities, but come from sources that are not under the direct ownership or control of the company. Hot strip steel is the most significant indirect source of emissions, with its production making up approx. 95 percent of total Scope 3 emissions.

The BILSTEIN GROUP will regularly update its CCF in future.



### GREENHOUSE GAS INTENSITY IN 2021

Scope 1	64.9 kg	CO <sub>2</sub> equivalent per ton of material produced
Scope 2 location-based*	50.0 kg	CO <sub>2</sub> equivalent per ton of material produced
Scope 3 (incl. hot strip steel and upstream energy provision)	2,511.6 kg	CO <sub>2</sub> equivalent per ton of material produced
Scope 1–3 total	2,626.5 kg	CO <sub>2</sub> equivalent per ton of material produced

\* The CO<sub>2</sub> emissions of electricity are calculated based on the average electricity mix in Germany

## Carbon accounting model: reducing emissions in line with customer needs

The carbon accounting model is an increasingly popular approach to determining the carbon footprint of steel products across the supply chain. Now that it's implemented the model, the BILSTEIN GROUP can offer its customers cold-rolled strip products with specific CO<sub>2</sub> emissions values.

To help reduce the carbon content of steel products across the process chain, the steel industry is increasingly opting to use the carbon accounting model. The BILSTEIN GROUP has also adopted the tool. With more than 7,000 cold-rolled strip products that all vary in strength and measurements, and which undergo various energy-intensive processing steps, the carbon accounting model is currently the easiest, most reliable way of calculating reductions in carbon emissions and passing them on to customers. "In theory, this means customers could purchase zero-carbon products, although from a technological perspective, that's not quite possible yet," explains Michael Ullrich, Chief Technology Officer for the BILSTEIN GROUP. "Because carbon reductions are such a scarce commodity right now, it's unlikely we'll be selling any zero-carbon steel for a while yet."

### The idea behind the model

The basic principle behind the carbon accounting model is simple: if CO<sub>2</sub> savings are successfully achieved through various measures across the supply chain, these savings are collected virtually. The actual reductions in carbon can then be extracted from this "memory" and credited to products in line with a customer's specific

requirements. With the accounting model, any number desired by a customer can be delivered.

### Huge savings potential in raw materials

From iron ore to the plant gate: the CO<sub>2</sub> content of a steel product is calculated across its entire life cycle, from the initial extraction of iron, to steel production and downstream processing, to finishing the final product. More than 95 percent of the carbon footprint of a BILSTEIN GROUP cold rolled coil is emitted in upstream processes, i.e. before the hot-rolled strip even arrives at the BILSTEIN GROUP's plants.

"Purchasing low-carbon hot-rolled strip is without a doubt the number one thing we can do to sustainably reduce the carbon footprint of our own products," explains Christian Hagenkord, Head of Sustainability Projects and Energy Supply. Which is why the BILSTEIN GROUP is in close talks with its suppliers.

At the moment, it's unclear exactly how much green or low-carbon steel slab is available in Europe. At the moment, there aren't any bespoke large-scale plants that make it. So, the BILSTEIN GROUP is collaborating with innovative start-ups like H2 Green Steel to lead the

way. The goal is to procure raw material with a carbon footprint that's as low as possible, and in doing so reduce the company's Scope 3 emissions under the GHGP. This will have a huge impact on the total footprint of cold-rolled coil.

### Ongoing improvements

BILSTEIN is also constantly monitoring and checking the emissions of internal processes: in cooperation with our customers, we are optimizing our production processes so that they use less electricity and natural gas and to further reduce energy consumption and carbon emissions. With our Process Optimization department, we have a dedicated team ready to advise customers on this in depth. "If we can work with our customers to improve our processes to the point where we're able to skip an annealing or rolling procedure, then this will have a positive impact on overall emissions," says Christian Hagenkord.

## First steps taken toward green steel



The BILSTEIN GROUP is implementing a range of measures to reduce the carbon footprint of a cold-rolled coil, including these actions:

- Purchasing low-carbon raw materials
- Transitioning its natural gas-powered plants to "carbon-free" hydrogen
- Renewable energy certificates

The actual CO<sub>2</sub> savings are tallied together in a virtual memory, using the accounting model, where they are stored and later allocated to individual BILSTEIN GROUP products.

The BILSTEIN GROUP is also working on the following strategic projects:

- Optimizing production processes, in cooperation with customers
- Developing production technologies with suppliers
- Expanding the company's in-house heat recovery system





## I Key figures in 2021: Energy and water use in plants

An ongoing environmental and energy management initiative is in place to support the BILSTEIN GROUP to reduce carbon emissions and water use in its production, logistics and administrative processes.

CONSUMPTION AND KEY FIGURES IN 2019, 2020 AND 2021

	2019		2020		2021	
	BILSTEIN	HUGO VOGELSANG	BILSTEIN	HUGO VOGELSANG	BILSTEIN	HUGO VOGELSANG
Electricity (in GWh)	47	23	46	20	52	19
Natural gas (in GWh)	115	44	104	37	126	36
Heat recovery (in GWh)	3		4		6	
Groundwater (in m³)	1,626,560	39,180	1,525,150	34,220	1,715,971	28,913
Mains water (in m³)	10,194	5,248	6,857	5,288	7,839	5,710
Waste water (in m³)	22,620	16,360	18,050	15,170	23,064	13,650



### Did you know?

The proportion of renewable energy in the electricity mix at the BILSTEIN GROUP's German sites was

**43%** in 2021.



## Certifications

BILSTEIN GROUP companies are continuously working to improve their quality, environmental and safety management systems. These are regularly certified by third-party experts in accordance with international standards.

To view all the BILSTEIN GROUP's current certifications, visit [www.bilstein-gruppe.de/downloads/](http://www.bilstein-gruppe.de/downloads/) or



<p><b>BILSTEIN + BILSTEIN SERVICE + HUGO VOGELSANG</b> ISO 14001:2015   ISO 50001:2011 <b>Valid from</b> 14 December 2022 <b>Valid to</b> 13 December 2025</p>	<p><b>BILSTEIN CEE</b> ISO 14001:2015 <b>Valid from</b> 16 April 2021 <b>Valid to</b> 15 April 2024</p>	<p><b>BILSTEIN CEE</b> ISO 9001:2015 <b>Valid from</b> 9 June 2021 <b>Valid to</b> 8 June 2024</p>
<p><b>HUGO VOGELSANG</b> ISO 9001:2015 <b>Valid from</b> 28 January 2021 <b>Valid to</b> 27 January 2024</p>	<p><b>HUGO VOGELSANG</b> IATF 16949:2016 <b>Valid from</b> 28 January 2021 <b>Valid to</b> 27 January 2024</p>	<p><b>BILSTEIN CEE</b> IATF 16949:2016 <b>Valid from</b> 26 May 2021 <b>Valid to</b> 25 May 2024</p>
<p><b>BILSTEIN + BILSTEIN SERVICE</b> ISO 9001:2015 <b>Valid from</b> 18 November 2020 <b>Valid to</b> 17 November 2023</p>	<p><b>BILSTEIN + BILSTEIN SERVICE</b> IATF 16949:2016 <b>Valid from</b> 18 November 2020 <b>Valid to</b> 17 November 2023</p>	



# Sustainable Procurement & Investment



Resource and energy efficiency are guiding principles for the BILSTEIN GROUP. All its strategic decisions aim to align the supply chain as closely as possible with the goals of carbon neutrality and electric mobility. We set the bar high – both for our own processes, and for the suppliers we source our raw materials from. That's why BILSTEIN is investing in new technologies and embarking on a range of projects to be able to supply climate-neutral steel in the future.





## I The journey has begun: our first steps toward green steel

To make low-carbon cold-rolled strip, sourcing a carbon-neutral raw material – in this case hot strip – is an imperative. The BILSTEIN GROUP is exploring various solutions that will allow us to provide carbon-neutral steel in the near future, and has even secured its first volumes for 2023.

The international steel industry is one of the biggest emitters of carbon dioxide in the world, and is currently responsible for around seven percent of global emissions. Reducing these emissions is becoming increasingly important in steel production and processing, but it also poses huge challenges for traditional steelmakers.

### When reducing emissions becomes an industry priority

"In terms of green steel, 2022 was a very busy year for our suppliers. Whether it's electric arc furnaces or using "green" sponge iron, or the carbon accounting model, we are already seeing some initial solutions that will help significantly reduce carbon emissions in steel production," reflects Chief Executive Marc T. Oehler, feeling upbeat. "And that's a good thing. Because climate change affects us all. The faster the steel industry makes progress here, the better for us all."

At the EuroBLECH 2022 expo in late October, it was clear how important the issue of carbon reduction has become and the impact green steel is having in the sector. "It's almost like a competition: Who is starting first? Who can deliver soonest?" says Bernd Grumme, Sales Director. "There's a real shift in the industry; that's plain to see."


### An ambitious goal: 30,000+ tons of low-carbon hot strip for 2023

The BILSTEIN GROUP is working closely with steelmakers on potential solutions. In the last few months of 2022, we signed several declarations of intent and agreements to help drive the development of low-carbon steel and secure initial volumes: in 2023, the BILSTEIN GROUP hopes to procure more than 30,000 tons of low-carbon steel. "This will mark the start of a ramp-up that will take us through to 2025 and beyond," explains Bernd Grumme.

### New momentum and solutions: H2 Green Steel

Right now, it is not completely clear how much green steel is available. But ambitious projects like the Swedish start-up H2 Green Steel will help propel the transformation of the steel industry. The new steelmaker is guaranteeing a supply of mostly carbon-neutral steel. In the Boden-Luleå region in northern Sweden, where the new plant is being built, wind and hydro power are in abundance – which means steel production can be almost entirely powered by renewable energies. Thanks to its strategic partnership with this new and innovative steel manufacturer, the BILSTEIN GROUP will be in a position to provide nearly entirely carbon-neutral steel grades from 2025–26 onward. "BILSTEIN's financial stake in H2 Green Steel is proof that we remain laser-focused on our future

raw material procurement, even in these challenging times – and that we're not just looking to conventional steelmakers," explains Bernd Grumme.

Furthermore, for some time now the BILSTEIN GROUP has been exploring different ways to achieve carbon reductions in its own manufacturing processes, and has already notched up some major successes. All of this means there is a realistic possibility that we will be able to offer completely carbon-neutral steel by 2030. 



### A pioneering project: H2 Green Steel leads the charge

The H2 Green Steel project is plowing ahead at record pace: after the start-up got the green light to begin construction of its 5-million ton steelwork on July 1, 2022, excavation work began just a few weeks later. By 2025–26, the nearly 270-hectare area of land will be home to hydrogen, iron and steel plants. As the first steelwork built in Europe since the 1970s, it's an almost historical event. In August 2022, H2 Green Steel successfully finalized a further increase in capital of 190 million euros, securing basic financing for the project.

H2 Green Steel will start production in 2025–26 and reach an annual production capacity of five million tons of high-quality green steel by 2030. The company has already signed agreements to sell more than 60 percent of initial steel volumes, with some of it going to the BILSTEIN GROUP.

### Three paths to low-carbon steel: new approaches by established steelmakers

In future, the key variable that will determine whether we can replace coke with hydrogen in the traditional blast furnace route, and thereby reduce carbon emissions, will be ensuring a reliable supply of hydrogen. The same goes for electric arc furnaces, where a direct reduction using hydrogen is important to be able to use low-carbon iron ore instead of or in addition to scrap. But steelmakers are already offering some solutions that enable the supply of initial volumes with a significantly smaller carbon footprint. The BILSTEIN GROUP's suppliers are all exploring different methods:

#### Electric arc furnaces

Çolakoğlu and Salzgitter (SALCOS: SALzgitter Low CO<sub>2</sub>Steelmaking), as well as BENTELER (as one slab supplier to thyssenkrupp Hohenlimburg), are using electric arc furnaces and scrap to produce high-quality steel with a significantly smaller carbon footprint: it only contains around a quarter of the CO<sub>2</sub> content of traditional blast furnace steel. However, with just a handful of electric arc furnaces located across Europe, they are only used in around 15–20 percent of steel production – and some of them have been temporarily shut down due to high energy costs. It's a different story in the US, where 60–70 percent of steel is made in electric arc furnaces. The BILSTEIN GROUP has close connections to the market there and its new developments through BILSTEIN COLD ROLLED STEEL, based in Kentucky.

#### Accounting model

The steel manufacturer thyssenkrupp Steel Europe is using an accounting model that allows it to offer steel with up to 70 percent less carbon, as part of its bluemint® steel product family. The CO<sub>2</sub> savings have been made possible by technology where sponge iron is used to replace some of the coking coal in the blast furnace process.

#### Certificate sales

Meanwhile, ArcelorMittal is selling green steel certificates under its XCarb® brand to help its customers achieve CO<sub>2</sub> savings. The carbon reductions are achieved through various measures at ArcelorMittal's European production plants, for example, by sourcing green electricity or increasing use of scrap steel.



## Hello hydrogen, goodbye gas: paving the way to a greener future

A key factor in delivering carbon-neutral steel production is securing a supply of green energy. Over the coming years, the BILSTEIN GROUP will be designing its infrastructure redundantly to prepare for the switch from natural gas (CH<sub>4</sub>) to hydrogen (H<sub>2</sub>).

The main driver of carbon emissions in heating operations is process heat recovery, which occurs in every step where material must be annealed and softened for further treatment and processing. Right now, the BILSTEIN GROUP generally uses natural gas for heat recovery in its production processes. "Our goal is to become carbon-neutral by 2035. Which means we also have to transition all our processes to hydrogen by 2035, or ideally earlier," explains Michael Ullrich, Chief Technology Officer.

### Redundant infrastructure: fit for H<sub>2</sub>


Work is already underway to build the necessary infrastructure. "Nobody really knows at what point there will be enough green hydrogen available. By building the infrastructure that we'll need in the future now, we will be able to start using hydrogen at any time, without having to completely give up natural gas," says Michael Ullrich. Until recently, the relevant technology has really only existed in institutional settings, so the BILSTEIN GROUP is working with various manufacturers on some truly pioneering projects. In 2023, three different combustion technologies will be put through their paces in the production environment. To do this, the BILSTEIN GROUP is retrofitting three heating mantles for dual combustion. Their burners should then work with either natural gas or hydrogen.

The goal is to identify the right technology by late 2023 and, starting in 2024, gradually replace the 1,000+ burners in the plants at Hagen-Hohenlimburg. The retrofitting of the annealing furnaces alone will cost the BILSTEIN GROUP an eight-figure sum. The

heating mantles themselves are already designed for production using hydrogen. "We want to be ready to use H<sub>2</sub> as soon as the first green hydrogen arrives in Lennetal," explains Michael Ullrich.

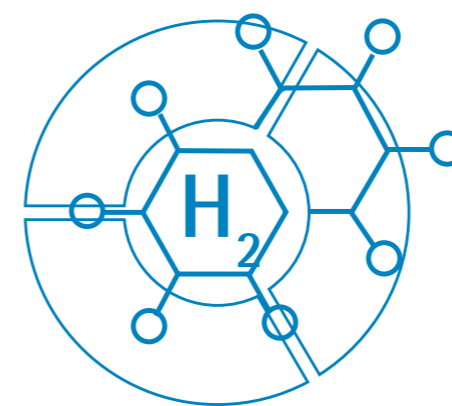
### Zero CO<sub>2</sub>: demand for green steel grows

Even if lots of companies are facing challenges of a different kind during the current energy crisis, "Carbon-neutral steel remains a huge priority in the industry. As soon as the energy crisis is over, and the economy starts to pick up again, green steel will start to gain traction again. And I'm certain there will be a hydrogen pipeline in Lennetal," says Michael Ullrich, confidently. Ultimately, the region is home to an industry that faces a clear demand for zero-carbon materials – and without hydrogen, it won't be possible to manufacture this in Germany in the long term.

BILSTEIN's automotive customers have already communicated very specific requirements around how many kilograms of CO<sub>2</sub> a ton of steel can contain from 2025, 2030 and 2039 onward, in order for BILSTEIN GROUP companies to be able to continue to supply them. For their part, the automakers are passing on the requirements set for them by the European Union and the German federal government as part of the climate protection program, but in some cases they are significantly exceeding them. 

## Hydrogen for Lennetal

To secure a supply of hydrogen for Lennetal, a group of companies based in the area – including BILSTEIN – joined forces with regional grid operators and launched a new project in 2021. The initiative is the driving force behind the construction of an efficient hydrogen infrastructure. (For more information, see The Sustainability Report 2021.) 



## Visionary H<sub>2</sub> network



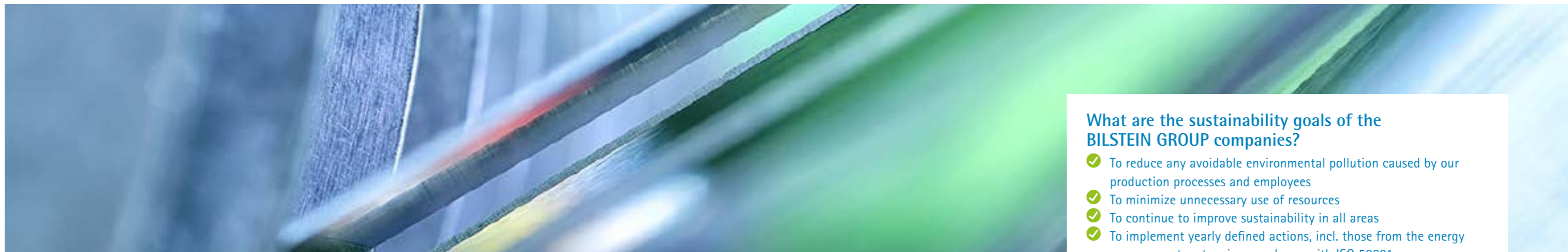
## Transitioning to a hydrogen-based economy

There is still no economical way of storing the energy generated by wind turbines, which means the energy source cannot be fully exploited (to prevent networks from being overloaded, lots of operators switch off the plants during strong winds).

Electrical energy, however, can be used to break down water into oxygen and hydrogen via a chemical reaction known as electrolysis. Which means any excess renewable energy can be harnessed using electrolyzers.

Experts are expecting electrolysis to play an important role in the transition to a hydrogen-based economy. And the production of green hydrogen is a key factor in reducing the global carbon footprint.





## I "Going green" for a better future

The BILSTEIN GROUP is committed to becoming resource- and energy-efficient, and for good reason. After all, the future of both the company and the planet depend on it.

The BILSTEIN GROUP's strategic investments in recent years have shown that sustainability and good business sense can go hand in hand. Whether it's in Hagen-Hohenlimburg, at BILSTEIN COLD ROLLED STEEL in the US, or at BILSTEIN CEE in the Czech Republic: across all its locations, BILSTEIN has introduced state-of-the-art plants and technology that make optimal use of energy and resources – and that are also more productive.

### Sustainable business as a matter of principle


Whether it's annealing, rolling or cutting – the BILSTEIN GROUP powers all its plants and systems with energy-efficient motors. A comprehensive heat recovery system ensures that the resulting process heat is fed into a cycle and made available for reuse. Even the waste heat produced during batch annealing is reintroduced back into the process via an Organic Rankine Cycle (ORC). (Also see page 16.) The solution leads to a significant reduction in overall CO<sub>2</sub> emissions, and is a pioneering achievement by the BILSTEIN GROUP.

But even if we are saving money in the long term with these projects, getting buy-in on the investments can still take some persuasion: "If you only look at these kinds of investments through the lens of economic factors, then you'd probably opt not to make them. That applies to almost everything we're

integrating. It's why natural gas and electricity have always been so cheap in Germany, until recently," explains Michael Ullrich, Chief Technology Officer. "We're making the decision based on our principles and ethics as a business – because we want to leave a green legacy. At the end of the day, I've got kids too, and I like living on this planet."

### Innovating into the future

"Our investment strategy for the future is focused on aligning the BILSTEIN GROUP's supply chain with the goals of carbon neutrality and the transition to electric mobility," explains Michael Ullrich. To do this, the BILSTEIN GROUP is looking at adding value across its supply chain and introducing different technologies and materials; there are plenty of innovative ideas in the pipeline. The goal is to successfully support the transformation already underway in the automotive sector to electric vehicles, but also to tap into new business segments. It's about new ideas and better solutions.

"We'll continue to offer our standard cold-rolled strip that the BILSTEIN GROUP is known for. But we want to expand our portfolio with new processes and products. As part of that, we'll also be looking at new technologies like hydrogen and fuel cells," says Michael Ullrich. 

### What are the sustainability goals of the BILSTEIN GROUP companies?

- ✔ To reduce any avoidable environmental pollution caused by our production processes and employees
- ✔ To minimize unnecessary use of resources
- ✔ To continue to improve sustainability in all areas
- ✔ To implement yearly defined actions, incl. those from the energy management system in accordance with ISO 50001

### How is the BILSTEIN GROUP helping to achieve these goals?

- ✔ Sustainable procurement
- ✔ Applying innovative methods and processes for conserving resources
- ✔ Refurbishing energy systems
- ✔ Implementing new technologies

### Every small action counts:

- ✔ Reducing waste and scrap
- ✔ Lowering energy use by switching things off when not in use (lights, heating, air conditioning and ventilation systems)
- ✔ Eliminating pressurized air leaks
- ✔ Ensuring the workplace is clean and tidy to reduce hazards for workers and the environment
- ✔ Employee suggestions on how to reduce our environmental impact and improve energy use
- ✔ Waste separation for recycling purposes



## Charging stations for electric vehicles

With the installation of 18 Wallbox charging stations, the BILSTEIN GROUP is ushering in a new era of electric mobility at its biggest plant this year. Since October 2022, employees, customers, suppliers and visitors to the site have been able to use the stations to charge their electric vehicles. "The central

maintenance team will also phase out their buses and gradually replace them with e-vehicles, based on availability," explains Christian Hagenkord, Head of Sustainability and Energy Supply. More charging stations will be installed at the other German sites over the course of 2023.





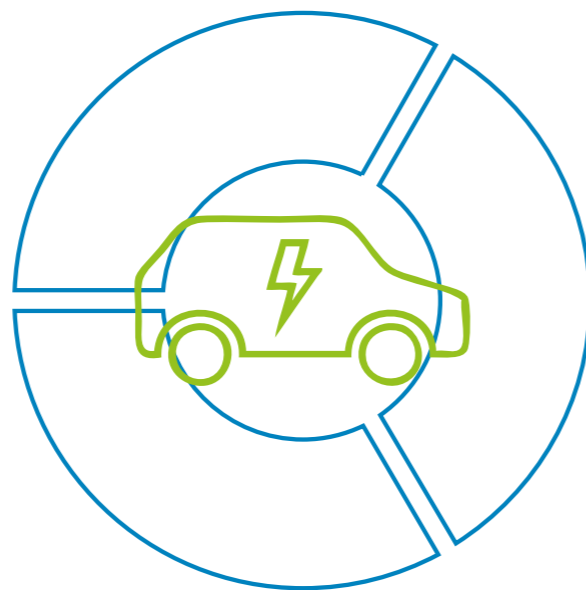
# Products & Processes

At its site in Hagen-Hohenlimburg, the BILSTEIN GROUP operates the most cutting-edge cold-rolled strip plants worldwide – leveraging and constantly adding innovative technologies that continue to minimize resource consumption and CO<sub>2</sub> emissions. The BILSTEIN GROUP invests in both the development of more sustainable and economical production methods and in pioneering new products.



## Driving technology and sustainability through innovation

Achieving more resource-efficient production with innovative technology: the BILSTEIN GROUP is investing both in the development of pioneering production methods and in new cold-rolled strip grades, including alternatives to traditional electric steel strip that offer excellent environmental and economical benefits.



### Different and attracting: Supermod®, Ultramod® and Extramod®

A growing number of customers are using the BILSTEIN GROUP's innovative cold-rolled strip grades with soft magnetic properties. Supermod®, Ultramod® and Extramod® already feature excellent electromagnetic properties in as-delivered condition, so that they can be used in parts production immediately, without the need for additional annealing. This makes them great alternatives to electric strip made from aluminum-silicon alloy in both an environmental and ecological context.



## Resource-efficient and super fast: BILCUT® high-speed laser blanking

The BILSTEIN GROUP is continuing to develop its high-speed laser blanking method BILCUT® for the manufacture of shaped blanks for the auto industry, in cooperation with the Fraunhofer Institute for Laser Technology (ILT) in Aachen.

A 1:1 scale prototype based on the patented technology is set to produce the first shaped blanks by mid 2023. As soon as the proof of concept is complete, the BILSTEIN GROUP will start building a dedicated plant on its own premises, with the aim of starting production by 2025.

The laser blanking procedure is the first of its kind in the world and innovative for two reasons: first because of the extremely high speeds at which it

operates. Second, by optimizing the cutting process, the BILSTEIN GROUP is now able to produce shaped blanks in an extremely resource-efficient way. Many more shaped blanks can be cut from a coil using the flexible laser cutting head than when using a conventional die, resulting in significantly less scrap.

"The last few months have again underlined how important resource efficiency is. Every kilogram of steel that we can save in the production of a component is now twice as important," says Michael Ullrich, Chief Technology Officer. "First because of the environmental impact, in particular the carbon footprint of steel products, and second because of the soaring costs for energy and raw materials."



## Flagship project: FlexHyBat

How can the various alternative motor concepts (e.g. battery and/or hydrogen pressure regulators) be integrated into vehicle structures as cost-efficiently as possible – and without significantly reducing vehicle payload? In late 2020, the research project FlexHyBat answered this question: working with five consortium partners (EDAG, CLOOS, Fraunhofer IWU, data M Sheet Metal Solutions and PROTOMASTER), the BILSTEIN GROUP played a crucial role in the EDAG-initiated project, developing a lightweight vehicle body platform for light commercial vehicles based on 3D roll-formed profiles.

In a world first, FlexHyBat combines high-grade steel with innovative production methods to enable a flexible and economical manufacturing process. This pioneering project was supported by the German Federal Ministry for Economic Affairs and Climate Action, and was led and overseen by TÜV Rheinland Consulting GmbH.

"Until now, manufacturing other types of motors was somewhat problematic – but light commercial vehicles make up more than 10 percent of traffic-related carbon emissions," explain Michael Ullrich, Chief Technology Officer at the BILSTEIN GROUP, and Franz Lorey, Vice President Commercial Vehicles at EDAG. "So, we have to find more efficient, sustainable and economical ways of developing and manufacturing vehicle components in the future."

Three BILSTEIN innovations played a role in the success of the FlexHyBat project:

- Material: BILSTEIN Advanced High Strength Low Alloy (AHSLA)
- BILCUT® technology: high-speed laser blanking (of shaped blanks)
- BILCUT® technology: high-grade cold-rolled strip partially softened with laser treatment

The BILSTEIN GROUP showcased the results for the first time at the EuroBLECH trade show in Hanover from October 25–28, 2022.





## A new revolution: STABILS steel fiber

Car-making has always been the BILSTEIN GROUP's bread and butter, but now the company has the construction industry in its sights. The company has developed an innovative steel fiber for reinforced concrete, STABILS, which could revolutionize the construction sector.

### Why make a new steel fiber?

Reinforced concrete is a composite material made of concrete and reinforced steel, and 100 million cubic meters of it are made in Germany each year, making it the country's premier building material. In conventional reinforced concrete, long cables are knotted or woven together to form a lattice, which is then put into a mold and filled with concrete. But you can do the same thing with steel fibers, adding them directly to concrete and moving them into any position. Of course, fiber products are already available on the market, in different lengths; 25–70 mm long wires that mix into concrete and dramatically increase its overall load bearing capacity. The more evenly the fibers are distributed in the concrete, the better. However, blending the fibers that have been on the market for some time is quite time-consuming and, due to their geometric proportions, sometimes impossible. This is where the high-grade steel fiber made from tempered strips from the newly established BILSTEIN STEEL FIBER GmbH comes in. "Each fiber is straight. And they are easy to mix into concrete and to space evenly," explains the BILSTEIN GROUP's Chief Technology Officer, Michael Ullrich.

### A sustainable alternative to conventional reinforced concrete

That opens several new avenues up for BILSTEIN. First, where wire fibers are already in use, constructors can switch over to BILSTEIN's higher quality and easier-to-handle products. Fibers are not, however, widely used at the moment, and the construction industry mainly works with mesh made from reinforced steel. "So, our focus will be to get constructors to switch from conventional reinforced concrete – and concrete parts – to our steel fibers. One major benefit is that it lets them skip a costly and labor-intensive part of the process," explains Michael Ullrich.

With a less symmetrical, more haphazard distribution of fibers in the mix, the steel fiber produces higher-quality reinforced concrete and the resultant buildings are more impact-resistant. This reinforced concrete is also more malleable; useful in challenging projects like tunnel construction. Meanwhile, on traditional building sites, the combination of strength and flexibility means you use less steel and far less concrete.

At a time when resources are becoming scarce and expensive, saving on materials is definitely a big deal. Companies that get by with less concrete also save on transportation and logistics costs, while cutting greenhouse gas emissions. So, fibers offer more efficiency on many levels, saving on raw materials, time and ultimately CO<sub>2</sub> emissions.

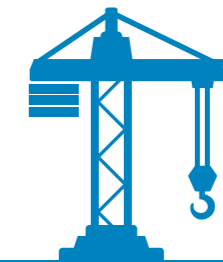
### What makes STABILS so special?

The steel fiber has a unique geometry, shaped and contoured by the rolling process. They were invented by two experts who, after toiling away in their secret lab and creating a design, sought out an industrial partner who could produce at scale and market the product in Europe. BILSTEIN proved to be exactly that. Because in order to produce the preliminary stage of this high-strength steel fiber from tempered strip steel, BILSTEIN systems are required 1 : 1.

Following informal discussion at the start of 2020, the project was put on hold due to the pandemic. So it wasn't until early 2021 that the real research and development work began in earnest: the BILSTEIN GROUP produced large quantities of primary material, which the two inventors turned into innovative steel fiber. Next, samples were sent to research institutions and potential clients, and: "We got extremely positive feedback," says a pleased Michael Ullrich.

### STABILS to hit the market in 2023

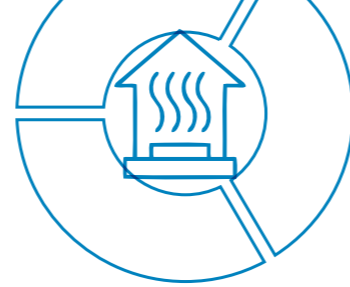
BILSTEIN wants to start production in early 2023. "We expect to be producing 50,000 metric tons of material for the German and European construction industry. And that's a conservative estimate. Given the growing importance of sustainability in construction, we expect demand to be even greater," says Michael Ullrich. He has already got his eyes on BAU, the leading international trade show for the construction industry taking place in Munich in April this year, and BetonTage (Concrete Days), which happens in Ulm in June. It's at these events that the BILSTEIN GROUP will unveil its steel fibers to the world. 🌍



### Low-carbon construction using innovative steel fiber from BILSTEIN

The new steel fiber STABILS enables more sustainable construction with a significantly lower carbon footprint: it reduces the volume of steel needed per unit of concrete compared with conventional reinforced steel, while also reducing the required wall thickness of concrete elements, and with it the amount of carbon-intensive cement.





## Innovative heat recovery: systematically reducing CO<sub>2</sub>

Lots of processes and manufacturing steps produce waste heat that can be harnessed and reused. Since 2012, BILSTEIN has been strategically expanding its extensive heat recovery system, to prevent this energy from simply being blown out of chimney stacks.

Over the last few years, the BILSTEIN GROUP has brought to life its vision for resource-efficient production at its biggest plant in Hagen-Hohenlimburg. In April 2020, the site became home to one of the most cutting-edge rolling mills in the world. In combination with the world's first fully automated annealing furnace, which is linked to a heat recovery system via an Organic Rankine Cycle (ORC), this means precious resources can now be saved at every step along the process chain. The return of waste heat into the process cycle was always a key part of the overall concept. Now, an innovative and complex heat recovery system is helping to significantly reduce the company's CCF Scope 1 emissions, and therefore its carbon footprint.

### Innovation that makes a statement

With the integration of an ORC system in its annealing process, the BILSTEIN GROUP has developed a solution that is innovative in every sense. So innovative, in fact, that it was recognized with an award from KlimaExpo.NRW in 2016. In Plant I, the ORC system is used to operate a new, fully automated annealing furnace and an annealing line modernized in 2019, both of which have resulted in significant CO<sub>2</sub> savings (see info box).

### What are the ORC system's benefits?



The electricity that the ORC generates in part from the waste heat from the annealing plant flows directly back into the plant. This saves around 306 kg of CO<sub>2</sub> per annealing campaign, i.e. each time the steel is heated to 400–700°C, depending on the material, and then cooled again.

With several thousand campaigns a year, across 32 annealing bases, this results in an enormous reduction in emissions. The ORC plant is designed so that additional bases can easily be docked on to it.

### A sophisticated heat recovery system

Waste heat from the annealing line is used to generate electricity, and some of it also feeds a water cycle. This is the central element of the BILSTEIN GROUP's extensive heat recovery solution. One large, centralized heat recovery system and an in-plant heat network were built especially for this purpose, and have been continuously expanded since 2012. In addition to the ORC unit, a number of other systems and components where process heat occurs are connected to the water cycle. Waste heat flows into the system from a total of 32 annealing bases in the two annealing plants, as well as from the air compressors in the new rolling mill.

This energy is then used to heat several production halls, warehouses, a joinery and dispatch. The process heat is also used to bring the water-oil mixture in the emulsion plants in the new wide-strip rolling mill and the tandem mill up to the required operating temperature: the rolling plant uses a cooling fluid that, paradoxically, must be heated and kept at a constant temperature of around 50°C. As a result, natural gas is only used when no waste heat is available.


### Expanding heat recovery to all plants

In 2023, the BILSTEIN GROUP will start using the waste heat from the generation of compressed air at the smaller BILSTEIN plant in Hagen-Hohenlimburg. The compressors have the potential to generate around 230,000 kWh in waste heat; this energy can then be used to provide heating or hot water to communal buildings, or to heat the emulsion in a rolling mill.

"We're already doing this successfully at HUGO VOGELSANG and BILSTEIN CEE in the Czech Republic," says Christian Hagenkord, Head of Sustainability Projects and Energy Supply. At HUGO VOGELSANG, the annealing plant is also connected to the heat recovery system, as well as the air compressors, making almost maximum use of the potential of heat recovery.



### Reducing natural gas use to a minimum

The wide strip rolling mill is one of the only lines at BILSTEIN to use natural gas, outside of annealing. To operate as energy efficiently as possible, the mill has a self-contained cooling system: the waste heat from electric motors, converters, pumps and other units that need to be cooled is used to preheat the fresh air flowing into the hall via a water-to-air heat exchanger. Air needs to be fed in from outside as steam and air are discharged during the rolling process. To prevent the hall from cooling down and having to be heated, warm air flows in. 

### The ORC plant: how it works



The core element of the system is the thermal oil cycle. During the annealing process, thermal oil absorbs the heat that is lost as the material cools. In the first step in the ORC system, when the material and the thermal oil are hot enough, this generates electricity – via a steam expansion motor and connected generator. This electricity is used to improve the efficiency of the annealing plant; in other words, it is used directly in the operation of the annealing lines, which means they require less electricity from outside the plant.

Once the material is no longer hot enough to feed into the thermal oil cycle and therefore the motor and generator, the annealing plant switches to a water cycle. Here, conventional heat exchangers are used to extract heat from the waste heat. This water cycle is actually at the heart of BILSTEIN's entire heat recovery system.

The ORC plant was sponsored by the German Federal Ministry for the Environment as part of its Environmental Innovation Program ([www.umweltinnovationsprogramm.de](http://www.umweltinnovationsprogramm.de)).

KlimaExpo.NRW  
Motor für den Fortschritt

Ausgezeichnetes Projekt



## The way of the future: producing high-quality grades with fewer resources

At its German sites, the BILSTEIN GROUP is exploring a host of ways to redesign its processes and production steps so that they're as efficient as possible. The work is being supported by comprehensive energy monitoring – and getting systems ready for renewable energy.



To get more insight into its electricity, natural gas, water, compressed air, nitrogen and hydrogen consumption, as well as other environmental data, the BILSTEIN GROUP invested in an energy monitoring system back in 2011. And as of this year, all the company's German sites are connected to it. The system helps the company monitor filling levels automatically, manage its consumption and detect potential leakages. "We're way ahead of the competition when it comes to our data capture, collection and analysis," says Christian Hagenkord, Head of Sustainability Projects and Energy Supply.

### 720 meters and sensors ...

The system has been in use for some time at both of BILSTEIN's plants. To unlock further savings, HUGO VOGELSANG is also set to be connected to the system. This means that, by the time the work is complete in 2023, the approximately 600 meters and sensors already in place at the two BILSTEIN plants will be joined by a further 120 at HUGO VOGELSANG. As part of the project, all old meters will be replaced by modern devices with data interfaces.

### ... with around 7,000 measurements every 30s

The meters and sensors capture data every 30 seconds and feed it into a giant data pool. Since a single device often captures several different parameters, around 7,000 measurements are archived every 30 seconds at the moment.

### From oil to natural gas ... and eventually hydrogen

Despite the ongoing energy crisis, the BILSTEIN GROUP is planning for the future and converting the building heating systems at its smaller plant in Hagen-Hohenlimburg, Plant II, from oil to natural gas. The carbon footprint of natural gas is significantly better: heating oil emits 266 g CO<sub>2</sub>/kWh, while natural gas emits 201 g CO<sub>2</sub>/kWh (source: BAFA). By making the switch, BILSTEIN can reduce the carbon footprint of heating the relevant buildings by 24 percent.

"Our long-term goal is to become carbon-neutral, so we will eventually have to switch from natural gas to green energy," explains Christian Hagenkord, Head of Sustainability Projects and Energy Supply. "Installing a natural gas system will help us rapidly transition to new technologies like hydrogen later on, whenever the new technology becomes viable." This not only applies to heating; the same goes for production machinery like annealing lines and tempering furnaces (see page 11).

## Innovative thinking drives new technology

With more than 1,000 burners in use in the BILSTEIN GROUP's plants, new technologies can unlock huge energy and emissions savings.

An innovative new combustion technology for annealing hoods aims to help mix air and natural gas more effectively in the preheating of the combustion air supply. First, this makes the burners more environmentally friendly as it further reduces nitrogen oxide emissions. Second, it boosts heat recovery in the annealing hoods and, as a result, makes the process of preheating air more energy efficient. In turn, this helps cut gas consumption and carbon emissions. The BILSTEIN GROUP was already exploiting the most advanced technology currently available with its previous burners. So, the new combustion technology is a key opportunity to make improvements. While this new combustion technology may still be in its early stages, the results so far are extremely promising – and BILSTEIN is laser-focused on continuing to develop it.

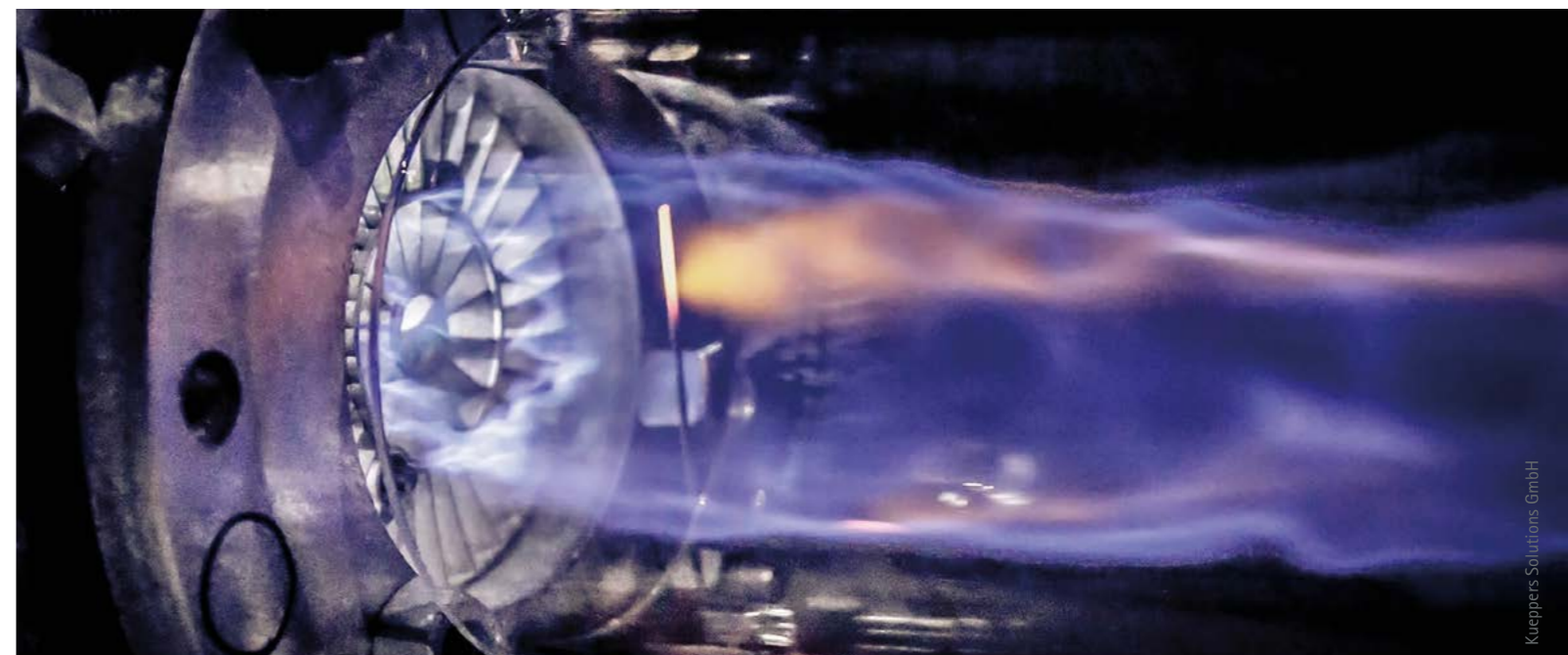


The new combustion technology is the result of 3D printing.

At the same time, the BILSTEIN GROUP is working with three manufacturers to test whether a number of different combustion technologies can be converted to hydrogen. Our aim is to identify the right technology by the close of 2023 (also see page 11).

### Developing new combustion technology

The burners' innovative design has been made possible by the huge advances in 3D printing technology; there is no other manufacturing process that can replicate its complexity. The BILSTEIN GROUP worked with the burner manufacturer Kueppers Solutions GmbH to test a prototype in the annealing plant, in a pilot project spanning several months. The results were so impressive in terms of process reliability that an entire annealing hood was fitted with the new burners.



Kueppers Solutions GmbH



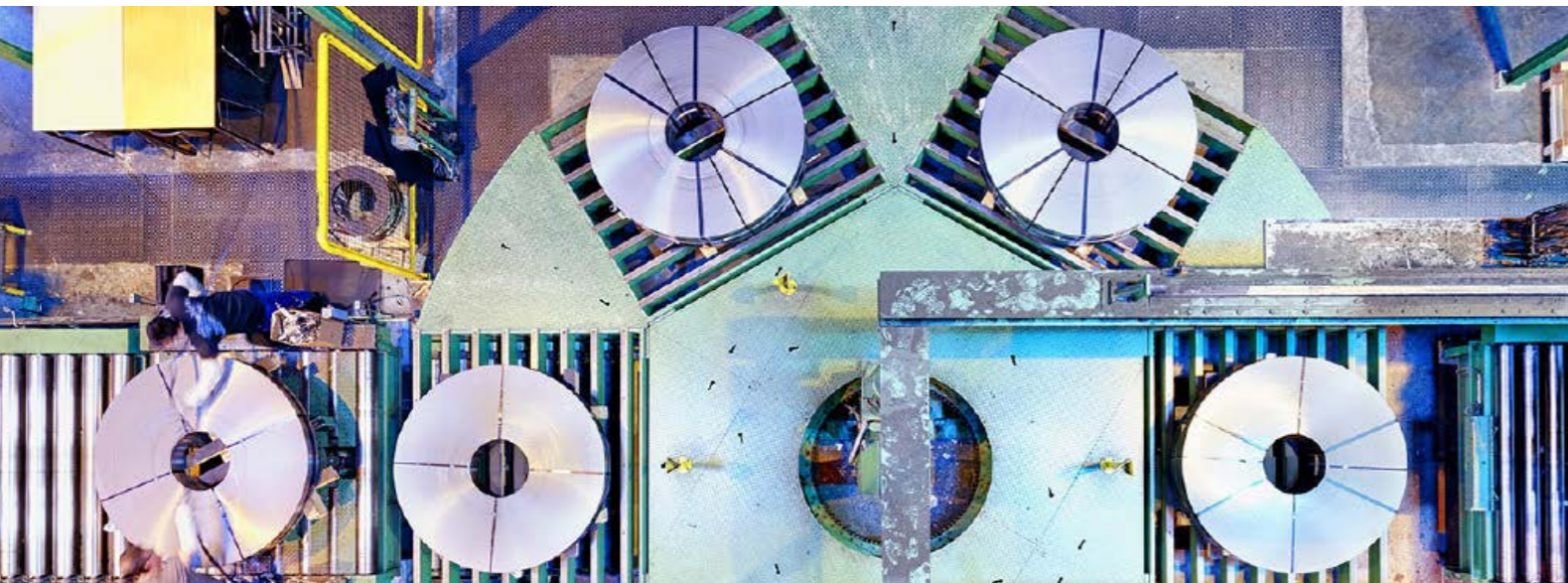
# Employees & Society

Sustainability involves acting and behaving in a way that is aligned with our values in the wider context of our responsibility to society. As an international group, BILSTEIN GROUP companies not only comply with all national and international laws; they also attach huge importance to ethical business principles. The BILSTEIN GROUP requires both its own companies and all suppliers and partners to comply with the relevant code of conduct. And for a family-owned business like the BILSTEIN GROUP, fair and value-driven behavior includes lifting up and supporting people in the company and the local region.

	BILSTEIN SERVICE	BILSTEIN	HUGO VOGELSANG	Total in Germany	BILSTEIN CEE	SHEARLINE STEEL STRIP	BILSTEIN COLD ROLLED STEEL	BILSTEIN TRADING (SHANGHAI)	Total outside Germany	Total
Employees	306	582	230	1,118	135	24	116	7	282	1,400

Updated: November 30, 2022





## I Honest, fair and sustainable around the globe

High quality standards, sustainability and compliance with ethical principles – the BILSTEIN GROUP aspires to and applies these commitments both in its own company and throughout the supply chain.

As one of the world's leading cold-rolled strip providers, the companies of the BILSTEIN GROUP and their various production and service locations are fully aware of their responsibilities when it comes to complying with international rules and standards. As a result, they are guided by ethical business principles when shaping their company policies.

All our suppliers must commit to upholding the BILSTEIN GROUP's high standards when it comes to complying with quality, environmental management and hazardous substance requirements.



- ✓ Quality management, certified to ISO 9001 and IATF 16949
- ✓ Environmental management system, certified to ISO 14001 or EMAS
- ✓ Energy management system, certified to ISO 50001 and/or energy audit pursuant to Section 8 of the German Act on Energy Services and Other Energy Efficiency Measures
- ✓ Occupational health and safety management system, certified to ISO 45001 or OHSAS 18001

**RoHS II** Suppliers must ensure their products comply with the EU's Restriction of Hazardous Substances Directive II, i.e. ensure they do not contain high concentrations of certain substances listed in the RoHS.

**REACH** Suppliers must confirm they are aware of their obligations under the REACH Act ([EU] No. 1907/2006).

### Questionnaire for suppliers, manufacturers and retailers



In addition to a code of conduct for suppliers, the BILSTEIN GROUP regularly reviews the environmental policies and certification of manufacturers and retailers, who provide information on their quality management and any concrete steps they're taking to reduce their environmental footprint. The 14 questions they are asked relate to areas such as resource use in production, energy efficiency and occupational health and safety management in their company.

### Code of conduct for suppliers and business partners



The comprehensive code of conduct for suppliers comprises 11 points. As well as ensuring compliance with applicable laws and regulations and the protection of employee rights, it encompasses a wide range of ethical obligations such as respecting and protecting human rights, and anti-discrimination.

Like our own internal code of conduct, this code also forbids fraud, unfair competition through corruption, and money laundering.

- I. Compliance with applicable laws and regulations
- II. Respecting and protecting human rights
- III. Anti-discrimination and employee rights
- IV. Offering and granting benefits; conflicts of interest
- V. Fair competition
- VI. Money laundering/money of suspicious origin
- VII. Data protection and confidentiality
- VIII. Environmental protection
- IX. International trade
- X. Supply chain
- XI. Product safety

### CSR/sustainability requirements for suppliers



The BILSTEIN GROUP's corporate social responsibility (CSR) and sustainability requirements for suppliers cover the following:

- ✓ Child labor and underage workers
- ✓ Wages and benefits
- ✓ Working hours
- ✓ Modern slavery (i.e. slavery, servitude and forced or compulsory labor)
- ✓ Freedom of association, incl. collective bargaining
- ✓ Harassment and discrimination
- ✓ Health and safety
- ✓ Corruption, bribery and extortion
- ✓ Privacy and data protection
- ✓ Fair competition and antitrust law
- ✓ Conflicts of interest
- ✓ Environmental policies for suppliers

### General Terms and Conditions of Sale and Delivery



The BILSTEIN GROUP's General Terms and Conditions of Business also include sale and delivery conditions that list compliance requirements for suppliers.

You can find the General Terms and Conditions of Sale and Delivery here: [www.bilstein-gruppe.de/en/downloads/](http://www.bilstein-gruppe.de/en/downloads/)





## A question of conviction: our compliance management system

With around 1,200 customers located across every continent, all BILSTEIN GROUP companies commit to upholding international laws and regulations as well as a binding code of ethical business principles.

Special consideration is given to the local customs, ethics and guidelines of the countries in which the BILSTEIN GROUP operates. As one of the world's leading cold-rolled strip manufacturers with production sites in multiple countries, the BILSTEIN GROUP is conscious of its responsibility to comply with international regulations and standards. BILSTEIN GROUP companies act in accordance with all applicable national laws and regulations, as well as legal and ethical specificities, guidelines and principles in the countries in which they operate. And suppliers and partners are expected to do so as well. The aim is to ensure employees, business partners and customers are all treated in an honest, fair, sustainable and safe way, based on clearly defined corporate ethics. To support compliance with these ethical guidelines, the BILSTEIN GROUP has developed a code of conduct that is applicable worldwide and incorporates all of its core values. The code serves as a guide for all shareholders, advisory board members, members of management boards, directors and employees of all BILSTEIN GROUP companies on how to treat each other and their partners across the globe. As ambassadors of the BILSTEIN GROUP, it is critical that all their actions are aligned with this clearly defined company philosophy.

Independent of the extremely high standards that the BILSTEIN GROUP already requires of its suppliers, these

obligations are now regulated by law in Germany following the passing of the Supply Chain Due Diligence Act (Lieferkettensorgfaltspflichtengesetz, or LkSG for short). The LkSG became effective for all companies with more than 3,000 workers on January 1, 2023, and will take effect for companies with more than 1,000 workers, which includes the BILSTEIN GROUP, one year later on January 1, 2024. The LkSG's primary aim is to ensure that companies review and document their environmental and human rights obligations. In particular, the due diligence obligations around risk management, risk analysis, prevention measures and the establishment of a complaints procedure are noteworthy. The complaints procedure requirement is an addition to the whistleblower system proposed by lawmakers that will soon become law in Germany.

The companies of the BILSTEIN GROUP have had a complaints procedure for issues relating to antitrust and competition law in place for many years. Furthermore, in the second half of 2022, so way ahead of schedule, a BILSTEIN GROUP internal project group approved the work required to ensure compliance with the LkSG, to ensure the necessary measures are implemented in a timely manner. 🌐



You can learn more about the BILSTEIN GROUP's compliance management system on the group website:

[www.bilstein-gruppe.de/cms/wp-content/uploads/2016/12/CMS\\_BILSTEIN\\_GROUP\\_en\\_2017-1.pdf](http://www.bilstein-gruppe.de/cms/wp-content/uploads/2016/12/CMS_BILSTEIN_GROUP_en_2017-1.pdf)



### The three pillars of our compliance management system



#### Code of conduct

The code of conduct is one of the three pillars of the BILSTEIN GROUP's compliance management system. It consists of 16 sections and includes definitions of general principles and rules of conduct, as well as guidelines for respecting and safeguarding human and employee rights.



#### Anti-corruption guide

The second pillar of the BILSTEIN GROUP's compliance management system is the anti-corruption guide, which serves to help prevent and actively combat any form of corruption or bribery. BILSTEIN GROUP companies actively promote fair competition and do not tolerate any form of corruption, which is a criminal offense in Germany. Ultimately, corruption can have damaging effects on public welfare, the economy and individual companies.

The processes and rules set out in the guide are binding for all employees of the BILSTEIN GROUP and provide guidance on how to deal with gifts. Using a traffic light system, the aim is to reduce the risk of any such infringements of the law to an absolute minimum.



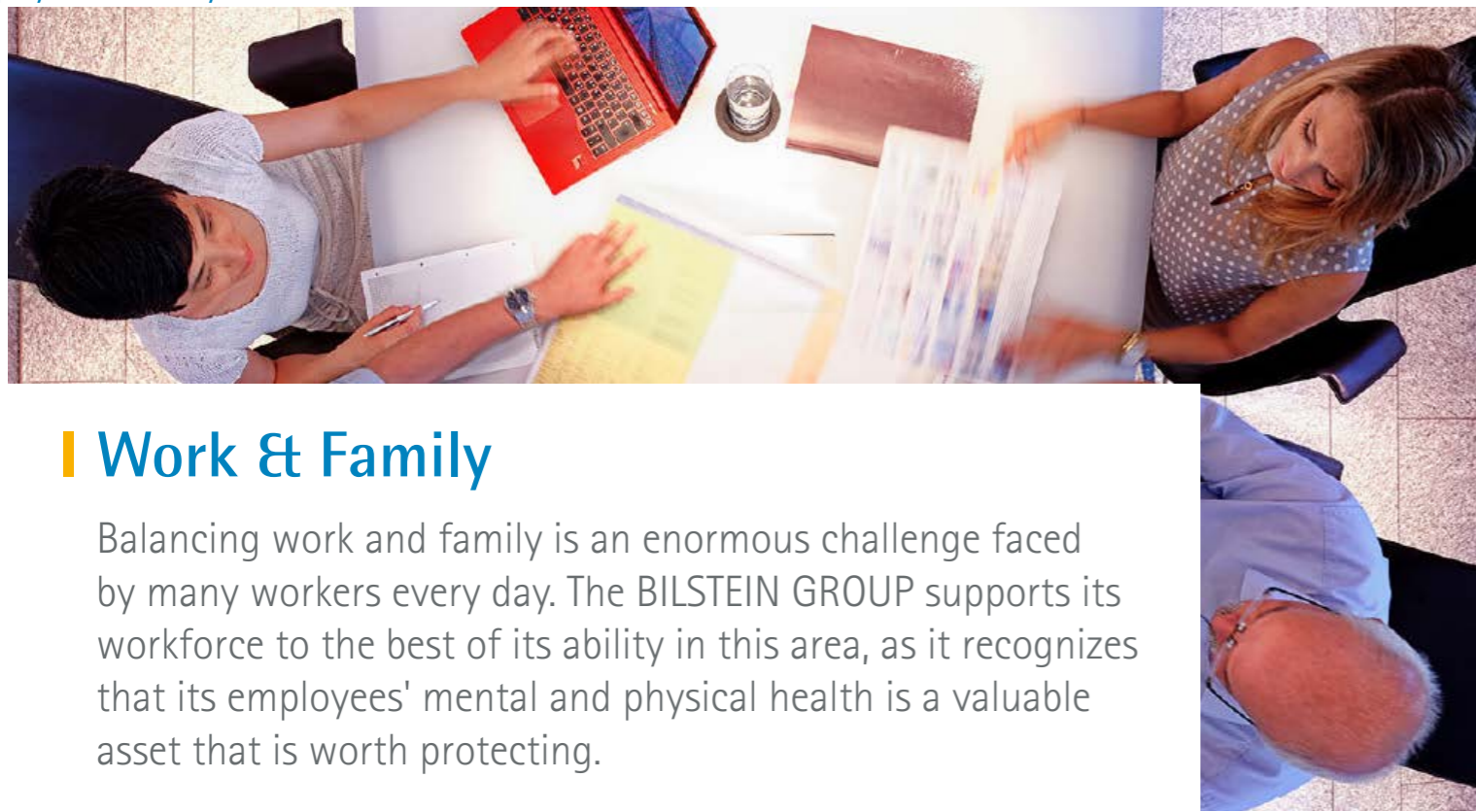
#### Guide to antitrust law

This guide is intended as a code of conduct to help employees comply with company values and identify any infringements of antitrust law. All BILSTEIN GROUP employees share responsibility for implementing these guidelines in their interactions with customers, coworkers, shareholders and the general public.

The guide to antitrust law is the third central pillar of the BILSTEIN GROUP's compliance management system







## Work & Family

Balancing work and family is an enormous challenge faced by many workers every day. The BILSTEIN GROUP supports its workforce to the best of its ability in this area, as it recognizes that its employees' mental and physical health is a valuable asset that is worth protecting.

### BUK Familienservice

In collaboration with the organization BUK Familienservice, the BILSTEIN GROUP provides independent and external professional services for all employees at its German locations to help with challenging or stressful life events and situations. The services have been available since January 2019 via phone hotlines, video consultations, email and in-person meetings. Additionally, as of 2022, the service now includes online lectures. These interactive webinars are designed so that participants can ask the BUK Familienservice speaker questions, above and beyond the presentation.

#### 1. Childcare

Personalized advice on childcare options and formats, including parental leave and benefits, childcare costs, support with contractual queries, and much more.

#### 2. Nationwide services during school breaks

Selection and research of certified options for regular or short-term childcare, connecting with babysitters and au pairs, homework support or emergency childcare, BUK summer camp, etc.

#### 3. Care for dependents

Personalized support for caring for dependents, including care availability, types and levels of care, costs and grants, organizing care, connecting with nationwide support or care services, communications and liaison, and much more.

#### 4. External employee support

Health management through confidential advice and support on topics like work, career, personal life, mental health and addiction. Expert service for HR managers, signposting to further support, etc.

## Culture, identification and diversity

In Germany, the average length of employment at the company is more than 15 years, which is significantly above the statistical average of around 10 years.

What's more, the BILSTEIN GROUP has a presence on nearly all continents across the globe. Around 20% of its workforce is based outside Germany. Altogether, BILSTEIN GROUP employees represent more than 50 nations, along with all their different cultures and values. This diversity is also reflected in employee promotion and development.



## A commitment to cultural change

Putting the focus back on our people: after a challenging few years, with lots of pandemic-related restrictions and constant checking of cases and numbers, the BILSTEIN GROUP is working with its employees to define the structures for the company's future. "A strong sense of community and teamwork is the best foundation to help us overcome the challenges we face in extremely unpredictable times," says Marc T. Oehler, confidently. "To achieve this, we all have to grow and better ourselves, and we have to do that work now."

As the starting point for this cultural transformation, a survey was conducted as part of the initiative "BILSTEIN GROUP: Tackling the future, together!", to capture the mood of production and maintenance staff. Company management strongly believes that the most important basis for productive change is the experiences, voices and opinions of the employees themselves. That's why anyone who wanted to speak was heard – and their answers were frank and honest. The BILSTEIN GROUP will use the findings of the survey to develop tangible steps and measures for 2023 onward. The employee interviews will also continue.



## Family-friendly – it's in our DNA

The BILSTEIN GROUP recognizes that the well-being of its workforce isn't just about what happens in the workplace. After all, employees are first and foremost human beings. Thanks to its services in this area, the BILSTEIN GROUP has been designated a "Family-friendly company".

### Work and family

- ✓ Advice on parental leave and returning to work
- ✓ Flexible working hours
- ✓ Kid-friendly workspaces for emergency childcare situations
- ✓ Financial support for childcare
- ✓ Holiday activities and programs for children of employees
- ✓ Company-wide agreement on remote working
- ✓ The opportunity for administrative staff to bring their dogs to work

### Internal, personalized support

- ✓ External employee advice
- ✓ Family care: support with organizing care for dependents
- ✓ Rapid financial aid, particularly for family emergencies
- ✓ Support with addiction and money problems

### Sustainable transport

- ✓ Employee bike leasing program (from 2023)
- ✓ Charging stations for electric vehicles

### Employee events

- ✓ Family festivals
- ✓ Meet-ups for retirees
- ✓ Anniversary parties
- ✓ Christmas tree programs

### Extras

- ✓ Funds for family occasions based on the Social Affairs Act (effective since 01.01.2015)
- ✓ Funds for social issues
- ✓ Benefits in the event of loss of life

### Staying active together

- ✓ Participation in various corporate running events

### External events

- ✓ Girls'/Boys'/Parents' Day
- ✓ Management AG
- ✓ Company visits for school classes
- ✓ Participation in Tec Days
- ✓ Presence at various training and careers fairs
- ✓ Participation in Hagen vocational training day
- ✓ Careers information days and internships





## Promoting community

### Doing what's right, together

In spring 2022, BILSTEIN GROUP companies and their employees clubbed together to support the renowned organization Doctors Without Borders and help the people of Ukraine. Lots of employees decided to voluntarily give up part of their March and April salaries and send it to the charity. Employees could also use overtime hours credited to them. At the end of the campaign, the BILSTEIN GROUP matched the sum raised by the employees.

By April 15, a grand total of 27,750 euros had been raised for Doctors Without Borders. "We want to thank all our workers for their support. We're proud that we came together and did something for a good cause at a difficult time," says Marc T. Oehler.

The BILSTEIN GROUP also donated 30,000 euros to fund two aid vehicles to help deliver food and other essential items to people caught up in the conflict in Ukraine.



### Regional support and sponsorships



The BILSTEIN GROUP's connections to the local region and people run deep, and we are proud to support culture, science and community in Lennetal.

Regular donations are made to:

- Regional sports clubs and teams
- Local schools
- The Technological Advancement of South-Westphalia charitable association
- Local volunteer firefighters
- Hagen's open-air museum
- The THW (Federal Agency for Technical Relief)

## Health and safety

Our health is our most valuable asset, which is why the BILSTEIN GROUP goes to great lengths to ensure its employees get through their working day without any accidents or injuries. For example, highly automated processes boost workplace safety and protect workers against the risk of serious injury. But we don't stop there – we think about the small details, too.

### PPE



Whether it's safety goggles, blue light glasses or earmolds (custom-fit hearing protection that fits snugly within the ear canal for a comfortable fit): every employee in Germany has access to a service that provides bespoke personal protective equipment (PPE) in their place of work. Representatives from a specialist company ensure eyewear and ear protection fit the user and their needs. The BILSTEIN GROUP covers the majority of the costs for each new piece of eyewear or protective hearing equipment.



### First aiders

Despite the restrictions associated with the pandemic in recent years, BILSTEIN's competent and well-trained team of first aiders has ensured the safety and well-being of staff at all times. Please join us in thanking all these dedicated workers for their commitment.



### Safety and health awareness days

Besides workplace safety, employees' individual health is of paramount importance. That's why the BILSTEIN GROUP is expanding the preventive concept behind its Safety Days in 2023 to also factor in personal health issues. The goal is to raise awareness and help employees continue to prioritize their health and safety on a daily basis. We also regularly run campaigns and host events to raise awareness of safety around forklift traffic in plants.

### Apprentice safety training

In particular, BILSTEIN spends a lot of time educating its young people on safety, including fire safety.



### Prevention

In recent years, workplace safety has evolved from a simple focus on accident prevention to more comprehensive prevention. This is now the responsibility of the HSEQ department, which was formed from a merger between the Quality Management (QM) and Health, Safety and Environment (HSE) teams, both of which use management systems certified to ISO 9001, ISO 5001 and ISO 14001.

### COVID-19 vaccinations and testing

The BILSTEIN GROUP's COVID-19 crisis team responds quickly to the changing conditions of the pandemic, with relevant services and information.

### Employee bike leasing program



A new bike leasing program aims to make it easier for employees to drop the car for their commutes. The BILSTEIN GROUP will start promoting and offering the program at its German sites in early 2023.

### ISO 45001: certified – and safe!



Introduced in 2018, ISO 45001 is the first global standard for workplace safety. It brings together conventional workplace safety and company health management under one umbrella, with a focus on preventive protection for employees and close involvement of management.

In recent years, Peter Uhrík, Chief Executive of BILSTEIN CEE, and his team in the Czech Republic have really dedicated themselves to improving workplace safety, resulting in the company recording zero accidents for the first time in 2018. What could be a better time to get certified? "We're proud that we now have an official certification for an issue that's so close to our hearts. Now everyone can see how seriously we take workplace safety," says Peter Uhrík.

### Health incentive program



- ✓ Health check
- ✓ B2Run: registration fee and t-shirt are paid for by BILSTEIN, with HSEQ staff running a team booth on site to provide support and encouragement.



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Editorial:  
public vision Medien, Düsseldorf  
Aimée Bastian, Claudia Haese  
Design:  
Klaus Mader

Contacts:  
Marc T. Oehler,  
Miriam Rensinghoff,  
Christian Hagenkord,  
Adriana Ibrahimovic

Photography:  
Markus Steur (freelance)  
H2 Green Steel AB,  
Kueppers Solutions GmbH  
Kotarl – stock.adobe.com  
lovelyday12 – stock.adobe.com

