

SUSTAINABILITY REPORT

2024



CONTENT

GENERAL INFORMATION	3
Foreword by the Shareholders	3
2024 in Figures	5
Group Values	6
Introduction to the Group	7
Certificates	10
ENVIRONMENT	11
Energy Resources	13
Environmental Impact	17
Water Management	24
Circular Economy	25
Waste Management	26
Mobility Transition	27
SOCIAL	28
Our own Workforce	28
Social Commitment	33
Occupational Safety	34
KEYWORD INDEX	36
LEGAL NOTICE	37

Editor:
Kuhn Industrie Holding GmbH
Otto-Hahn-Straße 12-14
42477 Radevormwald
GERMANY

GENERAL INFORMATION

Foreword by the Shareholders

Dear readers, you are holding our sustainability report for the 2024 calendar year in your digital hands. The year 2024 was marked by dynamic developments and a difficult economic environment in Europe. With prices rising steadily due to high wage and energy costs, especially in Germany, more and more market share is being lost to cheaper, primarily Asian competitors – not only for us, but for the entire industry. However, the sustainability of these competitors' production, particularly with regard to environmental technology and occupational safety standards, sometimes appears questionable.



Andre Kuhn



Calvin Kuhn

2024 also had a lot to offer in terms of energy policy. As part of the “Fit for 55” package, the EU ratified many of the directives and regulations contained therein and launched a comprehensive program of measures that provides for significant tightening of numerous climate protection instruments. Many of these instruments, such as the Emissions Trading Directive, are aimed at the economy and will place an additional burden on it in the coming years. They will further restrict the scope for action, especially for energy-intensive companies such as ours, and further reduce the competitiveness of European industry.

This does not mean that we disapprove of or even reject energy policy measures aimed at climate and environmental protection. On the contrary, we are working continuously to make our operations more modern, efficient, and sustainable. However, we also demand that energy policy be geared to the economic realities of the players involved. These players are the industries of Europe. Increasing bureaucratic and financial burdens are significantly limiting competitiveness.

Nevertheless, we continue to invest regularly in plant technology, personnel, and, of course, sustainability. We are committed to our society and feel a personal obligation to help ensure that future generations also have a livable environment. Our long-term path to a more sustainable and climate-friendly future in Germany motivates us to continue investing in innovative solutions and technologies. This sustainability report shows you how we fulfill this social responsibility.

We, the shareholders of the Kuhn Group, hope that you will gain insightful impressions of our efforts as you read this sustainability report. We would also be delighted if, inspired by the

topics that follow, you would engage in dialogue with us. Let us know what has inspired you, what has surprised you, or what you would like to share with us.

We would like to thank our employees, partners, and customers for their trust and cooperation over many years of working together, and we hope that we can continue to participate successfully in the sustainable development of our company!

Radevormwald, November 2025

2024 in Figures

1,379,000 kWh of solar power

have been generated by the photovoltaic system on the roofs of Kuhn Edelstahl in 2024. This corresponds to the average consumption of 345 single-family homes with four-person households.

(based on an assumed annual consumption of 4,000 kWh)

Visiting

Vice Chancellor Dr. Robert Habeck, a minister in the federal government still in office in 2024, visited the M. Jürgensen company.

Around 80%

of the materials used in 2024 came from scrap and our own recycling in Sörup and Radevormwald.

19 trainees

So many young people began their training at one of the two Kuhn Industrie Holding locations in 2024.

51.62 GWh

was the total consumption of all energy sources used within Kuhn Industrie Holding.

About 21%

Was the reduction of the district heating consumption of M. Jürgensen in 2024 due to technical and organizational measures.

Four and a half times around the world

or around 183,000 km of mileage was the amount of diesel fuel saved by switching from diesel to electric-powered industrial trucks.

40 years

An employee of Kuhn Edelstahl celebrated such a long period of service in 2024.

100 single-family homes

with four residents could have been supplied over the year by the electricity saved by Kuhn Edelstahl in 2024.

(based on an assumed annual consumption of 4,000 kWh)

3 major trade fairs

With CastForge in Stuttgart, AICHEMA in Frankfurt, and SSM in Hamburg, the companies of the Kuhn Group were represented at three major trade fairs in 2024.

Code of Conduct | Group Values

Jointly defined values and guidelines are the foundation of our group of companies. They form the basis and directive for our actions. We see our values as a kind of "mirror" – they are not normative, but are meant to give an impression of how we think and act. On the basis of shared values, good cooperation is of great importance to us. Historically, the idea of a company arose from the need for collaboration between people – it was only through more complex tasks that could no longer be managed alone that the "idea of a company" arose, in which people work together to perform a service for a customer.

The basis of our daily work is our management philosophy, which focuses equally on both people and results. We can only achieve top performance when everyone cooperates effectively. Trust can grow through dependable focus on our values. At the core, we are about being successful together as entrepreneurs. To achieve this, we have defined the following values as the core of our cooperation:

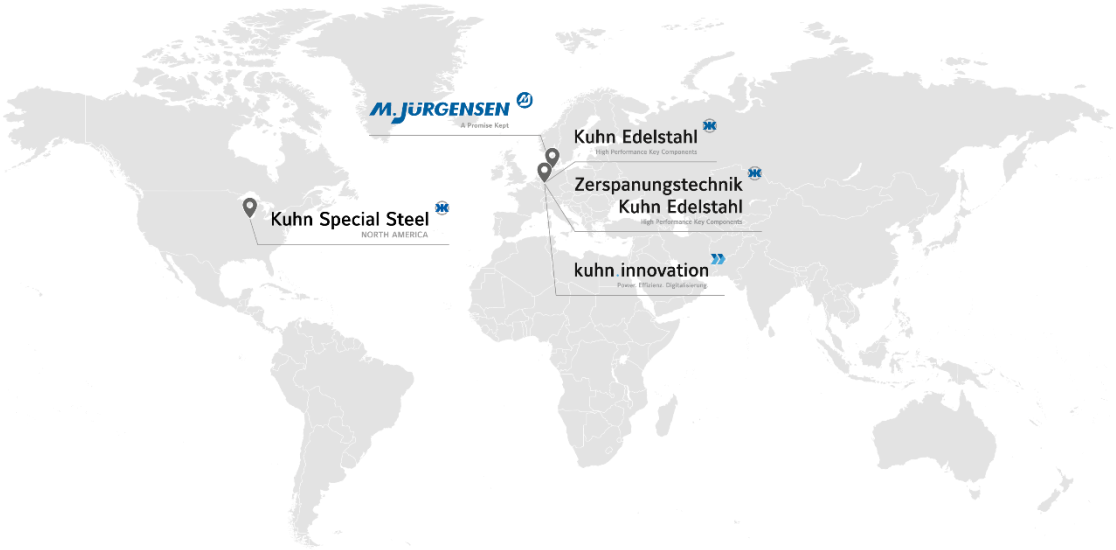


Introduction to the Group

Kuhn Industrie Holding is a group of experienced companies whose core competencies lie in the areas of material development, centrifugal casting and machining technology.

With the complete value chain, from development and raw casting to ready-to-install key components, the breadth of our product range sets us apart from global competition.

The group of companies has over 600 employees worldwide, has two production sites in Germany and is also present in the USA with local distributors.



Key figures of the group

Number of subsidiaries:	5
Group sales 2023:	91.9 million EUR ¹
Employees 2023 (group-wide):	656 employees
Casting tonnage 2023 (group-wide):	21,672 Tonnen

¹ consolidated sales of Klaus Kuhn Edelstahlgießerei GmbH, Zerspanungstechnik Kuhn Edelstahl GmbH, M. JÜRGENSEN GmbH & Co KG, Kuhn Innovation GmbH, Kuhn Special Steel North America, Inc.

Klaus Kuhn Edelstahlgießerei GmbH & Zerspanungstechnik Kuhn Edelstahl GmbH

Founding year: 1960
Production Site: Radevormwald, Germany
Turnover 2024: 47.6 million EUR¹
Workforce: 313 employees
Total area: 52,360 m²
Foundry: 7 induction ovens
15 centrifugal casting machines



CNC machines: > 40
Conventional lathes: > 15
max. outer diameter: 1,200 mm (horizontal) / 2,300 mm (vertical)
max. length 8,000 mm
max. casting weight 5,000 kg

¹ consolidated sales of Klaus Kuhn Edelstahlgießerei GmbH and Zerspanungstechnik Kuhn Edelstahl GmbH

M. Jürgensen GmbH & Co KG

Founding year: 1937
Location: Sörup, Deutschland
Turnover 2024: 41 million EUR
Workforce: 343 employees
Total area: 60,000 m²
Foundry: 10 induction ovens
12 centrifugal casting machines



CNC machines: > 40
Conventional lathes: > 30
max. outer diameter: 820 mm (horizontal)
max. length 1,700 mm
max. casting weight 5,000 kg

Kuhn Innovation GmbH

Founding year: 2020

Location: Radevormwald,
Deutschland

Workforce: 9 employees

Consulting and technical implementation, including: automation of existing production facilities, collection and evaluation of production, quality, and machine data (e.g., using existing or newly installed sensor technology).



Kuhn Special Steel North America, Inc.

Founding year: 2016

Location: Chicago, USA

Turnover 2024: 3.9 million EUR

Distribution company



Reference

This sustainability report takes into account the Group's production sites, namely

- Klaus Kuhn Edelstahlgießerei GmbH (consolidated with Zerspanungstechnik Kuhn Edelstahl GmbH) and
- M. Jürgensen GmbH & Co KG.

Certificates

The companies of Kuhn Industrie Holding continuously optimise their processes by implementing quality, environmental and/or energy management systems. The internationally applicable management systems are continuously audited by accredited certification bodies.

Kuhn Special Steel

Quality management in accordance with ISO 9001:2015

Valid from: 11.06.2024

Valid to: 31.03.2027

Initial certification: 2003

Energy management in accordance with ISO 50001:2018

Valid from: 01.12.2022

Valid to: 30.11.2025

Initial certification: 2013

M. Jürgensen

Quality management in accordance with ISO 9001:2015

Valid from: 01.02.2023

Valid to: 31.01.2026

Initial certification: 1999

Environmental management in accordance with ISO 14001:2015

Valid from: 01.02.2023

Valid to: 31.01.2026

Initial certification: 2002

Energy management in accordance with ISO 50001:2018

Valid from: 18.12.2023

Valid to: 17.12.2026

Initial certification: 2011

ENVIRONMENT

Kuhn Edelstahl and M. Jürgensen are among the most energy-intensive companies in Germany. The relevant energy sources are electricity, natural gas, district heating, diesel, heating oil, and bottled gas. The primary goal for the coming years is to reduce consumption of each energy source while improving energy efficiency. Every kilowatt hour saved also leads to a reduction in CO₂ emissions.

Our long-term goal is to achieve CO₂-neutral production at both Kuhn Industrie Holding production sites. Against this backdrop, we launched the “Our Path to Climate Neutrality” project in 2021. Based on the CO₂ balances from 2019 onwards, we have developed an action plan on how we intend to continuously reduce energy consumption and the associated greenhouse gas emissions in our companies.



We were already able to demonstrate initial measurable success in 2022. In that year, our climate strategy also played a key role in helping us to prevent a possible shortage of natural gas in our supply as a result of the energy crisis triggered by the war in Ukraine through forward-looking consumption planning. Fortunately, this enabled us to avoid a supply shortage in our production.

In the following years, 2023 and 2024, CO₂ emissions were further reduced in both Radevormwald and Sörup. Some of the investments made in 2022, 2023, and during 2024 had a positive effect on energy consumption. After energy prices fell significantly in 2023 compared to 2022, this trend continued in 2024 with a further, but significantly smaller, decline. However, compared to the years before 2022, our companies' energy costs were still at an elevated level.

The *green conditionality* linked to the Energy Financing Act since 2023, with its obligation to provide evidence of *ecological compensation*, and the new Energy Efficiency Act passed in November 2023, resulted in additional bureaucratic effort in 2024 and will bring the issues of energy management and energy efficiency into sharper focus from now on. Since both Kuhn Edelstahl and M. Jürgensen have been operating an energy management system certified according to DIN EN ISO 50001 for many years, the basic requirements were already in place. Nevertheless, in 2024, additional external audits had to be carried out for the first time to confirm compliance with *green conditionality* and to provide evidence for the application for *electricity price compensation*. Furthermore, at the end of the year, both locations reported their existing waste heat potential for the first time on the newly created *waste heat platform* of the Federal Office for Economic Affairs and Export Control.

Developments in the field of energy policy show us that we as a group of companies took the right path early on and that our proactive approach has given us a head start over numerous other energy-intensive companies and competitors. We intend to use this head start in the coming years to demonstrate that energy-intensive foundries can continue to operate successfully in Germany as a production location. Relocating production abroad is not an option for us.

Reducing energy consumption and the associated improvement in energy efficiency are important, but not the only measures on the path to climate neutrality. The companies of Kuhn Industrie Holding have included three further areas of action in their climate strategy. These are the use of renewable energies, the substitution of fossil fuels, and the offsetting of unavoidable CO₂ emissions.

Despite all energy efficiency measures, Kuhn Edelstahl and M. Jürgensen will remain energy-intensive companies in the future. This is where the second area of action on the path to climate neutrality comes in. Energy used in production processes that cannot be saved will come exclusively from renewable sources in the future. First, we want to realize this vision for our electricity needs. In 2022, a first step toward achieving this goal was taken with the construction of a photovoltaic system at the Radevormwald site. The electricity quantities exceeding our own generation will continue to be purchased from external energy suppliers. The associated contracts are to be converted to green electricity step by step. In addition, the companies of Kuhn Industrie Holding are in contact with providers of power purchase agreements to weigh up the possibilities of purchasing electricity from regional renewable energy plants.

In the future, fossil fuels such as natural gas, diesel, and heating oil should be avoided wherever technically and economically feasible. We currently see the electrification of combustion processes as the primary alternative. Ideas for the use of hydrogen at one of the sites will not be pursued for the time being. In addition to the lack of infrastructure in Radevormwald and

Sörup, which is not expected to be built in the medium term, the sufficient availability of green hydrogen would be a decisive criterion for us. Switching from natural gas to conventional gray hydrogen would actually lead to a deterioration in emissions.

Investments in external measures and projects to offset unavoidable CO₂ emissions have been included in our Group's sustainability strategy, but have not yet been made. We currently see no need for this, as the potential for CO₂ savings to be achieved through internal measures in the coming years is still considerable.

Energy Resources

Kuhn Industrie Holding's total energy consumption in 2024 amounted to 51.62 GWh. Compared to the previous year 2023, this represents a decrease of 0.46%. With a share of around 65% of total consumption, electricity was once again the most important energy source for our group. Natural gas ranked second with a share of 27%. The decisive factor here is the enormous natural gas consumption of Kuhn Edelstahl, which furthermore exceeds electricity consumption at the Radevormwald site. Processes such as the heat treatment of cast components, the preheating of molds and casting ladles, the burning in of metal chips, and the heating of production halls and office buildings are carried out there almost entirely by burning natural gas. At M. Jürgensen, on the other hand, only the molds are preheated with natural gas.

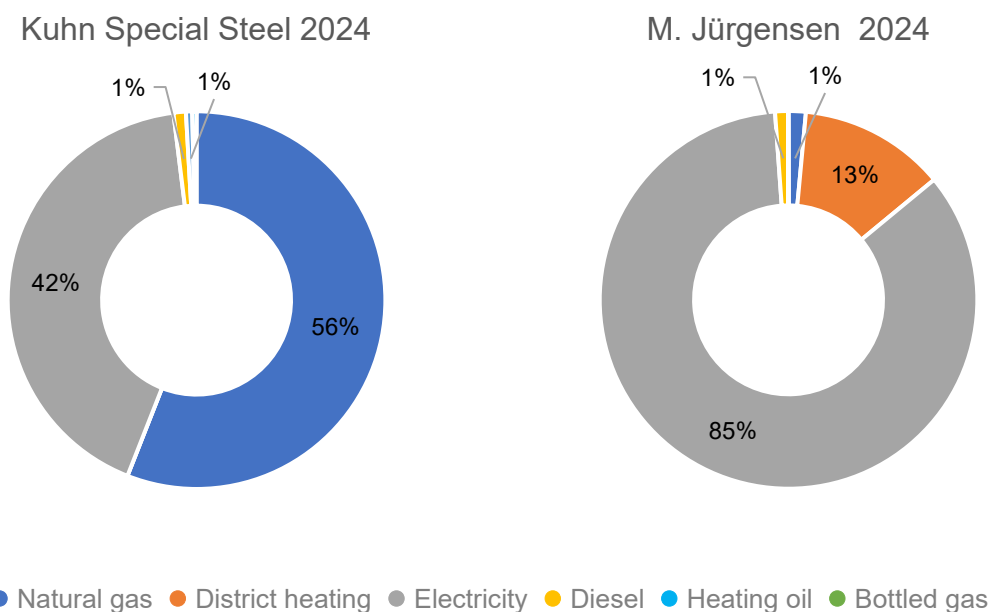
Natural gas consumption at Kuhn Edelstahl actually rose by 0.4 GWh in 2024 compared to the previous year. This was mainly due to increased gas consumption in heat treatment and chip processing. However, a significant reduction is expected from 2025 onwards with the purchase of a new chip processing plant.

Overall, however, significant energy savings were achieved at both of the Group's locations in 2024, partly due to declining production volumes, but also due to technical and organizational measures (see p. 23). Compared to 2023, Kuhn Edelstahl consumed 367,944 kWh less electricity and 53,240 kWh less heating gas. In addition, the replacement of diesel forklifts with electric models had a noticeable effect, and diesel consumption was reduced by 12,816 liters. At M. Jürgensen, district heating consumption was reduced by 566,980 kWh. At the same time, however, electricity and gas consumption increased.

Table 1: Energy sources used in gigawatt hours [GWh]

	2021	2022	2023	2024
Natural gas ●	16.0	14.8	13.6	14.1
Kuhn Special Steel	15.7	14.5	13.3	13.7
M. Jürgensen	0.3	0.3	0.3	0.4
District heating ●	3.8	3.6	3.9	3.4
Kuhn Special Steel	0.0	0.0	0.0	0.0
M. Jürgensen	3.8	3.6	3.9	3.4
Electricity ●	31.7	34.0	33.3	33.3
Kuhn Special Steel	11.0	11.0	10.7	10.3
M. Jürgensen	20.7	23.0	22.6	23.0
Diesel ●	0.70	0.72	0.69	0.57
Kuhn Special Steel	0.42	0.42	0.39	0.26
M. Jürgensen	0.28	0.30	0.30	0.31
Heating oil ●	0.24	0.18	0.15	0.13
Kuhn Special Steel	0.24	0.18	0.15	0.13
M. Jürgensen	0.00	0.00	0.00	0.00
Bottled gas ●	0.11	0.08	0.07	0.10
Kuhn Special Steel	0.10	0.07	0.06	0.09
M. Jürgensen	0.01	0.01	0.01	0.01

Energy mix per site in % (2024)



On-site renewable energy generation

From an economic and environmental perspective, the use of renewable energies is becoming increasingly important, especially for energy-intensive companies. For this reason, €2 million was invested in a photovoltaic system at the Radevormwald site in 2022.

PV system Radevormwald	
Generator area:	10.000 m2
Number of solar modules:	5.000 Stk.
Max. installed power:	2 MWp
On-site consumption rate:	ca. 80 %



An assessment in 2021 revealed that a large part of the roof area of the production and office buildings would be suitable for the installation of a photovoltaic system. After a 14-month project and construction phase, the system went into operation in August 2022. Since then, around 80% of the solar power generated has been consumed by Kuhn Edelstahl itself. This has led to a reduction in energy costs on the one hand and improved the site's carbon footprint on the other. The surplus energy is fed into the public power grid of the city of Radevormwald via direct feed-on, especially on production-free weekends and public holidays. Due to low to negative electricity market prices on weekends, among other factors, this marketing model has not yet generated any significant financial revenue for our company. One alternative would be to use an electricity storage system. This would store the surplus solar power on weekends and could release it for self-consumption when needed. Applications for this would include reducing grid power consumption during periods of high spot market prices or reducing peak loads in order to save on grid fees. However, a profitability analysis carried out in 2023 led to the conclusion that, under the current conditions, the use of an electricity storage system would not be an economically attractive investment.

The investment in a photovoltaic system is a clear statement of the goal of climate-neutral production at the site. In addition, it has made it possible to achieve independence from the increasingly volatile energy markets. With a maximum installed capacity of 2 MWp, the system can cover up to 20% of the total electricity requirements of the Radevormwald site. Table 2 shows the energy generated in-house over the years and its share of Kuhn Edelstahl's total electricity consumption.

Table 2: Annual volumes and share of green energy

	Green energy [GWh]	Share of total electricity consumption	CO ₂ savings [t]
2021	0	0%	0
2022	0.3	3%	165
2023	1.2	11%	696
2024	1.2	11%	683

In 2024, the plant generated a total of 1.38 GWh of green electricity. 1.1 GWh of this was consumed directly by the company itself. The remaining 0.27 GWh was fed into the grid.

In the medium to long term, the company also plans to invest in a photovoltaic system at its Sörup site. The roof areas available there offer potential that would once again significantly exceed the plant capacity at the sister site.

In addition to photovoltaics, the group of companies is considering investing in regional wind power in the future. Initial contacts have already been made. However, due to the high costs and the multi-year project durations of such plants, there are currently no concrete plans or timelines in this area.

Environmental Impact

Foundry processes have complex environmental impacts. On the input side, they are energy- and resource-intensive. The high process temperatures, especially during melting and heat treatment of steels, are the main consumers of the annual quantities of natural gas and electricity listed in the chapter on energy resources. In addition, the wide range of materials offered to customers by Kuhn Edelstahl and M. Jürgensen requires a high use of raw materials such as pig iron, alloying elements, and scrap. On the output side, there are process emissions in the form of combustion gases, residual heat, dust, noise, scrap, and other waste.

Our companies are aware of their environmental impact and have established appropriate processes and measures to monitor and control it. M. Jürgensen has been operating an environmental management system certified according to DIN EN ISO 14001 since 2002. This contributes to the continuous improvement of the company's environmental impact. Kuhn Edelstahl does not currently operate a certified environmental management system. Nevertheless, environmental protection is also a high priority there. Employees who are responsible for and trained in environmental protection ensure that this is guaranteed at all times.

Foundry facilities require approval in accordance with Section 4 of the Federal Immission Control Act (BImSchG). All Kuhn Industrie Holding facilities that fall under the scope of the BImSchG have obtained the relevant approvals from the respective district government or district administration. The ancillary provisions imposed have been or are being complied with on an ongoing basis. Plants subject to recurring inspections are inspected internally or by external specialist companies at the prescribed intervals.

Annual reports required by law are submitted to the competent authorities in a timely manner. Hazardous substances are stored in accordance with Technical Rule for Hazardous Substances (TRGS) 510. Water-polluting substances are only used and stored in facilities that comply with the Ordinance on Facilities for Handling Water-Polluting Substances (AwSV). The recurring inspection obligations are complied with and fulfilled by external specialist companies. All waste is disposed of properly by certified waste disposal companies. Waste disposal certificates are available.

Changes to individual facilities that lead to a change in the approved status are reported to the competent authorities in a timely manner via a notification in accordance with §15 BImSchG or an approval procedure in accordance with §16 BImSchG.

Carbon Footprints

The greenhouse gas balances (CO₂ balances) of Kuhn Edelstahl and M. Jürgensen represent the corporate carbon footprint (CCF) of both companies. The accounting is based on the guidelines of the Greenhouse Gas Protocol (GHG Protocol). Scope 1, Scope 2, and Scope 3 emissions caused by business activities within the respective accounting period are taken into account. An accounting period covers the fiscal year to be reported, from January 1 to December 31. The accounting framework covers direct and indirect emissions at

Definition of Scopes	
Scope 1	Direct greenhouse gas emissions from the combustion of primary energy sources at the site. <i>Examples: Natural gas, diesel, heating oil, technical gases</i>
Scope 2	Indirect greenhouse gas emissions resulting from the generation of externally purchased energy. <i>Examples: Electricity, PV electricity, district heating</i>
Scope 3	Other indirect greenhouse gas emissions resulting from upstream or downstream external processes. <i>Examples: Purchased metals and other auxiliary materials, employee travel, water, waste disposal</i>

the respective location as well as indirect emissions from upstream processes that fall under Scope 3 (cradle-to-gate). Supporting processes and cross-sectional technologies are taken into account, as are centrifugal casting and machining processes. Upstream processes currently include externally sourced goods and services (category 1), fuel and energy-related activities (category 3), waste generated during operations (category 5), and employee commuting (category 7).

When accounting for and reporting their greenhouse gas emissions, both companies attach great importance to the five basic principles of greenhouse gas accounting according to the GHG Protocol: relevance, completeness, consistency, transparency, and accuracy. For this reason, the database is continuously reviewed and, if necessary, adjusted, updated, or expanded. In addition, a safety margin of 5% is applied to the accounting. The CO₂ balances form the basis for deriving measures to reduce our companies' greenhouse gas emissions. Since 2019, when accounting began, CO₂ savings of approximately 1,600 tons per year have already been achieved across all locations. The CO₂ savings chapter presents some of the measures and projects implemented to achieve this.

The greenhouse gas accounting, which has so far been based on site level, will be further refined in the coming years and broken down into more detailed levels. The aim is to be able to provide our customers with a quote that includes the CO₂ emissions associated with the product as soon as they make an enquiry.

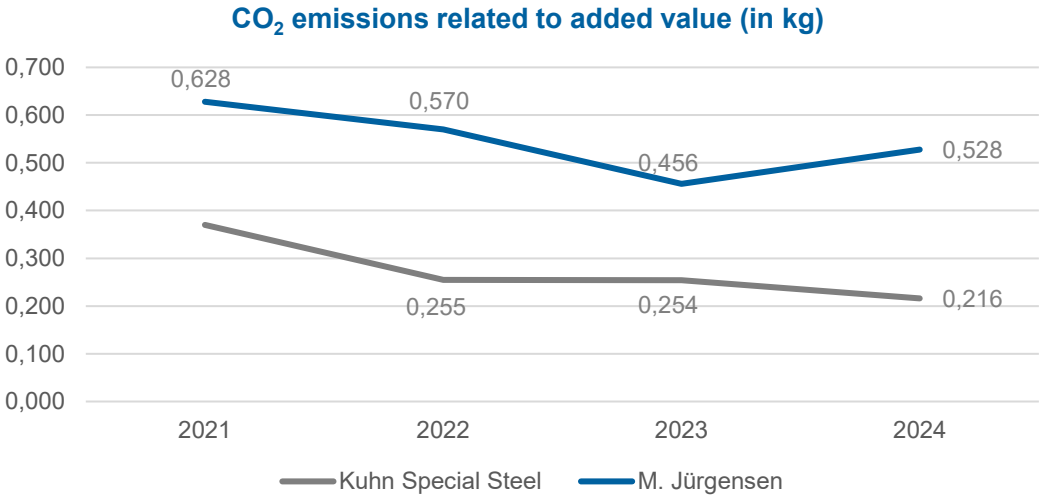
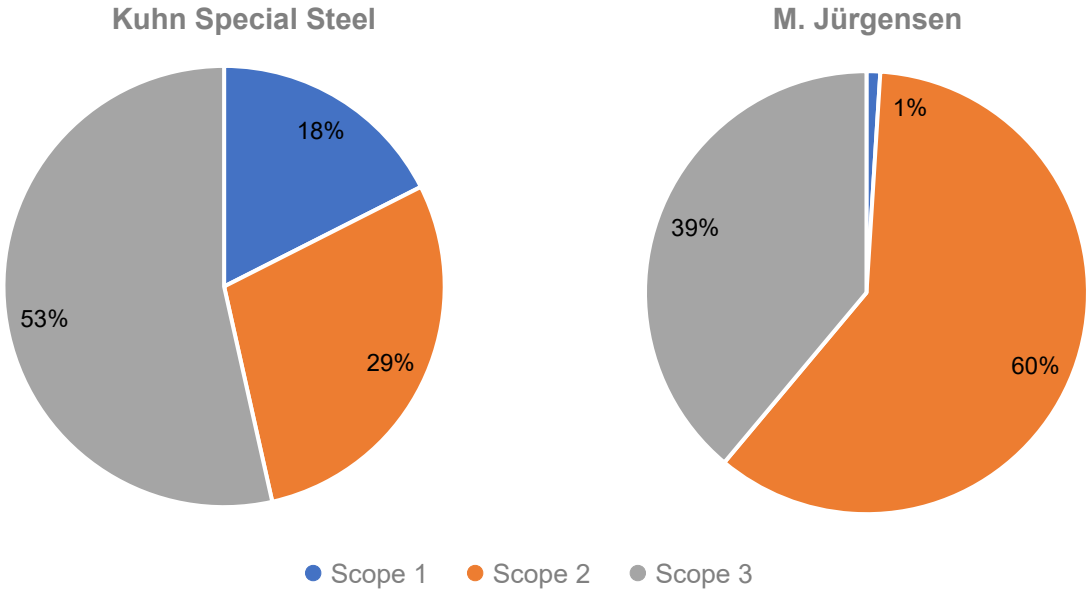
The direct Scope 1 emissions and indirect Scope 2 emissions of Kuhn Edelstahl and M. Jürgensen differ fundamentally in their origin. While Scope 1 emissions at Kuhn Edelstahl

accounted for 18% of the total balance in 2024, their share at M. Jürgensen was only 1%. This is due to the fact that there is virtually no combustion of natural gas at the Sörup site. Heat is largely obtained from the local district heating network of the town of Sörup. Surplus process heat is fed back into the district heating network. The heat treatment of cast items, which accounts for almost 40% of natural gas consumption in Radevormwald, is carried out in Sörup using electrically operated hood furnaces.

Table 3: CO₂ emissions in tons (t)

	2021	2022	2023	2024
Total emissions (Scope 1-3)	41,539	42,694	41,801	39,780
Kuhn Special Steel	18,053	17,459	16,689	15,712
M. Jürgensen	23,486	25,235	25,112	24,068
Scope 1 ●	3,738	3,491	3,222	2,998
Kuhn Special Steel	3,542	3,280	2,998	2,756
M. Jürgensen	196	211	224	241
Scope 2 ●	20,895	20,933	20,922	19,012
Kuhn Special Steel	6,886	6,281	5,878	4,549
M. Jürgensen	14,009	14,652	15,044	14,463
Scope 3 ●	16,906	18,271	17,657	17,771
Kuhn Special Steel	7,625	7,898	7,813	8,407
M. Jürgensen	9,281	10,373	9,844	9,364
Category 1	13,792	14,897	14,389	14,409
Kuhn Special Steel	6,177	6,429	6,404	7,034
M. Jürgensen	7,615	8,469	7,985	7,375
Category 3	2,332	2,528	2,394	2,410
Kuhn Special Steel	1,100	1,093	1,034	1,024
M. Jürgensen	1,232	1,435	1,360	1,386
Category 5	35	36	34	14
Kuhn Special Steel	22	20	18	4
M. Jürgensen	14	16	16	10
Category 7	718	761	801	896
Kuhn Special Steel	298	309	318	303
M. Jürgensen	421	453	483	592
Category 9	28	49	40	43
Kuhn Special Steel	28	49	40	43

CO₂ emissions per site in % (2024)



At 23 GWh, M. Jürgensen's electricity consumption in 2024 was more than twice as high as that of Kuhn Edelstahl (10.3 GWh). This is reflected in the proportionate ratio of Scope 2 emissions. While these accounted for just 29% of the total balance in Radevormwald in 2024, the share in Sörup was as high as 60%. However, it should be noted that approximately 1.1 GWh of emission-free photovoltaic electricity was added to the total consumption of the Radevormwald site. In contrast to the previous year, the proportion of Scope 3 emissions for both companies varied greatly in 2024. While it remained virtually unchanged at M. Jürgensen at 39%, it increased by 12% at Kuhn Edelstahl to 53% compared to the previous year.

Scope 3 emissions in both foundries are largely generated by the metals used. The emission factors of some alloying agents are so high that, based on their annual consumption, they can quickly account for several thousand tons of CO₂ emissions. Although these emissions, by definition of Scope 3, were already generated during the extraction of the respective metal, according to the GHG Protocol guidelines, they are attributable to the upstream, indirect emissions of the companies using them. Conventional pig iron, for example, is rated at 1.81 kg CO₂ equivalents per kilogram according to the ProBas database of the German Federal Environment Agency. An extreme example is the alloying element chromium, which, according to the database of the Federal Office of Economics and Export Control, is responsible for 27.35 kg of CO₂ equivalents per kilogram.

Reducing Scope 3 emissions is one of the biggest challenges on our path to climate neutrality. One effective means of achieving this is to increase the use of recycled metals, i.e., scrap. Steel scrap accounts for only a few grams of CO₂ equivalents. In addition, the use of scrap conserves resources. In 2023, M. Jürgensen successfully increased the scrap content in one of its materials by changing the alloy composition, thereby saving 200 tons of pig iron. In addition to the financial savings, this also avoided almost 300 tons of CO₂ emissions. The chapter on the circular economy deals with this topic in detail and shows the developments within the last few years. However, it can already be stated at this point that, due to the quality characteristics of our group's products, it will not be possible to use scrap metal exclusively, even in the distant future. This circumstance illustrates a fundamental characteristic of Scope 3 emissions. Manufacturing companies depend on raw materials, consumables, and supplies to carry out their business activities. As a result, their own influence on the Scope 3 emissions to be accounted for is the lowest compared to Scope 1 and Scope 2 emissions.

In 2024, Kuhn Edelstahl reduced its total emissions by around 1,000 tons compared to the previous year. This corresponds to a decrease of 5.9% compared to the previous year. At M. Jürgensen, CO₂ emissions also fell by around 1,000 tons in 2024, which corresponds to a reduction of around 4.1% compared to 2023.

In order to be able to demonstrate the path taken by the companies of Kuhn Industrie Holding towards climate-neutral production using a suitable, meaningful indicator, Scope 3 emissions are not initially included for the reasons mentioned in the previous section. The key indicator was defined as the CO₂ equivalents of Scope 1 and Scope 2 emissions in kilograms in relation to the value added generated in euros (kg CO₂e/€WS). We consider value added to be a more meaningful reference value than, for example, sales or casting tonnage, as it more accurately reflects the product and process diversity of our companies. Kuhn Edelstahl improved this indicator from 0.254 kgCO₂e/€WS in 2023 to 0.216 kgCO₂e/€WS in 2024. At M. Jürgensen, the value deteriorated from 0.456 kgCO₂e/€WS to 0.582 kgCO₂e/€WS, as value added declined by around €8 million during this period.

CO₂ Saving Measures

In order to reduce our energy consumption and thus lower our energy costs and CO₂ emissions, energy efficiency measures were also implemented at both production sites in 2024. In general, energy efficiency is taken into account in every investment in new process engineering and technologies. Lighting is one example of this. At both Kuhn Edelstahl and M. Jürgensen, the old light bulbs in the production and office buildings have been gradually replaced with more energy-efficient lighting systems over the past few years. Table 4 on page 23 shows the main measures taken in recent years.

One of the main energy-saving and efficiency-enhancing measures in 2024 was the replacement of all lighting in the foundry at the Radevormwald site. Here, around 70 lights, each with 4 x 80W, were replaced with LED spotlights. The potential savings are approximately 66,000 kWh and 32 tons of CO₂ per year. As a positive side effect, the lighting in the hall in the area of the casting machines was significantly improved.

As in previous years, investments were also made in energy-efficient lighting system upgrades at both company locations. The focus here is on gradually replacing outdated light sources with energy-saving LEDs. In total, this resulted in potential savings of 29,000 kWh of electricity and 14 tons of CO₂ in 2024.

The administration building in Radevormwald was fitted with new windows to achieve better insulation. At the same time, a new heating system was installed. The new low-calorific value boiler is precisely matched to the heat demand and replaces the oversized and outdated gas boiler. This is expected to result in energy savings of around 95,000 kWh/a and the avoidance of 17 tons of CO₂ per year.

At M. Jürgensen, the replacement of drive motors in the extraction and dust removal systems was continued. The outdated IE1 motors were replaced with new models in energy efficiency

classes IE3 and even IE4. Since the systems operated in this way have a high operating time throughout the year, the savings effect of this measure is correspondingly high at 37,500 kWh/a and 18 t CO₂ per year.

The most effective savings measure in 2024 was the massive reduction in district heating consumption at the Sörup site. Technical and organizational measures reduced energy consumption here by a total of 230,000 kWh/a. This corresponds to annual CO₂ emissions of 11 t. This was made possible by installing digital control valves and adjusting the control behavior.

Table 4: Energy efficiency measures

Measure	Company	Electricity	Natural	CO ₂ [t]
2021		4	0	2
Automatic shut down mechanism chip con-	Kuhn Special	4		2
2022		1,364	0	807
Investment in photovoltaic system	Kuhn Special	1,361		805
More energy-efficient lighting systems	M. Jürgensen	3		2
2023		69	878	191
New heat treatment furnace	Kuhn Special		329	59
New ladle and gravity die heaters	Kuhn Special		549	99
More energy-efficient lighting systems	both sites	54		25
Replacement of drive motors	M. Jürgensen	15		7
2024		103	95	93
Lighting replacement in foundry	Kuhn Special	66		32
Energetic modernization of administration	Kuhn Special		95	17
More energy-efficient lighting systems	both sites	29		14
Replacement of drive motors	M. Jürgensen	37		18
Total savings		1,566	973	1,090

Water Management

Water is the basis of all life on earth. Conscientious and above all economical use of this resource is of great importance for the environment as well as for society. The energy intensity of foundries is also apparent in water consumption. The melting and heat treatment processes, with process temperatures of up to 1,500°C, are accompanied by a large demand for cooling water. While quenching tanks have a long service life, centrifugal casting is continuously cooled with running water.

At the Radevormwald site, most of this is taken from a well. The rest of the site's water demand is covered by municipal water. The well water is also circulated internally. In the process, it is filtered in the meantime and then reintroduced into the production process. High water losses occur during casting and quenching due to evaporation. At the Sörup site, water for large casting machines is sourced from the municipal water supply, while smaller machines are supplied from recirculation systems. As a result, water consumption here is many times higher than in Radevormwald.

Table 5: Water consumption per site in m³

	2021	2022	2023	2024
Municipal water	51,328	57,625	57,392	76,576
Kuhn Special Steel	3,712	3,981	4,250	4,993
M. Jürgensen	47,616	53,644	53,142	71,583
Well water	7,610	8,503	6,703	9,952
Kuhn Special Steel	7,610	8,503	6,703	9,952
M. Jürgensen	0	0	0	0
Total water consumption	58,938	66,128	64,095	86,528
Kuhn Special Steel	11,322	12,484	10,953	14,945
M. Jürgensen	47,616	53,644	53,142	71,583

The goal for the coming years is to continuously reduce water consumption at Kuhn Special Steel and M. Jürgensen. At M. Jürgensen, another water cycle for all casting machines is to be installed in the medium term. In this case, similar to the well water in Radevormwald, the mains water would be purified after the cooling process, cooled and then used again for cooling purposes in the casting process. Corresponding planning work has already been started.

Circular Economy

Many raw materials are only available in limited quantities and cannot renew themselves or grow back. However, humanity's demand for raw materials is steadily increasing. Resource scarcity is already an issue in many areas today. It is accompanied by rising raw material prices and supply shortages. In the long term, this problem can only be counteracted by a consistent circular economy. Foundries can make a significant contribution to this with their processes. Active recycling is carried out by melting down scrap. Some scrap dealers already offer well presorted and thus high-quality scrap. Large amounts of greenhouse gas emissions can also be prevented through increased use of scrap.

Kuhn Special Steel and M. Jürgensen operate a circular economy in two respects. Firstly, scrap is purchased externally and added to the charges of the materials. Secondly, internal recycling is carried out. The metal chips produced in the machining processes are collected by type, processed and then remelted as an admixture. Residual or faulty castings as well as quality failures are also processed internally and in this way re-enter the cycle.

The efficiency of the circular economy is monitored and controlled by means of a recycling quota and a scrap quota. These put the annual tonnage of recycling material used or scrap purchased externally in relation to the total cast tonnage of the respective year.

Table 6: Scrap and recycling quota

	2021	2022	2023	2024
Kuhn Special Steel				
Scrap quota	24.2%	24.5%	25.6%	25.0%
Recycling quota	53.6%	55.5%	53.4%	53.1%
M. Jürgensen				
Scrap quota	16.3%	18.4%	18.4%	19.2%
Recycling quota	66.0%	57.6%	65.1%	64.0%

Table 7: Recycled material in tons (t)

	2021	2022	2023	2024
Internal chip processing	12,423	12,293	13,026	12,293
Kuhn Special Steel	3,087	3,131	2,849	2,635
M. Jürgensen	9,336	9,163	10,177	9,790
Internal leftover pieces preparation	1,450	1,345	1,680	1,345
Kuhn Special Steel	124	119	203	197
M. Jürgensen	1,326	1,226	1,478	1,574
Use of scrap	4,078	4,758	4,764	4,758
Kuhn Special Steel	1,448	1,439	1,463	1,335
M. Jürgensen	2,630	3,319	3,301	3,403

Waste Management

Almost every business process generates different types of waste. The companies of Kuhn Industrie Holding have implemented processes that ensure that all types of waste are disposed of correctly. A waste management officer at each site ensures that waste management concepts are implemented correctly. These employees have the necessary qualifications, which are regularly refreshed and expanded through external seminars.

Waste is strictly separated according to its properties and disposed of by specialist waste disposal companies. The disposal channels are fully documented and compiled annually in the form of a waste balance sheet. Disposal certificates for hazardous waste or special waste are available.

Mobility Transition

The companies belonging to Kuhn Industrie Holding want to actively promote the mobility transition in Germany. For this reason, 20 charging points (11 kW) for hybrid and electric vehicles were installed at the Radevormwald site in spring 2023. The electricity is available free of charge to a group of eligible employees. Across all charging points, 17,286 kWh had already been charged there in 2024, which corresponds to approximately the energy content of 2,000 liters of gasoline. On sunny days, the charging stations are supplied with electricity from the company's own photovoltaic system during the day, and employees drive climate-neutrally. Six 11 kW charging points were also installed at the Sörup site in 2024. Since commissioning, 8,734 kWh have already been charged there, which corresponds to an energy content of approximately 1,000 liters of gasoline. The installation of additional charging points in Sörup is planned.

The composition of our company's vehicle fleet has already changed significantly in recent years. The proportion of pure combustion engines fell by more than 20% between 2020 and 2024. In 2023, two fully electric vehicles were added to the fleet for the first time. There are now five fully electric vehicles in the company pool. However, there are currently no guidelines from company management regarding a specific type of drive system when selecting a company car. In the future, however, the charging infrastructure that has been created should motivate more employees to purchase a fully or partially electric vehicle.

For several years now, every employee at Kuhn Edelstahl and M. Jürgensen has had the option of taking out a lease on a company bicycle. The offer has been well received, and around 80 employees are currently taking advantage of the bike leasing option. In some cases, the company bicycle is also used for the daily commute to work.

In addition, Kuhn Edelstahl once again entered its own team in the nationwide *STADTRADELN* competition in 2024. The basic idea behind the competition is to cover everyday distances by bike instead of by car. Cycling enthusiasts among the employees cover as many kilometers as possible on their bikes within 21 days. The Kuhn Edelstahl team once again competed against other teams registered in Radevormwald. Participation reached a record high in 2024 with 36 employees taking part. Once again, the team achieved an excellent result with a total of 7,481 kilometers. This performance secured third place in the city kilometer ranking. The kilometers covered correspond to an avoided amount of approximately 935 kg of CO₂ emissions (based on average emissions of 125g/km).

SOCIAL ISSUES

In this category, we focus on outlining the framework and working conditions for the company's workforce and highlighting how social responsibility is practiced at Kuhn Group companies.

Own Workforce

Our employees form the heart of our organisations. Without well-trained specialists and managers, but also without motivated trainees and work placement students as well as reliable support staff, no company can survive on the market in the long term. At the same time, it is becoming increasingly difficult to find and recruit precisely these people for our companies. We firmly believe that the better people work together in a company, the better its performance can be. Our aim is therefore to create working conditions that ensure that more and more employees in our organisations take greater pleasure in their work, enjoy working together and that we continue to develop together – always with our customers in mind, of course.

Benefits

Anyone who works for a company should receive appropriate compensation for their efforts. Based on this conviction, we want to offer our employees the greatest possible added value, both during and outside of working hours. This starts with the standard 30 days of annual leave for full-time employees, as well as optional holiday pay and performance-related bonuses. In addition, we offer shift allowances for employees working shifts and flexible working hours for office staff.

We also offer our employees numerous benefits outside of working hours. We regularly organize company events in which either the entire workforce, individual departments, or a selection of employees can participate.

In addition, we offer bike leasing, company sports, daycare subsidies, and participation in the corporate benefits program. For selected positions, there is also the option of a company car.

In order to expand our employees' expertise, we support their participation in continuing education and training opportunities. At both sites, the cross-qualification model has proven particularly successful. This model offers employees the opportunity to familiarize themselves with the activities of another department. The resulting flexibility for deployment within the company pays off for employees in the form of additional compensation.

To provide security after retirement, various company pension schemes and capital-forming benefits are offered and supported.

Traineeship

Our trainees are the specialists and managers of tomorrow. That is why training is a matter close to our hearts. Both Kuhn Special Steel and M. Jürgensen are certified training companies by their respective chambers of industry and commerce. Every year, we offer a range of commercial and technical training positions across all our locations.

Each location has a fully equipped technical training center where both our own junior staff and trainees from partnerships with other companies can learn professional skills and prepare for their final exams.

A few years ago, we launched the SEI DU! BEI UNS. initiative. With this initiative, we want to specifically target young people from the immediate catchment areas of the cities of Radevormwald in the Bergisches Land region and Sörup on the coast in the Angeln region.



In addition to exchanges with our sister companies, we offer many other benefits such as trainee vehicles, trainee laptops, 30 days of vacation with vacation pay, capital-forming benefits, on-the-job training and support lessons, and trainee events. At Kuhn Special Steel in Radevormwald, there is also the option of attending the private vocational college in the town of Hückeswagen.

In addition to activities on the website and on social networks, our companies are regularly represented at regional training fairs or open their doors to interested parties as part of school projects or action days, such as the “Training Day.”

In 2024, we welcomed a total of 19 new trainees to our group. Eight of them started their professional lives at Kuhn Edelstahl in Radevormwald and eleven at M. Jürgensen in Sörup.

The fact that trainees from our companies are regularly invited to the best-in-class ceremonies held by the respective chambers of industry and commerce confirms our commitment to preparing young people for their professional future in the best possible way. We can also proudly say that many former trainees have become long-term employees of one of our companies.

Leadership

In many companies, knowledge is becoming increasingly specialized and distributed among many employees. Managers are no longer automatically the best experts, but must rely on the expertise of their employees. Added to this are rapidly changing markets and conditions. Employees are better trained and rightly have higher expectations when it comes to developing

and implementing their own ideas and solutions. In line with Maslow's theory, more and more people in industrialized countries are looking for opportunities to realize their full potential, at least in part, in their careers. This requires further development of cooperation and understanding of "leadership." The change in the understanding of leadership is not only beneficial for companies, but also urgently needed in modern industrialized countries in order to be efficient and attractive to highly qualified employees. Organizations are faster, better, and more flexible when they promote independence, support decentralized decision-making, and delegate based on competence.

For these reasons, among others, we have been working on the topic of "leadership based on the coaching philosophy" for over 25 years. Dieter Heitsch developed practical training courses for implementation in everyday business life, which still form the basis of our internal management training today. In our group, leadership training courses are offered to all managers by an internal trainer trained in the Heitsch methodology and are continuously developed on the basis of feedback from participants and new findings. The consistently positive feedback from participants reinforces our belief in this philosophy. In addition, a common understanding of the basic principles of a participatory leadership style is growing within our group of companies, making an important contribution to our corporate culture and enabling us to achieve better performance and better results than the competition on the basis of good cooperation.

Development of Employees

Kuhn Industrie Holding attaches great importance to the continuous development of its employees. Annual reviews, in conjunction with a performance assessment by the respective manager, have been established at our locations for many years. In addition to the aforementioned cross-qualifications of individual employees within a plant, there is a constant exchange of experience between Kuhn Edelstahl and M. Jürgensen. Since the merger of the two companies in 2017, numerous employees have already worked at the other location. These exchanges lasted from a few days to several months. In addition, cross-plant working groups were formed, which meet several times a year at one of the plants or at a neutral location.

Further education and training in all areas is generally supported. Our company history provides numerous examples of how it is possible to progress from apprentice to skilled worker and even to manager through continuous development.

Payment

In 2024, 97% of M. Jürgensen employees were remunerated in accordance with an in-house collective agreement with IG Metall. Wages and salaries are clearly defined in this agreement

and are above the statutory minimum wage. At Kuhn Edelstahl, too, all employees are paid at least the statutory minimum wage. There is no collective agreement for the Radevormwald site.

The applicable legal regulations on working hours are complied with and monitored and documented by digital time recording systems. In the production areas at the sites, work is likely to be carried out on all seven days of the week, 24 hours a day in three shifts. In recent years, however, weekends have only been used entirely for production purposes in exceptional cases. In the administrative departments, full-time employees typically work 38 to 40 hours per week. Part-time work is also possible. In many areas, employees can also organize their working hours flexibly and work from home from time to time.

In addition to statutory health, nursing care, and unemployment insurance, our employees are covered by company accident insurance. There is also the option of taking out a company pension plan. Employees on maternity or parental leave receive maternity or parental benefits from the state.

Equality

None of our group's employees may be discriminated against on the basis of their race, ethnic origin, gender, religion or beliefs, disability, age, sexual identity, or any other grounds. In our view, good and successful cooperation is only possible with mutual respect and consideration for each individual. In 2024, there were no known cases of discrimination of any kind within Kuhn Industrie Holding.

Workforce Development

Over the past two decades, our companies have seen steady growth in their workforce. Milestones for Kuhn Edelstahl include the hiring of its 100th employee in 1997, its 200th in 2005, and its 300th in 2013. Since 2020, the number of employees at both Kuhn Edelstahl and M. Jürgensen has exceeded 300. These are divided into full-time and part-time employees who are directly employed by a Kuhn Industrie Holding organization, as well as temporary workers who are provided to external companies for temporary support. In addition, services such as cleaning and maintenance of rental equipment are performed by employees of external companies.

The gender distribution (male to female) at Kuhn Edelstahl in 2024 was 87% to 13%. At M. Jürgensen, it was 93% to 7%. According to Statista, these are typical distributions for metal production and processing.

Inclusion

Our many years of experience show that working with a disability in a company with a wide range of activities is entirely possible. Anyone who can cope with a disability in everyday life can work for us, both in production and in the office. Trainees with severe disabilities are also very welcome here. In preliminary discussions, we consider how we can best integrate employees into everyday working life. From renovation measures to the purchase of special work equipment, there are many possibilities. For example, we were able to purchase an air-conditioned forklift truck for an employee with multiple sclerosis, which prevents their health from deteriorating due to fluctuating temperatures. Another employee with a walking impairment was provided with an e-scooter for the long distances across the company premises. Special lifting desks, handling devices for lifting objects, and digital calipers are further practical examples of how people with physical limitations can perform their jobs normally at our company.

In 2024, a total of 22 people with disabilities worked at Kuhn Edelstahl. This corresponded to 7.0% of the total workforce. M. Jürgensen also employed 22 people with disabilities, which corresponded to a percentage of 8.4%.

Social Commitment

Social commitment is part of the corporate identity of Kuhn Industrie Holding companies. The focus is on supporting local institutions and projects.

Many years ago, Kuhn Edelstahl launched its “Donations Instead of Gifts” campaign. Since 2003, the company has been asking its business partners to make monetary donations instead of giving Christmas gifts. The money generated in this way is then doubled by the company and donated to kindergartens and schools in the region on an annual basis. In 2024, a total of €4,995 was collected and generously increased by Kuhn Edelstahl to €10,400. This year, the donation was divided equally among 13 kindergartens in the region.

To the delight of the employees and for a good cause, the staff at M. Jürgensen traditionally receive the Advent calendar from the regional Lions Club during the Advent season. The proceeds from the calendar support numerous charitable projects, such as the promotion of children and young people and assistance for the visually impaired.

During the Christmas season, Kuhn Edelstahl also participates in the well-known Wish Star campaign, which was initiated by its trainees. In this campaign, employees usually fulfill the long-awaited Christmas wishes of socially disadvantaged children. In 2024, the campaign was carried out for the first time in favor of elderly people. Residents of the Johanniter-Haus Radevormwald were able to express a Christmas wish on a star, and employees were given the opportunity to fulfill this wish. The trainees took care of the entire organization and implementation. As a result, all 67 residents of the retirement home had a Christmas wish fulfilled.

Throughout the year, Kuhn Edelstahl and M. Jürgensen also provide financial support to local associations and institutions. In 2024, numerous sports and charitable associations received support.



In addition, the trainees at Kuhn Edelstahl regularly get involved in small volunteer activities at schools and daycare centers for children, such as carving Halloween pumpkins together at the elementary school in Radevormwald.

Occupational Safety

Foundry processes involve a wide range of risks and hazards. In addition to the heat of molten or glowing metal, with temperatures of up to 1,500°C, employees are exposed to noise, dust, and other emissions. Accidents at work can result in serious injuries. Every year, Kuhn Industrie Holding goes to great lengths to ensure maximum occupational safety for all employees. In addition to minimizing risks in the workplace as much as possible, safety concepts and personal protective equipment (PPE) are essential prerequisites for safe working.

At both the Radevormwald and Sörup sites, specially trained occupational safety specialists are responsible for developing and implementing occupa-

tional safety concepts. Their tasks include risk assessments of work areas, facilities, and substances, deriving appropriate work instructions, and communicating the content through occupational safety training. The effectiveness of the concepts is monitored at regular intervals as part of internal occupational safety audits. Any noticeable deviations are documented and rectified. Relevant topics are discussed at quarterly occupational safety committee meetings at Kuhn Edelstahl and M. Jürgensen. Thanks to the range of services offered by kuhn.innovation, expertise in machine safety and CE certification is also available within the holding company.

In our production halls, safety shoes must be worn away from walkways. In addition, safety goggles must be worn in work areas. In the foundries, it is also mandatory to wear a jacket to protect against heat and flames. In the immediate casting area, special casting equipment consisting of full-face helmets and heat-protective clothing must be worn.

Where space permits, walkways and driveways are separated from each other in all production areas. Nevertheless, forklift traffic poses a danger to employees. To increase safety, all forklifts are equipped with a safety light or an acoustic reverse signal.

Mandatory, prohibitory, and warning signs are displayed in all operating areas and must be obeyed.

The number of registered workplace accidents at Kuhn Edelstahl declined slightly in 2024, but has remained at a consistent level over the years. At M. Jürgensen, the number of registered workplace accidents rose significantly again in 2024 to 22.

The number of registered occupational illnesses has remained at a similar level since 2021.

INDIVIDUAL PPE

In cooperation with external specialist companies, every employee has the option of having their safety goggles or hearing protection customised. The companies in our Group bear the majority of the costs for this PPE.

Table 8: Accidents at work and occupational illnesses

	2021	2022	2023	2024
Registered accidents at work	29	36	31	38
Kuhn Special Steel	17	15	18	16
M. Jürgensen	12	21	13	22
Number of registered occupational illnesses	12	11	14	n.n.
Kuhn Special Steel	4	5	4	4
M. Jürgensen	8	6	10	n.n.



INDEX OF KEYWORDS

C

carbon footprint · 15, 18
certificates · 10
circular economy · 21, 25
CO₂-emissions · 19, 20

E

energy efficiency measures · 11, 12, 22, 23

G

green electricity · 16

I

investments · 11, 12, 22

M

management philosophy · 6, 30

P

photovoltaic system · 12, 15, 16, 21, 23, 27

S

social commitment · 29, 33, 34

T

trainees · 28, 29, 32, 33

V

values and guidelines · 6water demans

W

water demand · 24
work accidents · 34, 35

LEGAL NOTICE

Publisher:

Kuhn Industrie Holding GmbH
Otto-Hahn-Straße 12-14
42477 Radevormwald
Germany

Contact person:

Janek Hübner-Falkenroth
Vincent Domscheit

As at:

15 November 2025

Photos:

© Kuhn Industrie Holding GmbH

Preparation:

The collection and preparation of the database through suitable sensor measurements as well as the preparation of the sustainability report is a service provided by Kuhn Innovation GmbH. If you are interested, please contact info@kuhn-innovation.com.

