The thyssenkrupp Steel magazine
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steel compact

We're building the future here

thyssenkrupp Steel takes a new high-tech plant network into operation.

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Green transformation

Construction of DR plant progressing

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Joining jetQ® grades without cracking

With the correct welding parameters

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thyssenkrupp

We're building the future here

After building and installation phases lasting about two years, thyssenkrupp Steel has completed major strategic investments at the Duisburg site and now possesses one of the most modern plant networks anywhere in the European steel industry.

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Practical and crack-free joining of jetQ®

thyssenkrupp Steel has demonstrated the practical suitability of the new jetQ® 980 and jetQ® 1180 steel grades in a joint trial conducted with the renowned automotive supplier Benteler Automotive Components.

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Tip-top performance in tin plate

To meet and even exceed the latest requirements, the Surface Technology and Chemistry department at thyssenkrupp Rasselstein is working intensively on further developing innovative surface concepts.

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"Our commitment to the green transformation stands"

Interview with Ulrich Greiner Pachter, Chief Representative of thyssenkrupp Steel for the direct reduction plant at the Duisburg location, about one of the world's biggest industrial decarbonization projects.

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Credits

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Please contact us to share your comments and suggestions: **compact.tkse@thyssenkrupp.com**

“Change is the only constant.”

Dr. Marie Jaroni,
Chief Sales Officer und Chief Transformation Officer

What Greek philosophy recognized long ago is more relevant today than ever – and it applies to thyssenkrupp Steel as well. 2025 marks a year of pivotal transformation for us. Right now, new perspectives are emerging – in September, Indian steel group Jindal Steel submitted a non-binding, indicative offer to acquire thyssenkrupp Steel, which thyssenkrupp AG is currently reviewing carefully.

As the Steel Executive Board, we explicitly welcome this interest – it confirms that we are on the right track with the consistent implementation of our industrial strategy. Over the past few months, we have taken on responsibility as a newly formed executive team – with a clear course, fast-paced execution, and a strong commitment to shaping the future over the long term.

A key milestone on this path is the collective restructuring agreement “New Setup Steel.” Together with employee representatives, we have laid the foundation to realign our production network, adjust capacities, and significantly increase efficiency.

This summer, we finalized one of the largest investment packages in our recent corporate history – totaling around 800 million euros. With a state-of-the-art hot rolling mill, a new continuous casting plant, and high-tech slab logistics, we have established one of the most advanced plant infrastructures in Europe at our Duisburg site. These new facilities enable higher material strengths, more precise dimensions, and improved surface quality. At the same time, they ensure shorter throughput times and greater flexibility. We are investing to ensure our customers continue to receive the best solutions for complex requirements. In parallel, we are moving forward with our first major transformation step: the construction of our direct reduction plant.

With these investments in competitive and sustainable production, and through the implementation of our industrial strategy, we are setting the course for a successful future. Together with our customers, we are renewing the steel value chain. That is our mission – driven by the courage to embrace change.

I wish you an interesting read.

Yours,

Marie Jaroni

Dr. Marie Jaroni

Titel photo: Rainer Kaysers | Photos pages 2–3: Rainer Kaysers, Nils Roscher

Tasteful in cubic look

The Karl-Heinz Gaul winery at Grünstadt-Sausenheim in the Rhineland-Palatinate has opted for patinax® from thyssenkrupp Steel for its façade design. The weatherproof structural steel with its characteristic rust-brown color not only blends harmoniously into the natural surroundings of the family estate, but also gives the cubic building a spectacularly vibrant glow when the sunlight falls on it. In addition to the special look, the owner also benefits because the surface of the durable steel is easy to care for and requires no special maintenance.

Web

Further information:
weather-resistant
structural steel

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Photo: Karl-Heinz Gaul Winery

Steel News

Partner

Cooperation with BMW on sustainable lightweight materials

Under the leadership of the BMW Group, research institutions and companies from various industrial sectors, one of which is thyssenkrupp Steel, are developing new approaches to the use of innovative, sustainable, and recyclable materials for the automotive industry. At its core, the consortium project "Future Sustainable Car Materials" (FSCM) aims to reduce the carbon footprint. thyssenkrupp Steel is involved in the Metals work package of the project and, together with BMW, has examined the innovative and high-strength materials jetQ® 980, jetQ® 1180, and MBW® K1900 with regard to their potential for reducing CO_2 in lightweight construction. The project is being funded by the German Federal Ministry for Economic Affairs and Energy to the tune of around 30 million euros in total.

Giving a signal: Nils Hesse (left) and Martin Derks (right) from BMW with Georgios Giovanakis, Senior Vice President Sales at thyssenkrupp Steel.

Company

Duisburg receives ResponsibleSteel certificate

thyssenkrupp Steel has received ResponsibleSteel certification for its production site in Duisburg. This certification is a significant step toward sustainable steel production and confirms that the steel manufacturer meets strict standards in the areas of social, environmental, and corporate governance. The certification also strengthens customer confidence in sustainable production processes and compliance with environmental and human rights standards along the supply chain.

Responsible™ Steel | standards & certification

For the press release:

Company

Key milestone: Restructuring collective agreement "Restructuring Steel"

thyssenkrupp Steel and the IG Metall union want to establish the foundation for the long-term competitiveness and future viability positioning of Germany's largest steel company. After intensive negotiations, a joint negotiation result was reached on a collective restructuring agreement entitled "Restructuring Steel" in the summer. The basis for this is the industrial concept presented by thyssenkrupp Steel's Executive Board in November last year and the agreement in principle concluded between IG Metall and the company in May.

The declared aim of both parties is and remains to avoid redundancies for operational reasons. The accord essentially will regulate three areas, which together are intended to ensure an independent and economically competitive position for thyssenkrupp Steel in the medium term: adaptations to the production network and investments; workforce adjustments through personnel efficiency measures; and workforce adjustments through spin-offs or sale of business activities. The new collective-bargaining agreement is set to run until September 30, 2030.

For the press release:

Comments

Dennis Grimm on increasing pressure from imports and its impact in the steel market

“We need immediate and effective instruments against the unchecked influx of state-subsidized imports, especially from Asia. Doing nothing here will entail catastrophic consequences for the European steel industry and endangers partners along our value chain. We are talking about global overcapacity of almost 700 million metric tons, which is six times the total production of the EU. Increasing quantities of these are coming to Europe directly or via third countries and at low prices – circumventing European trade protection measures and threatening industrial value chains. Chinese steel, for example, is subsidized up to ten times more than in other OECD countries. The EU also allows large quantities of Russian steel to be imported, despite sanctions. I cannot understand why this should be allowed.

We are losing significant orders to non-European competitors who can underbid our production costs by up to 50 percent. A specific proposal for trade protection is already on the table in Brussels: a halving of duty-free import quotas and a 50-percent tariff on imports exceeding those limits. A swift implementation of this proposal would send a clear signal. The cost effects will remain manageable: for the end customer, about 1 euro more when buying a washing machine or about 50 euros when buying a car. Eleven countries support the proposal; notably, however, Europe's top steel-producing nation, Germany, does not. From the steel industry's perspective, we expect the German government to support this correct and logical proposal that other European countries have long recognized as necessary.”

For the interview:

Photos: Rainer Keysers, Nils Roscher, Shutterstock

Products

New high-strength multiphase steel for economical lightweight construction

thyssenkrupp Steel has expanded its portfolio of hot-rolled, high-strength multiphase steels: The new chassis grade CH-W® 750Y950T delivers an impressively increased yield strength while offering high fatigue strength and potential for lightweight construction. The steel grade also provides optimum formability, making it ideal for complex, highly stressed chassis parts such as control arms, body-in-white (BiW) components, and bumpers with crash-related requirements. The material is now also available as HR750Y950T-CP in accordance with the new VDA 239-100 standard.

Further information: chassis-steel

Company

New high-tech planning system for Duisburg

In cooperation with the German software manufacturer Smart Steel Technologies, thyssenkrupp Steel has introduced an intelligent scheduling system for its modernized production network in Duisburg-Bruckhausen. This automated system optimizes production planning and ensures highly efficient processes to provide customers with high-quality products. Implementing the SST Scheduling System represents a significant step forward in the digital transformation.

thyssenkrupp Steel – on all channels!

Always keep up with the latest information and trends in the steel sector by following us on our social media channels.

Partner

Hybrid steel components

In the publicly funded "Life Cycle Technologies for Hybrid Structures" project, Volkswagen and the Braunschweig University of Applied Sciences, together with thyssenkrupp Steel and other industrial partners, are researching new approaches to sustainable vehicle development. The focus is on hybrid demonstrators such as bumper cross members and interior door structures made of steel, wood composite and carbon fiber-reinforced plastic. Together with the project partners, Amalia Koletti and Tilo Bertram from the Application Technology department at thyssenkrupp Steel developed a comprehensive life cycle assessment model. This makes it possible to evaluate hybrid components in different usage scenarios, vehicle types, and forms of mobility. Under certain circumstances, hybrid components offer ecological advantages – for example through weight reductions that can lead to CO_2 savings.

Investment

Renovation of the coking plant's quenching tower

In recent months, thyssenkrupp Steel has successfully dismantled and rebuilt quenching tower 1 at the Schwelgern coking plant in Duisburg. After 22 years in operation and producing more than 50 million metric tons of coke, the plant had reached the end of its service life. Over the past few weeks, six impressive, prefabricated modules were rebuilt to a final height of 70 meters. Like its twin tower 2, which was completely replaced three years ago, the new tower is equipped with refurbished emission scrubbing stages that comply with all the emission values prescribed by the authorities. The company is investing a mid-double-digit million euro sum in the replacement.

Green transformation

LESS pilot verification successfully completed

thyssenkrupp Steel has successfully completed the pilot verification of the Low Emission Steel Standard LESS. This makes the company one of the first steel manufacturers to undergo LESS verification, which is the first mandatory labeling system for CO_2-reduced steel from Germany. The progress of the green transformation can be compared and evaluated thanks to a verifiable standard and a reliable definition. The new labeling system provides steel customers with all the key information they need to manage their purchasing with an eye on their own climate protection targets.

For the press release:

Company

70 years of hot strip mill 1 in Bruckhausen

70 years ago, thyssenkrupp Steel put Germany's first hot strip mill into operation at Bruckhausen in Duisburg – a milestone in the post-war reconstruction era. Today, the plant symbolizes the challenges and opportunities of an industry in transition. The traditional plant is not only a symbol of the reconstruction of German industry, but also a central component in the company's strategy for the future. On July 11, 1955, the 312 meter-long hot wide strip line was the first of its kind to go into operation in Germany, in the presence of Federal Chancellor Dr. Konrad Adenauer. The Chancellor lavishly praised the "imposing and magnificent plant, created through the hard work of the people employed here".

Thanks to continuous modernization, the plant is now state-of-the-art and has a capacity of around three million metric tons per year. It supplies the input stock for almost all flat steel products from thyssenkrupp Steel – from high-strength vehicle body steels to special grades for the energy industry and general engineering.

For the press release:

Investment

Modernization of water management in Duisburg

thyssenkrupp Steel has modernized the existing water management system for supplying cooling water to the cooling section at the exit roller table of hot strip mill 2 in the Duisburg-Beeckerwerth location, bringing it up to the highest technical standards. The decisive advantage of this modernization lies in the increase in power and performance: this is because strip cooling is less harsh since cooling water inlet temperatures are more homogeneous, leading to improved product quality for the high-quality strip grades. The new water management system also sets new standards for compliance with environmental regulations thanks to lower water temperatures and improved filter performance. Water plays a central role in many process steps of steel production. It is also required in the Beeckerwerth hot strip mill for cooling and targeted temperature control along the entire rolling process, but also for cleaning, for example when layers of scale need to be removed from the slab surface. Sustainability in the use of water as a resource always takes priority at thyssenkrupp Steel. Of the 200 million cubic meters of water required at the Beeckerwerth plant every year, 97 percent is continuously reused. The modernized water management system has further increased resource efficiency.

Photos: Rainer Kaysers, Nils Roscher, thyssenkrupp Steel Archive

We're building the future here

thyssenkrupp Steel rolls the first slabs in a new high-tech plant network

Photos: Rainer Kaysers

After building and installation phases lasting about two years, thyssenkrupp Steel has implemented major strategic investments at the Duisburg site and transferred key facilities into the ramp-up phase. These include the new continuous casting line 4, the extensively modernized hot strip mill 4 with two new walking beam furnaces, and fully automated slab logistics. This means thyssenkrupp Steel possesses one of the most modern plant networks in the European steel industry.

Text Jan Ritterbach

At around 800 million euros, this is one of the largest investment projects in the history of thyssenkrupp Steel. The modern plant network is a strong signal for steel and the Duisburg location. We're building the future here.

The new and optimized units will replace the 20-year-old casting rolling line as a means of meeting increasing customer expectations and satisfying the highest material requirements in the future. At around 800 million euros, this is one of the largest investment projects in the history of thyssenkrupp Steel. Dennis Grimm, CEO of thyssenkrupp Steel, emphasizes: “This project is a decisive milestone in strengthening our leadership in technological and quality terms, while meeting the increasing expectations of our customers.” Dennis Grimm continues: “Despite a very challenging economic environment, we are able to invest around 800 million euros to further improve our competitive position. This is a strong signal for steel and the Duisburg location. We're building the future here.” As part of the official commissioning at the beginning of July, Mona Neubaur, State Minister of North Rhine-Westphalia for Economics, Industry, Climate Protection and Energy, also agrees with this assessment: “The new plant technology in Duisburg is an important step towards modernizing steel production in North Rhine-Westphalia. The investment is a positive demonstration of corporate responsibility toward the location, and it will contribute to increasing quality, efficiency, and flexibility.”

High-tech units for supplying high quality to customers

The new units have been constructed on an industrial site that is over 120 years old and the size of around 11 soccer pitches – while the nearby existing plants continued to operate. A technical and logistical tour de force that is all the more remarkable given the considerable headwinds that hampered the construction progress. These include the effects of the COVID pandemic, geopolitical tensions, and a problematic situation regarding raw materials. Nevertheless, the project was completed on schedule within just two years. Today, the new facilities are located at the interface between upstream operations and hot strip production, making them a core feature of the integrated production network in the northern part of Duisburg. The reconfiguration that has now been completed will not only raise quality by increasing casting and rolling capacities, but will also improve capacity utili-

Photos: Rainer Kaysers

All modernizations at a glance

The new continuous **casting line 4** replaces the casting section of the old casting rolling line and will ensure flexible and efficient slab production with high levels of precision. The system is also characterized by better degrees of purity, improved shape accuracy, and surface quality.

The downstream **hot strip mill 4**, which is designed for around 3 million metric tons and underwent extensive modernization, has been equipped with two new walking beam furnaces that ensure more precise rolling accuracy and, above all, optimized surface quality. State-of-the-art control systems ensure the narrowest thickness tolerances, while optimized cooling processes further improve the material properties of the hot strip. The mill-edged slabs used can also be produced in significantly more flexible dimensions while allowing for an expanded product range, for example with regard to high-strength grades as well as dynamo and transformer steels.

The completely newly created **slab logistics** represents the link between the two units. It ensures fully automated, largely digital process handling. State-of-the-art control systems allow around 1.7 million metric tons of slabs per year to be synchronized in real time. This ensures maximum flexibility and efficiency in the process flow within the new system network.

zation of the upstream basic oxygen steelmaking plant 1. This will further increase the overall performance of the production network at a central point – with lasting positive effects on the security of supply for customers.

"The facilities represent a quantum leap in terms of technology. We now have the most modern hot-strip mill here in Duisburg, and therefore the most modern metallurgical plant in the whole of Europe. This means we have created ideal conditions for our steel material, for example for even better surfaces and thinner dimensions. Throughput and booking times will be shorter, and customers will receive their material much faster than before," explains Dr. Harald Espenhahn, Head of Technology and Environment Management at thyssenkrupp Steel, who was in charge of the mammoth project.

"With a more valuable portfolio, we can sustainably strengthen our earnings quality in the long term while expanding our competitive position. Additionally, we will provide our customers with the products that help them in their competitive environment."

Dennis Grimm,
Spokesman of the Executive Board, thyssenkrupp Steel

Facts and figures on the new facilities

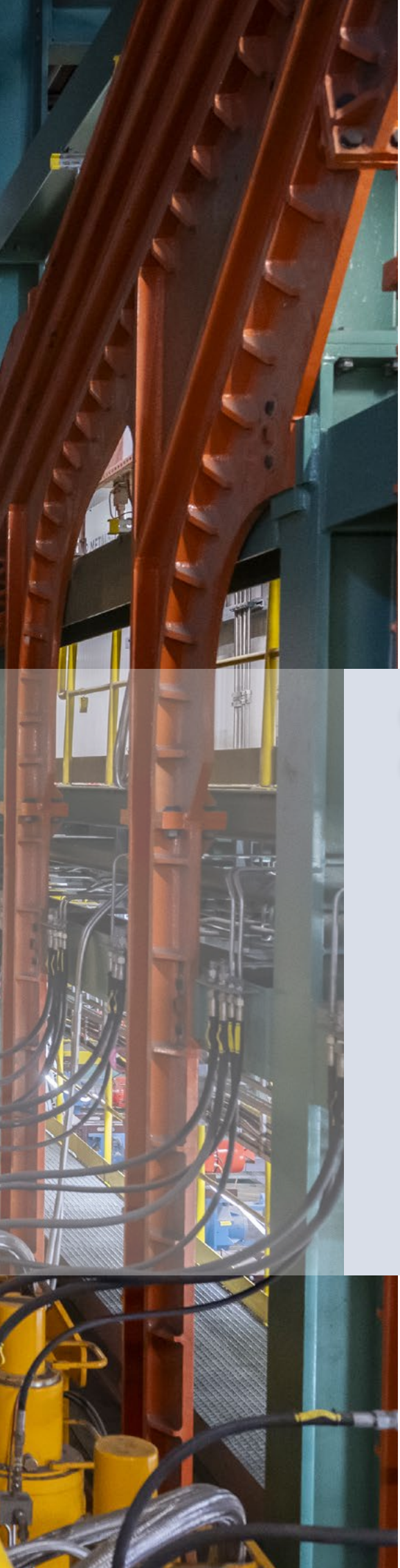
Continuous casting line 4

35.5 meters	2.3 million metric tons	900 – 1,800 millimeters	257 millimeters
Metallurgic length	Normal capacity per year	Slab width	Slab thickness

Hot strip mill 4

360 meters	3.1 million metric tons	900 – 1,600 millimeters	1.2 – 9.0 millimeters
Length	Nominal capacity per year	Strip widths	Strip thicknesses

Photo: Rainer Kaysers



Direct view into the interior: the new continuous casting line has gone into operation.

Consistent and optimized product quality

All new systems are characterized by a high degree of automation and state-of-the-art control systems, for example enabling real-time monitoring of the production processes through the use of digital twins. This also serves to ensure consistent and continuously optimized product quality. The major investment will also strengthen the entire integrated site in the north of Duisburg, repositioning thyssenkrupp Steel efficiently and gearing up the business to overcome future challenges. Dennis Grimm: “The new linked plant components are a rejuvenation treatment for key elements of our production network. This will enable us to optimize our slab and hot strip qualities significantly with the aim of further developing our product portfolio in line with future requirements, particularly in the case of multiphase steels, high-strength steels, and grades for electric mobility and the energy turnaround.”

Walking beam furnaces 1 and 2

Up to 1,300 degrees Celsius	approx. 62 meters	10 meters
Temperature range	**Length**	**Max. slab length**

Slab storage yard

Up to 1,300 degrees Celsius	approx. 62 meters	10 meters	25 m/h
Temperature range	**Length**	**Max. slab length**	**Max. speed**

Web

Further information:
Investments

Watch now:
Unique drone flight through the new plant complex

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“Our commitment to the green transformation stands”

As Chief Representative of thyssenkrupp Steel, Ulrich Greiner Pachter is responsible for the construction and completion of the direct reduction plant at the Duisburg site – one of the biggest industrial decarbonization projects worldwide. In steel^{compact}, he talks about the current status of the work and how things will continue in the coming years.

Text Jan Ritterbach

Mr. Greiner Pachter, as project manager you are responsible for the construction of the direct reduction (DR) plant with which thyssenkrupp Steel intends to initiate the first chapter of carbon-neutral steel production at the Duisburg location. What is your view of the major project?
It is an enormously exciting task to accompany the implementation of this flagship project of industrial decarbonization. With significant support from state and federal governments, we are taking the first step toward carbon-neutral steel production so that our customers can switch their own value creation to “green” with our CO_2-reduced steel. We are currently making important progress in the implementation, but of course we also recognize the complexity that such a large-scale project entails for us and our partners.

Is it a question of sheer size or what are the particular challenges?
You have to realize that we are talking about a construction site alone that is the size of 40 soccer pitches. We assume that there will be more than 2,000 people on the construction site in Duisburg at peak times. It's never possible to rule out some kind of a hitch. In addition, we have to satisfy numerous requirements to obtain the necessary building and operating permits for such a project. As a result, many details of the plant planning had to be reworked, and that took time.

How difficult is it to integrate a construction project of this size into the existing metallurgical network?
The construction task on the factory premises in Duisburg presents us with the most exacting requirements in various areas, such as planning, logistics, and safety. After all, the new direct reduction plant has to be seamlessly integrated into existing production processes, supply lines, and infrastructure – this is highly technically demanding and requires precise coordination across all trades.

When do you think it can start operating?
We haven't yet fixed a date for the launch of the DR plant. We are currently reviewing the schedule

Photos: Nils Röscher and SMS group

Leading one of the largest decarbonization projects in the world: Ulrich Greiner Pachter, Chief Representative of thyssenkrupp Steel.

together with our main supplier SMS, which is an integral part of project management for projects of this size.

There was already a lot to do before that point. When you visit the construction site as project manager – what picture do you get?
Until recently, the construction site was mainly characterized by enormous quantities of concrete and iron, because we had to build the necessary foundations before SMS could get going with the steel fabrication and erection of the plant itself. Our largest unit, the direct reduction tower, which will be almost 150 meters tall, required the pouring of a concrete slab up to three meters thick and 40 by 40 meters in area, for example.

Where does the material needed for this actually come from?
That's actually very interesting because the amount of concrete we need, for example, is so large that the construction companies have built a mobile concrete plant at the edge of the site for their own supply. The concrete foundations and the components for the five-floor main switchgear house are cast from this concrete.

The construction of the plants in Duisburg is one of the biggest industrial decarbonization projects worldwide and comes at a time when investments in sustainable industrial applications are being heavily scrutinized and publicly discussed. Do you doubt yourself too?
No, we stand by our commitment to the green transformation and carbon-neutral steel production. In the long term, there is no alternative to the decarbonization of CO_2-intensive steel production. But for long-term success, we also need to create a resilient hydrogen economy that can manage this decarbonization at a sustainable cost.

Can you please explain that?
The direct reduction plant has an annual production capacity of 2.5 million metric tons of directly reduced iron. In full hydrogen operation, the plant will require around 143,000 metric tons of hydrogen per year. The electricity required to produce this amount of hydrogen corresponds to around 60 percent of the annual electricity requirements of the city of Hamburg. If this amount of hydrogen were to be available to us at marketable prices, it would be possible to save up to 3.5 million metric tons of CO_2 per year – that is almost 20 percent of our total emissions.

How will this succeed?
We are not dwelling on doubts, but are continuing to forge ahead boldly with the green transformation. As the largest German hydrogen consumer, thyssenkrupp Steel is the initiator of and driving force behind a strong hydrogen economy in Germany, paving the way for the decarbonization of the entire steel value chain. We are sticking to our goal of making steel production completely carbon-neutral by 2045.

Thank you very much for the interview, Mr. Greiner Pachter!

Web

Further information:
transformation

Watch now:
How a DR system works

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“The goal is an upgrade to a higher-value customer and product portfolio”

Georgios Giovanakis became Head of Sales for both the Automotive and Industry divisions at thyssenkrupp Steel in early April 2025. Having already held numerous other positions within the thyssenkrupp Group, the experienced manager has now taken on a demanding role in challenging times. Nevertheless, he is looking to the future with confidence and eager anticipation.

Text Jan Ritterbach

Ienn If anyone knows thyssenkrupp Steel like the back of their hand, it's Georgios Giovanakis. For 30 years, he has served the long-established steel manufacturer in various roles – most recently as CEO of the Electrical Steel subsidiary – and now faces his most significant challenge to date.

As of April 1, 2025, he has headed the newly restructured sales organization for the Automotive and Industry divisions, which also encompasses sales coordination for the three subsidiaries Electrical Steel, Hohenlimburg, and Rasselstein. It is indeed a key position for preparing the company to meet the competitive demands of the years ahead. Where others might be daunted by the scale of the challenge, Giovanakis sees new opportunities and believes in the positive power of change: “When the winds of change blow, some build walls and others build windmills. I side with the windmill builders, and I intend to motivate everyone in my team to help build a successful future for thyssenkrupp Steel.”

Photos: Nils Roscher

New Head of Sales for the Automotive and Industry divisions at Thyssenkrupp Steel, including sales coordination of the three subsidiaries Electrical Steel, Hohenlimburg and Rasselstein: Georgios Giovanakis.

Higher-value portfolio is the goal

A crucial prerequisite for thyssenkrupp Steel to achieve its ambitious goals lies in the holistic, value-optimized management of all sales divisions within the Steel Europe group. “The objective is to develop a customer and product portfolio focused on the core themes of automotive, packaging, and the energy transition that, in sum, deliver greater value than before,” emphasizes Giovanakis. “This involves establishing guardrails and key performance indicators for the divisions and subsidiaries, enabling us to work more efficiently and autonomously toward our targeted results. I specifically aim to further promote an entrepreneurial mindset so that we can make our improvements and cost reductions measurable as quickly as possible.”

Greater digitalization of processes is likewise aimed at helping further enhance thyssenkrupp Steel’s performance on the sales front. Giovanakis points, for example, to data-driven customer interactions and supply chain management (SCM) optimization. “We will never be able to bring our cost structure down to Chinese levels. That is why the topics of digitalization and SCM optimization are so critically important for us; they will be a key priority under my leadership.”

Customers want to know what the green transformation involves

In his new role, Georgios Giovanakis is relying not only on his broad management experience and long-standing market expertise but also, crucially, on his interpersonal qualities as a leader. “We work with people for people – and that is something we must never forget. I aim to help ensure that we approach our tasks with pride, boldness, and enthusiasm. True to the motto: ‘Make every day a golden day’.”

This fresh perspective is something the Head of Sales also brings to his conversations with customers, which – given structural changes, volatile markets, and the current global uncertainty – are often marked by concerns. Giovanakis: “On one hand, our clients naturally see that the transformation of the steel industry is underway and want to understand what exactly is taking place within our company,” Giovanakis explains. “On the other hand, customers are demanding optimized delivery performance from us. For thyssenkrupp Steel, this also means we need to consolidate and form new, strong partnerships. Most of our customers, like us, manufacture in Europe. So we're all in the same boat – now we also have to row together, ideally in the same direction.”

Commitment to the European market

As Georgios Giovanakis sees it, thyssenkrupp Steel has already laid the cornerstone for the long-term security of supply of high-quality steel for automotive and industrial applications in Europe by way of its diverse investments in the company's production sites. “A state-of-the-art continuous casting line with a downstream hot strip mill has recently been installed in Duisburg. This ramps up our casting and rolling capacities, improves the utilization of the upstream steel mill, and enables us to expand our portfolio of high-strength steels and premium surfaces. Our customers can therefore expect significant quality improvements, more flexible slab production, and sustainably positive effects on their security of scheduling and supply. Furthermore, our investments in the double reversing stand and the annealing isolation line in Bochum mean we hold the entry ticket for the electric mobility market. Now it is up to us to become our customers' partner of choice in this field.” Giovanakis also places great hope in the marketing of CO_2-reduced steel: “Unfortunately, the momentum for the green transformation has just slowed down a bit. I am convinced it will return – and when it does, we will be prepared for the #nextgenerationsteel.”

Web

Further information:
steel portfolio at a glance

View now:
Georgios Giovanakis
in conversation

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“We want to further expand our leading position”

Angelo Di Martino is the new CEO of thyssenkrupp Electrical Steel. The trained engineer spent part of his career as a management consultant at McKinsey and then worked for many years as a manager in the steel sector. In steel[compact], he talks about his new role and reveals the goals he associates with it.

Text Jan Ritterbach

Experienced steel manager: Angelo Di Martino, new CEO of thyssenkrupp Electrical Steel.

Mr. Di Martino, what appeals to you about the new role as CEO of thyssenkrupp Electrical Steel despite the challenging market situation?
I am excited about the opportunity to accompany the development of the European steel industry at a crucial point. thyssenkrupp Electrical Steel is a significant part of the supply chain for energy grids, which are driving electrification not only in Europe but worldwide. This is a great mission – I am proud to be part of it.

Where does thyssenkrupp Electrical Steel stand today?
I see a company that has made great progress over the past five years. From a situation in which we had practically no market presence any longer, to a position where thyssenkrupp Electrical Steel serves as a reference in many ways when it comes to innovative materials for transformers, reliability in customer relationships, and delivery reliability worldwide.

How do you define your role as CEO in this situation?
My job is to develop our already good company into an excellent company. That is our mission for the next five years. After all, we are operating in a very competitive environment. Therefore, it is now about improving not only our efficiency but also our quality and performance. And this is closely related to effectively developing our leadership style and our leaders as well as further expanding strong partnerships with our customers.

How do you assess the current relationship with your customers?
We are in a very good starting position because we already have a very strong bond with our customers. Together, we feel a shared responsibility to support Europe in the green transformation and to build a resilient supply chain that also creates long-term perspectives for companies. The business with grain-oriented electrical steel is very special.

What is so special about it?
Many of our customers are family businesses whose owners think very long-term. They do not plan their business with a view to the next quarter, but to the coming generations. We need to take this long-term approach more into account in our collaboration. We want to mirror this long-term approach, establish and maintain it.

Photos: Nils Roscher

The energy transition is sprogressing slowly at times. Where do you currently see the biggest challenges for the energy industry?
The main challenge is that the European supply chain for all equipment required for the transformers business is very fragile. To improve resilience, we need to protect our industry in Europe through smart rules for importing steels and other components from other regions, allowing at the same time the volumes of grain oriented electrical steel required for the planned energy transition. In addition, our competitiveness in spite of huge regional differences in energy and labor costs needs to be further protected. Last but not least, we also need to do our own homework.

And what would that be?
I have the impression that in Europe we have sometimes lost the hunger and leadership claim in the areas of performance, quality, and technology. thyssenkrupp Steel has recognized this and is investing significantly in quality, performance, and our own employees. The last point is particularly crucial: ultimately, the difference between our competitors and us is primarily driven by the people who work for us. Therefore, we are optimizing our organization step by step so that all of us are enabled to deliver our very best, and we share the feeling of working for the right company.

What expectations do energy companies have today of manufacturers of grain-oriented electrical steel?
For transformer manufacturers, our quality is measured by a straightforward metric: watt loss per kilogram of material. With our top grades, we offer high quality material on the market. However, our customers are also concerned about the current uncertain geopolitical situation and trade policy. With the investments we are planning in our production network, we are sending an important signal for more supply security in Europe.

What role do sustainable products play in the strategy of thyssenkrupp Electrical Steel?
Sustainable products are central to our strategic direction, particularly in the context of decarbonizing the energy grid supply chain. As the global energy sector transitions toward renewable sources and electrification, the carbon footprint of every component in the grid becomes increasingly important. We expect the demand for grain-oriented electrical steel made from bluemint® Steel to grow exponentially. This is because our customers can sell their transformers much better with this argument. They can differentiate themselves well from other suppliers who do not produce sustainably due to the lower carbon footprint.

What specific goals have you set for the next two years?
We need to make decisive progress in four areas: quality and performance, customer partnerships, cost efficiency, and further investments. If we succeed, we will be the clear market leader in Europe in the business of grain-oriented electrical steel for transformers in the next 24 months.

Thank you very much for the interview, Mr. Di Martino!

Angelo Di Martino expects demand for CO_2-reduced electrical steel to increase in the energy sector.

Web

Further information: powercore® electrical steel

Watch now: Angelo Di Martino in conversation

Contact

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Transparency across the board

thyssenkrupp Steel can now issue verified environmental product declarations (EPDs) and verified product carbon footprints (PCFs) for its entire steel portfolio. What was previously only possible to a limited extent has now become the standard. The construction and automotive industries in particular will benefit from this.

Text Jan Ritterbach

For many customers, one of the most important requirements on the road to carbon neutrality is transparent validation of the environmental impact of the materials used. The good news is that thyssenkrupp Steel is now able to provide EPDs and PCFs for its entire range of flat steel products. "This enables us to offer our customers targeted support in fulfilling their reporting obligations and market requirements," explains Lisa Schulz from Environmental Protection, the department that is responsible for these issues at thyssenkrupp Steel and drives them forward.

More security for the construction and automotive industries

The environmental certificates are particularly relevant for two customer groups: for the construction industry, EPDs have long been standard in the context of sustainable tenders and certifications, and will become mandatory in

EPDs and PCFs are now available for the entire range of flat steel products. Lisa Schulz and Jan Rempe from the Environmental Protection department at thyssenkrupp Steel have contributed to this.

Photos: Rainer Kaysers

Available now: environmental product declarations and verified product carbon footprints for the entire steel portfolio.

the future. Schulz: “Any company working in this market without verified certificates will find it increasingly difficult to win orders.” In the automotive industry, things are different: The focus here is usually on the product carbon footprint, i.e. the CO_2 value that a product causes along its manufacturing chain.

The two certificates complement one another – and yet are fundamentally different. EPDs are general declarations for product groups. PCFs, on the other hand, are calculated in accordance with ISO 14067 and their conformity is regularly assessed and confirmed by the TÜV Nord inspection and certification organization. They can be precisely worked out for a specific product and a particular customer. EPDs are based on comprehensive life cycle assessments in accordance with European standards, and they are verified by independent bodies. Their informative value is correspondingly high, especially in legally secure contexts.

The EPDs from thyssenkrupp Steel are created based on the methodology of the IBU (Institut Bauen und Umwelt e. V.) – one of the leading program operators in Europe. They comply with the requirements of the EN 15804 standard, which is recognized in the construction industry in particular. This includes key figures on CO_2 emissions, resource consumption, acidification or eutrophication potential, and much else besides. To put it briefly: They provide a detailed picture of a steel product's environmental impact over its entire life cycle.

Standards for the green transformation

“With our wide range of EPDs and PCFs, we provide our customers with easy access to valid environmental information. Anyone using steel from Duisburg can now integrate it into their sustainability strategy even more effectively while relying on verified and credible certificates,” explains Lisa Schulz. This creates competitive advantages and contributes to the further development of value chains toward carbon neutrality.

The step also represents a signal within the company: we have succeeded in processing the entire data across the various product lines in such a way that verifiable EPDs and PCFs can be created. Companies which offer such transparency today are not only helping customers – they are setting standards for an industry in transition.

EPD compared to PCF

Aspect	EPD (Environmental Product Declaration)	PCF (Product Carbon Footprint)
Focus	Total environmental impact over the product life cycle	CO_2 emissions along the supply chain
Target group	Construction industry, architects, project developers	Diverse industries such as automotive manufacturers, CSR managers
Based on the standards	ISO 14025, EN 15804	ISO 14067
Validation	Third-party verified, made public by the IBU	Third-party verified by TÜV Nord

Web

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Environmental certificates

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Sustainable cable management systems for modern infrastructures – with bluemint® Steel

The construction industry is relying more and more on sustainable materials – and the Niedax Group is leading the way: by using CO_2-reduced bluemint® Steel from thyssenkrupp Steel, the Niedax Group, as one of the leading international manufacturers of cable management systems, is positioning itself as a sustainability partner for modern infrastructures – and demonstrating how social responsibility and economic success can be combined.

Text Jan Ritterbach

Today, high-quality cable management systems from Niedax can be found in new construction projects of all kinds: from shopping centers to parking garages, airports, and industrial facilities to nuclear power plants. "Technology, price, and availability are no longer the only factors in these large-scale projects. Sustainability is also gaining in importance. Consequently, more and more customers are asking us specifically which materials are used in our cable trays and cable ladders," explains Thomas Neumann, Head of Central Purchasing at Niedax. One good example of this is a French electrical wholesaler, which is increasingly demanding that sustainable materials must be used in response to the concerns of its particularly environmentally sensitive domestic market. Niedax is therefore relying on bluemint® Steel – the CO_2-reduced steel from thyssenkrupp Steel – for production in France.

First large order with a knock-on effect

Niedax decided to rely on bluemint® Steel as early as 2023. That year, the international market leader for cable management systems signed a memorandum of understanding with thyssenkrupp Steel – and since then has repeatedly ordered large quantities of the S220GD+Z140 grade made from bluemint® recycled in line with market demands. Around 1,300 metric tons of the material have already been processed at Niedax since then, and a further order for 260 metric tons was placed in spring 2025.

The Group's French production plants for cable support systems are therefore among the first processors to use the CO_2-reduced material on a large scale. Niedax was recently presented with the bluemint® Award by thyssenkrupp Steel. "It's a visible sign of our company's pioneering role in the use of CO_2-reduced materials in electrical installation technology," says Neumann.

Photos: Pg. 24 Niedax Group, Pg. 25 Rainer Kaysers

Innovative cable management systems for international markets: In its portfolio, Niedax offers everything needed for industrial plants, offices, or other large commercial buildings.

CO_2-reduced bluemint® steels in cable management systems: Sandrine Baratte, Thomas Neumann and Henri-Pierre Villette from the Niedax Group are delighted with the award from thyssenkrupp Steel – represented in the picture by Key Account Manager Jörg Schmänk.

This is Niedax

For over 100 years, the name Niedax has stood for modern electrical installations. Decades of experience and future-oriented innovation have formed the globally operating Niedax Group. With well over 50,000 items, the company offers everything needed for cable management systems in industrial plants, office complexes, power stations, and sports arenas, for example. Through proximity to customers, individual solutions, and high quality standards, the Group has achieved a leading international position and is now one of the world's leading suppliers of cable management systems.

Niedax in figures

2,800 employees

81 locations

375,000 metric tons of steel processing/year

25 production plants

50,000 products

5 affiliated companies

Positive for industry and climate

The added value for Niedax lies on several levels. Firstly: sustainable procurement clearly sets the company apart from its competitors. Secondly: the use of bluemint® Steel facilitates the declaration obligations under the Law on Corporate Due Diligence Obligations in Supply Chains, which requires complete documentation. And thirdly: bluemint® recycled significantly reduces the ecological footprint of the products – which is increasingly becoming an order-award criterion, especially in the commercial new-build segment.

The plans for the future are correspondingly ambitious: the quantity targets agreed in the memorandum of understanding were not only met, but actually significantly exceeded. Niedax and thyssenkrupp Steel are now working together to continue on this course and develop further projects. The issue of verification also plays a central role here: as a mass-balanced product, bluemint® Steel requires reliable certificates such as EPDs (Environmental Product Declarations) in order to be recognized as a CO_2-reduced solution in tenders.

Sustainable materials need EPDs

“Our customers expect comprehensible information on the origin of materials and the CO_2 savings that our products deliver. Without these certificates, it is almost impossible for companies like Niedax to provide their clients with transparent proof of the CO_2 reduction. For this reason, we are committed to ensuring that mass-balanced products will also include the corresponding EPDs within the near future,” says Jörg Schmänk, the responsible key account manager at thyssenkrupp Steel. In view of increasing reporting obligations and public tenders with sustainability requirements, this is a crucial point that must be met if innovative materials are to become a strategic success factor in decarbonization.

Web

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bluemint® steel

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Less is more: the great potential of door rings for automotive construction

Today, body structures are being designed to be produced more efficiently – without compromising on economical lightweight construction. One example is a current cooperation project between thyssenkrupp Steel and Baosteel Tailored Blanks: it shows how high-performance door rings made from just one tailored blank can replace up to eight different individual parts.

Text Jan Ritterbach

The automotive world is electrified – and not just because of the increasing number of electric drives. There is also a lot of movement in the body shop. Vehicle manufacturers are increasingly turning to integrated component concepts, driven as they are by the need for greater process efficiency without compromising on crash safety and economical lightweight construction. As a long-standing materials supplier and expert in the automotive industry, thyssenkrupp Steel is actively driving this development under the name “InPart Solutions”. This is exemplified by a current joint cooperation project with Baosteel Tailored Blanks at the Duisburg location.

Photo: Rainer Kaysers

Jana von der Heydt from Baosteel Tailored Blanks and Dr. Thomas Böttcher from thyssenkrupp Steel are convinced of the advantages that a fully integrated door ring can bring to production. By reducing the use of materials, the carbon footprint of a car can be lowered even during the production phase.

Complexity, effort, and weight are reduced

The cooperation partners' idea is as simple as it is effective: instead of laboriously joining many individual components, a single blank is used to create a tailor-made structural support for the outer side wall – the door ring – which, including the A, B and C pillars, forms the frame for the doors that are later installed in a vehicle. "In simulations with our selectrify® reference body in the compact class, we were able to demonstrate that up to eight individual components can be integrated into the vehicle structure," explains Dr. Thomas Böttcher, Head of Application Concepts at thyssenkrupp Steel. This makes for huge advantages: lower costs due to reduced complexity and less time spent joining parts together, as well as a potential weight saving of 5.8 kilograms in the case of the reference structure.

At the heart of the concept is a tailored blank into which hot forming grades of different strengths are integrated. The MBW® 1200+AS materials and the 1500 and 1900 grades coated with AS Pro from thyssenkrupp Steel are used precisely where they offer the greatest benefits: MBW® 1200+AS is used, for example, in the sill as well as in the base of the B-pillar, as there is a high demand for ductility here. MBW® 1900 +AS Pro, on the other hand, is installed in the upper safety-relevant zone of the B-pillar with maximum deformation resistance.

From material to customization

But the concept is not only convincing in theory. Its implementation requires enormous technological finesse. The large jumps in material thickness – from 1.8 millimeters to 1.0 millimeters in the A-pillar and sill area for example – are particularly challenging. They influence the cooling behavior during forming and at the same time place high demands on the laser welding of the blank. Only through closely integrating the design, forming simulation and joining technology has it been possible to ensure that the door ring can be manufactured during the course of the project. The GONAtech® welding process developed by Baosteel Tailored Blanks completely eliminates the need to remove the coating from the blanks before the welding process, and makes a significant contribution to economical lightweight construction.

"The combination of our material grades with customized blank designs delivers harmonized performance and efficiency," says Thomas Böttcher. "With our project, we are demonstrating how material, production and process expertise can be combined while benefiting from synergy effects." Not only does this apply to the use of steels for hot forming, it also means that highly efficient tailored blank solutions can be realized with materials for cold forming such as multiphase steels with high strength classes of the jetQ® brand – depending on what the respective manufacturer prefers. With the bluemint® Steel brand, thyssenkrupp Steel already offers its customers all proven steel grades with reduced CO_2 intensity for sustainable automotive construction.

Cost-efficient lightweight construction

A look at automobile manufacturers shows just how important it is for material suppliers and experts to address this issue: Various well-known vehicle manufacturers are already relying on integrated components and installing large structural components in the body instead of separate ones. The advantages speak for themselves: fewer parts mean fewer interfaces, fewer tools, fewer process materials, shorter cycle times – and ultimately lower production costs and a reduced carbon footprint. These advantages will be demonstrated within the scope of the cooperation, assuming various boundary conditions. The resulting evaluation methods will also be available for customer inquiries about InPart Solutions in future.

At the same time, tailor-made, localized material inserts can be used to optimize specific mechanical properties – particularly in lightweight construction and crash safety. In this context, the door ring not only offers an economically attractive solution, but also supports new body concepts – such as modular vehicle platforms.

A premier materials expert for the automotive industry

In addition to the production-related advantages, the fully integrated door ring scores points for material efficiency because it uses less material than the basic concept, thus reducing the vehicle's carbon footprint right from the production phase. The exact nature of the benefits will be discussed in detail later on during the door ring cooperation project. Dr. Thomas Böttcher: "With our InPart Solutions such as the door ring, we are underlining our role as a key materials partner and consultant to the automotive industry: we have achieved this using materials with maximum performance, customized solutions for modern manufacturing processes, and the unconditional will to accompany the transformation of the industry with innovative concepts."

Web

Further information:
Material of Mobility

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Perfect fit – even at the collar

Together with the internationally renowned automotive supplier Brose, thyssenkrupp Steel has investigated the forming behavior of high-strength, complex-phase steels during collar drawing. The aim was to optimize the collar drawing process using a numerical simulation – based on a new and detailed material card with implemented damage and failure models.

Text Jan Ritterbach

This is Brose

Brose is one of the five largest family-owned automotive suppliers in the world. One new car in every three is equipped with at least one Brose product. The mechatronics specialist develops and manufactures systems for vehicle doors, flaps, and seats. Brose also produces electric motors from 200 watts to 14 kilowatts for various applications such as steering, thermal management, or electric scooters. More than 80 automobile manufacturers and 40 suppliers rely on Brose's system expertise.

Photos: Brose pg. 29 top and Rainer Keysers

Practical cooperation is required when it comes to developing processes further in the automotive industry – such as that between thyssenkrupp Steel and the automotive supplier Brose. Together, the two long-standing partners conducted a complex test project at the beginning of 2025 in order to better understand and optimize the details of a frequently used forming process in the production of car seats – known as collar drawing.

Collar drawing involves punching a hole in a steel blank, the edge of which is then raised to form a flange. This raised zone – referred to as the collar – serves as a functional connecting element in the later component and thus, for example, as a bearing point or preliminary stage for thread forming. The particular challenge: the cut edge of the material is subjected to high stress. Different boundary conditions arise depending on the degree of deformation and the interaction with the materials used, until the material reaches its load limit. Precisely predicting this behavior is crucial for process design – especially where high-strength materials are involved.

High-strength steel for seat structures

The project focused on the cold-rolled, complex-phase steel CP-K® 780Y980T from thyssenkrupp Steel. With a tensile strength of at least 1,000 megapascals and its fine-grained microstructure, it combines high strength, good hole expansion and reliable formability – all properties that make it ideal for applications in lightweight automotive construction with crash and safety relevance. “Our customers are increasingly demanding reliable data for new materials – not only on mechanical properties, but also on holistic process behavior,” explains Sarah Abraham, Product Manager at thyssenkrupp Steel. “The behavior is particularly complex at the cut edge, as it is strongly influenced by the microstructure and the forming process.” Gerald Erdmann from Materials Development and Sustainability at Brose: “CP-K® grades allow us to

Simulation meets practice: Alexander Kulikov, Thomas Kreissl and Gerald Erdmann from Brose (picture below, from left) cooperate successfully with Hartwig Rösen, Sarah Abraham and Stefan Woesmann from thyssenkrupp Steel (picture left, from left).

Material cards for customers

In addition to a tailored portfolio for steel seat structures, thyssenkrupp Steel provides its automotive customers with extensive material specifications on request. Both variants with a standard scope as well as complex material cards with implemented damage and failure models are available.

rethink geometric freedom, such as for bearing points. These can still be implemented afterwards, but this involves further work steps." And Sarah Abraham adds: "Our CP-K® 780Y980T is characterized not only by its excellent local but also by a comparatively high global forming behavior."

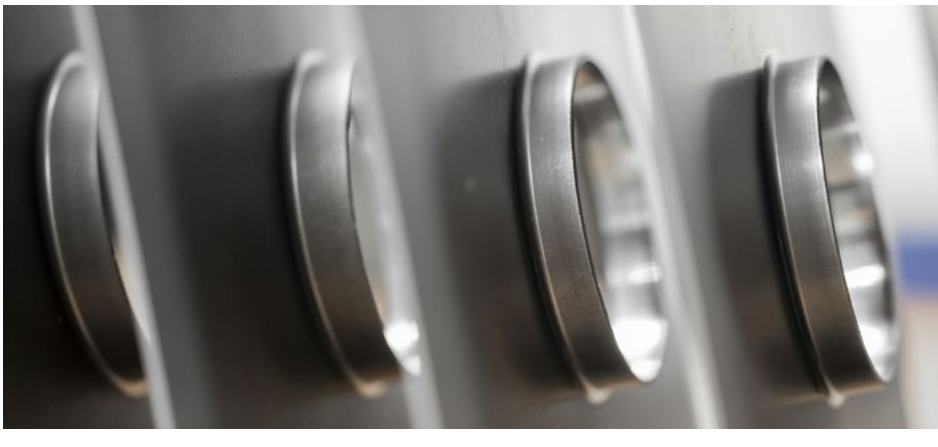
In order to provide valid information here, thyssenkrupp Steel carried out extensive tests on its high-strength, cold-rolled CP-K® 780Y980T to create a validated material card that also takes fracture-mechanical parameters and cut-edge properties into account. "With our testing equipment, we are able to create material cards that can be used for both forming and crash applications. The focus here is on our customers' requirements, which can be requested from us at any time on a customer-specific basis," explains Hartwig Rösen, from the Materials Modeling department at thyssenkrupp Steel. At the same time, practical collar drawing tests were carried out at the steel manufacturer's technical center in Dortmund to demonstrate real load and failure mechanisms on the material.

Simulation meets practice

In the next step, Brose took over the numerical modeling: detailed simulations of the collar drawing process were created using the data provided by thyssenkrupp Steel. The focus was particularly on sensitivity analyses, i.e. the question of how strongly changes in friction, cutting force, or edge radius affect the result. "The data provided gave us a very good foundation for digitally mapping the process," says Alexander Kulikov, simulation project engineer at Brose. "This not only allowed us to systematically compare variants, but also to supplement the physical tests in a targeted manner." The results show: the real observations and those from simulation are almost identical – particularly with regard to the geometry of the shaped collars and the influence of the quality of the cut edges. There are still slight deviations with regard to the exact fracture behavior, which can now be used to further refine the models.

"Our detailed material cards are key to the digitalization of forming processes," emphasizes Sarah Abraham. "They enable realistic simulations – and thus save valuable time and resources." From thyssenkrupp Steel's point of view, the project is a successful example of a productive development partnership. "When materials knowledge, application technology, and customer requirements come together, the result is resilient solutions for real challenges," says Stefan Woestmann, application engineer at thyssenkrupp Steel. "This is not only helpful in specific cases – it also provides a valuable basis for future developments."

"The collaboration with thyssenkrupp Steel enables us to incorporate our experience into both the design of the stamping processes and the subsequent forming. The results so far confirm our approach," says Thomas Kreissl, an expert in forming technology at Brose, summing up the successful project.



The collar serves as a functional connecting element in the component for car seats and thus, for example, as a bearing point or preliminary stage for thread forming.

Web

Further information:
seating structures

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jetQ® practical and crack-free joining – with the right welding parameters

Higher strengths, even better formability – with the new jetQ® 980 and jetQ® 1180 steel grades, thyssenkrupp Steel has added two products from the third generation of Advanced High Strength Steels (AHSS) to its portfolio of ultra-high-strength steels. A trial jointly conducted with the renowned automotive supplier Benteler Automotive Components has now demonstrated just how practical these are. The tests clearly show that, with the right welding parameters, the two new hot-dip galvanized grades can be joined to other steel materials without any signs of liquid metal embrittlement (LME) – even with complex material combinations.

Text Jan Ritterbach

Melanie Dinter and Sebastian Schulte (left) from thyssenkrupp Steel in conversation with Tobias Böddeker (2nd from left) and Serge Reitz from Benteler Automotive Components.

With jetQ® 980 and jetQ® 1180, thyssenkrupp Steel is setting new standards in material development for lightweight automotive construction. The high-strength cold forming grades combine high strength with improved ductility, and expand the existing multiphase steel portfolio with third-generation grades that specifically address performance and processability. The advantages speak for themselves: thinner walls, reduced vehicle weights, and improved energy absorption in the event of a crash – without compromises in geometry or processing. In practice, however, another point is of crucial importance: joinability.

For some time now, thyssenkrupp Steel has known that customers have encountered challenges when combining higher-strength third-generation steels. “Resistance spot welding of these new hot-dip galvanized AHSS grades is still one of the most critical process steps in production,” confirms Patrick Kuhn, product manager for multiphase steels at thyssenkrupp Steel. The challenges are manifested in the potential occurrence of liquid metal embrittlement, which

Photos: Nils Roscher

can lead to cracking in the spot weld. This is causing reservations about the use of third-generation AHSS steels on the part of processors and car manufacturers. His colleague Melanie Dinter from the steelmaker's Sales Engineering department explains further: "We took the information from our partners very seriously and followed it up intensively. This is why, for years now, we have been determining joining technology parameters to support our customers' application technology during development."

The central question: Can components made from jetQ® grades be reliably joined to components using resistance spot welding without cracking? thyssenkrupp Steel and its long-standing partner Benteler Automotive Components – a leading international supplier to the automotive industry – initiated a joint test project at the end of 2024 to answer this question under real-world conditions.

Benteler: "Test result is an important step towards series production"

The tests focused on eight different steel combinations of the jetQ® 980 and jetQ® 1180 brands, each combined with common steels for structural applications from series production. These included particularly sophisticated variants such as the joining of aluminum-silicon-coated hot-formed steels with hot-dip galvanized cold-formed grades – typical mixed joints in the area of B-pillars, for example. The actual physical tests took place at the Dortmund and Paderborn sites of thyssenkrupp Steel and Benteler, respectively. While thyssenkrupp Steel carried out the welding processes, Benteler was responsible for the subsequent evaluation by means of microscopic analyses and tensile tests. The result: in over 500 spot welds analyzed, not a single LME-induced crack was detected. An extremely positive result that exceeded even the expectations of the Benteler experts.

Welding different steel materials depends on the right parameters.

"LME cracking tendency is always an important and sometimes challenging issue when processing hot-dip galvanized AHSS steels," says Tobias Böddeker, Director R&D Materials Technology at Benteler Automotive Components. "The fact that we were able to demonstrate exclusively crack-free joints in our shared project with thyssenkrupp Steel is an important step toward expanding the use of these new steels with a tensile strength of 1000 MPa and more in series production."

thyssenkrupp Steel's consistent development work over the past few years provided the basis for the convincing results. "In the run-up to the shared project, robust welding parameters for resistance spot welding were determined for a wide variety of material pairings as part of the materials engineering development using the standardized SEP1220-2 process," explains Sebastian Schulte, the expert responsible for press welding technology at thyssenkrupp Steel. This systematic database made it possible to carry out the tests with practical and reproducible parameters, and thus achieve results that can serve as the basis for an application in series production.

Strong together for the lightweight construction of the future

The close exchange between the teams of both companies shows that the project was not only a technical success, but also a fruitful partnership. While thyssenkrupp Steel contributed its extensive expertise in material and process development, the project benefited significantly from Benteler's process expertise with direct access to OEM requirements and real-life applications.

Benteler sees jetQ® as an important addition to its own materials portfolio, particularly for safety-relevant structural components where previous grades have reached their limits. "Third generation AHSS steels, which include the new jetQ® grades, offer us and our customers additional freedom in construction and design, exactly where it is needed," says Serge Reitz, global coordinator in material application for cold-formed structural components at Benteler Automotive Components. OEMs are also showing interest in the third AHSS generation – provided that joining processes can be implemented reliably and without complex adjustments. "This is exactly what our joint project has now impressively demonstrated," says the materials expert.

Conclusion: jetQ® 980 and jetQ® 1180 are not only new materials, but also key components for the next generation of lightweight construction. And: they are practical. With the right welding parameters, even demanding material joints can be made without cracks. A key finding that shows how important the interplay between material innovation, process expertise and partnership-based development is – now more than ever.

Web

Further information:
High-strength cold-forming grades of the third generation

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ZM Ecoprotect® Solar: ideal corrosion protection for solar carport systems

Photovoltaics are mandatory for newly built commercial parking areas in many parts of Germany. Above a certain size, parking spaces will have to be covered with solar carports in the future. thyssenkrupp Steel offers ZM Ecoprotect® Solar, a strip-galvanized material, for manufacturing PV substructures.

Text Jan Ritterbach

Photo: Shutterstock

This is how good the energy turnaround can look: modern solar carport with ZM Ecoprotect® Solar from thyssenkrupp Steel.

The energy and mobility revolution continues to gather pace, and is leaving its mark on the public infrastructure to an increasing extent. In most parts of Germany – including Baden-Württemberg, North Rhine-Westphalia and Rhineland-Palatinate – newly built parking areas for commercial use must be built including photovoltaic systems once a certain number of parking spaces is reached. Other parts of the country are planning similar regulations.

The new legal requirements will present a number of challenges to the installers and operators of such solar-covered parking areas – for example outside DIY stores, shopping malls or in industrial areas. Among other things, it is important to find the right material for the mounting structure of solar carports. "The average service life of a solar installation is between 20 and 25 years. Given these long operating times, high-performance steel substructures are required in particular for the modules of ground-mounted PV systems," says Arne Schreiber, product manager at thyssenkrupp Steel.

Effective protection against corrosion

Arne Schreiber and the Application Technology team have taken a painstaking look at the use case of solar carports. The result: ZM-coated steels in particular from thyssenkrupp Steel are ideal for the new application. The most important aspect here is the material's particular resistance to corrosion. "ZM Ecoprotect® Solar with a suitable coating layer offers particularly effective and long-lasting protection even when exposed to high corrosion stress; the protection is significantly more effective than conventional hot-dip galvanizing," explains Sophie Merling, an expert from the Surface Development department at thyssenkrupp Steel. The zinc-aluminum-magnesium alloy plays a key role in providing efficient and durable protection through an electrochemical mechanism. Consequently, extensive tests were carried out in the corrosion testing and electrochemistry laboratories, generating an in-depth understanding of the product which will ultimately benefit customers.

In addition to good corrosion protection, other aspects of ZM Ecoprotect® Solar make it the first choice for weather-resistant supporting structures of solar installations. As part of its development, thyssenkrupp Steel has ensured that the product can be excellently processed even with thicker coating layers. Merling: "ZM-coated steels are excellently formable and particularly suitable for roll forming. Their surface is harder than that of zinc coatings, which means significantly less abrasion is generated in the die, and this in turn reduces wear on the tooling."

Versatile portfolio of grades for all requirements

The customer benefits of ZM Ecoprotect® Solar become particularly clear when viewed in the round: taking the example of the roof structure for a solar carport, the ZM project team was able to show that substituting a roll-formed and then batch galvanized double T-beam by a roll-formed profile with ZM Ecoprotect® Solar saves considerable weight and reduces material consumption, while delivering cost advantages and a significantly improved life cycle analysis (LCA) (see info box).

In terms of sustainability, the values can be further improved if customers use CO_2-reduced steel from thyssenkrupp Steel – the entire ZM Ecoprotect® Solar portfolio is also available as CO_2-reduced bluemint® Steel. Arne Schreiber: "We know what exacting demands our customers have in terms of service life and workmanship in the construction of PV mounting systems for carports, and we offer a diverse portfolio of grades with high-quality ZM coating – including a 25-year guarantee against rust penetration depending on the corrosion stress."

Less is more

Advantages of roll-formed sections made of ZM Ecoprotect® Solar compared to batch galvanized double T-beams for solar carports

Costs:
replacing batch galvanizing with strip galvanizing not only saves costs, but also greatly shortens the logistics chain, because the formed sections do not have to be galvanized afterwards.

Weight reduction:
roll-formed sections are often lighter than double T-beams, reducing the overall weight of the structure as well as transportation and logistics costs.

Material savings:
the optimized shape of the roll-formed sections means that less material is required to achieve the same load-bearing capacity as with T-beams.

Environmental friendliness:
less material is consumed and production is more efficient, thus roll-formed sections have a lower carbon footprint.

Dortmund Technical Center

A demanding series of tests

At thyssenkrupp Steel's Dortmund Technical Center, coated flat steel products such as ZM Ecoprotect Solar® undergo continuous testing, while their electrochemical and corrosion properties are developed further in state-of-the-art laboratories. In addition, entire components are also tested in cooperation with partner companies, such as section manufacturers. The components' susceptibility to corrosion is assessed under cyclically changing conditions. For example, how materials behave in contact with salt spray mist, condensation and various climatic conditions. On this basis, the teams of experts at thyssenkrupp Steel can predict very precisely how well a material or component will perform when exposed to natural weather conditions – crucial knowledge when it comes to product warranties.

Web

Further information:
ZM Ecoprotect® Solar

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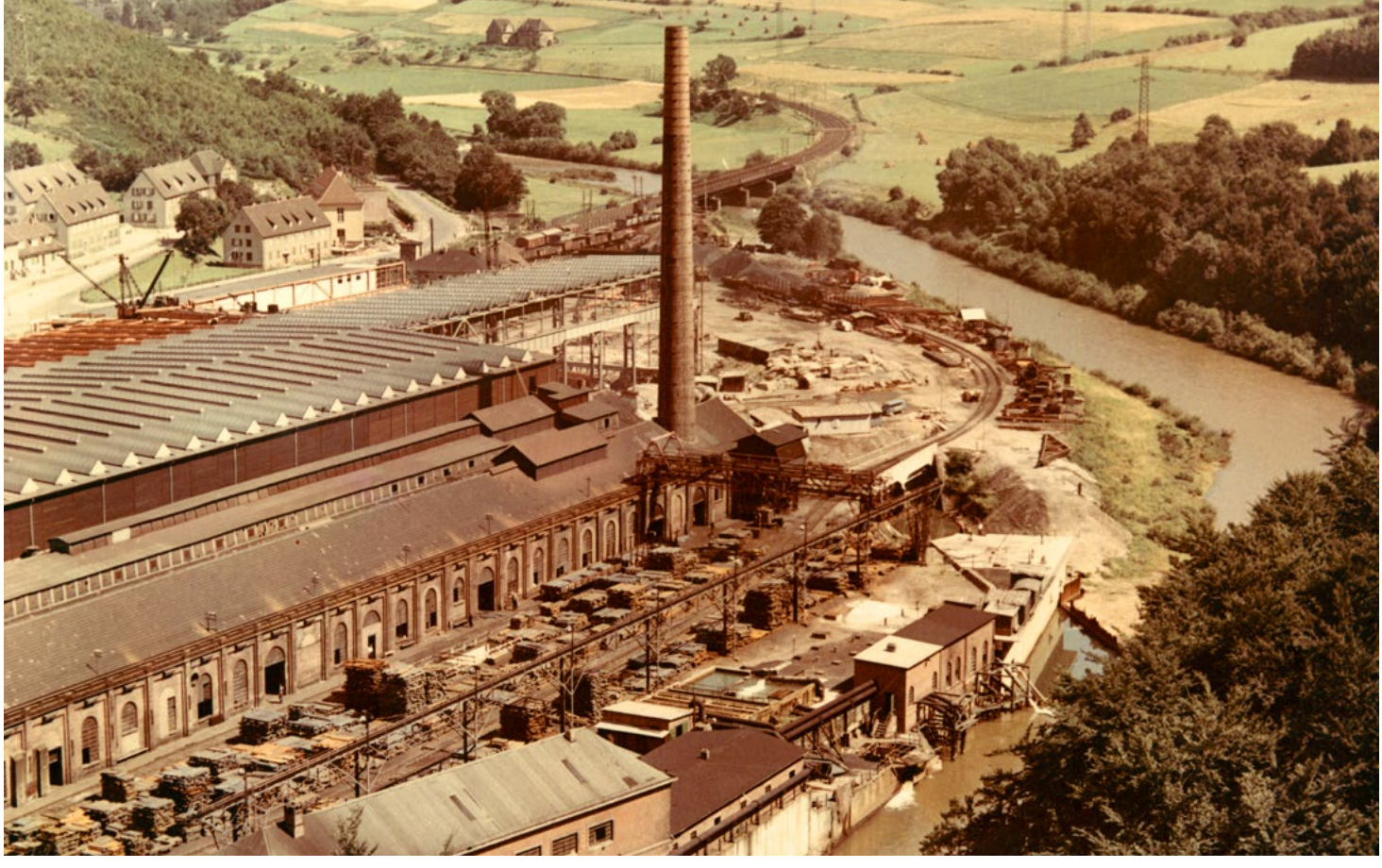

Anniversary in Hohenlimburg:

Precision strip mill celebrates its 70th year of operation

What began in 1955 as a pioneering technological achievement is now a state-of-the-art production system for sophisticated hot strip solutions: the precision strip mill at thyssenkrupp Hohenlimburg in Hagen. The facility symbolizes the innovative strength and adaptability of the location – then as now.

Text Jan Ritterbach

"Our precision strip mill is not merely a piece of industrial history, but a highly flexible unit to meet the requirements of tomorrow," emphasizes André Matusczyk, CEO of thyssenkrupp Hohenlimburg. "It combines precision, efficiency, and sustainability in a unique way." Since 1955, the production facility in Hagen has manufactured more than 25 million metric tons of hot strip. It has been repeatedly adapted to modern requirements – technologically, organizationally, and strategically. Today, the mill is an integral component of thyssenkrupp Steel and is symbolic for how tradition and the future can be combined. Every year, the site produces up to one million metric tons of hot-rolled precision steel strip, which is marketed under the name

Photos: Rainer Kaysers

The Hohenlimburg plant: Since 1955, the production facility in Hagen has manufactured more than 25 million metric tons of hot strip.

precidur® in over 300 materials – from unalloyed engineering steels to highly heat-resistant special alloys.

The special product appeals to customers with its extremely tight thickness and profile tolerances, in widths of up to 720 millimeters and thicknesses from 1.5 to 16 millimeters. In contrast to conventional hot strip coils, precidur® features rounded rolled mill edges without burrs or cracks, preventing the work hardening that can lead to embrittlement. In addition, precidur® offers homogeneous material properties, superior surface quality and a wide range of grades. All in all, the material has the ideal prerequisites – both for cold rolling and with a view to optimum forming during direct processing. Customers are primarily the cold rolling industry, the automotive industry and its suppliers, as well as companies working in general engineering and the electrical business.

Sustainable solutions for the future

Thanks to continuous further development – for example through the use of AI and green wind power – the Hohenlimburg precision strip mill will continue to be a pioneering building block for sustainable steel processing in the future. Last year, the site hit the headlines across the nation when it became the first ever German industrial plant to be directly connected to a wind farm, thus using locally generated green electricity for production. Currently, around 40% of the electricity required in Hohenlimburg comes from renewable energies. Other investments in the future viability of the location are also contributing to the efficient use of energy – for example the modernization of walking beam furnace 3, which was completed in early summer 2025. thyssenkrupp Hohenlimburg has made its furnace hydrogen-capable with an investment in the low double-digit million range. The comprehensive technical modernization ensures compliance with future environmental and safety requirements, and marks a significant step towards carbon-neutral steel production. "We are sending out a clear signal for sustainable production and technological excellence. The new flameless burner technology is not only more efficient, but also H_2-ready," emphasizes Dr. Christoph Evers, head of the precision strip mill at thyssenkrupp Hohenlimburg.

Hidden champion and important economic pillar

"Hohenlimburg exemplifies what makes thyssenkrupp Steel strong: industrial expertise, technological excellence, and the highest quality standards. In addition, there is a special proximity to customers that has grown over decades, with a great innovative spirit and potential that mean the site plays an integral role in gearing thyssenkrupp Steel up for the future," says Dennis Grimm, Spokesman of the Executive Board and COO of thyssenkrupp Steel.

With around 900 workers and customers all over the world, Hohenlimburg is not only a hidden champion, but also a central economic pillar of the Hagen region. The high-tech solutions developed here help thyssenkrupp Steel to shape the markets of tomorrow and its customers to achieve their climate targets.

Mold divider for narrow slabs

On its finishing train, thyssenkrupp Hohenlimburg rolls slabs with particularly narrow dimensions into high-quality precidur® precision strip. In order to be able to cast these slabs directly at the Duisburg site in the future, thyssenkrupp Steel is investing in modernizing one of its continuous casting lines.

At the core of the conversion, a mold divider is being installed to enable twin casting – meaning the simultaneous casting of two narrow slab strands in one mold. This will increase flexibility in production, improve material utilization, and reduce energy consumption. Twin slabs with a mill edge offer the advantage of enabling a crack-free edge to be produced across all production widths. The downstream cold rolling industry will benefit from greater formability and higher rolling speeds, which makes the rolling process noticeably more efficient.

The order for converting the facility has already been placed, and the work should be completed by mid-2027. In this way, thyssenkrupp Steel is strengthening the security of supply for its subsidiary and sending a clear signal for the Hohenlimburg site.

André Matusczyk (2nd from left), CEO of thyssenkrupp Hohenlimburg, emphasizes the importance of the site for the company's production network. Also in the picture: Dr. Christoph Evers (3rd from left), head of the precision strip mill, with Jens Schöllnershans (right) and Thomas Westermann (left), who are responsible for the connection to the wind farm.

Web

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precidur® precision strip

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Tip-top performance in tin plate: The team of experts behind the high-tech surfaces from Rasselstein

The world of packaging steel never stands still: material grades and production processes are constantly evolving, while legal requirements are increasing the pressure on tin plate and metal can manufacturers to innovate. To meet and even exceed the requirements, the Surface Technology and Chemistry department at thyssenkrupp Rasselstein is working around the clock on further developing the innovative surface concepts.

Text Jan Ritterbach

Leaving nothing to chance: Tobias Kirst (right), head of Surface Technology and Chemistry (STC) at thyssenkrupp Rasselstein.

The skin is one of the most important and complex organs of the human body and it forms a physical barrier against external influences. In principle, wafer-thin tin and chrome coatings for packaging steel have a very similar protective function, often in combination with organic coatings such as lacquers and foils: among other things, they ensure that the tin plate from which metal cans are manufactured will not corrode inside and out when it comes into contact with oxygen. This keeps the cans in optimum condition and protects their contents.

In addition to the functions, the surfaces created by elaborate electrolytic coating processes also play a major role in the aesthetic appeal of the tin plate. Take for example the packaging of high-quality watches or fountain pens, in which the packaging itself must correspond to the special qualities of the contents.

Perfect surfaces for every application

Nobody knows better than Tobias Kirst just how varied the demands on surfaces have become. He heads the Surface Technology and Chemistry (STC) department of the Technology, Innovation and Quality division at Rasselstein. His mission:

Photos: Rainer Kaysers

Anna Adams continuously analyzes the quality of products and processes at Rasselstein with the aim of improving and adapting them promptly.

to optimize all aspects of packaging steel surfaces so that customers receive highly functional and safe products. That is easier said than done. Kirst: "Every application has different product requirements in terms of corrosion, adhesion, sliding friction, formability or weldability."

In addition to individual customer requirements, new regulatory requirements such as the EU's REACH regulation are proving to be a challenge for the industry, and thus also for the production of tin plate. It was enacted to protect health and the environment from the risks posed by chemicals. As a result, thyssenkrupp Rasselstein has introduced various process innovations to the market – also thanks to the STC.

One department, five expert teams

Gearing the company up for the future in the face of ongoing changes and a volatile market situation is a Herculean task that also occupies Kirst and his team. The focus is currently on sustainability issues in addition to current topics such as chrome (VI)-free packaging steel and thickness reductions. Rasselstein's packaging steel has become less CO_2-intensive over recent years. The company is also promoting the use of sustainable auxiliary and operating materials. But that's not all: the company has established unique internal structures in recent years to strategically develop Rasselstein's surface expertise with a view to the future. This means that the various areas of responsibility can be covered precisely: from analyses of inorganic and organic substances to issues relating to paints and films, wastewater treatment, quality control, and production support at the customer's premises, through to compliance with regulations.

Internal expertise increases efficiency

In the various laboratories, the different department clusters are continuously developing new findings and innovations that benefit both the company and its customers. "Our experts are involved in all relevant processes: from developing new products and optimizing existing surfaces to the certification of our tin plate," explains Kirst.

Having a structure that makes the company fully capable of acting in this way saves valuable time: production at Rasselstein runs 365 days a year, so the company must be able to react to situations or new requirements at short notice and round the clock – even at night or at weekends. The solutions developed in this way sometimes have far-reaching effects on processes and products – but often remain hidden, especially to the uninitiated. "Regrettably, the end customer hardly notices whether a food can is slightly thinner or weighs a little less than before – but it does make a big difference for our customers in production," says Tobias Kirst.

Web

Further information:
Development and research at Rasselstein

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Straightening out the problems

To ensure that steel coils can be optimally processed along the process chain in the processing industry, the system technology parameters need to be finely tweaked from time to time. For many years now at thyssenkrupp Steel, senior engineer Frank Bosch has specialized in this task, among others, and he is on hand with his knowledge and expertise to provide advice and support. This also includes further training measures and workshops at the customer's premises.

Text Jan Ritterbach

Frank Bosch, senior engineer at thyssenkrupp Steel, at hot-dip galvanizing line 10.

> “We are demonstrating not only our technical capabilities but also the distinctive service mentality that characterizes us as thyssenkrupp Steel.”

Frank Bosch is on hand when customers face technical challenges during the processing of steel coils from thyssenkrupp Steel. The 60-year-old senior engineer from the Downstream Operations division works in the Technical Process Performance department and one of his tasks is to function as the point of contact when it comes to flatness if problems are encountered with the interaction of materials and plant technology at the customer's site.

Coils remember their shape

“We wind steel strips into coils using a coiler so that they can be transported to customers,” explains Bosch. However, the thicker and harder the material, the more force is required to wind the strip. “The steel undergoes deformation during this process, and the coiled steel strip ‘remembers’ this.”

To compensate for this deformation, almost every steel processing plant has at least one straightening machine in the process entry zone. It levels the supplied steel strip using

Photos: Rainer Kaysers

several straightening rolls so that it can be processed further with optimum results, and all products manufactured from it will be as flat as possible. In practice, however, this process does not always run smoothly. "We then receive a message from our Technical Customer Service department and we take another close look at things on the plant floor," explains Bosch.

Complexity requires special expertise

Two aspects can be decisive here: on the one hand, the steel strip itself may exhibit a deformation that goes beyond the natural, process-related longitudinal curve. This can be, for example, a longitudinal curve that bends away from the coil, or edge waves. Secondly, straightening machines are extremely complex systems that differ from manufacturer to manufacturer in terms of their control system, functions, and capabilities. Depending on the material to be leveled, it can be very difficult to find and define the appropriate parameter adjustments for optimum processing.

But regardless of whether the cause is technical or related to the material, Frank Bosch's vast experience has enabled him to solve almost every challenge, no matter how complicated, and thus avoid complaints. The trained electrical engineer draws on his extensive expertise in implementing the straightening processes, which he has acquired over the years thanks to his highly developed curiosity and creative inventiveness. One of the fruits of his labors is a fully automatic straightening machine control system, which is currently being patented for thyssenkrupp Steel.

Troubleshooting leads to further training

Irrespective of the manufacturer and model type, Frank Bosch puts the specialist knowledge he has acquired to good use not only in quickly solving problems with the customer's straightening machines, but also for training the finishing teams in the complex tasks involved in straightening materials. From Germany to Eastern Europe and Asia: Frank Bosch is always on hand when it comes to solving problems on the plant floor at customers' premises and sharing his wealth of knowledge with colleagues. This was also recently the case at the Fischerstahl Steel Service Center in Netphen, North Rhine-Westphalia, where the technician helped to eliminate a strip flatness problem on steel panels for electrical cabinets. He achieved this by making new settings on the straightening machine and introducing a new test procedure. Bosch then held two workshops with the experts from Fischerstahl, which will enable the team to solve similar challenges even more effectively in the future.

Bosch's work has always been highly appreciated. One important reason for this is the character of this creative mind: despite all the seriousness required, this enthusiast for steel always maintains a relaxed attitude and never loses his sense of enjoyment in the work. "It goes without saying that our primary goal is to get everything up and running as quickly as possible for the customer and to avoid complaints," says Bosch, a born-and-bred Rheinhausen man, emphasizing that to be really perceived as a competent problem solver what is called for is direct and personal contact with people, and showing them respect: "We are thus demonstrating not only our technical capabilities but also the distinctive service mentality that characterizes us as thyssenkrupp Steel."

Contact

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#nextgenerationsteel
Sustainable steel production
that takes responsibility.
thyssenkrupp Steel's Duisburg production site has earned ResponsibleSteel™ certification, highlighting our commitment to the highest standards in social responsibility, environmental stewardship, and corporate governance. With the construction of our hydrogen-ready direct reduction plant with innovative melters, we are taking a decisive step toward a sustainable and climate-neutral future. nextgenerationsteel.com
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