

The customer magazine from ThyssenKrupp Steel Europe

compact

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2/2013

Driving ahead with new ideas

Investments secure innovations

Good further development
InCar[®]*plus* for greater efficiency

Trend from Milan
New process for hardening steel strip

ThyssenKrupp Steel Europe
Thinking the future of steel



ThyssenKrupp

compact

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ThyssenKrupp Steel Europe has invested about 5 billion euros in its systems and innovations over the past ten years. At present, 30 million euros is being channeled into quality and performance by Hoesch Hohenlimburg. To keep pace with the future and the global economy, the steel experts are banking on open dialog with customers and decision-makers – in regular innovation forums and public campaigns. You can read more about this in our title story from page 6 onwards.

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“Together with our customers, we are creating varied impulses in the market.”



Dear readers, valued customers,

The European steel industry continues to find itself in a tricky economic situation. Raw material costs remain high and volatile, while the spare capacity in production systems is imposing a burden on steel manufacturers and processors. Furthermore, energy-intensive industries can expect to face further charges resulting from political decisions in the course of the turnaround in energy policy. Many market players are unable to judge how this will play out over the coming months. We are looking ahead with a certain amount of confidence: The second half of the year has the potential to be better than was expected. If, as forecast by leading economic research institutes, the economic recovery continues or even gathers pace in Germany, this ought to lead immediately to a palpable upswing in the steel market.

ThyssenKrupp Steel Europe is facing up to the varied challenges and working consistently on implementing its strategic reorientation. The building blocks in achieving a sustainable future for our company take the form of investments and innovations – these are two important levers for growth

and differentiation that are rightly demanded time and time again by our customers, with their eye on the path they will take with us in the future. For example, we are continuously working to optimize our products and production technologies so that we can continue to prosper in the ever more pressurized competitive environment, while remaining reliable and high-performance partners for our customers.

You can read our title story to see for yourself the wide range of impulses that we are bringing to bear on our shared market: over the past ten years, we have invested about 5 billion euros in Europe in our systems and in new material solutions. A current example: our subsidiary Hoesch Hohenlimburg has channeled about 30 million euros into further optimizing its product properties and expanding its range of grades. In this way, we feel we are well prepared to respond to our customers' growing requirements deriving from innovative lightweight solutions for the automotive industry, for example. In the next step of our Group-wide InCar[®]plus research project, innovations and technical progress also represent key factors by means

of which we will further build on our position as a partner for the automotive industry.

We at ThyssenKrupp Steel Europe are convinced that investments and innovations are essential in order to safeguard the future of our company. The fundamental prerequisite for this is cooperation with you, our customers, in a spirit of partnership. After all, it is only by working together that we are strong and we will be able to meet the challenges of the market in an effective way. In this regard, I hope you enjoy reading our new issue of *compact*.

Yours,

Thilo Lutz

Member of the Executive Board responsible for sales
ThyssenKrupp Steel Europe

From the field to the can: sun-ripened tomatoes can be enjoyed for a long time

Sweet, aromatic, healthy – the tomato is a real hit in the kitchen. Summertime is the main harvest period: by then, the umbelliferous plant from Latin America has absorbed enough light to convert it into sweetness. Freshly picked, the ‘golden apple’ can be kept for a maximum of 14 days. Packed in a can, however, this joyful berry retains its quality for years – and with higher amounts of vitamins.

Whether round or elongated, small or large – the Franzese Group for example harvests different varieties of tomatoes from the sun-kissed slopes of Mount Vesuvius, and conserves them. Among other containers, the southern Italian company uses food cans made from tinplate supplied by ThyssenKrupp Rasselstein. This packaging steel displays the tightest tolerances for strength, yield strength, elongation and tin coating thickness. Manufactured from recyclable steel produced by ThyssenKrupp Steel Europe, the tinplate is also sustainable. The material from Andernach withstands the demanding conditions during filling, sterilization, transport and storage without any difficulty. In this way, the red berries can seduce the palettes of tomato fans even during the winter months in the form of passata, soups and sauces.

Dr. Daria Szygalski

Photo: Rainer Schröder

www.thyssenkrupp-rasselstein.com



Scenario megacity 2030

Investments in innovations safeguard our future



Gazing into the crystal ball is old hat. Nowadays, researchers and developers (R&D) think in scenarios in order to keep pace with the future and the global economy. The requirement is huge. Germany is only in 6th place in the current innovation index. Significant investments are required in order to remain competitive and to continue being one of the key industrial locations. Over the past ten years, ThyssenKrupp Steel Europe has invested about 5 billion euros in systems and new products.

For researchers and developers, the year 2020 is already right round the corner; for them the future starts in 2030. Of course, experts can never predict with certainty, “But we can start making plans,” says Dr. Lothar Patberg from the Innovation department at ThyssenKrupp Steel Europe. “One of the ways we do this is to think in scenarios, taking a systematic look at how the world is developing and how we can service this trend technologically.” One important scenario for the R&D engineers at present is megacities with more than ten million inhabitants.

Today, about half of the world’s population lives in cities, but this is set to increase to two thirds by 2030 – and the tendency is rising. “These are true laboratories of progress for sustainable and efficient solutions, for example with regard to climate, energy, traffic and buildings. ThyssenKrupp Steel Europe has already thought out specific ideas for this.”

Germany needs to invest

However, Germany is not investing strongly enough: According to the infrastructure rank-



Tomorrow's megacities will be built on intelligent technologies and materials, innovative components, modules and systems. ThyssenKrupp Steel Europe is making an important contribution to this.

Global competition is increasing

Today, Germany is one of the most competitive industrial locations in the world. It is the world's fifth largest economy after Japan, India, China and the USA. According to forecasts, however, the global economy is set to undergo a radical change. The OECD thinks that Germany will be in tenth place in the rankings by 2060. The country is expected to be overtaken economically by developing nations such as Brazil, Mexico and Indonesia. This is because the young and ambitious countries are more prepared to experiment, and implement scenarios quickly and flexibly. First and foremost Asia: A study by the Roland Berger consultancy shows that companies in China and India invested about 186 billion euros in research and development during the past year – this corresponds to 20 percent of the capital used by companies worldwide in inventing new products.

ing by the Global Economic Forum, the Federal Republic is currently running far below the EU average when it comes to public investments.

The innovation indicator from the German Institute for Economic Research is a comparison of the leading 17 industrial nations, and indicates that Germany in fact fell by two places from last year to this, and is currently in sixth place. To put it briefly: there is need for action.

The Federal Government is promoting progress with its High-tech Strategy. It is clearly prioritizing research, development and production of innovative production technologies. A study by the "Research Union Economy – Science" consultancy sees great potential in the "Industry 4.0" future project. According to this, data-based and intelligent machines, warehouse systems and production equipment will exchange information independently. This means it will only be possi-

ble to maintain standards if Germany succeeds in remaining innovative and competitive.

About 5 billion euros in ten years

Competitiveness, innovation index, High-tech Strategy and megacities – all these are based on intelligent technologies and materials, innovative components, modules and systems. ThyssenKrupp Steel Europe is making its own important contribution to these: The steel company based in Duisburg is consistently investing in its systems. This has amounted to about 5 billion euros over the past ten years. "Our customers expect us to deliver the most modern steels and steel technologies for lightweight construction as well as materials that have a high load capacity, are extremely resistant to wear and can withstand extreme stresses. At the same time, there are increasing demands for greater convenience and safety as well as a longer service life from products," explains Norman Baltrusch from the Controlling de-

partment. For this purpose, about 500 million euros have been invested in the hot strip lines at Bochum and Duisburg. At present, about 30 million euros are being channeled into the modernization of the medium-wide strip line at Hoesch Hohenlimburg. The objective is to increase the efficiency of the systems and the quality of the products they produce. "However," says Baltrusch, "we also need to consider internal Group requirements with regard to efficiency and sustainability of investment projects."

Tomorrow's world

Tomorrow's world will be fundamentally different from that of today; that much is clear even without gazing into the crystal ball. There are many scenarios for it, including at ThyssenKrupp Steel Europe. To turn them into reality, it is necessary to invest in them because investments in innovations safeguard our future – everything else merely remains a scenario.

Turning vision into reality

Hoesch Hohenlimburg is investing in quality and performance



At Hoesch Hohenlimburg, they are turning vision into reality. The specialist for hot-rolled strip steel from Hagen has invested twice over in meeting the mobility requirements of the future – in better product quality and delivery performance.

When people at Hoesch Hohenlimburg talk about Miba 2015, they are referring to one of the most significant modernizations ever to take place in the company's history. Over the past five years, the company in Hagen has succeeded in modernizing its medium-wide strip line completely for a total investment of 30 million euros, thereby gearing up to meet the requirements on the material of the future. It has been operating since the start of the year. "We had the clear vision of a highly modern system," explains Frank Pozun, the head of the hot strip mill. "Our goal was to make our site fit for long-term production, to improve qualities and to increase our sales volumes by 25 percent by 2015 – to 1.3 million metric tons per year.

Trends in view

Demand for medium-wide strip from Hohenlimburg is great – and so are the requirements placed on it. Market analyses were

conducted, studies were undertaken of leading rolling mill manufacturers and direct conversations were held with customers. "We asked ourselves: Where do our customers want to be?" explains Pozun. "This was the basis for the current conversion of our production facility."

The company based in Westphalia supplies about 80 percent of its medium-wide strip to automotive component suppliers, either directly or indirectly via the cold rolling industry; the product is then used for further processing into seat rails, brake pistons and gearbox components, for example. "Market surveys showed a clear shift in the portfolio towards a higher-value range of grades," he explains, "as well as towards tighter tolerances in thicknesses and widths." In addition, the material must be extremely strong at the same time as being easy to form so as to guarantee safety and permit greater use of lightweight construction in vehicles. This had specific consequences for the



Modernization at a glance

Company:	Hoesch Hohenlimburg GmbH, Hagen, Westphalia
Product:	Hot-rolled strip steel
Main customers:	Cold rolling industry, automotive and components industries
Investment volume:	30 million euros
Measures:	Modernization of the rolling mill, expansion of the logistics pathway
Time period:	2008 First construction phase May 2012 Opening of the new logistics pathway January 2013 Startup of the new medium-wide strip line
Result:	Increased product quality, wider portfolio, better delivery performance, increased production volume up to 1.3 million metric tons every year

subsidiary of ThyssenKrupp Steel Europe stable: high-strength hot strip with thicknesses from 1.5 to 16 mm and widths up to 720 mm must be manufactured in a reliable process, combined with achieving short delivery lead times.

Entirely modernized

No sooner said than done. During the summer and winter shutdowns, the hot rolling company completely renovated its rolling mill that had been taken into operation in 1955. "The modernization concerned brain and brawn," says Pozun, explaining the measure. By this, he means the entire technology and mechanical systems. For example, the process computer installed in 2009 now calculates roll settings, speeds and cooling strategies completely automatically from the roughing train through to the cooling section. The line operator has an overview from the newly designed control platform – by means of a uniform operator

interface, and with the comfort of noise protection and air conditioning. All this takes place while sections of hot steel strip are shooting through the line every 20 seconds, at temperatures of 1,250 degrees Celsius. Equipped with high-tech drive technology, the seven roll stands are more stable, less resource-intensive and offer greater performance. "Today, for example, we can exert even more specific influence on the section and achieve strip with a more even shape, thickness and strength," explains Pozun, showing his pride as an experienced hot strip specialist. "We are the only rolling mill for medium-wide strip in the world that is equipped with technology such as this, and we can already achieve the required dimensions today."

Expansion of the logistics pathway

Hoesch Hohenlimburg itself is more mobile than ever before so as to provide medium-wide strip to the automotive industry of the

future. The medium-wide strip specialists have had an expanded logistics pathway since May 2012. This expansion was by no means easy, as the mill is hemmed in by residential properties, a railway line and the River Lenne, but it was a necessary step as Pozun explains: "More than half of our orders are for small deliveries of one or two coils per customer. As a result, we need to be able to deliver flexibly, and just-in-time as well." About 175 trucks leave the site every day, meaning that the traffic flows around the site as if on a roundabout. The trend is growing: the Hagen-based company is ahead of its time with a new medium-wide strip line and expanded logistics pathway. They can already manufacture and deliver the required qualities and quantities of 1.3 million metric tons. This means the Miba 2015 vision has already become a reality in 2013.

Claudia Freigang

www.hoesch-hohenlimburg.de

Innovations for the day after tomorrow

“Our work provides impulses for future strategy”

Detecting trends can be decisive for a company's future. In order to sniff out important developments and offer appropriate solutions, ThyssenKrupp Steel Europe relies on an innovation team in the Research & Development (R&D) department. Even today, impulses from the future researchers are already influencing the strategy and product range of the Duisburg steel manufacturer, and are thereby sustainably safeguarding the success of client companies.

Dr. Patberg, your team gets to grips with the future: Imagine we are in 2020. How do we live and how do we move around?

As far as we are concerned, that is almost like tomorrow, our planning is already proceeding at a faster rate. Even today, it is clear that the topic of sustainability will be unavoidable by the end of this decade. Buildings, for example, will generate more energy than they consume. And the construction industry will be making increasing use of reusable materials – by which I mean materials that can be recycled an unlimited number of times, such as steel. In addition, the principle of “using instead of owning” will significantly change the area of mobility: car sharing will become even more popular. This means particularly robust and durable cars will be required. And this in turn places different requirements on our materials.

As a result, the future researcher prefers to look ahead to 2030 ...

Yes, we are particularly interested in longer-term developments. Even today, there is a trend for no internal combustion engines to be permitted to enter the centers of growing megacities any longer. New steel designs will be required for new forms of mobility such as modular movement systems. This is where we believe the steel and hybrid materials that we have been devel-

oping continuously for years now have a bright future.

We are also expecting major changes in energy technology which will go hand-in-hand with regenerative energies such as even larger wind turbines on land. At the same time, the requirement for transporting substance flows – such as gases – will increase considerably. In terms of the requirements on materials, this means that combinations of wear resistance and toughness will be called for.

As you can see, whether it comes to mobility or energy technology, we have got to make a start now in order to be able to accompany developments of this kind with a suitable material and intelligent overall solutions.

These are already specific ideas. How do you identify these important technological developments?

We use a wide variety of public sources and we are continuously expanding our expert network. In addition to international scientific publications, the Internet represents another source of interesting technological developments. We can keep a close eye on research thanks to what we refer to as a small scouting office at our partner university, the RWTH Aachen. Once we have identi-

fied new topics, we discuss them internally and externally with experts as well as interested customers.

And how do you select the developments that ThyssenKrupp Steel Europe will pursue?

We put a lot of emphasis on systemic innovation. At the heart, this involves not only creatively generating ideas but also analyzing the benefits from the customer's perspective, as

well as conducting a cost and expertise study. The most exciting ideas give rise to highly promising projects which we rapidly put into pre-development.

So, does your work also have effects on how ThyssenKrupp Steel Europe will produce the steel of the future?

Quite so, because the topic of production is one of our important areas. For example, it is clear that we will have to make our production more flexible. Similarly to as described in the "Industry 4.0" future project by the Research Union as part of the German government's High-tech Strategy, we will have to develop it into a system that can almost organize itself. The potential of the so-called digital factory will become highly important. In addition, we are currently examining to what extent our substance flows can be used even more sensibly across industries, and whether it might be possible to create storage functions in order to stabilize the energy networks.

And yes, our work thus provides impulses for the future strategy of the company.

What does the customer gain from a digitized steel company?

In future, the customer will benefit from improved flexibility, quality and deadline keeping. In addition, customers can expect products that are better oriented towards needs and more targeted as a result of shorter innovation cycles.

The interview was conducted by
Dr. Daria Szygalski



Dr. Lothar Patberg (r.) and his innovation team from the R&D department look into the future on a daily basis. They have already come up with the first ideas for new products and modern steel manufacture for the year 2030.

Finding ideas made easy

Innovation forum offers space for visions

Plenty of room for thought games was provided by the 2nd Innovation Forum organized by the ThyssenKrupp Stahl-Service-Center at the ThyssenKrupp Quarter in Essen last May. About 120 innovative thinkers from the steel industry came to hear exciting lectures and then exchanged views about future-oriented topics. "A complete success," agreed all the participants.



The Innovation Forum of the ThyssenKrupp Stahl-Service-Center is an ideal platform for discussions with the customer. This is where topics of the future can be discussed and first ideas generated with regard to solutions.

"Trends in steel – where to?" was the central question posed at the 2nd Innovation Forum of the ThyssenKrupp Stahl-Service-Center. Together with its customers and its starting material supplier, ThyssenKrupp Steel Europe, the international processing specialist was inspired – by innovative steels with a wide variety of applications in modern societies through to success concepts for future-oriented company management.

Exchange is important

"Today, it is more important than ever to talk to our business partners about future topics," explains Managing Director Marcus Wöhl, describing the importance of such talking shops. "In this way, we can keep pace, find out what is wanted and thus start thinking about solutions in advance. Consequently, the Innovation Forum is an ideal platform for this."

The concept fits

The concept was inaugurated last year, and has great potential: "Our objective throughout is to develop visions together with our customers and suppliers." However, only a vanishingly small percentage of visions mature into marketable innovations, which means that the ThyssenKrupp Stahl-Service-Center is already planning its next forum in order to generate more: "The interest in coming up with ideas through joint dialog and successfully driving them forwards is very great."

Christiane Hoch-Baumann

www.thyssenkrupp-stahl-service-center.com

Balancing act for the steel industry

Campaigns strengthen the material

Steel is the basic material and is very popular. To make sure this stays that way, the German Steel Federation has been committing itself strongly to the competitiveness of the steel industry in Germany for two years now, and is continuing a major publicity campaign entitled “The future starts with steel”.

Every year, the German steel industry supplies about 450 million metric tons of crude steel, representing the basic material from which cars, buildings and machines are made. The industry does not stop even when confronted by global trends. Steel is supporting the turnaround in energy policy through its use in electric motors, wind turbines and solar power plants.

The fight for competitiveness

In view of rising energy prices compared to other economic regions and special burdens imposed by climate-control policy, German steel companies are fighting to maintain their international competitiveness. “The implementation of the turnaround in energy policy and the growing need for finance in order to expand renewable energies represent a balancing act,” emphasizes Hans Jürgen Kerkhoff,

President of the German Steel Federation. The latest campaign in the steel offensive draws attention to this: the high-wire act in the Berlin government quarter. By balancing on the steel cable, steel companies put their problematic situation into the public eye. “Just like the steeplechase in 2012, these are effective images for the media,” explains Josefine Sarfert, Manager Strategic Marketing/Support at ThyssenKrupp Steel Europe, and member of the Advisory Board of the Steel Information Center. “By these means, we are drawing public attention to the issues facing our industry, and increasing their emotional impact at the same time.”

Sustainably strengthening the steel industry

In direct dialog with movers and shakers, the German Steel Federation is also patently set-

ting the agenda for strengthening the industry in the long term. At the same time, it is clear that the turnaround in energy policy harbors both opportunities and risks. “Germany has an excellent industrial network, one that is unmatched in almost any other country. However, we must be careful that actions by the government do not become the straw that breaks the camel’s back,” emphasizes Dr. Herbert Eichelkraut, Member of the Executive Board of ThyssenKrupp Steel Europe, speaking at the regional conference in Düsseldorf. In order to play an active role in shaping the turnaround as an industry which makes intensive use of energy, Kerkhoff recently demanded the following at the Berlin Steel Dialog: “The steel industry is expecting a clear signal from politicians in order to have greater security in planning and investment.” Certainty, so that the future can also continue to start with steel.

Claudia Freigang

By means of the high-wire act in the Berlin government quarter, the German Steel Federation drew attention to the burdens that the steel industry has to put up with in Germany.



www.stahl-info.de

The future starts with steel

- 55 percent of productive industry in Germany makes intensive use of steel
- Steel is 100 percent recyclable without any loss in quality
- Products made from steel save six times as much CO₂ as they generate
- Steel makes car bodies up to 25 percent lighter: that saves fuel
- Steel is a popular material: in Europe, 100 steel grades are developed further every year, and up to 30 new ones are created

In conversation with Prof. Dr. Hans-Jörg Bullinger “We need breakthrough innovations in production”



Germany is facing serious competition as a country of innovation. Countries in Asia, Eastern Europe or Latin America already have significant expertise in order to conduct their own research and development successfully. Prof. Dr. Hans-Jörg Bullinger, Chairman of the Research Union which is a feature of the German government's High-tech Strategy 2020, made the following statement in an interview with *compact*: “Investments in breakthrough innovations in production can secure Germany's future as an industrial location.”

Professor Bullinger, what can and must German industry do differently and better in order to be well equipped for the future in spite of the high level of international competition?

During past decades, the industry has undergone enormous development – from automation of the material flow with mechanical means through to automation of the information flow when computer-aided design and computer-integrated manufacturing came into use. Now, a certain amount of “applied artificial intelligence” is being added to this way of controlling procedures. This

means machines and systems are doing some of the thinking themselves by evaluating corresponding data, meaning that people can now only make very few mistakes when it comes to deciding how machines and material flows should be controlled.

The Research Union has presented the “Industry 4.0” future project. Does it do what it says on the can?

Yes, “Industry 4.0” is analogous to Web 2.0 and means that we need more productive manufacturing processes that are much

more intensively networked, beyond the limits of our own companies. Business has realized that we have got to achieve breakthrough innovations in production. I think this can be done in Germany: we have got the production processes under control. And we have also got the qualification for building up the expertise that we will need for control.

You have introduced the concept of the “smart factory”. What is that?

The smart factory is a highly networked factory that is controlled by computer systems, and which also responds to requirements from the world around it. This will mean that

requirement in which the economy and society are dependent on progress. This approach has also been accepted by the EU research strategy in the form of “Grand Challenges”. These missions are climate and energy, health and nutrition, sustainable mobility, IT communication and safety & security. To put it simply: In the past, we did research and then looked for possible users. Today, we research along the lines where all societies will encounter problems in the future.

How can a company like ThyssenKrupp Steel Europe remain competitive?

The basic concept in the High-tech Strategy was that we need to work our way through the five missions and apply them with different intensity according to the product in order to remain ahead in future. It goes without saying that a product nowadays has to be energy-efficient, both in its manufacture and subsequently in application. With steel, this means process optimization during the manufacture of the material and lightweight construction in the finished product. In addition, there is networked production, the topic of safety & security and, finally, logistics.

What role do investments play in this?

Without investments in research and development, in building up networked production and new manufacturing processes, neither Germany as a whole nor an internationally leading German company such as ThyssenKrupp Steel Europe will be able to remain successful in the long term. Readiness to make investments is the key to any successful strategy.

The conversation was conducted by Dr. Bettina Wiess,
financial journalist

Prof. Dr. Hans-Jörg Bullinger is described as “Mr. Innovation” and a “key figure for Germany’s future competitiveness”. The committed scientist and research manager is the Chairman of the Research Union, and has been the President of the Fraunhofer-Gesellschaft for ten years. Fraunhofer is the largest organization for applied research in Europe, with 66 institutes, about 22,000 employees and an annual budget of 1.9 billion euros.

we will have product models such as those in the automotive industry already programmed in the computer in future, that the data models will be distributed between manufacturers and suppliers so they can be tried out, then this data will be used for controlling production. The experience gained from the computers will enable us to know precisely what tools will be needed in which tasks. As a result, production processes will not just be faster and more productive, the quality will also be safeguarded better. I could imagine us exporting complete factories from Germany as products in the future, not just production lines, but also the logistics, service and the entire business models for them.

The Research Union for Germany is on board in the High-tech Strategy 2020. What is this strategy about?

Germany’s prosperity is greatly dependent on research-intensive wealth creation. In the national High-tech Strategy, we have agreed on overarching missions, on five areas of

NewsFlash



Obituary

ThyssenKrupp mourns the passing of Berthold Beitz. At the end of July, the honorary Chairman of the ThyssenKrupp Supervisory Board and Head of the Krupp Foundation died, aged 99. For four decades, he significantly shaped and accompanied the company's development. "With the passing of Berthold Beitz, we have lost an outstanding personality," emphasizes Prof. Dr. Ulrich Lehner, Chairman of the Supervisory Board of ThyssenKrupp.

Award as top supplier

ThyssenKrupp Steel Europe has received the award as "Supplier of the Year". In the "Raw Materials" category, the Duisburg steel experts succeeded in impressing its customer Kirchhoff Automotive in all regards – both as a research and development partner and through excellent delivery reliability. The close cooperation is revealed particularly in the area of hot forming: alongside an intensive exchange of experience, critical areas of forming were ascertained together. In addition, the two companies tested various components and examined their crash performance. The international components supplier, Kirchhoff Automotive, gives this award annually to its delivery partners, thereby acknowledging their outstanding performance with regard to quality, logistics and service. The ThyssenKrupp Steel Europe Executive Board member, Thilo Lutz, received the award on the company's behalf at the end of May.

www.kirchhoff-gruppe.de

Multi-recycling makes steel even greener

The ecological balance sheet for steel is even better than had been previously assumed. This is revealed by a new study from Berlin Technical University. For the first time, scientists in the specialty

of sustainable engineering applied what is called the multi-recycling approach which takes account of all the lifecycles of steel – manufacturing, disposal and repeated recycling. "The CO₂ emissions from manufacturing one metric ton of steel are about 50 percent less than out-and-out primary production of steel when multi-recycling is practiced over many lifecycles," says Prof. Dr. Matthias Finkbeiner, the Head of the study, summing up the results. Steel is 100 percent recyclable, and retains its high quality despite being recycled many times over.

www.stahl-online.de/english

Extensive modernization: new converters in Duisburg

ThyssenKrupp Steel Europe in Duisburg is investing in modern systems: at the end of September, a new converter will start operation in the oxygen steel mill 1. The reason for the modernization is natural wear and tear to the former steel container in which steel is obtained from pig iron. 11 meters high, 12 meters wide and weighing more than 500 metric tons, the new converter is one of the largest in the world. Its modernization required significant logistical undertakings: the components were supplied to Duisburg by ship and with transporters, while the installation was handled by plant specialists from ThyssenKrupp MillServices & Systems. And the next modernization has already been planned in the calendar: the other converter at the oxygen steel mill 1 will be renewed in 2014.

WorldMediaFestival: Award for new corporate film

ThyssenKrupp Steel Europe won the intermedia-globe Silver Award for its corporate film, "We live steel". The award was presented in Hamburg during this year's WorldMediaFestival. With this award, the specialist jury acknowledges outstanding communication solutions at international level, including in the Corporate Film category. Not only quality and creativity counts, but also and above all addressing the specific target group. And this is precisely what the contribution from the steel manufacturer does: the film can be assembled on an individual basis from individual modules dealing with topics such as environment, automotive and people in the company. This means it meets the interests of the particular target group – whether this be customers, stakeholders or students. The film modules can be seen on the Internet at www.thyssenkrupp-steel-europe.com/film/en and are also available to

order on DVD from Strategic Marketing: send an e-mail to info.steel-europe@thyssenkrupp.com.

Flyer makes it easier to get to grips with standards

Since July, a flyer from ThyssenKrupp Steel Europe has been available with information about the steel grades in the new VDA 239-100. The current material data sheet issued by the German Association of the Automotive Industry (VDA) is intended to reduce the variety of standards and define specifications which will be uniform throughout the world. With the new brochure, the steel experts who already offer the VDA grades are providing significant assistance in selecting suitable materials. Automotive customers and suppliers can refer to it for an insight of what the familiar grades are called according to the new code of practice, allowing them to find the most similar technical grade to match their former orders. The flyer can be requested by sending an e-mail to broschueren.tkse@thyssenkrupp.com.

Heinrich Schütt celebrates 50 years of cooperation

The Heinrich Schütt company and ThyssenKrupp Steel Europe can look back on half a century of successful cooperation this year. From hot wide strip and cold thin sheet through to hot-dip galvanized thin sheets and special products – ThyssenKrupp Steel Europe supplies the entire range of flat steel products to the Hanseatic specialist for steel trading and service centers. In its Gelsenkirchen branch, the traditional company founded in 1871 in Hamburg processes large quantities of flat steel from Duisburg. ThyssenKrupp Steel Europe is one of its main suppliers. Heinrich Schütt also has a branch in Neubrandenburg.

www.heinrich-schuetz.de

TechTruck back on tour

The TechTruck from ThyssenKrupp is continuing its tour as part of the Group-wide InTruck® initiative. It is visiting manufacturers of commercial vehicles all over Europe, showing off the wide range of optimization potential available to the sector. After stops in Sweden, it will be making further visits to Germany, the Netherlands and Italy. With InTruck®, ThyssenKrupp is combining its competences in the commercial vehicle industry in order to offer new potential solutions. www.thyssenkrupp-steel-europe.com/de/portraet/innovation_technologie/intruck.jsp

High-strength steels reliably formed

Westfalia Presstechnik develops a new process



Westfalia Presstechnik and ThyssenKrupp Steel Europe are testing how high-strength steels can be safely processed in cars. It will be possible to save about 10 to 15 percent weight as a result in the seat area alone.

A car is only as light as the sum of its individual parts. The forming experts at Westfalia Presstechnik are also aware of this. They specialize in processing high-strength steels for all aspects of the car seat as well as chassis and body components. Together with ThyssenKrupp Steel Europe, they are researching how challenging grades can be processed safely, down to the last detail.

The use of high-strength steels is still subject to restrictions in modern automotive production. As a result, Westfalia Presstechnik based in Crimmitschau is pushing ahead with processing of the material: "Lightweight construction is the driving factor," explains CEO Mathias Schwarzendahl. "We take a look at what materials are being used in parts such as roof frames or seat components, and where the trend is headed."

Pushing it to the limits together

A current research project initiated by the Technical Customer Support department at ThyssenKrupp Steel Europe: Jointly, the steel and press experts are developing a process which will make it possible to incorporate threaded passages for bolts reliably in components made from high-

strength steels. "The process functions excellently with conventional grades," says Thorsten Beier, application technician in the Research and Development department at ThyssenKrupp Steel Europe, clarifying the situation. "But there is an increased risk of cracks on the component as the strength increases."

Conventional grades are not enough for both companies: they have set their sights on strengths of up to 800 megapascals for thread pass-throughs with a small diameter – almost twice as strong as the steels previously used in this area. "We are testing where the absolute limits lie in terms of material loading," explains Jens Mogdans, Managing Director for Sales and Marketing at Westfalia Presstechnik.

Implementing virtual solutions

A project that demands three-fold knowledge simultaneously: In Dortmund, Beier is using 3D computer models to test drawing radii, alternative steel grades and material thicknesses. Once the virtual solution has been found, the ThyssenKrupp Stahl-Service-Center in Radebeul provides specially prepared slit strip. About 100 kilometers further down the road, the press experts at Westphalia carry out the tests. This is because the development partners have by no means reached the limits of their research, as Achim Peuster, Technical Customer Consultant at ThyssenKrupp Steel Europe, is aware: "Once we have finished developing the process, we will then move on to optimizing the materials."

Claudia Freigang

www.westfalia-group.com

Major efficiency gain

InCar[®] *plus* offers added value for automotive manufacturers

InCar[®] becomes InCar[®] *plus*. The successful research project from ThyssenKrupp is being continued and extended to cover new topics. The motto: Solutions for automotive efficiency. In more than 30 projects, the development of about 40 individual solutions has started in the areas of powertrain, chassis and steering as well as body. Attention is focusing on environmentally friendly solutions relating to the technology trends of energy efficiency, electric mobility and lightweight construction.



InCar[®] *plus*

InCar[®] *plus*, the successful research project by ThyssenKrupp, is delivering a major contribution to automotive efficiency.

InCar[®] *plus* offers automotive manufacturers clear added value. The successful research project from ThyssenKrupp is making a major contribution to automotive efficiency – even with regard to ecological aspects. “Whether it is a matter of weight, efficiency, sustainability or function: In at least one point, each innovation will be significantly and demonstrably in advance of the current state of the art,” announces project leader Dr. Axel Grünekle. In one year, the complete results of more than 40 individual solutions should be in place, most of them in the form of functional hardware. “The objective is not just to validate our work,” he points out. “Above all, our customers will benefit because the solutions can thus be integrated particularly rapidly into their existing developments.”

InCar[®] *plus*: more than just a continuation

InCar[®] *plus* does more than simply continue the previous InCar[®] project. “The plus stands for the strategic further development of the Group. The need for more is satisfied in a better way – better for the customer and for the environment,” explains Grünekle. With InCar[®] *plus*, ThyssenKrupp is increasingly presenting itself as innovative materials supplier, technology and development partner for the automotive industry. “We are offering tailor-made solutions for various vehicle segments which are oriented towards the particular customer requirements,” he says, underlining the added value of the Group-wide research project.

Powertrain: Reducing fuel consumption and emissions

Using resources efficiently with optimized powertrains: ThyssenKrupp is setting new accents with progress in the valve timing mechanism and crank drive. “The internal combustion engine remains the dominant form of propulsion in automobiles, so it must be made more efficient in order to reduce fuel consumption and thus emissions,” observes sub-project leader Claudius Rath. “The consistent further development of cam shifting technology is making a contribution to this.” Furthermore, innovative solutions are being developed for all aspects of electric drives.

The four project leaders and their teams are looking for solutions to deliver more automotive efficiency: Markus Zörnack (r.l.), Rainer Pudeg (r.r.), Claudius Rath (f.l.) and the project leader Dr. Axel Grüneklee.



InCar® – technologically and economically successful

InCar® stands for automotive expertise from ThyssenKrupp and more than 30 innovations in the areas of body, chassis and steering as well as powertrain. Since its launch in 2009, the research project has increased the impact and perception of ThyssenKrupp amongst customers, media and the general public as a development partner for the automotive industry. More than 100 joint development projects have been agreed with international automotive manufacturers, while InCar® has also delivered numerous prototype and production orders with economic success. To date, no other automotive component supplier has accomplished such an extensive package of innovations developed on a vendor-independent basis.

<http://incar.thyssenkrupp.com>

Chassis and steering: increasing safety and comfort

Functional steering systems provide efficient driving: innovations from the area of chassis and steering assist electric steering systems to find their place in new vehicle categories, and to be used even more effectively. Sub-project leader Rainer Pudeg: “Hydraulic systems are for yesterday. With electric steering systems, we make it possible to have modern assistance systems such as automatic parking or lane guard systems, thereby increasing driving safety and convenience.” Also, the multi-material construction of shock absorber tubes and steering columns is being researched, as are cost-effective manufacturing processes for mass-producing the new InCar®*plus* technologies on an economic basis.

Body: lightweight construction reduces resource consumption and environmental pollution

Efficient use of materials and technologies means less weight and greater efficiency: When it comes to the body, new steel grades, innovative sandwich products and optimized processing methods from ThyssenKrupp Steel Europe make it possible to satisfy the ever-increasing requirements of OEMs (original equipment manufacturers) for comfort, safety and efficiency. “Economic lightweight construction is just as decisive as it is to husband resources in a responsible way,” says sub-project leader Markus Zörnack. For example, a holistic approach is taken to analyzing CO₂ reduction, energy and water consumption from material manu-

facture through to the utilization phase and onward to recycling. “We also deal with topics unrelated to the body such as seats and wheels – components that push up the weight of vehicles whilst at the same time demanding high levels of comfort, function and design.”

The objective of InCar®*plus* is to make things even more efficient. Research is focusing on the powertrain, chassis and steering as well as body – the automotive industry can look forward to the innovative solutions that ThyssenKrupp will be offering from autumn 2014 onwards.

Christiane Hoch-Baumann

New sales platform for NO electrical steel

Industry Sales is offering greater service from a single source

Industry Sales at ThyssenKrupp Steel Europe is growing to encompass another important area: non grain oriented (NO) electrical steel is now being marketed centrally. This guarantees synergy effects – for even greater market proximity and customer development.

At the start of June, ThyssenKrupp Steel Europe presented itself in a new formation at the CWIEME in Berlin. NO electrical steel was exhibited this year by Industry Sales at the world's biggest specialist exhibition for coil development, insulation and electrical production. Since May, this product has also been sold through this sales channel, and continues to be manufactured at the Bochum site. Executive Director Sales, Thilo Lutz and Jörg Paffrath, head of Industry Sales, did not miss

the opportunity to present the new concept in person in the capital: "We had intensive discussions with our most important NO electrical steel customers, and explained to them what optimizations the change would bring," emphasize the pair.

Addressing customers' wishes more effectively

The person responsible for sales of NO electrical steel, Volker Kamen, also identifies clear advantages in this strategic decision: "The broader sales platform means we can offer our customers more service from a single source," he says, explaining the reorientation. "Our products are on a very high technical level, some of them are leaders in the market. By bringing everything under one roof, we now have greater transparency, faster communications and thus we can act more effectively." In addition to Kamen, there is a 17-strong team at Bochum looking after the concerns of customers in the electric sector. Today, they represent an important pillar of Industry Sales at ThyssenKrupp Steel Europe in Duisburg.

Greater proximity to research and development

Another important reason for the reorientation in sales concerns the greater proximity to the powerful research and development arm of ThyssenKrupp Steel Europe. "Today, we can follow the trends more precisely and react more swiftly with intelligent products for more application areas," points out Kamen, describing the advantages of the more stable structure, which also includes all-round technical consulting. "The technological pioneer is reinforcing its strengths" – this message was received and understood at the CWIEME. And this was very well received by the customers as well.

Christiane Hoch-Baumann, Dr. Daria Szygalski



Together with their teams, they look after the concerns of customers in the electric sector (from l.) Dr. Johann Müller, Thomas Sube, Robert Prim, Volker Kamen and Michael Schmidt.

Working on behalf of color

“Color is not an end in itself”

For some time, color has played an important role at ThyssenKrupp Steel Europe. The **ReflectionsOne**® and **ReflectionsPearl**® collections set the decisive tone in this context. *compact* spoke to Thorsten Holtermann of Corporate Architecture/Color who is working on behalf of color with the Duisburg steel experts.

Mr. Holtermann, what do you understand by color?

The roots of organically characterized and built color at ThyssenKrupp Steel Europe stretch back over more than ten years. We were faced with the question: What can we as a steel company do to make our product appear friendlier and more environmentally compatible? This gave rise to a color philosophy that was significantly shaped by the color designer Friedrich Ernst von Garnier, which takes account of the context in which each project is embedded. In about the year 2000, we used this method for designing the first façades of our industrial buildings and plants. The **ReflectionsOne**® collection of colors was born. Since then, we have used finely matching color compositions to design buildings such as the hot-dip coating plant in Dortmund, the blast furnace in Duisburg, the plant buildings at ThyssenKrupp Rasselstein and Hoesch Hohenlimburg as well many others.

What role do you play in color conceptions?

Since 2007, I have been responsible for color in all its facets. One of my tasks is to think about and develop the tried-and-tested arrangement of colors in **ReflectionsOne**®, which is wonderfully suitable for designing industrial buildings with large façades, in order to adapt it to multi-storey buildings such as administration or social buildings. Our response to this is **ReflectionsPearl**®. The colors are more understated, while the slight metallic sheen makes them look even more sophisticated. 16 shades are now available, and more are being added.

Why does ThyssenKrupp Steel Europe stick so firmly to its color philosophy?

Color was prescribed in a company directive just less than two years ago. This lays down



that we will make our new building and renovation measures colorful in the future. This is sustainably altering our image - we are now being perceived in a more positive light. The colorful design of interiors also benefits our employees. Friendly working landscapes have a motivating effect and help in identifying with the workplace. Often, it only takes a little extra effort and the payback is delivered in the appealing result, quality and durability.

The interview was conducted by Johanna Flöter
www.reflectionsone.de/en

He takes a close look at façade design: Thorsten Holtermann in front of the new company kindergarten in Duisburg.

ReflectionsPearl®: living play of color

Fun, games and liveliness on the façade



The new company kindergarten is boldly colorful. Nuances in green, blue and red set the color tone, thus creating a real eye-catcher.

Understated, metallic and perfectly harmonized: The new **ReflectionsPearl®** color collection is resplendent in a unique look. In this way, ThyssenKrupp Steel Europe is setting modern accents in multi-storey construction, which can currently be admired in the newly opened company kindergarten in Duisburg.

Everything was ready at the end of May: inauguration of the first company kindergarten of ThyssenKrupp Steel Europe in Duisburg – a lively spot of color amidst the industrial backdrop. Understated metallic red, green and blue shades alternate along the outer shell made from steel, only supplemented by a gentle grey. The playful, light and yet high-quality envelope is a real eye-catcher, and for ThyssenKrupp Steel Europe it is the latest reference building in the new **ReflectionsPearl®** development, a coil coating applied to high-quality flat steel.

Conveying on the outside what is on the inside

“The combination of paint and light surface structure generates a high-quality appeal that varies depending on the fall of light and viewing angle, thus creating a lively, changing and yet still understated color effect,” says Thorsten Holtermann from the Corporate Architecture/Color department, explaining the

background reasons. The trained architect has been working on behalf of color at ThyssenKrupp Steel Europe for more than six years. “The new company kindergarten building project was an interesting, exciting and at the same time entirely new challenge,” he remembers. “The application as a place for children to play and rest, combined with the associated requirements, cannot be compared to projects that our company has previously undertaken. What is happening on the inside should also be visible on the outside – that means play, fun and liveliness,” says Holtermann, explaining the underlying philosophy of his color concept for the kindergarten.

The topic of color is also continued consistently in the inside rooms. The three groups of children, referred to as the steel stars, have a similarly colorful design as the façade itself. The red structure of the building is also reflected on the inside in red, and the same approach is used for the

green and blue sections. “This has a high level of recognition for the children,” says kindergarten teacher Sandra Werner, happily. “Not only do the colors increase the level of enjoyment and well-being amongst the little ones, they also encourage their creativity.”

Maximum quality for ideal durability

Alongside aesthetics, the quality of the façade plays a central role. The greatest priority is placed on the strip-coated starting material. The Rolling and Finishing department which develops and produces **ReflectionsPearl®** at the Siegerland site, uses a combination of high-quality backing material and the best coatings: “To ensure the highest corrosion protection, we use ZM EcoProtect® as the substrate with an increased zinc-magnesium coating of 160 grams per square meter,” explains Dr. Andreas Meschede, who was involved in developing **ReflectionsPearl®**. “Fluoropolymers are used as coating substances. They ensure the best resistance to weather and also offer low dirt absorption.” As a result, the colors will continue to shine for a long time, and their original beauty will be sustained.

Thorsten Holtermann (l.), Sandra Werner and Dr. Andreas Meschede jointly present the lively color of the new kindergarten. The playful, light and simultaneously high-quality envelope is a real eye-catcher, and the latest reference building for the new **ReflectionsPearl®** development.



ReflectionsPearl® is also suitable for incorporation into existing buildings such as the lobby of the administration building at the Research & Development center in Duisburg.



Free design and combination

The ThyssenKrupp headquarters in Essen reveals how versatile the design options with **ReflectionsPearl®** are. The façade shimmers with a high-quality gold shade developed exclusively for headquarters. "The complete collection for our multi-storey buildings was created on the basis of this color," remembers Holtermann. "At the moment, **ReflectionsPearl®** has 16 shades that are perfectly matched and can be combined with one another." The application and environment of the building plays a decisive role in this: "It is the objective of ThyssenKrupp Steel Europe for our buildings to be set into their particular surroundings in an environmentally compatible and harmonious way as a result of organically characterized color," emphasizes the color expert. This has certainly succeeded with the lively and colorful company kindergarten in the north of Duisburg. And the illustrious building already piques our curiosity with regard to the next colorfully built projects from ThyssenKrupp Steel Europe which will be designed by Thorsten Holtermann.

Johanna Flöter

ReflectionsPearl® for incorporation into existing buildings

As with the new building of the company kindergarten, the **ReflectionsPearl®** coil-coating product is also suitable for incorporation into existing buildings. The latest example is the modernized lobby of the administration building for the Research & Development (R&D) center in Duisburg. The façade has been left in a suitable green shade from the collection, thereby setting a representative and high-quality accent. At the same time, it blends in perfectly with the existing structures that are more than 50 years old. The example shows that R&D is not just strictly functional and objective, "But is also characterized by creativity and curiosity," says Dr. Andreas Meschede, summing up the intention behind the design.

Series: It comes down to the surface New process for best results

The better the base, the more attractive the paint – anyone who takes this maxim to heart will simply have better results when painting. With this in mind, ThyssenKrupp Steel Europe is using an innovative process for automotive construction. The method optimizes the surfaces of galvanized body steels by one more notch. With the brand name PrimeTex® and EloTex, the first products are already in use on visible body panels.

Henry Ford, the instigator of mass production in the automotive industry, was not particularly liberal when it came to coloring. He is reputed to have said that people could have his Model T in any color, as long as it was black. It is probable that this restriction was imposed solely because about 100 years ago there were no suitable alternatives available. Nowadays, the eye is pampered by all sorts of colors. And cars look all the better for it. Even in the showroom, the flawless surface reflects that premium quality is being presented. And: in future, it should be even better.

The smoother the sheet metal, the more attractive the paint

“The best surface is created at depth, so to speak,” explains Dr. Jörg Lewandowski, responsible for launching the product in Auto Sales at ThyssenKrupp Steel Europe.

“If a piece of sheet metal or its corrosion-protecting zinc coating is already very smooth, this delivers clear advantages during painting. We are now setting the bar even higher.”

As so often in development in this area, there was a known conflict of interests: the painter would like a substrate that is as smooth as a mirror. For forming operations, on the other hand, smoothness is a problem. This is because a certain minimum roughness is decisive in press shops so that the sheet metal can be processed without disruptions. Particularly since forming processes for skin panels such as wings and engine covers can be rather complicated. Lewandowski explains: “The challenge concerned striking the optimum compromise between both requirements. And then producing this standard on a reliable basis.”

The fluorescent tube lights make it apparent: With the PrimeTex® surface, the paint gleams with even more beauty.



Commonly used galvanization methods – electrolysis or hot-dip coating – are now reprocessed with a newly developed, high-precision roller. The process is reminiscent of printing technology – the roller applies a very fine, even texture to the freshly produced zinc coating, simultaneously harmonizing the undulating fluctuations in roughness within the substructure. The result is a defined, rhythmic roughness profile without outliers. The effect can be seen with the naked eye under a fluorescent tube lamp. In automotive production, the professionals use special light rooms for testing, because their pitiless glare makes even the smallest distortions visible.

No need for fillers

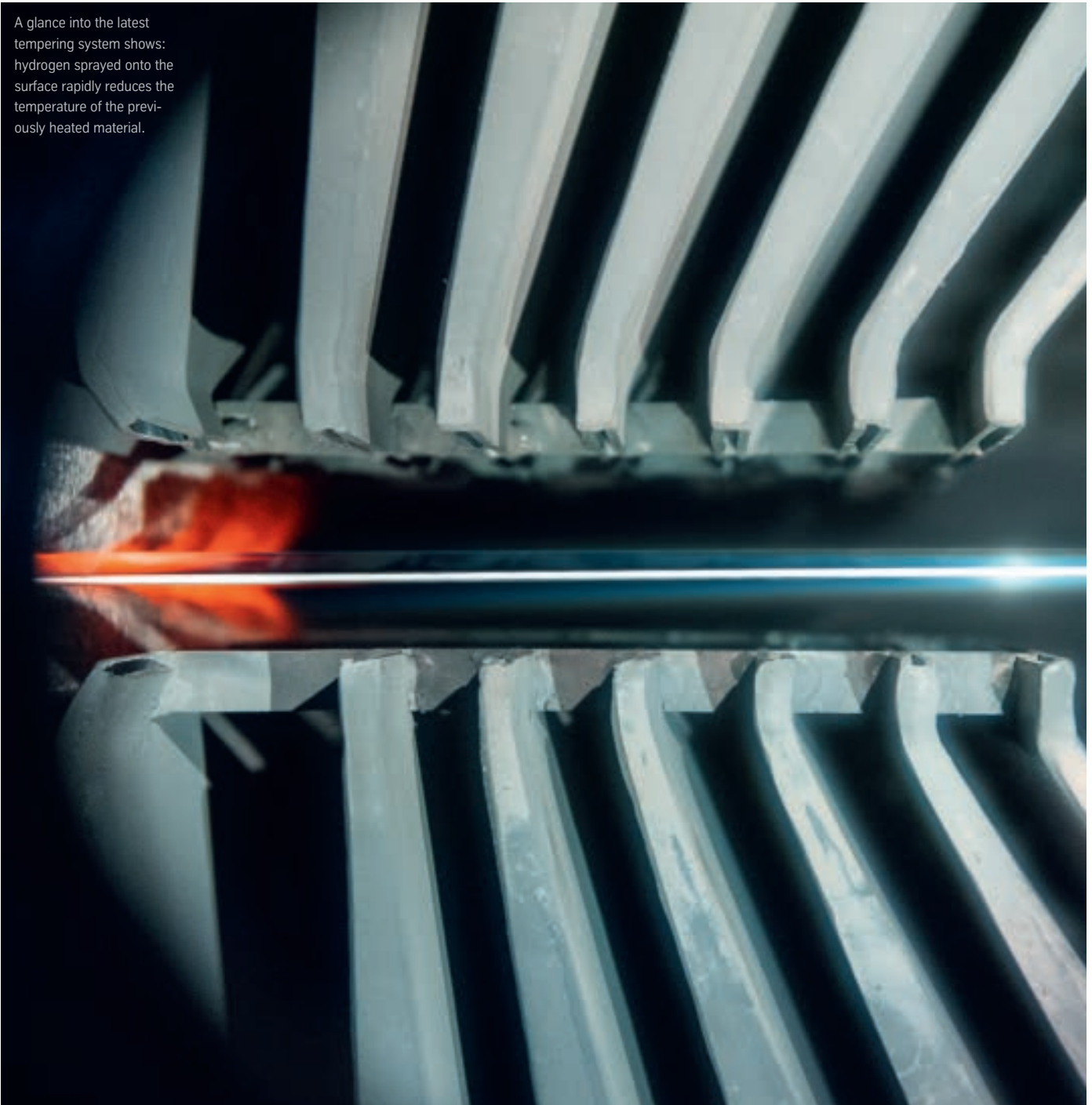
PrimeTex®, the hot-dip zinc-coated variant and the electrolytically finished EloTex offer excellent perspectives for automotive man-

ufacturers. Both products make work simpler: paint shops do not need to apply a filler, meaning that the color-giving paint can be applied directly to the primer. Not only does this save a working step that is intensive in its energy consumption and thus expensive, it also makes the accompanying measures for environmental protection unnecessary. The second option: manufacturers who retain the conventional painting process using filler will achieve an even higher-class look.

“Ultimately, our advantage is that we can ensure the necessary process reliability across the entire product range. After all, we are talking about structures that are only a few thousandths of a millimeter in size – only just visible to the naked eye. However, it makes a big difference when it comes to the overall impression,” sums up Lewandowski.

Wolfgang Kessler, freelance journalist

A glance into the latest tempering system shows: hydrogen sprayed onto the surface rapidly reduces the temperature of the previously heated material.



Tailor-made suit of steel Metallurgica Pessina is setting trends in tempering

Milan is synonymous with trend setting – and not just in fashion. The Italian family firm, Metallurgica Pessina, has developed an innovative process for hardening steel strip, and with it is setting new standards in the international steel strip industry. ThyssenKrupp Steel Europe is one of the main suppliers.

Tomorrow's fashion on show in the shop windows along via Montenapoleone. Made-to-measure suits in first-class quality are already on sale on Milan's most popular shopping street. Now let's shift the scene 25 kilometers to the northwest and take a look through the glass window of a red industrial building. Material processed to very high quality is also on show: tailor made to customers' wishes, produced according to the latest standards – hardened steel strip from Metallurgica Luigi Pessina Acciai, Metallurgica Pessina for short. "Like in a boutique," explains Giovanni Greppi, CEO in the third generation, the family firm processes hot strip into precision steel strip. This is made-to-measure finishing. The customer can select from unconventional thicknesses between 0.2 and 4 mm, and widths up to 400 mm. The material is used in a variety of applications and has to withstand tough punishment, whether as material for saw blades, steel springs or blades in the leather and paper industries.

Flexible production in family hands

"With us, everything comes from a single source," explains Greppi, who rarely wears a jacket when at work, but frequently goes around in his green overalls. In the plant, he keeps an eye on everything. This is because everything takes place within a single site with about 45 employees, from cold rolling through to slitting and edge processing as well as tempering steel. "This means we are very flexible, even with regard to delivery times. What counts is not the mass, but that we respond to our customers and generate trust," adds the Mechanical Engineer. Grandfather Luigi Pessina laid the foundation for this when he established the company in 1934. Right from the word go, the company specialized in hardened steel strip and its management was kept in family hands. The Pessina-Greppi family developed the company further – with investments in equipment and state-of-the-art technologies.

Dr. Andreas Basteck (r.) and Barbara Dornbusch of ThyssenKrupp Steel Europe admiring the latest generation of the tempering system at Metallurgica Pessina. Giovanni Greppi (2nd from r.) and G. Antonio Greppi explaining the process in which hydrogen is used for hardening steel strip.



Traditional company in a new guise

In the 21st century, Metallurgica Pessina still regards tradition as important, but in a new guise: The building was freshly renovated in 2008, and houses cutting-edge equipment. "The modernization work has helped us keep pace with the times, so we can continue to stand out with individual dimensions and gain access to new markets," says Greppi. The steel strip specialist obtains its starting materials from ThyssenKrupp Steel Europe. With more than 110,000 metric tons over the past 20 years, the Duisburg company is one of its main suppliers for carbon steel. And it is also keeping pace: "Technical modifications of our systems mean that we can exert more influence on the hot strip section and the required strength values," explains Dr. Andreas Basteck, Technical Customer Consultant at ThyssenKrupp Steel Europe.

New machine revolutionizes tempering

The exclusive processing of steel strip makes the latest achievement from the Greppi's plant possible: the world's first tempering line that uses hydrogen for hardening steel strip. On the other three lines, the strip is still cooled by oil and lead, whereas the new machine sprays hydrogen onto the surface. This rapidly reduces the temperature of the previously heated material by 700 degrees Celsius, down to room temperature. And the

strip achieves its hardness in this way. The advantage: "The new technology complies with the most demanding health & safety and environmental standards," explains Greppi. "The surface is absolutely free from harmful substances. And the customer does not need to do anything else to the surface." For more than one year, the Italian company has tweaked the modern technology together with the Austrian plant specialists at Ebner Industrieofenbau. The project harbored risks, Greppi admits: "When we started with the first strip in 2007, we didn't know what would come out the other end. However, we were immediately thrilled by the results." This is because the line is extremely productive and very flexible thanks to short startup times.

Access to new markets

Already, the tempering specialists are processing 40 percent of their steel strip on the new line, primarily for further processing into steel springs. Is the tendency on the rise? "We are continuing to test, trying different materials and dimensions," reports Greppi. The family firm would also like to convince customers from other industries, such as the foodstuffs and packaging industries. For this purpose, the Greppis are excellently positioned between tradition and trend setting – as are the boutiques in the center of Milan.

Claudia Freigang

www.pessinaacciai.com

110 years of ideas for better building

PROTEKTOR: Profiles that convince

In Gaggenau, modern profiles for better building have been produced for 110 years. The PROTEKTOR company is one of the leading manufacturers in Europe. For its products, it uses steel amongst other materials, and relies on cooperation with ThyssenKrupp Steel Europe.



Green, intelligent and fast building – that is possible using products from PROTEKTOR. The firm from Baden-Württemberg offers more than 1,500 profiles for façades, plastered and drywall construction, as well as cement and screed joining profiles and plastic guttering. These are profiles for any challenge which will win over sustainability-conscious building owners, architects and builders alike. The Düsseldorf tower built by Victoria Insurance, the Guggenheim Museum in Berlin and the UN Campus in Bonn, where the interiors were refurbished to the latest ecological standards, are just some of many reference projects.

Innovative family firm

“We have a tradition of offering practical and ground-breaking products,” explains Dr. Christof Maisch, Chairman of the family firm and its Managing Director in the third generation, under the company’s current name of PROTEKTORWERK Florenz Maisch (PROTEKTOR for short). The tradition started with his grandfather Florenz Maisch who founded the company in 1903. His product range was varied, but right from the start, he looked for innovative manufacturing processes. His friend Gustav Prölssdorfer suggested that he could develop plaster profiles as edge pro-

tection – an idea from the USA. In 1928, the product was launched on the market under the brand name Protektor. The company still offers the first plaster profiles of its kind in Europa today – in an optimized form.

PROTEKTOR revolutionizes folding technology

The desire to manufacture new and better products is still driving PROTEKTOR, even after 110 years. The industrial engineer, Christof Maisch, takes up paper and pen – which he always keeps to hand for jotting down new ideas – and sketches the MAXI-TEC®.

The current innovation from PROTEKTOR is called MAXI-TEC®. The unique folding technology for plasterboard and drywall construction profiles requires twelve percent less material and does not give rise to any waste during production.



“This is our current innovation,” he explains. It is a unique folding technique for plasterboard and drywall construction profiles. The Managing Director for Technology, Dr. Heiner Willerscheid, and his team developed the manufacturing process: “It was an enormous challenge and took about eight years to be ready for volume production.” Today, the profile builders are proud of their folding technique which is a worldwide revolution: twelve percent less material is consumed in MAXI-TEC® profiles used for wall construction in the UN Campus. There is no waste in production – something that is unparalleled in the industry. The light weight of the pro-

files, their standard and special openings permit quick and easy installation.

Focus on sustainability

MAXI-TEC® profiles have received the international environmental certificate, EPD (Environmental Product Declaration). And in July, PROTEKTOR won the Environmental Technology Prize from Baden-Württemberg for precisely this innovation. By making this award, the Federal State is honoring particularly environmentally friendly products which offer an additional direct benefit. “We also place great value on sustainability in other products. This is because reducing resource consumption and increasing energy efficiency are becoming increasingly important in the construction sector,” observes Willerscheid. The company makes in-house awards for environmentally friendly measures, and it is also a member of the German Society for Sustainable Building.

For quality and sustainability reasons, the profile builders rely on steel above all else. “One of our esteemed suppliers is ThyssenKrupp Steel Europe,” emphasizes Jörg Mai, the Head of Purchasing. Cooperation with the Duisburg company has been ongoing for more than four decades. “We deliver galvanized and slit strip on a just-in-time basis, and it is used in MAXI-TEC®,

amongst other applications. However, the most significant feature of our cooperation is shared values,” explains Joachim Nöll from Industry Sales at ThyssenKrupp Steel Europe. He has been looking after the client company for almost 20 years. “In this way, our cooperation has grown into a reliable partnership which has revealed its strength even in times of scarce resources when steel is difficult to lay your hands on,” adds Mai. “That’s why we intend to build on it.”

About 400 employees use 75 machines in the headquarters at Gaggenau to produce sufficient profiles every year to go round the earth five times over. The profile builder runs a training center at its main site in order to inform European builders’ merchants and builders about the applications for the ingenious products. Furthermore, the company maintains sales premises in all significant European countries and it also has production facilities in the UK and Turkey. “Generally speaking, we register our patents with worldwide protection, and then license them for other companies to use,” underlines Maisch. This is because the prime capital of PROTEKTOR always has been, and should remain: Ideas for better building.

Dr. Daria Szygalski

www.protektor.com

Responsible for the best profiles and optimum production processes at PROTEKTOR (from l.): Dr. Heiner Willerscheid, Dr. Christof Maisch and Jörg Mai (r.). When it comes to steel, they rely on Joachim Nöll (2nd from r.) from ThyssenKrupp Steel Europe.





Zinc-magnesium for external sun protection Summer weather: Griesser guarantees a cool head

Summer, sun, heat – products from Griesser provide plenty of light and pleasant temperatures in interior rooms, as well as saving energy. Thin strip coated with zinc-magnesium from ThyssenKrupp Steel Europe ensures, among other things, long-lasting pleasure in the solutions provided by the leading European specialist. The MEC Service Center makes sure that the innovative ZM EcoProtect® product from the steel manufacturer can be processed and delivered as required.

Griesser uses ZM EcoProtect® for its blind casings. Reason: the innovation offers high protection against corrosion.

We are in the area of Zurich, at the end of June: The sun is beating down, the temperature is 32 degrees Celsius. "In weather like this, you only want one thing: to keep the heat at bay," observes Marcel Stöckli who is responsible for procurement and logistics at Griesser. This is a family firm specializing in external sun protection, managed by Walter Strässle in the fourth generation. Its meeting room is always pleasantly cool and bright even in midsummer, thanks to the company's own innovation.

Light in, heat out

Since its foundation by Anton Griesser in 1882 with the first patent application for a roller shutter, the company has developed into an international group. Nowadays, it encompasses two brands and employs 1,250 people in Switzerland, France, Germany and Austria. And the product range has grown enormously: Griesser offers solutions for almost every customer requirement in many different colors – from straightforward sun blinds through to a glass conservatory with awnings for terraces and patios. The company's best-sellers: intricate slatted blinds, also referred to as Venetian blinds, which sell well all year round.

It is precisely these blinds that make the administration and production center in Aadorf, about 50 kilometers from Zurich, so pleasant to work in: "They offer optimum protection against overheating, dazzle and unwanted prying eyes," says Stöckli, listing the advantages of the blinds which are attached on the outside of windows. "What's more: throughout the entire year, our products save the customer about ten percent on the energy consumption of air conditioning systems, heating and lighting."

Griesser uses high-quality materials for its products. Instead of normal galvanized steel, the blind casings now feature a thin strip coated with zinc-magnesium from ThyssenKrupp Steel Europe – because this is an area that is particularly susceptible to corrosion. "Our innovation, ZM EcoProtect®, offers special protection in this regard," declares Dr. Thomas Niessen, the Technical Customer Consultant

at ThyssenKrupp Steel Europe. "Better corrosion resistance than the zinc coatings that were previously the norm comes about above all through the addition of magnesium, and this also makes it possible to reduce the coating weight."

Defying wind and weather

To increase awareness of the modern coating in the Alpine nation, the Duisburg steel experts turned to their sister company, ThyssenKrupp Materials Switzerland. "As the

1924. "And we were quickly won over," remembers Stöckli. Not least because an independent institute had confirmed the higher standard of corrosion resistance and optimum forming properties compared to normal hot-dip galvanized steel. "To allow Griesser to process the strip, we slit and prepare it before delivering just-in-time to Aadorf," says Schmid.

The efficiency and appealing aesthetics of the solutions from and in Aadorf have been confirmed by various awards – such as the



Successful cooperation (from l.): Marcel Stöckli, Griesser, Dr. Thomas Niessen, ThyssenKrupp Steel Europe, Marlen Schmid, MEC Service Center, and Urs Steiger, ThyssenKrupp Materials Switzerland.

agency for ThyssenKrupp Steel Europe, we sell its products exclusively here," explains Sales Director Urs Steiger. The product launch about two years ago was handled via the MEC Service Center (MEC for short). "As a result of its high technical affinity and openness for new ideas, MEC was the ideal partner for us when it came to being one of the first organizations to launch the zinc-magnesium-coated steel in Switzerland," he adds.

MEC has been delivering to Griesser for more than 40 years, and is well aware of its customer's requirements. "We know that the people in Aadorf needed this solution," observes Marlen Schmid, area manager at the company that has been in existence since

internationally renowned "Good Design" prize. A team of innovators is working continuously on optimizations to make sure things stay that way. "For example, we are now offering a curved slat for our top-seller," says Stöckli, referring to the new development, Metalunic Sinus®, which won the Innovation Prize 2012 at the Equipbaie international exhibition in Paris. With Griesser, you can enjoy the summer in full measure while keeping a cool head at all times.

Dr. Daria Szygalski

www.griesser.ch
www.thyssenkrupp.ch

Agenda

IAA International Motor Show – September 12 to 22, 2013, Frankfurt am Main (Hall 4, Booth C 13)

“The world’s most automotive show” is the motto of the 65th IAA in Frankfurt. This time, the Motor Show is the platform for project work relating to the topic of electric mobility. ThyssenKrupp Steel Europe is cooperating with Leichtbau-Zentrum Sachsen, a company established by Dresden Technical University to research lightweight construction, in order to present the InEco® project. InEco® offers lightweight solutions made from steel for electric vehicles for urban transport.

bauma Africa – September 18 to 21, 2013, Johannesburg, South Africa (Hall 5, Booth 151)

The international show for construction machinery, construction materials machinery, construction vehicles and construction equipment is being held in South Africa this year for the first time. At the Gallagher Convention Centre Midrand in Johannesburg, about 500 exhibitors representing the cream of the construction machinery industry will foregather on premises covering about 60,000 square meters. ThyssenKrupp Steel Europe will be exhibiting in the German Pavilion with its Heavy Plate Unit as well as its high-strength and wear-resistant steels.

International Aerosol Congress and Exhibition – September 24 to 26, 2013, Madrid, Spain (Hall 9, Booth 37-44)

In parallel with the 17th Aerosol exhibition, the North Convention Center & Exhibition Area in Madrid will be holding the 28th International Aerosol Congress. The topics of the Spanish event are “Business and Market”, “Innovation and Future” as well as “Aerosol Technology”. ThyssenKrupp Rasselstein will be taking part once again. The tinplate manufacturer will be presenting itself as a strong partner for the aerosol industry with its range of products and services, at the same time as refreshing its network in the area of valve carrier and aerosol can manufacturers as well as aerosol fillers.

Alihankinta – September 24 to 26, 2013, Tampere, Finland (Hall C, Booth 502)

The International Industrial Subcontracting Trade Fair in Tampere is Finland’s international industry show. Over three days, the Alihankinta will once again attract about 900 exhibitors and 16,000 visitors from all over the world. The Heavy Plate Unit of ThyssenKrupp Steel Europe will also be taking part in the exhibition this year at the show stand of Flinkenberg, a commercial partner over many years. It will be presenting not only the special construction steels XAR®, N-A-XTRA®/XABO® and PERFORM®, but also interesting product solutions in the area of initial processing.

Coiltech – September 25 to 26, 2013, Pordenone, Italy (Pordenone Fiere, Booth D7-E12)

ThyssenKrupp Electrical Steel will be taking part in the Coiltech in Italy for the second time – a show for coils, electric motors and transformers. What Pordenone offers includes all kinds of materials and machines as well as services for producing electric motors, generators and transformers.

e-CarTec – October 15 to 17, 2013, Munich (Hall A6, Booth 413)

The technologies for electric drives, energy accumulators and network infrastructure have been developed in their principles. However, various points of the value creation chain still require further research, optimization and, above all, networking. The e-CarTec is the leading exhibition for electric mobility and a partner exhibition of the Materialica, the International Trade Fair for Materials Applications, Surface Technology and Product Engineering. It offers the opportunity for progress to be made in this area, as well as establishing a strong and broad basis for international exchange. The entire value creation chain from materials and components through to sales, batteries and the overall system with its applications are taken into account. The exhibition will feature electric vehicles, accumulator technologies, drive and engine technology. Areas of main emphasis include energy, infrastructure and financing. The program is rounded off by a conference as well as an outdoor area for testing the latest electric vehicles. ThyssenKrupp Steel Europe will be displaying

its lightweight steel solutions for electric vehicles together with ThyssenKrupp Engineering and the departments of Battery Plant Technologies and Hot Forming Solutions on a joint stand.

BlechExpo – November 5 to 8, 2013, Stuttgart (Hall 5, Booth 5307)

After the Euroblech, the practically oriented BlechExpo/Schweisstec show pair is regarded as the most important specialist exhibition for sheet metal processing and joining technology. With more than 1,000 exhibitors from about 30 nations and a total exhibition area of 70,000 square meters, the industry already displayed itself on the world stage in 2011. The event is held every two years at the Stuttgart Trade Fair, and is the only event in the world to deal with the complementary technologies of sheet metal processing and joining technology. ThyssenKrupp Steel Europe will be represented together with Hoesch Hohenlimburg, MgF Magnesium Flachprodukte, ThyssenKrupp Metalcenter, ThyssenKrupp Schulte and ThyssenKrupp Stahl-Service-Center. An extremely wide range of high-quality applications in the capital goods and consumer goods areas will be on show.

Practical seminar “Lightweight construction systems made from steel for roof and façade” – November 20, 2013, Böblingen Congress Hall

Together with the Industrial Association for Construction Systems in Lightweight Metal Construction, the Steel Information Center Düsseldorf is presenting its practical seminar “Lightweight construction systems made from steel for roof and façade” – energy and cost-efficient solutions for new and existing builds. ThyssenKrupp Steel Europe is taking part in the seventh seminar with its own stand, and will be displaying coil-coated flat products from the **ReflectionsPearl**® color series as well as further innovations for building with steel. Following the seminar, participants will have the opportunity to take part in a plant tour at Mercedes-Benz in Sindelfingen. The event is free; registrations can be submitted online up to 15 November at www.stahl-info.de, under the “Veranstaltungen” (Events) heading. For more information, contact +49 211 6707-989.

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Echo

ThyssenKrupp forges an alliance with BASF and Linde

“Mighty alliance against climate change: The ThyssenKrupp Group is intending to develop a new process with BASF and the Linde Group in order to use carbon dioxide as a raw material in future. The project will continue until 2016 and is being sponsored by the German government to the tune of 9.2 million euros.”

Bild Ruhrgebiet, 03.07.2013

Prize for ThyssenKrupp

“ThyssenKrupp Steel Europe has received the German Educational Prize. This is awarded to companies who play a particularly exemplary role in the continuing education of their employees (...). Germany’s largest steel manufacturer (...) was awarded 1st prize at the Stuttgart State Gallery in the ‘Production/Major companies’ category.”

WAZ, 26.04.2013

E-Mobility Center Drives advises the automotive industry

“ThyssenKrupp Steel Europe regards e-mobility as a market for the future, and is thus providing a new ‘E-Mobility Center Drives’ (...) in order to assist the automotive industry. The heart of the laboratory is an electric motor test rig intended to help work out solutions to reduce energy losses and increase speeds of rotation.”

VDI Nachrichten, 14.06.2013