

The customer magazine of ThyssenKrupp Steel Europe

compact

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3/2010

Bau 2011 in Munich

Sustainable and stylish – building with steel

Germany, Brazil, USA

Global steel locations of the future

Renewable energies

Electrical steel drives wind energy forwards

ThyssenKrupp Steel Europe
Thinking the future of steel



ThyssenKrupp

compact

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Construction work on the WIP Science Park is currently in progress on the Petrisberg site in Trier. The development project is scheduled for completion in 2011. With its unique architecture, the office and seminar building is destined to become a landmark; an eye-catching feature is its façade of sandwich elements from Hoesch Bausysteme coated with **ReflectionsCinc®**. As illustrated by this and many other examples, steel is gaining importance worldwide among architects, construction engineers and planners as a construction material. A further plus: Steel offers them a diversity of answers and solutions towards achieving the environmental objectives for sustainable building.

ThyssenKrupp Steel Europe AG

Kaiser-Wilhelm-Strasse 100, 47166 Duisburg, Germany
 Postal address: 47161 Duisburg, Germany
 Phone: +49 203 52-0, Fax: +49 203 52-25102

Editorial team:

Rolf-J. Neumann (legally responsible for content)
 Strategic Marketing/Support
 Phone: +49 203 52-41003
 Fax: +49 203 52-41007
 E-mail: rolf-juergen.neumann@thyssenkrupp.com

Christiane Hoch-Baumann (editor-in-chief)
 ThyssenKrupp Business Services GmbH,
 Communication Services
 Phone: +49 201 844-524515
 Fax: +49 201 8456-524515
 E-mail: christiane.hoch-baumann@thyssenkrupp.com

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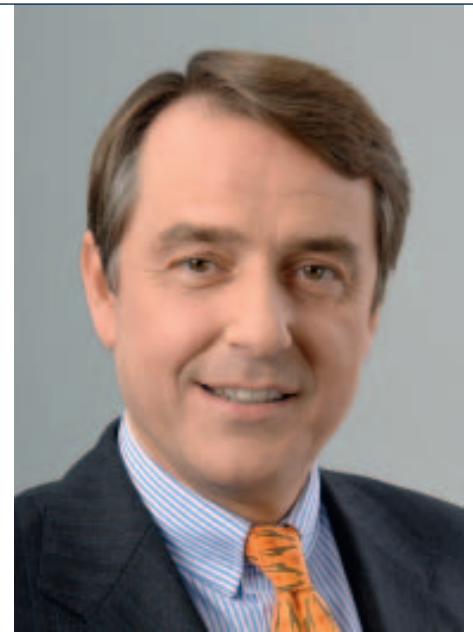
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info.steel-europe@thyssenkrupp.com
www.thyssenkrupp-steel-europe.com



Dear Readers,
dear Customers,

The world economy has recovered from last year's severe crisis rather sooner than expected – and in this phase Germany unexpectedly proved to be the growth locomotive in Europe. The situation in the international steel markets is predominantly marked by growth; in particular the first six months of 2010 saw worldwide steel production well above the low level of the previous year, even hitting record month-on-month highs. The demand for steel contracted slightly in mid-year. This was initially reflected in Asia, above all in China where the excessive growth in steel consumption slowed down and prices dropped, also as result of the Chinese government's more restrictive monetary policy. However, in North America and most recently in Europe as well, the steel markets found themselves in calmer waters after the positive stimuli from the inventory cycle had expired and real steel consumption showed merely moderate growth.

That said, the bottom line for the steel sector in 2010 is, all in all, nevertheless positive. The healthy demand on the part of our customers is making itself felt, and our iron and steelmaking facilities are operating at full capacity. Besides this, we have also improved our situation in terms of starting material through supplies from our new integrated iron and steel mill in Brazil; the first slabs have in the meantime arrived in Duisburg, and we can soon look forward to annual deliveries of around two million tons of them. You can read about how we are channeling these additional volumes in this issue of compact.

The automotive industry, many areas of the metal processing sector, as well as the electrical and packaging industries are signaling positive stimuli for 2010, and above all the upward trend in the automotive industry will continue spurring on the economy in the months to come. We expect the demand in our core markets for premium flat products to continue growing, and anticipate being able to get firmly back onto the pre-crisis

growth path. The construction industry too is showing signs of recovery and taking initial steps out of the weakened market situation. This is reflected in the – appropriately chosen – motto of BAU 2011, "The future of building". ThyssenKrupp will be among the exhibitors there in Munich, with the focus on the topic of sustainability and showing what our material is capable of in this respect. Our cover story has "Steel goes green" as its theme, and is aimed at getting you in the mood for our appearance at BAU in January.

However, it has to be said that the positive economic perspectives are still accompanied by risks – first and foremost in terms of the trend in the raw materials markets. The spot market prices of iron ore and coking coal, for example, have risen again significantly. There are no signs of an end to this trend, which makes cost planning a difficult task for steel manufacturers and processors alike.

"The chances of a lasting upturn are good."

Nevertheless, we can look optimistically into the future. Let us build and expand our business activities together. Let us reflect and count on our technological strengths here in Germany as center of industrial activity. In doing so, we at ThyssenKrupp Europe will be continuing to go for and build on close and long-term business relationships with you, our customers.

With this in mind, may we wish you all the very best of success in 2011.

Yours,

Dr. Jost A. Massenberg

Member of the Executive Board responsible for sales
ThyssenKrupp Steel Europe



Structural elements for a sport stadium in Melbourne



ThyssenKrupp Steel Europe has supplied 25,000 square meters of steel sandwich elements for the construction of a sport stadium in Melbourne. These Hoesch isowand vario® elements form the roof of the building which has cost a total 267.5 million Australian dollars. Originally designed and developed for use in walls and façades, the isowand elements are optimally suited to the special architecture of the stadium shell, which resembles a large circle of intertwined hemispheres. This design makes demanding requirements on the materials used in its construction, for instance low net weight, column-free spans of up to six meters, and optimal insulating properties. These requirements are met by the stadium roof's isowand vario® elements of 100 mm in thickness and weighing just under 13 kilograms per square meter.

www.aamipark.com.au

Photo: Peter Glenane



Page left The first slabs start out on their long journey: Having been produced at the ThyssenKrupp CSA Siderúrgica do Atlântico steel mill in Brazil...

Below left ...they were then rolled at the new downstream processing plant in Calvert, USA. In Europe...



Center ThyssenKrupp CEO Dr. Ekkehard Schulz (r.) and his designated successor Dr. Heinrich Hiesinger (l.) celebrated the grand opening of the new plant on December 9 in the southern USA together with Alabama's governor Bob Riley (2nd from l.), his wife and 4,000 guests.

Right ThyssenKrupp Steel Europe was also present: Sales Director Dr. Jost Massenberg (front r.) and CEO Edwin Eichler (front, 2nd from l.) celebrated the opening with Hans Fisher, CEO ThyssenKrupp Steel Americas (front, l.) and European business partners.

Duisburg, Santa Cruz, Calvert Global steel locations of the future

Germany, Brazil, USA. Three countries, three cultures, one company. Today, ThyssenKrupp's steel arm is closely meshed worldwide. With its production of steel slabs in Santa Cruz (Brazil) and the processing and refining thereof to carbon steel flat products in Calvert (USA) and in Germany in Duisburg, ThyssenKrupp Steel Europe provides its customers with impressive service while making optimal use of regional strengths and global networks.

Duisburg, Germany. An initial shipment of 10,000 metric tons of steel slabs arrived from Brazil at Walsum port in Duisburg – the first of an annual volume of around two million metric tons which will be shipped to the hot strip mills in Duisburg and Bochum for rolling and processing into carbon steel flat products. "Together with the new downstream processing plant in the US state of Alabama and the plants in Duisburg, the gigantic investment project in Brazil is of central importance to ThyssenKrupp's global growth strategy in the core markets of Europe and North America (NAFTA)," emphasizes ThyssenKrupp Steel Europe's CEO, Edwin Eichler. The consignment comprising exactly 396 slabs had a two-and-a-half week journey across the Atlantic behind

it before being transhipped at Europoort Rotterdam for a further 20-hour-trip up the Rhine on barge trains.

"We have made major investments in the German locations over the past four years in order to be able to process these additional volumes," explains Eichler. He is talking about an investment volume of around 208 million euros to date, some 170 million of which in expanding the hot strip mills in Duisburg-Beeckerwerth and Bochum in order to increase their respective capacities. "At the Beeckerwerth plant we increased the drive power of the finishing train stands, improved the performance of the cooling zone and expanded the coil yard," explains Dr. Jost A. Massenberg, sales director at

ThyssenKrupp Steel Europe. "At the Bochum hot strip mill a new walking beam furnace was put in place at a cost of around 50 million euros. Since it was put into operation two years ago we have expanded the plant's production capacity and further enhanced the quality of our products." A further 30 million euros were invested in revamping the hot dip coating lines, with an optimization of the furnace heating capacities and the installation of a new zinc pot and a new laser welding line. Besides that, the media and energy infrastructure and the slab logistics in Duisburg and Bochum have been upgraded to meet the new requirements. "We ship the finished material to our customers throughout Europe," he emphasizes.

Santa Cruz, Brazil. The place where the slabs come into being. The production of the first slab at the Group's new iron and steel mill there was celebrated in early September. The ThyssenKrupp CSA Siderúrgica do Atlântico plant had already been officially inaugurated in mid-June by ThyssenKrupp CEO Dr. Ekkehard Schulz and Brazil's president Luiz Inácio Lula da Silva after four years of construction work. The location benefits from its proximity to the large Brazilian iron ore deposits and is one of the world's most advanced and

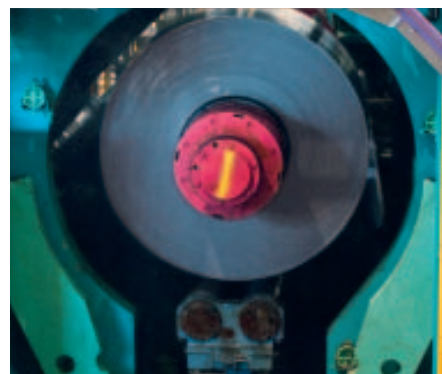
environmentally friendly steel production facilities. It includes a port terminal, power plant, coke and sintering plants, two blast furnaces, a BOF melt shop and two continuous casters. It is planned that full capacity operation will have been achieved by the end of fiscal 2011/2012, with an annual production output then of five million metric tons.

“Our plant is equipped with state-of-the-art technology and, like ThyssenKrupp plants throughout the world, meets the most demanding environmental standards,” stresses CEO Dr. Herbert Eichelkraut of ThyssenKrupp CSA Siderúrgica do Atlântico. “We based this on European environmental standards – and our new systems actually outperform the technologies installed in Germany.” The plant’s environmentally friendly gas-fired power plant will not only be supplying the new complex but also Rio de Janeiro state with an annual volume of around 200 megawatts of electricity. Besides this, a mangrove forest covering an area of about 1.5 square kilometers in Sepetiba Bay has been preserved, and a 200,000-tree project voluntarily initiated by ThyssenKrupp CSA Siderúrgica do Atlântico serves as a contribution towards the preservation of the local biological diversity.

Calvert, USA. Around three million metric tons of Brazilian steel slabs per year will also shortly be arriving at the premises of ThyssenKrupp Steel USA and Stainless in the southern state of Alabama – an excellent address in the emerging region forming part of the NAFTA area. The new downstream processing plant in Calvert had its official inauguration on December 10. By way of this unique facility for premium carbon steel and special steel flat products, ThyssenKrupp is opening up the sales markets in the USA, Mexico and Canada and creating enhanced proximity to its customers and their needs and requirements. “In demand is above all carbon flat steel in the premium segment in terms of quality, formability, dimensions and tolerances for the end products,” explains CEO Hans Fischer of ThyssenKrupp Steel Americas.



...they arrived on October 27 at Walsum port in Duisburg. The additional volumes from Brazil will make for significantly enhanced delivery performance and flexibility in the home market.



The first coil was already produced at the steel and downstream processing plant in Calvert, USA in July. The ThyssenKrupp Group will be using the new location as base for expanding its competitive position in North America.

“Numerous talks are currently in progress with key customers from the automotive and electrical industries, as well as with steel service centers and the pipe manufacturing industry, on the planned ramping up of the supply volume. Orders have already been taken for a large number of products.”

The slabs from Brazil will be processed in the hot wide strip mill which is capable of producing more than five million metric tons of hot strip per year, one million of which is stainless steel. Cold-rolled carbon steel is produced in one production step in a combined pickling-tandem line. “In-house produced cold strip will be coated on a total of four hot dip coating lines,” says Fischer, looking into the near future. “This product is used in the automotive industry for producing, for example, high-quality body panels.” The most stringent environmental standards are adhered to throughout the entire complex, with the technologically most advanced protective measures being applied.

Back to Duisburg, in the Walsum-South port: exactly 396 slabs have arrived on October 27 after their long journey from Brazil. Having been processed into hot strip, around 1900 metric tons will then go to Rasselstein AG in Andernach for the production of tinplate. The scheduling of the

operations was already completed weeks ago, since the long transatlantic transportation calls for thorough advance planning. Sales director Massenbergh summarizes: “The additional slab delivery volumes from CSA in Brazil will enable us to enhance our delivery performance and flexibility. Our expanded starting material base helps us support the strategic growth of our customers in the German and European markets.”

The second ship carrying a good 50,000 metric tons of Brazilian steel slabs arrived in early December at Europoort Rotterdam, where further transatlantic ships with CSA slabs will be arriving at increasingly short intervals. “Once all of the equipment in Santa Cruz has been fully ramped up, ships will be setting out on the long trip from Brazil to Germany with over 75,000 metric tons of CSA slabs on board,” says Massenbergh. The next shipment of slabs from Sepetiba Bay is likewise being awaited in the port of Mobile, Alabama – the first 40,000 metric tons arrived there on schedule for the inauguration ceremony.

Christiane Hoch-Baumann

www.thyssenkrupp-steel-europe.com/csa/en/
www.thyssenkruppsteelusa.com/

Facts, data, figures

Top ThyssenKrupp CSA Siderúgica do Atlântico is the new iron and steel mill in Santa Cruz, Brazil. It is among the world's most advanced steel production facilities – also where its high environmental standards are concerned.

Bottom ThyssenKrupp Steel USA in the southern US city of Calvert is the top address for downstream steel processing in direct proximity to customers.



ThyssenKrupp Steel USA

- 15 square kilometer site
- 2,700 new jobs
- 4 million metric tons of end products yearly
- Meets the most stringent environmental standards
- Comprehensive energy recovery and recycling technologies

ThyssenKrupp CSA Siderúgica do Atlântico

- 9 square kilometer site
- 3,500 new jobs
- Approx. 5 million metric tons of slabs yearly
- 490 megawatts of electricity generated yearly
- 200,000 trees for preservation of biological diversity
- One of the most environmentally friendly steel mills worldwide



NewsFlash

Honda honors development of new materials

Award winner: Car manufacturer Honda of the UK Manufacturing Limited (HUM) has given ThyssenKrupp Steel Europe its Supplier Award for Material Development Support 2010 in recognition of the steel producer's achievements in the development and introduction of new materials for the Honda plant in the UK. ThyssenKrupp Steel Europe developed new high-strength steels for HUM which precisely meet the specifications determined in Japan for all of the company's international plants. For HUM this means that most of the materials needed for the bodies-in-white of the cars built in Swindon can now be obtained in Europe. HUM manufactures the Jazz, Civic and CRV models. Says Key Account Manager Stefan Eiden: "We are confident that we can also supply plants in China and the NAFTA area with our steels in the future."

www.honda.com

LubriTreat® helps in metal forming

Wafer-thin: The specialists at ThyssenKrupp Steel Europe have developed a new coating called LubriTreat®, which significantly enhances the formability of galvanized steels. Applied directly to the steel's surface, it improves the forming behavior over the entire surface area. The coating is free of heavy metals and was developed to function as a universal forming aid. Rising cost pressure is compelling automobile manufacturers to increasingly focus on the cost-effectiveness of the metal forming process as well. LubriTreat® makes it possible, for example, to dispense with expensive tool coatings and, because fewer forming steps are necessary, save the costs of expensive tooling sets. ThyssenKrupp Steel Europe developed LubriTreat® at its Dortmund Surface Center (DOC) in collaboration with lubricant producer Castrol.

Environmental award goes to InCar®

Sustainable: ThyssenKrupp's InCar® project won second prize at the 2010 ÖkoGlobe (EcoGlobe) awards. Presented by insurance group DEVK-Versicherungen and automobile club ACV Automobil-Club Verkehr with scientific support from the ÖkoGlobe Insti-

tute of the University of Duisburg-Essen, the ÖkoGlobe awards are given in recognition of sustainable innovations in the sphere of mobility. The award ceremony was held in Cologne in the presence of Germany's Environment Minister, Dr. Norbert Röttgen. Dr. Röttgen emphasized that cutting CO₂ emissions in road traffic is absolutely essential in ensuring that climate protection targets are met. "Every new technology requires the inventiveness and commitment of engineers," he said in praise of their contribution to environmental protection. Automotive manufacturers and suppliers, as well as mobility providers and German Railways, had submitted a total of over 100 entries for the 2010 awards. The ÖkoGlobe is awarded in ten categories, and InCar® came second in the 'Supplier Innovations' category. The reason behind the jury's decision was that "the InCar® solutions enable an overall reduction of greenhouse gas potential throughout the entire lifetime of a car. ThyssenKrupp is enabling a significant innovative step forward in automobile production with this modular system."

<http://incar.thyssenkrupp.com>

SteelOnline gives customers an insight

Insight: For more than ten years, ThyssenKrupp Steel Europe's customer portal has been providing its users with e-business experience and thus transparency from purchase order processing right through to billing. A new feature is that documents and information on all aspects of the order can now also be automatically sent to the customer by e-mail. Absolute priority is given to data security in this connection. The portal now also provides information on the topic of preferential origin, which is of relevance to a large number of customers where customs law is concerned. All of the applications are available in five languages, and that naturally also goes for the contacts in the E-Business team. "The interest in SteelOnline is growing all the time," stresses the E-Business team's Michael Hetkamp. "More than 20 percent new customers in 2010 alone underline the success of our convincing online concept. We shall continue to focus SteelOnline's content and functions on the needs and requirements of our customers, and our plans in the interests of even greater flexibility include expanding the e-mail subscription function."

www.thyssenkrupp-steel-europe.com/en/ebusiness

Successful EuroBLECH in Hannover

Successful: The 2010 edition of the world's biggest and leading trade fair for the sheet metal working sector continued the success of its predecessors. The motto "Ideas and know-how for the future" is a core principle at ThyssenKrupp Steel Europe as well.

"Maintaining our competitive position in German against a background of advancing globalization means that we have to keep the focus on and enhance our internationally acknowledged innovative strength," said Sales Director Dr. Jost A. Massenberg in his welcoming address on the occasion of the traditional steel customers day in the Expowal building on the Hanover exhibition grounds. "Research and development are the German success factors on which we as steel producers and you as steel processors must build together – in the sense of a win-win relationship." Massenberg was supported in his views by Wolfgang Clement, Germany's former minister of economics and labor and premier of the federal state of North Rhine Westphalia. In his talk entitled "The situation in Germany and Europe – what needs to be done now," he stressed that there are no reasons for moping.

"The manufacturing industry is the heart of Germany's export activities, and we in Europe are dependent on that."

www.euroblech.com



Dr. Matthias Gierse, Head of Sales Industry, left the company at the end of 2010. His successor is Jörg Paffrath (photo), who was previously responsible for the pipe producers as well as overseeing the company's contract, commission and special business activities. Mr. Paffrath is looking forward to his new tasks and duties as Head of Sales Industry. "We shall master the future challenges together with you, our customers," he says with confidence. The 46-year-old father of two daughters and graduate in business administration can look back on more than 24 years of experience in the steel sales sector.

Magnesium ingots are melted down and rolled in the casting-rolling mill to form roughed strip with a thickness of four to seven millimeters. This is then used to manufacture magnesium sheet thinner than one millimeter.

Lightweight construction material of the future Inauguration of a hot rolling mill for magnesium



It is only about a quarter as heavy as steel, 35 percent lighter than aluminum, and the reserves are almost inexhaustible: As far as MgF Magnesium-Flachprodukte GmbH and the Freiberg University of Mining and Technology (TU Bergakademie Freiberg) are concerned, magnesium is the lightweight structural material of the future. November saw the ThyssenKrupp Steel Europe subsidiary and the TU inaugurate a hot rolling mill for magnesium, thus further expanding their innovative production line for the lightest of all metallic materials. Situated near Dresden, the TU has been a partner university of the ThyssenKrupp Group since 2003.

According to Dr. Ekkehard Schulz, Chairman of the ThyssenKrupp AG Executive Board, the two magnesium partners have “created a first-class technology base from which to achieve success on a market of the future.” Dr. Schulz was speaking at the inauguration ceremony which was attended by around eighty representatives from the spheres of industry, politics and science. The inauguration was part of a two-day symposium organized by ThyssenKrupp Steel Europe and the university.

Its cost-effective production of magnesium sheet makes the hot rolling mill in Freiberg a highly forward-looking enterprise. Magnesium is already being used in cast parts, for example for car engine blocks and transmission housings. The lightweight material could save a lot more weight where large

body parts are concerned, but this calls for affordable magnesium sheet. Developed by MgF and the university, the production line can use significantly lower-cost starting materials and involves fewer production steps than conventional procedures. The line is comprised of two sections: a casting-rolling line produces roughed strip with a thickness of four to seven millimeters from molten magnesium. This is then passed to the new hot rolling mill where magnesium sheet of less than one millimeter is produced. The end product can be used, for example, for

automotive body parts. In his address at the inauguration ceremony, the university’s rector Prof. Bernd Meyer described magnesium as a sustainability-oriented resource, while the federal state of Saxony’s finance minister Prof. Georg Unland referred to the magnesium activities as a milestone for Saxony as an industrial location. The new mill was built with funding from the state of Saxony.

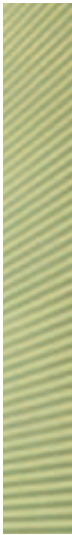
Bernd Overmaat

Paving the way for the lightweight construction material of the future. From left: ThyssenKrupp CEO Dr. Ekkehard Schulz, Prof. Rudolf Kawalla (Director of the Institute of Metal Forming at TU Bergakademie), Prof. Bernd Meyer (Rector TU Bergakademie), Dr. Hans-Peter Vogt (MD of MgF), and Edwin Eichler (member of ThyssenKrupp AG’s Executive Board) inaugurate the new magnesium hot rolling mill.



Sustainable and stylish – building with steel

BAU 2011 in Munich



Building with steel is a forward-looking proposition since the material is seen as the key to new, aesthetic building generations in terms of sustainability.



BAU – the worldwide leading trade fair for the construction sector is set to take place from January 17 to 22. The sector specially bases its innovations agenda on the BAU cycle. ThyssenKrupp Steel Europe will be there with exciting new products and concepts. But the prototype for stylish, sustainable building with steel from ThyssenKrupp is to be found in Essen – in the form of the Group's new headquarters.

It goes without saying that moving ThyssenKrupp's new headquarters to Munich to be exhibited at BAU is an impossibility. Which is a pity, because the Quarter would make an ideal exhibit; after all, the office complex is equipped with the most innovative features the Group has to offer in terms of building with steel. "Technological innovations are of crucial importance towards dealing with and overcoming the global challenges," stresses ThyssenKrupp CEO Dr. Ekkehard Schulz in this connection. "In architecture too, the sound and sensible use of innovative technologies makes for excellent support of the endeavors towards enhanced quality of life, economic efficiency and sustainability. Our new Quarter in Essen is consciously aimed at showing the way to the future. With this construction project, unique for ThyssenKrupp, we have created a space that stimulates movement, fosters the exchange of knowledge, and also demonstrates surprising possibilities for the use of innovative materials and technologies." The Color/Construction business

unit, which is ThyssenKrupp Steel Europe's building arm, processes the flat carbon steel produced in Duisburg into innovative coil-coated products and ultimately into lightweight steel structural elements for façades, walls, roofs and ceilings – all tailored to individual architectural requirements, as is the case with the Quarter and its stylish steel exterior.

And BAU would be the best possible backdrop for this "exhibit". It is, after all, rated as the world's leading trade fair for architecture, materials and systems. "Building with steel represents one of the most important areas of the exhibition," emphasizes Mirko Arend, project manager for BAU 2011. World's leading trade fair – another reason behind this title lies in the fact that the construction industry specially aligns its innovations and R&D activities to the event's two-year cycle, "Its high degree of acceptance and resonance makes BAU a key innovation driver for the construction sector", adds Arend. "Around 1,900 exhibitors



BAU 2011

JANUARY 17 – 22 • MUNICH

from 40 countries present themselves at our event." The visitors come from more than 150 countries – including some 38,000 planners. BAU is thus the world's biggest trade gathering for architects and engineers. "All in all, we are again expecting more than 210,000 trade visitors."

The main themes of BAU 2011 are those of Sustainable Building, Building for Life, Research and Innovation, and Education and Training. All forward-looking topics – as is building with steel, also because steel is regarded as the key to new building generations where sustainability is concerned.

Not only because the material is virtually irreplaceable in combination and interaction with other building materials, however. "It is rather the case that steel is continuing to gain importance as building material because increasingly greater environmental objectives are being striven for, which themselves are advancing the trend towards sustainable building. Steel as a building material offers a huge diversity of solutions to this end," says Rolf-Jürgen Neumann, ThyssenKrupp Steel Europe's Head of Strategic Marketing. "Due to our innovative drive, steel today meets the most demanding requirements on the aesthetic side of things. That is what modern architects, construction engineers and planners throughout the world are calling for."

Steel is no longer merely a sober-functional material for industrial and commercial buildings. Instead, it is more than ever standing for stylish, sophisticated office buildings. And this value added is something that users in particular appreciate. They wish to represent themselves via their buildings, but also wish to convey philosophy and reputation. And that is also the case with global technology and steel group ThyssenKrupp. ThyssenKrupp generally sets the very highest standards – and meets them too, as can be seen with the new Quarter. But there's a lot more to it than that. "We want to underline our strengths in the area of building with steel – from product to design and expert construction-related advice right through to sustainability," Neumann emphasizes. "And the curtain wall façade of the new Quarter serves as prototype for this steel know-how."

ThyssenKrupp will be exhibiting the steel curtain wall façade and other innovative features such as PLADUR® ZM Premium coated sheet and the Hoesch Matrix® façade system, as well as Hoesch isowand integral® panels with the FSI window system at BAU 2011 at Booth 308 in Hall B2. The company's motto for this year's trade show is "Steel goes green". And this is likewise the message for ThyssenKrupp Steel Europe's strategy of sustainable building with steel.

"Green" – this topic is a core building block for the future and the building trade. Which was not yet the case when BAU opened its doors for the first time and was yet to become a "must". Things have changed very much since then, and the 2009 event registered 212,000 trade visitors from 151 countries. "That was a further 3,000 up on record-setting BAU 2007, despite the emerging financial crisis," enthuses BAU representative Arend. The biggest jump in terms of internationality came between 2005 and 2007, when the number of visitors from outside Germany rose by 21 percent. The target for 2011 is an ambitious one. "Our aim where international visitors are concerned is to reach or even surpass the 40,000 mark."

There's no doubt about it – BAU offers the construction sector a huge platform. ThyssenKrupp makes use of it for presenting innovations for building with steel in the spheres of industry, commerce and prestigious office and administrative buildings. There are also awards to be won at the trade fair, for example the "Detail Award 2010 Aesthetics and Design", with architectural firms from 30 nations submitting a total of 430 projects for consideration. The Q1 building of the ThyssenKrupp Quarter is up for an award in the "Corporate" category – with ThyssenKrupp, architects Chaix & Morel ET Associés of Paris, JSWD of Cologne, as well as project developers ECE GmbH of Hamburg, and has already been shortlisted as one of the three projects from

ThyssenKrupp is setting new standards with its Quarter: it is the symbol for building with steel – from product to design and expert construction-related advice right through to sustainability.



The WIP Science Park is currently being built on the Petrisberg hill in Trier with office and seminar buildings. The building's façade is clad with Hoesch isowand® vario steel sandwich panels. The color of the panels is taken from the **ReflectionsCinc®** collection and emphasizes the lightness of the building.

among which the Category's winner will be selected at BAU. So it's official: the new Quarter is stylish and prestigious – and lot more than that as well. "It is an economically effective solution for sustainable building in line with current certification procedures and statutory requirements," stresses Reinhard Täger, CEO of ThyssenKrupp Steel Europe's Color/Construction business unit. "And," he adds with a measure of pride, "there is no other building made from steel that is innovative as this one." It truly is a pity the Quarter won't be on show at BAU 2011, but a visit to the trade fair is nevertheless worth it.

Ulrike Wirtz, freelance journalist

www.bau-muenchen.com/en

www.messe-muenchen.de/en

<http://construction.thyssenkrupp-steel-europe.com/en>



Steel makes for effective building Steel goes green



ThyssenKrupp Steel Europe will be exhibiting under the motto “Steel goes green” at BAU 2011 – illustrating that steel building products are not only easy on the climate and resources but also contribute towards creating and maintaining enduring values. The company’s appearance at Booth 308 in Hall B2 is based on a holistic understanding of sustainability embracing both ecological as well as economic and socio-cultural criteria.

“Those wishing to conserve resources and protect the climate apply ecological production methods,” says sales manager Thomas Polonyi of the Color/Construction business unit’s construction sales team. “And that is a true domain of our steel sandwich panels. We conserve fossil fuel reserves and protect the climate in many ways.” For example, the newest-generation heat-insulating elements feature a polyisocyanurate (PIR) foam. Examinations have shown that its insulating effect means one cubic meter of

PIR can save 35,000 kilowatt hours of energy over a building lifecycle of 35 years. “This in turn means 35,000 kilograms less CO₂ and thus a considerable reduction in climate stress,” says Mr. Polonyi explaining the ecological advantage. “It takes only around 1,110 kilowatt hours of energy to produce one cubic meter of PIR. The ratio of energy saved during use to energy consumed during production is therefore about 35 to 1.”

Besides this, PIR foam also stands for a very high degree of fire protection – and thus for sustainability, because it preserves values on a long-term basis once they have been created. “The priority where fire protection elements of our FIREtec® range of products are concerned lies with the protection of material assets,” explains Gordon Brede, export manager of the Color/Construction business unit’s Construction Sales team. “Our building elements are designed to meet both the European Union’s fire protection standards as well as the criteria laid down by leading international building insurers and certification bodies such as FM Global and the Loss Prevention Certification Board (LPCB).”

Needless to say, steel – of which the outer layers of the sandwich panels are made – is likewise an important part of the ecological balance. “The primary energy required for its production is just a third of what is needed for competitor materials like aluminum.” And a glance at Germany’s energy saving ordinance (EnEV) and its requirements

The **ReflectionsOne**® color collection created by color designer Friedrich Ernst von Garnier is made up of 21 color series and thus offers true aesthetics.





Left The low-weight Hoesch Additive Floor® is not only highly cost-efficient, it also looks good and adds style to parking garages.

Bottom It's not only the shape of a building that's important, but above all its color: Numerous examples of aesthetic and sustainable building with steel can be found in Duisburg-Hüttenheim.

in terms of energy-efficient building construction makes the steel sandwich panels an all the more attractive proposition. The ordinance prescribes specific heat transfer coefficients for building shells. This means, for example, a heat transfer coefficient of $0.28 \text{ W/m}^2\text{K}$ for the outer walls of non-residential buildings with room temperatures from 19 degrees Celsius upwards. "The Hoesch isowand vario® sandwich panels we have already been supplying for years have a rigid foam core with a heat transfer coefficient of $0.24 \text{ W/m}^2\text{K}$ with a panel thickness of just 100 millimeters, so this requirement is more than met," enthuses Dr. Horst Dieter Schulz, head of fabrication at Color/Construction.

Building products from ThyssenKrupp Steel Europe are also resource-efficient with regard raw materials, which are less of a topic of public discussion than fossil fuels. A newly developed zinc-magnesium alloy – which provides optimal protection for the



steel cover sheets of the sandwich panels – means conservation of the finite zinc resources. “Our new coating requires just fifty percent of the zinc needed for conventional coatings,” emphasizes Dr. Erich Nabbeheld-Arnold, head of development for flat products at Color/Construction. “And it ensures a greater degree of corrosion protection than conventional zinc coatings.”

Economy means efficiency and lasting value retention. “If you’re interested in careful management of resources such as operating materials, equipment, land and capital then you have good reasons to opt for steel construction products,” summarizes Color/Construction sales expert Andreas Ross. Key advantages of the steel panels in this respect include their low weight and the large spans they cover. “These characteristics not only mean that buildings can be constructed quickly and cost-effectively, they also enable major savings on sub-structures and foundations,” adds Ross,

listing the advantages. “A perfect example in this respect is the Hoesch Additive Floor®, a lightweight decking system for parking garages. “With a weight of only around 300 kilograms per square meter the system is roughly 40 percent lighter than solid reinforced concrete decks with comparable load-bearing capacity. And the fact that our Additive Floor® makes it possible for fewer and slimmer girders to be used means that far less material is needed for the steel frame and foundations than with solid concrete decks.”

The construction products from ThyssenKrupp Steel Europe also ensure lasting value retention with a thirty-year guarantee on the surfaces of the roof, wall and façade elements. “Our duplex system of applying a high-quality organic coating to the corrosion-protected steel plate means that the panels can be relied upon for long-term resistance to environmental and weather conditions without any loss of

quality. Besides this they are can be maintained inexpensively and are easy to clean,” says Axel Pohl, head of Color/Construction’s flat products sales team 1.

Socio-cultural sustainability means showing due consideration for the natural and built environment. “Any building changes the landscape in which it is built,” explains Rolf-Jürgen Neumann, head of strategic marketing at ThyssenKrupp Steel Europe. When all of the construction machinery has left the site, a landscape or a skyline is no longer going to be as it was, so it is important to be careful and considerate when integrating new buildings into their built or natural environment.” Viewed in this light, it becomes clear that not only the form of a structure but also the color factor plays a key role. “With this in mind, we, in collaboration with the renowned color designer Friedrich Ernst von Garnier, have developed the **ReflectionsOne®** color collection, made up of 21 carefully coordinated color series. The system offers architects, building owners and planners new possibilities to color-design their buildings so that they blend harmoniously into their surroundings and respond to the needs of the users and visitors at the same time.”

Ecological, economical, socio-cultural – the construction products from ThyssenKrupp Europe offer integrated sustainability which they are already demonstrating and proving daily in many ways. In a nutshell: Steel goes green – see for yourself in Hall B2, Booth 308.

Editorial Team

<http://construction.thyssenkrupp-steel-europe.com/en/>



Economy and energy concept present opportunities

“The construction sectors are diverging in performance.”

Like many other sectors, the construction industry also felt the effects of the economic and financial crisis. It is now on the slow path to recovery and hoping for a tailwind, with planned offshore wind farms offering the prospect of major contracts.

Mr. Bodner, what is your assessment of the current state of the construction sector in Germany?

Snow and ice made things difficult for us at the start of 2010. By fall we were still not able to make up for the loss of sales from the first quarter. Our best-case forecast is that the German construction industry will close the year down a nominal one percent in sales, but it could be worse than that.

How do you see the individual construction sectors performing?

The construction sectors are diverging widely in performance: In public works, both orders and sales have been very disappointing, despite the economic stimulus packages. Municipalities in particular seem to have put their foot on the investment brake too early. The trend in residential construction is positive, however. We seem to be over the years of hard times. Building approvals and order books are showing a pleasing upward trend.

And how do you assess corporate investment in construction?

The commercial construction sector is proving to be very much more robust than expected. Although sales in the first nine months of the year were 8.9 percent down on the previous year, order intake is up by a very healthy 7.2 percent. Still, it would be premature to give the all-clear just yet. There is plenty to suggest that businesses in the processing industry are now simply catching up on the investment in replacements and renewals that they suspended when the crisis struck in 2009. It is positive, though, that building approvals for commer-

cial structures rose in the third quarter of 2010 for the first time since 2008 – up a good 1.9 percent.

How do you see the economic prospects for 2011 and the years after?

While tax revenues are turning more favorable again, the obligation to comply with stability criteria at EU level and the brake on debt at national level will put public-sector investment under pressure in 2011 and the years after. The commercial construction sector will recover, but a new upturn will still take time. Residential construction, on the other hand, will appreciate again from a low base. We expect the industry as a whole to record a slight drop in sales in 2011.

Much of the investment from the public sector stems from the energy concept that the German government has just presented. This places a particular emphasis on renewable energies. What do you think of this concept?

Despite the difficult political debate, the federal government has now adopted a roadmap for future energy policy in Germany. We welcome this. The government has two areas of emphasis: One is the energy renovation of the existing building stock, the other the expansion of renewable energies, and in particular wind energy from offshore wind farms. The government is right in both cases: In the building stock there is still enormous energy-saving potential in the housing estates built in the 1960s and 70s especially. This will involve not only renovation but sometimes also replacement with new buildings. As for renewable energies, it is right to shift the emphasis to offshore wind power. For Germany, wind energy is

certainly by far the most economic alternative to photovoltaic energy. However, the wind energy from the North Sea and Baltic can only be exploited if the infrastructural requirements are met – by which I mean the networks for transporting electricity and the storage capacities.

What effects do you see for the German construction industry?

Wind farms in the offshore sector have a construction share of 30 to 40 percent, depending on the depth of water and degree of difficulty. If, as envisaged in the energy concept, 70 billion euros were to be invested in renewable energies, the industry could expect to receive contracts totaling 20 to 30 billion euros. Construction is one of the key industries if these plans are to be realized at all, and it is well equipped for the challenge. There are some companies that have already gained experience with technically difficult offshore farms in Great Britain, Denmark and Sweden. The expansion of renewable energies will thus become a major new business field for our branch of industry; we will play a key role as a partner for climate protection, the expansion of renewable energies, the energy renovation of buildings and sustainable construction.

Can you also envisage cooperation between the construction industry and the material and energy industry in this sector?

There is already some cooperation in certain cases. As far as the development and operation of the actual installations is concerned, however, no construction company has yet engaged seriously in this field, but it is very likely that some are considering it.

The escalation clauses for material prices were adjusted only two years ago, but already the construction industry is demanding further improvements and is in negotiation with the German finance and construction ministries. It seems as if the construction sector wants to pass the business risk on to the state ...

Huge fluctuations in raw material prices should not become a risk for the company doing the construction. By fall the prices for metals had risen more than 17 percent year-on-year; universal mill plates are 26 percent more expensive than a year ago. By contrast, construction prices have risen only slightly over the last twelve months. So there is little room for absorbing the impact of fluctuations in material costs beyond raising the price of construction.

The previous application procedures for material cost escalation clauses with the German Ministry of Transport, Building and Urban Development proved to be both too expensive and, in particular, too long-winded. That is why we got together with our partner associations to lobby the federal government for a root-and-branch reform of the material cost escalation clauses – a reform that should also serve as a model for similar agreements with local and regional government, and with private customers too. It is of no use to anyone for the risks to fall solely on the construction industry. This would force companies – as a precaution – to introduce risk premiums, which would in turn entail unnecessary price effects and impose unnecessary burdens on our customers. Above all, though, the price of raw materials must not become a danger to the general economic recovery in Germany.

Building with steel – has that changed over the last few years?

Every material has its strengths and weaknesses. With steel, you generally get leaner structures. That steel is used so much in construction in the USA especially has to do with the fire safety regulations there. Few architects or developers make the question of materials a point of principle. In the majority of cases they simply work with the material that is the most economic and is best suited to the particular task. In the last few years many product innovations have led to steel enjoying much wider use as a material. Long life, energy issues and a good visual appearance feed into different

usage concepts and are also competitive on price. That makes building with steel more and more attractive for many developers and construction companies.

The interview was conducted by economics journalist
Dr. Bettina Wiess

Herbert Bodner has been President of the German Construction Industry Association since January 2009. In his full-time job, the civil engineer, born in Graz, Austria, 1948, has been chairman of the board of Bilfinger Berger AG since 1999. Bodner represents the construction industry which, with a workforce of 2.2 million, is one of the biggest employers in Germany. In 2009 the volume of investment in construction reached 244 billion euros, accounting for 10 percent of gross domestic product. compact interviewed Herbert Bodner in advance of BAU 2011.



Austria's most ambitious project

St. Koloman – House of Generations

In the EU the construction sector is responsible for some 40 percent of energy consumption and greenhouse gas emissions. Improving the energy balance is becoming a must for many developers. That also benefits the construction industry and products of ThyssenKrupp Steel Europe.

The municipality of Stockerau in Lower Austria is proud to have successfully completed, this fall, what is so far Austria's biggest passive house renovation project, at "St. Koloman – House of Generations". It did so using Hoesch Siding Façade Planeel®. The new façade demonstrates that the product from ThyssenKrupp Steel Europe is not only an eye-catcher in terms of looks, but also meets the stringent requirements of passive house technology.

The name itself makes one inquisitive: St. Koloman? Not everyone may know of the saint, but in Austria he is familiar to all: for four centuries, he was the patron saint

of Austria "above and below the Enns". Today he is still the patron saint of the municipality of Stockerau and of the town and chapter house of Melk in Lower Austria. Legend has it that Koloman was on a pilgrimage when he was arrested near Stockerau on suspicion of being a spy, and subsequently hanged. Many miracles followed his death, so that he was soon canonized.

Located some 30 kilometers northwest of Vienna, the municipality of Stockerau erected the six-floor "St. Koloman" retirement home in 1973. When it became necessary to renovate the building, the municipality,

in conjunction with Isover, an insulating materials company based in Stockerau, took the decision in 2008 to turn the building from a low-energy to a passive house. "It was something of a gamble, given that it entailed a considerable amount of re-planning and also the fact that we had to rely absolutely on the technical know-how of the architect and the firms tasked with the construction", recalls mayor Helmut Laab. The house was to be transformed from a retirement home to a "house of generations" – with a kindergarten, a day center for the elderly and 32 residential units for sheltered housing.

The people of Stockerau witnessed all parts of the building being dismantled right down to the shell and the lift shaft – a challenge in terms of statics. In addition to the renovation work, the plans were also changed in order to meet the requirements of the change of use. The insulating material used and the outer façade had to be coordinated. Stone, glass and steel were considered for the façade. "Had we opted for stone and glass, this would have resulted in a greater weight and thus a higher number of anchoring points, which leads to a greater loss of heat – not something we want in a project designed to meet passive house standards", explains architect Martin Kuchler of Kuchler-ZT, the architects commissioned with the project. Further arguments for the steel façade were the long life of the material and the optimization of the insulating properties of the products used.

In Stockerau the Hoesch Siding Façade Planeel® product was used as the façade system. It offers relatively narrow surface components that are particularly inexpensive to fit and just as suitable for a new building as for the renovation of an older one. The system can be installed on almost any substrate. A positive feature of the



Gutted down to the bare walls: the "St. Koloman – House of Generations" before its renovation.

The new Hoesch® system bar offers a flat, elegant appearance. It is assembled quickly: work began in January, and the kindergarten moved in as early as June.

St. Koloman project was that integrating insulating thicknesses could be integrated right through to the applied passive house standard. The elements, which are between 200 and 400 millimeters wide, can be laid horizontally, vertically and diagonally in lengths of up to eight meters, giving architects and planners absolute design freedom. In addition, the Hoesch® façades can be customized with individual shadow gaps, perforated elements and a variety of color combinations for the wall elements. The new Hoesch® system bar allows a flat, elegant appearance alongside rapid assembly. The wall elements can be mounted with concealed, non-penetrating fasteners and without secondary bending. Another advantage is that the windtight envelope that is mandatory in this building standard can be installed continuously and without the need for recesses. The elegant nature of the façade is also ensured by specially designed solutions for corners and fascia elements that are tailored to the system.

The project in Stockerau was handled by ThyssenKrupp Systembau Austria, a subsidiary of ThyssenKrupp Steel Europe. Bernhard Gittenberger, site manager for architects Kuchler-ZT, praises the workmanship: "Systembau Austria gave us work drawings with the gap spacings and balcony indentations as well as final plans in the actual measured dimensions. That allowed us to plan and visualize the project for the developer." Work on the backing began in January: "The workers, who went about their drilling and screwing with absolute professionalism at heights of 15 meters and at temperatures as low as minus 15 degrees Celsius, deserve enormous praise. Without them we would not have been able to keep to the completion date," Gittenberger says. The kindergarten was handed over as early as July, and the retirees moved into their apartments from October.

"The costs for renovating the building were roughly the same as constructing a non-passive house from scratch would have cost," architect Martin Kuchler reckons.

Mayor Helmut Laab puts the total costs at around 5.8 million euros and emphasizes that the local population had been very much in favor of a renovation instead of a new building; in Stockerau, he goes on, they have always been interested in ecological themes and employed the corresponding technologies. The energy balance of the house today is markedly positive: Compared with the old building, the passive house will incur less than ten percent of the original energy costs. Despite a total useful surface area in excess of 4,000 square meters, that means the building's energy consumption will be less than that of many detached houses.

Mayor Helmut Laab is proud that his town took on the project and brought it to a successful conclusion, despite initial difficulties. 998 years after Koloman, Stockerau is

again set to become a place of pilgrimage for people, this time less for religious and much more for work-related reasons: National and international architects and engineers are now visiting the town because the "House of Generations" is a prime example of how even multi-floor buildings from the 1970s can be transformed into passive houses. The project has already been showcased at the passive house trade fair in Innsbruck. "Austria is the world leader in the passive house sector and we are delighted to have made a visible contribution to this with our project", says Helmut Laab.

Dr. Bettina Wiess, economics journalist

www.tk-hoesch.com



Chassis construction made easy

Complex phase steel for control arms

High fuel prices, increasing weights of vehicles, the ongoing CO₂ debate – the trend is still towards lightweight construction in the automotive industry. “And we’re experts in that,” emphasizes Ulf Sudowe, chassis development manager at ThyssenKrupp Umformtechnik in Bielefeld.

“We have already established high-strength and ultrahigh-strength steels in body construction, thereby lowering the weight and enhancing safety,” Sudowe explains. “To save even more weight and costs, we are now transferring our know-how to the design of chassis parts such as control arms.” Competition for the best component

concepts is intense. Standard control arms are made of cast steel, aluminum or two-part sheet metal structures. ThyssenKrupp Umformtechnik, on the other hand, is relying on the benefits of the complex phase (CP) steel from ThyssenKrupp Steel Europe: “It is much stronger than the steels used predominantly in the chassis sector today.

Combined with its good forming properties, it is perfect for configuration as a single-shell component.” That saves the customer weight and money – around 25 percent of the costs in total. “We use fewer individual parts in production, which means fewer joining operations,” he emphasizes. “It also delivers positive effects for corrosion resistance, as there are no welding seams and cavities.”

Chassis development manager Sudowe is delighted with the success of the technology transfer: “Our high-grade technical product solution is being well received and several customers in the automotive industry have already been persuaded of both the concept and the economic benefits. Thousands of the new single-shell control arms are being installed in a range of vehicle models every day, and there are now millions of them in use on roads across the world.”

Christiane Hoch-Baumann

The new single-shell control arm has been well received. 1.2 million units leave ThyssenKrupp Umformtechnik's production plant in Bielefeld-Brackwede every year.



www.thyssenkrupp-umformtechnik.com

New prospects in automotive construction

Tailored tempering makes the breakthrough

Tailored tempering is opening up new prospects with added value for automotive construction. The innovative hot-stamping technology of the Ludwigsfeld manufacturer of components for car bodies and chassis is on course: ThyssenKrupp Umformtechnik will be supplying more than 200,000 tempered B-pillars a year to a south German premium manufacturer. The safety-relevant components will be installed in vehicles in the compact class.

“We have developed the process to industrial maturity,” explains sales director Dr. Jens-Arend Feindt of ThyssenKrupp Umformtechnik, “and can now manufacture the B-pillar from a homogeneous sheet that is given several zones with different strengths in the hot-stamping process.” It’s an intelligent flexibility that is essential to survival, particularly in the case of crash-relevant components, and offers optimal protection to the vehicle’s occupants if the worst comes to the worst. “On the one hand, deformation allows the energy from a collision to be dissipated, while on the other stability and therefore safety must be guaranteed – that’s the product’s bifunctionality.”

The key to the new method is explained by body development manager Dr. Oliver Straube: “Our tempered components are manufactured using a flexibly heatable stamping die that has just been developed. The different temperature zones allow the heated sheet to cool down at different rates in the stamping process. This produces a component with locally varying and precisely configured elongation and strength properties.”

Economy, less weight, fewer components, crash management – the technology pays off. “We are saving several process steps and individual parts, and working just as flexibly as precisely,” Feindt emphasizes. “Our method can be used to manufacture individual components whose strength and elongation properties vary across several alternating zones – both vertically and horizontally.” That makes it highly interesting for the designers of the new generation of vehicles: “The transition between hard and ductile zones is fluid and, at only 15 to 60 millimeters, also very narrow – and all that without a weld.” Tailored tempering is a step forward in innovation that brings added value for the automotive industry.

Bernd Overmaat

www.thyssenkrupp-umformtechnik.com

Tailored tempering – it could hardly be more ideal: The intelligent B-pillar offers a convincing combination of several different strength and elongation zones, giving optimal protection to the occupants in the event of a crash.

Sustainability analysis of tinplate

“The food can is greener than you think”



“Sustainability applies to the food industry too,” as Dr. Beate Bannemann, development engineer, and Dr. Heiner Schäfer, Technical Customer Adviser, both from Rasselstein, know. “The food can is greener than you think.” And that is demonstrated by casting a critical eye on the whole value-added chain of a tin can. It reveals that tinplate as a packaging material offers considerable advantages for the environment.

Rasselstein is celebrating the 200th birthday of the food can this year, the tinplate producer having been involved in its continual optimization right from the start. “It was invented for the military so that they could store and transport food,” Bannemann explains. The tin can became an everyday sight among the civilian population with the development of the can opener in 1855. “In 1934 we introduced electrolytic tinning, improving the economic viability of tinplate,” Schäfer adds. The process has remained the global standard to this day.

Just like the soldier of old, today’s consumer also wants to be able to enjoy food for a long time. “Today he can choose between several types of packaging”, he says. “Steel is the best choice for environmental reasons, though.” That’s because little energy is consumed in the handling of cans in the food industry, in the retail trade and by the consumer. The transport and storage of tin cans do not require any (deep) freezing; all that is needed for consumption, if anything, is a little heating.

“The steel can also guarantees long and healthy enjoyment,” Bannemann adds. Heat sterilization has no effect on the nutrients in the food, which are fully retained in the airtight steel packaging for up to three years.

That is just one aspect to consider. There are other plus points in the production. “We have examined all production processes closely for their savings potential,” explains Bannemann. The results are worth a look: “With a certified environmental management system that includes a dedicated closed substance cycle, we recycle about 95 percent of the resources used,” she emphasizes. Indeed, the state of Rhineland-Palatinate awarded Rasselstein the environment prize last year for this achievement.

They’re also working in Andernach on reducing thicknesses. “Thinner sheet means less steel is used and fewer resources are consumed in its manufacture,” she explains, “and less weight in turn means less

energy consumption in transport.” The parent company, ThyssenKrupp Steel Europe, supplies Rasselstein with high-quality hot strip and is working successfully with the tinplate manufacturer on optimizing sheet steel. “Over the last 30 years we have reduced the thickness of the sheet metal for food and petfood cans by some 45 percent,” Bannemann elaborates. The Rasselstein experts have been able to reduce the current standard thickness of 0.130 millimeters even further. With the development of a tinplate that is only 0.100 millimeters thick, the company has reached a new level in efficiency improvements.

The resource conservation cycle is completed with the recycling of the food can. “To ensure optimal recycling, we have been working with the Deutsche Gesellschaft für Weißblechrecycling (DWR), the German tinplate recycling association, and Kreislaufsystem Blechverpackungen (KBS), the tinplate packaging management system, for years,” explains Schäffgen. In 2009 they

achieved a recycling rate of 93.6 percent, outstanding by European standards. “Tinplate scrap is valuable,” he underlines. “It consists of rare and costly secondary materials.” The scrap means that less iron ore and coal have to be used in the production of new steel, for instance.

The holistic product analysis of the food can produces a clear result: The use of packaging steel protects the environment. Rasselstein doesn’t just talk about environmental protection: It is already acting with an eye on the future.

Daria Szygalski

www.rasselstein.com

Left ThyssenKrupp Steel Europe supplies Rasselstein with high-quality hot strip and is working successfully with the tinplate manufacturer on optimizing sheet steel.

Right If you analyze the food can holistically, you can see that it offers plenty of advantages for the environment.



Renewable energies on the march

How ENERCON is driving wind power forward

ENERCON is one of the world's leading wind turbine manufacturers and the technology pacesetter in the industry. For its generators, the company relies on electrical steel and know-how from ThyssenKrupp Electrical Steel.

What makes ENERCON wind turbines so special is their gearless drive. They are in huge demand, with 16,500 turbines having been put in place to date.

ENERCON has a tailwind: Oil sources are drying up and carbon dioxide emissions are rising. Renewable energies with intelligent all-in-one solutions are more in demand than ever before. ENERCON supplies both and is the biggest German player in the wind industry – and not without reason. ENERCON's wind turbines, which can be integrated seamlessly into all supply and distribution structures, and its service products have already been in great demand for years. In Germany the manufacturer has been the market leader for one and a half decades; in 2009 it was the number four in the world. More than 16,500 turbines have been put in place to date. "That means we have reached the 20 gigawatt mark," explains Matthias Dutsch, CEO of Induction, the generator manufacturer that produces solely for ENERCON. His colleague Markus Bükler from the purchasing department agrees, adding: "That is equivalent to about half the installed outputs of all nuclear power stations in Germany."

It was with the idea of enabling a power supply with up to 100 percent renewable energies that Aloys Wobben founded a company for the generation of electric power from wind energy back in 1984. The company was one of the very first, and Wobben was a pioneer who is still regarded as an innovative blue-sky thinker today. And with success: While the first generation of turbines was still fitted with gears, 1992 saw a complete changeover to gearless technology. These turbines have few rotating components, which ensures an almost frictionless energy flow. Dutsch explains: "This enabled us to reduce the running costs and maintenance expenditure as well as increase the service life of the turbines." It's a revolution that has also brought ENERCON international success. Initially a small firm with just a handful of employees, today the wind turbine manufacturer has a workforce of more than 12,000 working directly or indirectly for it in over 30 countries.

The gearless concept continues to be a feature of all ENERCON turbines. "Our cooperation with ThyssenKrupp Electrical Steel has more than paid off," says Bükler of the

history of one of its main suppliers. "Since our early stages we have been using electrical steel of the PowerCore® brand from Bochum for our generators and throttles." Today, the subsidiary of ThyssenKrupp Steel Europe supplies some 40,000 metric tons a year of non-oriented electrical steel tailored specifically to the needs of ENERCON. "We are working constantly together on optimizing the material in order to improve our turbines," says Dutsch. "First and foremost we are interested in even better magnetic properties of the sheet metal," Martin Gallelli, of the Technical Customer Advice Service team for ThyssenKrupp Electrical Steel, elaborates. "We've already



Top At ENERCON, Markus Bükler (left), purchasing manager for Induction Generatorenfertigung, and Matthias Dutsch (right), CEO of Induction Generatorenfertigung, know the value of the products and know-how of ThyssenKrupp Electrical Steel: Together with Martin Gallelli, Technical Customer Service ThyssenKrupp Electrical Steel, they are working on further optimizations of PowerCore® electrical steel for even better wind turbines.

Bottom ENERCON is one of the global leaders when it comes to exploiting wind power.



been able to achieve a great deal in this area, and we are working on more."

Both quality and a production process that protects the environment and the health of the workers are central values at ENERCON. The company will continue to make a name for itself in the future with technical innovation relating to renewable energy supply systems.

Daria Szygalski

www.enercon.de/en-en/

“Our tools are our competitive edge”

Progress-Werk Oberkirch

Progress-Werk Oberkirch is a world-leading manufacturer of high-tech metal components for the automotive industry. ThyssenKrupp Steel Europe not only supplies coated steel of the GALFAN® grade, but also supports the company with its complete know-how.

The Progress-Werk Oberkirch plant is nestled between orchards and vineyards. The romantic idyll makes it easy to forget that this is a world-leading company producing high-quality metal components for automobile construction. International standards in production and quality are set in the Oberkirch headquarters.

Founded more than 90 years ago, the company has specialized in engineering from the start. The focus on the automotive industry only came over the course of time.

The secret to the success of Progress-Werk Oberkirch lies in the tooling. That's why so many experts are constantly working on new maximum-precision tools.



“We started off producing air pumps here,” says purchasing manager Manfred Bächle, “then punched, drawn and stamped components for the automotive industry. Later came preassembled, ready-to-install sub-systems.” Today its more than 1,800 employees across the world develop and produce high-tech components made of steel, stainless steel and aluminum as well as systems delivering safety and comfort in the car. While Progress-Werk was initially restricted to Oberkirch, it has grown over the years. “We now have production facili-

ties in the Czech Republic, Canada, Mexico and China.”

Whether Oberkirch, Valasske Mezirici, Kitchener, Puebla or Suzhou, what all sites have in common is maximum precision and efficiency in manufacture. This demands the corresponding expertise in die construction. More than 250 specialists develop, design and manufacture robust dies of the very highest accuracy. Computer-aided simulations of the forming processes form the basis, ultramodern CNC-controlled machining centers produce the die components and experienced mechanical engineers join them together.

The enthusiasm and precision in die construction feeds into the manufacture of the products. Nowhere in the Oberkirch plant will you see untidiness – the floor is almost white. “We attach a great deal of importance to tidiness and cleanliness,” Bächle explains. “We firmly believe that this has a positive impact on the performance of our workers.” Product and process development is just as focused on quality. “We work together with our customers in simultaneous engineering, involving our suppliers where appropriate,” he goes on.

They also rely on ThyssenKrupp Steel Europe. “We have been cooperating with the company since 1982,” says Bächle. Today up to 14,000 metric tons a year is delivered to the Oberkirch plant from Siegerland. “We don’t just value the high-quality

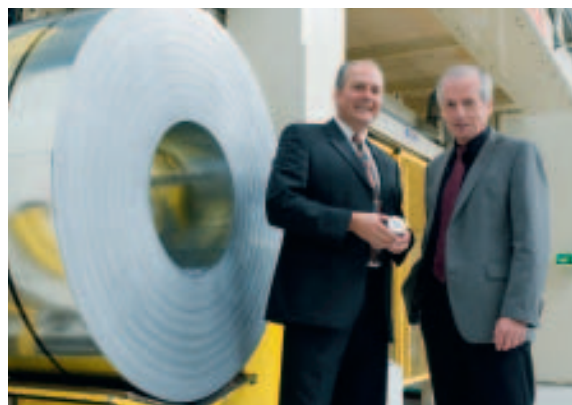
materials, we also value their know-how.” The Duisburg company is a development partner. “To give an example, we developed a new grade, DPW700, for a part of the MacPherson strut mount in conjunction with Progress-Werk Oberkirch and ThyssenKrupp Bilstein,” explains Bodo Hämmerling of the Technical Customer Advice Service team at ThyssenKrupp Steel Europe. “The strength class of the new development enabled us to manufacture the product, which will be used in a high-end sports car, as a stamped part, saving the corresponding manufacturing costs,” Bächle states. Hämmerling adds: “We’re approaching the Oberkirch people as well about testing a new development such as the zinc-magnesium surface.” Bächle nods and says: “We’re very open to that, because we want to be able to pass this knowledge on to our customers.”

Customers know where the heart is at Progress-Werk Oberkirch. In 2010 the company gained the prestigious Automotive Award for Lean Production in the SME sector and won orders on the back of that. It expects turnover of some 250 million euros this year. “We will grow, but always cautiously and with a clear focus on where we’re going.” They may be in romantic surroundings, but in Oberkirch they’ve got their feet firmly on the ground.

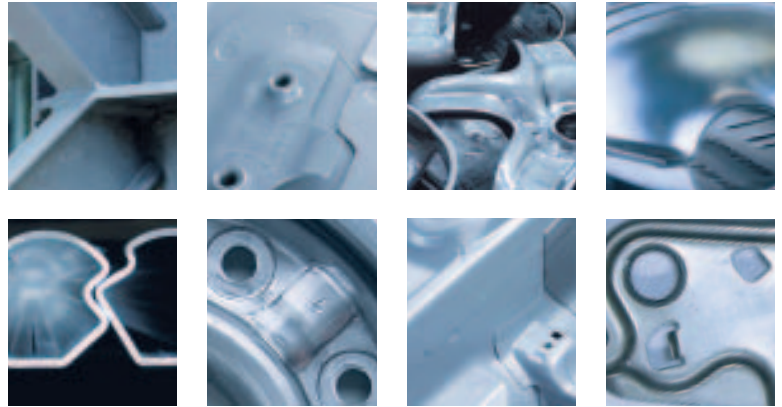
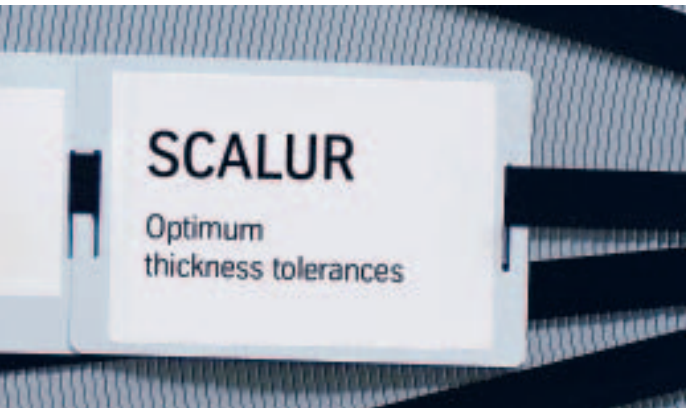
Daria Szygalski

www.progress-werk.de/en/

Progress-Werk Oberkirch doesn’t just value the materials of ThyssenKrupp Steel Europe. Manfred Bächle (right), purchasing manager at Progress-Werk Oberkirch, and Bodo Hämmerling, of Technical Customer Advice Service ThyssenKrupp Steel Europe, also exchange know-how intensively.



Our new high-tech hot strip SCALUR® – a steel with two faces



Top-quality processing, reliable processes, high yields – that's what SCALUR® offers customers. SCALUR® is the name given to a new product family that is produced solely at ThyssenKrupp Steel Europe's casting-rolling mill in Duisburg. What makes it unique is that the hot strip has similar properties to cold strip.

Hot and cold: The pickled and oiled SCALUR® hot strip has the positive characteristics of a cold strip. It is primarily suited for internal structural parts and seat components as well as profile parts in shelf and furniture construction.

"The pickled and oiled hot strip offers tight thickness tolerances and uniform mechanical properties that are comparable to the features of cold-rolled steels," enthuses Hendrik Langenbach, head of Industrial Sales Customer Services. "Its precise dimensions make it particularly suitable for manufacturing processes in which hot strip with low thicknesses are needed. The low sulfur content also helps it meet the stringent requirements on cold formability." The new steel grade is thus a realistic solution for thin-walled, higher-strength stamped parts such as seat components in vehicle construction. Profile parts such as for shelf and furniture construction can also be produced cost-effectively at a consistently high quality.

We produce our new brand on the casting-rolling mill in Duisburg", Langenbach says. The mill brings the two production stages of continuous casting and hot rolling into one production line. "The particularly homogeneous microstructure of the material arises partly from the fact that the slabs come straight from the continuous casting line, and so go direct from the heat of casting to the hot-rolling line. That means the temper-

ature distribution is more uniform than in traditional hot-strip production, where the slabs first cool down and then have to be heated up again before hot rolling. And this uniform temperature profile, coupled with the advanced rolling technology, is the key to the tight thickness tolerances."

SCALUR® is available in thicknesses of 1.2 to 6 millimeters, with widths of between 900 and 1,600 millimeters. The spectrum of steel grades available as SCALUR® hot strip extends from soft steels for cold forming through micro-alloyed steels with yield strengths of 315 to 550 Megapascal (MPa) to a maximum-strength complex-phase steel with a yield strength of 680 MPa. Dimensional stability and the consistent chemical composition of the material are impressively backed up by figures such as the typical sulfur content of 0.002 percent and 0.05 to 0.07 millimeters for the thickness deviation, depending on the thickness of the strip.

Bernd Overmaat

www.thyssenkrupp-steel-europe.com/en/

New brand at ThyssenKrupp Steel Europe

CoveX[®] – the invisible coating with benefits

The new additional coating from ThyssenKrupp Steel Europe is absolutely invisible, but its benefits are all the more obvious for that: CoveX[®] offers optimum corrosion protection during storage and transport of the steel strips, protects them against undesirable fingerprints and simplifies further processing. Material coated with CoveX[®] can be painted directly with or without pretreatment.

“CoveX[®] comes in the three variants, S, E and T, and is suitable for all metal-finished surfaces,” emphasizes Roger Hannig, team leader of Industrial Sales Technical Customer Advice Service at ThyssenKrupp Steel Europe. These include hot-dip galvanized material just as much as products coated or hot-dip aluminized with zinc-magnesium, GALFAN[®] and GALVALUME[®]. “The organic film of the CoveX[®] S and E variants is continuously applied to the strip in our ChemCoater.” This transparent coating is as thin as one µm and cannot be detected by the naked eye. Yet it delivers a truly top performance: “CoveX[®] effectively protects the surfaces of our steels against corrosion – even after they have been processed, i.e. in the end product. The transparent film retains the inherent gloss of our steel and delays the darkening of its surfaces. At the same time, the coating effectively prevents staining caused by sweaty hands.” CoveX[®] T, meanwhile, is simply a surface passivation – i.e. temporary protection for the material. The new surface coating from

ThyssenKrupp Steel Europe doesn't just have protective functions, though: It supports all forming processes that the steel strip runs through until the end product. “Thanks to CoveX[®], the material moves much more easily in the die, and it is easier to form, draw and bend”, Hannig adds. The same applies for the different joining processes such as welding and soldering. Metal abrasion, too, is much lower in further processing. Another positive aspect: “The surface can be painted without any further pretreatment. You could say that the sealant serves as a primer for a powder coating.”

CoveX[®] coating systems can be used at temperatures of 150 degrees Celsius, and temperatures of up to 300 degrees Celsius

are even possible transiently, such as when baking paints. The additional coating is available in strip widths of between 600 and 1,550 millimeters and thickness of between 0.3 and 3.25 millimeters. “Our CoveX[®] systems are continually optimized in close collaboration with our customers and suppliers,” says Hannig of the future.

Christiane Hoch-Baumann


http://www.thyssenkrupp-steel-europe.com/de/publikationen/produktinformationen/feinblech.jsp?catcode=pub.neue_publikationen.produkt-informationen.feinblech.produktinformationen



The bicycle lock already benefits from the numerous advantages of CoveX[®] S, the new transparent coating from ThyssenKrupp Steel Europe.

When power and strength is called for A colossus at work

Cranes are advancing into ever more difficult territory – higher, heavier, narrower. They must work reliably in every situation – and at low running costs. That's made possible by Liebherr, one of the leading crane manufacturers in the world. And the Heavy Plate Unit of ThyssenKrupp Steel Europe supplies the high-strength structural steels from which the specialist builds the power machines.



Liebherr developed its "W" series specifically for use in confined wind farms. The latest model is the LR 1600/2-W mobile crane. Fully configured, it stands on a crawler-mounted chassis just 5.8 meters wide. The main boom system measures up to 108 meters with a 12-meter fixed point. With a derrick system, lengths as great as 138 meters are possible.

A compact new development from Liebherr: The LTC 1045-3.1 mobile crane moves as well as an all-terrain 3-axle vehicle and is an ideal lifting device for confined spaces such as industrial halls. On the road, its active speed-controlled rear-axle steering ensures lane stability and maneuverability even at high speed. That enables it to roll smoothly even at roundabouts.



The colossus has plenty about it: It weighs 3,500 metric tons and hoists loads of up to 3,000 metric tons. The power machine is the latest product from Liebherr, a family-owned business with German roots which is based in Bulle, Switzerland, and has more than 100 companies across the world. The crane is a crawler crane known as LR 13 000 and is produced in Ehingen, Swabia, one of the 29 production facilities of the Liebherr group in twelve countries on four continents. "The new LR 13 000 is our flagship crawler crane," says Wolfgang Beringer, head of Sales Promotion in Ehingen. And the new arrival is the answer to what the market is asking for at the moment. "Cranes with longer and longer booms and greater and greater lifting capacities."

The crawler crane can be used wherever extreme power and strength are needed: in power station construction, for instance, and specifically in the latest generation of nuclear power stations, where extremely heavy individual weights have to be lifted. Or the construction of refineries, where entire industrial columns weighing 1,500 metric tons and 100 meters in length are not uncommon. Or even for the preassembly of oil rigs and similar offshore steel structures. Beringer: "With its 3,000-metric ton maximum lifting capacity and twelve-meter boom, the LR 13 000 is a whole new dimension in size among crawler cranes of conventional design." Liebherr specializes in such crawler crane giants. And that is just one example of the know-how of the company, which was founded by Hans Liebherr in 1949 and now has a global workforce of 32,000. The founder began with slewing tower cranes. Today, the Liebherr group is one of the biggest construction machine manufacturers in the world in terms of sales, offers further high-tech products and services and turned over a good seven billion euros in 2010. Now run by the second generation of the family, the company is thus a heavyweight itself.

Another of its specialties are crawler cranes in narrow-gage version. The latest representative of this series is the LR 1600/2-W, with a lifting capacity of 600 metric tons. So narrow gage doesn't mean that it lacks

enormous power. The crane puts 3-Mega-watt systems on 100-meter towers. Liebherr developed the "W" series specifically for wind farms, where there is little space between field, forest and meadow for maneuvering and erecting the boom systems. Six years ago Liebherr was the pioneer for narrow-gage cranes for wind farms. Wind power helped Liebherr develop and grow, according to Beringer, "because the turbines are getting ever higher, the individual weights of the systems ever greater. That led us to develop tailor-made boom systems for the wind industry."

This new development is a prime example of how important it is to keep an ear close to the market. "We are always asking ourselves how we as a manufacturer can best meet the lifting requirements of our customers. That demands innovative crane concepts and intelligent detail solutions. And it requires plenty of experience as well." The company has always prided itself on its innovative capacity, as well as the quality and long life of its products. Evidence of these strengths is that used Liebherr mobile cranes achieve higher prices than the equipment of competitors. These strengths also presuppose high-grade construction materials for the cranes – high-strength fine-grained structural steels, specifically water-quenched steels with a minimum yield strength of up to 1,100 Megapascal (MPa). Despite its high strength, this steel boasts excellent toughness and good cold forming behavior. And it lends itself ideally to welding.

All these are benefits that ensure that the welded construction crane is safe even under maximum stresses. "These machines are exposed to dynamic and static stresses and are constantly in vibration. The weld seams must be able to withstand all this," emphasizes Paul Schmitz of ThyssenKrupp Steel Europe, Key Account Manager

Liebherr. With cranes, the dead weight also has a major bearing on the useful load as well as economy. Says Schmitz: "That's why a reduction in the dead weight must not prejudice the lifting capacity or component safety, and that's what our heavy plates help achieve." Crane manufacturer Liebherr has been a customer of ThyssenKrupp Steel Europe since the 1970s.

For global player Liebherr, Germany is the biggest single market for mobile and crawler cranes. This is where the specialist makes 20 percent of its sales. The company pulls in another 35 percent in the rest of Europe. The BRIC states, too, are a very important sales market. Beringer: "Brazil is performing particularly well. While Russia was hit very hard by the economic crisis, it has recovered well." Australia is also offering good sales prospects at the moment, unlike the USA. "Our business in this traditionally good market is rather sluggish at present." What else are customers asking for? "Small, light cranes with high mobility and flexibility and long and strong booms. With mobile cranes, a weight on public highways of twelve metric tons times the number of axles. There's also demand for crane controls for sensitive movements."

What all this means for Liebherr is getting the maximum performance from the weight available – through new materials, better forms and optimal structural analysis methods. And that means the Heavy Plates Unit of ThyssenKrupp Steel Europe keeps having to rise to the challenge. Beringer: "We work together on testing, research and development." The modern crane colossuses must have plenty about them – but so too must their manufacturers and their steel suppliers.

Ulrike Wirtz, freelance journalist

www.liebherr.com

Agenda

BAU 2011

January 17 – 22, 2011, Munich

BAU is Europe's leading trade fair for architecture, materials and systems for industrial, commercial and residential construction and for interior work. It opens its gates at the trade fair center in Munich from January 17 to 22, 2011. One of its aims is to step up significantly the international commitment to the Middle East, North America and Japan, Korea, China and India. The key themes of BAU 2011 are the sustainable construction, redevelopment, renovation and modernization of buildings. ThyssenKrupp Steel Europe will be exhibiting at the fair in the shape of its companies ThyssenKrupp Bausysteme, Hoesch Bausysteme (A), and Isocab (B), and ThyssenKrupp Nirosta. With a booth slogan of "Steel goes green", ThyssenKrupp Steel Europe will be showcasing innovative and intelligent construction elements and the latest surface coatings in hall B2, booth 308. You can also take advantage of our range of special presentations, held at our booth throughout the duration of the fair, and engage in direct dialogue with our construction experts.

CTI Forum Exhaust Systems

January 24 – 27, 2011, Stuttgart

Just as it did at the VDI conference on exhaust treatment systems in Stuttgart December 2010, ThyssenKrupp Tailored Blanks will again be showcasing the newly developed stainless steel tailored strips and tailored orbital pipes for lightweight construction in exhaust systems at the CTI Forum Exhaust Systems. Dr. Klaus Zimmermann will be presenting the latest material combinations in a lecture on the subject of "Lightweight construction in exhaust systems with tailored products".

UPAKOVKA

January 25 – 28, 2011, Russia

Held in Moscow every year, UPAKOVKA is the most important trade fair for the packaging industry in the eastern European markets and the former CIS states. Rasselstein will be represented at the industry meet as a partner of packaging manufacturers. Its presence at the fair will focus on observing market trends and cultivating contacts with existing or prospective eastern European customers who use the fair as an orientation platform.

BC India 2011

February 8 – 11, 2011, Bandra Kurla Complex, Mumbai, India

BC India is a new trade fair that focuses on mechanical engineering for construction machinery, building material machines, mining machines and construction vehicles for the Indian subcontinent and neighboring countries. The joint venture between two internationally successful trade fair organizers – Messe München International, promoter of BAUMA and AEM, organizer of CONEXPO-CON/AGG – offers a new business platform that brings together global market leaders and representatives of the industry in India. ThyssenKrupp Steel Europe will be there in the form of its Heavy Plates Unit, underlining its commitment to the Indian growth market.

Samoter

March 2 – 6, 2011, Verona, Italy

Held every three years, this international trade fair for earthmoving and building machinery showcases a wide and varied range of products and services for the construction machinery sector in southern Europe. The Heavy Plates Unit of ThyssenKrupp Steel Europe will be taking part in the fair with XAR®, N-A-XTRA® and XABO®, the special structural steels developed specifically for this industry.

Contact: **Achim Stolle**, Strategic Marketing, tel. +49 203 52-41005, e-mail: achim.stolle@thyssenkrupp.com

Echo

The first Brazilian slab

"The arrival of the first slabs from the Brazilian city of Santa Cruz in the port of Walsum marks the start of a new era for ThyssenKrupp Steel Europe. (...) 2.1 million metric tons of slabs a year are to embark on the 10,000-kilometer journey from ThyssenKrupp CSA Siderúrgica do Atlântico's new integrated iron and steel mill in Santa Cruz to Rotterdam and then on to Walsum. (...)"

Rheinische Post (Dinslaken), October 29, 2010

ThyssenKrupp: environmental prize for InCar

"The InCar project of the ThyssenKrupp Group has won second prize at this year's ÖkoGlobe awards ceremony. (...) InCar won second place in the Supplier Innovations category. The jury's reasons stated: "(...) With this modular system, ThyssenKrupp enables a significant leap forward in innovation in automobile manufacturing."

Konstruktion, October 2010

ThyssenKrupp: it's not just the steel that merits a prize

"At the end of September ThyssenKrupp Steel Europe won the 'Fokus 50+ Award': consultants Apriori honored Germany's biggest steel manufacturer for 'an exemplary strategic anchoring and holistic, interdisciplinary and sustainability-oriented demography management' as part of its 'Pro Zukunft' (Pro Future) program."

WAZ (Duisburg), October 14, 2010