

The customer magazine of ThyssenKrupp Steel Europe

compact

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2/2011

Steel providing mobility

The automotive industry is celebrating its 125th birthday

Steel cleverly combined

Many different grades are combined in one strip

Steel is green

Facades are both environmentally friendly and attractive

ThyssenKrupp Steel Europe
Thinking the future of steel



compact

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125 years of the automobile: an unparalleled success story which would not have been possible without steel. Bentley, Rolls-Royce or Maybach – none of these prestigious brands would be driving without the most important of all industrial materials. After all, a car is now composed of more than 50 per cent steel; in fact, when it comes to the body the proportion of steel is significantly higher. Steel is very much in vogue in our fast-living, mobile society which has to be increasingly mindful of the environment. Read more about this in the article which starts on page 6.

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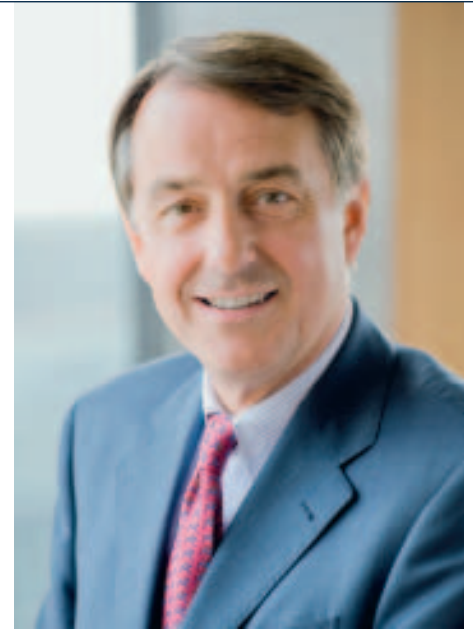
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Dear readers, valued customers,

Steel and cars – two protagonists which, jointly, have achieved unparalleled success over the past 125 years. And that will continue to be the case in the future. The car is celebrating its jubilee this year. To mark this occasion, the most influential trade fair in the automotive industry, the Frankfurt Motor Show, will for the first time feature a hall dedicated to electric vehicles.

It is impossible to imagine modern cars without steel. Its properties make it indispensable. These properties allow designers to build cars which are increasingly safe and, at the same time, lighter and lighter. Added to this is the fact that, compared to alternative materials, steel is inexpensive and, at the same time, fully recyclable. Modern composite materials made of steel and plastic will play an increasingly important role in the cars of the future. Our InEco research project, which has been developed jointly with the TU Dresden [Dresden University of Technology], is already demonstrating what can be done in this field. The Street Scooter, a prototype of an electric vehicle which has been developed jointly with the RWTH Aachen University, also clearly demonstrates the way forward. Both developments will be on display at the Frankfurt Motor Show and effectively demonstrate that lightweight construction is the central topic in the age of sustainability. And both of these developments work with our material: on the one hand, it optimizes material usage thanks to the possibility of composite construction, thus reducing fuel consumption and harmful emissions. On the other hand, our electrical steel for hybrid and electric motors is driving forward new mobility possibilities.

The art of automotive engineering therefore consists of choosing the best solution in each case for each component from a wealth of possible solutions. This is, in turn, a compromise between different requirements such as, for instance, functionality, costs, safety and weight. To successfully cater for all of these requirements it is necessary to use not only steel, but also steel

solutions, as has been successfully demonstrated by the ThyssenKrupp Group with its InCar® research and development initiative. ThyssenKrupp Steel Europe alone has contributed more than 20 out of a total of 30 such solutions – and the results are impressive. With InCar® innovations up to 5,500 kilograms of CO₂ can be saved over the life of each car. Therefore, the Groupwide project is now entering its second phase with InCar® plus.

“It is impossible to imagine modern cars without steel. Its properties make it indispensable.”

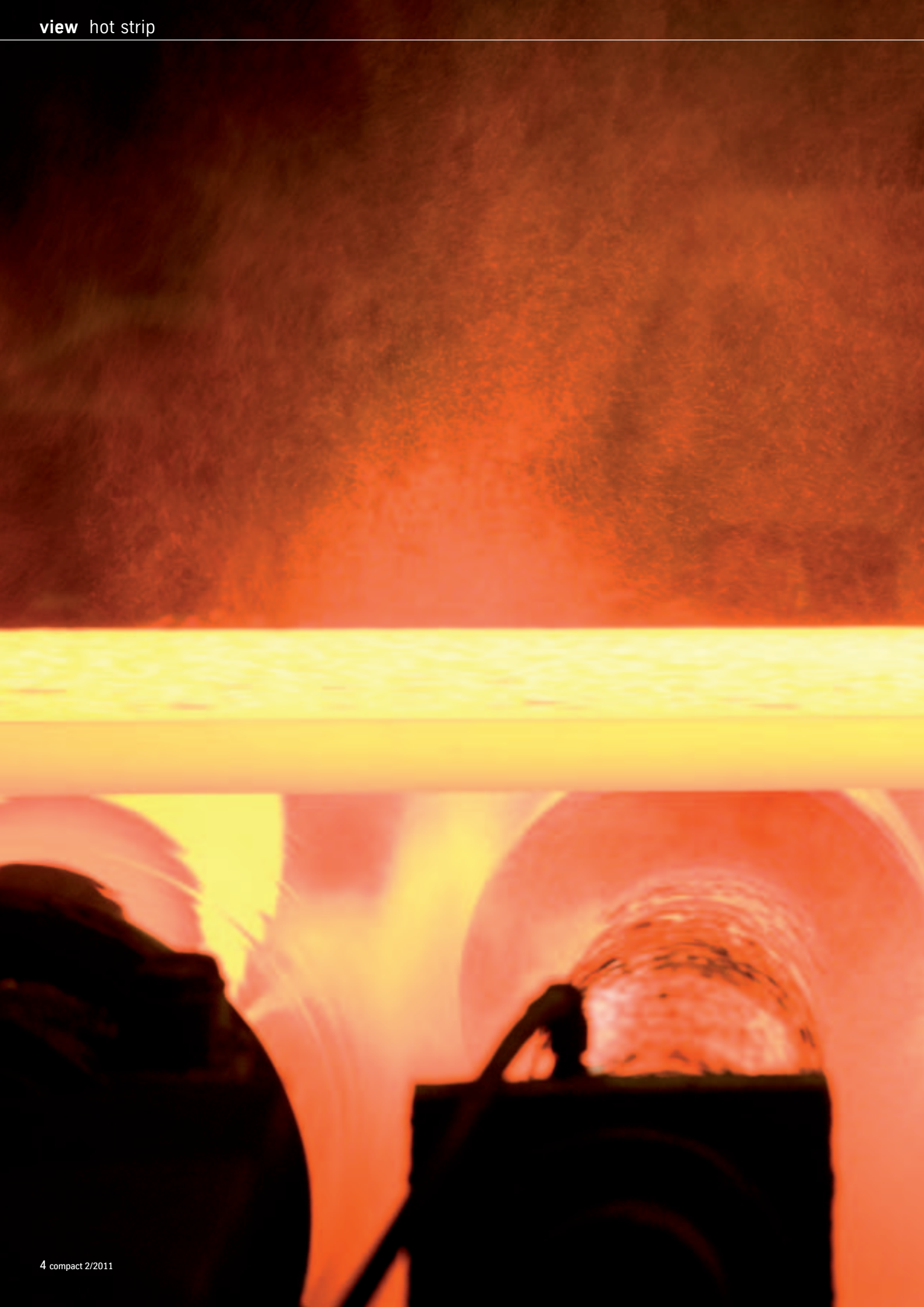
However, steel does not just play a central role in cars. This issue of compact will certainly convince you of that. Steel also satisfies the highest functional requirements in industrial applications and is a very attractive material for the construction sector. Whether it is heavy plate for gigantic transformer casings, hot strip and sheet for pressure compensating vessels or steel structural elements for modern facades, processing know-how and materials expertise are combined in the best possible way. Once again this issue will clearly demonstrate just how much potential there is in our material, steel. We will continue to be successful with you in future and further improve both our own products and the processes and products for steel processing. We will constantly work with you to achieve further advances in quality.

With this in mind, I hope you will enjoy reading this issue.

Yours,

Dr. Jost A. Massenberg

Member of the Executive Board responsible for sales
ThyssenKrupp Steel Europe



Investment in quality

The aims of the 300 million euro investment by ThyssenKrupp Steel Europe in its European flat steel business are to modernize the production facilities and increase efficiency. The money is specifically being invested in the steel company's three hot strip mills in Duisburg and Bochum. The plants mainly supply starting material for lightweight high-strength steels which are very much in demand in the automotive industry and mechanical engineering. It is intended to invest approximately 20 million euros in the optimization of the narrow strip mill at Hoesch Hohenlimburg. "The investments are enabling us to improve our performance, particularly in terms of quality," says Dr. Ulrich Jaroni, the responsible Executive Board member of ThyssenKrupp Steel Europe, stressing the clear commitment to Germany as a production location. "We are safeguarding our position as technology and margin leaders with the financial injection." The modernization is to be completed within the next two years. In addition, work is to be commenced on the relining of the Schweglern 2 blast furnace in Duisburg during this period. The costs of this are estimated to be approximately 200 million euros.

Photo: Karsten Enderlein

Steel is making lightweight construction safe and affordable

Electric mobility is well underway

The way that electric vehicles are appearing on the world's streets can be seen at the Frankfurt Motor Show. Pioneers in environmentally friendly technology for the car, which is celebrating its 125th birthday this year, are venturing to make a completely new start and, in doing so, are relying on innovative steel from ThyssenKrupp Steel Europe.



The Street Scooter will be on display on Booth A32 in Hall 4 at this year's Frankfurt Motor Show in Frankfurt am Main.

While it may be true that the booth is perhaps not the most glamorous at the world's largest motor show, it should be one of the most exciting in terms of electric mobility. This is because the Street Scooter, a prototype which has been specifically developed for e-mobility, will be making its world premiere here. Up to now electric cars have of course been a compromise: cars designed for internal combustion engines are provided with current-driven drives which can be charged up at electric sockets. This is not the case with the Street Scooter. A team of researchers from RWTH Aachen University and medium-sized automotive suppliers have developed it – under the direction of Prof. Dr. Achim Kampker, Head of the university's Production Management department. The prototype has a sporty appearance, lightweight design and four seats.

As Kampker comments: "Less weight is essential for electric cars, at the same time the whole thing has to be economical."

The new Street Scooter comprises a great deal of steel from ThyssenKrupp Steel Europe, the only steel partner in the team. This fact may well astonish the layperson: after all, how can steel be used in a lightweight design? The same question is also being posed in the InEco project – an equally ground-breaking research project which is aimed at achieving future mobility in a way which is both CO₂-optimized and independent of petroleum-based fuels. The current status of the project will also be on display at the Frankfurt Motor Show. InEco stands for a mix of materials comprising carbon fiber reinforced plastic or CFRP for short, combined with high-strength steel from

Duisburg. Responsible for the project are the Institute of Lightweight Engineering and Polymer Technology of the TU Dresden and the Lightweight Engineering Center of Saxony. The Director of the Institute of Lightweight Engineering and Polymer Technology, Prof. Dr. Werner Hufenbach, is in overall charge: "The InEco model looks like a miniature prototype and is referred to as a generic demonstrator. A huge variety of design and technological solutions for volume applications can then be derived from that. InEco is pre-competitive research and is therefore open to a variety of industrial uses. Our steel-based CFRP mix lends itself to cross-industry mobile applications, whether in cars, rail vehicles or the aerospace industry."

Therefore the answer to the question above is that lightweight construction and the modern high-strength steels supplied by ThyssenKrupp Steel Europe complement one another particularly effectively. The Duisburg company is able to cater to all of the new lightweight engineering fields. "We can further develop our steel products so that they are suitable for any composite construction requiring weight reduction. That is even true of composite materials as an ultra-light solution for the highest possible demands," says Dr. Lothar Patberg, Head of Innovation at ThyssenKrupp Steel Europe, who is directly involved with his team in the Street Scooter and InEco developments. This is because ThyssenKrupp Steel Europe has the necessary expertise for the innovative manufacturing processes which are required to exploit the lightweight potential of modern steel products in the best possible way. As Hufenbach says: "E-mobility is only realistic using a combi-

nation of materials.” Patberg adds: “Steel makes lightweight engineering solutions reliable, safe and affordable.”

The requirements of being more affordable, safer, more environmentally efficient and lighter are also met by the “Future Steel Vehicle” or FSV for short, a study by WorldAutoSteel, the automotive group of the World Steel Association, into how much less all-steel bodies can weigh. 35 percent less, according to the study which took account of innovations by all of the manufacturers. “Under 190 kilograms,” says Oliver Hoffmann, Head of Application Engineering at ThyssenKrupp Steel Europe. However, not all manufacturers offer such progressive steel grades and technologies. The Duisburg steel producer does, though, and therefore boasts expertise in lightweight materials across the entire spectrum, particularly for the mobile future – for small- and large-scale production, for more expensive or inexpensive solutions. Hufenbach, the Director of the Institute of Lightweight Engineering and Polymer Technology, explains how InEco will make the mobile future CO₂-efficient, safe and more affordable: “CFRP is ultralight and signifi-

cantly more expensive than steel. It is extremely stiff and solid, but less ductile than steel. Internal damage can only be detected during costly investigations and can often only be repaired with difficulty. These disadvantages are reduced when it is combined with high-strength steel.” Patberg adds: “This is because steel gives it greater stiffness and strength, it will deform considerably before breaking when it is overloaded because it has greater ductility and reveals the damage sustained by means of permanent deformation.” All in all, combining CFRP with modern steel makes it more practical and more affordable.

Statutory standards for crash performance demand safety while consumers demand affordability. It is true that car drivers want to use battery-operated lightweight runabouts to avoid CO₂ and to get away from the expensive and finite fuel petrol, but not at any price. How low the bar can be set can be seen in the Deloitte report, “A new era. Accelerating toward 2020”. According to the report when just under 5,000 consumers in seven countries were asked how much they would like to spend on an electric car, they replied a maximum of

15,000 euros. Kampker comments: “It is important to offer vehicles in this price range, it is therefore essential to come up with material solutions for affordable lightweight electric production cars.”

The students from Aachen are pushing an innovative and effective solution with the Street Scooter – positioning it as a compact production car. In the case of the new success, ThyssenKrupp Steel Europe’s role was developing the floor structure with partners Kirchhoff and Gedia Automotive. The target: it must be economical, lightweight and safe. The solution: a sandwich floor made of extremely high-strength steel grades. As Patberg says: “In this way the batteries are protected in the best possible way from shocks in the direction of the road and in the event of a crash. The sandwich floor represents a heat and fire-barrier with respect to the interior.” The Street Scooter can go into production in 2012 and could be on the road in 2013.

Ulrike Wirtz, freelance journalist

www.streetscooter.rwth-aachen.de
www.tu-dresden.de



A 1:5 scale model of the InEco will be on display on Booth D24 in Hall 4 at the Frankfurt Motor Show.



125 years of steel in automotive engineering From material supplier to development partner

Without steel, Bertha Benz, the first ever car driver, would not have been able to drive Patent-Motorwagen Nr. 3 (Patent Motorcar No. 3) from Mannheim to Pforzheim. There would not have been a Ford Model T, the first ever car to be produced on an assembly line and, without steel, the VW Beetle would not have succeeded the “Tin Lizzie” as the best-selling car in the world.

Neither Bentley, Rolls-Royce nor Maybach would be driving without the most important of all industrial materials. This is because a car is now composed of more than 50 percent steel; when it comes to the body, the proportion of steel is significantly higher. For a long time **until the 1980s**, two steel grades sufficed to build cars: deep-drawing steels and microalloyed steels. **In 1982**, ThyssenKrupp Steel Europe supplied high-strength steels for mass production for the first time. Car manufacturers were able to use the strong sheets to build lighter components with thinner walls, which reduced the fuel consumption but provided the same degree of safety. That marked the start of a new era: high-strength steels and modern multiphase steels have been the most successful lightweight materials by far in recent years. **1982** also marked the launch of the first production car with a fully galvanized body – another success for the steel manufacturer which delivered the corrosion-proof sheets directly from the factory.

ThyssenKrupp Steel Europe achieved another breakthrough in lightweight construction **in the early 1990s** when the first tailored blanks were used in large-scale production. Joined together to manage the stresses occurring in the finished part, the tailored blanks featured the right steel in the right place and reduced weight and costs in the long term. **In 1998**, the Duisburg steel manufacturer presented the UltraLight Steel Auto Body (ULSAB), an auto body made of steel which weighed 25 percent less than the reference, developed jointly with 35 partners from 18 countries. Today, ThyssenKrupp Steel Europe is able to supply more than 200 steel grades to the automotive industry.

Whereas in the 1980s it still took on average 65 months from the initial idea for a new car to the final production vehicle, the development time has since then been reduced to about 30 months. In the course of this, car manufacturers have increasingly involved their suppliers. ThyssenKrupp Steel Europe has also built up its own extensive automotive expertise: forming and joining know-how

have been as much part of this as its own expertise in plant engineering, tool-making, automotive engineering and production planning. Feasibility and operating performance are guaranteed with advanced simulation systems. Engineers from ThyssenKrupp Steel Europe support customers at all stages of the vehicle development and are also present in the manufacturers' press shops from the outset. ThyssenKrupp Steel Europe is **now** not just a material supplier, but also a development partner. With the NSB® New Steel Body, which was launched **in 2003**, the company demonstrated, using the example of an actual production car, how the body weight could be reduced by 24 percent using intelligent lightweight steels and tube-intensive designs. ThyssenKrupp Steel Europe is independently developing new production methods for components made of steel, such as, for example, the InnFormT³® technology for weight-opti-

mized profiles. The process has been patented for the company, as has tailored tempering, a further development of hot stamping, which can be used to reduce weight and costs in the case of structural parts.

Not only steel, but above all steel solutions – that is now the motto of the Duisburg company. ThyssenKrupp Steel Europe has contributed more than 20 such new solutions to the InCar® project, a research and development initiative by the ThyssenKrupp Group. The result: up to 5,500 kilograms of CO₂ can be saved over the life of each car with InCar® innovations. ThyssenKrupp Steel Europe is also demonstrating that it is more than ready for the next big challenge as a partner of the automotive industry, and that would certainly have pleased Bertha Benz.

Bernd Overmaat

1982

ThyssenKrupp Steel Europe supplies high-strength sheets for large-scale production for the first time, in addition to deep-drawing steels and microalloyed steels.

1998

ThyssenKrupp Steel Europe develops the UltraLight Steel Auto Body (ULSAB) jointly with 35 partners from 18 countries.

2003

Hot-stamped tailored blanks go into production, the third-generation Thyssen tailored tubes are launched on the market.

2007

Based on a production vehicle, ThyssenKrupp Steel Europe develops the virtually cost-neutral lightweight concept study NSB® NewSteelBody.

2009

ThyssenKrupp publishes the results of its InCar® study.

2011

ThyssenKrupp starts the InCar® plus project and continues its success story.

Jaroni and Massenberg are convinced: “Steel will maintain its dominance”

This year the automobile is celebrating its 125th birthday – an unparalleled success story which certainly would not have been possible without steel. The two ThyssenKrupp Steel Europe Executive Board members Dr. Ulrich Jaroni and Dr. Jost A. Massenberg spoke to compact about the material's importance in a highly competitive market and its prospects in our fast-paced, mobile society, which has to be increasingly mindful of the environment.



Dr. Ulrich Jaroni represents the Production Department at ThyssenKrupp Steel Europe.

Dr. Jaroni and Dr. Massenberg, the dynamics of innovation in the automotive industry are currently being dictated by the debate on climate change. Parallel to this, the demands on safety and comfort are increasing. Competition among various materials has become tougher. What role will steel play in this sector in the future?

Dr. Massenberg: Steel will retain its dominant role. If you consider the subject of climate change as a whole, i.e. not just the emissions produced during driving, but also during the production phase, our lightweight steels have a leading role when compared with other materials. Then there is the unlimited recycling potential: steel in the automotive industry has a recycling rate of more than 90 percent.

Dr. Jaroni: Lifecycle analyses show that during the production of those materials competing with steel, quantities of CO₂ are released which cannot be offset in many cases by potential weight advantages during the usage phase. If you look at production, the usage phase and recycling as a whole, modern steel solutions have a better

carbon footprint than plastics or carbon fiber reinforced plastics or CFRP for short, and are at least equivalent to aluminum. This has been documented in several independent studies. If you now consider the much lower cost of steel, our material is the first choice for effective climate protection and that is the case right across the entire range of automotive products.

Electric mobility is currently deemed to be the ideal way to protect our climate. What is ThyssenKrupp Steel Europe doing with regard to this?

Dr. Jaroni: The ThyssenKrupp Group is represented on the National Platform for Electric Mobility which advises the German Federal government. ThyssenKrupp Steel Europe is involved in several development projects with automotive manufacturers and suppliers, universities and research institutes. These bodies are developing electric mobility concepts for large, medium and small-scale production. Our experts are introducing important material know-how into these projects, so that we can be a reliable partner to our customers on this issue as

well. The range of materials extends from all-steel solutions to composite solutions with plastic or CFRP.

Dr. Massenberg: This is because electric cars cannot manage without steel either. No electric motor will work without electrical steel, a special grade of soft magnetic steel. ThyssenKrupp Steel Europe is one of the world's leading suppliers of electrical steel. We have been able to improve this material further and therefore increase the efficiency of the drives, in particular for hybrid and electric motors in automobiles.

How does your company differentiate itself from the competition?

Dr. Massenberg: Our customers appreciate us as a manufacturer of high-quality premium flat steel products with the highest surface qualities. And they appreciate the automotive expertise which we have built up over many years. We can offer our customers new materials and coating processes combined with innovative and guaranteed component concepts.

Dr. Jaroni: Our customers benefit from this holistic approach. It helps them to integrate new steels into mass production more quickly. We are therefore involved in the development work at a very early stage.

You are continuing to develop your range of materials. What new products are in the pipeline?

Dr. Jaroni: One exciting new product is our stiffness-optimized sandwich material. We are currently building a pilot plant for the composite steel and plastic material. The material is suitable for almost all flat components with high stiffness requirements, including for large exterior panels such as doors and tailgates/engine lids. The new material is competing with aluminum in this sector. Our goal is that modular solutions made of the new material will cost at least 30 percent less and will be at most ten percent heavier than a comparable aluminum solution.



Dr. Jost A. Massenberg is responsible for Sales at ThyssenKrupp Steel Europe.

Dr. Massenberg: Another rapidly growing technology is hot stamping. We will offer new steels which make possible even higher component strengths of up to 1,900 megapascals (MPa). In addition we have our new coatings which will allow us to extend hot stamping to areas with high corrosion protection requirements. There is also a great deal of potential in cold forming. We have just proven this with the launch of the TPN[®]-W 780. This quality has a high strength of approx. 800 MPa and is characterized by elongation Levels which set new standards in this strength class. TPN[®]-W 780 is ideal for safety-relevant parts. Of course, we will continue to expand our range of multiphase steels. This concerns dual-phase and complex-phase steels with strengths of approx. 1,000 MPa. And we are continuing the InCar[®] project with InCar[®] plus, so that we will further develop our automotive expertise as well.

The interview was conducted by Bernd Overmaat

The mobile society of tomorrow

“New ideas need chances”

Whether commuter flows or west-east and north-south traffic: every day sees Europe traversed by vast columns of motor vehicles. Is the continent on the verge of a traffic collapse? EU Commission data tells us that tailbacks are already costing the European Union's member states around one percent of overall gross domestic product (GDP). Rainer Bomba, Permanent Secretary of State at the Federal Transport Ministry, talks to compact about the situation and provides an outlook as to how Europeans will have to deal with the rising demand for mobility in the future.

Railroad, car, airplane – for more than 100 years, engineers have been developing solutions to make people more mobile. How have the requirements changed?

People's needs have not changed to any great extent in the course of the past decades: they simply want to get from A to B as quickly and as inexpensively as possible. The aim, as before, is to organize movement without requiring an extensive outlay in terms of time and money. Improving noise protection and boosting road safety are two factors playing a bigger role today. And a new aspect is that of environmental and climate protection. This is something we aim to take account of without putting any restrictions on mobility. After all, mobility is absolute essential to global growth and a basic element of individual freedom. We do not and cannot hamstring it.

Will mobility remain controllable in spite of growing traffic?

Most certainly. Germany is situated at the heart of Europe, and is logistics country number one. Against this background we expect the volume of goods traffic to have increased by some 70 percent by 2025. That means we have to maintain the substance of our traffic infrastructure and make even more optimal use of the capacities through intensified use of traffic control systems. In some cases we will have to build new infrastructure or expand existing set-ups, however. Our “Goods traffic and logistics” action plan brings these approaches together. Basically, it is a matter of preventing the traffic infrastructure from

becoming a bottleneck in terms of our economic development.

How do you actually envisage the traffic system of the future?

It will be intermodal, intelligently combining road, rail, water-borne and air traffic. With this in mind we think in mobility chains – in terms of the link-up of car and local public transport where passenger transport is concerned, or in terms of combined transport where goods transportation is concerned. Then we will be seeing the modernization and expansion of our rail and road network, especially at traffic hubs which are heavily used as result of the growing north-south and west-east traffic. We shall be working on intelligent traffic systems in order to boost efficiency, for example telematics systems on our motorways. Within this framework the traffic will be controlled via traffic management systems with speed, lane occupancy and overtaking-prohibition regulations, thus improving the traffic flow significantly. The “Road traffic telematics 2015 project plan” published in November 2010 provides for 138 projects and an investment volume of over 300 million euros to this end.

And now to the topic of the environment: what role do new types of vehicle play?

New concepts, such as electromobility or fuel-efficient vehicles and the development of second and third-generation biofuels are decisive contributory factors towards sustainable mobility. It is not yet possible at

present to estimate all of the impacts of our dependence on oil on mobility. Nevertheless, what we certainly can foresee is a price spiral in this area. And then there are the resolutions adopted at the UN climate conference, not least as a result of pressure from the federal government. We have to comply all the more with the restriction on greenhouse gas emissions as provided for there.

As deputy chairman of the German government's National Electromobility Platform (NEP), what is your assessment of the second progress report that was presented in May?

It continues on from the first report, and reflects the intensive work and intermeshing of the various working groups. I am highly impressed at the way in which 146 scientists, engineers, association representatives and politicians in seven working groups are working together on the most difficult of topics in such a cooperative and solution-orientated way. The NEP will continue to exist in the future as well, and present the Federal Chancellor with an annual report. These reports will include experiences and results from the building up of what we call "regional showcases", in other words self-contained electromobility regions. The reports will also include experiences and findings gathered from the technical "beacon projects", the innovations generated in the spheres of German research and industry. The important thing is for us to remain open to new technologies and systems in order to arrive at where we want to be by 2050. New ideas need chances, including, for example, the development approaches in the area of hydrogen and fuel cells, especially with the truck and local public transport traffic in mind. Pinning our faith solely on lithium-ion batteries and battery-driven vehicles would without doubt be too static.

Is the cooperation in the sphere of electromobility also the result of awareness on the German side that, while excellently positioned with huge export volumes based on old standards, the country is about to miss out on a major innovative advance?



Rainer Bomba is Permanent State Secretary at the Federal Ministry of Transport, Building and Urban Development (BMVBS), where he is responsible for the directorates-general of Infrastructure, Environmental Policy, Construction Industry and Federal Buildings, Spatial Planning, Road Construction and Departmental Policy Issues. He has recently headed the National Electromobility Platform as deputy chairman. Born in Schlüchtern (federal state of Hesse), the mechanical engineer and economist initially worked in the private sector before joining the Hesse regional employment office at the administrative level. In 2002/2003 he worked on the establishment of the Berlin representation of the Federal Employment Agency, after which he spent the period between 2003 and 2007 in various federal states as deputy in case of absence of the chairmen of the respective regional directorates of the Federal Employment Agency. From 2007 till 2009 he was chairman of the Bavaria regional directorate of the Federal Employment Agency. After the parliamentary elections in 2009 he was appointed to his present position as Permanent State Secretary at the BMVBS.



I think this has indeed been recognized as a threat, for which reason the German government has agreed with the spheres of industry and science towards making Germany a lead provider and lead market for electromobility. Otherwise we will find ourselves running the risk of no longer being among those who build the world's best cars. Today's research and investment activities serve the purpose of maintaining the technological edge in the future as well. Our Chinese competitors are skipping the diesel and gasoline engine technologies because they have recognized that catching up with 125 years of engineering expertise is an impossibility. However, you could say that the new technologies are starting the game all over again. Germany's strengths are and remain our scientists' and engineers' many years of experience and research activities as well as the excellent quality of the working processes and products they come up with – in conjunction with high aspirations and standards in terms of sustainability. This is not mere faith healing, and I think we're on the right path.

As an integrated materials and technology corporation, what can ThyssenKrupp do towards ensuring that the requirements of the economy and the environment lead to a future-orientated mobility strategy?

I am extremely grateful for ThyssenKrupp's high degree of involvement and huge input of expertise in the NEP. A corporation like ThyssenKrupp is an extremely important incubator of ideas for the topic of mobility, not only due to its excellent logistical positioning but also because of its products. New drive systems and products necessitate new materials, and, as an integrated materials and technology group, ThyssenKrupp has a wealth of experience in this sphere. It is a matter of course that we are calling on this knowledge and expertise, also with regard to energy-saving potential and energy efficiency within the framework of climate protection policy. Mention should also be made of the fact that, naturally, every company with this knowledge not only has a competitive edge

but also an exemplary positioning where the issues of sustainability and the conservation of resources are concerned. In the context of mobility this naturally applies to the area of steel as well. In this respect I am also referring to the wide variety of composites which make car bodywork lighter and cut energy consumption without prejudicing safety in doing so.

What are the most important preconditions for mobility in the future?

As the federal government sees it, it is imperative for us to ensure that mobility is affordable, clean and safe. Mobility will change from many different points of view, not only due to new drive systems or because we are working intermodally or with telematics. The demand for mobility among the general public is different to what it used to be: young people no longer see the car as an absolute necessity, and they are quite satisfied with having a rail ticket or a car-sharing arrangement and a bicycle which they can rent in towns they are visiting. Apart from this, the demographic trend with a decreasing and increasingly ageing population, especially in rural areas, calls for highly individual mobility solutions.

Is mobility timeless and will that remain the case?

Without a doubt, and all the more in a globalized world. But we will be finding ourselves having to deal with new mobility requirements and concepts at ever-decreasing intervals. Mobility will constantly remain an essential and interesting topic. Maybe we will eventually end up in the world of science fiction and have ourselves beamed from one place to the other.

Which brings us to the question as to how I put the materials together.

That is exactly the case. If beaming should become a reality, the parts have to be put back together correctly again.

The interview was conducted by Dr. Bettina Wieß,
economics journalist

NewsFlash

Gold for the ThyssenKrupp Quarter

The German Sustainable Building Council (DGNB) has awarded ThyssenKrupp its gold certificate in recognition of the ecologically and economically sound construction of its Quarter in Essen/Germany. The Group headquarters meet the DGNB's strict requirements with a cleverly thought-out energy supply concept, the use of sustainable technologies and building materials, and an efficient heating and cooling concept. CO₂ emissions there are around 27 percent less than those of a reference building, and the Quarter's requirement in terms of primary energy is 58 percent less than the level stipulated by law. Ground loops store heat and cold, and the centrally controlled slats fronting the panorama windows ensure pleasant room temperatures and an optimal degree of natural light. In the interests of improving the water quality in Essen, rainwater is channeled to the lake in the adjacent Krupp Park from where it enters the Emscher, a tributary of the Rhine.

www.thyssenkrupp.com/quartier/en

Production status for TPN®-W 780

The new TPN®-W 780 is now available in various dimensions – uncoated or electro-galvanized. The TPN®-W 780 product has achieved production status as the first steel grade belonging to a new family of three-phase steels with nano precipitation. This new high-performance steel from ThyssenKrupp Steel Europe was specially developed for geometrically complex, high-strength crash- and strength-relevant parts. It is outstanding for its high yield strength, tensile strength and excellent elongation while at same time providing a unique mix of characteristics in the 800-megapascal strength class.

Milestone for Steel Americas

Late March saw ThyssenKrupp Steel USA producing galvanized coils for the first time. Three of the four hot-dip coating lines have been taken into operation since then, and the last one will be in operation by the end of the

current fiscal year. The commencement of the coating operations gives the company an extended portfolio from which the manufacturing industry will benefit. These products are particularly aimed at customers in the automotive and domestic appliance industries. The successful taking into operation of the hot-dip coating lines is a further step towards establishing ThyssenKrupp Steel USA as the leading provider of high-quality flat steel products in the North American region.

www.thyssenkruppsteelusa.com

Metal Forming sold to Gestamp

The sale of the Metal Forming Group to Spanish company Gestamp Automoción was finalized on 20 July. The reason for this sale lies in the fact that the Metal Forming operations are no longer part of the core business at ThyssenKrupp Steel Europe. With its locations worldwide and amalgamation with a financial investor, Gestamp is a "best owner" and at the same time an important competitor in the automotive industry. This takeover is aimed at ensuring Metal Forming's further technical and economic development and strengthening its market position.

Competent lectures with positive feedback

A series of lectures under the motto "Steel – innovative and sustainable" organized by the ThyssenKrupp Steel Service Center in Mannheim has got off to a successful start. The first of the series attracted 45 interested guests in May to the Dorint Hotel in Mannheim for a lecture on developments and materials. The invitations had gone out to all Steel Service Center customers from the automotive and industry sectors. ThyssenKrupp Steel Europe's technical customer consultants Achim Peuster and Jens Bartikowski gave presentations on, among other things, intelligent material solutions, examples of applications involving tailored blanks, and new product brands. Enriched with questions put by the participants and lively discussions in the breaks, the event was well worth attending for all concerned. The two

hosts Bernd Tremmel (branch manager) and Gerhard Lehmer (sales manager) were pleased about the high degree of interest: "That was a successful start, and we are already planning further events for the lecture series."

www.thyssenkrupp-stahl-service-center.com/en

Anniversary steel produced in Duisburg

ThyssenKrupp Steel Europe celebrated an anniversary in July: the casting-rolling line in Duisburg/Bruckhausen had produced its 20-millionth metric ton of hot strip. The anniversary steel was then processed into hot-dip galvanized sheet. The casting-rolling line has been in operation since 1999. At that time it was the first line of this type in an integrated steel mill – a big technological advance in the sphere of flat steel production. Today, ThyssenKrupp Steel Europe plays a leading role in the handling of casting-rolling technology. The line in Duisburg/Bruckhausen produces over 50 different types of steel, and it is above all customers from the automotive, household appliance, construction and electrical industries that benefit from the diversity and premium quality of the products.

Sales Strategy/Planning has a new face

The Sales Strategy/Planning directorate has had a new face among the team since the beginning of July, namely Dr. Heike Denecke-Arnold. Up to that point she was sales planning team coordinator, and is looking forward to her new position as head of the directorate. "I am very fascinated and excited about the diversity of my new job, and I am sure that I and my fellow staff will master well the challenges to be faced in the future." 41 years of age, the graduate metallurgist can look back on over 15 years of experience in the steel sector. Her predecessor Marcus Fix moved into the Materials Services BU to ThyssenKrupp Stahlkontor GmbH as head of sales and purchasing.

Tailored Strips are a specialty

Steel cleverly combined

This technology is a real specialty: with tailored strips, ThyssenKrupp Tailored Blanks has found an innovative method of combining different grades of steel in a single strip, as a result of which more complex components can be formed in a single operation. With its unique know-how this division is even more than the world market leader – there's virtually no competition.

“Tailored strips are really popular with our customers,” says Jörg Maas, sales manager at ThyssenKrupp Tailored Blanks, “since our approach to the problem is not available anywhere else in the world as a finished product.” Car manufacturers in particular are using this innovative product as an opportunity to save weight or to improve specific properties of individual components – for example with respect to safety. The aim is to also optimize production processes.

The idea was born decades ago with tailored blanks: different grades of steel were first joined together to create a tailored sheet, which was then formed into the three-dimensional part in the press shop. If, for instance, you join a high-strength, thin sheet of steel with a tough, light and thicker sheet of steel, then it goes without saying that the respective capabilities and advantages of the material are also combined. Parameters such as weight, deformability, tensile strength, vibration behavior, corrosion protection and other aspects are thus selectively optimized. The result is, for example, a weight-optimized B-pillar which thanks to its high toughness can be securely connected to the side of the vehicle body, but which provides maximum crash safety in the middle part, because the steel has extremely high tensile strength there. Such a support could only be produced in the conventional manner by means of a complex welding of three-dimensional components.

Tailored strips also rely on this concept, but the process has one additional aspect which is essential for many users, because while the blanks are delivered as blanks, the strips arrive at the customer's as a strip

which is rolled up into a coil. This can be advantageous depending on the situation. For instance, customers can adjust their existing systems to accommodate it without a great deal of outlay. Above all, coils can be used in progressive dies, significantly reducing production costs.

Dr. Christian Both, Head of New Technologies at ThyssenKrupp Tailored Blanks, refers to a veritable collection of reference products – parts such as longitudinal members, roof crossmembers or door lock reinforcements. “It is true that tailored strips are not suitable for every application. However, users are often quite surprised by how much material or money they can save.” An example of this is a case where the cost of the component dropped by 18 percent. However, Dr. Both sounds really enthusiastic when it comes to the expertise which the New Technologies department has developed. “We have recently even managed to combine austenitic and ferritic stainless steels in one strip. Customers were enquiring about this, because ferritic stainless steel is considerably cheaper and the good forming properties of the austenite, which is very expensive, are not required throughout the part.”

This extremely sophisticated technological application has only just successfully completed all of the trial runs on the plant. Strips for half-shells of exhausts are now being produced. Dr. Both comments: “Different stainless steels are known to be anything but easy to weld. Now we are delivering this solution on coils.”

Tailored strips are being manufactured in Germany and will soon be produced in the

USA. The plant in Gelsenkirchen joins together up to three different slit strips in a single pass, with the focus always being on perfect quality. Sensors meticulously and seamlessly check welds and sheets. Pores, offset edges or weld depressions are kept within narrow parameters. “We only deliver products which we are absolutely certain about,” promises Dr. Both.

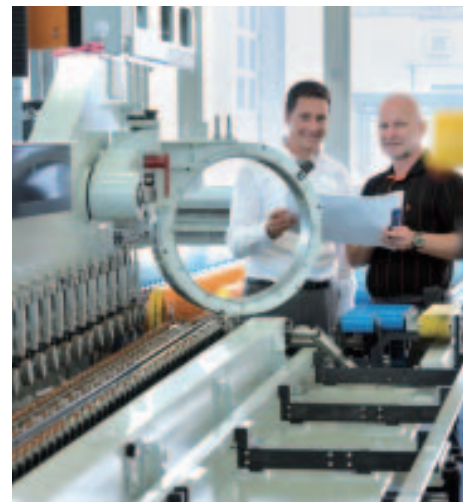
The welding process itself remains a closely guarded secret. After all, ThyssenKrupp Tailored Blanks has a clear competitive advantage with this technology – there are only a very few companies in the world working on this topic at all. It is therefore not surprising that its range is growing and growing. Sales have increased since 2009: more than 200 percent. Production currently stands at 5,000 tons per year. The range of products includes combinations of different grades of carbon flat steel, dual-phase, quenched and tempered and fine-grained steel as well as stainless steels. Total widths of up to 1,600 millimeters are possible, individual slit strips in widths from 50 to 1,000 mm can be used. And the future? Dr. Both still sees a huge amount of potential: “Technologically, we are of course interested in aluminum as well. We know a little about it already – but we still have a long way to go to the finished product.”

Wolfgang Kessler, freelance journalist

www.tailored-blanks.com/en/home.html

Flexible for customers

ThyssenKrupp Lasertechnik



ThyssenKrupp Lasertechnik offers extensive expertise in laser technology and automation. Instead of mass solutions, the Ravensburg company is focusing on individual solutions and unique technical solutions.

Ravensburg is usually associated jigsaw for both children and adults. The attention to detail, which is necessary for developing such puzzles, can also be found by visitors to Ravensburg at ThyssenKrupp Lasertechnik. The company which now has a workforce of 25 provides customers with innovative laser technology and automation-related engineering services. "Our size is our advantage," emphasize the Directors Gerhard Alber and Marius Spöttl. "We are extremely flexible, in order to address different customers' needs."

It all started 80 years ago. Anton Nothelfer founded a small workshop called "Mechanische Werkstätte Anton Nothelfer & Söhne" in Ravensburg in Baden-Württemberg in 1921. Approximately 20 years later, the family-owned business was incorporated into what is now the ThyssenKrupp Group. ThyssenKrupp Lasertechnik was founded in 2008 and since then it has been part of ThyssenKrupp Steel Europe. Nothelfer and his sons had already laid the foundations for the company's current success when they established the company. "Now as then we focus on handling sheet metal components and their automation," says Spöttl. "We have expanded this expertise and supplemented it with laser technology," adds Alber. During the 1950s, the Ravensburg company started developing forming dies for the automotive industry, and in the

1980s it developed its first laser welding system. This system was the first of its kind in the Group and the first in the world. A special technique made it possible to weld different materials in different thicknesses – perfect for tailored blanks. "Our most recent new development is the Turbo-Conti," explains Alber, "the world's first dual-head welding line for tailored blanks and tailored strips."

In addition to laser welding of tailored blanks and tailored strips, ThyssenKrupp Lasertechnik now offers a number of products including tailored orbitals, coil joining systems, pipe welding, laser cutting, special purpose machines and prototype construction. The Ravensburg high-tech solutions are winning over international customers primarily in the steel processing, automotive and supplier industries. With an export share of approximately 70 percent, ThyssenKrupp Lasertechnik achieved sales of around eleven million euros during the last fiscal year.

Another distinguishing feature of ThyssenKrupp Lasertechnik is a highly efficient engineering department. "However, we obtain our material-related expertise from ThyssenKrupp Steel Europe," says Spöttl. The collaboration has proven to be very successful.



From left to right ROBLAS is the name of ThyssenKrupp Lasertechnik's new special development. This innovation combines the benefits of an industrial robot with those of a high-precision form cutter.

The directors of ThyssenKrupp Lasertechnik Marius Spöttl (left) and Gerhard Alber manage the company's 25 employees. The size is its crucial advantage, offering the greatest possible flexibility in order to be able to satisfy customers' wishes.

The highly efficient engineering department of ThyssenKrupp Lasertechnik has been developing innovations for decades: in the 1980s it was the world's first laser welding system for tailored blanks, today it is the first dual-head welding line for tailored blanks and tailored strips.

ThyssenKrupp Lasertechnik offers customers high-performance laser system concepts for cutting, welding and other applications.

The coil welding system, for example, is characterized by unique technology which the Ravensburg company developed together with the Duisburg steel manufacturer. "Thanks to what we call the best-weld technology, the high-power laser can cut and weld steel sheets – all of the best possible quality," explains Alber who, like Spöttl, studied mechanical engineering. Thanks to the ThyssenKrupp Lasertechnik solution, it is possible to eliminate the typical problems which arise when steel strips are joined: the signs of wear which occur during mechanical cutting and punching do not appear. The laser cuts quickly and cleanly. It later welds the sheet parts back together, without weld convexity. In addition, the laser can be adjusted to an extremely wide variety of sheet properties and thicknesses, while achieving a consistently high cutting quality. Due to its compact design, the coil welding system can be easily integrated into an existing plant.

The focus is not only on puzzles in Ravensburg, but also technical innovations: ThyssenKrupp Lasertechnik represents 100 percent mechanical engineering and pure development work.

Daria Szygalski

Industrial robot combined with laser cutting solution

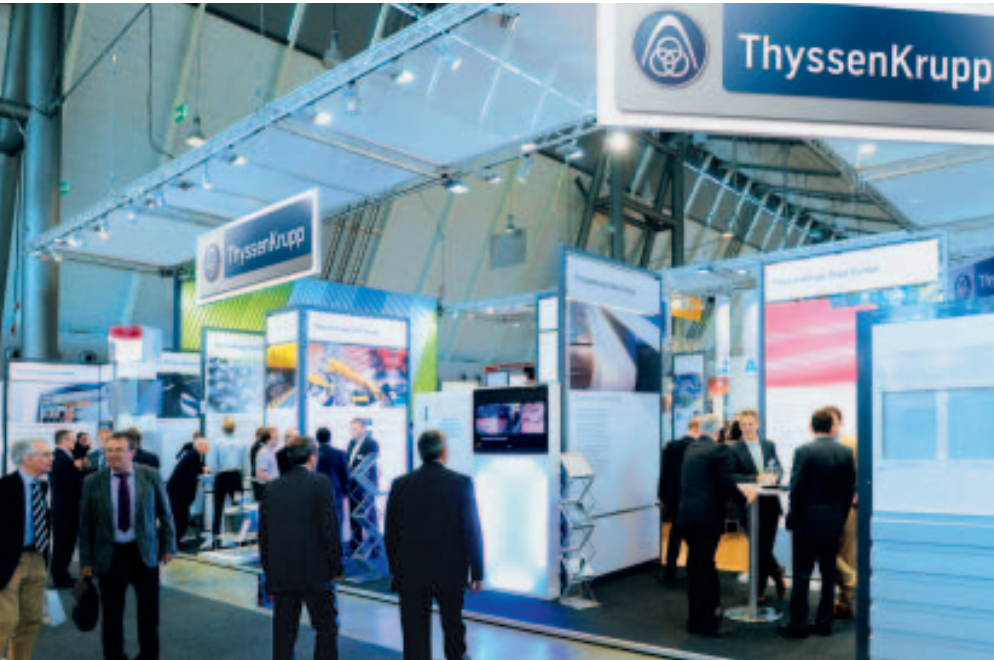
ROBLAS is the name of ThyssenKrupp Lasertechnik's new special development. The name comes from the German words for robot, laser and cutting. It is an innovative new way of processing different materials. "Our unique solution combines the benefits of an industrial robot with improved laser machining," says Kai Leibold who is responsible for special projects at ThyssenKrupp Lasertechnik.

A wide variety of materials such as metals, plastics and fabrics are cut and welded in industry using a laser which is installed in an industrial robot. "The robot positions items very precisely," states Leibold, "but you cannot reproduce precise geometries with it. ROBLAS, on the other hand, has three very dynamic axes." This makes it possible to cut and weld complex contours at a processing speed of up to 40 meters per minute and an accuracy of less than 0.03 millimeters. "We have also optimized the laser," adds Leibold. It has a smaller wavelength range than a standard solution, which makes it safer. This results in significant benefits: "There is no longer any need for a fully enclosed protective cabin," he explains. This is expensive and only permits an insight into the processes via cameras. "Our system, on the other hand, is open and clearly visible. And we can offer ROBLAS both as a stand-alone and as an in-line solution which can be extended at any time in accordance with the needs of the customer's application." Furthermore, the form cutter can be used independently of robot manufacturers and can be combined with the customer's existing systems. The ROBLAS special development therefore guarantees the greatest possible flexibility and excellent results in various industries.

www.thyssenkrupp-lasertechnik.de/en

Blechexpo in Stuttgart

Trade fair attracts crowds of visitors



The ThysenKrupp booth was well attended.



The Meilenwerk facility provided space for creative conversation.

Under the motto “Sheet Metal Meets Business” and celebrating its tenth anniversary, the Blechexpo trade show at the beginning of June attracted almost 26,000 international trade visitors to Stuttgart. They were given an exciting overview of exhibits shown by around 1,000 exhibitors from 30 countries.

The Blechexpo event takes place every two years, and in the odd-numbered years is regarded as the leading trade fair for the sheet metal working industry in Europe. It is aimed at presenting all technologies relevant to the cold forming of sheet steel – from handling the raw material right through to the joining of sheets, sections and tubes. And it goes without saying that ThysenKrupp Steel Europe was present at this year’s event as well. On a joint booth with a floor area of 300 m² the steel corporation exhibited its extensive portfolio of products – and thus its wealth of know-how in the sheet metal sector.

True to the trade fair motto “Single-source solutions for a wide range of industries”, the all-rounder that is steel serves all key markets and leaves nothing to be desired: hot strip, sheet, coated products in a broad spectrum of qualities. Its highly specialized processing stages from heavy

plate and organically coated sheet, narrow and medium-wide strip complete the extensive offering. On the occasion of the traditional customers’ day, this time held at the Meilenwerk facility in Stuttgart, Jörg Paffrath, Head of Sales Industry at ThysenKrupp Steel Europe, emphasized the importance of the Mittelstand (medium-sized companies) for Germany as an industrial center: “Those companies are the ones that ensure that Germany has such a broadly-based industry structure. This is where the ‘hidden champions’ are to be found, that deliver top performance in the most diverse niches and are in many cases world market leaders.” He added: “We shall be continuing to occupy a significant standing as materials supplier and strengthen our market position in the sphere of high-quality, innovative flat steel products on a future-orientated basis.” The Meilenwerk facility provided a lot of atmosphere and sufficient space for inter-

esting and stimulating conversations on the topic of steel and its processing. Around 400 ThysenKrupp Steel Europe customers met at this out-of-the-ordinary forum for driving culture for an exchange of views and ideas. The guest talk by economist Prof. Dr. Klaus Schweinsberg stimulated discussion among those present. The Secretary General of the Governance Commission for Family-owned Businesses provided an insight into what makes entrepreneurs and business enterprises strong.

The next trade fair for the sheet steel processing sector is scheduled for early November 2013 – thus taking place in alternation with its sister event, Euroblech in Hanover/Germany.

Christiane Hoch-Baumann

www.blechexpo-messe.de/en/blechexpo

Landmark on the Caspian Sea

No distance is too far for quality

“The most important thing is motion, the flux of things, a non-Euclidean geometry ...” as Zaha Hadid is quoted in the catalog for an exhibition of her work in the MAK museum in Vienna. The top-flight Iraqi-British architect and holder of the Pritzker Architecture Prize, the world’s most prestigious award for architects, gives preference to flowing forms.

An impressive example of her architectural skills is currently under construction in Baku, the capital of Azerbaijan: the Heydar Aliiev Congress Center – the highlight of which is its envelope made up of over 30,000 square meters of construction elements from ThyssenKrupp Steel Europe.

The capital of the oil and gas-rich republic is giving itself a building that will house a conference area with three auditoriums, a museum and a library. Named after the predecessor and father of today’s president of Azerbaijan and situated close to the city center, the building is to play a pivotal role in the cultural and intellectual life of the city on the Caspian Sea. The building’s design concept is centered around motion and flux. There are no right angles or straight lines to be seen anywhere in its envelope. Instead, gentle arcs and tension-filled curves dominate.

According to Zaha Hadid on her website, the fluid form is intended to emerge from the landscape’s natural topography and wrap the individual functions of the Center. The functions are represented by folds in a single continuous surface.

The use of steel for such a landmark building underlines once again the architectural potential of the material. The choice of steel construction elements from ThyssenKrupp Steel Europe’s Color/Construction Business Unit shows that no distance is too far for quality; after all, more than 5,500 kilometers lie between the Siegerland district, where Germany’s biggest steelmaker manufactures its construction elements, and the metropolis in the Caucasus.

Bernd Overmaat

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



The envelope of the Heydar Aliiev Congress Center in Baku is made up of sections manufactured and supplied by ThyssenKrupp Steel Europe’s Color/Construction business unit. The elements have a gray-white polyester coating and are mounted on a latticed structure. They are absolutely weather-proof – so Baku will benefit from its new landmark for a long, long time to come.





Menk builds customized transformer casings “We focus on reliability and flexibility”

Menk builds huge casings and refrigeration systems for the transformer industry as well as solid welded structures for mining. The company has been relying on heavy plate from ThyssenKrupp Steel Europe for more than 30 years.

The spa town of Bad Marienberg is located in the Westerwald region and is surrounded by trees and meadows. The recreational facilities have always been firmly established there, but the idyllic community also boasts an industrial heavyweight – Menk Apparatebau. A tour of the company’s production halls highlights the impressive size of its products: awaiting dispatch is a gigantic transformer casing measuring almost ten meters in length, four meters in width and five meters in height. The imposing shell made of heavy plate from ThyssenKrupp Steel Europe weighs in at more than 50 metric tons and is waiting patiently to be delivered by heavy transporter to the cus-

tomers, ABB, in Bad Honnef. “The dimensions depend on the transport conditions,” says Menk General Manager Klaus Horz, pointing out one of the challenges facing his business. “We are calculating a journey time of three hours for the nearly 50-kilometer route. We are only allowed to drive at night so that we do not obstruct traffic.” It’s no wonder with a vehicle convoy measuring up to 40 meters in length and weighing a total of 70 tons.

“It is quite often the case that we prepare the route or dismantle traffic lights and signs for the journey.” This is necessary to save time and, therefore, transportation costs –

such a delivery can cost as much as 7,000 euros. This is because the shortest route is not always suitable for heavy transport, and detours of several hundred kilometers have to be taken into account. It is therefore often advisable to transport the transformer casings by ship and rail. Again, the specifications have to be observed precisely and rigorous standards regarding the size, shape, dimensions and processing have to be met.

A further nine large transformer casings are due to make the trip to Bad Honnef shortly. However, there is still a great deal to do before they will be ready to leave. Work is already underway on the second casing. It takes three weeks to complete each casing. "Each job is different," says Patrick Müller from Menk's Purchasing Department, describing the individual shapes, sizes and dimensions of the transformer casings. "We produce the casings according to our customers' specifications." The heavy plate from Duisburg-Hüttenheim is finished precisely at Menk, and the individual elements are welded together to make the casing. The welds have to be absolutely tight, because none of the cooling oil flowing in the transformers can escape during use – in this case, at an aluminum mill in Saudi Arabia. "The material and structural engineering calculations of our transformer casings have to withstand inner workings of 400 to 500 tons," says Horz. Protecting the casings against corrosion in different climatic zones is also important. The transformer casings are located in all of the countries of the world – major customers are currently India, China, the USA, Australia and the Arab oil states. Therefore, the casings are coated with a special varnish prior to delivery.

However, the starting material provided by ThyssenKrupp Steel Europe also plays a large part in the top quality of Menk's products. Dr. Marco Pfeiffer, Domestic Sales of the Heavy Plate Unit of ThyssenKrupp Steel Europe knows: "Our steel meets the desired requirements. We go into our customers' specific wishes and concerns, for example in terms of dimensions and tolerances." Horz adds: "For us this is quality, because the dimensions are crucial for us." The compa-

nies have worked together as partners for many years. The Menk Group has been purchasing heavy plate from Duisburg-Hüttenheim for more than 30 years. The delivery volume is now estimated at around 9,000 tons a year. "By far the largest part goes to the Bad Marienberg plant," says ThyssenKrupp Steel Europe Sales Manager Mario Klatt. The remainder is delivered to Prague. In addition to Germany and the Czech Republic, the group of companies has plants in the USA, Malaysia and China. "We have been delivering our high-strength grades under the brands N-A-XTRA® and XABO® for many years especially for the construction of welded structures in Prague. In addition to complying with small tolerances and therefore weight savings, the strength combined with the flexibility of the starting material is very important."

The German subsidiary of the Menk Group has been located in Bad Marienberg since 1949. After being founded by Horst Menk during the post-war period, the Opel family took over the business in 1961 and expanded the company. The company has grown over the years. The company premises now cover a production area of 26,000 square meters. The owner has also changed once again. The group of companies has been owned by the Schäfer family since 1975. The figures speak for the family-owned business's success: sales of 48 million euros per year at the Westerwald site alone and production figures of 20,000 metric tons a year. Sales are expected to increase further in future.

Horz is optimistic despite the current developments in nuclear energy in Germany, for which many of the large transformer casings are built. "The demand for electricity and therefore the demand for transformers will not diminish. The switch to wind power will offset the power plant closures." In fact, it is planned to increase production volume from 70 large tanks per year to 90 for 2012.

Christiane Hoch-Baumann/Johanna Flöter

www.menk-gmbh.de/en/home.shtml



Above (from left to right) Menk General Manager Klaus Horz, Dr. Marco Pfeiffer and Mario Klatt of ThyssenKrupp Steel Europe and Patrick Müller of Menk are still impressed by the size of the huge transformer casings. The steel shell offers sufficient space for the typical inner workings of a transformer consisting of oil, transformer steel and copper. The casing will be used in an aluminum mill in Saudi Arabia and will convert power for at least the next 40 years.

Below Sparks fly through the air, the hall is filled with the characteristic smell of intensive welding work. The employees of Menk Apparatebau GmbH in Bad Marienberg carefully join together the gigantic heavy plates to make a transformer casing. The greatest possible precision is required.

Biomass heating plant is a real eye-catcher

Steel is attractive



The new biomass heating plant in Upper Austria is an all-round flagship project: environmentally friendly, sustainable and attractive. It is designed to produce environmentally friendly energy and is cooperating closely with the foil producer located there. The heating plant was given its distinctive “look” by components made by Hoesch Bausysteme of ThyssenKrupp Steel Europe. The durable and maintenance-free steel elements, in turn, represent sustainable construction.

The new biomass heating plant is located in the Baumgartenberg industrial park, where it is producing environmentally friendly thermal energy with biomass from the region. The heating plant is therefore reducing emissions by up to 1,600 metric tons of CO₂ a year. It is also making possible a synergy with the foil producer located there: the heating plant supplies water at a temperature of 220 degrees for the production of industrial foils, and the foil producer feeds the unused waste

heat from its plant into the regional heat grid. According to the operator of the heating plant, the waste heat is sufficient to meet the heating needs of the 2,000 inhabitants of the village during the summer months. It is already planned to connect other large consumers such as the nearby Baumgartenberg monastery.

The project is also exceptional visually. The architect Gerald Anton Steiner designed the facade such that it takes account of the CO₂ circulation during the combustion of renewable raw materials. Accordingly, the elements of the facade symbolize the characteristics of a tree. “The windows represent the vistas which can be seen through treetops,” explains Steiner, “the attached black steel sheet elements running across the facade in the form of stripes indicate the leaves.” Integrated white LED lamps ensure that the viewer can identify the light beam beneath



Top The biomass heating plant in Upper Austria is environmentally friendly, sustainable and attractive. Its facade draws inspiration from trees as part of a CO₂ circulation: the windows represent vistas in trees, black sheets resemble foliage.

Left To ensure that the elements of a tree can also be seen in the dark, white LED lamps have been integrated into the facade. The windows provide glimpses of the inner workings of the heating plant during the day and at night, in the same way as the gaps between the leaves of a tree provide vistas.

the black-stripe elements at night and during the dark winter months as foliage.

The windows offer glimpses of the heating plant's inner workings in the same way as the gaps between the leaves provide a vista. Through the windows, which are arranged without regard to the inner workings, the viewer can see various items including pipes, pillars and switch cabinets.

Steiner used a system made of steel from Hoesch Bausysteme for the facade. "Visually, steel is excellent," he stresses, "and I know from other projects just how high the quality of Hoesch® products from ThyssenKrupp Steel Europe is." He chose the plain white Hoesch Planeel® Siding system for this project. "This product creates the desired closed facade design here, a flat and smooth appearance." It was possible to drastically reduce the assembly time thanks to the fact

that the Hoesch Planeel® Siding system had been developed into a complete facade system: the facade elements were mounted and invisibly fixed, without any restraints, into the new multifunctional Hoesch® system bar by means of a plug connection. It was possible to use special solutions such as windows and doors which were flush with the facade, which were specified with a universal joint pattern in this project inexpensively.

The further developed steel element is not only available in plain white. **ReflectionsCinc®** and **ReflectionsOne®** colors provide plenty of variety for facade design. In addition, a "matt deluxe" coating produces a very special visual effect. Regardless of the color: Hoesch Planeel® guarantees that the facade will retain its pleasing aesthetics for the long term thanks to the innovative ZM EcoProtect® zinc-magnesium alloy which provides long-term corrosion protection. "The smooth and

attractive surface will therefore last a long time," says Steiner. Other products from the Color/Construction Unit can also be found in the biomass heating plant: Hoesch® liner trays, Hoesch® trapezoidal profiles for the roof construction and roof cladding as well as Hoesch isorock® vario as a fire-proof and temperature-resistant housing of the buffer store. It is possible to not only protect the climate and resources, but also to help create and retain lasting value with steel components from ThyssenKrupp Steel Europe. Steel building products are therefore supplementing the contribution made to environmental protection by the biomass heating plant. An all-round flagship project.

Daria Szygalski

www.tk-hoesch.com/references
www.geraldantonsteiner.com

Heating and water tank

The signs point to growth at Reflex

Reflex is one of the leading companies in Europe for diaphragm pressure expansion vessels in heating, cooling and drinking water systems. Just like the Winkelmann Group, of which it is part, Reflex also relies on the steel and know-how of ThyssenKrupp Steel Europe.



Diaphragm pressure expansion vessels are produced at Reflex on modern systems which have been specially developed for the company. Several million vessels are produced every year in Ahlen in Germany and Wąbrzeźno in Poland; they are distributed all over the world.

Reflex has been an independent company within the Winkelmann Group since 1989 and has its head office in Ahlen in Westphalia. Heinrich Winkelmann and Caspar Pannhoff founded Winkelmann & Pannhoff there in 1889. Initially, the family-owned company manufactured enameled household and kitchen appliances; during the 1950s production was modernized and converted to steel metal shapes as well as special parts for mechanical engineers, the automotive industry, heating and hot-water engineering.

Winkelmann is now a group of companies with 18 independent business units in different countries, which is now being managed by Heinrich Winkelmann, the fourth generation of the Winkelmann family. The group employs around 2,500 people in three divisions – Automotive, Drive Elements and Heating & Water, to which Reflex belongs. “Like all of the divisions we are also active internationally,” says Manfred Nussbaumer, Joint Managing Director of Reflex. Reflex has production sites in Ahlen and Wąbrzeźno in northern Poland and has sales offices in the Netherlands, Switzerland, Greece, Poland, Austria, the Czech Republic and China.

Whether customers wish to equip a one-family home or a combined heating and power plant, they will always find the right diaphragm pressure expansion vessel for heating and drinking water systems in Reflex's range of products. “We offer different sizes,” says Nussbaumer. The smallest

tank holds two liters and the largest standard tank manufactured holds 10,000 liters. “We will also manufacture special sizes up to 100,000 liters on request.” The range of products also includes compressor and pump-controlled pressurization units as well as water make-up units, deaeration systems and heat exchangers.

The outstanding feature of Reflex's products is their excellent quality. “The safety and longevity of our solutions is a result of our care and precision during the design and production stages,” explains Nussbaumer. Reflex produces several million tanks a year on state-of-the-art production lines. “In addition, we are continually further developing our products – in dialogue with plant manufacturers and also with research institutes such as the Technical University of Dresden.” They are currently developing solutions for renewable energy.

Steel is essential for the housing of the tanks, with which the pressure is maintained in the systems and the change in volume is compensated. “We purchase this material from ThyssenKrupp Steel Europe,” explains Wilfried Schneider, Steel Purchasing Manager of the entire group of companies. ThyssenKrupp Steel Europe has been supplying the group for more than three decades. Now with approximately 37,000 tons per year – including a good 8,500 tons of hot-rolled strip and cold-rolled sheet which are supplied to Reflex each year – the steel producer is one of the

most important suppliers. “However, we do not only attach importance to high-quality steel, above all we have high demands on know-how,” stresses Schneider, referring to innovations which Winkelmann Powertrain Components has developed together with ThyssenKrupp Steel Europe and with which it has successfully participated in the Steel Innovation Prize several times. “The basis for our successful cooperation and for the further development of our steels is a cooperative business relationship,” says Martin Metzger, team leader in Industrial Sales at ThyssenKrupp Steel Europe. “We therefore supply the group with high-performance steels,” adds his colleague Dr. Stefan Köhler from the Technical Customer Advice Service. “Our material provides Reflex with narrow tolerances and strength ranges and can therefore be deep-drawn precisely.”

The many years' experience, the close practical experience and the enthusiasm for new products at Reflex and the Group are proving a winning formula: the Winkelmann Group's turnover was more than 390 million euros in the last fiscal year, and the figures at Reflex point to growth. “We want to maintain our course,” says Nussbaumer, “by developing our position as market leaders abroad and our know-how in the field of renewable energies.”

Daria Szygalski

www.reflex.de

www.winkelmann-group.de



Left They regularly talk about delivery volumes as well as optimizing and further developing steel grades (from right): Wilfried Schneider, Purchasing Manager of the group of companies, Manfred Nussbaumer, Joint Managing Director of Reflex as well as Martin Metzger, Team Leader of Industrial Sales and Dr. Stefan Köhler, Technical Customer Advice Service at ThyssenKrupp Steel Europe.

Right Reflex – the market leader for diaphragm pressure expansion vessels in heating, cooling and drinking water systems – is based at the head office of the Winkelmann Group in Ahlen, Westphalia.

Agenda

Branchenfachtagung Kälteforum / Kälteforum Industry Symposium

13 – 14 September 2011, Darmstadt/Germany

For the seventh time, Arbeitsgemeinschaft Kälteforum, supported by industrial organization German Institute for Frozen Foods (Deutsche Tiefkühlinstitut/dti), and the German Cold Stores and Logistics Association (VDKL) is putting on this symposium for temperature-related logistics. The refrigeration and deep-freeze sector uses the symposium as an information platform for the topics of storage, distribution and energy efficiency. With its "ems" product line of facade elements for cold stores, ThyssenKrupp Bausysteme is present with innovative and energy-saving steel construction elements during the event.

Alihankinta

13 – 15 September 2011, Tampere – Finland

Finland's largest international industrial trade fair predominantly attracts visitors from the Scandinavian countries and Russia. 900 exhibitors will be presenting themselves on an area of about 13,500 square meters in the Tampere Exhibition and Sports Center. ThyssenKrupp Steel Europe will be represented with the Heavy Plate Business Unit in Hall C on Booth 502 as co-exhibitor on the booth of the company's trading partner Finkenbergl, and exhibiting high-strength and wear-resistant steels.

IAA

15 – 25 September 2011, Frankfurt/Germany

The 64th IAA International Motor Show is taking place this year under the motto "Future comes as standard", thereby providing a platform for the topic of electromobility. In this connection, Dresden University of Technology's subsidiary Leichtbau-Zentrum Sachsen (Lightweight Construction Center Saxony) on Booth D24 in Hall 4 and RWTH Aachen University

on Booth A32 in Hall 4 are taking this year's event as an opportunity to present their contributions to electromobility. As project partner and co-exhibitor, ThyssenKrupp Steel Europe will be giving presentations of its development work on both booths – InEco together with TU Dresden and StreetScooter with RWTH Aachen.

Insight Edition

20 + 21 September 2011, Gothenburg/Sweden

Via its Swedish branch operation, ThyssenKrupp Tailored Blanks will be appearing with innovative steel solutions – including Hotform Blanks and Tailored Strips – and specific examples of applications at the in-house exhibition being held by Volvo.

Euro Car Body

18 – 20 October, Bad Nauheim/Germany

For the 13th time, Bad Nauheim will be the meeting point for the world's most important network of car body engineers. The event will have OEM car body presentations featuring the latest production cars for the European market, the state of the art and current trends in international car body development and production. ThyssenKrupp Tailored Blanks is a regular guest at this annual international benchmarking conference, and will be showing innovative solutions for the automotive industry in an accompanying exhibition, including its Hotform Blanks, Tailored Strips and Tailored Blanks of aluminum.

International Jahrestagung STAHL

10 November 2011, Düsseldorf/Germany

As has already become tradition, the Steel Information Center is hosting the International Annual Conference STAHL in November in Düsseldorf's Congress Center South. This year's main topic is that of "Knowledge, materials, values", and will be

expanded upon via six dialogs on steel with experts from the spheres of politics, science and industry. ThyssenKrupp Steel Europe will be present at the conference with an open meeting point and a presentation area.

Future Car Body

22 + 23 November 2011, Bad Nauheim/Germany

This year's Future Car Body conference is all about new technologies and the perspectives for the future of the automotive sector. Keyword: electromobility. The topics of discussion among the participants will include alternative drive systems, new lightweight construction techniques in car body engineering, and micro-car concepts. ThyssenKrupp Tailored Blanks will also be present at the event with innovative solutions for the automotive industry, and will be presenting its Hotform Blanks and Tailored Strips in an accompanying exhibition.

DEUBAU

10 – 14 January 2012, Essen/Germany

The international trade fair for the construction industry will be opening its doors in January 2012. ThyssenKrupp Steel Europe will be present on a booth shared with the Steel Information Center in Hall 3, with exhibits from its Color/Construction business unit and presentations of steel construction solutions. On 11 January 2012 the Steel Information Center will be hosting its 6th international architecture conference at the Congress Center West, under the thematic motto "New building with steel – spans, structures, visions". Renowned international architects will be giving presentations on projects and their ideas on sustainable architecture with steel. The congress's cooperation partner is the North Rhine-Westphalia Chamber of Architects.

Echo

Climate policy dampens good mood

"The European steel industry is back on the growth path. Nevertheless, it sees its future threatened by unrealizable energy and climate policy requirements. These could increase its burden of additional costs to EUR 1.7 billion per year in Germany alone. That would be more than the steel industry's annual volume of investment (...)."

VDI nachrichten, 1 July 2011

Right of way for engineers

"So the (pupil-engineer) academy has borne fruit. For two years, technically gifted pupils from the Franz-Haniel, Max-Planck and Steinbart high schools busied themselves with the engineering profession in their leisure time (...). "The project is of importance for both sides", said Dr. Rudolf Carl Meiler, the man responsible at ThyssenKrupp for the search for the engineers of the future. "Our doors are naturally always open for such capable people. And the past two years alone have produced a dozen scholarship holders."

Der Westen, the portal of the WAZ media group, 12 June 2011

Pilot plant in Dortmund

ThyssenKrupp Steel Europe intends to build a pilot plant in Dortmund in the second half of 2011 for the production of sandwich plates of steel and polyamide. The line is then expected to start up production at year-end. The sandwich material can be painted inline at 210 °C, and is above all intended as an alternative to aluminum plate in the carbuilding sector, but is also capable of being an alternative to pure steel solutions as well."

Kunststoffweb, 6 July 2011