compact

2/2007 The company magazine of ThyssenKrupp Steel

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Tailor-made suits for automobiles

ThyssenKrupp Tailored Blanks bring steel to the right place

Atlantic strategy
Go-ahead for Alabama

International Motor Show Frankfurt
From steel to production components

Thinking the future of steel

ThyssenKrupp Steel

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About our cover picture:

ThyssenKrupp Tailored Blanks continues to expand. Worldwide, numerous plants and joint ventures are being founded in addition to Duisburg-Hüttenheim, headquarters and at the same time biggest company location. The most recent plant is located in Bursa in Western Turkey. This makes ThyssenKrupp Tailored Blanks the first manufacturer of laser-welded, function- and weight-optimized steel blanks to establish a presence in Turkey.

impressum

ThyssenKrupp Steel AG
Kaiser-Wilhelm-Strasse 100, 47166 Duisburg, Germany
Postal address: 47161 Duisburg, Germany
Phone: +49 (0)203 52-1, fax: +49 (0)203 52-25102

Publishers:
Senior Executives/Communication/Marketing

Editorial team:
Rolf-J. Neumann (legally responsible)
Marketing
Phone: +49 (0)203 52-41003
Fax: +49 (0)203 52-41007
E-mail: rolf-juergen.neumann@thyssenkrupp.com

Christiane Hoch-Baumann (editor-in-chief)
Communication
Phone : +49 (0)203 52-24515
Fax : +49 (0)203 52-25707
E-mail: christiane.hoch-baumann@thyssenkrupp.com

Katharina Mette
Communication
Phone : +49 (0)203 52-25152
Fax : +49 (0)203 52-25707
E-mail: katharina.mette@thyssenkrupp.com

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

"ThyssenKrupp Steel has a successful business model that distinguishes us from the competition. With our clear forward strategy we hold a position as a global player in the attractive markets for high-end flat carbon steel."

Dear Readers,

In a few days ThyssenKrupp Steel AG will be celebrating its tenth anniversary – the ideal occasion to look back on what has been achieved so far and also to look to the future. Our objective is to implement our international growth strategy and take the company to a new dimension.

To reinforce our position in global competition, we are investing around six billion euros on both sides of the Atlantic to enlarge our capacities. This is a huge responsibility, which focuses our entire attention and demands maximum commitment on the part of all those involved. We are doing well. Building work on the steel plant in Brazil is proceeding at full speed. Furthermore, the Supervisory Boards at ThyssenKrupp Steel AG and ThyssenKrupp AG have given the go-ahead for the construction of processing facilities in Alabama in the USA. This means that another building block in our forward strategy has been approved. But we are also strengthening our German locations and our market identity in Europe with additional growth-related investments worth over 700 million euros. This is because – and I would like to stress this explicitly – Europe remains the core market for our high-end products, and our customers are at the center of our comprehensive considerations.

Another pioneering decision taken in the past months has expanded our product range and added to our value chain. With economic effect at October 1 of last year we took over the Body and Chassis units from the former Automotive segment. Metal Forming has 8,400 employees at 22 locations worldwide and generated sales of 1.4 billion euros in the past fiscal year. You are cordially invited to gain your own impression of our company's extensive automotive capabilities at this year's IAA International Motor Show in Frankfurt.

Ten years of ThyssenKrupp Steel are proof that we have created sound values and set the right course, generating the financial latitude to enable us to implement our growth strategy. We have shown how much potential our company has.

In the cover story we present our subsidiary ThyssenKrupp Tailored Blanks and describe the dynamic development of tailored blanks from initial trials to top international product.

This is not the only example demonstrating that the recipe for our successful growth strategy, which is unique in the steel industry, is based squarely on our technological competence. We are convinced that we are well positioned for the future; that's the message running through all the articles in our customer magazine. I wish you an enjoyable read.

Yours,

Dr. Karl-Ulrich Köhler
Chairman of the Executive Board


Start in die Zukunft
1.
September
THYSSEN KRUPP STAHL

Ten years of ThyssenKrupp Steel

A healthy child with development potential

The birth announcement described the new-born as a "bouncing baby, who will hopefully give his parents a great deal of pleasure". The announcement of the event was huge and impossible to overlook. Gigantic posters announced the date of birth in Duisburg and Dortmund: September 1, 1997. Now ten, the baby has developed into a healthy child that still has significant potential for the future.

ThyssenKrupp Stahl AG – now ThyssenKrupp Steel AG – started work that day. CEO Dr. Ekkehard Schulz presented the "bouncing baby" and its birth details to the press two days later: 23,700 employees, turnover DM11 billion (approx. 5.4 billion euros), crude steel production 15 million metric tons and 14.5 million tons of flat steel. "A distinctive feature of our product range is the increasing percentage of high-value products. Wherever possible and economically expedient, we offer our customers greater value added. We want to develop the material steel into a steel system," Schulz explained to the journalists.

The site concept formed the basis for the positive development: steelmaking and a major part of hot strip production was concentrated at the Duisburg location – today the biggest in Europe. The concentration of resources gave rise to important synergetic and energy-conserving effects. However, as CEO Schulz went on to say at the time: "The fact that not only the personnel adjustments in connection with the merger were regulated but that at the same time the creation of alternative jobs was stipulated is unique in the history of German industry."

After that things developed quickly: in 1999 the first casting-rolling plant in Europe was put into service in Duisburg-Bruckhausen. In 2001 the new TAKO tandem plant followed at the same location, the most advanced cold rolling plant in the world. Steelmaking operations at the Dortmund location were closed, but in the same year the site was strengthened as an important center of excellence for coated products by the installation a high-tech hot-dip coating plant. In 2003 the world's most advanced blast furnace coking plant was completed in Duisburg-Schwelgern, and in Dalian (China) the company invested in a hot-dip coating plant based on the one in Dortmund. These are just a few of the milestones that mark out the development of ThyssenKrupp Steel over the past ten years.

To put it in figures: productivity has more than doubled, rising from 315 to 650 metric tons of crude steel per employee/year. High-quality products account for more than 90 percent of sales. This success is marked by a very strong customer focus as well as technology and product innovations in line with the motto "Thinking the future of steel". ThyssenKrupp Steel sees itself not just as a materials supplier, but rather as a systems partner. At over 60 percent, the very high proportion of long-term contracts documents the enormous value we place on customer focus. It also drives the research and development activities we carry out for and in collaboration with customers. For example, a body-in-white – the NSB® NewSteelBody – has been developed especially for the automotive industry which is 24 percent lighter than a conventional steel body. This development also includes new products such as the hot-rolled composite TriBond® and modern DAVEX® profiles.

Today the Steel segment of the ThyssenKrupp Group – with subsidiaries active in tinplate, medium-wide strip, electrical steel, tailored blanks, construction elements and steel service – is a very profitable business that has increased its EBT step by step over the past few years. A continuous improvement process has been established in the company which has significantly enhanced the quality of earnings. This was the basis for the development of our forward strategy, which will stabilize our position on the international markets for flat steel, focusing on Europe and NAFTA. The core elements are the establishment of new plants in Brazil and the USA and the expansion of capacities in Germany (compact reports in detail on pages 6 to 10).

ThyssenKrupp Steel chief, Dr. Karl-Ulrich Köhler, is optimistic about the future: "The path we have taken has proved to be the right one. We have clearly demonstrated our company's potential. And we are convinced that we will continue successfully down this path."

Ed.

www.thyssenkrupp-steel.com/en

Contact: **Erwin Schneider,** Communication, tel. +49 (0)203 52-25690, e-mail: erwin.schneider@thyssenkrupp.com
Dietmar Stamm, Communication, tel. +49 (0)203 52-26267, e-mail: dietmar.stamm@thyssenkrupp.com

ThyssenKrupp Steel pushes ahead with Atlantic strategy

Go-ahead for Alabama

◀ The starting material for the plant in Alabama will come from Brazil.

◀ The centerpiece is a hot strip line used jointly by ThyssenKrupp Steel and Stainless with a capacity of 5.2 million metric tons. It is supplemented by cold rolling mills and hot-dip coating plants.

◀ 4.1 million tons of carbon steel will soon be delivered to automotive and industrial customers.

ThyssenKrupp Steel's forward strategy is gathering momentum: at the beginning of May the Supervisory Boards of ThyssenKrupp, ThyssenKrupp Steel and ThyssenKrupp Stainless gave the go-ahead for a 3.1 billion euro investment in Mount Vernon in the US State of Alabama. Together with its sister segment, Stainless, the Duisburg steel company is to build a steel mill and further processing plant there.

The starting material for the carbon steel products, 3 million metric tons of slabs, will come from Brazil. In Rio de Janeiro a new 3 billion euro steel mill, ThyssenKrupp CSA, is being built which will produce 5 million tons of slabs a year from 2009. From 2010 these slabs will be processed in Alabama by a workforce of around 2,700. The target is to sell about 4.1 million tons of high-quality end products to automotive and industrial customers and hence to achieve a sustained strong position for ThyssenKrupp Steel in North America. The remaining 2 million tons of slabs from Brazil are destined for production in Germany.

Ed.

Three questions posed to …

ThyssenKrupp Steel chief, Dr. Karl-Ulrich Köhler

ThyssenKrupp Steel is investing around 6 billion euros in new steel capacities. However, the plants will be built in Brazil and the USA, not in Germany. Do you intend to abandon the company's home location in the medium term?

That is not the intention at all. On the contrary, over and above the normal investments, we are putting considerable funds – over 700 million euros – into expanding capacities and securing our pig iron base here in Germany. Our core market is, and will continue to be, Europe, but we are now targeting the attractive markets in the NAFTA region where we are underrepresented, with a market share of well under one percent. Our aim is to achieve over five percent in the medium term.

Why are you focusing on North America? Surely it is a mature market without growth potential?

The first part of my answer is: yes, North America is a mature market. From a superficial point of view, it will achieve only moderate growth of around one percent on average in the next few years. But for ThyssenKrupp Steel it offers a host of opportunities. Today the North American region is the world's biggest importer of flat steel and it will continue to depend largely on imports in the future. Industrial customers and automotive OEMs – in particular the European and Asian transplants – have a growing need for top quality products. Our state-of-the-art processing plant will bring us closer to them and allow us to serve them from local production.

The second part of my answer is: our specialty is products of an exacting technological and quality standard and it is here that we see the best chances of pushing forward successfully – i.e. profitably – with our growth strategy. Our unique forward strategy of concentrating on high-end products and the volume markets in the steel industry on both sides of the Atlantic will guarantee us a place right at the forefront of the global consolidation process. This is because the low-cost slabs from our new crude steel base in Brazil and the streamlined state-of-the-art plant in the south east of the United States with optimized production logistics will provide us with significant advantages in terms of competitiveness.

Your forward strategy is very demanding and the goals ambitious. Do you ever have doubts as to whether it will be realized according to plan?

No. There's no reason for doubt. The two major investments in Brazil and the United States represent an enormous task for our segment at all levels. I am absolutely certain that all our employees will give their best so that from 2010 we will be able to serve our customers better, and above all on a more global basis. And it will also enable us to strengthen our good position in the market for flat carbon steel. Moreover we will safeguard jobs in Germany and at the other locations worldwide.

Thomas Carlyle, a 19th century Scottish philosopher, once said: "Work and despair not. Let us roll up our sleeves and show the world what we are capable of. Let us show everyone that there is no reason to doubt our determination." There's nothing I can add to that.

Ed.

www.thyssenkruppnewusplant.com

"The two major investments in Brazil and the US represent a huge task to which we must all apply ourselves with utmost dedication."

ThyssenKrupp Steel CEO, Dr. Karl-Ulrich Köhler

Contact: **Erwin Schneider,** Communication, tel. +49 (0)203 52-25690, e-mail: erwin.schneider@thyssenkrupp.com
Dietmar Stamm, Communication, tel. +49 (0)203 52-26267, e-mail: dietmar.stamm@thyssenkrupp.com

Bob Riley, Governor of Alabama:

"Alabama is a great place"

▼ Governor Bob Riley with the Vice CEOs of ThyssenKrupp Steel, Peter Urban (l.), and ThyssenKrupp Stainless, Dr. Michael Rademacher.

Bob Riley biography

Governor Bob Riley began his second period in office in January 2007. Born in 1944, he studied Business Administration at the University of Alabama and afterwards launched a career as a businessman, establishing retail stores, a real estate company, a trucking company and, finally, a ranch in Ashland, Alabama, USA. In 1996 he ran for Congress for the first time and as a Republican became a Member of the House of Representatives. In November 2002 he was elected Governor of the State of Alabama; he was re-elected in November 2006.

Governor Riley, what makes Alabama attractive for foreign investors?

For foreign companies seeking to invest in the United States, there are a number of factors that make Alabama stand out. Our energy and labor costs are low, our infrastructure is good and getting even better, and our workforce is as capable and competitive as any in the world. Also, we have made significant investments in personnel development training for industrial and high-tech jobs. More than anything, I think companies know that Alabama is willing to work with them as a partner and create opportunities for their business to succeed. In a nutshell: Alabama is a great place to do business.

Were you able to support ThyssenKrupp Steel in the selection process for a site for its further processing facility?

Our job was to paint an accurate picture of Alabama and what it is like to do business in our state. Whenever ThyssenKrupp had any questions or concerns about our site, Neal Wade and his staff at the Alabama Development Office answered them, solving potential problems almost immediately. In the end, I believe it was how we responded that made the greatest impression rather than our initial proposal.

How is the economy performing in Alabama?

Our economy is booming. We have been ranked number one in job creation and have won the "State of the Year" award for economic development four years in a row. Alabama has a historically low unemployment rate of 3.5%, and business and industry have created more than 100,000 jobs in our state.

Trade has increased significantly during my time as Governor. Alabama is now serving as a gateway to the rapidly growing markets in Mexico, Central America and South America. Also, we have opened economic development offices in Germany, Korea and Japan with plans for similar offices in China and India so that Alabama can grow its international trade even more.

Alabama's top imports include oil, industrial machinery and vehicle parts. Our top exports are automobiles, chemicals and forestry products. Our industrial sector is growing rapidly. However, our financial and technological sectors are experiencing significant growth as well. Two of the ten largest banks in America are now headquartered in Birmingham. Alabama is also a leader in the healthcare industry and is poised to play an even larger role in the aviation industry.

You proposed an Economic Growth Plan – what measures does it promote?

My Economic Growth Plan was passed unanimously by both houses of the Alabama Legislature in March and then approved overwhelmingly by the people of Alabama in a state-wide referendum at the beginning of June.

When Alabama competes with other states for major economic development projects like ThyssenKrupp, we want to have all the advantages we can afford. It is no secret that incentives are a part of the selection process. I have the feeling that for Alabama to remain competitive and continue our success, we have to raise our credit line to be able to pay for such incentives. Right now, Alabama is competing for about ten major projects that, like ThyssenKrupp, will bring thousands of jobs to the state. This plan will enable us to compete on a level playing field, which usually works out well for Alabama.

What are your government's political priorities?

We have to keep working on optimizing the business conditions our state offers. Looking ahead, there are key areas we are focused on. One is the creation of a world class education system: to ensure that our children will be able to compete in this global economy, it is imperative that we continue building a strong education system with a single mission: to give our children the tools they need to succeed.

Our second goal is to reform state government. In recent years our administration has operated in an open and honest way. We brought together a world-class cabinet and gave them the order to do what is right at all times.

Our third concern is economic growth. Today, our economy is receiving national acclaim for its transformation. Our administration's new policies have helped Alabama's economy become one of the best in the nation, but we must not rest on our laurels.

Which are the most interesting regions for R&D activities?

Without a doubt, Huntsville and the North Alabama region are leading the way as a technological hub, not only for the state, but the nation. What started with Redstone Arsenal and NASA has developed into a whole cluster of high-tech companies in the aerospace and aviation industry. Mobile is now also making its way into the same industries, landing the EADS engineering facility which will hopefully become part of a much larger aviation assembly project in the near future.

But Huntsville and Mobile are not alone. Our universities are leading the way for our state to become a regional and national center for research and development. Cutting edge research at the University of Alabama in Birmingham is enhancing that area's reputation as a hub for the healthcare industry. Auburn University is currently building our state's first on-campus research park which will bring high-tech jobs to East Alabama and enhance their world-famous work in agriculture.

Where should a foreigner go to get a sense of the natural environment in your state?

We call our state "Alabama the Beautiful" for good reason. From the beaches of the Gulf Coast to the foothills of the Great Smokey Mountains, Alabama is truly blessed with natural beauty.

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

From the “Heart of Dixie” to ThyssenKrupp Steel USA

Alabama, a historical state with a future

Alabama’s symbol is a yellowhammer. “Yellowhammer” state or the “Heart of Dixie” are the names given to the state in the south of the United States; in 1819 it became the 22nd of the United States of America.

The landscape ranges from the beaches of the Gulf coast to the Appalachian Mountains. In Moundville the state boasts temple mounds from prehistoric times as well as the NASA Skylab. Bordered by the Mississippi in the West, Georgia in the East, Tennessee in the North and Florida in the South, in recent years Alabama with its 4.5 million inhabitants has made a name for attracting major industrial settlements. With its recent decision to build a processing plant in Mount Vernon, ThyssenKrupp has also triggered quite a lot of movement in politics. For example, on June 5, 80 percent of the population voted for an amendment to the Constitution, raising the funds of the Capital Improvement Trust Fund from the current level of 350 million US dollars to 750 million, in order to attract investors with infrastructural measures and tax benefits.

The planned major investment by ThyssenKrupp Steel and ThyssenKrupp Stainless is having a transformational influence on Alabama’s economy. For a long time agriculture dominated the southern states, in particular cotton, soy beans and peanuts. Last year economic growth was 3.1 percent, ranking 23rd among all the Federal States.

Alabama was catapulted into the modern era in the 1950s by the work of the German rocket scientist Wernher von Braun and his team in Huntsville, a town in the north of the state with some 160,000 inhabitants. Von Braun’s work helped advance the town into the stronghold of American rocket research, with NASA also taking up residence and developing its moon flight, space shuttle, SDI and manned space station programs here. Astronautics was followed by the aviation and defense industries: Boeing, Lockheed Martin, Honeywell and now also the EADS/Northrop Grumman refueling tanker aircraft cooperative venture all have operations in Alabama.

Automotive construction and supplies also play an important role in the state’s industry: the DaimlerChrysler plant in Tuscaloosa, the Honda factory in Lincoln and Hyundai in Montgomery are model projects. In all, some 380 companies in the automotive industry are based in Alabama. With a little over 245,000 inhabitants, Birmingham is the biggest city in Alabama and an important financial center: the eighth largest American bank, the Regions Bank, has its headquarters here.

There are major historical developments in the United States that originated in Alabama: in February 1861 in Montgomery, the capital of the Federal State, delegates from the States of Mississippi, Florida, Georgia, Louisiana und South Carolina came together formally to separate from the Union and found the Confederate States of America with a constitution similar to that of the Union. Jefferson Davis was appointed provisional president and the American Civil War started out from Montgomery, when Davis gave the order to attack Fort Sumter near Charleston.

Almost a hundred years later, on February 22, 1956, Rosa Parks refused to relinquish her seat to a white American traveling on the same bus. This was the starting signal for the American civil rights movement to fight against racial segregation and for equal voting rights. The bus boycott that followed and the march from Selma to Montgomery, led by Martin Luther King Jr., have gone down in civil rights history. King preached for six years at the Dexter Avenue Baptist Church in Montgomery, not far from the government quarter. Away from its interesting historical routes, Alabama is also a worthwhile destination for golfers: a pension fund has invested in public golf courses, triggering a boom in this area as well.

Dr. Bettina Wieß, business journalist

62nd International Motor Show

Service from a single source in Frankfurt

In the coming days, the metropolis on the river Main will once again be stepping on the gas to keep the car trade buzzing. The focus is on fast cars and fascinating studies. But equally important are new automobile concepts and ways of reducing fuel consumption.

▼ There's a lot going on under the trade show tower: In Frankfurt, the International Motor Show will be holding an impressive 10-day celebration of the motor industry's performance.

The 2007 International Motor Show invites you to the Giant's Ball from September 13 to 23. Around 1,000 exhibitors from over 40 countries are presenting their new models under the slogan "See what's driving the future". Anyone who wants to go through all the halls will need more than one day and a good pair of shoes.

ThyssenKrupp Steel is presenting its range of products and services for the automotive industry at a shared booth with ThyssenKrupp Technologies in Hall 4.1. By taking over the metal forming activities from the former Automotive segment, ThyssenKrupp Steel is bringing together technologies and service for the automotive industry along the entire process chain. The range covers everything from steel to semi-finished components.

There are many progressive ideas in steel for bodies, chassis and drive systems to be seen at the International Motor Show. One highlight is the first ever presentation of the InCar technology platform showcase representing the future of steel in automobiles in 2009.

Another sensation is a bicycle rack integrated into the tailgate. The new sport-utility tailgate developed by Webasto and ThyssenKrupp Steel offers convincing advantages: the integrated rack is always available and the tailgate can be loaded up without any difficulty.

There will also be a presentation of a state-of-the-art cockpit structure concept developed by ThyssenKrupp Steel in collaboration with Johnson Controls. A tailored tube steel structure creates more space for the airbag, air conditioning and glove compartment, and helps reduce weight. Today ThyssenKrupp Steel is more than ever a systems partner to the international automotive industry.

Christiane Hoch-Baumann

www.iaa.de

Contact: Rolf-Jürgen Neumann, Marketing, tel. +49 (0)203 52-41003, e-mail: rolf-juergen.neumann@thyssenkrupp.com

Interview with Dr. Ulrich W. Jaroni

Competence in the process chain

Dr. Jaroni, the International Motor Show is one of the most important events in the industry worldwide. Steel is the most important material in automotive construction. How will Germany's top steel manufacturer present itself this year in Frankfurt?

Firstly, we will show that we play an active role right from the conception of innovative parts and structures for automobiles. Examples of this are a new type of Webasto tailgate with an integrated, fold-down bicycle rack and a cockpit structure developed in collaboration with Johnson Controls. The structure follows a pioneering design principle, which saves cost and weight and creates more space in the passenger area. In both cases we cooperated with the partners right from the development stage.

At the International Motor Show we are presenting the integrated technology platform, InCar, for new ideas and solutions for bodies, chassis and powertrain. Further highlights are the first mass-produced hot-stamped tailored blank and first applications for our T3 profiles.

ThyssenKrupp Steel has been working on enhancing its competence in the process chain for some time. The company holds a participating interest in Bertrandt AG, a leading engineering services company. In applications technology it operates plants for weight-optimized tubular parts that are unique worldwide. Why are such skills important in the steel business?

The aim is to introduce modern steel materials to mass production fast and on a broad basis, enabling our customers to benefit fully from their business and technological advantages. However, it is not material properties alone that are crucial for starting mass production; among other things, aspects of production technology are also important. The design of a component is also an essential element of the decision as to whether the added value of innovative materials can be realized. Since we have our own expertise in this area, we are in a position to support customers effectively when introducing new types of steel.

The metal forming activities of the ThyssenKrupp Group have been managed by ThyssenKrupp Steel since October 2006. What role does this step play in your strategy?

The metal forming unit is active in the manufacture of body panels and the assembly of body and chassis components. The scope of performance ranges from consulting in production technology, method planning, prototyping, die and tryout management all the way through to production delivery and spare parts supply. In the past we have already cooperated successfully with colleagues, for example in the Lightweight Automobile Construction Innovation Center of the ThyssenKrupp Group as well as on numerous production orders. The close cooperation between materials and component manufacturers has been shown to deliver competitive advantages for both. Now we are in a position to intermesh our activities in such a way that ThyssenKrupp Steel will assume a unique position.

In its position as a leading manufacturer in terms of technology, ThyssenKrupp Steel is constantly developing its range of materials. Is there anything new in this sector to be seen at the International Motor Show?

Of course! For example we are presenting examples of components made from our innovative X-IP steels. Compared with the familiar, high-strength multiphase steels these materials possess around five times the forming capacity, yet offer the same strength. We have already produced around 340 metric tons during each of several trial smelts. We are currently testing the factory production of X-IP flat products in our rolling mills. At the same time we have supplied major German automobile manufacturers with sample deliveries. We are endeavoring to achieve the first releases for components within the course of this year. This would mean that the foundation has been laid for volume production of X-IP components.

A new steel mill with a capacity of five million tons of crude steel per year is currently under construction in Brazil. Two million tons are intended for the European market, three million are destined for the NAFTA region. What effect will this have on your automotive business?

In Europe the most interesting new markets for us are in particular the

"ThyssenKrupp Steel is the only manufacturer with competence that ranges from materials to engineering services, applications technology and equipment engineering all the way through to the production of components and assemblies. No other steel company offers such comprehensive skills, covering virtually the entire process chain."

Dr. Ulrich W. Jaroni, Member of the Executive Board of ThyssenKrupp Steel AG

central and eastern European countries. Our customers are achieving high growth rates there. We want to utilize the extended capacity created by the new steel mill to increase our market share in these countries. The NAFTA market offers opportunities to grow because the automotive manufacturers there have an increasing need for high-end steel products, which the domestic steel industry can only partially cover.

Here we will position ourselves above all through our technological competence and, in so doing, naturally we will benefit from the cost advantages offered by the starting material produced in Brazil.

Our customers are global operators and expect us to supply high-quality materials worldwide. Therefore, we will also be extending our capacities in China. We own a hot-dip galvanizing line, TAGAL, service centers and tailored blanks factories in China, giving us a good base from which to grow. At the beginning of next year we will put the hot-dip galvanizing line TAGAL 2 into operation; it also has a capacity of 450,000 metric tons per annum. We will continue our cooperation with Japan's second-largest steel manufacturer, JFE. Mutual licensing contracts here ensure that we can supply the European factories of Japanese automotive manufacturers with high quality materials.

Bernd Overmaat

www.thyssenkrupp-steel.com/auto/en

Contact: **Bernhard Osburg,** Division Auto, tel. +49 (0)203 52-44372, e-mail: bernhard.osburg@thyssenkrupp.com
Rolf-Jürgen Neumann, Marketing, tel. +49 (0)203 52-41003, e-mail: rolf-juergen.neumann@thyssenkrupp.com

Tiguan – the new VW

Greater safety, less weight

VW is launching a new vehicle with a powerful body which is light yet safe, thanks to high-strength steels from ThyssenKrupp Steel. Furthermore, the company also provides the skills for the VW workbench.

Volkswagen is to give its brand new 14th model series at the Frankfurt show a sensational presentation. Tiguan is the name of the car celebrating its premiere at the International Motor Show. "A crossover genius – predestined for the road, but top fit off-road," is how VW describes its prestige project in the small sport utility vehicle (SUV) class. The Tiguan is the little brother of the VW Touareg as regards size and price, but it is aimed at a different target group. It is Volkswagen's attack on a market segment that has been served primarily by BMW with the X3 and by Toyota with the RAV4 to date. The Tiguan is fully suited for off-road service, yet convenient to drive in cities and on highways. State-of-the-art technology ranging from the drive to high-tech features – for example in the form of a steering aid for parking – ensures both characteristics.

Light yet safe; this is the credo of the youngest member of the VW family. Nowadays it applies to automotive engineering in general because electronic safety systems, such as airbags and extra features for greater convenience, are increasingly being installed. That means more weight. But it is exactly this increase in weight that we should be avoiding. Gas consumption should be declining, not rising. As a result, weight has to be trimmed elsewhere. Vehicle bodies offer potential for saving weight – by using high-strength steels from ThyssenKrupp Steel. "Thanks to modern high-strength steels it is possible to save a significant amount of weight on automobile bodies, but without sacrificing safety. Quite the contrary." According to Dr. Markus Weber, responsible for Volkswagen AG at ThyssenKrupp Steel and head of the Key Account Team, "high-strength steels are distinguished by the fact that although the bodywork is thinner, it transfers higher forces and can therefore assist in meeting maximum safety standards in its crash performance." Anyone buying this new fun car will therefore also benefit from greater safety – despite the lower weight. VW claims to have reduced it by approx. 20 kilos and the lightweight construction quality has been rated 2.4 , i.e. best grades within the competitive field.

For the strength- and crash-relevant components, Volkswagen has already started using higher-strength steels, for example for the new Passat series and on the Eos. "For the Tiguan we have systematically developed the use of higher-strength steels," says Dr. Frank Welsch, head of the department responsible for developing the bodywork for the new model. Steel in a car is not simply steel. In the Tiguan bodywork the VW engineers have used different steel grades and thicknesses for specific purposes to take into account the different loads caused by head-on, side and rear end collisions as well as from overturning. Hence a true safety cell has been formed from high and ultrahigh-strength materials.

A completely new feature is the press-hardened B-pillar reinforcement. VW expert Welsch explains, "It facilitates maximum passenger protection with a reduced-weight B-pillar." The B-pillar is the central load distributor in the event of side crashes because it directs the forces downward to the door rocker and upward to the roof frame. Press-hardening is the process whereby VW refines

▶ The Tiguan is fully fit for off-road use, yet convenient to drive in the city or on highways. This is ensured by means of state-of-the-art technology and high-tech steels.

More than just steel

ThyssenKrupp Steel AG supplies automotive manufacturers with more than just steel. Endowed with an extensive range of products, high-tech production facilities and exemplary competencies in research and development, ThyssenKrupp Steel contributes innovative inputs to all kinds of applications and, for example, also supervises the familiarization process on dies directly in the press shop. This is the way to continually improve both components and processing methods. Both parties gain synergetic effects from the close collaboration and this in turn enhances the development of further applications.

Contact: **Dr. Markus Weber,** Auto Division, tel. +49 (0)203 52-44109, e-mail: markus.weber@thyssenkrupp.com

the high-strength steel by means of a special forming process.

For this purpose the steel supplied by ThyssenKrupp is heated to temperatures up to 900°C in the factory in Kassel; it is then formed in the die and subjected to a controlled cooling process. This gives it a special strength and it is installed in the Tiguan in zones subject to extreme stress during crashes. This extremely high-strength steel grade is also beneficial in the A-pillar, an important element in the event of a head-on crash.

For the B-pillar of the Tiguan VW applies an innovative process: it is intentionally only partially press-hardened and hence possesses zones with different strengths. For example the bottom third of the pillar has less strength and therefore a greater elongation capacity. This permits greater plastic deformation of the foot of the pillar if a collision occurs.

The higher the strength of a component and the longer its deformation path, the greater will be the amount of energy that can be converted for the protection of the passengers. "Good crash performances presuppose an optimized combination of high rigidity of the bodywork and corresponding potential for plastic deformation in the relevant parts of the body," Welsch explains. The hot-stamping MBW® 1500 steel from ThyssenKrupp Steel also contributes to this.

There is no doubt about it: it is not only Tiguan customers that benefit from the use of high-strength steels. VW is reducing its steel requirements accordingly, hence conserving steel as a resource in itself as well as its primary materials. On the other hand, processing higher-strength steels imposes greater demands on the dies, especially owing to the hot stamping process for press-hardening. Although in Wolfsburg innovative technologies are applied which were originally conceived for other models – this applies especially to the modern joining techniques for optimally connecting the steel parts – nevertheless, the automotive manufacturers still have to develop new dies. The suitability of these dies must be ensured for as long as Tiguan production continues.

At Volkswagen steel still remains the preferred material for body construction when it comes to large-scale production. "It makes it possible for us to reach our goals in terms of quality, rigidity, strength and crash performance at reasonable cost," says VW expert Welsch. Tiguan, the fun car, will be available from October.

Ulrike Wirtz, independent journalist

www.volkswagen.de
www.thyssenkrupp-steel.de/auto/en

Research makes it possible

Why steels are being reinvented right now

Iron materials have been in use for over four thousand years; there are over 2,000 registered steels; and yet development has only just begun. Why?

Steels are the materials of choice to meet requirements for high strength and deformability or toughness. This applied to the swords and ploughshares of our ancestors and applies equally to bridges and car bodies today. The availability of the raw materials has contributed to steel's success story: ore deposits containing 50 percent metal are to be found on all continents and there is no sign of them running out yet. Another factor is easy recycling and progressive production techniques.

Nevertheless, we still only know a fraction of the potential that iron-based alloys have to offer. As early as 1870 an academic teaching and research operation was established to study iron-working. Nevertheless most steels are based on knowledge gained from experience and which has been developed mainly in elaborate experiments supported by painstaking observations. This has changed only very recently. A good example is the development of multiphase steels for which various structural components, such as soft ferrite and hard martensite are mixed in a clearly defined way, thus giving rise to new types of property combinations. This first step toward systematically designing materials is based on an at least partial quantitative understanding of structural combinatorics; the procedure is highly creative and demands imagination.

The vision of "ab initio" modeling is now added to this: the structuring of materials in a computer exclusively applying generally valid physical laws. The electron structure of the metals has been understood and the computer has sufficient capacity so that the properties of large atom populations can now be computed. This also includes those that map lattice defects, which are important for the mechanical properties. With this method entirely new steel grades can be checked for their technologically significant properties quickly and at reasonable expense. The course was first set for the development of quantum mechanics-based material design when the German Research Foundation established the special research field "Steel ab initio" at the RWTH in Aachen and at the Max Planck Institute for Iron Research in Düsseldorf. The necessary development of relevant methods is progressing at the new ICAMS Research Centre at the Ruhr University in Bochum, partially financed by industry. One conclusion is clear: we will be hearing a lot about new steels in the future.

www.rwth-aachen.de

Personal data

Professor Dr. Wolfgang Bleck studied engineering at the Technical University in Clausthal, specializing in metallurgy. He was chiefly interested in physical metallurgy, a branch of solid state physics. He graduated in 1975 and became a scientific assistant. In 1979 he obtained a doctorate in engineering and from 1980 worked for the then Thyssen Stahl AG in Duisburg. In 1993 he was appointed a professor at the RWTH University Aachen, the base from which he conducts his international activities. His specialty is the development of innovative materials, frequently in close cooperation with ThyssenKrupp.

Contact: **Prof. Dr. Wolfgang Bleck,** RWTH Aachen, tel. +49 (0)241 80-95783,
e-mail: bleck@iehk.rwth-aachen.de
Rolf-Jürgen Neumann, Marketing, tel. +49 (0)203 52-41003,
e-mail: rolf-juergen.neumann@thyssenkrupp.com

NewsFlash

200 perspectives at ThyssenKrupp Steel

ThyssenKrupp Steel is taking on 200 additional engineers, economists and trainees. In a broad personnel campaign entitled "200 perspectives" Germany's biggest steel manufacturer is recruiting specialists as well as university graduates with professional experience. The vacant positions are posted on the internet.
www.thyssenkrupp-steel.com/perspektiven

Bausysteme in the UK

At the beginning of June ThyssenKrupp Bausysteme established a sales company, ThyssenKrupp Building Systems Ltd. with headquarters in Birmingham and an office in Glasgow, both in the UK. The agent responsible for the market, Iain McQuire, and his two co-workers, have now transferred to the company, with McQuire as Managing Director. The UK is the biggest construction market in Europe and has favorable growth prospects. Particularly in view of the Olympic Games, which are to be held in London in 2012, the building industry is expected to advance even more and offer opportunities for ThyssenKrupp Bausysteme products to be used.
www.tks-bau.com/en

New decarburizing line in Gelsenkirchen

In a record time of only nine months, decarburizing capacity at ThyssenKrupp Electrical Steel in Gelsenkirchen was expanded at the beginning of April and thus also the percentage of high-quality grades in the PowerCore H® brand. For the past three years the electrical steel manufacturer has focused increasingly on the production of higher-quality grades which are characterized by their particularly low magnetic hysteresis losses. PowerCore H® products are used in high capacity transformers to convert and conduct electrical energy.
www.tkes.com

Slab handling in Rotterdam Port

From 2009, ThyssenKrupp Steel will ship the slabs transported to Europe from Brazil via Rotterdam. These slabs will be from the steel mill currently being built in the port of Sepetiba. To this end, the Rotterdam Port Company will create the necessary infrastructure and the logistics company Steinweg will build a state-of-the art handling terminal with storage capacities and crane systems. For the first time, the slabs will be handled with the aid of magnets. This technique offers significant advantages in terms of cost. Furthermore, the combination of slab and container handling will provide maximum flexibility and productivity. Inland transportation of the slabs to the ThyssenKrupp Steel production sites in Duisburg and Bochum will take place via inland waterway and rail.

Awards for Rasselstein

Andernach-based tinplate manufacturer Rasselstein has received several awards. In the spring the company won the "Excellence Award in Quality" from the international can manufacturer, Rexam, with headquarters in the UK. It is the highest distinction this manufacturer bestows for the quality of materials supplied. In addition, Rasselstein received a distinction from Michael Glos, German Federal Minister for Economic Affairs, in the context of the "Opportunities with Experience" competition for having exemplary concepts for promoting health, shift systems to promote health and sensitive leadership by its management. The German Federal Family Minister, Ursula von der Leyen and Junior Minister in the Ministry for Economic Affairs, Dagmar Wöhrl, also awarded Rasselstein the basic "berufundfamilie" (work/life balance) certificate for working conditions that cater to families and a personnel policy that demonstrates an awareness of the family.
www.rasselstein.com/english

Von Garnier publishes two new books

Europe's most successful color designer has published two new books. In "Meine farbigere Welt – Menschliche Arbeitslandschaften" (My more colorful world – human working environments) and "Meine farbigere Welt – Meine Organischen Farbigkeiten" (My more colorful world – my organic colorfulness), he explains the philosophy of color design. Among other things von Garnier gives intense thought to the projects he has implemented at ThyssenKrupp Steel. He has been cooperating with the company for years and has developed a basic spectrum of 21 color series for building with steel, **Reflections**One©. For example, it was used in the design of the hot-dip galvanizing plant in Dortmund, Tagal in China and the Dortmund Surface Engineering Center (DOC©).
www.studiovongarnier.de

Construction elements-production in Hungary

A new construction elements factory in Hungary is to be inaugurated on November 22nd, bearing the name "ThyssenKrupp Epítöelemek". In Felsölajos, approximately 60 kilometers to the South of Budapest, sandwich elements for buildings and cold room construction will initially be produced in single-shift operation on a production area measuring 58,000 m^2. Output of around 16,000 tons per year will supply the growing Central and Eastern European market. The starting material is supplied by the Color Profit Center in Kreuztal-Eichen. The orientation towards Central and Eastern Europe is part of the forward strategy of ThyssenKrupp Steel to ensure profitability and development potential for the future.
www.tk-hoesch.hu

Agozal comes to ThyssenKrupp Steel

As of October Agozal Oberflächenveredelung GmbH has been part of the IDS Profit Center of ThyssenKrupp Steel AG. The objective of this merger is to sustainably enhance competitiveness, especially for DoubleDip, the main product. The familiar contacts will continue to be fully available to the customers.

The Tailored Products family

Tailored blanks are laser-welded blanks made from steel of varying quality, thickness, strength and/or surface coating. They are cut to size at ThyssenKrupp Tailored Blanks so that automobile manufacturers only have to give them the right shape for doors, tailgates, floor pans or side members in their stamping facilities. Up to 25 percent of modern car bodywork consists of tailored blanks.

Further developments of the original blanks are:
Engineered blanks with non-linear welds
Patchwork blanks with additional patches to reinforce the blank
Tailored tubes as laser-welded special profiles
Tailored strips as tailored steel strips direct from the coil
Tailored orbitals with which rotationally symmetric components are joined to another component by means of laser welding
Tailored blanks for hot stamping of car body parts

ThyssenKrupp Tailored Blanks

Tailor-made suits for automobiles

Modern tailor-made suits for automobiles are cut to size from tailored blanks and their innovative offspring: engineered blanks, patchwork blanks, tailored tubes, tailored strips, tailored orbitals and tailored blanks for hot stamping.

The principle is a very simple one: the seven-generation family of tailored products ensures that the right steel gets to the right place in the car. This does more than enhance the safety of the automobile by improving crash behavior. Other advantages are obvious: a car door made from a custom-fit tailored blank, which consists of especially strong steel in the area where the finished door is subsequently to be fastened to the hinges, saves the manufacturer expensive production steps; if the door were made from conventional sheet steel, the suspension points would have to be subsequently reinforced with additional elements. This is not just expensive; optimizing the component with tailored blanks can provide weight reductions of up to 40 percent, which is reflected in the vehicle's energy consumption. A convincing argument against the background of the current CO_2 debate.

The innovative idea of lightweight construction using semi-finished products has been taken a logical step further with the tailored strip product. By moving out of sheet material, automotive customers can use steel strips straight off the coil for their component production. Like the blanks, they are already tailored to the requirements of the end product and need no further reinforcement in areas subject to greater stress. Furthermore, thanks to the possibility of combining steel and stainless steel, corrosion protection is optimized and is effective precisely where it is needed.

The tailored blanks success story began 24 years ago when Audi decided to offer its "100" series with fully-galvanized bodies. The problem with this was the very large floor pan. At the time there was no plant capable of manufacturing the sheet steel in one piece in the dimensions required. But at the time there were bold employees at Thyssen Stahl AG prepared to break new ground. Their idea was to put the floor pan together from two sheets and use new laser welding technology to join them. The new method, which had never before been used for body parts – and most certainly not by a steel manufacturer – drew the attention of many skeptics. Despite all their prophecies of doom, volume production for the Audi order was launched.

The secret of the success of the tailored blanks family is their functional and load-oriented structure. They are manufactured on fully automatic welding machines based on the sewing machine principle. ThyssenKrupp Tailored Blanks has more than 30 structurally similar machines in operation worldwide. They include machine types with two laser heads that can produce linear and non-linear welds and adapt the blanks even more accurately to the actual load situation in the automobile. Equipped with two or more welding heads they even produce multi-part steel strips.

Tailored blanks made their breakthrough in 1992 when Volkswagen started to equip the Golf III with side members made from tailored blanks. At around the same time the product captured the American market: a joint venture in which Thyssen had a stake built a plant in Detroit which initially supplied tailored blanks to General Motors for side panels and door inner components. 3.2 million tailored blanks were sold in 1992 alone. By 1996 the number had more than doubled and the then Thyssen Stahl AG founded a subsidiary, today known as ThyssenKrupp Tailored Blanks GmbH.

Thereafter numerous plants and joint ventures were established in Germany, Mexico, Italy, Spain, China and Sweden. In fiscal year 2005/2006 annual production had already reached nearly 25 million units. Today the tailored blanks product has grown up together with the ThyssenKrupp Tailored Blanks company. The 70 employees working for the former Thyssen Fügetechnik 1996 have now increased to over 450, generating sales of around 316 million euros.

Christina Hoch-Baumann

▶ Cars today are inconceivable without tailored products

In conversation with Christian Dohr, Rudolf Helldobler and Rainer Heupel

“Customer satisfaction has top priority for us”

“Customer satisfaction is the basis of our continued national and international growth. Only if you can trust in ThyssenKrupp Tailored Blanks’ products, services and commitment, will we be satisfied.”

ThyssenKrupp Tailored Blanks Management Board members Christian Dohr (l.), Rainer Heupel (r.) and Rudolf Helldobler (center).

▶ Dr. Harald Stolten has been the new Management Board Chairman of ThyssenKrupp Tailored Blanks since September 1.

Mr. Helldobler, with international production facilities and joint ventures, ThyssenKrupp Tailored Blanks is the world market leader in tailored blanks. How do you intend to maintain your leading position in the future?

The systematic expansion of our company – we produce tailored products in Germany, Mexico, Italy, China and Sweden – is shaped by our objective of following the major automotive customers to their important locations. For example we have a production unit in Puebla in Mexico next door to VW. The same applies in Turin where we supply Fiat. We serve the Chinese market with our joint ventures, ThyssenKrupp Tailored Blanks (Wuhan) Ltd. and ThyssenKrupp TKAS (Changchun) Tailored Blanks Ltd. We are also present in Sweden with our subsidiary, ThyssenKrupp Tailored Blanks Sverige AB with headquarters in Olofström.

Most recently we have established another production site in Turkey, ThyssenKrupp Tailored Blanks Çelik Sanayi ve Ticaret Limited Şirketi, having followed our customers. On the Bosporus, companies such as the automotive manufacturers, Ford, Fiat, Renault, Toyota, Honda and Hyundai produce a total of some 700,000 vehicles a year, mainly for export. Market observers assume that the number will rise to a million a year by 2010. Our next steps will take us onto the up-and-coming markets of India and Central and Eastern Europe. In the medium term we are also contemplating Russia.

It is important to expand. But, Mr. Dohr, how will you maintain your customers' trust in the future?

Customer satisfaction is the basis of our national and international growth. We regard it as our top priority. Only if the customer trusts in ThyssenKrupp Tailored Blanks' products, services and commitment are we satisfied.

Our advantage is that tailored products can be combined in many ways for an infinite number of potential applications, including those of future automotive generations. The important thing is that every single component is tailored specifically to meet customers' needs. To bring out the advantages of this we also advise our customers. Together we develop new, fitting concepts, prepare technical and economic feasibility studies and support potential analyses for new products.

A current example is our doors benchmark. We have compared doors of current vehicles from Audi, Ford, DaimlerChrysler, Kia, Toyota, Volkswagen, BMW and Peugeot in terms of functionality and costs. This provides us with a sound comparison so that we can equip future models with an optimized lightweight steel design. Already today we are testing tomorrow's innovative steel qualities in our plants and producing modern tailored products for the automobiles of the future.

What are your most recent innovations, Mr. Heupel?

Increasingly stringent requirements in terms of passenger protection are calling for new solutions from the automotive industry. Together with Audi we have found an impressive way to respond to this: tailored blanks for hot stamping. They reach strengths which are not possible when deep-drawing the currently available steel grades.

Hot-stamped tailored blanks offer other advantages, too: in addition to the ability to combine different sheet metal thicknesses of manganese-boron steel, they can also be welded together with softer grades. In this way it is possible to obtain B-pillars with very high strengths, but which still have sufficient elongation capacity in the crash-relevant areas. Audi is now proving this with its new A4, which will go into production at the end of 2007.

A further highlight is tailored orbitals: we have transferred the tried-and-tested tailored blanks principle to rotationally symmetrical parts. These are used for shock absorber components; however, it is also conceivable to use them in the engine, transmission, clutch, steering, exhaust system and chassis. The original idea for this came from Group company Bilstein and Mercedes Benz. The production method for the shock absorbers for the current A-Class was to be optimized. Our method brings significant advantages compared with conventional bolted connections, which require too much packaging space. A high degree of process reliability, low manufacturing costs, short cycles and little heat input speak for themselves. Hence, welded joints close to heat sensitive elastomer components are feasible without damaging them.

Tailored orbitals for Mercedes Benz are produced directly at ThyssenKrupp Bilstein in Mandern. The company also produces for the Porsche 911 and Boxster models. Further projects – not only for shock absorbers – are about to be implemented.

Interview conducted by Christiane Hoch-Baumann

www.tailored-blanks.com/en

Contact: **Rita Gärtner,** ThyssenKrupp Tailored Blanks, tel. +49 (0)203 52-75268, e-mail: rita.gaertner@thyssenkrupp.com
Jörg Maas, ThyssenKrupp Tailored Blanks, tel. +49 (0)203 52-75275, e-mail: joerg.maas1@thyssenkrupp.com

A success story

Tailored blanks have come of age

Personal profile

Wilfried Prange is the father of the tailored blank. Having completed his mechanical engineering studies in Braunschweig, he joined what has since become ThyssenKrupp Steel AG in the early sixties, where he stayed until his retirement in 2004. During that time he spent 18 years as Plant Manager for sheet processing and the rest of his employment relationship with the company as Head of the Research Department for Applications Engineering, in which function he was responsible for a whole series of trend-setting innovations.

New technologies and the courage to make use of them form the basis for innovations. This serendipitous combination arose in the early 1980s at what was then Thyssen Stahl AG and fell on fertile ground: new laser technology revolutionized the market and met the wishes of Audi for a large-format, galvanized sheet – though it was not possible to manufacture this at any of the existing plants. Despite widespread skepticism and true to the motto "make one from two", the solution was the result of us – the then Rofin Sinar, Thyssen Stahl and Nothelfer – plucking up courage and creating the first laser weld on August 16, 1983 in Hamburg. The new territory had now been entered, and shortly afterwards we produced the first large-format sheet at the Applied Engineering facility in Duisburg. This was successfully tested by Audi and the new product went into volume production nine months later.

This success opened up a whole new vista for our research efforts. We welded steels of different thicknesses and grades together, developed suitable plant technologies for large-scale production and set out in search of customers. This was a Sisyphean task: what we also had to do was convince in-house designers, cost accountants, metalworkers, stability calculators and the corrosion departments of our idea. Sample sheets produced on prototype machinery in the Applications Engineering facilities proved that machining on a production basis was possible, and were made available to customers to carry out their own tests. In this context, the huge number of machined blanks with different compositions in terms of material quality and thickness was the most powerful argument in our efforts to proselytize Europe and the USA. And there were repeated setbacks, like occasions when the technology didn't function as planned, or the material didn't play along as it should have, or when a customer increased its stroke rate without any prior warning and thus put us in a difficult situation.

And then, in the 1990s, the orders started coming in. Customers in Europe and the USA had become convinced of the qualities of our new product and our competence, so now it was time for the tailored blank to leave the lab and go into industrial production. What has in the meantime become ThyssenKrupp Tailored Blanks GmbH in Germany and the TWB joint venture in the USA were set up. Today, tailored blanks have left their infancy behind, the technology has established itself worldwide and been further developed into an entire family of products. And there is no end in sight to developments.

Further development of the PLADUR® M innovation

Shining look for a Wiesbaden shopping mall

Coincidence played no part in the further development of PLADUR® M. Stiebich Metallbau of Reiskirchen/Germany had read a press report on a premium product from ThyssenKrupp's Color Profit Center, one that is suitable for dye sublimation printing. "The product in question is PLADUR® Colaminat tsPrint," explains Axel Pohl, a member of the Market and Innovation team.

Dye sublimation printing is a printing process in which an individual motif penetrates the painted surface of a coating – and is thus fully protected against scratching. Having read about it, Stiebich Metallbau contacted the Color Profit Center with regard to an order for the paneling of the Lilien-Carré shopping mall in Wiesbaden. The inquiry submitted to Mr. Pohl was clear and demanding: "A printable, easily cleaned metallic-look material at an attractive price."

"I thought of PLADUR® M straight away," says Pohl. The product has a metallic look – hence the M in its designation – and is in this case suitable for dye sublimation printing. Hot-dip galvanized sheet is coated with a metallized decorative foil by means of a coil coating process; the result is that the steel is given the appearance of precious and/or high-priced materials such as aluminum, titanium, copper or stainless steel. "Within a very short period of time we succeeded in optimizing the system comprising readily formable steel strip, adhesive and decorative foil to such an extent that it can be used in conventional and sophisticated processing methods in the area of facade construction, for example deep drawing, punching, roll forming or folding."

"PLADUR® M is a product family in itself which offers a diversity of design options," says Pohl. "Not only various metallic-look surfaces with or without brushed look, but also various different luster grades – from high gloss through to matt – are possible as well. Like all of our products, this ecological material is readily formable, corrosion-resistant and easy to clean – even where fingerprints are concerned," he rounds off.

The shopping mall is the first architectural project in which PLADUR® M has been used. "It was originally developed for indoor applications, especially for the domestic appliance market. Now, it also has additional, completely new applications," says Pohl with a view to the future.

Daria Szygalski

www.thyssenkrupp-steel.com/color/en

▶ Since late March the Lilien-Carré shopping mall in Wiesbaden has been resplendent in PLADUR® M, the shining premium product from ThyssenKrupp Steel's Color Profit Center. The elegant atmosphere provides a perfect setting for shopping and enjoying the facility.

Contact: Axel Pohl, Color Profit Center, tel. +49 (0)2732 599-4578, e-mail: axel.pohl@thyssenkrupp.com

ThyssenKrupp Stahl-Service-Center

Local service for customers in Western and Eastern Europe

Four managing directors, one table, the last Thursday in May. Reason for the meeting: the opening of the new ThyssenKrupp Stal Serwis Polska Service Center in Dąbrowa Górnicza. The plant in Southern Poland is the Steel Service Europe operating group's first production facility in a new EU member state.

"We're going for growth," emphasize Christian Korn and Detlef Schotten, the managing directors of ThyssenKrupp Stahl-Service-Center Germany and responsible for the Steel Service Europe operating group. "We're heading east in order to be closer to customers and to be able to give them a better supply service." Which, given that the economies in the countries there are booming, comes as no surprise. "But nevertheless, growth is just a part of our strategy," they continue. "Our strategy consists of three pillars, namely growth, efficiency enhancement and sustainability, and came into being as part of our parent company ThyssenKrupp Steel's forward strategy. The aim is for it to be implemented by 2010."

Schotten provides a few details: "We're looking to build up our market volumes and expand our capacities at the locations in Germany and other European countries. The current annual figure of 1.4 million metric tons of flat steel will be increased to around 1.8 million tons in the Steel Service Europe operating group." This will be made possible through the additional slabs which will be shipped to Germany from the new steel mill in Brazil from 2009 onwards. "In France too, which is one of our foreign locations, we will be expanding our activities in the high-end segment for the automotive industry and component suppliers. A commitment with further locations in Europe in the medium term is quite conceivable."

Korn turns to the topic of efficiency enhancement. "We're aiming for growth in North Rhine-Westphalia as well, to which end we are building a state-of-the-art steel service center in Krefeld, complete with access by water and private sidings. The intention is to reach an annual first-stage processing volume of 600,000 tons of flat steel, in other words 200,000 tons more than the combined output of the Bochum, Breyell and Leverkusen plants." The background for this 60 million euro investment lies in rising customer requirements. "Our customers in the high-end sector are processing increasingly heavy coils, in addition to which there is growing demand for higher-strength grades from the automotive industry. For this reason we need better plant systems, state-of-the-art floor conveyor

▼ The new Steel Service Center has a modern slitting line which can process coils with thicknesses from 0.4 to 4 mm and weighing up to 30 tons. A narrow strip line is to follow soon.

Contact: **Christian Korn,** ThyssenKrupp Stahl-Service-Center, tel. +49 (0)2173 1061-200, e-mail: christian.korn@thyssenkrupp.com
Detlef Schotten, ThyssenKrupp Stahl-Service-Center, tel. +49 (0)2173 1061-100, e-mail: detlef.schotten@thyssenkrupp.com

▶ A tree for the inauguration of the new plant in Poland was planted by (l. to r.): Zbigniew Ferda, Managing Director ThyssenKrupp Stal Serwis Polska, Dr. Karl-Ulrich Köhler, CEO ThyssenKrupp Steel, Zbigniew Podraza, Mayor of Dąbrowa Górnicza, Dr. Bernd Danz, Managing Director ThyssenKrupp Stal Serwis Polska, and Dr. Jost A. Massenberg, ThyssenKrupp Steel Executive Board member.

technologies and logistics to match." The new plant is scheduled to go into operation in 2009.

The third pillar is sustainability. "We want our customers to be even more satisfied. The measures to this end include expanding our technical advisory services, personnel development activities, and going for greater employee satisfaction. After all, the Steel Service Centers see themselves as know-how carriers from steel manufacturer through to steel processors."

Now it's time for the colleagues from Poland – namely Zbigniew Ferda and Dr. Bernd Danz, the managing directors of ThyssenKrupp Stal Serwis Polska – to have their say. After all, the plant near Katowice, which was completed in record time, constitutes a key cornerstone of the strategy. "We are opening a new plant with an investment volume of around 20 million euros," says Danz. Supplies to customers in Poland have been made from the German branch operation in Radebeul for some time. "We're no newcomers to the market, but have been steadily growing over the years. This means that we can build on a basis of stable, longstanding customer relationships," adds Zbigniew Ferda.

The aim is to perform the first-stage processing of 125,000 metric tons of higher-grade products annually for demanding customers in the automotive, component supply, domestic appliance and construction industries, as well as for stamping and blanking plants. "We supply customers in Poland, the Czech Republic, Slovakia, Hungary and Belarus – all within a radius of 300 kilometers."

"Dąbrowa Górnicza's location at the heart of Central Europe enables us to respond rapidly to the daily requirements of our customers. These include Polish companies and subsidiaries of company groups from the West such as VW, GM and Daewoo, as well as Tenneco, Kirchhoff Polska or ZPP Auto," explains Ferda. There are no concerns as to lower-price competition from Poland. "We're putting our bets on quality." This is something all involved regard as important to emphasize. "Our customers demand it."

Daria Szygalski

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

▼ Christian Korn: "We're aiming for growth in North Rhine-Westphalia as well."

▼ Detlef Schotten: "We're heading east so we can serve our customers better."

▼ Dr. Bernd Danz: "The location in Poland is a 20 million euro investment."

▼ Zbigniew Ferda: "We're building on stable customer relationships."

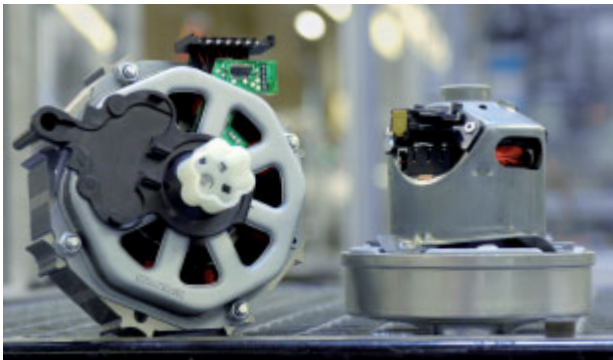
Contact: **Dr. Bernd Danz,** ThyssenKrupp Stal Serwis Polska, tel. +48 32 639 59-00, e-mail: bernd.danz@thyssenkrupp.com
Rolf-Jürgen Neumann, Marketing, tel. +49 (0)203 52-41003, e-mail: rolf-juergen.neumann@thyssenkrupp.com

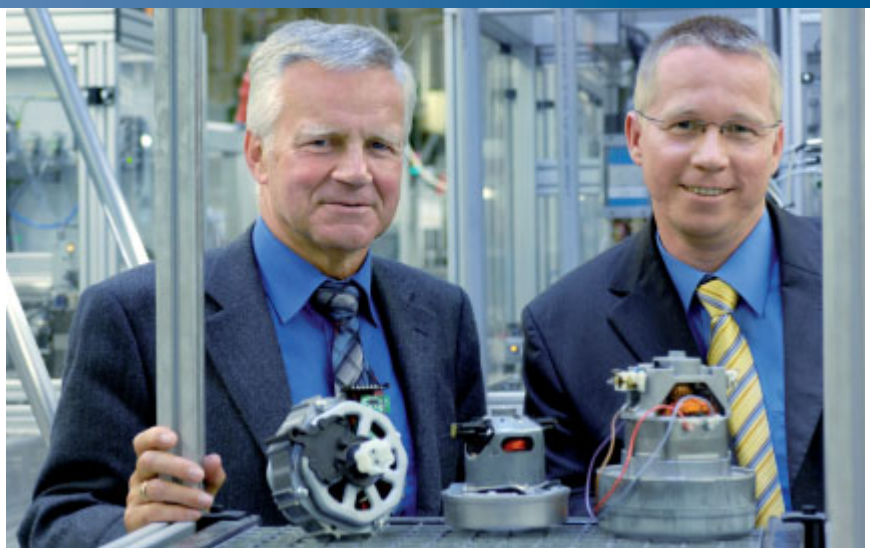
Vorwerk trusts in uncompromising quality

Electrical steel for heavy-duty motors in domestic appliances

◀ A family firm, Vorwerk has had its headquarters in Wuppertal since it was founded in 1883. It has marketed its products on a direct-selling basis since 1930 as a matter of tradition.

▶ It is the motors and immaculate starting materials that help ensure the top performance of Vorwerk's products: (from left) the modern Thermomix motor and the new vacuum cleaner motor.





▶ ThyssenKrupp Steel has been supplying Vorwerk with high-quality materials for many years from nearby Bochum, and discussions between Klaus-Peter Priese (left) and Matthias Schmidtz are correspondingly candid.

Klaus-Peter Priese's office directly overlooks the Wupper River. He heads motor production at family firm Vorwerk in Wuppertal.

"We have been manufacturing motors for our electrical appliances since the invention of the Kobold 'Model 30' hand-held vacuum cleaner in 1930," Klaus-Peter Priese starts by telling us. These appliances include floor-care and hard-floor cleaning devices as well as the Thermomix kitchen aid, which is unique worldwide. "We place our trust in uncompromising quality," he stresses. "We currently have an annual output of around 2 million domestic appliances, so we need suppliers that are absolutely reliable." One of them is ThyssenKrupp Steel – and has been since as far back as the 1960s.

"We supply Vorwerk with 3,000 metric tons of non grain-oriented electrical steel per year," says Matthias Schmidtz, technical customer consultant at ThyssenKrupp Steel. This material is used in the production of the two key parts of the motors, namely the rotors and stators. The rotor is the rotating part of the machine, and the stator is the static part, in other words the housing. The requirements on the material are very demanding. "On the one hand it has to have an extremely low degree of hysteresis loss and a high degree of polarization." Schmidtz picks out the motor of a hand-held vacuum cleaner – which is one the best-selling items in the product group – and gives us a clear explanation. "On the other hand the coating must display a high degree of insulating resistance and the material has to be suitable for punching and welding."

Priese takes over the 1 kilogram motor from Schmidtz. "The quality requirements are essential. After all, the whole device depends on the efficiency of the motor." He shows us an even bigger one of the older generation, weighing 3 kilograms; this is where the enhanced efficiency becomes obvious. "It is not only a matter of power consumption; with vacuum cleaners it is above all the power output on the floor, low weight and compact size that count." A green-and-white hand-held model is demonstrated. Parts of the brush unit are made from non-corrosive steel supplied by ThyssenKrupp Schulte. "Besides the vacuum cleaner motor, which weighs just 1 kilogram and operates at a speed of 40,000 rpm, our appliances are also equipped with an additional motor in the carpet brush unit." Ten employees devote themselves to the development side of operations. "We produce a new vacuum cleaner motor about every seven years. He then puts a third motor alongside the other two. "We only needed three years to optimize the Thermomix, which was launched in 1971." The updated version was initially introduced in France, and the kitchen aid is now a real best-seller in Spain and Italy.

"Development is one thing, production is another; this is because each further development means that manufacturing processes have to be redefined and brought to process capability." Vorwerk trusts in automation to this end. "This is the only way via which we can guarantee really high product quality and long service lives. A vacuum cleaner should clean floors for at least 15 years." Priese shows us the production halls. A large number of transport systems for workpiece carriers, machines and plant behind glass housings. Rhythmic background noise.

"Once you've bought a Vorwerk you won't buy any other brand." Vorwerk stands for more than just vacuum cleaners and kitchen aids, and the company also markets domestic appliances, fitted kitchens, cosmetics, facility services and carpets – which heralded the start of the company's success story in 1883.

What is also unique is how Vorwerk sells its products; you won't find them in any shops. "We rely on direct sales throughout the world." Customers no longer want the anonymity of large shops. "We can demonstrate the advantages of our products in the customer's own domestic environment, and the customer can ask questions and try out the products for themselves." Around 3,000 sales experts work on this basis in Germany. "We would take on another 3,000 because we are convinced of the concept's soundness. We respond immediately to quality changes, especially when new appliances are being launched," adds Priese. This channel of distribution is a tradition at Vorwerk – the 'Model 30' Kobold was being sold by these methods as far back as in the 1930s – and the company has stuck to it ever since. The strategy works, as reflected in a business volume of 2.3 billion euros achieved by Vorwerk in fiscal year 2005/2006. The company has around 23,000 employees. "The simple fact is that quality pays off," says Priese in conclusion.

Daria Szygalski

www.vorwerk.de

Contact: **Klaus-Peter Priese,** Vorwerk Elektrowerke, tel. +49 (0)202 564 2457, e-mail: klaus-peter.priese@vorwerk.de
Matthias Schmidtz, Industry Division, tel. +49 (0)203 52-25412, e-mail: matthias.schmidtz@thyssenkrupp.com

Analytical Measurement Center: combined competence

For even better advice and quality

▲ Dr. Martin Raulf, Dr. Frank Friedel and Dr. Ulrich Etzold (r. to l.) look at their customers' questions from at least two perspectives. That means more competence, more comprehensive advisory service, and better support in the area of product development. Together, they conduct practical and targeted research in the interests of optimal results.

ThyssenKrupp Steel's Analytical Measurement Center offers customers a wide diversity of methods for even better advisory service and quality: the concentration on investigative processes opens up innovative possibilities for developing and optimizing materials.

Dr. Ulrich Etzold, Dr. Frank Friedel and Dr. Martin Raulf enter the conference room with a spring in their step. They are team leaders at the Analytical Measurement Center in Duisburg. They have reason to be pleased: "The move has been successfully completed, and our work is now in full swing," they answer in unison; good communication forms the basis for successful teamwork in the field of research.

"The idea of merging the Metallography, Metallurgy and Surface Analytics departments, not only in terms of premises but also in terms of organizational structure, took on concrete form in 2004," explains Martin Raulf of Surface Analytics. His quiet voice and clear way of formulation point to a well-considered way of thinking, which Raulf needs in his daily work as a scientist. The decision having been taken, the team leaders and their staff immediately got down to the planning: New buildings or should they move into existing premises? Which would be the most suitable location? How should the future center look and function? After giving these questions due consideration, they suggested using the premises at the Center of Materials Excellence in Duisburg. These were then renovated and new equipment acquired. "The analysis equipment alone accounted for an investment volume of around two million euros," says Raulf. "We then moved in together as the Analytical Measurement Center in mid-2006."

The project is a success. "We are now able to offer customers combined methodological competence," is how Ulrich Etzold (Metallography) explains what makes the Measurement Center so special. "We work as a team." His modern spectacles catch the eye.

A metals expert with an eye for the big picture and a soft spot for the new. "That means more competence, more comprehensive advisory service and enhanced support in the area of product development," he stresses. Together, the three of them conduct practical and targeted research in the interests of optimal results, keeping outlay to a minimum. Frank Friedel (Metallurgy) provides an example: "A customer uses one of our products. A problem suddenly emerges in the processing." The Brandenburg-born scientist pauses briefly. "And that is where we come in. We carry out analyses with the customer to find out where the cause of the problem lies." And each case is handled on an individual basis, regardless of whether the production process itself is to blame or whether the supplied steel has a defect. "We take a comprehensive look at the problem in hand, first as a whole and subsequently in detail," adds Etzold. "Then we develop a solution in dialog with the customer," says Friedel. Raulf nods in agreement.

"We learn through each of the cases we deal with," is their unanimous view. These are experiences which are put to use in the development of new, even better and more intelligent types of steel. The knowledge is concentrated. They have put in years of work for ThyssenKrupp Steel: Etzold 20, Friedel 15 and Raulf 10. And that means a whole lot of collective know-how – which has enabled them to come up with a diversity of innovations. For example manganese-boron steel from the area of press-hardening steels. "This is formed at temperatures of around 900°C," says Etzold enthusiastically. The Bavarian-born scientist is passionate about the subject. "This process gives the steel a significantly greater strength, and is also a good example of the close cooperation here at the Analytical Measurement Center," says Etzold i n agreement with his colleagues. The Metallography team performs a light-microscopy examination on the hot-stamping microstructure, after which its structural composition is analyzed by the metallurgy experts. "And we characterize the anti-oxidation coating," says Raulf in concluding this example. "We are thus able to provide advisory support for customers in the use of our products since we know every last detail of the steel's structure and behavior."

The repertoire of the trio and their staff not only includes the optimization and development of materials and the ongoing improvement of surface finishes. The 50-strong team also attends to quality controls and quality assurance, and delivers data for the material database in which customers can access detailed information on specific materials at any time. "We are a service center," they say in summary. "Our work is focused on material testing and knowledge transfer."

Daria Szygalski

Contact: **Dr. Ulrich Etzold,** Metallography, tel. +49 (0)203 52-44622, e-mail: ulrich.etzold@thyssenkrupp.com
Dr. Frank Friedel, Metallurgy, tel. +49 (0)203 52-43415, e-mail: frank.friedel@thyssenkrupp.com
Dr. Martin Raulf, Surface Analytics, tel. +49 (0)203 52-44944, e-mail: martin.raulf@thyssenkrupp.com

Dortmund: Small scale, big impact

Annealing the steel of tomorrow in pilot production

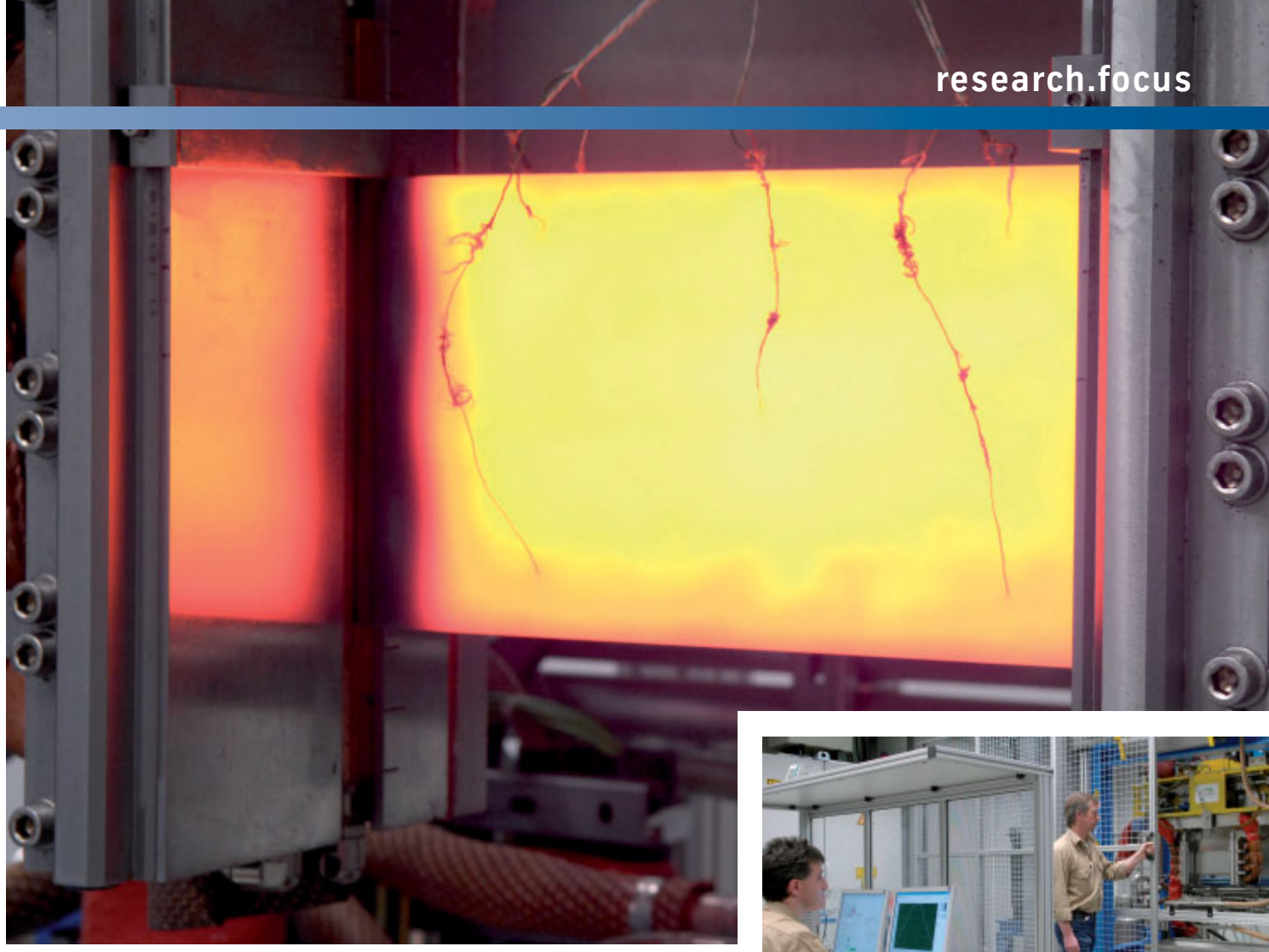
What alloying agent can make a steel even stronger? How can strength and flexibility be combined in steel? Which steel can withstand a fire for as long as possible?

These are aspects which guide the work of material developers at the pilot production plant in Dortmund, part of ThyssenKrupp Steel's Center of Materials Excellence. They conduct trials and tests there on a small-scale basis, based on customers' wishes and requirements and to determine what the large plants could be producing tomorrow. In the smelting furnace we see the typical yellow-orange glow of molten steel, but the casting operation at the mini-smelting plant here produces what is more of a compact ingot weighing 100 kilograms. It is then put through the processes of hot and cold rolling, pickling, annealing and skin pass rolling just like bigger slabs, the only difference being that this a new grade. Here, in this inconspicuous shop on the Westfalenhütte site, completely new steel types and material concepts are developed, and steels with optimized properties and for specific purposes are manufactured for the very first time. In short: it is in this hall that ThyssenKrupp Steel takes on a pacemaker's role where the further development of steel technologies is concerned.

The pilot production facility houses a complete, mini-scale steel mill which models production processes. "A lot of what we test and establish here can be subsequently taken on and implemented at the large plants," explains Dr. Jens-Ulrik Becker, head of process development and pilot production. "The results of our work reduce costs and risks significantly. Indeed, some trial production runs would not be possible without them, and they couldn't in any case be realized in a 'proper-sized' plant because of the risk of material losses and production downtimes."

Instead of up to 400 metric tons, each smelting run on the Westfalenhütte site produces just 100 kilograms of steel, a volume that is fully adequate for trial purposes. "Here, it is not a disaster if a new steel concept breaks off during rolling and falls at the employees' feet," says Rüdiger Mempel, departmental coordinator in pilot production. It is the characteristic-determining steps in the production process that are decisive. "We don't strive to achieve a one-to-one simulation of the operational plants, but we adhere to the same parameters as used there and in the coating plants in terms of the annealing process and the

▼ The slab's progress through the rollers is followed very closely. Things that prove themselves here can subsequently lead to trailblazing innovations.



▲ The "Multipas" annealing simulator in action: the clamped steel plate is heated up faster or slower, depending on requirements. The procedure is controlled with the aid of special temperature sensors. The test piece is cooled down optionally by air or water jets or a combination of the two.

▲ Stefan Majewski (l.) and Volker Becela working with the new "Multipas" annealing simulator, which is installed in a cage for protective reasons. It only functions when the mesh doors are locked. The room is air-conditioned since the temperatures generated in the trials are very high.

duration of the heating and cooling procedures," he explains. Recently introduced as an aid to this end is the "Multipas", a new annealing simulator which, in particular, can carry out cooling on a highly variable basis. It is a step ahead of reality at the "real" plants. This is deliberate, as Becker emphasizes: "We think ahead and aim to be a step ahead at all times. Things that prove themselves at our facility here can possibly lead to operational investments." The effectiveness of the pilot plant in Dortmund derives from the interaction between its process flexibility and the high degree of competence among its staff: each and every process can be halted at any given stage and the status at that point virtually frozen, so to speak. Individual steps and process windows can be examined on an isolated basis and specifically varied – and thus the characteristics of the steel as well. "Our work is all about reliable, precise documentation of the data that enable the material development engineers to take their decisions," says Mempel. "It is not only important to know that a process functions but also how precisely."

Direct contact with customers is valued and takes place frequently. One example in this respect involves TriBond®, a new, three-layered material. This was developed in cooperation with ThyssenKrupp Steel's Industry Division, and a sample sheet was sent out directly from Dortmund to the customer in question and tested right away. The automotive industry is a leading customer and purchaser of the ThyssenKrupp Steel Auto Division's products and at the same time a key innovation driver. Its clearly defined requirements on steel in terms of combining flexibility, stability and favorable weight repeatedly lead to innovations. "We first produced most of the steel types used in the construction of modern cars here, and thus provided the basis for the subsequent products," summarizes Becker, not without pride with his team in mind. Technology competence is decided every day as well – on the spot.

Bettina Hellenkamp

www.thyssenkrupp-steel.com/auto/en

Contact: **Dr. Jens-Ulrik Becker,** Materials Competence Center, tel. +49 (0)203 52-44969, e-mail: jens-ulrik.becker@thyssenkrupp.com

25 years of Applications Engineering

System partner to the automotive industry

An important foundation stone was laid at the start of the 1980s to ensure intensive technical cooperation between ThyssenKrupp Steel and its customers – at the time, the Research/Applications Engineering department was housed in a generous shop complex on the company premises at Duisburg-Hamborn

A good 50 staff members worked here with the objective of offering processing expertise to customers, providing them with assistance in aspects of processing steel and trialing new material developments in process engineering. 25 years have produced a long series of modernizations, expansions and, above all, ground-breaking developments. Today, the ThyssenKrupp Steel Applications Engineering department is situated in a completely modernized building – and one which has not only had a completely new color design since spring 2007 but is also resplendent with a high-tech information center, a visitor guidance system and a modern exhibition area. "A lot has changed on the outside, our team has almost tripled, and the content of our work has also adapted to the requirements of the modern automobile industry," emphasizes Oliver Hoffmann, head of Simultaneous Engineering/ Applications Engineering during the tour through the modern shop and office complex. "We are an expert partner for the body system and we work together and consistently with our auto customers on designing innovations from the ground up. This means we don't just come in as a troubleshooter after the horse has bolted."

Oliver Hoffmann continues, "The work focuses on product development, development support and implementing

Milestones in Applications Engineering

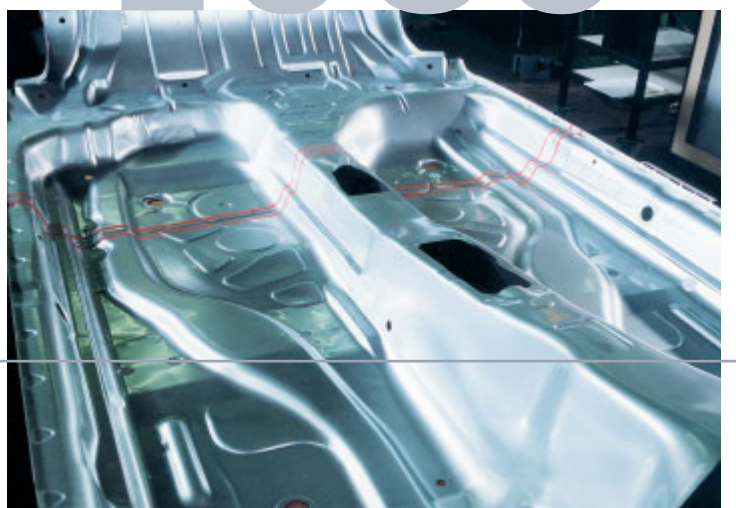
A range of products and processes that are currently the global state-of-the-art trace their development back to Applications Engineering at ThyssenKrupp Steel. Examples include:

- The first fully galvanized body in automobile production, manufactured by Thyssen for Porsche.

1975

- The world's first tailored blank, i.e. a made-to-measure thin sheet in which blanks with differing thicknesses, qualities and surface coatings are welded together by laser. The weight-saving tailored blank was "invented" for the floor pan of an Audi 100.

1983



▶ ThyssenKrupp CEO Dr. Ekkehard Schulz (r.) is impressed by the present and history of Applications Engineering – he is shown here with Peter Seyfried of LIZA Leichtbau & InnovationsZentrum Auto (l.) and Dr. Henrik Adam, Senior Vice president Sales/Engineering-Auto Division.

business plans – technical disciplines in this aspect include vehicle and production technology, simulation as well as laser and sensor technology." All of this is not just to be seen in the context of short vehicle development times of around 30 months, but also of a wide variety of steel grades and processes – the latter aspect being dominated by optimized joining processes, thermal forming processes and profiling technology. Simulation above all provides advantages for the customer: development times can be dramatically curtailed, entire development phases can be totally bypassed.

In May this year, ThyssenKrupp Steel marked the unofficial jubilee of Applications Engineering by organizing an in-house celebration. At the same time, they also inaugurated the shop modernization. "This is where we speak the language of automobile developers and designers," said Dr. Ulrich Jaroni with pleasure as he took a look back over the eventful history of the Technical Center: "Weight reduction means consumption reduction and therefore a reduction in CO_2 emissions. These are the topics that we are working on today."

Katharina Mette

www.thyssenkrupp-steel.com/auto/en

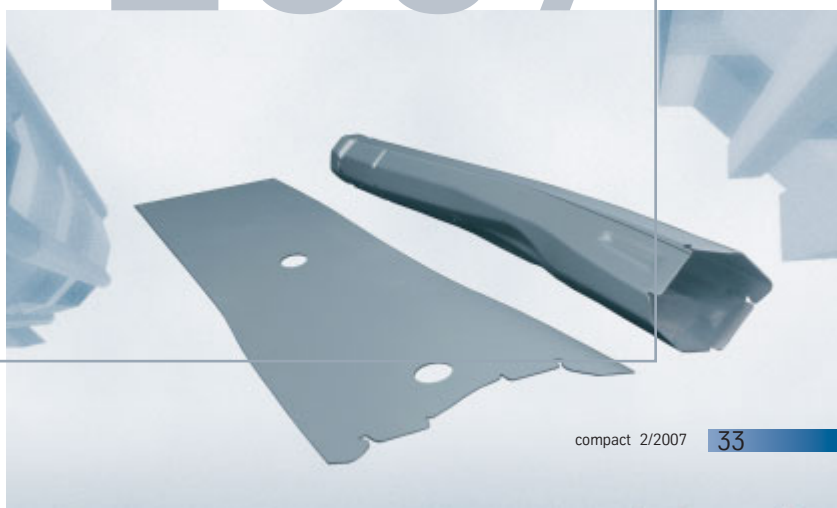
Contact: **Oliver Hoffmann,** SE/Application Engineering, tel. +49 (0)203 52-44370, e-mail: oliver.hoffmann@thyssenkrupp.com

2003

▶ The NSB® NewSteelBody developed by ThyssenKrupp Steel on the basis of a high-volume production vehicle combines the properties of optimized weight and high safety in an ideal manner. It is almost cost-neutral compared to conventional steel bodies, and significantly less expensive than aluminum solutions.

2007

▶ The latest highlight is the T3 profiling machine: It forms finished profile components – e.g. for body and chassis – in one operation, directly from blanks. At the same time, it is also possible to produce cross sections and secondary design elements along the longitudinal axis. Components manufactured in this way are at least cost-neutral compared to classic stamped and welded solutions, but offer the advantage of being up to 26 percent lighter. Components from this innovative process family can be seen at this year's International Motor Show (IAA).



Safety has top priority

Nickel steels for liquefied gas tanks

▲ Around 15,000 metric tons of liquid ethylene are carried in the hull of the new tanker "Formosagas Crystal". Tanks made from 5 percent nickel steel from ThyssenKrupp Steel ensure safe transport.

The market for natural gas is growing, and accessible global gas reserves will allow this energy source to be used for another hundred years based on current demand.

In addition to its growing use in power generation, increased industrial and commercial usage is boosting growth rates for natural gas, which emits less carbon than oil or coal. LNG, liquefied natural gas, is taking on increasing economic importance. By the middle of the next decade, it is expected that about 100 billion US dollars will have been invested in infrastructure for liquefied natural gas (LNG), according to the gas industry.

"The major reserves are in most cases located far away from the place of consumption," observes Dr. Hans-Jürgen Kaiser, Head of Technical Marketing at the Heavy Plate Profit Center of ThyssenKrupp Steel. About 40 % of currently known global reserves are located in the Middle East, more than 30 % in Siberia. The USA and China as well as Europe are the major energy guzzlers. This means natural gas has to be transported over long distances. This can be done by pipeline, for example. However, the longer the distance, the greater the investment and operating costs.

"Transportation by ship becomes economical at distances of around 3,000 kilometers," explains Kaiser. However, the gas must be liquefied for this purpose, meaning that its volume is reduced by a factor of 600 to make transportation economical. Temperatures of minus 161°C and below are required for liquefaction. The product is now referred to as LNG (liquefied natural gas). Such low temperatures place exacting requirements on the materials used for producing the ship and storage tanks on land.

Contact: **Dr. Hans-Jürgen Kaiser,** Heavy Plate Profit Center, tel. +49 (0)203 52-75114, e-mail: juergen.kaiser@thyssenkrupp.com

"Simple structural steels do not have sufficient toughness for these conditions. The danger of tanks cracking and bursting would be much too acute," he explains. "Our cryogenic nickel steels are ideal for this application," emphasizes Kaiser. "They contain up to 9 % nickel, making them especially tough. However, they also need high strength." This is achieved by a special heat treatment involving quenching in water with subsequent heating – this is referred to as quenching and tempering. "Our nickel steel customer, TGE Gas Engineering, estimates that by 2010 there will be more than 50 storage terminals and more than 100 LNG tankers on the drawing board worldwide," continues Kaiser, looking to the future. It is no wonder that demand for nickel steels is high. "We will be expanding our nickel steel production over the next few years," is his response to this boom. For example, a modern roller quench unit for heat treatment was taken into operation at the start of this year, and a further increase in quenching and tempering capacity has already been decided.

And the decision is paying off:
As well as 9 percent nickel steels, ThyssenKrupp Steel also produces water-quenched and tempered heavy plates with 5 percent nickel content for use at temperatures down to about minus 120°C. This is the temperature range used for liquefying and transporting ethylene gas. Ethylene is used in the chemicals industry for manufacturing polyethylene, PVC and other plastics that are employed in aviation, engineering, architecture as well as medical engineering, textiles and the leisure industry. This market is also booming at present, therefore demand for steel to build the necessary ship and storage tanks is also high. "Demand is set to rise over the coming years," emphasizes Klaus Steinhöfel of TGE Gas Engineering. The company is globally active in the design and installation of systems for processing, storing and transporting liquefied gases including LNG and ethylene.

In addition to a range of other materials, the company has been using 5 and 9 percent nickel steels from ThyssenKrupp Steel for many years. One recent project it worked on with ThyssenKrupp Steel was for the delivery of 5 percent nickel steels to be used in the ethylene tanker Formosagas Crystal completed in 2006. With a total length of more than 150 meters, this vessel has a capacity for around 15,000 gross register tons.

Daria Szygalski

www.tge.net
www.thyssenkrupp-steel.com/plate

▼ Natural gas is stored on land and transported by ship in liquefied form at temperatures of minus 161°C. This places exacting requirements on the materials used for producing the storage and ship tanks. ThyssenKrupp Steel has the right answer: cryogenic nickel steels from the Heavy Plate Profit Center.

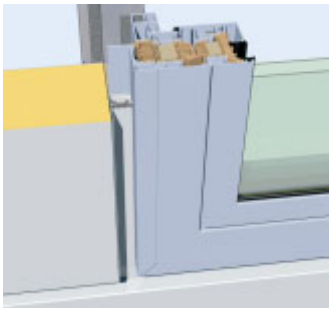
Facade construction for ultimate design quality

New Hoesch Matrix system enters volume production

The new Hoesch Matrix product from ThyssenKrupp Bausysteme attracted a great deal of attention at the BAU construction trade show in Munich this January. "Since then, demand has been growing and has reached significant proportions," says Chris Redmond, Key Account Manager for Hoesch Matrix systems, with a smile on his face. "Production started at the beginning of July."

But the level of interest is not really surprising. "Hoesch Matrix gives thermally insulating steel facades a new and unmistakable appearance with very good quality for appealing architecture," continues Redmond. Innovative: "The modular sandwich element is made from a color-coated steel outer shell. Compared to conventional products, it is angled at both ends so that a facade is created with a striking and absolutely even joint pattern of exactly 25 mm in depth and width – in both the horizontal and vertical directions."

◀ In the future, it will be possible to clad buildings with Hoesch Matrix elements. The decisive point is that each element has a precisely fitting joint for installing windows and it is also offered as a complete package. True to the philosophy of "facade design from a single source", this saves architects and building owners a great deal of time and money. ▼



Nevertheless: "When it comes to facade design, Hoesch Matrix offers tailor-made individuality," continues Redmond. This is provided not only by a flexible width – 500 to 1,000 mm, but also by the lengths – 1,500 to 6,000 mm – used for the elements. In this way, large facade surfaces including openings for windows and doors can be planned with accuracy and economy. "In addition, **Reflections**One®, a color collection developed by ThyssenKrupp Steel for wall cladding, is available to round off the design opportunities available to the building owner," he emphasizes. "Furthermore, ThyssenKrupp Bausysteme offers coatings which dirt finds it less easy to adhere to and so are easier to clean." Another architectural highlight is that the joint pattern makes it possible to install modern LED components and offers space for mood-setting lighting schemes.

"People will be able to come and see one of the first facades made using the Hoesch Matrix system at our premises in Eichen," explains Redmond. One of the existing factory shops is being clad with the new facade elements. The system is initially being sold in Europe, although Dubai, Singapore and Australia are already on the list.

Daria Szygalski

www.hoesch-matrix.com/en

Contact: **Chris Redmond,** ThyssenKrupp Bausysteme, tel. +49 (0)2732 599-1348, e-mail: chris.redmond@thyssenkrupp.com
Gordon Brede, ThyssenKrupp Bausysteme, tel. +49 (0)2732 599-1214, e-mail: gordon.brede@thyssenkrupp.com

▲ The Africa House offers a great deal: not only is it flexible, inexpensive and can be erected within only a few days – without the need for a crane – it is also suitable for all climate zones.

Innovative system house

Africa House – an inexpensive solution for all climate zones

The name "Africa House" is confusing. "It isn't a house from Africa, but a low-cost house for Africa and the rest of the world," explains Managing Director Peter Hagelmoser of the former ThyssenKrupp Steel subsidiary Hoesch Contecna Systembau. The modular house has got what it takes: "Not only is it inexpensive and flexible," he enthuses, "it can also be built in a matter of days by only three or four persons without the need for major equipment such as a crane. This makes the Africa House ideal when people need a roof over their head that is quick and inexpensive, but nevertheless comfortable," he continues. This solution is therefore particularly interesting for aid organizations which need to provide new accommodation for many people at short notice.

"The system house is well insulated and therefore basically suitable for any climate zone," emphasizes Hagelmoser. In the "stand-alone solution", the house is provided with electricity by ThyssenKrupp Solartech, while hot water and heating can also be laid on if the solar thermal option is used at the same time. "This means it can be used in undeveloped regions or on temporary deployments without having to do without heat and electricity."

"The advantages of the system house are attracting great attention in many countries," observes Hagelmoser. The modular character also makes it possible to combine several houses together. For example, many small hospitals referred to as Medical Care Centers have been built using this principle in India and have proven themselves as a long-term solution. At the moment, ten guesthouses are being built for a hotel project in Angola, while a total of 500 family houses are being installed in Nigeria as part of a housing scheme which is a governmental program for clearing townships. We also have three major orders for South Africa; these also include family houses for a housing program, 120 for the Cape Town region and around 1,000 for Johannesburg as well as ten classrooms each for twelve school projects in the area of Rustenburg. "Also, workers' camps for a pipeline project in Canada are being planned using the same system," concludes Hagelmoser.

Daria Szygalski

www.hoesch-contecna.de

Contact: **Peter Hagelmoser,** Hoesch Contecna Systembau, tel. +49 (0)208 820-4711, e-mail: p.hagelmoser@hoesch-contecna.de

Working in Jamaica

With innovative systems for roofs, walls and windows

Champion: One of the venues for the Cricket World Cup in March and April this year was Sabina Park in Kingston, Jamaica. It features ThyssenKrupp Steel's new modern stadium roof system to ensure relaxed viewing.

Looking back: April 24, it's 27°C in the shade. The sun is beating down, nerves are jangling. It's the first semi-final of the Cricket World Cup in the Sabina Park Stadium in Kingston, Jamaica; Sri Lanka versus New Zealand.

◀▲ The window and wall system at Norman Manley Airport is striking: The facade is absolutely flush with no projecting window frames.

Luckily for the 20,000 fans in the international crowd, they could enjoy the game in the cool shade of the modern stadium building which had been built especially for this event. And there was no need to squint against the sunlight, because the protective roof is large, high-quality and attractive. "With a 12 meter span and covering 4,500 square meters, it offers a relaxing view of exciting games," explains Project Director Salvatore Urso of ThyssenKrupp Bausysteme. Standard span widths are between five and six meters. The secret involves perforated cassettes made from pre-painted and galvanized steel. Quality from Germany. "We are using them for the first time in Jamaica."

"The project is a good example of how the world is growing closer together," says Urso enthusiastically. And not just in the stadium stands: more than 30,000 cricket fans came from 16 nations to take part in the World Cup with their supporters' clubs and to watch the struggle for the trophy. "The prime contractor, Palgag Technologies, is based in Israel, whilst the architectural bureau is from the USA." This does not seem unusual for the Caribbean island state. After all, another order from ThyssenKrupp Bausysteme in Jamaica had at least the same level of international involvement. This is for the arrival point of the cricket teams and fans in Kingston: Norman Manley International Airport.

"We modernized the airport in cooperation with the London architect Robert Hinds of the Llewelyn Davis Young bureau, and added a new terminal," says Urso proudly. He already knew the architect from other projects. Another repeat performance came from the Israeli company, Palgag. ThyssenKrupp Bausysteme likes working with expert partners. "It's only possible to achieve a very high standard by working as a team," he is convinced. And this is important, after all the airport is the most important transit point for domestic and international flights. More than 1.6 million visitors a year take off or land at Norman Manley. And now they can look forward to the new roof, wall and window systems, completely supplied by ThyssenKrupp Bausysteme.

Once again, quality from Germany: in total, 16,600 square meters of innovative roof system were used. "It has a nine meter span and aesthetic acoustic insulation," says Urso, underlining the individual properties of the system that has been installed in the check-in, business lounge and Panorama Corner areas and Terminals 1 and 2.

A real eye-catcher is the wall system with unusual window facades in the Pier area, for which ThyssenKrupp Bausysteme also supplied the windows. "Our solution means the windows could be installed flush into the facade," Urso observes enthusiastically. "Nothing projects." This is a rare achievement, and not only in Jamaica.

"It was a challenge to complete both projects in a tight timeframe," summarizes Urso. Language was no problem, English is a lingua franca. However, one difficulty was logistics: "We had to send the products by container from Germany to Jamaica. A door-to-door delivery time of three weeks was normal." Another aspect was the weather: "A hurricane passed over the island in the middle of the construction phase for the terminal." All it did was delay the work, scarcely anything had to be re-delivered. "Fortunately, very little was broken," says Urso with relief. "This was also a test for our work." And one that it passed with flying colors.

Urso completed both projects successfully together with his two export colleagues and staff in the Structural Analysis, Production Planning and Production Line departments of the company. "These were the first orders we had received from the Caribbean," he observes. "But we hope to be returning soon." Orders from overseas are very important for the company. Also, the economy in Jamaica is one of the most stable in the region. Jamaica is the birthplace of the Rastafarian movement, a lifestyle with pronounced mythical and Old Testament references and reggae music. However, Urso followed the events of the Cricket World Cup from his cool living room in Germany: "Australia won the Cup."

Daria Szygalski

www.tks-bau.de/en

Contact: **Salvatore Urso,** ThyssenKrupp Bausysteme, tel. +49 (0)2732 599-1320, e-mail: salvatore.urso@thyssenkrupp.com

Visit us in Frankfurt
at the **IAA 2007**
from September 13 to 23, 2007
Hall 4.1, Booth C19

Agenda

Alihankinta 2007
September 26 – 28, 2007
Tampere, Finland
This trade show for the components industry attracts many visitors from Scandinavia and Russia. The ThyssenKrupp Steel Heavy Plate Profit Center will be represented with high-strength and wear-resistant steels, sharing a booth with its long-term trading partner, Finkenberg.

Technology Days Shanghai
September 30 – October 6, 2007
Shanghai Science and Technology Museum
In Shanghai, ThyssenKrupp will be presenting its technical expertise in cooperation with Tongji University. The Steel segment is represented with a wide range of products and services: from utilizing solar energy through to lightweight auto construction and noise-insulating sandwich panels as well as fingerprint-resistant surfaces.

Interbuild
October 28 – November 1, 2007
Birmingham, UK
The UK economy is booming, including in the construction sector. For this reason, ThyssenKrupp Bausysteme is once again taking part in the Interbuild, the number one trade show for the building sector in the UK.

Batimat
November 5 – 10, 2007
Paris, France
The International Building Exhibition claims to be the largest trade show in the world for the building sector. ThyssenKrupp Bausysteme will be taking part with its own booth. Among other things, the booth will present Hoesch Matrix facade elements, the Additive Floor, sectional door elements, mineral panels and sliding doors for cold rooms.

Stahl 2007
November 8 and 9, 2007
CongressCenter Düsseldorf
The Steel Center is staging its annual conference this year with the theme of "Competition and Future". The presentations will include the European Steel Technology Platform. Steel dialogs will focus on competition, talent and metallurgical processes. ThyssenKrupp Steel will accompany the event at its meeting point and with a presentation area dealing with the topic of "Forward Strategy Steel".

Inauguration of Bauelemente in Hungary
November 22, 2007
Felsölajos, Hungary
As part of its Central and Eastern Europe strategy, ThyssenKrupp Epítöelemek Kft. will be opening a production site for sandwich elements to be used in building and cold room construction.

Big 5
November 25 – 29, 2007
Dubai
The Gulf States are excavating and building. For the second time, ThyssenKrupp Bausysteme is taking part in this largest annual trade show in the Arab region, as part of a German business delegation.

Blechbusiness
Congress and exhibition
for sheet metal processing
November 27 – 29, 2007
Warsaw, Poland
Due to the size of its market and its function as an interface to the Russian and Ukrainian markets, Poland plays an important role for Eastern Europe's sheet metal processing industry. In conjunction with the opening of the Dąbrowa Górnicza steel service center, ThyssenKrupp Stal Serwis Polska is taking part in this event, the first time it has been held in Poland.

Deubau
23rd International trade fair for construction
January 8 – 12, 2008
Essen
Creating Future: This is the banner under which professionals from the construction industry will meet in Essen next January. ThyssenKrupp Steel will be there together with ThyssenKrupp Bausysteme and ThyssenKrupp Nirosta, in Hall 1. As well as presenting innovative construction products and materials, the trade show booth will also feature a model of the new ThyssenKrupp Quarter in Essen. On January 8, the Steel Information Center, Düsseldorf will be holding the "4th International Architects' Congress", this year's event taking as its topic construction with steel in public buildings. Internationally recognized architects and construction engineers will be presenting projects and architectural solutions for living and working in the urban environment. Once again, the North Rhine-Westphalia Chamber of Architecture will be the cooperation partner.

Contact: **Dr. Jens Jordan,** Marketing, tel. +49 (0)203 52-45560, e-mail: jens.jordan@thyssenkrupp.com

Thinking the future of steel

ThyssenKrupp Steel