# compact

1/2008 The customer magazine of ThyssenKrupp Steel

www.thyssenkrupp-steel.com

Strong partner to the automotive sector

## ThyssenKrupp Steel provides know-how, products and components

Financial markets
**Interview with Administrative Secretary of State Bernd Pfaffenbach**

Philippe Chaix:
**"I love steel."**

Thinking the future of steel

**ThyssenKrupp** Steel

# compact



### About our cover picture:

ThyssenKrupp Steel has long been far more than a pure materials producer. The company even supplies the innovative automotive sector with self-manufactured components. Competence throughout the entire process chain is the name of the success strategy.

Turn to page 12 to find out how ThyssenKrupp Steel proves its competence in the areas of research and development, application and production technology.

## imprint


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

**Photographs:**
ThyssenKrupp Steel Fotografie; Marco Urban (p. 4 + 7); VDA (p. 15); Wolfgang Kessler (p. 20f); Andreas Gerich (p. 22 top); WFL-GmbH, Schießhausstraße 14, 97228 Rottendorf, Tel.: +49 (0)9302 9081-0, Fax: +49 (0)9302 9081-41 (p. 26); Kolossos/wikipedia (p. 34 bottom); RWTH Aachen (p. 37 + 38 top); Einhard Gymnasium (p. 39)

**Design:**
MERZ Werbeagentur, Düsseldorf, www.merz-werbeagentur.de

**Printing:**
ThyssenKrupp Printmedia GmbH, Duisburg

**Publication frequency:**
three times a year, the next issue will appear at the end of August

**Issue 28:**
1/2008 – April



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

Dear Reader,

After a phase of stagnation lasting a decade, 2002 saw the start of a renaissance in the steel sector, and this year too the worldwide demand for steel is continuing its upward trend. The European suppliers have done their homework and, by way of restructuring and privatization measures, have developed good opportunities for participating in the global upswing. Steel remains the 21st century's dominant material. This is the upside of the situation.

The fact is, however, that the scenario in Europe and Germany is at threat from current EU policy in terms of climate protection planning. Brussels might well be holding out the prospect of exceptions for the most energy-intensive industries for the third emissions trading period 2013-2020, but, in the event the exceptions for the steel industry – which have only been vaguely defined to date – fail to produce results, ThyssenKrupp Steel anticipates additional annual financial burdens from 2013 onwards. These could mount to such an extent as to reach the incredible level of around 1 billion euros by 2020 at a certificate price of 50 euros per metric ton of $CO_2$ – and that amount doesn't include the continuing, sharply rising energy prices. These additional burdens will generate disadvantages vis-à-vis our international competitors who are not subject to such burdens, and we will not be able to make up for such disadvantages via rationalization measures. This in turn means that Germany would be put in massive jeopardy as steel producing center.

We unambiguously underline our commitment to Germany as an industrial base, but what we need in this respect is security in terms of our planning. The politicians must create a similarly unambiguous basis for us, which should not be allowed to impair our competitiveness in the world market. Our current investments are being made from a long-term point of view with the objective of being better able to supply our customers with high-quality steel products, and will exceed the 1 billion euro mark here in Germany in the coming years. Noteworthy examples in this context include the recently completed construction of the new blast furnace 8 in Duisburg, the erection of a new processing center for flat steel products in Krefeld, and the acquisition of a modern walking beam furnace in Bochum. This investment secures jobs in Germany on a sustainable basis.

*"The message is clear: steel is becoming an increasingly valuable material, and the entire market right through to the end customers will have to adapt accordingly."*

Against this background, ThyssenKrupp Steel calls on the EU Commission to decide, rapidly and bindingly, on the applicable regulations for the steel industry for the entire trading period. I would also like to stress that we attach a great deal of importance to the topic of climate protection, and, with steel as a material and with the ThyssenKrupp Group's diversity of products, we develop and implement corresponding solutions.

We also have other challenges to cope with. Take, for instance, the dramatic developments in the raw materials markets with continuously rising prices due to massive demand. The prices of fine ore alone have quintupled since 2002, with a 65 percent rise to date this year. Apart from this we are permanently keeping an eye on the tight supply situation for coal, coke and scrap metal, which also goes hand in hand with enormous price rises. After a fairly long phase in which steel prices remained stable in quarterly business, we have had to raise our price per metric ton by up to 100 euros in order to cushion the spiraling costs of raw materials and energy, and further price hikes will become inevitable in the course of the year.

The message is clear: steel is becoming an increasingly valuable material, and the entire market right through to the end customers will have to adapt accordingly. We shall continue to provide you with information on developments in the steel market on an open and fair basis, this being one of the main objectives of our customer magazine Compact. Once again in this issue you will also find a lot of news and interesting information all about ThyssenKrupp Steel. I wish you an enjoyable read.

Yours,

Dr. Karl-Ulrich Köhler

Member of the Executive Board of ThyssenKrupp AG and Chief Executive Officer, ThyssenKrupp Steel AG

## World Economic Summit

# The sherpa

## Personal profile

**Dr. Bernd Pfaffenbach** is Chancellor Merkel's personal representative for the G8 World Economic Summits, and was the behind-the-scenes organizer of the one held last year in Heiligendamm. He has been Administrative Secretary of State in the Federal Ministry of Economics and Technology since 2004, having previously headed the Federal Chancellery's Economic and Financial Policy and Labor Market Policy departments, at the same time acting as Chancellor Gerhard Schröder's economic policy adviser. The holder of a doctorate in economics started out on his career path in 1974 in the Federal Ministry for Economic Affairs; in 1988 he moved to the Office of the Federal President before switching to the Federal Chancellery in 1992.

**They are the helpers on the way up to the summit: the Nepalese mountain guides who, since the first scaling of the summits in the Himalayas by foreigners, have acted as mountain expedition porters for people who were subsequently to become famous. Sherpa is also the term applied to those responsible for preparatory political work prior to summit meetings of the heads of the major industrial states. Administrative Secretary of State Dr. Bernd Pfaffenbach's official title is "Personal Representative of the German Chancellor for the G8 World Economic Summits".**

Angela Merkel was host to her seven colleagues at last year's summit in the Baltic Sea resort of Heiligendamm – two days in the course of which the picture of the heads of government in a giant wicker beach chair went around the world, but which also had to be prepared for months in advance and subsequently assessed. Pfaffenbach is regarded as a leading authority on the world of national and international economic policy and its representatives. He himself sees his sphere of activity in taking up the Chancellor's issues, making them a subject of discussion with his other colleagues and steering them in the desired direction as far in advance of each summit as possible. The decisive factor in this context is the communication with all concerned, "knowing who you can and have to call in certain situations and problems", as he puts it. The path to the next G8 World Economic Summits in Japan 2008 and Italy 2009 is thus already mapped out for him.

**The current crisis in the financial markets is increasingly spilling over into the economy, and the economic climate has cooled significantly. As Chancellor Merkel's sherpa, you are in constant contact with your colleagues in the other G8 states. What is your assessment of the current situation on the basis of your discussions with them?**

The International Monetary Fund has adjusted its global growth forecast for 2008 downwards from 4.4 to 4.1 percent. The figure for the USA is a mere 1.5 percent following a level of 1.9 percent in October 2007, while the IMF has cut back its forecast for the euro zone from 2.1 to 1.6 percent.

There is a great deal of uncertainty as to the economic trend, especially where the industrialized countries are concerned. Whilst the expectations of a recession are increasing in the USA, we in the euro zone and Germany are only anticipating a slowdown in growth. The main risk lies in the economic developments in the USA. Significant recession there would also have an – albeit less drastic – impact on the pace of growth in the euro zone as well.

**Were the financial risks really not foreseeable?**

I as an observer was certainly surprised at how late the people involved got a feel for the risks. After all, organizations such as the OECD and BIZ have already been warning of a bubble in the USA for the past two years. Despite the certainty that the bubble will burst at some point in time, rather than growing indefinitely, many people in the USA and with some international investors continued acting as if there were no upward risk trend.

The crisis in the financial markets clearly illustrates the potential international risk of infection and the diversity of channels via which crises can be passed on. The federal government already introduced the topic of transparency in the global financial markets to the international debate on economic and financial policy in early 2007, and now this topic is being given intensified attention on the agenda in the light of recent events.

**The pace of growth in the USA is decelerating at a faster rate than in Germany. Can we decouple ourselves from the American trend?**

The dynamic growth among the emerging economies has led to a shifting of the world's economic balance, which points to a more intensive decoupling. Nevertheless, I don't think we can or want to completely decouple ourselves from developments in the USA. The United States of America still accounts for one quarter of global economic output and constitutes a key market for German exporters. Add to this the fact that cyclical ups and downs can also be transmitted via channels other than that of foreign trade. The financial markets today are so strongly integrated internationally that the refinancing options for business enterprises converge at the stock exchanges. Expectations and sentiments are transmitted far faster and more directly today, resulting in a convergence by these means as well. It should also be borne in mind that the assets channel has gained in importance since private households in Germany are investing in international shares and investment certificates to an increasing degree. Taken altogether, the impacts of an appreciable economic slowdown in the USA – if there should be one – will make themselves noticeably felt in Germany and the rest of Europe.

**How important for Germany are the economic links with the USA?**

The United States of America is our most important trading partner outside of the EU, and Germany is the USA's most important trading partner in Europe. In all, and measured by the overall volume of bilateral movement of goods, the US Department of Commerce's statistics put Germany in fifth place behind Canada, China, Mexico and Japan.

The USA also remains the location of choice for German companies where investment is concerned. The portfolio of German direct investments in the USA totaled around 155 billion euros at the end of 2005, creating some 780,000 new jobs. On the other hand, Germany is the location in Europe with the greatest concentration of American investors. American direct investments in Germany totaled around 74 billion euros at the end of 2005, creating 400,000 jobs in the process. The annual turnover generated by the 1,206 US subsidiaries in Germany came to around 140.7 billion euros at the end of 2005.

**A transatlantic economic partnership was agreed under Germany's EU chairmanship. What does this partnership involve?**

There is a strong commitment to transatlantic cooperation to be found on both sides of the Atlantic in terms of both economic and political issues. This was particularly reflected by the EU/USA summit held in Washington in late April 2007 at which the EU member states were represented by Chancellor Merkel as President of the EU Council. A series of joint economic and political goals were agreed, for instance the New Transatlantic Economic Partnership (NTEP) towards intensified economic cooperation between the EU and the USA, this also being an important personal notion on the part of the Chancellor.

The NTEP is aimed at medium to long-term regulatory cooperation in core economic sectors such as the chemical, pharmaceutical and automotive industries. Further key areas covered by the NTEP include the protection of intellectual property, secure trade, financial markets, investments, innovation and technology as well as procurement.

**How is this initiative now being followed up?**

The special feature of the economic partnership lies in the fact that a dedicated body – known as the Transatlantic Economic Council (TEC) and comprising several heads of EU and US government departments – has been set up for controlling regulatory cooperation in its entirety. The first official meeting of the TEC took place last November in Washington, and generated important stimuli for transatlantic cooperation. Germany's interest in concrete enhancements with perceptible effects for the economy remains unbroken, and this is something that I again expressed in the course of political talks in Washington, among others with the TEC's chairman Daniel Price. In the run-up to this year's EU/USA summit too, Germany will be demonstrating its commitment to making further fundamental headway.

**In the light of the trade disputes between the EU and the USA, how do you see this new endeavor in terms of potential success?**

The Transatlantic Economic Council's brief is first and foremost to provide support for the two sides, in other words the Europeans and the USA, in their efforts to advance economic cooperation on regulations and standards.
I think we are on the right track in this respect. There are other bodies for finding solutions to the trade disputes, and an escalating discussion of these conflicts would overload the TEC and divert its attentions from the tasks with which it has been entrusted.

**China, alongside Brazil, Russia and India, is one of what are known as the BRIC states, but other newly emerging economies are catching up as well. How can they be more intensively incorporated into the coordination of global economic policy?**

With its economic activities orientated towards exports and international investment, Germany has a particular interest in intensified integration of the newly industrialized countries and their assumption of responsibilities.

The German government used the German G8 presidency to further advance this process and, under the motto "Growth and Responsibility", was successful in its endeavors to promote an increasing involvement of the emerging economies in the political shaping of the framework conditions in the global economy. This is reflected in the agreement concluded at the G8 Summit 2007 in Heiligendamm between the G8's heads of state and government and the important emerging economies China, India, Brazil, Mexico and South Africa, to the effect that more joint political and economic responsibility is to be taken on in respect of global challenges. To this end they agreed to initiate a high-level, structured and topic-based political dialog using the OECD platform, namely the "Heiligendamm Process".

**Are there terms of reference for the Heiligendamm Process in terms of time and content?**

The consultations are limited to a period of two years and it is planned for them to be completed with a concluding report to be presented at the G8 Summit 2009 in Italy. As regards content, the focus is on the topics of investment conditions, including the social responsibility of business enterprises, the promotion and protection of innovations, energy efficiency and cooperation on technologies, as well as development aid, especially in respect of Africa.

**No progress has been made in the round of international trade talks in spite of incentives and stimuli from the International Monetary Fund and World Bank. What is your opinion on the prospects of a successful conclusion to the Doha round of WTO negotiations in 2008?**

The negotiations are difficult. New papers have just been tabled in Geneva as the basis for the core negotiation topics of agricultural and industrial goods. We can reach agreement on the core issues if all of the WTO's members are seriously prepared to make compromises. The German government will do its utmost towards a rapid conclusion to the Doha round with an ambitious and balanced result. The important thing is that we actually do bring about improved market access. The developing countries would benefit as well in this respect, given that a successful conclusion to the Doha round will mean tariff and quota-free access for the poorest countries to the industrialized economies, to quote just one example.

Interview and text:
Dr. Bettina Wieß, business journalist

## Green light for two million metric tons of slab steel

# “We are in ideal shape for 2009.”

**USA, Brazil, Germany. A heavyweight trio, into which ThyssenKrupp Steel is investing more than six billion euros. Work is advancing at a high rate of knots. A modern meltshop and processing plant will have been built in Alabama by the spring of 2010. In years to come it will process around three of the five million tons of slab steel in total that will be produced in the newly emerging CSA steel mill in Brazil. About two million metric tons of the slabs will be going to Germany.**

The traffic light slides in the status report, “Optimization of the plants in Germany”, projected onto the wall of the conference room are almost all showing green. The 15-strong group of project managers views the presentation with satisfaction. “We are on course to be able absorb the impending tide of slab steel from Brazil,” says project coordinator Helmut Krämer, as he casually leans back in his chair. The powerful project team that set itself the task of coordinating the expansion of existing domestic plants has two years of extremely hard work behind it. Together with the factories, it has to date created additional processing capacity in the hot and cold rolling mills and the coating lines to accommodate the Brazilian slabs.

The top priority in the schedule was the expansion of the Duisburg works port Walsum-Süd operated by logistics subsidiary Eisenbahn und Häfen. It had already been upgraded in 2007 as the central transshipment location for CSA slabs. The giant ship-unloading crane is still to be erected in the summer, and then everything will be ready. “Let the slabs come. We're ready for them,” states the responsible port manager Burkhard Decker. “Everything has been prepared.” And that applies not least to the highly complex logistics process, in which the steel slabs are identified on several occasions during their long journey from the Bay of Sepetiba, via Rotterdam to Walsum, by means of state-of-the-art RFID radio identification. “The smart microchips ensure that they arrive at the correct hot-rolled strip mill.”

▼ The central transshipment location for the Brazilian slabs is the works port of Walsum-Süd. It had top priority in the ambitious investment project, and was already upgraded in 2007.

The project is alive and advancing apace. “It all started with the forecast. Plans were made and calculations were carried out,” remembers Krämer. Then they got down to work. Warehouses were extended, pipes and cables were laid and the energy infrastructure was upgraded. A third of the investment in existing production plants has now already been implemented. For example the new walking beam furnace in hot rolling mill no. 3 in Bochum, which has the latest heating and control technology, was officially inaugurated in March. “We have contributed to the shortening of rolling cycle times and hence achieved faster production with improved hot-rolled quality,” says the responsible project manager Detlef Boßelmann with satisfaction.

Once a month the team of project managers meets up in Duisburg-Hamborn. Concentrated expertise. The procedure: target-oriented. No time is wasted. Every member of the team brings an inestimable wealth of experience and facts to the table in order to move the ambitious project forward. The hot strip mill at Duisburg-Beeckerwerth is also on course. The coil storage facility has been expanded, shops, craneways and

Contact: **Dr. Norbert Zentara,** Corporate Planning/Order Systems,
Tel. +49 (0)203 52-47388, e-mail: norbert.zentara@thyssenkrupp.com

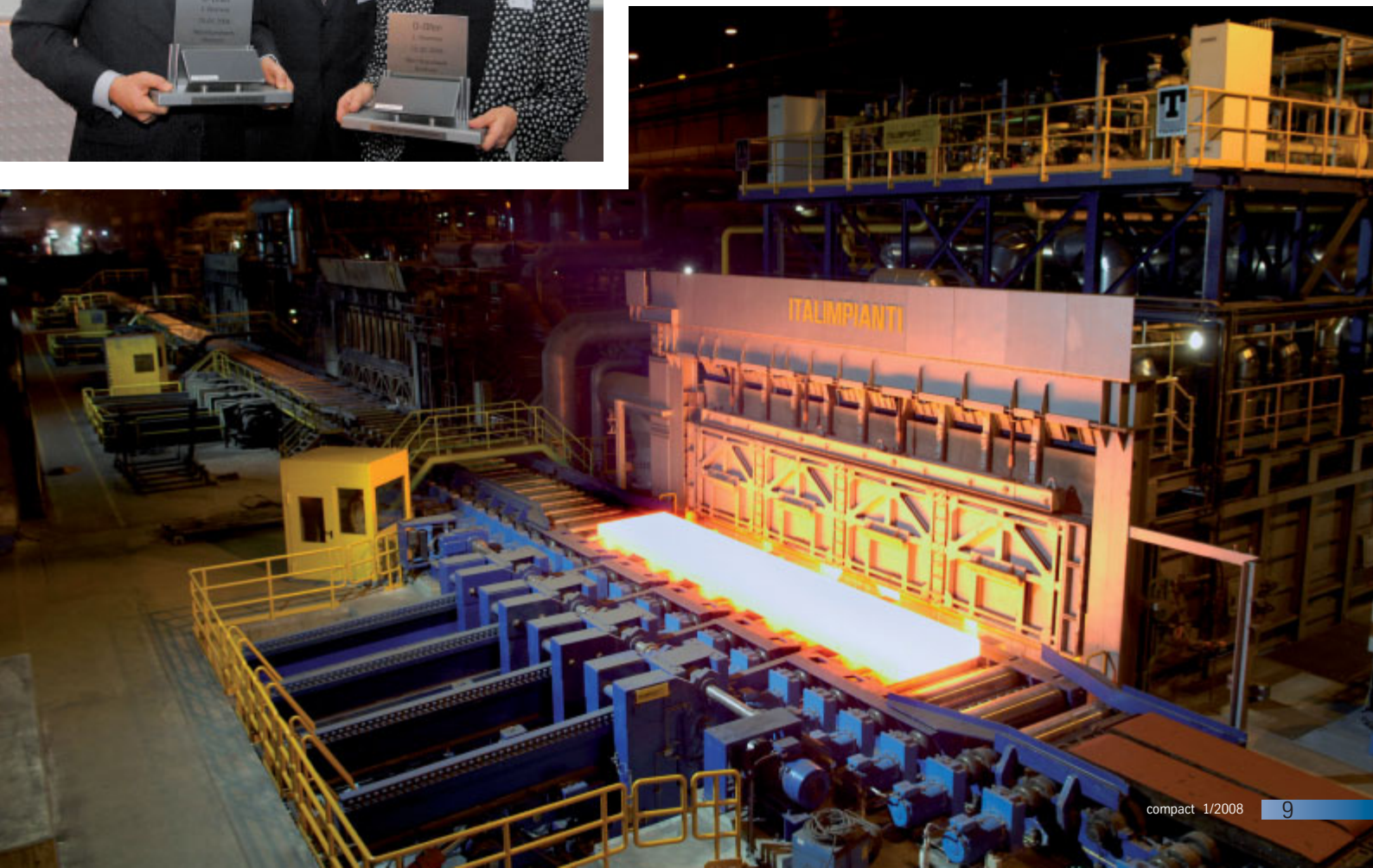
railway tracks have been extended. "We have already carried out the necessary preliminary work to increase the power of the production line, so that from August we will also be able to produce high-strength steels in wide hot strip dimensions," stresses project manager Dr. Gregor Esser. "We have equipped finished stock logistics with new software to meet future demands, and optimized both the rolling strategy and the cooling line."

Green light also for the hot-dip coating (FBA) lines. "The performance upgrade for FBA 1 in Duisburg-Bruckhausen has been completed and the performance test has been passed," reports project manager Hartmut Busch. Walter Mühlhause, the project manager responsible for the conversion of FBA 4 in Duisburg-Beeckerwerth, can list two successfully concluded investment projects. Firstly, the modernized galvannealing furnace, which has been running flat out since September last year. "Not only have we been able to increase our capacity for galvannealed products from a maximum of 55 metric tons to 65 metric tons per hour," he claims, "but also to entirely eliminate a familiar fault known as tiger stripes." Secondly, a premiere in Europe: The new JAZ process, which improves the coefficient of friction between material and tool when stamping, thus creating benefits for the customer in terms of processing. (Read more about this on page 10.)

Environmental protection always plays an important role. "We test new processes and acquire the necessary approvals for them," emphasizes Jürgen W. Hoffmann, who just like the other project managers is already giving some thought to the second expansion stage of the investment project. "At the moment we are examining additional necessary expansion and extension measures in steel processing at the domestic production plants," says the responsible overall coordinator Dr. Norbert Zentara, explaining future areas of activity. To sum up: There is still a lot to do in order to ensure that the next steps on the way to expanded capacity will also soon get the green light.

Christiane Hoch-Baumann

◀ ThyssenKrupp Steel Executive Board Member Dr. Jost A. Massenberg (l.) would not be deprived of the pleasure of officially opening the walking beam furnace in Bochum, together with Bochum's Lady Mayoress Ottilie Scholz and hot strip mill manager Ernst-Ulrich Becker. The 50 million euro investment secures the future of the plant with its 2,250 employees.▼



◀ The FBA 4 team discusses the new JAZ concept together with the Materials Center of Excellence and the Application Technology department in the output control room of FBA 4. It is mainly galvannealed thin plate for the automotive industry that is treated with the JAZ coating. ▼

## JAZ in Duisburg

# Automotive customers now find stamping even easier

"Together with Japanese steel producer JFE, we recently established a further type of coating for galvannealed material for hot-dip line (FBA) 4 in Duisburg," says project manager Walter Mühlhause, explaining the so-called JAZ process. With the advantage for the customer that, "It guarantees uniform drawing properties in the stamping plant and ensures the error-free forming of the body component."

"It is a European first," says Mühlhause with certainty. JAZ stands for JFE Advanced Zinc and was developed by the Japanese steel producer JFE. "We are the only ones in Europe to offer this special type of coating alongside the conventional processes." It is mainly employed for galvannealed thin sheet for the automotive industry. The surface of the strip is treated with special chemicals in several process stages. "The extremely thin layer thus produced (measured in nanometers) reduces the friction coefficient of the sheet steel," explains Jörg Jendrossek, production engineer at FBA 4. "As a result the flow properties of the material in the stamping die are improved for the automotive manufacturers, simplifying the forming of complicated components."

The service ethos provided the stimulus: "We purchased the license from JFE in order to be able to supply an even higher-quality material," explains Mühlhause. A seven-man team completed the conversion in the finishing section of FBA 4 in the record time of only three months. Together with FBA 4, the Materials Center of Excellence and the Application Technology department ensured a smooth production process. Within a very short time they combined to bring the process up to production readiness. The first production runs were thus successful. "We satisfy the high quality requirements of our customers and can supply with immediate effect," says Jendrossek. The background for the joint action and the successful transfer of technology is successful cooperation between JFE and ThyssenKrupp Steel since 2002.

Daria Szygalski



Contact: **Walter Mühlhause,** ThyssenKrupp Steel, tel. +49 (0)203 52-44686, e-mail: walter.muehlhause@thyssenkrupp.com
**Jörg Jendrossek,** ThyssenKrupp Steel, tel. +49 (0)203 52-40292, e-mail: joerg.jendrossek@thyssenkrupp.com

# NewsFlash

## Ten years of research with TU Freiberg

The Technical University (TU) Bergakademie Freiberg und ThyssenKrupp Steel have now been involved in scientific and academic exchange for a decade. Close networks have grown up, and numerous research projects have been carried out. One lighthouse project in the area of materials research is MgF Magnesium Flachprodukte GmbH, jointly established in Freiberg in 2001. There the university and the company work shoulder to shoulder to develop and advance the innovative casting/rolling technology for magnesium. Just in time for the anniversary, the scientific collaboration is being placed on a broader basis with the signature of a cooperation agreement between Bergakademie and ThyssenKrupp. "In doing so we are establishing another constructive milestone for profitable cooperation in research and development," says Dr. Karl-Ulrich Köhler, CEO of ThyssenKrupp Steel and ThyssenKrupp Executive Board Member.

## Tailored blanks amalgamated in the NAFTA area

ThyssenKrupp Tailored Blanks GmbH is amalgamating its Mexican subsidiary ThyssenKrupp Tailored Blanks S.A. de C.V. into the US joint venture TWB Company L.L.C. TWB was established in 1991 as a joint venture between ThyssenKrupp Steel North America, Inc. and Worthington Industries for the production of tailored blanks. As a result of the amalgamation of its Mexican subsidiary, ThyssenKrupp Steel is taking over a majority of the shares in TWB and at the same time the industrial management of the joint venture.

## Innovation: JFE and ThyssenKrupp Steel

Japan's second largest steel producer, JFE Steel Corporation, and ThyssenKrupp Steel have jointly developed a new multiphase steel for automotive applications. The strength of the material, at least 780 megapascals, is similar to that of the ultrahigh-strength steels CP-W® 800 from ThyssenKrupp Steel and NANO 780 from JFE. But with up to 40% greater yield strength, it has considerably better forming characteristics. The first components confirm the advantages of the new steel. The material can be supplied as hot-rolled strip, coated if required. The two companies have already been collaborating closely in the context of a cooperation agreement since 2002.

## 50 years of grain-oriented electric steel

ThyssenKrupp Electrical Steel, which is part of ThyssenKrupp Steel, celebrates 50 years of grain-oriented electric steel production in May. The Gelsenkirchen company started manufacturing the material in 1958, under the name of Orsi. In those days annual production amounted to 1,600 metric tons; currently it amounts to 120,000 metric tons at the Gelsenkirchen plant, sold today under the new name PowerCore®. The three-millionth metric ton will come off the production line just in time for the anniversary. The symbolic metric ton can be won in a prize draw, because ThyssenKrupp Electrical Steel will be celebrating the production record with customers at the Coil Winding trade fair in Berlin in June. The product is enjoying healthy demand, because the need for power and energy is growing worldwide. Grain-oriented electric steel is primarily ideal for use in transformers.

## Double honor for ThyssenKrupp Galmed

ThyssenKrupp Galmed recently received an award from the Federación Empresarial Metalúrgica Valenciana (FEMEVAL) for its work, the creation of jobs and its impetus to the metals sector in the Valencia region. In addition, the company also received the "Empresa Integradora Camp de Morvedre 2007" prize. According to FEMEVAL, ThyssenKrupp Galmed represents a model for the region and contributes to general economic growth. In the meantime, the award by the labor association of Camp de Morvedre is for good practice by the company with regard to social responsibility and job creation, equality of opportunity for men and women and for older employees. ThyssenKrupp Galmed, a subsidiary of ThyssenKrupp Steel, is a hot-dip galvanizing plant in Puerto Sagunto, Spain, with an annual production capacity of 450,000 metric tons and more than 100 employees.

## Automotive Congress in the USA

The International Automotive Body Congress (IABC) in Troy, Michigan/USA, was sponsored by ThyssenKrupp Steel, along with the US Department of Energy and local US companies, at the end of last year. It is a meeting point for decision-makers and experts from the automotive and supply industries. The focus was on trends in body development, the $CO_2$ debate, weight reduction and lightweight construction. Innovations from ThyssenKrupp Steel were also at the forefront: third-generation Thyssen Tailored Tubes (T3), tailored strips and the B-pillar of the current Audi A5. (See page 18 for more about this) Against the background of the construction of the new processing line in the southern USA, the company presented itself as a future development partner for automotive manufacturers and suppliers in the NAFTA area.

## Special products for insulation technology

The 6th ISO International Insulation Trade Fair was held in Wiesbaden's Rhine-Main exhibition halls in mid April. This year its key themes were economy and ecology. The ThyssenKrupp Steel Service Center from Bochum was also represented at Europe's leading trade fair for energy saving and climate protection. Following this theme, it presented high-quality niche products for the demanding areas of (petro)chemicals, energy and waste management, as well as plant construction. The exhibits included insulation cladding made of metal such as GALVALUME®, and organically coated insulation such as PLADUR®. Some innovative component elements with a finished surface were also exhibited. BONDAL® demonstrated some solutions in the area of noise insulation. The focus was on themes such as the new visual impression of colored coating systems on steel, with ReflectionsLume® and ReflectionsOne®, as well as anti-graffiti coatings. 130 exhibitors from twelve countries drew thousands of trade visitors from around the world.

▲ ThyssenKrupp Steel offers its customers a complete range of products and services. They range from the initial idea, expertise and services…

▲ …via materials development, production and coating …

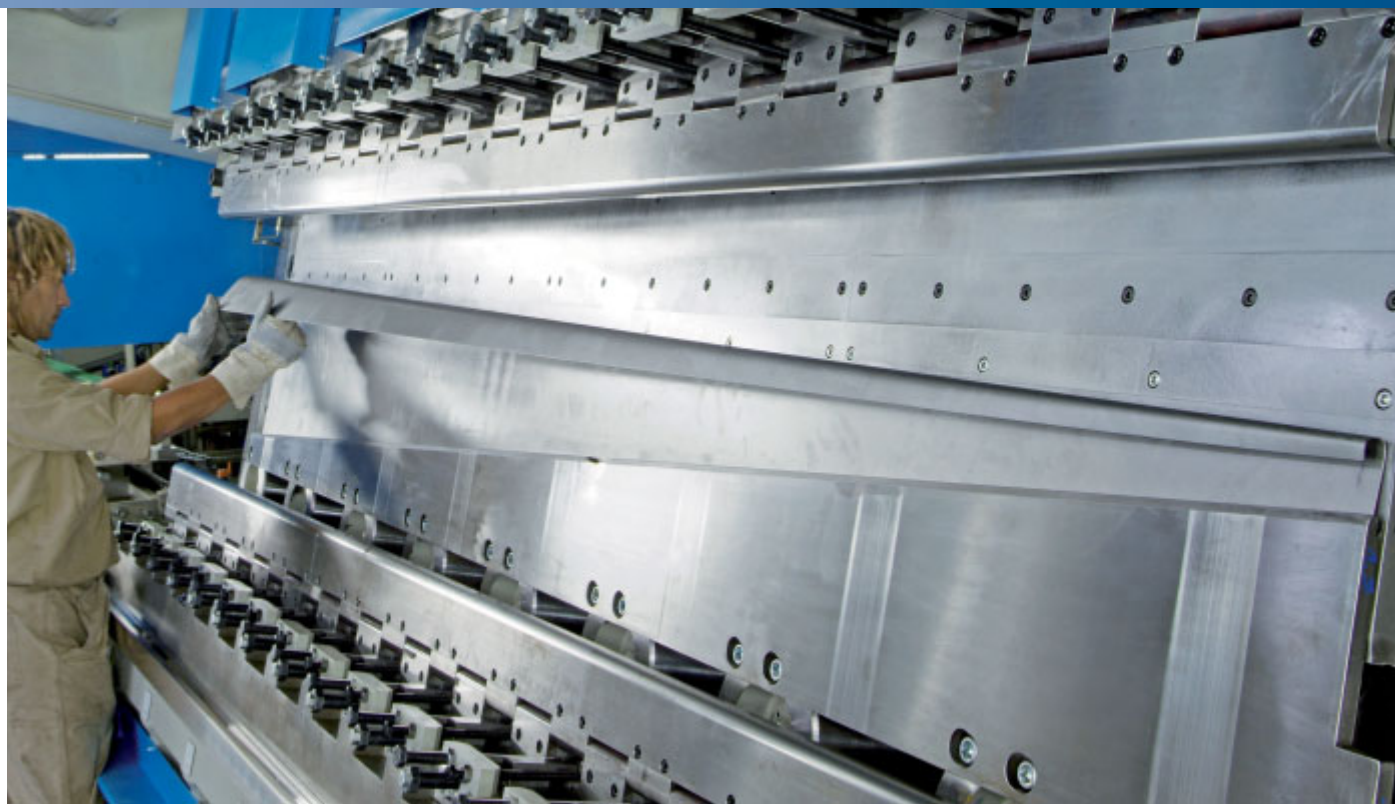
## Strong partner to the automotive sector

# All-rounder in the entire process chain

**ThyssenKrupp Steel has long been much more than a materials producer par excellence. The company now supplies the innovative automotive industry with complete solutions made of steel. Strict division of labor is a thing of the past; capabilities covering the entire process chain through to the finished component are the success strategy of the here and now.**

If you want to be successful in the steel business in the long term, you have to create a broad base – above all in the high-end automotive segment. ThyssenKrupp Steel has made rapid progress in this respect, and is flexing its muscles in matters of research and development, production and application and manufacturing skills like no other. The company is the only steel producer to supply everything from a single source – from materials and engineering through processing and service to the volume production of components, including assemblies. ThyssenKrupp Steel Executive Board Member Dr. Ulrich Jaroni knows all about the USP. "No other competitor currently has this kind of broad and well-founded expertise across the entire process chain."

Materials, finishes, machining, components, systems – the product range is also but not solely to do with the integration of the former Umformtechnik group into the ThyssenKrupp Steel segment under the name of Metal Forming. The specialists work side by side with experts from Research and Development, as well as other departments in the Auto Division. Their joint repertoire includes, for example from the body sector, doors, fenders, body panel products, as well as high-strength structural components such as A- and B-pillars, fender mounts, bracing struts and floor panels. For chassis applications ThyssenKrupp Metal Forming produces side members, crossbeams and stamped axle components, most of them from ultrahigh-strength and high-strength steel.



▲ …through to application and production capabilities, and the construction of prototypes and tools, such as here in the case of the T3 profiling technology, a globally unique pilot plant for the forming and joining of complex profiles.

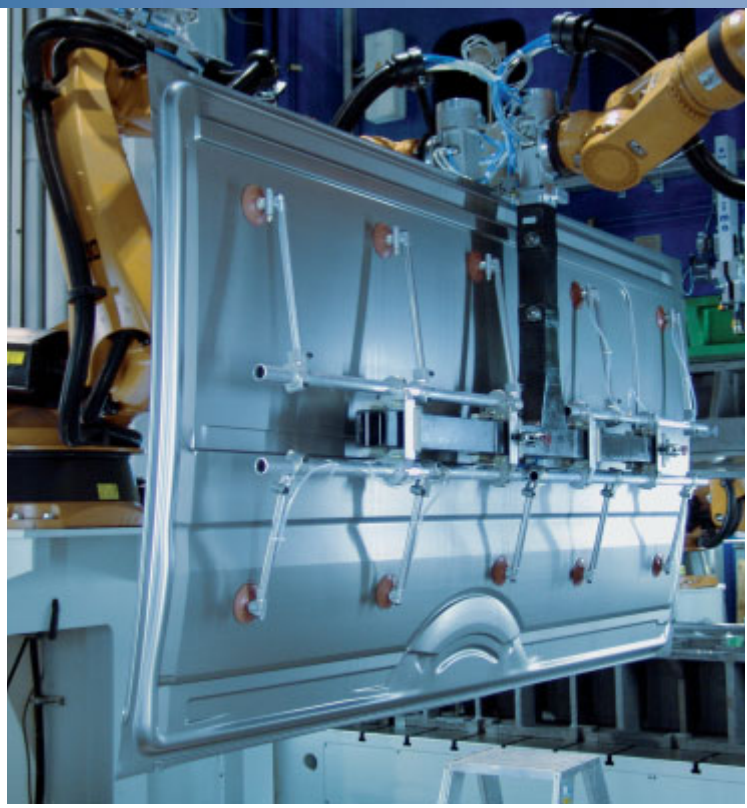
The network of expertise leads from development through tests and simulations to the production of individual components. “Of course we also support our external customers’ process and product development, from the development stage through to production-readiness,” says Oliver Hoffmann of ThyssenKrupp Steel. He is the head of Application Technology in Duisburg, in the Sales/Engineering department of the Auto Division. Services of this type are in demand when car makers want to speed up the production integration of components that they make themselves, or when there are new steels to be machined and optimized steel concepts to be implemented. Hoffmann: “We are often on site in the customer’s stamping plant at the customer’s request. That means that unnecessary startup difficulties can be avoided.”

ThyssenKrupp Steel manages the entire process chain – first developing the material, coating it as required, forming the sheet steel into components and joining them together to create assemblies. Even complete components for convertible hardtops than open and close entirely automatically now form part of the product range, such as is to be found on the latest BMW 3-series convertible. This cool automobile from BMW has an impressively slim rear end and a low, extended side profile – a design previously unknown on production convertibles with a retractable steel hardtop, because the big roof had to be stowed in the rear of the car.

The sophisticated design is made possible by the complex structure of the components – and these in turn are made possible by the elaborate and precise production methods of ThyssenKrupp Metal Forming. In this case BMW accesses the Metal Forming group via an intermediate supplier. From its plant in Ludwigsfelde the Group supplies three steel roof panels, one tonneau cover and one trunk lid for each convertible, each of these as an assembly using ingenious joining techniques. It is precisely at this point that Metal Forming once again provides proof of its special abilities. The task was to join the complex, three-dimensional surfaces on the trunk lid by means of laser welding. “That is high-precision work, and just one of our many specialties,” says Dr. Jens-Arend Feindt, Vice President of Business Development at Metal Forming in Bielefeld. (Read more about this on page 16.)

Another result of the combined expertise of application and forming technology: an entirely new lightweight chassis concept known as LCK. It is remarkable for being about half as expensive as an aluminum design from a luxury-class series, which is used as a benchmark. The innovative element of the LCK is that it is made of hot-rolled CP-W® 800 steel, which has a yield strength of 680 megapascals (Mpa) and is thus significantly stronger than the previous steels with values of 355 to 420 Mpa. This permits correspondingly thin-walled structures, such as in the case of the trailing arms and the rear cross member of the rear subframe – the sheet steel

▲ The ultimate product of the network of expertise at ThyssenKrupp Steel: The volume production of tailored blanks for the automotive industry…



▲ …and assemblies of entire components for the automotive assembly line.

being not even two millimeters thick, instead of the normal 2.5 millimeters.

Optimizations of this kind demonstrate the synergies that result from being an all-rounder in the entire process chain. With research, steel production, application and production under one roof you can see right away how the steel reacts in the die, says Hoffmann. "As a result it is possible to analyze immediately in-house any peculiarities when forming a new steel, and to take them into account in the form of process and material improvements."

The primary challenge was to meet the requirement that cars are to become ever lighter and ever safer. These innovations have long been the focus of attention at ThyssenKrupp Steel. For example, new concepts for high-strength and at the same time lightweight impact-absorbing components are currently under development. The way to achieve this: forming heated blanks and then deliberately cooling them to create components with strengths up to 1,500 Mpa – along with very high geometrical precision, or contour accuracy. (Read more about this on page 18)

The New Steel Body (NSB) from ThyssenKrupp Steel was already groundbreaking in terms of lightweight construction: it demonstrates that the weight of body structures can be reduced by up to 24% using tube-intensive design, coupled with modern steels and innovative production technologies, and at no extra cost. A result that can only be achieved with high-tech steels. Now there are numerous customer projects under way for the implementation of the ideas. There are currently significant advances in the optimization of the forming and joining of complex profiles in application technology. A line for what is known as T3 profiling technology is being used for that purpose – a globally unique pilot plant for precisely this forming and joining of complex profiles from thin-wall, high-strength steels.

In parallel with these new processes, the Dortmunder OberflächenCentrum (DOC®) surface engineering center is thinking up appropriate coatings. One further automotive innovation is currently being created in cooperation with ThyssenKrupp's Technologies segment. It goes by the name of InCar. It represents a pool of solutions and ideas for body, suspension and drive train. As every car producer has different requirements in this respect, the vehicle developers will in future be able to select from a construction kit the solution that is right for them. One example: The InCar pool contains three versions of B-pillar to choose from – one lightweight, one particularly economical and one with optimized performance, for example in terms of corrosion-resistance or space-saving.

Car makers can now pick from these alternatives the ones that are right for them, and the individual construction kit is ready to go. Entirely new, attractive opportunities, therefore – and not just in the high-end car-making segment but equally for the all-rounder in the process chain.

Ulrike Wirtz, freelance journalist



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

## Steel in automotive engineering

# "Still indispensable in the future"

The outstanding significance of steel in automotive construction is still unchanged in the 21st century. The figures clearly demonstrate this. 70% of an automobile is made of metal; around 700 kilograms of steel go into the average car. When used in the car industry, steel has to meet extremely stringent requirements in terms of safety, formability, qualities and tolerances, as well as surface characteristics.

The German automotive and steel industries are in a mutual win-win situation: The automobile is the most important customer of the steel industry, which in turn represents the most important raw materials supplier to the automotive industry. Strategic partnerships ensure long-term commercial success for both parties. The German steel industry – and ThyssenKrupp in particular – is an attractive and sought-after partner to German car manufacturers and suppliers. Partnership in research leads to the joint development of new technologies, such as reduced wall thicknesses with simultaneous increases in strength.

Automotive demands on steel have always been drivers of innovation and new technologies which are also used in other customer industries. Innovative vehicle designs, on the other hand, are unimaginable without the input of the steel industry – for example lightweight construction as the challenge of the future is achievable with the modern technologies of German steel companies.

The pressure on the automotive supply chain resulting from rising raw material prices also remained extremely high in 2007. Concentration processes on the providers' side represented a catalyst for this trend. Volatility and the associated planning uncertainty place at least as great a burden on companies, above all on small and medium-sized suppliers. In this difficult environment it is especially important for the manufacturers and suppliers that are members of the VDA to be united in minimizing the stresses on the supply chain as much as possible, and to cooperate closely in this respect.

http://www.vda.de/index_en.html

## Personal information

**Matthias Wissmann** has been President of the German Association of the Automotive Industry (VDA) for just under a year. Before that he was in politics for more than 40 years. Federal Chairman of the Junge Union (Young Christian Democrats) from 1973 to 1983, the youngest member of the Bundestag (the lower house of the German parliament) in 1976, economic spokesperson of the CDU/CSU parliamentary party from 1983 to 1993 and then Federal Transport Minister for five years. In 1994 he was elected President of the EU Council of Transport Ministers, and in November 2002 he was elected Chairman of the Committee for European Union Matters of the German Bundestag. At the end of May, German Chancellor Merkel wished Matthias Wissmann well on his departure from the German Bundestag after 30 years.

## ThyssenKrupp Metal Forming

# Versatile, powerful and innovative – a supplier of distinction

**ThyssenKrupp Metal Forming – the forming specialists in the Steel segment. The group of companies has firmly established itself in the market as an automotive supplier, and will continue to expand its position. Innovation and product quality play a crucial role in this. The Management Board: Rudolf Helldobler as Chief Executive Officer (CEO), Thilo Lutz for Sales & Engineering, Dr. Burkhard Egelkamp, Production, Bernd Willenberg, Controlling, and Dr. Theodor Plümpe, Human Resources. Their arguments: outstanding development work. The group of companies is also backed by the corporate parent ThyssenKrupp Steel.**

▼ The Management Board of ThyssenKrupp Metal Forming appears united and consistent in the hotly contested automotive supply market: (left to right) Thilo Lutz, Sales & Engineering, Dr. Burkhard Egelkamp, Production, CEO Rudolf Helldobler, Dr. Theodor Plümpe, Human Resources, and Bernd Willenberg, Controlling.

**ThyssenKrupp Metal Forming has belonged in commercial terms to ThyssenKrupp Steel since October 2006. How has the automotive supplier settled into the Steel segment, Mr. Helldobler?**

Very well. None of us found the process difficult. We have already cooperated successfully for more than ten years, when were still assigned to the sister segment ThyssenKrupp Automotive and later Technologies. For example in the Automotive Lightweight Design and Innovation Center of the ThyssenKrupp Group, but also in numerous volume production orders. So it has long been clear that close cooperation between steel and component manufacturers generates synergies and brings competitive advantages for both.

Lutz: Together with ThyssenKrupp Steel, we combine technological competence and service for the automotive industry throughout the entire process chain: From the steel – incidentally we also work with stainless steel, aluminum and magnesium – through to the component, everything is included in the range. There is currently hardly a single competitor with a comparable breadth of expertise and a correspondingly high level of investment potential.

**What precisely makes Metal Forming so significant in association with ThyssenKrupp Steel, Dr. Egelkamp?**

Our combined expertise. We work side by side with the experts of ThyssenKrupp Steel. With them we develop individual solutions for our OEMs, made of steel for modern lightweight construction which is lower in weight but offers even better safety than its predecessors.

From the first draft through production-readiness, an automobile goes through a large number of development stages. And that is precisely where our strengths lie. Our specialists advise on the implementation of lightweight designs, in the decision on materials and the structural design on the basis of the available space. In the engineering phase, forming and impact simulations are carried out on the computer and, if required, a decision is taken whether prototypes are to be built for further tests. Finally we plan volume production in detail with our customers, from die-making through training management to supply.

**What status do you accord to development at Metal Forming, Mr. Lutz?**

A very high status. Of around 8,200 employees at Metal Forming in total, around 130 are solely employed in research and development departments. The nine departments of the group of companies collaborate intensively on an expert level – both nationally and internationally. And of course not to forget the lively interchange with the parent company ThyssenKrupp Steel.

Willenberg: As an automotive supplier we can only survive in the fiercely contested market by means of new developments. We are always concerned about saving weight and costs for OEMs, such as in the case of commercial vehicles from Daimler and Volkswagen. For these we produce the majority of the body panels, including the side panels, the load space sliding doors and the rear side-opening doors, as well as the roof, partition and structural components in the front section, the floor and the side members. With only 180 sets of dies comprising more than 1,000 modules, we supply around 360 components. This is on the basis of an intelligent tool concept, with the result that we produce the 16 versions of the load space sliding door with a single-figure number of drawing dies, thus minimizing the production costs for our customers.

These and many other optimizations such as the EUCD platform, a uniform front and rear axle architecture for Ford, Volvo and Range Rover, which our company ThyssenKrupp Tallent developed in Great Britain, demonstrate the synergies that can result from being in a corporate association with ThyssenKrupp Steel.

**Mr. Helldobler, where do you see the Metal Forming group in two years time?**

As soon as we have successfully implemented the ambitious restructuring program and find ourselves in calmer waters once again, we will continue pushing ahead. In addition to our core business in Europe we have already successfully developed overseas activities in Brazil, China and India. There is further potential in these up-and-coming markets, which we are going to exploit. We will continuously shift the focus of our activities further towards engineering-intensive products with high added value. The combination of innovations in the areas of product design and production process will play a significant role in that respect.

The interview was conducted by Christiane Hoch-Baumann

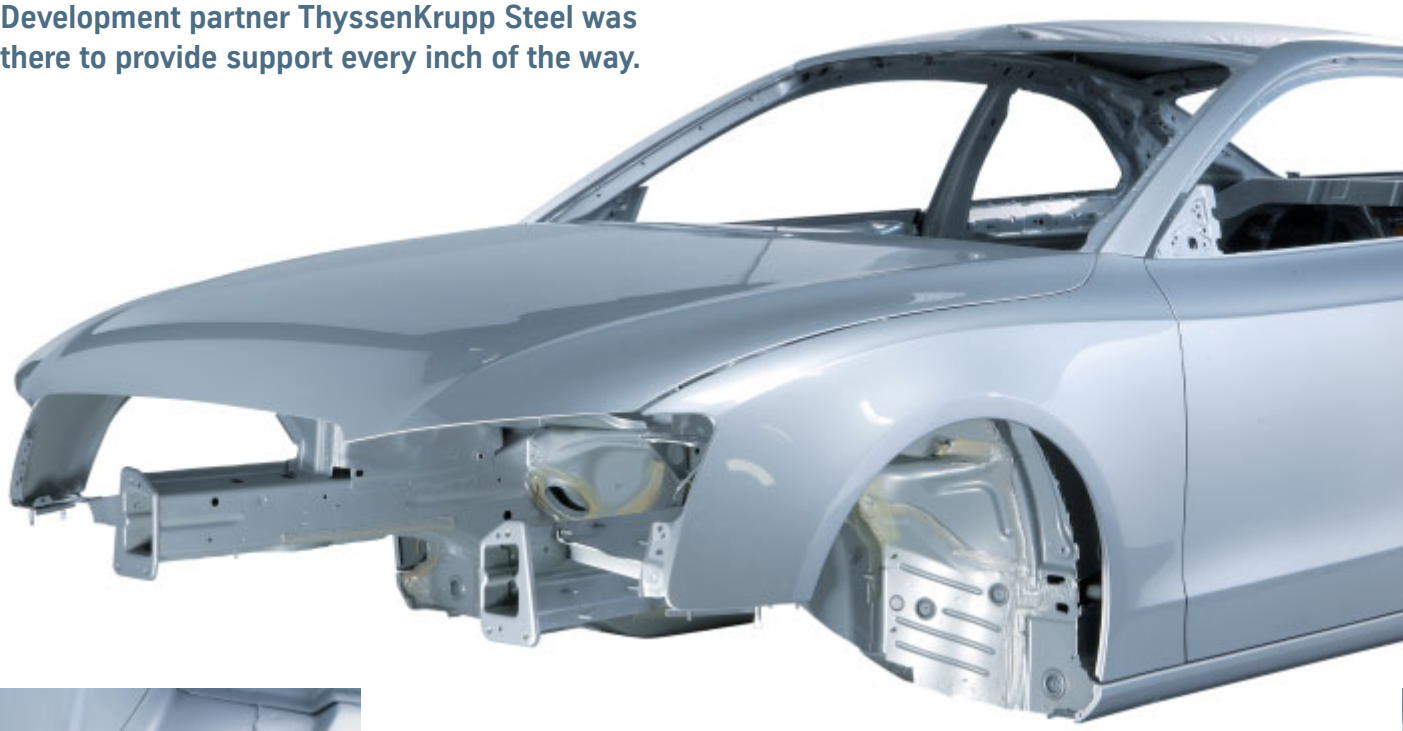
www.thyssenkrupp-umformtechnik.com

Contact: **Franz Helbrecht,** ThyssenKrupp Umformtechnik, tel. +49 (0)521 4472-228, e-mail: franz.helbrecht@thyssenkrupp.com

## World first: hot-stamped tailored blanks

# Successful use in Audi A5

**Hot-stamped and hence ultra-strong. Tailored blanks and hence extremely light. Two persuasive arguments, which caused Audi quite spontaneously, just one year before start of production, to employ an entirely new technology in its flagship A5 model. Development partner ThyssenKrupp Steel was there to provide support every inch of the way.**



◀ The side member: Thanks to new plant technology at ThyssenKrupp Tailored Blanks in Duisburg-Hüttenheim, the blanks that arrive at Audi are already totally prepared for immediate direct hot stamping.

"It was a great performance from all those involved," says Sales Manager Jörg Maas of ThyssenKrupp Tailored Blanks, remembering twelve turbulent months of development. Dr. Franz-Josef Lenze from Application Technology nods in agreement. "The short timescale placed tremendous demands on us." The result is all the more impressive, as is the team performance that produced it. Audi fits three hot-stamped components as standard – the B-pillars, transmission tunnel reinforcement and side members. It has been doing so with no problems for a year, and is actually equipping its entire family of vehicles with the new feature. From the A5 and A4, Avant and SUV, through to the Cabriolet. That makes around 500,000 vehicles per year.

The benefits are obvious, says Maas: "Even extremely complex components can be easily produced using the hot-stamping process, achieving very high strengths to provide secure protection in the event of a crash. The carmaker also saves weight by being able to reduce the thickness of the steel as a result of its strength, and by using tailored blanks especially customized to his needs, which weigh not a gram more than they have to." That is not possible with the cold-stamping process, and other car manufacturers are recognizing that too, both from the premium segment and the high-volume segment. They have already inquired about the new product from ThyssenKrupp Tailored Blanks.

▶ The B-pillar: In the event of a crash: the complex component offers secure protection because it achieves ultra-high strength as a result of the hot-stamping process.

◀ The transmission tunnel reinforcement: ThyssenKrupp Tailored Blanks has been supplying blanks for hot-stamping in volume production for a year. 1.8 million a year. And rising.

"Audi approached us in the middle of 2005 with the ambitious idea of a modern B-pillar," says Lenze, a specialist in the field of hot-stamping, looking back. "It was up to us to bring it to life and to develop a production-compatible design." He immediately brought on board experts from the Materials Center of Excellence (WSK) of ThyssenKrupp Tailored Blanks. Together they undertook some high-pressure research into suitable partner materials for the required component. "We were soon concentrating our investigations on eight steel grades." The WSK first examined deformation properties by computer simulation, then in practice on the Dortmund testing installation of Application Technology, in cold mode and then finally in a hot mode. "At the same time Audi was already constructing a suitable stamping line in Ingolstadt, with the support of the responsible key account in the Auto Division, and conducting its own initial experiments," says Lenze. At that time they were in touch with each other on an almost daily basis. Samples were made available by ThyssenKrupp Steel, results were evaluated and compiled.

"Six months later Audi asked us for the first prototypes," recounts Maas, describing the rapid approach of the start of production. That was at the end of 2005. In this phase the WSK came up with the suitable micro-alloyed steel. "Within only eight weeks we procured it and welded it." Audi got its hands on its first tailored blank at the start of 2006, completely prepared for immediate hot-stamping thanks to a unique aluminum-silicon coating from surface engineering center Dortmunder OberflächenCentrum DOC® which protects the blanks during hot-stamping – they are initially heated to between 880 and 950 degree Celsius, stamped and simultaneously hardened with water in the cooled die – from unwanted scaling, thus considerably simplifying production at the customer's plant.

But suddenly a problem arose. "The coating does not vaporize during laser-welding, but combines with the weld material," explains Maas. "That leads to breaks in the hardness profile. The parts might break in the event of an accident." Once again the group of experts, this time supplemented by engineers from the metallography department, sat down at a table to search for solutions. "Within a week it was clear that we had to remove the coating by at least one millimeter on each side of the weld in order to be successful." Now the task was to create a production process and an automated line for this procedure in no time at all. Another challenge that the team met together. "We found a laser from Rofin in Hamburg which is capable of precisely removing the coating. It operates in pulse mode and blasts the sections of coating from the blank," explains Maas. In just a few months ThyssenKrupp Tailored Blanks, together with a supplier, developed a system concept, produced the design and had the world's first installation for the removal of coating from the tailored blank set up in the Hüttenheim plant. The result: "Since May 2007 we have been turning out tailored blanks for Audi non-stop." 1.8 million a year. And rising.

"We have only just started to exploit our opportunities," says Lenze with conviction. "With the new Metal Forming group in the segment we can already offer to produce stampings for our automotive customers, saving them time-consuming production stages." For example, at ThyssenKrupp Sofedit in France there are already several hot-stamping lines which are principally serving the French automotive market. This plant technology has now also been available in Germany since the start of the year, at ThyssenKrupp Metal Forming in Ludwigsfelde.

Christiane Hoch-Baumann

www.tailored-blanks.com/en

Contact: **Dr. Franz-Josef Lenze,** Application Technology, tel. +49 (0)231 844-4465, e-mail: franz-josef.lenze@thyssenkrupp.com
**Jörg Maas,** ThyssenKrupp Tailored Blanks, tel. +49 (0)203 52-75275, e-mail: joerg.maas1@thyssenkrupp.com

## Cars in the crash test

# Safety increasing with advanced steel

**Germany's biggest accident black spot is in Bensberg, not far from Cologne, where crashes are a regular occurrence day in, day out. Because this is where engineers and scientists of the Federal Highway Research Institute carry out research into new traffic safety measures.**

"We have been bending and breaking things here since the seventies," explains Head of Research Bernd Lorenz. Legions of automobiles and metric tons of steel have since been dented, twisted or entirely destroyed in crash tests. With impressive results. "At the start," he grins, "it was a matter of sheer survival for our dummies. Today in some situations you could almost talk of accident comfort." Much has been achieved so far, but: "There is still quite a lot to improve, even though the number of accident victims did reach a new low again last year."

Outside in front of the test facility, Lorenz points to a row of battered test candidates. Small cars had been rammed not frontally but at an angle in an offset test. What he explains is obvious at first sight. "The cars do indeed look bad, but the interiors have survived the massive forces amazingly well." He runs down the interior with his forefinger. "If any components were to penetrate here in an accident it would be highly dangerous for the passengers."

Most new cars cope with such tests nowadays. "But independent crash test programs such as the Euro NCAP star ratings," he says, mentioning a well-known example, "are only one side of the coin." The wide variety of influences – size, height and weight of the vehicles involved, speed, angle of impact and many others – make every accident an individual occurrence. "So we researchers look for methods to moderate the effects of accidents between unequal adversaries." Such as when a heavy SUV collides with a small car.

▼ "At the start it was a matter of sheer survival for our dummies. Today in some situations you could almost talk of accident comfort," says Head of Research Bernd Lorenz of the Federal Highway Research Institute.

▼ All parts of a vehicle must behave as intended in the event of a crash, deliberately bending, crumpling or diverting threatening forces. Steel helps in this respect.

The demands on designers are growing continuously. In order to meet the standards, every part of the vehicle has to behave exactly as intended from the very first contact. Steel for bodywork, for example, is to bend or crumple deliberately in order to absorb threatening forces or to divert them in such a way that no one is harmed. Above all the steel must not tear under failure loading. The interior should always distort only very little. "Inside this survival space, passive systems such as airbags and seatbelt tensioners combine to catch and restrain the passengers in a protective way," he explains. Great hope is being placed on adaptive systems for the future – technology that foresees accidents and intervenes in the action before the crunch comes. "There's no such word as can't," stresses the expert. That also applies to the topic of steel. "Years ago," he remembers, "many predicted a steep decline for this material. But in fact steel remains ultra-modern."

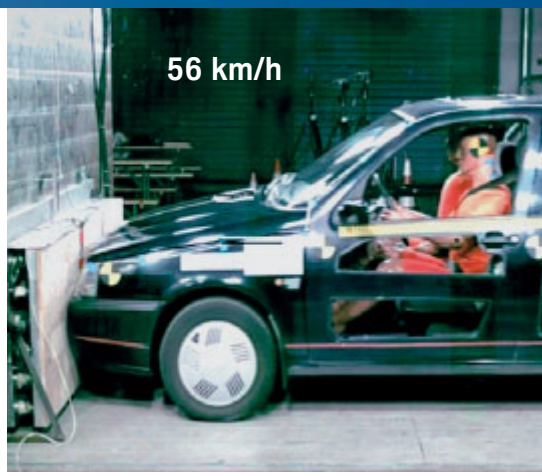
"More safety and less weight," is how Dr. Thomas Heller, research engineer at the Materials Center of Excellence at ThyssenKrupp Steel, describes the development line. In his laboratory steels are created to meet the accident researchers' requirements, without the carmakers recording any side effects in terms of weight or in the machining process. "For example, we develop ultrahigh-strength, readily formable steels, which protect the vehicle's occupants in the event of accidents." In that respect the future has long since begun. "In comparison with the past, a body today has a load-bearing capacity up to three times greater – without being any heavier," he emphasizes. ThyssenKrupp Steel achieves that, for example, by means of products that ideally combine apparent opposites – formability and strength. Dr. Lothar Patberg, Head of Vehicle Technology at ThyssenKrupp Steel: "We combine different steel grades in one blank." This technology is called tailored blanks. For example the B-pillar component can be extremely strong and unyielding in its top section and rather softer and more ductile in the bottom section. "In the case of newly developed hoods, the structure yields in a predefined manner to protect against impact with the hard engine located underneath it. That minimizes the risk to pedestrians."

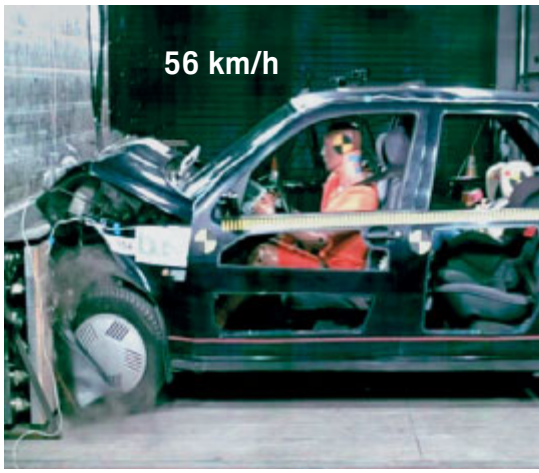
What else does the future have in store? In the development laboratories of ThyssenKrupp Steel they are already creating highly ductile materials with a high manganese content, the X-IP steels. Despite their extreme strength they are four times as formable as before. Multilayer steels or sandwiches, combining steel with other components, will play their role in future. So steel will remain what it has always been: a good deal safer.

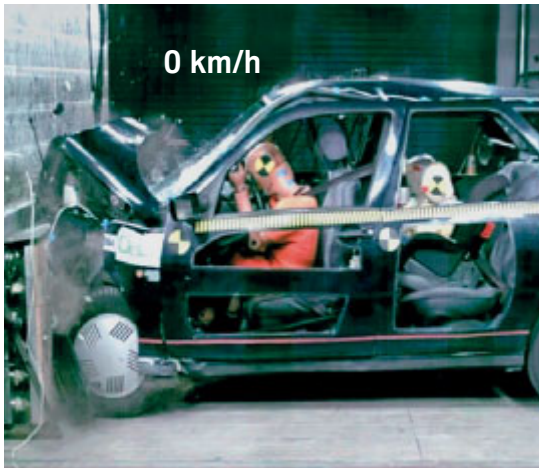
Wolfgang Kessler, freelance journalist

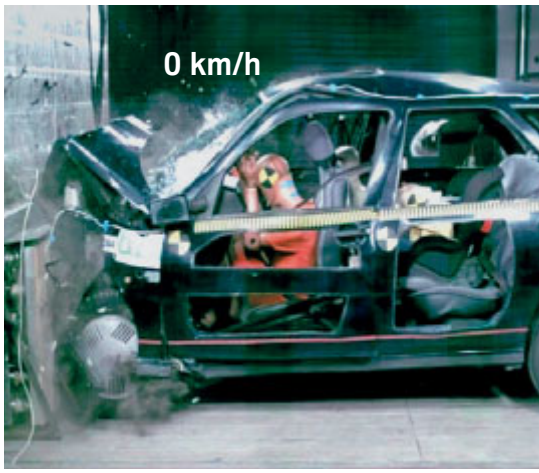
www.bast.de
www.tailored-blanks.com
www.thyssenkrupp-steel.de/auto/en

▶ The scene: A car accelerates on a concrete track. It smashes at high speed in to a block weighing several tons. Metal twists, windows burst, airbags are abruptly deployed. And in the interior of the vehicle the dummies bend far forward. ▼




Contact: **Dr. Lothar Patberg,** Auto Division, tel. +49 (0)203 52-45558, e-mail: lothar.patberg@thyssenkrupp.com
**Dr. Thomas Heller,** Auto Division, tel. +49 (0)203 52-44446, e-mail: thomas.heller@thyssenkrupp.com


◀ For painting the exterior panels of refrigerated vehicles, the Color Profit Center developed the material Pladur®E in collaboration with Schmitz Cargobull.

## Trailers, service and technology

# Double-digit growth for Schmitz Cargobull

**In the last fiscal year, trailer builder Schmitz Cargobull received numerous awards: Factory of the Year, Best Brand, Trailer Innovation Prize, Image Award and second place among the most productive German family enterprises. The secret lies in the strategy.**

In Indian mythology elephants bring luck. If you take a close look at the medium-sized business of Schmitz Cargobull, it becomes clear that the blue elephant in the logo has certainly been pulling its weight. “We are growing in double figures,” says Thomas Maschmann, General Manager Purchasing at Schmitz Cargobull, letting slip his new favorite number. “In the last fiscal year alone we increased our production by a double-figure percentage.” Year in, year out the North Rhine-Westphalian semi-trailer producer reports new record figures for commercial vehicles.

▼ Thomas Maschmann (l.), General Manager Purchasing at Schmitz Cargobull, and Dr. Marco Pfeiffer, Technical Customer Advisor at the Heavy Plate Profit Center of ThyssenKrupp Steel, have maintained a successful dialogue over many years. The Profit Center supplies PAS steels for the underframes of the semi-trailers. After all, the trailers have to carry up to 25 metric tons payload.

“It hasn't always been like that,” admits Maschmann, casting a glance at the history of the family enterprise that Heinrich Schmitz established near Münster in 1892, and in which three branches of the family still hold responsibility. “At the start of the nineties we had to restructure, and we did it systematically,” he explains. “In line with the motto ‘growth through reduction’ we completely reorganized ourselves.” Since then Schmitz Cargobull has focused on its core areas of business, building vehicles in a modular fashion like Lego and the Toyota production philosophy. There are now only four basic models: general cargo, temperature-controlled freight, bulk goods and container transport. “We used to produce rather like a major manufacturer,” he explains. Today production is industrialized and automated to a very high degree. The remaining manual work is so defined that trained staff, 1,700 of around 6,000 employees, can be deployed after a comprehensive training course lasting between two and three weeks. Sources of errors have been reduced to a minimum. They run two or three shifts. “Of course that only works,” continues Maschmann, “if we can rely 100% on the upstream work.” Because the company with its headquarters in Horstmar has production plants throughout Europe: in Altenberge, Berlin, Gotha, Toddin and Vreden in Germany; in Durham and Harelaw in Britain; in Zaragoza in Northern Spain and in



Contact: **Thomas Maschmann,** Schmitz Cargobull, tel. +49 (0)2558 81-2403, e-mail: thomas.maschmann@cargobull.com
**Dr. Marco Pfeiffer,** ThyssenKrupp Steel, tel. +49 (0)203 52-75170, e-mail: marco.pfeiffer@thyssenkrupp.com


▶ Schmitz Cargobull has relied on modular construction for years, and this requires reliable upstream work.: The production stages are automated to the maximum degree.

Panevezys in Lithuania. “All it takes is for a hole not to be drilled correctly,” he explains, “and the colleague in Zaragoza cannot screw the bolt in.” Production would grind to a halt.

And everything runs brilliantly. “More than 60,000 vehicles came off the production line in the last fiscal year,” says Maschmann with delight. And Schmitz Cargobull enjoys high demand and a good reputation. “We go for quality throughout – in all areas of the business.” Along with the development and manufacture of trailers, that also includes spares, finance, used vehicle exchange, telematics and a comprehensive service network in Europe. Quality also means durability. “To ensure that our vehicles will last for up to 20 years, we rely on materials from ThyssenKrupp Steel,” he says. The Color Profit Center has been supplying the material Pladur®E since 1999. It was specially developed to meet the requirements of Schmitz Cargobull, and is still used for the exterior body panels of refrigerated vehicles. There has also been cooperation with the Heavy Plate Profit Center for many years. Dr. Marco Pfeiffer, Technical Customer Advisor, adds: “We supply Schmitz Cargobull with heavy plate made of readily cold-formable PAS steels.” They are used, for example, for the underframe, that is the side and cross members. “These components are extremely important for structural strength,” says Maschmann. Pfeiffer adds, “Our material meets the requirements: It has good strength and at the same time it can be easily worked.”

The successful cooperation has good prospects: “We look to the future with optimism,” reports Maschmann. Despite high oil prices the demand for consumer goods is growing in Europe, and along with it Schmitz Cargobull’s market – especially in the Central and Eastern European countries. “Of the 120 kilograms that are transported every day for the consumption of each person in Germany,” he says, going into detail, “around 72% are carried by road.” These prospects are a spur to action: “We intend to continue growing in double figures until 2010, producing 90,000 trailers and achieving a 40% market share right across Europe.” Schmitz Cargobull is involved in the $CO_2$ debate in the form of the reduced unladen weight of its vehicles: “We strive continuously to save weight,” he stresses. A heavyweight used to weigh in at 7.5 metric tons, whereas today it is below 6.5 metric tons – the weight saving on the trailer enables correspondingly higher payloads for the goods to be transported.

And would the company like to go to the home of its lucky elephant? “Asia, i.e. India and China,” he says in conclusion, “are definitely the markets of the future.” He pauses. “But we are approaching them slowly, and we are still concentrating on quality and on Europe.”

Daria Szygalski

www.cargobull.com
www.thyssenkrupp-steel.de/industry


▶ Growth at Schmitz Cargobull is rising steeply. But they remain loyal to the European market and to the blue elephant.

## Cooperation between Johnson Controls and ThyssenKrupp

# Revolutionary weight loss with the EcoSpace Cockpit

**A team of experts made up of automotive supplier Johnson Controls, ThyssenKrupp Presta, which belongs to ThyssenKrupp Technologies, and ThyssenKrupp Steel has developed a groundbreaking concept for a cockpit structure. The innovation is space-saving, weight-optimized and cost-efficient.**

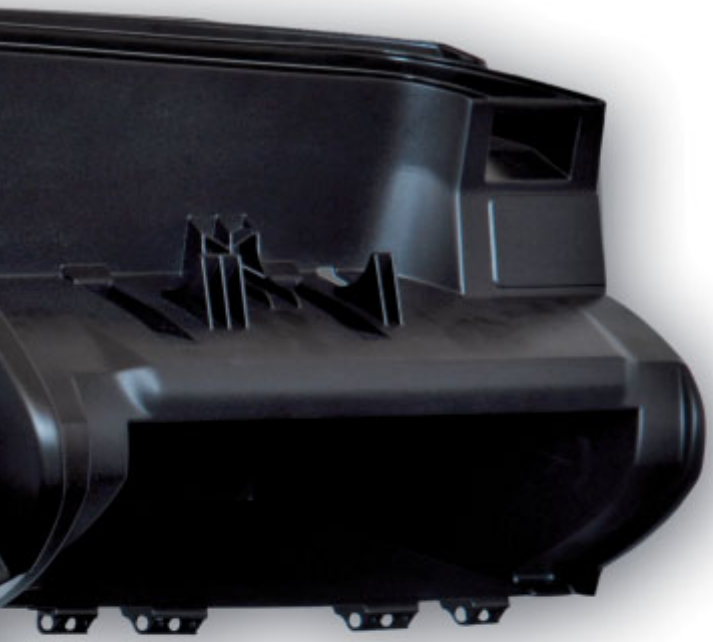
Just imagine: a steel cross car beam in the cockpit that is only half as long, only reaching to the centre of the car. It won't work? Yes it will. “Everyone is talking about lightweight automotive construction – especially against the background of the current $CO_2$ debate,” says Martin Hinz, Cockpit Structure Concept Project Manager at ThyssenKrupp Steel. “We are doing something about it.” The team of experts from Johnson Controls, ThyssenKrupp Presta and ThyssenKrupp Steel have achieved this in extremely close and intensive cooperation to produce EcoSpace, a revolutionary cockpit structure solution.

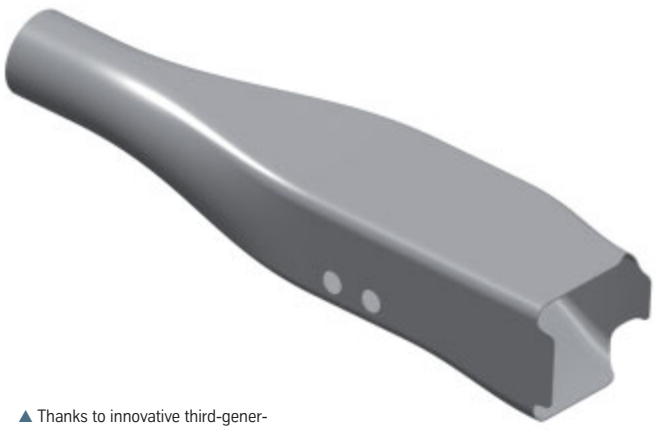
There is hardly any other area in the vehicle that offers as many opportunities for optimization. “If the engine is the heart of the car, then the cockpit is its brain,” explains the expert in lightweight construction. “This is where all the information is brought together for the driver, this is where the driver regulates speed and climate control, this is where the music plays,” he continues. It is also where the airbags are located.

▲ Finally, after two years between presentation and prototype, the fundamentally new cockpit by the name of EcoSpace is being tested for its compatibility by leading car manufacturers.

"After about two years of development work," says Hinz happily, "we were able to present EcoSpace last year at the International Motor Show in Frankfurt." Not an evolution, rather a redefinition. For better cost efficiency, for more space, for lighter weight. With the EcoSpace the cross car beam is now only on one side, the driver's side. "The special factor lies in the hybrid design, a composite structure of steel and plastic," he explains. The cross member and the steering column are made of cold-stamped, micro-alloyed steel, and the remainder is made of long fiber reinforced polypropylene, in effect plastic.

This has numerous advantages and powerful arguments in support of it. "The new solution is more than 20% lighter than the reference cockpit, with an 18% higher natural frequency." Huge differences, as Hinz stresses. The reference vehicle is a high-volume car from the lower medium-size class – models of all vehicle classes from different manufacturers were compared in the course of a comprehensive benchmarking process. "The reference product weighing 7.3 kilograms had a natural frequency – a key quality feature in the case of cockpits – of 39 hertz," he elaborates. "The EcoSpace, on the other hand, weighs only five kilograms and has a natural frequency of 46 hertz."





▲ Thanks to innovative third-generation Thyssen Tailored Tubes technology, the cockpit system, with a steel support structure essentially made up of these flangeless hollow profiles, can save both extra weight and additional manufacturing costs.

An innovation from ThyssenKrupp Steel delivers additional weight savings: the so-called third-generation ThyssenKrupp Tailored Tubes, from which the steel support structure is made. These tubes are flangeless hollow profiles with wall thicknesses and cross sections that can change over the length of the component, for example from cylindrical to tapered and on to rectangular. The cross car beam of the EcoSpace cockpit is produced directly from a blank using what is known as the T3 profiling process. This is a cost-effective manufacturing method for complex hollow profiles, in which expensive handling costs and in many cases even more expensive processes such as hydroforming are unnecessary. "Instead of the conventional seven components, only one part is now required – that alone saves 1.8 kilograms in weight." The new steering column connection from ThyssenKrupp Presta also enables it to be directly bolted on.

Despite this: "There has been no reduction in safety in comparison with the reference product in the event of a frontal or side impact," he says reassuringly. The simulations were carried out in accordance with Euro NCAP. "It is all down to the combination of materials." Cohesive strength is provided by perforated steel plates, which are placed into the mold for the plastic components and partially enclosed in plastic during the injection process. Hinz adds, "The plates are laser-welded to the cross car beam. Air ducts, airbag attachments and the glove compartment are directly integrated into the plastic component."

Where does the basic idea come from? "From Johnson Controls," he replies. "The supplier exhibited a 'half' steel cross car beam at the 2005 Frankfurt Motor Show." Following the positive response, the company set out to find a suitable co-operation partner. No sooner said than done: ThyssenKrupp. "We have exploited all potential synergies," says Hinz. "The areas of competence offered by the partners have been combined." The project benefits from Johnson Controls' many years of experience and well-established expertise in the development and production of instrument clusters and cockpits – the company is a world leader in interior design, building efficiency and energy solutions. ThyssenKrupp Presta contributes the steering column and the corresponding steering system. ThyssenKrupp Steel contributes its expertise in the areas of materials and vehicle bodies. The concept is catching on: two well-known car manufacturers are already testing its compatibility with their systems. "We intend to go into volume production from 2010," concludes Hinz.

Daria Szygalski

www.thyssenkrupp.com/fr/06_07/en/innovation.html

Contact: **Martin Hinz,** ThyssenKrupp Steel, tel. +49 (0)231 844-4574, e-mail: martin.hinz@thyssenkrupp.com
**Thomas Beer,** Johnson Controls, tel. +49 (0)2174 65-4291, e-mail: thomas.beer@jci.com

Gerhard Launer,
WFL-GmbH, Rottendorf

## Automotive market 2008

# All indicators pointing to growth

**How can it be that automobile dealers are complaining about the more than 9% drop in car sales in Germany while at the same time domestic manufacturers are celebrating production records amounting to around 5,700 million cars produced and almost 487,000 commercial vehicles? The answer is simple. German manufacturers are now exporting a good 75% of their production.**

Of course booming global demand is not enough in itself; the industry also has to offer appropriate vehicles at competitive prices. They clearly succeeded in that in 2007. In recent months, however, there have been skeptical noises to be heard, for example in the USA and Europe, with regard to economic trends. What influence does that have on the international automotive market, and in particular on the German market?

By far the greatest demand in terms of numbers is for the so-called light vehicles, LVs for short. They include normal cars as well as light commercial vehicles such as vans and SUVs. Demand has been steadily growing worldwide for years at three to four percent – a rate that will also be achieved in 2008. Expectations are that the 70-million barrier will then be exceeded for the first time, with 70.6 million vehicles sold. Growth is distributed extremely unevenly across the individual

regions of the world. By far the highest growth will be achieved in the Asian region, up over nine percent to just under 20 million vehicles, with 9.1 million LVs being sold in China alone – a growth of 15% compared with 2007. That will make China the world's second largest vehicle market after the USA.

On the other hand sales in the USA, as in the whole of the NAFTA region, will drop by over three percent. Doubtless a consequence of the financial crisis that started in the USA, but the fall in numbers is also being exacerbated by the extremely weak state of health of the domestic manufacturers, the big three of General Motors, Ford and Chrysler, with their inadequate range of fuel-saving models. LV demand in Europe is also expected to be slightly down. The fall will be a moderate one, down one percent to 16.6 million vehicles. The reasons are multilayered, as very different trends are decisive from country to country. Whereas demand will increase slightly in Germany, it will remain subdued in the other countries. Simply as a result of the cessation since March 2008 of the scrapping premiums in Italy, worth all of 800 to 1,100 euros per new registration, the sales volume will fall by more than 300,000 vehicles. Compensation for the Western European deficit will come from the Central and Eastern European countries, above all Russia, with an increase of ten percent to more than 4.8 million vehicles.

One thing is certain: Global demand for LVs will increase significantly in 2008. But which manufacturers from which countries will benefit from this rise in demand? There are several factors that decide the success or failure of a manufacturer, which as well as a good price/performance ratio also include a suitable range of models, quality, technology, design and image. In view of rising fuel prices there has in recent years been trend towards more economical vehicles. The Asian and European manufacturers with appropriate models are benefiting particularly from this trend, while the American big three are losing market share hand over fist on the domestic market. US production of LVs will fall again by three percent in 2008, down to just 10.6 million vehicles, following a drop in 2007 and 2006 totaling one million vehicles. This fall would have been even more significant if the Asian manufacturers had not compensated for some of the losses of the American manufacturers with their US plants (transplants), a situation which will continue.

Japanese and Korean manufacturers have also achieved gains in market share outside of the USA, and will increase their production by another four percent in 2008. The half million or so extra vehicles will for the most part be manufactured in their factories in the new EU states of Slovakia, the Czech Republic, Poland and Hungary, and sold on the European market.

The German automotive industry has proved successful, setting a new production record of almost six million LVs, including 5.71 million cars alone. This is amazing, as domestic demand fell by 9.2% to 3.377 million LVs, including 3.148 million cars, in 2007. It is to be assumed that demand will recover by about 4.5% in 2008, up to 3.53 million vehicles. This rise results for the most part from the fact that many purchases were brought forward to 2006 as a result of the three-percent VAT increase in 2007, and so were missing from last year's figures. This statistical effect will cease in 2008. Current orders point to a moderate recovery over the course of the year, which is confirmed by the rise in new registrations at the start of the year. A more significant market recovery is prevented, however, by the considerable uncertainty of buyers, who are confronted in the context of the particulate debate with $CO_2$ emissions and environmental zones. That mainly affects the private buyer, and to a lesser extent the business registrations that make up about 60% of the entire market.

After achieving an export quota of 75% in 2007, the German manufacturers will export about one percent fewer vehicles in 2008. The rise in demand on the global market is mainly concentrated on inexpensive and small cars, which are only produced in small numbers in Germany. The models produced here are predominantly from the compact class through to the luxury class, the rise in which is less than in the overall market. Manufacturers such as Daimler and BMW are also relocating parts of their production to the USA in order to avoid negative effects of the low dollar exchange rate. The result for the current year is stable LV production amounting to six million vehicles, representing stabilization at the record level already achieved.

In the production of heavy commercial vehicles over 6 metric tons the German manufacturers, above all Daimler and MAN, have benefited and are still benefiting from the booming demand in the new EU countries. The outdated vehicle pool and the alignment to EU standards are leading to tremendous replacement demand. In 2008 they expect record production of heavy goods vehicles amounting to around 195,000 vehicles.

To sum up: The automotive industry will exhibit sound growth worldwide in 2008, from which the Asian manufacturers will benefit in particular. But even in an environment that is becoming significantly more difficult overall, for example against the background of the current $CO_2$ debate, the German manufacturers will be able to hold their ground with their technically sophisticated models and at least achieve the record production level of 2007 again, both in the LV sector and in the commercial vehicle sector.

Dr. Michael Olbrisch

Contact: **Dr. Michael Olbrisch,** ThyssenKrupp, tel. +49 (0)211 824-36088, e-mail: michael.olbrisch@thyssenkrupp.com

## Groundbreaking ceremony: ThyssenKrupp Stahl-Service-Center

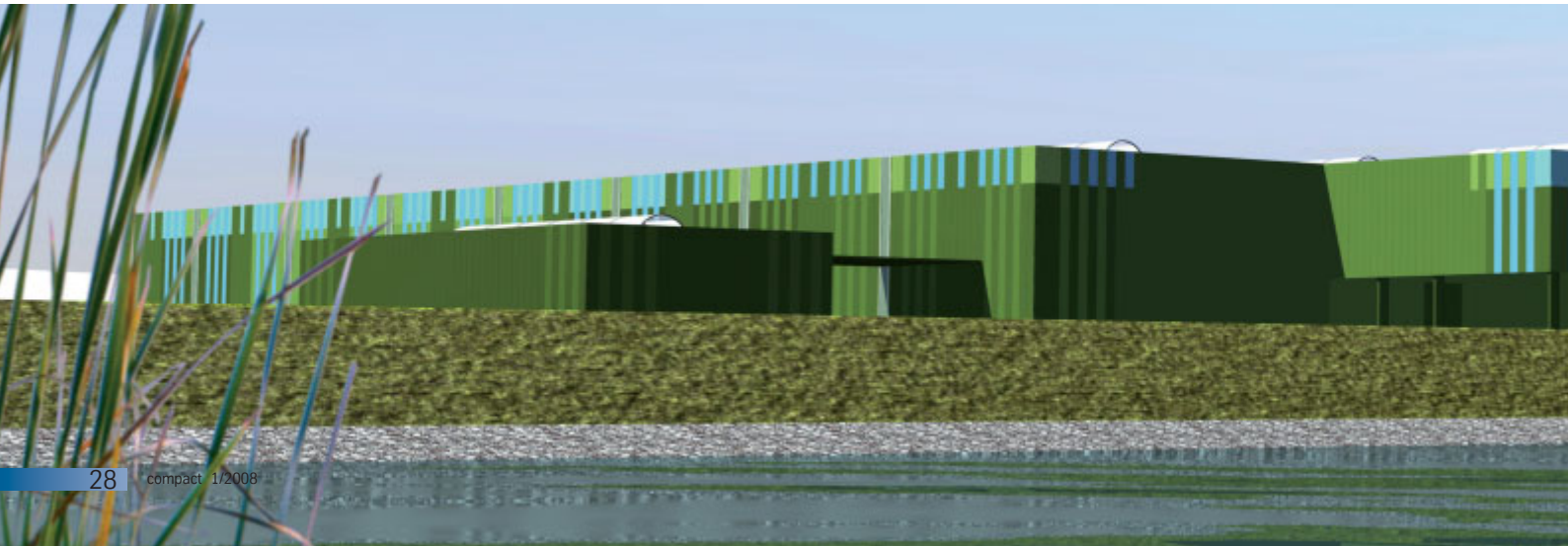
# "Krefeld stands for the future of our company"

**"In the future we intend to maintain our position as one the leading flat steel service centers in Germany and Europe," said Christian Korn, spokesman of the ThyssenKrupp Stahl-Service-Center management board, at the groundbreaking ceremony in late March in Krefeld. "The construction of our new service center underlines our focus on customer satisfaction."**

The decision to build the service center with an investment volume of 60 million euros represents an unambiguous commitment to Krefeld as business location. "We can well imagine creating up to 300 direct and indirect jobs here in the long term," said Dr. Jost A. Massenberg, member of ThyssenKrupp Steel's Executive Board at the symbolic construction start-up ceremony. "In a good eighteen months we shall be seeing the completion of a new steel service center that fits the region optimally. State-of-the-art machinery, a sophisticated logistics concept and an optimized infrastructure will be going into operation on an area of 150,000 square meters."


◀ Scheduled for completion at the end of 2009, the new flat steel service center is located directly beside the Krefeld port's turning basin. It will cover an area of 150,000 square meters and boast state-of-the-art machinery, a sophisticated logistics concept and an optimized infrastructure. Taking an active part in the groundbreaking ceremony in late March (from l.): Christian Korn, Stahl-Service-Center, Dr. Jost A. Massenberg, member of the ThyssenKrupp Steel Executive Board, Elisabeth Lehnen, managing director of Hafen Krefeld GmbH & Co. KG, Krefeld's mayor Gregor Kathstede, and Detlef Schotten of ThyssenKrupp Stahl-Service-Center.

"Our objective is to be ideally positioned for the future, and this requires us to remain competitive. We shall be advancing our quality as well as market volumes and presence in Germany in order to be even more flexible for our customers," says Korn in explanation of the steel service center project. "Here in Krefeld we will be concentrating the production operations and longstanding expertise of our three North Rhine-Westphalian branches." This is scheduled to take place at the end of 2009, when the Bochum, Breyell and Leverkusen operations will then be combined at the new location. Within this framework the current headquarters of ThyssenKrupp



Stahl-Service-Center in Langenfeld will be relocated to Krefeld. "We aim to raise the annual volume of flat steel that we currently process at the three North Rhine-Westphalian locations from 440,000 to around 600,000 metric tons." With an upward trend: "In a second phase of expansion we could raise this volume to no less than one million metric tons."

Managing director Detlef Schotten adds: "It's not just a matter of increasing capacities. The logistics set-up in Krefeld provides for transportation by rail, water and road. Our plants in Bochum, Breyell and Leverkusen do not have such transport connections for delivery to and from the production facilities. Add to this the fact that the amalgamation of operations will enable us to save on transport costs and thus also cut $CO_2$ emissions." He emphasizes: "Above all, however, the investment serves the purposes of technical enhancement towards ensuring that we are able to continue optimally meeting the demanding requirements of our customers in the high-end segment in the future as well." One example in this direction is that among the processed carbon steel flat products for lightweight construction elements in the automotive industry there is an increasing demand for slit strip and cut-to-size sheet of higher-strength steel grades and/or with increasingly large coil weights which the branch operations in North Rhine-Westphalia can only handle to a limited degree. "These are facts which we simply cannot shut our eyes to and which could lead to a loss of customers in the future if we don't take countermeasures in good time," he emphasizes. He continues that the new facility in Krefeld with state-of-the-art slit-stripping and cutting-to-length machinery is the appropriate response to this situation. "We shall soon be able to process steel sheet in body panel quality, which is something we could only do to a limited extent up to now. Besides all this, we shall be further intensifying the technical consultancy activities for our customers at the new location and their access to the application technology available in the Group framework with ThyssenKrupp Steel."

Krefeld's mayor Gregor Kathstede is also in no doubt: "Krefeld is the ideal location for this project. The city's links with steel are just as strong as its links with velvet and silk. And with the port, our highway access and the qualified workforce in and around the city, Krefeld offers the potential that global steel companies need today. Krefeld takes its responsibility to companies and to providing employment seriously, and is pleased to be able to provide ThyssenKrupp Stahl-Service-Center with the kind of locational advantages that will offer the company a good future." Massenberg stresses: "Our investment stands for progress and for economic growth, and to this end we have the right partners in the city of Krefeld and the port operator." This is underlined not least by the success story of ThyssenKrupp in Krefeld – a relationship that started over a century ago in 1900, when stainless steel was first produced in the city.

Besides the new facility in Krefeld as a component of its strategic orientation, ThyssenKrupp Stahl-Service-Center plans to expand its production capacities at the other sites as well. "We're looking to raise the output achieved with our German plants from the current level of 1.2 million metric tons to 1.4 million," said Korn on the fringe of the event, providing an insight into the overall strategy of the Stahl-Service-Center Group. Apart from this, the company already opened a new service center in Poland a year ago. "This has enabled closer proximity to our customers in Eastern Europe. We also intend to increase our market share significantly in the high-quality product sector in France as well." The program of investments totaling 100 million euros is scheduled for completion by 2010.

Christiane Hoch-Baumann

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

## The ThyssenKrupp Stahl-Service-Center Group…

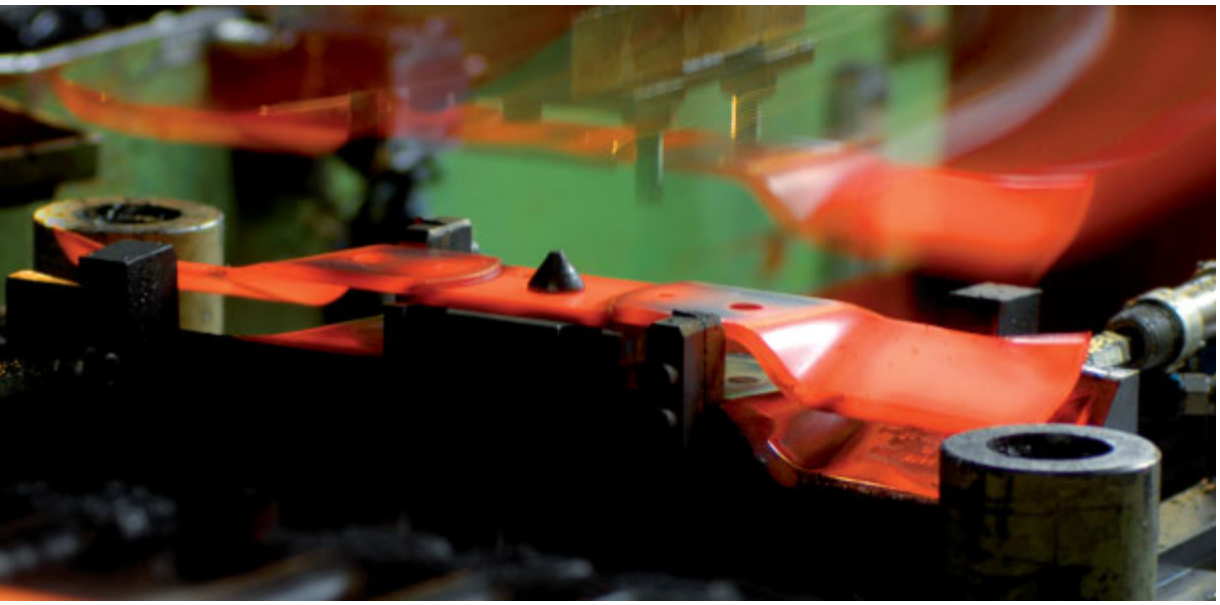
…has branches, subsidiaries and equity interests in Germany, France, Poland and Spain. It employs more than 900 people and generated sales of over 1.3 billion euros in fiscal year 2006/2007. Its services include: custom production of steel in the form of slit strip or cut-to-size sheet, management of customer supply chains, and extensive customer support including technical consultancy. The Group's processing activities cover hot-rolled, cold-rolled and coated sheet, tinplate and stainless steel.

This is how ThyssenKrupp Steel's new steel service center located right beside the turning basin in the Krefeld port area is likely to look when completed in late 2009. The current branch operations in Bochum, Breyell and Leverkusen will be united there on an area of 150,000 square meters with state-of-the art machinery, a sophisticated logistics concept and an optimized infrastructure.

Contact: **Svenja Stasch,** ThyssenKrupp Stahl-Service-Center, tel. +49 (0)2173 1061-301, e-mail: svenja.stasch@thyssenkrupp.com

## Machine blades made in Diemelstadt

# Sharp, sharper, Jäkel



◀ Family-owned company Jäkel in its third generation manufactures blades for the initial fitting out of agricultural machinery and gardening implements. All models are custom products with high standards of quality and innovation. Its production activities are now automated as far as possible.

**A family-run company in its third generation, Jäkel manufactures machine blades and wear parts for initial fitting out, and, with a successful mix of tradition and innovation, has been riding a wave of success for many years now. The boom in the agricultural sector is making for modernization and growth.**

"Things are going well," declare Frank and Udo Jäkel, brothers and managing directors of the machine blade factory of the same name in Diemelstadt. They are unable to conceal their satisfaction in spite of the modest nature attributed to the people in the federal state of Hesse from which they hail. The reasons for the company's success lie in a varied range of high-quality, innovative cutting blades and wear parts with unit weights extending from 100 g to 20 kg for applications in the agricultural and horticultural sectors.

The family-run company is not only celebrating its 80th anniversary but also an impressive set of sales figures this year. "We have doubled our sales since 2001," explains Frank Jäkel, the older of the two brothers. Both are graduate industrial engineers, but have different focal areas of activity within the company framework. The younger one concentrates on the technical aspects, the older on the economic side of things. "Exports currently account for 45 percent of our sales." Udo Jäkel adds: "And all the signs point to continuing growth, especially in the agricultural sector." The roots of this development lie in the past. Looking back, Udo Jäkel points to a black-and-white photograph on a wall in the conference room: "Our grandfather Friedrich founded the company in 1928." In the beginning the six employees sharpened tools for the quarries in the vicinity in northwest Hesse bordering on North Rhine-Westphalia. The company soon started specializing in parts for agricultural machinery. "A large number of our customers at the time were based east of us," says Frank Jäkel – in what was to become the GDR, Silesia and Pomerania. World War Two brought about a break in the company's progress. Then came the dawn of a new reality and modern times. "Our uncle Karl-Friedrich and our father Hans-Georg took over at the helm in the early 1960s," they recall. "They built up the horticultural side of the business," adds Udo Jäkel, "and a whole new customer base." In parallel with the German "economic miracle" the company advanced to become a family-run industrial business.

The third generation has headed the company since 2001. New ways of thinking, a fresh wind. "We're benefiting

from the European Union," Frank Jäkel tells us. "Our exports go predominantly to Central Europe, the Baltic states and Scandinavia." The collapse of the Eastern Bloc negatively impacted the manufacturers there too. Moreover: "Rising demand and stable producer prices are making for an upward revaluation and upswing for the agricultural sector," explains Udo Jäkel. "The demand for high-quality, high-performance machinery there has risen sharply, as is also the case in the developing countries." Whether industrial or biological, both forms of production are demanding. The company has expanded in the interests of meeting the demand and requirements among its large and diverse customer base. "Just last year, we completed the construction-related part of our modernization process," the result of which is that two new production shops were inaugurated at the branch plant in the Diemelstadt industrial zone. "This has enabled us to almost double our floor area to over 8,000 square meters." And there's still room for more. "We aim to grow further," emphasize the two. "That means more machines, but more employees as well." To this end they are above all looking to further automate the production processes and are relying on the company's present 80-strong workforce, 65 of whom work in production.

However, they do remain traditional in one respect: "We're convinced of the quality of ThyssenKrupp Steel's material," stresses Udo Jäkel. "And that's the way it's been for generations." ThyssenKrupp Steel delivers around 3,000 metric tons of steel per year to Jäkel, a hot-rolled grade customized to the company's specific requirements. End products: blades for lawn-mowers, cutting blades for agricultural machinery. "We punch, machine, form, quench and temper the steel," explains Udo Jäkel. "It is very important that this steel has high degrees of toughness and resistance to wear and tear. When used, the blades mustn't break but they must be extremely hard." All Jäkel products are customized to the customers' wishes and specifications. "We design and develop a diversity of new products every year," he says, and being able to deliver samples quickly and at short notice is an absolute must. "To this end we also need a partner that can advise us on materials." Which is what they have found at ThyssenKrupp Steel. Technical customer consultant Ulrich Blötner and sales consultant Martin Metzing, both from ThyssenKrupp Steel, nod in agreement: "We know about the requirements and the need for material innovations, which is why we work in close cooperation and contact with the company."

Two things are to remain unchanged in the future: "We aim to continue working with ThyssenKrupp Steel," say the brothers, "and the company is to remain in the family's hands."

Daria Szygalski

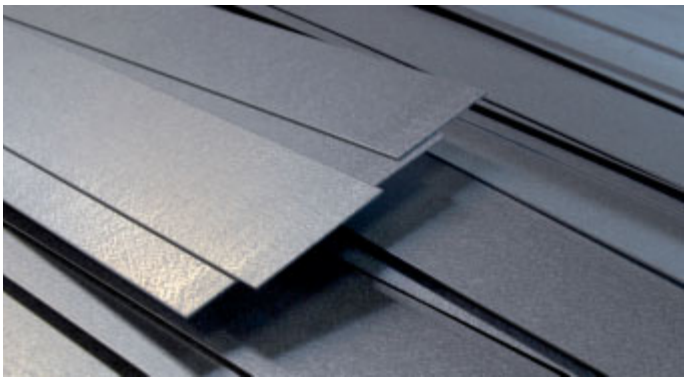
www.thyssenkrupp-steel.com/industry
www.jaekel.info

▶ Jäkel always develops new models for each customer inquiry. The firm enjoys being able to call on the competence of its supplier ThyssenKrupp Steel in material-related matters. (from l.) Martin Metzing, ThyssenKrupp Steel, Udo Jäkel, Ulrich Blötner, ThyssenKrupp Steel, and Frank Jäkel have worked for years in close cooperation.


▶ Above all the agricultural machinery sector is booming. The managing directors have initiated an extensive program of modernization to cover the rising demand. This is the new factory shop, which has a lot of space for further growth.

Contact: **Ulrich Blötner,** ThyssenKrupp Steel, tel. +49 (0)203 52-27933, e-mail: ulrich.bloetner@thyssenkrupp.com
**Frank Jäkel,** Jäkel GmbH & Co. KG, tel. +49 (0)5642 6008-8, e-mail: frank.jaekel@jaekel.info


▲ The brand name Variant of Danish manufacturer De Forenede Trailerfabrikker, in existence since in 1975, is firmly established along with the name DanTrailer



▲ Galvalume® sheet from ThyssenKrupp Steel is used for the side panels.

▼ Frans Jørgensen, ThyssenKrupp Stål Danmark, Keld Buhl, sales manager De Forenede Trailerfabrikker, Lars Bach, sales manager Sanistål, Ole Knudsen, Purchasing De Forenede Trailerfabrikker, and Axel Duhr, technical consultancy ThyssenKrupp Steel (from l.) have been working together for four years.

## Family-run company with tradition

# Danish success story with car trailers

**De Forenede Trailerfabrikker is Denmark's second largest car trailer manufacturer. It has been manufacturing high-quality trailers in Vejle for 32 years. One of its top sellers is a garden trailer with side panels of Galvalume® from ThyssenKrupp Steel.**

Rectangular, practical – car trailers. "We are a family-run company," begins Keld Buhl, sales manager at De Forenede Trailerfabrikker in the Danish town of Vejle. "We have been manufacturing quality trailers since 1975 for hobby use, horse and boat transportation and for the industrial sector." He continues talking about the company's history on a guided tour of the plant premises. "My father Nils Buhl and his brother Jens built the first model in a garage," he tells us in fluent German. "They sensed a new market in the wake of an easing of the regulations on car trailers."

That was the birth of the brand name Variant. It was quickly followed by the second brand Dan Trailer and later Modulvogne. For years, each of the names had its own production facility, but today they are united under one roof. "The first models had wooden sides and floors and a profile of yellow-painted sheet steel," adds sales manager Ole Knudsen, likewise in fluent German. Then came a further market innovation, namely the use of hot-dip galvanized steel in car trailers. "We were the first in Denmark to offer this," enthuses Buhl. The success story took its course.

"Our product range today is matured and technically sophisticated," says Knudsen. "With our 60 models we cover 95 percent of the market offering." He has a soft spot for figures, and continues: "We produce around 16,000 trailers per year."

Buhl nods and smiles. After all, he knows that this a highly demanding aspect. "We are not doing mass production", emphasizes Buhl. "We build each trailer manually, screw for screw." Around 80 of the company's 100-strong staff work on standard assembly. "They complete up to 100 units per day," says Knudsen. Now our "guides" are in the production shop. Music from the radio, red overalls, blue safety shoes. 300 completed trailers are waiting outside in front of the workshops, gleaming in the sun.

One model stands out in terms of numbers. As Buhl explains: "At 5,000 per year, the 205 S1 garden trailer is our top seller." The secret behind this success lies not only in price – the company has left the prices for all of its models unchanged for ten years – but in material. For instance: "We get the sheet for the side panels from ThyssenKrupp Steel," says Knudsen, who calls on the services of around 100 suppliers throughout Europe. "We are impressed by the Galvalume® material." Having arrived back at the office, he pours himself a cup of coffee from a pot.

"Galvalume® is a steel sheet grade with a coating comprised of 55 percent aluminum and 43.4 percent zinc," explains Axel Duhr, technical customer consultant with ThyssenKrupp Steel, "and it not only has an aesthetically pleasing surface but also excellent corrosion protection, three times greater that that of hot-dip galvanized sheet." Duhr looks over to Knudsen. "The side panels are what you see first, so the appearance is very important, and the durability this material offers is unsurpassed," as Knudsen tells us. ThyssenKrupp Steel has been supplying Galvalume® coils for four years, via – as is customary in Denmark – a wholesaler, in this case Sanistål. 60 per cent of the models are built with Galvalume®. "We have a high opinion of ThyssenKrupp Steel; not only in terms of material quality because, after all, we are dependent on high-quality and reliable suppliers," says Buhl, "but also because it's a company with a wealth of know-how."

De Forenede Trailerfabrikker is Denmark's second biggest trailer manufacturer nowadays. "Our main market is right here in Denmark," reports Buhl, and the brand names Variant and Dan Trailer have now become firmly established. "In the future we aim to grow in Norway and Sweden, especially with boat trailers." However, growth is not the be all and end all for Buhl nor for his uncle and cousin, both of whom are now managing directors of the company. "We optimize up to ten models per year," he stresses, with particular attention being paid to the quality of the parts and the safety provided by the axles, brakes and coupling elements. "We do everything possible to ensure a service life of up to 25 years," say Buhl in conclusion.

Daria Szygalski

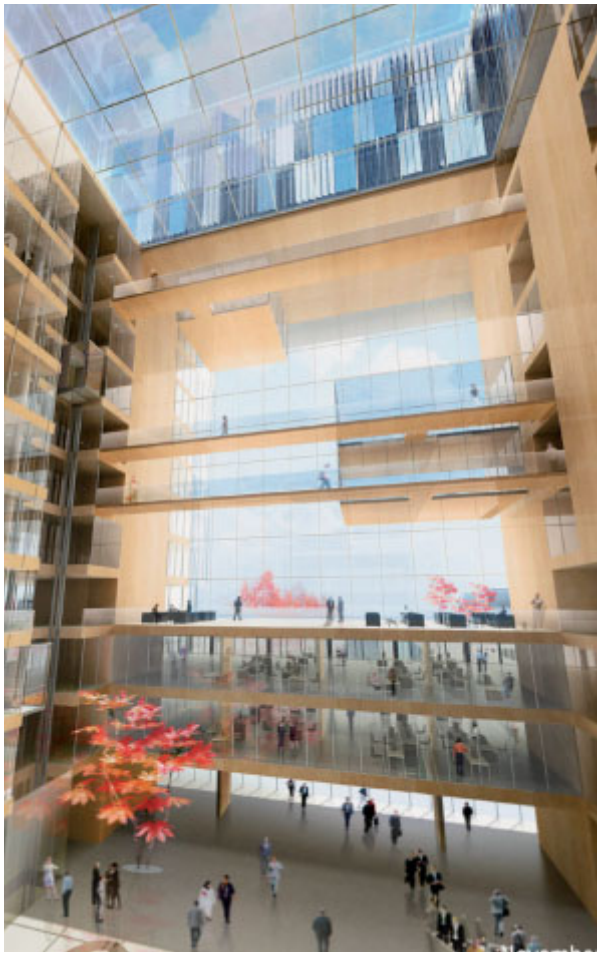
www.variant.dk
www.dantrailers.dk
www.modulvogne.dk
www.thyssenkrupp-steel.com/industry

Contact: **Keld Buhl,** De Forenede Trailerfabrikker, tel. +45 757204-00, e-mail: kb@trailerfabrikken.dk
**Axel Duhr,** ThyssenKrupp Steel, tel. +49 (0)203 52-40794, e-mail: axel.duhr@thyssenkrupp.com

## The architect – a steel fan

# Stretching and stamping material to its limits

**Planning and building with steel – these two activities come together in the new ThyssenKrupp Quarter in Essen. The future Group headquarters complex has been designed by Chaix & Morel, the globally respected Paris-based firm of architects. One of the firm's founders is Philippe Chaix, who, together with Wolf D. Prix and Helmut Jahn, belongs to the elite of international architects. At home in Paris, Vienna and Chicago respectively, each of the three architects has a completely personal approach to modern architecture, to building with steel, and to the act of designing.**



What is modern architecture? Does it have a message? Prix: "It certainly does. Architecture is the three-dimensional expression of our culture. It's a matter of aesthetics, with shapes and forms playing a major role. As architects, we have the special task of thinking across frontiers and into the future. Otherwise the buildings that are built are already out-of-date before they're completed."

Chaix sees a building as a bit of philosophy on life. "Each building is an expression of a specific message via itself, via its existence – because it is what it is." In his opinion, architects provide solutions to problems, and that too has something akin to philosophical work.

Jahn champions the cause of minimalism. "Perfection has been attained when there is nothing more that we can do without, that we can take away." As he sees it, architecture should orientate itself less to design in the conventional sense. "Modern architecture is first and foremost based on the collaboration between engineer and architect. Both disciplines have to be better linked together in order to make the construction work more efficient and, above all, to make it more efficient in the face of the ecological and energy-related challenges." Jahn, who is a member of the classic modern school, aims to continue something that has proven itself and will still be in existence for decades to come. "The important thing is how a building proves its worth, whether people still like seeing it in 20 or 30 years, and whether it delivers what it promised."

Wolf D. Prix regards it as a matter of course to have sustainability in mind, first and foremost where the energy concepts are concerned. However, he is rather critical where linking this line of thought with durability is concerned. "Sustainability must not be allowed to

◀ **above:** The Post Tower designed by Helmut Jahn forms the headquarters of logistics group Deutsche Post AG. **below:** The Ufa-Kristallpalast is a cinema complex designed by Wolf D. Prix and located in downtown Dresden. The blueprint for the building originated in 1997 and 1998. **right:** The winning design for the ThyssenKrupp Quarter in Essen came from Philippe Chaix.

go in the direction of 'this has got to last for a thousand years'; there is often some confusion between the concepts of sustainability and durability." He belongs to the Deconstructivists in the world of architecture, and sees the expanding of architectural frontiers as a wholly decisive task: "An architect must finish building the Tower of Babel. If we don't do that we will soon become mere subcontractors whose activities equate to the highly respectable profession of plumber. I think that what we have to do today is reintroduce a "confusion of tongues" so that a new form of the Tower of Babel can come into being on the basis of this creative potential generated by the chaos." Modern architecture is a balancing act between a "creative potential of chaos" and the endeavor to link the classical with the modern with a rather reduced aspiration to design.

"We have completely different directions in architecture today, and that makes it so interesting, opening up the individuality of each project, irrespective of whether – as we at our company have done – it is an archaeological museum or a building for automobile manufacturer Renault that is being constructed. One project is never the same as another," enthuses Philippe Chaix. For him, as is the case with his colleagues, steel plays an important role in building. The Chaix & Morel architectural firm is using concrete and steel for the structural framework in the new ThyssenKrupp Quarter. "The Quarter's forms and structures have a lot to do with the message that the Group itself sends out, namely that of a cosmopolitan, research-orientated technology corporation. We are using a lot of glass for the purposes of showing and emphasizing this openness, taking account of strict energy-related specifications and terms of reference. By doing so we achieve a great degree of transparency between interior and exterior, the park." The building structure is based on a geometrical concept, which in turn is based on a simple, abstract L-shape. The volumes thus created will be clad with highly varying metallic facades which stretch around the building like a steel skin, to which end stainless steel is being used. "We are building with a variety of materials from ThyssenKrupp, on the one hand for identity-establishing purposes and, on the other, to show and make use of the Group's enormous potential," says Chaix.

Building a soccer stadium showed Philippe Chaix's architect team the effects that surroundings can have on people's sentiments and behavior. The stadium they built is the arena in Amiens – consciously designed as an alternative concept to that of the Parc des Princes stadium in Paris. "We had a look at the stadium in Paris and were quite taken aback at the violence there. In our opinion it is not inconceivable that part of the fans' aggressiveness also stems from the architecture; heavy concrete construction, very closed in, like a huge cauldron." Chaix built the stadium in Amiens to have a bright atmosphere, with a transparent roof, a lot of light, few walls and with a view of the countryside, the intention being to give not only the players but also the spectators the feeling of being out in the open air. Chaix used steel and glass for the stadium's construction. "I love steel. We use it predominantly as a material, and it enables the realization of projects with a very light transparent effect. A lot of elements can be prefabricated and assembled on-site, and that makes for a quick building process."

"I'm a steel fan," stresses Prix too. "But we don't use it exclusively. I build just as much with concrete and synthetic materials. It's always worth a try at bending and pressing the material right to its limits to form dynamic forces and thus develop new spaces." At his COOP HIMMELB(L)AU studios in Vienna he employs in-house research groups that search for new materials and investigate their load and stress-bearing capacities. "I would like to build glass roofs without – or as the case may be, with very few – structural elements. That would be a research assignment for steel and glass: how do I make spans that are larger than 1.50 meters without primary and secondary but only with a tertiary structure?"

Helmut Jahn on the selection of materials: "This is not a question of faith." A large number of buildings today are composite structures – some parts of steel, some of concrete, like, for example, the Deutsche Post AG building in Bonn or the Bayer Group's headquarters in Leverkusen. The best possibilities offered by concrete – namely in terms of pressure-bearing capacity – and by steel – namely in terms of tensile strength – are employed and enable highly efficient structures. In the USA the decision between concrete and steel is definitely a matter of which is more expensive. "Steel has always been more difficult than concrete where residential buildings are concerned: the latter requires fewer technical installations since supply lines can be built in directly.

## Philippe Chaix

The French architect was born 1949 in Saint-Mandé. He took and passed his exams in Paris and Nancy in 1972. Having studied for a further year in Finland, he then worked with stage designer Bernard Guillaumot and in 1976 set up his own architect's office. The collaboration with colleague Jean-Paul Morel – on, for example, the designing of the "Le Zenith" concert and event hall in Paris – led to the establishment of "Chaix & Morel" in 1984, based in Paris and now one of the most renowned firms of architects in France. It is managed by a board of directors comprised of five partners of various nationalities, including the two founders. The firm's activities range from urban planning through to furniture design. The biggest project to date is the design and development center for automobile manufacturer Renault in Guyancourt near Versailles. Further notable projects in which the company was involved include the Olympic Stadium in Cape Town, the Alsace regional government's headquarters in Strasbourg and the extension and renovation of the "Petit Palais" on the Champs-Élysées in Paris. Planning is currently in progress on the rail station quarter in Luxembourg, the headquarters of the French Postbank in Paris, and the ThyssenKrupp Quarter in Essen.

## Helmut Jahn

Born in 1940 in Zirndorf near Nuremberg, Helmut Jahn studied architecture in Munich and at the Illinois Institute of Technology in Chicago from 1960 to 1967. There, he made the acquaintance of the last Bauhaus director, Ludwig Mies van der Rohe, who died in 1969. In 1967, Jahn was recruited by the latter's renowned practice, C.F. Murphy & Associates in Chicago, where he went on to become one of the most sought-after architects in the USA. He is regarded as a representative of classical modernism and of functionalism. Since 1981, the company has been operating as Murphy/Jahn. The German architect has lectured at various American universities, including Yale and Harvard. Famous projects include the State of Illinois Center in Chicago (1979 to 1983), the Frankfurt Messeturm [Exhibition Tower] (1988 to 1991), the Sony Center and Bahn Tower [Rail Tower] in Potsdamer Platz in Berlin (1995 to 2000), the Post Tower, the corporate headquarters of Deutsche Post World Net in Bonn (2000 to 2002) and Bangkok Suvarnabhumi Airport (2002 to 2005). He is currently designing the Weser Tower in Bremen and the "Sign" high-rise building in Düsseldorf in Germany.

Steel requires provision for an additional component." In contrast, steel is the material of choice for office buildings, and especially where halls with large spans are concerned. With his Chicago office C.F. Murphy & Associates, Jahn designed the State of Illinois Center in Chicago in 1979, a building that remains impressive to this day and was built using a very large amount of steel for precisely these reasons.

How has the way that architects work changed in recent years? "The first designs are done by hand; then you work on the computer and go back and forth making changes," says Chaix. It is true that during training, students of architecture now start with programs and only draw afterwards, but that is not the way that his studio operates. "The form of a building does not come from a computer program, it comes from your head."

Drawing also comes first for Prix, "because it is not yet possible to replace the mind of an architect by a computer. The thought processes and, above all, lateral thinking are still the preserve of our brains. However, the computer is a useful tool, which offers an infinite number of possibilities when it comes to translating our ideas into reality. Not using a computer would be like driving a Porsche at just five kilometers per hour." Prix is currently involved in the construction of a high-rise building where deformations caused by the wind were already allowed for as early as the design stage. As a result, it will be possible to open the windows on the very top floors, 100 meters above ground-level. It would not be possible to draw this; this idea had to be translated into reality on the computer.

It is said of Jahn that drawing used to be an obsession for him. There was one occasion where he hung the sketches that he had produced during a transatlantic flight next to the designs already submitted by his practice in a competition. "For me, drawing is the same thing as thinking. However, nowadays I only draw when I know what I want. It is no longer just a case of drawing an idea for a building, but also its construction and facade." If he were to sit with his employees on a project, drawing would be done constantly and afterwards the sketches would be exchanged, in order to continue working on them. "The good people have a computer in front of them and a drawing board behind them. There are some forms which could not have been built without technology even a few years ago; the result of this is an incredible number of construction possibilities and strategies. Again and again I ask myself the question: Do I have to build everything that has been made possible by the computer?"

The fact that modern architecture is able to produce such varied forms and styles is also due to the different ways in which architects are answering this question and making these possibilities a reality. "The really good architects are all sufficiently great to be able to live with the fact that other architects produce excellent work as well," explains Jahn. Chaix, Prix and he are all professionals. They know that they will soon meet and compete against one another, if an international competition involves the construction of a museum, an airport, an event center or a business complex.

Interviews and text:

Dr. Bettina Wieß, business journalist

## Wolf D. Prix

Born in Vienna in 1942, he studied architecture in his home town and then went on to further studies in London and Los Angeles. Together with Helmut Swiczinsky, he founded the COOP HIMMELB(L)AU practice in Vienna in 1968, which was supplemented by another office in Los Angeles in 1988. They initially dedicated themselves to experimental architecture and Prix lectured at the Architectural Association in London, for example. The office has become an important representative of deconstructivism. Since 1993, Prix has been a professor in architecture at the University of Applied Arts in Vienna and has since been a guest lecturer at numerous universities. In 1996, the practice represented Austria at the Architecture Biennale in Venice. The practice's best-known projects include the SEG apartment block in Vienna (1994-1998), a competition entry, and the second prize for the Great Egyptian Museum in Cairo (2002/2003), the Akron Art Museum in Ohio (2001-2006) and the Busan Cinema Center in Busan, South Korea. In October 2007, "BMW World" opened in Munich. 2008 should mark the completion of the Musée des Confluences in Lyons and the start of construction on the new building for the European Central Bank in Frankfurt am Main.

## School, university, industry

# Strategic solidarity in competition for talent


**There has been a longstanding cooperation between ThyssenKrupp Steel and the RWTH University of Aachen, for many years with no specific contractual basis. This interaction has become the accepted "school of thought" nowadays because, in addition to students, it is now involving school pupils as well. In the case of students, the cooperation serves to awaken an early interest in the company, whilst in the case of school pupils, the cooperation demonstrates how technology can be fun and, where possible, promotes the study of engineering relating to steelmaking.**

How large is a nano? Can steel float? Is it possible to build cars out of Coca-Cola cans? Several children are asking these and other questions, and many adults will also find the answers exciting.
The right place to get the answers to questions like these, which are appropriate for young people, is ThyssenKrupp's third Ideas Park.

It will take place from May 17 to 25 – this time in Stuttgart. As always, admission is free. The idea behind the Ideas Parks is to open up a world of technical experiences to young and old alike, and not just for freaks – on the contrary.

Innovations and their development processes are explained with the greatest of ease using exhibits and are illustrated by means of experiments in such a way that they can be understood even by pre-school children. 500 researchers, inventors and students, including professors, lecturers and advanced students from the Rheinisch-Westfälische Technische Hochschule Aachen (RWTH for short) will be on hand at the 2008 Ideas Park. ThyssenKrupp Steel is also making it possible for these experts to be present in Stuttgart.

After all, the steel company cooperates closely with the Aachen-based university, supporting researchers, educators and students in both word and deed as well as with financial resources.
However, this is no one-way street, as is demonstrated by the cooperation agreement which was concluded in 2003 under the overall control of ThyssenKrupp, the aim being to make the exchange of knowledge and experi-

◀ A creative exchange of knowledge between science and industry is the very essence of the cooperation agreement, which is why ThyssenKrupp Steel provides support for doctorates and dissertations. In addition, the parent company, ThyssenKrupp, awards a prize for the best first degree completed in the shortest time, rewarding the winner with financial assistance up to completion of his/her degree and nominating a director or board member of a Group company to act as his/her mentor.

ence more systematic and to intensify it through joint actions. The cooperation agreement focuses explicitly on the engineering sciences of mechanical engineering and steel construction, metallurgy and materials technology, and industrial engineering for materials and process technology – i.e. the important disciplines for a steel forge.

"Students can only benefit from support from a global player," stresses RWTH professor Dr. Dieter Senk. He is the current incumbent of the iron and steel metallurgy chair of the Institut für Eisenhüttenkunde [Institute of Ferrous Metallurgy] (IEHK). In addition, Senk coordinates the joint venture on the part of the RWTH. "The official nature of our cooperation allows us to place particular trust in our exchanges with the men and women of ThyssenKrupp Steel, making them all the more fruitful. The increased interaction helps us immensely in carrying out our research projects.

The benefits for the company are obvious. "Know-how is quickly and systematically transferred from science to practical implementation, which increases our competitiveness and, in the final analysis, benefits our customers," says Dr. Peter Biele, Head of Technical Customer Care at ThyssenKrupp Steel and Cooperation Officer for the RWTH. One of the top projects is the casting of 100 kilos of special steel under very clean conditions, in a situation approximating reality, in the IEHK's vacuum steel center. The aim of this is to work on the further development of steel materials and optimum production conditions. The researchers, led by Professor Dr. Wolfgang Bleck, Director of the IEHK, share their findings with experts from ThyssenKrupp Steel, for instance in the Materials Center of Excellence. Another project is the OxyCup® shaft furnace, an innovative recycling unit.

Biele refers to the other major advantage of the cooperation. "We have a lasting presence among potential service providers." This is a must for a discriminating employer in order to win the battle for talent. "Especially since the number of up-and-coming engineers is at present very low," adds Senk. The contact is maintained in very different ways: for example, ThyssenKrupp Steel experts give lectures such as, for instance, Dr. Peter Schmöle, who is currently lecturing on blast furnace technology.

In addition, ThyssenKrupp also provides special support for foreign students, who have already gained their bachelor's degree, who then spend a further four semesters studying at the RWTH for their Master of Science and who need an industrial placement for their period of practical experience. Professor Senk is delighted that these placements are offered by the cooperation partner – "including expense allowances." However, the company also assists with travel expenses when Aachen's young engineering talent goes on trips to China, in order to look at modern steel mills there. "Traveling is also a way of gaining intercultural experiences. These are essential in an international profession," says Biele.

Financial assistance is also provided to allow future iron and steel metallurgists

▶ The Einhard Gymnasium high school in Aachen also has a cooperation agreement with ThyssenKrupp Steel. The teenagers gain an insight into steelmaking during factory visits – right at the blast furnace. This is how many a high school student discovers his dream job of being an engineer.

◀ Amazed kids: Previously, the pupils of Einhard Gymnasium high school had taken part in the First Lego League and designed and programmed robots that were so clever that they were able to perform tasks relating to renewable energies on a playing field. As a result, they also took part in the 2007 Lego League competition, which was organized under the slogan "Power Puzzle".

to attend meetings of international steel professionals. After all, the aim is to allow students to attend these conferences in order to extend their knowledge and to network in a situation approximating practice. It was such a conference that saw seven RWTH students traveling to Warsaw last year to an event organized by the ESTEP, the EU's steel platform. In the fall the industry will meet for the annual Aachen Steel Conference. ThyssenKrupp will again make it possible for students to attend as fully-fledged professionals at minimal cost. Last but not least, the company is the main sponsor each year of the RWTH's ice hockey tournament where the "steel students" take to the ice as the "Steelers" and bring the stadium to boiling point.

In addition, the Einhard Gymnasium in Aachen has been involved in the cooperation for several years through various measures – and this has resulted in the success of the triad of industry, university and school which is so often urged. "It is our aim to make school pupils enthusiastic about the natural sciences at an early stage. If they subsequently go on to study engineering, so much the better," says Dieter Kroll, HR director at ThyssenKrupp Steel.

And this is where we come full circle to the Ideas Park, since ThyssenKrupp Steel is not only supporting those involved from the RWTH, but is also inviting the pupils of Einhard Gymnasium to the event, which lasts several days and will feature hands-on technology exhibits as well as experiments, etc. which visitors can join in with. Teacher Peter Köster enthuses: "In this way everything overlaps – the event which demonstrates how interesting the world of technology is and the cooperation which highlights how exciting the engineering professions are." And who knows? Maybe the students' curiosity regarding nanos and cars made from Coke cans will lead some of them to study the natural sciences – and then to a job with the technology company, ThyssenKrupp, and its important steel division.

Ulrike Wirtz, freelance journalist

## School students in touch with steel

The aim of the cooperation with the Einhard Gymnasium is clear – to make young people enthusiastic about the engineering sciences at an early stage. "The Elementary School Researchers campaign, which is operating under the direction of the high school, fits in perfectly with this. We are providing financial assistance for the campaign," says Verena Hinse, personnel strategist at ThyssenKrupp Steel and Cooperation Officer for the school

Other events associated with the Einhard school include plant visits as well as round-table discussions on the subject of ethics in business with experts from ThyssenKrupp Steel. Every year, the high school pupils establish a real company as part of "Junior" – "with an entry in the commercial register, business report and of course a business idea," stresses Peter Köster, teacher and Coordination Officer for the high school. The good thing is that the pupils can present their product, together with the marketing strategy, to the professionals of ThyssenKrupp Steel, and evaluate its market prospects, whether it is a USB stick with an advertising message or, as is currently the case, protective covers for files. As Köster says, "In this way our pupils are learning presentation techniques, communication skills and, above all, social skills."

ThyssenKrupp Steel also provides support in both word and deed, so that the Einhard Gymnasium can take part in the First Lego League, a worldwide competition for 10 to 16-year-olds. Not only has the school been taking part in this competition for three years, but it has been operating as a regional host for approximately 20 teams for two years. The task for 2008 is "Climate Connections". The teams are to find out why many experts believe that the earth's climate is changing and how the changes will affect life on earth.

▲ Elementary school researchers campaign: Year 4 Pupils from the Grundschule am Römerhof elementary school have been turning up at the Einhard Gymnasium every week for three months, carrying out experiments under the supervision of teachers and senior grade pupils and have, in the process, been on the trail of the natural sciences. The experiments lessons will shortly be offered to even more elementary schools in the region.


Visit us in Stuttgart
at the **2008 Ideas Park**
from May 17 – 25, 2008
at the Stuttgart Exhibition Center.

# Agenda

**Technology presentations at automobile manufacturers**
ThyssenKrupp Steel and ThyssenKrupp Technologies will be presenting their automotive expertise by means of selected automotive components and assemblies as well as technical lectures from **May 6 – 8** at General Motors, Warren, Michigan USA, on **May 29** at Nissan, AtsugiCity, Kanawaga, Japan and on **May 30** at Toyota, ToyodaCity/Aichi, Japan.

**ThyssenKrupp Ideas Park**
**May 17 – 25, 2008, Stuttgart**
There will be a shortage of engineers and natural scientists in Germany in the next few years. ThyssenKrupp is responding to this challenge with its world of technology experiences, the Ideas Park. The aim is to make young people enthusiastic about technology and the natural sciences. It is taking place for the third time, this time at the Stuttgart Exhibition Center, in cooperation with the state of Baden-Württemberg. Universities, research institutes, researchers, engineers, inventors, students as well as well-known TV presenters will be on hand to entertain and instruct visitors. Numerous workshops and experiments as well as exciting exhibits by ThyssenKrupp Steel and other Group segments will round off the program. Admission is free.

**CWIEME**
**June 10 – 12, 2008, Berlin**
The largest exhibition and conference for wire-wound coil, insulation and electrical manufacturers, CWIEME, will be opening its doors again in the summer. The European Union is the world's largest market for electrical appliances, devices and applications; the European electrical and electronics industry is larger than the North American and Japanese industries put together. ThyssenKrupp Steel and ThyssenKrupp Electrical Steel will be presenting applications for grain-oriented and non grain-oriented electrical steel strip in the capital.

**Eurosatory**
**June 16 – 20, 2008, Paris, France**
The security technology exhibition in the north of Paris is the world's largest exhibition of its kind. ThyssenKrupp Steel's Heavy Plate Profit Center will be exhibiting the security-related steel grade, Secure M, together with UnionStahl Duisburg.

**62nd IAA Commercial Vehicles**
**September 25 – October 2, 2008, Hanover**
ThyssenKrupp Steel will be presenting technical highlights of commercial vehicle body construction at a 400-square meter booth in close cooperation with its sister segment Technologies at this year's Commercial Vehicles exhibition in Hanover.

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

# Echo

**The site is secure**
With its new walking beam furnace ThyssenKrupp Steel is declaring its support for production in Bochum. The enormity of this investment has to be fully appreciated: a globally operating group (….) is securing the future of 2,550 jobs. (…) Costing 50 million euros, the furnace is the core of a 100 million euro investment in the (…) plant.
Ruhr Nachrichten, March 12, 2008

**Tailor-made steel**
**"Tailored blanks" reduce car weight by 20 percent**
In the last twenty years tailored steel sheets have become a magic formula for reducing weight, saving gas and optimizing crash properties in automobile manufacture. According to safety expert Markus Bröckerhoff, the introduction of tailored blanks is "one of the major innovations of recent decades."
HANDELSBLATT, March 24, 2008

**Steel giant building beside turning basin**
Groundbreaking ceremony: ThyssenKrupp Steel is investing 60 million euros in the new Steel Service Center at Krefeld port. Mayor Gregor Kathstede put it in a nutshell: "It is much more than just a groundbreaking ceremony. It is a victory for the city of Krefeld and the new port operating company, but also for the citizens of Krefeld, and one which cannot be rated too highly."
Westdeutsche Zeitung Krefeld, March 27, 2008

Thinking the future of steel

**ThyssenKrupp** Steel