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3/2006 The company magazine of ThyssenKrupp Steel

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ThyssenKrupp Steel goes global

Company invests in international growth

Bau 2007
Steel makes a big show

Peugeot Citroën
Confidence in new steel grades

Thinking the future of steel

ThyssenKrupp Steel

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

About our cover picture:

The foundation stone for the Forwards Strategy from ThyssenKrupp Steel was laid by top Brazilian politicians and the management of ThyssenKrupp in Rio de Janeiro state at the end of September. By building the new steelworks in Sepetiba, the Group is putting into practice its ambitious objectives, adopting a leading position on both sides of the Atlantic and using its opportunities in both the European market and the Nafta region.

impressum

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

Publisher:
Board of Management/Marketing

Editorial team:
Rolf-J. Neumann (legally responsible)
Board of Management/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)
Communications/Public Relations
Phone: +49 (0)203 52-24515
Fax: +49 (0)203 52-25707
E-mail: christiane.hoch-baumann@thyssenkrupp.com

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

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"We are currently looking at the best ever result in the company's history and are continuing on the path to success with our Forwards Strategy."

Dear Readers,

At the end of what has been for us a very eventful 2006, we can look back on the best results ever achieved in the company's history and in the quality flat steel business. Our efforts continuously to improve our performance and the positive market environment have underpinned our success. On this basis, we can look forward to the future with confidence. This is not least because we are working as hard as possible to eliminate bottlenecks. Unfortunately, these mean that, although we are supplying our customers with the usual quality, we are unable to deliver the quantities that they are calling for.

Our Forwards Strategy involving the building of a new steelworks in Brazil and many measures to increase the efficiency of our plants in Germany will eliminate this problem. We laid the foundation for this close to Rio de Janeiro at the end of the 2005/2006 business year. In the title story, you can read in detail about the outset for our most ambitious investment project for many years: the start of production steelworks in Sepetiba, costing 3 billion Euros, as well as the market opportunities in Europe and the Nafta region that we intend to exploit with this major project. In Europe, the additional slab capacity from Brazil will enable us to eliminate bottlenecks. The Nafta market is interesting for us because ThyssenKrupp Steel can bring to bear the strengths of its product portfolio there, and the prospects for the market segment in the high-end sector are very promising. The takeover of Dofasco, a policy we are continuing to pursue, would represent a step in this direction. Our alternative, namely building on a green field site in the south of the USA, is being pursued with great assiduousness in parallel.

In addition, we report on the reorientation of the Construction Elements Group of ThyssenKrupp Steel and present new product highlights from which, incidentally, will also be on show at the Bau 2007 trade show in Munich this coming January. There is also an article on the properties of our new TriBond® product, and another report takes you to Dubai where the tallest skyscraper in the world is currently being built.

As usual, our topics are very varied and also address the multi-faceted product and application spectrum of the Industry Division as well as the Color Profit Center. We also deal with the excellent cooperation with the automotive industry and provide you with information relating to all aspects of packaging made from steel, for steel.

Please allow me to wish you a Merry Christmas and a Happy New Year for 2007 on both my behalf and in the name of my executive colleagues and the editorial team.

Yours,

Dr. Karl-Ulrich Köhler
Chief Executive Officer

Innovation, efficiency, growth

Construction Elements Group reinforces its position in Western and Eastern Europe

The locations at Kreuztal-Eichen in the Siegerland (photo) as well as Oldenburg in Holstein will be expanded into centres of production and expertise, supplying their customers in the core market of Western Europe with high-quality roof, façade and cooling room products just-in-time in future.

In order to strengthen its development opportunities and profitability in the future, ThyssenKrupp Steel is reorganising its Construction Elements Group – comprising the four companies ThyssenKrupp Hoesch Bausysteme, Hoesch Bausysteme, ems Isoliersysteme and Isocab – and focusing its activities more strongly on the target markets in Western and Eastern Europe. The principal objective is to secure the Group's sales as well as to improve results and the market position further. Every single company in the wealth creation chain plays an important role in processing quality flat steel from ThyssenKrupp Steel.

The realignment of the Construction Elements Group is part of the complex Forwards Strategy of ThyssenKrupp Steel and can be summarised by the terms innovation, efficiency and growth. The prime objective is to achieve a permanent optimisation of the product portfolio, not least in order to open up new application fields for construction with steel. Therefore, ThyssenKrupp Hoesch Bausystem's presentation of its new design façade system is very timely for the Bau 2007 in Munich. This system is an innovation that meets many requirements of higher quality façade construction. The innovative product comes in a flexible range of lengths and widths, and is made from steel covering shells that can be filled with various insulating materials. The modern matrix structure using bi-modular panels meets the needs of architects, and therefore smoothes the path from straightforward industrial construction to higher quality façade building. It gives an elegant look to office buildings, administration premises or hospitals above all. The bi-modular panel has connections for windows, gates and doors and is offered as a façade system.

As well as innovation, another important component of the reorganisation in the ThyssenKrupp Steel construction sector concerns increasing efficiency: in order to supply products from the Construction Elements Group to the core market of Western Europe more rapidly and efficiently in future, ThyssenKrupp Steel is concentrating production of steel sandwich elements at the locations in Kreuztal-Eichen in the Siegerland and in Oldenburg in Eastern Holstein. Some of the machinery and the production volume from the plants in Hof and Leipzig will be transferred to these locations as well as to a fabrication plant that is going to be built in Hungary. It is above all logistical advantages that favourise this move. A production and competence centre is going to be built in Kreuztal-Eichen at the primary material base of the Color Profit Center. This will have three sandwich lines and two profiling machines with a planned production capacity of about 80,000 tonnes. The Oldenburg location will receive parts of the production volume from Hof, enabling better utilisation of existing capacity. ems Isoliersysteme and ThyssenKrupp Hoesch Bausysteme will be merged in order to concentrate expertise even more effectively in addition, and to offer customers the established brands of trapezoidal and sandwich profiles for roofs, facades and cool rooms that have been established for many decades.

As part of the ThyssenKrupp Steel Forwards Strategy, new accents are also being set for Middle and Eastern Europe: by founding a sandwich plant in Hungary, ThyssenKrupp Steel is rounding off the restructuring of the Construction Elements Group at the same time as setting it on a course for growth. The new plant will secure and improve the already good market position of Hoesch Bausysteme in Austria in the medium term. For this purpose, the sandwich line will be relocated from Hof to Felsölajos, about 60 km from Budapest. The line will supply the Central and Eastern European market with up to 16,000 tonnes of sandwich elements per year. The primary material also comes from the Color Profit Center in Kreuztal-Eichen. By developing this complex overall concept, ThyssenKrupp Steel is creating valuable synergies and preparing itself for recovery and growth in the European building sector. The competitiveness of the Construction Elements Group – employing 889 people in Germany, Austria, Belgium and France in the 2005/2006 business year and achieving sales of 348 million Euros – will be strengthened in the long-term.

Christiane Hoch-Baumann

www.tks-bau.com/en

▼ Production in Oldenburg will receive parts of the volumes from Hof, making it the central production site.

Contact: **Rolf-J. Neumann,** Board of Management/Marketing, tel. +49 (0)203 52-41003, e-mail: rolf-juergen.neumann@thyssenkrupp.com
Roger Görg, ThyssenKrupp Hoesch Bausysteme, tel. +49 (0)2732 599-1554, e-mail: roger.goerg@thyssenkrupp.com

Bau 2007 in Munich

Steel makes a big show

The largest construction show opens its doors in Munich from 15 to 20 January 2007, showing the multi-faceted nature of steel as a construction product, new products and systems in halls A2, B2 and B3. The message is clear: Steel offers intelligent solutions for large and small jobs.

BAU 2007
15–20 JANUARY 2007
NEW MUNICH TRADE FAIR CENTRE

ThyssenKrupp Steel will be presenting innovative applications for roof, façade and cool room elements made from surface-finished fine sheet in hall B3, stand 109. In addition to the new designer façade product from ThyssenKrupp Hoesch Bausysteme, the sectional door element with finger pinch point protection represents another highlight. The system can be used by any door producer for manufacturing safe garage and industrial doors. The company has specially introduced new coatings, designer surfaces and an expanded range of colours for its sectional door elements.

The Hoesch Additiv Decke® ceiling product from ThyssenKrupp Hoesch Bausysteme is also setting the standard for ground-breaking construction with steel. The innovative ceiling system with a weight of 300 kg per square metre is around 40% lighter than a solid flat roof with a comparable loading capacity, therefore it is used for multi-storey car park construction in particular.

◀ The Bau trade show in Munich two years ago was a total success. The organisers and exhibitors such as ThyssenKrupp Steel are also expecting a great result from this top event in the European construction market in 2007.

ems Isoliersysteme and ThyssenKrupp DAVEX are taking a new approach to cool room construction. A cellular construction without heat bridges using continuously manufactured insulating panels represents a high-grade technical solution that is also cost effective. The concept is based on modern DAVEX® profiles produced using the roll and join process that serve as a new connection element for the insulating panels produced by ems.

The Hoesch arc roof also attracts plenty of attention: it is a roof and support structure in one. The arc roof elements from ThyssenKrupp Hoesch Bausysteme can span widths of up to 20 metres without needing support structures. This means the roof not only provides protection from wind and weather, it also has a futuristic appeal.

Last but not least, ThyssenKrupp Steel is responding to the wishes expressed by many architects for individual design variety with the modern colour collections **Reflections**One®, **Reflections**Lume and **Reflections**Cinc.

Christiane Hoch-Baumann

www.bau-muenchen.com

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

Building with thin sheet is becoming more and more popular

"Bi-modular construction promises greater variability"

The use of thin sheet products is now firmly established in the construction business. Thanks to numerous positive characteristics such as economical production, rapid assembly as well as the synergy effect of sealing the building and supporting a load, products such a trapezoidal, cassette and sandwich profiles have now become essential features of industrial construction. The building systems are being refined by factors such as new colour ranges, thereby enabling the volume of these often large shed buildings to be integrated better into their surroundings, or the planned bi-modular construction method. This promises to offer two levels of variability, thereby permitting an even finer degree of modularisation in façade design – the strip will become a "pixel". It is a very positive effect that this has expanded the freedom of design and is opening up new applications for thin sheet as a semi-finished product.

Even last century, steel's outstanding technical properties such as ease of forming and the wide range of surfaces emboldened designers such as Jean Prouvé or Hugo Junkers to use it not only for commercial construction but also in façade or house building. The testing and application of the metal in precisely these fields is being promoted to an increasing extent today as well. Germany offers the best conditions for new development, both as a commercial location and in view of its mature level of technological development. Our universities could be important catalysts in this process.

As well as architectural vision, it is of course also necessary to possess the technological expertise in using the semi-finished product. However, students should not just be trained as users of the product, but instead they should be called on to play an active role as developers. In the long term, this would not only lead to a greater acceptance and utilisation of flexible metal in building, but also to a steady and broad-based ongoing technological development. The target will have been reached when this model not only allows fully formed and beautiful products to be created, but also ones that are economical and long-lasting – such as we take for granted as a component in our building culture.

www.fh-dortmund.de

Biographical information

Prof. Dr. Helmut Hachul was appointed to the Chair of Architecture funded by ThyssenKrupp Steel at Dortmund University in October 2006. His area of teaching includes metal construction and focuses on steel construction. This means ThyssenKrupp Steel is the first steel company in Germany to commit itself to academic research and teaching in the topic of construction with steel.

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

Driving range shines with modern steel products

Hole-in-one for Röttgersbach

Two years ago, strawberries were grown on large fields here, where today golf aficionados are keenly putting their balls. What was formerly a flat monoculture, a site covering 36 hectares in total to the north of Duisburg, was purchased by two bold investors, Willy Schultz and Axel Tiede, who turned it into a modern nine-hole golf course. It was necessary to landscape the terrain with undulations as well as to introduce the usual design elements of golf courses: bunkers, water obstacles, islands and natural planting – none of which existed there at first. A former barn was initially converted into the clubhouse, with part of it being reserved as a garage for the green maintenance equipment. A completely new building was required for the driving range, which is the building where golfers can practice and perfect their driving. The new Röttgersbach golf club was inaugurated in early summer.

The driving range with its imposing 650 square metre area is a specialty of its kind: whereas the driving booths at other golf courses are often on one level and made from wood, the striking feature of the Röttgersbach driving range is that it is a two-level structure and is made from coloured steel. In addition, the participants do not drive their training balls from here towards a slightly sloping field, as is the normal approach, but face the prospect of an artificial lake covering 2200 square metres. Incidentally, there is no need to go to the trouble and expense of having divers recover the training balls. Instead, a gentle breeze always pushes them to one side of the artificial lake from where they can easily be fished out of the water.

Back to the driving range: “The operators of the golf club wanted a building that would be very stable, have low

▶ The driving range of the new golf club in Röttgersbach, Duisburg, is constructed completely using steel. It offers 32 driving tees and players can drive their practice balls towards an artificial lake. The facility and the building have an unconventional and attractive design.

▼ The driving range at the new golf club to the north of Duisburg is built using ThyssenKrupp DAVEX® design supports as well as coloured trapezoidal elements from ThyssenKrupp Hoesch Bausysteme. The coloured design aims to integrate the rather unusual structure into the landscape to optimum effect.

maintenance costs and would blend harmoniously into the landscape that was still in the process of creation and the growing vegetation – a large, rude block would not have been tolerated," explained the author of the building plan, Klaus Kottkamp, a construction engineer working for ThyssenKrupp Steel.

Together, they decided to choose a support structure using ThyssenKrupp DAVEX® profiles. "The modern steel construction supports form the main support framework for the structure – thanks to the perforated connection bars, they are attractive, airy whilst nevertheless providing stability," explains Klaus Kottkamp.

These support profiles have, incidentally, been continued through the roof of the building in order to provide the upper level with the necessary stability and to enable another level to be built on top: "We then put a solid frame on the profile ends of the roof to make it weight-bearing and capable of being used by players – that was how the second level of the driving range came about, to allow members of the golf club to practise with concentration when the weather is good." T-shaped DAVEX® steel construction supports were also used for the sub-structure of the façade.

The façade and water-shedding roof shell of the building are made using trapezoidal elements from ThyssenKrupp Hoesch Bausysteme – in colour: the roof and the façade have bright green tones, "So we can achieve the greatest possible brightness," continues Kottkamp. Viewed from the outside, the driving range shimmers in green tones reflecting the landscape. "The objective of the colour designer Friedrich Ernst von Garnier who came up with the colour scheme for the building and developed the **Reflections**One® colour range for ThyssenKrupp Steel, was to integrate this rather unusual structure into the landscape to optimum effect."

"We are very satisfied with the driving range and the feedback from our members on the facility is thoroughly positive," say the happy operators, Schultz and Tiede. "We have made a statement in terms of design that will integrate itself into the lower Rhine landscape excellently over the years as the vegetation grows." The daring shown by the operators in designing a non-standard building has paid off: although there are still vacancies for male and female players, the association has nevertheless attracted a remarkable 270 members since it opened. Katharina Mette

www.gc-roettgersbach.de
www.golf-revier-duisburg.de

Contact: **Klaus Kottkamp,** Board of Management/Marketing, Building Initiative, tel. +49 (0)203 52-25211, e-mail: klaus.kottkamp@thyssenkrupp.com

ThyssenKrupp Steel goes global

Investing millions in profitable growth

By Christiane Hoch-Baumann, photos: Karsten Enderlein

The foundation stone for the Forwards Strategy of ThyssenKrupp Steel has been laid. On 29 September, leading national politicians and the management of the ThyssenKrupp Group met in Brazil in front of more than 200 invited guests to lay the first stone for a new steelworks in the state of Rio de Janeiro. On this day, the ambitious objectives of the group were finally given a concrete form. ThyssenKrupp Steel is positioning itself as one of the leading global producers of high-quality flat steel on both sides of the Atlantic, therefore utilising its market opportunities in Europe and the Nafta region.

The steelworks in Brazil

An important step to a new size

On 29 September, ThyssenKrupp Steel laid the foundation stone for the new integrated steelworks in Brazil. The site, which will be operated by ThyssenKrupp CSA Companhia Siderúrgica, is designed for a capacity of five million tonnes, two million of which will be sent to Germany for further processing. Three million tonnes are intended for the Nafta region. The first slab is planned to be produced in early 2009.

An investment volume of around three billion euros has been set aside for the production facilities to be erected on the coast at Sepetiba, located at the end of the railway line from the Minas Gerais ore region. The project is planned to benefit from regional cost advantages and proximity to the iron ore deposits, includes harbours, a power station, coking plant, sintering plant, two blast furnaces and an oxygen steel mill with two continuous casting lines. The steelworks will employ more than 3,000 people and another 10,000 jobs will be created indirectly in the region. The world's biggest iron ore producer, Companhia Vale do Rio Doce (CVRD), will take a 10% stake.

"Our objective is continued profitable growth."

Dr. Ekkehard Schulz, Chief Executive Officer of ThyssenKrupp

"The construction of the steelworks is an important step on the way to a new size," explained ThyssenKrupp boss Dr. Ekkehard Schulz at the ground breaking ceremony in Brazil. "In the medium term, the sales objective for ThyssenKrupp AG is 50 billion Euros. However, this will not be the end. The objective for ten years ahead is 55 billion Euros. It goes without saying that profits are also expected to be improved hand-in-hand with the rise in sales."

"The steelworks is the basis for our Forwards Strategy."

Dr. Karl-Ulrich Köhler, Chief Executive Officer of ThyssenKrupp Steel.

ThyssenKrupp Steel boss Dr. Karl-Ulrich Köhler made it clear that ThyssenKrupp Steel intends to participate in the positive development of the steel market: "Our objectives are clearly defined: As a core business of the ThyssenKrupp Group, we want to continue as one of the top producers of high-quality flat steel in the world. In the medium term, we are working towards getting the steel area of the group to contribute 16 to 19 billion Euros of sales. At the same time, it is important that our Forwards Strategy should not just concentrate solely on tonnage, but also on the high-quality, appealing product mix that is demanded by customers all round the world. The slab deliveries from Brazil with the best cost structure and highest possible quality standards means that Steel will be able to take advantage of growth opportunities in its core European market and in Nafta." Dr. Köhler takes an optimistic view of medium-term market developments in the steel industry: "International steel markets are in a stable condition. All the signs are that steel will continue to be a scarce global resource in 2010 as well."

▶ With clear relish, the participants dug a hollow for the foundation stone of the new steelworks in Santa Cruz (from l.): Manricio Chacur, State Secretary of Economics in Rio de Janeiro, Aristides Corbellini, President and CEO of ThyssenKrupp CSA Companhia Siderúrgica, Dr. Karl-Ulrich Köhler, Chief Executive Officer of ThyssenKrupp Steel, Luiz Fernando Furlan, Minister of Economics of Brazil, Rosinha Garotinho, Governor of Rio de Janeiro, Dr. Hans-Ulrich Lindenberg, Executive Director of ThyssenKrupp Steel, Dr. Ekkehard Schulz, Chief Executive Officer of ThyssenKrupp, Francisco de Almeida, Deputy Mayor of Rio, Paulo Sergio Passos, Minister of Transport of Brazil and Luis Paulo Conde, Vice Governor of Rio de Janeiro.

Brazil

An investment location with a future

Brazil, one of the up-and-coming developing nations, has achieved astonishing successes in finance and economic policy over the past three years. The stable conditions have made the country attractive for investors. Many German companies are represented in Brazil – at the end of September, ThyssenKrupp Steel laid the foundation stone for a new steel-works in Santa Cruz in the state of Rio de Janeiro.

Invest in Brazil? At the outset of the first presidential term of Luiz Inácio "Lula" da Silva four years ago, very few people had any confidence in the former union representative's ability to bring about economic and financial stability in the Latin American country. On the contrary: during the election campaign, Lula repeatedly criticised international banks and financial institutions, and brought into question whether the accrued foreign debts should continue to be serviced. This led to major headaches for the capital markets. During the months before the elections, the Brazilian Real fell in value by about 35% against the US dollar and the stock market index dropped by almost 30%. The International Monetary Fund (IMF) came to Brazil's aid in the form of a 30.4 billion US dollar stand-by credit agreement – the largest in its history – thereby staving off the danger of the country being unable to pay its debts and a possible knock-on effect for other countries. Therefore, this was not a good time for investors, neither in Brazil nor in Latin America.

The picture has totally changed. When State President Lula stood for re-election on 1 October, even the previously sceptical entrepreneur camp had to concede that he had steered a successful path in economic and financial policy. During his term in office, the hundred largest Brazilian companies enjoyed significantly higher profits than under the previous government led by President Cardozo, who was supposed to be more friendly towards business. In addition, the per capita gross domestic product (GDP) of the 185 million inhabitants continually rose, to a figure of 4312 US dollars last year, meaning that Brazil possesses a major internal market. German companies got involved at an early stage, the German-Brazilian Chamber of Industry and Commerce is celebrating its 90th anniversary this year.

Around 1200 German companies have located in Brazil, where they invested just under 1.4 billion US dollars last year, putting them in 6th place in the list of direct foreign investors. The region around São Paulo is regarded as the largest German industrial conglomeration, with companies having German roots contributing 10% to the industrial proportion of GDP.

The successful development of the country can also be seen in the announcement by Finance Minister Guido Mantega that, for the first time, economic growth in Brazil would top inflation this year. A decisive factor in this positive development was the dual effect of a more disciplined expenditure policy by the Ministry of Finance and the interest rate policy pursued by the Brazilian Central Bank which aimed to achieve stability.

In this way, the inflation rate that had been running at 14% at the start of Lula's period in office in January 2003 was reduced to its present 3.9%, and the Real has increased in value by around 60% measured against the US dollar. This reduced import costs and contributed to keeping inflation in check.

However, not everything in the garden is rosy: the high interest rate and the appreciation of the Real are making investments and exports expensive for companies. The Central Bank has reduced the headline interest rate in gradual steps, most recently to 13.25%, and is attempting to stabilise the US currency by buying dollars, whilst at the same time not allowing the domestic Real to increase further in value. Nevertheless, the favourable earning situation in exports of raw materials above all such as soy beans, iron ore and meat have led to high trade balance surpluses and, as a result, a rise in value for the Brazilian currency. "We had a currency risk, but we now have a Real risk," says Ingo Plöger, president of the German-Brazilian Chamber of Industry and Commerce of São Paulo from 1998 to 2002 and former co-chairman of the Mercosur European Business Forum. He says that Brazil has become more robust, although the risks are still being assessed as too great by the capital markets, bemoans the entrepreneur who was made responsible for promoting foreign investments during 2004/2005 as a member of the team created by the Minister of Industry and Foreign Trade, Luiz Fernando Furlan. In the medium term, he is forecasting that the domestic Brazilian economy will pick up, leading to a rise in imports and a corresponding fall in the value of the Real. Until then, he is hoping that the Central Bank will be bolder and cut the interest rate further: "We remain the country with the world's highest Real interest rate. Price inflation has had the lid put on it and only paying attention to the inflation rate in this situation means missing out on growth opportunities and failure to pay sufficient attention to the consequential costs of social problems."

And the social problems in Brazil remain great, even if a mixture of financial policy decisions and transfer payments has improved the situation of the poorer groups in the population. Price stability, more jobs and a higher minimum wage together with considerable funds channelled into the "Bolsa Familia" programme represent the key social policy successes of the Lula government. This latter policy guarantees around 8.7 million families, above all in the less developed north-east of Brazil, can live above the poverty line. However, the government is also pursuing education and health policy objectives with this programme: the families only receive funding if they send their children to school and have their infants vaccinated.

The fact that growth of 3.7% is expected this year after only 2.3% in 2005 represents another positive trend – even if the growth rate is therefore lagging behind most other South American countries: the United Nations Economic Commission for Latin America and the Caribbean (CEPAL) is expecting that the average growth in GDP for the region will be 5% this year. When Lula starts his next term in office in January following his victory in the run-off elections against his challenger Geraldo Alckmin, he will have to put the necessary reforms in train. The pension system must be overhauled to reflect the increasing expected lifespan of pensioners, while the political system is overdue for streamlining and greater transparency. The business sector is demanding greater state investment in infrastructure programmes, a reduction in corporation taxes – currently running at 38% – and greater efficiency in state-operated activities. And, finally, it will be important to put a stop to the net indebtedness.

The sensible policies pursued by the Lula government has given Brazil the chance to move up permanently into the club of leading global economic nations; the country is already playing an important role on the foreign policy stage – for example in the United Nations. However, priority must be given to its relations with its neighbours on the South American continent, in particular with the Mercosur states. In this regard, the government in Brasilia has often played the mediator role – both between Latin American states and in the conflicts of Chávez in Venezuela, Morales in Bolivia and Kirchner in Argentina with the USA and international organisations. In contrast to those countries, Brazil does not have any credible (left-wing) popular movements that want to turn back the globalisation clock. To no small measure, this is down to Lula. "The Economist" in March headlined an article with "popular but no populist". As President, this labour organiser, who has retained his shirt-sleeved style, has made his country attractive to investors by pursuing a stable and calculable financial and economic policy on the one hand, whilst steering an integration course in domestic policy on the other.

Dr. Bettina Wieß, financial journalist

▶ Brazil's harbours are logistical nodes: the good earnings situation from exporting raw materials such as soy beans and iron ore is creating high trade balance surpluses.

Growth strategy in the core market of Europe

First investments are going in

ThyssenKrupp Steel is not just investing overseas, but also in Germany. Additional capacities are being mobilised in finishing systems in the home nation. Plans are in place for investments of a further 400 million Euros during the next two years in order to extend the existing highly modern plants, in addition to the standard annual programme of around 500 million Euros. The reason is that the Group has much too little raw steel capacity in Europe. The current supply problems against a background of high demand are making this clear. The additional slab capacity in Brazil is intended to solve these bottlenecks. In phase 1, therefore, around 180 million Euros will be channelled into expanding the hot strip plants in Duisburg-Beeckerwerth and Bochum, the continuous casting plant as well as in the infrastructure and slab logistics at Walsum docks. Further investments are planned for phase 2 in order to increase the capacity of the cold strip plants and hot-dip coating systems.

At present, Walsum docks in Duisburg are being extended as the central transhipment location for Brazilian extruded cast slabs that will be supplied through the seaports of Antwerp and Rotterdam from 2009 onwards. The drive power of the finishing train in the hot strip plant at Duisburg-Beeckerwerth is being increased in order to be able to produce higher strength steel grades even in wide hot strip dimensions. The finished product warehouse logistics at the hot strip plant are being upgraded to meet the future challenges with new software, while the rolling strategy and cooling line are being optimised. In particular, three new decoilers will replace the existing systems in order to improve the surface quality of the products and the winding status of the coils, above all with high-strength tubular strip grades in the planned wide dimension range. Finally, the raw strip warehouse capacity will be increased, while hall crane tracks and railway lines are being extended.

Expansion is also on the agenda for hot strip plant 3 in Bochum. It will get an additional walking beam furnace and a new control system for shorter rolling cycle times which will allow faster production with the same high level of quality. Furthermore, capacity increases will be made possible in the hot strip production facility at Bruckhausen by making relatively smaller investments with the effect that, for example, the cast rolling line will be able to produce around 2.2 million tonnes of hot strip per year.

In addition to these expansions, there is also a 340 million Euro programme for the rebuilding of blast furnace 8 in Duisburg to replace blast furnace 4, without providing any significant capacity increase, as well as the relining of blast furnace 9. This will reinforce the high-performance metallurgy stage and ensure the future of jobs in the processing stages at the sites in North-Rhine Westphalia.

▼ ThyssenKrupp Steel is investing 400 million Euros over the next two years to expand existing, highly modern systems in order to process the additional slabs coming from Brazil into high-quality flat steel.

ThyssenKrupp in international comparison

In the global rankings of steel companies based on production and sales volume, ThyssenKrupp occupies tenth place measured by raw steel production, or seventh place for quality flat steel. Due to the Group's concentration on higher quality products, it is ranked number five for sales. World raw steel production is currently running at 1.2 billion tonnes per annum. Of this, 700 million tonnes are long products and 500 million tonnes flat products, of which 250 million tonnes are high quality products. The objective is to achieve a global market share of 10% in this market segment.

Duisburg site

In Duisburg, ThyssenKrupp Steel operates four blast furnaces and produces 11 million tonnes of raw steel, while together with the Krupp Mannesmann steelworks it makes just under 14 million tonnes. Including the concentration of the majority of hot strip production on the Rhine, the location offers optimum logistics for transporting raw materials and great proximity to key customers. Duisburg is one of the best locations in the world with an outstanding infrastructure and optimum system configuration.

▲ The first investments have already gone in: in addition to the 400 million Euros for expanding existing systems, ThyssenKrupp Steel is currently implementing its blast furnace concept with a 340 million Euro price tag.

Putting questions to Dr. Jost A. Massenberg

“Customers in the domestic market will be supplied better in future”

“For us, the core market of Europe is of decisive importance. Delivery bottlenecks in the previous few years came about because our capacity was limited by slab shortages in our steel mills. The additional quantities from Brazil will ease this situation.”

Dr. Jost A. Massenberg

In recent years, ThyssenKrupp Steel has not always been able to supply all the delivery requirements of its customers. How will you solve this problem in future?

For us, the core market of Europe is of decisive importance. A sales proportion of 88% speaks for itself. We are firmly established here with high quality products and a wide customer base. The eastward expansion of the EU will create additional growth potential.

The delivery bottlenecks in the previous few years came about because our capacity was limited by slab shortages in our steel mills. The additional quantities from Brazil will ease this situation, and we will be able to supply our domestic customers better than before. In future, we will also be able to process around 2.1 million tonnes into high quality flat steel in our plants.

This is why we will be investing 400 million Euros over the next few years on top of our existing standard programme of 500 million Euros annually. This is in order to expand our presence in the European domestic market systematically using products and services where we are strong and possess long-term advantages over the competition.

So you are concentrating on the premium sector?

That's right. The investment is primarily being channelled into expanding wealth-creating processing and finishing lines. At least three quarters of the additional volumes from Brazil will be directed to the high-quality customer segments. By expanding our processing capacities close to the market and on the ground, we will be able to seize opportunities for growth in Europe on a competitive cost base.

We will achieve a sustained stabilisation of the company's profitability by tracking the growth in demand, winning back lost market share and thereby reinforcing our competitive position in our core market of Europe. As such, the further development of our high quality product mix is a central feature. We are permanently working on new grades and products. We cooperate with important customers in research and development. Even today, we can cover the entire portfolio of quality flat steel together with our subsidiaries.

On the subject of subsidiaries: How are you pushing ahead the Forwards Strategy of ThyssenKrupp Steel?

The Forwards Strategy in Europe is not just concerned with expanding rolling and finishing capacities of ThyssenKrupp Steel, but also with expansion measures in our subsidiaries. Around 30% of sales are achieved in this way through processing, service and support to offer added benefits to our customers. Our subsidiaries are pursuing our overarching objective with their own forward strategies.

For example, Rasselstein Andernach has expanded into the largest tinplate location in the world, Hoesch Hohenlimburg is breaking new sales records with the high-income special product of medium strip following capacity expansions in its rolling mill, and ThyssenKrupp Electrical Steel is the second largest manufacturer of oriented grain electrical strip in the world. The high pressure on volumes means that production capabilities at both sites in Gelsenkirchen and Isbergues in northern France are going to be expanded to 250,000 tonnes.

In order to open up new market possibilities in Central and Eastern Europe as well as in France, we are expanding our service centre activities in these regions. Furthermore, ThyssenKrupp Tailored Blanks is strengthening its technological and financial position of leadership in laser-welded blanks for the automotive industry by establishing new locations abroad. Furthermore, the Construction Element Group is going to set up a plant for sandwich products close to its customers in Hungary.

A final question: Where do you see further need to act in order to satisfy customers?

It's quite clear that we need to optimise our delivery performance and reinforce our technological expertise – after all, we do see ourselves as playing a pioneering role in high quality flat steel products. The continuous ongoing development of our technological expertise is an important prerequisite for making our future relationship with our customers into a joint win-win situation. Innovations are the locomotive for sustained development. They create the conditions for growth and secure tomorrow's jobs.

This means future strategies and innovations management represent elements of our company policy that are closely linked together. The permanent development of new qualities and products in the areas of material and surface technology ensure that we can participate in a premium market, as does networking our expertise in application technology through simultaneous engineering. This leads to intensive customer loyalty. The very high proportion of long-term contracts in our business – 63% – is an indicator of confidence and credibility that speaks for itself. This means the short-term business is not driven by current market trends and opportunities. The advantage we derive is greater stability across economic cycles. Our products and expertise make us a partner in demand both nationally and internationally. Our task must be to expand this further over the coming years.

TriBond® product innovation

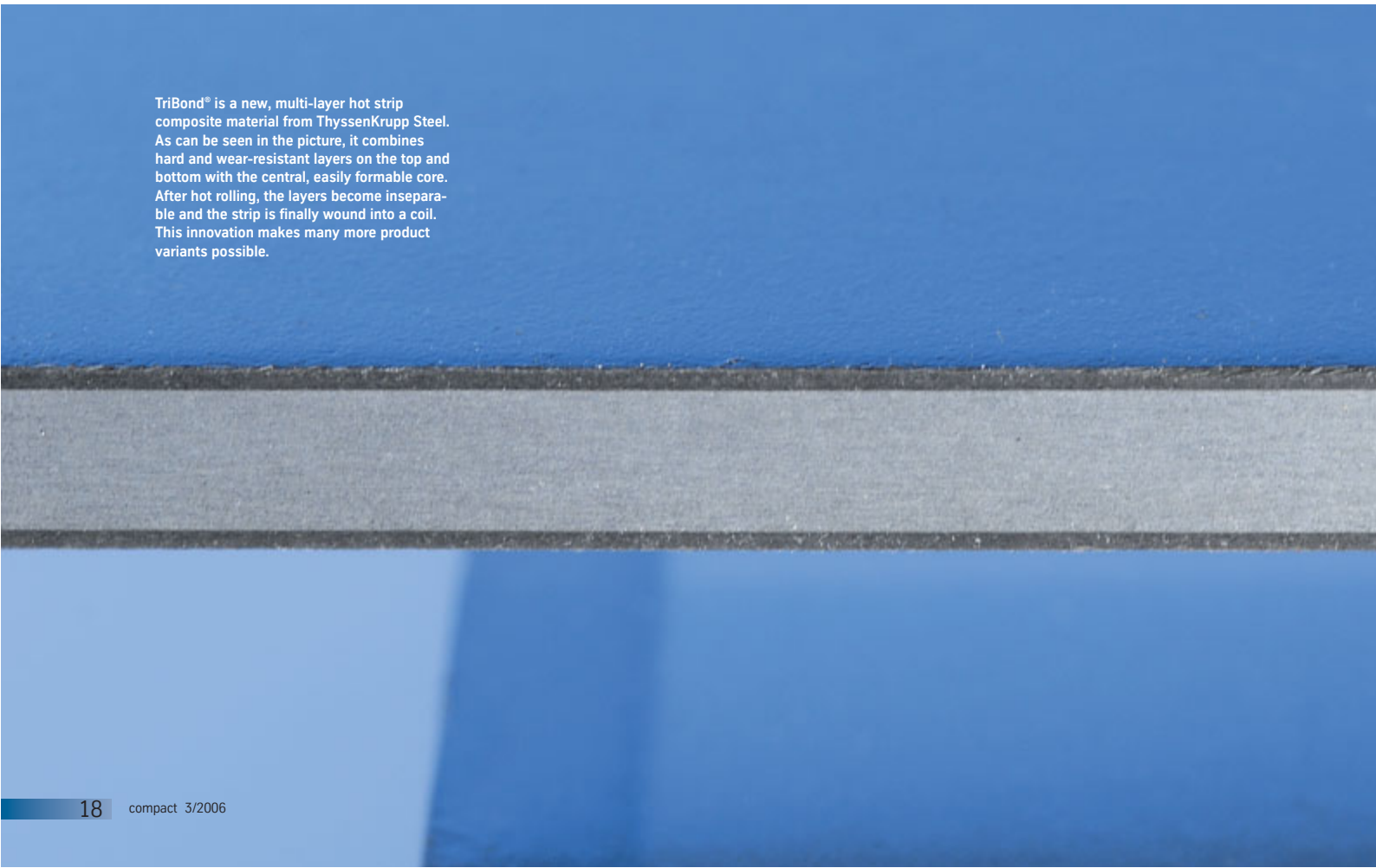
Hard shell, soft core

In the past, developers and users faced a major problem when it came to combining fully contradictory properties in a steel for a special product – simultaneously strong and nevertheless easy to form. “That sort of steel actually doesn’t exist. It would be necessary to use a soft, single layered material that could first be formed and then hardened by carbon – a complicated and expensive procedure and also one that quickly runs up against its limits in terms of the achievable case-hardening depth as well as the hardness profile that can be set,” explains Roland Wunderlich, project leader of Process Development at the ThyssenKrupp Steel Materials Expertise Center (WSK).

The boffins at ThyssenKrupp Steel have now solved the problem – TriBond® is the name of the magic formula: This is a product that consists of three layers of different steel grades. The layers are inseparably welded together during hot rolling, giving a tailor-made composite material.

The new product has a sandwich structure: On the outside are the two layers with wear-resistant surface materials, on the inside there is a ductile core. “We developed TriBond® from the idea through test strips and the finished composite coil together with our customer C. D. Wälzholz,” comments Dr. Jens-Ulrik Becker, head of process development and pilot production at the WSK. The development process for the strip took just under four years. “This was a model of cooperation that led to a product for the end-user with very good results in certain components.”

TriBond® is produced as follows: First of all, the primary materials for building a slab pack are assembled: Depending on the required thickness ratio of the functional layers, it may consist of a slightly thicker core slab and two thin primary strips that form the surface layers. The contact surfaces of the layers must be carefully cleaned and prepared. Then, the individual layers are connected together by welds running around the periphery, and the slab pack is hot-rolled. This causes the layers to become inseparably joined. The finished, three-layered strip is then wound into a coil that can either be used directly or processed into a finished product in the subsequent steps of cold rolling and annealing. This is where C. D. Wälzholz comes into play: The cold



TriBond® is a new, multi-layer hot strip composite material from ThyssenKrupp Steel. As can be seen in the picture, it combines hard and wear-resistant layers on the top and bottom with the central, easily formable core. After hot rolling, the layers become inseparable and the strip is finally wound into a coil. This innovation makes many more product variants possible.

rolling company produces the cold-rolled product TRIWAEL® using TriBond®.

"Typical applications for the composite material include the engineering industry and automotive production," explains Dr. Horst Tamler, section leader for technology in the Industry Division of ThyssenKrupp Steel. "The advantages for the customer in using this product are obvious: For one thing, it simplifies the further processing steps by avoiding the need for complicated case-hardening on the component, while for another thing it improves the dimensional and shape tolerances of the produced components and cuts reworking requirements." Furthermore, TriBond® offers extended, more flexible and improved product properties such as high regularity and exactly adjustable functional layer thicknesses, and ultimately ensures that the process depth, and therefore wealth creation, are increased.

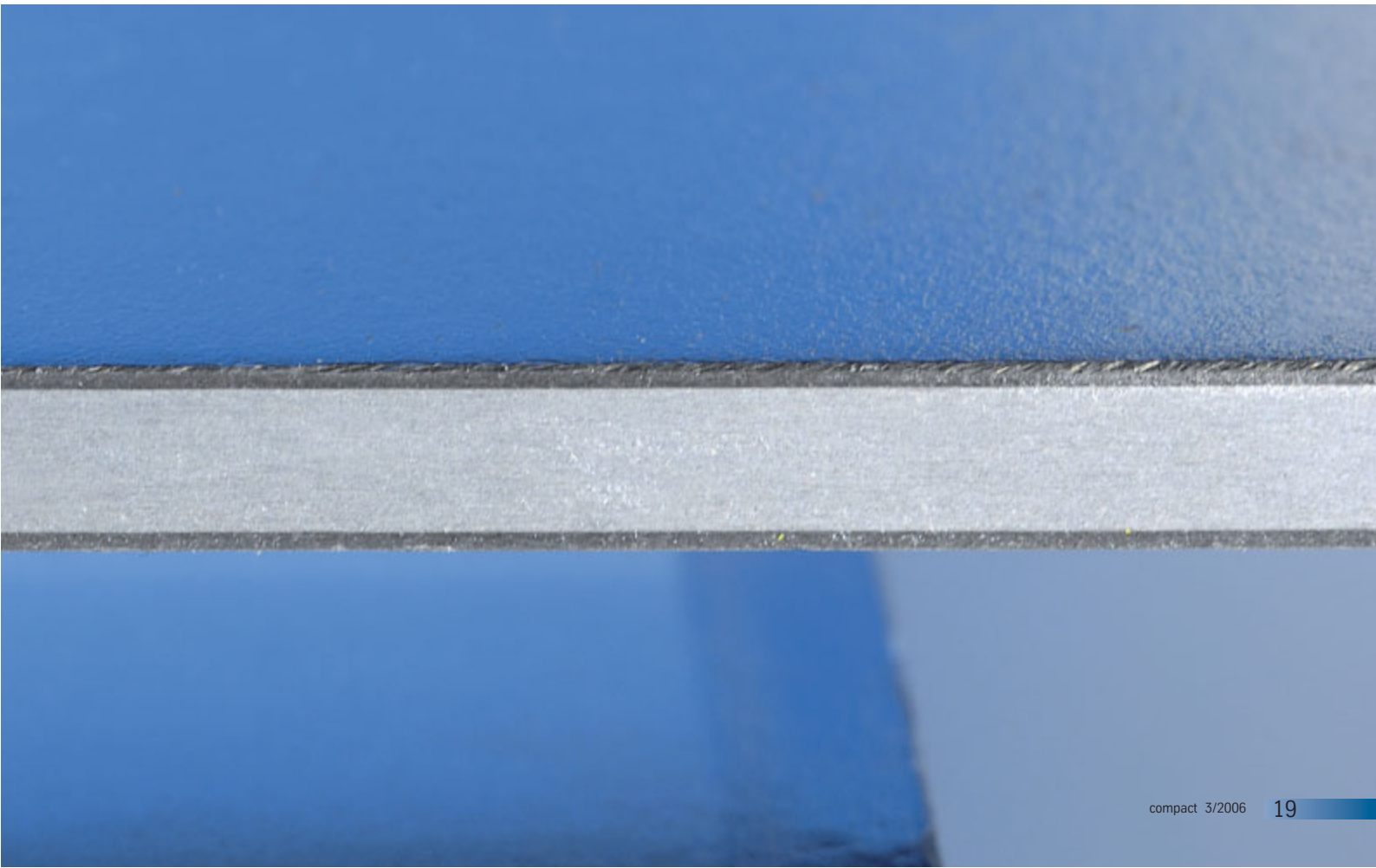
"There are scarcely any limits on imagination when it comes to additional possible applications," says Tamler, looking to the future. "TriBond® can be produced with other layer combinations and thickness ratios in addition to the combination of wear resistant/ductile/wear resistant that we have implemented so far – to this extent, we see this patented material as a pioneer for a whole new generation of material systems optimised for particular applications." In the opinion of the development team, the modular system could be followed by two-layer composites, multi-layer composites, asymmetrical thicknesses and the inclusion of other materials such as stainless steels.

The development of this ground-breaking and multifaceted composite material has, incidentally, also convinced the jury awarding this year's ThyssenKrupp Innovation Prize – TriBond® took third place for its developers.

Katharina Mette

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

Contact: **Dr. Horst Tamler,** Industry Division, tel. +49 (0)203 52-24874, e-mail: horst.tamler@thyssenkrupp.com



Burj Dubai – The tower of Dubai

New prestige building towers over the skyline of the business hub

By Christiane Hoch-Baumann, photos: Rainer Kaysers, Corbis, Getty

Burj Dubai – A city in a city

What the ultimate height of Burj Dubai on Sheik Sayed Road will be, is something that no-one really knows at present. It is planned to achieve 705 metres, although the local builder EMAAR Properties PJSC will not divulge the actual final height until the building has been completed in 2008. However, the contents of the highest tower in the world have already been established: Apartments, offices and business premises, entertainment and leisure facilities, the largest shopping mall in the world and, it goes without saying, a luxury hotel.

Location:	Dubai, United Arab Emirates
Height:	705 metres (unconfirmed)
Storeys above ground level:	approx. 200
Start of construction:	2004
Finish of construction:	2008
Architect:	Skidmore, Owings & Merrill

"One in five construction cranes in the world is currently working in Dubai," announce proud tourist guides in the city on the Persian Gulf. The diggers, excavators and builders work untiringly. It is loud and dusty in this city that never rests.

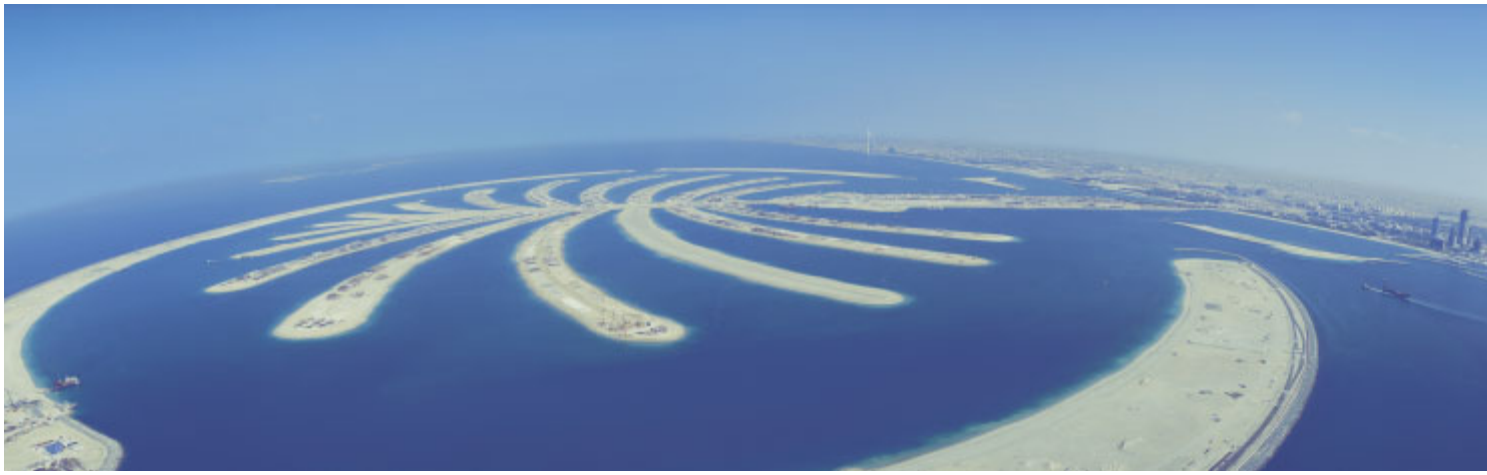
The idyllic seafarers' town of yesteryear has transformed itself into an up-and-coming metropolis in a country that is open to the world and carries the stamp of a market economy. Dubai's ruler, Sheik Mohammed, knows how to make this city on the edge of the desert attractive for foreign capital. With gigantic growth plans that know no bounds either in terms of finance or technology, he is attracting crude oil billions from the Gulf region and ambitious immigrants from all over the world. The economy has been growing by 10% on average for a decade now, and even by 15% since 2004. Dubai, one of the seven members of the United Arab Emirates (UAE) is therefore the global leader in economic growth and has become an Eldorado for investors – and there is no end in sight.

On the contrary: the construction boom has moved to artificially created luxury oases off the coast of the city state. Three enormous palm islands and an image of the world map – they can even be seen from space – have been created in the territorial waters of the Emirate that is enjoying an economic miracle. Each of these islands is studded with luxury hotels, beachside villas, apartments, yacht marinas, restaurants, leisure parks and shopping centres. The huge project of the artificial Waterfront is still at the planning stage. This will be an island group which, according to Sheik Mohammed, will have a population greater than that of Manhattan by 2020. A huge canal is intended to bring water from the Waterfront to the desert landscape of the small Sheikdom, including to the planned leisure park of Dubailand that will be as big as Disneyland in California and Disneyworld in Florida put together.

Dubai's motto is "More beautiful, bigger and higher". According to the projects produced by the planners, this will also be guaranteed by the Global Village which is currently merely a perimeter of construction fences. A district of the town whose buildings are based on the wonders of global construction ranging from the Eiffel Tower in Paris to the Taj Mahal in India – only with the difference that the copies contain apartments and offices inside them.

First of all, and entirely real, the Burj Dubai will enrich the business hub with another superlative at the end of 2008: With a planned height of 705 metres, the Dubai tower will be the tallest skyscraper in the world. As such, it will overtake by far the 527 metre tall Sears Tower in Chicago, the 508 metre tall Taipei 101 in Chinese Taipei and the 452 metre tall Petronas Twin Towers in Kuala Lumpur, Malaysia. Its direct neighbour, the 321 metre 7-star luxury Burj al-Arab hotel in Dubai will be dwarfed by the new skyscraper on the Persian Gulf that is easily twice its size. The 1.8 billion dollar project dovetails with the up-and-coming city of dreams like no other: Its floor plan is reminiscent of a desert flower common in the region, with six petals. With a floor area of about 7000 square metres, the Burj Dubai on Sheik Zayed road certainly has a large footprint. It is shaped like a spiral and tapers towards the top. The tallest tower in the world offers space for apartments, offices and hotels, large green areas, a tourist city and – as you would expect in Dubai – the largest shopping centre in the world. A breathtaking observation platform is planned to adorn the airy heights at the tip of the tower.

▼ Dubai's boom knows no limits: Artificial islands are being created off the coast of this business hub. Its increasing importance as a global economic and financial metropolis in the Middle East is underlined by the foundation of several free trade zones, including the Dubai International Financial Center and Jebel Ali in Dubai port, by far the largest entrepôt for imports from Europe, East Asia and the USA into the Gulf countries. The small Sheikdom offers attractive conditions, does not charge any direct taxes and has little red tape. It takes less than two weeks to found a company there.



◀ Long, mobile masts from Putzmeister pump concrete into walls and roofs of the Burj Dubai. They are exposed to extreme vibrations in the process. The quality of the sheet metal is decisive, which explains why the company relies on N-A-XTRA® 700 and XABO® 960 heavy plate from ThyssenKrupp Steel.

"Steel allows us to break records for pumping to altitude."

Klaus Mirna, project leader at Putzmeister

Excavation work for the foundations started in early 2004. Today, the skyscraper has already reached the impressive height of around 370 metres, representing 100 storeys above ground level. By the time it is finally completed, the construction will have swallowed the unimaginable quantity of a good 230,000 cubic metres of high-strength concrete. For this purpose, the important construction material is pumped up through extremely high-performance pumps and wear-resistant pumping lines along highly stable distributor masts to the place where it is required – this is the job of Putzmeister AG based in Aichtal near Stuttgart.

The company has eleven sites worldwide and numerous foreign agencies. It was founded in 1958 and has specialised in the manufacture of mobile and stationary concrete pumps. Together with the Arabian cement supplier and pump operator Unimix (Universal Concrete Products Ltd. Co.), the expertise from Putzmeister ensures that everything runs smoothly during the construction of the Burj Dubai. This is certainly no easy task at temperatures of around 50 °C – people, machinery and materials have to perform with peak capacity day in, day out on Dubai's spectacular construction site.

"The high-strength concrete is predominantly pumped up to the planned 200 storeys of the Burj Dubai at night," explains Klaus Mirna, project leader at Putzmeister. "This makes it pumpable for longer and easier to work with." It is pumped through widely branching pumping lines up to the highest and smallest corners of the skyscraper using two super high-pressure pumps located around 70 metres away from the centre of the enormous structure. The labyrinth of heavy, permanently installed pumping lines spanning several kilometres extends from the funnel output of the cement pumps, storey by storey up to the dizzying heights like a fine system of veins.

"This project sees us well on the way to setting a new record for pumping to altitude," says Mirna happily on behalf of his company that has already started to tackle other challenges in the United Arab Emirates with its high-tech pumps, such as those encountered in construction of the Emirates Tower and the Burj al-Arab. "The concrete only takes 30 minutes to travel from the pump up to 600 metres high. On average, 35 cubic metres is pumped every hour. This means we can concrete 120 square metres on each storey of the building core in only four to five hours – an astonishingly short time."

Once it reaches its destination, the precious construction material is pumped into walls and roofs of the skyscraper using long, mobile masts with a reach of 28 and 32 metres. The masts are exposed to extreme vibration during this process. "They must be light and very flexible," explains production chief Jochen Ruppel of Putzmeister in Gründau (the company headquarters) who has specialised in the production of masts. "The quality of the sheet metal used plays a decisive role." For this reason, Putzmeister users N-A-XTRA® 700 and XABO® 960 heavy strip from ThyssenKrupp Steel for its production. "Welding is the be-all and end-all of our production process," emphasises Ruppel. "The welds are exposed to the greatest stresses during pumping, therefore they have got to be perfect. The high-strength annealed heavy plates from ThyssenKrupp Steel have excellent welding properties and are outstandingly tough in spite of their high strength. That is why they are so valuable for us."

"The quality of the sheet metal plays a decisive role."

Jochen Ruppel, production chief at Putzmeister in Gründau

The Putzmeister masts used in Burj Dubai are freely floating on metre-high mesh towers, this means they do not have a counterweight. They consist of four or six arms with widely differing lengths and dimensions that are connected together by moving joints. "We use radio communication to control the

masts remotely and move them together with the pumping line and concrete into precisely the position that we need in the particular working area," emphasises Ruppel. "The structure is anchored on a working platform in the wall shuttering of the building using special supports. It is lifted from one concreting section to the next under hydraulic power. Once they have reached the top storey of the Burj Dubai in two years' time and have filled the last of the concrete, everything will be removed again and transported downwards by crane," he says, looking to the future. However, there is plenty of work to do until then and a huge amount of concrete will flow into the ravenous skyscraper of Burj Dubai.

www.putzmeister.de
www.thyssenkrupp-steel.com/plate
www.dubai.de

▶ Masts are produced at the Putzmeister site in Gründau. There are up to 32 different versions of the mobile automatic concrete pumps alone, plus four different stationery masts such as are used in Dubai. Steel strip is welded into arms manually and these arms are then connected together by joints. Enormous forces act on the weld and the joint during concrete pumping, therefore the steel – which is heavy plate obtained from ThyssenKrupp Steel – has to be top quality.

▼ Masts and expertise are available from Putzmeister all over the world. The group has an export quota of more than 80%. Around 2775 staff worldwide achieved sales of 730.5 million Euros last year.

Contact: **Jürgen Kronenberg,** Putzmeister, tel. +49 (0)7127 599-353, e-mail: kronenbergj@pmw.de
Dr. Marco Pfeiffer, Heavy Plate Profit Center, tel. +49 (0)203 52-75170, e-mail: marco.pfeiffer@thyssenkrupp.com

Added value for customers: Steel with a coloured surface

Color Profit Center sets colourful accents

An extensive overview of the range of products and services from the Color Profit Center of ThyssenKrupp Steel can be found in the new publicity documents, "steel with a finished surface – added value for our customers". These brochures can be orders from:
Monika Davis
Telephone: +49 (0)203 52-41011
E-mail: monika.davis@thyssenkrupp.com

The Color Profit Center of ThyssenKrupp Steel is setting colourful accents for high-quality products with its organically coated thin sheets for a range of different applications: For example, the thin sheet products are used in the construction industry, for domestic appliances, in automotive construction, in heating and air conditioning technology, in teletronics and in furniture. This variety results from the wide range of excellent material properties: Strip coated products are very easily formed, extremely resistant to UV light and corrosion, for example, and they offer a wide variety of surfaces – from different colours through to metallic looks. "We are one of the leading manufacturers of organically coated thin sheets and we provide our customers with products that also make sense financially," says Reinhard Täger, head of the Color Profit Center. "In many industries, using steel with a finished surface makes it possible to achieve significant cost benefits – because the complex procedure of individual item coating can be dispensed with, amongst other reasons."

The time will not stand still. The product world is continually developing and is becoming ever more diverse. The boundary between paint and foil coatings is becoming more fluid and the requirements on steel as a material are increasing. Nowadays, primary materials are in demand with properties that are exactly suited to the envisaged use – and ThyssenKrupp is intending to promote this factor more strongly on the market in future as well. The company has therefore decided to offer strip-coated thin sheets exclusively under the brand name PLADUR®. Additional sub-brands, representing subdivisions of this brand, will then provide an indication of special applicability and make it easier for customers to select the material in question. A new line of brochures will accompany the public face of the Color Profit Center and make clear what added value is available from the existing material potential in the extremely diverse applications.

Additional benefits for the customer have also been made possible by a reorganisation in the steel company: Since the introduction of team organisation, each of the four sales teams looks after a defined group of customers in the Color Profit Center. The principle of one face to the customer, by which is meant a streamlined structure oriented towards customer's requirements with rapid decision-making processes from

▲ Only a few examples of the possible uses for strip-coated fine sheet from ThyssenKrupp Steel today. Innovation and development teams work together with customers to come up with additional ground-breaking products and system solutions.

person to person, offers the customer benefits. In addition to the sales teams, there is also the market and innovation team available to answer quick questions. Its tasks are to seek out market and customer trends, recognise customer's wishes and develop individual product innovations. Special project teams in the Color Profit Center additionally work with other research and development areas in the ThyssenKrupp Group in order to be able to offer ground-breaking products and system solutions, progressive material concepts and novel coating and processing technologies for new applications.

red

www.thyssenkrupp-steel.com/color

This is how the new brand strategy of the Color Profit Center stacks up. ThyssenKrupp Steel is now offering strip-coated fine sheet under the brand name PLADUR®. Supplementary sub-brands, representing subdivisions of this brand, provide an indication of the special applicability and make it easier for customers to select the materials they need for their application.

PLADUR® WET	PLADUR® ELEVATOR
PLADUR® HOT	PLADUR® TRAFFIC
PLADUR® COLD	PLADUR® INDUSTRIAL
PLADUR® HIGH TECH	PLADUR® INDOOR
PLADUR® LUXUS	PLADUR® LIGHTING
PLADUR® LIFE	PLADUR® RESIDENTIAL
PLADUR® UTENSILS	PLADUR® DOOR
PLADUR® AUTO	PLADUR® FROST
PLADUR® TRANSPORT	PLADUR® COOL
PLADUR® MOBILITY	PLADUR® MODULE
PLADUR® MARITIM	PLADUR® FARM

Contact: **Reinhard Täger,** Color Profit Center, tel. +49 (0)2732 599-4512, e-mail: reinhard.taeger@thyssenkrupp.com

Function and design from Swabia

Premium furniture maker Rolf Benz relies on steel

The architect Sir Norman Foster has become world famous for structures that set new standards with their functions. The Swabian company, Rolf Benz, is pursuing the same approach in the furniture industry. Armchairs, chairs and tables from Nagold near Stuttgart not only look good, they are also principally functional furniture. You can modify them to adapt to individual requirements and situations. Sofas change into beds, TV chairs, areas for play. And like Sir Norman in architecture, Rolf Benz is right at the top of the furniture industry.

▲ The long journey from design to a finished designer chair at a glance: Rolf Benz purchasing manager Horst Flaig (left) and ThyssenKrupp Steel man Dr. Peter Biele examining the foamed steel skeleton of the new sales hit, "7800".

"We try to set the trend," explains Gunter Dürr, the director responsible for purchasing in Nagold. Dark blue, aubergine and chocolate brown are the coming colours at Rolf Benz. Now and then, there may also be a dark lilac shade. A tour of the huge showroom reveals that these cool, matter-of-fact shades dominate alongside natural colours and, from time to time, a striking red or light green. People come from far and wide to try sitting on the furniture and to study the coverings. They have a choice of around 200 coloured leathers and another 400 fabrics. However, in the end, more than half of them choose one colour. "Customers accept any colour as long as it's black," says Dürr. This is no surprise for him. Black fits in with almost any living room environment and people who are paying a few thousand Euros for a high-quality seating arrangement do not want to find it has gone out of fashion after only two or three years.

However, design is only one facet of the success achieved by Rolf Benz. The other is function. A lounge chair must be able to be moved to any angle, for example. A sofa seat cushion must swivel in any direction. A chair must swing as freely as possible in order to provide better comfort. The furniture builder needs a steel skeleton to be able to do this. "These requirements for stability and strength cannot be met with any other material. Steel is the only answer," says purchasing manager Dürr.

Take one example: Rolf Benz 7800, a new and freely swinging upholstered chair that, with its black leather, is reminiscent of the Mark of Zorro. This delicate looking product innovation can support a weight of up to 150 kilos. "This chair has got to withstand extreme static loads without however being too heavy, otherwise it would not be possible to tilt it back," explains purchasing boss Dürr. Steel customers such as Rolf Benz are therefore interested in the development of ever lighter steels, but the price has got to be right; these are the kind of developments that ThyssenKrupp Steel is already working on. The Duisburg-based steel group is

Contact: **Gunter Dürr,** Rolf Benz, tel. +49 (0)7452 601-218, e-mail: g.duerr@rolf-benz.com
Dr. Peter Biele, Industry Division, tel. +49 (0)203 52-41166, e-mail: peter.biele@thyssenkrupp.com

already supplying the material for the high-tech interior of the Rolf Benz chairs. “Rolf Benz and ThyssenKrupp Steel share something in common, they both occupy leading positions in their relevant sectors,” smiles Dr. Peter Biele, technical customer consultant for industrial customers at ThyssenKrupp Steel in Duisburg.

Metals, above all steel, have only been used at Rolf Benz widely for about ten years now. Since then, they have displaced the traditional material of wood item by item. “I don’t know any product nowadays that doesn’t have some sort of metal part in its interior,” says Dürr and laughs: ”We were all woodworms here in the past.” This made for an equally difficult changeover for both designers and craftsmen. However, there was no alternative way to meet modern requirements in terms of function. With wood, the limits of mobility were quickly reached. However, aluminium is also unsuitable as a substitute for steel. Despite being much lighter, it is also disproportionately expensive and cannot guarantee the necessary strength either. “A chair like the 7800 cannot be achieved using any material other than steel,” says Dürr with conviction.

The functions of items of furniture were already a priority for company founder Rolf Benz in the 1960s. The designer realised that seating furniture had to be just as functional as cabinets or shelf systems. The consequence was living room landscapes in which the individual seat elements could be combined with one another in many different ways. These “modular elements” are currently publicised by Rolf Benz as an invention by their company.

Over the decades, Rolf Benz has significantly expanded its product range. The armchairs and sofas were first joined by tables and chairs, then designer lamps. For a few years now, the company has also been selling sideboards, dressers and glass cabinets which are referred to as solitaire furniture.

Nowadays, Rolf Benz AG & Co. KG is part of the Hüls furniture group. Production takes place in two premises close to the main administration building in Nagold. On average, 641 seating units are manufactured every day. In 2005, the company’s 550 employees generated sales of 85 million Euro.

More than 80 furniture ranges are currently produced. Each range in turn consists of a number of individual models with different sizes. Six to ten new ranges are added every year. The seating specialist displays its new products to the public at the major international furniture shows such as in Milan or Cologne.

In addition, Rolf Benz organises an in-house show every spring and autumn. However, the products from this high-quality brand are exclusively sold through dealers. Rolf Benz supplies to customers in 54 countries. “However, most of our business is with countries adjoining Germany, above all with Switzerland, Austria and the Benelux countries,” says Dürr.

Amidst a complex of modern design and demonstration halls there is still the old, solid building in which Rolf Benz created the ideas that laid the foundation for a success story that has now continued for more than 40 years. There is a group of chairs in one corner of the entrance hall. It looks modern and purposeful: Chrome-plated armrests and chair frames, clear shapes, a glass table with chrome edges. It is the “addiform” model designed by Rolf Benz in 1964. It became his first sales hit.

Bärbel Brockmann

www.rolf-benz.com
www.thyssenkrupp-steel.com/industry

▼ A swinging chair shows its legs: Steel in furniture construction guarantees not only stability and comfort, it can also show its class as a contrast to fabric and leather.

NewsFlash

EuroBLECH 2006

In Hanover this autumn, more than 1400 exhibitors from 40 countries, more than ever before, presented all their products relating to the manufacture and processing of sheet metal at the largest European technology show for sheet metal processing. The show included numerous innovations and leading-edge technologies – including from ThyssenKrupp Steel. More than 65,000 visitors from the trade were impressed by the product variety and steel expertise of the Duisburg company that was represented with a trade show stand jointly with other companies in the Group. The message: ThyssenKrupp Steel has developed from a straightforward material supplier into a systems company. Particular strength: Readiness to innovate and proximity to customers. The next EuroBLECH will take place at the end of October 2008.
www.euro-blech.com

The world's most modern process laboratory

ThyssenKrupp Steel has the most modern automated process laboratory in the world: Around 5000 samples from the production flow – from pig iron desulphurisation through to continuous casting – are analysed every day in the high-tech laboratory of oxygen steelworks 2. The precise composition of the samples is checked in an instant by one of the five high-performance spectrometers using radio emissions and X-rays. The procedure from removing the sample through to measuring the data is incredibly fast at only 3 minutes.

ThyssenKrupp Steel extrapolation method

The Auto Division of ThyssenKrupp Steel has developed a new computer model that significantly reduces the complexity of testing when measuring material characteristics for sheet metal forming. At the same time, the method offers significantly more realistic and reliable data than delivered by the formulas used previously, without the use of additional experiments. The model is to be made available to automobile manufacturers and suppliers as a software module for material data processing in their forming simulation programs. It is initially available for all cold-rolled products from ThyssenKrupp Steel and will also be developed further for hot strip in the future.

UnionOcel opens a warehouse in the Czech Republic

UnionOcel s.r.o., the Czech subsidiary of Union Steel Holding GmbH in which ThyssenKrupp Steel also owns an interest, opened a new central warehouse with a processing operation for the Central and Eastern European heavy plate markets in the Czech town of Kopřivnice. The warehouse hall has an area of just under 10,000 square metres, offering space for up to 30,000 tonnes of hot-rolled heavy plate. An administration building and a separate hall will be added next year, the latter housing laser systems and mechanical processing equipment. UnionOcel is the clear market leader for high-quality heavy plate in Central and Eastern Europe.
www.unionocel.cz

Analytical measuring centre combines expertise

The analytical measuring centre of ThyssenKrupp Steel combines the areas of metallurgy, metals science and surface analysis – not only geographically, but also organisationally – and offers research teams in the company support when developing innovative steel grades. The descriptions and measurements that are performed create the conditions for optimised materials and processes, while the knowledge obtained is channelled directly into the concept of materials and processes.

New decarburisation line at Electrical Steel

The foundation stone for a new decarburisation line has been laid in the Gelsenkirchen plant of ThyssenKrupp Electrical Steel. This will expand production of high-quality electrical strip grades with a low carbon content and favourable magnetic properties. The line is intended to start trial operation as early as the turn of the year. This investment in expansion, costing more than 10 million Euros, is part of the company's Forwards Strategy that was initiated during the last financial year.
www.tkes.com

Thermal roof for South Africa

ThyssenKrupp Hoesch Bausysteme is supplying 80,000 square metres of thermal roof construction elements with Triplex joints to Ugie, South Africa, for a new plant being built by the particle board manufacturer PG Bison Ltd. The elements are used for building the roofs of a multi-part hall complex. Bison Ltd. decided to choose thermal roof construction elements because they have an innovative ceiling concept in the form of the Triplex joint which also offers especially good levels of protection against condensation.
www.tks-bau.com

Service Center and the commercial vehicle industry

The ThyssenKrupp Steel Service Center supplies commercial vehicle and trailer manufacturers, as well as their suppliers, with material for products such as axle and frame constructions, driver's cabs, loading containers and other pressed, stamped and drawn parts. The greatest demand is for hot-rolled flat steel products. Customers are increasingly interested in high and higher strength steel grades as well.
www.thyssenkrupp-stahl-service-center.com/en

Rhenus Logistics is building with DAVEX®

ThyssenKrupp DAVEX has supplied 52,000 metres of lightweight construction sections for the new logistics center of Rhenus Logistics on the Duisburg Logport site. The sections are used as horizontal beams in a high-bay warehouse with space for 34,000 Euro pallets. The DAVEX® double-T sections made from thin steel sheet are especially suited to applications in shelving and drywall construction as well as for weight-bearing lightweight steel construction. For the same loading capacity, they require significantly less primary material than conventional products and are therefore less expensive.
www.davex.com/en

PSA relies increasingly on ThyssenKrupp Steel

New steel grades for Peugeot and Citroën

French has been spoken again in the Dortmund Westfalenhütte steelworks since the end of November. Blue-chip visitors from the major customer PSA Peugeot Citroën were visiting the hot-dip galvanising plant. The technical experts came from the PSA research department in Poissy near Paris to attend the start of the certification process for additional steel grades for their company.

"Bravo, don't let your efforts flag."

Thierry Marchal,
Quality Assurance, PSA Sochaux

For PSA, it is clear: When it comes to deliveries of the basic material steel, it is important for a car manufacturer to spread the risks as widely as possible. Therefore, high-quality steel must be bought from several different manufacturers. PSA already purchases 16 steel grades from the Dortmund hot-dip galvanising plant operated by ThyssenKrupp Steel, two more are to be added. It will take one year until the certification process is completed and the first coil, the initial sample, is delivered. Following this, the new grades can enter series production at PSA. Further certifications are planned for the future.

It is no mere chance that PSA is looking to ThyssenKrupp Steel when it comes to diversifying its purchasing portfolio. "Relations have become closer and better over recent years," thinks Daniela Bolocan, the head of the PSA key-account team. For both parties, the certification of new steel grades represents a classic win-win situation: PSA will be made more independent and ThyssenKrupp Steel can increase its sales, expanding its product portfolio with this customer.

PSA purchases 300,000 tonnes of hot-dip galvanised sheet every year from ThyssenKrupp Steel. Half of this is from Dortmund. Deliveries mainly go to the plants in Rennes and Sochaux in France and the new Trnava in Slovakia. "We have a particularly close relationship with Sochaux," says Bolocan. For years now, there has been a lively exchange of employees, with Dortmund specialists being trained in France. They go and see on the ground what the customer's requirements are and follow the entire production process. The frequency of contact helps both parties understand one another better. This pays off. The last annual assessment by PSA Sochaux was full of praise: "Bravo to you all, don't let your efforts flag," confirmed Thierry Marchal, head of the Quality Assurance department there.

Gernot Nothacker truly wants to understand his French colleagues. Since 2006, the technical coordinator for production in hot-dip galvanising plant 8 and another colleague have been learning the language. Nothacker is responsible for the quality of Peugeot models, and therefore a first point of contact when it comes to quality questions. He can now make himself understood very effectively. "Our efforts in the language are very positively received. The atmosphere in the meetings has significantly improved," thinks Nothacker. In addition to the atmosphere, he also senses very practical advantages. It is often possible to understand difficulties with details more effectively when no interpreter is required.

"Despite being neighbours, Germans and French people think very differently. But by cooperating intensively, you can see the success at the end of the day," thinks the Dortmund plant director, Rudolf Schönenberg. The French partners have sensed that their requirements are taken seriously. "The regular exchange has eliminated avoidable errors," he is convinced. Now, PSA management involves their Dortmund supplier when it comes to planned model changes, and both parties work on material solutions.

"Certification of new steel grades is a classic win-win situation."

Daniela Bolocan,
head of the PSA key-account team

PSA is the second largest client for hot-dip galvanised sheet from ThyssenKrupp Steel. It is supplied for a large proportion of the model range, including the luxury Citroën C6 saloon. A body of the Peugeot 407 stands in the fully automated hot-dip galvanising plant 8. ThyssenKrupp Steel bought it two years ago. "Our employees always have the customer in view," explains plant director Schönenberg.

Bärbel Brockmann

◀ The customer is near: The body of the Peugeot 407 on show at the Dortmund hot-dip galvanising plant operated by ThyssenKrupp Steel makes sure that the employees always have in view for whom they are working.

www.psa-peugeot-citroen.com
www.thyssenkrupp-steel.com/auto

Contact: **Daniela Bolocan,** Auto Division, tel. +49 (0)203 52-25564, e-mail: daniela.bolocan@thyssenkrupp.com

Norwegian ploughs revolutionise agriculture

Kverneland is producing with quality steel from Germany

▲ The Kverneland Group is based in Norway and can look back on a company tradition spanning more than 125 years. It has specialised in the manufacture of agricultural machinery, in particular ploughs.
The company with 2,300 workers is now represented by its products in 45 countries worldwide. In the traditional Norwegian location of Klepp alone, about 400 employees achieved annual sales of about 575 million Norwegian Krone (NOK), corresponding to about 70 million Euros.

"The most important competitive advantage our ploughs have are their outstanding steel quality and material technology," emphasises Kverneland laboratory manager Arnold Furre. "We have found our perfect supplier and system partner in ThyssenKrupp Steel for more than 30 years now."

Mouldboards, shares and bodies of the ploughs produced at Kverneland in Norway are made from steel. The traditional company based in Stavanger processes around 20,000 to 30,000 tonnes of the material every year. The steel is tailor-made and orientated precisely for the soil composition of where it will later be used. Whether for the stony and very hard soils of Norway, or the soft loam of southern England, every farmer gets an individual plough from Kverneland. The company's flagship is a 14-furrow semi-mounted reversible Brabant plough that moves up and down the field being ploughed in one and the same furrow, thereby ploughing the ground extremely effectively. This is also environmentally friendly and saves time. Hitched to a large tractor with 450 to 500 h.p., it is used in modern large-scale operations. However, the Kverneland Group can also offer something for medium-sized farms, for example the simple 5-furrow plough. A high-tech machine such as this costs between 12,000 and 60,000 Euros, not including the transport costs.

"The durability of our agricultural machinery is the most important factor," explains purchasing boss Odd Geir Aarre. "The ploughs can last generations, depending on the punishment they get. It is above all the quality of our primary material that plays a decisive role in this."

Contact: **Axel Grafen,** Industry Division, tel. +49 (0)203 52-41168, e-mail: axel.grafen@thyssenkrupp.com
Odd Geir Aarre, Kverneland Group, tel. +47 51 4290-00, e-mail: oddgeir.aarre@kvernelandgroup.com

▲ They meet twice a year (from l.): Kverneland laboratory manager Arnold Furre and purchasing boss Odd Geir Aarre with Axel Grafen, technical salesperson at ThyssenKrupp Steel. Then, as shown here, they discuss the quality of the primary material, processing and improvements to wear characteristics – a fruitful series of discussions for both partners.

This means the individual mouldboards and shares of a plough must be strong and tough at the same time. A paradox? Not at all. "Our specialty is in steel components that are extremely hard and resistant at the points where they bore through the ground. The same component is quite flexible and tough at the points where it is bolted onto the body of the plough or connected to other components, thereby preventing cracking under the enormous strain."

"Since the start of the 1970s, we have mainly been sourcing extremely hard, boron-alloyed annealing steels from ThyssenKrupp Steel," describes Aarre, paying tribute to the new challenges and extreme demands of global agriculture. The primary material is hardened according to a long-standing company recipe and prepared for use in the plough. Every single component is given special individual treatment. Which? "That will remain a well guarded company secret," he grins.

It is no secret that the responsible technical and research departments of Kverneland and ThyssenKrupp Steel meet regularly twice a year. "We think about material optimisation, discuss our material and its wear properties," says Axel Grafen, the responsible technical salesperson at ThyssenKrupp Steel. "This is just one of the reasons why complaints are a foreign language to us," emphasises Furre, who closely examines new steel grades every day in his two laboratories and tests not only components but also entire plough structures. "In the meetings, we look for practical and flexible solutions, a process that offers inestimable benefits to us." He remembers: "A good three years ago, we were having problems with the bolt holes on a large component. They cracked almost overnight and the material subsequently broke. We immediately called up Axel Grafen who put us straight in touch with the Materials Expertise Center of ThyssenKrupp Steel. After a few samples and a few weeks later, it became clear what was causing the fault, and we could eliminate it quickly and without problems."

Aarre is convinced of the benefits of close cooperation with ThyssenKrupp Steel: "If we want to maintain our position in the leading group of agricultural machinery manufacturers, we need to concentrate closely on improvements and innovations. ThyssenKrupp Steel has been providing us with innovative ideas, sensible solutions and important theoretical calculations right from the beginning. Together with our expertise in agricultural machinery construction, these represent the major advantages that will also secure our position in the future as a leading global manufacturer of agricultural machinery."

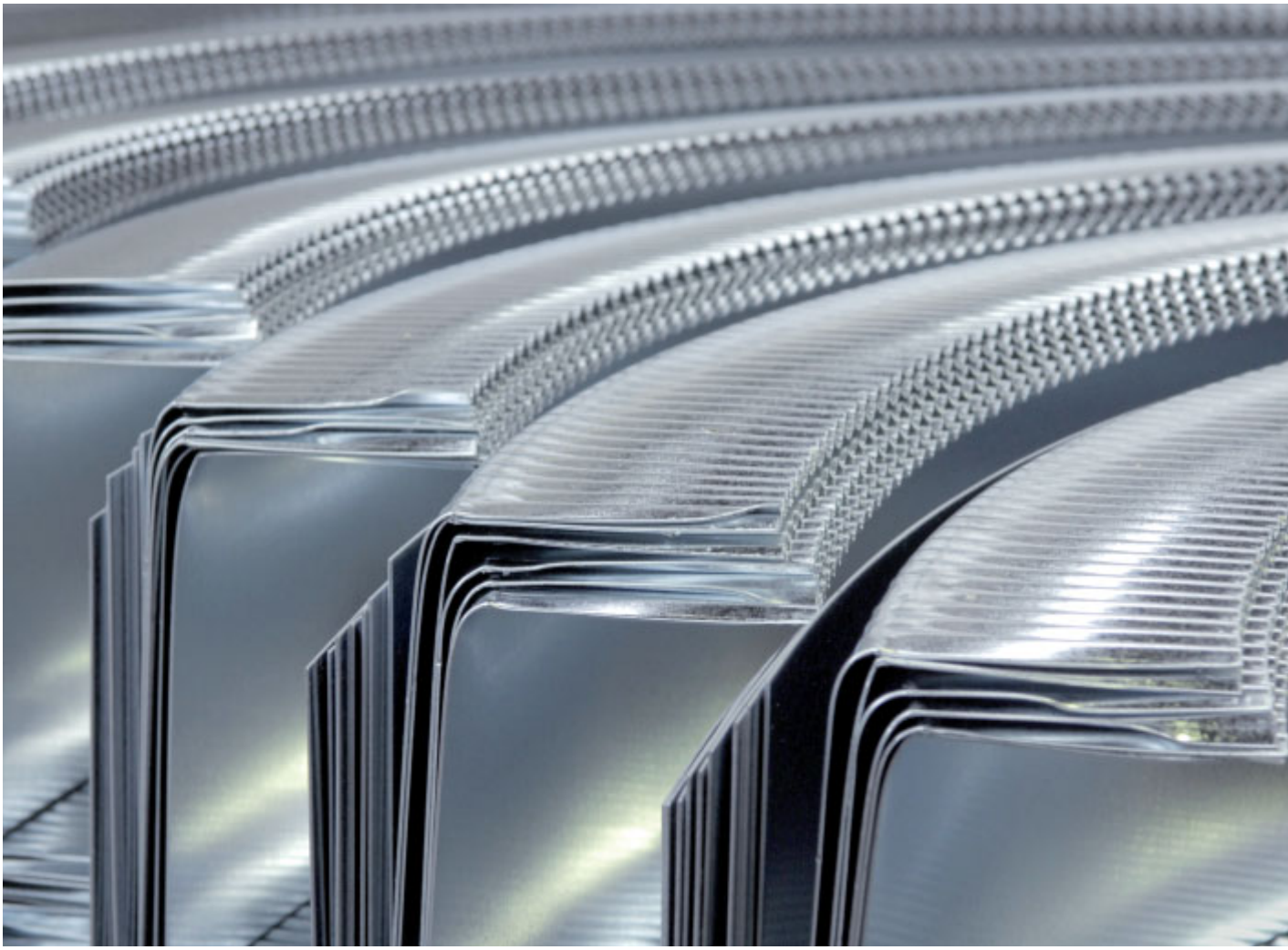
Christiane Hoch-Baumann

www.kvernelandgroup.com
www.thyssenkrupp-steel.com/industry

▼ Whether stony or loamy, hard, soft or sandy: Kverneland produces ploughs for every soil type all round the world. There are 35 different basic models that can be used as a starting point for up to 20,500 different variants, and new developments are being added all the time.

Rasselstein thin strip plant, cutting out waste

New customer groups for sheet metal packaging



▲ Cut, stacked, trimmed to size: The outer angles of coils made from steel sheet that has been finished on both sides. It is available in diameters from 700 to 2200 mm and thicknesses of 0.70 to 0.85 mm.

For years now, outsourcing has been the mantra of modern company management. Everything that was not part of the true core business is subcontracted. Many companies have benefited from this experience, while others have suffered a bloody nose. This is because outsourcing does not come with a guarantee for success. The Neuwied thin strip plant in Rasselstein operated by ThyssenKrupp Steel AG realised this at an early stage.

As well as its principal product of electrolytically galvanised thin sheet for the car industry, the site on the mid-Rhine produces packaging made from steel. The business is combined in the Neurapack company department and has become bigger and bigger over time. “We have succeeded in building up a new income stream with the packaging,” explains Matthias Janz, head of production in Neuwied. The packaging is made from steel sheet that does not fully meet the exacting quality requirements of the carmakers. These material defects arising during production are frequently invisible to the naked eye, and mostly appear at the start or finish of the rolling process.

Neuwied first started reusing scrap material back in the 1960s, although only on a small scale then. “We started doing it more in the mid-1990s. Now we want to open up a broad market,” says Burghard David, head of the Technology service team. 3.4 million edge protection strips alone are manufactured every year. The product range is much wider, however. It includes inner and outer collars for sheet coils of varying sizes, disposable folded corners, interior sleeves for coils and end plates. The edge protection with a small outward curve at the 90° corner is particularly ingenious. This profile prevents the top and bottom parts of the package material being bent and damaged during packaging of sheets or other panels.

Up till now, only steel products have been packaged using the edge protection components from Neuwied, and exclusively for delivery to Group companies in Germany and abroad. Both these policies are to change. “Our products are suitable for all kinds of goods that are packaged on pallets,” says Janz. This means the potential range of customers will be expanded enormously. For example, they are taking aim at entire industries, such as paper. One of the first non-Group customers is the Italian packaging specialist, Italpack.

Deliveries are made just-in-time. The stacks of corners, round blanks and side pieces in the extensive storage hall at Neuwied are marked with large signs: “Jakarta 210 256” or “Saudi Arabia 556 239”, the destinations and order numbers. “We deliver when the customer needs the material,” says David. As a rule, the in-house forwarding department is used for this. “In urgent cases, however, we use a different method so we don’t leave our customer in the lurch,” he confirms.

Investments are also being made in Neurapack as well in response to the planned expansion of the business. Most recently, a new inner collar machine was taken into operation. A new angle profiling machine has been ordered and will be starting production in the middle of next year. The Neurapack employees are already gearing up for additional shifts. “We know that several major orders will be arriving shortly, and we’ll have to increase our capacity,” says Wolfgang Göller, a worker in the company for 31 years. “But this will give us job security,” he adds. 34 men work at Neurapack in a two-shift organisation. They will have to add a third shift if the order levels demand it.

Bärbel Brockmann

▲ The trick is in the outward curvature of the corner. The profile of this edge protection prevents damage to the top or bottom panels in the package.

▼ If packed correctly, the coil will not suffer any scratches. Neurapack customer consultant Jürgen Schroller (left), Matthias Janz (middle) and Burghard David pictured with a coil that is fully protected by inner and outer edge protectors as well as a thin sheet blank on the sides.

Contact: **Klaus Kurke,** Neuwied Thin Strip Plant, tel. +49 (0)2631 81-3438, e-mail: klaus.kurke@thyssenkrupp.com

Visit us in Munich
at **BAU 2007**
from 15 to 20 January 2007
hall B3, stand 109

Agenda

BAU 2007
17th International Trade Show for Construction Materials, Building Systems and Renovation, 15-20 January 2007, Munich
The BAU in Munich is the main trade show for the European construction material industry. With around 2,000 exhibitors and 200,000 visitors, it is the platform for international business relations. With a combined stand, ThyssenKrupp Hoesch Bausysteme, Hoesch Bausysteme (Vienna), ems Isoliertechnik, ThyssenKrupp Nirosta and ThyssenKrupp DAVEX are using the show to present innovations and explain the marketing strategy of the Construction Element Group. ThyssenKrupp is inviting guests to a customer event on 18 January.

Swissbau
23-27 January 2007, Basel
ThyssenKrupp Hoesch Bausysteme is teaming up with its Swiss sales partner, Panel Systems, to take part in Swissbau, the largest Swiss construction show, in Basel. Panel Systems has been selling ThyssenKrupp construction systems for more than ten years and carries the entire product range for building construction in Switzerland. It is regarded as an expert partner for architects, construction engineers, building owners and planners when it comes to using roof and façade elements made from steel.

SFT Architectural Congress and Trade Show Systems – façades – trends
14-16 March 2007, Munster
ThyssenKrupp Steel is combining with the ThyssenKrupp Hoesch Bausysteme Group and ThyssenKrupp DAVEX to show innovative highlights for industrial building construction at the SFT in Munster. The congress brings together renowned architects from all over the world. Symposiums offer material for discussion in topics relating to innovative façade design using an extremely wide range of systems and materials.

R+T Asia
International Trade Fair for Roller Shutters, Door/Gate Systems and Sun Protection
2-4 April 2007, Shanghai
At present, there is nothing in China that is not booming – this also applies to the market for roller shutters and doors. ThyssenKrupp Bausysteme is following the trend and presenting roller doors at the R+T show in Shanghai.

Mosbuild
13th International Exhibition for Construction Materials and Building Equipment
3-6 April 2007, Moscow
Mosbuild is the largest and most important construction show in Russia. As part of the Eastern European Forwards Strategy pursued by ThyssenKrupp Hoesch Bausysteme, participation is essential in order to gain a foothold in the Russian market. The entire product portfolio of the Bausysteme Group will be on show.

Auto Shanghai
12th International Automobile & Manufacturing Technology Exhibition
22-28 April 2007, Shanghai
ThyssenKrupp Steel together with ThyssenKrupp Technologies are going to be in Shanghai to show off products from companies operating in China for supply to the automobile industry. The objective is to increase awareness and strengthen their image. At the same time, the theme of the show, "Technology and Nature in Harmony", will be accompanied by the message that "We are producing in China in the same environmentally friendly way as in Germany".

BAUMA 2007
28th International trade show for construction machinery, construction material machinery, mining machinery, construction vehicles and plant
23-29 April 2007, Munich
With about 3000 exhibitors from 48 countries, the BAUMA is the largest trade show of its kind in the world. Around a quarter of all visitors are from outside Germany. ThyssenKrupp Steel will be represented by the Heavy Plate Profit Center and is going to be presenting its XAR® special structural steels and annealed N-A-XTRA® and XABO® steels. The presentation will be rounded off by a customer event on 26 April.

CWIEME 2007
Coil Winding, Insulation & Electrical Manufacturing Exhibition Conference
22-24 May 2007, Berlin
The European Union is the world's biggest market for electrical equipment, appliances and applications. The electrical industry is almost as large as the North American and Japanese industries combined. The world's biggest trade show for this sector is the CWIEME in Berlin. ThyssenKrupp Steel and ThyssenKrupp Electrical Steel will be taking part with products made using PowerCore® electrical strip with oriented grain and non-oriented grain structures.

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

Thinking the future of steel

ThyssenKrupp Steel