compact

3/2007

The customer magazine of ThyssenKrupp Steel

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Creating Future

ThyssenKrupp Steel with innovations at the DEUBAU in Essen

Ground-breaking ceremony
Building work starts in the USA

"Start the blast"
Blast Furnace 8 in operation

Thinking the future of steel

ThyssenKrupp Steel

compact

About our cover picture:

The DEUBAU show in Essen opens its gates from 8 till 12 January. And ThyssenKrupp is there. Besides product innovations there will again be a varied supporting program with special shows, congresses and workshops. Read more about construction sector-related forecasts and products from page 12 onwards.

impressum

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Dear Readers,

"We're investing almost six billion euros to sustainably strengthen our position on the global competition front."

2007 too was a highly successful year for ThyssenKrupp Steel. The positive market environment gave rise to an exceptionally healthy demand for high-quality flat steel products, which, unfortunately, we were not always able to fully meet for capacity-related reasons. Our plants were running at full capacity and broke previous production records. The only drop of bitterness lies in the looming, renewed rises in the prices of raw materials and energy, which we are in some cases forced to pass on to our customers by increasing our prices as well. However, we are also doing our utmost to compensate further cost increases by optimizing the efficiency of our company's operations.

The signals we are seeing from the market are positive where next year is concerned as well. China will remain the international steel market's growth driver, with the other world regions showing stable underlying conditions with a slight upward trend. The steel economy will continue to operate at a high level. Up to now, our capacity bottlenecks have prevented us from participating to the full extent in this development.

With this situation in mind, therefore, 2006 saw us press ahead with our already much-described transatlantic Forwards strategy, the three major components of which are the building of a slabs plant in Brazil, a processing plant in the southeast of the USA, and the optimization of our plants in Europe. We are investing almost six billion euros in this tour de force which will sustainably strengthen our position on the global competition front.

We are well on the way to building up our capacities; the work on the Brazilian steelworks is coming along very well and, after the first twelve months, we are on time and on budget. Production operations will be starting up in early 2008, which will then enable us to deliver low-cost slabs to Western Europe and, from 2010 onwards, to ThyssenKrupp Steel's new processing lines in the state of Alabama in the USA. 2 November saw us celebrate the ground-breaking ceremony there in Calvert, Alabama. This marks the commencement of construction work on what is the ThyssenKrupp Group's biggest investment. You will find more information on this important event in this issue.

You can also read some interesting details on Blast Furnace 8, one of the few to be erected in Europe during the last ten years. The foundation stone was laid just 18 months ago in Duisburg, and we have now completed the furnace in record time and started up production.

ThyssenKrupp Steel has repositioned its activities in the area of building elements, and we shall be presenting our skills and competencies in this sector in January at the DEUBAU show in Essen, to which we extend you a cordial invitation.

It goes without saying that this issue also contains interesting reports on further innovative applications for our high-quality products, one example of which is the close cooperation with DESY (Deutsche Elektronen-Synchroton) in Hamburg, within the framework of which future-orientated research is being carried out on particle accelerators, using electrical strip from ThyssenKrupp Steel.

Our stakeholders – you as customers or suppliers, the employees – are playing decisive roles in the successful development of ThyssenKrupp Steel, and I, also on behalf of my Executive Board colleagues, would like to take this opportunity to thank you for the good cooperation. I wish you and your families the very best of success in 2008, in both your private as well as business lives.
And now I hope you enjoy reading this new issue of compact.

Yours,

Dr. Karl-Ulrich Köhler
Executive Board Member of ThyssenKrupp AG and
Executive Board Chairman of ThyssenKrupp Steel AG

Ground-breaking ceremony in Alabama

ThyssenKrupp continues its Atlantic strategy

"This is a great day for Mobile, for Alabama, for America, and for Germany," exclaimed Governor Bob Riley, addressing the around 500 invited guests at the ground-breaking ceremony held by ThyssenKrupp Steel USA and ThyssenKrupp Stainless USA. The ground-breaking ceremony on 2 November marked the commencement of building work on the new quality and stainless steel works, one of the biggest industrial projects in America.

Key figures on the mega-project

Investment volume: 3.1 billion euros

Production start-up: March 2010

Production capacity: 4.1 million metric tons per year of quality flats and up to 1 million metric tons of stainless steel

Planned jobs: 2,700 on a full 24-hour production basis; up to 27,000 jobs will be created in the course of the building phase

Location: Mount Vernon (population: 850) and Calvert (population: 400), US State of Alabama, nearest larger town: Mobile (population: around 200,000)

Base area of the location: 3,500 acres (14.2 square kilometers), of which 1,450 acres (equating to around 5.9 square kilometers, i.e. more than 780 football pitches) have to be leveled

Soil movement: Around 12.5 million metric tons, requiring the deployment of over 60 heavy vehicles networked via GPS

Logistics: Connection to the local and regional road and rail systems; bordering on Tombigbee River with direct access to the Gulf of Mexico and own plant terminal, construction of a new port terminal in Mobile

▲ They set to work at the ground-breaking ceremony in Calvert on 2 November (from l.): Dr. Ekkehard D. Schulz, Chief Executive Officer of ThyssenKrupp, Governor Bob Riley, the Chief Executive Officers of the investing ThyssenKrupp segments Steel and Stainless, Dr. Karl-Ulrich Köhler and Jürgen H. Fechter.

It is a project that can only be described in superlatives. 11 May 2007 saw the Supervisory Board of ThyssenKrupp approve the investment application and thus give the go-ahead for the construction of the jointly operated steel and processing plant in Calvert in the US State of Alabama. At the ground-breaking ceremony, Governor Bob Riley looked back on the tough but fair negotiations with the ThyssenKrupp management, and underlined the "transformative nature" of the investment – with additional new jobs being created which will make for considerably enhanced perspectives in terms of income in the south. The ThyssenKrupp managers present at the ceremony talked of the project's regional significance and the markets of the future, given that this commitment on the part of the German company represents one of its most important strategic decisions in recent years.

How to achieve growth in a market that is globally contested, consolidating, but also marked by growing demand? What possibilities are there for the international as well as intra-Group division of labor and, at the same time, cooperation? How can competitive and cost-related advantages be derived therefrom? The Group searched for and found forward-looking answers to these questions. Dr. Ekkehard Schulz, CEO of ThyssenKrupp AG, set the direction that was to be taken. "By means of a clearly defined forwards strategy we aim to get to grips with the international consolidation process so we can continue positioning ourselves as a global player in the European and North American steel markets." For ThyssenKrupp Steel this meant going global, with expansion via investment in new production sites towards strengthening cost and sales/marketing/distribution advantages. ThyssenKrupp Steel is the only steel company making growth-orientated investments worldwide in the interests of focusing on the highly profitable quality flat steel product segment," says Dr. Karl-Ulrich Köhler, member of ThyssenKrupp AG's Executive Board and CEO of ThyssenKrupp, explaining the strategy.

For one thing, the Supervisory Board's go-ahead for ThyssenKrupp CSA at the Sepetiba location in Rio de Janeiro State means the decision in favor of building up additional crude steel capacities for the production of low-cost slabs with high quality standards. Construction work on this plant involving an investment volume of 3 billion euros commenced on 29 September 2006, and production of the planned annual capacity of five million metric tons of slabs is

scheduled to start up in early 2009. 2 million metric tons of this production volume will be destined for processing in Germany, and above all the North American market – i.e. the NAFTA zone – has been identified as customer for the remaining production volume. "Today, the region is the world's biggest importer of flats, and will to a great degree be dependent on imports in the future. In the interests of being able to serve this market quicker and from a closer base, the decision was made in favor of establishing our own processing capacities in the USA," explains Köhler.

The distinctive feature of this project is the fact that the planned steel works in Calvert is a joint plant for products made from quality flat and stainless steel. The simultaneous building up of the necessary plant configuration presents the local management team led by Robert P. Soulliere (Steel) and Ulrich Albrecht-Früh (Stainless) with a challenge that could hardly be greater. Given the greater capacities for high-quality flat steel, ThyssenKrupp Steel is also shouldering a higher share of the investment volume to an amount of 2.3 billion euros, with ThyssenKrupp Stainless' share amounting to 0.8 billion euros. The core element of the plant is the construction of a jointly used hot-rolled wide strip train with an annual capacity of over 5 million metric tons.

ThyssenKrupp Steel's current share of the North American market amounts to one percent, and the investment is aimed at increasing it to five percent. "Only companies with a stringent quality and cost management policy can pursue a strategy as expansive as this one," says Köhler. "This plant will put us physically closer to the market, thereby ensuring us competitive advantages. But we can also rely on our longstanding business links with regular, key customers who hold us in high esteem, above all due to the high quality of our products and the intensive consulting services provided by our R&D arms."

ThyssenKrupp Steel intends supplying around 40 percent of its planned 4.1 million metric tons of finished products to the automotive industry, and the remaining 60 percent to customers in the domestic appliances, packaging, electrical and mechanical engineering industries. "The new plant promises technology and quality leadership, but also sufficient flexibility to enable us to meet specific requirements on the part of our customers," says Dr. Jost A. Massenberg, ThyssenKrupp Steel's Executive Board member responsible for the Industry business unit. In this function he will also be in charge of planning the market launch for the quality flat steel products generated by the new plant in Alabama. Massenberg currently expects the targeted market share growth to be attained within two years as from production start-up.

Erich W. Heine has already geared himself to the fact that there will be a number of hindrances to be cleared in the construction and start-up phase up until 2010. The member of ThyssenKrupp Steel's Executive Board has taken on the overall responsibility for the new plant. "We are, of course, expected to adhere to budget, even in the event, for example, of supplier and material price changes or exchange rate fluctuations," he says in reference to the task. Heine was on-site at the start of the construction work and was able to see for himself that everything is going according to plan up to now. A number of contracts for the preparation of the building site have been awarded to Alabama-based companies, and the key contract for the hot-rolled wide strip train to SMS Demag in Düsseldorf. "Our six-man management team has been on-site since July, and has already achieved a considerable amount to date," he tells us.

An essential prerequisite behind the decision in favor of Alabama was the assured cooperation of official authorities and companies. This, for example, is particularly reflected in the effective assistance provided by the Alabama Industrial Development Office in the selection and qualification of the staff needed to operate the plant, the recruitment of whom is one of the local management team's priority tasks. In addition to this, correspondingly designed nationwide PR drives are to draw attention to the project.

A further aspect is the requisite logistics structure for transporting the slabs delivered from Brazil to the plant in Calvert. These will have to be loaded onto other ships traveling up the Tombigbee River from Mobile, and this calls for the construction of a new terminal especially for this purpose at the port in Mobile, which, measured by goods turnover tonnage, is the eleventh biggest in the USA. The first demolition

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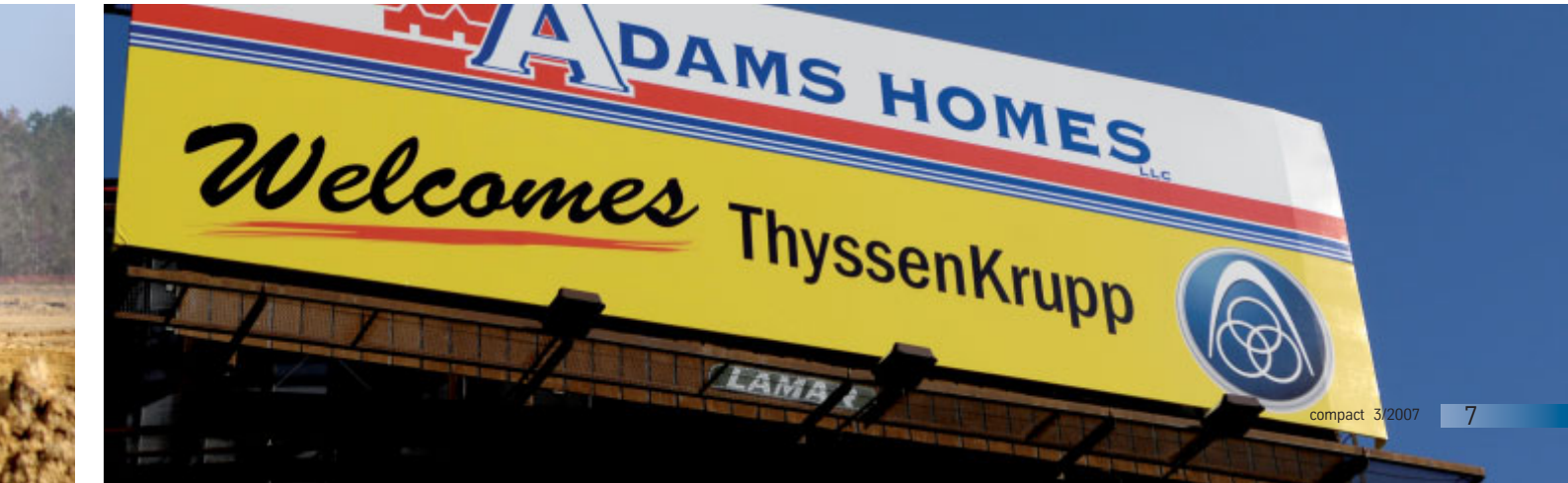
and preparatory construction measures are already in progress, and the actual building work is scheduled to commence in summer ’08.

“We shall already be ordering the necessary cranes in February ’08, and their delivery will be in August 2009,” says Jimmy Lyons, Executive Director of the Alabama State Port Authority. He estimates that the cost of building the new terminal will amount to 85 million US dollars.

The good cooperation with official bodies is also reflected in the rapid permit procedure for the plant: the state government and federal authorities issued all of the corresponding permits and licenses within a good five months. “What we were always told by ThyssenKrupp in the event of difficulties during the selection process was ‘Give us solutions’. I think that the way in which the region around Mobile and the state of Alabama worked together, also using their political representatives in Washington, impressed. That is something we shall be continuing,” promises Neal Wade, Director of the Alabama Development Office. His authority is already coordinating a large number of questions to and from ThyssenKrupp and has set up a ThyssenKrupp link on its website. This is a mutual give-and-take situation, and everyone knows: given the opportunities it is generating, this is a mega-project for both sides.

Dr. Bettina Wiess, business journalist

www.thyssenkrupp-steel.com/en/greenfield/index.jsp

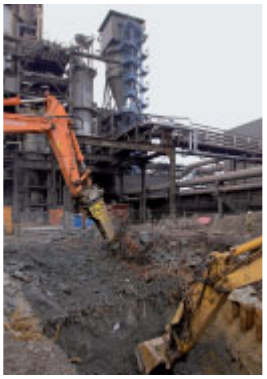


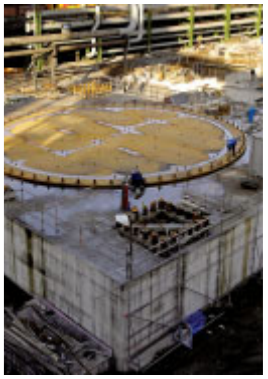
Rarity value: No other blast furnaces had been built in Germany for decades. Jürgen Kühn (left) and Site Manager Hans-Jürgen Schulokat built Blast Furnace 8 together.

ThyssenKrupp Steel modernizes its pig iron base

"Start the blast" – Blast Furnace 8 in operation

▶ It took five years from planning to the completed blast furnace. For months the steel colossus was bedecked with access scaffolding and support structures for motors, pumps and pipes, while ring by ring it rose to the towering height of 40 meters.





And by the beginning of December they'd done it. After 18 months of construction ThyssenKrupp Steel took its new Blast Furnace 8 into operation in Duisburg, ready to smelt 5,600 metric tons of crude iron, known as "pig" iron, every day. It's an investment with a rarity value, too: no other blast furnaces had been built in Germany for decades.

"Start the blast." Words that set Jürgen Kühn into a fever of excitement. For the Director of the Hamborn blast furnace operation they marked the Alpha and Omega, the beginning and the end, at the same time. "Start the blast": an end to five years of twelve-hour days of tension, planning the construction, searching for suitable construction companies and suppliers in China, Spain and the Czech Republic, and all the other worries that go with a 250-million Euro investment. "Start the blast", as the men who smelt the steel yelled, when in December Blast Furnace 8 was "blown in," to use the technical term. The comparison with a great ship's maiden voyage was unmistakable.

"Start the blast": words that hadn't been heard in Germany for years. For a long time it looked as if steel was, very literally, any old iron. But ever since the upwardly striving economies of China and India have started to generate a hunger for steel, the like of which had never been seen, the material has suddenly become a rare commodity. ThyssenKrupp Steel has been arming itself for the future and has invested almost six billion euros worldwide in building up capacities. The Group has been modernizing its pig iron base in Duisburg, too. The heart of the project is the new construction of Blast Furnace 8, set to replace the existing Blast Furnace 4 that dates back to 1963, as well as the general overhaul of Blast Furnace 9.

The mammoth task of the new construction was shouldered by a planning and project team of just 20 people headed by Clemens Leuermann. He has been with ThyssenKrupp Steel for 25 years, and is the man in the New Construction Department responsible for blast furnaces. There are only a few blast furnace experts in the whole world who have that kind of experience. Site Manager Hans-Jürgen Schulokat actually brought Kühn out of retirement. He had been on the job since 1969, one of the "ThyssenKrupp bedrocks", as he puts it. "The most difficult thing," recalls Leuermann, "was planning the project to fit in the area specified." And it had to be done right in the middle of old infrastructure which still took priority. Blast Furnace 8 actually stands on historic ground. "There's a lot of history buried in the earth, without being documented," says Schulokat. "The most unpleasant surprise was an unexploded bomb from World War Two."

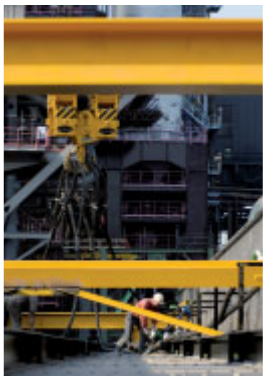
One single hectare of space today accommodates blast furnace, gas cleaning plants, cooling towers, hot-blast stoves and supply roads. The area is dominated by a steel colossus which for months was bedecked with access scaffolding and support structures for motors, pumps and pipes. Ring by ring, the furnace itself rose as the weeks went by to tower a full 40 meters above the ground. The belly is almost 14 meters wide, and 10,000 metric tons of material went into constructing the eight-centimeter thick steel jacket. "It took 18 hours before the foundation alone was fully cast," Kühn remembers; 5,000 metric tons of reinforced concrete. By comparison, it takes about one hour to pour the foundation of a single-family house. "The furnace is faced on the inside with refractory masonry," he explains. "The cladding is up to two meters thick and swallowed up 20,000 metric tons of material." When it came to the construction firms, Kühn and Leuermann went only for the best. For example, as subcontractors of Paul Wurth GmbH for the steel civil engineering work they chose Maurer & Söhne, famous for the most innovative roller-coasters in the world.

At peak times there were 800 building workers, electricians and instrumentation and control specialists clambering around on and in the structures, welding, installing and excavating. Cranes and excavators were on the go round the clock. Supplying the site needed 35 kilometers of pipework alone, to the uninitiated an indecipherable labyrinth which is shortly to be conveying compressed air, nitrogen, natural gas, blast furnace gas, carbon monoxide, cold blast, steam, and cooling water – and some of these in enormous volumes. Just as an example, every single day Blast Furnace 8 needs as much water in a closed circuit for cooling as a medium-sized town.

When there's work going on simultaneously with ten construction units, tensions tend to run high. Take, for example, the time when the 240-tonne








inclined hoist was being installed. This is used to convey ore and coke from the daily storage bin to the head of the blast furnace, where it is then tipped into the furnace by means of a kind of transit lock. The crane driver had to weave his way between all the other installations and buildings for four long hours before the 70-meter length and eight-meter width of the monster was finally bolted in place. Applause broke out at the end. The three hot-blast stoves too, 40 meters high, with towers provided with a steel casing, took a lot of effort to install. Their function is to act like giant gas burners to supply the furnace with a flow of hot air which sets the chemical reaction in motion. The waste gas rises upwards, is sucked out and then conveyed onwards to the gas cleaning system before being fed back into the circuit via the hot-blast stoves.

"The days when a great yellow cloud billowed up every time there was a run-off are long gone," explains Kühn. He is justly proud of the modern environmental engineering that makes Blast Furnace 8 the only one of its kind in the world. "No gas gets out into the atmosphere any more." And no fine dust, either. The people in the residential district just 150 meters away as the crow flies can breathe again. In fact, the legal limit values for emissions have, in part, not been reached by some way, thanks to Leuermann having installed the very latest in "vacuum cleaners" wherever the raw materials are dumped, shaken about or loaded.

Take the high-line de-dusting system, for example. Goods trains move up to it on an elevated stage and tip their raw materials into the daily storage bins, from which Furnaces 8 and 9 are supplied. While on this stage, movable hoods cover the wagons which are active at each particular time completely, while they empty the bulk material out sideways. These cyclone hoods suck up the air with its burden of dust and filter it. As well as this, the bin openings are covered as far as possible. This arrangement is the only one of its kind in the world – and it alone cost 20 million euros.

And so the cry "Start the blast" also marks the beginning of a new era for Kühn. "The new blast furnace means that we can improve things by several orders of magnitude." For example, whereas the fuel-to-pig iron ratio used to be 800 kg of coke to one metric ton of pig iron, Blast Furnace 8 manages with less than 500 kilos of fuel. The complex also has some interesting visual features, as well as technological ones. The railings on the steel structure are painted pink, while the bracing elements of the high line are green. And the light blue casting bay has a window frontage, again the only one of its kind in the world. Kühn can envisage lawns between the installations, and perhaps even an avenue. That really would finally reconcile the steel industry with the environment.

Karin Michaelis, freelance journalist

www.thyssenkrupp-steel.com/perspektiven

What happens in a blast furnace...

is that crude iron, or pig iron, is smelted. To achieve this, hot air at 1,200 degrees is blown through coke and iron ore. The coke serves in this situation as a source of heat and as a reducing agent at the same time. The carbon draws out the oxygen from the iron oxide which is bound in the ore, and molten pig iron trickles downwards, where it then flows away. Pig iron was tapped for the first time in 1896 on the site where the new Blast Furnace 8 now stands. Its predecessor was shut down in 1991, after doing its duty for 40 years. When the bulldozers moved backwards and forwards to clear the ground, its remains landed up as scrap in the steel mill converter.

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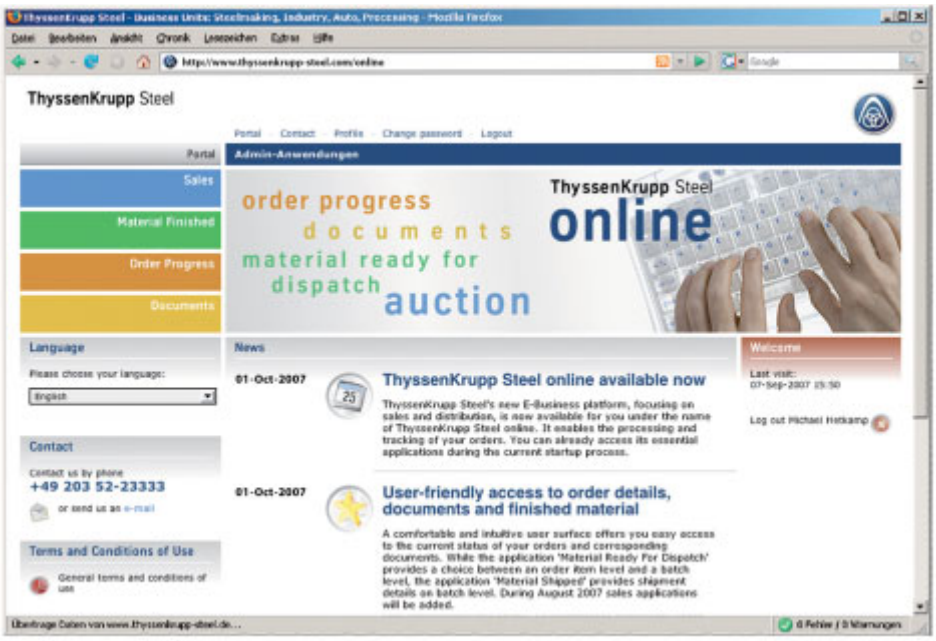
Quick and easy

E-Business platform specially for customers

“A work-easer that saves time and creates transparency,” is how Frank Hagemann of MAN Ferrostaalmetals GmbH describes the ThyssenKrupp Steel online website.

The staff of Central Purchasing for MAN Commercial Vehicles are highly satisfied with the new system and highlight its high degree of user friendliness. MAN Ferrostaalmetals is one of the growing number of customers making active use of ThyssenKrupp Steel online in their day-to-day business operations. The E-Business platform for customers of ThyssenKrupp Steel went into operation in early October, since which time almost 300 business partners with more than 750 users are now using the web-based system that runs in five languages. A customer survey conducted anonymously after four weeks came up with highly positive values in terms of satisfaction, with good ratings for graphics, handling and comprehensibility, loading times and up-to-dateness of data.



▲ Customers can check on the progress of their order online at any time.

Customer satisfaction with the functions the system offers is also above average. At the heart of the platform are the order tracking facility with the corresponding overviews of materials that are ready for dispatch, as well as a materials call-off function. Users wishing to find out how far their orders have been processed and on which truck or railcar the products in question have left the plant can access the corresponding information online around the clock, seven days a week. In the event of any changes in the date of delivery, delivery address or mode of transport, all that is needed are a couple of mouseclicks in the materials call-off application in order to provide ThyssenKrupp Steel with the corresponding information. As of November the platform also offers an article overview, enabling customers to ascertain the volumes of steel on which work is in progress in connection with the components and products they manufacture.

ThyssenKrupp Steel online also offers the possibility to take part in regular online steel auctions. The system is extremely user-friendly, with well thought-out supplementary functions such as printer-friendly processing, search and sum lines, an automatic zip function for compressing larger documents, and a diversity of personalization options. Users can put together precisely the information they really need, in addition to which separate access can be set up for different users within a customer’s company.

Bernd Overmaat

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DEUBAU 2008 in Essen

Creating Future with innovative steel

Professionals from the international construction industry meet at the Messe Essen fair complex from 8 till 12 January. Under the event's motto "Creating Future", ThyssenKrupp will be presenting a diversity of possibilities for using steel in construction work.

▼ As already in 2006, Dr. Karl-Ulrich Köhler, ThyssenKrupp AG Executive Board member and CEO of ThyssenKrupp Steel will be opening the "International Architecture Congress" on 9 January in his function as Chairman of the Steel Information Center, with the event's focus on construction with steel in public buildings.

Steel sections, roof, wall and facade elements, including the new Hoesch Matrix® system, structural components in nine color variants and made from incombustible building materials, also with anti-graffiti coating from which sprayed-on paint can be easily removed with water: these are the current highlights with which ThyssenKrupp Steel will be making its appearance in Essen. Besides the Duisburg-based steel company, more than 720 exhibitors from the sectors of structural and civil engineering and finishing are expected to be present.

The trade show's focus this year is on the "modernization, renovation and redevelopment of existing buildings and structures" as a growth market, and companies from all areas of construction finishing will be showing their specialized offerings. The event's organizers are anticipating over 75,000 visitors, who will be taken through a supporting program of special shows, congresses and workshops. The Steel Information Center (SIC), for example, will be holding its "International Architecture Congress" again this year, which will be opened on 9 January by Dr. Karl-Ulrich Köhler, ThyssenKrupp AG Board of Management member and CEO of ThyssenKrupp Steel, in his function as the SIC's chairman. The event's focus will be on construction with steel in public buildings, with internationally acknowledged specialists presenting innovative projects and architectural solutions for living and working in the urban environment. The congress is aimed at interested architects, engineers and city/town planners. Cooperation partner for the event will be the North Rhine-Westphalia Chamber of Architecture.

In addition, the North Rhine-Westphalia Chamber of Engineers will be extending an invitation to a special conference on 10 January for engineers involved in traffic planning. The focal topics are the new sets of guidelines for the laying of motorways, country and town roads, as well as matters concerning the financing of highways in terms of new construction as well as upkeep. A further topic will be that of the "Children's paths in the city", a practical project on the part of the North Rhine-Westphalia Chamber of Engineers and the City of Essen.

Christiane Hoch-Baumann

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Germany's biggest steel company reorganizes its construction sector operations

Pointing the way in an emerging market

Things are happening with the construction activities at ThyssenKrupp Steel, pointing the way with quality and innovations with even more intensive orientation to the target markets.

▲ Reinhard Täger

▼ Volker Senger

With effect as of October, Profit Center Color and the Building Elements Group are now under joint management under the banner Competence Center Color/Construction. The aim behind this move is to ensure participation in the upswing and growth in the European construction sector on an even more customer-orientated basis than ever before, and it makes the production of building elements an extension of the value chain. Service from one single source: from coil-coated quality sheet right through to intelligent building products. The advantage of the new organizational structure lies in optimum input materials reliability, high quality standards, added flexibility and more efficient market penetration, joint use – and thus optimum capacity utilization – of existing production facilities, while the responsibility for production and sales operations in the Construction Group remains true to its customer orientation.

Headed by Reinhard Täger and Volker Senger, Competence Center Color/Construction is responsible for strategic orientation. In concrete terms, the production of steel sandwich elements was concentrated on the plants in Kreuztal-Eichen in Germany's Siegerland region and Oldenburg in Ostholstein. The ThyssenKrupp Epitoelemek sandwich plant in Hungary, inaugurated in late November (see page 15), will enable consolidation of the market expansion in the Central and Eastern European countries and of the traditional Hoesch Bausysteme range of products and services in Austria. In addition, new sales/marketing centers have been set up, namely ThyssenKrupp Bausysteme in Russia and ThyssenKrupp Building Systems in the UK.

As far back as late July, ThyssenKrupp Steel merged ems Isoliersysteme with ThyssenKrupp Hoesch Bausysteme to form ThyssenKrupp Bausysteme for the purposes of further strengthening the existing competency and offering customers a bundled range of the brands that have been established for decades in the areas of trapezoidal and sandwich elements for roofs, facade and cold storage rooms.
There were also changes in the Western Europe region, with restructuring of the shareholder structures at Isocab N.V. in Belgium, Isocab France S.A. in France, and Decapanel S.A.S., likewise in France.

Things have also happened on the personnel front as well, with Dr. Horst-Dieter Schulz and Thomas Polonyi becoming managing directors of ThyssenKrupp Bausysteme, and Peter Segler and Hans Georg Stadlober appointed to the Executive Board of Hoesch Bausysteme Vienna.

Christiane Hoch-Baumann

▲ Dr. Horst-Dieter Schulz (l.) and Thomas Polonyi, ThyssenKrupp Bausysteme

Construction Group

ThyssenKrupp Steel's Construction Group processes steel into high-quality products for the construction industry, and, with an annual production volume of around 160,000 metric tons, generates a turnover of some 350 million euros. The Construction Group employs a workforce of approx. 880 at plants in Germany, Austria, Belgium and France, as well as at the new production facility in Hungary.

▲ Hans Georg Stadlober (l.) and Peter Segler, Hoesch Bausysteme Vienna

◀ Stefaan Wauters (l.) and Jacques Castelein, Isocab

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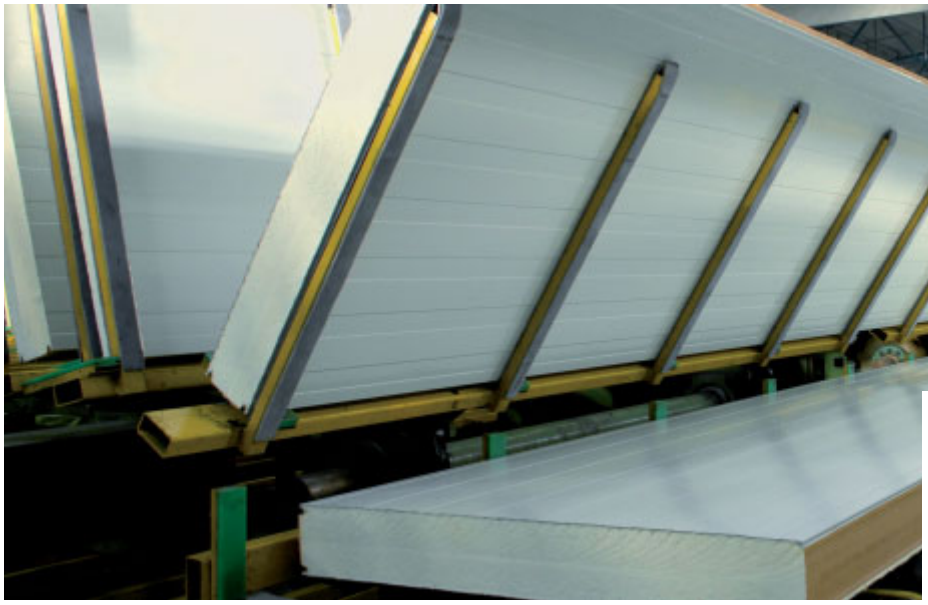
Construction Group

Production started in Hungary

▼ The new plant, in which 16,000 metric tons of Hoesch and ems sandwich elements with a polyurethane core will be manufactured, is located approximately 60 kilometers from Budapest. Total investment: 8 million euros. The Executive Board member in charge of the project, Dr. Jost A. Massenberg (2nd from left), symbolically pressed the start button at the end of November.



The end of November marked the opening of ThyssenKrupp Építőelemek in Hungary. 16,000 metric tons of Hoesch® and ems® sandwich elements with a polyurethane core will in future be produced each year in the plant of the Construction Group, which is part of ThyssenKrupp Steel. The customers will mainly include erection companies in Central and Eastern Europe.

"Welcome to ThyssenKrupp Építőelemek!" it says in Felsőlajos. ThyssenKrupp Steel's first sandwich plant has been opened in one of the new EU member states approximately 60 kilometers from the capital of Budapest. "This investment will enable us to supply the rapidly growing markets in Central and Eastern Europe with products which will be in huge demand in the future," so says the Executive Board member in charge of the project, Dr. Jost A. Massenberg. "We anticipate annual growth rates of ten percent for sandwich elements up to the year 2012 and aim to achieve a 15 percent market share with ThyssenKrupp Építőelemek." The company is managed by György Csuka, who will continue to manage the sales office in Budapest, and Tibor Hettyey. László Csordás is the plant manager. "We will now be able to offer customers production with first-class value for money," agree Csuka and Csordás.

The input material originates from the Color Profit Center in Kreuztal-Eichen. "That represents 1.2 million square meters a year alone of polyurethane sandwich segments for facades, roofs and walls," stresses Csuka. However, the plant in Hungary will offer its customers a great deal more and will be able to have recourse to the Construction Group's complete range of products which, in addition, includes cold store panels and fire protection panels from the isorock® range, the trapezoidal and corrugated profile product lines, cambered roofs, polygonal arcs, cassettes and perforated profiles. In addition, there is the patented ceiling system, Hoesch Additive Ceiling®. "This gives us the most complete range throughout Europe, with perfectly harmonized solutions for residential, commercial and industrial construction as well as cold store and deep-freeze store construction," comments Csordás. "We will secure our good market position and strengthen our development opportunities as well as profitability." The company will build on twelve years' experience in the markets of Central and Eastern Europe. Customers will be assisted by competent consultancy and sales teams in the Construction Group's own sales companies in Bulgaria, the Czech Republic, Slovakia, Croatia, Romania and Hungary. After all, "The growth of the construction industry in Central and Eastern Europe is enormous," explains Csuka. "And Romania, with up to 20 percent, is right at the front."

Daria Szygalski

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More than a ray of hope

German building industry in upswing for the first time in years

The German construction industry is hoping for a stable upswing. Investment in buildings also rose in 2007 after years of decline.

2006 saw a turnover of around 81.2 billion euros among Germany's construction industry trades, equating to a growth rate of nine percent and accounting for 9.5 percent of GDP. This positive trend continued in 2007: The expert report published in early November expects an overall investment growth figure of 2.6 percent.

The volume of new orders taken in the construction industry in the first seven months of the year grew by 8.4 percent, and there was growth in new orders for lightweight elements as well, at a rate of 18.4 percent according to steel trade calculations. The industrial and public building sectors registered upward rates of 17.6 and 4.9 percent respectively. This lively demand is being reflected in high turnover growth, of 9.1 percent in the industrial sector while turnover in the sphere of public building rose by 5 percent. The only construction industry sector with declining business volumes is that of housing construction, due to the fact that a large number of private builder-owners had brought their projects forward to 2006 because of the revocation of the first-home buyer allowance (Eigenheimzulage) and the imminent VAT increase.

The German Construction Industry Federation anticipates a continuing, moderate upward trend for the second half of 2007 and in 2008 in spite of growing macroeconomic risks. The reasons for this expectation lie in the forecast growth figures for the economy as a whole, with GDP growth of 2.6 percent being reckoned with for 2007, though the council of experts expects this rate to drop to 1.9 percent in the following year. This, say the economists, will be because of lower net foreign demand while domestic demand – and first and foremost private consumption – will develop into the main driver behind economic development.

On the other hand, however, the readiness to invest on the part of the companies in the German manufacturing industry remains unabated, in spite of the rising dollar-euro exchange rate. The implementation of their plans would equate to an investment plus of nine percent. And, according to the German Construction Industry Federation, the project pipeline is well filled as well; alone in the period January-July 2007, the value of newly approved industrial building projects amounted to 9.6 billion euros, a rise of 8.5 percent as against the figure for the same period the previous year.

Besides the industrial sector, the public sector – in particular the local authorities – is starting to invest more again in building projects, with the cities and municipalities spending 12.6 percent more in the first half-year of 2007 than in 2006. The German Congress of Municipal Authorities anticipates an overall growth figure of 7.7 percent for 2007 in terms of expenditure on construction, with a special role in this respect being played by the energetic refurbishment of communal buildings since use can be made of the corresponding schemes offered by the Reconstruction Loan Corporation (Kreditanstalt für Wiederaufbau).

Almost 60 percent of the total construction volume in Germany is accounted for by the work on existing buildings and structures. Of the around 31 million dwellings, well over 75 percent are counted among the stock of old buildings. However, besides the modernization work there, refurbishment and change of use in the spheres of industrial and office buildings too constitute one of the most important tasks for the construction industry in the 21st Century. The Düsseldorf-based Stahl-Informations-Zentrum is a joint initiative of the German steel industry, and, with this work in mind, promotes the use of lightweight steel which, in spite of its low weight, offers an extremely high load-bearing capacity. And steel was also a topic at the Leipziger Baugespräch event in late October as well: "The fact that more emphasis is being placed again on quality assurance in construction work and the focus is increasingly on sustainability means a boost for the possibilities of using steel products in civil engineering," says Dr. Reinhard Winkelgrund, managing director of the Stahl-Informations-Zentrum, adding that steel has a whole range of advantages in ecological terms. One example in this respect is that it offers excellent resource efficiency where supporting building elements are concerned, since a high load-bearing capacity can be achieved with relatively low deployment of materials.

Besides an intensification of the crisis in the financial markets, risks for the economic situation of the building industry lie in the rising prices of building materials and the gradually emerging personnel bottlenecks. Building materials account for around 30 percent of the costs in the building industry, and significant rises in their prices as result of increased raw material prices in the world market "gobble up" the extra turnover again in some cases. Federation figures tell us that turnover growth of between 0.5 and 1.5 percent in real terms was all that was left in the wake of the average price rise of 3 to 4 percent in 2007.

The emerging bottleneck in terms of both construction engineers as well as skilled and specialized workers is making for a highly charged situation, and 3,200 engineering jobs were unable to be filled last year in the construction industry alone. The personnel headcount in the building industry has been cut from a figure of 1.4 million to less than 700,000 since the mid-1990s, and the task to be overcome now is that of creating the resources again for building up the workforce. "After ten years of crisis, the upswing is facing German construction companies with challenges that are completely new to them. What the construction industry now urgently needs is a strategy for securing a supply of young industrial and academic blood," says Dr. Hans-Peter Keitel, former CEO of Hochtief AG and now a member of its supervisory board and president of the German Construction Industry Federation. While the negative training trend has been reversed via an increase in the number of training and apprenticeship contracts, with a current figure of around 35,600 trainees and apprentices in 20 building trade occupations, Dr. Keitel doesn't think that this is sufficient. Under the headword "Competition for the most talented: The German building industry needs a job security strategy" the aim is to further develop job profiles, foster dual study courses and opportunities for advancement, and improve working conditions and advanced training systems.

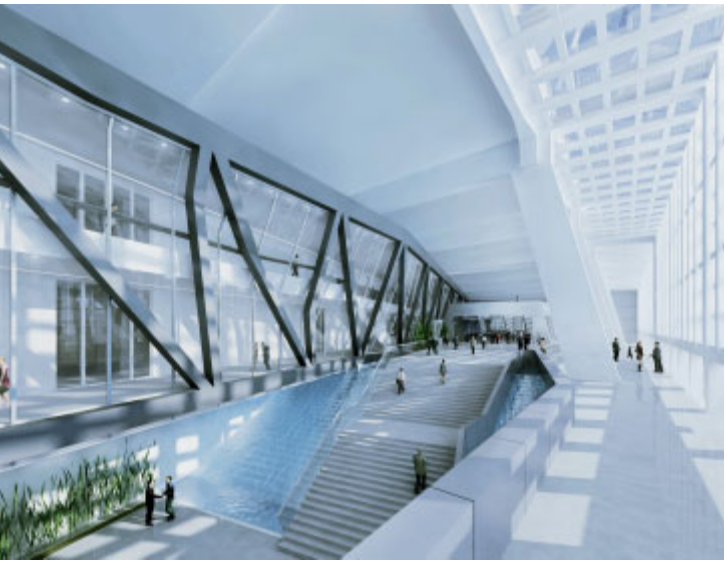
Dr. Bettina Wiess, business journalist

The European Central Bank as builder-owner in Frankfurt

From the "vegetable church" to the Eurotower

The invitation to tender stated that the new construction was to reflect the key values of the European Central Bank's activities, namely integrity, competence, efficiency and transparency. Steel will play an important part in this. Although construction work has not even started yet, the project is already one of the construction projects in Europe which is arousing the most attention.

▲ The new ECB complex will comprise an ensemble of three buildings: a 184-meter high double tower which spirals within itself, the former Grossmarkthalle (wholesale market) and a so-called cantilever which will penetrate the Grossmarkthalle. Structural members made of steel will also be used. ▼



Following the accession of Malta and Cyprus on 1 January 2008, the European Central Bank (ECB) will be making decisions relating to monetary policy for 15 European states and their 320 million inhabitants. However, it also makes judgments and decisions on its own affairs: the result of this was presented to the public at the beginning of October and submitted to the relevant authorities of the city of Frankfurt am Main in the form of a planning application for the construction of the new site of the ECB. "The decision to give Frankfurt the ECB was of eminent importance to the city, both materially and for its image, and this will also be true of the new site" stresses the mayor, Petra Roth. Frankfurt is "Bankfurt." The city now has approximately 330 credit institutes, roughly 150 of them foreign banks. The banks also strongly influence urban development here. While other German cities remain skeptical of skyscraper architecture, companies – mainly banks – have been building their towering edifices in Frankfurt for nearly 40 years. The "Mainhattan" skyline (remember:

▲ Member of the ECB board of directors Lorenzo Bini Smaghi (left) and architect Prof. Wolf D. Prix in front of the model of the new site which was presented in Frankfurt in October. Prix, Helmut Jahn from Chicago, and other top-flight architects will incidentally be taking part in the architecture congress at DEUBAU in Essen on 9 January, together with ThyssenKrupp Executive Board member and ThyssenKrupp Steel CEO, Dr. Karl-Ulrich Köhler, and will be speaking about current projects.

Frankfurt is built on the River Main) counts 26 skyscrapers with a height of more than 100 meters; now, away from the actual financial district, the ECB's new home is adding two more.

In 2002, the ECB acquired a plot of land measuring twelve hectares in the Ostend district of Frankfurt from the city of Frankfurt for 61 million euros, approximately two kilometers from the financial district. The Hanauer Landstrasse which, as long ago as the Middle Ages, was part of an important trading route from Leipzig to Frankfurt, passes the plot of land. The fact that the ECB made the decision in favor of this very location was due to what is probably the most important building on the Hanauer, the Grossmarkthalle (Wholesale Market). It was designed by Martin Elsaesser, one of the leading architects of the Weimar Republic, between 1926 and 1928. Before coming to Frankfurt, Elsaesser built numerous churches in southern Germany, and the Grossmarkthalle soon came to be known in local parlance as the "vegetable church". The architect, combining traditional motifs with the latest construction technology, placed the main hall between two towers, one at either end. Smaller auxiliary and residential buildings were also included. The two brick-enclosed towers are nine stories tall. The hall itself is 220 meters long, 51 meters wide and 23.5 meters high. Its structure consists of 15 concrete shells on a trapezoidal framework built according to the patented Zeiss-Dywidag method. At their apex, the shells are only seven centimeters thick and do not span all the way to the external glass facade, so that the remaining space could be designed as a horizontal glass roof. The Grossmarkthalle was the biggest self-supporting hall construction of its time. The enormous open space guaranteed good ventilation, thus providing optimum conditions for the storage of fruit and vegetables.

The ECB was allowed to acquire the site under the condition that the listed building be incorporated into the plans for a new build in a way that would preserve its basic appearance, with the blessings of the responsible state authorities. The city of Frankfurt, which could not have found a better buyer than the ECB for its architectural gem, agreed to help pay indirectly for the Grossmarkthalle's restoration by discounting the sale price of the site by 30 million euros.

For the architects, blending in the listed Grossmarkthalle was no simple task, especially as the plans had to take into account the nearly desolate condition of much of the structure. "In our view, giving a new life to the Grossmarkthalle represents a great opportunity, not only in architectural terms but also as a symbol of the historical roots on which the monetary unification of Europe is being built," comments Lorenzo Bini Smaghi, the ECB Executive Board member in charge of the new build, on the challenge.

In February 2004 an international jury awarded first prize to a design by Vienna architects COOP HIMMELB(L)AU in the international urban planning and architectural design competition announced in November 2002. "This project is a pinnacle in our career. Besides the idea, the location of the new building in Frankfurt was very attractive to us; the project represents a new dominance of urban planning," says Wolf D. Prix, co-founder and current head of COOP HIMMELB(L)AU. The design consists of an ensemble of three buildings: a 184-meter high double tower which spirals within itself, the former Grossmarkthalle, and a so-called cantilever that penetrates the Grossmarkthalle (at present, there are still legal misgivings about this) and connects it with the tower, simultaneously marking a clear entrance to the north. "The building is a functional sculpture, an icon and a new type of skyscraper construction," says architect Prix. The starting point for the design of the towers was the urban perspectives of the city of Frankfurt – they would be visible from all important locations in Frankfurt's city center, as well as from the River Main. The two office towers are linked through an atrium that serves to open up the interior space and facilitate internal communication through the insertion of rooms, spaces and traffic links. "With this, we are making a long-cherished dream come true: that of realizing a vertical city," said Prix. The Grossmarkthalle will be given the form of an urbane foyer with a conference and visitor center, library and restaurant, with a building in the form of a suspended entrance building being incorporated, which is to house the media center in future. Structural elements made of steel are also to be used.

Executive Board member Bini Smaghi also indicated a date for the opening celebrations during the presentation of the draft plans in October: the move to the new building should be completed in four years, in October 2011. Until that point, the ECB will spend 500 million euros on the construction of its new premises, with the estimated total investment amounting to approximately 850 million euros. One thing is already clear: the new building will become a striking feature of the "Mainhattan" skyline and the employees of the bank will be able to draw up European monetary policy with one of the best views of "the City of the Euro".

Philipp C. Kulze

www.ecb/int/ecb/html/index.de.html

Building with steel: aesthetically pleasing and economical

Shopping world in listed monastery

◀ Unique shopping experience: people go shopping in a converted monastery in Loeben in Austria

"With our products we were able to assist in a unique project which demonstrates how innovative facade profiles made of steel can impressively support modern architectural language," comments Simon Rümmele of the Marketing Department of Hoesch Bausysteme GmbH of Vienna.

The project involved a shopping center, the only one of its kind, which was opened in October in Loeben, the second largest city in Styria in Austria. What makes the "LCS Loeben City Shopping" complex unique is the fact that the city council decided to convert a former Dominican monastery, which is now a listed building and which is situated right in the historic core of the city, into a shopping center. The center will thus become part of the city center development, instead of – as is usually the case with such properties – being established outside the city center or completely in the open countryside. By laying a street, the center has been directly connected to the old part of the city. Visitors can now enjoy a modern shopping experience in almost 70 shops and cafes on two floors between historic walls and Gothic cloisters. This project brings the total area of the retail facilities in Loeben to almost 40,000 square meters.

The facades selected by the architects, A&GP International, have a particular influence on the appearance of this project: the prefabricated corrugated steel profiles were equipped with the unique ReflectionsCinc innovation. The characteristic feature of this surface coating by ThyssenKrupp Steel is a printed zinc spangle pattern, which shows the organic-looking structure of a zinc spangle in greatly enlarged form. This results in the appearance of the facade at close range and from a distance being impressively modified and influenced in a vivid, natural way. Other ThyssenKrupp materials used were Hoesch siding facade panels as well as perforated corrugated profiles.

Philipp C. Kulze

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Hoesch Bausysteme as sponsors of a better future

Students design nursery in South Africa

31 architecture students from the University of Innsbruck designed and constructed a nursery for 80 kids near Johannesburg, South Africa. One of the main sponsors was Hoesch Bausysteme of Vienna, a ThyssenKrupp Steel company.

"It is great to see young people fighting for a better future for children," Simon Rümmele of Hoesch Bausysteme still enthuses today. "Showing a great deal of commitment, the students managed to provide the South African children with both a safe and a creative environment, which may perhaps allow them to break out of the cycle of segregation, unemployment, poverty, criminality and AIDS." Persuaded of the merits of the project idea, Hoesch Bausysteme immediately agreed to assist the architecture students a good year ago and provided them with building materials and know-how.

▼ By constructing a nursery, committed architecture students from the University of Innsbruck are creating a better future for children in South Africa. They have provided 80 kids with both a safe and a creative environment, in which they will be able to enjoy life away from poverty, unemployment and disease.

The students' task was to construct an inexpensive, solid, child-friendly building which was adapted to the climate and comprised two group rooms, sanitary facilities and a playground, without making the project too complex, technically. "The materials had to be easy to transport, prefabricated as far as possible and easy to handle on site," says Rümmele. "Our structural members meet these requirements perfectly and, in addition, support the desired light aesthetics of the buildings." Approximately 700 square meters of trapezoidal profiles were transported by airplane from Austria to South Africa. The nursery was constructed on site in just six weeks, with the assistance of local helpers and day laborers who, in this way, were also able to gain important building experience.

"The project will allow the children to have a better future," emphasizes Rümmele. The difference between the whites and blacks in South Africa in terms of the education they receive is still huge. In many places, children are taught separately according to their respective ethnic groups. This is particularly difficult in the townships and the former homelands, where everyday school life is a conveyor-belt system. The Olifantsvlei Primary School of the Moses Maren Mission, which also includes the sponsored nursery, as well as a primary and secondary high school accommodate more than 850 kids from various townships which are located up to 50 kilometers away. Many of the children are AIDS orphans. In addition to reading, writing and arithmetic, everyday knowledge such as sex education and prevention of HIV and AIDS is imparted to the children.

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Solabs®2 – Innovation from the DOC®

Sun collector made of steel heats up water

Builder-owners watch this space: Solabs®2 is the new development that is bringing the DOC Dortmunder OberflächenCentrum (Dortmund Surface Engineering Center) into the sphere of renewable energy sources, and at the same time boosting its know-how in the field of surface treatment for steel strips. The ThyssenKrupp Steel subsidiary recently unveiled the prototype of a modern facade element that exploits sunlight to produce hot water.

Hidden behind the unprepossessing metallic blue steel sun collector are years of research work – and a branched pipework system. "This is our prototype," DOC® Managing Director Dr. Michael Steinhorst emphasizes proudly, pointing to the modest-looking steel facade element. The secret lies in the surface – or, more precisely, in the combination of corrosion protection layer and paint with which it is coated. "The heat of the sun is absorbed in this," says Project Manager Dr. Roman Glass, explaining the idea of the collector. "Unlike with conventional coatings, it is not expelled into the surrounding environment, but conducted via the sheet to the pipework system located behind it, where it heats up water economically and in an environmentally friendly way, and so provides support for heating systems or heats up service water."

▲ Dr. Michael Steinhorst, Dr. Nicole Weiher and Dr. Roman Glass (from left) of the DOC Dortmunder OberflächenCentrum (Dortmund Surface Engineering Center) are carrying out research into a modern sun collector made of steel, a specially coated module intended to be used as a facade for office buildings or hotels.

But there is still a lot to do before the system is ready for series production. "Together with the paint industry, we will develop the paint further to the stage at which the coating can be applied to the steel strip in a continuous process on large-scale coil coating systems," says Steinhorst. He estimates that it will not be until after 2010 that the first building can be equipped with the heat-collecting facade. He is thinking in this context of the cladding of factory halls, office buildings and hotels. The intention is that the module should replace conventional facades and not be identifiable to the observer as a sun collector at all.

According to Dr. Nicole Weiher of DOC®, referring to the advantages of the steel collectors, up to now systems which were fitted subsequently and then glazed over spoil the appearance of the buildings. "But with our colored steel elements, there's so much more you can do," she says. "The collectors are integrated into the facade, and that provides plenty of room for maneuver as far as the architecture is concerned." As well as this, the solar heat systems are substantially more economical than comparable collectors. The Solabs®2 research project involves both the paint industry as well as solar research facilities, with the DOC® heading up the team.

Christiane Hoch-Baumann

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Comfort and functionality

The intelligent tailgate can do more than open and close

Two heads are better than one – that was the motto of the cooperation between the automotive component supplier Webasto from Munich and ThyssenKrupp Steel. The result: the Multi Purpose Tailgate (MPT) – a new, flexible tailgate module with integrated rack system.

"The product offers not only automobile manufacturers but also automobile users an extremely high level of convenience and functionality," emphasizes Ralf Sünkel from the Auto Division of ThyssenKrupp Steel. "During the development we each focused on our specialties," continues Sünkel. "Together we complemented each other perfectly." The Duisburg company contributed its comprehensive know-how in materials, light engineering and metal forming, while Webasto contributed its expertise in all areas of system integration. "We thought about the challenges facing people in everyday life," he continues. "For example, the stressed office worker who, after work, would like to immediately go cycling, without the inconvenience of having to mount a bicycle rack."

At first sight the product looks like a completely standard tailgate, but appearances can be deceptive. "You reach into the tailgate as you would into a magic chest," explains Sünkel enthusiastically. "The rack system opens in the blink of an eye. Users can load a bicycle within the space of two minutes." And then immediately start enjoying their leisure time.

However, the MPT is more than just a bicycle rack. "The concept we have created is a modular one," he explains. "Automobile manufacturers can take a tailgate suitable for upgrading into the MPT and integrate it into their normal production line without any change to the body shell. The tailgate can then be easily modified in line with customer wishes."

The basic MPT model is no more expensive than a standard tailgate and is designed such that the necessary additional and reinforcement parts can be integrated during the body shell phase and at very low additional cost. The versatile selection of special accessories, which can be combined in virtually any way desired, include a rear window that can be opened separately, an integrated rack system for bicycles, snowboards or a cargo box right through to automatic opening of the tailgate. "In addition, a keyless version is also available on request," he concludes. "And to ensure that everything is secure, a clamping guard is additionally fitted."

Daria Szygalski

www.thyssenkrupp-steel.com/auto/en

▶ The Multi Purpose Tailgate (MPT) is more than just a bicycle rack. It offers a diversity of possibilities: from a rear window that can be opened separately to an integrated rack system for bicycles, snowboards or a cargo box, to automatic opening of the tailgate.

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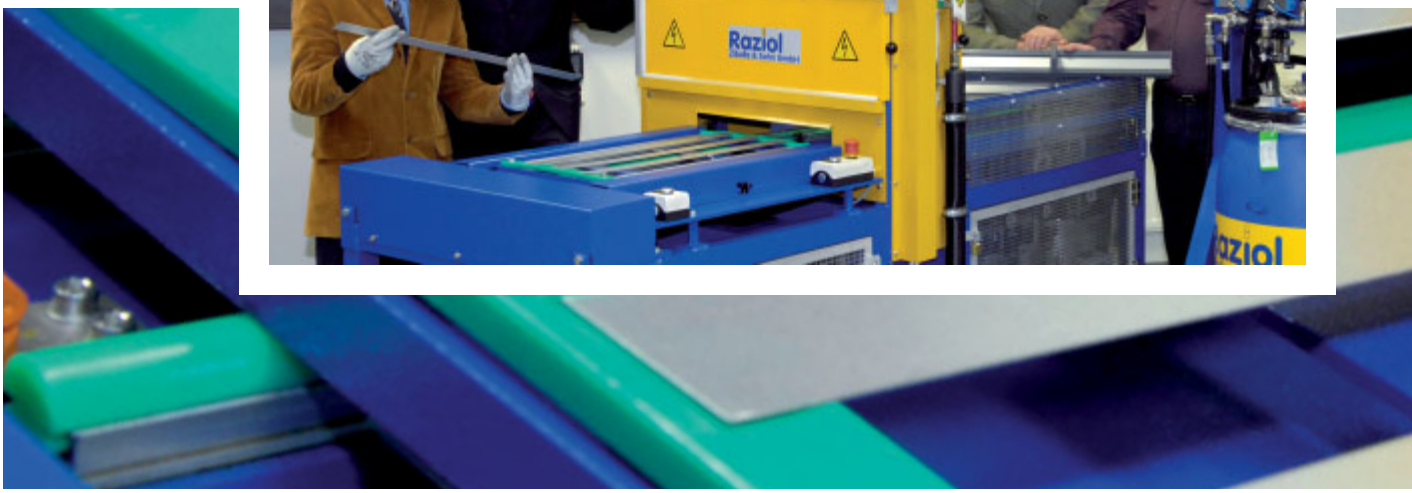
Commissioned by Research

New plant lubricates like clockwork

The Duisburg multi-oiling system is unique: in ThyssenKrupp Steel's Application Technology, it lubricates narrow test strips made of steel absolutely precisely and rapidly, which are then tested in model tools with high degrees of accuracy for abrasion and friction. It is also possible to carry out oiling using the new Holtmelt generation of lubricants.

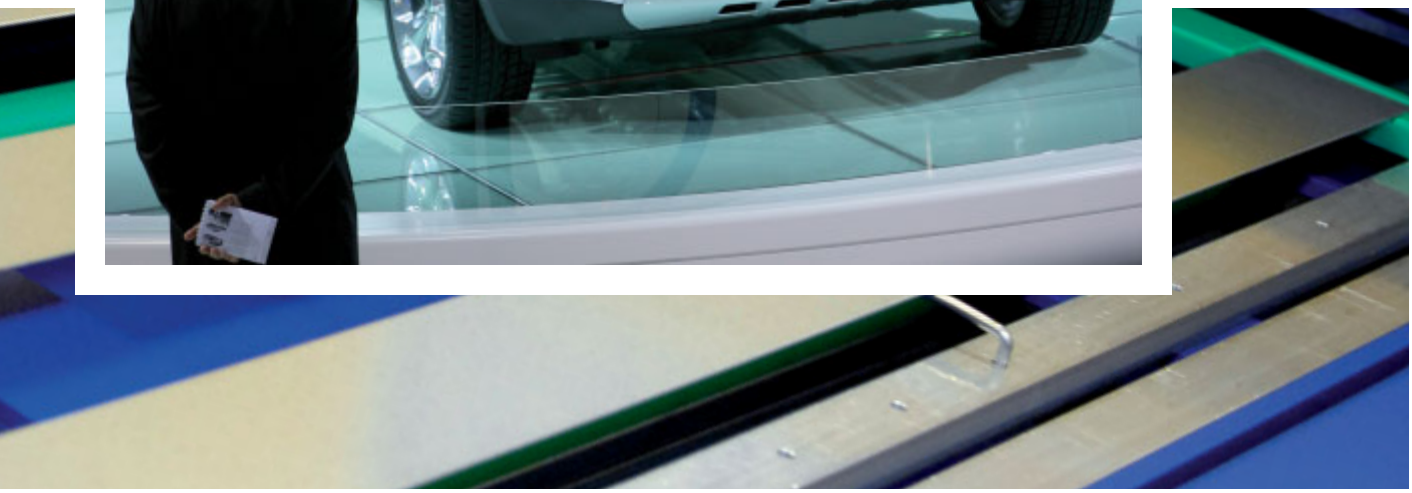
▶ Delighted about the new multi-oiling system and the advantages it brings with it (from left): Francesco Sogus, Sadet Kökcü, Peter Heidbüchel and Jürgen Huchler.



"Previously we oiled the steel samples which were the size of a ruler by hand, which was a laborious process," recall Francesco Sogus and Jürgen Huchler who have been doing this job for decades. It is a job which requires a great deal of experience and finesse, since it involves absolute accuracies within the milligram range: dimensions which are so small that they are no longer visible to the naked eye. "The lubricant must be applied to the strips absolutely uniformly. There must not be any irregularities, as these would immediately distort the result," stresses Sogus. A demanding task: six strips per series of investigations must first be cleaned, then oiled and finally extruded. The results of the abrasion and friction investigations are then painstakingly documented. Numbers and facts in the Ìm range which are of huge importance to research and development at ThyssenKrupp Steel.

"Our internal customers come from the DOC Dortmunder OberflächenCentrum, (Dortmund Surface Engineering Center), the Material Competence Center and the manufacturing plants," says Sadet Kökcü of Application Technology, Auto Division. "Our results give them information about the tribological characteristics of their products, in other words regarding their abrasion and frictional behavior." This is interesting above all in the case of new product developments. "Thanks to our investigations we are able to make sound statements from the outset regarding new products, such as the ZE-Mg or Z-Mg steels coated with zinc and magnesium, which our customers can rely on."

ThyssenKrupp Steel's customers can also rely on a high standard of quality. "We regularly check samples from the plants," says Kökcü. "With the multi-oiling system – which ThyssenKrupp Steel developed together with the lubricant manufacturer Raziol from Iserlohn – we can now accept more orders, since we are much quicker and absolutely accurate and, above all, we can produce reproducible results," he says, listing the advantages of the 85,000-euro system, which he developed together with Peter Heidbüchel. This development took three whole years, but it represents an expenditure



◀ Ford in Saarlouis is also benefiting from the new multi-oiling system. The current range is operating successfully.

"which has more than paid off," they both agree.

A further plus point: "The system can also handle the new Hotmelt generation of lubricants," stresses Heidbüchel, which was not possible previously. Hotmelt is heated up to liquefy it and can then be sprayed uniformly onto the test strips with the new multi-oiling system. The objective is always to provide both internal and external customers from the automobile industry with the best quality, to achieve an optimum pressing result.

Kökcü recalls a recent example: "Ford in Saarlouis came to us with the request that we analyze the production process of its Focus range, in order to be able to better specify the metal forming conditions and to be able to draw conclusions regarding process stability. The emphasis was placed on tribological investigations." Strip upon strip were lubricated and tested on the multi-oiling system. The result was clear and positive for Ford. The lubricant volumes are optimum and cannot be reduced any further. "We do not just consider ThyssenKrupp Steel to be a steel supplier, but a system partner that is able to assist us with its know-how in all matters relating to the processing of steel," is the praise from Dietmar Thull, supervisor in the press shop at Ford.

ThyssenKrupp Steel will not be dispensing with Francesco Sogus's and Jürgen Huchler's wealth of experience in future either. Together with the multi-oiling system, they will continue to be responsible in Application Technology for the professional oiling and visual assessment of test strips. "There are always peculiarities which a machine, no matter how good it may be, will not be able to handle. We carry out tests on the instructions of our customers and thus save them a great deal of time and money."

Christiane Hoch-Baumann

www.thyssenkrupp-steel.de/auto
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Fundamental research at DESY

Laser light – really seeing things through

The Deutsches Elektronen-Synchrotron (German Electron Synchrotron, DESY) in Hamburg is one of the world's leading centers for research with photons and particle physics. For a few months now a particle accelerator has been undergoing conversion and preparations made for the construction of a European X-ray laser. Playing a part in this is non-grain-oriented electrical strip from ThyssenKrupp Steel for magnets to guide the particles.

The gray of autumn is being welcomed at DESY in Hamburg. By contrast, everything is light and bright in the tunnels in which particles are accelerated and laser light streams down. "We are right in the middle of expanding our research spectrum," explains Dr. Bernward Krause, the man responsible for procuring the electromagnets for the XFEL X-ray laser. By this he means in particular, after the closure of the HERA particle accelerator the conversion of the PETRA tunnel, which also includes the renovation of the particle machine, for which his colleague Alexander Petrov is responsible for magnet procurement, as well as the new construction of the XFEL tunnel. Research is already going ahead, too, on the free-electron laser FLASH.

Many names, and an appreciable and appreciated number of them female, for complex and cost-intensive fundamental research. The Center, which belongs to the Helmholtz Association and which

◀ The electromagnets made of non-grain-oriented electrical strip ensure that the electron beam flies in a zigzag and produces light.

▶ Dr. Bernward Krause, DESY, Matthias Schmidtz, technical customer consultant at ThyssenKrupp Steel, and Alexander Petrov of DESY (from left) are working together on a modern accelerator tunnel.

also has a facility at Zeuthen in the federal state of Brandenburg, has been playing a vital and leading role in research into the structures of the smallest elements of matter ever since 1959. One special feature of the DESY is the link between particle physics and research with photons, the only such connection anywhere in Europe.

Now things are growing, fundamentally and in depth. "We are supplementing our resources with free-electron lasers," says Petrov. "In other words, the acceleration of the particles on a straight track, and that's going to strengthen our unique position in Europe still further." These synchrotron radiation facilities are currently very much in demand in research. "Such centers are springing up all over Europe," says Krause, who himself comes from the Sauerland region. "But we offer the broadest spectrum of light sources, the best light bundling, and also ultra-short laser pulses."

The people at DESY are particularly proud of the XFEL free-electron X-ray laser. The EU and the Federal Ministry for Education and Research gave the go-ahead in June this year for the financing of the X-ray laser. DESY is dependent on outside money, being sponsored up to 90 percent by the Federal Government and ten percent by the city. The money for the projects is decided on an individual basis. Petra III is costing around 250 million euros, which is being provided by, among others, the Federal Government. In the case of the XFEL, a total of about one billion euros needs to be found. "The Federal Government has come up with 60 percent," Krause explains, "and the rest is coming from other European countries, above all from Russia." XFEL is a European project. Operating internationally is all in a day's work at DESY. "As well as close on 1,900 DESY staff, we also have 3,000 guest researchers from 45 countries working with us," Petrov points out, who is himself an immigrant. "At the moment Russia is heavily represented." He is himself from St. Petersburg, where he was employed at the Efremov Scientific Research Institute of Electrophysical Apparatus, which co-operates with DESY. This means that Petrov has already been in contact with DESY for a long time, arriving in the northern Hanseatic City of Hamburg in 1994.

But back to the light sources: The X-ray laser already in place is FLASH, and those coming to join it are the European XFEL and Petra III, which will then be among the world's best storage ring sources for X-ray radiation. What links all three? Minute details from the microcosmos render visible the intensive radiation generated by the particle accelerator. It works like this: First, an electron beam is accelerated in the vacuum to almost the speed of light, guided with the aid of electromagnets, and then shot through undulators, alternately-poled magnets. "The particles now fly in a zigzag and create light in the process," explains Krause. "At the end of the tunnel the experiments are lighted up in this way."

To produce the electromagnets ThyssenKrupp Steel supplies non-grain-oriented electrical strip, which is particularly complex to manufacture. "We are linked by many years of close co-operation, which started back in the '70s," says Matthias Schmidtz, technical customer consultant at ThyssenKrupp Steel. When it comes to materials, DESY sets particular value on excellent permeability and homogeneity. "The types PowerCore 1200 and 1300-100 A fulfill our high demands," explains Petrov. "They are used to manufacture dipole, quadrupole and sextupole magnets. For example, we need 1,000 magnets to guide the particles in the XFEL."

The XFEL tunnel will buried between six and 38 meters below ground, have a total length of 3.4 kilometers, and accelerate electrons up to a maximum of 25 Gigaelectronvolts (GeV). Completion is planned for 2014. As from 2009, PETRA III will be used for research with extremely focused light in the 300-meter long hall, this light being produced from a 6 GeV electron beam. Both men are firm in their views: "The knowledge we gain from our research will benefit the fields of chemistry, biology, materials research, medicine and physics."

Daria Szygalski

www.desy.de
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The flagship of the Liebherr Mobile Crane division. The new LTM 11200-9.1 all-terrain crane lifts enormous loads high into the air with consummate ease, maneuvering them with pinpoint accuracy. Its qualities are demonstrated, for example, during the construction of wind power stations.

From construction cranes to traffic engineering

Liebherr makes it possible

The new LTM 11200-9.1 all-terrain crane is the only one of its kind in the world. Painted bright yellow, it stands idle on nine axles in the rural setting of Ehingen near Ulm. A flagship which lifts enormous loads high into the air with consummate ease, maneuvering them with pinpoint accuracy.

The flagship of the Liebherr Mobile Cranes division demonstrates this capability on a daily basis. Along with approximately a further 100 cranes it lifts loads, which are far heavier than those which it will have to subsequently master in practice every day, on the sprawling test field of the company's premises. "It is the most powerful telescopic crane in the world and it surpasses all others with its 100-meter telescopic boom," comments Wolfgang Beringer, Sales Promotion Manager, describing the prototype proudly. Together with a second nine-axle crane, it was constructed in Liebherr's Ehingen plant in just six months. After several months' prototype testing it will be delivered to a customer in Dubai. "Every crane which leaves our plant has been tested very thoroughly," stresses Beringer. "Quality is the be-all and end-all of our business – we never economize on quality."

The oversized boom comprises a base section and seven telescopic parts which are hydraulically extended during use. It was manufactured from heavy plate made by ThyssenKrupp Steel.

▼ Around 100 small and larger cranes lift loads unceasingly on the sprawling test field at Liebherr's corporate premises. These loads are far heavier than those which they will subsequently have to master in practice every day. Every crane that leaves the plant site has been very thoroughly tested.

"In 2008 ThyssenKrupp Steel will again be one of our two major suppliers," says Rainer Müller, in charge of Materials Management. High-strength XABO® steels are supplied for crane construction in Ehingen as well as wear-resistant qualities for other Group companies that manufacture, for example, hydraulic excavators, wheel loaders, bulldozers or concrete mixers.

"It is our goal to construct lighter and lighter cranes which are more and more powerful and able to carry greater and greater loads," comments Wolfgang Kief of Strategic Purchasing – Steel, describing the challenges of mobile crane construction. He is also thinking in this context of environmental protection. "The lighter the crane, the lower the fuel consumption." And it works out. The nine-axle LTM 11200-9.1 (incidentally all of the axles can be steered separately) can be driven on public roads with a total permissible weight of 108 metric tons, including all four outriggers and the complete slewing platform with both winches. Only the telescopic boom and counterweights have to be carried on a separate transport vehicle. "The increased powerfulness of our cranes, in particular, is what is of importance to our customers. ThyssenKrupp Steel also supports us by supplying us with raw materials. We have had a close supply relationship since the 1970s, and a lot has happened since then," explains Kief.

Profile of Liebherr

The family-owned company was established in 1949 by Hans Liebherr in Kirchdorf an der Iller. Today, it is a family-owned group of companies with more than 28,000 employees in more than 100 companies throughout the world. The company is now jointly managed by the second generation of the Liebherr family, by siblings Dr. Willi Liebherr and Isolde Liebherr. The umbrella company is Liebherr-International AG in Bulle, Switzerland. In 2006, the Group's sales amounted to more than 6.4 billion euros, with a good 65 percent of these sales being generated by the construction machinery division alone.

The range of products of the family-owned group of companies is diverse: construction cranes, mobile cranes and crawler cranes as well as bulldozers and crawler-mounted loaders, dumpers and concrete mixers, to name just a few, are produced for the construction sector and extraction industry. Liebherr is represented in the freight handling field with shipboard, offshore, container and cargo-handling cranes. In addition, the company supplies the machine and plant construction sectors with machine tools, the aeronautical engineering sector, amongst others, with landing gears, and the traffic engineering sector with equipment for rail-borne vehicles. Liebherr is also active in the household appliances sector and produces fridges and freezers. In addition, the company operates six hotels in Ireland, Austria and Germany.

The most recent innovation from Ehingen is impressive. The telescopic boom of the nine-axle crane appears to lift turbine housings of wind power stations weighing up to 100 metric tons onto 80-meter high towers with consummate ease. The set-up time is considerably shorter compared with that of lattice tower cranes, and relatively little counterweight is required for the erection of the boom. The luffing fly jib can be extended to a length of 126 meters with various lattice extensions and reaches lifting heights of up to 170 meters. It is therefore optimally suited to

▼ It was not just the oversized boom of the five-axle crane which was manufactured from heavy plate made by ThyssenKrupp Steel. The Duisburg company will also be one of Liebherr's two major suppliers in 2008.

the erection of wind power stations. "In order to obtain this result, we went to ThyssenKrupp Steel as long ago as 2000 with specific ideas for materials," comments Kief. "The heavy plate must, on the one hand, be extremely strong and, on the other hand, sufficiently flexible and have good processing characteristics. At first sight these requirements appear to contradictory. However, we held a lot of meetings and carried out the development and testing together until we were satisfied. The high-strength quality XABO® 1100, which was subsequently developed and which has now become well established, has allowed us to achieve a higher lifting capacity and longer booms, combined with the same toughness and processability of the material and has therefore enabled us to build the LTA 11200-9.1."

Is it possible to increase quality still further with all these superlatives? "ThyssenKrupp Steel is currently developing a new generation of high-strength grades, namely the XABO® 1300. If this steel is able to combine good processing qualities with increased strength, then we might possibly be able to construct even larger cranes with better loading capacities using the same plate thickness – the demand is certainly there at any rate," summarizes Beringer. But that is still pie in the sky. The input material supplier is important, however Liebherr also attaches a great deal of importance to its own technology and a generally high vertical range of manufacture which is expressed, for example, in the manufacture of its own engines, hydraulic components and motive power engineering. "In this way we are able to influence the quality of our machines in key areas ourselves, and that pays off," so says Müller. 1,600 cranes are produced each year at the Ehingen site and this number is increasing. These are mainly four-axle and five-axle machines, but the nine-axle crane is also ready to go into mass production. "We have been continually expanding our capacities for years due to the huge demand," observes Beringer.

The construction machinery division is a flourishing business at Liebherr, but it is not all, not by a long way: the Liebherr Group which, in addition to Germany, also has plants in Austria, Switzerland, France and many other countries, can do lots more. Domestic appliances, harbor cargo-handling technology, machine tools and material handling engineering, aeronautical and traffic engineering as well as hotels are all part of the services offered. "In every division we offer our customers tailor-made solutions which we have developed ourselves and which therefore make us stand out from our competitors," explains Kristian Koch, Manager of the Group's Advertising Head Office. "The case of the nine-axle crane is a good example of how Liebherr operates. The capacity to innovate plays an important role in every division and this is also demonstrated by the high levels of investment in the field of research and development. We can also be certain that our suppliers will support us during the development of innovative products."

Christiane Hoch-Baumann

www.liebherr.com

◀ 1,600 cranes are manufactured each year at Liebherr's Ehingen site and this number is rising. These are mainly four-axle and five-axle machines, but the nine-axle crane is also ready to go into mass production.

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NewsFlash

New on the Internet: Rasselstein and DOC®

The ThyssenKrupp Steel subsidiaries Rasselstein and DOC Dortmunder OberflächenCentrum (Dortmund Surface Engineering Center) have new websites. The tinplate manufacturer from Andernach has overhauled its pages and made them more user-friendly for customers. The focus in particular is on product offers, service provision and direct customer contact. At DOC® too, customer friendliness and close relationships are the main objectives behind its first independent website. The range of services is clear, easy to find and easy to download. Those who are interested can find complete contact data under the heading Contact Person, complete with photo.

www.rasselstein.com
www.thyssenkrupp-steel.com/doc/en

Heavy plate: Xcomponents for engineering solutions

Xcomponents – the name adopted for a new product range of tailor-made components and spare parts on offer from the ThyssenKrupp Steel Heavy Plate Profit Center in co-operation with its service centers. Main materials used are wear-resistant XAR® steels and high-resistant heat-treated steels N-A-XTRA® and XABO®. With Xcomponents the company is pursuing its policy of going beyond the material itself to offer component concepts and processed parts as well, right through to the finished components. Leading the field is the Chilean subsidiary ThyssenKrupp Aceros y Servicios which, among other things, has developed a top-quality lightweight excavator shovel with increased capacity and long service life for use in underground mining operations in South America, and is manufacturing the units at its own Service Center. Planned is for other Service Centers to offer Xcomponents solutions made from special structural steels from ThyssenKrupp Steel to a greater extent in future.

www.thyssenkrupp-steel.com/plate
www.thyssenkrupp.cl

ZMg EcoProtect – Corrosion protection with zinc-magnesium

With the new ZMg EcoProtect product developed by the DOC Dortmunder OberflächenCentrum (Dortmund Surface Engineering Center), ThyssenKrupp Steel has an innovative zinc-magnesium (ZMg) surface treatment technique to offer. The steel strip is treated in a modified hot-dip process in a magnesium-alloyed zinc bath. The addition of magnesium to the melt makes it possible for the zinc coating weight to be perceptibly reduced while still providing improved corrosion protection. This makes ZMg an economical alternative to current series products, ideally suited for bodywork parts.

www.thyssenkrupp-steel.com/doc/en

New technical book on color design

"Architectural Colors – The Doctrine of Color Design according to Friedrich Ernst v.Garnier" is the title of the new book by Martin Benad, with contributions from the architect Jürgen Opitz. The new publication is based around the extensive work of the color designer Friedrich Ernst v.Garnier. It presents the universal basic thinking and methods as a form of teaching developed step by step. Many of the design drawings from Garnier's studio are reproduced, together with exercises and teaching examples, 3-D visualizations and project photos, showing how the coloring of living landscapes in the form of buildings can be planned with sensitivity and sense. Published by Anton Siegl Fachbuchhandlung GmbH, Munich, ISBN number 978-3-935643-35-1.

World steel gathering in Berlin

After an interval of 18 years, the 41st Annual Conference of the International Iron and Steel Institute (IISI) took place again in Germany. At the beginning of October, some 250 leading executives from the world's biggest steel concerns, among them ThyssenKrupp Steel, met in Berlin. Against the background of uninterrupted growth in the world steel industry, the speakers addressed a number of important subjects: The position of the steel industry in Germany in the international environment, the economic prospects for the global steel industry, responses to the challenge of climate change and steel: innovative solutions for improving resource efficiency. A talk was also given by Dr. Ekkehard D. Schulz, Chairman of the Executive Board of ThyssenKrupp, who emphasized the excellent results achieved by the Group in the fiscal year just ended.

www.worldsteel.org

New name: ThyssenKrupp Steel (Asia Pacific) Pte Ltd

The Singapore office of ThyssenKrupp Steel has changed its name. With immediate effect it is to be known as ThyssenKrupp Steel (Asia Pacific) Pte Ltd. The address and the Managing Director, Willi Hess, remain unchanged. In the past fiscal year, the office, which operates mainly in the region of the Association of South Eastern Asian Nations (ASEAN), achieved turnover of 6 million euros in its own business and 3 million euros in agency transactions. From the ThyssenKrupp Steel segment, Hess and his team represent mainly the Heavy Plate Profit Center, the ThyssenKrupp Steel Saw Steel Center, Hoesch Hohenlimburg, and ThyssenKrupp Electrical Steel. The Singapore representation has been operating for almost 25 years and has belonged to ThyssenKrupp Steel for the past three years.

www.thyssenkruppasia.com

23 designs for facade competition "Stahlhaut Plus" (Steel Skin Plus)

The winner of the "Stahlhaut Plus" facade competition sponsored by ThyssenKrupp Real Estate was announced at the end of October. The task set for the architecture students at the University of Applied Sciences of Dortmund was to create a contemporary shell made of steel for the planned ThyssenKrupp Group headquarters in Essen, with the aim of creating a light and transparent effect. In the view of the jury, this was best achieved by the student Jan Hintemann who, in his winning design, developed a variable system which provides an elegant solution to the problems of the steel and glass facade located behind it. Extendible slats or lamellae guarantee good protection from the sun, while their deformation capacity also allows for a clear view and a varying and exciting facade image. Second place went to Armin Schütte who impressed with his original option of corrugated adjustable horizontal slats. Third place was shared by Miriam Huesgen and Dominik Kotthoff.

Steel guardian angels

Safety on German roads is increasing

◀ More than 95 percent of the passive protective systems at the edge of the road, popularly called crash barriers, are made of steel, with the rest being made of concrete.

◀ State-of-the-art steel barriers keep a 38-tonne truck on the carriageway. A special underride guard is also making Germany's roads safer for drivers of two-wheelers.

Moment of shock on the motorway. A truck goes into a skid and crashes into the central crash barrier, but the barrier prevents anything worse happening: the heavy vehicle does not break through onto the other carriageway, but is returned to its own lane.

The traffic density on German roads, a network of approximately 640,000 kilometers, is constantly increasing. The number of licensed motor vehicles has increased in the past six years from 50.8 to 54.9 million. Despite the higher volume of traffic the number of deaths on the road is constantly dropping. This is due, on the one hand, to the fact that vehicles are becoming safer and safer. On the other hand, the passive protective systems at the edge of the road, popularly called crash barriers, are also making a considerable contribution towards road safety, with the material playing a crucial role in this. More than 95 percent of these systems are made of steel, while the rest are made of concrete. The fact that crash barriers made of steel are safe is demonstrated by figures from the time of Germany's reunification: the use of steel barriers in the new federal states has seen the number of deaths on the road fall by almost 79 percent. The latest systems even keep a 38-tonne truck on the carriageway. And to make Germany's roads safer for drivers of two-wheelers as well, underride protection is being provided more and more frequently at problem sites.

Christiane Hoch-Baumann

Volker Goergen, Managing Director of the Gütegemeinschaft Stahlschutzplanken e.V. (the German quality cooperative for crash barriers), knows the advantages:

"The be-all and end-all of an impact against a crash barrier system is that the impact energy of the vehicle is absorbed. A good system must therefore be extremely flexible, but nevertheless absolutely "breach-proof". This is where the benefits of steel are shown to full advantage. Its high strength and elasticity combined with high deformation capacity make steel crash barriers considerably more flexible than concrete walls. The energy generated during an impact against a steel device has a reduced impact on the vehicle and its passengers. Approximately half of the impact is absorbed by the flexible crash barrier system, as a result of which the passengers are better protected against major injuries. There is also the fact that with rigid retaining systems it is possible for vehicles to rebound from the hard wall, thus resulting in further collisions with third parties who were not initially involved in the accident. In addition, several vehicles have turned over following contact with a concrete wall, as a result of being deflected upwards. These dangers are minimized, if a system yields and safely deflects the vehicle.

The terms flexible and breach-proof therefore refer to the line of approach for the protective installations on German roads. More and more ingenious crumple zones are now being developed in order to protect passengers during collisions. Steel crash barriers are optimally suited to this purpose. They meet the highest demands of impact strength, by absorbing part of the impact energy through deforming, and meet the highest demands of breach-proofness – even 38-tonne trucks have no chance of overcoming the modern system.

The crash barriers which have been erected up to now have, however, been designed, above all, to protect automobile drivers. Danger still exists for drivers of two-wheeled vehicles. In order to minimize this risk and to exclude it completely in future, underride protection, namely a galvanized steel plate which is flexibly affixed to the existing system, absorbs the energy in the event of an impact and protects the driver of the two-wheeler from the posts, is increasingly being used. This safety measure is increasingly being used on critical corners on national, federal and local roads.

In addition, steel crash barriers are extremely economical in terms of new procurement, maintenance and repair as well as reuse and scrapping. They can be erected on site within a relatively short period of time. Newer systems such as the SUPER-RAIL offer a high degree of residual safety following an impact, so that it is not absolutely essential to carry out repairs following every occurrence of minor damage, which can also be detected by simple inspection now, without the need for detailed investigations. However, even more major damage can be repaired within an extremely short period of time.

It is also possible to reuse intact crash barriers once they are taken down, which means the costs of procuring new barriers can be reduced. Last but not least, steel crash barriers can be sold as scrap steel once they have finally been taken out of service, so that they can be used to raise more money."

www.guetegemeinschaft-stahlschutzplanken.de
www.stahl-info.de

Personal information

Volker Goergen has been managing director of the Industrieverband Stahlverarbeitung e.V. (Steel Processing Industrial Association) for eleven years. He studied mechanical engineering at the University of the German Federal Armed Forces in Hamburg from 1976 to 1980. Following his time in the German Federal Armed Forces he joined the Association of German Chambers of Industry and Commerce (DIHK) in Bonn in 1987 as a graduate engineer, taking up the post of Head of Department.

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ThyssenKrupp Steel and Bergakademie Freiberg

Clever co-operation with sustainable efficiency

ThyssenKrupp Steel has been co-operating with the Technical University (TU) Bergakademie Freiberg since March 2003. Here we gain an overview of the activities of these five years and an insight into how both partners are benefiting from the cooperation.

On 8 January it will be that time again. That is when the 2008 ThyssenKrupp Steel Award will be awarded at the TU Bergakademie Freiberg. This award is presented in Faculty 5, Material Sciences and Technology. It is awarded to the student or students who has or have completed the first diploma with the best mark and in the fastest time. ThyssenKrupp Steel Executive Board member, Dr Ulrich Jaroni, will be presenting the prize. In 2006 it was awarded to Kerstin Bernert for her 1.0 grade. Thomas Göhler won it in 2007 for his grade of 1.9. Who will win in 2008 is still a closely guarded secret, but the prizewinner will again benefit from a valuable scholarship until the end of his/her standard period of study. In addition, one of ThyssenKrupp Steel's managers will support him/her during this period as a mentor. In addition, there are privileges such as participation in the support program for scholarship holders or the invitation to the annual event "Uni meets Business" in Duisburg, where students from the TU Bergakademie are able to establish intensive contacts with the specialist departments of ThyssenKrupp Steel. They are able to get a close-up view of the profession during guided tours through the blast furnace, steel, hot rolled strip and cold rolled strip plants in Europe's largest steel complex. This all fits in with the objective of the cooperation, namely to bring together the partners' available resources in the best possible way for their mutual benefit.

And indeed "in the fields of sponsoring qualified students, teaching and further development, exchanging scientific results, supporting university events" – that is what it says in the cooperation contract. Independently of this, the TU Bergakademie has in the meantime been selected by ThyssenKrupp AG as a key university – "as the seventh of the think tanks which have been especially honored by the parent company of the group," stresses ThyssenKrupp Execu-

▲ When it was established in 1765 the TU Bergakademie specialized in mining. The core competences of the Freiberg university now also include key disciplines regarding the use of steel in automobile construction.

tive Board member and ThyssenKrupp Steel boss Dr. Karl-Ulrich Köhler. "This underlines the top position of the Freiberg university in research and teaching in raw materials, innovative materials, energy and the environment. These are precisely the areas which are of central importance to ThyssenKrupp Steel. In addition, they are very relevant to the economy, as the protection of the environment and resources is becoming more and more important." In addition, the renowned partner universities also include RWTH Aachen, Ruhr University Bochum, TU Dortmund, TU Dresden, TU Hamburg-Harburg and TU Berlin.

With approximately 4500 students and 98 scholars, the Bergakademie in Freiberg in Saxony is the smallest of the four universities in the free state. It was established in 1765 and can look back on a history rich in tradition. It was created as an educational center for the mining sector in Saxony. Today, it has six faculties. Faculty 5, the center of competence for material sciences and technology in metallurgy and nonferrous metallurgy, is the authoritative faculty for the steel segment. It teaches key disciplines for the further development of flat steel and its use in automobile construction, and is therefore an ideal platform for the cooperation.

Even before this cooperation, the university had been contracted to carry out research for ThyssenKrupp Steel since 1998. The cooperation then came about as well in 2003. "The company demonstrates its commitment to the cooperation by supporting the up-and-coming generation with expert input from mentors, awarding scholarships and through other practical measures," explains Andrea Sonderkamp of ThyssenKrupp Steel. As the company's university-related representative for TU Bergakademie, she develops and coordinates the activities of the cooperation together with Klaus Timmerbeil. "It is of course also our aim to interest students in the company at an early stage and, at the end of their course, to recruit good junior members of staff." Therefore, in addition to providing support, there is a motivating need to make learning and working fun.

Faculty 5 offers subjects such as steel technology, foundry practice and metal forming and covers forward-looking areas from processing to testing of materials to recycling in its research and teaching. And it offers the subject of vehicle construction – materials and components. All of these subjects are specialties of ThyssenKrupp Steel in the commercial world. "The cooperation provides our students with extensive access to practical applications and is ideal for us, because it offers a range of varied and complex measures," stresses Professor Rudolf Kawalla, Director of the Institute of Metal Forming and coordinator of the cooperation in Faculty 5.

In addition to the ThyssenKrupp Award, the support package also includes sponsoring the TU Bergakademie's "race tech team". Another project is the Get Together in Freiberg on 9 and 10 January, where directors of ThyssenKrupp Steel speak to the student body. The on-campus event is now being held for the third time and concerns material competence, production, research, sales and technical customer consultancy. One lecture examines the possibilities of the up-and-coming generation joining the steel forge.

"The highlight is undoubtedly the podium discussion which concludes the proceedings, when an Executive Board member from ThyssenKrupp Steel introduces himself to the floor, along with Dr. Jaroni," is Professor Kawalla's appraisal. The entire program is ordered, as it provides an extensive introduction into the divisions and their specific tasks. "The fact that the lectures and much more can be analyzed with a top-class company representative rounds off the entire program perfectly."

▼ Hard work pays off: Kerstin Bernert is one of the prizewinners of the ThyssenKrupp Steel Award. The Freiberg student was awarded the prize for attaining the best grade of 1.0 in the first diploma.

A long-running feature of the program and very popular with the students because of the insight they offer into practical applications are the regular lectures by managers of the company. Even ThyssenKrupp Executive Board member and ThyssenKrupp Steel boss Köhler will be lecturing in Freiberg – for the ninth semester on the topic of "New developments in the manufacture and further processing of steel strip products."

A premiere, which has just been successfully completed and which is already on the agenda again for next year, was a one-day applicant-training course, in which 20 participants were introduced to the technicalities of making a professional written application. "In addition, a sales situation was simulated and acted out, in which a potential, but critical customer was to be presented with an innovative, attractive product of ThyssenKrupp Steel. We based this exercise on the selection procedure at assessment centers," explains Sonderkamp, who led the training course with her colleague, Oliver Rechtsprecher. Also new on the cooperation calendar for 2008 is the Engineering Prize – from the idea up to the product. A decision will soon be made on the form this will take.

Tours of the works are also made possible and organized completely by the company, together with the journey by bus to Duisburg. In the autumn, ThyssenKrupp Steel invited students from the Freiberg university to the IAA trade show, in order to visit the company's exhibition stand there and, above all, to find out about automobile innovations as well.

In the meantime, the Geschwister Scholl Gymnasium in Freiberg, has been incorporated into the cooperation. Köhler explains the reasons for this step as follows: "We are already giving students an opportunity to see practical applications at close quarters. We now want to give school pupils this opportunity as well. In this way we can make them enthusiastic about engineering at an early age." In February, the pupils from the grammar school will be making their second excursion to Duisburg. After that they will be visiting the Villa Hügel for a lecture regarding the long tradition of the steel producer's importance to the people of the Ruhr. And if this program helps some of the pupils to discover an interest in the industry, so much the better. And who knows? One of the pupils may subsequently be a winner of the ThyssenKrupp Steel Award.

Ulrike Wirtz, freelance journalist

www.tu-freiberg.de/

Project with a lot of horsepower

Formula Student is the name of a notable project undertaken by the TU Bergakademie, in which cooperation partner ThyssenKrupp Steel is heavily involved. The organizer, the Association of German Engineers, allows 60 international teams of students to compete against one another. They have to develop and build racing cars and then race them like Formula 1 cars around the Hockenheim circuit, all in accordance with strict regulations. The races will take place from 6 to 10 August 2008. We will then see what the 2008 Freiberg Race Tech Team can do.

The team of 25 students must construct a one-seater car by August, compete in the race and draw up a professional business plan for it beforehand. "After all, it is not the fastest car which wins, but the best overall package of construction, financial planning, organization and marketing (as if you had to convince a manufacturer) and racing performance," explains team coordinator Thomas Göhler, a vehicle construction student in his seventh semester, ThyssenKrupp Steel scholarship holder and currently plant student at Engineering Sales in Duisburg.

▲ Formula Student is a prestigious project of TU Bergakademie. The picture shows the racing car which was developed by the university team in 2007. At present, the Freiberg students are racking their brains about the new racing car. ThyssenKrupp Steel will again be supporting them in both word and deed.

In 2007, the Freiberg students were at the start for the first time – with an impressive balance sheet total of 80,000 euros. The main sponsor, ThyssenKrupp Steel, supplied, for example, an extremely light outer skin made of magnesium plate – with a sophisticated geometry and high aerodynamics, via the Group subsidiary, MgF Magnesium Flachprodukte, which is based in Freiberg. And it also provided support through Dr. Lothar Patberg who acted as mentor, especially for the task which the company specifically set, namely to develop a lightweight steel wheel for the racing cars.

In 2008 ThyssenKrupp Steel will be involved again and will again set a task. Student Göhler says, "We are to develop a new gusset design for the weld seams on the automobile's steel tubular frame and use, for instance, a laser weld seam instead of a conventional weld seam."

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When the gondolas transport winter sports fans

Ski and toboggan well

The lifts are running again in order to transport skiers and snowboarders to the runs. Making such lifts is the specialty of Austrian company Doppelmayr. The aerial ropeway manufacturer supplies the high-tech steel systems all over the world.

Into the gondola, up to the peak, into the bindings – and off you go!
This is the form fun takes when the snow-covered mountains beckon. The skiers and snowboarders then tear down the rolled pistes at full pelt, skip over humped slopes and curve their way, turn by turn, though untouched deep snow. Things go well for some – and not quite so well for others. Never mind, the main thing is that it's fun. And how good is it that there are lifts waiting at the bottom to transport the skiers back up the mountain or onto other mountains. Whether it is a gondola, chairlift or a ski lift, the passengers can have a good breather during the ride, while the transport device carries them up the mountain, meter by meter.

Of course, the skiers could do this themselves under their own steam, which would be OK, but it wouldn't be as easy, as quick and as comfortable. In addition, the ski circus opens up high Alpine areas where your average skier would otherwise never be able to clamber up to. Lifts and gondolas provide the masses with access to winter sports, channel them all over the mountains and, in doing so, overcome seemingly effortlessly altitudes of hundreds, often thousands, of meters. In the meantime the skiers and snowboarders relax while looking at the scenery or chatting to their fellow passengers about everything under the sun and cool après-ski locations. All of this is already comfortable enough, but lift travel is becoming more and more comfortable, more and more high-tech and now requires an enormous amount of know-how from aerial ropeway manufacturers.

There are currently two innovative ultimates – both of which have been developed and produced by the Austrian company, Doppelmayr: seat heating for chairlifts and – brand-new – a lift system with the longest span in the world, i.e. freely suspended without supports in between. This is what you would expect of Doppelmayr. "We see ourselves as the technology leader and trendsetter in all matters relating to aerial ropeway manufacture," says

Michael Doppelmayr, the fourth generation of the family to manage the family-owned company. The company was established in 1892 in Wolfurt in Vorarlberg, originally made fruit presses, then started making ski lifts in 1937, which was then followed by chair lifts and gondola lifts as well. Since then, continuing to develop methods of transporting passengers over peaks has been the innovative expert's specialty.

The times when winter sports fans had to be content with simple button and anchor lifts and spartan chair lifts with wooden seats are therefore long past. In the same way as the sport's equipment has progressed from the bulky wooden board to the high-tech unit made of plastic, in the same way as the skiing style has progressed from the tranquil telemark turn to the stylish parallel turn, the market has launched more and more modern aerial ropeway systems in order to transport the clientele more and more safely and comfortably through the high alpine world. The aerial ropeway pioneer from Wolfurt has always been at the forefront. The company now has a workforce of just under 2,500 employees, invested 659 million euros in the 2006/20067 financial year just ended, and has long been much more than just the top dog on the Arlberg.

Doppelmayr is now represented in more than 30 countries with its own manufacturing plants, sales and service branches and has currently built more than 13,700 aerial ropeway systems for customers in more than 78 countries.

The global player's aerial ropeways operate almost everywhere where the call of the mountains can be heard – whether it is Garmisch, Lech or Ischgl, whether it is Tignes/Val d'Isère or La Plagne, whether it is Campitello, Cortina or St. Moritz, or Mammoth Mountain in the USA or Sabuk in South Korea. Its modern transportation aids are also found in the ski halls of Neuss or Bispingen. "We have a market share of 60 percent for aerial ropeways, which makes us the world market leader," comments company boss Doppelmayr. Business continues to go extremely well. "We produced 210 systems throughout the world during the last financial year and are currently working at the limits of our capacity," so says Karl-Heinz Zündel, the manager of the main Höhe Brücke plant in Wolfurt, which has 950 employees. The current projects also include quite a few for the Olympic Games. Plant manager Zündel states, "In Canada we are constructing systems for the 2010 Winter Games in Vancouver and Whistler, and in Russia for the 2014 Olympic Games in Sochi."

The orders which come from all over the world are for new constructions, extensions and/or the modernization of existing aerial ropeways. Doppelmayr needs steel for this – to be specific, 15,000 metric tons of heavy plate this year. ThyssenKrupp Steel supplied more than a third of this with 6,000 metric tons – by train from Duisburg. The demand will rise to 18,000 metric tons next year, 9,000 metric tons of which will be covered by the Duisburg company.

The companies have had business connections since 2001. "Together, we defined the standards for the quality of the heavy plate at the time, and have continued developing it since then," comments Ralf Paul. He is ThyssenKrupp Materials Austria's Quality Steel Product Manager and looks after the demanding customer.

Doppelmayr makes the highest demands on quality and not just because the highest standards of safety apply to aerial ropeway manufacture globally. Another indispensable quality feature is reliability, since neither lift operators nor passengers are pleased if gondolas, chairlifts or ski lifts come to a standstill. A few minutes is annoying, but it is a very bad situation when the lift and its precious cargo do not make any progress for a long time, and not only when the temperature is a few degrees below zero and there is driving snow. As the company boss says, "In order to guarantee a fast service, our teams

▶ Doppelmayr's newest gondola lift is being constructed in Whistler in Canada for the 2010 Olympic Games. The Vorarlberg company is constructing the longest 3S system in the world there. 3S means that it is supported by two cables and pulled by one cable. The gondola liftway travels a distance of 4.4 kilometers in length, overcoming in the process precisely 3,028 meters without a single support. It is called Peak to Peak and connects the two skiing mountains Blackcomb and Whistler Mountain. One more superlative: it is the first gondola lift to be located at a height of 415 meters above the ground, over the Fitzsimmons Creek. It will be completed in 2008.

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▲ The aerial ropeway manufacturer completed the new Galzig Bahn in St. Anton am Arlberg last winter. It saves passengers the arduous task of having to climb steps, since almost ten-meter high giant wheels heave the cabins up and round over various floors, so that the passengers can get in and out at ground-floor level. The Galzig-Bahn bridges 2,542 meters, overcoming an altitude of 766 meters, covers six meters per second and carries 2,200 passengers per hour.

travel, together with spare parts, by helicopter if necessary." After all, lifts standing still at peak periods are unacceptable to operators of aerial ropeways.

In addition, always providing new comfort features is the specialty of the leading manufacturer in the industry. Doppelmayr therefore not only sets trends in technology, but also provides aerial ropeway operators and ski resort marketers with something special to allow them to stand out positively in the market. After all, the masses of winter sports fans and areas have heralded the arrival of competition and marketing in this icy business. Therefore, the winter sports resorts invest in the comfort and capacity of their ski areas and use this in their advertising. One of Doppelmayr's most innovative extras are upholstered seats with seat heating. Lech am Arlberg was the first resort to equip a few chairlifts with this and is thus pampering the frozen bottoms of its customers.

However, it is not just a matter of making the stay on board more and more pleasant, but also shorter and shorter. As plant manager Zündel comments, "Greater speed increases the capacity of the systems, correspondingly preventing or reducing waiting times and queues forming at the entrance, and thus also increases the skiers' enjoyment factor." Transport capacities of up to 5,000 passengers per hour are now feasible – without the people having to jump on or off at a sprint with skis in their hands or on their feet. This is made possible by detachable gondolas and chairlifts. A fast journey means that approximately one detachable six-seater lift can manage five to six meters per second, equating to a speed of 18 to 22.6 kilometers per hour, whereas previously it made progress at a snail's pace.

Nevertheless, the new detaching technology ensures that the chairs approach the passengers gently, without ramming them in the hollows of their knees with the bench seat. This is achieved by detaching the seats from the transporting cable before the entry point and then reattaching them after the entry point before applying acceleration. The process is the same in the gondola stations. It is true that Doppelmayr did not develop the equipment itself, but it has perfected it, including by means of coupling clamps which are made by Doppelmayr from high-strength steel produced by ThyssenKrupp Steel. Such a chairlift including seat heating can be found, for instance, in the Hochzillertal valley, and as a gondola, for example, in Zermatt.

Ulrike Wirtz, freelance journalist

Visit us in Essen
at **DEUBAU 2008**
from 8 to 12 January 2008
in Hall 1, Booth 411

Agenda

DEUBAU
23rd International Construction Trade Fair
8-12 January 2008, Essen
Creating Future: That's the motto adopted by the professionals from the construction sector who will be meeting in Essen in January. ThyssenKrupp Steel will be there, along with ThyssenKrupp Bausysteme (Construction Systems) and ThyssenKrupp Nirosta, in Hall 1. As well as presenting innovative construction products and materials, the fair stand will also be featuring the model of the new ThyssenKrupp Quarter in Essen. On 8 January the Steel Information Center, Düsseldorf, will be hosting the fourth "International Architecture Congress", this time on the topic of building with steel in public buildings. Architects and civil engineers of international reputation will be presenting projects and architectural solutions for living and working in the urban environment. The co-operation partner is once again the Chamber of Architects of North Rhine-Westphalia.

DAF Technology Presentation
15 January 2008, Eindhoven
ThyssenKrupp Steel and ThyssenKrupp Technologies will be showing off their skills and capacities in the area of truck construction, taking as examples selected motor vehicle components and modules, as well as providing technical lectures and discussions.

8th International CAR Symposium
22/23 January 2008, Bochum
ThyssenKrupp Steel will be present with an exhibition stand with technical staff on hand at this specialist symposium hosted by the Car Center Automotive Research at the University of Applied Sciences of Gelsenkirchen.

Samoter
5-9 March 2008, Verona
This international fair, held every three years for machinery for earthmoving, construction site operations and general building work, is the venue for a wide range of products and services for the construction machinery sector. The ThyssenKrupp Steel Heavy Plate Profit Center will be taking part in the fair with the special steels specifically developed for this sector, namely XAR®, N-A-XTRA®, and XABO®.

Mosbuild
14th International Exhibition for Construction Materials and Equipment
1-4 April 2008, Moscow
ThyssenKrupp Bausysteme (Construction Systems) will be participating for the second time at this Moscow construction fair. The company won a design prize for their 2007 fair stand, a good incentive to make a presentation in 2008 that will again be technically and visually dynamic and impressive.

Open Day in Finnentrop
4 April 2008
The official commissioning of the new reciprocating boiler for strip coating at ThyssenKrupp Steel at Finnentrop will be celebrated on 4 April as a major "Open Day". The company division based in the Siegerland region will then immediately start production with the new system, with its new look and highly sophisticated layout, supplying zinc-magnesium hot-dip galvanized sheet.

ISO Wiesbaden
6th International Insulation Trade Fair
10/11 April 2008
The ISO is Europe's leading trade fair for the presentation of current trends and system innovations in all sectors of protection against heat, cold, noise and fire. The cladding of pipes for the ducting and conveyance of gaseous and fluid media is provided with slit strip, organically coated in signal colors. Major suppliers for the sector are the ThyssenKrupp Steel Service Centers, and their stand at the fair will be providing information about their product and supply skills and capacities.

ThyssenKrupp Steel Autotag
8/9 May 2008, Düsseldorf
On 8 May 2008 ThyssenKrupp Steel will be hosting a scientific and technical symposium at the Meilenwerk plant in Düsseldorf to point up the potential of steel as a material for automobile construction. Three theme forums will be casting light on aspects of the new development of high-strength and very high-strength steels, zinc-magnesium coatings, development trends in hot-forming and tailored products, through to questions of the assessment of process safety, and featuring discussions with invited guests from the automobile and component supply sectors. To round off this program, on 9 May there will be information trips and visits to the Application Technology facilities and Material Competence Center in Duisburg, as well as to the DOC Dortmunder Oberflächen-Centrum (Dortmund Surface Engineering Center) and the hot-forming facility in Dortmund.

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Thinking the future of steel

ThyssenKrupp Steel