## METALS SOLUTIONS

### NSSC launches Sn-added ferritic stainless steel grades

NSSC (Nippon Steel & Sumikin Stainless Steel Corporation) announced that it has developed a Sn-added low-interstitial ferritic steel grades, named the "FW (forward) series". This was achieved by making use of NSSC's own seed technology that can drastically improve the corrosion resistance of ferritic stainless steel by adding a micro amount of tin (approx. 0.1%). The FW series steel boasts not only improved corrosion resistance but also increased workability. Sn exists as an oxide in a passivation film, which consists of a Cr oxide, and also exists substantially in the most superficial layer of the base immediately below the passivation film in the metal status. Sn is thought to enhance the stability and protection performance of the passivation film and contributes to the regeneration capacity of the passivation film itself.

NSSC has already begun marketing/distributing the first FW series steel, "NSSC FW1", a highly corrosion resistant, low-chrome, and low-interstitial ferritic stainless steel, which consists of 14% Cr but which has a corrosion resistance level equivalent to 18% Cr stainless steel grades (Tp.430, SUS430LX, Tp.439, etc.).

With high-level workability and surface quality including anti-ridging characteristics after being processed, NSSC FW1 aims at being adopted to a wide range of applications, including those in which existing 18% Cr grades are often used (kitchen tools, electrical appliances, building components, and cooking utensils, etc.). Since NSSC FW1 is an ultra fine-grained steel with low-alloy elements (no addition of Ni or Mo, and with reduction of Cr).

NSSC markets its new product with the hope that it will become a candidate for a new general-purpose grade that can substitute existing grades including two leading types of steel (Tp.304 [18%Cr-8%Ni] and Tp.430 [18%Cr]), which account for more than 50% of all distributed stainless steel.

### Aluminum with fullerenes

Russian researchers with Siemens Corporate Technology (CT) are using special carbon nanoparticles to optimize materials. They are adding fullerenes – soccer ball-shaped molecules comprising 60 carbon atoms – to aluminum to obtain a new material that is roughly three times harder than conventional composites, yet weights much less. According to Siemens, the lightweight yet strong aluminum could be used to improve the performance of compressors, turbochargers and engines.

Aluminum and C60 are ground under an argon atmosphere into tiny grains with a diameter of just a few nanometers, or millionths of a millimeter. The two substances then bond with one another to form the new material. Special mills grindthe aluminum, and the ultrafine powder is pressed into a new material. Roughly one percent by weight of fullerenes is sufficient to imbue the material with sufficient hardness.

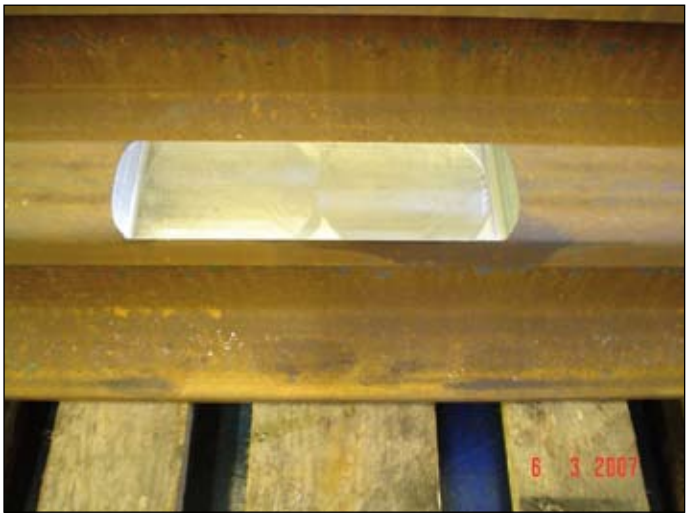
Siemens envisages a variety of applications for the hard aluminum. Turbines with lighter rotors can deliver higher speeds and make compressors or engines more efficient. One could coat superconducting cables with the material to improve their stability. They would then be able to withstand stronger currents, which in turn would make machines such as magnetic resonance tomography scanners more powerful. Because fullerenes barely affect the electrical conductivity of the aluminum, aluminum electric cables could be made thinner to save material. In another project, the CT researchers improved materials known as thermoelectricals. These generate an electric voltage from a temperature differential, thus producing energy from the waste heat of a device.

Together with the Technological Institute for Superhard and Novel Carbon Materials (TISNCM) in Troisk outside of Moscow, they improved the performance of thermoelectricals by 20 percent. The fullerenes restrict the thermal conductivity and thus keep more of the heat to be converted in the material. The researchers expect to be able to generate around 50 watts of energy from a temperature differential of 100 degrees and a surface area of 100 square centimeters.

### Rail defects: Corus improves quality of weld repair

Corus Rail has presented a novel technique for repairing discrete defects on the running surface of rail. The developed semi-automatic process employs open arc welding with flux cored arc wire and relies on a low preheat temperature to control the metallurgical transformations within the heat affected zone (HAZ).

The process has been extensively tested and a dedicated unit is currently being manufactured to undertake in-track demonstration in several European networks including France and UK.




*The repair has similar wear resistance to that of the standard Grade R260 rail with uniform hardness and microstructures across the weld restored area.*



https://doi.org/10.1051/metal/2010994 Published online by Cambridge University Press

The running of carriage wheels on rails creates high and complex stress patterns within the rail/wheel contact patch, leading to surface degradation. The wide range of track design, wheel profiles, and types of traffic can result in a variety of surface defects that reduces the life of the rail.

Defects such as squats and wheelburns occur even in the most modern and well maintained railway networks; according to Corus Rail, as a broad general rule, every network develops one such defect each year, every two kilometres. The replacement of such defects with a short rail section is expensive and not always desirable as it introduces two new discontinuities in the track in the form of two aluminothermic welds (exothermic reaction using aluminium as the reducing agent) that destroy the advantages obtained with long hot-rolled rail (up to 120 metres). The alternative conventional technique for the repair of such defects is the manual metal arc (MMA) welding process. Although the technique is used in many industries, it is heavily reliant on the competence of the welder, it is time consuming, and it is prone to internal defects such as porosity that subsequently grow through fatigue, and if not detected by ultrasonic inspection, result in rail breaks.

Several factors are due to contribute to the cost effectiveness and technical robustness of the new developed process: (i) the move away from the conventional preheating temperature of 350 °C to just 80 °C has the advantage of faster repair, reduced depth of heat affected zone, and more robust microstructure; (ii) the use of a standardized removal of the defect area by controlled milling has the advantage of reproducibility and removes the subjective judgement of the operator, and (iii) the use of a semi-automatic programmed open arc welding process with flux cored arc wire ensures control of heat input and predictable operational times.

The quality of the weld restored running surface from the developed process is ensured as the repair is extremely resistant to fatigue and has similar wear resistance to that of the standard Grade R260 rail with uniform hardness and microstructures across the weld restored area.

Corus´ new patented repair technique includes four steps. The defect is first removed by using a portable three axis rail milling machine that clamps onto the sides of the rail. It ensures a consistent excavation of the identified defect. This is itself a significant improvement on the use of manual grinding or flame scarfing, both of which do not give a consistent cavity shape or surface finish to facilitate automatic programmed welding. Secondly, the adjacent area and the cavity are preheated with a conventional burner. For Grade 260 rails, the prescribed temperature is between 60 and 80 °C. The choice of this temperature is for the control of the microstructure in the HAZ and the programmed square weave pattern of deposition of the subsequent/adjacent beads ensures that the microstructure in the HAZ is fine pearlite and free of any embrittling martensite. This temperature is suitable for the vast majority of high carbon rail steels in use today but it may need to be modified for steels that have different transformation characteristics such as low carbon carbide free bainitic steels.

The third stage uses a semi automatic weld repair machine, with an open arc welding process, a Network Rail (UK) approved TN3-0 welding consumable and prescribed welding parameters. The positioning of the top layer is crucial to prevent the creation of a new heat affected zone (HAZ). Most of the top weld layer is partially removed by profile grinding. The fourth and last step consists of restoring and blending the transverse and longitudinal rail profile by grinding, using conventional rail grinders.

A comparative evaluation of the existing MMA technique and the new process was achieved by recording the thermal history of both processes using embedded thermocouples. According to Corus Rail, several key conclusions demonstrate the metallurgical robustness of the process:

- Despite the use of just 80 °C preheat, the temperature in the HAZ after each deposited weld bead remains above 200 °C, preventing any transformation to the martensitic microstructure (as the martensite start temperature is 160 °C for grade 260 rails).

- The cooling rates in the developed process are almost identical to those in the conventional MMA process for all deposition passes except the first. The faster rate of 5.2 °C/s after the first weld bead is also half the critical rate for transformation to martensite.

- A crack free weld deposit interface is apparent with a fully pearlitic microstructure, free from martensite and bainite.

- The hardness profile shows that the wear resistance of the bainitic weld deposit will be comparable to that of grade R260 parent rail and ensure a good longitudinal profile.

- The weld deposit was subjected to a bending fatigue test with an applied stress range equivalent to three times that expected in service. Five million cycles were successfully completed without any failure. The same deposit successfully endured a further 4.3 million cycles at an applied stress range equivalent to eight times that expected in service.

## INDUSTRY CONTRACTS

### *Ruukki to build biomass power plant*

The Ruukki, Finland, has agreed a contract to deliver the steel structures for a new unit to be built at the Połaniec power plant. The unit is meant to be one of the world's largest power plants fuelled by biomass. The contract is worth nearly EUR 13 million and includes the manufacture, delivery and installation of the steel frame structures and foundations for the boiler and auxiliary equipment buildings.

The around 2,500-square-metre boiler plant will be almost 67 metres tall – roughly the height of a 20-storey building. The new unit will be commissioned toward the end of 2012. After the new unit is commissioned, the entire Połaniec power plant, the largest in southeast Poland, will have an output of over 7 terawatt-hours of power energy per year, equal to the supply for over 2 million households.

Manufacture of the steel structures began at Ruukki's plant in Oborniki, Poland in August. Deliveries will last about seven months.



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*The contract includes the manufacture, delivery and installation of steel frame structures and foundations.*

In the project, Ruukki's customer is Foster Wheeler Energia Polska, which is part of the Foster Wheeler Global Power Group. The developer is GDF SUEZ Energia Polska S.A., the fifth largest power producer in Poland. The power plant unit will be located on the Vistula river, near Połaniec in the Świętokrzyskie voivodeship.

Ruukki has experience of large power plant projects. Last year, the company supplied the power plant frame and envelope manufacturing and installation for Metso Power in Finland and the steel frame and envelope structures for Fortum's combined heat and power plant in Estonia.

*With investments close to EUR 18 million, the facility will have an annual production capacity of 3,500 units.*

## PLANTS AND EQUIPMENTS

### voestalpine starts operation of a new production facility in France

VAE GmbH and its Spanish investment JEZ Sistemas Ferroviarios S.L., both companies of the voestalpine Group, officially began operation of a new plant for turnout components in South-West France, near the Spanish border. VAE and JEZ each hold a 50% interest in the new production company, which operates under the name Matériel Ferroviaire d'Aberats and manufactures cast manganese steel frogs. Total investments were close to EUR 18 million. In the final completion stage, the fully-automated production facility will provide jobs for 73 employees and have an annual production capacity of 3,500 units. It is the first production site of voestalpine Group's turnout technology segment in France.

"Cast manganese steel frogs are key components of turnouts located at the point where the straight and branch tracks cross", voestalpine explains. "They are one of the most highly stressed components in the track system of railways, subways or tramways, and are characterized by their long life and cost effectiveness."

The new French production facility draws on the expertise available in JEZ's existing cast manganese steel frog plant in Spain. The target groups of the new company are European and overseas railways that are upgrading their networks.

### Corus: blast furnace rebuild in Wales

Corus is to invest £185 million into the No 4 blast furnace at Port Talbot steelworks. The furnace is to undergo a rebuild, starting in July 2012, which will equip it with technology to improve its safety, environmental performance and reliability. The project will yield the additional benefit of balancing the iron and steel making capacities at Port Talbot, increasing the capacity of the two blast furnaces by up to 400,000 tonnes per year.

Corus employs some 7,000 men and women in Wales, around 5,000 of whom are employed in the integrated steelworks business Corus Strip Products UK, based at Port Talbot steelworks and also at the Llanwern steelworks in Newport, South Wales. This business produces strip products for diverse markets in the construction, automotive, packaging, appliance and other sectors and has the annual capacity to produce some 5 million tonnes of steel. Corus Chief Operating Officer Karl-Ulrich Köhler said: "This is a major investment designed to provide Port Talbot No 4 with a long new campaign life of 20 years."



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## Nippon Steel: new plant in Vietnam

Nippon Steel Corporation plans constructing a new plant in Vietnam for the production of steel pipe piles and steel pipe sheet piles, jointly with Vietnam Steel Corporation, the sole state-owned steel company in Vietnam, and five Japanese trading companies (Metal One Corporation, Sumitomo Corporation, Marubeni-Itochu Steel Inc., Hanwa Co., Ltd. and Nippon Steel Trading Co., Ltd.), and has obtained an investment license for such project from the authority.

According to Nippon Steel, vast majority of construction projects in Vietnam now utilize concrete-based materials, and Vietnam's cement consumption has reached 50 million tons, surpassing that of Japan at around 40 million tons. Concrete piles have been used predominantly; however, Nippon Steel anticipates increased use of steel pipe piles. Nippon Steel has worked closely with Vietnam's University of Transport and Communications in developing a design manual and guidelines. Total investment is $31 million. The plant will be located in Phu My II industrial zone, Ba Ria-Vung Tau province, southern Vietnam. Stage 1 planned production capacity is 5,000 tons/month. Construction is due to start October 2010; operation must start May 2011.

## Tenova Core contracted by V&M Star for pipe heat treating furnaces

Tenova Core has been contracted to design and supply two pipe heat treating furnaces as part of the plant expansion project at V&M Star's Youngstown, Ohio facility that will supply the growing shale gas market in the United States. V&M Star is a subsidiary of the Vallourec Group.

Tenova Core will provide hydraulically actuated walking beam type furnaces for the hardening and tempering heat treatment applications. The furnaces will have a maximum output of 54 tph. The furnaces will feature combustion systems and advanced process control systems. The combustion system will be equipped with low NOx burners and designed to utilize preheated air for a reduced carbon footprint. Installation will take place in 2011.

## Saarschmiede inaugurates open-die forging press

Saarschmiede GmbH, Völklingen, Germany, has commissioned the 120-MN open-die forging press supplied by SMS Meer, Germany. Some 450 million Euros have been invested in the industrial plant. 350 new jobs have been created. According to the Saar State Bank, one of the co-financers of the project, this is one of the biggest investments in the Saarland in recent decades.The open-die forging press has a press force of 12,000 t and can forge workpieces at up to 1,280 °C. The forged products are primarily large shafts for driving turbines and generators in nuclear, coal-fired and gas-fired power stations. The shafts produced on this open-die forging press can withstand higher temperature and pressure conditions.

The forging press is installed in a 15.5-m deep pit and is driven by 16 hydraulic pumps with 120,000 l of oil. Two DDS manipulators with a carry force of 100 and 200 t move the forgings synchronously. The new bay is 530 m long and 43 m high.

## ArcelorMittal Dofasco unveils new ultra-low carbon steel technology

ArcelorMittal has unveiled a new ultra-low carbon production technology at its Dofasco plant in Hamilton, Canada, in order to produce more advanced grades of automotive steel – enabling closer tolerances, lowering weight and improving functional performance of finished car parts. This new production technology, which boasts low capital expenditure at the same time as being highly innovative, must help ArcelorMittal drive efficiencies across the business through application of low-carbon steelmaking technology.

Ultra low carbon steel at ArcelorMittal Dofasco is made via the vacuum degas tank process without the ability to sample steel chemistry during processing. Because of this constraint, the deep vacuum degassing time was fixed historically at 13 minutes to cover variation in the process. As carbon specifications tightened and productivity demands increased, changes to the processing method were required. A solution was developed between steelmaking technology and research that involves real time slag chemistry measurement together with laser based tank off-gas analysis. According to ArcelorMittal Dofasco, these two new technologies combined with newly developed control strategies have improved carbon capability by up to 20% and reduced average decarburization time by 23%.

## Russula receives second upgrade project from Gerdau Ameristeel Manitoba

Russula has received a contract to modernize the cooling bed rake for Gerdau Ameristeel Manitoba in Selkirk, Manitoba, Canada. Russula will supply a new motor, an ABB ACS800 AC drive, positioning control using Allen Bradley's Contrologix and integrate them with the rake's existing automation. Russula is also responsible for installation supervision, commissioning and training. Russula is an engineering company specializing in upgrades and modernization projects for the steel industry with major offices in Spain, Brazil, Argentina, India and Atlanta, GA. This project represents the second modernization project for Russula at Gerdau Ameristeel Manitoba. Russula is also currently modernizing the straightener at the same location.

## Siemens to renovate blast furnace 1 for ArcelorMittal Tubarã

Steelmaker ArcelorMittal Tubarão, has commissioned Siemens VAI Metals Technologies to renovate blast furnace 1 at its Tubarão



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Works in Brazil, which has been in use for over 26 years. Siemens will dismantle and rebuild within a shutdown period of 80 days. The modernization project is worth over ten million euros.

The existing blast furnace 1, at the ArcelorMittal Tubarão site, has an internal volume of 4,415 cubic meters. Its annual melting capacity is 3.3 million tons, which is about half the company's crude iron production. Since it came into operation in November 1983, the furnace has produced over 85 million tons of hot metal. Within the scope of this modernization project, Siemens will be responsible for the basic and detailed engineering, methodology and planning, and for coordinating disassembly, reconstruction and commissioning. A modular project concept will be employed to make it possible to disassemble and reassemble the blast furnace in large units. This must minimize the length of the shutdown.

With a capacity of 7.5 million tons of crude iron per annum, ArcelorMittal Tubarão is one of Brazil's largest steelmakers. In its Tubarão Works, the company produces semi-finished products in various grades of steel. These are used, for example, in the automotive and construction industries, as well as in shipbuilding and pipeline construction. At the same location, Siemens led the consortium that built the new blast furnace 3, which was fired for the first time in July 2007.

*Since it came into operation in 1983, furnace 1 has produced over 85 million tons of hot metal.*

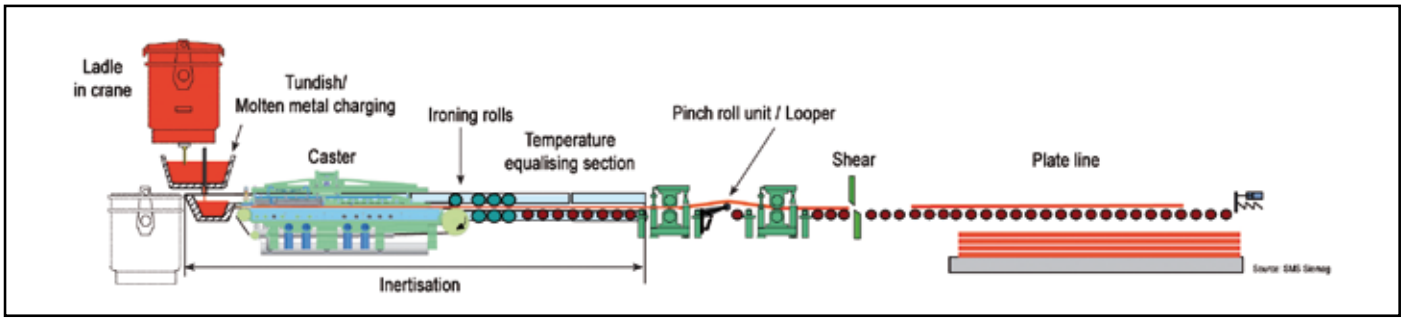
## New casting concept at Salzgitter Flachstahl

Salzgitter Flachstahl GmbH has placed an order with SMS Siemag AG for the construction of a near-net-shape caster in Peine. A new casting concept will thus be implemented and enable the casting of new high-strength steels. According to Salzgitter Flachstahl , the advantages of the belt casting technology are energy and CO2 savings compared to conventional steel production. Furthermore, it enables the industrial production of HSD (high strength and ductility) steels.

Ulrich Grethe, CEO of Salzgitter Flachstahl GmbH, comments: "In addition to an unusual formability, HSD steels have a high strength and are thus ideally suited for use in automobiles". Besides, HSD steel plates allow a higher reduction in weight, with density approx. 5 % lower than that of conventional steels. The order comprises basic and detail engineering, the supply of the entire mechanical equipment as well as the complete electrical and automation system, all ancillary equipment, erection and cold commissioning in Peine as well as the modification of an existing mill stand for the further processing of near-net-shape strip in Salzgitter. The project, which was developed also together with the Clausthal Technical University, will be supported in view of the attainable environmental effects by an investment grant of around Euro 19 million as part of the environmental innovation program of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

## Commissioning of stamping and steel center facilities in Kaluga

The Gestamp-Severstal-Kaluga stamping facility and the Severstal-Gonvarri-Kaluga steel center have been commissioned in the industrial cluster of Grabtsevo, in the Kaluga region (Russia). The Severstal-Gonvarri-Kaluga Steel Services Center aims at meeting the demands of the automobile and electrical industries, and also electronics and the building industry producers. The new facility will produce 170 thousand tons of rolled metal products per annum. A total of 40 million euros was invested in this joint venture. The Gestamp-Severstal-Kaluga Stamping Facility will produce body components for the Volkswagen plant located in the same industrial zone. The facility is equipped with a num-




*The new concept will enable casting of new high-strength steels.*



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ber of press lines. The Gestamp-Severstal will, therefore, create the entire chain of processing rolled metal products, from coil to car components. A total of approximately 89 million euros was invested in this JV, of which 39.5 million euros were spent on purchasing equipment. The annual output will reach 13 million stamped parts, and the main consumers will be Volkswagen, PSA, and Renault-Avtoframos. The new production facility must create 200 jobs in the region. Severstal has already begun trial deliveries of metal produced at the Cherepovets Metal Complex to the steel center and stamping facility per Volkswagen specifications.

## 400 mm thick slabs cast on Siemens-supplied slab caster at Qinhuangdao Shouqin

A slab caster capable of casting slabs in thicknesses up to 400 mm was recently started up at the steelworks of the Qinhuangdao Shouqin Metal Material Co., Ltd. (Qinhuangdao Shouqin), located in Qinhuangdao City, Hebei Province. The caster is equipped with a wide range of advanced technological packages to enable the production of sophisticated steel grades for high-end downstream product applications. In June 2008, Siemens VAI received an order from Qinhuangdao Shouqin for the engineering and supply of equipment for an ultra-thick, straight-mold, vertical-bending-type slab caster capable of casting up to 1.1 million tons of steel per year. The caster was designed with a bow radius of 11 m and a metallurgical length of 45 meters. Slabs can be cast in thicknesses between 250 mm and 400 mm and in widths from 1,600 mm to 2,400 mm. The product mix includes low- to high-carbon, peritectic, structural and HSLA (high-strength, low-alloy) grades for the production of pipes and plates for use in, for example, the shipbuilding and petroleum industries.

Liquid-core unbending of all strand thicknesses, including 400 mm formats, is performed to enable high slab quality at an increased caster output to be achieved in comparison with solid-core unbending of the strand. Advanced systems and technological packages include solutions for automatic mold-level control, strand break-out prediction, dynamic and on-line mold-width change as well as flexible and on-line setting of the mold-oscillation parameters in the caster head area. Smart segments in the strand-guidance system make the quick and fully automatic online adjustment of the strand thickness possible. The Dynacs 3D secondary cooling model is being applied for the first time in Asia. This enables the temperature at any point within the entire strand to be accurately calculated in real time and in a full three-dimensional mode. On the basis of this information, the optimum secondary-cooling setpoints as well as the point of final strand solidification are defined. The roller-gap taper in the area of final strand solidification can then be dynamically and precisely adjusted by applying DynaGap Soft Reduction technology. This minimizes strand segregation as required by high-quality plate applications. Dynamically adjustable spray nozzles are used to avoid overcooling of the slab corners for all slab widths.

*Siemens VAI received an order for the engineering and supply of equipment for an ultra-thick, straight-mold, vertical-bending-type slab caster.*

## Severstal idles hot-end facilities at Sparrows Point

Severstal announces the idling of its hot-end facilities at Severstal Sparrows Point, Michigan, as of July 25, 2010 as previously scheduled. The idling of blast furnace and steel-making facilities is in response to weakened market demand allowing the company to better optimize production capabilities and balance internal inventories. The hot-end facilities must resume operations once market conditions improve. Hot strip mill and all finishing facilities including tin plating lines of Sparrows Point will continue operating. Severstal North America's operations are located in Michigan, Maryland, Ohio and West Virginia. A new electric arc furnace operation in Mississippi serves the growing demand for steel in the southeastern United States.

## First slab produced at ThyssenKrupp CSA

On September 7th 2010, ThyssenKrupp CSA Siderúrgica do Atlântico produced its first steel slab, after spending three and a half years constructing its facilities. Dr. Herbert Eichelkraut, CEO of ThyssenKrupp CSA, stated that "after more than three years of a hard work we produced a slab with extraordinary quality and shape. This is the first day of production and we will remain optimizing the process".

## Outotec to deliver technology for copper mines in Zambia

Outotec has received an order from Konkola copper mines for the delivery of the third electric furnace and related services for the Chingola copper smelter in Zambia. The order value is approximately EUR 13 million. The order complements Outotec's earlier delivery of a copper smelter based on its «Direct to Blister» application of flash smelting technology. The process allows to produce blister copper directly from concentrates without the converting phase. The Outotec "Direct to Blister" process, used by two other smelters in the world,



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is due to bring considerable savings in both investment and operating costs while minimizing the emissions. The new electric furnace scheduled to be delivered in the second half of 2011 must significantly improve the cobalt recovery of the smelter.

## Tieto and Severstal collaborate on application management services

Tieto and Severstal Infocom have made an agreement on application management services. Tieto provides Oracle EBS ERP system related support services for the Dearborn steel mill of Severstal North America. The services are implemented in cooperation with Severstal's subsidiary Severstal Infocom and the US IT services company Perot. In addition to service desk and expert support Tieto provides services for the further development of Severstal's EBS based solution. Evgeny Charkin, CIO of Severstal and Chairman of the Board of Severstal Infocom, said: "Severstal Infocom selected Tieto Russia as a partner because of cost efficiency and fit of competencies needed for non-stop metal production. Tieto replaces our former US-based IT service provider. The 24/7 support of the Oracle EBS for the Severstal US Steel Mill in Dearborn, is business critical."

# PEOPLE AND ORGANISATION

## Gary T. Barlow named Vice President, Sales & Customer Service for AK Steel

AK Steel announces that Gary T. Barlow, 48, has been named Vice President, Sales and Customer Service, effective September 1, 2010. Mr. Barlow succeeds Douglas W. Gant, who is retiring after 30 years of service to the company. Gary Barlow joined AK Steel in May of 2010 from Chicago-based Ryerson Inc., a metals processing and distributing company, where he was most recently President, Northeast Region. Prior to joining Ryerson, Mr. Barlow served in several auditing and financial service capacities at Bank of America. Mr. Barlow holds a Bachelor of Science degree in Accounting from Clemson University, and an MBA in International Business from the University of North Carolina. His MBA coursework and residencies were completed in Hong Kong, New Delhi, Rotterdam, Istanbul, Mexico and Brazil. He is a Certified Public Accountant.

## Rinat Starkov appointed the new CEO of ArcelorMittal Kryviy Rih

ArcelorMittal has appointed Rinat Starkov as the new CEO of OJSC "ArcelorMittal Kryviy Rih". Mr. Starkov replaces Jean Jouet who has now left the company. Mr. Starkov's previous roles include Member of the Management Board at Mondi Business Papers responsible for the CIS, Fiber procurement and Logistics; and Managing director Mondi Syktyvkar. Mr. Starkov graduated from the Moscow Institute of International Relations with a degree in International Economy and also holds an MBA from Clemson University, USA.

## Northwest Pipe announces addition to board of directors

Northwest Pipe Company announced that James E. Declusin, former CEO of Oregon Steel Mills, Inc. and Evraz Inc. NA, has joined its board of directors. Mr. Declusin has over 40 years of experience in the steel industry. Prior to his time at Oregon Steel, Mr. Declusin spent 17 years with Kaiser Steel Corporation before serving as COO and executive vice president at California Steel Industries (CSI). Soon after retiring from CSI in 2000, he was appointed to the board of directors for Oregon Steel. In 2003, he became the president and CEO of the company. Four years later, Oregon Steel was sold to Evraz Group with Mr. Declusin continuing on as CEO until he retired earlier this year.

# ECONOMY WATCH

## ArcelorMittal acquires Berislav construction materials plant

ArcelorMittal has acquired the OJSC "Berislav Construction Materials Plant", located in the Kherson region of Ukraine. The acquisition is meant to ensure a more sustainable supply of limestone to ArcelorMittal's Ukrainian subsidiary, OJSC "ArcelorMittal Kryviy Rih". Arnaud Poupart-Lafarge, Executive Vice-President, ArcelorMittal, commented: "This deal will increase ArcelorMittal Kryviy Rih's self sufficiency in limestone supplies, providing nearly a quarter of the total requirement and providing greater protection against price fluctuations. We will, however, continue to work with our current suppliers as our requirements for different types of limestone cannot be met solely by the newly acquired facility". ArcelorMittal intends to fulfill all existing contracts at the new facility whilst also renewing production of limestone. The company must also focus on health and safety and environmental protection measures.

## Vallourec reinforces presence in China

Vallourec announced the expansion of its plant, V & M Changzhou, in China. Using a new proprietary technology, this extension will allow the production of 60,000 tonnes of seamless pipes per year to serve the local demand for power plants. The capital expenditure of this project amounts to Euro 160 million, and operations are expected to begin by mid 2012. V & M Changzhou, located in Jiangsu province and



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commissioned in 2006, is a finishing plant dedicated to large diameter seamless pipes for power plants. Its current finishing capacity stands at 15 000 tonnes per year. Expansion of the plant will enable the local production of premium tubes specifically designed to meet the needs of the new generation of supercritical and ultra-supercritical power plants. Philippe Crouzet, Chairman of Vallourec's Management Board stated: "This is a strategic investment to accompany our customers in the huge development of China's power generation capacities."

## BlueScope to collaborate with Nippon Steel

Steel manufacturer BlueScope Steel announced a long-term joint collaborative technical agreement with steelmaker Nippon Steel Corporation to develop next-generation coated steel products for building and construction markets. Under this agreement BSL and NSC will undertake joint research and development. This technical agreement is underpinned by a 40 year working relationship between BSL and NSC. BSL has developped products such as Colorbond steel and Zincalume steel; the new technology must improve both corrosion performance and environmental credentials of these products. The products will be launched initially in Australia and then rolled out across the company's footprint. Implementation plans include working through the standards and codes revision processes, as required under Standards Australia and the Building Code of Australia. Launches are due to occur over the next couple of years.

## JFE Steel and JSW Steel take first step in cooperation

JFE Steel Corporation, following extensive deliberations with JSW Steel Limited since signing a collaboration agreement on November 19, 2009, announced that as the first concrete step, they have signed agreements for JFE Steel to take an equity position in JSW Steel and to provide the Indian steelmaker with technical assistance. JFE Steel, through its partnership with JSW Steel, now expects to participate on a full scale in the emerging market of India. JSW Steel has established its business base in India through strategies to expand capacity and raise the company's rate of captive iron ore mines. Based on JFE Steel's equity participation, the two companies plan to cooperate in a variety of areas, including JSW Steel's envisioned West Bengal steel plant project. JFE Steel also will provide JSW Steel with technical assistance for the production of automotive steel and the implementation of operational improvements at JSW Steel's Vijayanagar Works.

Increased production of automobiles in India is creating greater needs for local procurement of materials. With the execution of these technical cooperation agreements, JFE Steel must position JSW Steel as a strategic base for the production of automotive steel. JFE Steel will provide JSW Steel with technology for the production of hot-rolled coils and cold-rolled coils for automotive use, and supply substrates. The two companies will jointly provide automotive customers with services including application engineering and product development. JFE Steel will also provide technical assistance for operational improvements at JSW Steel's Vijayanagar Works. Agreements have been executed for work involving energy efficiency, environmental management, improvement of production process quality and yield, production capacity analysis and indices benchmarking.

## Ternium completes acquisition of controlling interests in steel companies in Colombia and Panama

Ternium announced that it has completed its previously announced acquisition of a 54% ownership interest in Colombia-based Ferrasa through a capital contribution in the amount of US$ 74.5 million. With its principal operations in Mexico and Argentina, Ternium serves markets in the Americas. The company has an annual production capacity of approximately ten million tons of finished steel products - flat and long steel products for customers active in the construction, home appliances, capital goods, container, food, energy and automotive industries. Ferrasa has a 100% ownership interest in Sidecaldas, Figuraciones and Perfilamos del Cauca. These companies have combined annual sales of approximately 300,000 tons, including a long steel making and rolling facility with annual production capacity of approximately 140,000 tons.Ternium has also completed the acquisition of a 54% ownership interest in Ferrasa Panamá for US$ 0.5 million. Ferrasa Panamá is a long steel products processor and distributor based in Panama.

# ENVIRONMENTAL OUTLOOK

## LanzaTech signs first commercial partnership deal

LanzaTech, New Zealand, will work with Chinese steel and iron conglomerate Baosteel, and the Chinese Academy of Sciences (CAS) to commercialize its technologies for producing fuel ethanol from steel mill off gases. LanzaTech has developed a proprietary gas fermentation technology that allows the use of off-gases from the steel industry for fuel ethanol production. LanzaTech and Baosteel will work with CAS scientists to accelerate the deployment of this technology and to jointly research, develop and commercialize related technologies. Baosteel Metal and LanzaTech will construct a demonstration plant at one of Baosteel's steel mills, with the intention of quickly scaling the model again toward the construction of the first fully commercial plant in China. The demonstration facility, which is the last stage before commercial operation, is expected to be in operation in the second half of 2011. "China is committed to reducing its carbon footprint and reducing its need for imported fuel, while continuing to increase its industrial output" said Dr. Sean Simpson, cofounder and chief scientist for LanzaTech. LanzaTech has successfully run a pilot plant using its proprietary technology to produce ethanol from steel mill flue gases at NZ Steel at Glenbrook in Auckland since 2008.



https://doi.org/10.1051/metal/2010994 Published online by Cambridge University Press