

## INDUSTRY CONTRACTS

### *Ruukki provides steel structures for new bridge in Finland*

Ruukki, Finland, has agreed a steel structure contract and delivery of the foundation piles for the new Pekkala bridge to be built in Joensuu, Finland. The bridge is part of a project to improve the Joensuu ring road, the busiest traffic route in North Karelia. Ruukki in addition is supplying the pipe piles for a total of ten underpasses and overpasses. The deliveries are worth a total of about EUR 2.5 million.

Ruukki is responsible for the fabrication and installation of the load-bearing steel structures for the new Pekkala bridge and for delivery of the large piles used for the foundations of the bridge. Ruukki will deliver the bridge sections ready to install at the construction site.

The new bridge will be 450 metres long and is being built for another roadway next to the existing Pekkala bridge spanning the Pielisjoki river. When completed, the new three-lane bridge is due to considerably improve the function and safety of this busy route.

The foundation piles will be made at Ruukki's Oulainen unit in Finland and deliveries will begin in April. Fabrication of the load-bearing steel structures will begin in summer 2010 at the Ylivieska unit and installation will start in autumn 2010. The new Pekkala bridge will open to traffic in 2012.



During late 2009, the company agreed on deliveries for some 15 bridges in different countries.

### *First Shipment of JFE Steel "SP3" to US BNSF Railway*

JFE Steel announced its development of "SP3" (Super Pearlite Type 3), a new rail offering high level of wear resistance for heavy-haul railway lines. The inaugural shipment of SP3, a head-hardened premium rail

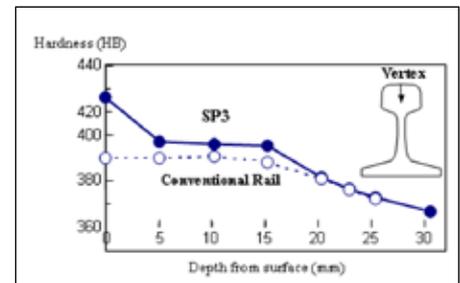
meant to last more than 10 percent longer than conventional head-hardened rail, was delivered to BNSF Railway in the United States in February.

Wear-resistant rail is widely used outside Japan, especially in the United States, mainly for freight tracks used for transporting heavy commodities like coal and grain. It is especially beneficial on curved portions of track where centrifugal forces accelerate the pace of wear.

SP3's wear resistance is due to its ultra-fine metal structure, which JFE Steel achieved by optimizing chemical-composition control and post-rolling cooling, the latter by means of an advanced heat treatment process.

SP3 underwent tests conducted jointly in the United States by JFE and BNSF Railway. The tests, which lasted more than one year, alternately used SP3 and conventional head-hardened rail on the same sections of curved track handling actual freight traffic in the states of Nebraska and Idaho.

As a result of SP3's performance in the tests, BNSF placed a commercial order for about 600 metric tons, or some 9 kilometers, of 141-pound SP3 rail, which JFE Steel shipped from Japan in February.



Rail hardness, by depth from surface

### *25,000 square meters of steel sandwich elements for Melbourne sports stadium*

UThyssenKrupp Steel Europe has supplied 25,000 square meters of steel sandwich elements for the construction of a new sport stadium in Melbourne. The stadium, which costs 267.5 million Australian dollars in total (around 180 million euros), is covered by a roof of Hoesch isowand vario elements. Although originally developed for wall and facade applications, the isowand elements are suited to the special architecture of the stadium shell.

The new sports facility, recently named AAMI-Park after an Australian insurance company, is also known as "Melbourne Rectangular Stadium". Rectangular is a reference to the shape of the pitch, which is noteworthy in a country where the national sport of Australian rules football is played on oval fields. Rugby and "European rules football" - i.e. Soccer - will be played here in the future.

Cox Architects + Planners, one of the largest architectural firms in Australia, has created a structure based on the geodesic dome designed by the American architect Richard Buckminster Fuller. This type of dome

is made up of many small triangles held together by a fine lattice-like structure. The outer shell of the stadium resembles a large ring of intertwined, hemispheres open to the pitch.

Protecting the 30,000 plus spectator seats from the wind and weather required around only half the material that would be needed for a conventional design using a so-called cantilever roof. However, the concept places special demands on the materials used. Low weight is important as there are unsupported spans up to six meters wide to be bridged. But as well as lightness, good insulation properties are also important to ensure that conditions remain comfortable under the stadium roof even in the Australian sunshine. Good fire safety properties are also indispensable in such large-scale structures used for mass events. The design requires precision-fit parts and also has to meet the architects' high design requirements.

Grocon Pty. Ltd., the Australian construction contractor responsible for erecting the stadium, chose Hoesch isowand vario steel sandwich elements. The elements, which comprise two thin steel face sheets enclosing a thick polyurethane rigid foam core, have heat insulation properties and are low in weight. Hoesch isowand vario has concealed fastenings as well as precision joints. Corrosion protection is ensured by means of a duplex coating system, in which first a zinc layer and then a paint or plastic finish is applied to the steel face sheets. Hoesch isowand vario is classified as a flame retardant construction material in accordance with EN 13501-1.

The roof of the Melbourne stadium is made of 100-millimeter-thick isowand vario elements weighing under 13 kilograms per square meter. The elements were cut into equilateral triangles and fitted with aluminum frames by Melbourne based Minesco Pty. Ltd. and then delivered ready for assembly to the construction site. Rubber seals, also fitted by Minesco engineers before installation, ensure that the roof structure is waterproof. ThyssenKrupp Steel Europe realized the "whisper white" shade selected by the architects using a PVDF coating (polyvinylidene fluoride). The plastic layer is 25 micrometers thick and - thanks to its high chemical and thermal resistance - will ensure that the surface remains impervious to the effects of environmental influences and sunlight.



The new stadium was inaugurated on May 7, when the Australian rugby league team met the New Zealand national side.

## PLANTS AND EQUIPMENTS

### Siemens LiquiRob installed at SAM

The Riva Group has become the first steel producer to use the Siemens LiquiRob technology at an electric arc furnace. The robot system has been installed in its French plant in Neuves-Maisons where it handles sampling and temperature and Celox (oxygen rate) measurements. Operating personnel now no longer need to enter potentially dangerous areas, which has substantially increased industrial safety. The system is designed for fully automatic operation and enables precise and reliable measurements to be made at frequent intervals. The acceptance certificate was issued mid-March.

The Neuves-Maisons works produces rebars and coils, and belongs to the SAM Division of the Riva Group, based in Milan, Italy. The plant produces steel in an electric arc furnace with a tapping weight of 150 tons and a ladle furnace. The steel is cast on a six-strand sequential billet casting plant, from which the billets pass to a rolling mill for further processing. Until recently, the operating personnel had to enter the dog house to take samples and measure the temperature and oxygen activity of the liquid steel using a manipulator. These activities are now handled by the LiquiRob System which accesses the steel bath directly through a window in the slag door.

The robot system is operated and monitored from a central control room. Siemens was responsible for integrating the LiquiRob System into the existing Dog house and the EAF automation system, as well as for commissioning, and training the operating personnel. The solution implemented in Neuves-Maisons also includes installation of three automated magazines to store the sample and measuring probes, which can be safely filled by the operating personnel one time per day outside the dog house. The sampling and measuring procedures can be run auto-



The Siemens LiquiRob robot system in action at the electric arc furnace of SAM Neuves-Maisons, Riva, France.

matically. LiquiRob requires only a small window in the slag door and the cartridge reaches further into the furnace and dives deeper into the steel bath.

According to Siemens this eliminates incorrect measurements and the measured data is considerably more accurate. Shorter measuring intervals can also be achieved thanks to the automated cartridge selection. This, in turn, provides a more precise picture of the temperature and composition of the steel.

LiquiRob was implemented for the first time in 2008 in the Gwangyang Steel Works of the Korean company Posco. There, LiquiRob is used for sample taking, temperature measurement within the distributor and for casting powder dosing on the casting platform of a two-strand Slab Caster.

## **MHMM equips chinese stainless hot rolling mill**

Mitsubishi-Hitachi Metals Machinery, Inc. (MHMM) recently received an order for hot rolling mill for a new stainless steel mill to be constructed by Fujian Fuxin Special Steel in China.

The construction site is in the environs of Xiamen (also known as Amoy) in Fujian Province. Under the construction schedule, the shipment of the main equipment to China will be completed in February 2012, and the start of hot run operation (production of the first coil) is scheduled for October 2012.

The main purpose of the equipment is production of hot-rolled stainless steel sheets. The scope of the order received is one set of mechanical equipment, including a 7-stand finishing mill.

## **ArcelorMittal Kryviy Rih constructs continuous casting machine**

ArcelorMittal Kryviy Rih, Ukraine, launched construction of secondary metallurgy and continuous billet casting technology in April. Construction of the CCM is part of the company's modernization program as well as one of its investment obligations according to the sale and purchase agreement.

This project will include construction of all related infrastructure and facilities - electrical substation, water treatment plant, de-dusting unit etc. The project capacity of the new CCM will be over 1.2 million ton of steel per year. Target date of start-up of CCM is September 2011.

Launch of the CCM will mark transfer of the enterprise to more efficient and more sustainable production. Various technical advantages are expected: (i) energy saving i.e. gas, water and electrical energy - 10% energy saving in steel production per ton of steel; (ii) increased product

quality - the ladle furnace gives the possibility to clean and alloy the liquid steel and to produce a bigger range of product qualities; (iii) increasing the labor safety - less manual work and higher degree of automation ensure safer working conditions; (iv) environmental friendly - 10% reduction of emission per ton of billet in steel making; (v) better yield, higher availability, higher degree of automation and maintenance friendly - 10% better yield, 90% availability.

Jean Jouet, CEO, ArcelorMittal Kryviy Rih: "Building our first CCM is a true milestone in our enterprise development and an important step towards improving competitiveness of our products. It marks the start of a journey from ingot casting route to state of the art secondary metallurgy and continuous billet casting route. Worldwide today more than 80% of long products are being produced using continuous casting technology. Almost all our competitors in Ukraine have switched over to this technology or are in the process of building similar facilities. As our strategy is focused on modernization and efficiency improvement, we are moving to this modern state of the art technology."

Siemens VAI Austria and Siemens Ukraine have been chosen as principal technology suppliers to design and commission the facilities.

Big portion of the project i.e. mainly design and engineering, civil structural and technological structural will be developed and supplied locally; Siemens Ukraine will work with local contractors.

## **JSC Yenakiievo metallurgical works expands energy facilities**

JSC Yenakiievo Metallurgical Works (EMZ), part of Metinvest Group, is implementing the project "Application of Capacitor Banks at Ladle Furnace of Converter Shop", which must improve energy efficiency of the plant.

Forecasted annual saving from introduction of the capacitor banks will comprise over 36 million UAH. with ROI of 1.1 years. The project investments will comprise over 40 million UAH.

Introduction of the automated capacitor bank made by Finnish Nokian Capacitors, will contribute to reduction of melting time at ladle furnace by 10.8% and improving of the unit's productivity by 1% (22 735 tpa of steel) through stabilized consumption of reactive power. In its turn, reduced melting time will reduce natural gas and oxygen consumption by the production process. The capacitors of the system will improve quality of electric power and reduce energy losses.

Application of the capacitor banks will extend service life of the equipment and increase maintenance intervals. The project is planned to complete by the end of 2010.

« Energy saving is becoming one of the most important factors of profitability and competitive edge of industrial companies », noted Alexander Podkorytov, General Director of EMZ OJSC. « Therefore implementation of such energy projects as capacitor banks at the ladle furnace will allow really improving energy efficiency performance of the enterprise and reducing costs of production ».

## *Open-die forging press from SMS Meer inaugurated at Buderus*

The 80/100-MN open-die forging press installed by SMS Meer, Germany, was formally inaugurated at the Wetzlar Works of Buderus Edelstahl GmbH, Germany, in March.

The open-die forging press can be operated with both 8,000 t press force and in the slower upsetting cycle with 10,000 t press force. With this new press, Buderus Edelstahl is now able to forge large workpieces with a diameter of almost 4 m. Such heavy components are used in power generation engineering and special machine engineering.

The forging machine also includes a new manipulator with a carrying force of 250 mt. The control panels were designed to match those of the existing presses, thus reducing the training necessary and permitting flexible personnel deployment.

With this new open-die forging press, Buderus has also installed eight new 250-t and one 300-t forging furnace, a trackless transport system for ingots up to 160 t and an oil-hydraulic system with an oil volume of 70,000 liters.

## *Modernized battery commissioned at ZKS*

Zentralkokerei Saar GmbH (ZKS), the commonly owned subsidiary of AG der Dillinger Hüttenwerke and Saarstahl AG, has just completed construction of a new battery, consisting of fifty coke-ovens featuring environmental protection technology. The project is part of a programme of overall modernization started at ZKS in 2007 and scheduled to receive total investments of around 220 million euro. « This series of projects will optimize coke production and reduce emissions », according to ZKS. The company was founded in 1982, and produces coke for use in the blast furnaces operated by Rogesa Roheisengesellschaft Saar mbH (also a jointly owned subsidiary of Dillinger Hütte and Saarstahl AG).

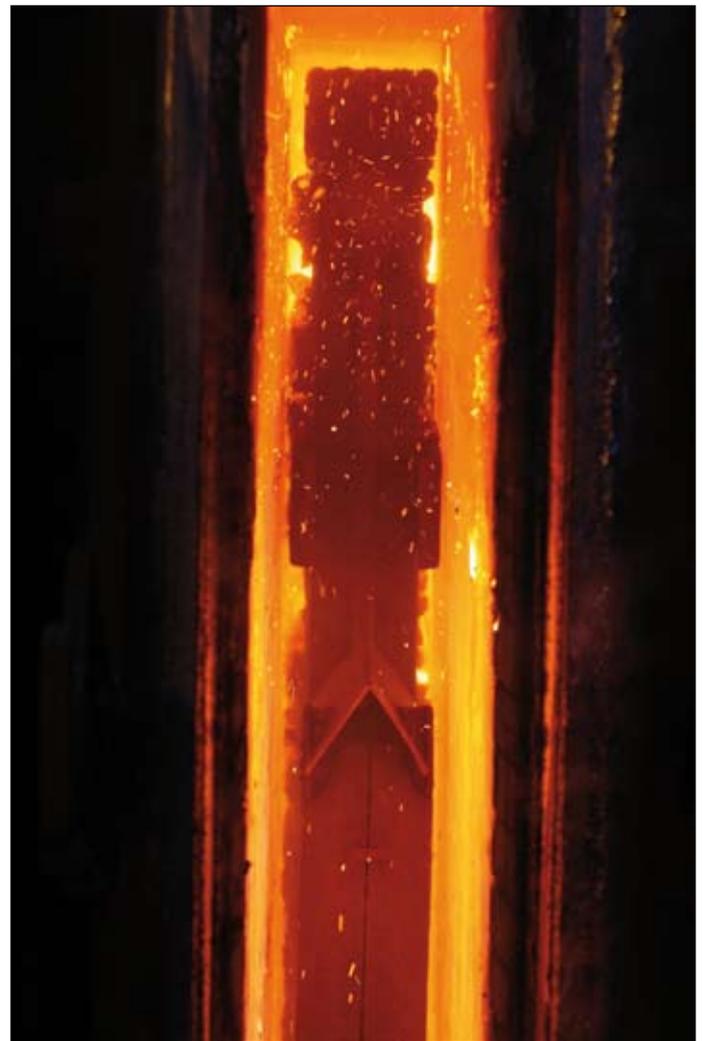
State-of-the-art pollution-prevention technologies have been installed in Battery B3, for example independent pressure control in each individual coke oven chamber, a new system of charging-gas capture and transfer, and a new bag-filter installation. The by-products plant, the so-called «white side», i.e. all systems and plants for cleaning of the coke-oven gas and recovery of other useful products, has also been completely overhauled and all technology modernized to meet the latest standards.

Completion of the new Battery B3 is to be followed by the refurbishing of one of the existing coke-oven batteries (B1). Shut down some time ago, this battery will now be completely rebuilt, to the same standards as Battery B3. Once Battery B1 has been recommissioned, the second existing battery, B2, will be taken out of service. This investment project will implement coke-oven and environmental safety technology, with ZKS's original annual production capacity of some 1.3 million tonnes of coke being reached by late 2011 or early 2012.

## *Pumas optimizes coke oven monitoring*

Siemens VAI has developed a new camera-based coke oven monitoring system, that allows various oven criteria and parameters to be examined, measured and documented when the coke oven door is open during coke pushing. Pumas (PUshing MAnagement System) also includes the functions and features of the existing Level 2 Radiposi (Radio Digital Positioning) system from Siemens for control, positioning and interlocking of mobile coke oven battery equipment.

The unit is mounted on the coke guide from where it performs visual oven condition monitoring with video cameras during the coke-pushing sequence. Continuous coke-temperature measurements are also performed to monitor wall heating and heat transfer to coke, in addition to other applications. High-capacity and fast wireless data transfer to a LAN server allows operators to systematically evaluate coke oven conditions. Selected photos are stored in the data base for reference as well as to improve evaluation and interpretation skills.



*A camera-based system that allows monitoring of the coke pushing phase.*

According to Siemens, Pumas allows badly worn oven soles to be identified and repaired on time, and therefore avoids possible subsequent damage. The efficiency of oven filling can be also checked. The degree of graphitization of individual ovens (i.e., the caking of carbon on the furnace walls), can also be recognized by Pumas as the basis for better defining and coordinating maintenance intervals to rectify inadequate oven conditions.

Pumas also incorporates the features of Radiposi, an integrated Level 2 control system, to reliably perform control, coordination, positioning and interlocking of various moving machines during coke discharge from the ovens.

## JFE Steel expands steelmaking capacity of Fukuyama area

JFE Steel Corporation, Japan, announced that it has finished construction and is now operating a new single-strand continuous slab casting machine (No.7 continuous caster) and a new slab scarfing machine at the No.3 steelmaking plant of the company's Fukuyama area.

JFE Steel also has increased the capacity of its No.5 RH degasser, located adjacent to the new No.7 continuous caster.

When the Fukuyama No.3 blast furnace is revamped as scheduled in May 2011, annual crude-steel production capacity will rise to 13 million tons in Fukuyama, 23 million tons in the larger West Japan Works and 33 million tons companywide.

## Metinvest increases production of iron ore concentrate

Metinvest plans to increase production of high quality merchant iron ore concentrate with 'Fe content' over 67% up to 6.8 Mt through construction of the second magnetic and flotation metal content upgrading facility at Ingulets iron ore enrichment works (InGOK).

Total value of the project will comprise around 340 million UAH. Metinvest plans to commission the facility in October 2011.

Currently the enterprise operates the facility with the annual production capacity over 3.2 Mt. Capacity of the second magnetic and flotation metal content upgrading facility will be around 3.6 Mt of merchant concentrate per year. During 2010 over 130 million UAH will be invested in construction of the plant.

"The main objective of construction of the second magnetic and flotation metal content upgrading facility is to expand production of premium-class iron ore products with Fe content up to 68.0-69.5%", noted Nikolay Ischenko, the Acting Director of Metinvest's Iron Ore Division.

InGOK focuses on mining and processing of ferruginous quartzites of Ingulets deposit located in the Southern Part of Kryvyi Rih iron ore

basin. The enterprise produces two types of iron ore concentrate with Fe 63.7% and 67.5%. In 2009 InGOK produced 11.881 Mt of concentrate.

## voestalpine to build turnout production in Turkey

The VAE Group, a group of companies within the listed voestalpine group, has signed an agreement in Turkey for the establishment of a new turnout production. The new plant is a joint venture of Turkish State Railways (TCDD), Turkish integrated long steel producer Karabuk Demir Celik Sanayi ve Ticaret A.S (Kardemir), and VAE Group. The new factory will be built close to the existing turnout plant of TCDD in Cankiri province in central Turkey. The new production will manufacture high speed turnouts and switches for the modernisation of existing rail tracks.

Turkish State Railways wants to make use of advanced technology for expanding its rail network to cope with the rapidly increasing demand for transportation. The initial investment for the turnout production is EUR 10 million. In this first stage of expansion already 140 people will be employed. voestalpine will have a 51 percent share in the joint venture and will bring in the technological know how. Turkish rail producer Kardemir will have a share of 34 percent and Turkish State Railways 15 percent.



High speed turnouts and switches for the modernisation of turkish rail tracks.

## Air Liquide: Eur 25 M new contract in China

Air Liquide will invest in China Eur 25 million in a new air separation unit (ASU) for Dongbei Special Steel Group in Dalian, Liaoning Province.

The new ASU will have a production capacity of about 800 tonnes of oxygen per day, to supply oxygen and nitrogen to Dongbei Special Steel Group. It extends the cooperation between the two companies, after a first long-term gas supply contract was signed in 2007. The commissioning of the new unit is scheduled to the 3rd quarter of 2011.

Plant operation teams will be from Air Liquide China, while the ASU will be designed and manufactured by Air Liquide Hangzhou, Air Liquide's engineering centre in China.

## **Bricmont receives 2 furnaces contracts**

Bricmont, USA, received a contract from PT Gunung Garuda to supply a new plate heat treatment furnace for their mill in West Java, Indonesia. In addition, the supply includes level 1 and 2 control systems.

Bricmont, located in Canonsburg, PA, designs and installs engineered thermal processing equipment for metal industry applications. The new roller hearth furnace is being supplied in cooperation with FCE, Huntingdon Valley, PA.

Bricmont also received a contract from the Steel Authority of India to supply a 220 tonnes per hour walking beam furnace for their new medium section mill in Durgapur, India. In addition to the top and bottom fired furnace, Bricmont's scope of supply includes Level 1 and Level 2 Controls, as well as the necessary mechanical equipment for charging and discharging steel sections of various sizes.

## **Andritz receives further orders from stainless steel producers in China**

Andritz, Austria, has received orders with a total value of about 50 MEUR from two stainless steel producers in China.

For Tianjin TISCO & TPCO Stainless Steel Co. Ltd. the Andritz Metals business area will supply an annealing and pickling line for cold-rolled stainless steel strip with a maximum strip width of 1,320 mm (annual capacity 400,000 t). In order to enhance the product quality, this plant is equipped with a tension-leveler and a skin pass mill. Start-up of the line is planned for the third quarter of 2011.

From Jiuquan Iron & Steel Group Co. Ltd. Andritz has received the order for delivery of a tension-leveling line and an offline skin pass mill for cold-rolled stainless steel strip with a maximum strip width of 1,600 mm. The equipment has an annual production capacity of 200,000 tons. In addition to the complete mechanical equipment, the scope of supply also includes the electrical equipment, including automation. Start-up is planned for the fourth quarter of 2011.

## **ABB solutions empower China's first three-stand aluminum tandem cold mill**

ABB has been commissioned to provide a complete range of tailored automation solutions for China's first 3-stand tandem cold mill (TCM) by Shandong Nanshan Aluminum Company. The advanced automation system from ABB will help the local aluminum maker consolidate its market shares in China, especially in the production of quality aluminum can stock.

Tobias Becker, Head of ABB Process Automation Division, North Asia and China said, "Our advanced automation technology is helping China's aluminum fabrication industry adopt state-of-the-art manufacturing processes. ABB can leverage its expertise and technology for its customers in the rolling mill sector."

With a designed capacity of 350,000 tons per year, the new mill must be among the top facilities in terms of production capacity in China and is scheduled to start operation in 2012. ABB has delivered a complete range of tailored automation solutions, including the automation system, computer system, mathematical models, drives and motors, and instrumentation. In addition, ABB has provided project design and engineering, installation supervision, commissioning and other on site services.

ABB automation solutions enable the TCM to achieve precise strip thickness control, while limiting thickness tolerance within a few micron meters, so as to meet the most critical requirements in can stock production. Powered by ABB DTC control technology, ABB ACS6000 MV and ACS 800 LV drives ensure precise motor control, for better dynamic performance and lower downtime for the TCM. The ABB system also helps improve the TCM's operational efficiency and reduce maintenance costs.

## **Linde builds air separation plant in Kazakhstan**

Linde Group is set to construct a large, state-of-the-art air separation plant for ArcelorMittal, at ArcelorMittal's Temirtau site in Kazakhstan. This plant must be Kazakhstan's first industrial-scale development with a daily capacity of 2,000 tonnes (tpd). It is set to go on stream mid-2012. With an investment value of around EUR 95 million, it is also the first plant that Linde will engineer and operate for a customer in Kazakhstan.

With an annual capacity of around four million tonnes, the ArcelorMittal Temirtau steelworks in north-eastern Kazakhstan produces hot rolled coils, cold rolled coils, galvanised and pre-painted coils. Recently it has also commissioned a bar and light section mill.

Linde signed a long-term contract with JSC ArcelorMittal Temirtau to supply the Temirtau steelworks with oxygen and nitrogen gas. The new plant to be built by Linde will also supply liquefied oxygen,

nitrogen and argon to the merchant market in Kazakhstan. Target customers in central and southern Kazakhstan are mainly concentrated in the steel and manufacturing industries. The new plant will also supply customers specialised in oil and gas in western Kazakhstan. Linde's Engineering Division is responsible for constructing the plant. Once it goes on stream, it will be operated by the local Linde Gas company. The new facility will partly replace existing air separators which ArcelorMittal operates itself.

## **Ningbo Baoxin Stainless Steel doubles bright annealing capacity**

Ningbo Baoxin Stainless Steel (Ningbo, China), part of the Baosteel Group, has been producing stainless steel strip on an Ebner vertical bright annealing line since 2003.

Ningbo Baoxin's good market position and rising demand led to the decision to double the production of stainless steel strip in BA quality.

Ningbo Baoxin decided to invest in another Ebner Hicon/H2 annealing facility because of the reproducible quality, and their experience with the existing Ebner facility.

The new facility will allow production of even thinner wide strip. A hydrogen recycling system further reduces the consumption figures.

The facility is designed to process thin stainless steel strips with a width of max. 1350 mm and a thickness between 0.18 mm and 2.0 mm.

The furnace section is fitted with a muffle that encapsulates the workload space metallurgically, enabling the lowest possible dewpoints (-60 °C) and the use of 100% hydrogen as process atmosphere.

## **Tenova Takraf to supply a pet coke handling system in Saudi Arabia**

Bricmont, USA, received a contract from PT Gunung Garuda to supply a nTenova Takraf has signed a contract for a pet coke handling, storage and shiploading system for the new Jubail Export refinery in Saudi Arabia. The customer, Gulf Consolidated Contractors (GCC), is to build most of the new refinery for new refinery named SATORP while Tenova TAKRAF will supply the entire pet coke handling systems.

Tenova Takraf will be working in partnership with PHB Weserhutte (Gijón - Spain) and will be responsible for the design, supply and site delivery of a handling system comprising: a conveyor belt system plus one scraper in the refinery area; an overland conveyor covering a distance of 25 km from the refinery to the port; a system of conveyor belts plus two scrapers and one shiploader in the port area. The system will be used to store, transport and load petroleum coke, a solid residue obtained from petroleum refinement processes.

## **Tenova Core to revamp EAF at Ivaco rolling mills**

Tenova Core has been contracted to revamp the 75-ton EAF at Ivaco's steelmaking facility in L'Original, Ontario. The project features a new upper shell and new lower shell which will be designed to increase the actual scrap charging volume and optimize the positioning of the existing burners and chemical injection system. The new shell structures will also be designed to fit the existing EAF tilt platform. The shell structures will be fabricated at the Tenova fabrication facility. An upgraded water cooled piping and hose system is also part of the EAF revamp project.

Installation will take place during a future planned maintenance outage.

## **ArcelorMittal to use more large electric arc furnace equipment in South Africa**

More announced an agreement with ArcelorMittal South Africa for the installation of Module Technology chemical energy package equipment at the company's Vanderbijlpark Works' three electric arc furnaces.

Vanderbijlpark Works has a total capacity of 3 million tonnes a year of high-grade flat products, including hot rolled sheets in coil, hot rolled steel plates, cold rolled steels sheet in coil, hot dip galvanised steel sheets in coil, electro-galvanised steel sheets in coil, colour coated steel sheets in coil and tin plate coils. Each electric arc furnace (EAF) has a tapping weight of 155 tonnes.

More will equip each EAF with two Oxygenjet burners/supersonic-oxygen injectors, two Hi\_jet burners/sonic-carbon injectors, and one Carbonjet burner/carbon injector. Additionally, valve stands, carbon dispensers, and electrical and automation system with Human Machine Interface are included in the delivery. Moreover, each furnace will be equipped with an automatic temperature/sampling manipulator, operated through the slag door.

Commissioning is scheduled for the second quarter of 2010.

"The new chemical energy package will replace the traditional consumable carbon/oxygen lance manipulators we have today", said Mr. Jaco Stapelberg, General Manager at ArcelorMittal Vanderbijlpark. "It will add exothermic energy in such a way that it optimises our metallurgical process, increases productivity and maximises the efficiency of our furnaces. As importantly, it should improve the safety of our operations."

Dr. Joachim von Schéele, Marketing Manager of Metals and Glass, Linde, adds: "It is our second deal with ArcelorMittal, having previously, together with MORE, supplied similar equipment to its steel mill at Hunedoara in Romania."

## *Outotec to deliver Kaldo furnace technology for Boliden in Sweden*

Outotec has signed a contract with Boliden AB for the delivery of Kaldo furnace technology to Boliden's Rönnskär copper smelter in Sweden.

The delivery will be a part of Boliden's electronic scrap recycling facility expansion. The expansion will increase Rönnskär's processing capacity significantly from the current level of 45,000 tonnes to 120,000 tonnes of electronic scrap per year.

Outotec's scope of delivery covers the Outotec Kaldo furnace, which is one of the biggest components of the recycling facility. The new generation Kaldo furnace is expected to be commissioned at the end of 2011.

## *Praxair to supply Essar Steel Algoma*

Praxair Canada Inc. has signed a long-term supply agreement to design and build a cryogenic air separation plant to supply 900 tons per day of gaseous oxygen to Essar Steel Algoma Inc.'s steel mill located in Sault Ste. Marie, Ontario, Canada. The new plant is scheduled to start up by early 2011 and will be fully integrated with Praxair's existing air separation facilities at Essar in Sault St. Marie.

Essar Steel Algoma Inc., a member of the Essar Group, is a fully integrated steel producer, deriving its revenues primarily from the manufacture and sale of hot and cold rolled steel products including sheet and plate.

## *Consarc vacuum furnace installed at Metaltech*

Consarc Corp. has delivered a custom manufactured 'multi-flow' heat treat furnace to Metaltech, UK.

The FVS 51-75-75 is a side opening vertical high vacuum heat treatment furnace. The charge is electrically heated under vacuum in the 10-2m. bar range to uniform temperatures in the range 600°C to 1350°C. Cooling in the range 1250°C to 100°C is by means of a forced gas cooling system. Rise or fall and the holding temperature is controlled by a programmable controller with multiple slope/level/time segments.

The furnace has a temperature uniformity +/-5°C between 600°C and 1350°C. Recirculating gas cooling can cool between 1250°C and 150°C in approximately five minutes using nitrogen gas with an empty chamber.

The furnace can process a charge weight of 500kg max and has internal dimensions of 750mm diameter x 750mm high max.

## *Nippon Steel and Kobe Steel to recycle steel mill dust into direct reduced iron*

Nippon Steel Corporation and Kobe Steel, Ltd. announce that they plan to begin construction of a plant to recycle steel mill dust into direct reduced iron. The companies will carry out the project through a joint venture; approximately 10 billion yen will be invested (for the RHF & related equipment). Operations must start in October 2011.

The joint venture - Nittetsu Shinko Metal Refine - plans to produce iron units by recycling steel mill dust, a byproduct from the steelmaking process. This business is expected to be an extremely effective approach to secure competitive iron units in a business environment of unstable raw material prices and availability.

Through the joint business, both Nippon Steel and Kobe Steel must also be able to promote steel dust recycling and zero emissions in the local region beyond the framework of each individual company by integrating the process technology established by Kobe Steel and operation know-how established by Nippon Steel on the recycling and effective utilization of steel dust, which are based on processes using a rotary hearth furnace. They will use steel mill dust and iron ore fines from their steel mills as raw materials to recycle iron into direct reduced iron (DRI) and recover zinc.

In addition to the new business, Nippon Steel will use its existing dust recycling plants at its Hirohata Works to recycle steel mill dust generated from the steelmakers, including alliance partners, located in the Kansai region.

The joint venture will construct a direct reduction plant utilizing Kobe Steel's Fastmet process within Nippon Steel's Hirohata Works. Nittetsu Shinko Metal Refine will recycle the steel mill dust it receives and use it to produce DRI. The DRI will be supplied to Nippon Steel and Kobe Steel, with a portion also going to Sanyo Special Steel Co., Ltd., a group company of Nippon Steel.

In the Fastmet Plant, steel mill dust is heated to a high temperature in a doughnut-shaped rotary hearth furnace (RHF) and quickly undergoes reduction to make DRI, which is then formed into hot briquetted iron (HBI). At the same time, the zinc in the steel mill dust is recovered. As the steel mill dust and zinc are effectively recycled, the DRI can be used as an alternative or supplement to scrap and iron ore as the main raw material, and the recycled zinc can reduce the use of zinc ore. Total treatment capacity is approximately 220,000 metric tons per year. Recycling also promotes zero emissions.

## *Fastmet process flow*

FASTMET® Process Flow For Nittetsu Shinko Metal Refine Co., Ltd  
Russula commissions first project in India  
Russula commissions first project in India at M/S Welspun located in the Anjar, Kutch, Gujarat region. In collaboration with Fives Stein India Projects Private

Limited, the project involved converting an existing 200 TPH digital walking beam furnace from heavy fuel oil to natural gas.

Russula's scope of work included the engineering and development of a new PLC program with Schnieder Unity Pro software and development of the HMI SCADA with Schnieder Vijeo Citect. The existing Welspun furnace PLC was adapted to accommodate the new configuration.

## PEOPLE AND ORGANISATION

### *Franz Rotter appointed to the management board of voestalpine AG*

On Monday 31st March 2010 the supervisory board of voestalpine AG appointed Mr. Franz Rotter to the Management Board of voestalpine AG, with effect from 1st January 2011.

In common with all other voestalpine AG Management Board contracts his term of office will expire on 31st March 2014. Within the group's Management Board Franz Rotter will head the Division Special Steel, taking over from Claus J. Raidl, whose term of office will come to an end as scheduled on 31st December 2010.



Franz Rotter.

### *Northwest Pipe appoints Richard A. Roman Chief Executive Officer; Brian W. Dunham continues as President*

Northwest Pipe Company (Vancouver, Canada) (NASDAQ: NWPX) announced that the Board of Directors has accepted Brian Dunham's resignation as Chief Executive Officer, and appointed Richard A. Roman to serve as Chief Executive Officer of the Company. Mr. Roman has been a member of the Company's Board of Directors since 2003, and remains on the Board. Mr. Dunham will continue to serve as President and as a member of the Board of Directors.

### *NLMK appoints new Long Products Division Director*

Alexander Buraev has been appointed the new Director of NLMK's Long Products Division. Previously Mr. Buraev was the Head of Production at Operations Department at Lipetsk site. In his new position, Alexander Buraev will be responsible for the development of several companies: Nizhne-Serguinsky Steelmaking and Metalware Plant (NSM-MZ), Uralsky Plant of Precision Alloys (UZPS), Kaluzhsky Electric Steelmaking Plant (Kaluga mill), Vtorchermet NLMK and some other companies incorporated in the Long Products Division.

Olga Naumova, who previously held this office, has resigned from the company.

## ECONOMY WATCH

### *Worldsteel repeats alarm over recent developments in raw materials markets*

At meeting of the intergovernmental OECD Steel Committee held in Paris on May 7, Ian Christmas, Director General of the World Steel Association reiterated the industry's alarm at the potential negative impact on steel and its customers from recent developments in the market for iron ore and metallurgical coal.

In his statement Ian Christmas said, "Steel is a capital intensive and globally critical industry which has a big impact on the economy. It requires long-term relationships between mining companies, steel companies and the users of steel, and recognition of their mutual dependence. The current developments in the raw materials market constitute



Ian Christmas, Director General of the World Steel Association.

a breakdown in this relationship and it is in the long-term interests of the complete steel supply chain that this is rebuilt".

Continuing he added, "Our industry has three major concerns: firstly, the recent unprecedented rises in the price of iron ore and metallurgical coal pose serious problems for the margins of steel companies and their customers and risks accelerating inflationary pressures in the economies of many countries since steel is used in virtually every aspect of modern life. It also has a serious knock-on effect on the market for ferrous scrap.

Secondly, the unilateral replacement of annual contracts by a three-month spot price for iron ore by the major mining companies will greatly increase the risk of price volatility in iron ore and scrap prices which will have a negative impact on the whole steel supply chain".

Finally, he concluded, "In light of the already highly concentrated nature of the iron ore industry, where only three companies (Vale, Rio Tinto and BHP Billiton) control most of supplies, there is a clear case for the competition authorities around the world to oppose any further consolidation of business interests between the top three mining companies. Competition authorities may also wish to consider whether the current market concentration is in the interest of the users of steel and society as a whole."

## Three Japanese firms to establish joint venture for aluminum forged parts in China

Kobe Steel, Ltd., Mitsui & Co., Ltd. and Toyota Tsusho Corporation announce that they have signed an agreement to form a joint-venture

company in China to produce and market aluminum forgings for automotive suspensions. Provisionally called Kobe Aluminum Automotive Products (China) Co., Ltd., the new company will be established in Suzhou, Jiangsu Province in June. Following construction of a plant, production is anticipated to begin in August 2012.

Aluminum forgings for automotive suspensions are increasingly used in luxury cars to reduce vehicle weight and meet environmental regulations. Kobe Steel has a high share of the Japanese market for aluminum forgings for suspensions and manufactures the product in the company's Daian Plant in Inabe, Mie Prefecture, Japan.

In 2003, Kobe Steel, Mitsui and Toyota Tsusho established Kobe Aluminum Automotive Products, LLC (or KAAP) in Bowling Green, Kentucky, USA, as a production base for the North American auto market. KAAP began operations in 2005 to meet the demand from automakers in North America.

In the current economic situation, demand is anticipated to increase for aluminum suspensions in China as auto production steadily rises.

Similar to KAAP in the United States, the new company in China will see Kobe Steel in charge of production, quality control and business operations. Mitsui and Toyota Tsusho will be responsible for expanding sales to automotive manufacturers and parts makers in China.

## Outokumpu opens new stainless bar and rebar plant in Sheffield

A new stainless steel bar and rebar facility has been opened in Sheffield, UK. The plant, an investment of some EUR 10 million, can offer stainless steel rebar in straight lengths or formed components as well as producing cold drawn bar.

Outokumpu currently supplies semi-finished stainless steel products such as slab, billet and wire rod to customers worldwide and the investment must enable the company to move into new markets further downstream with a more complete product range.

Tommy Grahn, Senior Vice President, Long Products says: "I am extremely glad that we have now invested in Sheffield, allowing us to add value to our existing wire rod products in a way which markedly increases our service offering to our customers in Europe and across the globe.

One of the most exciting aspects of this new plant is its ability to process our proprietary LDX2101 duplex grade into rebar. This is a product which can really ignite the potential for stainless steel rebar and provide a solution to the serious problem of corrosion in many reinforced concrete structures."