

## METALS SOLUTIONS

### *Nippon Coke & Engineering / Sumitomo Corp. join to market Li-ion battery material*

Nippon Coke & Engineering (NCE - located at Koto-ku, Tokyo) and Sumitomo Corporation (Located at Chuo-ku, Tokyo) have reached to an agreement that both companies jointly establish a new company on Apr. 01, 2010 to produce and sell the anode material for lithium-ion secondary battery.

NCE has been developing the natural graphite-based anode material business, including R&D, and the JV company will take over it. NCE has the patented surface treatment technology; with Sumitomo's range of lithium-ion battery related business, the JV company intends to set-up its base in the lithium-ion batteries market. The business plan includes extension of the annual production to around 2,000 t within a few years, which is about ten times larger than the current.

Lithium-ion batteries in which the graphite-based anode material will be embedded will equip electric cars and plug-in hybrid cars, as well as mobile phone and laptop personal computers.

### *New steel grades from Hoesch*

**Hoesch's range** of micro-alloyed fine-grained structural steels has four new members. They are HSM 550 HD, HSM 600 HD, HSM 650 HD and HSM 700 HD. HSM stands for Hoesch Special structural steels Micro-alloyed and HD is the abbreviation for high-ductility, which means they have very good cold-forming properties. The numbers indi-



*Seat back adjusting parts, capable of withstanding  
2,000 Newton meters torsion forces.*

cate the minimum yield strength in megapascals (MPa) and identify the new materials as ultra-high-strength steels.

The HD grades are used by auto manufacturers and their suppliers to make complex precision-blanked and stamped parts of optimized weight. The high strength of the materials means components can be designed with reduced wall thickness. In addition, heat treatment is no longer needed to increase strength. The HD materials are used among other things for seat back adjusters. These are precision ring gear parts which have to withstand torsion forces of around 2,000 Newton meters, show what HD grades from Hoesch Hohenlimburg are capable of.

HD grades from Hoesch Hohenlimburg, which are single-phase, owe their forming properties to virtually pearlite-free fine-grained microstructure. Compared with standard grades, their carbon content is significantly lower. The associated loss of strength is offset by micro-alloying elements such as molybdenum, niobium and titanium.

The thermo-mechanical rolling of the steels involve temperature control in the walking beam furnace, finely balanced rolling forces in the roughing stand and finishing trains of the narrow strip mill. This initiates a process which causes the micro-alloying elements to form tiny precipitations measuring just millionths of a millimeter which give the HD grades the required strength. Hoesch Hohenlimburg supplies the HD grades as Hohenlimburg narrow strip, i.e. hot-rolled strip in widths of up to 685 millimeters and thicknesses of 1.5 - 16 millimeters.

### *Pladur ZM for prestige buildings*

Since its launch in the second quarter of fiscal 2008/2009, ThyssenKrupp Steel Europe AG already sold more than 100,000 tons of the product line Pladur ZM. Now the specialists in organic coated sheet and construction elements are presenting a further product line with the name Pladur ZM Premium, designed for prestige buildings.

Pladur ZM and Pladur ZM Premium are based on the new coating ZM EcoProtect for hot-dipped sheet. The coating was developed at the Dortmund surface engineering center of ThyssenKrupp Steel Europe AG. In place of a conventional hot-dip zinc coating, a new zinc-magnesium alloy featuring twice the level of corrosion protection is used. ZM EcoProtect is produced on the company's hot-dip coating lines in Kreuztal-Eichen, Finnentrop and Dortmund. Cold-rolled steel strip is passed through a 460 degree molten zinc bath and subsequently cooled so that the zinc coating solidifies on the strip surface. With ZM EcoProtect, the zinc bath is enriched with around one percent magnesium. The new coating is just as easy to form, weld and paint as the conventional zinc coating.

According to ThyssenKrupp Steel, metallic coating has proved an excellent base for organic coatings - coats of paint or plastic applied by the coil coating process ; corrosion properties are further enhanced by the additional organic coating. For building products made of hot-dip zinc-coated sheet, for which German building regulations currently prescribe a zinc coating of 275 grams per square meter, ZM EcoProtect features a reduced metallic coating weight



*Zinc-magnesium coating and four paint coats ensure long-lasting quality.*

of 130 grams per square meter, related to both sides, but with the same corrosion performance and reduced use of zinc. Organic coated flat products with a ZM EcoProtect coating have received German building code approval from Deutsche Institut für Bautechnik.

The newly launched product has been developed for steel construction elements aiming at a long-lasting high-quality appearance. The steel strip has a zinc-magnesium coating with a weight of 160 grams per square meter, related to both sides, for better corrosion properties than the standard zinc-magnesium coating. On top of this coating a special paint system with a thickness of over 50 micrometers is applied by coil coating. The system consists of several paint coats and a primer. The paint coats are matched to create a lightly textured finish with a pearl metallic character. Together, the zinc-magnesium coating and the four paint coats ensure that the finish retains its quality even under the effects of wind, weather and other environmental influences.

One of the first applications for Pladur ZM Premium is a renovated facade of the Kieler Yacht Club Hotel. The management of the four-star hotel, which is located on Kiel Fjord overlooking the marina in the Schleswig-Holstein capital, has chosen a champagne color for the Pladur ZM Premium facade.

## *U. S. Steel broadens weathered metal series*

In a joint project with Precoat Metals - a supplier of coil coating services to the building products, container, transportation, appliance and manufactured products industries -, United States Steel Corporation announces the launch of its Weathered Metal Series, intended for building designers and structural engineers yearning to incorporate weathered metals instantly in architectural applications.

United States Steel Corporation, headquartered in Pittsburgh, Pa., manufactures flat-rolled and tubular steel products, coke, and taconite pellets at facilities in North America and Central Europe and has an annual worldwide raw steelmaking capability of 31.7 million net tons.

In 2005, U.S. Steel developed Cor-Ten AZP Prepainted Steel Sheet as a superior product to Cor-Ten steel and other weathering steels for architectural roofing and siding applications. Created by coil-coating Galvalume coated steel sheet substrate, Cor-Ten AZP is designed to look like Cor-Ten steel, providing builders with the color and texture of weathering steel, while maintaining the structural integrity of the thin-gauge steel and eliminating the wait time previously required for nature to alter the product's appearance.

The weathered metal offering has now been expanded to include weathered copper and weathered galvanized steel. All three products (Cor-Ten AZP, Copper-Ten and Galv-Ten) are available in two distinct stages of aging - moderately weathered "Raw" and more heavily weathered "Robust". As with the original Cor-Ten AZP, all of these new offerings incorporate cool pigment technology.



*Weathered metal.*

## *MMK's rephosphorized steel for the automotive sector*

MMK, currently expanding its product range through diversifying into new steel grades, recently produced and shipped to the Avtovaz car plant a trial lot of cold rolled strip from 220 strength class rephosphorized steel.

Widely used in the automotive sector, rephosphorized steel is characterized by a P content of up to 0.12%, which, in combination with other elements, improves not only tensile and yield strength and elongation, but also resistance to atmospheric corrosion and weldability. MMK's Rolling Shop 5 can produce cold rolled strip from 220 strength rephosphorized steel 0.7 to 2.8 mm thick to Russian and European standards.

Samples of the material were also sent to Hyundai-Kia and the auto parts manufacturer Dipo; MMK mentions positive opinion was obtained on the results of laboratory testing and trial stamping at the Korean carmaker's plant.

## INDUSTRY CONTRACTS

### ThyssenKrupp Mannex to assist Egypt in expanding inland waterways

Egypt has placed an order with Düsseldorf-based ThyssenKrupp Mannex GmbH for the exclusive supply of 15,000 tons of various grades of steel plate, sheet and sections to be used in the construction of 24 new freighters. The prime contractor is Egypt's National River Transportation Co., Cairo.

Over the years ahead NRTC will be tripling its current fleet of 31 vessels to 92. These new container-compatible ships will then each have a capacity of 1,600 tons. The shipbuilders and hence direct recipients of the shipments are Alexandria Shipyards and Arab Contractors Shipyards in Helwan. ThyssenKrupp Mannex package covers alongside the actual steel, also consultancy and logistics services.



24 new freighters with a 1,600-tons capacity.  
Source: World Steel Association

Assisted by both public- and private-sector initiatives, the Nile is destined to confirm its status as the nation's foremost transport route. Four main inland waterways presently link the capital Cairo with Alexandria, Damietta and Asyut-Aswan as well as the Sudan. ThyssenKrupp Mannex is presently engaged in talks on follow-up orders.

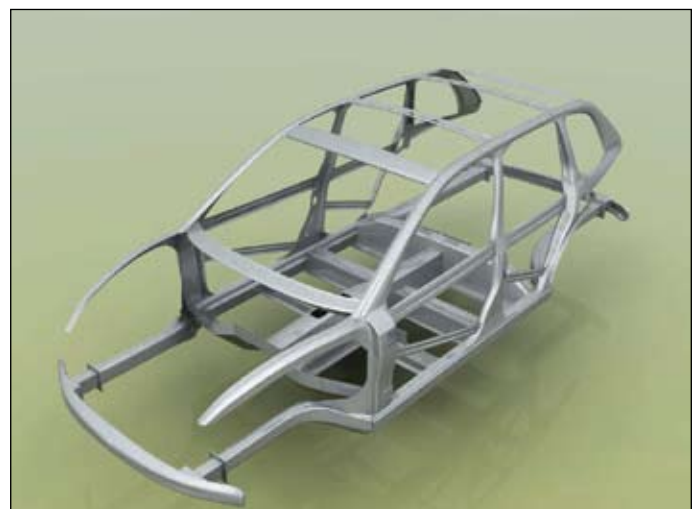
### voestalpine receives order by Porsche

voestalpine's newly developed, hot-dip galvanised auto body steel saves weight at higher strength.

Two companies of voestalpine Group, voestalpine Polynorm and voestalpine Gutbrod, have jointly received an order by Porsche AG with a volume in excess of EUR 100 million. The scope of the contract includes safety-related components, floor structures and various other structural components for Porsche sports cars. Production of the components will be carried out at two of voestalpine's German sites, at voestalpine Polynorm in Schwäbisch-Gmünd and at voestalpine Gutbrod in Dettingen/Erms (both close to Stuttgart).

The patented product "phs-ultraform" will be used for the safety-related components. phs-ultraform is a hot-dip galvanised auto body steel newly developed by voestalpine which is produced in Linz. The press-hardening plant for series production has been developed at voestalpine Polynorm in Schwäbisch-Gmünd.

The galvanised, cold-pressed components are heated to 900 °C, then cooled down within a few seconds to 70 °C and hardened in the process. The corrosion-protected components produced in this way from press-hardened steel are characterised by a significantly higher strength while simultaneously saving weight - thus contributing to reduction of fuel consumption.



voestalpine Polynorm supplies all kinds of steel and aluminium structural parts; materials ranging from mild steel up to high strength steel can be processed.

Source: voestalpine Polynorm

## *Ruukki to deliver shipbuilding plates for polar supply and research vessel*

Metal-based components supplier Ruukki, Finland, has signed a contract with STX Finland Oy's Rauma shipyard to deliver plates for a polar supply and research vessel, which has been ordered by the South African Department of Environmental Affairs. The plate deliveries, a total of 6,000 tonnes, will begin in August this year. The vessel will be delivered to the customer in spring 2012. "Ruukki will deliver shipbuilding plates to the shipyard at the same pace as building the vessel progresses. This means minimum storage needs," says Jari Kujala, Vice President, Sourcing, at STX Finland Oy's Rauma shipyard.

STX Finland Oy, which is part of the STX Europe group, constructs specialised vessels including ice-breakers, passenger ships and ferries. "Polar conditions impose high quality requirements on the steel material used," notes Jyrki Keronen, Senior Vice President, Energy, Offshore, Marine, Paper, at Ruukki. Ruukki Engineering has long worked together with STX Finland, most recently by supplying shipbuilding plates and profiles for the cruise vessels Oasis of the Seas and Allure of the Seas.



*Polar conditions impose specific requirements on the steel material.*

## *Renault-Nissan evaluates MMK's production potential*

MMK received a visit from a Renault-Nissan delegation whose purpose was to evaluate MMK's preparedness to produce steel sheet for the automaker.

The delegation led by Patrice Gervois, the company's Supplier Project Manager, comprised experts of Renault-Nissan and OJSC Avtoframos, a Moscow-based company producing cars under the Renault brand. The delegates made a tour of practically the entire auto sheet production chain, from the BOF shop to rolling shops nos. 10 and 5 to the coating shop. Besides, the guests visited OJSC MMK's rolled steel mechanical and chemical tests laboratory.

At the final meeting the delegates stated that Renault-Nissan is ready to work with MMK as regards supplies of certain steel grades which can be used in the production of the Logan brand cars (such as DD13, DC04 and DC05), and in future brands which are currently under development. The delegates showed an interest in MMK's project for the construction of a new, 2,000 mm cold rolling mill (rolling shop 11) which will be able to supply automakers with a premium quality cold rolled and galvanized sheet, including sheet from high strength grades.

The next stages of MMK auto sheet's acceptance by Renault-Nissan will be the completion of tests on samples previously sent to Renault-Nissan's Central Department of Materials Engineering in Paris, France, the provision of new requested samples for approval, and the finalization of contractual and pricing matters. The automaker's delegates were confident that in 2010 MMK's steel would already be used in the production of Logan cars. MMK has a long record of supplying auto sheet to Russia's largest automakers, such as Avtovaz, Gaz, Kamaz, Sollers, Izhavto and others. Last year MMK shipped about 550,000 tons of auto sheet to the automotive sector. MMK's steel also boasts recognition from the global automakers Volkswagen, General Motors, PSA Peugeot-Citroen, Hyundai-Kia, and the auto components manufacturers Benteler Automobiltechnik, Hayes Lemmerz, Valeo, DiPOS, PALAD.

## *Severstal to supply large-diameter pipes for ESPO-I*

Severstal will supply large-diameter pipes for the 2nd phase of the East Siberia-Pacific Ocean (ESPO) oil pipeline. When completed, the pipeline will carry oil to Russia's Far East and Asia-Pacific markets. The first deliveries from the ESPO pipeline (1st phase) are due to commence in March 2010, according to Dmitry Gorshkov, Director of Sales at CherMK.

Mr. Gorshkov commented: "In 2010, Severstal will continue to develop its partnership with OJSC "AK Transneft". In addition to already supplying large-diameter pipes for Transneft's construction of the BTS-2 oil pipeline, Severstal will also supply large-diameter pipes for the construction of the 2nd phase of the ESPO pipeline project. As a result, over 130,000 tons of large-diameter pipes are to be supplied by Severstal for the construction of the ESPO (2nd phase) oil pipeline system in 2010-2011."

Severstal has also signed an additional contract with OJSC "AK Transneft" to supply over 35,000 tons of large-diameter pipes for the construction of the Pur-Pe-Samotlor, pipeline system. The Purpe-Samotlor pipeline system has been constructed by Transneft to link the Western and Eastern segments of Russia's pipeline system.

## TMK: multiple pipe contracts

Pipes producer TMK, Russia, has shipped large-diameter pipe to Gazprom for the construction of the Pochinki-Gryazovets pipeline. Shipments for the Pochinki-Gryazovets ran from December 2009 to January 2010; it consisted of 40,000 tonnes of Volzhsky spiral welded 1,420 mm pipe with wall thickness of 15.7 mm and 18.7 mm and anti-corrosion coating. Additionally, TMK will ship a total of 20,000 tonnes of 1,420 mm longitudinal welded pipe with 25.8 mm wall thickness and 1,420 mm spiral welded pipe with wall thickness of 21.6 mm. The pipes will be produced at TMK's Volzhsky mill and supplied with inner smooth coating and exterior anticorrosion coating. The pipes will be used for the construction of the Gryazovets-Vyborg pipeline, the Russian on-shore section of the Nord Stream pipeline.

Besides, TMK is supplying Gazprom with Volzhsky longitudinal pipe for the construction of the Sakhalin-Khabarovsk-Vladivostok pipeline. For this project alone, a total of more than 70,000 tonnes were shipped by end 2009.



40,000 tonnes of spiral welded pipe were shipped for the Gazprom Pochinki-Gryazovets pipeline.



Shipments for ESPO-2 project will be complete in October.

TMK was also awarded contracts with Transneft, for the construction of the second phase of the Baltic Pipeline System (BTS-2), and for the Eastern Siberia Pacific Ocean phase-2 (ESPO-2) oil pipeline.

In the BTS-2 project, TMK supplied more than 52,000 tonnes of Volzhsky 1,020 mm and 1,067 mm longitudinal welded pipes between November 2009 and October 2010. The pipes were supplied in K52, K56 and K60 grades with anticorrosion coating, with wall thickness of 11 mm, 12 mm and 13 mm.

As regards ESPO-2 oil pipeline, TMK will supply 107,000 tonnes of Volzhsky 1,020 mm and 1,067 mm longitudinal welded large-diameter pipes in K56 and K60 grades with wall thickness of 12 mm and 14 mm. The pipes will be supplied with anticorrosion coating. Shipments are scheduled to span from January to October 2010.

## JFE Steel to supply line pipe for SWQP stage 3 expansion project

JFE Steel Corporation has received a linepipe order for approximately 42KMT of API5L X70 ERW for the SWQP Stage 3 expansion project operated by Epic Energy in Australia.

The SWQP is a 935 kilometre pipeline from Wallumbilla in Queensland to Moomba in South Australia. Epic Energy's stage 3 expansion project, involving the construction of a new pipeline adjacent to the existing SWQP, allows Epic Energy to more than double its gas transportation capacity on the SWQP, and meet increasing gas demand in southern states. The total linepipe order for the project is about 90,000 t. JFE has received about 42,000 t of linepipe order.

ERW linepipe for this project will be produced at the 26" medium-diameter ERW pipe mill at JFE's Chita Works. This mill has technological features such as full cage forming method, and is capable of producing outside diameter pipe of 660.4 mm (26") with wall thickness of 25.4 mm (1").

## PLANTS AND EQUIPMENTS

### SSAB invests in China and the U.S.

High strength steel producer SSAB will resume its project for a new advanced line for quenched and tempered (QT) steel plate in Mobile, Alabama. In addition, a decision has been taken to construct a finishing line at SSAB's plate center in Kunshan, China. Together, the investments approximately total US\$ 300 million.

The QT line in Mobile is a part of the investment program announced in 2008. Following a review of the program, a decision has been taken to implement the investment in Mobile, after some adjustments, with a new quenching line that will increase capacity for QT plate by approximately

200,000 tonnes. "We are broadening our product and service offering for the North American domestic market", says David Britten, Head of SSAB Americas. The new quenching line in Mobile is expected to be in production during the first half of 2012. As a part of this project, a new vacuum tank degasser (VTD) system is also being constructed, which is expected to be completed during the first half of 2011.

SSAB's plant in Kunshan, which was inaugurated in 2007, has warehouses and equipment for processing steel. A new finishing line is now under construction which will be able to handle additional deliveries of semi-finished plate from Mobile and Oxelösund. "The Kunshan investment will result in greater flexibility, and shorter lead times", says Martin Pei, Head of SSAB APAC. The finishing line in Kunshan will start up in the first half of 2011.

In Borlänge, Sweden, work is continuing to establish a quenching line for quenched strip steel.



*New quenching line in Mobile will allow capacity for QT plate to increase by approximately 200,000 metric tonnes.*

## Chinese order for SMS Siemag

LY Steel (Lian Yuan Iron and Steel Group), China, has placed an order with SMS Siemag, Germany, for the supply of a heavy dividing shear line. The line will be used for cutting hot coils of high material strength into plates and for leveling these so as to obtain a high-quality, flat and smooth end product. Commissioning of the dividing shear line is scheduled for spring 2011.

With an annual production of more than 4.8 million t, LY Steel is a major plate manufacturers in south China. The new shear line will supplement the CSP (compact strip production) facility which SMS Siemag has already erected for LY Steel in Loudi City in Hunan Province.

SMS group is active in plant construction and mechanical engineering for the steel and nonferrous metals industry. The SMS Siemag supply scope comprises the mechanical, electrical and automation systems and, in addition to the hot coil transport with pay-off reel group, it includes

two levelers for the hot strip and for the plates, which are cut to the desired dimensions in the trimming shear group and in the flying shear. After passing through a marking device, the cut trimmed and leveled plates are stacked into piles in the downstream plate piler. These piles are then weighed and strapped in the transport system.

The line is designed for plates of gages 5 to 25.4 mm. At a speed of up to 40 m/min, the plates are trimmed in a variable manner to widths between 850 and 2,100 mm and cut to lengths from 2 to 16 m. Plates of a tensile strength up to 1,500 N/mm<sup>2</sup> can be cut up and leveled in this way. The annual output will be 500,000 t. The new line will produce plates for shipbuilding, bridge-building and the construction of pipework, tanks and vessels, and safety containers as used, for example, in cash dispensers.

## BlueScope to boost capacity at Indonesian plant

BlueScope Steel announced it would complete construction of its second metallic coating line, with in-line painting capability, at its plant in Cilegon, Indonesia. Commission is expected around mid 2011.

Mr Sanjay Dayal, BlueScope Steel's Chief Executive, Asia, said: "Domestic market conditions, in particular residential steel demand, have improved. Since May 2009, our existing metal coating line has been operating at full capacity and we have been importing finished steel from our other operations in the region to meet Indonesian customer demand. We believe that now is the right time to boost our capacity in this key market."

Cilegon's existing line allows for 100,000 tonnes per annum of metallic coated and 40,000 tonnes per annum of painted steel production. The new line will produce thin gauge coil (0.2 - 0.4 mm) for residential construction applications. Total combined capacity will rise to 265,000 tonnes per annum of metallic coated and 160,000 tonnes per annum of painted steel.

Capital of US \$86 million has been spent on the project to date. The estimated cost to complete the project is a further US \$40 million, with approximately US \$10 million in FY2010 and US \$30 million in FY2011. The principal remaining work is completion of the plant facilities, equipment installation and commissioning.

## Hamriyah Steel launched the production of steel rebar

Steel and mining holding company Metalloinvest, Russia, announces launch of trials at Hamriyah Steel metallurgical plant in United Arab Emirates.

The Russian holding was in charge of constructing the plant, on the basis of SMS Meer equipment. The trials are expected to end up in mid-February, when first 600 tons of rebar are produced. By the end of 2010 the plant intends to achieve a full operation capacity - 1 million tons of rebar annually.

"This event is of historic significance. It marks the termination of two years work to build the first Russian metallurgical plant in the United Arab Emirates", Hamriyah Steel general director, Shukhrat Nishanov said. This plant initiates Metalloinvest's expansion to the Middle East markets. Project investments averaged \$150 millions.

## ThyssenKrupp Stainless Istanbul expands offering

ThyssenKrupp Stainless Istanbul Çelik Servis Merkezi A.S., a subsidiary of ThyssenKrupp Stainless International GmbH (Krefeld), today opened a new service center, extending its existing distribution structures for stainless steel flat products with an optimized logistics system and additional warehouse space. As a result, ThyssenKrupp Stainless International has expanded its range of services in Turkey and can now better supply customers with stainless steel products from the new Gebze site in the East of Istanbul. "We don't want to be just a material supplier, but a genuine service provider. That means providing solutions for a wide range of applications and offering product-related services," said Dr. Torsten Schlüter, member of the Management Board of ThyssenKrupp Stainless International, at the opening of the service center.

ThyssenKrupp Stainless International GmbH supports the direct sales operations of the international mills within the stainless global business area. The company, which has around 450 employees, sold roughly 470,000 tons of material in the past year. ThyssenKrupp Stainless International currently operates service centers in the United Kingdom, France, Spain, Poland, Hungary and Turkey as well as a sales company in the Benelux states and a warehouse with processing equipment in southern China.

This significant investment in Turkey was necessary because the old site, some 30 kilometers away in Kartal (Istanbul), had become too small. The new buildings in Gebze, which took twelve months to complete, offer 16,000 square meters of space to enable prompt supplies to customers in Turkey. The existing production equipment has also been modernized to ensure continuity in the manufacture of the company products. Around 90 employees at the Gebze facility turn out custom flat products in multiple-shift operations. In addition to several lines for slitting and cutting to length in line with customer specifications, other services include grinding and brushing to produce attractive finishes.

## Celsa Group concludes a 250-million investment in Poland

CELSEA Group concluded a 250-million euro investment in Poland to duplicate rolling capacity at its plant in Ostrowiec, a city the southeast of the country, where it operates through the "Celsa Huta Ostrowiec" subsidiary. Celsa Group set up in Poland in 2003 through the purchase of shares in the Huta Ostrowiec iron and steel works. The Po-



Lamination capacity at the Polish factory will double after 2012.

lish mini-mill expansion project dates back to 2007, when construction began on the lamination line.

The start-up of the new lamination train will be completed over three stages. Stage one, completed at the end of October 2009, allows the manufacture of medium size commercial steel bars. Stage two, which will be finalised in April 2010, consists of the production of medium size profiles, and stage three, scheduled for three months later, will include the start-up of a conditioning line for bars of special qualities.

Current rolling capacity at the Polish factory is around one million tons of products a year. Once the new rolling train is up and running, capacity for long products will increase to 1.7 million tons a year, a rise of 70%. After 2012, the manufacture of laminates may double at Ostrowiec, reaching two million tons a year. The investment plan will be completed with new continuous casting which will foreseeably be ready in April.

The project was funded one hundred per cent by a syndicated loan led by Medio Credito.

## Posco completes plants in Japan and Iran

Korean construction company Posco Engineering & Construction announced completion of a joint venture project with Japan's Kotobuki Industry, a company specialized in manufacturing special steel blooms. Total 18,000 million JPN was invested. This project consisted in building steel-manufacturing factory which could produce 120,000 ton of steel yearly. The plant building was completed in August 2008, and last May, test runs on fueling and manufacturing system proved successful.

Besides, Posco E&C completed in July 2009 a steel plant project in Iran: the 'Tavazon Project', a 233 million dollar order placed by the government-run steel manufacturer Esco Co., is expected to enhance raw steel production capacity by 1.4 million tons with eventual operation of



The Asia Special Steel Plant.

a new 2,020t blast furnace (Iran yearly steel production: ca. 10 million tons). POSCO E&C is also currently building coal fired power plants in Ventanas, Angamos and Campiche of Chile.

terprise information management with existing ERP and logistics systems. Mr. Ji Shengfeng, Manager of IT department confirms: "The solution merges into our current production information systems smoothly and adapts to our local specific business."

## *Rizhao Steel monitors its production with AIS SteelPlanner MES-System*

The implementation of AIS SteelPlanner MES-System for the 2150mm hot strip mill of Rizhao Steel in China has been finished by Siemens in July 2009.

The AIS SteelPlanner MES-solution selected by Rizhao Steel covers the entire business process starting from order entry to dispatch of finished products. On the planning side, the system covers production and quality planning as well as production scheduling. The acquired actual production data is further used for production, quality control, and planned versus actual comparison.

Mr. Chen Tong, Leading Engineer of Rizhao's Quality department says: "With this system's quality planning and comparison mechanism based on configurable rules, we can define flexible rules according to changing market requirements, thus significantly reduce operators' workload, speed up the process and ensure the accuracy against manual operation at the same time."

The MES-System also provides information of order status, material consumption and output, and information about stocks, to support en-

AIS is a wholly owned subsidiary of PSI since 26 August 2009.

## *PSI Solution plans smelting in ThyssenKrupp Nirosta steel mill*

The PSI subsidiary PSI BT GmbH has successfully replaced the previous version of PSImetals for the heat and caster sequence planning at ThyssenKrupp Nirosta which had been in operation for more than ten years. The cause for the modernisation is the unification of the planning solutions in the stainless steel plants in Germany, the USA and China. In particular, the IT investments for the ThyssenKrupp stainless production plant to be built in Alabama in the USA are to be assured by the system proven at the German sites of Bochum and Krefeld.

The scheduling of the daily smelting process at the steel plants is supported by the PSImetals functions for advanced line sequencing. Based on the needs of the cold rolling plants, a continuous supply of the steel mill with smelting orders is achieved. PSImetals functions such as rescheduling of a heat in case of analysis deviations, the re-feeding following the interruption of a caster sequence or the re-sorting of heats in a sequence or entire sequences in the program allow for quick reactions to short-term directives or disruptions in the steel mill operations. If needed, a simulation mode also secures the current planning status with online changes.





In the warehouse of ThyssenKrupp Nirosta, ready-to-be-shipped stainless steel is stored.  
Source: ThyssenKrupp



Posco's production control center in Pohang.  
Source: Posco

## Posco adopts IBM workplace safety technology at Finex steel plant

Steel maker POSCO, and IBM today announced they have deployed a workplace safety system that uses sensor technology to make POSCO's FINEX production plant in Pohang Ironworks safer for employees and visitors. With more than 500 employees, the FINEX plant has an annual production capacity of 1.5 million metric tons.

The FINEX process used at the Pohang Ironworks plant allows POSCO to use bituminous coal and iron ore in the form of powder in the natural state instead of the existing furnace process, improving the steel maker's economic efficiency and reducing pollution.

## Air Liquide: €75m invested for two Chinese steel producers

Air Liquide has signed long-term contracts with two steel producers in China and will invest €75 million overall to meet the needs of these new customers.

The first supply contract will provide oxygen and nitrogen to Bohai Steel Group in Tangshan, Hebei Province (near Tianjin) from a large 2,200 tonnes per day air separation unit. Under the terms of the second contract signed with Jianbang Group in Linfen City, Shanxi Province, Air Liquide will invest in an 800 tonnes per day oxygen unit.

Both units will use technologies from Air Liquide Hangzhou, Air Liquide's engineering center in China. They are scheduled to start up in the second quarter of 2011.

## Tenova to supply four electrolytic lines in China

Yi Chang Three Gorges Quan Tong Colored and Galvanized Plate Co. Ltd., China has placed orders with Tenova, Italy for the supply of two high-speed electrolytic tinning lines equipped with insoluble anodes technology and two high-speed electrolytic chromium coating lines.

All four lines shall process thin strip material for the packaging market. The process section will run as fast as 450 m/min with the entry and exit sections running at 600 m/min. The lines are designed for a strip 1250 mm wide and 0.14-0.55 mm thick.

The target annual production is 250,000 t. Each line includes two uncoilers, laser welding machine, side trimmer, vertical entry accumulator, cleaning and pickling sections, tension leveler, plating section vertical exit accumulator, inspection and flying shear with two recoilers.

The chromium coating lines shall employ a two steps plating technology. This two step plating process allows for a more precise and independent control of both the metallic chrome layer as well as the chrome oxide layer of the coating.

The insoluble anodes technology is the heart of the plating process of Tenova tinning lines, based on proprietary patent. The proven technology of this system allows achieving a very low tin loss in the sludge (less than 4%) and several other advantages ranging from cost savings to the environmental compatibility of the plant, from easier operating procedures to higher operational safety.

Specially Tenova designed edge-masks shall be employed for improving the tin-plate quality on the edges while allowing a fast and easy inspection and access to the cell.

The target of these lines is to produce tinplate for meeting the demands of the high-quality market. The plants are to be constructed in record time and first coils will leave the production lines already in mid 2011.

## Gerda resumes R\$ 1.75 billion investment in Brazil

Steel producer Gerda announces that it will resume the project for installing the heavy plate rolling mill at its Gerda Açominas steel plant in Ouro Branco, Minas Gerais, at an estimated R\$ 1.75 billion. This amount is part of the global investment plan of R\$6.3 billion announced by the company for the coming years. The installation of the heavy plate rolling mill, which had been postponed due to the impact of the global crisis on steel consumption, will mark the beginning of flat steel production by the company in Brazil.

According to André B. Gerda Johannpeter, CEO of Gerda, "Demand for steel in Brazil is gradually recovering and the outlook for the coming

years is quite positive, which made us decide about expanding our product portfolio in Brazil, starting with the production of heavy plates".

The heavy plate rolling mill will have an installed capacity of one million metric tons per year, with the possibility of future expansion. It is expected to startup by the end of 2012. The installation works, which will start in 2010 and end in 2012, will create up to 4,000 temporary jobs at their peak. Moreover, 420 new permanent jobs will be created to operate the new equipment.

The key focus of the investment is the domestic market, especially the oil industry, followed by the naval industry, construction (metallic constructions) and heavy equipment (machine and tools). Surplus production will be exported to other countries in Latin America.

Production of slabs, the raw material for heavy plates, began at Gerda Açominas in July 2009 with the startup of continuous slab casting, with installed capacity of 1.5 million metric tons per year. Gerda currently produces flat steel in its U.S. plants and sells it in Brazil through Comercial Gerda, the nation's largest steel distributor.

## Severstal North America resumes modernization programs

Severstal North America will be resuming modernization programs at its Severstal Dearborn, Mich., and Severstal Columbus, Miss., light flat rolled products facilities.

"While we remain cautious about the market outlook, we are encouraged that the more positive trends we saw towards the end of last year are being sustained" said Sergei A. Kuznetsov, chief executive officer of Severstal North America.

Work will be resuming at Severstal Dearborn on the coupled pickle line and tandem cold rolling mill (PLTCM) and hot dip coating line (HDCL) for the production of automotive exposed hot dip galvanize and galvanneal coatings. The mill will provide Severstal Dearborn an expanded product capability which will include dual phase, TRIP and high-reduction interstitial free steel products in delivered widths up to 72 inches. With this expanded product range, the Dearborn facility will increase its total output of cold rolled sheet from 1.65 million tons to 2.1 million tons per year.

The new PLTCM equipment consists of a five-stand, six-high mill that links pickling and rolling in one line. The company expects significant improvements in product quality capability for shape, gauge, surface characteristics and mechanical properties. At the conclusion of this project, Severstal North America will operate three of the seven combined pickling/tandem mills that exist in North America. The primary PLTCM equipment provider is Mitsubishi-Hitachi Metals Machinery.

The HDCL is a new high-speed continuous line, capable of applying a precise coating of either zinc or zinc alloy to the surface of the steel strip. The new hot dip galvanizing process equipment has been manufactured by Cockerill Maintenance & Ingénierie (CMI).

The future PLTCM and galvanizing facilities are located in adjacent buildings to minimize material handling requirements and improve delivery capabilities.

Work is also resuming at Severstal Columbus to complete its Phase II project, which will increase the plant's crude steel capacity to 3.4 million tons, matching Columbus' hot strip mill capacity and allowing the plant to achieve greater economies of scale. In addition, Phase II will increase the capacity of Severstal Columbus' downstream operations by about 30 to 120 percent depending on the unit, including a continuous pickling line, batch annealing, temper mill and continuous galvanizing line. Products from Severstal Columbus are purchased primarily by the distributor, automotive, construction and pipe and tube end markets.

The project includes a second electric arc furnace complex with a ladle metallurgy facility, vacuum degasser expansion, a second thin strip caster, a second shuttle-type tunnel furnace, and a second downcoiler at the hot mill. The finishing side expansion will feature the addition of a fourth pickle tank to the existing continuous pickle line/tandem mill, additional hydrogen batch annealing bases and furnaces, a push/pull pickle line and a second galvanizing line. The primary equipment suppliers are SMS, TMEIC, GE Power, ABB, Schust, Bricmont, Core and Ebner.

The Dearborn and Columbus projects are expected to be completed in the second half of 2011 and 2012 depending on commissioning schedules of respective units. The modernization projects were put on hold in the wake of the unprecedented fall in steel demand and pricing experienced in the fourth quarter of 2008.

## Dragon Steel signs up for SMS Siemag X-Melt converter meltshop

In January 2010, SMS Siemag, Germany, successfully commissioned the first of two new carbon-steel converters at the Taichung works of



Dragon Steel annual production reaches 2.2 million tons.

Dragon Steel Corporation, Taiwan. The second converter is scheduled to be commissioned in the spring of 2010. With both converters the meltshop is rated for an annual production of 2.2 million t.

The 230-t converter is equipped with a lamella suspension system, bottom stirring equipment and robot-operated subblance. In addition to the two converters, SMS Siemag's supply includes the complete bin system for ferroalloys, the gas cleaning plant with primary dedusting unit, as well as the gas recovery system, all vehicles, ladles and slag pots. Further included in SMS Siemag's package are the basic engineering for the concrete structure and the basic and detail engineering plus supply of the structural steelwork. Also successfully commissioned were a RH-TOP unit from SMS Mevac, Essen. This facility is used especially for the treatment of special steel grades for the automotive industry and for transformer steels.

## Metinvest starts rolled metal shipments from new metal bases

Metinvest-Eurasia has put two new service metal centers in Voronezh and Volgograd into operation. The two new service metal centers of Metinvest-Eurasia started shipping rolled metal to the customers in early 2010. The product mix presented at the warehouses in Voronezh and Volgograd includes beams, channels, angles, sheet, reinforced bars, and wire rod from Azovstal Iron and Steel Works (Mariupol), Yenakiievo Metallurgical Works, as well as from enterprises that are not part of Metinvest Group. Each warehouse will maintain the stock of 2-3 thousand tons of metal products. The sales departments approach the clients individually and provide possibility to order composition, including special product mixes made to order.

Metinvest sales network in Russia covers the regions that are located close to the border with Ukraine (Rostov-on-Don, Belgorod, Krasnodar, Novorossiysk, Sochi, Adler, the Bryansk Region), as well as the major cities of Russia (Moscow, Saint Petersburg). Opening of new warehouses must enable to cover three federal districts and increase the number of regional service metal centers to fifteen.



Azovstal exports its products to the Western Europe, Northern and Latin America, South-East Asia and Middle East.

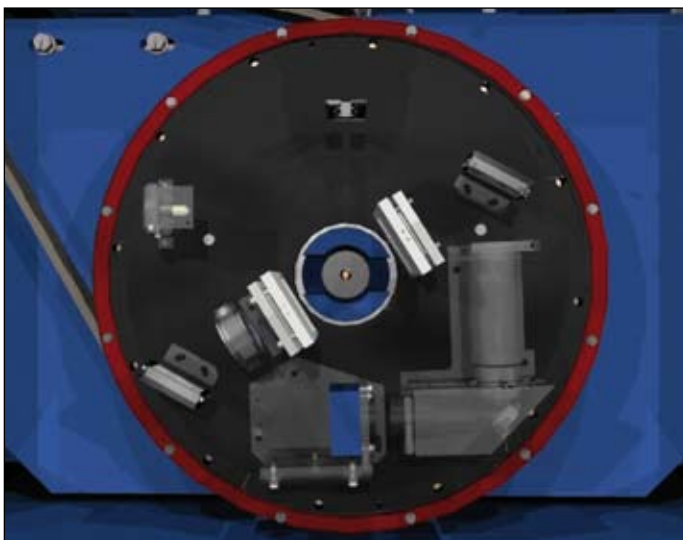
"We aspire to bring the goods as close to Russian end-customers as possible. This is the cornerstone of our strategy, noted Roman Rybalov, CEO of Metinvest Eurasia, LLC. In the future we are planning to expand the sales network in the direction of North Caucasus Federal District."

## Alton Steel chooses new profile gauging system from Siemens

US company Alton Steel Inc. has become the first steel producer to use Siroll Orbis+ to measure the profile of long products. The Siroll Orbis+ fully rotating, on-line gauge for wire rod and bar mills aims at delivering improvements in both product quality and output, while reducing waste. Unlike methods that sample a single side, Siroll Orbis+ reviews the entire bar during the rolling process. This enables Siroll Orbis+ to uncover defects when they can be remedied instead of after the product is completed. Orbis, the previous model, has been used by Alton Steel since 1996.

Located in the US federal state of Illinois, Alton Steel Inc. has an annual production capacity of 700,000 metric tons of steel. It produces carbon steel and alloyed steel with the help of an arc furnace and downstream metallurgical equipment. The steel is then formed into billets and slabs of different sizes on a continuous caster. Part of the company's output is sold as semi-finished material. In addition, Alton Steel Inc. has a long-product rolling line for producing Special Bar Quality (SBQ) steel bars with cross-sections between 7/8" (2.2 cm) and 3.5" (8.9 cm).

Siroll Orbis+ is the latest version of the Orbis system which is currently in use in more than 200 applications worldwide. Like its predecessor, the new Orbis+ measuring system works on the shadow principle and measures the dimensions and profiles of rod steel and rebar of different shapes, including round, flat, square, octagonal and hexagonal cross-sections.



Siroll Orbis+: Optical unit with LED light source and camera.  
Source: Siemens

## ENVIRONMENTAL OUTLOOK

### ArcelorMittal Dofasco to invest in latest phase of Blue Skies program

ArcelorMittal Dofasco announced that it plans to invest more than \$16 million over the next 3-5 years to improve air quality in Hamilton. The investments will result in the reduction of emissions in 4 specific parameters.

"Blue Skies is the next step in ArcelorMittal Dofasco's longstanding and continuous commitment to reduce its environmental footprint. Hamilton's air quality has improved significantly in the last 10 years, and we will continue to work with all stakeholders to ensure that this improvement continues," said Jim Stirling, ArcelorMittal Dofasco General Manager, Environment. The Blue Skies Air Quality Action Plan will support ArcelorMittal Dofasco's application for site-specific air emission standards under Ontario Regulation 419-05. The application seeks emission standards to apply specifically to the ArcelorMittal Dofasco Hamilton site.

More than \$10 million of the program funding will be invested by the end of 2010. The remainder will be phased in over the following 4 years. The projects include a variety of equipment upgrades aimed at reducing coke and by-product plant emissions. In addition \$1.5 million of the program will be invested in abatement of road dust.

The announced investments are part of ArcelorMittal Dofasco's Blue Skies program which also aims to see additional significant investment in energy efficiency and improvements in water quality.

### EMZ plans to reduce greenhouse gases emission by around 1.5 Mt of CO<sub>2</sub> equivalent by 2012

Yenakievo Iron and Steel Works (EMZ), part of Metinvest Group, signed a joint project implementation agreement with ING Bank NV (Netherlands).

The agreement stipulates service delivery in the field of the Kyoto Protocol mechanisms aiming at energy saving technologies implementation, reduction of environmental impact of the enterprise down to a technically feasible minimum and improvement of the equipment energy efficiency. According to preliminary estimates, the planned measures will facilitate reduction of greenhouse gases emission by around 1.5 mln. t of CO<sub>2</sub> equivalent by 2012.

EMZ is currently implementing its long-term production upgrade and reconstruction program. Rate of emissions is already considered under control and is steadily decreasing thanks to environmental and energy saving efforts of the enterprise: reconstruction of blast furnace #5 – reduction of CO<sub>2</sub> emissions by 130 thous. tpa; commissioning of Linde-KCA-Dresden air separation plant – reduction of CO<sub>2</sub> emissions

by 38 thous. tpa. Furthermore, significant reduction of emissions is anticipated after commissioning of the blast furnace #3 complex, which is currently under construction – 200 thous. tpa; introduction of pulverized coal fuel injection equipment at blast furnaces #3 and #5 – 200 thous. tpa; as well as implementation of other activities to achieve energy saving and energy efficiency.

“Greenhouse gases emission reduction is a priority of our company aimed at both environmental protection of the city and the region, and energy cost reduction”, - noted Alexander Podkorytov, the Director General of Yenakievo Iron and Steel Works OJSC.

Application of the Kyoto Protocol mechanisms must also enable to raise additional funds for modernization of the enterprise. It is planned to raise funds from sales of emission reduction units, which has become possible within the framework of the agreement signed with ING Bank.

“We realize that we still have much to do in order to improve the production processes, however even in such challenging period for the industry Metinvest iron and steel enterprises are able to continue investing in environmental impact reduction projects that would use the best available technologies”, said Jack Maclachlan, the Director of the Steel and Rolled Products Division, Metinvest Holding, LLC.

## Australian green building council to use worldsteel Climate Action

The Green Building Council of Australia (GBCA) has announced plans to use worldsteel's Climate Action programme as a criterion for its Green Star certification.

GBCA's Green Star rating recognises building projects that achieve outstanding environmental design and construction.

The rating system is based on scores from several categories including management, energy and materials. Steel has been part of the materials category since the Green Star system was launched in 2003. The inclusion of Climate Action participation as a criterion is part of a draft revision to Green Star rules, and is expected to come into effect in March. Both of world-steel's Australian member companies BlueScope Steel and OneSteel participate in the Climate Action programme.

Climate Action recognises that a steel producer has fulfilled its commitment to take part in the worldsteel CO2 data collection programme.



11% of the Australian commercial offices in central business districts are Green Star certified.

Source: World Steel Association

## ECONOMY WATCH

### Tata Steel and Nippon Steel to market automotive cold-rolled flat products

Tata Steel board approved a framework for a joint venture between Tata Steel Limited (TSL) and Nippon Steel Corporation (NSC) for the production and sales of automotive cold-rolled flat products at Jamshedpur, Jharkhand, India to address the localisation needs of Indian automotive customers for high-grade cold-rolled steel sheet and contribute to further expansion of the Indian automobile industry. TSL will hold 51% and NSC will hold 49% of equity capital of the joint venture company.

The joint venture aims to capture the growing demand for high-grade automotive cold-rolled flat products in India by setting up a continuous annealing and processing line (CAPL) with a capacity of 600,000 tonnes. NSC will transfer its technology for producing high-grade cold-rolled steel sheet for automotive application, including skin panels and high tensile steels.

NSC and TSL already have a long history of cooperation in the field of automotive flat products and other areas of mutual interest. The companies will target conclusion of the joint venture agreement by June 2010 and startup of operations before March 2013.

In addition to this, both companies will continuously discuss further collaboration in other fields such as automotive CGL or up-stream processes etc.

### JFE Steel / Mycron Steel: agreement collaboration

JFE Steel Corporation and Mycron Steel Berhad, a cold-rolled steel sheet manufacturer based in Malaysia, have signed an agreement for collaboration, and JFE Steel has acquired 3% of Mycron Steel's outstanding equity.

JFE Steel will supply Mycron Steel with hot-rolled coil and related technical assistance for the production of cold-rolled sheet for markets such as automobiles and electric appliances, which Mycron Steel is now targeting to increase its presence. According to JFE, the demand for steel is growing in Malaysia, where manufacturers are increasingly seeking local sources of industrial materials.

The two companies have experienced commercial relations over years; JFE Steel has provided Mycron Steel with technical assistance for the manufacture of automotive-grade steel products and also hot rolled coil which is turned into cold rolled sheet. The collaboration agreement and equity investment must enable the two companies to deepen their relationship.

Mycron Steel produces and supplies cold-rolled steel sheet for automobiles, drum cans, construction materials and coil centers. The company is strengthening sales in the automobile industry and plans to start supplying substrate to electric galvanizing mills for electric appliances. Mycron Steel expanded its annual capacity from 180,000 tons to 260,000 tons in 2009, and a new cold reduction mill expected to come on line in around 2012 will further elevate annual capacity to 500,000 tons.

## Nucor to form joint venture with Mitsui

Manufacturer of steel products Nucor Corporation has entered into an agreement with Mitsui & Co. (USA), wherein each would indirectly own a 50% interest in a newly created company, NuMit LLC. NuMit will invest in various steel and steel related activities, both in North America and globally. Coinciding with the formation of NuMit will be its first investment, Steel Technologies LLC, which will own all of the assets, operations and business currently held by Mitsui in Steel Technologies, Inc. Closing of the transaction will occur after satisfactory resolution of regulatory approvals and other closing conditions.

Steel Technologies operates 23 sheet processing facilities throughout the U.S., Canada and Mexico. It will continue to operate as an independent unit with the existing management team maintaining responsibility for the performance of the business. This management structure will allow Nucor to continue its long-standing supply chain relationships with other sheet processing companies while at the same time allowing Steel Technologies the ability to independently manage its supply needs. Nucor's focus will remain on providing supply chain solutions.

Nucor's previously announced plans to construct a greenfield flat rolled processing center in Monterrey, Mexico will be implemented by Steel Technologies LLC. The processing center is expected to include pickling, slitting and cut-to-length capabilities to serve customers in Mexico.

## ORE AND MINING

## ThyssenKrupp MinEnergy signs 10-year agreement with Polish coke plant

ThyssenKrupp MinEnergy GmbH has signed a 10-year agreement with Poland's biggest foundry coke producer in Waldenburg, Lower Silesia, under which 70,000 tons of foundry coke will be delivered to Duisburg each year. Stacked one meter high, that's enough coke to cover an area of around 30 soccer pitches. The coke will be transported from the Polish coke plant to Germany by rail in special containers known as black boxes, each with the payload of a road truck (27 tons). The journey from Waldenburg to Duisburg takes around 36 hours.



70,000 metric tons of foundry coke will be delivered to Duisburg each year.  
Source: ThyssenKrupp

Duisburg is a key hub in ThyssenKrupp MinEnergy's materials supply network. Distribution of the coke to customers, above all in North Rhine-Westphalia, will take place from Duisburg's Rhine-Ruhr terminal. Here the black boxes are unloaded from trains onto trucks and transported to customers. The Rhine-Ruhr terminal with its rail, road and waterway links is considered an optimum transshipment center. With access to the major seaports in Antwerp, Rotterdam and Amsterdam ThyssenKrupp MinEnergy aims to supply customers in Germany and on the international markets on a just-in-time basis in the future.

## Metinvest commences capesize shipments of iron ore to China

Metinvest has developed a functional logistics scheme and commenced capsize deliveries of iron ore for exports. The first vessel with a freight-carrying capacity of 195 thousand tons has departed to China. As of today the second bulk-carrier of the similar class is being stowed. This is the first time when the raw materials produced by Metinvest's Iron ore Division are shipped for exports in such volumes.

Two-stage method of the bulkers loading has been successfully implemented in the course of the shipping mechanisms development. During the first stage the bulker is loaded at the berths of Odessa region ports. At the second stage the bulker passes to the deep water anchorage in Kerch to accomplish the loading to a full draft. In November 2009 the capesize bulker *Kassos Warrior* with a freight-carrying capacity of 195 thousand tons was loaded with iron ore products manufactured by Metinvest enterprises. The bulker departed to China. As of today *Mykonos* bulker, which is the second vessel of the similar class, is being stowed.

Unfortunately, the infrastructure of Ukrainian ports does not allow loading of the capesize vessels to a full draft at the berth due to the depth restrictions. "This is a real breakthrough for Ukraine, as there have never been any capesize shipments of bulk freights before. As of today, we have achieved the maximum efficiency in the sea exports of iron ore", says Alexander Vilkul, the Honorary Director of Metinvest's Iron ore Division.