

The newsletter for steel and aluminium producers from Broner Metals Solutions –dedicated exclusively to business solutions for metals

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Tata Steel Long Products Europe selects Broner to provide Integrated Scheduling solution for Scunthorpe Steel Plant and Plate Mill

Improved business processes & management controls will deliver a step change in productivity, improved customer service and significant cost benefits.

Broner has announced the start of a major business improvement project, at the Tata Steel Long Products Scunthorpe plant in UK.

Broner has completed the Design Study for this project, and has now been selected to implement the integrated scheduling solution for steelmaking and casting, slab yard and plate mill together with comprehensive MES facilities for tracking, quality and inventory management.

The Chronos Project, as the project is called, will be implemented in close partnership with Tata Steel business, operational and IT specialists to provide the following functions:

- Steel plant scheduling with real-time plant co-ordination, crane and ladle management and 'what-if' analysis capabilities, together with automated Caster scheduling for five casters
- Integrated / through scheduling, to generate an automated piece-level schedule from the slab yard to plate rolling and finishing lines; with detailed line scheduling for the plate mill.
- Auto allocation of skelp, slab, plate inventories and cutting plans for finished plates & slabs

“Broner will provide the Scunthorpe plant with a mature business solution to match the best in the industry and allow us to become more competitive; through increased and more efficient production, greater flexibility, and impeccable customer service.”

*J. Steenberg
Supply Chain Director,
Tata Steel*

- MES for slab yards and plate mill, comprising: production recording and management; quality conformance, recovery & tracking; inventory movements, tracking, & reporting.
- Full integration with Tata Steel IBM main-frame, Level 2 process control systems and other operational and MES systems.

The new integrated scheduling solution will provide more realistic schedules that will facilitate an increase in schedule adherence and will increase the visibility and control of plant material & processes, to deliver substantial business benefits:

- Reduce lead times and increase on-time delivery
- Increase flexibility and agility to react to turbulent market conditions
- Increase plant productivity and yield
- Substantial cost benefits achieved throughout the plant. For example, by avoiding bottlenecks, load balancing, improved ladle use, fewer sequences, reduced inventories,



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better scheduling decisions etc.

The Tata Steel Plant in Scunthorpe is one of the most complex facilities in the world containing 5 continuous casters, complex routes, wide variety of steel grades and qualities. Tata face daily challenges to manage hot metal flow considering ladle fleet constraints, teeming crane constraints, temperature control while dealing with unpredictable treatment times and manufacturing high quality steels. Broner's Melt Shop Control Centre real-time scheduling solutions will be implemented to improve the synchronisation of all these different factors and will improve reliability of casting, reduce energy cost and increase productivity.

The Tata slab yard is also a complex facility which includes 6 slab processing facilities and has limited space. Broner's MES solutions will be implemented here to provide real-time tracking of skelp and slab location, improve visibility of forward routing of each slab through the various treatments and provide more reliable delivery of slabs to the plate mill.

The Broner MES will also be implemented in the Tata Scunthorpe Plate mill to provide real-time the tracking of individual plates and integrated scheduling of all plate facilities to improve on-time delivery.

The MES solutions will be deployed using wireless technology, hand-held terminals for shop floor and stock yard operators and wireless terminals for all the crane cabs.

The complete solution will be implemented in phases and will use standard Broner modules with built-in steel functionality: Melt Shop Control Centre; Caster Scheduler; Production Planner; Plate Combination; Production Scheduler; Production Management; Quality Management and Inventory Management. Broner is providing product enhancements to support the special requirements of this highly complex plant.

Jan Steenberg, Supply Chain Director for Tata Steel Long Products UK, said "Broner will provide the Scunthorpe plant with a mature business solution to match the best in the industry and allow us to become more competitive; through increased and more efficient production, greater flexibility, and impeccable customer service."

Tata Steel is one of the world's top ten steel producers. The combined Group has an aggregate crude steel capacity of more than 28 million tonnes and approximately 80,000 employees across four continents.

Broner Metals Solutions completes MES projects for large pipe mills at Vyksa Steel Works in Russia

Integrated systems automate & monitor production, providing real-time shop floor decision support to improve operational control, quality, productivity, and customer satisfaction.

Vyksa Steel Works in Russia, is now using Broner MES solutions to improve production in their Electric Weld Large Diameter Pipe Complex (LDPC) for pipes up to 1420mm diameter, and in the Pipe Electric Weld workshop 3 (PEWS-3).

In a phased implementation, with differing solutions for each workshop, Broner has worked jointly with Vyksa to implement MES production, inventory and quality management and tracking solutions; and an Automated Pipe Traceability System. All these are now live in production, providing real-time monitoring and control of production operations, with can improve quality,

throughput and on-time delivery and reduce costs.

Quality is key to production. There are a large number of quality inspection points and the results of quality tests are the driving force in tracking pipes through the production processes.

A Production Monitoring, Dispatching and Analysis (PDMA) solution covers the pipe production lines at LDPC. This records all production data, providing real-time monitoring and control and making this information available for fast and efficient decision making. It provides a comprehensive range of functions such as: production dispatching, execution & tracking; inventory management for finished pipes; quality control management and KPI monitoring and reporting.

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Broner provided consultancy to assist Vyksa to migrate the ERP interfaces to SAP, using the Broner Integration module based on TIBCO."

D. Mushin,
CEO, Broner

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The Automated Pipe Traceability System (APTS) for PEWS-3, links into the separate pipe marking and identification equipment and provides: Steel coil technical data; Pipe traceability at each section of the technological shop; Collection and archiving of pipe production, technical, and quality data and integration with ERP system.

David Mushin, Chief Executive of Broner Metals Solutions said, "The solution was implemented in partnership with Vyksa, using both Broner and Vyksa resources. Initially integrated with Oracle, Broner provided consultancy to assist Vyksa to migrate the ERP interfaces to SAP, using the Broner Integration module based on TIBCO."

Vyksa Steel Works is part of the United Metallurgical

Company (OMK). OMK comprises five large metallurgical plants in Russia: Vyksa Steel Works, Almeteyevsk Pipe Plant (Republic of Tatarstan), Chusovoy Steel Works and Gubakha Coke (Perm Region), and Shchelkovo Steel Works (Moscow Region).

Vyksa Steel Works is an integrated steel plant with a capacity of up to 2 million tons of pipes per annum, operating in the Nizhniy Novgorod region of Russia.

Vyksa is the leader in the pipe market and a major domestic producer of longitudinal welded pipes with various diameters designed for oil and gas production and transport, construction, and the housing and utility sector. The main products are steel pipes with diameter ranging from 15 to 1420 mm with a wall thickness of up to 48 mm.

Enhanced Real-Time Control for Steel Melt Shops improves steel plant scheduling and increases productivity

New features include melt shop automation, crane scheduling and ladle allocation additions.

There are major enhancements to the Broner Melt Shop Control Centre that provide more automation of scheduling functions and greater visibility and control of the use of cranes and ladles. The new features will increase the flow of work through the Melt Shop leading to increased productivity and reduced costs, together with improved on-time delivery.

The Broner Melt Shop Control Centre is the master coordinator between the flow of hot metal from the steelmaking process into the melt shop, hot metal flows inside the melt shop and the flow of slabs, billets & blooms out of the melt shop to the rolling mills. By providing real-time control and short-term production schedules, taking into account the actual availability, timing and characteristics of each item of plant, and the temperature changes of hot metal, the Melt Shop Control Centre reduces

buffer times, increases productivity and maximises utilisation.

The new features now provide even further facilities to improve melt shop operation:

Automated 'What-if' Scheduling capability

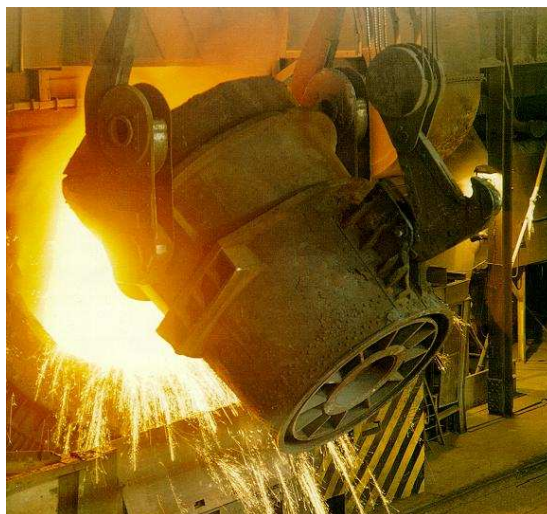
An automated process allows users to evaluate the best reaction to steel making and casting events by running any number of 'What-if' scenarios, covering possible process events, for example - automatically delay/advance unstarted sequences or adjust casting speed within defined

limits to accommodate logistical delays. Multiple what-ifs can be tried offline and the best result can be quickly re-implemented from the saved details.

This will ensure the steel plant reaction to disruptions is best aligned with downstream feedstock requirements and ultimately customer service.

Crane Scheduling

The crane scheduling process generates transportation orders



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Enhanced Real-Time Control for Steel Melt Shops improves steel plant scheduling and increases productivity

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and times for each crane and aisle based on the steel making schedule. It will automatically determine the sequence and timing of each crane movement to avoid crane conflicts.

When crane drivers are required to move items of equipment or materials that are not included in the melt shop schedule, then the crane schedule will forecast periods of low or no utilisation, and the crane operator can use these periods to manually execute non-scheduled movements. Alternatively, for cranes that are more active and are bottlenecks, then these 'non-scheduled transports' can be defined in the crane schedule.

Crane scheduling is not compromised if the crane has a problem with its lift motors. The speed of the lifts can be halved, thus doubling the lift time, but the Broner solution is able to modify all relevant lift process times for the duration of the lift problem and ensure the integrity of the schedule.

Optimisation of Ladle Allocation & Crane Scheduling

The ladle planner and crane scheduler together, provide additional optimisation functions to maximise the efficiency of ladle and crane utilisation. They both provide local optimisation and depend on the user to validate the overall steel making schedule and finalise the ladle allocation and crane activities in the short term. Over a longer time frame, the role of these modules is to provide visibility of the impact the steel making schedule on ladle and crane availability. This gives the operator time to change the steel-making schedule to avoid ladle or crane conflicts becoming a reality.

The time to complete a steel plant schedule and depend-

ent ladle and crane schedule for the next 12-24 hours is a few seconds, which allows multiple what-if scenarios to be evaluated to determine the best solution.

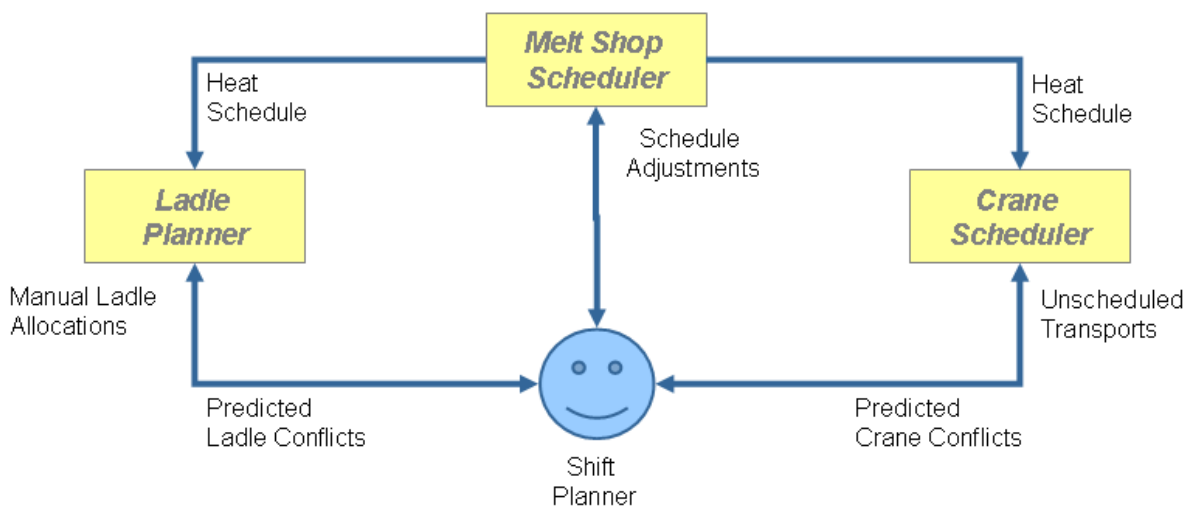
Automated scheduling for Melt Shop, cranes and ladles

Melt shop scheduling is integrated with process automation and will automatically make changes to the schedule based on the data received from the plant equipment. On receipt of a 'start' or 'end' message, the Melt Shop Control Centre (MSCC) will compare the actual time to the time shown in the latest schedule. Where the actual time deviates from the scheduled time, then MSCC will attempt to update the schedule times. If this results in a conflict then MSCC will automatically make adjustments to absorb the deviation and remove the conflict if possible.

Ladle Allocation according to Pollution Rules

Ladle allocation functions monitor the activities and status of all ladles in the operating fleet and automatically assign ladles when they become available to heats in the steel plant schedule. The allocation process now considers: ladle age; temperature (number of cycles); and extensive pollution rules, including a rule that determines the suitability of a ladle based on the residual chemistry following previous cycles (including wash outs).

This will enable correct ladle allocation for special requirements, such as tyre cord grades, which don't allow aluminium content in the steel, not even in the lowest amounts.



We would like to take the opportunity to express our best wishes for a long and happy retirement to both Jacques Talbot and Richard Wightman who left the business in May/June 2011. Jacques was working for Broner in the role of Sales Director and Richard Wightman was working in the role of Marketing Manager.

We would also like to congratulate Julie Clements, Director of Projects, and her husband John on the birth of their new baby son, Billy. We look forward to Julie returning from Maternity Leave in the coming months.

In order to strengthen our operations in the UK and Brazil, Broner have employed a number of new hires. We would like to welcome to the business Ricardo Sozzi, Guilherme Vieira and Panagiotis Papadopoulos who have joined as Consultants and we also welcome Amit Munigela, Daniel Mancuso, Juan Artacho, Charis Kosteletos and Ioannis Konstas who have joined in the role of Software Engineers. Andy Willerton also joins

the Broner Development Team in the role of Analyst and Howard Clark joins in the role of Manager of Quality Assurance. We wish them all well for their future careers within the company.

David Mushin, Chief Executive of Broner Metals Solutions said "2011 has proved to be very dynamic, and a year of growth and development for the company and I look forward to a prosperous year ahead".



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