

JSW Steel: Indian steel pioneers improved quality and enhanced throughput with Pesmel YMS

A strong client relationship and detailed 3D simulations helped Pesmel deliver a cutting edge CRM2 mill for JSW Steel.

In 2013, Pesmel commissioned a modern, automated 'Material Flow How' concept-based Yard Management System (YMS) at JSW Steel's CRM2 plant in Karnataka, India. Aiming to produce 34 million tons of steel by 2020 through the construction of new mills, JSW Steel is the largest private sector steel manufacturer in India in terms of capacity. Pesmel joined the green field project at an early stage to assist JSW Steel in planning and executing a CRM2 mill that seamlessly integrates production with an internal logistics system that includes automated high bay storage control in 1 complete solution.

"As Logistics experts, it's always good to be involved in projects at an early phase, as normal practice for the customer is to focus on the production lines and not the logistics, packing and storage systems, which may lead to major complications at a later date", says **Juha Suksi**, Vice President of Sales and Marketing, Pesmel Oy. "We consider the project from a total logistics point of view, and a green field site is a good opportunity to optimise at an early date".

Pesmel's expertise in combining logistics and production requirements contributed towards the delivery of a CRM2 mill that enables intelligent material flows across the whole plant that can minimise distribution errors, lower

costs and increase production efficiency. To achieve this, Pesmel conducted a comprehensive study of JSW Steel's mill requirements to produce a solution that meets their needs as efficiently as possible. "The Advanced Configuration and Simulation study rendered by Pesmel to advise the customer on the precise resources, building and storage requirements – including phase-wise installation options – makes it easier for such projects to be understood and adapted by the customer", quotes **Jagannathan Rajagopalan**, Managing Director of Pesmel South Asia.

One mill, one screen

As a result of this study, Pesmel created a comprehensive YMS for JSW Steel that integrated the various functions contained within the mill into 1 logistical entity. Now, the whole factory is accessible from a single screen, and all the functions within the yard are linked via an efficient high-speed coil car system working in support of Electric Overhead Travelling (EOT) cranes.

In practice, hot rolled coils enter the HR area on railway wagons. Semi-automated overhead cranes fitted with HMIs (Human Machine Interfaces) are supported by operators who scan coil barcodes and automatically

generate task lists for the overhead cranes. A simple push of a button calls a crane into position, which in turn moves the coils to the correct storage area. Besides the operator manually controlling the lifts in the Z axis, the process is highly automated. Coil cars also feed the PLTCM line coil saddles, which then distribute coils throughout the factory. Systematic and sequential loading of the PLTCM at its entry is carried out by the four-way coil car with suitable interfacing with the PLTCM Walking beam conveyor. A coil car system then picks up the cold rolled coils from the PLTCM exit for CR storage. After storage, the coil car system delivers the coils to the annealing and galvanising lines. This four-way coil car system minimises overhead crane usage, greatly reducing their time investment and enabling the cranes to focus on working efficiently in one area for mainly the "pick and place" task and also assuring the least handling amount of damage to the coils. Similarly, the work in progress (WIP) coils are managed with a suitable automatic Yard Management System (YMS) for the finishing operations.

The mill also includes an automated high bay Finished Goods Storage (FGS) fitted with high speed stacker cranes. With over 50 000 tons of capacity, the rack-supported construction of the high bay warehouse uses only one third of

Lowered loading times, reduced building costs and the elimination of tracking errors and lost products mean JSW Steel can now deliver even more products to their customers at the highest possible quality levels.

Over 50 tons automated high bay storage is a part of Pesmel's yard management system to JSW.



With the help of Pesimal solutions, JSW CRM2 was able to ramp up the production level from around 50% in the first year of operation to beyond 75% in less than 20 months of operation.

All yard functions are linked via an efficient high-speed coil car system.

PESMEL
www.pesimal.com

smaller updates across the site in the near future. Pesimal's Indian subsidiary also stations engineers on the factory floor to insure smooth performance, assuring local and dedicated support by Pesimal India. In addition, a 24/7 helpdesk comprising Service/WMS experts can have remote access to the factory logistics system from Finland and solve potential problems that may occur, enabling JSW Steel to keep the mill running with maximum efficiency at all times.

Continued cooperation

As a major player on the Indian steel market, JSW is in initial discussions to roll out similar solutions across its other factories. "Feedback from the customer has been very positive," concludes Juha Suksi. "They now have plans to make investments in other JSW units as well, and we are discussing possible options for integrating our logistics system and high bay storage into their existing mill floor plan. They are extremely satisfied with our YMS and high bay storage concepts. After installing one of the most modern automated logistics systems, JSW Steel now understands how efficient this new technology is, and they will use similar solutions when building new factories and

updating existing sites in the future."

Ashish Chandra, Chief of JSW CRM2, reflected this sentiment when giving feedback during discussions with Jagannathan Rajagopalan and Pesimal's Project team after their CRM2 mill had been in operation for two years. "Pesimal internal logistic solutions made material handling & storing at JSW highly effective. With the help of Pesimal solutions, we at JSW CRM2 could ramp up the production level from around 50% in the first year of operation to beyond 75% in less than 20 months of operation. Pesimal solutions not only became the backbone for processing of materials, but also strengthened the outbound deliveries in less stipulated time. Secondly, the customisation of solutions as per the requirement and support provided by Pesimal engineers to nurture & mature the solutions is appreciable. Having understood the benefits, JSW is keen to adapt modern logistics concept similar to CRM2 in other units and projects."

It is a fact that modern technology has become a significant force of change in Logistics, which in turn can be the deciding success factor in any industrial operation. Efficiency is no longer an option in the steel industry. It is a necessity. Pesimal's Material Flow How knowledge can help you find your path to success. •