

Danieli Corus contributing to India's Steel Saga

Danieli Corus has enjoyed an incredible journey with Indian steel industry over the years. Since the execution of its first project in India in the first year after the company was formed, Danieli Corus has been an inalienable partner in growth since 1977.

Throughout the decades, Danieli Corus has been supporting Indian steel industry all through-in times of limited progress to an incredible growth track where the India is poised to become the second largest steel producer globally.

With its breakthrough developments in both blast furnace iron-making and BOF steelmaking Indian steel producers both in public and private sectors have been leveraging the benefits in both greenfield and brownfield situations.

Recent Achievements – Blast Furnace Ironmaking



SAIL, Rourkela Blast Furnace No. 5 (4,060 m³) has been built and commissioned at Rourkela Steel Plant by a consortium consisting of Danieli Corus BV and Tata Projects Limited on turnkey basis.

It is a major milestone for Danieli Corus to have built the largest operating Blast Furnace in India, according to the "Hoogovens" philosophy. The Furnace is designed to European standards and based on European technology. It was built to produce around 8,000 tons of hot metal per day for a twenty year campaign.



NMDC Nagarnar Blast Furnace No. 1 (4,506 m³) designed by Danieli Corus BV, The Netherlands, and being built by a consortium consisting Danieli Corus BV, Danieli Corus India and Tata Projects Limited at Nagarnar, Chhattisgarh on turnkey basis.

This furnace will be the India's largest Blast Furnace to date. The rated capacity of this furnace is 9,500 tons of hot metal per day with pulverized coal injection system of 200 kg/tHM. This furnace is designed for a twenty year campaign.

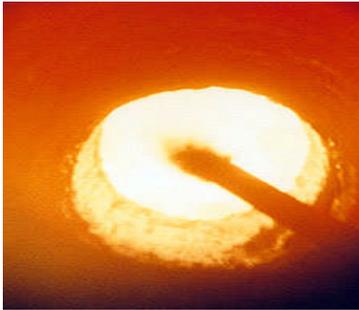
TATA Steel Ltd. Blast Furnace 'F' (has b1,860 m³) een rebuild and commissioned at Jamshedpur plant based on the "Hoogovens" lining and cooling design, which includes machined copper plate-coolers and high conductive graphite refractory.

The furnace is built to produce around 4,300 tons of hot metal per day. It has been operated beyond the designed capacity and fulfills the plant requirements.



JSPL Raigarh Blast Furnace No. 2 (1,681 m³) designed and supplied by Danieli Corus based on the "Hoogovens" philosophy, was commissioned in October 2006. This is one of the three 1,681 m³ Blast Furnace built in accordance to with "Hoogovens" philosophy in India. This furnace is rated as the best operating blast furnace in India, having broken many records with respect to productivity and coal injection rates.

Over the years, this furnace has achieved many milestones – achieving productivity beyond 3.0 t/m³WV per day by harnessing high hot blast temperatures (>1200 °C) with the help of waste heat recovery system, coke quality, pulverized coal injection > 200 Kg/tHM and establishing the right burdening practice.



Danieli Corus has provided ramp-up services for the Pulverized Coal Injection for **JSPL Raigarh Blast Furnace No. 2**. Over the years with consistent operational control, JSPL has ramped-up and stabilized Coal injection rate to 200 Kg/tHM with high oxygen enrichment of the blast.

Danieli Corus has been awarded a contract for further increasing the pulverized coal Injection to 250 Kg/tHM.

The Pulverized Coal Injection System at **TATA Steel Blast Furnace 'G'** has been augmented for achieving higher injection requirement to the blast furnace.

The system has been upgraded from the prior peak injection rate of 43.6 t/h to 67 t/h. This has been done by inserting a pre-fabricated ring of 1500 mm at the cylindrical section in the existing feed tank, thereby increasing the feed tank size from 42m³ to 56m³. The screens between the Pulverized Coal Bin and the feed tanks were replaced with very compact screens located between the bag filters and Pulverized Coal Bin. This, in turn, removes a major bottleneck in the time required to fill the feed tanks and makes the process independent of screen operation.



Recent Achievements – BOF Steelmaking



Seven Sublance System with the Static-Dynamic Level 2 Process Model for BOF Process Control have been commissioned at **JSW Steel Toranagallu** for their two **Basic Oxygen Steelmaking Plants**.

This is the first successful implementation of a sublance-based BOF process control system in India. This market has been very reluctant towards installing sublances, but operations at JSW Steel.

are now proving the value for the Indian market. The client has achieved benefits in terms of increased hit rates, reduced nos. of re-blows, consumption of fluxes, optimized

utilization of scrap and hot metal and improved health, safety and environmental performance

JSW Steel Ltd. has commissioned four Hot Metal Desulphurization Station of 175t ladle at Toranagallu plant, India.

Danieli Corus' strong background in the design and supply of desulphurization facilities has ensured the successful implementation of the hot metal desulphurization technology in steel plant.

Based on the performance of these equipments, JSW has given an repeat order for two more stations.

