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## **PRESS RELEASE**

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Taiyuan Iron & Steel order for SMS Siemag

### **First X-Melt<sup>®</sup> CONARC<sup>®</sup> with energy recovery system for China**

The Chinese steel manufacturer Taiyuan Iron & Steel (Group) Co. Ltd. (TISCO) has contracted SMS Siemag, Germany, for the planning and supply of an X-Melt<sup>®</sup> CONARC<sup>®</sup> furnace unit with energy recovery system for a new long product mill in Taiyuan, North China.

The energy recovery system increases the steelworks' energy efficiency and especially contributes to reducing CO<sub>2</sub> emissions and energy costs.

The scope of supply for the 80-t CONARC<sup>®</sup> with two furnace shells comprises engineering, manufacturing of core components as well as supervision of erection and commissioning. The entire CONARC<sup>®</sup> plant will be equipped with an X-Pact<sup>®</sup> electrical and automation system (including level 2).

Furthermore, SMS Siemag will supply the electrode arms, the SIS (SMS Siemag Injection System) burner and injector systems as well as the engineering and core components for the oxygen blowing top lance.

Thanks to the energy recovery system, CO<sub>2</sub> emissions can be reduced by approx. 25,000 t per year. At a temperature of approx. 1,250 °C, the waste gas from the CONARC<sup>®</sup> is led through a boiler system that on the one hand provides for the required cooling of the gas and on the other hand uses a major portion of the thermal energy for the generation of steam which can be put to further use in the steelworks. In the two boiler units, up to 60 t of steam can be generated per hour.

The CONARC<sup>®</sup> furnace unit is part of a complete special steelworks project for which TISCO contracted SMS. In the scope of this project, SMS Concast will additionally supply two twin-ladle furnaces and a three-strand jumbo continuous caster for round blooms with a diameter of between 390 and 800 mm. The continuous caster complies with the latest state of the art and is equipped with electromagnetic mold, strand and final stirrers, strand heating and dynamic soft reduction systems. It will put TISCO in the position to produce round blooms in top quality. Amongst others, these blooms will be used for the production of wheels for high-speed trains. In addition to high quality, the new investment will allow TISCO to achieve significantly improved material utilization and reduced transformation costs compared to the old plant.

Commissioning of the plants is scheduled for March 2014.

The CONARC<sup>®</sup> process

The CONARC<sup>®</sup> process developed by SMS Siemag combines the technological benefits of the electric arc furnace with those of the conventional converter blowing process in one production unit with two identical shells.

In the two furnace shells, blowing lance and electrodes are used in turns. This makes it possible to process the charge materials of steel

scrap, crude iron and direct-reduced iron ore (DRI) in various mixing ratios. The flexibility thus obtained allows the steelmaker to dynamically react to fluctuating market prices for energy and charge materials. Furthermore, it is possible to flexibly switch between the operating modes of the burner and injector systems. Thus, the amount of electrical energy required is significantly reduced. The technological equipment includes a blowing lance, oxygen and carbon injectors, the materials management and the gas cleaning system.

X-Melt<sup>®</sup> is an SMS Siemag trademark from the Steelmaking Division. It is the brand name for plants and technologies that set standards for the economical production of high-quality liquid steel.

#### Energy recovery

A newly developed two-stage boiler system is used for waste heat recovery. In the first stage, the waste gas is led through a swivel-type elbow, a post-combustion chamber and a hot-gas line and cooled down to approx. 600 °C. These components have been designed as pressure parts (pressurized components) for steam generation.

In the second stage, the waste gas is cooled down to 200 °C in a vertical pass boiler especially developed for this type of application.

Thanks to this concept of waste heat recovery for steam generation, a significant contribution can be made to sustainably improve the energy efficiency of the steelworks.

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Signing ceremony at TISCO for the new X-Melt<sup>®</sup> CONARC<sup>®</sup> from SMS Siemag.

SMS Siemag AG is a company of the SMS group which, under the roof of the SMS Holding GmbH, consists of a group of companies internationally active in plant construction and mechanical engineering for the steel and nonferrous metals industry. With more than 13,000 employees, the group generates sales of about EUR 3.5 billion.