DRAGON STEEL CORPORATION, TAICHUNG, TAIWAN
SINTER PLANT NO.1
A STATE-OF-THE-ART SINTER PLANT

With selective waste gas recirculation for adherence to strict environmental regulations and low production cost

MAIN BENEFITS

- Low environmental impact
- High sinter quality for high blast furnace performance
- High availability
- Low electrical energy consumption
- No blending yards required
- Low maintenance costs
- High flexibility in raw material selection

THE CHALLENGE

The Taiwanese steel producer Dragon Steel Corporation (DSC) awarded Primetals Technologies with a contract to design and supply a new sinter plant for a daily production of 7,440 tons.

The sinter plant is part of a new iron and steel works built in the harbor area of Taichung. Following the start-up of the works in December 2009, Dragon Steel entered the flat-steel market sector with a production capacity of 2.5 million tons of high-quality slabs per year.

The sinter plant is furnished with state-of-the-art sintering technology from Primetals Technologies. On the one hand, this technology allows for low-cost operation of the sinter plant, which also boasts high flexibility regarding the iron ores that can be treated. On the other hand, operation is in accordance with Taiwan's strict environmental regulations.

THE SOLUTION

In order to achieve the required productivity and sinter quality, the sinter plant design features the latest Primetals Technologies developments to produce sinter that enables high-performance blast furnace operation with a low environmental impact from the sinter offgas. The plant is equipped with the following unique components from Primetals Technologies:

- Intensive mixing and granulation (IMGS®)
- Grate-wing pallet cars
- Selective Waste Gas Recirculation System
- Grate-wings cooler troughs

To ensure a low environmental impact, the plant is designed with DeSOx, DeNOx, and DeDioxin equipment.

THE CUSTOMER

Name. Dragon Steel Corporation (DSC)
Location. Taichung, Taiwan
Services. DSC is a 100% subsidiary of China Steel Corporation, the largest steel producer in Taiwan. Dragon Steel currently produces approximately 800,000 tons per year of carbon-steel grades, which are cast as billets, blooms or beam blanks, and followed by rolling into heavy sections. At the start-up of phase 2 of the steelworks in 2012, DSC had a flat-steel production capacity of 5 million tons of high-quality slabs per year.

SCOPE OF SUPPLY

- Basic and detail engineering for key equipment
- Supply of key equipment
- Advisory services for manufacturing, erection, start-up and commissioning
- Automation systems (Levels 1 and 2)
- Training

PLANT TECHNICAL FEATURES

- Sinter plant area 478.5 x 90.5 m - 40,000 m²
- Cooling area 264 m²
- Suction area 248 m²
- Suction pressure -1,650 mm WC
- Off gas volume to stack 400,000 Nm³/h
- Recirculation-gas volume 260,000 Nm³/h
- Hot air from cooler 100,000 Nm³/h
- DeSOx Coated bag filter process operating with hydrated lime
- DeNOx & DeDioxin Dual functional catalyst process operating with ammonia
- Screening and crushing Scalping screen, roller crusher, hearth layer screen and return fines screen (+ stand-by line)
- Plant de-dusting ESP (maximum dust content at stack 20 mg/Nm³)

EMISSION DATA

- Dust max. 20 mg
- SOx max. 50 ppm (15% O2)
- NOx max. 70 ppm (15% O2)
- Dioxin max. 0.5 ng-TEQ/Nm³ (15% O2)
- Plant dedusting efficiency max. 20 mg/Nm³

TIME SCHEDULE

- Contract signing August 2006
- Start-up December 7, 2009

PLANT TECHNICAL FEATURES

- Sinter production 7,440 t/day
- Discharge temperature after cooler max. 120°C
- FeO content max. 7.5%
- Under size (<5mm) max. 6%
- Over size (>50mm) max. 5%
- Ti (ISO) min. 76%
- RDI max. 38%
- Consumption of coke-oven gas max. 2.5 Nm³/t sinter

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