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**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 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.

## 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®)
- Gate-wing pallet cars
- Selective Waste Gas Recirculation System
- Gate-wings cooler troughs

To ensure a low environmental impact, the plant is designed with DeSO<sub>x</sub>, DeNO<sub>x</sub> and DeDioxin equipment.

## 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 m <sup>2</sup>
Cooling area	264 m <sup>2</sup>
Suction area	248 m <sup>2</sup>
Suction pressure	-1,650 mm WC
Off gas volume to stack	400,000 Nm <sup>3</sup> /h
Recirculation-gas volume	260,000 Nm <sup>3</sup> /h
Hot air from cooler	100,000 Nm <sup>3</sup> /h
DeSO <sub>x</sub>	Coated bag filter process operating with hydrated lime
DeNO <sub>x</sub> & 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/Nm <sup>3</sup> )

## TIME SCHEDULE

Contract signing	August 2006
Start-up	December 7, 2009

## PLANT TECHNICAL FEATURES

Sinter production	7,440t/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 Nm <sup>3</sup> /t sinter

## EMISSION DATA

Dust	max. 20 mg
SOx	max. 50 ppm (15% O <sub>2</sub> )
NOx	max. 70 ppm (15% O <sub>2</sub> )
Dioxin	max. 0.5 ng-TEQ/Nm <sup>3</sup> (15% O <sub>2</sub> )
Plant dedusting efficiency	max. 20 mg/Nm <sup>3</sup>

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