



### News Release

November 26th, 2020

Nippon Steel Engineering Co., Ltd.

### Order for Largest Coke Dry Quenching in the World Received from China Steel Corporation for Steel Mill in Kaohsiung, Taiwan

Nippon Steel Engineering Co., Ltd. (Representative Director and President: Yukito Ishiwa; Head Office: Shinagawa-ku, Tokyo; hereinafter "NSE") is pleased to announce that it has received an order from China Steel Corporation (Chairman of the Board: Chao-Tung Wong; Head Office: Kaohsiung, Taiwan; hereinafter "CSC") for one of the largest coke dry quenching (hereinafter "[CDQ](#)"<sup>\*1</sup>) in the world for their Kaohsiung steel mill.

This CDQ project, for the replacement of the old coke oven with a new one, features a state-of-the-art technology to meet the latest environmental requirements. In comparison with the wet quenching type (water sprinkling), CDQ improves environmental performance by reducing the generation of dust when cooling the coke, and the recovered steam can be utilized to generate electricity, which also contributes to energy saving and reduction of CO<sub>2</sub> emissions.

The coke cooling capacity of the CDQ is the largest in the world (260 tons/h) and is unique to the NSE Group, which has supplied four units in the past. Generally, the uniform cooling of coke inside the cooling chamber becomes more technically challenging as CDQ gets larger, but NSE has conducted long years of research and development via full-scale prototypes and simulation analysis for ensuring a uniform flow of cooling gas and coke in order to achieve unique technology that provides stable operation while maintaining cooling efficiency at large scales (260 tons/h).

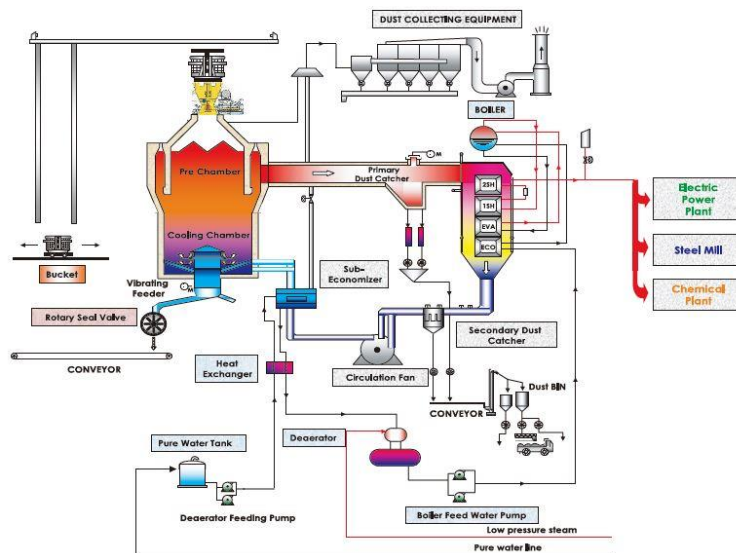
After keen competition, NSE was chosen based on its actual track record of stable operation with the world's largest CDQ, as well as the fact that all the CDQ<sup>\*2</sup> supplied to the CSC Group by NSE in the past had a high and stable rate of operation, the power generation of NSE CDQ is highly efficient despite the large scale, and NSE's technologies are highly advanced, reliable, and based on a rich experience.

With this order, the NSE Group has received orders for a total of 140 CDQ units over the world, including Japan, China, South Korea, and India.

Looking ahead, NSE will continue to greatly contribute to the protection of the environment and development of the iron and steel industry all over the world as the top supplier of environmental and energy-saving technologies.

**\*1: CDQ is an abbreviation for "Coke Dry Quenching." CDQ is composed of a sealed cooling tower containing a prechamber and cooling chamber. Red-hot coke that is dry distilled in the coke oven is cooled using the inert gas in the cooling tower, while recovering the sensible heat of the red-hot coke, which was previously dispersed, in a boiler as steam. CDQ have been attracting attention in recent years as they reduce the generation of dust when cooling coke, reduce CO2 emissions by generating electricity via steam, and improve the quality of coke so that it is suitable for use in a blast furnace.**

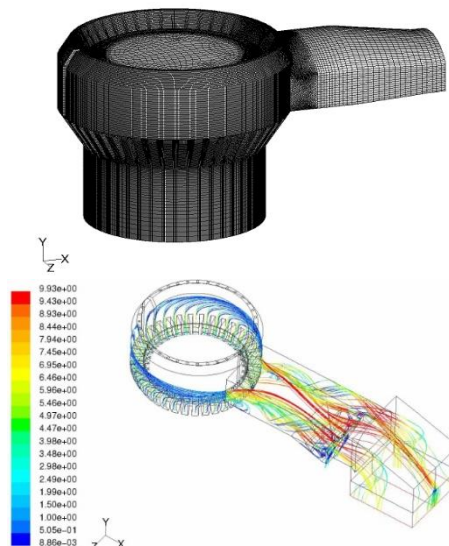
**\*2: Four units have been supplied to the CSC Group in the past (including one modification for improving the cooling efficiency of CDQ which was provided by another company)**



[Figure 1] CDQ overview



[Photo] Exterior of full-scale prototype



[Figure 2] Simulation analysis (example)

**\*Reference material: Uniformly high-efficient coke cooling technology in world's largest CDQ (technical report vol. 3 (2012))**

[https://www.eng.nipponsteel.com/business/upload/docs/vol03\\_13.pdf](https://www.eng.nipponsteel.com/business/upload/docs/vol03_13.pdf)

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