

PRESS RELEASE

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Dragon Steel Corporation grants FAC to SMS Concast for the modernization of their six- strand billet caster

Technology and automation upgrade for highest steel
qualities



First cast on the modernized six-strand billet caster from SMS Concast at Dragon Steel Corporation in Taichung, Taiwan.

Dragon Steel Corporation, Ltd., a subsidiary of China Steel Corporation located in Taichung, Taiwan, has

granted SMS Concast, a company of SMS group, the final acceptance certificate (FAC) for the modernization of their six-strand billet caster. The objective of the revamp was to improve the billet quality for the local high-end market, for applications including fasteners, welding rod, mechanical components and others.

The project, which consisted of an automation upgrade and the introduction of dynamic secondary air-mist cooling (COOL-DSC) as the main modernization measures, has achieved a distinct improvement in product quality in terms of internal structure and surface cracking.

“With a comparatively small modification to our caster, we have achieved a clear improvement in product quality, efficiently reducing the billet rejection rate. The cooperation with SMS Concast was excellent: together we kept the tight schedule and achieved our project goals. All in all, a very successful modernization project which has further strengthened our business relation”, says Ting-Yun Lin, project engineer at Dragon Steel Corporation.

The nine-meter-radius six-strand billet caster of Dragon Steel was originally built by SMS Concast in 2000. In 2014, it was upgraded with final electromagnetic stirrers (FEMS). It produces 145-millimeter square billets at an annual production of 600,000 tons, depending on the market situation. The steel grades include cold-heading, low-alloy, free-cutting, hot-forging and welding-rod steel.

The automation upgrade mainly involved an upgrade of the Level 1 system and the introduction of the COOL simulation package including COOL-DSC (Dynamic Spray Cooling) with Airmist nozzles from SMS Concast for homogenous secondary cooling. COOL is a proprietary solidification model developed by SMS Concast for online visualization of the solidification along the strand. The COOL-DSC function of the system regulates each spray zone's water flow according to specified billet temperature values. In this way, DSC optimizes the billet temperature along the secondary cooling zone in order to improve the surface quality.

In addition, the COOL software can be used offline for the metallurgist and process engineer to fine-tune the casting parameters by running various “ghost casts”, saving expensive trial casts in this way. COOL-offline includes functionalities to compare steady-state conditions of various casting parameters, in addition to the capability to simulate sequences with pre-defined casting speed variations and grade changes.

With a view to the shifting of production towards high-grade steels, the existing CONFLOW stopper controls were upgraded and the standard nozzles were replaced with air-mist spray nozzles. The CONFLOW stopper control is of a very robust design. It ensures a precise and well controlled steel flow from the tundish to the mold. The Airmist nozzles designed by SMS Concast provide homogeneous spray cooling for improved secondary cooling and less surface cracking.

SMS group is a group of companies internationally active in plant construction and mechanical engineering for the steel and nonferrous metals industry. It has some 14,000 employees who generate worldwide sales of more than EUR 2.9 billion. The sole owner of the holding company SMS GmbH is the Familie Weiss Foundation.