

Phone: +49 211 881-4449
Fax: +49 211 881-774449
Mobile: +49 151 40226502
E-mail: thilo.sagermann@sms-group.com
Thilo Sagermann

PRESS RELEASE

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Yongfeng Group Ltd. invests in casting technology for the
production of demanding SBQ steel grades

Yongfeng orders two five-strand billet casters for direct rolling from SMS Concast

Shandong Laigang Yongfeng Steel Corporation (YONGFENG), based in Dezhou, China, is a subsidiary of Yongfeng Group Ltd. In February 2018, Yongfeng – as a private company – placed an order for two continuous casting machines with SMS Concast AG, a company of SMS group (www.sms-group.com).

The two continuous casters are part of a project aimed at the expansion of the existing plant, where a new, electric arc furnace based minimill of state-of-the-art technology is going to replace the existing production facilities. The new plant will produce 870,000 tons per year of a large variety of demanding high-quality SBQ steel grades, including bearing steel which will be cast on continuous caster No. 1. Continuous caster No. 2 will be used for rebar grades and is aimed to cast 1,000,000 tons per year. The 165 millimeters square billets produced will be processed into bars and wire rod in the new rolling mill, which will also be supplied by SMS group.

The special design of the two continuous casters provides great flexibility for production planning while reaching very high strand productivity of around 750 kilograms per minute by means of the

proven SMS Concast-developed INVEX[®] mold. Due to its special tube geometry and enhanced water cooling features, the mold provides more efficient heat transfer and hence more uniform solidification at the faces and in the corner areas. The thus maximized cooling symmetry provides for higher casting speeds and the possibility of direct rolling of rebar grades, which need to have a suitable temperature at the hot charge roller table.

The machine design has been developed in close cooperation with the customer and the local design institute. By sharing experience and precisely defined requirements, the design of the continuous casting machines will be specifically tailored to the customer's needs, making use of SMS Concast's comprehensive knowhow and wide product range.

CONDRIVE is one of the special products incorporated into the new caster design. This latest in electric oscillation drive design provides the full functionality of mold oscillation without the drawbacks of a hydraulic system in terms of maintenance and piping. Its innovative torque drive enables the amplitude, frequency and oscillation profile to be adjusted online and independently from one another. Oscillation parameters are no longer a compromise because each casting section and grade will have their own oscillation parameters optimally tuned to achieve best surface quality.

Other special features have been implemented to increase the safety, productivity and efficiency of the machines: a cartridge-type mold assembly for higher machine availability; to reduce downtimes, switching between full water and air-mist cooling for freely selectable zones is performed in a matter of seconds for enhanced machine durability. These are just a few examples of the carefully implemented project principles based on which the machines have been designed.

Stand-by, redundancy and safety were the keywords leading to the continuous casters' mechanical and automation design. Filters, double emergency motors, control valves for media, hydraulic pumps, cold stand-by servers and UPS are the main areas where these principles have been applied.

Fully integrated PLC for fully automatic operation of the entire plant and the SMS Concast process control system (level 2) integrate the process control philosophy, production strategy and metallurgical models.

In addition to the level 2 system, a software developed by SMS Concast (COOL) has been implemented. This software dynamically controls all the casting parameters and the secondary cooling process on the basis of a dedicated software model. Thus, with a premium mechanical design in place, the most stringent quality requirements can be complied with even for the most demanding steel grades.

The Chinese market has been moving towards ever more challenging steel grades and more efficient production. SMS Concast provides Yongfeng the right tools to be a cost winner in commodity steel production and acquire a top-notch position in the SBQ high-value added segment.

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Contract signing between Shao Changtao, General Manager, Yongfeng Group Ltd., and Pierpaolo Rivetti, Deputy Executive Vice President Sales & Marketing, SMS Concast.

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 13,500 employees who generate worldwide sales of more than EUR 3 billion. The sole owner of the holding company SMS GmbH is the Familie Weiss Foundation.