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**ZHONGYUAN SPECIAL STEEL CO., LTD.,  
JIYUAN, CHINA**  
2-STRAND VERTICAL ROUND BLOOM  
CASTER

# NEW CASTING PLANT TYPE EXPANDS RANGE OF PRODUCTS IN CHINESE STEELWORKS

with an annual production capacity of  
370,000 metric tons per year

## MAIN BENEFITS

- Substitute of special steel ingot casting
- Production of very special and sensitive steel grades in high quality level
- Reduced forging duration due to near net shape casting
- Optimization of casting and forging process
- Fast return on investment
- Maximum of production flexibility
- Highest plant performance
- Quick casting format exchange
- Optimum performance and availability

The Chinese company Zhongyuan Special Steel Co. Ltd. has placed an order with Siemens Metals Technologies (now Primetals Technologies) for a vertical continuous caster to produce heavy blooms with a round cross-section. The continuous caster has a capacity of up to 370,000 metric tons per year, which will enable Zhongyuan to produce additional high-quality steel grades.

A newly designed multi-roller driver unit ensures optimum support of the 120-ton strand during casting. This is the first plant of its type, worldwide.

Until now, the company only had an ingot casting plant for the production of mainly steel forgings.

The continuous caster was started up successfully in June 2015.

## SOLUTION

The new continuous caster is designed as a vertical plant with a height of 40 meters and a metallurgical length of 23 meters. It produces heavy blooms with diameters of 400, 600 and 800 millimeters and lengths of between 2.5 and 6 meters. The casting speed is up to 0.55 meters per minute. The caster is equipped with a straight DiaMold tubular mold that is 700 mm long. The DynaFlex tubular mold oscillator helps to provide flexible adjustment of the oscillation parameters. Technology packages such as the LevCon casting level control system and the Mold Expert breakout detection system ensure trouble-free casting. Primetals Technologies is supplying not only the entire process equipment, but also a water and spray mist secondary cooling system, including the Dynacs 3D metallurgical cooling model and the DynaJet cooling nozzles, as well as the complete basic and process automation.



Longitudinal section



Longitudinal section

**SCOPE OF SUPPLY**

- Basic and detail engineering
- Process caster equipment
- Mold and oscillation equipment
- Strand guide equipment
- Withdrawal unit
- Electric and automation packages
- Advisory service

**PLANT DATA**

|                        |  |
|------------------------|--|
| Steelmaking facilities | EHF, LF, VD/VOD  |
| Heat size              | 60 t   |
| Caster capacity        | 370,000 tpy  |
| Metallurgical length   | 23 m   |
| Bloom sections         | ø400   ø600   ø800 mm  |
| Casting speed          | up to 0.55 m/min   |
| Cut length             | 2.5 - 6.0 m  |
| Strand center distance | 3500 mm  |
| Steel grades           | forging steel, construction steel, tool and bearing steels, as well as heat-resistant stainless steels |

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A joint venture of Mitsubishi Heavy Industries and partners

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