

London, November 08, 2023

World's first 3-strand slab caster in operation, forging path to significant savings in CAPEX and OPEX

- **Unique 3-strand continuous slab caster from Primetals Technologies operational at Chinese steel producer Tangshan Donghua**
- **Achieves significantly higher production capacity than a 2-strand caster while requiring 50 percent less space than the comparable conventional configuration of two 2-strand casters**
- **Lower costs resulting from operation and maintenance of the casting machine**

In September 2023, the world's first 3-strand continuous slab caster was implemented at Chinese steel producer Tangshan Donghua Iron and Steel Enterprise Group's site in Tangshan, Hebei province, China. This machine was one of six casters started up by Primetals Technologies that month.

The new 3-strand solution comes with several benefits for Tangshan Donghua. The conventional alternative, a configuration of two 2-strand continuous casters, would have required double the space of the 3-strand slab caster. Moreover, there are CAPEX- and OPEX-related gains as well: A reduction in CAPEX is assured thanks to reduced expenditures on equipment and civil works, and the efficient design of the 3-strand caster results in lower costs for operation and maintenance of the machine.

Casting taken to the next level

The 3-strand caster features technology that takes the casting process to the next level. The tailor-made and very large tundish has been praised by Tangshan Donghua for its stiffness and for the way in which it optimizes the flow of the liquid steel. Straight cassette-type Smart Molds ensure an optimized primary solidification of the strand.

The DynaFlex hydraulic oscillator is capable of adjusting the mold-oscillation parameters to match the composition of the liquid steel, which results in improved strand-surface quality of the slabs. A part of the secondary cooling, DynaJet spray cooling assures homogenous temperature distribution so that corner cracks are avoided, which is of particular importance when casting advanced steel grades.

A comprehensive automation package

The 3-strand caster features a state-of-the-art automation package. DynaPhase, Dynacs 3D, and DynaGap Soft Reduction 3D are dynamic secondary cooling and soft reduction packages. These innovations significantly improve the continuous casting process by considering numerous

Primetals Technologies, Limited
A Group Company of Mitsubishi Heavy Industries
Communications

Chiswick Park, Building 11, 566
Chiswick High Road
W4 5YS London
United Kingdom

parameters, including thermodynamic effects, online chemical composition, and phase transitions. Furthermore, the Level 2 packages feature offline simulation for the development of new and even more effective casting practices. LevCon is a system for automatic mold-level control, with "autostart" casting functions and auto-adaptive dynamic bulging compensation. Mold Expert helps to prevent caster-mold breakouts and digitally monitors the mold in real-time.

Close collaboration

One of China's top 500 enterprises, Tangshan Donghua was established in 2009. Its wide scope of business includes sintering, ironmaking, steelmaking, hot rolling, and bar and high-end wire-rod rolling. Primetals Technologies and Tangshan Donghua have collaborated on projects related to metallurgical services and offline maintenance for the steel producer's continuous casting machines since 2017.

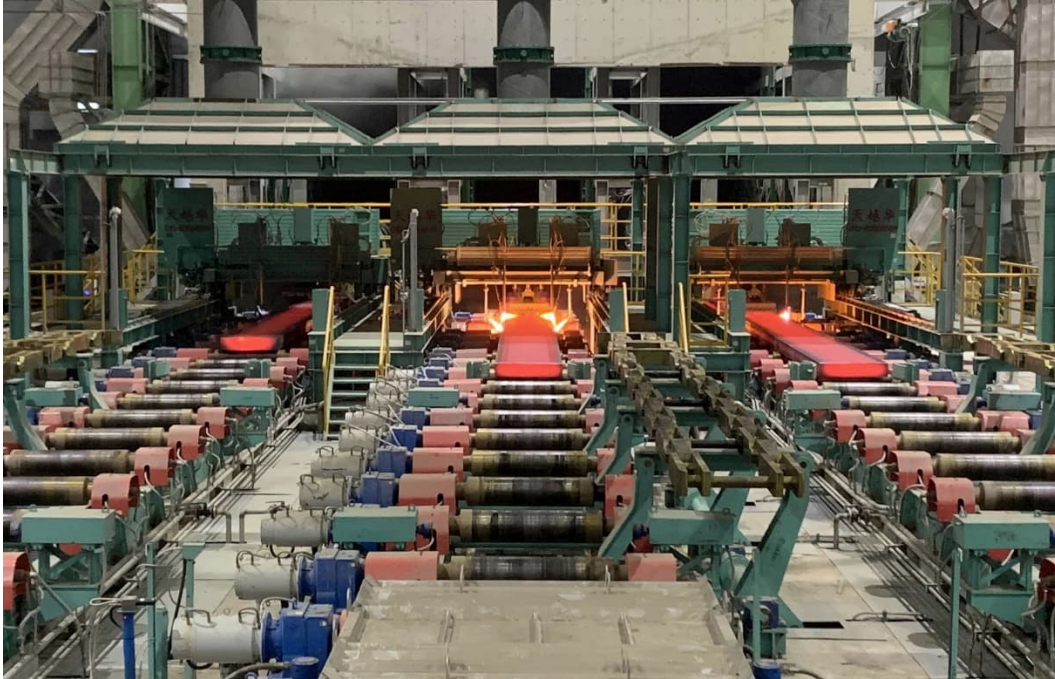
Key facts: 3-strand slab caster at Tangshan Donghua

- **Radius:** 8 meters
- **Metallurgical length:** 40 meters
- **Thickness of slabs:** 210 millimeters
- **Width range of slabs:** 750 to 1,100 millimeters
- **Casting speed:** up to 2.5 meters per minute

Key facts: Expert systems implemented at Donghua's slab caster

Several expert systems will be implemented at this slab caster:

- **Nozzle Expert** checks the condition of the secondary cooling system and detects any clogged nozzles and leakages with high accuracy.
- **Quality Expert** tracks, controls, and supervises quality-related data and quality prediction for the cast products.
- **Speed Expert** calculates the optimal casting speed in any casting situation while considering factors like superheat and heat pacing.
- **Yield Expert** is a cut-length optimization system that considers scrap portions, quality-related inconsistencies, weight restrictions, and width changes to minimize scrap and optimize yield.



The world's first 3-strand continuous slab caster, supplied by Primetals Technologies, in operation at Chinese steel producer Tangshan Donghua.

This **press release** and a **royalty-free picture** is available at www.primetals.com/press/

Contact for journalists:

Björn Westin, Press Officer

bjoern.westin@primetals.com

Mob. +43 664 6150250

Follow us on social media:

[linkedin.com/company/primetals](https://www.linkedin.com/company/primetals)

[facebook.com/primetals](https://www.facebook.com/primetals)

twitter.com/primetals

Primetals Technologies, Limited, headquartered in London, United Kingdom, is a pioneer and world leader in the fields of engineering, plant building, and the provision of lifecycle services for the metals industry. The company offers a complete technology, product, and services portfolio that includes integrated electrics and automation, digitalization, and environmental solutions. This covers every step of the iron and steel production chain—from the raw materials to the finished product—and includes the latest rolling solutions for the nonferrous metals sector. Primetals Technologies is Group Company of Mitsubishi Heavy Industries, with around 7,000 employees worldwide. To learn more about Primetals Technologies, visit the company website www.primetals.com.

Primetals Technologies, Limited
A Group Company of Mitsubishi Heavy Industries
Communications

Chiswick Park, Building 11, 566
Chiswick High Road
W4 5YS London
United Kingdom