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## **PRESS RELEASE**

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World record: 500-millimeter-thick slabs for premium metallurgical grades

### **At Dillinger, the new two-strand vertical caster supplied by SMS group sets new benchmarks**

By commissioning the new two-strand vertical slab caster CC6 and casting slabs of up to 500 millimeters thickness for premium heavy plate, Dillinger Hüttenwerke (Dillinger) and SMS group ([www.sms-group.com](http://www.sms-group.com)) have set a milestone in thick slab casting technology.

With an investment volume totaling approximately EUR 400 million, CC6 is one of the biggest ever single investments in the history of the Dillinger steel plant. The one-of-a-kind concept of designing a vertical casting plant for the production of thick slabs provides Dillinger new potential for expanding their range of high-grade products because during casting the slab will not be subjected to any bending or straightening. The new casting plant is the first to use a new pinch-roll technology developed by SMS. Referred to as X-Pact® Strand Centering Control, this feature of the new caster allows Dillinger to also continuously cast steel grades which up to now could only be produced via the less efficient ingot casting route.

By designing an entirely vertical continuous casting plant for thick slabs, SMS group and Dillinger have positioned themselves at the

forefront of technology progress worldwide. The jointly developed design concept includes extremely exacting solutions to cope with the very heavy loads and to transport the cast strand. A big challenge had been to conceive a design that would securely hold and transport a strand weight of up to 500 tons while preventing the slabs from moving out of the vertical due to the enormous roller forces acting on the slabs.

The exhaust gases and dusts arising at the torch-cutting machines, including the angle slab-head cutting machine, and at the tundish tilter and skull removal stand are extracted by a bag-filter-based dedusting plant designed and supplied by Paul Wurth, a company of SMS group.

The high expectations placed on product quality and technological stability have already been met during the first months of the successful commissioning process.

Dr. Ralf Bruckhaus (Head of Steel Plant at Dillinger): "This continuous caster is an outstanding plant providing great potential for current and future developments - in terms of both quality and productivity. It's fun to produce on the new CC6 casting machine."

The SMS group's scope of supply comprised the concept design for the CC6 plant as well as the engineering and supply of the mechanical equipment. The latter included the molds for the two-strand caster, the hydraulic oscillation systems, the strand guide systems with controlled hydraulic segment adjustment, the secondary cooling systems, the newly designed heavy pinch-roll units, the dummy bar cars and the hydraulic equipment.

The new heavy pinch-roll units and other high-end core components were manufactured at the SMS group workshop in Hilchenbach.

Especially the pinch-roll units stand out for their mechanical and plant engineering uniqueness, as their dimensions are huge compared to conventional pinch-roll units or segments in bow-type or vertical bending machines. They have dimensions similar to rolling stands as they have to cope with the large size and the extremely heavy weight of the slabs (2,200 millimeters wide, 300 to 500 millimeters thick, 5,500 to 11,800 millimeters long and weighing up to 100 tons) as well as with the entirely vertical casting process.

The technological systems of the plant are controlled by the proven X-Pact<sup>®</sup> electrical and automation systems developed by SMS group.

The supply scope of SMS group included X-Pact<sup>®</sup> systems for the entire plant. These systems are decisive for the control and reliable operation of the new two-strand vertical caster. Not only the more than 25,000 installed actuators and sensors are evidence of the sophisticated automation system designed and implemented by SMS group. Also the technological systems, such as the control concepts for the heavy pinch-roll units, the load holding concept as well as the refined adjustment concept for the slab load take-over by elevator, formed integral elements of the overall concept designed by SMS group. SMS group applied their mature simulation models to test those technological features beforehand. Based on those integrated tests, it was possible to start hot commissioning of the new casting machine under the direction of SMS group on September 3, 2015 with a successful first cast.

Just a few weeks later, in October 2015, a new world record was set: The world's biggest and heaviest slabs - 500 millimeters thick and weighing more than 90 tons - were produced at Dillinger, illustrating the new dimensions opening up for the plant operator.

With the successful commissioning of the two-strand vertical caster CC6, SMS group has further strengthened their worldwide leadership position in continuous thick slab casting. The innovative technology implemented in this project are proof of SMS group's high level of technological competence and proficiency.

Dillinger and SMS group have been partners for many years. In 1961, SMS group supplied the first continuous slab caster to Dillinger Hütte. Continuous caster 5 (CC5), built in 1998, was revamped in 2010 to become the then world record holder producing slabs up to 450 millimeters thick. That record was now broken by continuous caster CC6 as it can produce slabs up to 500 millimeters thick.

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The heavy pinch-roll units of CC6 at Dillinger Hütte. The new caster produces slabs up to 500 millimeters thick and 2,200 millimeters wide.



Proud of the new world record - Slabs up to 500 millimeters thick.

From left to right: Stefan Logsch, Project Director, SMS group GmbH; Dr. Ralf Bruckhaus, Head of Steel Plant, AG der Dillinger Hüttenwerke, and Lothar Schaps, Project Manager E&A, SMS group GmbH.

The SMS group is a group of companies internationally active in plant construction and mechanical engineering for the steel and nonferrous metals industry. Its 14,000 employees generate sales of over EUR 3.3 bn.