Siemens starts up ultra-thick slab caster at Posco – Production of highest quality slabs for demanding downstream applications

A two-strand ultra-thick slab caster capable of casting slabs in thicknesses up to 400 mm was started up in March by Siemens VAI at Posco's Pohang Works in Korea. The caster is equipped with numerous technological packages to ensure the reliable and consistent production of highest quality slabs for sophisticated product applications in, for example, the oil and shipbuilding industries.

In November 2007, Posco Pohang Iron & Steel Company Ltd. (Posco) placed an order for the supply of a two-strand ultra-thick, slab caster capable of casting up to 1.3 million tons of a wide range of carbon steel grades per year. The caster, designed with a metallurgical length of 24 m, was erected in the Continuous Casting Plant No. 3 (CCP3) in the Pohang Works.

Following the start-up of the caster in the two-strand casting mode, all equipment and systems functioned as designed beginning with the first heat. Slabs are cast with a thickness of either 250 mm or 400 mm, and at widths from 1,100 mm to 2,200 mm. The caster features a wide range of technological packages in the Siemens VAI product portfolio for slab casters. This includes DynaFlex for the flexible adjustment of the mold-oscillation parameters, LevCon mold-level control, DynaWidth slab-width adjustment and Smart Segments for fast slab-thickness changes.

The combination of Dynacs 3D, 3D Sprays and I-Star Revolver rollers offers a maximum in secondary cooling flexibility as the basis for achieving highest slab surface quality. Dynacs 3D calculates the temperature at any point within the strand in real time, allowing the optimum secondary-cooling setpoints to be defined. Dynamically adjustable 3D Sprays prevent overcooling of the slab corners for all slab widths. The application of I-Star Revolver rollers, which do not require spray-water cooling, supports a more gradual and uniform cooling of the slab surface. This
minimizes the tendency of surface defects when casting crack-sensitive steel grades or ultra-thick slabs.

The particularly high internal quality of the slabs is ensured by the unique machine concept. A 3.6 m long vertical section at the top of the strand-guide system promotes the floating of undesired impurities present in the liquid steel. Thanks to the application of DynaGap SoftReduction, the final strand-solidification position can be precisely determined. This allows the roller-gap taper in the area of final strand solidification to be dynamically and precisely adjusted, which minimizes strand segregation as required for high-end products. The Connect & Cast capability of the installed technological packages not only shortened the installation and assembly period, but also accelerated the production ramp-up to nominal capacity.

The described slab caster is the only ultra-thick slab caster in Korea. This start-up follows the commissioning of the 400 mm ultra-thick slab caster in June 2010 at Qinhuangdao Shouqin Metal Material Co., Ltd. in Qinhuangdao City, Hebei Province, China.

Further information about solutions for steel works, rolling mills and processing lines can be found at [http://www.siemens.com/metals](http://www.siemens.com/metals)

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