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Primetals Technologies to supply second EAF Quantum electric arc furnace and expand recently ordered slab caster capacity for Tosyali in Turkey

- **Second EAF Quantum also is designed to produce two million metric tons of liquid steel per year and may be operated with a mixture of scrap of varying composition and HBI**
- **Low electrical energy consumption per metric ton, low operating costs and CO₂ emissions**
- **Two-strand continuous slab caster will be expanded to a capacity of 3.4 million metric tons of slabs per year**
- **Total liquid steel capacity of nearly 4 million metric tons with two EAF Quantum furnaces**

Turkish steel producer Tosyali Demir Celik Sanayi A.S. has placed an additional order with Primetals Technologies to supply an additional, second EAF Quantum electric arc furnace with a capacity of two million metric tons of liquid steel per year, and to expand the production capacity of a recently ordered two-strand slab caster to 3.4 million metric tons per year. The new order follows an order placed in 2020, which encompassed a first EAF quantum electric arc furnace, a twin vacuum-degassing plant with oxygen blowing, and the original version of a two-strand slab caster. All plants will be erected at a flat steel greenfield project in of Tosyali in Iskenderun, Turkey. Commissioning is expected for late 2022.

Tosyali Demir Celik A.S. is part of the Tosyali Group, which already operates another steel plant named TOSCELIK in Osmaniye, Turkey as well as a DRI direct hot-charge melting plant in Algeria named Tosyali Iron Steel Industry Algerie. The company also runs a number of rolling mills and is well established in the markets for flat products and welded pipes. In order to increase their capacity of semi-finished products like slabs for the existing downstream facilities, Tosyali Holding decided to set up a new greenfield facility in Iskenderun, Hatay Province.

The new EAF Quantum – as well as the one ordered in 2020 – are designed to handle metallic scrap and virgin materials such as HBI, pig iron in different composition and quality. The electrical energy

requirement of the electric arc furnace is extremely low, mainly thanks to the scrap preheating system, but also due to many other features of EAF Quantum technology, such as FAST Tapping system, continuous foaming slag and continuous submerged electric arc (Flat bath operation). This reduces both the operating costs and the CO₂ emissions. The EAF Quantum is a highly productive furnace that will reach lowest of possible power off times. The twin vacuum-degassing plant provides further treatment and steel quality to the production portfolio of Tosyali Demir Celik. With oxygen blowing possibility Tosyali Demir Celik steel plant will be ready to produce steel grades starting from ULC grades up to high carbon grades, peritectic grades, API grades, dual phase grades and also high strength low alloyed steel grades. The two-strand continuous slab caster will provide a capacity of 3.4 million tons of slabs per year and is able to process a wide range of steel grades.

The EAF Quantum developed by Primetals Technologies combines proven elements of shaft furnace technology with an innovative scrap charging process, an efficient preheating system, a new tilting concept for the lower shell, and an optimized tapping system. This all adds up to very short melting cycles. The electricity consumption is considerably lower than that of a conventional electric arc furnace. Together with the lower consumption of electrodes and oxygen, this gives an overall advantage in the specific conversion cost of around 20 percent. In comparison to conventional electric arc furnaces, total CO₂ emissions can also be reduced by up to 30 percent per metric ton of crude steel. An integrated dedusting system with modern automatic off gas control fulfills all environmental requirements.

The slab caster has a machine radius of ten meters. The caster produces slabs with a thickness of 225 millimeters in widths ranging from 900 to 1,800 millimeters. The production capacity increase from two to 3.4 million metric tons per year will be achieved by adding additional segments. The maximum casting speed is 2.6 meters per minute. The plant casts ultra-low carbon to high carbon steels, peritectic, and HSLA steels, as well as API grades. The straight cassette-type Smart Mold is equipped with the Mold Expert breakout detection system, DynaWidth for automatic width adjustment, and the DynaFlex mold oscillator. LevCon automatic mold-level-control system with "autostart" casting functions and auto-adaptive dynamic bulging compensation and the Mold Expert on-line automatic breakout pre-detection will also be implemented. Bender and Smart Segments as well as I-Star rollers are used in the strand-guiding system.

The Dynacs 3D secondary cooling system dynamically calculates and controls the temperature profile along the entire strand. DynaGap Soft Reduction 3D is used to improve the interior quality of the slabs. The roll gap is dynamically adjusted during the final solidification in accordance with the operating points calculated by Dynacs. This minimizes segregation in the center of the strand.



Most modern shaft furnace technology with EAF Quantum by Primetals Technologies

This press release and a press photo are available at www.primetals.com/press/

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