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Primetals Technologies supplies new Arvedi ESP line to steel producer in Chinese Hebei Province

- **Casting-rolling plant produces high-quality, ultra-thin strip to enter new market segments**
- **Rolling of reproducible strip thicknesses down to 0.7 mm**
- **Energy consumption and related costs are reduced by up to 45% compared to conventional casting and rolling processes**

A Chinese steel producer located in Hebei Province has placed an order with Primetals Technologies for the supply of an Arvedi ESP (Endless Strip Production) line. The casting-rolling facility will be part of a new steelmaking facility with one BOF currently under construction. The Arvedi ESP line is capable of rolling strip to a reproducible strip thicknesses down to 0.7 mm. This will enable the company to produce high-quality, ultra-thin strip to enter new market segments. Compared to conventional casting and rolling processes, energy consumption and the related costs are reduced by up to 45%. This also results in a major reduction in CO₂ and NO_x emissions, minimizing environmental impact. The plant is scheduled to go into operation in 2021.

The Chinese steel producer located in Hebei Province is a comprehensive group company integrating steel rolling, natural gas comprehensive development and utilization, real estate development, social talent training and modern logistics. It operates integrated steelmaking plants in two provinces and cities in China, and can produce more than six million metric tons of steel each year. The Arvedi ESP plant will allow the steel producer to better serve the highly attractive local and export markets for high-quality, thin-gauge strip products. The 180-meter-long plant is far more compact than conventional casting and rolling mills. The new plant is designed for the production of high-quality, ultra-thin, hot-rolled strip products with widths of up to 1,600 mm and thicknesses down to 0.7 mm. Carbon steels, high-strength low alloyed (HSLA) grades and dual-phase steels will be produced.

Primetals Technologies is responsible for the engineering of the Arvedi ESP plant and will supply mechanical equipment, media-control systems, technological packages and automation systems. The

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entire line is controlled by a completely integrated basic (Level 1) and process optimization (Level 2) automation, which fully controls all casting and rolling operations.

In the Arvedi ESP process, hot-rolled coils are produced in a linked casting and rolling plant directly from liquid steel in a continuous and uninterrupted manufacturing process. The line commences with the casting of a thin strand that is subsequently rolled to an intermediate thickness of 10 to 20 mm in a 3-stand high-reduction mill positioned at the end of the caster. After reheating in an induction heater, rolling of the transfer bar to the targeted end thickness is performed in a 5-stand finishing mill followed by laminar strip cooling. Strip cutting is then carried out by means of a high-speed shear immediately prior to coiling to coil weights of up to 32 metric tons. The full range of steel grades can be flexibly produced on Arvedi ESP plants.

As a result of the endless strip-production mode of Arvedi ESP lines, repeated threading into the individual rolling stands is not necessary. This is the basis for the production of ultra-thin strip gauges down to 0.7 mm thicknesses. The tolerance values for the required strip geometry are fully met along the entire length of the rolled product. Endless production is also decisive for assuring the homogeneity of the steel microstructure, grain size, yield strength and tensile strength. Because the strip is continually under tension, the cobble rate is below 0.1%, even when producing more than 50% below 1.2 mm thickness.



Arvedi ESP plant in operation

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Primetals Technologies, Limited headquartered in London, United Kingdom is a worldwide leading engineering, plant-building and lifecycle services partner for the metals industry. The company offers a complete technology, product and service portfolio that includes integrated electrics, automation, digitalization and environmental solutions. This covers every step of the iron and steel production chain, extending from the raw materials to the finished product – in addition to the latest rolling solutions for the nonferrous metals sector. Primetals Technologies is a joint venture of Mitsubishi Heavy Industries (MHI) and Siemens. Mitsubishi-Hitachi Metals Machinery (MHMM) - an MHI consolidated group company with equity participation by Hitachi, Ltd. and the IHI Corporation - holds a 51% stake and Siemens a 49% stake in the joint venture. The company employs around 7,000 employees worldwide. Further information is available on the Internet at www.primetals.com.