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Primetals Technologies receives final acceptance for ERT-EBROS billet welding system at Ferriera Valsabbia

- **Welded billets permit endless rolling with high product quality**
- **Considerable boost in plant output and utilization levels**
- **First use of ERT-EBROS in Italy**

In late December 2020, Italian steel producer Ferriera Valsabbia S.p.A. issued the Final Acceptance Certificate (FAC) to Primetals Technologies for the supply ERT-EBROS of endless rolling technology for the company's existing bar rolling mill in Odolo, Brescia province. The aim was to boost plant output and utilization levels. The system welds together billets intended for rolling, thus enabling a continuous rolling process with a consistently high product quality. The new ERT-EBROS plant is the first system of its kind installed in Italy.

Primetals Technologies was responsible for the project engineering as well as for assembly and commissioning supervision of the new equipment, and supplied the ERT-EBROS billet welding system, including a deburring station, extraction system and complementary equipment such as pinch roll, shear and roller table. The ERT-EBROS system is designed for an annual production capacity of 900,000 metric tons. The scope of supply also included the fluid systems, the electrical equipment and automation system and also technology packages for controlling the welding. An induction furnace was installed before the rolling train to make up for temperature losses.

Some innovative solutions were implemented by Primetals Technologies, so to comply with Ferriera Valsabbia's requirements about both metallurgy and mechanical features along the entire length of the bar. A specifically-engineered interactive software suite analyzes the operation results and produces an array of statistics about system productivity, number of joints and duration of welding sequences. In order to minimize the impact of travel limitations during the early phases of COVID-19 pandemic, remote commissioning activities made use of a dedicated Virtual Private Network (VPN).

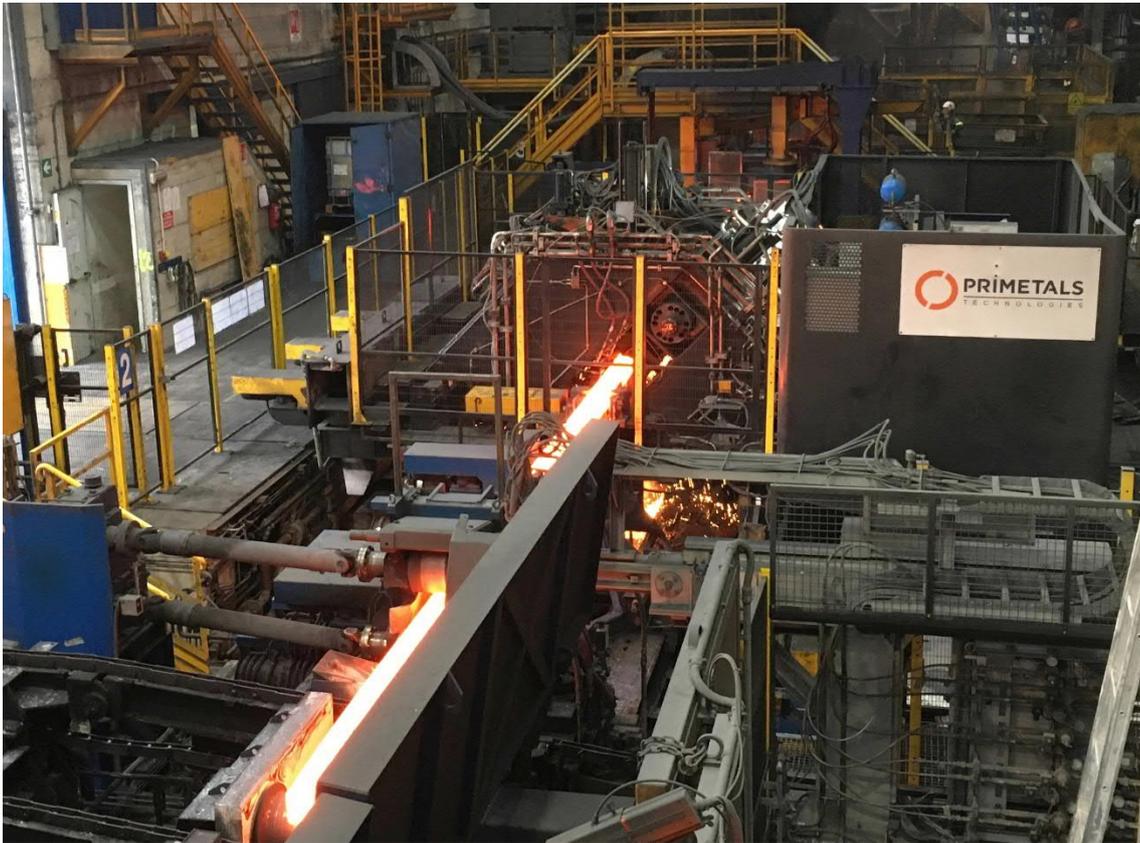
Established in 1954, Ferriera Valsabbia operates an EAF-based minimill with a production capacity of some 900,000 metric tons per year of billets and bars for concrete reinforcement (rebars). It is one of the largest privately owned rebar producers in Italy. The bar rolling mill was realized by Primetals Technologies in 2007/2008. This included the installation of a hot-charging system for billets as well as a system for single-bar high-speed delivery that allows rolling speeds of up to 29 meters per second. The mill is designed to process low-carbon steel billets with a square cross-section of 150 x 150 (160 x 160 in the future) millimeters and length of 9 meters. This results in rebars with diameters of between 8 and 40 millimeters. In two-slit rolling mode, the bar diameters from 8 to 20 millimeters can be realized.

The ERT-EBROS system welds consecutive billets together so that, once joined in this way, they can be processed in an endless rolling process. This removes the need for cropping the head and tail ends of the bar, which reduces the loss of material. Moreover, the output increases as the idle time between two consecutive billets is eliminated. Utilization of cooling bed capacity is optimized and, when required, production of non-standard bundles is also possible. ERT-EBROS is installed between the reheating furnace and the first roll stand and uses a flash welding process with fast and intensive heating. This results in solid-state joining of the billets without the need for additional filler metal. A dynamic flash control system helps to control all the process parameters in real time and thus ensures high joint quality as well as reduced energy consumption and material loss. Active spatter protection protects the mechanical and electrical equipment from steel spatters. This is crucial for process quality, extends components' useful lives and facilitates maintenance.

After welding and head upsetting, joints are deburred on a self-cleaning deburring station. The deburring machine operates independently of the welding unit and so the cycle time is not increased. The core of the electrical system is the integrated high-frequency transformers. These compact components are extremely reliable and can perform an indefinite number of welding operations without maintenance. Each transformer is equipped with diodes that convert the high-frequency square-wave voltage into a stable, extremely flat DC voltage. The square-wave voltage is generated by converters with which the current can be controlled ten times faster than with thyristor circuits. A stable voltage and short control times are essential for a stable and repeatable process flow.

EBROS is a registered trademark of Steel Plantech Co.

ERT-EBROS is a registered trademark of Primetals Technologies in some countries



The ERT-EBROS billet welding system from Primetals Technologies installed at Ferriera Valsabbia S.p.A. in Odolo, Italy.

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

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