

THE ELECTRIC ARC FURNACE OF TENARIS DALMINE: FROM THE APPLICATION OF THE NEW TECHNOLOGIES OF DIGITAL ELECTRODE REGULATION AND MULTIPOINT INJECTION TO THE DYNAMIC CONTROL OF THE PROCESS

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ABSTRACT

The EAF of Tenaris Dalmine, located in the area of Bergamo in the North of Italy, is a 20 ft furnace with a tapping capacity of 105 short tons of liquid steel. Downstream of the EAF, the Meltshop is equipped with two ladle furnaces, one vacuum degasser and two continuous casting machines for round-bars – from 5” to 15” diameter – for the production of seamless pipes, the main product of the Tenaris Group.

During the last five years, this EAF has been equipped with Tenova’s most innovative technologies for scrap melting and refining, specifically: Electrode Digital Regulation, multipoint oxygen and carbon injection systems, a complete and modern Level-2 automation system and recently the Goodfellow EFSOP[®] system. The automation system supervises the complete operation of the Meltshop, from the preparation of the scrap buckets right through to the production of the round bars.

This paper describes the integration of all of these technologies, their proper use for management of the electrical and chemical set-points to maximize their synergy and Tenova’s goals for dynamic control of the EAF process. The ultimate goal of this last mentioned step in EAF process development is the use of real-time analysis of furnace operation to achieve optimum EAF performance.

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