

# Start-Up Experience and Results of Consteel® at the SOVEL Meltshop

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The SOVEL steel plant, which is part of the SIDENOR group, began production in 2001. It is located at a seacoast area of Almyros next to the city of Volos in the middle of Greece. The initial installation followed

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**In 2006, SOVEL decided to convert to a Consteel® operation in order to increase production capacity and decrease electrical energy consumption. Installation experience and production results are presented in this paper.**

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the modern standards of the time, with the principle of attaining the maximum possible productivity of rebar steel under the tightest technical specifications. The steel plant, built by Danieli, consists of a meltshop and a rolling mill. The key meltshop production stations include a 100-tonne EAF with power supplied by a 100-MVA Tamini transformer, an LF station, and a 6-strand (five in operation) CCM, casting mostly billets of 140 x 140 mm<sup>2</sup>. Within a couple years, the annual production reached the level of 600,000 tonnes of good products, and it was decided to increase productivity. A major arc furnace revamping was carried out by increasing the shell dimensions in order to tap a maximum steel quantity of 130 tonnes.

Figure 1 depicts, in schematic form, the new EAF design, intended to contain the required tapped weight of 130 tonnes liquid steel. Table 1 presents the main features of the EAF equipment. Apart from the installation of a new 120-MVA Tamini transformer, a major upgrade of the scrap buckets and ladles was also designed and implemented.

The improvement in productivity followed not only the meltshop revamping, but also the personnel learning trends. When SOVEL founded the steel plant in the area, it was understood that converting local farmers into specialized industrial workers would take some time. However, due to the improved quality of life that the plant offered to the workers, the job satisfaction and inspiration, together with respect for the growing SIDENOR group, they effectively succeeded in their goals. It was a real case in which a company's success resulted directly from the success of a team of workers.

Within the next three years, in which continuous improvements were made, the annual production leveled off to values around 770,000 tonnes. These production results were attained during night and weekend operations (around 5,000 production hours per year), due mainly to domestic electric energy pricing. Then, a top-management decision was made that production should be increased even further.

The selection of the Consteel® process was not an overnight decision. From the primary meltshop installation, it was the Consteel process that was envisaged as the future key method of production. Even the tilting EAF platform was selected in such a way that the foreseen production method would fit, with minor changes. In addition to this, space in the scrap yard was the most necessary part for a successful implementation of the new system, and this was improvised by the team of the main technical office of the SIDENOR group, at the proper time.

## Consteel Installation

The installation of the new system took place in four stages in order to minimize as much as



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