

## On Time – within Budget – in expected Performance

### Comprehensive Ladle Furnace Installation at Mittal Steel Hunedoara, Romania

**Superior project management and long-lived operational know-how have guaranteed a top performing ladle furnace for Mittal Hunedoara and another successful revamping project for BSE.**

In February 2007 Mittal Steel Hunedoara S.A. and BSE signed a contract on a new Ladle Furnace Installation at the place of the old EAF No. 2 at the steelplant in Hunedoara / Romania. Besides the engineering and delivery of the key furnace components by BSE, the contract comprised also auxiliary systems like alloy feeding, dedusting and further media supply.

The new ladle furnace shall provide an average treatment capacity of 125 tons with a heating speed of 4°C per minute. The existing transformer of EAF No. 2 with a nominal capacity of 50 MVA will be reused after adequate adjustment to ladle furnace operation.

#### BSE SERVICES

BSE delivered the entire detail engineering in consideration of all local circumstances and with the aim to design a reliable and top performing furnace.

- **Civil works** – detail engineering of foundations, platforms and steel structures of the complete ladle furnace area
- **Gantry structure** – for enhanced electrode and roof lifting
- **Electrode arms** – supply of water-cooled current conducting arms including masts and guiding system for an electrode diameter of 400 mm
- **Ladle roof** – detail engineering of water cooled roof (tube-to-tube design) including off-gas elbow; supply of roof lifting arm and guiding system
- **High current system** – modification of the existing high current system to the new situation
- **Dedusting system** – installation of complete dedusting system including water-cooled drop out box, booster fan and outgoing ductwork to the existing system
- **Alloy system** – movable carriage with weighing system and feeding line to the furnace, equipped with a separate dedusting system
- **Electrical part** – new PLC system (level 1) with HMI-Visualisation for ladle furnace and alloy system
- **Hydraulic system** – supply of complete hydraulic system with main pumps, stainless steel tank, valve rack and accumulator station as well as hydraulic cylinders
- **TSM** – tailor-made manipulator for temperature and sample taking effectuated by two individual driving units
- **Core wire feeding machine** – supply of core wire feeding machine, designed with four strands and guiding system into the ladle roof
- **Ladle stirring system** – supply of ladle stirring system with valve station for controlled purging in the ladle and quick couplings
- **Central greasing system** – supply of automatically operated central greasing system
- **Ladle car** – Detail engineering of new ladle car equipped with weighing system and quick coupling for stirring system

#### TIME FRAME

Due to the efficient project execution and excellent project management in close cooperation with Mittal Hunedoara, the tight schedule of 11 months could be accomplished.

In December 2007 the entire BSE team was present at Hunedoara to make the final verifications and commissioning of the equipments – and to be active witness of the first heat.



#### RESULTS/SUCCESS

The first ladle with liquid steel arrived at the new ladle furnace on 17<sup>th</sup> of December. And, happily to announce, everything went well, the first ladle was elaborated in 1 hour, without incidents.

The aimed heating speed of 4°C/min (tap-to-tap time between 60 to 72 minutes) has been achieved explicitly.

The whole BSE team is proud of having contributed to this notable success story!

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