BSE Excellence Story

BADISCHE STAHL-ENGINEERING GMBH

Stunning performance figures as a result of excellent teamwork and truthful cooperation

Ladle Furnace (LF) project for Uzmetkombinat, Bekabad (Uzbekistan)

In early 2013, BSE in cooperation with ADREM (Romania) got the contract for engineering and supply of new equipment for a 115 tons ladle furnace at the customer's plant in Bekabad. The primary part of ADREM – acting as main contractor towards Uzmetkombinat – was the engineering and supply of a VD plant.

Project targets

These investments were executed under an extensive revamp and upgrade programme for Uzmetkombinat's steelmaking facilities with the objective to make higher qualities of steel as well as to increase output of good billets and blooms. Therefore, the old existing LF was replaced by a new one from BSE with state-of-the-art design and components applied, whereas the VD will be an entirely new and additional process step to be implemented.

Scope of supply

From the engineering side, BSE was responsible for the entire LF layout including its direct dedusting with a separate bag house and all required peripheral installations like alloy feeding system, wire feeding, carbon- and lime-lance. BSE also supplied the basic and detail engineering of all main components. Furthermore, the supervision of installation as well as the start-up of the LF was under BSE's responsibility. During the kick-off meeting at Bekabad in late March 2013 the major design details were agreed and the basic engineering could be finalised quickly thereafter. Upon Uzmetkombinat's receipt of approval, the detail engineering and manufacture were started, leaving a period of less than 6 months only for the ex-works BSE delivery of all hardware components as follows:

- Roof and electrode lifting columns with roller guides
- Current conducting electrode arms (made of aluminium)
- High current system
- Complete hydraulics including cylinders
- Temperature and sampling manipulator
- LF automation system including Level 2 interface
- LF PLC software and HMI application
- Bag house PLC software and HMI application

Results / Benefits

Due to unexpected delays in shipment, installation works started begin of 2014. After several weeks of working together with Uzmetkombinat's specialists, installation was finished and cold- as well as hot testing executed jointly. The final performance tests were executed during a 5 day period thereafter and completed on 4th of March 2014. The following performance data were achieved together with Uzmetkombinat operating personnel during the *final acceptance test*, with **all parameters meeting or even exceeding the values as stipulated with the contract**:

- *Heating rate: 4.41 °C / min*
- *Electrode consumption: 0.206 kg / tgb*
- *Energy consumption: 28.50 kWh / tgb*

During a meeting after some weeks of operational experience, Uzmetkombinat reconfirmed that all agreed criteria for performance and delivery are fully complied with by BSE and the LF is running very smoothly. The KPI's monitored permanently during *commercial operation* show an improvement tendency with values presently being:

- *Heating rate: 4.45 °C / min*
- *Electrode consumption: 0.110 kg / tgb*
- *Energy consumption: 28 kWh / tgb*

Uzmetkombinat is putting efforts for further improvement of operational results and widening of steel grades produced.

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An eye for detail at manufacturing

Accuracy at commissioning

Smooth start-up and performance

Uzmetkombinat and ADREM / BSE project team