EDITORIAL

Dear valued friends,

Once more, it was a pleasure to meeting many of you at the BSE Symposium this June. This event truly has established as one well-respect-ed and enjoyable gathering of the steelmaking community.

At the Symposium, we also presented our latest product – the new MultiROB. On page 2, you can learn more about the background of its development and the history of BSE solutions for temperature measurement and sample taking.

The articles on page 3 to 5 show the variety of our recent consulting and training projects: Among them know-how contracts in some of the five major emerging national economies, the BRICS countries (Brazil, Russia, India, China, South Africa), a logistic study in Singapore and the first open course on management for junior steel executives at the BSE Academy.

With the best wishes.

Yours,
J. Greinacher, T. Rummler

„BSE is not only excellent in steelmaking, you are also excellent in entertaining!“

Review 5th International Mini-Mill Symposium 2013

The headlining quote by a participant of the BSE Mini-Mill Symposium nicely reflects the concept and confirmed the success of this event that provided again an informative platform for experience exchange and networking together with an enjoyable and memorable social programme.

This June, BSE hosted the fifth issue of the International Mini-Mill Symposium in Schluchsee in the wonderful setting of the Black Forest in Germany. Around 170 participants from 36 different countries once more represented a high diversity of companies and steel processes.

At the conference, renowned experts from the steel industry presented a wide variety of strategies and operating experiences in the fields of scrap market, efficiency of EAF and rolling mill processes as well as human resources, safety, maintenance and environment.

Amazing evening events as well as a ladies sightseeing programme rounded off the Symposium to be a unique experience for all participants.

Subsequent to the official part of the Symposium, most of the participants seized the opportunity of a visit at BSW steel plant in Kehl and got an in-depth view of one of the world’s most productive mini-mills.

BSE would be pleased to welcome you also to the next issue of the Mini-Mill Symposium, taking place presumably in the year 2017.

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20 years of safe measuring and sample taking – the success story of TSM and new MultiROB

BSE celebrates the 20\textsuperscript{th} anniversary of the TempSamp Manipulator (TSM) and launch of the new MultiROB

\textbf{Until the early 90s, in most steel plants temperature measurement and sample taking had been done all manually by the workers, exposing those people to the heat and hazards in front of the furnace. Therefore, BSE and BSW mutually developed a manipulator fulfilling the function of the manual measurement and sample taking process to the steel bath. From then on, the workers’ remaining task has been the exchange of cartridges in fair distance to the furnace, having improved their working conditions and safety considerably.}

\textbf{Evolution of TSM}

\textit{First generation of TSM in the 90s}

Since 1993, BSE has been supplying almost 80 TSMs to steel plants all over the world.

Although the basic configuration – consisting of a rigid chassis with a guiding profile, transporting one or two carriage(s) equipped with a lance holder – has remained the same all over the years, each TSM has been designed and built individually to match the specific customer and equipment demands. Hence, BSE has installed TSMs at various EAF types and sizes, ranging from 32 tons to 180 tons, as well as at some ladle furnaces.

In 2001, BSE developed the LM.2, combining in one tool the functions of a TSM and the oxygen/carbon injection function of a BSE Lance Manipulator.

\textbf{Development of MultiROB}

BSE/BSW aimed to develop a new furnace tool that can fulfil multiple jobs and can be used at different places with minimum space requirements. Of course, the tool should also pursue the philosophy of all BSE products, featuring high reliability, availability and easy maintenance.

BSW/BSE, in cooperation with KUKA Robot Group, upgraded a standard industrial robot with special equipment and features to work within the tough steel plant conditions, e.g. heat protection of relevant parts, usage of heat and dust resistant cables. The new robot, named MultiROB, was successfully started up at BSW and has executed more than 100 temperature measurement/sample taking operations per day since. The MultiROB has effected a further increase in work safety and a higher flexibility due to a wider measuring area and multiple predefined measuring points.

\textbf{Current TSM projects}

Efficient and reliable tools are always in fashion – this applies also for the TSM. In 2013, BSE is providing a TSM to the following steel plants:

- Sinobras [Brazil]
- Saudi Basic Industries Co. – Hadeed plant (Kingdom of Saudi Arabia)
- Vallourec & Mannesmann Tubes (France)
- Jindal South West – Torangallu plant (India)
- Štore Steel (Slovenia)

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\textbf{Watch MultiROB movie}

Download
High demand for BSE consulting services in several BRICS countries

Know-how agreements with Scaw Metals (Republic of South Africa), Nanjing Iron & Steel Co. (P.R. China) and NLMK Kaluga (Russia)

Scaw Metals / South Africa

Scaw Metals manufactures grinding media, wire rod products, cast products, rolled products and is one of the largest producers of cast high chrome grinding media in the southern hemisphere. In its plant in Germiston, Scaw Metals operates one 70 tons AC EAF, producing approximately 400,000 tons of liquid steel each year, and one combined rolling mill.

In 1988, Scaw Metals experienced a know-how agreement with BSE, and now, 25 years later, Scaw Metals has decided again for a long-term cooperation with BSE in order to improve the overall performance of the meltshop and combined rolling mill, as more products could be sold into the market. One specific motivation of the cooperation is to improve the skill level and mindset of the workforce in order to reduce the high delay rate and inconsistency of the process.

The consulting agreement is scheduled to last until June 2016.

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Nanjing Iron & Steel Co. / China

Nanjing Iron & Steel Co. (NISCO) operates an integrated steel mill in Nanjing, Luhe district, with a total rolling mill capacity of about 7.0 million tons per year. Beside a wide variety of plates, NISCO’s final products are bearing steels, bars, blanks, wire rod and spring steel.

The purpose of the rolling mill consulting contract is to improve the product quality and steel grades, to make NISCO well prepared for passing the related product certification and to be qualified for supplying to automotive industry and other international high-tech companies. Furthermore, the cooperation shall contribute to standardise operational and maintenance processes and to improve motivation and discipline of the workforce.

After the contract signing in July 2013, the first major milestone will be the on-site investigation at NISCO in October 2013. The cooperation will continue with tailor-made seminars for management and staff at BSE/BSW in Germany as well as check-up visits at NISCO and general know-how assistance over a period of three years.

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NLMK Kaluga / Russia

NLMK aims to build up a modern, high productivity organisation for its new mini-mill in Kaluga region. The mini-mill will feature one production line for construction steel qualities consisting of an AC EAF (120 tons tapping weight), LF (double position), CCM and wire rod mill with a designed annual capacity of 1.5 million tons good billets.

BSE and NLMK agreed to mutually develop an appropriate organisational structure for the steel plant and rolling mill. The consulting project comprises a fact finding by BSE experts at Kaluga site and two management seminars at BSE/BSW, where the delegates of NLMK can experience the daily work of a highly productive, lean mini-mill organisation.

Apart from these valuable impressions and inspirations of the well-known Badische mini-mill philosophy, which will help to create a certain company culture from top management to the floor staff, the formal outcome of the cooperation will be detailed job descriptions, a qualification matrix and a head-count recommendation for the start-up phase and normal operation.

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Successful steelmaking starts at the scrap yard – with a proper scrap yard layout and management

Logistic study at NatSteel Recycling Pte Ltd. (Singapore) and success factors of BSW scrap yard management

Logistics is a never-ending story in general – and since raw material costs represent the largest single cost factor in mini-mill operations, in particular an efficient scrap handling and appropriate layout of the scrap yard are major success factors. Based on the experience of the daily operation and continuous optimisation of its own scrap yard at BSW mini-mill in Germany, BSE/BSW have been assisting to develop solutions and layouts for scrap yards for many different plants all over the world.

Logistic study at NatSteel

NatSteel aimed to improve the logistic conditions and reduce handling costs at the scrap yard area at their plant in Singapore. Presently, NatSteel runs two outside scrap yards and one inside scrap bay. At the outside yards, the scrap is prepared, stored and transported to the inside bay, where the buckets are loaded for the 90 tons shaft furnace.

The logistic study with BSE should analyse and determine the best location and layout for one new combined scrap yard (replacing the existing facilities) for storage, preparation and bucket loading.

The study comprised an on-site investigation at NatSteel, a common workshop at BSE, a material flow simulation and a final report considering two alternative solutions for the future scrap yard layout.

The detailed descriptions of these options, together with a list of required equipment for the scrap yard and a rough calculation of investment and handling costs, provided NatSteel with a solid base for current and future decision making in the field of scrap yard logistics.

BSW scrap yard management success factors

BSW scrap yard management has always been an integral part of the Badische philosophy, featuring highest productivity, availability, process standardisation and the importance of the „human factor“:

- Optimal transport and logistic management, e.g. avoidance of double handling (90% direct loading from waggon to bucket, 65% direct loading from barge to bucket) or cycle time of about 25 minutes from scrap bucket loading to charging into the furnace.
- Active scrap stock policy, e.g. combination of internal operative scrap yard (capacity for one week of production) and external spare scrap yard ensures scrap availability 24/7.
- Elaborated maintenance strategy, e.g. high rate of in-sourced maintenance enables a fast problem solving. Furthermore, a mixture between condition-based and purely preventive maintenance strategy leads to low crane downtimes.
- Stringent scrap quality philosophy, e.g. strict scrap control increases efficiency and security.
- Adherence to well-designed and standardised scrap programme, e.g. standardised recipes for bucket loading according to steel quality produced.
- Activating working atmosphere, e.g. air-conditioned crane cabins.
- Well educated and trained employees, e.g. all of BSW’s scrap crane drivers are also trained as scrap inspectors, so they understand the work and are able to support the scrap yard people on the ground.
Providing today’s know-how and expertise to future steel industry executives

Management training for high potentials at BSE Academy

History of BSE training and seminars

For almost three decades, BSE has been conducting successfully management and technical seminars at BSW for single steel companies in the course of long-term consulting contracts, thus BSE has been training whole generations of steelmakers.

In 2010, BSE extended its product portfolio by foundation of the BSE Academy, offering management and technical seminars also to individuals from different steel companies. In the meantime, around 20 of such open courses on maintenance, operational and environmental issues already took place at BSE Academy.

First BSE Academy open course on management

From 25th to 29th of November 2013, BSE Academy is going to conduct the first open course featuring management training for junior steel executives.

The course with the title “Management Training for High Potentials” will prepare the participants for future or recently acquired leadership positions in the steel industry. This means training, in theory and practice, dedicated to management and leadership topics combined with technical lectures related to the steel industry. Practical examples from BSW and other successful steel companies, problem based learning through case studies and group discussions will ensure highest possible knowledge transfer. Furthermore, the management training for high potentials is an ideal platform for networking and experience exchange with participants from other steel plants and regions.

Course programme

The lectures are given by BSE and BSW managers. What these experts teach does not come from the drafting board, but from decades of improvement on a daily basis at BSW plus in-depth knowledge of the steel industry. The know-how transfer is done in an open atmosphere, in which no question is left unanswered and no secret hidden, guaranteeing a maximum learning effect for the participants.

The following overview of the course contents shows a sound mixture of classroom training and direct observation/examination at BSW steel plant:

- **Introduction of BSW**
  Management philosophy; how to run a highly productive steel plant

- **Leadership development**
  Different modules including leadership styles, communication, structured problem solving, team building

- **Business management**
  Financial solvency, financial success, profit potential, corporate social responsibility

- **Operations management**
  Key factors to run a highly productive plant, KPIs and best practice in steelmaking

- **HR management and training**
  Personnel development, BSW ongoing training concept

- **Steel markets**
  Raw material markets and finished product markets, global steelmaking capacities

- **Observation / examination at BSW**
  Plant visit at BSW and discussions with respective line managers

Register online at www.bse-academy.de

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