Get the most out of your steelmaking facility:

Engineering & Projects

BADISCHE STAHL-ENGINEERING GMBH
From Steelmaker to Steelmaker
Engineering and projects for plant optimisation:

Trust in decades of engineering experience!

When steelmakers start to realise that they could get more performance out of their facility, there are many good reasons why BSE is the first to be asked. An integrated engineering approach, backed by the operational experience of BSW – one of the world’s most efficient mini-mills – helps us to always see the complete picture and so to come up with solutions that by far exceed the customer’s expectations. No matter if you are thinking about revamping parts of your production line or an entirely new facility – BSE’s long standing experience in green as well as brownfield projects will make things happen for you!

Our project approach fulfils your expectations:

In **Budget.**
In **Schedule.**
In **Expected results.**

**Basic principles.**
- Dedicated steelmaking-process-oriented approach, based on the operational experience of our own BSW steel plant, one of the world’s most efficient mini-mills.
- Close partnership with the customer for incorporating their invaluable know-how and setting of goals for mutual success.
- Implementation of state-of-the-art technology under close consideration of all neighbouring equipment.
- Design and solutions selected under strict consideration of the “easy to maintain and operate” aspect.
- Optimum utilisation of already existing equipment.
- Calculation of expected performance values, benefits and payback estimations.

**Project concept.**
- Detailed investigation of current situation on site, customer needs and process requirements.
- Elaboration of individual and tailor-made solutions.
- Project execution and management in close cooperation with the customer.
- Applying the “KISS” (Keep it simple and stupid) principle for maximum operational reliability.
- Startup and commissioning with personnel with operational background from our own production facilities.

**Your key advantages.**
- Increase of efficiency and productivity.
- High availability at lowest possible operation and maintenance cost.
- Optimum capital planning and employment by:
  - Meeting the warranted contract price and estimated customer budget
  - Meeting the delivery time and required downtime for installation
  - Meeting the calculated and expected performance figures and economical results

BSE provides solutions that even exceed the customer’s expectations...
**Electric Arc Furnace**

**Components.**
- Gantry with columns, guiding rolls and electrode lifting mechanism.
- Rocker frame with foundation design.
- Hydraulic system.
- Entire shell, roof, elbow and other water-cooled EAF parts.
- Electrical and automation systems.
- Current conducting electrode arms.
- Chemical energy tools for injection of oxygen and solid material from sidewall, EBT and slag door.
- Measurement and control devices.

**Advantages.**
- Rigid construction and design for high productivity and performance.
- Design, layout and movements for optimum efficiency of energy and consumables with conventional technology.
- Components and features designed from steelmakers for steelmakers – making operation easy, safe and efficient (e.g. user-friendly HMI).
- Engineered for defined input materials and/or mixtures, yet providing flexibility for future capacity increase.

**Secondary Metallurgy**

**Components.**
- Ladle furnace
  - Gantry, mast and guiding systems.
  - Electrode arms (current conducting or conventional).
  - Platform structure and roof lift.
  - Roof, elbow and other water-cooled LF parts.
- Ladle car.
- Electrical and automation system.
- Alloy and wire feeding system.
- Temperature and Sampling Manipulator.
- Foundation engineering.

**Advantages.**
- Optimum heating rate.
- Minimum space requirements.
- Optimum integration into process and material flow between primary melting unit and consecutive casting process.
- Optimum product quality.
Fume Extraction System
Optimal for our environment and your efficiency

Principles.
- Analysis and supply of key components for complete offgas systems to improve productivity and cost efficiency – along with strict compliance with environmental legislations.
- Overall engineering supply under consideration and evaluation of process, maintenance, human and economic aspects.

Components.
- Analysing tools:
  - Conceptual Engineering
  - Computational Fluid Dynamics
  - Fluid Dynamic Modelling
- Implementation:
  - Efficient Dedusting Control
  - High Temperature Quenching (HTQ)
  - Optimisation of further key components, e.g. canopy hood, water-cooled ducts and filter technology.

Advantages.
- Improved dedusting efficiency in Am³/kWh.
- Reduction of specific dedusting costs in Cost/Am³.
- Reduction of emissions at the stack and in the building.
- Control and visualisation of the entire dedusting system.
- Reduced investment cost by preservation, reuse and/or upgrade of existing installation parts.
- Minimum required downtime by possibility of installation during production time.

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Automation & Control System
Power is nothing without control

Advantages.
- Providing solutions and upgrades for automation and control systems:
  - Electrode regulation, switch gear, MCC
  - Level 1 up to level 2
- Highest flexibility due to independence from PLC system and HMI system/supplier.

Electrical Engineering
Specification and optimisation of the electric power supply

Advantages.
- Elaborate calculation of high current flow for exact dimensioning of components and optimum power input of the system.
- Electrode regulator ELARC for high efficiency and performance consistency with simple handling and lean reporting.
- Power input calculation and measurement
- Power profile optimisation.

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We are Steelmakers!

Since 1983, the Badische Stahl-Engineering GmbH (BSE) has been acting as a service provider for increasing the efficiency and productivity in the electric steel industry worldwide.

BSE is a sister company of the Badische Stahlwerke GmbH (BSW), one of the world’s most efficient Electric Arc Furnace steel plants.

This unique partnership between BSW and BSE ensures that all products and services provided by BSE are not just based on mere theory, but on more than 5 decades of own proven operational experience.

BSW and BSE – a unique partnership that will help you to reach even ambitious goals.