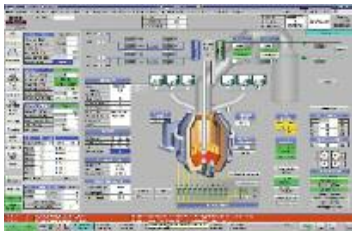
SMS group

X-Pact®

BOF PROCESS MODEL

Electrics and Automation

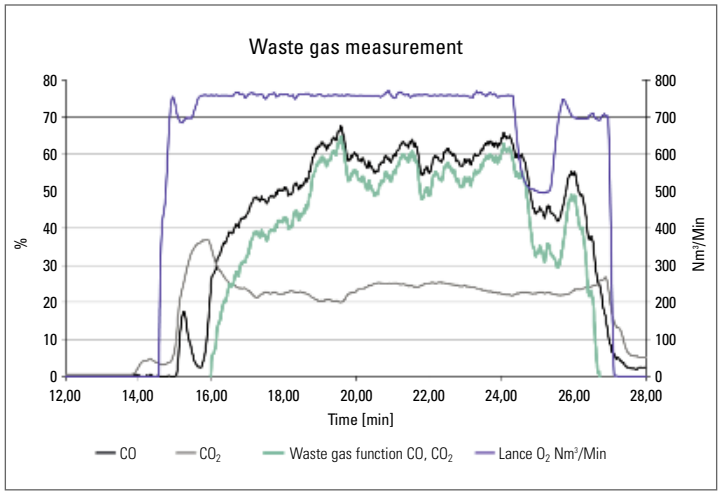


BOF PROCESS MODEL

Stable and optimised process

YOUR REQUIREMENTS

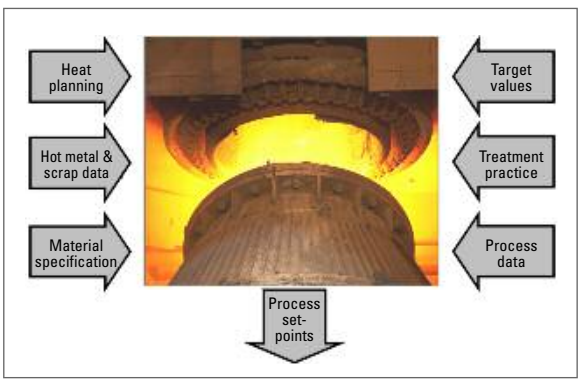
The complex interactions of operations in a basic oxygen furnace require metallurgical-mathematical models for optimal control. The decisive question here is: which charge materials, quantities and blowing profiles will, under consideration of the plant design, achieve the desired objective reliably and within the shortest tap-to-tap time?



OUR SOLUTION

The SMS Siemag-developed oxygen blowing furnace process model can be adjusted to cope with specific requirements and ambient conditions. The core of the BOF model consists of mass, energy and oxygen balances. It calculates the optimal composition of charge materials such as hot metal, scrap, ore and slag formers as well as process gases such as oxygen, nitrogen and argon.

The BOF process model reliably forecasts the critical point as the start of the decreasing decarburisation speed and the end of the decarburisation process. The result: high productivity and efficient process control with reproducible results.



TECHNOLOGICAL HIGHLIGHTS

The operator can plan and prepare the processes using the ergonomically designed HMI. He is reliably guided through all process steps, also in special situations such as a high silicon or phosphorous content. The central functions that are available to him are: material calculation, treatment calculation, dephosphorisation model, automatic sublance measurement and off-gas analysis monitoring, static process control and dynamic process control.

The process model adjusts the calculated actual condition of the melt and, depending on the situation, corrects the blowing profile or initiates the addition of materials. After tapping, the model makes it possible to forecast the times at which the steel and slag composition is achieved, thus supplying precise input variables for the downstream units.

All process data are documented for quality control and search. The records can be retrieved by a web-based management system for performance analysis. An offline model may additionally be used to simulate and optimise processes.

YOUR BENEFITS AT A GLANCE

- High process stability, robust even at non-optimal starting conditions
- High flexibility in terms of the varying input variables
- Reproducible results for reliable operation
- Optimised process sequence with time and material savings
- Above-average achievement of target carbon content and tapping temperature
- Significantly reduced re-blowing rate
- Cost reduction, for example through minimised refractory wear
- Cost-optimised calculation of material additions

SMS SIEMAG AG
Electrical and Automation Systems Division

Wiesenstrasse 30
57271 Hilchenbach, Germany

Phone: +49 2733 29-5895
Telefax: +49 2733 29-775895

Ivo-Beucker-Strasse 43
40237 Düsseldorf, Germany

Phone: +49 211 881-5895
Telefax: +49 211 881-775895

E-mail: Automation@sms-siemag.com
Internet: www.sms-siemag.com

MEETING your **EXPECTATIONS**

A/325E
1000/08/12 · Ky · Printed in Germany

"The information provided in this brochure contains a general description of the performance characteristics of the products concerned. The actual products may not always have these characteristics as described and, in particular, these may change as a result of further developments of the products. The provision of this information is not intended to have and will not have legal effect. An obligation to deliver products having particular characteristics shall only exist if expressly agreed in the terms of the contract."