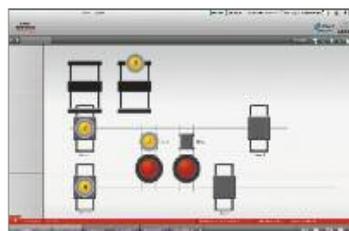


LADLE MANAGEMENT

Electrics and Automation



LADLE MANAGEMENT

Unique for safety and productivity

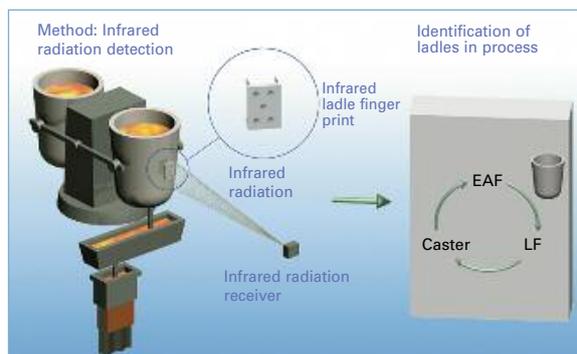
YOUR REQUIREMENTS

With which weight and at which temperature is a ladle or heat at which status in the process? Will operation remain stable if the number of ladles is reduced? What is the actual condition of the refractory lining? What is the amount of thermal loss caused by the reduced lining and how much energy is needed to make up for this? Could an optimised logistics with reduced waiting times further reduce the tapping temperatures and thereby the cost of energy?

Till to day, no fully integrated automation solution exists to answer these questions. Rather, ladles have in the past been managed by operator expertise, which is highly susceptible to human errors.

OUR SOLUTION

The fully integrated ladle management system from SMS Siemag with its unique functionalities is based on patented technologies. It yields substantial cost savings, guards against ladle breakouts and at the same time boosts productivity in the steel meltshop.



Ladle identification system.

TECHNOLOGICAL HIGHLIGHTS

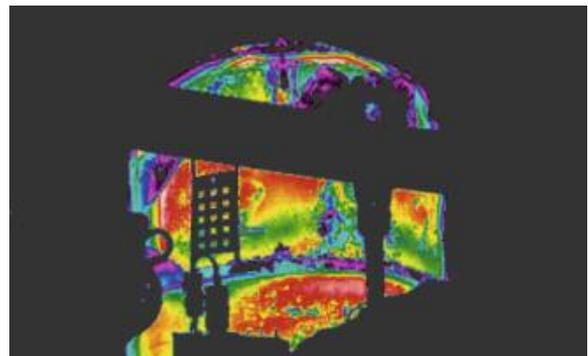
The ladle management system consists of four modules: logistics, simulation, lining management and scenario planning. All measured values, process sequences and simulations are visualised on a modern, intuitively operated user interface.

Depending on the individual requirement, tailor-made systems may be used for the acquisition of data. These include, among other things the patented ladle detection via IR camera, the detection of the ladle number by a camera or RFID (radio-frequency identification), temperature monitoring by pyrometers or camera, as well as the refractory profile measurement by LaCam (laser profile measurement system).

THE MODULES

The logistics module determines the ladle positions or alternate routes in case of bottlenecks and it monitors the transport times. This system thus provides maximum transparency in the steel meltshop.

The simulation calculates required steel temperature considering the degree of lining wear and the time when the ladle is required at the next position.



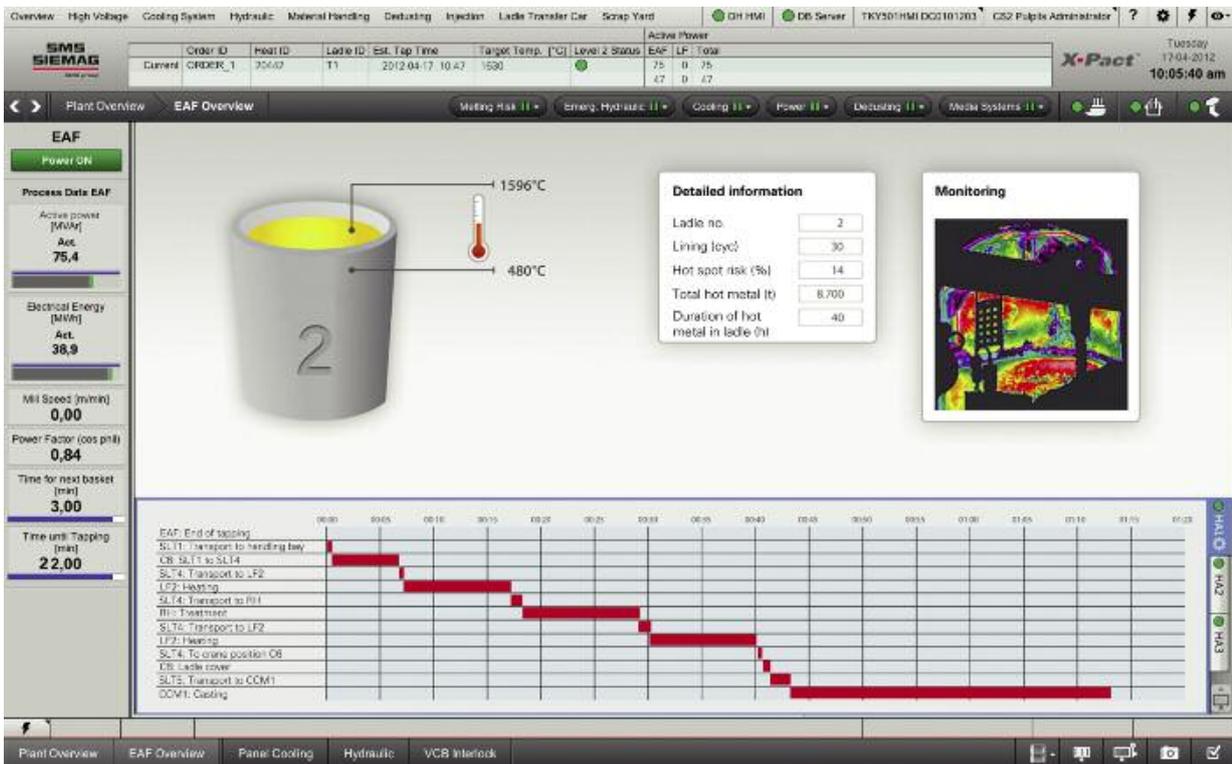
With these concrete forecasts, processes can be designed more reliably.

The lining management system calculates the amount of lining wear, thus allowing the operating time of the ladles to be optimally used. In addition, the refractory management feature allows the management of steel grade-specific refractory lining materials.

Scenario planning serves primarily to predict the requirement of the ladles in case of production changes in the meltshop at an early stage, in order to improve efficiency. Based on this, the relining times and the number of ladles needed in case of changed process conditions are reliably forecast.

YOUR BENEFITS AT A GLANCE

- Integrated and automated ladle management
- Prevention of ladle breakouts
- Precise detection of lining condition and extended period of use of the ladles
- Optimisation of tapping temperature, energy cost and ladles needed through optimised logistics
- Automatic registration of ladles for the next work step
- Instructions for ladle maintenance



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MEETING your **EXPECTATIONS**