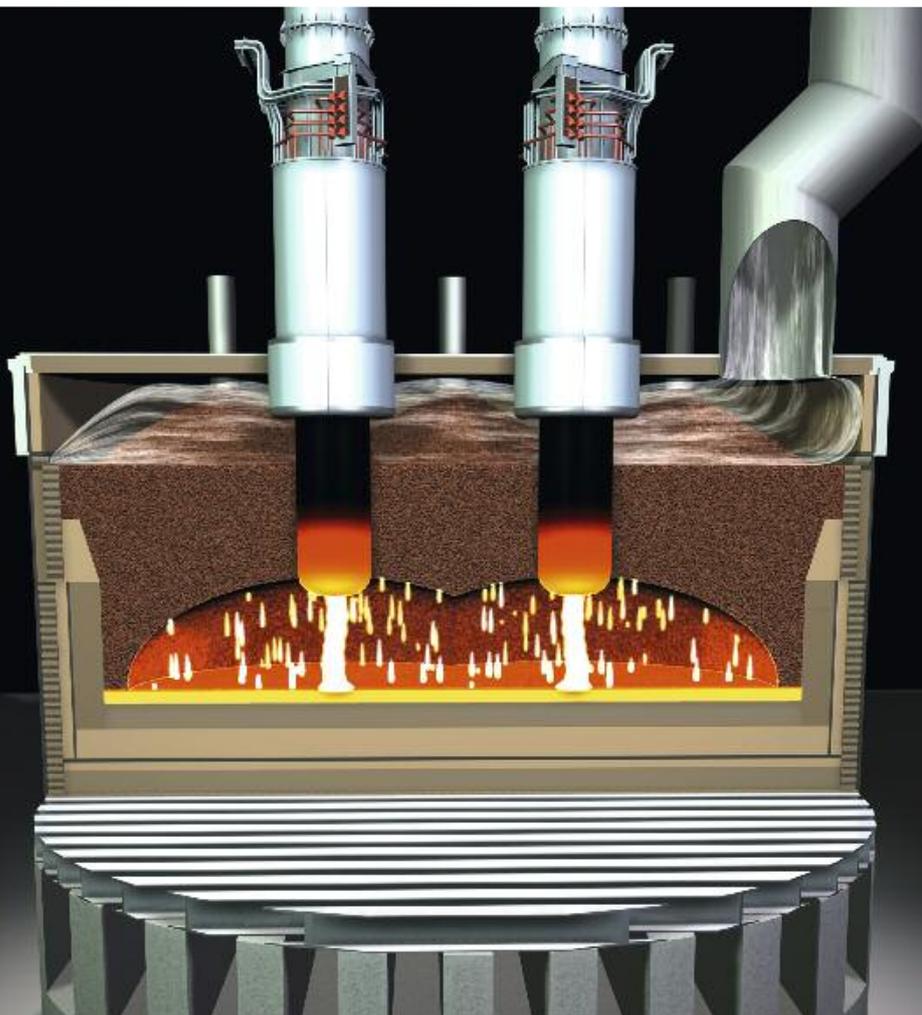


# SAF-HD-MONITORING

Electrics and Automation



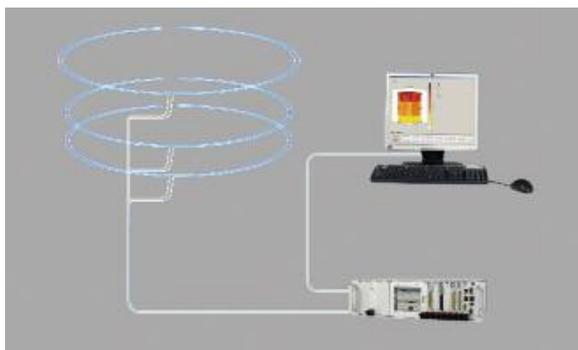
# SAF-HD-MONITORING

High definition view  
of the inside of the furnace



## YOUR REQUIREMENTS

In what condition is the SAF refractory lining? Is there a risk of hot spots? Are the process sequences optimal or do they need to be corrected? These are the main questions asked by the furnace owners. As closed furnaces do not allow inspections of the refractory lining when they are in operation, intelligent measuring technologies and models must provide the opportunity to gain an inside view.



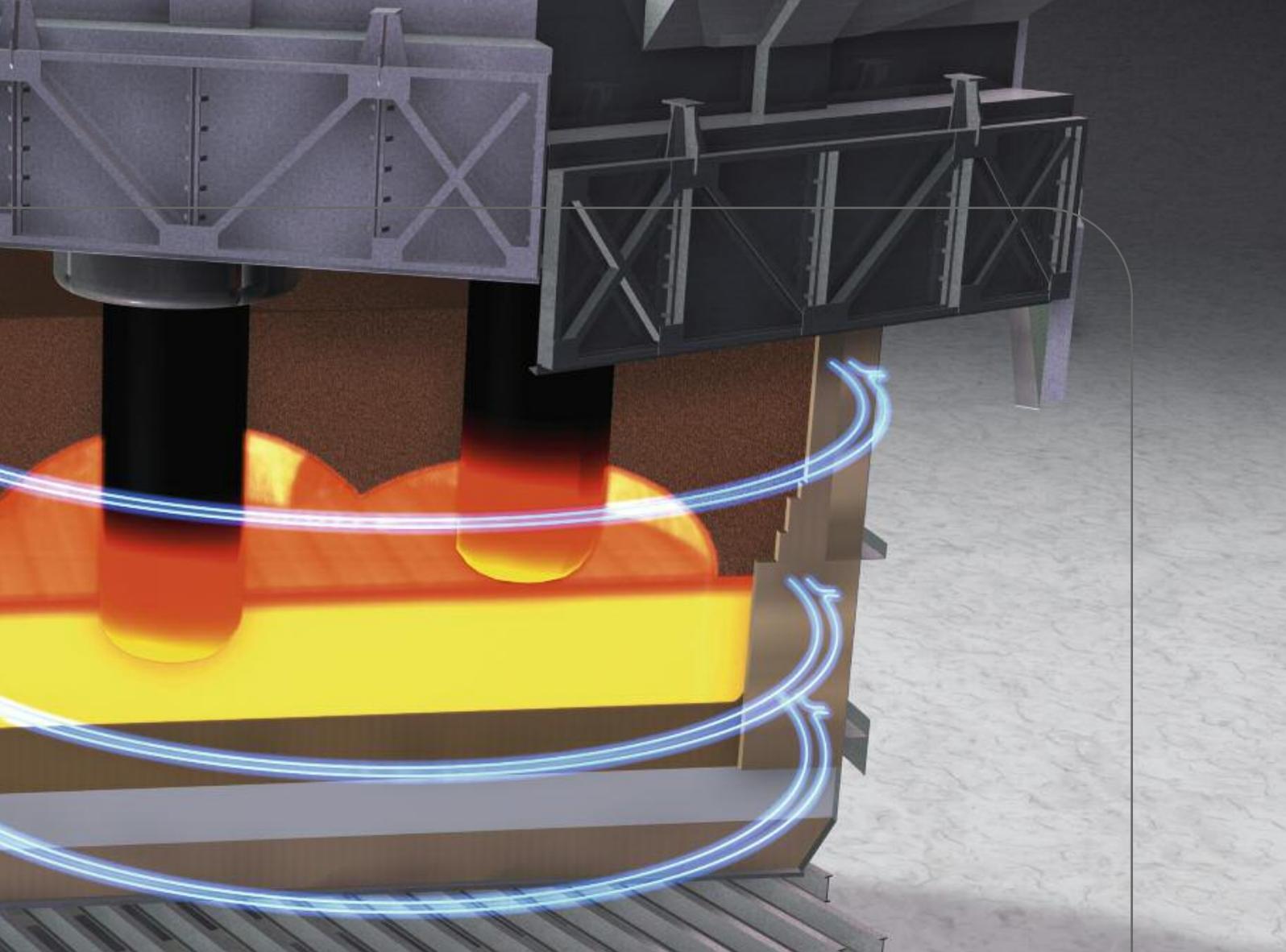
Temperature measurement with fiber optics.

## OUR SOLUTION

SMS Siemag has developed a high-definition refractory lining monitoring system for submerged arc furnaces (SAF) reduction furnaces. It is appropriate, for example, for ferronickel, ferrochrome and copper slag furnaces and especially for ferromanganese furnaces with a freeze lining.

The monitoring system works on the basis of temperature measurements and delivers reliable information on the refractory lining condition, under consideration of the respective type of lining and the material charge.

The HMI screen displays isothermal processes in high definition. It is possible, for instance, to determine fine structures such as the current thickness of the frozen slag layer of the freeze lining design. The evaluations are also used for optimization of the metallurgical processes.



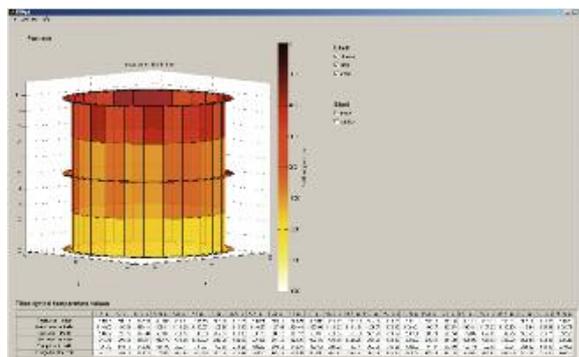
## TECHNOLOGICAL HIGHLIGHTS

The measurement data are sent online to the HD monitoring system from a temperature monitoring unit via modern fiber-optics technology. In contrast to traditional thermocouples, optical fibers allow the implementation of many more measuring points (approx. every 0.5 to 1.0 m per optical fiber around the furnace circumference).

Result: The high-definition heat flow measurements made through the lining cover the whole surface. Variations are localized earlier and with more precision. A further advantage: the optical fiber is integrated into the refractory lining and leaves it at only one point, whereas the use of thermocouples results in more maintenance and costs on the furnace.

## YOUR ADVANTAGES AT ONE GLANCE

- High-definition system with higher density of measuring points
- Better process monitoring
- Basis for longer service life of the refractory lining
- Efficient sensor technology based on fiber optics
- Little cabling work, almost maintenance-free



Temperature distribution.

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**MEETING** your **EXPECTATIONS**