LOMAS
PROCESS GAS ANALYZING SYSTEM

The modern operation of metallurgical melting plants and furnaces calls for high performance with regard to efficiency, safety and environmental protection. This requires a broad control, supervision and optimization of these plants and their processes. In most of the cases, the process conditions leave their fingerprint in the process offgas chemistry.

YOUR CHALLENGE

In order to improve your processes regarding efficiency, safety, quality and environmental protection, you first need to determine what is actually going on inside your converter or furnace. Process data can be efficiently collected through the analysis of the gases emitted in the course of the production process. In the case of BFs, BOFs, AODs, EAFs, VODs and RH plants, gas analysis must be done on very hot and sometimes extremely dust-laden measurement points.

Analyzing such process gases during the entre production processes – also during charging or tilting - is therefore often quite challenging and requires very special equipment.

OUR SOLUTION

The Lomas gas analysis system provides plants with the opportunity to save costs, increase production, ensure quality and efficiency and to protect the plant from dangerous process situations. All this is done with the advantage of flexible state-of-the-art analyzing sensors, patent-protected sampling devices and based on over 150 references worldwide - on all different plants mentioned above.

Lomas acts as an electronic eye for the chemical and physical process in the furnace. A typically redundant system continuously samples the process gas, which is then prepared and subsequently analyzed by means of adaptive, process-dependent analyzers. In the case of complex gas mixtures mass spectrometers can be used, in other cases infrared-, paramagnetic-, laser- or other technologies are implemented.

The layout and composition of the Lomas system is always plant-specific, so that a maximum of efficiency and benefit can be generated for the actual situation. This starts at the flexible analyzer technology and ends at the other side of the system, at the specific hoses, sampling probes and gas treatment equipment.
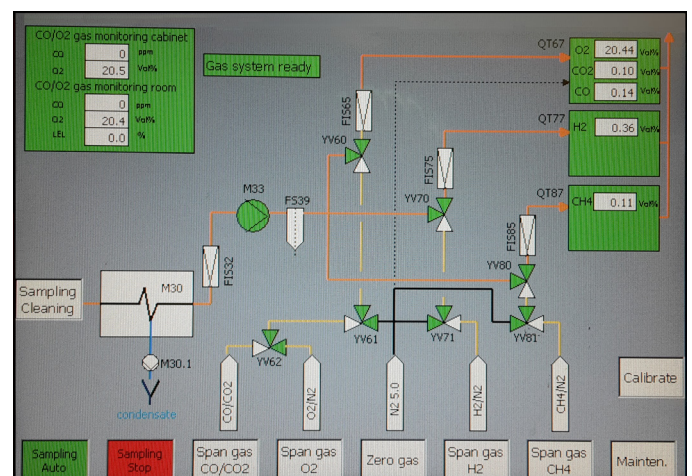
Human-Machine-Interface of a Lomas-EAF System

Implementation of Lomas data into BOF-Process Model

Lomas gas sampling on EAF

The process gas analysis can be transferred to a Primetals Metallurgical Process Model or can alternatively and simply be used individually.

This special and proven design of the Lomas ensures high operational safety, a long service life and high availability. It offers precision, a modular concept, robustness and is easy to operate. These advantages and its low-maintenance focus make it to a very powerful gas analyzing system especially suitable for harsh environments and demanding process conditions.

CHARACTERISTICS AND OPERATION

The patent-protected Lomas probes are designed as heated- and water cooled gas sampling probes made of Titanium alloyed corrosion resistant steel. For special processes, also Nickel-Super-Alloys and other materials can be considered. This makes the system especially suitable for the very demanding and fast-changing gas regions along the center line of offgas ducts.

In addition to this, several automatic and logic functions are embedded in the system. They assure an automatic self-cleaning, warn of dangerous situations, remind of maintenance or give forward-looking service information. But above all, the system also autonomously detects problems, react upon them and try to correct them (e.g. by automatic extra cleanings without disturbing the process, or by switching partially redundant system parts).

All in all, the Lomas System is a fully developed and very powerful gas analyzing system. It is specially designed for very demanding process gas analyzing tasks and was installed more then 150 times worldwide as of now.

MAIN BENEFITS

- Reduced process energy consumption, alloys, refractory material and media costs while increasing production efficiency and plant safety

- Fast detection of dangerous situations (e.g. increasing O_2 and H_2 values during the BOF-blowing process, or increasing H_2O in EAF process gas)

- High accuracy and short response time (T_{90}) in measurement and data evaluation

- Availability of more than 99% while focusing on low maintenance. Highest reliability and robustness for harsh industrial environment

- Amortization within less than 1 year. Built for long-tem use in extreme environments

FEATURES AND TECHNICAL DATA

Gas sampling

Maximum process gas temperature	1,800°C
Maximum dust load	2,000 gram/Nm³

Typical analysis components

Typical Gas Components	CO, O_2, H_2, CH_4, CO_2, etc.
Safety indicators	H_2O

Fields of application

Metallurgy	BOF, BF, EAF, RH, Copper furnace

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