

THE TENOVA PYROMET LINING MANAGEMENT SYSTEM

The Lining Management System (LMS) is a tool that allows furnace operators and managers to monitor sidewall, hearth and copper cooler lining, as well as the delivery of energy to the process. The LMS provides useful information regarding lining temperatures, heat losses, remaining refractory thickness and freeze lining scull formation, ideal for use together with the GrafTech ChillKote™ lining concept.

Features:

The LMS is designed to be user friendly and includes the following features:

- 2D and 3D graphical representation of the furnace lining information.
- Advance trending allows for trending of all measured and calculated data.
- Supports monitoring of copper coolers (lining information and heat losses), and cooling circuits (heat losses only).
- Integrates easily with most PLC systems, via OPC servers.
- Stores data in SQL Database.
- Customizable: Additional measurement points in the software can easily be added at any location around the furnace.

Suitability:

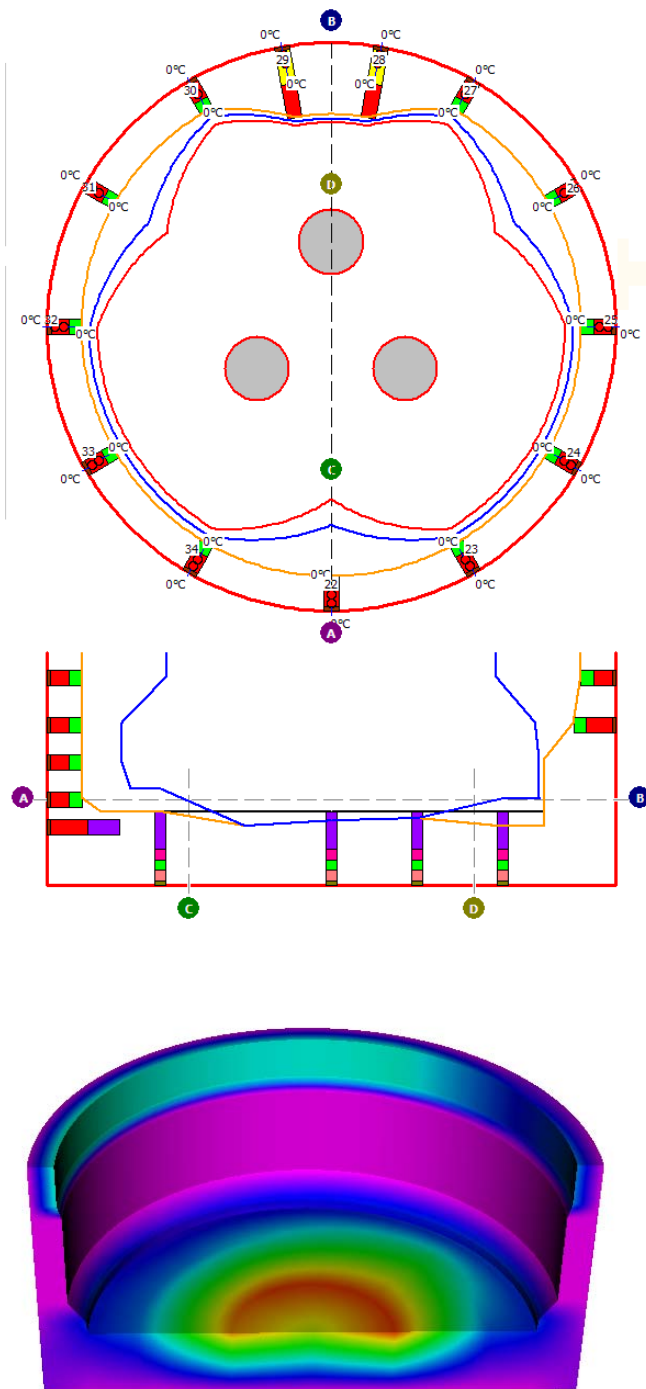
- The LMS software is suitable for new or old furnaces.
- Retrofitting to existing furnaces is best done during relining of the furnace refractory, but can also be done during a lining campaign.
- Compatible with furnaces of any size, for both circular and rectangular furnaces.

Ongoing Development:

1. Link the LMS to forced shell cooling systems, to maintain a certain freeze lining profile.
2. Vary amount of cooling as a function of average power input.
3. Use shell thermocouples to decide on the need to add ore to zone between electrodes and refractories to build up protection. (mainly for open furnaces).

Reference:

1. Assmang Chrome, Marchdodorp, South Africa, Furnace 2
2. IFM, Brits, South Africa, Furnace 1 and Furnace 2
3. KZN Tata Steel, Richards Bay, South Africa Furnace 1 and Furnace 2
4. Elkem Solar, Kristiansand, Norway, Slag Cleaning Furnace



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