Proceedings of Iran International Aluminium Conference (IIAC2018)
April 24-25, 2018, Tehran, I.R. Iran

OPTIMISED ELECTROMAGNETIC STIRRING IN MELTING/HOLDING FURNACES

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Abstract: Electromagnetic stirring (AL-EMS) in aluminium melting and holding furnaces is now a well-established technology to enhance chemical and thermal homogeneity and to reduce cycle time and dross formation. This paper will discuss optimised stirring profiles for (AL-EMS) with the help of signals inputs from the furnace. The outcome of this is to have fully automated (AL-EMS) which help to decrease the electrical consumption and enhance the quality of the Aluminium melt in the melting and holding furnace.

In addition, the paper will consider the possibilities to optimise holding furnace design by the introduction of electromagnetic stirring. The new furnace design will be deeper than normal and consequently, the furnace surface area can be reduced but still maintaining good heat transfer to the melt by using stirring. This new design will make the furnace more compact and decrease the heat loss.

Keywords : Optimised; Aluminium; Melting; Holding; EMS