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SIMULATION OF THE ELECTROMAGNETIC AGITATION OF THE MOLTEN POOL

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ABSTRACT

This paper presents the electro-thermal-magnetic field phenomena which take place in the molten pool when an external magnetic field is applied. Some types of agitation, the basic concept about electromagnetic agitation, the numerical simulation of the electro slag welding with electromagnetic agitation and the graphical result of the simulation are presented. The agitation by electromagnetic way of the melted slag, due to the field of speeds, influences – through the equation of movement – the density of current and in the end the distribution of the temperature in the slag welding pool. The phenomena from the slag welding pool, during the welding process, are determined by the presence and the interaction of the following fields: the electrical field, the magnetic field, the thermal field, the hydrodynamic field.

KEYWORDS: electro-slag, welding, agitation, electromagnetic.

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