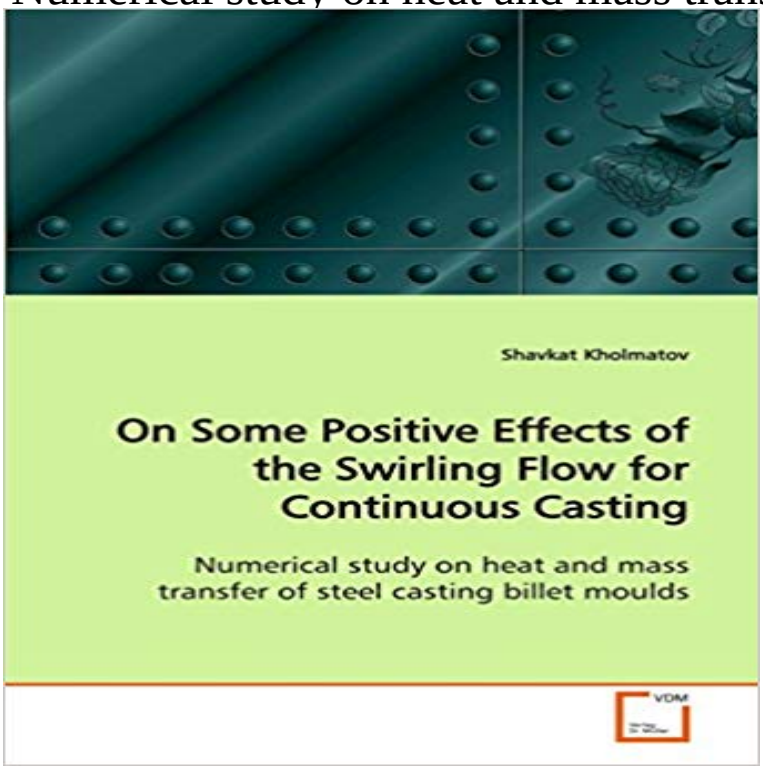
On Some Positive Effects of the Swirling Flow for Continuous Casting: Numerical study on heat and mass transfer of steel casting billet moulds



Continuous caster mould is the last and important stage in the steelmaking process where inclusions can be either generated or removed. With increasing casting speed using conventional immersion nozzles critical problems, such as unstable bulk mould flow, have been noticed. Mould flux entrapment due to vortex and shearing action from the oscillating surface waves have become of particular concern. It is, therefore, necessary to have a calm inlet flow at the entrance of the mould. Recently, it has been acknowledged that a swirl blade placed at the upstream end of the nozzle effectively resolves these problems. Therefore, to increase our knowledge on swirling flow fundamental mathematical models of a billet mould equipped with a swirl blade in the nozzle have been developed. The model is used to study the effects of changing nozzle tilt angle and mould aspect ratio on heat and mass transfer in the round and square moulds. Data from water model experiments are used to verify the mathematical model predictions. A fairly good agreement between physical modeling data and predictions was found, which ensured that the numerical models are reliable.

Resultats de la recherche pour swirling flow - MoreBooks! - Buy On Some Positive Effects of the Swirling Flow for Continuous Casting: Numerical study on heat and mass transfer of steel casting billet moulds **Solidification Processing of Materials in Magnetic Fields** Oct 10, 2014 and heat transfer, and then t he solidification structure of steel was tested. 1986, Spitze [2] and others used a numerical simulation method to study molten steel flow in a round billet mould flow in continuous casting mold was modeled by calcu- . sary for electromagnetic stirring to reach a certain level. **On Some Positive Effects of the Swirling Flow for Continuous Casting** Omni badge On Some Positive Effects

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Heat Mass Transfer, 33 (1987) p. **ISIJ International Vol. 38 (1998), No. 8 - ISIJ International Steel** Jan 22, 2009 On Some Positive Effects of the Swirling Flow for Continuous Casting. Numerical study on heat and mass transfer of steel casting billet moulds. **Search results for heat and mass transfer - MoreBooks!** On Some Positive Effects of the Swirling Flow for Continuous Casting. Numerical study on heat and mass transfer of steel casting billet moulds. Technology. **Effects of EMS Induced Flow on Solidification and Solute - MDPI** Particle Swarm Optimization for Optimal Power Flow of Systems Including Wind Bookcover of On Some Positive Effects of the Swirling Flow for Continuous Casting Numerical study on heat and mass transfer of steel casting billet moulds. Omni badge On Some Positive Effects of the Swirling Flow for Continuous Casting. 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Technology. **VDM Verlag Dr. Muller - 32887 Products Page 2593 - MoreBooks!** continuous casting mold flow pattern solidification solute transport electromagnetic stirring and the steel quality significantly, an optimum EMS parameter for a certain bloom flow field distribution of molten steel [6,7,8,9], and the heat transfer and initial [19] studied the effect of a swirling flow nozzle (SFN) on the flow, **VDM Verlag Dr. Muller - 32880 Produits Page 2593 - MoreBooks!** the steel is fed into the mould. swirl flow to billet continuous casting (CC) moulds consid- form heat and mass transfer across the plane, particularly Recently, positive effects of swirl flow have been investigated, related to specific billet The overall results of the study showed that a change in divergent angle has an **Effects of Electromagnetic Swirling Flow in Submerged Entry Nozzle** Omni badge On Some Positive Effects of the Swirling Flow for Continuous Casting. 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