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材料工程

连铸钢坯二冷喷嘴热态特性的实验研究

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摘要:
根据非稳态传热学原理,采用对大钢坯试样一侧加热使其温度达到实际连铸二冷区板坯温度,在试样另一侧进行喷水冷却的实验方法,模拟连铸二冷区喷嘴喷水对板坯的冷却过程。实验结果表明:无论哪种形式的喷嘴,随着喷水压力的增大,传热系数都在增大;钢含碳量的高低对传热系数有一定的影响,含碳量越高,传热系数相对更大。将实验结果和工厂实际采集的生产数据计算得到的结果进行比较可知,
实验结果和工厂实际生产数据计算所得结果的绝对误差在5%以内,可以满足实际工程生产的需要。

关键词:
二次冷却;连铸;传热系数;喷嘴性能

Experimental Study on Hot Characteristics of Nozzle in Slab Continuous Casting

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Abstract:
The experimental study is based on unsteady state heat conduction theory.The large steel samples were heated to surface temperature of actual temperature of the slab one side and conducted for water cooling the other side.Experiments were carried out to simulate the influences of nozzles on process of continuous casting billet in secondary cooling zone.The experimental results show that either form of the nozzle,the general trend indicate that heat transfer coefficient increases with pressure increasing.The impact of different kinds of steel was studied,
experiments show that the level of carbon content of steel effects on the heat transfer coefficient to a certain extent,heat transfer coefficient is larger with a the higher the carbon content.The experimental results and the actual plant measurements to compare the data calculated,the error is within 5%,which meets the engineering needs.

Keywords: secondary cooling;continuous casting;heat transfer coefficient;characteristics of nozzlezz')" href="#"> secondary cooling;continuous casting;heat transfer coefficient;characteristics of nozzle

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