

其它

机械通风冷却塔排布置数值模拟分析及优化

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摘要:

针对印尼4×600MW机组火电项目中,两组平行机械通风冷却塔排间距设计参照国内相关规范要求取值过大的问题,结合当地实际环境因素、塔排间距对塔排冷效的影响进行了数值模拟分析,评估了环境风对不同的冷却塔排布置方式湿热空气回流和干扰的影响,对塔排布置方式进行了优化。得出结论:塔排长轴与夏季主导风向平行的情况下,湿空气的回流不受塔排间距的影响,塔排间距可由51m降至21.6m,从而在保证冷效的前提下减少电厂占地面积。

关键词: 机械通风冷却塔 塔排布置方式 环境风 冷效

A numerical model analysis and optimization of layout for a mechanical ventilating cooling tower

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Abstract:

The spacing distance between two parallel mechanical ventilating cooling tower rows was designed too large according to the relevant Chinese Design Codes in the Indonesian 4×600MW Thermal Power Plant. A mathematical model experiment was made to analyze the influence of local practical environment factor and spacing distance of tower row on cooling effort, evaluate the environmental wind's influence on reflux and disturbance of exhaust wet air in different cooling tower row layouts, and optimize the cooling tower row layout. It was concluded that as its long axis parallels the dominate summer wind direction, the spacing distance has no influence on wet air reflux and spacing distance can be decreased from 51m to 21.6m, and thereby the site area of the plant is reduced with guaranteed cooling effort.

Keywords: mechanical ventilating cooling tower cooling tower row layout environmental wind cooling effort

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