

发电

## 燃尽风与水平浓淡煤粉燃烧器联合应用对NO<sub>x</sub>生成特性影响

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摘要

针对燃烧器采用四角切圆矩形炉膛布置方式的某燃用烟煤220 t/h锅炉,在主燃烧区域通过采用水平浓淡燃烧器、在三次风上层加装高位燃尽风喷口(SOFA),采取燃料水平分级与空气垂直分级结合的方式进行改造,降低氮氧化物(NO<sub>x</sub>)排放水平。研究了SOFA对锅炉NO<sub>x</sub>排放和飞灰可燃物的影响规律。试验结果表明,当采用合理的燃尽风布置,煤粉由上层一次风喷口至OFA喷口间的流动时间保持在0.32 s左右时,采用合理的二次风配风调节方式,主燃烧器区域过量空气系数控制在0.85时,机组NO<sub>x</sub>排放量可降低到450 mg/m<sup>3</sup>以下。同时,对飞灰含碳量影响较小,保持在1.6%~2%之间,有效避免了过热器超温问题。

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## Effects of Combined Application of OFA and Horizontal Bias Burner on NO<sub>x</sub> Emission Characteristics

Abstract

An experimental investigation to reduce the NO<sub>x</sub> emission during burning bituminous coal has been carried out in a 220 t/h tangential pulverized coal firing rectangle furnace, with a technique combining horizontal bias combustion (HBC) burners in the primary zone and retrofitted seperated over fire air (SOFA) nozzles above the tertiary air. The influences of SOFA on NO<sub>x</sub> emission and unburned carbon in fly ash were experimentally studied. Results show that the amount of NO<sub>x</sub> emission is decreased to less than 450 mg/m<sup>3</sup> adopting the suitable arrangement of OFA, when the time equals 0.32s as the fuel flows from top primary air to OFA, and reasonable distribution of secondary air, when the excess air coefficient equals 0.85. The unburned carbon content in fly ash is as low as 1.6%-2% at the same time. Adjusting the distribution of secondary air can also improve the tube temperature distribution of superheater.

Key words [decomposition over fire air](#) [horizontal pulverized coal bias combustor](#) [NO<sub>x</sub> emission](#) [unburned carbon content in fly ash](#) [pulverized fuel boiler](#)

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