COROMANDEL CEMENTS LIMITED

Prevention of False Air Entry across Coal Mill Circuit

SUMMARY OF THE OPTION

Coromandel Cements Ltd., is a small OPC cement (Ordinary Portland Cement) manufacturing plant in South India, presently producing around 460 tons per day of OPC. The company is continuously striving to improve its operating efficiency and has benefited enormously after adopting the methodology for resource and energy conservation in their plant. The unit plans to modify and expand their plant system and equipment capacities gradually in two phases. The first phase modifications that were planned and which are underway include installation of Gas Conditioning Tower and Electro Static Precipitator, which would result in reduced power consumption. In the second phase, modification of Precalcinator, Grate cooler, Cyclones and Cement mills would take the plant capacity up to 900 TPD.

The coal mill circulating air fan (CM-CA) serves the all important function of ensuring drawl of hot gas from the coal fired furnace through the mill, via the bag filter dust collection system and then venting the dust free air into the atmosphere. Since the entire system is under suction, any stray cold air ingress is detrimental to the CM performance as (a) The temperature is reduced because of mixing with cold air and (b) the suction capacity of the fan to draw hot gas is compromised (to the extent of stray cold ingress air quantity) resulting in throughput drop of coal mill.

Air in leak points were identified between the coal mill (CM) outlet and circulating air (CA) fan inlet portion of the ducting system. A differential O_2 analysis along this portion gave an indication of air inleaks (i.e increasing O_2 profile) of 4%. Identified air leak points were plugged and the measurement of per cent O_2 at the fan (CM-CA) inlet reduced to a value of 2 %. This resulted in reduction of 10-10.5 per cent (by calculation) cold air inleaks equivalent to 1290 m^3/min.

Financial benefits

- Investment: none
- Annual cost savings: US$ 668 (Rs. 28, 715 = 7740 kWh X Rs.3.71/kWh). (@ Rs.43/ US$)
- Payback period: Immediate

Environmental benefits

- Annual electricity savings: 7740 kWh
- Annual GHG reduction: 6.91 tons of CO_2 (= 7740kWh X 0.000893 tons of CO_2/kWh)
- Reduction in fan specific power consumption: 1.5 kW/(1000 m^3/min)

KEY WORDS

India, Cement, Fans and blowers, Coal mill, False air

FOR MORE INFORMATION

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