

Successful Implementation – Energy Conservation Measure

Measure
Low pressure drop mist eliminator in Air drying Tower
Equipment
Air drying tower
Industry / Sector
Fertilizer
Year of Implementation
2005
Cost Benefit Analysis
<input type="checkbox"/> Type of Measure: Replacement of polygon filter with low pressure drop demister pad.
<input type="checkbox"/> Annual energy Savings : 1.714 million unit
<input type="checkbox"/> Actual cost savings : Rs. 60 Lakhs /Annum
<input type="checkbox"/> Actual investment : 30 Lakhs
<input type="checkbox"/> Payback : 6 month
Implementation Highlights

Summary

In Sulphuric acid plant, dry air is supplied to furnace for combustion of Sulphur. At the downstream of air compressor, Air Drying Tower is installed where air is sucked from the atmosphere and dyied with the spray of Sulphuric acid in air drying tower. Air drying tower consists of ceramic saddles as packing and mist eliminator.

Mist eliminator was Polygon filter which was having 350 mmWC pressure drop. The polygon filter was replaced by Demister pad (100 mmWC). Due to lowering the pressure drop in the system, air flow increased and power consumption reduced. There was a saving of 1.714 million unit of power in the two air compressor per annum.

Background With polygon filter in air drying towers, air compressors energy consumption were higher by 1.714 million unit for both air compressor.

Principle With low pressure drop driving force required is less, thus power required to drive air accordingly comes down.

Details of techno-economics:

Particulars	Actual energy savings
Contract Demand	-
Earlier MD	-
MD after installation of controller	-
Demand savings per month @ Rs. 150/ kVA	-
Annual Cost savings, Rs. lakh	Rs. 60 Lakhs/Anuum
Cost of implementation, Rs. lakh	Rs. 30 Lakhs
Simple payback period, Year	6 months

Implementation issues Necessary modification in the air drying tower to fix the demister pad was done by maintenance team.

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