

Madhya Bharat Paper implements Ingersoll Rand's Compressed Air Audit recommendations progressively for energy savings

Madhya Bharat Papers Ltd is a leading supplier of Paper having headquarters located in Kolkata, having an annual production 17000 Mt/T and turnover of around 600million. Their manufacturing facility is located at Champa (Dist. Chhattisgarh) with own power generation unit.

Background

Compressed air is required in a plant for various pneumatic applications of paper manufacturing and power plant operation. To cater to the demand, there are three compressors installed, each at Paper & Power plant. During normal plant operation, two compressors operate at Paper plant between 80- 90PSI and three compressors at Power plant between 75-95PSI. The total power consumption of the plant for the operation of compressor alone was 2898kWh/day.

Case Study

Challenge

- Capacity shortfall was a major concern in the plant although there was sufficient installed capacity of the compressors
- This lead to the requirement of a new compressor
- Issues related to air quality was found which effected the productivity of the plant

Case Study

Energy Audit Findings

- Efficiencies of the compressors were in the range of 64% to 71%, which was low compared to normal standards. Further investigation reveals that plant was using non genuine spares
- Due to uneven load sharing among the compressors, one compressor operates on unloaded mode at Paper Mill. Whereas all the compressors at power plant were loading/unloading at the same time. Unloading of the compressor is wasting costly power without generating any capacity. Ideally when multiple compressors are operated only small or single compressor should operate on load/unload mode and rest of the compressors should operate on full load mode so that unloaded power can be saved.
- Since generation of pressure at both the compressor houses is same, running compressors on unloading mode at a different compressor house is not required especially when the pressure requirement is same
- Capacitance which drive the system pressure was quite on lower side as there were lot of pressure fluctuations observed in both the compressor house

Total Solution

Solution

- Efficiency improvement of compressors with the help of genuine spares
- Interconnection of Paper Mill & Power plant compressor house which leads to create equal load sharing among the compressors
- Isolation of Instrument air system & Plant air system as the basic application is different (Open Vs Closed)
- Increase Air Storage Volume in the Plant
- Installation of new refrigerated air dryer unit

Improvement

- Complete plan capacity is met by operating only two compressors at Power Plant rest of the compressors is kept standby
- Enough standby capacity leads to avoid purchase of new compressor
- The gap between generation & demand is minimized.

Total Solution

Saving

- With the implementation of preliminary suggestion (without major investment), customer reduced their power consumption by 50.41kW with annual savings Rs.1796772
- By implementing the audit recommendations, power consumption can be reduced by Rs.21.87Lacs
- Rest of the recommendations are under implementation & shall done phase wise by the customer

Testimonial

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July 12, 2010

Ingersoll Rand Industrial Technologies

1 Taratala Road
Kolkata- 700 088
India

Attn: Mr.Subir Das, Territory Manager - Solutionizing, Air Solutions

Dear Sir,

Sub: Your report on Compress Air Audit.
Our Purchase Order MBP/Compressed Air/227, August 4, 2009

We are implementing your suggestion/advice progressively as mentioned in your compressed Air Audit Report.
We have reduced the gap of demand and supply of the Air quantity in some section of the plant, where we have implemented so far, within the existing infrastructure. We have also got the benefit of reduction of power consumption from operating compressor in power plant.

We are planning to implement all of your advice for getting the benefit of the Audit.

Thanking you,

Yours faithfully,

For Madhya Bharat Papers Ltd,


(A. Chatterjee)

General Manager Projects

We have reduced the gap of demand and supply of the Air quantity in some section of the plant, where we have implemented so far, within the existing infrastructure. We have also got the benefit of reduction of power consumption from operating compressor in power plant.