

## Successful Implementation – Energy Conservation Measure

<b>Measure</b>
Reduction in paper machine wire part vacuum load by optimization of vacuum.
<b>Equipment</b>
Roots Blower, Anemometer, Vacuum Gauges
<b>Industry / Sector</b>
Pulp & Paper
<b>Year of Implementation</b>
1999
<b>Cost Benefit Analysis</b>
<input type="checkbox"/> Type of Measure: Replacement of Water Ring Vacuum Pump with a Roots Blower
<input type="checkbox"/> Annual energy Savings : 3,60,000KW
<input type="checkbox"/> Actual cost savings : Rs. 18,00,000/
<input type="checkbox"/> Actual investment : Rs.50,000/
<input type="checkbox"/> Payback : 10 Days
<b>Implementation Highlights</b>
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### Summary

Roots blower was installed in place of earlier running water ring centrifugal vacuum pump. As in wire part of paper machine, the gauge vacuum requirement is not very high, installation of roots blower was found to be very useful.

### Background

Earlier, water ring centrifugal vacuum pump was being used for vacuum generation for paper machine wire part. It was observed that the gauge vacuum levels were low in the wire part. Installation of roots blower was considered for maintaining the desired vacuum. With the help of calibrated gauges and anemometer, the rating of blower was calculated, and a new blower was installed. The amperage reduced from 90A running earlier to 14A, thereby reduction of 76A was achieved.

**Principle**

There is no need of a water ring type centrifugal pump if desired vacuum level is low. Furthermore, wherever vacuum has to be controlled either by bleeding in air or by throttling the valves, optimization can be done to achieve tremendous savings.

**Details of techno-economics:**

<b>Particulars</b>	<b>Actual energy savings</b>
Contract Demand	---
Earlier MD	---
MD after installation of controller	---
Demand savings per month @ Rs. 150/ kVA	---
Annual Cost savings, Rs. lakh	<b>18</b>
Cost of implementation, Rs. lakh	<b>0.5</b>
Simple payback period, Year	<b>0.03</b>

**Implementation issues**

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