

CHANGES IN CLEANING OPERATION RESULTS IN 50% REDUCTION IN WATER USE FOR PAPER MILL



PROBLEM:

FIND A DEPENDABLE, COST-EFFECTIVE WAY TO CLEAN HEADBOXES

A paper mill using process water was spending a lot of time inspecting the cleaning nozzles in its headboxes. The sand in the mill water caused the nozzles to clog. Clogged nozzles can result in paper defects or, even costlier, paper breaks. To avoid these potential problems, this mill was inspecting its headboxes three times a week. The inspections involved using a harness to lower a worker into the headboxes to evaluate the nozzles.

The issue was mentioned in passing to one of our local spray experts while discussing a different project. After a bit of probing, our expert determined other less obvious, costly problems associated with headbox cleaning.

**50% REDUCTION
IN WATER USE
ACHIEVED IN
CLEANING OPERATION
BY CHANGING
CLEANING NOZZLES**



SOLUTION:

Our solution was straightforward and easy to implement – and went beyond reducing the number of nozzle inspections. The first thing we did was evaluate cleaning performance and water consumption. The nozzles in use were operating at flow rates higher than necessary for effective cleaning. We determined that the same level of cleaning could be achieved with 50% of the current flow rate.

We then tackled the clogging issue. **Instead of using rotating nozzles with gears, we recommended using our stationary 6353 nozzles with no moving parts. The nozzles provide 360° coverage and have large free passages to allow the sandy water to be used without the risk of nozzle clogging.** The nozzles are now inspected just once per month instead of three times per week.

In addition, our nozzles were mounted in the same position as the previous nozzles – no costly rework of the headbox was needed.



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RESULTS:

The change to 6353 stationary nozzles did more than alleviate the need for frequent inspections.

- The 50% decrease in flow rate saved 5.2 million gallons of water per year on headbox cleaning
- Workers are only required to perform inspections and maintenance 12 times per year, down from 150 times per year
- Using less water in the headboxes reduces the amount of heat required to dry sheets and the amount of waste water to be treated
- Paper defects due to clogged nozzles have decreased and scrap and waste are reduced
- Nozzle service life has tripled

The mill recouped the investment in new nozzles in just a few weeks and is saving approximately \$50,000 annually on water costs and labor. Just as importantly, the change in headbox cleaning nozzles dramatically improved worker safety and the mill is now operating more sustainably.



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