

AFT Case Study

SC6

- **Reduced Breaks on paper machine**
- **Improved Formation**

AFT MacroFlow™ screen cylinders represent the state-of-the-art in screening technology. The advanced wedgewire design provides both the increased open area afforded by a continuous slot – and superior strength relative to a resistance-welded wedgewire construction. AFT MacroFlow™ screen cylinders are also distinguished by the industry's largest selection of wire sizes, which enables each application to be optimized. The combination of its non-welded construction and “headbox quality” finish eliminates the formation of strings or deposits, which would be harmful to headbox applications.

In this case study, an AFT MacroFlow™ cylinders were supplied to two primary headbox screens to a paper machine making various printing papers. The mill was strongly motivated to reduce the number of breaks occurring in this paper machine, and the associated tonnage of “off-quality” paper. The AFT MacroFlow™ cylinders had substantially smaller apertures than what the mill had been operating previously – and yet the cylinders ran without any problem, achieving full capacity. To ensure the runnability of the screens, they were equipped with new AFT EP™ high frequency headbox rotors. Smaller apertures, and associated high debris removal efficiency reduced the paper machine's breaks by more than 50% In addition, the formation of the paper was improved.



The Background

The subject mill is located in United Kingdom, producing a total of 300,000 MTPY of packaging and printing papers. The furnish varies from 100% virgin hardwood kraft to 100% recycled pulp.

Paper machine 1 has a two parallel Beloit M10 Centriscreens operating as its headbox screens. These screens had traditionally been operated with drilled cylinders featuring 2.0mm (0.78") diameter holes.

The holes that had been operating in the headbox screen could only be expected to remove the largest of contaminants, such as tramp metal. The screen's main role was thus to protect the paper machine rather than to remove residual contaminants from the furnish. Small contaminants were causing holes in the paper sheet leading to breaks in a paper machine.

The Solution

AFT reviewed the operations of the mill, and supplied AFT MacroFlow™ cylinders with 0.27mm (0.011") slots. A headbox finish ensured string-free operation. Inner cylinders of the M10's were blinded, and rotors were replaced with new AFT EP™ headbox rotors to ensure consistent process conditions and sufficient rotor frequency. The capacity and runnability of the screens was excellent, and the debris level in the accept pulp was significantly reduced.

The Benefits

Installation of an AFT MacroFlow™ headbox cylinder and AFT EP™ headbox rotor led to more than 50% reduction in breaks occurring in the paper machine. The mill also benefited from reduced numbers of holes in the paper, ensuring higher quality of paper produced.

AFT also supplied a secondary screen complete with AFT MacroFlow™ screen cylinder and AFT EP™ rotor to reduce the associated fiber loss from the system. Previously the mill only had timed purges from the primary screens; the reject went to drain adding to fibre loss. Total daily fibre loss has since gone down to less than 500 kg's (1.100 lbs) as the secondary screen is now run on a five minute timed purge. The reject is directed for treatment via improved cleaner operation.

