AFT Case Study

SC1

- **Reduced Fiber Loss**
- **Reduced Energy Consumption**
- **AFT Gladiator™ HC Rotor**

The AFT Gladiator™ HC rotor was developed from AFT's broad industrial experience and in-depth knowledge of fluid mechanics and screening fundamentals. The result is a rotor that provides outstanding runnability and excellent efficiency. It can be used in both coarse and fine screen systems and is capable of operating at consistencies of up to 4%. The AFT Gladiator™ HC rotor can be used with a range of screen bodies and cylinders, but it is especially effective when matched with an AFT cylinder to provide a comprehensive screening solution.

In this case study an AFT Gladiator™ HC rotor was supplied to a mill making linerboard from recycled pulp. The mill wanted to reduce fiber loss from their fine screen system. The key to this goal was the Gladiator™ HC's ability to reduce the reject thickening factor in the mill's second-stage screen. AFT technology not only enabled fiber losses to be reduced by 75%, but power consumption of the rotor was also significantly reduced. The payback for the rotor installation was approximately one month.

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The Background

The subject mill produces 2-ply linerboard from recycled (OCC and deinked) pulp furnishes. The mill is located in North America and has an annual production rate of 80 000 MTPY.

The mill has a three-stage fine screening system, with the secondary accepts being fed forward, and the tertiary rejects fed back. The screens were a mix of new and old Voith equipment and cylinders with 0.25 mm (0.010”) wide slots were installed throughout.

The system (tertiary) rejects amounted to 8 MTPD, much of which was determined to be useful fiber. However the level of reject thickening in the secondary screen was high (more than 3.5). The reject flow from the secondary screen could not be reduced below 30% without having problems in screen runnability. The heavy flow to the tertiary screen then resulted in a high reject flow from the system.

The Solution

AFT reviewed the operations of the mill, and supplied an AFT Gladitor™ HC rotor for the secondary screen (a Voith/Bird M-800). Thickening factor was reduced to 1.5. The reject rate could be substantially reduced leading to a reduction in the overall fiber loss of 75%. Debris/stickies removal remained excellent. Rotor speed was reduced by 13%, leading to an even greater saving in power consumption. The mill also evaluated a competitor rotor as part of their study, but rejected it in favor of the Gladiator™ HC for performance reasons.

The Benefits

Installation of the AFT Gladitor™ HC rotor enabled the mill to reduce reject thickening, and in turn, the overall system rejects from their system by 75%. The savings in lost fiber - and through reduced energy consumption - provided the mill with a payback period of approximately one month.