

AFT Case Study

SC2

- **Reduced Energy Consumption**
- **Improved Runnability**

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

In this case study, an AFT Gladiator™ HC rotor was supplied to a kraft mill which sought to reduce energy consumption and increase screen runnability. The rotor worked reliably from start-up - so much so, that it was possible to reduce rotor speed by 35% and achieve substantial energy savings.



The Background

The subject mill is an integrated Canadian pulp and paper operation, producing 90,000 MTPY of industrial kraft papers. The furnish varies from 100% virgin softwood kraft to a 100% recycled furnish.

The coarse screening system at this mill features a 2 stage cascade feed-back system using mainly Centrisorter screens with lobe-type rotors, and operating with a feed consistency of 3%. The primary stage screens have traditionally used 2.0 mm (0.078") diameter holes.

As a result of the large variation in furnishes, and the presence of some dirty, long-fibered furnishes, the mill was experiencing frequent runnability problems, which led to screen blockages and interruptions in production. Also, the mill was attracted to any opportunity to reduce energy consumption, which could provide a direct and measurable payback for new technology.

The Solution

AFT reviewed the operations of the coarse screening line, and supplied an AFT Gladiator™ HC rotor for the model M400 primary screen at this mill. AFT Field Services also installed a variable-frequency drive during start-up to optimize the rotor speed for this particular application. Runnability of the rotor was excellent. It was possible to reduce the rotor speed from 24 m/s to 16 m/s. Since energy is roughly proportional to the cube of the rotor speed, energy savings in excess of 60% were achieved. Even at the lower speed, screen has been operating trouble-free for over a year.

The Benefits

Installation of the AFT Gladiator™ HC rotor led to improved runnability and a 60% reduction in power consumption.

Increased cylinder life has followed from the lower rotor speed - which has reduced the wear rates. The more efficient design of the AFT Gladiator™ HC has also reduced mechanical stresses on the cylinder and screen bearings relative to the lobe rotor design.

Increased rotor life has followed from the use of AFT's Durachrome™ chrome plating. There was no visible wear after one year of trouble-free operation.

