

AFT Case Study

SC7

- **Extended Throat (ET) AFT MacroFlow™ Wire Shape**
- **Improved cylinder lifetime**
- **AFT MarcoFlow™ Cylinders**

AFT MacroFlow™ screen cylinders represent the state-of-the-art 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 wires, which enables each application to be optimized. The AFT MacroFlow™ ET wire design is an example of AFT's continuing drive to develop new and improved technology. This novel shape provides an Extended Throat which can increase lifetime for cylinders exhibiting slot-type erosion – as well as increase stickies removal efficiency.

In this case study, AFT MacroFlow™ cylinders with ET wires were supplied for subject mill to overcome problems of fast-wearing cylinders. The lifetime of cylinders at this mill had typically been 2 to 3 months, at which point the cylinder had to be scrapped. AFT analysed the wear patterns within these cylinders and determined slot-type erosion to be occurring. There are several distinct modes of cylinder wear: gross damage, contour wear and slot wear. Slot-type wear is the most insidious of the three because, in many cases, adjustments to the chrome plating may not provide any additional protection and the slot will progressively widen over time. That was the case at this mill. The ET wire, however, is designed to produce an Extended Throat within the slot, which can substantially reduce slot-type wear. The lifetime of the AFT MacroFlow™ cylinder with the ET wire is around 9 months. Rechroming can be used to further extend the cylinder lifetime. In essence, AFT's ET wire technology has more than tripled the cylinder lifetime, providing substantial cost savings to the mill.



The Background

The subject mill is a Spanish paper mill producing 350 000 TPY of white and brown liner-board from waste paper. Due to a high level of small abrasive contaminants and high production rate (i.e. a high passing velocity) the lifetime of the Metso Delta T9 screen cylinder was as low as 2 to 3 months. During that period of time, the original 0.18 mm slot opened to a width of 0.20 mm. The larger slot width led to low screen efficiencies. Accept cleanliness was unacceptable.

The Solution

AFT analysed the mode of wear found in the worn cylinders and prescribed the ET wire shape for this application. The ET wire shape is designed especially for high slot wear applications. With this new wire shape, the slot is formed in a way that high flows cannot wear the wire material as with traditional slots. Accordingly the mill noted a significant increase in cylinder life. There was no decrease in screen capacity or any other adverse effects.

The Benefits

The mill has increased the lifetime of its cylinders from an average of 2.5 months to 9 months. In addition, the mill now has the possibility of rechroming the cylinder to provide further savings. Cylinder costs for this screen position are conservatively estimated to have decreased by a factor of 5. The customer is very satisfied with AFT MacroFlow™ performance and they are switching all of their Delta T9 screens to AFT MacroFlow™ cylinders with the ET wire technology.

