

Fall 2004

## Slotted Cylinders Produce Cleaner Stock in Coarse Applications

Converting from a perforated screen cylinder to a slotted cylinder increases cleanliness of the stock. But, as many mills have experienced, conventional slotted cylinders have a hard time holding up to aggressive applications. J&L's V-MAX cylinder has helped mills achieve their goal of cleaner stock in aggressive applications while maintaining comparable life and, in some cases, increasing it.

A U.S. Southern recycled paperboard mill is one such example. They wanted to replace perforated cylinders with slotted in order to improve the cleanliness of their stock. Furnish for their paperboard consists of "grey stock", the lowest quality of recycled fiber.

In producing recycled paperboard, wastepaper is repulped and screened through the stock preparation systems. These systems all employ some type of initial pulp screening called "coarse screening". The term "coarse" has two different meanings. One is the pulp going to the screen is coming unscreened from the pulper and hence it is "coarse". Two, the material being removed by the screen is large in size or "coarse".

Pressure screens having screen cylinders with round hole perforations have been the norm for coarse screening. In the U.S., the most common screens used for this application are Black Clawson's Selectifier PH, Ultra, and UV models. The diameter of the holes in most coarse screen cylinders is usually either 0.062" or 0.079". Breaker bars have been welded to these perforated cylinders to create turbulence at the surface of the screen cylinder and direct the large plastic debris in the coarse feed pulp towards the rejects outlet. If breaker bars were not added, the motor may overload and kick out and/or the cylinder may wear prematurely due to a build up of plastic around the rotor and studs.

Some cylinder board mills have tried conventional slotted cylinders in their coarse screens, usually with disastrous results. First, the capacity of the slotted cylinders is not as high as the perforated cylinder. Second, the slotted screens will reject more material, in the primary position. The mass rejects rate may increase by 10-15%, depending on the debris concentration. Third, the slotted screen cylinders are not able to handle the coarse pulp without wearing out in a very short time.

### **The Solution? V-MAX.**



V-MAX has more open area than conventional slotted cylinders, thus less capacity than the perforated cylinders is not an issue.

Also, if the secondary coarse screen is equipped with a V-MAX (a secondary coarse screen may need to be added if not currently part of the process), the overall reject rate of both screens is only slightly higher than what is currently being run.

Finally, the V-MAX has drastically reduced wear compared to a conventional cylinder due to the material hardness of the wires being much higher. In addition, J&L also installs breaker bars to prevent the orbiting of plastic which would wear a conventional cylinder. In the mill where V-MAX cylinders are running in coarse screens, the life to date is 9 months and counting. We expect V-

MAX life to be very similar to that of perforated cylinders with breaker bars.

***So why switch from the standard perforated cylinder to V-MAX if capacity, reject rate and life are comparable?***

V-MAX offers advantages of improved pulp quality and cost savings to the mill.

For mills that follow coarse screening with fine screens, the debris loading to the fine slotted screens will be greatly reduced resulting in a cleaner final product. Further, the reject rates of the fine screens can be decreased.

In mills having coarse screening only, the quality of the fiber will be greatly improved. The paper mill refiners will be able to run much longer without plugging, leading to more paper machine uptime. The styrofoam content of the pulp going to the paper machine will drop considerably. The time to scrape clean the dryer cans or clean felts will also be reduced. Less downtime equals more profits for the mill. Also for mills who have abrasive sand issues, the sand content of the accept pulp will decrease dramatically. This is a huge benefit for all slitters, corrugators and other converting equipment subject to performance issues due to wear.

**J&L Fiber Services, Inc.**  
809 Philip Drive  
Waukesha, Wisconsin 53186  
U.S.A.  
Phone: 262-544-1890  
Fax: 262-547-8166  
[www.jlfiberservices.com](http://www.jlfiberservices.com)

© 2004 J&L Fiber Services, Inc.