

A *Measurable* Difference

J&L Fiber Services Product Case Study

V-MAX vs. Conventionals

MILL A

INFORMATION

Furnish: OCC and Curbside, High Contaminates
Product: Recycled Linerboard Using Cylinder Technology
Vat Screen: Two 8 Vat Cylinder Machines, Each Containing a Single Black Clawson 24P Selectifier at Each Cylinder Vat for a Total of 16 Vat Screens
Installed: March 2002

OBJECTIVE

Increase product life. Average conventional cylinder life for each position was 2 months due to slot deformation from debris in process.

To eliminate slot deformation and increase cylinder life, V-MAX was installed based on the improved section modulus of the V-MAX when compared to the existing conventional cylinders.

RESULTS

Inspection Report 2 Months After Installation

Excellent condition with minimal contour wear. Slot width wear was negligible, absolutely no slot deformation or impact damage present which is typical of the conventional baskets the mill purchases from competitor.

Inspection Report 14 Months After Installation

Cylinder had some contour wear and minor damage however the cylinder was still in good enough shape to run for another 4 months.

Major Benefit

Cylinder life dramatically increased from two months to 1+ years. The increase in life has the potential to save the mill over \$500,000 per year.

CONCLUSION

The mill has purchased 16 cylinders for both machines plus an additional 8 for spares.

MILL B

INFORMATION

Application: Kraft Pulp Mill
Separate Pine and HWD Kraft Mills, Black Clawson Screens in each Paper Machine
Type: 4 Fine Paper Machines run niche grades including colored papers
Installed: V-MAX cylinder installations started in 2002

OBJECTIVE

Reduce the amount of shives going forward to the Paper Machines by reducing slot size for maximum screening efficiency, all the while maintaining current production rates.

Most grades produced at this mill are sensitive to shive contamination, which has been a recurring problem in the pulp mill.

RESULTS

In the hardwood line the slot width was reduced from 0.01" to 0.007", and the slot width on the pine line was reduced from 0.012" to 0.010".

Made hand sheets of Pine and HWD. Could visually see a dramatic reduction in shives from the accepts when compared to old hand sheets.

CONCLUSION

Have not received one complaint from Paper Machines for shive contamination since screens were installed.

Screens are operating at the same production rates with the best efficiency ever recorded.

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MILL C

Success - Longer life and cleaner pulp

5 - SPM600 V-MAX

- ❖ Efficiency Improvement

2 - Black Clawson 24PS V-MAX

- ❖ Extended life from 6-12 months

5 - Bird M400 V-MAX

- ❖ Slot reduction 0.012" to 0.008"
- ❖ Efficiency Improvement

1 - S18 Beloit V-MAX

- ❖ Slot reduction 0.018" to 0.012"
- ❖ Efficiency Improvement

MILL D

Cleaner pulp, more throughput, expected longer life

2 - UV400 and 2 - M400

- ❖ V-MAX allowed the mill to operate LP-1 rotor at 25m/s (higher pulse)
- ❖ Resulted in highest efficiency at lowest power input (25% less power with LP-1 rotor)
- ❖ Increased Tonnage, with smaller slots, V-MAX with 0.008" slots has same as 0.010" capacity with milled slot. V-MAX only wire cylinder able to run in screen with LP-1 rotor.

MILL E

Partnership Success results in longer life and big savings

1993 Conventional Cylinders

- ❖ 1 month life

1995 RSC Conversion

- ❖ Increased life 2 months

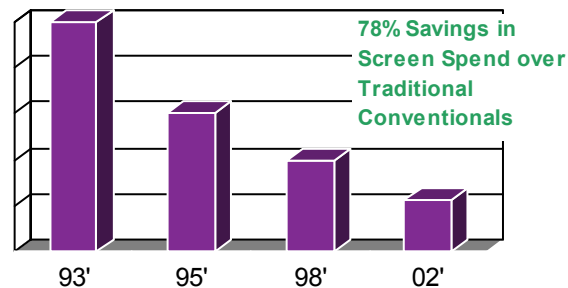
1998 CSC Conversion

- ❖ Increased life 3-4 months

2002 V-Max with Extreme Chrome

- ❖ Increased life 7 months

Annual Screen Spend (\$)



MILL F

Successful capacity increase means better runability

UF50 V-MAX

- ❖ Increased capacity in OCC plant
- ❖ Allowed the mill to run at wide open accept to prevent competitors screen (running in parallel) from overloading
- ❖ V-MAX is the cylinder of choice

Bird 400 V-Max Trial on HWD Line to Increase Life

MILL G, H, & I

More and cleaner pulp in the making

Mill E: (1) Black Clawson 24P V-Max

- ❖ Per Mill the V-Max has excellent runnability, eliminated plugging - "Best running cylinder ever!"

Mill F: (1) Black Clawson UV500 V-MAX

- ❖ Slot reduction 0.010" to 0.008"
- ❖ Increased efficiency and capacity

Mill G: (1) UV400 and (1) 30P V-Max

- ❖ Decreased slot reduction and delta P
- ❖ Optimization in process

CONCLUSION

Whether a mill's objective is longer life, better efficiency or more capacity, V-MAX is the answer. V-MAX is the most versatile screen cylinder available today.