



Consolidated Papers, Inc. expands to SCA Plus Grades

Dave Beal, Operations Manager from Lake Superior Papers reports: "The rebuild of Lake Superior Paper's (LSPI) SCA paper machine in Duluth, Minnesota, that began on February 2, 1998, was completed in less than 20 days and has started up very successfully. In fact, the first day of production produced over 700 tons, most of it as first-line quality. The focus now is to optimize the printability and runnability characteristics.

The rebuild to a Voith Sulzer DuoFormer CFD gap former has already made a dra-

matic improvement in print quality. The striking improvement in printability comes from a strong and clear dot impression that is sharper in appearance and has fewer skips. There is an improvement in ink holdout in the darker color tones and a cleaner contrast due to changes in sheet color or shade.

The improvement in skipped dots is particularly noticeable in flesh tone areas and light background tones. The overall printability improvement will not only benefit all customers; it will allow Lake



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Superior Paper to penetrate the magazine publication market with a new SCA+ grade later in the second quarter.

The increased smoothness and improved printing surface was dramatic from the very first production. The gloss at the supercalenders was much easier to attain, and production crews on the finishing line immediately noticed the differences. They also noticed the improvements in optical properties, such as increased opacity and brightness after supering.

Strength properties, depending on which characteristic is measured, are either improved or about the same. The degree of uniformity, however, is greatly improved as measured by cross deckle basis weight profile, machine direction profile and randomness. Formation and ash distribution have also been dramatically improved.

By the end of the first week of operation, everyone at LSPI was tremendously proud and excited about the opportunities the new gap former provides to better serve our customers. We are particularly grateful that Consolidated Papers (CPI) has put their confidence in Lake Superior Papers with such an investment. The gap former will position LSPI to better serve the customer with new and improved product in the future."

Voith Sulzer Paper Technology built the original machine in 1988, with the first SC paper being produced 20 days ahead of schedule. The decision to rebuild of the machine's forming section from a DuoFormer F into a DuoFormer CFD gap former 10 years later came from the company headquarters in Wisconsin Rapids, WI. This is the third CFD unit purchased by Consolidated, which was one of the deciding factors in the final supplier selection for the project. Extensive testing of the furnish on pilot equipment was performed, as well as visits to other mill locations already using Voith Sulzer's CFD gap formers on similar grades.

Roger Wangen, vice president of groundwood operations stated, "We are very pleased with the quality gained from this

Fig. 1: The paper machine after the rebuild.

Fig. 2: Roger L. Wangen, vice president Consolidated Papers Inc.



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project. It allowed us to make a strong entry into the SCA+ market and further improve our excellent SCA grade."

The CFD unit is designed for high groundwood containing stock and was used by Consolidated Papers on light-weight coated grades. The wrap on the forming roll can be varied, thus adapting to various grade productions – newsprint to SCA. The lower the freeness the greater the wrap.

The new forming system allowed Consolidated Papers, Inc. to develop and market a magazine publication grade called SCA Plus for rotogravure printing. The SCA Plus grade is designed to compete with LWC and other grades of this type.

Standard SCA is still Lake Superior's main product, however, after the installation of the new gap former, they are now equipped to produce a high-quality SCA Plus grade. The new grade is being sold under its trade name "Expedition". It has received top recognition for its higher



Fig. 3: Lake Superior Paper in Duluth, Minnesota, USA.

Fig. 4: Charles A. Schultz, Director of Engineering Consolidated Papers, Inc.

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brightness, gloss and better printability due to increased smoothness – above the standard SCA grade. LSPI states that they are the first North American mill to commercially qualify for the SCA Plus grade.

Another major machine component replaced during the rebuild was the original W-headbox. The new Voith Sulzer ModuleJet dilution control headbox technology was selected to replace the older, slice-control type headbox.

Voith Sulzer Paper Technology supplied all screens and pumps required for the project, as well as air-removal systems. The Duo-Centri II press followed by a conventional straight through fourth press remained, for the most part, intact.

A Voith Sulzer press-to-dryer section ropeless sheet transfer system was successfully installed at the time of the rebuild. Wire changes are quickly accomplished with use of the Voith Sulzer's wire changing system, eliminating the use of cumbersome heavy metal poles.

“Key members from CPI Corporate Engineering and Purchasing, LSPI Engineering and Production worked very closely with Voith Sulzer engineers and erectors to successfully bring this project in ahead of schedule. Once again, we were very impressed with the detailed involvement shown by Voith Sulzer team members and the timely, staged delivery of

key machine components from both Appleton and Heidenheim”. So Charles A. Schultz, Director of Engineering Consolidated Papers, Inc.

One very important consideration during the project's planning stages, was the ability to produce larger diameter rolls. Improved sheet profiles were, therefore, a major target in preliminary project discussions.

The DuoFormer CFD, as well as the ModuleJet headbox, would directly show a positive influence in improving sheet formation, which would not only aid in the production of larger diameter rolls but have the desired improvement in print quality. Improvements in cross direction profiles and basis weight control have been significant. Both CD and MD 2-sigma deviations were substantially lowered.

The 8,050 mm wide paper machine is another positive step into the new millennium for Consolidated Papers and Voith Sulzer Paper Technology.



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