The Cascades Tissue Group has upgraded its TM 2 from a conventional tissue machine to an ATMOS system. This has not only allowed the Canadian producer to manufacture premium tissue with considerable energy savings since the autumn of 2010, but has also made the Group the first manufacturer in North America to produce premium and ultra quality tissue from up to 100% secondary fibers.

With its investment in the TM 2 rebuild in Candiac, Canada, the Cascades Tissue Group is not just meeting consumer demand for high-quality tissue products in North America, it is also demonstrating its commitment to sustainable solutions. All these requirements were met by Voith Paper’s ATMOS technology.

“Long before it was in fashion, Cascades believed and invested in sustainable development.”

Suzanne Blanchet, CEO of Cascades Tissue Group
ATMOS technology. Compared with other available manufacturing processes, the new system allows resource-conserving production of premium tissue paper using up to 100% secondary fibers and with energy savings of up to 60%. Suzanne Blanchet, CEO of the Cascades Tissue Group, explains: “Long before it was in fashion, Cascades believed and invested in sustainable development, so it only made sense for us to look for technologies that would enable us to produce top quality tissue paper with a reduced environmental footprint.”

Customized rebuild. Working together, Voith and Cascades carried out a detailed technical analysis of the existing tissue machine during the project planning phase, to ensure that the rebuilt machine could operate in both ATMOS and dry crepe modes. This allows Cascades to adapt production to market demands and gives it the competitive edge in both conventional and premium tissue markets. In addition, it was important to re-use as much of the existing equipment as possible in the rebuild to reduce the overall costs of the project without compromising the ATMOS process.

In the wet section, the rebuild included the installation of a new MasterJet Pro T headbox and a crescent former. An ATMOS module comprising of ATMOS suction roll and ATMOS press, as well as a new calender for producing premium toilet tissue, were also installed. A new center wind reel was also part of the scope to ensure optimum reeling of the bulky tissue.

In October 2010, the Cascades Candiac TM 2 went back on stream after the ATMOS rebuild. Since then it has been producing conventional and premium tissue at a speed on reel of more than 1,800 m/min in conventional mode and 1,200 m/min in ATMOS mode. The successful startup of the second ATMOS machine installed worldwide illustrates the benefits of the technology: ATMOS is regarded as the most up-to-date solution for...
producing premium and ultra premium tissue in a way that saves resources and at the same time enhances the competitiveness of the producer. Suzanne Blanchet can confirm this: “This investment gives evidence of our commitment to the growth of the Cascades brand in the top tier segment.” Blanchet is extremely satisfied with the outcome of the project: “The investment started a new era in the production of high-quality premium tissue paper in North America and worldwide and confirms Cascades position as a leader in sustainable manufacturing of premium and ultra premium tissue paper.”

The ATMOS principle. In conventional tissue manufacturing, the press stage has an adverse effect on volume and softness of the paper. The initially bulky, open fiber mixture is often compressed to a flat sheet in the nip between press section and Yankee cylinder at pressures of more than 30 bar. As a result it is neither particularly absorbent nor really soft. Although this tissue then undergoes creping on leaving the Yankee cylinder to give it a fuller appearance, the definitive properties of the paper scarcely change. Voith has achieved a significant improvement in tissue paper quality through its development of ATMOS technology at the Tissue Innovation Center in São Paulo, Brazil.

The key to ATMOS technology is the ATMOS suction roll and its specially developed AtmosMax clothing for supporting the web run. The AtmosMax fabric lends a three-dimensional texture to the web, which is gently dewatered by the ATMOS suction roll at a vacuum of 0.5 bar. In addition, the AtmosMax clothing and the paper web are supported by two other fabrics as they pass over the suction roll. There is a dewatering felt named AtmosFelt under the paper web that reinforces the suction effect of the vacuum. On top is the open tensioning fabric AtmosBelt that gently presses water out of the web. To reduce the viscosity of the web to be dewatered, and thus increase the dry content of the tissue, hot, damp exhaust air from the hood of the Yankee cylinder is blown through the clothing fabrics and paper web into the ATMOS roll. A short press nip located directly at the outlet to the ATMOS module removes more water from the tissue web to increase its dry content and also the fiber bonds resulting in higher tensile strength.

In tissue manufacture, the largest cost factors are fibers and energy. Using ATMOS technology, up to 30% fewer fibers are required than in conventional tissue machines. This tissue paper nevertheless still has the same strength properties and very high water absorption capacity necessary for kitchen and hand towels, and it also offers a first-class “hand feel” and bulkiness for toilet tissue. In addition, up to 100% secondary fibers can be used depending on application without prejudicing quality: An ATMOS tissue produced with secondary fibers has a quality comparable to or even better than the leading premium tissue products available on the market. Along with the benefits relating to paper quality, ATMOS also offers impressive energy savings, with consumption up to 60% lower than other premium tissue production processes. Voith’s ATMOS technology therefore allows ecologically compatible production of tissue papers in the premium segment. //
"The investment started a new era in the production of high-quality premium tissue paper in North America and worldwide, and confirms Cascades position as a leader in sustainable manufacturing of premium and ultra premium tissue paper," explains Suzanne Blanchet, CEO of Cascades Tissue Group.
TISSUE INNOVATION CENTER OPENS WITH FULLY RENEWED MACHINE

TISSUE GOES HIGH-SPEED

In the presence of a large number of customers, Voith Paper recently opened its new Tissue Innovation Center (TIC) in the Brazilian city of São Paulo. At the TIC, a completely renewed pilot facility will now allow conventional tissue paper to be produced at up to 2,500 m/min and premium paper at up to 1800 m/min. Therefore, customers from all over the world can trial the latest tissue technologies on a high-speed machine.

01
Nestor de Castro Neto, President of Voith Paper South America, welcomed around 150 customers from all over the world.

02–04
There were lots of interesting facts to take in, along with interesting things to touch and watch.

05–06
Undoubtedly the highlight of the 3-day program: viewing the pilot machine.
At the end of November 2011, the official opening of the Tissue Innovation Center following its major rebuild and renaming was accompanied by a three-day program of events. An innovation workshop, in which Voith Paper experts presented the company’s latest technologies and strategies, took center stage. Around 150 company owners, managing directors and lead engineers from customers in Asia, Europe, North and South America took part in the event.

“We won’t just be doing research here on better quality and a faster, more efficient production process,” explained Nestor de Castro Neto, President of Voith Paper South America, in his opening remarks. “As in other areas, the R&D focus in tissue production is also about exploring how we can improve raw material and energy efficiency by means of new machine technologies and thus enable our customers to produce conventional and premium tissue for daily use in a cost-efficient and resource-saving manner.”

High-speed tissue. Following the comprehensive rebuild from pulper through to reel, the Tissue Innovation Center now houses one of the fastest tissue machines in the world. It enables maximum production speeds of 2,500 m/min for conventional dry crepe mode and 1,800 m/min in ATMOS mode. This was achieved by increasing drying capacity as a result of installing a new Yankee cylinder and new drying hood.

The Yankee cylinder now has a diameter of 5.5 m (compared with 3.6 m previously). The larger size raises its drying capacity accordingly. Air systems and heat recovery units were also renewed. In addition, the tissue machine is fitted with a Voith Ultra Hood drying hood that allows temperatures of up to 650°C. This enables considerably higher production capacities than standard hoods and reduces power consumption.

For the first time, the pilot machine offers a fast and simple configuration change between its conventional mode and ATMOS technology that requires 60% less energy and 30% fewer fibers than conventional processes to make premium tissue. In addition, for greater paper softness, thickness and tensile strength, the headbox can be configured for one, two or three layers. The reel can be operated in conventional mode or with center wind reel, which ensures a uniform winding of premium tissue and maximization of bulk.

Practical tests. The benefits for tissue manufacturers are convincing: They can test the latest technologies on the pilot machine at the highest possible speeds. There has been particular interest in the application potential offered by ATMOS technology. The facility also offers the opportunity to carry out tests with conventional dry crepe technology at high speeds and to compare a multi-layer with a single-layer headbox in terms of softness and thickness. Moreover, tests can be run with the new NipcoFlex T shoe press, which reduces energy consumption for the production of conventional tissue paper by 20%.

The pilot machine has been fully booked since startup through August 2012. Most bookings come from international customers from Asia, Europe or North America. They are enthusiastic about the new machine and the support services provided by the TIC, such as the associated laboratory. Voith Paper itself is also using the renewed tissue machine for R&D work.

A wise investment. The new TIC is testimony to Voith Paper’s confidence in the tissue production sector. According to current forecasts, global demand will grow at an average of 4% in the coming six years. The investment in the center is therefore money well spent in terms of strategy and market dynamics. This is also borne out by some successful sales figures. For example, in the last three years Voith Paper sold more than 20 new tissue machines and performed several rebuilds.

Voith has always invested in innovative and sustainable technologies that become market leaders. The engineers at the R&D Center in São Paulo, which was established in 1994, have already developed numerous new components and processes. Their latest achievements include ATMOS technology and the NipcoFlex T shoe press, both of which help to achieve sustainable tissue production using fewer resources. //

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