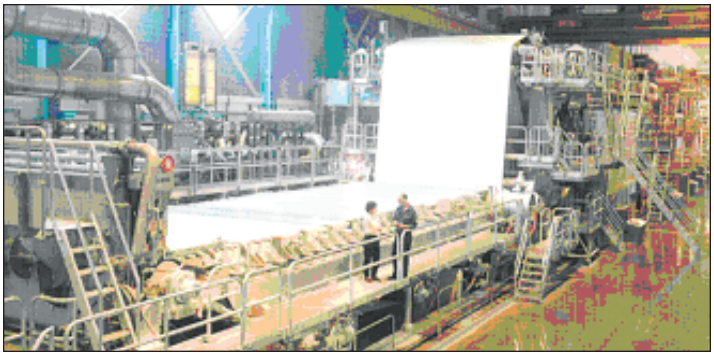
PULP&PAPER
INDUSTRY
BEST PRACTICES

Dryer Management System

OPTIMIZE YOUR PAPER DRYING PROCESS

Transporting and mixing fibers from the pulp mill to the paper machine requires a lot of water. At the paper machine, a solution of fibers, chemicals and other raw materials must be dried from 98 percent water to about five percent. In the process the solution pours onto a fine, moving mesh in the wire section to form a sheet of paper. As the sheet travels through the mechanical squeezing process in the press section the free-flowing water is removed. Up to this point a small amount of energy is required to remove half of the water in the process. Evaporation in the dryer section removes the remaining water which requires 10 to 15 times the amount of energy that it took to remove water from the wet end.

In steam-heated dryer cylinders, energy from the steam is transferred to the sheet of paper. Giving up its energy, the steam forms a layer of condensate, which must be controlled for maximum heat transfer. To do this, siphons remove condensate from the cylinder. However, some of the uncondensed steam pushes condensate out of the dryer through the siphon pipe. This uncondensed, or blow-through, steam can cause significant energy loss. Additionally, as the mill calls for increased production, the speed of the sheet increases with the rotation of the dryer cans, making it even harder to remove condensate from the outer dryer shell where rotating siphons are located.



Paper Machine Courtesy of Stora Enso

DRYER MANAGEMENT SYSTEM

The dryer management system™ (DMS) control software is an advanced system for the dryer section of a paper machine. This innovative technology was first installed in Wisconsin in 2003 with support from Focus on Energy. The DMS continuously optimizes the dryer system set points and controls the dryer section. Steam pressures, flows and differentials are managed under all machine operating conditions including sheet breaks, tail threading, grade changes and start-ups. The DMS' anti-flooding logic senses when things are not functioning properly. During breaks it takes control of the dryer section to enable quicker re-starts, producing less off-quality paper.

WHERE TO APPLY A DMS?

This technology operates in the dryer section of the paper machine and is limited to machines with can-type dryers. It can be expanded to control the dryer section air flow.

WHAT IS THE ECONOMIC RETURN?

Conservative estimates of steam savings in a world class machine are 2,000 pounds to 3,000 pounds per hour. At a steam generation cost of $8 per 1,000 pounds this translates into energy savings of $130,000 to $200,000 annually.

This system also minimizes blow-through steam, eliminates water-filled dryers and improves recovery from cold start-up or sheet breaks. The new system significantly reduces off-quality production. When production benefits are included, the payback can range between one and two years, depending on machine size, speed and configuration.

Special Incentive

For a limited time, Focus on Energy is providing a special incentive when you install an energy efficient dryer management system in your eligible facility.

Call 608.277.2941 for more information.

Focus on Energy provides specialized Best Practice support for Wisconsin **Pulp and Paper** mills, including project evaluation assistance and monetary incentives for stalled projects.

To improve process efficiency at your mill, contact Focus on Energy. We can assist you with a project feasibility study grant and/or a project implementation grant. Additionally, we can help you find a trade ally for project support.

Call 800.762.7077 and ask to speak with a member of the Industrial Team.

Focus on Energy is a public-private partnership offering energy information and services to energy utility customers throughout Wisconsin. The goals of this program are to encourage energy efficiency and use of renewable energy, enhance the environment and ensure the future supply of energy for Wisconsin. **800.762.7077 focusonenergy.com**

 BP-3186-0106

focus on energy℠
The power is within you.