

## EagleBurgmann

# Reducing water consumption by 90 % at Stora Enso Skutskär

The costs of water and sealing water saving have become increasingly important issues in the pulp and paper industry over recent years. Growth in environmental awareness, stricter environmental regulations, water recirculation systems which are largely self-contained, the increasing cost and effort associated with supplying and treating the water, and higher operating costs in general have all led to a change in approach and are the main reasons for this development.

An approach which protects resources is not only good for the environment – saving water and energy also makes it possible to achieve substantial and above all measurable reductions in costs. Furthermore, investigations have also shown that levels of flush water or barrier water consumption in numerous pumps applied in a mill are often above recommended levels because this is believed to be necessary for safety reasons. Many producers of pulp and paper are therefore keen to run seal systems in their pumps with modes of operation which, while meeting requirements for necessary operational safety, use only minimum amounts of water.



EagleBurgmann BestFlow

One of the world's leading producers of pulp, paper, packaging board and wood products is Stora Enso. In Skutskär, Sweden, the company runs a sulfate mill which was founded in 1891. The mill has two production lines where they produce bleached pulp for paper production. Production meets very high standards of environmental protection and quality. Due to the continuous flow of barrier water through the seal, the end user required a solution to avoid excessive waste of water. So finally an EagleBurgmann BestFlow temperature control valve was applied and turned out as an optimal solution.

### The process

The pulp digester, which is in continuous 24/7 operation, is connected to a bladder tank. A stock pump conveys the pulp with black liquor from the bladder tank to the downstream washing and bleaching section. Installed is a Sulzer APP pump with an EagleBurgmann Cartex (R)-DN mechanical seal. Water is used as barrier medium for

lubricating and cooling the faces of the dual cartridge seal and for preventing product leakage to the atmosphere.

BestFlow is also used together with Cartex at Stora Enso Fors mill. "We could already look back on several years of good experience with EagleBurgmann Cartex seals in our evaporation plant," notes Ulf Runesson, who is in charge of mechanical maintenance for pulp production operations at Stora Enso Fors.

### The money-saving valve

BestFlow reliably regulates barrier medium consumption as a function of temperature, following the maxim "as little as possible, as much as required". If the temperature in the seal rises above the maximum permitted value, the valve automatically opens. Fresh, cool barrier water can then flow into the seal chamber. As soon as the seal or the barrier water has cooled down, the valve closes and the flow is stopped. This ensures that an exchange of barrier water takes place only when the seal needs to be cooled. The results are enormous savings in terms of water consumption, without any compromise in terms of operational reliability and safety. "After the BestFlow control valve was installed in our pulp mill, the consumption of barrier water was reduced by 90 %. We have now installed the BestFlow in all the pumps in our evaporation plant and plan to do the same in other areas of the mill as well. This is saving us a great deal of water. We are very satisfied with the results," explains Runesson.

Meanwhile, the EagleBurgmann BestFlow is being used successfully not only by Stora Enso but also by other companies in the pulp and paper industry, e.g. UPM-Kymmene Kajaani mill, UPM-Kymmene Wisaforest pulp mill, Boliden Kokkola Zinc and others.

### Operating conditions

|                               |                                  |
|-------------------------------|----------------------------------|
| <b>Medium:</b>                | Pulp with black liquor           |
| <b>Pump:</b>                  | Sulzer APP Ahlstar <sup>UP</sup> |
| <b>Shaft diameter:</b>        | d = 80 mm (3.15")                |
| <b>Pressure:</b>              | p = max. 4.5 barg (65.3 PSig)    |
| <b>Temperature:</b>           | t = 66 °C (151 °F)               |
| <b>Rotational speed:</b>      | n = 956 min <sup>-1</sup>        |
| <b>Seal:</b>                  | Cartex-DN/80                     |
| <b>Seal materials:</b>        | Q1Q1KMG-BQ1VMG                   |
| <b>Seal water management:</b> | EagleBurgmann BestFlow 82 °C     |