

BestFlow® control valve for dual seals



Small, smart, effective:
The EagleBurgmann
BestFlow®

Stora Enso, a world leading producer of pulp, paper, packaging boards and wood products run a sulphate mill in Skutskär, Sweden which was founded in 1894. Today the Skutskär mill has a workforce of about 385 people and produces on three production lines approx. 530,000 tons bleached pulp used for paper pulp and fluff pulp. The production is first class, which meets very high standards concerning environmental protection and quality requirements.

The process

After the pulp digester which is in continuous 24/7 operation, a bladder tank is installed. From that tank, a stock pump conveys pulp with black liquor to the consequent washing and bleaching process steps. The Sulzer APP pump is equipped with an EagleBurgmann Cartex®-DN mechanical seal. Water is used as barrier medium to lubricate and cool the sliding faces of the dual cartridge seal and to prevent product leakage to the atmosphere.

The problem

Due to the continuous and uncontrolled flow of the barrier water through the seal, consumption was as high as 2 liters per minute. The end user required a solution to avoid this excessive waste of water.

EagleBurgmann solution

A BestFlow® temperature control valve was installed. The 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 only takes place when cooling of the seal is required.

The result is enormous saving in terms of barrier water consumption, without any compromise in terms of operational reliability and safety. After the installation of the BestFlow® at Skutskär pulp mill, the consumption of barrier water was reduced by 90 percent and run to the customer's satisfaction.

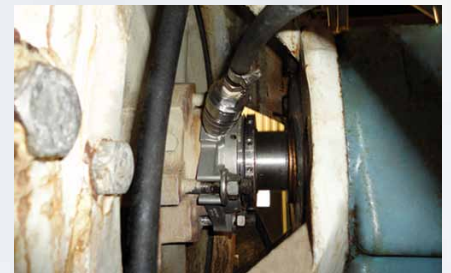
Meanwhile, the EagleBurgmann BestFlow® is also successfully in operation at other facilities of the pulp and paper industry: Stora Enso PK 6 Oulu, UPM-Kymmene Kajaani, UPM-Kymmene Wisaforest Pulp Mill, Boliden Kokkola Zinc, and others.

Operating conditions

Medium: Pulp with black liquor
 Pump: Sulzer APP Ahlstar^{UP}
 Shaft diameter: $d_1 = 80 \text{ mm}$ (3.15")
 Pressure: $p = \text{max. } 4.5 \text{ barg}$ (65.3 PSIG)
 Temperature: $t = 66 \text{ }^\circ\text{C}$ (151 °F)
 Rotational speed: $n = 956 \text{ min}^{-1}$
 Seal: Cartex®-DN/80
 Seal materials: Q1Q1KMG-BQ1VMG
 Seal water management:
 EagleBurgmann Bestflow® 82C



Pump installation situation at Skutskär plant



BestFlow® connected to the Cartex®-DN seal

Customer benefits at a glance

- Reduced minimum barrier water consumption depending on the temperature in the seal
- Optimised supply to the seal (cooling, lubrication etc.)
- Compact design, simple to install and use
- Venting options in both horizontal and vertical installations possible
- Robust fatigue-free movable parts
- No temperature peaks at opening and closure of the valve due to the thermo-sensitive expansion element
- No additional connection lines, no power supply needed
- Pressure balanced device, pressure fluctuations do not influence the BestFlow® as it is solely sensitive to temperature