

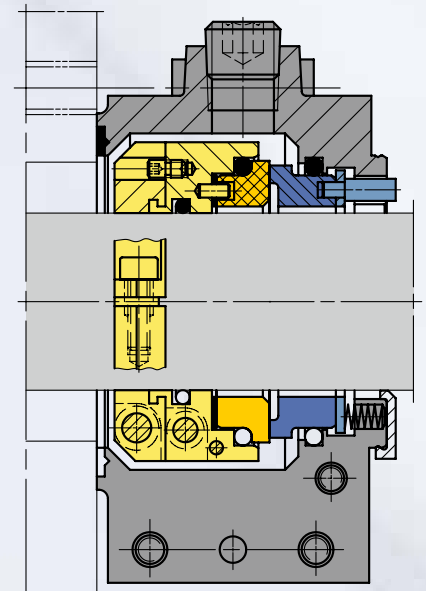
Splitex fully split mechanical seals -  
The solution for pulp and paper processes

**EagleBurgmann**<sup>®</sup>  
Rely on excellence

## Splitex seals for media containing solids



Splitex fully split seal



Stora Enso is one of the largest producers of pulp and paper. At its facility in Skutskär, Sweden, 530,000 tons of bleached pulp are produced annually. Great emphasis is placed on first class production with high quality standards. The Skutskär Pulp Mill manufactures paper pulp from short and long fiber wood which is used to produce copying paper, cardboard for food packaging, etc.

The mill also manufactures fluff pulp made from long fiber wood. These fibers have the capacity to absorb and spread liquids, making it ideal for the production of diapers, sanitary napkins, etc.

### The process

Less is more. This is true for pipelines and pumps. Oxygen delignification is a process that occurs between the bleaching and cooking sequences where the residual lignin left in the pulp after cooking is removed by the oxygen and alkali parts. The resulting pulp has a solids content of more than 11 % and is stored in a tower which ensures continuous flow of pulp to the process.

A bottom drive chest agitator and a side mounted mixer are installed. Originally, the shafts of both machines were sealed by compression packings. Due to the shaft movement of about 0.3 mm the seals were pressurized.

### The challenge

The necessary weekly tightening of the packings was considerably difficult and time-consuming, and all the packings had to be replaced during every production down-time. Furthermore, Stora Enso experienced an enormous consumption of water combined with an extended leakage of product and water which additionally entered and thus damaged the bearing.

**EagleBurgmann Germany GmbH & Co KG**

Aeussere Sauerlacher Straße 6-10  
82515 Wolfratshausen / Germany

Phone +49 8171 23 0  
Fax +49 8171 23 1214

info@eagleburgmann.com  
www.eagleburgmann.com

## The EagleBurgmann solution

Splitex mechanical seals were fitted in addition to the packings at the atmospheric side. Because the seals are fully split, it was not necessary to disassemble the agitators. At the product side, the original packings remained in the stuffing box and adopted the bearing function of the shaft. The packing is still flushed with water into the product. Splitex seals are located on the atmospheric side at both machines. They seal the flush medium towards the bearing and protect it reliably from water entry.

The seal concept operated successfully from the beginning, achieving increased plant availability and decreased water consumption.

## The advantages at a glance

- Reduced repair and downtime
- Long service life
- Operating reliability
- Greater flexibility during installation (seal located outside of stuffing box)
- Simple monitoring of the seal during operation due to wear indicator on the seal face
- High tolerance to shaft deflections ensured by stationary design and flexible seat mounting
- Shaft protection (uniform torque transmission via clamping ring prevents damage caused by set screws)

### Operation conditions

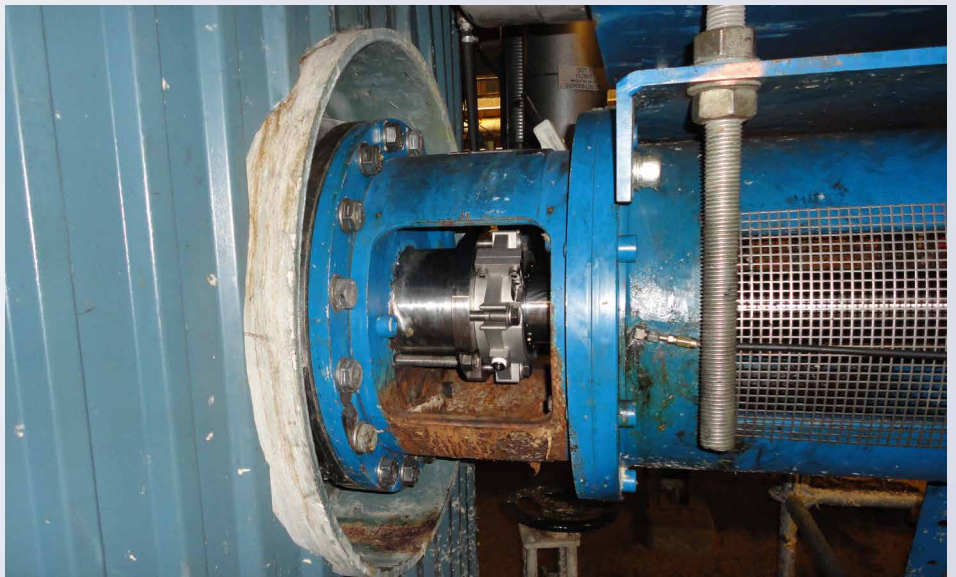
Medium: Pulp with >11 % solid content  
Machine types: Mixer Scaba SKPT 100 and Kvaerner (Metso) pulp feeder  
Shaft diameter: 110 mm; 150 mm  
Pressure: 10.3 bar (149 PSIG)  
Temperature: 80 °C (176 °F)  
Rotational speed: 15 min<sup>-1</sup>  
Seal types: Splitex/110, Splitex/150  
Seal materials: AQ6EGG

### General operating range of Splitex seals

Shaft diameter:  $d_1 = 50 \dots 150 \text{ mm}$   
(1,940" ... 6,000")  
Pressure:  $p_1 = 10 \text{ bar}$  (145 PSI)  
Temperature:  $t = -40 \text{ °C} \dots +150 \text{ °C}$   
(-40 °F ... +300 °F),  
above 80 °C (175 °F)  
flush is recommended  
Sliding velocity:  $v_g = 10 \text{ m/s}$  (33 ft/s)  
Axial movement:  $\pm 1.5 \text{ mm}$  (1/16")  
Radial movement:  $\pm 0.8 \text{ mm}$  (1/32")



Skutskär pulp mill, Sweden



Splitex mechanical seal installed in the side entry mixer of the storage tower