



sealmatic[®]

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SPX Fully Split Mechanical Seals

The solution for pulp and paper processes for media containing solids

Typically, in a pulp & paper factory, more than 500,000 tons of bleached pulp are produced annually. Great emphasis is placed on high class production with reliable quality standards to manufacture paper pulp from short and long fiber wood, which is used to produce copying paper, cardboard, food packaging etc. A pulp & paper factory will also manufacture 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

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 solids content of more than 11 % and is stored in a tower which ensures continuous flow of pulp to the process. Generally, a bottom driven chest agitator and a side mounted mixer are installed, which are sealed by compression packings and a shaft movement of about 0.3 mm, the seals are pressurised.

The Challenge

The necessary weekly tightening of the packings is considerably difficult and time-consuming, and all the packings have to be replaced during every production down-time. Furthermore, a pulp & paper factory will experience an enormous consumption of water combined with an extended leakage of product and water which additionally enters and thus damages the bearing.

The Sealmatic Solution

SPX mechanical seals can be fitted in addition to the packings at the atmospheric side. Because the seals are fully split, it is not necessary to disassemble the agitator. At the product side, the original packings can remain in the stuffing box and will adopt the function of a bearing to the shaft. The packing is still flushed with water into the product. SPX seals are located on the atmospheric of the machines. They seal the flush medium towards the bearing and protect it reliably from any entry of water. The seal concept operates successfully thus, achieving increased plant availability and decreased water consumption.

Product Description

1. Single seal in split configuration
2. Balanced design
3. Independent of direction of rotation
4. For plain shafts
5. Semi-cartridge construction
6. Built-in flushing connections
7. Designed with external pressurization
8. Factory assembled fully split single seal, 2 x 2 segments
9. Stationary design with multiple springs

Technical Features

1. Economical to assemble as the complete dismantling of the equipment is not necessary to install the seal
2. Reduces down time due to ease in installation
3. Rugged seal construction
4. Distortion of the seat is avoided by mechanical decoupling of the clamping ring
5. Ease in installation and no modifications are required because the seal is located outside of the stuffing box.
6. Due to the stationary design and the elastic seat mounting a high tolerance of shaft deflections can be accommodated
7. Low leakage is achieved by the elimination of secondary seals which eliminates leakage paths between split components
8. Shaft is protected by uniform torque transmission through the clamping ring which prevents damage caused by set screws.
9. Springs are product protected to avoid contamination and clogging

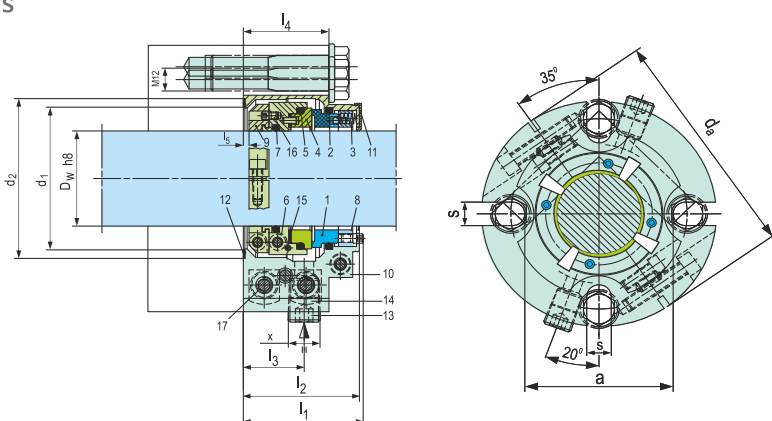
Typical Industrial Applications

Agitators
 Chemical Industry
 Centrifugal pumps
 Conveying pulp with stock pumps
 Cooling water pumps for energy generation
 Conveying timber to refiners with pumping screws
 Circulation of pulp-and-water mixtures in storage vessels

Displacement pumps
 Process industry
 Petrochemical Industry
 Power Plant Technology
 Pulp and paper industry
 Pump stations for waste water treatment

Performance Capabilities

Shaft diameter: $d = \text{Upto...} 150\text{mm}$ ($\text{Upto...} 6.000''$) 1
 Pressure: $p_1 = 10 \text{ bar}$ (145 PSI)
 Temperature: $t = -40^\circ\text{C...} +150^\circ\text{C}$
 ($-40^\circ\text{F...} +300^\circ\text{F}$),
 above 80°C (175°F) flush is recommended
 Speed = 10 m/s (33 ft/s)
 Axial movement: $\pm 1.5 \text{ mm}$ (1/16")
 Radial movement: $\pm 0.8 \text{ mm}$ (1/32")



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API SPEC Q1 · API · ISO 9001:2015 · EU 1935:2004 · ATEX - 2014/34/EU · ISO 9001:2015 · ISO 14001:2015 · BS-OHSAS 18001:2007 · PED-CE

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