CHESTERTON
Global Solutions, Local Service.

Sealing Condensate Return Pumps

Rotating Equipment Sealing Solutions

Pulp & Paper
Chesterton 180H Cartridge Seal
Case Study 002 RE

Challenge

Condensate return pumps can be difficult sealing applications due to high temperatures, flashing conditions, and the lack of a reliable cooling water supply.

In a U.S. papermaking facility, compression packing was used to seal these pumps. Stuffing box temperatures were reaching 180° C (350° F) and flush water availability was intermittent, causing premature packing failure. The mill was replacing packing every 3 to 10 weeks on these pumps.

Conventional mechanical seals were tested, but steam flashing through the seal faces caused face damage and eventual seal failure.

Solution

Chesterton 180H Cartridge Seal is the sealing solution for applications where flashing can occur, external cooling is limited or unavailable, or where pressure has a tendency to distort the seal faces.

Hydropad Geometry Enhances Face Lubricity

This seal is designed with an advanced hydropad geometry seal face that improves film formation between the mechanical seal faces and significantly enhances face lubricity. This increased film formation reduces heat generation and increases seal life in many applications.

Problems with Cooling Systems?

This paper mill did not have external cooling capabilities and used a Chesterton 180H Cartridge Seal with a Plan 11 discharge recirculation piping plan.

Why Use Chesterton 180H Seals?

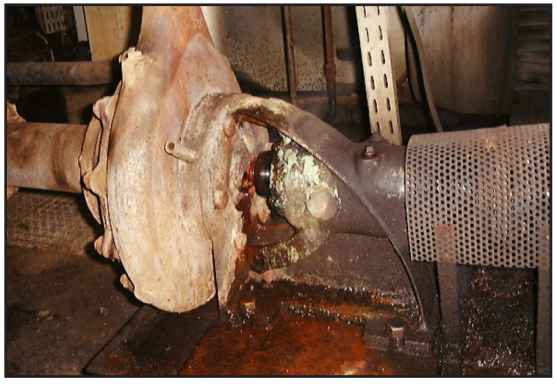
- Hydropad design significantly improves seal face lubricity in high temperature, speed, and pressure applications
- Seals without external cooling requirements
- Hydropad geometry increases seal pressure velocity capabilities
- Reduce or eliminate flush water usage. Flush water does not cool the condensate, saving reheating cost

Results

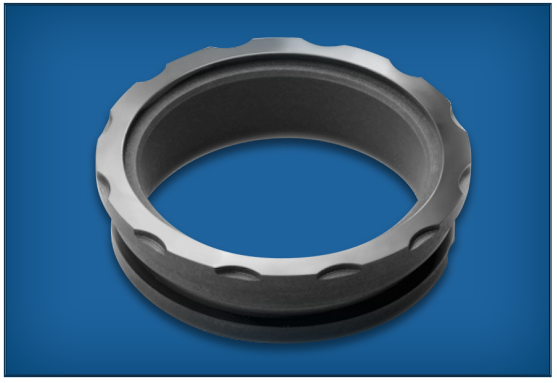
Increased Mean Time Between Failures

This paper mill significantly improved their seal reliability from weeks to years with the Chesterton 180H Cartridge Seal.

The plant converted all 5 of their condensate return pumps to Chesterton 180H Cartridge Seals with exceptional results!



Condensate pump with Chesterton 180H Cartridge Seal.



Chesterton 180H rotary seal face with hydropads.

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