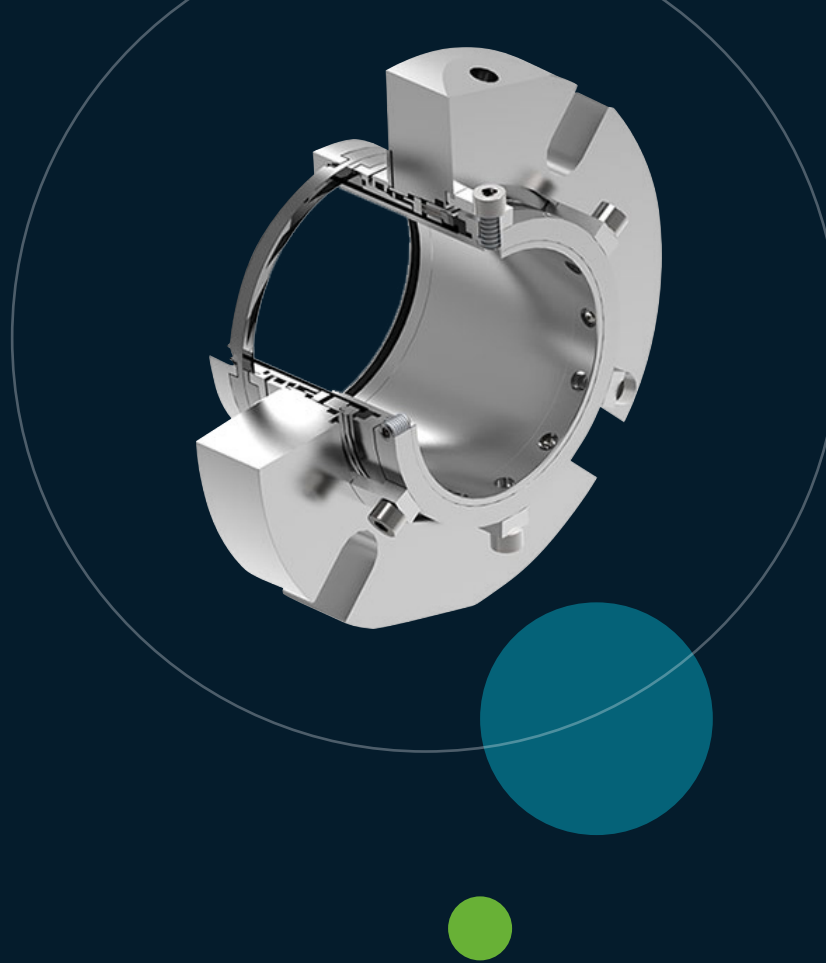




Major water savings in high-temperature LNG processing without compromising reliability

An LNG export facility in Louisiana struggled with rising costs from excessive hot well pump water use.



Overview

- **Challenge:** Excessive water use in LNG hot well pump seals drove high costs.
- **Solution:** John Crane's Type SB2USP dual-cartridge seal with USP cut water reliance.
- **Results:** Daily water use dropped from 2,000 gallons to just 3-4.

Challenge

High water consumption in hot well pump operations

A leading LNG export facility in Louisiana, U.S., faced escalating operational costs due to excessive water usage in its hot well pump sealing system. Designed for high-temperature processes between 180°C and 200°C, the pumps originally relied on conventional seals supported by an API Plan 32 demineralised water flush. Although effective at reducing face heat, the system consumed nearly two gallons per minute of expensive treated water, amounting to roughly 2,000 gallons per day.

With two facilities and a growing sustainability mandate, the operator sought a solution to significantly reduce water consumption while maintaining seal reliability under extreme conditions.

Type SB2 USP seal delivers major sustainability gains



Cost savings from reduced demineralised water use

Solution

Advanced dual mechanical seal design with upstream pumping

The John Crane team worked closely with the operator to evaluate alternative sealing options. Two solutions were proposed: the Type 5610 seal with John Crane Diamond® seal face technology to reduce friction and heat generation, and the Type SB2 USP dual-cartridge seal with Upstream Pumping (USP).

The operator selected the Type SB2 USP for its ability to deliver maximum water savings. Unlike traditional dual seals, the Type SB2 USP features John Crane's proprietary non-contacting USP design. This design uses buffer fluid to create a cooling and lubricating film between the seal faces, significantly reducing the need for external water flushes while maintaining optimal sealing performance.

The mechanical seals were delivered and installed with no implementation challenges reported.

Water usage cut
from 2,000 gallons
per day to just 3-4
gallons per day

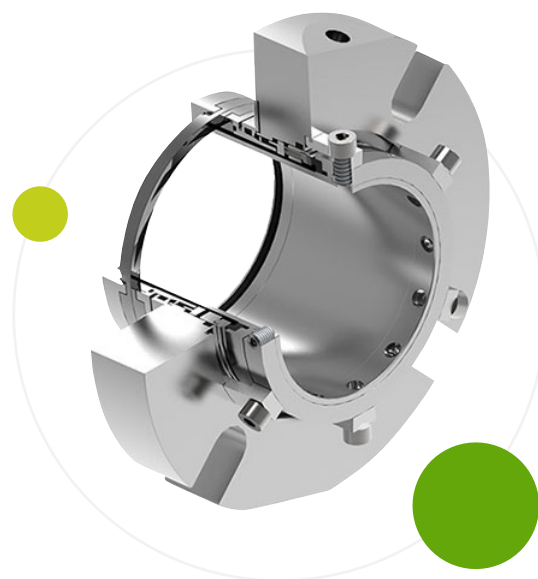
Results

From 2,000 gallons to just 3-4 gallons per day

The impact of the upgrade was immediate and measurable:

- Water usage dropped from approximately 2,000 gallons per day to just 3-4 gallons per day
- The facility significantly lowered its operational costs related to demineralised water supply
- Mechanical seal performance remained stable and reliable under high-temperature process conditions

With proven performance and dramatic water savings, the Type SB2 USP is now being considered for wider adoption across the operator's facilities. As water usage and environmental regulations tighten, achieving process reliability with minimal resource consumption provides both immediate savings and long-term advantage.



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