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2010 Flow Control Innovation Awards Winners

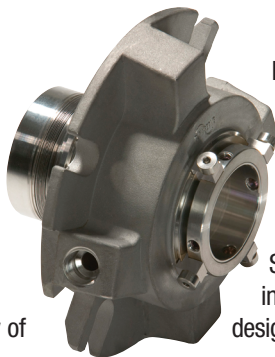
Honoring the Year's Most Innovative Fluid Handling Technologies

Flowserve ISC2 Series Cartridge Mechanical Seal

Flowserve Corp, Flow Solutions Group
www.flowserve.com

The **Flowserve ISC2 Series** is a family of standard cartridge mechanical seals designed to meet international standards and fit hundreds of pump models from global manufacturers across a variety of industries and applications.

Flowserve ISC2 seals feature patent-pending thermal management technology that tolerates short-term dry-run events without overheating, increasing reliability and preventing a common cause of leakage. Dual seals feature enhanced barrier fluid circulation for the highest flowrate and coolest running when compared to other standard cartridge seals in the industry. Single seals include a sizable throttle bushing to help protect against leaks.



ISC2 seals meet all major international standards, and ISC2-682 seals help users align their standardization programs with the sealing industry's most comprehensive best-practice standard: API 682/ISO 21049.

ISC2 seals are available in a wide range of materials for the best corrosion resistance against aggressive media. Seal chamber specifications from around the world, including ASME B-73, EN 12 756, JIS and ISO 3069 fall within the design scope of ISC2 seals.

what the voters said is innovative:

- The thermal management features of this cartridge mechanical seal are particularly innovative.
- The product has operated for more than one year in a very harsh environment without leakage.
- The ability to dissipate the heat away from the seal faces should help increase overall seal life.

Case Studies In Innovation

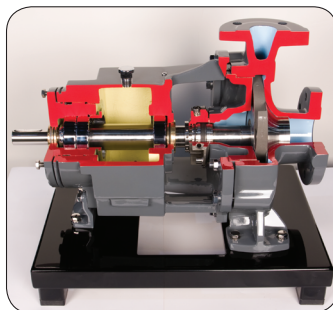
Applications of the Year's Best Fluid Handling Technologies

Processing Companies Increase Reliability with Mechanical Seal

When it comes to mechanical seals, reliability is everything. Designed for processing companies, the ISC2 series of standard cartridge seals provides reliable performance during off-design operation, frequent starts and stops, and other known causes of seal failure in pump applications, while contributing to a lower total cost of ownership.

ISC2 seals feature several design innovations, including patent-pending thermal management technology for lower-running temperatures, robust seal face drive mechanisms to better tolerate sticky and high-viscosity fluids, high-efficiency barrier circulation that maximizes cooling in dual seals, and rigid setting devices with one-key installation to ease installation. The net result of these and additional design enhancements is a robust seal capable of handling the harshest industrial pump services.

Many processing industries benefit from ISC2 seal reliability, and companies worldwide are reporting advanced performance



with ISC2 seals on troublesome applications.

For example, a U.S. chemical company in Florida with a turpentine oil derivatives application on a 2.500-in. shaft ANSI pump struggled with dry running, cavitation, and consistently failing mechanical seals. The company first tried to fix the problems with a competitor seal, but it experienced chipped faces and a failed gasket. The company then tried another competitor seal, which failed because of excessive barrier fluid leakage. Finally, the company installed a dual-pusher ISC2 seal, which still runs leak-free more than a year later.

As another example, at a food processing plant in the Slovak Republic, a troublesome seal was replaced by an ISC2 single-pusher seal in a standard bore pump running starch milk. The ISC2 seal continues to run well, and it has surpassed two years of no-fault performance.

ISC2 seals can often meet an entire plant's sealing needs. These mechanical seals satisfy all major international standards with designs to fit hundreds of pump models from global pump manufacturers. They are capable of sustaining years of uninterrupted, long-term operation.

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